Installation Guide

Volume I

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ROSS

Cool Practical Technology™

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Notice

Trademarks

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. This includes power-supply cord or plug damage, liquid being spilled or objects having fallen into the apparatus, the apparatus being exposed to rain or moisture, the apparatus having been dropped, or the apparatus not operating normally.

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.

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 1.00mm^2** 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 appariel numerique 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 manual, 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, as defined by Ross, may occur from time to time. Ross will notify customers of such upgrades and, subject to a customer-initiated request, such upgrades will be provided free of charge within three years of the original ship date, with shipping FOB Ross dock.

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.
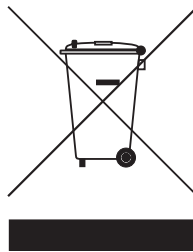
If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

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Volume II

Introduction

A Word of Thanks

Congratulations on choosing the Ross **Synergy 1 SD** digital video production switcher using the **Synergy 1** control panel. You have purchased the power and versatility of an advanced Multi-Level Effects (MLE) digital 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 working environment.

About This Guide

This guide covers the installation of the Synergy 1 SD Switcher. The following chapters are included:

Volume I

- Chapter 1, "**Introduction**" summarizes the guide and provides important terms, conventions and a system-wide comparison chart.

- Chapter 2, "**Installation**" provides instructions for installing Synergy 1 hardware.

- Chapter 3, "**Preliminary Cabling and Check**" outlines procedures for making basic control panel, main frame, reference and monitor connections. A preliminary functional check procedure is provided.

- Chapter 4, "**Preliminary Video Installation**" provides instructions for connecting video and key signals to all areas of the switcher.

- Chapter 5, "**Using the Menu System**" provides an introduction to the menu system of the Synergy 1.

- Chapter 6, "**BNC Configuration and Check**" provides instructions for configuring and checking your BNC inputs.

- Chapter 7, "**Communications Setup**" provides instructions for setting up communications parameters with peripheral equipment such as VTRs, Editors and DVEs.

- Chapter 8, "**Custom Controls**" provides instructions for setting up and naming custom control banks, and programming, naming, and editing your custom control buttons.

Volume II

- Chapter 9, "**Additional Installation Setups**" provides instructions for additional setup procedures such as setting up Aux buses, outputs, clean feed, GPIs, DSK, favorite CG and Tallies.

- Chapter 10, "**Completing Setup**" provides instructions for storing switcher configurations to a storage device and resetting factory defaults.

- Chapter 11, "**Audio Mixers**" provides instructions for setting up and using audio mixers.

- Chapter 12, "**External DVEs**" provides instructions and technical information for interfacing a Digital Video Effects system (DVE) with a Synergy 1 Switcher.

- Appendix A, "**Specifications**" provides technical specifications and connector pinout diagrams.

- Appendix B, "**Diagnostics**" provides information on the full array of diagnostic functions of the Synergy 1 SD Switcher.

- Appendix C, "**Hardware Options**" provides instruction for installing a variety of hardware options, such as **Squeeze & Tease, Ultimatte Insider**, and the **Dual Aspectizer**.

- Appendix D, "**Switcher Installation Worksheets**" contains copies of the installation worksheets described throughout this guide.

- Appendix E, "**Custom Device Serial Protocols**" provides information and procedures for setting up a custom device and programming a serial protocol to communicate with that device from a remote port on the Synergy 1.

- The **Glossary** provides a reference list of important switching and video terms used throughout this guide.

- An **Index** is also provided for your reference.

Note

Refer to the *Synergy 1 Operation Guide* for a comprehensive outline of product highlights, plus a complete overview of standard and optional system features.

If, at any time, you have a question pertaining to the installation of your Ross Synergy 1 SD Switcher, please 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...

Documentation Terms

The following terms are used throughout this guide:

- **"Input #"** refers to the **"BNC input #"** on the rear of the Synergy 1 frame.

- **"Crosspoint"** is synonymous with **"Button"**. Both refer to the switcher crosspoints or buttons on the Synergy 1 control panel.

- "**Frame**" and "**Electronics Frame**" both refer to the 2 RU electronics frame of the Synergy 1.

- "**Operator**" and "**User**" refer to the person who uses the Synergy 1 Switcher.

- "**Panel**" and "**Control Panel**" both refer to the multi-button control panel of the Synergy 1 SD.

- "**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 1 system, consisting of its electronics frame and control panel.

- "**Video system**" refers to the mix of interconnected digital equipment (including the edit controller, VTRs, and DVEs) in which the Synergy SD Switcher is included.

- "**Primary DVE**" refers to the *one* DVE (either single or multi-channel) that is connected to a Synergy SD Switcher via 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 in the **Transition** group. 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 device**" refers to a type of external device that can be used to save and recall configurations, setups and certain files to the Synergy switcher. Examples are a standard 1.44 MB high-density floppy disk and a USB key.

- A "**1+0 DVE**" has a video connection *only* 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 an key (alpha) connection from Synergy to the DVE. Both key and fill signals are connected from the DVE to Synergy.

Abbreviations

The following abbreviations are used throughout the text:

Abbreviation	Definition
A-D	Analog-to-Digital
BKGD	Background Bus
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
SMPTE	Society of Motion Picture and Television Engineers/Engineering
TD	Technical Director
VCR	Video Cassette Recorder
VDCP	Video Disk Communications Protocol
VTR	Video Tape Recorder

Product Overview

Ross Video developed the Synergy SD 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 SD 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 the traditions of Ross Video — power, ease of use and logical panel layouts.

Product Highlights

The following list summarizes the key features of the Synergy 1 SD Switcher

- **Fully Digital System**. The Synergy 1 Switcher is 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.

- **Multi-Panel Flexibility**. For superb flexibility and versatility, the Synergy 1 SD frame is designed to operate with seven different control panels, four of which previously operated in an analog environment:

  - ~ GVG 100 (analog)
  - ~ GVG 110 (analog)
  - ~ RVS-210A (analog)
  - ~ RVS-216A (analog)
  - ~ RVS-210D (digital)
  - ~ RVS-216D (digital)
  - ~ Synergy 1 (digital)
  - ~ Synergy 100 (digital)

- **Large Input Matrix**. The Synergy 1 SD frame can accept up to 16 digital video inputs — not including black and two color background signals (which are generated internally). On the Synergy 1 panel with its 16 available crosspoints, you have several crosspoint layout options:

  - ~ As shipped, or upon restoring switcher to default settings, **Black**, **Color Background 1** and **Color Background 2** are mapped to crosspoints 1, 15, and 16, respectively. This configuration allows direct panel access to 13 inputs. All of the sources can be mapped internally, allowing you to associate key (alpha) signals with their respective fill sources.

    For information on restoring default settings, refer to the section "**Restoring Factory Default Settings**" on page 10–20.

~ If you wish to map a **SHIFT** button to crosspoint 16, the panel gives you direct (and shifted) access to all 16 inputs. In this configuration you can also internally associate key and fill inputs, for full input matrix flexibility.

✎ **Note** | Diagrams of panel buttons with inserts showing this alternate shift configuration are used throughout the manuals. Refer to the section "**Pushbutton Inserts**" on page 4–5 for information on labeling switcher push buttons.

- **Compact Size**. The 2 RU frame accepts 16 inputs, one fully optioned MLE and 10 untimed Aux buses. Optionally, Aux buses 1 and 2 can be timed, leaving 8 untimed. There is no extender board available, but the frame top can be removed easily for servicing if required. The CPU board has convenient ejector handles on each side and plugs easily into the Synergy 1 frame.

- **Low Power**. The power requirements are a maximum 180 Watts for the frame and 65 Watts for the control panel. The power supplies are designed for easy removal if an exchange is required.

- **Growth Path**. The Synergy 1 SD frame provides a versatile growth path, regardless of your entry point within the system. If you start with a Synergy 100, GVG 100, GVG 110, RVS-210A or 210D, RVS-216A or 216D control panel, you can move up to the Synergy 1 control panel and benefit from of a full range of advanced features. If you start with the Synergy 1 control panel already in place, you can optionally add two more Downstream Keyers for added flexibility and creativity in your productions. Furthermore, knowledge and skill gained on the Synergy 1 panel allows a seamless transition to the larger Synergy switchers — as operation is almost identical.

- **Powerful Keyers**. The Synergy 1 SD control panel provides two powerful keyers as standard, with an optional third internal keyer and two optional downstream keyers available:

  ~ The two **Keyers** each provide self (luminance), auto select (linear), preset pattern and chroma key capabilities. Key borders can be generated with an optional border card, if installed. With the optional **Squeeze & Tease** feature installed, the Keyers can also perform 2D or 3D DVE effects. Refer to the section "**Squeeze & Tease**" on page 1–15 for more information.

  ~ With the optional **DVE Send** feature installed, a third internal Keyers is activated that allows you to seamlessly run an external DVE from the Synergy 1 panel. Signals are routed from the Synergy 1 frame to the external DVE and then back into the frame for keying. Refer to the section "**DVE Send and Remote Control**" on page 1–20 for details.

- **Squeeze & Tease**. A 2D or 3D WARP DVE Key can be built into each MLE Keyers. With the option installed, every type of Key can be repositioned, squeezed and zoomed.

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

  With 3D, you can simultaneously crop, rotate and reposition keys in 3D space, freeze moving video, border *and* build and move objects inside a *single* Keyer.

- **Chroma Keying**. A standard feature in every MLE Keyer, all chroma Keyers feature chroma suppression, hue rejection, plus natural and simulated shadows.

- **VTR Control**. This option allows you to select a VTR on the PST bus, recall a VTR timecode "clip" from memory, display the current time code of the VTR on the preview

monitor, roll it and take it to air. Fast forward, rewind and cue-to-timecode are also available on the control panel.

- **Custom Control Hot Buttons**. Twenty four 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** (Standard). The Synergy 1 SD is equipped 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 Program/Preset bus has *full effects capability* including wipes, DVE Send, chroma keys and preset patterns.

- **Advanced Display**. The Synergy 1 SD control panel includes a large crisp display that is used to configure the switcher and to provide advanced operational features.

- **Preview Overlay**. This powerful feature 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**. Using the **DVE Send** option, DVE effects from many 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.

- **Rugged Construction**. Ross Video 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 1 SD Switcher and your control room will look their very best, even if your budget is tight.

- **Serial Digital Inputs**

  Sixteen serial digital inputs are standard on the Synergy 1 SD Switcher. Any input can be assigned to any button on the Program/Preset bus, simplifying installation and your ability to customize the panel layout. Inputs can be used for video, alpha channel and keying.

- **Panel Tallies**

  Sixteen panel tallies are standard on the Synergy 1 SD control panel.

Full MLE Effects

The Synergy 1 SD includes a *full-featured* MLE that includes the following features:

- Two wipe generators are standard.

- The MLE includes two keyers that each offer matte fill, key invert, mask, self (luminance) key, auto select (linear) key, preset pattern key and chroma key modes.

- Both MLE keyers offer extensive optional bordering that works with every key type.

- The optional **Squeeze & Tease** feature can be installed in the MLE keyers, allowing you to squeeze or zoom any key or full screen image. Refer to the section "**A Hardware Option Overview**" on page 15–2 for details.

- The 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/Swap Key** — allows you to copy or swap the contents of one keyer with another keyer.

- **Copy Matte** — allows you to copy the contents of a matte generator to any other matte location.

Pattern Generators

The Synergy 1 SD includes (as standard) both primary and secondary pattern generators that are used for wipe transitions and preset patterns. 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 in each keyer. Each high quality chroma keyer features internal 4:4:4 chroma channel interpolation from any of the 4:2:2 inputs. Using the control panel, you can *directly* adjust the clip, gain, hue, hue reject and chroma suppress of the Chroma Key. Using the menu system, you can also control additional chroma suppression, natural shadow insertion and shadow transparency.

A "chroma key memory" button is 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

Ten untimed Aux buses are standard, each of which can be used to route video to monitors, still stores, tape machines. If a destination requires a timed signal, as is necessary with external DVE integration, Aux Buses 1 and 2 can be converted to timed outputs. If Aux Bus 1 or 2 are left untimed, you can route any of the 16 *primary* inputs on the frame to either of these outputs. As well, Aux Buses 3 through 10 can still be used to route any untimed signals to other external sources, including internally generated black, clean feed (if the option is installed), or MLE program and preview outputs.

Note
> Since the Synergy 1 SD frame generates its own internal black signal, selecting **BLACK** on an untimed Aux Bus will route to the output whatever is connected to your "**601 REF IN**" BNC, with the exception of Aux Bus 1 and 2. Refer to the table "**Aux Bus Capabilities by Timing Status**" on page 1–11 for more information.

The following signals are available on an Aux Bus:

- **Black** (as supplied by the "601 REF IN" BNC, requires **Timed Aux Bus** option), plus all primary inputs

- **DVE SEND** (requires **Timed Aux Bus** option, used to integrate external DVE effects into switcher transitions)

- **Clean Feed** (if the option is installed)

- MLE **PGM** and **PV** outputs

Aux Bus Capabilities by Timing Status

Aux Bus	Timing	Black	PV	DVE Send	Clean Feed	PGM
1	Timed	Black	Yes	Yes	Yes	Yes
	Untimed	N/A*	N/A	N/A	N/A	N/A
2	Timed	Black	Yes	Yes	Yes	Yes
	Untimed	N/A	N/A	N/A	N/A	N/A
3 - 10	Untimed	Ref	Yes	Yes	Yes	Yes

    *   Not Available

Standard Digital Outputs

The following table lists all standard Synergy 1 SD digital outputs:

Synergy 1 SD Digital Outputs

Output Type	Quantity
Program	2
Preview	2
Aux Bus	10
Total Outputs	**14**

Note If the **Clean Feed** option is installed, an additional output is provided, for a total of 15 outputs.

Disk Drive and System Control

Using a standard high density 3.5 inch floppy disk, you can store and recall complete switcher setups that include memory functions, switcher personalities, custom control and installation parameters. For convenience and flexibility, each operator can store their switcher setups on their own PC-compatible disks.

Custom Control Macros

Using the macro sequence feature of the Synergy 1 SD Switcher, a series of button presses can be easily recorded and attached to any of 24 dedicated buttons. You can step through complex show openings as easily as pressing one or two **Custom Control** buttons. This feature eliminates confusing timeline programming and also 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 an external VTR or disk recorder.

- Set, start, reset or automate the integrated switcher time-clock.

Memory System

The Synergy 1 SD 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 the **Global Memory System** 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 saved to a storage device for operator (and program content) convenience.

Matte Generators

The Synergy 1 SD has three simple color generators and two complex ones called **Washes**, 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.

Displays and Indicators

The Synergy 1 SD 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.

- Every auto transition rate is constantly visible — including the MLE transition rate, the dedicated keyer rates and the fade-to-black rate.

- The last memory number recalled is displayed along with an associated eight character memory name.

General Purpose Interface

The Synergy 1 SD 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 GPI 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 allow the switcher to trigger remote events such as "Still Store Next Page." They are tied to the 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.

Preview Overlay

The **Preview Overlay** feature makes it possible to present various types of useful information on one of the two preview outputs. The overlay is color coded and with the exception of safe title and center mark, can be positioned and displayed according to user preferences. A variety of overlay information is available:

- The "**Source Identification**" overlay displays the name of the current program source and the current transition, followed by the name of the current preview source.

  For example:

  VTR 1 -W-> CAM 2

  Please note:

  ~ The preview source is shown in green letters.

  ~ 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 main preview output of the switcher.

  ~ 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 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.

Digital Reference

The Synergy 1 SD Switcher uses a digital reference which is a separate input to the frame. Internal black is regenerated from the digital reference. If an analog reference is desired, Ross Video will optionally provide external conversion from the analog domain.

Synergy Slots

The Synergy 1 incorporates a special mode in which pseudo-random information is statistically measured on a cumulative basis.

System Options

This section lists the options available for the Synergy 1 SD Switcher. Note that all options can be easily installed in the field.

✎ **Note** | Refer to the section "**Installed Options Menus**" on page 2–31 for information on how to verify the status of your installed hardware and software options.

USB Removable Media Drive

The **USB Removable Media Drive** replaces the floppy disk drive for the control panel, and 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 switcher setups and easily transfer these settings to other Synergy production switchers.

✎ **Note** | This option requires version 16 or higher Synergy 1 SD software, and version 5 or higher of the control panel CPU board.

Clean Feed

The **Clean Feed** option provides an additional "program" output that is derived from a *different location* than the standard program output. It is used for bilingual and live-to-tape productions. Another frequent application is the recording of shows for later airing without "call in" phone numbers inserted. Note that the **Clean Feed** option is comprised of software plus a hardware "serializer" module that installs on the Frame CPU Board.

The **Clean Feed** output can be generated from many different locations in the video path. It can come from before or after the keyers. Refer to the figure on below.
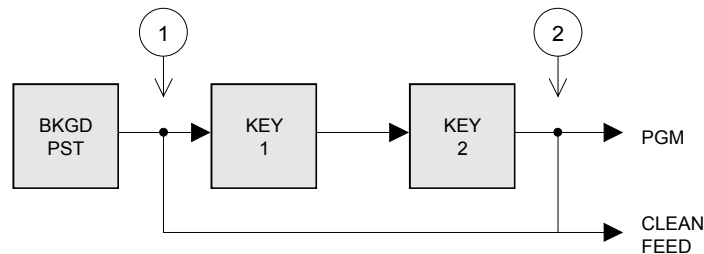
Basic Clean Feed Modes

1. At point **1** above, the clean feed output is pulled after the program/preset bus of the MLE, 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, "split" and "split follow" output modes provide 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*.

```
              ┌────────┐
              │  KEY   │─────▶ PGM
              │   1    │
 ┌────────┐   └────────┘
 │ BKGD   │──┤
 │ PST    │  │┌────────┐
 └────────┘   │  KEY   │─────▶ CLEAN
              │   2    │       FEED
              └────────┘
```
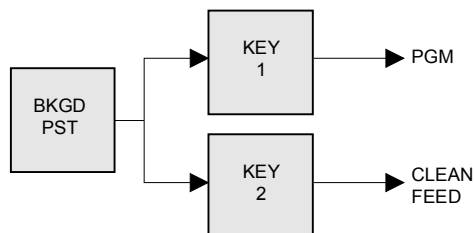
Split Clean Feed Modes

In an advanced dual-output application (in conjunction with the **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.

Our enhanced clean feed capabilities also allow you to view the alpha feeding a selected keyer. The Clean Feed alpha output can be derived from any key type on a Key 1 or Key 2, or it can be derived from the last selected Chroma key on any keyer.

✎	**Note**	The **AlphaNomadCK** option is not available when the **Dual Aspectizer** option is in Downstream Mode, as both require a Clean Feed output.

Squeeze & Tease

One **Squeeze & Tease** option puts the power of a 2D (two dimensional) or 3D (three dimensional) WARP DVE into a Keyer.

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**	This function "steals" the **Squeeze & Tease** option of the other MLE Keyer 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 (except an Ultimatte 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 advanced picture frames including Roman column, tubular, beveled, computer style, tri-color, among others.

- 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/still 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 **2D** Squeeze & Tease effects can be bordered using the optional dual border generator of the Keyer.

- The **Squeeze & Tease 2D** or **WARP** option is a circuit card that installs on the Frame CPU Board.

Tally Outputs

There are 16 optional frame tally relays available. Any tally can be assigned to any video input or the program output. Note that the **Tallies** option comprises the hardware relays that install in the switcher frame.

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 comprised of software plus a "daughter board" that installs on the Frame CPU Board.

Editor Interface

The **Editor Interface Option** allows the Synergy 1 SD to interface with all popular editing systems. The option itself is comprised of software plus security codes and once installed, the switcher can be controlled using an RS-232 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.

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 Internal Downstream Keyers. The Synergy 1 SD Switcher can utilize up to two external DSKs, each having independent PGM and PV outputs with true "look ahead" preview capability.

Still Store Interface

This option enables control over still store devices. It allows a user to randomly access any still or clip under control from the Synergy SD Switcher. 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 a 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 the Synergy SD Switcher 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 control panel.

Large Audio Mixer Interface (more than 16 Inputs)

This option enables serial control for enhanced audio follow video from the Synergy SD Switcher 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 control panel.

Robotic Camera System Interface

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

Peripheral Interface II Protocol (PIP-II) Interface

This option enables communications with up to 24 peripheral devices on a single remote port.

Dual Aspectizer

The **Dual Aspectizer** option allows you to perform live, dual aspect ratio DTV production from the Synergy 1 SD control panel. Using the ability of the Aspectizer to convert aspect ratios on the fly, you can deliver a 16:9 format signal while simultaneously delivering your 4:3 NTSC signal. Aspectizer features include:

- 4:3 to 16:9 or 16:9 to 4:3 conversion on any input.

- 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, or the output.

- Full access to both the original and the aspect ratio converted images.

Note that the **Dual Aspectizer** option comprises software plus a "daughter board" that installs on the Frame CPU Board.

	Note	The **Dual Aspectizer** option is mutually exclusive with the Ultimatte Insider option. Only one of the two can be installed at the same time.

Ultimatte Insider

Ultimatte Insider™ is a hardware option that adds true Ultimatte capability — directly *inside* the Synergy 1 SD Switcher. The option is comprised of a hardware board designed by Ultimatte (the Oscar-winning industry leader in compositing technology), plus Ultimatte-specific menus for controlling the chroma key.

Note that the **Ultimatte Insider** option is comprised of software plus a "daughter board" that installs on the Frame CPU Board.

	Note	The Ultimatte Insider option is mutually exclusive with the Dual Aspectizer option. Only one of the two can be installed.

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 1 RU (Rack Unit). There are two types of remote Aux panels available for the Synergy 1 SD Switcher:

- A **Dedicated Remote Aux Panel** controls one Aux bus output. The following is a sample panel:
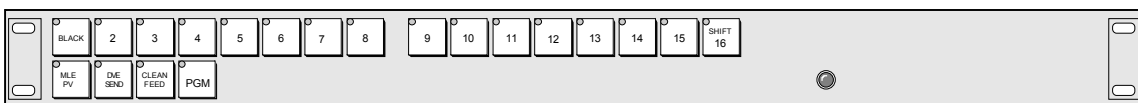
Synergy 1 SD Dedicated Remote Aux Panel

- An **Assignable Remote Aux Panel** controls all 10 Aux bus outputs. The following is a sample panel:
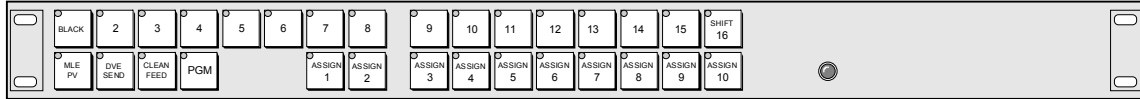
Synergy 1 SD Assignable Remote Aux Panel

In addition to the source buttons, each panel includes dedicated buttons for DVE Send, Clean Feed and Program, plus a bright "on air" LED. Assignable panels include buttons that are used to access the 10 Aux bus outputs.

The remote panel itself is connected to the rear of the Synergy 1 SD control panel via an adapter and a single six-conductor telco control cable. Typical applications include routing signals to one or more DVE channels and switching a monitor between various signals.

Up to eight Aux panels can be connected to the frame in daisy-chain fashion. As well, an additional eight panels can be connected in the same daisy-chain fashion to the rear of the control panel.

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	Each **Remote Aux Panel** has an additional rear chassis connector that adds 8 GPI input ports per panel. These GPIs are a special feature that allow a camera operator to manually override the Aux panel selection via GPI trigger for purposes of camera matching. Refer to the section "**Remote Aux Panel GPI Setup**" on page 9–35 for more details.

VTR Remote Control

The **VTR Remote Control Option** controls VTRs, disk recorders, video servers, audio servers or other devices directly from the Synergy control 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 features are available:

- The transition area of the control panel 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 assigned crosspoint on the **PGM** bus.

  When the **ROLL VTR** button is set to **Arm** mode, 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 assigned crosspoint.

- The **Global Memory System Group** includes the **VTR CLIP** button which allows you to recall clips (segments) from selected devices that are connected to the Synergy SD Switcher. A clip consists of two pieces of information: a physical device (such as a VTR or video server) and a timecode or media ID. Toggling the **VTR CLIP** button allows you to directly enter a VTR Clip ID to access a specific clip on a VTR device that supports this mode.

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

- 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.

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 **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.

DVE Send and Remote Control

The Synergy 1 SD 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 the **Transition Group** assigns the external DVE (the "primary" DVE) to the MLE — and also 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 **AUTO TRANS**.

A **DVE Send** transition does 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 or automatically using **AUTO TRANS**.

- DVE effects can be recalled directly from the **Global Memory System** area or by pressing the **DVE** button in the **Pattern Control** group and then 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 **DVE Send** option requires the installation of the **Timed Aux Bus** option. Refer to the section "**Custom Controls**" on page 8–4 for details on this feature.

Video Server Control

The **Video Server Control Option** controls up to four video servers directly from the switcher panel. Interfaced servers must use the standard Harris (Louth) VDCP, or the Sony (Betacam) protocol. 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 Group**, select the video server on Preset and perform preview and cue operations 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.

- The transition area of the control panel 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 assigned crosspoint on the **PGM** bus.

  When the **ROLL VTR** button is set to **Arm** mode, 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 assigned 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 four audio servers (such as the **Digicart** by 360 Systems) directly from the Synergy control panel. Interfaced audio servers must use Digicart protocol.

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 Group**.

- 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.

Timed Aux Bus

The Synergy 1 SD Switcher offers two types of Aux bus outputs — untimed (standard) and timed (optional). The total number of Aux bus outputs remains fixed at 10.

- A standard **Untimed Aux Bus** output follows the timing of the input source with a short additional processing delay. For destination devices that are not sensitive to timing (such

as monitors) or for those devices which have their own input synchronization (such as some DVEs), the Untimed Aux Bus outputs are ideal.

> **Note**
>
> Since the Synergy 1 SD frame generates its own internal black signal, selecting **BLACK** on an untimed Aux Bus will route to the output whatever is connected to your "**601 REF IN**" BNC, with the exception of Aux Bus 1 and 2.

- The **Timed Aux Bus** option allows you to convert two untimed Aux bus outputs (Aux 1 and Aux 2) 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 Digital to Analog 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**
>
> The Timed Aux Bus option is comprised of "serializer" and "deserializer" modules that install on the Frame CPU Board. Refer to the section "**Timed Aux Bus Installation**" on page 15–25 for module installation procedures.

Redundant Power

The **Redundant Power Supply** option provides protection against AC power failure in the control panel. With the option installed, complete failure of one power source will not affect control panel operation.

If the main AC power fails, the control panel instantly draws power from the remaining source. The transition from one power source to the other is transparent and has no affect on the output of the switcher — 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 power or a fan failure in the frame.
- loss of redundant power in the control panel.

Downstream Keyers

One or two *external* **Downstream Keyers** (CDK-111A-M) can be added to the Synergy 1 SD Switcher, each with the capability of being controlled fully from the control panel. In a fully configured system, four keyers (two MLE and two downstream) can be controlled from the **Transition Section** of the panel.

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
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.

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, however 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, emergency technical support is available. A telephone answering device will provide the names and phone numbers of technical support and field service personnel who are on call. 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) 613-652-4886, ext. 333.

Product Comparison Charts

For your reference, following are detailed charts that compare the features and options that are available with the different control panel configurations of the Synergy 1 SD Switcher.

Feature Comparison Chart

Feature Comparison Chart

Feature	Synergy 1 SD	Synergy 100 SD	GVG-100/ 110	RVS 210A/D	RVS 216A/D
100 Event Memory	Yes	Yes (*10)	Yes (*10)	Yes (*10)	Yes (*10)
# of Keyers	4 (*3)	3	2	2	3 (*4)
All 16 Inputs Accessible	Yes	Yes (*1)	Yes (*1)	No (*2)	Yes
Chroma Key Clip, Gain and Hue controls	Yes	Yes	Yes	Yes	Yes
Chroma Key Reject, Blue spill suppression controls	Yes	Yes	Yes (*8)	No (*9)	No (*9)
Custom Control (Macros)	Yes	No	No	No	No
DSK Borders	No (*6)	Yes	Yes	Yes	Yes
DSK DVE Send Transitions	No (*6)	No (*7)	No (*7)	Yes	Yes
DSK Still Store and Animated Logo Generator	Yes (*6)	No	No	No	No
DVE Send	Yes	No	Yes	Yes	Yes (*5)
Extended Wipe Patterns	Yes	Yes	Yes	Yes	Yes
Favorite CG Button	Yes	Yes	No	Yes	Yes
Internally Generated Black	Yes	Yes	Yes	Yes	Yes
Internally Generated Color BKGD	Yes	Yes	Yes	Yes	Yes
Key 1 Borders	Yes	No	No	No	No
Key 1 Squeeze & Tease	Yes	Yes	Yes	Yes	Yes
Non-Sync LEDs	Yes	Yes	No	Yes	Yes
Preview Overlay	Yes	Yes (*11)	Yes (*11)	Yes (*11)	Yes (*11)
Remote Aux Panel GPIs	Yes	No	No	No	No
Software Reset from Panel	Yes	Yes	No	No	No
Transition Preview	Yes	Yes	No	Yes	Yes

Notes:

(*1)   Panel supports **SHIFT** button.

(*2)   The hidden (inaccessible) inputs can be configured as key signals.

(*3)   2 keyers are standard and 2 external DSKs are optional.

(*4)   The Encoded Chroma Key button becomes the MLE Key 2 button. In this mode, external DVE Sends are not available. The DSK "next transition" button becomes the MLE Key 2 button and the DSK is then controlled by dedicated buttons (for CUT, AUTO TRANS).

(*5)   In 2 Keyer mode only. Timed Aux Bus option must be installed.

(*6)   DSKs on Synergy 1 are optional and external. They only have Self and Auto Select key capability.

(*7)   DSK can only perform Mix and Cut transitions.

(*8)   Variable via Chroma Key button hold down.

(*9)   Fixed settings.

(*10)   Bank selectable via the Auto Trans display.

(*11)   Center mark and safe title only.

Option Comparison Chart

The following chart details the options that are available with each Synergy 1 SD Switcher configuration.

Option Comparison Chart

Option	Synergy 1 SD	Synergy 100 SD	GVG-100/110	RVS 210A/D / RVS 216A/D
Audio Server Control	Yes	No	No	No
Audio Mixer Control	Yes	Yes	No	No
Character Generator	Yes	No	No	No
Clean Feed	Yes	Yes	Yes	Yes
Dual Aspectizer	Yes	No	No	No
Dual Border Generator	Yes	Yes	Yes	Yes
DVE Send	Yes	No	Yes	Yes
Editor Interface	Yes	Yes	Yes	Yes
External DSKs (up to 2)	Yes	No	No	No
Frame Tallies	Yes	Yes	Yes	Yes
Panel Tallies	Yes (*2)	Yes (*2)	No	Yes (*2)
PIP-II Protocol Interface	Yes	No	No	No
Redundant Power	Yes (*3)	No	No	No
Remote Aux Panels	Yes	Yes	Yes	Yes
Remote Camera Control	Yes	No	No	No
Routing Switcher Control	Yes	No	No	No
Squeeze & Tease 2D	Yes	Yes	Yes	Yes
Squeeze & Tease WARP	Yes	Yes	No	No
Still Store Control	Yes	No	No	No
Timed Aux Buses	Yes (*1)	No	Yes (*1)	Yes (*1)
Ultimatte Insider	Yes	Yes	No	No
Video Server Control	Yes	No	No	No
VTR Remote Control	Yes	No	No	No

Notes:

(*1) Aux Bus 1 and 2 can be timed.

(*2) Panel tallies are standard. Refer to the table "**Tally Comparison Chart**" on page 1–26.

(*3) In the control panel only.

Tally Comparison Chart

The following chart details the *optional* tally combinations that are available with each Synergy 1 SD Switcher configuration.

Tally Comparison Chart

Tally Configuration	Synergy 1 SD	Synergy 100 SD	GVG 100/110	RVS 210A/D	RVS 216A/D
Panel Tallies	16 (Standard)	16 (Standard)	—	8 (Standard)	14 (Standard)
Frame Tallies	16	16	16	16	16
Maximum Tallies	32	32	16	24	30

Installation

In This Chapter

This chapter provides instructions for installing **Synergy 1 SD** switcher hardware. The following topics are discussed:

- Static Discharge
- Getting Started
- Unpacking
- Equipment Overview
- Installation at a Glance
- Hardware Installation
- Installing the Control Panel
- Installing Remote Aux Panels
- Installing the Electronics Frame
- Connecting Frame Power
- Installing the Frame Door
- Jumpers and Switches
- System Reset Notes
- Software Upgrade
- Installed Options Menus

✓ **Operating Tip** Refer to Appendix E. "**Custom Device Serial Protocols**" for worksheets you can use to record switcher installation and wiring connections.

Static Discharge

Throughout this chapter, please heed the following cautionary note:

⚠	**Caution**	Static discharge can cause serious damage to sensitive semiconductor devices. 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.

Getting Started

The following topics are covered in this section:

- Unpacking
- A Word About Serial Numbers
- Installation at a Glance

Unpacking

A complete Synergy 1 SD Switcher system is typically shipped in three boxes as outlined below. Your shipping configuration may vary.

- **Box 1** contains the electronics frame, with circuit boards installed inside the frame itself.
- **Box 2** contains the control panel — including its power supply.
- **Box 3** contains the remote Aux panels, coax cables, manuals and all other options and accessories.

Warning

> The control panel is a *very* heavy top-loading unit. It is *highly recommended* that you use two people to lift and unpack the control panel.

Once the boxes are unpacked, check the contents against the packing list to ensure that all items are included. If any items are missing or damaged, contact your sales representative or Ross Video Limited immediately.

A Word About Serial Numbers

Serial numbers have now been implemented to allow Ross Video to properly track which options have been purchased by each customer. Refer to the sections "**Installed Options Menus**" on page 2–31 and "**Installing Serial Numbers**" on page 2–35 for detailed instructions.

Equipment Overview

This section provides a hardware overview of the Synergy 1 SD Switcher. The following sections are included:

- Control Panel, Top View
- Control Panel, Rear Connector Panel
- Frame, Front View
- Frame, Rear Connector Panel View

Control Panel, Top View

The following figures illustrate a top view of the Synergy 1 control panel. Full details are provided in the *Synergy 1 Operation Guide*.

Synergy 1 Control Panel — Floppy Disk Drive

This figure illustrates a a Synergy 1 control panel with a floppy disk drive.
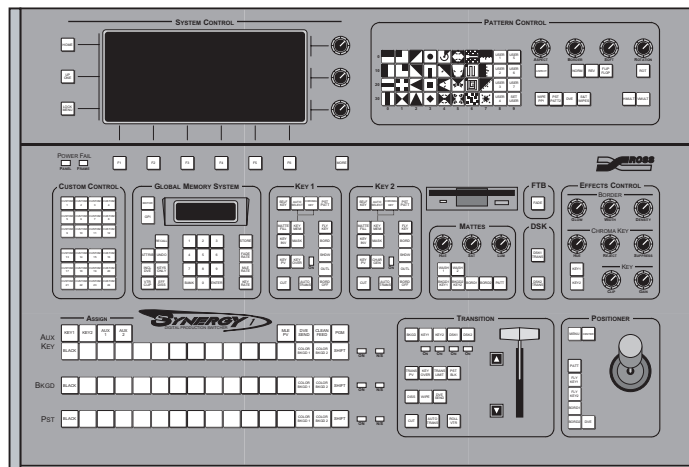
Synergy 1 Control Panel — Floppy Disk Drive

Synergy 1 Control Panel — USB Port

This figure illustrates a Synergy 1 control panel with the **USB Removable Media Drive** option installed.
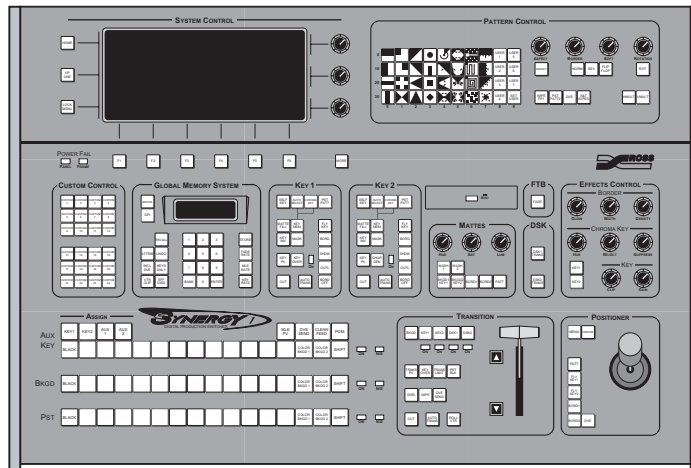
Synergy 1 Control Panel — USB Port

Control Panel, Rear Connector Panel

The following figure illustrates the rear connectors on the Synergy 1 SD control panel.
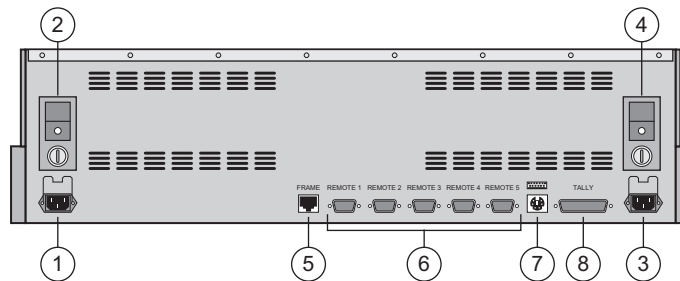
Synergy 1 SD Control Panel — Rear View, Connector Section

1) Primary Power	4) Redundant Power Switch and Fuse	7) Keyboard Port
2) Primary Power Switch and Fuse	5) Frame Connector	8) Tally Connector
3) Redundant Power	6) Remote Control Connectors	

1. Primary Power

One AC connector is provided for **PRIMARY POWER** on the control panel. It includes a power lock which is designed to retain the cable.

2. Primary Power Switch and Fuse

One **SWITCH** and **FUSE** assembly is provided for primary control panel power. The fuse is rated at 12A, 250V.

3. **Redundant Power**

   One AC connector is provided for the optional **REDUNDANT POWER** on the control panel. It includes a power lock which is designed to retain the cable. The connector is always installed, whether or not you have the **Redundant Power Supply** option mounted inside the panel.

4. **Redundant Power Switch and Fuse**

   One **SWITCH** and **FUSE** assembly is provided for redundant control panel power. The fuse is rated at 12A, 250V.

5. **Frame Connector**

   One 8-pin shielded telco connector (**FRAME**) is provided for communications between the frame (**PANEL** connector) and the Synergy 1 control panel.

Important

> The cable for connecting the Synergy 1 SD Control Panel to the Synergy 1 Frame is *not* wired as a standard CAT5 ethernet cable. If you need a cable of a specific length, contact your Ross Video representative for ordering information.

6. **Remote Control Connectors**

   Five 9-pin "D" **REMOTE** connectors (RS-422) are provided for communicating with peripheral devices such as VTRs, disk recorders, video servers or other serial controlled devices.

Note

> You must use **Remote 5** with a **RJ12 to DB9 Male Adaptor** to connect a remote Aux Panel to the Synergy 1 control panel. If you intend to connect a Remote Aux Panel to the switcher, you will have to leave the Remote 5 port open.

   • The ports can be configured as RS-422 or RS-232 through the menu system.

   • For VTR control, the **VTR Remote Control Option** must be installed.

   • For Video Server control, the **Video Server Control Option** must be installed.

   • For Audio Server control, the **Audio Server Control Option** must be installed.

7. **Keyboard Port**

   • One PS/2 port is provided for connecting a standard keyboard to the control panel.

Important

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

8. **Tally Connector**

   One 25-pin, D-Type **TALLY** connector provides 16 tally relays.

Frame, Front View

The following figure illustrates the front of the frame, with the door removed.
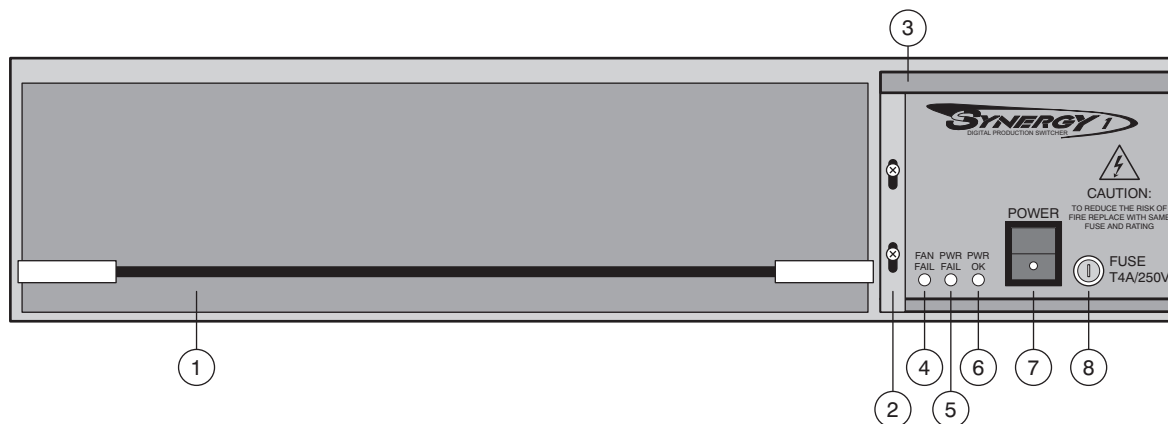
Synergy 1 SD Frame, Front View

1) Frame CPU Board	4) Fan Fail LED	7) Power Switch
2) Power Supply Lock Down Plate	5) Power Fail LED	8) Fuse
3) Power Supply Handle	6) Power On LED	

Following are descriptions of each front component.

1. **Frame CPU Board**

   The **Frame CPU Board** provides all the electronics required for the Synergy 1 SD Switcher. The board also houses several "daughter" boards for options such as **Squeeze & Tease 2D** or **WARP**, **Ultimatte Insider**, **Aspectizer**, or the **Dual Border Generator**.

2. **Power Supply Lock Down Plate**

   The power supply is held in place with a single lock-down plate that is secured with two screws. These screws must be loosened and the lock-down plate moved up in order to be able to remote the power supply.

3. **Power Supply Handle**

   A small handle is provided to assist in removing and inserting the power supply. The tray houses the power supply and frame fan. For chassis cooling, note that air flows in from the sides of the frame, across the circuit boards and out the rear exhaust port.

> **Warning** When the power supply is inserted into the frame, it mates with male power pins that carry *live voltage* if the frame is plugged in. All power *must* be disconnected before servicing. Caution — do *not* insert your fingers into the power supply slot when the unit is plugged in!

4. **FAN FAIL LED**

   When lit, the **FAN FAIL** LED indicates that the fan is drawing too much current or has stopped turning.

5. **POWER FAIL LED**

   When lit, the **POWER FAIL** LED indicates that the power supply has failed or is not connected properly.

6. POWER ON LED

During normal operations, the **POWER ON** LED should be lit *green*. It indicates that there are no error conditions in the fan or power supply. This LED is off if any of the two "fail" LEDs are lit.

7. POWER Switch

Use the **POWER** Switch to turn on the power supply.

Note that two important **POWER FAIL** indicator LEDs on the Control Panel mirror the condition of the frame LEDs and the panel's power supply:
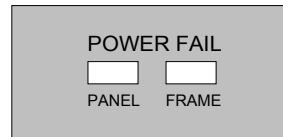
POWER FAIL

PANEL   FRAME

- **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 frame supply or fan.

8. FUSE

A fuse is provided for the power supply. The fuse is rated at 250V, 4A.

Frame, Rear Connector Panel View

The following figure illustrates the rear connector panel of the Synergy 1 SD frame.
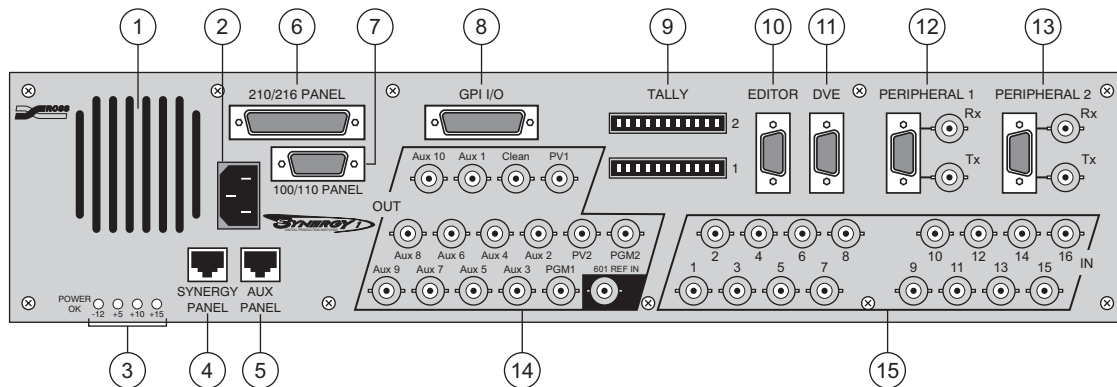
Synergy 1 SD Frame, Rear View

1) Fan Exhaust Vent	6) RVS 210/216 Panel Port	11) DVE Port
2) Power Connector	7) GVG 100/110 Panel Port	12) Peripheral 1 Port
3) Power Supply LEDs	8) GPI I/O Port	13) Peripheral 2 Port
4) Synergy Panel Port	9) Tally Ports	14) Output Section
5) Aux Panel Port	10) Editor Port	15) Input Section

The following are descriptions of each rear panel connector.

1. Fan Exhaust Vent

A grill is provided for **FAN EXHAUST**, behind the power supply. To prevent the frame from overheating, do not block the exhaust vent with cables or other equipment.

2. **Power Connector**

   One AC **POWER** connector is provided for frame power.

3. **Power Supply LEDs**

   Four **POWER SUPPLY LEDs** are provided to indicate the condition of the power supply (-12, +5, +10 and +15V). Under normal operating conditions, each should be lit green.

4. **Synergy Panel Port**

   One 8-pin shielded telco port labeled **SYNERGY PANEL** is provided for communications between the frame and the Synergy 1 control panel.

⚹	**Important**	The cable for connecting the Synergy 1 SD Control Panel to the Synergy 1 SD Frame is not wired as a standard CAT5 ethernet cable. If you need a cable of a specific length, contact your Ross Video Representative for ordering information.

5. **Aux Panel Port**

   One 6-pin shielded telco port labeled **AUX PANEL** is provided for communications between the frame and remote Aux panels.

6. **RVS 210/216 Panel Port**

   One 50-pin port labeled **210/216 PANEL** is provided for communications between the frame and the RVS 210 or RVS 216 control panel.

7. **GVG 100/110 Panel Port**

   One 15-pin D-Type port labeled **100/110 PANEL** is provided for communications between the frame and the GVG-100 or GVG-110 control panel.

8. **GPI Input/Output Port**

   One 25-pin, D-Type port labeled **GPI I/O** is provided for GPI input and output ports. Please note:

   • As standard, the connector provides one common ground, 12 GPI outputs and 12 GPI inputs.

9. **Tally Ports**

   Two 12-pin ports labeled **TALLY** are provided for a total of 16 optional tally relays.

10. **Editor Port**

   One 9-pin, D-Type, RS-422 port labeled **EDITOR** is provided for connection to a external edit controller. The connection allows the Synergy 1 to be controlled by the editor using RS-422 commands.

   • The port can be configured as RS-422 or RS-232 through the menu system.

11. **DVE Port**

   One 9-pin, D-Type, RS-422 port labeled **DVE** is provided for connection to the primary external DVE. The connection is designed for control purposes. Please note:

   • The port can also be used to connect to the *first channel* of a DVE that requires one serial port per channel.

- The port can be configured for additional serial control purposes through the menu system.

12. Peripheral 1 Ports

The **PERIPHERAL 1** group includes three ports:

- One 9-pin, D-Type, RS-422 port is provided for connection to a primary peripheral device. The connection is for control purposes. The port can be configured for additional serial control purposes through the menu system.

- Two BNCs labeled **Rx** and **Tx** are provided for communications with peripheral devices such as the CDK-111A-M.

Note
> The two **Peripheral 1** BNCs share the same internal circuitry as the 9-pin D-Type **Peripheral 1** connector. Only *one* of the two sets of connectors can be used at a time.

13. Peripheral 2 Ports

The **PERIPHERAL 2** group includes three ports:

- One 9-pin, D-Type RS-422/RS-232 port is provided for connection to a primary peripheral device. The connection is for control purposes. The port can be configured for additional serial control purposes through the menu system.

- Two BNCs labeled **Rx** and **Tx** are provided for communications with peripheral devices such as the CDK-111A-M.

Note
> The two **Peripheral 2** BNCs share the same internal circuitry as the 9-pin, D-Type, **Peripheral 2** connector. Only *one* of the two sets of connectors can be used at a time.

14. Output Section

Fifteen BNCs are provided as the switcher outputs, plus the digital reference input, as follows:

- Two program outputs (**PGM1** and **PGM2**).

- Two preview outputs (**PV1** and **PV2**). Both outputs display the overlay as controlled from the menu system.

- Ten Aux Bus outputs (**Aux1** through **Aux10**). Aux outputs 1 and 2 can be *timed* or *untimed*, depending upon the number of **Timed Aux Bus** options installed. Aux outputs 3 through 10 are untimed.

Note
> Since the Synergy 1 SD frame generates its own internal black signal, selecting **BLACK** on an untimed Aux Bus will route to the output whatever is connected to your "**601 REF IN**" BNC, with the exception of Aux Bus 1 and 2.
>
> Any of the 10 Aux Bus outputs can be used for the primary DVE (the DVE that can be controlled using RS-422 serial control from the Synergy 1 control panel). Refer to the section "**Output Connection**" on page 4–9 for additional information.

- One optional clean feed output (**CLEAN**).
- One digital reference input (**601 REF IN**).

If DAs are required to provide additional outputs for a particular signal, contact Ross Video or your Ross Video dealer for details.

15. Input Section

Sixteen BNCs are provided for the digital inputs of the switcher.

Installation at a Glance

The following section presents a *brief* overview of the installation process. The exact steps taken in installing your switcher will depend on the specific options that you have purchased.

	Note	All cautionary rules regarding static discharge apply. Refer to the section "**Static Discharge**" on page 2–2 for details.

Experienced installers may wish to work from this outline as required.

- Install the control panel.
- Install any remote Aux panels.
- Install the electronics frame in an equipment rack.
- Perform the basic cabling:
  - ~ control panel to frame interconnection

	Important	The cable for connecting the Synergy 1 SD Control Panel to the Synergy 1 SD Frame is not wired as a standard CAT5 ethernet cable. If you need a cable of a specific length, contact your Ross Video Representative for ordering information.

  - ~ remote Aux panel cabling
  - ~ reference input
  - ~ switcher interconnections
  - ~ connections to preview and program monitors
- Power up and do a quick video check on the switcher.
- Decide on inputs to the switcher's primary input sections and install push-button inserts accordingly.
- Connect primary inputs.
- Connect output monitors as required for your installation.
- Make connections to external equipment. The ways of connecting such sources will depend on personal preference as well as on the combination of options purchased with the switcher.
- Connect character generator key (alpha) and video input signals.
- Connect the tallies.
- Connect and set up the general purpose interface, configuring the editor GPIs and the Aux Bus GPI inputs and outputs.
- Configure the switcher personality according to your installation requirements and personal preferences. The many operational parameters include editor related

functions, auto keying selections, Aux bus and memory configuration and various button assignments and operational shortcuts.

Note   The previous steps cover switcher installation and configuration. Additional appendices at the end of this guide provide supplementary information for interfacing with DVEs and installing hardware options.

Hardware Installation

This section describes procedures for installing the following main components of the Synergy 1 Switcher system:

- Control panel
- Remote Aux panels
- Electronics frame

This equipment is intended to be installed and serviced by qualified personnel only. All cautionary rules regarding static discharge apply. Refer to the section,"**Static Discharge**" on page 2–2 for details.

⚠ **Caution** Switch the power off before installing or removing printed circuit boards. Note that the frame and control panel have separate power supplies. The circuitry used throughout the switcher is largely CMOS, accounting for the system's low current drain.

Installing the Control Panel

The control panel is shipped with all its circuit boards and power supply in place — you only have to install the control panel tub and some push-button inserts. The tub is available in two models — one which is designed to be set into a desk (or console cutout) and the other which simply can be set on the desktop.

✎ **Note** The control panel is designed as a closed unit and as such there is no need to access the inside of the panel under normal conditions.

Use the following procedure to install the control panel:

✎ **Note** The cutout information is for installing the **In-Desk Model** (**4216A-020A**) *only* and not for the Desktop model. Desktop models of the Synergy 1 SD control panel can simply be set on the desktop.

1. For in-console installation, measure your console according to the measurements illustrated in the diagram "**Synergy 1 SD Control Panel Cutout Dimensions**" on page 2–14. Centimeters are shown in parenthesis.

Console Top

Cable Clearance
4.0" (10.1 cm)

Cutout - Synergy 1

17.625"
(44.77 cm)

Distance from Cutout
to Console Front
(Recommended)

2.0" (5.0 cm)

28.0" (71.12 cm)
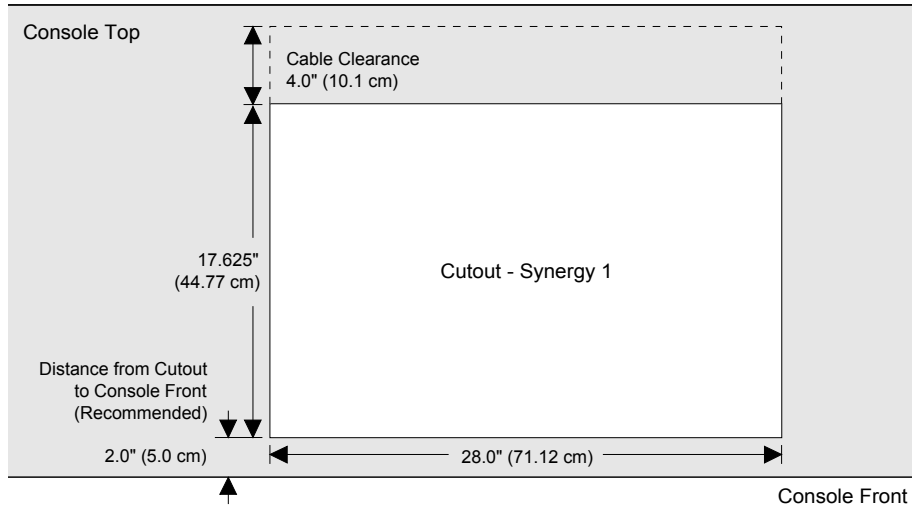
Console Front

Synergy 1 SD Control Panel Cutout Dimensions

✓	**Operating Tip**	When measuring for the cutout, it is recommended that you place the *front lip* of the panel within two inches (5.0 cm) of the console front (as shown in the diagram). This placement is designed for the convenience of the operator.

2. In addition to the cut-out measurement, ensure that there is sufficient clearance *under the desktop* for connectors and cables on the rear of the control panel. Approximately four inches (10.1 cm) of clearance should be sufficient, as displayed in the following diagram.

Desktop
Level

Minimum Cable Clearance
(All Switchers)
4.0" (10.1 cm)

Depth Below Desktop
(All Switchers)
2.5" (6.4 cm)
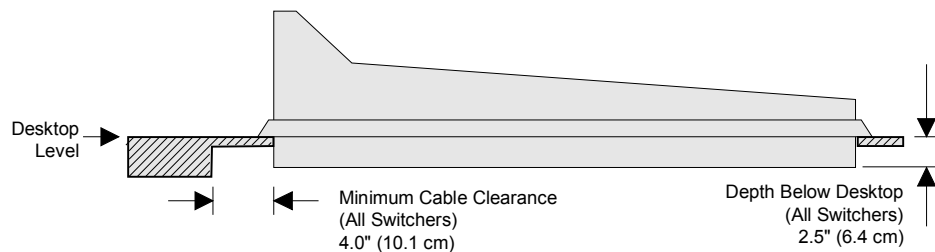
Detail — Control Panel Connector Clearance Requirements

3. Install the control panel in your console. The tub drops into the cut-out from above and rests on edge supports at the sides.

✎	**Note**	Desktop models of the Synergy 1 SD control panel can simply be set on the desktop.

4. Normally, fasteners are not required to hold the control panel in place. However, if your installation requires it (particularly for remote trucks), you can attach the tub to the desk using the threaded hole.

Control Panel
(Rear View)

Desktop
Level

#8 - 32 mounting screws and
"L" bracket hardware,
both sides, not supplied
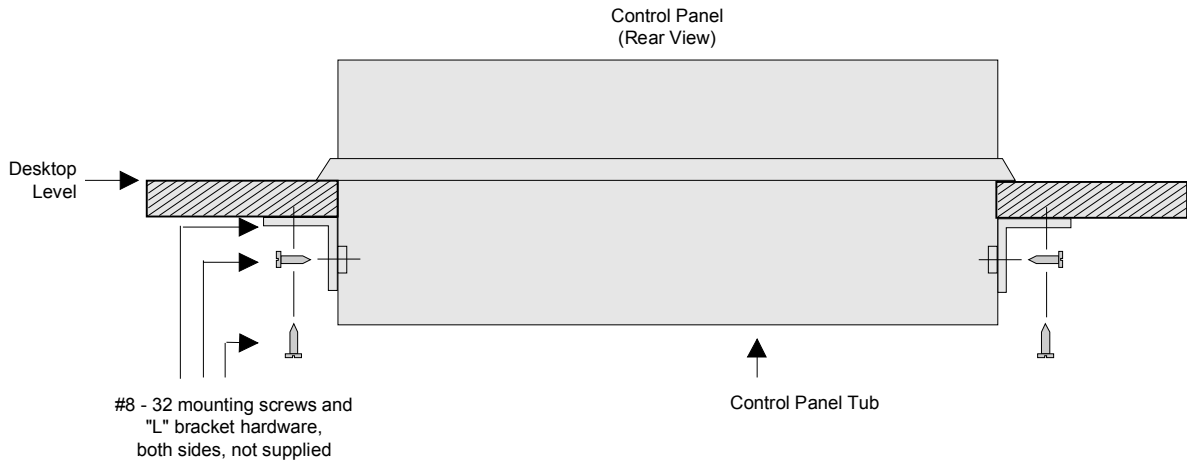
Control Panel Tub

Detail — Optional Mounting Screw Attachment

5. Install control panel power as follows:

FRAME REMOTE 1 REMOTE 2 REMOTE 3 REMOTE 4 REMOTE 5   TALLY

Primary
Power Connector

Redundant
Power Connector
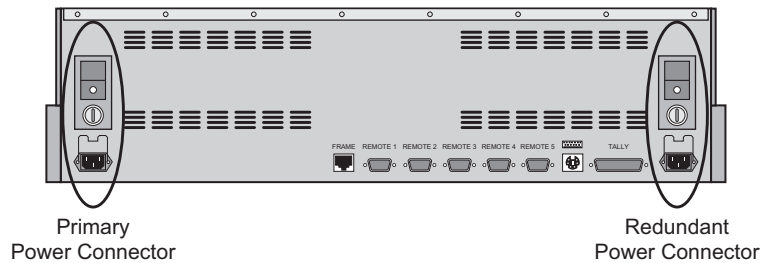
Synergy 1 Control Panel — Power Supply Connectors

a) Connect the **PRIMARY POWER** connector to an AC outlet.

b) If the **Redundant Power Supply** option is installed, connect the **REDUNDANT POWER** connector to an AC outlet.

⚠	**Caution**	In some countries, it may be necessary to supply the correct mains supply cord. Use only an approved **IEC 320-C13 10A/250V - H03 VV-F3G 1.00mm^2** type A/C line cord rated for a minimum 10A at 250V and certified for the country of use. The wiring designations by color are: • **BLACK** — power (or "line" side) • **WHITE** — neutral (or "return" side) • **GREEN** — ground (or "earth").
⏚	**Protective Earth**	The safe operation of this product requires that a protective earth connection be provided. This protective earth is provided by the grounding conductor in the equipment's supply cord. To reduce the risk of electrical shock to operator and service personnel, this ground conductor must be connected to an earthed ground.

✎	**Note**	For control panel redundancy, it is recommended that two independent AC sources be used to feed the control panel power supplies.

⚡	**Warning**	The control panel's power supply is not intended to be field serviced — it is serviced by *replacement only*. In the event of power supply failures, please contact your dealer or Ross Video. The power supply cover should only be removed by qualified service personnel.

This completes the control panel installation.

Installing Remote Aux Panels

Remote Aux Bus control panels are self-contained units that have their own power supply. One **AUX PANEL** connector is provided on the frame and one is provided on the control panel. Each allows you to control Aux Buses using a single cable.

Even though an unlimited number of Aux panels can be connected to each of the **AUX PANEL** connectors, a *practical limit* of 16 Aux panels should be observed. This limit minimizes delay and allows 8 panels to be daisy-chained on each connector.

There are two types of remote Aux panels available:

- **Assignable** panels control all 10 Aux bus outputs.

- **Non-assignable** (or "dedicated") panels control a single Aux bus output.

Both panel types require one rack unit of space for installation and both types require their own AC source for DC power as displayed in the following diagram.
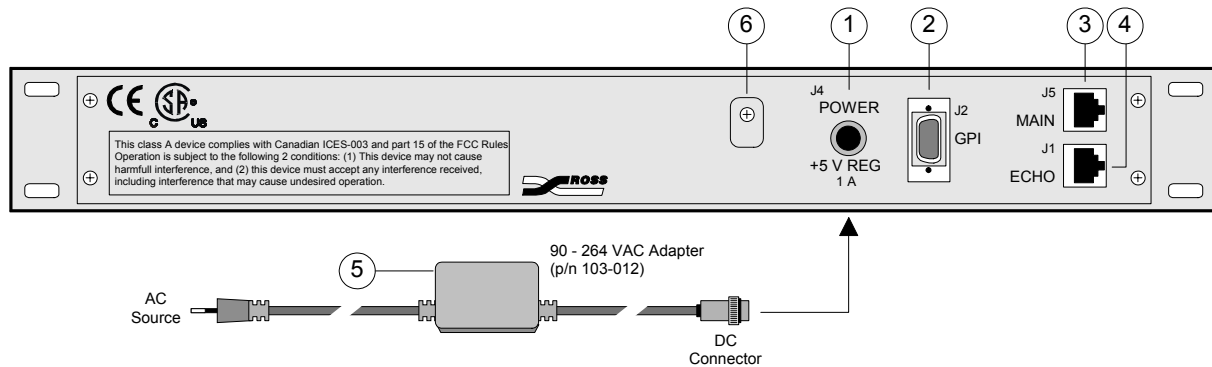
Aux Panel Rear Layout and Connection

1) Power Connector	3) Main Port	5) AC Adapter
2) GPI Port	4) Echo Port	6) Cable Retainer

Connector layout is identical for all remote Aux panels.

1. Power Connector

One DC connector is provided for +5 VDC panel power.

2. GPI Port

One 9-pin "D" GPI connector is provided for special GPI triggers that allow a camera operator to manually override the Aux panel selection. Refer to the section, "**Remote**

Aux Panel Cabling" on page 3–3 for connection details. For setup details, refer to the section "**Aux Bus Setup**" on page 9–3.

3. **Main Port**

    One 6-pin RJ-12 Telco connector is provided for connecting to the Aux connectors on the rear of the Control Panel or Frame. Refer to the section, "**Remote Aux Panel Cabling**" on page 3–3 for connection details. Refer to the section, "**Frame Pinouts**" on page 13–7 for pinouts.

4. **Echo Port**

    One 6-pin RJ-12 Telco connector is provided for daisy-chaining the remote panel to the next remote Aux panel in line. Refer to the section, "**Remote Aux Panel Cabling**" on page 3–3 for connection details. Refer to the section, "**Frame Pinouts**" on page 13–7 for pinouts.

5. **AC Adapter**

    One AC Adapter (90 - 264 VAC) is provided with each remote Aux panel as a source of +5 VDC.   Please note:

    •   90 - 264 VAC adapter, p/n **103-012**

    Refer to the section, "**Remote Aux Panel Cabling**" on page 3–3 for connection details.

6. **Cable Retainer**

    Loop the cable from the AC adaptor through the cable retainer on the back of the panel for better security.

Please note:

*   There are no user-settable jumpers in the Aux panels.

*   Assignable Aux panels are configured using the control panel's menu system. A special programming mode allows you to assign "rights" for each of the 10 available Aux outputs to an assignable Aux panel.

*   Non-assignable (dedicated) Aux panels are also configured using the control panel's menu system. A special programming mode allows you to assign one specific Aux output to each dedicated panel.

Refer to the section "**Aux Bus Setup**" on page 9–3 for instructions for both assignable and dedicated Aux panels.

Installation Procedure

Use the following procedure to install remote Aux panels:

1. Install the appropriate panels in the desired locations for your facility.

2. Connect the supplied AC adapter to a suitable source of line voltage.

3. Plug the DC connector into the rear of the remote Aux panel.

4. Repeat steps 2 and 3 for each Aux panel.

This completes the remote Aux bus panel installation procedure.

Installing the Electronics Frame

The electronics frame is designed to be rack mounted. Note the following installation requirements:

- **Rack Units**: 2 RU
- **Height**: 3.5 inches (8.89 cm)
- **Depth**: 15.75 inches (40.01 cm)
- **Rack**: standard 19 inch wide equipment rack

Install the frame for maximum stability during operation and in such a way as to allow adequate ventilation. Ensure that *both sides* of the frame are clear, so that switcher air flow is not restricted in any way. The frame's location should be accessible, reasonably dry and dust free.

Please note:

- The system is shipped with the door on.
- The system is shipped with all circuit boards installed and the power supply installed.
- As a precaution after installation, ensure that the CPU board is tightly pushed into its rear frame connector. The circuit board extractors on the sides of the board allow easy installation and removal.

Connecting Frame Power

To install frame power, connect the **POWER** connector to an AC outlet.
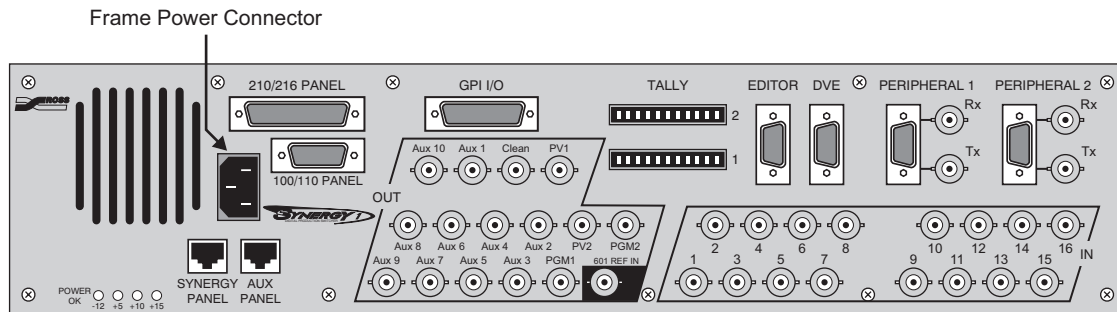
Synergy 1 SD — Frame Power Connector

⚠	**Caution**	In some countries, it may be necessary to supply the correct mains supply cord. Use only an approved **IEC 320-C13 10A/250V - H03 VV-F3G 1.00mm^2** type A/C line cord rated for a minimum 10A at 250V and certified for the country of use.
⏚	**Protective Earth**	The safe operation of this product requires that a protective earth connection be provided. This protective earth is provided by the grounding conductor in the equipment's supply cord. To reduce the risk of electrical shock to operator and service personnel, this ground conductor must be connected to an earthed ground.

Installing the Frame Door

Use the following procedure to install the frame door:

1. Align the door so the light covers are in the bottom right corner.

2. Grasp it by the sliding latches and retract the latches so that the clips are clear of the side edges of the door.

3. Place the door over the front of the frame so that the upper and lower edges of the door are outside the frame edges, and so the sides are lined up with the frame sides.

4. Press the door to the frame.

5. Slide the latches outward until they catch their frame slots and are secure. Check your work.

This completes the procedure to install the frame door.

Jumpers and Switches

This section provides important information about system jumpers and switches. The following topics are discussed:

- Jumper Positions

- Control Panel Jumpers and Switches

- Frame Jumpers and Switches

⚠️ **Caution** | All product servicing should be carried out by qualified service personnel.

To gain access to the Control Panel's jumpers, as outlined in the section, "**Control Panel Jumpers and Switches**" on page 2–21, it will be necessary to remove the safety barrier from the inside of the Control Panel's tub. The equipment still presents a safety hazard with the power switches in the **OFF** position. To avoid electrical shock, disconnect all A/C power cords from the rear of the panel before removal of this barrier.

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.

Jumper Positions

The following legend indicates the jumper positions used in the following two sections.
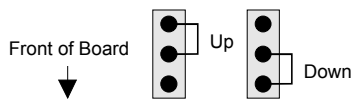
Jumper Positions

- **Up**: Jumper is away from the front of the board

- **Down**: Jumper is towards the front of the board

Control Panel Jumpers and Switches

The following diagram illustrates the location of jumpers and switches on the front edge of the **Control Panel CPU Board**:

⚠	**Caution**	All product servicing should be carried out by qualified service personnel.
		To gain access to the Control Panel's jumpers, as outlined in the section, "**Control Panel Jumpers and Switches**" on page 2–21, it will be necessary to remove the safety barrier from the inside of the Control Panel's tub. The equipment still presents a safety hazard with the power switches in the **OFF** position. To avoid electrical shock, disconnect all A/C power cords from the rear of the panel before removal of this barrier.
		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.

Control Panel Jumpers and Switches

1) JP2, Panel Type	5) JP6, Reserved	9) DIP Switch 1, Reserved
2) JP3, Panel Type	6) JP7, Reserved	10) DIP Switch 2, Reserved
3) JP4, Panel Type	7) JP8, Reserved	11) Reset Button
4) JP5, Reserved	8) JP9, Panel Redundant Power	

1. **JP2, Panel Type**

   Jumper **JP2** works with **JP3** and **JP4** to set the control panel type. Please leave it in the default **Down** position.

2. **JP3, Panel Type**

   Jumper **JP3** works with **JP2** and **JP4** to set the control panel type. Refer to the following table for details.

3. **JP4, Panel Type**

    Jumper **JP4** works with **JP2** and **JP3** to set the control panel type. Refer to the following table for details.

    Setting the Control Panel by Jumper Type

Jumper	Synergy 1
JP2	Down
JP3	Down
JP4	Down

4. **JP5, Reserved**

    Jumper **JP5** is reserved for future use. Please leave it in the default **Down** position.

5. **JP6, Reserved**

    Jumper **JP6** is reserved for future use. Please leave it in the default **Down** position.

6. **JP7, Reserved**

    Jumper **JP7** is reserved for future use. Please leave it in the default **Down** position.

7. **JP8, Reserved**

    Jumper **JP8** is reserved for future use. Please leave it in the default **Down** position.

8. **JP9, Panel Redundant Power**

    Jumper **JP9** indicates whether or not redundant power has been installed in the control panel.

    •   **Up**: Redundant power is installed. The red **POWER FAIL** indicator on the control panel will light in the event of a power supply failure in the panel.

    •   **Down**: Redundant power is not installed. The red **POWER FAIL** indicator will not light.

9. **DIP Switch 1**

    This 8-position DIP switch is reserved for future use. Please leave all switches in the default **Down** position as labeled on the switch.

10. **DIP Switch 2**

    This 8-position DIP switch is reserved for future use. Please leave all switches in the default **Down** position as labeled on the switch.

11. **Reset Button**

    Press the control panel's **RESET** button to initiate a *full panel* reset. When the reset is initiated from the control panel, the frame's reset is initiated using a software message that is passed along the RS-422 control cable. In the unlikely event that the frame has crashed, it may be necessary to *manually* reset the frame. Refer to the section "**System Reset Notes**" on page 2–25 for additional important information about the system reset function.

Frame Jumpers and Switches

The following diagram illustrates the location of jumpers and switches on the front edge of the **Frame CPU Board**:
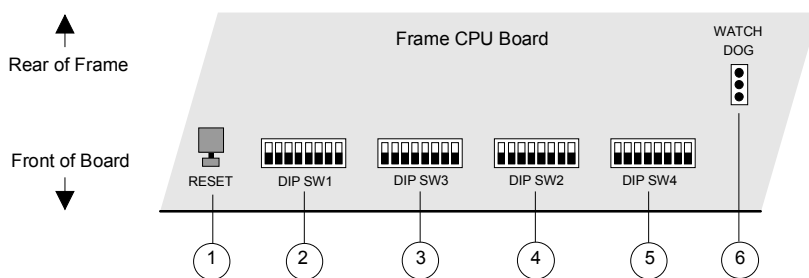
Frame Jumpers and Switches

1) Reset Button	3) DIP Switch 3, S&T 3D Upgrade	5) DIP Switch 4, Active
2) DIP Switch 1, Reserved	4) DIP Switch 2, Reserved	6) Watch Dog Jumper

1. Reset Button

Press the red **RESET** button on the frame to initiate a *full system* reset. When the reset is initiated from the frame, the control panel's reset is initiated using a software message that is passed along the RS-422 control cable. In the unlikely event that the control panel has crashed, it may be necessary to *manually* reset the control panel. Refer to the section "**System Reset Notes**" on page 2–25 for additional information.

2. DIP Switch 1

This 8-position DIP switch is reserved for future use. Please leave all switches in the default **Down** position, as labeled on the switch. (Early issue boards may find this switch unpopulated).

3. DIP Switch 3

This 8-position DIP switch is adjusted only when upgrading Squeeze & Tease 3D software on the Synergy 1 panel and frame. In that case, set SW8 in the **Up** position to enable S&T 3D/WARP software upgrades from a floppy disk or USB key.

Please refer to Chapter 2, "**Installation and Setup**" of your *Squeeze & Tease 3D/WARP Owner's Guide* for detailed switch setup instructions.

If no S&T 3D/WARP software upgrades are being performed, please leave all switches in the default **Down** position, as labeled on the switch.

4. DIP Switch 2

This 8-position DIP switch is reserved for future use. Please leave all switches in the default **Down** position, as labeled on the switch.

5. DIP Switch 4

This 8-position DIP switch has the following system assignments (from left to right):

- **SW1** — **Reserved**. Leave in the default **Down** position.
- **SW2** — **Reserved**. Leave in the default **Down** position.
- **SW3** — **Panel Type**. Works with **SW4, SW5** and **SW6**. Refer to the table page 2-24 for details.

- **SW4** — **Panel Type**. Works with **SW3, SW5** and **SW6**. Refer to the table below for details.
- **SW5** — **Panel Type**. Works with **SW3, SW4** and **SW6**. Refer to the table below for details.
- **SW6** — **Panel Type**. Works with **SW3, SW4** and **SW5**. Refer to the table below for details.

DIP Switch 4 Switch Positions

DIP Switch 4	Synergy 1 Position
SW3	Down
SW4	Down
SW5	Down
SW6	Down

- **SW7** — **Installation Enable**. This switch determines the installation status of the switcher:

  ~ **Up**: Access to installation features is restricted. When you enter the **Installation Menu**, a message alerts you that "**Installation Settings are Locked**." However, you *are* permitted to view the menus as usual. Upon exiting the installation menus, the "**Installation Settings are Locked**" menu once again alerts you that any changes will be *ignored* upon exiting the installation tree.

  In this position, the installation **Load/Save to Disk** menus do not appear in the menu tree.

  ~ **Down**: Installation settings can be changed without restriction. However, upon exiting the menus, an "**Installation Warning**" alerts you that settings are about to be changed:

```
You are about to change the switcher's installation settings.
Press 'Confirm' to save the new settings, or 'Cancel' to revert
to the old settings.




    Confirm     Cancel
```
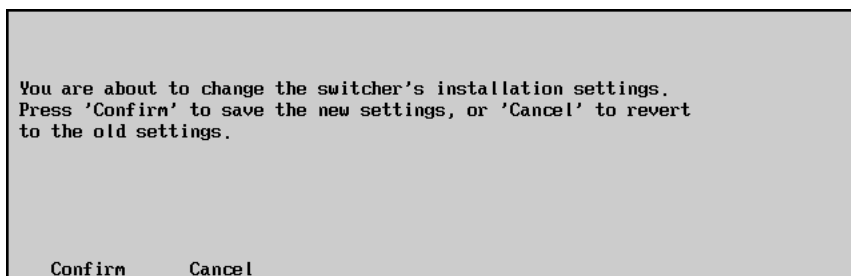
Installation Change Confirmation Menu

✎ **Note**

> Place the switch in the **Up** position when you want to restrict access to installation menus. For certain facilities, this setting is recommended once installation is complete.

- **SW8** — **Software Upgrade**. This switch controls the ability to upgrade software from a storage device, such as floppy disk or USB key:

  ~ **Up**: Software can be upgraded from a storage device. Refer to the section, "**Software Upgrade**" on page 2–28 for instructions.

  ~ **Down**: Software can not be upgraded from a storage device. This is the default position.

6. Watch Dog Jumper

Leave the **Watch Dog Jumper** in the default **DIS** (disabled) position.

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 *only* the frame is turned off, the panel indicates a frame power failure on the **POWER FAIL** indicator LEDs. In addition, the control panel menu displays the Splash Screen.

- 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 Control Panel mirror the condition of the four chassis "Power" LEDs and the panel's power supply.
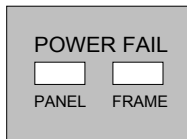
POWER FAIL

PANEL   FRAME

- **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 power failure recovery feature of the Synergy 1 SD Switcher protects the *entire panel setup* in situations where power is lost. When power is restored after a failure, all 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.

Software Upgrade

This section provides step-by-step instructions for upgrading the Synergy Switcher software from a storage device. The current version of software shipping with a new Synergy 1 SD Switcher is version **16-S1**. You can obtain copies of all previous software upgrade instructions by logging on to the Ross Video website.

(http://www.rossvideo.com)

Use the following procedures to perform a software upgrade from a storage device:

- Hardware Confirmation
- System Backup
- Software Upgrade
- Restoring Registers to the Synergy Switcher

Hardware Confirmation

⚠	**Important**	If you are upgrading your Synergy Switcher to a software version of **16-S1**, or higher, you must ensure that your control panel CPU Board is of **Issue 5** or higher.

Use the following procedure to check the version of the CPU Board in your Synergy control panel:

1. Navigate to the **Installed Options Menu** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installed Options** (to display the **Installed Options Menu 1-2**).

2. Press **Panel Boards** to display the **Panel Boards Menu**.

```
Installed Options (1-2)
Frame Serial Number:0000000

Board                    Rev   FPGA Rev                             Use Knob 2
4216-033 Panel CPU        5    4000x033.bit 1998/12/01 09:49:35     to scroll
4216-030 Xpt Switch       X                                         list.
4216-034 Key Switch       2
4216-035 Trans Switch     1
4216-036 Pattern Switch   Xa
4216-037 Function Switch

   Software       Panel        Frame        Option     Enter Serial
   Options        Boards       Boards       Boards        Number
```

Installed Options — Panel Boards Menu

3. Locate the **4216-033 Panel CPU** in the **Board** column.

4. Confirm that the **Rev** number is **5** or higher.

⚠	**Important**	If the **Panel CPU** is of a Revision lower than **5** you will NOT be able to upgrade to version **16-S1**, or higher, without upgrading your control panel.

If your hardware meets the requirements of the software upgrade, proceed to with the next step and backup your system.

System Backup

| ⚛ | **Important** | Because the software upgrade process *automatically* returns the switcher to *default* values, it is important that you back up all switcher elements to a storage device at this point. |

Use the following procedure to save your setup configurations to a storage device:

1. Navigate to the **Disk Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **DISK** (to display the **Disk Menu**).

2. Insert a storage device as follows:

   • Insert a pre-formatted 1.44 MB high-density floppy disk into the floppy disk drive of the Synergy Switcher.

| ✎ | **Note** | If the floppy disk is not formatted (or if you wish to completely erase all data from the disk), press **Format**. Follow the instructions on the display to format the disk. |

   OR

   • Insert a USB key 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.

| ✎ | **Note** | You must have the **USB Removable Media Drive** option installed in order to use a USB key for saving and recalling setup configurations. |

3. Press **Store** to display the **Disk Store Menu**.

4. Press **All** to store *all categories* of registers to your storage device.

| ⚠ | **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. It is recommended that you place the following information on the label:

   • Synergy 1 SD Switcher

   • Software Version [**vXX.xx**] Backup

   • Today's Date

This completes the procedure for saving your setups to a storage device. Please continue with the "**Software Upgrade**" procedure.

Software Upgrade

This section outlines how to initiate the software upgrade using floppy disks or a USB key.

Using Floppy Disks

Use the following procedure to initiate the software upgrade from a floppy disk:

1. Ensure that you backup switcher by saving your setups to a floppy disk. Refer to the section, "**System Backup**" on page 2–27 for more information.

2. Power off the frame.

3. Power off the control panel.

4. Move the **Software Upgrade** DIP switch (**DIP Switch 4**, **SW8** on the **Frame CPU Board**) to the **Up** position. Use the diagram below for reference.
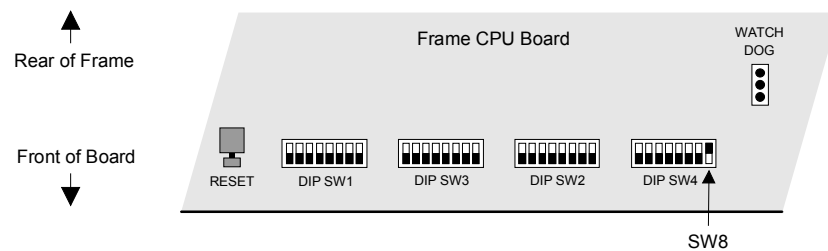
DIP Switch Setting for Software Upgrade

5. Power on the frame first.

6. Power on the control panel second.

7. Insert the **S1 Software Upgrade Disk #1** into the floppy drive.

Note   If you receive an error message informing you that you must have CPU issue **5** or high, you will have abort the software upgrade. This will require you to power off the frame and set the DIP switch back to the **DOWN** position and power on the frame and control panel without the disk in the disk drive.

8. When prompted, remove **Disk #1**, insert **Disk #2**, press **Continue**, and wait for the upgrade process to complete. The completion is clearly indicated when the menu buttons flash in "marquee" fashion.

9. Power off the frame.

10. Power off the control panel.

11. Move **DIP Switch 4**, **SW8** (on the **Frame CPU Board**) to the **Down** position.

12. Power on the frame and the control panel — in any order desired.

This completes the procedure for upgrading system software. Please continue with the "**Restoring Disk Registers**" procedure.

Using a USB Key

Use the following procedure to initiate the software upgrade from a USB key:

1. Ensure that you have saved your setups to a USB key. Refer to the section "**System Backup**" on page 2–27 for more information.

2. Power off the frame.

3. Power off the control panel.

4. Move the **Software Upgrade** DIP switch (**DIP Switch 4**, **SW8** on the **Frame CPU Board**) to the **Up** position. Use the diagram below for reference.

DIP Switch Setting for Software Upgrade
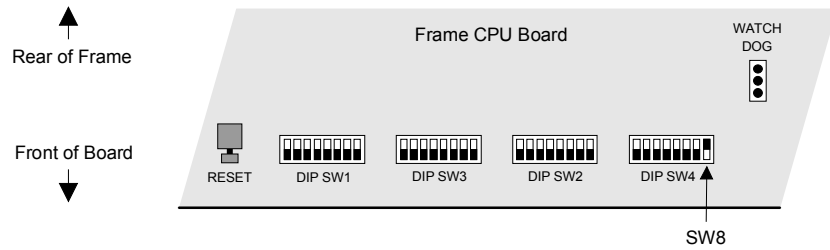
5. Power on the frame first.

6. Power on the control panel second.

⚹	**Important**	After restoring power to the control panel, you may receive the error message "**USB Upgrade Failed**". Contact Ross Video Technical Support for more information on correcting the error.

7. Insert the **USB key** with the upgrade system software into the USB port of the Synergy Switcher.

✎	**Note**	If you receive an error message informing you that you must have CPU issue **5** or high, you will have abort the software upgrade. This will require you to power off the frame and set the DIP switch back to the **DOWN** position and power on the frame and control panel without the USB key in the USB port.

The completion is clearly indicated when the menu buttons flash in "marquee" fashion.

8. Power off the frame.

9. Power off the control panel.

10. Move **DIP Switch 4**, **SW8** (on the **Frame CPU Board**) to the **Down** position.

11. Power on the frame and the control panel — in any order desired.

⚹	**Important**	After restoring power to the control panel, you may receive the error message "**USB Upgrade Failed**". Contact Ross Video Technical Support for more information on correcting the error.

This completes the procedure for upgrading system software. Please continue with the "**Restoring Disk Registers**" procedure.

Restoring Registers to the Synergy Switcher

Use the following procedure to restore your registers to on-line memory:

1. Ensure that the new Synergy software version is properly installed. If not, refer to the section "**Software Upgrade**" on page 2–28.

2. Locate the "backup" storage device that you made in the section "**System Backup**" on page 2–27.

3. Read the entire contents of the storage device into switcher memory as follows:

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

   • Press **DISK** to display the **Disk Menu**.

   • Insert the backup storage device into its drive or port of the switcher.

✓ **Operating Tip**
> You must wait 5 seconds after inserting the USB key into the USB port before you can read its contents.

   • Press **Recall** to display the **Disk Recall Menu**.

   • Press **All** to recall *all categories* of registers from the storage device.

⚠ **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.

4. Eject the storage device from the switcher.

This completes the procedure for restoring your disk registers.

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.

The following topics are discussed in this section:

- Menu Access

- Software Options Menu

- Panel Boards Menu

- Frame Boards Menu

- Option Boards Menu

- Installing Serial Numbers

- Installing Software Options

- Storing and Recalling Option Codes

⚠️✱	**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 the section, "**Installing Serial Numbers**" on page 2–35 for instructions.

Menu Access

Navigate to the **Installed Options Menu 1-2** as follows:

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

- **MORE** (to display the **Main Menu 2-2**).

- **Setup** (to display the **Setup Menu**).

- **Installed Options** (to display the **Installed Options Menu 1-2**).

```
Installed Options (1-2)
Frame Serial Number:0000000




                                                  


   Software      Panel        Frame       Option    Enter Serial
   Options       Boards       Boards      Boards       Number
```
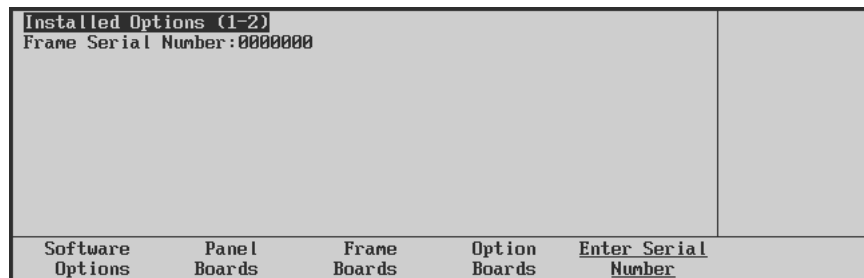
Installed Options Menu 1-2

In its initial state, the **Main Area** and **Scroll Area** are both blank.

The **Label Area** provides an array of options.

Software Options Menu

Use the following procedure to view the software options you have installed on your Synergy 1 SD Switcher:

1. Navigate to the **Installed Options Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installed Options** (to display the **Installed Options Menu 1-2**).

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     │          │
│ VTR 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      Panel        Frame       Option    Enter Serial            │
│   Options       Boards       Boards      Boards        Number    Add Option │
└─────────────────────────────────────────────────────────────────────────────┘
```

Installed Options — Software Options Menu

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

• Column 1 lists the available software options.

• Column 2 indicates whether or not the option is installed.

Please note:

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

• If a serial number appears at the top of the menu, please verify that the list reflects the exact options that you have purchased. If not, please contact **Customer Service** for further information.

• 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 but a valid serial number *must* be installed permanently — so that you do not lose switcher functionality. Refer to the section, "**Installing Serial Numbers**" on page 2–35 for instructions.

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

Panel Boards Menu

Use the following procedure to view the control panel boards you have installed on your Synergy 1 SD Switcher:

1. Navigate to the **Installed Options Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

- **MORE** (to display the **Main Menu 2-2**).
- **Setup** (to display the **Setup Menu**).
- **Installed Options** (to display the **Installed Options Menu 1-2**).

2. Press **Panel Boards** to display the **Panel Boards Menu**.

```
┌─────────────────────────────────────────────────────────┬──────────────┐
│Installed Options (1-2)                                   │              │
│Frame Serial Number:0000000                               │              │
│                                                          │              │
│Board                     Rev  FPGA Rev                   │              │
│4216-033 Panel CPU         5   4000x033.bit 1998/12/01 09:49:35│Use Knob 2│
│4216-030 Xpt Switch        X                              │to scroll     │
│4216-034 Key Switch        2                              │list.         │
│4216-035 Trans Switch      1                              │              │
│4216-036 Pattern Switch    Xa                             │              │
│4216-037 Function Switch                                  │              │
│                                                          │              │
├──────────────────────────────────────────────────────────┤            │
│  Software      Panel       Frame      Option    Enter Serial│           │
│  Options       Boards      Boards     Boards      Number   │            │
└──────────────────────────────────────────────────────────┴────────────┘
```

Installed Options — Panel Boards Menu

The main area provides three columns of information that pertain to the boards installed in the panel:

- Column 1 (**Board**) lists each circuit board by part number and name.
- Column 2 (**Rev**) lists the board's hardware revision number.
- Column 3 (**FPGA Rev**) lists the board's software revision number.

3. Use the middle knob to scroll the list. Note that the menu is provided for information only — no action can be taken.

This completes the procedure to view the control panel boards you have installed on your Synergy 1 SD Switcher.

Frame Boards Menu

Use the following procedure to view the frame boards you have installed on your Synergy 1 SD Switcher:

1. Navigate to the **Installed Options Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installed Options** (to display the **Installed Options Menu 1-2**).

2. Press **Frame Boards** to display the **Software Options Menu**.

```
┌─────────────────────────────────────────────────────────┬──────────────┐
│Installed Options (1-2)                                   │              │
│Frame Serial Number:0000000                               │              │
│                                                          │              │
│Board                     Rev  FPGA Rev                   │              │
│4216-001 Synergy1 Frame    4d  s1frame.bit 2002/01/18 15:15:13│Use Knob 2│
│                               s1bigvid.bit 2003/12/08 14:25:25│to scroll │
│                                                          │list.         │
│                                                          │              │
│                                                          │              │
│                                                          │              │
├──────────────────────────────────────────────────────────┤            │
│  Software      Panel       Frame      Option    Enter Serial│           │
│  Options       Boards      Boards     Boards      Number   │            │
└──────────────────────────────────────────────────────────┴────────────┘
```

Installed Options – Frame Boards Menu

The main area provides three columns of information that pertain to the boards installed in the frame:

- Column 1 (**Board**) lists each circuit board by part number and name.
- Column 2 (**Rev**) lists the board's hardware revision number.
- Column 3 (**FPGA Rev**) lists the board's software revision number.

3. Use the middle knob to scroll the list. Note that the menu is provided for information only — no action can be taken.

This completes the procedure to view the frame boards you have installed on your Synergy 1 SD Switcher.

Option Boards Menu

Use the following procedure to view the optional boards you have installed on your Synergy 1 SD Switcher:

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

```
Installed Options (1-2)
Frame Serial Number:F537378009


Board                  Rev  FPGA Rev
MLE1                   N/I  s1mle.bit 2002/11/01 09:20:36    Use Knob 2
  Squeeze & Tease WARP  4a  SW Ver 16.0 ,  Xilinx Rev 3.10   to scroll
  Border card           3c  s1bord.bit 2000/12/19 10:58:45   list.
Aspectizer (v2.10,v2.10)



    Software       Panel        Frame       Option   Enter Serial
    Options        Boards       Boards      Boards      Number
```

Installed Options – Option Boards Menu

The main area provides three columns of information that pertain to the optional boards that can be installed in the frame:

- Column 1 (**Board**) lists each optional circuit board by name.
- Column 2 (**Rev**) lists the hardware revision number of the associated board.
- Column 3 (**FPGA Rev**) lists the software revision number of the associated board.

3. Use the middle knob to scroll the list. Please note:

- The menu is provided for information only — no action can be taken.
- The status for **MLE 1** reflects whether or not the available options are installed:
  ~ **Squeeze & Tease 3D**
  ~ **Dual Border Generator**
  ~ **Aspectizer**

This completes the procedure to view the optional boards you have installed on your Synergy 1 SD Switcher.

Installing Serial Numbers

Important	If the label "**000000**" appears at the top of the **Installed Options Menus**, a serial number is required.

Use the following procedure to install serial numbers on your Synergy 1 SD Switcher:

1. Navigate to the **Installed Options Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installed Options** (to display the **Installed Options Menu 1-2**).

2. Press **Enter Serial Number** to display the **Enter Serial Number Menu**.

```
Enter Serial Number

Frame Serial Number:0000000
Ross Encrypt Code:6AFD

Please contact Ross Video at:
8 John Street
Iroquois, Ontario, Canada  K0E 1K0
1-613-652-4886
techsupport@rossvideo.com


   Finished      Cancel
```

Enter Serial Number Menu

Note	The **Encrypt Code** is a *random number* that is generated each time the switcher is powered up. Its purpose is to prevent unauthorized installation of software options. The code remains valid until the switcher is powered down or reset. The next time the switcher is powered up, a *new* Encrypt Code is generated.

3. Call **Ross Video Technical Support** at the number listed on the menu.

4. When you speak to our Technical Support representative, tell them your name, your facility name and the **Encrypt Code** as listed on the menu.

5. You will be given a numeric code that must be entered on the keypad in the **Global Memory System Group**.

6. Enter the code and press **ENTER** on the keypad or press **Finished** on the **Serial Number Menu**.

This completes the procedure for entering the serial number.

Installing Software Options

Use the following procedure to activate your software options (after entering a new serial number) or to install a new software option that you have just purchased:

⁎	**Important**	Ensure that your serial number is properly entered. Refer to the section "**Installing Serial Numbers**" on page 2–35 for more information.

1. Navigate to the **Installed Options Menu** as follows:

    •   Press **HOME** (to display the **Main Menu 1-2**).

    •   **MORE** (to display the **Main Menu 2-2**).

    •   **Setup** (to display the **Setup Menu**).

    •   **Installed Options** (to display the **Installed Options Menu 1-2**).

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
VTR 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     Panel       Frame       Option    Enter Serial
   Options      Boards      Boards      Boards      Number        Add Option
```

Installed Options — Software Options Menu

3. Press **Add Option** to display the **Enter Option Number Menu**.

```
Enter Option Number

Frame Serial Number:0000000
Ross Encrypt Code:519D

Please contact Ross Video at:
8 John Street
Iroquois, Ontario, Canada  K0E 1K0
1-613-652-4886
techsupport@rossvideo.com


   Finished      Cancel
```

Add Option — Enter Option Number Menu

4. Call **Ross Video Technical Support** at the number listed on the menu.

5. When you speak to our Technical Support representative, tell them your name, your facility name, the switcher's serial number and the **Encrypt Code** as listed on the menu.

6. Tell the Technical Support representative the name of the option(s) that you wish to install. Technical Support keeps an up-to-date record of each switcher's configuration and option status.

7. You will be given a numeric code for each option. Enter the code on the keypad in the switcher's **Global Memory System Group**.

8. Press **ENTER** on the keypad or press **Finished** on the **Option Number Menu**. Once entered, the menu indicates "**Installed**," and the system displays the **Software Options Menu** to confirm.

9. Repeat steps 7 and 8 for each option.

✓	**Operating Tip**	Make a written note of your serial number and each option code and store them in a safe place for future reference.

Storing and Recalling Option Codes

The **Installed Options Menu 2-2** allows you to store and recall your option codes to a storage device, for purposes of safe backup.

Use the following procedure to store option codes:

1. Navigate to the **Installed Options Menu 2-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**)

   • **MORE** (to display the **Main Menu 2-2**)

   • **Setup** (to display the **Setup Menu**)

   • **Installed Options** (to display the **Installed Options Menu 1-2**)

   • **MORE** (to display the **Installed Options Menu 2-2**)

```
Installed Options (2-2)
Frame Serial Number:F123456789

Editor Interface        :Yes    Peripheral Bus II      :Yes
VTR 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

 Store Codes Recall Codes                          Delete All
   to Disk    From Disk                             SW Options
```

Installed Options Menu 2-2

2. Insert a storage device to store the option codes to as follows:

   • Insert a pre-formatted 1.4 MB high-density floppy disk into the floppy drive of the switcher.

   OR

   • Insert a USB key into the USB port of the switcher. You must wait 5 seconds after inserting the USB key into the USB port before you can store option codes to it.

✎	**Note**	You have the **USB Removable Media Drive** option installed in order to use a USB key for saving and recalling setup configurations.

3. Press **Store Codes to Disk** to store all of your option codes.

⚠	**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.

4. Eject the storage device from the switcher.

5. Label the storage device and store it in a safe place. It is recommended that you place the following information on the label:

    *   Synergy 1 SD Switcher
    *   Software Option Codes
    *   Today's Date
    *   Synergy Software Version

This completes the procedure for saving your option codes to a storage device.

Recalling Option Codes

In the event that the option codes are accidentally erased or deleted, use the following procedure to recall option codes:

1. Navigate to the **Installed Options Menu 2-2** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**)
    *   **MORE** (to display the **Main Menu 2-2**)
    *   **Setup** (to display the **Setup Menu**)
    *   **Installed Options** (to display the **Installed Options Menu 1-2**)
    *   **MORE** (to display the **Installed Options Menu 2-2**)

2. Insert the storage device with the **Software Option Codes** as follows:

    *   Insert the floppy disk with the option codes into the floppy disk drive of the Synergy switcher.

    OR

    *   Insert the USB key with the option codes into the USB port of the Synergy switcher.

3. Press **Recall Codes from Disk** to recall all of your option codes.

⚠	**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.

4. Eject the storage device from the switcher.

✎	**Note**	The **Delete All SW Options** function is reserved for factory use only. Do not use this function.

Preliminary Cabling and Check

In This Chapter

This chapter outlines procedures for making basic control panel, main frame, reference and monitor connections. A preliminary functional check procedure is also provided. The following topics are discussed:

- Cabling
- Control Cable Installation
- Remote Aux Panel Cabling
- Reference Signal Connection
- Monitor Connection
- Animated Logo Generator (CDK-111A-M) Cabling
- External Downstream Keyer (CDK-111A-M) Cabling
- Power Up
- Resetting the System
- Full Reset
- Software Reset
- Preliminary Functional Check
- Basic Troubleshooting
- Switcher Timeout

Cabling

In this section, the following connections are made:

- Control panel to main frame

- Control panel to optional remote Aux panels

- Reference input

- Connections to an output monitor

Once these basic connections have been completed, a preliminary functional check can be performed to ensure that the switcher is passing video. The following figure illustrates the connections that you will make in this chapter.
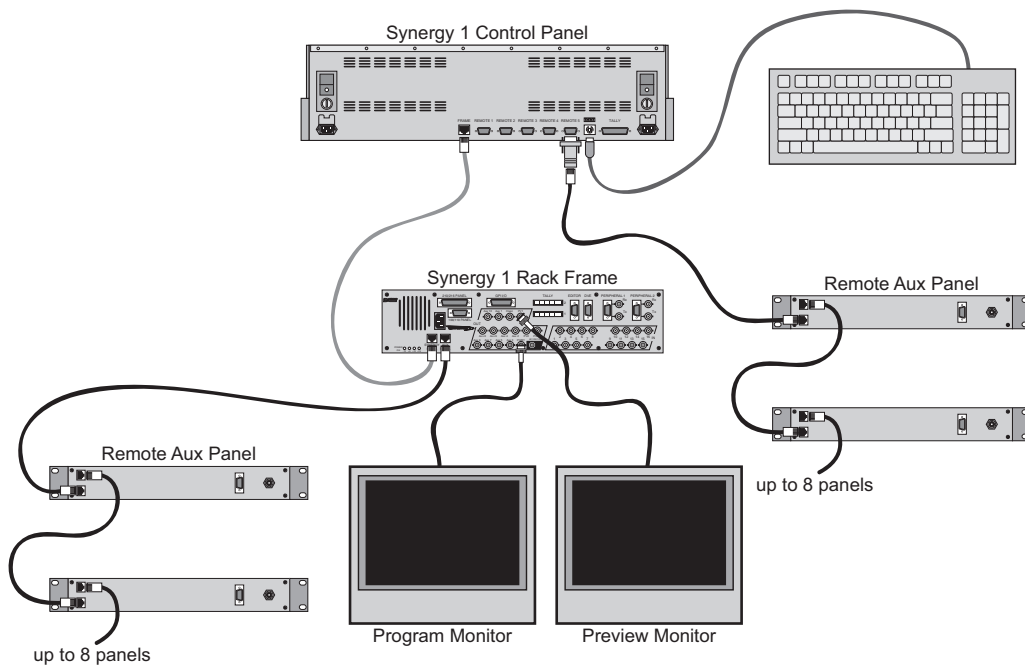
Preliminary Cable Connections

📝 **Note** | This diagram shows the Old Version of Remote Aux Panels, refer to the section "**Remote Aux Panel Cabling**" on page 3-3 for specific information on your Remote Aux Panel.

Control Cable Installation

Use the following procedure to install the control cable between the Synergy 1 Frame and the Synergy 1 Control Panel:

Frame to Control Panel Interconnection
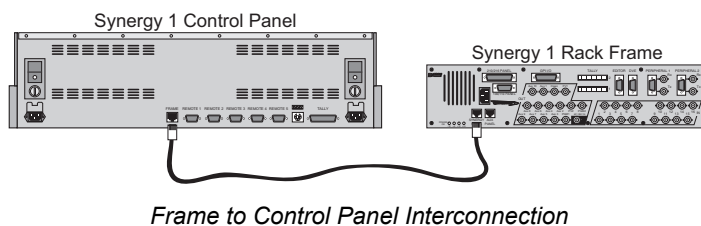
1. Ensure that you have the correct **8-pin** shielded telco cable, with **8-pin** connectors at each end. Because of their small size, all telco connectors look quite similar.

⚠	**Important**	The cable for connecting the Synergy 1 Control Panel to the Synergy 1 Frame is not wired as a standard CAT5 ethernet cable. If you need a cable of a specific length, contact your Ross Video Representative for ordering information.

2. Using an 8-pin shielded telco cable, connect the communications port labeled **SYNERGY PANEL** (on the electronics frame) to the communications port labeled **FRAME** (on the rear of the control panel).

This completes the procedure to install the control cable between the Synergy 1 Frame and the Synergy 1 Control Panel.

Please note:

- The maximum cable length is 1000 feet (305 meters).

- The cable must be run in accordance with good engineering practice. Ensure that there is sufficient room for the cable and that enough slack is left in the cable run to permit long, gentle bends. Always install cables so that they will not be subjected to physical abuse.

Remote Aux Panel Cabling

This section provides instructions for cabling both *old* and *new version* **Remote Aux Panels**. The following topics are discussed:

- Remote Aux Panel Cabling — Old Version Panels

- Remote Aux Panel Cabling — New Version Panels

- Aux Panel Cabling Notes (applies to *all panel versions*)

Depending upon the type of Remote Aux Panel that you have installed, refer to the appropriate section below.

If your system includes remote Aux bus panels, one serial cable is shipped with each panel. There are two types of cable available:

- Aux panel cables with standard 10 meter lengths.

- Non-standard cables with lengths specified by the customer.

For standard length cables, refer to the packing list provided with your switcher; the length will be given there. For custom length cables, the length is given on a label attached to the cable.

Remote Aux Panel Cabling — Old Version Panels

Once you have located the appropriate cables for each remote Aux panel, make the connections according to the figure below:

Remote Aux Panel Interconnection

Use the following procedure to install the control cables between the control panel and each remote Aux panel:

✎	**Note**	As the Synergy 1 SD control panel does not have a dedicated **AUX** port, an RJ-12 to DB9 **Aux Adapter** is required when connecting remote Aux panels to the Synergy 1 SD control panel. This adapter is included in the **Installation Kit** for your Synergy 1 SD Switcher.

1. Ensure that you have the correct **6-pin** shielded Telco cable, with a **6-pin RJ-12** connectors at each end. Because of their small size, all Telco connectors look alike.

2. Connect a 6-pin shielded Telco cable (of the supplied or custom length) between the frame's **AUX PANEL** connector and the connector labeled **CONTROL** on the rear of the *first* Aux panel in line.

3. To daisy-chain additional Aux panels (up to 8), connect a 6-pin shielded Telco cable between the Aux panel connector labeled **EXTENSION PANEL** and the connector labeled **CONTROL** on the *next* Aux panel in line.

4. Repeat step 2 for all additional Aux panels in the daisy-chain (up to the maximum of 8 panels per chain).

5. To daisy-chain additional Aux panels (more than 8), repeat steps 2 through 4, using the Remote 5 port on the control panel with a RJ-12 to DB9 **Aux Adapter**.

✎	**Note**	By default the **Remote 5** port on the control panel is set to Remote Aux Panel. If another device has been set up on this port, you may have to assign the **Remote 5** port to remote Aux. Refer to the section "**Control Panel Remote 5 Port as Remote Aux Port**"on page 3-6 for more information.

This completes the procedure to install the control cables between the control panel and each remote Aux panel.

Remote Aux Panel Cabling — New Version Panels

Once you have located the appropriate cables for each remote Aux panel, make the connections according to the figure below:

Remote Aux Panel Interconnection

Use the following procedure to install the control cables between the control panel and each remote Aux panel:

✎ **Note** | As the Synergy 1 SD control panel does not have a dedicated **AUX** port, an RJ-12 to DB9 **Aux Adapter** is required when connecting remote Aux panels to the Synergy 1 SD control panel. This adapter is included in the **Installation Kit** for your Synergy 1 SD Switcher.

1. Ensure that you have the correct **6-pin** shielded Telco cable, with **6-pin RJ-12** connectors at each end.

2. Connect a 6-pin shielded Telco cable (of the supplied or custom length) between the frame's **AUX PANEL** connector and the connector labeled **MAIN** on the rear of the *first* Aux panel in line.

3. To daisy-chain additional Aux panels (up to 8), connect a 6-pin shielded Telco cable between the Aux panel connector labeled **ECHO** and the connector labeled **MAIN** on the *next* Aux panel in line.

4. Repeat step 2 for all additional Aux panels in the daisy-chain (up to the maximum of 8 panels per chain).

5. To daisy-chain additional Aux panels (more than 8), repeat steps 2 through 4, using the **Remote 5** port on the control panel with an RJ-12 to DB9 **Aux Adapter**.

✎ **Note** | By default the **Remote 5** port on the control panel is set to Remote Aux Panel. If another device has been set up on this port, you may have to assign the **Remote 5** port to remote aux. Refer to the section "**Control Panel Remote 5 Port as Remote Aux Port**"on page 3-6 for more information.

This completes the procedure to install the control cables between the control panel and each remote Aux panel.

Aux Panel Cabling Notes

Please note the following points regarding all remote Aux panels:

- All 10 Aux outputs on the frame are provided as standard. Unless the **Timed Aux Bus** option is installed on outputs 1 and 2, all Aux outputs are untimed.

✎ **Note** | Since the Synergy 1 frame generates its own internal black signal, selecting **BLACK** on an untimed Aux bus will route to the output whatever is connected to your "**601 REF IN**" BNC, with the exception of Aux Bus 1 and 2.

- Aux panel connectors on the electronics frame and control panel are universal — they can control any of the remote Aux panels.

- Aux panel configuration (assignment to specific outputs and assignment of "rights") is performed using the menu system. Refer to the section "**Aux Bus Setup**"on page 9-3 for instructions.

- Aux panel crosspoint labels are provided with each panel. Refer to the section, "**Pushbutton Inserts**"on page 4-5 for labeling instructions.

Control Panel Remote 5 Port as Remote Aux Port

In order to connect a Remote Aux Panel to the Synergy 1 SD control panel, the Remote 5 port must be set up as an Aux Port. If this port has been assigned to another device, you will have to set it back to an Aux Port in order to be able to connect a Remote Aux Panel to the Synergy 1 SD control panel.

Use the following procedure to set the Remote 5 communications port as an Aux Port:

1. Navigate to the **Communications Menu 1-2** as follows:

    - Press **HOME** (to display the **Main Menu 1-2**).
    - **MORE** (to display the **Main Menu 2-2**).
    - **Setup** (to display the **Setup Menu**).
    - **Installation** (to display the **Installation Menu 1-2**).
    - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

```
Communications (1-2)                          ↑REMOTE 4 (R4)
                                   Com Port:  REMOTE 5 (R5)
This  menu lets you setup                     ↓RemAux   (A1)
what   each  of  the  com
ports are used for.
                                   Device:
                                              OFF
Remote 5 unavailable while AUX is assigned    ↓VTR (CLIP)
for Remote Aux Panels or Automation.
Disconnect cable from Remote 5 before using AUX port.


          Select                   Custom        Extra
   Type   Device   Com Settings   Com Type      Devices       Options
```

Communications – Type Menu

✎ **Note** | If you have a device already assigned to the Remote 5 port, you will have to set this device up on another Remote port.

3. Assign the Remote 5 port as a Remote Aux Port as follows:

    - Use the top **Com Port** knob to select **REMOTE 5 (R5)**.

- Use the middle **Device** knob to select **OFF**.

```
Communications (1-2)                                    ↑REMOTE 5 (R5)
                                         Com Port:       RemAux    (A1)
This  menu lets you setup                               ↓EDITOR    (ED)
what   each  of  the  com
ports are used for.                                        OFF
                                         Device:          Remote Aux
AUX is currently enabled for Remote Aux Panels            Automation
or Automation usage. Remote 5 is disabled.


            Select                              Custom      Extra
    Type    Device    Com Settings   Com Type   Devices    Options
```

Communications – Type Menu

4. Assign the RemAux port to Remote Aux as follows:

- Use the top **Com Port** knob to select **RemAux (A1)**.

- Use the middle **Device** knob to select **Remote Aux**.

Note   A **RJ-12 to DB9 Aux Adapter** will have to be used to connect the Remote Aux Panel cable to the Remote 5 communications port on the control panel.

The Remote 5 communications port is now set as a Remote Aux Port. This completes the procedure for setting the Remote 5 port as a Remote Aux Port.

Reference Signal Connection

A digital reference signal must be connected to the switcher. Please note:

- Connect the digital reference signal to the connector marked **601 REF IN** on the rear of the frame.

- No menu configuration of the reference signal is required.

- Always use a stable reference signal, preferably black, that is low in jitter and that originates from a reliable digital test signal generator.

- The switcher regenerates black or color BKGD from the assigned reference input.

Note   If you elect to use analog black as your reference (based on your facility's requirements), you must use an external A-D converter. For information on Ross Video's full line of conversion equipment, contact your sales representative or Ross Video Limited.

Monitor Connection

Connect either the **PGM 1** or **PGM 2** BNC output on the rear of the frame to your serial digital program monitor. Please note:

- If you are using a serial digital monitor, connection is direct.

- If you are using an analog monitor, one of three D-A converters is required:

  ~ Serial Digital to NTSC

  ~ Serial Digital to PAL

  ~ Serial Digital to Analog Component

Animated Logo Generator (CDK-111A-M) Cabling

This section explains how to connect the Animated Logo Generator (ALG) to your Synergy 1 SD Switcher.

Refer to Appendix D, "**Animated Logo Generator Mode**" in the *CDK-111A-M Owner's Guide* for full installation and configuration procedures.

Use the following procedure to connect the ALG to your Synergy 1 SD Switcher:

1. Using industry standard coaxial cable and BNC connectors, connect a digital reference signal from your facility's house sync generator to the **IN** BNC of the CDK-111A-M.

2. With the CDK-111A-M in ALG mode, BNC **5** and BNC **6** are the **Fill** and **Alpha** outputs, respectively, for the logo(s) stored on the card. Using industry standard coaxial cable and BNC connectors, connect these **Fill** and **Alpha** outputs to any Synergy switcher inputs as designated by the facility engineer.

3. For remote control of the CDK-111A-M in ALG mode, connect the DCP-111 panel to BNC 2.
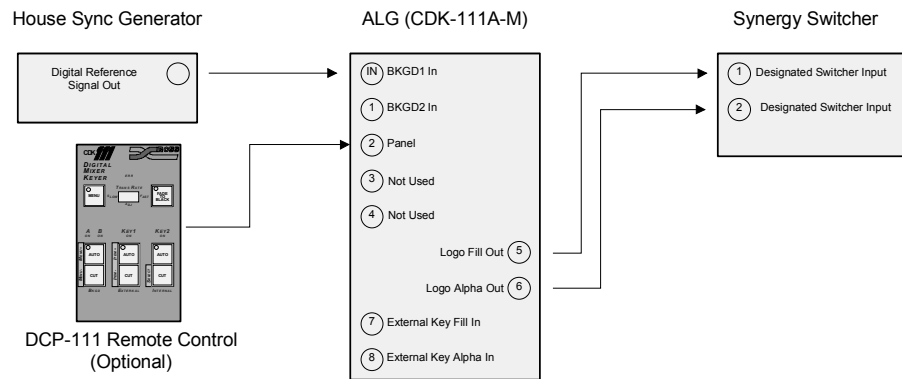
ALG (CDK-111A-M) Cabling Diagram

⚠	**Important**	Before turning on the power, please ensure that the rotary switch on the front edge of the CDK-111A-M card, as indicated on the diagram on page 3-9, is turned to position 0. This is the normal operating position for your CDK-111A-M when in ALG mode.
		Refer to your *CDK-111A-M Owner's Guide* for information on controlling the ALG using either the card edge buttons or the DCP-111 remote control buttons.
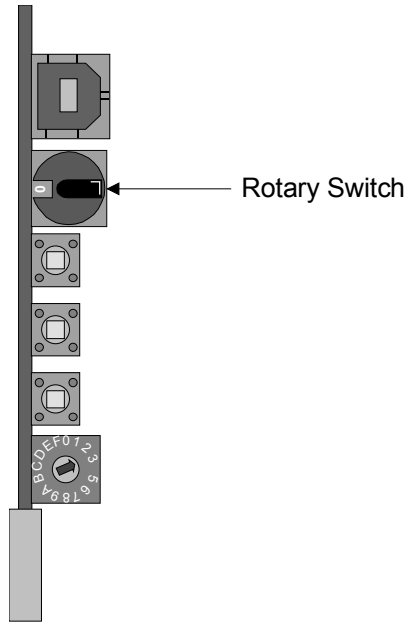
ALG (CDK-111A-M) Card Edge

Refer to Chapter 2, "**Installation and Setup**", of the *CDK-111A-M Owner's Guide*, for complete instructions on installing, configuring, and operating your CDK-111A-M in ALG mode.

External Downstream Keyer (CDK-111A-M) Cabling

This section explains how to connect the external CDK-111A-M downstream keyer(s) to your Synergy 1 SD Switcher. Refer to the section **"DSK (CDK-111A-M) Setup"** on page 9-46 for full installation and configuration procedures.

Use the following procedure to connect your CDK-111A-M(s):
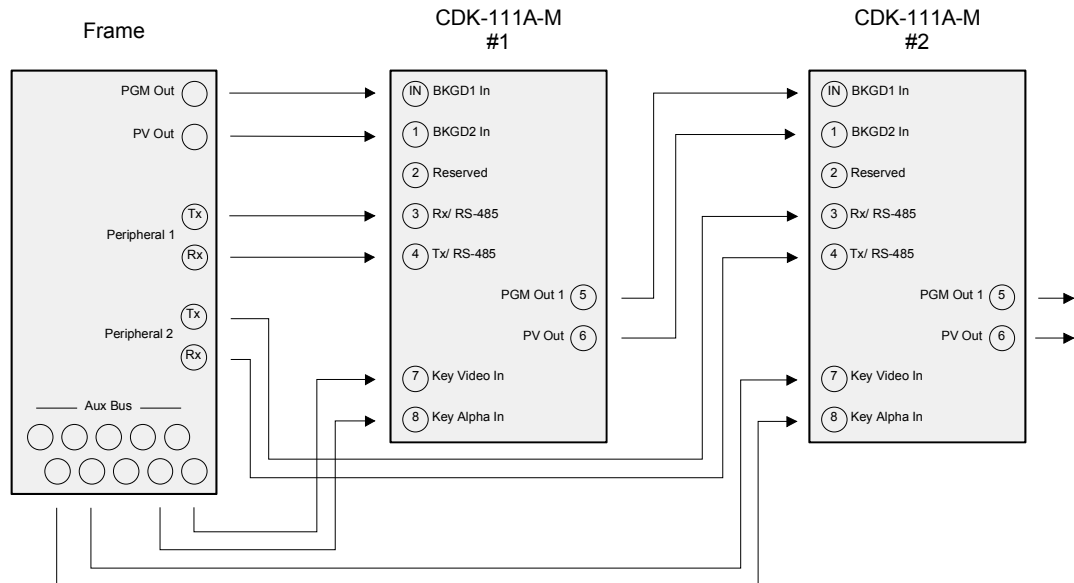
CDK-111A-M Cabling Diagram

1. Using industry standard coaxial cable and BNC connectors, connect the PGM output of the Synergy 1 chassis to the **IN** BNC on the CDK-111A-M. This provides your reference signal as well as BKGD1.

2. Connect the PV Out to BNC 1, which is BKGD2, on the CDK-111A-M.

3. Using the Peripheral 1 port BNC connectors on the back of the frame, connect the Tx output to BNC 3, and the Rx connector to BNC 4.

4. Key video and alpha must be fed out of Aux buses and connected to BNC 7 and 8 respectively.

5. If you are installing a single CDK-111A-M keyer, BNC 5 and 6 are the PGM and PV outputs, respectively. If you are installing a second CDK-111A-M, these connectors are used to feed the BKGD1 and BKGD2 (BNC IN and 1) of the second CKD-111A-M. As well, you will need to connect the Synergy frame's Peripheral 2 Tx and Rx connectors to BNC 3 and 4 on the CDK-111A-M in the same manner as you did for the first board. The second key video and key alpha (BNC 7 and 8) will be fed with two additional Aux buses.

6. On the second CDK-111A-M, BNC 5 and 6 are the PGM Out and PV Out, respectively.

> **Note** Aux buses may be timed or untimed. However, we recommend using untimed Aux buses 3 through 10 in order to preserve the timed ones, Aux 1 and 2, for use with external DVEs.

Power Up

Powering up the switcher causes the system to restore the *previous condition* that existed prior to power down. In the absence of a valid condition, a "reset" condition is presented, with the **BLACK** crosspoint selected on all buses. The switcher's memory contents are retained.

Use the following procedure to power up the system:

1. Ensure the following power prerequisites are met:

   • All power cables are fastened and secure.

   • For control panel redundancy (if installed), ensure that two independent AC sources are used to feed the control panel power supplies.

   Note — The *order* that you power up the frame and control panel is not important — either can be powered up first.

2. Control Panel power switches are located on the rear of the control panel tub, on the right and left-hand sides. Turn on the **Primary** and (if installed) the **Redundant** power switches.
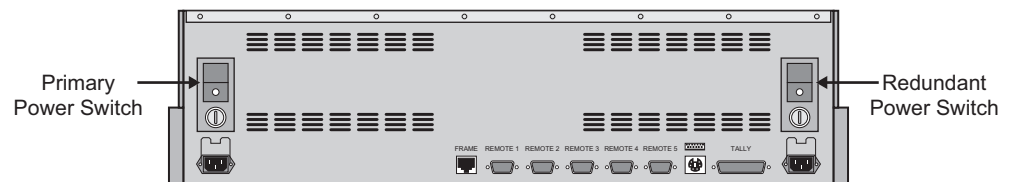
Synergy 1 SD Control Panel — Primary and Redundant Power Switches

3. The frame power switch is located on the right-hand side of the electronics frame, inside the front cover. Remove the front cover and turn on the **POWER** switch.

Synergy 1 SD Frame — Primary Power Switch

4. On the frame, ensure that the **POWER ON** LED is lit (on the front of the frame) and that all power supply LEDs (on the rear of the frame) are lit green.

   • If the **FAN FAIL** or **POWER FAIL** LEDs are lit (on the front of the frame), turn the unit off and check all power connections.

   • If any of the rear panel power supply LEDs are *not* lit, turn the unit off and check all power connections.

   • Turn the unit back on and recheck all LEDs. If a problem still exists, contact Ross Video Customer Service.

5. On the control panel, ensure that the **PANEL** LED under the **POWER FAIL** heading is not lit.

   • If it *is* lit, turn the unit off and check all power connections.

   • Turn the unit back on and recheck the **PANEL** LED. If the LED is still lit, contact Ross Video Customer Service.

Resetting the System

If required, the Synergy 1 SD Switcher can be reset manually from either the control panel or 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 and set to factory default. **BLACK** will be selected on all buses.

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

Refer to the section, "**Jumpers and Switches**"on page 2-20 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. However, 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 is performed in the **Global Memory System Group** on the switcher. Use the following figure for reference:
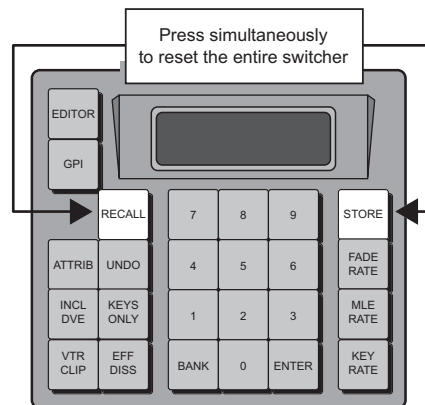
Global Memory System Group — Reset Function

- To perform a full software reset, simultaneously press **STORE** and **RECALL**. This will cause the panel settings to be reset to factory defaults.

✎ **Note** A software reset will select **BLACK** on all crosspoint buses.

Preliminary Functional Check

At this point, the basic connections have been completed. With the switcher powered up, a preliminary functional check can be performed to ensure that the switcher is passing video. A variety of tests can be performed, including:

- Dissolves between **BLACK** and **COLOR BKGD**
- Wipes between **BLACK** and **COLOR BKGD**
- Fade to black

All Ross Video products undergo thorough quality control and testing prior to shipment. The following preliminary check ensures that no damage has occurred during transit and that all boards are correctly installed. Once the preliminary check is complete, the remaining installation procedures can be performed.

With your video monitor properly connected, use the following procedure for a preliminary check:

1. Perform a full software reset, as outlined in the section "**Software Reset**"on page 3-12. This sets the panel to a *full* reset state.

2. Ensure that your reference video is connected to the **601 REF IN** connector.

3. Check the status of the control panel. In a reset (or "default") condition, the following buttons and indicators will be lit:

   - **BKDG Bus** — The first crosspoint button (typically **BLACK**) is selected and the red ON-AIR LED to the right of the bus is lit. This LED indicates that the **Background Bus** is on-air.

   - **PST Bus** — The first crosspoint button (typically **BLACK**) is selected.

   - **AUX/KEY Bus** — The **KEY1**, **KEY2**, **AUX1** or **AUX2** button is lit and the first crosspoint button (typically **BLACK**) is selected.

   - **Transition Group** — The **BKGD** and **DISS** buttons are lit. A background dissolve is the default transition.

   - **Global Memory System Group** — The **RECALL** button is lit and the display shows the following information:

     ~ **REG:00** — Memory register 00 is preset

     ~ **Memory0** — Memory register 00 was last recalled

     ~ **M:015** — The MLE transition rate is 15 frames

     ~ **K:008** — The key transition rate is 8 frames

     ~ **F:20** — The fade-to-black transition rate is 20 frames

   - **Key 1 Group** — The **AUTO SELECT** and **BORD OFF** buttons are lit.

   - **Key 2 Group** — The **AUTO SELECT** and **BORD OFF** buttons are lit.

   - **Positioner Group** — The **PATT** button is lit.

   - **Mattes Group** — The **BKGD1/KEY1** or **BKGD2/KEY2** button is lit, depending on whether the **KEY1** or **KEY2** button in the **KEY Bus Group** is lit.

   - **Pattern Control Group** — The **WIPE PP1**, **NORM** and wipe **00** (the **Vertical Wipe** in the upper left wipe) buttons are lit.

   - **Effects Control Group** — The **KEY1** button will be lit.

4. Select sources for the transition:

    •   Select **BLACK** on the **BKGD Bus**.
    •   Select **COLOR BKGD 1** on the **PST** (Preset) **Bus**.
        ~   **Color Background 1** is factory preset to Red.
        ~   **Color Background 2** is factory preset to Blue.

5. Select **DISS** and **BKGD** in the **Transition Group**.

6. While watching the monitor, move the fader from one limit to the other and verify that the video dissolves from black to color.

✎	**Note**	When lit, the Up/Down arrows adjacent to the fader indicate which direction to move the fader to complete the transition.

7. Select **WIPE** in the **Transition Group**.

8. While watching the monitor, move the fader from one limit to the other and verify that the video *wipes* between color and black.

9. Select different crosspoints on the **BKDG** bus (such as **COLOR BKGD 1** and **COLOR BKGD 2**) to ensure that "cuts" are taking place.

This completes the preliminary check. Once you are satisfied that video is switching and mixing, please continue with the remaining connection procedures.

Basic Troubleshooting

Note the following basic troubleshooting points:

•   If you experience any problems with knobs, faders or the joystick during the preliminary functional check, there may be a problem with switcher calibration or MLE communications. Refer to the section, "**Switcher Calibration**"on page 9-44 for instructions.

•   If the system is not switching and is not outputting video, there may be a problem with the reference connection. Check that a valid digital reference is connected to the **601 REF IN** connector. The system will not output video if the reference signal is invalid or not present.

For other switcher problems, please contact **Ross Video Customer Service**.

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

Preliminary Video Installation

In This Chapter

This chapter describes the connections required to provide video and Key signals to all areas of the switcher. You will complete input and output worksheets, connect inputs and alpha signals, install all pushbutton inserts and connect your switcher outputs. The following topics are discussed:

- Input Worksheet
- Connecting and Verifying Inputs
- Input Connection
- Input Verification
- Pushbutton Inserts
- Control Panel Pushbutton Inserts
- Aux Panel Pushbutton Inserts
- Output Connection
- Connecting and Verifying Outputs
- Output Verification

Input Worksheet

Complete the following worksheet for all of your video inputs, including primary sources, Keys and fills. To avoid marking up the *Installation Guide*, use the worksheet provided in "**Input Worksheet**"on page 16-2 to make extra copies.

The following are basic input recommendations:

- Connect your reference video source to the **601 REF IN** connector (as outlined in Chapter 3). This automatically provides you with **BLACK** (crosspoint button **1**) and your two **COLOR BKGD** (color background) sources.

Note   If you elect to use analog color black as your reference (based on your facility's requirements), you must use an external A-D converter. For information on Ross Video's full line of conversion equipment, contact your sales representative or Ross Video Limited.

- Connect your primary video sources to inputs **2**, **3**, **4** (etc.) and then continue forward in sequence.

    On the control panel, by default, input **2** is mapped to crosspoint button **2**, input **3** is mapped to crosspoint button **3**, etc. This association will minimize subsequent re-mapping of your inputs and make it *very easy* for you to locate inputs on the panel during the initial cabling procedure.

- Connect your Key signals (alphas) to your *highest* available input number and then continue backwards in sequence. For example, start alphas at input **16**, then **15**, **14**, and so on.

Using the above recommendations, complete the input worksheet on page 4-3. The majority of this data will be used in the section, "**BNC Configuration**"on page 6-4 to complete the configuration of each input.

For each input (moving from left to right in the worksheet columns):

- Fill in the actual source name. For example:

    ~ **VTR 1**

- Fill in the input name (up to 8 characters), as you would like to see it displayed throughout the menu system (and on the **Preview Overlay**). For example:

    ~ **VTR Blue**

- Fill in the *type* of input. Choose between:

    ~ **OFF**

    ~ **DVE**

    ~ **VTR**

    ~ **Alpha**

    ~ **Router**

    ~ **Still Store**

    ~ **Robotic Cam**

    ~ **Other**

- Fill in the input's tally number.

- If the input is an alpha, choose between Shaped (**S**) or Unshaped (**U**) keying mode.

- If the input is a key fill, choose the alpha with which you want the Key fill to be associated. List the primary source's BNC number.

- Fill in the desired physical button on which you want to place the input signal (including "shifted" buttons).

Input Worksheet

BNC #	Actual Source	Input Name	Input Type	Tally Number	Alpha Type	Auto Key	Physical Button
sample 1	VTR 1	VTR Blue	VTR	12	—	—	5
sample 2	CG Alpha	CG Alpha	Alpha	—	S	10	10 (Shifted)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Connecting and Verifying Inputs

This section covers the following topics:

- Input Connection
- Input Verification

Input Connection

Using the data from the previous worksheet, connect your primary inputs and all alpha inputs to the appropriate connectors on the rear of the frame. Remember that there are no specific "Key" inputs — any input can be used for any purpose. All connectors are located in the "**Input**" section on the rear of the frame as shown below.
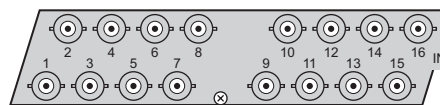
Input BNC Connections

Use cabling techniques in accordance with good engineering practices.

✎ | **Note** | The Synergy 1 SD Switcher passes all embedded audio and ancillary data signals, including "closed captioning" that is present on the background video.

Input Verification

For verification of your inputs, ensure that a monitor is connected to the **PGM 1** or **PGM 2** BNC output. Remember also (at this point in the installation) that factory default mapping is still in effect. Re-mapping (per your input worksheet) will be performed in the section "**BNC Configuration**"on page 6-4. During this procedure, you can map *any input* to any button on a bus row.

On the unshifted row, factory default mapping is as follows:

- **BLACK** is mapped to button 1 (crosspoint 1), **Input 2 (BNC 2)** is mapped to button 2, and so on.
- **COLOR BKGD 2** is mapped to the last button in the bus row.
- **COLOR BKGD 1** is mapped to the second-to-last button in the bus row.

On the shifted row, default mapping is as follows:

✎ | **Note** | You must assign a crosspoint button to **SHIFT** in order to access the shifted row.

- **SHIFT** is mapped to the last button in the bus row.

If reference has been connected to the **601 REF IN** BNC connector, as recommended, you can verify input video signals as they are connected. The following check assumes a *default* switcher condition.

- To view inputs **2** through **14**, press crosspoint buttons **2** through **14**, respectively. (Buttons **1, 15** and **16** are already mapped as indicated above).
- Inputs (BNC)**1, 15** and **16** can not be verified unless re-mapped.

Pushbutton Inserts

Once your inputs and alpha signal are connected, install the pushbutton designation inserts to identify the sources for your inputs. All pushbutton inserts are printed on full-sized sheets of transparent plastic and are easily installed under the lens caps for both the control panel and Aux panel pushbuttons.

Standard films with common input designations are provided with your switcher. If a designation that you require has *not* been included on a certain film and it is a type likely to be needed by other switcher users, Ross Video would be pleased to consider adding it to the standard film.

There are four typical ways of labeling a pushbutton:

- Use our standard inserts.

- Ask us to make custom inserts.

- Make your own inserts using transparency material.

- Use a **Brother**® label maker to create your own labels.

	Note	Ross Video will make *custom inserts* for your facility at a very reasonable price. Please call us for details.

Control Panel Pushbutton Inserts

Use the following procedure to install a control panel pushbutton insert. Use the diagram below for reference.
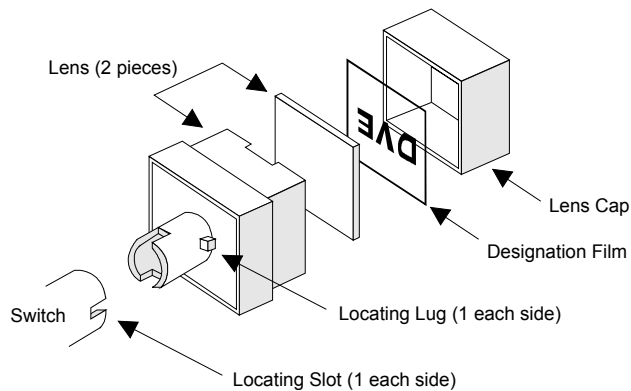
Control Panel Pushbutton Inserts

1. Cut out the designation film inserts for the pushbuttons.

	Operating Tip	For best results when cutting out the button inserts, use a sharp **X-ACTO**® knife and a steel-edged ruler.

2. Remove the pushbutton from the switch by pulling straight upward on the lens cap.

3. Remove the lens cap from the lens and place the desired input designation under the lens cap.

✓ **Operating Tip**

> If you have trouble removing a control panel button, use a pair of wide-tipped pliers (1/2 inch) with masking tape wrapped around the ends. For best results, wiggle the button back and forth as you extract it.

4. Place the designation film in the lens cap.

5. Reassemble the lens assembly with the new designation film. The designation film must read correctly with the lens locating lugs at the sides, *not* at the top and bottom.

6. Line up the locating lugs on the pushbutton with the locating slots on the switch and install the pushbutton.

✓ **Operating Tip**

> If the location lugs are not properly aligned, the pushbutton may pop off when the button is pressed and released.

This completes the procedure for installing a control panel pushbutton insert.

Aux Panel Pushbutton Inserts

Use the following procedure to install a remote Aux panel pushbutton insert. Use the following diagram for reference.

Transparent Lens Cap →

Designation Insert (may be colored) →

White Paper Background →

Switch and Button Assembly →
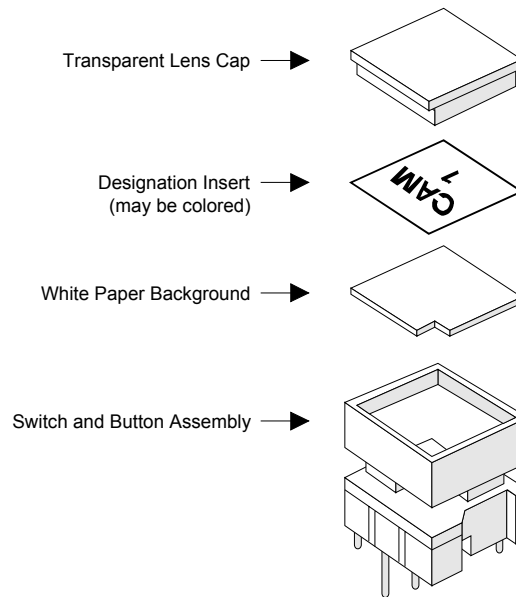
Aux Panel Pushbutton Inserts

1. Cut out the designation film inserts for the Aux panel pushbuttons. These can be the same inserts used for the control panel pushbuttons.

✓ **Operating Tip**

> For best results when cutting out the button inserts, use a sharp **X-ACTO®** knife and a steel-edged ruler.

2. Remove the pushbutton from the switch by pulling straight upward on the button assembly.

3. Remove the lens cap by gently prying the lens cap out of the button assembly.

4. Place the designation insert in the lens cap.

5. Replace the paper background behind the designation film.

6. Replace the lens cap on the button assembly and press firmly together.

7. Install the pushbutton into the panel by pressing down firmly to re-seat it on the switch.

This completes the procedure for installing a remote Aux panel pushbutton insert.

Output Connection

Complete the following primary output worksheet. Use the following figure for reference.
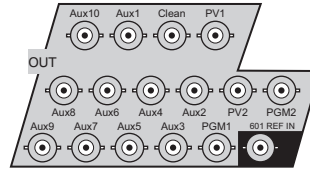
Output BNC Connections

- To avoid marking up the *Installation Guide*, use the worksheet provided in the section, "**Primary Output Worksheet**"on page 16-3 to make extra copies.

✎ **Note** | The **Preview Overlay** signals appears on both **PV 1** and **PV 2** BNC outputs.

Primary Output Worksheet

Output Connector	Synergy 1 Destination
PGM 1	
PGM 2	
PV 1	
PV 2	
AUX 1	
AUX 2	
AUX 3	
AUX 4	
AUX 5	
AUX 6	
AUX 7	
AUX 8	
AUX 9	
AUX 10	
CLEAN	(Optional)

⚹ **Important** | Outputs **AUX 1** and **AUX 2** must be used for connecting the primary DVE's video and Key channels. The "primary" DVE is defined as the *one DVE* that can be controlled via RS-422 serial control from the Synergy 1 SD control panel.

✎ **Note** | If you require more outputs than are provided, consideration should be given to using a digital distribution amplifier. Contact Ross Video or your Ross Video dealer for full details.

Connecting and Verifying Outputs

This section covers the following topics:

- Output Connection
- Output Verification

Output Connection

Using the data from the previous output chart, connect your outputs to the desired destinations. Use cabling and connecting techniques in accordance with good engineering practice.

> **Note** The optional **Clean Feed** output is software configurable using the menu.

Output Verification

For verification of your outputs, ensure that *some form of monitoring* is available at the destination of each specific output. The destination device *itself* may be a monitor, however, if the destination is a VTR or a routing switcher, ensure that you can monitor the input signal to the specific device.

Output Verification

Output to Verify	Verification Method
PGM 1	Switch between inputs on **BKGD** bus.
PGM 2	Switch between inputs on **BKGD** bus.
PV 1	Switch between inputs on **PST** bus.
PV 2	Switch between inputs on **PST** bus.
AUX 1	On the **AUX/KEY BUS**, press **AUX 1**, then switch between inputs on the **AUX** bus.
AUX 2	On the **AUX/KEY BUS**, press **AUX 2**, then switch between inputs on the **AUX** bus.
AUX 3	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press the **AUX 3** softkey, then switch between inputs on the **AUX** bus.
AUX 4	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press the **AUX 4** softkey, then switch between inputs on the **AUX** bus.
AUX 5	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press the **AUX 5** softkey, then switch between inputs on the **AUX** bus.
AUX 6	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press the **AUX 6** softkey, then switch between inputs on the **AUX** bus.
AUX 7	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press **MORE** to display **Aux Bus Menu 2**. Press the **AUX 7** softkey, then switch between inputs on the **AUX** bus.
AUX 8	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press **MORE** to display **Aux Bus Menu 2**. Press the **AUX 8** softkey, then switch between inputs on the **AUX** bus.
AUX 9	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press **MORE** to display **Aux Bus Menu 2**. Press the **AUX 9** softkey, then switch between inputs on the **AUX** bus.
AUX 10	On the **AUX/KEY BUS**, press **AUX 1 or 2** to display **Aux Bus Menu 1**. Press **MORE** to display **Aux Bus Menu 2**. Press the **AUX 10** softkey, then switch between inputs on the **AUX** bus.
CLEAN	Output depends on Clean Feed point of origin. Refer to the section "**Clean Feed Setup**"on page 9-18 for instructions.

Using the Menu System

In This Chapter

This chapter introduces the menu system of the Synergy 1 SD Switcher. The following topics are discussed:

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

About the System Control Display

The **System Control Group** is located at the top of the Control Panel.
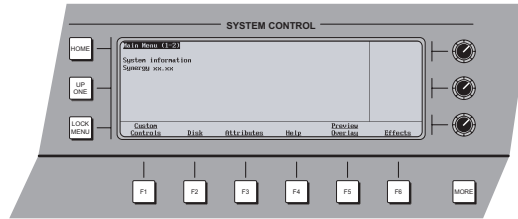
Control Panel – System Control Group

The group includes a bright LCD screen that provides a variety of clear menus for various system setup 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 control panel. In this way, additional adjustment 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 or function — simply by following the desired path through the menu tree.

The following section provides details on all buttons and functions in the **System Control Group**.

Menu System Basics

The following figure illustrates the **System Control Group**. 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 setup and operational functions.
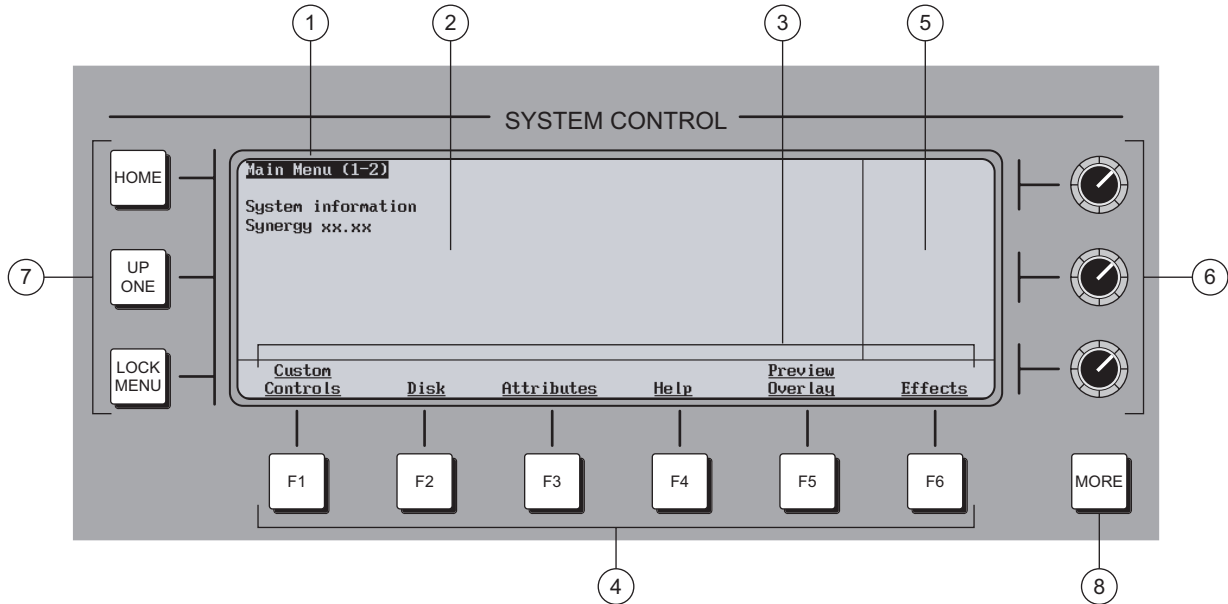
System Control Group

1) Menu Name	4) Soft Keys	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 simply be referred to using **1-2** and **2-2** — 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 two bottom rows represent *functions* that you can activate or buttons that route you to further sub-menus. These labels change depending upon the selected mode and menu. A menu function is activated by pressing its corresponding **Soft Key**.

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 **Soft key #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. Soft Keys

The six **Soft Key** buttons below the display correspond to labels that appear in the **Label Area** of the display. Pressing a **Soft Key** 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 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**. Refer to the "**Positioner Icons**"on page 5-6 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.

Note

> In this guide, knobs are referred to by their *name and location*. For example, the phrase "Use the top **Com Port** knob to..." would be used to describe the top-most knob.

Operating Tip

> When using the three scroll knobs, you should adjust the top knob first, followed by the middle and then the bottom. When you change the top knob, 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 **HOME** to return to the top of the menu tree and display the **Main Menu 1-2**.

- **UP ONE** — Press **UP ONE** 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**

When parentheses are shown in a menu name, the **MORE** button lights to indicate that additional menus (and functions) are available on the current level. (While the **Soft Keys** move you *vertically* through the menu system, **MORE** moves you horizontally.)

Press **MORE** to display the second menu in the series or to return from the second menu to the first. For example, on the **Main Menu 1-2**, if you press the **MORE** button you will go to the **Main Menu 2-2**. If you press **MORE** again you will return to the **Main Menu 1-2**.

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 accidently 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 – HOME	Returns to the **Main Menu 1-2** from whatever menu is currently displayed.
Esc	UP ONE – UP ONE	Back one menu.
Tab	MORE – 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 the MLE and *positionable* function.

The following figure is a sample menu that includes the three icons.

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 function, or you can twist the **Positioner**'s 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 Chapter 7 in the *Synergy 1 Operation Guide* for additional information on the **Positioner** and the three **Positioner Icons**.

Adjusting the Display

Use the following procedure to adjust the contrast of the display:

1. Navigate to the **Display Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Display** (to display the **Display Menu**).

```
Display                                                              ┌──────────┐
                                                                     │          │
                                                                     │ ( 25.0%) │
                                                                     │ Contrast │
                                                                     │          │
                                                                     │          │
                                                                     │          │
    Large        Mnemonic                                           └──────────┘
    Display      Displays
```

Large Display Menu

2. Press **Large Display** to adjust the brightness and contrast of the Menu display.

   • Use the middle **Contrast** knob to adjust the contrast.

✎ **Note**   The **Mnemonic Display** option is not available for the Synergy 1 SD Switcher.

This completes the procedure for adjusting 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 copy functions. The **More Info Menu** provides more extensive information about the requested function.

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

1. Navigate to the **Help Menu** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **Help** (to display the **Help Menu**).

   ```
   Help Menu

   Hold              Press             Result
   Key type          Key type          copies keyer
   Key 1/Key 2       Key 1/Key 2       copies keyer      Use Knob 2
   Matte area        Crosspoint        copies color      to scroll
   Key type          Key 1/Key 2       swaps keyers      list.
   Key type          Crosspoint        split key
   Crosspoint        Memory punch pad  alters memory recall


       More        List
       Info        S&T Wipes
   ```
   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
   Key type          Key type          copies keyer

   To copy a full keyer, hold down any 'key type' button in the
   destination keyer, and press a 'key type' button in the source
   keyer.
   ```
   More Info Menu

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

For information on the **List S&T Wipes** function, refer to Chapter 6 of the *Synergy 1 Operation Guide*.

If you have the **Squeeze & Tease 3D** option installed and engaged, pressing this softkey will take you to 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 the illegal button is pressed, the **Pop-up Help** screen appears — providing a brief explanation of why the operation can not be performed. A sample menu is shown below.

```
PST Key Setup                                        (  0.0%)
MLE 1 Key 1                                             Clip

            There is no Squeeze and Tease card installed.
Key Fill:  Bla                                       (  0.0%)
Key Alpha: Wip                                          Gain




                                       Ref: 16



            On/Off
```
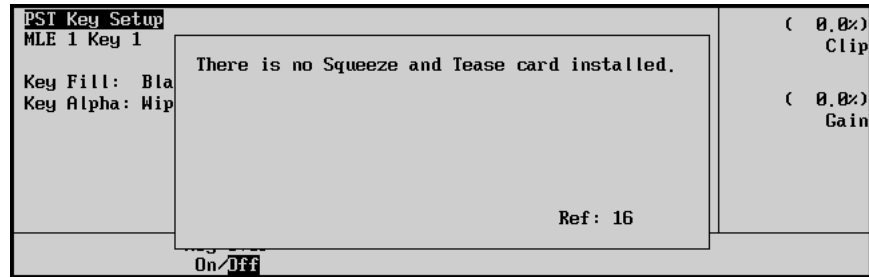
Pop-up Help Menu

The **Pop-up Help** menu disappears when the illegal button is released, or shortly after.

Screen Capture

Switcher users can take screen captures of the Synergy 1 SD control panel menus. The switcher saves the screen capture as a 16K bitmap file, which you can then import into other applications on your PC.

Use the following procedure to capture a bitmap of the current display screen:

1. Insert a storage device to save the screen capture to as follows:

   • Insert a pre-formatted 1.44 MB floppy disk into the disk drive of your switcher.

   OR

   • Insert a USB key into the USB port of your 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. Simultaneously press the **FADE RATE** and **STORE** buttons in the **Global Memory System Group**.

   The light on the floppy drive or USB port will come on, the current menu freezes, and a popup message is displayed indicating that you have saved a **SCREENXX.BMP** file to the disk or USB key. You can save from 00-99 files in sequence on a floppy disk.
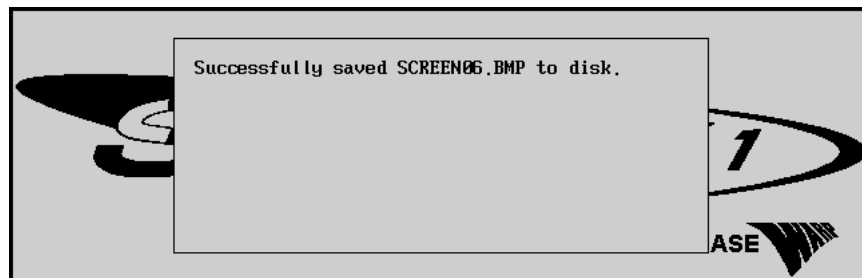
Screen Capture Confirmation Pop-up Message

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.

4. Eject the storage device from the switcher.

5. On your PC, insert the storage device and open the files in any graphics application that supports bitmap files to view, rename, and reformat the screen captures.

This completes the procedure for capturing a bitmap of the current display screen.

BNC Configuration and Check

In This Chapter

This chapter provides instructions for configuring and checking your BNC inputs. As you follow each procedure, you are in effect building a *database* that is used by the switcher to provide the desired names, sources, Key and fill associations and overall switcher functionality. The following topics are discussed:

- Installation Enable Jumper Setting
- BNC Configuration Menu Tree
- Naming BNC Inputs
- Setting Up BNC Types
- Setting Up Tallies
- Setting Up Alphas
- Setting Up Auto Keys
- Setting Up Panel Buttons
- Shifted Crosspoint Buttons
- Setting Up Router BNCs
- Setting Up N/S Disable
- Setting Up Still Store BNCs
- Setting Up Character Generator BNCs
- Setting Up Remote Camera BNCs
- Checking Inputs
- Checking Keys

Installation Enable Jumper Setting

Before you begin the configuration process, please ensure that the **Installation Enable Switch** (**SW7**) on **DIP Switch 4** the front edge of the **Frame CPU Board** is in the **Down** position. This position allows all installation settings to be changed without restriction. Refer to the section "**Frame Jumpers and Switches**"on page 2-23 for details.

	Note	Before you begin, ensure that you have completed your **Input Worksheet**. Refer to the section "**Input Worksheet**"on page 4-2 for instructions.

BNC Configuration Menu Tree

The following figure illustrates the *portion* of the menu tree that is used to configure your BNC connectors — specifically, the path used to reach the **BNC Setup Menu** and other associated setup menus.

Use the following figure for reference during the following procedures.
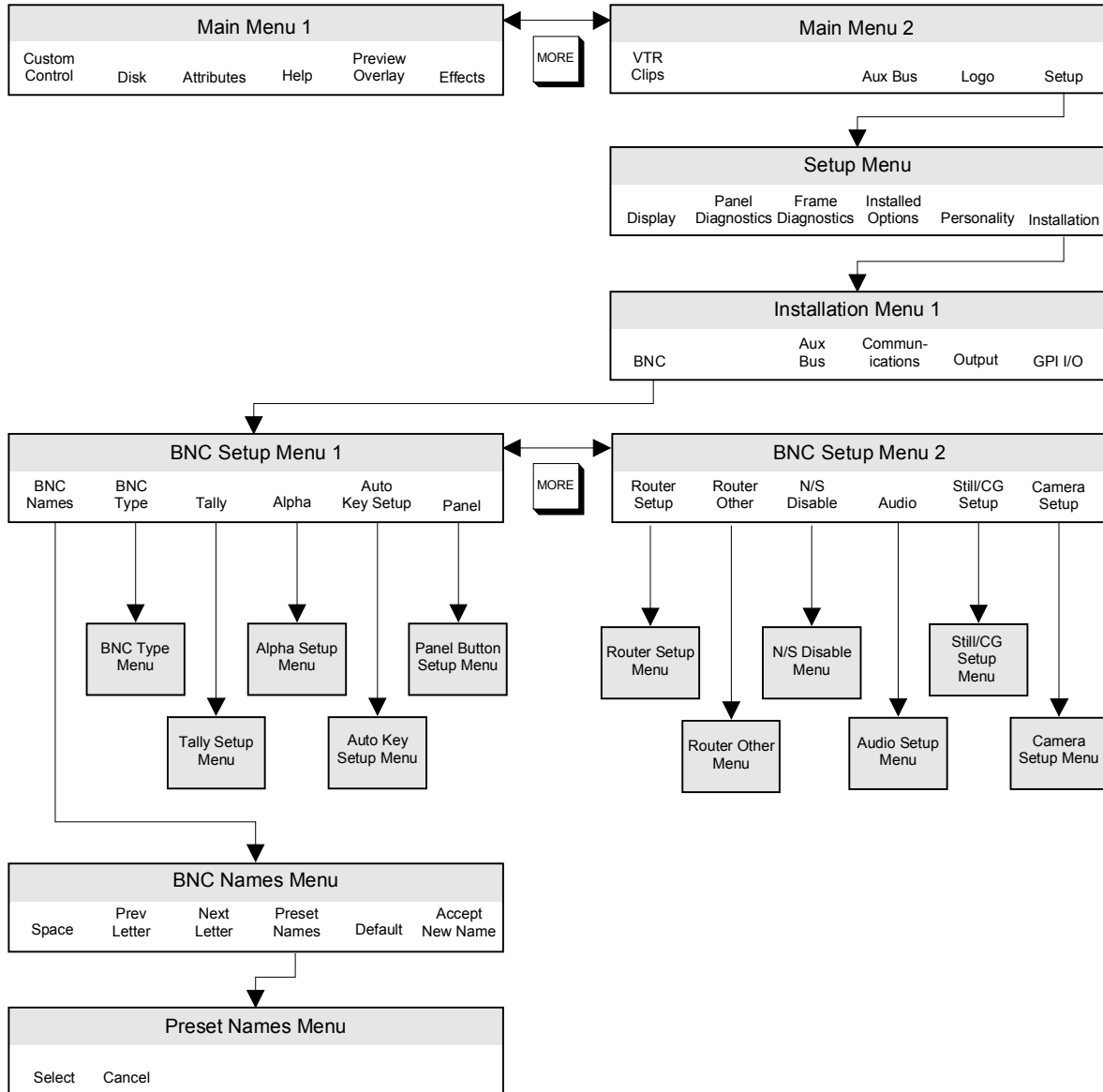
BNC Configuration Menu Tree

BNC Configuration

The following procedures will be discussed in this section:

- Naming BNC Inputs
- Restoring Default BNC Names
- Setting Up BNC Types
- Setting Up Tallies
- Setting Up Alphas
- Setting Up Auto Keys
- Setting Up Panel Buttons
- Setting Up Router BNCs
- Setting Up Router Levels
- Setting Up N/S Disable
- Setting Up Still Store BNCs
- Setting Up Character Generator BNCs
- Setting Up Remote Camera BNCs
- Exiting the Setup Menus

Naming BNC Inputs

In Chapter 4, you connected your physical switcher inputs, including reference, primary inputs and alpha inputs. In this section, you will *name* each physical BNC input using the **BNC Names Menu**. This allows you to use *actual input names* throughout the menus. Additionally, the names that you choose will be displayed on the **Preview Overlay**.

	Note	During the procedure, refer to the **Input Name** column in your **Input Worksheet**. These names will be entered on the **BNC Names Menu**.

Use the following procedure to name your inputs:

1. Navigate to the **BNC Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **BNC** (to display the **BNC Menu 1-2**).

BNC Menu 1-2

2. Press **BNC Names** to display the **BNC Names Menu 1-2**. This menu is specifically designed for naming inputs.
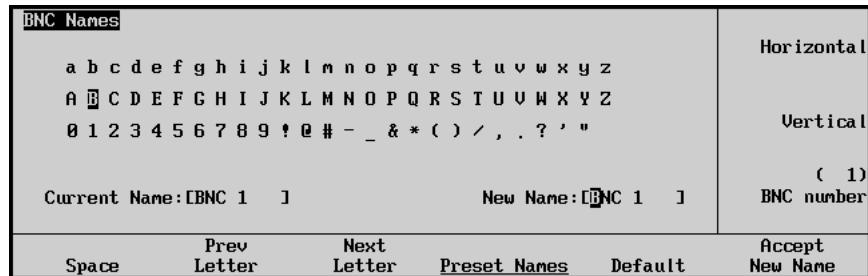
BNC — Names Menu with Optional Mnemonic Field

• The **Main Area** provides an array of letters and numbers. The reverse video *highlight* indicates the "selected" character — the position of which is controlled by the two upper scroll knobs. The **Current Name** and **New Name** fields are located below the array.

> ✓ **Operating Tip**
>
> A Standard PS/2 keyboard can be used to perform the same actions as pressing or rotating the **System Control** buttons and knobs.
>
> Refer to the section, "**Using the Keyboard in System Control Menus**" on page 5-5 for details.

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

In the **New Name** field, the reverse video *highlight* indicates the "active" character — the one that you are changing.

• The **Label Area** provides an array of tools for naming and editing your physical names.

• The **Scroll Area** provides three functions that are controlled by their respective knobs:

～ The top **Horizontal** knob moves the highlight horizontally.

～ The middle **Vertical** knob moves the highlight vertically.

～ The bottom **BNC Number** knob selects the input that you want to name. As you scroll through your inputs, the **Current Name** field tracks each name.

3. To name a BNC, rotate the **BNC Number** knob until the desired BNC number is shown — the one that you want to name. Please note:

- BNC numbers on the display correspond to *physical* BNC connectors on the rear of the chassis, from **1** - **16**.

- As you rotate the knob, the **Current Name Field** changes to show the BNC's current name (as stored in switcher memory).

- The factory default format for *all BNC names* is:

   [**BNC**] [**space**] [**number**]

   For example, **BNC 2** or **BNC 10**. This format makes it easy to associate names with actual connectors.

> **Note** As you rotate the **Horizontal** and **Vertical** knobs, note that on the control panel's **BKGD**, **PST** and **AUX/KEY** buses, the pushbuttons light that correspond to each character in sequence. Since the Synergy 1 has 16 crosspoints, you can only access letters A to P. If desired, you can press the pushbuttons to select characters.

4. There are two ways to begin editing the BNC name.

- You can begin by choosing a *preset* name (a prefix) from a list of typical BNC names. To start in this manner, continue with step 5.

- You can begin *editing* the name immediately, by changing the default characters to your custom characters. To start in this manner, continue with step 6.

> **Note** If you start editing the name immediately and then decide at some point to choose a *preset* name instead, *all characters* in the custom name will be replaced by the preset name.

5. Press **Preset Names** to display the **Preset Names Menu**.

```
Preset Names                                                   Abekas
                                                               AbksCGen
You are selecting a preset name for BNC number #1.             Abks DVE
                                                               ADO
                                                               Aux 1
                                                               Aux 2
                                                               Aux 3
                                                               Aux 4
   Current Name:[BNC 1   ]              New Name:[BNC 1   ]   ↓BKGD

    Select        Cancel
```
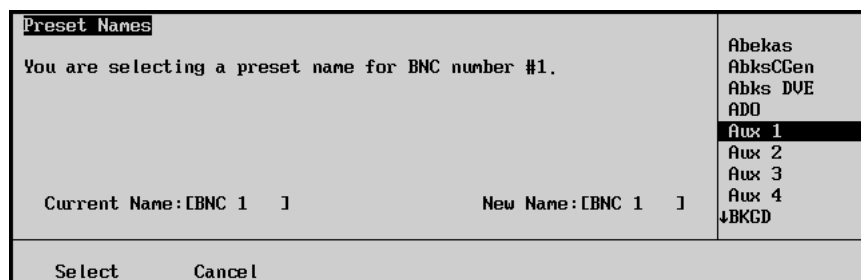
BNC — Preset Names Menu

Rotate the center knob to scroll the list of preset names. Press **Select** to accept the preset name or press **Cancel** to return. If you select a preset name, it appears in the **New Name Field**, with the cursor positioned *after* the name.

6. To name your input (or to add additional characters after a preset name), use the **Horizontal** and **Vertical** knobs to select the desired character. The highlighted position in the **New Name Field** changes as you select each character. Please note:

- The maximum number of characters allowed is eight.

- Press **Space** to add a space at the highlight's current position. If a letter is in the active position, it will be deleted.

- Press **Prev Letter** to move the highlight one space to the left.

- Press **Next Letter** to move the highlight one space to the right.

7. Press **Accept New Name** to register the input's new name in memory. The new name is transferred to the **Current Name Field**.

8. Repeat steps 2 through 7 for each additional input that you want to name. It is recommended at this point that you name *each input* to the switcher.

✎ **Note** If you exit the installation menus without first pressing **Accept New Name**, the following screen is displayed.

```
The entry "Custom01" has changed to "custom01".

Press Continue to proceed without saving the name.
Press Cancel to return to the previous menu.




     Continue      Cancel
```
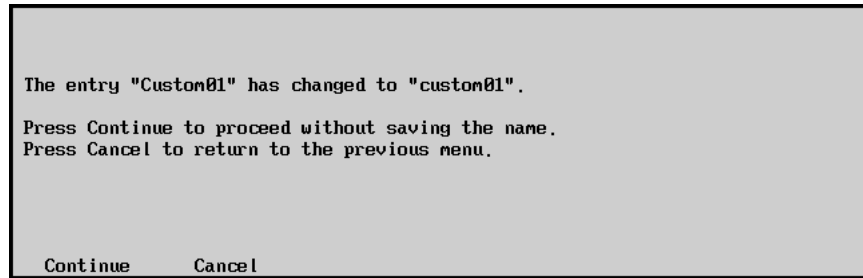
Change Name Without Saving Message

- Press **Continue** to proceed without saving the changes you made to the name.
- Press **Cancel** to return to the previous menu and accept the new name.

This completes the procedure to name your inputs.

Restoring Default BNC Names

The factory default format for *all BNC names* is: [**BNC**] [**space**] [**BNC number**].

✎ **Note** When setting the BNC name to its default format, the change applies *only* to the selected BNC number. If you have more than one BNC name to change, you must repeat the procedure.

Use the following procedure to restore the default BNC name to a BNC connector:

1. Navigate to the **BNC Names Menu** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **SETUP** (to display the **Setup Menu**).
   - **INSTALLATION** (to display the **Installation Menu 1-2**).
   - **BNC** (to display the **BNC Setup Menu 1-2**).
   - **BNC NAMES** (to display the **BNC Names Menu 1-2**).

```
┌─────────────────────────────────────────────────────────────┬──────────────┐
│ BNC Names                                                     │  Horizontal  │
│                                                               │              │
│   a b c d e f g h i j k l m n o p q r s t u v w x y z         │              │
│                                                               │              │
│   A B C D E F G H I J K L M N O P Q R S T U V W X Y Z         │   Vertical   │
│                                                               │              │
│   0 1 2 3 4 5 6 7 8 9 ! @ # - _ & * ( ) / , . ? ' "           │              │
│                                                               │      ( 4)    │
│   Current Name:[BNC 4  ]              New Name:[BNC 4  ]       │  BNC number  │
├──────────┬─────────┬─────────┬─────────────┬─────────┬────────┴──────────────┤
│          │  Prev   │  Next   │             │         │    Accept             │
│  Space   │ Letter  │ Letter  │ Preset Names│ Default │   New Name            │
└──────────┴─────────┴─────────┴─────────────┴─────────┴───────────────────────┘
```

BNC Names Menu 1-2

✔ **Operating Tip**

> A Standard PS/2 keyboard can be used to perform the same actions as pressing or rotating the **System Control** buttons and knobs.
>
> Refer to the section, "**Using the Keyboard in System Control Menus**"on page 5-5 for details.

2. Use the bottom **BNC Number** knob until the desired BNC number is shown.

   As you rotate the knob, you will notice the **Current Name Field** changes to show the current name (as stored in switcher memory) of the BNC connector.

3. Press **Default** softkey to change the BNC name to the default format.

4. Press **Accept New Name**.

This completes the procedure to restore the default BNC name to a BNC connector.

Setting Up BNC Types

The **BNC Type Menu** allows you to associate physical BNC connectors with input *types*. These associations play important roles throughout the system, particularly with regard to *filtering* subsequent BNC setup menus based on specific input types.

✎ **Note**

> During the procedure, refer to the **Input Type** column in your **Input Worksheet**. These "types" will be entered on the **BNC Type Menu** for each input connected to the frame.

Use the following procedure to set your input types:

1. Navigate to the **BNC Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

```
BNC (1-2)

Use   this   menu   to   BNC:        BNC 1     ( 1)          BNC:  BNC 1     ( 1)
associate  a  function or   Maps to:    NONE                       ↓BNC 2     ( 2)
a  device type with a BNC   Type:       Reference                    ↑VTR
input.                      Tally:      P1,F1              Type:    Reference
                            Auto Key:   Black                         ↓Alpha
                            Asp Ratio: 4:3
                                                           Asp Ratio:        4:3
                                                                            16:9

                                                           Auto Key
   BNC Names      BNC Type        Tally         Alpha        Setup         Panel
```

BNC — BNC Type Menu

The **Main Area** provides a mini "help" message, plus a **Status Box** that lists a variety of information for the selected BNC.

~ **BNC** — Current name and physical BNC connector (in parentheses). All lines below refer to this BNC.

~ **Maps to** — Physical control panel button to which the BNC is mapped.

~ **Type —** Input "type" for the selected BNC.

~ **Tally —** Tally assignment for the selected BNC.

~ **Auto Key —** Auto-key association for the selected BNC. Every BNC input has an associated auto-key, which can be an input (such as an alpha signal), or black (for inputs such as VTRs or cameras).

~ **Asp Ratio —** Native aspect ratio for the selected BNC.

3. Use the top **BNC** knob to select a BNC input that you want to assign an input type to.

4. Use the middle **Type** knob to select the desired input type. You can select from the following:

⊛	**Important**	All BNC inputs types must be assigned to **Video**, **Alpha**, or **Reference**, unless the device connected to that BNC input is controlled by the Synergy Switcher.

✎	**Note**	When you assign a remote device to a BNC crosspoint, pressing that crosspoint button will display the corresponding device control menus. If it is on a Key bus, pressing the button will cycle through the device control menus and the **Key Type Menu**.

• **Off** — Select this option when there is *no input* physically connected to the selected BNC. Selecting **Off** filters the input out of subsequent menus.

• **DVE** — Select this option when a DVE "fill" signal is connected to the selected BNC.

✎	**Note**	You must have the **DVE Send and Remote Control Software Option** in order to connect a DVE to the Synergy Switcher.

- **VTR** — Select this option when a VTR, Video Server or Audio Server is connected to the selected BNC.

✎	**Note**	You must have the **VTR Remote Control Software Option** in order to connect a VTR to the Synergy Switcher. You may need the additional **Video Server Control** of **Audio Server Control Software Options**, depending on the device you are connecting.

✎	**Note**	When you assign a VTR device to a BNC crosspoint, pressing that crosspoint button will put the **Global Memory System** in **VTR Clip ID mode** or **VTR Clip Number** mode based on the device. Refer to Chapter 12, "**VTR Clip Control**" in the *Synergy 1 Operation Guide* for more information.

- **Alpha** — Select this option when an alpha signal (also known as a "key" signal) is connected to the selected BNC. Devices such as DVEs, Character Generators, Graphics (Paint) Systems, and Still Stores typically provide unique alpha signals. Selecting **Alpha** generates a filtered list on the **Alpha Setup Menu**.
- **Router** — Select this option when a routing switcher is connected to the selected BNC.

✎	**Note**	You must have the **Routing Switcher Interface Software Option** in order to connect a Router to the Synergy Switcher.

- **Still Store** — Select this option when a Still Store output is connected to Synergy. (Note: for use in conjunction with the Still Store (Aprisa) Software Option)

✎	**Note**	You must have the **Still Store Interface Software Option** in order to connect a Still Store to the Synergy Switcher.

- **Robotic Cam** — Select this option when a robotic camera is connected to the selected BNC.

✎	**Note**	You must have the **Robotic Camera System Interface Software Option** in order to connect a Robotic Camera to the Synergy Switcher.

- **CharGen** — Select this option when a character generator is connected to the selected BNC.

✎	**Note**	You must have the **Character Generator Software Option** in order to connect a Character Generator to the Synergy Switcher.

- **Video** — This is the default option. Use this option unless the input is an alpha, reference, or a device listed above is connected to that BNC *and* controlled by the Synergy Switcher. Refer to the chapter "**Communications Setup**" on page 7-1 for more information on controlling equipment from the switcher.

5. Use the bottom **Asp Ratio** knob to select the native aspect ratio of the video signal for the selected BNC.

✎	**Note**	The Aspect Ratio parameter is only available when the **Aspectizer** option is installed.

This completes the procedure for setting up a BNC input type. Repeat the procedure for each BNC you want to assign a different type to.

Setting Up Tallies

Each Synergy 1 Switcher (using the Synergy 1 control panel) has 16 (standard) panel tally relays available, each of which can be assigned to any video input. The **Frame Tallies Option** (when installed) provides an additional 16 tallies, bringing the total number to 32.

The **Tally Setup Menu** allows you to select the tally relays that will activate when control panel buttons are pressed and also select the "type" of tally. Your associations on this menu affect the tally connectors (and associated relay electronics) on the control panel.

✓ **Operating Tip**

> During the procedure, refer to the **Tally Number** column in your **Input Worksheet**. These numbers will be entered on the **Tally Setup Menu** for each input connected to the frame.

Use the following procedure to assign tallies:

1. Navigate to the **BNC Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **BNC** (to display the **BNC Menu 1-2**).

2. Press **Tally** to display the **Tally Setup Menu**.

```
BNC (1-2)

Use    this    menu    to     BNC:        BNC 1    ( 1)          Tally: │PanelTally 1│
associate  a  tally with a    Maps to:    NONE                          ↓PanelTally 2
BNC     that   is  On Air,    Type:       Reference
Previewed,  or part of an     Tally:      P1,F1                          ↑MLE 1
Aux Bus.                      Auto Key:   Black          BNC/MLE: │BNC 1      ( 1)│
                              Asp Ratio: 4:3                      ↓BNC 2      ( 2)

                                                            Type: │On Air│
                                                                  ↓Preview
                                                      Auto Key
    BNC Names     BNC Type        Tally        Alpha      Setup          Panel
```

BNC — Tally Setup Menu

3. Use the top **Tally** knob to select the tally you want to assign.

✎ **Note**

> The Synergy 1 Switcher has **16** standard control panel tallies. If you have the **Frame Tallies Option** installed, an additional **16** tallies will be available from the frame, giving you a total of **32** tallies.

4. Use the middle **BNC/MLE** knob to select the MLE or BNC that you want to assign the selected tally to.

✓ **Operating Tip**

> For wiring convenience, it is recommended that you make your tally associations on a 1:1 basis, with tally numbers matching input BNC numbers. For example, input **12** would be assigned to tally **12**.

5. Use the bottom **Type** knob to select the type of tally to assign to the selected MLE or BNC. You can select from the following:

- **On Air** — Select this option to tally the selected BNC or MLE when it is taken on-air.
- **Preview** — Select this option to tally the selected BNC or MLE when it is selected on the preview monitor and will be taken on-air during the next transition.
- **Aux bus** — Select this option to tally the selected BNC or MLE when it is selected on a particular Aux Bus.

> ✓ **Operating Tip**
>
> The **Aux Bus** tally setting would be effective for connecting red/green tallies to a camera. Typically, the frame tallies option would be required. For example, if you wired Panel Tally 2 to the camera's **green** tally light and assigned its "type" as **On Air**, the camera would tally in the normal manner. If you also wired Frame Tally 2 to the camera's **red** tally light and assigned its "type" as **Aux Bus 8**, the camera would tally whenever it was selected on Aux Bus 8. This would be ideal for alerting the camera operator that the camera was *isolated* to a slow-motion recorder, for example.

This completes the procedure for assigning tallies. Repeat the procedure for each tally you want to set up. Refer to the section, "**Tally Connections**"on page 9-57 for tally wiring instructions.

Setting Up Alphas

The **Alpha Setup Menu** allows you to select the specific keying mode for the selected alpha (Key) signal. These mode selections determine how the key is processed electronically and how it appears *visually*.

> ✓ **Operating Tip**
>
> During the procedure, refer to the **Alpha Type** column in your **Input Worksheet**. These modes will be entered on the **Alpha Setup Menu** for each alpha input connected to the frame.

Use the following procedure to set up an alpha input:

1. Navigate to the **BNC Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

BNC — BNC Type Menu

3. Assign a BNC as an alpha as follows:

- Use the top **BNC** knob to select the BNC input you want to assign as an Key alpha.

- Use the middle **Type** knob to select **Alpha**.

- Use the bottom **Asp Ratio** knob to select the native aspect ratio of the input Key alpha video signal.

4. Press **Alpha** to display the **Alpha Setup Menu**.

BNC — Alpha Setup Menu

5. Define the alpha as shaped or unshaped as follows:

- Use the top **Alpha** knob to select the BNC Key alpha input you want to configure.

- Use the middle **Mode** knob to select the desired Key Alpha mode. You can choose from the following:

  ~ **Unshaped** — Select **Unshaped** to have the switcher perform a *multiplicative Key*. With an unshaped Key, the Key alpha cuts a hole based on the gradient values of the alpha. Shades of gray are translated into transparency levels, giving the key a soft edge. Unshaped Key alphas can also be consider true linear alphas. Key alphas are set as unshaped by default.

  ~ **Shaped** — Select **Shaped** to have the switcher perform an *additive Key*. With a shaped Key, the Key alpha cuts a hole based on the monochrome value of the alpha. Shades of gray are translated into either white or black, giving the Key a hard edge. Shaped alphas are sometimes used with Character Generators to cut very precise holes for the fill.

This completes the procedure for setting up an alpha input. Refer to the section "**Checking Keys** "on page 6-27 for instructions on verifying that each mode assignment is correct.

Setting Up Auto Keys

The **BNC Auto Key Setup Menu** allows you to associate alpha (Key) signals with their primary (fill) video inputs, for example, associating **CG Fill** with **CG Alpha** or **DVE 1 Fill** with **DVE 1 Alpha**. This association completely simplifies the Keying process on the switcher. When you punch up a Key source on the Key bus, its alpha and fill are automatically selected.

✓ **Operating Tip**

During the procedure, refer to the **Auto Key** column in your **Input Worksheet**. The alpha input numbers will be entered on the **BNC Auto Key Setup Menu** for each associated fill video signal connected to the frame.

Use the following procedure to set up an Auto Key:

1. Navigate to the **BNC Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **BNC** (to display the **BNC Menu 1-2**).

2. Press **Auto Key Setup** to display the **BNC Auto Key Setup Menu**.

```
BNC (1-2)                                                    ↑BNC 10    (10)
                                                       BNC:  BNC 11    (11)
Use   this   menu   to   BNC:       BNC 11   (11)            ↓BNC 12    (12)
associate  an  alpha key  Maps to:    Button #11
input   with  a  primary  Type:       Video                 BLACK
(fill) video input.       Tally:      P11,F11         Alpha: BNC 14    (14)
                          Auto Key:   BNC #14
                          Asp Ratio: 4:3


                                                    Auto Key
     BNC Names     BNC Type       Tally      Alpha    Setup       Panel
```

BNC — Auto Key Setup Menu

3. Use the top **BNC** knob to select the BNC with the input video signal that you want to use as the Fill for the Auto Key.

4. Use the middle **Alpha** knob to select the BNC with the input video signal that you want to use as the Key Alpha for the Auto Key. For example:

✎ **Note** Select **BLACK** for inputs with no associated alpha. This is the default setting.

   • Match **CG Fill (12)** with **CG Alpha (42)**.

   • Match **DVE 1 Fill (13)** with **DVE 1 Alpha (43)**.

   • Match **VTR 1 (5)** with **BLACK**.

This completes the procedure for setting up an Auto Key.

Ultimatte Insider

If you have purchased the **Ultimatte Insider** option, refer to Appendix C, "**Hardware Options**" for detailed instructions on installing the board, setting it up using the menu system, and setting up special Ultimatte Auto Select keys.

Setting Up Panel Buttons

As the last step in the BNC configuration process, the **Panel Button Setup Menu** allows you to map BNC connectors to physical buttons on the control panel.

✓ **Operating Tip** During the procedure, refer to the **Physical Button** column in your **Input Worksheet**. These button numbers will be entered on the **Panel Button Setup Menu** for each input connected to the frame.

Use the following procedure to set up your control panel buttons:

1. Navigate to the **BNC Menu 1-2** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**).
    *   **MORE** (to display the **Main Menu 2-2**).
    *   **Setup** (to display the **Setup Menu**).
    *   **Installation** (to display the **Installation Menu 1-2**).
    *   **BNC** (to display the **BNC Menu 1-2**).

2. Press **Panel** to display the **Panel Button Setup Menu**.

✓ **Operating Tip**
> You can press the desired crosspoint button on the **PGM** bus directly to select that button. This applies to both shifted and unshifted crosspoints.

```
BNC (1-2)                                                    ↑Button #13
                                                             Button #14
Use  the  main PGM bus to  BNC:      BNC 14    (14)          ↓Button #15
select  a  crosspoint for  Type:     Alpha       Crosspoint:
modification.    Use  the  Tally:    P14,F14               ↑BNC 13    (13)
shift   button   as  you   Alpha:    Unshaped        BNC:  BNC 14    (14)
would normally.            Asp Ratio: 4:3                  ↓BNC 15    (15)



                                                    Auto Key
   BNC Names      BNC Type      Tally       Alpha   Setup       Panel
```

BNC — Panel Button Setup Menu

3. Use the top **Crosspoint** knob to select the crosspoint button on the control panel that you want to assign a BNC input to.

✎ **Note**
> By default, BNC inputs are mapped to crosspoint buttons on a one to one assignment. For example, BNC 1 will be assigned to crosspoint button 1, BNC 2 will be assigned to button 2, and so on.

✎ **Note**
> When you assign a VTR device to a BNC crosspoint, pressing that crosspoint button will put the **Global Memory System** in **VTR Clip ID mode** or **VTR Clip Number** mode based on the device. Refer to Chapter 12, "**VTR Clip Control**" in the *Synergy 1 Operation Guide* for more information.

4. Use the middle **BNC** knob to select the BNC video input that you want to assign to the selected crosspoint button. You can select from the following:

    *   **NONE** — Select this option to assign no BNC input to the selected crosspoint button.
    *   **BKGD** — Select this option to assign color background one, **BKGD 1**, or color background two, **BKGD 2**, to the selected crosspoint button.
    *   **BLACK** — Select this option to assign **Black** to the selected crosspoint button.
    *   **SHIFT** — Select this option to assign the Shift function to the selected crosspoint button. When active, the **Shift** function allows you to map BNC inputs to a second layer of crosspoint buttons, increasing the total number of crosspoints. Refer to the section "**Shifted Crosspoint Buttons**"on page 6-16 for more information on using the **SHIFT** button. Shift can only be assigned to the last crosspoint button.

- • **PGM/Key Shift** — Select this option to have the **SHIFT** button access the unshifted crosspoints on the Key bus of each MLE. Refer to the section "**Shifted Crosspoint Buttons**"on page 6-16 for more information on using this function.

⚠	**Important**	The **SHIFT** and **PGM/Key Shift** functions are mutually exclusive. You must assign **PGM/Key Shift** to the same button as the **Shift** function.

This completes the procedure for setting up your control panel buttons.

Refer to the section "**Setting Up Local Aux Panels**"on page 9-5 for information on assigning BNCs to Aux Bus crosspoints on the local Aux Panel.

Shifted Crosspoint Buttons

There are two types of shifted crosspoint buses, Standard Shift crosspoint buses and PRG/Key Shift crosspoint buses. Both of these types are discussed in this section.

Standard Shift Crosspoint Buses

The **Shift** function is assigned to the first or last crosspoint button on each bus row and allows you to access a second layer of crosspoint buttons. The last button in a bus row is **16**. When the **Shift** function is applied to this button, pressing and holding it will allow you to access crosspoint buttons **17** through **31**.

Use the following procedure to access a shifted crosspoint:

1. Press and hold the **SHIFT** button on the crosspoint bus you want to access the shifted crosspoint on.

✓	**Operating Tip**	You can double press the **SHIFT** button to have the Key Bus 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 Key Bus from the shifted mode.

2. Press the **Crosspoint** button you want to select.

3. Release both buttons.

   Both the **Crosspoint** button and **SHIFT** buttons will remain lit.

✎	**Note**	If you press another **Crosspoint** button, you will select an unshifted crosspoint and the **SHIFT** button will not be lit.

This completes the procedure to access a shifted crosspoint.

PGM/Key Shift Crosspoint Buses

The **PGM/Key Shift** function creates the shifted crosspoint bus, just as the Standard Shift function does, but for the Key buses, it makes the **SHIFT** button act as if it is always being pressed. For example, if you press **Button 1** on the **BKGD/PGM** bus, you will be selecting **Crosspoint Button 1**

(typically Black). If you press the corresponding button on the **Key** bus, you will be selecting **Crosspoint Button 17**, and the **SHIFT** button on the **Key** bus will be lit.

✎	Note	When using the **PGM/Key Shift** function, the crosspoints on the Key bus will be Shifted, and the ones on the BKGD and PST buses will not.

Tips for Using the Shifted Crosspoint Buttons

The following are a couple of helpful tips for different video sources you can map to a shifted crosspoint:

- To save a crosspoint, you may wish to assign color background 2 as the shifted function of color background 1.

- For convenience, you can place alphas as the shifted button of the associated fill.

Setting Up Router BNCs

✎	Note	You must have a Router connected and set up before you can assign a BNC input to a particular Router. Refer to the section "**Router Communications Setup**"on page 7-48 for information on setting up a Router.

The **Router Setup Menu** allows you to associate a router input with a particular router communication port. In addition, you can select which one of the outputs on the Router is feeding the input BNC on the Synergy 1 SD frame.

Use the following procedure to assign a Router to a particular BNC on the Synergy Switcher:

1. Navigate to the **BNC Menu 1-2** as follows:

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

   - **MORE** (to display the **Main Menu 2-2**).

   - **Setup** (to display the **Setup Menu**).

   - **Installation** (to display the **Installation Menu 1-2**).

   - **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

```
BNC (1-2)                                              BNC 1    ( 1)
                                              BNC:   BNC 2    ( 2)
Use    this    menu    to   BNC:      BNC 2   ( 2)   ↓BNC 3   ( 3)
associate  a  function or   Maps to:   Button #2
a device type with a BNC    Type:      Router             ↑Alpha
input.                      Tally:     P2,F2      Type:   Router
                            Auto Key:  Black              ↓Still
                            Asp Ratio: 4:3
                                                 Asp Ratio:    4:3
                                                              16:9

                                                 Auto Key
   BNC Names    BNC Type       Tally       Alpha    Setup        Panel
```
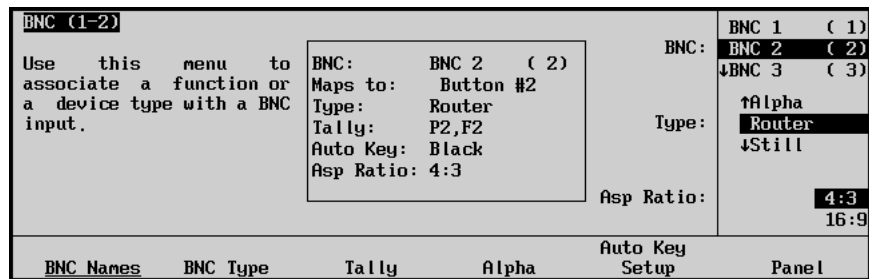
BNC — BNC Type Menu

3. Assign a BNC input to a router as follows:

   - Use the top **BNC** knob to select the BNC that is connected to the router.

   - Use the middle **Type** knob to select **Router**.

- Use the bottom **Asp Ratio** knob to select the native aspect ratio of the input video signal.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Router Setup** to display the **Router Setup Menu**.

```
BNC (2-2)
                                                              BNC: BNC 2    ( 2)
Use    this    menu    to  BNC:        BNC 2    ( 2)
associate  a Router input  Maps to:    Button #2
with  a  Router Com Port,  Type:       Router
and  a  Router output with Tally:      P2,F2                Router: Pesa      (R1)
a BNC.                     Auto Key:   Black
                           Asp Ratio: 4:3
                                                           BNC Out:   Output 001
                                                                     ↓Output 002
    Router        Router        N/S                 Still/CG        Camera
    Setup         Other        Disable      Audio    Setup          Setup
```

BNC — Router Setup Menu

6. Assign the router output to a BNC input as follows:

- Use the top **BNC** knob to select the BNC you want to assign the router output to.

- Use the middle **Router** knob to select the router you want to assign to the selected BNC.

- Use the bottom **BNC Out** knob to select the BNC output on the router you want to connect to the selected input BNC.

✎ **Note** | You must select **Output 001** for the router output when using an **Extron System 8/10 Plus routing switcher**.

Now that you have assigned a particular output from the Router to a BNC input on the Synergy Switcher, you will have to set up the level, or breakaway, on the router.

Setting Up Router Levels

The **Router Other Setup Menu** allows the user to set the levels, or breakaways, on the Router that will be switched when a new input is selected. Refer to your router documentation for more information on setting up the level matrix.

✎ **Note** | On the **Ross Routing Systems**, the matrix is controlled by breakaways that have the different levels assigned to them. Refer to your router documentation for information on assigning different levels to a breakaway.

Use the following procedure to set up your Router levels:

1. Navigate to the **BNC Menu 2-2** as follows:

- Press **HOME** (to display the **Main Menu 1-2**).
- **MORE** (to display the **Main Menu 2-2**).
- **Setup** (to display the **Setup Menu**).
- **Installation** (to display the **Installation Menu 1-2**).
- **BNC** (to display the **BNC Menu 1-2**).
- **MORE** (to display the **BNC Menu 2-2**).

2. Press **Router Other** to display the **Router Other Menu**.

```
┌─────────────────────────────────────────────────────────────────────┐
│ BNC (2-2)                                                BNC: BNC 2   ( 2) │
│                          ┌─────────────────────────┐                      │
│ Use  this  menu  to  set │ BNC:       BNC 2    ( 2)│                      │
│ secondary  variables  for│ Maps to:    Button #2   │                      │
│ the Router BNCs.          │ Type:      Router       │ Level:          ▓ALL▓ │
│                           │ Tally:     P2,F2        │                  ↓0  │
│                           │ Auto Key:  Black        │                      │
│                           │ Asp Ratio: 4:3          │                      │
│                           └─────────────────────────┘                      │
│                                                                            │
│      Router         Router          N/S                  Still/CG   Camera │
│      Setup          Other         Disable      Audio      Setup     Setup  │
└─────────────────────────────────────────────────────────────────────┘
```

BNC — Router Other Menu

3. Use the top **BNC** knob to select the BNC input that the router output is connected to.

4. Use the middle **Level** knob to select the level, or breakaway, that you want switched when a new input source is selected. You can select from the following:

✎	**Note**	On the **Ross Routing Systems**, this is the **Breakaway** knob and you can only select from **1** through **8**.

✎	**Note**	On the **Extron System 8/10 Plus Switchers** you can only select from **1** through **4**.

*   **All** — Select this option when you want to switch all levels when you select a new input source.
*   **0-127** — Select one of these numbers when you want to switch a particular level when you select a new input source.

✎	**Note**	Zero (**0**) corresponds to the first level on the router, possibly numbered as **1** on the router.

This completes the procedure for setting up a Routing switcher to a BNC on the Synergy Switcher.

Setting Up N/S Disable

The **N/S Disable Menu** gives you the option to disable the non-sync LEDs for *all* or *individual* BNCs. When a BNC has the **N/S Disable** set to **ON**, the non-sync indicator on the panel will not light for this BNC, even if this source is un-synchronized.

Use the following procedure to disable the non-sync LEDs:

1. Navigate to the **BNC Menu 2-2** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**).
    *   **MORE** (to display the **Main Menu 2-2**).
    *   **Setup** (to display the **Setup Menu**).
    *   **Installation** (to display the **Installation Menu 1-2**).
    *   **BNC** (to display the **BNC Menu 1-2**).
    *   **MORE** (to display the **BNC Menu 2-2**).

2. Press **N/S Disable** to display the **N/S Disable Menu**.

```
BNC (2-2)

When a BNC has its N/S    BNC:       BNC 1    ( 1)              BNC: ┃BNC 1    ( 1)┃
Disable set to ON, the    Maps to:     NONE                         ┃↓BNC 2    ( 2)┃
N/S indicator on the      Type:      Other
panel will not light for  Tally:     P1                                      ┃ OFF ┃
this BNC, even if this    Auto Key:  Black          N/S Disable                ON
BNC is mistimed.          Asp Ratio: 4:3
                                                                   ↑All OFF
                                                    N/S Control   ┃All ON ┃

       Router        Router         N/S                  Still/CG       Camera
       Setup         Other         Disable    Audio       Setup         Setup
```

BNC – N/S Disable Menu

3. Use the top **BNC** knob to select the BNC input that you want to turn the **N/S Disable** feature on for.

4. Use the middle **N/S Disable** knob to turn the N/S Disable on or off:

    •   **ON** — Select this option if you want to turn N/S Disable feature **On**.

    •   **OFF** — Select this option if you want to turn the N/S Disable feature **Off**. This is the default setting.

5. Use the bottom **N/S Control** knob to select between the following:

    •   **Individual** — Select this option to disable the N/S LED for the selected BNC input only.

    •   **All OFF** — Select this option to turn all the **N/S Disable** setting **Off**. This will override all the individual **N/S Disable** settings, and return the BNCs to a **N/S Disable OFF** mode.

    •   **All ON** — Select this option to turn all the **N/S Disable** setting **On**. This will *remove* the override that would have been set by selecting the **All OFF** option on any other BNC.

> **Note** — When you return the settings to **Individual** after an **All OFF** or **All ON** setting, the original settings will preserved.

This completes the procedure for disabling the N/S LEDs.

Setting Up Still Store BNCs

The **Still/CG Setup Menu** is used to assign a BNC to a Still Store. In order to do this you will have to assign the BNC input to a Still Store and then set up the Still Store input you want assigned to that particular BNC.

> **Important** — You must have a Still Store set up on the Synergy Switcher before you can assign a BNC to that device. Refer to the section "**Still Store Communications Setup**"on page 7-71 for more information on setting up still store communications.

Use the following procedure to assign a Still Store to a BNC on the Synergy Switcher:

1. Navigate to the **BNC Menu 2-2** as follows:

    •   Press **HOME** (to display the **Main Menu 1-2**).

    •   **MORE** (to display the **Main Menu 2-2**).

    •   **Setup** (to display the **Setup Menu**).

- **Installation** (to display the **Installation Menu 1-2**).
- **BNC** (to display the **BNC Menu 1-2**).
- **MORE** (to display the **BNC Menu 2-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

```
BNC (1-2)                                                      ↑BNC 2    ( 2)
                                                        BNC:    BNC 3    ( 3)
Use    this    menu    to   BNC:        BNC 3    ( 3)    ↓BNC 4    ( 4)
associate  a  function or   Maps to:   Button #3
a device type with a BNC    Type:      Still                    ↑Router
input.                      Tally:     P3,F3            Type:    Still
                            Auto Key:  Black                    ↓Robotic Cam
                            Asp Ratio: 4:3
                                                        Asp Ratio:       4:3
                                                                         16:9

                                                        Auto Key
   BNC Names     BNC Type       Tally        Alpha       Setup          Panel
```

BNC — BNC Type Menu

3. Assign a BNC to a Still Store as follows:

- Use the top **BNC** knob to select the BNC that is connected to the Still Store.
- Use the middle **Type** knob to select **Still**.
- Use the bottom **Asp Ratio** knob to select the native aspect ratio of the input signal.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Still/CG Setup** to display the **Still Setup Menu**.

```
BNC (2-2)                                                BNC:    BNC 3    ( 3)

Use    this    menu    to   BNC:        BNC 3    ( 3)
associate   a   Still  or   Maps to:   Button #3
CharGen  input with a com   Type:      Still
port,   and   a  Still  or  Tally:     P3,F3            Still:   Aprisa100(R2)
CharGen   channel   with a  Auto Key:  Black
BNC.                        Asp Ratio: 4:3
                                                        Channel:        Channel A
                                                                        ↓Channel B

   Router       Router         N/S                      Still/CG        Camera
   Setup        Other        Disable       Audio         Setup          Setup
```

BNC — Still Setup Menu

6. Assign the Still Store output to a BNC input as follows:

- Use the top **BNC** knob to select the BNC you want to assign the Still Store to.
- Use the middle **Still** knob to select the Still Store you want to assign to the selected BNC.
- Use the bottom **Channel** knob to select the channel on the Still Store that you want to assign to the selected BNC.

✎ **Note** | Pressing the associated BNC crosspoint lights the **VTR CLIP** button in the **Global Memory System**, and allows you to recall a specific still using the numeric keypad.

This completes the procedure for assigning a Still Store to a BNC on the Synergy Switcher. Refer to Chapter 8, "**Memory Functions and More**", of the *Synergy 1 Operation Guide*, for details on accessing specific stills.

Setting Up Character Generator BNCs

The **Still/CG Setup Menu** is used to assign a BNC input to a Character Generator. In order to do this you will have to assign the BNC input to a Character Generator.

⊛ **Important** You must have a Character Generator set up on the Synergy Switcher before you can assign a BNC to that device. Refer to the section "**Character Generator Communications Setup**"on page 7-76 for more information on setting up Character Generator communications.

Use the following procedure to assign a Character Generator to a BNC on the Synergy Switcher:

1. Navigate to the **BNC Menu 2-2** as follows:

    • Press **HOME** (to display the **Main Menu 1-2**).

    • **MORE** (to display the **Main Menu 2-2**).

    • **Setup** (to display the **Setup Menu**).

    • **Installation** (to display the **Installation Menu 1-2**).

    • **BNC** (to display the **BNC Menu 1-2**).

    • **MORE** (to display the **BNC Menu 2-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

BNC — BNC Type Menu

3. Assign a BNC input to a Character Generator as follows:

    • Use the top **BNC** knob to select the BNC that is connected to the Character Generator.

    • Use the middle **Type** knob to select **CharGen**.

    • Use the bottom **Asp Ratio** knob to select the native aspect ratio of the input signal.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Still/CG Setup** to display the **CG Setup Menu**.

BNC — CG Setup Menu

6. Assign the Character Generator to a BNC as follows:

  • Use the top **BNC** knob to select the BNC you want to assign the character generator to.

  • Use the middle **CharGen** knob to select the character generator you want to assign to the selected BNC.

This completes the procedure for assigning a Character Generator to a BNC on the Synergy Switcher. Refer to Chapter 8, "**Memory Functions and More**", of the *Synergy 1 Operation Guide*, for details on interfacing with the character generator.

Setting Up Remote Camera BNCs

The **Camera Setup Menu** is used to assign the video signal from a remote camera to a BNC on the Synergy Switcher. Pressing the associated BNC crosspoint automatically takes you to the **Camera Head Control Menu**, where you can control the pan, tilt, and zoom functions of your cameras.

⚠ **Important** | You must have a Remote Camera set up on the Synergy Switcher before you can assign a BNC to that device. Refer to the section "**Robotic Camera Communications Setup**"on page 7-89 for more information on setting up Remote Camera communications.

Use the following procedure to assign a Remote Camera to a BNC on the Synergy Switcher:

1. Navigate to the **BNC Menu 2-2** as follows:

  • Press **HOME** (to display the **Main Menu 1-2**).

  • **MORE** (to display the **Main Menu 2-2**).

  • **Setup** (to display the **Setup Menu**).

  • **Installation** (to display the **Installation Menu 1-2**).

  • **BNC** (to display the **BNC Menu 1-2**).

  • **MORE** (to display the **BNC Menu 2-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

```
BNC (1-2)                                                    ↑BNC 4      ( 4)
                                                       BNC: BNC 5      ( 5)
Use    this    menu   to   BNC:      BNC 5   ( 5)           ↓BNC 6      ( 6)
associate  a  function or  Maps to:   Button #5
a  device type with a BNC  Type:      Robotic Cam           ↑Still
input.                     Tally:     P5,F5          Type:  Robotic Cam
                           Auto Key:  Black                 ↓CharGen
                           Asp Ratio: 4:3
                                                     Asp Ratio:     4:3
                                                                    16:9
                                                     Auto Key
   BNC Names    BNC Type      Tally      Alpha        Setup          Panel
```
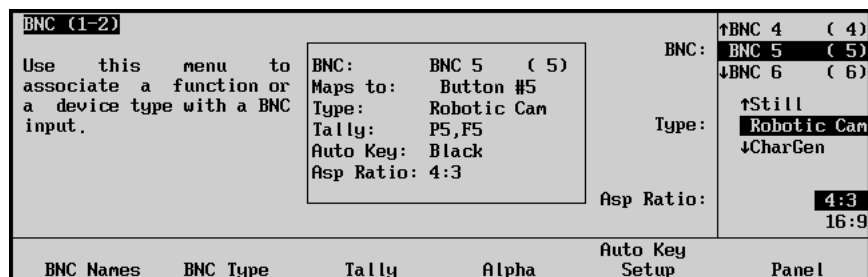
BNC — BNC Type Menu

3. Assign a BNC input to a Remote Camera as follows:

  • Use the top **BNC** knob to select the BNC that is connected to the Robotic Camera.

  • Use the middle **Type** knob to select **Robotic Cam**.

  • Use the bottom **Asp Ratio** knob to select the native aspect ratio of the input signal.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Camera Setup** to display the **Camera Setup Menu**.

```
BNC (2-2)                                          BNC:  BNC 5      ( 5)
Use   this  menu  to  set   BNC:       BNC 5    ( 5)
which  camera  controllers  Maps to:    Button #5
and   which  cameras  are   Type:       Robotic Cam
associated    with  which   Tally:      P5,F5               Controller: Radamec   (R4)
BNCs.                       Auto Key:   Black
                            Asp Ratio: 4:3
                                                              ↑Port 12
                                                      Port:   Port 13
                                                              ↓Port 14
    Router        Router        N/S                    Still/CG      Camera
    Setup         Other         Disable     Audio      Setup         Setup
```

BNC — Camera Setup Menu

6. Assign the Remote Camera to a BNC as follows:

   • Use the top **BNC** knob to select the BNC you want to assign the remote camera to.

   • Use the middle **Controller** knob to select the remote camera you want to assign to the selected BNC.

   • Use the bottom **Port** knob to select the **Camera Port** (1-16) on the remote camera controller that the particular camera you want to assign to the selected BNC is connected to. Refer to your Robotic Camera documentation for more information on assigning cameras to different ports.

This completes the procedure for assigning a Remote Camera to a BNC on the Synergy Switcher. Refer to Chapter 8, "**Memory Functions and More**", of the *Synergy 1 Operation Guide*, for details on interfacing with the remote camera.

Exiting the Setup Menus

When you exit the **Setup Menus** (typically by pressing **HOME**), the system provides visual warning and asks you to confirm the changes. This warning occurs only when the following conditions are met:

   • The **Installation Enable Jumper** (**DIP Switch 4**, **SW7** on the **Frame CPU Board**) is in the **Down** position.

   • A change has been made on an **Installation** menu.

When you press **HOME** to exit the installation menus, the "**Installation Warning**" menu is displayed.

```
     You are about to change the switcher's installation settings.
     Press 'Confirm' to save the new settings, or 'Cancel' to revert
     to the old settings.




        Confirm        Cancel
```
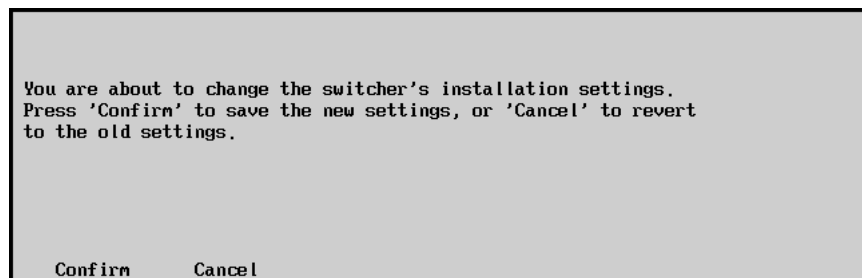
Installation Change Confirmation Menu

This menu alerts you that settings are about to be changed:

   • Press **Confirm** to accept the changes.

• Press **Cancel** to exit the menus safely, without making any changes. The system returns to the previously stored settings.

⚠✱ **Important** If all installation changes are now complete, return the **Installation Enable Jumper** (**DIP Switch 4**, **SW7** on the **Frame CPU Board**) to the **Up** position.

Checking Inputs

At this point in the installation process, ensure that you have performed the following tasks for *each BNC input* to your Synergy switcher:

- Named the input

- Set up its BNC type

- Set up its tally

- Set up its alpha parameters (if the input is an alpha signal)

- Set up its auto key association (if the input has an alpha signal)

- Set up its control panel button mapping

Use the following procedure to check your inputs:

1. Press **HOME** to exit the installation menus.

2. When the "**Installation Warning**" menu appears, press **Confirm** to accept all changes.

3. Ensure that the program monitor is connected to the **PGM 1** output connector (on the rear of the chassis).

4. Ensure that each source device connected to the switcher is putting out a signal. These will include cameras, VTRs, DVEs, character generators, still stores, etc.

5. Using your "**Input Worksheet**" as a guide, press each control panel button on the **BKGD** bus, starting with crosspoint 1. Verify that each signal is present on the crosspoint (as mapped) and that it matches each connected signal as written on your worksheet.

6. For each *shifted* crosspoint, *press and hold* the **SHIFT** button, then press the desired button on the **BKGD** bus.

If any signal does not match, check your "**Input Worksheet**" against the settings that you made in the section "**Setting Up Panel Buttons**"on page 6-14.

Checking Keys

Once your inputs have been checked, you can now check each auto-key association that you have made. This procedure allows you to verify that each alpha-fill combination is working properly and generating a proper linear key.

Use the following procedure to check your keys:

1. On the **BKGD Bus**, select a background source (such as a camera or VTR).

2. In the **Assign Group** (on the **Aux/Key Bus**) press **KEY1**.

3. On the **Aux/Key Bus** select your first key source. The following figure is a sample selection.
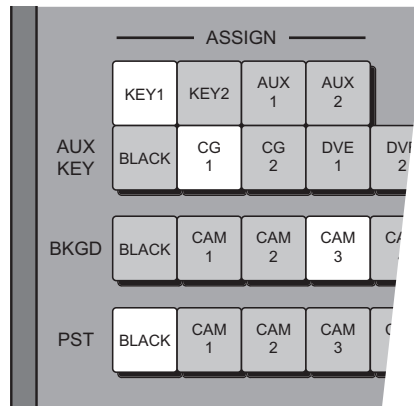
Sample Key Selection

4. In the **Key 1 Group**:

   • Press **AUTO SELECT** to select a linear key type.

   • Press **CUT** to take the key to air. The **CUT** button lights momentarily and the red **ON** LED lights to indicate that the selected key is on air.
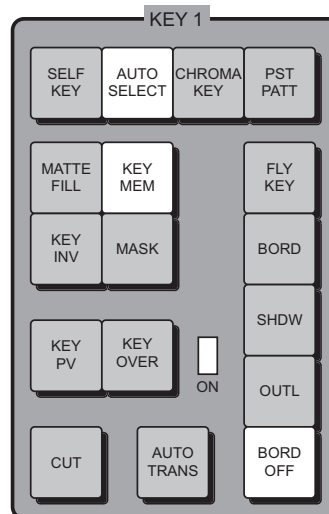
Sample Keyer State

5. Visually check the appearance of the Key on the monitor:

- The assigned alpha signal should be properly cutting the hole in the background.
- The selected fill signal should be properly filling the hole.
- The edges of the Key should be clean.

6. If the Key does not appear visually correct, check the display. The **Auto Key Setup Menu** appears *automatically* each time you take a Key to air.

```
Auto Key Setup                                    ( 91.9%)
MLE 1 Key 1                                      Clip Locked

Key Fill:  BNC 11    (BNC 11)                      ( 95.3%)
Key Alpha: BNC 14    (BNC 14)                    Gain Locked




Transparency    Key Over                         Make Key
   On/Off          On/Off                          Linear
```
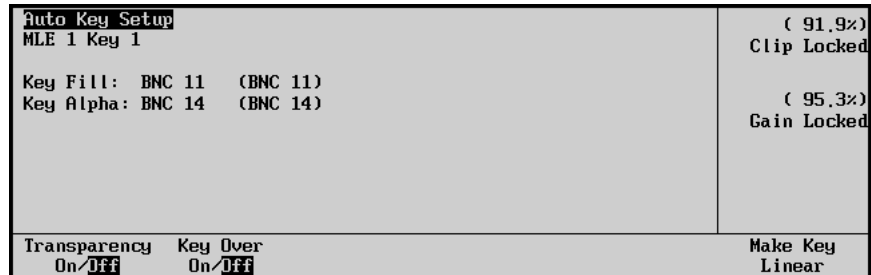
Auto Key Setup Menu

In the **Main Area** of the menu, ensure the following:

- The correct keyer is shown.
- The correct key fill source name and BNC number are displayed.
- The correct key alpha source name and BNC number are displayed.

7. If the key alpha and fill sources are *incorrectly paired* or *improperly assigned*, please check the associations for the alpha and fill signals on the following setup menus:

- BNC Names Menu
- BNC Type Menu
- Alpha Setup Menu
- Auto Key Setup Menu
- Panel Button Setup Menu

Refer to the appropriate sections earlier in this chapter for instructions.

8. If the Key alpha and fill sources are correct, but the Key does not appear correct *visually*, check the following "mode" assignments that you made on the **Alpha Setup Menu**:

```
BNC (1-2)                                     Alpha:  BNC 14    (14)

Use  this  menu  to setup   BNC:       BNC 14   (14)
the alpha modes.            Maps to:    Button #14
                            Type:       Alpha
                            Tally:      P14,F14        Mode:
                            Alpha:      Unshaped              Unshaped
                            Asp Ratio: 4:3                     Shaped


                                                 Auto Key
  BNC Names    BNC Type       Tally       Alpha    Setup       Panel
```
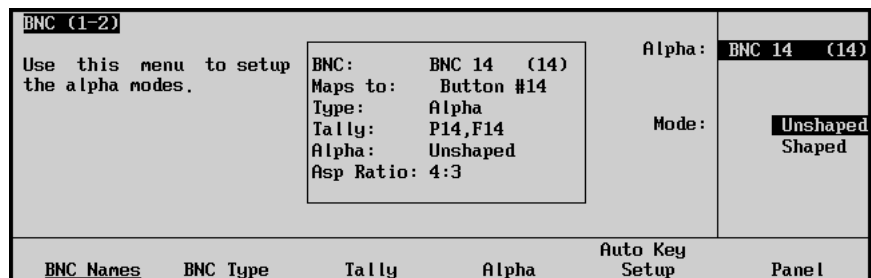
BNC — Alpha Setup Menu

- If you selected **Unshaped** and the alpha signal is actually **Shaped**, you will see black edges around the keyed image.
- If you selected **Shaped** and the alpha signal is actually **Unshaped**, you will see illegal video and other spikes on the waveform monitor.

Reassign the mode if required and recheck the visual appearance of the key.

9. If the Key alpha and fill sources are correct, but the edges or shadows of the Key do not appear correct *visually* (as compared to the direct CG output), you may need to adjust the factory default clip and gain settings as shown in the **Scroll Area** of the **Auto Key Setup Menu**.

By default, the labels in the **Scroll Area** both indicate **Locked** for the selected Key. This shows that the *factory default settings* for the selected alpha-fill pair are being used and that the **Clip** knob and **Gain** knob are both disabled.

To change the factory default settings for the selected Key:

a) Press **KEY MEM**. The **Locked** labels disappear.

```
Auto Key Setup                                    ( 91.9%)
MLE 1 Key 1                                     Clip Locked

Key Fill:  BNC 11    (BNC 11)                      ( 95.3%)
Key Alpha: BNC 14    (BNC 14)                    Gain Locked




Transparency    Key Over                         Make Key
   On/Off        On/Off                           Linear
```

Auto Key Setup Menu — Clip and Gain Enabled

b) Use the top **Clip** knob to adjust the clip threshold of the linear Key, until the desired visual appearance is achieved.

c) Use the middle **Gain** knob to adjust the gain of the linear Key, until the desired visual appearance is achieved.

d) To restore the new settings in memory, *press and hold* **AUTO SELECT**, press **KEY MEM** and release both buttons. Then press **KEY MEM**.

The **Locked** labels reappear, the clip and gain controls are locked at the new settings and each setting is stored in switcher Key memory. These settings will now be used each time the selected auto Key is used on air.

Communications Setup

In This Chapter

This chapter provides instructions for setting up communications parameters with peripheral equipment such as VTRs and Editors.

The following topics are discussed:

- Communications Menu Tree
- Remote Port Expander (BSS4)
- Connecting Equipment to the Remote Port Expander (BSS4)
- VTR Communications Setup
- VTR Interface Specifics
- VDCP Interface Specifics
- Editor Communications Setup
- Custom Device Setup
- DSK (CDK-111A-M) Communications Setup
- Router Communications Setup
- Router Interface Specifics
- Still Store Communications Setup
- Still Store Interface Specifics
- Character Generator Communications Setup
- Character Generator Interface Specifics
- Robotic Camera Communications Setup
- Robotic Camera Control Interface Specifics
- Peripheral Interface II Protocol Setup
- Monitor Wall Interface Setup
- Monitor Wall Interface Specifics
- Serial Tally Protocol Setup

Communications Menu Tree

The following figure illustrates the *portion* of the Synergy menu tree that is used for communications set up procedures. Use this figure for reference throughout this chapter.
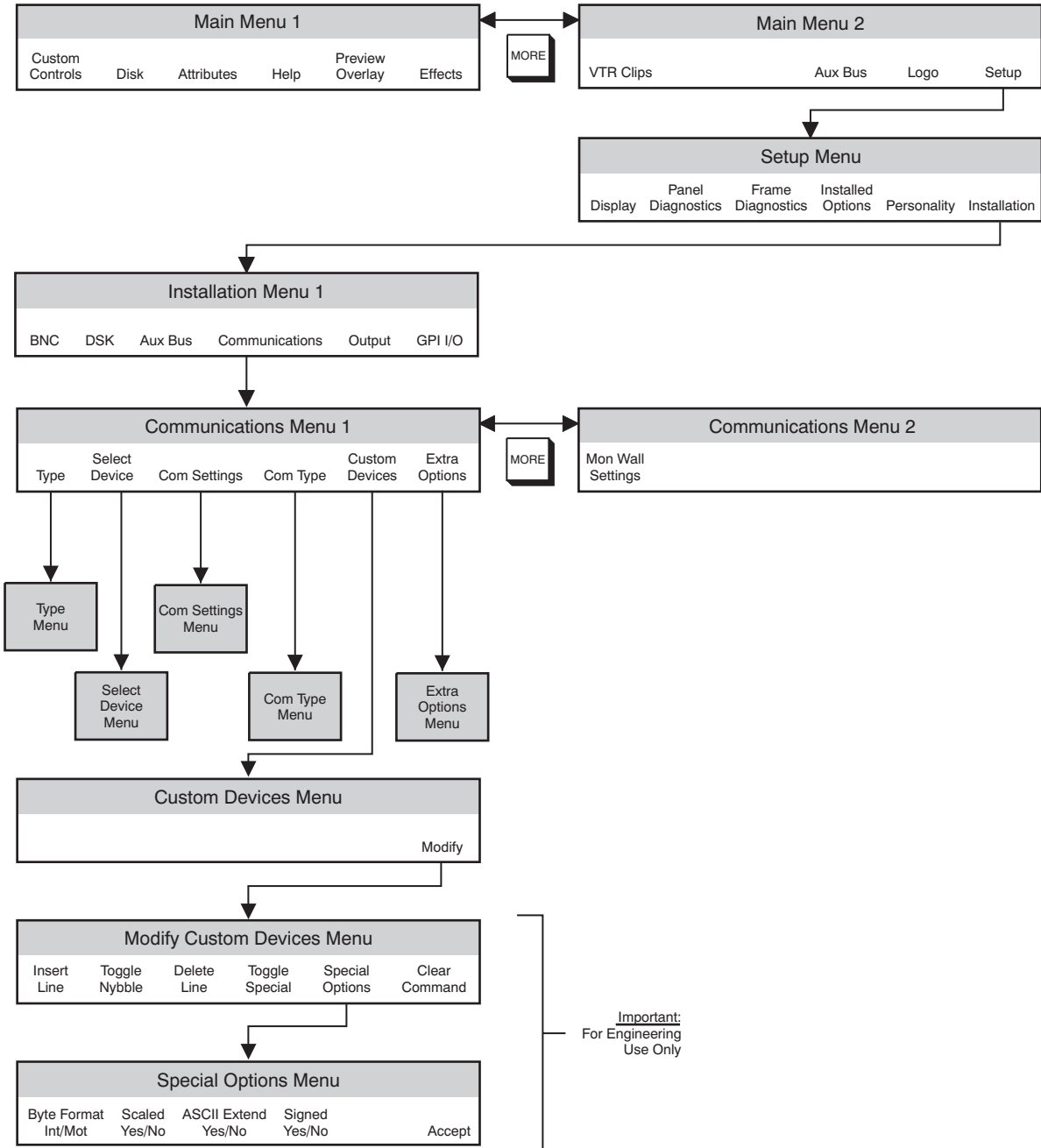
Communications Menu Tree

Remote Port Expander (BSS4)

The RS-422 Four Port Buffered Smart Switch (Model RS422BSS4) connects to one of the Remote Ports on the back of the Synergy control panel to allow you to control up to four serial devices from that one port. This can increase the total number of remote ports on the Synergy 1 control panel from 4 to 16, depending on the number of BSS4 switches you have.

	Important	The maximum number of BSS4 remote ports you can use at any one time may vary depending on the type of equipment you are connecting.

Refer to Appendix C, "**Hardware Options**" for information on cabling and connecting the BSS4 to the Synergy Switcher.

Remote Port Expander Communications Setup (BSS4)

Use the following procedure to configure the BSS4 Remote Port Expander:

1. Navigate to the **Communications Menu 1-2** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**).
    *   **MORE** (to display the **Main Menu 2-2**).
    *   **Setup** (to display the **Setup Menu**).
    *   **Installation** (to display the **Installation Menu 1-2**).
    *   **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

Communications — Type Menu

3. Assign a com port to the BSS4 as follows:

    *   Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the BSS4.
    *   Use the middle **Device** knob to select **Expander**.

4. Press **Select Device** to display the **Select Device Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                         │
│                                           Com Port: ▌REMOTE 1 (R1)▐ │
│ This  menu lets you setup                                    │
│ which     devices     are                                    │
│ controlled   by    which                       NONE          │
│ ports.                             Device:    ▌BSS4▐          │
│                                                              │
│                                                              │
│           Select                          Custom    Extra    │
│    Type   Device    Com Settings  Com Type Devices  Options  │
└─────────────────────────────────────────────────────────────┘
```
Communications — Select Device Menu

5. Assign the BSS4 to the Expander communications port as follows:

    •   Use the top **Com Port** knob to select the communications port you want to assign
        the specific BSS4 to.

    •   Use the middle **Device** knob to select **BSS4**.

6. Press **Com Settings** to display the **Communications Settings Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                         │
│                                           Com Port: ▌BSS4    (R1)▐ │
│ This  menu lets you setup                                    │
│ your      com     port                                       │
│ parameters.                                    ↑57600        │
│                                    Baud:      ▌115200▐        │
│                                                              │
│                              Parity (Fixed):    ▌NONE▐       │
│                                                 ↓ODD         │
│           Select                          Custom    Extra    │
│    Type   Device    Com Settings  Com Type Devices  Options  │
└─────────────────────────────────────────────────────────────┘
```
Communications — Communications Settings Menu

7. Set the communications protocol for the BSS4 as follows:

    •   Use the top **Com Port** knob to select the BSS4 you want to set the communications
        settings for.

    •   Use the middle **Baud** knob to select **115200** as the baud rate for the BSS4.

    •   The bottom **Parity** knob is fixed at **NONE**.

8. Press **Com Type** to display the **Communications Type Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                         │
│                                           Com Port: ▌BSS4    (R1)▐ │
│ This  menu lets you setup                                    │
│ your com port types.                           RS-232        │
│                                    Type:      ▌RS-422▐        │
│                                                ↓RS-232 Null   │
│                                                              │
│                                                              │
│           Select                          Custom    Extra    │
│    Type   Device    Com Settings  Com Type Devices  Options  │
└─────────────────────────────────────────────────────────────┘
```
Communications — Communications Type Menu

9. Select the type of serial communication that will be used to communicate with the BSS4
    as follows:

    •   Use the top **Com Port** knob to select the BSS4 you want to set the communications
        type for.

• Use the middle **Type** knob to select **RS-422** as the type of serial communication for the selected port.

✎ | **Note** | The BSS4 will only support RS-422 communication, RS-232 devices will require a RS-422 to RS-232 converter.

10. Press **HOME** to display the **Confirm Changes Screen**.

11. Press **Confirm** to accept the changes you have made to communications set up of the switcher.

   When you press **Confirm**, a second screen will be displayed prompting you to program the BSS4 Remote Port Expander.

```
The following devices need to be programmed:
  BSS4     (R1)
For each device, please move the setup switch to 'Program'
then cycle the power on the device and press 'Continue'




  Continue        Cancel
```
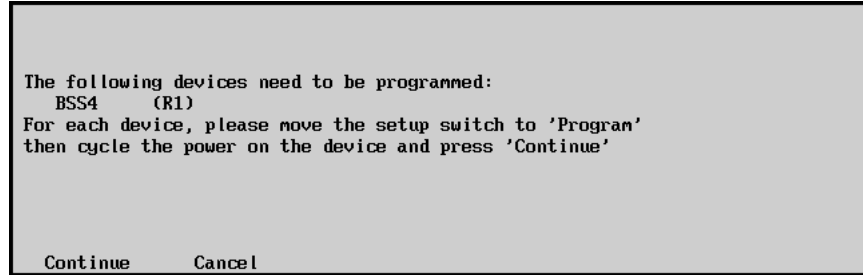
BSS4 — Program BSS4 Screen

✎ | **Note** | If you press **Cancel**, a warning message will be displayed and you will have to perform the set up of the BSS4 again.

12. Move the **SET UP SWITCH** on the BSS4 to **PROG**.

BSS4 Remote Port Expander — Set Up Switch

13. Disconnect the **BSS4 Power Supply** from the BSS4 to cycle the power **Off**.

14. Reconnect the **BSS4 Power Supply** to the BSS4 to cycle the power **On**.

15. Press **Continue** on the Synergy control panel.

✎ | **Note** | If you get an error message stating that the BSS4 could not be programmed, you should confirm your settings and try to program the BSS4 again.

When you press **Continue** a screen will be displayed informing you that the BSS4 Remote Port Expander has been successfully programmed.

```
The switcher successfully programmed the following devices:
   BSS4    (R1)
For each device, move the setup switch back to 'Normal'
then cycle the power on the device and press 'Continue'




   Continue
```
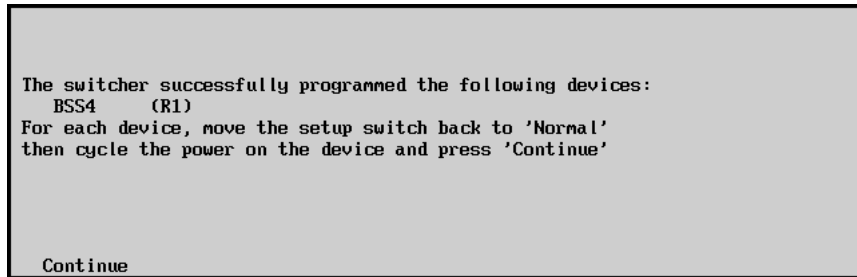
BSS4 — Successful Program BSS4 Screen

16. Move the **SET UP SWITCH** on the BSS4 to **NORM**.

17. Disconnect the **BSS4 Power Supply** from the BSS4 to cycle the power **Off**.

18. Reconnect the **BSS4 Power Supply** to the BSS4 to cycle the power **On**.

19. Press **Continue** on the Synergy control panel.

This completes the procedure for installing a BSS4 Remote Port Expander on the Synergy Switcher.

You will now notice that there are four new remote ports on the **Communications Menu**. These ports will be labelled **A**, **B**, **C**, and **D**, corresponding to the **Slave Ports** on the BSS4, and will start with the number of the remote port that the BSS4 is connected to.

```
Communications (1-2)                                    BSS4       (R1)
                                        Com Port:   REMOTE 1A(1A)
This  menu lets you setup                           ↓REMOTE 1B(1B)
what   each  of  the  com
ports are used for.
                                          Device:      OFF
                                                    ↓VTR (CLIP)


              Select                                Custom        Extra
    Type      Device      Com Settings   Com Type   Devices      Options
```
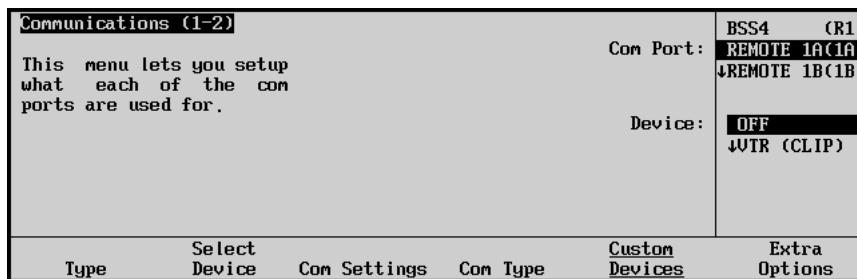
Communications — Expander Remote Ports

For example, if the BSS4 is connected to **Remote Port 1** on the control panel, then the four **Extended Remote Ports** will be **Remote 1A**, **Remote 1B**, **Remote 1C,** and **Remote 1D**.

Connecting Equipment to the Remote Port Expander (BSS4)

When installed, the BSS4 Remote Port Expander gives you four expanded remote ports that you can connect most of the same serial equipment to as you would any of the standard remote ports.

✎ **Note** If you attempt to remove the set up for the BSS4 in the **Communications Menu**, a warning message will be displayed indicating the devices, if any, that are still set up on the BSS4.

When connecting serial devices to the BSS4 Remote Port Expander, the following rules apply:

⚠ **Important** You cannot control a **360 Systems DigiCart Audio Server** from a remote port on a BSS4. If you want to connect a DigiCart to the Synergy 1 Switcher, you will have to use a standard Remote Port.

- Devices connected to the BSS4 must use the RS-422 protocol. Devices using RS-232 protocol will require a RS-422 to RS-232 converter.

- Devices that use a **Baud** rate other that the current rate that the port on the BSS4 is set for will require programming of the BSS4. Refer to the section "**Programming the BSS4 for Peripheral Devices**" on page 7–8 for more information on programming the BSS4.

- Devices that use a **Parity** other than the current rate that the port on the BSS4 is set for will require programming of the BSS4. Refer to the section "**Programming the BSS4 for Peripheral Devices**" on page 7–8 for more information on programming the BSS4.

- If you cancel the upgrade procedure of the BSS4 you will have to remove the device from the **Communications Menu**, confirm the removal, and then set up the device again in order to program the BSS4.

- A device is connected and set up on an expanded BSS4 port in the same manner as it is on any other remote port on the Synergy 1 Switcher. You connect the device to the port on the BSS4, select that port on the **Communications Type Menu** and follow the procedures for connecting that device. If the device used a Baud or Parity that is different than what the port was set to before, you will have to program the BSS4. Refer to the section "**Programming the BSS4 for Peripheral Devices**" on page 7–8 for more information.
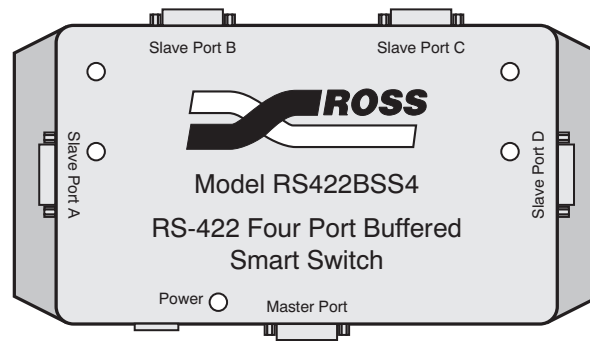
BSS4 Remote Port Expander

The **Slave Ports A**, **B**, **C,** and **D** on the BSS4 correspond to the **Remote #A**, **Remote #B**, **Remote #C**, and **Remote #D** ports on the **Communications Setup Menu** of the Synergy 1 Switcher. The **#** will be the number of the Remote Port that the BSS4 is installed on. For example, if the BSS4 is connected to **Remote Port 3**, the corresponding expanded BSS4 ports would appear as **Remote 3A**, **Remote 3B**, **Remote 3C,** and **Remote 3D**. You connect peripheral devices to these ports in the same manner you would any of the other Remote Ports on the Switcher.

Programming the BSS4 for Peripheral Devices

If you set up a device that uses a baud rate or parity that is different than what the remote port on the BSS4 was set to before, you will have to program the BSS4.

Use the following procedure to program the BSS4:

1. Install and set up communications for your device as you would for a device connected to a standard remote port.

✎ **Note** The BSS4 will only support RS-422 communication, RS-232 devices will require a RS-422 to RS-232 converter.

2. After you confirm the set up of the device from the **Communications Menu**, the **Program BSS4 Screen** will be displayed.

```
The following devices need to be programmed:
   BSS4    (R1)
For each device, please move the setup switch to 'Program'
then cycle the power on the device and press 'Continue'




   Continue      Cancel
```

BSS4 — Program BSS4 Screen

3. Move the **SET UP SWITCH** on the BSS4 to **PROG**.
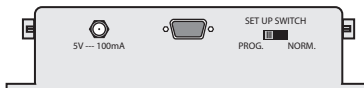
BSS4 Remote Port Expander — Set Up Switch

4. Disconnect the **BSS4 Power Supply** from the BSS4 to cycle the power **Off**.

5. Reconnect the **BSS4 Power Supply** to the BSS4 to cycle the power **On**.

6. Press **Continue** on the Synergy control panel.

✎ **Note** If you press **Cancel**, a warning message will be displayed and you will have to perform the set up of the BSS4 again.

```
The switcher successfully programmed the following devices:
   BSS4    (R1)
For each device, move the setup switch back to 'Normal'
then cycle the power on the device and press 'Continue'




   Continue
```

BSS4 — Successful Program BSS4 Screen

7. Move the **SET UP SWITCH** on the BSS4 to **NORM**.

8. Disconnect the **BSS4 Power Supply** from the BSS4 to cycle the power **Off**.

9. Reconnect the **BSS4 Power Supply** to the BSS4 to cycle the power **On**.

10. Press **Continue** on the Synergy control panel.

This completes the procedure for programming the BSS4 Remote Port Expander.

VTR Communications Setup

The **VTR Communications Setup** procedure allows you to set up communications with VTRs and other serial-controlled devices. These devices include VTRs, DDRs, Video Servers, and Audio Servers (such as the **Digicart**). Connecting these devices to the switcher allows you to control them using custom controls, Roll VTR functions and the various softkeys on the **VTR Clip Menu**.

⚠	**Important**	In order to set up a VTR to communicate with the Synergy Switcher, you must have the proper **Remote Control Option** installed. Refer to the section "**Installed Options Menus**" on page 2–31 for instructions on verifying the option status. The following options must be installed, as required:
		• For **VTR** control, ensure that the **VTR Remote Control Option** is installed.
		• For **Video Server** control, ensure that the **Video Server Control Option** is installed.
		• For **Audio Server** control, ensure that the **Audio Server Control Option** is installed.

In order to connect a VTR to the Synergy 1 Switcher, you should first assign a BNC input to the VTR device. This BNC will then be used when setting up the VTR communications settings.

Use the following procedure to assign the specific BNC inputs to the VTR:

1. Navigate to the **BNC Menu 1-2** as follows:

    • Press **HOME** (to display the **Main Menu 1-2**).

    • **MORE** (to display the **Main Menu 2-2**).

    • **Setup** (to display the **Setup Menu**).

    • **Installation** (to display the **Installation Menu 1-2**).

    • **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.
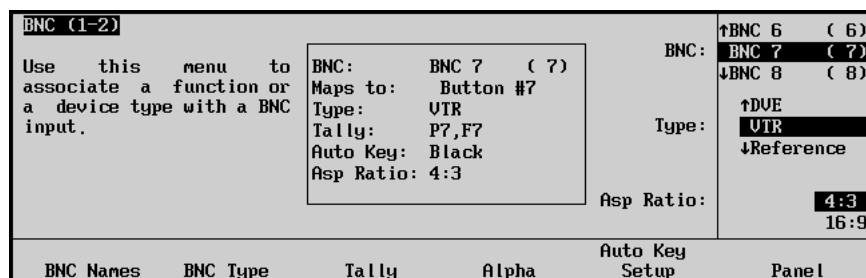
BNC — Type Menu

3. Assign a BNC to a VTR as follows:

    • Use the top **BNC** knob to select the BNC that the VTR is connected to.

    • Use the middle **Type** knob to select **VTR**.

    • Use the bottom **Asp Ratio** knob to select the video aspect ratio of the VTR output.

4. Repeat this procedure for each VTR you wish to control from the Synergy 1 Switcher.

Now that the BNC inputs have been assigned to VTR devices, you can set up the VTR communications.

Use the following procedure to configure a VTR:

✎ **Note** | These procedures will also apply to **Video Servers** and **Audio Servers**.

1. Ensure that the VTR has been properly connected to one of the Remote Ports at the back of the Synergy 1 control panel.
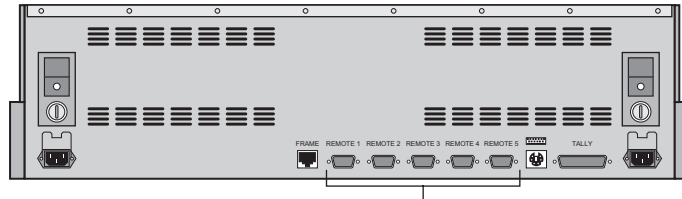
Remote Control Connections

Synergy 1 Control Panel — Rear View, Remote Control Connections

The following table is provided to help you identify the devices that are connected to each Remote Port. This worksheet is also provided in the section "**Remote Control Worksheet**" on page 16–5.

✎ **Note** | Ensure that you have configured your BNC types as VTRs. Refer to the section "**Setting Up BNC Types**" on page 6–8 for details.

Remote Control Worksheet

Remote Connector	Serial Controlled Device	Device Serial Port
Remote 1		
Remote 2		
Remote 3		
Remote 4		
Remote 5*		

✎ *** Note** | You must use **Remote 5** with a **RJ12 to DB9 Male Adaptor** to connect a remote Aux Panel to the Synergy 1 control panel. If you intend to connect a Remote Aux Panel to the switcher, you will have to leave the Remote 5 port open.

2. Navigate to the **Communications Menu 1-2** as follows:

• Press **HOME** (to display the **Main Menu 1-2**).

• **MORE** (to display the **Main Menu 2-2**).

• **Setup** (to display the **Setup Menu**).

• **Installation** (to display the **Installation Menu 1-2**).

- **Communications** (to display the **Communications Menu 1-2**).

3. Press **Type** to display the **Type Menu**.

```
Communications (1-2)                          Com Port:  REMOTE 1 (R1)
                                                        ↓REMOTE 2 (R2)
This  menu lets you setup
what   each of  the  com                                   OFF
ports are used for.                              Device:  VTR (CLIP)
                                                        ↓Router

                                                    BNC:  NONE
                                                         BNC 7    ( 7)
              Select                             Custom       Extra
    Type       Device    Com Settings  Com Type  Devices     Options
```

Communications — Type Menu

4. Assign a com port to the VTR as follows:

⚠ **Important**

> You cannot control a **360 Systems DigiCart** from a remote port on a BSS4 Remote Port Expander. If you want to connect a DigiCart to the Synergy Switcher, you will have to use a standard Remote Port.

- Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the VTR.
- Use the middle **Device** knob to select **VTR (CLIP)**.
- Use the bottom **BNC** knob to select the BNC that you have assigned to VTR and have connected to the VTR device. Refer to the section "**Setting Up BNC Types**" on page 6–8 for details.

5. Press **Select Device** to display the **Select Device Menu**.

```
Communications (1-2)                          Com Port:  REMOTE 1 (R1)
This  menu lets you setup
which     devices    are
controlled   by    which                               ↑DigiCart
ports.                                           Device:  VDCP
                                                        ↓CUSTOM0

                                                          ( 0)
                                           VTR Preroll:  Frames
              Select                             Custom       Extra
    Type       Device    Com Settings  Com Type  Devices     Options
```

Communications — Select Device Menu

6. Select the device you want to assign to the VTR communications port as follows:

- Use the top **Com Port** knob to select the communications port you want to assign a specific VTR to.
- Use the middle **Device** knob to select the type of VTR, or VTR communications protocol that the device uses, that is connected to the port. You can select between the following:
  - ~ **NONE** — Use this option to not assign a VTR to the selected com port.
  - ~ **A51 ESBus** — Use this option to assign an **Accom Abekas A51 DVE** to the selected com port.
  - ~ **Betacam** — Use this option to assign a VTR using the **Sony Betacam Protocol** to the selected com port. The following devices are supported:

– **Generic** — Use this option to assign a device that uses the **Generic Sony Betacam Protocol**.

✎ **Note** | The **Generic** setting can be used with *any* device that supports the generic Generic Sony Betacam Protocol. Refer to the section "**Betacam Protocol Specifics**" on page 7–29 for more information.

– **FFV Omega** — Use this option to assign an **FFV Omega Digital Recorder** to the selected com port. Refer to the section, "**Fast Forward Video Omega Digital Recorder**" on page 7–29 for details.

– **DVM 2** — Use this option to assign an **Alcorn McBride DVM2** to the selected com port. Refer to the section, "**Alcorn McBride Digital Video Machine 2**" on page 7–30 for details.

– **Accom APR** — Use this option to assign an **Accom APR Clipstore** to the selected com port. Refer to the section, "**Accom APR Clipstore**" on page 7–32 for details.

~ **DigiCart** — Use this option to assign a **360 Systems DigiCart Audio Server** to the selected com port. Refer to the section "**360 Systems DigiCart Communication**" on page 7–16 for details.

~ **VDCP** — Use this option to assign a **Video Server** to the selected com port using the standard **Video Disk Communications Protocol** (**VDCP**). The following devices are supported:

– **Generic** — Use this option to assign a device that uses the Generic Video Disk Communications Protocol. The following devices are supported:

✎ **Note** | The **Generic** setting can be used with *any* device that supports the generic Video Disk Communications Protocol (VDCP). Refer to the section "**VDCP Interface Specifics**" on page 7–36 for details about setting up a VDCP device not listed here.

» **Avid AirSPACE** — Refer to the section "**Avid AirSPACE Communication**" on page 7–19 for setting up your AirSPACE.

– **ASCVR300 V2** — Use this option to assign an **Leitch ASC VR300 Video Server** (running version 2 software) to the selected com port. Refer to the section "**VDCP Interface Specifics**" on page 7–36 for details.

– **ASCVR300 V2.7** — Use this option to assign an **Leitch ASC VR300 Video Server** (running version 2.7 software) to the selected com port. Refer to the section "**VDCP Interface Specifics**" on page 7–36 for details.

– **PinnacleThund** — Use this option to assign a **Pinnacle Systems Thunder** to the selected com port. Refer to the section "**Pinnacle Systems Thunder Communication**" on page 7–17 for details.

– **Spencer** — Use this option to assign a **Spencer Technologies Video Server** to the selected com port. Refer to the section "**VDCP Interface Specifics**" on page 7–36 for details.

– **GeeVS** — Use this option to assign a **Gee Broadcast Systems Geevs Video Server** to the selected com port. Refer to the section "**VDCP Interface Specifics**" on page 7–36 for details.

- **360Sys IS2000** — Use this option to assign a **360 Systems Image Server 2000** to the selected com port. Refer to the section "**360 Systems Image Server 2000 Communication**" on page 7–24 for details.

- **EVS MaxS** — Use this option to assign a **EVS Broadcasting Equipment maXS Video Server** to the selected com port. Refer to the section "**EVS Broadcast Equipment maXS Universal Production Server**" on page 7–26 for details.

- **Avid AirSPEED** — Use this option to assign an **Avid AirSPEED** video server to the selected com port. Refer to the section, "**Avid AirSPEED Communication**" on page 7–21 for details.

~ **Custom0** — Use this option, in conjunction with the **Custom Devices** button, to manually configure the communications protocol for your particular device. Refer to **Appendix E. Custom Device Serial Protocol** for more information.

~ **Custom1** — Use this option, in conjunction with the **Custom Devices** button, to manually configure the communications protocol for your particular device. Refer to **Appendix E. Custom Device Serial Protocol** for more information.

~ **TCGen** — Use this option to assign a **Time Code Generator** to the selected com port.

- Use the bottom **VTR Preroll** knob to select the preroll interval (in frames).

Note

> **VTR Preroll** applies to **VTRs** and **Video Servers** *only.* Any value entered for an **Audio Server** will be ignored.
>
> Preroll is applied when the **ROLL VTR** button is "armed" and the device is taken to air with a cut or auto-transition. When the transition is performed, the system will *wait* the selected preroll interval, and then roll the device.

7. Press **Com Settings** to display the **Com Settings Menu**.

Communications — Com Settings Menu

Note

> The baud rate and parity for most serial devices should already be correctly set. Use these controls only if required.

8. Set the communications protocols for the VTR as follows:

   • Use the top **Com Port** knob to select the VTR you are setting the communications settings for.

   • Use the middle **Baud** knob to select the baud rate for the VTR. Refer to the section "**VTR Interface Specifics**" on page 7–16 for the specific settings for your VTR.

   • Use the bottom **Parity** knob to select the parity, **NONE**, **ODD** or **EVEN** for the specific VTR. Refer to the section "**VTR Interface Specifics**" on page 7–16 for the specific settings for your VTR.

9. Press **Com Type** to display the **Communications – Com Type Menu**.
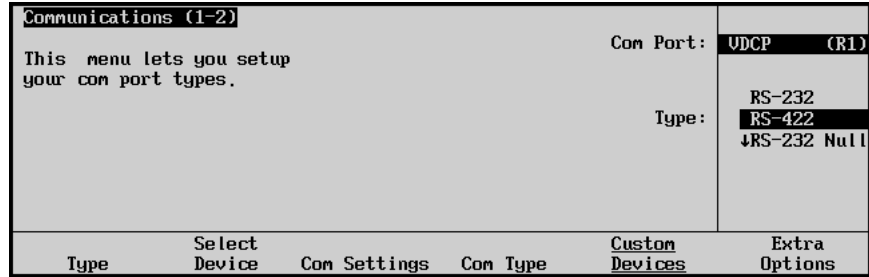
```
┌────────────────────────────────────────────────────────┐
│ Communications (1-2)                                     │
│                                          Com Port: │VDCP    (R1)│
│ This  menu lets you setup                                │
│ your com port types.                                     │
│                                                 RS-232    │
│                                          Type:  │RS-422│   │
│                                                ↓RS-232 Null│
│                                                          │
│                                                          │
│          Select                          Custom    Extra │
│  Type    Device    Com Settings  Com Type  Devices  Options│
└────────────────────────────────────────────────────────┘
```

Communications — Com Type Menu

10. Select the type of serial communications that will be used to communicate with the VTR as follows:

    • Use the top **Com Port** knob to select the VTR you want to set the communications type for.

    • Use the middle **Type** knob to select the type of serial communications (**RS-232** or **RS-422**) for the selected port.

✎ **Note** | If you are connecting a device that uses the same pinouts as the Remote Ports on the Synergy 1 control panel, you can use the **RS-232 Null** or **RS-422 Null** and a straight-through cable, rather than a null cable.

Depending on the communications protocol that you chose, there may be additional options that need to be set. These protocol specific options are contained in the **Extra Options Menu**. Refer to the section "**VDCP Interface Specifics**" on page 7–36 for details on using the **Extra Options Menu**, or refer to the section "**VTR Interface Specifics**" on page 7–16 for the specific settings for each device. For information on using the **Extra Options Menu** for Betacam devices, refer to the section "**Betacam Protocol Specifics**" on page 7–29.

This completes the procedure to set up VTR communications ports.

VTR Interface Specifics

This section provides information specific to each VTR supported.

360 Systems DigiCart Communication

Use the following information to connect a DigiCart Audio Server to your Synergy 1 Switcher:

- Use the following communications settings when connecting the DigiCart Audio Server to the Synergy 1 Switcher:

Synergy-to-DigiCart Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	Odd
Data Bits	8
Stop Bits	1

- The Synergy 1 Switcher connects to the DigiCart Audio Server via the remote ports (1-5) on the back of the Synergy 1 control panel, and the **Serial Port 2** on the DigiCart.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The DigiCart **Serial Port 2** requires a 9-Pin, D-Type RS-422 connector.

Important

> The Digicart must be set to **Port Address 2** in order to communicate with the Synergy 1 Switcher.

- Cable connections in the following table refer only to those between the Synergy control panel and the DigiCart Audio Server. Other cable connections present on the DigiCart can be found in the DigiCart Audio Server documentation.

Synergy-to-DigiCart Wiring Chart

Synergy Panel			DigiCart	
Remote Port (1-5)	Signal		Serial Port 2	Signal
1	Chassis		Do not connect	
2	RxA (Rx-)	→	5	Transmit A (Tx-)
3	TxB (Tx+)	→	8	Receive B (Rx+)
4	n/c			
5	Ground			
6	Ground	→	1	Signal Ground
7	RxB (Rx+)	→	4	Transmit B (Tx+)
8	TxA (Tx-)	→	9	Receive A (Rx-)
9	Chassis		Do not connect	

Important

> Do not connect any signals to **Pin 2** of the DigiCart.
>
> During operation (from the Synergy panel), the DigiCart must be enabled for remote control as per its documentation.

Pinnacle Systems Thunder Communication

This section describes the proper installation configuration required for a Synergy Switcher to interface with a Pinnacle Systems Thunder server using the Video Disk Communications Protocol (VDCP). This information is current for Synergy 1 software version **16.00**, or higher, used in conjunction with Thunder software version 5.5 and Louth Serial Protocol uVer 5.4.19.

Use the following information to connect a Pinnacle Thunder Video Server to your Synergy Switcher:

- Use the following communications settings when connecting the Thunder Video Server to the Synergy 1 Switcher:

Synergy-to-Thunder Communication Settings

Setting	Value
Transmission Standard	**RS-422**
Baud Rate	**38400**
Parity	**Odd**
Data Bits	**8**
Stop Bits	**1**

- The Synergy 1 Switcher connects to the Thunder Video Server via the remote ports (1-5) on the back of the Synergy control panel, and the RS-422 com ports (5-12) on the Thunder.

    ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

    ~ The Thunder serial port requires a 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Thunder Video Server. Other cable connections present on the Thunder can be found in the Pinnacle Thunder documentation.

Synergy-to-Pinnacle Thunder Wiring Chart

Synergy Panel			Pinnacle Thunder	
Remote Port (1-5)	**Signal**		**RS-422 Com Ports**	**Signal**
1	Chassis			
2	RxA (Rx-)	→	8	TxA (Tx-)
3	TxB (Tx+)	→	7	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	4	Power Ground
7	RxB (Rx+)	→	3	TxB (Tx+)
8	TxA (Tx-)	→	2	RxA (Rx-)
9	Chassis			

Pinnacle Thunder Extra Options

In order to complete the communications set up on the Synergy Switcher, you must set the Extra Options selections.

Use the following procedure to set up the **Extra Options** for the Pinnacle Thunder:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).
   • **MORE** (to display the **Main Menu 2-2**).
   • **Setup** (to display the **Setup Menu**).
   • **Installation** (to display the **Installation Menu 1-2**).
   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

3. Use the top **Com Port** knob to select the Remote Port that the **Pinnacle Thunder** is connected to.

4. Assign the **Port Number** as follows:

   • Use the middle **Option** knob to select **Port Number**.
   • Use the bottom **Value** knob to select the port on the Thunder that you are using. Refer to the Pinnacle Thunder documentation for specific information.

5. Assign the **Sub Address Number** as follows:

   • Use the middle **Option** knob to select **Sub Address #**.
   • Use the bottom **Value** knob to select the sub address on the Thunder that you are using. Refer to the Pinnacle Thunder documentation for specific information.

Communications — Extra Options Menu

6. Assign the **TargetMachine** as follows:

   • Use the middle **Option** knob to select **TargetMachine**.
   • Use the bottom **Value** knob to select **PinnacleThund**. Selecting this will fill in the remaining options as follows.

Pinnacle Thunder Extra Options Settings

Option	Value
MedialDLength	LongIDs
Timeout	28
Send Tries	10
Cmd Queueing	Strict

Pinnacle Thunder Setup

On the Pinnacle Thunder you will have to set up the communications parameters to allow it to properly connect to the Synergy 1 Switcher.

Use the following procedure to set up the Pinnacle Thunder:

1. On the **File Menu**, select **Preferences** and click **Protocol Setup** to display the **Protocol Setup Menu**.

2. For each channel, select **LouthSerial** as the protocol.

3. Ensure that both the **Preset/Cue** and **Stop Current Clip Before Preset** boxes are checked.

4. Click on the associated **Restart** button(s), and close the dialogue box.

This completes the set up of the Pinnacle Thunder Video Server.

Avid AirSPACE Communication

This section describes the proper installation configuration required for a Synergy 1 Switcher to interface with an Avid AirSPACE Video Server.

Use the following information to connect a Avid AirSPACE Video Server to your Synergy 1 Switcher:

- Use the following communications settings when connecting the AirSPACE Video Server to the Synergy Switcher:

Synergy-to-AirSPACE Communication Settings

Setting	Value
Transmission Standard	**RS-422**
Baud Rate	**38400**
Parity	**Odd**
Data Bits	**8**
Stop Bits	**1**

- The Synergy Switcher connects to the AirSPACE Video Server via the remote ports (1-5) on the back of the Synergy control panel, and the com port on the AirSPACE.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The AirSPACE serial port requires a 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the AirSPACE Video Server. Other cable connections present on the AirSPACE can be found in the Avid AirSPACE documentation.

Synergy-to-Avid AirSPACE Wiring Chart

Synergy Panel			Avid AirSPACE	
Remote Port (1-5)	Signal		RS-422 Com Ports	Signal
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	6	Ground
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

Avid AirSPACE Extra Options

In order to complete the communications set up on the Synergy Switcher, you must set the Extra Options selections.

Use the following procedure to set up the **Extra Options** for the Avid AirSPACE:

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the Main **Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

3. Use the top **Com Port** knob to select the Remote Port that the **Avid AirSPACE** is connected to.

4. Assign the **Port Number** as follows:

   - Use the middle **Option** knob to select **Port Number**.
   - Use the bottom **Value** knob to select the port on the AirSPACE that you are using to connect to the Synergy Switcher. Refer to the Avid AirSPACE documentation for specific information.

Note	Although it is possible to control, for example, Channel 2 on the AirSPACE with a cable connected to Channel 4, Avid recommends you NOT do this.

5. Assign the **Sub Address Number** as follows:

   • Use the middle **Option** knob to select **Sub Address #**.

   • Use the bottom **Value** knob to select the sub address on the AirSPACE that you are using. Refer to the Avid AirSPACE documentation for specific information.

```
Communications (1-2)
                                                    Com Port: VDCP    (R1)
Protocol: VDCP

                                                              ↑Sub Address #
Equipment connected to (e.g. ASC VR300)           Option:    TargetMachine
                                                              ↓MediaIDLength

                                                    Value:   Generic
                                                              ↓ASCVR300 V2
         Select                           Custom         Extra
  Type   Device    Com Settings  Com Type  Devices       Options
```
Communications — Extra Options Menu

6. Assign the **TargetMachine** as follows:

   • Use the middle **Option** knob to select **TargetMachine**.

   • Use the bottom **Value** knob to select **Generic**. Selecting this will fill in the remaining options as follows.

Avid AirSPACE Extra Options Settings

Option	Value
MedialDLength	LongIDs
Timeout	28
Send Tries	10
Cmd Queueing	Strict

Avid AirSPACE Setup

On the Avid AirSPACE you will have to set the **Mode** to **VDCP** for each individual channel you have connected to the Synergy Switcher. Refer to your Avid AirSPACE documentation for more information.

Avid AirSPEED Communication

This section describes the proper installation configuration required for a Synergy Switcher to interface with an Avid AirSPEED Video Server.

Use the following information to connect an Avid AirSPEED Video Server to your Synergy Switcher:

   • Use the following communications settings when connecting the AirSPEED Video Server to the Synergy Switcher:

Synergy-to-AirSPEED Communications Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	Odd
Data Bits	8
Stop Bits	1

- The Synergy Switcher connects to the AirSPEED Video Server via the remote ports (1-5) on the back of the Synergy control panel, and the com port on the AirSPEED.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The AirSPEED serial port requires a 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the AirSPEED Video Server. Other cable connections present on the AirSPEED can be found in the Avid AirSPEED documentation.

Synergy-to-Avid AirSPEED Wiring Chart

Synergy Panel			Avid AirSPEED	
Remote Port (1-5)	Signal		RS-422 Com Ports	Signal
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	6	Ground
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

n/c = Not Connected

Avid AirSPEED Extra Options

In order to complete the communications set up on the Synergy Switcher, you must set the Extra Options selections.

Use the following procedure to set up the **Extra Options** for the Avid AirSPEED:

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

3. Assign the **Port Number** as follows:

   - Use the top **Com Port** knob to select the Remote Port that the **Avid AirSPEED** is connected to.
   - Use the middle **Option** knob to select **Port Number**.

- Use the bottom **Value** knob to select the Channel Number on the AirSPEED that you are using to connect to the Synergy Switcher. Refer to the Avid AirSPEED documentation for specific information.

✎ **Note**

> The **Port Number** is set to the Channel Number on the Avid AirSPEED and *not* the Remote Port Number on the rear of the device.

4. Assign the **Sub Address Number** as follows:

- Use the top **Com Port** knob to select the Remote Port that the **Avid AirSPEED** is connected to.
- Use the middle **Option** knob to select **Sub Address #**.
- Use the bottom **Value** knob to select the sub address on the AirSPEED that you are using. Refer to the Avid AirSPEED documentation for specific information.

✎ **Note**

> Ross Video recommends that you use Remote Port 1 on the Avid AirSPEED as the **Sub Address**.

```
Communications (1-2)

Protocol: VDCP                                     Com Port:  VDCP      (R1)
                                                              RemAux    (A1)

                                                             ↑Sub Address #
Equipment connected to (e.g. ASC VR300)             Option:   TargetMachine
                                                             ↓MediaIDLength

                                                             ↑EVS MaxS
                                                    Value:    AirSpeed

          Select                         Custom       Extra
   Type   Device   Com Settings  Com Type  Devices    Options
```

Communications — Extra Options Menu

5. Assign the **TargetMachine** as follows:

- Use the top **Com Port** knob to select the Remote Port that the **Avid AirSPEED** is connected to.
- Use the middle **Option** knob to select **TargetMachine**.
- Use the bottom **Value** knob to select **AirSpeed**. Selecting this will fill in the remaining options as follows.

Avid AirSPEED Extra Options Settings

Option	Value
MedialDLength	**LongIDs**
Timeout	**28**
Send Tries	**10**
Cmd Queueing	**Strict**

This concludes the procedure to set up the **Extra Options** for the Avid AirSPEED. For information on setting the Playback Mode for your device, refer to the section, "**VDCP Interface Specifics**" on page 7–36.

Avid AirSPEED Setup

On the Avid AirSPEED, set the **Mode** to **VDCP** for each individual channel you have connected to the Synergy Switcher. Refer to your Avid AirSPEED documentation for more information.

360 Systems Image Server 2000 Communication

This section describes the proper installation configuration required for a Synergy 1 system to interface with a 360 Systems Image Server 2000.

Use the following information to connect a 360 Systems Image Server 2000 to your Synergy Switcher:

- Use the following communications settings when connecting the Image Server 2000 to the Synergy Switcher:

Synergy-to-Image Server 2000 Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	Odd
Data Bits	8
Stop Bits	1

- The Synergy Switcher connects to the Image Server 2000 via the remote ports (1-5) on the back of the Synergy control panel, and the RS-422 serial control ports (Channel 1-3) on the Image Server 2000.

    ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

    ~ The Image Server 2000 serial control ports requires a 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Image Server 2000. Other cable connections present on the Image Server 2000 can be found in the 360 Systems Image Server 2000 documentation.

Synergy-to-Image Server 2000 Wiring Chart

Synergy Panel			Image Server 2000	
Remote Port (1-5)	Signal		RS-422 Serial Port	Signal
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	6	Power Ground
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

Image Server 2000 Extra Options

In order to complete the communications set up on the Synergy Switcher, you must set the Extra Options selections.

Use the following procedure to set up the **Extra Options** for the Image Server 2000:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

3. Use the top **Com Port** knob to select the Remote Port that the **360 Systems Image Server 2000** is connected to.

4. Assign the **Port Number** as follows:

   • Use the middle **Option** knob to select **Port Number**.

   • Use the bottom **Value** knob to select the port on the Image Server 2000 that you are using. Refer to the 360 Systems Image Server 2000 documentation for specific information.

Note — When you set the **TargetMachine** to **360Sys IS2000**, the **Sub Address** will be set to the same as the **Port Number**. If you change to **Port Number**, the **Sub Address** will also change. If you change the **Sub Address**, however, the **Port Number** will not change.

Communications — Extra Options Menu

5. Assign the **TargetMachine** as follows:

   • Use the middle **Option** knob to select **TargetMachine**.

   • Use the bottom **Value** knob to select **360Sys IS2000**. Selecting this will fill in the remaining options as follows:

360 Systems Image Server 2000 Extra Options Settings

Option	Value
Sub Address	same as Port
MedialDLength	LongIDs
Timeout	28
Send Tries	10
Cmd Queueing	Strict

360 Systems Image Server 2000 Setup

On the Image Server 2000 you will have to set up the communications parameters to allow it to properly connect to the Synergy Switcher.

Use the following procedure to set up the Image Server 2000:

1. On the **Configuration Menu** click **System...** to open the **Configuration System Window**.

2. Select the **Control** tab.

3. In the **Serial Protocol Area**, select **VDCP** for the Channel you have connected to the Synergy Switcher.

4. In the **VDCP Option Area**, configure the options as follows:

   • **Cue shows 1st frame** — selected (check mark)
   • **Cue w/offset (vs timestamp)** — selected (check mark)
   • **Vari-play 1x equals play** — deselected (no check mark)
   • **Var-play 0 equals pause** — deselected (no check mark)
   • **Report Play (vs still) at end** — deselected (no check mark)
   • **Ignore preroll commands** — deselected (no check mark)
   • **Auto E-E** — deselected (no check mark)

This completes the set up of the 360 Systems Image Server 2000.

EVS Broadcast Equipment maXS Universal Production Server

This section describes the proper installation configuration required for a Synergy 1 system to interface with a EVS maXS video server.

Use the following information to connect an EVS maXS video server to your Synergy Switcher:

   • Use the following communications settings when connecting the Image Server 2000 to the Synergy Switcher:

Synergy-to-EVS maXS Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	Odd
Data Bits	8
Stop Bits	1

   • The Synergy Switcher connects to the EVS maXS via the remote ports (1-5) on the back of the Synergy control panel, and the **RS422 PORTS (REMOTE)**, **Port 1** on the maXS.

⚠ **Important**   You can only use **RS-422 Port 1** on the maXS to connect to the Synergy 1 Switcher.

~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

~ The maXS RS422 Port 1 requires a 9-Pin, D-Type RS-422 connector.

• Cable connections in the following table refer only to those between the Synergy control panel and the maXS. Other cable connections present on the maXS can be found in the EVS maXS documentation.

Synergy-to-EVS maXS Wiring Chart

Synergy Panel			EVS maXS	
Remote Port (1-5)	Signal		RS422 Remote Port	Signal
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	6	Ground
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

EVS maXS Extra Options

In order to complete the communications set up on the Synergy Switcher, you must set the Extra Options selections.

Use the following procedure to set up the **Extra Options** for the EVS maXS:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

3. Use the top **Com Port** knob to select the Remote Port that the **EVS maXS** is connected to.

4. Assign the **Port Number** as follows:

   • Use the middle **Option** knob to select the option you want to change.

   • Use the bottom **Value** knob to select the target machine you want to assign. Refer to the EVS maXS documentation for specific information.

```
Communications (1-2)

Protocol: VDCP                                        Com Port:  VDCP      (R1)
                                                                 RemAux    (A1)

                                                                ↑Sub Address #
Equipment connected to (e.g. ASC VR300)               Option:   TargetMachine
                                                                ↓MediaIDLength

                                                                ↑360Sys IS2000
                                                      Value:    EVS MaxS
                                                                AirSpeed
                      Select                          Custom        Extra
       Type          Device     Com Settings  Com Type  Devices     Options
```

Communications — Extra Options Menu

5. Assign a **Sub Address Number** to the selected device as follows:

    •   Use the top **Com Port** knob to select the device you want to adjust the sub address
        for.

    •   Use the middle **Option** knob to select **Sub Address #**.

    •   Use the bottom **Value** knob to select the sub address on the device that you are
        using.

6. Assign the **TargetMachine** as follows:

    •   Use the top **Com Port** knob to select the Remote Port that the **EVS maXS** is
        connected to.

    •   Use the middle **Option** knob to select **TargetMachine**.

    •   Use the bottom **Value** knob to select **EVS MaxS**. Selecting this will fill in the
        remaining options as follows:

EVS maXS Extra Options Settings

Option	Value
MediaIDLength	**ShortIDs**
Timeout	**6**
Send Tries	**3**
Cmd Queueing	**Strict**

EVS maXS Video Server Setup

You must configure the maXS communications parameters to allow a proper connection to the
Synergy Switcher. Ross Video recommends the following settings:

•   Configure the EVS maXS to record clips using the **VDCP 2R+2P** application.

•   Set the configuration for VDCP 2R+2P to **Louth slave**.

•   Set the communication parameter to channel 1 when using the Synergy Switcher.

The **Remote Reset Jumper 1** on the **PC&CTRL Board** must *not* have a jumper cap on it. Ensure
that the jumper cap is on a port other than 1. Refer to your EVS maXS documentation for more
information on locating and setting this jumper.

This completes the set up of the EVS maXS.

Betacam Protocol Specifics

This section provides set up information for specific devices using the Betacam protocol.

Fast Forward Video Omega Digital Recorder

This section describes the proper installation configuration required for a Synergy system to interface with a Fast Forward Video Omega Digital Recorder.

Use the following information to connect a Fast Forward Video Omega to your Synergy Switcher:

- Use the following communications settings when connecting the Fast Forward Omega to the Synergy Switcher:

Synergy-to-Fast Forward Video Omega Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	Odd
Data Bits	8
Stop Bits	1

- The Synergy Switcher connects to the Fast Forward Video Omega via the remote ports (1-5) on the back of the Synergy control panel, and the **RS-422** port on the Fast Forward Video Omega.

  ~ The Synergy control panel remote port requires a Male, 9-Pin, D-Type RS-422 connector.

  ~ The Fast Forward Video Omega requires a Male, 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Fast Forward Video Omega. Other cable connections present on the Fast Forward Omega can be found in the Fast Forward Video documentation.

Synergy-to-Fast Forward Video Omega Wiring Chart

Synergy Panel			Fast Forward Video Omega	
Remote Port (1-5)	Signal		RS-422 Port	Signal
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	6	Ground
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

n/c = Not Connected

Fast Forward Video Omega Extra Options

In order to complete the communications set up on the Synergy Switcher, you must assign the Fast Forward Video Omega as the target machine.

Use the following procedure to assign the Fast Forward Video Omega as the target machine:

1. Navigate to the **Communications Menu 1-2** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**).
    *   **MORE** (to display the **Main Menu 2-2**).
    *   **Setup** (to display the **Setup Menu**).
    *   **Installation** (to display the **Installation Menu 1-2**).
    *   **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

Communications — Extra Options Menu

3. Assign a target machine to the selected com port as follows:

    *   Use the top **Com Port** knob to select the remote port you want to assign a target machine to.
    *   Use the middle **Option** knob to select **TargetMachine**.
    *   Use the bottom **Value** knob to select **FFV Omega**.

This concludes the procedure to assign a Fast Forward Video Omega as the target machine to the Synergy remote port using Betacam protocol.

Alcorn McBride Digital Video Machine 2

This section describes the proper installation configuration required for a Synergy system to interface with an Alcorn McBride Digital Video Machine 2 (DVM2).

Use the following information to connect an Alcorn McBride DVM2 to your Synergy Switcher:

*   Use the following communications settings when connecting the Alcorn McBride DVM2 to the Synergy Switcher:

Synergy-to-Alcorn McBride DVM2 Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	Odd
Data Bits	8
Stop Bits	1

- The Synergy Switcher connects to the Alcorn McBride DVM2 via the remote ports (1-5) on the back of the Synergy control panel, and the **RS-422** port on the Alcorn McBride DVM2.

  ~ The Synergy control panel remote port requires a Male, 9-Pin, D-Type RS-422 connector.

  ~ The Alcorn McBride DVM2 RS-422 port requires a Male, 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Alcorn McBride DVM2. Other cable connections present on the Alcorn McBride DVM2 can be found in the Alcorn McBride documentation.

Synergy-to-Alcorn McBride DVM2 Wiring Chart

Synergy Panel			Alcorn McBride DVM2	
Remote Port (1-5)	**Signal**		**RS-422 Port**	**Signal**
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	6	Ground
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

n/c = Not Connected

Alcorn McBride DVM2 Extra Options

In order to complete the communications set up on the Synergy Switcher, you must assign the Alcorn McBride DVM2 as the target machine to the remote port using the Betacam protocol.

Use the following procedure to assign the Alcorn McBride DVM2 as the target machine:

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

```
Communications (1-2)
                                                      Com Port: Betacam  (R2)
Protocol: Betacam                                               RemAux   (A1)


Equipment connected to (e.g. FFV Omega)                 Option: TargetMachine
                                                               ↓Decode NAKs

                                                               ↑FFV Omega
                                                         Value: DVM 2
                                                               Accom APR
                Select                                 Custom      Extra
      Type      Device     Com Settings   Com Type     Devices     Options
```

Communications — Extra Options Menu

3. Assign the Alcorn McBride DMV2 as the target machine as follows:

   • Use the top **Com Port** knob to select the Synergy remote port you want to assign the Alcorn McBride DVM2 to.

   • Use the middle **Option** knob to select **TargetMachine**.

   • Use the bottom **Value** knob to select **DVM 2**.

This concludes the procedure to assign the Alcorn McBride DVM2 as the target machine to the Synergy remote port using Betacam protocol.

Accom APR Clipstore

This section describes the proper installation configuration required for a Synergy system to interface with an Accom APR Clipstore.

Use the following information to connect an Accom APR Clipstore to your Synergy Switcher:

   • Use the following communications settings when connecting the Accom APR Clipstore to the Synergy Switcher:

Synergy-to-Accom APR Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	Odd
Data Bits	8
Stop Bits	1

   • The Synergy Switcher connects to the Accom APR via the remote ports (1-5) on the back of the Synergy control panel, and the **RS422 Master Port** on the Accom APR.

      ~ The Synergy control panel remote port requires a Male 9-Pin, D-Type RS-422 connector.

      ~ The Accom APR RS422 Master Port requires a Male 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Accom APR. Other cable connections present on the Accom APR can be found in the Accom APR documentation.

Synergy-to-Accom APR Wiring Chart

Synergy Panel			Accom APR Clipstore	
Remote Port (1-5)	Signal		RS422 Master Remote Port	Signal
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground	→	6	Ground
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

n/c = Not Connected

Accom APR Clipstore Extra Options

In order to complete the communications set up on the Synergy Switcher, you must assign the Accom APR Clipstore as the target machine for the com port using Betacam protocol.

Use the following procedure to assign the Accom APR Clipstore as the target machine:

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.


```
Communications (1-2)
                                              Com Port:  Betacam  (R3)
Protocol: Betacam                                        RemAux   (A1)


Equipment connected to (e.g. FFV Omega)         Option:  TargetMachine
                                                        ↓Decode NAKs

                                                        ↑DVM 2
                                                Value:   Accom APR


              Select                          Custom        Extra
     Type     Device     Com Settings  Com Type Devices     Options
```

Communications — Extra Options Menu

3. Assign the Accom APR Clipstore as the target machine as follows:

   - Use the top **Com Port** knob to select the com port you want to assign a target machine for.
   - Use the middle **Option** knob to select **TargetMachine**.

- Use the bottom **Value** knob to select **Accom APR**.

This concludes the procedure to assign the Accom APR Clipstore as the target machine to the Synergy remote port using Betacam protocol.

Decode NAKs

This section provides set up information for the Decode NAKs (Not Acknowledgement) for those serial devices using the Betacam protocol.

A NAK message is sent from the serial device to the Synergy switcher to indicate that a Play command was received but not carried out. When you enable the **Decode NAKs** option, the Synergy switcher will act upon the NAK message and resend the Play command back to the serial device. You can assign the number of fields for the switcher to wait for a message before resending the Play command.

⚠✳ **Important**	The **Decode NAKs** option is enabled by default. The settings should only be modified should you encounter problems using the Play commands with your device or as advised by Ross Video Technical Support.

Use the following procedure to set up the Decode NAKs option:

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

Communications — Extra Options Menu

3. Assign a target machine to the selected device as follows:

   - Use the top **Com Port** knob to select the device you want to assign a target machine for.
   - Use the middle **Option** knob to select **TargetMachine**.
   - Use the bottom **Value** knob to select the target machine that you are using. You can select between the following:

      ~ **Generic** — Select this option if you are using a device not specified in the list.

      ~ **FFV Omega** — Select this option if you are using a **Fast Forward Video Omega Digital Disk Recorder**.

      ~ **DVM 2** — Select this option if you are using an **Alcorn McBride DVM2**.

~ **Accom APR** — Select this option if you are using an **Accom APR Clipstore**.

```
Communications (1-2)                                      L.A.S.T   (R1)
                                            Com Port:  Betacam   (R3)
Protocol: Betacam                                      RemAux    (A1)

                                                       ↑TargetMachine
Decode and count errors in NAK messages?    Option:  Decode NAKs
                                                       ↓Wait nFields

                                                             ↑No
                                            Value:          Yes

              Select                          Custom        Extra
    Type      Device    Com Settings  Com Type  Devices     Options
```

Communications — Extra Options (Decode NAKs) Menu

4. Enable the Decode NAKs option as follows:

   • Use the top **Com Port** knob to select the device you want to enable the Decode NAKs option for.

   • Use the middle **Option** knob to select **Decode NAKs**.

   • Use the bottom **Value** knob to select Yes or No as follows:

      ~ **Yes** — Select Yes to enable the Decode NAKs option.

✎ **Note** | The **Decode NAKs** option is set to **Yes** by default.

      ~ **No** — Select No to disable the Decode NAKs option.

```
Communications (1-2)                                      L.A.S.T   (R1)
                                            Com Port:  Betacam   (R3)
Protocol: Betacam                                      RemAux    (A1)

                                                       ↑Decode NAKs
If 0 ignore replies Else MAX reply Delay    Option:  Wait nFields
                                                       NPlayRetries

                                            Value:          ( 3)
                                                           Decimal
              Select                          Custom        Extra
    Type      Device    Com Settings  Com Type  Devices     Options
```

Communications — Extra Options (Wait nFields) Menu

5. Set the number of fields the switcher will wait before assuming the last Play command failed or was not received as follows:

   • Use the middle **Option** knob to select **Wait nFields**.

   • Use the bottom **Value** knob to select the number of fields you want the switcher to wait before assuming a NAK by default.

✎ **Note** | The **Wait nFields** value is set to **3** by default.

```
Communications (1-2)                                      L.A.S.T   (R1)
                                            Com Port:  Betacam   (R3)
Protocol: Betacam                                      RemAux    (A1)

                                                       ↑Wait nFields
  Max Play retries on failed or no reply    Option:  NPlayRetries

                                            Value:          ( 4)
                                                           Decimal
              Select                          Custom        Extra
    Type      Device    Com Settings  Com Type  Devices     Options
```

Communications — Extra Options (NPlayRetries) Menu

6. Set the number of Play command retries the switcher will attempt to send to the device as follows:

   • Use the middle **Option** knob to select **NPlayRetries**.

   • Use the bottom **Value** knob to select the number of fields you want the switcher to wait before assuming a NAK by default.

✎ **Note**   The **NPlayRetires** value is set to **4** by default.

This concludes the procedure to enable the Decode NAKs option for your Betacam device.

VDCP Interface Specifics

This section provides set up information for devices using specific VDCP protocols.

✎ **Note**   For information on setting up the **360 Systems Image Server 2000**, refer to the section "**360 Systems Image Server 2000 Communication**" on page 7–24.

The **Extra Options Menu** provides protocol set up options for external devices such as VTRs, Audio Servers, and Video Servers.

Use the following procedure to set up protocol options for a device such as a Video Server:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

Communications — Extra Options (Port Number) Menu

3. Assign a port number to the selected device as follows:

   • Use the top **Com Port** knob to select the device you want to adjust the port number for.

   • Use the middle **Option** knob to select **Port Number**.

   • Use the bottom **Value** knob to select the port number on the device that you are using. Refer to your device documentation for information on port settings.

✎ **Note**   Port numbers are from **0** to **7F** Hex.

Communications — Extra Options (Sub Address) Menu

4. Assign a sub address number to the selected device as follows:

✎ **Note**   Some devices, such as the **360 Systems Image Server 2000**, will set the **Sub Address #** to same as the **Port Number** when selected as the **TargetMachine**. Refer to the communications set up instructions for your device for specific settings for that device.

* Use the top **Com Port** knob to select the device you want to adjust the sub address for.
* Use the middle **Option** knob to select **Sub Address #**.
* Use the bottom **Value** knob to select the sub address on the device that you are using.

Communications — Extra Options (Target Machine) Menu

5. Assign a target machine to the selected device as follows:

* Use the top **Com Port** knob to select the device you want to adjust the target machine for.
* Use the middle **Option** knob to select **TargetMachine**.
* Use the bottom **Value** knob to select the target machine that you are using.

Target Machine Default Values

TargetMachine Option Selected	Option Value Settings			
	Media ID Length	**Timeout (fields)**	**Send Tries**	**Cmd Queueing**
Generic	Long IDs	28	10	Strict
ASCVR300 V2	ShortIDs	25	2	Relaxed
ASCVR300 V2.7	LongIDs	25	2	Relaxed
PinnacleThund	LongIDs	28	10	Strict
Spencer	ShortIDs	50	2	Relaxed

Target Machine Default Values

TargetMachine Option Selected	Option Value Settings			
	Media ID Length	**Timeout (fields)**	**Send Tries**	**Cmd Queueing**
GeeVS	LongIDs	15	15	Relaxed
360Sys IS2000	LongIDs	28	10	Strict
EVS MaxS	ShortIDs	6	3	Strict
AirSPEED	LongIDs	28	10	Strict

⚹	**Important**	For the devices listed in the table "**Target Machine Default Values**" on page 7–37, once the TargetMachine has been set, the remaining settings will automatically be adjusted to those shown in the table. You should not have to adjust these settings.

Communications — Extra Options (Media ID Length) Menu

6. Assign a media ID length for the selected device as follows:

✎	**Note**	The Media ID Length sets the maximum character length of the Clip IDs displayed in Synergy **VTR Clips**, **Inpoint/Outpoint** and **Remote Control** menus.

- Use the top **Com Port** knob to select the device you want to adjust the media ID length for.
- Use the middle **Option** knob to select **MediaIDLength**.
- Use the bottom **Value** knob to select either **Short IDs** or **Long IDs**.
  - ~ **Short IDs** — Select this option for devices that use ID lengths of up to **8** characters.
  - ~ **Long IDs** — Select this option for devices that use ID lengths of up to **32** characters.

Communications — Extra Options (Timeout) Menu

7. Assign a timeout value to the selected device as follows:

Note
The timeout value specifies the time, in fields, that the Synergy Switcher will wait for a reply from the device before trying to send a command again.

*   Use the top **Com Port** knob to select the device you want to adjust the timeout value for.
*   Use the middle **Option** knob to select **Timeout**.
*   Use the bottom **Value** knob to select the timeout value that you are using.

```
Communications (1-2)                                     Com Port:  VDCP     (R1)
Protocol: VDCP                                                      ↓Sony     (R3)

                                                                   ↑Timeout
Number of attempts to send command                         Option:  Send Tries
                                                                   ↓Cmd Queuing

                                                           Value:          ( 10)
                                                                         Decimal

              Select                                       Custom           Extra
     Type     Device     Com Settings     Com Type         Devices          Options
```

Communications — Extra Options (Send Tries) Menu

8. Assign a send tries value to the selected device as follows:

Note
The Send Tries value specifies the number of times that the Synergy Switcher will try to send the same command to the device if it has not received a confirmation response.

*   Use the top **Com Port** knob to select the device you want to adjust the send tries value for.
*   Use the middle **Option** knob to select **Send Tries**.
*   Use the bottom **Value** knob to select the send tries value that you are using.

```
Communications (1-2)                                     Com Port:  VDCP     (R1)
Protocol: VDCP                                                      ↓Sony     (R3)

                                                                   ↑Send Tries
Command queueing strict or relaxed                         Option:  Cmd Queuing
                                                                   ↓Record Time

                                                           Value:          Strict
                                                                          Relaxed

              Select                                       Custom           Extra
     Type     Device     Com Settings     Com Type         Devices          Options
```

Communications — Extra Options (Command Queuing) Menu

9. Assign a command queuing value to the selected device as follows:

Note
The CMD Queueing value indicates whether the Synergy Switcher must receive replies for every command sent to the device (Strict), or not (Relaxed).

*   Use the top **Com Port** knob to select the device you want to adjust the command queuing for.
*   Use the middle **Option** knob to select **Cmd Queuing**.

• Use the bottom **Value** knob to select either **Strict** or **Relaxed** command queuing.

10. Assign a record time to the selected device as follows:

✎ **Note**

> The Record Time value sets the maximum number of minutes for the Record transport command when programming custom controls for VDCP devices. Refer to the "**VTR Functions**" on page 8–20 for more information on programming custom control buttons for serial controlled devices.
>
> Ensure that the Synergy 1 Switcher is connected to a communications port on the VDCP device that enables recording. Refer to the documentation for your device for setup information.

• Use the top **Com Port** knob to select the device you want to assign a record time for.

• Use the middle **Option** knob to select **Record Time**.

• Use the bottom **Value** knob to select the maximum amount of time (in minutes) for the custom control to record.

    ~ The default time is set to **60** minutes, but you can assign any duration between 1 and 720 minutes.

```
Communications (1-2)

Protocol: VDCP                               Com Port: VDCP      (R1)
                                                      ↓Sony      (R3)

                                                      ↑Record Time
Set to PB/EE if VS Goes to EE with stop        Option: PlayBack Mode


                                               Value:           PB
                                                              PB/EE

         Select                       Custom        Extra
  Type   Device   Com Settings  Com Type  Devices   Options
```

Communications — Extra Options (Playback Mode) Menu

11. Assign a Playback mode to the selected device as follows:

✎ **Note**

> The Playback mode for most serial devices should already be correctly set. Use these controls only if required.
>
> Refer to the documentation for your device to verify what mode is required.

• Use the top **Com Port** knob to select the device you want to assign a Playback mode for.

• Use the middle **Option** knob to select **Playback Mode**.

• Use the bottom **Value** knob to select a Playback mode. You can select between the following:

    ~ **PB** — Use this option if your device does not go to Electronics-to-Electronics (EE) mode.

    ~ **PB/EE** — Use this option if your device does go to EE mode. By selecting this option, you enable the serial device to automatically go into PB/EE mode. If a Stop command is issued, the device will enter EE mode. If a pause command is issued, the device will stay in Playback mode.

This completes the procedure for setting up Extra Options device protocols.

Editor Communications Setup

The **Editor Communications Setup** procedure allows you to set up communications with an external edit controller. Once completed, the editor can control the Synergy switcher with a variety of standard and advanced edit control functions.

Use the following procedure to set up communications with an external editor:

1. Ensure that the **Editor Interface** option is installed. If not, please contact **Ross Video** for details. Refer to the section "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

2. Connect your edit controller to the Synergy 1 frame. The following figure illustrates the location of the **Editor Port**.
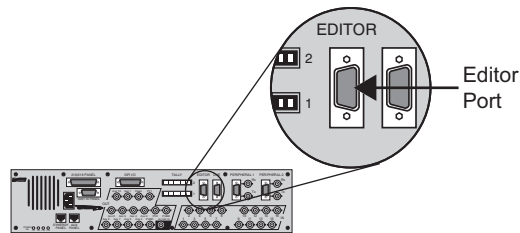
Synergy 1 Frame, Rear View – Editor Port

   • Use the proper 9-pin D-Type serial cable as required.

   • Refer to your edit controller's *Installation Manual* for details on its specific remote control communications port.

3. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

4. Press **Type** to display the **Communications Type Menu**.

Communications — Type Menu

5. Activate the Editor Port as follows:

   • Use the top **Com Port** knob to select the Editor port, **EDITOR (ED)**.

   • Use the middle **Device** knob to select **Editor**.

6. Press **Editor Protocol** to display the **Editor Protocol Menu**.

```
Communications (1-2)                              ↑RemAux    (A1)
                                        Com Port: EDITOR    (ED)
This  menu lets you setup
which      devices    are
controlled   by    which                           NONE
ports.                       Device:             GVG4000
                                                 ↓GVG100




                 Editor                        Custom      Extra
     Type       Protocol   Com Settings   Com Type  Devices    Options
```

Communications — Editor Protocol Menu

7. Select the Editor protocol as follows:

    - Use the top **Com Port** knob to select the Editor.

    - Use the middle **Device** knob to select the Editor protocol used by the selected device. You can select from the following:

        ~ **NONE** — Select this option when you are not connecting an Editor to the selected port.

        ~ **GVG4000** — Select this option when you are connecting an Editor using the GVG4000 Editor protocol.

        ~ **GVG100** — Select this option when you are connecting an Editor using the GVG100 Editor protocol.

        ~ **GVG200** — Select this option when you are connecting an Editor using the GVG200 Editor protocol.

8. Press **Com Settings** to display the **Com Settings Menu**.

```
Communications (1-2)                              ↑RemAux    (A1)
                                        Com Port: GVG4000   (ED)
This  menu lets you setup
your       com      port
parameters.                                       ↑19200
                                        Baud:     38400
                                                  ↓57600

                                                   NONE
                                        Parity:    ODD
                                                   EVEN
                 Editor                        Custom      Extra
     Type       Protocol   Com Settings   Com Type  Devices    Options
```

Communications — Com Settings Menu

9. Select the communications protocols for the Editor as follows:

    - Use the top **Com Port** knob to select the Editor you are setting the communications settings for.

    - Use the middle **Baud** knob to select baud rate for the Editor.

    - Use the bottom **Parity** knob to select the parity for the Editor.

10. Press **Com Type** to display the **Editor Com Type Menu**.

```
┌─────────────────────────────────────────────────────────┐
│ Communications (1-2)                        ↑RemAux   (A1)│
│                                    Com Port: GVG4000   (ED)│
│ This  menu lets you setup                                 │
│ your com port types.                                      │
│                                              RS-232       │
│                                    Type:     RS-422       │
│                                              ↓RS-232 Null │
│                                                           │
│                                                           │
│                                                           │
│               Editor                   Custom    Extra    │
│     Type     Protocol  Com Settings  Com Type  Devices  Options│
└─────────────────────────────────────────────────────────┘
```
Communications — Com Type Menu

11. Select the type of serial communication that will be used to communicate with the Editor as follows:

   • Use the top **Com Port** knob to select Editor you want to set the communication type for.

   • Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port.

✎ **Note** | If you are using the GVG100 Editor protocol you will have to set the Extra Options. Refer to the section "**Extra Options for GVG100 Protocol**" on page 7–43 for more information.

This completes the procedure for setting up the communications with an Editor.

Extra Options for GVG100 Protocol

Use the following procedure to set the Extra Options settings for the GVG100 Editor protocol:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

```
┌─────────────────────────────────────────────────────────┐
│ Communications (1-2)                        ↑RemAux   (A1)│
│ Protocol: GVG100                   Com Port: GVG100    (ED)│
│                                                           │
│ What type of editor is being used?  Option:  Editor Type │
│                                              Pattern      │
│                                              ↑Editware    │
│                                    Value:    Sony         │
│                                              Generic      │
│               Editor                   Custom    Extra    │
│     Type     Protocol  Com Settings  Com Type  Devices  Options│
└─────────────────────────────────────────────────────────┘
```
Communications — Extra Options, GVG100 Menu

3. Use the top **Com Port** knob to select the editor port that the editor using the GVG100 editor protocol is connected to.

---

4. Select the type of Editor you have connected as follows:

- Use the middle **Option** knob to select **Editor Type**.

- Use the bottom **Value** knob to select the type of editor you have connected to the Editor port. You can select from the following:

  ~ **Editware** — Select this option if you are connecting an Editware Editor to the selected port.

  ~ **Sony** — Select this option if you are connecting a Sony Editor to the selected port.

  ~ **Generic** — Select this option if you are connecting any other Editor to the selected port.

```
Communications (1-2)                          ↑RemAux    (A1)
                                   Com Port:   GVG100    (ED)
Protocol: GVG100

                                              ↑Editor Type
Select Pattern # or Wipe Button for wipe       Option:   Pattern

                                              Value:      Pattern #
                                                          Wipe Bttn
              Editor                          Custom      Extra
    Type      Protocol   Com Settings  Com Type  Devices   Options
```

Communications — Extra Options, GVG100 Pattern Menu

5. Select the way you access the wipe patterns as follows:

- Use the middle **Option** knob to select **Pattern**.

- Use the bottom **Value** knob to select the way you access the wipe patterns. You can select from the following:

  ~ **Pattern #** — Select this option to use the wipe pattern numbers to enter the wipe into the editor.

  ~ **Wipe Bttn** — Select this option to use the wipe button numbers to enter the wipe into the editor.

This completes the set up of the editor port with the GVG100 Editor protocol.

Custom Device Setup

The **Custom Device Setup** procedure allows you to set up communications parameters with custom external devices.

	Note	The **Custom Device Setup** is an advanced feature requiring technical knowledge of serial protocols. Refer to the section "**Custom Devices – Uses and Limitations**" on page 17–2 for detailed information and set up procedures.

DSK (CDK-111A-M) Communications Setup

The **DSK Communication Setup** procedure allows you to set up communications with CDK-111A-M Downstream Keyers. Once the procedure is completed, you will have full functionality of up to two external keyers on the Synergy 1 SD Switcher.

Use the following procedure to set up communications with a CDK-111A-M in Downstream Keyer mode:

1. Ensure that the CDK-111A-M boards are installed. If not, please refer to the section "**Installing the DSK (CDK-111A-M) Board**" on page 9–46 and the section "**External Downstream Keyer (CDK-111A-M) Cabling**" on page 3–10.

2. Navigate to the **Communications Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

3. Press **Type** to display the **Type Menu**.

Communications — Type Menu

4. Assign a Peripheral port to the DSK as follows:

   • Use the top **Com Port** knob to select the peripheral port (**PERIPH1** or **PERIPH2**) on the Synergy 1 SD frame that is connected to the CDK-111A-M.

   ✎ **Note** You can connect to the DB9 on **Peripheral Port 2** if the Com Type is set to **RS-422**.

   • Use the middle **Device** knob to select the **DSK** (External Downstream Keyer) device.

5. Press **Select Device** to display the **Select Device Menu**.

Communications — Select Device Menu

6. Select the DSK you want to assign to the peripheral port as follows:

- Use the top **Com Port** knob to select the peripheral port you want to assign a specific DSK to.

- Use the middle **Device** knob to select the type of DSK that is connected to the peripheral port. You can chose between the following:

  ~ **NONE** — Select this option to not assign a DSK to the selected port.

✎ **Note** | If the CDK-111A-M card is not being used and is removed from the frame, you must set the middle **Device** knob to **NONE**.

  ~ **CDK111** — Select this option to assign a **CDK-111A-M** to the selected port.

7. Press **Com Settings** to display the **Com Settings Menu**.

```
┌─────────────────────────────────────────────────────────┐
│ Communications (1-2)                        ↑RemAux   (A1)│
│                                  Com Port:  CDK111    (P1) │
│ This  menu lets you setup                                 │
│ your      com      port                                   │
│ parameters.                                         9600  │
│                                     Baud:          19200  │
│                                                   ↓38400  │
│                                                     NONE  │
│                                Parity (Fixed):       ODD  │
│                                                     EVEN  │
├─────────────────────────────────────────────────────────┤
│         Select                    Custom      Extra       │
│  Type   Device   Com Settings  Com Type  Devices  Options │
└─────────────────────────────────────────────────────────┘
```
Communications — Com Settings Menu

8. Set the communications protocols for the DSK as follows:

- Use the top **Com Port** knob to select the DSK you are setting the communications settings for.

- Use the middle **Baud** knob to select **19200** as the baud rate for the CDK-111.

- The bottom **Parity** knob is fixed at **ODD**.

9. Press **Com Type** to display the **Com Type Menu**.

```
┌─────────────────────────────────────────────────────────┐
│ Communications (1-2)                                      │
│                                  Com Port:  CDK111    (P1) │
│ This  menu lets you setup                                 │
│ your com port types.                                      │
│                                                   RS-232  │
│                                     Type:         RS-422  │
│                                                           │
│                                                           │
├─────────────────────────────────────────────────────────┤
│         Select                    Custom      Extra       │
│  Type   Device   Com Settings  Com Type  Devices  Options │
└─────────────────────────────────────────────────────────┘
```
Communications — Com Type Menu

10. Select the type of serial communication that will be used to communicate with the DSK as follows:

- Use the top **Com Port** knob to select the DSK you want to set the communications type for.

- Use the middle **Type** knob to select **RS-422**.

This completes the set up of the peripheral ports for the CDK-111A-M Downstream Keyer.

Router Communications Setup

Use the **Router Setup** procedure to set up communications parameters with routing switchers.

Ensure that the **Routing Switcher Interface** option is installed. If not, please contact **Ross Video** for details. Refer to the section "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

The **Router Setup** procedure allows you to set up communications parameters with routing switchers. Routers connect to the Synergy 1 Switcher using the remote ports on the rear of the control panel.

✎	**Note**	If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open.

Use the following procedure to configure a routing switcher:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

```
Communications (1-2)                              ↑REMOTE 3 (R3)
                                      Com Port:   REMOTE 4 (R4)
This  menu lets you setup                         ↓REMOTE 5 (R5)
what   each  of  the  com
ports are used for.                               ↑VTR (CLIP)
                                      Device:     Router
                                                  ↓Still Store



            Select                    Custom        Extra
    Type    Device   Com Settings   Com Type   Devices      Options
```

Communications Device Type Menu

3. Assign a com port to the Router as follows:

   • Use the top **Com Port** knob to select the remote port on the Synergy 1 Switcher that is connected to the router.

   • Use the middle **Device** knob to select **Router**.

4. Press **Select Device** to display the **Select Device Menu**.

```
Communications (1-2)                              ↑VDCP    (R2)
                                      Com Port:   REMOTE 4 (R4)
This  menu lets you setup                         RemAux   (A1)
which    devices    are
controlled  by   which                            NONE
ports.                                Device:     Jupiter
                                                  ↓Pesa



            Select                    Custom        Extra
    Type    Device   Com Settings   Com Type   Devices      Options
```

Communications — Select Device Menu

5. Select the device you want to assign to the Router communications port as follows:

- Use the top **Com Port** knob to select the communications port you want to assign a specific router to.

- Use the middle **Device** knob to select the type of routing switcher that is connected to the port. You can select between the following:

    ~ **NONE** — Use this option to not assign a router to the selected com port.

    ~ **Jupiter** — Use this option to assign a **Philips Jupiter Router** to the selected com port using the ESswitch protocol. Refer to the section, "**Philips Jupiter**" on page 7–54 for details.

    ~ **Pesa** — Use this option to assign a **PESA Cougar Router** to the selected com port using the CPU-Link protocol. Refer to the section, "**PESA Cougar**" on page 7–56 for details.

    ~ **Pro-Bel** — Use this option to assign a **Chyron (Pro-Bel) Freeway Router** to the selected com port using the General Remote Control protocol. Refer to the section, "**Chyron (Pro-Bel) Freeway**" on page 7–57 for details.

    ~ **Ross EOS** — Use this option to assign a **Ross Kondor EOS-2000 Router** to the selected com port using the Geneos protocol. Refer to the section, "**Ross Kondor (Geneos)**" on page 7–58 for details.

✎ **Note** | If the **Ross Routing System** does not have a port expander, and a PC is required to be connected to the Router at all time, the Ross ASCII protocol will have to be used to allow the Switcher to control the router.

    ~ **Via 32** — Use this option to assign a **Leitch VIA32 Router** to the selected com port using the XY protocol. Refer to the section, "**Leitch VIA 32**" on page 7–61 for details.

    ~ **GVG 7000** — Use this option to assign a **Grass Valley SMS 7000 Router** to the selected com port using the Native protocol. Refer to the section, "**GVG SMS 7000**" on page 7–63 for details.

    ~ **RossASCII** — Use this option to assign a **Ross Kondor** or **Ross NK Router** to the selected com port using the Ross ASCII protocol. Refer to the section, "**Ross (ASCII)**" on page 7–65 for details.

    ~ **Yosemite** — Use this option to assign a **Sierra Yosemite Router** to the selected com port using the Native protocol. Refer to the section, "**Sierra Yosemite**" on page 7–67 for details.

    ~ **NVSP** — Use this option to assign an **NVISION Router** to the selected com port using the NVISION Serial protocol. Refer to the section, "**NVISION (NVSP)**" on page 7–68 for details.

    ~ **Extron** — Use this option to assign an **Extron Router** to the selected com port using the Extron RS-232 protocol. Refer to the section, "**Extron System 8/10 Plus Switcher Router**" on page 7–69 for details.

6. Press **Com Settings** to display the **Com Settings Menu**.

```
Communications (1-2)                              ↑VDCP      (R2)
                                        Com Port: Jupiter    (R4)
This  menu lets you setup                         RemAux     (A1)
your        com      port
parameters.                                       ↑19200
                                           Baud:  38400
                                                  ↓57600

                                                  NONE
                                         Parity:  ODD
                                                  EVEN
            Select                       Custom       Extra
   Type     Device    Com Settings  Com Type  Devices  Options
```
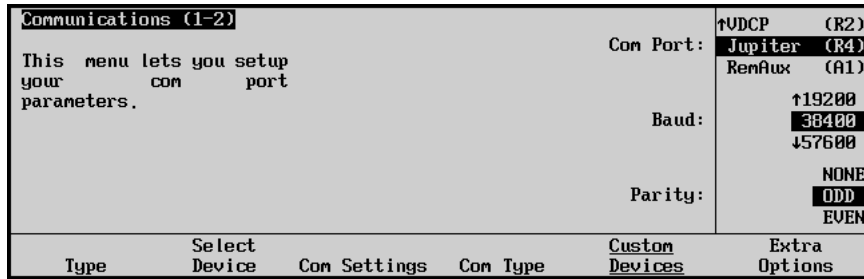
Communications — Com Settings Menu

7. Set the communications protocols for the Router as follows:

   • Use the top **Com Port** knob to select the Router you are setting the communications settings for.

   • Use the middle **Baud** knob to select the baud rate for the Router. Refer to the section, "**Router Interface Specifics**" on page 7–54 for the specific settings for your router.

   • Use the bottom **Parity** knob to select the parity, **NONE**, **ODD** or **EVEN** for the specific Router. Refer to the section, "**Router Interface Specifics**" on page 7–54 for the specific settings for your router.

Note

Some of the communications settings are **Fixed**, or locked. These settings have been preset for the selected Router and do not need to be changed.
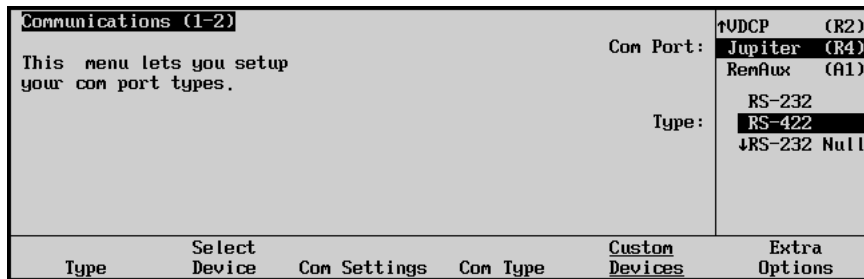
8. Press **Com Type** to display the **Com Type Menu**.

```
Communications (1-2)                              ↑VDCP      (R2)
                                        Com Port: Jupiter    (R4)
This  menu lets you setup                         RemAux     (A1)
your  com port types.
                                                  RS-232
                                           Type:  RS-422
                                                  ↓RS-232 Null



            Select                       Custom       Extra
   Type     Device    Com Settings  Com Type  Devices  Options
```

Communications — Com Type Menu

9. Select the type of serial communication that will be used to communicate with the router as follows:

   • Use the top **Com Port** knob to select the Router you want to set the communication type for.

   • Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port. Refer to the section "**Router Interface Specifics**" on page 7–54 for the specific settings for your router.

This completes the procedure for setting up the communications with the routing switcher, next you will have to assign the video signal from the router to a specific BNC input.

Note

You can set up a router to provide Audio Follow Video for an Aux Bus. Refer to section "**Assigning Router Follow**" on page 9–9 for details.

Use the following procedure to assign the routing switcher to a specific BNC input.

✎ **Note** | On the **Ross Routing Systems**, the matrix is controlled by breakaways that have the different levels assigned to them. Refer to your Ross documentation for information on assigning different levels to a breakaway.
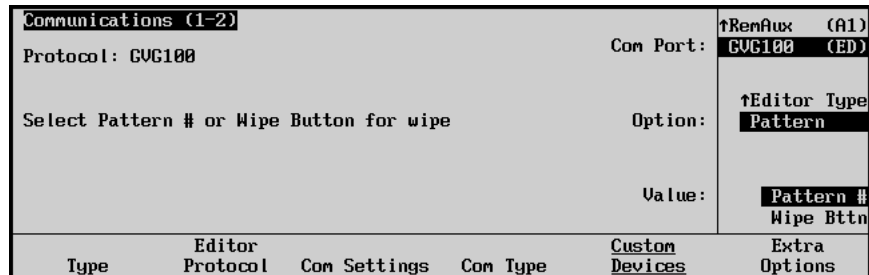
1. Navigate to the **BNC Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

```
BNC (1-2)
                                                      BNC 1    ( 1)
                                              BNC:    BNC 2    ( 2)
Use    this    menu   to   BNC:       BNC 2    ( 2)   ↓BNC 3    ( 3)
associate  a  function or  Maps to:    Button #2
a  device type with a BNC  Type:      Router              ↑Alpha
input.                     Tally:      P2,F2      Type:    Router
                           Auto Key:   Black              ↓Still
                           Asp Ratio: 4:3
                                                   Asp Ratio:      4:3
                                                                  16:9

                                                  Auto Key
  BNC Names    BNC Type      Tally       Alpha      Setup        Panel
```
BNC — Type Menu

3. Assign a BNC to a Router as follows:

   • Use the top **BNC** knob to select the BNC that the router is connected to.

   • Use the middle **Type** knob to select **Router**.

   • Use the bottom **Asp Ratio** knob to select the video aspect ratio of the router output.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Router Setup** to display the **Router Setup Menu**.

```
BNC (2-2)
                                                  BNC:    BNC 2    ( 2)
Use    this    menu   to   BNC:       BNC 2    ( 2)
associate  a  Router input  Maps to:    Button #2
with  a  Router Com Port,  Type:      Router
and  a Router output with  Tally:      P2,F2      Router:  Pesa      (R1)
a BNC.                     Auto Key:   Black
                           Asp Ratio: 4:3
                                                   BNC Out:      Output 001
                                                                ↓Output 002
   Router       Router        N/S                Still/CG      Camera
   Setup        Other       Disable     Audio     Setup         Setup
```
BNC — Router Setup Menu

6. Assign a specific Routing Switcher to the Router BNC as follows:

   • Use the top **BNC** knob to select the BNC you want to assign the specific router to.

✎ **Note** When you assign a remote device to a BNC crosspoint, pressing that crosspoint button will display the corresponding device control menus. If it is on a Key bus, pressing the button will cycle through the device control menus and the **Key Type Menu**.

   • Use the middle **Router** knob to select the router port for the specific router you want to assign to the BNC.

   • Use the bottom **BNC Out** knob to select the Output BNC (**001**-**256**) on the router that is feeding the BNC on the Synergy Switcher.

✎ **Note** You must select **Output 001** for the router output when using an **Extron System 8/10 Plus routing switch**.

7. Press **Router Other** to display the **Router Other Menu**.

```
┌─────────────────┐
│BNC (2-2)        │
│                     BNC:  BNC 2    ( 2)
│Use  this  menu  to  set  BNC:       BNC 2    ( 2)
│secondary  variables  for  Maps to:    Button #2
│the Router BNCs.           Type:      Router
│                           Tally:     P2,F2          Level:
│                           Auto Key:  Black                   ALL
│                           Asp Ratio: 4:3                     ↓0
│
│  Router      Router       N/S                  Still/CG     Camera
│  Setup       Other      Disable     Audio      Setup        Setup
```

BNC — Router Other Menu

8. Select the router levels that will be switched for the routed connected to the specific BNC as follows:

✎ **Note** On the **Ross Routing Systems**, this is the **Breakaway** knob and you can only select from **1** through **8**.

   • Use the top **BNC** knob to select the router you want to set the levels for.

   • Use the middle **Level** knob to configure the router level(s), or breakaways, that will be switched on the router when a new input is selected. Choices are dependent upon the type of router connected, and include:

✎ **Note** On the **Extron System 8/10 Plus Switchers**, you can only select from **1** through **4**.

   ~ **All** — Select this option when you want to switch all levels when you select a new input source.

   ~ **0-127** — Any one level (numbered from **0** to **127**).

✎ **Note** Zero (**0**) corresponds to the first level on the router, possibly numbered as 1 on the router.

9. Repeat this procedure for each switching router you wish to control from the Synergy Switcher.

Router Communications Notes

Once properly configured, there is consistent communication from the Synergy Switcher to the router.

- If the Synergy Switcher has not received a response of any sort from the router for one full second, a message is sent to generate a response.

- If the Synergy Switcher has not received a response for two seconds, it is assumed that there is a communications problem. The message "COMMUNICATIONS LOST" will appear in the **Router Matrix Control Menu**.

The Router Matrix Control Menu

The **Router Matrix Control Menu** allows you to assign different router sources to a BNC that is assigned to the router.

✓ **Operating Tip**

> You can access the Router input that is assigned to a BNC by pressing the corresponding crosspoint button. The **Router Matrix Control Menu** will be displayed.

Use the following procedure to change the source on a router:

1. Navigate to the **Remote Control Select Menu** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **Effects** (to display the **Effects Menu 1-2**).
   - **MORE** (to display the **Effects Menu 2-2**).
   - **Remote Control Select** (to display the **Remote Control Select Menu**).

```
Remote Control Select


Select a BNC to control via
the Remote Menu, then press GO.
                                             BNC:  BNC 4    ( 4)
                                                   BNC 5    ( 5)
                                                   BNC 6    ( 6)




     VTR           Router        Robotic
    Control        Control        Camera              CharGen      GO!!
```
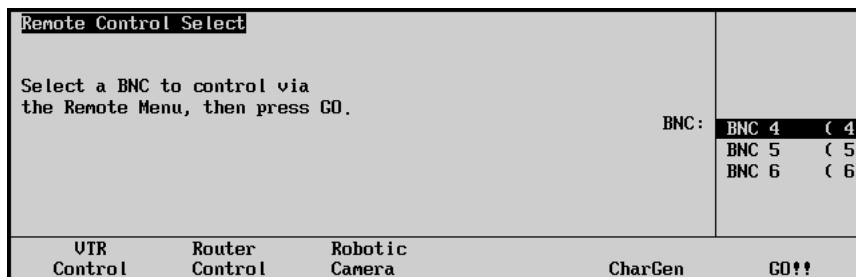
Router Control Select Menu

2. Press **Router Control** to show a list of BNCs assigned to a router.

3. Use the middle **BNC** knob to select the BNC you want to change the source for.

4. Press **GO!!** to display the **Router Matrix Control Menu**.

✎ **Note**

> If a "COMMUNICATIONS LOST" message appears on the menu, the Synergy Switcher has been unsuccessful at receiving a response from the Router. Check the cable connections and the configuration on the switcher and the router.

```
┌──────────────────────────────────────────────────┬──────────┐
│ Router Matrix Control                            │ ↑Src 250 │
│                                          x1      │  Src 251 │
│ Controlling: BNC 4   (4)                         │  Src 252 │
│      Router: RossASCII(R4)                       │  Src 253 │
│      Output:  Ross  1 (1)                x10     │ ▐Src 254 │
│                                                  │          │
│                                                  │          │
│                                          x100    │          │
│                                                  │          │
├──────────────────────────────────────────────────┼──────────┤
│    Src 254        Src 124                        │ Refresh  │
│    BNC 4          BNC 5                          │ Sources  │
└──────────────────────────────────────────────────┴──────────┘
```

Router Matrix Control Menu

✓ **Operating Tip**
> You can select a different BNC at this point by pressing the corresponding softkey.

5. Press **Refresh Sources** to update the list of available sources on the router.

6. Use the top **x1** knob to select the source on the router you want to assign to the selected BNC. When the source is selected, the router automatically assigns it to the BNC.

✓ **Operating Tip**
> Use the **x10** or **x100** knobs to move through the source list at 10 or 100 at a time.

When you first enter the **Router Matrix Control Menu**, messages are sent to all connected Routers to determine the current Source-to-Destination (Router output to Synergy) mappings. Another message is sent to retrieve the names or numbers of all sources connected to the Router.

If either of these messages is not supported (in particular, the messages concerning mnemonics) then default values are created (i.e. "**Src ###**", "**Dest ###**").

Router Interface Specifics

This section provides information specific to each router type supported.

Philips Jupiter

Use the following information to configure and connect your **Philips Jupiter** router, using the **ESswitch** protocol, to your Synergy Switcher:

- Use the following communications setting when connecting the Philips Jupiter to the Synergy Switcher:

Synergy-to-Philips Jupiter Communication Settings

Setting	Value
Transmission Standard	**RS-422**
Baud Rate	**38400**
Parity	**Odd**
Data Bits	**8**
Stop Bits	**1**

- The Synergy panel connects to the Jupiter router via the remote ports (1-5) on the Synergy control panel, and an odd numbered (1, 3, 5, 7) serial port on the rear of the Jupiter chassis.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The Jupiter serial port requires a 9-pin, D-type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Philips Jupiter router. Other cable connections present on the Jupiter router can be found in the Philips Jupiter documentation.

Synergy-to-Philips Jupiter Wiring Chart

Synergy Panel			Philips Jupiter	
Remote Port 1-5	Signal		Serial Port (1, 3, 5 or 7)	Signal
1	Chassis			n/c
2	RxA (Rx-)	→	8	Tx-
3	TxB (Tx+)	→	7	Rx+
4	n/c			n/c
5	Ground			n/c
6	Ground			n/c
7	RxB (Rx+)	→	3	Tx+
8	TxA (Tx-)	→	2	Rx-
9	Chassis			n/c

n/c = Not Connected

- The **Configuration Set** must be configured with the following (using Philips Configuration Editor Software — valid as of version **5.1.0**):

  ~ In the **Configure\Serial Protocol Menu**, configure the ports to use ESswitch (ESW) protocol and the appropriate Baud rate setting. Repeat for all port(s) connected to Synergy.

  ~ In the **Configure\MPK Devices Menu**, set up a device with the "type" as **Serial** and set to use the port connected to the Synergy.

  ~ The **Input Set**, **Output Set** and **Level Set** must be set to the appropriate "sets" configured in the **Configure\Control Panel Sets Sub-menu**. Each Synergy to be attached must be configured as a separate MPK Device on the appropriate port.

  ~ For more information concerning the configuration of a Set and downloading the Set to the controller, refer to the Jupiter documentation.

PESA Cougar

Use the following information to configure and connect your **PESA Cougar** router, using the **CPU-Link** protocol, to your Synergy Switcher:

	Note	In order to use the RS-422 communications protocol, you may have to use an External Controller to interface between the Cougar and the Synergy Switcher. Refer to your PESA Cougar documentation for more information on controlling your router remotely.

- Use the following communications setting when connecting the PESA Cougar to the Synergy Switcher:

Synergy-to-PESA Cougar Communication Settings

Setting	Value
Transmission Standard	**RS-422**
Baud Rate	**9600**
Parity	**NONE**
Data Bits	**8**
Stop Bits	**2**

- The Synergy panel connects to the PESA Cougar router via the remote ports (1-5) on the Synergy control panel, and the External Controller for the Cougar chassis.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The PESA port may require a 9-pin, D-type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Pesa Cougar router. Other cable connections present on the Cougar chassis can be found in the Pesa Cougar documentation.

Synergy-to-PESA Cougar Wiring Chart

Synergy Panel			Pesa Cougar	
Remote Port 1-5	**Signal**		**Remote Port**	**Signal**
1	Chassis			Ground
2	RxA (Rx-)	→ 3		Tx-
3	TxB (Tx+)	→ 2		Rx+
4	n/c			Ground
5	Ground			n/c
6	Ground	→ 6		Ground
7	RxB (Rx+)	→ 8		Tx+
8	TxA (Tx-)	→ 7		Rx-
9	Chassis			Ground

n/c = Not Connected

- The **Cougar Configuration** must be configured to allow **CPU-Link Protocol** control on the port connected to Synergy. To accomplish this, follow the directions below using the Win3500Plus Control Software (valid as of version **1.2**):

  ~ Open the configuration to be used on the Pesa (File\Open Configuration…).

  ~ Open the Configuration\CPU Link… menu.

  ~ Select an **RS-422** port.

  ~ Configure this RS-422 port for the CPU Link Protocol using the following:

    – **Baud — 9600**

    – **Parity — NONE**

    – **Data Bits — 8**

    – **Stop Bits — 2**

  ~ Exit this dialog box and save the configuration (File\Save Configuration…).

  ~ Download the configuration to the controller by selecting System\Download Configuration to Controller.

  ~ For more information concerning the set up and downloading of a Configuration, refer to the Pesa documentation for the Controller.

Chyron (Pro-Bel) Freeway

Use the following information to configure and connect your **Chyron Freeway** router, using the **General Remote Control** protocol, to your Synergy Switcher:

- Use the following communications setting when connecting the Chyron Freeway to the Synergy Switcher:

Synergy-to-Chyron Freeway Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	38400
Parity	NONE
Data Bits	8
Stop Bits	1

- The Synergy panel connects to the Chyron Freeway router via the remote ports (1-5) on the Synergy control panel and the RS-485-2 port on the rear of the Chyron Freeway chassis.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The Freeway chassis port requires an RS-485-2 connector.

Important

The Freeway must be configured to allow it to be controlled using the RS-485-2 port. For information concerning this set up, refer to your Chyron (Pro-Bel) Freeway documentation or contact your sales representative at Chyron (Pro-Bel).

- Cable connections in the following table refer only to those between the Synergy control panel and the Chyron Freeway router. Other cable connections present on the Freeway router can be found in the Chyron Freeway documentation.

Synergy-to-Chyron Freeway Wiring Chart

| Synergy Panel | | | Chyron Freeway | |
Remote Port (1-5)	Signal		RS-485-2 Port	Signal
1	Chassis			n/c
2	RxA (Rx-)	→	2	Tx-
3	TxB (Tx+)	→	3	Rx+
4	n/c			n/c
5	Ground			n/c
6	Ground			n/c
7	RxB (Rx+)	→	7	Tx+
8	TxA (Tx-)	→	8	Rx-
9	Chassis			n/c

n/c = Not Connected

Ross Kondor (Geneos)

Use the following information to configure and connect your **Ross Kondor EOS-2000** router, using the **Geneos (EOS)** protocol, to your Synergy Switcher. The Ross Kondor can be connected to your Synergy Switcher either using the CPU Port Expander on the Ross Kondor Router or not. Both methods are listed below.

With CPU Port Expander

- Use the following communications setting when connecting the Ross Kondor to your Synergy Switcher using the CPU Port Expander on the Ross Kondor:

✎ **Note** The Ross Kondor can support both RS-232 and RS-422/485 with the CPU Port Expander. Settings for both are described here.

Synergy-to-Ross Kondor (Geneos) Communication Settings

Setting	Value 1	Value 2
Transmission Standard	RS-232	RS-422/485
Baud Rate	57600	57600
Parity	NONE	NONE
Data Bits	8	8
Stop Bits	1	1

- The Synergy panel connects to the Ross router via the remote ports (1-5) on the Synergy control panel, and the device ports (1-8) on the CPU Port Expander of the Ross Kondor Router.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-232 or RS-422/485 (depending on the transmission standard you are using) connector.

  ~ The device port on the Ross CPU Port Expander requires a 9-pin, D-type RS-232 or RS-422/485 (depending on the transmission standard you are using) connector.

Cable connections in the following table refer only to those between the Synergy control panel and the Ross router. Other cable connections present on the Kondor rack frame can be found in the Ross documentation.

Synergy-to-Ross (Geneos) Wiring Chart for RS-232

Synergy Panel			Ross Geneos Rack Frame	
Remote Port (1-5)	Signal		CPU Port Expander Connector (Male)	Signal
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

Synergy-to-Ross (Geneos) Wiring Chart for RS-422-485

Synergy Panel			Ross Geneos Rack Frame	
Remote Port (1-5)	Signal		CPU Port Expander Connector (Male)	Signal
1	Chassis			
2	RxA (Rx-)	→	2	Tx-
3	TxB (Tx+)	→	3	Rx+
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	RxB (Rx+)	→	7	Tx+
8	TxA (Tx-)	→	8	Rx-
9	Chassis			

n/c = Not Connected

- The Ross CPU Port Expander device port must be configured as RS-422 and allow "Specified Dst Stat" to pass through. The Port Expander's "CPU" port connects to the Geneos Rack Frame's "PC" port.

- Ross Routing Systems do not output source or destination names to the Synergy Switcher. Therefore, Synergy menus display:

  ~ "**Src #**" values (0-255) which represent the *virtual* input number of Level 1 on the Ross Routing System.

  ~ "**Output #**" values (1-256) which represent the *virtual* output number of Level 1 on the Ross Routing System.

Important

> Ross Video recommends that you keep the virtual input#/output# selections consistent with the physical input#/output# selections in the Physical Map of the Ross Routing System . Refer to the router documentation for further details.

- The Synergy switcher controls the Ross Routing System using the router's virtual input to virtual output using its breakaway function. The breakaway number corresponds to the selected level in the **BNC Menu 2-2 — Router Other Menu**. Synergy supports levels 1-8.

Without CPU Port Expander

- Use the following communications setting when connecting the Ross Kondor to your Synergy Switcher:

Synergy-to-Ross Kondor (Geneos) Communication Settings

Setting	Value
Transmission Standard	**RS-232**
Baud Rate	**57600**
Parity	**NONE**
Data Bits	**8**
Stop Bits	**1**

- The Synergy panel connects to the Ross Router via the remote ports (1-5) on the Synergy control panel, and the PC Port of the Ross Kondor Router.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-232 connector.

  ~ The PC Port on the Ross Router requires a 9-pin, D-type RS-232 connector.

Cable connections in the following table refer only to those between the Synergy control panel and the Ross router. Other cable connections present on the Kondor rack frame can be found in the router documentation.

Synergy-to-Ross (Geneos) Wiring Chart for RS-232

Synergy Panel			Ross Geneos Rack Frame	
Remote Port (1-5)	Signal		CPU Port Expander Connector (Male)	Signal
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

- Ross Routing Systems do not output source or destination names to the Synergy Switcher. Therefore, Synergy menus display:

  ~ "**Src #**" values (0-255) which represent the *virtual* input number of Level 1 on the Ross Routing System.

  ~ "**Output #**" values (1-256) which represent the *virtual* output number of Level 1 on the Ross Routing System.

Important

> Ross Video recommends that you keep the virtual input#/output# selections consistent with the physical input#/output# selections in the Physical Map of the Ross Routing System. Refer to the router documentation for further details.

- The Synergy Switcher controls the router using the router's virtual input to virtual output using its breakaway function. The breakaway number corresponds to the selected level in the **BNC Menu 2-2 — Router Other Menu**. Synergy supports levels 1-8.

For information concerning router cable assembly, AUX port, virtual input/output, and breakaway set up, please refer to your Ross Routing System documentation or contact Ross Video Technical Support.

Leitch VIA 32

Use the following information to configure and connect your **Leitch VIA 32** router, using the **XY** protocol, to your Synergy Switcher. The **Leitch VIA 32** can be connected to your Synergy Switcher using either a RS-422 or RS-232 cable. Both methods are described below.

Important

> The Leitch VIA 32 router must be equipped with the optional internal serial transmit/receive hardware to allow RS-422 access. Refer to your Leitch VIA 32 documentation for information on obtaining and installing this option.

- Use the following communications setting when connecting the Leitch VIA 32 to the Synergy Switcher:

Note Use the DIP switch SW2 on the front of the VIA 32 panel to set the port as required.

Synergy-to-Leitch VIA 32 Communication Settings

Setting	Value 1	Value 2
Transmission Standard	RS-232	RS-422
Baud Rate	38400	38400
Parity	NONE	NONE
Data Bits	8	8
Stop Bits	1	1

- The Synergy panel connects to the Leitch Via 32 router via the remote ports (1-5) on the Synergy control panel and the serial port on the VIA 32 chassis using the XY protocol.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type male RS-422 connector to allow **RS-422** access.

  ~ The Leitch VIA 32 chassis serial port requires a 9-Pin, D-Type, RS-422 connector to allow **RS-422** access.

  OR

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type male RS-232 connector to allow **RS-232** access.

  ~ The Leitch VIA 32 chassis serial port requires a 9-Pin, D-Type, RS-232 connector to allow **RS-232** access.

Cable connections in the following table refer only to those between the Synergy control panel and the Leitch VIA 32 router. Other cable connections present on the VIA 32 router can be found in the Leitch VIA 32 documentation.

Synergy-to-Leitch VIA 32 RS–232 Wiring Chart

Synergy Panel			Leitch VIA 32	
Remote Port (1-5)	Signal		Serial Control Port	Signal
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

Synergy-to-Leitch VIA 32 RS–422 Wiring Chart

Synergy Panel			Leitch VIA 32	
Remote Port (1-5)	**Signal**		**Serial Control Port**	**Signal**
1	Chassis			n/c
2	RxA (Rx-)	→	2	Ta (Tx-)
3	TxB (Tx+)	→	3	Rb (Rx+)
4	n/c			n/c
5	Ground			n/c
6	Ground			n/c
7	RxB (Rx+)	→	7	Tx+
8	TxA (Tx-)	→	8	Rx-
9	Chassis			n/c

GVG SMS 7000

Use the following information to configure and connect your **Grass Valley Group (GVG) Signal Management System (SMS) 7000** router, using the **Native** protocol, to your Synergy Switcher:

- Use the following communications setting when connecting the GVG SMS 7000 to the Synergy Switcher:

Note — Use the SMS 7000 configuration tool to set the port (port number depends on the socket that the AMEZI is installed) as required.

Synergy-to-GVG SMS 7000 Communication Settings

Setting	Value
Transmission Standard	**RS-422**
Baud Rate	**38400**
Parity	**NONE**
Data Bits	**8**
Stop Bits	**1**

- The Synergy panel connects to the GVG SMS 7000 router via the remote ports (1-5) on the Synergy control panel and either the **ASYNC RS-232** port (1-3) or the **ASYNC RS-422-3** port on the rear of the SMS 7000 chassis.

~ The Synergy control panel remote port requires a 9-Pin, D-Type male RS-422 connector to connect to the ASYNC RS-422-3 port.

OR

~ The Synergy control panel remote port requires a 9-Pin, D-Type male RS-232 connector to connect to the ASYNC RS-232 ports (1-3).

Cable connections in the following table refer only to those between the Synergy control panel and the GVG SMS 7000 router. Other cable connections present on the SMS 7000 router can be found in the Grass Valley documentation.

| ⚠ | **Important** | The port on the SMS 7000 is labelled RS-232, however it must be set to run in RS-422 mode. |

Synergy-to-GVG 7000 ASYNC RS–232 Wiring Chart

Synergy Panel			GVG 7000	
Remote Port (1-5)	**Signal**		**ASYNC RS-232* 1-3 Port**	**Signal**
1	Chassis			n/c
2	RxA (Rx-)	→	5	Tx-
3	TxB (Tx+)	→	2	Rx+
4	n/c			n/c
5	Ground			n/c
6	Ground			n/c
7	RxB (Rx+)	→	3	Tx+
8	TxA (Tx-)	→	4	Rx-
9	Chassis			n/c

n/c = Not Connected

Synergy-to-GVG 7000 ASYNC RS–422 Wiring Chart

Synergy Panel			GVG 7000	
Remote 1-5 Connector	**Signal**		**ASYNC 422-3 Port**	**Signal**
1	Chassis			n/c
2	RxA (Rx-)	→	2	Tx-
3	TxB (Tx+)	→	3	Rx+
4	n/c			n/c
5	Ground			n/c
6	Ground			n/c
7	RxB (Rx+)	→	7	Tx+
8	TxA (Tx-)	→	8	Rx-
9	Chassis			n/c

n/c = Not Connected

Ross (ASCII)

Use the following information to configure and connect your **Ross Kondor** or **Ross NK** router, using the **ASCII** protocol, to your Synergy 1 Switcher:

- Use the following communications setting when connecting the Ross Kondor or Ross NK router to the Synergy 1 Switcher:

- Set up the communications on the router as follows:

  - ~ For the **Ross Kondor Router**, you must use the **Geneos** software on your PC, to set the **AUX Comm Port Baud Rate**, on the **CPU** tab, to **38.4k**.

  - ~ For the **Ross NK Router**, you must use the **Ross IPS** interface on your PC to set the **Baud** rate to **38400**.

Synergy-to-Ross (ASCII) Communication Settings

Setting	Kondor	NK
Transmission Standard	RS-422	RS-232 Null
Baud Rate	38400	38400
Parity	NONE	NONE
Data Bits	8	8
Stop Bits	1	1

- The Synergy panel connects to the **Ross Kondor** router via the remote ports (1-5) on the Synergy control panel and the AUX com port on the **Ross Kondor** chassis.

  - ~ The Synergy control panel remote port requires a 9-Pin, D-Type, male RS-422 connector.

  - ~ The Kondor AUX port requires an 25-Pin, D-Type, male RS-422 connector.

- The Synergy panel connects to the **Ross NK** router via the remote ports (1-5) on the Synergy control panel and the **T-Bus** port on the **Ross NK** router.

  - ~ The Synergy control panel remote port requires a 9-Pin, D-Type, RS-232 straight-through cable.

  - ~ The Ross NK router T-Bus port requires a Cat-5cable with an RJ-45 connector on either end to connect the **Ross NK-SCP/A** to the T-Bus port on the NK router. The 9-Pin, D-Type male RS-232 connector on the **Ross NK-SCP/A** is then used to connect to the Synergy control panel.

Cable connections in the following table refer only to those between the Synergy control panel and the **Ross Kondor** or **Ross NK** router. Other cable connections present on the Kondor or NK router can be found in the router documentation.

Synergy-to-Ross Kondor (ASCII) RS–422 Wiring Chart

Synergy Panel			Ross Kondor (ASCII)	
Remote Port (1-5)	**Signal**		**AUX Comm Port**	**Signal**
1	Chassis			n/c
2	RxA (Rx-)	→	17	Ta (Tx-)
3	TxB (Tx+)	→	18	Rb (Rx+)
4	n/c			n/c
5	Ground			n/c
6	Ground			n/c
7	RxB (Rx+)	→	4	Tx+
8	TxA (Tx-)	→	6	Rx-
9	Chassis			n/c

n/c = Not Connected

Synergy-to-Ross NK (ASCII) RS–232 Wiring Chart

Synergy Panel			Ross NK (ASCII)	
Remote Port (1-5)	**Signal**		**AUX Comm Port**	**Signal**
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

Sierra Yosemite

Use the following information to configure and connect your **Sierra Yosemite** router to your Synergy Switcher:

⚠ **Important**

The default settings for the **Sierra Yosemite** router is **RS-232** and **9600** Baud; however, Ross Video recommends that you use **RS-422** and **38400** Baud. Refer to your Sierra Video Systems Yosemite Router documentation for information on changing the configuration.

• Use the following communications setting when connecting the Sierra Yosemite to the Synergy Switcher:

Synergy-to-Sierra Yosemite Communication Settings

Setting	Default Value	Recommended Value
Transmission Standard	**RS-232**	**RS-422**
Baud Rate	**9600**	**38400**
Parity	**NONE**	**NONE**
Data Bits	**8**	**8**
Stop Bits	**1**	**1**

• The Synergy panel connects to the Sierra Yosemite router via the remote ports (1-5) on the Synergy control panel, and **Host Port** (**RS232/422 Port 2**) on the rear of the Sierra router.

~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

~ The Yosemite port requires a 9-pin, D-Type RS-422 connector.

• Cable connections in the following table refer only to those between the Synergy control panel and the Sierra Yosemite router. Other cable connections present on the Yosmite chassis can be found in the Sierra Yosemite documentation.

Synergy-to-Sierra Yosemite RS-232 Wiring Chart

Synergy Panel			Sierra Yosemite	
Remote Port (1-5)	Signal		Host Port	Signal
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

n/c = Not Connected

Synergy-to-Sierra Yosemite RS-422 Wiring Chart

Synergy Panel			Sierra Yosemite	
Remote Port (1-5)	**Signal**		**Host Port**	**Signal**
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground			
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

n/c = Not Connected

NVISION (NVSP)

Use the following information to configure and connect your **NVISION** router to your Synergy Switcher using the **NVISION Serial Protocol**:

- Use the following communications setting when connecting an NVISION router to the Synergy Switcher:

Synergy-to-NVISION Communication Settings

Setting	Value
Transmission Standard	**RS-422**
Baud Rate	**38400**
Parity	**NONE**
Data Bits	**8**
Stop Bits	**1**

- The Synergy panel connects to an NVISION router via the remote ports (1-5) on the Synergy control panel, and the **PRI CTRL** port on the rear of the NVISION router.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The NVISION requires a 9-pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the NVISION router. Other cable connections present on the NVISION chassis can be found in the NVISION documentation.

Synergy-to-NVISION Wiring Chart

Synergy Panel			NVISION	
Remote Port (1-5)	Signal		Primary Router Control Port	Signal
1	Chassis			
2	RxA (Rx-)	→	2	TxA (Tx-)
3	TxB (Tx+)	→	3	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground			
7	RxB (Rx+)	→	7	TxB (Tx+)
8	TxA (Tx-)	→	8	RxA (Rx-)
9	Chassis			

n/c = Not Connected

Extron System 8/10 Plus Switcher Router

Use the following information to configure and connect your **Extron System 8/10 Switcher Router** to your Synergy Switcher using the **Extron RS232 Protocol**:

Note   Refer to your Extron documentation for information on how to set up your device for communicating with the Synergy Switcher.

- Use the following communications setting when connecting an Extron System 8/10 Switcher router to the Synergy Switcher:

Synergy-to-Extron Communication Settings

Setting	Value
Transmission Standard	RS-232 Null
Baud Rate	9600
Parity	NONE
Data Bits	8
Stop Bits	1

- The Synergy panel connects to an Extron System 8/10 Switcher router via the remote ports (1-5) on the Synergy control panel, and the **RS-232** connector port on the rear of the Extron router.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-232 female straight-through cable.

  ~ The Extron System 8/10 router connector port requires a 9-pin, D-Type RS-232 female connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Extron System 8/10 Switcher. Other cable connections present on the router can be found in the Extron documentation.

Synergy-to-Extron Wiring Chart

Synergy Panel			Extron System 8/10 Switcher	
Remote Port (1-5)	Signal		RS-232 Connector	Signal
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

n/c = Not Connected

- The Synergy switcher controls the Extron System 8/10 Switcher router using its breakaway function. The breakaway number corresponds to the selected level in the Synergy **Router Other Menu**. Synergy supports levels 1-4.

- When assigning a particular output from the Extron System 8/10 Switcher to a BNC input on the Synergy Switcher, you must select **Output 001** from the Synergy **Router Setup Menu**. Refer to the section, "**Setting Up Router BNCs**" on page 6–17 for more information on assigning router outputs.

Still Store Communications Setup

Use the **Still Store Communications Setup** procedure to set up communication parameters with still store devices.

Ensure that the **Still Store** software option is installed. If not, please contact **Ross Video** for details. Refer to the section "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

Use the following procedure to configure the switcher communication ports for a still store:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

Communications — Type Menu

3. Assign a com port to the still store as follows:

   • Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the still store.

✎ **Note**   If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open.

   • Use the middle **Device** knob to select **Still Store**.

4. Press **Select Device** to display the **Select Device Menu**.

Communications — Select Device Menu

5. Select the device you want to assign to the still store communications port as follows:

    *   Use the top **Com Port** knob to select the communications port you want to assign a specific still store to.

    *   Use the middle **Device** knob to select the type of still store that is connected to the port. You can select between the following:

        ~   **NONE** — Use this option to not assign a router to the selected com port.

        ~   **Aprisa100** — Use this option to assign a **Chyron Aprisa 100 Stillstore** to the selected com port. Refer to the section "**Chyron Aprisa 100**" on page 7–74 for details.

6. Press **Com Settings** to display the **Com Settings Menu**.

```
┌─────────────────────────────────────────────────────────┐
│Communications (1-2)                                      │
│                                    Com Port: │Aprisa100(R1)│
│This  menu lets you setup                     ↓Kaleido  (R2)│
│your       com        port                                │
│parameters.                                        ↑19200 │
│                                    Baud:          ┌─────┐ │
│                                                   │38400│ │
│                                                   └─────┘ │
│                                                   ↓57600 │
│                                                          │
│                                    Parity:         ┌────┐│
│                                                    │NONE││
│                                                    └────┘│
│                                                    ↓ODD  │
├──────────┬─────────┬────────────┬──────────┬──────┬──────┤
│          │ Select  │            │          │Custom│Extra │
│   Type   │ Device  │Com Settings│ Com Type │Devices│Options│
└──────────┴─────────┴────────────┴──────────┴──────┴──────┘
```

Communications — Com Settings Menu

7. Set the communications protocols for the still store as follows:

    *   Use the top **Com Port** knob to select the still store you are setting the communications settings for.

    *   Use the middle **Baud** knob to select the baud rate for the still store. Refer to the section "**Still Store Interface Specifics**" on page 7–74 for the specific settings for your still store.

    *   Use the bottom **Parity** knob to select the parity, **NONE**, **ODD**, or **EVEN** for the specific still store. Refer to the section "**Still Store Interface Specifics**" on page 7–74 for the specific settings for your still store.

8. Press **Com Type** to display the **Com Type Menu**.

```
┌─────────────────────────────────────────────────────────┐
│Communications (1-2)                                      │
│                                    Com Port: │Aprisa100(R1)│
│This  menu lets you setup                     ↓Kaleido  (R2)│
│your com port types.                                      │
│                                                          │
│                                    Type:      ┌────────┐ │
│                                               │ RS-232 │ │
│                                               └────────┘ │
│                                               ↓RS-422   │
│                                                          │
│                                                          │
├──────────┬─────────┬────────────┬──────────┬──────┬──────┤
│          │ Select  │            │          │Custom│Extra │
│   Type   │ Device  │Com Settings│ Com Type │Devices│Options│
└──────────┴─────────┴────────────┴──────────┴──────┴──────┘
```

Communications — Com Type Menu

9. Select the type of serial communication that will be used to communicate with the still store as follows:

   - Use the top **Com Port** knob to select the still store you want to set the communication type for.

   - Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port. Refer to the section "**Still Store Interface Specifics**" on page 7–74 for details.

This completes the procedure to configure the switcher communication ports for a still store. Next, you must assign the still store to a specific BNC input.

Use the following procedure to assign the still store to a specific BNC input:

1. Navigate to the **BNC Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

```
BNC (1-2)                                          ↑BNC 4    ( 4)
                                            BNC:    BNC 5    ( 5)
Use    this    menu    to   BNC:     BNC 5   ( 5)   ↓BNC 6    ( 6)
associate  a  function or   Maps to:    Button #5
a  device type with a BNC   Type:      Still        ↑Router
input.                      Tally:     5            Still
                            Auto Key:  Black   Type: ↓Robotic Cam
                            Asp Ratio: 4:3

                                               Asp Ratio:   4:3
                                                            16:9
                                                  Auto Key
   BNC Names     BNC Type      Tally      Alpha    Setup      Panel
```

BNC — Type Menu

3. Assign a BNC to a still store as follows:

   - Use the top **BNC** knob to select the BNC that the still store is connected to.
   - Use the middle **Type** knob to select **Still**.
   - Use the bottom **Asp Ratio** knob to select the video aspect ratio of the still store output.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Still/CG Setup** to display the **Still/CG Setup Menu**.

```
BNC (2-2)                                          BNC:  BNC 5     ( 5)
Use    this    menu    to   BNC:     BNC 5   ( 5)
associate    a  Still  or   Maps to:    Button #5
CharGen  input with a com   Type:      Still
port,   and  a  Still  or   Tally:     5           Still: Aprisa100(R5)
CharGen   channel  with  a  Auto Key:  Black
BNC.                        Asp Ratio: 4:3
                                                             Channel A
                                                   Channel:  Channel B
                                                             ↓Channel C
   Router       Router        N/S               Still/CG     Camera
   Setup        Other       Disable    Audio      Setup       Setup
```
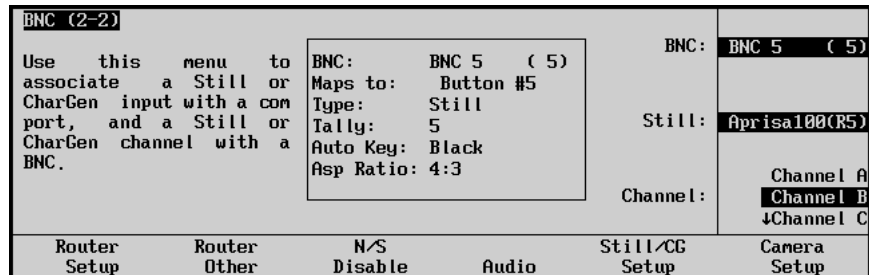
BNC — Still/CG Setup Menu

6. Assign a specific still store to the still store BNC as follows:

- Use the top **BNC** knob to select the BNC you want to assign a specific still store to.
- Use the middle **Still** knob to select the still store port for the specific still store you want to assign to the BNC.
- Use the bottom **Channel** knob to select the Channel (**A**-**H**) on the still store that is feeding the BNC on the Synergy Switcher.

This completes the procedure to set up a still store device.

Refer to Chapter 8, "**Memory Functions and More**", of the *Synergy 1 Operation Guide*, for details on accessing specific stills.

Still Store Interface Specifics

This section provides information specific to each still store supported.

Chyron Aprisa 100

Use the following information to configure and connect your Chyron Aprisa 100 Stillstore to your Synergy 1 SD Switcher:

- Use the following communications setting when connecting a Chyron Aprisa 100 Stillstore to the Synergy Switcher:

| **Note** | If you need to use **RS-232** communication for the Aprisa 100, please contact **Ross Video Technical Support** for more information. |

Synergy-to-Aprisa 100 Communication Settings

Setting	Value
Transmission Standard	**RS-422**
Baud Rate	**38400**
Parity	**NONE**
Data Bits	**8**
Stop Bits	**1**

- The Synergy panel connects to an Aprisa 100 Stillstore via the remote ports (1-5) on the Synergy 1 control panel, and the **RS-422** ports (1-4) on the rear of the Aprisa 100 Stillstore.
  - ~ The Synergy 1 control panel remote port requires a 9-Pin, D-Type RS-422 connector.
  - ~ The Aprisa 100 RS-422 port requires a 9-pin, D-type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Aprisa 100 Stillstore. Other cable connections present on the Aprisa 100 chassis can be found in the Chyron Aprisa 100 documentation.

Synergy-to-Aprisa 100 Wiring Chart

Synergy Panel			Aprisa 100	
Remote Port (1-5)	Signal		RS-422 (1-4) Port	Signal
1	Chassis			
2	RxA (Rx-)	→	9	TxA (Tx-)
3	TxB (Tx+)	→	6	RxB (Rx+)
4	n/c			
5	Ground			
6	Ground			
7	RxB (Rx+)	→	8	TxB (Tx+)
8	TxA (Tx-)	→	7	RxA (Rx-)
9	Chassis			

n/c = Not Connected

Character Generator Communications Setup

Use the **Character Generator Communications Setup** procedure to set up communication parameters with a character generator.

Ensure that the **Character Generator** software option is installed. If not, please contact **Ross Video** for details. Refer to the section "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

Use the following procedure to configure a Character Generator (CG):

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

```
Communications (1-2)
                                        Com Port:  REMOTE 1 (R1)
This   menu lets you setup                         ↓Kaleido  (R2)
what    each  of  the  com
ports are used for.                                ↑Serial Tally
                                         Device:    CharGen
                                                   ↓Monitor Wall



          Select                         Custom       Extra
  Type    Device    Com Settings  Com Type  Devices   Options
```

Communications — Type Menu

3. Assign a com port to the character generator as follows:

   - Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the character generator.

✐ **Note** If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open.

   - Use the middle **Device** knob to select **CharGen**.

4. Press **Select Device** to display the **Select Device Menu**.

```
Communications (1-2)
                                        Com Port:  REMOTE 1 (R1)
This   menu lets you setup                         ↓Kaleido  (R2)
which     devices    are
controlled   by   which
ports.                                   Device:    NONE
                                                   ↓Inscriber



          Select                         Custom       Extra
  Type    Device    Com Settings  Com Type  Devices   Options
```

Communications — Select Device Menu

5. Select the device you want to assign to the character generator communications port as follows:

- Use the top **Com Port** knob to select the communications port you want to assign a specific character generator to.

- Use the middle **Device** knob to select the type of character generator that is connected to the port. You can select between the following:

  ~ **NONE** — Use this option to not assign a character generator to the selected com port.

  ~ **Inscriber** — Use this option to assign a **Leitch (Inscriber) Inca CG** to the selected com port. Refer to the section "**Leitch (Inscriber) Inca CG**" on page 7–79 for details.

  ~ **Chyron** — Use this option to assign a **Chyron Duet LEX CG** to the selected com port. Refer to the section "**Chyron Duet LEX CG**" on page 7–81 for details.

6. Press **Com Settings** to display the **Com Settings Menu**.

```
Communications (1-2)

This   menu lets you setup          Com Port:  Chyron   (R1)
your       com      port                      ↓Kaleido  (R2)
parameters.
                                        Baud:     9600
                                                 ↓19200

                                       Parity:    NONE
                                                 ↓ODD
                 Select                 Custom      Extra
     Type        Device   Com Settings  Com Type  Devices   Options
```

Communications — Com Settings Menu

7. Set the communications protocols for the character generator as follows:

- Use the top **Com Port** knob to select the character generator you are setting the communications settings for.

- Use the middle **Baud** knob to select the baud rate for the character generator. Refer to the section "**Character Generator Interface Specifics**" on page 7–79 for the specific settings for your CG.

- Use the bottom **Parity** knob to select the parity, **NONE**, **ODD**, or **EVEN** for the specific character generator. Refer to the section "**Character Generator Interface Specifics**" on page 7–79 for the specific settings for your CG.

8. Press **Com Type** to display the **Com Type Menu**.

```
Communications (1-2)

This   menu lets you setup          Com Port:  Chyron   (R1)
your  com port types.                         ↓Kaleido  (R2)

                                        Type:    RS-232
                                                ↓RS-422



                 Select                 Custom      Extra
     Type        Device   Com Settings  Com Type  Devices   Options
```

Communications — Com Type Menu

9. Select the type of serial communications that will be used to communicate with the character generator as follows:

   • Use the top **Com Port** knob to select the character generator you want to set the communication type for.

   • Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port. Refer to the section "**Character Generator Interface Specifics**" on page 7–79 for the specific settings for your CG.

This completes the procedure for setting up communications with the character generator, next you will have to assign the video signal from the CG to a specific BNC input.

Use the following procedure to assign the character generator to a specific BNC input:

1. Navigate to the **BNC Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC** Type to display the **BNC Type Menu**.

BNC — Type Menu

3. Assign a BNC to the character generator as follows:

   • Use the top **BNC** knob to select the BNC that the CG is connected to.

   • Use the middle **Type** knob to select **CharGen**.

   • Use the bottom **Asp Ratio** knob to select the video aspect ratio of the CG output.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Still/CG Setup** to display the **Still/CG Setup Menu**.

BNC — Still/CG Setup Menu

6. Assign a specific character generator to the CharGen BNC as follows:

- Use the top **BNC** knob to select the BNC you want to assign the specific CG to.

- Use the middle **CharGen** knob to select the character generator port for the specific CG you want to assign to the BNC.

- Use the bottom **Frame Buf** knob to select the channel output of the Character Generator.

✎	**Note**	The **Frame Buf** option is not available for the Inscriber Inca CG. Instead, you must set the channel output using a Custom Control. Refer to the section "**Character Generator Custom Controls**" on page 8–44 for more information on programming custom controls for your CG.

✓	**Operating Tip**	For the Chyron Duet LEX, you must ensure the frame buffer matches the video processing board (VPB) for the Chyron CG connected to the selected BNC. Refer to your Chyron documentation for more information.

7. Repeat this procedure for each character generator you wish to control from the Synergy Switcher.

This completes the procedure to assign the character generator to a specific BNC input.

Character Generator Interface Specifics

This section provides information specific to the character generator supported.

Leitch (Inscriber) Inca CG

Use the following information to configure and connect your Leitch (Inscriber) Inca CG to your Synergy Switcher:

- Use the following communications settings when connecting the Leitch (Inscriber) Inca CG to the Synergy Switcher:

Synergy-to-Inscriber Inca CG Communication Settings

Setting	Value
Transmission Standard	**RS-232**
Baud Rate	**38400**
Parity	**Odd**
Data Bits	**8**
Stop Bits	**1**

- The Synergy panel connects to the Inca CG via the remote ports (1-5) on Synergy control panel, and the **COM** ports (1-2) on the rear of the Inca CG chassis.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-232 connector.

  ~ The Inscriber Inca CG COM port requires a 9-Pin, D-Type RS-232 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Leitch (Inscriber) Inca CG. Other cable connections present on the Inca CG can be found in the Leitch (Inscriber) documentation.

Synergy-to-Inscriber Inca CG Wiring Chart

Synergy Panel			Leitch (Inscriber) Inca CG	
Remote Port (1-5)	Signal		COM Port Connector	Signal
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

n/c = Not Connected

Note Video and Alpha signals are fed from the **SDI** and **SDI Key** BNCs in the **Video Outputs** area on the Inca CG to the BNC inputs on the Synergy frame.

- Use the following procedure to configure the **Inscriber AutoCG** software:

Note Refer to your Leitch (Inscriber) documentation for additional information.

~ Click the **Preference** button in the AutoCG window to display the **Preferences Window**.

~ Click on the **General Tab**.

~ Select the **Serial Port** option in the **Receive Command From Area**.

~ Configure the serial port as follows:

  – **Com Port** — This must be set to the COM port that is connected to the Synergy Switcher.

  – **Baud Rate** — This must be set to **38400**.

  – **Data Bits** — This must be set to **8**.

  – **Parity** — This must be set to **None**.

  – **Stop Bits** — This must be set to **1**.

Important You can have only one INS template file per folder on your Inscriber computer. If you have more than one, the system will ignore the newest INS file(s).

- Configure the **Strata Layers** as follows:
    - ~ Layer 1: Quartz
    - ~ Layer 2: IncaCG
    - ~ Layer 3: Automation CG Max (AutoCG)
    - ~ Layer 4: Automation CG Max (AutoCG)

Chyron Duet LEX CG

Use the following information to configure and connect your Chyron Duet LEX CG to your Synergy Switcher:

- Use the following communications settings when connecting the Chyron Duet LEX CG to the Synergy Switcher:

Synergy-to-Chyron Duet LEX CG Communication Settings

Setting	Value
Transmission Standard	**RS-232 Null**
Baud Rate	**9600**
Parity	**None**
Data Bits	**8**
Stop Bits	**1**

- The Synergy panel connects to the Chyron Duet LEX CG via the remote ports (1-5) on the Synergy control panel, and the **COM 1** port on the rear of the Duet LEX CG chassis.

    - ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-232 straight-through cable.

    - ~ The Chyron Duet LEX CG **COM 1** port requires a 9-Pin, D-Type RS-232 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Chyron Duet LEX CG. Other cable connections present on the Duet LEX CG can be found in the Chyron documentation.

Synergy-to-Chyron Duet LEX CG Wiring Chart

Synergy Panel			Chyron Duet LEX CG	
Remote Port (1-5)	**Signal**		**COM Port Connector**	**Signal**
1	Chassis			
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			
5	Ground	→	5	Ground
6	Ground			
7	n/c			
8	n/c			
9	Chassis			

n/c = Not Connected

Chyron Duet LEX Extra Options

The **Playtime Extra Option** enables you to set a duration for animation playout for the Chyron Duet LEX device. This will prevent the Synergy Switcher from timing-out while an animation is playing.

Use the following procedure to set up the **Extra Options** for the Chyron Duet LEX:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).
   • **MORE** (to display the **Main Menu 2-2**).
   • **Setup** (to display the **Setup Menu**).
   • **Installation** (to display the **Installation Menu**).
   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

3. Assign a **Playtime Duration** as follows:

4. Assign a **Playtime Duration** as follows:

   • Use the top **Com Port** knob to select the remote port that the Chyron Duet LEX is connected to.
   • Use the middle knob to select **Playtime**.
   • Use the bottom **Value** knob to set a maximum duration for playing an animation in seconds.
      ~ You can set a playtime between **10** and **120** seconds.

This concludes the procedure to set up the **Extra Options** for the Chyron Duet LEX.

Chyron Duet LEX Software Setup

The Synergy Switcher communicates with the Chyron Duet using Chyron Lyric™ version 5.0 software and the Ross Video - II Translator plugin. The plug-in intercepts all commands from the serial port and passes the data to the Lyric software for processing.

	Note	Refer to your Chyron documentation for additional setup information.

Use the following procedure to set up the **Chyron Duet LEX** software for the Ross Video - II Translator plugin:

1. Ensure that the Ross Video - II Translator plug-in file **II Translator.ocx** is copied to the Plugins folder located in the Lyric main directory.

2. Ross Video recommends selecting **Air Channel** for each video processing board installed:

   • Click **Config** from the Lyric menu bar.
   • Select the **Duet Configuration** option.
   • Select the **Configure Board Use** tab.
   • Select **Air Channel** for each video processing board.
   • Click **OK**.

3. Ensure the Telnet option is enabled for the Ross Video II translator plugin to communicate with the Lyric software and the Synergy Switcher:

- Select **Config** from the Lyric menu bar.
- Select the **Intelligent Interface Setup** option.
- Select **Enable Telnet** from the **Intelligent Interface Setup** dialog.
- Click **OK**.

4. Enable the Ross Video II translator plugin as follows:

- Select **File** from the Lyric menu bar.
- Select **Ross Video - II translator** from the file list.
- Click **Run**.

This concludes the procedure to set up the **Chyron Duet LEX** software for the Ross Video - II Translator plugin.

Robotic Camera Communications Setup

Use the **Robotic Camera Communications Setup** procedure to set up communications parameters for remote camera controllers with servo pan/tilt heads.

Ensure that the **Robotic System** software option is installed. If not, please contact **Ross Video** for details. Refer to the section "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

Setting Up the Switcher

Use the following procedure to configure the switcher communication ports for a remote camera controller:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

Communications — Type Menu

3. Assign a com port to the robotic camera as follows:

   • Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the robotic camera.

✎	**Note**	If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open.

   • Use the middle **Device** knob to select **Robotic Cam**.

4. Press **Select Device** to display the **Select Device Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                    Com Port:  REMOTE 3 (R3)│
│                                                    RemAux   (A1)│
│ This  menu lets you setup                                      │
│ which     devices    are                                       │
│ controlled   by    which                Device:        NONE   │
│ ports.                                              ↓Tmetrics  │
│                                                                │
│                                                                │
│         Select                          Custom       Extra    │
│   Type  Device   Com Settings  Com Type Devices      Options  │
└─────────────────────────────────────────────────────────────┘
```

Communications — Select Device Menu

5. Select the device you want to assign to the robotic camera communications port as follows:

   • Use the top **Com Port** knob to select the communications port you want to assign a specific robotic camera to.

   • Use the middle **Device** knob to select the type of robotic camera that is connected to the port. You can select between the following:

      ~ **NONE** — Use this option to not assign a robotic camera to the selected com port.

      ~ **Tmetrics** — Use this option to assign a **Telemetrics Robotic Camera Controller** to the selected com port. Refer to the section "**Telemetrics Robotic Camera Controller**" on page 7–88 for details.

      ~ **Radamec** — Use this option to assign a **Radamec Robotic Camera Controller** to the selected com port. Refer to the section "**Radamec Robotic Camera Controller**" on page 7–90 for details.

      ~ **Canon** — Use this option to assign a **Canon Robotic Camera** to the selected com port. Refer to the section "**Canon Robotic Camera Controller**" on page 7–91 for details.

      ~ **Sony** — Use this option to assign a **Sony Robotic Camera** to the selected com port. Refer to the section "**Sony BRC-300/300P Robotic Camera**" on page 7–92 for details.

      ~ **Eagle** — Use this option to assign an **Eagle Pan Tilt System** to the selected com port. Refer to the section, "**Eagle Pan Tilt System**" on page 7–95 for details.

6. Press **Com Settings** to display the **Com Settings Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                               Ya 02R96 (R1)│
│                                         Com Port:  Tmetrics (R3)│
│ This  menu lets you setup                          RemAux   (A1)│
│ your      com      port                                        │
│ parameters.                             Baud (Fixed):    9600  │
│                                                     ↓19200     │
│                                                                │
│                                         Parity (Fixed):  NONE  │
│                                                     ↓ODD       │
│         Select                          Custom       Extra    │
│   Type  Device   Com Settings  Com Type Devices      Options  │
└─────────────────────────────────────────────────────────────┘
```

Communications — Com Settings Menu

7. Set the communications protocols for the robotic camera as follows:

   • Use the top **Com Port** knob to select the robotic camera you are setting the communications settings for.

   • Use the middle **Baud** knob to select baud rate for the robotic camera. Refer to the section "**Robotic Camera Control Interface Specifics**" on page 7–88 for the specific settings for your robotic camera.

   • Use the bottom **Parity** knob to select the parity, **NONE**, **ODD**, or **EVEN** for the specific robotic camera. Refer to the section "**Robotic Camera Control Interface Specifics**" on page 7–88 for the specific settings for your robotic camera.

8. Press **Com Type** to display the **Com Type Menu**.

```
Communications (1-2)                              Ya 02R96 (R1)
                                      Com Port:  Tmetrics (R3)
This  menu lets you setup                        RemAux   (A1)
your com port types.
                                                   RS-232
                                          Type:    RS-422
                                                  ↓RS-232 Null



              Select                        Custom      Extra
    Type      Device    Com Settings  Com Type  Devices    Options
```

Communications — Com Type Menu

9. Select the type of serial communication that will be used to communicate with the robotic camera as follows:

   • Use the top **Com Port** knob to select the robotic camera you want to set the communication type for.

   • Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port. Refer to the section "**Robotic Camera Control Interface Specifics**" on page 7–88 for specific settings for your robotic camera.

This completes the procedure for setting up communications with the robotic camera controller. Refer to the section, "**Robotic Camera Control Interface Specifics**" on page 7–88 to verify if your device requires further setup using the **Extra Options Menu**.

You will now have to assign the video signal from the robotic camera to a specific BNC input.

Assigning a BNC Input

Use the following procedure to assign the robotic camera to a specific BNC input:

1. Navigate to the **BNC Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **BNC** (to display the **BNC Menu 1-2**).

2. Press **BNC Type** to display the **BNC Type Menu**.

```
┌─────────────────────────────────────────────────────┬──────────────────┐
│ BNC (1-2)                                            │↑BNC 12     (12)  │
│                                          ┌───────────│ BNC:  BNC 13 (13)│
│ Use    this   menu   to │BNC:      BNC 13    (13)   │↓BNC 14     (14)  │
│ associate  a  function or│Maps to:    Button #13    │                  │
│ a  device type with a BNC│Type:      Robotic Cam    │   ↑Still         │
│ input.                   │Tally:      P13,F13       │ Type: Robotic Cam│
│                          │Auto Key:   Black         │   ↓CharGen       │
│                          │Asp Ratio: 4:3            │                  │
│                          └───────────────│Asp Ratio:      4:3          │
│                                           │                16:9         │
├──────────────────────────────────────────┴──── Auto Key ───────────────┤
│   BNC Names    BNC Type     Tally      Alpha    Setup       Panel       │
└─────────────────────────────────────────────────────────────────────────┘
```

BNC — Type Menu

3. Assign a BNC to the robotic camera as follows:

   • Use the top **BNC** knob to select the BNC that the robotic camera is connected to.

   • Use the middle **Type** knob to select **Robotic Cam**.

   • Use the bottom **Asp Ratio** knob to select the video aspect ratio of the robotic camera output.

4. Press **MORE** to display the **BNC Menu 2-2**.

5. Press **Camera Setup** to display the **Camera Setup Menu**.

```
┌─────────────────────────────────────────────────────┬──────────────────┐
│ BNC (2-2)                                            │ BNC: BNC 13 (13) │
│                                          ┌───────────│                  │
│ Use   this  menu  to set │BNC:      BNC 13    (13)   │                  │
│ which  camera controllers│Maps to:    Button #13    │                  │
│ and   which   cameras are│Type:      Robotic Cam    │Controller:       │
│ associated    with  which│Tally:      P13,F13       │        Radamec (R1)│
│ BNCs.                    │Auto Key:   Black         │                  │
│                          │Asp Ratio: 4:3            │       ↑Port 14   │
│                          └───────────────│Port:     Port 15  │
│                                          │            Port 16          │
├──────────────────────────────────────────┴──────────────────────────────┤
│   Router      Router       N/S                 Still/CG     Camera      │
│   Setup       Other      Disable     Audio      Setup       Setup       │
└─────────────────────────────────────────────────────────────────────────┘
```

BNC — Camera Setup Menu

6. Assign a specific robotic camera to the Robotic Camera BNC as follows:

   • Use the top **BNC** knob to select the BNC you want to assign the specific robotic camera to.

   • Use the middle **Controller** knob to select the robotic camera controller you want to assign to the BNC.

   • Use the bottom **Port** knob to select the port that the desired camera is assigned to. This is the port that you set the specific camera to when you set up your camera hardware. When setting up Canon robotic camera controllers, this bottom knob is labeled as **Camera**.

| ✎ | **Note** | On the **Radamec remote camera controllers**, the camera address is set by one of the internal DIP switches on the Radamec head unit. |

| ✓ | **Operating Tip** | Setting the Port to **0** when using an **Eagle Pan Tilt System** will enable you to control all cameras connected to the selected remote port. |

7. Repeat this procedure for each camera you wish to control from the Synergy 1 Switcher.

This completes the set up of a robotic camera control device. Refer to Chapter 8, "**Memory Functions and More**", of the *Synergy 1 Operation Guide*, for details on the **Camera Head Control Menu** and its various functions.

Robotic Camera Control Interface Specifics

This section provides information specific to each camera controller supported by the Synergy Switcher.

Telemetrics Robotic Camera Controller

Use the following information to configure and connect your Telemetrics Robotic Camera Controller to your Synergy Switcher:

- The following Telemetric Camera Controller models are currently supported:

  ~ PT-CP-S2

  ~ PT-HP-S2

  ~ PT-LP-S2

- Use the following communications settings when connecting a Telemetrics Robotic Camera Controller to the Synergy Switcher:

Synergy-to-Telemetrics Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	9600
Parity	NONE
Data Bits	8
Stop Bits	1

- The Synergy panel connects to the Telemetrics Robotic Camera Controller via the remote ports (1-5) on Synergy control panel, and the **SERIAL** port on the rear of the Telemetrics Controller.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The Telemetrics Robotic Camera Controller **SERIAL** port requires a 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Telemetrics Robotic Camera Controller. Other cable connections present on the Telemetrics Camera Controller can be found in the Telemetrics documentation.

Synergy-to-Telemetrics Wiring Chart

Synergy Panel			Telemetrics Camera Controller	
Remote Port (1-5)	Signal		SERIAL Port Connector	Signal
1	Chassis			n/c
2	RxA (Rx-)	→	2	Tx-
3	TxB (Tx+)	→	4	Rx+
4	n/c			n/c
5	Ground	→	5	Ground
6	Ground			n/c
7	RxB (Rx+)	→	1	Tx+
8	TxA (Tx-)	→	3	Rx-
9	Chassis			n/c

n/c = Not Connected

Telemetrics Robotic Camera Extra Options

The Extra Options for the Telemetrics Camera Controller allows you to specify that you are connecting to multiple cameras via a **Telemetrics STS-12 Serial Control Transfer Switch** or a **Telemetrics CP-RMR-S Serial Receiver**.

Use the following procedure to set up the Telemetrics Robotic Camera with a Serial Switch:

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

Communications — Extra Options Menu

3. Assign the STS-12 or CP-RMR-S to the Telemetrics Camera as follows:

- Use the top **Com Port** knob to select the remote port that the serial switch is connected to.

- Use the middle **Option** knob to select **SerialSwitch**.

- Use the bottom **Value** knob to select the type of serial switch that you are using. You can select between the following:

    ~ **None** — Use this option to not assign a serial switch to the selected com port.

    ~ **STS-12** — Use this option to assign an STS-12 Serial Control Transfer Switch to the selected com port.

    ~ **CP-RMR-S** — Use this option to assign a CP-RMR-S Serial Receiver to the selected com port.

This completes the set up of a Telemetrics Robotic Camera.

Radamec Robotic Camera Controller

Use the following information to configure and connect a Radamec Robotic Camera Controller to your Synergy Switcher:

- The following Radamec Robotic Camera Controller models are supported:

    ~ HK185

    ~ HK431

- Use the following communications settings when connecting a Radamec Robotic Camera Controller to the Synergy Switcher:

Synergy-to-Radamec Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	9600
Parity	ODD
Data Bits	8
Stop Bits	1

- The Synergy panel connects to the Radamec Robotic Camera Controller via the remote ports (1-5) on Synergy control panel, and the **communication** port on the **Radamec Head Power Supply**.

    ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

    ~ The Radamec Head Power Supply communications port requires a 9-Pin, D-Type RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Radamec Robotic Camera Controller. Other cable connections present on the Radamec Camera Controller can be found in the Radamec documentation.

RS-422 Synergy-to-Radamec Wiring Chart

Synergy Panel			Radamec Head Power Supply	
Remote Port (1-5)	Signal		Communications Connector Male	Signal
1	Chassis			n/c
2	RxA (Rx-)	→	4	Tx-
3	TxB (Tx+)	→	9	Rx+
4	n/c			n/c
5	Ground	→	1	Ground
6	Ground			n/c
7	RxB (Rx+)	→	5	Tx+
8	TxA (Tx-)	→	8	Rx-
9	Chassis			n/c

n/c = Not Connected

Canon Robotic Camera Controller

Use the following information to configure and connect a Canon Robotic Camera to your Synergy Switcher:

- The following Canon Robotic Camera models are supported:

  ~ NU-700N

- Use the following communications settings when connecting a Canon Robotic Camera to the Synergy Switcher:

Synergy-to-Canon Communication Settings

Setting	Value
Transmission Standard	RS-232 Null
Baud Rate	9600
Parity	NONE
Data Bits	8
Stop Bits	1

- The Synergy panel connects to the Canon Robotic Camera via the remote ports (1-5) on Synergy control panel, and the serial port on the Canon Robotic Camera.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-232 straight-through cable.

  ~ The Canon Robotic Camera communications port requires a 9-Pin, D-Type RS-232 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Canon Robotic Camera. Other cable connections present on the Canon Camera can be found in the Canon documentation.

RS-232 Synergy-to-Canon Wiring Chart

Synergy Panel			Canon Robotic Camera	
Remote Port (1-5)	Signal		Communications Connector Male	Signal
1	Chassis			n/c
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			n/c
5	Ground	→	5	Ground
6	Ground			n/c
7	n/c			
8	n/c			
9	Chassis			n/c

n/c = Not Connected

Sony BRC-300/300P Robotic Camera

The Synergy Switcher can control up to eight Sony robotic cameras. The address for each camera is set through the jumpers on its bottom panel. Refer to the Sony documentation for more information on setting the address for your particular robotic camera.

Use the following information to configure and connect a *single* Sony robotic camera to your Synergy Switcher:

- The following Sony robotic camera models are supported:

  ~ BRC-300/300P

- Use the following communications settings when connecting a Sony robotic camera to the Synergy Switcher:

Synergy-to-Sony Communication Settings

Setting	Value
Transmission Standard	RS-422
Baud Rate	9600
Parity	NONE
Data Bits	8
Stop Bits	1

- Use the following information to set the jumpers located on the bottom of the Sony robotic camera:

Sony Robotic Camera Jumper Settings

Jumper	Setting
1	No connection
2	Set to **ON** for RS-422 communication
3	Set to **OFF** for 9600 baud rate
4	Infra-red signal control (**OFF** disables the control)
5	Used for camera address
6	Used for camera address
7	Used for camera address
8	No connection

- The Synergy panel connects to a Sony robotic camera via the remote ports (1-5) on the Synergy control panel, and the Video Connector port on the Sony robotic camera.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-422 connector.

  ~ The Sony robotic camera Video Connector port requires a 9-Pin, VISCA RS-422 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the Sony robotic camera. Other cable connections present on the Sony robotic camera can be found in the Sony documentation.

RS-422 Synergy-to-Sony Wiring Chart

Synergy Panel			Sony Robotic Camera	
Remote Port (1-5)	**Signal**		**VISCA RS-422**	**Signal**
1	Chassis			n/c
2	RxA (Rx-)	→	9	Tx-
3	TxB (Tx+)	→	6	Rx+
4	n/c			n/c
5	Ground	→	5	Ground
6	Ground			n/c
7	RxB (Rx+)	→	8	Tx+
8	TxA (Tx-)	→	7	Rx-
9	Chassis			n/c

n/c = Not Connected

Use the following procedure to connect two Sony Robotic Cameras to the Synergy Switcher:

1. Set the address assignment jumpers on each Sony Robotic Camera to the required settings. Refer to the Sony documentation for further instructions.

Important — When the address is set to **0**, the camera will automatically set its own address whenever it powers up. This new address is not updated on the Synergy Switcher and a loss of communication between the Sony robotic camera and the Synergy Switcher is possible.

2. Connect video cables to the video connector at the back of each robotic camera to the desired BNC inputs at the back of the Synergy frame. Refer to the section, "**Connecting and Verifying Inputs**" on page 4–4 for information on connecting your inputs. For more information on cabling, refer to the documentation for your robotic camera.

3. Connect the first Sony robotic camera to the Synergy control panel with the specifications found in the section "**Sony BRC-300/300P Robotic Camera**" on page 7–92.

Operating Tip — Ensure that **Jumper 2** on the bottom of each Sony camera is set to **ON** to enable RS-422 communication.

4. Connect the Sony robotic cameras in a daisy chain as follows:

Important — The Synergy control panel and all Sony robotic cameras should be connected to the same ground.

- Locate the RS-422 Connector ports on each Sony robotic camera.
- Using a VISCA RS-422 connector plug and cable, connect the first Sony robotic to the second camera via the RS-422 Connector Ports on each device. Cable connections in the following table refer only to those between the Sony Robotic Cameras. Other cable connections present on each Sony Camera can be found in the Sony documentation.

RS-422 Sony Camera 1-to-Camera 2 Wiring Chart

Sony Camera 1			Sony Camera 2	
Pin	**Signal**		**Pin**	**Signal**
1	Rx Out -	→	8	Tx In -
2	Rx Out +	→	9	Tx In +
3	Tx Out -	→	6	Rx In -
4	Tx Out +	→	7	Rx In +
5	Ground		5	Ground

5. Assign each robotic camera to a specific BNC input. Refer to the section "**Robotic Camera Communications Setup**" on page 7–84 for more details.

This concludes the procedure to connect two Sony Robotic Cameras to the Synergy Switcher. Refer to the Sony documentation for instructions on how to connect up to 6 additional cameras to the switcher.

Once the robotic cameras are physically connected to the Synergy Switcher, you must setup the communications. Refer to the section "**Robotic Camera Communications Setup**" on page 7–84 for the procedure to set up the communications between the Synergy Switcher and Sony robotic cameras.

For information on the setup of the Recall Camera Custom Control feature for your Sony robotic camera, refer to the section "**Recall Camera**" on page 8–53.

Eagle Pan Tilt System

Use the following information to configure and connect an Eagle Pan Tilt System to your Synergy 1 Switcher:

- The following Eagle Pan Tilt Systems were tested:

  ~ PT-101

- Use the following communications settings when connecting an Eagle Pan Tilt System to the Synergy 1 Switcher:

Synergy-to-Eagle Communication Settings

Setting	Value
Transmission Standard	**RS-232 Null**
Baud Rate	**9600**
Parity	**NONE**
Data Bits	**8**
Stop Bits	**1**

- The Synergy 1 panel connects to the Eagle Pan Tilt System via the remote ports (1-5) on Synergy control panel, and the **Phoenix Connection Block** for the Eagle Pan Tilt System.

  ~ The Synergy 1 control panel remote port requires a 9-Pin, D-Type RS-232 straight-through cable.

  ~ The **Phoenix Connection Block** is provided with your Eagle Pan Tilt System. Refer to your Eagle documentation to configure your device for RS-232 serial operation.

- Cable connections in the following table refer only to those between the Synergy 1 control panel and the Eagle Pan Tilt System. Other cable connections present on the Eagle Pan Tilt System can be found in the Eagle documentation.

RS-232 Synergy-to-Eagle Wiring Chart

Synergy Panel			Eagle Pan Tilt System	
Remote Port (1-5)	Signal		Phoenix Connection Block	Signal
1	Chassis			n/c
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			n/c
5	Ground	→	5	Ground
6	Ground			n/c
7	n/c			n/c
8	n/c			n/c
9	Chassis			n/c

n/c = Not Connected

Eagle Pan Tilt System Extra Options

The Extra Options for the Eagle Pan Tilt System allows you to specify that you are using a Rainbow-CCTV lens or a Fujinon/Canon telecon lens.

Use the following procedure to assign a lens type to your Eagle Pan Tilt System:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).
   • **MORE** (to display the **Main Menu 2-2**).
   • **Setup** (to display the **Setup Menu**).
   • **Installation** (to display the **Installation Menu 1-2**).
   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Extra Options** to display the **Extra Options Menu**.

```
Communications (1-2)
                                          Com Port: Eagle    (R1)
Protocol: Eagle                                    ↓Sony     (R2)


    Set type of lens (e.g Rainbow-CCTV)    Option:     Lens Type


                                                     ↑Rainbow
                                          Value:      Fujinon

              Select                      Custom      Extra
    Type      Device    Com Settings  Com Type  Devices   Options
```

Extra Options Menu

3. Assign a lens type to your Eagle Pan Tilt System as follows:

   • Use the top **Com Port** knob to select the to select the remote port that the Eagle Pan Tilt System is connected to.
   • Use the middle **Option** knob to select **Lens Type**.
   • Use the bottom **Value** knob to select the type of lens that you are using. You can select between the following:

     ~ **Rainbow** — Use this option if you are using a Rainbow-CCTV lens.
     ~ **Fujinon** — Use this option if you are using a Fujinon/Canon telecon lens.

This completes the procedure to assign a lens type to your Eagle Pan Tilt System.

For information on the setup of the Recall Camera and Recall Shot Custom Control features for your Eagle Pan Tilt System, refer to the section "**Recall Camera**" on page 8–53.

Peripheral Interface II Protocol Setup

Use the **Peripheral Interface II Protocol Setup** procedure to set up communications parameters with a PIP-II device that can control up to 24 peripheral devices from a single remote port on the Synergy Switcher.

Ensure that the **Peripheral Interface II Protocol** option is installed. If not, please contact **Ross Video** for details. Refer to the section, "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

| Note | If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open. |

Use the following procedure to configure a Synergy Switcher communication port for a Peripheral Interface II Protocol device:

1. Navigate to the **Communications Menu 1-2** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **MORE** (to display the **Main Menu 2-2**).

   • **Setup** (to display the **Setup Menu**).

   • **Installation** (to display the **Installation Menu 1-2**).

   • **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

Communications — Type Menu

3. Assign a com port to the PIP-II as follows:

   • Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the PIP-II device.

   • Use the middle **Device** knob to select **PIP–II**.

4. Press **Select Device** to display the **Select Device Menu**.

Communications — Select Device Menu

---

5. Select the PIP-II protocol for the PIP-II communications port as follows:

   • Use the top **Com Port** knob to select the communications port you want to assign a PIP-II device to.

   • Use the middle **Device** knob to select **PIP–II**.

6. Press **Com Settings** to display the **Com Settings Menu**.

```
Communications (1-2)                         Com Port:  PIP-II    (R1)
                                                       ↓Kaleido   (R2)
This   menu lets you setup
your       com      port                                ↑19200
parameters.                                    Baud:     38400
                                                       ↓57600


                                              Parity:     NONE
                                                        ↓ODD
         Select                      Custom        Extra
  Type   Device   Com Settings   Com Type   Devices   Options
```

Communications — Com Settings Menu

7. Set the communications protocols for the PIP-II device as follows:

✎	**Note**	Refer to your PIP-II device documentation for the specific Baud and Parity settings of your PIP-II device.

   • Use the top **Com Port** knob to select the PIP-II port you are setting the communications settings for.

   • Use the middle **Baud** knob to select the baud rate for the PIP-II device.

   • Use the bottom **Parity** knob to select the parity, **NONE**, **ODD**, or **EVEN** for the PIP-II device.

8. Press **Com Type** to display the **Com Type Menu**.

```
Communications (1-2)                         Com Port:  PIP-II    (R1)
                                                       ↓Kaleido   (R2)
This   menu lets you setup
your  com port types.                                   RS-232
                                               Type:    RS-422
                                                       ↓RS-232 Null




         Select                      Custom        Extra
  Type   Device   Com Settings   Com Type   Devices   Options
```

Communications — Com Type Menu

9. Select the type of serial communications that will be used to communicate with the PIP-II device as follows:

✎	**Note**	Refer to your PIP-II device documentation for the specific communications type of your PIP-II device.

   • Use the top **Com Port** knob to select the PIP-II device you want to set the communications type for.

   • Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port.

10. Press **Extra Options** to display the **Extra Options Menu**.

```
┌─Communications (1-2)──────────────────────────────────────────────┐
│                                                  Com Port: ▐PIP-II   (R1)▌
│ Protocol: PIP-II                                          ↓Kaleido  (R2)│
│                                                                         │
│                                                                         │
│         Query command strict or relaxed          Option:   ▐Query Cmd▌ │
│                                                                         │
│                                                                         │
│                                                  Value:      ▐Strict▌  │
│                                                             Relaxed     │
├───────────────┬──────────┬─────────────┬──────────┬──────────┬────────┤
│               │ Select   │             │          │ Custom   │ Extra  │
│     Type      │ Device   │ Com Settings│ Com Type │ Devices  │ Options│
└───────────────┴──────────┴─────────────┴──────────┴──────────┴────────┘
```
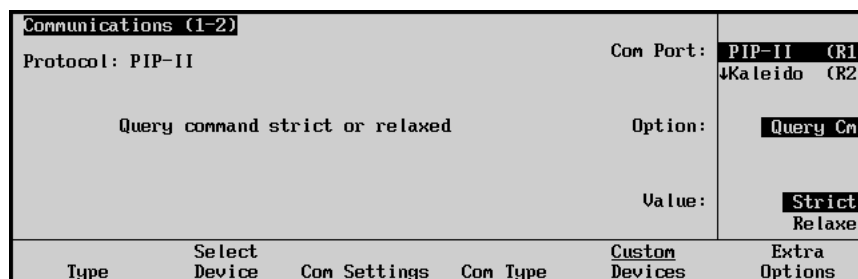
Communications — Extra Options Menu

11. Select the type of querying command for the PIP-II device as follows:

    • Use the top **Com Port** knob to select the PIP-II device you want to set the querying command type for.

    • Use the middle **Option** knob to select **Query Cmd**.

    • Use the bottom **Value** knob to select the type of Query Command you want.

        ~ **Strict** — Select this option to be able to control all devices connected to your PIP-II device whether they respond to the Query Command or not.

        ~ **Relaxed** — Select this option to be able to control *only* devices connected to your PIP-II device that respond to the Query Command.

This completes the set up procedure of the **Peripheral Interface II Protocol** option.

Refer to Chapter 8, "**Memory Functions and More**", of the *Synergy 1 Operation Guide*, for operating settings.

Refer to the section "**Peripheral Interface II Protocol**" on page 8–41 for procedures on creating custom controls using the Peripheral Interface II Protocol option.

Monitor Wall Interface Setup

Use the **Monitor Wall Interface Setup** procedure to set up communications parameters with a Monitor Wall device. You can control up to 5 Monitor Wall devices from the Synergy Switcher.

Ensure that the **Monitor Wall Interface** option is installed. If not, please contact **Ross Video** for details. Refer to the section, "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

Monitor Wall Communication Setup

Use the following procedure to configure a Synergy Switcher communication port for a **Monitor Wall** device:

1. Navigate to the **Communications Menu 1-2** as follows:

    •   Press **HOME** (to display the **Main Menu 1-2**).

    •   **MORE** (to display the **Main Menu 2-2**).

    •   **Setup** (to display the **Setup Menu**).

    •   **Installation** (to display the **Installation Menu 1-2**).

    •   **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

Communications — Type Menu

3. Assign a com port to the Monitor Wall as follows:

    •   Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the Monitor Wall device.

> ✎ **Note**   If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open.

    •   Use the middle **Device** knob to select **Monitor Wall**.

4. Press **Select Device** to display the **Select Device Menu**.

```
 Communications (1-2)
                                            Com Port:  REMOTE 2 (R2)
 This  menu lets you setup                             RemAux   (A1)
 which      devices    are
 controlled   by    which                                     NONE
 ports.                          Device:           Kaleido



                                            Custom      Extra
        Type    Device   Com Settings  Com Type  Devices   Options
```

Communications — Select Device Menu

5. Select the protocol for the Monitor Wall communications port as follows:

    •   Use the top **Com Port** knob to select the communications port you want to assign a Monitor Wall device to.

    •   Use the middle **Device** knob to select the type of Monitor Wall that is connected to the port. You can select between the following:

        ~   **NONE** — Use this option to not assign a Monitor Wall to the selected com port.

        ~   **Kaleido** — Use this option to assign a **Miranda Kaleido-K2 Monitor Wall** to the selected com port. Refer to the section, "**Miranda Kaleido-K2**" on page 7–103 for interface specifics.

6. Press **Com Settings** to display the **Com Settings Menu**.

```
 Communications (1-2)
                                            Com Port:  Kaleido   (R2)
 This  menu lets you setup                             RemAux   (A1)
 your      com     port
 parameters.
                                            Baud:          9600
                                                         ↓19200

                                            Parity:         NONE
                                                          ↓ODD
                                            Custom      Extra
        Type    Device   Com Settings  Com Type  Devices   Options
```

Communications — Com Settings Menu

7. Set the communications protocols for the Monitor Wall device as follows:

> **Note** — Refer to your Monitor Wall documentation to verify the specific Baud and Parity settings for your device.

    •   Use the top **Com Port** knob to select the Monitor Wall port you are setting the communications settings for.

    •   Use the middle **Baud** knob to select the baud rate for the Monitor Wall device.

    •   Use the bottom **Parity** knob to select the parity, **NONE**, **ODD**, or **EVEN** for the Monitor Wall device.

8. Press **Com Type** to display the **Com Type Menu**.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Communications (1-2)                            Com Port: Kaleido (R2)│
│                                                          RemAux  (A1) │
│ This  menu lets you setup                                            │
│ your com port types.                                        RS-232   │
│                                                 Type:       RS-422   │
│                                                            ↓RS-232 Null│
│                                                                       │
│                                                                       │
│            Select                              Custom      Extra      │
│   Type     Device   Com Settings   Com Type    Devices    Options     │
└─────────────────────────────────────────────────────────────────────┘
```

Communications — Com Type Menu

9. Select the type of serial communications that will be used to communicate with the Monitor Wall device as follows:

✎ **Note** | Refer to your Miranda Dispatcher™ documentation to verify the type of serial communications for your device and its setup.

  • Use the top **Com Port** knob to select the Monitor Wall device you want to set the communications type for.
  • Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port.

10. Press **MORE** to display the **Communications Menu 2-2**.

11. Press **Mon Wall Setting** to display the **Mon Wall Setting Menu**.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Communications (2-2)                             Device: Kaleido (R2) │
│                                                                       │
│                                                                       │
│                                              Monitor Wall: Device 1   │
│      IP Address:                                           ↓Device 2  │
│      [█  .   .   .     ]                                              │
│      Port Number:                                          IP Address │
│      [13000 ]                                              Port Number │
│                                                                       │
│  Mon Wall                                                             │
│   Setting                                                            │
└─────────────────────────────────────────────────────────────────────┘
```

Communications — Mon Wall Setting (IP Address) Menu

12. Assign the **IP Address** as follows:

✎ **Note** | For the Miranda Kaleido-K2 Monitor Wall, you must enter the **IP Address** of the device. Ensure that the Miranda Kaleido-K2 Monitor wall is connected to the same network as the computer with the Dispatcher software.

  • Use the top **Device** knob to select the com port the device is connected to.
  • Use the middle **Monitor Wall** knob to select the desired Monitor Wall device.
  • Use the bottom knob to select **IP Address**.
  • Use a PS/2 keyboard to enter the IP Address of the Monitor Wall device.

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

```
Communications (2-2)
                                              Device:  Kaleido  (R2)

         IP Address:                     Monitor Wall:    Device 1
         [010.000.001.010 ]                               ↓Device 2
         Port Number:
         [ 3000 ]                                         IP Address
                                                          Port Number

      Mon Wall
       Setting
```

Communications — Mon Wall Setting (Port Number) Menu

13. Assign the Port Number of the Monitor Wall connected to the Synergy Switcher as follows:

- Use the top **Device** knob to select the com port the Monitor Wall is connected to.

- Use the middle **Monitor Wall** knob to select the desired Monitor Wall device.

- Use the bottom knob to select **Port Number**.

✎	**Note**	The **Port Number** is set to **13000** by default. Refer to the documentation for your specific Monitor Wall to determine the correct Port Number for your device.

- Use a PS/2 keyboard to enter the Port Number of the Monitor Wall device.

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

This completes the procedure to configure a Synergy Switcher communication port for a **Monitor Wall** device.

Monitor Wall Interface Specifics

This section provides information specific to each Monitor Wall supported by the Synergy 1 Switcher.

Miranda Kaleido-K2

Use the following information to configure and connect a Miranda Kaleido-K2 monitor wall to your Synergy Switcher:

⚹	**Important**	You must have a computer with the Dispatcher™ software properly installed in order for the Synergy Switcher to communicate with the Miranda Kaleido-K2 monitor wall. The Dispatcher software is the gateway program that enables the serial-TCP/IP communication between the Synergy Switcher and the Miranda Kaleido-K2. Refer to your Miranda documentation for more information.

- The Miranda Kaleido-K2 monitor wall and the computer with Dispatcher software must be connected to the same network. Refer to your Miranda documentation for more information on connecting your devices to a network.

- Use the following communications settings when connecting a Miranda Kaleido-K2 monitor wall to the Synergy Switcher. Ensure that the communication settings in the **SerialProperties.txt** file in the Dispatcher software match those you set on the Synergy Switcher.

Synergy-to-Kaleido-K2 Communication Settings

Setting	Value
Transmission Standard	**RS-232 Null**
Baud Rate	**38400**
Parity	**NONE**
Data Bits	**8**
Stop Bits	**1**

- The Synergy control panel connects to the Miranda Kaleido-K2 monitor wall via the remote ports (1-5) on the Synergy control panel, and the **COM** ports (**1**or **2**) on the computer with the Dispatcher™ software installed.

  ~ The Synergy control panel remote port requires a 9-Pin, D-Type RS-232 straight-through cable.

  ~ The **COM** port on the computer with Dispatcher™ requires a 9-Pin, D-Type RS-232 connector.

- Cable connections in the following table refer only to those between the Synergy control panel and the computer with Dispatcher™. Other cable connections present on the Kaleido-K2 monitor wall or the computer with Dispatcher™ can be found in the Miranda documentation.

RS-232 Synergy-to-Kaleido K2 Wiring Chart

Synergy Panel			Computer with Dispatcher	
Remote Port (1-5)	**Signal**		**Communications Connector Male**	**Signal**
1	Chassis			n/c
2	Tx	→	2	Rx
3	Rx	→	3	Tx
4	n/c			n/c
5	Ground	→	5	Ground
6	Ground			n/c
7	n/c			
8	n/c			
9	Chassis			n/c

n/c = Not Connected

- The Miranda Kaleido-K2 Port Number must be set to **13000** in the Synergy **Communications Menu**. Refer to the section, "**Monitor Wall Interface Setup**" on page 7–100 for the procedure to setup communications for a Monitor Wall device.

Miranda Kaleido-K2 Setup

✎	**Note**	Refer to the Miranda documentation for specific set up procedures.

Use the following procedure to connect the Miranda Kaleido-K2 monitor wall to the Synergy 1 Switcher:

1. Ensure that the Dispatcher software is properly installed on your computer. The computer must be connected to your network.

2. Ensure that the Miranda Kaleido-K2 monitor wall is properly connected to the same network as your computer with Dispatcher installed.

3. Connect the computer with Dispatcher installed to the Synergy 1 Switcher. Refer to the section, "**Miranda Kaleido-K2**" on page 7–103 for communication settings.

4. Configure a Synergy 1 Switcher communication port for the computer with Dispatcher. Refer to the section, "**Monitor Wall Communication Setup**" on page 7–100 for details.

5. Ensure the serial port parameters in the Dispatcher **SerialPort.properties** file match those of the Synergy 1 Switcher. Refer to the table, "**Synergy-to-Kaleido-K2 Communication Settings**" on page 7–104 for Synergy specifics.

6. Ensure the Kaleido-K2 Layouts accept text modified using the Synergy 1 Switcher as follows:

    •   Each text label you wish to modify for a Kaleido-K2 **Layout** must be set to **Dynamic** on the Kaleido-K2.

    •   Each text label you wish to modify for a Kaleido-K2 **Layout** must also have its controlling source set as **Gateway** in order to accept the modified text from the Synergy Switcher. Refer to the Miranda documentation for more information.

    •   Set the **Text Label Address** on the Kaleido-K2 and make a note of it. This address will be required when programming Synergy 1 Switcher custom controls macros to modify text.

        For information on changing text using the Synergy 1 Switcher, refer to the section "**Modifying Dynamic Monitor Wall Text**" on page 8–67.

This completes the procedure to connect the Miranda Kaleido-K2 monitor wall to the Synergy 1 Switcher.

Serial Tally Protocol Setup

Ensure that the **Serial Tally** software option is installed. If not, please contact **Ross Video** for details. Refer to the section "**Installed Options Menus**" on page 2–31 for instructions on verifying the status of installed options.

The following topics are discussed:

- Contribution Serial Tally Protocol Setup
- Look Ahead Serial Tallies Protocol Setup

Contribution Serial Tally Protocol Setup

Use the **Contribution Serial Tally Protocol Setup** procedure to set up communication parameters with tally system interface equipment using industry standard protocol.

✎ **Note** | Note that the standard parallel tally interface will continue to operate normally when this option is enabled.

Use the following procedure to configure the Contribution Serial Tally Protocol:

1. Navigate to the **Communications Menu 1-2** as follows:

   - Press **HOME** (to display the **Main Menu 1-2**).
   - **MORE** (to display the **Main Menu 2-2**).
   - **Setup** (to display the **Setup Menu**).
   - **Installation** (to display the **Installation Menu 1-2**).
   - **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.

```
Communications (1-2)
                                        Com Port: REMOTE 1 (R1)
This  menu lets you setup                        ↓Kaleido  (R2)
what   each  of  the  com
ports are used for.                              ↑PIP-II
                                        Device:  Serial Tally
                                                 ↓CharGen


         Select                         Custom        Extra
  Type   Device   Com Settings  Com Type  Devices    Options
```

Communications — Type Menu

3. Assign a com port to the tally system as follows:

   - Use the top **Com Port** knob to select the remote port on the Synergy Switcher that is connected to the tally system.

✎ **Note** | If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open.

   - Use the middle **Device** knob to select **Serial Tally**.

4. Press **Select Device** to display the **Select Device Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                         │
│                                         Com Port: ▐REMOTE 1 (R1)▌│
│ This  menu lets you setup                         ↓Kaleido  (R2)│
│ which     devices    are                                     │
│ controlled   by    which                    Device:          │
│ ports.                                              ▐ NONE  ▌ │
│                                                     Contrib   │
│                                                              │
│                                                              │
│                                                              │
│              Select                      Custom      Extra   │
│     Type     Device    Com Settings  Com Type  Devices    Options│
└─────────────────────────────────────────────────────────────┘
```
Communications — Select Device Menu

5. Select the tally system you want to assign to the tally system communications port as follows:

• Use the top **Com Port** knob to select the communications port you want to assign a specific tally interface to.

• Use the middle **Device** knob to select the type of tally interface that is connected to the port. You can select between the following:

~ **NONE** — Use this option to not assign a tally interface to the selected com port.

~ **Contrib** — Use this option to assign a **Contributional Serial Tally Interface** device to the selected com port.

~ **L.A.S.T.** — Use this option to assign the L.A.S.T. protocol to the selected com port. Refer to the section, "**Look Ahead Serial Tallies Protocol Setup**" on page 7–110 for details.

6. Press **Com Settings** to display the **Com Settings Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                         │
│                                         Com Port: ▐Contrib (R1)▌│
│ This  menu lets you setup                         ↓Kaleido  (R2)│
│ your     com     port                                        │
│ parameters.                                         ↑57600   │
│                                            Baud:   ▐ 115200 ▌ │
│                                                              │
│                                                              │
│                                            Parity:  ▐ NONE ▌  │
│                                                     ↓ODD     │
│              Select                      Custom      Extra   │
│     Type     Device    Com Settings  Com Type  Devices    Options│
└─────────────────────────────────────────────────────────────┘
```
Communications — Com Settings Menu

7. Set the communications protocols for the tally interface as follows:

• Use the top **Com Port** knob to select the tally interface you are setting the communications settings for.

• Use the middle **Baud** knob to select the baud rate for the tally interface.

• Use the bottom **Parity** knob to select the parity, **NONE**, **ODD**, or **EVEN** for the tally interface.

8. Press **Com Type** to display the **Com Type Menu**.

```
┌──────────────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                                   │
│                                                  Com Port: Contrib (R1)│
│ This  menu lets you setup                                 ↓Kaleido (R2)│
│ your com port types.                                                   │
│                                                           RS-232       │
│                                                  Type:    RS-422       │
│                                                           ↓RS-232 Null │
│                                                                        │
│                                                                        │
│                                                                        │
│             Select                               Custom      Extra     │
│    Type     Device    Com Settings   Com Type    Devices     Options   │
└──────────────────────────────────────────────────────────────────────┘
```
Communications — Com Type Menu

9. Select the type of serial communication that will be used to communicate with the tally interface as follows:

   • Use the top **Com Port** knob to select the tally interface you want to set the communications type for.

   • Use the middle **Type** knob to select the type of serial communications (RS-232, RS-422, RS-232 Null, or RS-422 Null) for the selected port.

10. Press **Extra Options** to display the **Extra Options Menu**.

```
┌──────────────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                                   │
│ Protocol: Contrib                                Com Port: Contrib (R1)│
│                                                           ↓Kaleido (R2)│
│                                                                        │
│          Periodic Update Rate in Fields          Option:    Rate       │
│                                                           ↓Data Txfr   │
│                                                                        │
│                                                                        │
│                                                  Value:      ( 26)     │
│                                                             Decimal     │
│             Select                               Custom      Extra      │
│    Type     Device    Com Settings   Com Type    Devices     Options    │
└──────────────────────────────────────────────────────────────────────┘
```
Communications — Extra Options (Rate) Menu

11. Assign an update rate to the tally interface as follows:

   • Use the top **Com Port** knob to select the tally interface you are setting the rate for.

   • Use the middle **Option** knob to select **Rate**.

   • Use the bottom **Value** knob to select the rate, in fields, between update messages sent by the switcher to the tally interface equipment.

```
┌──────────────────────────────────────────────────────────────────────┐
│ Communications (1-2)                                                   │
│ Protocol: Contrib                                Com Port: Contrib (R1)│
│                                                           ↓Kaleido (R2)│
│                                                           ↑Rate        │
│   Extent of data within a periodic update        Option:  Data Txfr    │
│                                                           ↓Start       │
│                                                           ↑Normal      │
│                                                  Value:   Complete      │
│                                                                        │
│             Select                               Custom      Extra      │
│    Type     Device    Com Settings   Com Type    Devices     Options    │
└──────────────────────────────────────────────────────────────────────┘
```
Communications — Extra Options (Data Transfer) Menu

12. Assign a data transfer size to the tally interface as follows:

- Use the top **Com Port** knob to select the tally interface you are setting the message size for.

- Use the middle **Option** knob to select **Data Txfr**.

- Use the bottom **Value** knob to select either **Minimal**, **Normal** or **Complete** as the message size protocol for the tally interface.

```
Communications (1-2)
                                        Com Port: Contrib  (R1)
Protocol: Contrib                                 ↓Kaleido  (R2)

                                                   ↑Data Txfr
Include an Init msg in a periodic update  Option:   Start
                                                    At Black

                                          Value:         None
                                                          Init
         Select                        Custom       Extra
  Type   Device   Com Settings  Com Type  Devices    Options
```
Communications — Extra Options (Start) Menu

13. Assign a start message to the communications with the tally interface as follows:

- Use the top **Com Port** knob to select the tally interface you are setting the start message for.

- Use the middle **Option** knob to select **Start**.

- Use the bottom **Value** knob to select either **None** or **Init** as the start message for the tally interface.

```
Communications (1-2)
                                        Com Port: Contrib  (R1)
Protocol: Contrib                                 ↓Kaleido  (R2)

                                                   ↑Start
   How to report Active when "At Black"   Option:  At Black

                                          Value:   All Off
                                                   Active On
         Select                        Custom       Extra
  Type   Device   Com Settings  Com Type  Devices    Options
```
Communications — Extra Options (At Black) Menu

14. Assign an At Black action to the tally interface as follows:

- Use the top **Com Port** knob to select the tally interface you are setting the At Black action for.

- Use the middle **Option** knob to select **At Black**.

- Use the bottom **Value** knob to select the At Black action for the tally interface You can select between the following:

  ~ **All Off** — Select this option to have the switcher report that nothing is on-air when the switcher as at black.

  ~ **Active On** — Select this option to have the switcher not report anything different when the switcher is at black.

This completes the set up procedure for the **Contribution Serial Tally Protocol** option. If you require further information on the various options and their associated values, contact **Ross Video Technical Support** at the number listed in the front of this guide.

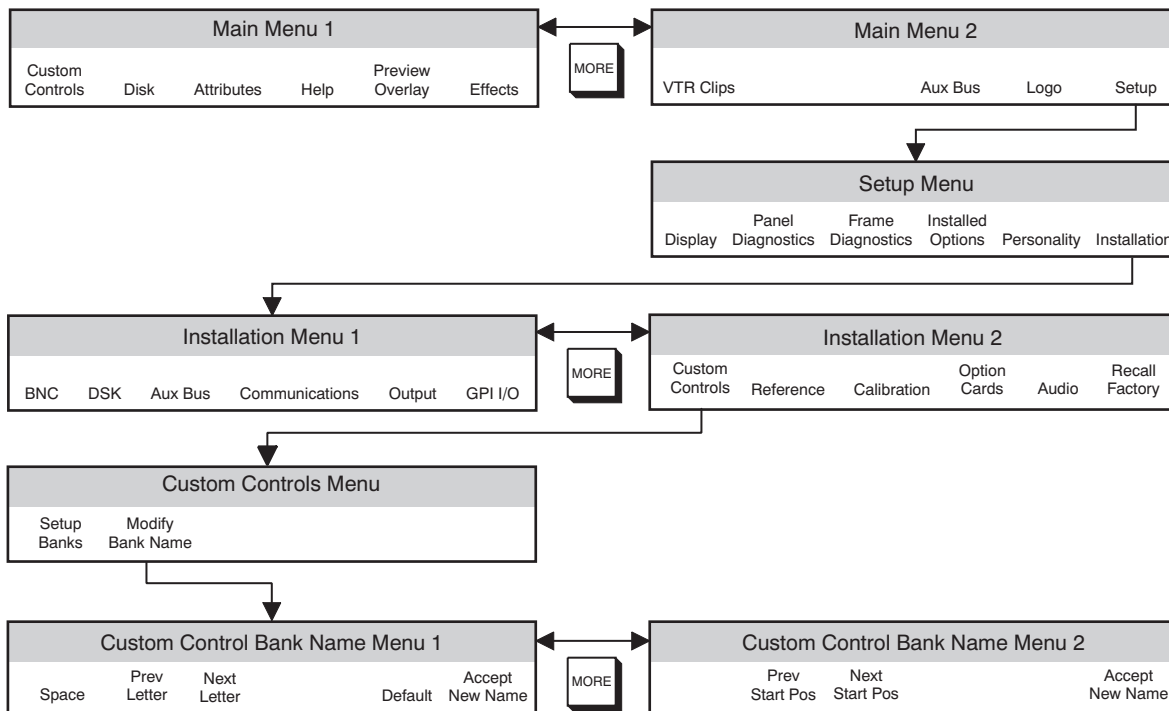# Look Ahead Serial Tallies Protocol Setup

The Look Ahead Serial Tallies (L.A.S.T.) protocol enables you to inform external devices of a key crosspoint change before the crosspoint change is performed on any bus of the Synergy switcher. When a key source changes, the L.A.S.T. protocol informs the device while delaying the key crosspoint change for the duration you set in the **Communications Menus**. Once set up, the L.A.S.T. protocol will continually transmit the information about every Synergy 1 switcher bus. Refer to the section, "**Synergy Panel Diagnostic Tools**" on page 14–2 for information on monitoring TX/RX functions.

For example, the L.A.S.T. protocol is especially useful for set applications where the switcher background is fed from a virtual set generator. By setting an appropriate delay, you allow the virtual set generator time to generate the new background.

Use the following procedure to configure the L.A.S.T. protocol:

1. Navigate to the **Communications Menu 1-2** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**).
    *   **MORE** (to display the **Main Menu 2-2**).
    *   **Setup** (to display the **Setup Menu**).
    *   **Installation** (to display the **Installation Menu 1-2**).
    *   **Communications** (to display the **Communications Menu 1-2**).

2. Press **Type** to display the **Type Menu**.


```
Communications (1-2)
                                        Com Port:  REMOTE 1 (R1)
This   menu lets you setup                        ↓REMOTE 2 (R2)
what   each  of  the  com
ports are used for.                               ↑PIP-II
                                        Device:   Serial Tally
                                                  ↓CharGen



          Select                        Custom      Extra
   Type   Device   Com Settings  Com Type  Devices  Options
```

Communications — Type Menu

3. Assign a com port to the tally system as follows:

    *   Use the top **Com Port** knob to select the remote port on the Synergy 1 Switcher that is connected to the tally system.

✎ **Note** | If you intend to connect a **Remote Aux Panel** to the Synergy 1 Switcher, you will have to leave the **Remote 5** port open.

    *   Use the middle **Device** knob to select **Serial Tally**.

4. Press **Select Device** to display the **Select Device Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                      Com Port: REMOTE 1 (R1) │
│ This  menu lets you setup                          RemAux   (A1) │
│ which     devices    are                                         │
│ controlled  by    which                   Device:      ↑Contrib  │
│ ports.                                                  L.A.S.T   │
│                                                                  │
│                                                                  │
│          Select                       Custom     Extra           │
│    Type  Device   Com Settings  Com Type  Devices  Options       │
└─────────────────────────────────────────────────────────────┘
```
Communications — Select Device Menu

5. Select the tally system you want to assign to the tally system communications port as follows:

   • Use the top **Com Port** knob to select the communications port you want to assign a specific tally interface to.

   • Use the middle **Device** knob to select the type of tally interface that is connected to the port. You can select between the following:

      ~ **NONE** — Use this option to not assign a tally interface to the selected com port.

      ~ **Contrib** — Use this option to assign a **Contributional Serial Tally Interface** device to the selected com port. Refer to the section, "**Contribution Serial Tally Protocol Setup**" on page 7–106 for more information.

      ~ **L.A.S.T.** — Select this option to assign the **Look Ahead Serial Tally** protocol to the com port.

6. Press **Extra Options** to display the **Extra Options Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Communications (1-2)                      Com Port: L.A.S.T (R1) │
│ Protocol: L.A.S.T                                  RemAux   (A1) │
│                                                                  │
│          Action Delay Length in Fields    Option:        Delay   │
│                                                                  │
│                                           Value:        ( 77)    │
│                                                         Decimal  │
│          Select                       Custom     Extra           │
│    Type  Device   Com Settings  Com Type  Devices  Options       │
└─────────────────────────────────────────────────────────────┘
```
Extra Options Menu

7. Set the delay duration (in fields) for the L.A.S.T. protocol as follows:

   • Use the top **Com Port** knob to select the tally interface you are setting the delay for.

   • Use the middle **Option** knob to select **Delay**. This is the default setting.

   • Use the bottom **Value** knob to set the number of fields for the delay.

      ~ You can select between **0** and **120** fields for the delay duration.

This concludes the procedure to configure the **L.A.S.T. protocol** option.

If you require further information on the various options and their associated values, contact **Ross Video Technical Support** at the number listed in the front of this guide.

Custom Controls

In This Chapter

This chapter provides instructions for setting up and naming custom control banks, and programming, naming, and editing your custom control buttons. The following topics are discussed:

- Custom Controls Banks Menu Tree
- Custom Controls Menu Tree
- Custom Controls
- Custom Control Banks
- Programming Control Panel Functions
- Programming Special Functions
- VTR Functions
- Time Clock Functions
- Special Functions
- Peripheral Interface II Protocol
- Character Generator Custom Controls
- Router Custom Controls
- Robotic Camera Custom Controls
- Monitor Wall Custom Controls
- Naming Custom Controls
- Editing Custom Control Macros
- Modifying Events
- Inserting Events
- Deleting Custom Controls
- Saving and Recalling Custom Controls

Custom Controls Banks Menu Tree

The following figure illustrates the *portion* of the Synergy menu tree that is used for setting up Custom Control banks. Use this figure for reference throughout the following chapter.

Main Menu 1					
Custom Controls	Disk	Attributes	Help	Preview Overlay	Effects

MORE

Main Menu 2			
VTR Clips	Aux Bus	Logo	Setup

Setup Menu					
Display	Panel Diagnostics	Frame Diagnostics	Installed Options	Personality	Installation

Installation Menu 1					
BNC	DSK	Aux Bus	Communications	Output	GPI I/O

MORE

Installation Menu 2					
Custom Controls	Reference	Calibration	Option Cards	Audio	Recall Factory

Custom Controls Menu	
Setup Banks	Modify Bank Name

Custom Control Bank Name Menu 1				
Space	Prev Letter	Next Letter	Default	Accept New Name

MORE

Custom Control Bank Name Menu 2		
Prev Start Pos	Next Start Pos	Accept New Name

Custom Controls Banks Menu Tree

Custom Controls Menu Tree

The figure below illustrates the *portion* of the Synergy menu tree that is used for programming custom control buttons. Use this figure for reference throughout this chapter.

Main Menu 1

Custom Controls | Disk | Attributes | Help | Preview Overlay | Effects

Custom Controls Menu

Start Recording | Modify Name | "Edit" | Default All Names | Delete Macro

Edit Custom Controls Menu

Go To Start | Insert Events | Delete Event | Run Single Event | Run From Here

Custom Controls Name Menu 1

Space | Prev Letter | Next Letter | Preset Names | Default | Accept New Name

MORE

Custom Controls Name Menu 2

Prev Start Pos | Next Start Pos | Accept New Name

Preset Names Menu

Select | Cancel

Start Recording Menu

Finish Recording | Cancel Recording | Insert Special

Edit Custom Controls Menu

Insert Special | Finish Inserting | Cancel Inserting

Insert Special Menu 1

VTR | DVE | Time Clock | Special | PIP-II | CharGen

MORE

Insert Special Menu 2

Router | Robotic Camera | Monitor Wall

Insert VTR Menu | Insert DVE Menu | Insert Time Clock Menu | Insert Special Menu | Insert PIP-II Menu

Insert Robotic Camera Menu | Insert Monitor Wall Menu

Character Generator Menu

Insert | Cancel | Mode Seq/Man | Channel A/B | Event PV/PGM

Insert Router Control Menu

Insert | Cancel | Set Src | Set BNC

"Edit" only shows up as a soft key if the custom control button currently selected in the System Control Group has already been programmed with a macro.

Custom Controls Menu Tree

Custom Controls

The **Custom Control** function 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.

A total of 24 registers are provided, up to eight of which can be assigned as *banks* to increase the total number of available registers.The figures below illustrate the **Custom Control Group** of the switcher. Note that *sample* labels are provided.
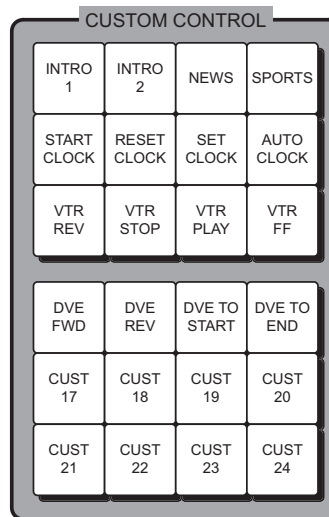
Custom Control Group — Synergy 1 Panel

Buttons are numbered to simplify the programming procedure. The numbering is **1** to **24** in ascending order, from left to right, and top to bottom.

Custom control functionality falls into several different categories. These categories have been identified as follows:

- • **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.

- • **Naming Custom Controls** — A custom control function can be named for quick reference in the menus.

- • **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.

⚛	**Important**	Although the following sections deal with each *individual* custom control function, please note that when you are programming a custom control button, you are free to mix *all types* of functions together in one button programming session.

Note While recording a custom control macro, pressing the custom control button of an existing macro will record only the call to the custom control recorded on that button, and will stop the recording in progress. Upon playback of the new macro, the called macro will be performed as the last function.

- **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, Video Servers and Audio Servers. The **VTR Remote Control**, **Video Sever Control**, or **Audio Sever 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.

- **Special Functions** — A custom control button can be programmed to perform a variety of special functions, such as controlling GPIs and external audio 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.

- **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.

✎ **Note** You must have the **USB Removable Media Drive** option installed in order to use a USB key for saving and recalling Custom Controls.

- **Deleting Custom Controls** — A custom control function can be deleted from a button.

- **Editing Custom Controls** - A custom control macro can be viewed and modified by inserting or deleting events, as desired.

✎ **Note** 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**" on page 8–38 for details on inserting pauses in a custom control macro.

Custom Control Banks

Before programming the actual **Custom Control** buttons themselves, you must determine whether or not you want to enable custom control "**Banks**." This feature effectively multiplies the total number of custom control buttons that you have available.

Two types of banks are available; **Normal** and **Audio**. Normal banks are for storing normal custom controls dealing with typical switcher video functions. Audio banks are used when custom controls are created for use when the switcher is in Audio Custom Control mode, and remotely operates an audio mixing board through the PGM and PST bus crosspoints. Refer to the section "**Remote Audio Mixers**" on page 11–1 for more information.

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.

Note	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.

Custom Control Bank Setup

Use the following procedure to set up custom control banks:

1. Navigate to the **Custom Controls Menu** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**)
    *   **MORE** (to display the **Main Menu 2-2**)
    *   **Setup** (to display the **Setup Menu**)
    *   **Installation** (to display the **Installation Menu 1-2**)
    *   **MORE** (to display the **Installation Menu 2-2**)
    *   **Custom Controls** (to display the **Custom Controls Menu**).

2. Press **Setup Banks** to display the **Bank Setup Menu**.

```
Custom Controls
                        Bank 1 button:01      Bank:   Bank 1   (1)
Use  this  menu to assign   Bank 2 button:NONE     ↓ Bank 2   (2)
custom   control  buttons   Bank 3 button:NONE
to  banks,  and  set bank   Bank 4 button:NONE       NONE
types.  Buttons  with '*'   Bank 5 button:NONE     Button:  Button # 1
or   '@'   have  macros     Bank 6 button:NONE     ↓ Button # 2
assigned.                   Bank 7 button:NONE
                        Bank 8 button:NONE     Type:    Normal
                                                        Audio

   Setup      Modify
   Banks      Bank Name
```

Custom Controls — Bank Setup Menu

3. Assign a Bank to a Custom Control button as follows:

- Use the top **Bank** knob to select the desired bank that you wish to enable (from **1** to **8**).

- Use the middle **Button** knob to select the desired custom control button that you wish to assign as the bank. If you need to *disable* a bank, select **NONE**.

| ✎ | **Note** | As you rotate the **Bank** and **Button** knobs, the **Custom Control Buttons** will light, indicating the selected button on the control panel. |

- Use the bottom **Type** button to select the custom control bank type you are creating. You can select between the following:

  ~ **Audio** — Use this option for macros that communicate with remote audio mixers.

| ✔ | **Operating Tip** | When an **Audio Bank** button is pressed and *held*, the **PGM/PST** buses operate in **Audio Custom Control Mode**. In this mode, each crosspoint represents the audio channel or group assigned to the corresponding custom control button. This mode also shows the current audio channels, or groups, assigned to the **PGM/PST** buses.

For example, crosspoint 1 will represent the audio channel assigned to custom control 1. |

  ~ **Normal** — Use this option for macros that perform any function *except* communicating with outboard audio mixers.

4. Press **HOME**, a message asking if you want to Confirm these changes will be displayed.

5. Press **Confirm** to save the new settings.

| ✔ | **Operating Tip** | If you enable banks, be sure to re-label the keycaps on the switcher panel accordingly. |

Naming Custom Control Banks

Use the following procedure to name custom control banks:

1. Navigate to the **Custom Controls Menu** as follows:

- Press **HOME** (to display the **Main Menu 1-2**)

- **MORE** (to display the **Main Menu 2-2**)

- **Setup** (to display the **Setup Menu**)

- **Installation** (to display the **Installation Menu 1-2**)

- **MORE** (to display the **Installation Menu 2-2**)

- **Custom Controls** (to display the **Custom Controls Menu**).

2. Press **Modify Bank Names** to display the **Custom Control Bank Names Menu**.

```
Custom Control Bank Names                                    Horizontal

  a b c d e f g h i j k l m n o p q r s t u v w x y z

  A B C D E F G H I J K L M N O P Q R S T U V W X Y Z        Vertical

  0 1 2 3 4 5 6 7 8 9 ! @ # - _ & * ( ) / , . ? ' "
                                                             (  1)
 Current Name:[Bank 1  ]              New Name:[Bank 1  ]    Bank number

            Prev        Next                                 Accept
  Space     Letter      Letter              Default          New Name
```
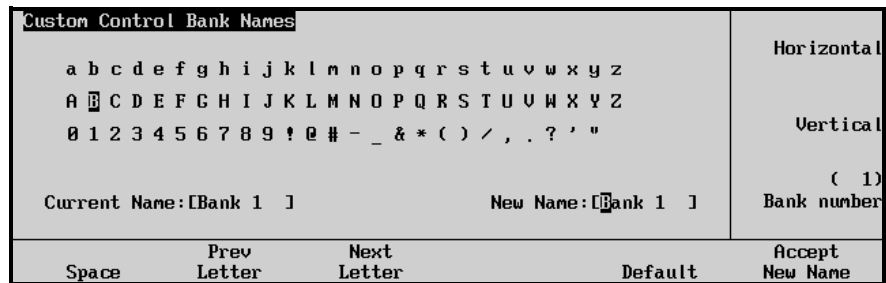
Custom Control Bank Names Menu

* The **Main Area** provides an array of letters and numbers. The reverse video *highlight* indicates the "selected" character — the position of which is controlled by the two upper scroll knobs. The **Current Name** and **New Name** fields are located below the array. .

☑ **Operating Tip**

A Standard PS/2 keyboard can be used to perform the same actions as pressing or rotating the **System Control** buttons and knobs.

Refer to the section, "**Using The Keyboard**" in Chapter 2 "**Control Panel Introduction**" of the *Synergy 1 Operation Guide* for details.

⚠ **Important**

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

In the **New Name** field, the reverse video *highlight* indicates the "active" character — the one that you are changing.

* The **Label Area** provides an array of tools for naming and editing your physical names.

* The **Scroll Area** provides three functions that are controlled by their respective knobs:

  ~ The top **Horizontal** knob moves the highlight horizontally.

  ~ The middle **Vertical** knob moves the highlight vertically.

  ~ The bottom **Bank number** knob selects the bank that you want to name. As you scroll through your banks the **Current Name** field tracks each name.

3. To name a bank, rotate the **Bank number** knob until the desired bank number is shown — the one that you want to name. Please note:

* As you rotate the knob, the **Current Name Field** changes to show the bank's current name (as stored in switcher memory).

* The factory default format for *all bank names* is:

  [**Bank**] [**space**] [**number**]

For example, **Bank 1** or **Bank 8**. This format makes it easy to associate names with actual banks.

4. To name your bank, use the **Horizontal** and **Vertical** knobs to select the desired character. The highlighted position in the **New Name Field** changes as you select each character.

✎ **Note**
> The maximum number of characters allowed is eight.

- Press **Space** to add a space at the highlight's current position. If a letter is in the active position, it will be deleted.
- Press **Prev Letter** to move the highlight one space to the left.
- Press **Next Letter** to move the highlight one space to the right.

✎ **Note**
> As you rotate the **Horizontal** and **Vertical** knobs, note that on the control panel's buses, the pushbuttons light that correspond to each character (in sequence). If desired, you can press the MLE pushbutton to select a character.

5. When the name entered is correct, press **Accept New Name**.

✎ **Note**
> If you exit the installation menus without first pressing **Accept New Name**, the following screen is displayed.

```
The entry "Custom01" has changed to "custom01".

Press Continue to proceed without saving the name.
Press Cancel to return to the previous menu.




   Continue       Cancel
```

Change Name Without Saving Message

- Press **Continue** to proceed without saving the changes you made to the name.
- Press **Cancel** to return to the previous menu and accept the new name.

6. Repeat steps 2 through 4 for each bank that you want to name.

✔ **Operating Tip**
> It is recommended at this point that you name *each bank*.

7. To return the currently modified custom control bank name to its default title, press **Default**.

8. When all banks are named as desired, press **HOME** and **Confirm** to save the new settings.

This completes the procedure for setting up custom control banks.

Programming Control Panel Functions

Use the following procedure to program a normal custom control button with basic functions:

✓ **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.

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:    Bank 1    (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                            Button:    Custom01 # 1
                                                    ↓  Custom02 # 2
Custom Control Legend:
        # = normal custom control button




    Start        Modify                    Default
  Recording       Name                    All Names    Delete Macro
```

Custom Controls Menu

The **Main Area –** provides a line of buffer status as well as the name and status of the custom control selected on the menu. If you have *already* programmed one or more macros, a percentage value is displayed that indicates how "full" the buffers are.

The **Scroll Area –** provides lists of the enabled banks, and a full list of 24 custom control buttons.

2. Select the Custom Control bank and button that you want to record to as follows:

   • Use the top **Bank** knob to select the custom control bank that you want to record the custom control on.

   • Use the middle **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 asterisk (*****) next to them in the list are *already* programmed, however, they can be edited. Refer to the "**Editing Custom Control Macros**" on page 8–71 for details.

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:                                               ↓ Custom02 # 2
        # = normal custom control button



                   Finish         Cancel       Insert
                  Recording      Recording      Special
```
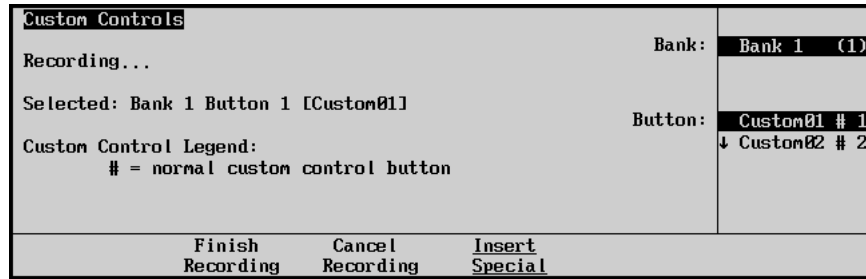
Custom Controls — Recording Menu

✎ **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, and then perform an auto transition, 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.

   • To have a custom control run another custom control as part of the macro, double 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 Functions**" on page 8–14.
- **DVE Functions** — Refer to the section "**DVE Functions**" on page 12–33.
- **Time Clock Functions** — Refer to the section "**Time Clock Functions**" on page 8–18.
- **Special Functions** — Refer to the section "**Special Functions**" on page 8–21.
- **Peripheral Interface II Protocol** — Refer to the section "**Peripheral Interface II Protocol**" on page 8–41.
- **Character Generator Custom Controls** — Refer to the section "**Character Generator Custom Controls**" on page 8–44.
- **Router Custom Controls** — Refer to the section "**Router Custom Controls**" on page 8–47.
- **Robotic Camera Custom Controls** — Refer to the section, "**Robotic Camera Custom Controls**" on page 8–53.
- **Monitor Wall Custom Controls** — Refer to the section, "**Monitor Wall Custom Controls**" on page 8–58.

6. Press **Finish Recording** when you have finished recording the macro.

✓ **Operating Tip**

> You can also stop the recording by pressing the blinking custom control button.

```
Custom Controls                                    Bank:   Bank 1   (1)

Custom Control buffers .32% full

Selected: Bank 1 Button 1 [Custom01]
                                                   Button: *Custom01 # 1
Custom Control Legend:                                     ↓ Custom02 # 2
        * = custom control contains macro
        # = normal custom control button


    Start       Modify                    Default
  Recording      Name         Edit       All Names   Delete Macro
```

Custom Controls Menu

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, press the custom control button on the switcher panel. (This is the button you selected in step 2 above).

Please 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 8–71 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 Menu** 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 recognizes the *state* of buttons that you press, and repeats your exact sequence upon playback. For example, if you toggle a function **on** such as a key modifier, the system will turn that function **on** again — each time the macro is played back. It will *not* simply toggle the button between the **on** and **off** states.

- 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 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 8–71 for more information on inserting events into existing custom control macros.

The following functions are covered in this section:

- VTR Functions

- Time Clock Functions

- Special Functions

- Peripheral Interface II Protocol

- Character Generator Custom Controls Custom Controls

- Router Custom Controls

- Monitor Wall Custom Controls

- Robotic Camera Custom Controls

| ✐ | **Note** | You can also create custom controls for audio channels and groups using the **Custom Control Menu**. Refer to the section, "**Audio Custom Controls**" on page 11–22 for instructions. |

| ✐ | **Note** | You can also create custom controls for external DVEs using the **Custom Control Menu**. Refer to the section, "**Programming Custom Control Buttons**" on page 12–33 for instructions. |

VTR Functions

The Synergy 1 Switcher allows you to program custom control buttons with transport functions for serial controlled devices. These devices include:

- **VTRs** (using Betacam protocol)

- **Video Servers** (using VDCP)

- **Audio Servers** (using Digicart protocol)

| ✐ | **Note** | When you set up your VTR, Video Server, and Audio Server clips, transport control commands (such as **PLAY** and **STOP**) are located on the **VTR Clips Menu** *as standard*. In addition, when you recall VTR and Video Server clips from memory for use during production, transport control commands are *also* present on the associated **Remote Control** menus. (There is no **Remote Control Menu** for Audio Server Clips.) |
| | | With this in mind, you may *not* want to program transport commands on individual custom control buttons for VTRs or Video Servers. However, custom control *does* give you the ability to string groups of commands together (including transport controls), thus knowing how to program them is important to your overall understanding of switcher capability |

Use the following procedure to program custom control buttons that include special transport functions for serial controlled devices:

	Note	You must have your VTR, Video Server, or Audio Server properly installed in order to add it to a custom control. Refer to the section "**VTR Communications Setup**" on page 7–10 for more information.

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                    Bank:   Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                                    Button:  Custom01 # 1
Custom Control Legend:                                     ↓ Custom02 # 2
        # = normal custom control button



   Start         Modify                         Default
 Recording        Name                         All Names   Delete Macro
```
Custom Controls Menu

2. Select the custom control button you want to record to as follow:

   • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

   • Use the middle **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 transport control functions for similar devices grouped together on your *physical* custom control buttons. For example, keep VTR commands together, separate from Video Server commands.

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:                                     ↓ Custom02 # 2
        # = normal custom control button



              Finish       Cancel      Insert
            Recording    Recording    Special
```
Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)




          UTR         DUE      Time Clock    Special     PIP-II      CharGen
```

Insert Special Menu 1-2

5. Press **VTR** to select the **Insert VTR Menu**. This menu allows you to choose specific transport control functions to assign to the button.

```
Insert UTR
                                              VDCP      (R2)

                                            ↑Go To Clip
                                             Rewind
                                            ↓Stop



     Insert      Cancel
```

Insert VTR Menu

✎ **Note**   If an error message is displayed stating that there are no communications ports assigned to VTRs, ensure that the VTR you are trying to control has been properly set up on the control panel remote port. Refer to the section "**VTR Communications Setup**" on page 7–10 for more information.

6. Select a VTR function to insert as follows:

   • Use the top **Device** knob to select the VTR that you want to assign the custom control to.

   • Use the middle **Function** knob to select the transport control function that you want to assign to the selected VTR. Use the table "**Transport Control — Custom Control Functions**" on page 8–17 to determine which function you want to insert.

✎ **Note**   The bottom **Clip** knob only applies to the insert **Go To Clip** command. No value will be displayed for other commands. Refer to Chapter 12, "**VTR Clip Control**", in the *Synergy 1 Operation Guide* for information on programming clip registers.

   • Use the bottom **Clip** knob to select the clip you want to go to when you insert a **Go To Clip** command.

✎ **Note**   Most VDCP devices allow you to enter a VTR Clip ID by toggling the **VTR Clip** button and using the keypad in the **Global Memory System**.

Transport Control — Custom Control Functions

Transport Control Function	Description
Fast Forward	Places the device in full fast forward mode.
Frame Advance	Moves (jogs) the device one frame forward.
Frame Reverse	Moves (jogs) the device one frame reverse.
Go To Clip	Cues the device to a selected clip (from **00** to **99**).
Rewind	Places the device in full fast rewind mode.
Stop	Stops the device.
Record	Places the device in record mode.
Play	Places the device in play mode (1x forward).
Pause	Places the device in pause mode

✓ **Operating Tip**

Transport control functions can be strung together (during the programming mode), allowing one custom control button to perform *multiple functions* when it is pressed. For example, you can have the **Go To Clip** function following by the **Play** function, allowing a single custom control macro to go to a clip and then run it.

✎ **Note**

Ensure that the Synergy 1 Switcher is connected to a communications port on the VDCP device that enables recording. Refer to the documentation for your device for setup information.

7. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.

8. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.

9. Press **UP ONE** to display the **Recording Menu**.
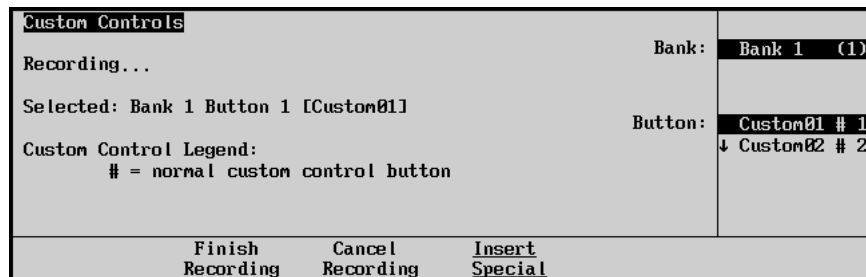
Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓ **Operating Tip**

If you are programming a Record command for a VDCP device, the maximum record time duration for the device is set to 60 minutes by default. You can change the duration using the **Extra Options Menu**. Refer to the section, "**VDCP Interface Specifics**" on page 7–36 for more information.

✓	**Operating Tip**	You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎	**Note**	Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Time Clock Functions

The Synergy 1 Switcher allows you to program custom control buttons with Time Clock functions.

Use the following procedure to program one or more custom control buttons with special **Time Clock** functions:

1. Navigate to the **Custom Controls Menu** as follows:

    • Press **HOME** (to display the **Main Menu 1-2**).

    • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:   Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                              Button:  Custom01 # 1
                                                      ↓ Custom02 # 2
Custom Control Legend:
        # = normal custom control button


    Start        Modify                     Default
  Recording       Name                     All Names    Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    • Use the middle **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 Time Clock 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
                                                          ↓ Custom02 # 2
Custom Control Legend:
        # = normal custom control button


        Finish          Cancel          Insert
        Recording       Recording       Special
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)








        VTR            DVE        Time Clock     Special      PIP-II        CharGen
```

Insert Special Menu

5. Press **Time Clock** to display the **Insert Time Clock Menu**. This menu allows you to choose specific Time Clock control functions to assign to the button.

```
Insert Time Clock                                         Count Up
                                                          Count Down
                                                         ↓Count Down/Up






        Insert         Cancel
```

Insert Time Clock Menu

6. Select a Time Clock function to insert as follows:

   • Use the top **Function** knob to select the function that you want to assign to the custom control. Use the table "**Time Clock — Custom Control Functions**" on page 8–20 to determine which function you want to insert.

✐   **Note**   The middle **Reset Time** knob only applies to the insert **Reset** command. No value will be displayed for other commands.

Time Clock — Custom Control Functions

Time Clock Functions	Description
Count Up	Starts the **Preview Overlay** clock counting up from zero.
Count Down	Starts the **Preview Overlay** clock counting down from the preset time to zero.
Count Down/Up	Starts the **Preview Overlay** clock counting down from the preset time to zero, when it will then start counting up from zero until you press **Reset** or **Stop**.
Stop	Stops the **Preview Overlay** clock.
Reset	Resets the **Preview Overlay** clock to the preset time.

✔ **Operating Tip**

> Time Clock functions can be strung together (during the programming mode), allowing one custom control button to perform *multiple functions* when it is pressed. For example, you can have the **Reset** function following by the **Count Down** function, allowing a single custom control macro to reset the Time Clock and start it counting down.

7. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.

8. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.

9. Press **UP ONE** to display the **Recording Menu**.

```
┌─────────────────────────────────────────────────────────────────┐
│ Custom Controls                                                  │
│                                                        Bank:  ▐ Bank 1   (1) │
│ Recording...                                                     │
│                                                                  │
│ Selected: Bank 1 Button 1 [Custom01]                            │
│                                                       Button: ▐ Custom01 # 1 │
│ Custom Control Legend:                                  ↓ Custom02 # 2 │
│        # = normal custom control button                          │
│                                                                  │
│        Finish        Cancel        Insert                        │
│       Recording     Recording      Special                       │
└─────────────────────────────────────────────────────────────────┘
```

Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✔ **Operating Tip**

> You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎ **Note**

> Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.
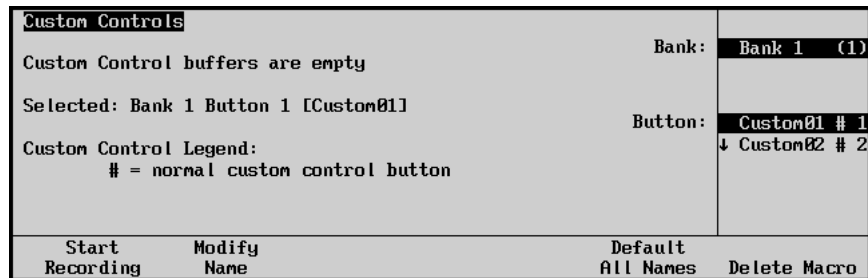
Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Special Functions

Custom control buttons can be programmed to perform a variety of special functions for operational convenience and efficiency. These functions include:

- Reset GPI
- Trigger GPI
- Automation
- Go To Menu
- Transition Keys
- Safe Title
- Custom Control Holds
- Custom Control Pauses

| ✎ | **Note** | You can also create custom controls for audio channels and groups using the **Custom Controls Menu**. Refer to the section "**Audio Custom Controls**" on page 11–22 for instructions. |

Reset GPI

Use the following procedure to program a GPI reset:

1. Navigate to the **Custom Controls Menu** as follows:

    - Press **HOME** (to display the **Main Menu 1-2**).
    - **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:   Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                            Button:   Custom01 # 1
Custom Control Legend:                             ↓ Custom02 # 2
        # = normal custom control button


    Start        Modify                      Default
  Recording       Name                      All Names    Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    - Use the top **Bank** knob to select the custom control bank you want to record the custom control to.
    - Use the middle **Button** knob to select the custom control button that you want to record a custom control macro to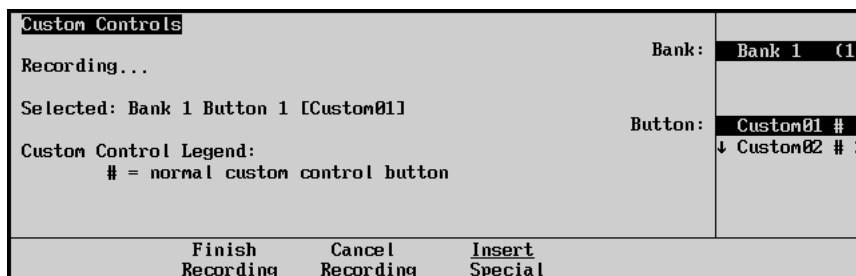. You can also press the desired button *directly* on the control panel. Remember that buttons marked with an asterisk (*) in the list have already been programmed.
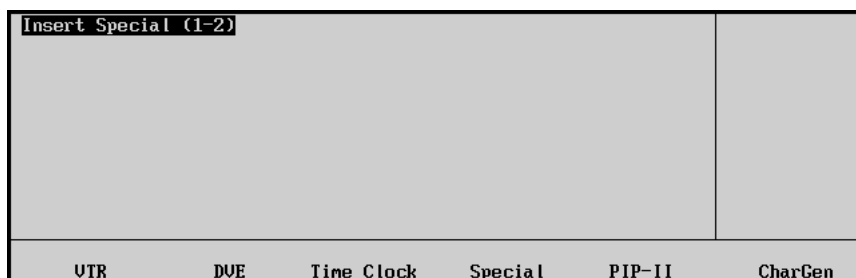
| ✓ | **Operating Tip** | As a recommendation, keep special functions grouped together on your *physical* custom control buttons. |

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:                          ↓ Custom02 # 2│
│        # = normal custom control button                      │
│                                                              │
│                                                              │
│           Finish       Cancel       Insert                   │
│         Recording     Recording    Special                   │
└─────────────────────────────────────────────────────────────┘
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
┌─────────────────────────────────────────────────────────────┐
│ Insert Special (1-2)                                         │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│     VTR         DVE      Time Clock    Special    PIP-II    CharGen│
└─────────────────────────────────────────────────────────────┘
```

Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Special                                                      │
│                                             Reset GPI        │
│                                           ↓Trigger GPI       │
│                              GPI Output:  UNKNOWN   ( 1)      │
│                                           ↓UNKNOWN   ( 2)     │
│                                                              │
│                                                              │
│     Insert        Cancel                                     │
└─────────────────────────────────────────────────────────────┘
```

Insert Special — Special Menu
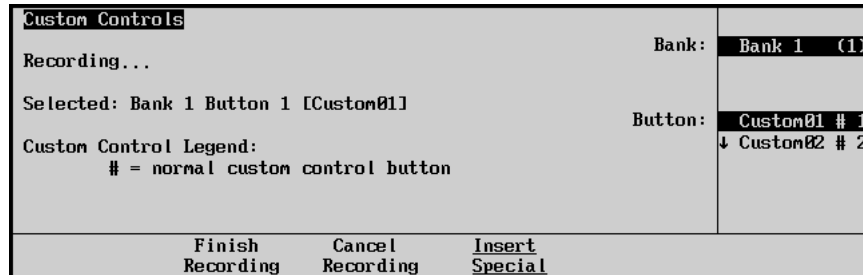
6. Assign the reset GPI to a GPI output as follows:

    •   Use the top **Selection** knob to select **Reset GPI**.

    •   Use the middle **GPI Output** knob to select the GPI output port you want to reset.

✎ **Note**   The names that appear in the **GPI Output** list are programmed on the **GPI Output Setup Menu**. Refer to the section, "**Standard GPI Setup**" on page 9–25 for details.

7. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.

8. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.

9. Press **UP ONE** to display the **Recording Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Custom Controls                                              │
│                                              Bank:  ┌─────────────┐
│ Recording...                                        │ Bank 1   (1)│
│                                                     └─────────────┘
│ Selected: Bank 1 Button 1 [Custom01]                         │
│                                            Button:  ┌─────────────┐
│ Custom Control Legend:                              │ Custom01 # 1│
│         # = normal custom control button            │↓ Custom02 # 2│
│                                                     └─────────────┘
│                                                              │
│              Finish       Cancel     Insert                  │
│             Recording    Recording   Special                 │
└─────────────────────────────────────────────────────────────┘
```

Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓ **Operating Tip** | You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎ **Note** | Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Trigger GPI

Use the following procedure to program a GPI output trigger:

1. Navigate to the **Custom Controls Menu** as follows:

    • Press **HOME** (to display the **Main Menu 1-2**)

    • **Custom Controls** (to display the **Custom Controls Menu**)

```
┌─────────────────────────────────────────────────────────────┐
│ Custom Controls                                              │
│                                              Bank:  ┌─────────────┐
│ Custom Control buffers are empty                    │ Bank 1   (1)│
│                                                     └─────────────┘
│ Selected: Bank 1 Button 1 [Custom01]                         │
│                                            Button:  ┌─────────────┐
│ Custom Control Legend:                              │ Custom01 # 1│
│         # = normal custom control button            │↓ Custom02 # 2│
│                                                     └─────────────┘
│                                                              │
│    Start      Modify                    Default              │
│  Recording     Name                    All Names  Delete Macro│
└─────────────────────────────────────────────────────────────┘
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    • Use the middle **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
                                                          ↓ Custom02 # 2
Custom Control Legend:
      # = normal custom control button



            Finish        Cancel       Insert
            Recording     Recording     Special
```
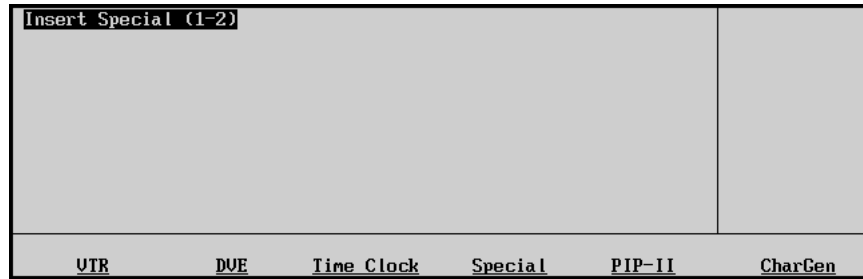
Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)








     VTR          DVE      Time Clock    Special      PIP-II       CharGen
```

Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
Special                                              Reset GPI
                                                     Trigger GPI
                                                    ↓Assign Audio

                                        GPI Output: UNKNOWN   ( 1)
                                                    ↓UNKNOWN   ( 2)




     Insert       Cancel
```

Insert Special — Special Menu

6. Assign the trigger GPI to a GPI output as follows:

   • Use the top **Selection** knob to select **Trigger GPI**.

   • Use the middle **GPI Output** knob to select the GPI output port you want to trigger.

✎ **Note**

> The names that appear in the **GPI Output** list are programmed on the **GPI Output Setup Menu**. Refer to the section, "**Standard GPI Setup**" on page 9–25 for details.

7. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.

8. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.

9. Press **UP ONE** to display the **Recording Menu**.

```
Custom Controls
                                                    Bank:   Bank 1   (1)
Recording...

Selected: Bank 1 Button 1 [Custom01]
                                                    Button:  Custom01 # 1
                                                          ↓ Custom02 # 2
Custom Control Legend:
        # = normal custom control button



         Finish        Cancel        Insert
        Recording      Recording     Special
```

Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓ **Operating Tip** | You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎ **Note** | Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Automation

Use the **Automation** function to create custom controls that accept commands from an external automation system.

Use the following procedure to create an Automation custom control macro:

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                    Bank:   Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                                    Button:  Custom01 # 1
                                                          ↓ Custom02 # 2
Custom Control Legend:
        # = normal custom control button



    Start        Modify                     Default
   Recording     Name                      All Names    Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

  • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

  • Use the middle **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:                                      ↓ Custom02 # 2
        # = normal custom control button



         Finish        Cancel       Insert
        Recording     Recording     Special
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
 Insert Special (1-2)






         VTR          DVE       Time Clock    Special      PIP-II       CharGen
```

Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
 Special                                              ↑Reset Audio
                                                       Automation
                                                      ↓Go To Menu

                                             Command: Keys Off Air
                                                      Act MLE Trans




         Insert        Cancel
```

Insert Special — Special Menu

6. Assign an automation function to the selected custom control macro as follows:

   • Use the top **Selection** knob to select **Automation**.

   • Use the middle **Command** knob to select the command you want the macro to perform. You can select between the following:

     ~ **Keys Off Air** — Select this option when you want all on-air Keys to be dissolved off-air when the custom control is run.

     ~ **Act MLE Trans** — Select this option when you want to perform an MLE transition when the custom control is run.

7. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.

8. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.

9. Press **UP ONE** to display the **Recording Menu**.

```
Custom Controls
                                                        Bank:    Bank 1   (1)
Recording...

Selected: Bank 1 Button 1 [Custom01]
                                                        Button:   Custom01 # 1
Custom Control Legend:                                         ↓ Custom02 # 2
        # = normal custom control button



                    Finish        Cancel        Insert
                    Recording     Recording     Special
```

Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

| ✓ | **Operating Tip** | You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording. |

| ✎ | **Note** | Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details. |

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

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 a Squeeze & Tease 3D **Go To Menu** custom control macro:

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:    Bank 1    (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                             Button:   Custom01 # 1
Custom Control Legend:                                ↓ Custom02 # 2
        # = normal custom control button



    Start        Modify                       Default
  Recording       Name                        All Names   Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

   • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

   • Use the middle **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:                                ↓ Custom02 # 2
        # = normal custom control button



               Finish      Cancel      Insert
              Recording    Recording    Special
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
┌─────────────────────────────────────────────────────────────┬──────────┐
│ Insert Special (1-2)                                         │          │
│                                                             │          │
│                                                             │          │
│                                                             │          │
│                                                             │          │
│                                                             │          │
│                                                             │          │
│                                                             │          │
│     UTR          DUE       Time Clock     Special    PIP-II    CharGen  │
└─────────────────────────────────────────────────────────────────────────┘
```

Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
┌──────────────────────────────────────────────────────┬──────────────────┐
│ Special                                              │ ↑Automation      │
│                                                      │  Go To Menu      │
│                                                      │ ↓Trans Keys      │
│                                                      │                  │
│                                                      │            3D    │
│                                                      │                  │
│                                                      │  Position/Crop   │
│                                                      │  Border          │
│                                                      │ ↓Sequence        │
│     Insert        Cancel                             │                  │
└──────────────────────────────────────────────────────┴──────────────────┘
```

Insert Special — Special Menu

6. Assign a menu to display to the selected custom control macro as follows:

    •   Use the top **Selection** knob to select **Go To Menu**.

    •   Use the middle **Type** knob to select **3D**.

    •   Use the bottom Menu 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 **Keyer**. If **Key 2** is active, the menu will be displayed for **Key 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.

7. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.

8. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.

9. Press **UP ONE** to display the **Recording Menu**.

```
Custom Controls
                                                    Bank:    Bank 1    (1)
Recording...

Selected: Bank 1 Button 1 [Custom01]
                                                    Button:  Custom01 # 1
Custom Control Legend:                                     ↓ Custom02 # 2
        # = normal custom control button



          Finish        Cancel      Insert
          Recording     Recording   Special
```

Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓ **Operating Tip**
> You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎ **Note**
> Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Transition Keys

✎ **Note**
> The **Trans Keys** function cannot initiate a transition if a transition is already in progress on the associated **MLE** or external **DSK**.

Use the **Trans Keys** feature to perform key transitions with a custom control.

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
┌─────────────────────────────────────────────────────────────────┐
│ Custom Controls                                                   │
│                                              Bank:  ┌───────────┐ │
│ Custom Control buffers are empty                    │ Bank 1 (1)│ │
│                                                     │           │ │
│ Selected: Bank 1 Button 1 [Custom01]                │           │ │
│                                           Button:   │Custom01 # 1│ │
│ Custom Control Legend:                              │↓ Custom02 # 2│
│       # = normal custom control button              │           │ │
│                                                     │           │ │
│                                                     │           │ │
│   Start        Modify                      Default  └───────────┘ │
│   Recording     Name                     All Names  Delete Macro  │
└─────────────────────────────────────────────────────────────────┘
```
Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    •   Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    •   Use the middle **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. Ensure that you have selected an unprogrammed custom control button if you do not want to replace an existing macro.

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:  ┌───────────┐ │
│ Recording...                                        │ Bank 1 (1)│ │
│                                                     │           │ │
│ Selected: Bank 1 Button 1 [Custom01]                │           │ │
│                                           Button:   │Custom01 # 1│ │
│ Custom Control Legend:                              │↓ Custom02 # 2│
│       # = normal custom control button              │           │ │
│                                                     │           │ │
│              Finish       Cancel    Insert          └───────────┘ │
│              Recording    Recording Special                      │
└─────────────────────────────────────────────────────────────────┘
```
Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
┌─────────────────────────────────────────────────────────────────┐
│ Insert Special (1-2)                                              │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│    VTR        DVE      Time Clock   Special    PIP-II    CharGen  │
└─────────────────────────────────────────────────────────────────┘
```
Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
Special                                          ↑Go To Menu
                                                  Trans Keys
                                                 ↓Safe Title

                                        For:  MLE 1
                                               DSK

                                         To:  Key1 Off
                                              ↓Key2 Off

     Insert        Cancel
```
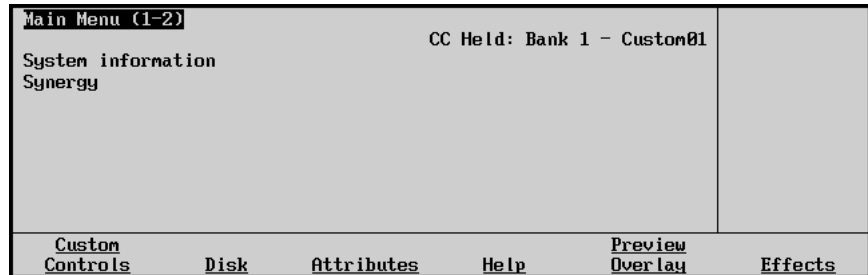
Insert Special — Special Menu

6. Assign a menu to display to the selected custom control macro as follows:

   • Use the top **Selection** knob to select **Trans Keys**.

   • Use the middle **For** knob to select the MLE or external DSK that you want to transition the Keys for. You can select between the following:

     ~ **MLE 1** — Select this option to transition the Keys on **MLE 1**.

     ~ **DSK** — Select this option to transition the **External Downstream Keyers**.

   • Use the bottom **To** knob to select the Keys you want to transition. You can select between the following:

> **Note** If you select **DSK**, the **Key1** and **Key2** values will be replaced with **DSK1** and **DSK2**, respectively.

     ~ **Key1 Off** — Select this option to have **Key 1** dissolve **off-air** when the custom control is run.

     ~ **Key2 Off** — Select this option to have **Key 2** dissolve **off-air** when the custom control is run.

     ~ **Key1+2 Off** — Select this option to have both **Key 1** and **Key 2** dissolve **off-air** when the custom control is run.

     ~ **Key1 On** — Select this option to have **Key 1** dissolve **on-air** when the custom control is run.

     ~ **Key2 On** — Select this option to have **Key 2** dissolve **on-air** when the custom control is run.

     ~ **Key1+2 On** — Select this option to have both **Key 1** and **Key 2** dissolve **on-air** when the custom control is run.

     ~ **Key1 Only** — Select this option to have the switcher dissolve **Key 1** and **Key 2** so that only **Key 1** is **on-air** when the custom control is run. For example, if **Key 1** is **off-air** and **Key 2** is **on-air**, this custom control would dissolve **Key 1 on-air**, and at the same time dissolve **Key 2 off-air**.

     ~ **Key2 Only** — Select this option to have the switcher dissolve **Key 1** and **Key 2** so that only **Key 2** is **on-air** when the custom control is run.

7. Press **Insert** to insert the selected command into the custom control and display the **Insert Special Menu 1-2**.

8. Insert additional commands if needed. When you have finished inserting commands, proceed to the next step to complete the procedure.

9. Press **UP ONE** to display the **Recording Menu**.

```
Custom Controls
                                                      Bank:   Bank 1   (1)
Recording...

Selected: Bank 1 Button 1 [Custom01]
                                                      Button:  Custom01 # 1
Custom Control Legend:                                        ↓ Custom02 # 2
       # = normal custom control button



             Finish      Cancel       Insert
            Recording    Recording    Special
```

Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓ | **Operating Tip** | You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎ | **Note** | Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Safe Title

Use the **Safe Title** feature to program a custom control button to recall a specific user-configured safe title setting. Refer to the section "**Setting Up Safe Title and Center Preview Overlay**" on page 10–12 for more information on setting up the safe title.

✓ | **Note** | The safe title function will only recall a stores Safe Title setting and will not turn the safe title on or off.

Use the following procedure to recall a safe title setting with a custom control button:

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                      Bank:   Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                                      Button:  Custom01 # 1
Custom Control Legend:                                        ↓ Custom02 # 2
       # = normal custom control button



   Start       Modify                    Default
  Recording    Name                     All Names   Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    •   Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    •   Use the middle **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:                                    ↓ Custom02 # 2
        # = normal custom control button



        Finish       Cancel      Insert
        Recording    Recording   Special
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)






        VTR          DVE       Time Clock   Special    PIP-II       CharGen
```

Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
Special                                            ↑Trans Keys
                                                    Safe Title
                                                   ↓Hold CC

                                          Safe ID     Safe 1
                                                     ↓Safe 2



    Insert       Cancel
```

Insert Special — Special Menu

6. Assign a safe title to be recalled as follows:

    •   Use the top **Selection** knob to select **Safe Title**.

    •   Use the middle **Safe ID** knob to select the stored Safe Title set up that you want to recall when you run the custom control.

7. Press **Insert** to enter the safe title into your custom control macro.

8. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
 Custom Controls
                                                          Bank:    Bank 1   (1)
   Recording...

   Selected: Bank 1 Button 1 [Custom01]
                                                         Button:   Custom01 # 1
                                                                 ↓ Custom02 # 2
   Custom Control Legend:
           # = normal custom control button



               Finish        Cancel      Insert
               Recording     Recording   Special
```

Custom Controls — Recording Menu

9. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

| ✓ | **Operating Tip** | You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording. |

| ✎ | **Note** | Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details. |

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

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.

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** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                    Bank:   Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                                    Button:  Custom01 # 1
Custom Control Legend:                                     ↓ Custom02 # 2
        # = normal custom control button



     Start        Modify                          Default
  Recording        Name                          All Names   Delete Macro
```
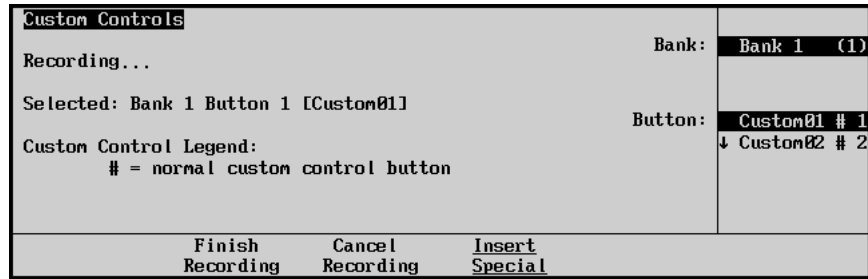
Custom Controls Menu

2. Select the custom control button you want to record to as follows:

   • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

   • Use the middle **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:                                     ↓ Custom02 # 2
        # = normal custom control button



             Finish        Cancel      Insert
           Recording      Recording     Special
```
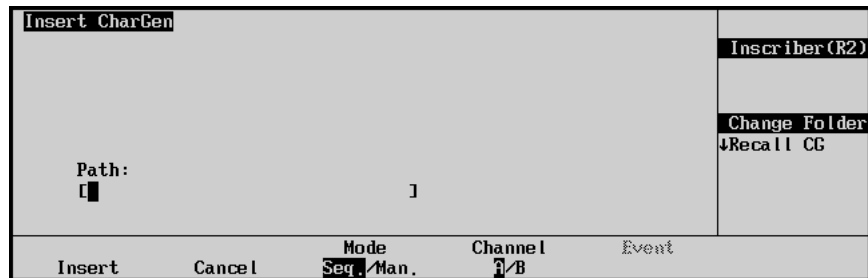
Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)






     UTR          DVE       Time Clock    Special    PIP-II      CharGen
```

Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
Special                                          ↑Safe Title
                                                 Hold CC
                                                 Pause CC

                                                    No Popup
                                                 1-time Popup




    Insert        Cancel
```

Insert Special — Special Menu

6. Assign a Custom Control Hold as follows:

- Use the top **Selection** 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 a message displayed on the **Main Menu** or the **Custom Control Menu**, when a custom control hold is being performed. This message will only appear when you navigate to either of these menus.

```
Main Menu (1-2)                      CC Held: Bank 1 - Custom01

System information
Synergy




    Custom                                    Preview
    Controls        Disk     Attributes   Help  Overlay      Effects
```

Main Menu — Custom Control Held

```
Custom Controls          CC Held: Bank 1 - Custom01
                                                 Bank:  Bank 1   (1)
Custom Control buffers .17% full

Selected: Bank 1 Button 1 [Custom01]
                                                 Button: *Custom01 # 1
Custom Control Legend:                                   ↓ Custom02 # 2
        * = custom control contains macro
        # = normal custom control button

    Start        Modify                       Default
    Recording    Name         Edit            All Names   Delete Macro
```

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 for a limited time.

```
┌─ Main Menu (1-2) ──────────────────────────────────────────────────┐
│                              ┌──────────────────────────────────┐  │
│  System informa│             │ Custom Control Held: Bank 1 - Custom01. │
│  Synergy                     │ Press same Custom Control to continue. Play │
│                              │ any other macro to cancel Custom01  │
│                              │                                  │
│                              │                                  │
│                              │                                  │
│                              │                                  │
│                              │                                  │
│      Custom                  └──────────────────────────────────┘  │
│     Controls      Disk      Attributes      Help      Overlay      Effects │
└────────────────────────────────────────────────────────────────────┘
```
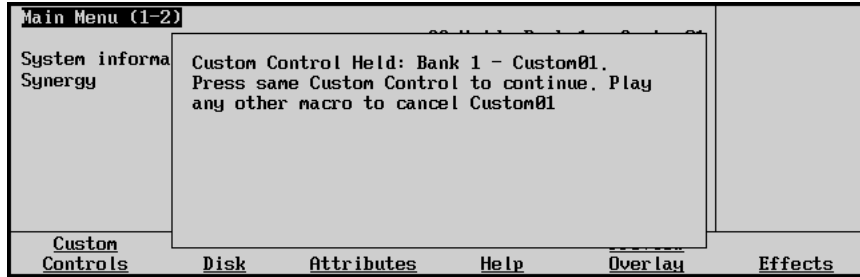
Main Menu — Custom Control Held Popup

7. Press **Insert** to enter the Custom Control Hold into your custom control macro.

8. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
┌─ Custom Controls ──────────────────────────────────────────────────┐
│                                               Bank:  Bank 1   (1)  │
│  Recording...                                                      │
│                                                                    │
│  Selected: Bank 1 Button 1 [Custom01]                             │
│                                              Button: Custom01 # 1  │
│  Custom Control Legend:                            ↓ Custom02 # 2  │
│      # = normal custom control button                             │
│                                                                    │
│                                                                    │
│            Finish      Cancel       Insert                        │
│          Recording   Recording     Special                        │
└────────────────────────────────────────────────────────────────────┘
```

Custom Controls — Recording Menu

9. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓	**Operating Tip**	You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎	**Note**	Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

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** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:   Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                             Button:   Custom01 # 1
Custom Control Legend:                               ↓ Custom02 # 2
        # = normal custom control button



    Start       Modify                       Default
  Recording      Name                       All Names   Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

   • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

   • Use the middle **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:                               ↓ Custom02 # 2
        # = normal custom control button



            Finish      Cancel      Insert
          Recording   Recording    Special
```

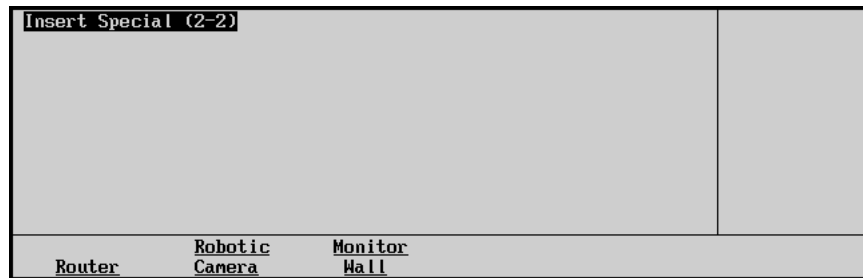*Custom Controls — Recording Menu*

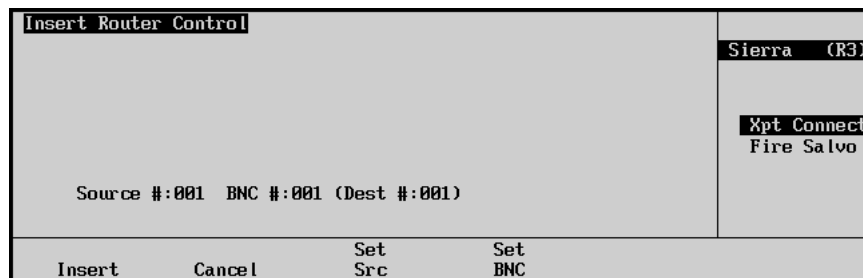4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)







    VTR         DVE        Time Clock    Special     PIP-II       CharGen
```

Insert Special Menu 1-2

5. Press **Special** to display the **Special Menu**.

```
Special                                                 ↑Hold CC
                                                         Pause CC


                                                           (  0)
                                                        Seconds

                                                           (  0)
                                                         Frames

    Insert        Cancel
```

Insert Special — Special Menu

6. Assign a pause to the custom control as follows:

   • Use the top **Selection** knob to select **Pause CC**.

✎ **Note** | The duration of the pause is measured in Seconds and Frames, allowing you to have a pause of, for example, (**12:4**) **12** seconds and **4** frames.

   • Use the middle **Seconds** knob to set the duration of the pause in seconds from **0** to **299**.
   • Use the bottom **Frames** knob to set the duration of the pause in frames from **0** to **24** for **PAL** systems or **0** to **29** for **NTSC** systems.

✎ **Note** | Similar to a Custom Control Hold, a Pause will display a message on the Main Menu or the Custom Contol Menu indicating that the custom control is paused.

```
Main Menu (1-2)
                              CC Paused: Bank 1 - Custom01
System information
Synergy




    Custom                                    Preview
   Controls       Disk       Attributes   Help   Overlay       Effects
```
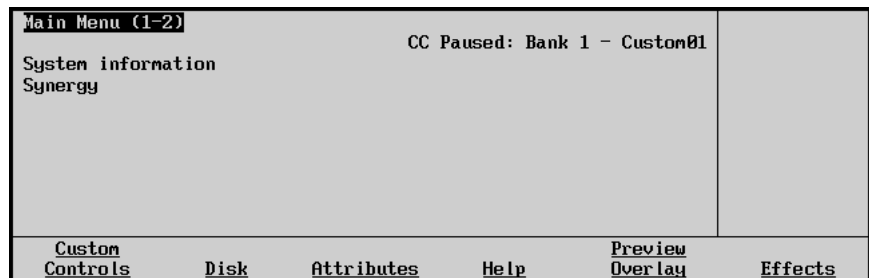
Main Menu — Custom Control Paused

7. Press **Insert** to enter the Custom Control Pause into your custom control macro.

8. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
Custom Controls
                                          Bank:    Bank 1   (1)
Recording...

Selected: Bank 1 Button 1 [Custom01]
                                          Button:  Custom01 # 1
Custom Control Legend:                            ↓ Custom02 # 2
        # = normal custom control button


              Finish      Cancel       Insert
             Recording   Recording    Special
```

Custom Controls — Recording Menu

9. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓	**Operating Tip**	You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎	**Note**	Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Peripheral Interface II Protocol

A custom control button can be programmed to send messages to devices using the **Peripheral Interface II Protocol**.

✎	**Note**	Ensure that the **Peripheral Interface II Protocol** (PIP-II) option is installed and that the PIP-II device you want to control is properly connected and configured with the Synergy Switcher. Refer to the section "**Peripheral Interface II Protocol Setup**" on page 7–97 for more information on setting up a PIP-II device.

Use the following procedure to create a custom control that will send commands to devices using the PIP-II protocol:

1. Navigate to the **Custom Controls Menu** as follows:

    • Press **HOME** (to display the **Main Menu 1-2**).

    • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:    Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                              Button:  Custom01 # 1
Custom Control Legend:                                ↓ Custom02 # 2
        # = normal custom control button



    Start       Modify                       Default
  Recording      Name                        All Names   Delete Macro
```
Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    • Use the middle **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:                                     ↓ Custom02 # 2
        # = normal custom control button


             Finish        Cancel       Insert
             Recording     Recording    Special
```
Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)










     VTR          DVE       Time Clock     Special      PIP-II       CharGen
```
Insert Special Menu 1-2

5. Press **PIP-II** to display the **Insert PIP-II Menu**.

```
Insert PIP-II                    Port: PIP-II   (R1)
                                 All devices              Port R1 ALL
                                                        ↓Port R1 Dev 0

                                                            Trigger
                                                            ↓Store

                                                              ( 0)
                                                        Trigger value

     Insert       Cancel
```
Insert PIP-II Menu

6. Assign a command to a PIP-II device for the custom control as follows:

   • Use the top **Selection** knob to select the PIP-II device you want to assign a command to. You can select between the following:

✎ **Note** The Ports are identified by the remote port on the Synergy control panel that the PIP-II device is connected to. For example, if a PIP-II device is connected to **Remote Port 1** on the control panel, the ports for the PIP-II device will be labelled as **Port R1 DevXX**.

   ~ **ALL** — Select this option to have the PIP-II command sent to all PIP-II devices connected on the selected remote port.

   ~ **DevXX** — Select this option to have the PIP-II command sent to a specific PIP-II device (**Dev 0** to **Dev23**) attached to the selected remote port.

   • Use the middle **Command** knob to select the command you want to send to the selected PIP-II device. You can select between the following:

   ~ **Trigger** — Select this option to have a specific trigger value (**0** to **15**) sent to the PIP-II device when the custom control is run.

   ~ **Store** — Select this option to have the PIP-II device store a specific memory value (**0** to **4095**) when the custom control is run.

   ~ **Recall** — Select this option to have the PIP-II device recall a specific memory value (**0** to **4095**) when the custom control is run.

   • Use the bottom Value knob to select the **Trigger**, **Store** or **Recall** Value that you want.

✎ **Note** Although the PIP-II protocol allows for memories up to 4095, your specific device may not support this many. Refer to the documentation that came with your device to determine the number of memories you have available.

7. Press **Insert** to enter the PIP-II command into your custom control macro.

8. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
Custom Controls                                    Bank:  ┌─────────────┐
                                                          │ Bank 1   (1)│
Recording...                                              │             │
                                                          │             │
Selected: Bank 1 Button 1 [Custom01]                      │             │
                                                   Button: │ Custom01 # 1│
Custom Control Legend:                                     │↓ Custom02 # 2│
        # = normal custom control button                  │             │
                                                          │             │
                                                          │             │
                   Finish       Cancel       Insert
                   Recording    Recording    Special
```

Custom Controls — Recording Menu

9. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓ **Operating Tip** You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

	Note	Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Character Generator Custom Controls

A custom control button can be programmed to select a sequence file, select a Character Generator effect file, select the next page in a sequence, or change the assignment tag in the Character Generator page.

	Note	Ensure that the **Character Generator** option is installed and that the character generator you want to control is properly connected and configured with the Synergy 1 Switcher. Refer to the section "**Character Generator Communications Setup**" on page 7–76 for more information on setting up a CG.

Use the following procedures to create a custom control that will modify the Character Generator templates.

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
┌─────────────────────────────────────────────────────────────────────┐
│ Custom Controls                                                       │
│                                                        Bank:  Bank 1  (1)│
│ Custom Control buffers are empty                                      │
│                                                                       │
│ Selected: Bank 1 Button 1 [Custom01]                                  │
│                                                        Button: Custom01 # 1│
│ Custom Control Legend:                                        ↓ Custom02 # 2│
│        # = normal custom control button                               │
│                                                                       │
│                                                                       │
│    Start        Modify                       Default                  │
│  Recording       Name                       All Names    Delete Macro │
└─────────────────────────────────────────────────────────────────────┘
```
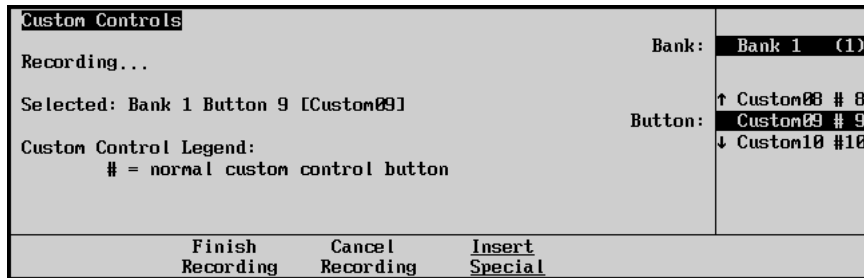*Custom Controls Menu*

2. Select the custom control button you want to record to as follows:

   • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

   • Use the middle **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. Ensure that you have selected an unprogrammed custom control button if you do not want to replace an existing macro.

	Operating Tip	As a recommendation, keep special functions grouped together on your *physical* custom control buttons.

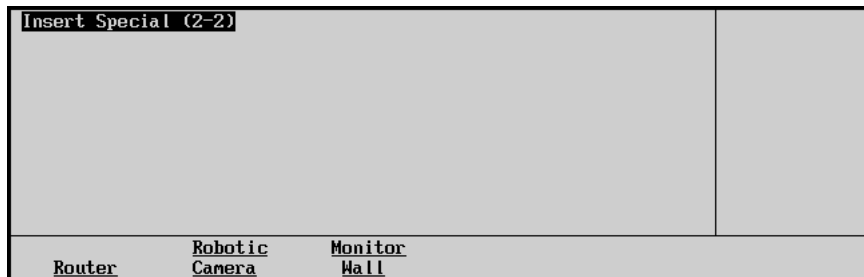3. Press **Start Recording** to display the **Recording Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Custom Controls                                             │
│                                          Bank:  Bank 1   (1) │
│ Recording...                                                │
│                                                             │
│ Selected: Bank 1 Button 1 [Custom01]                        │
│                                          Button: Custom01 # 1│
│ Custom Control Legend:                          ↓ Custom02 # 2│
│        # = normal custom control button                     │
│                                                             │
│                                                             │
│         Finish       Cancel      Insert                     │
│       Recording    Recording    Special                     │
└─────────────────────────────────────────────────────────────┘
```
Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
┌─────────────────────────────────────────────────────────────┐
│ Insert Special (1-2)                                        │
│                                                             │
│                                                             │
│                                                             │
│                                                             │
│                                                             │
│                                                             │
│                                                             │
│    VTR         DVE      Time Clock    Special    PIP-II    CharGen│
└─────────────────────────────────────────────────────────────┘
```
Insert Special Menu 1-2

5. Press **CharGen** to display the **Insert CharGen Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Insert CharGen                                              │
│                                          Inscriber(R2)      │
│                                                             │
│                                          Change Folder      │
│                                         ↓Recall CG          │
│      Path:                                                  │
│      [█                        ]                            │
│                                                             │
│                         Mode      Channel    Event          │
│   Insert     Cancel   Seq./Man.    A/B                      │
└─────────────────────────────────────────────────────────────┘
```
Insert CharGen Menu

6. Assign a command to a character generator for the custom control as follows:

   • Use the top **Device** knob to select the character generator on the Synergy control panel remote port that you want to create a custom control for.

   • Use the middle **Command** knob to select the command you want to sent to the character generator. You can select between the following:

      ~ **Change Folder** — Select this option to assign a new directory path or folder to the Character Generator.

✎ **Note** You will have to use the keyboard to enter the new path in the **Path**/**Folder** line. A standard keyboard can be attached to the PS/2 port at the back on the Synergy 1 control panel.

      – Use the keyboard the enter the new path or folder.

~ **Recall CG** — Select this option to recall a CG template. The **Event** option will allow you select whether the CG template is recalled to the **PGM** or **PV** output of the character generator.

    – Use the keypad in the **Global Memory System Group** to select which template you want to recall.

⚠	**Important**	You will only be able to recall character generator pages that have been stored with numerical names using the keypad.

    – Press **ENTER**.

~ **Run Effect** — Select this option to have the next CG effect listed in the **PV** taken to the **PGM** of the character generator.

✎	**Note**	This option will be labeled as **Play Anim** if you are using a Chyron Duet LEX character generator.

~ **Change Tag** — Select this option to allow you to change the current text of a Tag. The **Event** option will allow you select whether the Tag you are changing is on the **PGM** or **PV** output of the character generator.

    – Use the bottom **Tag** knob to select the tag you want to change (**Tag #1** to **Tag #6**).

    – Use the keyboard the enter the new tag text.

7. Toggle the **Mode** softkey to set the mode that the CG will operate in when the custom control is run. You can select between the following:

• **Seq.** — Select this option to have the CG operate in **Sequence Mode** (.INS files).

• **Man.** — Select this option to have the CG operate in **Manual Mode** (.ICG files).

✎	**Note**	The **Mode** option is not available for the Chyron Duet LEX character generator.

8. Toggle the **Channel** softkey to set the channel from the CG that you want the custom control to be applied to. You can select between the following:

• **A** — Select this option to have the custom control command applied to the **Channel A** output of the character generator.

• **B** — Select this option to have the custom control command applied to the **Channel B** output of the character generator.

✎	**Note**	The **Channel** Custom Control feature is not available for the Chyron Duet LEX character generator. You can set the channel output when assigning BNC inputs. Refer to the section, "**Assigning a BNC Input**" on page 7–86 for information on setting the channel output for a Chyron Duet LEX character generator.

9. Toggle the **Event** softkey to set whether the changes will be applied to the **PV** or the **PGM** of the CG when the custom control is run. You can select from between the following:

   • **PV** — Select this option to have the custom control command applied to the **PV** output of the character generator.

   • **PGM** — Select this option to have the custom control command applied to the **PGM** output of the character generator.

10. Press **Insert** to enter the Character Generator command into your custom control macro.

11. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
Custom Controls
                                                 Bank:   Bank 1   (1)
Recording...

Selected: Bank 1 Button 1 [Custom01]
                                                 Button:  Custom01 # 1
Custom Control Legend:                                  ↓ Custom02 # 2
        # = normal custom control button


          Finish        Cancel        Insert
         Recording     Recording      Special
```
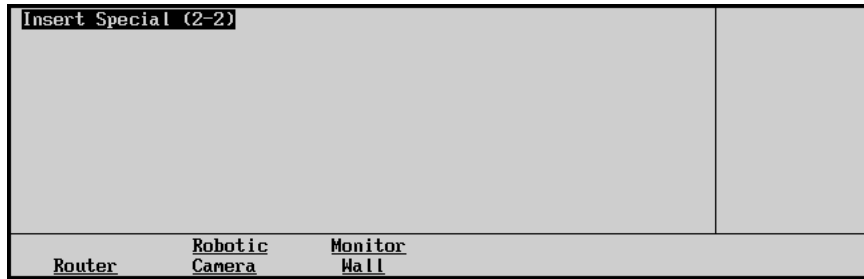
Custom Controls — Recording Menu

12. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

> ✔ **Operating Tip** — You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

> ✎ **Note** — Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Router Custom Controls

A custom control button can be programmed to set a specific source/BNC crosspoint pair or fire a salvo (run a pre-programmed macro) on a router.

> ✎ **Note** — You must have the Router Control option installed in order to connect a router to the Synergy 1 Switcher. Refer to the section "**Router Communications Setup**" on page 7–54 for information on setting up a Router.

Source/BNC Crosspoint Pair

The Source/BNC Crosspoint Pair custom control macro allows you to change the source on the router that is assigned to the BNC input on the switcher.

Use the following procedure to add a Source/BNC crosspoint pair to a custom control:

1. Navigate to the **Custom Controls Menu** as follows:

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

    *   **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                            Bank:    Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                          Button:    Custom01 # 1
Custom Control Legend:                            ↓  Custom02 # 2
        # = normal custom control button



     Start       Modify                    Default
   Recording      Name                    All Names   Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    *   Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    *   Use the middle **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:                            ↓  Custom02 # 2
        # = normal custom control button



             Finish       Cancel      Insert
           Recording    Recording    Special
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)




       UTR          DVE      Time Clock     Special      PIP-II        CharGen
```

Insert Special Menu 1-2

5. Press **MORE** to display the **Insert Special Menu 2-2**.

```
Insert Special (2-2)




                  Robotic      Monitor
     Router       Camera        Wall
```

Insert Special Menu 2-2

6. Press **Router** to display the **Insert Router Control Menu**.

```
Insert Router Control
                                                            Sierra   (R3)


                                                            Xpt Connect
                                                            Fire Salvo

       Source #:001  BNC #:001 (Dest #:001)

                              Set         Set
     Insert       Cancel      Src         BNC
```

Insert Router Control — Crosspoint Connect Menu

The **Crosspoint Connect Menu** shows you the following elements of the router setup:

*   **Source #** — This indicates the currently selected source on the Router.

*   **BNC #** — This indicates the currently selected BNC on the Synergy Switcher that the source on the Router is connected to.

*   **Dest #** — This indicates the BNC on the Router that is being used to connect the Router to the Synergy Switcher.

7. Select the router you want to apply the **Crosspoint Connect** custom control to as follows:

*   Use the top **Com Port** knob to select the remote port that the router is connected to. Refer to the section "**Router Communications Setup**" on page 7–54 for more information.

*   Use the middle **Selection** knob to select **Xpt Connect**.

8. Select the source on the router you want to set to a different output as follows:

   • Press **Set Src** to display the **Router Source Menu**.

Insert Router Control — Router Source Menu

   • Use the keypad in the **Global Memory System Group** to enter the number of the source you want to select.

   • Press **ENTER**.

9. Select the BNC on the Synergy Switcher you want to assign the router source to as follows:

   • Press **Set BNC** to display the **Router BNC Menu**.

Insert Router Control — Router BNC Menu

   • Use the keypad in the **Global Memory System Group** to enter the number of the BNC you want to select.

   • Press **ENTER**.

Note   If you enter a BNC number that is not assigned to the selected router, the Set BNC value will default to the first BNC assigned to the selected router.

10. Press **Insert** to add this macro into the custom control.

This completes the procedure for inserting a Source/BNC crosspoint pair into a custom control.

Fire a Router Salvo

The Fire Router Salvo custom control macro allows you to fire a salvo on the router. You will have to program your salvos on the router itself in order to be able to fire them. Refer to your router documentation for information on storing a salvo on your router.

Only the following routers support salvos:

- • Ross Kondor EOS-2000
- • Sierra Yosemite
- • Leitch VIA32
- • Grass Valley SMS 7000
- • Chyron (Pro-Bel) Freeway
- • PESA Cougar

Use the following procedure to fire a router salvo from the selected router:

1. Navigate to the **Custom Controls Menu** as follows:

   - • Press **HOME** (to display the **Main Menu 1-2**).
   - • **Custom Controls** (to display the **Custom Controls Menu**).

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

   - • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.
   - • Use the middle **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. Ensure that you have selected an unprogrammed custom control button if you do not want to replace an existing macro.

✓ **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:                             ↓ Custom02 # 2
        # = normal custom control button


          Finish         Cancel        Insert
          Recording      Recording     Special
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)




         VTR          DVE       Time Clock      Special      PIP-II       CharGen
```

Insert Special Menu 1-2

5. Press **MORE** to display the **Insert Special Menu 2-2**.

```
Insert Special (2-2)




                     Robotic       Monitor
         Router      Camera         Wall
```

Insert Special Menu 2-2

6. Press **Router** to display the **Insert Router Control Menu**.

```
Insert Router Control
                                              Sierra    (R3)

                                              Xpt Connect
    Note: Salvos will only function on Routers that      Fire Salvo
    support salvo commands and have had those commands
    implemented in their control protocols
                                                    ( 0)
    Salvo #:000                                    Salvo #

                          Set         Set
    Insert      Cancel    Src         DNC
```

Insert Router Control — Fire Salvo Menu

7. Select the router you want to apply the **Fire Salvo** custom control to as follows:

⚠️	**Important**	You must set up your salvo on the router before you will be able to fire it using a custom control. Refer to your Router documentation for information on how to record a salvo.

- • Use the top **Com Port** knob to select the remote port that the router is connected to. Refer to the section "**Router Communications Setup**" on page 7–54 for more information.
- • Use the middle **Selection** knob to select **Fire Salvo** to display the **Fire Salvo Menu**.

8. Select the salvo on the selected router you want to fire as follows:

- • Use the bottom **Salvo #** knob to select the salvo you want to fire.

✔️	**Operating Tip**	You can also use the keypad in the **Global Memory System Group** to enter the number of the salvo.

9. Press **Insert** to add this macro into the custom control.

This completes the procedure for inserting a fire router salvo into a custom control.

Robotic Camera Custom Controls

You can program custom control macros to recall robotic camera controllers from the Synergy Switcher and specific shots on any camera.

The following custom controls are discussed in this section:

- • Recall Camera
- • Recall a Shot

Recall Camera

Use the **Recall Camera** feature to recall any robotic camera controller on a specific remote port. If you recall a shot using this type of custom control macro, you first select the camera crosspoint on the Synergy switcher, then play the Recall Camera custom control macro. This enables you to choose any camera on the fly and recall the specified shot as required.

Use the following procedure to recall a camera with a custom control button:

1. Navigate to the **Custom Controls Menu** as follows:

- • Press **HOME** (to display the **Main Menu 1-2**).
- • **Custom Controls** (to display the **Custom Controls Menu**).
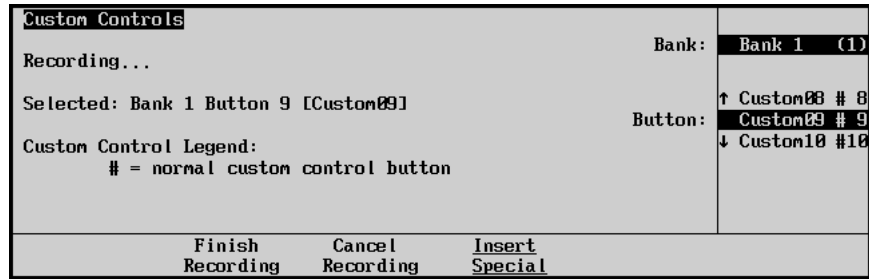

Custom Controls Menu

---

2.   Select the custom control button you want to record to as follows:

  •   Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

  •   Use the middle **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...

                                                                 ↑ Custom08 #  8
Selected: Bank 1 Button 9 [Custom09]              Button:   Custom09 #  9
                                                                 ↓ Custom10 #10
Custom Control Legend:
        # = normal custom control button



                Finish          Cancel        Insert
              Recording       Recording       Special
```

Custom Controls — Recording Menu

4.   Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)







    VTR          DVE        Time Clock     Special      PIP-II        CharGen
```

Insert Special Menu 1-2

5.   Press **MORE** to display the **Insert Special Menu 2-2**.

```
Insert Special (2-2)







              Robotic      Monitor
   Router     Camera        Wall
```

Insert Special Menu 2-2

6. Press **Robotic Camera** to display the **Insert Robotic Camera Control Menu**.

```
Insert Robotic Camera Control
                                      Camera:        Sony:R3


                                                 Recall Camera
                                                 Recall Shot

                                                         ( 3)
                                                      Shot #

     Insert        Cancel
```

Insert Special — Insert Robotic Camera Control

7. Assign a shot to be recalled on a camera as follows:

   • Use the top **Camera** knob to select the camera that you want to recall the shot on.

   • Use the middle **Selection** knob to select **Recall Camera**.

   • Use the bottom **Shot #** knob to select the number of the shot that you want to recall.

8. Press **Insert** to enter the shot recall into your custom control macro.

9. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
Custom Controls
                                          Bank:     Bank 1   (1)
Recording...

Selected: Bank 1 Button 1 [Custom01]
                                        Button:   Custom01 # 1
Custom Control Legend:                          ↓ Custom02 # 2
        # = normal custom control button



           Finish       Cancel      Insert
           Recording    Recording   Special
```

Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓ **Operating Tip** | You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎ **Note** | Any recorded custom control can be edited. Refer to the section **"Editing Custom Control Macros"** on page 8–71 for details.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Recall a Shot

Use the **Recall Shot** feature to recall a shot that is stored on the specific robotic camera controller. When programming this custom control, you are recalling a specific camera on a remote port by selecting its BNC.

For example, you want to recall camera 4 on Remote Port 1. To do so, you program a **Recall Shot** custom control macro to recall the specified shot with camera 4 on BNC 4. When played, the custom control will always recall camera 4 on BNC 4 connected to Remote Port 1.

Use the following procedure to recall a camera shot with a custom control button:

1. Navigate to the **Custom Controls Menu** as follows:

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

    *   **Custom Controls** (to display the **Custom Controls Menu**).

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    *   Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    *   Use the middle **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 — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
┌─────────────────────────────────────────────────────┬──────────────┐
│ Insert Special (1-2)                                 │              │
│                                                      │              │
│                                                      │              │
│                                                      │              │
│                                                      │              │
│                                                      │              │
│                                                      │              │
│                                                      │              │
├──────────────────────────────────────────────────────┴─────────────┤
│     VTR        DVE      Time Clock    Special    PIP-II    CharGen  │
└─────────────────────────────────────────────────────────────────────┘
```

Insert Special Menu 1-2

5. Press **MORE** to display the **Insert Special Menu 2-2**.

```
┌─────────────────────────────────────────────────────┬──────────────┐
│ Insert Special (2-2)                                 │              │
│                                                      │              │
│                                                      │              │
│                                                      │              │
│                                                      │              │
│                 Robotic       Monitor                │              │
│     Router      Camera         Wall                  │              │
└─────────────────────────────────────────────────────┴──────────────┘
```

Insert Special Menu 2-2

6. Press **Robotic Camera** to display the **Insert Robotic Camera Control Menu**.

```
┌──────────────────────────────────────────────────┬──────────────────┐
│ Insert Robotic Camera Control                     │                  │
│                                        Camera:     │  Sony:R3/B10     │
│                                                    │                  │
│                                                    │  Recall Camera   │
│                                                    │  Recall Shot     │
│                                                    │                  │
│                                                    │            ( 4)  │
│                                                    │         Shot #   │
├────────────────────────────────────────────────────┴────────────────┤
│     Insert        Cancel                                             │
└──────────────────────────────────────────────────────────────────────┘
```

Insert Special — Insert Robotic Camera Control

7. Assign a shot to be recalled on the specified camera as follows:

   • Use the top **Camera** knob to select the camera that you want to recall the shot on. Note that each camera is listed with its remote port and its corresponding BNC.

   • Use the middle **Selection** knob to select **Recall Shot**.

   • Use the bottom **Shot #** knob to select the number of the shot that you want to recall.

8. Press **Insert** to enter the shot recall into your custom control macro.

9. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
Custom Controls
                                          Bank:   Bank 1   (1)
Recording...

Selected: Bank 1 Button 9 [Custom09]     ↑ Custom08 # 8
                                 Button:   Custom09 # 9
Custom Control Legend:                    ↓ Custom10 #10
       # = normal custom control button



            Finish      Cancel     Insert
          Recording    Recording   Special
```
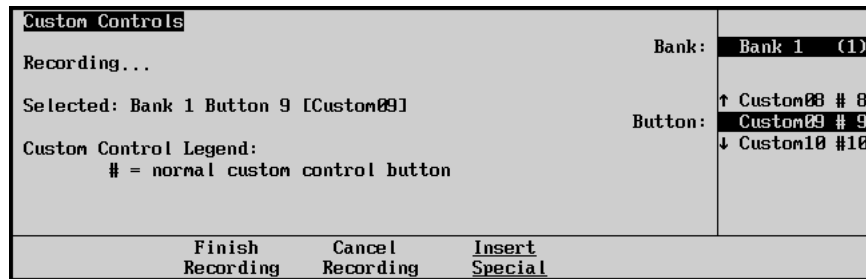
Custom Controls — Recording Menu

10. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓	**Operating Tip**	You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section, "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

✎	**Note**	You cannot edit a **Recall Shot** macro. Instead, you must delete and re-program the macro to the selected custom control button.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Monitor Wall Custom Controls

A custom control button can be programmed to load layouts, change input channels or dynamic text on a selected Monitor Wall device.

✎	**Note**	Ensure that the **Monitor Wall Interface** option is installed and that the monitor wall you want to control is properly connected and configured with the Synergy Switcher. Refer to the section,"**Monitor Wall Interface Specifics**" on page 7–103 for more information.

Loading a Monitor Wall Layout

A Monitor Wall device can have several different Layouts created, each with a variety of monitors and inputs. You can create a custom control macro that enables the Synergy 1 Switcher to load a particular layout onto a selected Monitor Wall device.

Use the following procedure to add a **Load Layout** macro to a Monitor Wall custom control:

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                    Bank:   Bank 1   (1)
Custom Control buffers .53% full

Selected: Bank 1 Button 9 [Custom09]                       ↑ Custom08 # 8
                                                    Button:  Custom09 # 9
Custom Control Legend:                                     ↓ Custom10 #10
        # = normal custom control button



   Start        Modify              Start Relative  Default
 Recording       Name                 Recording    All Names   Delete Macro
```

Custom Controls Menu
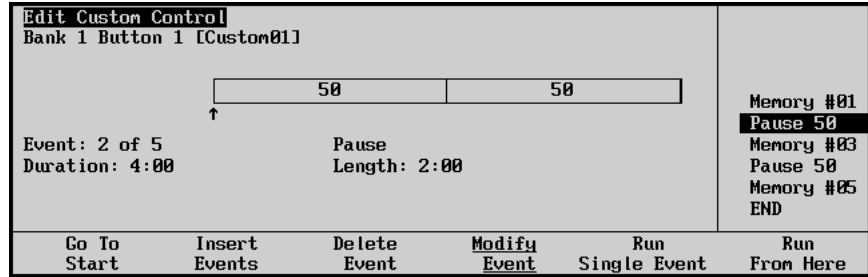
2. Select the custom control button you want to record to as follows:

   • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

   • Use the middle **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 9 [Custom09]                       ↑ Custom08 # 8
                                                    Button:  Custom09 # 9
Custom Control Legend:                                     ↓ Custom10 #10
        # = normal custom control button



              Finish       Cancel       Insert
            Recording    Recording     Special
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
Insert Special (1-2)










     VTR         DVE       Time Clock    Special      PIP-II       CharGen
```

Insert Special Menu 1-2

5. Press **MORE** to display the **Insert Special Menu 2-2**.

```
┌────────────────────────────────────────────────────┬─────────────┐
│Insert Special (2-2)                                │             │
│                                                    │             │
│                                                    │             │
│                                                    │             │
│                                                    │             │
│                                                    │             │
│                                                    │             │
│                                                    │             │
│                 Robotic     Monitor               │             │
│     Router      Camera      Wall                  │             │
└────────────────────────────────────────────────────┴─────────────┘
```

Insert Special Menu 2-2

6. Press **Monitor Wall** to display the **Insert Monitor Wall Control Menu**.

```
┌────────────────────────────────────────────┬─────────────────┐
│Insert Monitor Wall Control                │                 │
│                             Monitor Wall:  │   Kaleido 1     │
│                                            │                 │
│                                            │                 │
│                                            │   Load Layout   │
│                                            │  ↓Assign Chan   │
│     Layout:                                │                 │
│     [layout4█              ]               │                 │
│                                            │                 │
│                                            │                 │
│     Insert       Cancel                    │                 │
└────────────────────────────────────────────┴─────────────────┘
```

Insert Monitor Wall Control Menu

7. Select the Monitor Wall device you want to apply the **Load Layout** custom control to as follows:

   • Use the top **Monitor Wall** knob to select the Monitor Wall.

   • Use the middle knob to select **Load Layout**.

8. Use a standard PS/2 keyboard to enter the Layout Name in the **Layout Field** of the **Insert Monitor Wall Control Menu**.

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

9. Press **Insert** to add this macro into the custom control.

10. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
┌────────────────────────────────────────────┬─────────────────┐
│Custom Controls                            │                 │
│                                 Bank:      │  Bank 1   (1)   │
│Recording...                               │                 │
│                                            │                 │
│Selected: Bank 1 Button 9 [Custom09]        │ ↑ Custom08 # 8  │
│                                 Button:    │   Custom09 # 9  │
│Custom Control Legend:                      │ ↓ Custom10 #10  │
│       # = normal custom control button     │                 │
│                                            │                 │
│          Finish      Cancel      Insert    │                 │
│          Recording   Recording   Special   │                 │
└────────────────────────────────────────────┴─────────────────┘
```
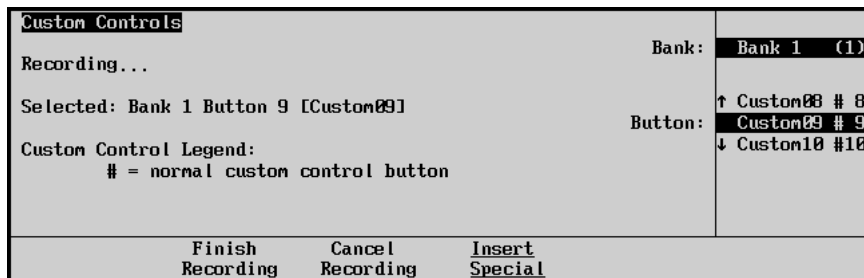
Custom Controls — Recording Menu

11. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓	**Operating Tip**	You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎	**Note**	Any recorded custom control can be edited. Refer to the section, **"Editing Custom Control Macros"** on page 8–71 for details.

This concludes the procedure to add a **Load Layout** macro to a Monitor Wall custom control.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section, "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Assigning Input Channels

Each monitor in a Layout requires an input channel. The Synergy 1 Switcher allows you to assign input channels to any monitor by adding an **Assign Channel** macro to a Monitor Wall custom control.

Use the following procedure to add an **Assign Channel** macro to a Monitor Wall custom control:

1. Navigate to the **Custom Controls Menu** as follows:

    • Press **HOME** (to display the **Main Menu 1-2**).

    • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:    Bank 1    (1)
Custom Control buffers .53% full
                                                     ↑ Custom08 # 8
Selected: Bank 1 Button 9 [Custom09]                   Custom09 # 9
                                              Button:  ↓ Custom10 #10
Custom Control Legend:
       # = normal custom control button


    Start        Modify                  Start Relative   Default
  Recording       Name                      Recording    All Names   Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

    • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

    • Use the middle **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 9 [Custom09]                  ↑ Custom08 # 8 │
│                                                 Button: │ Custom09 # 9│
│ Custom Control Legend:                                  ↓ Custom10 #10│
│        # = normal custom control button                              │
│                                                         │            │
│                                                         │            │
├──────────────────────────────────────────────────────────┘         │
│           Finish      Cancel      Insert                             │
│           Recording   Recording   Special                            │
└─────────────────────────────────────────────────────────────────────┘
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Insert Special (1-2)                                    │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
├─────────────────────────────────────────────────────────┘          │
│    VTR          DVE       Time Clock     Special     PIP-II   CharGen│
└─────────────────────────────────────────────────────────────────────┘
```

Insert Special Menu 1-2

5. Press **MORE** to display the **Insert Special Menu 2-2**.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Insert Special (2-2)                                    │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
│                                                         │            │
├─────────────────────────────────────────────────────────┘          │
│              Robotic       Monitor                                   │
│    Router    Camera        Wall                                      │
└─────────────────────────────────────────────────────────────────────┘
```

Insert Special Menu 2-2

6. Press **Monitor Wall** to display the **Insert Monitor Wall Control Menu**.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Insert Monitor Wall Control                                          │
│                                              Monitor Wall: │Kaleido 1│
│                                                            └─────────┤
│                                                            Load Layout│
│                                                            │Assign Chan│
│            Channel Name:                                   Modify Text │
│            [INPUT 07█               ]                                 │
│            Monitor Number:                                 │Chan Name││
│            [12                      ]                       Mon Number│
├──────────────────────────────────────────────────────────┘          │
│    Insert        Cancel                                              │
└─────────────────────────────────────────────────────────────────────┘
```

Insert Monitor Wall Control Menu

7. Select the Monitor Wall device you want to apply the **Assign Channel** custom control to as follows:

    •   Use the top **Monitor Wall** knob to select the Monitor Wall.

    •   Use the middle knob to select **Assign Chan**.

8. Select the Monitor you want to assign the input channel to as follows:

    •   Use the top **Monitor Wall** knob to select the Monitor Wall device.

    •   Use the bottom knob to select **Mon Number**.

    •   Use a standard PS/2 keyboard to enter the Monitor Number in the **Monitor Number Field** of the **Insert Monitor Wall Control Menu**.

	Note	On the Miranda Kaleido-K2, this is the number assigned to a particular monitor in the currently loaded Layout. Refer to the Miranda documentation for more information.

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

9. Assign the input channel for the selected Monitor as follows:

    •   Use the top **Monitor Wall** knob to select the Monitor Wall device.

    •   Use the bottom knob to select **Chan Name**.

    •   Ensure the **Monitor Number** is correct.

    •   Use a standard PS/2 keyboard to enter the Input Channel Name in the **Name Field** of the **Insert Monitor Wall Control Menu**.

10. Press **Insert** to add this macro into the custom control.

11. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
Custom Controls
                                                    Bank:   Bank 1    (1)
Recording...

                                                           ↑ Custom08 # 8
Selected: Bank 1 Button 9 [Custom09]               Button:   Custom09 # 9
                                                           ↓ Custom10 #10
Custom Control Legend:
        # = normal custom control button


           Finish          Cancel        Insert
           Recording       Recording     Special
```

Custom Controls — Recording Menu

12. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

	Operating Tip	You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

	Note	Any recorded custom control can be edited. Refer to the section, "**Editing Custom Control Macros**" on page 8–71 for details.

This concludes the procedure to add an **Assign Channel** macro to a Monitor Wall custom control.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section, "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Modifying Dynamic Monitor Wall Text

There are two types of Monitor Wall Text Labels: Static and Dynamic. The Static Text Label is set during the creation of the Monitor Wall Layout on the device and can only be modified using the editware supplied with your device. The Dynamic Text Label is modified by the Synergy Switcher using a custom control macro.

✎	**Note**	Ensure the parameters on your Monitor Wall device are configured to accept Dynamic Text set by the Synergy 1 Switcher. Refer to your device documentation for more information.

Use the following procedure to add a **Modify Text** macro to a Monitor Wall custom control:

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:   Bank 1   (1)
Custom Control buffers .53% full

Selected: Bank 1 Button 9 [Custom09]                ↑ Custom08 # 8
                                            Button:   Custom09 # 9
                                                    ↓ Custom10 #10
Custom Control Legend:
        # = normal custom control button



   Start        Modify            Start Relative   Default
   Recording    Name              Recording        All Names   Delete Macro
```

Custom Controls Menu

2. Select the custom control button you want to record to as follows:

   • Use the top **Bank** knob to select the custom control bank you want to record the custom control to.

   • Use the middle **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 9 [Custom09]          ↑ Custom08 # 8    │
│                                        Button:   Custom09 # 9   │
│ Custom Control Legend:                        ↓ Custom10 #10    │
│         # = normal custom control button                        │
│                                                                 │
│                                                                 │
│         Finish         Cancel        Insert                     │
│         Recording      Recording     Special                    │
└────────────────────────────────────────────────────────────────┘
```

Custom Controls — Recording Menu

4. Press **Insert Special** to display the **Insert Special Menu 1-2**.

```
┌────────────────────────────────────────────────────────────────┐
│ Insert Special (1-2)                                            │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│    VTR          DVE        Time Clock    Special    PIP-II    CharGen │
└────────────────────────────────────────────────────────────────┘
```

Insert Special Menu 1-2

5. Press **MORE** to display the **Insert Special Menu 2-2**.

```
┌────────────────────────────────────────────────────────────────┐
│ Insert Special (2-2)                                            │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│                                                                 │
│                Robotic      Monitor                             │
│    Router      Camera       Wall                                │
└────────────────────────────────────────────────────────────────┘
```

Insert Special Menu 2-2

6. Press **Monitor Wall** to display the **Insert Monitor Wall Control Menu**.

```
┌────────────────────────────────────────────────────────────────┐
│ Insert Monitor Wall Control                                     │
│                                         Monitor Wall:  Kaleido 1│
│                                                                 │
│                                                       ↑Assign Chan│
│                                                        Modify Text│
│         Text Address:                                           │
│         [12█               ]                                    │
│         New Text:                                     Text Address│
│         [Text12            ]                          Text Entry │
│                                                                 │
│    Insert        Cancel                                         │
└────────────────────────────────────────────────────────────────┘
```

Insert Monitor Wall Control Menu

7. Select the Monitor Wall you want to apply the **Modify Text** macro to as follows:

   • Use the top **Monitor Wall** knob to select the Monitor Wall.

   • Use the middle knob to select **Modify Text**.

8. Select the text address on the specified Monitor Wall as follows:

   • Use the top **Monitor Wall** knob to select the Monitor Wall.

   • Use the bottom knob to select **Text Address**.

   • Use a standard PS/2 keyboard to enter the Text Address in the **Text Address Field** of the **Insert Monitor Wall Control Menu**.

<table>
<tr><td>✎</td><td>**Note**</td><td>The **Text Address** is assigned to a Text Label when creating a Monitor Wall Layout. Refer to the documentation for your Monitor Wall for information on adding Text Labels to your specific Layout.</td></tr>
<tr><td>⚹</td><td>**Important**</td><td>Do NOT place anything on your keyboard or place your keyboard in a position where any of the keys could be accidently pressed. This could result in the Switcher acting unpredictably.</td></tr>
</table>

9. Modify the Dynamic Text Label on the selected Monitor Wall as follows:

   • Use the bottom knob to select **Text Entry**.

   • Use a standard PS/2 keyboard to enter the new text you wish to have displayed in the selected Text Label.

<table>
<tr><td>⚹</td><td>**Important**</td><td>Do NOT place anything on your keyboard or place your keyboard in a position where any of the keys could be accidently pressed. This could result in the Switcher acting unpredictably.</td></tr>
</table>

10. Press **Insert** to add this macro into the custom control.

11. Press **UP ONE** to return to the **Custom Controls Recording Menu**.

```
┌─────────────────────────────────────────────────────────────┐
│ Custom Controls                                             │
│                                          Bank:  Bank 1  (1) │
│ Recording...                                                │
│                                                ↑ Custom08 # 8│
│ Selected: Bank 1 Button 9 [Custom09]   Button:  Custom09 # 9│
│                                                ↓ Custom10 #10│
│ Custom Control Legend:                                      │
│        # = normal custom control button                    │
│                                                             │
│                                                             │
│           Finish      Cancel      Insert                    │
│           Recording   Recording   Special                   │
└─────────────────────────────────────────────────────────────┘
```

Custom Controls — Recording Menu

12. Press **Finish Recording** to finish recording to the selected custom control. The custom control button will stop flashing.

✓	**Operating Tip**	You can also press the flashing custom control button, rather than the **Finish Recording** button, to finish recording.

✎	**Note**	Any recorded custom control can be edited. Refer to the section, "**Editing Custom Control Macros**" on page 8–71 for details.

This concludes the procedure to create a custom control macro to modify dynamic Monitor Wall text.

Once your custom control buttons have been programmed, be sure to properly name them. Refer to the section, "**Naming Custom Controls**" on page 8–68 for more information on naming custom control buttons.

To play back your macro, press the custom control button on the control panel that you recorded the custom control macro to.

Naming Custom Controls

A custom control button can be named for ready identification in the menus. Once your custom control buttons have been programmed, be sure to properly name and label them.

Refer to the section, "**Control Panel Pushbutton Inserts**" on page 4–5 for instructions on labeling the actual buttons.

Use the following procedure to name your custom control buttons:

1. Navigate to the **Custom Controls Menu** as follows:

    *   Press **HOME** (to display the **Main Menu 1-2**).
    *   **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                        Bank:    Bank 1   (1)
Custom Control buffers are empty

Selected: Bank 1 Button 1 [Custom01]
                                                       Button:   Custom01 # 1
                                                              ↓  Custom02 # 2
Custom Control Legend:
       # = normal custom control button


      Start          Modify                         Default
    Recording         Name                         All Names    Delete Macro
```
Custom Controls Menu

Note   Press **Default All Names** to return any modified custom control names to the default titles.

2. Select the custom control button you want to set the name for:

    *   Use the top **Bank** knob to select the custom control bank with the custom control you want to set the name for.
    *   Use the middle **Button** knob to select the custom control button that you want to set the name for. 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.

3. Press **Modify Name** to display **Custom Control Name Menu**.

```
Custom Control Name
                                                               Horizontal
   a b c d e f g h i j k l m n o p q r s t u v w x y z

   A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
                                                                Vertical
   0 1 2 3 4 5 6 7 8 9 ! @ # - _ & * ( ) / , . ? ' "


   Current Name:[Custom01]            New Name:[Custom01]

                  Prev          Next                            Accept
      Space       Letter        Letter   Preset Names  Default  New Name
```
Custom Control Name Menu

4. Assign a **New Name** to the custom control as follows, or continue to the next step to enter a **Preset Name**:

Operating Tip

A Standard PS/2 keyboard can be used to perform the same actions as pressing or rotating the **System Control** buttons and knobs.

Refer to Chapter 2 "**Control Panel Introduction**" of the *Synergy 1 Operation Guide* for details.

Important

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

• Use the top **Horizontal** knob to move the cursor horizontally up or down a row to select a letter.

• Use the middle **Vertical** knob to move the cursor vertically up or down a column to select a letter.

Note

As you rotate the **Horizontal** and **Vertical** knobs, note that on the control panel's buses, the pushbuttons that correspond to each character (in sequence) light. If desired, you can press the MLE pushbutton to select a character.

• Press **Next Letter** to accept the currently selected letter and begin selection of the next letter.

Note

If you make a mistake, you can use the **Prev Letter** button to go back and adjust a letter.

• Press **Space** if you want to enter a space in the name.

5. Assign a **Preset Name** to the custom control as follows:

Note

If you start editing the name immediately, and then decide at some point to choose a *preset* name instead, *all characters* in the custom name will be replaced by the preset name.

• Press **Preset Names** to display the **Preset Names Menu**.
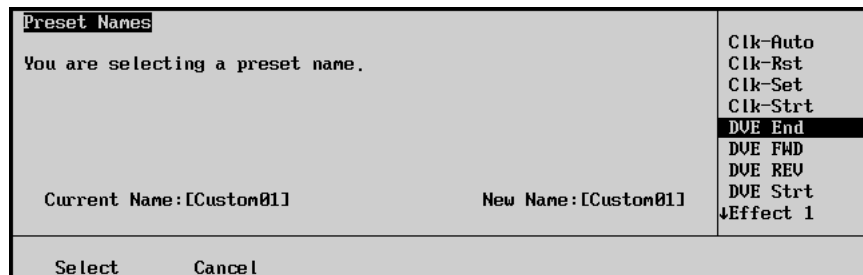
Preset Names Menu

• Use the middle **Name** knob to select a preset name (a prefix) from the list of typical custom control names.

• Press **Select** to accept the preset name, or **Cancel** to return to the previous menu.

<table>
<tr><td>✓</td><td>**Operating Tip**</td><td>You can edit a preset name on the **Custom Name Menu** just as you would a **New Name** you entered. Refer to step 4 above.</td></tr>
</table>

6. Press **Accept New Name** to save the new name.

<table>
<tr><td>✎</td><td>**Note**</td><td>If you exit the installation menus without first pressing **Accept New Name**, the following screen is displayed.</td></tr>
</table>

```
The entry "Custom01" has changed to "custom01".

Press Continue to proceed without saving the name.
Press Cancel to return to the previous menu.



  Continue       Cancel
```

Change Name Without Saving Message

• Press **Continue** to proceed without saving the changes you made to the name.

• Press **Cancel** to return to the previous menu and accept the new name.

This completes the procedure for naming your custom controls.

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**.

Use the following procedure to edit a custom control:

1. Navigate to the **Custom Controls Menu** as follows:

   • Press **HOME** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                    Bank:  Bank 1   (1)
Custom Control buffers .32% full

Selected: Bank 1 Button 1 [Custom01]
                                                   Button: *Custom01 # 1
Custom Control Legend:                                    ↓ Custom02 # 2
        * = custom control contains macro
        # = normal custom control button


    Start        Modify                           Default
  Recording       Name         Edit              All Names   Delete Macro
```

Custom Controls Menu

2. Select the Custom Control bank and button that you want to edit as follows:

   • Use the top **Bank** knob to select the custom control bank that you want to edit the custom control on.

   • Use the middle **Button** knob to select the custom control that you wish to edit.

✎ **Note**   Only buttons with an asterisk (*) next to them in the list are programmed and can be edited.

3. Press **Edit** to display the **Edit Custom Control Menu**.

```
Edit Custom Control
Bank 1 Button 1 [Custom01]

                        ┌──────────50──────────┬──────────50──────────┐
                        ↑                                              Memory #01
                                                                       Pause 50
Event: 2 of 5                        Pause                             Memory #03
Duration: 4:00                       Length: 2:00                      Pause 50
                                                                       Memory #05
                                                                       END

    Go To        Insert       Delete      Modify       Run          Run
    Start        Events       Event       Event    Single Event   From Here
```

Edit Custom Control Menu

✎ **Note**   If your macro includes pauses or holds, a timeline will be displayed showing these events.

   • The main area displays the location of the custom control that you are editing (**Bank 1 Button 1 [Custom01]**), and the contents of the custom control, including the number of events, the duration of the macro, a timeline for pauses, 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**.

- The **Scroll Area** provides a list of the events currently programmed into the custom control button.

- The **Label Area** provides softkeys for inserting, deleting, and running the events, as required. The can select between the following:

  ~ **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 8–74 for more information on inserting events.

  ~ **Delete Event** — Select this function to delete the currently highlighted event. This cannot be undone.

  ~ **Modify Event** — Select this function to modify the currently highlighted event. The Modify Event function will take you to the same **Insert Special, Special Menu** that was used to create the event.

> **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 8–74 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** (to display the **Main Menu 1-2**).

   - **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:    Bank 1   (1)
Custom Control buffers .32% full

Selected: Bank 1 Button 1 [Custom01]
                                              Button:  *Custom01 # 1
Custom Control Legend:                                 ↓ Custom02 # 2
     * = custom control contains macro
     # = normal custom control button


   Start       Modify                        Default
 Recording      Name          Edit           All Names   Delete Macro
```

Custom Controls Menu

2. Select the Custom Control bank and button that you want to edit to as follows:

    •   Use the top **Bank** knob to select the custom control bank that you want to edit the custom control on.

    •   Use the middle **Button** knob to select the custom control that you wish to edit.

Note   Only buttons with an asterisk (*) next to them in the list are programmed and can be edited.

3. Press **Edit** to display the **Edit Custom Control Menu**.

```
Edit Custom Control
Bank 1 Button 1 [Custom01]

                         ┌──────────────┬──────────────┐
                         │      50      │      50      │
                         └──────────────┴──────────────┘      Memory #01
                         ↑                                    Pause 50
Event: 2 of 5                  Pause                          Memory #03
Duration: 4:00                 Length: 2:00                   Pause 50
                                                              Memory #05
                                                              END

      Go To        Insert        Delete       Modify       Run          Run
      Start        Events        Event        Event    Single Event   From Here
```

Edit Custom Control Menu

4. Use the middle **Event** knob to select the event you want to modify.

5. 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)

6. Modify the event in the same manner that you inserted it originally. Refer to the section "**Programming Special Functions**" on page 8–14 for more information on inserting special functions.

7. Press **Insert** to save your changes.

8. Press **UP ONE** to display the **Inserting Menu**.
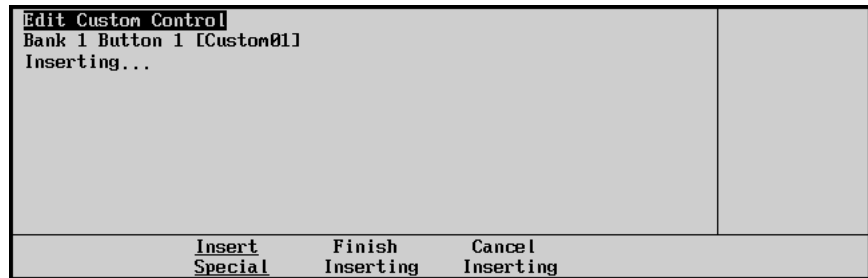
```
Edit Custom Control
Bank 1 Button 1 [Custom01]
Inserting...






                 Insert       Finish        Cancel
                 Special     Inserting     Inserting
```

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** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                              Bank:  Bank 1   (1)
Custom Control buffers .32% full

Selected: Bank 1 Button 1 [Custom01]
                                             Button: *Custom01 # 1
Custom Control Legend:                               ↓ Custom02 # 2
        * = custom control contains macro
        # = normal custom control button


     Start       Modify                     Default
   Recording      Name          Edit       All Names    Delete Macro
```
Custom Controls Menu

2. Select the Custom Control bank and button that you want to edit to as follows:

   • Use the top **Bank** knob to select the custom control bank that you want to edit the custom control on.

   • Use the middle **Button** knob to select the custom control that you wish to edit.

✎	**Note**	Only buttons with an asterisk (*) next to them in the list are programmed and can be edited.

3. Press **Edit** to display the **Edit Custom Control Menu**.

```
Edit Custom Control
Bank 1 Button 1 [Custom01]

                       50              50
                 ↑                                 Memory #01
                                                   Pause 50
Event: 2 of 5           Pause                      Memory #03
Duration: 4:00          Length: 2:00               Pause 50
                                                   Memory #05
                                                   END

     Go To       Insert      Delete     Modify      Run         Run
     Start       Events      Event      Event    Single Event  From Here
```
Edit Custom Control Menu

4. Go into the **Inserting Mode** as follows:

   • Use the middle **Event** knob to highlight the event that you want to insert an event before.

   • Press **Insert Events** to display the **Inserting Menu**.

```
Edit Custom Control
Bank 1 Button 1 [Custom01]
Inserting...




                  Insert       Finish       Cancel
                  Special      Inserting    Inserting
```
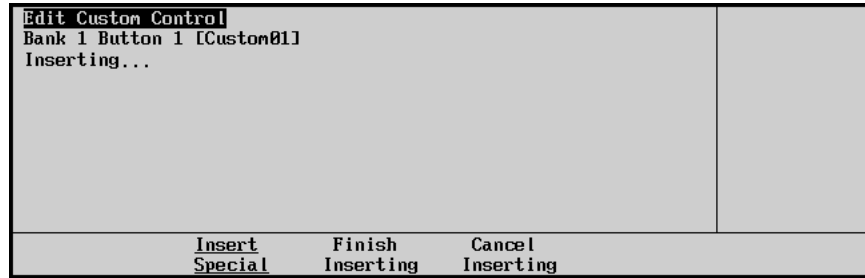
Edit Custom Control — Inserting Menu

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 insert an instruction to recall memory register 5, and then perform an auto transition, press **RECALL**, **5**, **AUTO TRANS**.

> ⚠ **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**.

```
Insert Special (1-2)





       VTR          VUE       Time Clock     Special      PIP-II       CharGen
```

Insert Special Menu 1-2

- Insert an event, or events, as described in the section "**Programming Special Functions**" on page 8–14. This is the identical menu you used when you initially programmed your custom control buttons.

- Press **UP ONE** to display the **Inserting Menu**.

```
Edit Custom Control
Bank 1 Button 1 [Custom01]
Inserting...




                         Insert        Finish      Cancel
                         Special      Inserting   Inserting
```
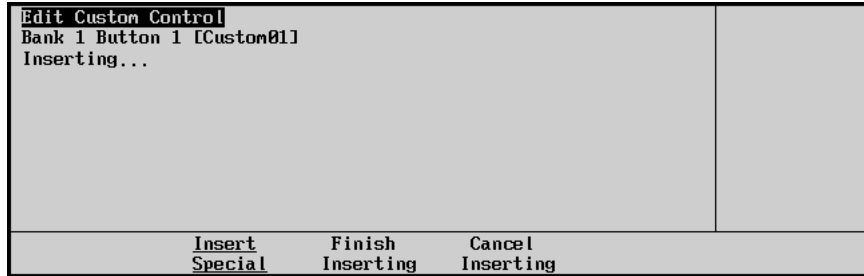
Custom Controls — Recording Menu

- 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 to 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** (to display the **Main Menu 1-2**).

   • **Custom Controls** (to display the **Custom Controls Menu**).

```
Custom Controls
                                                    Bank:    Bank 1    (1)
Custom Control buffers .32% full

Selected: Bank 1 Button 1 [Custom01]
                                                    Button:  *Custom01 # 1
Custom Control Legend:                                       ↓ Custom02 # 2
        * = custom control contains macro
        # = normal custom control button


     Start        Modify                           Default
   Recording       Name           Edit             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 top **Bank** knob to select the custom control bank that you want to edit the custom control on.

   • Use the middle **Button** knob to select the custom control that you wish to edit.

✎	**Note**	Only buttons with an asterisk (*) next to them in the list are 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.

Saving and Recalling Custom Controls

For archive purposes and simply to keep safe backup copies of your valuable macros, it is recommended that you store your custom control functions to a storage device, such as a floppy disk or USB key. This *also* allows you to keep a library of custom functions that can be recalled as required for your current production configuration.

*   Refer to Chapter 8 "**Memory Functions and More**" of the *Synergy 1 Operation Guide* for instructions on saving and recalling custom control (and other types of) registers to a storage device.

Note | You *cannot* store to or recall from a storage device while a custom control function is playing.

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 in which the manual movement of the fader handle is simulated electronically. The transition starts when the **AUTO TRANS** button is pressed and takes place over a pre-selected time period measured in frames.

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 which generates various border effects on keys created by the switcher.

Chroma Key

An effect in which 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 in which 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 which 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 which 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 which 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.

Null Modem

Null Modem describes the ability to swap the pinout designations for transmitting (Tx) and receiving (Rx) signals and is used for cabling between devices which use the same pinouts.

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" or "BKGD", and "PST".

PV Output

A switcher output which 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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