A · C · U · I · T · Y

Ultrix Acuity
Operation Manual

v13.0

ROSS

www.rossvideo.com

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.*)

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Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; 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 *mailto: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
- Ultrix™ Router

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.*

Notice: *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. ***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.*

29. ***CAUTION:*** *Only instructed persons may change or service the lithium coin batteries used in these apparatus.*

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. ***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.*

34. ***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.*

35. For use at altitude 2000m or lower.

36. For use in non-tropical locations.

37. ***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.*

38. ***CAUTION:*** *Only use an approved power supply (PN:70-00824) with the Software Defined Production Engine (SDPE) blades.*

39. ***CAUTION:*** *Risk of electrical shock. Enclosure shall be connected to earth ground via protective earth stud and 18AWG conductor or larger.*

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

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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.

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Acuity® Control Panel Overview

The Acuity™ control panels allow you to control all aspects of switcher operation, including source selection, transitions, recording and running custom controls, storing and recalling memories, and device control. The control panel user interface is made up of the physical panel top, made up of a number of modules, and the touchscreen display.

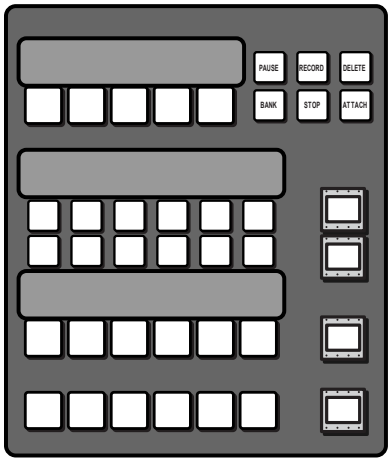
Control Panel Modules

Each control panel consists of a number of removable modules. Modules can be added, removed, or replaced as required.

Custom Control Bus

These buttons (the top buttons on the row) are used to record and run custom controls. When a custom control has been recorded to one of these buttons, you can press that button to play, or run, that custom control. Multiple banks of custom controls can be accessed from this single row of buttons. Refer to *Custom Controls* on page 90 for information on using custom controls.

On the Double-Down panels there are six function buttons to the right of the row that allow you to perform specific custom control functions.



Note: *Double-Down module shown*

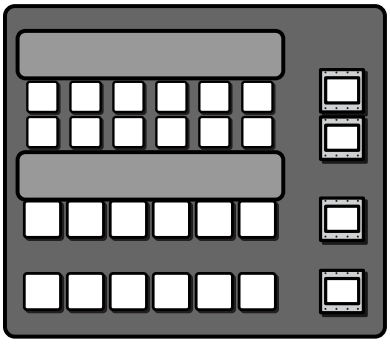
Table 1: Custom Control Bus Function Buttons

Button	Function
Pause (Hold)	allows you to insert a pause or hold into a custom control you are recording, without using the menu system.
Record	allows you to record a custom control without using the menu system.
Delete	allows you to delete a custom control. Press and hold the **Delete** button and press the custom control button for the custom control you want to delete. Press the custom control button again to confirm the deletion.
Bank	allows you to select any custom control bank without assigning each bank to a custom control button.
Stop	allows you to stop a, or all, running custom controls. The Stop CC command cannot stop a custom control that is at hold.
Attach	allows you to turn the CC/Macro Attachments personality option on or off.

Source Buses

These buttons are used to select sources on the buses that the rows are assigned to. The lower two rows select sources on the Background (upper) and Preset (lower) buses of the ME that the row is assigned to. The upper row(s) select sources on the key or aux buses that the rows are assigned to.

The Double-Down control panel has two upper rows and mnemonic buttons to the right of each row to show what the button row is assigned to. The the standard control panel only has a single row and a two-line display showing how the buses are assigned.



Note: *Double-Down module shown.*

Refer to *Panel Rows* on page 19 for more information on using the panel rows.

Fade to Black

This module is used to cut or dissolve the output of the switcher to internally generated black. The display on this module indicates the current rate for the fade to black dissolve by default. When the switcher is at black, the on-air source buttons and tallies flash.

Global Memory Module

This module is used to store and recall memories, set attributes, and set rates for any or all MEs on the switcher. Using the keypad you can also load stills into the Global-Store or ME-Store, load clips on a server, or run a custom control.

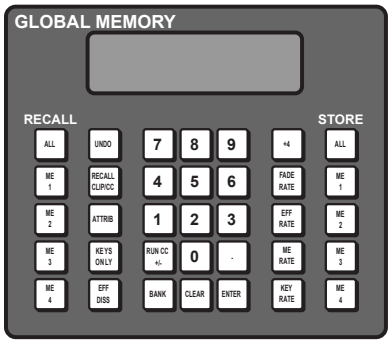


Table 2: Memory Module Button Functions

Button	Function
ALL	Allows you to select all the MEs for a store or recall.
ME *X*	Allows you to select individual MEs for a store or recall. Press and hold an **ME** button and then select the other MEs you want to include. Use the **+4** button to access MEs 5 through 8.
UNDO	Allows you to undo the last memory recall. The **UNDO** button lights up after each memory recall, indicating that the action can be undone. If you perform 10 or more button presses after the memory recall, the **UNDO** button goes out, and the memory can no longer be recalled.
RECALL CLIP/CC	Allows you to either recall a clip on the selected device using a Clip ID or Clip Number by entering it using the keypad on the Global Memory module, or run a custom control by entering the bank and custom control number. The functionality of the Recall Clip/CC button is set using the CC Global Recall personality option.
ATTRIB	Allows you to view the memory attributes menu, or override the attributes stored with the memory with the default attribute settings. To override attributes, press and hold the **ATTRIB** button while recalling the memory.
KEYS ONLY	Allows you to recall a memory on a panel row that does not include the program and preset bus selections. Only the keyer selections are recalled.
EFF DISS	Allows you to have the keys from one memory slew into the keys from the one you are recalling.
RUN CC +/-	Allows you to run a custom control that you have recalled using the RECALL CC button.
BANK	Allows you to select the bank that you want to store, or recall, a memory register to.
CLEAR	Allows you to clear your current entry. For example, if you are entering a memory register to recall, but then decide not to recall the memory, you can press the **CLEAR** button to return the Global Memory module to the previous state.
+4	Allows you to select an ME above ME 4. When the **+4** button is held, the **ME 1** through **ME 4** buttons become ME 5 through ME 8 buttons respectively. For example, if you want to select ME 6, press and hold the **+4** button on, and press **ME 2**. Both the **ME 2** and **+4** buttons will remain lit.
FADE RATE	Allows you to set a new fade to black rate.
EFF RATE	Allows you to set a new effects dissolve rate for the ME.
ME RATE	Allows you to set a new background transition rate for the ME.
KEY RATE	Allows you to set a new keyers transition rate for the ME.

Keyers Module

The keyers module is used to assign key types, set up key modifiers, and perform independent key transitions.

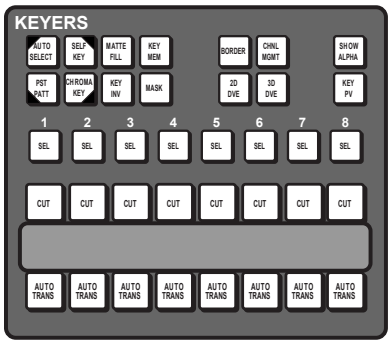


Table 3: Keyers Module Button Functions

Button	Function
SEL	Selects the keyer that the module is assigned to.
AUTO SELECT	Assign the selected keyer as an auto select key.
SELF KEY	Assign the selected keyer as self key.
PST PATT	Assign the selected keyer as preset pattern key.
CHROMA KEY	Assign the selected keyer as a chroma key.
MATTE FILL	Allows you to fill the selected keyer with a matte color.
KEY MEM	Applies to auto select and chroma keys to provide a single memory register for storing key settings. Key memories are stored for the key source, so that when you store a key memory in one ME, that key memory is used when you select that same key source on any ME. The **KEY MEM** button turns on automatically when an auto select key is selected, indicating that the key memory for the key source is being used. If the key source has not been set up with a proper alpha, the **KEY MEM** button will not light.
KEY INV	Reverses the polarity of the key alpha. For example, if a self key, such as a title camera, has white letters on a black background, the white letters will normally cut the key hole. When the key invert feature is used, the polarity of the key is inverted so that black lettering is used to cut the hole.
MASK	Allows you to apply a mask to the selected keyer.
BORDER	Allows you to apply a border to the selected keyer. When pressed, the border menu is displayed, and the last selected border is applied. Press the button again to turn the border off.
2D DVE	Allows you to apply 2D DVE resources to the selected keyer.
3D DVE	Allows you to apply 3D DVE resources to the selected keyer.
CHNL MGMT	Allows you to go directly to the channel management menus. The **CHNL MGMT** button lights to indicate if multiple DVE channels are being used by the selected keyer.
SHOW ALPHA	Allows you to view the black and white alpha signal for the selected keyer. This alpha signal can either be routed to the main preview output of the switcher, or to the preview output of the selected ME. Press and hold the **SHOW ALPHA** button, for the selected keyer and ME, to show the alpha for that keyer on the preview output of the switcher, or double-press the **SHOW ALPHA** button to lock it on until the button is pressed again. This allows you to record the alpha signal for a selected keyer independent of the fill.
KEY PV	Allows you to temporarily force the program output of the selected keyer to the preview output of the switcher. The ME remains in the key preview state for as long as you hold the **KEY PV** button, and returns to normal as soon as you release the button. You can also double-press the **KEY PV** button to latch the ME in the key preview state until the button is double-pressed again.

Related information

Keying on page 60
Key Modifiers on page 67

Memory Module

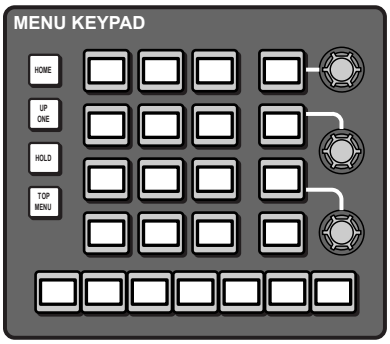
This module is used to store and recall memories, set attributes, and set rates for the ME that is assigned to the row that the module is on. If the row is assigned to ME 2, then this module will only store and recall memories to ME 2.

Table 4: Memory Module Button Functions

Button	Function
RECALL	Allows you to use the keypad to enter the number of the memory register you want to recall.
ATTRIB	Allows you to view the memory attributes menu, or override the attributes stored with the memory with the default attribute settings. To override attributes, press and hold the **ATTRIB** button while recalling the memory.
KEYS ONLY	Allows you to recall a memory on a panel row that does not include the program and preset bus selections. Only the keyer selections are recalled.
EFF DISS	Allows you to have the keys from one memory slew into the keys from the one you are recalling.
STORE	Allows you to use the keypad to enter the number of the memory register where you want to store a memory.
EFF RATE	Allows you to set a new effects dissolve rate for the ME.
ME RATE	Allows you to set a new background transition rate for the ME.
KEY RATE	Allows you to set a new keyers transition rate for the ME.
BANK	Allows you to select the bank that you want to store, or recall, a memory register to.

Menu Keypad Module

This module is used to interact with the lower menu on the touchscreen. The buttons along the bottom of the module correspond to the buttons on the bottom of the menu and the knobs correspond to the three knobs on the menu.



Refer to *Menu Keypad Module* on page 36 for information on using this module.

Positioner Module

This module supports the positioner that is used to manipulate the position of wipes, patterns, flying keys, and other menu knob values marked with arrows.

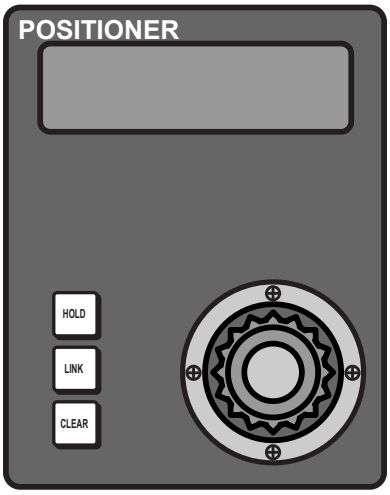


Table 5: Positioner Module Button Functions

Button	Function
HOLD	Allows you to lock the positioner module to the element that it is currently controlling. When locked (held), the button is lit, and the positioner module does not act on the normal auto-follow commands, such as when you select a robotic camera.

Button	Function
LINK	Allows you to add and remove elements that are being controlled by the positioner module. To add an element, press and hold the **LINK** button, and then press the **SEL** or crosspoint button for the element you want to add. The **LINK** button lights if more than one element is being controlled by the positioner. If you select another element that the positioner would auto-follow, the current link settings are lost. An example of linking would be to link two flying keys together from separate keyers. Double-press the **LINK** button show all the items that are linked to the positioner.
CLEAR	Allows you to center the position and location of a flying key, or what is selected on a keyer, ME, or aux bus.
Positioner Button	The button on top of the positioner allows you to cycle through what the positioner is controlling. What menu items are cycled through depends on the menu you are in.

Preview

This module is used to select whether you are viewing program or preview of a selected ME on the Preview output.

Important: *This module is not available with Ultrix Acuity.*

Table 6: Preview Button Functions

Button	Function
ME *X*	Allows you to select the ME to assign to the preview output.
+4	Allows you to select an ME above ME 4. When the **+4** button is held, the **ME 1** through **ME 4** buttons become ME 5 through ME 8 buttons respectively. For example, if you want to select ME 6, press and hold the **+4** button on, and press **ME 2**. Both the **ME 2** and **+4** buttons will remain lit.
SRC	Allows you to assign a specific video source to it. When the **SRC** button is selected, the video source that is assigned to the button is fed out of the preview. This source overrides the preview video but is not taken to air with the next transition. When the **SRC** button is de-selected, the video previously being fed out of the preview is restored. Press and hold the **SRC** button and select the new source you want to assign to the button. This feature is only available on the Preview w/o Overlay output (**PV w/o OVL**).
PV	Allows you to assign the preview output of the selected ME to the preview output. On the A1S, it assigns the preview output of the switcher to the preview output.
PGM	Allows you to assign the program output of the selected ME to the preview output. On the A1S, it assigns the program output of the switcher to the preview output.
ME PGM	(A1S only) Allows you to assign the program output of the selected ME to the preview output.
ME PV	(A1S only) Allows you to assign the preview output of the selected ME to the preview output.

Preview Overlay

This module is used to turn on and off the various elements of the preview overlay.

Important: *This module is not available with Ultrix Acuity.*

Table 7: Preview Overlay Button Functions

Button	Function
SOURCE ID	Allows you to turn the source id preview overlay element on or off.
VTR TC	Allows you to turn the VTR timecode preview overlay element on or off.
SAFE TITLE	Allows you to turn the safe title area preview overlay element on or off.
CENTER	Allows you to turn the center cross-hair preview overlay element on or off.
TIME CLOCK	Allows you to turn the time clock preview overlay element on or off.
MASK PV	Allows you to turn the mask preview preview overlay element on or off.

Button	Function
SAFE TEXT	Allows you to turn the safe text preview overlay element on or off
HIDE OVLY	Allows you to turn all of the preview overlay element off.
MENU	(A1S only) Allows you to turn preview overlay functions on or off from the **Preview** menu.

Transition Module

This module is used to perform transitions on an ME. Transitions can be between any combination of keyers and background on the ME.

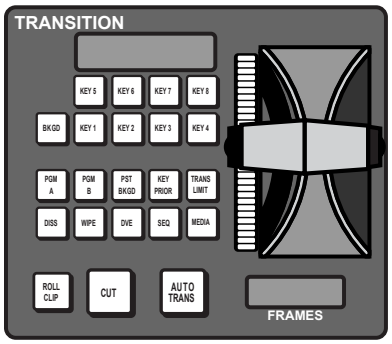


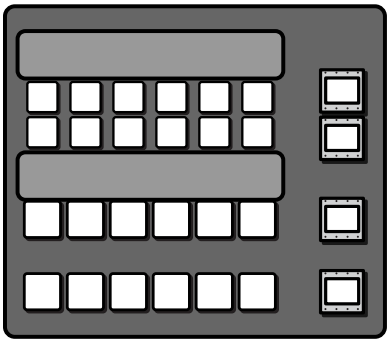
Table 8: Transition Module Button Functions

Button	Function
BKGD	Allows you to include the background in the next transition.
KEY *X*	Allows you to include a key with the next transition.
PGM A	Allows you to assign the Transition module and buses on that row to Program A of the configurable program output.
PGM B	Allows you to assign the Transition module and buses on that row to Program B of the configurable program output.
PST BKGD	Allows you to insert a transition to black as the next transition without losing what is currently selected as the next transition.
KEY PRIOR	Allows you to change the priority of the keyers on the ME.
TRANS LIMIT	Allows you to set the point where a transition will stop. This allows you to have a transition proceed only half way and stop. The next transition is performed from that stop point, back to the original starting point.
DISS	Allows you to select a dissolve as the next transition type.
WIPE	Allows you to select a wipe as the next transition type.
DVE	Allows you to select a DVE wipe as the next transition type.
SEQ	Allows you to use the transition module to run a sequence.
MEDIA	Is not used at this time.
ROLL CLIP	Allows you to tie the playout of a clip to the next transition, or have the clip play immediately. Roll clip only works with external devices that are being controlled by the switcher. The Roll Clip Mode personality options sets the behaviour of this button.

Panel Rows

A Panel Row is used to select video sources for the Background, Preset and Keyers of the ME, Aux Bus, or AuxKey that the panel row is assigned to.

Each Panel Row is made up of four buses of source buttons, Keyers Module, Memory Module, and Transition Module by default. The functionality of each of these components depends on what the Panel Row is assigned to, an ME or Aux Bus for example.



The number of crosspoint buttons and modules that are assigned to the Panel Row depends on how the individual modules are mapped. What each row is assigned to is shown on the mnemonic button to the right of the source button row.

Note: *If you do not have the Double-Down control panel, the display to the right of the source buttons shows what the button rows are assigned to, and there is only a single key bus.*

Tip: *To quickly assign a button row to a bus on the Double-Down panel, press and hold one of the mnemonic buttons and select*

the source button that corresponds to the bus you want to assign the button row to. When you press and hold the mnemonic button, the mnemonics for that button row show what bus each source button is assigned to.

Tip: *To quickly assign a button row to a bus on the standard panel, press and hold the* ***SEL*** *button and use the source buttons on the background and key bus to select which ME, key, or aux you want to assign the row to.*

Tip: *You can assign a particular Aux Bus to a Quick Preset to allow it to be quickly selected. Select the Aux Bus you want to assign, press* ***Assign As Preset*** *and then press the preset button on the left that you want to assign it to.*

Assigning a Panel Row to an ME

Each panel row can be assigned to any ME that the control panel has permission to. The number of MEs you have to assign depends on the ME options you have purchased, and the hardware you have installed. Assigning panel rows to different MEs does not change the default ME mapping.

Keep the following in mind:

Keep the following in mind when assigning a panel row to an ME:

- If you assign a Panel Row to a different ME, the accompanying Transition, Keyers, and Memory Modules are also assigned to that ME.
- If you assign an ME to an External Panel Row that has an Auxiliary Control Panel on it, the Auxiliary Control Panel will remain assigned to the selected Aux Bus. ME assignments do not apply to Auxiliary Control Panels.
- If an ME is not assigned to your control panel, you cannot select it.
- If the Assign ME personality option is set to Off, you cannot assign a different ME to a panel row.

To Assign a Row to an ME

1. Press the **SEL** button (mnemonic button on the Double-Down) on the panel row you want to assign to an ME.

   Tip: *You can also press and hold the* ***SEL*** *button and use the source buttons on the background and key bus to select which ME, key, or aux you want to assign the row to.*

2. Press **Assign ME**.
3. Press button for the internal (**Row *X***) or external (**Extern Row *X***) that you want to assign to the ME.

   Internal rows are the physical rows on the control panel, as well as Auxiliary Control Panels assigned as internal rows. External rows are Auxiliary Control Panels that are assigned as external rows.

4. Press the button for the ME (**ME *X***) that you want the panel row assigned to.

Assigning a Row to an Aux Bus

The panel row can be assigned to an Aux Bus or an AuxKey. When assigned to an AuxKey, the entire row is assigned to the Aux Bus, when assigned to a simple Aux Bus, only the Key Bus of the row is assigned to the Aux Bus.

To Assign a Row to an Aux Bus

1. Press the **SEL** button (mnemonic button on the Double-Down) on the panel row you want to set the key bus assignment for.

   Tip: *You can also press and hold the* ***SEL*** *button and use the source buttons on the background and key bus to select which ME, key, or aux you want to assign the row to.*

2. Press **Select Aux Bus**.
3. Press the button for the aux (**AUX *X***) or AuxKey (**AUX KEY *X***) that you want to assign to the bus or row.

   Tip: *Toggle* ***Lock Key Row*** *to* ***On*** *to lock the assignment of the key bus row to the current selection.*

   Tip: *Press* ***Locked*** *to lock the current aux bus to the selected source. This functions like the bus hold.*

Assigning a Key bus to a Keyer or Utility Bus

The Key bus of the panel row can be assigned to any keyer or utility bus on the ME that the row is assigned to. The Utility buses that are available depend on what the configurable program outputs are set to.

To Assign a Row to a Key

1. Press the **SEL** button (mnemonic button on the Double-Down) on the panel row you want to set the key bus assignment for.

   Tip: *You can also press and hold the* ***SEL*** *button and use the source buttons on the background and key bus to select which ME, key, or aux you want to assign the row to.*

   Tip: *On the Double-Down control panel, the top button row is assigned to the even numbered keyers (2,4,6,8) and the button row below is assigned to the odd numbered keyers (1,3,5,7). This can be changed with the DD Key Delegation personality option.*

2. Press **Select Key/Util Bus**.
3. Press the button for the key (**KEY *X***) or utility (**UTIL Row *X***) that you want to assign to the bus.

> ***Tip:*** *Toggle **Lock Key Row** to **On** to lock the assignment of the key bus row to the current selection.*

Quick Presets

You can set up quick presets for where to assign a panel row or button row.

The quick presets can be accessed either from the **ME Selection** menu or through panel shortcut buttons, depending on the control panel you have.

- **Standard Panel** — Press the **SEL** button for that panel row you want to recall a quick preset on and select the quick preset.
- **Double-Down Panel** — Press and hold the mnemonic button for the button row you want to recall a quick preset for. The source buttons on that row change to show the available quick presets. Press the source button for the quick preset you want to recall.

To Set Up a Quick Preset

Assigning a quick preset is based on how a panel or button row is currently set. It does not matter which panel row that the quick setup is configured on, it will be available to all panel rows.

1. Set up a panel row, or button row, how you want it for the quick preset.
2. Press the **SEL** button for that panel row, or the mnemonic button for that button row.
3. Press **More** > **Assign As Preset**.
4. Press the quick preset button that you want to store the current configuration to.

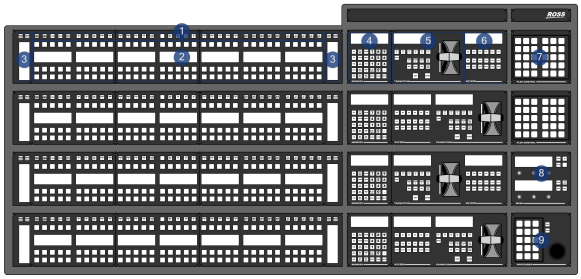
   The name of the button updates to show the current selection.

TouchDrive Control Panel Overview

The TouchDrive control panels allow you to control all aspects of switcher operation, including source selection, transitions, recording and running custom controls, storing and recalling memories, and device control. The control panel user interface is made up of the physical panel top, including several touchscreen displays, and the touchscreen display.

TouchDrive Control Panels Areas

Each TouchDrive control panel is made up of a number of distinct areas that control different aspects of the switcher. Some of these areas may vary in size or function, depending on the control panel you have.

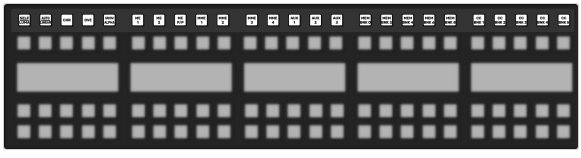


1. User Buttons

The default user button assignments differ between Carbonite and Acuity®. All the user buttons can be assigned to different functions.

Carbonite Configuration

These buttons can be assigned to various functions or buses on the switcher. The default assignments are labelled on the buttons.



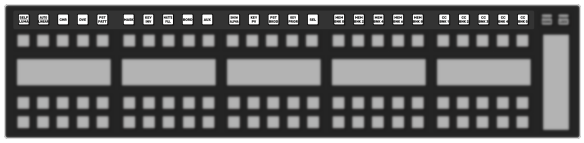
Note: *The exact buttons assignments and placement vary depending on the size of your control panel.*

Button	Function
SELF/LUMA	Assign Self as the key type for the selected key.
AUTO/LINEAR	Assign Auto Select as the key type for the selected key.
CHR	Assign the key bus to chroma key 1. Press and hold the button to select a different chroma key.
DVE	Assign DVE as the key type for the selected key.
SHOW ALPHA	View the black and white alpha signal for the selected keyer. This alpha signal is routed to the preview output of the selected ME. Press and hold to turn on the show alpha feature. Double-press the button to latch the show alpha state until the button is pressed again.
ME *X*	Assign the panel row to ME *X*. Press and hold the button to select a different ME.
MME *X*	Assign the panel row to MiniME™ *X*. Press and hold the button to select a different MiniME™
AUX *x*	Assign the key bus to aux bus *X*. Press and hold the **AUX** button and use the source buttons on the keyer row to select the aux you want to use.
MEM BNK *X*	Recall a memory using the source buttons on the key bus. Press the **MEM BNK** button for the memory bank you want to recall a memory from and then press the button on the key bus for the memory you want to recall. Press and hold the **MEM BNK** button to select a different bank using the source buttons on the key bus.
CC BNK *X*	Run a custom control using the source buttons on the key bus. Press the **CC BNK** button for the bank you want to run a CC from and then press the button on the key bus for the CC you want to run. Press and hold the **CC BNK** button to select a different bank using the source buttons on the key bus.

Tip: *Press and hold the ME, MiniME™, AUX, MEM BNK, or CC BNK button and use the buttons on the key bus to assign the row to a different target.*

Acuity® Configuration

These buttons can be assigned to various functions or buses on the switcher. The default assignments are labelled on the buttons.



Note: *The exact buttons assignments and placement vary depending on the size of your control panel.*

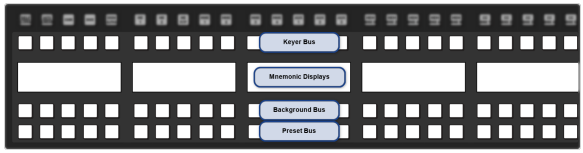
Button	Function
SELF/LUMA	Assign Self as the key type for the selected key.
AUTO/LINEAR	Assign Auto Select as the key type for the selected key.
CHR	Assign Chroma Key as the key type for the selected key.
DVE	Assign 2D DVE as the key type for the selected key.
PST PATT	Assign a Preset Pattern as the key type for the selected key.
MASK	Turn on the Mask function.
KEY INV	Reverses the polarity of the key alpha. For example, if a self key, such as a title camera, has white letters on a black background, the white letters will normally cut the key hole. When the key invert feature is used, the polarity of the key is inverted so that black lettering is used to cut the hole.
MATTE FILL	Fill the selected keyer with a matte color.
BORD	Apply a border to the selected keyer. When pressed, the border menu is displayed, and the last selected border is applied. Press the button again to turn the border off.
AUX	Press and hold the **AUX** button and use the source buttons on the keyer row to select the aux you want to use.
SHOW ALPHA	View the black and white alpha signal for the selected keyer. This alpha signal can either be routed to the main preview output of the switcher, or to the preview output of the selected ME. Press and hold the **SHOW ALPHA** button, for the selected keyer and ME, to show the alpha for that keyer on the preview output of the switcher, or double-press the **SHOW ALPHA** button to lock it on until the button is pressed again. This allows you to record the alpha signal for a selected keyer independent of the fill.
KEY PV	Temporarily force the program output of the selected keyer to the preview output of the switcher. The ME remains in the key preview state for as long as you hold the **KEY PV** button, and returns to normal as soon as you release the button. You can also double-press the **KEY PV** button to latch the ME in the key preview state until the button is double-pressed again.
PST BKGD	Insert a transition to black as the next transition without losing what is currently selected as the next transition.
KEY PRIOR	Change the priority of the keyers on the ME.

Button	Function
SEL	Quickly navigate to the **ME Selection** menu. Press and hold the **SEL** button and use the source buttons on the Key and Background buses to select what the panel row is assigned to.
MEM BNK *X*	Recall a memory using the source buttons on the key bus. Press the **MEM BNK** button for the memory bank you want to recall a memory from and then press the button on the key bus for the memory you want to recall. Press and hold the **MEM BNK** button to select a different bank using the source buttons on the key bus.
CC BNK *X*	Run a custom control using the source buttons on the key bus. Press the **CC BNK** button for the bank you want to run a CC from and then press the button on the key bus for the CC you want to run. Press and hold the **CC BNK** button to select a different bank using the source buttons on the key bus.

Tip: *Press and hold the ME, MiniME™, AUX, MEM BNK, or CC BNK button and use the buttons on the key bus to assign the row to a different target.*

2. Video Source Buses

Each panel row has three buses of video source buttons (Keyer, Background, and Preset). When the panel row is assigned to an ME each bus of buttons is assigned to a video bus. If the panel row is assigned to a chroma key or aux bus, the key bus row is assigned to that video bus while the background and preset buses remain assigned to the previous buses.

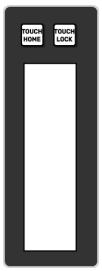


The mnemonic displays show the video sources that are assigned to the buttons on the keyer row and background/preset row.

3. Row Control

The row control menu at the end of the panel row allows you to see what the row and buses are assigned to, as well as control some aspects of the row.

Tip: *The TD3 and TD4 panels have one of these vertical displays at either end of the row. The displays mirror each other.*



The **TOUCH HOME** and **TOUCH LOCK** buttons are used to return the display to the **Home** menu (**TOUCH HOME**) and lock the display and mnemonics so that it can't be accidentally tapped (**TOUCH LOCK**).

4. Memory Area

The function of the buttons on the Memory area differ between Carbonite and Acuity®.

Carbonite Configuration

The memory area is used to store and recall memories, and to enter the various transition rates used by the switcher. The buttons in the left column assign the memory area to the various ME, MiniME™, , or chroma key resources of the switcher.

*Tip: Toggle the **STORE** button on to store a memory or off to recall.*

Button	Function
ALL	Select all ME, MiniME™, , and chroma key inclusions for with the memory action. Press **ALL** to include all the elements with the memory store or recall. The inclusions are shown on the display.
ME	Select only specific ME inclusions for the memory action. Press and hold **ME** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
MME	Select only specific MiniME™ inclusions for the memory action. Press and hold **MME** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
CNVS	Select only specific inclusions for the memory action. Press and hold **CNVS** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
CHR	Select only specific chroma key inclusions for the memory action. Press and hold **CHR** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
LOCAL ROW	Select only the ME that the panel row is assigned to as the inclusion for the memory action.
ATTRIB	Jump to the **Memory Attributes** page in DashBoard.
ME RATE	Set the background transition rate for the ME that the panel row is assigned to. Press **ME RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Transition** area.
KEY RATE	Set the key only transition rate for the ME that the panel row is assigned to. Press **KEY RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Keyer** area for each individual key.
EFF RATE	Set the effects dissolve rate. Press **EFF RATE** and use the keypad to enter the new rate.
STORE	Set the Memory area to store mode. By default, the Memory area is in Recall mode. Press **STORE** (On) to put the Memory area in Store mode to store memories. *Tip: Press and hold **STORE** and press **LOCAL ROW** to reset only the row you are working on or **ALL** to reset all rows.*
MENU	Set the Memory area to follow the menu selections. This allows you to use the keypad to select wipe pattern or media items. Press **MENU** (On) to turn the follow on.
PGM	Set the Program recall mode where all elements of the memory are recalled as they are stored.
MEM AI	Set the Memory AI mode where current on-air elements are unchanged and the transition area is configured to take the on-air elements of the memory on-air with the next transition.

Button	Function
EFF DISS	Turn on the Effects Dissolve effect for the memory recall. On-air elements are transitioned to the elements stored in the memory. The time it takes to go from the current elements to the elements in the memory is set with the **EFF RATE**.
+/- UNDO	Undo the last memory recall. When entering number values with the keypad, press **+/-** to toggle between positive and negative values.
BANK	Select the memory bank you want to use. Press and hold the **BANK** button and press the number for the custom control or memory bank you want to access.
CLEAR	Clear the current value being entered. For example, enter an incorrect value on the keypad and press **CLEAR** to remove it.
ENTER	Commit the currently entered value. For example, enter a new key rate using the keypad and press **ENTER** to apply it.
0-9	The keypad numbers are used to select ME inclusions as well as enter rate values or clip ids.

Acuity® Configuration

The memory area is used to store and recall memories, and to enter the various transition rates used by the switcher. The buttons in the left column assign the memory area to a specific ME.

Tip: *Toggle the **STORE** button on to store a memory or off to recall.*

Button	Function
ALL	Select all ME inclusions for with the memory action. Press **ALL** to include all the elements with the memory store or recall. The inclusions are shown on the display.
ME	Select only specific ME inclusions for the memory action. Press and hold **ME** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
MEM USR#	User assignable buttons. You can assign any function to these buttons from the **Personality** menu.
LOCAL ROW	Select only the ME that the panel row is assigned to as the inclusion for the memory action.
ATTRIB	Allows you to view the memory attributes menu, or override the attributes stored with the memory with the default attribute settings. To override attributes, press and hold the **ATTRIB** button while recalling the memory.
ME RATE	Set the background transition rate for the ME that the panel row is assigned to. Press **ME RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Transition** area.
KEY RATE	Set the key only transition rate for the ME that the panel row is assigned to. Press **KEY RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Keyer** area for each individual key.
EFF RATE	Set the effects dissolve rate. Press **EFF RATE** and use the keypad to enter the new rate.
STORE	Set the Memory area to store mode. By default, the Memory area is in Recall mode. Press **STORE** (On) to put the Memory area in Store mode to store memories. ***Tip:*** *Press and hold **STORE** and press **LOCAL ROW** to reset only the row you are working on or **ALL** to reset all rows.*
MENU	Have the Memory area follow menu selections. Press the **MENU** button on a Memory area to have that Memory area follow menu selections, such as wipe pattern, DVE sequence, or media item selection.
RECALL CLIP/CC	Allows you to either recall a clip on the selected device using a Clip ID or Clip Number by entering it using the keypad, or run a custom control by entering the bank and custom control number. The functionality of the **Recall Clip/CC** button is set using the **CC Global Recall** personality option.
KEYS ONLY	Recall a memory on a panel row that does not include the program and preset bus selections. Only the keyer selections are recalled.

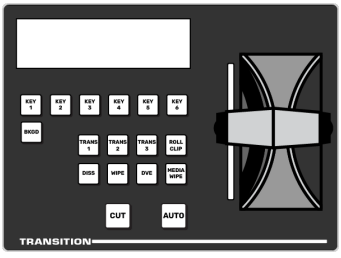
Button	Function
EFF DISS	Turn on the Effects Dissolve effect for the memory recall. On-air elements are transitioned to the elements stored in the memory. The time it takes to go from the current elements to the elements in the memory is set with the **EFF RATE**.
+/- UNDO	Undo the last memory recall. The **UNDO** button lights up after each memory recall, indicating that the action can be undone. If you perform 10 or more button presses after the memory recall, the **UNDO** button goes out, and the memory can no longer be recalled. When entering number values with the keypad, press **+/-** to toggle between positive and negative values.
BANK	Select the memory bank you want to use. Press and hold the **BANK** button and press the number for the custom control or memory bank you want to access.
CLEAR	Clear your current entry. For example, if you are entering a memory register to recall, but then decide not to recall the memory, you can press the **CLEAR** button to return to the previous state.
ENTER	Commit the currently entered value. For example, enter a new key rate using the keypad and press **ENTER** to apply it.
RUN CC	Run a custom control that you have recalled using the **RECALL CC** button.
0-9	The keypad numbers are used to select ME inclusions as well as enter rate values or clip ids.

5. Transition Area

The transition area is used to select which video source buses will be included in the next transition and what type of transition will be performed. The **Cut** and **Auto** buttons and the fader are used to perform transitions.

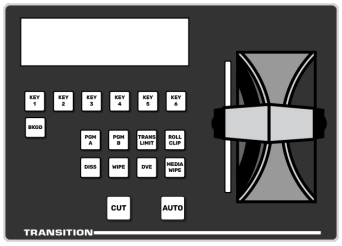
The function of the buttons on the Transition area differ between Carbonite and Acuity®.

Carbonite Configuration



Button	Function
BKGD	Include the background in the next transition.
KEY *X*	Include a key with the next transition.
TRANS *X*	User assignable buttons.
ROLL CLIP	Tie the playout of a clip to the next transition, or have the clip play immediately. Roll clip only works with external devices that are being controlled by the switcher.
DISS	Select a dissolve as the next transition type.
WIPE	Select a wipe as the next transition type.
DVE	Select a DVE wipe as the next transition type.
MEDIA WIPE	Select a MediaWipe as the next transition type.

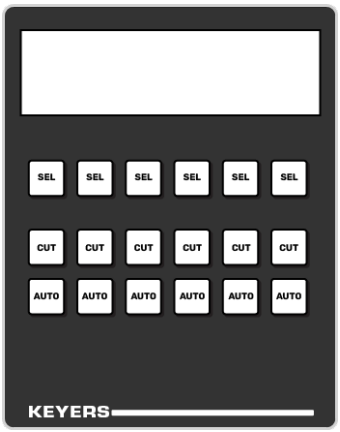
Acuity® Configuration



Button	Function
BKGD	Include the background in the next transition.
KEY *X*	Include a key with the next transition.
PGM A	Assign the Transition module and buses on that row to Program A of the configurable program output.
PGM B	Assign the Transition module and buses on that row to Program B of the configurable program output.
TRANS LIMIT	Set the point where a transition will stop. This allows you to have a transition proceed only half way and stop. The next transition is performed from that stop point, back to the original starting point.
ROLL CLIP	Tie the playout of a clip to the next transition, or have the clip play immediately. Roll clip only works with external devices that are being controlled by the switcher.
DISS	Select a dissolve as the next transition type.
WIPE	Select a wipe as the next transition type.
DVE	Select a DVE wipe as the next transition type.
MEDIA WIPE	Not used at this time.

6. Keyer Area

The keyer area is used to select and independently transition keys. The display shows the on-air status of each key and the source currently selected on that key. Used the **CUT** and **AUTO** buttons to perform cuts or auto transitions on keys directly, without having to include them as part of the next transition.

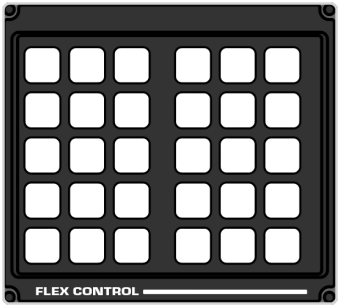


*Tip: Press the **SEL** button for a key to assign the key bus on that panel row to that key. The **SEL** button is lit when the key bus is assigned to that key.*

7. Flex Control Area

The Flex Control area is made up of a user selectable buttons, much like on the panel row, that can be have various functions assigned to them. The functions that can be assigned to the buttons depends on the switcher the panel is connected to.

The default user button assignments differ between Carbonite and Acuity®. All the user buttons can be assigned to different functions.



8. 3-Knob Menu

The buttons next to the 3-knob menu differ between Carbonite and Acuity®. The display and the knobs in both systems follow the main menu selections.

Carbonite

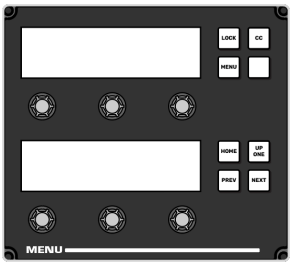
The 3-knob menu is used to access the legacy menu system of the switcher, as well as some auto-follow functions attached to video source selections.

Acuity®

The 3-knob menu provided physical knobs for menu selections. The 3-knob menu auto-follows the Main menu.

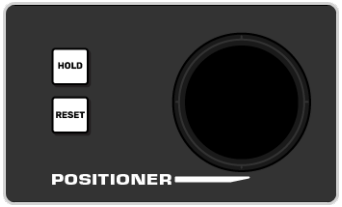
TD3 and 4 Panels

The TD3 and TD4 panels have a stacked version of the 3-knob menu. The menu operates the same as on the other panels, but can show two menu pages at the same time. For Acuity® the top display shows the upper menu area and the bottom display the lower menu area.



9. Positioner

The positioner is used to position and size keys in the DVE, control some wipe, border, and wash parameters, as well as control some external devices.

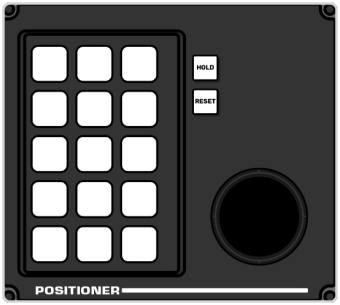


The **HOLD** and **RESET** buttons are used to lock the positioner to the current assignment (**HOLD**)

or used with other panel buttons to reset different areas (**RESET**).

The TD3 and TD4 panels have an additional set of user selectable buttons, the same as on the Flex Control area. The functions that can be assigned to the buttons depends on the switcher the panel is connected to.

The default user button assignments differ between Carbonite and Acuity®. All the user buttons can be assigned to different functions.



Bus Assignment

Each row on the panel can be assigned to a different ME or resource of the switcher. How the row is assigned to the resource depends on the model of control panel you have.

To Assign a Panel Row and Key Bus on TouchDrive

A panel row is assigned to an ME allowing the Background and Preset buses to be used to select sources. The Key bus can then be assigned to other resources on the switcher, such as an Aux.

1. The row control menu shows what that row is currently assigned to, as well as each bus.

   Tip: *The color of the source buttons and displays on the row also indicate where the row is assigned. The colors are set by the color scheme that is applied to the panel. The keyers can have different colors than their ME.*

2. Tap the **ME** button on the row control menu.

   Tip: *The user select buttons can also be used to assign the row to a resource either by pressing the button assigned to that resource directly, or by pressing and holding one of the assignment buttons and press the button on the key bus for the resource. The user select buttons can be assigned to select any bus on the switcher. If you change what the button is assigned to you should make sure to change the text on the button cap.*

   Tip: *If you are assigning a row to a Split ME, you can select either the A-Side or the B-Side. You still have to assign the Transition area to **PGM A** or **PGM B** to perform transition on those buses.*

   Note: *On the TD3 and TD4 panels, assigning a row to a Split ME will assign the A-Side to the left side of the row (first 15 source buttons) and the B-Side to the right side of the row (next 15 source buttons). The Row Control menu on the left controls the A-Side and the one on the right controls the B-Side. The 5 shift buttons on the right apply to both the A-Side and B-Side. The Key bus follows the same split with the left side being assigned to one keyer and the right side assigned to another. You can assign the entire row to PGM A or B with the Split ME Bus Personality option.*

   The **ME** button turns white and the mnemonics on the row list all the resources the row can be assigned to.

3. Tap the mnemonic for where you want to assign the row.

   Note: *The key, background, and preset buses are still all assigned to the previous resources in this assignment mode.*

4. Tap the **Key** button on the row control menu.

Tip: *The user select buttons can also be used to assign the key bus to a resource either by pressing the button assigned to that resource directly, or by pressing and holding one of the assignment buttons and press the button on the key bus for the resource. The assignment button must be of the same type as the resource you want to assign the bus to (**Aux** for an aux bus, **Mem Bank** for a memory bank).*

Tip: *You can quickly assign the bus to a keyer by pressing one of the **SEL** buttons in the **Keyer** area.*

The display lists the areas that the key bus can be assigned to and the mnemonics on the row list all the resources in that area that the row can be assigned to.

5. Tap the button for the area (**Key/Utility**, **Aux**, **Memory Bank**, or **CC Bank**) that you want to assign the key bus to.
6. Tap the mnemonic for where you want to assign the key bus to.

TouchDrive Panel Boot Mode

The TouchDrive control panel can control either an Acuity® or Carbonite based switcher by booting in either Acuity® or Carbonite mode.

If you want to connect the TouchDrive panel to an Acuity® or Carbonite switcher, you must switch the panel to boot in that mode. If the panel is in Carbonite mode and you want to connect to an Acuity® frame, you must boot up the panel, navigate to the menu and switch it to Acuity® mode.

Note: *To switch between Acuity® and Carbonite modes, you must be running Acuity® v12.1a, or higher, and TouchDrive 1.5, or higher.*

Note: *Once you have booted the panel in the proper mode, refer to the documentation for your switcher for connecting a control panel to your frame.*

To Switch TouchDrive to Acuity®

Important: *The Acuity® frame must be running software version **12.1a**, or higher, to connect to the TouchDrive control panel.*

1. Power on the control panel and wait for DashBoard to load on the touchscreen display.
2. From the tree view for the control panel, double-click **Configuration** > **Switch to Acuity mode**.
3. Click **Switch & Reboot.**

Note: *This function is only available on the DashBoard menus running on the control panel. It is not available on remote DashBoard connections.*

The control panel will reboot into Acuity® mode.

To Switch TouchDrive to Carbonite

Important: *The Carbonite frame must be running the minimum software to connect to the TouchDrive control panel that is configured as Dual Boot.*

1. Power on the control panel and wait for Acuity® menu to load on the touchscreen display.
2. Press the **Home** button three (3) times to put the panel into setup mode.
3. Press **HOME** > **More** > **System Shutdown** > **More** > **Switch to Carbonite**.

The control panel will reboot into Carbonite mode.

Carbonite Black Control Panel Overview

The Acuity® frame can be controlled by the Carbonite Black control panel using a Menu Display. The Menu Display connects to the frame over ethernet the same way an Acuity Rack Panel does. You can then connect the Menu Display to the Carbonite Black control panel.

Tip: An ARP can be used instead of the Menu Display.

Control Panel Modules

Each Carbonite Black control panel is made up of a number of distinct areas that control different aspects of the switcher. Some of these areas may vary in size or function, depending on the control panel you have.

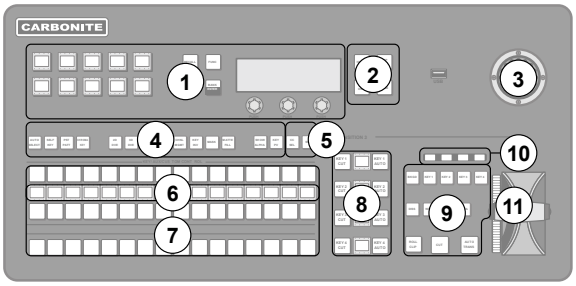


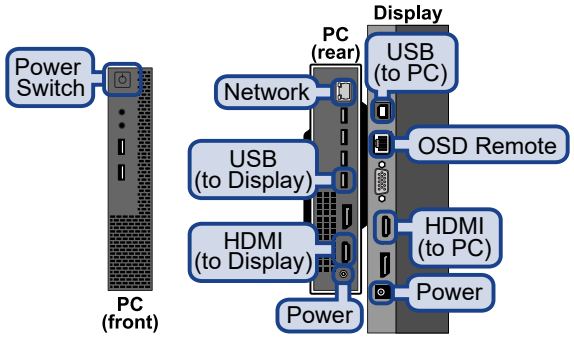
Figure 1: CB1 Control Panel

1. **Memory** — These buttons are used to store or recall memories to one or more MEs at the same time. Press and hold the **STORE** or **RECALL** button and use the mnemonic buttons to select the MEs that you want to store or recall to.
2. **Menu Navigation Buttons** — These buttons are used to access switcher menus and move back and forth between menus.
3. **Positioner** — The positioner is used to position and size keys in the DVE, control some wipe, border, and wash parameters, as well as control some external devices.
4. **Keyer Buttons** — These buttons are used to choose the type of key you want to use and apply modifiers to that key.
5. **Select Buttons** — These buttons are used to assign the panel row to a custom control or a ME, key, or aux.
6. **Mnemonic Displays** — The mnemonic display shows the name of the source, or custom control, assigned to the button directly below it. The mnemonic display-name and color for each video source or custom control can be adjusted.
7. **Video Source Buses** — These buses are broken into the Preset, Program, and Key/Aux/Custom Control buses. The Preset bus is the bottom row of source buttons and selects the video source that will be taken on-air with the next background transition. The Program bus is the middle row of source buttons and selects the video source that is currently on-air on the background. The Key/Aux/Custom Control bus is the top row of source buttons and selects the video source that is chosen on the selected keyer or aux bus, or the custom control that is chosen on the selected custom control bank.
8. **Keyer Transitions Buttons** — These buttons are used to perform cuts or auto transitions on keys directly, without having to include them as part of the next transition.
9. **Transition Area** — These buttons are used to select which video source buses will be included in the next transition and what type of transition will be performed. The Cut and Auto Trans buttons are used to perform transitions. The user button is not implemented at this time.
10. **On-Air Lights** — These lights glow red to show which keyers are currently on-air.
11. **Manual Transition Fader Bar** — The fader is used to manually control the rate of a transition. What is being transitioned, and the type of transition, are controlled from the Transition Area.

Menu Display

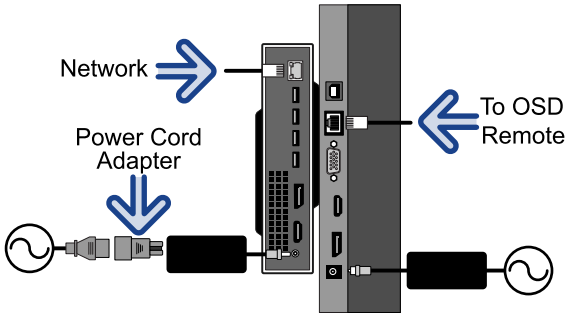
The Menu Display combines a Dell™ computer with a touchscreen into a single unit that can be installed onto a standard VESA-100 mount. The Menu Display connects to the switcher over ethernet to provide the menu system interface to the setup and operation of your Acuity® switcher.

Ports



Power and Cabling

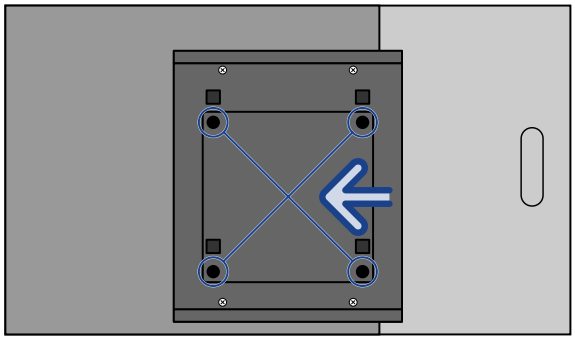
The power cord adapter is needed to plug the provided line cord into the power supply for the PC of the Menu Display.



Note: *It is recommended that you always connect the AC Power Adapter to the device before connecting to Mains Power.*

Mounting

The Menu Display can be installed onto an arm supporting a standard VESA-100 mount.



Mounting Specifications:

- Mounting Interface: VESA MIS-D, 100, C
- Unit Weight: ~16lbs (7kg)

Dell™ Ownership Transfer

The ownership and warranty of the Dell™ PC that comes with the Menu Display needs to be transferred from Ross® to your organization.

Navigate to *http://www.dell.com* and click **Support** > **Warranty** > **Transfer of Ownership**. Follow the instructions on the web page using the following information:

- **Service Tag Number:** The website provides information on obtaining this number.
- **Previous Owner First Name:** Ross Video
- **Previous Owner Last Name:** Ross Video
- **Previous Owner Company:** Ross Video
- **Previous Owner Zip Code:** K0E 1K0

Control Panel Operation

The operation of the Carbonite Black control panel with Acuity® is slightly different than with other Acuity® control panels. These operational differences include memories, custom controls, keying, panel row assignment, and menu navigation.

Note: *Split ME option should be avoided when using a Carbonite Black control panel. The **PGM A** and **PGM B** function buttons that allow for control over the split ME are not present on the panel. Custom controls can be used to access these function if required.*

Memories

You can store and recall memories from the control panel, as well as turn on various functions and adjust rates.

Function	Description
Memory Bank	Press **BANK/ENTER** and then use the mnemonic buttons to select the memory bank you want to use. For example, to select bank 49 press **BANK/ENTER** > **3** > **9** > **BANK/ENTER**.
Recall Memory	Press and hold the **RECALL** button and use the mnemonic buttons to select the ME(s) that you want to recall the memory for. Use the **BANK/ENTER** button to select the bank you want to recall the memory from and use the mnemonic buttons to select the memory register you want to recall. The name of the memory is shown on the mnemonic button.

Function	Description
Store Memory	Press and hold the **STORE** button and use the mnemonic buttons to select the ME(s) that you want to store the memory for. Use the **BANK/ENTER** button to select the bank you want to store the memory to and use the mnemonic buttons to select the memory register you want to store. The name of the memory is shown on the mnemonic button.
Memory Functions	Press **FUNC** and use the mnemonic buttons to access specific memory functions. • **Undo** — The Undo button allows you to take back, or undo, the last memory recall. This returns the switcher to the state it was in prior to the last memory recall. The Undo button lights up after each memory recall, indicating that the action can be undone. If you perform 10 or more button presses after the memory recall, the Undo button goes out, and the memory can no longer be recalled. • **Attrib** — The Attributes button allows you to view the **ME Memory Attributes** menu, or override the attributes stored with the memory. • **Keys Only** — The Keys Only button allows you to recall a memory on a panel row that does not include the Program and Preset bus selection. Only the keyer selections are recalled. • **Eff Diss** — The Effects Dissolve button allows you to have the keys from one memory slew into the keys from the one you are recalling.
Fade Rate	The Fade to Black Rate button allows you to set the rate at which the switcher transitions to black. **1.** Press **FUNC** > **Rates** > **Fade Rate** and use the mnemonic buttons to enter the new rate. **2.** Press **BANK/ENTER**. The display to the right of the memory module stated `New FTB rate:` with the new FTB rate.
Eff Rate	The Effects Dissolve Rate button allows you to set the rate that an effects dissolve slews from one memory to another. **1.** Press **FUNC** > **Rates** > **Eff Rate** and use the mnemonic buttons to select the ME(s) that you want to set the rate for. **2.** Press **BANK/ENTER**. **3.** Use the mnemonic buttons to enter the new rate and press **BANK/ENTER**. The display to the right of the memory module stated `New EFF rate:` with the new FTB rate.

Function	Description
ME Rate	The ME Rate button allows you to set the rate for an ME background transition. **1.** Press **FUNC** > **Rates** > **ME Rate** and use the mnemonic buttons to select the ME(s) that you want to set the rate for. **2.** Press **BANK/ENTER**. **3.** Use the mnemonic buttons to enter the new rate new rate and press **BANK/ENTER**. The display to the right of the memory module stated `New rate:` with the new FTB rate.
Key Rate	The Key Rate button allows you to set the rate for an keyer transition. **1.** Press **FUNC** > **Rates** > **Key Rate** and use the mnemonic buttons to select the ME(s) that you want to set the rate for. **2.** Press **BANK/ENTER**. **3.** Use the mnemonic buttons to select the key(s) that you want to set the rate for. **4.** Press **BANK/ENTER**. **5.** Use the mnemonic buttons to enter the new rate new rate and press **BANK/ENTER**. The display to the right of the memory module stated `New Key rate:` with the new FTB rate.

Custom Controls

Custom controls are run from the Key/Aux/CC bus of any panel row.

1. Press and hold the **CC SEL** button and press the source button on the key bus for the Bank you want to run the custom control on. The mnemonics show the Bank numbers.
2. Press the source button on the key bus for the custom control you want to run.

Tip: *When you press the **CC SEL** button, all the key buses on the panel switch to custom control buses.*

Bus Selection

The Keyer/Aux/CC and Background buses are used to select the ME, aux bus, keyer, or utility bus that the bus or row is assigned to.

- Press and hold the **SEL** button and press the source button on the program or key bus for the what you want to assign the bus or row to. The mnemonics show the selections.

- **Key** — press **SEL** and the source button on the key bus for the keyer you want to assign that bus to.
- **Aux** — press **SEL** and the source button on the key bus for the aux you want to assign that bus to.
- **Utility** — press **SEL** and the source button on the key bus for the utility bus you want to assign to the bus.
- **ME** — press **SEL** and the source button on the background bus for the ME that you want to assign the panel row to.

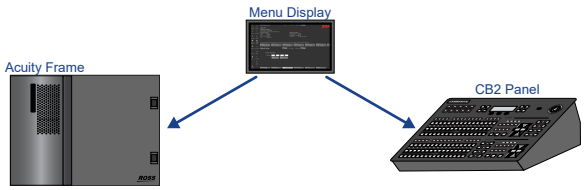
Menu Navigation

The four menu navigation buttons on the panel allow you to navigate the menu system from the control panel.

- **HOME** — jumps to the **Main Menu**.
- **UP ONE** — navigates up one layer from a sub-menu. For example, if you are on the **Setup** menu, press **Up One** to go up to the **Main Menu**.
- **TOP MENU** — toggle the **TOP MENU** button on to have the menu buttons apply to the top menu region and toggle the button off to have the menu buttons apply to the bottom menu region.
- **HOLD** — holds the menu region at the current menu. This is often used if you want to ignore the menu auto-follows and always remain on the current menu.

Control Panel Setup

The Carbonite Black control panel connects to the Acuity® frame through the Menu Display over ethernet. The Menu Display is a smaller version of the Acuity Rack Panel (ARP) that can have the Carbonite Black control panel connect to it over ethernet.



Note: *The Carbonite Black control panel can only connect to the Acuity® frame through a Menu Display or Acuity Rack Panel. The Menu Display is used to connect to the frame and then to the control panel.*

By default, the Carbonite Black control panel is automatically detected in DashBoard and can be setup to communicate with the Menu Display using the DashBoard interface. Once the Carbonite Black control panel has connected to the Menu Display, the software is configured for Acuity® and the DashBoard interface is no-longer available. You must use the DashBoard interface to set the IP address of the Carbonite Black control panel before connecting it to the frame.

The Menu Display connects to the frame in the same way as a standard Acuity® control panel or Acuity Rack Panel. Refer to *Control Panel Network Setup* for more information.

Panel Network Initial Setup

The Carbonite Black control panel comes from the factory set with a static IP address (192.168.0.129) but can be set to use DHCP to automatically obtain an IP address.

The control panel is automatically discovered in DashBoard and appears as **CarbonitePanel** followed by the MAC address of that particular panel.

Note: *If the Carbonite Black control panel is able to connect to the Acuity Rack Panel, the DashBoard menus are not available.*

Tip: *If you do not know the IP address of the control panel, you can set DIP switches on the panel to lock the IP address of the panel to 192.168.0.129 and the IP address that it expects the frame at to 192.168.0.123. The panel must be re-started for the new IP address to be applied. Refer to Control Panel DIP Switches on page 34 for DIP settings.*

To Configure the Initial Network Setting

Change the network setting of a Carbonite Black control panel.

1. Double-click on the **CarbonitePanel** node and click on the **Ethernet** tab.

   Note: *The **Current DIP Switch** field shows the state of the DIP1 and DIP2 switches on the control panel. Some settings do not allow you to change the IP settings from DashBoard.*

2. Click a **Method** button to select whether to use a static IP address (**Static**), or obtain an IP address (**DHCP**).
3. For a static IP address, enter the IP address (**IP Address**), subnet mask (**Subnet Mask**), and gateway (**Default Gateway**) you want to use.
4. In the **Carbonite IP Address** field, enter the IP address of the Menu Display you are connecting to.
5. Ensure that **Main** is selected for the **Panel ID**.
6. Click **Apply Changes**.

To Attach a Carbonite Black Panel

Attach the Carbonite Black control panel to the Menu Display you are using to connect to the Acuity® frame.

Note: *The CB1/2 Panel Enable personality option must be enabled (**On**) to be able to attach the Carbonite Black control panel.*

Tip: *The Menu Display can be directed to the IP address of the Carbonite Black control panel again as needed.*

1. Press **HOME** > **Setup** > **Network Setup** > **Attach Remote CB Panel**.
2. In the **Remote Panel** field, enter the IP address of the Carbonite Black control panel you want to connect to.
3. Click **Attach CB Panel**.

Control Panel DIP Switches

The up position for the DIP switch is OFF.

DIP1	DIP2	DIP3	DIP4	Function
OFF	OFF			User IP Settings
OFF	ON			Force DHCP IP
ON	OFF			Force Static IP (192.168.0.129)
ON	ON			reserved
		OFF		reserved
		ON		reserved
			OFF	Default Boot
			ON	Boot from memory card

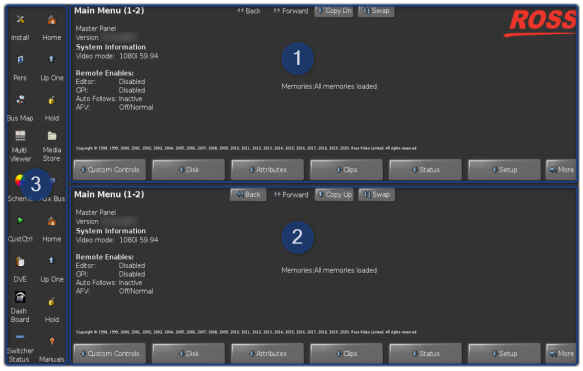
Note: *When you force the static IP, the IP address that the control panel expects to find the frame is also set (192.168.0.123).*

Menu System

The menu system allows you to set up the switcher, interface with external equipment, set up and perform complex shots or sequences, and record and edit custom controls.

The menu system is set up with a branching architecture, with the **Main Menu** as the starting point of all menus. This is the menu that is displayed when you press the **Home** button. From the **Main Menu** you can move down the tree by selecting one of the buttons along the bottom of the menu, or you can move laterally to additional pages of the menu by pressing the **More** button. You can tell when there are additional pages to a particular menu by the title of the menu, whether it is page 1-3 or 3-3, and whether the **More** button is lit or not.

Using the Menu System



1. **Top Menu** — This menu region can be used to park a menu that you want to be able to access often, such as the **Sequences** menu when you are building a sequence.
2. **Bottom Menu** — This menu region is the primary menu navigation point in the switcher. This is the menu region that auto-follows button presses and is the only menu region available when you are in certain calibration menus.
3. **Quick Navigation** — This region has a number of buttons that have been pre-programmed to jump to specific menus.

Tip: *When you enter the **Installation** menu, the switcher goes into a safe configuration, or locked mode. In this mode you cannot use the control panel to select sources, perform transitions, recall memories, or run custom controls, among other things. Press **Swap** to move the **Installation** menu up into the top menu region to return the switcher to normal operation.*

The menu system allows you to access all of the setup and configuration information of the switcher. In some cases, a menu can be accessed either by navigating from the **Main Menu**, by pressing a button on the control panel that the menu system will auto-follow to, or by pressing one of the quick navigation buttons to the left of the menu region.

The **Main Menu** can always be accessed by pressing the **Home** button on the left side of the menu region. This is the start location where all of the menu trees branch off from. Each menu can have multiple pages that are accessed by pressing the **More** button at the bottom right of the menu region. The number of pages in a menu is shown in the top left of the menu region next to the name. For example, the **Main Menu (1-2)** indicated that there are two pages to this menu and that you are currently on page one. The buttons along the bottom of the menu region are either available selections for the current menu or will take you to a sub-menu. The buttons that will take you to a sub-menu have a down-arrow. When you have navigated down to a sub-menu, you can press **Up One** to go up one layer.

Take some time to familiarize yourself with the menu navigation buttons.

- **Home** () — jumps to the **Main Menu**.
- **Up One** () — navigates up one layer from a sub-menu. For example, if you are on the **Setup** menu, press **Up One** to go up to the **Main Menu**.
- **Lock** () — holds the menu region at the current menu. This is often used if you want to ignore the menu auto-follows and always remain on the current menu.
- **Back** — like the back button on your browser, this button will take you back to the last menu visited.
- **Forward** — like the forward button on your browser, this button will take you forward to the menu you just navigated back from.
- **Copy Up/Copy Down** — copies the current menu from the bottom menu region to the top menu region (**Copy Up**), or from the top menu region to the bottom menu region (**Copy Down**).
- **Swap** — the menu from the top menu region is copied to the bottom menu region and the menu from the bottom menu region is copied to the top menu region.

On the right side of some menu there are up to three knobs. These knobs are used to make selection from the list next to the knob. A knob

can be turned either by touching the screen and making a circular motion around the knob, or by tapping the screen directly to the left or right of the menu. Double-tapping the knob defaults the value for that knob.

Tip: *The edit icon ( ) appears on a knob list or column when you can tap or double-tap that item to edit it. Tapping on a knob with this icon displays a keypad that is used to quickly enter numeric values. Double-tapping on an element in a column with this icon allows you directly edit the value shown in the column.*

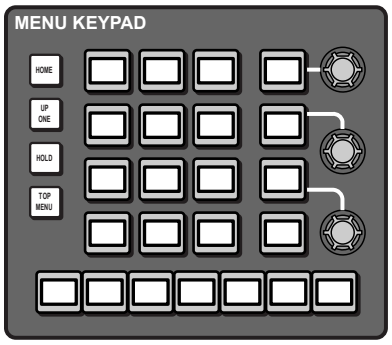
Auto-Follow Menus

The switcher navigates to auto-follow menus automatically when you select certain functions on the switcher. For example, when you press the **SEL** button on a keyer, the key adjustment menu is shown.

Auto-follow functionality also applies to video source buttons that have external devices assigned to them. If you select a source button that an external device is assigned to, the peripheral control menu for that specific device is shown.

Menu Keypad Module

The Menu Keypad module combines functions of the menu system with the keypad of the Global Memory module. The Menu Keypad applies to either the to menu region or the bottom menu region. Toggle the **TOP MENU** button on to have the Menu Keypad apply to the top menu region and toggle the button off to have the Menu Keypad apply to the bottom menu region. The **HOME**, **UP ONE**, and **LOCK** buttons perform the same actions as the buttons on the lower menu region.



The three knobs on the module correspond to the three virtual knobs on the menu system. The buttons linked to the knobs show the current selection of the knob. Pressing one of these buttons rounds the knob value for that button, and double-pressing the button defaults the knob value for that button.

The seven buttons along the bottom of the module correspond to the buttons along the bottom of the menu region and perform menu selection and navigation.

The thirteen buttons in the center of the module perform different functions, depending on the current menu or action. The typical action of these buttons is to mimic the keypad on the global memory module.

Menu Number Shortcuts

Every branch of the menu system can be reached either through menu navigation (**HOME** > **Setup**), or by jumping to a menu directly using the menu number. Only the first page of a menu can be reached using the menu number.

The Menu Numbers personality option must be on to show the menu numbers.

Menu Number List

No.	Menu
001	Main Menu
002	Module Test
003	LED Test
004	Device Test
005	Display Test
006	Audio Fader Test
007	Motorized Move Test
008	Knob Test
009	Memory Test
010	PCH Test
011	Panel Tx / Rx Test
012	LVDS Test
013	Touch Screen Test
014	Test Patterns
015	Draw Test
016	Burn Mode
017	Panel Modules
018	Panel Module Quick Configure
019	Installed Options
020	Auto Follow Setup
021	ME Map
022	Color Scheme

No.	Menu
023	Personality
024	Calibration
025	Touch Screen Calibration
026	ADC Calibration
027	Status
028	Tx / Rx Errors
029	ME Selection
030	Program Assignment
031	CC Soft Shot Box
032	GPI Output Control
033	Pattern Selection
034	Pattern Mask Selection
035	DVE Wipe List
036	Pattern Parameters
037	Pattern Mask Parameters
038	Pattern Mask Rotation
039	System Restore
040	System Backup
041	Disk
042	Disk Store
043	Disk Recall
044	Recall Individual Items
045	Store Individual Items
046	--
047	Network Setup
048	Still Store Browser
049	Dusting
050	Remote Enables
051	Positioner Menu
052	Non-Sync Status
053	Tx / Rx Status
054	Input Status
055	--
056	Shot Box Module Setup
057	Manage Shot Box Pages
058	Shot Box Page Setup
059	Key Priority Setup
060	Camera Shotbox

No.	Menu
061	Assign Camera Shot
062	Camera Shotbox
063	Copy Buses
064	--
065	--
066	--
067	Communications
068	Temperature Alarm Shutdown
069	Standard Mnemonics Assignment
070	DVE Sequence
071	DVE Sequence Load / Save
072	DVE Sequence Runtime
073	DVE Wipe Runtime
074	Router Matrix Control
075	Aux Bus Outputs
076	Attributes
077	Clips
078	Audio Server
079	Assign Clips
080	VDCP Status
081	Remote Control
082	Remote Control
083	VTR Clips
084	VTR Clips
085	Remote Control Select
086	Com Port Monitor
087	Tally Test -- Test all tally relays
088	Frame Com Port Monitor
089	Frame Tx / Rx Test
090	GPI Monitor
091	GPI Test
092	--
093	Tally Test -- Test all tally relays
094	Frame Diagnostics
095	Assign Panel Bus Maps
096	Preview Overlay Font Colors
097	Enter Serial Number
098	Enter Option Number

No.	Menu
099	Lock / Unlock Installation
100	Lock / Unlock Personality
101	Installation Menu Status
102	MultiPanel Configuration
103	System Permissions
104	Installation
105	Reference
106	Tallies
107	Source Configuration
108	Program Assignment
109	Audio
110	Audio Groups
111	Assign Audio Source
112	Audio Fader Map
113	Help Menu
114	Remote Panels
115	Aux Bus
116	Remote Panel Setup
117	--
118	Port device debug
119	Output
120	Fade To Black
121	Program/Utility Configuration
122	GPI Input/Output
123	Custom Controls
124	Recall Factory
125	--
126	Custom Device
127	Copy Bus Maps
128	Select Panel Type
129	Edit Bus Maps
130	--
131	Set System Time
132	Diagnostics
133	Setup
134	--
135	--
136	--

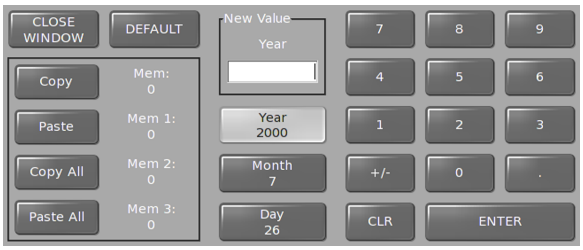
No.	Menu
137	--
138	Transition
139	--
140	Custom Controls
141	Attach Custom Controls
142	Set Variables
143	Manage Custom Controls
144	Memories Setup
145	ME Memory Attributes Setup
146	Copy ME
147	Copy Keyers
148	BKGD Gen Setup
149	Modify Wash
150	Audio
151	--
152	MediaStore
153	Video Capture
154	View Still-Store Defaults
155	Still-Store Cache
156	Auto Key Setup
157	Mask Setup
158	Video Correction
159	Proc Amp
160	RGB
161	Effects
162	Panel Diagnostics
163	System Shutdown
164	--
165	SideStick Settings
166	Ethernet Monitor
167	--
168	--
169	Relative Bus Copies
170	Alternate Device
171	UltraChrome 2
172	Box Mask
173	Prop Mode
174	Copy/Move Memory

No.	Menu
175	VTR Audio Clips
176	Inpoint/Outpoint
177	User Wipes
178	Pattern Rotation
179	Auto Key Setup
180	Pattern Options
181	Wipe Modulation
182	Matrix Tile Size
183	--
184	Key Setup
185	Auto Key Setup
186	AMP Status
187	Video MediaStore
188	--
189	Insert Audio Fader
190	Insert Audio Server
191	Insert CG
192	Insert DVE
193	--
194	Insert Monitor Wall Control
195	Insert PIP-II
196	Insert Robotic Camera Control
197	Insert RossTalk Cmd
198	Insert Router Control
199	Special
200	Insert Event
201	GPO/Tally
202	--
203	Custom Controls
204	Insert VTR
205	Custom Controls
206	CG - Change Test
207	CG Control
208	Edit Custom Control
209	Modify Event
210	Auto Key Setup
211	Auto Key Setup
212	--

No.	Menu
213	Auto Key Setup
214	--
215	DVE Setup
216	--
217	Contact Closure Monitor
218	--
219	--
220	--
221	Attach CCs
222	Odds and Ends Menu
223	--
224	--
225	Vinten Head Control
226	User Accounts
227	Camera Control
228	Camera Head Control
229	Select Monitor Skin
230	Setup Xpt Colors
231	Shimmer
232	--
233	--
234	--
235	WhiteFlash Setup
236	Base Media Properties
237	Base Media Properties
238	DVE Allocation
239	ME Out/Media-Store Config
240	--
254	Slots
255	Asteroids

Punchpad

The punchpad icon next to a knob indicates that you can press the knob to use the punchpad to enter values. The punchpad allows you to enter numeric values, copy and paste values between knobs, and default the values.



- **CLOSE WINDOW** — closes the punchpad without changing any values.
- **DEFAULT** — sets the active knob to the default values.
- **Copy** — copies the value of the active knob (**Mem:**).
- **Paste** — pastes the copied value (**Mem:**) to the active knob.
- **Copy All** — copies values from all knobs (**Mem 1:**, **Mem 2:**, **Mem 3:**).
- **Paste All** — pastes copied values (**Mem 1:**, **Mem 2:**, **Mem 3:**) to the corresponding knobs.
- **New Value** — shows the new value you have entered using the puchpad, Global Memory keypad, or a keyboard.
- **X Location** — is replaced with the name of the top knob, with the other two knobs listed below, and shows the current value (the active knob is highlighted).
- **CLR** — clears the current value for the active knob.
- **ENTER** — sends the New Value to the active knob.

Memory Punch Pad

The **Memory Punch Pad** (Press **HOME** > **More** > **Memory PunchPad**) is a virtual representation of the Memory area on the larger TouchDrive control panels. From this menu you can perform any of the functions you can perform from the memory area.

Note: *User button assignment for the memory area do not apply to the memory punch pad.*

Keep the following in mind:

Keep the following in mind when working with the memory punch pad:

- The **MENU** button must be active (on) for the memory punch pad to follow menu selections. This allows you to use the punch pad to select wipe patterns or media items.
- Press an **ME *X*** button in the **ME Select** area to select the panel row, or ME, that the punch pad is assigned to. This is the local row (**LOCAL**).
- You can assign the punch pad to an ME that is not assigned to a panel row.
- The buttons on the punch pad match the ME color.
- ME inclusions select which MEs are included with the memory function. The MEs that are included in the memory function are shown on the **Display** as **Inclusions**.
  - **LOCAL** — only the ME that is selected in the **ME Select** area is included.
  - **ALL ME Inclusions** — all MEs are included.
  - **ME Inclusions** — press **ME Inclusions** and press the numbers on the punchpad to select which MEs are included. Press a number to add the ME and press the number again to remove it.
- Inclusions do not apply to transition or effects rates. ME, key, and effects rates are applied to the selected ME (**ME Select**).
- You can reset the current, or all MEs on the panels.
  - **ALL ME RESET** — press **ALL ME RESET** to perform a soft reset of all the MEs assigned to the control panel.
  - **ME RESET** — press **ME RESET** and then either **LOCAL** to reset the selected ME or a **ME *X*** button to reset that ME.

Positioner

The Positioner icons next to a knob indicates that you can use the positioner to change the value of the knob. This is most commonly used in the DVE and pattern menus to move keys or patterns around on the screen.

Touchscreens (TouchDrive)

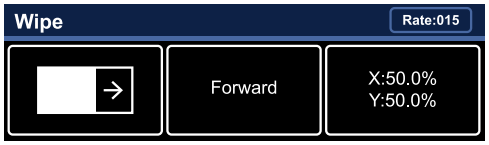
The mnemonics, small displays, and 3-knob menu display on the TouchDrive control panel are all touch enabled. Tap a region of the display

to make selections or show more information about the item.

Small Display Interface

The small displays are located on the Transition, Keyer, and Memory areas, as well as the vertical display at the end of the panel row. All of these displays show you have that component of the switcher is being utilized as well as allowing you to interact and control these settings.

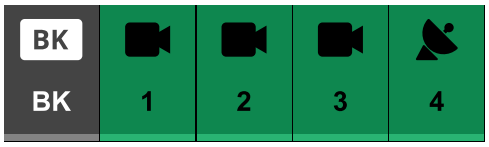
For example, press **WIPE** on the **Transition** area and the display shows the current wipe settings.



- Tap the left button to select a different wipe pattern.
- Tap the middle button to select a different direction for the wipe.
- Tap the right button to assign the positioner and the 3-knob menu to the wipe pattern.

Mnemonics

The mnemonics are the row of displays between the key and background buses on the panel row. By default, the mnemonics show the source that is assigned to the crosspoint buttons above and below the display. You can set the name, color, and icon for the source. The mnemonics can be set to only display the video sources, display only what the key bus row is assigned to, or both. When the key bus row is assigned to a memory or custom control bank, the buttons on the row are assigned to the individual memories or custom controls. The **CC Mnemonics** option sets how the mnemonics show what the buttons on the key bus row are assigned to.



- Tap the mnemonic for a source to have the 3-knob menu jump to the menu that follows that source without selecting that source on the bus. If there is a follow menu, the mnemonic flashed white. If there isn't a follow menu, the mnemonic flashes gray.
- A mnemonic will flash white when pressing the mnemonic performs an action. The mnemonic flashes gray if no action is performed.

Control Panel 3-Knob Menu (TouchDrive)

The 3-knob menu on the control panel is used to control the three knobs on the lower menu region. This allows you to manually adjust knob values using a physical knob.

Color Picker

The color picker allows you to quickly select the color that you want to use for a border, background, matte, or a button color scheme. To select a color, you can either select the color you want on the color wheel, or expand the color picker to allow you to select a color based on the HSL/RGB values, the web-safe color name, or the eyedropper. A fixed palette of default colors is also shown.

Figure 2: Color Picker (collapsed)

To expand or collapse the color picker, press the **<>** button.

Figure 3: Color Picker (expanded)

Use one of the following methods to select a color and press **OK**:

- **Color Wheel** — click on a position on the outer wheel to select a hue, and click on a position in the triage to select the saturation and luminance.
- **HSL** — use the **Hue**, **Sat**, and **Lum** knobs, or fields, to select the color you want to use.
- **RGB** — use the **Red**, **Green**, and **Blue** fields to enter the color you want to use.

- **Color Name** — enter the hexadecimal value for the HTML color name you want to use. For example, `#FF0000` is the value for red.
- **Eyedropper** — click on the eyedropper icon and then click on a color on the menu that you want to use.
- **Palette** — click on the default color that you want to use.

SoftPanel

SoftPanel allows you to run the menu system of the switcher from a computer. The switcher treats the SoftPanel interface as a satellite panel, allowing it to control all aspects of the switcher that the menu system of a satellite panel can control.

The SoftPanel application uses the Oracle® VM VirtualBox to interface with the computer hardware and operating system, and connect to the switcher frame.

Tip: You can also point your Google Chrome™ browser to the SoftPanel to access the Acuity Virtual Panel.

Keep the following in mind:

Keep the following in mind when using SoftPanel:

- SoftPanel and the switcher must be on the same version of software.
- Upgrading the switcher will not upgrade SoftPanel. You must download a newer version of the SoftPanel that is compatible with the new switcher software.
- SoftPanel is an application running on a Fedora® system on the Oracle® VM VirtualBox Virtual Machine. Refer to the documentation that came with VirtualBox for information on configuring the virtual machine.
- Ross Video recommends using a static IP address on the computer running SoftPanel.
- SoftPanel is treated like a satellite panel by the switcher. All satellite panel permissions apply.
- The Oracle® VM VirtualBox will prompt you to download and install new versions of the VM VirtualBox application.
- Not all menus and functionality are available when using SoftPanel. Panel Diagnostics and Calibration, ME Maps, and Positioner control are a few of the menus and functions that are not available.

To Install SoftPanel

The SoftPanel is imported as an appliance into VM VirtualBox.

To install SoftPanel on your computer, you need the following:

- Oracle® VM VirtualBox 5.1 or higher installed on your computer
- Ross `SoftPanel-#.##.ova` file

1. If you have not already done so, download and install the Oracle® VM VirtualBox on your computer.
2. Launch VM VirtualBox.
3. On the **Oracle VM VirtualBox Manager**, click **File** > **Import Appliance**.
4. Navigate to the `SoftPanel-#.##.ova` file and click **Open**.
5. Click **Next** and follow the onscreen instructions.

To Set Up SoftPanel

1. Run SoftPanel.
   After SoftPanel loads, the **Network Setup** menu is displayed.
2. In the Frame area, enter the IP address of the LAN 1 port on the frame in the **IP Address** field.

   *Tip: If you have already connected to the frame before, you can select it using the **Prev. Frame IPs** knob.*
3. In the Panel area, press **DHCP** to have the IP address for the SoftPanel assigned, or enter a static **IP Address**, **Subnet Mask**, and **Gateway** manually.
4. Use the **Panel ID** knob to select the Satellite Panel ID that you want to use. You must select the same Satellite Panel ID on the Web Interface.
5. Press **Save** to store the new network setup information.
6. Press **Yes** to reboot SoftPanel and apply the new network settings.
7. On your computer, open your Web Browser and, in the address bar, enter the IP address of your frame and press **Enter**.
8. Enter your username and password when the **Login Dialog Box** appears. The default Name is user and Password is password.
9. Click **Other...** > **Network**.
10. Enter the SoftPanel computer IP address in the **IP Address Satellite X** field. The satellite

number is the Panel ID that is set on the SoftPanel.

11. Press **Change and Reboot** to restart the switcher and apply the new settings. After the frame reboots the Main Menu is shown on SoftPanel.

To Uninstall SoftPanel

1. Navigate to the **Control Panel** from the **Start** menu.
2. Under **Programs**, select **Uninstall a program**.
3. Select SoftPanel from the list of programs and click **Uninstall**.

For information on uninstalling Oracle® VM VirtualBox, refer to the documentation that came with your VM VirtualBox installation.

Screen Captures

You can save a screen capture of the current state of the menu to a USB drive inserted into the control panel.

To Take a Screen Capture on Acuity® Panels

1. Insert the USB drive into the USB port on the control panel.
2. Navigate to the menu you want to capture.
3. On the Global Memory module, press **STORE ALL** + **FADE RATE**.
   A popup is displayed and the file is stored as a bitmap on the USB drive.

To Take a Screen Capture on TouchDrive Panels

1. Insert the USB drive into the USB port on the control panel.
2. Navigate to the menu you want to capture.
3. Next the 3-knob menu, press **BACK** + **UP ONE**.
   The control panel beeps and a popup is displayed. The file is stored as a bitmap on the USB drive.

Switcher Basics

A switcher works by routing video signals through the various boards and cards in the frame and feeding them out of the assigned output BNC. The boards and cards that the video signal passes through depends on the video manipulation that is required, and which ME the source is selected on.

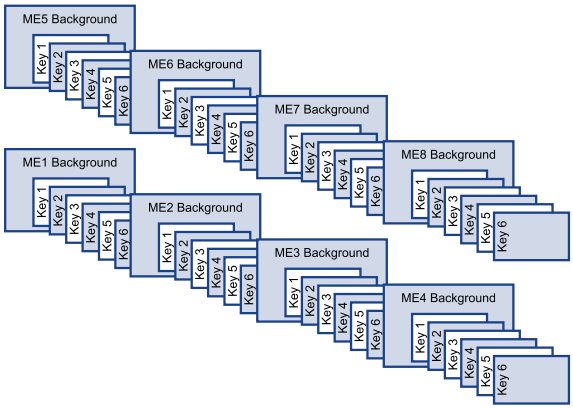
Video Sources

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

- **External** — External video sources come from cameras, video servers, character generators, or other external devices into the switcher.
- **Internal** — Internal video sources come from internally generated video, such as Media-Stores, matte color, and black.

Video Layering

Video layering depends on the ME re-entry and Keyers that make up the output video. If we assume that each ME has all keyers on-air and is re-entered into the ME below, the layering will start with ME 1 Background and progress to ME 4, Key 6.



Note: *Re-entry chains of more than 4 MEs can cause line drops. Any combination of MEs can be re-entered safely, as long as there are less than 5 MEs in the chain.*

The priority of the MEs on the switcher, or how they are layered, can be altered by changing how the MEs are re-entered on the switcher. For example, if ME 3 is re-entered into ME 1, then ME 3 will appear behind ME 1 in the video layering.

As with MEs, the priority of keys can be altered. The priority of keys can be changed using a Key Over transition.

ME Re-Entry

Re-entry is the term used to describe the process of selecting another ME on an ME. For example, if you select ME 1 on ME 2, ME 1 is said to be re-entered onto ME 2. Re-entry takes the output of an ME and uses it as the background or key on the other ME. If you select an ME on the background bus, the ME becomes background video source of the other ME. If you select an ME on a Key Bus, the ME becomes the key source of the other ME.

Keep the following in mind:

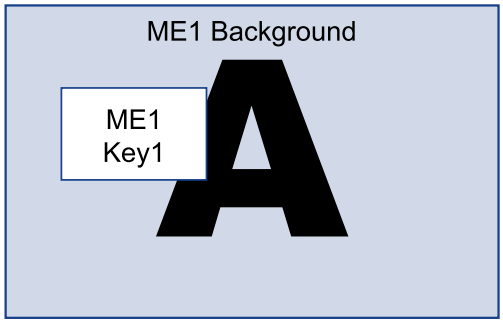
Keep the following in mind when working with re-entries:

- You cannot re-enter an ME onto an ME that is re-entered into the first ME unless Re-entry Loops is turned on. For example, ME 1 cannot be re-entered into ME 3 when ME 3 is already re-entered into ME 1.
- You cannot re-enter an ME into itself.
- Re-entry chains of more than 4 MEs can cause line drops. Any combination of MEs can be re-entered safely, as long as there are less than 5 MEs in the chain.
- You cannot create a re-entry chain of more than 4 MEs unless the Re-entry Depth personality option is set to Warn or Allow.

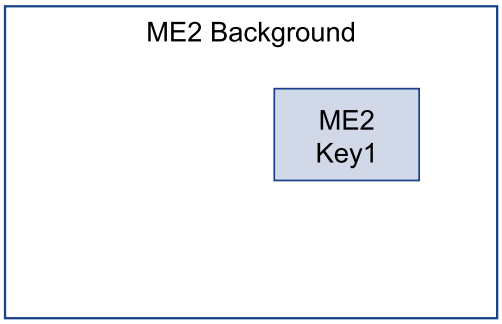
To Re-Enter an ME

This procedure explains how to re-enter ME 1 into ME 2, but any MEs can be used, as well as multiple re-entries.

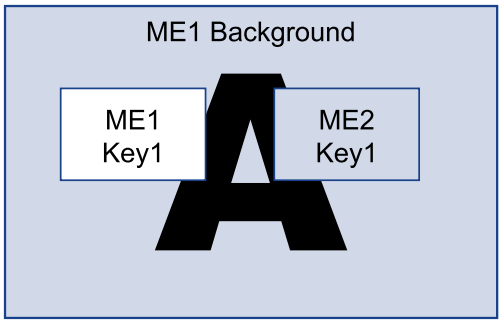
1. Set up ME 1 with a background and a key.



2. Set up ME 2 with a key.



3. Select ME 1 and s source on the background bus of ME 2. Notice that ME 1 is not being used as the background of ME 2.



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.

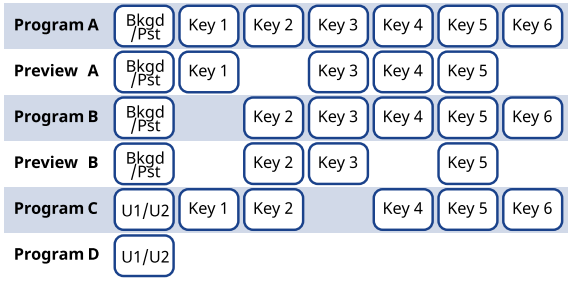


Figure 4: Configurable Program Output Example

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

1. Press the **SEL** button for the ME that you want to configure an output for and press **Program Assignment**.
2. Select the keys that you want included in each output for the ME.

   Note: *The output must be set to FlexiMode from the* ***Installation*** *menu or the key selection buttons will be gray.*

3. 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.

Switcher Reset and Shutdown

The entire switcher or just an ME can be restarted or reset from the control panel. This is useful if the switcher is in an unfamiliar state, or you are troubleshooting an issue.

- **Switcher Shutdown** — closes the switcher application and prepares the control panel and frame to be powered off.
- **Switcher Restart** — physically powers down the frame and re-starts it
- **ME Reset (ALL+ALL)** — defaults the state of an ME, or all MEs

To Shutdown the Switcher

1. Press **HOME** > **More** > **System Shutdown**.
2. Press **Shut Down**.

   The switcher will prompt you to confirm the restart. Once confirmed, the switcher powers down.

3. Toggle the power switches in the frame and control panel to Off.

   Refer to the QuickStart poster that came with your switcher for the locations of power switches in control panel and frame.

To Restart the Switcher

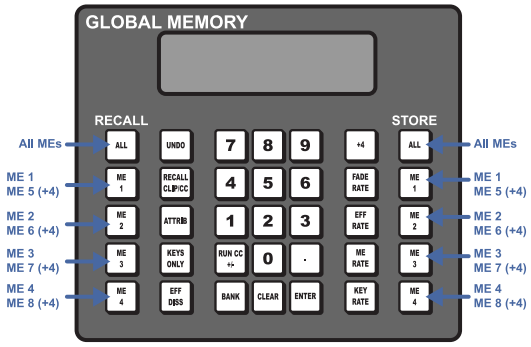
Note: *The control panel will not start up properly if there is a USB drive in the USB port on the control panel. You must remove the USB drive from the USB port on the control panel before powering the control panel up.*

1. Press **HOME** > **More** > **System Shutdown**.
2. Press **Restart**.

The switcher will prompt you to confirm the restart. Once confirmed, the frame and control panels will power down and boot up again.

ME Reset on Acuity® Panels

Each ME can be reset to return it to the default state. The ME can be reset from the Global Memory module, or the Effects Memory module.

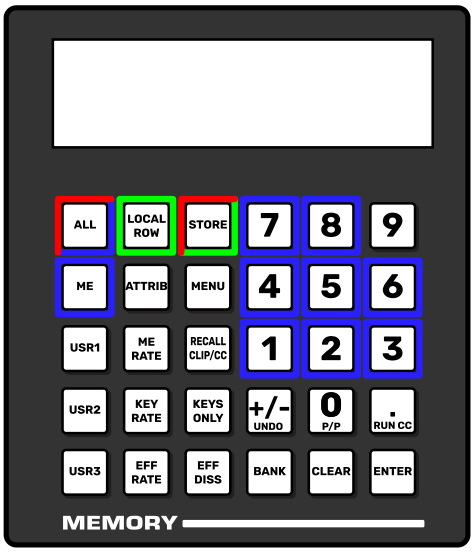


- **Reset All MEs** — press both **ALL** buttons at the same time
- **Reset ME 1-4** — press both **ME *X*** buttons at the same time

*Tip: Press both the **RECALL** and **STORE** buttons on an Effects Memory module to reset just the ME that the panel row is assigned to.*

ME Reset on TouchDrive Panels

Each ME can be reset to return it to the default state. Any ME can be reset from the Memory area.



- **Reset All MEs** (Red) — press and hold **ALL** + **STORE** at the same time.
- **Local ME** (Green) — press and hold **LOCAL** + **STORE** at the same time.
- **Reset ME 1-8** (Blue) — press and hold **ALL** + **ME** + the **1**, **2**...**8** button (the ME you want to reset) at the same time.

Default State

When an ME is reset, or the switcher is restarted, the ME returns to a default state.

- The first source button (Black by default) is selected on the Key, Background, and Preset buses.
- All keys are taken off-air.
- On the Transition modules, Background (**BKGD**) is selected as included in the next transition, and Dissolve (**DISS**) is selected as the transition type.
- On the Effects Memory module, the following memories and rates are set unless the Default Transition Rate personality option is set to on.
  - **REG:00** — memory register 00 is preset
  - **Memory00** — memory register 00 was last recalled
  - **ME:015** — ME transition rate is 15 frames (Interlaced at 59.94 Hz)
  - **Key:008** — Key transition rate is 8 frames (Interlaced at 59.94 Hz)
- On the Global Memory module, the following memories and rates are set unless the Default Transition Rate personality option is set to on.
  - **REG:00** — Memory register 00 is preset
  - **Memory00** — Memory register 00 was last recalled
  - **M:015** — ME transition rate is 15 frames (Interlaced at 59.94 Hz)
  - **D:008** — DSK transition rate is 8 frames (Interlaced at 59.94 Hz)
  - **F:20** — DSK fade-to-black transition rate is 20 frames (Interlaced at 59.94 Hz)
- **Auto Select** is selected as the key type in each keyer.
- The Default ME Map is loaded.

Remote Enables

The switcher can be controlled by external devices such as editors, OverDrive®, or through GPI inputs. You can turn this remote control feature on or off as needed. The current status

of these remote enables is shown on the **Main Menu**.

To Turn On/Off a Remote Enable

1. Press **HOME** > **More** > **Remote Enables**.
2. Press a button to toggle the remote control on (**ON**), or off (**Off**).
   - **Editor** — allows an external editor or OverDrive® to control the switcher. The external editor must be set up to communicate with the switcher.
   - **GPI** — allows an external device to send GPI signals to the switcher to trigger events on the switcher. The GPI inputs must be set up with the event you want to trigger.
   - **Ultrix TSL** — allows the router to pass TSL data to the switcher.
   - **Ultrix BCS** — selects whether the switcher connects to the primary (**Pri**) or redundant (**Red**) Ultricore BCS. The Ultricore BCS connection must be active (Press **HOME** > **Setup** > **Installation** > **More** > **More** > **Ultrix Setup**).

*Tip: Refer to Alternate Devices for information on **Alternate Devices**.*

Copy and Swap

You can copy and/or swap the contents of MEs, keyers, or Aux buses on the switcher.

ME Copy

You can copy the entire contents of an ME to another ME. This includes crosspoint selections, matte generator values, fader positions, on-air status, and key active status.

Keep the following in mind:

Keep the following in mind when copying MEs.

- If a re-entry selection is invalid on the destination ME, black is automatically selected.
- If a transition type is invalid on the destination ME, a dissolve is automatically selected.
- If a specific option is not installed on the destination ME, the function is automatically turned off.
- When copying from the Program/Preset ME to another ME, the downstream keyer selections are converted into effect keyer selections.
- If a specific keyer was active in the source ME, it becomes active in the destination.

To Copy an ME

*Tip: To quickly copy an ME from the panel, press and hold the **BKGD** button on the Transition module for the ME you want to copy to, and then press the **BKGD** button for the ME you want to copy from.*

1. Press **HOME** > **Attributes** > **Copy ME**.
2. In the Source area, select the **ME *X*** that you want to copy from.
3. In the Destination area, select the **ME *X*** buttons that you want to copy to.
4. Press **Copy**.

Bus Copy/Swap

You can copy or swap the entire contents of a video bus to another video bus.

Keep the following in mind:

Keep the following in mind when copying or swapping Buses.

- You cannot copy or swap multiple source buses to different destination buses.
- You cannot copy or swap multiple source Aux buses. You can only select a single Aux bus at a time.
- You cannot swap a source bus with multiple destination buses.
- You cannot copy or swap if the source and destination buses are the same.

To Copy or Swap a Bus

1. Press **HOME** > **Attributes** > **Copy Buses**.
2. In the Source area, select the ME (**ME*X***) or Aux Bank (**Bank*X***) and the bus that you want to copy or swap from.
   - **BKGD** — background bus of the selected ME
   - **PST** — preset bus of the selected ME
   - **UTIL*X*** — utility bus of the selected ME
   - **Key *X*V** — key *X* video of the selected ME
   - **Key *X*A** — key *X* alpha of the selected ME
   - **Aux *X*** — aux bus *X* of the selected aux bus bank
3. In the Destination area, select the ME (**ME*X***) or Aux Bank (**Bank*X***) and the bus that you want to copy or swap to.

- **BKGD** — background bus of the selected ME
- **PST** — preset bus of the selected ME
- **UTIL*X*** — utility bus of the selected ME
- **Key *X*V** — key *X* video of the selected ME
- **Key *X*A** — key *X* alpha of the selected ME
- **Aux *X*** — aux bus *X* of the selected aux bus bank

4. Press **Copy** to perform the copy, or **Swap** to perform the swap.

Relative Bus Copy

You can copy the contents of a video bus to another without specifying a particular bus as the source or destination. The source and destination are determined by the relative on-air or on-preset status of the ME. For example, if ME 1 is re-entered on the background bus of the program ME and ME 2 is re-entered on the preset bus of the program ME. A copy from **On-Air** to **Preset** will be from ME 1 to ME 2.

Keep the following in mind:

Keep the following in mind when copying or swapping Buses.

- You cannot copy multiple source buses to different destination buses.
- You cannot copy multiple source Aux buses. You can only select a single Aux bus at a time.
- You cannot copy if the source and destination buses are the same.

To Relative Copy a Bus

1. Press **HOME** > **Attributes** > **Relative Copy Buses**.
2. In the Source area, click **Aux Bus** to select an aux or **Rel ME** to select an ME. When you select **Rel ME** you have the option of which state to select.
   - **On-Air** — select the ME that is re-entered onto the background bus of the on-air ME.
   - **Preset** — select the ME that is re-entered onto the preset bus of the on-air ME
3. Select the bus that you want to copy from.
   - **BKGD** — background bus of the selected ME
   - **PST** — preset bus of the selected ME
   - **UTIL*X*** — utility bus of the selected ME
   - **Key *X*V** — key *X* video of the selected ME
   - **Key *X*A** — key *X* alpha of the selected ME
   - **Aux *X*** — aux bus *X* of the selected aux bus bank
4. In the Destination area, click **Aux Bus** to select an aux or **Rel ME** to select an ME. When you select **Rel ME** you have the option of which state to select.
   - **On-Air** — select the ME that is re-entered onto the background bus of the on-air ME.
   - **Preset** — select the ME that is re-entered onto the preset bus of the on-air ME
5. Select the bus that you want to copy to.
   - **BKGD** — background bus of the selected ME
   - **PST** — preset bus of the selected ME
   - **UTIL*X*** — utility bus of the selected ME
   - **Key *X*V** — key *X* video of the selected ME
   - **Key *X*A** — key *X* alpha of the selected ME
   - **Aux *X*** — aux bus *X* of the selected aux bus bank
6. Press **Copy** to perform the copy.

Keyer Copy/Swap

You can copy the entire contents of a keyer to another keyer in the same ME, or in a different ME.

When you copy a keyer to another keyer, the entire contents of the source keyer is copied to the destination, including the selected crosspoint and setting for all the key types. For example, if you have an Auto Select key enabled, the Chroma Key settings are also copied.

To Copy or Swap a Keyer

Tip: *To quickly copy a key from the panel, press and hold the **SEL** button on the Effects Keyers module for the key you want to copy to, and then press the **SEL** button for the key you want to copy from. To swap, press and hold the **SEL** button on the Effects Keyers module and press the **Key x** button on the Transition module.*

1. Press **HOME** > **Attributes** > **Copy Keys**.
2. In the Source region, select the keyer on the ME that you want to copy or swap from.
3. In the Destination region, select the keyer on the ME that you want to copy or swap to.
4. Press **Copy** to copy the keyer, or **Swap** to swap the keyers.

Transition

Transitions are used to change the background video and take keys on and off air. A transition can include any combination of background and keyers for an ME. The background and each keyer can be transitioned independently and at the same time using the dedicated **KEY CUT** and **KEY AUTO** buttons.

Performing Transitions

What you can include in the transition, and the type of transition you can perform, depend on the number of media resources you have, and if you are performing a background and keyer transition at the same time.

Keep the following in mind:

Keep the following in mind when performing transitions:

- The **PGM A** and **PGM B** buttons on the transition module select which configurable program output the transition module and source buses are assigned to.
- The Program B program and preset buses use the Utility 1 and Utility 2 outputs.
- If the fader is moved during an auto transition, control of the transition is passed to the fader. You must complete the transition with the fader. This allows you to override any auto transition in progress with the fader.
- A key only transition can be performed by pressing the **KEY CUT** or **KEY AUTO** button for the key you want to transition.
- Double-press the **BKGD** button to select the background and all on-air keys. The BKGD Double Press option must be turned on.
- The time duration of a transition will vary, depending on the video format the switcher is operating in. Transition rates are set in frames, not seconds.
- If there are not enough resources available to perform a transition, a dissolve is performed instead.
- The Program Out BNC is only fed from the Program/Preset ME. Any other ME will have to be re-entered into the Program ME to be part of the program output.
- If the auto transition includes both a background and a keyer, the ME Rate is used for the transition.

To Perform a Transition

All Transitions, with the exception of cuts on the background or key bus, have the same basic steps. To perform a transition, you must select what sources you want to transition on what buses, and how you want the transition to appear.

1. On the Transition module, select the configurable program output (**PGM A** or **PGM B** or both) for the ME that you want to perform the transition on.

   Tip: *The **PGM A** and **PGM B** buttons allow you to perform a split ME transition with an independent A-side and B-side. Press **PGM A** or **PGM B** to have the Transition module and the background and preset buses assigned to the A-side or B-side. Press both buttons to have the Transition module and buses assigned to both sides. Both the A-side and B-side have independent transition rates but share the keys based on the configurable program output settings.*

2. Select the elements (**BKGD** or **KEY *X***) you want to include in the next transition. To select multiple keys and background, press and hold the first element, and select additional elements.
3. Select the video sources you want to take on-air on the program and key buses.
4. Select the type of transition (**DISS**, **WIPE**, **DVE**) you want to perform.
   If you select a *Wipe* or *DVE* transition, additional selections are required.
5. Toggle **ROLL CLIP** on if you want any video server clips assigned to a source being taken on-air to play with the transition.
6. Perform the transition.
   - **Auto Transition** — Press **AUTO TRANS**. The transition is performed at the set transition rate.
   - **Cut** — Press **CUT**.
   - **Fader** — Move the fader from one limit to the other. The rate at which you push the fader determines the rate of the transition.

   Tip: *You can preview the transition on the preview output by pressing and holding the transition type button and performing the Auto Trans or Fader transition.*

   If a pre-roll time has been set, and Roll Clip is active, the switcher will apply the pre-roll interval before performing the transition.

To Perform a Transition on TouchDrive (Memory Area)

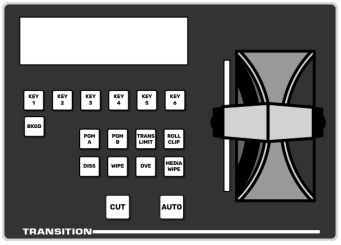
All transitions, with the exception of cuts on the background or key bus, have the same basic setup. The control panel offers physical buttons and mnemonics to setup and perform the transition. Some panels have a memory area that can be used to set the transition rates.

1. Select the preset or key sources that you want to transition to on the buses.

   Tip: *You can perform a quick, or hot, cut on the background bus by simply selecting a different source.*

2. In the **Transition** area, select the elements you want to include with the transition. If you are including multiple elements, press and hold the first button and press the other buttons to include them in the same transition.

   Note: *A key should be included in the transition if it is going on-air or off-air. The transition changes the on-air state of the keyer. If a key is on-air, a red indicator is visible on the display just above the key and the* ***CUT****button for that key is red in the* ***Keyer*** *area.*



3. In the **Transition** area, select the type of auto transition you want to perform.
   - **DISS** — perform a dissolve or WhiteFlash transition. Refer to *Dissolves* on page 54 or *WhiteFlash* on page 57 for more information.
   - **WIPE** — perform a wipe transition. Refer to *Wipes* on page 54 for more information.
   - **DVE** — perform a DVE transition. Refer to *DVE Wipes* on page 55 for more information.

4. The display in the **Transition** area shows the current setting for the transition type. Tap one of theses settings to show additional options.

   Tip: *The menu follows the transition type selection and shows the settings for that transition type.*

   - **Left** — the left button shows the current pattern for the wipe or DVE transition. Tap the button and swipe left or right on the display to select a different pattern. For a DVE wipe the button shows the name of the media item being used for the transition.
   - **Center** — the center button shows the current direction for the wipe or DVE transition. Tap the button and select a different direction for the transition to be performed in.
   - **Right** — the right button shows the current position of the pattern for the wipe transition. Tap the button to have the 3-knob display show the position setting of the pattern and use the positioner to move the pattern around.

5. In the **Memory** area, enter the rate that you want the transition performed at. This is the speed, in frames, that it takes for the transition to complete. A Cut or manual fader transition does not use the transition rate.

   - **Background** — press **ME RATE** and use the keypad to enter a new rate, in frames, and press **ENTER**. The rate is shown on the display on the **Transition** area.
   - **Key Only** — press **KEY RATE** and use the keypad to enter a new rate, in frames, and press **ENTER**. The rate is shown on the **Keyer** area for each individual key.

   Note: *The KEY RATE is only used for key only transitions. Keys included in with the background are transitioned a the ME Rate.*

6. Perform the transition.
   - **Auto Transition** — press **AUTO**. The transition is performed at the set transition rate.
   - **Cut** — press **CUT**.
   - **Fader** — move the fader from one limit to the other. The rate at which you push the fader determines the speed of the transition.
7. If a pre-delay has been set, and the **ROLL CLIP** button is active, the switcher will apply the pre-delay interval before performing the transition.

To Perform a Transition on TouchDrive (No Memory Area)

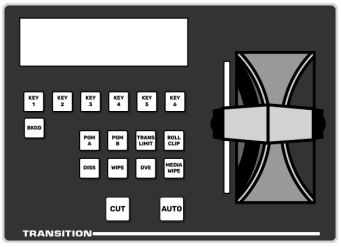
All transitions, with the exception of cuts on the background or key bus, have the same basic setup. The control panel offers physical buttons and mnemonics to setup and perform the transition.

1. Select the preset or key sources that you want to transition to on the buses.

   Tip: You can perform a quick, or hot, cut on the background bus by simply selecting a different source.

2. In the **Transition** area, select the elements you want to include with the transition. If you are including multiple elements, press and hold the first button and press the other buttons to include them in the same transition.

   *Note: A key should be included in the transition if it is going on-air or off-air. The transition changes the on-air state of the keyer. If a key is on-air, a red indicator is visible on the display just above the key and the **CUT** button for that key is red in the **Keyer** area.*



3. In the **Transition** area, select the type of auto transition you want to perform.
   - **DISS** — perform a dissolve or WhiteFlash transition. Refer to *Dissolves* on page 54 or *WhiteFlash* on page 57 for more information.
   - **WIPE** — perform a wipe transition. Refer to *Wipes* on page 54 for more information.
   - **DVE** — perform a DVE transition. Refer to *DVE Wipes* on page 55 for more information.
4. The display in the **Transition** area shows the current setting for the transition type. Tap one of theses settings to show additional options.

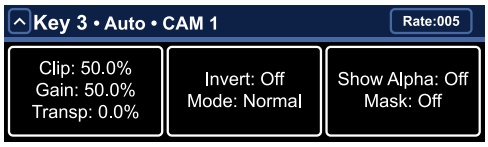
   Tip: The menu follows the transition type selection and shows the settings for that transition type.

   - **Left** — the left button shows the current pattern for the wipe or DVE transition. Tap the button and swipe left or right on the display to select a different pattern.
   - **Center** — the center button shows the current direction for the wipe or DVE. Tap the button and select a different direction for the transition to be performed in.
   - **Right** — the right button shows the current position of the pattern for the wipe transition. Tap the button to have the 3-knob display show the position setting of the pattern and use the positioner to move the pattern around.
5. Set the rate for the transition you want to perform.
   - **Background**
     a. On the Transition area tap **Rate** and use the menu to enter the new rate.

   - **Key Only**

     Note: The KEY RATE is only used for key only transitions. Keys included with the background are transitioned at the ME Rate.

     a. On the Keyer area tap the key you want to set the rate for.



b. Tap **Rate** and use the menu to enter the new rate.

6. Perform the transition.
   - **Auto Transition** — press **AUTO**. The transition is performed at the set transition rate.
   - **Cut** — press **CUT**.
   - **Fader** — move the fader from one limit to the other. The rate at which you push the fader determines the speed of the transition.
7. If a pre-delay has been set, and the **ROLL CLIP** button is active, the switcher will apply the pre-delay interval before performing the transition.

Independent Key Transitions

Keys can be transitioned independently using the dedicated key transition buttons on the Keyers Module. This allows you to dissolve keys on/off-air while the fader is off-limit, or an Auto Transition is in progress from the Transition Module.

Keep the following in mind:

Keep the following in mind when performing independent key transitions:

- Only dissolves or cuts can be used for an independent key transition.
- If the key is part of the next transition, the key will be dissolved off-air and is removed from the next transition. This applies even if the key was not on-air.
- Independent key transitions are performed at the key rate, and not the ME rate.
- Each keyer has an independent key rate.
- The independent key transitions feature is not compatible with OverDrive® and is disabled when Editor is enabled.

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.The A-side and B-side can be transitioned independently using the **PGM A** and **PGM B** buttons on the Transition module.

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 not 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.

Transition Rates

Transition rates set how much time, in frames, the switcher takes to perform an Auto Transition. For example, with a dissolve, the transition rate is how long it takes for the first video source to be replaced by the second.

Acuity® Control Panels

Transition rates are set for the ME, keyers, and AuxKey. The rate for an ME is shown on the display on the Effects Memory Module, and on the Transition Module.

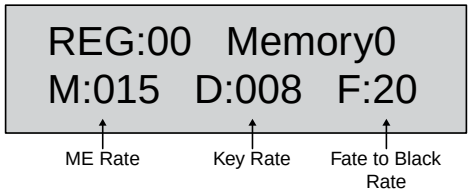
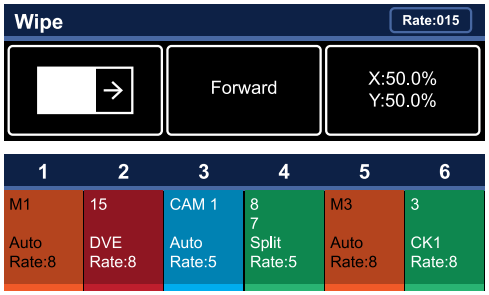


Figure 5: Transition Rate - Global Memory Module

TouchDrive Control Panels

Transition rates are set for the ME, keyers, and AuxKey. The rate for an ME is shown on the display in the Transition area and the rates for the keyers is shown on the display in the Keyers area.



Tip: *You can use the Default Trans Active personality option to set a default key and ME rate that is used when the ME, or switcher, is defaulted.*

ME Rates

The ME rate, or background transition rate, sets the duration that an auto transition on the ME is performed at. Any transition performed on the Transition area of that ME is at this rate.

To Set an ME Rate on Acuity® Panels

1. Press and hold **ME RATE** on the Global Memory module.

   Tip: *You can also press **ME RATE** on the Effects Memory module for the ME that you want to set the background transition rate for.*

2. Press the **ME *X*** button in the Store or Recall area for the ME you want to set the background transition rate for.
3. Use the keypad to enter a new duration, in frames. The new rate appears on the top line of the display as you enter it.
4. Press **ENTER** to set the new rate.

To Set an ME Rate on TouchDrive Panels

Tip: *If you have a panel with the Memory area, you can press **ME RATE** button on the Memory area for the ME that you want to change the rate for and use the punchpad to enter the new rate. Press **ENTER** to apply the new rate.*

1. Tap **Rate** on the display in the Transition area.

   The **Dissolve** menu is displayed to allow you to change the rate. This does not change the type of transition that is currently selected.

2. Press the **ME Rate** button for the preset rate you want to use or use the **ME Rate** knob to select a custom rate.

Key Rates

The key rate sets the duration that an individual key is auto transitioned at from the Keyer area in an independent key only transition.

To Set a Key Rate on Acuity® Panels

1. Press and hold **KEY RATE** on the Global Memory module.

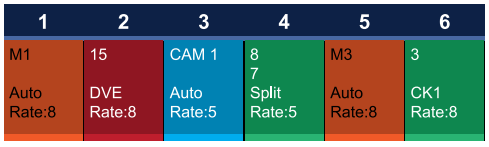
   Tip: *You can also press **KEY RATE** on the Effects Memory module for the ME that you want to set the key transition rate for.*

2. Press the **ME *X*** button in the Store or Recall area for the ME you want to set the key transition rate for.
3. Use the keypad to enter a new duration, in frames. The new rate appears on the top line of the display as you enter it.
4. Press **ENTER** to set the new rate.

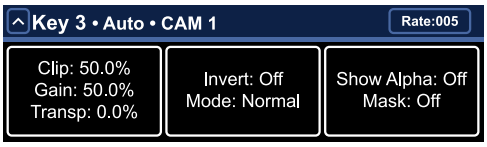
To Set a Key Rate on TouchDrive Panels

Tip: *If you have a panel with the Memory area, you can press **KEY RATE** button on the Memory area for the ME that you want to change the rate for and use the punchpad to enter the new rate. Press **ENTER** to apply the new rate.*

1. Tap the keyer on the display in the **Keyers** area for the key you want to set the rate for.

2. Tap **Rate** on the display in the Keyers area.



The **Auto Key Setup** or **Self Key Setup** menu is displayed to allow you to change the rate. This does not change the type of key that is currently selected.

3. Press the **Trans Rate** button for the preset rate you want to use or use the **Trans Rate** knob to select a custom rate.

Fade to Black Rate

The Fade to Black rate sets the duration for a fade to black transition. The current Fade to Black rate is shown in both the Global Memory module, and the Fade To Black module.

Note: *You cannot set the FTB rate directly on the TouchDrive panel.*

To Set a Fade Rate on Acuity® Panels

1. Press and hold **FADE RATE** on the Global Memory module.
2. Use the keypad to enter a new duration, in frames. The new rate appears on the top line of the display as you enter it.
3. Press **ENTER** to set the new rate.

Cuts

A Cut is an instantaneous transition between video sources. Unlike all the other transition types, there are no intermediate steps between the video source that is on-air, and the video source you are transitioning to.

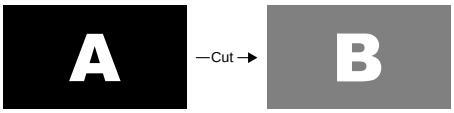


Figure 6: Cut Transitions

A cut is performed either by selecting different sources on a background or key bus, or by pressing a **CUT** button.

Dissolves

A Dissolve is a gradual fade between video sources. For a Background transition, the video signal on the Background bus and the video signal on the Preset bus are mixed together until the Preset bus video signal completely replaces the Background bus video signal. During the transition, both the Background bus and the Preset bus are on-air. Only after the transition has completed do the crosspoint selection flip-flop between the buses.

Figure 7: Dissolve Transition

Wipes

A Wipe is a gradual transition where one video signal is replaced with another according to a wipe pattern. For a Background transition, the video signal on the Background bus is replaced by the video signal on the Preset bus according to the wipe pattern. In the example below, a line wipe is being used. During the transition, both the Background bus and the Preset bus are on-air. Only after the transition has completed do the crosspoint selection flip-flop between the buses.

Figure 8: Wipes

The **Pattern Select** menu, displayed when a wipe is selected, shows 32 pre-assigned patterns, and 8 user-assignable patterns.

To Set Up a Wipe

A wipe transition requires that you select a wipe pattern, and set the direction and number/size of the wipe pattern.

1. Press **WIPE** on the Transition module.
2. Press the pattern button for the pattern you want to use.

Tip: *If you know the number for the pattern, you can use the keypad on the Memory area to select it. On the TouchDrive panels the **MENU** button must be active on the Memory area. On the Acuity® panel the **Keypad Wipe Entry** Personality option must be set to the Memory module you want to use.*

3. Press **Direction** to select if the wipe moves forward (**Fwd**) or in reverse (**Rev**).

Tip: *If you have a TouchDrive panel, you can tap the **Forward** (the middle button) on the display in the Transition area and select the direction and flip-flop you want to use for the wipe.*

For example, if the circle pattern is used, toggling between reverse and forward changes whether the transition starts as a circle in the center of the screen and

expands out, or the circle starts off-screen and shrinks down to the center.

4. Press **Flip Flop** to select if the wipe moves in the opposite direction with every transition (**On**), or always moves in one direction (**Off**).

   For example, with Flip Flop on, the wipe could be performed from left to right across the screen the first time, and then right to left for the second.

5. Press **Modify Pattern**.

   *Tip: If you have a TouchDrive panel, you can tap **X / Y** (the right button) to bring up the **Pattern Parameters** menu.*

6. Press **X / Y** to adjust the position of the pattern.
   - **X** — move the pattern horizontally, or use the positioner.
   - **Y** — move the pattern vertically, or use the positioner.

7. Press **Border/Soft** to apply a border to the edge of the wipe transition.
   - **Border** — adjust the size of the border (0 turns border off).
   - **Softness** — adjust the softness of the border or edge of the pattern. If there is no border applied, the softness is applied to the edges of the pattern.

   *Tip: You can apply a color to the border. Press **Border Matte** and follow the instructions in Mattes on page 118.*

8. Press **H-Mult** or **V-Mult** to apply horizontal or vertical multiplication to the pattern. Press the button multiple times to apply up to 5 times multiplication.
9. Press **Aspect** to turn the aspect ratio on and use the **Aspect** knob to adjust the aspect ratio of the border.
10. Press **Rotation** and toggle **Rotation** on to apply a rotation to the pattern.
    - **Continuous Rotation** — apply a continuous rotation to the pattern. Use the **Speed** knob to select the rate at which the pattern continuously rotates. Selecting a positive value rotates the pattern clockwise, and selecting a negative value rotates the pattern counter-clockwise.
    - **Transition Rotation** — apply a fixed number of rotations to the pattern as the wipe is transitioning. The speed of the rotation depends on the number of the amount of rotation and the rate of the transition. Use the **Rotation** knob to select the amount of rotation of the pattern that occurs during a transition. Selecting a positive value rotates the pattern clockwise, and selecting a negative value rotates the pattern counter-clockwise.
    - **User-Controlled Rotation** — apply a fixed amount of rotation to the pattern. Use the **Degrees** knob to adjust the rotation of the pattern.
11. Press **UP ONE**.
12. Press **Matrix Tile Size** to adjust the size of the tiles in a matrix pattern. If a matrix pattern was not used for the wipe, skip this step.
    - **Square** — use square tiles in the matrix.
    - **Tall** — use tiles that are taller than wide in the matrix.
    - **Wide** — use tiles that are wider than tall in the matrix.
    - **Size** — select the number of tiles that are used in the matrix. The available selection depend on the selected shape of the tiles.
13. Press **UP ONE**.
14. Press **Wipe Modulation** and toggle **Modulation** on to apply wipe modulation to the pattern.
15. Press **Animation** to animate the ripples (**On**).

    Tip: Turning animation off freezes the ripple animation.

16. Press **Vertical Params** to adjust the ripples to the left and right of the pattern or **Horizontal Params** to adjust the ripples to the top and bottom of the pattern.
    - **Amplitude** — adjust the height of the ripples in the selected directions.
    - **Wavelength** — adjust the width of the ripples in the selected directions.
    - **Rate** — adjust the speed that the ripples move in the selected directions.

DVE Wipes

A DVE wipe is based on a sequence that uses a combination of flying keys and effects to transition between video signals. For a Background transition, the video signal on the

Background bus is replaced by the video signal on the Preset bus according to the sequence. Only after the transition has completed do the crosspoint selection flip-flop between the buses.

DVE wipes can either be created from sequences, or you can use one of the pre-created sequences and wipes provided with your switcher software. The sequences and wipes are pre-installed when you purchase a new switcher.

The sequence is selected either through the **Pattern Selection Menu**, or by entering the sequence number on the keypad.

Keep the following in mind:

Keep the following in mind when working with DVE wipes:

- The switcher dynamically allocates DVE channels to produce the wipe effect. If there are not enough channels available, a dissolve is performed instead.
- There is a single frame of delay at the start of DVE transitions.

To Set Up a DVE Transition

1. Press **DVE** on the Transition module.

   Tip: *If you have an Acuity® panel, when you press **DVE** on the Transition Module, `MEx WIPE#` is shown on the display of the Global Memory Module. Enter the number of the sequence you want to load using the keypad on the Global Memory Module and press **ENTER** to load the sequence.*

2. Select the sequence you want to use for the transition.

   Tip: *If you know the number for the sequence, you can use the keypad on the Memory area to select it. On the TouchDrive panels the **MENU** button must be active on the Memory area. On the Acuity® panel the **Keypad DVE Entry** Personality option must be set to the Memory module you want to use.*

3. Press **Direction** to select if the wipe moves forward (**Fwd**) or in reverse (**Rev**).

   Note: *The **Direction** and **Flip Flop** features are only available for background transitions. The buttons are gray if a key only transition is selected.*

   Tip: *If you have a TouchDrive panel, you can tap the **Forward** (the middle button) on the display in the Transition area and select the direction and flip-flop you want to use for the transition.*

4. Press **Flip Flop** to select if the wipe moves in the opposite direction with every transition (**On**), or always moves in one direction (**Off**).

Fade to Black

Fade To Black allows you to cut or fade the entire output of the control panel to black. This can include just the MEs assigned to the control panel, depending on how you have Fade to Black set up, and what MEs are assigned to your panel. Downstream Keyers are also affected by the Fade to Black.

If you are controlling an Audio Mixer from the switcher, performing a Fade to Black will not change the level of the on-air audio channel. Instead, Fade to Black turns off the Main Audio Control on the Audio Mixer.

Fade to Black only affects the MEs that are assigned to your control panel, and that Fade to Black is turned on for. If more than one control panel has the same ME assigned to it, performing a fade to black sets that ME to black on all control panels.

Note: *The TouchDrive panel does not have a dedicated **FTB** button. If you need this functionality, you can create a custom control and assign that to user button.*

To Fade to Black on Acuity® Panels

The personality option must be turned on to perform a Fade to Black.

1. On the Fade to Black module, press **CUT** to cut to black, or **FADE** to dissolve to black. The dissolve is performed at the Fade Rate.

   When the switcher is at black, the **FADE** button is lit with the on-air color, and all the on-air indicators for MEs or Keyers that were on-air are flashing.

2. Press **CUT** to cut out of black, or **FADE** to dissolve out of black. The dissolve is performed at the Fade Rate.

Preset Background

Insert a transition to black as the next transition without losing what is currently selected as the next transition.

When a Preset Background is selected as the next transition, the ME is set as follows:

- The current next transition setting, including keyers, are stored.
- Sources selected on each bus is stored.

- The background and any keyers that are on-air are selected for the next transition.
- By default, dissolve is set as the transition type, but a wipe can also be used.

To Perform a Preset Background Transition on Acuity® Panels

*Note: The **PST BKGD** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

1. Press and hold the **PST BKGD** button.
2. Press the source button on the preset bus for the source you want to use for the preset background.
   When you release both the buttons, the preset background source is selected on the preset bus.
3. Select a dissolve (**DISS**) or wipe (**WIPE**) as the transition type.
4. Perform the transition.
   After the transition is complete, the **PST BKGD** button is turned off and the source that was selected on the preset bus before the preset background is again selected.

WhiteFlash

Perform a two-step transition where a dissolve to and from white, or other selected color, is performed in the middle of the transition. The video signal on the Background bus is transitioned to a Color Background of the selected WhiteFlash color. The Color Background is then transitioned to the Preset bus. WhiteFlash consumes a pattern generator for the transition.

Each ME has a separate WhiteFlash generator.

To Set Up a WhiteFlash Transition

A WhiteFlash transition is performed just like a normal dissolve except that you must set the color for the flash and the rates for the onset, hold, and fade.

1. Double-press **DISS**.

   Tip: On the WhiteFlash Setup menu, you can select a different ME to set up WhiteFlash for.

   The **DISS** button flashes, indicating a WhiteFlash transition has been selected.
2. Press **Color** and use the color picker to select the color you want to use.
3. Press **ME Rate** to use the ME rate for the transition (**Yes**), or not (**No**).
   - **Yes** — use the ME Rate as the transition rate for the WhiteFlash. The Onset, Hold, and Fade rates represent proportional values of the total ME Rate.
   - **No** — use the value (in frames) of the Onset, Hold, and Fade rates for each part of the WhiteFlash. The ME Rate is not used for this transition.
4. If **ME Rate** is set to **No**, press **Timing Settings** and use the **Onset**, **Hold**, and **Fade** knobs to set those parts of the transition.
   - **Onset** — duration of the dissolve to the WhiteFlash color.
   - **Hold** — length of time that the WhiteFlash color is held.
   - **Fade** — duration of the dissolve to the preset video source.

*Tip: Press **Assign As Default** to store your current settings as the default settings for a WhiteFlash transition.*

To Copy and Paste WhiteFlash Settings

1. Press **HOME** > **More** > **Effects** > **More** > **More** > **WhiteFlash** > **Copy Settings**.
2. Select the ME that you want to copy the WhiteFlash settings from on the top row.
3. Select the MEs that you want to copy the WhiteFlash settings to on the bottom row.
4. Press **Copy**.

Transition Preview

You can preview a complete dissolve, wipe, or DVE wipe transition on the Preview output of the switcher instead of performing a standard transition on the Program output. The transition is performed on the Preview output.

Note: A transition preview only previews the transition. When the transition is complete, the output returns to what it looked like before the transition. If the transition rate is too low, you may not be able to see the transition before it cuts back.

To Perform a Transition Preview

1. Set up the transition you want to preview.
2. Press and hold transition type button for the transition you are performing (**DISS**, **WIPE**, **DVE**) on the transition module.

The button will turn blue and the preview output will change to look the same as the program output.

3. Perform the transition you want to preview.

Key Priority Transitions

Key Over transitions allow you to change the priority, or order, that keys are displayed for an ME. This can be between keyers that are on-air, or keyers that are not on-air.

On-air key over transitions are performed by using the **KEY PRIOR** button on the Transition module. This allows you to set up the new priority, or order, for each of the keyers and then perform a transition to change the keyer priority.

To Perform a Key Priority Transition

Note: *The **KEY PRIOR** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

Note: *Key Priority transition can only be performed between keyers that are in the same state. For example, to change the priority of key 1 and key 3, both keyers must be on-air, or off-air, for the ME.*

1. Press **KEY PRIOR** on the Transition module of the Acuity® panel for the ME that you want to change the priority of the keys for.

   Tip: *Press **HOME** > **More** > **Effects** > **More** > **More** > **Key Priority** if you have a TouchDrive control panel.*

   The **KEY PRIOR** button is lit, indicating a key priority transition is selected. If a key is not currently on-air, a warning is displayed.

2. Use the **ME** knob to select the ME that you want to change the priority of the keys on.
3. Press **Current**
4. Press **Current** or **Next** and press the **Key *X*** buttons to set the order of the keys on the ME. Layer 1 is the bottom layer, with all other keys on top of it, and Layer 6 is the top layer, with all other keys beneath it. When the priority is changed, the remaining keys shift layers to accommodate the change.
   - **Current** — sets the order of the keys now, even if they are on-air. Changing the current key priority of on-air keys may produce undesired effects.
   - **Next** — sets the order of the keys after the Key Priority transition.
5. Select the transition type you want to use (**DISS**, or **WIPE** only).
6. Perform the transition.

To Manually Set the Current Key Priority

Note: *The **KEY PRIOR** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

You can manually set the key priority for the keyers from the Transition and Keyers modules. Manually setting the key priority changes the Current key priority, and cannot be applied with a key priority transition.

This procedure provides an example of setting a key priority. Any combination of keys can be used in place of those used.

1. Press and hold the **KEY PRIOR** button on the Transition module.
2. Press the **SEL** button for Key 3 on the Keyers module. This places Key 3 on top of all the other keys.
3. Press the **SEL** button for Key 2 on the Keyers module. This places Key 2 on top of all the other keys, including Key 3.

   Keys 1, 4, 5, and 6 remain in their original order.

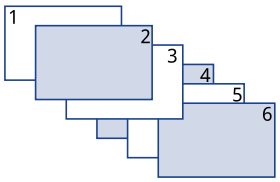


Figure 9: Key Priority Example

4. Release the **KEY PRIOR** button.

Transition Limits

Sets the point where a transition will stop. This allows you to have all transitions on an ME proceed only half way and stop. The next transition is performed from that stop point back to the original starting point. With a Transition Limit in place, a transition will not proceed to the other end of the transition.

Note: *Because a transition limit stops a transition before it completes, a transition that uses a transition limit does not advance to the next shot. The transition progresses part-way through the transition, and then returns to the original point.*

To Set a Transition Limit

Note: *The **TRANS LIMIT** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

Tip: *When setting the transition limit, if you preview the transition you will be able to better achieve the look you want.*

1. Press **TRANS LIMIT**.
2. Move the fader handle to the point in the transition that you want the transition to stop.
3. Press **TRANS LIMIT** to set the stop point.
4. Move the fader back to the original position. If the fader is moved ahead to the opposite limit, the transition limit will not be set properly. The fader must be returned to the original position.

To Use a Transition Limit

Note: *The **TRANS LIMIT** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

Note: *A Transition limit only works with an auto transition performed from the Transition module. Key only, fader, or cut transitions do not use the transition limit.*

1. Press **TRANS LIMIT** on the Transition module that you want to perform the transition limit on.

   The segment in the transition progress bar blinks where the transition limit has been set.

2. Press **AUTO TRANS**.

   The transition progresses to the stop point.

3. Press **AUTO TRANS**.

   The transition reverses back to the start point.

Roll Clip

You can tie the play-out of a VTR, Video Server, or Audio Server to the next transition, or have the clip play immediately. Roll Clip only works with external devices that are being controlled by the switcher.

The operating mode of the Roll Clip button is set with the Roll Clip Mode personality option.

Keying

Keying is the term used to describe when you insert (or electronically cut) portions of one scene into another, or place titles over background images. Keys are made up of two basic components, an alpha, that cuts the hole in the background video, and a fill, that fills the hole with different video. Depending on the type of key, the alpha signal can be from an external source, or internally generated.

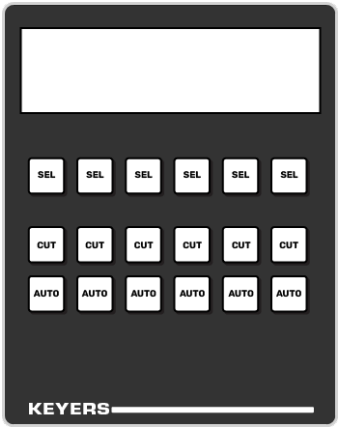
Keys, like MEs, are layered onto the background video from the lowest number key to the highest number key on the ME by default.

To Set Up a Key on TouchDrive

The TouchDrive control panel has a dedicated **Keyers** area that allows you to quickly assign the key bus to a keyer, transition the key on or off-air, and see the status and configuration of each key on the ME.

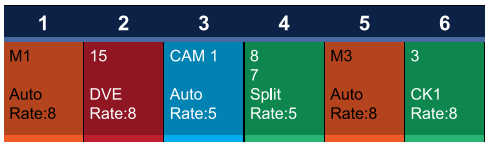
1. In the **Keyers** area, press the **SEL** button for the key you want to assign the key bus to.

   *Tip: You can also tap the **Key** button on the row control menu and select the keyer you want to assign the row to.*



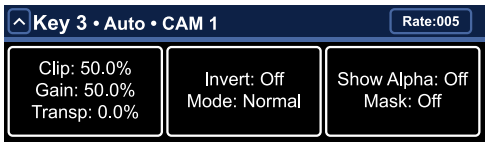
   Tip: The menu follows the keyer selection and shows the setup menu for the key.

2. Select the key type you want to assign to the keyer.
   - **Self/Luma** — press the **SELF/LUMA** user button. Refer to *Self Key* on page 60 for more information.
   - **Auto Select/Linear** — press the **AUTO/LINEAR** user button. Refer to *Auto Select Key* on page 61 for more information.
   - **Chroma Key** — select the chroma key as a source (**CK*X***) on the key bus. The key bus is then assigned to that chroma keyer and you can select the source for the chroma key. The keyer switches to an auto select key when a chroma key is selected. Refer to *UltraChrome 2 Chroma Key* on page 61 for more information.
   - **DVE** — press the **DVE** user button. Refer to *DVE Keys (Fly Key)* on page 67 for more information.
3. The display in the **Keyer** area shows how each keyer is currently configured.



4. Tap the keyer button on the display to show more information about that keyer.

   Note: The information will change depending on the type of key selected.



   Tip: Tap each of the settings buttons to have the 3-knob menu follow to those settings. Tap ∧ in the top left corner to return to the previous menu.

5. Use menu to set up the key.

Self Key

A Self Key is a key in which the luminance, or brightness, values of the key source is used as the alpha for the key.

To Set Up a Self Key

1. Press the **SEL** button on the Keyers module for the key you want to set up and select a video source on the Key bus.

   *Tip: The **SEL** button allows you to quickly select the keyer you want to work with and assign the Key bus to the keyer. On the Double-Down control panel, the top button row is assigned to the even numbered keyers (2,4,6) and the button row below is assigned to the odd numbered keyers (1,3,5). This can be changed with the DD Key Delegation personality option.*

2. Press **SELF KEY**.
3. Press **Clip/Gain** and use the **Clip** and **Gain** knobs to adjust the clip and gain of the key.

Tip: On the TouchDrive panel you can tap the display segment for the key you are setting up. This displays the current settings for that key. You can tap any of these setting to have the menu follow to those settings.

- **Clip** — remove lower-saturated colors from the video image.
- **Gain** — adjust the transition between the video image and the parts of the video image that are removed.

*Tip: You can return the clip and gain values to the default setting by pressing **Make Key Linear**.*

4. Press **Trans Rate** and use the **Trans Rate** knob to set the independent key transition rate.
5. Toggle **Transparency** to **On** and use the **Transp.** knob to adjust the transparency of the key from opaque (**0%**) to fully transparent (**100%**).
6. Toggle **Additive** to temporarily override the shaped/unshaped key settings for the selected source.
   - **On** — turn shaped keying on for the source.
   - **Off** — turn unshaped keying on for the source.

Auto Select Key

An Auto Select Key is a key in which two video signals are required to make the key. The Alpha is used to cut the hole in the video and the fill is used to fill the hole. These signals often originate from external devices such as character generators, external still stores, or other graphics systems.

An auto select key is set up by selecting the key and video source you want to use, and adjusting the key parameters. The pairing of the video and alpha video signal is done when configuring video inputs. Refer to the Setup Manual that came with your switcher for information on setting up Auto Keys.

To Set Up an Auto Select Key

1. Press the **SEL** button on the Keyers module for the key you want to set up and select a video source on the Key bus.

*Tip: The **SEL** button allows you to quickly select the keyer you want to work with and assign the Key bus to the keyer. On the Double-Down control panel, the top button row is assigned to the even numbered keyers (2,4,6) and the button row below is assigned to the odd numbered keyers (1,3,5). This can be changed with the DD Key Delegation personality option.*

2. Press **AUTO SELECT**.
3. Press **Clip/Gain** and toggle **Key Mem** to **Off**.

   When key memory (**Key Mem**) is on, you cannot adjust the clip and gain settings.

Tip: On the TouchDrive panel you can tap the display segment for the key you are setting up. This displays the current settings for that key. You can tap any of these setting to have the menu follow to those settings.

4. Use the **Clip** and **Gain** knobs to adjust the clip and gain of the key.
   - **Clip** — remove lower-saturated colors from the video image.
   - **Gain** — adjust the transition between the video image and the parts of the video image that are removed.

*Tip: To save the new clip and gain settings for the auto select key, press and hold **AUTO SELECT** and then press **KEY MEM**. The current settings are stored for the selected key source.*

*Tip: You can return the clip and gain values to the default setting by pressing **Make Key Linear**.*

5. Press **Trans Rate** and use the **Trans Rate** knob to set the independent key transition rate.
6. Toggle **Transparency** to **On** and use the **Transp.** knob to adjust the transparency of the key from opaque (**0%**) to fully transparent (**100%**).
7. Toggle **Additive** to temporarily override the shaped/unshaped key settings for the selected source.
   - **On** — turn shaped keying on for the source.
   - **Off** — turn unshaped keying on for the source.

UltraChrome 2 Chroma Key

An UltraChrome 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. The default color is blue.

UltraChrome 2 can work in two modes, depending on the lighting conditions and subject matter used for the chroma key.

- **Wedge Key** — Based on the standard chroma keyer and discriminates between the color vector angle and level of the background color vs the color vectors and levels in the foreground components. This produces very good results under ideal conditions. However, if the scene includes high detail luma content in edge regions, these may not be included in the output.
- **Detail Key** — Differs from the standard chroma keyer in that it adds luminance dependency to a three-dimensional spherical color discriminator. This chroma keyer can develop subtle video and alpha shapes and discriminate high detail luma content in edge transition areas. However, this design may have problems with content where background and foreground levels are similar within the video itself.

Tip: *UltraChrome 2 also offers the option to combine these two modes to offer good capture of high luma detail in the edge regions as well as compensation for similar foreground and background levels.*

UltraChrome 2 includes unique **Automatic Background Analysis** that can develop key edges with luma values consistent with those of the new background - eliminating the light or dark key halos. In addition, background color values are averaged and can be applied to spill areas to add lighting realism to the final composition.

To Set Up a Chroma Key

Set up the chroma key with the source you want to use and adjust the parameters.

Tip: *Once you have set up the chroma key how you want it to appear, you can press and hold **CHROMA KEY** and press the **KEY MEM** button to store these settings and the key source. Pressing the **KEY MEM** button again will recall these settings for the chroma key.*

1. Press the **SEL** button on the Keyers module for the key you want to set up and select a video source on the Key bus.

   Tip: *The **SEL** button allows you to quickly select the keyer you want to work with and assign the Key bus to the keyer. On the Double-Down control panel, the top button row is assigned to the even numbered keyers (2,4,6) and the button row below is assigned to the odd numbered keyers (1,3,5). This can be changed with the DD Key Delegation personality option.*

2. Press **CHROMA KEY**.

   Tip: *On the TouchDrive panel you can tap the display segment for the key you are setting up. This displays the current settings for that key. You can tap any of these setting to have the menu follow to those settings.*

3. Press the **Color** button (**Red**, **Magenta**, **Blue**, **Cyan**, **Green**, **Yellow**) for the color of the background you are using for your chroma key.
4. Press **Initialize Key**.

   The chroma key engine initializes and attempts to remove the selected background color from the video. Any further adjust is only required if you want to adjust aspects of the key.

5. Press the **Key Type** button for the chroma key mode you want to use.
   - **Wedge Key** — Based on the standard chroma keyer and discriminates between the color vector angle and level of the background color vs the color vectors and levels in the foreground components.
   - **Detail Key** — Differs from the standard chroma keyer in that it adds luminance dependency to a three-dimensional spherical color discriminator.
   - **Combination Key** — Combine the two modes to offer good capture of high luma detail in the edge regions as well as compensation for similar foreground and background levels.

   Note: *All adjustments are always available, even if they are not applied by the selected mode.*

   Tip: *Although adjustment can be made to either key type while the combined output is selected, it is recommended that adjustments of either key type be conducted with only that key type selected. This eliminates the possibility of the combined key type hiding or concealing the result of adjustments.*

6. Press **Detail Key** and adjust the **Detail Key Parameters** as follows:

   Tip: *The Detail key type is layered over the Wedge key type and has the largest contribution to the final key-edge quality.*

   - **Clip** — use this setting to clip between the foreground and background. You are looking to achieve complete background removal.

     Tip: *Clip should be set to the point where the background is just removed. Setting it too high will reduce edge quality.*

- **Gain** — use this setting to lift the fill image. You are looking to achieve solid fill content.

  Tip: Setting the gain too high may introduce dark boundaries.

- **Shadow Sensitivity** — use this setting to adjust the level of dark image areas, particularly in cast shadow areas.
- **Shadow Density** — use this setting to adjust the apparent lightness of the dark / shadow areas in conjunction with the **Shadow Sensitivity**.
- **Highlight Sensitivity** — use this setting to fill areas with specular highlights, such as reflective surfaces, that can show through to the background.

7. Press **Wedge Key** and adjust the **Wedge Key Parameters** as follows:
   - **Gain** — use this setting to set the **Angle Control** to 100 and the **Lift** to 0 and then adjust this setting until the background is fully removed, leaving a reasonable edge to the key. Too much gain will produce hard and undesirable edges.

     *Tip: Adjust the **Gain** with the **Bkgd Luma Suppress** to balance between background removal and edge quality.*

   - **Bkgd Luma Suppress** — use this setting to compensate for uneven color or lighting in the shot to ensure the chroma background is fully suppressed.

     Tip: Turn on a box mask in the keyer you are using to view the chroma key output to compare the backgrounds. The masked area shows the background source without the key settings applied.

   - **Angle** — use this setting to change the color wedge angle (wedge shape) that is used to detect areas of foreground (fill) and background (alpha) based on the chosen color vector. This can help fill in areas of heavy spill without hardening edge detail.
   - **Lift** — use this setting to amplify the generated alpha signal to fill in areas of transparency.
   - **Highlight Correction** — use this setting to lift areas of the image might contain high luminance levels at edge boundaries. This could be due to lighting conditions, camera setup, or subject.

8. Adjust the **Global Parameters** as follows:
   - **Spill Suppression** — use this setting to select the fill color that has been detected as color spill. You should not have to adjust this setting.
   - **Edge Luma** — use this setting to offset the detected level of the chroma background and allow for fine tuning.

     *Tip: Press **Auto Edge Luma** to have the switcher automatically adjust the edge luminance based on the **Measurement Src** selection.*

     Tip: If the subject image contains fine detail such as fine hair with a luminance level that is close in value to the chroma set color background level – it may be difficult to provide good separation between background and foreground elements.

   - **Edge Softness** — use this setting to filter the edges to eliminate undesirable hard edges and add realism to a scene by simulating depth of field characteristics.
   - **Re-Spill** — use the **Re-Spill Color** and **Re-Spill Sat** settings to select a color that is near the average color of the background/lighting that needs to be added into those areas of the fill that contain the spill from the chroma set.

     *Tip: Press **Auto Re-Spill Color** to have the switcher automatically adjust the re-spill colors based on the **Measurement Src** selection.*

9. Use the automatic adjustments as follows:

   *Tip: The **Auto Adjust** allows you to have the chroma keyer continuously measure the replacement background, the background you are keying the subject onto, used in the final composite.*

   - Use the **Measurement Source** knob to select the video source that you want to place the chroma key over. This source is used for the automatic adjustment of the chroma key.
   - Press **Auto Edge Luma** to have the edge luminance automatically adjusted, based on the replacement background.
   - Press **Auto Re-Spill Color** to have the re-spill color automatically adjusted, based on the replacement background.

UltraChrome Best Practices

High-quality chroma keying with a natural look is fully-achievable with the UltraChrome 2 keying system. However, as with any chroma

key system, careful attention should be paid to the chroma key environment.

Keep the following in mind when working with a chroma key:

- The set should be evenly-lit, with a reasonable level of brightness, too bright or too dark will compromise the ability to produce a great result. High brightness generates high levels of reflected color background (Spill) into the foreground subject. When the camera output is viewed on a waveform monitor, the background set level should read between 50-75% of the overall image level. The foreground subject(s) should be separately lit.
- Adjust camera shading using appropriate charts, ensuring that grey scale, lens flare, gamma, and white/black balance correctly set. If using the AC-H200-UCHR camera, it is recommended it be set in HDR mode - HLG1200. This mode is compatible with standard (non-HDR) signals and the wider dynamic range allows greater image separation in lower-light regions. Also, the camera should be set at its minimum gain to ensure the lowest noise levels, and detail levels should be kept at minimum to avoid sharp edge transitions.
- Real elements, presenters, and props should not contain colors similar to the background. Clothing or props with high reflectivity should also be avoided to minimize color spill (colored light reflected from set onto foreground subject).

Masking

The switcher has a mask available for every key channel (including chroma keys), plus an additional mask available to each chroma key channel. Chroma keys can use static box masks or dynamic masks from an external source. Dynamic masks are fed from virtual set systems (such as Ross Voyager) and follow camera moves through camera-tracking data provided by robotic systems.

From the **Mask Setup**menu, press **Utility Bus Mask** and select the input source that has the mask you want to apply.

The Four Chroma Key Commandments

1. **A Great Chroma Key is Made from a Great Original Source** — Before attempting to set up the chroma keyer, make sure lighting, background, and talent all look great on the camera; and that camera Gain and Detail have been reduced to a necessary minimum.
2. **No Chroma Key is Ever the Same, Start Fresh with Init** — Every set has its own lighting conditions, camera and lens setups, CK wall-quality, consistency of paint, foreground talent clothing, colors, and skin tones. The UltraChrome automatic initialization (**Init**) does not require color pickers or hue controls; once the general color vector has been selected, it will analyze the entire frame and determine the exact chroma vector and angle of the color background to be removed.
3. **Init, Try, Re-Init and Try Again** — The fine-tuning required to get a great result is often minimal and frequently hinges on the adjustment of a single parameter. Changing the value of the wrong parameter can make it impossible to then make corrections with other controls. When learning the nuances of this chroma key, re-**Init** after making a change that does not achieve the desired result and then try another. Also, all chroma key parameters are saved in the memory system, so you can save a setup and then start over if necessary.
4. **No Last Minute Changes** — Once the chroma set, lighting, and cameras are tuned for best performance - don't change anything! On a normal set, it is common to make last minute tweaks and changes to lighting, iris settings, and even talent/wardrobe. When chroma keying, these changes will require the key to be reset and adjusted - which is fine if you have the time. Avoid change if you can, especially at the last minute, it can substantially lower operator blood pressure.

Chroma Key Tips and Tricks

Some useful tips for how to get your production ready for a flawless chroma key, and some tricks for how to deal with difficult shadows.

The Set

In every set design, care must be taken to ensure there are no visible seams, joints or hard corners that will appear on camera. Paint should be chosen that is a close as possible to the exact color vector that will be used, typically Green

or Blue. If the paint pigment is not precise and several batches of paint or repaint are required, the uneven color result will make the perfect key impossible. There are several vendors of chroma key specific paints and set materials you can work with. Ross Video works closely with ProCyc (*www.procyc.com*) in the USA, we whole-heartedly recommend their products.

The set should be sized to allow ample separation between foreground talent and the chroma background wall; ideally at least 6-to-8 feet of separation. The further the distance, the easier it is to reduce unwanted color spill and achieve good lighting separation.

Lighting

Lighting configuration will naturally vary with set design and choice of lighting equipment, but there are some simple rules that will help achieve the best results:

- Light the chroma set independent of the talent: light the walls and floor to achieve flat, even illumination.
- Light the talent independently: use back and side lighting to minimize color spill from the walls and floor. Use floor or stand mounted front fill lights to eliminate areas of spill reflected from the floor.
- Don't light the background too brightly: it should ideally be half a stop or more below the level of the foreground subject (about 50 - 75% of the foreground on a waveform monitor).
- Don't rely on eyesight: when assessing the set lighting and background quality and finish - eyesight will mislead you. Look at the camera output on a waveform/vectorscope and ensure that the chroma background reads as an even signal without variation.

Camera and Lenses

Resolution: Cameras naturally vary in performance; the ideal camera has a high-resolution imager with very low noise. This is critical for an excellent final result. Medium resolution imagers can produce great results in normal video productions, but rely on relatively high-detail settings to enhance image edges. Detail-enhanced edges are undesirable in chroma keying. These edges will appear as bright or dark key halos, which cannot be removed without compromising overall key quality.

Imager/Sensor Noise: Noise is always present in the video image but can be minimized by choice of sensor type and gain settings. Image noise has a significant effect on chroma keying as the chroma levels in a normal video image are much lower than the luma levels - as a result, the chroma information contains proportionately more noise. High noise-levels will be most obvious in dark areas of a developed chroma key and can be very difficult to remove without compromising key quality. The better the noise performance of the camera - the better the end result.

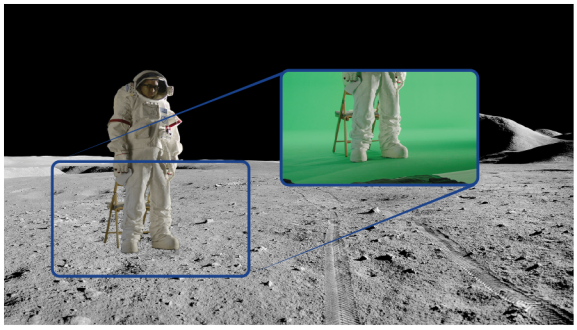
Lens: Select a camera lens based on the set size and production needs. Some lower-cost lenses can exhibit chromatic aberration - colored halos - around edge transitions in certain lens regions. This has a highly undesirable effect on edge quality.

Detail: Avoid high levels of detail regardless of camera type; if detail is necessary to achieve the image quality desired, then the best choice is to use the chroma key Edge Softness control to soften the edge and conceal the aberrations caused by detail setting.

Shadow Tricks

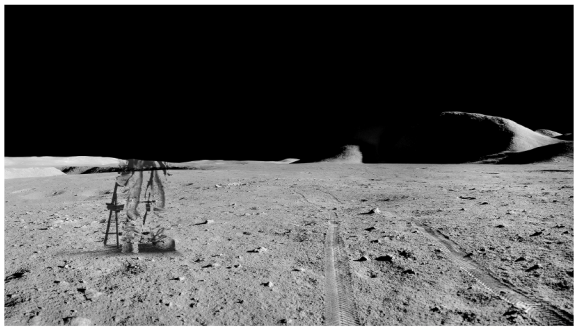
Developing a shadow from the chroma key set can give you a more realistic final output, but this is very difficult to do. As previously mentioned, noise lurks in the shadows and can look quite nasty. But all is not lost, very acceptable shadows are achievable with a nifty keying trick.

1. Setup the chroma key as usual; don't worry about resolving the shadow, just make the best key you can. Assign the key to a keyer with an empty keyer below it (Example: chroma key on Key 2, with Key 1 unassigned).

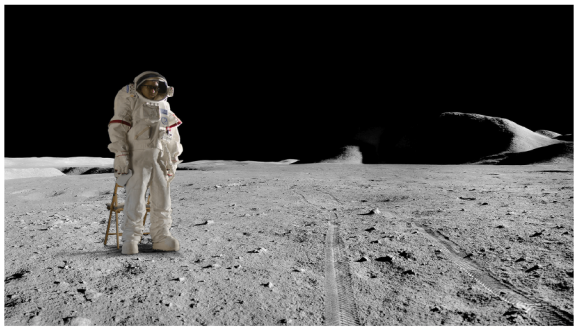


Tip: No attempt is made to resolve any shadows as they are weak and indistinct. Raising the shadow sensitivity would bring up other set errors.

2. Set Key 1 type as Auto Select then select Black as the Key Fill and the chroma key source camera (in this example: Media Store 1) as the Key Alpha source. Turn on Key Invert and leave the keyer in Normal Mode.
3. Now adjust the key Clip and Gain until the shadow area has the look you desire (you can ignore the rest of the image as it will be concealed by the chroma key above it).



4. Now adjust Key Transparency for the most realistic shadow look.



5. Turn on the chroma key in Key 2 - Voila! Great looking shadow from a poor image. Good trick!

Preset Pattern Key

A Preset Pattern key is a key in which a hole is cut based on a wipe pattern that you select. The pattern, which acts like the alpha used by the Auto Select key, is filled with video.

To Set Up a Preset Pattern Key

This procedure describes how to set up a preset pattern key. If you want to modify the pattern, refer to *To Set Up a Pattern* on page 117.

*Note: The **PST PATT** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

1. Press the **SEL** button on the Keyers module for the key you want to set up and select a video source on the Key bus.

*Tip: The **SEL** button allows you to quickly select the keyer you want to work with and assign the Key bus to the keyer. On the Double-Down control panel, the top button row is assigned to the even numbered keyers (2,4,6) and the button row below is assigned to the odd numbered keyers (1,3,5). This can be changed with the DD Key Delegation personality option.*

2. Press **PST PATT**.

*Note: If the DVE option is installed, the **FLY KEY** button turns on when a preset pattern key is selected. Turn the **FLY KEY** button off for a preset pattern key.*

*Note: The **FLY KEY** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

3. Press **Pattern Selection**.
4. Select the pattern you want to use.

Tip: You can also select the pattern using the keypad on the Global Memory or Effects Memory module to enter the pattern number.

5. Press **UP ONE**.
6. Use the positioner to move the pattern around on the screen and twist the positioner (or use the **Size** knob) to adjust the size of the pattern.
7. Use the **Softness** knob to adjust the softness of the edges of the pattern.

Key Modifiers

Key modifiers are used to apply DVE and preprocessor effects or borders to a key.

DVE Keys (Fly Key)

The Fly Key function is used to apply DVE video effects to a key. The Fly Key can be applied to any key type, but will use a different number of DVE channels depending on the type of key (video + alpha).

*Tip: The **DVE Menu** button on all of the DVE menus allows you to quickly navigate between the different DVE menus.*

Keep the following in mind:

Keep the following in mind when working with DVE keys:

- You can fly any type of key.
- You can fly any combination of keys in an ME.
- Self Keys, Auto Select Keys, and Chroma Keys require 2 DVE channels to fly. One channel for the fill and the other for the alpha.
- To use a Preset Pattern Key without the DVE key mode, press **2D DVE** to disable the DVE mode.
- If **2D DVE** is enabled, changing the key type to something other than Preset Pattern automatically turns the DVE key mode off.
- The ME and Keyer that a DVE menu is assigned to are shown at the top of the menu.
- You can switch between a 2D and 3D DVE key by pressing the **2D** or **3D** button on the DVE menus.

To Set Up a 2D DVE Fly Key

As you adjust the DVE key, the images on the **DVE Position/Crop** menu update to show you how the key is being changed.

1. Set up the desired key type and source. If you select a Preset Pattern (**PST PATT**) key, the switcher will automatically fly the key.
2. On the Keyers Module, select the Keyer you want to fly and press **2D DVE** (**DVE** on the TouchDrive panel).

   *Tip: If you are working with multiple channels, press **Channel** to switch between them. The active channel is highlighted in red.*

3. Press **Position** and use the **X Location** and **Y Location** knobs, or the positioner, to adjust the location of the key.
   - **X Location** — move the key from side to side.
   - **Y Location** — move the key up or down.

   The **Position** area on the menu shows the location of the key relative to the visible area. If the key is moved out of the visible area, it is still on-air, but is not visible on the screen.
4. Press **Aspect/Size** and use the **X Aspect**, **Y Aspect**, and **Size** knobs, or the positioner, to adjust the aspect ratio or size of the key.
   - **X Aspect** — stretch or shrink the key horizontally.
   - **Y Aspect** — stretch or shrink the key vertically.
   - **Size** — stretch or shrink the overall size of the key.

   The **Aspect** area on the menu shows the shape and size of the key in the 2D world.
5. Press **More**.
6. Press **Crop Horizontal** and use the **Left Edge**, **Right Edge**, and **Both** knobs, or the positioner, to adjust the cropping of the left and right sides of the key.
   - **Left Edge** — crop the left side of the key.
   - **Right Edge** — crop the right side of the key.
   - **Both** — crop both the left and right sides of the key.

   The **Cropping** area on the menu shows the shape and size of the key in the 2D world and the proportion part of the key that has been cropped off.
7. Press **Crop Vertical** and use the **Top Edge**, **Bottom Edge**, and **Both** knobs, or the positioner, to adjust the cropping of the top and bottom sides of the key.
   - **Top Edge** — crop the top side of the key.
   - **Bottom Edge** — crop the bottom side of the key.
   - **Both** — crop both the top and bottom sides of the key.

   The **Cropping** area on the menu shows the shape and size of the key in the 2D world and the proportion part of the key that has been cropped off.

8. Press **Transparency** and use the **Transparency** knob, or the positioner, to adjust the transparency of the key.

   The **Transparency** area on the menu shows level of transparency that is applied to the key. As transparency is increased, the word Transparent becomes more visible.

9. Press **Freeze** to freeze the video and appearance of the DVE key (**On**), or unfreeze the key (**Off**). When a key is frozen, you can not move the key or adjust the attributes.

To Set Up a 3D DVE Fly Key

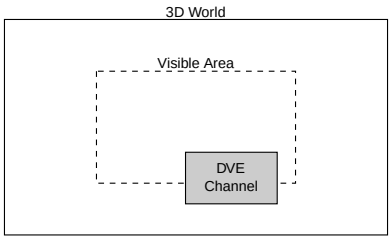
As you adjust the DVE key, the images on the **DVE Position/Crop** menu update to show you how the key is being changed.

1. On the Keyers Module, select the Keyer you want to fly and press **3D DVE**.

   Note: *The **3D DVE** functionality is not mapped to a button on the TouchDrive panel by default. You must either assign this function to a user button or use the **DVE** button and switch to **3D** from the menu. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

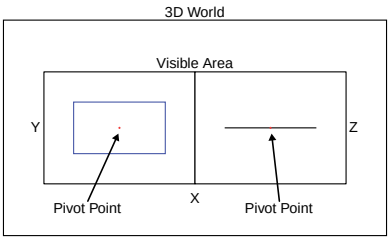
2. Press **Position** and use the **X Location**, **Y Location**, and **Z Location** knobs, or the positioner, to adjust the location of the DVE key.
   - **X Location** — move the key from side to side.
   - **Y Location** — move the key up or down.
   - **Z Location** — move the key towards or away from you. Although the key appears larger or smaller, it is the same size, just closer or further from you in 3D space.

   The **Position** area on the menu shows the location of the key in the 3D world relative to the visible area. If the key is moved out of the visible area, it is still on-air, but is not visible on the screen.



3. Press **Pivot Position** and use the **X Pivot**, **Y Pivot**, and **Z Pivot** knobs, or the positioner, to adjust the location of the pivot point used for rotation.
   - **X Pivot** — move the pivot point from side to side.
   - **Y Pivot** — move the pivot point up or down.
   - **Z Pivot** — move the pivot point towards or away from you.

   The **Point of Rotation** area on the menu shows the location of the pivot point in the 3D world relative to the visible area. This is the point in 3D space where the key rotates around when a rotation is applied. The pivot point is unique to for each key.



4. Press **Rotation** and use the **X Rotation**, **Y Rotation**, and **Z Rotation** knobs, or the positioner, to adjust the rotation of the key around the pivot point.
   - **X Rotation** — rotate the key from side to side around the Y-axis.
   - **Y Rotation** — rotate the key up or down around the X-axis.
   - **Z Rotation** — rotate the key clockwise, or counter-clockwise around the Z-axis.

   The **Rotation** area on the menu shows the rotation of the key in the 3D world. If you rotate the key in the X or Y plane past 90 degrees in either direction, the back-side of the key is visible. This is the reverse image of the front-side.

5. Press **Aspect/Size** and use the **X Aspect**, **Y Aspect**, and **Size** knobs, or the positioner, to adjust the aspect ratio or size of the key.
   - **X Aspect** — stretch or shrink the key horizontally.
   - **Y Aspect** — stretch or shrink the key vertically.
   - **Size** — stretch or shrink the overall size of the key.

   The **Aspect** area on the menu shows the shape and size of the key in the 2D world.

6. Press **More**.

7. Press **Crop Horizontal** and use the **Left Edge**, **Right Edge**, and **Both** knobs, or the positioner, to adjust the cropping of the left and right sides of the key.
   - **Left Edge** — crop the left side of the key.
   - **Right Edge** — crop the right side of the key.
   - **Both** — crop both the left and right sides of the key.

   The **Cropping** area on the menu shows the shape and size of the key in the 2D world and the proportion part of the key that has been cropped off.

8. Press **Crop Vertical** and use the **Top Edge**, **Bottom Edge**, and **Both** knobs, or the positioner, to adjust the cropping of the top and bottom sides of the key.
   - **Top Edge** — crop the top side of the key.
   - **Bottom Edge** — crop the bottom side of the key.
   - **Both** — crop both the top and bottom sides of the key.

   The **Cropping** area on the menu shows the shape and size of the key in the 2D world and the proportion part of the key that has been cropped off.

9. Press **Transparency** and use the **Transparency** knob, or the positioner, to adjust the transparency of the key.

   The **Transparency** area on the menu shows level of transparency that is applied to the key. As transparency is increased, the word Transparent becomes more visible.

10. Use the **Outer Edge Softness** knob to adjust the amount of edge softness that is applied to the key alpha between **1** and **6** pixels.

    Tip: *Use Outer Edge Softness to remove aliasing of the edge of a key as it is rotated.*

11. Press **Smoothing** and use the **Horizontal**, **Vertical**, or **Both** knobs adjust the amount of smoothing that is applied to the key video between **0** and **3** pixels.
    - **Horizontal** — apply smoothing horizontally across the image.
    - **Vertical** — apply smoothing vertically up and down the image.
    - **Both** — apply smoothing both horizontally and vertically to the image.

To Apply a DVE Border to a DVE Key

Tip: *The size of the border should be set first in order to adjust the appearance of the border.*

DVE Borders can be applied to any key type. When applied to a Chroma Key, Self Key, or Auto Select Key, the following limitations apply:

- Softness is not applied when the border size is 0.
- Size crops the key when softness is 0.
- Softness only applies inside the key.
- Color cannot be applied to the border.

1. Navigate to the DVE menus for the DVE key you want to apply the border to and press **DVE Menu** > **Border**.
2. Press **Size** and use the **Size** knob, or the positioner, to adjust the size of the border. In the size area, the dotted line is the edge of the key and the blue line is the thickness of the border.

   The **Size** area on the menu shows the size of the border relative to the key.

3. Use the **Softness** knob, or the positioner, to adjust the softness of the edges of the border.

   Softness is applied to the inner and outer edges of the key as well as the border. If the border size is **0**, the softness is applied to the outer edges of the key.

   The **Softness** area on the menu shows the amount of softness that is applied to the edge of the border. The dotted line is the edge of the key and the gradient at the bottom is showing the amount of softness, or fading, applied to the border.

4. Press **Color** and use the color picker to select the color you want to use.

DVE Channel Management

You can assign additional channels to each key as long as there are sufficient DVE channels available. These additional channels can have different sources and positions, but must be the same key type and be in the same keyer. The channels in this combined key can be manipulated separately or together.

To manipulate both channels together, you can select both channels at the same time. Both channels can be selected when using any of the DVE tools. If the channels selected have different

values, for example, different positions, the menu indicates that the values are different and no coordinates are displayed. The selected channel is highlighted on the **Channel** button.

Up to two channel are dedicated to each DVE key. This allows you to fly a key, or combine two preset pattern keys in the keyer. Preset pattern keys only use a single DVE channel and all other key types use two.

*Tip: Press **CHNL MGMT** or navigate to the **DVE Menus** > **Channel Management** > **DVE Allocation** menu to view how your DVE channels are currently allocated.*

To Assign a Channel to a Keyer

You can turn the second DVE channel on and select which one in the keyer is on top.

*Tip: When you fly a preset pattern key, it already uses the first DVE channel. To add a second preset pattern DVE key to the same keyer, press and hold the **PST PATT** button and press **2D DVE**. The second key automatically uses the second DVE channel.*

*Note: The **PST PATT** functionality is not mapped to a button on the TouchDrive panel by default. You must assign this function to a button to be able to use the feature. Refer to User Buttons (TouchDrive Only) for information on setting up user buttons.*

1. Navigate to the DVE menus for the DVE key you want to configure and press **DVE Menu** > **Channel Management**.

   *Tip: You can also press **CHNL MGMT** on the Keyers module of the Acuity® panel to navigate to the **Channel Management** menu. Once on the **Channel Management** menu, pressing the **CHNL MGMT** button again cycles through the channels and double-pressing the button selects both of them if both channels are active.*

2. In the **Key Combiner** area select the channels that you want to turn on. (Not available in UHDTV1 video formats.)
   - **Single Channel** — (Preset Pattern Key Only) only turn channel 1 on and free up a 3D DVE channel resource.
   - **Channel 1** — only turn channel 1 on.
   - **Channel 2** — only turn channel 2 on.
   - **Both Channels** — turn both channels on.

   *Tip: When you select **Single Channel**, the channel resources that would be used for channel 2 are added back to the pool. This allows you to have 4 flying Preset Pattern keys with a single 3D DVE channel each, or 2 flying Preset Pattern keys with a single channel each and a single 2-channel flying key.*

3. In the **Layering** area select how the channels interact. (Not available in UHDTV1 video formats.)
   - **Automatic** — channel layering is based on the distance the channel is from you in 3D space, or the size of the channel in 2D space. The channel that is closest to you, or larger, covers the one that is further away, or smaller. Use the **Dissolve** knob to select the amount that the top channel is dissolved into the bottom channel when the channels overlap in the same spot in 3D space.
   - **Chan 1 On Top** — only turn channel 1 on.
   - **Chan 2 On Top** — only turn channel 2 on.
   - **Intersecting** — channel layering is the similar to Automatic without the dissolve, but the channels can intersect and partially cover each other.

   *Tip: Press **DVE Allocation** to show you how your available DVE channels are assigned. You can free up 3D channels by pressing the **2D** button for a keyer you want to release the channels for. This turns the 3D key into a 2D key.*

To Copy and Paste Channel Settings

Copy and paste the configuration of one or both DVE channels to another on the same or a different ME.

1. Navigate to the DVE menus for the DVE channel that you want to copy.
2. Press the **Channel** button to select the channel(s) you want to copy.
   - **1** — copy channel one.
   - **2** — copy channel two.
   - **1 2** — copy channels one and two.
3. Press **DVE Menu** > **Channel Copy**.
4. Press the **Channel** button for the channel(s) you want to paste to. This can be on the same ME, or a different one.
   - **1** — paste the contents of the clipboard to channel one.
   - **2** — paste the contents of the clipboard to channel two.
   - **1 2** — paste the contents of the clipboard to channels one and two. If you copied from channels 1 and 2, channel 1 will be pasted to channel 1 and channel 2 to channel 2. If you copied from a single channel, that channel will be pasted to both channels.
5. Press **DVE Menu** > **Channel Paste**.

Preprocessor Effects (3D DVE)

The Preprocessor creates effects such as strobe and defocus that can be applied any DVE channel. Any number of preprocessor effects can be applied to the same DVE channel.

- **Defocus** — adds a horizontal and vertical blur to the image on the channel.
- **Strobe** — alternates between freezing and playing the live video of the channel.

To Apply the Defocus Effect to a Key

The Defocus effect adds a horizontal and vertical blur to the image on the channel.

1. Navigate to the DVE menus for the DVE key you want to apply a preprocessor effect to and press **DVE Menu** > **Preprocessor**.
2. Press **Defocus** to select the effect.
3. Use the **Horiz.**, **Vert.**, and **Both** knobs to select the amount of defocus you want to use.
   - **Horiz.** — select the amount of horizontal defocus you want to use.
   - **Vert.** — select the amount of vertical defocus you want to use.
   - **Both** — adjust both the horizontal and vertical defocus at the same time.
4. Press **Defocus** again to toggle the effect **On** or **Off**.

To Apply the Strobe Effect to a Key

The Strobe effect alternates between freezing and playing the live video of the channel. There are three strobe generators that can be used to apply a serialized strobe to create various pulldown effects.

1. Navigate to the DVE menus for the DVE key you want to apply a preprocessor effect to and press **DVE Menu** > **Preprocessor**.
2. Press **Strobe** to select the effect.
3. Press **Strobe 1**, **Strobe 2**, or **Strobe 3** for the strobe you want to set up. The strobe values are applied in series starting with strobe 1.
4. Press a **Mode** button to select how the strobe is applied.

   Note: *If the switcher is operating in a progressive video format the field 1 and 2 selection are not available.*

   - **Frame** — strobe is applied to the entire frame of video.
   - **Field 1** — strobe is only applied to the first field of video.
   - **Field 2** — strobe is only applied to the second field of video.
5. Use the **Live** and **Frozen** knobs to select the amount of strobe you want to use for the selected strobe.
   - **Live** — select the number of live fields or frames you want before the frozen ones.
   - **Frozen** — select the number of frozen fields or frames you want after the live ones.
6. Repeat these steps for the remaining strobe generators if required.
7. Press **Strobe** again to toggle the effect **On** or **Off**.

Split Keys

A Split key allows you to assign a different alpha source for a key than the alpha/fill associations that are set up during installation, or the alpha sources that are selected by the key type. Split Keys are typically used for creative montages and for keying moving video inside key shapes.

Keep the following in mind:

Keep the following in mind when working with split keys:

- Split Auto Select key assignments are temporary and will revert back to the original setup if any other fill source is selected, unless stored in a memory.
- Split Self key assignments persist if you select a different fill source and KEY MEM is off. You must select a different key type or press SELF key again to clear the split key assignment.

To Set Up a Split Key

1. Set up your key with the video source you want to use.
2. Press the **SEL** button on the Effects Keyer module for the key you want to split. This assigns the module to that key.
3. Press and hold the **AUTO SELECT** or **SELF KEY**, depending on the key type you are splitting.
4. Select the source on the key bus for the alpha you want to use.

Masks

A mask is a technique in which a pattern is combined with the key source to block out unwanted portions of the key source.

Three types of masks are available, box masks, pattern masks, and utility bus masks. All key types can be masked.

- **Box Mask** — uses a simple box shape to mask out a portion of the key.
- **Pattern Mask** — uses a pattern from the pattern generator to mask out a portion of the key.
- **Utility Bus Mask** — uses a video source selected on utility bus one to mask out a portion of the key.

Keep the following in mind:

Keep the following in mind when working with a mask:

- A mask can be applied to any type of key.
- A mask applied to a flying preset pattern key is performed downstream (post) of the DVE. This allows you to adjust the DVE key without affecting the mask.
- A mask applied to a flying chroma key, self key, or auto select key is performed upstream (pre) of the DVE. This means that adjusting the DVE key also adjusts the mask.
- A mask applied to a flying key that is using the floating DVE is always performed downstream of the DVE.

To Set Up a Box Mask

1. Press the **SEL** button for the key you want to mask.
2. Press **HOME** > **More** > **Effects** > **More** > **Mask** > **Box Mask**
3. Press **Position/Size** and use the **X**, **Y**, and **Size** knobs, or the positioner, to adjust the position and size of the mask.
   - **X** — move the mask from side to side.
   - **Y** — move the mask up and down.
   - **Size** — adjust the size of the mask.
4. Press **Top/Left** and use the **Top** and **Left** knobs to adjust the location of the top-left corner of the mask.
   - **Top** — move the top edge of the mask up or down.
   - **Left** — move the left edge of the mask left or right.
5. Press **Bottom/Right** and use the **Bottom** and **Right** knobs to adjust the location of the bottom-right corner of the mask.
   - **Bottom** — move the bottom edge of the mask up or down.
   - **Right** — move the right edge of the mask left or right.
6. Press **Force** to toggle it to **On** to force the masked area of the image on screen.
7. Press **Invert** to toggle it to **On** to reverse the mask. The portion of the image that was masked out is now visible, and the portion that was visible is masked.

To Set Up a Pattern Mask

1. Press the **SEL** button for the key you want to mask.
2. Press **HOME** > **More** > **Effects** > **More** > **Mask** > **Patterm Mask**
3. Select the pattern you want to use to mask out the key. Press **Modify Pattern** if you want to adjust the pattern parameters.

   Tip: For information on modifying the mask pattern, refer to To Set Up a Pattern on page 117.
4. Press **Back** until you reach the **Mask Setup** menu again.
5. Press **Force** to toggle it to **On** to force the masked area of the image on screen.
6. Press **Invert** to toggle it to **On** to reverse the mask. The portion of the image that was masked out is now visible, and the portion that was visible is masked.

To Set Up a Utility Mask

1. Press the **SEL** button for the key you want to mask.
2. Press **HOME** > **More** > **Effects** > **More** > **Mask** > **Utility Bus Mask**
3. Use the **Utility Bus 1 Xpt** knob, or select the source on the utility bus that you want to use to mask out the key.
4. Press **Force** to toggle it to **On** to force the masked area of the image on screen.
5. Press **Invert** to toggle it to **On** to reverse the mask. The portion of the image that was masked out is now visible, and the portion that was visible is masked.

Memory Functions

A memory register is a snapshot of the current state of the switcher that can include multiple MEs. Up to 1,000 memory registers per ME can be stored and recalled on the switcher. Each of these memory registers can store as little as the information of one ME, or as much as the current state of the entire switcher, including all MEs, Aux Buses, and DVE settings.

Keep the following in mind:

Keep the following in mind when working with memories:

- Memories are stored in groups, or banks, that correspond to the first two numbers in the memory. For example, Memory039 is Memory 9 in Bank 03. The available slots for memories range from Memory 0 on Bank 00 through to Memory 9 on Bank 99.
- You can override the video source stored in a memory by pressing and holding a source button and recalling the memory (Bus Hold). The held source button overrides the source that is recalled with the memory for that bus. The memory is not affected by a Bus Hold and will recall properly without the Bus Hold.
- The Keys Only (**KEYS ONLY**) button allows you to recall a memory on a panel row that does not include the Program and Preset bus selection. Only the keyer selections are recalled. The Media-Store image selections stored in the memory are not loaded if the Recall Media-Store personality option is set to Attribute.
- The Effects Dissolve (**EFF DISS**) button allows you to have the keys from one memory slew into the keys from the one you are recalling.
- The **+4** buttons on the Acuity® panel allows you to select an ME above ME 4. When the +4 button is toggled on, the ME 1 through ME 4 buttons become ME 5 through ME 8 buttons, respectively. For example, if you want to select ME 6, toggle the +4 button on, and press ME 2. Both the ME 2 and +4 buttons will remain lit.
- The Undo (**UNDO**) button allows you to take back, or undo, the last memory recall. This returns the switcher to the state it was in prior to the last memory recall. The Undo button lights up after each memory recall, indicating that the action can be undone. If you perform 10 or more button presses after the memory recall, the Undo button goes out, and the memory can no longer be recalled.
- The Attributes (**ATTRIB**) button allows you to view the **ME Memory Attributes** menu, or override the attributes stored with the memory. To override attributes, press and hold the **ATTRIB** button while recalling the memory.
- The **Recall Empty Memory** personality option can prevent memories that are empty, deleted, or marked as Don't Recall from being recalled.

Storing Memories

When you store a memory, you are storing the complete state of that panel row. This includes the current state of all the areas on the ME, including keyer settings, transition rates, wipe and pattern selections, and crosspoint selections. In addition to the current state of the panel, the current settings for the various keyers, such as chroma key settings, and clip and gain settings, are also stored.

To Store a Memory on Acuity® Panels

1. Press the ME buttons on the Store side of the Global Memory module for the MEs you want to store a memory to.
   - **ME *X*** — the ME(s) you want to store the memory to. Press and hold the **ME *X*** button for the first ME you want to include and then press the other **ME *X*** buttons to add MEs 1-4. Release the other button and press and hold the **+4** button and then press the **ME *X*** buttons to add MEs 5-8.
   - **ALL** — store memory to all MEs.

   *Tip: Press **STORE** on an Effect Memory module to only store a memory to the ME that the panel row is assigned to.*

2. Press and hold **BANK** and press the number (**00-99**) for the memory bank you want to store the memory to.

   *Tip: If a memory has been stored to a register, the corresponding button is lit. The button shows gray if the memory register is empty. For example, if memories have been stored to registers 1 and 5, buttons **1** and **5** are lit and the buttons **0**, **2-4**, and **6-9** are gray.*

3. Press the number (**0-9**) for the memory register you want to store the memory to.

Tip: If the Auto Recall feature is turned Off, you cannot store or recall the Effects Dissolve or Keys Only setting with a memory.

4. Press **ENTER** to store the memory. You are prompted to name the memory. This can be done later.

To Store a Memory on TouchDrive Panels

*Tip: You can also use the **Memory Punch Pad** menu (Press **HOME** > **More** > **Memory PunchPad**) if your panel does not have a Memory area. The **ME Select** area on the left allows you to select which panel row the memory function is being performed on. This emulates performing the action on the Memory area of that row.*

1. Select the ME(s) that you want to store the memory for.

- ME *X* — press and hold the ME button and press the number buttons on the punchpad for ME(s) you want to store the memory for.
- Current ME — press **LOCAL ROW** to select the ME that is assigned to the row.
- All MEs — press **ALL** to select all MEs.

2. Press **Store** on the Memory area.
3. Press and hold **BANK** and press the number (**00-99**) for the memory bank you want to store the memory to.

*Tip: If a memory has been stored to a register, the corresponding button is lit. The button shows gray if the memory register is empty. For example, if memories have been stored to registers 1 and 5, buttons **1** and **5** are lit and the buttons **0**, **2-4**, and **6-9** are gray.*

4. Press the number (**0-9**) for the memory register you want to store the memory to.

Tip: If the Auto Recall feature is turned Off, you cannot store or recall the Effects Dissolve or Keys Only setting with a memory.

5. Press **ENTER** to store the memory. You are prompted to name the memory. This can be done later.

Recalling Memories

When you recall a memory for a panel row, or ME, the existing configuration of that panel row is replaced with the settings stored in the memory.

To Recall a Memory on Acuity® Panels

1. Press the ME buttons on the Recall side of the Global Memory module for the MEs you want to recall a memory to.
   - **ME *X*** — the ME(s) you want to recall the memory to. Press and hold the **ME *X*** button for the first ME you want to include and then press the other **ME *X*** buttons to add MEs 1-4. Release the other button and press and hold the **+4** button and then press the **ME *X*** buttons to add MEs 5-8.
   - **ALL** — recall memory to all MEs.

*Tip: Press **RECALL** on an Effect Memory module to only recall a memory to the ME that the panel row is assigned to.*

2. Press and hold **BANK** and press the number (**00-99**) for the memory bank you want to recall the memory from. If the bank is already select you can skip this step.

*Tip: If a memory has been stored to a register, the corresponding button is lit. The button shows gray if the memory register is empty. For example, if memories have been stored to registers 1 and 5, buttons **1** and **5** are lit and the buttons **0**, **2-4**, and **6-9** are gray.*

3. Press the number (**0-9**) for the memory register you want to recall the memory from.

Tip: If the Auto Recall feature is turned Off, you cannot store or recall the Effects Dissolve or Keys Only setting with a memory.

To Recall a Memory on TouchDrive Panels

*Tip: You can also use the **Memory Punch Pad** menu (Press **HOME** > **More** > **Memory PunchPad**) if your panel does not have a Memory area. The **ME Select** area on the left allows you to select which panel row the memory function is being performed on. This emulates performing the action on the Memory area of that row.*

1. Select the ME(s) that you want to recall the memory on.

- ME *X* — press and hold the ME button and press the number buttons on the punchpad for ME(s) you want to recall the memory on.
- Current ME — press **LOCAL ROW** to select the ME that is assigned to the row.
- All MEs — press **ALL** to select all MEs.

2. Press and hold **BANK** and press the number (**00-99**) for the memory bank you want to recall the memory from. If the bank is already select you can skip this step.

> ***Tip:*** *If a memory has been stored to a register, the corresponding button is lit. The button shows gray if the memory register is empty. For example, if memories have been stored to registers 1 and 5, buttons **1** and **5** are lit and the buttons **0**, **2-4**, and **6-9** are gray.*

3. Press the number (**0-9**) for the memory register you want to recall the memory from.

> ***Tip:*** *If the Auto Recall feature is turned Off, you cannot store or recall the Effects Dissolve or Keys Only setting with a memory.*

To Prevent a Memory From Being Recalled

You can prevent a memory from being recalled, or force an empty memory to be recalled.

> ***Note:*** *The Recall Empty Memory personality option must be off to prevent memories from being recalled.*

1. Press **HOME** > **Attributes** > **Memories Setup** > **More**.
2. Use the **ME** knob to select the ME that you want to prevent the memory from being recalled on.
3. Use the **Memory** knob to select the memory register on the selected ME that you don't want to be recalled.
4. Press **Don't Recall Memory**.

> ***Tip:*** *Press **Recall Memory** to force an empty memory to be recalled.*

Deleting Memories

You can delete a memory by storing the default state to the register.

To Delete a Memory

> ***Note:*** *You must store to the memory you want to delete within 10 seconds of the ALL+ALL reset.*

1. Perform a soft reset of the ME(s) that you want to delete the memory on. Refer to *ME Reset on Acuity Panels* on page 46 for information on resetting one or more MEs.
2. Select the bank that you want to delete the memory on.
3. Select the MEs on the **STORE** side that you want to delete.
4. Store a memory to the register you want to delete.

The memory button turns gray after the store to indicate that the register is now empty.

Naming Memories

Each memory can be given a descriptive name that appears on the menus and the display on the Global Memory and Effects Memory Modules. The description allows you to add comments to each memory, such as what is included in the memory.

To Name a Memory for Acuity® Panels

> ***Tip:*** *Press **Copy Description & Name to All MEs** to copy the current description and memory name to the same memory register on all ME. You cannot copy the description to a locked memory register.*

1. Press **HOME** > **Attributes** > **Memories Setup**.
2. Use the **ME** knob to select the ME that you want to rename or add a description to.
3. Use the **Memory** knob to select the memory register on the selected ME that you want to rename or add a description to.
4. Press **Rename**.

> ***Tip:*** *To add a description to the memory, press **Edit Description**. When you have added the description, press **Accept**.*

5. Press **Name** and enter the new name for the memory.
6. Press **Accept New Name**.

To Name a Memory for TouchDrive Panels

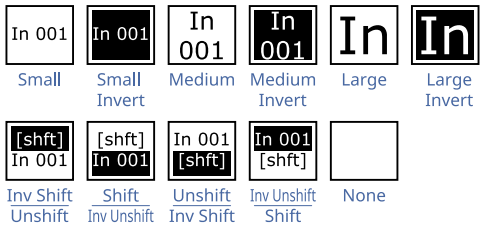
*Tip: Press **Copy Description & Name to All MEs** to copy the current description and memory name to the same memory register on all ME. You cannot copy the description to a locked memory register.*

1. Press **HOME** > **Attributes** > **Memories Setup**.
2. Use the **ME** knob to select the ME that you want to rename or add a description to.
3. Use the **Memory** knob to select the memory register on the selected ME that you want to rename or add a description to.
4. Press **Rename**.

   *Tip: To add a description to the memory, press **Edit Description**. When you have added the description, press **Accept**.*

5. Press **Name** and enter the new name for the memory.
6. Press **TouchDrive Mnemonic** to adjust the mnemonic used for the memory.
7. Press **Font** and select the size and layout of the font you want to use on the mnemonic displays.

   *Tip: Select **Standard** to use the standard mnemonic settings.*

   *Tip: Use the **Router/Int** or **Router Only** setting to show both the router and switcher names for a source, or only the router names.*

8. Press **Background** or **Foreground** and select the color you want to apply to that component of the mnemonics.
   - **Acuity Colors** — use a standard Acuity® mnemonics color.
   - **ME Colors** — use a ME Glow color.
   - **User Colors** — use a User Color.
   - **TouchDrive Colors** — use a standard TouchDrive mnemonics color.

   *Tip: Select **Standard** under **Acuity Colors** to use the standard mnemonic color.*

   *Tip: Select **None** to not use a color for the mnemonic.*

9. Press **Accept New Name**.

Locking Memories

You can protect memory registers from being changed or deleted. With the memory lock enabled, you cannot overwrite the selected memory register until the memory has been unlocked.

When working with locked memory registers, the following rules apply:

- If you try to store into a locked memory register, the keypad flashes and **Memory *X* LOCKED** is shown in the display, along with the MEs that the memory is locked on. The **ME *X*** buttons also flash, indicating the MEs that the memory is locked on.
- If you lock a memory register, it is locked for all MEs on the switcher.
- You can overwrite a locked memory register if you recall all memories from the hard drive or USB flash drive.
- When you recall an individual memory from the hard drive or USB flash drive to a memory register that is locked, you are prompted to overwrite the memory or cancel.
- If you store or recall a memory to the hard drive or USB flash drive, the lock status of the memory is retained.

To Lock a Memory

*Tip: You can also lock a memory from the Global Memory module. Press and hold the **ALL** button on the store side until both the store and recall **ALL** buttons light. Select the bank and register you want to lock. The menu will show **LOCKED** or **UNLOCKED**. Press the register number to toggle between locked and unlocked and press **ENTER** to save the locked or unlocked state.*

1. Press **HOME** > **Attributes** > **Memories Setup**.
2. Use the **ME** knob to select the ME that you want to lock the memory on.
3. Use the **Memory** knob to select the memory register on the selected ME that you want to lock.

   As you scroll through the memory registers, the lock status of each memory register is shown.

4. Press **Lock Memory** to lock (**Yes**) or unlock (**No**) the selected memory register.

> ***Tip:*** *Use the **Lock Bank** or **Unlock Bank** to lock or unlock all the memory registers on the selected bank. The bank number is the first digit in the memory number.*

> ***Tip:*** *Press **More** > **Lock Memory On All MEs** to lock the select memory on all MEs. Press **Unlock Memory On All MEs** to unlock the memory.*

ME Memory Attributes

You can specify what elements are recalled with the memory, as well as adding effects to memory recalls. These elements include the crosspoint bus, keyer bus, Aux bus, and Global-Store (video and audio) and ME-Store selections, as well as keyer on-air status, and Transition Module selections.

In addition to setting which sources to recall with the memory, effects such as performing an auto transition after the memory recall or running a custom control after the memory recall, can also be included. For example, you can use ME Memory Attributes to have a memory recall a still on Global-Store channel 3, select that channel on the Preset Bus, and transition it on-air without changing any other sources on the ME.

Memory attributes are stored in the memory. You must set the memory attributes first and then store the memory.

To Set General Memory Attributes

1. Press **HOME** > **Attributes** > **ME Attributes**.

> ***Tip:*** *You can also press **ATTRIB** on the Effects Memory module.*

2. Press **General**.
3. Use the **ME** knob to select the ME that you want to set up the ME attributes for.

> ***Tip:*** *The memory that you are currently setting the attributes for is listed near the top left of the menu.*

4. Select the video sources and key status that you want to be recalled with the memory.
   - **BKGD/PGM** — source selected on the Background/Program bus is recalled with the memory.
   - **PST** — source selected on the Preset bus is recalled with the memory.
   - **U*X*** — source selected on Utility bus *X* is recalled with the memory.
   - **Key *X* Xpt** — sources selected on the Keyer buses are recalled with the memory. Keyer parameters such as key type, clip, and gain settings are always recalled with a memory.
   - **Key *X* State** — the on-air status of the keyers are recalled with the memory.
   - **Key *X* Type** — the key types selected for the keyers are recalled with the memory.
   - **Key SEL** — the selected key (**SEL** button) on the Keyer module is recalled with the memory.
   - **Chroma Key** — the chroma key settings are recalled with the memory. This is useful for virtual set environments where you want to recall different shots but not change the chroma key settings with the memory recall.
5. Select how the Transition module is recalled with the memory.
   - **Run Auto Trans** — an auto transition performed after a memory is recalled. Remember to set up the transition in the Transition module when you store the memory so that the desired transition is performed after the memory is recalled.
   - **Next Trans Buttons** — the selection of the Next Transition Select buttons is recalled with the memory.
   - **Transition Area** — the Transition Parameter and Transition Type buttons, but are recalled with the memory. The Fader, Transition, or Next Transition Select buttons are not recalled.

To Set Aux Bus Memory Attributes

1. Press **HOME** > **Attributes** > **ME Attributes**.

> ***Tip:*** *You can also press **ATTRIB** on the Effects Memory module.*

2. Press **Aux Bus**.
3. Use the **ME** knob to select the ME that you want to set up the ME attributes for.

> ***Tip:*** *The memory that you are currently setting the attributes for is listed near the top left of the menu.*

4. Select the aux buses (**Bnk*X*Aux*Y***) that you want recalled with the memory.

To Set Custom Control Memory Attributes

1. Press **HOME** > **Attributes** > **ME Attributes**.

*Tip: You can also press **ATTRIB** on the Effects Memory module.*

2. Press **Custom Control**.
3. Use the **ME** knob to select the ME that you want to set up the ME attributes for.

Tip: The memory that you are currently setting the attributes for is listed near the top left of the menu.

4. Use the **Bank** and **Macro** knobs to select the custom control that you want to have play after the memory is recalled.
5. Press **Auto Run Custom Control** to include the custom control with the memory.

To Set the Video Media-Store Attributes

1. Press **HOME** > **Attributes** > **ME Attributes**.

*Tip: You can also press **ATTRIB** on the Effects Memory module.*

2. Press **Video MediaStore**.
3. Use the **ME** knob to select the ME that you want to set up the ME attributes for.

Tip: The memory that you are currently setting the attributes for is listed near the top left of the menu.

4. Select the Media-Store video channels that you want to recall with the memory.

Note: The Recall ME-Store option must be set to Attributes to be able to not recall them with the memory.

To Set the Audio Media-Store Attributes

1. Press **HOME** > **Attributes** > **ME Attributes**.

*Tip: You can also press **ATTRIB** on the Effects Memory module.*

2. Press **Audio MediaStore**.
3. Use the **ME** knob to select the ME that you want to set up the ME attributes for.

Tip: The memory that you are currently setting the attributes for is listed near the top left of the menu.

4. Select the Media-Store audio channels that you want to recall with the memory.

Note: The Recall ME-Store option must be set to Attributes to be able to not recall them with the memory.

Effects Dissolve

An Effects Dissolve allows you to have the switcher slew from one memory to another using a memory recall. The switcher will interpolate from the starting memory to the destination memory, creating a smooth, two keyframe effect.

Only elements such as clip level, pattern position, and DVE settings can be interpolated in the effects dissolve. Other elements, such as key priority, crosspoint selection, pattern, and next transition data are recalled first, and then the switcher will slew to the recalled memory.

The speed at which an effects dissolve is performed is either the Effect Rate. If you store an effects dissolve in a memory register, the effects dissolve rate stored with that memory is used. The effects rate of the destination memory is used for any effects dissolve. You can set a default effects dissolve rate that is used when an ME, or the switcher, is defaulted. This rate does not override the rate that is stored in the memory.

To Set Up an Effects Dissolve

An effects dissolve is performed between two memories. You must first store your memories with the desired effects rate before you can perform an effects dissolve. Remember to store the same effects rate in the first memory is you want to effects dissolve back from the second memory to the first.

Note: If the Auto Recall feature is turned Off, you cannot store or recall the Effects Dissolve or Keys Only setting with a memory.

1. Recall the first memory you want to effect dissolve from.
2. Toggle **EFF DISS** on.
3. Recall the memory you want to effects dissolve to.

   The switcher slews from the first memory to the second memory at the effects rate stored with the second memory.

To Set the Effects Dissolve Rate

1. Press **EFF RATE** on the Effects Memory module for the ME that you want to set the effects rate for. You can also select the ME and press **EFF RATE** on the Global-Memory module.
2. Enter the new rate, in frames, using the keypad and press **ENTER**

Copying and Swapping Memories

Memories can be copied, moved, or swapped with other memories on the switcher. This allows you to duplicate memories on different banks or re-organize the memories on the same bank.

To Copy or Move a Memory

Copy, move, or swap a memory from the source location to the destination location.

1. Press **HOME** > **Attributes** > **Memories Setup** > **More** > **Copy/Move Memory**.
2. Press **Source** and use the **ME** and **Memory** knobs to select the memory you want to copy, or swap, from.

   Tip: *Press **Copy To All MEs** to copy the selected memory to the same location on all MEs.*

3. Press **Destination** and use the **ME** and **Memory** knobs to select the memory location you want to copy, or swap, to.
4. Press the **Copy**, **Move**, or **Swap** button to move or copy the custom control.
   - **Copy** — copy the contents from the source memory to the destination. Both memories will contain the same settings.
   - **Move** — copy the source memory to the destination and delete the settings in the source memory. Only the destination memory has the settings from the source.
   - **Swap** — copy the settings from the source memory to the destination, and the settings from the destination memory the source. The settings that used to be in the source will be in the destination, and the settings that used to be in the destination will be in the source.

Switcher Setups

The switcher stores configuration and operation data in a number of registers that contain the individual entries for items such as memories or personality settings. These registers can be stored as a single archive file, as a setup that contains all the individual register of that type, or as all individual registers. These files can be stored into Setups on the hard drive of the switcher, or as files onto a USB drive. Setups allow you to store a complete set of switcher files on the hard drive. Different Setups can be created for different shows or applications, allowing you to quickly locate and recall the switcher configurations.

The switcher stores information in the following registers:

- **Bus Map** — all the bus maps on the switcher.
- **Camera** — 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.
- **CC Variables** — all custom control variables.
- **Clip** — all VTR and video server timecode and clip information on the switcher.
- **Custom Control** — all the custom controls that are stored on the switcher. Bank setting are stored in the Installation setup.
- **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: *Switcher sets that include the Installation register will recall the slot assignments of the system the set was stored on. If the slot assignments do not match the system you are recalling the set on you must reconfigure the system after the set has been recalled.*

  Note: *Devices should always be set up on the same communications port (remote, pan/frm net) 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.*

- **Memory** — all the memories that are stored on the switcher.
- **MediaStore** — all the database information for the Media-Store.
- **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.
- **Shot Box Pages** — all the Shot Box pages that have been stored on the switcher.
- **Sequences** — all the sequences that have been stored on the switcher.

The memory, custom control and sequences can all be stored as individual files. This allows you to store a particular memory, custom control, or sequence to a Setup on the hard drive, or to the USB drive, and recall it to another register position on the same or a different switcher. For example, Custom Control Bank 3 Button 9 can be stored on the USB drive and then recalled into Bank 1 Button 3. This allows you to organize these registers, or transfer only the registers you need to another switcher.

Note: *Only the main panel can store or recall files or sets to either the hard drive or a USB drive.*

Storing Setups

The switcher can store individual registers or setups on either the internal hard drive, located in the frame, or a USB drive that is inserted into the USB port on the panel. The USB drive must be formatted as FAT or NTFS.

Note: *Not all items can be stored as individual register entries.*

To Store a Switcher Setup

Note: *If you are updating an older setup file, you must perform a Recall All followed by a Store All. This updates the setup files to the latest format. You can then make changes and store to individual registers if needed.*

1. Press **HOME** > **Disk** > **Destination / Source**.
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. Use the **Set Names** knob to select the setup on the drive you want to use.
4. Press **Store**.

5. Select the individual registers, or all of them (**All**), to be stored in the setup. As you press the buttons, the switcher stores those registers to the setup.

To Store an Individual Register

Note: *If you are updating an older setup file, you must perform a Recall All followed by a Store All. This updates the setup files to the latest format. You can then make changes and store to individual registers if needed.*

Tip: *Storing items individually allows you to change the order that memories or custom controls etc. appear on the menu. This can be useful for grouping similar or frequently used memories together.*

1. Press **HOME** > **Disk** > **Destination / Source**.
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 **Store Individual** and select the individual item you want to store.
   - **Memory Register** — individual memory
   - **CustCtrl Register** — individual custom control
   - **Sequence** — individual DVE sequence
   - **Bus Map** — individual bus map
   - **Shot Box Page** — individual Shot Box page
4. Use the **From Switcher** knob to select the item you want to store.
5. Use the **To Disk** knob to select the location in the setup to store the item.
6. Press **Store Item**.

To Name a Setup

Only setups on the hard drive can be named.

1. Press **HOME** > **Disk** > **Destination / Source**.
2. Use the **Disk Type** knob to select **Hard Drive**.
3. Use the **Set Names** knob to select the setup you want to name.
4. Press **Store** > **More** > **More** > **Name Setup**.
5. Press **Name** and enter the new name in the **New Name** field.
6. Press **Accept New Name**.

Recalling Setups

The switcher can recall individual registers or setups from either the internal hard drive, located in the frame, or a USB drive that is inserted into the USB port on the panel. The USB drive must be formatted as FAT or NTFS.

To Recall a Switcher Setup

Note: *If you are updating an older setup file, you must perform a Recall All followed by a Store All. This updates the setup files to the latest format. You can then make changes and store to individual registers if needed.*

1. Press **HOME** > **Disk** > **Destination / Source**.
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. Use the **Set Names** knob to select the setup on the drive you want to use.
4. Press **Recall**.
5. Select the individual registers, or all of them (**All**), to be recalled from the setup. As you press the buttons, the switcher recalls those registers from the setup.

   Note: *If you are including **MediaStore** as part of the recall, you must restart the switcher (Press **HOME** > **More** > **System Shutdown** > **Restart**) after the recall for the changes to the Media-Store to be applied.*

To Recall an Individual Register

Note: *If you are updating an older setup file, you must perform a Recall All followed by a Store All. This updates the setup files to the latest format. You can then make changes and store to individual registers if needed.*

1. Press **HOME** > **Disk** > **Destination / Source**.
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 **Recall Individual** and select the individual item you want to recall.
   - **Memory Register** — individual memory
   - **CustCtrl Register** — individual custom control
   - **Sequence** — individual DVE sequence
   - **Bus Map** — individual bus map
   - **Shot Box Page** — individual Shot Box page

   Note: *Registers marked as UHDTV1 (**UHD**) should not be recalled when the switcher is operating in a SD/HD mode.*

4. Use the **From Disk** knob to select the item you want to recall.
5. Use the **To Switcher** knob to select the location on the switcher to recall the item.

   This is the individual custom control button or memory register on the switcher.

6. Press **Recall Item**.

Managing Setups Externally

The web interface of the frame allows you to not only upgrade the software on the switcher, but also to manage the setups you have stored on the hard drive of the switcher. Using a computer on the same sub-net as the frame, you can browse to the frame, log in, and either download or upload setups from or to the frame.

To Download a Setup To a Computer

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** > **Switcher Sets**.

   Setups that have items stored in them are shown as a hyperlink. Click **Refresh Table** if any changes to the setups you made from the switcher do not appear in the table.

3. Click on the setup that you want to download.

   The file is downloaded by your browser to the default "downloads" folder on your computer.

   Tip: *You can delete the contents of a setup by selecting the setup from the **Set** list and clicking **Delete Set**.*

To Upload a Setup From a Computer

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** > **Switcher Sets**.

   Setups that have items stored in them are shown as a hyperlink. Click **Refresh Table** if any changes to the setups you made from the switcher do not appear in the table.

3. In the **Number** field, enter the 2-digit number of the setup location that you want to upload a setup to. This is the number that appears in parenthesis after the setup name.
4. Click **Choose File** and use the window to select the setup file you want to upload.
5. Click **Upload Set**.

Media-Store

Media-Store allows you to load stills, animations, or audio from the hard drive and make them available as a source on the switcher. Each ME Media-Store has of cache for 2 channels of audio and 4 channels video, with alpha.

Keep the following in mind:

Keep the following in mind when you are using the Media-Store:

- If you know the number of the still you want to load, you can select the crosspoint button mapped to the still-store channel on the ME, and then enter the still number on the keypad on the Global Memory module.
- You can clear the still currently loaded into a channel by selecting **0** as the still number you load from the keypad on the Global Memory module. This is the same as pressing the **Eject** button.
- If you are loading an Auto Key (PNG or TGA with alpha) into a media-store channel, you must have another media-store channel associated with the current one to load the alpha into.
- Corrupt files are shown with the warning `Not a valid image format` and should be deleted from the switcher.
- 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. Use the Media-Store Permissions feature from the Web UI to clean the permissions.

File Specifications

Media files must meet the following specification for use in the media-stores.

Table 9: Video File Specifications

Parameter	Specification
File Type	Targa (.tga)
	Portable Network Graphics (.png)
	JPEG (.jpg or .jpeg)
Compression	compressed or uncompressed
Fill Only	24-bit
Fill and Alpha	32-bit
1080 Formats	1920×1080 pixels max. image size
720 Formats	1280×720 pixels max. image size
Max. File Size	8 Gigabytes

Table 10: Audio File Specifications

Parameter	Specification
File Type	Multi-Channel Wave (.wav)
Audio Data	HD — 24-bit AES3 linear PCM uncompressed (8/16/32-bit linear uncompressed is allowed but playback bit-depth is unchanged)
Frequency	48kHz
Channels	2

File Naming

The file name can be up to 32 characters in length, but should be up to a maximum of 12 characters, so that it can be displayed on the menus properly. The name can contain letters, numbers, spaces, dashes, underscores, and, periods, but should not contain symbols.

If you are naming an animation, each file must be numbered in the sequence that it will play out. The following restrictions apply to file names for animations:

- Each file must use a 2-digit to 5-digit number, including all the leading zeros.
- Each file in the sequence must have the same numbering scheme.
- The first file in a sequence must be numbered 0.
- The file name and number must be separated by an _.
- Audio files and video files must have the same name to be associated with each other.

For example, a 90-frame animation would start with `Anim_0000.tga` and end with `Anim_0089.tga`

Media-Store Audio

Audio can be added to the playout of a Media -Store channel either by loading the file directly, or by associating the audio file with the video

you want it to play out with. When you load the clip, the switcher will automatically load the associated audio file.

Keep the following in mind:

Keep the following in mind when working with Media-Store audio:

- Audio files should be 24-bit uncompressed WAV files at a 48kHz sample rate. Bit depth of 8, 16, or 32 are also supported, but playback bit-depth is not changed.
- Audio is embedded in the ancillary data of the video stream that the Media-Store channel is included in.
- Both of the audio channels are associated with an AES port for that ME. Channel 1 is locked to AES 1 and channel 2 is locked to AES 2.
- The Media-Store Audio channels are available on AUX-A audio sources for the SDPE blade.
- Audio is loaded into the corresponding Media -Store Audio channel as the Media-Store video channel. For example, if you load a clip with audio in video channel 2 the audio is loaded into audio channel 2.
- Loading a clip with audio into a Media-Store Audio channel only loads the audio and will not load the corresponding video.
- An audio file does not need to be of the same length as the animation it is associated with.
- Audio is played the same way an animation is played.
- The length of an animation is set by the video rate the switcher is operating in. Audio is fixed at 48kHz. If your audio and video is synched at a particular video rate, playing the media at a different rate will result in the audio and video being out of synch.
- Audio only looping is independent of video looping.
- Video with audio will only auto start when it is taken on-air, and not when it is loaded or the properties are changed (as with video only media).
- Audio always plays out at 1x speed, even if the video is playing faster or slower.

Loading Media Files

Media files are stored on the hard drive and loaded into the Media-Store caches when needed. Media files can be loaded either by navigating to the file on the hard drive, or by entering the media number on the memory keypad. The length of time it takes to load a file depends on the size of the file, and/or the length of the animation. If you are working with a number of large media files, you may have to clear the cache before you load a new file.

If there is an audio file with the same name (and in the same directory) as the video file, it is loaded at the same time as the video. Video files with associated audio files have a small speaker image on the thumbnail. Audio and video files do not need to be the same length.

Table 11: Icon Meaning

Icon	Description
	The media item has an alpha associated with it that will be loaded into the secondary channel when this media item is loaded.
	The media item has associated audio that will be loaded into the audio channel.
	The media item is an animation with multiple frames.
	The media item is an audio file with no associated video.
	There is something wrong with the audio file and it cannot be loaded.
	There is something wrong with the media item and it cannot be loaded.

Tip: *If you use a large animation in your production, it is a good idea to load that animation before you start your show so that it has plenty of time to load.*

To Load a Media File

Note: *When you load a media file that contains an alpha, the alpha is loaded into another media-store channel that is assigned for the alpha in the Auto Key setup. This uses two channels for the video and alpha.*

Note: *The approximate size of media files reported on the menu is the uncompressed size in RAM of the original file, before it is converted to the video format the switcher is operating in. The actual size of the file in cache can be different than the size of the uncompressed file in RAM, depending on the format that the original file was captured in.*

1. Press the source button for the media-store channel, or navigate to the menu directly

(Press **HOME** > **More** > **Effects** > **MediaStore**).

> ***Tip:*** *If you know the number for the media item, you can use the keypad on the Memory area to select it. On the TouchDrive panels the* ***MENU*** *button must be active on the Memory area. On the Acuity® panel the* ***Keypad Still Entry*** *Personality option must be set to the Memory module you want to use.*

> ***Tip:*** *If you know the number of the media file you want to load, enter it into the keypad on the memory module and press* ***ENTER*** *to load it into the selected media-store channel. You can enter* ***0*** *to clear the contents of the channel as well.*

2. Use the **Location** and **Channel** knobs to select a different media-store, or tap the channel directly.
   - **ME *X* Video** — Video Media-Store
   - **ME *X* Audio** — Audio Media-Store
3. Press **Select/Manage**.
4. Navigate to the folder containing the media file you want to load.
   - **Parent Directory** — moves up one folder (same as **<UP ONE>**)
   - **Page Up** — move towards the top of the list in the folder
   - **Page Down** — move towards the bottom of the list in the folder
   - ***folder-name/*** — open the selected folder

> ***Tip:*** *You can also use the* ***Contents*** *knob and the* ***Select*** *button to navigate.*

5. Double-tap the media file you want to load. The selected media file is shown in the **Preview** window.

> ***Tip:*** *Press* ***Assign as Default*** *to have this file loaded into this channel by default when the switcher starts up.*

Media-Store Audio

Audio can be added to the playout of a Media -Store channel either by loading the file directly, or by associating the audio file with the video you want it to play out with. When you load the clip, the switcher will automatically load the associated audio file.

Keep the following in mind:

Keep the following in mind when working with Media-Store audio:

- Audio files should be 24-bit uncompressed WAV files at a 48kHz sample rate. Bit depth of 8, 16, or 32 are also supported, but playback bit-depth is not changed.
- Audio is embedded in the ancillary data of the video stream that the Media-Store channel is included in.
- Both of the audio channels are associated with an AES port for that ME. Channel 1 is locked to AES 1 and channel 2 is locked to AES 2.
- The Media-Store Audio channels are available on AUX-A audio sources for the SDPE blade.
- Audio is loaded into the corresponding Media -Store Audio channel as the Media-Store video channel. For example, if you load a clip with audio in video channel 2 the audio is loaded into audio channel 2.
- Loading a clip with audio into a Media-Store Audio channel only loads the audio and will not load the corresponding video.
- An audio file does not need to be of the same length as the animation it is associated with.
- Audio is played the same way an animation is played.
- The length of an animation is set by the video rate the switcher is operating in. Audio is fixed at 48kHz. If your audio and video is synched at a particular video rate, playing the media at a different rate will result in the audio and video being out of synch.
- Audio only looping is independent of video looping.
- Video with audio will only auto start when it is taken on-air, and not when it is loaded or the properties are changed (as with video only media).
- Audio always plays out at 1x speed, even if the video is playing faster or slower.

To Associate an Audio File with Video

You can associate an audio file with a video file. When the video file is loaded, the associated audio file is also loaded.

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Use the **Location** knob to select **ME 1 Video**.
3. Use the **Channel** knob to select **Channel 1**.

> ***Tip:*** *You can use any ME or channel for the association, as long as the video and audio are both loaded on the same ME and channel.*

4. Press **Select/Manage** and load the video file that you want to associate an audio file to.
5. Use the **Location** knob to select **ME 1 Audio**.
6. Use the **Channel** knob to select **Channel 1** (the same channel as you loaded the video in).
7. Press **Select/Manage** and load the audio file that you want to associate to the video file.
8. Press **More**.
9. Press **Associate Audio** to associate the audio file with the video file.

> ***Tip:*** *Press **Remove Audio** to remove an association that has already been set up.*

Transferring Media Files

Media files are transferred to and from the switcher using the FTP protocol. Once transferred onto the hard drive of the switcher, the files can be loaded into the Media-Store of the switcher.

> ***Important:*** *Do not use FTP to move media files around on the switcher. If you move a file with FTP the associated on-air properties for that media file will be lost.*

To Set Up FTP

Any FTP client can be used to connect to the frame for transferring files.

The default IP address for the switcher is 192.168.1.1 and the default user name and password are `ftpuser` and `poutine1974lacrosse`.

To Transfer Media Files From a USB

If you do not want to create a network connection to the switcher, you can copy stills using a USB drive. The stills must be the only files on the USB drive, and be located at the root directory.

> ***Note:*** *The USB drive that the stills you want to transfer are stored on must be formatted as FAT32. If the USB drive is formatted as NTFS, the transfer will not work.*

1. Copy the media files that you want to transfer to the switcher to the root directory of a blank USB drive.
2. Insert the USB drive into the USB port on the top of the control panel.
3. Press **HOME** > **More** > **Effects** > **MediaStore** > **Select/Manage**.
4. Press **Copy From USB**. All valid media files on the USB drive are copied to the `/USB` folder on the switcher.

Media-Store Capture

A single frame of video can be captured from any video signals available on the program or preview buses.

> ***Tip:*** *When you capture a media item to disk, it is given a file name of `CAP<number>-<month>_<day>_<time>`.*

To Capture to a Media-Store

1. Press **HOME** > **More** > **Effects** > **MediaStore**.
2. Use the **Location** knob to select the ME Video channel that you want to perform the capture on.
3. Press **Capture**.
4. Press **Change Directory** and navigate to the directory you want to store the capture to.
5. Press **Select Directory**.
6. Press **Source** and use the **Video Source** knob to select the video source that you want to capture from.
7. Press a **Capture Source** button to select what is include with the capture.
   - **Video Capture** — capture the video.
   - **Alpha Capture** — capture the alpha channel with the video.
8. Press **More**.
9. Press **Capture to Disk**.

   The media item is captured, saved to disk, and loaded into the selected Media-Store channel.

On-Air Properties

The on-air properties for Global-Store are applied to the media file directly, regardless of the channels that the media file are loaded in. If you adjust the on-air properties, or animation properties, of the media file in one channel, these settings are applied to that media file in all other channels that the same media file is loaded into.

The on-air properties for ME-Store are applied to the current media file that is loaded into the channel. This allows you to load the same media

file into multiple channels and adjust the on-air properties independent of the other channels. All on-air properties adjustments for a channel are lost when a new media file is loaded into that channel.

To Set Media File Properties

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Load the media file that you want to set the properties for into a channel.
3. Press **On-Air Properties** > **Base**.
4. Use the **X** and **Y** knobs, or the positioner, to adjust the position of the media file onscreen.

   Note: *You cannot position any portion of an image off-screen, as this may cause video errors. Full screen images cannot have their position adjusted.*

5. If the switcher is in an interlaced video format, press **Frame**, **Swap**, **Field 1**, or **Field 2** in the **Play Mode** area to select how the media file is displayed.
   - **Frame** — display the entire video frame.
   - **Swap** — swap field 1 and field 2.
   - **Field 1** — display only field 1.
   - **Field 2** — display only field 2.
6. Press **BT.601 (SD)**, **BT.709 (HD)**, or **BT.2020** in the **Color Mode** area to select the color space, within the YCrCb color model, that the media file will be displayed in.

   Note: *Media items must be created in the same color gamut and dynamic range that they are intended to be used in on the switcher. If a media item is created in one color space and the switcher is operating in another, the media item may not appear correctly.*

7. In the **Scaling** area, set whether the media file is scaled to the current resolution of the switcher (**On**), or not (**Off**).

   Use this option if the media file you want to use is of a different resolution than the switcher is operating in.
8. In the **Video** area, press **Unshaped** or **Shaped** to set how the key and alpha are displayed.
9. In the **Alpha** area, press **Off** or **On** to set whether the associated alpha is loaded with the media.

To Set Animation Properties

Animation properties is a subset of on-air properties that applies only to animation. The Base on-air properties apply to both stills and animations.

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Load the media file that you want to set the properties for into a channel.
3. Press **On-Air Properties** > **Video**.
4. Set the media properties as required.

Reverse Play	In the **Reverse Play** area, set whether the animation plays forward (**Off**) or in reverse (**On**).
Looping	In the **Looping** area, set whether the animation will start over when it reaches the last frame of the animation (**On**), or not (**Off**).
Auto Play	In the **AutoPlay** area, set whether the animation automatically starts to play when it is taken on-air (**On**), or not (**Off**).
Single Frame	In the **Single Frame** area, set whether the animation is restricted to a single frame (**On**) or not (**Off**).
Play Speed	In the **Play Speed** area, select **On** to enable this feature and use the **Play Speed** knob to set the speed for the animation to play at.
Trim Animation	In the **Trim** area, select **On** to enable this feature and use the **Start Trim** and **End Trim** knobs to adjust where the animation starts or stops. • **Start Trim** — the frame that the animation starts at. • **End Trim** — the frame that the animation ends at.

5. Press **Set Properties as Default** to store the new properties with the media file.

To Set Audio Properties

Audio properties is a subset of on-air properties that applies only to audio.

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Load the media file that you want to set the properties for into a channel.
3. Press **On-Air Properties** > **Audio**.

4. Set the media properties as required.

Looping	In the **Looping** area, set whether the audio will start over when it reaches the end (**On**), or not (**Off**).
Auto Play	In the **AutoPlay** area, set whether the animation automatically starts to play when it is taken on-air (**On**), or not (**Off**).
Muting	In the **Muting** area, set whether the audio is muted (**On**) and doesn't play, or plays (**Off**).
Trim Animation	In the **Trim Animation** area, select **On** to enable this feature and use the **Start Trim** and **End Trim** knobs to adjust where the audio starts or stops. • **Start Trim** — the time that the animation starts at. • **End Trim** — the time that the animation ends at.

5. Press **Set Properties as Default** to store the new properties with the media file.

Managing Media Files and Directories

Media Files can be renamed, renumber, copied, pasted and deleted. The directories that the media files are stored in can also be created, deleted and renamed.

To Rename and Renumber a Media File

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Load the media file that you want to rename or renumber into a channel.
3. Press **On-Air Properties** > **Rename/Renumber**.
4. Enter the new name for the media file in the **New Name** field and press **Accept New Name**.

> ***Note:*** *The name can contain letters, numbers, spaces, dashes, underscores, and, periods, but should not contain symbols.*

5. Use the keypad on the Global Memory module to enter a new number for the media file and press **ENTER**.

To Create a Directory

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Navigate to the directory that you want to create a directory in.

> ***Note:*** *Additional directories can be created up to 4 cascading sub-directories from the root directory.*

3. Press **Create Directory**.
4. Enter the name for the new directory and press **Accept New Name**.

> ***Note:*** *The name can contain letters, numbers, spaces, dashes, underscores, and, periods, but should not contain symbols.*

To Rename a Directory

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Navigate to the directory that you want to rename.
3. Press **Rename**.
4. Enter the new name for the directory and press **Accept New Name**.

> ***Note:*** *The name can contain letters, numbers, spaces, dashes, underscores, and, periods, but should not contain symbols.*

To Delete a Media File or Directory

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Navigate to the file or directory that you want to delete.

> ***Tip:*** *A directory must be empty before you can delete it. Press **Delete All** to delete all media files in the selected directory.*

3. Press **Delete**.

To Copy and Paste a Media File

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Navigate to the file that you want to copy.
3. Press **More**.
4. Press **Copy**, or **Cut**.

5. Navigate to the directory that you want to paste the media file to.
6. Press **Paste**.

Media-Store Cache

You can view what media files are currently loaded into cache or remove a currently loaded file to free up space. Removing a media file from cache does not delete the still.

To Remove a Media File From Cache

1. Press the source button for the media-store channel, or navigate to the menu directly (Press **HOME** > **More** > **Effects** > **MediaStore**).
2. Press **More** > **View Video Cache**.
3. Use the middle knob to select the media file that you want to remove.
4. Press **Remove From Cache**.

Custom Controls

A custom control is a series of commands, or button presses, that are recorded together into a single macro. When you run that custom control, the switcher runs all the commands and button pressed that were recorded in the macro. This allows you to simplify complex sequences of commands into simple button presses. For example, you can create a custom control that will recall a camera shot to preview, add a lower third, and then transition the background and key on-air.

The switcher supports up to 2304 custom controls.

Working With Custom Controls

- **ALL+ALL Reset** — Including an All+All reset in a custom control with other events may result in unexpected results. If you need to have an All+All reset in a custom control, it should be either the only or last event in the custom control. Alternatively, you can perform the All+All and then store that state to a memory. This allows you to recall that memory as part of the custom control instead of the All+All.
- **Attached CC Ignored** — If you include a button in a custom control that has another custom control attached to it, the command to run the second custom control is ignored when the initial custom control is run. This does not apply to actual custom control buttons.
- **Auto Recall** — If you are including a memory recall in the custom control, you must ensure the Auto Recall settings are the same as when the memory was stored. This ensures a consistent output.
- **Correct Source** — A custom control that selects a source on an ME will select the correct source when a different bus map is used, only if the original bus map still exists on the switcher.
- **Bus Maps** — A custom control can be used to assign a different bus map to a bus. Use the **Assign Panel Bus Maps** menu (Press **HOME** > **Setup** > **Personality** > **Bus Maps** > **More** > **Assign Maps**) to assign a bus map to a bus and record the event in the custom control.
- **Button Presses Only** — For non crosspoint buttons, a custom control only records that a specific button was pressed, and does not record the state that the button was in. For example, if you press the TIME CLOCK button on the Preview Overlay module while recording a custom control, the custom control will only record that the button was pressed. If you run the custom control immediately after recording it, TIME CLOCK is turned off.
- **CC Hold** — You can insert a Custom Control Hold command into a custom control that will hold the custom control at a specific point until the continue command is received. The custom control is continued by either pressing the custom control button again, or by a GPI Input trigger.
- **CC RECORDING** — When you are recording a custom control, the message `CC RECORDING` is shown on the **Main Menu**.
- **CC Size** — The size of the selected custom control is shown next to the name, in the Selected field on the left of the menu (xx/yy bytes) on the Custom Control Menu. The first number (xx) is the size of the macro, and the second is the size of all the macros in the selected bank (yy).
- **Fader Isn't Recorded** — To program a custom control that will recall a memory and then perform a transition, you must recall the memory on the ME you want to perform the transition on, then use the Cut or Auto Trans buttons to perform the transition. A custom control cannot record the movement of a fader.
- **Looping CC** — You can create a Looping Custom Control by inserting a Loop CC event into the custom control.
- **Menu Navigation** — You can use a custom control to navigate to a specific menu either by using the Go To Menu event, or by navigating to the menu when recording the custom control. Not all menus support this feature.
- **ME Permissions** — You can create a custom control that will affect an ME that is not assigned to your control panel by creating the custom control on a control panel that does have the ME assigned to it.
- **Pauses Needed** — A custom control will not automatically compensate for the time a memory recall or transition will require to complete. In these cases, you must insert a

custom control pause after the event that requires time to complete.

- **Recording Source Selections** — A custom control records the specific bus map source that is mapped to the crosspoint button that is selected, and not the specific crosspoint button. This allows a custom control created with one bus map to be run with a different bus map, as long as the same bus map source exists in the different bus map.
- **Play CC** — You can insert a Run Custom Control command into a custom control that will automatically run another custom control. If the Multiple Custom Control feature is active, both custom controls can run at the same time. If the Multiple Custom Control feature is turned off, inserting a Run Custom Control command ends the recording, and playing, of the first custom control. If a custom control starts multiple custom controls, you must stop each one individually, or use the Stop All Other Custom Control command.

  Note: *The Play CC command applies to a target custom control button only. If you move the contents of the custom control from the button selected in the Play CC to another button, the Play CC command will not follow and will continue to play the custom control assigned to the original button.*

- **Run Multiple CCs** — You can run multiple custom controls at the same time by pressing the corresponding custom control button. The Multiple Custom Control feature must be on. If a custom control is already running, pressing the button again will stop it. You can run a maximum of **96** custom controls at the same time.
- **Select Memory Bank CC** — You can insert a Select Memory Bank command into a custom control that will select different memory bank(s) when the custom control is run. To insert the Select Memory Bank command into a custom control, select the memory bank(s) you want to select as you are recording the custom control. A custom control can have multiple Select Memory Banks. If you only press the BANK button, the next successive Bank is recorded, depending on what Memory Bank Cycle is set to.
- **Key Clip and Gain** — You can record clip and gain settings for a key in a custom control by using the punchpad to adjust the clip and gain settings while recording the custom control. The custom control will adjust the clip and gain to the new settings when run.
- **Flagged Custom Controls** — If the custom control contains unsupported events, the name of the custom control will appears red and when edited the unsupported events will also appear red.

Custom Control Banks

Custom Control Banks allow you to group custom controls together, separate from custom controls on other banks, or perform special commands on external devices. Each bank is assigned to a custom control button, similar to how a custom control is recorded to a custom control button. When you select different banks, the remaining custom control buttons switch to the custom controls that were recorded to the selected bank.

Custom control buttons that are assigned to banks cannot be used for custom control on other banks.

The type of custom control bank sets how the custom controls assigned to the buttons on that bunk function.

Normal

The default custom control bank. Custom controls assigned to these banks operate normally to execute the functions they were recorded for.

Audio

Audio banks allow for Audio Override custom controls that are used to directly control an external audio mixer using the custom control buttons on the audio bank. This allows you to override the normal Audio Follow Video (AFV) operation.

- **Assign Audio** — assign a specific audio channel to a custom control button. Press this CC allows you to manually adjust the level of the assigned channel, overriding the current AFV operation.
- **Audio Reset** — remove all audio overrides and return to normal AFV operation.

Transport

The device transport banks allow you to use custom control buttons to send transport

commands, such as play, stop, rewind, and pause, to a device using the Betacam protocol. Transport command buttons are tallied for the status of the device.

Refer to *Device Transport Commands* on page 114 for more information on Device Transport CCs.

To Set Up a Custom Control Bank

1. Press **HOME** > **Setup** > **Installation** > **More** > **Custom Controls** > **Setup Banks**.
2. Use the **Bank/Function** knob to select the bank you want to set up.

   *Tip: Use the **Panel Button** to assign a bank selection directly to a panel button or use the **Bank** function button to allow you to select any bank.*

3. Use the **Type** knob to select the type of bank you want to set up.
   - **Audio** — for custom controls that communicate with external audio mixers.
   - **Normal** — for custom controls that perform any function except communicating with external audio mixers.
   - **Transport** — for device transport commands. Normal custom controls cannot be assigned to a Transport bank.
4. Press **HOME** > **Confirm**.

To Set Up a Custom Control Bank Select Button

1. Press **HOME** > **Setup** > **Installation** > **More** > **Custom Controls** > **Setup Banks**.
2. Use the **Bank/Function** knob to select **Bank**.
3. Use the **Panel Button** knob to select the custom control button you want to assign the bank selection button to.

   *Tip: Select **NONE** if you want to disable a bank that you have previously set up. This does not delete the custom controls on that bank. Assigning that bank to a button again allows the custom controls on that bank to be accessible again.*

4. Use the **Bank/Function** knob to select **Bank >>>**. This button allows you to display the next set of **Bank *X*** selection buttons.
5. Use the **Panel Button** knob to select the custom control button you want to assign the function to.

   *Tip: The next and previous buttons are only visible when the **Bank** button is pressed and held.*

6. Use the **Bank/Function** knob to select **Bank <<<**. This button allows you to display the previous set of **Bank *X*** selection buttons.
7. Use the **Panel Button** knob to select the custom control button you want to assign the function to.
8. Press **HOME** > **Confirm**.

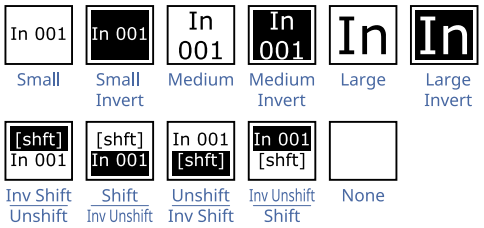
To Name a Custom Control for Acuity® Panels

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to name.

   The custom control cannot be running when you try to name it.

3. Press **Modify Name**.
4. Press **Name** and enter the new name in the **New Name** field.
5. Press **Acuity Mnemonic**.
6. Press **Font** and select the size and layout of the font you want to use on the mnemonic displays.

   *Tip: Select **Standard** to use the standard mnemonic settings.*

   *Tip: Use the **Router/Int** or **Router Only** setting to show both the router and switcher names for a source, or only the router names.*

7. Press **Color** and 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.
   - **Acuity Colors** — use a standard mnemonics color.
   - **ME Colors** — use a ME Glow color.
   - **User Colors** — use a User Color.

   *Tip: Select **Standard** under **Acuity Colors** to use the standard mnemonic color.*

   *Tip: Select **None** to not use a color for the mnemonic.*

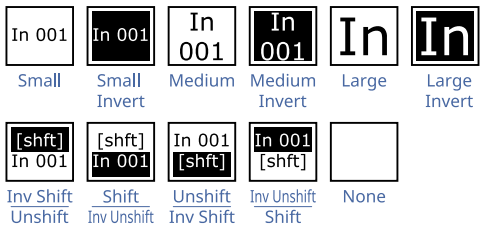
8. Press **Accept New Name**.

To Name a Custom Control for TouchDrive Panels

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to name.

   The custom control cannot be running when you try to name it.
3. Press **Modify Name**.
4. Press **Name** and enter the new name in the **New Name** field.
5. Press **TouchDrive Mnemonic**.
6. Press **Font** and select the size and layout of the font you want to use on the mnemonic displays.

   Tip: *Select **Standard** to use the standard mnemonic settings.*

   Tip: *Use the **Router/Int** or **Router Only** setting to show both the router and switcher names for a source, or only the router names.*
7. Press **Background** or **Foreground** and select the color you want to apply to that component of the mnemonics.
   - **Acuity Colors** — use a standard Acuity® mnemonics color.
   - **ME Colors** — use a ME Glow color.
   - **User Colors** — use a User Color.
   - **TouchDrive Colors** — use a standard TouchDrive mnemonics color.

   Tip: *Select **Standard** under **Acuity Colors** to use the standard mnemonic color.*

   Tip: *Select **None** to not use a color for the mnemonic.*
8. Press **Accept New Name**.

Custom Control Interfaces

Depending on the switcher configuration you have, custom controls can be run directly from the custom control bus, the Global Memory module, the Soft Shot Box menu, or the Custom Control Shot Box module.

Custom Control Bus

The custom control bus is located above the Program/Preset bus on the control panel. Custom controls and Banks are assigned to the buttons on this bus. Pressing a button assigned to a custom control runs that custom control.

Custom Control Soft Shot Box

Custom controls can be run from the menu system using the **CC Soft Shot Box** menu. Unlike the other interface options, the soft shotbox has direct access to every custom control on the switcher.

To Use the CC Soft Shot Box

1. Press **HOME** > **More** > **Effects** > **More** > **CC Shot Box**.
2. Press the **Bank *X*** button for the custom control bank that the custom control you want to run is on.

   Tip: *Press the **More** or **Prev** buttons to move back and forth through the list of **Bank X** buttons. These buttons can also be recorded to custom controls and added to the buttons on the Shot Box to allow you to move between pages.*
3. Press the custom control button for the custom control you want to run. The buttons show the mnemonic names for the custom controls.

Custom Control Shot Box Module

The Custom Control Shot Box Module provides 28 buttons that can mapped to custom controls using shot box pages. The module can be installed in the control panel or in a SideBox.

Global Memory Module

You can run a custom control from the Global Memory module. This option is only available if the CC Global Recall personality option is turned on.

Keep the following in mind:

Keep the following in mind when running custom controls from the Global Memory module:

- The **>** symbol indicates what you are entering, the bank or custom.
- Press the **BANK** button to reset the selected bank and custom to **01**.

To Use the Global Memory Module on Acuity® Panels to Run a Custom Control

1. Press **RECALL CLIP/CC**.

   Tip: *If you are controlling a video server from the switcher, you may have to press the button a number of time to get to **CC Global Recall**.*

   Tip: *On the TouchDrive panel this button may be labelled **PGM***

   If you have an older control panel, the button may be labelled **RECALL CLIP**.

2. Use the keypad to enter the 2-digit number of the bank that you want to run the custom control on.
3. Press **ENTER** to select the bank.
4. Use the keypad to enter the 2-digit number of the custom control you want to run.
5. Press **ENTER** to select the custom control.

   The **RUN CC +/-** button will light to indicate a valid custom control.

6. Press **RUN CC +/-** to run the custom control.

   The buttons turns red when the custom is running.

To Use the Memory Area on TouchDrive Panels to Run a Custom Control

1. Press **RECALL CLIP/CC**. By default the button is labelled **PGM**.

   Tip: *If you are controlling a video server from the switcher, you may have to press the button a number of time to get to **CC Global Recall**.*

2. Tap **Bank** on the display and use the keypad to enter the 2-digit number of the bank that you want to run the custom control on.
3. Press **ENTER** to select the bank.
4. Use the keypad to enter the 2-digit number of the custom control you want to run.
5. Press **ENTER** to select the custom control.

   The **RUN CC** button will light to indicate a valid custom control. By default the button is labelled ..

6. Press **RUN CC** to run the custom control.

   The buttons turns red when the custom is running.

Relative Custom Controls

Relative custom controls store the ME re-entry position so that they can be taken on-air from any ME that is re-entered on the Program ME. For example, if you have ME 2 re-entered into ME 3, of a 3 ME switcher, and record a standard custom control event for ME 2, that custom control event will only run on ME 2. The standard custom control will only record that the buttons on ME 2 were pressed, and does not record that the ME was re-entered into ME 3.

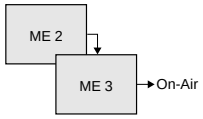


Figure 10: ME 2 Re-entered into ME 3 (Program ME)

If you record the same events as a relative custom control, you could recall the button presses made on ME 2 on ME 1, if ME 1 is re-entered into ME 3.

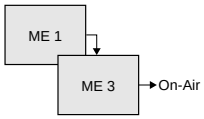


Figure 11: ME 1 Re-entered into ME 3 (Program ME)

Note: *Relative custom controls can only be properly recorded and run on upper MEs that are re-entered onto the Program ME. If the ME is not re-entered, you will not be able to properly record or run a relative custom control. Instead, the relative custom control will act like a normal custom control when run.*

Relative custom controls are not ME specific, as normal custom controls, but instead are re-entry specific. This means that the re-entry order, or levels that the relative custom control was recorded on, do not need to be the same in order to run that custom control. For example, if we again record a relative custom control on ME 2, which is re-entered into ME 3, we can run that relative custom control with more or fewer MEs. If we have ME 1 re-entered into ME 2 and ME 2 re-entered into ME 3, the relative custom control is run on ME 1.

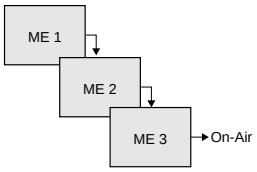


Figure 12: ME 1 Re-entered into ME 2, Re-entered into ME 3 (Program ME)

Note: *If you record a relative custom control across multiple re-entered MEs, at least the same number of MEs must be re-entered in order to run the entire custom control. For example,*

if a relative custom control that uses 2 MEs is run on a one ME switcher, the actions to be run on the second ME are ignored.

You can run the same relative custom control on multiple control panels at the same time. However, a relative custom control can only be stopped from the control panel that it was started on. The same relative custom control is treated as an independent custom on each control panel.

Record a relative custom control the same way as you record a normal custom control except press **Start Relative Recording** to start the recording.

Recording Custom Controls

When you create a custom control, you are recording a series of button presses on the panel, as well as special functions, that are played back when you run the custom control.

In a MultiPanel configuration, 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.

To Record a Custom Control

If you are recording a relative custom control, set up the ME re-entry configuration to record the relative custom control at the re-entry level you want.

1. Press **HOME** > **Custom Controls**.

   If the custom control button is grayed out, the custom control menu is being displayed on another control panel connected to the switcher.

2. Use the **Bank** and **Button** knobs to select the custom control that you want to record to.
   a) Use the **Bank** knob to select the custom control bank you want to record a custom control on.
   b) Use the **Button** knob to select the custom control button that you want to record the custom control to.

3. Press **Start Recording** (**Start Relative Recording** for a relative custom control).

   Tip: *When recording events, press **Offline Mode** on (**ON**) to have the switcher not execute those events as they are being added to the custom control.*

   The custom control button starts to flash, indicating that a custom control is being recorded to that button.

4. Add events to the custom control.
   - **Panel Events** — press buttons on the control panel to add those events to the custom control.
   - **Special Functions** — press **Insert Event** and add special events to the custom control. Refer to *Special Custom Control Events* on page 96 for a list of events.

   Note: *When the switcher runs a custom control, it attempts to execute each event in the custom control as quickly as possible. If an event takes time to complete, the event may not be complete before the switcher attempts to execute the next event. For example, if your custom control has a memory recall followed by a transition, a pause should be added between the memory recall and the transition to ensure that the memory is fully recalled before the transition is performed. The same applies if you want to add events after a transition.*

5. Press **Finish Recording**.

   The custom control button stops flashing. The size of the custom control you just created is shown next to the name, in the Selected field on the left of the menu (*xx*/*yy* bytes). The first number (*xx*) is the size of the macro, and the second is the size of all the macros in the selected bank (*yy*).

Multiple Custom Controls

A maximum of 96 custom controls can be running at the same time. These custom controls can be started manually, or by another custom control. All the custom controls will continue to play out until they reach the end, or loop.

The switcher does not track custom controls that are started as part of another custom control. Running multiple custom controls that start the same custom control, or editing a custom control that is run by another custom control, could produce unexpected results. Only Relative custom controls can have multiple instances of the same custom control running at the same time.

Tip: *You can insert a Stop All Other Custom Controls event that will stop all other running custom controls, except the one that is currently running.*

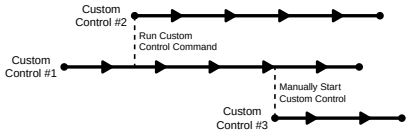


Figure 13: Multiple Custom Controls Feature On

If the Multiple Custom Controls personality option is turned off, a Run Custom Control command ends the current custom control. Pressing another custom control button also stops the first custom control and starts the second.

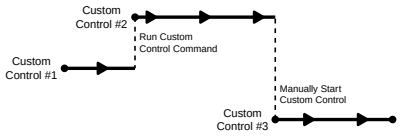


Figure 14: Multiple Custom Control Feature Off

Special Custom Control Events

Special events allow you to include actions not associated with a button press in a custom control. A special event can be inserted into any existing custom control, or used when creating a new custom control.

Audio Fader Module

Press **Insert Event** > **More** > **Audio Fader**.

Command	Description
Assign Fader	Assign a different audio channel to an audio fader on the Audio Control module. **1.** Use the **Fader** knob to select the audio fader you want to assign an audio channel to. **2.** Use the **Audio Src** knob to select the audio channel you want to assign to the audio channel.
Reset Fader	Reset the audio fader channel assignments back to the default setting of the audio fader map.

Audio Mixer

Press **Insert Event** > **Special**.

Command	Description
AFV Hold	Audio channel assigned to video sources are automatically taken on-air with the video source, but are unchanged when the video source is taken off-air.
AFV Off	Turns off normal Audio Follow Video (AFV) functionality. Audio channel assigned to video sources will not automatically be taken on-air with the video source. Audio channel can still be taken on-air manually. The AFV Off functionality remains active until the AFV On custom control is run.
AFV On	Returns the switcher to normal Audio Follow Video (AFV) functionality, after the AFV Off custom control was run.
Assign Audio	In normal mode, this event allows you to access the levels for the audio channel or group you have assigned to that button. In audio override mode, it allows you to perform audio only transition and override the normal audio follow video operation.
Audio All Off	Fade all audio channels on either the program or preset bus off. This can be useful for quickly removing all audio from either bus, or taking all audio channels off-air after you have performed an Audio Memory Recall.
Audio CH Off	Turn an audio channel, or group, off. This can be useful if you want to take an audio channel, or group, off-air at once. You can use the Audio Channel Off for either the program or preset buses.
Audio CH On	Turn an audio channel, or group, on at the level it was last on at, or leave it unchanged as the channel is already on-air. This can be useful if you want to take an audio channel, or group, on-air at once. You can use the Audio Channel On for either the program or preset buses.
Audio Gain	Adjust the audio gain for a group. (Lawo Ember+ only.) **1.** Use the **Group** knob to select the audio group that you want to adjust the gain for. **2.** Use the **Level** knob to select the new gain level you want set for the group.
Audio Memory	Recall a memory that has been stored on the Audio Mixer. This can be used to take a number of audio channels on-air at different levels all at once. Refer to the documentation that came with your Audio Mixer for more information on storing audio memories.
Audio Mute Off	Un-mute an audio channel, or group. This is the same as pressing mute on the Audio Mixer.

Command	Description
Audio Mute On	Mute an audio channel, or group. This is the same as pressing mute on the Audio Mixer.
Audio PFL	Turn PFL (pre-fade listen) on or off for an audio channel group. **1.** Use the **Group** knob to select the audio group that you want to turn PFL on or off for. **2.** Use the **PFL** knob to turn PFL on (**ON**) or off (**OFF**).
Audio PST Lvl	Override the levels for audio channels on the preset bus. If the audio channel is already on-air, you can change the level or take it off-air, if the channel is off, you can take the channel on-air as an override. PST Audio Level events differ from Audio Channel On events in that you select the level that you want the audio channel to be set to. When run, the event will alter the level of the channel, even if it is on-air. Audio CH On will only take the channel on-air if it is off and will not change the level. This could be useful when you want to alter the levels of a number of channels, or groups, at the same time.
Audio Reset	Return to the normal audio follow video mode and remove all currently selected overrides. This can be performed for either the program or the preset bus. You must set up two custom controls if you want to perform both independently.
AudMemByName	Recalls an audio memory (snapshot) by name. Audio mixer must support recalling memories (snapshots) by name. • Use the **Snap Shot** knob to select the memory you want to recall.

Command	Description
Aud PGM Lvl Dr	Override the levels for audio channels on the Program bus over a number of fields. If the audio channel is already on-air, you can change the level or take it off-air, if the channel is off, you can take the channel on-air as an override. PGM Audio Level event differ from Audio Channel On events in that you select the level that you want the audio channel to be set to, and the length of time you want to change in level to occur over. When run, the event will alter the level of the channel over the selected duration, even if it is on-air. **1.** Use the **Group** knob to select the channel or group you want to create the custom control for. **2.** Press **Level**, and use the **Level** knob to select the audio level you want to take the selected channels to. **3.** Press **Duration**, and use the **Fields** knob to select the length of time, in frames, that you want it to take to change the audio level. You can include a number of PGM Audio Level events in a single custom control, allowing you to alter multiple audio channels, or groups, at the same time.
Toggle A/B	Switches between the A and B side of the audio mixer. • Use the **Group** knob to select the audio group that you want to switch to the A or B side for.

Audio Server

Press **Insert Event** > **More** > **Audio Server**.

Command	Description
Go To Cut	Cue the audio server to a selected cut or track. You must select the clip.
Pause	Send a pause command to the audio server.
Play	Send a play command to the audio server.
Stop	Send a stop command to the audio server.

Custom Control

Press **Insert Event** > **Special**.

Command	Description
Hold CC	Quickly put a hold event in a custom control. The hold will stop a custom control where the hold event is placed in the custom control. To continue the custom control, you must press the custom control button again, or use a GPI trigger. The mnemonic for the custom control shows Held when the custom control is at hold.
Hold For Group	Quickly put a hold event in a custom control. The custom control will hold until the Run Held Group event is triggered for the group that the Hold For Group event was assigned to. For example, if you insert the Hold For Group A event into two custom controls and Hold For Group B into another two custom controls, the Run Held Group A event will only resume the first two (group A) custom control. The remaining two (group B) custom controls will remain holding until the Run Held Group B event is triggered. The mnemonic for the custom control shows **HldFor Run** when the custom control is at hold.
Hold For Run	Quickly put a hold event in a custom control. The custom control will hold until the Run All Held CCs event is triggered. The mnemonic for the custom control shows **HldFor Run** when the custom control is at hold.
Loop CC	Have a custom control run continuously until you stop it, or a Stop Custom Control event is executed from another custom control.
Notify End CC	For internal use only. Only use this event if instructed to do so by Ross Video Technical Support.
Pause (-preroll)	Like a Pause CC, except the preroll time assigned to a VTR, GPI, or camera selected on the preset bus is automatically subtracted from the length of the pause. For example, if you want a 12 frame pause before taking a camera on-air and the camera has a 3 frame preroll, you would set the pause to 12 frames. When you run the custom control, the switcher will pause for 9 frames, send the command to the camera, wait another 3 frames for the camera preroll, and then move to the next command.
Pause CC	Quickly put a pause event in a custom control. The custom control will stop where the pause is placed in the custom control and wait for a length of time before proceeding. The length of time that the custom control is paused is set when the pause event is inserted into the custom control.

Command	Description
Play CC	Run a custom control from a custom control. Use the **Bank** and **Button** knobs to select the CC you want to play. **Note:** The Play CC command applies to a target custom control button only. If you move the contents of the custom control from the button selected in the Play CC to another button, the Play CC command will not follow and will continue to play the custom control assigned to the original button.
Run Held	Resume all of the custom controls that are at hold from a Hold or Hold For Run event. Custom controls that are at hold from a Hold For Group event are unaffected.
Run Held Group	Resume all of the custom controls that are at hold from the Hold For Group event for the same group. Only the custom controls that used the Hold For Group event, and are of the same group, resume. For example, if you insert the Hold For Group A command into two custom controls and Hold For Group B into another two custom controls, the Run Held Group A event will only resume the first two (group A) custom control. The remaining two (group B) custom controls will remain holding until the Run Held Group B event is triggered.
Stop Held Group	Stop all of the custom controls that are at hold from the Hold For Group event for the same group. Only the custom controls that used the Hold For Group event, and are of the same group, stop. For example, if you insert the Hold For Group A command into two custom controls and Hold For Group B into another two custom controls, the Stop Held Group A event will only stop the first two (group A) custom control. The remaining two (group B) custom controls will remain holding until the Run or Stop Held Group B event is triggered.
Stop All Other CC	Place an event in a custom control that will stop all other running custom controls, except the one the event is in. This can be used to stop other looping custom controls at a specific point.
Stop Specific CC	Place an event in a custom control that will stop a specific custom control. Use the **Bank** and **Macro** knobs to select specific custom control you want to stop.

Command	Description
V Pause CC	Like a Pause CC, except the length of time that the custom control is paused is set as the result of the Pause Equation. Refer to *Variable Pause* on page 114 for more information.

Character Generators

Press **Insert Event** > **CG**.

Tip: *Press **Show Keyboard** to bring up a virtual keyboard on the display. Only those custom controls that support text strings as an input have the option of showing the keyboard.*

Command	Description
Clear	Clear all graphics from the specified layer, or all layers on the program channel. Press **Layer** to select either a specific layer (**On**), or all layers (**Off**). Use the **Layer** knob to enter a specific layer.
Execute Macro	Trigger a macro on a character generator. Enter the macro command you want to run in the Macro Name field (up to 62 characters). For example, to open and execute a macro on a Chyron, enter `Lyric.Open`*`name`*. Additional commands can be sent to the CG by inserting another Execute Macro event. You must insert a pause between execute macro events in a custom control to ensure that there is enough time for each event to be processed properly.
GPI	Trigger a GPI input on the CG. Use the keypad on the Global Memory module to select the GPI you want to trigger.
Init Clr	Removed all templates for the character generator rendering engine.
Init	Initialize the character generator rendering engine. This is useful for speeding up the rendering of templates.
Load to Preview	Load a page or template into the Character Generator preview channel. Use the keypad on the Global Memory module to select the template and layer you want. Press **Change Template** to enter a new template, and **Layer** to enter a new layer.
Load to Program	Load a page or template into the Character Generator program channel. Use the keypad on the Global Memory module to select the template and layer you want. Press **Change Template** to enter a new template, and **Layer** to enter a new layer.
Play	Play an animation on the character generator.
Profile	Change the name of the default profile on Vizrt®. Enter the name of the profile in the **Macro** field.
Read	Load a page or template into the Character Generator preview channel. Use the keypad on the Global Memory module to select the template and layer you want. Press **Change Template** to enter a new template, and **Layer** to enter a new layer.
Resume	Resume playing an animation that was paused. Use the keypad on the Global Memory module to select the layer you want. Press **Layer On** and use the **Layer** knob to enter a new layer.
Seq Next	Select the previous effect in the sequence.
Seq Prev	Select the next effect in the sequence.
Seq Take	Take the current effect in the sequence on-air.
Set Folder	Set the default folder for pages or templates.
Take Offline	Take the current effect off-air with a transition. Click **Change Template** and enter a specific template to take off-air.
Take	Play the next effect that is cued up on the Character Generator. The next effect will be on the preview (PV) of the Character Generator and will be taken to the program (PGM) of the Character Generator with this event.
Trigger	Send a trigger command to the Character Generator.

DVE

Press **Insert Event** > **DVE**.

Command	Description
Frame Advance	Advance the DVE effect forward by one frame.
Frame Reverse	Reverse the DVE effect forward by one frame.
Go To End	Cue the DVE to the end of the effect.
Go To Start	Cue the DVE to the start of the effect.
Key Frame Advance	Cue the DVE effect to the next keyframe boundary.
Key Frame Reverse	Cue the DVE effect to the previous keyframe boundary.

Command	Description
Pause	Send the pause command to the DVE.
Play	Send the play command to the DVE.
Play Rev	Send the play in reverse command to the DVE.
Recall	Recall an effect on the DVE (from 1 to 99).
Rewind	Send the rewind command to the DVE (simulated a shuttle reverse).
Stop	Send the stop command to the DVE.

GPI/Tallies

Press **Insert Event** > **More** > **More** > **GPO/Tally**.

Command	Description
Panel Tallies	Manually opens or closes the selected panel tally. 1. Use the **Open/Close** knob to select whether the tally will be set open or closed. 2. Use the **Tally** knob to select the panel tally that you want to set as open or closed.
Frame Tallies	Manually opens or closes the selected frame tally. 1. Use the **Open/Close** knob to select whether the tally will be set open or closed. 2. Use the **Tally** knob to select the frame tally that you want to set as open or closed.
Contact Closure	Manually opens or closes the selected contact closure. 1. Use the **Open/Close** knob to select whether the contact closure will be set open or closed. 2. Use the **Contact Closure** knob to select the contact closure that you want to set as open or closed.
GPO Reset	Returns the GPI output signal to the base level. For a level high GPI (5V) reset sets the GPI to low (0V), and for a level low GPI (0V) reset sets the GPI to high (5V). Reset GPI does not apply to pulse GPIs. 1. Press **GPO**. 2. Use the **GPO Function** knob to select **GPO Reset**. 3. Use the **GPI Output** knob to select the GPI output you want to apply the function to.
GPO Simulate	Manually trigger a GPI input on the switcher. The switcher reacts as if a trigger was received on the selected input GPI. Simulate applies to both level and pulse GPIs. 1. Press **GPO**. 2. Use the **GPO Function** knob to select **GPO Simulate**. 3. Use the **GPI Input** knob to select the GPI input you want to apply the function to.
GPO Toggle	Toggles the GPI output signal to the opposite level. If the level GPI is currently set to high (5V), toggle sets the GPI to low (0V). Toggle always sets the level to the opposite of what it currently is, regardless of the trigger level. Toggle GPI does not apply to pulse GPIs. 1. Press **GPO**. 2. Use the **GPO Function** knob to select **GPO Toggle**. 3. Use the **GPI Output** knob to select the GPI output you want to apply the function to.
GPO Trigger	Sets the GPI output to the trigger level. For a level high GPI (5V) trigger sets the GPI to high (5V), even if the GPI is already triggered and at high (5V). Trigger applies to both level and pulse GPIs. 1. Press **GPO**. 2. Use the **GPO Function** knob to select **GPO Trigger**. 3. Use the **GPI Output** knob to select the GPI output you want to apply the function to.

Memories

Press **Insert Event** > **Special**.

Command	Description
Memory Recall	Recall a specific memory on one or more MEs. 1. Press the **ME *X*** for the MEs that you want the memory to be recalled on. 2. Use the **Memory** knob to select the memory you want to recall.

Menus

Press **Insert Event** > **Special**.

Command	Description
Go To Menu	Navigate to a particular menu. This allows you to quickly jump between frequently used menus without having to navigate through the menu system.

Monitor Wall

Press **Insert Event** > **More** > **Monitor Wall**.

Command	Description
Assign Chan	Assign a specific input channel to a particular box on the Monitor Wall. Each box in a layout requires an input channel for the video it displays.
Load Layout	Load a specific layout on a monitor wall. A monitor wall can have several different layouts created, each with a variety of monitors and inputs.
Modify Text	Assign specific, pre-defined, Dynamic text to a particular text address on a monitor wall layout. The text address will have to be assigned to a template for a custom control event to be able to change the text. There are two types of text labels used on a monitor wall. • **Static Text** — set during the creation of the monitor wall setup and can only be modified using the tools provided with the monitor wall. • **Dynamic Text** — modified at any time from the switcher.

OverDrive®

Press **Insert Event** > **Special**.

Command	Description
OverDrive: On-Air CC	Send the command to OverDrive® to run one of the custom controls in rundown control. • Use the **CC** knob to select the custom control you want to run.
OverDrive: Prep CC	Send the command to OverDrive® to run one of the prepared custom controls in rundown control. • Use the **CC** knob to select the custom control you want to run.
OverDrive: Prep Next	Send the command to OverDrive® to prepare the next shot in the rundown.
OverDrive: Prep Prev	Send the command to OverDrive® to prepare the previous shot in the rundown.
OverDrive: Rundown	Send the command to OverDrive® to run a selected event in a rundown. • Use the **Cmd** knob to select the command.
OverDrive: Take & Prep	Send the command to OverDrive® to take the current shot on-air and prepare the next shot in the rundown.
OverDrive: Transition	Send the command to OverDrive® to activate a particular button on rundown control. • Use the **Trans** knob to select the transition rate.

Pbus

Press **Insert Event** > **Pbus**.

Command	Description
Recall	Send the command to the Pbus device to recall a memory from the selected register.
Store	Send the command to the Pbus device to store a memory to the selected register.
Trigger	Send a trigger value to the selected port on the Pbus device.

Robotic Camera

Press **Insert Event** > **More** > **Robotic Camera**.

Command	Description
Cam All Stop	Quickly stop all robotic camera operations. Use this event to stop all motion of a robotic.
Deselect Cam	Deselect the robotic camera that was last selected. When a camera is selected by the switcher, that camera remains selected until another camera is selected, or the Deselect Cam event is run.
Disable Camera	Disable control of the selected robotic camera. When a camera is disabled, you cannot control it from the switcher.
Execute Move	Execute a prepared camera move on a particular camera. Use the **Shot** knob to select the move you want to execute. The move must be prepared before it can be executed.

Command	Description
Grab Positioner	Select which camera is assigned to the positioner by cycling through all the cameras selected on preview, one at a time. Each time the custom control is run, the positioner assignment will jump to the next camera that will go on-air with the next transition.
Prepare Move	Prepare a camera move on a particular camera. Use the **Shot** knob to select the move you want to prepare.
Recall Shot	Recall a shot on a particular robotic camera with a specific duration for the recall to be performed. When programming this event, you are recalling a specific camera on a remote port by selecting the BNC, or BNC name.
Resave Last	Overwrite the last prepared shot or recalled move with the current position of the camera. For a move, only the prepared position is overwritten. You must re-prepare the move before you can execute it.
Set Show	Load a set of shot recalls for a robotic camera.

RossTalk

Press **Insert Event** > **More** > **RossTalk**.

Tip: *Press **Show Keyboard** to bring up a virtual keyboard on the display. Only those custom controls that support text strings as an input have the option of showing the keyboard.*

Command	Description
CC	Run a custom control. 1. Press **Bank** and use the **Bank** knob to select the bank you want to run the CC from. 2. Press **Macro** and use the **Macro** knob to select the CC you want to run.
ClearAllFB	Clear all frame-buffers.
ClearFB	Clear a specific frame-buffer. • Press **Buffer ID** and use the **Buffer ID** knob to select the frame-buffer you want to use.
ClearLayerFB	Clear a specific layer in a specific frame-buffer. 1. Press **Layer ID** and use the **Layer ID** knob to select the layer you want to use. 2. Press **Buffer ID** and use the **Buffer ID** knob to select the frame-buffer you want to use.
Down	Move the current selection in the Sequencer to the item below in the list.
Focus	Set the Sequencer focus to a specific template. • Press **Take ID** and use the **Take ID** knob to select the take id for the template you want to load.
FTB	Perform a fade to black transition.
GPI	Trigger a GPI. • Use the **GPI** knob to select the GPI that you want to use.
GPI w/State	Turn a GPI on or off. • Press **GPI** and use the **GPI** knob to select the GPI that you want to use. • Press **State** and use the **State** knob to select whether to turn the GPI on (**On** or **1**) or off (**Off** or **0**).
HELP	This command is not implemented at this time.
KEYAUTO	Perform a key only auto transition on the selected ME. 1. Select the **ME *X*** that you want to perform the transition on. 2. Select the **Key *X*** that you want to transition.
KEYCUT	Perform a key only cut transition on the selected ME. 1. Select the **ME *X*** that you want to perform the transition on. 2. Select the **Key *X*** that you want to transition.
KEYSHAPED	Turn shaped keying on or off for the selected key. 1. Select the **ME *X*** that you want set the key for. 2. Select the **Key *X*** that you want to change the state for. 3. Press **State** and use the **State** knob to select whether the alpha is shaped (**On**) or unshaped (**Off**).
KEYSTATE	Returns whether a key is on-air or off-air on an ME. 1. Select the **ME *X*** and **Key *X*** for the key you want to get the sate for.
LOADSET	Recall a switcher set. 1. Press **Disk** and use the **Disk** knob to select the location of the set you want to recall. 2. Press **Set**, enter the name of the set you want to recall, and press **Accept New Name**.

Command	Description
MEAUTO	Perform an auto transition on the selected ME. **1.** Select the **ME *X***(s) that you want to perform the transition on.
MECUT	Perform a cut on the selected ME. **1.** Select the **ME *X***(s) that you want to perform the transition on.
MEM	Recall a memory. **1.** Select the **ME *X***(s) that you want to recall the memory on. **2.** Press **Memory** and use the **Memory** knob to select the memory you want to recall.
MEMSAVE	Store a memory. **1.** Select the **ME *X***(s) that you want to store the memory on. **2.** Press **Memory** and use the **Memory** knob to select the memory you want to store.
MNEM	Enter a new mnemonic name for a source. **1.** Select the type of source and use the **Src *X*** knob to select the source you want to name. You may have to press the **Src *X*** to have the knob appear. **2.** Press **Name**, enter the name of the set you want to store, and press **Accept New Name**.
MS	Load a media item into a Media-Store. **1.** Press **GS, GSA, or ME** and use the **GS, GSA, or ME** knob to select the Media-Store you want to load the media item on. **2.** Press **Channel** and use the **Channel** knob to select the channel of the selected Media -Store that you want to load a media item on. **3.** Press **Media Number** and use the **Media Number** knob to select the media item you want to load.
MSPLAY	Play the current media item loaded in the selected Media-Store. **1.** Press **GS, GSA, or ME** and use the **GS, GSA, or ME** knob to select the Media-Store you want to play the media item on. **2.** Press **Channel** and use the **Channel** knob to select the channel of the selected Media -Store that you want to play the media item on.

Command	Description
MVBOX	Select a source for a box on a MultiViewer. **1.** Select the type of source you want to select and use the **Src *X*** knob to select the source you want to select. **2.** Press **MV** and use the **MV** knob to select the MultiViewer you want to select a source on. **3.** Press **Box** and use the **Box** knob to select the box on the MultiViewer that you want to assign the source to.
Next	Take the current selection in the Sequencer to air and advance the current selection to the next item in the list.
Read	Take the current selection in the Sequencer to air.
RESETALL	Performs an ALL+ALL soft reset on the switcher.
Resume	Resume a specific layer in a specific frame-buffer. **1.** Press **Layer ID** and use the **Layer ID** knob to select the layer you want to use. **2.** Press **Buffer ID** and use the **Buffer ID** knob to select the frame-buffer you want to use.
SAVESET	Store a switcher set. **1.** Press **Disk** and use the **Disk** knob to select the location of the set you want to store. **2.** Press **Set**, enter the name of the set you want to store, and press **Accept New Name**.
SeqIn	Load a template to air on a specific layer to the output channel selected in the template. The Sequencer focus moves to this item. **1.** Press **Take ID** and use the **Take ID** knob to select the take id for the template you want to load. **2.** Press **Layer ID** and use the **Layer ID** knob to select the layer you want to use.
SeqOut	Take a template off-air. • Press **Take ID** and use the **Take ID** knob to select the take id for the template you want to load.

Command	Description
SETVIDMODE	Set the video format that you want the switcher to operate in. **1.** Press **Vid/Ref** and use the **Vid/Ref** knob to select **VID**. **2.** Press **Format** and use the **Format** knob to select the video format you want the switcher to operate in.
SpyderBPR	Recall an existing basic preset **Preset ID** on the device.
SpyderFKR	Recall a single predefined function key **Function Key** on the device.
SpyderRSC	Recall a register **Register ID** at a specific cue **Script Cue** on the device.
Take	Load a template to air in a specific frame-buffer and on a specific layer. **1.** Press **Take ID** and use the **Take ID** knob to select the take id for the template you want to load. **2.** Press **Layer ID** and use the **Layer ID** knob to select the layer you want to use. **3.** Press **Buffer ID** and use the **Buffer ID** knob to select the frame-buffer you want to use.
TRANSINC	Select what is included in the next ME transition. **1.** Press the **ME *X*** button for the ME that you want to set the next transition for. **2.** Select the key(s) and/or background that you want to include in the next transition.
TRANSRATE	Select a new transition rate for an ME. **1.** Press the **ME *X*** button for the ME that you want to set the new rate for. **2.** Press **Num of Frames** and use the **Num of Frames** knob to select the length of the transition in frames.
TRANSTYPE	Select a transition type for an ME. **1.** Press the **ME *X*** button for the ME that you want to set the transition type for. **2.** Press **Type** and use the **Type** knob to select the type of transition you want to perform.
TypeInCmd	Enter a manual RossTalk command.
USERVAR	Select the variable name, operation, and value you want to apply to the user variable. **1.** Press **Name** and enter the name of the variable you want to edit. **2.** Press **Variable Operator** and use the **Variable Operator** knob to select the operator you want to apply. **3.** Press **Variable Value** and use the **Variable Value** knob to select the value you want to apply.
Up	Move the current selection in the Sequencer to the item above in the list.
XPT	Select a source on a bus on the switcher. **1.** Select the type of source and use the **Src *X*** knob to select the source you want to select. You may have to press the **Src *X*** to have the knob appear. **2.** Select the aux, ME, or key that you want to select the source on. Depending on the source, you may have to select a key bus or aux bank.

Router

Press **Insert Event** > **More** > **Router**.

Command	Description
Fire Salvo	Fire a salvo on the router. Salvos are identified by their ID only and not their name. If you have an Ultrix™ router, you must rename the salvo to the 4-digit ID used to identify the salvo. For example, if the salvo has an ID of 4, you must rename the salvo 0004.
Take Xpt	Change the source and destination on the router.

Sequences

Press **Insert Event** > **Special**.

Command	Description
Run Sequence	Run a sequence on the selected ME and keyer. This allows you to run a dissolve or wipe and still run a sequence in the same ME. The sequence you want to run must be loaded before running the custom control. If you are using a Relative Custom Control, you must select the PGM/PST ME as the ME to run the sequence on. You do not need to have **SEQ** selected on the Transition module.

Source Selection

Press **Insert Event** > **Special**.

Command	Description
Set Xpt	Select a source on a specific ME, Aux bus, or AuxKey. Select the ME, Aux bus, or AuxKey and bus that you want to select a source on and use the **XPT** knob to select the source you want to assign to that bus.

Switcher Setup

Press **Insert Event** > **Special**.

Command	Description
Split ME	Select which side of the Split ME you want to select. Select the ME and use the **ME PGM** knob to select the Program A, Program B, or both.

Transitions

Press **Insert Event** > **Special**.

Command	Description
AuxKey Cut	Cut an AuxKey on or off.
AuxKey Trans	Transition an AuxKey on or off.
AuxKey Rate	Set the AuxKey transition rate. Use the **AuxKey Rate** knob to select the rate for the transition.
Key Over	Select a Key Priority transition for the selected ME. Select the ME that you want to perform a key priority transition for and use the **Active** knob to turn key over on (**Enable**) or off (**Disable**).
Keys Cut	Cut keys on or off on a particular ME.
Keys Include	Set what keys are selected on the Next Transition area of the ME depending on the current state of the key. Select either the A-Side (**Bkgd A**) or B-Side (**Bkgd B**) of a split ME that you want to perform the next transition on, and then select whether a key is included in the next transition only if the key is currently on-air (**Key *X* Off**) or only included if the key is currently off-air (**Key *X* On**). If you need to set both the A-Side and B-Side, you must create separate CC events.
Keys Trans	Transition keys on or off on a particular ME.
Preset Bkgd	Select a Preset Background for the selected ME. Select the ME that you want to use a preset background transition for and use the **Active** knob to turn preset background on (**Enable**) or off (**Disable**).
Roll Clip	Turn on roll clip for the selected ME. Select the ME that you want to use roll clip on and use the **Active** knob to turn roll clip on (**Enable**) or off (**Disable**).
Set PST Bkgd Xpt	Select the source used for the Preset Background transition. Use the **XPT** knob to select the source you want to use for the Preset Background transitions.
Trans Limit	Turn on the transition limit for the selected ME. Select the ME that you want to activate the transition limit for and use the **Active** knob to turn transition limit on (**Enable**) or off (**Disable**).
Trans Select	Set what is selected on the Next Transition area of the ME. You can set up the next transition selections for both the A-Side (**Bkgd A**) and B-Side (**Bkgd B**) of a split ME. Select the background or keys that you want to include with the next transition.
Trans Type	Set the transition type on the Next Transition area of the ME. Select the ME that you want to perform the transition on and use the **Trans Type** knob to select the type of transition.

VTR

Press **Insert Event** > **VTR**.

Command	Description
Cue ClipList	Refresh the clip list from the device and select a clip to cue. • Use the **ClipList** knobs to select the clip you want to cue.

Command	Description
Cue Current	Load the clip that was loaded when the custom control was recorded. The current clip is shown on the left side of the menu.
Fast Forward	Have the VTR go into full fast forward mode.
Frame Advance	Have the VTR move (jog) the video one frame forward.
Frame Reverse	Have the VTR move (jog) the video one frame backward.
Go To Clip	Cue to a selected clip. • Use the **Clip** knob to select the clip number you want to cue to. ***Tip:*** *Click the icon and type in the name of the clip to search the list for a clip.*
In Flag Reset	Turn the Entry In mode on the VTR off. When the Entry In mode is off, the VTR will rewind the preroll time when the Preroll command is issued.
In Recall	Turn the Entry In mode on the VTR on. When the Entry In mode is on, the VTR will go to the in-entry point that has previously been set on the VTR, minus the preroll, when the Preroll command is issued. The in-entry point is set from the VTR, and not from the switcher.
Pause	Have the VTR go into pause mode.
Play	Play a video clip (with alpha if the option is set for the device). The switcher will confirm the status of the video server, and then send the play command.
Play Loop Off	The currently looping clip stops playing the next time it reaches the end.
Play Loop On	The currently cued and playing clip loops back to the beginning when it finishes playing. If you pause a clip that is looping, the looping is turned off.
Play no Stat	Play a video clip (with alpha if the option is set for the device). The switcher does not confirm the status of the video server, but immediately sends the play command.
Preroll	Have the VTR go to the predefined in-entry, minus a set preroll time, when In Recall is active. When In Recall is not active, the VTR will rewind the pre-roll time from the current point. The in-entry point and preroll time are set from the VTR, and not from the switcher.
Record	The VTR/server goes into record mode. You must use the Stop event to stop the recording. It is a good practice to create a Stop custom control before creating the Record custom control so that you can stop the recording. Click **Enter Clip Name** and enter the name you want to use for the clip you are recording on the server.
Recue	Requests the currently loaded clip from the VTR and then sends the command to load that clip.
Rewind	Have the VTR go into rewind forward mode.
Standby Off	Take the VTR out of standby mode. When not in standby mode, the heads of the VTR are removed from the tape, showing noise or black on the video output. This command only works if the VTR is stopped.
Standby On	Put the VTR in standby mode. In standby mode, the heads of the VTR are engaged, showing video on the video output. The VTR automatically goes into this mode when the Play, Rewind, Fast Forward, or Pause commands are issued.
Stop/Eject	The VTR performs a stop and eject. This command stops the selected channel, and unloads the clip.

Starting and Stopping Custom Controls

Custom Control can be started and stopped in a number of ways, depending on your work flow.

To Start a Custom Control

- Press the custom control button for the custom control you want to run. This includes the custom control bus on the control panel, Auxiliary Control Panel, and Custom Control Shot Box.
- Recall a memory that has the **Auto Run Custom Control** option turned on.
- Press a control panel button that has a custom control attached to it.
- Use the Global Memory Module/Memory Area to run a custom control.

To Stop a Custom Control

- Press the custom control button for the custom control you want to stop. This applies

only to the custom control assigned to that button.

- Press and hold the **Stop CC** button and press the custom control button for the custom control you want to stop. You must assign the **Stop CC** function to a bank button.
- Double-press the **Stop CC** button to stop all running custom controls. You must assign the **Stop CC** function to a bank button.
- Run an empty custom control (a custom control that has no events).
- Insert the Stop Other Custom Control command into a custom control.

Naming Custom Controls

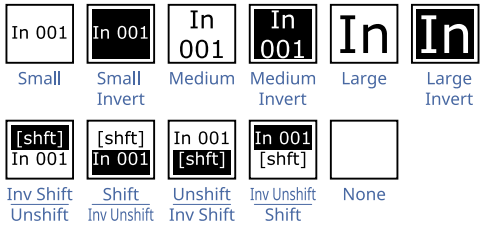
After a custom control has had events added to it, you can give it a descriptive name. This name appears on the menus, the mnemonics, and the Shot Box buttons for the custom controls. This is useful when working with multiple custom control banks. As you switch banks, the mnemonics display the names for the custom controls on the selected bank.

To Name a Custom Control for Acuity® Panels

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to name.

   The custom control cannot be running when you try to name it.
3. Press **Modify Name**.
4. Press **Name** and enter the new name in the **New Name** field.
5. Press **Acuity Mnemonic**.
6. Press **Font** and select the size and layout of the font you want to use on the mnemonic displays.

   Tip: *Select **Standard** to use the standard mnemonic settings.*



   Tip: *Use the **Router/Int** or **Router Only** setting to show both the router and switcher names for a source, or only the router names.*

7. Press **Color** and 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.
   - **Acuity Colors** — use a standard mnemonics color.
   - **ME Colors** — use a ME Glow color.
   - **User Colors** — use a User Color.

   Tip: *Select **Standard** under **Acuity Colors** to use the standard mnemonic color.*

   Tip: *Select **None** to not use a color for the mnemonic.*

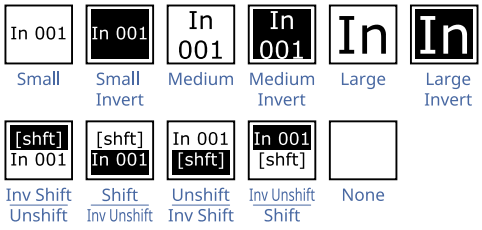
8. Press **Accept New Name**.

To Name a Custom Control for TouchDrive Panels

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to name.

   The custom control cannot be running when you try to name it.
3. Press **Modify Name**.
4. Press **Name** and enter the new name in the **New Name** field.
5. Press **TouchDrive Mnemonic**.
6. Press **Font** and select the size and layout of the font you want to use on the mnemonic displays.

   Tip: *Select **Standard** to use the standard mnemonic settings.*



   Tip: *Use the **Router/Int** or **Router Only** setting to show both the router and switcher names for a source, or only the router names.*

7. Press **Background** or **Foreground** and select the color you want to apply to that component of the mnemonics.
   - **Acuity Colors** — use a standard Acuity® mnemonics color.
   - **ME Colors** — use a ME Glow color.
   - **User Colors** — use a User Color.
   - **TouchDrive Colors** — use a standard TouchDrive mnemonics color.

*Tip: Select **Standard** under **Acuity Colors** to use the standard mnemonic color.*

*Tip: Select **None** to not use a color for the mnemonic.*

8. Press **Accept New Name**.

Editing Custom Controls

Once a custom control has been created, you can go back and edit that custom control by inserting or removing events. Editing a custom control also allows you to view the sequence of events that were added, and then insert pauses, holds, or special functions or commands, where they are needed.

You cannot edit a custom control if the custom control is running on another panel connected to the system.

If a custom control contains pauses or holds, a timeline is shown, indicating the duration of the custom control, and at which points different events will occur.

Note: You can only edit a custom control on the same panel it was recorded on, or a panel with the exact same settings, including ME assignments and bus maps.

Understanding the Edit Custom Control Menu

The **Edit Custom Control** menu has a number of buttons to help you navigate and edit the events in your custom control.

Menu Item	Description
Go To Start	jumps to the first event in the custom control.
Insert Event	allows you to insert events before the selected event.
Delete Event	delete the currently selected event.
Modify Event	modify the currently selected event. Only some events can be edited - other events must be deleted and inserted back it to change them.
Run Single Event	executes the currently selected event.
Run From Here	runs the rest of events in the custom control from the currently selected event to the end.
Event Up	move the selected event up one item in the list.
Event Down	move the selected event down one item in the list.
Event Cut	cut the selected item from the list to the clipboard.
Event Copy	copy the selected item from the list to the clipboard.
Event Paste	paste the event from the clipboard to just above the selected item.

To Edit a Custom Control Event

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to edit.
3. Press **Edit**.

*Note: If you are editing a Relative Custom Control, **<relative>** appears next to the Bank and Button identification, and the relative ME level (**R LVL**) is displayed instead of the ME number.*

Tip: If the custom control contains unsupported events, the name of the custom control will appear red and when edited the unsupported events will also appear red.

*Tip: If you are editing a complicated custom control, such as a logical expression CC, you can use the CC Visualizer (**More** > **Visualize**) to confirm the flow of the logic. Refer to CC Visualizer on page 116 for more information.*

4. Use the **Event** knob to select the event that you want to edit.
5. Press the **Event Up**, **Event Down** buttons to move an event up or down in the list, or press **Event Cut**, **Event Copy**, and **Event Paste** to move an event to a new location in the list.
6. Press **Modify Event** to edit the selected event.

*Tip: When editing an event, press **Offline Mode** on (**ON**) to have the switcher not execute that event as it is being added to the custom control.*

The menu to edit the event appears in the upper menu area.

7. Modify the event in the same way you would have inserted it and press **Modify Event**.

Note: You cannot edit a Personality event. To change the value of a personality event, insert the correct event and delete the old event.

To Insert a Custom Control Event

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to edit.

3. Press **Edit**.

> ***Note:*** *If you are editing a Relative Custom Control,* ***<relative>*** *appears next to the Bank and Button identification, and the relative ME level (****R LVL****) is displayed instead of the ME number.*

> ***Tip:*** *If the custom control contains unsupported events, the name of the custom control will appear red and when edited the unsupported events will also appear red.*

> ***Tip:*** *If you are editing a complicated custom control, such as a logical expression CC, you can use the CC Visualizer (****More*** *>* ***Visualize****) to confirm the flow of the logic. Refer to* *CC Visualizer on page 116* *for more information.*

4. Use the **Event** knob to select the event that you want to insert an event in before.
5. Press **Insert Event**.
   - Insert control panel events.
   - Press **Insert Special** to insert special events.

> ***Tip:*** *Press* ***Cancel Inserting*** *to stop inserting and leave the custom control unchanged.*

6. Press **Finish Inserting**.

On-Air/Off-Air Run Custom Control

You can assign a custom control to a video input where the custom control is triggered when that input is taken on-air, off-air, or selected on the preset bus of the program ME. A delay (preroll or postroll) can be applied between the transition and the starting of the custom control.

To Assign an On-Air Run CC

Select a custom control to be run when a video source is taken on-air.

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **More** > **More** > **Attach CCs** > **On Air CC**.
2. Use the **Source** knob to select the video source that you want to assign a custom control to.
3. Use the **Cust Ctrl** knob to select the custom control you want to run when the selected source is taken on-air.
4. Select whether the custom control always runs when attached or only when Roll Clip is active.
   - **Always Active** — the custom control that is attached to the source always runs.
   - **Follow Roll Clip** — the custom control that is attached to the source only runs when Roll Clip is active.
5. Use the **Preroll** knob to set the amount of time the switcher will wait before performing the transition. When you start a transition, the switcher starts the custom control and then waits the preroll time before performing the transition.

To Assign an Off-Air Run CC

Select a custom control to be run when a video source is taken off-air.

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **More** > **More** > **Attach CCs.** > **Off Air CC**.
2. Use the **Source** knob to select the video source that you want to assign a custom control to.
3. Use the **Cust Ctrl** knob to select the custom control you want to run when the selected source is taken off-air.
4. Select whether the custom control always runs when attached or only when Roll Clip is active.
   - **Always Active** — the custom control that is attached to the source always runs.
   - **Follow Roll Clip** — the custom control that is attached to the source only runs when Roll Clip is active.
5. Use the **Postroll** knob to set the amount of time the switcher will wait before starting the custom control. When you start a transition, the switcher performs the transition and then waits to postroll time before starting the custom control.

To Assign an On-PST Run CC

Select a custom control to be run when a video source is selected on both the Program and Preset bus of the Program ME.

1. Press **HOME** > **Setup** > **Installation** > **Source Configuration** > **More** > **More** > **Attach CCs** > **On Air CC**.
2. Use the **Source** knob to select the video source that you want to assign a custom control to.
3. Use the **Cust Ctrl** knob to select the custom control you want to run when the selected source is selected on the preset and program bus.

Copying and Moving Custom Controls

Custom controls can be copied, moved, or swapped with other custom controls on the switcher. This allows you to duplicate custom controls on different banks, or re-organize the custom controls on the same bank.

To Copy or Move a Custom Control

Copy, move, or swap a custom control from the source location to the destination location.

1. Press **HOME** > **Custom Controls** > **Copy/Move Macros**.
2. Press **Source** and use the **Bank** and **Button** knobs to select the custom control that you want to copy, swap, or move from.
3. Press **Destination** and use the **Bank** and **Button** knobs to select the custom control you want to copy, swap, or move to.
4. Press the **Copy**, **Move**, or **Swap** button to move or copy the custom control.
   - **Copy** — copy the events from the source custom control to the destination. Both custom controls will contain the same events.
   - **Move** — copy the source custom control to the destination and delete the events in the source custom control. Only the destination custom control has the events from the source.
   - **Swap** — copy the events from the source custom control to the destination, and the events from the destination custom control the source. The events that used to be in the source will be in the destination, and the events that used to be in the destination will be in the source.

Deleting Custom Controls

You cannot delete a custom control if the custom control is running on another panel connected to the system.

To Delete a Custom Control

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to delete.
3. Press **Delete Macro** > **Confirm**.

The mnemonic for the button the custom control is assigned to goes dark when the custom control is deleted.

Attaching Custom Controls to Panel Buttons

You can attach a custom control to any button on the control panel or auxiliary control panel mapped to an internal panel row. This does not include the buttons on the touchscreen display, custom control bus, or Shot Box.

Custom controls are attached to the physical button on the ME, and not the function of the button. This means that if a custom control is attached to a crosspoint button, changing the bus map, or using the shifted bus, does not affect the custom control attachment to the original button. For example, if you attach a custom control to a crosspoint button on ME 1, the custom control runs if you press that button, or Shift and that button. If you assign the ME to a different panel row, the custom control attachment follows the ME to the new panel row.

If you include a button in a custom control that has another custom control attached to it, the command to run the second, attached, custom control is ignored when the initial custom control is run. This does not apply to actual custom control buttons.

Note: *The CC/Macro Attachments personality option must be set to on for custom controls attached to control panel buttons to be executed when that button is pressed.*

Custom controls are attached either after (Post-Attach), before (Pre-Attach), or instead-of (Replace) the function of the button.

Tip: *If you attach a custom control to a crosspoint button on the keyer bus, the Show CCs on Key Bus personality option allows you to have the name of the custom control shown on the mnemonic for that button.*

To Attach a Custom Control to a Panel Button

Note: *When you attach a custom control to a panel button, the association is with the custom control button, and not the custom control. If you change which custom control is assigned to the custom control button, that change is also applied to the attachment.*

1. Press **HOME** > **Custom Controls** > **More** > **Attach Macros**.
2. Press the button on the control panel or local auxiliary control panel that you want to

attach a custom control to. Only auxiliary control panels that are mapped to internal panel rows can have custom controls attached to the buttons.

> ***Tip:*** *Press **Show Attach** to show the control panel button that you are attaching the custom control to (**On**).*

3. Use the **Bank** and **Macro** knob to select the custom control that you want to attach to the selected button.
4. Use the **Attach Type** knob to select how the custom control is attached to the button.
   - **Post-Attach** — attach the custom control after the normal action of the button. When the control panel button is pressed, the normal function of the button is executed, followed by the custom control. For example, if the action of the button is an auto transition, the switcher will start the transition and then execute the custom control. The switcher does not wait for the transition to complete before executing the custom control.
   - **Pre-Attach** — attach the custom control before the normal action of the button. When the control panel button is pressed, the custom control is run, followed by the normal function of the button. The switcher does not wait for the custom control to complete before executing the normal function of the button.
   - **Replace** — attach the custom control instead of the normal action of the button. When the control panel button is pressed, the custom control is run. The normal function of the button is not executed.
5. Press **Attach**.

To Remove a Custom Control From a Panel Button

1. Press **HOME** > **Custom Controls** > **More** > **Attach Macros**.
2. Press **Show List** to show a list of the attached custom controls (**On**).

> ***Tip:*** *Press **Delete All Attachments** to delete all the attachments of custom controls to control panel buttons.*

3. Use the **Scroll list with Knob 3** knob to select the custom control attachment that you want to remove.
4. Press **Delete Attachment**.

Custom Control Shortcuts

Shortcuts for common custom control commands can be mapped to custom control panel buttons. This allows you to perform tasks, such as recording and saving a custom control, right from the control panel, without having to use the menu system.

Shortcut	Description	To Use The Shortcut
Bank	This shortcut allows you to select any custom control bank without assigning each bank to a custom control button.	1. Press and hold the **Bank** button and all the other custom control buttons change to bank select buttons. 2. Select the bank you want and release both buttons.
Bank <<<	This shortcut allows you to display the previous set of **Bank *X*** selection buttons. This button is only visible when the **Bank** button is held.	• Press and hold the **Bank** button. • Press **Bank <<<**.
Bank >>>	This shortcut allows you to display the next set of **Bank *X*** selection buttons. This button is only visible when the **Bank** button is held.	• Press and hold the **Bank** button. • Press **Bank >>>**.
Delete	This shortcut allows you to delete a custom control.	• Press and hold the **Delete** button. • Press the button for the custom control you want to delete.

Shortcut	Description	To Use The Shortcut
Pause (Hold)	This shortcut allows you to insert a pause or hold into a custom control you are recording, without using the menu system.	1. Press and hold the **Pause** button. A series of durations, in fields, are shown on the mnemonics for the custom control bus, as well as **Hld w Popup** (Hold with a menu popup), **Hldw/o Popup** (Hold without a menu popup), **Hold for Run**, and **Hold for Run *A-Z***. 2. Press the custom control button below the event to insert that pause or hold into the custom control. The **Hold for Run *A-Z*** buttons can only show as many groups as there are available custom control buttons on the bus.
Record	This shortcut allows you to record a custom control without using the menu system.	1. Press and hold the **Record** button and select the custom control you want to record to. Both buttons flash red while recording. 2. Press the **Record** (**Cancel**) button again to cancel the recording, or the custom control button you are recording to (**Save**), to save the recording.
Run	This shortcut allows you to resume all of the custom controls that are at hold from a Hold or Hold For Run event. Custom controls that are at hold from a Hold For Group event are unaffected.	• Press **Run** to resume the custom controls.
Run A-Z	This shortcut allows you to resume a specific group of held custom controls held by the Hold For Group custom control event.	• For example, press the **Run A** button to resume all the custom controls held in group A.
Run Held X	This shortcut allows you to resume a group of held custom controls that are at hold from the Hold For Run X event.	1. Press and hold the **Run Held X** button and all the other custom control buttons change to group select buttons. 2. Select the group of custom controls that you want to resume.
Stop	This shortcut allows you to stop a, or all, running custom controls. The Stop CC command cannot stop a custom control that is at hold.	• **Stop 1 CC** — Press and hold the **Stop** button and press the custom control button for the custom control you want to stop. • **Stop All CCs** — Double-Press the **Stop** button.
Stop Held X	This shortcut allows you to stop a group of held custom controls that are at hold from the Hold For Run X event.	1. Press and hold the **Stop Held X** button and all the other custom control buttons change to group select buttons. 2. Select the group of custom controls that you want to stop.

To Create a Custom Control Shortcut

1. Press **HOME** > **Setup** > **Installation** > **More** > **Custom Controls**.
2. Use the **Bank/Function** knob to select the shortcut you want to assign to a button.
   - **Record** — allows you to record a custom control without using the menu system.
   - **Pause (Hold)** — allows you to insert a pause or hold into a custom control you are recording, without using the menu system.
   - **Bank** — allows you to select any custom control bank without assigning each bank to a custom control button.
   - **Run** — allows you to resume all of the custom controls that are at hold from a Hold or Hold For Run event. Custom controls that are at hold from a Hold For Group event are unaffected.
   - **Run Held X** — allows you to resume a group of held custom controls that are at hold from the Hold For Run X event.
   - **Run A-Z** — allows you to resume a specific group of held custom controls

held by the Hold For Group custom control event.

- **Stop** — allows you to stop a, or all, running custom controls. The Stop CC command cannot stop a custom control that is at hold.
- **Delete** — allows you to delete a custom control.
- **Bank <<<** — allows you to display the previous set of **Bank *X*** selection buttons. This button is only visible when the **Bank** button is held.
- **Bank >>>** — allows you to display the next set of **Bank *X*** selection buttons. This button is only visible when the **Bank** button is held.

3. Use the **Button** knob to select the custom control button that you want to assign as the shortcut.

   The custom control button you have selected lights up on the control panel.

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

Audio Override Commands

The normal Audio Follow Video (AFV) mode is where an audio channel is taken on-air when the input video source it is assigned to is taken on-air. The audio will follow the video on and off-air like this for transitions only on MEs that are on-air (re-entered onto the Program/Preset ME) unless the Audio Transition personality setting is set to **All**.

Tip: *If you fly a key, and then expand it to full frame, the underlying video is still on-air, even though you cannot see it. The audio for both video signals will still be on-air. This is also important to remember if you are running shots from memories where you bring a key full-frame from an over the shoulder shot.*

The Override mode is when the normal AFV mode has been altered, either by changing the levels, taking more or fewer channels to air, or altering the channels that will be taken to air on the next transition. Overrides are applied by using one of the audio custom controls. For example, if you have an over the shoulder shot, the audio channels for both the talent and the key would be on-air as per normal AFV. If you transition to a shot with only the VTR Clip, then the audio from the talent would be taken off-air. If you wanted both audio channels to remain, you would have to set up an override by turning on the audio crosspoint for the talent on the Preset bus. When you make the transition, the switcher takes the video off-air, but keeps the audio on.

During all audio transitions, the switcher keeps track of three separate levels for each audio channel, or group.

- **Current** — the level of the channel, or group, that is currently on-air. This level can be adjusted using the PGM Audio Lvl custom control that is assigned to that channel, or group.
- **Preset** — the level of the channel, or group, that takes effect during the next transition of the audio. This level can be adjusted using the PST Audio Lvl custom control that is assigned to that channel, or group.
- **Default** — the level that the channel, or group, was set to originally. When you perform an Audio Reset custom control, all off-air audio channels will have their preset levels changed to the default level. This will not change the Preset levels for the audio channels that are on-air.

To Set Up Audio Override CCs

The Assign Audio CC events can be used on an Audio CC Bank to override the current AFV assignments.

Note: *You must have an audio mixer set up as an external device to control the audio channels associated with video sources.*

1. Press **HOME** > **Custom Controls**.

   If the custom control button is grayed out, the custom control menu is being displayed on another control panel connected to the switcher.

2. Use the **Bank** and **Button** knobs to select the custom control that you want to record to.
   a) Use the **Bank** knob to select the Audio bank. Refer to *To Set Up a Custom Control Bank* on page 92 for information on setting up an Audio bank.
   b) Use the **Button** knob to select the custom control button that you want to assign an audio channel to.

   Tip: *Assign audio channels or groups to the custom control button that lines up with the video source that is associated with the audio. This makes it easier to visualize the audio sources and their corresponding video.*

3. Press **Start Recording**.

4. Press **Insert Event** > **Special** and use the **Function** knob to select **Assign Audio**.
5. Use the **Group** knob to select the channel or group that you want to control.
6. Press **Insert Event** > **Up One** > **Finish Recording**.
7. Repeat these steps for the remaining audio channels you want to assign to buttons.

To Perform an Audio Only Transition

With the audio override custom controls properly set up, it is possible to perform an audio only transition. This transition does not alter the video signals on the Program or Preset bus, but transitions the audio crosspoints on those buses.

Note: *You must hold the Bank button referred to in step one for the entire procedure. The button must be held to hold the button in Audio Mixer mode.*

Tip: *If you run an **Assign Audio** CC it will show the **Audio** menu. You can copy this menu to the upper menu area to follow audio overrides as they are applied and adjust the levels if needed.*

1. Press and hold the **Audio Bank** custom control button to place the bottom panel row into Audio Mixer mode. The source buttons on this bus are now audio crosspoints and represent the audio channels that are on-air and will be taken on-air in the next transition.
2. Select the audio crosspoint that you want to take on-air on the Preset bus.
3. Press Auto Trans on the Transition Module for the bottom Crosspoint Group to perform the audio only transition.

   Note: *Audio Only transitions should only be performed once as they will create audio overrides. In order to properly perform your next transition, you should check the audio crosspoints and run an **Audio Reset Pst** custom control to return to AFV.*

Device Transport Commands

The Device Transport Commands allow you to use custom control buttons to send transport commands, such as play, stop, rewind, and pause, to a device using the Betacam protocol. Transport command buttons are tallied for the status of the device.

Transport commands are set up for a single device connected to an input BNC. If you need to control multiple devices, you must set up additional custom controls for each device.

To Set Up a Device Transport Command

Note: *Device transport commands can only be added to a Transport custom control bank.*

1. Press **HOME** > **Custom Controls**.
2. Use the **Bank** and **Button** knobs to select the custom control that you want to record to.
3. Press **Assign Button** > **VTR**.
4. Use the **BNC** knob to select the VTR that you want to assign the transport command to.

   This is the VTR that the custom control will send the commands to.
5. Use the **Function** knob to select the command you want to assign to the button.
6. Press **Insert**.

   Only a single command can be programmed into the custom control.

Variable Pause

You can place a command in a custom control that will stop, or pause, a custom control where the pause is placed in the custom control. The length of time that the custom control is paused is set as the result of the Pause Equation.

Variable pauses are commonly used to insert pauses into custom controls to compensate for satellite uplink latency. For example, you can use a variable in all your custom controls where you need to sync with a satellite feed. You can then adjust that variable for changes in latency, and all your custom controls that use that variable are updated.

To Set a Variable Pause Value

Tip: *Press **Reset All** to set all the variable to the default value (0).*

1. Press **HOME** > **Custom Controls** > **More** > **Set Variables**.
2. Use the **Variable** knob to select the variable that you want to set a value for. If you change the value of a variable, all equations that use that variable will be changed.
3. Use the **Frames** and **Seconds** knobs to select the length of time that you want to the variable set to. The number of frames for each second depends on the video format the switcher is operating in.

To Insert a Variable Pause

1. Press **HOME** > **Custom Controls**.
2. Record your custom control to the point where you want to insert the pause and press **Insert Event** > **Special**.
3. Use the **Function** knob to select **V Pause CC**.
4. In the **Enter Pause Eq'n** field, enter the equation you want to calculate the length of the variable pause.

   The equation can be any combination of variables that are added (+), subtracted (-) or multiplied (*) together. Negative numbers, division, and spaces are not supported. Side-by-side variables are multiplied together (AB=A×B).

5. Press **Insert**.

Custom Control Logical Expressions

You can insert a logical expression (IF/ELSE) into a custom control as events. When the custom control is run the logical expression is evaluated and the results executed.

Note: *Logical expressions are not validated when inserted or executed. Ensure the logic expressions in your custom control are well formed before executing the custom control.*

The following logical events are supported:

- **If** — the start of a boolean expression requiring a variable, operator, and condition. If the expression returns true the custom control events inserted after this event are executed. If the expression returns false the custom control jumps to the next boolean condition (**Else If** or **Else**) or end (**End If**).
- **Else If** — the start of a nested boolean expression where the parent boolean expression has returned false and another boolean expression is evaluated. An Else If, unlike an If, will only be evaluated if the parent If or Else If has returned false.
- **Else** — the end of a boolean expression where the current **If** (If or Else If) evaluation has returned false. The custom control events inserted after this event are executed only when the If evaluation returns false.
- **End If** — the end of the boolean expression. The End If is required for the expression to be evaluated properly. The custom control events inserted after this event are always executed.

Tip: *Use the CC Visualizer to help see the logical paths that the custom control can take. Refer to* *CC Visualizer on page 116* *for more information.*

To Create a Logical Expression Custom Control

The logical expression can be used to trigger an event when a certain condition is met. The custom control must be running for the logical expression to the triggered.

Tip: *The logical expression is built up one event at a time. It is a good practice to write out all the logical and executable events you want to insert into the custom control beforehand.*

1. Press **HOME** > **Custom Controls**.
2. Record your custom control to the point where you want to insert logical expression and press **Insert Event** > **More** > **More** > **Logic**.
3. Use the **Event** knob to select **If**.
4. Press a **Variable Selection** button to select the element you want the logic expression evaluated against.
   - **CC Variable** — use the value of a custom control variable as the test for the logical expression.
   - **XPT** — use a source selection on a bus as the test for the logical expression.
   - **Key** — use the state of a key as the test for the logical expression.
   - **On-Air** — use the on-air state of a bus as the test for the logical expression.
5. Press a **Operator Selection** button to select the operator for the logical expression. Not all elements support all operators.
   - **==** — if *X* equals *Y* return true.
   - **!=** — if *X* does not equal *Y* return true.
   - **<** — if *X* is less than *Y* return true.
   - **<=** — if *X* is less than or equal to *Y* return true.
   - **>** — if *X* is greater than *Y* return true.
   - **>=** — if *X* is greater than or equal to *Y* return true.
6. Set the conditions for the logical expression. The available conditions depend on the variable selected.
   - **CC Variable** — use the **CC Variable** and **Value** knobs to select the variable CC and value that you want to evaluate the expression against. For example, if you select **A** for the variable and **5** for the

value, with the **!=** operator (A != 5), the expression will return true when CC Variable **A** has any value other than **5**.

- **XPT** — use the **Bus** and **Source** knobs to select the bus and source on that bus that you want to evaluate the expression against. For example, if you select **ME1 PGM** as the bus and **Bnk1Aux1(1:1)** as the source, with the **==** operator (ME1 PGM == Aux 1:1), the expression will return true when the aux 1:1 is selected on the program bus of ME 1.
- **Key** — use the **Key Bus** and **State** knobs to select the key and state that you want to evaluate the expression against. For example, if you select **ME2 Key3** as the key and **Inactive** as the state, with the **!=** operator (ME2 Key 3 != Inactive), the expression will return true when key 1 active. This would produce the same result as Key 1 == Active.
- **On-Air** — use the **Bus** and **State** knobs to select the bus and state that you want to evaluate the expression against. For example, if you select **ME2 PST** as the bus and **On Air** as the state, with the **==** operator (ME PST == On Air), the expression will return true when ME 2 preview is on-air.

7. Insert the custom control events you want to execute when the logical expression returns **TRUE**.

   *Tip: You can also nest another **If** event within the current event.*

8. Use the **Event** knob to select **Else**.

   *Tip: You can insert the **Else If** event to perform another boolean expression if the previous expression returned **FALSE**.*

9. Insert the custom control events you want to execute when the logical expression returns **FALSE**. These events are only executed if the boolean expression returned FALSE. If the expression returned **TRUE** the else events are not executed.
10. Use the **Event** knob to select **End If**. Any events inserted after this event are not effected by the boolean expression.

CC Visualizer

The CC Visualizer (Press **HOME** > **Custom Controls** > **Edit** > **More** > **Visualize**) provides a visual representation of the logic branches of the custom control. The possible branches for a selected event in the custom control are highlighted in yellow.

Patterns and Mattes

Patterns and Mattes are internally generated graphical elements that can be used for key or background fill, key shapes, and transition effects. The switcher has a limited number of pattern and matte generators dedicated to each ME.

Patterns

Pattern generators are used for wipes and masks. Each pattern generator can create a single pattern output that can be adjusted to create a specific look.

Patterns can be applied to the following:

- **Wipes** — press **WIPE**
- **Preset Pattern** — press **PST PATT**
- **Masks** — press **MASK**

To Set Up a Pattern

1. Select the pattern you want to use.
2. Press **X / Y / Size** and use the **X**, **Y**, and **Size** knobs, or positioner, to move and change the size of the pattern.
   - **X** — move the pattern from side to side
   - **Y** — move the pattern up and down
   - **Size** — change the size of the pattern (does not apply to wipes)
3. Press **Size/Soft Border** and use the **Border**, **Softness**, and **Size** knobs to apply a border to the pattern.
   - **Border** — adjust the size of the border on the pattern (0 turns the border off) (does not apply to masks)
   - **Softness** — adjust the softness of the border or edge of the pattern. If there is no border applied, the softness is applied to the edges if the pattern.
   - **Size** — change the size of the pattern (does not apply to wipes)
4. Press **Aspect** to toggle it to **On** and use the **Aspect** knob to adjust the aspect ratio of the wipe pattern or preset pattern.
5. Press **Rotation** and press **Rotation** to toggle it to **On**. Not all patterns can be rotated.
   - **Continuous Rotation** — press to apply a continuous rotation to the pattern. Use the **Speed** knob to select the rate at which the pattern continuously rotates. Selecting a positive value rotates the pattern clockwise, and selecting a negative value rotates the pattern counter-clockwise.
   - **Transition Rotation** — press to apply a rotation that is tied to the speed of the transition. Use the **Rotation** knob to select the amount of rotations of the pattern that occurs during a transition. Selecting a positive value rotates the pattern clockwise, and selecting a negative value rotates the pattern counter-clockwise.
   - **User-Controlled Rotation** — press to rotate the pattern. Use the **Degrees** knob to adjust the rotation of the pattern.
6. Press **UP ONE**.
7. Press **H-Mult** and **V-Mult** to multiply the pattern horizontally ad vertically. Press the button repeatedly to apply up to 5 times multiplication in either direction.
8. If you are using a matrix pattern, press **Pattern Options** > **Matrix Tile Size** and select the tile shape you want to use (**Square**, **Tall**, or **Wide**), and use the **Size** knob to select the size of the tiles.
   - **Square** — press to use a square tile for the matrix.
   - **Tall** — press to use a tall tile for the matrix.
   - **Wide** — press to use a wide tile for the matrix.
   - **Size** — select the number of tiles that are used in the matrix. The available selections depends on the shape of the tile selected.
9. Press **UP ONE**.
10. Press **Wipe Modulation** and press **Modulation** to toggle it to **On**.
    - **Vertical Params** — press and then use the **Amplitude**, **Wavelength**, and **Rate** knobs to adjust the appearance of the waves moving vertically.
      - **Amplitude** — adjust the height of ripples.
      - **Wavelength** — adjust the width of the of ripples used, or the number of the ripples.
      - **Rate** — adjust the speed that the ripples move along the vertical sides of the pattern (**Animation** must be

On). A positive value moves the ripples right to left and a negative values move the ripples left to right. A value of **0** causes the ripples not to move.

- **Horizontal Params** — press and then use the **Amplitude**, **Wavelength**, and **Rate** knobs to adjust the appearance of the waves moving horizontal.
  - **Amplitude** — adjust the height of ripples.
  - **Wavelength** — adjust the width of the of ripples used, or the number of the ripples.
  - **Rate** — adjust the speed that the ripples move along the horizontal sides of the pattern (**Animation** must be **On**). A positive value moves the ripples top to bottom and a negative values move the ripples bottom to top. A value of **0** causes the ripples not to move.

To Edit Matte Generator Assignments

Edit and assign the matte generators on the switcher.

1. Press **HOME** > **More** > **Effects** > **BKGD Gen Setup**.
2. Use the **ME** knob to select the ME that you want to edit the generator for.
3. Use the **Generator** knob to select the generator you want to edit.
4. Use the **Generator Type** knob to select how you want the selected generator configured (**Matte**).
5. Press the **Color 1** or **Color 2** button to edit the matte color.

> ***Tip:*** *Press **Default Colors** to default the colors of the selected generator.*

Mattes

A matte can be applied to a wipe border, color background, matte fill, or preset pattern.

To Set Up a Matte

1. Press **HOME** > **More** > **Effects** > **BKGD Gen Setup** and use the **ME** and **Generator** knobs to select the background generator you want to set up and use the **Generator Type** knob to select **Matte**.

> ***Tip:*** *There are several ways to get to this menu directly from the key, border, or pattern you are setting up.*

2. Press the **ME Bkgd Color** button for the generator and color you are setting up.
3. Use the color picker to select the color you want to use. Refer to *Color Picker* on page 41 for information on using the color picker.

> ***Note:*** *If the Matte Limit personality option is active, the RGB color space is not available. You will only be able to make color selection in the HSL color space.*

> ***Tip:*** *Press **ME Bkgd Default Colors** to default the color selection for that background generator.*

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.

Auxiliary Control Panel Operation

The Auxiliary Control Panel can be assigned to either an internal panel row, or an external panel row, depending on the functionality you want. Only Auxiliary Control Panels assigned to internal panel rows can be used for menu auto follows, double press actions, or recording custom controls.

In addition to source buttons, all Auxiliary Control Panels include dedicated Aux Bank and Aux Bus buttons, as well as control buttons.

- **Source Buttons** — allow you to select a video source on the selected bus. If the Auxiliary Control Panel is in Aux Bus mode, the source buttons select the video source being fed out of the aux bus.
- **Aux Bank and Bus Buttons** — allow you to select the specific Aux Bus that you want to assign the Auxiliary Control Panel to.
- **Source Buttons** — allow you to switch between the operating modes, and perform various operations when in each mode.

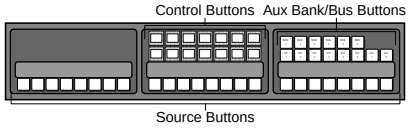


Figure 15: Auxiliary Control Panel (24-Button)

The Auxiliary Control Panel allows you to select the video source that is being fed out of any Aux Buses on the switcher. You can select the Aux Bank and Aux Bus, and the video signal you want

Tip: *(Auxiliary Control Panels assigned to and internal panel row only) If the Aux Bus you are selecting is set up as an AuxKey, you can double-press the source button on the Auxiliary Control Panel to assign the AuxKey to a row on the control panel. The particular panel row that the AuxKey is assigned to is the panel row that the Auxiliary Control Panel is assigned to from the* ***Panel Modules*** *menu.*

The control buttons on the Auxiliary Control Panel are assigned as custom control shot box buttons, allowing you to access the first 14 custom controls from the shot box pages. Shot Box Pages are assigned to the Auxiliary Control Panel in the same way as they are assigned to a Custom Control Shot Box Module.

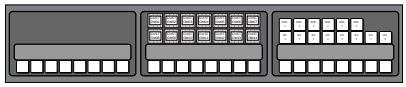


Figure 16: Auxiliary Control Panel with Custom Control Shot Box

Ultritouch

The 2RU rack mountable Ultritouch adaptable system control panel allows you to control some aspects of switcher operation using a DashBoard interface.

The DashBoard interface on Ultritouch provides control over aux bus source selections. You must connect to the switcher from Ultritouch to be able to control the switcher functions. Refer to the Ultritouch documentation for information on navigating the Ultritouch menu and manually connecting to a device.

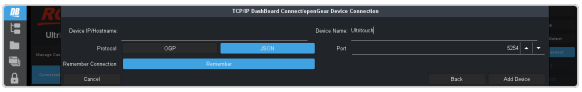
To Connect to the Switcher from DashBoard

Ultritouch runs a simplified version of DashBoard that is used to connect to the switcher.

Note: *It is possible to connect to the switcher from a desktop version of DashBoard, but the interface was designed for Ultritouch and may not appear correctly on a desktop computer.*

Refer to the Ultritouch documentation for information on navigating the Ultritouch menu and manually connecting to a device.

1. On Ultritouch, navigate to the **Connected Devices** page.
2. Tap **Add** > **TCP/IP DashBoard Connect/openGear Device Connect**.



3. Enter the IP address of the main switcher control panel in the **Device IP/Hostname** field.
4. Tap **JSON**.
5. In the **Port** field, enter 5254.
6. Tap **Add Device**.

   A new **Acuity** device will appear in the list. It may take a few moments to connect to the switcher.

7. Tap the connected devices button to see a table of all the devices Ultritouch is connected to.
8. Tap **Acuity** > **Slot 0: Acuity** and tap **AUX** to open that tab.

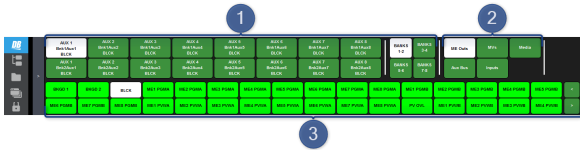
Ultritouch is now connected to the switcher.

Ultritouch Operation

The DashBoard interface on Ultritouch allows you to assign sources to aux buses.

The Ultritouch can display an aux panel.

Aux Panel



1. **Aux Bank/Bus** — select the aux bus you want to assign a video source to.
2. **Source Buses** — select the type or source of the video source you want to assign to the aux bus.
3. **Video Sources** — select the video source you want to assign to the selected aux bus. Additional sources are available by tapping the **<** or **>** buttons at the right of the row.

ME Bus

1. **ME** — select the ME that you want to select a bus on.
2. **Bus** — select the bus on the ME that you want to select a source on. Each button shows the ME, bus, and currently selected source.
   - **Top Line** — the ME
   - **Middle Line** — the bus on the ME (PGM, PST, PGM B, PST B, KEY *X* V (Video), KEY *X* A (Alpha))
   - **Bottom Line** — the video source currently assigned to that bus.
3. **Source Type** — select the type of source you want to assign to the selected bus.
4. **Source** — select the source that you want to assign to the selected bus.

Virtual Panels

The virtual panel is a browser based virtual representation of an Acuity® or TouchDrive control panel with menu system. The virtual panel is hosted either from the Acuity Rack Panel (ARP) server or a physical control panel. The Acuity Rack Panel replaces the need for the control panel, with the exception of not having any of the ports (Remote and Tally) that are present on the back of the control panel.

Important: *Refer to the documentation that came with your Acuity Rack Panel for information on cabling and powering on the server.*

Keep the following in mind:

Keep the following in mind when working with the a virtual panel:

- Use the mouse wheel to zoom in/out on the control panel.
- Press and hold **Ctrl** on your keyboard and right-click on a panel button to hold that button down. For example, to select background and key 2 in the next transition, press and hold **Ctrl** and right-click **BKGD** and **KEY 2**. A red glow appears below the button when it is held.
- Click on the border of the menu window to move it around, or on the left or bottom border to make the window smaller.
- The responsiveness of the positioner on the virtual panel can be unexpected. It is recommended that an external SideStick be used for better positioner control.
- You can only store and recall from the Hard Drive on the frame or the local drive in the ARP server.
- There are no serial Remote ports or Tally ports on the Acuity Rack Panel.
- If the connection to the Acuity Rack Panel is lost, a popup is shown asking you to refresh the webpage. This can happen if you shutdown the switcher or the panel is rebooting after an upgrade.
- Memory recalls are easier to perform if the Quick Bank Select personality option is on.
- 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.
- The panel sleep functionality is disabled for the Acuity Rack Panel.

To Launch a Virtual Panel

The virtual panel provides a virtual representation of a control panel, Shot Box, or auxiliary control panel, as well as the menu interface.

Note: *If you are connecting to a physical control panel, the Virtual Panel Enable Personality option must be set to **On**.*

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

1. Open a web browser and navigate to the IP address of the Acuity Rack Panel, physical control panel, or SoftPanel.

   Tip: *Click **Logout** to close the Acuity Virtual Panel. Click **About** > **Acuity User Guide** to launch the Acuity webhelp in a new tab.*

2. Point to **Panel** and select the size of control panel you want to use.
3. Click **Open Panel VNC** to open a window with the menu system.
   a) At **Login:** type `user` and press **Enter**.
   b) At **Password** type `password` and press **Enter**.

   Tip: *Click **Close Panel VNC** to close the menu system window.*

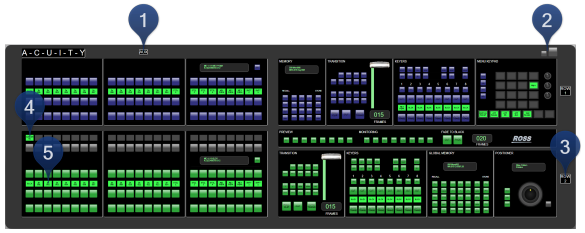
4. Point to **Add-On Modules** and select the **Shot Box** or **Aux Panel** that you would like to use instead of the panel.
5. Point to **Options** to configure the Acuity Virtual Panel interface.
   - **Background Off** — turns off the background image on the page.
   - **Block Multiple Users** — prevent multiple users form logging in to the same Acuity Rack Panel.
   - **Transparency Off** — turns off the transparency effect applied to the panel and the border of the menu.
   - **Position Lock** — lock the panel and menu in their current positions.
   - **Zoom Lock** — lock the panel and menu at their current zoom level.
   - **Smaller Zoom Steps** — reduce the rate for zooming in/out from the panel.

- **White Button Labels** — switches the labels on the panel buttons to white. This does not change the color of the mnemonic text.
- **Swap to Top Lock** — locks to panel and menu to their current order. If the panel is covering the menu the menu does not jump to the top when you hover over it or click on it.
- **Follow Browser Resize** — the virtual panel resizes with the size of the browser window.
- **Open VNC in New Window** — opens the menu system in a new browser tab.
- **Set Page as Default** — sets the current virtual panel as the default panel.
- **Reset Position** — resets the panel and menu to their default positions.
- **Save Position** — saves the current position and size of the panel and menu, as well as the setting on the **Options** menu.
- **Restore Position** — recalls the settings stored using the **Save Position**.

The Acuity Virtual Panel Interface

An overview of the interface of the Acuity Virtual Panel.

Tip: You can use the virtual panel with a touchscreen monitor if required. Touch events are treated as mouse clicks and multi-touch and drag events are also supported.



1. AUX

Click **AUX** at the top of the panel to turn the Auxiliary Control Panel on or off.

2. Minimize/Maximize

Click these buttons to minimize or maximize the size of the panel.

3. ROW *X*

Right-click on the **ROW *X*** button to assign the panel row to a different switcher row.

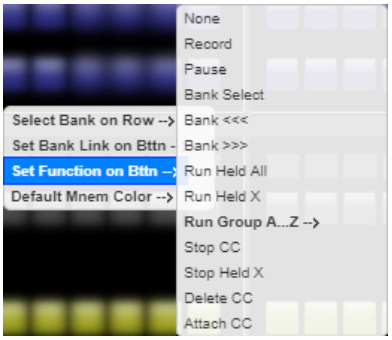
- **Set to Internal Row -->** — Point to this item and click the internal row that you want to assign the panel row to.
- **Set to External Row -->** — Point to this item and click the external row that you want to assign the panel row to.

4. Custom Control Setup

Double-click on a custom control mnemonic to record to that custom control.

- **Start REC** – start recording a standard custom control.
- **Start REL REC** – start recording a relative custom control.
- **Stop REC** – stop recording the custom control.
- **Cancel REC** – cancel recording the custom control.
- Change the name and mnemonic color of that custom control.

Right-click on the custom control mnemonic to assign a bank or special function to the button.



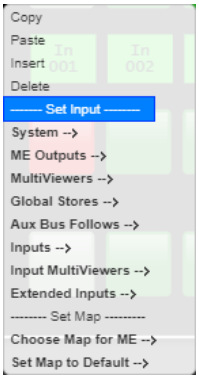
- **Select Bank on Row** — Point to this item and click the custom control bank that you want to assign the row to.
- **Set Bank Link on Bttn** — Point to this item and click the custom control bank that you want to add a selection button for.
- **Set Function on Bttn** — Point to this item and click the special command that you want to assign to the button.

- **Default Mnem Color** — Point to this item and click the mnemonic color that you want to assign to **ALL** the panel mnemonics.

5. Source Setup

Double-click on the mnemonic to change the source name.

Right-click to edit the bus map.

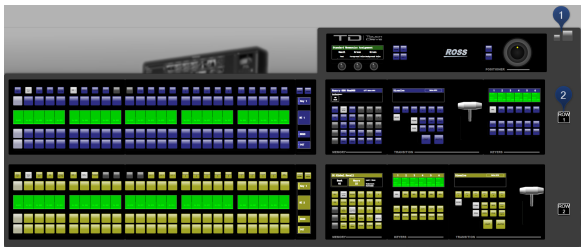


- **Copy** — Click to copy the button assignment.
- **Paste** — Click to replace the button assignment with the copied one.
- **Insert** — Click to insert a none source and shift all the other assignments to the right.
- **Delete** — Click to delete the button assignment and shift all the other assignments to the right.
- **System** — Point to this item and click the internally generated source you want to assign to the button.
- **ME Outputs** — Point to this item and click the ME output that you want to assign to the button.
- **Aux Bus Follows** — Point to this item and click the aux bus follow that you want to assign to the button.
- **Inputs** — Point to this item and click the video input that you want to assign to the button.
- **Extended Inputs** — Point to this item and click the extended input that you want to assign to the button.
- **Choose Map for ME** — Point to this item and click the bus map you want to assign to the ME that the row is assigned to.
- **Set Map to Default** — Point to this item and click the bus map you want to default.

The TouchDrive Virtual Panel Interface

An overview of the interface of the TouchDrive Virtual Panel.

Tip: *You can use the virtual panel with a touchscreen monitor if required. Touch events are treated as mouse clicks and multi-touch and drag events are also supported.*



1. Minimize/Maximize

Click these buttons to minimize or maximize the size of the panel.

2. ROW *X*

Right-click on the **ROW *X*** button to assign the panel row to a different switcher row.

- **Set to Internal Row -->** — Point to this item and click the internal row that you want to assign the panel row to.
- **Set to External Row -->** — Point to this item and click the external row that you want to assign the panel row to.

DVE Sequences

A sequence is a series of keyframes, or effects, that are created, saved, and run directly from your switcher. You can use any of the DVE functions to manipulate the keyframes in a sequence. For example, a sequence might consist of a channel, or object, that shrinks across the screen, moves to a specific location and acquires a border or any other DVE effect. The switcher interpolates, or fills in, the shots between the keyframes to produce a fluid motion effect.

A sequence must be created and used on a DVE key. A DVE wipe that is created from a sequence can be run on either a background or a key.

Creating and Editing DVE Sequences

A sequence is created by inserting keyframes of how you want the channel to appear, and how long you want the switcher to take to move from one keyframe to the next. Each keyframe has a duration that is used when the sequence is moving to that keyframe.

You can have a maximum of 1000 sequences.

DVE Sequences Menu

There are a number of buttons on the DVE Sequences menu that allow you to quickly manage your sequences.

- **Previous** — move to the previous keyframe in the sequence.
- **Next** — move to the next keyframe in the sequence.
- **Cut** — cut the current keyframe.
- **Copy** — copy the current keyframe.
- **Paste** — paste the keyframe from the clipboard to after the current keyframe.
- **Paste Over** — paste the keyframe from the clipboard over the current keyframe, replacing the current keyframe.
- **Insert** — insert a keyframe after the current keyframe.
- **Insert Over** — insert a keyframe over the current keyframe, replacing the current keyframe.
- **Delete** — delete the current keyframe.
- **Delete Workspace** — delete all keyframes in the sequence.

To Create or Edit a DVE Sequence

*Tip: If you are editing a keyframe, highlight the keyframe you want to edit, make the required changes and press **Insert Over**. This replaces the existing keyframe with the newly edited one. Don't forget to save your sequence.*

1. Navigate to the DVE menus for the DVE key you want to create a sequence for and press **DVE Menu** > **Sequence**.
2. Position the key where you want the sequence to start.
3. Press **Duration** and use the **Frames** knob to set the number of frames it will take for the sequence to move to this keyframe.

   *Tip: If you do not want to enter a specific duration, you can insert a Hold in the sequence by toggling **Hold** to **On**. When the sequence reaches this point, it will wait until you press **AUTO TRANS** again.*

   Because this is the first keyframe, the sequence will only use this duration if the sequence is being run in reverse.
4. Use the **Type** knob to select the type of motion you want to use to move to this keyframe.
   - **Smooth** — key accelerates slowly at the start and decelerates slowly at the end of the sequence. The motion between the keyframes is a straight line.
   - **Spline** — key accelerates slowly at the start and decelerates slowly at the end of the sequence. The motion between the keyframes is a user modifiable spline-curve that smoothly moves the key through each keyframe.
   - **Linear** — key moves from keyframe to keyframe at a constant velocity. This produces a step-motion effect.
5. If you selected **Spline** as the type of motion, press **Spline Params** and use the **Tension**, **Bias**, and **Continuity** knobs to adjust the appearance of the motion.
   - **Tension** — adjust how tight or loose the curve is. Lower tension gives a looser, more sweeping curve while tightening the tension brings the curve closer to a straight line.
   - **Bias** — balance how much influence the previous and next keyframes have on the spline through the current keyframe. Increased bias places more importance on the smoothness between the previous and current points, while a decreased

bias places more importance on the smoothness between the current and next points.

- **Continuity** — adjust how smoothly the path passes through the keyframes. The standard spline path moves smoothly through each keyframe, but by adjusting the continuity you can make the path effectively come to a point at a keyframe and then abruptly move away towards the next keyframe.

6. If you plan on using the sequence as a DVE wipe, press **Wipe Modifier** and use the **Wipe** knob to select how you want the wipe to transition.
   - **None** — a cut is performed at the end of the sequence. This is designed for sequences that end with the key off-screen or not visible on the screen.
   - **Dissolve** — dissolves the key as the sequence progresses, based on the **Dissolve At** value. Use the **Dissolve At** knob to set the percentage of the way through the sequence that the dissolve will start.
   - **Slide Off** — moves the key directly off-screen in the direction that the key was last moving. This is done by moving the key in the X and/or Y axis.
7. Press **Insert** to insert the keyframe.
8. Insert additional keyframes as required.

Saving and Loading Sequences

Sequences can be saved, renamed, and loaded from the menu. The ME and Keyer that a sequence is loaded onto is listed on the menu below the title, along with the duration, number of keyframes, and number of channels of the selected sequence.

To Save and Name a Sequence

1. Navigate to the DVE menus for the DVE key that you created the sequence you want to save and press **DVE Menu** > **Sequence**.
2. Press **Load/Save Sequence**.
3. Use the **Sequence** knob to select a register that you want to save the sequence to. Registers with a green dot next to them already contain a sequence.
4. Press **Save Sequence** to save the sequence to the selected register.
5. Press **Rename Sequence** and enter the new name for the sequence.
6. Press **Accept New Name**.

To Load a Sequence

1. Navigate to the DVE menus for the DVE key you want to load a sequence on and press **DVE Menu** > **Sequence**.
2. Press **Load/Save Sequence**.
3. Use the **Sequence** knob to select a register that you want to load the sequence from. Registers with a green dot next to them already contain a sequence.

   Tip: *You can delete the currently selected sequence by pressing* ***Delete Sequence****. This clears the sequence from the currently selected register.*
4. Press **Load Sequence**.

Using DVE Sequences

Once you have created and saved your sequence, you can use it either as a sequence on a keyer, or as a transition on a keyer or background. The sequence is selected either through the **Pattern Selection Menu**, or by entering the sequence number on the keypad.

You can set a default sequence rate that is used when an ME, or the switcher, is defaulted. This rate overrides the duration stored in the sequence.

To Run a DVE Sequence

Note: *A sequence can only be run on a DVE key.*

1. Pres **SEQ**.

   Tip: *When you press* ***SEQ*** *on the Transition Module,* `2D MEx SEQ#` *is shown on the display of the Global Memory Module. Enter the number of the sequence you want to load using the keypad on the Global Memory Module and press* ***ENTER*** *to load the sequence.*
2. Select the sequence you want to use for the transition.
3. Press **Direction** to select if the sequence moves forward (**Fwd**) or in reverse (**Rev**.

   Note: *The* ***Direction*** *and* ***Flip Flop*** *features are only available for background transitions. The buttons are gray if a key only transition is selected.*
4. Press **Flip Flop** to select if the sequence moves in the opposite direction with every running (**On**), or always moves in one direction (**Off**).

5. Use the fader or press **AUTO TRANS** to run the sequence.

Running Multiple Sequences

You can run multiple sequences at the same time in the same way you would transition multiple keys. Select the keys on the Transition module you want to run the sequences on and press **SEQ**. The **DVE Sequence Runtime** menu shows all the sequences on the keys you have selected. Each sequence can be run and paused independently except when the sequence is being run from the fader.

Working in 3D Space

The 3D DVE operates by manipulating DVE keys, or individual channels, in 3-dimensional space. This allows you to position keys in front of, or behind, other keys, and make keys appear larger (closer to you) or smaller (further from you) than they are.

A 3D DVE key can be positioned anywhere in the virtual 3D world; however, it is only visible on screen if it is within the visible area. This allows you to perform transition effects where the key appears to fly in from one side. The key is being taken from a position outside of the visible area into the visible area.

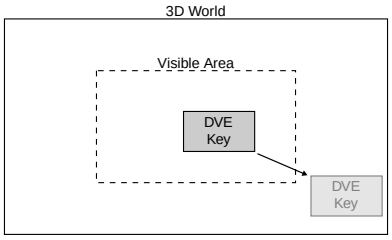


Figure 17: 3D Space

Tip: *Most key types require two channel of DVE channel to fly the key. One channel for the fill and another channel for the alpha. A preset pattern key is the only key type that only requires a single channel to fly the key. This allows you to fly two channels of DVE in a single key.*

Moving in 3D Space

Three axes (X, Y, and Z) are used to define 3D space. The position of a key on each of the three axes determines its location in 3D space.

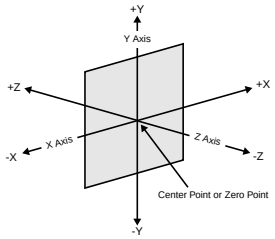


Figure 18: 3D Space

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

- Moving to the left of the center (or zero) point locates the channel in -X space.
- Moving to the right of the center point locates the channel in +X space.
- Moving below the center point locates the channel in -Y space.
- Moving above the center point locates the channel in +Y space.
- Moving closer to you locates the channel in -Z space.
- Moving away from you locates the channel in +Z space.

Perspective

Since you are viewing 3D key on a 2D surface (the screen), it is important to recognize how depth is perceived. This involves understanding relative size, parallax, and viewpoint perspective.

Relative Size

When working with the Z-Axis, keys that are closer appear larger than keys that are further away. Zooming the key changes the distance between the key and the viewpoint, but does not change the size of the key. Keys that are closer also appear over top of keys that are further away.

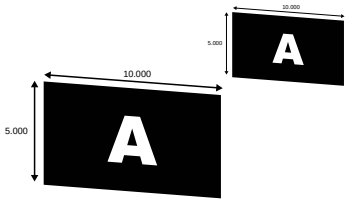


Figure 19: Relative Size

Parallax

If you are manipulating two keys at once, you may notice that the key closer to you appears to be moving faster than the one that is further away. This effect is known as motion parallax. It occurs because keys that are closer to you move further across your field of view than keys in the distance.

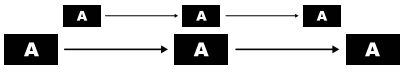


Figure 20: Parallax

Rotation

Rotation can occur around the X, Y, or Z-Axes.

The pivot point of the rotation (point of rotation) can be set to any point on or off the plane of the key to produce a variety of creative effects. The default pivot point is the center of the key.

Changing the position of an key in 3D space does not change the pivot point. The pivot point is

relative to the key. For example, if you adjust the pivot point to the top right-hand corner of the key, then move the key, the pivot point will still be at the top right-hand corner of the key.

X-Axis Rotation

The key rotates horizontally about the Y-Axis. A positive rotation will spin the key from left to right and a negative rotation will spin it from right to left.

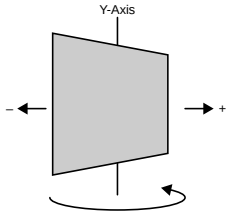


Figure 21: X-Axis Rotation

Y-Axis Rotation

The key rotates vertically about the X-Axis. A positive rotation will spin the key from top to bottom and a negative rotation will spin it from bottom to top.

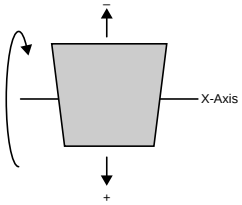


Figure 22: Y-Axis Rotation

Z-Axis Rotation

The key rotates about the Z-Axis. A positive rotation will spin the key clockwise and a negative rotation will spin the image counter-clockwise.

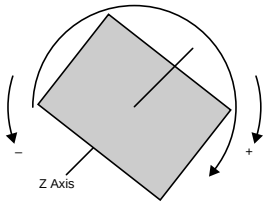


Figure 23: Z-Axis Rotation

Pre-Loaded Effects

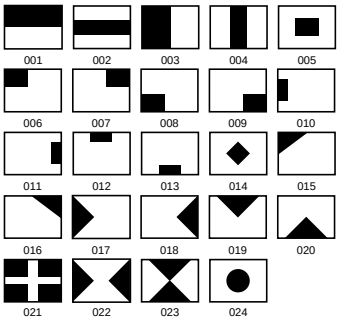
Your switcher comes with a number of pre-loaded DVE Sequences and standard wipes.

Simple Wipes

Wipes fall into three different categories, depending on how they appear when being performed.

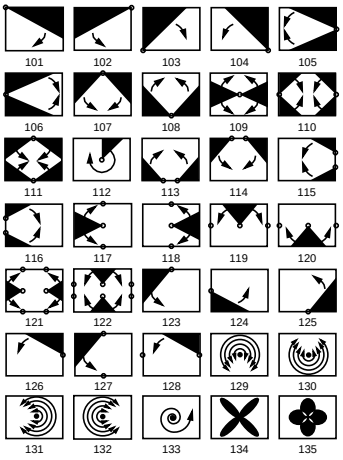
Classic Wipes

Classic wipes are the most basic type of wipe and involve some pattern that expands, or shrinks, to reveal the destination video.



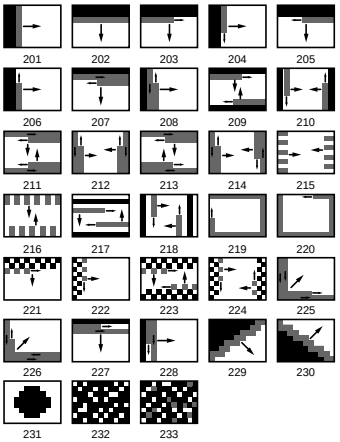
Rotary Wipes

Rotary wipes, unlike Classic wipes, involve rotation of a pattern to reveal the destination source.



Matrix

Matrix wipes use a series of blocks to create the pattern for the wipe.



Special

Special wipes use unique shapes as the pattern for the wipe.

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.

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