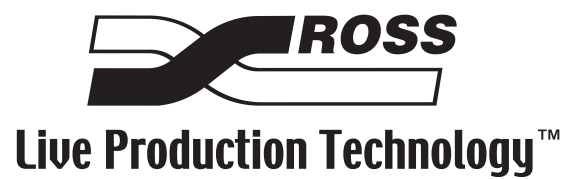

Ross Video Limited



Operation Guide

Volume I

Software Issue: 18



Synergy Series • Operation Guide Volume I

- Ross Part Number: **4000DR-003**
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Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, refer to the “**Important Safety Instructions**” listed below to avoid personnel injury and to prevent product damage.

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.

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.
		This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage or injury to persons or equipment.
	Warning	The symbol with the word “ Warning ” within the equipment manual indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.
	Caution	The symbol with the word “ Caution ” within the equipment manual indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
	Notice	The symbol with the word “ Notice ” within the equipment manual indicates a situation, which if not avoided, may result in major or minor equipment damage or a situation, which could place the equipment in a non-compliant operating state.
	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



Warning

- 1) 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 in to 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) The SD (Video Production Switcher) chassis is to be rack mounted only.



Warning

- 18) **Indoor Use: WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- 19) 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.
- 20) **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.



Caution

- 21) **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. (Installation Guide only.)
- 22) This apparatus contains a Lithium battery, 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.
- 23) 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.
- 24) 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.
- 25) 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.
- 26) To reduce the risk of fire, replacement fuses must be the same type and rating.

27) Use only power cords specified for this product and certified for the country of use. Refer to the Product Power Cord Requirement section that follows.

28) The safe operation of this equipment requires that the User heed and adhere to all installation and servicing instruction contained within the equipment's manuals.

Product Power Cord Requirements



Caution

North American Line Voltages 100 - 120 Volt

This product is supplied with certified 10A/125V SVT type supply cords. Conductors are color coded white (neutral), black (line) and green or green/yellow (ground).

Operation of this equipment at line voltages exceeding 130V requires that alternative supply cords with appropriate voltage and current ratings be used.

International Line Voltages 200 - 240 Volts

This product has been designed for use with certified IEC 320- C13 10A/250V - **H03 VV-F3G 1.00mm²** type line cord.

International product orders are supplied with a certified 10A/250V line cords, utilizing a molded 3-pin IEC 320-C13 type connector at one end and stripped conductors on the other. One line cord is provided. Conductors are CEE color coded; blue (neutral), brown (line), and green/yellow (ground).

Installation by a qualified electrician, of an appropriately approved A/C wall plug certified for the country of use, is required.

Alternatively, other IEC 320 C-13 type power cords may be used, provided that they meet the necessary safety certification requirements for the country in which they are to be used. Refer to the correctly specified line cord above.

EMC Notices

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.



Notice

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

CANADA

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

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

EUROPE

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

INTERNATIONAL

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



Notice

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

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 guide, please observe all static discharge precautions.



Notice

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.

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 THREE YEARS 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.

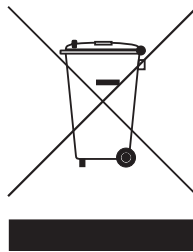
This warranty is TRANSFERABLE to subsequent owners, subject to Ross' notification of change of ownership.

Environmental Information

The equipment that you purchased required the extraction and use of natural resources for its production. It 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.

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Glossary of Terms

GL

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Introduction

A Word of Thanks

Congratulations on choosing the Ross **Synergy Series** digital video production switchers. You have purchased the power and versatility of a digital Multi-Level Effects (MLE) switcher that is ready to take on all creative challenges in today's competitive broadcast environment. You will be pleased at how easily your Synergy switcher fits into your overall working environment.

About This Guide

This guide covers the operation of the following Synergy switchers:

- **Synergy 2** (2 MLE)
- **Synergy 3** (3 MLE)
- **Synergy 4** (4 MLE)

The following chapters are included:

Volume I

- The **Front Matter** of this guide includes information on the warranty and repair policy, and all regulatory and safety notices and compliance issues.
- **Chapter 1** — “**Introduction**” summarizes the guide and describes the components and features that comprise the Synergy switcher.
- **Chapter 2** — “**Control Panel Introduction**” provides an overview of each Synergy switcher control panel. You will learn the various panel sections and details about basic functionality.
- **Chapter 3** — “**Using the Menu System**” provides an introduction to the menu system of the Synergy switcher.
- **Chapter 4** — “**Switcher Basics**” presents basic operating rules and procedures regarding crosspoints, buses, knobs, re-entry, and preview mode, plus additional features such as **Preview Overlay**.
- **Chapter 5** — “**Background Transitions**” outlines operating procedures for Manual Transitions, Cuts, Dissolves, Auto Transitions and a variety of other basic background transition modes.
- **Chapter 6** — “**Pattern Control**” provides information and instructions for using the switcher’s **Pattern Control Group**.
- **Chapter 7** — “**Keying**” provides instructions for using the Synergy switcher’s **MLE Keyers** and **Downstream Keyers**.
- **Chapter 8** — “**Memory and Disk Functions**” provides information on using the Synergy switcher’s **Global Memory System**, working with storage devices and custom controls.
- **Chapter 9** — “**Custom Controls**” provides instructions for programming custom controls with various functions such as Go To Menu and Custom Control Holds.
- The **Glossary** provides a reference list of important switching and video terms used throughout this guide.
- An **Index** is also provided for your reference.

Volume II

- **Chapter 10** — “**Peripheral Device Control and More**” provides instructions for controlling devices such as remote cameras, character generators, and more from the Synergy switcher.
- **Chapter 11** — “**DVE Send**” provides complete instructions for using the switcher’s **DVE Send** capability.
- **Chapter 12** — “**Ultimatte Insider**” provides instructions for operating the optional **Ultimatte Insider™** chroma keyer function.
- **Chapter 13** — “**Dual Aspectizer**” provides instructions for operating the optional **Dual Aspectizer** aspect ratio control function.
- **Chapter 14** — “**Clip Control**” provides instructions for programming and running VTR, Video Server and Audio Server clips.
- **Chapter 15** — “**External DSK 3/4 (CDK-111A-M)**” provides instructions for operating the optional **External DSK** function.
- **Appendix A** — “**Menu Trees**” lists the various menu trees that are used within the Synergy system.
- **Appendix B** — “**How Do I..**” provides tutorials on subjects such as creating a 3D Over-the-Shoulder Box and making an Effect repeat indefinitely.
- The **Glossary** provides a reference list of important switching and video terms used throughout this guide.
- An **Index** is also provided for your reference.

If, at any time, you have a question pertaining to the operation of your Ross Video Synergy switcher, contact us at the numbers listed in the front of this guide. Our technical staff are always available for consultation, training, or service.

Documentation Conventions

The following conventions are used throughout this guide:

- Rear panel connectors are indicated in bold-faced upper case letters. For example:
The **AUX 1** connector is ...
- Control Panel buttons are indicated in bold-faced upper case letters, using a sans-serif font. For example:
Press **WIPE** to ...
- Menu names on the integral display panel are indicated in bold-faced text. For example:
The **Aux Bus Setup Menu** allows you to ...
- Soft key labels on the integral display are indicated in bold-faced text, using a sans-serif font. They are *not* indicated by the function key below the display that you press. For example:
Press **Accept New Name** to register ...
- Menu navigation procedures in this manual set state the buttons you are to press followed by the “⇒” symbol. For example, the following navigation procedure shows you how to navigate from the **Main Menus** to the **Installation Menus**. In this case, you press **Setup** on the **Main Menu 2-2**, then you press **Installation** on the **Setup Menu**.
Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installation**.

Documentation Terms

The following terms are used throughout this guide:

- “**Frame**” and “**Electronics Frame**” both refer to the Synergy switcher’s 11 RU electronics chassis.
- “**Operator**” and “**User**” refer to the person who uses the Synergy production switcher.
- “**Panel**” and “**Control Panel**” both refer to the Synergy switcher’s large multi-button control panel.
- “**SDI**” refers to Serial Digital Interface, a digital video signal that is distributed via a single coaxial cable with BNC connectors.
- “**System**” refers to the entire Synergy system, consisting of its electronics frame and control panel.
- “**Video system**” refers to the mix of interconnected digital equipment (including the edit controller, VTRs, DVEs, etc.) in which the Synergy system is included.
- A “**1+0 DVE**” has a video connection *only* going from Synergy to the DVE. Both key and fill signals are connected from the DVE to Synergy.
- A “**1+1 DVE**” has both a video (fill) and a key (alpha) connection going from Synergy to the DVE. Both key and fill signals are connected from the DVE to Synergy.
- “**Primary DVE**” refers to the *one* DVE (either single or multi-channel) that is connected to the Synergy switcher via an RS-422 serial control. This type of connection allows you to run the DVE using *custom control* buttons, and by using the **DVE Send** feature. You can also load DVE effects from the panel using the **Recall DVE** button in the **Global Memory System** group.
- “**Secondary DVE**” refers to any number of DVEs that are connected to the switcher using video and key connections only — with *no* RS-422 control. A secondary DVE *must* be controlled from its own local control panel, or via GPI output pulses from the Synergy switcher.
- “**Storage devices**” refers to a type of storage can be used to save and recall configurations, setups and registers to the Synergy Switcher. Examples of this are a standard 1.44 MB high-density floppy disk and a USB key.

Abbreviations

The following abbreviations are used throughout the text:

Abbreviation	Definition
A-D	Analog-to-Digital
AUX	Auxiliary
CG	Character Generator
D-A	Digital-to-Analog
DA	Distribution Amplifier
DDR	Digital Disk Recorder
DSK	Downstream Keyer
DVE	Digital Video Effects
DVR	Digital Video Recorder
ID	Identification
MLE	Multi-level Effects
PGM	Program Bus
PST	Preset Bus
PST PATT	Preset Pattern
PV	Preview
RU	Rack Unit
TD	Technical Director
VCR	Video Cassette Recorder
VDCP	Video Disk Communications Protocol
VTR	Video Tape Recorder

Product Overview

Ross Video developed the Synergy series for live news, live sports, and live production. Because the switcher is the center of the action, it must be powerful, versatile, yet easy to operate. This operational simplicity frees operators to concentrate on the programming — instead of the equipment.

The Synergy series (our fourth generation of switchers) was designed with the direct input of video professionals experienced in news, sports, and mobile production. Key members of the Synergy design team are part of an ongoing program where they demonstrate the product, assist with installations, and provide operator training. As a result, the Synergy line continues to advance Ross Video's traditions — power, ease-of use, and logical panel layouts.

Product Highlights

The following list summarizes the Synergy series' key features:

- **Fully Digital System.** All switchers in the series are fully digital, including the reference video connection. No analog input/output circuitry is provided. This unique concept simplifies the design, minimizes the power requirements, and reduces the overall cost.

By requiring all A-D and D-A conversion to be performed *outside* the system, digital noise stays *out* of the converters. In addition, customers are guaranteed the latest converter technology, *without* burdening the cost of the switcher, and *with* the added option to use those converters for other purposes — as they gradually convert to the digital domain.
- **Large Input Matrix.** The Synergy frame can accept up to 64 video inputs, in groups of eight inputs each.
- **Compact Size.** The 11 RU (Rack Unit) frame can house 64 inputs, four fully optioned MLEs, 12 timed Aux Buses, an extender board, and full redundant power.
- **Low Power.** The only power requirements are a maximum 300 watts for the frame and 175 watts for the panel (based on a fully-loaded Synergy 4). Each power supply plugs into a standard power outlet.
- **Growth Path.** The same electronics frame is used for *all* multi-MLE Synergy switchers. You have the option of buying a smaller system now — and adding another MLE and a larger control panel as your needs grow.
- **Powerful Keyers.** Each *full function* keyer has dedicated push buttons, flying borders for every key type, optional Squeeze & Tease capability, chroma keying, key over transition, quick key preview, transition generators, and bi-color “on air” status.
- **Squeeze & Tease.** A 2D or 3D WARP DVE Key can be built into *every keyer* — up to two per MLE. With the option installed, every type of key can be repositioned, squeezed and zoomed.

With **2D**, you can simultaneously crop, reposition, flip, squeeze or zoom, border, *and* add a glowing transparent color-washed drop shadow to a key inside a *single* keyer.

With **3D WARP**, you have the full functionality of the most powerful and sophisticated WARP card on the market today, all within a single keyer.
- **Chroma Keying.** A standard feature in every keyer, all chroma keyers feature chroma suppression, hue rejection, plus natural and simulated shadows. Each is designed for use in today's fast-paced productions.

- **VTR Control.** This option allows you to select a VTR on the PST bus, recall a VTR timecode “clip” from memory, display the VTR’s current time code on the preview monitor, roll it with a Custom Control button, and take it to air. Fast forward, rewind, and cue-to-timecode are available at the touch of a button on the control panel.
- **Custom Control Hot Buttons.** A number of macro buttons have been positioned close to the operator for powerful single-touch control. You can recall any combination of switcher memories, button pushes, and external device control.
- **Two Pattern Generators per MLE (Standard).** The Synergy series comes standard with a primary pattern generator for creating wipes and preset patterns (PST PATT 1), plus a secondary pattern generator for PST PATT 2. The primary generators are equipped with extensive traditional, rotary, and matrix wipes. In addition, a wide variety of creative “User” wipes are also available as standard.
- **Fully Featured “Program/Preset”.** The bottom MLE, normally referred to as the Program/Preset bus, has *full effects capability* including wipes and dual DSKs with chroma keys and preset patterns.
- **Advanced Display.** Each Synergy series switcher includes a large crisp display that is used to configure the switcher and to provide advanced operational features.
- **Preview Overlay.** This powerful option presents VTR time code, a count up/down timer, source ID, safe title, and more. Displays are individually selectable on the preview monitor for quick reference.
- **External DVE Integration.** DVE effects from all popular DVEs are seamlessly integrated as switcher transitions. Push, slide, and warp keys, backgrounds, or both without tying up keyers or worrying about Aux Buses, signal paths, or tallies.
- **Upgrades from the Web.** Software (and some hardware) can be upgraded by downloading files from the Ross Video web site onto a floppy disk or USB key.
- **Rugged Construction.** Ross products are tough — they’re built to handle years of demanding, continuous use. In addition, the Synergy series is backed by a three-year *transferable* warranty.

Standard Features

The following features are standard in *all* Synergy series switchers:

- **Complete Control Panel**

Regardless of what options are ordered, your control panel is always equipped with every button, knob, display and light. This means that your Synergy switcher and your control room will look their very best, even if your budget is tight.

- **Serial Digital Inputs**

The following sets of inputs are standard:

- ~ **Synergy 2:** 16 serial digital inputs
- ~ **Synergy 3:** 24 serial digital inputs
- ~ **Synergy 4:** 32 serial digital inputs

On *each model*, you can expand to 64 inputs, in groups of eight inputs each. In addition, all input boards are physically identical, for ease of installation and service.

With all switchers in the series, any input can be assigned to any control panel push button, thus simplifying installation and your ability to customize the panel layout. Inputs can be used for video, alpha channel, chroma keying, or switcher reference.

Regarding reference, note that any serial digital input can be assigned as the reference. If an analog reference is desired, Ross Video will optionally provide external conversion from (or to) the analog domain.

Full MLE Effects Systems

All Synergy switchers include *full-featured* MLE systems — two on the Synergy 2, three on the Synergy 3, and four on the Synergy 4. Note the following important MLE functions:

- Two wipe generators are standard with every MLE.
- Every MLE includes two keyers, both of which offer the following modes: matte fill, key invert, mask, self (luminance) key, auto select (linear) key, preset pattern key, and chroma key.
- Both MLE keyers offer extensive optional bordering that works with every key type.
- The optional **2D** or **3D Squeeze & Tease** feature can be installed in *every* MLE in the switcher, allowing you to squeeze or zoom any key or full screen image.
- Each MLE features five comprehensive matte generators, two of which incorporate advanced *wash* capability.
- Full preview capability is provided.

Advanced Copy and Swap Functions

The following convenient copy and swap functions are available as standard:

- **Copy MLE** — allows you to copy the contents of an MLE to another MLE location on the switcher.
- **Copy/Swap Key** — allows you to copy or swap the contents of a keyer with another key location (in the same MLE, or on a different MLE).
- **Copy Matte** — allows you to copy the contents of a matte generator to any other matte location.
- **Copy Wipe** — allows you to copy a wipe pattern (and all wipe pattern modifiers) from one MLE to another.

Pattern Generators

Each switcher includes (as standard) both primary and secondary pattern generators that are used for wipe transitions and preset patterns:

- **Synergy 2:** Four primary and two secondary
- **Synergy 3:** Six primary and three secondary
- **Synergy 4:** Eight primary and four secondary

The primary generators are equipped with extensive traditional, rotary, and matrix wipes. The secondary generators provide additional traditional patterns.

Chroma Keying

Chroma keying is available on *every keyer* in each switcher — including the downstream keyers. Each high quality chroma keyer features internal 4:4:4 chroma channel interpolation from any of the 4:2:2 inputs.

- The Synergy 2 (with one MLE plus Program/Preset) is capable of putting up to four different chroma keys on air simultaneously.
- The Synergy 3 (with two MLEs plus Program/Preset) can display up to six different chroma keys simultaneously.
- The Synergy 4 (with three MLEs plus Program/Preset) can display up to eight different chroma keys simultaneously.

Using the control panel, you can *directly* adjust the Chroma Key's clip, gain, hue, hue reject and chroma suppress. Using the menu system, you can control additional chroma suppression, natural shadow insertion and shadow transparency. If your system has the Preview Overlay Option board installed, you also have access to the Auto Chroma Key feature, which allows you to quickly obtain the best automatic chroma key for a selected color.

To simplify fast-paced live operation, the advanced menu system controls can be disabled. This allows you to quickly set up high quality keys using a minimum number of dedicated knobs and buttons. A “chroma key memory” button is also available on the panel that instantly recalls a previously stored chroma key setup.

Chroma key shadows can either be extracted from the source image or simulated using the optional switcher border generators.

Untimed Aux Buses

Twelve untimed Aux Buses are standard, each of which can be used to route video to monitors, DVE channels, still stores, tape machines, technical areas, etc. If any destination requires signals with stable timing (regardless of the source), the **Timed Aux Bus** option can be used which effectively converts an untimed Aux Bus output to a timed output. The total number of Aux Bus outputs remains fixed at 12.

The following signals are available on an Aux Bus:

- Black plus all primary inputs
- DVE SEND (to integrate external DVE effects into switcher transitions)
- Clean Feed
- (**Synergy 2** only) MLE 1 and MLE 2 program outputs
- (**Synergy 3** only) MLE 1, MLE 2 and MLE 3 program outputs
- (**Synergy 4** only) MLE 1, MLE 2, MLE 3, and MLE 4 program outputs

Standard Digital Outputs

In addition to the standard 12 untimed Aux Bus outputs, a wide array of program and preview outputs are also provided as standard:

Synergy Series Digital Outputs

Output Type	Quantity		
	Synergy 2	Synergy 3	Synergy 4
Main PGM	1	1	1
Preview Matrix (no overlay)	1	1	1
MLE 1 PGM (BKGD)	1	1	1
MLE 1 PV (PST)	1	1	1
MLE 2 PGM (BKGD)	1	1	1
MLE 2 PV (PST)	1	1	1
MLE 3 PGM (BKGD)		1	1
MLE 3 PV (PST)		1	1
MLE 4 PGM (BKGD)			1
MLE 4 PV (PST)			1
Clean Feed	1	1	1
Aux Bus	12	12	12
Total Outputs	19	21	23

USB Removable Media Drive

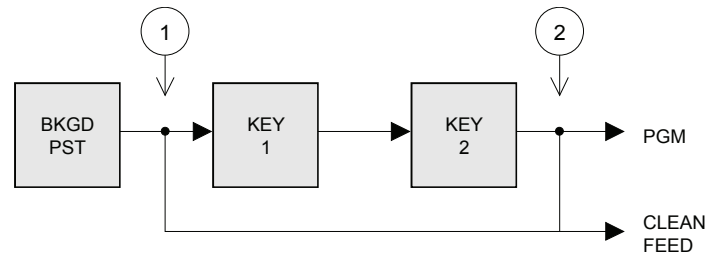
The **USB Removable Media Drive** supports industry standard USB keys. This option makes it possible to store and recall complete switcher setups including memory functions, switcher personalities, installation parameters, and more, to a USB key. This allows operators and technical staff to back up their setups and easily transfer these settings to other Synergy production switchers.

Clean Feed

The **Clean Feed** feature provides a second “program” output that is derived from a *different location* than the standard program output. Typical applications are:

- Bilingual and live-to-tape productions
- Recording shows for later airing without “call in” numbers inserted.

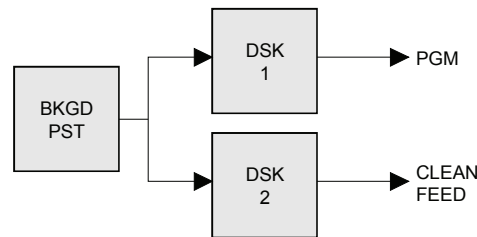
The **Clean Feed** output can be generated from any MLE keyer — from *before* or *after* the keyers as illustrated below. The point from which the feed is derived is software-configurable.



Basic Clean Feed Modes

1. At point **1** above, the clean feed output is pulled after the MLE’s program/preset bus, but *before* the two keys are added.
2. At point **2** above, the clean feed output is pulled downstream of the two MLE keyers — effectively, an additional output.

For bilingual applications, a special “dual output mode” provides KEY 1 over the PGM/PST bus on the normal program output, and KEY 2 over the PGM/PST bus on the clean feed output. Transitions on one keyer are slaved to the other. This configuration allows simultaneous broadcasts (such as English/Spanish, English/French) from a *single switcher*, as illustrated below:



Clean Feed Dual Output Mode

In an advanced dual-output application (in conjunction with the switcher’s **Aspectizer** option), you can use **Clean Feed** to output signals in two aspect ratios:

- Key 1 outputs a signal in 4x3 aspect ratio, standard definition.
- Key 2 uses the **Aspectizer** option to output a signal in 16x9 anamorphic aspect ratio, standard definition.

Custom Control Macros

Using the Synergy’s macro sequence feature, a series of button presses can be easily recorded and attached to any of the dedicated **Custom Control** buttons. You can step through complex show openings as easily as pressing one or two buttons. This feature eliminates confusing timeline programming and allows you to control remote devices or other optional switcher features.

For example, you can:

- Trigger a GPI to advance to the next page of your still store.
- Attach live DVE remote control commands such as *go to start*, *run forward*, and *run reverse*.
- Play, stop, or shuttle, up to eight VTRs or disk recorders.
- Set, start, reset, or automate the integrated switcher timeclock.

Memory System

Each switcher is equipped with a standard 100-event memory for complete switcher snapshots. At the touch of a button, the entire switcher (or simply a portion of the switcher) can be recalled directly from an MLE keypad. You can also associate “attributes” with memory recalls. These could be dynamic “effects dissolves,” auto transitions or external device commands. All switcher memories can be stored on disk for operator (and program content) convenience. The alphanumeric display in each MLE tells you what you have recalled, or what you are *about* to recall.

Matte Generators

Each MLE has three simple color generators and two complex ones that are capable of multi-color washes. Any one of the color generators can be assigned to COLOR BKGD 1 or 2, key fill 1 or 2, key border 1 or 2, or wipe pattern edges. Note that each MLE has its own dedicated COLOR BKGD video inputs to make memory recalls of individual MLEs simple and predictable.

Displays and Indicators

Every Synergy switcher always keeps you informed.

- Bright red LEDs at the end of every bus indicate what is on air. Yellow non-sync LEDs warn you that an input is untimed.
- LEDs under the key transition buttons (and in the keyers themselves) glow red when the key is on air, or green when the keyer is active (but the MLE is *not* on air).
- Every auto transition rate is constantly visible — including the main transition rates, the dedicated keyer rates and the fade-to-black rate.
- The last memory number recalled (per MLE) is displayed along with an associated eight-character memory name.

General Purpose Interface

Each Synergy switcher is equipped with twelve dedicated GPI inputs and twelve dedicated GPI outputs.

- **GPI Inputs** allow the switcher to interface with peripheral equipment such as editors and DVEs. Each input can be assigned to perform functions such as a fade-to-black or an MLE auto-transition. For more complex editing capabilities, the **Editor Interface** option is available.
- **GPI Outputs** are used to trigger remote events such as “Still Store Next Page”. They can also be tied to the switcher’s **Custom Control** buttons.
- The input GPIs can also be programmed to assist with Aux Bus tallies, with the ability to trigger “on air” status each time a different input source is used in an effect. For more complex DVE integration, the **DVE Send and Remote Control** option is available.

Tally Outputs

The standard system (on all Synergy switchers) includes 36 tally relays. These relays are located in the control panel — conveniently close to your monitors. Any tally can be assigned to any video input (or MLE program output). Even though 36 tallies are enough for *most systems* (even those fully loaded with 64 inputs), 36 additional tallies are available as a hardware option.

Control Cable

The Synergy control panel and frame are connected by a single, standard 8-pin shielded Telco 33 foot (10 meter) cable that uses RS-422 communication. The maximum cable length between the control panel and frame is 1,000 feet (305 meters).

Digital Reference

All Synergy switchers use a digital reference. The default reference is input **1**, but the switcher can be programmed to lock to *any* installed input.

Internal switcher black is regenerated from the chosen reference input. Choose a stable digital source such as test signal generator black or color bars that is locked to your house reference.



Note

If you wish to use analog color black as your reference signal, external analog-to-digital (A-D) conversion is required. The Ross **ADC-8032A** is the recommended converter.

System Options

This section lists the options available for the Synergy series. Note that all options can be easily installed in the field.



Note

Refer to the section “**Installed Options Menu**” on page 3–10 for instructions on how to verify the status of your installed hardware and software options.

Conversion Frames

All switcher inputs and outputs are 10-bit SDI, including the system reference. Signal sources of other video formats must be converted to serial digital. Ross Video chose to do this conversion externally to ensure that the very latest conversion technology and most competitive pricing is available to our customers. An added bonus of external conversion is the ability to use those converters elsewhere in your facility as you eventually upgrade your switcher sources to serial digital. The table below lists the Ross products that qualify as converters.

Ross Converters

Converter	Description
ADC-8032B	Analog Composite to SDI Digital Decoder
ADC-8032B-S	Analog Composite to SDI Digital Decoder with Frame Sync
ADC-8033	Analog Component to SDI Converter
ADC-8035	Dual Analog Composite to SDI Converter
CMA-8011A	SDI Component Monitoring Amplifier
CMA-8011A-7	SDI Component Monitoring Amplifier with 7 reclocked SDI Outputs
DAC-8013	SDI to Analog Component Converter
DAC-8016A	SDI to Analog Composite Converter
DAC-8016A-S	SDI to Analog Composite Converter with Frame Sync
DAC-8016A-SX	SDI to Analog Composite Converter with Frame Sync and X-Color Filter

Ross Converters

Converter	Description
DAC-8016A-X	SDI to Analog Composite Converter with X-Color Filter
QMA-8044	Quad SDI to Analog Composite Monitoring Amplifier
UMA-8017	Universal SDI Monitoring Amplifier

Please visit our website at <http://www.rossvideo.com> or contact your Ross Video representative to obtain a current Ross Video Product Catalog for detailed information on our complete line of converters.

Serial Digital Inputs

Additional serial digital inputs are available in sets of eight — up to a maximum of 64 serial digital inputs. For all switchers, input quantities of 32, 40, 48, 56, and 64 inputs are possible. Please note:

- Inputs can be assigned to any panel push button or *shifted* push button.
- Inputs can be “hidden” and accessible only as alpha channels.
- Inputs can be “locked out” if they are not used.

Because of the system’s flexibility with inputs, you can install and “map” inputs in any configuration desired — without restriction.

Input Carrier Boards

Each **Input Carrier Board** option is a full-length board that replaces the standard (half-length) **Input Crosspoint Board**. The option provides a standard matrix for eight digital inputs, but also provides slots for up to four hardware options (such as the **Ultimate Insider**).



Note

Only **Input Carrier Boards** revisions 5 and greater are supported by the current release of software.

Preview Overlay

The **Preview Overlay** option makes it possible to present various types of useful information on one of the two main preview outputs. The overlay is color coded, and can be positioned and displayed according to user preferences. Eight control panel buttons are dedicated to the **Preview Overlay** function.

A variety of overlay information is available:

- The “**Source Identification**” overlay displays the name of the current program source, the current transition (and direction), followed by the name of the current preview source. For example:

VTR 1 -W-> CAM 2

Please note that the preview source is shown in green letters, while the program source is shown in red letters.

- The “**VTR Timecode**” overlay displays the timecode of a VTR, disk recorder, or other device when used as the current background of main preview output (for example, **12:59:59:23**). The remote port of the device must be connected to the switcher and the **VTR Remote Control Option** must be installed.
- The “**Safe Title and Safe Area**” overlay places a SMPTE standard safe title or safe area indication over the switcher’s main preview output.

- ~ Safe title is a box that outlines the area within which the vast majority of home TV sets will be able to read text.
- ~ Safe Title area can be adjusted to meet each user's needs.
- ~ Safe area is a box that outlines the region within which viewers should be able to follow action.
- ~ Two horizontal lines inside the box indicate the minimum text size to ensure that the text (font) is legible on nearly all sizes of television receivers.
- The “**Center Cross Hairs**” overlay places cross hairs on the main preview output to indicate the center of the picture. It is useful in the alignment of text and other information.
- The “**Time Clock**” overlay places a count-down or count-up timer on the main preview output to time commercial durations or other events. Custom Control buttons on the panel can be assigned to reset, start, stop, or set the clock. A special “auto clock” mode is included that resets and starts the clock every time a transition occurs on air.
- The “**Mask Preview**” overlay places a thin outline on the main preview output around any active box mask. The **AREA** buttons in the effects control area determine which box mask is currently being viewed.
- The **Preview Overlay** option is a circuit card that installs on the **Frame CPU** card. Note that the feature’s buttons are installed, whether or not the option is installed.

Animated Logo Generator (ALG)

The Animated Logo Generator (CDK-111A-M) option allows the user to send animated logos or full-screen stills from the ALG to the switcher. There you can perform any switcher effect on the logo or still image.

External Downstream Keyer (DSK)

The External Downstream Keyer (CDK-111A-M) option allows the user to key stills or animated logos downstream of the switcher’s own internal downstream keyers. The Synergy switcher can utilize up to two external DSKs, each having independent PGM and PV outputs with true “look ahead” preview capability.

Dual Aspectizer

The **Dual Aspectizer** option, more commonly referred to as simply the **Aspectizer**, allows the user to perform live, dual aspect ratio, DTV production from a Synergy family panel. The **Aspectizer** dynamically converts the aspect ratio of a video signal in real time, *within* the Synergy switcher itself. Aspectizer features include:

- 4:3 to 16:9 or 16:9 to 4:3 conversion on any input.
- Moveable pan and scan, letterbox, and pillarbox formats, as well as intermediate formats such as 14:9, bordering and color background generators.
- Functional control via quick presets.
- Complete flexibility with the ability to assign the Aspectizer to selected inputs, an entire MLE, or selected outputs.
- Full access to both the original and the aspect ratio converted images.

The option installs on the **Input Carrier Board**.

Ultimatte Insider

Ultimatte Insider™ is a hardware option that adds true Ultimatte capability — directly *inside* the Synergy switcher. The option is comprised of hardware boards designed by Ultimatte (the Oscar-winning industry leader in compositing technology), plus two Ultimatte-specific menus for controlling the chroma key. The option installs on the **Input Carrier Board**.

Squeeze & Tease

One **Squeeze & Tease** option puts the power of a 2D (two dimensional) or 3D (three dimensional) WARP DVE into an MLE keyer. The option is available for *all* MLEs including the DSK. Once installed, the option can also be *moved* to another MLE if desired.

- The **Synergy 2** can be equipped with up to two Squeeze & Tease options — effectively, combining the power of up to four DVEs.
- The **Synergy 3** can be equipped with up to three Squeeze & Tease options — effectively, combining the power of up to 6 DVEs
- The **Synergy 4** can be equipped with up to four Squeeze & Tease options — effectively, combining the power of up to eight DVEs.

One **Squeeze & Tease 2D** option can perform the following digital video effects — using only one keyer:

- Squeeze, crop and reposition an image with variable colored borders.
- Squeeze, crop and reposition a self key or a chroma key.
- Push on and push off any type of key as a transition.
- Squeeze, crop and reposition an auto select key. Note that this function “steals” the other MLE keyer’s Squeeze & Tease option in order to process the alpha signal, but the remaining functionality of the other keyer is unaffected.
- Perform Squeeze & Tease wipes, such as push-offs, pull-ons and other similar DVE transitions.

One **Squeeze & Tease WARP** option can perform the following digital video effects.

- 10 bit processing using sub-pixel motion for great looking pictures.
- Warp effects include page turn, ripple, wave, mirror, swirl, melt, twist, slats, spheres, lens, gnarl, organics, pixie dust, sand, and more.
- Squeeze, crop, rotate, and reposition any kind of key.
- Create objects (such as slabs) from two images and manipulate them in 3D space.
- On board, dual channel StillStore stores 30 – 512 frames of video (dependent upon image size).
- Preprocessor effects include defocus, mosaic, posterization, colorization, and strobe effects.
- Advanced picture frame borders can be simple, single color type, or fancy picture frame including Roman column, tubular, beveled, computer style, tri-color, and more.
- All images can have natural lighting effects applied using a positionable light source with ambient light min/max controls.

In addition to its DVE functionality, either full screen video or key signals can be frozen at the touch of a button — thus putting the power of a frame store into every keyer. If full screen video is frozen, it

can be used as a background to the other MLE keyer. Alternatively, a character generator key can be frozen to free up your CG for further production.

Operationally, Squeeze & Tease is exceptionally easy to control. Most effects can be produced simply by pressing the **Fly Key** button and using the 3-axis joystick. Additional adjustment can be made through the menu system. Please note:

- All Squeeze & Tease effects can be bordered using the keyer's optional border generator.
- The **Squeeze & Tease 2D** or **WARP** option is a circuit card that installs on the MLE Board (which plugs into the MLE Carrier Board).

Mnemonic Displays

Mnemonics are available for each of your Synergy Series 2003 edition panel MLEs and your Custom Control buttons. Each individual display is completely modifiable – change the display color, text size, and backlighting to customize your source names for different applications. Perfect for mobiles and other applications that require different crosspoint names from one production to another.

Dual Border Generator

The **Dual Border Generator** option provides visually dynamic border, shadow, and outline effects to both linear MLE keyers, with either hard or “glowing” edges. The option can also enhance self keys, chroma keys, and preset pattern keys. You can move the border to any position on the screen — even above the key. Borders are “flown” in real time with the joystick (just like wipe patterns and DVE effects).

Please note:

- All border edge effects can be modified through the parameters of **X** and **Y** position, border size, border color (including color washes), density, and glow (giving a soft defocused look).
- The **Dual Border Generator** option is a circuit card that installs on the MLE Board (which plugs into the MLE Carrier Board).

Timed Aux Bus

The Synergy switcher offers two types of Aux Bus outputs — untimed (standard), and timed (optional). The total number of Aux Bus outputs remains fixed at 12.

- A standard **Untimed Aux Bus** output follows the timing of the input source (or re-entry), with a short additional processing delay. Re-entries have progressively larger delays depending upon where they are in the MLE cascade (i.e. MLE 4 has more delay than MLE 1).

For destination devices that are not sensitive to timing (such as monitors), or for those that have their own input synchronization (such as some DVEs), the Untimed Aux Bus outputs are ideal.

- The **Timed Aux Bus** option allows you to convert untimed Aux Bus outputs to *timed* Aux Bus outputs. When installed, a timed output ensures that all “synchronous” sources have stable timing relative to the switcher's program output. This simplifies D-A conversion and system timing.

A “synchronous” source is defined as one within +/- one-quarter line of the switcher reference. Sources outside of this window remain horizontally locked, but may be shifted vertically.

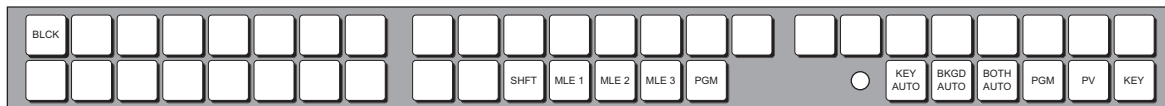
For destination devices that *are* sensitive to timing (such as a D-A converter), the **Timed Aux Bus** outputs are ideal.

Note that the **Timed Aux Bus** option is easily installed in the field.

Dedicated and Assignable Remote Aux Panels

A **Remote Aux Panel** is a self-contained switching unit that has its own power supply. It mounts in a 19-inch rack and fills one RU (Rack Unit). There are two types of remote Aux panels available for *each* Synergy switcher:

- A **Dedicated Remote Aux Panel** controls one Aux Bus output. The Dedicated Panel for the Synergy 4 is shown below:



Synergy 4 Dedicated Remote Aux Panel

- An **Assignable Remote Aux Panel** controls all 12 Aux Bus outputs. The Assignable Panel for the Synergy 4 is shown below:



Synergy 4 Assignable Remote Aux Panel

Thus, there are six Aux panels available in the product line. *All panels* include dedicated buttons for DVE Send, Program, and Clean Feed — plus a bright “on air” LED. Assignable panels (only) include buttons to access the 12 Aux Bus outputs.

The primary difference between the panels is in the number of source and MLE buttons:

- **Synergy 2** — each panel includes 17 source buttons plus **SHIFT**, and a button for **MLE 1**.
- **Synergy 3** — each panel includes 30 source buttons plus **SHIFT**, and buttons for **MLE 1** and **MLE 2**.
- **Synergy 4** — each panel includes 35 source buttons plus **SHIFT**, and buttons for **MLE 1**, **MLE 2**, and **MLE 3**.

The remote panel itself is connected to the rear of the switcher’s control panel via a single six-conductor telco control cable. Cable runs up to 1000 feet (305 meters) are possible. Typical applications include routing signals to one or more DVE channels, and switching a monitor between various signals (including MLE outputs) — outputs that are *not* the main program output.

An unlimited number of Aux panels can be connected to each of the control panel’s two Aux connectors, but for a *practical limit* (and to minimize delay), a maximum limit of 16 Aux panels should be observed. This limit thus allows eight panels to be daisy-chained on each of the two connectors. Please note:

- Both the **Dedicated** and **Assignable** Aux panel options include a 33-foot (10 meter) cable. Custom cable lengths are available.
- The maximum cable length between panels (as limited by RS-422 specifications) is 1000 feet (305 meters).
- The communications signal is re-buffered at each Aux panel.

- Aux panel assignments are performed using the control panel and menu system.



Note

New versions of the **Dedicated** and **Assignable** Remote Aux Panels now provide 8 GPI input ports per panel. These GPIs are available *in addition* to those already provided on the frame. This feature allows the manual override of the Aux panel selection via a GPI trigger. For the purpose of camera matching, the Aux Bus can be manually switched to a camera directly from the Camera Control Unit. Refer to the section “**Remote Aux Panels**” for details.

Editor Interface

The **Editor Interface Option** allows a Synergy switcher to interface with all popular editing systems. The option itself is comprised of software plus security codes.

Any MLE or combination of MLEs can be controlled using an RS232 or RS-422 interface and industry standard editor protocol. The editor can be used to read and write switcher functions including video input selection, push button enable and disable, control settings and memory registers. If GPI control is not sufficient and control of all switcher parameters from an editor is necessary, this option is required. Refer to the section “**General Purpose Interface**” on page 1–13 for additional details.

VTR Remote Control

The **VTR Remote Control Option** controls VTRs, disk recorders or other devices that use the (near-universal) Sony Betacam protocol — directly from the switcher panel. The option consists of software plus integrated circuits that install on the Control Panel’s “**Panel CPU**” board.

With the option installed, the following functions are available:

- Every MLE’s transition area includes a **ROLL VTR** button which, when set to **Play** mode and pressed, issues a *play* command to the device selected on the **PST** bus. The operator then manually transitions the source to air by moving the fader or by pressing the **CUT, AUTO TRANS**, or the device’s crosspoint on the **PGM** bus.

When the **ROLL VTR** button is set to **Arm** or **Armed Always** modes, the switcher is armed to automatically transition the device to air *after* the preroll interval has elapsed. The transition to air is initiated manually when the operator presses the **CUT, AUTO TRANS**, or the device’s bus crosspoint.

- The **Global Memory System** area includes the **VTR CLIP** button that allows you to recall VTR clips (segments) from selected VTRs that are connected to Synergy. A clip consists of two pieces of information: a physical VTR and a timecode or media ID.

Using the **VTR Clips Menu**, you can select a device (VTR) and store a timecode in one of 100 registers. You can then press **VTR CLIP**, enter a clip register and cue the VTR (that is associated with the clip). You can then use the **ROLL VTR** button or your **Custom Control** buttons to roll the VTR.

- VTR Remote Control can be tied into the **Custom Control** buttons. Any Custom Control button can be attached to functions such as play, stop, rewind, fast forward, frame advance, auto edit and standby off.

Still Store (Chyron Aprisa) Interface

This option enables serial ports for control over the Chyron Aprisa Still & Clipstore. It allows a user to randomly access any still or clip under control from Synergy. Custom Control macros can also be created for quick and direct access to clips and switcher scene recalls.

Character Generator Interface

This option enables the serial ports for control over the Character Generator. It allows a user to load and run effects, load and navigate through a playlist or a CG template, and edit CG text directly from the Synergy control panel.

Small Audio Mixer Interface (16 and fewer Inputs)

This option enables serial control for enhanced audio follow video from Synergy over small audio mixers, making an integrated A/V production possible.

This protocol supports the associating of any audio input with any video input. It also supports easy audio voice-over control and audio level control from the Synergy panel.

Large Audio Mixer Interface (more than 16 Inputs)

This option enables serial control for enhanced audio follow video from Synergy over large audio mixers, making an integrated A/V production possible.

This protocol supports the associating of any audio input with any video input. It also supports easy audio voice-over control and audio level control from the Synergy panel.

Robotic Camera System Interface

This option enables serial control over robotic camera systems including pan, tilt, zoom, focus, and scene recalls.

Router Control

The **Router Control Option** allows you to control an external routing switcher directly from the switcher panel. With the option installed, you can assign a BNC as the routing switcher and dial up the desired router crosspoint from the **Router Matrix Control Menu**. Setup parameters allow you to select the “type” of router, the router’s output BNC and the router’s level.

Serial Tally Interface

The **Contribution Serial Tally Protocol Option** allows you to set up communication parameters with tally system interface equipment using industry standard protocol. Note that the standard parallel tally interface will continue to operate normally when this option is enabled.

Video Server Control

The **Video Server Control Option** controls up to 16 video servers and 32 video channels, directly from the switcher panel. Interfaced servers must use either the Harris (Louth) VDCP, or the Sony (Betacam) protocol. The option consists of software plus integrated circuits that install on the Control Panel’s “**Panel CPU**” board.

With the option installed, the following functions are available:

- Using the **VTR Clips** menu, you can set up a list of server clips that you want to use on air, name them, preview them, trim each clip’s head and tail and enable (or disable) each

- clip for use. The menu also includes a timeline that lets you visually review the clip's parameters.
- Once your clips are set up, you can choose a clip register from the **Global Memory System** area, select the video server on Preset and perform preview and cue operation with full transport control capability. On the display, in addition to the clip timeline, you can select any of your preset clips for use — in any order desired.
 - Every MLE's transition area includes a **ROLL VTR** button which, when set to **Play** mode and pressed, issues a *play* command to the device selected on the **PST** bus. The operator then manually transitions the source to air by moving the fader or by pressing the **CUT, AUTO TRANS**, or the device's crosspoint on the **PGM** bus.
 - When the **ROLL VTR** button is set to the **Arm** or **Armed Always** modes, the switcher is armed to automatically transition the device to air *after* the preroll interval has elapsed. The transition to air is initiated manually when the operator presses the **CUT, AUTO TRANS**, or the device's crosspoint on the **PGM** bus.
 - Just like VTR Remote Control, Video Server Control can be tied into the **Custom Control** buttons.

Audio Server Control

The **Audio Server Control Option** controls up to eight audio servers (such as the **Digicart** by 360 Systems) directly from the switcher panel. Interfaced audio servers must use the Digicart protocol. The option consists of software plus integrated circuits that install on the Control Panel's "**Panel CPU**" board.

With the option installed, the following functions are available:

- Using the **VTR Clips** menu, you can set up a list of Digicart audio clips that you want to use on air, name them, preview them and enable (or disable) each clip for use.
- Once your clips are set up, you can choose a Digicart clip register from the **Global Memory System** area, and perform preview, cue and "run" operation directly from the display.
- Just like VTR and Video Server remote control, Audio Server Control can be tied into the **Custom Control** buttons. This is the preferred way to utilize Audio Server clips, with the ability to associate sound effects with transitions (such as DVE moves), and store them on custom control buttons for single-button audio/video effects.

Monitor Wall Interface

This software option adds the ability to interface between Synergy and a multi-image display system, providing advanced monitoring capabilities.

Using the Custom Control macro buttons, you can perform functions such as loading a preset layout, changing the input channel on a particular monitor, or editing dynamic text.

DVE Send and Remote Control

The Synergy series is designed to integrate with most popular brands of DVEs *seamlessly* — as if they were part of the switcher during on air production. The **DVE Send and Remote Control Option** makes this possible.

The **DVE SEND** button in each MLE's **Transition Group** assigns the external DVE (the "primary" DVE) to that particular MLE — and selects DVE Send as the transition type (as opposed to wipe or

dissolve). You can then select the next transition (using the **BKGD**, **KEY 1** and **KEY 2** buttons) and press the **AUTO TRANS** button.

DVE Send transitions do not consume a keyer, and the switcher handles all Aux Bus and signal routing issues automatically. Please note:

- Depending upon the capability of the DVE itself, transitions can be run manually with the fader bar and positioned (or manipulated) with the switcher’s 3-axis joystick.
- DVE effects can be recalled directly using the **RECALL DVE** button in the **Global Memory System** area, or by pressing the **DVE** button in the **Pattern Control** group and using the 40 pattern buttons as a DVE “shot box.”
- DVE effects can be recalled along with a memory register by pressing the **INCL DVE** button in the **Global Memory System** area.
- Tallies will always be correct — regardless of the complexity of the video signal routing.

Note that the option is comprised of software plus one serializer and two deserializer modules that install on the **MLE Carrier Board**. Refer to Chapter 9 for complete details on the **DVE Send** feature.

Extended Tallies

The *standard* system includes 36 *configurable* tally relays, each of which can be assigned to any video input (or MLE program output). The **Extended Tallies** option provides an additional 36 tallies (bringing the total number to 72). These additional tallies are equally configurable. They can be added for red/green preview tally systems that require twice as many tallies, or for cases where every single input requires a tally.

A preview tally system has a “red” output indicating that a source is “on air” and a “green” output indicating that a source has been selected on a preset bus. This gives the talent an additional warning as to the director’s next move. “Green” tallies require the **Extended Tallies** option.

Note that the **Extended Tallies** option is comprised of hardware relays that install in the control panel tub.

Redundant Power

The **Redundant Power Supply** option provides protection against AC power failure — in both the frame and control panel. The option allows the entire switcher to receive power from two independent power sources. With the option installed, complete failure of one power source will not affect switcher operation.

If the main AC power fails, the switcher (and/or control panel) instantly draws power from the remaining source. The transition from one power source to the other is transparent, and has no effect on the switcher’s output — a critical feature should one power source fail during an on-air broadcast.

There are two power fail indicator lights on the main panel. They indicate:

- loss of redundant power, or a fan failure in the frame.
- loss of redundant power in the control panel.

In the frame, there are lights visible from the front of the unit that indicate:

- all okay
- supply 1 failure
- supply 2 failure
- cooling fan failure

Note that the option includes two redundant power supplies — one for the frame and one for the control panel. Adding redundant power does *not* increase the amount of rack space required, as the main supply mounts inside the frame, and the control panel supply mounts inside the control panel tub.

Extender Board

The Extender Board is a printed circuit board having electrical contacts on the front and back ends, but no components. When installed into any board slot in the frame, it allows technicians easy and convenient access to any of the switcher's video processing boards — which can then be powered up and serviced while outside of the frame.

All of the video processing boards in the Synergy switcher are mounted horizontally, not vertically, making them convenient to work on. When not in use, the Extender Board itself installs in the frame's top slot.



Note

There are no adjustments on any of the switcher's video processing boards, as all of the circuitry is fully digital. The extender board is therefore only required for troubleshooting purposes, and as such, should only be used by qualified engineering personnel.

Spare Parts Kit

A **Spare Parts Kit** is available which provides switcher parts according to the following criteria:

- the part comes into frequent contact with the user
- the part can be easily damaged or may wear out with excessive use
- the part can be damaged by connecting excessive voltage to an external connector
- the part is used in system power management
- the part can be lost easily

Custom Main Panel Cable

The **Main Panel** cable connects the control panel to the electronics frame. It is a shielded 8-pin Telco cable and the ends are finished with the appropriate connectors. The control panel and frame can be separated by a maximum of 1,000 feet (305 meters).

A 33-foot (10 meter) control panel cable is supplied as standard with the switcher. If cable lengths other than 10 meters are needed, a custom cable can be ordered (by the meter).

A Word about Technical Support

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

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross personnel. During business hours (eastern standard time), technical support personnel are available by telephone any time. After 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. These people are available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

For **Technical Support**, call (+1) 613-652-4886 and, for **After Hours Emergency**, dial (+1) 613-349-0006.

Control Panel Introduction

In This Chapter

This chapter introduces each Synergy control panel. You will learn the various sections of each panel, and details about the basic functionality of each section. The following topics are discussed:

- Control Panel Sections
- Video Flow through the Switcher
- Using a Keyboard
- Switcher Color Scheme
- Resetting the System
- Switcher Timeout

Control Panel Sections

The following three figures show a top view of each Synergy control panel, with each control panel section highlighted. Legends beneath the illustrations clearly name each section. Explanations that are more detailed are provided following the three individual switcher drawings.

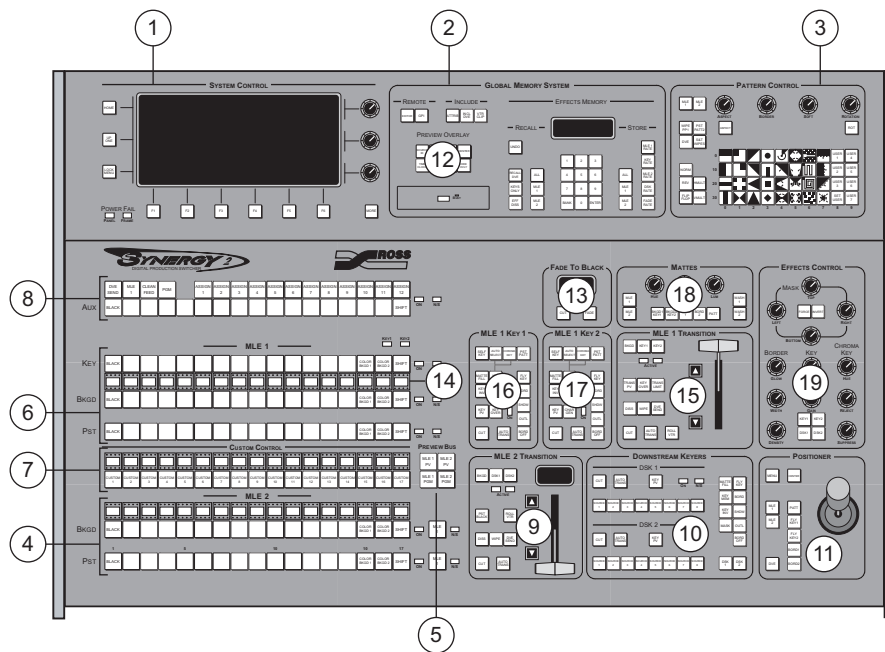


Note

Each panel is divided into sections (or “groups”) according to specific functionality. For simplicity in the three drawings below, sections are numbered in an identical manner from switcher to switcher. Similarly, for simplicity in *operation*, if you learn the sections, features, and functions on one Synergy switcher, you have effectively learned them for all Synergy switchers — making it easy to transfer your knowledge from panel to panel.

Synergy 2

The Synergy control panel comes standard with 2 MLEs and 16 inputs.

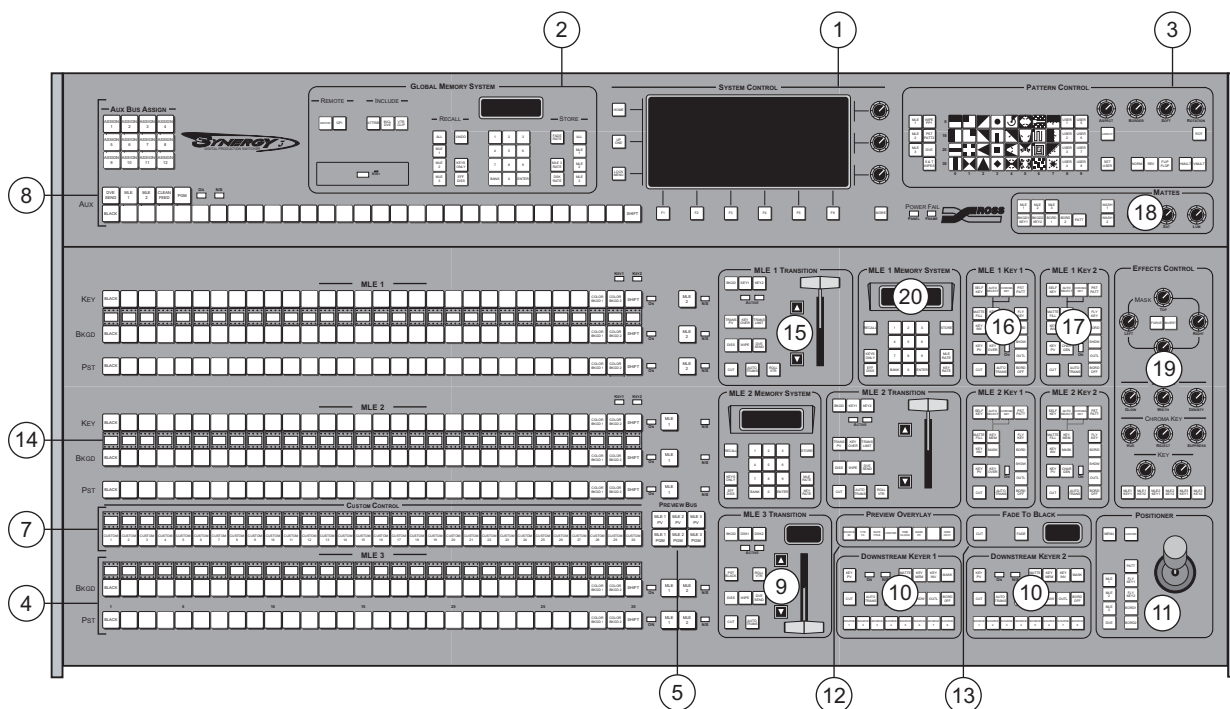


Synergy 2 Control Panel — Sectional View

1) System Control Group	8) Aux (Auxiliary) Bus Group	15) MLE Transition Group
2) Global Memory System Group	9) Program/Presets Transition Group	16) MLE Key 1 Group
3) Pattern Control Group	10) Downstream Keyers	17) MLE Key 2 Group
4) Program/Presets Bus	11) Positioner Group	18) Matte Control Group
5) Preview Bus Group	12) Preview Overlay Group	19) Effects Control Group
6) MLE (Multi-Level Effects)	13) Fade to Black Group	
7) Custom Control Group	14) Mnemonic Displays	

Synergy 3

The Synergy 3 control panel comes standard with 3 MLEs and 24 inputs.

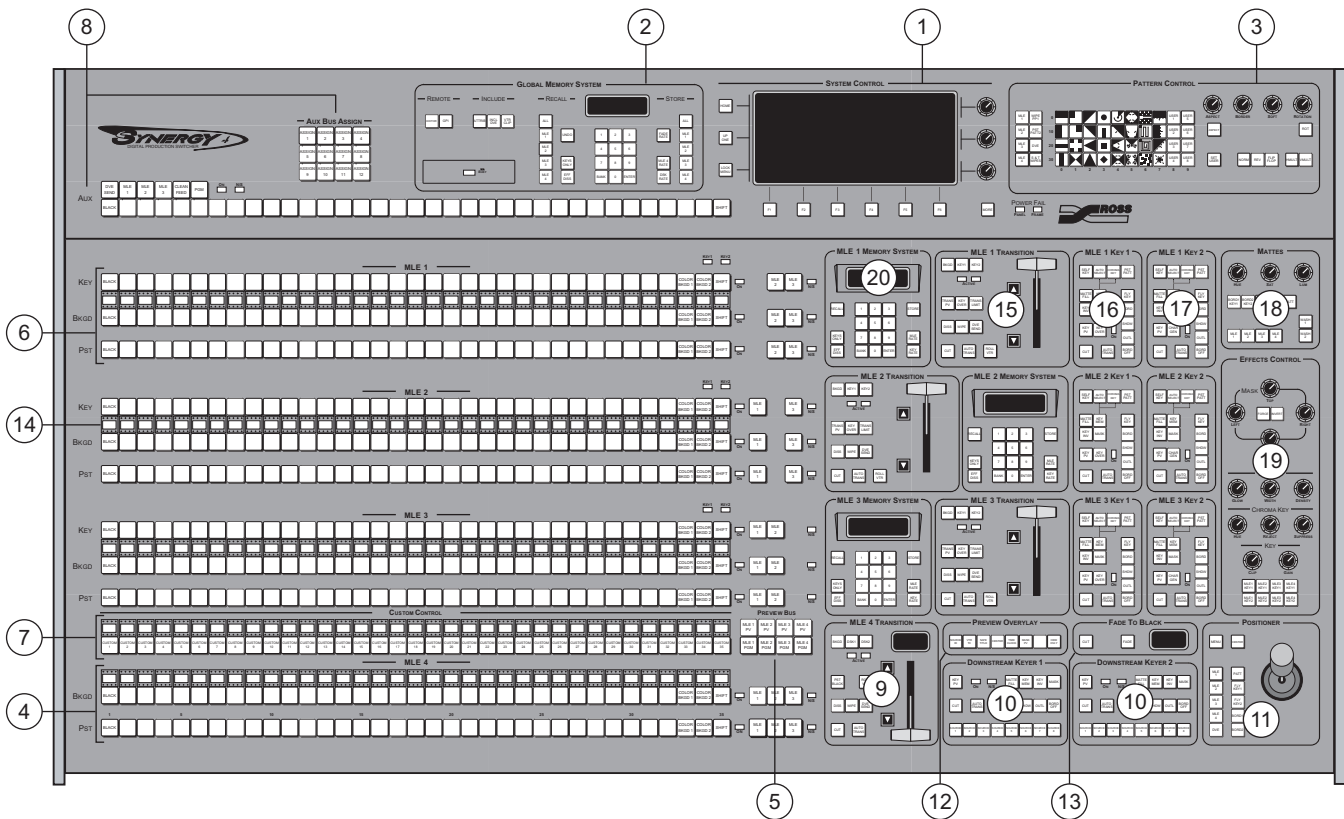


Synergy 3 Control Panel — Sectional View

1) System Control Group	8) Aux (Auxiliary) Bus Group	15) MLE Transition Group
2) Global Memory System Group	9) Program/Preset Transition Group	16) MLE Key 1 Group
3) Pattern Control Group	10) Downstream Keyers	17) MLE Key 2 Group
4) Program/Preset Bus	11) Positioner Group	18) Matte Control Group
5) Preview Bus Group	12) Preview Overlay Group	19) Effects Control Group
6) MLE (Multi-Level Effects)	13) Fade to Black Group	20) MLE Memory Group
7) Custom Control Group	14) Mnemonic Displays	

Synergy 4

The Synergy 4 control panel comes standard with 4 MLEs, and 32 inputs.



Synergy 4 Control Panel — Sectional View

1) System Control Group	8) Aux (Auxiliary) Bus Group	15) MLE Transition Group
2) Global Memory System Group	9) Program/Preset Transition Group	16) MLE Key 1 Group
3) Pattern Control Group	10) Downstream Keyers	17) MLE Key 2 Group
4) Program/Preset Bus	11) Positioner Group	18) Matte Control Group
5) Preview Bus Group	12) Preview Overlay Group	19) Effects Control Group
6) MLE (Multi-Level Effects)	13) Fade to Black Group	20) MLE Memory Group
7) Custom Control Group	14) Mnemonic Displays	

The following are more detailed descriptions of each control panel section, as itemized in the three illustrations above. Remember that the sections are numbered in an identical manner from switcher to switcher.

1. System Control Group

Each switcher includes a **System Control Group** that is *identical* on all Synergy switchers — in both appearance and function. At the center of the group is the **System Control Display**, a bright LCD screen that provides a variety of menus for system set up and operational functions. The display changes *automatically*, depending on certain functions that you select on the control panel, or it can be navigated manually. Refer to the section “**Menu System Basics**” on page 3-3 for complete instructions on using the **System Control Group**.

2. Global Memory System Group

The **Global Memory System Group** is used to store and recall switcher memory registers — *for all MLEs on the panel*. A memory register is a “snapshot” of an MLE (or multiple MLEs). The group includes a disk drive for storing and recalling registers, a status display, and buttons for remote control. A variety of advanced remote control options allow you to store and recall VTR, Video Server and Audio Server “clips” using the group’s **VTR CLIP** button.

The layout of the **Global Memory System Group** is *almost* identical on all three switchers, with minor exceptions due to the differing number of MLE *store* and *recall* buttons.

3. Pattern Control Group

The **Pattern Control Group** is an *assignable* group of controls that allows you to choose wipe patterns for an MLE and adjust various parameters of the selected pattern. By pressing the desired MLE button in the group (or by pressing the **WIPE** button within an MLE itself), the **Pattern Control Group** is assigned to that MLE.

The group also includes a **DVE** button that essentially changes the pattern control array into a DVE *shot box* — for your system’s primary DVE. The **DVE Send and Remote Control Option** must be installed.

The layout of the **Pattern Control Group** is *almost* identical on all three switchers, with minor exceptions due to the differing number of MLE assignment buttons. Refer to the section “**Pattern Control Group**” on page 6-2 for details.

4. Program/Preset Bus

The **Program/Preset Bus** is composed of two rows of crosspoint buttons (one per video input source) that represent your primary switcher output selection area.

- The crosspoint selected on the **PGM** (Program) bus is the video source *currently on air*.
- The crosspoint selected on the **PST** (Preset) bus is the source that you are transitioning to — using a cut, dissolve or wipe transition.

At the right-hand side of the bus are several special buttons and LEDs:

- Re-entry buttons allow you to add (or combine) the contents of an *entire upstream MLE* to the output video content. The number of re-entry buttons depends on the switcher model.
- For tally information, **ON AIR** LEDs (one per bus) light red to indicate when a crosspoint selected on that bus is used as part of the output video.
- For bus status, **N/S** LEDs (one per bus) light yellow to indicate when a non-synchronous source has been selected on the bus.

The layout of the **Program/Preset Bus** is identical on all three switchers, except for the differing numbers of crosspoints and re-entry buttons.

5. Preview Bus Group

The **Preview Bus Group** selects the signal that is displayed on the system’s main preview output (labeled **PV** on the rear chassis). With a preview monitor connected, you can view each MLE’s program and preset outputs individually. The layout of the group varies based on the switcher model, because of the differing numbers of MLEs.

6. MLE (Multi-Level Effects)

An **MLE** can be thought of as an individual video *layer* that can be combined with other images, keys and MLEs to form the composite switcher output. Each **MLE** is composed of three rows of crosspoints (one per video or key input source).

- At the top, the **Key Bus** (labeled **KEY**) is used to select key sources that can be keyed (electronically cut) into the MLE's background image. The **Key Bus** is *shared* between the MLE's two keyers (Key 1 and 2). Two LEDs at the top right edge of the bus indicate which keyer currently has control of the bus.
- The **Background Bus** (labeled **BKGD**) selects the source that comprises the MLE's background image — that is, the image that is visually behind all other images (or farthest upstream, electronically).
- The **Preset Bus** (labeled **PST**) selects the source on the MLE that you are transitioning to — using a cut, dissolve, wipe or DVE transition.

At the right-hand side of the bus are several special buttons and LEDs:

- Re-entry buttons allow you to add (or combine) the contents of an entire *upstream* or *downstream* MLE to the MLE's output video content. The number of re-entry buttons depends on the model.
- For tally information, **ON AIR** LEDs (one per bus) light red to indicate when a crosspoint selected on that bus is used as part of the output video.
- For bus status, **N/S** LEDs (one per bus) light yellow to indicate when a non-synchronous source has been selected on the bus.

The layout of an **MLE** is identical on all three switchers, except for the differing numbers of crosspoints and re-entry buttons.

7. Custom Control Group

The **Custom Control Group** provides an array of buttons that can be programmed to perform specific functions such as peripheral device control, switcher memory recalls or switcher macros. A macro is essentially a series of button presses that can be played back in succession, at the touch of a single **Custom Control** button.

On the Synergy control panels that were manufactured prior to 2003, the **Custom Control** group is identical on the Synergy 3 and Synergy 4 panels, with an array of 32 buttons available for programming. The Synergy 2 panel has an array of 24 buttons.

For the Synergy 2, 3, and 4, 2003 Edition panels, there are 17, 30, and 35 buttons, respectively, situated above the **Program/Preset Bus**.

8. Aux (Auxiliary) Bus Group

The **Aux Bus Group** is comprised of two distinct areas:

- The sources on the **Aux Bus Crosspoint Row** can be mapped in one of two ways. One method is to map the crosspoints identical (in both source and quantity) to those on the specific switcher's **Program/Preset** and **MLE** buses. You can also map BNCs to the **Aux Bus Crosspoint Row** without changing the crosspoints on the MLE buses.

All sources are present, except for re-entry crosspoints. Because each Synergy switcher includes 12 Aux Buses as standard, this row is *shared* between all 12 outputs. In terms of functionality, the bus is used to select the sources that are routed to specific *external* destinations, such as DVE inputs, still stores, tape machines, and technical areas.

- The **Aux Bus Assign** group is an array of 12 buttons that determines the output to which the Aux Bus row itself is assigned. For example, if **ASSIGN 1** is lit, selecting sources on the Aux Bus routes them to the switcher's Aux 1 output. If **ASSIGN 6** is selected, source selection affects the Aux 6 output.

The layout of the **Aux Bus** row is slightly different on each switcher, based on the differing numbers of crosspoints. The layout of the **Aux Bus Assign Group** is identical on the Synergy 3 and 4 panels, while the group on the Synergy 2 panel is displayed beneath the Aux Bus row for compactness.

9. Program/Presets Transition Group

The **Program/Presets Transition Group** allows you to select the type of transition that you want to perform between the **PGM** and **PST** buses. The buttons and controls are optimized for safe and easy *operation* during live on-air situations.

You can transition *any combination* of the background buses (**PGM/PST**), downstream keyer 1 or downstream keyer 2 using a cut, wipe, or dissolve. The **DVE SEND** button also allows you to perform transitions using effects from the *primary* DVE. Transitions can be performed manually with the **Fader**, or automatically with the **AUTO TRANS** button. A display above the **Fader** indicates the current auto transition rate (in frames).

The layout of the **Program/Presets Transition Group** is identical on all three switchers.

10. Downstream Keyers

Each Synergy switcher includes two **Downstream Keyers** (DSKs) that allow you to key over output video, immediately before the switcher's final video output.



Note

Using the **Clean Feed** feature, the downstream keyers can be electronically arranged in series or in parallel, depending upon your clean feed setup parameters. Refer to the section "**Clean Feed Setup**" in the *Synergy Series Installation Guide* for more information.

Each DSK includes the following controls:

- Independent **CUT** and **AUTO TRANS** buttons.
- An array of eight crosspoints allows you to quickly select *any type* of key source: **Self Key**, **Auto Select** (Linear Key), **Chroma Key**, and **PST Pattern Key**. Crosspoints can be pre-programmed or changed on-the-fly during production.
- **ON AIR** and **N/S** LEDs.
- An array of DSK modification buttons.

The layout of the **Downstream Keyers** is identical on the Synergy 3 and 4 panels, while on the Synergy 2, the two DSKs are combined for compactness.

11. Positioner Group

The **Positioner** group is an *assignable* group of controls that allows you to position wipe patterns on screen. By pressing the desired MLE button in the group (or by pressing the **WIPE** button within an MLE itself), the **Positioner** group is assigned to that MLE.

The layout of the **Positioner Group** is *almost* identical on all switchers, with minor exceptions due to the differing number of MLE buttons.

Note that if the **Squeeze & Tease 2D** or **3D** option is installed and the **FLY KEY** button is pressed on an MLE, the **Positioner** can be used to manipulate the X and Y (and Z, if 3D) position of a "flying" key.

12. Preview Overlay Group

The **Preview Overlay Group** allows you to control specific *overlay* information that is displayed on the preview monitor, such as VTR time code, a count up/down timer, source ID, safe title, etc. Displays are individually selectable on the preview monitor for quick reference. The **Preview Overlay** option must be installed.

On the Synergy 3 and 4 panels, the layout and location of the group is identical. On the Synergy 2 panel, the group is located within the **Global Memory System** for compactness.

13. Fade to Black Group

The buttons in the **Fade to Black Group** allow you to fade or cut the switcher to black — electronically downstream of the two DSKs. A display within the group indicates the current fade-to-black transition rate (in frames). On the Synergy 3 and 4 panels, the layout and location of the group is identical. On the Synergy 2 panel, the group is located above MLE 1's **Key 2** group.

14. Mnemonic Displays

The optional **Mnemonic Display** groups (only available on Synergy 2003 edition panels) are used to show the names of crosspoint inputs and Custom Control buttons and banks. A variety of colors and font sizes are available for default appearance. Individual displays can be further customized to suit specific requirements. Names of inputs can have the shifted and non-shifted labels displayed.

15. MLE Transition Group

The **MLE Transition Group** allows you to select the type of transition that you want to perform between the **BKGD** and **PST** buses in the selected MLE. You can transition *any combination* of the MLE's background buses (**BKGD/PST**), Keyer 1 or Keyer 2 using a cut, a wipe or a dissolve. If the **DVE Send and Remote Control Option** is installed, the **DVE SEND** button assigns control of your *primary* DVE to the MLE in which the button is pressed — allowing you to perform **DVE Send** transitions using the primary DVE's effects.

Transitions can be performed manually with the **Fader** or automatically with the **AUTO TRANS** button. A display above the **Fader** or in the **MLE Memory Group** indicates the MLE's current auto transition rate (in frames).

The layout of the **MLE Transition Group** is identical on all three switchers — in all MLEs. On the Synergy 3 and 4 control panels, the location of the group is offset on different MLEs for operational convenience.

16. MLE Key 1 Group

The **MLE Key 1 Group** allows you to select the key type and associated parameters for the MLE's Key 1. Choose between **Self Key**, **Auto Select** (Linear Key), **Chroma Key**, and **PST Pattern Key**. Within the group, you can also select a variety of parameters and key transitions. When any button is selected in the group, that MLE's **Key Bus** is assigned to Keyer 1. An **ON** LED is provided for tally.

Electronically, Key 1 is downstream (visually in front) of the MLE's background buses, but upstream (visually in back) of Key 2. The **KEY OVER** button allows you to change that priority.



Operating Tip

You can also change the priority of the two keyers in the **Key Setup Menus** by toggling the **Key Over** softkey between **On** and **Off**. Refer to the section “**Using Keys**” on page 7-20 for more information.

The layout of the **MLE Key 1 Group** is identical on all three switchers — in all MLEs. On the Synergy 3 and 4 control panels, the location of the group is identical — to the right of the **Fader**. On the Synergy 2 panel, the group is located to the left of the **Fader**.

17. MLE Key 2 Group

The **MLE Key 2 Group** allows you to select the key type and associated parameters for the MLE's Key 2. Choose between **Self Key**, **Auto Select** (Linear Key), **Chroma Key**, and **PST Pattern Key**. Within the group, you can also select a variety of parameters and key transitions. When any button is selected in the group, that MLE's **Key Bus** is assigned to Keyer 2. An **ON** LED is provided for tally.

Electronically, Key 2 is downstream (visually in front) of the MLE's background buses and downstream of Key 1. The **CHAR GEN** button allows you pick your *favorite CG* for immediate keying.

The layout of the **MLE Key 2 Group** is identical on all three switchers — in all MLEs. On the Synergy 3 and 4 control panels, the location of the group is identical — to the right of the **Fader**. On the Synergy 2 panel, the group is located to the left of the **Fader**.

18. Matte Control Group

The **Matte Control Group** is an *assignable* module that allows you to adjust matte, border, and wash generator colors in the selected MLE. By pressing the desired MLE button in the group (or by pressing any matte-related button within an MLE itself), the **Matte Control Group** is assigned to that MLE.

Although functionality is identical, the location and layout of the **Matte Control Group** differs all three switchers, due to the differing number of MLE assignment buttons.

19. Effects Control Group

The **Effects Control Group** is an *assignable* module that provides an array of controls that handle all of the switcher's frequently used analog-type parameters — such as mask adjustment, border width, and key clip. By pressing the desired MLE (or downstream) keyer button in the group (or by pressing any button within an MLE that has associated adjustable parameters), the **Effects Control Group** is assigned to that MLE.

The location of the **Effects Control Group** is virtually identical on all three switchers (at the upper right side of the control panel). The layout of the group differs slightly due to the differing number of MLE keyer assignment buttons.

20. MLE Memory Group

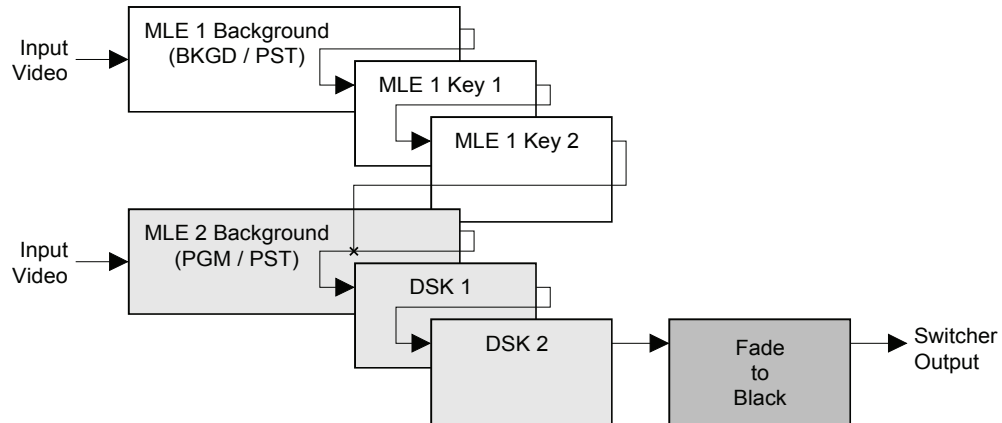
On the Synergy 3 and 4 panels, the **MLE Memory Group** allows you to store and recall memory registers within each MLE itself. On the Synergy 2 panel, MLE 1 does *not* include an **MLE Memory Group** for compactness. Unlike the **Global Memory System Group**, the **MLE Memory Group** pertains only to that individual MLE — not to the entire panel. In addition to memory register functions, you can also assign MLE transition rates and key transition rates. A status display above the keypad indicates the current auto transition rate (in frames), key transition rate (for both Keyers 1 and 2), and current memory register. On the Synergy 3 and 4 control panels, the location of the group is offset on different MLEs for operational convenience.

Video Flow through the Switcher

The following three diagrams illustrate how video flows through each Synergy Switcher. These drawings illustrate each switcher's visual and electronic concepts of upstream and downstream, and are designed to help you visualize and understand each switcher's architecture *from a production standpoint*.

Synergy 2 Video Flow

The following block diagram illustrates the flow of video through the Synergy 2 Switcher.



Synergy 2 Video Flow

Please note the following important points:

- The Synergy 2 is a two MLE switcher with 16 inputs standard. Video flows *into* each MLE as indicated above, where crosspoints can be selected for effects creation.
- MLE 1 or 2 can be selected *independently* as the switcher output. In this condition, with no re-entry crosspoints selected, each MLE obeys the standard rules for upstream and downstream placement of images.
- Within MLE 1, by itself, the Background and Preset buses are electronically the farthest upstream, Key 1 is displayed mid stream and Key 2 is displayed downstream.
 - ~ Visually, all images on the background buses appear *behind* both keyers.
 - ~ In the default state, a key enabled on Key 1 is displayed visually *over* the two background buses (and all transitions), but visually *under* Key 2.
 - ~ In the default state, a key enabled on Key 2 is displayed visually *over* the background buses and Key 1.
 - ~ If the **KEY OVER** button is pressed in Key 1, the priority is changed and Key 1 is displayed visually *over* Key 2.



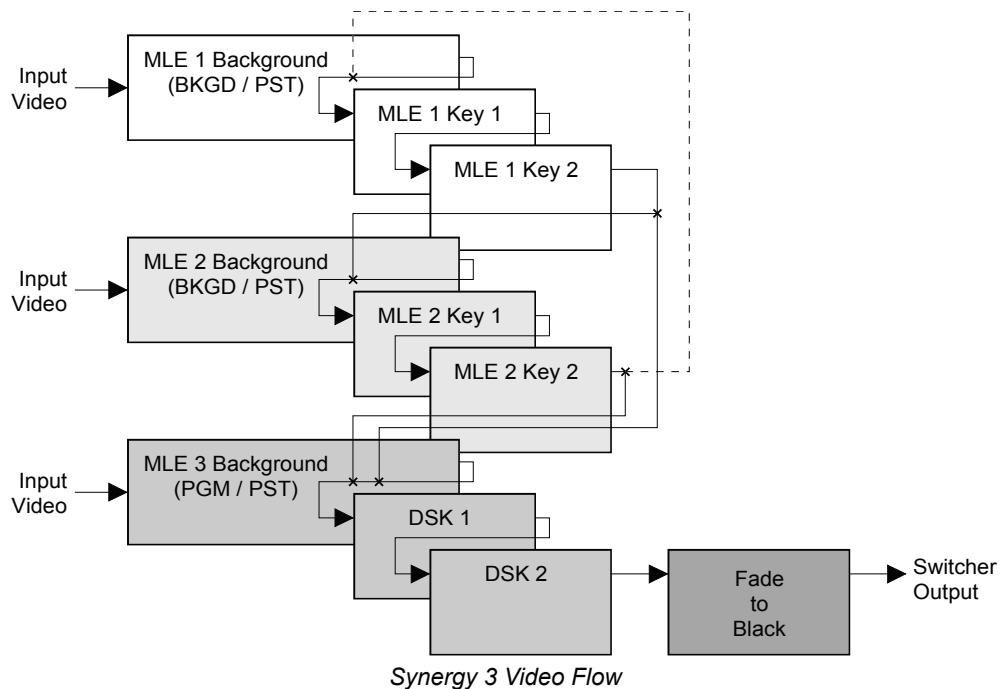
Operating Tip

You can also change the priority of the two keyers in the **Key Setup Menus** by toggling the **Key Over** softkey between **On** and **Off**. Refer to the section “**Using Keys**” on page 7-20 for more information.

- Within MLE 2 itself, the Program and Preset buses are electronically the farthest upstream, DSK 1 is displayed mid stream and DSK 2 is displayed downstream.
 - ~ Visually, all images on the background buses appear *behind* both DSKs.
 - ~ A key enabled on DSK 1 is displayed visually *over* the background buses (and all transitions), but visually *under* DSK 2. A key enabled on DSK 2 is displayed visually *over* the background buses and DSK 1.
 - ~ The **Fade to Black** module is electronically downstream of the entire switcher. Regardless of the MLE selected on air, **Fade to Black** will visually take any switcher MLE to black.
- When MLE 1 is *re-entered* into MLE 2, the rules for upstream and downstream still apply. Visually, all images on MLE 1 (including backgrounds and keys) appear *behind* MLE 2. Similarly, all images on MLE 2 and the DSKs appear *over* MLE 1.

Synergy 3 Video Flow

The following block diagram illustrates the flow of video through the Synergy 3 Switcher.



Please note the following important points:

- The Synergy 3 is a three MLE switcher with 24 inputs standard. Video flows *into* each MLE as indicated above, where crosspoints can be selected for effects creation.
- MLE 1, 2 or 3 can be selected *independently* as the switcher output. In this condition, with no re-entry crosspoints selected for any MLE, each MLE obeys the standard rules for upstream and downstream placement of images.

- Within MLE 1 and MLE 2, *by themselves*, the Background and Preset buses are electronically the farthest upstream, Key 1 is displayed mid stream and Key 2 is displayed downstream.
 - ~ Visually, all images on the background buses appear *behind* both keyers.
 - ~ In the default state, a key enabled on Key 1 is displayed visually *over* the two background buses (and all transitions), but visually *under* Key 2.
 - ~ In the default state, a key enabled on Key 2 is displayed visually *over* the background buses and Key 1.
 - ~ If the **KEY OVER** button is pressed in Key 1, the priority is changed and Key 1 is displayed visually *over* Key 2.



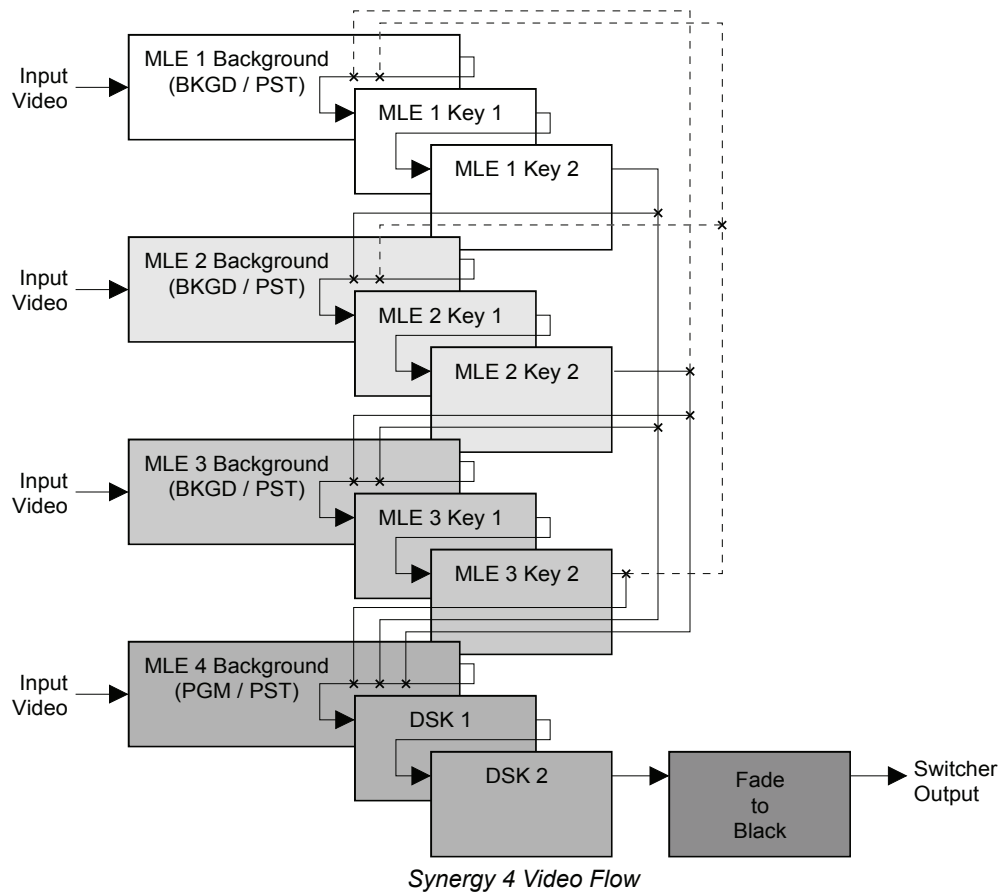
Operating Tip

You can also change the priority of the two keyers in the **Key Setup Menus** by toggling the **Key Over** softkey between **On** and **Off**. Refer to the section “**Using Keys**” on page 7-20 for more information.

- Within MLE 3 itself, the Program and Preset buses are electronically the farthest upstream, DSK 1 is displayed mid stream and DSK 2 is displayed downstream.
 - ~ Visually, all images on the background buses appear *behind* both DSKs.
 - ~ A key enabled on DSK 1 is displayed visually *over* the background buses (and all transitions), but visually *under* DSK 2. A key enabled on DSK 2 is displayed visually *over* the background buses and DSK 1.
 - ~ The **Fade to Black** module is electronically downstream of the entire switcher. Regardless of the MLE selected on air, **Fade to Black** will visually take any switcher MLE to black.
- When MLE 1 is *re-entered* into MLE 2 or MLE 3, or when MLE 2 is re-entered into MLE 3, the rules for upstream and downstream apply.
 - ~ Visually, all images on MLE 1 (including backgrounds and keys) appear *behind* MLE 2 and MLE 3.
 - ~ Visually, all images on MLE 2 (including backgrounds and keys) appear *over* MLE 1, but *under* and MLE 3.
 - ~ Visually, all images on MLE 3 and the DSKs appear *over* MLE 1 and MLE 2.
- When MLE 2 is re-entered *upstream* into MLE 1 (a condition shown in dotted lines on the illustration above), the rules for upstream and downstream are slightly changed.
 - ~ Visually, all images on the re-entered MLE appear *under* the destination (upstream) MLE’s two keyers — regardless of the bus on which the MLE is re-entered. The re-entered MLE moves upstream electronically — visually behind all downstream MLE’s (except itself).

Synergy 4 Video Flow

The following block diagram illustrates the flow of video through the Synergy 4 Switcher.



Please note the following important points:

- The Synergy 4 is a four MLE switcher with 32 inputs standard. Video flows *into* each MLE as indicated above, where crosspoints can be selected for effects creation.
- MLE 1, 2, 3 or 4 can be selected *independently* as the switcher output. In this condition, with no re-entry crosspoints selected for any MLE, each MLE obeys the standard rules for upstream and downstream placement of images.
- Within MLE 1, 2, and 3, *by themselves*, the Background and Preset buses are electronically the farthest upstream, Key 1 is displayed mid stream and Key 2 is displayed downstream.
 - ~ Visually, all images on the background buses appear *behind* both keyers.
 - ~ In the default state, a key enabled on Key 1 is displayed visually *over* the two background buses (and all transitions), but visually *under* Key 2.
 - ~ In the default state, a key enabled on Key 2 is displayed visually *over* the background buses and Key 1.

- ~ If the **KEY OVER** button is pressed in Key 1, the priority is changed and Key 1 is displayed visually *over* Key 2.



Operating Tip

You can also change the priority of the two keyers in the **Key Setup Menus** by toggling the **Key Over** softkey between **On** and **Off**. Refer to the section “**Using Keys**” on page 7-20 for more information.

- Within MLE 4 itself, the Program and Preset buses are electronically the farthest upstream, DSK 1 is displayed mid stream and DSK 2 is displayed downstream.
 - ~ Visually, all images on the background buses appear *behind* both DSKs.
 - ~ A key enabled on DSK 1 is displayed visually *over* the background buses (and all transitions), but visually *under* DSK 2. A key enabled on DSK 2 is displayed visually *over* the background buses and DSK 1.
 - ~ The **Fade to Black** module is electronically downstream of the entire switcher. Regardless of the MLE selected on air, **Fade to Black** will visually take any switcher MLE to black.
- When MLE 1 is *re-entered* into MLE 2, 3 or 4, when MLE 2 is re-entered into MLE 3 or 4, or when MLE 3 is re-entered into MLE 4, the rules for upstream and downstream apply.
 - ~ Visually, all images on MLE 1 (including backgrounds and keys) appear *behind* MLE 2, 3 and 4.
 - ~ Visually, all images on MLE 2 (including backgrounds and keys) appear *over* MLE 1, but *under* MLE 3 and 4.
 - ~ Visually, all images on MLE 3 appear *over* MLE 1 and 2, but *under* MLE 4.
 - ~ Visually, all images on MLE 4 and the DSKs appear *over* MLE 1, 2 and 3.
- When MLE 2 is re-entered *upstream* into MLE 1, or when MLE 3 is re-entered *upstream* into MLE 1 or 2 (as shown in dotted lines on the illustration above), the rules for upstream and downstream are slightly changed as follows:
 - ~ Visually, all images on the re-entered MLE appear *under* the destination (upstream) MLE’s two keyers — regardless of the bus on which the MLE is re-entered. The re-entered MLE moves upstream electronically — visually behind all downstream MLE’s (except itself).

Using a Keyboard

The Synergy Switchers can accommodate a standard PS/2 Keyboard that connects to the rear of the Control Panel. This keyboard allows you to emulate several system control buttons, as well as allow you to enter, or change, names.



Important







Do NOT place anything on your keyboard or place your keyboard in a position where any of the keys could be accidentally pressed. This could result in the Switcher acting unpredictably.

Using the Keyboard in System Control Menus

The keyboard can be used in place of the panel keys and knobs to navigate through the menus and select values.

The following table illustrates the functions of the keys on the keyboard as they relate to the control panel buttons:










System Control Menus

Keyboard	Panel Key	Description
F1 – F6	F1 – F6	Performs whatever the softkey function is above the panel key.
SysRq & Break	 – HOME	Returns to the Main Menu 1-2 from whatever menu is currently displayed.
Esc	 – UP ONE	Back one menu.
Tab	 – MORE	Next screen in selected menu.
Insert & Delete	 – Top Knob (1) Horizontal	Small incremental movement of knob.
Home & End	 – Middle Knob (2) Vertical	Small incremental movement of knob.
Page Up & Page Down	 – Bottom Knob (3)	Small incremental movement of knob.

Using the Keyboard in Change Name Menus

The keyboard allows you to type alphanumeric characters in the various Change Name menus of the Switcher.

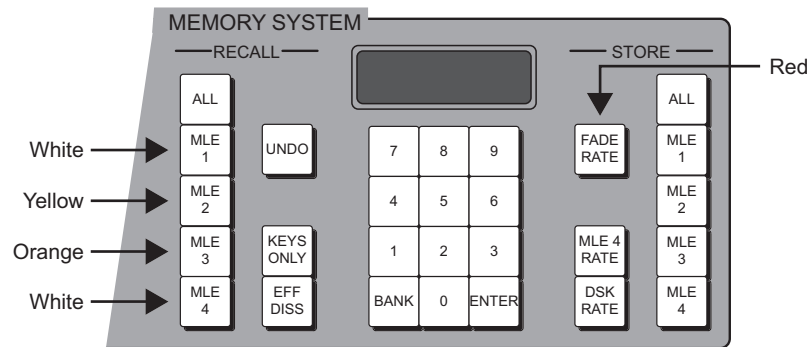
The following table illustrates the function of the keys on the keyboard as they relate to the control panel buttons in the change name menus. This table is provided as an example only, the corresponding function of the keyboard buttons will vary, depending on the menu you are accessing.

<i>Change Name Menus</i>		
Keyboard	Panel Key	Description
Alphanumeric Keys		
Alphanumeric keys	a b c ... z A B C ... Z 0 1 2 ... "	Note: The keyboard allows the input of characters not available with selections on the display. For example ~ ' [] { } = +
Function Keys		
F1 & Space Bar	 – Space	Deletes the selected character and moves the cursor one space to the right.
F2 & ←	 – Prev Letter	Moves the cursor one space to the left.
F3 & →	 – Next Letter	Moves the cursor one space to the right.
F4	 – Preset Names	Displays the Preset Names Menu with a list of preset names to select from.
F5	 – Default	Returns the original default name.
F6 & Enter	 – Accept New Name	Replaces the default name with the new name.
Direction Keys		
Insert & Delete	 – Top Knob (1) Horizontal	Move the cursor left (Insert) or right (Delete).
Home & End	 – Middle Knob (2) Vertical	Move the cursor up (Home) or down (End).
↑ ↓	 – Bottom Knob (3)	Incremental increase (Up arrow) or decrease (Down arrow) to the value associated with the Bottom Knob (3).
Backspace	— No Panel Key —	Deletes the selected character and moves the cursor one space to the left.

Switcher Color Scheme

Depending on the control panel option you have, your Synergy control panel may come with a specific color scheme to identify each MLE, and specific MLE selection buttons within the various control panel sections. If you purchased the **All White Buttons** option for your Synergy control panel, there will be no color identification for the buttons.

For example, on the **Synergy 4** control panel, with the **Classic Color Buttons** option, **MLE 2** is completely colored with yellow push buttons. In all control panel sections that include an array of MLE selection buttons (for example, **Global Memory System Group**, **Positioner Group**, and **DVE Send Group**), the **MLE 2** button is *also* colored yellow for clarity, as shown below:



Synergy 4 — MLE Selection Buttons

- The color scheme of the **Synergy 2** is as follows:
 - ~ **MLE 1** buttons are colored **yellow**.
 - ~ **MLE 2** transition buttons are colored **orange**, while the Program/Preset buttons are colored **red** and **white**.
- The color scheme of the **Synergy 3** is as follows:
 - ~ **MLE 1** buttons are colored **yellow**.
 - ~ **MLE 2** buttons are colored **orange**.
 - ~ **MLE 3** buttons (Program/Preset) are colored **red** and **white**.
- The color scheme of the **Synergy 4** is as follows:
 - ~ **MLE 1** buttons are colored **white**.
 - ~ **MLE 2** buttons are colored **yellow**.
 - ~ **MLE 3** buttons are colored **orange**.
 - ~ **MLE 4** buttons (Program/Preset) are colored **red** and **white**.

Resetting the System

If required, the Synergy system can be reset manually from the frame. There are two types of resets:

- A **Full Reset** affects hardware and software simultaneously.
- A **Software Reset** affects software only.

Full Reset

This function performs both a hardware and a software reset simultaneously. Switcher memory registers, personality registers, installation registers, and custom control registers are not affected by the reset, but all other switcher parameters (for example, the current state of the panel) are reset.

BLACK will be selected on all buses.

- To reset the frame and all system software, press the red button labeled **RESET** on the front edge of the **Frame CPU Board**.

Refer to Chapter 2 “**Installation**” of the *Synergy Series Installation Guide* for more information on the frame and control panel **RESET** switches.



Note

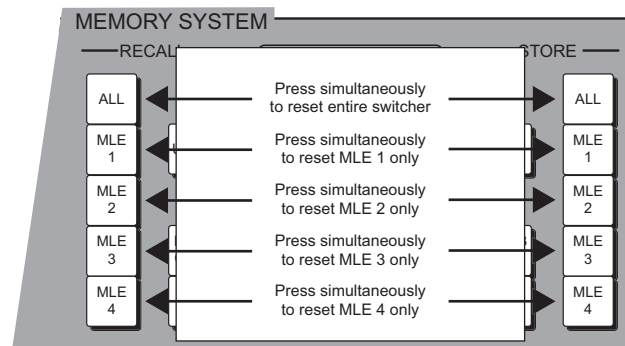
It is not recommended to reset the frame by turning the power off and then on. If this is done, the frame software will be reloaded (reset) but the panel settings will come back to the point they were at before the loss of power.

Software Reset

The software reset function can be performed from either the **Global Memory Group** or any individual **MLE** on the switcher. Both methods are described below.

- **Resetting the Switcher from the Global Memory Group**

Use the following figure for reference:

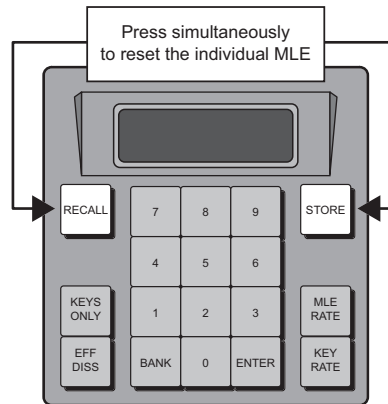


Global Memory Group Reset Function

- ~ To perform a full reset (on all switchers), simultaneously press **ALL** in the **RECALL** column and **ALL** in the **STORE** column.
- ~ To reset **MLE 1** (on all switchers), simultaneously press **MLE 1** in the **RECALL** column and **MLE 1** in the **STORE** column.
- ~ To reset **MLE 2** (on all switchers), simultaneously press **MLE 2** in the **RECALL** column and **MLE 2** in the **STORE** column.

- ~ To reset **MLE 3** (on Synergy 3 and Synergy 4 systems), simultaneously press **MLE 3** in the **RECALL** column and **MLE 3** in the **STORE** column.
- ~ To reset **MLE 4** (on Synergy 4 systems), simultaneously press **MLE 4** in the **RECALL** column and **MLE 4** in the **STORE** column.
- **Resetting the Switcher from an Individual MLE**

Use the following figure for reference:



Individual MLE Reset Function



Important

This feature is only available on **Synergy 3** and **Synergy 4** systems. The **Synergy 2** does not have an **MLE Memory Group** due to the switcher's compact size.

- ~ To reset **MLE 1**, in MLE 1's **Memory Group** simultaneously press **STORE** and **RECALL**.
- ~ To reset **MLE 2**, in MLE 2's **Memory Group**, simultaneously press **STORE** and **RECALL**.
- ~ To reset **MLE 3** (Synergy 4 only), in MLE 3's **Memory Group**, simultaneously press **STORE** and **RECALL**.



Note

On Synergy 3 and 4 systems, the **PGM/PST MLE** can only be reset using the **Global Memory System Group**.

Switcher Timeout

If no control panel buttons are touched and no fader arms are moved for a period of 30 minutes, the switcher goes into a “sleep” mode and all lights are automatically turned off. This function is specifically designed to extend the life of the display and the button lamps.

If this timeout occurs, press any button or move any fader (or joystick) to “wake” the switcher and turn on all lights.



Note

The switcher does *not* act on a button push when it is coming out of “sleep” mode.

The factory default timeout interval is 30 minutes.

Using the Menu System

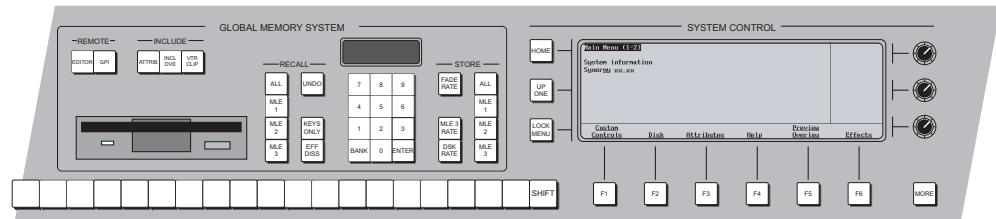
In This Chapter

This chapter provides an introduction to the Synergy switcher's menu system. The following topics are discussed:

- About the System Control Display
- Menu System Basics
- Positioner Icons
- Adjusting the Display
- Help Features
- Installed Options Menus
- Screen Capture

About the System Control Display

Each Synergy Switcher includes a **System Control Group** in its top panel.



Synergy 3 Control Panel — System Control Group

This group is *identical* on all Synergy switchers — in both appearance and function. At the center of the group is the **System Control Display**, a bright LCD screen that provides a variety of clear menus for various system set up and operational functions. The display is in fact a menu *tree*, with various branches that arrange switcher functions into concise categories.

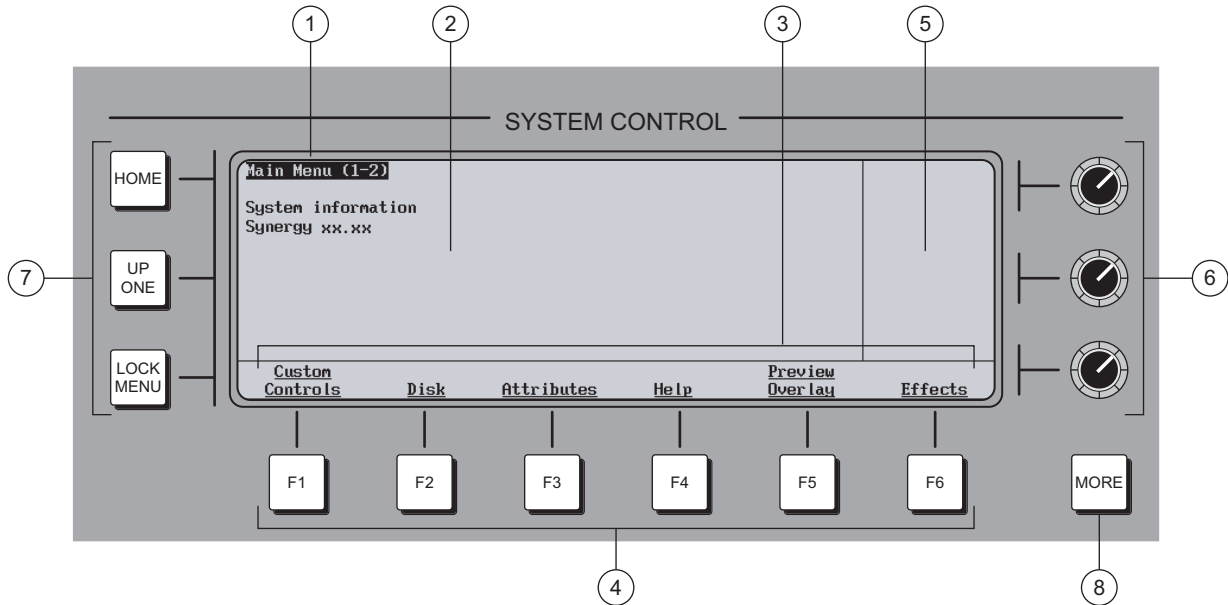
There are two ways that the display can change:

- The display changes *automatically*, depending on certain functions that you select on the panel. In this way, additional parameters are instantly available to you, as soon as you press a control panel button.
- You can also navigate the menu tree *manually* to reach the desired menu — simply by following the desired path through the menu tree.

The following sections provide details on all buttons and functions in the **System Control Group**.

Menu System Basics

The following figure illustrates the **System Control Group**, which is *identical* on all Synergy switchers — in both appearance and function. At the center of the group is the **System Control Display**, a bright LCD screen that provides a variety of clear menus for various system set up and operational functions.



System Control Group

1) Menu Name	4) Softkeys	7) Menu Control Buttons
2) Main Area	5) Scroll Area	8) MORE Button
3) Label Area	6) Scroll Knobs	

1. Menu Name

Each menu is named in the upper left corner. If numbers in parentheses appear after the name, for example **Main Menu 1-2**, it indicates that the current menu is number *one of two* — and that there are more functions available than can be displayed at one time.

On the **Main Menu** (accessible by pressing **HOME**), note that the software version is displayed below the menu name.

When parentheses are shown, the **MORE** button lights. Press **MORE** to display the second menu in the series. If the numbers **(2-2)** appear, it indicates that the current menu is number *two of two*. Press **MORE** to return to the first menu in the series.



Note

In this guide, multiple menus will be referred to using 1-2 or 2-2 to distinguish the various menus. For example, **Main Menu 1-2** and **Main Menu 2-2**.

2. Main Area

The large center area of the display is your main working area for each specific menu. It is typically reserved for status, text, mini “help” messages, descriptions of parameters, entry fields, etc.

3. Label Area

Labels on the bottom row represent *functions*, or will route you to further sub-menus. These labels change depending upon the selected mode and menu. A menu function is activated by pressing the corresponding **Softkey**.



Note

In this guide, display functions are referred to by their *actual label names*, and not by the soft key that is pressed (below the display). For example, the phrase “... press **Disk...**” will be used, rather than “... press **Softkey #2 ...**”

- A label that is underlined indicates that a sub-menu is available for that function. Pressing the button takes you one level down.
- Non-underlined labels are simply functions that you can activate by pressing the associated soft key, or other screens that you can access within the same menu.

4. Softkeys

The six **Softkey** buttons below the display correspond to labels that appear in the **Label Area** of the display. Pressing a **Softkey** activates the selected function, or switches to the selected menu.

5. Scroll Area

The right-hand section of the display (adjacent to the three **Scroll Knobs**) is reserved for functions that you can adjust conveniently with the scroll knobs. Up to three different adjustable parameters can appear in this section, each of which will be labeled accordingly.

When the three “**Positioner Icons**” appear in this area, you can adjust the selected function or parameter either with the **Scroll Knobs** or with the **Positioner** — for your convenience. Refer to the section “**Positioner Icons**” on page 3–6 for details.

6. Scroll Knobs

The three scroll knobs are assignable. Depending upon the selected mode (and menu), the functions of the knobs *change* just like the display labels. When a function requires a knob to adjust a parameter, up to three labels (and their associated functions) will appear in the right-hand section of the display — arranged vertically. Turn the appropriate knob to adjust the associated parameter.

In terms of knob “hierarchy”, the top knob is the **master** and the bottom two knobs are **slaves**. When you change the top knob (for example, scrolling through inputs), the bottom knobs change in sync, showing the parameters for each selection chosen by the top knob. When you change one of the bottom two knobs, only *that* parameter changes.

7. Menu Control Buttons

To the left of the display, three buttons are provided to assist with navigating the menu system.

- **HOME** — Press to display the **Main Menu 1-2**.

- **UP ONE** — Press to take the display up one level in the menu tree. For example, if you press **Disk** to go one level down to the **Disk Menu**, press **UP ONE** to return up one level to the **Main Menu 1-2**.
- **LOCK MENU** — Press to lock the display on the current menu. Regardless of which control panel button is pressed, the display remains in its current location — it will *not* “auto-follow” a control panel selection.

8. MORE Button

The **MORE** button lights to indicate that additional menus (and functions) are available on the current level. The numbers in the menu name (**Main Menu 1-2**) will indicate how many additional menus are available. While the **softkeys** move you *vertically* through the menu system, **MORE** moves you horizontally.

Press **MORE** to display the next menu in the series, or to return to the first menu from the last.

Using the Keyboard in System Control Menus

The keyboard that plugs into the PS/2 port at the back of the control panel can be used in the place of the panel buttons and knobs to navigate through the menus and select values.









Important

Do NOT place anything on your keyboard or place your keyboard in a position where any of the keys could be accidentally pressed. This could result in the Switcher acting unpredictably.

The following table illustrates the functions of the keys on the keyboard as they relate to the control panel buttons:

System Control Menus

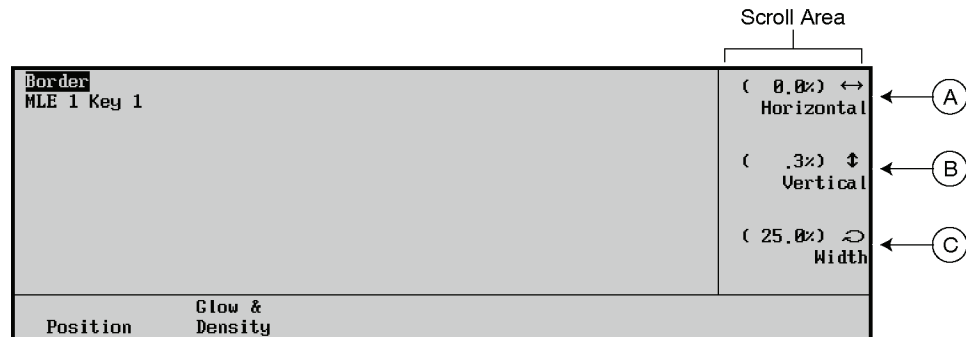
Keyboard	Panel Key	Description
F1 – F6	F1 – F6	Performs whatever the softkey function is above the panel key.
SysRq & Break	 – HOME	Returns to the Main Menu 1-2 from whatever menu is currently displayed.
Esc	 – UP ONE	Back one menu.
Tab	 – MORE	Next screen in selected menu.
Insert & Delete	 – Top Knob (1) Horizontal	Small incremental movement of knob.
Home & End	 – Middle Knob (2) Vertical	Small incremental movement of knob.
Page Up & Page Down	 – Bottom Knob (3)	Small incremental movement of knob.

Positioner Icons

When you select specific installation and operational menus, the **Positioner Icons** appear in the right-hand **Scroll Area**. Typically, two or three icons are shown, depending upon the selected menu and function.

When these icons appear, you can adjust the selected function or parameter either with the **Scroll Knobs** or with the **Positioner**. In addition, when the **Positioner Icons** appear, the **MENU** button automatically lights in the **Positioner Group** — indicating that **Positioner** control is temporarily assigned to the display, rather than to a selected MLE and *positionable* function.

A sample menu that includes the three icons is shown below.



Border Menu — with Positioner Icons



- A) When the left-right **Positioner Icon** appears, you can use the top **Knob** to adjust the selected function or you can move the **Positioner** *left* and *right*.
- B) When the up-down **Positioner Icon** appears, you can use the middle **Knob** to adjust the selected function or you can move the **Positioner** *up* and *down*.
- C) When the circular **Positioner Icon** appears, you can use the bottom **Knob** to adjust the selected function, or you can twist the **Positioner** knob *clockwise* and *counter-clockwise*.

When you turn the **MENU** button off, the **Positioner** once again is assigned to the current panel function and location. Refer to the section “**Positioner Group**” on page 7–64 for additional information on the **Positioner** itself, and the three **Positioner Icons**.

Adjusting the Display

Use the following procedure to adjust the contrast of the display, for user preference as desired:

1. Navigate to the **Large Display Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Display** ⇒ **Large Display**.
2. Use the **Contrast** knob to adjust the contrast.
3. Press **Mnemonics Displays** to display the **Mnemonic Display Menu**.



Display Menu — Mnemonic Display

4. Adjust the brightness and contrast of the mnemonic displays as follows:
 - Use the **Brightness** knob to adjust display brightness.
 - Use the **Contrast** knob to adjust display contrast.

This completes the procedure to adjust the contrast of the display.

Help Features

Two help features provide convenient on-line assistance as you operate your Synergy switcher:

- Help Menu
- Pop-up Help

Help Menu

The **Help Menu** provides a list of important “hidden” switcher functions that require two-button combinations to access, such as Keyer and MLE copy functions. The **More Info Menu** provides more information about the highlighted function.

Use the following procedure to access the **Help Menu**:

1. Navigate to the **Help Menu** as follows:
 - Press **HOME** ⇒ **Help**.

Help Menu		
Hold	Press	Result
BKGD	BKGD	copies MLE
Key type	Key type	copies keyer
Key type	DSK crosspoint	copies keyer
Key 1/Key 2	Key 1/Key 2	copies keyer
DSK crosspoint	DSK crosspoint	copies keyer
WIPE	WIPE	copies wipe
Matte area	Crosspoint	copies color
More Info	List S&T Wipes	

Use Knob 2 to scroll list.

Help Menu

2. Use the middle knob to highlight the switcher function that you want more information on.
3. Press **More Info** to display the **More Info Menu**.

More Info		
Hold	Press	Result
BKGD	BKGD	copies MLE
To copy a full MLE, hold down the destination MLE's 'BKGD' button (in the Transition area), and hit the source MLE's 'BKGD' button.		

More Info Menu

4. Exit the menu by pressing **HOME** or **UP ONE**.

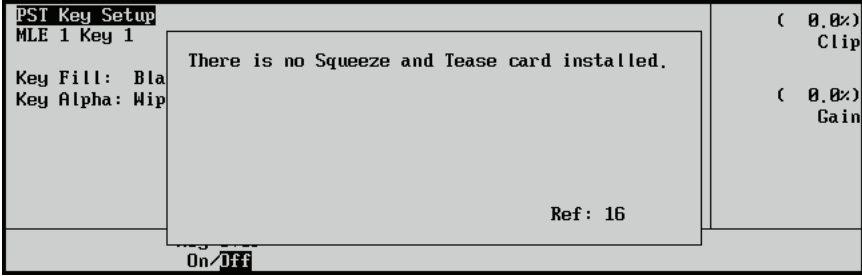
This completes the procedure to access the **Help Menu**.

For information on the **List S&T Wipes** function of the **Help Menu**, refer to the section “Using Wipes” on page 6–8. If you have the **Squeeze & Tease 3D** option installed, pressing the **List S&T Wipes** softkey will display the **Squeeze & Tease 3D Menu**. Refer to the *Squeeze & Tease 3D/WARP Owner’s Guide* for further details.

Pop-up Help

The **Pop-up Help** feature is designed to alert the operator when an illegal function is attempted. When an illegal action is performed, a **Pop-up Help** window is displayed. This window will provides a brief explanation of why the operation cannot be performed and a reference number that can be used when contacting Ross Technical support.

The following is an example of a Pop-up window.



Pop-up Help Menu



Note

The **Pop-up** window will *only* display while the related button is pressed. If a button related function is not operating properly, hold down the button to see if there is a related Pop-up window.

Installed Options Menus

Several important menus are available that allow you to verify all of the installed options in your Synergy switcher — with serial numbers as well as software option codes. The menus also display the revision levels of all system boards, and allow you to install software options.



Important

Serial numbers allow Ross Video to properly track which options have been purchased by each customer. Serial numbers are installed in flash memory at the factory.

Refer to Chapter 2, “**Installation**” of the *Synergy Series Installation Guide* for instructions on how to install serial numbers, install software options, and store option codes.

The following topics are discussed in this section:

- Software Options Menu
- Panel Boards Menu
- Frame Boards Menu
- Option Boards Menu

Software Options Menu

The **Software Options Menu** allows you to view the software that is currently installed on the switcher. The **Main Area** of the **Software Options Menu** lists the serial number of the frame at the top. This number is present at the top of *all* options menus. The **Main Area** also provides the following information:

- **Options** — This column lists the software options than can be installed on the system.
- **Enabled** — This column indicates whether or not the option is installed, or enabled.



Note

The menu is provided for information *only* — for information on installing software options, refer to the section “**Installing Software Options**” in the *Synergy Series Installation Guide*.

Use the following procedure to verify the *software* that is installed on the Synergy switcher:

1. Navigate to the **Installed Options Menu 1-2** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installed Options**.
2. Press **Software Options** to display the **Software Options Menu**.

Installed Options (1-2)			
Frame Serial Number:F123456789			
Editor Interface	:Yes	Peripheral Bus II	:Yes
UTR Remote Control	:Yes	Still Store (Aprisa)	:Yes
DVE Send and Remote CTRL	:Yes	Character Generator	:Yes
Audio Server Control	:Yes	Small Audio Mixer	:Yes
Video Server Control	:Yes	Large Audio Mixer	:Yes
Router	:Yes	Robotic System	:Yes
Serial Tally	:Yes	Monitor Wall	:No
Software Options	Panel Boards	Frame Boards	Option Boards
		Enter Serial Number	Add Option

Installed Options — Software Options Menu

The main area of the **Software Options Menu** lists the serial number of the frame at the top. This number is present at the top of *all* options menus. The main area also provides two columns of information:

- **Options** — This column lists the software options that can be installed on the system.
 - **Enabled** — This column indicates whether or not the option is installed, or enabled.
3. Verify that the list reflects the exact options that you have purchased. If not, please contact **Ross Video Technical Support** for further information.
 4. If a serial number appears at the top of the menu, please verify that this number matches the serial number printed on the rear of the Synergy frame. If another message is displayed where the serial number should be, take the following action:
 - If the label “**Unknown**” appears, the frame is turned off. Please turn on the frame so that the serial number can be recognized.
 - If the label “**000000**” appears, a serial number is required. Your options will *temporarily* be activated so that you do not lose switcher functionality, but a valid serial number *must* be installed permanently. Refer to Chapter 2 of the **Synergy Series Installation Guide** for instructions.



Important

Serial numbers are unique, and pertain to *your switcher only*. The serial numbers cannot be exchanged, or entered on another switcher.



Note

All software options are stored in the Frame. If control panels are swapped around, the enabled options will stay with the Frame — regardless of which panel is connected to it, even for panel-based options such as **VTR Remote Control**.

This completes the procedure to verify the *software* that is installed on the Synergy switcher.

Panel Boards Menu

The **Panel Boards Menu** allows you to view the panel boards that are currently installed on the control panel. The **Main Area** of the menu provides three columns of information that pertain to the boards installed in the panel.

- **Board** — This column lists each circuit board by part number and name.
- **Rev** — This column lists the board’s hardware revision number.
- **FPGA Rev** — This column lists the software revision number of the board.



Note

The menu is provided for information *only* — no action can be taken.

Use the following procedure to check the panel boards that are installed on the Synergy control panel:

1. Navigate to the **Installed Options Menu 1-2** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installed Options**.

- Press **Panel Boards** to display the **Panel Boards Options Menu**.

Installed Options (1-2)					Use Knob 2 to scroll list.
Frame Serial Number:F123456789					
Board	Rev	FPGA Rev			
4000-033 Panel CPU	5a	4000x033.bit	1998/12/01	09:49:35	
4317-130 Xpt Switch	2				
4317-034 Key Switch	3				
4317-036 Pattern Switch	4	4735-036.bit	1998/04/03	03:35:13	
4317-037 Function Switch	4				
Software Options	Panel Boards	Frame Boards	Option Boards	Enter Serial Number	

Panel Boards Menu

- Use the middle knob to scroll through the list of the installed control panel boards.

This completes the procedure to check the panel boards that are installed on the control panel.

Frame Boards Menu

The **Frame Boards Menu** allows you to view the frame boards that are currently installed on the frame. The **Main Area** of the menu provides three columns of information that pertain to the boards installed in the frame:

- **Board** — This column lists each circuit board by part number and name.
- **Rev** — This column lists the hardware revision number of the board.
- **FPGA Rev** — This column lists the software revision number of the board.



Note

The menu is provided for information *only* — no action can be taken.

Use the following procedure to check the frame boards that are installed in the Synergy frame:

- Navigate to the **Installed Options Menu 1-2** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installed Options**.
- Press **Frame Boards** to display the **Frame Boards Options Menu**.

Installed Options (1-2)					Use Knob 2 to scroll list.
Frame Serial Number:0000000					
Board	Rev	FPGA Rev			
4000-002 MLE Carrier	2	4000x002.bit	2000/08/24	16:11:30	
4000-003 Frame CPU	1	4000-003.bit	2000/04/26	11:54:01	
4000-004 AuxBus module		4000-004.bit	2000/07/20	18:13:57	
4000-238 Input/XPT 1	N/I	Not Installed			
4000-238 Input/XPT 2	1a				
4000-238 Input/XPT 3	N/I	Not Installed			
Software Options	Panel Boards	Frame Boards	Option Boards	Enter Serial Number	

Frame Boards Options Menu

- Use the middle knob to scroll through the list of the installed frame boards.

This completes the procedure to check the *frame boards* that are installed in the Synergy frame.

Option Boards Menu

The **Option Boards Menu** allows you to view the option boards that are currently installed on the frame. The **Main Area** of the menu provides three columns of information that pertain to the optional boards that can be installed in the frame:

- **Board** — This column lists each circuit board by part number and name.
- **Rev** — This column lists the hardware revision number of the board.
- **FPGA Rev** — This column lists the software revision number of the board.



Note

The menu is provided for information *only* — no action can be taken.

Use the following procedure to verify the option boards that are installed on the Synergy frame:

1. Navigate to the **Installed Options Menus** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installed Options**.
2. Press **Option Boards** to display the **Option Boards Menu**.

Installed Options (1-2)				
Frame Serial Number:F123456789				
Board	Rev	FPGA Rev		
Mnemonic Controller	Xb	4000-430.bit	2003/03/03	14:42:07
Preview Overlay			Not Purchased	
DVE SEND SIMM (return)			Not Purchased	
MLE1	3	4000S140.bit	2002/05/10	13:42:02
	3	4000x140.bit	2002/06/27	18:07:03
Squeeze & Tease		4000-048.bit	2000/05/25	11:49:32
Software Options	Panel Boards	Frame Boards	Option Boards	Enter Serial Number

Options Boards Menu

3. Use the middle knob to scroll through the list of installed option boards.

The status for each MLE reflects whether or not any of the available MLE options are installed:

- Squeeze & Tease 2D;
- Squeeze & Tease 3D;
- Dual Aspectizer;
- Ultimatte Insider; and
- Dual Border Generator.

The status for each input slot reflects whether or not the optional **Input Carrier Board** is installed. Each **Input Carrier Board** has sockets provided for up to four hardware options.

This completes the procedure to verify the option boards that are installed on the Synergy frame.

Screen Capture

Switcher users can take screen captures of the Synergy panel menus. The switcher saves the screen capture as a 16K bitmap file, which you can then import into other applications on your computer.

Use the following procedure to capture an image of the large menu display on the control panel:

1. Insert a storage device into the Synergy control panel as follows:
 - Insert a standard 1.44 MB high-density floppy disk into the disk drive of the Synergy Switcher.

OR

- Insert a USB key into the USB port of the Synergy Switcher.

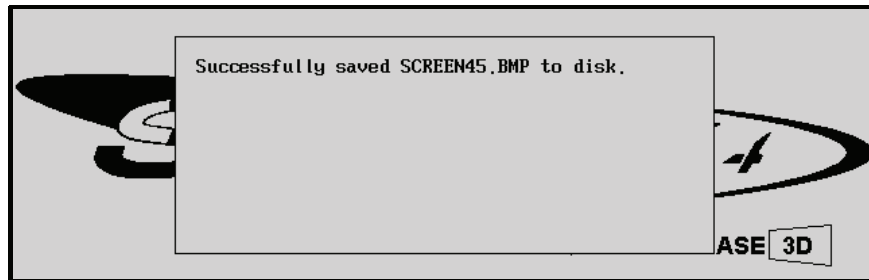


Note

You must have the **USB Removable Media Drive** option installed in order to save a screen capture to a USB key.

2. Navigate to the menu you wish to capture.
3. Locate the **Store** column of the **Global Memory Group**.
4. Simultaneously press **FADE RATE** and **ALL**.

The LED on the floppy or USB drive will come on, the current menu will freeze, and a pop-up message appears indicating that you have saved a SCREENXX.BMP file to the storage device. You can save from 00-99 files in sequence on a floppy disk.



Screen Capture Confirmation Pop-up Message



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

5. Eject the storage device from the switcher.
6. On your computer, insert the storage device and open the files in any graphics application that supports bitmap files to view, rename, and reformat the menu screen captures.

This completes the procedure to capture an image of the large menu display on the control panel.

Switcher Basics

In This Chapter

This chapter presents detailed *basic* switcher operating procedures, rules, and methods. The following topics are discussed:

- Before Starting
- Software Reset
- Menu Method
- System Reset Notes
- Power Fail Indicators
- Power Failure Recovery
- Switcher Personality
- Basic Switcher Functions
- General Button Rules
- PGM/Key SHIFT Mode
- Bus Hold Mode
- Flip-Flop Operation
- Key Bus
- Bus Indicators
- MLE Tally
- Non-sync Indicators
- Knobs
- Re-entry
- Using the Preview Bus
- Fade to Black
- Preview Overlay Group
- Aspect Ratio
- Copy and Swap Functions

Before Starting

If you are unfamiliar with the operation of a multi-level effects switcher, it is *always* advisable to check the initial condition of the switcher’s control panel, and *reset* the panel if required. By performing a software reset, you can guarantee a base default condition, and eliminate any special setups that may be present on the panel (as left by the last TD). Two reset methods are provided below for all Synergy switchers.

Software Reset

This section includes information for resetting your Synergy switcher:

- Using the buttons in the Global Memory Group of the Synergy control panel
- Using the Synergy menu system

Control Panel Method

Use the following method to perform a full software reset:

- Simultaneously press **ALL** (in the **RECALL** column) and **ALL** (in the **STORE** column) of the **Global Memory Group**.

Refer to the section “**Resetting the System**” on page 2–19 for additional information.

Menu Method

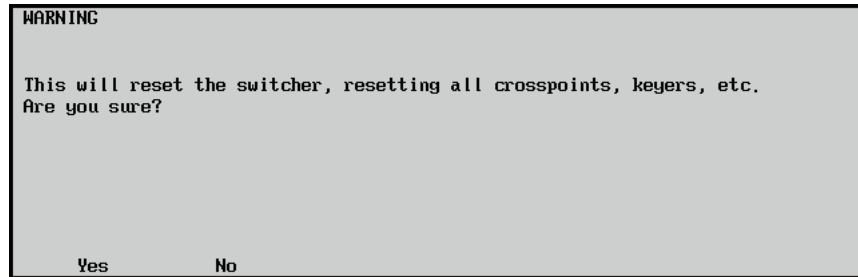
Use the following procedure to perform a full software reset using the Synergy menu system:

1. Navigate to the **Installation Menu 2-2** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installation** ⇒ **MORE**.
2. Press **Recall Factory** to display the **Recall Factory Menu 1-2**.



Recall Factory Menu

3. Press **Switcher** to restore **Switcher Registers** (control panel settings) to their default values. The **Reset Switcher Warning Screen** is displayed.



Warning — Reset Switcher Registers

- Press **Yes** to reset all **Switcher Registers** (control panel settings) to their default values. The control panel will be reset and all crosspoints and keyers will be cleared.
- Press **No** to retain the current set of **Switcher Registers** and exit the menu safely. The control panel will not be reset.

This completes the procedure to perform a full software reset.

System Reset Notes

Please note the following important points regarding the system reset function:

- Turning power on and off in either the control panel or the frame causes *that device* to reset — but *not* the other device. This feature ensures that the program video will not be adversely affected if the control panel loses power.
- If the frame *only* is turned off, the panel indicates a frame power failure on the **POWER FAIL** indicator LEDs. In addition, the control panel drops into diagnostic mode.
 - ~ On a Synergy 4 switcher, when frame power is restored, the power failure status indicator clears, and the panel returns to the main menu with all control panel settings in the “reset” state even though the panel was not physically reset.
 - ~ When frame power is restored, the power failure status indicator clears, and the panel returns to the main menu with all control panel settings in the state they were in before the frame power fail occurred even though the panel was not physically reset.

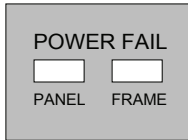


Note

The rack frame stores all installation, personality, custom control macros, memories, and the current video state. The control panel keeps track of the current menu and the settings of all buttons. Resetting the frame changes the current video state. Turning the control panel on and off will *not* reset the video state, because a frame reset has not been initiated.

Power Fail Indicators

Note that two important **POWER FAIL** indicator LEDs on the Synergy control panel mirror the condition of the four chassis “Power” LEDs and the panel’s power supply:



- **PANEL:** when lit, indicates that there is a fault with the control panel’s primary or secondary power supply.
- **FRAME:** when lit, indicates that there is a fault with the chassis primary supply, secondary supply, or fans.

Power Failure Recovery

The Synergy switcher’s power failure recovery feature protects the *entire panel setup* in situations in which power is lost. When power is restored after a failure, all MLE setups return *exactly* as they were, immediately before the power failure. Please note:

- A loss of control panel power *only* has no effect on the frame, because the frame stores the current video state. When control panel power is restored, your setups will return to their previous state. Similarly, resetting the control panel *only* has no effect on the frame.

Remember that resetting the frame *does* change the current video state, returning the frame and control panel to the default “reset” state on the panel.

When frame power is restored, the power failure status indicator clears and the panel returns to the main menu with all control panel settings in the state they were in before the frame power fail occurred — even though the panel was not physically reset.

- After restoring power to the control panel, you may receive the error message “**USB Upgrade Failed**” if you have the **USB Removable Media Drive** option installed. Contact Ross Video Technical Support for more information on correcting the error.

Switcher Personality

The **Personality Menu** of the switcher provides several functions that determine how certain modes and features operate, providing the operator with the ability to customize these features based on user preference. The following personality features are discussed in this section:

- DSK Level Cut
- Roll VTR Mode
- Matte Limit
- Mem Bank Cycle Max
- Bank 0 Lit
- Double Press Rate
- Ultimatte Quick Recall
- Auto Recall
- 3D Pattern Button Assign Option
- Store Mode
- Panel Sleep Time
- Standard Mnemonics
- PIP-II Mem
- DVE Send
- Audio Transition
- White Flash
- Recall Deleted Memories
- Next Available Memory
- Quick Transition Preview
- Bus Hold Clear
- Audio Cut Only

DSK Level Cut

The **DSK Level Cut** mode determines how the individual DSKs behave when the crosspoints are manually changed on the **Program Bus**.

Use the following procedure to configure the **DSK Level Cut** mode:

1. Navigate to the **DSK Level Cut Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **DSK Level Cut**.

Personality (1-4)					DSK	DSK 1
						↓DSK 2
					On/Off	Off
						On
DSK Level Cut	Roll VTR Mode	Matte Limit On/Off	Men Bank Cycle Max	Bank 0 Lit On/Off	Double Press Rate	

Personality — DSK Level Cut Menu

2. Assign the **DSK Level Cut** feature to each DSK as follows:
 - Use the **DSK** knob to select which DSK you want to turn the DSK Level Cut feature on or off.
 - Use the **On/Off** knob to select whether the selected **DSK** is cut off with a manual crosspoint change on the **PGM Bus**.
 - ~ **On** — Use this option to have the selected DSK Cut **Off** when a manual crosspoint change is made on the **PGM Bus**.
 - ~ **Off** — Use this option to have the selected DSK remain unchanged when a manual crosspoint change is made on the **PGM Bus**.

This completes the procedure to configure the **DSK Level Cut** mode.

Roll VTR Mode

The **Roll VTR Mode** determines how the **ROLL VTR** button behaves when a VTR or Video Server is selected. When you set the **Roll VTR Mode**, the setting affects all **ROLL VTR** buttons in all MLEs.

Use the following procedure to configure the **Roll VTR Mode**:

1. Navigate to the **Roll VTR Mode Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **Roll VTR Mode**.

Personality (1-4)					Roll VTR Mode	Play
						Arm
						Armed Always
DSK Level Cut	Roll VTR Mode	Matte Limit On/Off	Men Bank Cycle Max	Bank 0 Lit On/Off	Double Press Rate	

Roll VTR Mode Menu

2. Use the **Roll VTR Mode** knob to assign a mode as follows:
 - **Play** — Select this option to issue a Play command to the serial device when the **Roll VTR** button is selected in the **PST Bus**. This is the default setting.
 - **Arm** — Select this option to enable the Synergy switcher to automatically transition the device to air after the preroll interval has lapsed.
 - **Armed Always** — Select this option to enable the Synergy switcher to automatically transition the device to air after the preroll interval has lapsed.

This completes the procedure to configure the **Roll VTR Mode**.

Play Mode

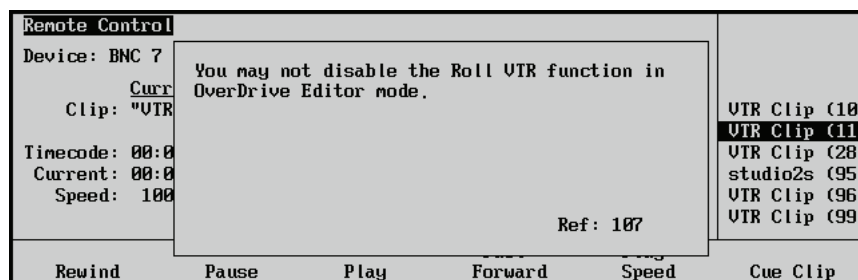
When the **ROLL VTR** button is in this mode:

- Pressing the button immediately rolls the serial device selected on the **PST** bus (one device per bus, including one device from a re-entered MLE).
- The transition that brings the device to air must be initiated by the operator with the fader, **CUT**, or **AUTO TRANS** buttons.
- The button is *momentary*. It is lit only when pressed.

Arm and Armed Always Modes

When the **ROLL VTR** button is in these modes:

- If the button is in **Arm Mode**, the button is *latching*. It remains lit until it is pressed again.
- If the mode is set to **Armed Always**, the button is always lit. Pressing the **Roll VTR** button does not disable it. You must re-configure the Roll VTR mode in the **Personality Menu** or in a custom control macro.
- Pressing the button arms the switcher to roll the selected serial device (one device per bus, including one device from a re-entered MLE) on the **PST** bus in the next transition.
- When the transition is performed by pressing the crosspoint on the **PGM** bus, **CUT**, or **AUTO TRANS**, the device rolls, and goes to air after the preroll interval has elapsed.
- During preroll, moving the fader, pressing **CUT**, or double-pressing the crosspoint on the **PGM** bus will override the preroll time and take the VTR to air immediately.
- On a re-entered MLE, **ROLL VTR** activates only the first VTR it finds that is about to be brought on-air. The search order is: reentered MLE BKGD (including its own re-entry, if necessary), then re-entered MLE PST, then Key 1, then Key 2 – each, if necessary, with its own re-entry checked.
- When an OverDrive production controller is connected to the switcher, activating the **Editor** button turns on all the **Roll VTR** buttons and sets the Roll VTR Mode to **Arm**, disabling the Roll VTR Mode selection in the **Personality Menu**. Attempting to disable the Roll VTR function by pressing a lit **Roll VTR** button displays a warning:



Warning – Disable Roll VTR Function

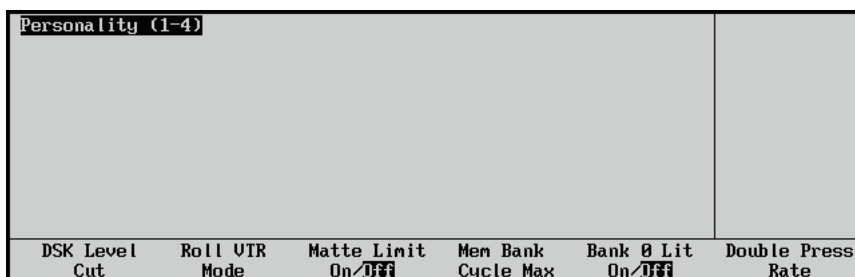
Matte Limit

The **Matte Limit Mode** allows you to set the matte parameters.

Use the following procedure to configure the **Matte Limit Mode**:

1. Navigate to the **Personality Menu 1-4** as follows:

- Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality**.



Personality Menu 1-4

2. Toggle **Matte Limit** between **On** and **Off** as follows:
 - **On** — Select this option to have all color adjustments within the RGB color space.
 - **Off** — Select this option to have colors adjusted outside of the RGB space. This is the default setting.

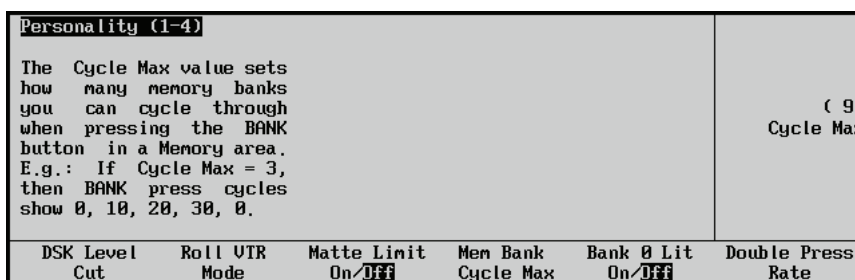
This concludes the procedure to configure the **Matte Limit Mode**.

Mem Bank Cycle Max

The **Memory Bank Cycle Max** allows you to set the number of registers that will be cycled through when **BANK** is repeatedly pressed. This feature accommodates efficient recall of your important effects and transitions. For example, when you only have 27 memory locations stored, set **Cycle Max** to 2. Then, pressing **BANK** repeatedly will cycle you through banks 0, 1 and 2 only.

Use the following procedure to configure the **Memory Bank Cycle Max** option:

1. Navigate to the **Personality Menu 1-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality**.
2. Press **Mem Bank Cycle Max** to display the **Memory Bank Cycle Max Menu**.



Personality — Memory Bank Cycle Max Menu

3. Use the **Cycle Max** knob to set the maximum number of Banks to cycle through when pressing the **BANK** button.

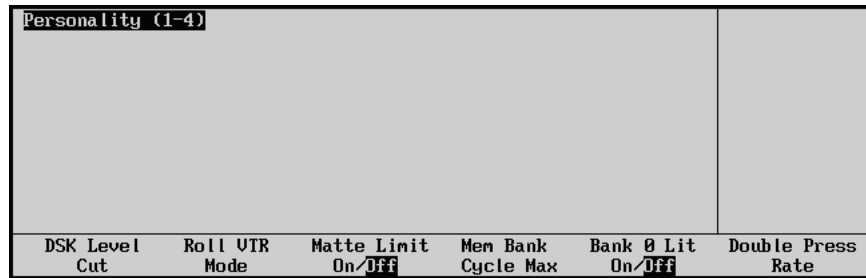
This concludes the procedure to configure the **Memory Bank Cycle Max** option.

Bank 0 Lit

The **Bank 0 Lit** function turns on the **BANK** light whenever the current memory bank location is in the “zero” bank. This provides the user with a quick visual reference, without having to read the exact memory register location.

Use the following procedure to configure the **Bank 0 Lit** function:

1. Navigate to the **Personality Menu 1-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality**.



Personality Menu 1-4

2. Press **Bank 0 Lit** to toggle the **Bank Light On** and **Off**.
 - When **Bank 0 Lit** is **On** all Bank buttons in the Global Memory System Group will be lit in any MLE that is set to Bank 0.

This concludes the procedure to configure the **Bank 0 Lit** function.

Double Press Rate

The **Double Press Rate** allows the user to set the time threshold required between two presses of a button. Double button presses are required for several extended switcher functions.

Use the following procedure to configure the **Double Press Rate**:

1. Navigate to the **Personality Menu 1-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality**.
2. Press **Double Press Rate** to display the **Double Press Rate Menu**.



Personality — Double Press Rate Menu

3. Use the **Frames** knob to adjust the number of frames required between two presses of a button.

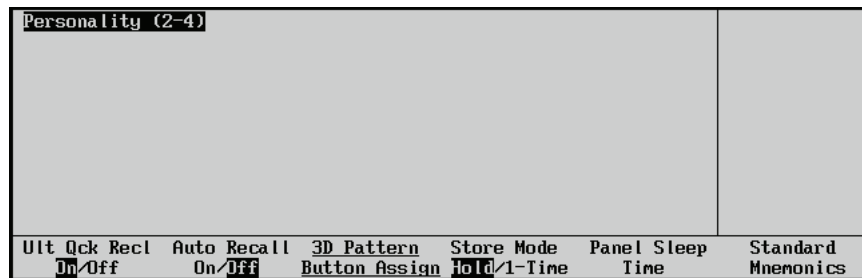
This concludes the procedure to configure the **Double Press Rate**.

Ultimatte Quick Recall

This function recalls saved Ultimatte settings without performing the Auto Chroma function. Should you wish to preview and possibly recalculate Chroma Settings before sending a Chroma key to air, set this option to **Off**.

Use the following procedure to enable the **Ultimatte Quick Recall** option:

1. Navigate to the **Personality Menu 2-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE**.



Personality Menu 2-4

2. Toggle **Ult Qck Recl** between **On** and **Off**. The Ultimatte Quick Recall is set to **On** by default.

This concludes the procedure to enable the **Ultimatte Quick Recall** option.

Auto Recall

Use the following procedure to enable the **Auto Recall** option:

1. Navigate to the **Personality Menu 2-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE**.



Personality Menu 2-4

2. Toggle **Auto Recall** between **On** and **Off**. The Auto Recall is set to **Off** by default.

This concludes the procedure to enable the **Auto Recall** option.

MLE-Level Memory Auto Recall

With **Auto Recall On**, memory recalls retrieve the **KEYS ONLY** and **EFF DISS** button settings used when that memory was saved.

With **Auto Recall Off**, you set **KEYS ONLY** and **EFF DISS** button settings manually before you recall the memory.

Global-Level Memory Auto Recall

With the **Auto Recall On**:

- Memory recalls retrieve the MLE-level saved settings for **KEYS ONLY**, **EFF DISS**, and the wipe button associated with a **DVE SEND**.
- The **KEYS ONLY** and **EFF DISS** buttons on the Global Memory System will reflect only stored settings saved from the PGM/PST MLE (program MLE).
- When selected, the **INCL DVE** button recalls the wipe button associated with a **DVE SEND** saved on any one MLE.
- With **Auto Recall Off**, you set **KEYS ONLY**, **EFF DISS**, and **INCL DVE** button settings manually before you recall the memory.



Note

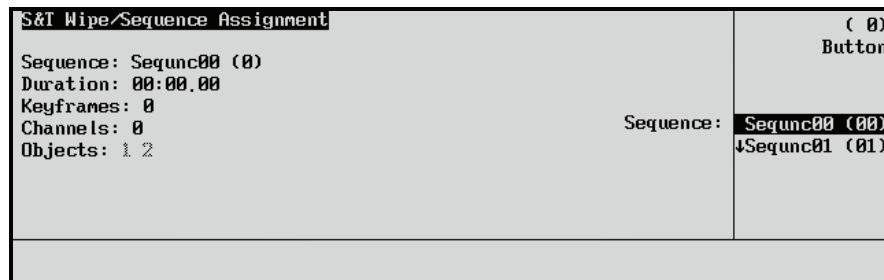
The Auto Recall is set to **Off** by default.

3D Pattern Button Assign Option

To use this function, you require the S&T 3D/WARP option installed in an MLE (or MLEs) of your switcher. For information about obtaining the S&T 3D/WARP option, contact Ross Video Technical Support. If you have the S&T 3D option installed, refer to your *Squeeze & Tease 3D/WARP Owner's Guide* for details on installing sequences and wipes to your switcher.

Use the following procedure to configure the **3D Pattern Button Assign** option:

1. Navigate to the **Personality Menu 2-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE**.
2. Press **3D Pattern Button Assign** to display the **S&T Wipe/Sequence Assignment Menu**.



S&T Wipe/Sequence Assignment Menu

3. Assign a sequence to a Pattern Control button as follows:
 - Use the **Button** knob to select a **Pattern Control** button. By default the middle **Sequence** selections track the button selections.
 - Use the **Sequence** knob to select a sequence to assign to the chosen button. You may assign the same sequence to several buttons if you wish. In the **Main Area**, the parameters of the selected sequence are displayed.



Operating Tip

Press **UP ONE** to return to the previous menu.

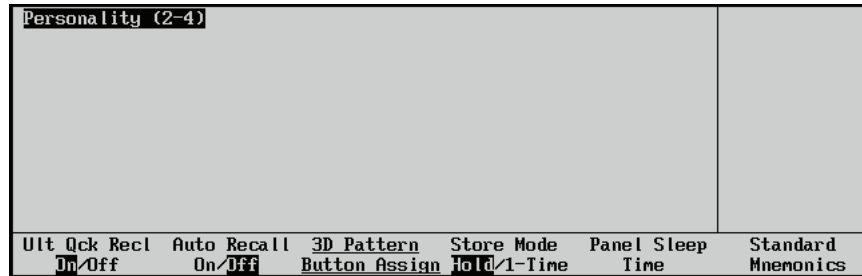
This concludes the procedure to configure the **3D Pattern Button Assign** option.

Store Mode

The **Store Mode** option enables the Memory area to switch to **Recall** mode or stay in **Save** mode after saving a memory in the switcher.

Use the following procedure to configure the **Store Mode** option:

1. Navigate to the **Personality Menu 2-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE**.



Personality Menu 2-4

2. Toggle the **Store Mode** button between **Hold** (Store mode) and **1-Time** (Recall mode) as follows:
 - **Hold** — The memory area remains in **Store mode** when the **ENTER** button is pressed to store a memory. The **Store Mode** is set to **Hold** by default.
 - **1-Time** — The memory area switches to **Recall mode** when the **ENTER** button is pressed to store a memory.

This completes the procedure to configure the **Store Mode** option.

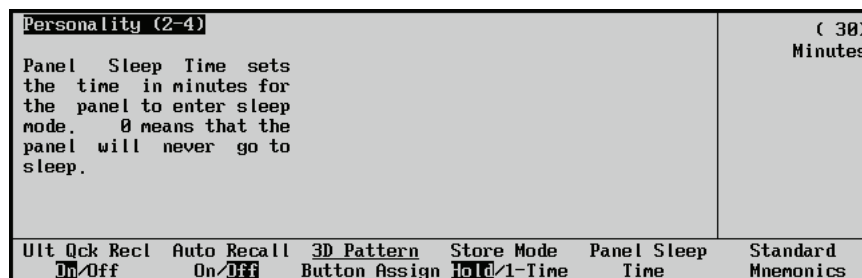
Panel Sleep Time

Use the **Panel Sleep Time** menu to set the length of time it takes the panel to go into sleep mode. The panel enters sleep mode when no buttons are touched and no fader is moved for the designated period of time. This function is specifically designed to extend the life of the displays and button bulbs.

If the panel does go to sleep, press any button or move a fader or joystick to “wake” the switcher and turn on all the lights.

Use the following procedure to set the Panel Sleep Time:

1. Navigate to the **Personality Menu 2-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE**.
2. Press **Panel Sleep Time** to display the **Panel Sleep Time Menu**.



Personality — Panel Sleep Time Menu

- Use the **Minutes** knob to set the length of time in minutes for the panel to fall asleep.



Note

The switcher does *not* act on a button push when coming out of “sleep” mode.

The panel will *not* “go to sleep” if the panel is left in a disk related menu such as the **Disk Store** or **Disk Recall Menu**.

The factory default time-out interval is 30 minutes.

When 0 is selected the panel will not enter into Sleep mode.

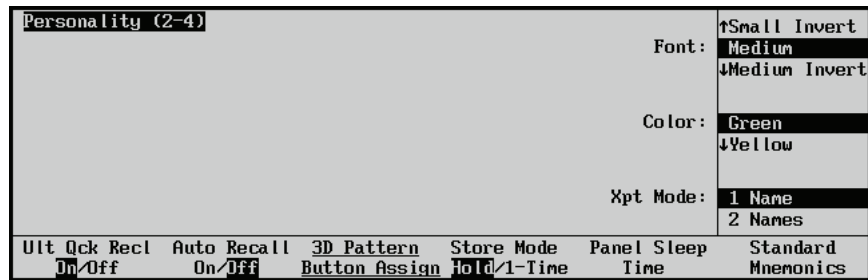
This concludes the procedure to set the Panel Sleep Time.

Standard Mnemonics

To use this function, you must have the Mnemonic Display option installed on your switcher. For information about obtaining the Mnemonic Display option, contact Ross Video Technical Support.

Use the following procedure to configure settings for the Mnemonic Display option:

- Navigate to the **Personality Menu 2-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE**.
- Press **Standard Mnemonics** to display the **Standard Mnemonics Options Menu**.



Personality — Standard Mnemonics Options Menu

The settings chosen here affect the overall appearance of the mnemonics displays on the switcher. Adjustable settings include the font size, the display color, and whether or not the displays will show the shifted crosspoint names. Display configurations can be saved to a storage device such as a floppy disk or USB key.

Mnemonics settings selected in the **Personality Menu** will be referred to as the **Standard** settings in the various naming menus.



Note

When naming BNCs, Custom Control Banks, and Custom Controls, you can also adjust the font and color settings for those individual displays from the naming menus. Changes to individual displays in the naming menus are *not* affected if further changes are made in the personality menus later.

Refer to the section “**Naming BNC Inputs**” on page 6-4 for details on naming BNCs. For information on naming custom controls, refer to the section “**Naming Custom Controls**” on page 8-42 .

Selecting the Font Size

To set the size of the text that will appear in the mnemonic displays, rotate the top **Font** knob to select from the following choices:



- **Small** — up to 6 characters per line.



- **Small Invert** — up to 6 characters per line. Light text is on a dark background.



- **Medium** — up to 4 characters per line.



- **Medium Invert** — up to 4 characters per line. Light text is on a dark background.

- **None** — no characters are displayed.

The mnemonic display fonts change on the switcher as you select **Font** options.

Selecting the Color

To adjust the color that will appear in the mnemonic display, rotate the middle **Color** knob to select from the following choices:

- **Green**, which causes the displays to have a green background.
- **Yellow**, which causes the displays to have a yellow background.
- **Orange**, which causes the displays to have an orange background.
- **None**, which causes the displays to be unlit.

The mnemonic display colors change on the switcher as you select **Color** options.

Shift Button

If you use the **SHIFT** function for some of your inputs, the mnemonic displays can be configured to show both the shifted *and* unshifted input name. The lower label will always show the name of the input that is considered active. Therefore, the name of the unshifted crosspoint is on the lower label until you press down on the shift key; then the shifted crosspoint becomes the lower label.

Displaying the Shifted Crosspoint Names

To adjust the mnemonic displays to show the shifted names of crosspoints for the MLE Key and Program buses, rotate the bottom **XPT Mode** knob to select from the following options:

- **1 Name**, which shows only the names of the crosspoints for the selected bus.
- **2 Names**, which shows the names of the crosspoints for the selected bus and the names of crosspoints when the bus is in Shift mode.



The example to the left displays the 2 line mode with the font of the active mode normal.



The example to the left displays the 2 line mode with the font of the active mode inverted.

The mnemonic display modes change on the switcher as you select **XPT Mode** options.

Two Name Mode Conditions and Considerations

With the **2 Names** option selected, the following conditions apply:

- You can only use the **Small** or **Small Invert Font** options. Choosing other font sizes either in the Personality Menu or in the naming menus will cause the mnemonic displays to use the **1 Name** option and display only the non shifted crosspoint names.
- 8 character names are truncated to the 6 characters per row that are displayed. The two last characters are left off the display.
- If you select the Standard font option in the naming menus, the mnemonic displays will still display 2 names in small fonts.

This completes the procedure to configure settings for the Mnemonic Display option.

PIP-II Mem

To use this function, ensure that the **Peripheral Interface II Protocol** option is installed and configured. If not, please contact **Ross Video** for details.

Refer to the section “**Installing Software Options**” on page 2–41 for instructions on verifying the status of installed options. For configuration procedures, refer to the section “**Peripheral Interface II Protocol Setup**” on page 7–10.

Use the following procedure to enable Synergy memory store and recall functions to all devices:

1. Navigate to the **Personality Menu 3-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.



Personality Menu 3-4

2. Press **PIP-II Mem** to toggle between **Send** and **No Send** as follows:
 - **Send** — When **Send** is selected, every time the Synergy does a memory store or recall, the corresponding command is sent to every PIP-II device to store or recall its settings in the same memory number as was specified for Synergy. In this way, the current settings for all of the PIP-II devices can be coordinated with Synergy.
 - **No Send** — When **No Send** is selected, no memory commands are sent to devices. This is the default setting.

This concludes the procedure to enable Synergy memory store and recall functions to all devices. Refer to the section “**Peripheral Interface II Custom Controls**” on page 8–37 for information on configuring custom controls using the PIP-II interface option.

DVE Send

To use the **DVE Send** button for internal Squeeze & Tease wipes, ensure that a Squeeze & Tease card is installed and configured. If not, please contact **Ross Video** for details.

Refer to the section “**Installed Options Menus**” on page 2–37 for instructions on verifying the status of installed options.



Important

In previous versions of Synergy software the **DVE Send** button was used to control external DVEs.

The default setting in version 14 or higher system software is **Internal**.

Holding down the **WIPE + DVE SEND** buttons will also activate **Internal Squeeze & Tease** functionality when **External** is toggled on.

Use the following procedure to toggle the functionality of the **DVE Send** button between **Internal** and **External**:

1. Navigate to the **Personality Menu 3-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.



Personality Menu 3-4

2. Press **DVESend Bttn** to toggle between **Int** and **Ext** as follows:
 - **Int** — Select this option to enable the **DVE Send** button to be used for internal Squeeze & Tease wipes.
 - **Ext** — Select this option to enable the **DVE Send** button to be used for external DVE functions.

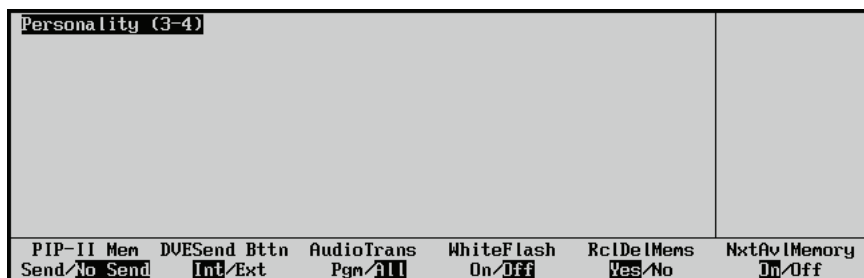
This concludes the procedure to toggle the functionality of the **DVE Send** button.

Audio Transition

The Audio Transition Personality allows you to configure when an audio transition takes place.

Use the following procedure to configure the **Audio Transition** option:

1. Navigate to the **Personality Menu 3-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.



Personality Menu 3-4

2. Toggle the **AudioTrans** softkey to **Pgm** or **All** to set the audio transition personality.
 - **Pgm** — This option tells the switcher to perform an audio transition *only* when a **Program MLE** is transitioned.
 - **All** — This option tells the switcher to perform an audio transition when *any* **MLE** is transitioned.

This concludes the procedure to configure the **Audio Transition** option.

White Flash

White Flash is a single button effect that allows you to set the flash color and timing of a transition. Once enabled, this effect performs a double transition from **PGM** to White Flash to **PST** using a free background color generator to produce the White Flash instead of Preset Black. This is achieved by enabling the White Flash effect, setting the color and timing of the transition and using the **PST BLACK** button in the **Program/Preset Transition Group**.



Note

The White Flash effect differs from Preset Black because it automatically performs the transition when **PST BLACK** is pressed.

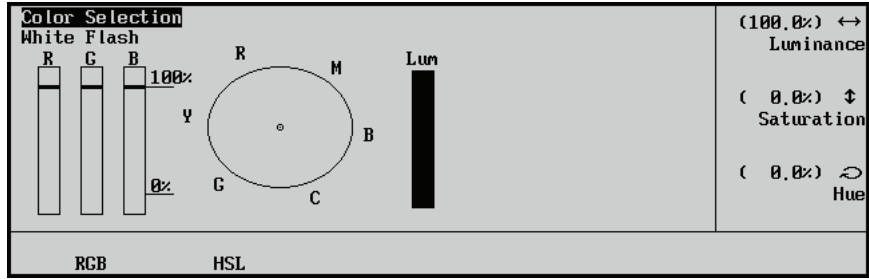
Use the following procedure to configure the White Flash effect:

1. Navigate to the **Personality Menu 3-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.
2. Toggle the **White Flash** softkey to **On** to display the **White Flash Setup Menu**.

White Flash Setup	
Onset = trans rate from PGM to White Flash color	(0) Onset Rate
Hold = number of frames to display the White Flash	(2) Hold Time
Fade = trans rate from White Flash color to PST	(4) Fade Rate
Color	

White Flash Setup Menu

3. Set the timing of the White Flash as follows:
 - Use the **Onset Rate** knob to set the transition rate (0 to 150 frames) from **PGM** to the White Flash.
 - Use the **Hold Time** knob to set the length (in number of frames) of the White Flash before fading out.
 - Use the **Fade Rate** knob to set the transition rate from the White Flash to **PST**.
4. Press **Color** to display the **Color Selection Menu**.



Color Selection Menu.



Note

The White Flash default is set to **HSL**. Press **RGB** if you wish to edit the White Flash in **RGB** colors.

5. Adjust the appearance of the White Flash as follows:
 - Use the **Luminance** knob to adjust the luminance level of the White Flash.
 - Use the **Saturation** knob to adjust the saturation level of the White Flash.
 - Use the **Hue** knob to adjust the hue levels of the White Flash.



Operating Tip

You can turn the White Flash effect off by repeating steps 1 and 2 and toggling the **White Flash** softkey to **Off**.

This concludes the procedure to configure the **White Flash** feature.

Recall Deleted Memories

The **Recall Deleted Memories** feature enables you to configure the switcher to recall memories that have been marked as deleted in the **Memories Setup Menu**. If you do not enable this feature, a popup message will display every time you attempt to recall a deleted memory, and the memory will not be recalled.

Use the following procedure to configure the **Recall Deleted Memories** feature:

1. Navigate to the **Personality Menu 3-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.



Personality Menu 3-4

2. Toggle **RclDelMems** between **Yes** and **No** as follows:
 - **Yes** — Use this option to recall memories even if they have been tagged as deleted in the **Memories Setup Menu**.

- **No** — Use this option to *not* have the switcher recall deleted memories. The switcher will only recall those memories that have not been tagged as deleted. This is the default setting.

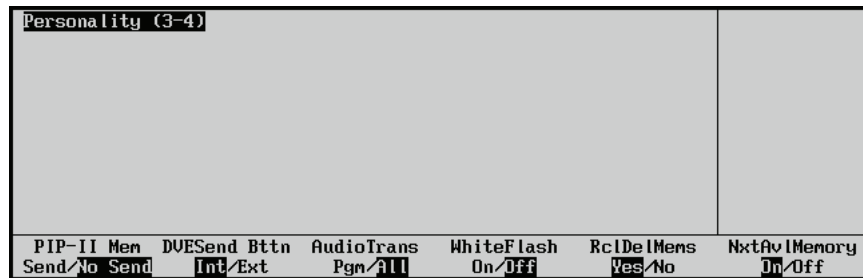
This concludes the procedure to configure the **Recall Deleted Memories** feature.

Next Available Memory

The **Next Available Memory** feature enables the Synergy switcher to recall the next available memory register to the **Global Memory Group** or the **MLE Memory Group**. You can now quickly store a new memory to the next available register in a selected bank.

Use the following procedure to configure the **Next Available Memory** feature:

1. Navigate to the **Personality Menu 3-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.



Personality Menu 3-4

2. Toggle **NxtAvlMemory** between **On** and **Off** as follows:
 - **On** — Use this option to enable the Synergy switcher to recall the next available memory register to the **Global Memory System Group** or the **MLE Memory Group**.
 - **Off** — Use this option to *not* have the switcher recall the next available memory register. This is the default setting.

This concludes the procedure to configure the **Next Available Memory** feature.

Quick Transition Preview

The **Quick Transition Preview** option enables you to preview the next transition for the Program MLE. This option tells the switcher to perform a transition preview for the Program MLE when a Transition button is pressed *and* held while an **AUTO TRANS** button is pressed (or the fader is moved to the next limit). Refer to Chapter 5, “**Background Transitions**” in the *Synergy Series Operation Guide* for information on using the **Transition Preview** function.

Use the following procedure to enable the **Quick Transition Preview** option:

1. Navigate to the **Personality Menu 4-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE** ⇒ **MORE**.



Personality Menu 4-4

2. Toggle the **Qck Trans PV** button between **On** and **Off** as follows:
 - **On** — Use this option to enable a Transition Preview on the Program MLE.
 - **Off** — Use this option to not preview the next transition on the Program MLE. This is the default setting.

This concludes the procedure to enable the **Quick Transition Preview** option.

Bus Hold Clear

The **Bus Hold Clear** function allows you to clear the Bus Holds during an **ALL + ALL** reset.

Use the following procedure to enable the **Bus Hold Clear** function:

1. Navigate to the **Personality Menu 4-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE** ⇒ **MORE**.



Personality Menu 4-4

2. Toggle the **BusHoldClear** button between **On** and **Off** as follows:
 - **On** — Use this option to enable the Bus Hold Clear function. All Bus Holds are turned off when an **ALL + ALL** reset is performed. This is the default setting.
 - **Off** — Use this option to disable the Bus Hold Clear function. All Bus Holds are left on when an **ALL + ALL** reset is performed.

This concludes the procedure to enable the **Bus Hold Clear** function.

Audio Cut Only

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



Note

When the OverDrive Editor is active (the **EDITOR** button in the **Global Memory System Group** is lit), and OverDrive is controlling the switcher, the audio transition rate for the **PGM MLE** is set from OverDrive.

Use the following procedure to set up the Audio Cut Only feature:

1. Navigate to the **Personality Menus** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.
2. Use the **Option** knob on the **Personality Menu** to select **AudioCutOnly**.



Audio Cut Only — Personality Menu

3. Use the **Value** knob on the **Personality Menu** to toggle this feature **On** or **Off**.
 - **On** — Select this option to have audio transition cut, regardless of the type or rate of the video transition.
 - **Off** — Select this option to have audio transition at the same rate as the video transition.

This completes the procedure for setting up the Audio Cut Only feature.

Basic Switcher Functions

This section provides basic information and general rules regarding Synergy switcher operation. The following sections are included:

- General Button Rules
- Crosspoint Button Rules
- SHIFT Button
- PGM/Key SHIFT Mode
- Bus Hold Mode
- Flip-Flop Operation
- Bus Indicators
- MLE Tally
- Non-sync Indicators
- Re-entry

General Button Rules

Please note the following general button rules:

- All button presses are *registered* (acknowledged) by the switcher when a selected button lights. Pressing a button can switch a crosspoint (and affect the video output), perform a transition, toggle a function, or have no effect (if the function is not valid for the current setup).
- Buttons can be *latching* (in the case of valid crosspoints and “toggle” functions such as key parameters), or *momentary* (in the case of transition buttons such as **CUT**).
- When you press a button and *hold it down*, the button lights to acknowledge the press. After two seconds, the button reverts to its proper state for the selected mode. This proper state could be on or off, depending upon the current setup.
- Pressing and *holding* one button, then pressing another is a valid mode. This sequence is used for functions such as “favorite CG” and DSK setup. Details are provided in each operational section.

Crosspoint Button Rules

When a button (or crosspoint) is pressed on the **PGM**, **BKGD**, **PST** and **KEY** buses, a video source is selected. Video sources can be internally generated or derived from external sources (and connected to the chassis via BNC).



Note

If you press a crosspoint button that is assigned to an external device, the device control menu will be displayed.

Please note the following important rules:

- There are four internally generated sources available:
 - ~ **BLACK** — normally placed on the first or left-most crosspoint in a bus row.
 - ~ **SHIFT** — typically placed as the last or right-most crosspoint in a bus row but can be placed on any crosspoint.
 - ~ **COLOR BKGD 1** — typically placed as the third or second to last crosspoint in a bus row.
 - ~ **COLOR BKGD 2** — typically placed as the second to last crosspoint in a bus row, or as the *shifted* crosspoint for **COLOR BKGD 1**.
- External sources can be *turned off* as part of switcher setup, or placed on *more than one* crosspoint. Refer to Chapter 6, “**BNC Configuration and Check**” in the *Synergy Series Installation Guide* for details.
- On each switcher, between the **PGM** and **PST** buses only, small crosspoint numbers are silk-screened on the panel itself. These labels are printed in increments of five, and are designed to assist your facility engineer with locating crosspoints particularly during setup modes.
- Selecting a crosspoint button assigned to a VTR device will enable you to enter a VTR Clip ID or Number using the keypad in the **Global Memory Group**. Some devices allow you to also enter the VTR Clip ID on the keypad. For those devices, you can toggle between entering a **Clip ID** and a **Clip Number** by pressing the **VTR Clip** button. Refer to the section “**Clip Control Overview**” for more information.
- If you enabled the **Look Ahead Serial Tally** option, crosspoint selections on the Key Buses, including the DSK sources, will be delayed by the specified number of fields. Refer to Chapter 7, “**Basic Communications Setup**” in the *Synergy Series Installation Guide* for instructions on how to enable the **Look Ahead Serial Tally** option.

SHIFT Button

On each bus (including the **KEY** bus), the **SHIFT** button is used to access video and key sources that have been mapped to crosspoints *beyond* the number of available buttons. The mapping itself is performed during the installation procedure.

Excluding the **BLACK** crosspoint, please note:

- On the Synergy 2, active crosspoints **19** through **33** can only be accessed via **SHIFT**.
- On the Synergy 3, active crosspoints **32** through **59** can only be accessed via **SHIFT**.
- On the Synergy 4, active crosspoints **37** through **69** can only be accessed via **SHIFT**.

Accessing a Shifted Source

Use the following procedure to access a shifted source on any bus:

1. Press and hold the **SHIFT** button.

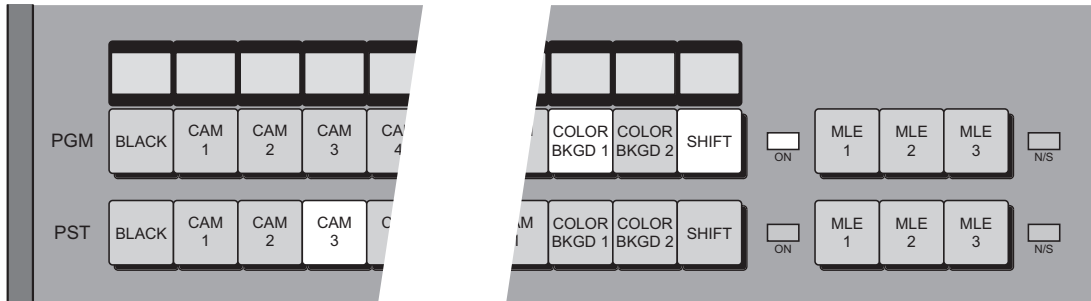


Operating Tip

You can double press the **SHIFT** button to have the MLE remain in the shifted mode. When you need to access an *unshifted* crosspoint, you can press **SHIFT** and the crosspoint. Double pressing the **SHIFT** button again releases the MLE from the shifted mode.

2. Press the desired crosspoint.
3. Release both buttons.

The **SHIFT** button plus the selected source both stay lit, as indicated in the following example:



Shifted Crosspoint Selected on PGM

Please note:

- With a shifted source selected on a bus row, to take an *unshifted* source, simply press its button.
- With a shifted source selected, to take another shifted source, repeat the procedure above.
- If you press **SHIFT** and then decide *not* to select a source, simply release the **SHIFT** button. No change will occur on the bus.

PGM/Key SHIFT Mode

A special mode called **PGM/Key SHIFT** can be activated during switcher set up. Although primarily designed for the Synergy 2 (with only 17 buttons per bus), activating the **PGM/Key SHIFT** mode makes each MLE's **Key Bus** shifted *all the time* (as its default state).

This effectively acts as a shift lock, giving you one-button access to the higher-numbered inputs on each **Key Bus** (without having to press **SHIFT** each time to reach them).

If the **PGM/Key SHIFT** mode has been implemented, you may notice that the crosspoint labels on each **KEY** bus will be *different* from each MLE's **BKGD** and **PST** bus labels.

Please consult with your facility's engineer to determine if the **PGM/Key SHIFT** mode is implemented. Refer to the section, "**PGM/Key Shift Crosspoint Buses**" in the *Synergy Series Installation Guide* for more information.

Bus Hold Mode

The **Bus Hold** button allows you to retain the currently selected video crosspoint on a bus during a memory recall. If the **Bus Hold** button is assigned to a crosspoint, each bus **BKGD** (or **PGM**), **PST**, **Key 1**, and **Key 2**, on all MLEs, can be held independently. Refer to the section, "**Setting Up Panel Buttons**" in the *Synergy Series Installation Guide* for setup details.

If the **Bus Hold Clear** function has been enabled in the **Personality Menus**, you can turn off all the Bus Holds by performing a soft reset (by pressing **ALL+ALL**). Refer to the section "**Bus Hold Clear**" in the *Synergy Series Installation Guide* for setup details.

Use the following procedure to perform a **Bus Hold**:

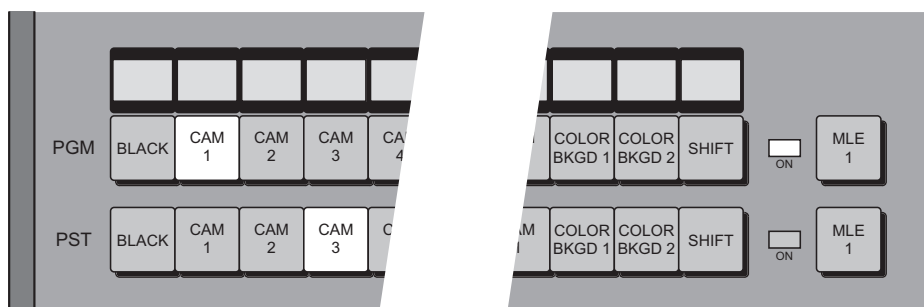
1. Press the desired crosspoint(s) you wish to retain during the memory recall. You can select multiple crosspoints on multiple buses.
2. Press the **Bus Hold** button on each Bus you wish to retain during the memory recall. You can select multiple buses to Hold.
3. Perform a memory recall. Refer to the section “**Recalling Memory Registers**” on page 8–12 for information on recalling memory registers.

This completes the procedure to perform a **Bus Hold**. Refer to the section “**Setting up Panel Buttons**” in the *Synergy Series Installation Guide* for information on configuring the **Bus Hold** function.

Flip-Flop Operation

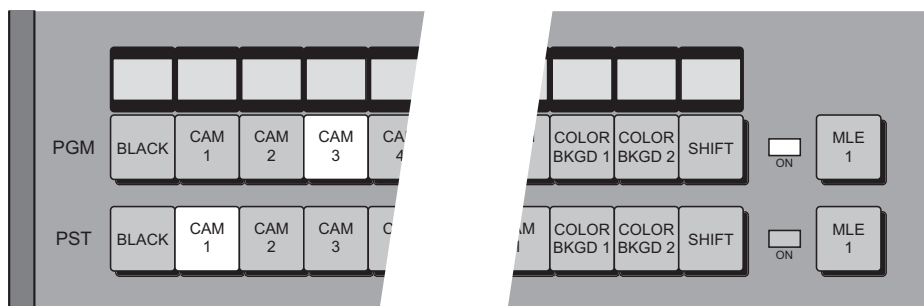
All MLEs are configured to operate in flip-flop mode. When you perform a cut, dissolve or wipe transition between the **PGM** and **PST** buses (or between the **BKGD** and **PST** buses), the two selected sources *exchange* places. This is called a flip-flop.

For example, in the following figure, **CAM 1** is selected on the **PGM** bus and **CAM 3** is selected on the **PST** bus.



Buses before Transition

After the cut, dissolve, or wipe transition is performed, the two buses flip-flop as shown below. **CAM 3** is now selected on **PGM** bus and **CAM 1** is now selected on **PST** bus.

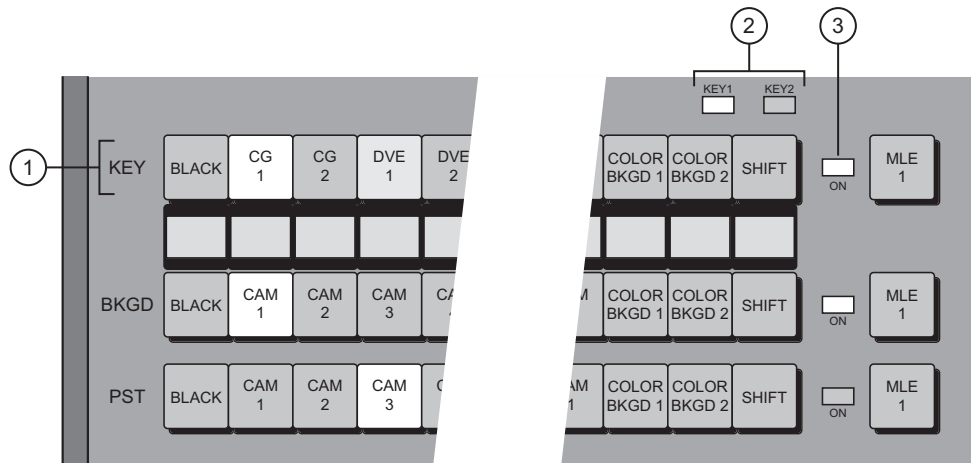


Buses Flip-flopped, after Transition

In this manner, with all switcher MLEs, the **PGM** and **BKGD** buses *always* provide an MLE’s background output source, and the **PST** bus always provides the *next* source to be brought to air with a transition. In addition, after a transition, the **PST** bus *always* shows the source last-selected on **PGM**, until you change it.

Key Bus

Each MLE includes a **Key Bus** (a sample of which is shown below):



Synergy 3 — Key Bus Indicators

1) Key Bus	2) Key Control LEDs	3) Key Bus On Air LED
------------	---------------------	-----------------------

1. Key Bus

The Key Bus allows you to make key and fill selections on *both* MLE keyers — **Key 1** and **Key 2** (for the upstream MLEs), or **DSK 1** and **DSK 2** (for the Program/Presets MLE). Even though the **Key Bus** buttons are *shared* between the two keyers, each keyer can have its own independent key and fill selections.



Note

If you press a Key crosspoint button that is assigned to an external device, the device control menu will be displayed. Pressing the button again will cycle through the device menus and the **Key Type Menu**.

Please note:

- Pressing any button in a keyer switches control of the **Key Bus** to *that keyer*.
- When the **Key Bus** is assigned to Key 1, changing a button on the bus has no effect on Key 2. Similarly, when the bus is assigned to Key 2, changing a button has no effect on Key 1.
- When a keyer has control of the bus, its crosspoint selection will be **brightly** lit on the bus row. The crosspoint selection for the other bus (the one that does *not* have control) will be dimly lit.

2. Key Control LEDs

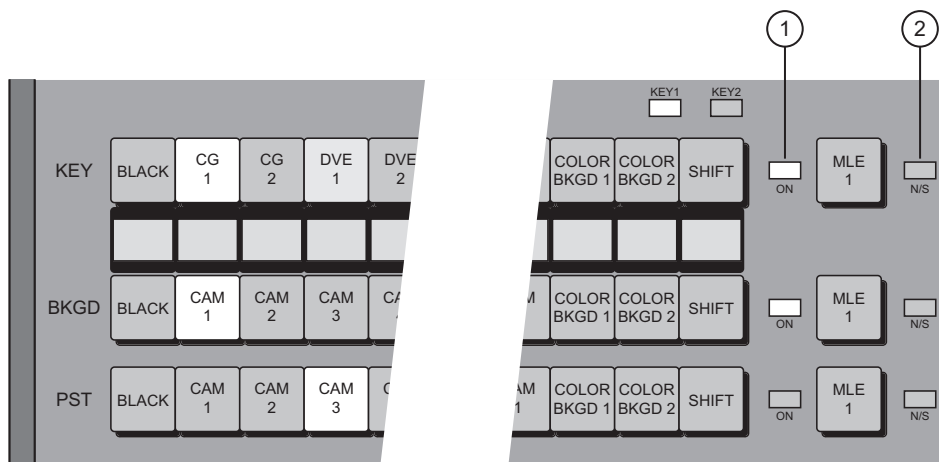
The two **Key Control** LEDs indicate which Keyer has control of the **Key Bus** buttons.

3. Key Bus On Air LED

The **Key Bus ON AIR** LED indicates, when lit, that the video feeding that Keyer is on air (and contributing to the switcher's main program output). When lit, the source selected on that bus will be tallied.

Bus Indicators

Two LED indicators are positioned at the end of each bus row:



Synergy 3 — Bus Row Indicators

1) On Air "Tally" LED 2) Non-Sync Indicator

1. On Air Tally LED

The **ON AIR** "Tally" LED indicates, when lit, that the video selected on that bus is contributing to the switcher's main program output. In addition, the source selected on that bus will be tallied. Refer to the section "**MLE Tally**" on page 4–27 for additional related details.

2. Non-Sync Indicator

The **N/S** (Non-Sync) LED indicates, when lit, that the source selected on that specific bus is non-synchronous. Refer to the section "**Non-sync Indicators**" on page 4–28 for detailed information.

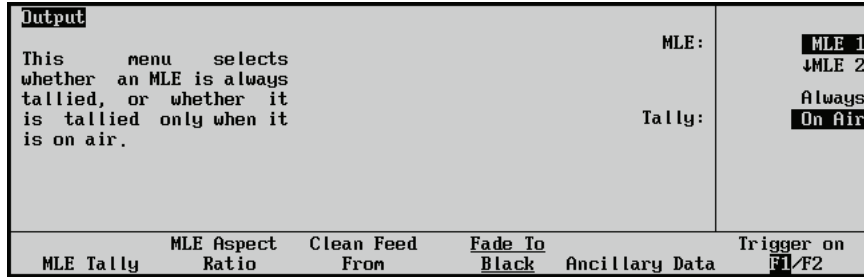
MLE Tally

The **MLE Tally** feature of the switcher allows you to force a selected MLE to always function as if it is on air — regardless of whether or not it is selected on the **Program/Preset Bus**.

For instance, in dual aspect ratio operation, using a **Synergy 4** (for example), MLEs 1, 2 and 3 are producing in 4x3 format and are routed to the NTSC transmitter. MLE 3 is re-entered into MLE 4, which is converting the output to 16x9 format — which, in turn, is routed to the DTV transmitter. In this dual-aspect ratio configuration, both MLE 3 and MLE 4 must be treated as **Program/Preset Buses**, and as such, always tallied. To achieve this, the **MLE Tally** feature must be used.

Use the following procedure to select the desired tally function for an MLE:

1. Navigate to the **MLE Tally Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installation** ⇒ **Output** ⇒ **MLE Tally**.



Output Menu — MLE Tally Menu

2. Assign a tally function to an MLE as follows:
 - Use the **MLE** knob to select the MLE that you want to assign a tally function to.
 - Use the **Tally** knob to select the desired tally function. You can select between the following:
 - ~ **Always** — Use this option to tally the selected MLE regardless of what is selected on the **Program/Preset Bus** of the switcher. The red **ON** LED of that MLE will always be lit, and all sources selected on the MLE will tally accordingly. Use this selection for dual-aspect ratio configurations, as discussed above.
 - ~ **On Air** — Use this option when you want an MLE to be tallied only when it is selected on the **Program/Preset Bus** of the switcher.



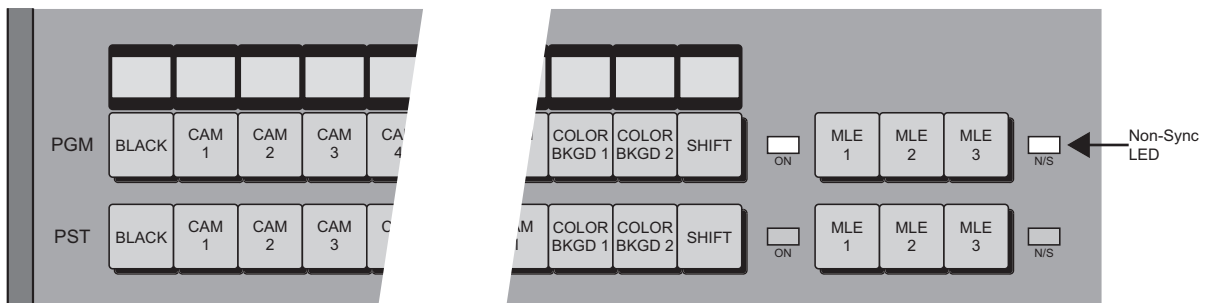
Note

Once selected, the MLE tally settings remain in effect until changed.

This completes the procedure to select the desired tally function for an MLE.

Non-sync Indicators

The **N/S** (Non-Sync) LEDs indicate (when lit) that the source selected on the adjacent bus is non-synchronous. This rule applies to all buses (including Aux Buses) and the DSKs.

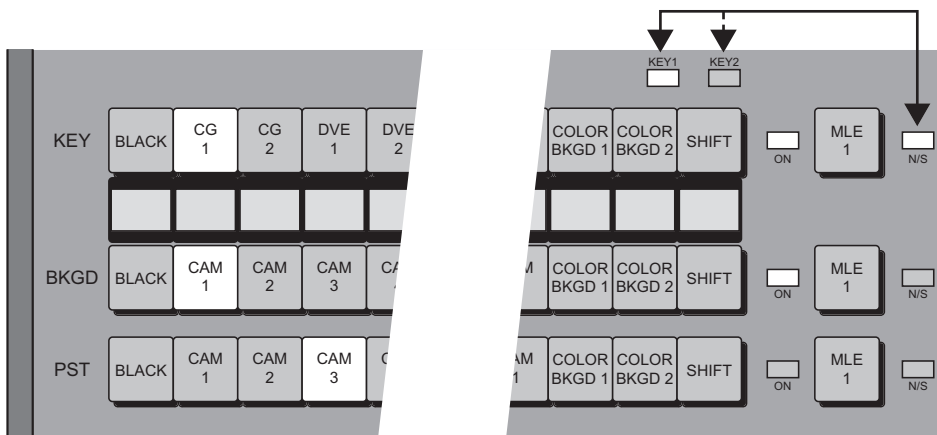


Synergy 4 — Non-Sync Indicators

The **N/S** LED serves as a *warning* only, indicating that the input's timing should be fixed *at the source*. In this condition, with a non-sync LED lit, the source is still usable. You *can* perform cuts, dissolves, and other effects — however, remember that the non-synchronous source will be shifted vertically, and is not synchronous in relation to reference.

Please note:

- The MLEs themselves are always synchronous, with a fixed internal timing. Only individual sources can become non-synchronous.
- The **N/S** LED will *not* light in a re-entry situation. For example, if a source on **MLE 1** is non-sync, and **MLE 1** is re-entered into **MLE 2**'s program bus, the **N/S** LED will *not* light on MLE 2's program bus. The MLE is always synchronous, and in this configuration, it is synchronously passing along a non-synchronous source.
- The **N/S** LED on an MLE **Key Bus** is *shared* between the two MLE Keyers. Note that the **N/S** LED works in conjunction with the two green **Key Control** LEDs (which indicate the Keyer that has control of the **Key Bus** buttons).



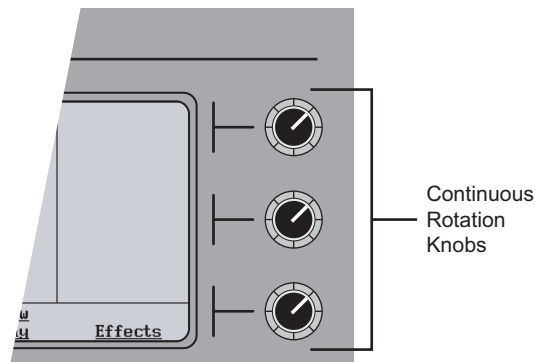
Non-Sync Indicators for Key Buses

If the **N/S** LED is on, check the **Key Control** LEDs to determine which specific Keyer is non-synchronous.

Knobs

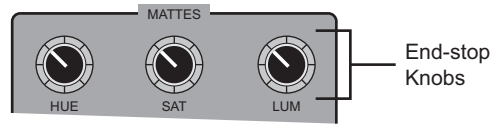
There are *two types* of rotary knobs used in all Synergy switchers:

- **Continuous Rotation Knobs** are used *only* in the **System Control** group, as shown in the following figure. These knobs are provided for adjusting set up menu parameters, scrolling various menu lists for switcher configuration, and for certain functional adjustments such as key clips.



System Control Group — Continuous Rotation Knobs

- **End-stop Knobs** are used in *all other locations* on the panel, as shown below in the **Mattes** group (on the Synergy 4 panel).



Mattes Group — End-stop Knobs

Note the following important points regarding **End-stop Knobs**:

- ~ All **End-stop Knobs** provide a definite *tactile* indication of the absolute upper and lower limits of the function being adjusted.
- ~ Each knob (or group of knobs) has *shared functionality* between MLEs. Depending on the mode, a knob can be assigned to a different MLE from moment to moment.
- ~ The electrical position of an **End-stop Knob** can be *overwritten* by memory recalls or by assigning the group to another MLE. As a result, the electrical knob position *may not match* the knob's current physical position. In this case, the knob can be adjusted, but you may not have the full range of values available.

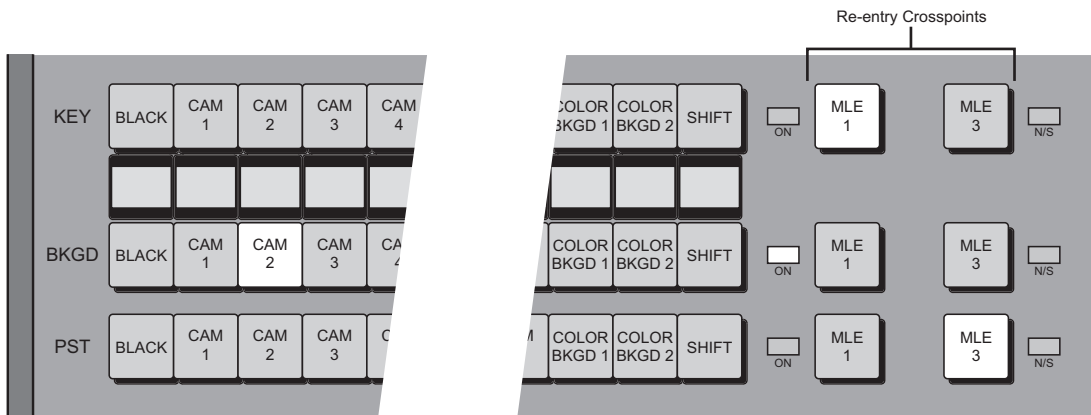


Operating Tip

To fully re-synchronize the physical-to-electrical position of an **End-stop Knob**, turn the knob fully clockwise, then fully counter-clockwise. Full-range adjustments can now be made.

Re-entry

On all Synergy Switcher MLEs (except for the Synergy 2), re-entry crosspoints are located to the right of each main bus row, as shown below on the Synergy 4 panel. On the Synergy 2, only MLE 2 has re-entry crosspoints.



Synergy 4 — Re-entry Crosspoints

Re-entry crosspoints perform essentially the same function, depending on their location on the switcher panel:

- For all Synergy switchers, re-entry buttons on the **PGM/PST** bus (the highest-numbered bus) allow you to add or combine the contents of an *entire upstream MLE* to the output video. The number of re-entry buttons depends on the quantity of upstream MLEs.

- For the Synergy 3 and 4 switchers, re-entry buttons on the upper MLEs allow you to add or combine the contents of an entire *upstream* or *downstream* MLE to the MLE's output video content. In effect, you can re-enter up or down. Again, the number of re-entry buttons depends on the model.
- In all cases, re-entry buttons are mutually exclusive with all other buttons on the bus. When selected, the re-entry button lights and any other bus selection(s) are canceled.

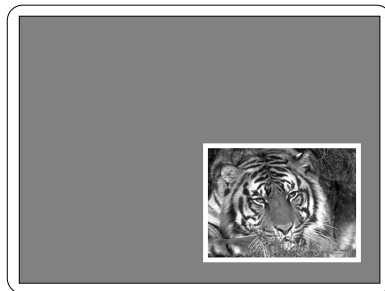
In general, re-entry allows you to combine images and keys for more creative *layered* effects also known as a “composite” effect.

For example, **MLE 1** by itself is composed of a wipe between two images:



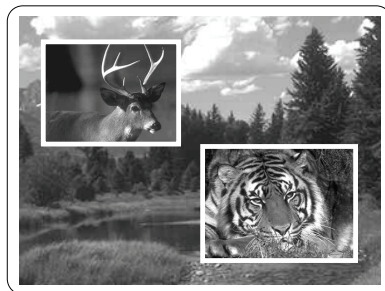
MLE 1 Effect

MLE 2 by itself is composed of another wipe between black and a source image:



MLE 2 Effect

When **MLE 1** is selected (re-entered) as the **BKGD** bus crosspoint on **MLE 2**, the two effects are combined — creating a layered composite effect.



Composite Effect — MLE 1 Re-entered into MLE 2

Please note the following important point regarding re-entry:

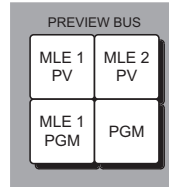
- On the Synergy 3 and 4 panels, it is theoretically possible to create an endless loop using re-entry crosspoints. For example, if the input to **MLE 2** is **MLE 3**, and the input to **MLE 3** is **MLE 2**, an endless loop would be created with essentially *no input*.

However, each switcher is designed to *inhibit* illegal loops such as those described above. If you press a re-entry crosspoint that has the potential to create an endless loop, the button will not “take.”

Using the Preview Bus

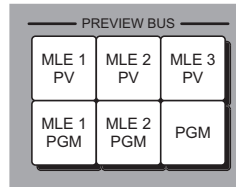
The buttons in the **Preview Bus Group** allow you to preview selected MLE outputs on your preview monitor. These buttons provide a “look-ahead” view of the selected output.

- The following figure shows the Synergy 2 **Preview Bus Group**.



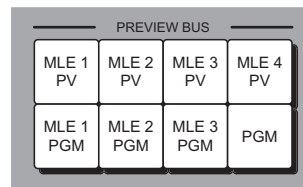
Synergy 2 Preview Bus Group

- The following figure shows the Synergy 3 **Preview Bus Group**.



Synergy 3 Preview Bus Group

- The following figure shows the Synergy 4 **Preview Bus Group**.



Synergy 4 Preview Bus Group

For each Synergy switcher, two types of buttons are provided:

- **MLE PGM** buttons allow you to view the output of the indicated MLE, such as, **MLE 1 PGM**, **MLE 2 PGM**, on your preview monitor. The **PGM** button itself selects the output of the entire switcher.
- **MLE PV** buttons such as, **MLE 1 PV**, **MLE 2 PV**, allow you to view crosspoints selected on the indicated MLE’s **PST** bus, and the exact state of the MLE *after* the “next transition” is performed.

For all Synergy switchers, note the following operational points:

- Press any **MLE PGM** button to view the output of the indicated MLE such as, **MLE 1 PGM**, **MLE 2 PGM**, on your preview monitor. This selection is very helpful, and even essential, when you are adjusting keys and clips.
- Press the **PGM** button to select the output of the *entire switcher*.

- Press any **MLE PV** buttons such as, **MLE 1 PV**, **MLE 2 PV**, to view crosspoints selected on the indicated MLE's **PST** bus, and the exact state of the MLE *after* the “next transition” is performed.



Note

The buttons on the **Preview Bus** group *do not* auto follow. If you select **MLE 1 PV** on the **Preview Bus**, for example, and then switch new crosspoints on MLE 2, the **Preview Bus** selection remains on **MLE 1 PV**.

Fade to Black

The following topics are discussed in this section:

- Using Fade to Black
- Changing Fade to Black Rates
- Using the Fade to Black Menu

Using Fade to Black

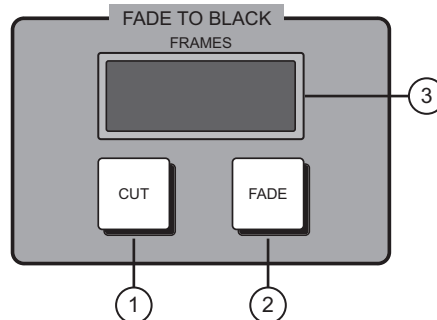


Note

Performing a Fade to Black will not change the audio levels on a Remote Audio Mixer. Instead, Fade to Black turns off the Master Audio Control on the Remote Audio Mixer. On most mixers this means that a light simply goes out.

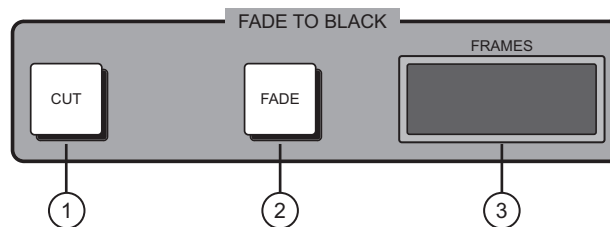
The switcher’s basic “**Fade to Black**” function allows you to cut or fade (auto-transition) the *entire* switcher output to black, including all downstream keys and all effects currently on air. The following figures illustrate the **Fade to Black Group**.

- **Synergy 2** — The following figure illustrates the **Fade to Black Group** for the Synergy 2 panel:



1) Cut to Black Button 2) Fade to Black Button 3) Fade to Black Display

- **Synergy 3, 4** — The following figure illustrates the **Fade to Black Group** for the Synergy 3 and Synergy 4 panels:



1) Cut to Black Button 2) Fade to Black Button 3) Fade to Black Display

1. Cut to Black

Press **CUT** to instantly cut the switcher output to black. When the switcher is in black, press **CUT** again to cut the switcher back to the previous full on-air program output.

2. Fade to Black

Press **FADE** to fade (auto transition) the switcher output to black, using the assigned Fade to Black rate. When the switcher is in black, press **FADE** again to fade the switcher up from black — back to the previous full on-air program output.

3. Display

The 3-digit display shows the current Fade to Black transition rate, as entered in the **Global Memory System Group**.

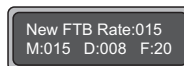
Please note the following important points regarding the **Fade to Black** function:

- Once the switcher is in black, it *stays* in black until **CUT** or **FADE** is pressed again.
- When the switcher is in black, the **FADE** button stays lit to indicate that the switcher is in full **Fade to Black** mode. In addition, any on-air tally LEDs and any active keyer LEDs (that were previously lit in the on-air mode) will *flash* as an extra attention-getting indication of the switcher's mode.
- If you are performing a long **FADE** (either *to* or *from* black) and you wish to change your mind, there are several options:
 - ~ Press **FADE** *again* (during the fade transition) to reverse direction and return to the starting point (full program or full black).
 - ~ Press **CUT** to complete the transition, in the current direction.

Changing Fade to Black Rates

Use the following procedure to change the **Fade to Black** auto transition rates:

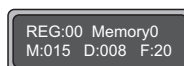
1. Note the current Fade to Black auto transition rate, as shown in the **Fade to Black** group's **Display**.
2. Press the **FADE RATE** button in the **Global Memory Group**. This button is identical for all three Synergy switchers.
3. Using the keypad in the **Global Memory Group**, enter the desired Fade to Black rate in frames — from **1** to **999**. The rate is displayed on the display's top line, and the **ENTER** button lights.



New FTB Rate:015
M:015 D:008 F:20

Fade to Black Rate Display

To accept the new rate, press **ENTER**. The display updates as shown below, the **ENTER** light turns off, and the new rate is available for use. The display in the **Fade to Black Group** also updates.



REG:00 Memory0
M:015 D:008 F:20

Updated Fade to Black Rate

This completes the procedure to change the **Fade to Black** auto transition rates.

Notes on Fade to Black Rates

Please note the following when changing the Fade to Black rates:

- If you want to clear the rate and cancel the procedure, press the **FADE RATE** button *during* the entry process.
- If you want to enter a *different* rate before pressing **ENTER**, simply continue to type until the desired value is displayed.
- If you enter a rate greater than two digits (for example, 150 frames), the fade is displayed on the bottom line but without the colon (for example, **F150**).

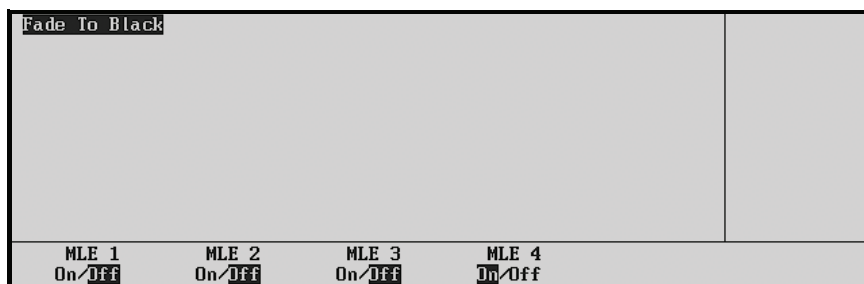
Using the Fade to Black Menu

The **Fade to Black Menu** allows you to select the combination of MLEs that you want to fade to black — when a **Fade to Black** transition is initiated. You can select any number of MLEs, each of which will fade simultaneously.

The function is useful for dual aspect ratio productions, in which one MLE is routed to the NTSC transmitter (in 4x3 format) and another MLE is routed to DTV transmitter (in 16x9 format). Both MLEs must fade simultaneously.

Use the following procedure to select the MLEs that you want to fade to black:

1. Navigate to the **Fade to Black Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installation** ⇒ **Output** ⇒ **Fade to Black**.



Fade to Black Menu

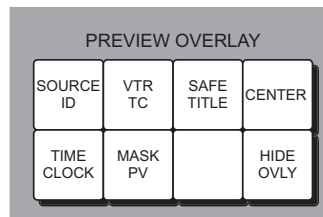
2. Toggle the desired MLEs **On** or **Off**, as required.

This completes the procedure to select the MLEs that you want to fade to black.

Preview Overlay Group

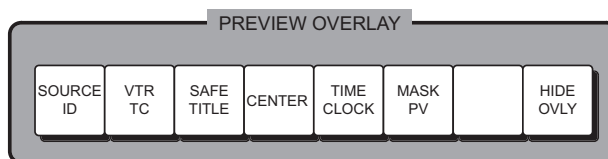
The following figures illustrate the **Preview Overlay** group. The location and layout of the **Preview Overlay** groups vary between Synergy switchers.

- **Synergy 2** — The following figure illustrates the **Preview Overlay** group for the Synergy 2 panel. Here, the group is located within the switcher's **Global Memory System** group.



Synergy 2 — Preview Overlay Group

- **Synergy 3, 4** — The following figure illustrates the **Preview Overlay** group for the Synergy 3 and Synergy 4 panels:



Synergy 3, 4 — Preview Overlay Group

The buttons in the **Preview Overlay** group allow you to control a sophisticated character generator display that is displayed over the selected preview source.



Important

- The **Preview Overlay Option** must be installed.
- Each button toggles a specific overlay function on and off.
- All functions are *additive*. They can be enabled or disabled in any combination desired.
- The entire overlay function works in conjunction with whatever source is selected in the **Preview Bus** group.

Preview Overlay Functions

This section provides detailed explanations of each of the following buttons in the **Preview Overlay** group:

- SOURCE ID — Source Identification
- VTR TC — VTR Time Code
- SAFE TITLE — Safe Title
- CENTER — Center cross hair
- TIME CLOCK — Time Clock
- MASK PV — Preview Mask
- HIDE OVLY — Hide *all* Preview Overlays

You can navigate to the overlay function menus as follows:

1. Press **HOME** to display the **Main Menu 1-2**.
2. Press **PREVIEW OVERLAY** to display the **Preview Overlay Menu**.
3. Pressing the required overlay function displays the appropriate menu. For example, pressing **Source Identification** displays the **Source Identification Menu**.

Each overlay function is discussed in the following sections.

Source ID



The **Source Identification** overlay displays the name of the current program source, the current transition (and direction), followed by the name of the current preview source. For example:

VTR 1 -W-> CAM 2

CAM 1 -D-> MLE 3

- The *program source* is displayed on the left, in red letters.
- The following *transition labels* are displayed in the middle:
 - **D** = dissolve
 - **W** = wipe
 - **S** = DVE send
 - **ST** = S & T wipe

The transition label *does not* indicate the state of the three “next transition” buttons.

- The *preview source* is displayed on the right, in green letters.
- If a *re-entry crosspoint* is selected, its name will be listed.

If you change **Preview** sources, the overlay remains on screen, and in the case of **Source ID**, the overlay changes to reflect the new **Preview** selection.



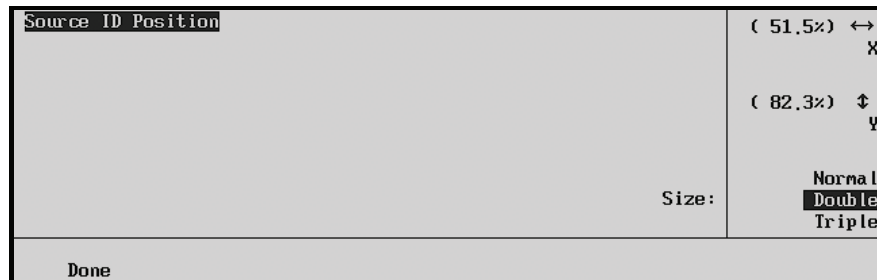
Operation Tip

Press **SOURCE ID** to toggle the **Source Identification** overlay **On** and **Off**.

Modifying the Source ID Overlay

Use the following procedure to modify the position and size of the Source ID overlay:

1. Press **SOURCE ID** in the **Preview Overlay Group** to display the **Source ID Position Menu**.



Source ID Position Menu

2. Modify the position and size of the Source ID overlay as follows:
 - Use the **X** knob to adjust the horizontal position of the overlay. You can also move the **Positioner** left and right.
 - Use the **Y** knob to adjust the vertical position of the overlay. You can also move the **Positioner** up and down.
 - Use the **Size** knob to adjust the size of the overlay. Choose between normal, double or triple size letters.
3. Press **Done** to accept the new size and position, and store it in “personality” memory.

This completes the procedure to modify the position and size of the Source ID overlay.

VTR Timecode



The **VTR Timecode** overlay displays the timecode of a VTR, DDR, Video Server or other serial-controlled device that is chosen on the Program/Preset MLE’s **Preset Bus**, for example, **12:59:59:23**.

The remote port of the device must be connected to the switcher. For VTRs, the **VTR Remote Control Option** must be installed. For Video Servers, the **Video Server Control Option** must be installed.

The display is useful for determining if serial controlled devices are properly cued and properly rolling after issuing “play” and “VTR Clip” commands.

When selected, the timecode overlay is updated in real time.

The overlay consists of a two-line display — the name of the selected device (top line) and the timecode of the device (bottom line).



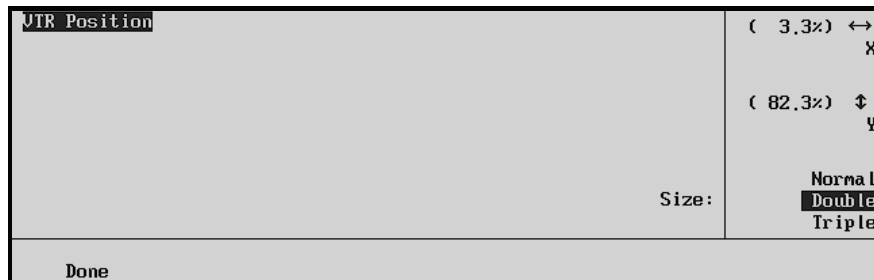
Operation Tip

Press **VTR TC** to toggle the **VTR Timecode** overlay **On** and **Off**.

Modifying the VTR Timecode Overlay

Use the following procedure to modify the size and position of the **VTR Timecode**:

1. Press **VTR TC** in the **Preview Overlay Group** to display the **VTR Position Menu**.



VTR Position Menu

2. Modify the size and position of the VTR Timecode as follows:
 - Use the **X** knob to adjust the horizontal position of the overlay. You can also move the Positioner *left* and *right*.
 - Use the **Y** knob to adjust the vertical position of the overlay. You can also move the Positioner *up* and *down*.

- Use the **Size** knob to adjust the size of the timecode. You can select between normal, double or triple size digits.
3. Press **Done** to accept the new position and size of the VTR Timecode.
 - If the color of the timecode overlay is **yellow**, the video that is selected on the **Preset Bus** is the source device itself.
 - If the color of the timecode overlay is **gray**, the video that is selected on the **Preset Bus** does not match the timecode of the overlay — a different source has been selected, however, the system continues to update and display the timecode value.
 - If the legend **<VTR TIMEOUT>** is displayed, the switcher has lost communications with the serial controlled device.

This completes the procedure to modify the size and position of the **VTR Timecode**.

Safe Title and Center

The **Safe Title Setup Menu** allows you to modify the following settings:

- **Center** — to reposition the Center Cross Hairs.
- **Top/Left** — to reposition the top or left Safe Text border.
- **Bottom/Right** — to reposition the bottom or right Safe Text border.
- **Safe Text** — to reposition the placement of the minimum text lines.
- **Modify Name** — to change the name of the Safe ID.
- **Reset** — to reset the parameters to their default values.

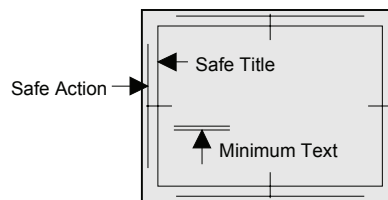
For detailed instruction on modifying and saving these settings refer to the section, “**Setting Up Safe Title and Center Preview Overlay**” in the *Synergy Series Installation Guide*.

Safe Title



Press **SAFE TITLE** to toggle the **Safe Title Overlay** overlay **On** and **Off**.

The Safe Title overlay places a SMPTE standard safe title and safe action grid on the main preview output as displayed in the following figure:



Safe Title Overlay

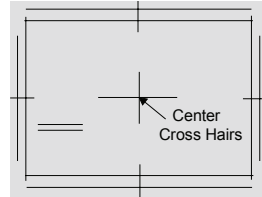
- The **Safe Title** box (inner box) outlines the area that text is legible for the vast majority of home TV sets.
- The **Safe Action** box (outer box) outlines the region that viewers should be able to follow action
- The two small **Minimum Text** horizontal lines (also referred to as **Safe Text**), indicate the minimum font size that you can choose to ensure that text is legible on nearly all sizes of television receivers.

Center



Press **CENTER** to toggle the **Center Cross Hairs** overlay **On** and **Off**.

The **CENTER** overlay places **Cross Hairs** on the main preview output to indicate the center of the picture, as displayed in the following figure:



Center Cross Hair Overlay

- The **CENTER** overlay is useful for aligning text and other information (both horizontally and vertically)

Time Clock



The **Time Clock** overlay places a count-down, count-up, or count-down-then-up timer on the main preview output. This overlay timer can be used in the timing of commercials or other events.

From the **Time Clock Main Menu** you can access the menus to modify the parameters of the following functions:

- **Start** — to start the clock counting up from zero, (or down from the preset time). When **Start** is pressed, the softkey label changes to **Stop**.
- **Reset Time** — to reset the clock to zero (for count-up mode), or to the preset time (for count-down mode).
- **Direction** — the count-up, count-down, or count-down-then-up direction of the clock.
- **Transition** — to start the count-up, count-down, or count-down-then-up clock based on a *switcher transition* or a *cut* from source to source on one (or more) MLEs.
- **Position** — to modify the position and size of the Time Clock display.



Operation Tip

Press **TIME CLOCK** to toggle the **Time Clock** overlay **On** and **Off**.

Modifying the Time Clock Parameters

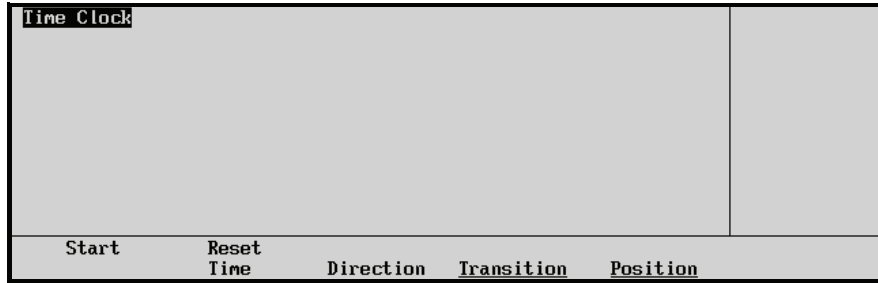
Use the following procedures to modify the parameters of the **Time Clock**:

1. Navigate to the **Time Clock Main Menu** as follows:
 - Press **HOME** ⇒ **Preview Overlay** ⇒ **Time Clock**.



Operation Tip

You can also press the **TIME CLOCK** key in the **Preview Overlay Group** to display the **Time Clock Main Menu**.



Time Clock Main Menu

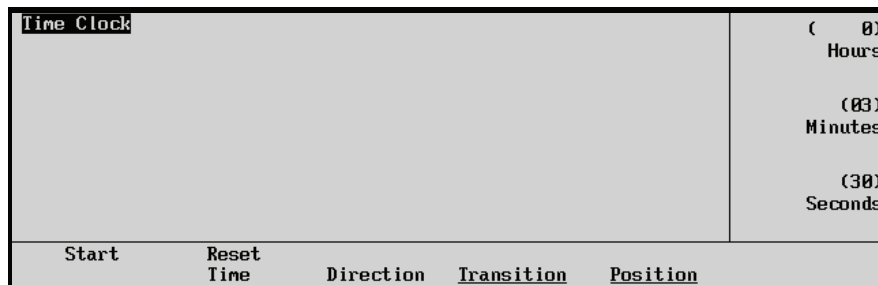
2. For each of the counting modes, the following softkeys apply:
 - Press **Start** to start the clock counting up from zero, or, down from the preset time. When **Start** is pressed, the softkey label changes to **Stop**.
 - Press **Stop** to stop the clock at its current count.
 - Press **Reset Time** to reset the clock to zero (for count-up mode), or to the preset time (for count-down mode).
3. To set a time for the clock to begin counting down from:



Important

The **Time Clock — Reset Time Menu** is only accessible (not grayed out) when the Direction is set to **Down** or **Down > Up**.

- Access the **Time Clock Main Menu** as previously described.
- Press **Reset Time** to display the **Time Clock Menu — Reset Time Menu**.



Time Clock Menu – Reset Time

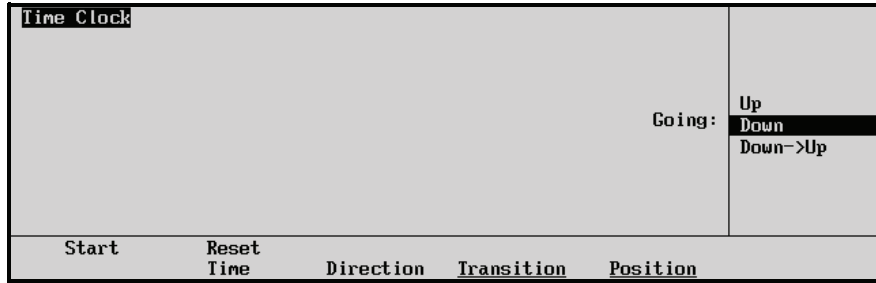
- Use the **Hours** knob to preset the hours that the clock will Reset to and start counting from.
- Use the **Minutes** knob to preset the minutes that the clock will Reset to and start counting from.
- Use the **Seconds** knob to preset the seconds that the clock will Reset to and start counting from.



Note

If the hours are preset to a value greater than 23, the overlay display on the preview monitor will read in days, hours, minutes and seconds, for example, 6:23:59:59, up to a limit of 7 days.

4. To modify the direction that the Time Clock will start counting from:
 - Access the **Time Clock Main Menu** as previously described.
 - Press **Direction** to display the **Going** options on the menu.



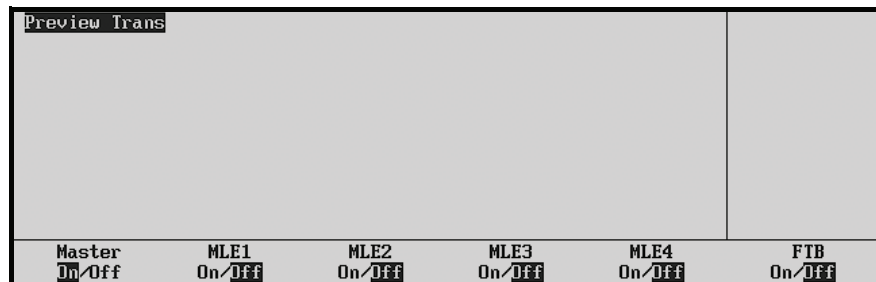
Time Clock Direction Menu

- Use the **Going** knob to select **Up** to set the time clock for counting up from zero to the preset reset time.
 - Use the **Going** knob to **Down** to set the time clock for counting down from the preset reset time.
 - Turn the **Going** knob to **Down->Up** to set the time clock for counting down from the preset reset time to zero and then counting up until you press the **Stop** or **Reset Time** button. In this mode, the counter is *blue* as it counts down and then changes to *red* as it counts up.
5. To modify the MLE or FTB that the clock will start with :
- Access the **Time Clock Main Menu** as previously described.
 - Press **Transition** to display the **Preview Transition Menu 1-2**.



Preview Transition Menu 1-2

- With the **Master** softkey set to **Off**, the clock is started only when **Start** is pressed.
- When **Master** is set to **On**, the **Preview Transition Menu 2-2** is displayed with additional **MLE** and **FTB** softkeys.



Preview Transition Menu 2-2

Preview Transition Menu 2-2 allows you to start the count-up, count-down, or count-down-then-up clock based on a *switcher transition* or a *cut* from source to source on one (or more) MLEs. When any of the MLEs (or FTB) are toggled **On**, any transition or cut performed in that location automatically resets and starts the clock.



Note

- a. For auto transitions such as wipes and dissolves, the clock will not reset and start until the *end* of the transition.
- b. For transitions performed with the **Fader**, the clock will not reset and start until the **Fader** reaches a limit.
- c. In the count-down mode, when the clock reaches zero, it stops and does not automatically wrap to the preset time.

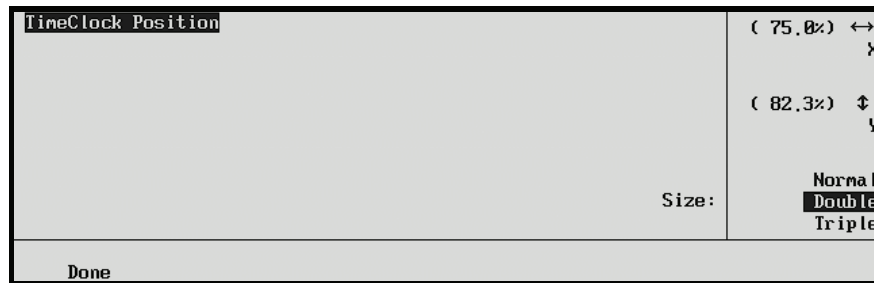
6. To modify the position of the Time Clock display and the size of the digits:
 - Access the **Time Clock Main Menu** as previously described.



Operation Tip

You can also press **HOME, PREVIEW OVERLAY** (to display the **Preview Overlay Menu**), then **Time Clock** (to display the **Time Clock Menu**).

- Press **Position** to display the **TimeClock Position Menu**.



TimeClock Position Menu

- Use the **X** knob to adjust the horizontal position of the clock. You can also move the Positioner *left* and *right*.
- Use the **Y** knob to adjust the vertical position of the clock. You can also move the Positioner *up* and *down*.
- Use the **Size** knob to adjust the size of the clock. You can also rotate the Positioner *clockwise* and *counter-clockwise*. Choose the size of the digits to be one of the following:
 - ~ **Normal**
 - ~ **Double**
 - ~ **Triple**

7. Press **Done** to accept the new position and store it in “personality” memory.

This completes the procedure to modify the parameters of the **Time Clock**.

Preview Mask



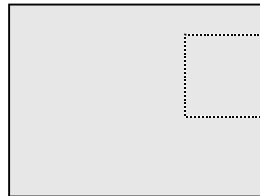
The **Preview Mask** overlay places a thin “marquee-style” outline on the main preview output — around any active box mask. This function makes it easy to identify various masks, particularly when one may be placed near the edge of the screen.



Note

You can check masks in the various MLEs by pressing the MLE buttons in the **Effects Control Assignment Section** located in the **Effects Control** group of the switcher. One button is provided for each keyer in the MLEs and DSKs.

Toggle the preview mask function — **On** and **Off** by pressing the **MASK PV** key in the **Preview Overlay** group.



Sample Mask Preview Overlay

Hide Overlays



The **HIDE OVLY** button turns off all preview overlays that are currently enabled. When the button is lit, all overlays are hidden, but your total setup is retained. When the button is turned off again, all overlays are restored to the monitor.

Toggle *all preview overlays* that are currently enabled — **On** and **Off** as follows:

- Press the **HIDE OVLY** key in the **Preview Overlay** group.



Note

When **HIDE OVLY** is lit, all enabled overlay buttons *also* remain lit. In this way, you can see the hidden functions, and then enable or disable them as required during the *hidden* mode.

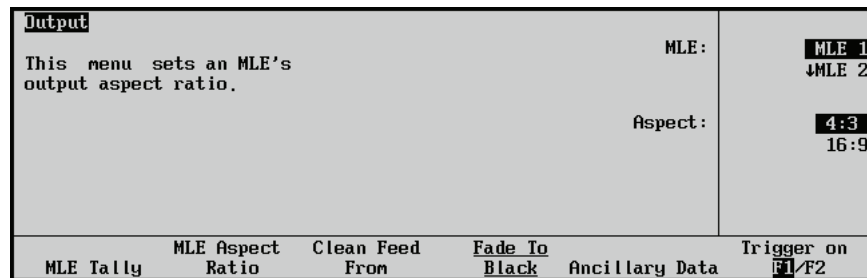
Aspect Ratio

In the **Output Menu**, the **MLE Aspect Ratio** function allows you to change the aspect ratio of each MLE. Affected switcher modes include:

- A circle wipe in 4:3 remains a circle in 16:9.
- 3D flown keys may change shape from squares to rectangles.

Use the following procedure to set the aspect ratio of the MLE output:

1. Navigate to the **MLE Aspect Ratio Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installation** ⇒ **Output** ⇒ **MLE Aspect Ratio**.



MLE Aspect Ratio Menu

2. Use the **MLE** knob to select the MLE.
3. Use the **Aspect** knob to select either **16:9** or **4:3** mode.

This completes the procedure to set the aspect ratio of the MLE output.

Copy and Swap Functions

The following copy and swap functions are available for all Synergy switchers:

- **Copy MLE** — allows you to copy the contents of an MLE to another MLE location on the switcher.
- **Copy Key** — allows you to copy the contents of a keyer to another key location (in the same MLE, or on a different MLE).
- **Key Swap** — allows you to swap the entire contents of a keyer with another key location (in the same MLE, or in a different MLE).
- **Copy Matte** — allows you to copy the contents of a matte generator to any other matte location.
- **Copy Wipe** — allows you to copy a wipe pattern (and all wipe pattern modifiers) from one MLE to another.
- **Copy Squeeze & Tease 2D Wipe** — allows you to copy a wipe pattern (and all wipe pattern modifiers) from one MLE to another.



Operation Tip

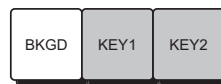
All copy functions use the easy “**Destination - Source**” method, in which the desired *destination* button is pressed first, followed by the source button (in the location from which you want to copy). Because the switcher senses the “held” button (**Destination**), the source button can be pressed without affecting the on-air status of the switcher.

Copy MLE

The **Copy MLE** function allows you to copy the contents of an MLE to another MLE location on the switcher. You can also program a custom control button with a Copy MLE macro. Refer to Chapter 8, “**Custom Controls Basics**” in the *Synergy Series Installation Guide*, for more information.

Use the following procedure to copy an MLE:

1. Press and *hold* the **BKGD** button in the *destination* MLE’s **Program/Preset Transition** group.



2. Press the **BKGD** button in the *source* MLE. The entire contents of the source MLE are copied to the destination.
3. Release both buttons.

This completes the procedure to copy an MLE.

Copy MLE Rules

The following rules apply to the “**Copy MLE**” function:

- The entire MLE is copied, including crosspoints, matte generator values, fader positions, on-air status, key active status, and key over priorities.

- If a re-entry selection is invalid on the destination MLE, **BLACK** is automatically selected when the copy is performed. If a transition type is invalid on the destination MLE, **DISS** is automatically selected.
- If a specific option is not installed on the destination MLE, the system automatically turns the function off.
- When copying from the Program/Preset bus to an MLE, the current **DSK 1** and **DSK 2** selections (that is, the active DSK crosspoints) are turned into **Key 1** and **Key 2** selections, respectively.
- If a specific keyer was active in the source MLE, it becomes active in the destination MLE.
- You can copy an MLE that has its **KEY OVER** button enabled in its MLE Keyer 1 to the DSK. This specific copy function *overwrites* the Key Over priority settings in the **Key Setup Menu**.
- When copying from an MLE to the Program/Preset bus, **Key 1** and **Key 2** selections are turned into **DSK 1** and **DSK 2** selections, respectively.



Caution

This specific copy function *overwrites* the currently selected DSK crosspoint, by copying down new key sources and new key types for **DSK1** and **DSK2**.

- Using the **Copy MLE** function, a function can be copied to an MLE that does not support the function with a physical button. For example:
 - ~ If you copy an MLE that has its **TRANS LIMIT** button enabled to the Program/Preset MLE, the Program/Preset MLE does *not* have a **TRANS LIMIT** button.
 - ~ If you copy the Program/Preset MLE with its **PST BLACK** button enabled to an MLE, the MLEs do *not* have a **PST BLACK** button.
 - ~ In each of these situations, the Synergy switcher *will perform the copy*, and electronically set up the desired effect — even though it is not physically supported by a button. Use care in these situations, so that you are aware of the *exact functions* that are preset in the destination location. If you need to clear an MLE in which this has occurred, you can (1) reset the MLE, (2) copy another valid MLE, or (3) recall a memory register.

Copy Key

The **Copy Key** function allows you to copy the entire contents of a keyer to another key location (in the same MLE, or in a different MLE). The *basic* “**MLE to MLE**” key copy method is outlined in this section.

Note that when you copy an MLE keyer to another MLE keyer, the entire contents of the source keyer are copied to the destination — including the selected key crosspoint. For example, if you have an **AUTO SELECT** key enabled, the **CHROMA KEY** settings are also copied.

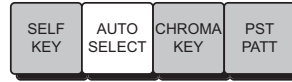


Note

While the **Key Over** feature can be enabled in the **Key Setup Menu**, it is not copied from the source keyer to the destination keyer because it is an MLE feature. The **Key Over** feature will be included when you copy the contents of one MLE to another MLE location.

Use the following procedure to copy an MLE Keyer to another MLE Keyer:

1. Press and *hold* any **Key Type** button in the *destination* MLE's **Key 1** or **Key 2** group.



2. Press any **Key Type** button in the *source* MLE's **Key 1** or **Key 2** group. This can be the *same* MLE or a *different* MLE.
3. Release both buttons.

This completes the procedure to copy an MLE Keyer to another MLE Keyer.

Key Copy Methods

The following list summarizes the “**Key Copy**” methods:

- **MLE to MLE** (*method one as outlined above*)
Press and *hold* any **Key Type** button in the *destination* keyer. Then press any **Key Type** button in the *source* keyer. Release both buttons. This function works in the same, or in different MLEs.
- **MLE to MLE** (*alternate method*)
Press and *hold* the **KEY 1** or **KEY 2** button in the *destination* **MLE Transition Group**. Then press **KEY 1** or **KEY 2** in the *source* **MLE Transition Group**. Release both buttons. This function only works in different MLEs.
- **DSK to MLE**
Press and *hold* any **Key Type** button in the *destination* keyer. Then press any **DSK Crosspoint** in the *source* DSK. Release both buttons.
- **MLE to DSK**
Press and *hold* the **DSK 1** or **DSK 2** button in the **Program/Presets Transition Group**. Then press **KEY 1** or **KEY 2** in the *source* **MLE Transition Group**. Release both buttons.



Note

Use care with this method, because holding down a **DSK Crosspoint** and then pressing a **Key Type** button in an MLE changes the programmed **DSK Crosspoint** key type.

- **DSK to DSK**
Press and *hold* the **DSK Crosspoint** in the *destination* DSK. Then press the **DSK Crosspoint** in the *source* DSK. Release both buttons.



Operating Tip

If you mix modes, such as **Transition** buttons and **Key Type** buttons, you get a *swap*.

If you use similar modes, such as **Transition** buttons and **Transition** buttons or **Key Type** buttons and **Key Type** buttons, you get a *copy*.

Copy Preset Pattern Key

The **Copy Preset Pattern Key** function allows you to copy a Preset Pattern key (and all associated modifiers) from one channel to another channel in the *same* Keyer. You must have both channels free in the selected Keyer before you can copy a Preset Pattern key.

Use the following procedure to copy a Preset Pattern key within Keyer 1 of MLE 1:

1. Set up a Preset Pattern key in Channel 1 of Keyer 1. Refer to the section “**Performing a Preset Pattern Key**” on page 7–32 for details.
2. Copy your Preset Pattern key to Channel 2 of Keyer 1 as follows:
 - Ensure the **FLY KEY** button is lit in Keyer 1, enabling the Fly Key Mode.
 - Press and *hold* the **PST PATT** button in Keyer 1.
 - Press **KEY 1** in the **Transition Area** of MLE 1.
 - Release both buttons.
3. Use the **Positioner** to position the new Preset Pattern key as required.

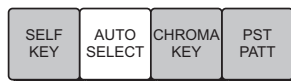
This concludes the procedure to copy a Preset Pattern key within Keyer 1 of MLE 1.

Key Swap

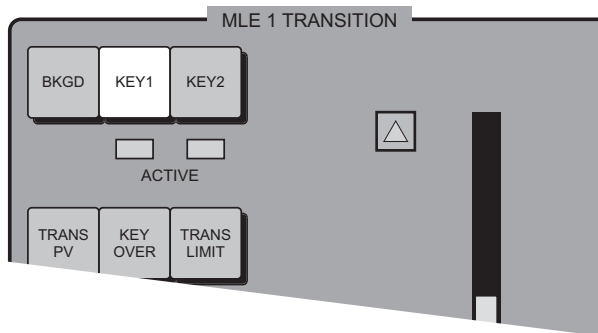
The **Key Swap** function allows you to swap the entire contents of a keyer with another key location (in the same MLE, or in a different MLE).

Use the following procedure to swap a keyer:

1. Press and *hold* any **Key Type** button in the first keyer’s **Key Group**.



2. Press either **KEY 1** or **KEY 2** in the second keyer’s **Transition Group**. This can be the *same* MLE or a *different* MLE. The button that you select is the keyer that is swapped.



MLE 1 Transition Area

3. Release both buttons. Both selected keyers swap their contents.



Note

While the **Key Over** feature is enabled in the **Key Setup Menu**, it is not swapped from the source keyer to the destination keyer because it is an MLE feature. The **Key Over** feature will be included when you copy the contents of one MLE to another MLE location.

This concludes the procedure to swap a keyer. Note the function can also be performed in the reverse order — pressing **KEY 1** or **KEY 2** first, followed by the **Key Type** button.

DSK to DSK Swap

Use the following procedure to swap a DSK with another DSK (or with an MLE Keyer):

1. Press and *hold* the **DSK Crosspoint** that you want to swap.
2. Press either **DSK 1** or **DSK 2** (or **KEY 1** or **KEY 2**) in the second keyer's **Transition Group**. This can be the opposite DSK or a *different* MLE. The button that you select is the keyer that is swapped.
3. Release both buttons. Both selected keyers swap their contents.

This concludes the procedure to swap a DSK with another DSK (or with an MLE Keyer).

Copy Matte

The **Copy Matte** function allows you to copy the contents of a matte generator to another matte location on the switcher. Any button that is associated with a matte color can be used in the procedure.

The following buttons and locations are valid **destinations**:

- In the Mattes Group: **BKGD1, BKGD2, BORD1, BORD2, PATT**

The following buttons and locations are valid **sources**:

- In the MLE Transition Group: **WIPE**
- In the MLE Key Groups: **MATTE FILL, BORD**
- In the DSKs: **MATTE FILL, BORD**
- In the MLE Buses: **COLOR BKGD1, COLOR BKGD2**

Use the following procedure to copy a matte color:



Note

Pressing **WIPE** for this procedure copies the *color* associated with the wipe edge.

1. Press and *hold* any button associated with a matte color in the *destination* **Matte Group**.
2. Press any button associated with a matte in the *source* MLE or switcher function group. The selected matte color is copied to the destination.
3. Release both buttons.

This completes the procedure to copy a matte color.

Copy Wipe

The **Copy Wipe** function allows you to copy a wipe pattern (and all associated modifiers) from one MLE to another.

Use the following procedure to copy a wipe:

1. Press and *hold* the **WIPE** button in the *destination* MLE.
2. Press the **WIPE** button in the *source* MLE. All wipe parameters are copied to the destination.
3. Release both buttons.

This completes the procedure to copy a wipe.

Copy Squeeze & Tease 2D Wipe

The **Copy Wipe** function also allows you to copy a Squeeze & Tease 2D wipe pattern (and all associated modifiers) from one MLE to another.

Use the following procedure to copy a Squeeze & Tease 2D wipe:

1. In the *source* MLE, press **WIPE** and **DVE SEND** to access the Squeeze & Tease wipes.
2. Select a Squeeze & Tease wipe to copy.
3. Press and *hold* the **WIPE** and **DVE Send** buttons in the *destination* MLE.
4. Press the **WIPE** and **DVE Send** buttons in the *source* MLE. All wipe parameters are copied to the destination.
5. Release both buttons.



Note

If you have a regular wipe on the source MLE when you copy an S&T wipe, the regular wipe is copied to the destination MLE as well. When you deselect the **DVE SEND** button, the regular wipe from the source MLE is now active on the destination MLE.

This completes the procedure to copy a Squeeze & Tease 2D wipe.

Background Transitions

In This Chapter

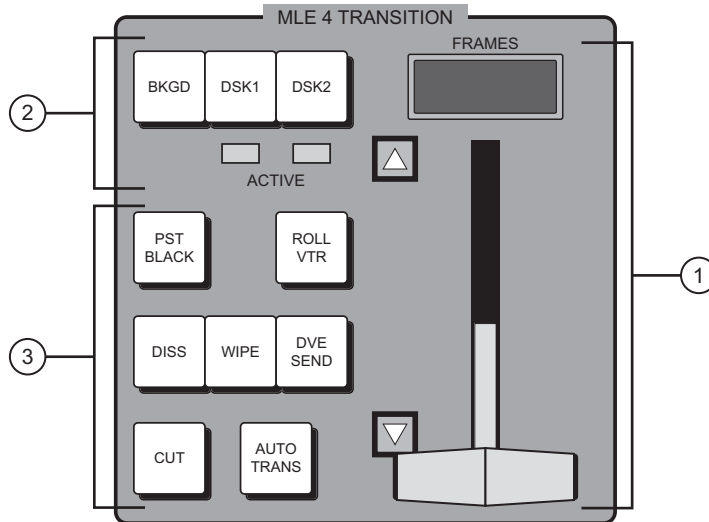
Background transitions are the most frequently used switcher operation. The simplest transition is a direct selection of the next picture on the PGM bus, performed by pressing another crosspoint. This simple “cut” provides an instantaneous change, but does *not* allow you to preview the next picture.

Other types of transitions involve the PST bus and the controls in the **Program/Preset Transition** group and the **MLE Transition** group. Here, using cuts, dissolves, wipes, as well as DVE “send” transitions, you have a full preview of the upcoming picture. The following topics are discussed:

- Transition Group
- Using Manual Transitions
- Using Cuts
- Using Dissolves
- Working with Next Transitions
- Auto Transitions
- Preset Black
- White Flash
- Transition Preview
- Key Over
- Transition Limit

Transition Group

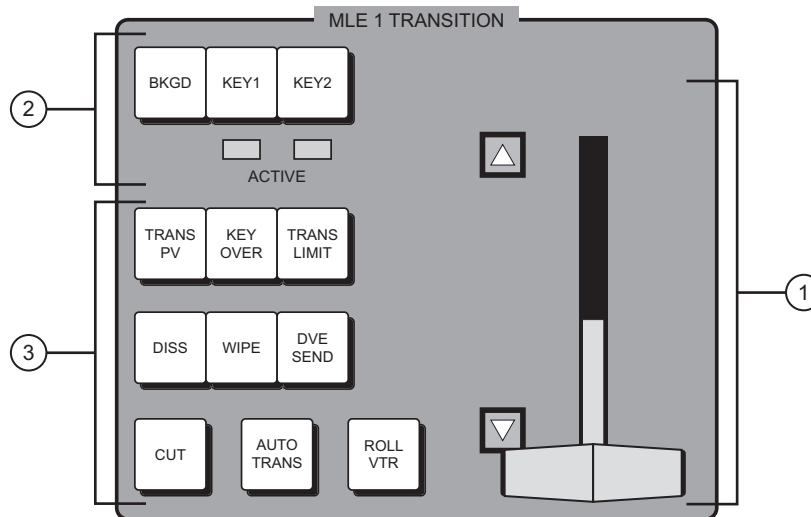
Each Synergy switcher includes *one* **Program/Preset Transition** group, which is located in the panel's highest-numbered MLE. The following figure illustrates the **Program/Preset Transition** group that is identical for all switchers.



Program/Preset Transition Group

- | | | |
|------------------|----------------------------|---------------------------------|
| 1) Fader Section | 2) Next Transition Section | 3) Transition Parameter Section |
|------------------|----------------------------|---------------------------------|

Each switcher includes *one or more* **MLE Transition** groups, which are located in the panel's upper MLEs — above the **Program/Preset Bus**. The following figure illustrates the **MLE Transition** group that is identical for all switchers.

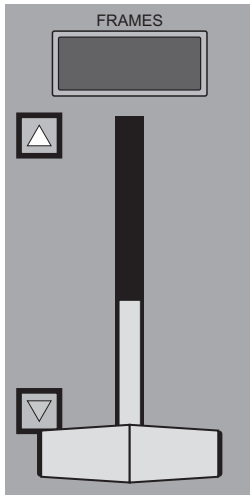


MLE Transition Group

- | | | |
|------------------|----------------------------|---------------------------------|
| 1) Fader Section | 2) Next Transition Section | 3) Transition Parameter Section |
|------------------|----------------------------|---------------------------------|

Note that the sections are numbered in an identical manner for both transition groups.

1. Fader Section



The **Fader** handle is used to perform manual transitions. The “type” of transition is based on the transition button that is selected in the **Transition Parameter Section** — Dissolve, Wipe, or DVE Send. The **Fader** performs one complete transition when it is moved from one limit to the other. Due to the switcher’s flip-flop architecture, it does not matter at which limit the transition begins. The PGM bus *always* remains the program output.

Two LED indicators (**Up** arrow, **Down** arrow) located to the left of the **Fader** indicate the direction of **Fader** travel during a transition. For full or *partial* transitions (when the **Fader** is paused part-way through), the arrow that is lit indicates the direction that the **Fader** must be moved in order to complete the transition.

Above the **Fader** (in the **Program/Presets Transition** group only), the display indicates the group’s current auto-transition rate (in frames). For all switchers, this rate is programmed in the **Global Memory System** group.

For convenience, the rate is shown in two places — the display (above the **Fader**), and the bottom left hand field in the **Global Memory System** group’s display (**M:###**).



Global Memory System Display



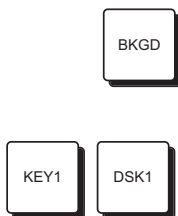
Note

When a DSK transition is performed within a DSK Keyer, the display above the Fader (in the **Program/Presets Transition** group only) briefly updates with the rate of the selected DSK’s transition. Once the transition has completed, the display returns to the MLE transition rate. Refer to the section “**Performing a Downstream Key**” on page 7–39 for details.

2. Next Transition Section

For all switchers, the **Next Transition Section** includes three buttons that allow you to select the combination of actions that will be included in the *next transition*.

All three buttons are latching toggles — they can be enabled in any combination. When pressed, the output video is not affected — only the actions in the *next transition* are affected.



- Enable **BKGD** to include a transition between the **PGM** and **PST** buses (in the **Program/Presets Transition** group), or between the **BKGD** and **PST** buses (in the **MLE Transition** group). When a manual or auto-transition is performed, the video selected on **PST** transitions to **PGM**.
- Enable **DSK 1** (in the **Program/Presets Transition** group) or **KEY 1** (in the **MLE Transition** group) to perform a transition of the MLE’s first keyer.
 - ~ If the keyer is currently off, the transition brings on the key, and the **ACTIVE** LED directly below the button lights red or green.
 - ~ If the keyer is currently on, the transition removes the key, and the **ACTIVE** LED below turns off.

Refer to the section “**Working with Next Transitions**” on page 5–9 for more information on the **ACTIVE** LEDs.



Note

When you press **AUTO TRANS** in DSK 1, the **DSK 1** button lights during the transition interval to indicate a DSK transition in progress. Similarly, when you press **AUTO TRANS** in **MLE Key Group 1**, the **KEY 1** button lights. Refer to the section “Using Keys” on page 7–20 for more information.



- Enable **DSK 2** (in the **Program/Preset Transition** group) or **KEY 2** (in the **MLE Transition** group) to perform a transition of the MLE’s second keyer.
 - ~ If the keyer is currently off, the transition brings on the key, and the **ACTIVE** LED lights red or green.
 - ~ If the keyer is currently on, the transition removes the key, and the **ACTIVE** LED turns off.

Remember that *any combination* of actions can be selected. Refer to the section “Working with Next Transitions” on page 5–9 for information on the three **Next Transition** buttons and the two **ACTIVE** LEDs.



Note

When you press **AUTO TRANS** in DSK 2, the **DSK 2** button lights during the transition interval to indicate a DSK transition in progress. Similarly, when you press **AUTO TRANS** in **MLE Key Group 2**, the **KEY 2** button lights. Refer to the section “Using Keys” on page 7–20 for more information.

3. Transition Parameter Section

The buttons in the **Transition Parameter Section** allow you to choose the *type* of transition, various transition attributes, and initiate the transition itself. The arrangement of buttons in the two transition groups is virtually identical. Exceptions are noted below.



- The **PST BLACK** button (located in the **Program/Preset Transition** group only) is a special two-stage transition that takes the switcher to black (or any other desired source), and then proceeds to the next transition previously indicated.
 - ~ The **Preset Black** effect is the default state of the **PST BLACK** that causes the **BLACK** crosspoint to be selected on the **PST** Bus, replacing the currently selected **PST** source. Refer to the section “Preset Black” on page 5–13 for details on using the Preset Black feature.
 - ~ The **White Flash** effect performs a double transition from **PGM** to White Flash to **PST** using a free background color generator. Refer to the section “White Flash” on page 5–14 for instructions on how to enable this effect.



- The **ROLL VTR** button allows you to “play” or “arm” a serial controlled device, such as a VTR, Video Server or Audio Server, that has been selected on an MLE. The button is located in all transition groups.



Important

When an OverDrive production controller is connected to the switcher, activating the **Editor** button turns on all the **Roll VTR** buttons and sets the Roll VTR Mode to *Arm*, disabling the Roll VTR Mode selection in the **Personality Menu**. Attempting to disable the Roll VTR function by pressing a lit **Roll VTR** button will display a warning message.

The function of the **ROLL VTR** button is determined by the **Roll VTR Mode** setting (on the **Personality Menu**):

- ~ If the **Roll VTR Mode** is set to **Play**, pressing **ROLL VTR** immediately plays the serial device(s) selected in the transition area (one device per bus, including device(s) from a re-entered MLE) on the MLE. Here, the button is *momentary*. The transition that brings on the device(s) is initiated manually with the fader, automatically using **CUT** or **AUTO TRANS**, or via an external editor.
- ~ If the **Roll VTR Mode** is set to **Arm** or **Armed Always**, pressing **ROLL VTR** arms the switcher for a transition. When the transition is initiated by pressing a crosspoint on the **PGM** bus, with the fader, **CUT** or **AUTO TRANS**, or an external editor command, the device(s) (one device per bus, including device(s) from a re-entered MLE) roll and are automatically taken to air *after* the preroll interval has elapsed. In **Arm** mode, the **ROLL VTR** button is *latching*, and it remains latched until toggled off manually. In **Armed Always** mode, the button is always latched; you must re-configure the button in the **Personality Menu** or using a custom control macro.

To roll a serial controlled device, the following prerequisites must be met:

- ~ The device must be connected to the control panel remote port via RS-422 or RS-232 serial communications.
- ~ The input “type” must be set to VTR, and the proper communications parameters must be set (using the **Communications Menus**).
- ~ Depending upon the device(s), the **VTR Remote Control Option**, **Video Server Control Option** or the **Audio Server Control Option** must be installed as appropriate. Any combination of the three options can be installed.
- ~ The device must be chosen on the selected MLE — on any bus. Re-entry selections are also permitted.

Refer to the section “**Clip Control Overview**” for detailed instructions on programming and running VTR, Video Server and Audio Server clips.



- The **TRANS PV** (transition preview) button is located in the **MLE Transition** group *only*. This function allows you to *rehearse* any preset-to-program transition without affecting the selected MLE’s program output. Refer to the section “**Transition Preview**” on page 5–15 for details.
- The **KEY OVER** button is located in the **MLE Transition** group *only*. This function allows you to change the priority of the MLE’s **Key 1** and **Key 2** as a transition, rather than as a cut. Refer to the section “**Key Over**” on page 5–17 for details.
- The **TRANS LIMIT** button (located in the **MLE Transition** group *only*) allows you to stop a transition at a preset position — in between the two absolute **Fader** limits. Refer to the section “**Transition Limit**” on page 5–18 for details.
- The **DISS** button (located in both transition groups) selects a dissolve as the transition type. When the dissolve is performed, the video on the **PST** bus gradually mixes into the video on **PGM**. At the end of the transition, **PST** video completely replaces **PGM** video, and the buses flip-flop. The **DISS** button is mutually exclusive with the **WIPE** and **DVE SEND** buttons. Refer to the section “**Using Dissolves**” on page 5–8 for instructions.



Note

When you press **AUTO TRANS** in DSK 1 or DSK 2, the **DISS** button in the **Program/Preset Transition** group lights during the transition interval to indicate a DSK transition in progress. Similarly, when you press **AUTO TRANS** in **MLE Key Group 1** or **2**, the **DISS** button lights in the **MLE Transition Group**. Refer to the section “**Using Keys**” on page 7–20 for more information.



- The **WIPE** button (located in both transition groups) selects a wipe as the transition. When performed, the video on the **PST** bus gradually replaces **PGM** video using a wipe chosen from the **Pattern Control** group. At the transition’s end, **PST** video completely replaces **PGM**, and the buses flip-flop. The **WIPE** button is mutually exclusive with the **DISS** and **DVE SEND** buttons. Refer to the section “**Using Wipes**” on page 6–8.



- The **DVE SEND** button (located in both transition groups) assigns control of the primary DVE to the MLE in which the button is pressed. This action allows you to control the DVE’s effect with the **Fader** or **AUTO TRANS** button — exactly as if it were an *internal* switcher effect. The **DVE SEND** button is mutually exclusive with the **DISS** and **WIPE** buttons.

Please note that the primary DVE must be connected to the switcher frame via RS-422 serial communications. The **DVE Send and Remote Control** option must be installed. Refer to the section “**Understanding DVE Send Operation**” for complete details on the **DVE Send** feature.



Note

With the **Squeeze & Tease 2D** or **3D** option installed, press **DVE SEND** and **WIPE** at the same time to activate the **Squeeze & Tease Wipe** function. Refer to the section “**Flying Keys in 2D**” on page 7–51 for complete details.



- The **CUT** button (located in both transition groups) performs an instantaneous “cut” transition between the **PST** and **PGM** bus sources. The buses flip-flop after the cut is performed. The button itself is *momentary* — it does not stay lit.
- For dissolves, wipes, and **DVE Send** transitions, the **AUTO TRANS** button (located in both transition groups) performs an automatic transition between **PST** and **PGM** bus sources. The button is *momentary* and stays lit only *during* the transition.



~ For **Program/Preset** auto-transitions, rates are entered in the **Global Memory System** group.

~ For auto-transitions in the **MLE Transition** group, rates are entered in that MLE’s **Memory System** group.



Note

When you press **AUTO TRANS** in DSK 1 or DSK 2, the **AUTO TRANS** button (in the **Program/Preset Transition** group) lights during the transition interval to indicate a DSK transition in progress. Similarly, when you press **AUTO TRANS** in **MLE Key Group 1** or **2**, the **AUTO TRANS** button lights in the **MLE Transition Group**.

Refer to the section “**Auto Transitions**” on page 5–11 for additional information, and instructions for changing auto transition rates.

Using Manual Transitions

Use the following procedure to perform a manual transition:

1. Check that your program/preview monitoring is set as needed for the selected MLE. Refer to the section “**Using the Preview Bus**” on page 4–33 for details.
2. Select an input on the MLE’s **PGM** bus.
3. Select a different input on the MLE’s **PST** bus.
4. In the **Next Transition Section**, select **BKGD** as the next transition.
5. In the **Transition Parameter Section**, select the desired transition type — **DISS** or **WIPE**.
6. Move the **Fader** from its current limit to the opposite limit. The speed at which you move the **Fader** determines the manual transition rate.

Remember that during a transition, the two LED indicators (**Up** arrow, **Down** arrow) show the direction of **Fader** travel — specifically, the direction that the **Fader** must be moved in order to complete the transition.

Refer to the section “**Performing a DVE Send Transition**” for complete details on using **DVE Send** transitions.

Using Cuts

A “background cut” is an instant switch between the **PGM** and **PST** buses (in the **Program/Preset Transition** group), or between the **BKGD** and **PST** buses (in the **MLE Transition** group).



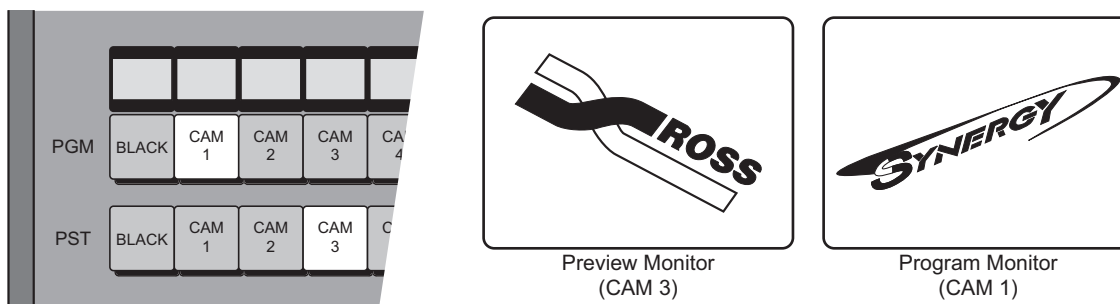
Note

You can also perform a background cut simply by switching inputs on the **PGM** bus itself. This type of cut does *not* allow you to preview the next picture.

Use the following procedure to perform a cut:

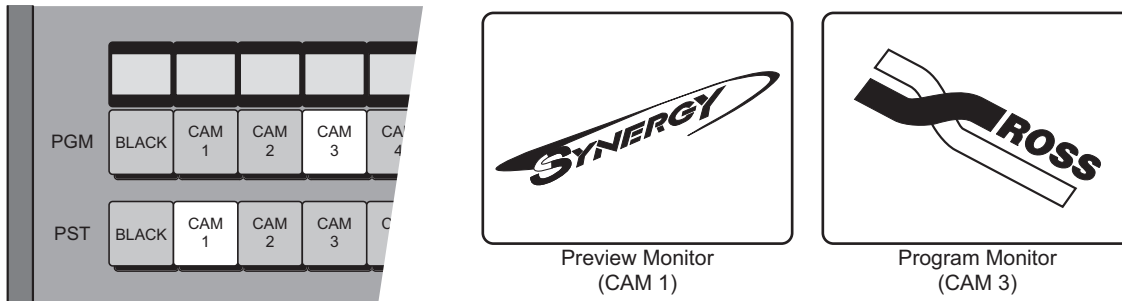
1. Check that your program/preview monitoring is set as needed for the selected MLE.
2. Select an input on the MLE’s **PGM** bus.
3. Select a different input on the MLE’s **PST** bus.
4. In the **Next Transition Section**, select **BKGD** as the next transition.

The following figure illustrates a *sample* MLE setup and the associated monitor outputs — before the cut.



- Press **CUT**.

The inputs selected on the **PGM** and **PST** buses instantly exchange and the buses flip-flop. The following figure illustrates the MLE and monitor setup *after* the cut.



- Press **CUT** again to repeat the process and restore the original background.

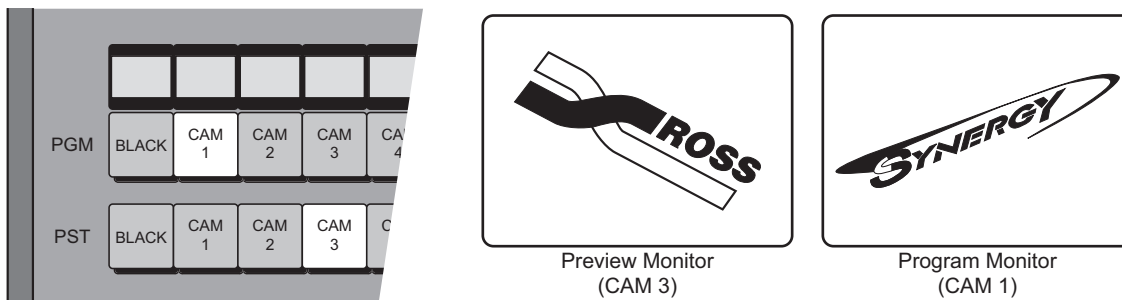
This completes the procedure to perform a cut.

Using Dissolves

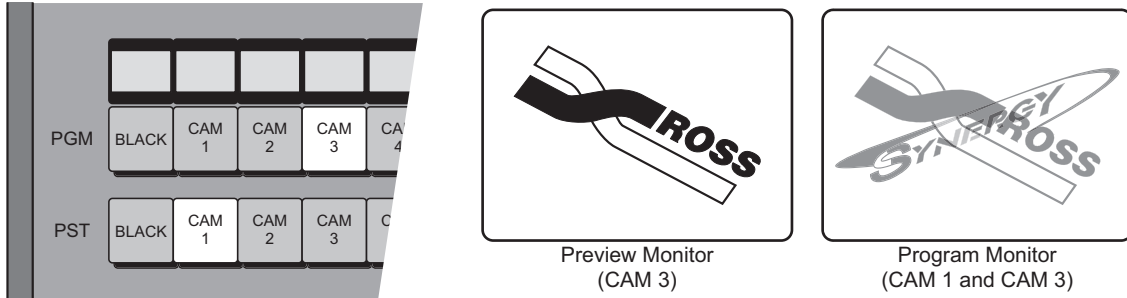
Dissolves can be performed in any MLE. In a “background dissolve” transition, the **PGM** bus video and **PST** bus video signals are gradually mixed together, until the **PST** bus video completely replaces the **PGM** bus video.

Use the following procedure to perform a dissolve:

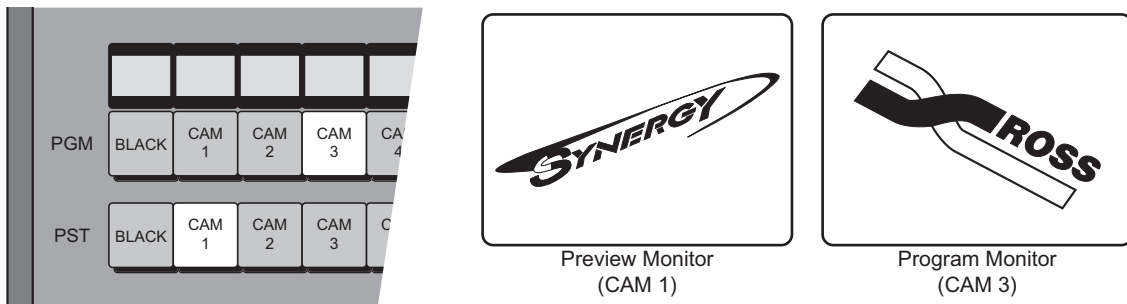
- Check that your program/preview monitoring is set as needed for the selected MLE.
- Select an input on the MLE’s **PGM** bus.
- Select a different input on the MLE’s **PST** bus.
- In the **Next Transition Section**, select **BKGD** as the next transition. The following figure illustrates a *sample* MLE setup and the associated monitor outputs — before the dissolve.



- In the **Transition Parameter Section**, press **DISS**.
- To perform a manual transition, move the **Fader** from limit to limit. To perform an auto transition, press the **AUTO TRANS** button. During the transition, the **PST** bus video signal gradually mixes into the **PGM** signal, as shown below.



At the end of the transition, the **PST** video completely replaces the **PGM** video, and the buses flip-flop. The following figure illustrates the MLE and monitor setup *after* the dissolve.



This completes the procedure to perform a dissolve.

Please note the following important points regarding dissolves:

- If a *very short* auto transition rate is selected (typically five frames or less), this may appear the same as a cut. This type of transition is often called a soft cut.
- During the dissolve, the **ON AIR** indicators at the end of both the **PGM** and **PST** bus rows will be lit. This shows that *both* buses are contributing to the switcher output. At the end of the dissolve, after the flip-flop, only the **PGM ON AIR** LED will be lit.



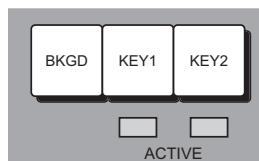
Note

You cannot press **CUT** (in the **MLE Transition Group**) when the fader is off limit.

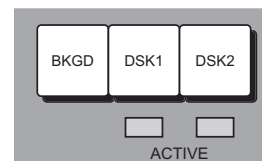
Working with Next Transitions

The **Next Transition Section** includes three buttons that allow you to select the combination of actions that will be included in the *next transition*. The section also includes two **ACTIVE** LEDs that indicate the state of the associated key.

The following figures illustrate the three “next transition” buttons and LEDs — as they appear in each location on your panel:



MLE Transition Group



Program/Preset Transition Group

Notes on Working with Next Transitions

Please note the following important points:

- The three buttons define what you want to change on your program output. Any combination of the background and two keys can be changed. You can change one, two, or three elements as desired — simply by pressing the appropriate combination of buttons.
- If a button is lit, that element will change when the transition is performed, either manually (with the **Fader**), or automatically (with the **AUTO TRANS** or **CUT** button). When the transition has completed, buttons that are lit will *stay lit* — until you change them.
- A “lit” *key* button should not be confused with the fact that you want a key to appear on air. Instead, it means that you want to change the *state* of the key. If a key button is lit, the key will change states. If a key’s state is on, the associated **ACTIVE** LED will be lit red or green.
- Each **ACTIVE** LED has three states:
 - ~ When the LED is **Off**, the associated key is turned off. It is *not* contributing to the output of the MLE or the switcher.
 - ~ When the LED is lit **Green**, the associated key is turned on. It is contributing to the output of the *MLE only* — not the program output of the entire switcher.
 - ~ When the LED is lit **Red**, the associated key is turned on. It is contributing to the program output of the entire switcher.
- The appearance (and state) of each **ACTIVE** LED is duplicated by the **ON** LEDs in each MLE’s individual keyer groups (including the two DSK groups).



Operating Tip

Always check your preview monitor! The preview monitor output will *always* show you the next scene. For example, if a key’s state is currently *on* and the desired key button is lit, the preview monitor will show the key *off*.

Eight Steps to Flawless Transitions

Using the three “next transition” buttons, the following are several easy steps for getting the images you want on air — flawlessly.

1. Ensure that the correct MLE is selected in the **Preview Bus** group.
2. Look at your **Program Monitor** and determine what video elements you want to change — the background, Key1, Key2, DSK1, DSK2, or a *combination* of these elements.
3. Press the desired “next transition” button(s).
4. Look at your **Preview Monitor** and confirm that the monitor shows the desired video elements in the desired states (e.g., keys on, keys off, proper background video selected).
5. If one of the key elements is in the wrong state, press its associated “next transition” button, and re-confirm the new composite image on preview.
6. If you are bringing on a *new key*, ensure that correct key source is selected, and that it is displayed properly on Preview. If required, adjust the key source(s) accordingly.

7. If the background image is wrong, select the correct image on the **PST** bus — or alternately, change the state of the **BKGD** button.
8. Once you have confirmed that the next image is correct on **Preview**, perform the transition — either manually with the **Fader**, or automatically using **CUT** or **AUTO TRANS**. Remember that the “next transition” buttons stay lit after the transition is complete.

Auto Transitions

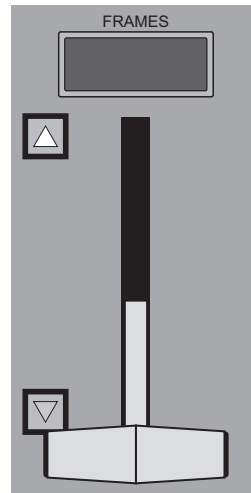
The **AUTO TRANS** button is used to start an automatic (smooth) transition between the selected **PST** and **PGM** bus sources.

Note the following important rules:

- An auto transition, once in progress, cannot be paused.
- To “escape” from an auto transition in progress, you can either press **CUT** during the transition, or manually pull the **Fader** in the proper direction. The “cut” action instantly completes the transition.
- You cannot initiate an auto transition or a cut if the **Fader** is off its upper or lower limit.

Changing Program/Preset Auto Transition Rates

Use the following procedure to change the auto transition rates in the **Program/Preset Transition** group:



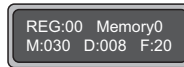
Program/Preset Transition Group — Fader

1. Verify the current transition rate displayed in the Program/Preset Transition Group.
2. In the **Global Memory System** group, press the **RATE** button for the highest-numbered MLE:
 - Synergy 2: **MLE 2 RATE**
 - Synergy 3: **MLE 3 RATE**
 - Synergy 4: **MLE 4 RATE**

- Using the keypad (in the **Global Memory System** group) enter the desired rate in frames — from **1** to **999**. The rate is displayed on the display's top line as you type, and the **ENTER** button lights.



- To accept the new rate, press **ENTER**. The display updates as shown below, the **ENTER** light turns off, and the new rate is available for use.



Please note:

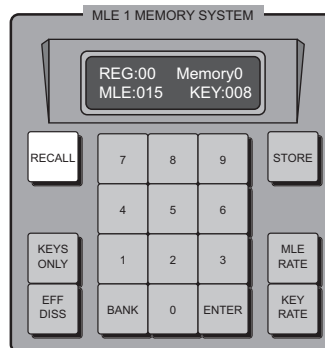
- To clear the rate and cancel the procedure, press the **MLE RATE** button *during* the entry process.
- To enter a *different* rate before pressing **ENTER**, simply continue to type until the desired value is displayed in the register.

This completes the procedure to change the auto transition rates in the **Program/Preset Transition** group.

Changing MLE Auto Transition Rates

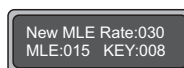
Use the following procedure to change the auto transition rates in the **MLE Transition** group:

- Verify the current MLE transition rate on the second line of the display in the selected MLE's **Memory** group.

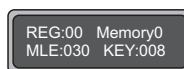


MLE Memory System Group

- Press the **MLE RATE** button. (On the Synergy 2, press **MLE 1 RATE** in the Global Memory System group.)
- Enter the desired rate in frames, from **1** to **999**. The rate is displayed on the display's top line as you type, and the **ENTER** button lights.



- To accept the new rate, press **ENTER**. The display updates as shown below, the **ENTER** light turns off, and the new rate is available for use.



Please note:

- To clear the rate and cancel the procedure, press the **MLE RATE** button *during* the entry process.
- To enter a *different* rate before pressing **ENTER**, simply continue to type until the desired value is displayed in the register.

This completes the procedure to change the auto transition rates in the **MLE Transition** group.

Preset Black

The **Preset Black** function is a special two-stage transition that allows you to take the switcher to black (or any other desired source) with the first transition, and then proceed to the next transition previously indicated. The function is quite useful for dipping the switcher quickly to black, or transitioning to a commercial. Note that the feature is *only* available in the **Program/Preset Transition** group.



Important

Audio overrides will not be turned off for a PST Black transition. Any audio overrides set on the PST Audio crosspoint bus will be taken to air during the next transition. Refer to Chapter 21, “**Audio Mixers**” in the *Synergy Series Installation Guide* for more information.

In a default state, pressing **PST BLACK** causes the **BLACK** crosspoint to be selected on the **PST** bus, replacing the currently selected **PST** source. The three buttons in the **Next Transition Section** *may change*, depending on what is currently on air.



Important

Ensure that the White Flash option is set to **OFF**. Refer to the section “**White Flash**” on page 5–14 for details on using the White Flash option.

There are two stages to the transition:

- When you press **PST BLACK**, the switcher presets a dissolve to black. If a key (or both keys) is on but their “next transition” buttons are *not* lit, the switcher automatically lights the button for you.

The **first transition** dissolves the switcher to black, and dissolves off all keys. The buttons in the **Next Transition Section** then change, presetting the switcher with the original preview scene. This scene now is displayed on **Preview**.

- The **second transition** brings the switcher back up from black to the scene previously shown on **Preview** — regardless of the combination of background and key sources selected.

Use the following procedure to perform a **Preset Black** transition:

1. Ensure that the correct MLE is selected in the **Preview Bus** group.
2. Select a source on the **PGM** bus and a different source on **PST**. Re-entry crosspoints can also be selected. Enable any combination of keys over **PGM**.
3. Press **PST BLACK**. The preview monitor will now show a black picture.

4. Perform a transition with the **Fader**, **AUTO TRANS**, or **CUT**. The program transitions to black. Note that when black is reached, the switcher presets the previous scene (from step 2), which also is displayed on **Preview**.
5. Perform a second transition using the **Fader**, **AUTO TRANS**, or **CUT**. The switcher transitions to the previous scene, at the end of which the **PST BLACK** light turns off.



Operating Tip

After Step 3, a *different source* other than black can be selected on **PST**. This would allow you to dip to, say, **COLOR BKGD** (white, for example), for a creative “flash-frame” transition. In addition, **BLACK** can be *permanently* overridden by holding down the **PST BLACK** button while selecting the desired source on the **PST** bus. This override can be stored to a storage device, such as a floppy disk or USB key, in the **Personality** register.

This completes the procedure to perform a **Preset Black** transition.

White Flash

White Flash is a single button effect that allows you to set the flash color and timing of a transition. Once enabled, this effect performs a double transition from **PGM** to **White Flash** to **PST** using a free background color generator to produce the White Flash instead of Preset Black. This is achieved by enabling the White Flash effect, setting the color and timing of the transition and using the **PST BLACK** button in the **Program/Preset Transition Group**.



Note

White Flash differs from Preset Black in that it automatically performs the transition when **PST BLACK** is pressed.

Use the following procedure to configure the White Flash effect:

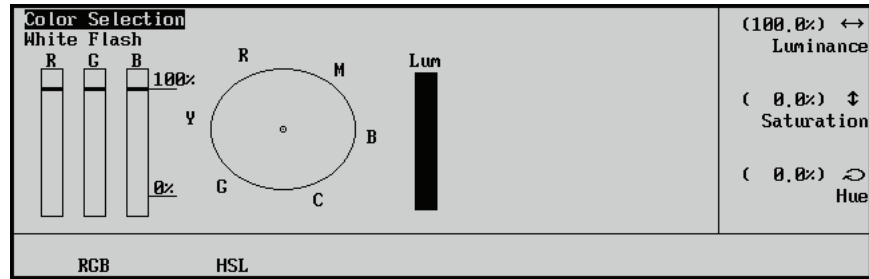
1. Navigate to the **Personality Menu 3-4** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Personality** ⇒ **MORE** ⇒ **MORE**.
2. Toggle the **White Flash** softkey to **On** to display the **White Flash Setup Menu**.

White Flash Setup	
Onset = trans rate from PGM to White Flash color	(0) Onset Rate
Hold = number of frames to display the White Flash	(2) Hold Time
Fade = trans rate from White Flash color to PST	(4) Fade Rate
Color	

White Flash Setup Menu

3. Set the timing of the White Flash as follows:
 - Use the **Onset Rate** knob to set the transition rate (0 to 150 frames) from **PGM** to the White Flash.
 - Use the **Hold Time** knob to set the length (in number of frames) of the White Flash before fading out.
 - Use the **Fade Rate** knob to set the transition rate from the White Flash to **PST**.

- Press **Color** to display the **Color Selection Menu**.



Color Selection Menu



Note

The White Flash default is set to **HSL**. Press **RGB** if you wish to edit the White Flash in **RGB** colors.

- Use the **Color Selection Menu** to adjust the appearance of the White Flash:
 - Use the **Luminance** knob to adjust the luminance level of the White Flash.
 - Use the **Saturation** knob to adjust the saturation level of the White Flash.
 - Use the **Hue** knob to adjust the hue levels of the White Flash.



Operating Tip

You can turn the White Flash effect off by repeating steps 1 and 2 and toggling the **White Flash** softkey to **Off**.

This completes the procedure to configure the White Flash effect.

Transition Preview

In all **MLE Transition** groups, the **TRANS PV** (transition preview) button allows you to rehearse a complete preset-to-program transition without affecting the selected MLE's program output. When **TRANS PV** is lit, the *full transition* occurs on the preview side of the MLE, leaving the PGM output signal undisturbed. In this mode, you can create, rehearse, and preview a transition, without affecting the MLE's program output. With **TRANS PV** engaged, the MLE's **Fader** is effectively *disconnected* from program.

Use the following procedure to utilize the **Transition Preview** function:

- Select the desired **Next Transition** button or buttons, depending on which video elements you want to change.
- Press the desired transition type. If you wish to preview a transition which involves only the background, all four transition types (dissolves, wipes, DVE Send, and S&T wipes) are available. If a key is involved in your next transition, only **DISS** and **WIPE** transition can be previewed.
- Ensure that the **Fader** is at an upper or lower limit. The **TRANS PV** button cannot be enabled or disabled when the **Fader** (or **AUTO TRANS** button) is off a limit. This restriction prevents an effect from *popping* into or out of the MLE program video.
- Enable the **Transition Preview** function using one of the following methods:
 - If you have the **Second Transition Preview** option enabled, you can preview a transition by pressing and holding a transition type button (**DISS**, **WIPE** or **DVE**

SEND) and then using the **Fader** or **AUTO TRANS** button. The **TRANS PV** button will stay lit only while the transition type button is held.

OR

- Press the **TRANS PV** button. The *preview monitor* now displays the MLE program output and the **TRANS PV** button is now lit.
5. Use the **Fader** or **AUTO TRANS** to preview the current effect. Make any modifications desired to the combination of keys and/or background scenes — without affecting the program side of the MLE. Keep in mind the restrictions set out in step 2 above.
 6. Once you are satisfied with the effect, move the **Fader** to either limit.
 7. Turn off the **Transition Preview** and revert the preview monitor to its look-ahead preview mode as follows:
 - If you have the **Second Transition Preview** option enabled, release the transition type button. The **TRANS PV** button is no longer lit.

OR

- Press the **TRANS PV** button. The **TRANS PV** button is no longer lit.
8. Perform the transition on air. The Program output of the MLE shows the exact effect as previewed previously on the preview monitor (using the **Transition Preview** mode).

This concludes the procedure to utilize the **Transition Preview** function.



Operating Tip

Transition Preview mode works regardless of whether the MLE is on air or not. This mode is highly recommended for previewing complete effects, and in fact, is *critically important* for previewing **DVE SEND** effects.

Previewing a Transition in the PGM MLE

If you have the **Second Transition Preview** option enabled in the **Personality Menu**, you can preview transitions in any MLE including the PGM MLE. This option works in the same manner as the Transition Preview feature described previously, only you must press and *hold* the transition button while using the **Fader** or **AUTO TRANS** button.

Use the following procedure to utilize the **Transition Preview** in the PGM MLE:

1. Ensure the **Second Transition Preview** option is enabled. Refer to Chapter 9 “**Additional Installation Setups**” in the *Synergy Series Installation Guide* for instructions.
2. Select the desired **Next Transition** button or buttons, depending on which video elements you want to change.
3. Ensure that the **Fader** is at an upper or lower limit. This restriction prevents an effect from *popping* into or out of the MLE program video.
4. Press and *hold* either the **DISS**, **WIPE** or **DVE SEND** button in the **PGM MLE Transition Group**.



Note

It is recommended that you wait until the *preview monitor* displays the MLE program output before proceeding to the next step.

5. Use the **Fader** or **AUTO TRANS** button to preview the current effect.
6. Release the transition button you pressed in step 4.

This concludes the procedure to utilize the **Transition Preview** in the PGM MLE.

Key Over

Each MLE has two **KEY OVER** buttons:

- The **KEY OVER** button in an MLE’s **Key 1** group changes the visual and electronic priority of **Key 1** from “under” to “over” **Key 2**. The key priority is changed as a *cut*.



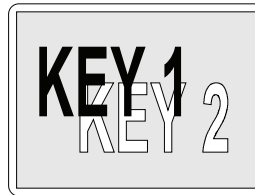
Operating Tip

You can also change the priority of the two keyers in the **Key Setup Menus** by toggling the **Key Over** softkey between **On** and **Off**. Refer to the section “**Using Keys**” on page 7–20 for more information.

- ~ When the **KEY OVER** button is off, **Key 2** is over **Key 1**.



- ~ When the **KEY OVER** button is on, **Key 1** is over **Key 2**.



- The **KEY OVER** button in the **MLE Transition** group changes the priority of the MLE’s two keyers as an *effect*, rather than as a cut.

Use the following procedure to perform a **Key Over** transition:

1. Ensure that both MLE keyers are on.
2. Select the desired **DISS** or **WIPE** transition.
3. Enable the **KEY OVER** button.
4. Use the **Fader** or **AUTO TRANS** to perform the transition.

This completes the procedure to perform a **Key Over** transition.

Notes on the Key Over Function

Please note the following important points regarding the **MLE Transition** group’s **Key Over** function:

- The **Key Over** function works only when both keys are on. If only one key is on, the **KEY OVER** button will not light.
- The **KEY OVER** button stays lit after the **Key Over** transition has completed.

- The **Key Over** function can be regarded as a fourth “next transition”, which is mutually exclusive with the **BKGD**, **KEY 1**, and **KEY 2** buttons. When **KEY OVER** is pressed, all three “next transition” buttons automatically turn off.

Refer to the section “**DVE Send and Keying**” for additional details on the **KEY OVER** button, when used in conjunction with the **DVE Send** feature.

Transition Limit

The **TRANS LIMIT** (transition limit) button located in the **MLE Transition** group allows you to stop a transition at a preset position — in between the two absolute **Fader** limits.

Use the following procedure to perform a transition limit effect:

1. Ensure that the correct MLE is selected in the **Preview Bus** group.
2. Move the **Fader** to an upper or lower limit, and note the limit that you choose. The **Fader** must be returned to this limit in a subsequent step.
3. Select a Dissolve, Wipe, or DVE Send as your next transition.
4. Move the **Fader**, and *manually* set the transition to the desired position.
 - In the case of a dissolve, visually set the desired mix (superimposition) between Program and Preset.
 - In the case of a wipe, visually set the desired position between Program and Preset.
 - In the case of a DVE Send, visually set the desired position *or* mix (superimposition) between Program and Preset.
5. Leave the **Fader** at its preset position, and press **TRANS LIMIT**. The button lights *momentarily*, and the fader position is stored.
6. Move the **Fader** back to the limit selected in step 2.
7. Press **TRANS LIMIT** to turn on the **Transition Limit** function.
8. Use the **AUTO TRANS** button to perform the transition. The transition moves to the limit that you selected in step 4, and stops.
9. There are two ways to continue the transition:
 - Leave the **TRANS LIMIT** button turned on. When you use the **AUTO TRANS** button again, the transition reverses — and returns to its starting point.
 - Turn off the **TRANS LIMIT** button. When you use the **Fader** or **AUTO TRANS** again, the transition continues to the full Preset Bus source.

This completes the procedure to perform a transition limit effect.

Pattern Control

In This Chapter

This chapter provides information and instructions for using the Synergy switcher's **Pattern Control** group. The following topics will be discussed:

- Pattern Control Group
- Using Wipes
- Adjusting Matrix Wipes
- User Wipes
- Squeeze & Tease 2D Wipes
- Matte Group
- Creating Washes
- Creating a Pattern Border Color
- Creating a Matte Fill Color
- Creating a Color Background Color

Pattern Control Group

Each switcher includes *one* **Pattern Control** group, which is located in each panel's top right-hand area. Every MLE (including the **Program/Preset** MLE) has *two* pattern generators:

- Pattern generator 1 is *shared* between the MLE's **Wipe Generator** and the **Preset Pattern Generator** in the MLE's **Keyer 1** (or **DSK 1**). This pattern generator is *full-featured* — all wipe patterns are available.
- Pattern generator 2 is used *exclusively* by the **Preset Pattern Generator** in the MLE's **Keyer 2** (or **DSK 2**). This generator is restricted to the first six columns of patterns (as shown in the **Pattern Selection Section**), minus the circle. Matrix wipes are not available.

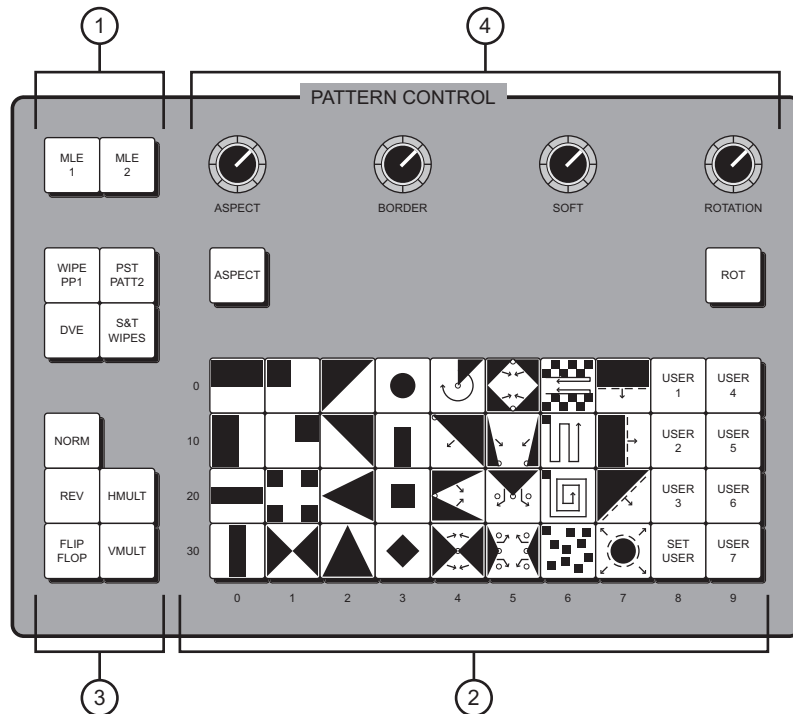


Note

Because pattern generator 1 is shared, if **PST PATT** is enabled in **Keyer 1**, you cannot press the **WIPE** button in the MLE's **Transition** group. Similarly, if **WIPE** is enabled and you select a **PST PATT** key type in **Keyer 1**, the **WIPE** button turns off and the transition type reverts to **DISS**.

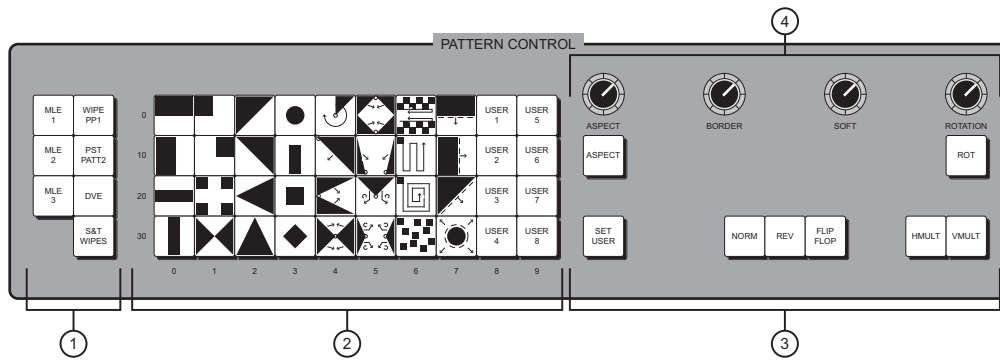
Each **Pattern Control** group is *slightly* different in its layout.

- **Synergy 2** — The following figure illustrates the **Pattern Control** group for the Synergy 2 panel:



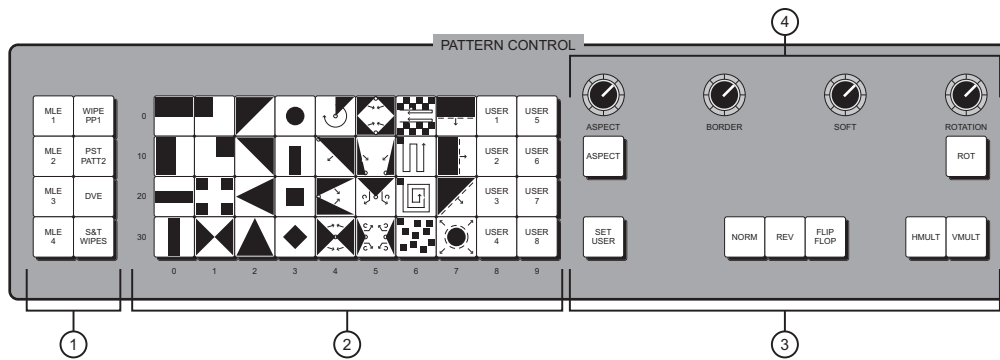
- | | |
|-------------------------------|-------------------------------|
| 1) Pattern Assignment Section | 3) Pattern Direction Section |
| 2) Pattern Selection Section | 4) Pattern Adjustment Section |

- **Synergy 3** — The following figure illustrates the **Pattern Control** group for the Synergy 3 panel:



- | | |
|-------------------------------|-------------------------------|
| 1) Pattern Assignment Section | 3) Pattern Direction Section |
| 2) Pattern Selection Section | 4) Pattern Adjustment Section |

- **Synergy 4** — The following figure illustrates the **Pattern Control** group for the Synergy 4 panel:



- | | |
|-------------------------------|-------------------------------|
| 1) Pattern Assignment Section | 3) Pattern Direction Section |
| 2) Pattern Selection Section | 4) Pattern Adjustment Section |

The **Pattern Control** group is an *assignable* group of controls that allows you to choose wipes and adjust wipe parameters. By pressing the desired MLE button (or by pressing **WIPE** within an MLE itself), the group is assigned to that MLE. In addition, if the **DVE Send and Remote Control** option is installed, pressing the **DVE** button turns the group into a DVE “shot box”. The layout of the group is *almost* identical on all three switchers, with minor exceptions due to the differing number of MLEs.

1. Pattern Assignment Section

The **Pattern Assignment Section** provides a group of buttons that allow you to assign the **Pattern Control** group to individual MLE's.



- (All Switchers) Press **MLE 1** to assign the group to control patterns in **MLE 1**. The button will also light *automatically* if the **WIPE** button is pressed in **MLE 1**.
- (All Switchers) Press **MLE 2** to assign the group to control patterns in **MLE 2**. The button will also light *automatically* if the **WIPE** button is pressed in **MLE 2**.
- (Synergy 3 and 4 only) Press **MLE 3** to assign the group to control patterns in **MLE 3**. The button will also light *automatically* if the **WIPE** button is pressed in **MLE 3**.
- (Synergy 4 only) Press **MLE 4** to assign the group to control patterns in **MLE 4**. The button will also light *automatically* if the **WIPE** button is pressed in **MLE 4**.
- (All Switchers) The **WIPE PP1** button assigns control of the **Pattern Control** group to pattern generator 1. This button is automatically selected whenever **WIPE** is pressed in an MLE's **Transition** group, or when **PST PATT** is pressed, in an MLE's **Keyer 1** group.
- (All Switchers) The **PST PATT2** button assigns control of the **Pattern Control** group to pattern generator 2. This button is automatically selected whenever **PST PATT** is pressed in an MLE's **Keyer 2** group.
- (All Switchers) The **DVE** button allows you to recall selected effects from the primary DVE and change the **Pattern Selection Section** into a DVE *shot box*. The **DVE Send and Remote Control Option** must be installed. Refer to Chapter 9, “**DVE Send**” for full details.
- (All Switchers) The **S&T WIPES** button, when lit, alerts you that the **Pattern Control Group** is now in the Squeeze & Tease “shot box” mode. In this mode, you can perform push-offs, pull-ons and other similar DVE transitions from within an MLE itself. The **Squeeze & Tease 2D Option** must be installed.

2. Pattern Selection Section

The **Pattern Selection Section** is an array of 40 buttons that each represent an individual wipe pattern. There are no optional patterns. To select a wipe, press the desired button. Once selected, the pattern can be modified and used in the assigned MLE. The section displays 16 “classic” wipes, eight rotary wipes, eight matrix wipes, and eight user wipes (seven on the Synergy 2). When you select a matrix wipe, the **Matrix Menu** is displayed, allowing you to *customize* the selected matrix wipe as required. Refer to the “**Adjusting Matrix Wipes**” section for instructions.

Each of the “user” wipe buttons is essentially a memory register for a *hidden* wipe pattern that is chosen from the **User Wipe Menu**. Once selected, the wipe is stored on one of the User Wipe buttons for instant access — just like a normal wipe. Refer to the “**User Wipes**” section for complete instructions.

Please note:

- When the **DVE Send and Remote Control Option** is installed and the **DVE** button is pressed, the **Pattern Selection Section** changes into a DVE *shot box*. Refer to Chapter 9, “**DVE Send**” for full details on the **DVE Send** feature.
- When the **Squeeze & Tease Option** is installed and the **DVE SEND** and **WIPE** buttons are pressed simultaneously (in the **Transition Group**), the **Pattern Selection Section** changes into a Squeeze & Tease *shot box*. Refer to Chapter 7, “**Flying Keys**” for full details on the Squeeze & Tease Wipe feature.

3. Pattern Direction Section

For all switchers, the **Pattern Direction Section** buttons control the *direction* and *modification* of the selected wipe. With the **DVE Send and Remote Control Option** installed, the **NORM**, **REV** and **FLIP FLOP** buttons control the *direction* of the DVE effect. Note that **NORM**, **REV** and **FLIP FLOP** are mutually exclusive.



- Press **NORM** to set the wipe direction to normal. The new picture is revealed from the black area (as shown on the pattern button) to the white area.
 - ~ When **DVE SEND** is pressed in an MLE, press **NORM** to run the DVE effect forward. The video on the **Program** bus will transition off with the effect, revealing the **Preset** bus.



- Press **REV** to set the direction of the wipe to reverse. The new picture is revealed from the white area to the black area. When **DVE SEND** is pressed in an MLE, press **REV** to run the DVE effect in reverse. The video on **Preset** will transition on with a DVE effect, covering up the **Program** bus.



- Press **FLIP FLOP** to set the wipe direction to “flip flop” (also known as **Normal/Reverse**). Wipe direction is normal for the first transition, reverse for the second, then normal for the third, etc. When **DVE SEND** is pressed, then press **FLIP FLOP** to run the DVE effect forward with the first transition, then reverse with the next transition. See Chapter 9 for **DVE Send** details.



- The **HMULT** button allows you to horizontally multiply the number of wipe patterns that are visible on screen.
 - ~ Press the button repeatedly to cycle through several different levels of horizontal multiplication. The button lights when horizontal multiplication is active.
 - ~ Press and *hold* the button for 1 second to clear all horizontal and vertical multiplication.



- The **VMULT** button allows you to vertically multiply the number of wipe patterns that are visible on screen.
 - ~ Press the button repeatedly to cycle through several different levels of vertical multiplication. The button lights when vertical multiplication is active.
 - ~ Press and *hold* the button for 1 second to clear all horizontal and vertical multiplication.



Note

Vertical multiplication is not available for matrix wipe patterns.



- The **SET USER** button calls up the **User Wipe Menu**, which is used to select user wipes and assign them to one of the eight (seven on the Synergy 2) available “user” wipe buttons in the **Pattern Selection Section**. Refer to the section “**User Wipes**” on page 6–11 for complete instructions.

4. Pattern Adjustment Section

For all switchers, the **Pattern Adjustment Section** provides two buttons and four “end-stop” knobs that modify the selected pattern.



- The **ASPECT** button enables the use of the **ASPECT** knob.
 - ~ When the button is on, “closed” patterns with both horizontal and vertical edges can have their aspect ratios adjusted. Circles can be adjusted into ovals, squares into rectangles, etc.
 - ~ When the button is off, all aspect ratio adjustment is removed and the pattern returns to its default shape.



Note

Any adjustment of the **ASPECT** knob for a pattern, whether that pattern can have the aspect adjusted or not, will change the aspect setting for all patterns, whether the **ASPECT** button is **On** or not.



- When the **ASPECT** button is lit, the **ASPECT** knob can be used to adjust the aspect ratio of selected patterns.
 - ~ Turning the knob clockwise increases the pattern’s vertical aspect ratio.
 - ~ Turning the knob counter-clockwise increases the pattern’s horizontal aspect ratio.



- The **BORDER** knob allows you to adjust pattern borders from no border to full-screen borders.
 - ~ Turning the knob clockwise increases border width.
 - ~ Turning the knob counter-clockwise decreases the pattern’s border.



- The **SOFT** knob allows you to adjust pattern edge softness from hard-edge to full soft-edge.
 - ~ Turning the knob clockwise increases edge softness.
 - ~ Turning the knob counter-clockwise decreases the pattern’s edge softness.
 - ~ When controlling preset patterns, the knob performs the same function as the **GAIN** knob (in the **Effects Control** group) — that is, *softening* the key edge and adjusting how the pattern blends into the background. The control is duplicated here for operator convenience.



- The **ROT** button enables the use of the **ROTATION** knob.
 - ~ When the button is on, wipe patterns **00** and **07** (horizontal wipes) plus **10** and **17** (vertical wipes) can be rotated a full 360 degrees. Only these four patterns can be rotated.
 - ~ When the button is off, all rotation is removed and the pattern returns to its default position.



- The **ROTATION** knob allows you to rotate patterns (when the **ROT** button is lit).
 - ~ Turning the knob clockwise rotates the selected pattern clockwise.
 - ~ Turning the knob counter-clockwise rotates the selected pattern counter-clockwise.

As an overall reminder about the knobs in the **Pattern Control** group, please note the following important point regarding end-stop knobs:

- Because an **End-stop Knob**'s electrical position can be *overwritten* by recalling a memory register (or by assigning the **Pattern Control** group to another MLE), the electrical knob position *may not match* the knob's current physical position. In this case, the knob can be adjusted but you may not have the full adjustment range available.



Operating Tip

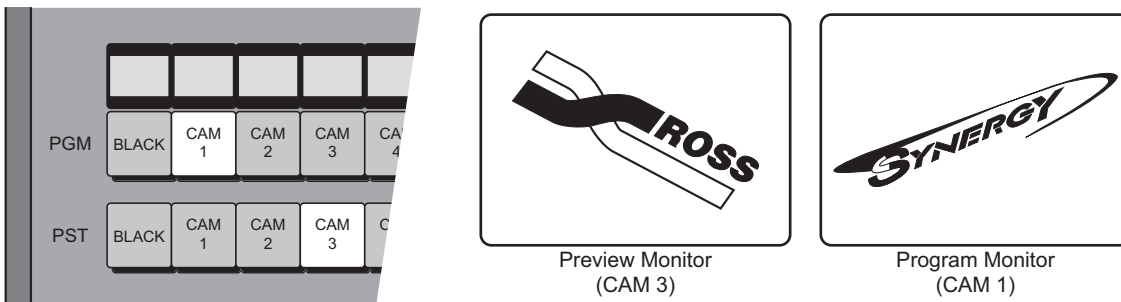
To fully re-synchronize an **End-stop Knob**'s physical-to-electrical position, turn the knob fully clockwise, then fully counter-clockwise. Full-range adjustments can now be made.

Using Wipes

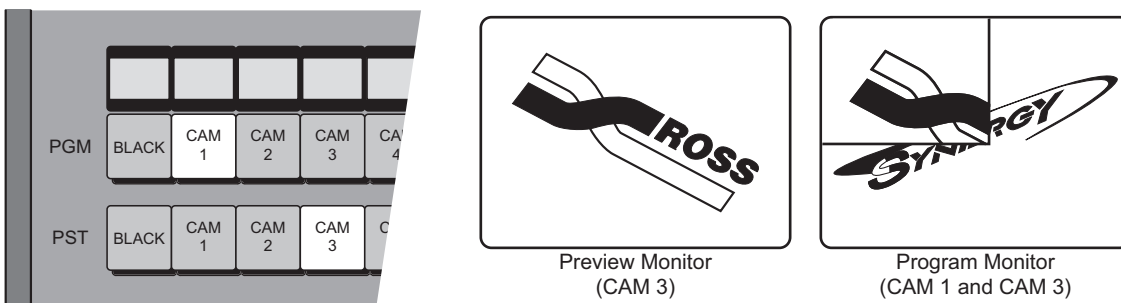
Wipes can be performed in any MLE. In a “background wipe” transition, the **PGM** (or **BKGD**) bus video is gradually replaced with the **PST** bus video according to a wipe pattern pre-selected from the **Pattern Selection Section** in the **Pattern Control** group.

Use the following procedure to perform a wipe:

1. Check that your program/preview monitoring is set as needed for the selected MLE.
2. Select an input on the MLE’s **PGM/BKGD** bus.
3. Select a different input on the MLE’s **PST** bus.
4. In the **Next Transition Section**, select **BKGD** as the next transition. The following figure illustrates a *sample* MLE setup and the associated monitor outputs — before the wipe.

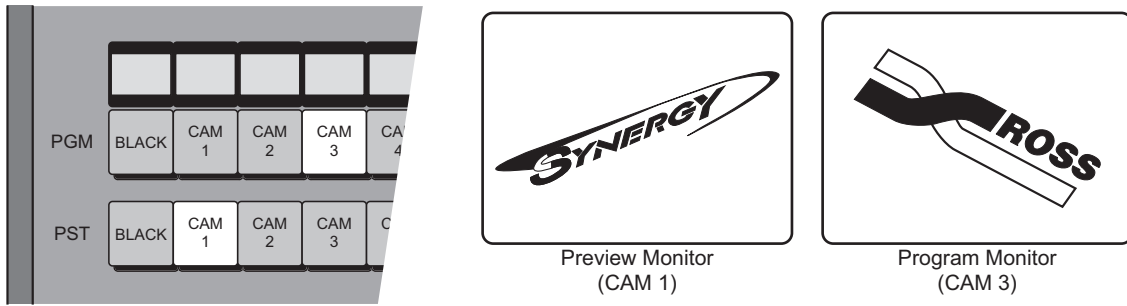


5. In the **Transition Parameter Section**, press **WIPE**. This action automatically assigns the **Pattern Control** group to the MLE.
6. In the **Pattern Selection Section**, press the button for the desired wipe pattern.
7. In the **Pattern Direction Section**, choose the direction for the wipe. Select between **NORM**, **REV**, or **FLIP FLOP**.
8. Turn the **BORDER** knob fully clockwise, then fully counterclockwise. For this first exercise, this ensures that there is *no border*.
9. To perform a manual transition, move the **Fader** from limit to limit. To perform an auto transition, press the **AUTO TRANS** button. During the transition, the **PST** bus video signal gradually replaces the **PGM/BKGD** signal using the selected wipe, as shown below.



At the end of the transition, the **PST** video completely replaces the **PGM/BKGD** video, and the buses flip-flop.

The following figure illustrates the MLE and monitor setup *after* the wipe.



Please note the following important points regarding wipes:

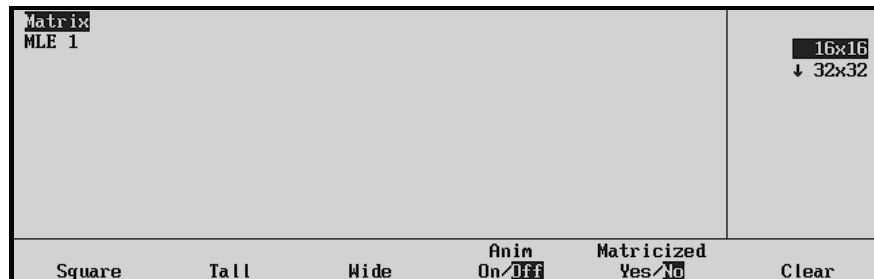
- During the wipe, the **ON AIR** indicators at the end of both the **PGM/BKGD** and **PST** bus rows will be lit. This shows that *both* buses are contributing to the switcher output. At the end of the wipe, after the flip-flop, only the **PGM/BKGD ON AIR** LED will be lit.
- Wipe borders can be modified to be any matte color. Refer to the “**Matte Group**” section for details.
- When you select a matrix wipe from the **Pattern Selection Section**, the **Matrix Menu** automatically is displayed on the display. This menu is *primarily* designed for adjusting matrix wipes, but it also allows you to “matricize” any *standard* wipe pattern. This feature essentially turns any standard pattern into a matrix wipe. Refer to the “**Matricized Wipes**” section for details.

Adjusting Matrix Wipes

You can adjust or *customize* a matrix wipe selected from the **Pattern Selection Section**.

Use the following procedure to adjust or *customize* a matrix wipe:

1. Ensure that your preview monitor is set to the desired MLE.
2. In the selected MLE, press **WIPE**.
3. In the **Pattern Control** group, choose the desired matrix wipe pattern. The **Matrix Menu** automatically is displayed.
4. Press **Square** to display the **Matrix Square Menu**.



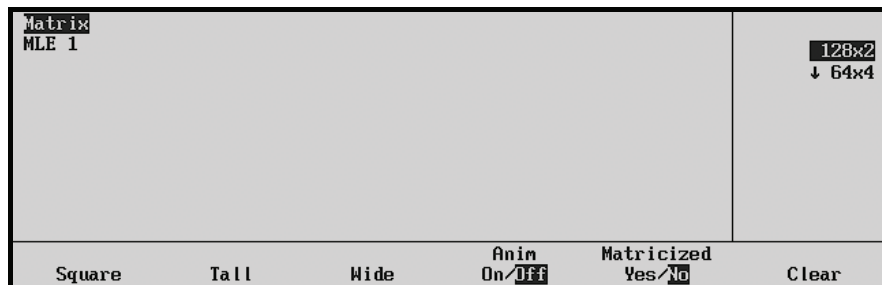
Matrix Square Menu

- Use the top knob to adjust the *size* (in pixels) of the matrix wipe squares (also known as “tiles”).
- Press **Tall** to display the **Matrix Tall Menu**.



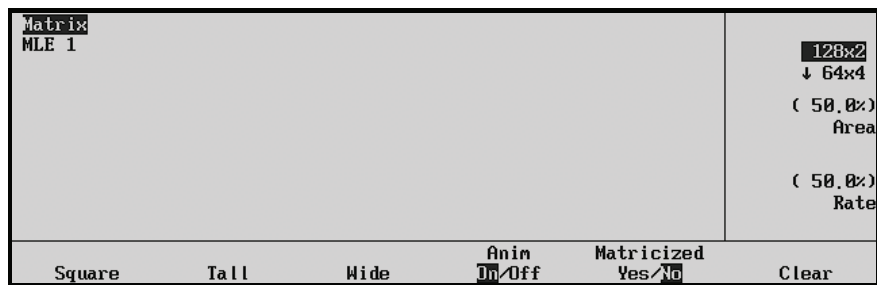
Matrix Tall Menu

- Use the top knob to adjust the height of the matrix wipe tiles.
- Press **Wide** to display the **Matrix Wide Menu**.



Matrix Wide Menu

- Use the top knob to adjust the width of the matrix wipe tiles.
- Toggle **Anim** to **Anim On** and display the **Matrix Animation Menu**.



Matrix Animation Menu

- Use the **Area** and **Rate** knobs to adjust the matrix wipe’s animation values. This feature essentially adds a visual *twinkle* to the edges of the selected matrix wipe.



Operating Tip

You can press **Clear** to remove all custom matrix wipe modification.

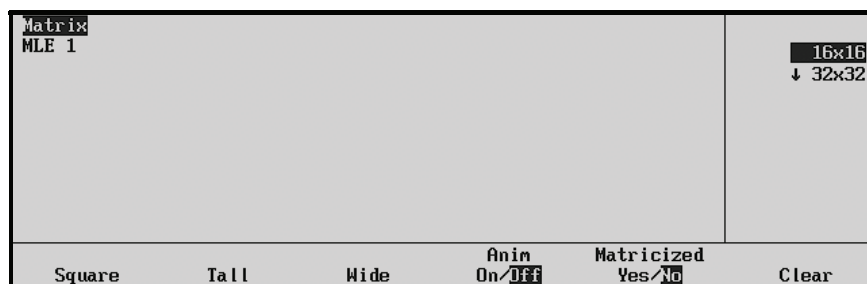
This completes the procedure to adjust or *customize* a matrix wipe.

Matricized Wipes

Using the **Matricize Wipe** feature, all Synergy switchers allow you to turn any standard pattern into a matrix wipe, with full functionality in positioning and modifying the custom “matricized” pattern.

Use the following procedure to “Matricize” a wipe:

1. Select any matrix wipe pattern. The **Matrix Menu** is displayed.



Matrix Menu

2. Select the desired “standard” wipe pattern using the buttons in the **Pattern Selection Section**.
3. On the **Matrix Menu**, toggle **Matricized** to **Yes**.
4. Modify the matricized wipe in the normal manner, using all available wipe modifiers (including the modifiers for matrix wipes, such as **Square**, **Tall**, **Wide**, and **Anim**).



Note

All wipes on the switcher will be matricized at this point

5. To disable the feature, toggle **Matricized** to **No**.

This completes the procedure to “Matricize” a wipe.

User Wipes

The switcher’s **User Wipe** feature allows you to select from over 60 additional wipes (that are normally hidden from view on the panel). Once selected, you can place the “user” wipe on one of the eight (seven on the Synergy 2) available **User Wipe** buttons in the **Pattern Selection Section**. The user wipes that you select are then available any time the specific User Wipe buttons are pressed.

The **User Wipe** buttons are essentially “presets” that can be programmed with your favorite User Wipes, and used in the normal manner to suit the requirements of your shows. Note that a User Wipe is *not* a standard wipe with pattern modifiers applied — *that* function can easily be performed with memory presets.

Use the following procedure to select a **User Wipe**:

1. In the **Pattern Control Group**, press **SET USER** to display the **User Wipe Menu**.



User Wipe Menu

2. Select the **User Wipe** button that you wish to program. Two methods are available:
 - In the **Pattern Control Group**, press one of the eight User Wipe buttons (**USER 1** through **USER 8**). Note that the Synergy 2 only has seven User Wipe buttons.
 - On the **User Wipe Menu**, use the top **Knob** to select the desired User Wipe button.
3. Use the middle knob to select one of four categories of User Wipes: **Classic**, **Rotary**, **Matrix**, and **Special**.
4. Use the bottom knob to select the desired wipe within the category. This action automatically assigns the wipe to the selected **User Wipe** button, and stores your selection in on-line memory.



Operating Tip

To view the wipe, select **Black** and **Color Background** in the active MLE, and place the fader halfway through the transition.

5. Repeat for all additional User Wipe buttons that you wish to program.

This completes the procedure to select a **User Wipe**. To use the wipe in production, select a User Wipe button as you would any of the other wipes in the **Pattern Selection Section**.

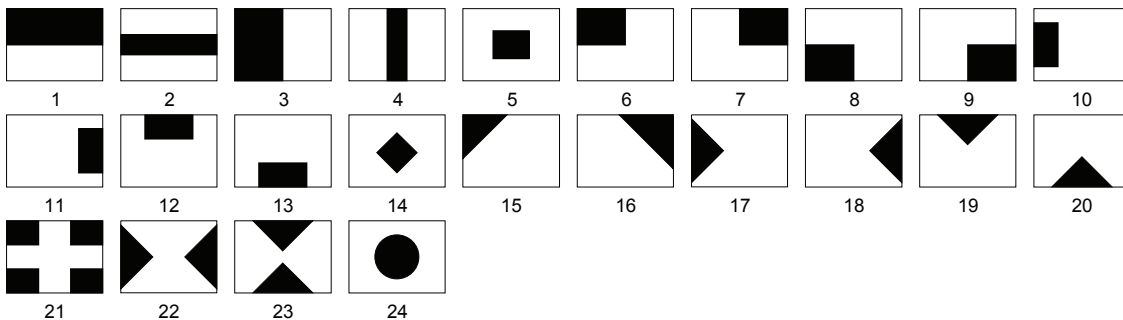
Classic Wipes

The following figure illustrates the available “Classic” User Wipes. The numbers under the wipe patterns indicate the *wipe number* as selected using the bottom knob in the scroll area of the **User Wipe Menu**.



Note

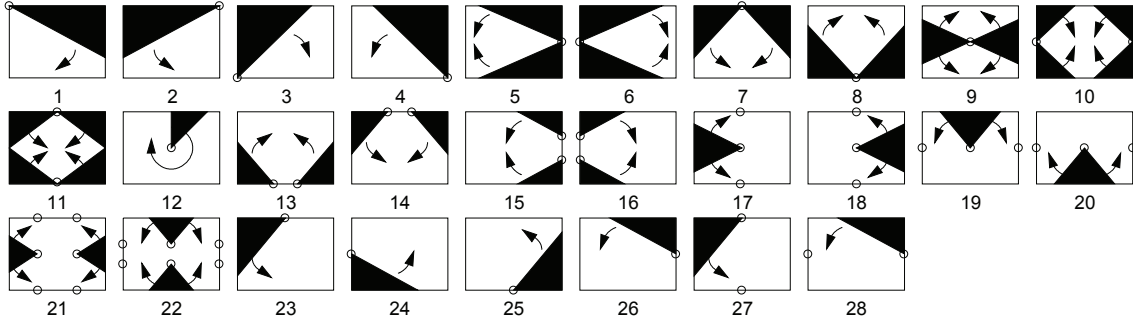
The graphical representations of the wipes do not correspond with the patterns on the actual keys in the Pattern Control Group.



Classic Wipes – Visual Representations and Wipe Numbers

Rotary Wipes

The following figure illustrates the available “Rotary” User Wipes. The numbers under the wipe patterns indicate the *wipe number* as selected using the bottom knob in the scroll area of the **User Wipe Menu**.



Rotary Wipes – Visual Representations and Wipe Numbers

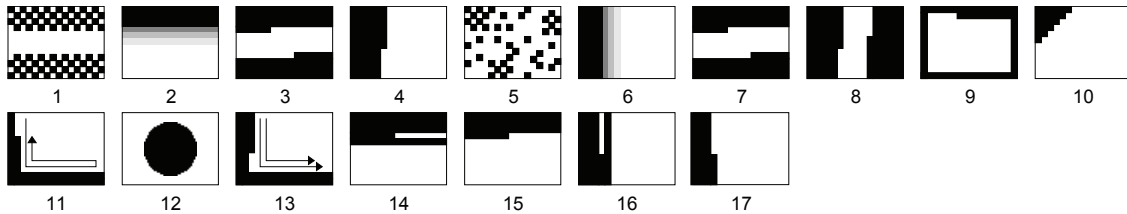


Note

The graphical representations of the wipes **do not** correspond with the patterns on the actual keys in the Pattern Control Group.

Matrix Wipes

The following figure illustrates the available “Matrix” User Wipes. The numbers under the wipe patterns indicate the *wipe number* as selected using the bottom knob in the scroll area of the **User Wipe Menu**.



Matrix Wipes – Visual Representations and Wipe Numbers

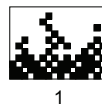


Note

The graphical representations of the wipes **do not** correspond with the patterns on the actual keys in the Pattern Control group.

Special Wipes

The following figure illustrates the available “Special” User Wipe.



This wipe is the special animated “fire” wipe — give it a try! It looks especially good with horizontal matrix multiplication added.

Squeeze & Tease 2D Wipes

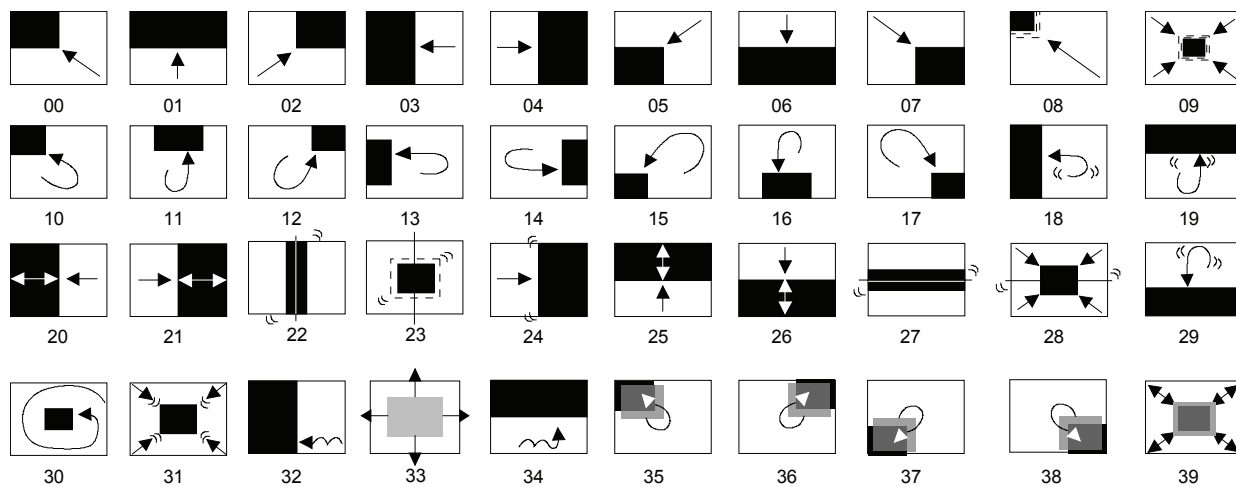
The **Squeeze & Tease 2D Wipe** function allows you to perform push-offs, pull-ons and other similar DVE transitions from within an MLE itself.

Use the following method to activate the Squeeze & Tease 2D wipes function:

1. Press **DVE SEND** and **WIPE** at the same time in the selected MLE's **Transition Group**.

Both buttons illuminate, if a free **Squeeze & Tease** channel is available in that MLE. In the **Pattern Control** section, the **S&T WIPES** button lights, the selected MLE's button lights, and the array of 40 wipe buttons becomes a **Squeeze & Tease** “shot box” — allowing you a choice of 40 different transitions. The **S&T WIPES** button alerts you that the section is now in Squeeze & Tease “shot box” mode.

The following figure illustrates the available “Squeeze & Tease” wipes. The numbers under the wipe patterns indicate the position of the key in the Pattern Control group.



Squeeze & Tease 2D Wipes — Visual Representations.



Note

The graphical representations of the wipes **do not** correspond with the patterns on the actual keys in the Pattern Control group.

To view the Squeeze & Tease 2D wipes in the panel menu, press any of the 40 wipe buttons, or navigate using the menu system as follows:

- Press **HOME** ⇒ **Help** ⇒ **List S&T Wipes**.

The image below lists Squeeze & Tease 2D wipe names for the pictures above, as they appear in the panel menu when any wipe button is pressed.

SQUEEZE AND TEASE WIPES									
Push To Up Left	Push To Top	Push To Up Right	Push To Left	Push To Right	Push To BtnLeft	Push To Botton	Push To BtnRight	Squeeze Up Left	Squeeze Center
Fly To Up Left	Fly To Up Mid	Fly To Up Right	Fly To MidLeft	Fly To MidRight	Fly To BtnLeft	Fly To BtnMid	Fly To BtnRight	Spring To Left	Spring To Top
Squeeze Left	Squeeze Right	FlipOff Horzntl	FlipSqz OffHztl	Wobble ToRight	Squeeze Up	Squeeze Down	FlipOff Verticl	FlipSqz OffVtcl	Wobble To Btn
Circle OffCntr	Wobble OffCntr	Bounce OffLeft	Fly Through	Bounce Up	FlyZoom ToUpLft	FlyZoom ToUpRgt	FlyZoom ToBnLft	FlyZoom ToBnRgt	FlyZoom ToCntr

Squeeze & Tease 2D Wipes — Normal

The table below lists the Squeeze & Tease 2D wipe names that appear in the panel menu when any wipe button is pressed, and with the **REV** button pressed.

SQUEEZE AND TEASE WIPES									
PushFrm Up Left	PushFrm Top	PushFrm UpRight	PushFrm Left	PushFrm Right	PushFrm BtnLeft	PushFrm Botton	PushFrm BtnRight	ExpdFrm Up Left	ExpdFrm Center
Fly Frm Up Left	Fly Frm Up Mid	Fly Frm Up Right	Fly Frm MidLeft	Fly Frm MidRight	Fly Frm BtnLeft	Fly Frm BtnMid	Fly Frm BtnRight	Spring FrmLeft	Spring Frm Top
Expand FrmLeft	Expand FrmRight	Flip On Horzntl	FlipSqz OnHztl	Wobble FrmRight	Expand Frm Top	Expand FrmBtm	Flip On Verticl	FlipSqz FrmVrtl	Wobble FrmBtm
Circle On Cntr	Wobble On Cntr	Bounce FrmLeft	Fly Back	Thousnd Pounds	FlyZoom FmUpLft	FlyZoom FmUpRgt	FlyZoom FmBnLft	FlyZoom FmBnRgt	FlyZoom FrmCntr

Squeeze & Tease 2D Wipes — Reversed

Select your foreground and background sources in the normal way, and experiment to discover the patterns that you like the best. Both manual and auto-transitions function just like a standard wipe.

Please note:



- The **Squeeze & Tease 2D or 3D WARP Option** is required on all MLEs on which you want to perform the Squeeze & Tease wipe (or 3D sequence) function.
- In the **Pattern Control** section, the **S&T WIPES** key cap must be installed. If you do not have this key cap, please contact **Technical Support**.
- When enabled, the mode selects a free channel, or two free channels as required. If channels are not available, you cannot select a S/T wipe.
- You can perform a Squeeze & Tease wipe individually on **BKGD**, **KEY 1** or **KEY 2**, but *no combination* of the transition selections are allowed.
- **BKGD** and **KEY** transitions only require one Squeeze & Tease channel to perform a Squeeze & Tease wipe. Wipes involving **Auto Select** keys require two channels.
- Color backgrounds cannot be used with Squeeze & Tease background wipes.
- If you want to perform a Squeeze & Tease wipe on **Key 1**, for example, and **Key 1** is *already* performing a **Fly Key**, the Squeeze & Tease wipe is allowed. If the keyer is *not* flying a key, the system temporarily borrows a single Squeeze & Tease channel (or two channels if you request an **Auto Select** key).



Note

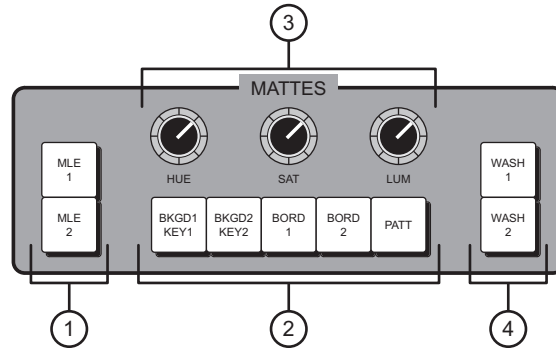
The **Transition Preview** and **KEY OVER** modes are not available when performing Squeeze & Tease wipes.

Matte Group

Each switcher includes *one* **Matte** group, whose layout differs *slightly* with the switcher model. The **Matte** group provides a set of *assignable* controls that allow you to select specific matte generators and adjust colors for selected wipe patterns, borders, washes, and matte fills.

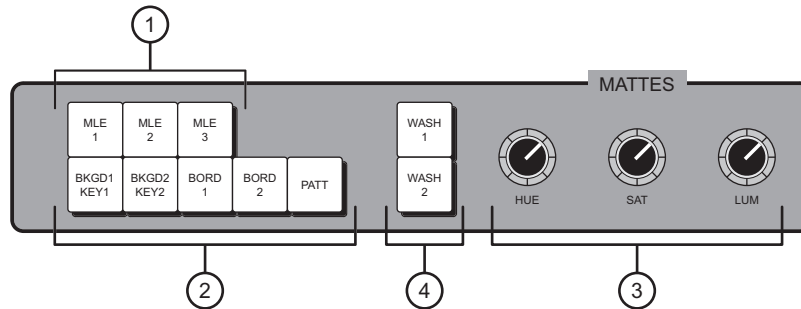
By pressing the desired MLE assignment button in the group (or by pressing a **WIPE**, **BORD** or **MATTE FILL** button within an MLE itself), the **Matte** group is assigned to that specific MLE.

- **Synergy 2** — The following figure illustrates the **Matte** group for the Synergy 2 panel:



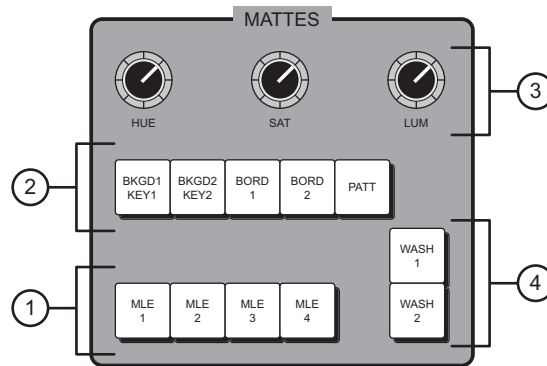
- | | |
|------------------------------|----------------------|
| 1) Matte Assignment Section | 3) Matte Color Knobs |
| 2) Matte Destination Section | 4) Wash Section |

- **Synergy 3** — The following figure illustrates the **Matte** group for the Synergy 3 panel:



- | | |
|------------------------------|----------------------|
| 1) Matte Assignment Section | 3) Matte Color Knobs |
| 2) Matte Destination Section | 4) Wash Section |

- **Synergy 4** — The following figure illustrates the **Matte** group for the Synergy 4 panel:



1) Matte Assignment Section	3) Matte Color Knobs
2) Matte Destination Section	4) Wash Section

The layout of the group is *almost* identical on all three switchers.

1. Matte Assignment Section

The **Matte Assignment Section** allows you to assign the **Matte** group to individual MLEs. Buttons are selected automatically (as detailed below), or they can be selected manually as desired.



- (All Switchers) Press **MLE 1** to assign the group to control **MLE 1** matte colors. The button also lights *automatically* if the **WIPE**, **BORD** or **MATTE FILL** buttons are pressed in **MLE 1**.



- (All Switchers) Press **MLE 2** to assign the group to control **MLE 2** matte colors. The button also lights *automatically* if the **WIPE**, **BORD** or **MATTE FILL** buttons are pressed in **MLE 2**.



- (Synergy 3 and 4 only) Press **MLE 3** to assign the group to control **MLE 3** matte colors. The button also lights *automatically* if the **WIPE**, **BORD** or **MATTE FILL** buttons are pressed in **MLE 3**.



- (Synergy 4 only) Press **MLE 4** to assign the group to control **MLE 4** matte colors. The button also lights *automatically* if the **WIPE**, **BORD** or **MATTE FILL** buttons are pressed in **MLE 4**.

2. Matte Destination Section

The five buttons in the **Matte Destination Section** allow you to select one of five different matte generators for each MLE. Each matte generator is capable of generating *one* background or fill color. The buttons are selected automatically (as outlined below), or they can be selected manually as desired.

It is important to note that the two background matte generators (accessed by pressing **BKGD 1 KEY 1** or **BKGD 2 KEY 2**) are *completely independent* for each MLE. This feature provides you with exceptional creative capacity, for on-line production and for all memory recall situations.



- Press **BKGD 1 KEY 1** to select matte generator 1. This is a *shared* matte generator that is automatically selected when the following buttons are pressed in the selected MLE:

~ **COLOR BKGD 1** (on the bus row)

~ **MATTE FILL** (in Keyer 1)

~ **Key Types** (in Keyer 1)

When **BKGD 1 KEY 1** is selected, you can adjust the selected MLE’s color background 1, key 1 matte fill, or key 1 preset pattern border color using the three **Matte Color** knobs. You can also press a **Wash** button and assign a color wash to the destination.



Note

If **PST PATT** is selected in the MLE’s key 1 group, you cannot select **MATTE FILL**.



- Press **BKGD 2 KEY 2** to select matte generator 2. This is a *shared* matte generator that is automatically selected when the following buttons are pressed in the selected MLE:

~ **COLOR BKGD 2** (on the bus row)

~ **MATTE FILL** (in Keyer 2)

~ **Key Types** (in Keyer 2)

When **BKGD 2 KEY 2** is selected, you can adjust the selected MLE’s color background 2, key 2 matte fill, or key 2 preset pattern border color using the three **Matte Color** knobs. You can also press a **Wash** button and assign a color wash to the destination.



Note

If **PST PATT** is selected in the MLE’s key 2 group, you cannot select **MATTE FILL**.



- Press **BORD 1** to adjust the color of **Key 1**’s optional border and shadow generator. The **Dual Border Generator** option must be installed in the selected MLE. The button is automatically selected when a border is enabled in Key 1. Refer to section “**Bordering Keys**” on page 7–60 for more information.



- Press **BORD 2** to adjust the color of **Key 2**’s optional border and shadow generator. The **Dual Border Generator** option must be installed in the selected MLE. The button is automatically selected when a border is enabled in Key 2. Refer to section “**Bordering Keys**” on page 7–60 for more information.



- Press **PATT** to select the MLE’s main matte generator for pattern border colors. This generator is independent of the other generators in the **Matte Destination Section**. The button is automatically selected when you press **WIPE** in an MLE.

When pressed, you can adjust the selected MLE’s pattern border color using the three **Matte Color** knobs. You can also press a **Wash** button and assign a color wash to the destination.

3. Matte Color Knobs

The three **Matte Color Knobs** allow you to adjust the color of the selected matte generator — in the selected MLE. Each knob is an “end-stop” knob. Refer to the section “**Knobs**” on page 4–29 for additional information regarding “end-stop” knobs.



- Adjust the **HUE** knob to change the color of the selected matte generator. A full 360 degrees of hue adjustment is provided.



- Adjust the **SAT** knob to change the color saturation of the selected matte generator. Saturation can be adjusted from 0 (monochrome, or no saturation) to 100 percent — full color saturation.



- Adjust the **LUM** knob to change the luminance of the selected matte generator. Luminance can be adjusted from 0 (minimum brightness) to 100 percent (maximum brightness).

4. Wash Section

The two buttons in the **Wash Section** allow you to create *washes* (or “blends”) between two different colors.



- Press **WASH 1** to enable wash background 1 for the selected destination matte generator.



- Press **WASH 2** to enable wash background 2 for the selected destination matte generator.

When a wash button is lit, the selected wash replaces the current single matte color. When the button is off, the original *single* matte color is restored.

Once a wash is created, the wash can be applied to one (or more) of the five destination matte generators. Refer to the section “**Creating Washes**” on page 6–19 for details.

Creating Washes

Use the following procedure to create a wash.

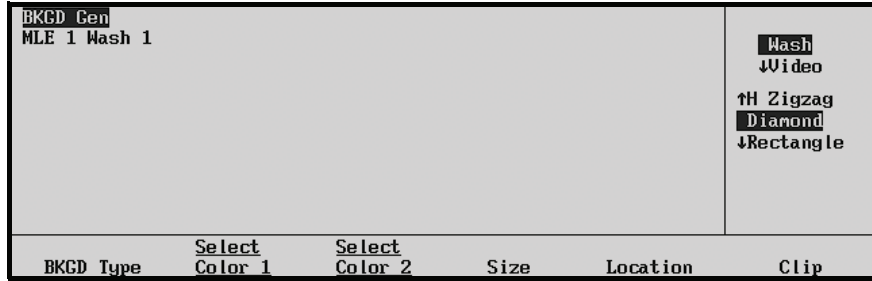
1. Ensure that your preview monitor is set to the desired MLE.
2. In a selected MLE, choose the desired *function* for which you want to create a wash. For example:
 - Press **WIPE** to create a wash for a pattern border color.
 - Press **COLOR BKGD (1 or 2)** on the bus row to create a wash for a full screen color background.
 - Press **MATTE FILL** (in Keyer 1 or 2) to create a key fill wash.
 - Press **PST PATT** (in Keyer 1 or 2) to create a wash for a key preset pattern border fill signal.
 - Enable a *border* function in Keyer 1 or 2 (e.g., **BORD**, **OUTL**) to create a wash for the key border.
3. In the **Matte** group, the MLE chosen in step 2 will be automatically selected, along with the proper matte destination button.



Note

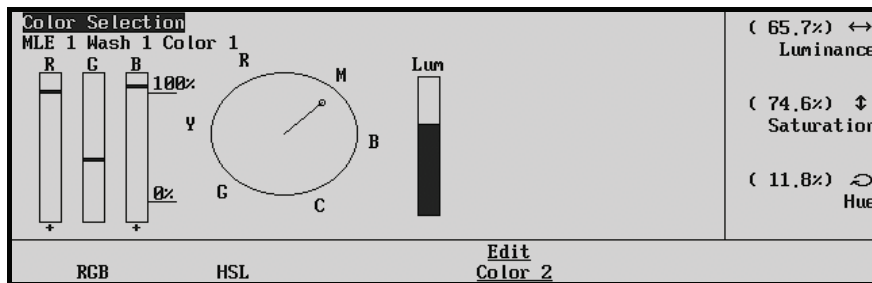
In the **Matte** group, you can also *manually* select the desired MLE and destination matte generator.

4. Press **WASH 1** or **WASH 2** to display the **Wash Menu**.
5. Press **BKGD Type** to display the **Wash Background Type Menu**.



Wash Background Type Menu

6. Use the top knob to select the “type” of wash. Choose between **Wash**, **Video**, **Noise** (simulated digital noise) and **SuperBlack**.
 - If **Wash** is selected, use the middle knob to select the “pattern” for the wash. Choose between:
 - ~ Vertical Zigzag
 - ~ Horizontal Zigzag
 - ~ Diamond
 - ~ Rectangle
 - ~ Solid diamond
 - ~ Cross
 - ~ Ramps
 - If **Video** is selected, use the middle knob to select the source of video. Choose between:
 - ~ Program Bus
 - ~ Key 1 Bus
 - ~ Key 2 Bus
7. On the **Wash Menu**, press **Select Color 1** to choose the first wash color. The **Wash Color 1 Menu** is displayed, with a graphical display to assist with the color selection. The display consists of a color wheel plus two types of bar graphs.



Wash Color Menu



Note

The default **WASH 1** pattern is a black-to-blue vertical wash (with black at the top). The default **WASH 2** pattern is a silver-to-black vertical blind.

- As desired, press **RGB** to use an RGB (Red, Green, Blue) graphic display. Press **HSL** to use an HSL (Hue, Saturation, Luminance) graphic display.



Note

If **MATTE LIMIT** is selected as **ON** in the **Personality Menu** of the Setup function, RGB will not be shown in the **Wash Color Menu** and all color adjustments will be within the RGB color space. However, colors can be adjusted outside of the RGB color space by setting the **MATTE LIMIT** to **OFF**. The system default is **OFF**.

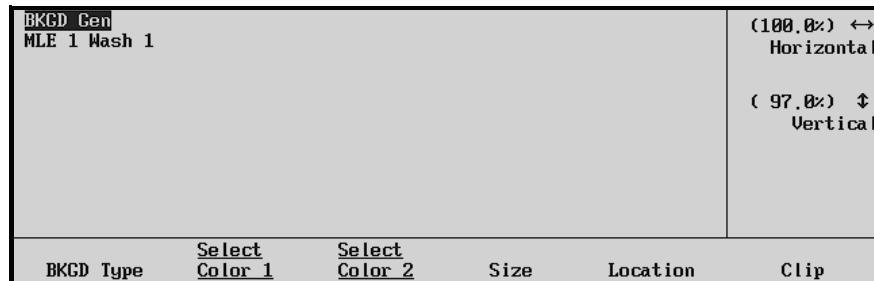
- Use the three knobs to adjust the first wash color’s **Luminance**, **Saturation** and **Hue**, (or **Red**, **Green** and **Blue** components) respectively. You can *also* adjust the wash color in each switcher’s **Matte Group**, using the dedicated **HUE**, **SAT** and **LUM** knobs. Both sets of controls work simultaneously.
- On the menu, press **Edit Color 2** to choose the second wash color. The **Wash Color 2 Menu** is displayed (which is identical to the **Wash Color 1 Menu**). Repeat step 5 for the second wash color.



Note

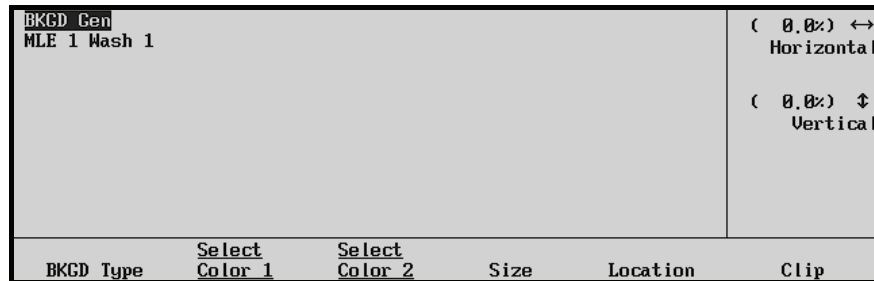
On the **Wash Color 2 Menu**, the softkey label changes to **Edit Color 1**. Otherwise, all controls are identical — however, you are not able to adjust **Wash Color 2** using the knobs in the **Matte Group**.

- Press **Size** to display the **Wash Size Menu**.



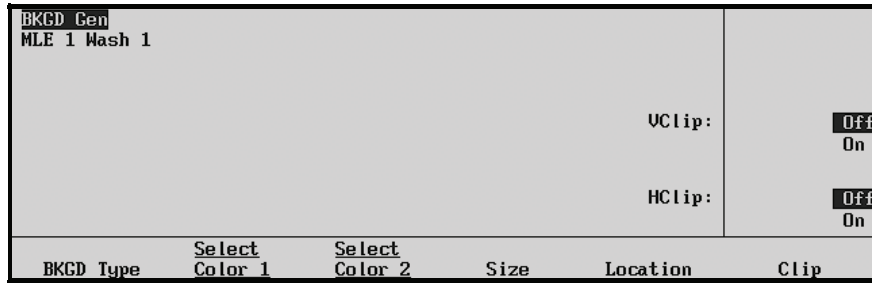
Wash Size Menu

- Use the **Horizontal** and **Vertical** knobs to adjust the horizontal and vertical size of the selected wash pattern. These controls vary the pattern’s *frequency*.
- Press **Location** to display the **Wash Location Menu**.



Wash Location Menu

- Use the **Horizontal** and **Vertical** knobs to adjust the horizontal and vertical location of the selected wash pattern. These controls vary the pattern’s *offset*.
- Press **Clip** to display the **Wash Clip Menu**.



Wash Clip Menu

- Use the middle and bottom knobs to adjust the horizontal and vertical wash clip. Normally, washes have a smooth “flowing” appearance across the screen. The **HClip** and **VClip** functions add an abrupt change that reverses the pattern flow at each repeating point.

- Adjust **VClip** to change pattern flow for vertical transitions.
- Adjust **HClip** to change pattern flow for horizontal transitions.

Both **HClip** and **VClip** can be enabled simultaneously.

This completes the procedure for designing a wash color.

Notes on Creating Washes

Please note:

- The steps (as outlined above) for creating **WASH 1** and **WASH 2** colors are identical. Either wash can be assigned to any of the five matte destinations.
- Each MLE stores *only two* wash color setups — one for **WASH 1** and one for **WASH 2**.
- When **WASH 1** or **WASH 2** is lit, the selected wash color is applied — replacing the matte generator’s single color. When **WASH 1** or **WASH 2** is turned off, the matte generator returns to its previous single color. If **WASH 1** or **WASH 2** is re-enabled for the selected matte generator, the wash is re-applied.

Creating a Pattern Border Color

Use the following procedure to create a pattern border color:

- Ensure that your preview monitor is set to the desired MLE.
- In the selected MLE, press **WIPE**.
- In the **Pattern Control** group, choose the desired wipe pattern, wipe direction and wide modifiers (such as aspect ratio, border width, border softness, and border rotation). Refer to section “**Pattern Control Group**” on page 6–2 for instructions.
- In the **Matte** group, the MLE chosen in step 2 will be automatically selected, along with the **PATT** destination button.
 - Use the three **Matte Color Knobs** to adjust the color of the pattern border matte generator.
 - If desired, press **WASH 1** or **WASH 2** to assign a wash color to the pattern border. Refer to the section “**Creating Washes**” on page 6–19 for instructions.

This completes the procedure to create a pattern border color.

Creating a Matte Fill Color

Use the following procedure to create a matte fill color:

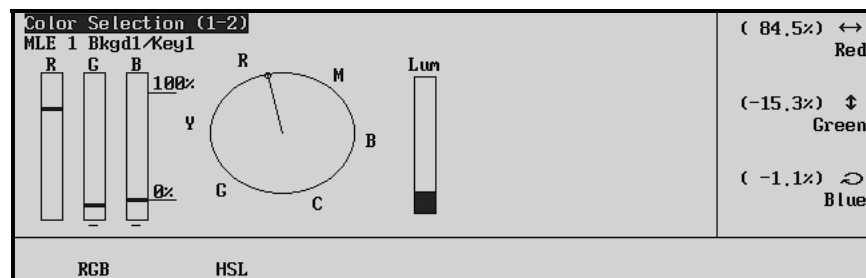
1. Ensure that your preview monitor is set to the desired MLE.
2. In the selected MLE, set up a key using **Keyer 1** or **Keyer 2**.
3. In the selected keyer, press **MATTE FILL**.
4. In the **Matte** group, the MLE chosen in step 2 will be automatically selected, along with the **BKGD 1 KEY 1** or **BKGD 2 KEY 2** button (depending upon which keyer was selected in step 2).
 - Use the three **Matte Color Knobs** to adjust the matte fill color.
 - If desired, press **WASH 1** or **WASH 2** to assign a wash color to the matte fill. Refer to section “**Creating Washes**” on page 6–19 for instructions.

This completes the procedure to create a matte fill color.

Creating a Color Background Color

Use the following procedure to create a full screen color background:

1. Ensure that your preview monitor is set to the desired MLE.
2. On bus row of the selected MLE, press **COLOR BKGD 1** or **COLOR BKGD 2**. The selected **Background Color Menu** is displayed, which consists of a color wheel plus two types of bar graphs.



Background Color Menu — RGB Selection

3. In the **Matte** group, the MLE chosen in step 2 will be automatically selected, along with the **BKGD 1 KEY 1** or **BKGD 2 KEY 2** button (depending upon which **COLOR BKGD** button was pressed in step 2).
 - Press **HSL** to display and adjust colors using a **Hue / Luminance / Saturation** display.
 - Press **RGB** to display and adjust colors using a **Red / Green / Blue** display.



Note

If **MATTE LIMIT** is selected as **ON** in the **Personality Menu** of the Setup function, RGB will not be shown in the **Background Color Menu** and all color adjustments will be within the **HSL** color space. However, colors can be adjusted outside of the RGB space by setting the **MATTE LIMIT** to **OFF**. The system default is **OFF**.

- Use the three **Matte Color Knobs** to adjust the color background.
- Press **WASH 1** or **WASH 2** to assign a wash color to the background. Refer to the section “**Creating Washes**” on page 6–19 for instructions.



Note

The default color background colors are as follows: **COLOR BKGD 1** is red; **COLOR BKGD 2** is blue.

This completes the procedure to create a full screen color background.

Keying

In This Chapter

This chapter provides instructions for using the **MLE Keyers** and **Downstream Keyers** of your Synergy Switcher. The following topics are discussed:

- Introduction to Keying
- Effects Control Group
- Using Keys
- Split Keys
- Using Downstream Keys
- Using Auto Transitions
- Using Key Modifiers
- Positioner Group



Note

Refer to the section “**Ultimate Insider Option Overview**” for instructions on operating the optional **Ultimate Insider** chroma keyer.

Refer to the section “**Downstream Key Groups**” for instructions on operating the optional **External DSKs 3 and 4 (CDK-111A-M)** external downstream keyer.

Refer to the *Squeeze & Tease 3D / WARP Owner’s Guide* for detailed keying instructions with this option installed.

Introduction to Keying

The “**Keying**” function allows you to insert (or electronically “cut”) portions of one scene into another, or to place titles over background images. Two signals are essentially required for a key:

- The “key” signal (also known as an *alpha* signal) is used to electronically *cut* a hole in the background video.
- The “fill” signal (also known as the *key foreground*) is used to electronically fill the key signal’s hole with video.

Visually, keys appear as *layers*, which can be built up to create the desired composite image. In all Synergy switchers, the following basic rules apply:

- All MLEs can generate two individual keys, which appear downstream of that MLE’s background images. The priority of those keys can be changed within the MLE itself.
- Each of the two DSKs generates a single key, which is displayed visually downstream of all Program/Preset video images.
- In the **Synergy 2** (2 MLEs), you can generate four simultaneous keys on air (two in MLE 1 and two in the DSKs).
- In the **Synergy 3** (3 MLEs), you can generate six simultaneous keys (two in MLE 1, two in MLE 2, and two in the DSKs).
- In the **Synergy 4** (4 MLEs), you can generate eight simultaneous keys (two in MLE 1, two in MLE 2, two in MLE 3, and two in the DSKs).

Refer to the section “**Video Flow through the Switcher**” on page 2–11 for additional information on basic video flow, MLE priority, and layering.

Key Group Basics

Each switcher includes *two* **Key** groups per MLE.

- In the upper MLEs, the key groups are named **MLE # Key 1** and **MLE # Key 2** (e.g., **MLE 2 Key 1** and **MLE 2 Key 2**).
- In the Program/Preset MLE, the groups are named **DSK 1** and **DSK 2**.



Note

If you press a Key crosspoint button that is assigned to an external device, the device control menu will be displayed. Pressing the button again will cycle through the device menus and the **Key Type Menu**.

Please note the following *basic* rules regarding the two key groups:

- For all key types (except Preset Patterns), the **Key Bus** is used to select key alpha and fill sources. Even though the *buttons* on the **Key Bus** are shared between the two keyers, two sets of independent keying electronics allow *each keyer* to have its own key and fill selections.

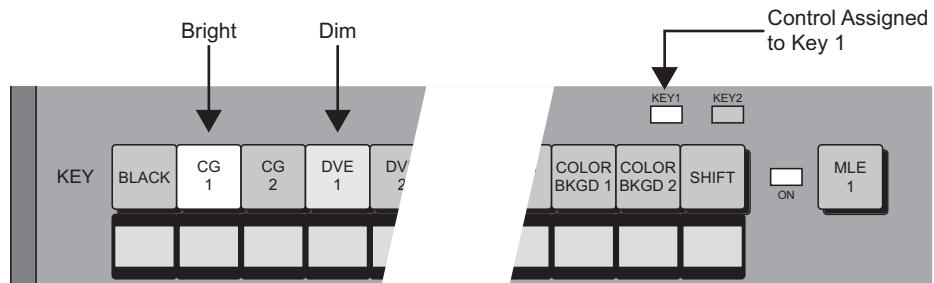
Two LEDs at the top right edge of the bus indicate which keyer currently controls the bus. (For Preset Pattern keys, the alpha signal is chosen by selecting a wipe pattern in the Pattern Group’s **Pattern Selection** section.)



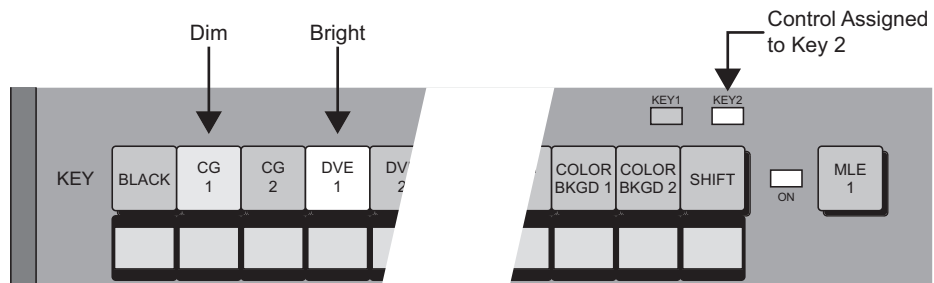
Note

All standard rules for the **Key Bus**'s **ON AIR** and **N/S** LEDs apply. Re-entry crosspoints can also be selected as a key source. Refer to the section "**Control Panel Sections**" on page 2-2 for complete descriptions.

- All **Key 1** groups are *identical* from MLE to MLE — in function, appearance and operation. When *any button* is pressed in the **Key 1** group, the **KEY 1 LED** (above the **Key Bus**) lights to show that **Key 1** has control of the **Key Bus**. As an additional visual clue, when **Key 1** has control, the key source button chosen for that keyer will be *bright*, and the button selected for **Key 2** will be *dim*.



- All **Key 2** groups are *identical* from MLE to MLE — in function, appearance and operation. When *any button* is pressed in the **Key 2** group, the **KEY 2 LED** lights to show that **Key 2** controls the **Key Bus**. As an additional clue, when **Key 2** has control, the key source button chosen for that keyer will be *bright*, and the button selected for **Key 1** will be *dim*.



- Physically, there is only *one button* that differs between the two key groups, and this button is in the *same position* in each group:
 - ~ The **Key 1** group has the **KEY OVER** button.
 - ~ The **Key 2** group has the **CHAR GEN** button.
- Functionally (besides the two different buttons listed above), there are two differences between the two key groups:
 - ~ **Key 1** (and **DSK 1**) shares its preset pattern generator with the MLE's **Wipe Generator**. This pattern generator is *full-featured* — all wipe patterns are available.

~ **Key 2 (and DSK 2)** has exclusive use of its preset pattern function. This generator is restricted to the first six columns of wipe patterns (as shown in the **Pattern Selection Section**), minus the circle. Matrix wipes are not available.

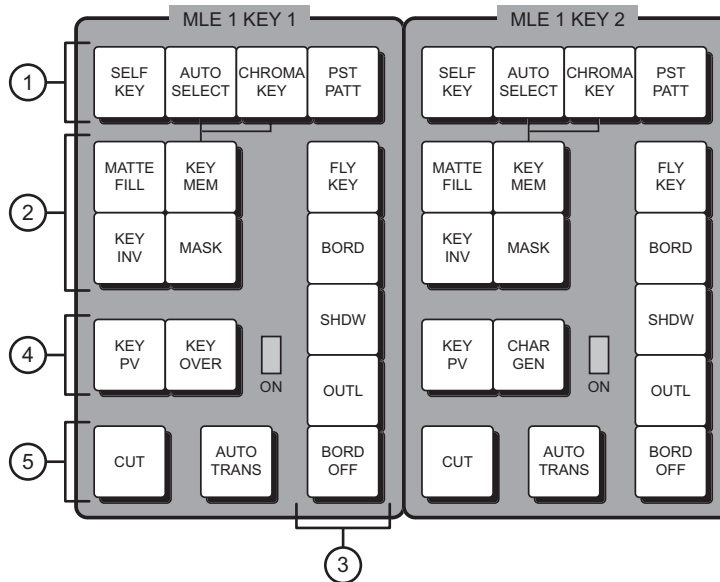


Note

Because pattern generator 1 is shared, if **PST PATT** is enabled in **Keyer 1**, you cannot press the **WIPE** button in the MLE's **Transition** group. Similarly, if **WIPE** is enabled and you select **PST PATT** in **Keyer 1**, the **WIPE** button will turn off and **DISS** will be enabled.

MLE Key Groups

The following figure illustrates the two MLE key groups for *all* Synergy switchers.



- | | | |
|---------------------------|---------------------------|---------------------------|
| 1) Key Type Section | 3) Key Modifier Section 2 | 5) Key Transition Section |
| 2) Key Modifier Section 1 | 4) Key Preview Section | |

The controls in each **MLE Key Group** allow you to choose key types and key modifiers, and insert the keys over a background using a cut or an automatic transition. Except for the **KEY OVER** and **CHAR GEN** buttons, the controls in the two groups are identical.



Note

If you press a Key type button, the Key Type Menu will be displayed. If the selected Key crosspoint is assigned to an external device, the device control menus will be displayed if the Key type button is pressed again.

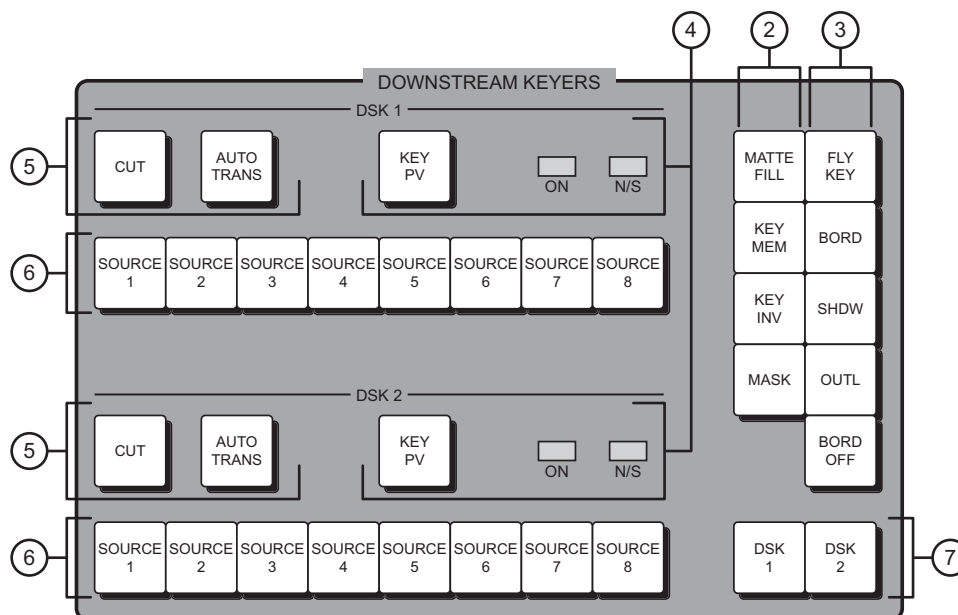
Refer to the section “**Key Functions**” on page 7–6 for complete descriptions of each section and button illustrated above.

Downstream Key Groups

The following figures illustrate the **Downstream Key** groups for the Synergy Series control panels.

Synergy 2 Control Panel

The following figure illustrates the **Downstream Key** group for the Synergy 2 panel:



1) Key Type Section (MLE Keys Only)	4) Key Preview Section	6) Key Bus Section
2) Key Modifier Section 1	5) Key Transition Section	7) Key Modifier Assignment
3) Key Modifier Section 2		



Note

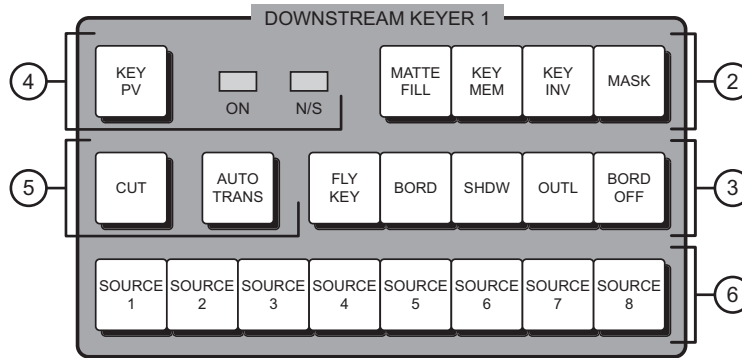
If you press a Source button, the Key Type Menu will be displayed. If the selected DSK crosspoint is assigned to an external device, the device control menus will be displayed if the Source button is pressed again.

Please note:

- On the Synergy 2 control panel, *both* DSKs are combined into one compact group.
- Each group has its own individual **Key Bus**, **Key Preview** and **Key Transition** sections, but the two **Key Modifier** sections are shared between the two DSKs.
- As the group *does not* have a **Key Type** section, the label “1” is missing from the drawing above. Refer to the description of the DSK’s **Key Bus** for details.

Synergy 3 and 4 Control Panels

The following figure illustrates the **Downstream Key** group for the Synergy 3 and Synergy 4 panels:



1) Key Type Section (MLE Keys Only)	3) Key Modifier Section 2	5) Key Transition Section
2) Key Modifier Section 1	4) Key Preview Section	6) Key Bus Section



Note

If you press a Source button, the Key Type Menu will be displayed. If the selected DSK crosspoint is assigned to an external device, the device control menus will be displayed if the Source button is pressed again.

Please note:

- On the Synergy 3 and 4 control panels, each DSK has its own individual group. Both groups (**DSK 1** and **DSK 2**) are identical.
- Because each DSK is contained within a group of its own, a **Key Modifier Assignment Section** is not required.
- As each group *does not* have a **Key Type** section, the label “1” is missing from the drawing above. Refer to the description of the DSK’s **Key Bus Section** for details.

Key Functions

This section provides detailed explanations of each area and button located in the **MLE Key** groups and **Downstream Key** groups, as described and illustrated above. Differences between the two groups are noted in the text, but in almost all cases, button functionality is identical.

1. Key Type Section (MLE Key groups only)

The **Key Type Section** provides four buttons that select the *type* of key that will be inserted over background video. The four buttons are present *only* in the **MLE Key** groups — *not* in the DSKs.



- Press **SELF KEY** to select a “Self” key type, also known as a *luminance* key. With a Self Key, the luminance (or brightness) values of the key source itself (as selected on the MLE’s **Key Bus**) are used to cut the hole.

The key hole is typically filled with the *same video signal* as the key cutter, or the hole can be filled with color matte. Self Keys are often used to key images from a title camera or occasionally from a VTR.



- Press **AUTO SELECT** to choose an “Auto Select” key type, also known as a *linear* key.

With Auto Select keys, two signals are used to cut and fill the hole — a key (alpha) signal and a fill signal. These signals originate from devices such as character generators, still stores, DVEs and graphics systems.

When you choose an Auto Select key and press a key source (on the MLE’s **Key Bus**), the switcher *automatically* selects both the alpha and fill signals. These signals were *linked* together during the installation procedure. Refer to the section, “**Setting Up Auto Keys**” in Chapter 6 of the *Synergy Series Installation Guide* for details.



- Press **CHROMA KEY** to select a “Chroma” key type. With a Chroma Key, the hole is cut based on a selected color value (hue), rather than on a luminance value or an alpha signal. The color is then electronically removed and replaced with background video from another image.

Similar to Self Keys, the Chroma Key hole is filled from the *same video source* as the key cutter, except that the fill is composed of all colors that remain *after* the selected chroma key color is removed. The hole can also be filled with color matte. Chroma Keys are typically used to key the weather caster over a weather map, or to cleanly layer full-color images into a composite scene.



Note

Unlike analog switchers, that require separate RGB signals to perform a Chroma Key, with Synergy switchers you can Chroma Key on *any key source* that you select on the **Key Bus**.



Operating Tip

Pressing the button that is currently *lit* in the **Key Type Section** is a quick way to *activate* the menu for that keyer for adjustment, when both keyers are in use.



- Press **PST PATT** to select a “Preset Pattern” key type. The hole is cut based on a wipe that you select in the **Pattern Control** group (using pattern generator 1 or 2). The pattern (which acts just like the *auto select* key’s alpha signal) is filled with video from the **Key Bus**.

Of the four key types, Preset Pattern keys have *minor differences* between **Key 1** and **Key 2**:

- ~ **Key 1**’s pattern generator is *full-featured*, but it is shared with the MLE’s **Wipe Generator**. If you press **PST PATT** in **Key 1**, you cannot press **WIPE** in the MLE’s **Transition** group. Similarly, if you have **WIPE** selected in the MLE’s transition group and you press **PST PATT**, the **WIPE** button turns off.
- ~ **Key 2**’s pattern generator is *not shared* with other functions. It is restricted to the first six columns of wipe patterns, minus the circle. Matrix wipes are not available.



Note

In the MLE **Key** groups, the key type is chosen in the **Key Type Section**, while the key source is selected on the **Key Bus**. In the DSKs, the key type is selected by holding down the DSK crosspoint and pressing the desired key type in any MLE keyer’s **Key Type Section**. The key source is selected by holding down the DSK crosspoint and pressing the desired source on the PGM/PST MLE’s PST bus. This bus effectively doubles as a key bus for the DSKs.

2. Key Modifier Section 1 (All groups)

The buttons in **Key Modifier Section 1** allow you to modify the key that is currently selected.



- Press **MATTE FILL** to fill the selected key hole with a matte color (or wash) — *instead* of the key foreground video from the **Key Bus**. All key types *except* Preset Pattern keys can be filled with matte color. Use the controls in the **Matte Group** to choose the matte’s hue, luminance, saturation, and (if desired) complex wash color. Refer to the section “**Matte Group**” on page 6–16 for matte fill and color wash instructions.



- The **KEY MEM** (memory) function applies to Auto Select and Chroma Keys only. This function allows you to store and recall *one set* of favorite adjustments per key type.
 - ~ For each **Auto Select Key**, *one memory register only* is provided that stores the key’s clip and gain settings.
 - ~ For **Chroma Keys**, *one memory register* is provided for the entire switcher. This register stores *one set* of chroma key clip, gain, hue, reject and suppress settings.

The **Key Memory** function is switcher-wide. This means that you can store a new **Auto Select** or **Chroma Key** setting in one MLE, and when you enable the *same key source* in a different MLE, both settings will be identical — visually and electronically.

The **KEY MEM** button affects each key type as follows:

~ Auto Select Keys

For Auto Select Keys, the **KEY MEM** button turns on *automatically* when you press **AUTO SELECT** and choose an Auto Select key source on the **Key Bus**. This function recalls the key’s settings from memory, no matter where the key is enabled on the switcher. With the button lit, clip and gain settings are locked. If you press **KEY MEM** to turn *off* the light, you *unlock* clip and gain, allowing you to make temporary adjustments to the linear key’s settings. Turning the button back *on again* restores the key source’s default settings from memory.

Although the default clip and gain settings were set during the switcher installation process, you can also use the **KEY MEM** button to store *new* default values for the selected linear key source. Refer to the section “**Performing an Auto Select Key**” on page 7–22 for details.

~ Chroma Keys

For Chroma Keys, press **KEY MEM** to recall all settings from the chroma key memory register. When you select a Chroma Key source, the **KEY MEM** button does *not* come on automatically. You can also use the **KEY MEM** button to store a *new* set of chroma key values. Refer to the section “**Performing a Chroma Key**” on page 7–24 for details.



- Press **MASK** to activate the **Mask** controls in the **Effects Control** group. These controls allow you to selectively eliminate unwanted portions of a key signal, similar to the “crop” function found on many DVEs. You can independently mask the top, bottom, left or right edges of the key, using a box pattern. All key types *except* Preset Pattern keys can be masked. Refer to the section “**Effects Control Group**” on page 7–14 and the section “**Masking Keys**” on page 7–49 for information and instructions.



- Press **KEY INV** to invert the polarity of the selected key signal. For example, if a Self Key source (such as a title camera) has white letters on a black background, the white letters normally cut the hole. When **KEY INV** is pressed, the signal's polarity is reversed and the *black background* cuts the hole. This function is often used to key black text that is printed on a white background. Note that all key types can be inverted.

3. Key Modifier Section 2 (All groups)

The buttons in **Key Modifier Section 2** provide *additional* modification options for the selected key.



- The **FLY KEY** button enables and disables the **Squeeze & Tease** function, allowing you to apply 2D or 3D DVE effects to any of the four key types, when enabled. The button lights *automatically* when **PST PATT** is pressed, but must be pressed manually to fly a **CHROMA KEY**, **AUTO SELECT** or **SELF KEY**.

Once enabled, you can control the flying image's size, horizontal and vertical position, and much more. This optional feature is available for all MLEs, including the DSK. The **FLY KEY** button will not light if the option is not installed in an MLE. Refer to the section "**Flying Keys in 2D**" on page 7–51 for instructions.



- Press **BORD** to add a border behind the selected key type. The border can appear as a simple *surrounding* border or as a detached shadow. Border width, color and transparency are all adjustable.

The **Dual Border Generator** option must be installed. The **BORD** button will not light if the option is not installed in an MLE. Refer to the section "**Bordering Keys**" on page 7–60 for instructions.



- Press **SHDW** to add a drop shadow behind the selected key type, with variable width, color and transparency. The **Dual Border Generator** option must be installed.



- Press **OUTL** to add an outline around the selected key type, with variable width, color and transparency. With **OUTL** selected, the key fill is completely transparent. The **Dual Border Generator** option must be installed. The **OUTL** button will not light if the option is not installed in an MLE. Refer to the section "**Bordering Keys**" on page 7–60 for instructions.



- Press **BORD OFF** to turn off any selected border type. The **Dual Border Generator** option must be installed. The **BORD OFF** button will not light if the option is not installed. Refer to the section "**Bordering Keys**" on page 7–60 for instructions.

4. Key Preview Section

The buttons in the **Key Preview Section** differ slightly between the key groups, as noted below.



- (All groups) Press and *hold* **KEY PV** to shortly take control of the MLE's (or DSK's) preview monitor output, to show how the key would appear if **CUT** or **AUTO TRANS** is pressed. The button is also useful to simply *activate* a keyer for adjustment, when both keyers are in use. **KEY PV** is non-latching, and *must* be held down to view the key's preview.

The **Key Preview** function itself is necessary because each keyer does *not* have a button similar to the **Transition Group's TRANS PV** (which rehearses transitions without affecting output). **Key Preview** can also be used as a *last-minute* check

before taking a key to air, and also when you want to quickly identify *which key is which* on an MLE, when *both* keys are on-air simultaneously.



- (MLE **Key 1** group only) Press **KEY OVER** to change the priority of the two keyers with a *cut*. Normally, **Key 2** is *over* (visually on top of) **Key 1**. However, when **KEY OVER** is lit, **Key 1** is over **Key 2**.



Operating Tip

You can also change the priority of the two keyers in the **Key Setup Menus** by toggling the **Key Over** softkey between **On** and **Off**. Refer to the section “**Using Keys**” on page 7–20 for more information.



- (MLE **Key 2** group only) Press **CHAR GEN** to select your most frequently used “favorite” character generator, without having to hunt for it on the **Key Bus**. When pressed, the key type and key source are automatically selected, **KEY MEM** is turned on, and key modifiers are turned off to provide a *clean* CG key. Refer to the section “**Programming a Favorite CG**” on page 7–62 for instructions.



- (All groups) The **ON** LED has three states:
 - ~ When the LED is **Off**, the keyer is turned off and *not* contributing to the output of the MLE or switcher.
 - ~ When the LED is lit **Green**, the keyer is turned on but contributing to the output of the *MLE only* — not the program output of the entire switcher.
 - ~ When the LED is lit **Red**, the keyer is turned on and contributing to the program output of the entire switcher.

Note that the state of the **ON** LED is duplicated by the associated keyer’s **ACTIVE** LED in the MLE’s **Transition Group** (directly under the **KEY 1** or **KEY 2** “next transition” button).



- (DSK groups only) The **N/S** LED, when lit, indicates that the selected key alpha or fill signal is non-synchronous.

5. Key Transition Section (All groups)

The buttons in the **Key Transition Section** provide you with two methods for taking the selected key on or off air:



- Press **CUT** to instantaneously “cut” the key on or off air.
 - ~ If the key is currently off, press **CUT** to cut the key on.
 - ~ If the key is on, press **CUT** to cut it off air.

The **CUT** button itself is *momentary* — it does not stay lit. Refer to the section “**Key Cut Notes**” on page 7–47 for additional important rules regarding the **CUT** button.



- Press **AUTO TRANS** to smoothly transition the key on or off air, using a dissolve (from 1 to 999 frames).
 - ~ If the key is currently off, press **AUTO TRANS** to dissolve the key on.
 - ~ If the key is on, press **AUTO TRANS** to dissolve the key off air.

The **AUTO TRANS** button is *momentary* — it stays lit only *during* the transition. Refer to the section “**Using Auto Transitions**” on page 7–45 for more information on changing auto transition dissolve rates.



Note

When you press **AUTO TRANS** in DSK 1, DSK 2, MLE KEY 1 or MLE KEY 2, the following actions occur to show a key transition in progress:

- The **DISS** button (in the **Program/Presets Transition** group or **MLE Transition Group**) lights.
- The **DSK 1, DSK 2, KEY 1** or **KEY 2** button lights (as appropriate).
- The display above the Fader (in the **Program/Presets Transition** group *only*) briefly updates with the rate of the selected DSK's transition.

Refer to the section “**Using Keys**” on page 7–20 for more information.

6. Key Bus Section (DSK groups only)

Each **Downstream Key Group** does *not* include a **Key Type** section. Instead, each DSK includes an eight-button **Key Bus**, as shown below (with sample key source names):



Each of the eight crosspoints in the DSK's **Key Bus** function as mini storage registers for all parameters of a key, including key type, source, modifiers, clips — *everything*.

During on air operation, when a **Key Bus** crosspoint is pressed, all key parameters are instantly called up for simplicity, convenience, and instant access.

Please note:

- You do *not* have to program identical sources on each DSK's **Key Bus**. For example, crosspoint 1 on DSK 1 can have CG 1, while crosspoint 1 on DSK 2 can have CG 2. Effectively, you can program 16 different key sources spanning the two DSKs.
- Although the crosspoints are typically programmed during switcher installation, the simple programming procedure can be performed on-the-fly, during switcher operation — if you need to quickly program a key source for use in the current production. You may want to label one of the crosspoints “**TEMP**” (as shown in the illustration above) for just this purpose.
- The default states for each DSK can be stored using the **DSK Setup Menu**. Refer to the section “**Storing DSK Crosspoint Assignments**” on page 7–42 for details. Refer to the section “**DSK Source Bus Setup**” on page 7–41 and the section “**Performing a Downstream Key**” on page 7–39 for additional information.

7. Key Modifier Assignment Section (Synergy 2 DSK group only)

Because of its compact size, the Synergy 2's DSK group contains only one set of key modifiers, instead of one per DSK. As a result, two buttons are required for assigning the modifiers.



- Press **DSK 1** to manually assign the buttons in **Key Modifier Sections 1** and **2** to **DSK 1**. The button will automatically light if any button associated with **DSK 1** is pressed.

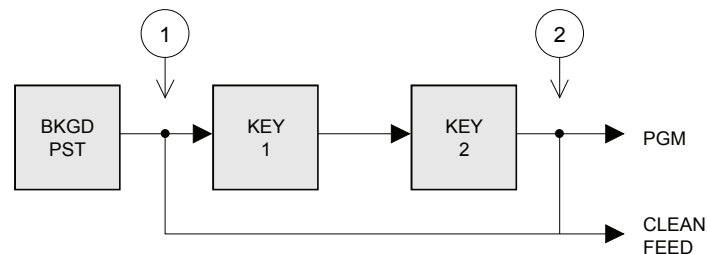


- Press **DSK 2** to manually assign the buttons in **Key Modifier Sections 1 and 2** to **DSK 2**. The button will automatically light if any button associated with **DSK 2** is pressed.

A Word About Clean Feed

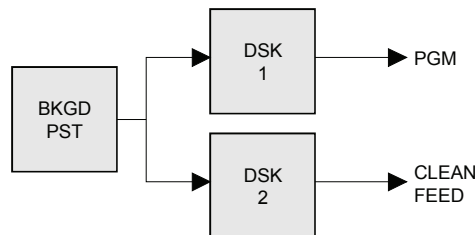
The **Clean Feed Menu** allows you to set up your MLE keys or DSKs in a special output mode.

- On an MLE, the **Clean Feed** output can be generated from any MLE keyer — from *before* or *after* the keyers as illustrated below. The point from which the feed is derived is software-configurable.



Basic Clean Feed Modes

- ~ At point **1** above, the clean feed output is pulled after the MLE's program/preset bus, but *before* the two keys are added.
- ~ At point **2** above, the clean feed output is pulled downstream of the two MLE keyers — effectively, an additional output.
- If assigned to the DSKs, the **Clean Feed** output can be configured in one of the following ways:



Split Clean Feed Modes

- ~ In **Split** mode, program is sent out of **DSK 1** and Clean Feed out of **DSK 2**. Both DSKs are independently switched.
- ~ The **Split Follow** mode has the same routing as the **Split** mode, but both DSKs are slaved together. If you *cut* on **DSK 1**, **DSK 2** automatically cuts in sync. This special mode is very useful for switching a program with two simultaneous languages — using two different CGs.
- ~ In **Between Keys** mode, the clean feed output is pulled downstream of **DSK1** but before **DSK2**.
- If the special **DVE Alpha** mode is assigned on the **Clean Feed Menu**, it eliminates DVE Send limitations with regard to routing keys to a DVE. Specifically, you cannot route a Squeeze & Tease Key, a Chroma Key, or a modified Auto Select key to an external DVE without a background signal behind it — *unless* you enable the **Clean Feed Alpha** function.

With the feature enabled, the clean feed alpha signal is routed to the DVE, thus removing the DVE Send limitations with Squeeze & Tease, Chroma and Auto Select keys as described above.



Important

With **DVE Alpha** selected and the clean feed alpha signal routed to the external DVE, the switcher's **Clean Feed** output signal (on the **CLEAN** output connector) is lost.

- If the **AlphaNomadCK** mode is assigned on the **Clean Feed Menu**, the clean feed output will follow the last selected Chroma key. In the Clean Feed From Menu, the MLE will be locked to the bottom MLE. When a Chroma Key is selected on any Keyer in any of the MLEs, the clean feed signal will change to the alpha signal for the selected Keyer.
- If the **Alpha Key 1** mode is assigned on the **Clean Feed Menu**, the clean feed output will be the alpha for Key 1 of the selected MLE.
- If the **Alpha Key 2** mode is assigned on the **Clean Feed Menu**, the clean feed output will be the alpha signal for Key 2 of the selected MLE.

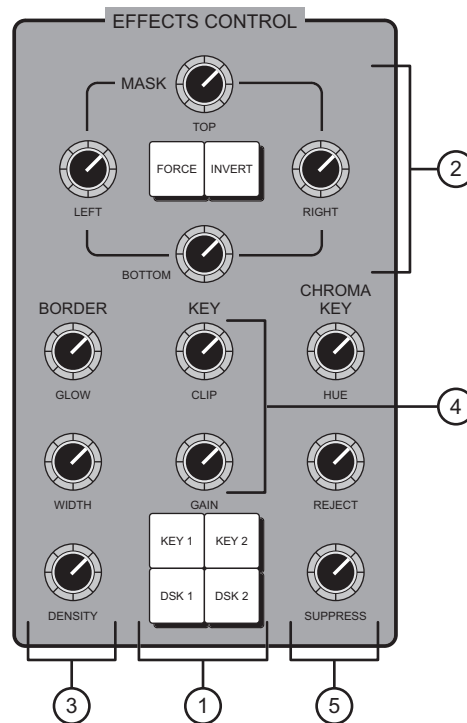
Please consult with your facility engineer to determine how your Synergy switcher is configured. Refer to the section, “**Clean Feed Setup**” of the *Synergy Series Installation Guide*, for full details.

Effects Control Group

The three following figures illustrate the **Effects Control** groups, which vary slightly in their layout from switcher to switcher.

Synergy 2 Control Panel

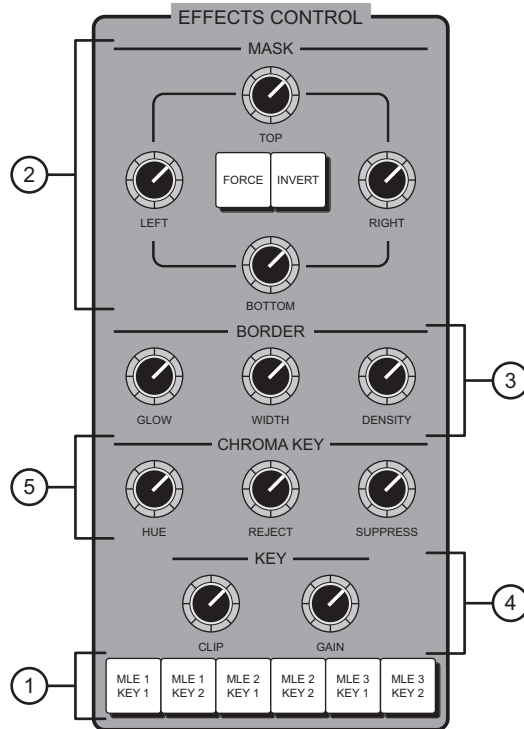
The following figure illustrates the **Effects Control** group for the Synergy 2 panel:



1) Effects Control Assignment Section	3) Border Control Section	5) Chroma Key Section
2) Mask Section	4) Key Control Section	

Synergy 3 Control Panel

The following figure illustrates the **Effects Control** group for the Synergy 3 panel:



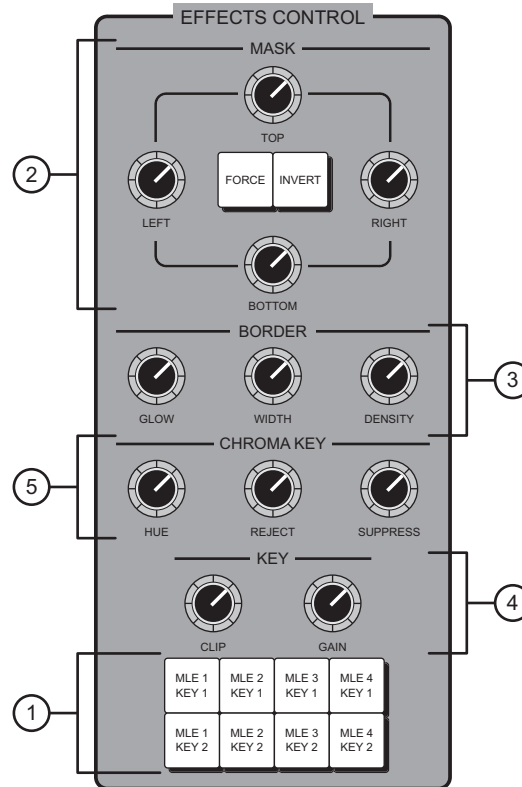
1) Effects Control Assignment Section
2) Mask Section

3) Border Control Section
4) Key Control Section

5) Chroma Key Section

Synergy 4 Control Panel

The following figure illustrates the **Effects Control** group for the Synergy 4 panel:



1) Effects Control Assignment Section	3) Border Control Section	5) Chroma Key Section
2) Mask Section	4) Key Control Section	

Descriptions of each section, button and knob in the **Effects Control** group are discussed below. The differences between switcher panels are noted as well.

1. Effects Control Assignment Section

The **Effects Control Assignment Section** provides a group of buttons that allow you to assign the **Effects Control** group to individual MLEs. Buttons are selected automatically or they can be selected manually.



- (Synergy 2) Press **KEY 1** to assign the group to control keys, borders, and masks in **MLE 1's Key 1** group. The button lights *automatically* if any button is pressed in **MLE 1's Key 1** group.
- (Synergy 2) Press **KEY 2** to assign the group to control keys, borders, and masks in **MLE 1's Key 2** group. The button lights *automatically* if any button is pressed in **MLE 1's Key 2** group.
- (Synergy 3 and 4) Press **MLE 1 KEY 1** to assign the group to control keys, borders, and masks in **MLE 1's Key 1** group. The button will also light *automatically* if any button is pressed in **MLE 1's Key 1** group.
- (Synergy 3 and 4) Press **MLE 1 KEY 2** to assign the group to control keys, borders, and masks in **MLE 1's Key 2** group. The button will also light *automatically* if any button is pressed in **MLE 1's Key 2** group.



- (Synergy 3 and 4) Press **MLE 2 KEY 1** to assign the group to control keys, borders, and masks in **MLE 2's Key 1** group. The button will also light *automatically* if any button is pressed in **MLE 2's Key 1** group.



- (Synergy 3 and 4) Press **MLE 2 KEY 2** to assign the group to control keys, borders, and masks in **MLE 2's Key 2** group. The button will also light *automatically* if any button is pressed in **MLE 2's Key 2** group.



- (Synergy 3 and 4) Press **MLE 3 KEY 1** to assign the group to control keys, borders, and masks in **MLE 3's Key 1** group. The button will also light *automatically* if any button is pressed in **MLE 3's Key 1** group. On the Synergy 3, this button controls the **DSK 1** group.



- (Synergy 3 and 4) Press **MLE 3 KEY 2** to assign the group to control keys, borders, and masks in **MLE 3's Key 2** group. The button will also light *automatically* if any button is pressed in **MLE 3's Key 2** group. On the Synergy 3, this button controls the **DSK 2** group.



- (Synergy 2) Press **DSK 1** to assign the group to control keys, borders, and masks in the **DSK 1** group. The button lights *automatically* if any button in **DSK 1** is pressed.



- (Synergy 4) Press **MLE 4 KEY 1** to assign the group to control keys, borders, and masks in **MLE 4's DSK 1** group. The button will also light *automatically* if any button is pressed in **MLE 4's DSK 1** group.



- (Synergy 2) Press **DSK 2** to assign the group to control keys, borders, and masks in the **DSK 2** group. The button will also light *automatically* if any button in **DSK 2** is pressed.



- (Synergy 4) Press **MLE 4 KEY 2** to assign the group to control keys, borders, and masks in **MLE 4's DSK 2** group. The button will also light *automatically* if any button is pressed in **MLE 4's DSK 2** group.

2. Mask Section

(All switchers) The controls in the **Mask Section** allow you to eliminate unwanted portions of a key signal, similar to a DVE's crop function. The section is activated by the **MASK** button in each key group. All types of keys (except Preset Patterns) can be masked. Each key has its own individual mask that is stored in memory.

When the **MASK** button is lit, the controls are active. If the button is turned off, the controls are disabled and any mask that was previously applied is removed from the key. If the **MASK** button is re-enabled for that key, the previous mask is recalled from memory and re-applied.



- Rotate the **TOP** knob to trim (eliminate) the top edge of the key.



Original Key

Top Mask Applied



- Rotate the **BOTTOM** knob to trim the bottom edge of the key.



Original Key

Bottom Mask Applied



- Rotate the **LEFT** knob to trim the left edge of the key.



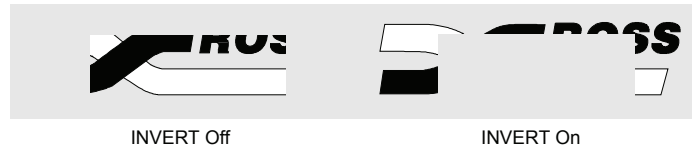
- Rotate the **RIGHT** knob to trim the right edge of the key.



- Press **FORCE** to force the area inside the mask region to the foreground, essentially forcing it to key in 100% — regardless of the current clip and gain settings. In postproduction, this function is typically used to clean up a key and also (in the case of Chroma Keys) to place a mask around an actor’s blue eyes and allows them to key though.



- Press **INVERT** to reverse the polarity of the mask. With the button turned off, the mask is applied from the outside edges towards the inside of the key. With the button on, the mask is applied from the inside edges towards the outside.



3. Border Control Section

The three knobs in the **Border Control Section** allow you to adjust key border parameters. The **Dual Border Generator** option must be installed. The controls are identical for all switchers. The knobs are activated by enabling the **BORD**, **SHDW** or **OUTL** button in any MLE or DSK group. Note that the knobs work in parallel with controls on the **Border Menu**.



- Rotate the **GLOW** knob to adjust the “glow level” of the key border, shadow or outline — ranging from a hard edge to a soft edge.



- Rotate the **WIDTH** knob to adjust the “border size” for border, shadow and outline effects.



- Rotate the **DENSITY** knob to adjust the “density” (transparency) of the key border, shadow or outline.

4. Key Control Section

(All switchers) The knobs in the **Key Control Section** allow you to adjust key clip and gain levels. Both controls are activated for all keys (except PST PATT fly keys), but for Auto Select keys, the **KEY MEM** button must be off in order to adjust clip and gain.



CLIP

- Rotate **CLIP** to adjust the key's luminance or *threshold* level. Only the areas of the source video that are *higher* than the setting of the threshold will cut a hole in the background video.



GAIN

- Rotate **GAIN** to adjust the key's gain. The control acts on all keys (except PST PATT fly keys) and *softens* the key edge, allowing you to adjust the way that the key blends into the background. For Auto Select (linear) keys, the adjustment ensures the correct key transparency.
- Rotate the **GLOW** knob to adjust the “glow level” of the key border, shadow or outline — ranging from a hard edge to a soft edge.

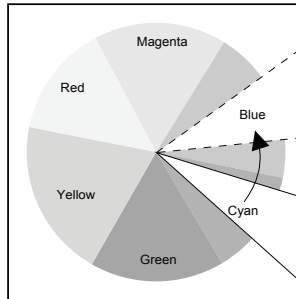
5. Chroma Key Section

The knobs in the **Chroma Key Section** allow you to adjust chroma key parameters whenever the **CHROMA KEY** button is active in a keyer. The controls are identical for all switchers.



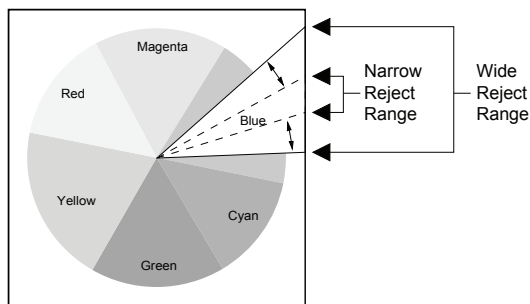
HUE

- Rotate **HUE** to select the color that you want to key out — essentially, the color to be *replaced* by the background video. The knob rotates through the full 360-degree color spectrum.



REJECT

- Rotate **REJECT** to control the *width* of the hue. If you imagine a line that is centered on the hue (as selected with the **HUE** knob), **REJECT** widens or narrows the angle surrounding that line, allowing you to *fine tune* the color range that is keyed out.



SUPPRESS

- Rotate **SUPPRESS** to adjust the amount of chroma that is retained in the key's foreground. The control works on the selected hue. This control is useful for eliminating blue or green spill (from a chroma key background) that falls on an actor's shoulders or hair.

Using Keys

This section includes detailed instructions for using keys. Prior to proceeding, ensure that you have read the previous “**Key Functions**” section thoroughly.

Performing a Self Key

A Self Key is one in which the luminance (or brightness) values of the key source itself are used to cut the hole.

Use the following procedure to perform a self key on an MLE Keyer:

1. Ensure that your program/preview monitoring is set as needed for the selected MLE. Refer to the section “**Using the Preview Bus**” on page 4–33 for details.
2. Select an input on the MLE’s **PGM** or **BKGD** bus. This provides the background over which the key will appear.
3. On the **Key Bus**, select the desired luminance key source (such as a title camera or VTR).
4. In the MLE’s **Key 1** or **Key 2** group, press **SELF KEY**.

The **Self Key Setup Menu** is displayed on the display. In the main area, **Key Fill** and **Key Alpha** sources are listed along with the *location* of the keyer.

Self Key Setup		(49.0%)
MLE 1 Key 1		Clip
Key Fill: BNC 6	(BNC 06)	
Key Alpha: BNC 6	(BNC 06)	(0.0%)
		Gain
Transparency	Key Over	Make Key
On/Off	On/Off	Linear

Self Key Setup Menu

5. Adjust the key’s clip and gain in one of two places:
 - To adjust clip level, use the top knob in the **Display Section** or the **CLIP** knob in the **Effects Control Section**.
 - To adjust gain (softness), use the middle knob in the **Display Section** or the **GAIN** knob in the **Effects Control Section**.



Note

To return the clip and gain values to the default settings of 49.0% and 0.0% respectively, press the **Make Key Linear** softkey.

6. If desired, adjust the key’s transparency by toggling Soft Key 1 to **Transparency On**. On the display, the **Transparency Field** is displayed.

Self Key Setup		(12.2%)
MLE 1 Key 1		Clip
Key Fill: BNC 6	(BNC 06)	(9.2%)
Key Alpha: BNC 6	(BNC 06)	Gain
		(0.0%)
		Transparency
Transparency	Key Over	Make Key
On/Off	On/Off	Linear

Self Key Setup Menu — Transparency On

- Use the **Transparency** knob to adjust transparency from opaque (0%) to fully transparent (100%).
7. If desired, you can toggle the **Key Over** button between **On** and **Off** to change the priority of the two keys:
 - **On** — Select **On** to change the priority to **Key 1**, setting it *over* (visually on top of) **Key 2**. The **KEY OVER** button in the **MLE Key 1 Group** will now be lit.
 - **Off** — Select **Off** to keep the priority as **Key 2** over **Key 1**. This is the default setting.
 8. Select additional key modifiers as desired, using the controls in **Key Modifier Sections 1 and 2**. Modifiers include:
 - **MATTE FILL**
 - **KEY INV**
 - **MASK**
 - **FLY KEY**
 - Border Effects

Refer to the section “**Using Key Modifiers**” on page 7–49 for details.
 9. If desired, preview the key by pressing **KEY PV**.
 10. Select the desired transition:
 - Press **CUT** (in the **MLE Key Group**) to cut the key on (or off) air. Refer to the section “**Key Cut Notes**” on page 7–47 for additional rules.
 - Select an auto transition rate, then press **AUTO TRANS** (in the **MLE Key Group**) to dissolve the key on (or off) air. Refer to the section “**Using Auto Transitions**” on page 7–45 for instructions on selecting key dissolve rates. For additional rules, refer to the section “**Key Auto Transition Notes**” on page 7–47.
 - Use the proper **KEY 1** or **KEY 2** “next transition” button (in the **MLE Transition Group**) to bring the key on (or off) air. Refer to the section “**Working with Next Transitions**” on page 5–9 for complete instructions on the three “next transition” buttons.

This completes the procedure to perform a self key on an MLE Keyer.

Notes on Performing Self Keys

Please note the following important points regarding self keys:

- If you select a different self key source, you will need to re-clip the source as outlined above. There is only *one* memory register per MLE keyer for self keys.
- The system allows you to enable the **FLY KEY** button (**Squeeze & Tease** mode) for a Self Key, provided that the other MLE keyer is not flying an Auto Select Key. You can also fly *two* Self Keys in an MLE at a time. Refer to the section “**Flying Keys in 2D**” on page 7–51 for further details.

Performing an Auto Select Key

An Auto Select (or “linear”) key is one in which two signals are used to cut and fill the hole — a key (alpha) signal, and a fill signal. These signals originate from devices such as character generators, still stores, DVEs and graphics systems.

Use the following procedure to perform an auto select key on an MLE Keyer:

1. Ensure that your program/preview monitoring is set as needed for the selected MLE. Refer to the section “**Using the Preview Bus**” on page 4–33 for details.
2. Select an input on the MLE’s **PGM** or **BKGD** bus. This provides the background over which the auto select key will appear.
3. On the **Key Bus**, select the desired auto select key source. For example, a character generator or a DVE.
4. In the MLE’s **Key 1** or **Key 2** group, press **AUTO SELECT** to display the **Auto Key Setup Setup Menu**.

Auto Key Setup		(49.0%)
MLE 1 Key 1		Clip Locked
Key Fill: BNC 10	(BNC 10)	
Key Alpha: BNC 14	(BNC 14)	(81.9%)
		Gain Locked
Transparency	Key Over	Make Key
On/Off	On/Off	Linear

Auto Key Setup Menu

- The menu lists the individual **Key Fill** and **Key Alpha** sources (which are linked during switcher installation), the *location* of the selected keyer, and whether or not the key’s alpha signal is *shaped* (also determined during installation). On the panel, note that the **KEY MEM** button turns on automatically to indicate that clip and gain are locked. This state is also reflected by the “**Locked**” labels on the display.
5. The key’s clip and gain settings were set during the installation process. Typically, they should *not* need to be adjusted. If you *do* need to adjust them *temporarily*, turn off the **KEY MEM** button. The display changes to indicate that clip and gain are now *unlocked*.

Auto Key Setup		(49.0%)
MLE 1 Key 1		Clip
Key Fill: BNC 10 (BNC 10)		(81.9%)
Key Alpha: BNC 14 (BNC 14)		Gain
Transparency On/Off	Key Over On/Off	Make Key Linear

Auto Key Setup Menu — Clip and Gain Unlocked

- Adjust clip and gain in one of two places:
 - ~ To adjust clip level, use the top knob in the **Display Section** or the **CLIP** knob in the **Effects Control Section**.
 - ~ To adjust gain (softness), use the middle knob in the **Display Section** or the **GAIN** knob in the **Effects Control Section**



Note

To return the clip and gain values to the default settings of 49.0% and 81.9% respectively, press the **Make Key Linear** softkey.

If you turn **KEY MEM** back on again, the previously stored values are recalled from memory.

Refer to the section “**Auto Select Key Operating Tips**” on page 7–24 for instructions on re-storing new clip and gain settings for an Auto Select key.

6. If desired, adjust transparency as follows:
 - Toggle the **Transparency** button to **On**.
 - Use the **Transparency** knob to adjust transparency from opaque (0%) to fully transparent (100%).
7. If desired, change the priority of the two keyers as follows:
 - Toggle the **Key Over** button between **On** and **Off** to change the priority of the two keyers:
 - ~ **On** — Select this option to change the priority to **Key 1**, setting it *over* (visually on top of) **Key 2**. The **KEY OVER** button in the **MLE Key 1 Group** will now be lit.
 - ~ **Off** — Select this option to keep the priority as **Key 2** over **Key 1**. This is the default setting.
8. Select and adjust additional key modifiers as desired, using the controls in **Key Modifier Sections 1** and **2**. Modifiers include:
 - **MATTE FILL**
 - **KEY INV**
 - **MASK**
 - **FLY KEY**
 - **Border Effects**

Refer to the section “**Using Key Modifiers**” on page 7–49 for details.

9. If desired, preview the key by pressing **KEY PV**.

10. Select the desired transition:
 - Press **CUT** (in the **MLE Key** group) to cut the key on (or off) air.
 - Select a transition rate, then press **AUTO TRANS** (in the **MLE Key** group) to dissolve the key. Refer to the section “**Using Auto Transitions**” on page 7–45 for instructions on changing dissolve rates.
 - Use the proper **KEY 1** or **KEY 2** “next transition” button (in the **MLE Transition Group**) to bring the key on (or off) air. Refer to the section “**Working with Next Transitions**” on page 5–9 for instructions on the three “next transition” buttons.

This completes the procedure to perform an auto select key on an MLE Keyer.

Auto Select Key Operating Tips

Please note the following important points regarding Auto Select (linear) keys:

- If you select a different linear key source, the **KEY MEM** button will automatically turn on.
- You cannot enable the **FLY KEY** button (**Squeeze & Tease** mode) for an Auto Select key, if the other MLE keyer is already flying a key of any type (Self, Auto Select, Chroma, or Preset Pattern). In addition, you can only fly *one* Auto Select key in an MLE at a time. Refer to the section “**Flying Keys in 2D**” on page 7–51 for further details.
- If the **KEY MEM** button is off, you can adjust the key’s clip and gain settings on a temporary basis. In this mode, if you want to permanently store the new clip and gain settings, use the following steps:
 - a) Ensure that **KEY MEM** is off.
 - b) Adjust clip and gain for the desired appearance.
 - c) Press and *hold* the **AUTO SELECT** button.
 - d) Press **KEY MEM**, and release both buttons.

This procedure re-locks the clip and gain values, and stores the new settings in memory.



Important

There is no *undo* function. If you re-store clip and gain, you cannot recall previous values unless you recall settings from memory. Refer to the section “**Storing Memory Registers**” on page 8–9 for information.

Performing a Chroma Key



Note

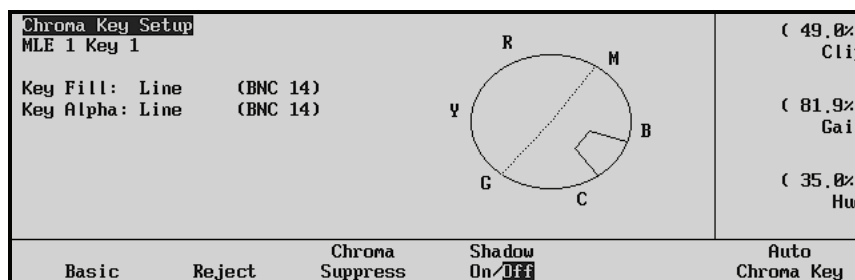
This section provides instructions for performing a **Chroma Key** with the Synergy switcher’s standard chroma key function. For instructions on using the optional **Ultimate Insider** function, refer to the section “**Ultimate Insider Operation**”.

A Chroma Key is one in which the hole is cut based on a color value (hue), rather than on a luminance value or an alpha signal. The color is electronically removed and replaced with background video from another image. Remember that with Synergy switchers, you can Chroma Key on *any source* selected on the **Key Bus**.

The **Chroma Key Setup Menu** provides a dynamic vectorscope graphic designed to assist you in quickly clipping chroma keys. As you adjust clip, gain and hue, the graphic updates in real time, accordingly. The menu also lists the individual **Key Fill** and **Key Alpha** sources (the *same source*), plus the *location* of the selected keyer.

Use the following procedure to perform a Chroma Key on an MLE Keyer:

1. Check that your program/preview monitoring is set as required. Refer to the section “Using the Preview Bus” on page 4–33 for details.
2. Select an input on the MLE’s PGM or BKGD bus. This provides the background over which the Chroma Key will appear.
3. On the Key Bus, select the desired Chroma Key source (typically, a camera or a graphics system).
4. In the MLE’s Key 1 or Key 2 group, press **CHROMA KEY** to display the **Chroma Key Setup Menu**.
5. Adjust the clip, gain, and hue as follows:
 - For **Display Section** adjustments, press **Basic**.

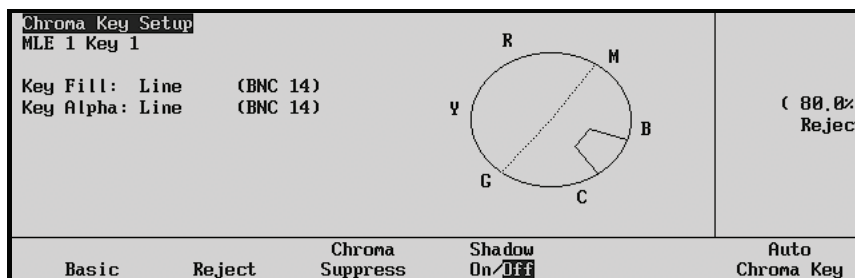


Chroma Key Setup Menu — Basic Adjustments

- Use the **Clip** knob to adjust clip level (threshold) . The default value: **49.0%**.
- Use the **Gain** knob to adjust gain (softness). The default value: **81.9%**.
- Use the **Hue** knob to select the color (hue) that you want to remove. The default value is **34.9%** (blue).

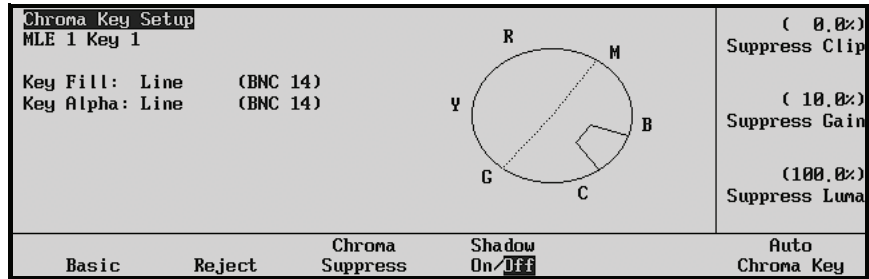
Refer to the section “Additional Chroma Key Tips and Considerations” on page 7–31 for a basic sequence of steps for clipping Chroma Keys.

6. Adjust the width of the selected hue (the **Reject** parameter) as follows:
 - For **Display Section** adjustments, press **Reject**.



Chroma Key Setup Menu — Reject Adjustments

- Use the **Reject** knob to adjust the reject level. The default value is **80.0%**.
7. Adjust the amount of chroma retained in the key’s foreground (the Chroma Suppress parameter) as follows:
 - For **Display Section** adjustments, press **Chroma Suppress**.



Chroma Key Setup Menu — Chroma Suppress Adjustments

- Use the **Suppress Clip** knob to adjust the threshold of the chroma suppression. The default value is **0.0%** (no suppression).
- Use the **Suppress Gain** knob to adjust suppression gain. The default value is **9.9%**.
- Use the **Suppress Luma** knob to adjust the brightness of the suppressed chroma. The default value is **100.0%**.



Note

The default values for **Suppress Gain** and **Suppress Luma** should be appropriate for the best possible chroma suppression in almost all cases. It is *not recommended* that you adjust these two knobs for the majority of chroma keying instances. Use **Suppress Clip** only to select the desired hue rejection.

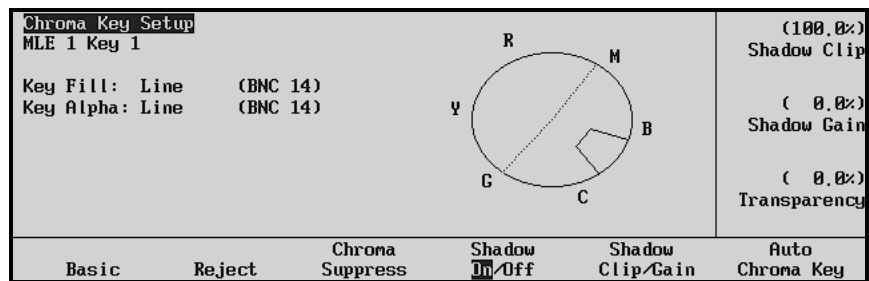
8. Adjust the Shadow parameters as follows:



Operating Tip

The **Shadow** adjustments allow you to extract a shadow from the chroma key source itself — typically, the actor’s actual shadow that is cast on the blue or green screen.

- Toggle the **Shadow** softkey to **On**.



Chroma Key Setup Menu — Shadow Adjustments

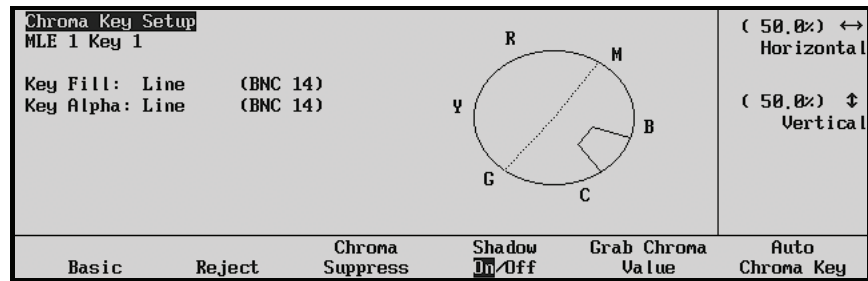
- Use the **Shadow Clip** knob to adjust the shadow’s threshold.
- Use the **Shadow Gain** knob to adjust the gain (softness) of the shadow.
- Use the **Transparency** knob to adjust the shadow’s transparency.



Note

If there are flaws and blemishes in the chroma key set’s background, they will *also* appear as shadows. Normally, a superb set with careful lighting is required for natural chroma key shadows.

9. Adjust the **Auto Chroma Key** feature for a selected color as follows:
 - Press **Auto Chroma Key** to display the **Auto Chroma Key Menu**. Note that the **Grab Chroma Value** softkey now is available on the menu.



Chroma Key Setup Menu - Auto Chroma Key

- Use the **Horizontal** knob, or move the **Positioner** *left* and *right*, to control the horizontal position of the crosshairs on screen.
- Use the **Vertical** knob, or move the **Positioner** *up* and *down*, to control the vertical position of the crosshairs on screen.
- Position the crosshairs on top of the color that is to be eliminated.
- Press **Grab Chroma Value**.

When the **Auto Chroma Key** softkey is pressed several changes take place on the switcher.

- Sets of crosshairs appear on the **Preview** output of the switcher.
- The **Preview Bus** group automatically changes and selects the MLE on which the key is being performed.
- The crosspoint on the **PST Bus** of the affected MLE changes to the video source that is being keyed.
- The three buttons in the **Next Transition** area *may change*, depending on what is currently on air.

All of these changes occur to enable a clear view of the key source on the **Preview** output. Once the **Auto Chroma Key** has been set up (the **Grab Chroma Value** softkey has been pressed) or abandoned (by either selecting another **Chroma Key Setup Menu** softkey or leaving the menu), the **Preview Bus**, **PST Bus** and **Next Transition** area are restored to the previous state.

10. Select and adjust additional key modifiers as desired, using the controls in **Key Modifier Sections 1** and **2**. Refer to the section “**Using Key Modifiers**” on page 7–49 for details. Modifiers include:
 - **MATTE FILL**
 - **KEY INV**
 - **MASK**
 - **FLY KEY**
 - Border Effects
11. If desired, preview the key by pressing **KEY PV**.

12. Select the desired transition:

- Press **CUT** (in the **MLE Key** group) to cut the key on (or off) air. Refer to the section “**Key Cut Notes**” on page 7–47 for additional rules.
- Select a transition rate, then press **AUTO TRANS** (in the **MLE Key** group) to transition the key **On** or **Off**. Refer to the section “**Using Auto Transitions**” on page 7–45 for instructions on changing transition rates. For additional rules, refer to the section “**Key Auto Transition Notes**” on page 7–47.
- Use the proper **KEY 1** or **KEY 2** “next transition” button (in the **MLE Transition Group**) to bring the key on (or off) air. Refer to the section “**Working with Next Transitions**” on page 5–9 for instructions on the three “next transition” buttons.

This completes the procedure to perform a Chroma Key on an MLE Keyer.



Note

You can fly *two* Chroma Keys at a time in an MLE (one in Key 1 and one in Key 2) using the **FLY KEY** button (**Squeeze & Tease** mode). You can also fly a Chroma Key or a Self Key or a Preset Pattern Key. However, you cannot enable the **FLY KEY** button if the other MLE is already flying an **Auto Select Key**.

Chroma Key Fine Tuning Tips

Adjusting a Chroma Key is an iterative process. To achieve the best looking key, you must adjust a set of parameters and then *return* to those parameters for subsequent adjustment — after other values have been set.

The following is a set of *basic* steps you can use for fine-tuning your Chroma Key:

1. Select **Black** as your background, choose your Chroma Key source on the **Key Bus**, and press **CHROMA KEY**.
2. Turn **KEY INV** off.
3. Turn **GAIN** to zero (0.0%).
4. Turn **SUPPRESS** to zero (0.0%).
5. Toggle **SHADOW** off.
6. Set **REJECT** to the upper mid range (80.0%).
7. Set the **CLIP** very low (e.g., 1% - 2%), to a point where you see a prominent change on screen, even if only *portions* of the background are clipped out — and even if those portions are the incorrect color.
8. Rotate **HUE** until you begin to see the proper color *key out* (typically blue or green).
 - Note that position, and continue turning until you move *beyond* that hue to another color.
 - Rotate the **HUE** knob back, and position the knob in the *center* of this range — finding the spot where the maximum amount of the proper color is keyed out.
 - If you cannot key out the desired color at all (or even find a range of hues that work), widen the **REJECT** control (e.g., move from 80% down to 50%) and try again.
9. To make clip and gain setup errors very visible, select **MATTE FILL**, and fill the key with white.
10. Re-adjust **CLIP** to the maximum value possible — without bringing in shadows and other defects in the chroma key set. A value of 15% (or better) should lead to a very

good key. Values that drop below 10% suggest that the set's background lighting needs to be improved.

11. Adjust **GAIN** to the maximum value possible — without making the key transparent, and without bringing in the background. Getting the highest possible gain is essential for obtaining clean, smooth edges. If you can't get the edges smooth without bringing in the background (and the clip is above 10%), try reducing the clip slightly — and then increasing the gain slightly.
12. Turn off **MATTE FILL** (if you turned it on), and select the desired background for your key on the **PGM** or **BKGD** bus, as appropriate.
13. Ensure that **Suppress Gain** is set to 9.9% and **Suppress Luma** is set to 100%. Modifying these values may lead to slightly better chroma suppression, but it is generally not recommended. Feel free to experiment as desired.
14. Adjust **Suppress Clip** to remove any chroma spill that may appear around the key edges. Setting **Suppress Clip** too high *may* remove too much blue in the foreground image. Tightening the range of the **Reject** control (e.g., to the 90% range) may minimize this effect. In general, a **Suppress Clip** value of 100% produces the best result.
15. As a last step, toggle **Shadow** on (if required, and if the set is of high quality), and adjust the shadow's clip, gain, and transparency.

Refer to the section “**Chroma Key Memory**” on page 7–29 for details on storing the Chroma Key settings, on a per-source basis.

Chroma Key Memory

For Chroma Keys, the **KEY MEM** button is used as a memory register for storing *one set* of clip and gain values for the entire switcher. Unlike Auto Select keys, when you press **CHROMA KEY**, the **KEY MEM** button does *not* come on automatically.

The following rules apply:

- To store Chroma Key settings, ensure that your key is clipped as desired. Press and *hold* the **CHROMA KEY** button, then press **KEY MEM**. This procedure stores the settings in memory. They are now available for recall — in any keyer on the switcher.
- To recall stored settings, ensure that **CHROMA KEY** is selected. Simply press the **KEY MEM** button. The button lights momentarily, and the stored settings are recalled to the panel. Note that this function is typically used for initial “starting point” adjustments, or for returning to a default base setting, after making several adjustments.



Important

There is no *undo* function. If you recall Chroma Key settings by pressing **KEY MEM**, you cannot recall the previous values unless you recall them from a memory register.

Refer to the section “**Ultimate Insider Operation**” for instructions on using the optional **Ultimate Insider** function.

Chroma Key Lighting Tips

Achieving a good, clean chroma key is often considered one of the most challenging exercises in a studio. There are several elements that contribute to an effective chroma key including, lighting, distance of the talent from the background, type of background used, and the type of camera used.

However, lighting is often considered the most important. Here are a few lighting hints which you may find helpful when setting up your chroma key.

Lighting the Background

- There are several different kinds of lights typically used to light chroma key backgrounds. The most common are, cyclorama lights, soft lights, scoops, florescent lights, HMIs, and umbrella lights.

For the most part, the one thing that they all have in common is the fact that they are “fill” type lights, as opposed to “key” lights. These lights provide an even, diffused, flat light, which is critical in lighting chroma key backgrounds.

- For best results, lights are usually hung in an even pattern from a grid above the background but space requirements may dictate the lights be positioned on stands beside the background. If side lighting is used, ensure the lights are positioned at equal distances from the background being lit, in order to achieve balance.
- The number of lights used to light a background is directly related to the size of the background surface. Therefore, a larger, longer surface requires more lights than a smaller one. But whatever size of surface you are lighting, the most important point to remember is the background should be lit as evenly as possible to avoid “hot spots” in the chroma key.
- When lighting the background, experienced lighting directors will first of all eyeball the background for hot spots, adjusting and readjusting the lights, but then check their work using either a waveform monitor or a photographer’s light meter. Waveform monitors are most useful since they display a graphical representation of the video level and any small variation in light level is immediately apparent. On the other hand, a light meter in the hands of an experienced professional can achieve the same results.
- Generally speaking, best chroma key results are achieved with an even level of light on the background in the area of 60 – 75 IRE on a waveform monitor. However, conditions specific to your application may dictate a value outside of that range.
- If you only have access to key type lights, you can simulate the effect of fill lights by bouncing a key light off of a reflector and then on to the chroma key background. Also, you can use diffused glass, gels, or scrims to soften the light from a key light. If you use any of these methods it’s important to note that you will lose a significant amount of the original light intensity. Therefore, it takes more lights to reach the optimum IRE level required for a good chroma key.

Lighting the Foreground (Talent)

- You can maximize the quality of your chroma key if you separate the foreground (talent) from the background by 6 – 8 feet. This enables you to light the foreground and the background separately, thus reducing or avoiding “spill” and/or shadows.

Separation also allows you more flexibility in how you light your talent. You may still choose to use a flat lighting technique, but with separation, the option exists to light your talent using a more dramatic 3-light, “Rembrandt style of lighting”, typically used in other lighting applications. This style is characterized by 3 lights – a key, a fill, and a back light.

- If spill does occur between the background and the foreground, a blue “halo” or “matte line” is displayed around the talent’s shoulders and hair. This can be reduced or eliminated by using a yellow, straw, or amber colored light for the talent’s back light. It will wash out or neutralize the blue reflection from the background on the back of the talent. (Note: this technique is not applicable to Ultimatte, as Ultimatte has circuitry designed to remove blue spill.)
- As a general rule, it is good practice to light the foreground and the background to approximately the same IRE levels but this is often varied when dramatic lighting effects are required for the talent.
- And finally, be careful not to mix lights with different color temperatures on the same set (either foreground or background). The human eye and brain are able to deal with the subtle differences in color temperatures but cameras aren’t nearly that smart. If you must use lights with different color temperatures, make sure you use colored gels to compensate for the differences. Otherwise, you may experience holes in your chroma key that will be very difficult to remove.

Additional Chroma Key Tips and Considerations

Along with lighting, there are a number of other studio elements that should be taken into account when setting up your chroma keys. They include, the background material itself, the camera and its setup, keying from a prerecorded signal on VTR, and using compressed video sources.

- Green and blue are the two most common colors used for chroma keying backgrounds and are equally effective. Blue was initially chosen because it is the complimentary color to flesh tone and, therefore, the easiest to key out (we don’t want to key out the faces, do we ...). Given today’s technology, almost any color can be used but blue and green are still the most widely used.
- There are a number of different materials commonly used as chroma key backgrounds and each has its benefits. The most common are paper, fabric, and paint. Paper is not as durable but can be more cost effective and more easily set up than the other two. Paint takes time and must be applied in several coats to ensure a deep, complete covering, while fabric also takes time and must be mounted and hung properly. Contact your lighting distributor for details on the material that best meets your budget and application.
- If you are creating your chroma key on a studio set, it is generally accepted that the quality of your chroma key is directly related to the quality of the camera shooting the scene. The background video can come from any number of sources and may be quite acceptable but the foreground video is what is being keyed and where your attention is most focused. Therefore, the camera must be as high a resolution and low in noise as your budget will allow. In the end, low cost cameras may never produce “acceptable” chroma key results no matter how well the lighting has been configured.
- Always use the SDI and not the composite output of your camera as your chroma key source. Composite outputs are considered lower quality, not broadcast, outputs and lack sufficient luminance and separation to achieve an acceptable chroma key.
- As well, *never* shoot a chroma key with the detail turned on in your camera. Detail adds noise to the video signal and makes it much more difficult for the chroma key circuits to process the video. Turning on the camera detail is not the solution to a low light level – more lights are!
- And finally, a few other points for your consideration. Avoid using foreground chroma key sources from 4:1:1 formats, highly compressed material (more than 4 to 1), or

composite analog recordings. The technical nature of their formats and storage algorithms defeat the chroma key circuits and will seldom deliver acceptable results.

Performing a Preset Pattern Key

A Preset Pattern key is one in which the hole is cut based on a wipe pattern that you select in the **Pattern Control** group. The pattern (which acts just like the alpha signal used with an *auto select* key) is filled with video from the **Key Bus**. Please note the following rules:

- When you press **PST PATT**, the system automatically selects **FLY KEY** and, by default, selects a box wipe. To use a preset pattern key *without* the Fly Key mode enabled, simply press **FLY KEY**.



Note

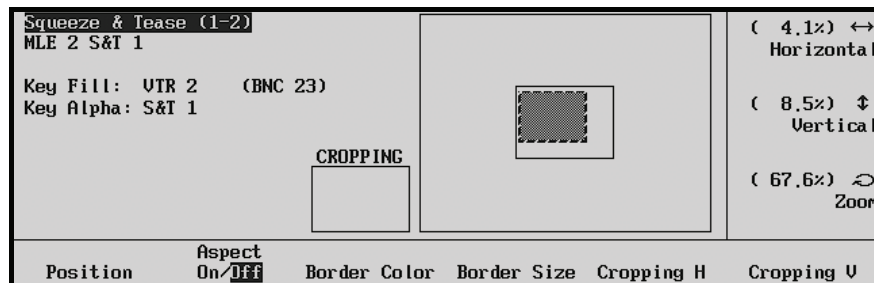
This section of the Operation manual explains **Preset Pattern** keys *without* the Fly Key mode (**Squeeze & Tease 2D**) enabled. For instructions on the Fly Key mode (**Squeeze & Tease 2D**), refer to the section “**Flying Keys in 2D**” on page 7–51.

- If you perform a Preset Pattern key in the MLE’s **Key 1** or **DSK 1**, the pattern generator is *full-featured* but it is shared with the MLE’s **Wipe Generator**.
 - ~ If you press **PST PATT** in **Key 1** or **DSK 1**, you cannot press **WIPE** in the MLE’s **Transition** group.
 - ~ If **WIPE** is selected in the MLE’s **Transition** group and you press **PST PATT** in **Key 1** or **DSK 1**, the **WIPE** button is turned off and **DISS** is automatically lit.
- If you perform a Preset Pattern key in the MLE’s **Key 2** or in **DSK 2**, the pattern generator is *not shared*, but it *is* restricted to the first six columns of wipes (minus the circle). Matrix wipes are not available.

Use the following procedure to perform a Preset Pattern key on an MLE keyer:

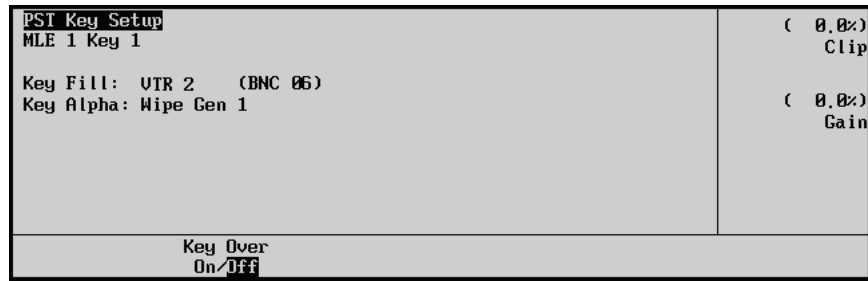
1. Ensure that your program/preview monitoring is set as required. Refer to the section “**Using the Preview Bus**” on page 4–33 for details.
2. Select an input on the MLE’s **PGM** or **BKGD** bus. This provides the background that will appear *outside* the wipe pattern (assuming **KEY INV** is off).
3. On the **Key Bus**, select the desired source that you want to appear *inside* the wipe pattern (assuming **KEY INV** is off).
4. In the MLE’s **Key 1** or **Key 2** group, press **PST PATT**.

The Fly Key mode is automatically enabled if an optional **Squeeze & Tease 2D** or **3D** card is installed, and **Squeeze & Tease Menu 1-2** is displayed by default.



Squeeze & Tease Menu — Position

- If the **FLY KEY** button lights up, press it once to *disable* the Fly Key mode. The **Preset Pattern Key Setup Menu** is displayed on the display.



Preset Pattern Key Setup Menu

In the menu's main area, the menu lists the two individual **Key Fill** and **Key Alpha** sources, plus the *location* of the selected keyer. Note that if you are using **Key 1**, **Wipe Gen 1** will be selected automatically. If you are using **Key 2**, **Wipe Gen 2** will be selected automatically.

- In the **Pattern Control Group**, select the desired wipe pattern.
- In the **Pattern Control Group**, adjust wipe parameters such as **ASPECT**, **BORDER**, **SOFT**, **ROTATION**, **NORM** and **REV**.
- Adjust the key's clip and gain in one of two places:
 - Use the top **CLIP** knob in the **Effects Control Group** to adjust clip level.
 - Use the middle **GAIN** knob in the **Effects Control Group** to adjust gain.



Note

For convenience when adjusting preset patterns, the **SOFT** knob in the **Pattern Control Group** *duplicates* the function of the **GAIN** knob in the **Effects Control Group**.

- If desired, you can toggle the **Key Over** button between **On** and **Off** to change the priority of the two keyers:
 - On** — Select **On** to change the priority to **Key 1**, setting it *over* (visually on top of) **Key 2**. The **KEY OVER** button in the **MLE Key 1 Group** will now be lit.
 - Off** — Select **Off** to keep the priority as **Key 2** over **Key 1**. This is the default setting.
- Select and adjust additional key modifiers as desired, using the controls in **Key Modifier Sections 1** and **2**. Modifiers include **KEY INV**, **MASK**, **FLY KEY** (see important note below), **POSITIONER**, and Border Effects.

The **MATTE FILL** function is not available for Preset Pattern keys. Refer to the section “**Using Key Modifiers**” on page 7–49 for details.



Important

The **FLY KEY** function can be regarded as a modifier, but it is important to note that it creates a *different type* of key when used in conjunction with preset patterns. When **FLY KEY** is enabled, the system creates a *bordered box* around the selected pattern — which can then be manipulated in 2D space. Special **Fly Key** modifiers are enabled (such as size, position, mirror, and crop), but **Preset Pattern** modifiers (clip, gain, aspect, border, and soft) are disabled. Refer to the section “**Flying Keys in 2D**” on page 7–51 for additional information.

11. If desired, preview the key by pressing **KEY PV**.
12. Select the desired transition:
 - Press **CUT** (in the **MLE Key** group) to cut the key on (or off) air. Refer to the section “**Key Cut Notes**” on page 7–47 for additional rules.
 - Select a transition rate, then press **AUTO TRANS** (in the **MLE Key** group) to dissolve the key **On** or **Off**. Refer to the section “**Using Auto Transitions**” on page 7–45 for instructions on changing transition rates. For additional rules, refer to the section “**Key Auto Transition Notes**” on page 7–47.
 - Use the proper **KEY 1** or **KEY 2** “next transition” button (in the **MLE Transition Group**) to bring the key on (or off) air. Refer to the section “**Working with Next Transitions**” on page 5–9 for instructions on the three “next transition” buttons.

This completes the procedure to perform a Preset Pattern key on an MLE keyer.

Please note the following important point regarding Preset Pattern Keys:

- You can fly *two* Preset Pattern Keys at a time in an MLE (one in Key 1 and one in Key 2) using the **FLY KEY** button (**Squeeze & Tease** mode). You can also fly a Chroma Key or a Self Key or a Preset Pattern Key. However, you cannot enable the **FLY KEY** button if the other MLE is already flying an **Auto Select Key**.

Split Keys

A **Split Key** is one in which you assign a different *fill source* for a Key — different than the *default* key/fill associations that are set up during installation, and different from those that are set up *automatically* for the various Key types. Split keys are typically used for creative montages and for keying moving video *inside* Key shapes.

There are two different Split Key functions:

- **Split Key** — Split Key allows you to hold (retain) the alpha signal of a Key, and assign a new video source to fill the hole. A typical application is when you fill the alpha signal from a character generator with the live output from a VTR or camera.
- **Split Video** — Split Video allows you to hold a (non-alpha) key cutter, and select a new video source to fill the hole. A typical application is when you fill the luminance Key signal from your title camera with the live output from a VTR or another MLE.

In both cases, a new *fill source* is assigned while the hole cutter is *held*. The following methods allow you to perform split Keys *quickly*, and without having to return to the installation menus and change your Key/fill associations.

Performing a Split Key

The **Split Key** function allows you to hold the alpha signal of a Key, and assign a new video source to fill the hole.



Note

The **Split Key** function is a *temporary* assignment. If, after setting up the Split Key, you press *any button* on the **Key Bus**, the split is released and you must set up the split again.

Use the following procedure to perform a Split Key:

1. Ensure that your program/preview monitoring is set as needed for the selected MLE. Refer to the section “**Using the Preview Bus**” on page 4–33 for details.

2. Ensure that you have set up an Auto Select Key. Refer to the section “**Performing an Auto Select Key**” on page 7–22 for details.
3. Select an input on the **BKGD** bus of the MLE. This provides the background over which the Key will appear.



Operating Tip

The switcher allows you to perform a split key on any DSK. This function holds the DSK crosspoint’s alpha signal, and assigns a new video source to fill the hole. To perform a DSK split key, hold down the desired DSK crosspoint, then press a crosspoint on any bus *except* the **Preset Bus**.

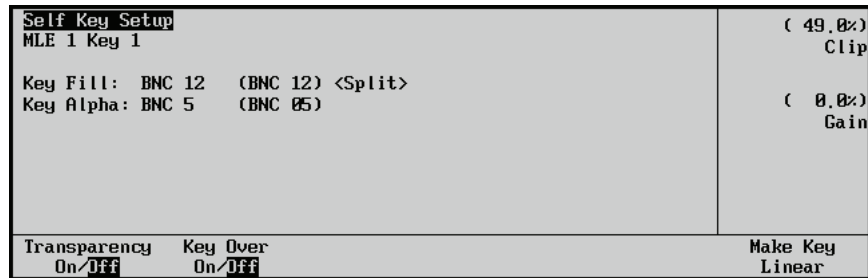
4. Press **KEY1** in the **MLE Transition Group** for the same MLE as you set the Background for. This will assign the Key bus to **Key 1**.



Operating Tip

Pressing **KEY2** instead of **KEY1** would assign the Key bus to **Key 2**.

5. On the **Key Bus**, select the desired Self Key source.
6. Press and *hold* the **AUTO SELECT** button, and select the new fill source on the **Key Bus**.
7. Release both buttons. The display now shows the selected Key alpha plus the new “split” fill video source.



Sample Split Key Menu Display

8. Adjust the Clip and Gain of the Key as desired. Refer to the section “**Performing an Auto Select Key**” on page 7–22 for more information.



Note

If, after setting up the split, you select another Key type, the split is released and you must set it up again if desired. Pressing **AUTO SELECT** again *does not* re-establish the split.

9. If desired, you can toggle the **Key Over** button between **On** and **Off** to change the priority of the two keyers:
 - **On** — Select **On** to change the priority to **Key 1**, setting it *over* (visually on top of) **Key 2**. The **KEY OVER** button in the **MLE Key 1 Group** will now be lit.
 - **Off** — Select **Off** to keep the priority as **Key 2** over **Key 1**. This is the default setting.

This concludes the procedure to perform a Split Key.

Performing a Split Video

The **Split Video** function allows you to hold a luminance Key cutter, and assign a new video source to fill the hole.



Note

The **Split Video** function is a *temporary* assignment. If, after setting up the Split Video, you press *any button* on the **Key Bus**, the split is released and you must set up the split again.

Use the following procedure to perform a Split Video:

1. Ensure that your program/preview monitoring is set as needed for the selected MLE. Refer to the section “**Using the Preview Bus**” on page 4–33 for details.
2. Select an input on the **BKGD** bus of the MLE. This provides the background over which the Key will appear.



Operating Tip

The switcher allows you to perform a split video on any DSK. This function holds the DSK crosspoint’s luminance Key cutter, and assigns a new video source to fill the hole. To perform a DSK split video, hold down the desired DSK crosspoint, then press a crosspoint on any bus *except* the **Preset Bus**.

3. Press **KEY1** in the **MLE Transition Group** for the same MLE as you set the Background for. This will assign the Key bus to **Key 1**.



Operating Tip

Pressing **KEY2** instead of **KEY1** would assign the Key bus to **Key 2**.

4. Select the desired *luminance* key source (such as a VTR or title camera) on the **Key Bus**.
5. Press and *hold* the **SELF KEY** button and select the new fill source on the **Key Bus**.
6. Release both buttons.

The display shows the luminance Key plus the new “split” fill source.

Self Key Setup		(49.0%)
MLE 1 Key 1		Clip
Key Fill: BNC 9	(BNC 09) <Split>	(0.0%)
Key Alpha: Can 6	(BNC 07)	Gain
Transparency	Key Over	Make Key
On/Off	On/Off	Linear

Sample Split Video Menu Display

7. Adjust the **Clip** and **Gain** of the Key as desired. Refer to the section “**Performing an Auto Select Key**” on page 7–22 for more information.



Note

If, after setting up the split, you select another key type, the split is released and you must set it up again if desired. Pressing **SELF KEY** again *does not* re-establish the split.

8. If desired, you can toggle the **Key Over** button between **On** and **Off** to change the priority of the two keyers:
 - **On** — Select **On** to change the priority to **Key 1**, setting it *over* (visually on top of) **Key 2**. The **KEY OVER** button in the **MLE Key 1 Group** will now be lit.
 - **Off** — Select **Off** to keep the priority as **Key 2** over **Key 1**. This is the default setting.

This completes the procedure for performing a Split Key.

Using Downstream Keys

A Downstream Key (DSK) is performed in much the same way as an MLE Key. There are, however, a few important similarities and differences, as follows:

- All rules for the **FLY KEY** button (**Squeeze & Tease** mode) apply in the two DSKs:
 - ~ You can only fly *one* **Auto Select Key** in the Program/Preset MLE at a time. If one DSK is already flying an **Auto Select Key**, you cannot enable the **FLY KEY** button in the other DSK.
 - ~ In the Program/Preset MLE, you can fly *any combination* of **Preset Pattern Keys**, **Chroma Keys** or **Self Keys**, one in DSK 1 and the other in DSK 2.
- While there is no **KEY OVER** button in the DSKs, you can change the priority in the **Key Setup Menus**. The default setting is to DSK 2 over DSK 1. Refer to the section “**Performing a Downstream Key**” on page 7–39 for information on how to change the priority for the DSKs.



Important

Using the **Clean Feed Menu**, your DSKs *may* be set up either in **Split** or **Split Follow** modes.

- In **Split** mode, program is sent out of **DSK 1** and Clean Feed out of **DSK 2**. Both DSKs are independently switched.
- The **Split Follow** mode has the same routing as **Split** mode, but both DSKs are slaved together. If you *cut* on **DSK 1**, **DSK 2** cuts in sync.

Refer to Chapter 9 “**Additional Installation Setups**” in the *Synergy Series Installation Guide* for details.

When you select a source on the DSK 1 or 2 source bus, the DSK **Key Setup Menu** is displayed.

Auto Key Setup		(49.8%)
DSK Key 1		Clip Locked
Key Fill: BNC 10	(BNC 10)	
Key Alpha: BNC 14	(BNC 14)	(81.9%)
DSK Button:2		Gain Locked
Transparency	Key Over	Make Key
On/Off	On/Off	Linear

Sample DSK 1 Auto Key Setup Menu

The menu displays all the source and Key information that has been setup for that DSK source. The following information is displayed on the menu:

- **Top Line:** Key Type (e.g., Auto Key, Chroma Key, etc.)
- **Second Line:** DSK Key number (**1** or **2**)
- **Third Line:** Key Fill, with associated name and BNC
- **Fourth Line:** Key Alpha, with associated name and BNC
- **Fifth Line:** Key Bus crosspoint (labeled as **DSK Button**)

Performing a Downstream Key

Use the following procedure to perform a Downstream Key:

1. Ensure that your program/preview monitoring is set as needed for the selected MLE. Refer to the section “Using the Preview Bus” on page 4–33 for details.
2. Ensure that the desired Key sources are programmed on the **Key Bus** of each DSK.



Note

These eight crosspoints are typically set during installation, but they can also be programmed *during production*. Refer to the section “**DSK Source Bus Setup**” on page 7–41 for details.

3. Select an input on the **PGM** bus of the MLE (including re-entries). This provides the background for the downstream key.
4. Press **DSK1** in the **MLE Transition Group** for the Program/Preset MLE. This will assign switcher resources to this Keyer.



Operating Tip

Pressing **DSK2** instead of **DSK1** would assign switcher resources to **DSK 2**.

5. Select a **Source** in the **Downstream Keyer 1 Group** to display the **DSK Menu**.



Note

The **Key Setup Menu** that appears will depend on the Key Type that was stored in the DSK Source that you selected.

Auto Key Setup		(49.8%)
DSK Key 1		Clip Locked
Key Fill: BNC 10	(BNC 10)	
Key Alpha: BNC 14	(BNC 14)	(81.9%)
DSK Button:2		Gain Locked
Transparency	Key Over	Make Key
On/Off	On/Off	Linear

Sample DSK 1 Auto Key Setup Menu



Operating Tip

To reveal the actual Preset Bus source for any DSK Source button, simply *hold down* any one of the **DSK Source Bus** buttons. The PST bus source crosspoint will light. This feature provides a quick and accurate way to verify your downstream Key sources prior to taking them on-air.

6. Adjust the **Clip** and **Gain** as for the Key as follows:



Note

If you have assigned an **Alpha** to the selected **Auto Select** key source, the **Clip** and **Gain** values will be locked. To unlock these levels, toggle the **KEY MEM** button **Off**. Refer to the section “**Performing an Auto Select Key**” on page 7–22 for details.

- Use the top **Clip** knob to adjust the clip level. The **CLIP** knob in the **Effects Control Group** will perform the same function.

- Use the middle **Gain** knob to adjust the gain (softness). The **GAIN** knob in the **Effects Control Group** will perform the same function.
7. Toggle the **Transparency** softkey to **On** to display the bottom **Transparency** knob.
 8. Use the bottom **Transparency** knob to adjust the level of transparency.
 9. If desired, you can toggle the **Key Over** button between **On** and **Off** to change the priority of the two keyers:
 - **On** — Select **On** to change the priority to **Downstream Keyer 1**, setting it *over* (visually on top of) **Downstream Keyer 2**.
 - **Off** — Select **Off** to keep the priority as **Downstream Keyer 2** over **Downstream Keyer 1**. This is the default setting.
 10. Select and adjust additional key modifiers as desired. Refer to the section “**Using Key Modifiers**” on page 7–49 for details.
 11. If the key is a **Preset Pattern** key, select the desired wipe pattern and associated modifiers in the **Pattern Control Group**. Refer to the section “**Performing a Preset Pattern Key**” on page 7–32 for details.
 12. Press **KEY PV** button to preview the Key.



Operating Tip

If you have the CDK-111A-M option installed, the **KEY PV** button is disabled. Refer to the section “**Key Functions**” for details on operating the Key Preview function with an external downstream keyer.

13. Select the desired transition as follows:
 - Press **CUT** (in the **DSK Key Group**) to cut the key on (or off) air. Refer to the section “**Key Cut Notes**” on page 7–47 for additional rules.
 - Press **AUTO TRANS** (in the **DSK Group**) to dissolve the Key **On** or **Off**. Refer to the section “**Using Auto Transitions**” on page 7–45 for instructions on changing transition rates. For additional rules, refer to the section “**Key Auto Transition Notes**” on page 7–47 .



Note

When you press **AUTO TRANS** in the **Downstream Keyer 1 or 2 Groups**, the following actions occur to show a transition in progress:

- The **DISS** button (in the **Program/Presets Transition** group) lights.
- The **DSK 1** or **DSK 2** button lights (as appropriate).
- The status display above the Fader (in the **Program/Presets Transition** group *only*) briefly displays with the transition rate of the selected DSK.

14. Use the proper **DSK 1** or **DSK 2** “next transition” button (in the **Program/Presets Transition Group**) to bring the Key on (or off) air during the next transition. Refer to the section “**Working with Next Transitions**” on page 5–9 for instructions on the three “next transition” buttons.
15. Take the selected DSK On or Off-air as follows:
 - **CUT** — Press **CUT** (in the **MLE Key Group**) to cut the Key on (or off) air. Refer to the section “**Key Cut Notes**” on page 7–47 for more information.
 - **AUTO TRANS** — Select an auto transition rate, then press **AUTO TRANS** (in the **MLE Key Group**) to dissolve the Key on (or off) air. Refer to the section “**Using**

Auto Transitions” on page 7–45 for instructions on selecting Key dissolve rates. Refer to section **“Key Auto Transition Notes**” on page 7–47 for additional rules.



Note

You can set the individual DSKs to be taken off-air with a manual crosspoint change on the **PGM** bus. Refer to Chapter 9 **“Additional Installation Setups**” in the *Synergy Series Installation Guide* for more information.

This completes the procedure to perform a Downstream Key.

DSK Source Bus Setup

Unlike the upper MLE Keyers, there is no Key Bus on the **Program/Presets MLE**. Instead, each **Downstream Keyer Group** has a series for **Source** buttons on the **DSK Source Bus**. When programmed, each Source button will have the Key Type and input crosspoint stored in it. By selecting a Source button, the programmed Key Type and crosspoint will be recalled in that Keyer. Although this is typically performed during switcher setup, you can assign Key types and crosspoints during production as required. Often, one of the **Key Bus** buttons is left open for just this purpose.



Important

Individual DSK Sources can be locked during setup, preventing a user from assigning new Key types or crosspoints to the locked Sources. Refer to the section **“Locking/Unlocking a DSK Source Button Setup**” on page 7–43 for more information on locking a DSK Source.



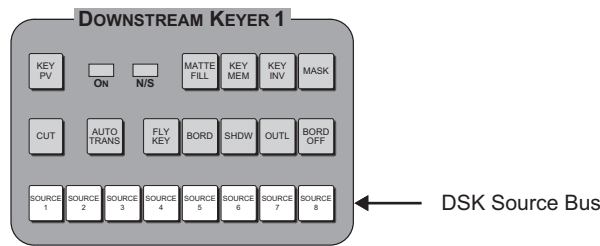
Note

If you have enabled the L.A.S.T. protocol option, a delay will occur when you select crosspoints directly on any key bus, including changing DSK sources. Refer to Chapter 7, **“Basic Communications Setup**” in the *Synergy Series Installation Guide* for more information on setting up this option.

Assigning DSK Source Types

Use the following procedure to program a crosspoint on the **DSK Source Bus** of a DSK:

1. Press and *hold* the **Source** button that you want to program a Key Type to.



DSK Source Buttons

2. Press any one of the four Key type buttons (**SELF KEY, AUTO SELECT, CHROMA KEY,** and **PST PATT**) in *any* MLE Keyer.
3. Release both buttons. The key type is now stored in memory for the selected button.

This completes the procedure for assigning a DSK Source Type.

Assigning DSK Source Crosspoints

Use the following procedure to assign a crosspoint to a Source button:

1. Press and *hold* the **Source** button that you want to program a crosspoint to. The source that is currently assigned to that **Source** button will light on the **PST Bus** of the **Program/Preset MLE**.
2. Select the desired source on the **PST Bus** of the **Program/Preset MLE** (the bottom MLE).



Operating Tip

You do *not* have to choose identical Key types and sources on each **DSK Source Bus**. For example, **Source 1** on **DSK 1** can have CG 1, while **Source 1** on **DSK 2** can have CG 2. Effectively, you can program 16 different Key sources.

3. Release both buttons. The Key source is now stored in memory for the selected **Source** button.



Operating Tip

To reveal the actual Preset Bus source for any DSK **Key Bus**, simply *hold down* any one of the eight downstream **Key Bus** buttons, then release once you have noted the source. This feature provides a quick and accurate way to verify your downstream key sources prior to taking them on air.

4. Press the **Source** button that you *just programmed*, look at the display, and verify that the key type and source are correctly programmed.



Important

Recalling a setup from memory that includes a DSK will *overwrite* the programmed DSK button that the memory was originally stored in (unless it was locked on installation).

This completes the procedure to assign a crosspoint to a Source button.

Storing DSK Crosspoint Assignments

The **DSK Setup Menu** allows you to store the default states for each Downstream Keyer. The menu captures all eight crosspoints for the selected DSK, and stores the crosspoints, key types and clip/gain settings in the switcher's installation file. The menu also allows you to lock DSK crosspoints, so that they cannot be changed during normal switcher operation. The **DSK Setup Menu** lists each DSK crosspoint, its lock/unlock status, the name of the crosspoint and the assigned Key type.



Operating Tip

When you reset the DSK (refer to the section "**Resetting the System**" on page 2–19), the default DSK states are restored.

Use the following procedure to store a DSK crosspoint assignment:

1. Ensure that your DSK Source buttons are programmed as desired. If not, refer to the section "**DSK Source Bus Setup**" on page 7–41.
2. Navigate to the **DSK Setup Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installation** ⇒ **DSK**.

DSK Setup				DSK Keyer 1		DSK XPT 1	
1) Unlocked	2) Unlocked	3) Locked	4) Locked	DSK XPT 2			
"CG 1 "	"CG 2 "	"Synergy "	"LOGO "	Unlock			
AutoSelect	AutoSelect	AutoSelect	AutoSelect	Lock			
5) Locked	6) Unlocked	7) Unlocked	DSK 3				
"Studio 2"	Black	Black					
Chrona Key	AutoSelect	AutoSelect					
Grab Both DSKs		Show DSK1/DSK2					

DSK Setup Menu

3. Select which Downstream Keyer to display as follows:
 - Toggle the **Show** softkey to select which DSK you wish to display.
 - ~ **DSK1** — Select this option to display Downstream Keyer 1.
 - ~ **DSK2** — Select this option to display Downstream Keyer 2.
4. Assign the current state of the DSKs as the default state as follows:
 - Press **Grab Both DSKs** to save the current DSK Source Bus setup as the default settings. If the switcher is reset, these settings will be retained.

This completes the procedure to store a DSK crosspoint assignment.

Locking/Unlocking a DSK Source Button Setup

You can lock the current settings for any of the DSK Source buttons so that they can be selected, but not altered unless unlocked. This allows you to ensure that certain DSK Sources will remain unchanged, or will not be changed by accident.

If you attempt to alter a DSK Source that has been locked, the following pop-up will be displayed.

Auto Key Setup		(49.8%)	
DSK Key 2		Clip Locked	
Key Fill: CG		(81.9%)	
Key Alpha: CG		Gain Locked	
DSK Button:1 (Ref: 31	
Transparency	On/Off	Make Key	Linear

DSK Lock Pop-up

Use the following procedure to lock or unlock a DSK Source button:

1. Navigate to the **DSK Setup Menu** as follows:
 - Press **HOME** ⇒ **MORE** ⇒ **Setup** ⇒ **Installation** ⇒ **DSK**.

DSK Setup				DSK Keyer 1	
1) Unlocked "CG 1" AutoSelect	2) Unlocked "CG 2" AutoSelect	3) Locked "Synergy" AutoSelect	4) Locked "LOGO" AutoSelect	DSK XPT 1 ↓DSK XPT 2	
5) Locked "Studio 2" Chroma Key	6) Unlocked Black AutoSelect	7) Unlocked Black AutoSelect	DSK 3	Unlock Lock	
Grab Both DSKs		Show DSK1/DSK2			

DSK Setup Menu

2. Lock or unlock a DSK Source button as follows:
 - Use the top knob to select the desired DSK Source button (1 through 8) that you want to lock or unlock.
 - Use the middle knob to select either **Unlock** or **Lock**.
3. Press **Grab Both DSKs** to store the current settings.

This completes the procedure for locking or unlocking a DSK Source button.

Using Auto Transitions

The **AUTO TRANS** button in each Key group (including the DSKs) is used to start an automatic (smooth) transition that brings the selected key on (or off) air. Note the following important auto transition rules:

- Two *different* auto-transition rates can be used to dissolve an MLE key:
 - ~ If the **AUTO TRANS** button in the **MLE Transition** group is used in conjunction with the “next transition” buttons, the rate is controlled by the **MLE RATE** button in that MLE’s **Memory** group. The rate is displayed as **MLE:###** on the group’s display.
 - ~ If the **AUTO TRANS** button in an **MLE Keyer** is used, that rate is controlled by the **KEY RATE** button in that MLE’s **Memory** group. The key dissolve rate is displayed as **KEY:###** on the group’s display. This rate governs both keyers.



Note

For Synergy 2 only, the **MLE 1 RATE** and **KEY RATE** buttons are located in the **Global Memory System** group.

- Two *different* rates can be used to dissolve a downstream key:
 - ~ If the **AUTO TRANS** button in the **Program/Preset Transition** group is used in conjunction with the “next transition” buttons, the rate is controlled by the appropriate **MLE RATE** button in the **Global Memory System** group.
 - Synergy 2: **MLE 2 RATE**
 - Synergy 3: **MLE 3 RATE**
 - Synergy 4: **MLE 4 RATE**The transition rate is displayed as **M:###** on the **Global Memory System** group’s display.
 - ~ If the **AUTO TRANS** button in a **DSK** is used, that rate is controlled by the **DSK RATE** button in the **Global Memory System** group. The rate is displayed as **D:###** on the display.

Each auto transition button has its own unique rate register — either rate can be used as required. This important feature allows you to perform background transitions and key transitions at different rates (typically, background transitions are *slower* than key transitions).

For example, with an MLE rate of 20 frames and a Key rate of 15 frames, you could fade in a key at 20 frames (using the **AUTO TRANS** button in the **MLE Transition** group), and fade out the key at 15 frames using the **AUTO TRANS** button in the **Key** group.

The following sections discuss changing auto transition rates for the MLE and Downstream keyers only. Refer to the “**Auto Transitions**” section in Chapter 5 for instructions on changing the auto transition rate in the **MLE Transition** group and **Program/Preset Transition** group.

Changing DSK Auto Transition Rates

Use the following procedure to change the transition rates for the **Downstream Keyers**:

1. Note the current DSK transition rate in the **Global Memory System** group’s display. The DSK rate is displayed as **D:###**.

2. Press the **DSK RATE** in the **Global Memory System Group** to select a new Transition Rate for the Downstream Keyers.
3. Enter the new auto transition rate from **1** to **999** on the keypad in the **Global Memory System Group**. The new rate will appear on the top line of the display, as shown below, and the **ENTER** button will be lit.



New DSK Rate:030
M:015 D:008 F:20

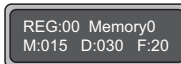


Operating Tip

If you do not want to change the auto transition rate at this time, press any of the **RATE** or **STORE** buttons to cancel entering a new rate.

If you want to enter a *different* rate prior to pressing **ENTER**, simply continue to type until the desired value appears.

4. Press **ENTER** to accept the new rate. The display updates as shown below, the **ENTER** light turns off, and the new rate is available for use.



REG:00 Memory0
M:015 D:030 F:20



Note

When a DSK transition is performed, the display above the Fader in the **Program/Preset Transition** group briefly updates with the selected DSK's transition rate. Once the transition has completed, the display returns to the MLE transition rate.

This completes the procedure to change the Key Rate for the Downstream Keyers.

Changing MLE Keyer Rates

This section describes how to change the auto transition rates in the MLE's **Key 1** and **Key 2** groups. The rate is the same for both keyers.

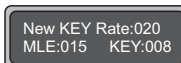
1. Note the current Key transition rate on the display in the selected MLE's **Memory** group. The key dissolve rate is displayed as **KEY:###**. This rate governs *both* keyers.



Note

Because the Synergy 2 does *not* have an **MLE Memory Group**, the key rate is shown in the **Global Memory System** group's display as soon as you press the **KEY RATE** button. Once the rate is entered, the key rate value is hidden. To simply *check* the current MLE key rate on the Synergy 2, press **KEY RATE** — but *do not* enter any new values.

2. Press **KEY RATE** in the **MLE Memory System Group** of the MLE you want to change the Key rate for.
3. Enter the new auto transition rate from **1** to **999** on the keypad in the **MLE Memory System Group**. The new rate will appear on the top line of the display, as shown below, and the **ENTER** button will be lit.



New KEY Rate:020
MLE:015 KEY:008



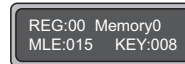
Operating Tip

If you do not want to change the auto transition rate at this time, press any of the **RATE** or **STORE** buttons to cancel entering a new rate.

If you want to enter a *different* rate prior to pressing **ENTER**, simply continue to type until the desired value appears.

4. Press **ENTER** to accept the new rate.

The display updates as shown below, the **ENTER** light turns off, and the new rate is available for use.



This completes the procedure to change the MLE Rate.

Key Auto Transition Notes

Please note the following important points regarding key auto transitions:

- An auto transition, once in progress, cannot be paused.
- To “escape” from an auto transition in progress, you can either press **CUT** during the transition, or manually pull the **Fader** in the proper direction. The “cut” action instantly completes the transition.
- In a single MLE, you cannot initiate an auto transition if the **Fader** is off its upper or lower limit. If this effect is required, use a re-entry setup on the panel. Refer to the section “**Key Cut Notes**” on page 7–47 for additional details.
- In a single MLE, you cannot initiate a keyer auto transition if an auto transition in the **MLE Transition Group** is already in progress. If this effect is required, use a re-entry setup on the panel.
- If the **TRANS LIMIT** function is enabled and the transition is at the selected limit, you cannot initiate a keyer auto transition. If this effect is required, use a re-entry setup on the panel.
- The keyer’s **CUT** and **AUTO TRANS** buttons are linked to those in the **MLE Transition Group**. When you press **AUTO TRANS** in a keyer, the **DISS**, **AUTO TRANS** and appropriate “key” next transition button lights in the **MLE Transition Group** — to indicate a key transition in progress. When the transition is finished, the buttons return to their previous states.
- Remember that you can transition the key with two different rates, depending on where you press the **AUTO TRANS** button — either in the **Keyer** or in the **MLE Transition Group**.
- You cannot *wipe* a key using the buttons in the **Key 1** or **Key 2** group. This function must be performed in the **MLE Transition Group**.

Key Cut Notes

Key “cut” transitions (using the **CUT** buttons in the **MLE Keyer** groups and **DSK** groups) can be performed when the Fader is off its upper or lower limit. However, auto transitions (using the keyer **AUTO TRANS** buttons) cannot be performed at all when the fader is off a limit, or when an auto transition is in progress.

The table below summarizes the functions of each keyer button in several specific MLE fader and keyer modes.

Keyer Transition Summary Table

Keyer Button Function				
Fader Mode	Auto Transition Mode	Next Transition Keyer Mode	AUTO TRANS	CUT
On limit	Transition in progress	Keyer part of transition	Locked out	Completes the auto transition
On limit	Transition in progress	Keyer not part of transition	Locked out	Cuts the key on or off, as appropriate
Off limit	n/a	Keyer part of transition	Locked out	Locked out
Off limit	n/a	Keyer not part of transition	Locked out	Cuts the key on or off, as appropriate

Using Key Modifiers

This section provides basic instructions for using key modifiers. The following topics are discussed:

- Filling a Key with Matte
- Masking Keys
- Masking Keys with a Pattern Generator
- Inverting Keys
- Flying Keys in 2D
- Bordering Keys
- Programming a Favorite CG



Note

All key modifiers discussed in this section refer to Squeeze & Tease (S&T) 2D usage. For information on using 3D S&T Key modifiers, refer to the *Squeeze & Tease 3D/WARP Owner's Guide*.

Filling a Key with Matte

Use the following procedure to fill a key with matte color:



Note

All key types *except* Preset Pattern keys (either flown or not) can be filled with matte.

1. Set up the desired key type and source, and clip the key using the controls in the **Effects Control** group.
2. In the selected **MLE** keyer (or **Downstream** keyer), press **MATTE FILL**. The matte generator's *current color* now fills the key hole.
3. Use the **HUE**, **SAT** and **LUM** controls in the **Matte Group** to modify the matte's hue, saturation and luminance, respectively.
4. If desired, press **WASH 1** or **WASH 2** to display the **Wash Menu**. This menu allows you to design a custom wash color with which to fill the key.
5. Add additional key modifiers as required, then select the desired manual or auto transition in the normal manner.

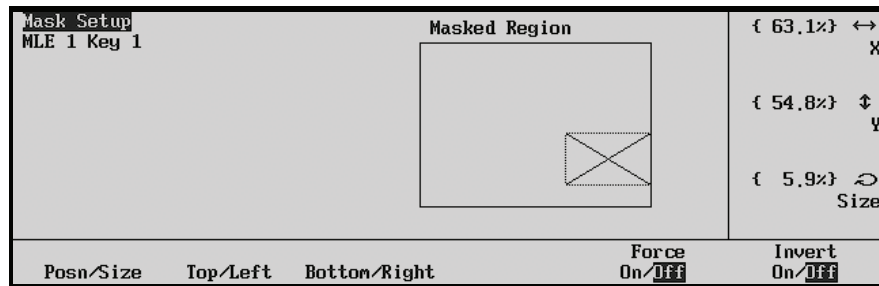
This completes the procedure to fill a key with matte color. Refer to the section “**Matte Group**” on page 6–16 for more detailed color wash instructions.

Masking Keys

Use the following procedure to mask a key. Note that all keys can be masked with the *exception* of Preset Pattern keys.

1. Set up the desired key type and source, and clip the key using the controls in the **Effects Control** group.
2. In the selected keyer, press **MASK**. The mask generator's current settings are now applied to the key and the **MASK** menu will appear on the menu display.

3. Alternatively, to access the **MASK** controls manually:
 - Press **HOME** ⇒ **Effects** ⇒ **MORE** ⇒ **Mask**.



Mask Menu

4. Press the **Posn/Size** softkey to adjust the mask's position on the screen. Use the display's top, middle and bottom knobs to adjust the key's horizontal position, vertical position and size (zoom) respectively.
5. Press the **Top/Left** softkey to adjust the position of the mask's top and left edges. The display's top knob adjusts the left edge, while the middle knob changes the position of the top edge.
6. Press the **Bottom/Right** softkey to adjust the position of the mask's bottom and right edges. The display's top knob adjusts the right edge, while the middle knob changes the position of the bottom edge.
7. Pressing the **Invert** softkey to the **On** position will invert or "reverse" the mask.
8. Pressing the **Force** softkey will "force" the masked portion of the signal onto the screen.



Note

All elements of the **MASK** can be adjusted using the three side **scroll knobs** or via the **positioner** on the panel. For a complete explanation of the **positioner**, see the **Positioner Group** discussion at the end of this chapter.

This completes the procedure to mask a key.

Masking Keys with a Pattern Generator

While the Synergy series does not directly support masking keys with a pattern generator, it is possible to achieve this effect by using a second keyer. Masking keys in this way allows you to generate a soft-edged mask using *any shape* available in the pattern generator — instead of just a hard-edged box.

Use the following procedure to mask a key with a pattern generator:



Note

This procedure uses both keyers, and refers to them as the *first keyer* and the *second keyer*. However, you can choose *either MLE keyer* to be the first keyer, as desired.

1. Ensure that your program/preview monitoring is set as required. Refer to the section "**Using the Preview Bus**" on page 4–33 for details.
2. Select an input on the MLE's **PGM** or **BKGD** bus. This provides the background over which the key will appear.

3. In the first keyer, choose the desired key source and key type, and follow the proper set of instructions for programming the key. Refer to the appropriate section earlier in this chapter for instructions:
 - “**Performing a Self Key**” on page 7–20.
 - “**Performing an Auto Select Key**” on page 7–22.
 - “**Performing a Chroma Key**” on page 7–24.
 - “**Performing a Preset Pattern Key**” on page 7–32.
4. Set the second keyer in the MLE to be “on top” of first keyer you selected in step 3. Press **KEY OVER** if necessary.



Operating Tip

You can also change the priority of the two keyers in the **Key Setup Menus** (except the **Chroma Key Setup Menu**) by toggling the **Key Over** softkey between **On** and **Off**. Refer to the section “**Using Keys**” on page 7–20 for more information.

5. Select **PST PATT** in the second keyer.
6. Note the source that is selected on the **BKGD** (or **PGM**) bus, and select it as the key source for the second keyer.
7. Adjust the shape of the mask in the second keyer by using the available pattern “tools” in the **Pattern Control** and **Positioner** groups. In addition, ensure that key border is turned off.
8. Using the buttons in the “next transition” section, transition *both keys* to air simultaneously.

This completes the procedure to mask a key with a pattern generator.

Inverting Keys

Use the following procedure to invert a key. Note that all key types can be inverted.

1. Set up the desired key type and source, and clip the key using the controls in the **Effects Control** group.
2. In the selected **MLE** keyer (or **Downstream** keyer), press **KEY INV**. The polarity of the selected key is now reversed.
3. Re-adjust the key’s clip and gain settings as required. This step is often necessary when a key is inverted.
4. Add additional key modifiers as required, then select the desired manual or auto transition in the normal manner.

This completes the procedure to invert a key.

Flying Keys in 2D

The **Fly Key** function allows you to apply 2D DVE effects to any of the four key types, with the ability to control the key’s size, horizontal position and vertical position. Note that all key types can be flown.



Note

For flying keys with the 3D Squeeze & Tease option, refer to the ***Squeeze & Tease 3D / WARP Owner’s Guide*** for more information.

Use the following procedure to fly a key:

1. Ensure that the **Squeeze & Tease Option** is installed in the selected MLE. The **FLY KEY** button will not light if the option is not installed.



Note

Refer to the section “**Installed Options Menu**” on page 3–10 for instructions on how to verify the status of your installed hardware and software options.

2. Note the following important rules for the **FLY KEY** button. These rules apply to both the MLE keyers and the downstream keyers:
 - You can only fly *one* **Auto Select Key** in an MLE at a time. If one keyer is already flying an **Auto Select Key**, you cannot enable the **FLY KEY** button in the other keyer.
 - In an MLE, you can fly *any combination* of **Preset Pattern Keys**, **Chroma Keys** or **Self Keys** — one in keyer 1 and the other in keyer 2.
3. Set up the desired key type and source, and clip the key using the controls in the **Effects Control** group.
4. In the selected **MLE** keyer (or **Downstream** keyer), press **FLY KEY**. The key is now re-routed through the *internal* DVE.

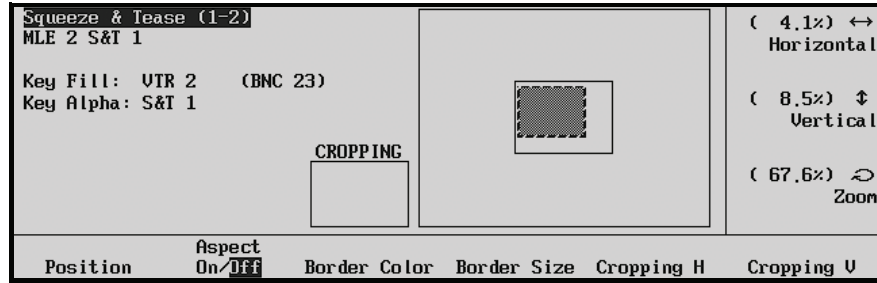


Note

When you press **PST PATT**, the system *automatically* selects **FLY KEY**, *automatically* selects a box wipe by default, and displays the **Squeeze & Tease** menu.

- If the key is a **Self Key**, **Chroma Key** or **Auto Select Key**, you can now size and position the key and apply a variety of special Fly Key modifiers such as mirror, crop and freeze.
Each Fly Key modifier is detailed below. Clip and gain can be used in the normal manner.
- If the key is a **Preset Pattern Key**, the pattern itself does *not* become the border. Please note:
 - ~ **Preset Pattern** keys can be bordered using the keyer’s border controls. The **Dual Border Generator** option must be installed. See the “**Bordering Keys**” section for instructions.
 - ~ **Preset Pattern** modifiers (e.g., clip, gain, aspect, border, soft) do not affect what is on screen.
 - ~ **Fly Key** modifiers (e.g., size, position, mirror, crop, freeze) are enabled using the **Squeeze & Tease Menu**.

When **FLY KEY** is pressed, **Squeeze & Tease Menu 1-2** is displayed.



Squeeze & Tease Menu 1-2 — Position Menu

The status area on the left shows the menu name, the keyer’s location, as well complete key fill and alpha information. In the central status area, two graphics are provided to assist you in quickly visualizing the states of both the “source” and “target” **Squeeze & Tease** images:

- The small **Cropping** box shows the state of the source image (the key that you are flying). As you crop **H** and **V**, the Cropping box *dynamically* shows the position of the image’s four sides.
- The large **Raster** box shows the state of the full screen raster (or “target” area), and the relative position of the source image within the target. As you move horizontally and vertically (and as you zoom) the box dynamically shows an accurate representation of the image’s size and position.

Both graphics combine to provide quick visual status of all **Squeeze & Tease** parameters. As you switch between keyers, the graphics update instantly — an extremely useful feature when multiple **FLY KEY** images are on screen simultaneously.

5. Press the **Position** softkey to adjust the key’s position on screen. Use the display’s top, middle, and bottom knobs to adjust the key’s horizontal position, vertical position, and size (zoom), respectively. You can also use the **Positioner** to adjust the key:
 - Move the Positioner *left* and *right* to control the key’s horizontal position on screen.
 - Move the Positioner *up* and *down* to control the key’s vertical position on screen.
 - Twist the Positioner’s top knob *clockwise* and *counter-clockwise* to zoom the key’s size in and out.

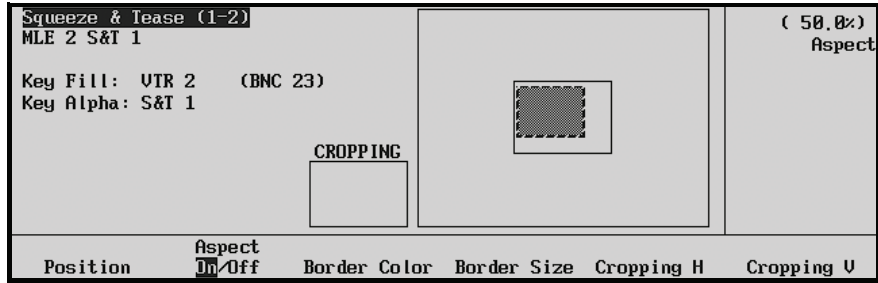


Note

You can reduce the key’s size, or you can zoom the key out to 800% of its normal size.

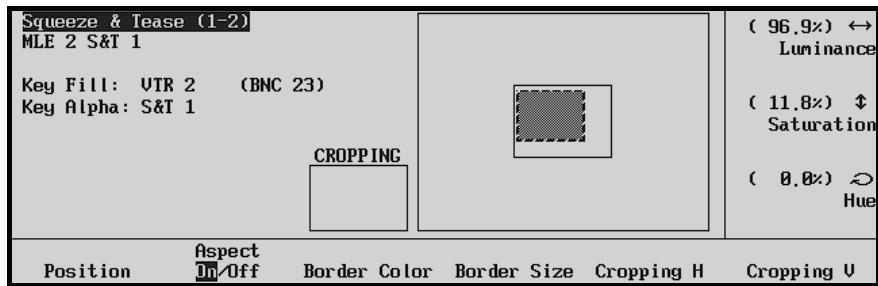
Refer to the section “**Positioner Group**” on page 7–64 for additional information about the switcher’s 3-axis positioner.

6. Toggle **Aspect** to **On** to display the **Squeeze & Tease Aspect Menu**.



Squeeze & Tease Menu 1-2 — Aspect Menu

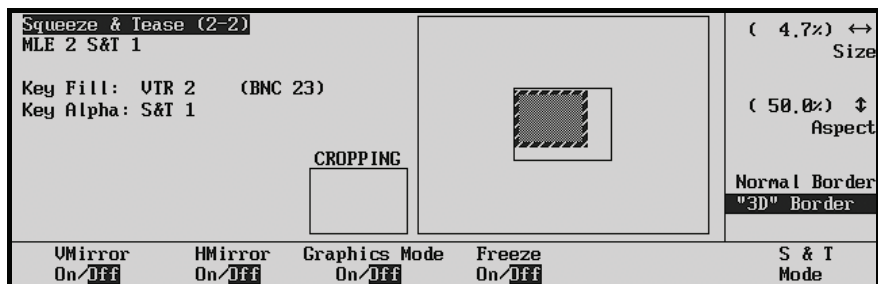
- Use the **Aspect** knob to adjust the key’s aspect ratio.
 - To clear the aspect ratio back to default values, press the **CENTER** button in the **Positioner Group**.
7. Press **Border Color** to display the **Squeeze & Tease Border Color Menu**.



Squeeze & Tease Menu 1-2 — Border Color Menu

For flying **Preset Pattern** keys *only*, use the display’s top, middle, and bottom knobs to adjust the border color’s luminance, saturation and hue, respectively.

8. Press **Border Size** to display the **Border Size Menu**.

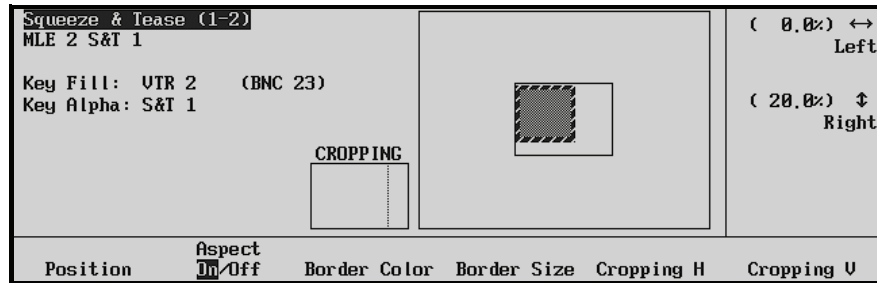


Squeeze & Tease Menu 1-2 — Border Size Menu

For flying **Preset Pattern** keys *only*:

- Use the top and middle knobs to adjust the key’s border size and aspect ratio, respectively. Note that the display’s border size changes dynamically as you adjust.
- Use the bottom knob to select a normal or “3D” border. When **3D Border** is selected, the border shrinks with the image, instead of *after* the image.

9. Press **Cropping H** to display the **Squeeze & Tease Crop H Menu**.



Squeeze & Tease Menu 1-2 — Crop H Menu

For all flying keys, use the display's top and middle knobs to crop the key's left and right edges, respectively. Please note:

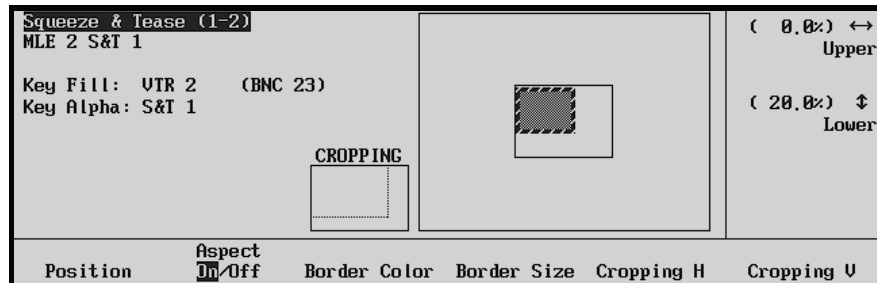
- The small **Cropping** box shows the source image's original edge and the cropped edge (dotted line).
- The large **Raster** box shows the results of the cropping within the target space. Note that the border dynamically follows the cropped edge(s) of the source image.



Important

As you crop the right edge, the right edge moves towards the left on the display. However, as you crop the left edge, the right edge *once again* is displayed to move towards the left. This occurs because all fly key manipulations are registered (locked) to the upper left edge of the image. This feature gives you a constant and accurate frame of reference when manipulating fly key images and building effects.

10. Press **Cropping V** to display the **Squeeze & Tease Crop V Menu**.

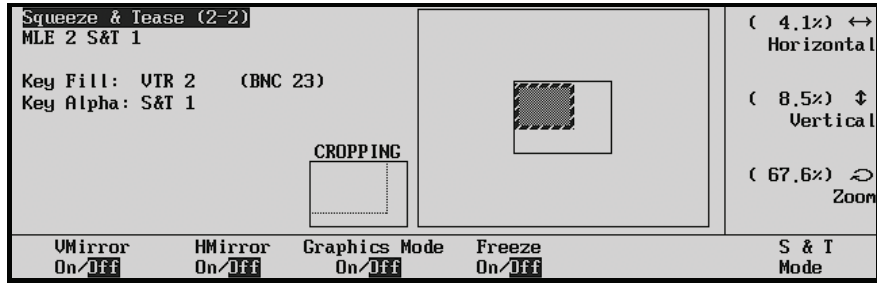


Squeeze & Tease Menu 1-2 — Crop V Menu

For all flying keys, use the display's top and middle knobs to crop the key's upper and lower edges, respectively. Please note:

- The **Cropping** and **Raster** boxes dynamically show the image's cropped edges and the results within the target space.
- In target space, all manipulations are registered to the upper left edge of the image as described in the "important" note above.

11. Press **MORE** to display **Squeeze & Tease Menu 2-2**.



Squeeze & Tease Menu 2-2

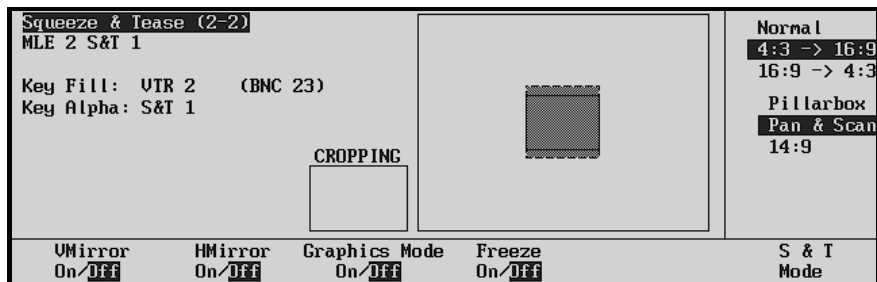
For all flying keys, **Squeeze & Tease Menu 2** provides the following controls:

- Toggle the **VMirror** softkey to mirror the picture vertically.
- Toggle the **HMirror** softkey to mirror the picture horizontally.
- Toggle the **Graphics Mode** softkey to enable or disable the graphics mode — specifically for improved still images.
 - ~ When Graphics Mode is enabled *for still images*, vertical resolution is doubled. Image processing is at 30 fps.
 - ~ When disabled, image processing is at 60 fps.

Note that when a still image is moved (for example, with an *effects dissolve*), graphics mode is automatically turned off.

- Toggle the **Freeze** softkey to freeze or unfreeze the picture. In this mode, the **Squeeze & Tease** function acts like a frame store. Note that the label “**Frozen**” is displayed when the image is frozen.

12. Toggle the **S&T Mode** softkey to display the **S&T Menu**.



Squeeze & Tease Menu 2-2

- Select **Normal** to keep the Squeeze & Tease image size at a 4:3 aspect ratio.
- Select **4:3/16:9** to adjust flying 4:3 Squeeze & Tease images to a 16:9 aspect ratio. In this mode, choose one of three options with the bottom knob:
 - ~ Select **Pillarbox** to place black side panels on either side of the image.
 - ~ Select **Pan & Scan** to allow you to *vertically* pan and scan the image, effectively focusing (or isolating) either the top or bottom portions of the image.
 - ~ Select **14:9** to effectively view a *compromise* between the “Pillarbox” and “Pan & Scan” modes, using a slight amount of each manipulation.

- Select **16:9/4:3** to adjust flying 16:9 Squeeze & Tease images to a 4:3 aspect ratio. In this mode, choose one of three options with the bottom knob:
 - ~ Select **Letterbox** to place black panels on the top and bottom of the image.
 - ~ Select **Pan & Scan** to allow you to *horizontally* pan and scan the image, effectively focusing (or isolating) either the left or right portions of the image.
 - ~ Select **14:9** to effectively view a *compromise* between the “Letterbox” and “Pan & Scan” modes, using a slight amount of each manipulation.



Operating Tip

For a more visually interesting scene when using **S&T Mode** manipulations, reduce the border size to zero, and place the resulting image over a background video of your choice.

13. Add additional key modifiers as required, then select the desired manual or auto transition in the normal manner.

This completes the procedure to fly a key.

Notes on Flying Keys

Note the following important points regarding the **Fly Key** function:

- If a key is processed using **Fly Key** but its *size* is not reduced, the image can be repositioned without *any picture degradation* — other than the fact that the picture is reduced from 10 bits to 8 bits.
- You can wipe or dissolve *inside* a flying **Preset Pattern** key by using the standard re-entry function on the **Key Bus**.
- You can program a flying key to *move* from position to position, using an effects dissolve. Refer to the section “**Effects Dissolve**” on page 8–22 for details.
- If you are flying *both keys* in an MLE and you need to adjust the one that is *not currently active*, simply press the **KEY PV** button to activate the desired keyer. If the key type is preset pattern, pressing the **PST PATT** button again automatically selects the **Squeeze & Tease Menu**, and also selects the XYZ position on the **Positioner**.
- To clear the flying image back to default values, press the **CENTER** button in the **Positioner Group**. **Self keys**, **Auto Select** keys and **Chroma** keys clear to 1:1, with no manipulation. **Preset Pattern** keys clear to the upper left corner (for **Key 1**) and the upper right corner (for **Key 2**).
- Use the controls in the **Positioner Group** to move two flying keys simultaneously. Simply press **FLY KEY 1** and **FLY KEY 2** simultaneously, and use the **Positioner** in the normal way.
- To use a preset pattern key without the Fly Key mode, press **FLY KEY** to disable the mode and display the **Preset Pattern Setup** menu
- If **PST PATT** is already on and the Fly Key mode is off, pressing **PST PATT** again will *not* automatically enable Fly Key. This feature only works when you *change* to the Preset Pattern mode.
- If **FLY KEY** is enabled, pressing **SELF KEY**, **AUTO SELECT** or **CHROMA KEY** automatically turns the Fly Key mode off and changes to the selected keying mode.

Flying Patterns

Besides the standard square Keys, you can Fly a pattern, such as a diamond or circle, in same manner as a normal square Fly Key. The following example will describe how to Fly a Circle Pattern, but this procedure can be applied to any preset pattern.

Use the following procedure to Fly a Circle pattern on a **Synergy 3 Switcher**:

1. Press the **MLE 1** button at the end of the **KEY** bus on **MLE 2** to re-enter **MLE 1** onto **MLE 2**.
2. Press the **MLE 2** button at the end of the **PGM** bus on **MLE 3** to re-enter **MLE 2** onto **MLE 3**.

You will now be able to view your work on the **PGM** monitor as you work through this example.

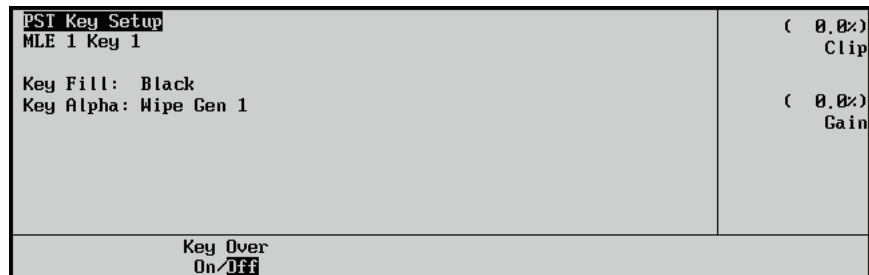
3. Select **BLACK** on the **BKGD** bus of **MLE 1**.
4. Select a video signal on the **KEY** bus of **MLE 1**. This is the video that will be inside the circle.
5. Select **Key1** and press **CUT** in the **MLE 1 Transition Group** to take **Key 1** on MLE 1 on-air.
6. Select **Key1** and press **CUT** in the **MLE 2 Transition Group** to take **Key 1** on MLE 2 on-air.



Note

You have to take the Key on-air for the MLE to be able to re-enter it and view it on the PGM bus.

7. Select **PST PATT** in the **MLE 1 Key 1 Group** to display the **PST Key Setup Menu**.



Preset Pattern Key Setup Menu



Note

If you have the **Squeeze & Tease** option installed, the **FLY KEY** will come on and the **Squeeze & Tease Menu 1-2** is displayed. If this happens, toggle the **FLY KEY** off to display the **PST Key Setup Menu**.

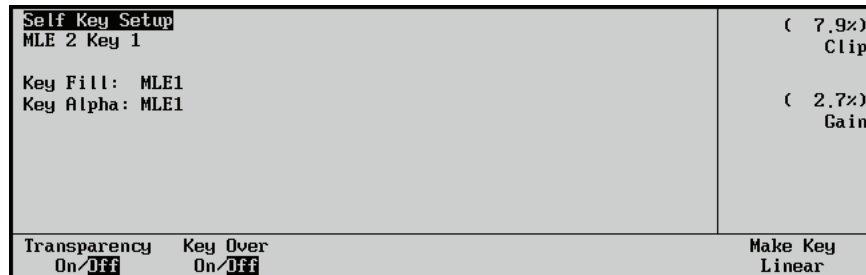
8. Select the **Circle** pattern (**03**) in the **Pattern Control Group**.



Note

Depending on the pattern you select, the **Matrix Menu** may be displayed. If this happens, press the **PST PATT** button again to display the **PST Key Setup Menu**.

9. Adjust the circle pattern as follows:
 - Use the **Clip** knob to adjust the size of the pattern. This does not change to size of the video signal you are using, only the size of the pattern. In this case the Clip adjusts the size of the circle.
 - Use the **Gain** knob to adjust the softness of the edge of the pattern. This setting will determine if you have a hard edge or a soft edge for your pattern.
10. Use the **Positioner** to place the Key pattern on the Key video as follows:
 - Move the **Positioner** horizontally to move the Key pattern left or right.
 - Move the **Positioner** vertically to move the Key pattern up or down.
 - Twist the **Positioner** clockwise or counter-clockwise to make the Key pattern smaller or larger.
11. Select a video signal on the **BKGD** bus of **MLE 2**. This will be the background that the Key from **MLE 1** will be flown over.
12. Select **SELF KEY** in the **Key 1 MLE 2 Group** to display the **Self Key Setup Menu**.



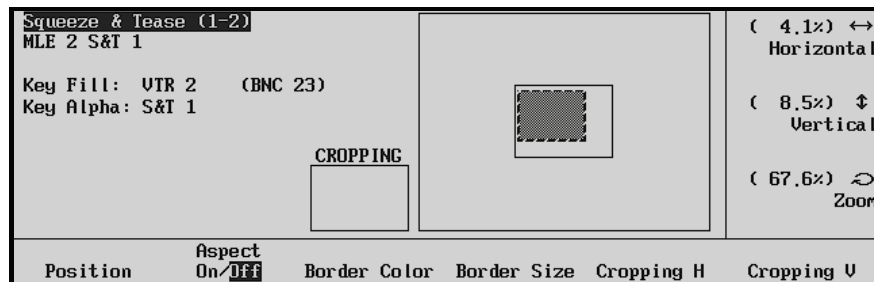
Self Key Setup Menu

13. Adjust the clip and gain levels of the Key as follows:
 - Use the **Clip** knob to adjust the clipping level of the Key.
 - Use the **Gain** knob to adjust the gain level, softness, of the Key.
 - Adjust the **Clip** and **Gain** of the **Key** until the black background of the **Key** vanishes and you can see the background of **MLE 2** around the circle.
14. Select **FLY KEY** in the **MLE 2 Key 1 Group** to display the **Squeeze & Tease Menu 1-2**.



Note

Depending on the **Squeeze & Tease** option you purchased, the **S&T Position/Crop Menu 1-2** may be displayed.



Self Key Setup Menu

15. Use the **Positioner** to place the Fly Key pattern as follows:



Note

Notice that as you move the Fly Key around, the Key video does not change, as it did when you positioned the Key pattern.

- Move the **Positioner** horizontally to move the Fly Key left or right.
- Move the **Positioner** vertically to move the Fly Key up or down.
- Twist the **Positioner** clockwise or counter-clockwise to zoom the Fly Key in or out.

This completes the procedure to Fly a Circle pattern. This same procedure can be used to fly any pattern from the **Pattern Control Group**.

Bordering Keys

The **Key Border** function allows you to place borders, shadows and outlines around *any* key type on the switcher. The **Dual Border Generator** option must be installed. The border buttons will not light if the option is not installed in an MLE.

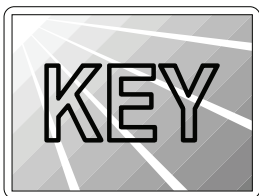
The following figures show samples of the three types of borders that can be created by the **Dual Border Generator**:



- Press **BORD** to add a border behind the selected key type. The border can *surround* the key, or it can appear as detached shadow that can be offset to any distance and direction. Border width, color and transparency are all adjustable. If the **Ghost** function is enabled, the key fill is turned off



- Press **SHDW** to add a drop shadow behind the selected key type. The shadow is *connected* to the key signal, instead of being detached. Shadow width, color and transparency are all adjustable. If the **Ghost** function is enabled, the key fill is turned off.



- Press **OUTL** to add an outline around the selected key type, with variable width, color and transparency. With **OUTL** selected, the key fill is completely transparent.

- Press **BORD OFF** to turn off any selected border type.

Use the following procedure to border a key:

1. Ensure that the **Dual Border Generator** option is installed in the selected MLE.



Note

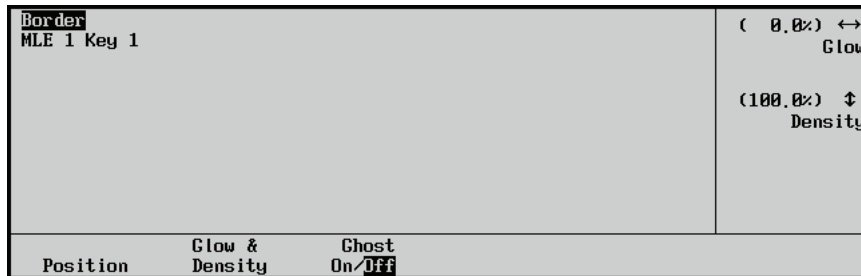
Refer to the section “**Installed Options Menu**” on page 3–10 for instructions on how to verify the status of your installed hardware and software options.

2. Set up the desired key type and source, and clip the key using the controls in the **Effects Control** group.
3. In the selected **MLE** keyer (or **Downstream** keyer), press **BORD** or **OUTL** to enable the border generator. The **Border Menu** is displayed on the display.
4. Press **CENTER** in the **Positioner** group to reset all border parameters to their default values. This step is an excellent starting point when adjusting borders, shadows and outlines.
5. Press the **Position** softkey to adjust border position and width.



Border Menu — Position

6. Use the display's top, middle, and bottom knobs to adjust horizontal position, vertical position and width, respectively. You can also use the **Positioner** to adjust the parameters:
 - Move the Positioner *left* and *right* to adjust horizontal position.
 - Move the Positioner *up* and *down* to adjust vertical position.
 - Twist the Positioner's top knob to adjust width. You can also use the **WIDTH** knob in the **Effects Control** group.
7. Press **Glow & Density** to adjust border softness and transparency.



Border Menu — Glow and Density

8. Use the display's top and middle knobs to adjust glow (softness) and density, respectively. You can also use the **Positioner** or the two controls in the **Effects Control** group to adjust the parameters:
 - Move the Positioner *left* and *right* to adjust the glow, from hard edge to soft edge. You can also use the **GLOW** knob in the **Effects Control** group.
 - Move the Positioner *up* and *down* to adjust density (from opaque to fully transparent). You can also use the **DENSITY** knob in the **Effects Control** group.



Operating Tip

To create the widest possible border, set both the **WIDTH** and **GLOW** controls to their maximum settings.

9. If a border (**BORD**) is selected, press the **Ghost On/Off** softkey to remove the key fill.

**Note**

It is no longer possible to perform the “Ghost” function on a Chroma Key.

10. Adjust border color using the controls in the **Mattes** group.
 - When **BORD** in **Key 1** or **DSK 1** is selected, **BORD 1** is automatically selected in the **Mattes** group.
 - When **BORD** in **Key 2** or **DSK 2** is selected, **BORD 2** is automatically selected in the **Mattes** group.

You can also create a *wash* as the border color. Refer to the section “**Creating Washes**” on page 6–19 for instructions.

This completes the procedure to border a key.

Notes on the Fly Border Function

Note the following important points regarding the **Fly Border** function:

- All types of keys can be bordered, however, note that some preset patterns keys may exhibit a *repeated* border if the border is positioned too far away from the key source.
- Be sure to press the **CENTER** button (in the **Positioner** group) before adjusting your borders initially. This action resets all parameters to their default values.
- All border settings can be stored to and recalled from a storage device, such as a floppy disk or USB key. In addition, the borders are *copied* when using the **MLE Copy** and **Key Copy** functions.

**Note**

You must have the **USB Removable Media Drive** option installed in order to save border settings to a USB key.

- If a border is positioned *below* the key source, it reacts within the same field as the moving video. If the border is positioned *above* the key, it reacts one field later than the moving video.
- Use the controls in the **Positioner Group** to move two borders simultaneously. Simply press **BORD 1** and **BORD 2** simultaneously, and use the **Positioner** in the normal way.

Programming a Favorite CG

This procedure allows you to select a “favorite” CG that you want to place on the **CHAR GEN** button in each MLE’s **Key 2 Group**. The feature is designed so that you can quickly select a “clean” CG in the **Auto Select** mode, with no key modifiers enabled. (Note that there is no **CHAR GEN** button in the DSKs.)

Use the following procedure to program the “favorite” CG button:

1. Press and *hold* the **CHAR GEN** button in *any* MLE’s keyer.
2. On the selected MLE’s **Key Bus**, press the button for your most frequently used CG.
3. Release both buttons. The selected CG is now stored in memory, and will be recalled each time **CHAR GEN** is pressed — in any MLE.

This completes the procedure to program the “favorite” CG button.

Notes on Programming a Favorite CG

Please note the following when programming the Favorite CG function:

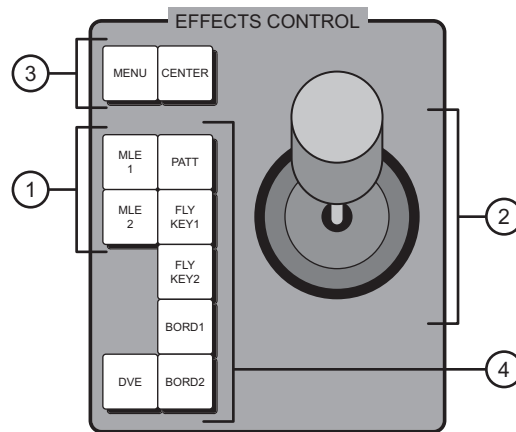
- If you have a simple or complex key type already set up when you press **CHAR GEN**, the entire keyer is cleared. In addition to the favorite CG, the system will automatically select **AUTO SELECT** and **KEY MEM** (provided the Auto Select key with the appropriate Key Memory values has been set up in the installation).
- The “favorite” CG programming function is global. Regardless of where you program the function, all **CHAR GEN** buttons (in all MLE’s) will now recall the selected CG.

Positioner Group

The **Positioner Group** is an *assignable* module that allows you to manipulate the position of wipe patterns, borders and flying keys — depending upon the selected mode. Except for the differing number of MLE assignment buttons, the controls are identical for all Synergy switchers. The following figures illustrate the **Positioner Group** for each Synergy control panel. Descriptions of the sections for each Synergy control panel are available on page 7–64.

Synergy 2 Control Panel

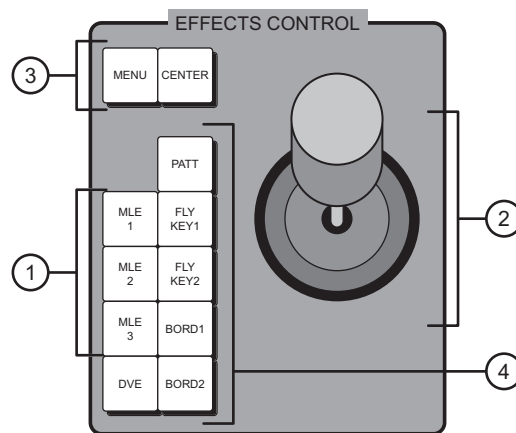
The following figure illustrates the **Positioner Group** for the Synergy 2 control panel:



- | | |
|----------------------------------|----------------------------------|
| 1) Positioner Assignment Section | 3) Positioner Function Section 1 |
| 2) Positioner | 4) Positioner Function Section 2 |

Synergy 3 Control Panel

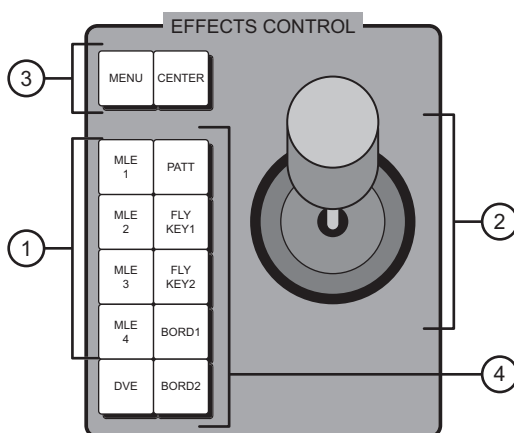
The following figure illustrates the **Positioner Group** for the Synergy 3 control panel:



- | | |
|----------------------------------|----------------------------------|
| 1) Positioner Assignment Section | 3) Positioner Function Section 1 |
| 2) Positioner | 4) Positioner Function Section 2 |

Synergy 4 Control Panel

The following figure illustrates the **Positioner Group** for the Synergy 4 control panel:



1) Positioner Assignment Section	3) Positioner Function Section 1
2) Positioner	4) Positioner Function Section 2

1. Positioner Assignment Section

The **Positioner Assignment Section** provides a group of buttons that allow you to assign the **Positioner** group to individual MLE's.



- (All Switchers) Press **MLE 1** to assign the group to control positionable functions in **MLE 1**. The button will also light *automatically* if the **WIPE**, **FLY KEY**, **DVE SEND**, or any of the four “border” buttons are pressed in **MLE 1**.



- (All Switchers) Press **MLE 2** to assign the group to control positionable functions in **MLE 2**. The button will also light *automatically* if the **WIPE**, **FLY KEY**, **DVE SEND**, or any of the four “border” buttons are pressed in **MLE 2**.



- (Synergy 3 and 4 only) Press **MLE 3** to assign the group to control positionable functions in **MLE 3**. The button will also light *automatically* if the **WIPE**, **FLY KEY**, **DVE SEND**, or any of the four “border” buttons are pressed in **MLE 3**.

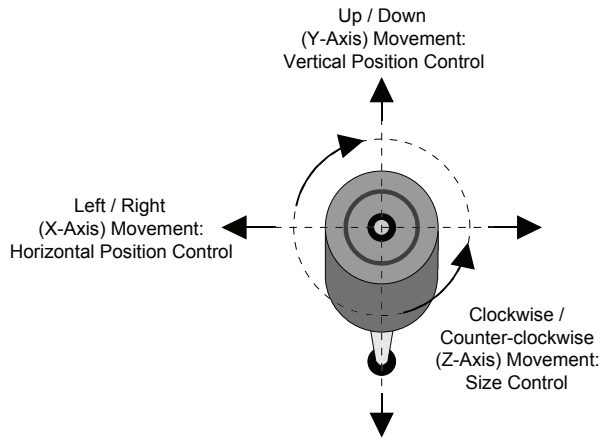


- (Synergy 4 only) Press **MLE 4** to assign the group to control positionable functions in **MLE 4**. The button will also light *automatically* if the **WIPE**, **FLY KEY**, **DVE SEND**, or any of the four “border” buttons are pressed in **MLE 4**.

2. Positioner

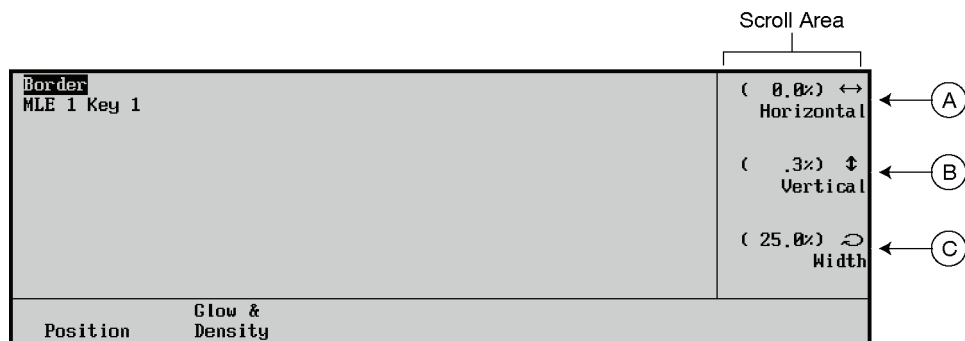
The 3-axis **Positioner** (also known as a *joystick*) allows you to manipulate the position of various functions selected in the MLE.

- When the **MENU** button is off, the positioner allows you to manipulate the position of wipe patterns, borders, flying keys, and external DVEs (depending upon the selected mode). The **Positioner** controls the specific switcher *location* that is selected in the **Positioner Assignment Section**, and the specific *function* that is selected in **Positioner Function Section 2**.



- ~ For wipes and flying keys, move the **Positioner** *left* and *right* to control the image's horizontal position on screen.
 - ~ For wipes and flying keys, move the **Positioner** *up* and *down* to control the image's vertical position on screen.
 - ~ For flying keys only, twist the top knob *clockwise* and *counter-clockwise* to zoom the key's size in and out.
- When the **MENU** button is on, the **Positioner**'s current settings are temporarily ignored — but stored in memory. The **Positioner**'s function now applies to the current menu, with the ability to *duplicate* the function of the three menu knobs. This function *only applies* to selected installation and operational menus that display the three “**Positioner Icons**” in the right-hand **Scroll Area**. (Typically, two or three icons are shown, depending upon the current menu function).

When you select a menu that includes the **Positioner Icons**, the **MENU** button automatically lights. Thus, when the **Positioner Icons** appear on a menu, you can adjust the selected function or parameter either with the scroll knobs or with the **Positioner** — for your convenience. When you turn the **MENU** button off, the **Positioner** once again is assigned to the current panel function and location.



Border Menu — with Positioner Icons



- A) When the left-right **Positioner Icon** is displayed, you can use the top knob to adjust the selected function or you can move the **Positioner** *left* and *right*.
- B) When the up-down **Positioner Icon** is displayed, you can use the middle knob to adjust the selected function or you can move the **Positioner** *up* and *down*.



- C) When the circular **Positioner Icon** is displayed, you can use the bottom knob to adjust the function, or you can twist the **Positioner**'s knob *clockwise* and *counter-clockwise*.

3. Positioner Function Section 1



- Enable **MENU** to assign **Positioner** control to *menu* functions, temporarily disabling control over *positionable* functions. When the button is turned off, **Positioner** control (for a selected MLE and function) is restored. Note that when you select a menu that includes the three **Positioner Icons**, the **MENU** button *automatically* lights. Refer to the section “**Positioner Group**” on page 7–64 for additional details on the three **Positioner Icons**.



- Press **CENTER** to return the wipe, flying key or border to its default position, typically removing all X, Y, and Z-axis offsets from the image.

4. Positioner Function Section 2



- Press **PATT** to switch **Positioner** control over to the selected MLE's pattern generator. Note that there is only one **PATT** button in the group, yet there are *two* pattern generators per MLE. To determine which pattern generator is controlled, check the **Pattern Control** group:
 - ~ If **WIPE PP1** is lit, pattern generator 1 is controlled.
 - ~ If **PST PATT2** is lit, pattern generator 2 is controlled.



- Press **FLY KEY 1** to switch **Positioner** control over to the selected MLE's **Key 1** group or **DSK 1** group. The **Squeeze & Tease Menu** automatically is displayed. If **FLY KEY** is enabled and the **Positioner** is on (and the **Squeeze & Tease** option is installed), the key can be sized and positioned.



- Press **FLY KEY 2** to switch **Positioner** control over to the selected MLE's **Key 2** group or **DSK 2** group. The **Squeeze & Tease Menu** automatically is displayed. If **FLY KEY** is enabled and the **Positioner** is on (and the **Squeeze & Tease** option is installed), the key can be sized and positioned.



Note

To move two flying keys at the same time, press **FLY KEY 1** and **FLY KEY 2** simultaneously.



- Press **BORD 1** to switch **Positioner** control over to the selected MLE's first custom border generator (for **Key 1** or **DSK 1**). The **Dual Border Generator** option must be installed.



- Press **BORD 2** to switch **Positioner** control over to the selected MLE's second custom border generator (for **Key 2** or **DSK 2**). The **Dual Border Generator** option must be installed.



Note

To move two borders at the same time, press **BORD 1** and **BORD 2** simultaneously.



- Press **DVE** to toggle between the 3D menu currently selected and the previously selected 3D menu.

Memory Functions and More

In This Chapter

This chapter provides instructions for using the **Global Memory System** of the Synergy Switchers, plus additional features such as **custom controls**. The following topics are discussed:

- Global Memory System Group
- Storing Memory Registers
- Recalling Memory Registers
- Memory Lock
- Naming Memory Registers
- Deleting Memory Registers
- Effects Dissolve
- Working with Storage Devices

Global Memory System Group

The **Global Memory System** group is used to store and recall switcher memory registers — *for all MLEs on the panel*. Within the group, you can also control the switcher’s remote control functions, control a variety of MLE transition rates, and recall VTR “clips” from memory.

A memory register is a “snapshot” of an MLE (or multiple MLEs). Up to 100 registers can be stored and recalled. A register can be as simple as the contents of one MLE’s keyer, or as comprehensive as the contents of the entire switcher, including all MLEs, Aux Buses and DVE settings.



Note

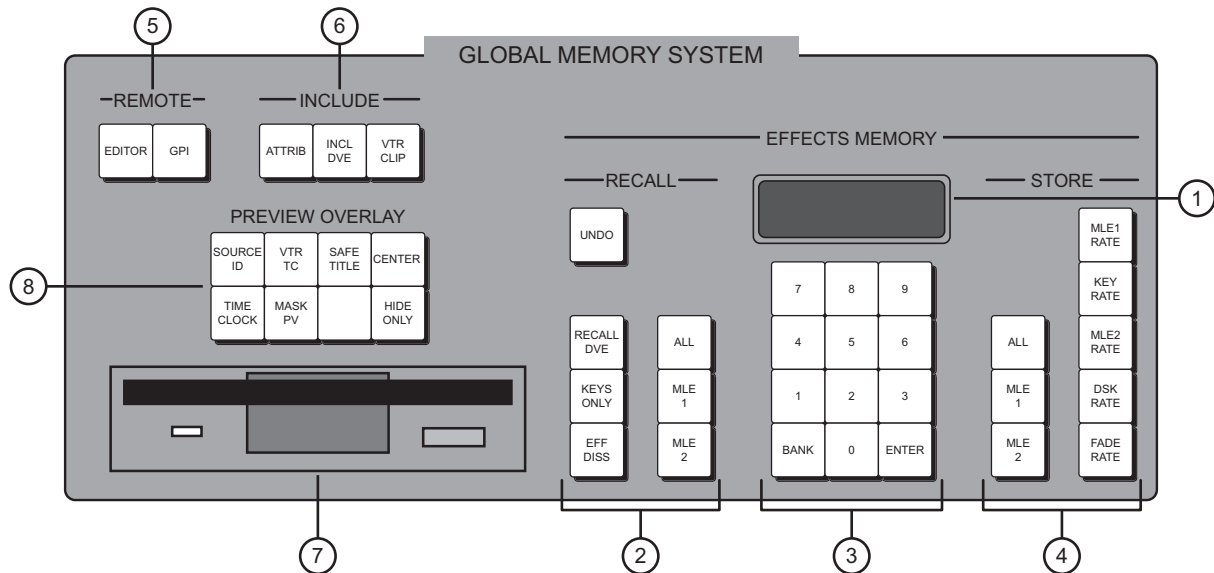
On the Synergy 3 and 4 panels, you can also store and recall memory registers within each MLE itself, using the **MLE Memory Group**. This group of buttons pertains only to that individual MLE — not to the entire panel.

The layout of the group is *almost* identical on all three switchers, with minor exceptions due to the differing number of MLEs on each panel. For simplicity in the drawings, sections are numbered in an identical manner from switcher to switcher.

The following figures illustrate the **Global Memory System** groups for each Synergy control panel.

Synergy 2 Control Panel

The following figure illustrates the **Global Memory System Group** for the Synergy 2 control panel:

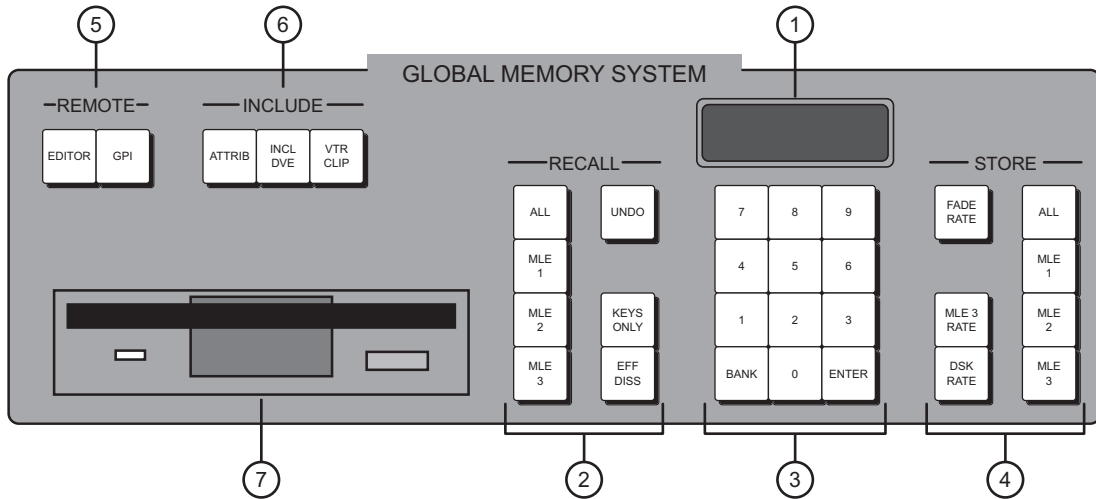


Synergy 2 Global Memory System Group

1) Display	4) Store Section	7) Disk Drive
2) Recall Section	5) Remote Section	8) Preview Overlay Group
3) Keypad	6) Include Section	

Synergy 3 Control Panel

The following figure illustrates the **Global Memory System Group** for the Synergy 3 control panel:

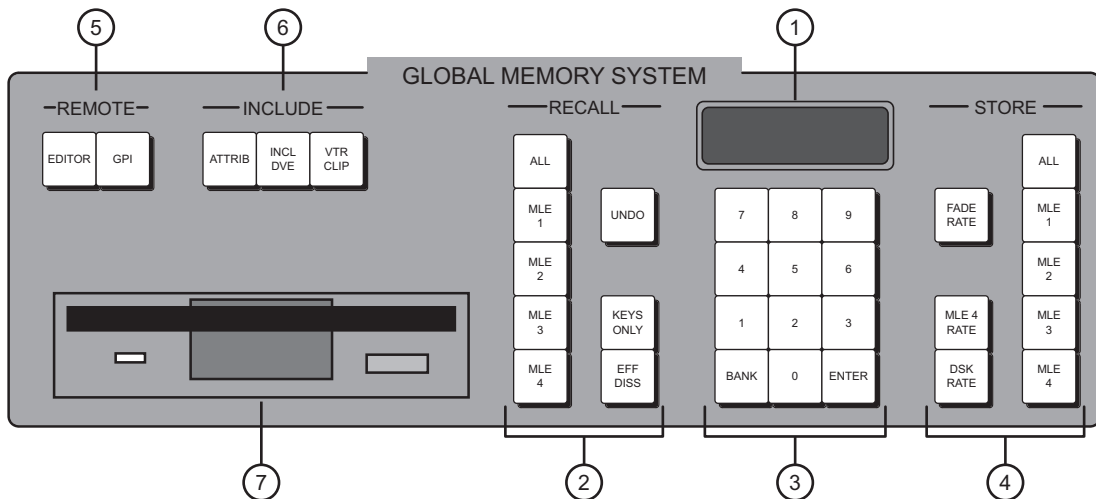


Synergy 3 Global Memory System Group

- | | | |
|-------------------|--------------------|---------------|
| 1) Display | 4) Store Section | 7) Disk Drive |
| 2) Recall Section | 5) Remote Section | |
| 3) Keypad | 6) Include Section | |

Synergy 4 Control Panel

The following figure illustrates the **Global Memory System** group for the Synergy 4 panel:



Synergy 4 Global Memory System Group

- | | | |
|-------------------|--------------------|---------------|
| 1) Display | 4) Store Section | 7) Disk Drive |
| 2) Recall Section | 5) Remote Section | |
| 3) Keypad | 6) Include Section | |

1. Display

The **Display** provides five data fields. All rates are indicated in frames:

- **REG:##** — Indicates the current memory register number.
- **Memory#** — Displays the current memory.

The preceding fields change when **Squeeze & Tease 3D** sequences are in use. Refer to the *Squeeze & Tease 3D/WARP Owner's Guide* for further details.

- **M:###** — Indicates the Program/Preset MLE's transition rate.
- **D:###** — Indicates the transition rate for both DSKs.
- **F:##** — Indicates the Fade to Black transition rate.

2. Recall Section

The **Recall Section** allows you to recall switcher memory registers into *selected* MLEs. Refer to the section “**Recalling Memory Registers**” on page 8–12 for complete instructions on memory recall operation.



- (All Switchers) Press **ALL** to enable *all MLEs* for the next recall operation. The **ALL** button lights. When a bank and register are entered on the keypad, information is recalled from memory and loaded into each MLE.
- (All Switchers) Press **MLE 1** to enable only **MLE 1** for the next recall operation. (Synergy 3 and 4 only) To recall **MLE 1** plus another MLE, press the desired MLE buttons simultaneously, e.g., **MLE 1 + MLE 3**. (On the Synergy 2, press **ALL**.)
- (All Switchers) Press **MLE 2** to enable only **MLE 2** for the next recall operation. (Synergy 3 and 4 only) To recall **MLE 2** plus another MLE, press the desired MLE buttons simultaneously, e.g., **MLE 2 + MLE 3**. (On the Synergy 2, press **ALL**.)
- (Synergy 3 and 4 only) Press **MLE 3** to enable only **MLE 3** for the next recall operation. To recall **MLE 3** plus another MLE, press the desired MLE buttons simultaneously.
- (Synergy 4 only) Press **MLE 4** to enable only **MLE 4** for the next recall operation. To recall **MLE 4** plus another MLE, press the desired MLE buttons simultaneously.



Note

The **ALL**, **MLE 1**, **MLE 2**, **MLE 3** and **MLE 4** buttons can also be used with the buttons in the **Store Section** to reset the entire switcher, or selected MLEs. Refer to the section “**Software Reset**” on page 2–19 for details.



- Press **UNDO** to *undo* the last memory recall operation, restoring the MLE(s) to its state immediately before the recall. For example, if you had a “fly key” effect set up on MLE 1 and then accidentally recalled a register that included a simple wipe, pressing **UNDO** would immediately restore the fly key effect.

UNDO turns on immediately after a memory recall has been performed, giving you a chance to undo the operation. The **UNDO** button will remain **On** and allow the user up to *nine* button presses before they press the **UNDO** button. On the *tenth* button press, the **UNDO** light turns **Off** and the recall can not be undone. The fader bar does not affect the UNDO status.



- Enable **KEYS ONLY** to recall all memory register data *except* for the MLE's PGM/PST (or BKGD/PST) crosspoints. This function allows you to retain (or hold) crosspoints, but change the keys that are layered on top.

- The **Keys Only** function applies to different MLEs, depending upon the switcher model:
 - ~ **Synergy 2** — Works in conjunction with the lit MLE button(s) in the **Recall Section**. There are no **MLE Memory** groups on the Synergy 2 Panel.
 - ~ **Synergy 3 and 4** — In the **Global Memory System** group, the button applies only to the PGM/PST MLE, because that MLE does not have an **MLE Memory** group.
 - ~ **Synergy 3 and 4** — In the individual **MLE Memory** groups, the button only applies to the associated MLE.

Please note:

- ~ When **KEYS ONLY** is lit, the next recall operation is “armed” to perform a **Keys Only** function.
- ~ When off, the next recall operation recalls keys *and crosspoints*.



- Enable **EFF DISS** (effects dissolve) to change the way that effects are recalled. When the button is lit (armed) and an effect is recalled, the system first recalls all non-dissolving values, then recalls (or *slews*) all dissolving *analog* functions such as border color, clip levels and pattern positions.

The **Effects Dissolve** function applies to different MLEs, depending upon the switcher model:

- ~ **Synergy 2** — Works in conjunction with the lit MLE button(s) in the **Recall Section**. There are no **MLE Memory** groups on the Synergy 2 Panel.
- ~ **Synergy 3 and 4** — In the **Global Memory System** group, the button applies only to the PGM/PST MLE, because that MLE does not have an **MLE Memory** group.
- ~ **Synergy 3 and 4** — In the individual **MLE Memory** groups, the button only applies to the associated MLE.

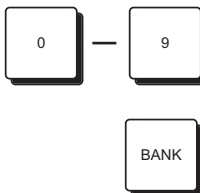
Note that when **EFF DISS** is lit, the next recall is “armed” for an effects dissolve. When the register is recalled, the effect slews from its current settings to the recalled settings. When **EFF DISS** is off, the switcher cuts to the next register. Refer to the section “**Effects Dissolve**” on page 8–22 for instructions.



- **Synergy 2 only** — Press **RECALL DVE** to recall a specific DVE effect from the primary DVE. The **DVE Send and Remote Control Option** must be installed. Refer to the section “**Understanding DVE Send Operation**” for instructions.

3. Keypad

The **Keypad** allows you to enter transition rates, fade rates, switcher memory registers, DVE register numbers, and VTR clip numbers.



- Use buttons **0** through **9** for all numeric entry requirements, such as transition rates, fade rates, switcher memory registers, banks, DVE registers, and VTR clips.
- Press **BANK** to select the bank of switcher memory registers that you want to store or recall. Ten banks of 10 registers each are provided, for a total of 100 registers:
 - ~ Bank 0 (registers **00** to **09**)
 - ~ Bank 1 (registers **10** to **19**)
 - ~ Bank 2 (registers **20** to **29**)

- ~ Bank 3 (registers **30** to **39**)
- ~ Bank 4 (registers **40** to **49**)
- ~ Bank 5 (registers **50** to **59**)
- ~ Bank 6 (registers **60** to **69**)
- ~ Bank 7 (registers **70** to **79**)
- ~ Bank 8 (registers **80** to **89**)
- ~ Bank 9 (registers **90** to **99**)

Pressing **BANK** essentially advances the 10's digit:

- ~ You can press **BANK** repeatedly, to advance by *one bank per press*. (For example, pressing **BANK**, **BANK** would change register **21** to **31**, then **41**.)
- ~ You can also press and *hold* **BANK**, then press the number of the desired bank to go *directly* to that bank. (For example, press **BANK**, **4**, to select bank four.)

Refer to the section “**Storing Memory Registers**” on page 8–9 and the section “**Recalling Memory Registers**” on page 8–12 for memory function instructions.



- Press **ENTER** to *conclude* all numeric entry procedures such as storing memory registers, entering transition rates, fade rates, DVE registers and VTR clips. The button lights immediately when keypad buttons are pressed to indicate that an entry is pending. Note that **ENTER** is *not required* for memory recall functions — allowing you to quickly press just the bank and desired register — for rapid recalling of your setups.

4. Store Section

The **Store Section** allows you to store snapshots of the *selected* MLEs and enter selected transition rates. Refer to the section “**Storing Memory Registers**” on page 8–9 for complete *memory* instructions.



- (All Switchers) Press **ALL** to enable *all MLEs* for the next storage operation. The **ALL** button lights. When a bank and register are entered on the keypad, information is stored into memory from each MLE.
- (All Switchers) Press **MLE 1** to store just the contents of **MLE 1** in a memory register. (Synergy 3 and 4) To store **MLE 1** plus another MLE, press the desired MLE buttons simultaneously, e.g., **MLE 1 + MLE 3**. (On the Synergy 2, press **ALL**.)
- (All Switchers) Press **MLE 2** to store just the contents of **MLE 2** in a memory register. (Synergy 3 and 4 only) To store **MLE 2** plus another MLE, press the desired MLE buttons together, e.g., **MLE 2 + MLE 3**. (On the Synergy 2, press **ALL**.)
- (Synergy 3 and 4 only) Press **MLE 3** to store just the contents of **MLE 3** in a selected memory register. To store **MLE 3** plus another MLE, press the desired MLE buttons simultaneously, e.g., **MLE 3 + MLE 1**.



- (Synergy 4 only) Press **MLE 4** to store just the contents of **MLE 4** in a selected memory register. To store **MLE 4** plus another MLE, press the desired MLE buttons simultaneously, e.g., **MLE 4 + MLE 3 + MLE 2**.



Note

The **ALL**, **MLE 1**, **MLE 2**, **MLE 3** and **MLE 4** buttons can also be used with the buttons in the **Recall Section** to reset the entire switcher, or selected MLEs. Refer to the section “**Software Reset**” on page 2–19 for details.



- (Synergy 2 only) Press **MLE 1 RATE** to change transition rates for MLE 1 effects (in the **MLE 1 Transition** group). This button is located in the **Global Memory System** group because the Synergy 2 does *not* have an **MLE Memory Group**. Refer to the section “**Changing MLE Auto Transition Rates**” on page 5–12 for instructions.



- (Synergy 2 only) Press **MLE 2 RATE** to change transition rates for MLE 2 (Program/Preset) effects. Refer to the section “**Changing Program/Preset Auto Transition Rates**” on page 5–11 for details.



- (Synergy 3 only) Press **MLE 3 RATE** to change transition rates for MLE 3 (Program/Preset) effects. Refer to the section “**Changing Program/Preset Auto Transition Rates**” on page 5–11 for details.



- (Synergy 4 only) Press **MLE 4 RATE** to change transition rates for MLE 4 (Program/Preset) effects. Refer to the section “**Changing Program/Preset Auto Transition Rates**” on page 5–11 for details.



- (Synergy 2 only) Press **KEY RATE** to change transition rates for both MLE 1 key groups (the rate is identical). This button is located in the **Global Memory System** group because the Synergy 2 does *not* have an **MLE Memory Group**. Refer to the section “**Changing MLE Keyer Rates**” on page 7–46 for details.



- (All Switchers) Press **FADE RATE** to change the switcher’s fade-to-black transition rate. Refer to the section “**Changing Fade to Black Rates**” on page 4–36 for instructions.



- (All Switchers) Press **DSK RATE** to change the switcher’s downstream key transition rates. The rate is identical for DSK 1 and DSK 2. Refer to the section “**Changing DSK Auto Transition Rates**” on page 7–45 for instructions.

5. Remote Section

The **Remote Section** includes buttons for toggling remote control from external devices. The group is identical for all switchers.



- Press **EDITOR** to toggle remote control from an external edit controller. The **Editor Interface Option** must be installed. When lit, remote control is enabled (but local operation can still be performed). When off, the switcher is entirely “local.” Refer to the section “**Editor Interface**” for details.



- Press **GPI** to toggle remote control from external GPI sources. The button controls GPI input pulses — output pulses are not affected. When the button is lit, remote GPI control is enabled. When the button is off, external GPI control is disabled. Refer to the section “**GPI Control**” for details.

6. Include Section

The **Include Section** governs what specific *category* of information is recalled to the panel when a memory register is recalled.



- When lit, **ATTRIB** indicates that the **Auto Recall** option in the **Personality** menu is enabled, and the switcher will recall the **Key Only** and **Effects Dissolve** settings as part of a memory recall operation.



- Enable **INCL DVE** to recall the DVE effect number (if any) that was stored in the selected memory register.
 - ~ When lit, the next recall operation is “armed” to recall the DVE effect associated with your primary DVE into the selected MLE. The button stays on until turned off manually.
 - ~ When off, all data *except* for the DVE effect will be recalled to the selected MLE. This function allows you to *retain* a selected DVE effect, yet recall a memory register into the MLE.

Refer to the section “**Understanding DVE Send Operation**” for more information.



- Press **VTR CLIP** to recall clips (segments) from a selected serial controlled device that is connected to Synergy via RS-422 communications. Devices include VTRs, Video Servers and Audio Servers. The **VTR Remote Control**, **Video Server Control** or **Audio Server Control** option must be installed, respectively. Any combination of options can be installed. Refer to the section “**Clip Control Overview**” for instructions.

7. Disk Drive



Note

If you have the **USB Removable Media Drive** option installed, the floppy disk drive will be replaced with a USB port. The information in this section is still applicable when using a USB key.

The **Disk Drive** is used to store and recall six categories of switcher registers, using a standard 1.44 MD high-density floppy disk or USB key.



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

- **Memory Registers** are “snapshots” of the various MLEs.
- **Custom Control Registers** are the functions that you have programmed into the switcher’s **Custom Control Group**, such as VTR and DVE remote control commands.
- **Personality Registers** are user-configurable registers that apply to your particular style of operation. Data such as DSK Setup and Favorite CG Setup is stored here.
- **VTR Clip Registers** store VTR clip register information (in timecode format).
- **Installation Registers** store all of the setup and configuration settings for the switcher.
- **3D Sequence Registers** store all of the S&T 3D sequences.

Refer to the section “**Working with Storage Devices**” on page 8–24 for instructions on saving and recalling **Memory**, **Personality**, **VTR**, **Custom Control**, and **3D Sequence**

Registers. For instructions on saving and recalling **Installation Registers**, refer to Chapter 9 “**Additional Installation Setups**” of the *Synergy Series Installation Guide*.

8. Preview Overlay (Synergy 2 only)

The **Preview Overlay Group** allows you to control specific *overlay* information that is displayed on the preview monitor, such as VTR time code, a count up/down timer, source ID, safe title, etc. Displays are individually selectable on the preview monitor for quick reference. The **Preview Overlay** option must be installed. Refer to the section “**Preview Overlay Group**” on page 4–38 for details.

Storing Memory Registers

This section provides instructions for storing memory registers in *two locations* on the Synergy switcher:

- Storing registers using the **Global Memory System**
- Storing registers using the **MLE Memory System**

The Synergy switcher allows you to store 100 complete panel setups. Each register can be regarded as having separate compartments for individual MLEs. When viewed this way, you can store 200 unique MLE setups on the Synergy 2, 300 setups on the Synergy 3, and 400 setups on the Synergy 4 — however, you are limited to 100 setups for each MLE. When you store an MLE, you store everything — all transitions, rates, crosspoints, borders, keys, fader position, transition limits, clip levels, wash colors, fly key data, pattern multipliers, DVE registers, **EFF DISS**, **KEYS ONLY**, and **INCL DVE** button settings — everything.

In addition, *underlying data* is also stored. For example, if you store an MLE that includes one or more keys, not only is the key data stored for the current on-air keys, but also data (e.g., clip and gain) is also stored for keys that are *not* currently on air.

When you store memories at the **Global Memory System** level, the **Key Only** and **Effects Dissolve** settings are saved in the selected MLE memory system as well.



Note

VTR Clip registers are stored *automatically* when you set up your clips on the **VTR Clips Menu**. You do not have to use the keypad in the **Global Memory System Group**.

Storing Registers using the Global Memory System

For all Synergy switchers, use the following procedure to store switcher memory registers using the **Global Memory System Group**:

1. Set up the desired effect in one or more MLEs.
2. Select the MLE (or group of MLEs) that you wish to store from the **Store Section** located in the **Global Memory System Group**.
 - To enable *all MLEs* for the next storage operation, press **ALL**.
 - To store *just one* MLE, press the button for the desired MLE.
 - **Synergy 3 and 4 only** — To store two MLEs, press the desired MLE buttons together, such as **MLE 2 + MLE 3**.
 - **Synergy 4 only** — To store three MLEs, press the desired MLE buttons together, such as **MLE 1 + MLE 3 + MLE 4**.

3. On the keypad, enter the desired storage register. If required, select a memory register bank (the 10's digit). Two methods are available:



Operating Tip

The next available unnamed memory register is now displayed in the **Global Memory System Group** if you have enabled the **Next Available Memory** option. You can save to this register or select another.

- Press **BANK** repeatedly, to advance by *one bank per press*.

OR

- Press and *hold* **BANK**, then press the desired bank (**0** to **9**).

Once you select the bank, the number is displayed (in the 10's digit column) and the **ENTER** button lights.



Note

If the desired bank is *already* selected, you need only select the register (from **0** to **9**).

- Select the register within the bank (the 1's digit), by pressing the number (from **0** to **9**).
4. Press **ENTER** to complete the procedure. The register is now stored in memory and the **ENTER** button light turns off.

This completes the procedure to store switcher memory registers using the **Global Memory System Group**.

Notes on Storing Memory Registers

Please note the following important points regarding memory register storage:

- If you wish to cancel the entire storage procedure at any point, simply turn off the lit buttons in the **Store Section** by pressing a button in the **Recall** column, or any of the buttons used for changing transition rates.
- If you have enabled the **Next Available Memory** option in the **Personality Menu**:
 - ~ you can store a new memory to the next available register. The Synergy switcher will display the next unnamed available memory register in the **Global Memory System Group**.
 - ~ a pop up message is displayed if there are no available registers in the selected memory bank.
- Storing a setup in a specific register overwrites any previous information that may have been contained in that register. There is no "undo" function with regard to storage.
- Refer to the section "**Storing Registers with DVE Crosspoints**" on page 8–12 for important information regarding DVEs and **Aux Bus** assignments.

Storing Registers using the MLE Memory Group

For Synergy 3 and 4 switchers, use the following procedure to store switcher memory registers using any **MLE Memory Group**. This function is the *same* as pressing an individual MLE button in the **Store Section** of the **Global Memory System Group**.

Use the following procedure to store switcher memory registers using an **MLE Memory Group**:

1. Set up the desired effect in an MLE.
2. In the **Memory Group** of the selected MLE, press **STORE**.



Operating Tip

The next unnamed, available memory register is now displayed in the **MLE Memory** group if the **Next Available Memory** option is enabled. You can save your memory to this register or select another.

3. On the keypad (in the **MLE Memory** group), enter the desired register:
 - If required, select the bank. Two methods are available:
 - ~ Press **BANK** repeatedly, to advance by *one bank per press*.
 - ~ Press and *hold* **BANK**, then press the number of the desired bank (from **0** to **9**).

Once you select the bank, the number is displayed on the display (in the 10's digit column) and the **ENTER** button lights.



Note

If the desired bank is *already* selected, you need only select the register (from **0** to **9**).

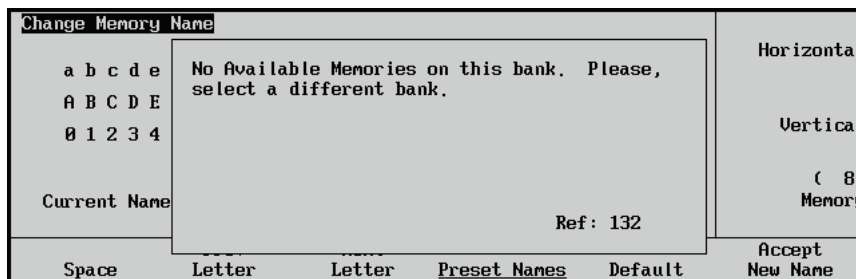
- Select the register within the bank (**0** to **9**). The number is displayed on the display (in the 1's digit column).
4. Press **ENTER** to complete the procedure. The MLE is now stored in memory and the **ENTER** button light turns off.

This concludes the procedure to store switcher memory registers using an MLE Memory Group.

Notes on Storing Memory Registers

Please note the following important points regarding memory register storage:

- If you wish to cancel the entire storage procedure at any point, simply turn off the **STORE** button by pressing **RECALL**, **MLE RATE** or **KEY RATE**.
- Storing a setup in a specific register overwrites any previous information that may have been contained in that register. There is no “undo” function with regard to storage.
- If you have enabled the **Next Available Memory** option in the **Personality Menu**:
 - ~ the Synergy switcher will display the next unnamed, available memory register in the **Memory System Group** of all MLEs as determined by the last memory register you used. You can override the selection by using the keypad in the desired **MLE Memory System Group** to enter a different memory register.
 - ~ if there are no available registers in the selected memory bank, the following pop-up message is displayed.



No Available Memories Pop-up Message

Storing Registers with DVE Crosspoints

When you store a memory register for an MLE that includes a DVE effect, you *also* automatically store the DVE's associated **Aux Bus** crosspoints that are used to route input sources to the DVE. To store the DVE effect and its associated Aux Bus crosspoints, the following important prerequisites must be fulfilled:

- A primary DVE must be connected to the switcher.
- The DVE effect number (that you wish to store) must be recalled immediately prior to storing the full effect to memory.
- The Aux bus must be assigned to the DVE.

Once stored, the effect and its Aux Bus crosspoint can be recalled by pressing the **INCL DVE** button as part of the recall procedure. Refer to the section “**Recalling Memory Registers**” on page 8–12 for instructions.

Notes on Storing Registers

Please note the following important points:

- Whether you are using a “**1+0 DVE**” or a “**1+1 DVE**”, any **Aux Bus** outputs can be used to connect the primary DVE's video and key channels. For definitions of the above terms, refer to the section “**Documentation Terms**” on page 1–5.
- Any **Aux Bus** can be associated with a secondary DVE, but you cannot store secondary DVE effects.
- When a primary DVE effect is recalled, the Aux Bus associations with *any device* will also be recalled. Aux Buses not associated with devices (as determined during installation) will not be recalled under any circumstances.
- All Aux Bus-to-DVE associations are performed during switcher setup. Refer to the section, “**Aux Bus Setup**” in the *Synergy Series Installation Guide*, for more information.

Recalling Memory Registers

This section provides instructions for recalling memory registers from two locations on the Synergy switcher:

- Recalling registers using the **Global Memory System Group**
- Recalling registers using the **MLE Memory Group**

The procedure is very similar to the storage procedure; however, you have several options for the “type” of data that you wish to recall. The following two sections provide instructions for each recall situation.

Recalling Registers using the Global Memory System

For all Synergy switchers, use the following procedure to recall switcher memory registers using the **Global Memory System Group**:

1. In the **Global Memory System** group's **Recall Section**, select the MLE (or group of MLEs) that you wish to recall.
 - To enable *all MLEs* for the next recall operation, press **ALL**.
 - To recall *just one* MLE, press the button for the desired MLE.

- **Synergy 3 and 4 only** — To recall two MLEs, press the desired MLE buttons together, for example, **MLE 2 + MLE 3**.
 - **Synergy 4 only** — To recall three MLEs, press the desired MLE buttons together, for example, **MLE 1 + MLE 3 + MLE 4**.
2. (*Optional*) Using the buttons in the **Include** and **Recall** sections, select the type of data that you want to include in the recall operation. These buttons arm the function for each data category. They can be enabled in any combination.
- When lit, **ATTRIB** indicates that the **Auto Recall** option in the **Personality** menu is enabled, and the switcher will recall the **KEY ONLY**, **INCL DVE**, and **EFF DISS** settings as part of a memory recall operation.



Note

KEY ONLY, **INCL DVE**, and **EFF DISS** settings are only recalled if the **Auto Recall** option is enabled. See “**Auto Recall**” in the **Switcher Personality** section of this chapter.

- Enable **INCL DVE** to recall the DVE effect number (if any) that was stored in the selected memory register. If you *also* want to recall the DVE’s associated **Aux Bus** crosspoints, ensure that a primary DVE is interfaced with the switcher.



Important

If you have selected more than one MLE and the **INCL DVE** button is on, select a button in the **DVE Send** group to determine which *specific* MLE is assigned DVE control for the recalled effect.

- Enable **KEYS ONLY** to recall all memory register information *except* for PGM/PST (or BKGD/PST) bus crosspoints.
 - ~ For Synergy 2, the “**Keys Only**” function in the **Global Memory System** group works with the lit MLE button(s) in the **Recall Section**.
 - ~ For Synergy 3 and 4, the “**Keys Only**” function in the **Global Memory System** group applies only to the PGM/PST MLE.
- Enable **VTR CLIP** to recall VTR, Video Server or Audio Server clip data from a selected memory register. Registers include a physical serial controlled device (such as a VTR, Video Server or Audio Server) and a timecode. If the device is a server, additional information such as an ID is also stored.

The **VTR Remote Control**, **Video Server Control** or **Audio Server Control** option must be installed. Any combination of options can be installed.
- Enable **EFF DISS** to recall all non-dissolving values first, and then slew any stored analog functions from their current settings to the recalled settings.
 - ~ **Synergy 2** — The “**Effects Dissolve**” function in the **Global Memory System** group works with the lit MLE button(s) in the **Recall Section**.
 - ~ **Synergy 3 and 4** — The “**Effects Dissolve**” function in the **Global Memory System** group applies only to the PGM/PST MLE.

3. On the keypad, enter the desired register to recall:

- If required, select the bank. Two methods are available:



Note

If the desired bank is *already* selected, you need only select the register (from **0** to **9**) to immediately recall the setup.

- ~ Press **BANK** repeatedly, to advance by *one bank per press*.

~ Press and *hold* **BANK**, then press the number of the desired bank (from **0** to **9**).

Once you select the bank, the number is shown on the display (in the 10's digit column).

- Select the register within the bank (the 1's digit) by pressing the number (from **0** to **9**). The number is shown on the display and the effect is recalled. You *do not* need to press **ENTER**.

Refer to the section “**Recall Register Notes**” on page 8–15 for important information regarding the recall procedure itself, and the use of **UNDO**.

Recalling Registers using the MLE Memory Group

For Synergy 3 and 4 switchers, use the following procedure to recall switcher memory registers using any **MLE Memory** group. This function is the *same* as pressing an individual MLE button in the **Global Memory System** group's **Recall Section**.

1. In any MLE's **Memory** group, press **RECALL**.
2. (*Optional*) Using the buttons in the **Include** group, select the type of data that you wish to include in the recall function. These buttons “arm” the recall function, and can be enabled in any combination:
 - When lit, **ATTRIB** indicates that the **Auto Recall** option in the **Personality Menu** is enabled, and the switcher will recall the **Key Only** and **Effects Dissolve** settings as part of a memory recall operation.



Note

Key Only and **Effects Dissolve** settings are only recalled if the **Auto Recall** option is enabled.

- Enable **INCL DVE** (in the **Global Memory System** group) to recall the DVE effect number (if any) that was stored in the selected memory register. If you *also* want to recall the DVE's associated **Aux Bus** crosspoints, ensure that a primary DVE is interfaced with the switcher.
 - Enable **KEYS ONLY** (in the **MLE Memory** group) to recall all memory register information *except* for BKGD/PST crosspoints. The function applies to the associated MLE only.
 - Enable **VTR CLIP** (in the **Global Memory System** group) to recall VTR, Video Server or Audio Server clip data from a selected memory register. Registers include a physical serial controlled device (such as a VTR, Video Server or Audio Server) and a timecode. If the device is a server, additional information such as an ID is also stored.

The **VTR Remote Control**, **Video Server Control** or **Audio Server Control** option must be installed. Any combination of options can be installed.
 - Enable **EFF DISS** (in the **MLE Memory** group) to recall all non-dissolving values first, and then slew any stored analog functions from their current settings to the recalled settings. The effects dissolve function applies to the associated MLE only.
3. On the keypad (in the **MLE Memory** group), enter the desired register:
 - If required, select the bank. Two methods are available:
 - ~ Press **BANK** repeatedly, to advance by *one bank per press*.
 - ~ Press and *hold* **BANK**, then press the number of the desired bank (from **0** to **9**).

Once you select the bank, the number is displayed on the display (in the 10's digit column).



Note

If the desired bank is *already* selected, you need only select the register (from **0** to **9**) to immediately recall the setup.

- Select the register within the bank (the 1's digit), by pressing the number (from **0** to **9**). The number is displayed on the display and the effect is immediately recalled. You *do not* need to press **ENTER**.

Refer to the “**Recall Register Notes**” section for important information regarding the recall procedure itself, and the use of **UNDO**.

Recall Register Notes

Please note the following important points regarding memory register recall:

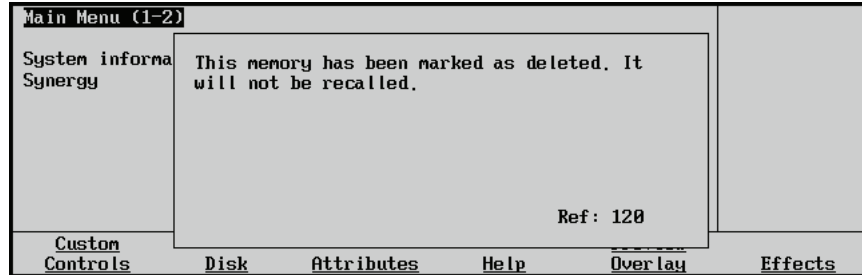
- If you accidentally recalled the wrong register, press **UNDO** to restore the MLE (or group of MLEs) to its state immediately before the recall. The **UNDO** button turns on immediately after the recall has been performed, giving you *one chance* to undo the operation.
 - ~ You can press **UNDO** provided that you *do not touch* any other switcher button or move any **Fader**. (Turning knobs are allowed.)
 - ~ If another button is pressed or if a **Fader** is moved, the **UNDO** light turns off and the recall *cannot be undone*.
- Recalling a register changes the displays in both the **Global Memory System** group itself, and in any individual MLE's **Memory Group** display that is affected by the recall.
- When a register is recalled that includes an off-limit **Fader**, the system brings the effect back as a *temporary* “**Transition Limit**.” You can use the **AUTO TRANS** button in the normal way to complete the transition, or return the transition to its starting point.

Please note:

- ~ Any *actual* **Transition Limit** functions are recalled as originally programmed, whether or not the **TRANS LIMIT** button is lit.
- ~ Similar to the actual **Transition Limit** function, with the *temporary* function note that “physical” and “electrical” **Fader** positions may not match when a register is recalled.
- If you recall a register and the display indicates **Memory # BAD**, and simultaneously, all buttons in the affected keypads blink, it indicates that the memory location is corrupted. Press *any button* on the blinking keypad to clear the message and stop the blinking. The switcher will *not act* on this button press.
- It is possible to recall a memory while retaining a current video crosspoint. This can be accomplished in one of the following ways:
 - ~ By holding down the crosspoint of the video that you want to keep, and then recalling the desired memory. This feature applies to both key buses, as well as the background and preset buses.
 - ~ By enabling the Bus Hold function in the panel mapping, and pressing the **BUS HOLD** crosspoint button. This feature is available to multiple buses at a time. Refer to the section “**Bus Hold Mode**” on page 4–24 for details on performing a Bus

Hold. For setup details, refer to the section “**Setting up Panel Buttons**” in the *Synergy Series Installation Guide*.

- If you attempt to recall a register that has been tagged with **Delete** in the **Memories Setup Menu** and the Recall Deleted Memories feature is set to **No**, the following popup message is displayed:



Memory Deleted PopUp Message

- ~ The popup message is displayed until you press another button on the switcher.
- ~ If you want to recall deleted memories, you must toggle the **Recall Delete Memories** feature to **Yes** in the **Personality Menu**. Refer to Chapter 9 “**Additional Installation Setups**” in the *Synergy Series Installation Guide* for information on enabling this feature.

System Reset Notes

Remember that the buttons in the **Store** and **Recall** columns in the **Global Memory System Group**, as well as the **STORE** and **RECALL** buttons in each **MLE Memory Group**, can be used to reset the entire switcher or individual MLEs. Refer to the section “**Resetting the System**” on page 2–19 for details.

Memory Lock

The **Memory Lock** function allows you to protect memory locations in active memory (on-line memory). With a memory lock enabled, you cannot overwrite the selected memory location until the location is unlocked.

There are two ways to perform a memory lock function:

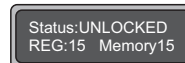
- Memory Lock using the **Global Memory Group**
- Memory Lock using the **Name Memories Menu**

Memory Lock Using the Global Memory System Group

Use the following procedure to enable and disable Memory Locks using the controls in the **Global Memory System Group**:

1. In the **Global Memory System Group**, press and *hold* the **ALL** button in the **Store Section** for one second. The **ALL** buttons in the **Store** and **Recall Sections** both light to indicate that the Memory Lock programming mode is active.
2. Enter the Bank and Register on the keypad (in the **Global Memory System Group**) that you want to lock (or unlock).

The display on the **Global Memory System Group** will indicate the lock status of the selected register, as shown below.



Status: UNLOCKED
REG: 15 Memory 15

- **UNLOCKED** indicates that the selected register is unlocked. The register can be overwritten.
 - **LOCKED** indicates that the selected register is protected. The register cannot be overwritten.
3. Enter the register number again to toggle the lock status. You do not need to re-enter the Bank number as you are already in that Bank.



Note

The *first press* **selects** the register and displays its status, while the *second press* (of the same register number) **toggles** the lock status (locked or unlocked).

4. Repeat steps 2 and 3 to lock or unlock additional registers.



Operating Tip

Press **BANK** and **ENTER**, while in the desired memory register bank, to lock all memories in that bank. For example, with a memory register in bank 0 selected, pressing **BANK + ENTER** will lock all memory registers from (00) to (09). You will not be able to unlock all registers Bank using this method. You will have to unlock each register manually, or use the menu to unlock the Bank.

5. Press **ENTER** to exit the Memory Lock programming mode.

This completes the procedure to setup the Memory Locks.

Notes on the Memory Lock Function

Please note the following important points regarding the Memory Lock function:

- If you attempt to store into a locked register, the keypad flashes and the keypad display indicates **Memory [n] LOCKED**. Press any button on the keypad to stop the flashing.
- If you lock a memory register, it is locked for all memory groups on the entire switcher.
- A locked memory register will be *overwritten* when a register is recalled from a storage device such as a floppy disk or USB key.
- When you store to and recall from a storage device, the Memory Lock attribute is stored and recalled along with the register and its contents.
- When you recall an individual memory from a storage device to a locked memory location on the switcher, you are prompted to cancel or proceed.
- The status of registers locked or unlocked also appears on the **Name Memories Menu**.

Memory Lock Using the Name Memories Menu

The **Name Memories Menu** is used to name any of the 100 available memory registers (on an individual MLE basis), and change the Lock/Unlock status of each register or bank of registers. This menu also allows you to view the current register, the selected MLE, the current name and the **Lock/Unlock** status of the register or bank.



Operating Tip

Press **Lock Bank** to lock all the memories in the currently selected bank. For example, when (00) is selected, pressing **Lock Bank** will lock all registers from (00) to (09) and **Yes** will be highlighted under **Locked** for each of the registers within the bank. Pressing **Unlock Bank** will remove the lock from the registers within the bank.

Use the following procedure to enable and disable Memory Locks using the **Name Memories Menu**:

1. Navigate to the **Name Memories Menu** as follows:
 - Press **HOME** ⇒ **Attributes** ⇒ **Memories Setup**.

Name Memories				MLE 1
MLE: 1	Memory: 1			↓MLE 2
Current Name: Memory1		Bank 0		Memory0 (00)
Locked: No				↓Memory1 (01)
Deleted: Yes				↓Memory2 (02)
	Delete Memory	Un lock Bank	Lock Bank	Locked Yes/No
				Modifu

Name Memories Menu

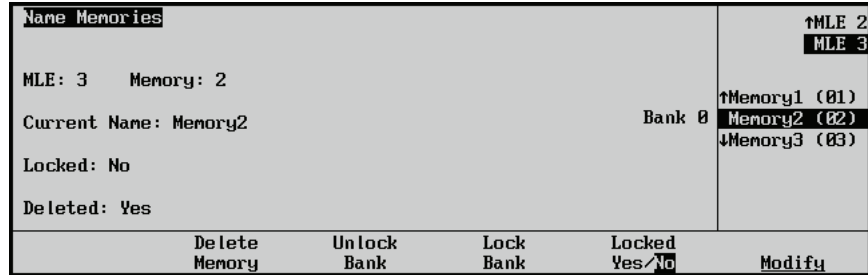
2. Select the memory register you want to lock or unlock as follows:
 - Use the **MLE** knob to select the MLE on which you want to change the Lock/Unlock status of a Register.
 - Use the **Bank** knob to select the Bank and Register that you want to change.
3. Toggle **Locked Yes/No** to the desired mode, either locked (**Yes**) or unlocked (**No**). The selected mode is displayed in the **Register Status Display**.
4. Repeat to change additional registers.

Naming Memory Registers

The **Name Memories Menu** allows you to name (or rename) any of the 100 available memory registers (on an individual MLE basis). This means that Register 10 (on MLE 1) can have a different name than Register 10 (on MLE 2).

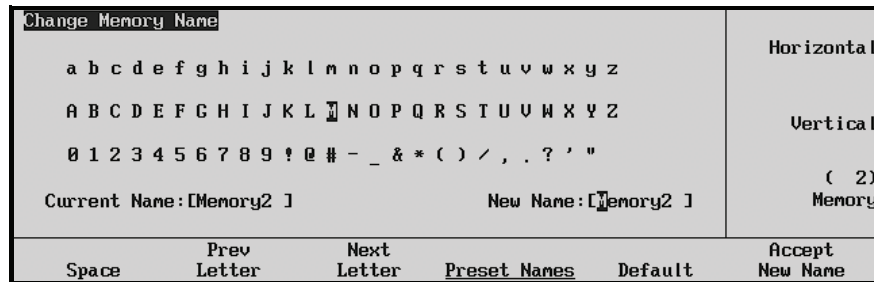
Use the following procedure to name a memory register:

1. Navigate to the **Name Memories Menu** as follows:
 - Press **HOME** ⇒ **Attributes** ⇒ **Memories Setup**.



Name Memories Menu

2. Select the memory Register you want to name as follows:
 - Use the top knob to select the MLE that you want to name a memory register.
 - Use the **Bank** knob to select the register that you wish to change.
3. Press **Modify** to display the **Change Memory Name Menu**.



Change Memory Name Menu

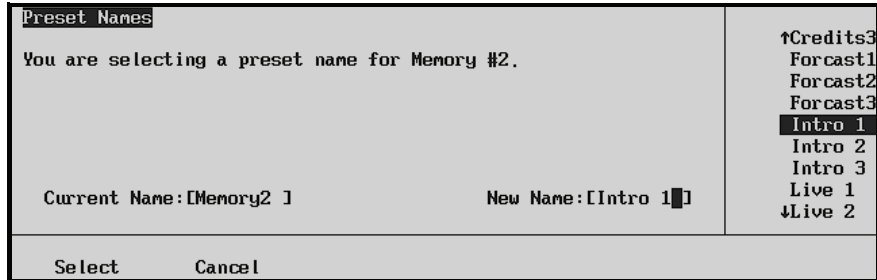
4. Enter (or edit) the desired register name as follows:
 - Use the **Memory** knob to select the desired register (**0** through **99**). As you scroll through the registers, the **Current Name** field tracks each name.
 - Use the **Horizontal** knob to move the highlight horizontally.
 - Use the **Vertical** knob to move the highlight vertically.
 - Use the **Space**, **Prev Letter**, **Next Letter** and **Default** softkeys to edit the name as required.
 - A Standard PS/2 keyboard can also be used to perform the same actions as pressing or rotating the **System Control** buttons and knobs. Refer to the section “Using a Keyboard” on page 2–16 for details.



Important

Do NOT place anything on your keyboard or place your keyboard in a position where any of the keys could be accidentally pressed. This could result in the Switcher acting unpredictably.

- If desired, press **Preset Names** to select from a list of pre-programmed register names and display the **Preset Names Menu**.



Preset Name Menu

- Use the middle knob to scroll the list of names.
 - When the desired name is displayed, press **Select** to return to the **Change Memory Name Menu**.
- Press **Accept New Name** to save your changes.
 - Press **UP ONE** to return to the **Name Memories Menu**, where all new (or edited) memory names appear.
 - Repeat to name additional registers.



Note

All register names appear in the individual **Memory Register Displays** along with the register number.

This completes the procedure to name a memory register.

Deleting Memory Registers

The **Delete Memory** option allows you to delete a memory register, making it unavailable to recall from the **Global Memory System Group** or the MLE's **Memory Group**. This is a temporary setting if you enable the Recall Deleted Memories feature in the **Personality Menu**. Once enabled, the Recall Deleted Memories feature enables you to recall any memory register including those tagged as **Deleted**. Refer to Chapter 9, “**Additional Installation Setups**” in the *Synergy Series Installation Guide* for information on enabling the Recall Deleted Memories feature.

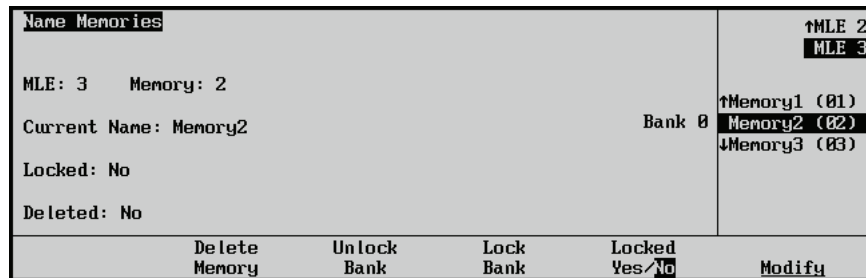


Note

By default, all empty memory registers are tagged as **Deleted**. Once you store a register to memory, the Synergy switcher automatically sets it to undeleted, allowing you to recall it from the **Global Memory System Group** or the MLE's **Memory Group**.

Use the following procedure to delete a memory register:

1. Navigate to the **Name Memories Menu** as follows:
 - Press **HOME** ⇒ **Attributes** ⇒ **Memories Setup**.



Name Memories Menu

2. Select the memory register to delete as follows:
 - Use the top knob to select the MLE for the register that you want to delete.
 - Use the **Bank** knob to select the memory register.
3. Press **Delete Memory** to delete the selected memory register. Note that the **Deleted:** field in the Main Area of the menu changes from **No** to **Yes**.

This concludes the procedure to delete a memory register.

Effects Dissolve

The **EFF DISS (Effects Dissolve)** button allows you to “slew” a switcher setup from its current setting to a new recalled setting. In DVE terms, an **Effects Dissolve** is a two-keyframe effect whereby the switcher interpolates between two different settings (a source effect and a destination effect) at a given rate. Please note:

- Only *analog* functions (such as border color, clip levels, and pattern positions) slew between a current setting and a new recalled setting. However, when the **EFF DISS** button is armed and the recall function is performed, the Synergy system *first* recalls all non-dissolving values *before* beginning the effects dissolve. This means that everything that is *not* an analog value (e.g., key priorities, crosspoints, patterns, next transition data) is recalled in the first frame of the effects dissolve, followed by all *analog* values in the second frame. By *presetting* the switcher with the correct backgrounds and priorities (immediately prior to performing the effects dissolve), this feature guarantees the correct ending position for your effects.
- If the **EFF DISS** button is off, recalled effects *cut* between registers.
- The **Effects Dissolve** function is valid for *recall* operation only. Storage operation is not affected.
- On the Synergy 3 and 4 switchers, you can perform the function in the “local” **MLE Memory** groups for the associated MLE or in the **Global Memory System** group for the PGM/PST MLE only.
- On the Synergy 2 switcher, the **EFF DISS** button is located in the **Global Memory System** group only — because the Synergy 2 does *not* have an **MLE Memory Group**. Here, you can perform the function for all MLEs.
- The duration of the **Effects Dissolve** is governed by the transition rate that is programmed into the *destination* register. For example:
 - ~ Effect #1 is a box wipe that is positioned in the upper left of the screen. It is stored in register 1 with a transition rate of 10 frames.
 - ~ Effect #2 is a box wipe that is positioned in the upper right of the screen. It is stored in register 2 with a transition rate of 45 frames.If you cut to register 1 and then recall register 2 with an **Effects Dissolve**, the box wipe moves from the upper left to the upper right at a 45-frame duration.
- The **Effects Dissolve** function will *not* transform a circle wipe into a box wipe. For example:
 - ~ Effect #3 is a circle wipe that is positioned in the center of the screen. It is stored in register 3 with a transition rate of 30 frames.If you cut to register 1 and then recall register 3 with an **Effects Dissolve**, the system cuts to the circle wipe and then moves it from the upper left to the center at a 30-frame duration.
- An **Effects Dissolve** can be performed on as many MLEs as desired, simultaneously — simply based on the number of MLEs selected for the recall function and “armed” for the **Effects Dissolve**. You can also slew as many functions within each MLE as desired.

Performing an Effects Dissolve

Use the following procedure to perform an **Effects Dissolve**:

1. On an MLE, program an effect with the intention of performing an **Effects Dissolve** — that is, a *change* between two different analog settings (e.g., a wipe in two positions, a border with two unique colors, two different “fly key” positions, etc.).
2. Enter the desired transition rate in the MLE. Refer to the section “**Changing MLE Auto Transition Rates**” on page 5–12 for instructions.
3. Store the effect in the desired memory register. Refer to the “**Storing Registers using the MLE Memory Group**” section for instructions. Remember that the transition rate determines the duration of the **Effects Dissolve** — how long it takes to slew to *this setup*.
4. Repeat steps 1 through 3 for the second effect (remember that two setups are required to perform an effects dissolve — essentially, a *source* effect and a *destination* effect).
5. Recall the first setup from memory into the MLE. Refer to the section “**Recalling Registers using the MLE Memory Group**” on page 8–14 for details.
6. To perform the **Effects Dissolve**, press **EFF DISS** and recall the second setup from memory into the MLE. The system *first* recalls all non-dissolving values (with a cut) and then slews all analog values.
7. Repeat step 6 if you want to slew back to the *first setup*, or to any additional registers that have been properly stored in preparation for the **Effects Dissolve** function. You can slew or cut between as many setups as desired, simply governed by the **EFF DISS** button and the way that the effect was programmed.

This completes the procedure to perform an **Effects Dissolve**.

Working with Storage Devices

This section provides instructions for storing and recalling Synergy registers to a storage device, such as a floppy disk or USB key. The following topics are discussed:

- Notes on Using a USB Key
- Saving Registers
- Saving Individual Memory Registers
- Saving Individual Custom Control Macros
- Saving Individual Squeeze & Tease 3D Sequences
- Recalling Registers
- Recalling Individual Memory Registers
- Recalling Individual Custom Control Macros
- Recalling Individual S&T 3D Sequences

Each topic is explained in detail below.



Note

You *cannot* store to or recall from a storage device while a custom control function is playing.

Notes on Using a USB Key

This option replaces the floppy disk drive on the control panel, and supports industry standard USB keys. Once the option is installed, you can store and recall complete switcher setups including memory functions, switcher personalities, installation parameters, and more, to a USB key.



Important

A decrease in performance will result from storing more than one set of Synergy files on your USB key. One set of Synergy files should not comprise more than half of the available memory on your USB key.

Consider the following notes when using a USB key:

- Write protect should be disabled on any USB key.
- You must wait 5 seconds after inserting the USB key into the USB port before you can save or recall registers to it.
- All Synergy files must be stored in the root directory of the USB key.
- Only DOS or Windows™ partitions are supported in the root directory of the USB key.
- You can use a computer to transfer files between floppy disks and a USB key. Ensure that the switcher files are set in the root directory of the USB key before attempting to save and recall switcher setups.
- A delay can be expected when saving files to a USB key with limited memory space.
- You may receive a “**USB Upgrade Failed**” error message when the Synergy control panel is powered on. Should you receive this error message, contact Ross Video Technical Support for instructions on how to correct the error.

Refer to Chapter 10, “**Completing Setup**” in the *Synergy Series Installation Guide* for details on the types of storage errors and methods to correct them.

Saving Registers

For archive purposes and to keep safe backup copies of your valuable switcher setups, it is recommended that you store your setups and registers on a storage device. One storage device is capable of storing all categories of Synergy setup registers:



Note

You must have the **USB Removable Media Drive** option installed in order to use a USB key for saving registers.

- **Memory Registers** (all 100) are stored in the file **MEMORY.SYN**.
- **S&T 3D Memory Registers** (all 100) are stored in the file **ST3DMEM.SYN**.
- **Custom Control Registers** are stored in the file **CUSTCTRL.SYN**.
- **Personality Registers** are stored in the file **PERS.SYN**.
- **VTR Clip Registers** are stored in the file **VTR.SYN**.
- **Installation Registers** are stored in the file **INSTALL.SYN**.
- **3D Sequence Registers** are stored in the file **ST3DSEQ.SYN**.
- **All Individual Memories Registers** are stored in the files **STEMEM##.SYN**, which identifies a Squeeze & Tease 3D memory, and **MEM##.SYN**, which identifies a regular switcher snapshot. Note that **##** represents the number of the memory register.



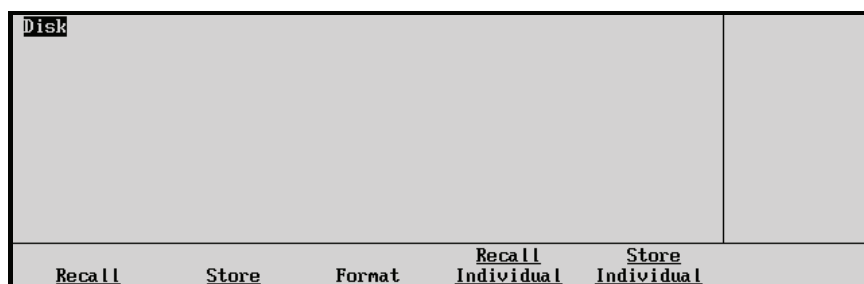
Note

Although one storage device is capable of storing all categories of Synergy registers, there is a physical limitation of 224 files in the root directory. Please keep this in mind if you are storing individual memories, custom controls and S&T 3D sequences to a storage device. Synergy disk files are designed in a proprietary compressed format that can only be read by Synergy switchers. However, the files can be copied and saved on a computer.

Saving Registers to a Storage Device

Use the following procedure to save registers to a storage device:

1. Navigate to the **Disk Menu** as follows:
 - Press **HOME** ⇒ **Disk**.

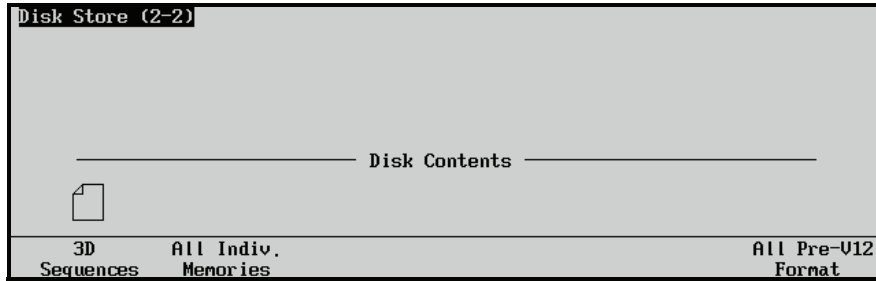


Disk Menu

2. Insert a storage device into the Synergy Switcher as follows:
 - Insert a pre-formatted 1.44 MB high-density floppy disk, or a floppy disk that already contains memory registers, into the floppy disk drive of the Synergy Switcher.

OR

- Insert a USB key, or a USB key that already contains memory registers into the USB port of the Synergy Switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can save registers to it.
3. Press **Store** to display the **Disk Store Menu 1-2**.
 4. Press **MORE** to display the **Disk Store Menu 2-2**.



Disk Store Menu 2-2

When a **File Icon** is displayed above a softkey label (such as **3D Sequences**), the storage device contains a file of that type.

5. Select the category of registers that you want to store as follows:



Note

If you select a category that already contains a file (as indicated by the **File Icon**), the category will be overwritten.

- Press **All** to store all categories of registers.
- Press **Memories** to store only **Memory Registers**.
- Press **Custom Controls** to store only **Custom Control Registers**.
- Press **Personality** to store only **Personality Registers**.
- Press **VTR Clips** to store only **VTR Clip Registers**.
- Press **Installation** to store only **Installation Registers**.
- Press **3D Sequences** to store only **3D Sequence Registers**.
- Press **All Indiv. Memories** to store only **Individual Memory Registers**.



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.



Important

Pressing **All Pre-V12 Format** stores all of the above registers to disk in a format that is compatible with switcher software versions earlier than version 12. Therefore, if you are downgrading your switcher software from version 12 to an earlier version, use this method to store all your switcher configurations to disk. If you are using a USB key, you may need to transfer the registers to a floppy disk using a computer.

Note that a disk created in this manner can still be loaded into version 12 or newer software, but it will load significantly slower than a disk that was saved using the **All** softkey.

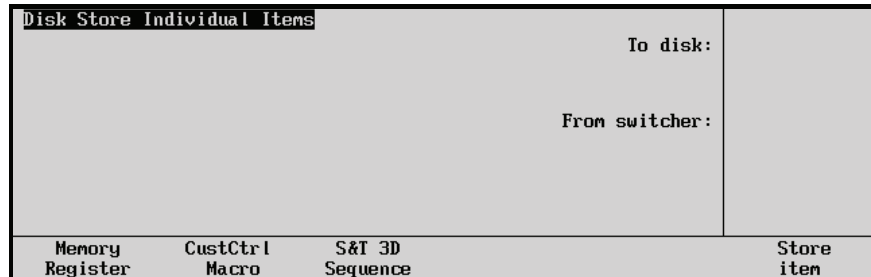
6. Eject the storage device from the switcher.
7. Label the storage device and store it in a safe place.

This completes the procedure for saving your setups to a storage device.

Saving Individual Memory Registers

Use the following procedure to save individual Memory Registers to a storage device:

1. Navigate to the **Disk Store Individual Items Menu** as follows:
 - Press **HOME** ⇒ **Disk** ⇒ **Store Individual**.



Disk Store Individual Items Menu

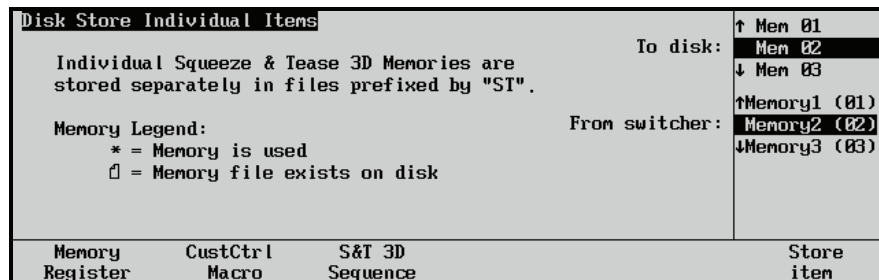
2. Insert a storage device into the Synergy switcher as follows:
 - Insert a pre-formatted 1.44 MB high-density floppy disk (or a floppy disk that already contains memory registers) into the floppy disk drive of the Synergy switcher.

OR

- Insert a USB key (or a USB key that already contains memory registers) into the USB port of the Synergy switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can save to it.
3. Select the memory registers to save as follows:

- Press **Memory Register**.
- Use the **From switcher** knob to select the current switcher memory location that you wish to save.
- Use the **To disk** knob to select the location to save the file.

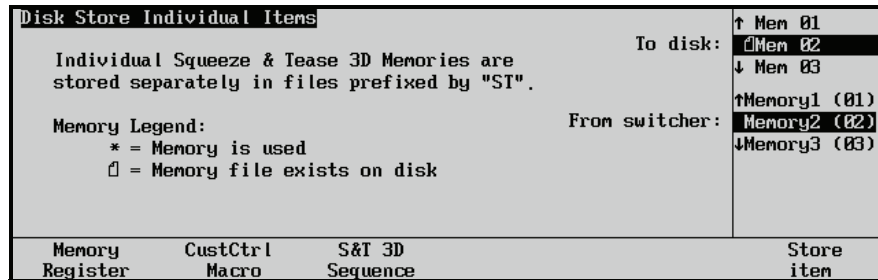
The **Memory Legend** indicates the meaning of the icons that are displayed beside the selected files.



Disk Store Individual Items Menu

- Press the **Store Item** softkey to store the memory register file to a storage device.

When the file is saved, this menu closes and the previous menu is displayed, with a file icon beside the disk location where the memory register is saved.



Disk Store Individual Items Menu



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

- Eject the storage device from the switcher.
- Label the storage device and store it in a safe place.

This completes the procedure for storing your individual memories to a storage device.

Saving Individual Custom Control Macros

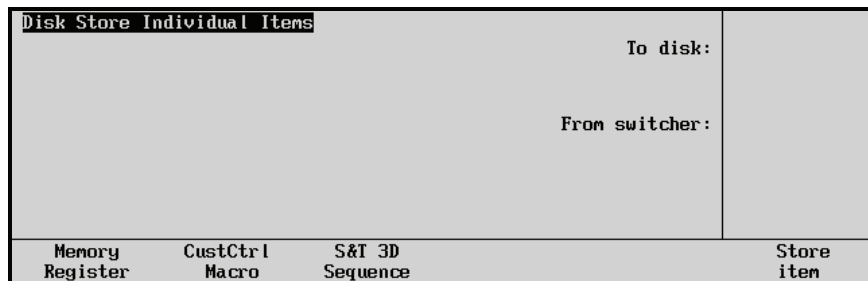


Note

You must have the **USB Removable Media Drive** option installed in order to use a USB key for saving custom control macros.

Use the following procedure to copy and save individual custom control macros from the switcher to a storage device:

- Navigate to the **Disk Store – Individual Items Menu** as follows:
 - Press **HOME** ⇒ **Disk** ⇒ **Store Individual**.



Disk Store Individual Items Menu

- Insert a storage device into the Synergy Switcher as follows:
 - Insert a pre-formatted 1.44 MB high-density floppy disk (or a floppy disk that already contains custom control macros) into the floppy disk drive of the Synergy Switcher.

OR

- Insert a USB key (or a USB key that already contains custom control macros) into the USB port of the Synergy Switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can save to it.
3. Select the desired custom control as follows:
- Press **CustCtrl Macro**.
 - Use the **From switcher** knob to select the current switcher custom control that you wish to save.
 - Use the **To disk** knob to select the location to save the file.

The **Custom Control Legend** indicates the meaning of the icons that appear by the files selected.

Disk Store Individual Items			<input type="checkbox"/> Bnk 1 Btn 01
		To disk:	<input checked="" type="checkbox"/> Bnk 1 Btn 02
			↓ Bnk 1 Btn 03
Custom Control Legend:		From switcher:	Custom01 1#01
# = normal custom control button			<input checked="" type="checkbox"/> Custom02 1#02
			↓ Custom03 1#03
Memory Register	CustCtrl Macro	S&T 3D Sequence	Store item

Disk Store Individual Items Menu

4. Press the **Store Item** softkey to store the Custom Control macro file to a storage device. When the file is saved, this menu closes, the item is saved and the previous menu is displayed, with a file icon beside the disk location where the macro is saved.

Disk Store Individual Items			<input type="checkbox"/> Bnk 1 Btn 01
		To disk:	<input checked="" type="checkbox"/> Bnk 1 Btn 02
			↓ Bnk 1 Btn 03
Custom Control Legend:		From switcher:	Custom01 1#01
# = normal custom control button			<input checked="" type="checkbox"/> Custom01 1#02
<input type="checkbox"/> = custom control exists on disk			↓ Custom03 1#03
Memory Register	CustCtrl Macro	S&T 3D Sequence	Store item

Disk Store Individual Items Menu



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

- 5. Eject the storage device from the switcher.
- 6. Label the storage device and store it in a safe place.

This completes the procedure for storing your individual Custom Control Macros to a storage device.

Saving Individual Squeeze & Tease 3D Sequences

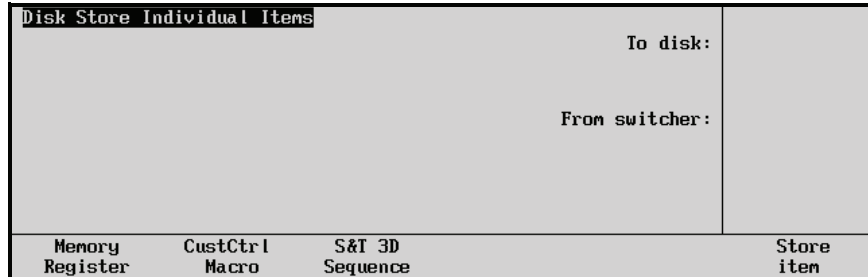


Note

You must have the **USB Removable Media Drive** option installed in order to use a USB key for individual 3D sequences.

Use this function to copy and save individual S&T 3D sequences from the Synergy Switcher to a storage device:

1. Navigate to the **Disk Store – Individual Items Menu** as follows:
 - Press **HOME** ⇒ **Disk** ⇒ **Store Individual**.



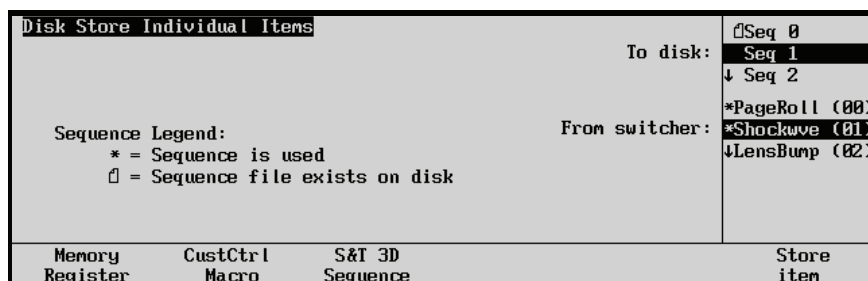
Disk Store Individual Items Menu

2. Insert a storage device into the Synergy Switcher as follows:
 - Insert a pre-formatted 1.44 MB high-density floppy disk (or a floppy disk that already contains memory registers) into the floppy disk drive of the Synergy Switcher.

OR

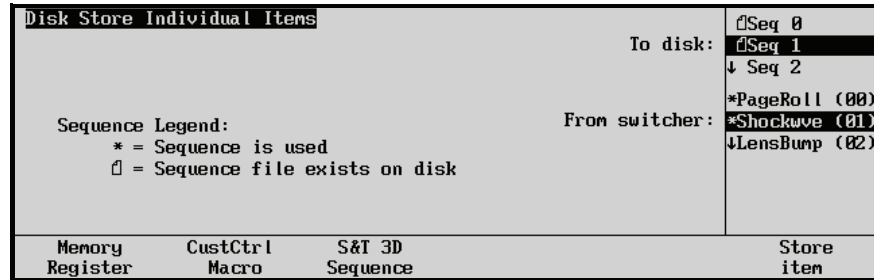
 - Insert a USB key (or a USB key that already contains memory registers) into the USB port of the Synergy Switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can save to it.
3. Press **S&T 3D Sequence** in the **Disk Store Individual Items Menu**.
4. Select the location to save the file as follows:
 - Use the **From switcher** knob to select the current S&T 3D Sequence location that you wish to save.
 - Use the **To disk** knob to select the location to save the file.

The **Sequence Legend** indicates the meaning of the icons that appear by the files selected.



Disk Store Individual Items Menu

- Press the **Store Item** softkey to store the S&T 3D Sequence file to a storage device. When the file is saved, this menu closes and the previous menu is displayed, with a file icon beside the disk location where the memory register is saved.



Disk Store Individual Items Menu



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

- Eject the storage device from the switcher.
- Label the storage device and store it in a safe place.

This completes the procedure for storing your individual S&T 3D sequences to a storage device.

Recalling Registers

Synergy switchers recall memory registers to MLEs based on the number of MLEs of that control panel. Memory registers stored on the Program Bus of a Synergy 4 Switcher will be recalled on the Program Bus of a Synergy 3 Switcher. However, if you store memories from another MLE, for example, on MLE 3 for a Synergy 4 Switcher, the memory registers will be recalled to MLE 2 on a Synergy 3 Switcher.

The Synergy system allows you to recall *all categories* of registers from a storage device or you can simply recall the desired *individual* category. This section includes information on recalling categories of registers. For information on recalling individual memory registers, refer to the section “**Recalling Individual Memory Registers**” on page 8–33.



Note

You must have the **USB Removable Media Drive** option installed in order to use a USB key for recalling memory registers.

Recalling Registers from a Storage Device

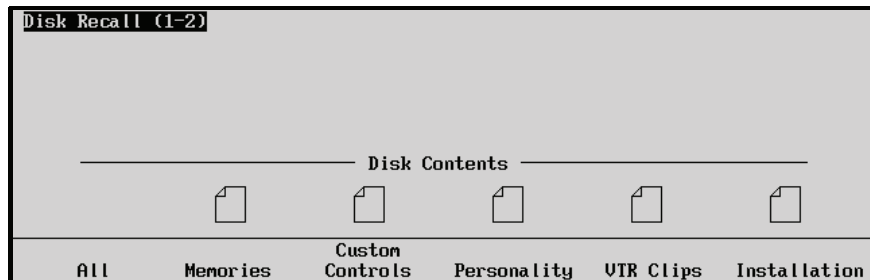
Use the following procedure to recall registers from a storage device:

- Ensure that your *current* on-line set of registers are saved to a storage device. If you have *not* saved them to a storage device, they will be *overwritten* when you recall the files. Refer to the section “**Saving Registers**” on page 8–25 for instructions on saving registers.
- Navigate to the **Disk Menu** as follows:
 - Press **HOME** ⇒ **Disk**.

3. Insert a storage device into the Synergy Switcher as follows:
 - Insert the floppy disk that contains memory registers into the floppy disk drive of the Synergy Switcher.

OR

- Insert the USB key that contains memory registers into the USB Port of the Synergy Switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can recall registers from it.
4. Press **Recall** to display the **Disk Recall Menu 1-2**.



Disk Recall Menu 1-2

If a **File Icon** is displayed above a softkey label (such as **Memories**), the storage device contains a file of that type.

5. If required, press **MORE** to display the **Disk Recall Menu 2-2** to view more file types.
6. Select the category of registers that you want to recall:
 - Press **All** to recall all categories of registers.
 - Press **Memories** to recall only **Memory Registers**.
 - Press **Custom Controls** to recall only **Custom Control Registers**.
 - Press **Personality** to recall only **Personality Registers**.
 - Press **VTR Clips** to recall only **VTR Clip Registers**.
 - Press **Installation** to recall only **Installation Registers**.
 - Press **3D Sequences** to recall only **3D Sequence Registers**.



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

7. Eject the storage device from the switcher.

This concludes the procedure to recall Memory Registers from a storage device.

Recalling Individual Memory Registers

Use the following procedure to recall individual Memory Registers from a storage device to the switcher:



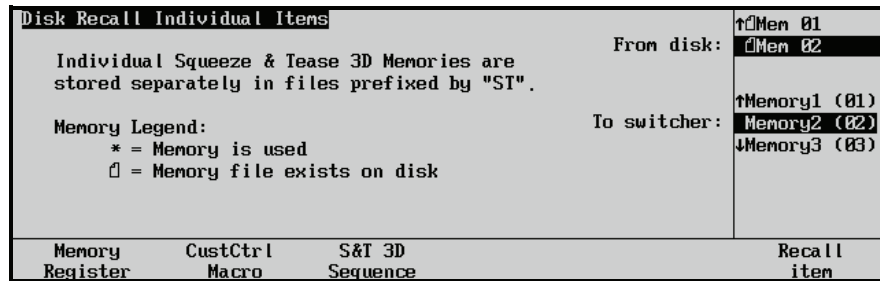
Note

Only registers stored with the method outlined in the section “**Saving Individual Memory Registers**” on page 8–27 will be available to recall individually.

1. Navigate to the **Disk Recall Individual Items Menu** as follows:
 - Press **HOME** ⇒ **Disk** ⇒ **Recall Individual**.
2. Insert a storage device into the Synergy Switcher as follows:
 - Insert the floppy disk that contains the memory registers into the floppy disk drive of the Synergy Switcher.

OR

- Insert a USB key that contains the memory registers into the USB port of the Synergy Switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can recall from it.
3. Press **Memory Register** to display the **Disk Recall Individual Items Menu**.



Disk Recall Individual Items Menu

4. Select the memory register as follows:
 - Use the **From disk** knob to select the location of the file.
 - Use the **To switcher** knob to select the switcher location to save the file to.

The **Memory Legend** indicates the meaning of the icons that appear by the files selected.
5. Press **Recall Item** to load the saved information to the Synergy Switcher.



Note

When you recall an individual memory from a storage device to a locked memory location on the Synergy Switcher, you are prompted to cancel or proceed.

When the file is loaded, this menu closes and the previous menu is displayed, with a “used” icon beside the switcher location where the macro has been recalled.

Disk Recall Individual Items			↑□Men 01
Individual Squeeze & Tease 3D Memories are stored separately in files prefixed by "ST".		From disk:	□Men 02
Memory Legend: * = Memory is used □ = Memory file exists on disk		To switcher:	↑Memory1 (01)
			*Memory2 (02)
			↓Memory3 (03)
Memory Register	CustCtrl Macro	S&T 3D Sequence	Recall item

Disk Recall Individual items Menu



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

- Eject the storage device from the switcher.

This completes the procedure for recalling your individual memory registers from a storage device.

Recalling Individual Custom Control Macros



Note

Only macros stored with the method outlined in the section “**Saving Individual Custom Control Macros**” on page 8–28, will be available to recall individually.

Use the following procedure to recall individual custom control macros from a storage device to the Synergy Switcher:

- Navigate to the **Disk Recall Individual Items Menu** as follows:
 - Press **HOME** ⇒ **Disk** ⇒ **Recall Individual**.
- Insert a storage device into the Synergy Switcher as follows:
 - Insert the floppy disk that contains the custom control macros into the floppy disk drive of the Synergy Switcher.

OR

- Insert a USB key that contains the custom control macros into the USB port of the Synergy Switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can recall macro files from it.
- Press **CustCtrl Macro** in the **Disk Recall Individual Items Menu**.
 - Select the custom control macro file as follows:
 - Use the **From disk** knob to select the location of the file.
 - Use the **To switcher** knob to select the switcher location to load the file to.

The **Custom Control Legend** indicates the meaning of the icons that appear by the files selected.

Disk Recall Individual Items			From disk:	□Bnk 1 Btn 02
Custom Control Legend:			To switcher:	Custom01 1#01
# = normal custom control button				Custom02 1#02
□ = custom control exists on disk				↓Custom03*1#03
Memory Register	CustCtrl Macro	S&T 3D Sequence		Recall item

Disk Recall Individual Items Menu

- Press the **Recall Item** softkey to load the register or macro file to the desired location on the switcher.

When the file is loaded, this menu closes and the previous menu is displayed, with a “used” icon beside the switcher location where the custom control is loaded.

Disk Recall Individual Items			From disk:	□Bnk 1 Btn 02
Custom Control Legend:			To switcher:	Custom01 1#01
* = custom control contains macro				Custom02*1#02
# = normal custom control button				↓Custom03*1#03
□ = custom control exists on disk				
Memory Register	CustCtrl Macro	S&T 3D Sequence		Recall item

Disk Recall Individual Items Menu – Legend



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

- Eject the storage device from the switcher.

This completes the procedure for recalling your individual macros from a storage device.

Recalling Individual S&T 3D Sequences



Note

Only sequences stored with the method outlined in the section “**Saving Individual Squeeze & Tease 3D Sequences**” on page 8–30, will be available to recall individually.

Sequences recalled from storage device must have the naming convention of **STSEQxx.SEQ**. While it is recommended that you rename sequences (on a computer) with more mnemonic titles than this default style for storage purposes, in order to recall them to the switcher from a storage device, they must be renamed again to have the Ross Video convention. Keep a printed record of the file names for your records.

Use the following procedure to recall individual S&T 3D sequences from a storage device to the Synergy Switcher:

1. Navigate to the **Disk Recall Individual Items Menu** as follows:
 - Press **HOME** ⇒ **Disk** ⇒ **Recall Individual**.
2. Insert a storage device into the Synergy Switcher as follows:
 - Insert the floppy disk that contains the S&T 3D sequences into the floppy disk drive of the Synergy Switcher.

OR

- Insert a USB key that contains the S&T 3D sequences into the USB Port of the Synergy Switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can recall sequences from it.
3. Press **S&T 3D Sequence** in the **Disk Recall Individual Items Menu**.
 4. Select the S&T 3D sequence file as follows:
 - Use the **From disk** knob to select the current location of the file.
 - Use the **To switcher** knob to select the switcher location to store the file.

The **Sequence Legend** indicates the meaning of the icons that appear by the files selected.

Disk Recall Individual Items			
		From disk:	⏏Seq 0
			⏏Seq 91
			⏏Seq 92
		To switcher:	↑Sequnc91 (90)
			Sequnc91 (91)
			↓Sequnc92 (92)
Sequence Legend:			
* = Sequence is used			
⏏ = Sequence file exists on disk			
Memory Register	CustCtrl Macro	S&T 3D Sequence	Recall item

Disk Recall Individual Items Menu

5. Press the **Recall Item** softkey to recall the register or macro file to selected location on the Synergy Switcher.

When the file is loaded, this menu closes and the previous menu is displayed, with a “used” icon beside the switcher location where the sequence is loaded.

Disk Recall Individual Items			
			From disk: □Seq 0
			□Seq 91
			□Seq 92
Sequence Legend:			To switcher: ↑Sequnc91 (90)
* = Sequence is used			*Sequnc91 (91)
□ = Sequence file exists on disk			↓Sequnc92 (92)
Memory Register	CustCtrl Macro	S&T 3D Sequence	Recall item

Disk Recall Individual Items Menu



Caution

Do NOT remove the floppy disk or USB key from the switcher before the LED on the disk drive or USB port goes out. Doing so may destroy the data on your floppy disk or USB key, as well as the data on the next one you insert into the switcher.

- Eject the storage device from the switcher.

This completes the procedure for recalling your individual S&T 3D sequences from a storage device.

Custom Controls

In This Chapter

This chapter provides basic instructions for programming, editing, and deleting your custom control buttons. The following topics are discussed:

- Custom Control Overview
- Programming Control Panel Functions
- Programming Relative Custom Controls
- Programming Special Functions
- Programming Custom Control Loops
- Editing Custom Control Macros
- Deleting Custom Controls

Custom Control Overview

The **Custom Control** function of the switcher allows you to program sequences of keystrokes (called “macros”) and other special switcher functions — and store them in dedicated buttons and banks in the **Custom Control** group. Once programmed, a macro can be played back simply by pressing *one button* in the **Custom Control** group. A custom control macro can be as simple as triggering an output GPI pulse, or as complex as recalling a specific memory register, performing a switcher transition, and flying a group of keys — all with one-button simplicity.



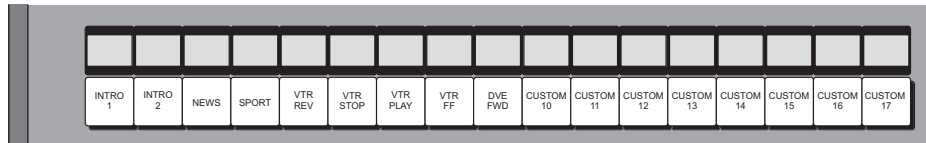
Operating Tip

Pressing an unprogrammed custom control button, one with no macros recorded on it, will stop a running custom control macro.

The following figures illustrate each switcher’s **Custom Control Group**. Note that *sample* labels are provided.

Synergy 2

The following figure illustrates the **Custom Control Group** for the Synergy 2, 2003 edition panel. A total of 17 registers are provided, up to eight of which can be assigned as *banks* to increase the total number of available registers.



Custom Control Group — Synergy 2 Panel, 2003 Edition

Buttons are numbered to simplify the programming procedure. The numbering is **1** to **17** in ascending order, from left to right.

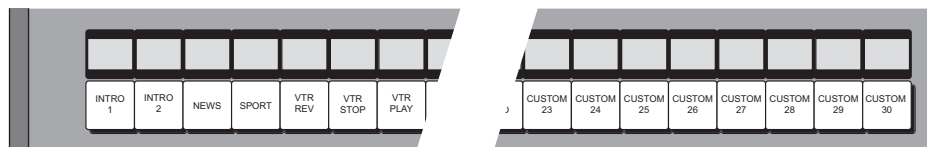


Note

If you have a Synergy 2 panel *prior* to the 2003 edition panels, a total of 24 registers are available, eight of which can be assigned as banks.

Synergy 3

The following figure illustrates the **Custom Control Group** for the Synergy 3, 2003 edition panel. A total of 30 registers are provided, up to eight of which can be assigned as *banks* to increase the total number of available registers.



Custom Control Group — Synergy 3 Panel, 2003 Edition

Buttons are numbered to simplify the programming procedure. The numbering is **1** to **30** in ascending order, from left to right.

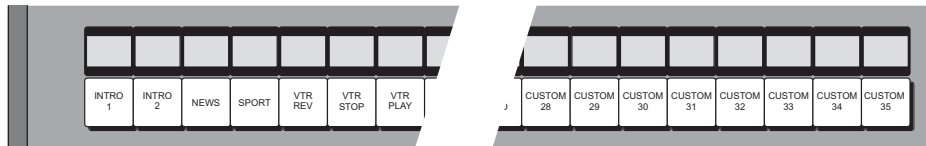


Note

If you have a Synergy 3 panel *prior* to the 2003 edition panels, a total of 32 registers are available, eight of which can be assigned as banks.

Synergy 4

The following figure illustrates the **Custom Control Group** for the Synergy 4, 2003 edition panel. A total of 35 registers are provided, up to eight of which can be assigned as *banks* to increase the total number of available registers.



Custom Control Group — Synergy 4 Panel, 2003 Edition

Buttons are numbered to simplify the programming procedure. The numbering is **1 to 35** in ascending order, from left to right.



Note

If you have a Synergy 4 panel manufactured *prior* to the 2003 edition panels, a total of 32 registers are available, eight of which can be assigned as banks.

Custom Control Functionality

Custom control functionality falls into several different categories:

Custom Control Banks

Up to eight banks can be enabled, and you can select any of the available custom control buttons on which to place the bank buttons themselves. Each bank stores a separate set of custom controls.



Operating Tip

You can record a custom control that will select a bank as the last event in the macro. Refer to Chapter 8, “**Custom Control Basics**”, in the *Synergy Series Installation Guide* for details.

Control Panel Functions

A custom control button can be programmed to play back a series of control panel button presses — such as recalling memory registers, initiating auto transitions, taking a selected source, bringing up a CG, and calling other custom control macros. In addition, the following functions are available:



Operating Tip

You can record a custom control that will execute another custom control as the last event in the macro. Refer to Chapter 8, “**Custom Control Basics**”, in the *Synergy Series Installation Guide*.

- **VTR Functions** — A custom control button can be programmed to perform a specific transport command such as play, cue and rewind. Commands apply to serial controlled devices such as VTRs and Video Servers. The **VTR Remote Control** or **Video Server Control** option must be installed, respectively. Any combination of options can be installed.
- **DVE Functions** — Using the primary DVE, a custom control button can be programmed to perform a specific DVE command such as play effect, frame advance, and stop. The **DVE Send and Remote Control Option** must be installed.
- **Time Clock Functions** — A custom control button can be programmed to start, stop, or reset the preview overlay clock. The **Preview Overlay Option** must be installed.

- **Special Functions** — A custom control button can be programmed to perform a variety of special functions controlling GPIs, audio external devices, menu retrieval, transitions, and inserting pauses and holds to the custom control.
- **PIP II Functions** — A custom control button can be programmed to send messages to devices using this optional software feature.
- **Robotic Camera Functions** — A custom control button can be programmed to recall cameras and specific shots. The **Robotic Camera Interface Option** must be installed.
- **Monitor Wall Functions** — A custom control button can be programmed to change input channels, modify dynamic text and load a specific layout. The **Monitor Wall Interface Option** must be installed.
- **Audio Server Functions** — A custom control button can be programmed to perform a specific transport command such as play, pause and stop. The **Audio Server Remote Control** option must be installed.



Note

While recording a custom control macro, pressing the custom control button of an existing macro will record only the call to that button's macro function, and will stop the recording in progress. Upon playback of the just-recorded macro, the called macro will be performed as the last function.

Naming Custom Controls

A custom control function can be named for quick reference in the menus and, if installed, on the mnemonic displays.

Editing Custom Controls

A custom control macro can be viewed and modified by inserting or deleting events as desired. Refer to section “**Editing Custom Control Macros**” on page 9–20 for more information.

Saving and Recalling Custom Controls

A custom control function can be stored to and recalled from a storage device, such as a floppy disk or USB key. When recording a memory recall in a custom control macro, it may be necessary to add a pause of between 1-10 frames after the memory recall in the macro. Refer to the section, “**Custom Control Pauses**” in the *Synergy Series Installation Guide* for details on inserting pauses in a custom control macro

Deleting Custom Controls

A custom control function can be deleted from a button. Refer to section “**Deleting Custom Controls**” on page 9–26 for more information. In the *Synergy Series Installation Guide*, refer to Chapter 8, “**Custom Control Basics**” for complete instructions on programming your custom control buttons.

Programming Control Panel Functions

A custom control button can be programmed to play back a series of control panel button presses — such as recalling memory registers, initiating auto transitions, taking a selected source, bringing up a CG, and calling other custom control macros.



Note

You can record **Relative Custom Controls** instead of a normal Custom Control. Refer to the section “**Programming Relative Custom Controls**” on page 9–9 for more information.

Programming Control Panel Functions

Use the following procedure to program a normal custom control button with basic functions:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.

Custom Controls				
Custom Control buffers .53% full		Bank:	Bank 1 (1)	
Selected: Bank 1 Button 9 [Custom09]		Button:	↑ Custom08 # 8 Custom09 # 9 ↓ Custom10 #10	
Custom Control Legend: # = normal custom control button				
Start Recording	Modify Name	Start Relative Recording	Default All Names	Delete Macro

Custom Controls Menu

2. Select the Custom Control bank and button that you want to record to as follows:
 - Use the **Bank** knob to select the custom control bank that you want to record the custom control on.
 - Use the **Button** knob to select the custom control button that you wish to program. You can also press the button *directly* on the Synergy control panel.



Note

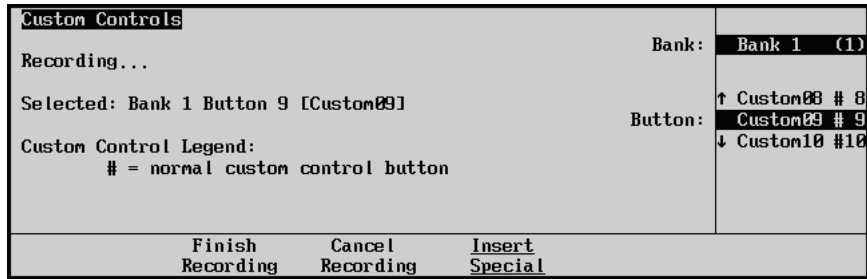
Buttons with an asterisk (*) or an “at symbol” (@) next to them in the list are *already* programmed, however, they can be edited. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for details.

3. Press **Start Recording** to display the **Recording Menu**.



Operating Tip

If you are programming long or looping custom controls, you should keep at least one unprogrammed custom control. Pressing an unprogrammed custom control button, one with no macros recorded on it, will stop a running custom control macro.



Custom Controls — Recording Menu



Note

Press **Cancel Recording** to terminate the programming procedure. The macro will *not* be recorded.

4. With the recording in progress, press the buttons on the control panel that you would like to have played back — in order. All subsequent keystrokes will be remembered, *in the exact order that you press them*. The following is a list of examples of custom controls that can be recorded:
 - To program the macro to recall memory register 5 in MLE 1, and then perform an auto transition, in MLE 1 press **RECALL, 5, AUTO TRANS**. You may want to insert a pause in this sequence in order to be able to view the memory recall before the auto transition is performed.



Important

You cannot have a Select Custom Control Bank and Run Custom Control event in the same custom control macro.

- To have a custom control run another custom control as part of the macro, press the desired Custom Control button while recording your macro. This will finish the recording of the custom control.



Note

Run Custom Control macros can only be added or inserted at the end of a custom control. When you add a Run Custom Control macro, the custom control will stop recording and you will not be permitted to insert another event after it. You will also not be able to add this event in any position other than the last position in the macro.

- To have a custom control select another Custom Control Bank as part of the macro, double press the desired Custom Control Bank button while recording your macro. This will finish the recording of the custom control. Remember that when this custom control is run, it will end on a different bank than where you ran it.



Note

Custom Control Bank select macros can only be added or inserted at the end of a custom control. When you add a Bank select macro, the custom control will stop recording and you will not be permitted to insert another event after it. You will also not be able to add this event in any position other than the last position in the macro.

5. Insert any special functions you want. You can insert any of the following:
 - **VTR Functions** — Refer to the section “**VTR Custom Controls**” in the *Synergy Series Installation Guide*.
 - **DVE Functions** — Refer to the section “**External DVE Custom Controls**” in the *Synergy Series Installation Guide*.
 - **Time Clock Functions** — Refer to the section “**Time Clock Functions**” in the *Synergy Series Installation Guide*.
 - **Special Functions** — Refer to the section “**Programming Special Functions**” in the *Synergy Series Installation Guide*.
 - **Peripheral Interface II Custom Controls** — Refer to the section “**Peripheral Interface II Custom Controls**” in the *Synergy Series Installation Guide*.
 - **Character Generator Custom Controls** — Refer to the section “**Character Generator Custom Controls**” in the *Synergy Series Installation Guide*.
 - **Router Custom Controls** — Refer to the section “**Router Custom Controls**” in the *Synergy Series Installation Guide*.
 - **Robotic Camera Controls** — Refer to the section “**Robotic Camera Custom Controls**” in the *Synergy Series Installation Guide*.
 - **Monitor Wall Controls** — Refer to the section “**Monitor Wall Custom Controls**” in the *Synergy Series Installation Guide*.
 - **Audio Server Controls** — Refer to the section “**Audio Server Custom Controls**” in the *Synergy Series Installation Guide*.
6. Press **Finish Recording**, or the flashing custom control button, when you have finished recording the macro. You will notice an asterisk next to the custom control you just recorded, indicating that this custom control contains information.

This completes the procedure for recording a normal custom control. To play back your macro, exit the **Custom Controls Menu** and press the custom control button on the Synergy control panel that you recorded the custom control macro to. (This is the button you selected in step 2 above).

For information on saving and recalling your custom controls from a storage device, such as a floppy disk or USB key, refer to the section “**Working with Storage Devices**” on page 8–24.

Notes on Programming Custom Controls

Note the following important points:

- If you program a custom control button that *already* contains a macro (as indicated by the asterisk), the previous macro is immediately overwritten by your new set of commands. It is recommended that you keep a written chart of your custom control macro assignments. Remember, however, that you can *edit* your custom control macros. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for details.
- The custom control feature does not recognize analog knob adjustments or **Fader** movement. Macros are restricted to button presses and functions on the **Insert Special Menus** only.
- You can stop a custom control sequence (macro) from playing by inserting a **Hold** in the sequence during programming. The sequence is resumed when the custom control is triggered by a GPI from an external device such as an editor, or by pressing the custom control button again.
- You can pause a custom control sequence (macro) for a designated period of time by inserting a **Pause** in the sequence during programming. The sequence waits the

designated time and then automatically resumes the playing of the sequence. Pressing the custom control button again during the wait time will immediately resume the sequence.

- The system does not recognize the *state* of buttons that you press, and instead repeats your exact sequence upon playback. For example, if you toggle a function **on** such as a key modifier, the system will toggle the button between the **on** and **off** states each time the custom control macro is run.
- Since key, wipe and color background copies are performed with button presses, you can store these functions to a custom control macro as you would any other keystroke.
- It is possible to record a custom control macro to a button that is assigned as a bank button. However, this is only useful for audio functions, as there is no means by which you could access a regular custom control macro assigned to a bank button.

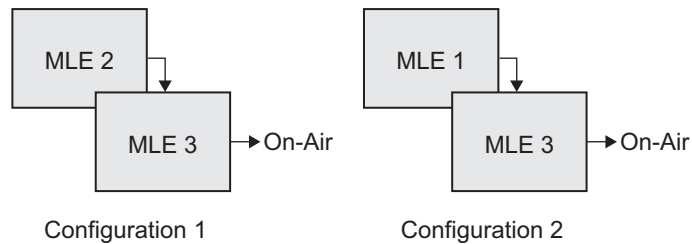
Programming Relative Custom Controls



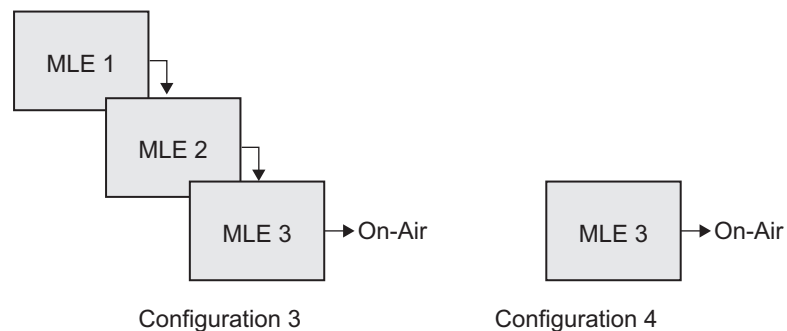
Important

Relative Custom Controls can only be *properly* recorded and recalled on upper MLEs that are re-entered onto the PGM/PST MLE. If the MLE is not re-entered, you will not be able to *properly* record or recall a relative custom control. Instead, the relative custom control will act like a normal custom control when recalled.

Relative Custom Controls store the MLE re-entry position so that they can be taken on-air from any MLE that is re-entered on the PGM/PST MLE. For example, if you have **MLE 2** re-entered into **MLE 3 (Configuration 1)**, of a Synergy 3, and Record a Custom Control on **MLE 2**, you can only recall that custom control on **MLE 2**, in the same configuration. If, however, you have **MLE 1** re-entered into **MLE 3 (Configuration 2)**, the Relative Custom Control will be recalled on **MLE 1**.



Relative Custom Controls are not MLE 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 recall that custom control. For example, if we again record a Relative Custom Control on **MLE 2**, of a Synergy 3, which is re-entered into **MLE 3 (Configuration 1)**, we can recall that Relative Custom Control with more or fewer MLEs. If we have **MLE 1** re-entered into **MLE 2** and **MLE 2** re-entered into **MLE 3 (Configuration 3)**, the Relative Custom Control will be recalled on **MLE 1**. If we have no MLEs re-entered, (**Configuration 4**) the Relative Custom Control will be recalled on **MLE 3**.



Important

If you record a relative custom control across multiple re-entered MLEs, at least the same number of MLEs must be re-entered in order to recall the entire custom control. For example, if a two MLE relative custom control is recalled on one MLE, the actions to be recalled on the second MLE will be ignored.

Programming a Relative Custom Control

Use the following procedure to program a relative custom control button with basic functions:

1. Set up your MLE re-entry configuration to record the relative custom control at the Re-entry level you want.



Note

You must record a relative custom control on an MLE that is re-entered onto the PGM/PST MLE for it to run properly.

2. Navigate to the **Custom Controls Menu** as follows:

- Press **HOME** ⇒ **Custom Controls**.

Custom Controls				Bank:	Bank 1 (1)
Custom Control buffers are empty					
Selected: Bank 1 Button 1 [Custom01]				Button:	Custom01 # 1
Custom Control Legend: # = normal custom control button					↓ Custom02 # 2
Start Recording	Modify Name	Start Relative Recording	Default All Names	Delete Macro	

Custom Controls Menu

3. Select the Custom Control bank and button that you want to record to as follows:
 - Use the **Bank** knob to select the custom control bank that you want to record the custom control on.
 - Use the **Button** knob to select the custom control button that you wish to program. You can also press the button *directly* on the panel.



Note

Buttons with an “at symbol” (@) next to them in the list are *already* programmed with a relative custom control, however, they can be overwritten or edited. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for more information.

4. Press **Start Relative Recording** to display the **Recording Menu**.



Note

Press **Cancel Recording** to terminate the programming procedure. The macro will *not* be recorded.

5. With the recording in progress, press the buttons on the control panel that you would like to have played back, in order. All subsequent keystrokes will be remembered, *in the exact order that you press them*.
6. Insert any special functions you want as follows:
 - Press **Insert Special** to display the **Insert Special Menu 1-2**.
 - Insert functions as outlined in the section “**Programming Special Functions**” on page 9–11.
7. Press **Finish Recording**, or the flashing custom control button, when you have finished recording the macro.

You will notice an “at symbol” (@) next to the custom control you just recorded, indicating that this relative custom control contains information.

Programming Special Functions

The following sections describe how to program your custom controls with various other special functions. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for more information on inserting events into existing custom control macros.

The following functions are covered in this section:

- Go To Menu
- Custom Control Holds
- Custom Control Pauses

Go To Menu

Use the **Go To Menu** feature to create custom controls that automatically display S&T 3D menus.

Use the following procedure to create an S&T 3D **Go To Menu** custom control macro:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.

Custom Controls				Bank:	Bank 1 (1)
Custom Control buffers .53% full					
Selected: Bank 1 Button 9 [Custom09]				Button:	↑ Custom08 # 8
Custom Control Legend: # = normal custom control button					Custom09 # 9
					↓ Custom10 #10
Start Recording	Modify Name	Start Relative Recording	Default All Names	Delete Macro	

Custom Controls Menu

2. Select the custom control button you want to record to as follows:
 - Use the **Bank** knob to select the custom control bank you want to record the custom control to.
 - Use the **Button** knob to select the custom control button that you want to record a custom control macro to. You can also press the desired button *directly* on the control panel. Remember that buttons marked with an asterisk (*) in the list have already been programmed.



Operating Tip

As a recommendation, keep special functions grouped together on your *physical* custom control buttons.

3. Navigate to the **Special Menu** as follows:
 - Press **Start Recording** ⇒ **Insert Special** ⇒ **Special**.



Insert Special — Special Menu

4. Assign a menu to display to the selected custom control macro as follows:
 - Use the top knob to select **Go To Menu**.
 - Use the middle knob to select **3D**.
 - Use the bottom knob to select the menu you want to display when the custom control is run. You can select between the follow:



Note

When you run a **Go To Menu** custom control, the menu that is displayed will be determined by the current active **MLE** and **Keyer**. If **Key 2** is active on **MLE 2**, the menu will be displayed for **Key 2** on **MLE 2**.

- ~ **Position/Crop** — Select this option to display the **S&T Position/Crop Menu 1-2** for the active **Fly Key** when the custom control is run.
 - ~ **Border** — Select this option to display the **S&T Border Menu** for the active **Fly Key** when the custom control is run.
 - ~ **Sequence** — Select this option to display the **S&T Sequence Menu 1-2** for the active **Fly Key** when the custom control is run.
 - ~ **Pre Processor** — Select this option to display the **S&T Preprocessor Menu** for the active **Fly Key** when the custom control is run.
 - ~ **Lighting** — Select this option to display the **S&T Lighting Menu** for the active **Fly Key** when the custom control is run.
 - ~ **Obj Builder** — Select this option to display the **S&T Object Builder Menu** for the active **Fly Key** when the custom control is run.
 - ~ **Still Store** — Select this option to display the **S&T StillStore Menu 1-2** for the active **Fly Key** when the custom control is run.
 - ~ **WARP** — Select this option to display the **S&T WARP Menu** for the active **Fly Key** when the custom control is run.
5. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.
 6. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.
 7. Press **UP ONE** to display the **Recording Menu**.
 8. Press **Finish Recording** or the flashing custom control button, to finish recording to the selected custom control. The custom control button will stop flashing.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section “**Naming Custom Controls**” in the *Synergy Series Installation Guide* for more information on naming custom control buttons.

To play back your macro, exit the **Custom Controls Menu** and press the custom control button on the control panel that you recorded the custom control macro to. Any recorded custom control can be edited. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for details.

Custom Control Holds

Use the **Custom Control Hold** feature to place “holds” within a custom control sequence. When entered, these holds specify a point to stop and wait for a user button-press (of the same custom control) or an external trigger (Editor or GPI). The macro then executes from that point until it reaches its end or another embedded hold.

A **Custom Control Hold (Hold CC)** allows the user to manually determine in real time, how long a macro is stopped. For example, a macro is initiated by the operator and when it reaches the **Hold CC**, it stops playing. The operator then waits until the interview (or whatever) is finished, presses the macro button again, and the macro resumes playing.

Use the following procedure to place a **Hold CC** within a custom control sequence:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.

Custom Controls		Bank:	Bank 1 (1)
Custom Control buffers .53% full		Button:	↑ Custom08 # 8
Selected: Bank 1 Button 9 [Custom09]			Custom09 # 9
Custom Control Legend:			↓ Custom10 #10
# = normal custom control button			
Start Recording	Modify Name	Start Relative Recording	Default All Names
			Delete Macro

Custom Controls Menu

2. Select the custom control button you want to record to as follows:
 - Use the **Bank** knob to select the custom control bank you want to record the custom control to.
 - Use the **Button** knob to select the custom control button that you want to record a custom control macro to. You can also press the desired button *directly* on the control panel. Remember that buttons marked with an asterisk (*) in the list have already been programmed.



Operating Tip

As a recommendation, keep special functions grouped together on your *physical* custom control buttons.

3. Navigate to the **Special Menu** as follows:
 - Press **Start Recording** ⇒ **Insert Special** ⇒ **Special**.



Insert Special — Special Menu

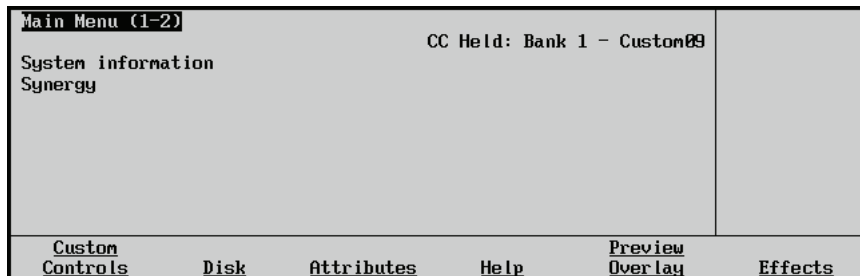
4. Assign a Custom Control Hold as follows:
 - Use the top knob to select **Hold CC**.
 - Use the middle knob to select the type of popup notification you want to appear when the hold is performed. You can select between the following:



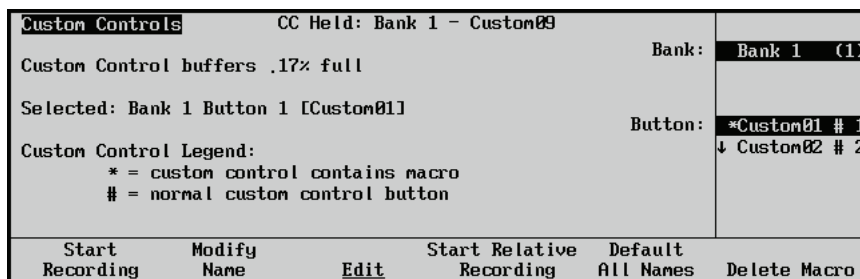
Note

When a macro is held, the name of the macro appears in the **Main Menu** and **Custom Controls Menu**. The **Hold CC** also extends the time that the associated custom control button will remain lit until the macro is continued or cancelled.

- ~ **No Popup** — Select this option to have only a message displayed on the **Main Menu** or the **Custom Control Menu** when a custom control hold is being performed.

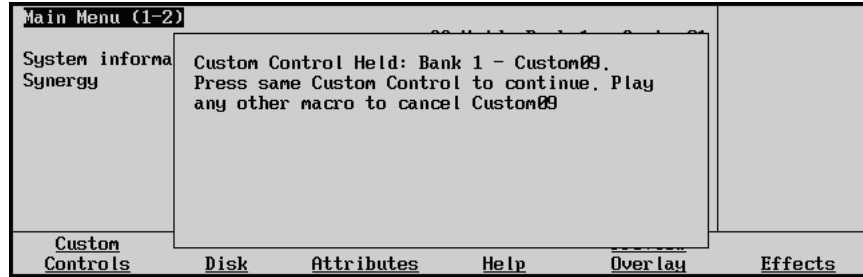


Main Menu — Custom Control Held



Custom Controls Menu — Custom Control Held

- ~ **1-Time Popup** — Select this option to have a popup appear on any menu when a custom control is being held. This popup will only appear once.



Custom Controls Menu — Custom Control Held Pop-up

5. Press **Insert** to enter the Custom Control Hold into your custom control macro.
6. Press **UP ONE** to return to the **Custom Controls Recording Menu**.
7. Press **Finish Recording**, or the flashing custom control button, to finish recording to the selected custom control. The custom control button will stop flashing.

This concludes the procedure to place a **Hold CC** within a custom control sequence. To play back your macro, exit the **Custom Controls Menu** and press the custom control button on the control panel that you recorded the custom control macro to. Any recorded custom control can be edited. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for details.

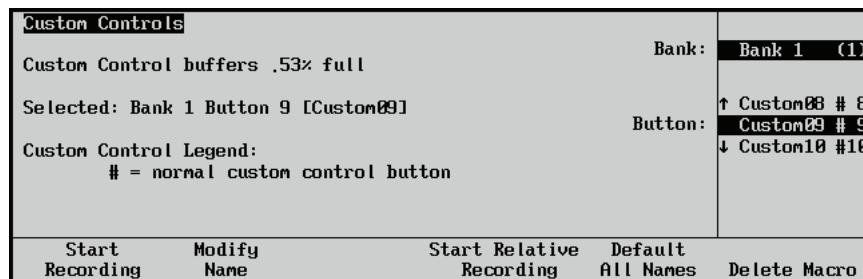
Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section “**Naming Custom Controls**” in the *Synergy Series Installation Guide*, for more information on naming custom control buttons.

Custom Control Pauses

Use the **Custom Control Pauses** feature to place “pauses” within a custom control sequence. With a pause inserted, a sequence can have a duration rather than being executed instantaneously. With multiple pauses placed in between macro events, controlled switching between sources becomes possible. Pressing the custom control button again during the wait time will immediately resume the macro.

Use the following procedure to place a pause within a custom control macro:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.



Custom Controls Menu

2. Select the custom control button you want to record to as follows:
 - Use the **Bank** knob to select the custom control bank you want to record the custom control to.
 - Use the **Button** knob to select the custom control button that you want to record a custom control macro to. You can also press the desired button *directly* on the

control panel. Remember that buttons marked with an asterisk (*) in the list have already been programmed.



Operating Tip

As a recommendation, keep special functions grouped together on your *physical* custom control buttons.

3. Navigate to the **Insert Router Control Menu** as follows:
 - Press **Start Recording** ⇒ **Insert Special** ⇒ **Special**.



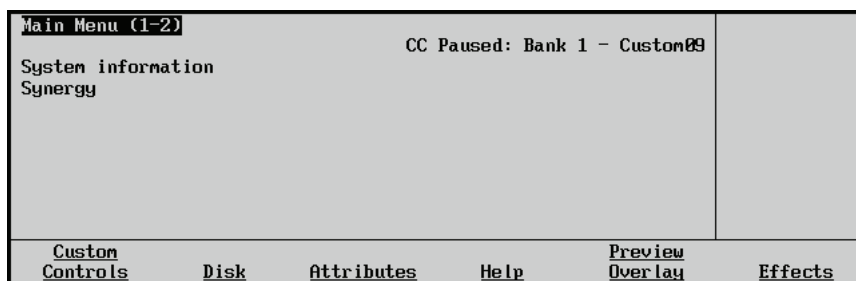
Insert Special — Special Menu

4. Assign a pause to the custom control as follows:
 - Use the top knob to select **Pause CC**.
 - Use the **Seconds** knob to set the duration of the pause in seconds.
 - Use the **Frames** knob to set the duration of the pause in frames.



Note

Similar to a Custom Control Hold, a Pause will display a message on the **Main Menu** or the **Custom Control Menu** indicating that the custom control is paused.



Main Menu — Custom Control Held

5. Press **Insert** to enter the Custom Control Hold into your custom control macro.
6. Press **UP ONE** to return to the **Custom Controls Recording Menu**.
7. Press **Finish Recording**, or the flashing custom control button, to finish recording to the selected custom control. The custom control button will stop flashing.

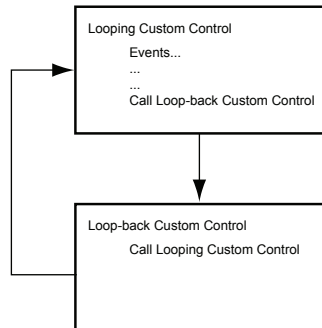
Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section “**Naming Custom Controls**” in the *Synergy Series Installation Guide*, for more information on naming custom control buttons.

To play back your macro, exit the **Custom Controls Menu** and press the custom control button on the control panel that you recorded the custom control macro to. Any recorded custom control can be edited. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for details.

Programming Custom Control Loops

Create a custom control that loops back on itself to have a series of effects repeat indefinitely. You cannot directly loop back to the beginning of a custom control you are currently recording so a loop-back custom control is used.

The loop-back custom control is a second custom control that completes the loop. You can call the loop-back custom control as the final step of your custom control that you wish to repeat. The loop-back custom control contains a single step which calls the first custom control, effectively creating a loop. The diagram below illustrates the concept.



Looping and Loop-back Custom Controls

When the first custom control is played, all the events play back and then the loop-back custom control is called. It plays, calling the first custom control, and the loop repeats indefinitely.



Operating Tip

Pressing an unprogrammed custom control button, one with no macros recorded on it, will stop a running custom control macro.

Creating a Looping Custom Control

Use the following procedure to create a looping custom control:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.

Custom Controls		Bank:	Bank 1 (1)
Custom Control buffers are empty			
Selected: Bank 1 Button 1 [Custom01]		Button:	Custom01 # 1
Custom Control Legend: # = normal custom control button			↓ Custom02 # 2
Start Recording	Modify Name	Start Relative Recording	Default All Names Delete Macro

Custom Controls Menu

2. Select the custom control button you want to record to as follows:
 - Use the **Bank** knob to select the custom control bank you want to record the custom control to.
 - Use the **Button** knob to select the custom control button that you want to record a custom control macro to. You can also press the desired button *directly* on the

control panel. Remember that buttons marked with an asterisk (*) in the list have already been programmed.



Operating Tip

As a recommendation, keep special functions grouped together on your *physical* custom control buttons.

3. Press **Start Recording** to display the **Recording Menu**.

Custom Controls		Bank: Bank 1 (1)
Recording...		
Selected: Bank 1 Button 1 [Custom01]		Button: Custom01 # 1
Custom Control Legend: # = normal custom control button		↓ Custom02 # 2
Finish Recording	Cancel Recording	Insert Special

Custom Controls — Recording Menu

4. Add all the events to your custom control that you wish to repeat.
5. Press a free **Custom Control** button corresponding to the loop-back custom control.

Calling another Custom Control must be the final step in a custom control so the recording is automatically ended.

Now, you must define the loop-back custom control to complete the loop.

6. Select the custom control button you defined as the loop-back custom control in step 5 as follows:
 - Use the **Bank** knob to select the custom control bank you want to record the loop-back custom control to.
 - Use the **Button** knob to select the custom control button that you want to record the loop-back custom control macro to. You can also press the desired button directly on the control panel. Remember that buttons marked with an asterisk (*) or an “at symbol” (@) in the list have already been programmed.
7. Press **Start Recording** to display the **Recording Menu**.

Custom Controls		Bank: Bank 1 (1)
Recording...		
Selected: Bank 1 Button 9 [Custom09]		Button: ↑ Custom08 # 8
Custom Control Legend: # = normal custom control button		Custom09 # 9
		↓ Custom10 #10
Finish Recording	Cancel Recording	Insert Special

Custom Controls — Recording Menu

8. Press the **Custom Control** button corresponding to the original custom control that you just created.
9. Calling another Custom Control or inserting a **Go To Menu** command must be the final step in a Custom Control so the recording is automatically ended.

This completes the procedure for creating a looping custom control.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section “**Naming Custom Controls**” in the *Synergy Series Installation Guide*, for more information on naming custom control buttons.

To play back your macro, exit the **Custom Controls Menu** and press the custom control button on the control panel that you recorded the custom control macro to. Any recorded custom control can be edited. Refer to the section “**Editing Custom Control Macros**” on page 9–20 for details.

Editing Custom Control Macros

After your custom control buttons have been programmed, you may wish to review and edit the contents. Events can easily be inserted or deleted through the **Custom Controls Menu**:

- The **Main Area** of the **Custom Controls Menu** displays the location of the custom control that you are editing, for example, **Bank 1 Button 1 [Custom01]**, and the contents of the custom control, including the number of events, the duration of the macro, and details of the event highlighted in the scroll area.



Note

If the custom control has been programmed to recall a memory, as in the example above, the memory name is displayed in the main area. If memories from more than one MLE are being recalled, the name from the highest MLE is displayed.

- The **Scroll Area** of the **Custom Controls Menu** provides a list of the events currently programmed into the custom control button.
- The **Label Area** of the **Custom Controls Menu** provides softkeys for inserting, deleting, and running the events, as required.

Editing Custom Control Macros

Use the following procedure to edit a custom control button:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.

Custom Controls				
Custom Control buffers .53% full	Bank:	Bank 1	(1)	
Selected: Bank 1 Button 1 [Custom01]	Button:	*Custom01 # 1	↓@Custom02 # 2	
Custom Control Legend: * = custom control contains macro # = normal custom control button				
Start Recording	Modify Name	Edit	Start Relative Recording	Default All Names
		Delete	Macro	

Custom Controls Menu

2. Select the Custom Control bank and button that you want to edit as follows:
 - Use the **Bank** knob to select the custom control bank that you want to edit the custom control on.
 - Use the **Button** knob to select the custom control that you wish to edit.



Note

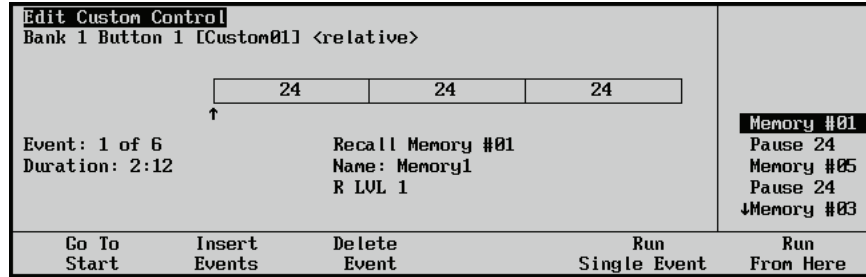
Buttons with an asterisk (*) or an “at symbol” (@) next to them in the list are *already* programmed and can be edited.

3. Press **Edit** to display the **Edit Custom Control Menu**.



Note

If you are editing a relative custom control, **<relative>** will appear next to the Bank and Button identification and the relative MLE level (**R LVL**) will be displayed instead of the MLE number.



Edit Custom Control Menu



Note

If your macro includes pauses or holds, a timeline will be displayed showing these events.

4. Select between the following editing functions:
 - **Go To Start** — Select this function to go to the start of the macro.
 - **Insert Events** — Select this function to insert an event before the currently highlighted event. Refer to the section “**Inserting Events**” on page 9–23 for more information on inserting an event.
 - **Delete Event** — Select this function to delete the currently highlighted event. This cannot be undone. Refer to the section “**Deleting Custom Controls**” on page 9–26 for more information on deleting an event.
 - **Modify Event** — Select this function to modify the currently highlighted event. The Modify Event function will take you to the **Special Menu** that was used to create the event. Refer to the section below for more information on modifying events.



Note

Only certain functions found on the **Special Menu**, such as **Pause CC**, can be modified.

- **Run Single Event** — Select this function to run the currently highlighted event. Only the selected custom control event will be played.
- **Run From Here** — Select this function to run the custom control, starting from the currently highlighted position.

This completes the procedure for editing a custom control. Refer to the section “**Inserting Events**” on page 9–23 for more information on inserting an event into a custom control.

Modifying Events

The Modify Event function allows you to modify certain events in an already existing custom control. Only events such as Pause CC can be modified.

Use the following procedure to modify an event in a custom control:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.

Custom Controls				Bank:	Bank 1 (1)
Custom Control buffers .53% full					
Selected: Bank 1 Button 1 [Custom01]				Button:	*Custom01 # 1
Custom Control Legend: * = custom control contains macro # = normal custom control button					↓@Custom02 # 2
Start Recording	Modify Name	<u>E</u> dit	Start Relative Recording	Default All Names	Delete Macro

Custom Controls Menu

- Select the Custom Control bank and button that you want to edit to as follows:
 - Use the **Bank** knob to select the custom control bank that you want to edit the custom control on.
 - Use the **Button** knob to select the custom control that you wish to edit.



Note

Only buttons with an asterisk (*) or an “at symbol” (@) next to them in the list are *already* programmed and can be edited.

- Press **Edit** to display the **Edit Custom Control Menu**.

Edit Custom Control				Bank 1 Button 1 [Custom01]	
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> 50 50 </div>					
Event: 2 of 5				Memory #01	
Duration: 4:00				Pause 50	
Pause				Memory #03	
Length: 2:00				Pause 50	
				Memory #05	
				END	
Go To Start	Insert Events	Delete Event	<u>M</u> odify <u>E</u> vent	Run Single Event	Run From Here

Edit Custom Control Menu

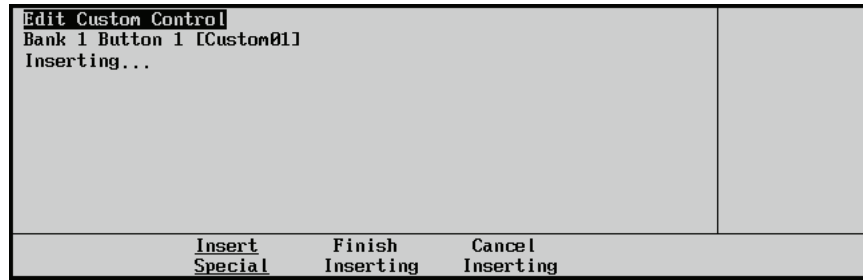
- Use the middle knob to select the event you want to modify.
- Press **Modify Event** to display the **Modify Event Menu**.

Modify Event	
(2) Seconds	
(0) Frames	
Accept	Cancel

Edit Custom Control — Modify Event Menu (Pause CC)

- Modify the event in the same manner that you inserted it originally. Refer to the section “**Programming Special Functions**” in the *Synergy Series Installation Guide*, for more information on inserting special functions.

7. Press **Insert** to save your changes.
8. Press **UP ONE** to display the **Inserting Menu**.



Custom Controls — Recording Menu

9. Press **Finish Inserting** to finish inserting to the selected custom control.



Operating Tip

Press **Cancel Inserting** to return to the previous menu without recording any of the insertions you made.

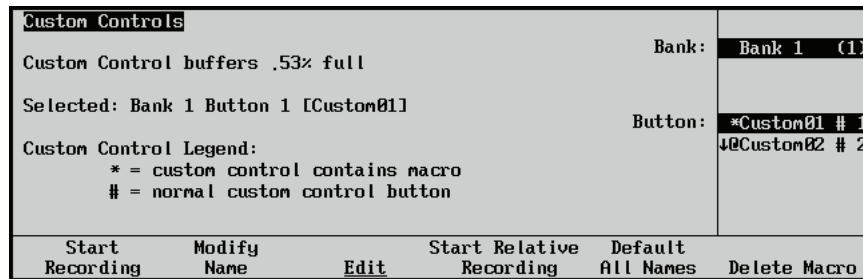
This completes the procedure for modifying a custom control event.

Inserting Events

The Insert Events function allows you to insert a number of events into an already existing custom control. Events are inserted immediately before the event that is currently highlighted.

Use the following procedure to insert an event into a custom control:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.



Custom Controls Menu

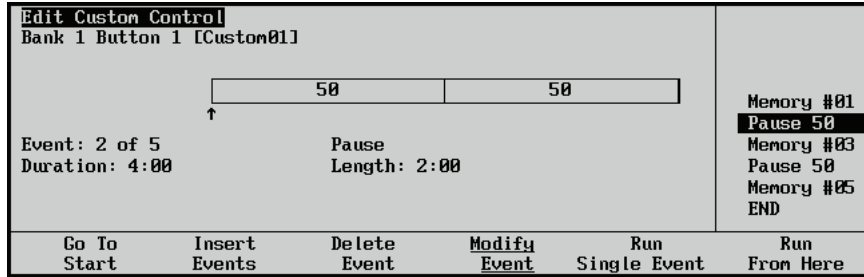
2. Select the Custom Control bank and button that you want to edit to as follows:
 - Use the **Bank** knob to select the custom control bank that you want to edit the custom control on.
 - Use the **Button** knob to select the custom control that you wish to edit.



Note

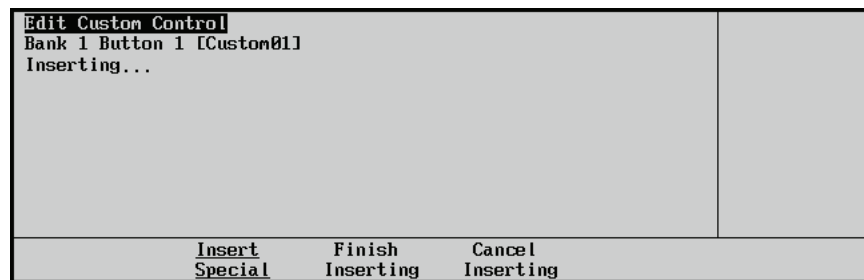
Only buttons with an asterisk (*) or an “at symbol” (@) next to them in the list are *already* programmed and can be edited.

3. Press **Edit** to display the **Edit Custom Control Menu**.



Edit Custom Control Menu

4. Navigate to the **Inserting Menu** as follows:
 - Use the middle knob to highlight the event that you want to insert an event before.
 - Press **Insert Events** to display the **Inserting Menu**.



Edit Custom Control — Inserting Menu

5. Insert a **Control Panel Button Press** as follows:
 - Press the buttons on the control panel that you want to record. All subsequent keystrokes will be remembered, *in the exact order that you press them*. For example, to program the macro to recall memory register 5 in MLE 1, and then perform an auto transition, in MLE 1 press **RECALL, 5, AUTO TRANS**. You may want to insert a pause in this sequence in order to be able to view the memory recall before the auto transition is performed.



Important

You cannot have a Select Bank and Run Custom Control event in the same custom control macro.

- Press **Finish Inserting** to finish inserting to the selected custom control.



Operating Tip

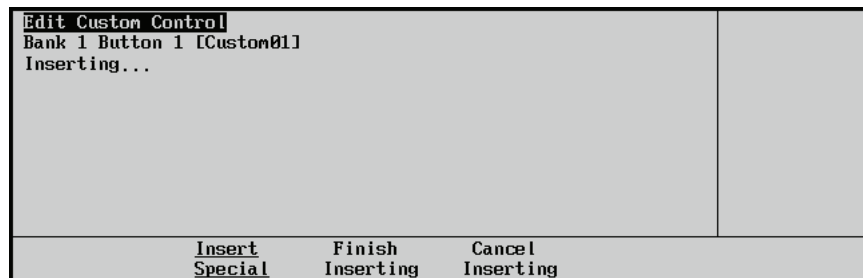
Press **Cancel Inserting** to return to the previous menu without recording any of the insertions you made.

6. Insert a **Special Event** as follows:
 - Press **Insert Special** to display the **Insert Special Menu 1-2**.



Insert Special Menu 1-2

- Insert an event, or events, as described in the section “**Programming Special Functions**” on page 9–11. This is the identical menu you used when you initially programmed your custom control buttons.
- Press **UP ONE** to display the **Inserting Menu**.



Custom Controls — Recording Menu

- Press **Finish Inserting** to finish inserting to the selected custom control.



Operating Tip

Press **Cancel Inserting** to return to the previous menu without recording any of the insertions you made.

This completes the procedure for inserting events into your custom control.

Deleting Custom Controls

Use the following procedure to delete a custom control function from a button:

1. Navigate to the **Custom Controls Menu** as follows:
 - Press **HOME** ⇒ **Custom Controls**.

Custom Controls				Bank:	Bank 1 (1)
Custom Control buffers .53% full					
Selected: Bank 1 Button 1 [Custom01]				Button:	*Custom01 # 1
Custom Control Legend: * = custom control contains macro # = normal custom control button					↓@Custom02 # 2
Start Recording	Modify Name	Edit	Start Relative Recording	Default All Names	Delete Macro

Custom Controls Menu

2. Select the Custom Control bank and button that you want to delete to as follows:
 - Use the **Bank** knob to select the custom control bank that you want to edit the custom control on.
 - Use the **Button** knob to select the custom control that you wish to edit.



Note

Only buttons with an asterisk (*) or an “at symbol” (@) next to them in the list are *already* programmed and can be edited.

3. Press **Delete Macro**.

Do you really want to delete this custom control?	
Yes	No

Confirmation — Delete Custom Control

- Press **Yes** to delete the custom control macro.
- Press **No** to cancel the procedure without deleting the macro.

This completes the procedure to delete a custom control function from a button.

Glossary of Terms

Active Video Lines — All video lines not occurring in the vertical blanking interval. The portion of the video signal that contains picture information.

Aspect Ratio — The numerical ratio of picture width to height, for example, 4:3 or 16:9.

Auto Transition — An automatic transition that electronically simulates the manual movement of the fader handle. The transition starts when the AUTO TRANS button is pressed and takes place over a pre-selected time period, measured in frames.

Border — Effects created around the edges of a pattern or on a keyer. If an optional dual border generator card is installed, several border, shadow, and outline effects are available on that keyer as well.

Border Generator — Circuitry that generates various border effects on keys created by the switcher.

Chroma Key — An effect where video from one source replaces video of a specific hue in a second video source. The blue and green hues are most commonly used for chroma keying.

Chrominance — The “depth” or saturation of a color. The three characteristics of a TV color signal are chrominance, luminance and hue.

Cut — An instantaneous switch from one video signal to another.

Dissolve — A transition from one video signal to another where one signal is faded down while the other is simultaneously faded up. The term “mix” is often used interchangeably with “dissolve”.

Downstream Keyer (DSK) — A keyer that places a key “downstream” of the MLE effects system output. This “top level” effect usually consists of a character generator title.

External Key — A video input (non-primary video) used to produce a key effect. Examples of external key sources are character generators and cameras.

Fade-to-Black — A controlled change of the on-air picture signal level down to black level.

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”).

Field Frequency — The rate at which one complete field is scanned, approximately 50 times per second in 625 video, or 60 times per second in 525 video.

Frame — One complete picture consisting of two fields of interlaced scanning lines.

GPI — An abbreviation for General Purpose Interface, a device that typically allows remote control of the switcher's automatic transition functions.

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.

Internal Key — The use of a primary input to produce a key effect.

Key — An effect produced by “cutting a hole” in 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 Fill — A video input which is timed to “fill the hole” provided by the key source video. An example of key fill is the video output of a character generator.

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. The **KEY INV** push-button selects this effect.

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 Source — The video signal which “cuts a hole” in the background video to make a key effect possible. Also called “Key Video”. In practice, this signal controls when a video mixer circuit will switch from background to key fill video.

Key Video — See Key Source.

Linear Keys — 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 signal (also known as the “hole cutter” or “alpha channel”) that is associated with the key fill. A keyer capable of a linear key converts the key signal voltage directly to the transparency effect on the screen. Our switcher's **KEY MEM** button allows the user to store the **CLIP** and **GAIN** settings required to match the incoming key signal to the keyer's requirements.

Line Frequency — The number of horizontal scans per second. For 525 line 60 Hz systems, this is approximately 15734 scans per second.

Luminance Key — An effect in which video from one source is replaced by video that exceeds a set level in a second video source.

Mask — See Key Mask.

Matte — A solid color signal that is generated by the switcher and can be adjusted for hue, saturation, and luminance levels.

Matte Key — A key effect in which the fill video is matte, provided by one of the switcher's matte generators.

Memory — The memory feature provides storage and recall of complete switcher setups.

MIX — See Dissolve.

MLE — An abbreviation for multi-level effects.

PGM Output — The on-air video output of the system.

Primary Input — Video sources selected by the control panel push-buttons for the crosspoint buses. These buses are normally labeled “KEY”, “PGM”, and “PST”.

PV Output — A switcher output that shows the scene that will go on-air when the next automatic or manual transition takes place.

Self Key — A key effect in which the same video signal serves as both the key signal and key fill.

Soft Edge — A pattern edge effect produced by mixing key source and key fill signals in such a way that the edge of the pattern is not sharp.

Split Screen — An effect in which a wipe pattern provides the key source signal. This is known as a “preset pattern” key.

Tally — An indicator which illuminates when the associated push-button or control is selected or is on-air.

Termination — A means of closing a circuit by connecting a resistive load to it. In video systems, a termination is typically a 75 ohm resistive load.

Transition — A controlled change from one video input to another video input or black. The change can occur through a wipe, cut, dissolve or “DVE Send” effect.

Transition Preview — A transition seen only on the preview monitor. It may be observed and adjusted without disturbing the program or “on-air” output.

Video — The electrical signal produced by a television camera, character generator or other image source. The signal amplitude varies in relation to the tonal scale from black to white presented at the source. White produces the highest amplitude; black produces the lowest signal amplitude.

Wipe — A transition from one video signal to another, in which the change proceeds according to the shape of a specific pattern. A moving transition line separates the two picture signals.

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