

Kayak HD

DIGITAL PRODUCTION SWITCHER

User Manual

SOFTWARE VERSION 6.8.6

071844703
AUGUST 2006



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Grass Valley Web Site

The www.thomsongrassvalley.com web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Software updates, drivers, and patches can be downloaded.



END-OF-LIFE PRODUCT RECYCLING NOTICE

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.



For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.thomsongrassvalley.com/environment



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Preface

About This Manual

This Kayak HD User Manual is designed as reference manual for operators of Kayak HDTV Production Switcher systems.

Standard Documentation Set

The standard Kayak HD documentation set consists of:

- *User Manual*
- *Installation and Service Manual*
- *Release Notes*

The *User Manual* contains background information about the Kayak HD Digital Production switcher and describes operating procedures. This manual can be used while learning about Kayak HD and for enhancing your basic knowledge of the system.

The *Installation and Service Manual* contains information about installing, configuring, and maintaining the system. The service section of this manual is in preparation.

The *Release Notes* contain information about new features and system enhancements for a specific software version, and also includes software installation procedures. Always check the *Release Notes* for your current system software before you begin operating your system.

Other Documentation

Communication protocols of Kayak HD are available upon request for developers and software engineers to use to design editor and other external interfaces to the Kayak HD system.

System Overview

Introduction

The Grass Valley Kayak HD™ digital production switcher is an affordable, compact, and flexible system that offers an array of high-end features for everything from live studio and mobile production to small corporate studios and editing applications. The Kayak HD switcher leverages many of the features found in the Grass Valley KayakDD2™ and Zodiac™ switchers. The result is a compact system with superior image quality and features not found in any other product.

Kayak HD Switcher Models

Ten models are available:

- Kayak HD 100C, which includes a 1 M/E Control Panel and a compact 4 RU Video Processor Frame
- Kayak HD 150C, which includes a 2 M/E Control Panel and a 4 RU Video Processor Frame frame equipped with one M/E module
- Kayak HD 200C, which includes a 2 M/E Control Panel and a 4 RU Video Processor Frame frame equipped with two M/E modules
- Kayak HD 200, which includes a 2 M/E Control Panel and a 8 RU Video Processor Frame frame equipped with two M/E modules
- Kayak HD 250C, which includes a 2 M/E Control Panel and a 4 RU Video Processor Frame frame equipped with two-and-a-half M/E modules
- Kayak HD 250, which includes a 2 M/E Control Panel and an 8 RU Video Processor Frame frame equipped with two-and-a-half M/E modules
- Kayak HD 300, which includes a 3 M/E Control Panel and an 8 RU Video Processor Frame frame equipped with three M/E modules
- Kayak HD 350, which includes a 3.5 M/E Control Panel and an 8 RU Video Processor Frame frame equipped with three-and-a-half M/E modules

Kayak HD Standard Features

- Switchable between several HD formats
- Supports SD production
- Fully digital 10-bit, 4:2:2 inputs, outputs
- Compact 4 RU and 8 RU lightweight frames
- Low power consumption
- Hot swappable, front removable modules and power supplies
- Intuitive menu with touch screen
- One DPM Channel standard with planar 3D effects, remaining channels optional, adding non-linear effects (Software License Key (SLK))
- Two high-quality chroma keyers standard
- Number of M/Es:
 - One for Kayak HD 100C
 - 1.5 for Kayak HD 150C
 - Two for Kayak HD 200, 200C
 - 2.5 for Kayak HD 250, 250C
 - Three for Kayak HD 300
 - 3.5 for Kayak HD 350

Note .5 M/E includes cuts and mixes, no wipes or iDPM, with simple linear/luminance keyers and no chroma keys.

- Number of inputs:
 - 24 to 48 for Kayak HD 100C, 150C
 - 48 for Kayak HD 200C, 250C
 - 48 to 96 for Kayak HD 200, 250
 - 72 to 96 for Kayak HD 300, 350
- Number of outputs:
 - 12 to 24 for Kayak HD 100C, 150C
 - 24 for Kayak HD 200C, 250C
 - 24 to 48 for Kayak HD 200, 250
 - 36 to 48 for Kayak HD 300, 350
- Video outputs programmable as M/E, Program or AUX bus outputs

- GPI (General Purpose Interface) inputs:
 - Eight to 16 for Kayak HD 100C, 150C
 - 16 for Kayak HD 200C, 250C
 - 16-32 for Kayak HD 200, 250
 - 24-32 for Kayak HD 300, 350
- GPI/Tally Outputs:
 - 32-64 for Kayak HD 100C, 150C
 - 64 for Kayak HD 200C, 250C
 - 64-128 for Kayak HD 200, 250
 - 96-128 for Kayak HD 300, 350
- Four full-function keyers per full M/E, each with linear and luminance keying
- Five background generators include black, white, and three color backgrounds
- Test Pattern Generator
- Two analog reference inputs (tri-level sync and black burst) and HD/SD serial digital input reference
- White or colored pushbutton keycaps (factory installed, choose when ordered)
- Freeze frame buffer on every full-function keyer
- Two main wipe generators and 4 keyer wipe generators per M/E
- YUV Color correction on every keyer and background bus
- Internal four-port Gigabit Ethernet (10/100/1000 base T) switch
- Eight serial ports for external machine control

Kayak HD Options

- Internal six-channel RAMRecorder option for video clips and stills
- Three additional iDPMs and Kurl effects package with Page Turn, Page Roll, Spheres, Ripples, Splits, Mirrors, and Slits
- DPM Kurl per M/E. Adds Kurl effects to all of the enabled DPMs in one M/E.
- DPM Spektra Defocus and Glow. Adds Spektra effects to all of the enabled DPMs in one M/E.
- RGB color correction option (SLK) on every keyer and background bus

- Dual Chromatte™ chroma keyers, with flexible licenses allowing assignment of Chroma keys to different keyers
- Remote monitoring and diagnostic support via NetCentral software
- KHD-PSU internal redundant power supply unit
- KDD-PSU rack-mounted remote power supply unit for remote (or additional) control panels
- MatchDef™ Dual Video Source Scalar for converting 2 SD or HD sources to the production format, maximum of 4 for up to 8 sources. One Mix/Effects or IOXPAND option required for every two MatchDef™ options. Scalars accept either HD or SD input. Each M/E is capable of supporting up to 4 Scalar inputs with this license option.
- DSK (Downstream Keyer)/ Half M/E option for full M/E systems.
 - Adds four DSKs for up to 20 keyers for 4.5 M/Es in the 8RU frame
 - Adds four DSKs for up to 12 keyers in the 4RU frame or Half M/E Mode with A/B background mix and four Lin/Lum keyers
- Full M/E Upgrade Option. Adds one Mix/Effects module to any Kayak HD chassis. Order one or more options to get the total M/Es required. The 4RU chassis holds up to two M/E modules and/or I/O Expander modules. One M/E upgrade option can be added to a Kayak HD 1-M/E or 1.5-M/E system if it does not also have an I/O Expander module. The 8RU chassis holds up to four M/E modules and/or I/O Expander modules. One or two upgrade options can be added to a Kayak HD or SD 2-M/E system, less any I/O Expander modules in the chassis.

Supported Control Protocols

- VTRs (BVW-75)
- AMP (Advanced Media Protocol). For Profile PVS, XP, K2, M Series, and Turbo DDRs. Available for RS422 Serial or Ethernet.
- Servers (Louth VDCP, Odetics)
- Routers/Routing Control Systems (Trinix™, Venus™, Triton™, and third party routers; Jupiter™ and Encore™ router control systems)
- Control Systems (Grass Valley Andromeda™ and third-party systems)
- Grass Valley Under Monitor Displays (Serial tally for UMD. Requires Grass Valley Andromeda™ system or third-part tally box such as Tally Display Corp. or Image Video.)
- Grass Valley external Remote AUX Panels (CP-300 Series)
- ESAM II for audio-follow-video applications
- Edit controllers (native and Grass Valley Model 100 and 200)

System Components

Kayak HD Control Surfaces

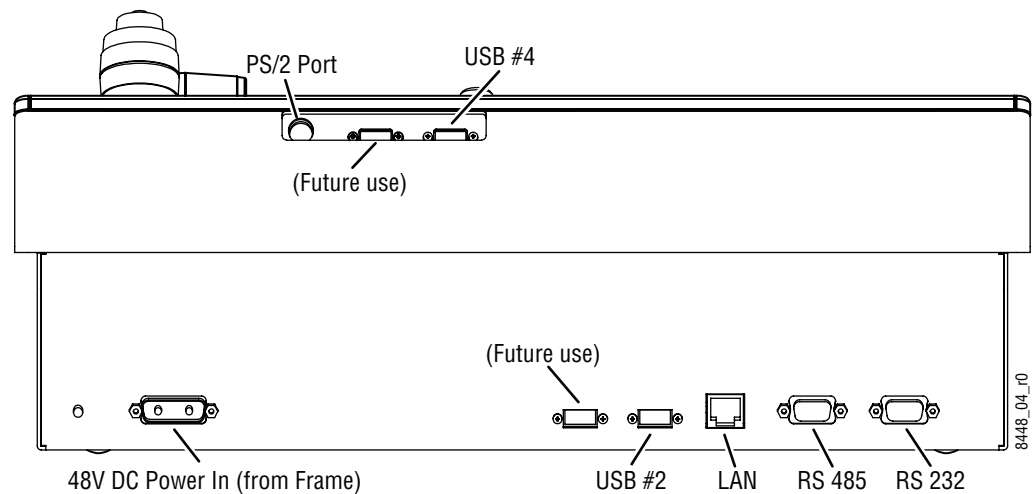
Kayak HD Production Switcher systems use a control panel with an integrated menu display (color TFT with touch-screen). The Sidepanel program, which runs on a user-supplied Windows PC, can also be used to control the Kayak HD system.

1 M/E Control Panel

Figure 1. 1 M/E Control Panel, Top View



Figure 2. 1 M/E Control Panel, Rear View

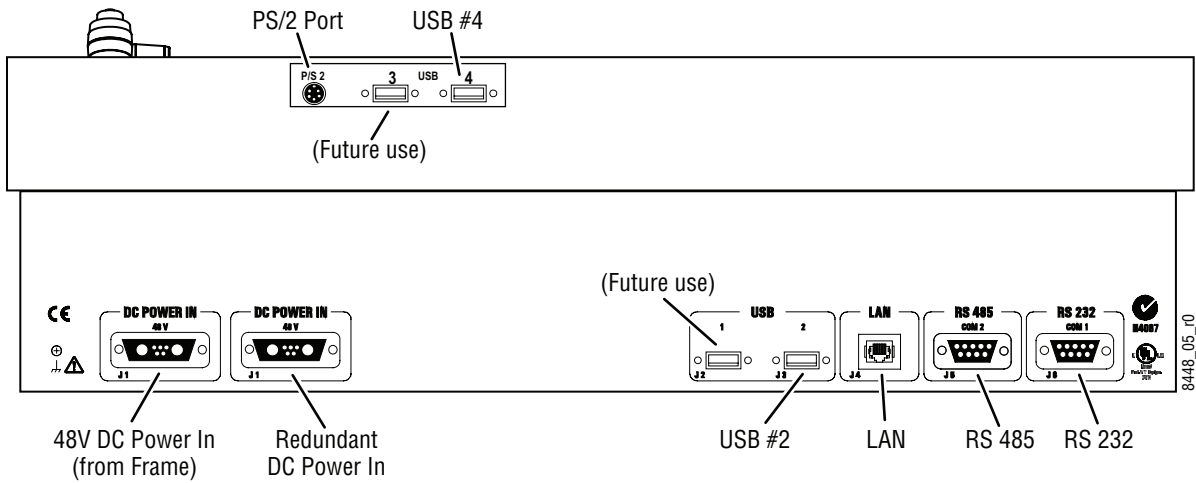


1.5 and 2 M/E Control Panel

Figure 3. Kayak HD 150C, 200C, and 200 Control Panel



Figure 4. 2 M/E Control Panel, Rear View



2.5 and 3M/E Control Panel

Figure 5. Kayak HD 250C, 250, and 300 Control Panel

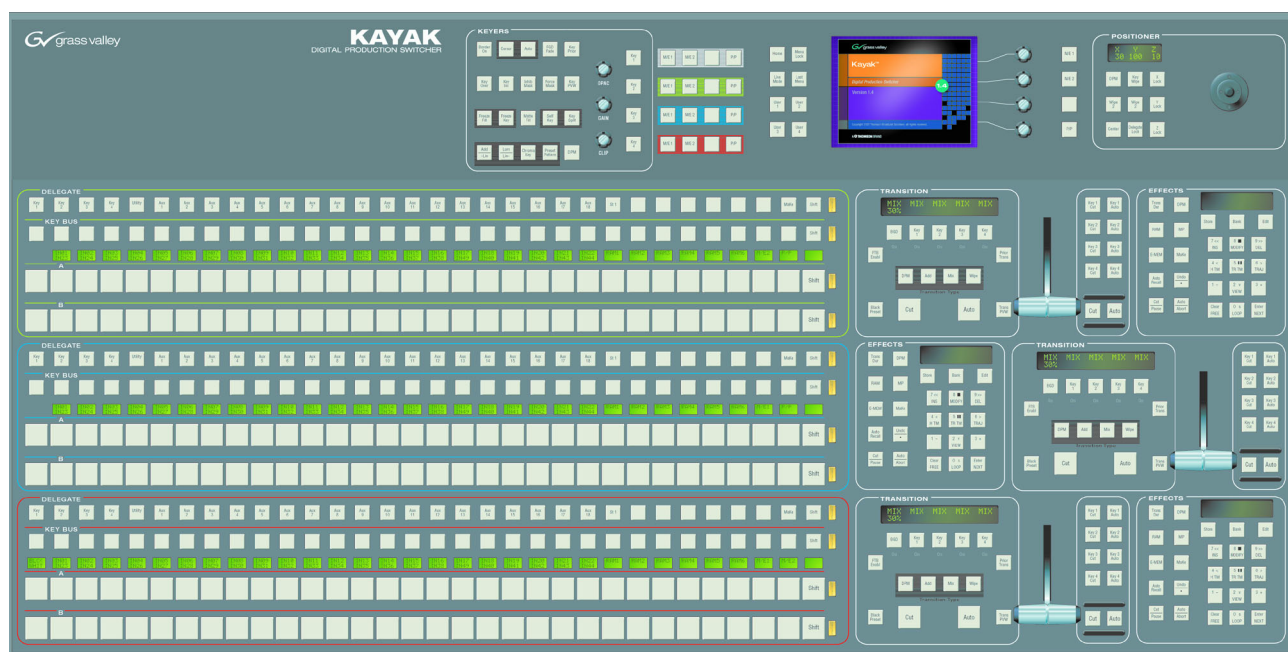
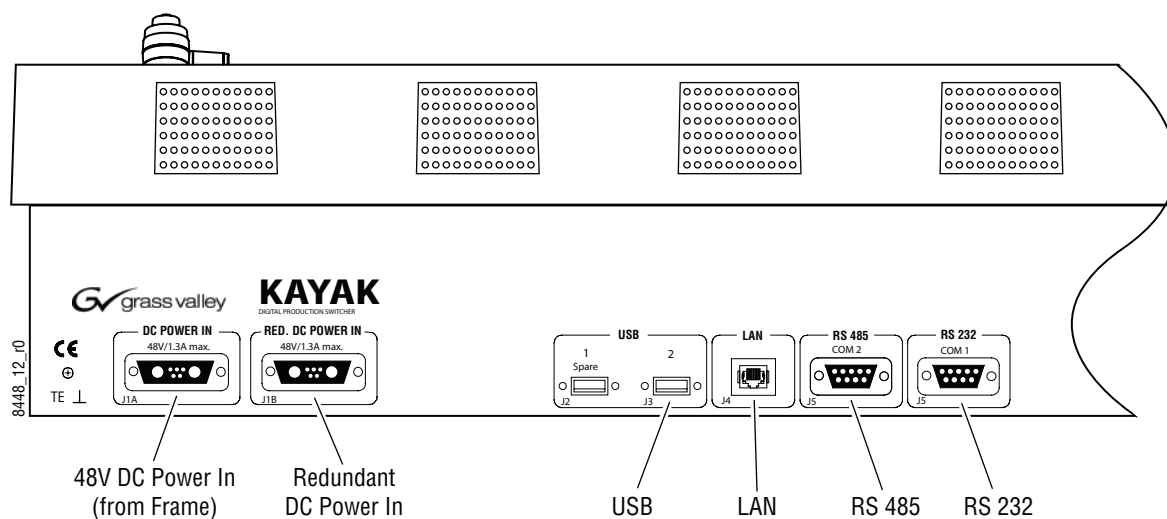
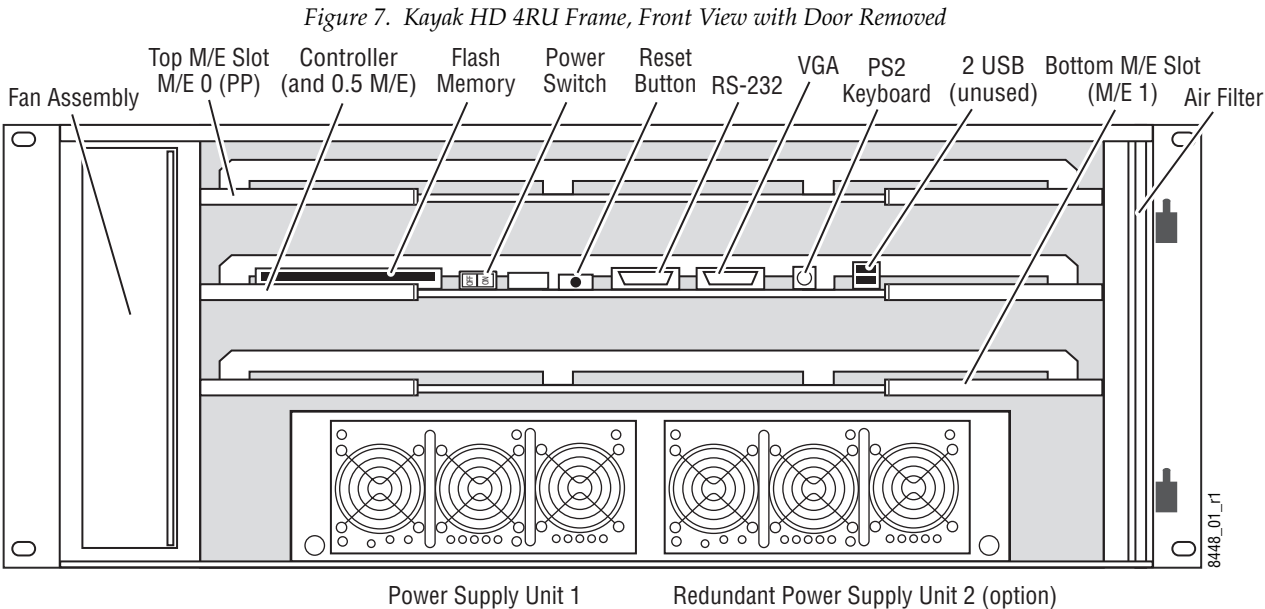


Figure 6. 3 M/E Control Panel, Rear View



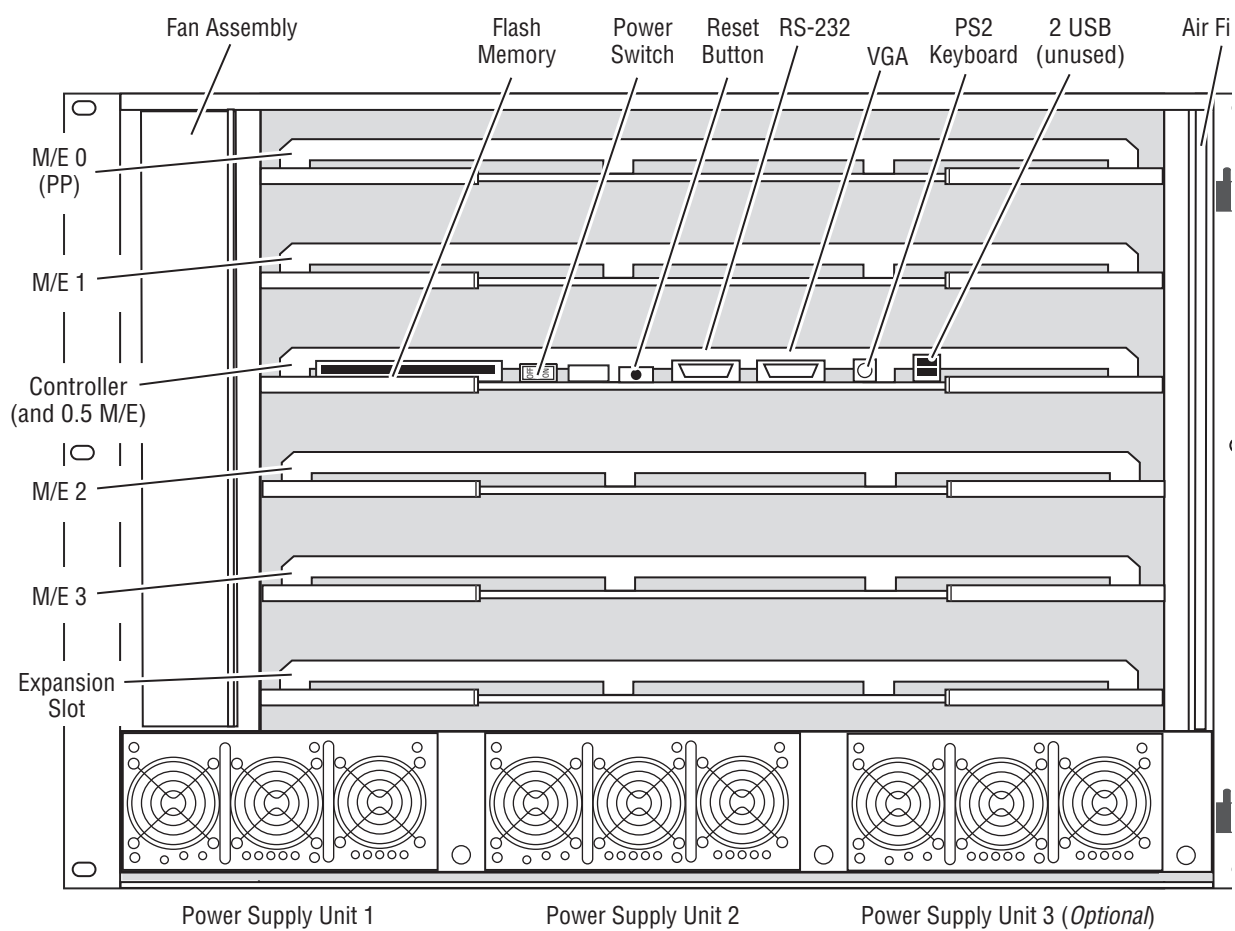
Kayak HD Video Processor Frames

Kayak 4 RU Frame



Kayak 8 RU Frame

Figure 8. Kayak HD 8RU Frame, Front View with Door Removed



KDD-PSU Power Supply Option

The KDD-PSU option is a one-rack unit, wide range AC power supply providing power for a remotely-mounted Kayak HD Control Panel or for each additional Control Panel connected to the same processor chassis.

Power output is sufficient for two 1 M/E systems or one 2 M/E system.

Grass Valley recommends that customers purchase this option if the distance from the Frame to the Control Panel is more than 100 meters.

Figure 9. KDD-PSU



Figure 10. KDD-PSU Rear View



Video Signal Flow

The basic video signal flow ([Figure 11 on page 28](#)) of the Kayak HD system has been designed for operational flexibility. For example, all the outputs from the M/E are routed back to the video crosspoint matrix, making all these signals accessible to the entire system.

The video inputs to the Video Processor frame can be mapped to any of the crosspoint buttons.

Internally generated white, black and three color backgrounds are also available sources, as are the six RAMRecorder outputs. This source-to-button mapping is performed through the touch screen menu and can be stored as a user profile for any number of individual users. Button mapping is the same on all buses.

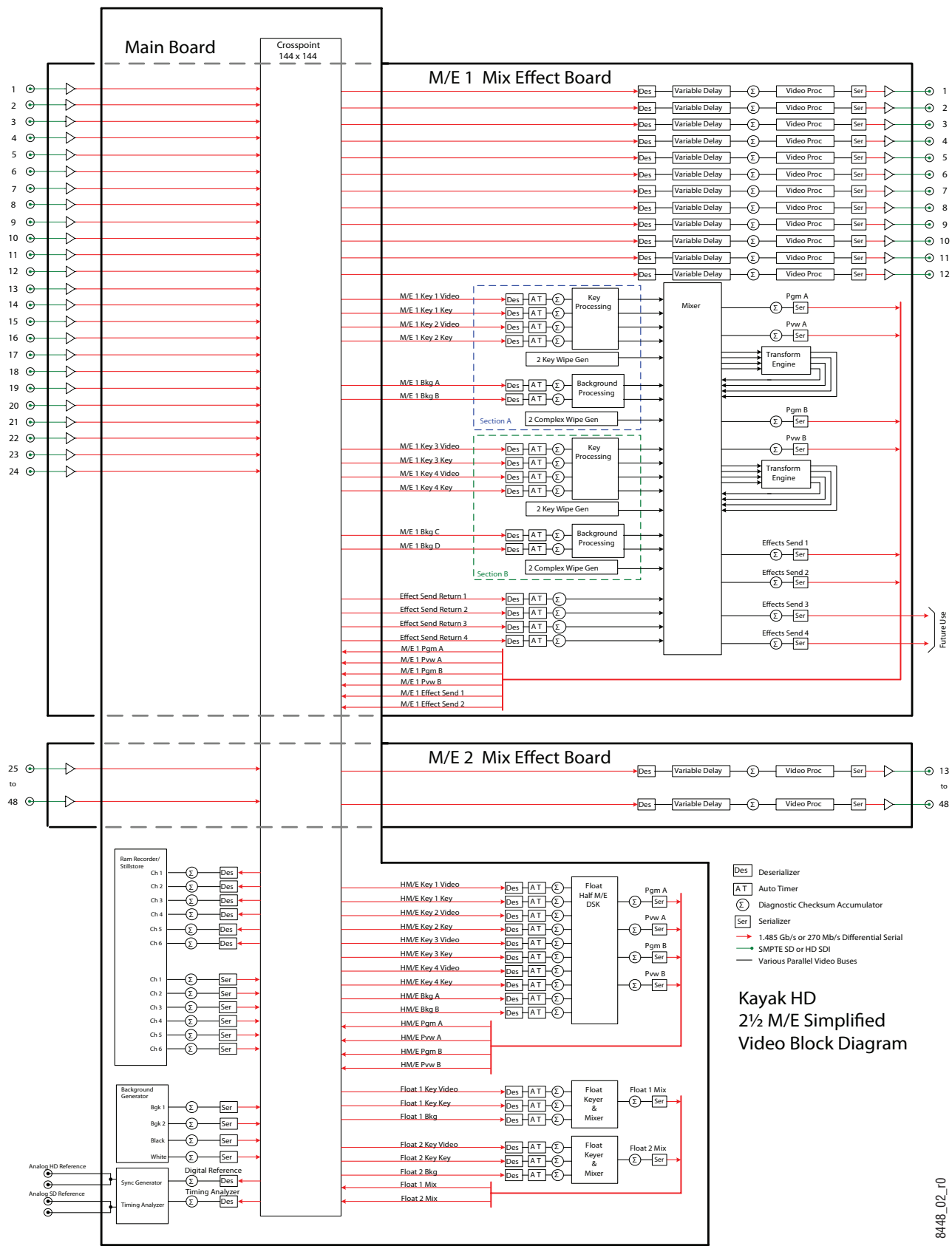
The selected video on each bus is deserialized and reclocked before entering the video processing circuitry. Video processing is available for each separate M/E background, Key, and Utility bus. In addition, contrast, brightness, and hue can be adjusted on a bus-by-bus basis.

Each M/E has four full-function keyers with optional internal Digital Picture Manipulator effects. Each keyer has access to its own wipe generator as well as a pair of standard flexible chroma keyers which may be assigned to any keyers in the system. Two complex wipe generators serve each M/E, providing a wide range of wipe choices with modulation, rotation and multiplication of each one. Wipe signals can also be taken from the two Utility buses on the M/E.

The outputs from M/E Program, Preview, and clean feed are fed back to the crosspoint circuitry for the selection on the Auxiliary buses as well as the clean feed output.

The AUX bus outputs can be utilized in a number of ways. Every AUX bus provides individually adjustable safe area and crosshair (center cross) capability. Each AUX bus is timed to the reference.

Figure 11. Kayak HD Video Signal Flow



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Concepts

Introduction

In general, any video switcher receives multiple video inputs, performs signal processing on selected input signals, and then outputs the processed video. Efficient real time switcher operation is essential for live production, and can save valuable time in post production environments as well.

Several innovative concepts are employed in the Kayak HD Digital Production Switcher to enhance its operational speed and flexibility. Understanding these concepts, as well as basic switcher fundamentals, will help you take full advantage of the exceptional power of the Kayak HD system.

Kayak HD System Configuration Overview

The Kayak HD Digital Production Switcher is designed for operational flexibility, and can be configured to fit various applications. Different Kayak HD systems can have different capabilities, or the same Kayak HD system can be re-configured to have different capabilities at different times.

The way a Kayak HD Digital Production Switcher is wired into your facility affects the Kayak HD system's capabilities. For example, the number of sources physically connected to the system obviously determines what video the system can handle. However, because Kayak HD system video/key inputs and AUX Bus outputs can be configured, once video cables are physically connected they need not be moved. Configuration settings also control many other capabilities that affect Kayak HD system behavior.

Kayak HD Digital Production Switcher configuration information is divided into three areas:

- Installation (Engineering Setups) (settings established by the engineer in charge that affect the entire system, which never need to be changed by operators),

- Configuration (settings for e.g. a production that affect all the operators working in that suite, that are designed to suit a particular show or production style and ensure a consistent working environment), and
- Personality Setting (settings that give the operator the ability to customize his individual work surface to meet his personal preferences).

All Kayak HD settings are non-volatile. Disk save and load operations are available via the Sidepanel Program that allows users to store configuration information on the hard disk of a PC or on a movable media for easy transport and for use as backup copies.

Installation (Engineering Setups)

Engineering Setups control how the Kayak HD Digital Production Switcher's major components behave and interact, and how the Kayak HD system interacts with the rest of the facility.

Engineering Setups are not likely to change on a daily basis and so are grouped separately from Configurations and Personality Settings. Facility maintenance personnel or the engineer in charge of a production truck generally manages Engineering Setups. These parameters are usually set during installation.

Engineering Setups information includes:

- Networking (IP addresses),
- Timing, Type of Reference signal
- External device interfaces (DDRs, VTRs, DPM, Router, AUX Control Panels, etc.),
- Various other system functions

Config — Application Control

The configuration defines how the control surfaces associated with a Kayak suite behave. A configuration can substantially change system behavior, not just a user's view of the system. The configuration is saved in applications and is intended for day-to-day or session-to-session changes in Kayak system operating behavior. Applications are open for modification by operators.

Loading and Storing applications can be performed using the Sidepanel (**Config**) and also with the Control Panel Menu (**Config / Appli Control**).

Config Applications include:

- E-MEM

- Macros
- Key Memory
- Pattern Memory
- Safe title behavior
- Video specifications (such as aspect ratio)
- Various other suite functions

Personal Settings

Personal Settings allow users to customize a Kayak HD control surface to suit their personal operational style. User Preferences do not change Kayak HD system capabilities. Loading and Storing Personal Settings is possible via the Sidepanel Program

Personal Settings include:

- Menu delegation behavior,
- Shift preferences
- Various other user functions.

General Rule:

- All setup changes, which will not work without an physical change of a device, are part of Installation (menu).
- All setup changes, which will work without an physical change of a device, are part of Configuration (menu).

Setting up the type, the address, and the connection port for an auxiliary control panel is part of Installation. Configuring the behavior and the button assignment of this AUX CP is part of a configuration.

Signal Routing

Inputs and Sources

Incoming video signals are connected to the Kayak HD system via BNC connectors on the rear of the Kayak HD Digital Processor frame. All inputs are serial digital (SMPTE 274M, SMPTE 296M, SMPTE RP211). Signals from external devices not operating in this standard will need to be converted.

Some devices (for example, a camera providing serial digital output) may provide a video signal that can be received on a single connector. However, other devices may output multiple signals.

For example, a character generator usually provides a signal with two components (commonly called *video* and *key*). Some incoming signals may also originate from devices the Kayak HD system can control (Router, DPM, DDR).

For a Kayak HD Digital Production Switcher, the term *source* refers to all the video signals and other attributes associated with a device. This is a fundamental concept. The Kayak HD system is based on sources, not input signals or crosspoints. Each source can be given a descriptive name, but has an ID Number for absolute identification. The Kayak HD system uses ID numbers, not source names or input connectors, to identify each source. Defining each source is an important aspect of the Kayak HD system.

Source Definition

The source definition process includes assigning a name to each input source. Once sources are defined, you can then select the source by name in the control panel menu. Sources that use separate video and key signals are coupled in the Input menu to allow a single button to select the video-key pair from the switcher control panel. Tally relays can be assigned to the corresponding inputs in the **Config - GPO/Tally** menu. All these settings are part of a configuration and may change from production to production.

Button Assignment (Source to Button Mapping)

Source to button mapping makes it possible to organize sources on Kayak control panels to suit your personal preferences. For example, cameras can be grouped into a set of buttons on the left side or the right side of a button row, or in any way that is desired or convenient.

Source mapping is distinct from source definition, as source mapping only involves the location of sources on the control panel and does not affect the inputs or names defined for the sources.

For details on how to assign sources to buttons please refer to the Kayak HD Installation and Service Manual.

Note E-MEM effects store Source IDs, not the source select buttons, so remapping sources does not change the appearance of recalled effects.

You can also assign sources to buttons using the Sidepanel program.

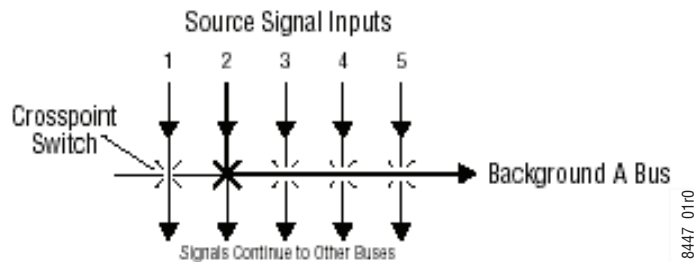
Key Memory

Key parameters can be saved to a separate key memory for every Kayak HD system source. These parameters can be applied automatically whenever that source is selected.

Buses and Crosspoints

A *bus* is technically defined as a signal path where one of several available inputs can be selected to feed a single output. A *crosspoint* is an electronic switch that allows a signal to pass when the switch is closed. On video switchers, a bus can be constructed containing a series of crosspoints, which permits selecting which one of several incoming signals will be sent out the bus. In [Figure 12 on page 33](#), source 2 has been selected on the background A bus. This signal can now be called *background* video and is available for further processing.

Figure 12. Buses with Crosspoints



Buttons on a control panel can be used to control the switching of crosspoints. The buttons are usually arranged horizontally, making it easy to imagine the available signals coming in from the top, and the single bus output signal going out the right side. In earlier generation switchers, the terms *crosspoint button* and *crosspoint bus* have been used in reference to control panel source selection.

For a Kayak HD system, the terms *source button* and *source bus* will be used.

These terms better reflect a system operating philosophy that is source rather than crosspoint based.

The Kayak HD system does not directly associate a source select button with a physical crosspoint. The association goes first through source to button mapping, then through source definition to find the physical inputs.

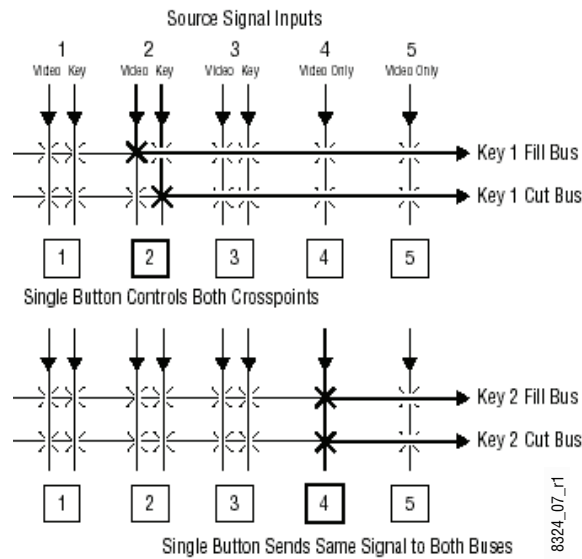
On the Kayak HD system, a single source button can control crosspoints on different buses simultaneously. For example, during keying, both the video and key signals of a source can be selected with a single button press.

In this case two different crosspoints on separate buses (key fill bus and key cut bus) are actually switched when the button is pressed.

In the upper part of [Figure 13](#) below, the *video* component of source 2 in the figure has been selected on the key fill bus and becomes the *key fill* signal for subsequent keying. The key component of source 2 selected on the key

cut bus becomes the *key cut* signal for keying. The lower part of [Figure 13](#) below shows how the same source (source 4) can be selected for both the key fill and key cut signals.

Figure 13. Multiple Crosspoint Control



Shifted Sources

An operator may need to quickly access many sources during a production. However, a control panel has size limitations, since all the source selection buttons must remain within reach. The Kayak HD system provides shifted buttons to allow access to more input sources from the control panel.

For example, on the Kayak HD-100 system, up to 28 sources can be mapped at one time, 14 to the unshifted source selection, and 14 to the shifted buttons. A dedicated **Shift** button is provided as the farthest right crosspoint button (Crosspoint 15) for every bus. Two shift modes are available: Normal and Latched.

In Normal mode, shifted or unshifted status of the bus is indicated by the state of the **Shift** button light. Holding down the **Shift** button while pressing a source button always selects the shifted source for that bus.

The **Shift** button will light when the row of buttons to its left are shifted.

In Latched mode, the **Shift** button toggles on and off in a manner similar to the **Caps Lock** button on a standard keyboard. When on, it lights to indicate that the subsequent selection(s) on the crosspoint selector row will be made from the shifted set of sources (15 through 28). When off, the subsequent selection(s) come from the unshifted set (1 through 14). If the user toggles

the **Shift** button to the state that is opposite from the shift state for the currently selected input, then the crosspoint selector button blinks to indicate this “out of sync” condition.

A useful configuration is to have sources normally used for backgrounds (e.g. VTRs) mapped to unshifted buttons, and sources normally used as keys (e.g. character generators) mapped to shifted buttons. Then you can then set all the background buses to an unshifted preference, and all the key buses to a shifted preference. All normal source selections can then be made without having to use the shift modifier buttons.

It is also possible to have a different assignment for background and key buses.

Source Scalars

Each Mix Effects (M/E) has 4 scalars that can be used for scaling video sources of the same frame rate but different resolutions than the video being processed.

The scalars are software enabled options. Two scalars are enabled on one option, up to 2 options per M/E maximum. The scalars are fixed to a specific M/E.

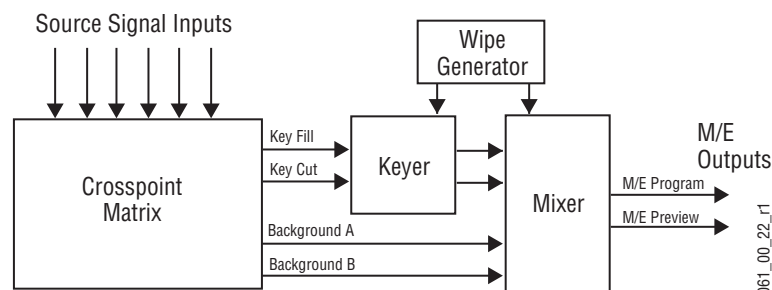
Mix/Effects (M/E) Stage

Each M/E of the Kayak HD system can create a composite of two or more pictures. It includes multiple source selection buses and provides transition (mix and wipe) and keying capabilities on the selected signals.

The M/E can be organized with the keying circuitry separate from the mixing circuitry, which permits Effect Send capabilities (see [Effects Send on page 36](#) for more information).

A simple basic M/E used in a typical switcher will be used as an example in the following discussion. The Kayak HD M/E has added capabilities, but the basic principles described here will apply.

Figure 14. Simplified Mix Effects (M/E) Subsystem



The basic M/E shown in [Figure 14 on page 35](#) has an A and a B background bus. These buses select the background video signals sent to the output of the M/E.

Generally the source on the background A bus is the current background output, and the source on the background B bus is the background video that will be used next. During most transitions, portions of both backgrounds are output simultaneously. The keyers in the M/E allow the inclusion of additional material over the background. Wipe generators also exist, which create patterns used by the mixer for wipe transitions, or used by the keyers to modify the signals it sends the mixer.

The processed signal in an M/E is then sent to an M/E output, typically program or preview (or can be selected as input in the second M/E).

Alternate Buses and Delegation

Many earlier generation switchers had M/Es equipped with two keyers, and each M/E could accept two background sources. This permitted mixing or wiping between two backgrounds, and keying up to two additional sources over the background. Dedicated rows of control panel buttons were used to select these key and background signals.

The Kayak HD system M/E actually has four keyers, each handling a fill and a key signal, and it can accept three background sources (A, B, and Utility). Providing individual source selection rows for each bus is impractical, as the panel would become too large. For ease of use, Kayak HD panels have alternate buses accessed by delegation, using Key and PVW/AUX delegation via the Miscellaneous Bus selection subpanels.

Utility Bus

Besides the standard A and B background inputs, each Kayak HD also accepts two Utility inputs. The Utility buses can be used to select signals for special purposes, and has no relation to the background buses. For example, a video signal selected on the Utility bus can be used to feed a custom pattern into a wipe generator, or create a custom border wash pattern.

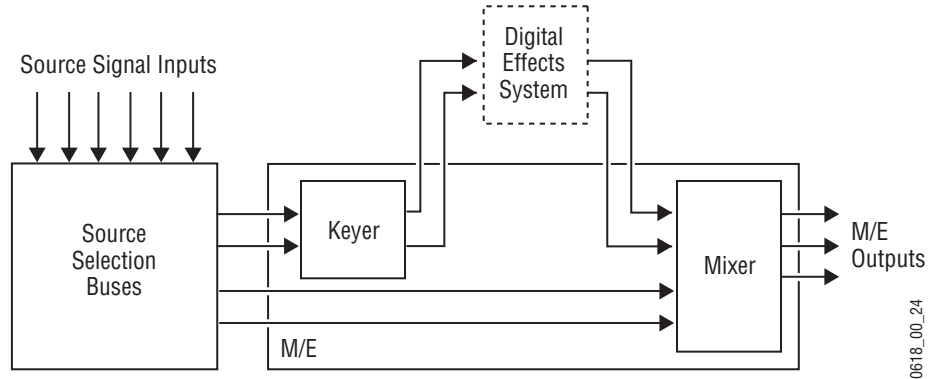
Effects Send

Effects Send provides a method of integrating digital effects devices into the M/E. Effects Send switches the key cut and key fill outputs of the keyer of the M/E to a digital effects device for manipulation. The manipulated key cut and key fill outputs are then received and sent directly to the inputs

of the mixer circuits of the M/E. Effects Send allows you to process a key effect as though the digital effects circuits were located inside the M/E itself.

On the Kayak HD system, Effects Send is integrated into the M/E and is an extension of the keying control system.

Figure 15. Effects Send Diagram



If the Kayak HD system is equipped with the optional Digital Picture Manipulator option, the effects become part of the internal M/E's mixer.

Outputs

Video production switchers generate several different video outputs (such as Program, Preview, AUX busses, and others). A final program output (Main or DSK) is typically sent to the transmitter for broadcast and/or to output devices for recording.

AUX Bus outputs may also be used for special purposes.

AUX Busses and Output Assignments

Kayak HD switchers provide 12 outputs per M/E. This means you can have up to 24 outputs in the compact frame and up to 48 in the large frame. For installed M/E boards the rear BNC outputs are active.

Any internal source can be assigned to these AUX bus outputs for monitoring. Safe Title can also be enabled on any of these AUX busses.

Resource Sharing and Point Of Use

The Kayak HD system can share some resources for use at different locations. The location where a resource is being used is called a point of use.

The wipe pattern generator resources can be used for an M/E wipe transition, as a preset pattern, as a mask, or at other points of use. It is also possible to assign the output of the same wipe pattern generator to different points of use at the same time.

For efficient operation, the Kayak HD system has divided the parameters controlling wipe pattern generators and related utility bus functions into two categories; shared generator parameters and point of use parameters.

The set of parameters for the shared generator are used by all points of use, so changing one of these parameters will affect all locations where that wipe pattern generator is being used at that time. Separate sets of point of use parameters, however, are maintained for each Kayak HD system point of use.

These settings are used only by each individual points of use, so changing them will not affect any other point of use.

For example, a wipe shape (box, circle, etc.) is a generator parameter, but the softness of the shape's edges is a point of use parameter. If the same wipe generator is used by both an M/E wipe transition and a preset pattern, adjusting softness at one point of use will not affect the other's softness settings. However, changing the pattern shape affects both locations.

Transition

A transition is a change from one image to another. The Kayak HD system supports three basic types of transitions:

- Cut
- Mix
- Wipe
- DPM (optional)

A transition can be applied to the entire picture, or to only the background or keyed elements of the picture, and can include multiple elements.

Cut

A *cut* is an instantaneous switch from one image to another (between successive video fields or frames). The simplest type is a *hot cut*, accomplished by selecting a different source on a bus feeding an M/E output. This only changes that bus's contribution to the output, and does not change what elements may be involved in the output (the same buses are involved).

The Kayak HD system also provides cut transitions, where the elements involved in a composite can be changed instantaneously. Different buses can be included or excluded, causing changes in the resulting composite image. Background cut transitions on The M/E are first selected on the Background B bus to allow previewing the upcoming picture before it is cut **On Air**.

Mix

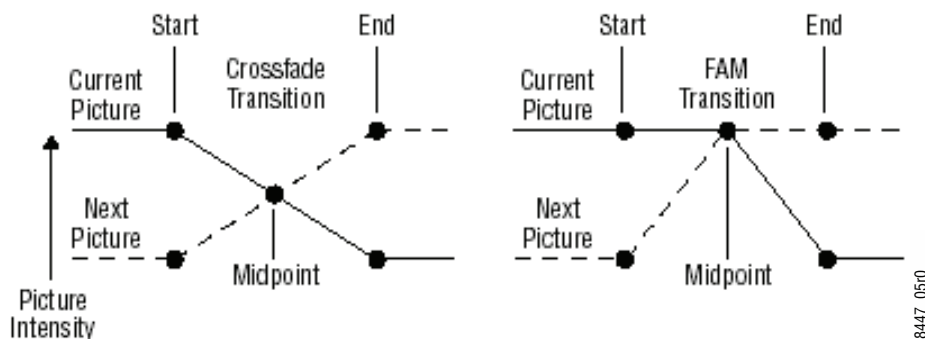
A *mix* is a transition from one picture to another where the new picture fades in as the existing picture fades out. During a standard mix transition a superimposition of both pictures, each at a lower intensity, is visible.

The Kayak HD system allows mixing from one background to another and to mix up to four separate keys on or off over a background. Background and key mixes can be done separately or simultaneously.

Full Additive Mix

Full Additive Mix (FAM) is a special mix transition that the Kayak HD system supports besides normal crossfade transitions. Picture elements in FAM transitions are composited differently through the time of the transition.

Figure 16. Normal and FAM Mixes



FAM transitions first fade a new picture to full intensity and then fade the old picture out, but both full intensity pictures are mixed together to the output during the transition. The resulting signal is clipped at white level to prevent generating illegal video.

Wipes

A *wipe* is a transition from one picture to another in which the edge of a shape moves across the screen, revealing the new picture. Wipe transitions can be applied to backgrounds, to keys, or to both simultaneously. A wipe transition shape can be selected from a variety of patterns, and these patterns can be adjusted in several ways (position, aspect ratios, edge attributes, etc.).

Each Kayak HD M/E has two separate transition wipe systems, each of which can be assigned a different wipe pattern and be adjusted independently. These systems can each use one of the two available complex wipe pattern generators with advanced capabilities. It is also possible to combine these wipes to create extremely complicated wipe transition shapes, and generally this is used only by advanced operators. Utility bus video signals can also be used to generate a custom pattern for a wipe transition or other purposes.

Other Wipe Pattern Generator Uses

Wipe pattern generator circuitry can be used for purposes that do not involve transitions. Each Kayak HD M/E has the two complex wipe pattern generators described above, and each of its four Keyers also has a simple pattern generator and a box pattern generator, making a total of six wipe generators. These pattern generators can also be used for Preset Pattern, Masking, and Matte Washes.

Preset Black

Preset Black is a special type of transition, where the picture transitions to black, and then transitions out of black to the new picture. Preset Black is really two transitions, one to and one from black, and so requires two operator commands to complete. Preset Black can be used with any transition type (cut, mix, or wipe). The entire picture goes to black, even if all the transition elements involved in the picture were not selected.

Fade to Black

The Fade to Black control in the DSK allows the Program output of the switcher to be brought down to black at a predetermined transition rate.

Transition Rate

Cut transitions are instantaneous, but mix and wipe transitions have durations.

Transition durations can be set in advance to a specific transition rate, and be initiated by pressing a button on the control panel. It is also possible to manually control transitions using a lever arm.

On the Kayak HD system, one transition rate can be assigned to the main transition of the M/E. This type of transition can be controlled by that M/E's lever arm. Each of the four keyers on the M/E can also be assigned its own transition rate, initiated with a separate **Key Mix** button.

Flip Flop Background Buses

At the completion of a transition, the background buses swap their source selections (flip flop). This makes the upper bus always act as the on-air bus, and the lower bus act as a preset bus. The operator can reliably setup the next source on the lower bus without disturbing the source selected on the on-air upper bus.

For example, if a transition begins with source 1 on Background A and goes to source 2 on Background B, as soon as the transition to source 2 completes, source 2 will be taken to the Background A bus (without disturbing the output of the M/E). The source 1 selection will also be immediately taken to the Background B bus.

Look Ahead Preview

If a preview monitor is configured for Look Ahead Preview mode, the end result of the upcoming transition can be viewed on that monitor. This lets the operator know in advance what will occur for that next transition.

Current and Next Stack

Kayak HD uses a current and next stack approach for transitions that involve multiple elements. The current stack is the current M/E output including any keys that are on. The next stack is defined by the current stack and whatever next transition elements have been selected. Look ahead preview always displays the next stack. Next transition elements affecting stacks are Keys 1 - 4, background, and key priority.

Kayak HD transitions always occur from the current stack to the next stack.

For example, if the current stack has Key 1 over Background A, and the next stack specifies Key 2 over Background B, a mix transition will occur between the composites (Key 1 over A to Key 2 over B). This is different from mixing Key 1 off, Key 2 on, and mixing between A and B at the same time, which would cause the keys to go transparent over their background during the transition.

On the Kayak HD system, opacity is retained throughout the transition, so midway through this example Key 1 remains fully keyed over Background A, and Key 2 is fully keyed over Background B. The transition occurs between these two fully keyed composites.

If multiple keys are faded in or out using the separate **Mix** button each keyer has its opacity changed with relation to all other keys. This means that keyer transitioned this way or no longer considered part of the composite and will show transparency.

Key Priority and Transitions

The four keyers on a Kayak HD M/E can be assigned priorities. This determines the layering of the keys. The highest priority key appears on top, while keyers with lower priority may be partially or fully hidden behind those with higher key priorities. The backgrounds always have the lowest priority. Changes in key priority can be included as a part of a transition.

Like any other transition, the current stack will transition to the key priority of the next stack. For example, suppose the current stack has Keys 1, 2, and 3 in that key priority order over Background A, and the next stack specifies key priority order 3, 2, 1. A mix transition will occur between the 1, 2, 3 composite order to the 3, 2, 1 composite order. All three keys will remain fully keyed over the background, and will mix to their new key priority order.

Half M/E and DSK Option

The Half M/E and DSK option is available that adds an additional M/E with cuts and mixes on backgrounds and keyers. The output of this Half M/E can be re-entered into any other M/E, and/or be assigned to an Aux output. The Half M/E is controlled by delegating any switcher bank with a single button press.

DSK capabilities that adds four extra keyers is also included with this option. Half M/E and DSK functionality cannot be used simultaneously, however.

Keying

Keying inserts part of one picture into another to create a composite picture.

Keying involves three signals:

- Background,
- Key cut, used to specify where to cut a hole in the background, and

- Key fill, used to fill the hole in the background.

The fill can be an incoming video signal or it can be an internally generated matte fill. A separate key cut input signal is not necessarily required for keying. For example, a self key (also called a video key) uses the same input signal for both key cut and key fill.

The Kayak HD system supports the following types of keys:

- Additive Key
- Luminance Key
- Linear Key
- Chroma Key
- Preset Pattern

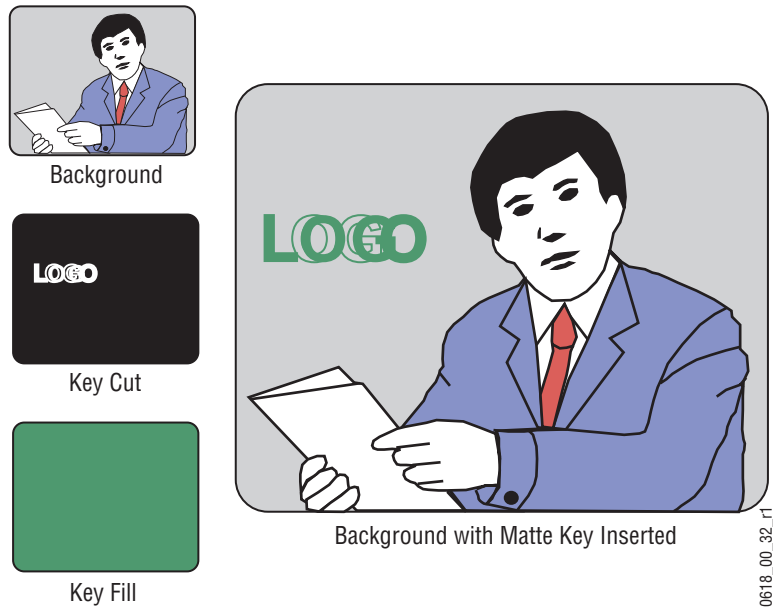
The Kayak HD system also supports self keys and split keys.

Matte Fill Key Example

One of the earliest keying techniques was to use an art card and camera to perform a luminance key with a matte fill. This type of key is a good example for explaining basic keying principles because three separate and independent incoming signals are used.

To insert a green logo into background video, the logo can be printed in white on black paper and a camera can be focused on it. The signal from the camera can be selected as the key cut signal and green matte video can be selected as the key fill signal sent to the keyer. The key cut signal is then adjusted (clipped) to ignore the black paper and use only the white logo shape to cut a hole in the background video. The keyer then shapes the key fill to precisely match the logo-shaped hole cut in the background and fills it with green matte video. This creates a green logo inserted into the background ([Figure 17](#)). Because luminance values of the key cut signal are used to cut the hole in the background this is called a luminance key.

Figure 17. Matte Fill Luminance Keying Example



In this keying discussion illustrations rather than actual screen images are used for simplicity, and because the printing process has difficulty capturing the subtleties of soft key edges.

Shaping Video

In the matte key example above, the key fill signal was a full raster color that did not match the shape of the key cut signal. This key fill signal is accurately called *non-shaped* video, but may also be referred to as *unshaped* video since both signal types are processed identically during keying.

Some external devices (e.g., character generators) provide a key cut signal and an already processed companion key fill signal. A key fill signal that correctly matches the key cut signal is called *shaped* video. During keying, properly shaped key fill video can be summed with a background signal (with a hole cut) and achieve the desired result.

The appropriate key mode for this type of signal is the additive key.

If a key fill does not match the hole in the background (like in the matte key example above), the key fill needs to be shaped by the switcher. By multiplying the key fill signal with the key control signal the unwanted areas of the fill can be made black, shaping the video to match the hole before it is summed with the background. Key fill video must be shaped using the key cut signal actually used to create the hole in the background. Video shaped with a different key cut signal will not key correctly.

The appropriate key mode for this type of signal is the Linear key or Luminance Key.

See the section on *Properly and Improperly Shaped Video* on [page 55](#) for more information.

Note that an unshaped signal viewed directly will show harsh edge artifacts due to dividing by a small number. This is normal and expected.

Keying this signal will clean up its appearance.

Key Control Signal Adjustment

During keying, the selected key cut signal can be converted into a key control signal. It is the key control signal that actually cuts the hole in the background video. Adjusting the key control signal (Clip and Gain) is essential in the keying process. The art of setting up a good key is to use just enough Gain to suppress any imperfections in the incoming key signals.

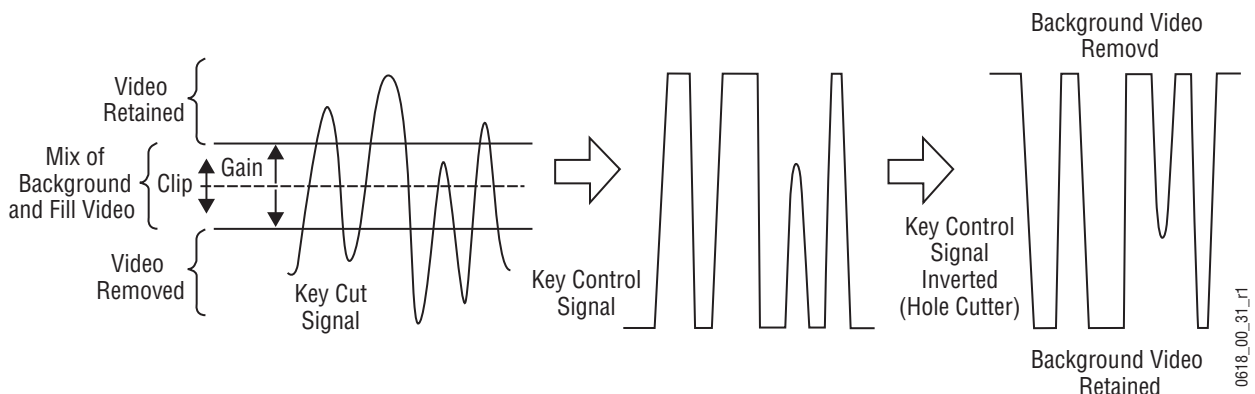
Setting Gain too high can cause ragged key edges.

The Kayak HD system provides two methods for adjusting the key control signal, Clip and Gain, and Clip Hi and Clip Lo. Note that the same basic keying process is controlled by either of these methods.

Clip and Gain

The Clip and Gain operation selects a threshold of the selected key cut video that will be used to cut the hole in the background video. Clip controls the threshold, and Gain controls the softness of the key edges and any translucent areas. High portions of the key cut signal specifies what video is retained, and low portions determine what video is removed. Intermediate levels specify a soft blend of the background and fill video.

Figure 18. Key Clip, Gain, and Key Control Signal

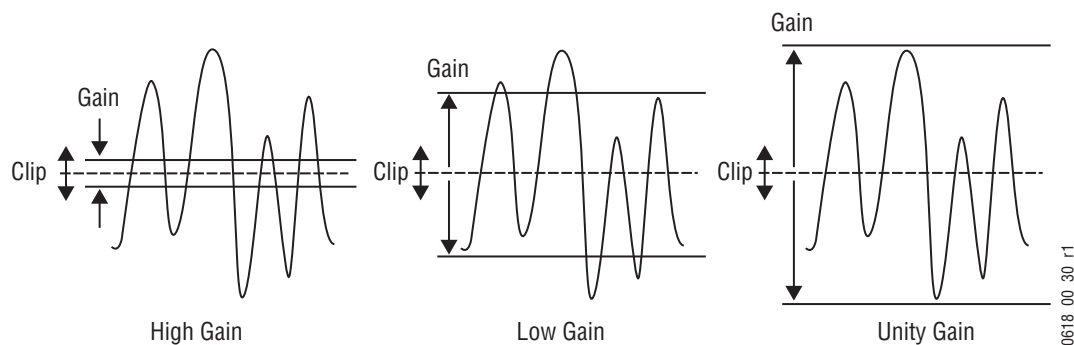


Clip and Gain control is appropriate for high gain keys (see below), to easily adjust where the relatively hard transition from background to fill occurs. In this mode, changing the Clip control moves the threshold up and down without affecting Gain, which is adjusted separately with its own Gain control.

High Gain, Low Gain, and Unity Gain

A high gain key has a narrow range, creating harder key edges. A low gain key has a wider range, creating softer key edges. Linear keys typically use minimal gain (also called unity gain) to completely preserve the soft edges of the keys ([Figure 19](#)). Note that the Kayak HD system also supports keys that go below unity gain.

Figure 19. Keying Gain Values

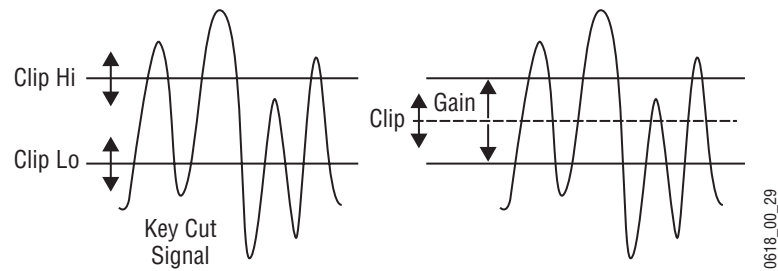


On the Kayak HD system, Gain has a percentage value. A Gain value of 50% requires a luminance change of 50% of the distance between black and white to produce a keying signal ranging from transparent to opaque. A gain value of 100% (unity gain) uses the entire range between black and white for this transparent to opaque transition. A gain value of 0% produces the hard key edges (a high gain key).

Clip Hi and Clip Lo

The Kayak HD system also supports a Clip Hi and Clip Lo mechanism. With Clip Hi and Clip Lo, two thresholds are established. The upper threshold specifies at what point video will be completely removed from the background, and the lower threshold determines at what point background video will be retained completely intact.

Figure 20. Key Hi, Clip Lo vs. Clip and Gain



In this mode, Gain changes when either control is adjusted. The difference between the upper and lower keying thresholds is equivalent to gain:

- $\text{Clip Hi} = \text{Clip} + \text{Gain}/2$
- $\text{Clip Lo} = \text{Clip} - \text{Gain}/2$

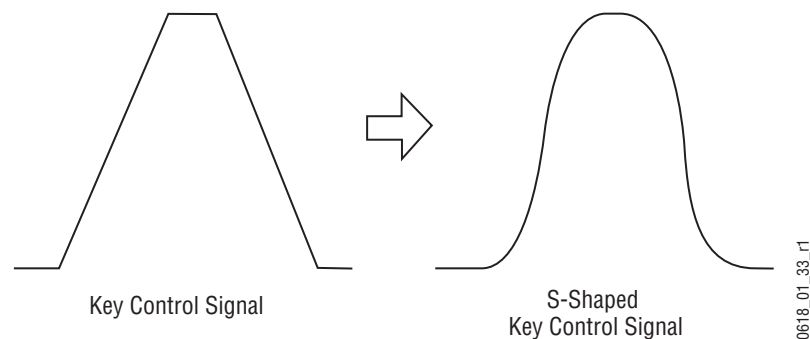
Clip Hi and Lo control is more appropriate for low gain keys, to allow independent control of the two thresholds. For example, when adjusting a linear key the operator wants to control where the fill becomes opaque (Clip Hi) and where the fill becomes transparent (Clip Low). In Clip Hi/Lo mode adjusting the point of opacity does not change the point of transparency, and vice versa.

Clip, Gain, Clip Hi and Clip Low adjustments always interact. Changing one always results in changes to two other values. Changing Clip Hi or Clip Low changes both Clip and Gain, not just Gain.

S-Shaped Key Signals

On the Kayak HD system, an S-shaping function is applied to the edges of luminance keys. S-shaping smooths the sharp corners of a luminance key control signal, which helps prevent banding artifacts. S-shaping a signal minimally affects the key edges, and does not move key thresholds or affect the overall gain of the key.

Figure 21. S-Shaped Luminance Key Control Signal



S-shaping is generally not applied to linear keys because the external device usually applies an S-shaping function when it generates the key cut and key fill signals. S-shaping should not be applied twice.

Additional Keying Controls

The following additional controls are available for keying.

Key Invert

Keys can be inverted, causing holes to be cut in the background where a normal key retains the background, and vice versa. Key invert makes the white areas of the key cut signal produce transparency, and the black areas produce opacity, the opposite of a standard key.

Masking

Masking defines areas that are protected from keying (Inhibit Mask) or always key (Force Mask). The shape of the mask can originate from a wipe pattern generator or by a selected mask signal (typically a key fill signal delivered via the Utility bus).

With the Kayak HD RAM Recorder (Still Store), the mask signal can be a frozen page of video or a key fill. Complex mask shapes are often easier to draw by hand than to create with multiple wipe patterns.

Opacity

The opacity of a key can be adjusted. When opacity is reduced below 100% some background video is allowed to show through areas where it is normally excluded. Key opacity is an adjustment to the overall intensity of the key, and is separate from Clip and Gain controls. Note that a common mistake is to set opacity to zero and forget that adjustment was made, which can cause confusion later when that key is selected but not visible.

Key Positioning

Key positioning allows slight adjustment of the horizontal position of the key cut signal relative to the key fill signal. This is useful if the timing of the two signals at the switcher inputs are not matched properly. This is generally only a problem if the cut or fill follow analog paths from source to switcher or if the source has video/key timing adjustments which have been set to compensate for other delays within the facility.

Key Size

Key size allows the key cut signal to be narrowed slightly. This can greatly enhance self keys and chroma keys that have been reshaped.

Coring

Coring helps reduce video noise in chroma keys. Coring is used when a key fill signal has noise in areas that are supposed to be transparent. When noise exists in these areas it can appear in the background portion of the keyed composite. Coring replaces the noisy black areas outside the shaped fill with clean black before it is summed, eliminating the noise.

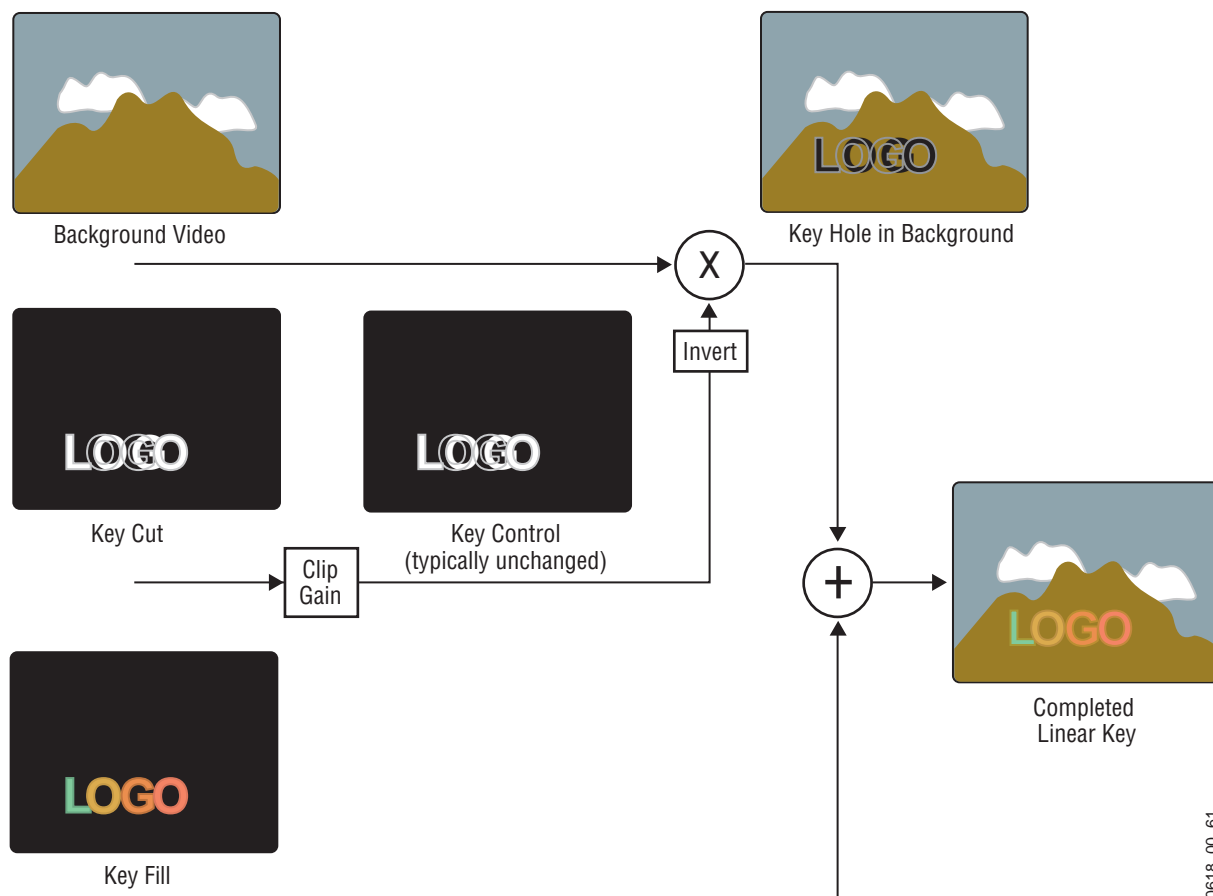
Show Key

Although the key control signal is not directly visible in the final video output, this signal can be previewed as a black and white image using the Show Key function. White areas of a show key indicate areas of complete opacity, black indicate complete transparency, and gray areas indicate translucent areas of the key. The whiter the show key signal, the more opaque the key will be. This key preview signal reflects all the adjustments that have been made to the key control signal.

Linear Key

A linear key typically uses separate key cut and key fill input signals that are intended to be used for linear keying. The key cut and key fill are usually anti-aliased (soft edged) shaped signals created by a character generator or graphics system. There may also be translucent areas intended to allow some background to show through the key (watermarks). The level of the key cut signal determines where and how deeply the hole will be cut into the background. The intended soft edge and translucency of the key can then be faithfully reproduced.

Figure 22. Linear Keying



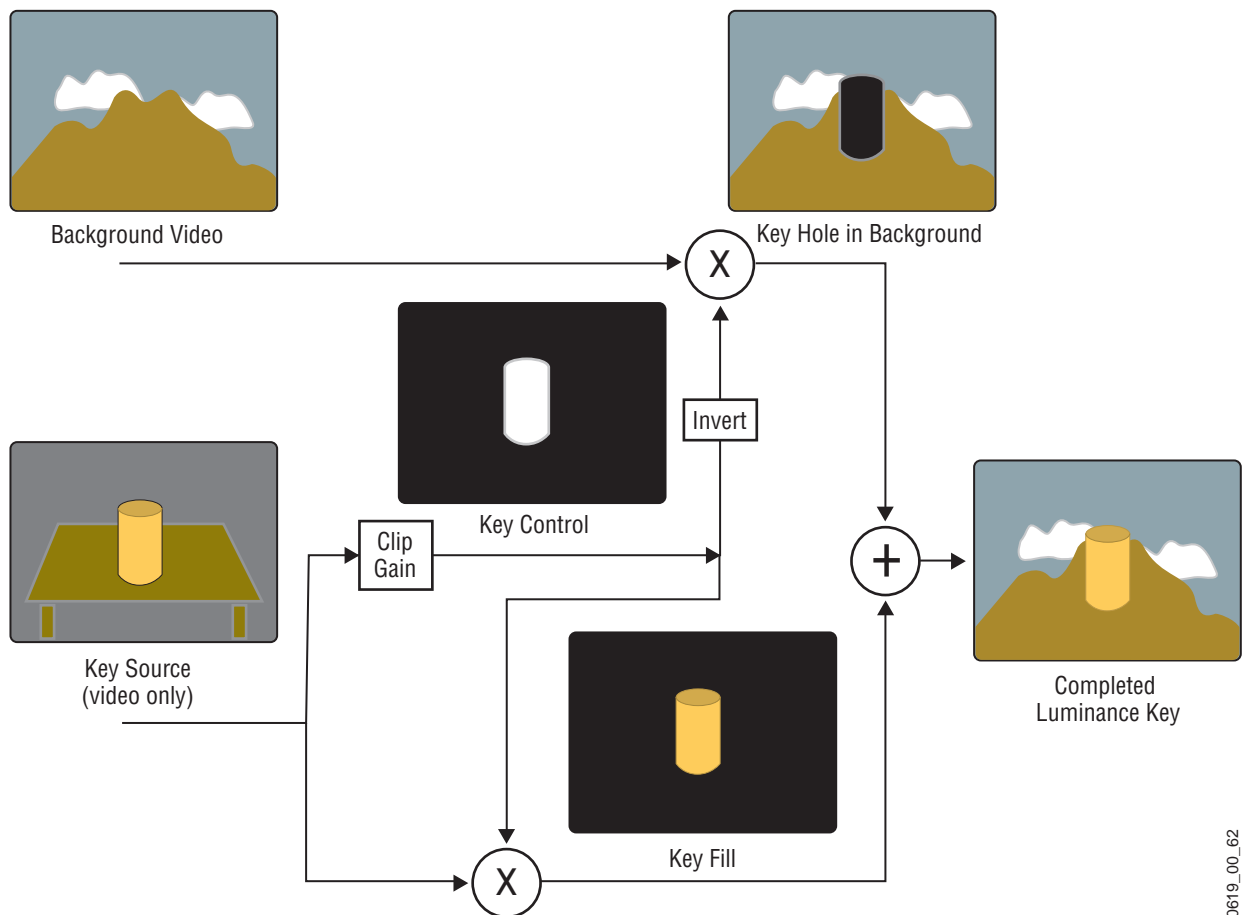
0618_00_61

Note The soft edges in the illustrations in this part of the manual are simulated. The key edges are actually gradients, which allows these edges to blend smoothly with the background. In the Kayak HD System the Linear Key is just a special parameter setup of the Luminance Key

Luminance Key and Self Key

A luminance key uses the luminance of an incoming source to specify where to cut the hole in the background. The earlier example of a matte fill key is a type of luminance key. Luminance keying is typically done on sources that do not have an accompanying key cut signal, like a video camera. The key cut signal must be generated from the incoming video signal, using clip and gain controls. When only one source is used for both key cut and key fill, the key is called a Self key or Video key. The same key source signal is multiplied by the key cut signal to create the key fill, and then the signals are summed.

Figure 23. Luminance Keying (Self Key)

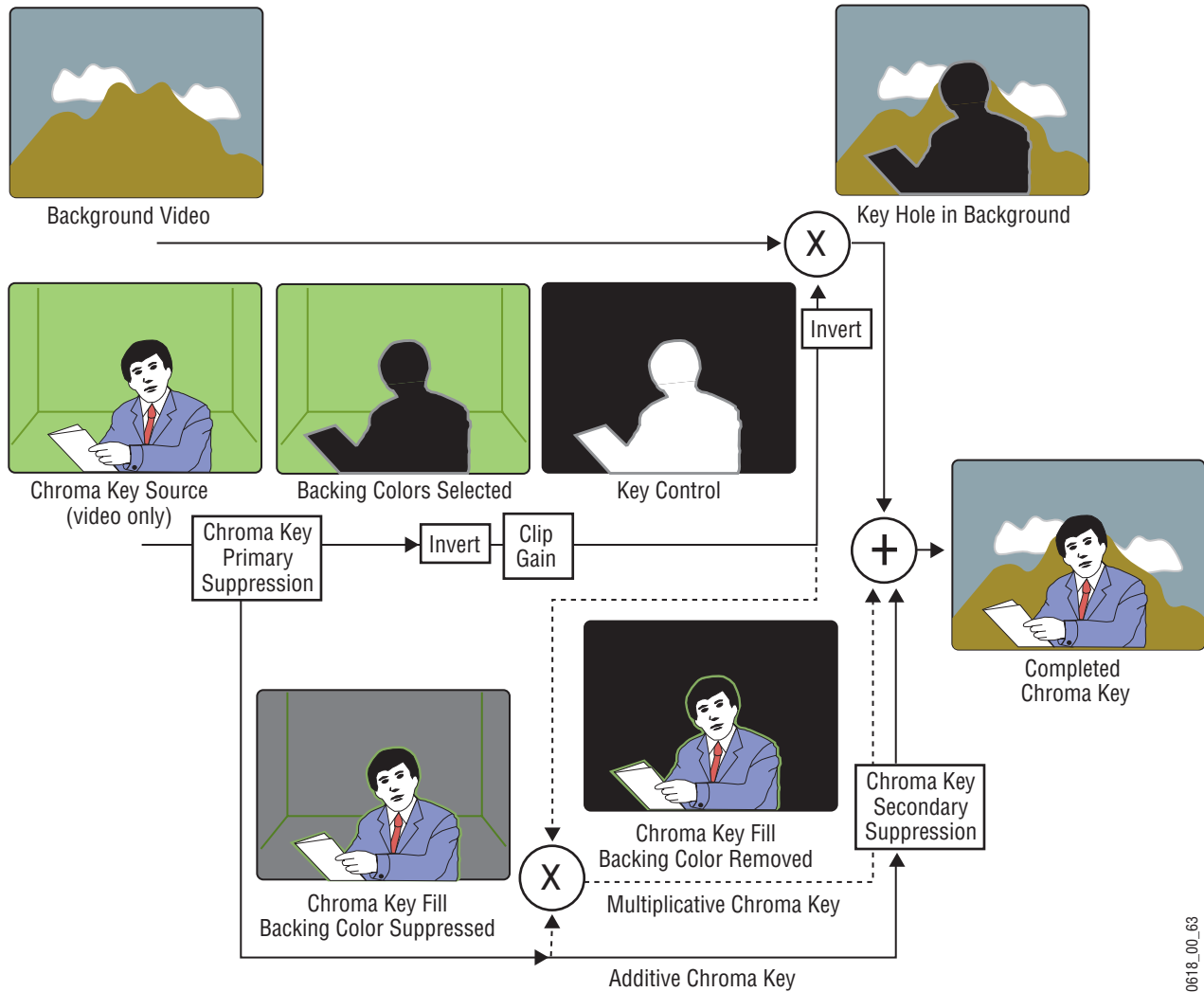


Clip and Gain (or Clip Hi/Lo) controls for luminance keys offer wide adjustment ranges. On the Kayak HD system, an S-shaping function is also applied to the edges of luminance keys.

Chroma Key

A chroma key is a key that detects color (rather than luminance) in a video image and replaces it with a new background. For example, a reporter may be in a studio sitting in front of a backdrop with a blue or green backing color, and the new background can be a mountain scene. The completed chroma key consists the mountain scene replacing the backing color, creating the illusion that the reporter is sitting in front of the mountain.

Figure 24. Chroma Key (Additive or Multiplicative)



The terms foreground and background are often a source of confusion when used for chroma keys. Foreground refers to the people or objects in a chroma key scene that are in front of the colored backdrop. Background refers to the scene that will replace the backing color (same as a linear or luminance key) in the final picture. Background does *not* refer to the backdrop of the foreground scene.

0618_00_63

Chroma keys are performed by suppressing the backing color in the foreground scene, cutting a hole in the background, and then combining the two processed signals. When conditions are ideal, complete suppression of the backing color is possible and the hole cut in the background will match the suppressed foreground, permitting these two signals to be added successfully.

This is called an additive chroma key (used when the Kayak HD system Foreground Reshaping feature is off). When conditions do not permit adequate backing color suppression, the foreground with its backing color suppressed can be multiplied by the keying signal to prevent contaminating areas of the background outside the keyed area. This is called a multiplicative chroma key (used when the Kayak HD system Foreground Reshaping feature is on). Setting up a successful chroma key setup involves many more adjustments than other keys. No amount of adjustment, however, can overcome problems caused by an improperly set up studio chroma key scene.

Primary and Secondary Color Suppression

As described above, chroma key primary color suppression replaces the old backing color with black before replacing it with the new background video. It usually has a very low selectivity and therefore suppresses a wide range of colors. The goal is to suppress as much of the backing color as possible without affecting foreground regions.

Secondary suppression is essentially a second chroma keyer that can be used to deal with areas where the backing color passes through some translucent portion of the foreground object, like smoke or liquid. This also includes hair since fine detail often mixes with the backing color. The goal of secondary suppression is to restore the natural color of the foreground object. In general, medium to high selectivity values will be used.

Primary and secondary suppression adjustments are used to select the hue to be replaced and for adjusting the luminance and chrominance levels in the areas of the picture where suppression is applied.

Flare Suppression

Flare suppression can be used to compensate for backing color reflected onto foreground objects, or for lens flare (backing color reflections within the camera lens). In these cases, the foreground object will take on a slight greenish or bluish tint. Flare suppression subtracts a slight amount of the primary suppression color from the foreground.

Chroma Key Shadow Generator

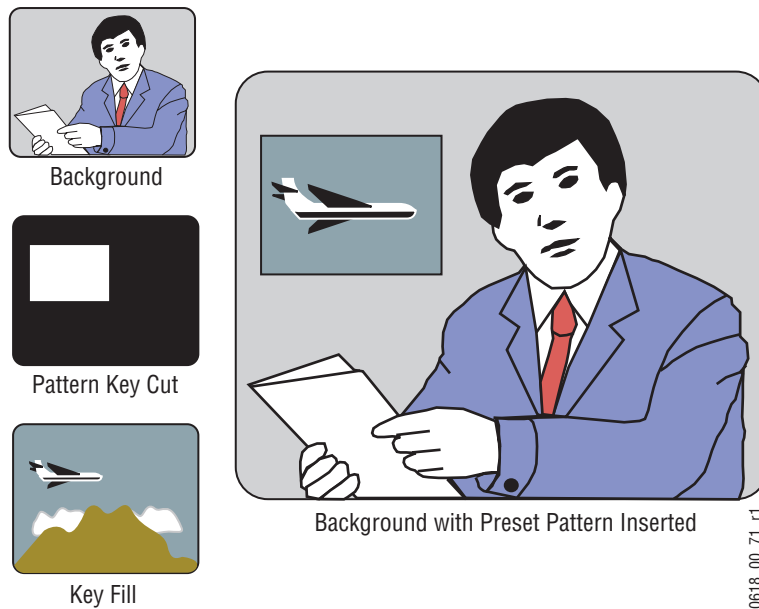
The Kayak HD system has a shadow generator that can be used to include shadows that fall on the backing area of the scene in the background.

Shadow offset, range, and density controls are also available that offer control over the placement and appearance of the added shadow.

Preset Pattern

A preset pattern uses a wipe pattern generator, rather than an incoming key cut signal to define the hole cut in the background. Key clip and gain controls are not available for a preset pattern, but controls over the location, size, border, opacity, and edge softness are available.

Figure 25. Preset Pattern



Split Key

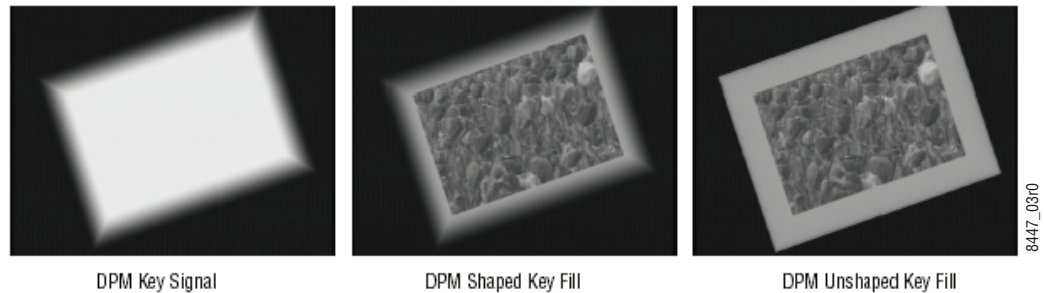
A split key uses an alternative key cut signal for keying. On the Kayak HD system, a key split is performed by holding down the **Key Split** button and selecting the desired key cut signal.

Split keys should normally treat the fill as unshaped since by definition a split key uses a fill that is not related to the cut; that means the normal mode for keying is Luminance or Linear Key Mode.

Properly and Improperly Shaped Video

The following illustrations show the results of using correctly and incorrectly shaped video. In these examples, the video fill comes from a DPM that provides both a key signal and a fill video signal (a linear key). The DPM's key signal, fill video that has been set as a shaped output, and fill video set as unshaped is shown in [Figure 29 on page 56](#).

Figure 26. Video and Key Signals from DPM



When the shaping is done properly (using either shaped (Additive Key) or unshaped (Luminance Key) key fill) the desired output is the result ([Figure 23 on page 51](#)).

Figure 27. Correctly Shaped DPM Key Example

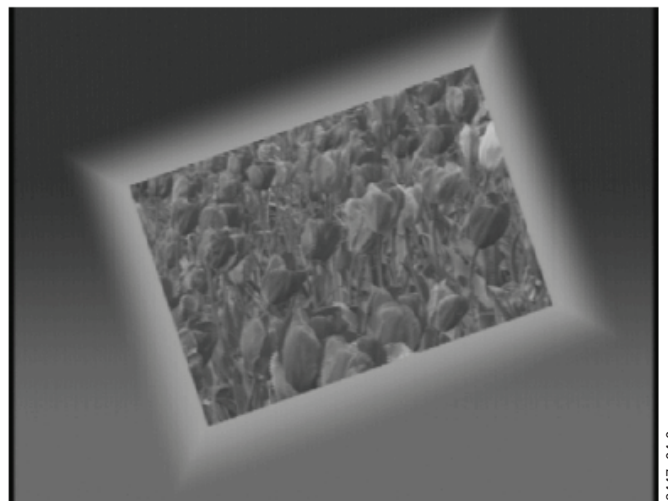
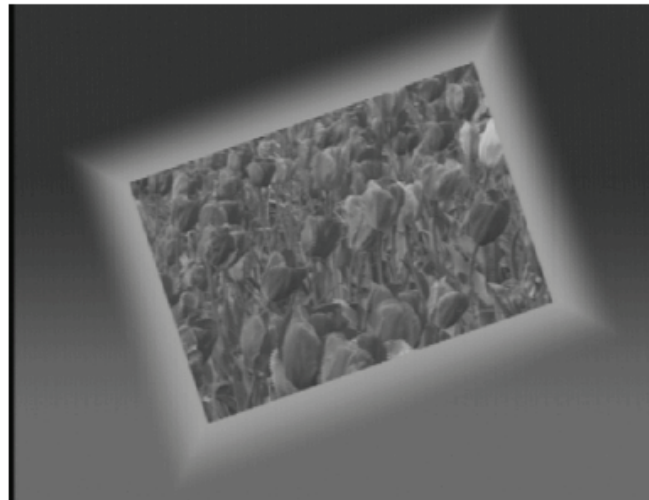
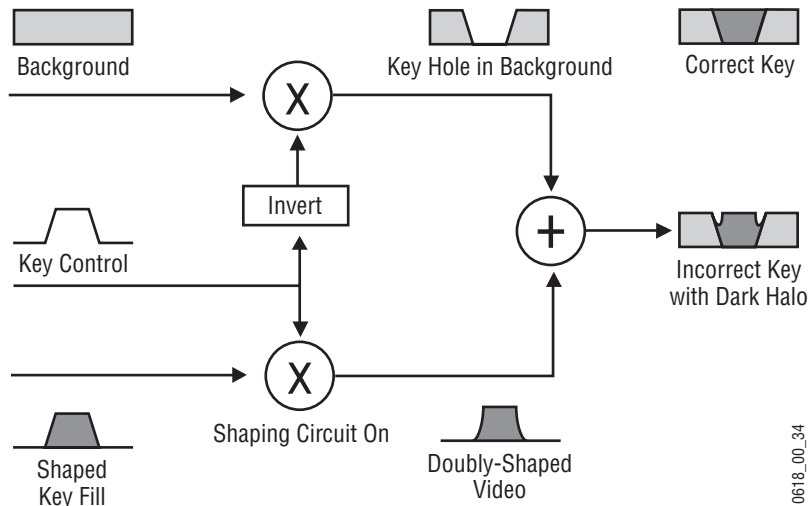


Figure 28. Incorrect Key with Dark Halo



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Figure 29. Incorrect Keying with Shaped Input

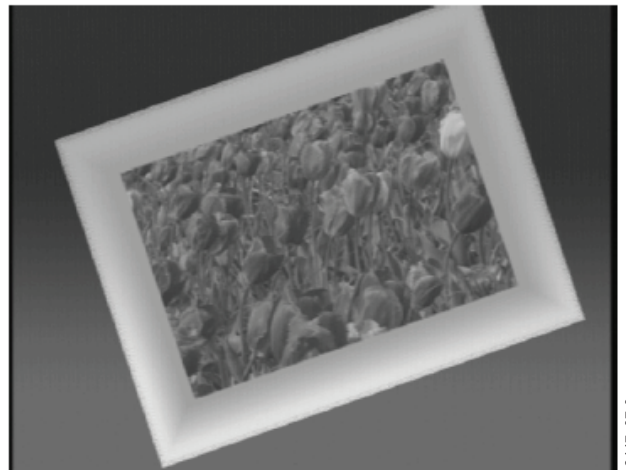


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In this case the shaped input is incorrectly shaped again, sometimes called a double-multiply. Luminance Key was used for shaped key fill signal.

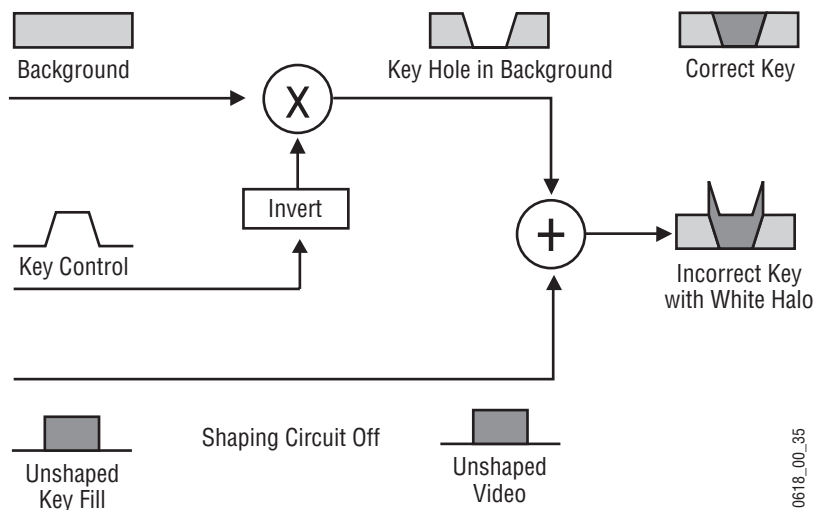
When the DPM provides an unshaped video output but the key is processed as though it were shaped, excessive luminance occurs where the key fill video and key hole edges overlap, producing a white halo around the key. Additive Key was used for unshaped key fill signal.

Figure 30. Incorrect Key With White Halo



In this case the unshaped video fails to be shaped at all.

Figure 31. Incorrect Keying with Unshaped Key Fill



Recognizing the appearance of improperly shaped video helps you know how to correct the problem should it occur.

Downstream Keyers (Half M/E and DSK Option)

Besides the four standard full-function keyers, an additional four simple (Linear and Luminance only) Downstream Keyers are available as an option (as part of the Half M/E and DSK Upgrade). These DSKs can be coupled to any M/E in the system to operate downstream of that M/E. The DSKs do not support chroma keys or DPM effects.

A Half M/E that provides additional mix and cut functions is also included with this option. Half M/E and DSK functionality cannot be used simultaneously, however.

Flexible Chroma Keyers

Additional Dual Chromatte flexible chroma keyers are also available as an option. Two chroma keyers are included with each option. Each chroma keyer can be flexibly assigned to any desired keyer in any M/E.

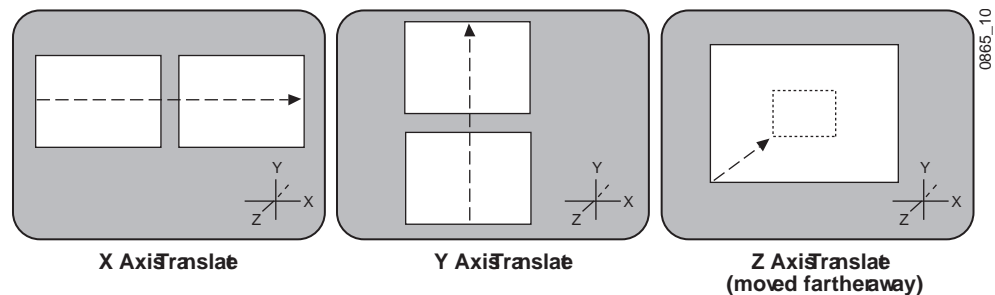
3-D Digital Effects Concepts

The Kayak HD Digital Picture Manipulator options provide 3-D planar image translation and transformation from within each M/E of the Kayak HD system. Image translation has special basic concepts and terminology you should understand in order to get the most out of using the option.

Translation and Transformation

Translation is a subset of transformation, and involves picture movement along the X, Y, and Z axis. The picture is simply relocated to a different place and does not change in actual size or shape.

Figure 32. Picture Translation



Transformation includes translation, and also includes these other functions:

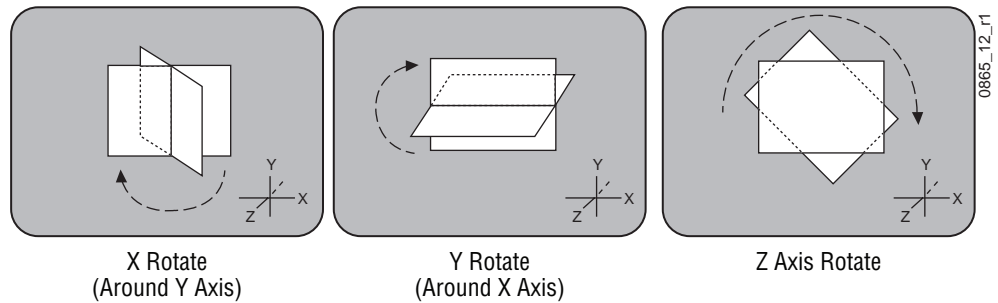
Size

Enlargement and reduction of the picture area while it remains in the same plane in 3-D space. This is different from picture translation in the Z axis, where the picture retains its original size, but appears smaller when moved away, and larger when moved closer.

Rotate

Picture rotation about the reference axis in the X, Y, and Z dimensions ([Figure 33](#)). Rotate is limited to \pm one half revolution, and will always take the shortest path to the new position. Rotate uses Quaternion math to calculate the move with increased accuracy. Multiple rotations are performed with the Spin function.

Figure 33. Rotate

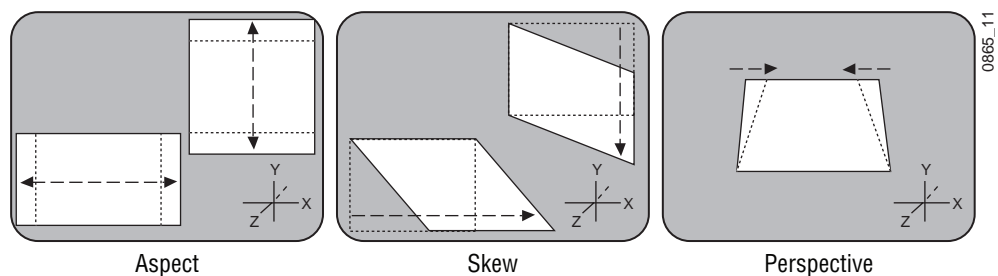


Spin

Supports multiple rotations about the reference axis in the X, Y, and Z directions. Spin supports fractional values, and is similar to Rotate when the move is less than \pm one half revolution. Spin uses Euler math to calculate the move, which is not quite as precise as Quaternion, but permits multiple rotations. Spin applies transform values in Z, X, Y order, so editing effects in this axis order provides the best control of the effect.

Note Following broadcast conventions, moving the Joystick forward or back along the Joystick's Y axis rotates the top of the picture forward or back (a rotation about the X reference axis). Similarly, moving the Joystick left or right along the Joystick's X axis rotates the side picture left or right (a rotation about the Y reference axis).

Figure 34. Aspect, Skew, Perspective



Aspect

Scaling the X or Y components of the picture. X axis changes affect horizontal size, Y axis changes affect vertical size ([Figure 34](#)). Z axis changes affect both X and Y dimensions, and is the same as Size.

Skew

Slanting the picture in the X (horizontal) and Y (vertical) directions (Figure 34).

Perspective

Changing the viewer's apparent viewpoint of a picture. This only applies when a picture is tilted so part of it is farther from the viewer.

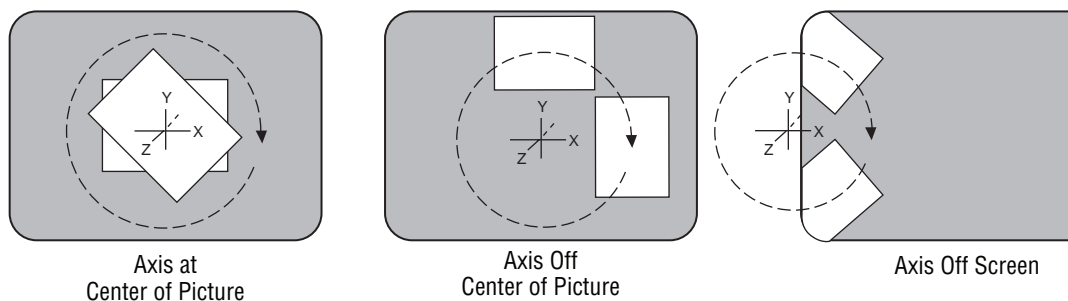
The farther portion appears smaller than the closer portion, and the amount of perspective controls how much smaller the distant part is (Figure 34 on page 59). Multi-channel perspective is discussed later in this section.

Axis Location

The axis location of the channel determines the center point of translations, spins, and rotations for that channel. You can move the axis to a new location to change the behavior of that channel. The axis location can be within or outside the screen area.

Z Axis Rotation at Different Axis Locations

Figure 35. Frame of Reference Axis Locations
DIFFERENT AXIS LOCATIONS



Source and Target Space

The Kayak HD Digital Picture Manipulator uses source and target space frames of reference.

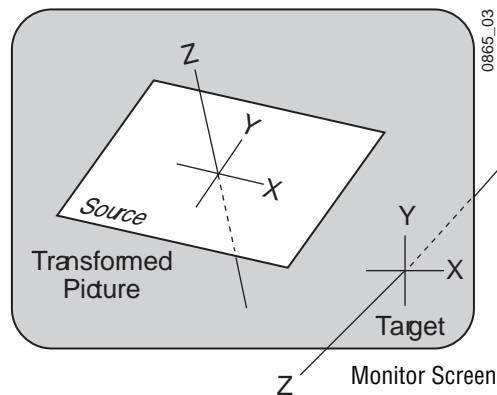
- Source space for a control channel uses that channel's coordinate system for reference.
- Target space for a channel uses the next higher level's coordinate system for reference.

Being able to use both source and target space can help make effects editing easier. One frame of reference may offer a simple and easy to understand context for a picture transform, while in another frame of reference the

same transform may be difficult to understand and control. Kayak HD Digital Picture Manipulator effects can also employ both source and target space directed transforms simultaneously, which can create complex and beautiful effects.

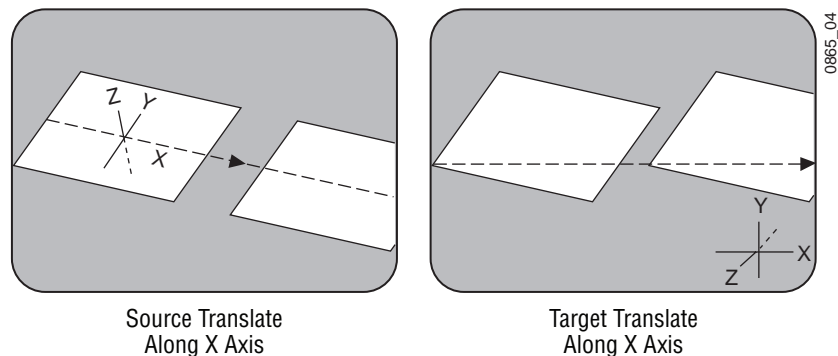
The simplest example for source and target space concerns a channel that has been rotated while the global channel remains unchanged.

Figure 36. Source and Target Space



In this example the source space for the channel is referenced to the picture itself (tilted back at an angle) while the target space is referenced to the monitor screen (straight). X axis translations will move this picture differently, depending on whether source or target space is being used.

Figure 37. Source and Target Space Translation



If the channel is controlled by a global channel, and the global channel itself has been rotated, an X axis translation will depend on whether the channel itself or the global channel is being manipulated, and whether source or target space is being used ([Figure 39](#) and [Figure 39](#)). Note that the target translate of the channel is the same as a source translate of the global channel.

Figure 38. Channel Translate with Global Rotated

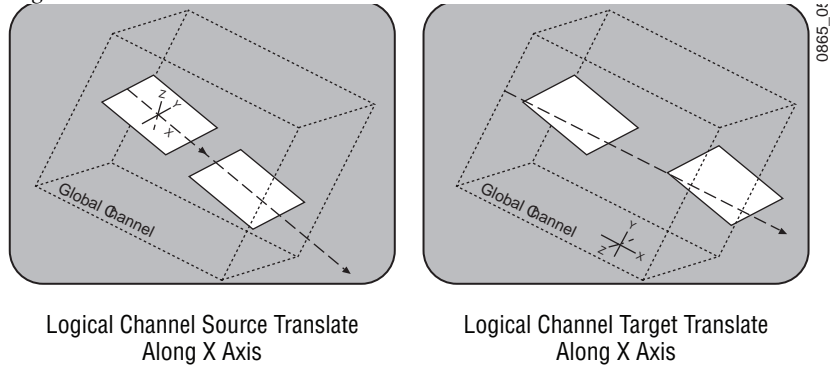
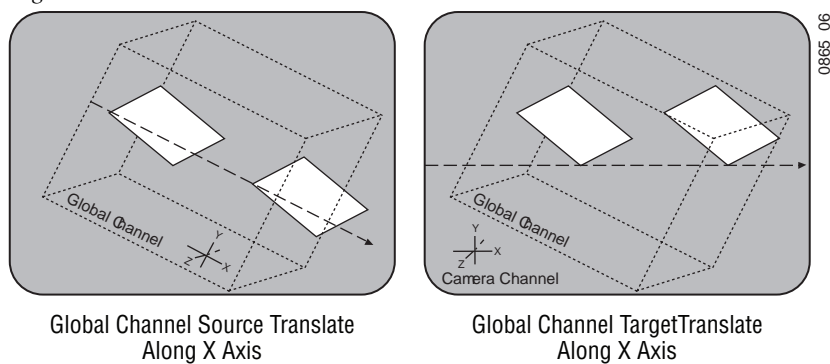


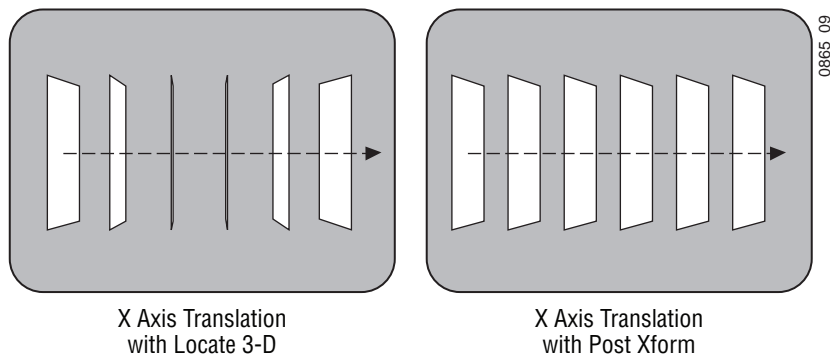
Figure 39. Global Channel Translate with Global Rotated



Post Transform Space

Post transform (Post Xform) is a special transform function that only affects size and location operations. It does not change the perspective of the image ([Figure 40](#)). This can be used as a convenient method to quickly project pictures onto new locations of the screen. For example, if an image has the right perspective but is partially off screen, it can be brought back on screen without changing the perspective.

Figure 40. Post Transform Translation



All post transform functions are made relative to the monitor screen frame of reference. For example, a positive X post transform always moves to the right side of the screen.

Front and Back, Near and Far

Pictures manipulated by a Kayak HD Digital Picture Manipulator have front and back sides, each of which is revealed in turn as the picture spins or rotates. After a picture has been translated it can be difficult to determine which side was originally on the front and which was originally on the back. This distinction can be important when, for example, different sources are being selected for different sides of an effect.

The Kayak HD system uses a Near and Far convention to ease system operation. Near is always the side of the picture that is visible (facing toward the viewer), and Far is the hidden side of the picture (facing away from the viewer). The current Near side can be either the front side or the back side of the picture, depending on orientation. For example, to change the source on the visible image, just change the Near side. To change the source on the hidden side, change the Far side. You don't need to know whether the image being changed is actually the front or back side.

Transform Numbering Systems

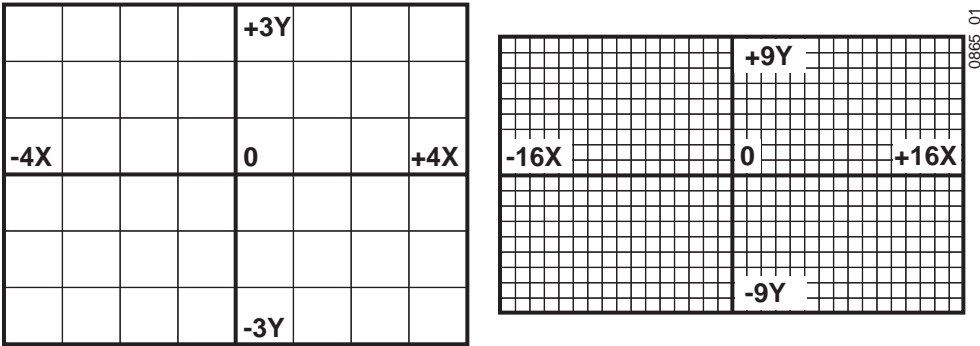
The Kayak HD Digital Picture Manipulator uses the following numbering systems to precisely define picture locations, picture size, and picture rotation and spin.

Screen Coordinates

The Kayak HD Digital Picture Manipulator accommodates two different aspect ratios, 4 x 3 and 16 x 9, selectable via the Video Standards menu. In 4 x 3 mode, the screen is six units high and eight units wide. In 16 x 9 mode, the screen is 18 units high and 32 units wide. The numbering system begins in the center of the screen, and has the standard horizontal X axis and the vertical Y axis (Figure 41). For simplicity, examples in this manual use the 4 x 3 aspect ratio.

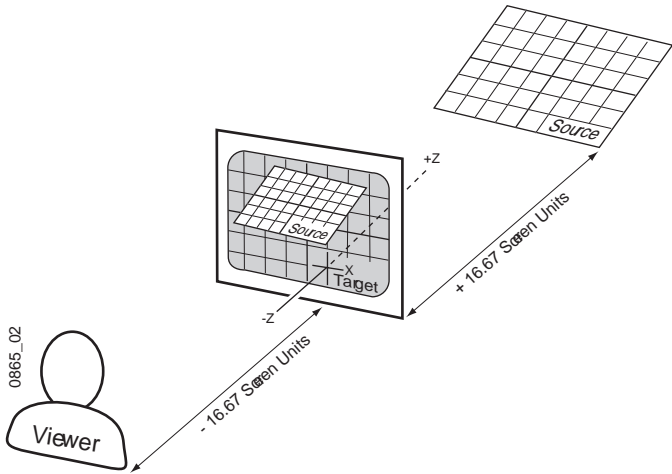
These coordinates can be used for monitor screen locations (channel target space with default global channel), or they can be applied to picture locations (channel source space).

Figure 41. Screen Coordinates



Screen units are also used to define Z axis dimension depth in 3-D space. Positive Z axis values are back behind the picture, and negative values are in front of the picture (Figure 42).

Figure 42. Viewer Location in 3-D Space



For perspective calculations the factory default viewpoint places the viewer -16.67 screen units from the monitor screen surface (4 x 3 aspect ratio). In this case, moving a full screen image 16.67 screen units back behind the screen makes the picture appear half its normal size to the viewer.

Size

Picture size is defined relative to picture screen units. A size of 0.50 indicates a picture is one-half its full size in linear edge measures. It is one quarter of its full size area.

Rotation

Rotation is measured fractionally with respect to 360°. A value of 0.25 indicates a rotation of 90 degrees; 0.50 indicates 180 degrees (maximum rotation).

Rotation values can be positive or negative, which determines the direction of rotation.

Spin

Spins are measured in number of 360° rotations (up to 999). Fractional spin values are also supported. A single axis 0.50 spin is the same as a single axis 0.50 rotation. Spin values can be positive or negative, which determines the direction of spin.

Skew

Skew supports values of ± 999 , though extreme values will probably rarely be used.

Aspect

Aspect values are in percentage of the original size, with 1.0 = 100%, 0.5 = 50%, etc.

Perspective

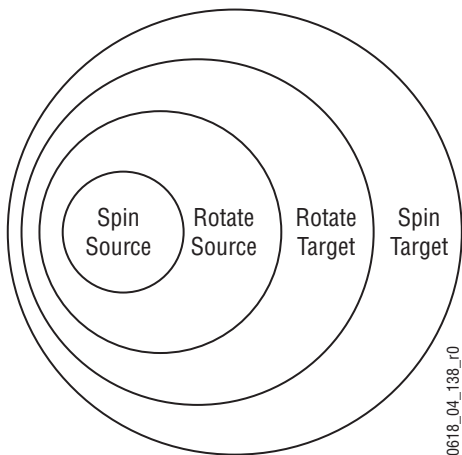
Perspective supports values from 0-100, with 0.06 as the default in 4x3 operation and 0.015 in 16x9.

Spin and Rotation Relationship

It is possible to use both Spin and Rotation at the same time in an effect. When both are used, the transforms are nested so that the values of one transform are applied after the previous transform values have been calculated.

This nesting provides increased control of the effect dynamics. Source and Target space also affects the transform nesting order.

Figure 43. Spin and Rotate Transform Nesting



Path Control

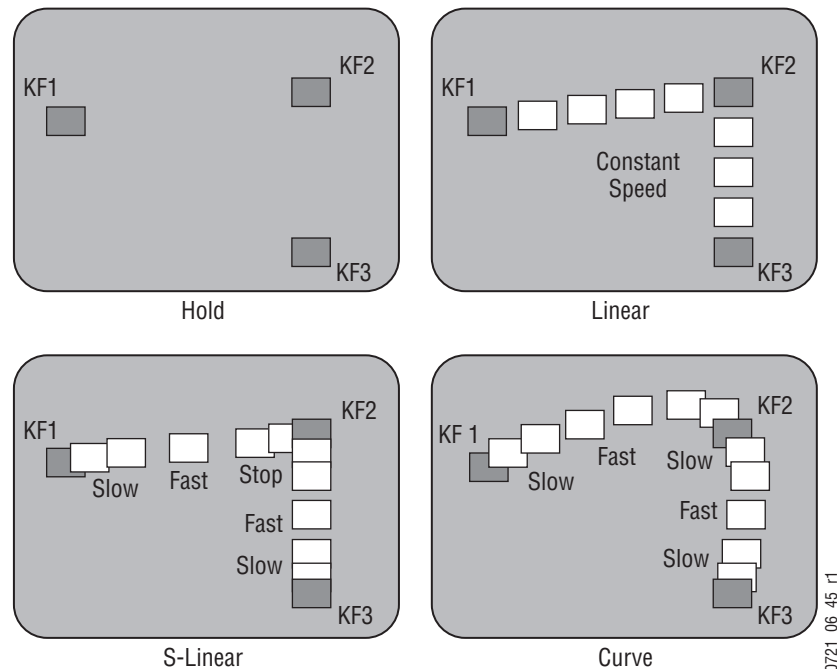
Paths

Keyframes specify parameter values at specific times in an effect. Most of the duration of an effect, however, occurs between these keyframes. The Kayak HD system interpolates parameter values between keyframes (in-betweening).

The trajectory, or path, a manipulated picture travels between keyframes is determined by how these in-between values are interpolated. The Kayak HD system offers you several path controls ([Figure 67 on page 100](#)):

- **HOLD** — No interpolation. Keyframes hold their values for their durations, then change all at once for the next keyframe.
- **LINEAR** — Applies a linear interpolation between keyframes; no acceleration or deceleration is applied. Movement is mechanical with a constant velocity.
- **S-LINEAR** — Applies a linear or straight line motion between keyframes, with acceleration and deceleration applied at the beginning and end of each keyframe. At each S-Linear keyframe the motion is stopped for two fields.
- **CURVE** — This selection causes a rounded path through the keyframe. Paths are user adjustable with path modifiers (tension, continuity, and bias) described below.

Figure 44. Path Types



The path concept can also be applied to functions that do not move a picture across the screen, like matte hue changes. For these functions, the rate of change of the parameter follows the same path types above. For example, an S-Linear hue rotation will accelerate and decelerate the speed of the hue change at the beginning and end of the keyframe.

Tension, Continuity, and Bias Controls

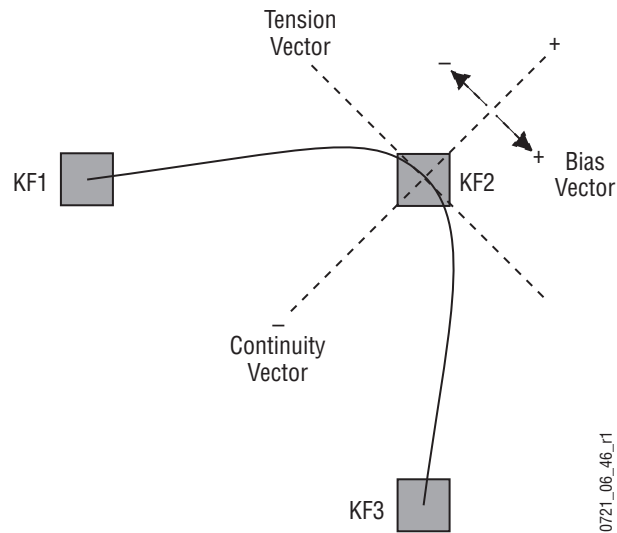
When the Curve parameter is selected, additional fine-tuning path controls become available:

- **TENSION** — Controls the length of the tension vector. At a setting of 0.0, this imaginary line extends an equal distance into and out of the keyframe, and the path through the middle keyframe is curved.
- **CONTINUITY** — Determines the angle of the path into and out of the keyframe.
- **BIAS** — Determines whether the path will be pulled towards the previous or the following keyframe. In the following examples, a physical path is shown between three keyframes. The first keyframe (KF1) is the upper left square; the last keyframe (KF3) is the lower right square. The adjustments in these examples are applied to the middle keyframe only (KF2).

Path Vectors

With respect to the path between keyframes, each keyframe is made up of three vector parameters as shown below. The soft knob controls act on these vector parameters to adjust the path into (entry) and out of (exit) the keyframe. The path through KF2 is parallel to an imaginary line drawn between KF1 and KF3.

Figure 45. Path Vectors



Vector Values

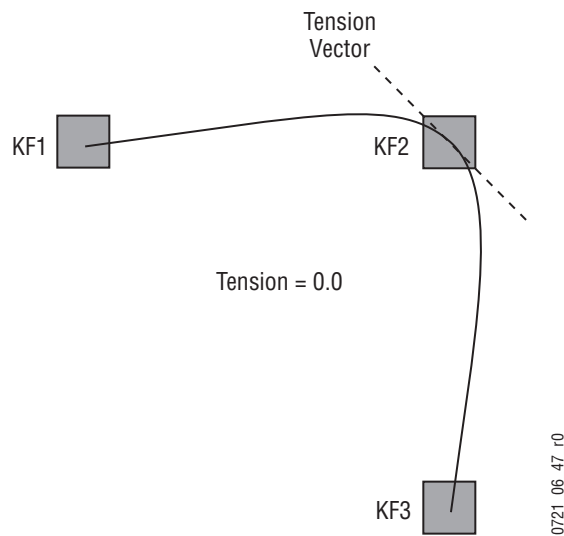
Path vector setting values of ± 1.0 are available, same as the Thomson Grass Valley Kaleidoscope DPM.

Tension Control

In the example below, the keyframes comprise a right angle, so the TENSION control operates on a 45° line drawn through the keyframe. This line is referred to as the Tension Vector and is parallel to a line drawn between adjacent keyframes ([Figure 46](#)).

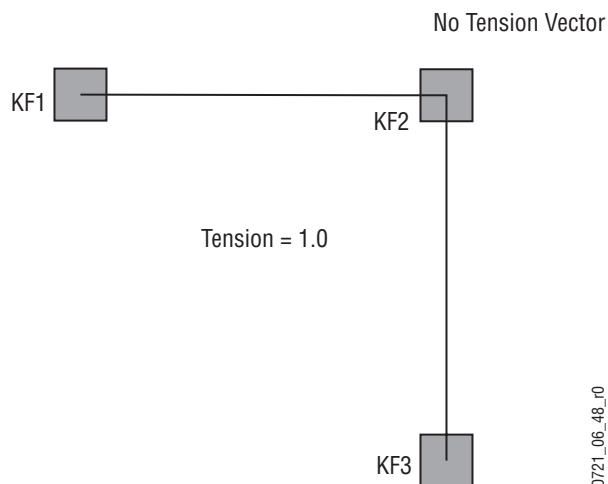
The TENSION soft knob controls the length of the tension vector. The length of the tension vector is inversely proportional to its parameter value. For example, at a Tension setting of 0 (zero), this imaginary line extends an equal distance into and out of the keyframe, and the path through the middle keyframe is curved. The unmodified KF2 is said to have a correction value of 0.0.

Figure 46. Tension Control Setting Zero



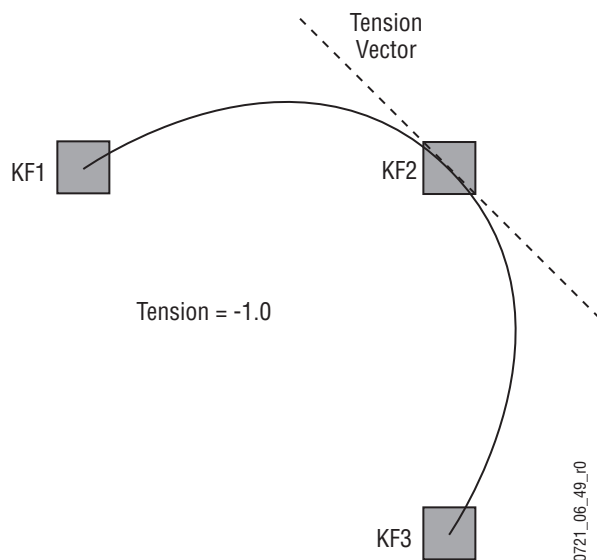
In the example below, the TENSION control is increased to 1.0, so that the Tension vector is shortened to non-existence through KF2 ([Figure 47](#)). The path enters and leaves the middle keyframe in a straight line as it takes on an S-Linear motion; decelerating as it enters the middle keyframe and accelerating as it leaves.

Figure 47. Tension Control Setting 1.0



In the example below, the TENSION control has been set to -1.0. This lengthens the Tension vector, causing the path through the middle key-frame to be longer and broader (Figure 48). The longer path will appear to make the image speed up through KF2 as it travels from KF1 to KF3.

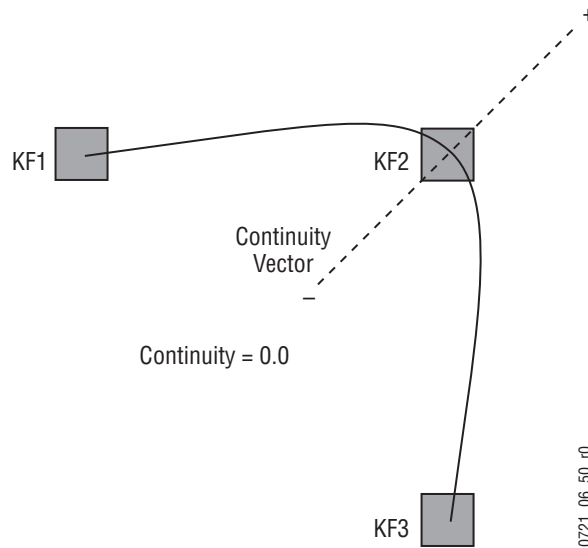
Figure 48. Tension Control Setting - 1.0



Continuity Control

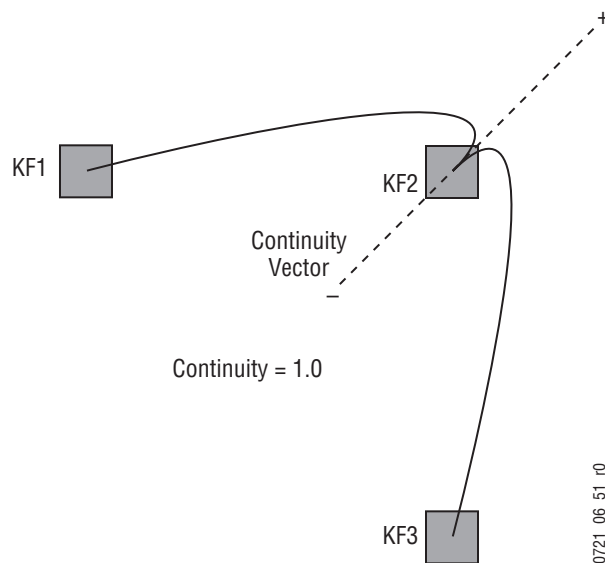
The continuity adjustment determines the angle of the path into and out of the keyframe. It is represented by a vector 90 degrees to the tension vector (Figure 49). The unmodified path shown is identical to the unmodified path of the other controls.

Figure 49. Continuity Control Setting Zero



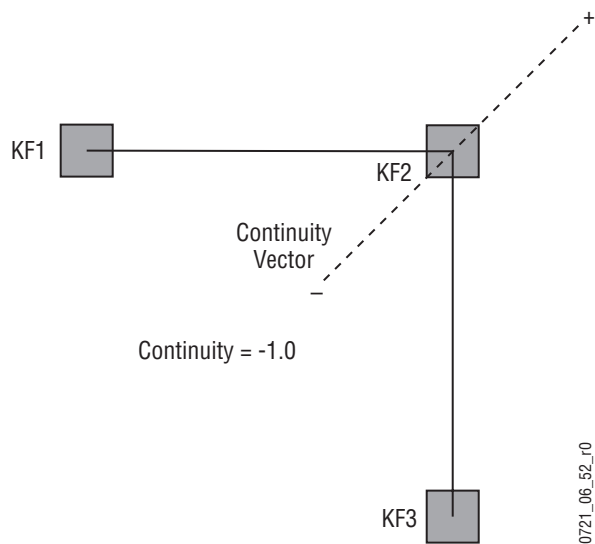
With continuity set to 1.0, the entry path through the keyframe is pulled positively along the continuity vector. The effect of 1.0 continuity is that of motion dropping into and then out of the keyframe, similar to a bouncing ball (Figure 49 on page 72).

Figure 50. Continuity Control Setting 1.0



With continuity set to -1.0, the paths between the keyframes become straight lines, accelerating into the keyframe and decelerating as it leaves the keyframe.

Figure 51. Continuity Control Setting - 1.0

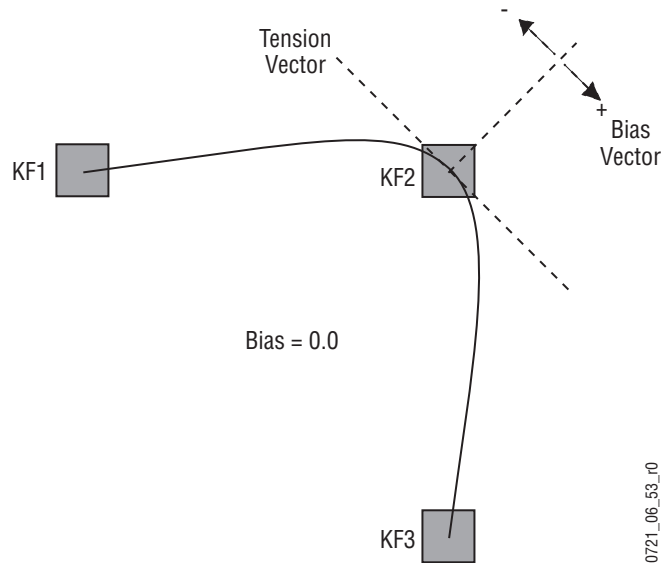


Bias Control

The BIAS control determines whether the path will be pulled towards the previous or the following keyframe. With extreme settings, all of the biasing will occur either before or after KF2. With bias set to 0 (zero), the curve through the keyframe is gentle as shown in [Figure 52](#).

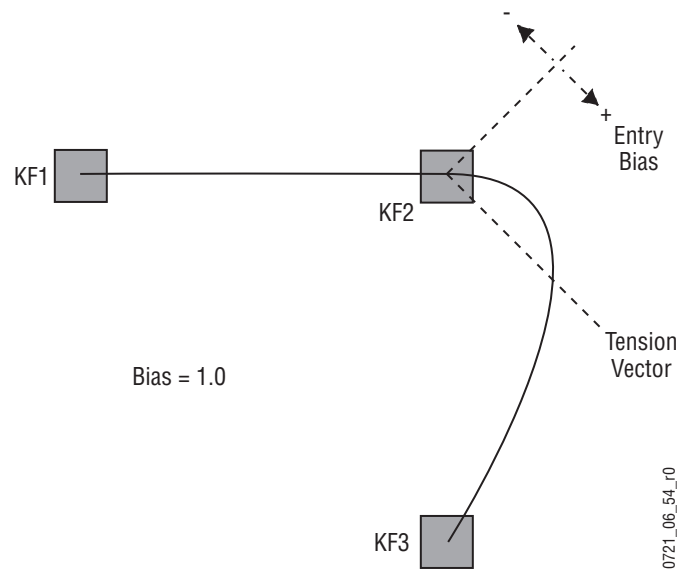
Note A Tension vector must be present for Bias control to be available.

Figure 52. Bias Control Setting Zero



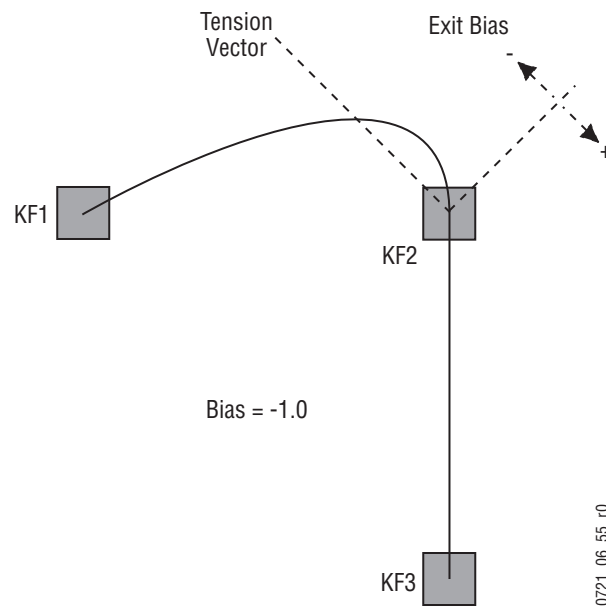
With the bias set to 1.0, the path is pulled towards the following keyframe. Entry into and exit from the keyframe is a straight line from the previous keyframe, and the path of the effect travels completely through KF2 before turning towards KF3.

Figure 53. Bias Control Setting 1.0



With the bias set to -1.0, the path is pulled towards the previous keyframe. Entry into and exit from the keyframe is a straight line to the following keyframe.

Figure 54. Bias Control Setting - 1.0



Sure Touch

Sure Touch changes the way in which effects behave during recall and playback, providing more control and flexibility. An effect can be safely recalled using two new modes which eliminate abrupt changes: hence the name Sure Touch is being used. When using a Sure Touch mode, the effect adapts itself to the switcher's current state. Upon recall of any effect, no changes are made to the current state, regardless of the nature or the composition of the effect. Then, when the effect is run, the relative changes from the interpolated effect are applied instead of the traditional absolute output. Only elements which changed over the course of the original effect are affected.

One way of thinking about safe touch is to think of it as running an effect in "relative" mode.

These changes can be applied in different ways, allowing the effect to interpolate on a path parallel to the original effect (**Parallel** mode), or on a path that converges the changing state smoothly to the actual end state of the original effect (**Converge** mode). A safe touch mode can be "forced on" just prior to recalling an effect, or it can be saved with the effect to be used automatically.

This feature changes the paradigm of control for effects, allowing effects to be applied under more flexible set of conditions and also to be used as specialized functions to perform specific actions.

Within the DPM timeline system, when an effect is first created, a snapshot of all values is saved. For any subsequent keyframes, only values which have changed are then saved. Those values that have changed are referred to as "bound elements" and are subject to interpolation as the effect runs.

When an effect is recalled in a sure touch mode, the current states of the bound elements are read by the timeline system. These values are compared with the original first keyframe (snapshot) of the effect, and an "offset" or "new zero" is established for each bound element of the effect. This "offset" is then applied during all subsequent fields of the effect. A new "offset" is established each time the effect is recalled. The result is that a "new effect" is established each time the effect is recalled.

The essential result is this: When an effect is recalled in a safe touch mode, only those values which underwent changes after the first key-frame of the original effect are touched, and only changes in values are applied.

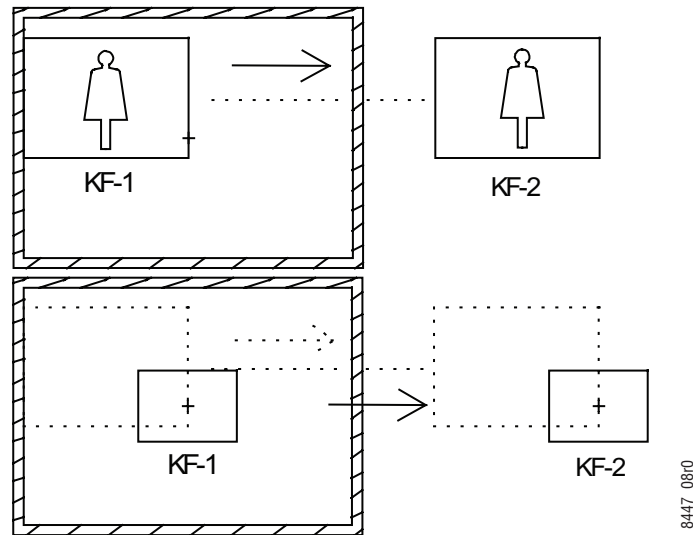
Parallel Mode Example

For example, suppose we have the following effect.

- Effect 3: The channel is at 50% size and on screen in the upper left. It is moved off screen to the right.
- Keyframe 1: locate X = -2.0, locate Y = 1.0, size = 50%.

Keyframe 2: locate X = 8.0.

Figure 55. Parallel Mode Example



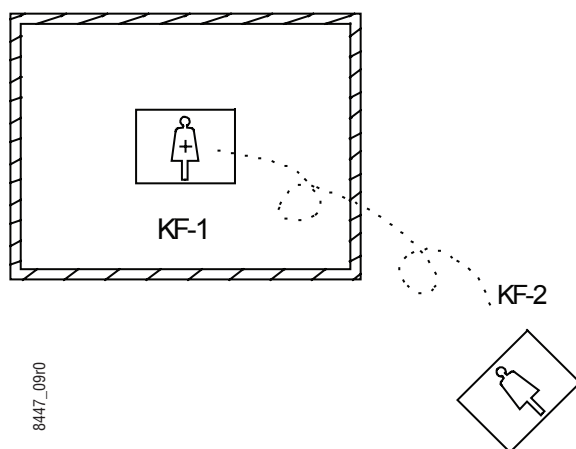
Now suppose that the image is centered and size = 30%. Next, effect 3 is recalled in sure touch “parallel” mode. The result would look like this:

Converge Mode Example

Sure touch converge mode begins in the same way as parallel mode, but the effect converges to the absolute end state of the effect over the course of the effect.

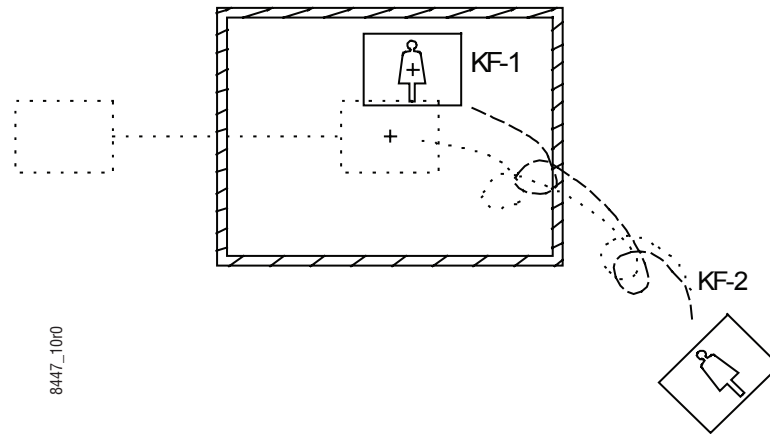
- Effect 2: Starts with the image centered and 30% size. Image is spun off screen to the right and down
- Keyframe 1: size = 30%
- Keyframe 2: locate X = 8.0, locate Y = -6.0, spin Z = 1.875.

Figure 56. Converge Mode Example



Now suppose the starting image is moved up and right and then effect 2 is recalled with sure touch “converge” mode. The result would appear as shown here. The effect converges towards the original effect over the duration of the effect. The final keyframe of the effect would set the location and spin Z to exactly the same values as in the original effect.

Figure 57. Converge Mode Example (continued)

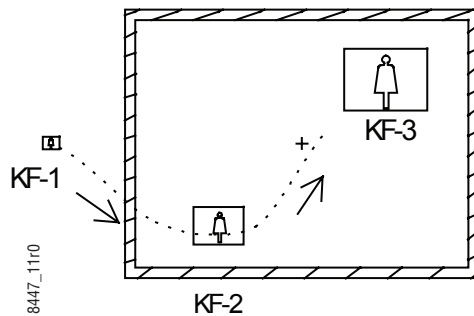


Comparing Parallel and Converge Modes

Suppose we have an effect 5 which is as follows:

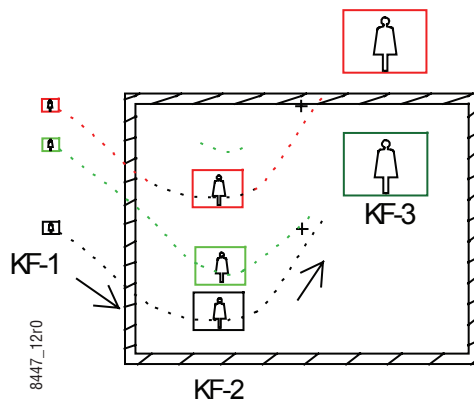
- Effect 5: The channel is 5% size, off screen to the left, and moves in a sweeping path towards the lower left screen and finally ending in upper right at 25% size.
- Keyframe 1: size = 5%, locate X = -6.0.
- Keyframe 2: size = 15%, locate X = -2.0, locate Y = -2.0.
- Keyframe 3: size = 25%, locate X = 2.0, locate Y = 1.5.

Figure 58. Comparing Parallel and Converge Modes



The result of moving the starting image location and recalling this effect in parallel mode (red) and converge mode (green) is shown here.

Figure 59. Comparing Parallel and Converge Modes (continued)



Obviously, there are ways to use sure touch which would create a bad result, as in the red case.

Control Panels

Overview Kayak HD-100 Panel

- Sources are selected in the crossbar section on the left bottom side of the panel.
- Basic key control, DPM / Ram / MP / E-MEM / MaKe selection and transition control are handled in the middle sections.
- The graphical menu in the top section allows full control and edit facilities.
- The positioner subpanel in the upper right provides easy positioning of DPM, wipes, and pattern keys.
- The separate **Cut/Auto** buttons in the bottom right section allow keyer control independent from the transition section.

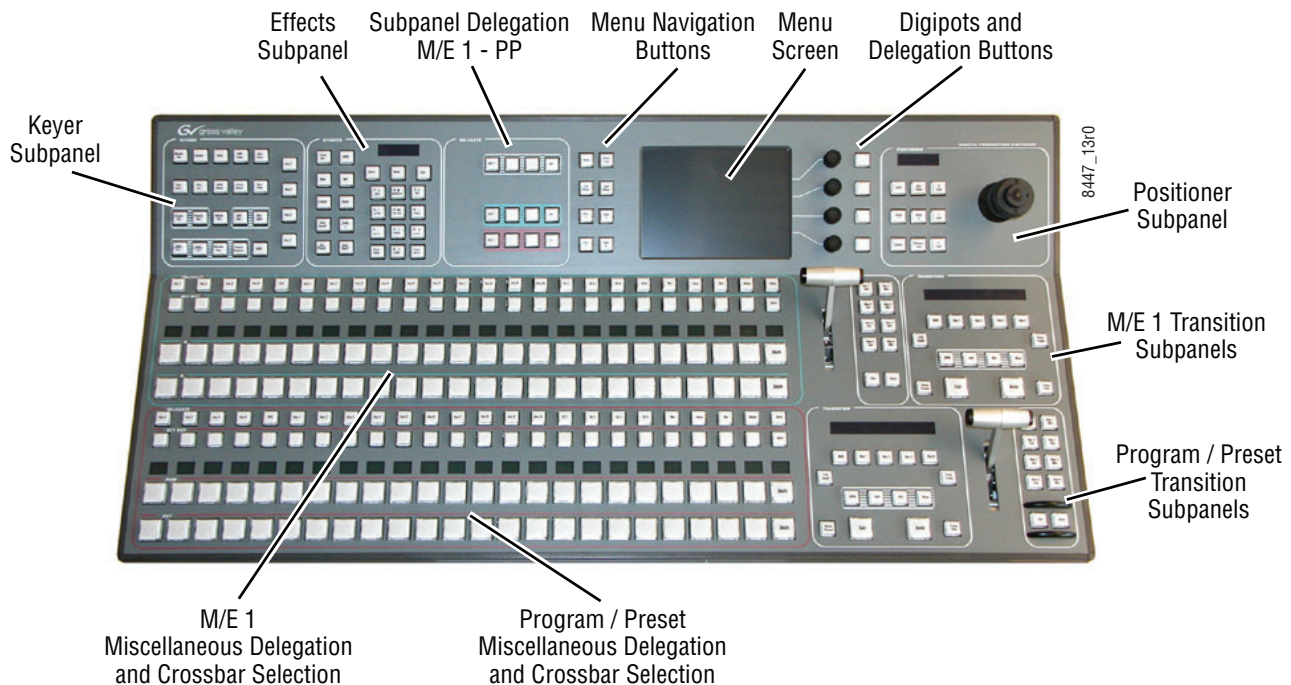
Figure 60. Overview Kayak HD-100 Control Panel



Overview Kayak HD-200 Panel

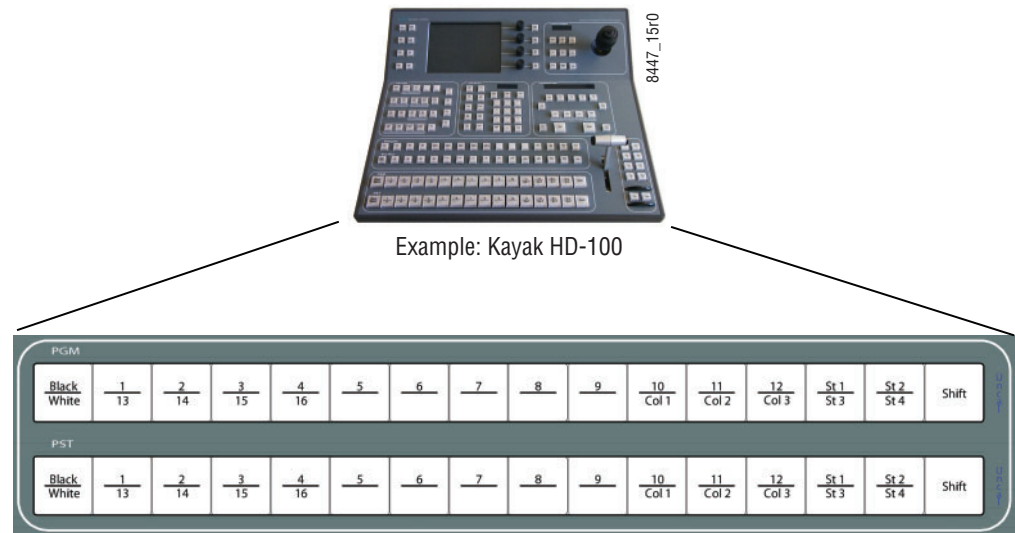
- The top section of the panel with Keyer subpanel, Effect subpanel, Positioner subpanel, Display and gadgets buttons can be delegated to M/E or P/P,
- Sources are selected in the M/E1 and P/P crossbar section on the left bottom side of the panel.
- The graphical menu allows full control and edit facilities.
- The positioner subpanel provides easy positioning of DPM, wipes, and pattern keys.
- Transition control for M/1 and P/P are handled in the right sections of the panel.
- The separate **Cut/Auto** buttons on the right of the transition lever allow keyer control independent from the transition section.

Figure 61. Overview Kayak HD-200 Control Panel



Background Bus Selection

Figure 62. Subpanel Background Bus Selection



Sources are selected on the PGM and PST row. Each row contains 15 source buttons and a **Shift** button. Only one source at a time can be selected for each bus on the row of interlocked buttons. If more than one button on a row is pressed, the last pressed one will be executed.

Holding down a source select button when recalling an E-MEM register performs a source override. That source will be held on that bus even if a register is recalled and/or run that specifies a different source as long as the source button is held.

Unshifted and Shifted Sources

When the **Shift** button is not pressed, the row of source selection buttons accesses inputs 1 to 12. When the **Shift** button is held down, it lights and the row of crosspoints now accesses inputs 13 to 16. If a selection is made on the shifted bus, the **Shift** button remains lit to indicate the tallied input is shifted. If another selection is made without holding down the **Shift** button, the row returns to an unshifted state and the **Shift** button light goes off.

Button and Bus Indications

On Air

Buttons involved in the output picture are indicated with a red.

Uncal / Asynchronous Sources

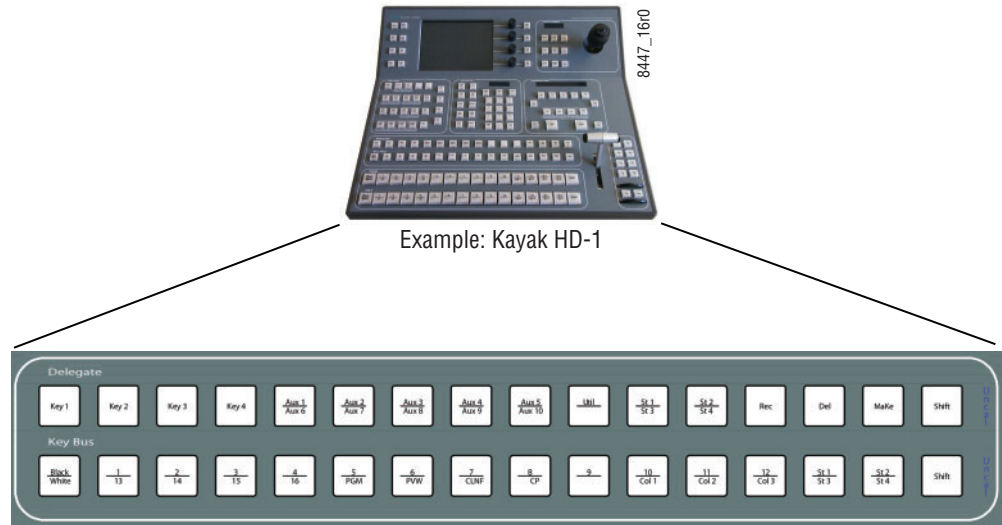
Asynchronous (non-synchronous) sources and color corrected sources are indicated by the **Uncal** sign on the right of the bus.

1. A blinking **Uncal** sign indicates an asynchronous source.
2. A constantly lit indicator indicates a color corrected source. This function is unaffected by the “Async Blinking” button, i.e. you still get a constantly lit indicator for a color corrected source when “Async Blinking” is turned off. Turning off “Async Blinking” completely disables the indication of asynchronous sources via the **Uncal** lamps. For details refer to the section on *Personal Settings Menus* [on page 184](#)

Note Asynchronous picture signals are instantaneously switched through by the switcher.

Miscellaneous Bus Selection

Figure 63. Miscellaneous Bus Selection



The top row of this section is the bus delegation row. Since there are more than 16 buses to be delegated, a **Shift** button is used to access the corresponding delegations. Within the bus delegation row the buttons can be unshifted and shifted in the same manner as the Background buses. Buttons which have a shifted layer are marked blue in the drawing above.

When a bus is selected in the bus delegation row, the currently selected source or the last recalled macro will light on the bus selection row. Selecting a different source / macro will change the bus selection.

Available Bus Delegations

Key1 – Key4

A button press in the bus selection row selects the fill signal and the coupled key signal for the corresponding keyer. This coupled key signal is defined in the key couple table in the setup menu. For use of a separate key signal see the description in the Key Section.

AUX1-AUX10

The AUX buses can be delegated in two groups, unshifted Aux1-Aux5, shifted Aux6-Aux10.

Utility

Selecting the **Util** button delegates the selection bus to be the Utility bus source selector. A crosspoint selected on the Utility bus can be used as a key signal.

Macro

Selecting the **Macro** button delegates the selection bus to be a set of macro function buttons. Only in Macro delegation the two buttons **Rec** and **Del** left to the **Macro** button (gray in the drawing) are active. Selecting a button in the bus selection row while holding down the **Rec** button starts recording a macro at that button position. Any previously stored macro at that position is cleared.

Selecting a button in the bus selection row while holding down the **Del** button deletes the macro at the corresponding button position.

Holding down the **Macro** button for longer than 2 seconds lights all buttons with active macros in the bus selection row.

While recording a macro you can insert a pause. To do so press **Rec** and **Del** simultaneously. Now you can enter the time for the pause using the key pad in the **Effect** section. The maximum pause time is 25.5 seconds. If you need longer pauses you can add more than one pause.

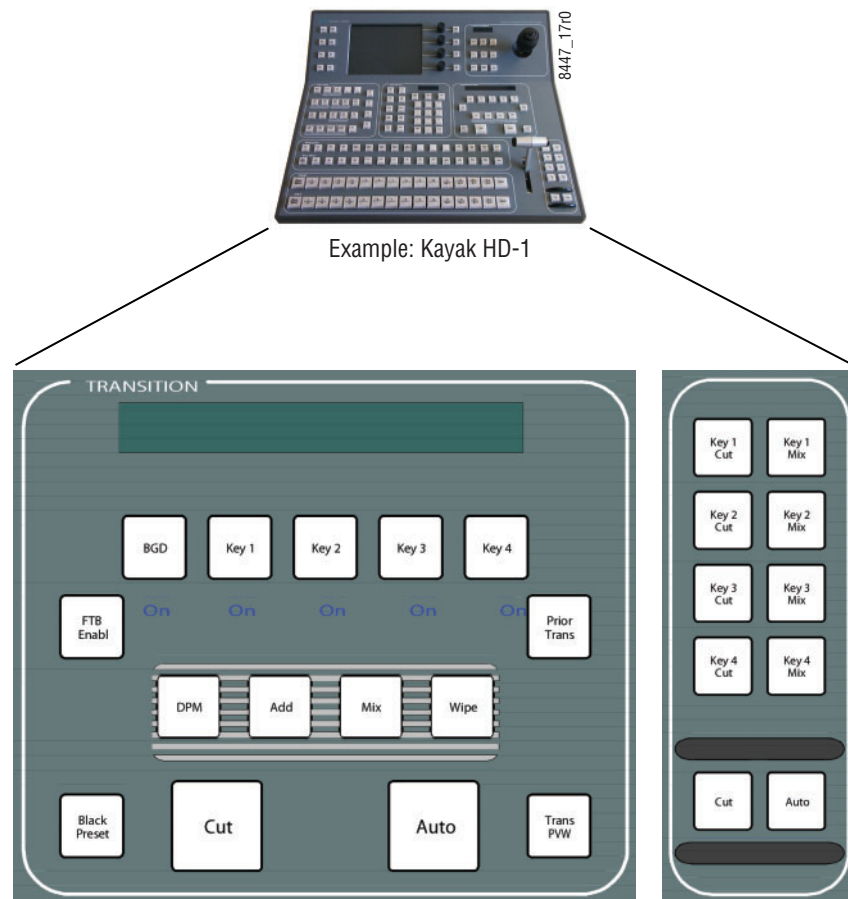
With macro delegation all 16 buttons serve as macro positions, that means, also the button labeled **Shift** is a macro button, allowing to record and play a total of 16 macros.

Within all other delegations, the bus selection row can be unshifted and shifted in the same manner as the Background buses.

Transition Control

Overview

Figure 64. Subpanel Transition Control



The transition control is performed in 3 sections.

- Main Transition Subpanel with all main controls for transitions
- Transition Lever Arm (Fader) for manual transition control
- 2nd Transition Subpanel with separate cut/mix per keyer and fade to black

Main Transition Subpanel

The transition controls are used to select the signal elements that will be involved in the transition (background or keys), define the type of transition, and perform the transition.

Second Transition Subpanel

These transition controls allow the operator to cut or mix the separate keyers with individual transition times. The **Cut** and **Auto** buttons at the bottom or used to cut or auto trans Fade to Black.

This Fade to Black function can be enabled with the **FTB Enable** button in the Main Transition Subpanel.

Note In a later software version the **Fade to Black**, **Cut**, and **Auto** buttons as well as most buttons of the Main Transition Subpanel will be user-programmable.

Transition Elements

The **Key 1 – 4** and **BGD** buttons select the elements that will change during the next transition. Pressing these buttons does not change the current output of the switcher, but prepares for a change (the next transition).

Pressing one transition element button automatically turns off the others in this group. More than one transition element can be selected by holding down one button while pressing another in the group. Elements not selected remain in their current state when the transition is performed. For example, if **Key 1** is on and is not selected as part of the next transition, it will remain on during and after the transition.

The **BGD** button selects a change in the background buses. The result will be a transition from the current source on the PGM bus to the source selected on the PST bus. After the transition, the buses will flip flop, so the PGM bus always remains the on-air bus. The PGM bus selection remains the background source if this button is not selected as part of the next transition.

The **Key 1-4** buttons selects the keyers that will be involved in the next transition. The keys currently visible on the output of the switcher are identified by the **On** indicator lights below each button. Note that a key may be on but not visible (for example, half way through a preset black transition).

The **Prior Trans** button selects a change in the key priority. The layering order (stack) of the keys will transition from the current stack to a new stack specified by the operator. The new key priority stack is defined using the Keyers subpanel or via a menu.

Transition Types

The **DPM**, **Mix**, and **Wipe** transition type buttons select what type of transition will be used on the elements selected above for the next transition. Pressing these buttons does not change the appearance of the current output of the switcher. Only one transition type can be selected at a time.

- The **DPM** button is only available for Key Transitions. If the Background is selected for next transition in combination with keyers, the background will perform an add/mix/wipe transition, depending on the last transition type selected prior to the DPM selection. This type will be indicated in the display above the **BGD** button.

The behavior of a **DPM Key Transition** is as follows:

In a mix/wipe transition the **Lever Arm** or the **Auto Trans** control the video amount of the keyer. In a DPM transition the **Lever Arm** or the **Auto Trans** control the timeline of the DPM effect selected for this keyer.

When the key was off at transition start, the video amount of the keyer is fully switched on at transition start, allowing to fly the key in.

When the key was on at transition start, the video amount of the keyer is fully switched off at the end of the transition, allowing to fly the key out.

Note The DPM effects used for transitions should be build in a way that the last keyframe is out of screen or size zero.

- The **Mix** button selects a mix as the next transition.
- The **Wipe** button selects a wipe as the next transition. Each wipe is pre-defined using either the complex wipe generators or the Utility buses as the wipe shape. Wipe pattern selections are made in the Wipe menu.

Note Additive Mix transitions, intended to be selected with the **Add** button, are not supported in v6.8.6 software. The Add button will illuminate when pressed, but no change in operation results.

Performing Transitions

The **Cut** and **Auto Trans** buttons and the Transition Lever Arm are used to perform main transitions. After a transition completes, the background source selections flip-flop, readying the PST bus for the next source selection. The progress of a transition is indicated by the up and down arrows to the left of the lever arms.

The **Cut** button instantaneously replaces the selected elements with their new sources or states, regardless of the transition type selected. The button will light briefly to confirm the operator's action.



The **Auto Trans** button starts an automatic transition of a predetermined rate. The button will light during the transition. Pressing **Auto Trans** a second time during a transition stops the transition at that point. The transition can then be completed by pressing the button a third time or by moving the **Transition Lever Arm** to its opposite limit.

The **Transition Lever Arm** is used to manually perform a transition. You can move the lever in either direction to run a transition due to the flip-flop architecture of the buses. Moving the lever from one limit to the other performs a complete transition. It is possible to start a transition with the lever, then stop moving the lever at any point, reverse its direction, and even return it to the original limit without completing the transition.

If the **Transition Lever Arm** is not in an end position when recalling an effect or performing an **Auto Trans** the lever arm is resynced by recalculating the resting lever arm way to complete the transition in the direction of the arrow. Moving the lever arm in the opposite direction allows the operator to resync the arm to an end position without affecting the output signal.

Preset Black

The **Preset Black** button modifies a main transition so that it will go through black, instead of going directly to the new state. This is an alternate action button (pressed to turn it either on or off). The **Preset Black** button lights when it has been selected.

Two successive transition commands (**Auto Trans** button,   button, or Transition Lever Arm action) are used for a complete preset black transition.

The first command transitions the switcher to black (first stage). When in black, both the PGM and PST bus selections will go low tally. The second command transitions from black to the final stage, completing the preset black transition.

The preset black function is canceled automatically at the end of the second transition.

The transition type can be changed when the M/E has reached its first preset black stage, allowing for example a wipe to and a mix from preset black. While in preset black, the key ON indicators report the states the keys will have when the second transition command completes. The keys involved can be changed at this time, if desired. The source on the PST bus can also be changed while in the preset black stage.

A preset black transition can be canceled by pressing the **Preset Black** button a second time. If cancelled while at the preset black stage, the system will switch back the original signal. Pressing a source button on the PGM bus will also cancel a preset black transition. The source pressed on the A bus will immediately be placed on air without any keys, even if the next transition had specified key changes.

Transition Preview

The transition preview feature allows a main transition to be previewed without affecting the program output. A transition preview cannot be performed if the Transition Lever Arm or main transition is off limit, if an auto transition is in progress, or when Preset Black has been selected.

Pressing **Trns Pvw** routes the main transition video to preview output and disables program transitions on that M/E, leaving the existing program output unchanged. Pressing **Auto Trans** or moving the Transition Lever Arm with **Trns Pvw** active will show the transition only on preview, allowing the setting of wipe parameters or adjusting auto transition times before actually performing that transition. Transition preview overrides whatever preview mode is currently selected.

Transition preview may be canceled at any time by pressing the lit **Trns Pvw** button. If an auto transition preview is in progress, it will be aborted. If the transition lever arm was used for the transition preview, canceling the preview part way through will cause the lever arm to resync by recalculating the resting lever arm way to complete the transition in the direction of the arrow. Moving the lever arm in the opposite direction allows to resync the arm to an end position without affecting the output signal.

Transition Rates

Auto transition rates are set using the **Trans Rate** button and keypad located on that Effects subpanel.

When the **Trans Rate** button is pressed, the **Auto** button in the Main Transition subpanel and the four **Key 1-4 Mix** buttons and the **Auto** button in the 2nd Transition Subpanel will flash and the Effects readout prompts for the rate to be set.

Pressing one of the flashing buttons delegates the Effects keypad to that transition rate and its current rate appears on the readout. A time entry is then expected on the keypad in seconds, frames, field format.

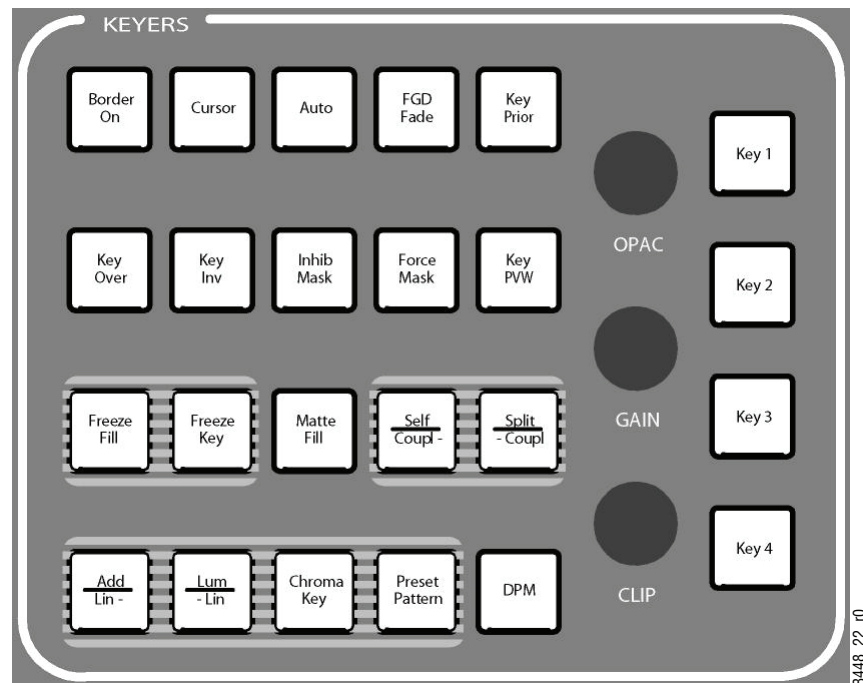
Other Transition Control Interactions

The Transition Lever Arm can be used in combination with the **Auto Trans** or **Cut** button to perform a main transition. For example, you can start the transition

by moving the lever off its limit, and finish the transition by pressing **Auto Trans**. Moving the lever part way, then pressing **Cut** will complete the transition with a cut. The lever arm will be resynced by recalculating the resting lever arm way to complete the transition in the direction of the arrow. Moving the lever arm in the opposite direction allows to resync the arm to an end position without affecting the output signal.

DD Mode Keyer Subpanel

Figure 65. Subpanel Keyers (DD Mode)



Key 1...4

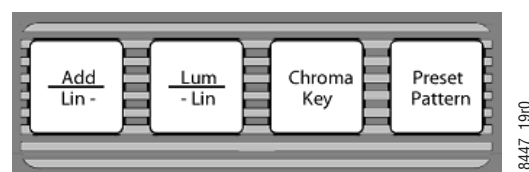
These buttons delegate the Keyers Panel and indicate which keyer is currently delegated to the Keyers Panel.

Due to the **Auto delegation** the keyers panel is automatically delegated to the appropriate keyer when it makes sense.

When **Auto Menu** is enabled, the menu display of the attached side panel will switch to the appropriate **Key Menu** and sub-menu. Parameter adjustment is performed by the menu digipots.

Key Types

Figure 66. Key Type Buttons



Note The **Add Lin** and **Lum Lin** buttons allow selecting three different operational modes (see below).

The buttons are lit as follows:

Table 1. Table: Key Functions

Key Function	Add / Lin (Lin Key)	Lum / Lin (Lum Key)
Additive key	YES	NO
Multiplicative key Gain = Unity	YES	YES
Multiplicative key Gain <> Unity	NO	YES

Add Key

The **Add Key** button serves to select the additive key mode. In this mode, an external unit (e.g. modern caption generators, paint systems) generates and supplies the key signal and the associated fill signal.

The background signal is multiplied with the key control signal and added to the supplied fill signal. This mode ensures that the supplied fill signal is not influenced and that all details contained in it are reproduced true to the original.

Note Please note that the supplied fill signal must be on top of a black background. Otherwise, the addition of the signals will yield a discolored *background signal*.

Lum Key

The **Lum Key** button selects the luminance key mode. The key control signal is derived from the luminance component of the key source signal. The key control signal controls the transition between background and foreground (=fill) signal.

Lin Key

Pressing the two buttons **Add / Lin** and **Lum / Lin** sets the luminance key to a linear mode. The key control signal corresponds to the non-amplified and unlimited luminance signal.

Preset Pattern Key

The **Preset Pattern** button selects Preset Pattern, which cuts the hole in the background using an internal wipe pattern generator (or Utility Bus video), rather than a source's key cut signal.

Wipe pattern selection and other preset pattern adjustment such as softness of the preset pattern edge and size of the preset pattern shape can be adjusted in the Wipe menu. The Joystick in the Joystick subpanel, when properly delegated, controls the location of the preset pattern on the screen. The Preset Pattern and Masking features share common keyer hardware. When a Preset Pattern is being used by a keyer, masking will be disabled for that keyer.

Key Sources

Matte Fill

The **Matte Fill** button serves to select a color matte as a fill signal for the respective key in place of the Fill bus signal.

Self/Couple Key Button / Split/Couple Key Button

When the Miscellaneous Bus is delegated to a keyer, a source selection always selects the Fill signal for the corresponding keyer.

The **Self/Couple** and **Split/Couple** buttons define the way in which the key signal is selected.

If Self/Couple Key is selected, the selected Fill signal is also used as key signal.

If Split/Couple is active, a selection of the Fill signal does not change the key signal. To select the Key signal, hold down the **Split/Couple** button and select the key source on the Miscellaneous Bus.

Note If you want to see in Split Key mode which source you have selected as key source, press Split/Couple Key. The Key Buses row will indicate the source as long as the button is held down.

If both of the two buttons are active, the selection is done in coupled key mode.

In Coupled key selection mode, the operator selects a Key Fill source on the Key Buses row and the switcher automatically selects the Key Source signal using the Coupled Key table.

The Coupled Key table is defined in the menu.

The default table entry for Coupled Key is **White**. For DVEs, character generators, graphics, etc., the input where the Key signal from such an image source is connected should be coupled to the input where the video signal is connected.¹

Table 2. Overview Key Selection Mode

Key Selection Mode	Indication	Operation
Identical	Self Key is lit	Select Fill and Key source together
Coupled	No button lit	Select Fill source and the Coupled Key input as Key source
Split	Key Split is lit Key Split is not pressed	Select Fill source
Split	Key Split is lit Key Split is pressed	Select Key source

Strategy for Manual Chroma Key Setup.

1. Turn Selectivity to minimum
2. Set Clip Lo/Hi to “midrange values” (we recommend Clip Lo/Hi, but it is also possible with Clip/Gain)
3. Set primary suppression CHROMA to max.
4. Set Primary suppression LUM to min.
5. Turn primary suppression HUE until the background (the key color) becomes very noisily affected. Adjust for maximum.
6. Increase the Selectivity until the background is completely keyed off but foreground stays unaffected.
7. Adjust CHROMA and LUM (primary) so that the background color and luminance appears as in the original.
8. Adjust Clip Lo/Hi. Adjust Clip Lo to make the foreground opacity and adjust clip Hi to suppress noise/shadows in the background. To help with this adjustment, turn on Show Key using the KEY PVW button.
9. If necessary, start tweaking as after and AUTO adjustment

Automatic Key Adjustment

Auto

The **Auto** button serves to start various automatic functions in the different key modes.

- In **Add Key**, the key control is switched to 1:1 transfer so that key signals e.g. from the caption generator are effective without change.
- In **Luminance Key**, clip and gain are adjusted so that the key source signal is amplified to become a full-range signal with minimum of 0% and maximum of 100%.
In **Linear Key** clip and gain are set to unity.
- In **Chroma Key**, the **Auto** button starts an automatic key adjustment.

Note After all automatic key adjustments, the corresponding parameters may still be changed manually.

Automatic Chroma Key Adjustment

The first step of setting up most chroma keys is to use Auto Setup. Auto Setup automates the first steps to achieving a chroma key. Auto Setup performs the following:

- Calculates primary suppression Hue and Luminance.
- Sets primary suppression Selectivity and Chroma to defaults.
- Calculates Clip Low, and sets Clip Hi to default.
- Sets all the secondary suppression values to duplicate the primary suppression values, but turns secondary suppression off.
- Changes Opacity temporarily to 100% to permit an accurate backing color sample, and then returns it to its original setting.
- Sets Key Position and Size values to default (0).

Two different Auto Setup algorithms are available, one for well designed and lighted sets (**FGD Fade off**), and the other for more challenging sets (**FGD Fade on**). Depending on individual circumstances, additional manual adjustments may be required after you use Auto Setup.

After an Auto Setup has been initiated by pressing the **Cursor** button, you can cancel it by pressing the **Cursor** button again, but the chroma key will retain the default settings imposed.

If the result of the Auto Setup is not satisfactory, further fine tuning can be made in the chroma key menu as described below:

1. Adjust Selectivity to ensure that no foreground color is affected by the keying process

2. If there is still some transparency left. Adjust Clip Lo to make the foreground opaque and adjust clip Hi to suppress noise/shadows in the background. To help with this adjustment, turn on Show Key (aka Key PVW b/w) using the KEY PVW button.
3. Adjust Flare suppression if needed, to reduce flare created in the camera lens.
4. Adjust Foreground (secondary color) suppression if needed, due to direct reflections in foreground objects.

Border On

The border function enables the user to provide the key signals with a border effect which can be adjusted individually.

The border selected in the Keyer menu can be switched on with the **Bord on** button. For further information please refer to the sections Key Menu. The border functionality is not supported in the first software releases.

FGD Fade

If the set is lit unevenly or has other problems, FGD Fade is available to help solve the problem. A better alternative, if time permits, is to adjust the lighting on the set to even out the backing color. This may improve the key so that **FGD Fade** is not needed.

Key Prior Button

The **Key Prior** button allows the user to set the next priority stack of the four keyers. To set key priority, hold down the **Key Prior** button and press the **Key 1 – 4** buttons in the keying order desired, from top to bottom priority. This will set the next priority stack. After key priority has been set, select the **Key Priority** button in the Transition subpanel to use this next priority selection as part of the next key transition.

Key Over

The **Key Over** button changes the actual key priority of the delegated keyer. With each press of the button the priority is advanced by one. When top priority is reached, the next press of the button set the key priority to the lowest level.

Key Invert

The **Key Invert** button reverses the sense of the key control signal. When Key Invert is active (button lit) black areas of the key cut signal cause replacement of the background, and the white key cut areas cause the background to be retained.

Mask Delegation Buttons

Masks help clean up keys by defining picture areas that are prevented from keying (inhibit mask) or are forced to key (force mask). Separate inhibit and force masks may be set up for each keyer. Masks can be created by pattern generators, or can be based on a video source that has been clip and gain adjusted to create the mask control signal. Masks cannot be applied to preset patterns.

The **Inhibit Mask** and **Force Mask** buttons delegate the keyer to control one of these two mask types. Changes to the masking controls affect only the selected mask type of the keyer delegated in the Keyers subpanel. A high button tally indicates which mask is being controlled. If the other mask is also active, its delegation button will low tally. Masking parameters are controlled in the Keyer Mask Menu.

Key PVW

The **Key PVW** button is used for viewing the key control signal. This button does not affect the output of the M/E. Pressing the button once shows on the preview output the key signal in front of the background. Pressing the button second time shows the key signal.

Freeze Fill Button

The **Freeze Fill** Button is used to freeze the selected fill signal as a full frame freeze.

Freeze Key Button

The **Freeze Key** Button is used to freeze the selected key signal as a full frame freeze.

DPM Button

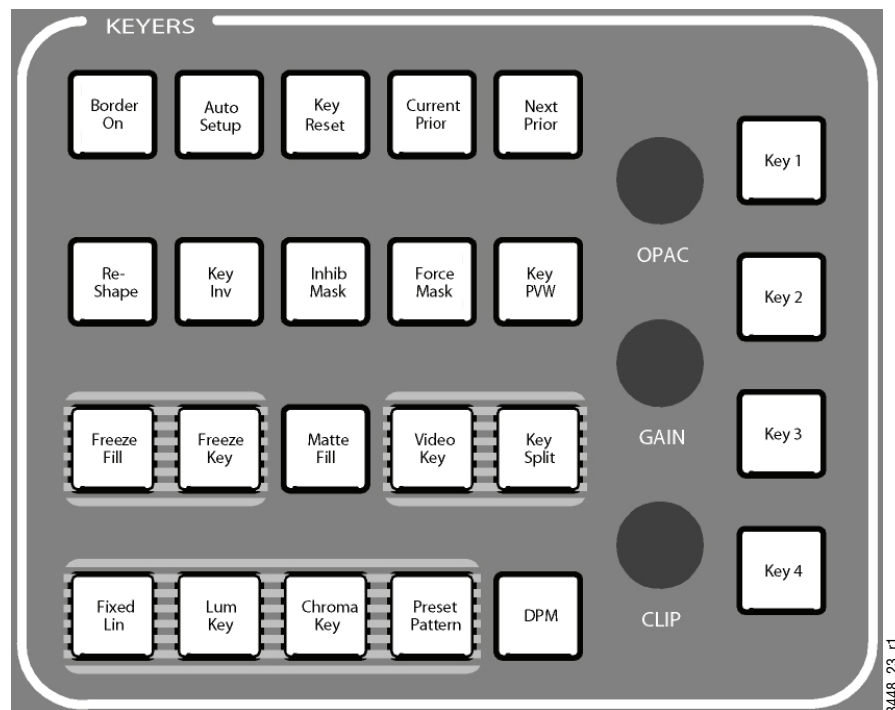
The **DPM** button allows the routing of the keyer's Digital Picture Manipulator into the signal path of the keyer.

Default Mode Keyer Subpanel

Keyer can be used in two modes of operation. Depending on the delivery, the control panel is provided with different button legend sets. The alternative button legend set is part of the delivery and can be changed by the user easily.

In the default mode the behavior of the user interface and keyers system is closer to the Kalypso/Zodiak way of doing things.

Figure 67. Subpanel Keyers (Default Mode)



Button functionality changes:

Cur Prior

Selection for current priority like **Next Prior** button, holding down and select the priority order from top to bottom by pressing the corresponding key delegation buttons.

Fixed Linear, Lum Key, Fixed Linear + Lum Key (= Adjustable Linear)

Fixed Linear and Adjustable Linear show exactly the same behavior. Fixed Linear has Clip 50%, Gain 100%, unchangeable, Clip/Gain controls hidden. Luminance Key applies an S-shaping function to the edges of the key control signal, Linear Key doesn't (S-shaping smooths sharp corners). Fill sources are treated as unshaped when the corresponding Engineering Setup Shaped Video button is off.

In Split key mode the fill source is always treated as unshaped, even if the corresponding **Engineering Setup Shaped Video** button is on. This can be overruled by the **Keyer Menu Force Shaped** button.

Shaped

Key control signal is not applied to the fill source (additive keying)

Unshaped

Key control signal is applied to the fill source (multiplicative keying)

Video Key, Key Split

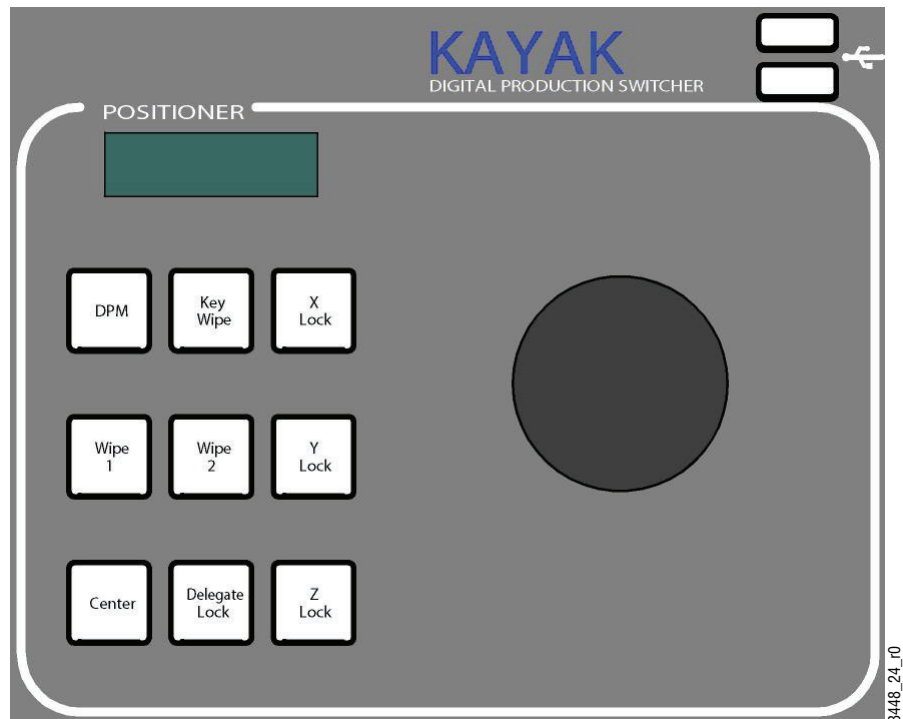
When both buttons are off, the key couple table is used for the selection of the key source. When Video Key is on, the selected fill source is also used as keys source. **Key Split** button on indicates that a different source is used as key signal.

To enter Key Split mode: Hold down the button and select a fill source. Which source is used as key source depends on the **Video Key** button: When the Video Key is on, the selected fill source is used as key source, when it is off, the key source from the key couple table is used.

Note It is not required to have a key source assigned to a button.

Positioner Subpanel

Figure 68. Subpanel Positioner



The Positioner Subpanel is used to control positioner functions of the Digital Picture Manipulator image and wipe pattern placement, size, angle, and other attributes in conjunction with the menus for the Digital Picture Manipulator.

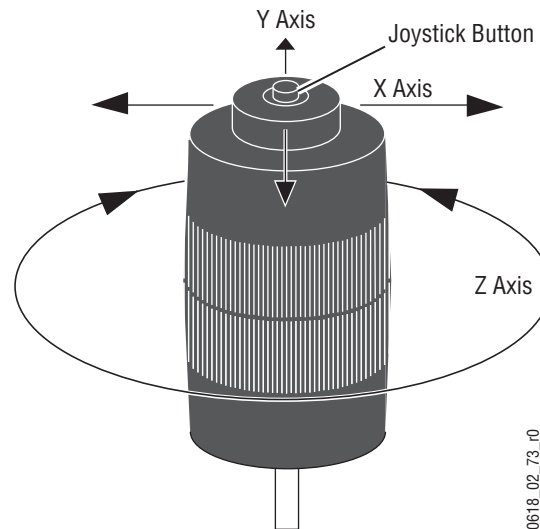
The positioner is particularly suitable for adjusting position and rotation parameters and can also be used to select a color from an image (for example, chroma key backing color) using an on-screen cursor.

Operating the positioner subpanel involves delegating a resource and a set of associated parameters to the positioner. The positioner then provides control of the delegated parameter values.

Positioner

The Kayak system positioner is a precision three-axis device. Moving the positioner towards or away from you controls the Y-axis, moving the joystick left and right controls the X-axis, and rotating the joystick controls the Z axis.

Figure 69. Positioner



Positioner Button

The **Positioner** button on the top of the Joystick can be used to accelerate the change of the delegated parameter, to allow quicker placement on the screen. The **Positioner** button is also used to pick a backing color when auto setting up a chroma key.

Positioner Delegation

Because the Positioner is used for many different functions, multiple stages of delegation can be required to access and control a specific set of parameters.

There are two ways of delegation:

- Delegation by Menu: A selection in the menu delegates the corresponding digipots parameters to the positioner, if the parameters are suitable to be positioner controlled.
- Delegation by hardware buttons: The Positioner Subpanel has 4 main delegation buttons. These buttons are used for delegation in combination with delegation buttons in other subpanels of the switcher.

DPM (Digital Picture Manipulator)

The **DPM** button can be combined with the delegation buttons **Key1 - 4** in the Keyer Subpanel. To toggle through the different sets of parameters of an corresponding DPM channel (Digital Picture Manipulator), just press the **DPM** button or the relative **Key delegation** button several times. Since there are a lot of sets of parameters per DPM channel, it can be more efficient to use the menu delegation to delegate a specific set of parameters.

Key Wipe, Wipe1, Wipe2

These **wipe generator** buttons can be combined with the delegation buttons Key1-4 in the Keyer Subpanel and the **Wipe** button in the Transition Subpanel.

There are different location/size parameters per wipe generator for every point of use. E.g. **Wipe1** can be used as background transition color wash control for the background wipe border pattern key inhibit or force mask color wash control for the keyer matte.

If you combine a **wipe generator** button with one of the other delegation buttons, the system checks whether there is a point of use for the corresponding **wipe generator**. In this case the corresponding set of parameters is delegated to the Positioner.

Pressing the **Keyer delegation** button (or the wipe transition button) repeatedly toggles through the different points of use of the **wipe generator** for the selected delegation.

Pressing the **wipe generator** button repeatedly toggles through all points of use of the delegated **wipe generator**.

Pressing down more than one delegation button at the same time delegates the Positioner to control multiple objects simultaneously.

The display in the Positioner Subpanel always shows delegated set of parameters and the point of use.

The Auto Delegation Function can be disabled by the **Delegate Lock** button.

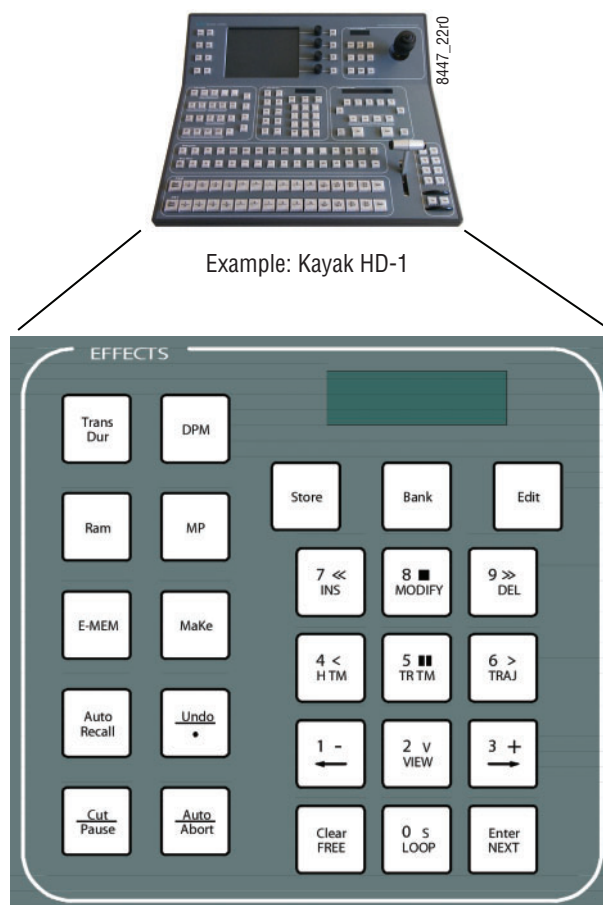
Axis Lock Buttons

Activating the **X**, **Y**, and **Z** axis lock buttons individually or in any combination locks parameter changes for the selected axes. For example, if the **X** button is active while the Positioner is moved, then only **Y** and **Z** axis deflection can be performed. Axis locking also applies to centering functions.

The **Center** button is used to apply the default (center) value to the delegated parameter.

Effects Subpanel

Figure 70. Subpanel Effects (KayakDD Mode)



The Effects Subpanel is a multi purpose section of the control panel.

The **Trans Dur** button is a special button, which is also used in the **Transition Subpanel** to set the transition rates for keyer and background transitions. Hold down the **Trans Dur** button and press the **Auto** button or the **Key1 Mix – Key4 Mix** buttons to set the selected transition rates. Enter the time with the keypad and confirm the entry by pressing the **Enter** button.

To perform the different tasks, the Effects Subpanel has 5 **Delegation** buttons:

DPM	Store, edit, recall DPM effects
Ram	Store, recall RAM Recorder stills, play RAM Recorder clips
MP	External machine control
E-MEM	Store, edit, recall E-MEM registers
MaKe	Record, play macros

DPM (Digital Picture Manipulator)

In DPM Mode the Effects Subpanel serves for recalling and editing DPM effects. For general information on the DPM structure in the Kayak HD system please refer to *DPM Menus on page 217*

Recalling a Register

Effects can be recalled in two different modes: Register Mode and Bank Mode

REGISTER MODE is an input mode for the register number in the Effects subpanel, in which the number is entered in one digit (0 ... 9) or in two digits (10 ... 99) followed by the **Cut** button. Do not use the **Enter** button for confirmation.

BANK MODE is an input mode for the register number in the Effects sub-panel. The bank number 0 ... 9 corresponds to the tens digit of the register number. When the units digit of the register number is entered, the corresponding effect is recalled immediately.

To run an effect in either mode, just press the **Cut** button.

Note In register mode the first press of the **Cut** button (after you have entered the digits) recalls the effect. The next press of the **Cut** button runs the effect. While the effect is running, consecutive pressing of the **Cut** button toggle between Pause and Play.

For more detailed run controls please use the menu.

Enabling and Disabling Bank Mode

The Bank mode in the DPM panel permits access to a stored effect with a single key (hotkey). The bank number is the tens digit of the register. The hotkeys are the units digits of the register. The Bank mode may be enabled during storing but this does not have any particular benefit.

Enabling Bank Mode

Hold the **Bank** button down and select the desired bank with the numeric keypad. The **Bank** button lights up. In the display a "B" appears before the register number. While you are in Bank mode you can change the current bank in the same way.

Example: EFF 05 eff05 ----

Disabling Bank Mode

Press the lighting **Bank** button.

Display

If no editing function or store function is selected, the ?? digit display of the subpanel may show the following indications:

No register is selected. The register is empty.	REG	????		
Register 24 is selected. The register is empty.	REG	24		
Register 24 is selected in Bank mode 2 (This corresponds to register 24). Register 24 is empty.	REG	B24		
Register 5 is selected. The register contains a effect and has no particular name.	EFF	05	eff05	----
As above but Bank mode 0 with hotkey 5.	EFF	B05	eff05	----
Register 5 is selected. The register contains a effect with the name ABCDEFGH.	EFF	05	ABCD	EFGH
The name can only be entered in the menu.				
As above but Bank mode 0 with hotkey 5.	EFF	B05	ABCD	EFGH

Selecting a Register for Storing / Editing

When you press the **Store** or the **Edit** button, the current register is prompted in the display. If you want to use this register just press the **Enter** button for confirmation or select first another register by entering a one- or two-digit number with the numeric keypad. Errors can be deleted with **Clear**.

If you wish to select the next free register, press the **FREE** button.

Edit

Select the register as the current one.

Store

Select the register as the current one, clear the register and insert one key-frame with the current state of the enabled Digital Picture Manipulators.

During edit mode the digit buttons of the numeric keypad have the following functions:

Table 3. Button Functions

Button	Description
0	-
1	Go to previous Keyframe
2	-
3	Go to next Keyframe
4	Play Reverse
5	Pause
6	Play
7	Insert After
8	Modify Keyframe
9	Delete Keyframe

To leave the edit mode just press the **Edit** button again. You are now prompted to press **Enter** for saving the changes or **Clear** to discard the changes.

Deleting a Register

1. Press **Clear**.
2. Select other register (0 ... 99). Only if not already displayed.
3. Press **Enter**

The buttons **Auto Recall**, **Undo**, **Auto/Abort** do not have a function in DPM mode.

MP (Media Player)

In **MP Mode** the Effects Subpanel serves for controlling external machines. This can be any type of device, which can be controlled by one of the machine control protocols, like video/audio tape machines, hard disk recorders, etc.

To select the desired machine for control, either toggle through the available machines by repeatedly pressing the **MP** button, or hold down the **MP** button and select the desired machine number.

The display shows the machine number, status and the timecode.

In **MP Mode** each digit button in the keypad represent a tape motion command. The command is indicated by a character or a graphical symbol on the numeric keypad.

Button Functions

Table 4. MP Button Functions

Button	Description
7 <<	Rewind
8 #	Stop, shows E-to-E image, depending on machine setup
9 >>	Fast forward
4 <	Reverse play
5	Still
6 >	Play
1 -	Single step back (when machine is in still) decrease variable speed (when machine is in variable speed) decrease shuttle speed (when machine is in shuttle mode)
2 V	Variable speed
3 +	Single step forward (when machine is in still) increase variable speed (when machine is in variable speed) increase shuttle speed (when machine is in shuttle mode)
0 S	Shuttle mode

The record command is accomplished by holding down the **Store** button and pressing the digit button **6 >**.

The **Edit** button allows you to enter a timecode for the GOTO Timecode command. You can enter the timecode, using the **Undo/.** button as delimiter. The timecode entry has to be confirmed by the **Enter** button.

Hint

Bank	No functionality in MP (Media Player) Mode.
Auto Recall	
Cut/Pause	
Auto/Abort	

E-MEM

E-MEM Operating Modes Description

E-MEM can be used in two modes of operation. Depending on the delivery, the control panel is provided with different button legend sets. The alternative button legend set is part of the delivery and can be changed by the user easily.

In the Default Mode the switcher behavior is closer to that of the Kalypso/Zodiak line of Grass Valley switchers. The DD Mode follows the E-MEM methods used by the Kayak DD line of switchers.

One of the big differences between DD and Default modes is that KayakDD switchers have an Edit mode that must be activated before a Timeline can be edited. Also, changes to the Timeline are not saved until the Edit mode is switched off again. Default Mode tries to make Edit mode more transparent through several means. First, edit mode is activated automatically whenever an editing action is initiated through the menu, and deactivated automatically whenever the user presses the **Run** button. Second, edit cursor position is preserved (as far as possible) when changing into and out of edit mode. The DD edit mode doesn't allow the edit cursor to be placed in between keyframes, therefore edit cursor snaps to the beginning of the current keyframe upon entering edit mode.

Edit mode cannot be made fully transparent, mainly because the number of buttons available in the E-MEM section of the Kayak panel is limited to provide numeric entry (register selection) and edit commands at the same time.

Another difference between DD and Default Modes is the definition of a keyframe duration. In DD Mode keyframe duration is the duration of the transition to the keyframe, while in Default Mode it is the duration of the transition to the next keyframe. KayakDD associates a transition with the *following* keyframe, while Kalypso/Zodiak associates it with the *preceding* keyframe.

A third difference is that in Default Mode (Kalypso/Zodiak), keyframes are always inserted *behind* the cursor (**Insert After**), while in DD Mode, they are inserted *before* the cursor position (**Insert Before**). In Default Mode both methods are available with **Insert After** being the default.

Some features of Kalypso/Zodiak are not implemented in the Default Mode including “insert on the path”, non-linear paths, and Kalypso/Zodiak’s multi-track system. “Insert on the path” means the ability to insert a keyframe at a position between two keyframes without changing the overall duration of the Timeline.

One last difference is that Default Mode handles any type of action in keyframes, while DD Mode has several different types of objects in a Timeline, such as Triggers, Waits, or Loops.

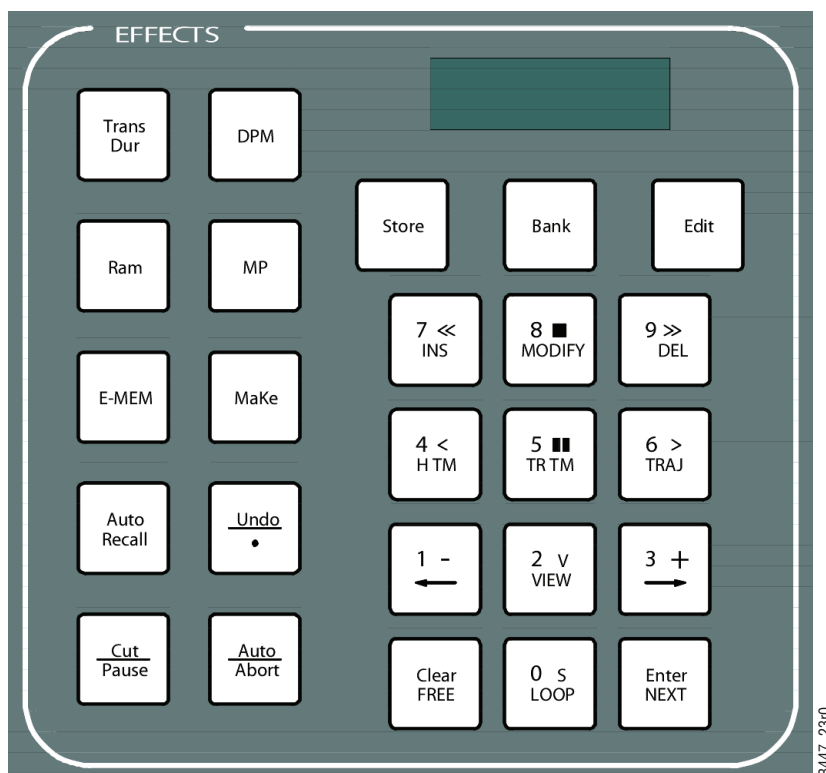
For DD Mode operating details refer to the section on *E-MEM - DD Mode of Operation* [on page 111](#).

For Default Mode operating details refer to the section on *E-MEM - Default Mode of Operation* [on page 123](#)

E-MEM - DD Mode of Operation

In **E-MEM** mode the Effects subpanel serves for storing and recalling switcher statuses and processes.

Figure 71. Subpanel Effects (DD Mode)



E-MEM thus permits storing and recalling individually prepared operating statuses and timelines with different background, key sources, borders, wipe pattern positioning, coloring etc.

The memo system is used for storing and recalling static settings (statuses, snapshots) and interpolated timelines.

The snapshots and timelines are identified with numbers (Register 0 ... 99).

E-MEM can be operated in two ways:

- Operation via the buttons of the Effects panel section
- Operation via the menu (not implemented in current software release version)

The number of keyframes in a timeline is only limited by the storage capacity of the respective switcher computer and the number of mixing levels and storable functions. The operator can edit a timeline in order to produce more sophisticated effects.

Definition of Terms

Table 5. Terms and Definitions

Term	Definition
SNAPSHOT (SNAP)	Switcher status or the status of a switcher part.
KEYFRAME (KF)	Static switcher status within one timeline.
TIMELINE (TIML)	Stored sequence of switcher statuses (keyframes).
DISSOLVE	Dissolve between static switcher statuses. The analogue values are dissolved, the switching functions are switched at the end of the dissolve procedure.
DISSOLVE TIME	Time for dissolving between two static switcher statuses.
STORE	Storing of a static switcher status.
RECALL	Reproduction of a stored static switcher status.
EDITING (EDIT)	Creation or the processing of a timeline outside real-time.
PLAY	Play of a stored timeline.
TRAJECTORY	"Trajectory" between keyframes.
REGISTER	Memory location where a snapshot or a timeline can be stored. Registers are identified with a number between 0 ... 99.
REGISTER MODE	Input mode for the register number in the Effects subpanel, in which the number is entered in one digit (0 ... 9) or in two digits (10 ... 99) followed by functional selections such as Enter, Cut or Auto.
BANK MODE	Input mode for the register number in the Effects subpanel. The bank number 0 ... 9 corresponds to the tens digit of the register number. When the units digit of the register number is entered, the corresponding snapshot or timeline is triggered immediately.

The **Store**, **Bank** and **Edit** buttons have different functions in the various operations.

The secondary lettering of the buttons **0 ... 9** applies when existing timelines are modified. The secondary lettering **FREE** of the **Clear** button applies when a register is selected. The secondary lettering **NEXT** of the **Enter** button applies when an assigned register is called.

In the following instructions only the applicable function of the double lettering is mentioned.

Display

If no editing function or store function is selected, the ?? digit display of the subpanel may show the following indications:

No register is selected	REG	???		
Register 24 is selected	REG	24		
Register 24 is selected in Bank Mode 2. This corresponds to register 24.	REG	B24		
Register 24 is empty.				
Register 05 is selected. The register contains a snapshot and has no particular name.	SNAP	05	SN05	----
As above but in Bank Mode 0 with hotkey 5	SNAP	B05	SN05	EFGH
Register 05 is selected. The register contains a snapshot with the name "ABCDEFGH". The name can only be entered in the menu.	SNAP	05	ABCD	EFGH
As above but in Bank Mode 0 with hotkey 5	SNAP	B05	ABCD	EFGH
Register 16 is selected. The register contains a timeline and has no particular name.	TL	16	TL16	----
As above but in Bank Mode 1 with hotkey 6	TL	B165	TL16	----
Register 16 is selected. The register contains a timeline with the name "KLMNOPQR". The name can only be entered in the menu.	TL	16	KLMN	OPQR
As above but in Bank Mode 1 with hotkey 6	TL	B16	KLMN	OPQR

Enabling and Disabling Bank Mode

The Bank mode in the E-MEM panel permits access to a stored snapshot or timeline with a single button (hotkey). The bank number is the tens digit of the register. The hotkeys are the units digits of the register. The Bank mode may be enabled during storing but this does not have any particular benefit.

Enabling Bank Mode

Hold the **Bank** key down and select the desired bank with the numeric keypad. The **Bank** key lights up. In the display a **B** appears before the register number.

Example: snap b05 sn05 ----

Disabling Bank Mode

Press the lighting **Bank** button.

Selecting a Register While Storing

During the storing of snapshots or timelines the register to be used for storage must be selected. The procedure is the same for both cases.

However, the indication in the display differs:

For Snapshots **STOR**

For Timelines [EDIT](#)

If the register number is to be taken over that was shown before the actualisation of the **Store** or **Edit** button, no further selection is necessary.

During storing the contents of the register is overwritten.

If you wish to select the next free register, press the **FREE** button.

If you wish to select a particular register, enter a one- or two-digit number with the numeric keypad. Errors can be deleted with **Clear**.

Note Should the register be assigned, the contents is overwritten when storing.

Selecting a Register While Recalling

When a snapshot or a timeline is recalled, there are several ways to select a corresponding register.

If the register shown in the display is to be used, no further selection is necessary.

To select the next used register, press the **NEXT** button.

To select a particular register, enter a one- or two-digit number with the numeric keypad. If a two-digit number is entered (e.g. 15), the related register (1) appears in the display when the first digit (1) has been entered. The desired register (15) appears after the input of the second digit.

The input of the figures *need not* be confirmed with **Enter**.

Storing a Snapshot

1. Set the switcher in the desired operation mode.
2. Set Define memo.
3. Press **Store**.
4. Select register with numeric key pad.
5. Press **Enter**.

Deleting Snapshots and Timelines

1. Press **Clear**.
2. Select other register (0 ... 99). Only if not already displayed.
3. 3. Press **Enter**.

Dissolve Functions Depending on Snapshot or Timeline Preselection

Table 6. Table Dissolve Functions

Button	Snapshot preselected	Timeline preselected
Auto	Dissolve to the snapshot in the time set with Trans dur.	Playing the timeline in the time set with Trans dur.
Cut or Hotkey in Bank mode	Recall the snapshot	Playing the timeline in the stored time.

Note Timelines that contain an endless loop or that are waiting for an event (GPI, Time) can be recalled only with **Cut**.

Other Button Functions

Trans Dur

Entry of the Auto transition duration.

1. Hold down the **Trans dur** button and press the **E-MEM** button.
2. Enter transition duration with numeric keypad.

The time is indicated in the **FRAMES** display.

3. Complete the entry with **Enter** or **Trans dur** again.

Auto Recall

When Auto Recall is active, the recall of a snapshot or timeline will restore the Define Memo in the same state, which was active when the register was stored.

Undo

If you press this key, the status before the last recall of a snapshot or a timeline can be restored even if several other operations have been performed in the meantime.

Cut / Pause

Function of the button:

- If the E-MEM is not playing a timeline and a snapshot register is selected **Cut** recalls the snapshot.
- If the E-MEM is not playing a timeline and a timeline register is selected, **Cut** starts playing the timeline.
- If the E-MEM is playing a timeline, **Cut** pauses playing the timeline; another **Cut** continues playing the timeline.
- If the E-MEM is playing a timeline and the timeline is waiting, **Cut** continues playing the timeline.

Auto / Abort

Function of the button:

- If the E-MEM is not playing a timeline and a snapshot register is selected, **Auto** interpolates to the snapshot in a fixed period of time (Set by Trans Dur).
- If the E-MEM is not playing a timeline and a timeline register is selected, **Auto** starts playing the timeline in a fixed period of time. This only works if the timeline has no endless loops or waits and a transition duration other than 0 has been selected.

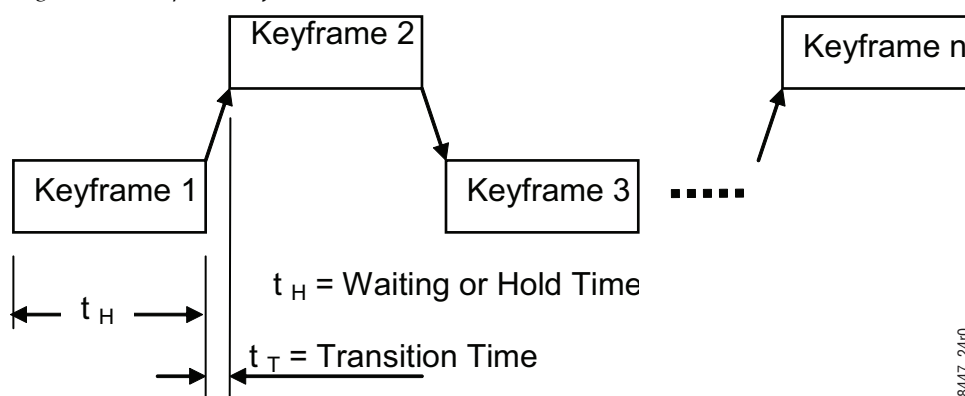
- If the E-MEM is playing a timeline, **Auto** aborts playing the timeline. A timeline played with **Auto** can't be stopped/continued with **Cut**.

Timeline Editing

Components of a Timeline

A timeline is stored as a chain of keyframes with related transitions between the keyframes and other timeline objects (e.g. waits, triggers).

Figure 72. Components of Timeline



The dissolve between the keyframes is set to linear for default.

In the display of the Effects subpanel the following components of a timeline can be displayed:

Timeline start symbol	Start
Timeline end symbol	End
Internal stored keyframe	Kfnnn
Ext. stored keyframe, snapshot in register nn	SNnn
Ext. stored timeline, timeline in register nn	TLnn
Loop begin symbol	Loop
Loop end symbol	ELoop
Wait for a user input	User
Wait for a number of frames	Hold
Wait for a special time of day	TOD
Wait for a special timecode of a conn. machine	TC
Trigger MaKE Memo nn of the panel where the timeline was stated	MaKnn
Wait for GPI n	GPIIn
Wait for GPO n	GPOn
Trigger external GPO n	EGPOn
Wait for panel GPI n	PGPIIn
Trigger panel GPO n	PGPOn
Trigger GPI n	TGPIIn
TMC stop	Stop
TMC play	Play
TMC record	Rec
TMV variable	Var
TMC fast rewind	Frew
TMC fast forward	Ffwd
TMC cue to specified timecode	Cue
TMC cue to in point	CueIn
TMC cue to out point	CueOut
TMC joggle	Jog
TMC step	Step

Due to a limited number of buttons only some of the objects described above can be inserted and edited by the Effects subpanel. For full timeline edit control please use the Sidepanel program.

Generating a Timeline

To generate a timeline the following steps must be done:

1. Ensure that no transition or anything else is running at the E-MEM.
2. Press **Edit**.
3. Select register.
4. Press **Enter**.
5. Insert timeline objects (such as keyframes or loops).
6. Press **Edit**.

The timeline is stored as a chain of keyframes, snapshots, or loops with related dissolves (transitions) between the keyframes.

Modifying a Timeline

The following procedure is used for all modifications of a timeline:

1. Ensure that no transition or anything else is running at the E-MEM.
2. Press **Edit**.
3. Select **Register**.
4. Press **Enter**.
5. Insert, delete, or modify timeline objects (such as keyframes or loops).
6. Press **Edit**.

The timeline is stored as a chain of keyframes, snapshots, and loops with related dissolves (transitions) between the keyframes.

Note Modifications of an existing timeline always relate to the last timeline object indicated in the display.

Functionality of the Buttons in the Edit Mode

Note Modifications of an existing timeline always relate to the last timeline object indicated in the display. This object is the currently selected timeline object.

Table 7. Edit Mode Button Functions

Button	Functionality
Store	Inserts a keyframe (with the related transition) in the timeline.
Bank	No functionality during EDIT.
Edit	Ends the timeline editing, the timeline will be stored.
7 / INS	Inserts a keyframe (with the related transition) in the timeline.
8 / MOD	The functionality depends on the type of the currently selected timeline object. KF: The selected keyframe is changed to the current state of the switcher. LOOP: Change of the loop counter (000 = endless loop). ELOOP: Change of the loop counter (000 = endless loop).
9 / DEL	Deletes the currently selected timeline object. Depending on the type of the timeline object there are the following relationships. LOOP: The related ELOOP object will also be deleted. ELOOP: The related LOOP object will also be deleted.
4 / HTM	Changes the hold time of the selected snapshot or keyframe. The default hold time is always 0 frames.
5 / TRTM	Changes the transition time of the selected keyframe object. The default transition time is set to the current transition duration of snapshot dissolves.
6 / TRAJ	Changes the trajectory of the selected transition object. Possible are Linear, S-Linear, Curve, S-Linear to Pause, and Curve to Pause.
Undo	The Undo function is enabled in the Edit mode and serves the abortion of a running edit operation without changing in the timeline. If, for instance, the button Undo is pressed in the edit mode, an Undo dialog is displayed: Press Undo again return to the edit mode Press Enter abortion of edit mode without saving
1 / ←	The button permits a successive selection of the individual objects of a timeline. Changes the cursor position to the previous object.
2 / VIEW	With the VIEW function enabled (button lights up) the switcher is switched to the status stored in the keyframe.
3 / →	The button permits a successive selection of the individual objects of a timeline. Changes the cursor position to the next (following) object.
Cut	No functionality during EDIT.
Clear / FREE	The button Clear/FREE enables to jump to the begin of a timeline.
0 / LOOP	If the currently selected object is not inside of a loop (button LOOP is off) a loop object will be inserted before the currently selected object. The related ELOOP object is inserted before the next LOOP or ELOOP object or at the end of the timeline. The cursor will be set to the ELOOP object. If the currently selected object is inside of a loop, the ELOOP object is moved to the current cursor position.
Enter / NEXT	The button Enter/NEXT enables to jump to the end of a timeline. While changing times etc. it serves always for confirmation.
Auto	No functionality during EDIT.

Changing the Hold Time of a Snapshot or Keyframe

The following procedure is used:

1. Select **Keyframe / Snapshot** (button ← and →).
2. Press **HTM**.
3. Enter hold time with numeric keypad.
4. Press **Enter**.

Note Errors can be deleted with Clear.

Changing the Transition Time of a Snapshot or Keyframe

The following procedure is used:

1. Select transition object.
2. Press **TRTM**.
3. Enter transition time with numeric keypad.
4. Press **Enter**.

Note Errors can be deleted with Clear.

Inserting a Loop in a Timeline

If a loop is inserted in the Effects subpanel always an endless loop (loop counter = 000) is inserted for default. To change the loop counter follow the steps under section Modifying A Loop.

Note It's possible to insert loops (max. 99) into other loops. This functionality is only available with the menu operation.

Entering a Loop During the Generation of a Timeline

The following procedure is used:

1. Enter last timeline object before the loop.
2. Press **LOOP**.
3. Enter first timeline object in the loop.

Note The loop end is before the next ELOOP or LOOP object or the end of the timeline if no other loop follows. If the button **LOOP** is pressed before the end of the loop, the ELOOP object is moved to that position in the timeline. If the loop is an endless loop, the timeline ends with the end of the loop.

Inserting a Loop in an Existing Timeline

The following procedure is used:

1. Select the timeline object after which the loop should start, or select transition before which the loop should start.
2. Press **LOOP**.

Note The loop end is before the next ELOOP or LOOP object or the end of the timeline if no other loop follows. If the button **LOOP** is pressed before the end of the loop, the ELOOP object is moved to that position in the timeline. If the loop is an endless loop, the timeline ends with the end of the loop.

Modifying a Loop in an Existing Timeline

The following procedure is used:

1. Shift LOOP or ELOOP indication at the end of the display (Buttons ← and →).
2. Press **MOD**.
3. Enter the loop counter with the numeric keypad.
4. Press **Enter**.

Note Errors can be deleted with Clear.

If the loop counter is 000 the loop is an endless loop.

Delete a Loop in an Existing Timeline

The following procedure is used:

1. Shift LOOP or ELOOP indication at the end of the display (Buttons ← and →).
2. Press **DEL**.

Note The related end or the begin of the loop is also deleted.

Delete a Timeline object in an Existing Timeline

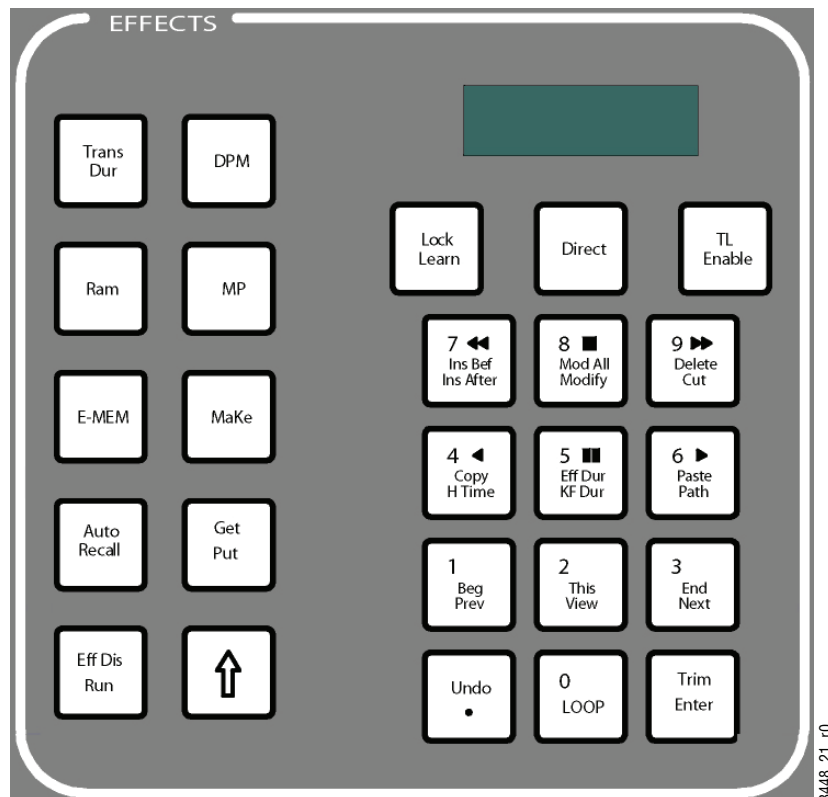
The following procedure is used:

1. Shift the timeline object to delete at the end of the display (Buttons ← and →) Press **DEL**.

E-MEM - Default Mode of Operation

In E-MEM mode the Effects subpanel serves for storing and recalling switcher statuses and processes.

Figure 73. Subpanel Effects (Default Mode)



Numeric key buttons:

When **TL Enable** is off the numeric values 0 - 9 are used for learning / recalling registers (see below). When **TL Enable** is on, the last (bottom) functions are addressed directly, the middle functions are applied using the Shift key (↑) combined with the appropriate button.

Other Buttons with Two-Level Texts:

The primary function on the button (text on the lower half) is applied by simply pressing the button. The upper text function is applied using the Shift key (↑) combined with the appropriate button.

Button Functionality

Direct

On: Press a number to recall that register while remaining in the current bank. Use the Shift (↑) key to perform a 2-button recall (bank + register).

Off: With Direct turned off press a number to preview the name of the register before it is selected. Use **Trim / Enter** or **Eff Diss / Run** to select the register shown in preview.

Lock / Learn

- **Learn** (unshifted) acts like **Store**, but saves the work buffer (current state) into a register in the currently active bank.
1. **EXAMPLES: Learn – 3** saves register 3, where x = the current bank. This overwrites whatever was in register 3 before.
 2. **Learn + Undo / .** searched the next free register. Using the **Shift (↑)** button allows another bank to be selected.
 3. **Learn – Shift (.)– 2 – 3** saves register 23.
- **Lock (Shift + Lock)** locks the current register, preventing it from being erased or edited. If you try to erase or edit the current register the word “Locked” displays for 2 seconds. The Lock function acts as a toggle, so if you press **Shift + Lock** a second time it unlocks the current register.

Eff Diss / Run

- **Run** recalls the pre-selected register (**Direct off** mode only). **Run** also acts as a toggle for the Timeline **Run / Pause** button.
- **Eff Diss (Shift + Eff Diss)** causes a transition from the current work buffer (state) to the selected register’s 1st keyframe (**Direct off** mode only). Not implemented yet. **Eff Diss** performs the same as the **Auto/Abort** function from XtenDD.

Get / Put

- **Put** copies the current register timeline information into a target register. Pressing a numeric button assumes that the Put will be placed into the current bank. Pressing a second number causes the 1st number to become the bank, the 2nd number becomes the actual register. The operation must be completed with the **Enter** button.
1. **Put – 6 – 7– Enter:** Copy the current register into register 67.
 2. **Put – . – Enter:** Copy the current register into the next empty register.
- **Get** copies the contents of a target register into the current register – the operational model is the same as that of the **Put** function.
 - **↑Get – 6 – 7– Enter:** Copy register 67 into the current register.
 - **↑Get – . – Enter:** Clear the current register.

. / Undo

- Pressing the . (Period or “dot”) button tells the system to use the next empty register. It can also be used as a decimal point for numeric entries.
- **Undo (Shift + Undo)** allows you to undo the previous action. You can use Undo to restore the last register you wrote over, or to undo the last editing operation you performed. Not implemented yet.

Enter / Trim

- **Enter** is used to complete a numeric entry. Example: Register 05 is active: (Direct Off) Pressing **2 – Enter** recalls register 02.
- **Trim (Shift + Trim)** is used to complete a numeric entry operation in a relative fashion. Example – Register 05 is active: (Direct Off) Pressing **2 – ↑ Trim** recalls register 07 (5+2).

“TL Enable” (Edit Enable)

- This must be activated to allow access to any of the keyframe editing functions.
- When this is activated, the secondary functionality of the numeric keys is used. (See also *Numeric key buttons*.)
- When activated, the current position of the time cursor on the timeline is maintained. It does not automatically jump to the beginning of the effect, as in the “Classic” KayakDD mode.
- When you used an edit function like Insert Keyframe in the menu, TL Enable is automatically enabled. It is the same behavior as in DPM Editing.

The Digit Buttons in TL Enable**0 / Loop**

There is no change in this button functionality from the original KayakDD.

1 / Prev / Beg

- Pressing **Prev** acts just like the current implementation of the KayakDD, that means goto previous keyframe
- Pressing **Beg (Shift + Beg)** causes the time cursor to jump to the first keyframe of the current effect.

2 / View / This

- Pressing **View** acts just like the current implementation of the KayakDD, that means when on, the hardware is driven.

- Pressing **This (Shift + This)** works like the DVEous, in that if any change to the work buffer is made without a Modify or Insert, the user can press **This** to restore the work buffer back to the contents of the current key-frame.

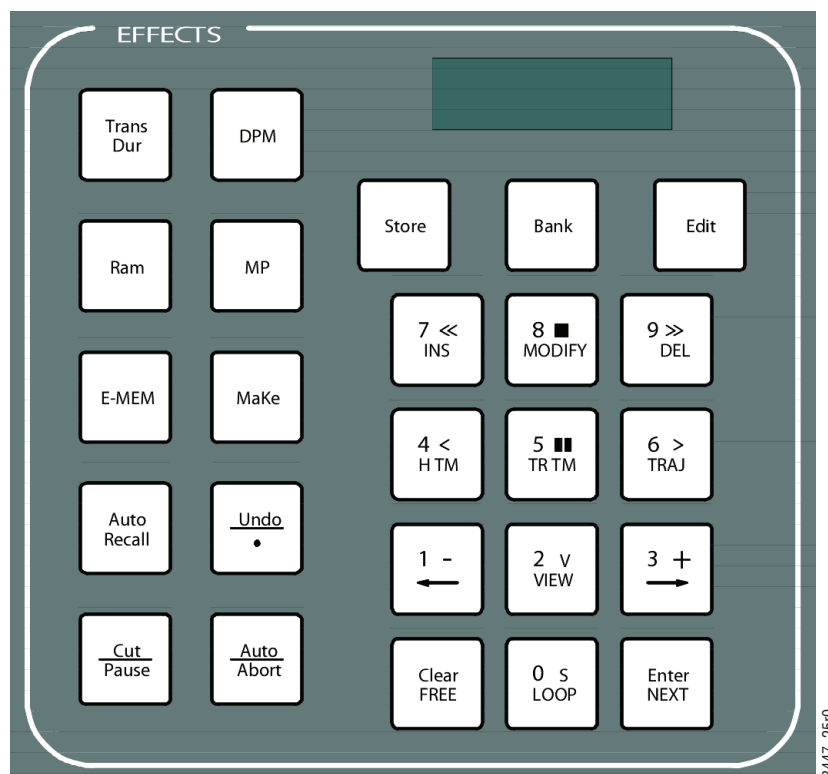
3 / Next / End

- Pressing **Next** acts just like the current implementation of the KayakDD, that means goto next keyframe.
- Pressing **End (Shift + End)** causes the time cursor to jump to the last key-frame of the current effect.

MaKe

In MaKe mode the Effects Subpanel serves for recording and playing Panel Macros. The total number of registers available for macros is 96.

Figure 74. Subpanel Effects (DD Mode)



Selecting a Register for Record Start

For record start of a macro the register to be used for storage must be selected.

Press the **Store** button.

The display prompts

RECORD

- If the register number is to be taken over that was shown before the actuation of the **Store** button, no further selection is necessary.

Note During recording the contents of the register is overwritten.

- If you wish to select the next free register, press the **FREE** button.
- If you wish to select a particular register, enter a one- or two-digit number with the numeric keypad. Errors can be deleted with **Clear**.

Note Should the register be assigned, the contents is overwritten

With the start of the recording

Confirm the register selection by pressing the **Enter** button.

Now the recording of the macro starts, while the **Store** button starts blinking. All keystrokes executed on the panel and in the menu, which generate a command to the mainframe are recorded. Pressing the blinking **Store** button again stops the recording.

Note When you execute any macro action in the **Misc Bus Section**, the recording is stopped automatically. Changing the delegation of the Effects Subpanel to e.g. E-MEM does **not** stop the recording. This allows you to include E-MEM recalls and machine control commands into the macro.

Note Recorded macros are named by default as MK01 – MK96. Renaming is only possible via the Sidepanel program.

Recalling a Macro

For recalling a macro there are two basic ways to select a corresponding register.

Register Mode

If the register shown in the display is to be used, no further selection is necessary.

- To select the next used register, press the **NEXT** key.
- To select a particular register, enter a one- or two-digit number with the numeric keypad. If a two-digit number is entered (e.g. 15), the related register (1) appears in the display when the first digit (1) has been entered. The desired register (15) appears after the input of the second digit.

After the selection press the **Cut** button to play the macro.

Bank Mode

In Bank mode registers are treated in groups of ten. Such a group is called a bank. The display below shows register 7 of bank 4. This is equivalent to register 47 in **Register Mode**. Each digit button in the keypad is now a hotkey. Pressing digit button **3** will directly recall macro 43. To select another bank, hold down the **Bank** button and press one of the digit buttons, e.g. pressing digit button **2** would switch to bank 2, giving direct access to the macros 20 through 29.

Example: Macro B47 MK47

In **Bank Mode** the **NEXT** button advances to the next used register in the bank, but in contrary to **Register Mode** the macro is directly recalled. This allows you to recall a stack of up to ten macros by repeatedly pressing the same button.

The Bank mode may be enabled during recording but this does not have any particular benefit.

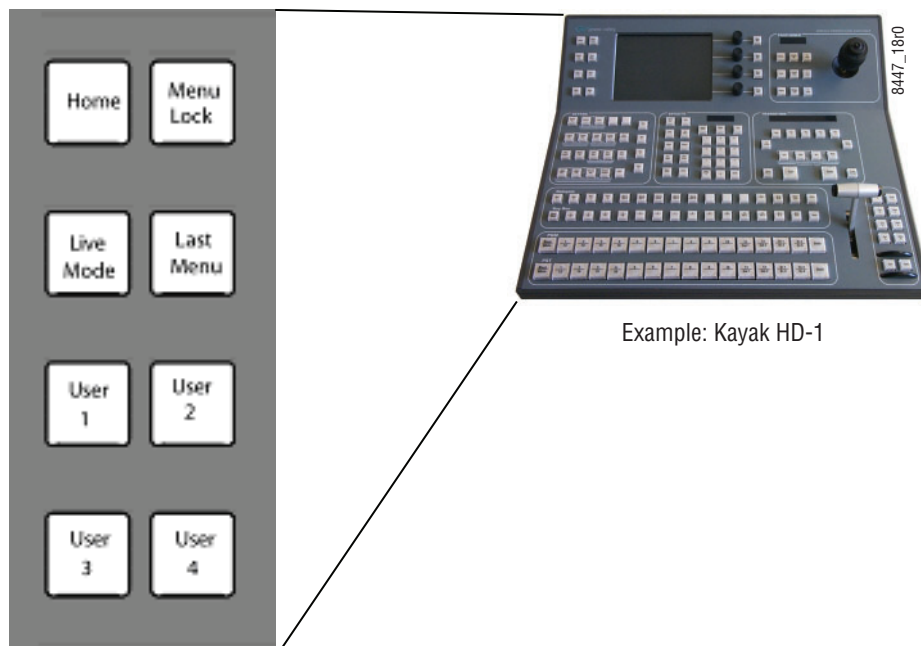
Pressing the **Bank** button toggles between Register Mode and Bank Mode.

While the **Miscellaneous Bus Section** allows you only to address the first macros 16, the Make delegation of the Effects Subpanel gives you full access to all 96 macros.

Note Buttons **Edit**, **Auto Recall**, **Undo**, **Auto/Abor**: No functionality in Make Mode.

Menu Subpanel

Figure 75. Components of Timeline



The Menu subpanel allows easy navigation in the menu display

Home

Brings you to the top menu, allowing further navigation.

Menu Lock

Locks the menu to the actual screen. No further auto delegation is performed.

Live Mode

Reduces the number of parameter adjustments to the most essential ones, allowing faster control with less selection steps.

Last Menu

Brings you back to the last menu, allowing to toggle between 2 Menus with one keystroke.

User 1 – User 4

User definable preferred menus. Select a menu, hold down the **User X** button for two seconds. A short flash of the button confirms that this menu is learned. To recall the menu, just press the **User X** button again.

Half M/E

The Half M/E is used as an additional M/E. In terms of routing it offers the same possibilities as a full M/E. This includes the reentries in other M/Es. The main restrictions are caused by missing hardware which is also the reason to call it “Half M/E” (also referred to as “MEH”).

Half M/E is enabled for the following switcher types:

- Kayak-HD-150C
- Kayak-HD-250C
- Kayak-HD-250

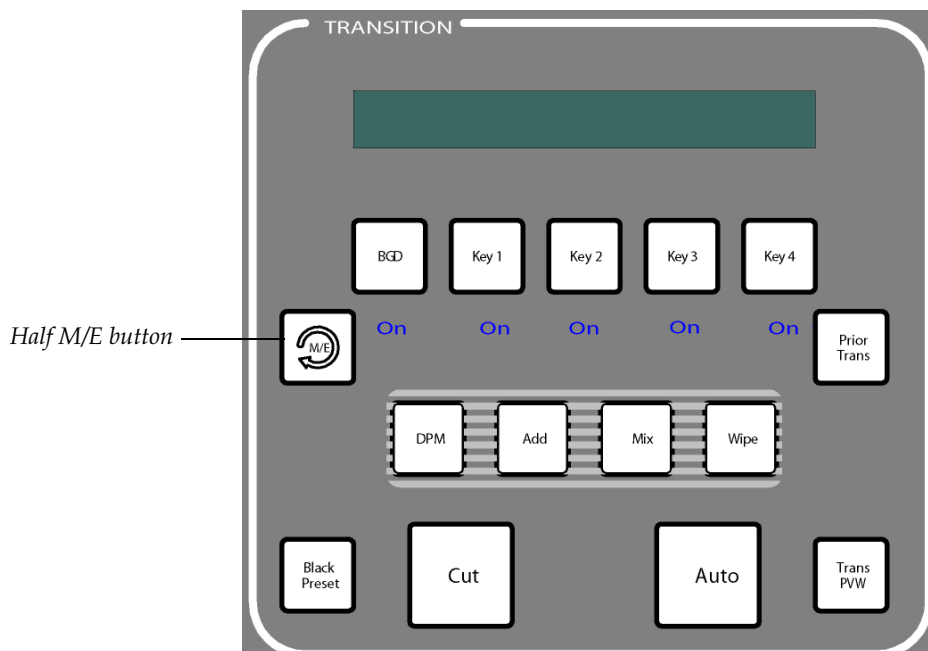
Feature Set of the Half M/E

Table 8. Feature Set of the Half M/E

Feature Set	Not implemented Features
Field Dominance	Wipe Transition
PreRoll	DPM Transition
M/E Couple	Chroma Key
Hold Source	Preset Pattern
Key Drop	RGB Correction
Bus Correction	
Mix Transition	
DSK Transition	
Black Preset (no Utility Inputs)	
Transition Preview	
Luminance Key	
Memo (Master and M/E Memo)	
Transition Abort	
FTB Cancel	
Clean Feed	
Input and Bus Correction	
Key Preview	
FTB	

Selecting Half M/E

Figure 76. Selecting Half M/E



The Half M/E is reached in the control panel by pressing the **Half M/E** button in the transition section (see [Figure 76 on page 132](#)). This button is labeled **FTB Enable** on older panels and has a circular arrow on it on newer panels.

- In “not coupled” mode, this button can be used in any panel M/E to delegate the panel M/E to the Half M/E. Once delegated, the Half M/E can be used exactly like any other full M/E. See table Feature Set above.
- In DSK mode, the button works only in panel M/Es that are delegated to the M/E to which the Half M/E is coupled. In this case, the panel M/E is also delegated to the Half M/E, but the background buses of the crossbar still control the full M/E, because the background buses of the Half M/E are set fixed to the outputs of the coupled full M/E.

Transition controls (Cut, Auto, Black Preset) always work on both the Half M/E and the coupled full M/E, regardless of the delegation of the panel M/E.

“Next Transition” buttons work the same in Half M/E and full M/E. To clear all Half M/E keys, use the BGD next transition button (BGD transitions of the Half M/E are not possible in DSK mode, so this button is only used to remove all keys from the “next transition” selection).

When a panel M/E is delegated to Half M/E, the mnemonic displays of that panel M/E are inverted, i.e. they show light characters on dark background.

By setting a Half M/E button to ON the E-MEM section at the end of the appropriate M/E will be set to be the Half M/E E-MEM.

If DSK Mode is ON with full DSK mode for video and control couple then any Half M/E button will delegate that M/E to be able to control the DSK sources and transition.

By menu command it will be possible to delegate command and video routing so that these selections are possible:

1. Video routing and transition control of the Half M/E are set to both be coupled to any M/E
 - Video routing will always be set such that the PGM A/B rows of selectors will switch the active on-air backgrounds regardless of the setting of the Half M/E assignment button of the M/E
 - Video routing of the keyer inputs and keyer controls will be set to control either M/E or Half M/E keyers as the Half M/E button is set.
2. Video routing is not assigned to any M/E but uses the Half M/E crosspoint selector freely but couples the Half M/E keyer transitions to a designated M/E. The control couple would be set by menu selection. The Half M/E would be assignable to the panel by the use of any M/E UPK.

3. Video and control couple would be set to OFF for Standard mode.

Operation Modes

With software release version V683 there will be two base modes of the Half M/E:

- Standard Mode (Full Half M/E)
- DSK Mode (Option with License Key)

The different Half M/E modes are set via the Config / EBox / Misc menu. Use the “Half M/E Mode” button to select the mode, and the “Coupled To” button to select the full M/E to couple the Half M/E to.

NORMAL Mode Description (Not coupled)

The Half M/E operates as an M/E would except that it's control is only assigned by the use of a Half M/E button at any M/E level.

- Inputs are freely selectable for background and keys
- Control is only assigned when an M/E Half M/E button is on and to that M/E.

Preview is as for a full M/E.

Clean feed for 2 separate outputs each with selectable keyer combinations will be available.

DSK Mode Description

- The Half M/E used as DSK will have 4 lum/lin keyers able to use coupled (auto select) matte signals as well as video (self) key. The priority of the keyers will be able to be set - and altered via mix/dissolve on-air.
- The DSKs will be over the top of any M/E keyers and their priority will not be able to set any of them inside the priority scheme of the M/E keys.
- There will be a clean feed system available from DSK allowing 2 independent outputs with selectable keyers on them.
- The background sources will be controlled by the PGM A/B rows of the coupled M/E (usually PGM/PST) whether that M/Es Half M/E UPK is ON or OFF as this is logical operationally. The input sources of the Half M/E will be set to the output of the M/E and will not be changeable.
- The DSKs will only mix and will exhibit non-composited keying transparency during their transitions.
- DSK Preview will be affected by M/E transitions but at the end of all transitions will correctly represent the DSK Next transition.
- DSK transitions will be coupled to the M/E transition so that selecting a DSK while the Half M/E UPK is ON will cause the DSK Next Transition selected to change as the M/E transition, CUT/MIX/DISS/DPM, is operated.
- Half M/E PGM and PVW will need to be assigned to crosspoints so that an AUX bus, for instance, can show the PVW and route the Half M/E output to transmission output.
- Any M/E with the Half M/E button switched ON will control for that time, the sources and transition status of the DSKs.
- Split faders, if an M/E other than the one set by the menu couple selection will cause unwanted DSK appearances and this is to be documented but not excluded.

Menu Overview

Introduction

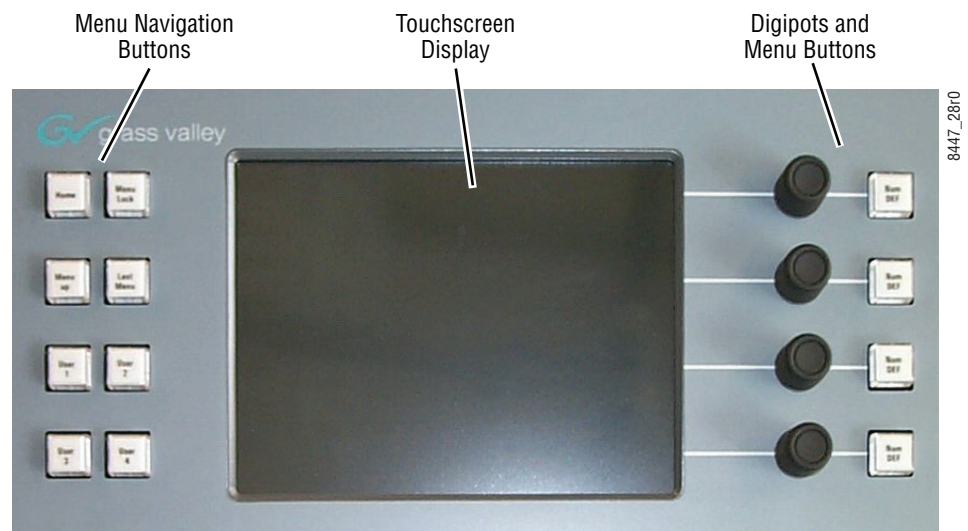
The Kayak HD Menu panel provides capabilities that complement the operation of the Main panel. The Menu panel controls most system functions, and has additional controls not available on the Main panel (for example, wipe pattern selection, chroma key manual controls, and configuration menus). During live production the operator spends most of his time working directly on the Main panel. The Menu panel is used extensively for setup and effects creation.

A second way of full control is the Sidepanel program. The Sidepanel program can run on a computer with Windows 95 or higher.

Menu Panel Description

The Menu panel has a touch screen display and four soft knobs on the right. The Menu subpanel on the left allows easy navigation in the menu three.

Figure 77. Touch Screen Display



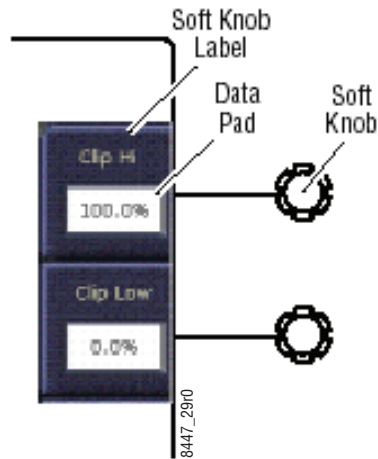
Touch Screen

CAUTION Do not apply any sharp or rigid object (no pens or pencils) to the touch screen display surface. The Menu panel touch screen allows direct interaction with menu controls displayed on the screen. The screen is designed to work with a finger or other soft object. The touch screen is sensitive to a single pressure location only, so only one touch surface control can be adjusted at a time.

Soft Knobs (Digipots)

Knobs along the right side of the Menu panel can be used to dial in parameter values for functions displayed on the touch screen. When a knob is active, the touch screen displays the parameter name and its current value on a data pad. The parameter can be adjusted by turning the knob, or the data pad can be touched to bring up a numeric keypad. On some menus, a soft knob may be able to control parameters or scroll a list located elsewhere on the screen. In these cases a line connects the soft knob to the controlled screen area.

Figure 78. Soft Knobs (Digipots)



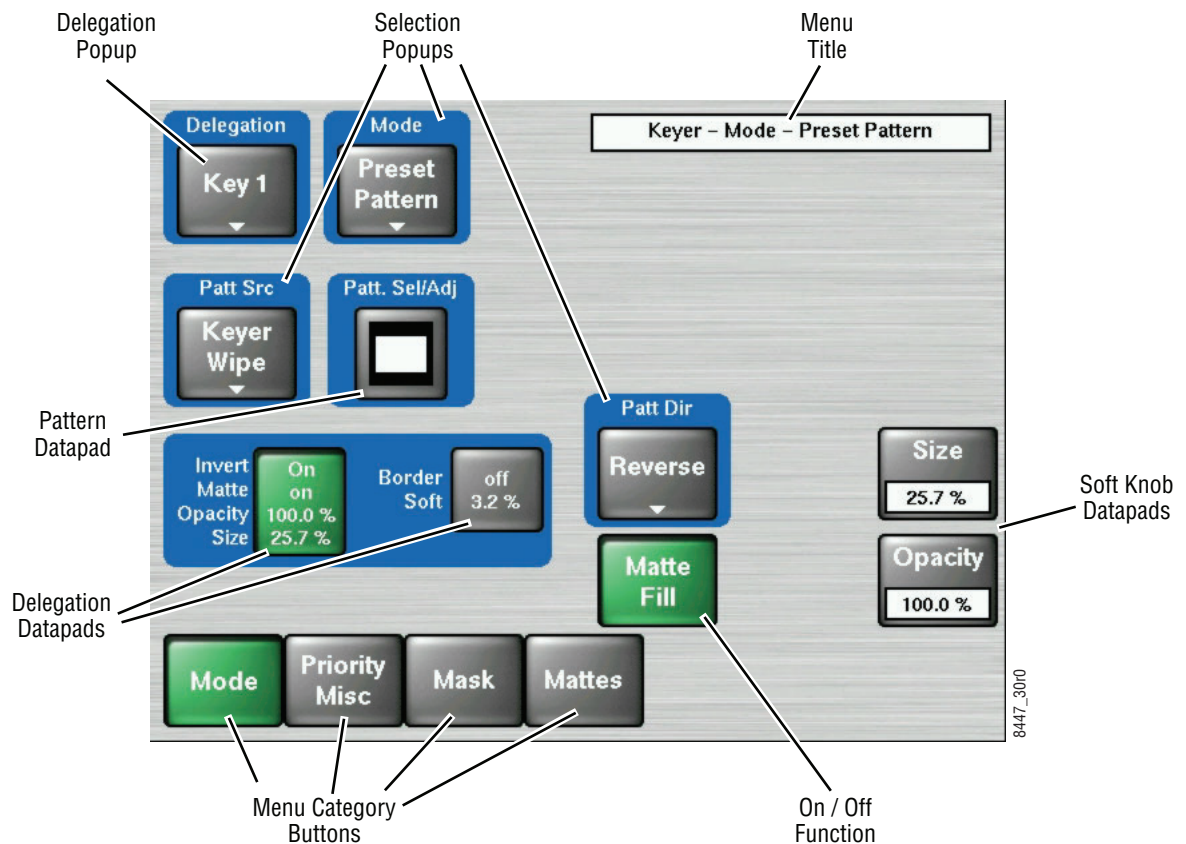
Menu Screen Organization and Components

Kayak HD system menus are context sensitive. They display different information and provide various types of controls depending on what area of the system is involved. Menus are organized into categories of related controls, which can be directly selected with touch buttons located at the bottom left of the screen. Some configuration menus have additional sub-category selections available at the bottom right of the menu.

Within a menu, delegations may also be available to access specific parameters. In the top corner of many menus you will find a delegation button, allowing to switch e.g. between different keyers for the same type of menu.

A representative menu screen (Keyer-Preset Pattern) is shown below. Buttons with a little triangle at the bottom are popup buttons. When selected, a popup display offers a multiple-choice selection.

Figure 79. Example Screen Organization and Components



Data Pads and Touch Buttons

The Kayak HD system menus make extensive use of data pads. Data pads are active areas on the screen that display a summary of the status of an object, and when touched bring up additional controls and information for that object.

Some data pads display a single value (for example, the soft knob data pads). Touching a soft knob data pad brings up a keypad on the screen for data entry (which can be closed without making any changes if desired). A special pattern data pad also exists, which displays the shape of the current pattern (the Square shape in [Figure 79 on page 139](#)). Touching this data pad provides a link to the Wipe.

Note that a single touch of a data pad will not change any Kayak HD system settings, but just brings up controls that permit changes. You can surely touch any data pad to explore that object's parameters and settings. Actual changes are enacted on the screen with the touch buttons, by turning a soft knob, or by entering a value on a keypad.

Some menu items that look like data pads only display information, but do not have Rounded corners. Touching these buttons does not generate a popup menu or a menu change.

The information displayed might be able to be changed using different controls, or it may simply report a status.

Touch buttons do not display data, and are labeled by their function. Direct change touch button functions include selecting an operating mode (**Preset Pattern** in [Figure 79 on page 139](#)), or turning on an attribute (**Matte Fill** in [Figure 79 on page 139](#)). Touching these buttons will immediately activate their function.

Note that the Menu Category touch buttons at the bottom of the screen are used to display a different category of controls, and this is actually a form of delegation. Touching these buttons will not change any actual Kayak HD system settings, so they can also be surely touched at anytime to explore the menus.

Touch buttons can control on/off (green/gray) functions (**Matte Fill** in [Figure 79 on page 139](#)), or they can select from a group of parameters, and turn green to indicate the state of that parameter. A second way of presenting group selections is the **Popup Button** (e.g. **Preset Pattern** in [Figure 79 on page 139](#)).

Menu Title

The menu title is identical in all the Kayak HD system menus. The left portion of the menu title identifies the name of the current menu. The selected subcategory or specific mode is also displayed when appropriate.

Menu Category Selection

Menu category selection touch buttons are arranged along the bottom left of the screen (Mode, Priority, Mask etc. in the example). Touching one of these buttons takes you directly to that category. The currently selected category is shown by the touch button turning green.

Some configuration menus have additional subcategory selections available at the bottom right of the menu. The selected subcategory button is colored green.

Delegation Group

Additional levels of delegation are needed in e.g. the Keyer menu, since it must control all 4 keyers. This highest level of delegation is located on the top left side of the menu. Data pads display limited status for a particular object. Touching a data pad delegates that object, and the rest of the menu will then display information and controls for only that object. The data pad of the selected object is colored green.

Mode Selection

Each keyer has several types of operation, one of which can be chosen with the **Mode Selection Popup** button. In the Keyer menu, when a particular mode is selected, the Parameter Control area will display information for only that mode of the delegated object.

Different types and numbers of controls can appear, depending on the capabilities of the selected mode.

Generally, touch buttons that are closely related to one another have a blue background, though this is not necessarily an indicator that the buttons are interlocked.

Parameter Control Area

In the Keyer menu example, a Parameter Control area contains function selection touch buttons and soft knob pads for the selected operating mode.

Function selection touch buttons either toggle on and off or are part of an interlocked group. The soft knob pads on the right allow individual parameter adjustments, as described earlier.

Additional Function Buttons

In the Keyer menu, some functions are available for all delegated objects and their modes. Touch buttons for these functions can be located outside the Parameter Control area.

Menu Access Touch Button

In some cases it is handy to jump to a different menu and delegation to adjust related controls. For example, an operator setting up a mask may need to adjust a pattern in the wipe menu. To make menu navigation easier, a menu access button can be included on one menu that links to a different, related menu. For example, the Wipe Select & Adjust functions.

Numeric Keypad

Touching a soft knob pad or other single numeric parameter pad brings up a numeric keypad that can be used to enter exact values.

Figure 80. Numeric Key Pad



8447_31r0

Alphanumeric Keypad

Touching the pad for a text parameter brings up an alphanumeric keypad.

Figure 81. Alphanumeric Key Pad



Menu and Panel Interactions

The Main panel and the Menu panel graphical user interface operate as a single control surface, and so these components interact with one another. Many controls on the Main panel are duplicated on the Menu panel screens. For example, a keyer can be set to use a Chroma key with a Main panel button or a Menu touch button. Other controls, like manual Chroma key settings, are only available on the Menu panel.

Single Press Open (SPOP) is a convenient way to access related menus when working on the Main panel. Single-pressing a button calls up particular menus.

Once that menu is displayed, delegation changes affecting that menu that are made on the Main panel will be tracked on the Menu panel. For example, if Key 1 is selected on a menu, and then Key 2 is selected on the Main panel, the menu display will change its delegation to Key 2.

However, the reverse is not true. Changing delegations on the Menu panel does not change Main panel delegations.

When both the Main panel and the Menu panel are delegated to the same object (say, Key 1), changes can be made to that object from either panel. Once the change occurs, both panels will be updated to reflect the status of the object.

Both panels do not need to be delegated to the same object to enact a change, however. Suppose the Main panel is delegated to control Key 1 while the Menu panel is delegated to Key 2. Changes made on the Menu panel will affect only Key 2, and changes made on the Main panel will affect only Key 1.

When the delegation of either panel is changed to a new object, that object's current status (which may have been changed since last shown) will be reflected on that panel.

Menu Summaries

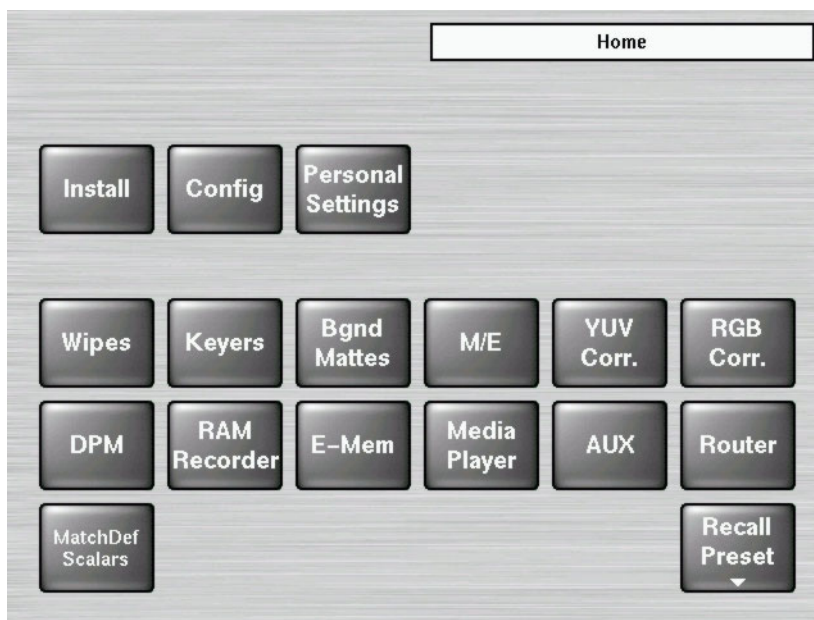
In this section various Kayak HD system menus are presented to familiarize you with various screen layouts. Cross references are provided for more detailed information. Because each menu controls different aspects of the Kayak HD system, the screen parameters and organization will vary, but the basic principles previously described are followed.

Some advanced system functions are not supported by these menus. You can run the Sidepanel application on a separate personal computer to access these advanced functions.

Home Menu

The Home menu is used to access the Kayak HD system menus. Touch the button of the desired menu type to go directly to that menu. For example, selecting the **Wipe** button in the Transition subpanel will open the **Wipe** menu. If multiple menus are available for that type, the last selected menu will be displayed.

Figure 82. Home Menu



At system startup the Kayak HD brings up the **Home** menu. You can reach this menu at any time by pressing the **Home** button in the top left of the control panel.

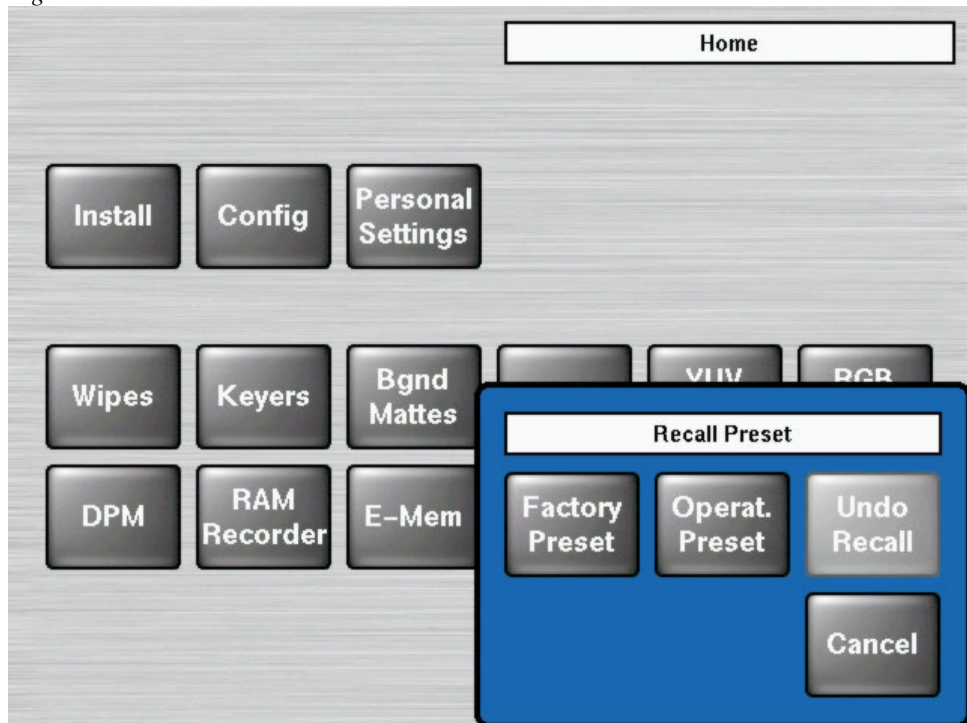
Mouse Access to Home Menu

When controlling a Kayak menu with a mouse on the PS/2 connector, a right mouse click can be used to return to the **Home** menu.

Recall Preset

Touching the **Recall Preset** button on the Home menu opens a submenu for recalling different control panel operational settings ([Figure 83](#)).

Figure 83. Home Menu - Recall Preset



Factory Preset - Recalls the factory preset.

Operation Preset - Recalls the user-defined operation preset. See *Install - E-Box Misc Menu* [on page 147](#) for more information.

Undo Recall - Recalls the previous user settings before the last action.

Install Menus Overview

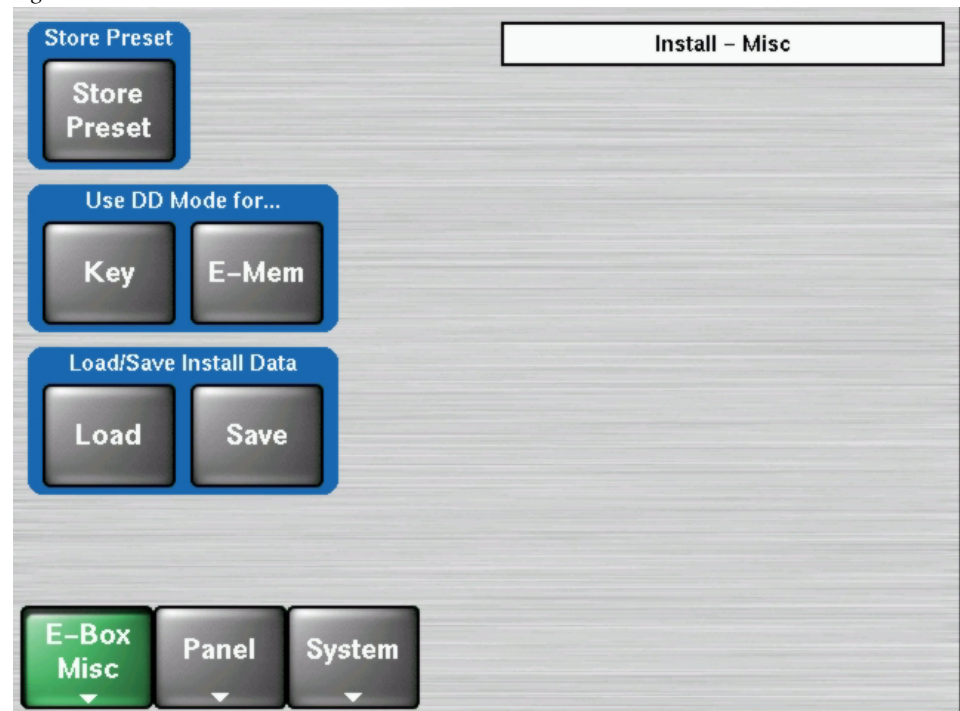
The Install Menus contain system setups, most of which are only used by engineering personnel during installation.

Note In this *Kayak User Manual* only selected Install Menu functions commonly used by operating personnel will be described. Detailed information about the Install Menus is available in the separate *Kayak Installation and Service Manual*.

Install - E-Box Misc Menu

Touching **Home** > **Install** > **E-Box** > **Misc** opens the Install E-Box Misc menu ([Figure 84](#)).

Figure 84. Install E-Box Misc Menu



Store Preset

Pressing **Store Preset** saves the current panel operating settings to the panel. These settings are equivalent to an E-MEM of the entire panel. To recall these settings use the **Recall Operation Preset** button in the Home menu (see [Recall Preset on page 146](#)).

DD Modes

Selects the operating behavior of the Kayak's Keyer and E-MEM systems. A default setting (button not illuminated) selects behavior that is closer to that of Kalypso/Zodiak switchers.

If a **Key** or **E-Mem** DD Mode button is activated, the behavior of that system becomes more like that of the KayakDD or XtenDD switcher systems.

Key - See *DD Mode Keyer Subpanel* [on page 93](#).

E-MEM - See *E-MEM - DD Mode of Operation* [on page 111](#).

Also see *E-MEM Operating Modes Description* [on page 110](#) for additional information.

Note To avoid confusion, if the operating mode is changed you can install the corresponding buttons on the panel so their legends are correct, using the tool provided with your system.

Load / Save Install Data

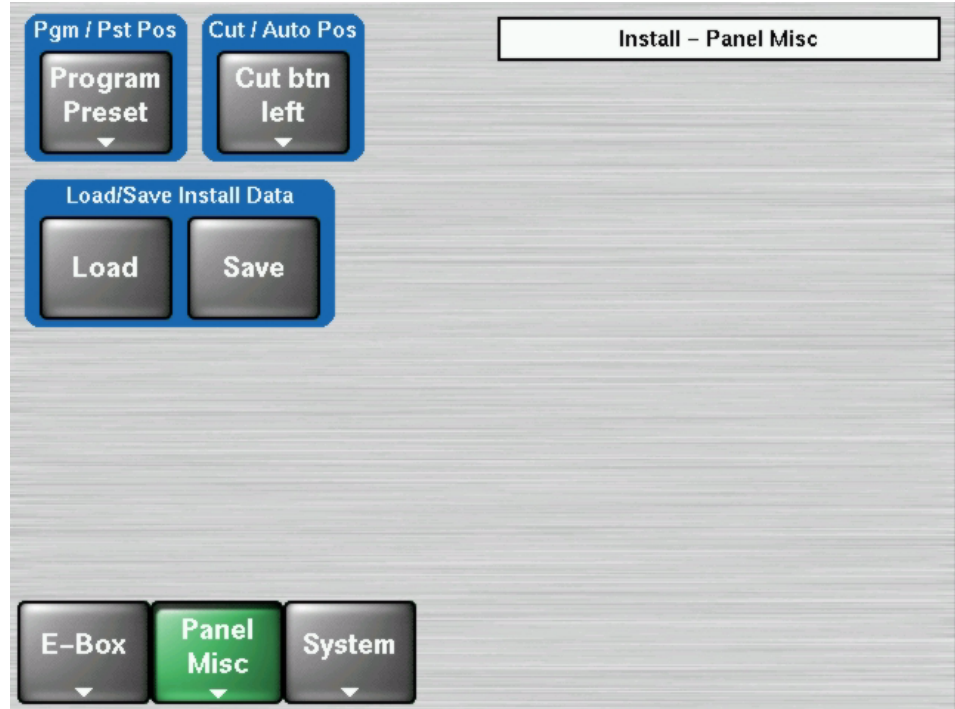
Note The Save button is grayed out (inoperable) if a USB stick is not present in a supported control panel USB port. The Load button is grayed out if no USB stick is present or if no files are available to load from the USB stick. USB ports labeled SPARE are not supported.

The **Load** and **Save** buttons are used to load/save frame Install configuration settings to or from a USB flash drive.

Install - Panel Misc Menu

Touching **Home - Install - E-Box - Misc** opens the Install E-Box Misc menu ([Figure 84](#)).

Figure 85. Install Panel Misc Menu



Pgm/ Pst Pos

Sets the operation of the Program Preset busses.

Program/Preset - Program bus flip-flops after transitions complete to always be above the Preset bus.

Preset/Program - Program bus flip-flops after transitions complete to always be below the Preset bus.

Follow Fader - Bus flip-flops do not occur.

Cut/Auto Pos

Sets the location of the M/E **Cut** and **Auto** buttons, with the Cut button either on the left or right of the Auto transition button.

Note To avoid confusion, if the button location is changed you can swap the Cut and Auto buttons on the panel so their legends are correct using the tool provided with your system.

Load / Save Install Data

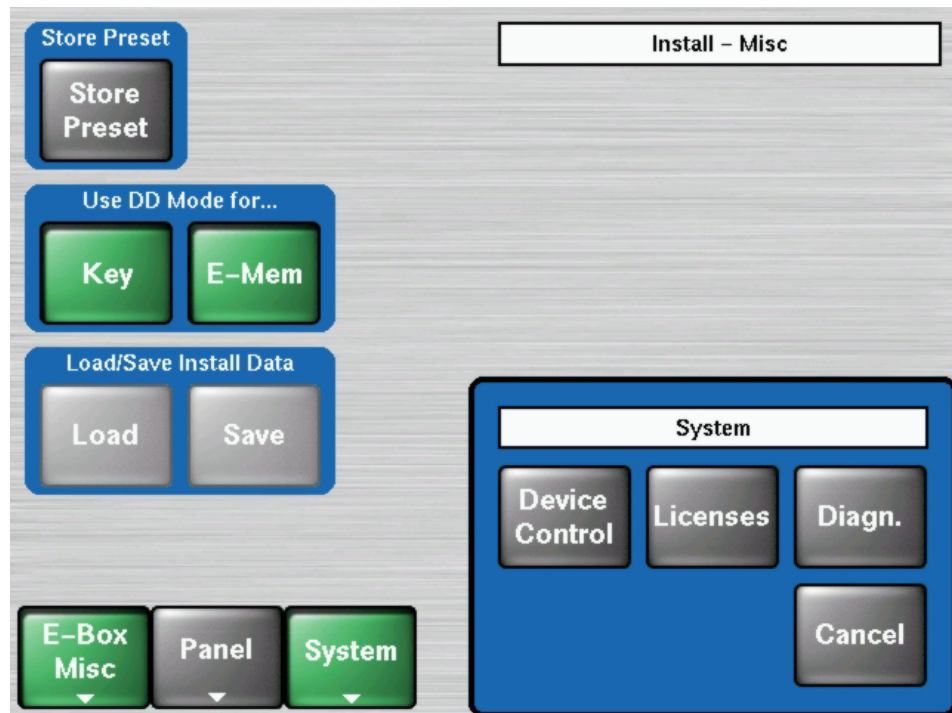
Note The Save button is grayed out (inoperable) if a USB stick is not present in a supported control panel USB port. The Load button is grayed out if no USB stick is present or if no files are available to load from the USB stick. USB ports labeled SPARE are not supported.

The **Load** and **Save** buttons are used to load/save panel Install configuration settings to or from a USB flash drive.

System Setup Menu

Software installation and option licensing is accomplished via the Device Control menu, accessed via **Home - Install - System** (Figure 86). System functions are available in the pane on the lower right.

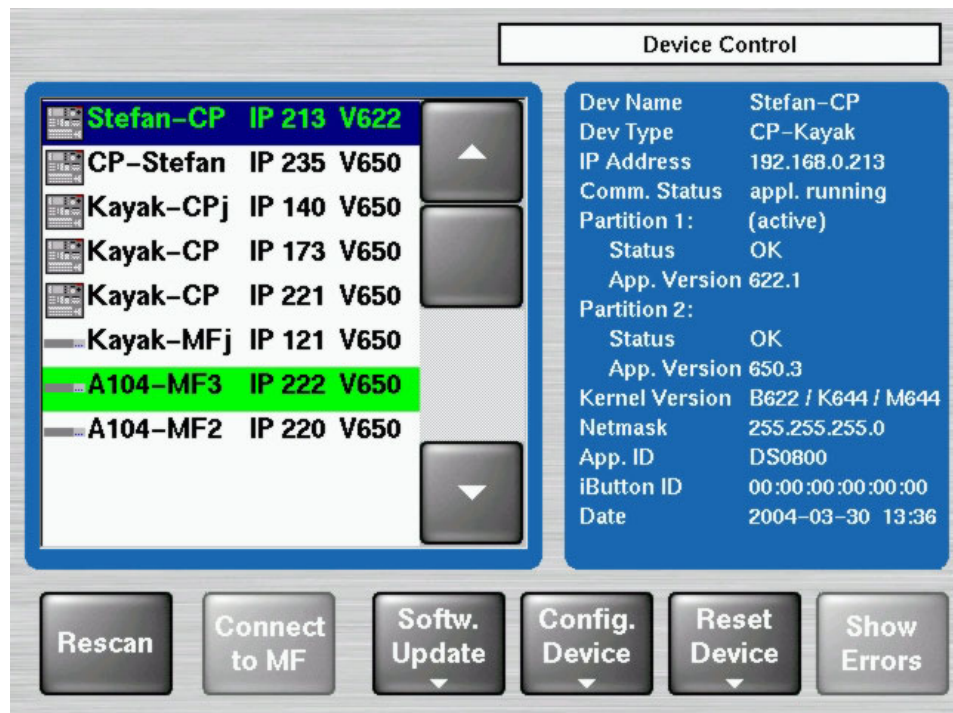
Figure 86. System Setup Dialog



Software Versions

The currently loaded software versions of the Kayak system devices is shown on the Device Control menu, accessed via **Home - Install - System - Device Control** (Figure 87).

Figure 87. Device Control Menu



The Device Control menu shows on the left all the network connected devices (Kayak-MF = Mainframe, Kayak-CP = Control Panel) with IP address and software version installed.

On the right details of the selected device are listed.

Software Update

Kayak system software updates are distributed on a Kayak Software Release CD-ROM, or can be downloaded from the Thomson Grass Valley web site.

Software updates can be installed to Kayak system components by transferring the software to a compatible USB flash drive that can be plugged into the switcher control panel. Refer to the *Kayak Release Notes* for a list of compatible flash drives.

The Sidepanel program is also available on the Kayak Software CD-ROM or with the web site download. The Sidepanel program can be installed onto a PC and used for Kayak system configuration and to access additional advanced Kayak system capabilities.

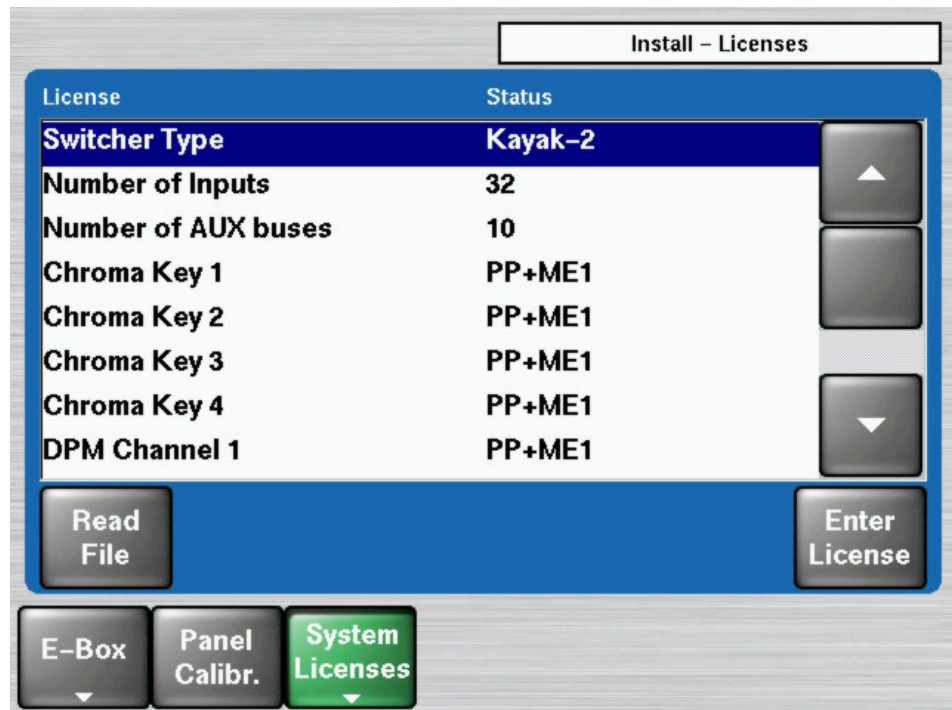
Refer to the latest *Kayak Release Notes* for a detailed description of the complete software installation procedure.

Software Option Licenses

Kayak HD has a software option licensing system. You can see the number and type of possible licenses for your system by going to the **Licenses** menu under **Home | Install | System | Licenses** (Figure 88).

The Licenses menu is used to add licenses to a system. The licenses are stored in 2 EEPROMs (Electrically Erasable Programmable Read Only Memory chips) located in the backplane of the frame. Licenses cannot be moved between different Kayak HD frames.

Figure 88. Install Licenses Menu



Available Options and Configuration Licenses

The following operation features are options or configurations available only if the corresponding license is activated.

- Switcher Type
- Number of Inputs
- Number of Outputs
- Chroma Key
- RGB Color Correction
- DPM Channels
- Kurl (Kayak HD/SD only, not KayakDD)
- Spektra (Kayak HD/SD only, not KayakDD)

- DSK/Half M/E (Kayak HD/SD only, not KayakDD)
- NetCentral

Note For basic operation licenses are required for **Switcher Type**, **Number of Inputs**, and **Number of Outputs**.

Additional licenses for newly developed features may become available in the future.

Installing Licenses

Kayak system licenses can be installed two different ways.

- The recommended installation method consists of copying the `sp_license.txt` file (which contains all your licenses) to a supported USB flash drive, and using the Licenses menu to install them onto your system.
- An alternative installation method consists of manually entering the text string of each license using a GUI keyboard available on the Licenses menu.

With either method a Kayak system reboot is required to activate the licenses. Refer to the latest *Kayak Release Notes* for detailed license installation procedures.

Config Menus

After touching the **Config** button in the Home menu a new dialog appears with the following configuration items:

- Application Control
- E-Box Configuration (GPI, GPO, ...)
- Panel Assignment

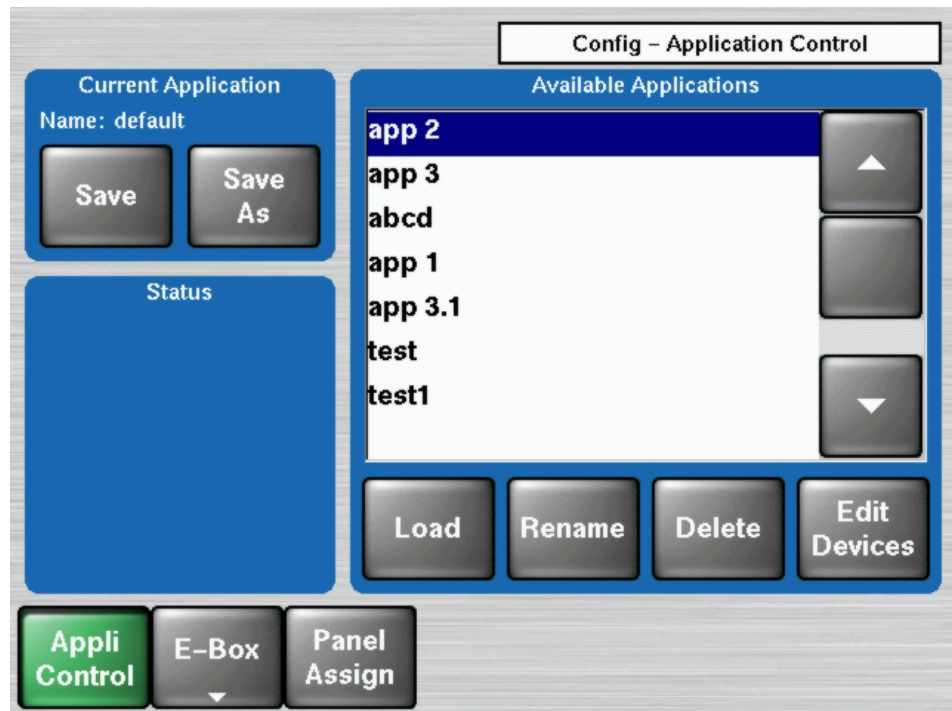
All configuration setups are part of an application and can be stored and recalled as an application.

Application Control

The application menu is designed to handle the use of applications within a Kayak HD system. Applications can be loaded from a USB flash drive and started, stopped, modified or created new.

Note Please save your application data regularly on a USB flash drive. Application data are stored in the internal RAM and can be lost if the battery dies.

Figure 89. Config – Application Control



The Application menu shows a list of the available applications of the connected Mainframe.

Note Buttons are grayed out (inoperable) if a USB stick is not present in a supported control panel USB port. USB ports labeled SPARE are not supported.

Save - Saves the current application.

Save As - Saves the current application with a selectable file name.

Load - Loads the application files from the USB flash drive into the Kayak system.

Rename- Opens a dialog window to rename the selected application file.

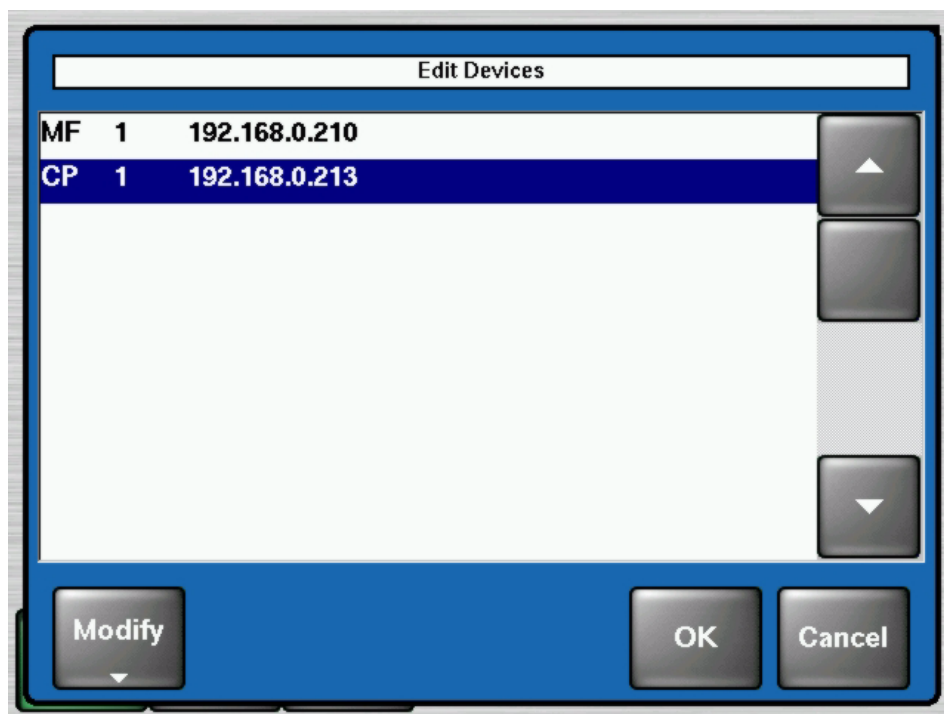
Delete - Deletes the selected application file.

Edit Devices - If an application file was loaded which was stored in another switcher system, the device names of this application must be customized.

To Customize Application Device Names:

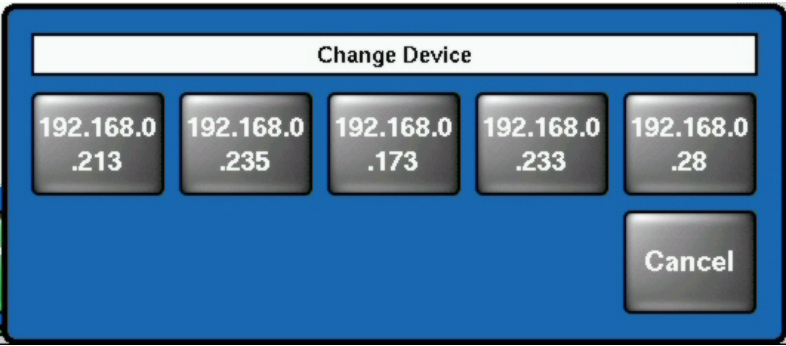
1. Press the **Edit Devices** button to display a list of the IP addresses of the former devices ([Figure 90](#)).

Figure 90. Config – Application Control – Edit Devices



2. Select the control panel and press **Modify** to generate a list of connected devices (See [Figure 91](#)) in the network.

Figure 91. Config – Application Control – Change Devices

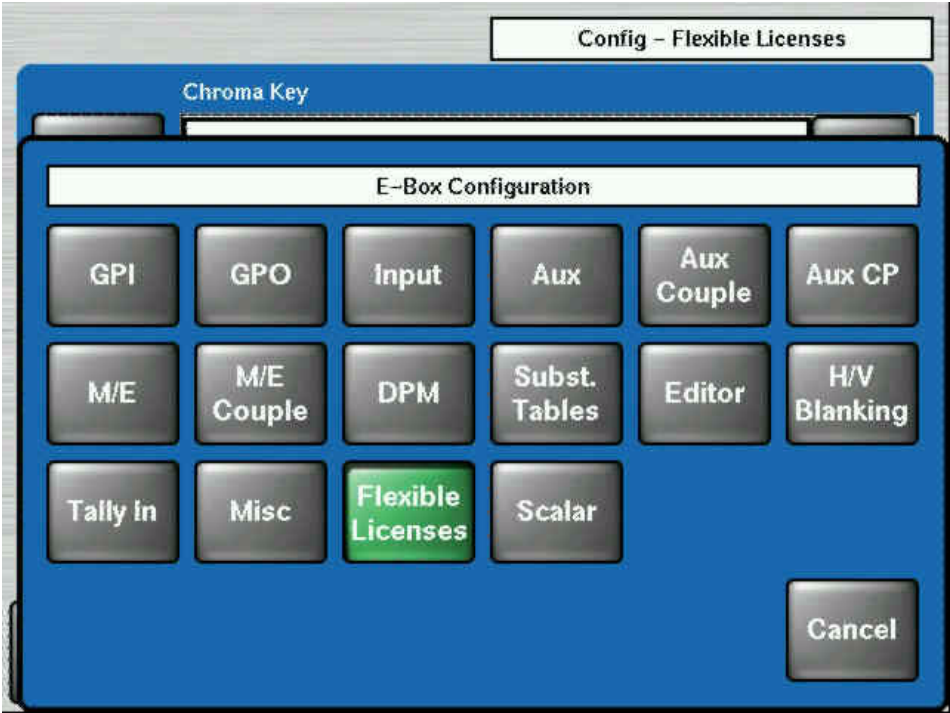


3. Select the IP address of the desired device and press **OK** to update the application file.

E-Box Configurations

After touching the **E-Box** button in the Config menu a new dialog displays with various configuration items ([Figure 92](#)).

Figure 92. Config – E-Box Configuration



Press a button to configure the different system properties.

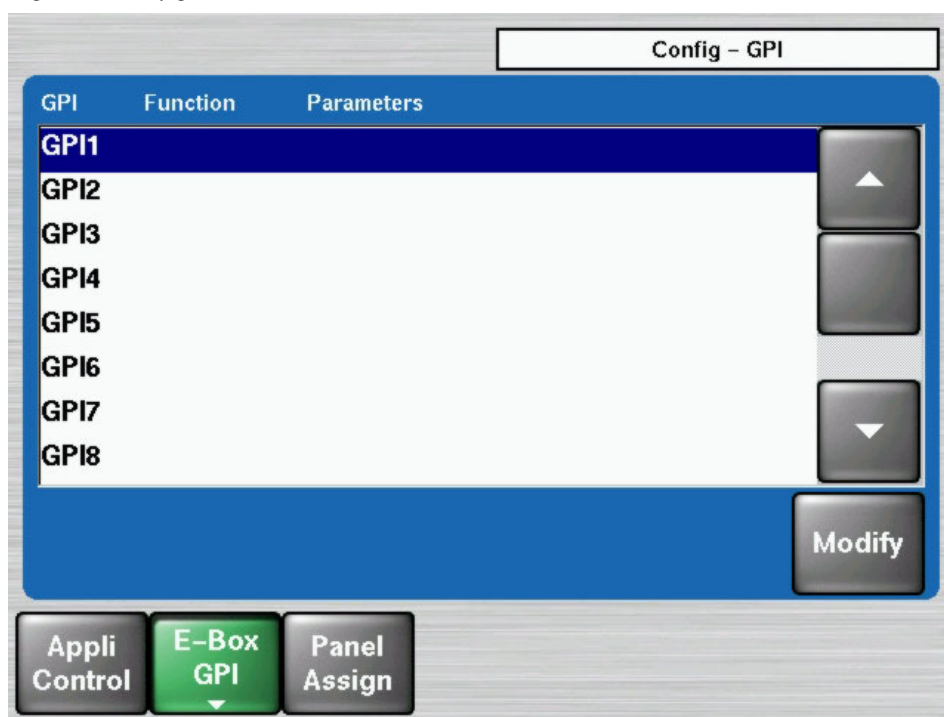
Config - GPI Menu

General Purpose Interface Inputs (GPI Inputs) can be used by an external device to trigger an action on the Kayak HD system. See Installation Manual for pinout specifications.

The Config-GPI menu allows programming up to 32 system GPI inputs (8 per M/E). Various actions can be performed when a GPI contact closes, including selecting a source on a bus, recalling an E-MEM, and triggering a transition.

In this Install-GPI menu the physical properties of each GPI channels can be adjusted.

Figure 93. Config - GPI Menu



Touching the **Modify** button displays a pop-up list. The selected function will be triggered on the edge defined in the **Install -GPI** menu.

Figure 94. Config - GPI Functions



Config - GPO / Tally Menu

The General Purpose Interface Output/Tally menus are used to configure the tally system. There are multiple tally calculators, three different tally calculation methods, and user assignment of tally relays. The results of the tally calculators are applied to the tally relays on the Video Processor frame, and those relays control external tally lights.

Tally is recalculated and refreshed every field.

In addition the GPO Output contact closures are used by the Kayak HD system for simple trigger control of external devices.

About Tally Systems

In general, a tally system identifies which sources to the switcher contribute to the final picture at a selected point in the video chain. The identification is communicated by activating relays in the video frame. The method by which the sources are determined is called the tally calculation.

The tally calculation begins at a point in the video path and then traces the path of the signals upstream to their original video (and key) sources. The state of the switcher affects tally. For example, tally on a true clean feed only includes sources that contribute to the main output, but tally on a program-mable clean feed can include sources that do not contribute to the main output.

The On Air Tally (Red Tally) calculations are essential for switcher operation. This tally calculation forms the basis for On Air indication (panel, camera tally lights, etc.), and other functions such as external device Auto Start, Off Air Advance, or router protections. On Air tally calculations normally start at the Pgm-Pst PGM outputs.

User tally calculations can be used for purposes other than On Air tally. These tally calculations still trace the video path up stream from the specified points in the video path, but the starting point does not necessarily have to be a program output. For example, a Look Ahead tally begins at the Pgm-Pst Look Ahead Preview (LAP). When a transition is not in progress this virtual output is not on air.

The Output Tally (Green Tally) calculator indicates which sources contribute to designated outputs. For example, a M/E Iso tally is a user configured Output tally set up to begin at an M/E's PGM. The tally would indicate what contributes to the M/E's program outputs but not anything down stream of it. The tally would be the same whether or not the M/E was On Air.

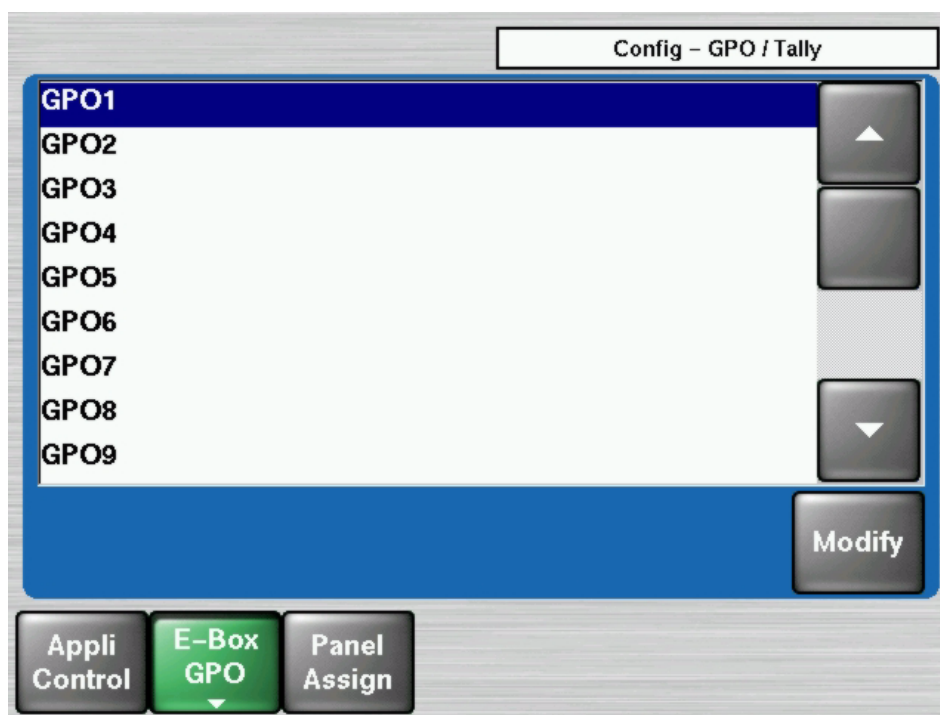
The Look Ahead Tally (Yellow Tally) calculator indicates which sources will be on air if a main transition is performed on the selected level. One way this can be used is for a second set of tally lamps on a camera to alert the camera operator that his camera is next to be taken on air. Many control room monitor walls also include a secondary tally indicator for Look Ahead.

However, if an M/E is placed down stream of Pgm-Pst the On Air tally calculation can be configured to start at that M/E's program outputs. If this situation is planned, it is recommended that AUX buses be set up to provide the real program outputs for the switcher and the On Air calculation configured using those AUX buses as the tributaries.

GPO / Tally Configuration

The **Config-GPO / Tally** menu serves to configure up to 128 channels (32 channels per M/E). The physical properties of each GPO channels can be adjusted in the Install-GPO menu.

Figure 95. Config - GPO Menu



Touching the **Modify** button calls a sub-menu. In this menu the tally mode of the selected GPO channel 1 – 128 can be configured.

Figure 96. Config - GPO / Tally Mode Selection

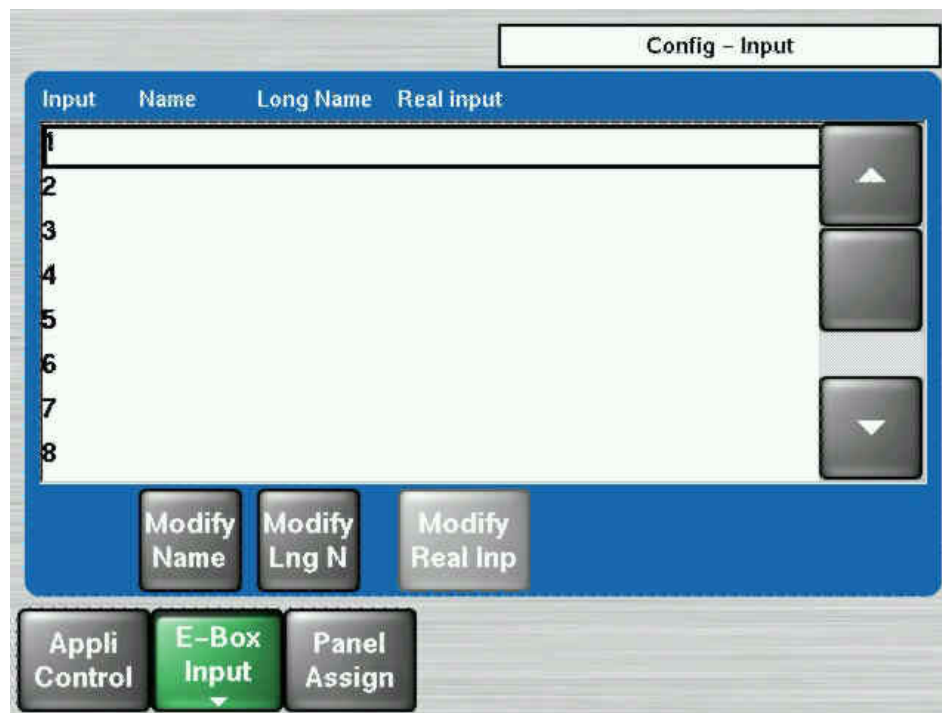


None:	No tally is selected
Red:	On Air Tally is selected
Yellow:	Look Ahead Tally is selected
Green:	Isolated On Air Tally is selected

Config - Input Menu

The Config - Input menu is used to name sources and couple keys for sources (Figure 97).

Figure 97. Config - Input Menu



Naming Sources

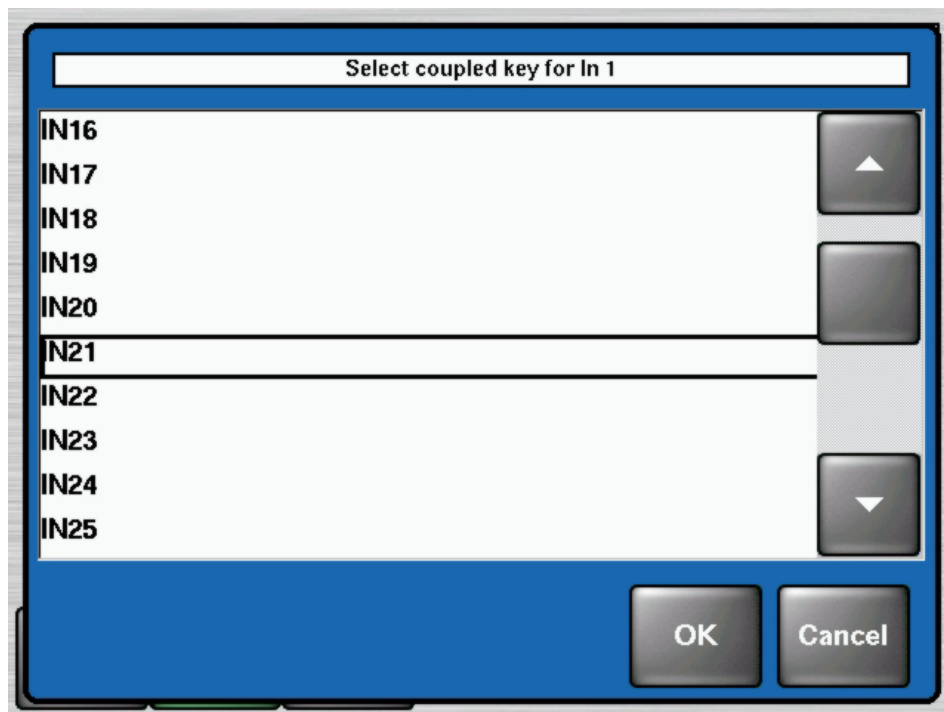
The Name of a source is displayed on the Control panel, and is limited to four characters. The Long Name of a source appears in configuration menus, and can be XXX characters.

Touch **Modify Name** or **Modify Lng N** to bring up a keypad to enter that name for the selected source.

Coupling Keys

Touching the **Modify Cpld Key** button calls a sub-menu. In this menu the Key to be coupled to the selected fill source can be selected ([Figure 98](#)).

Figure 98. Config - Coupled Key Menu

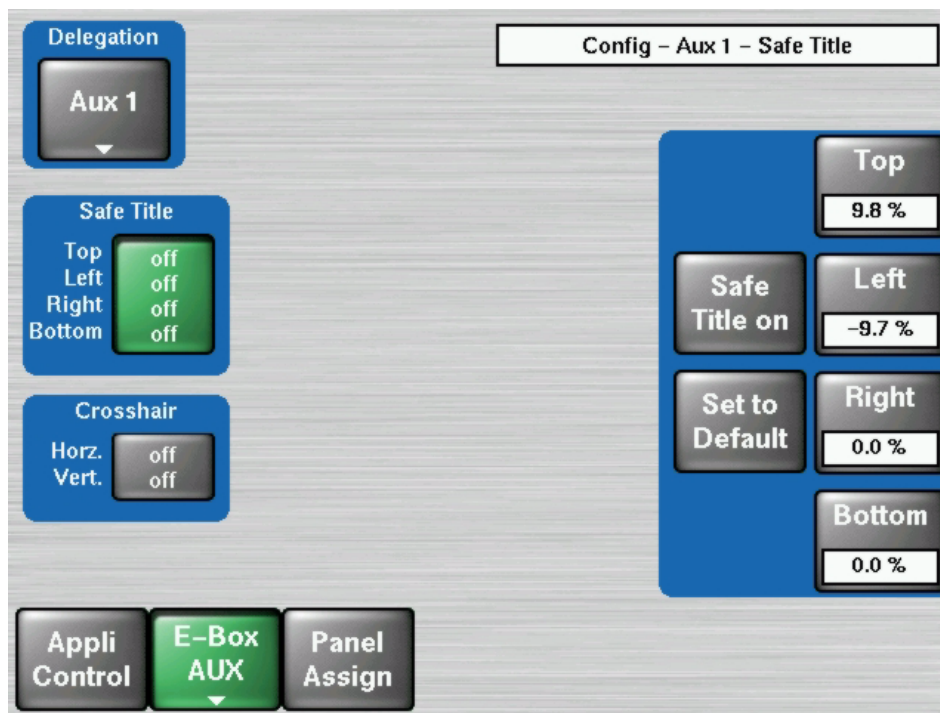


1. Select a Fill Source.
2. Press the **Modify Cpld Key** button.
3. Select a Key Source.
4. Press **OK** to finish the selection.

The **Reset All** button on the previous menu ([Figure 97 on page 162](#)) brings up buttons that can be used to reset all the key couplings to White (full raster key) or to Default (self key using the same source as the fill).

Config - AUX Menu

Figure 99. Config - AUX Menu

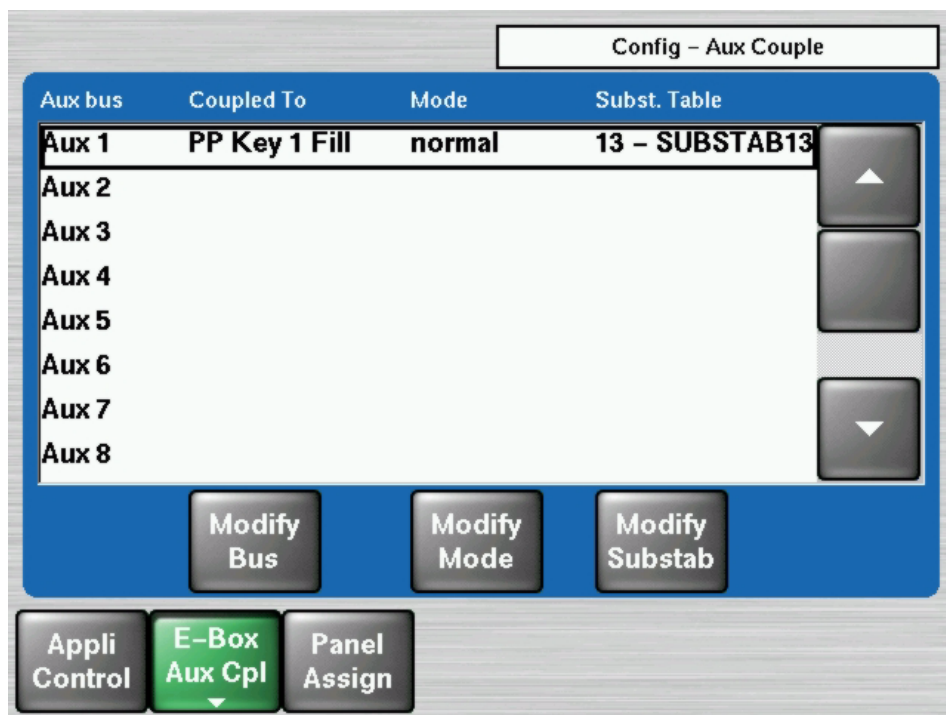


The Safe Title adjusting elements enable fading-in different auxiliary lines (Box, Cross) into each individual AUX bus. The fade-ins serve as an auxiliary means to mark production-defined picture areas (e.g. areas for logos, subtitles, 4:3 raster). The digipots enable to adjust the title box or the center cross over the complete picture area.

- Safe Title fades in a rectangular frame
- Crosshair fades in a center cross

Config - AUX Couple Menu

Figure 100. Config - AUX Couple Menu



The AUX Couple menu serves for coupling the AUX bus to other switcher buses (masters). If the source on the master is changed, the source on the coupled AUX bus follows automatically.

With the **Modify Bus** button the Master Bus can be selected.

With the **Modify Mode** button two modes of operation can be selected:

Normal

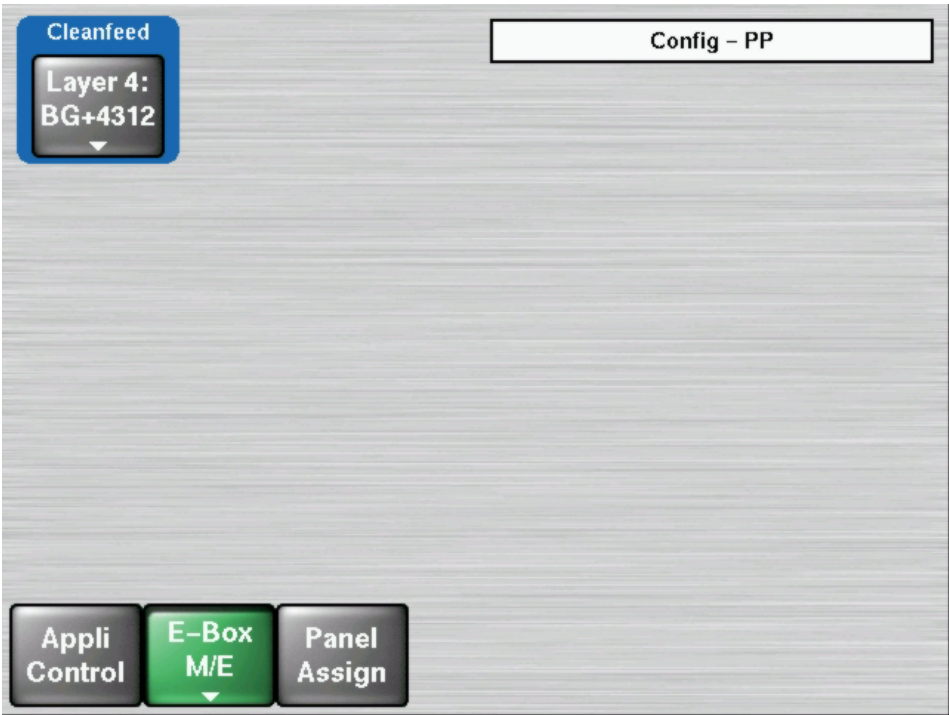
In coupled mode additional selection of sources on the AUX bus is possible.

- Exclusive
- In coupled mode additional selection of sources on the AUX bus is not possible.

With **Modify Substab** button a substitution table can be selected. These tables can be used by coupled AUX buses or coupled M/Es to exchange the source when the coupled AUX bus follows his master.

Config - M/E Menu

Figure 101. Config – M/E Menu



The **Config – M/E** menu serves to configure the cleanfeed layer.

Figure 102. Config – Cleanfeed Layer



Config - M/E Couple Menu

M/E Couple is used to support an additional transmission line output on a switcher whose main parts are identical to that of its main output, but differs in country specific video components (source- and/or keyer substitution). Those source replacements can be defined with substitution tables.

E-MEM recalls are used to set all - master and coupled M/Es - into an initial state depending on the next effect. According to the meaning of the effect the transition module then works correct with CUT, AUTO and the fader commands.

Figure 103. Config - ME Coupled Menu

ME	follows	SubstTab Pgm/Pst	SubstTab Key/Fill
PP	none	none	none
ME1	none	none	none
ME2	none	none	none
ME3	none	none	none
MEh	none	none	none

Buttons: Modify ME, Modify ST P/P, Modify ST K/F, Appli Control, E-Box M/E Cpl, Panel Assign

Coupling Rules

Each M/E can be coupled to any other M/E as long as they belong to the same application and the coupling doesn't become recursive. The coupling can be done in serial, parallel and in combinations.

Examples:

- Serial: **PP to ME3 to ME2**
ME3 is coupled to P/P
ME2 is coupled to ME3
ME1 is not coupled
- Parallel: **PP to ME3; PP to ME2**
Both, ME3 and ME2 are coupled to PP. ME1 is not coupled.
- Combined: **PP to ME3; PP to ME2**
Both, ME3 and ME2 are coupled to P/P.
ME2 to M/E1
ME1 is coupled to ME2

Note Recursion is not possible. PP to ME3; ME3 to PP is not allowed.

Each ME can be used as Master M/E. If a coupled M/E is modified directly via a control unit the master ME is not affected.

Note When the Half M/E is coupled (for example DSK mode) the stage is not available for ME Couple.

Coupled Resources

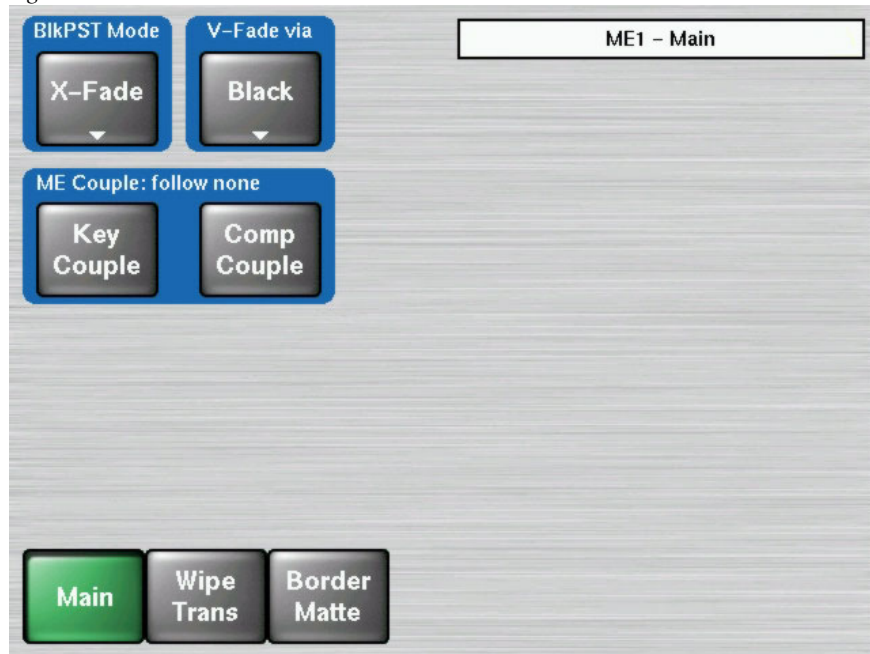
After selection of the ME Couple Mode in the **Config - E-Box** menu, the following M/E resources can be coupled:

- PGM and PST bus (optionally by one substitution table) at ME crossbar.
- CUT, AUTO and FADER at ME transition.

By selecting **ME Couple** in the ME Main menu, M/E Coupling can be activated or deactivated for each resource.

- **Key Couple** button: Key bus only
- **Comp Couple** button: complete ME.

Figure 104. ME Main Menu



E-MEM Handling

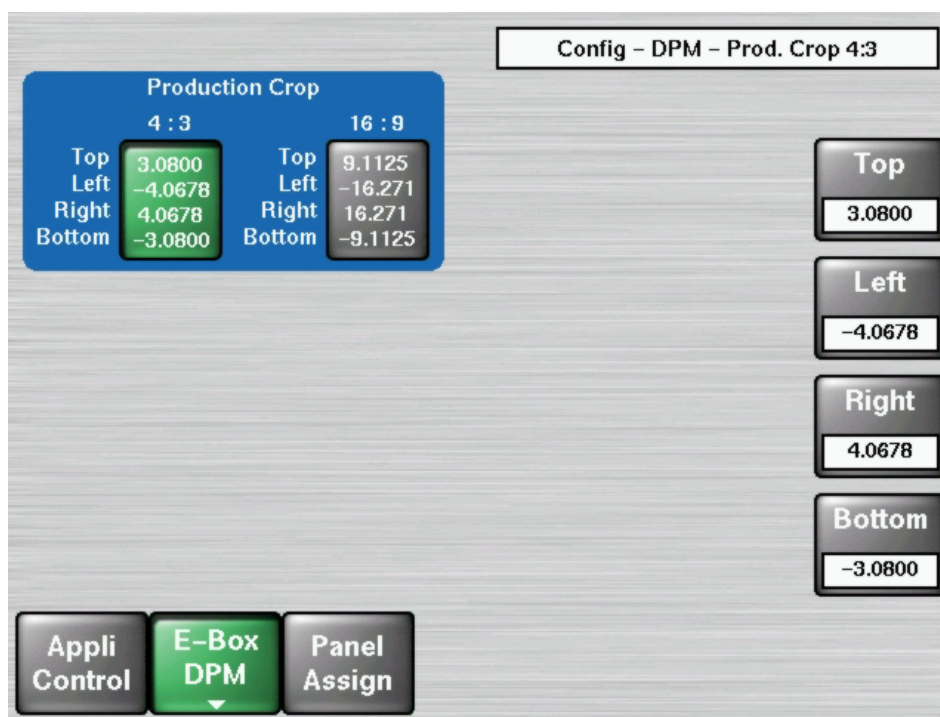
M/E coupling works on command level. This means that E-MEM recalls and application load are disregarding M/E coupling. It is used to preset M/Es.

Applications

Every application has its own, complete M/E coupled structure. If an application is loaded or the coupled state of one application is changed, this new modification is checked and accepted or rejected (see [Coupling Rules on page 167](#)).

Config - DPM Menu

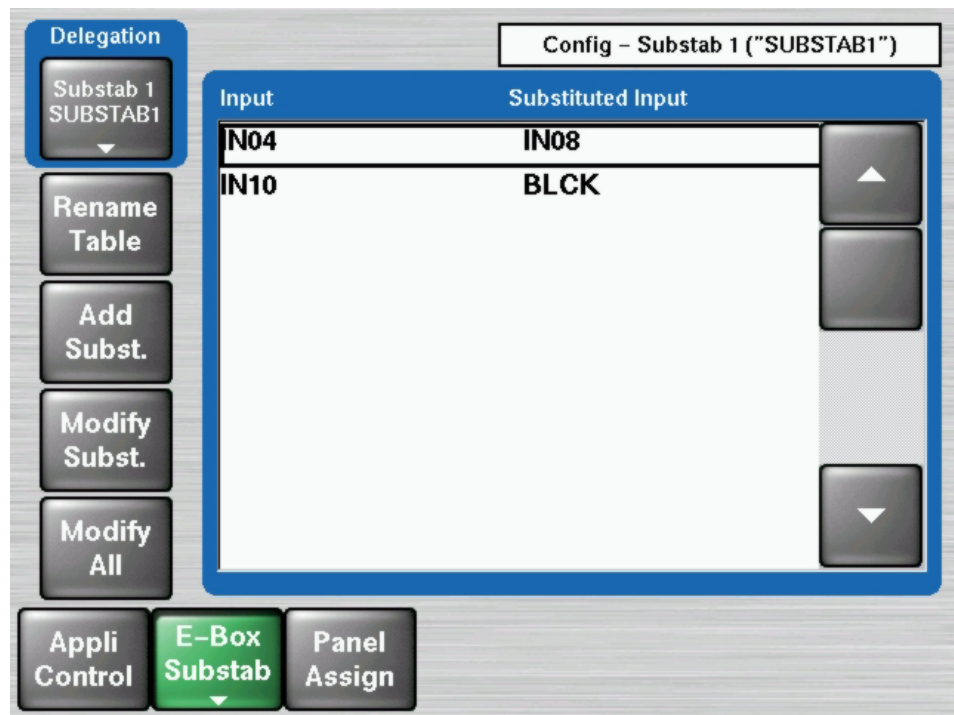
Figure 105. Config – DPM Menu



The production crop settings allow you to adjust an overall crop for the DPM channels. Additional cropping per channel is possible in the **DPM/Transform/Crop** menu.

Config - Substitution Tables Menu

Figure 106. Config – Substab Menu



The **Config Substab** menu serves to configure up to 15 substitution tables. These tables can be used by coupled AUX buses or coupled M/Es to exchange the source when the coupled AUX bus follows his master.

Rename Table - Enter an own name for the substitution table.

Add Subst - Enter a new substitution pair in the selected table.

Modify Subst - Modify the selected table.

Modify All - Sets all substituted inputs to a selectable input, to white/black or delete all, if no substitution pair is available.

Config - Editor Menu

Figure 107. Config – Editor Menu



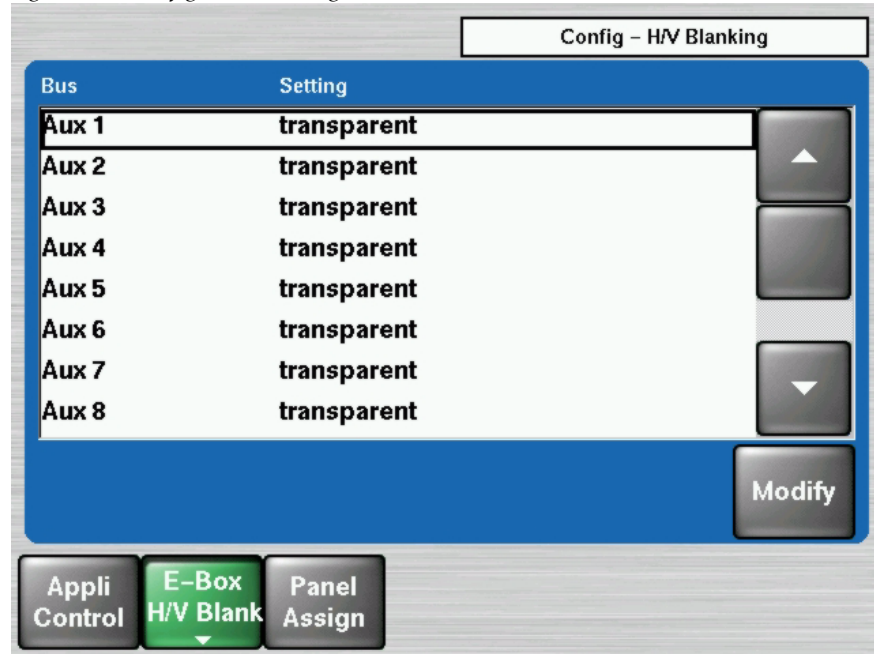
The **Config Editor** menu allows you to re-direct external editing system commands to different Kalypso system outputs. Use the **Delegation** button to select the desired editor, select the desired parameter, and then touch **Modify** and select an alternative target setting for the editor command.

Config - H/V Blanking Menu

H/V blanking settings that used to only be accessible with the Sidepanel program are now available on a Kayak menu.

Select **Config | E-Box | H/V Blanking** to bring up the menu ([Figure 108](#)).

Figure 108. Config H/V Blanking Menu



This function can be selected for each output and AUX busses separately

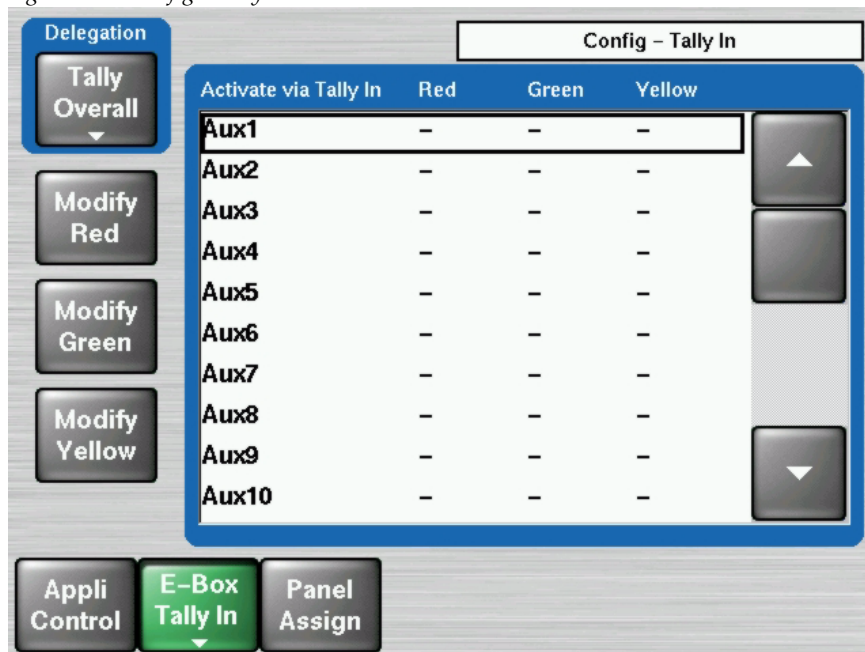
The **Modify** button can be used to switch between the transparent and blanked settings. In the blanked position the V-gap and the H-gap is replaced by BLACK and the internal sync frame is added. In the transparent position the information contained in the V-gap (VITS, videotext etc.) are retained.

Config Tally In Menu

Figure 109 shows the basic configuration menu for different Tally calculations methods. In this menu one or more output channels can be activated for signalling.

- **Red Tally** - On Air Tally - for source and monitor signalling
- **Green Tally** - Special On Air Tally - for isolated sources
- **Yellow Tally** - Look Ahead Tally

Figure 109. Config - Tally In Menu



With the button in Delegation pane the mode of the tally calculation can be selected:

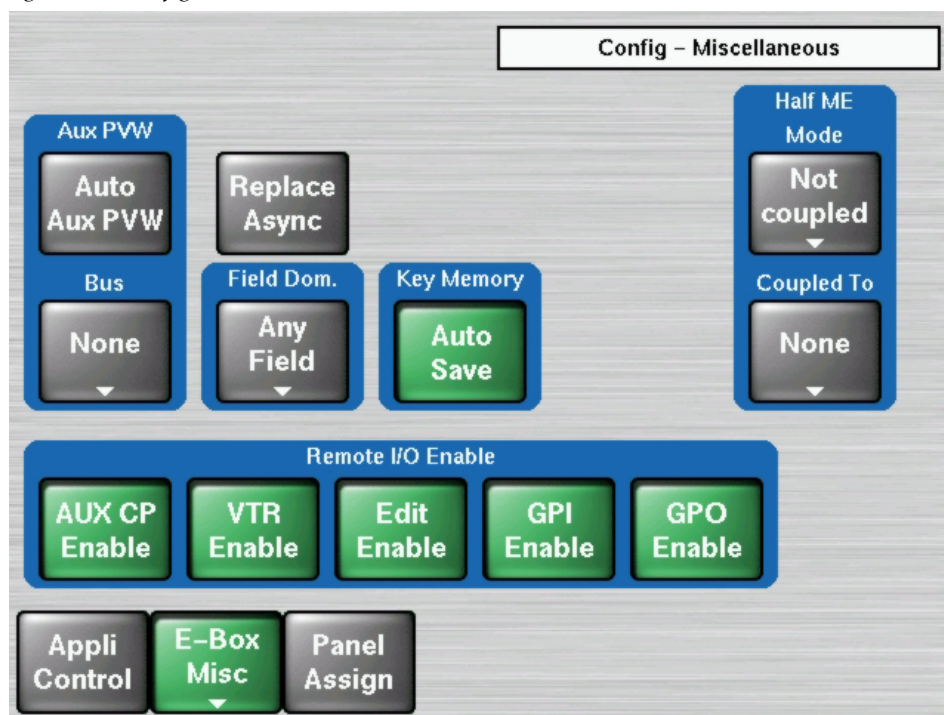
Tally Overall: Default

Tally 1..4: Prepared for multi-applications

Touching the **Modify Red / Green / Blue** button activates/deactivates a selected output channel.

Config - Misc Menu

Figure 110. Config – Misc Menu



AUX PVW (Preview) / Bus

Auto AUX Preview button: On/Off:

Enable or disable the Auto PVW mode. In enabled condition the key PVW, mask PVW or the chroma key cursor signal of the respective mixing level is switched on the PVW bus.

Bus button:

Selecting the desired AUX Preview Bus: **None, Aux1 ... Aux20**

Replace Async: On/Off

The button permits the selection of different modes for the treatment of asynchronous sources in the switching levels (M/E1, M/E2, P/P):

On: If Background/Program are asynchronous, enabled keys are disabled. If Background/Program are synchronous and the fill signal of a key becomes asynchronous, the enabled key is disabled. If Background/Program or Preset are asynchronous and a transition is selected, a cut is performed at the end of the transition.

Off: Asynchronous signals are phased over H and are passed.

Field Dominance

The button can be used to switch over between **Any Field**, **Field1** and **Field2**. The setting concerns the switching of the crosspoints on all buses, the start of auto transitions, switching with Cut and the recalling of snapshots and timelines. In position **Any Field** switching occurs at the beginning of the next frame. In position **Field 1/2** switching or starting occurs before the corresponding field.

Key Memory - Auto Save On/Off

If the **Key Memory** button is switched on in a Keyers menu, the key memory is always recalled if the key sources are changed during control panel operation. These changes can occur directly by selecting another key source or also indirectly by changing the Fill source or the Split mode.

For storing the key settings in the key memory two modes are available:

Auto Save: If the button **AutoSave** is activated (On), the settings of the previous key signal are stored automatically before the settings of the next key are recalled.

If the button **AutoSave** is deactivated (Off), the stored settings of the new key are recalled without saving the previous settings.

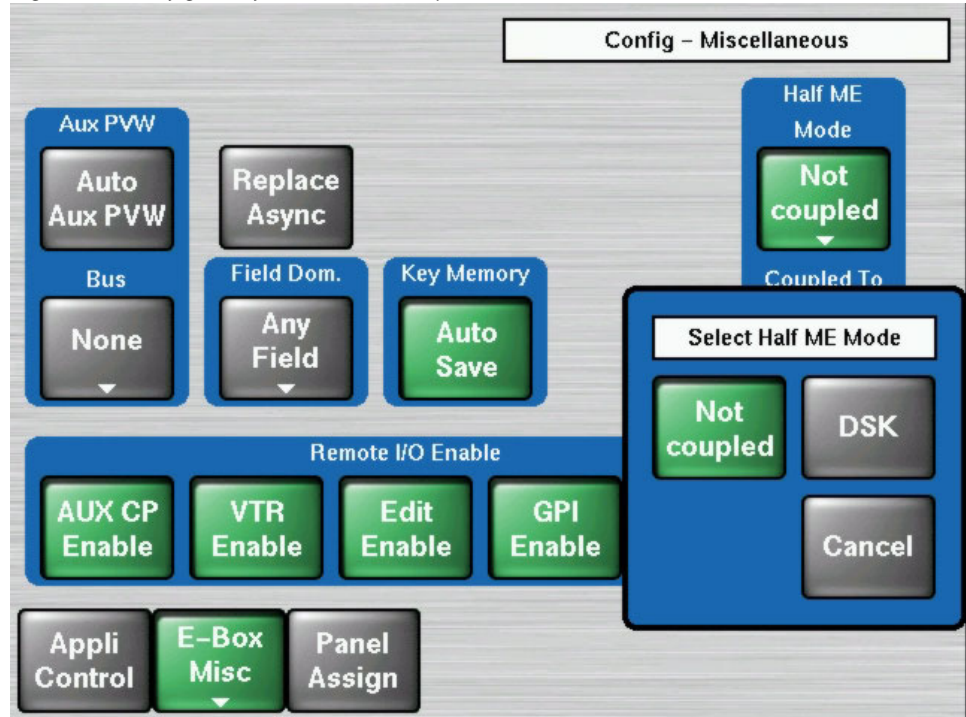
Manual Storing: The Key Memory button **AutoSave** is deactivated (Off). For storing the current settings into the key memory, press the button of the respective Fill source approximately two seconds. The storing is confirmed by a short beep in the control panel.

Format (SD switcher only)

Select TV size standard 4:3 or 16:9.

Half M/E Configuration

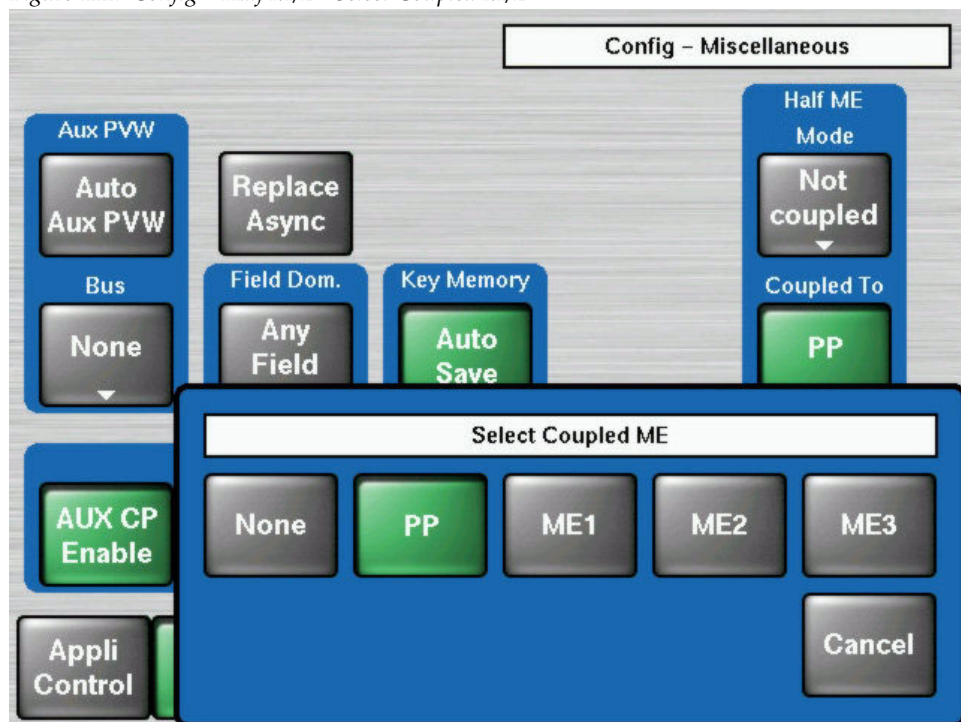
Figure 111. Config – Half M/E - Select Coupled Mode



Use the “Half M/E Mode” button to select the mode, and the “Coupled To” button to select the full M/E to couple the Half M/E to.

- In **Not coupled** mode, this button can be used in any panel M/E to delegate the panel M/E to the Half M/E. Once delegated, the Half M/E can be used exactly like any other full M/E.
- In **DSK** mode, the button works only in panel-M/Es that are delegated to the M/E that the Half M/E is coupled to. In this case, the panel M/E is also delegated to the Half M/E, but the background buses of the crossbar still control the full M/E, because the background buses of the Half M/E are set fixed to the outputs of the coupled full M/E.

Figure 112. Config – Half M/E - Select Coupled M/E



Select the full M/E to couple to the Half M/E.

Remote I/O Enable buttons

The Remote button group has to be used to enable the following functions:

- Enables AUX control panels
- Enables the VTR control
- Enables Editor control
- Enables GPI inputs channels
- Enables GPO output channels

Config - Flexible Licenses Menu

The Flexible Licenses menu is used to assign Chroma Keys. Touch the **Modify** button then select the desired keyer.

Figure 113. Config – Flexible Licenses Menu

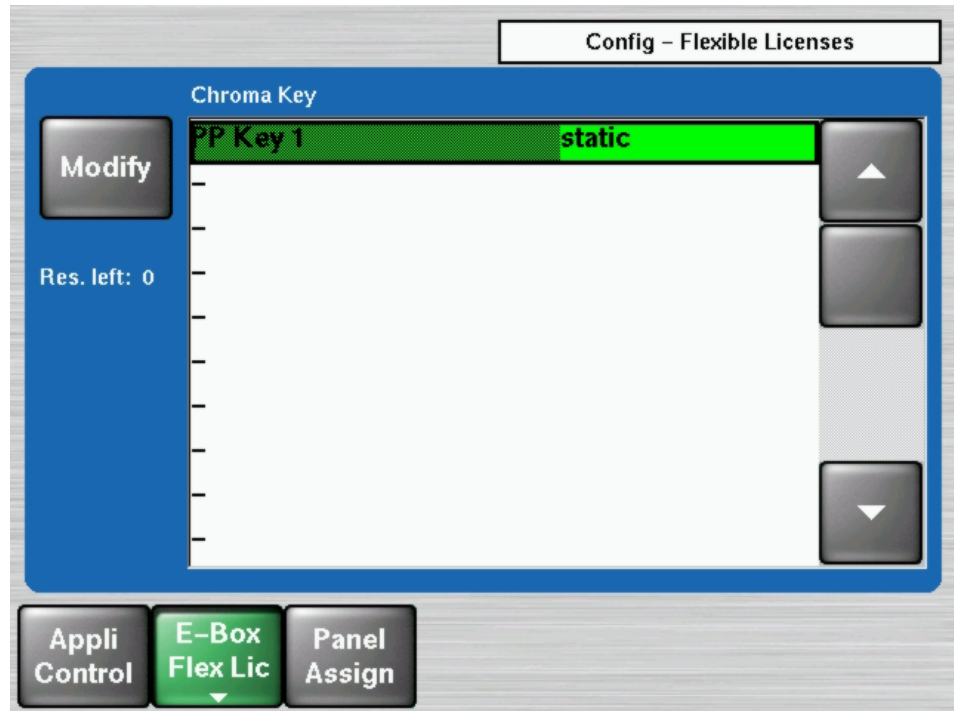
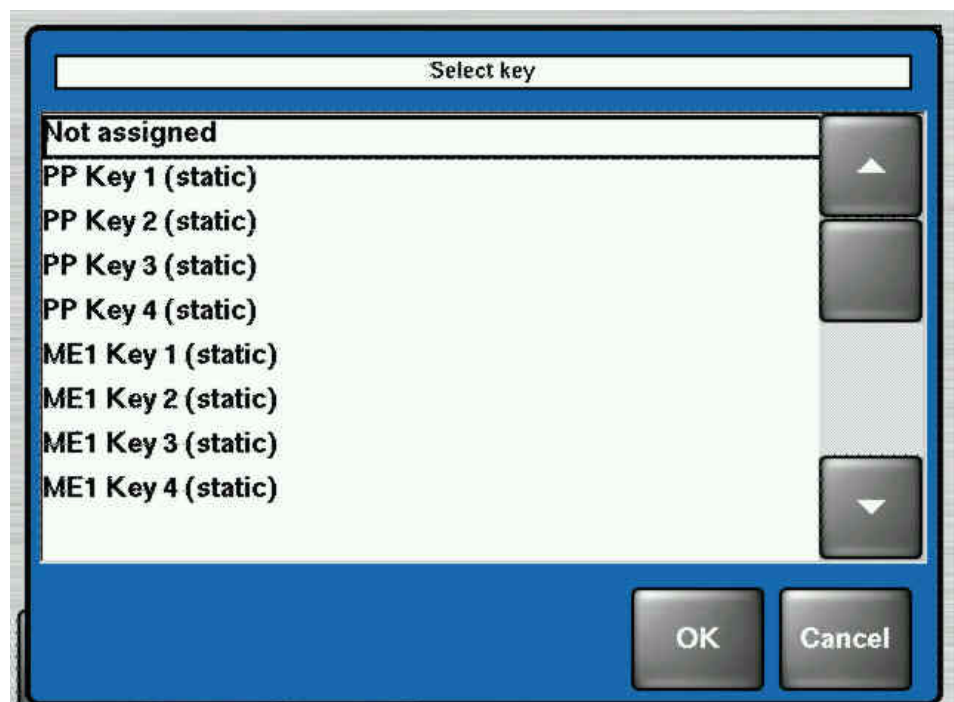
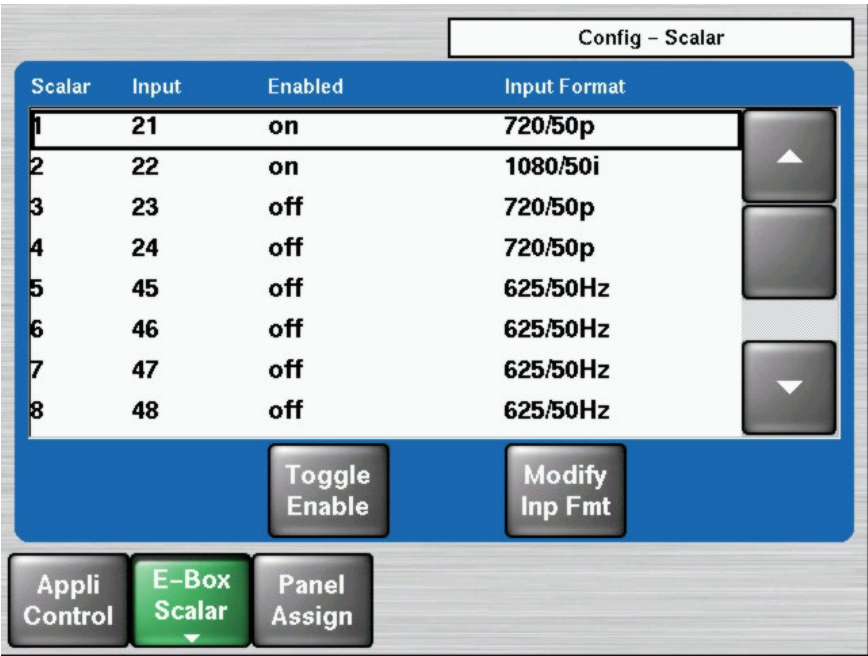


Figure 114. Config – Flexible Licenses Chroma Key Selection Menu



Config - Scalar Menu

Figure 115. Config – Scalar Menu



The Config - E-Box - Scalar Menu is used to configure Scalar conversion. See *Scalar Configuration* [on page 293](#) for more information.

Panel Assignment

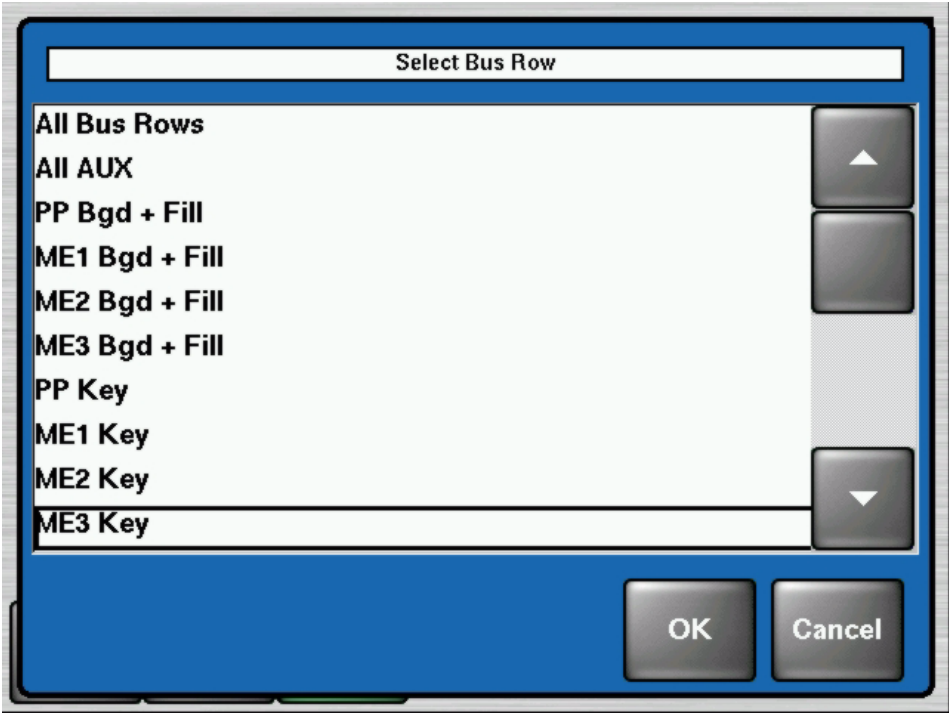
The Panel Assign menu serves to assign the hardware inputs and internal sources to the source buttons of the Kayak HD control panel.

Figure 116. Config – Panel Assign Menu



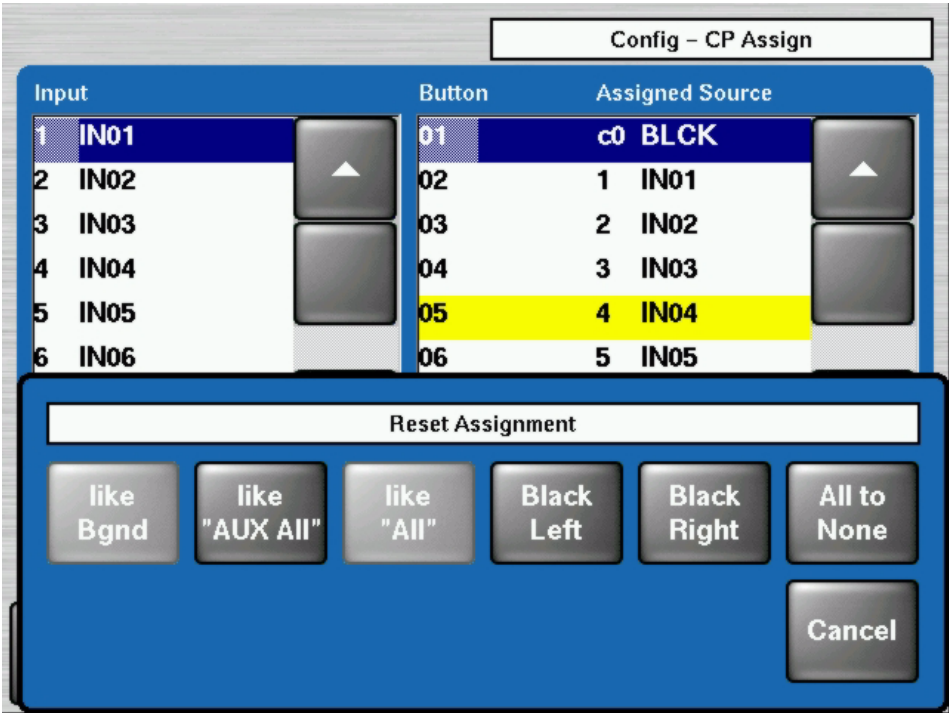
The legend of the first button on the left (**All Bus Rows** in [Figure 116](#)) indicates what buses will be affected. Touching this button brings up a menu allowing you to select the buses to which you wish to make source assignment changes. ([Figure 117 on page 182](#)).

Figure 117. Config – Panel Assignment - Bus Row Selection Menu



Pressing **Reset Assignment** opens an dialog with some pre-defined input assignments ([Figure 118](#)).

Figure 118. Config – Panel Assignment – Reset



Like Bgnd - Copies the input assignment from the Bgnd bus row into the key bus row (only for key buses)

Like AUX All - Copies the input assignment from the AUX All bus row into the selected bus row.

Like All - Copies the input assignment from the ALL bus row into the selected bus row.

Black Left - Makes a default assignment with input Black on the leftmost button.

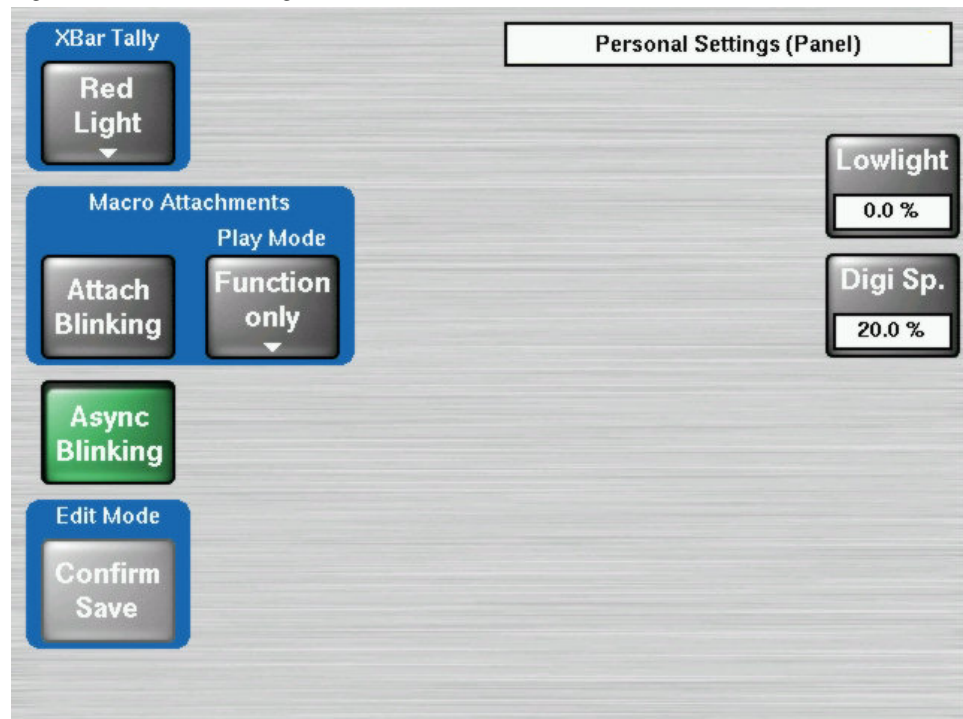
Black Right - Makes a default assignment with input **Black** on the rightmost button.

All None - Assigns no input to all buttons of selected bus row.

Cancel - Closes the dialog window.

Personal Settings Menus

Figure 119. Personal Settings Menu



Digipots and Low Light

Low Light - Basic brightness of all push buttons of the control panel. This control is only available on panels that support this function. For example, this control is missing on 2-M/E control panels (not supported) but is present on 1 M/E panels.

Digi Sp. - Digipot Speed. Sensitivity of the digipots can be adjusted to personal needs.

XBar Tally

Touching the **XBar Tally** button calls a sub-menu. In this menu the tally mode of crossbar buttons can be configured (Red Light / Bright Light).

Macro Attachment

Touching the **Macro Attachment Play Mode** button calls a sub-menu. In this menu the Play mode of the selected macro can be configured.

- Function Only
- Function & Macro
- Macro Only

Async Blinking

Asynchronous (non-synchronous) sources and color corrected sources are indicated by the same **Uncal** sign on the right of the bus.

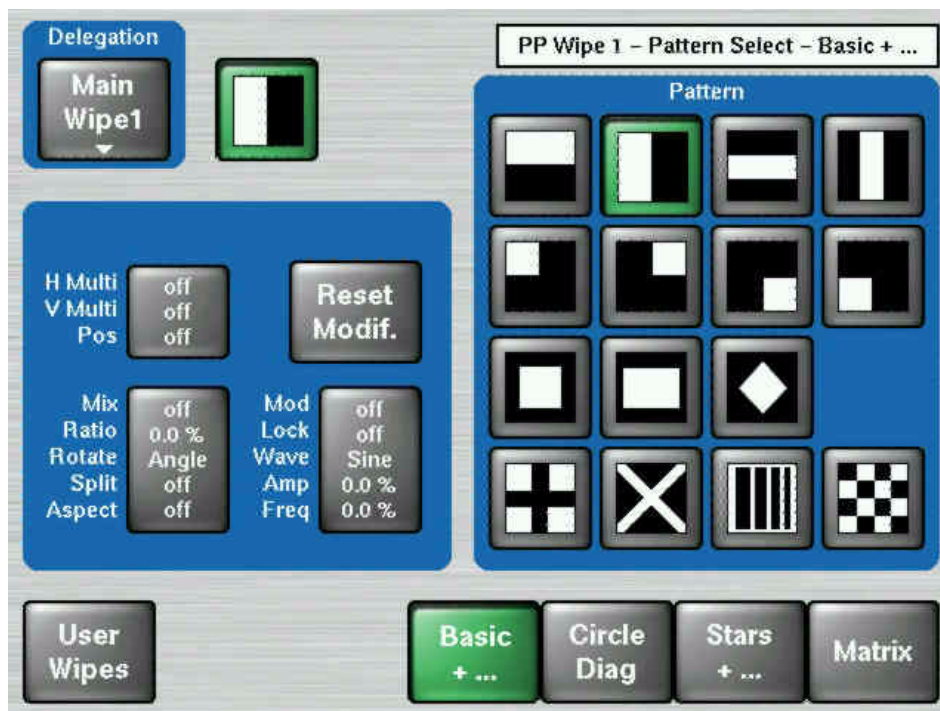
- A blinking **Uncal** sign indicates an asynchronous source.
- A constantly lit indicator indicates a color corrected source.

This function is unaffected by the “Async Blinking” button, i.e. you still get a constantly lit indicator for a color corrected source when “Async Blinking” is turned off. Turning off “Async Blinking” completely disables the indication of asynchronous sources via the **Uncal** lamps.

Wipes Menus

The **Wipe** menus allow selection and modification of wipe patterns. The **Wipe** menus, like the **Keyer** menus, have a delegation popup button. In the upper left area, the button next to it contains a pattern touch pad, which displays the currently selected wipe pattern (Figure 120).

Figure 120. Wipe Menu – Pattern Selection



In the wipe pattern selection panel, 16 wipe patterns may be directly selected. Further wipe patterns can be recalled by pressing one of the four wipe group selection buttons **Basic**, **Circle Diag**, **Stars** or **Matrix**:

Basic +

Combinations of horizontal, vertical, and diagonal edges

Circles / Diag

Enclosed shapes, expanding from the picture's center, combinations of horizontal, vertical, and diagonal edges and combinations of horizontal and vertical edges rotating about various center points (clock wipes)

Stars +...

Enclosed stars and shapes, expanding from the picture's center, and zigzag moving various directions

Matrix

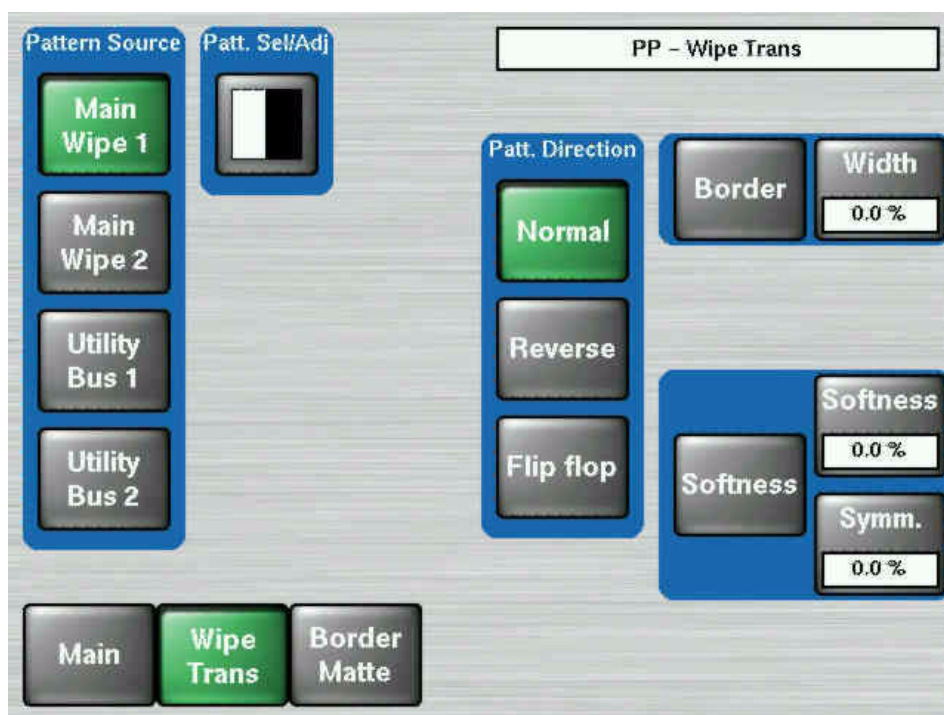
Wipes consisting of sequential revelation of picture squares (matrix wipes)

In addition to providing standard patterns, the Kayak HD production switcher offers the possibility to prepare and store user-defined wipe patterns.

The **Wipe** button in the Transition subpanel is a DPOP (Double-Press Open) button; double-pressing it calls up a variation of the M/E menu.

([Figure 121](#))

Figure 121. Wipe Menu – DPOP

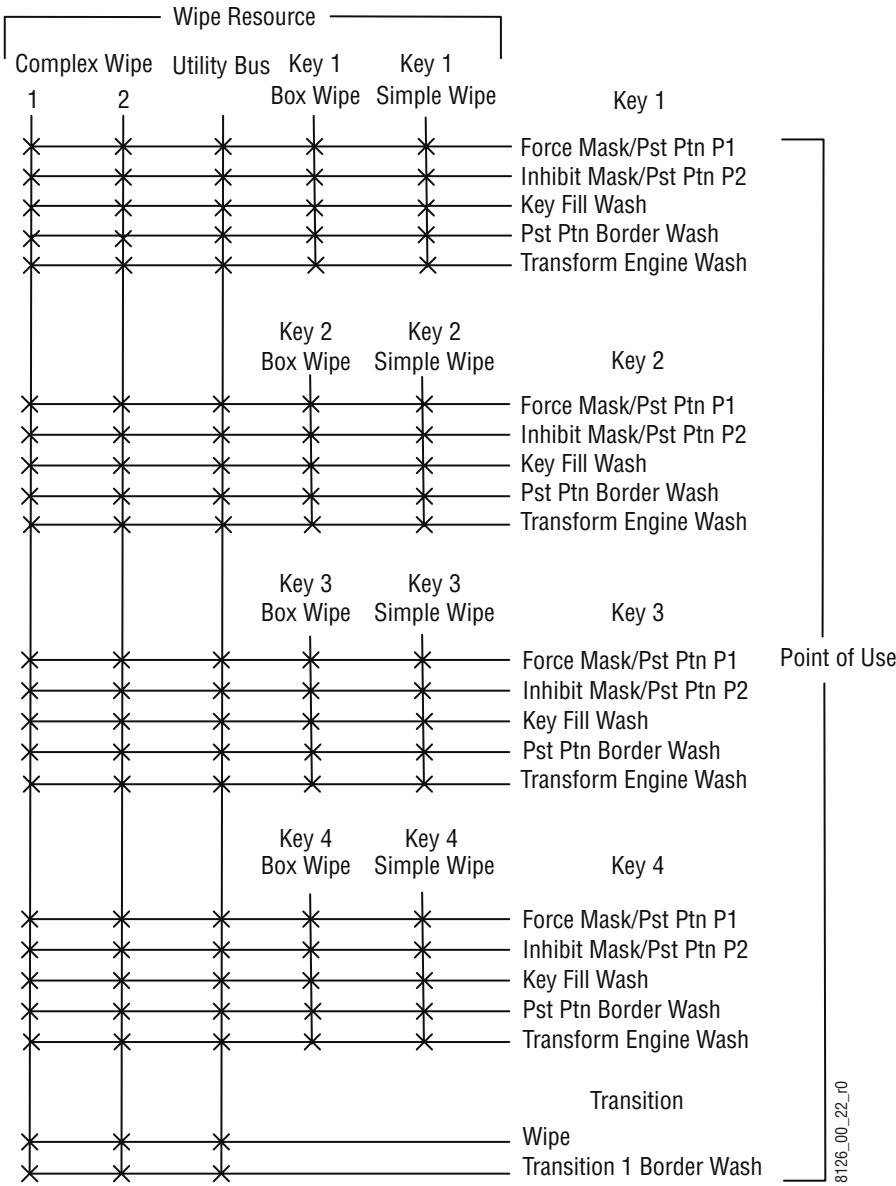


Delegation buttons are located on the left, and controls for Pattern Direction, Border, Softness, and Border Matte are available. Touching the **Patt Sel/Adj** button opens a variation of the pattern selection menu ([Figure 120 on page 186](#)).

Point Of Use

Only the controls which affect the pattern generator itself are adjusted in the wipe menu. Other parameters like size, border, direction, which are different per point of use are set in the corresponding M/E or Keyer menus. For operating simplicity, you may decide to use the Complex wipe generators (Wipe1 and Wipe2) for main transitions, and the simpler Box and Keyer wipe pattern generators for the keyers. However, the Kayak HD system gives you the flexibility to use complex wipe generators with either main transitions or for keying and masking, and also the ability to use Utility bus video as the wipe pattern shape. Wipe resources and points of use are diagramed in [Figure 122 on page 188](#).

Figure 122. Typical Wipe Switching Matrix and Point of Use



Wipe Pattern Number Code

The available wipe patterns and their assigned codes are included in the figures below.

Codes are named according to ANSI/SMPTE 258M. Code names in [xx] are GV pattern numbers.

Page 1 – Basic Pattern

Figure 123. Page 1 – Basic Pattern

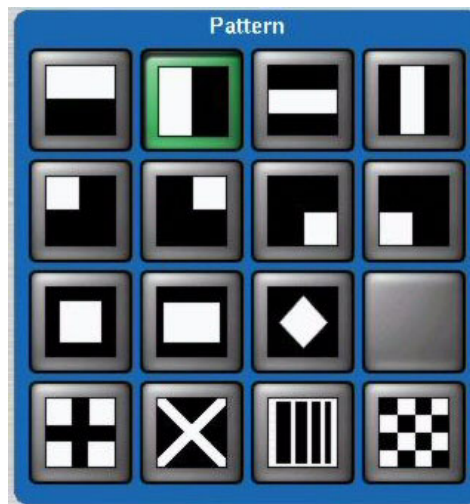


Table 9. Page 1 - Basic Pattern Respective Code Numbers

002 (10)	001 (0)	022 (30)	021 (20)
003	004	005	006
009	101	020	
007	047 (17)	501 (46)	502 (58)

Page 2 – Circle and Rotary

Figure 124. Page 2 – Circle and Rotary

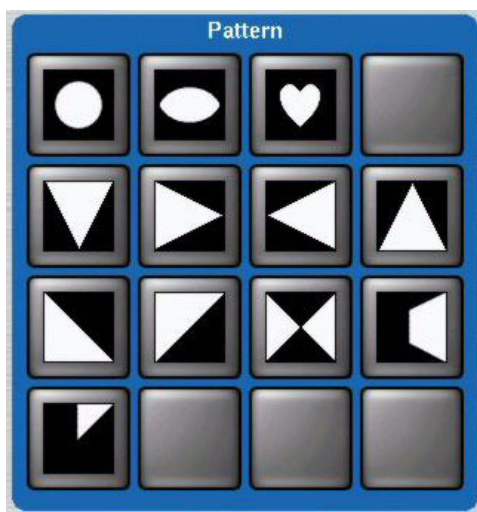


Table 10. Page 2 - Circle and Rotary Respective Code Numbers

119	122	130 (28)	
061	064	062	063
042	041	044	261 (16)
191 (6)			

Page 3 – Stars and ZigZag

Figure 125. Page 3 – Stars and ZigZag

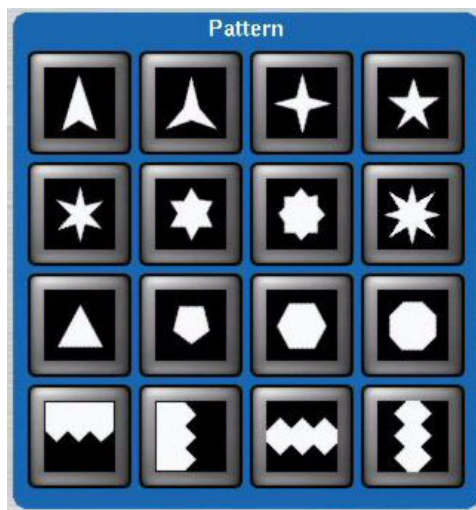


Table 11. Page 3 – Stars and ZigZag Respective Code Numbers

107	513 (40)	127 (41)	128 (27)
504 (42)	129 (43)	505 (44)	132 (59)
103 (5)	112 (15)	113 (8)	506 (18)
072 (25)	071 (26)	507 (36)	508 (35)

Page 4 – Matrix Wipes (in preparation)

Figure 126. Page 4 – Matrix Wipes

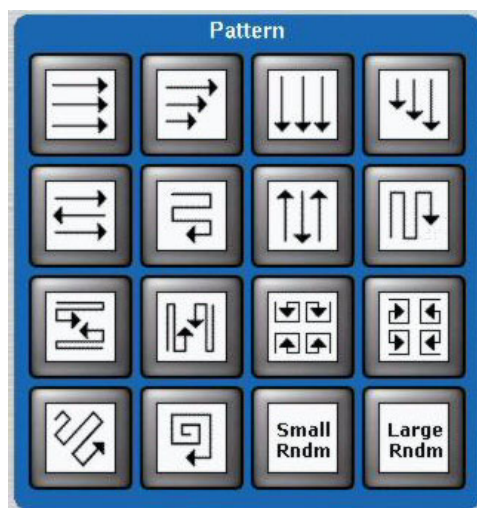


Table 12. Page 4 – Matrix Wipes Respective Code Numbers

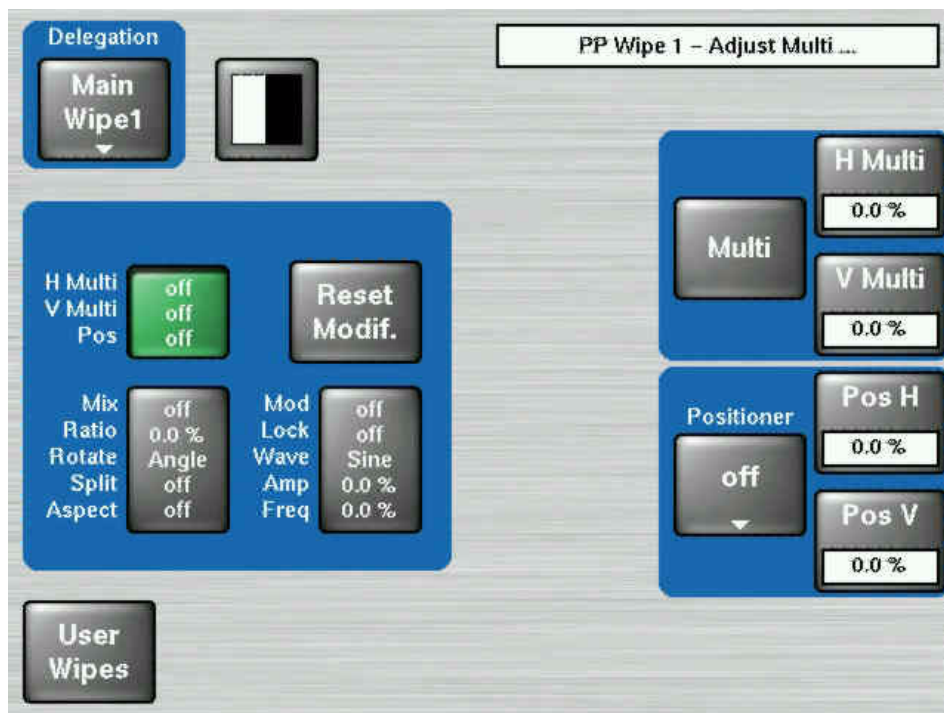
509 (52)	086 (29)	510 (51)	080 (48)
511 (49)	301 (19)	512 (50)	302 (47)
326 (56)	323 (57)	344 (53)	345 (55)
303 (54)	087 (9)	513 (38)	085 (39)

Wipe Modifier

Using the modifiers like **H/V Multi**, **Mix/Ratio/...** or **Mod/Lock/...** the standard wipe patterns can be changed and new patterns can be created.

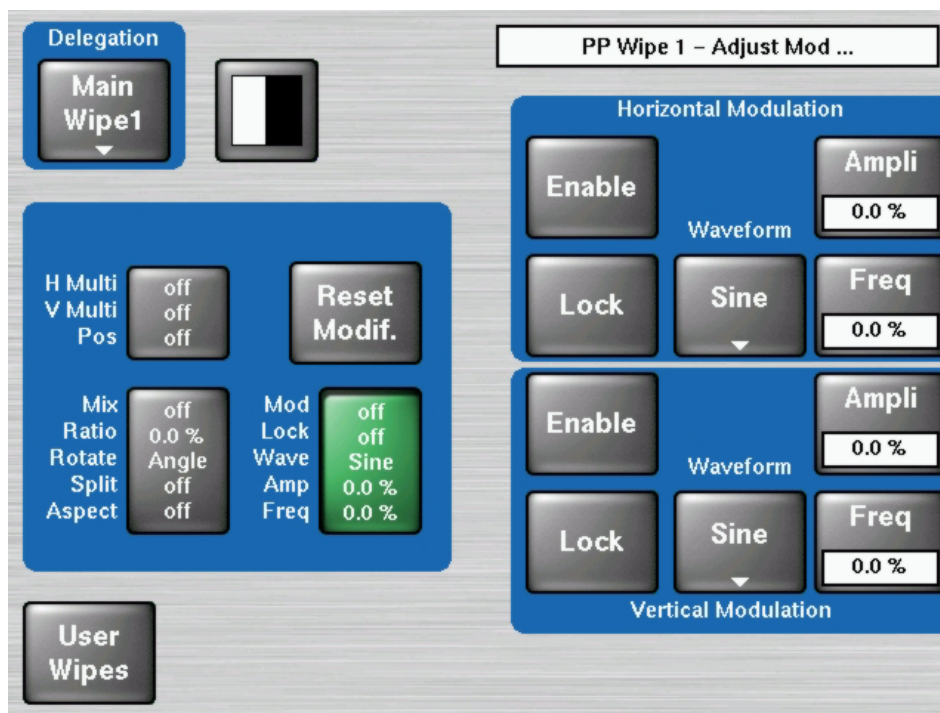
In dependence of the chosen Modifier the menu changed. The soft knobs on the left of the screen are used to control the various parameters. The knobs that appear will differ depending on the type of pattern modifiers chosen.

Figure 127. Wipe Menu – Modifier1



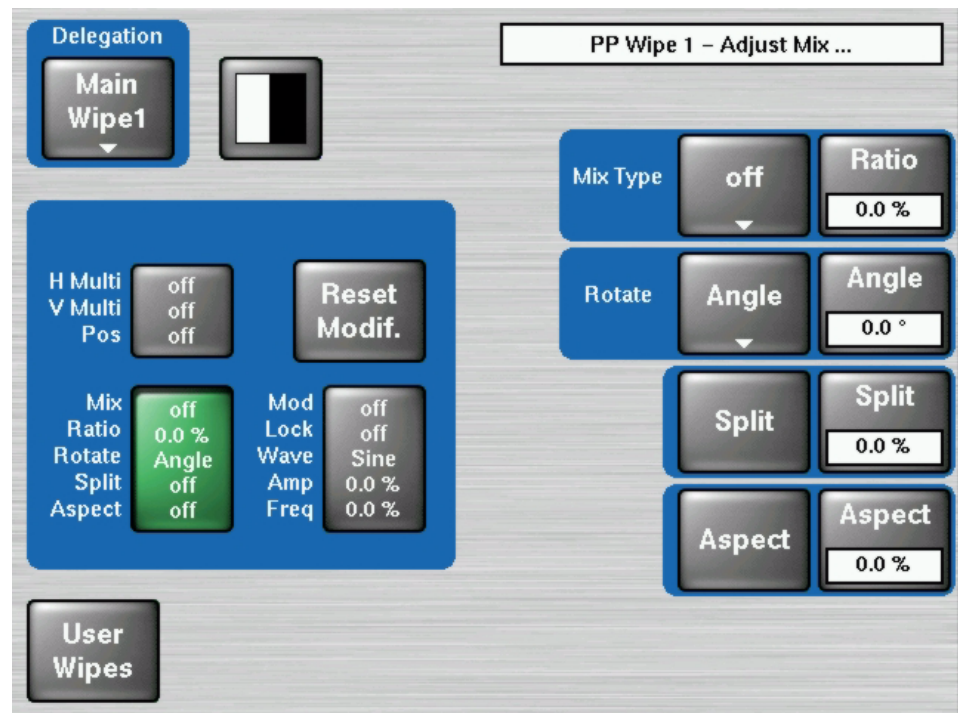
Pos, Rotate, Repeat, Split, Aspect – Allows control of the pattern positioner and the repeat (H and V Multiply) functions. Modifier parameters are controlled with the soft knobs on the right of the screen.

Figure 128. Wipe Menu – Modifier 3



Mix, Ratio, ... – Allows control of the pattern mix function. Patterns may be mixed or non-add mixed with the Mix Type control data pad. The ratio may be chosen by touching the **Ratio** data pad to bring up the numeric keypad. The modifier rotation, split and aspect functions are controlled with the soft knobs on the right of the screen.

Figure 129. Wipe Menu – Modifier 3



Mod, Lock, Wave, ... - Allows enabling and control of the modulation wipe functions. Patterns may be modulated vertically or horizontally with four different waveforms (Square, Sine, Sawtooth and Triangle). Soft knobs on the right of the screen control amplitude and frequency of the H and V modulation.

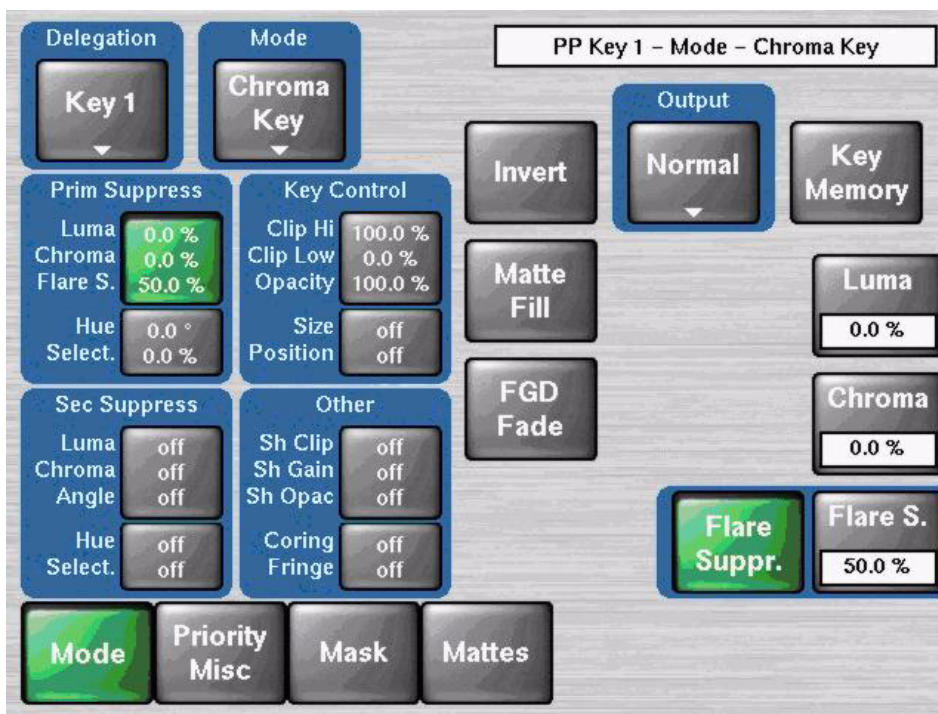
Keyer Menus

The Keyer menu controls are organized into several subcategories, each with different menu selection based on the type of key. These menus are accessed by touching the **Keyer** button in the Home menu. Keyer selections like key type, **Key Invert**, **Matte Fill**, can be made for any keyer from the Main panel using the Keyers subpanel. These controls are on the Main panel for immediate access.

However, key adjustment for detail, such as clip and gain, and mask controls, are accessible from the corresponding Keyer menu. The Keyer subpanels and the corresponding menus will reflect and track the changes made by either set of controls.

The Keyer menu controls are organized into several subcategories, each with different menu selection based on the type of key. These menus are accessed by selecting the appropriate keyer via the **Delegation** popup button, then the category is chosen from the **Mode**, **Priority** or **Mask** and **Mattes** buttons at the bottom of the menu.

Figure 130. Keyer Menu



The Keyer menus allow to control the key generators for each of the full-function M/Es. The Keyer menus, like the Wipe menus, have a delegation area at upper left, which in this case contains the key generator selector.

Key Mode

Figure 131. Keyer Menu – Mode Selection (Default Mode)

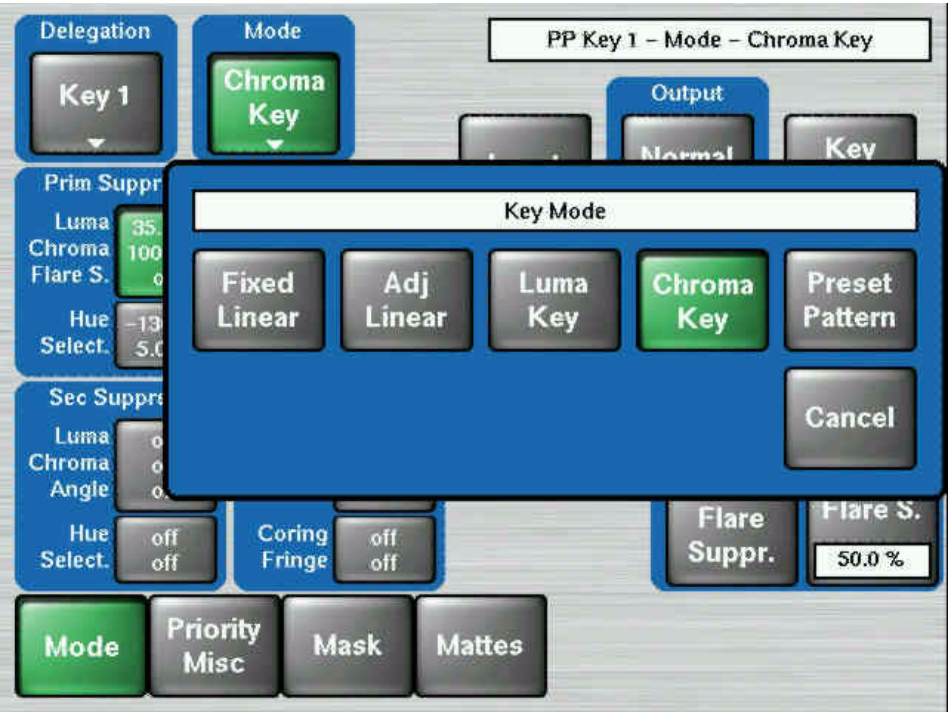
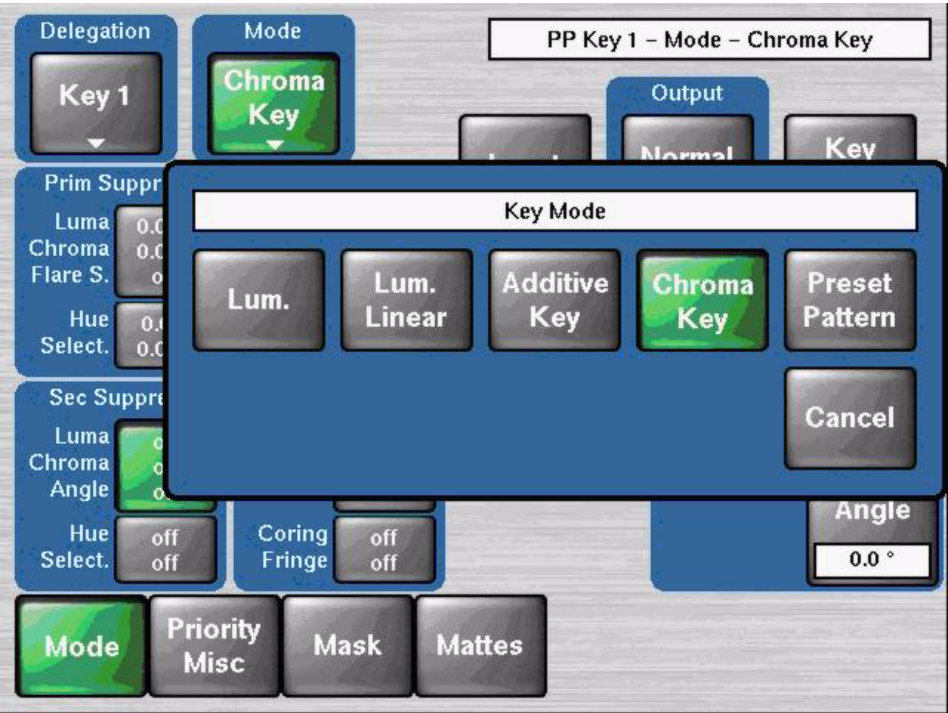


Figure 132. Keyer Menu – Mode Selection (DD Mode)



The Mode menu allows you to select the type of key for any of the four keyers in each M/E or P/P. Touching the **Mode** subcategory button brings up the Keyer Mode menu. Touch the keyer data pad you wish to select, then select the **Mode** from one the selections described below. Key modes are selectable from the following choices:

- Fixed Linear or Luminance
- Adj. Linear or Luminance Linear
- Luma Key or Additive Key
- Chroma Key
- Preset Pattern

Luminance Key is used for key sources with an unshaped fill signal

Linear Key is just a shortcut for a special setting of the Luminance Key with Gain 100% and Clip 50%.

Additive Key is used for key sources with a shaped fill signal.

For an overview on key types and adjustments, refer to the section on *Keying* [on page 42](#).

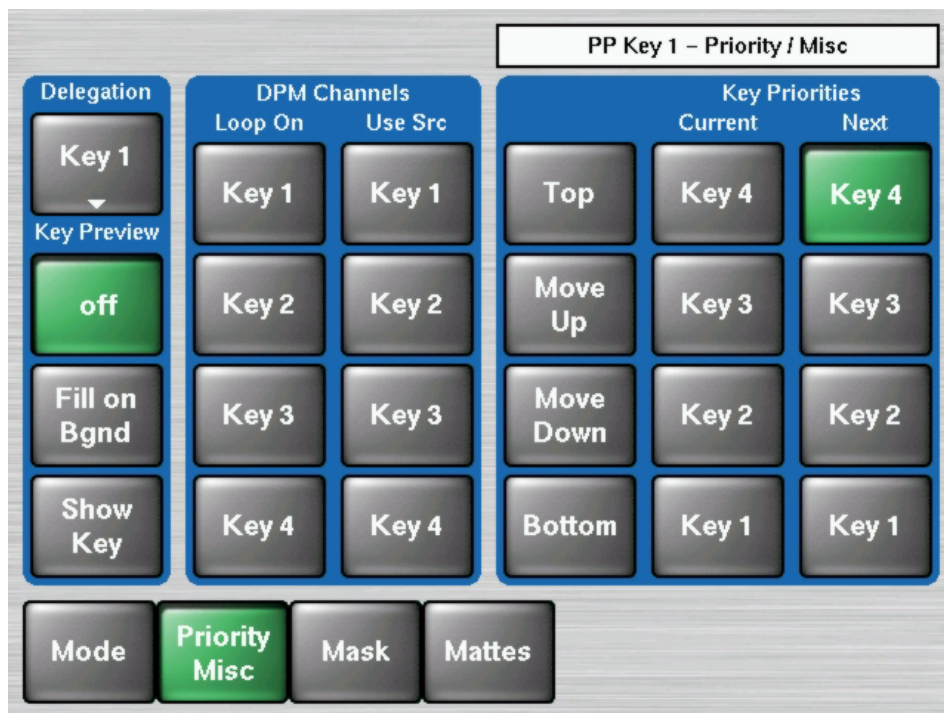
Keyer Priority Misc Menu

Touching the **Priority Misc** subcategory button takes you to the Priority menu ([Figure 133](#)). The Priority menu is used to change the stacking order of the keys.

The parameter control area on the right has two columns, labeled **Current** and **Next**. The stacking order of the selected item in a column is controlled with the **Top**, **Move Up**, **Move Down**, and **Bottom** touch buttons. Changing the top to bottom order in the **Current** column will cause an immediate change in that keyers stacking order. The order in the **Next** column controls the order the keys will have after the next key priority transition. After the key priority transition, the **Current** and **Next** stacks will swap.

The **Key Prior** and **Key Over** buttons in the Keyer subpanel on the panel provide an alternate method for setting key priority. Refer to the sections on [Key Prior Button](#) and [Key Over on page 98](#).

Figure 133. Keyer Menu - Priority

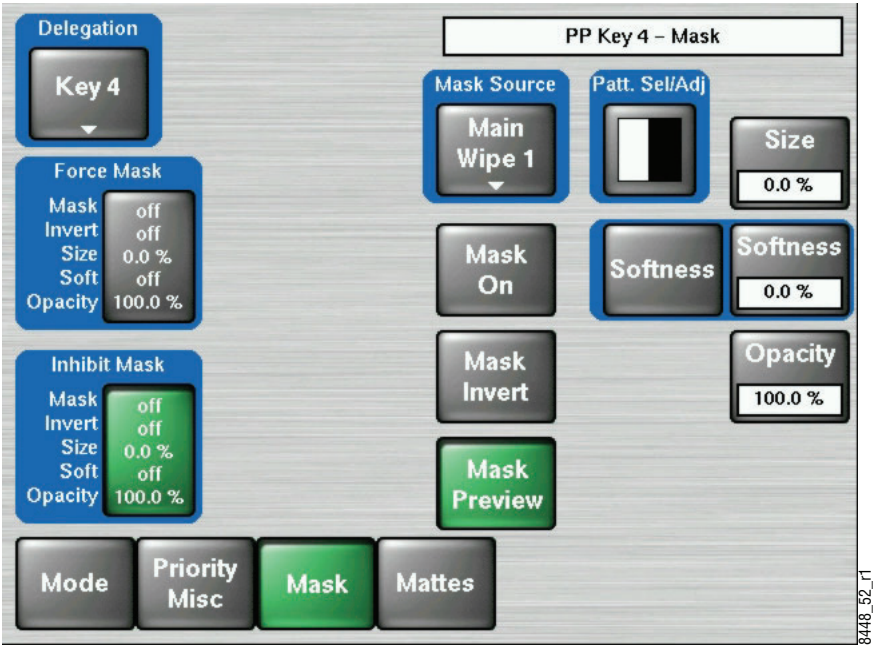


Keyer Mask Menu

Touching the **Mask** subcategory button takes you to the Keyer Mask Point of Use menu (Figure 134). The **Mask** menu allows selection and control of the keyer mask(s). Key masking defines areas that are protected from keying (Inhibit) or always key (Force). The shape of the mask can originate from a wipe pattern generator or by a selected mask signal (typically a key fill signal delivered via the Utility bus).

The keyer delegation (**Key1 – Key4**) is made at the top left of the screen. Once a keyer has been delegated, choose the type of mask (**Force** or **Inhibit**, or both) from the data pad in the lower right corner. The example shown here is for a Wipe Force Mask on Key 1.

Figure 134. Keyer Menu – Mask



Mask Preview

The **Mask Preview** button is used to highlight the mask signal on the preview monitor. This function serves to adjust the mask.

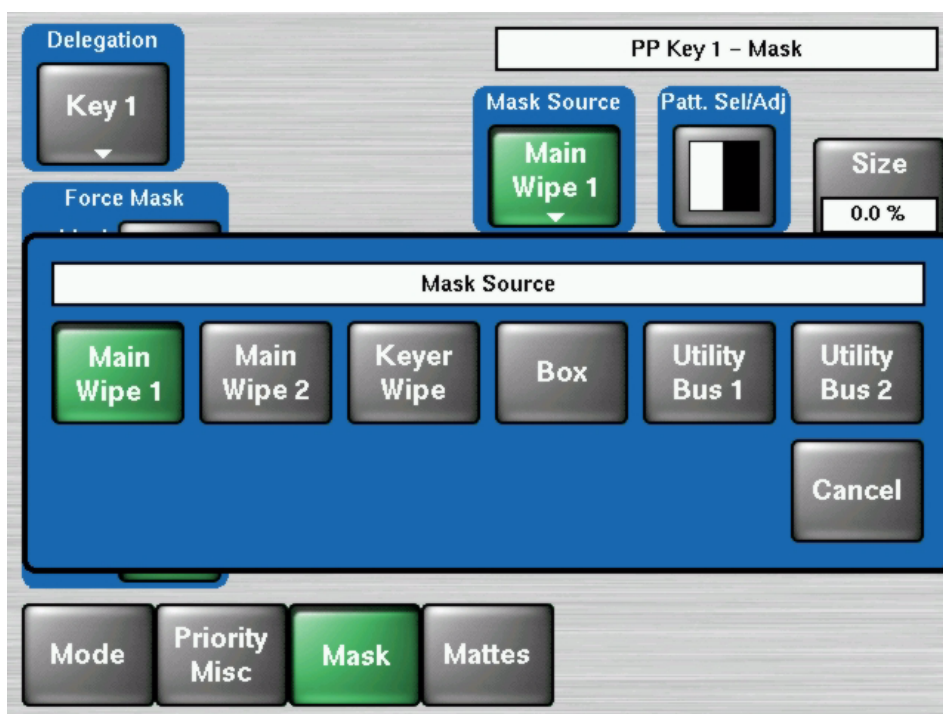
Note In Mask PVW mode, the mask is only represented as a 1-bit signal. If you want to precisely position a mask with softness, simply switch on the mask with the **Mask On** button.

Mask Sources

For either type of selected mask (Force or Inhibit) five different mask sources are available and will appear as popup selection when you press the **Mask Source** button.

Only one mask source can be selected at a time.

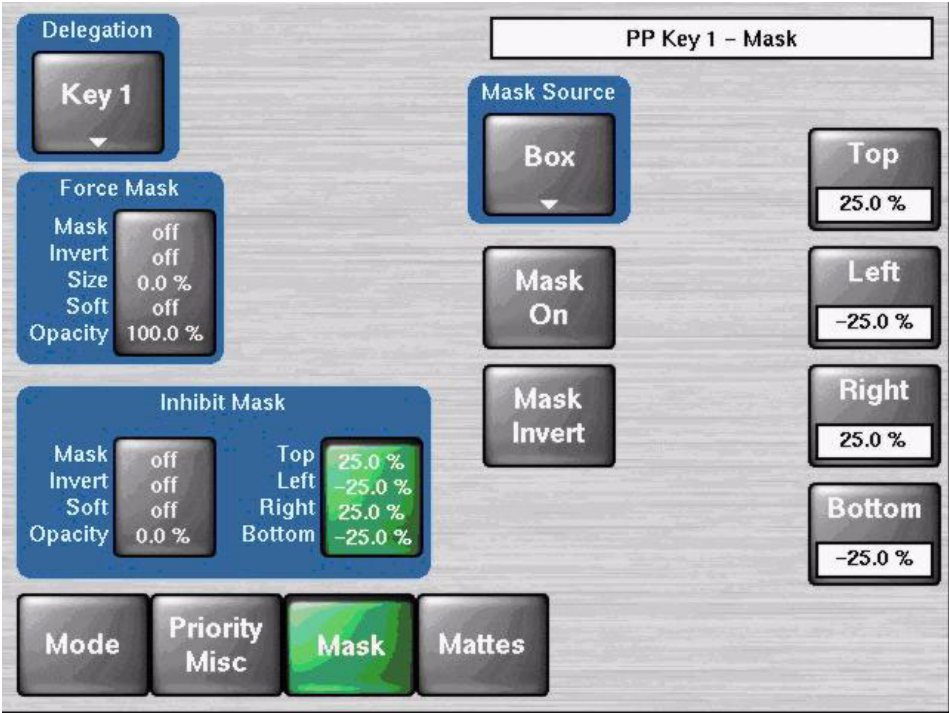
Figure 135. Keyer Menu – Mask Source



Box

When **Box** is selected as the mask source, you can adjust softness and opacity. The four edges of the box can be set separately.

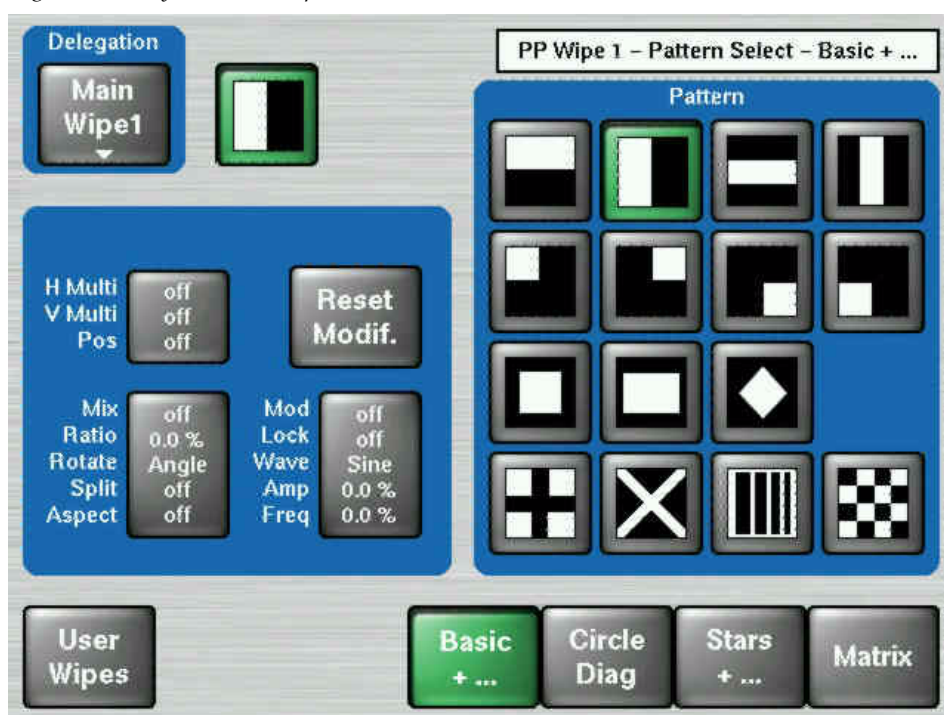
Figure 136. Keyer Menu – Box Mask



Keyer Wipe

A Keyer Wipe mask source allows selection of a wipe pattern from the dedicated pattern generator for the keyer. Touch the **Patt. Sel/Adj** button in the menu to bring up the wipe pattern selections available (Figure 137). Select a pattern from the display. The selected pattern will appear in the **Patt. Sel/Adj** data pad window. Select the other datapads in the wipe menu to adjust pattern modifiers. These include pattern positioner, rotate, H and V multiply, and aspect controls, similar to the wipe controls. Modifiers are controlled by the soft knobs on the right of the screen.

Figure 137. Keyer Menu - Wipe Mask



Complex Wipe 1 and 2

A mask can be generated from a complex wipe source. There are two complex wipe generators available, **Complex Wipe 1** and **2**. The pattern for the complex wipe is chosen in the same manner as the keyer wipe mask. The complex mask wipe can also be modified for position, rotation, H and V multiplication and aspect. In addition, wipes can be mixed and modulated.

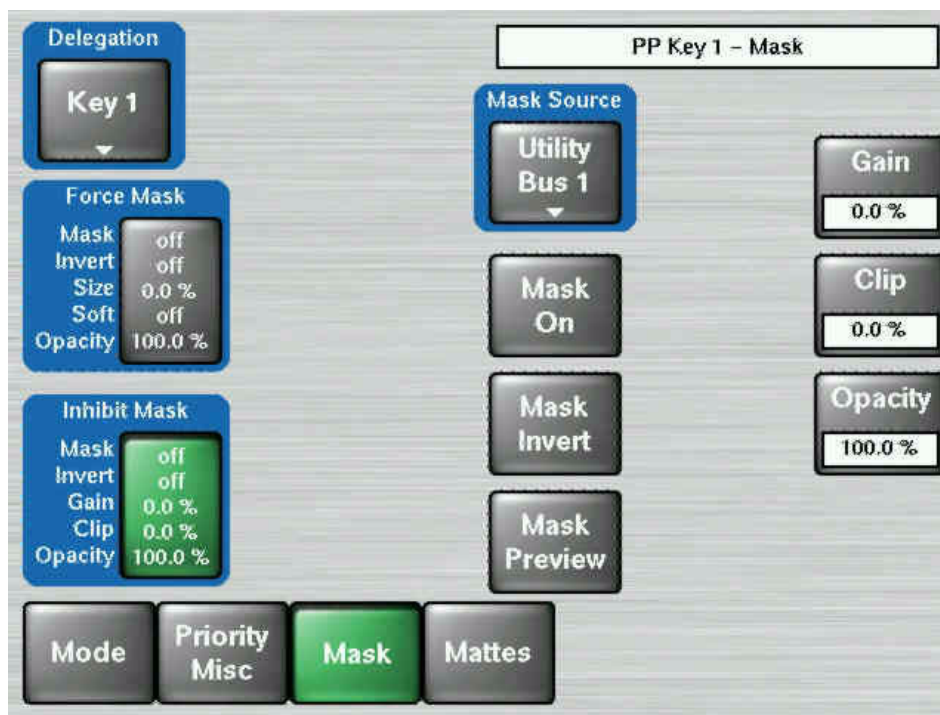
Keyer and complex wipe masks must share the wipe generators with other functions with wipe capability in the switcher. This resource sharing must be considered when delegating one of the wipe generators to a mask.

CAUTION All controls in the Wipe1 Generator or the Wipe2 Generator affect the selected wipe pattern generator.

Utility Bus

The **Utility Bus** mask sources originate from the utility bus in the chosen M/E. Typically these are used to bring in garbage masks from a RAM Recorder (Still Store) or some external device.

Figure 138. Keyer Menu – Utility Bus Mask



Mask On Button

The Mask may be turned on or off by selecting the **Mask On** button.

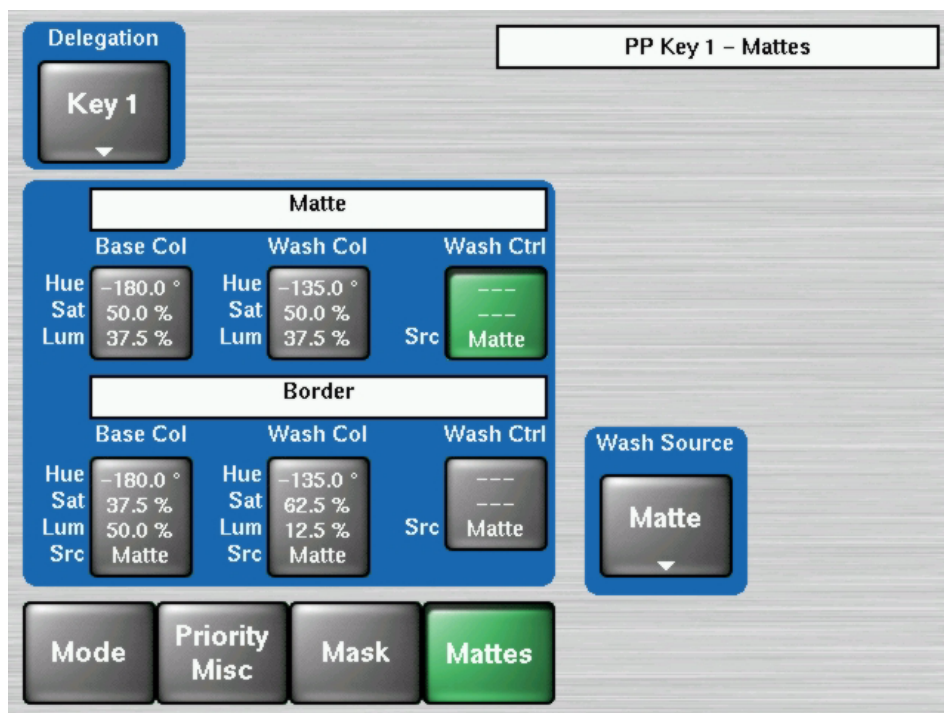
Mask Invert Button

The **Mask Invert** button inverts the sense of the delegated mask. When off, areas formerly masked will be visible, and previously visible areas will be masked. Masks are normally active in the center of the pattern. An inverted mask is active outside the pattern.

Keyer Mattes Menu

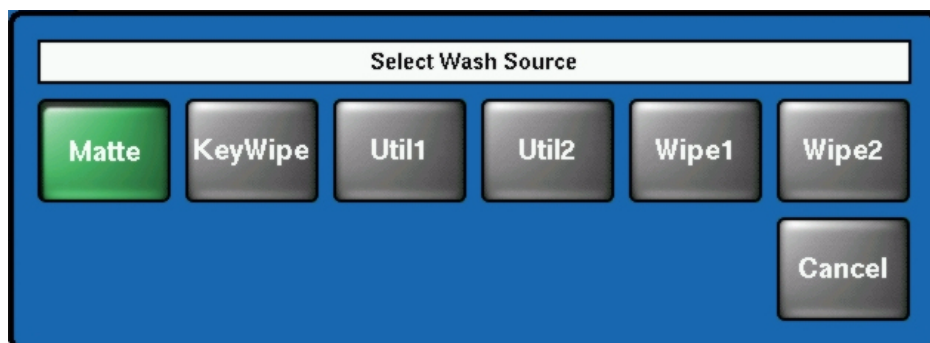
The Matte menus give you control over matte color, type, and appearance. There are no local matte controls on the Main panel; all matte adjustments are made in the menus. The popup delegation button in the top left of the menu allows you to select the mattes of the different keyers. Soft knobs are provided on the right side of the menu for adjustment of matte parameters.

Figure 139. Keyers Mattes Menu



The source signal can be selected with the popup **Wash Source**.

Figure 140. Keyers Mattes – Select Wash Source Popup



Chroma Key

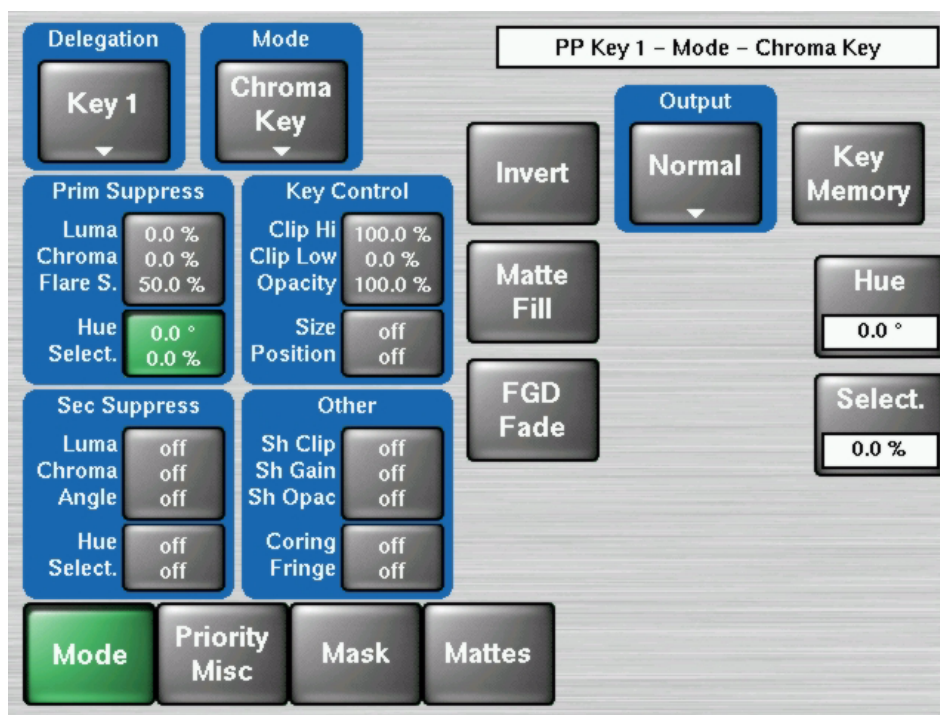
When a chroma key is selected, the menu ([Figure 141 on page 206](#)) will display a summary of all chroma key parameter values at the same time. The parameter groups should be adjusted in the following order:

1. Prim Suppress
2. Key Control
3. Sec Suppress
4. Other

After the first two parameter groups have been adjusted, a reasonable key should be visible. Subsequent adjustment steps may improve the basic key in subtle ways.

See the section on *Chroma Key Operating Notes* [on page 303](#) for more information on setting up a chroma key. For a concept overview of chroma keying, refer to the section on *Chroma Key* [on page 52](#).

Figure 141. Keyers Mode Chroma Key Menu



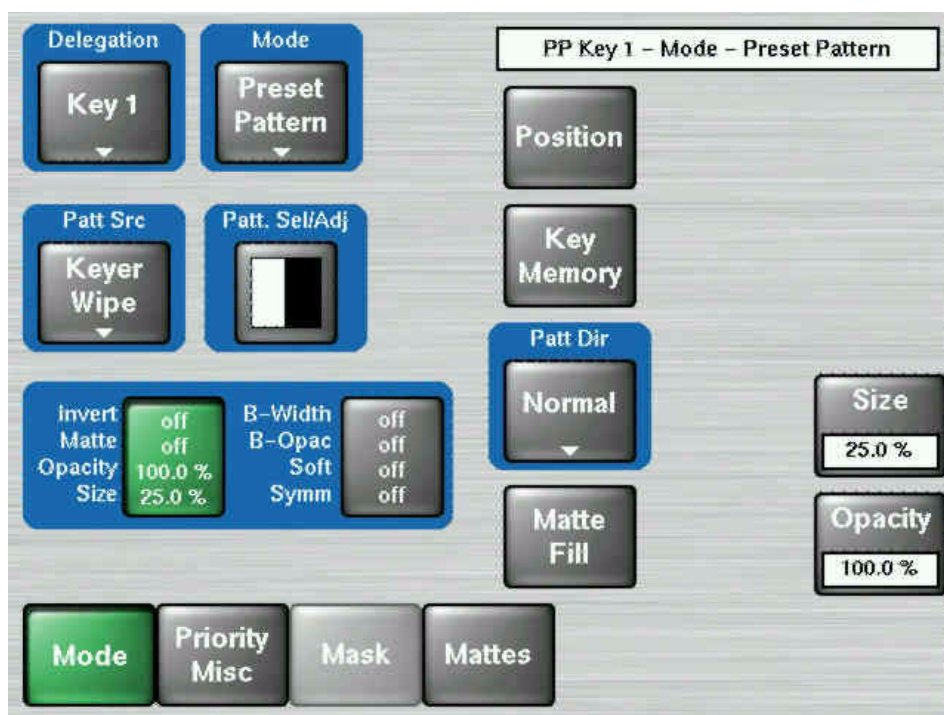
Preset Pattern

A preset pattern uses a wipe pattern generator, rather than an incoming key cut signal to define the hole cut in the background. When **Preset Pattern** is chosen as the keyer mode, the menu will appear as in [Figure 142](#) below. When the **Pattern** data pad is touched, the Wipe menu (see *Wipe Menus*) will come up to allow pattern selection.

The Preset Pattern may be matte-filled by touching the **Matte Fill** data pad.

The matte controls can be accessed by touching the **Mattes** button. Opacity and size of the preset pattern can also be adjusted with the soft knob controls on the right of the screen.

Figure 142. Keyer Mode – Preset Pattern

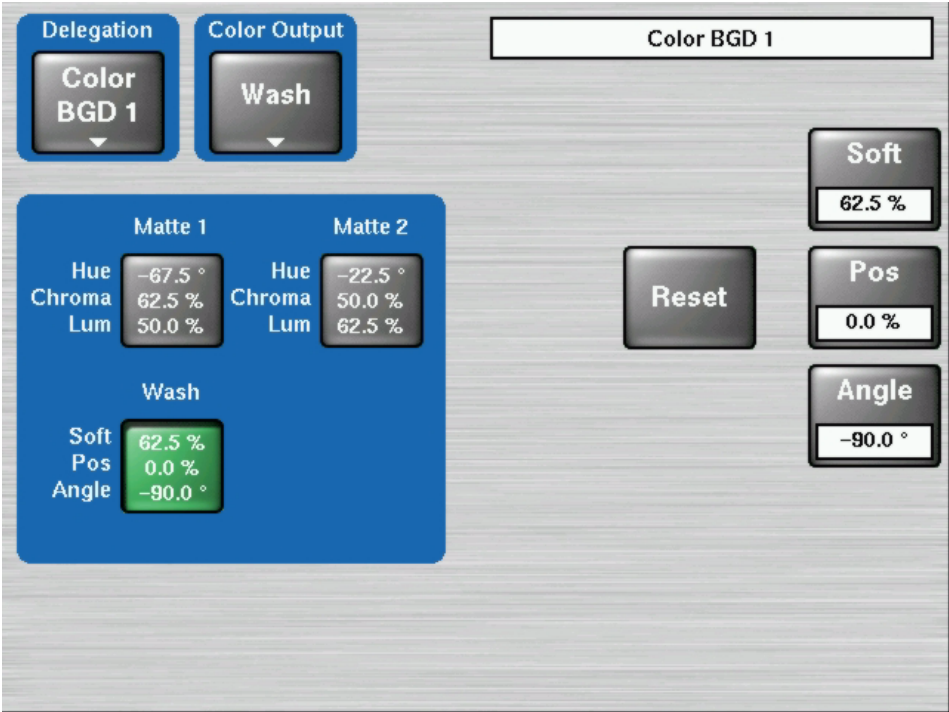


Background Mattes Menus

Background matte generators create colors, and washes. These can be used, for example, as the backgrounds for keys.

When **Bgnd Mattes** is selected, the menu displays two panes for control of Color BGD 1, Color BGD 2, Color BGD 3, and Test patterns including base and wash colors, wash direction and offset, and wash edge texture attributes. Each touch pad activates the soft knobs to control those parameters.

Figure 143. Background Matte Menu



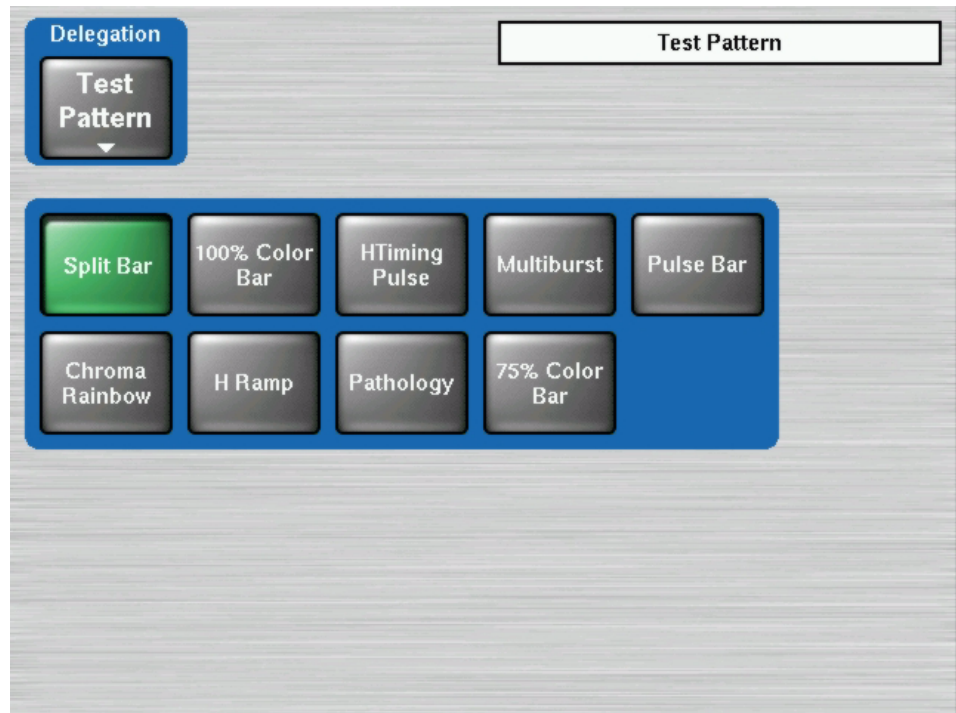
The popup delegation button in the top left of the menu allows you to delegate the menu to Color BGD 1, Color BGD 2, Color BGD 3, and Test patterns.

Figure 144. Background Matte Menu – Select Color BGD



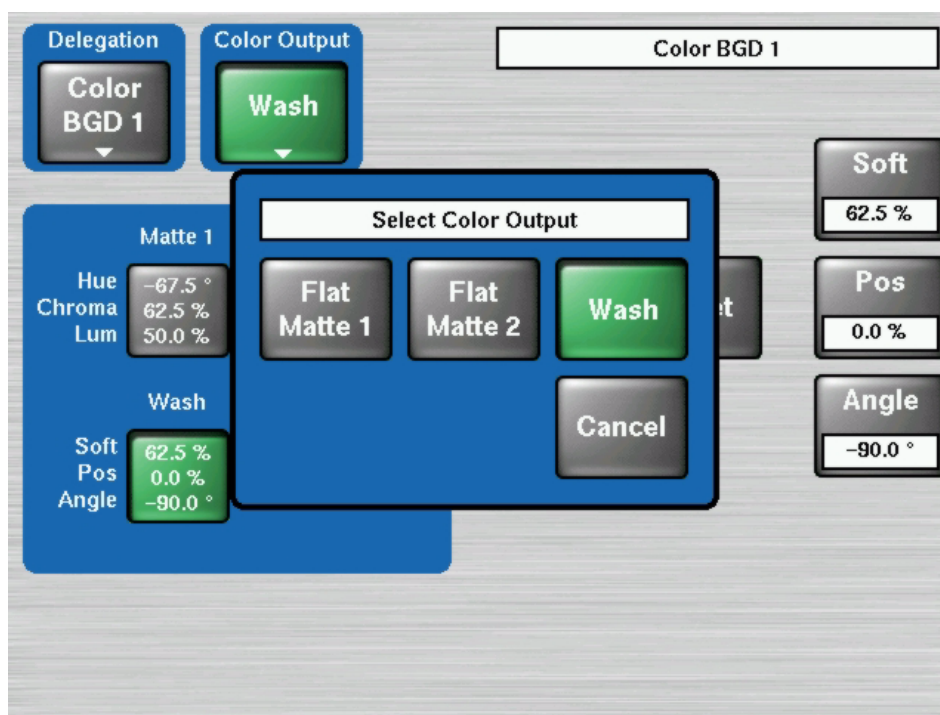
If Test Pattern is selected, a new menu appears. The Patterns menu allows the selection of different video test patterns. The chosen test pattern will be displayed when the Test source is selected.

Figure 145. Test Pattern Selection



Touch the Color Output pad, then select the desired color output: Flat single color matte with button **Flat matte 1** or **Flat Matte 2**. A dual color matte can be selected with Button **Wash**. All subsequent matte controls are located in the central pane of the menu.

Figure 146. Background Matte Menu - Wash



M/E Menus

The M/E menu controls are organized into two subcategories, each with different menu selection based on the type of transition. These menus are accessed by touching the **M/E** button in the Home menu. Typical selections are Pattern Source, Pattern Direction, Border and Softness.

Figure 147. M/E Menu – Wipe Trans

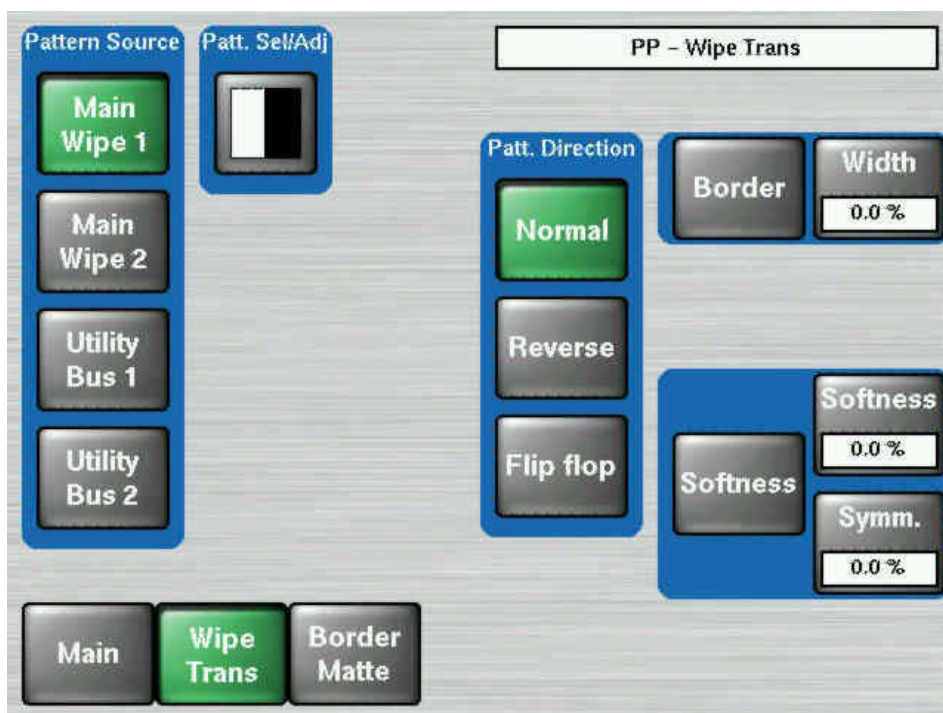
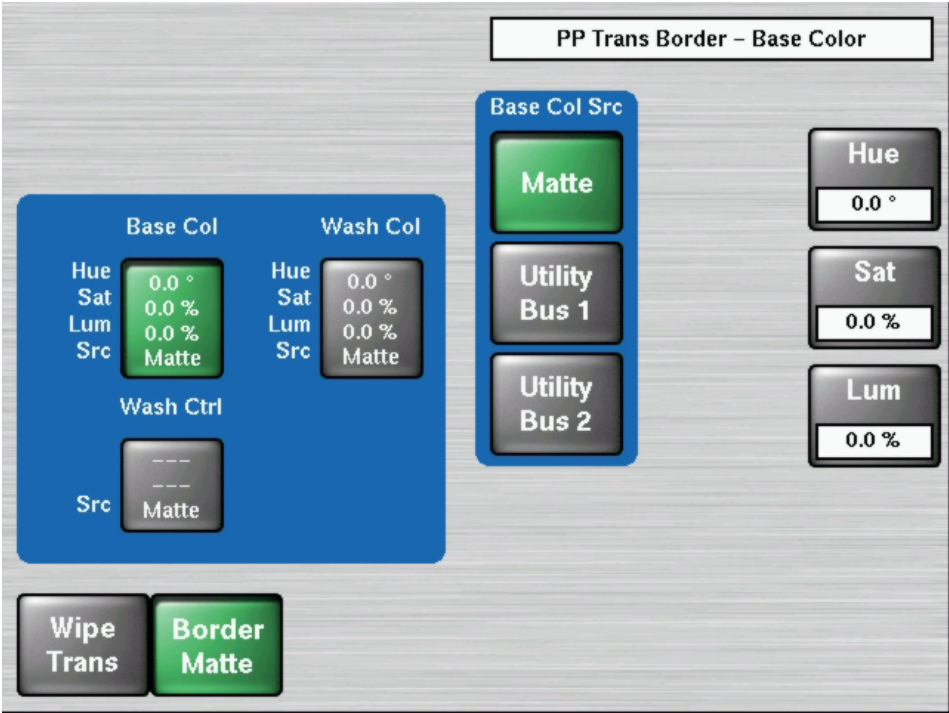


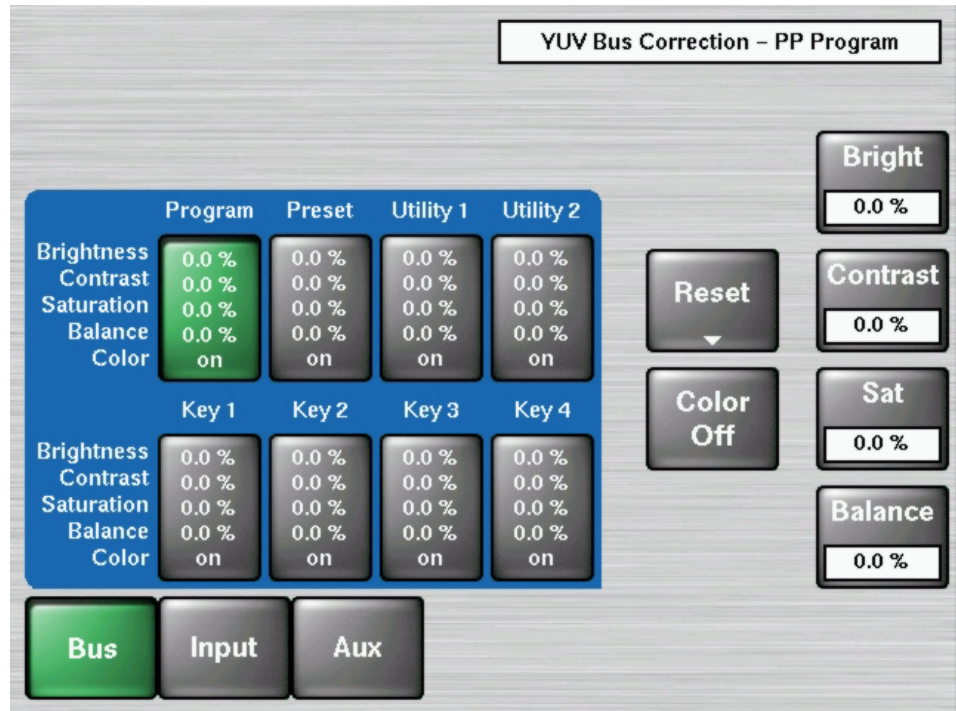
Figure 148. M/E Menu – Border Matte



YUV Bus Correction Menus

The YUV Correction menu serves to adjust brightness, contrast, saturation and color balance related to the bus.

Figure 149. YUV Bus Correction Menu



The correction can be made in the following buses:

- Bus (PGM, PST, Key1 ... Key4)

Note If Bus Correction for PGM bus and/or PST bus is selected, the two settings are exchanged at the end of a fading.

- Input (all input signals)
- AUX (all AUX buses)

Note Bus correction has priority over input correction.

Reset Bus

Reset the values for a single bus of the selected M/E to their default value.

Reset M/E

Reset the values for all buses of the selected M/E to their default values.

Color Off

Switched the color on/off completely separate for each bus.

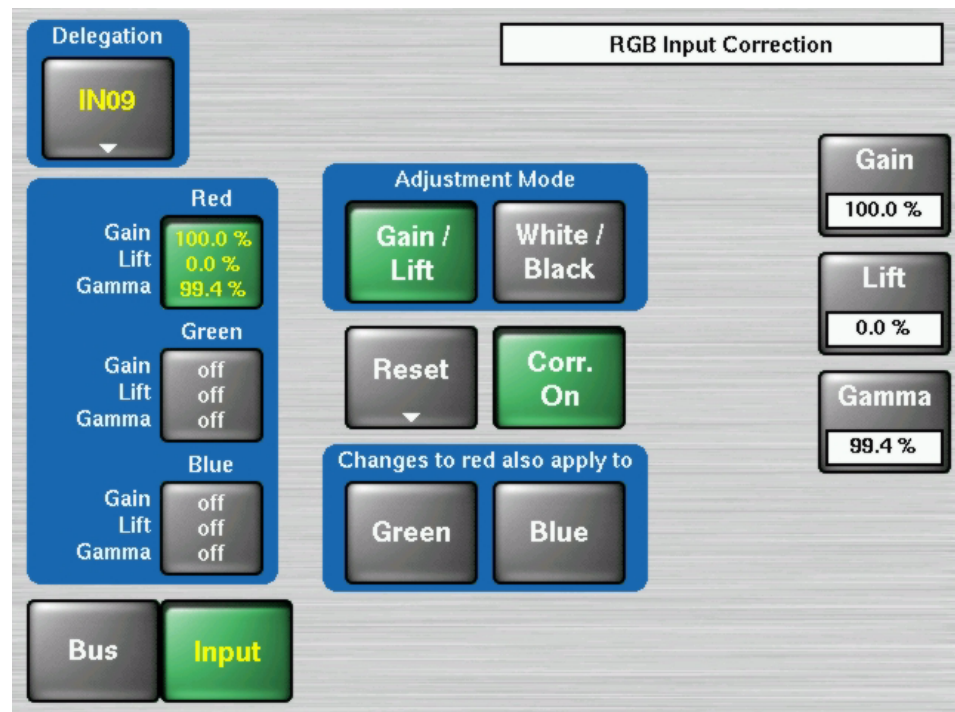
RGB Input Correction Menus

RGB Input Color Correction is a software enabled feature that converts the video signal on a particular video bus from color difference format to RGB (red, green, blue) color component format, applies separate offset, gain, and gamma to each RGB component, then converts from RGB back to color difference (Y, Cb, Cr) format. The color correction is applied on an input by input basis. The parameters are applied on the basis of a source and bus intersection and stored as part of source memory. A different input on the same bus or a same input on a different bus, may have different color correction.

The Color Corrector menu is used to adjust RGB color on a selected bus and input.

Corrected inputs and parameter will be displayed in a yellow style.

Figure 150. RGB Input Correction Menu



The Adjustment Mode pad has two buttons, the first two, **Gain/Lift** and **White/Black**, determine the mode for the knobs and the text boxes in the Color Corrector Transfer Function pane **Red/Green/Blue**.

Gain/Lift Adjust offset to Black level

White/ Black Adjust Black and White by percentage

When the **Reset** button is touched, the following modes can be selected:

- Reset Color
- Reset Input
- Reset all Inputs

When one of the **Red**, **Green**, or **Blue** color component's button is selected, the knobs for Gain, Lift, and Gamma are delegated for the specific component. For example, if Green had been selected, the knobs would control the green channel's values, and similarly for Red and Blue.

The **Changes on red also apply to** pane has two on/off buttons. The title and the button labels are dependent on the selection of the color component in the Color Corrector Transfer Function pane **Red/Green/Blue**. If the user selects Blue as the color to be adjusted, the two buttons are **Red** and **Green**. When these buttons are active, the adjustments applied to the originally selected color component is also applied to the one(s) selected in the pane. For example, if the user chooses to adjust Blue and selects Red in the **Changes on Blue also apply to** pane, then any adjustments to Blue's Gamma value will be applied to Red's Gamma value.

Note Changing from **Blue** to either **Green** or **Red** in the Color Corrector Transfer Function pane will cancel the attachment.

DPM Menus

The Kayak HD system supports one DPM (Digital Picture Manipulator) channel per keyer. A Kayak HD-100 may have up to 4 DPM channels and a Kayak HD-200 up to 8 DPM channels. The DPM channel for the first keyer per M/E-bank is standard, the other 3 channels per M/E are options.

The parameters of the Digital Picture Manipulators are not stored as part of the E-MEM system. They are treated per M/E-bank like external DVE channels with a separate timeline system with 100 registers. That means the switcher can recall independent an extra “t” DVE effects per M/E while running an E-MEM timeline.

To offer even more flexibility the user can define per register which of the 4 channels should be affected. For example register 1 could only include the DPM channel of keyer 1 running an endless loop to spin a logo while the user is able to recall independently other registers containing only channel 3+4 displaying differently sized boxes.

DPM Live Mode

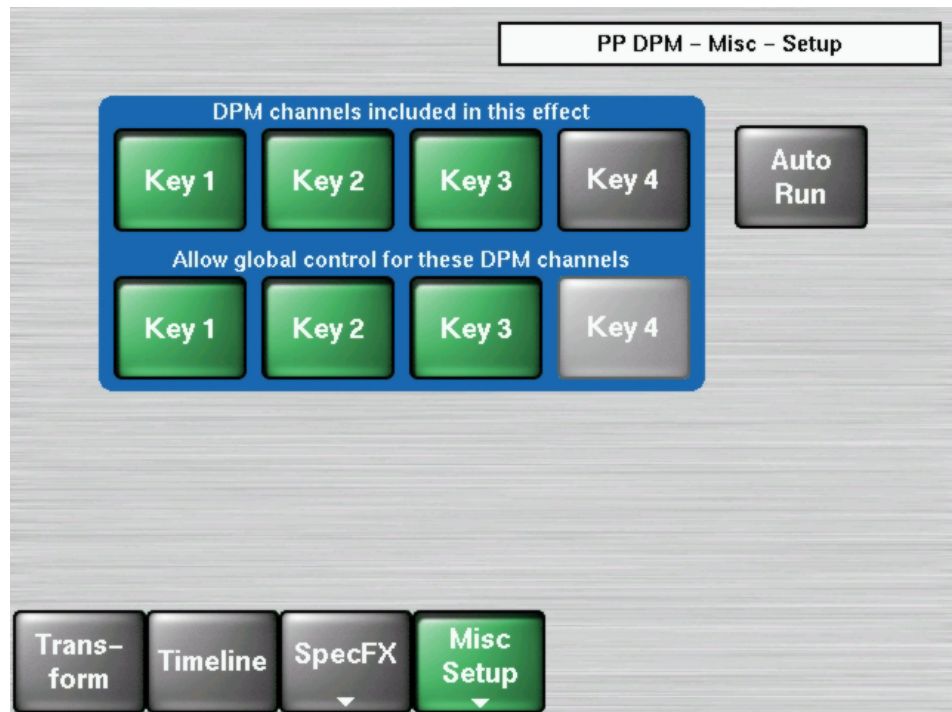
Selecting the **Live Mode** button (left of the display) reduces the number of parameter adjustments to the most essential ones, allowing faster control with less selection steps. By pressing the button during DPM operation, a keypad with direct access to the stored effects appears. The Effect access buttons shows the number of each effect.

Figure 151. DPM Live Mode Menu



Misc Setup Menu

Figure 152. DPM – Misc - Setup Menu



This menu is the start menu for building an effect. In the top row you select which channels should be part of the effect. Channels that are not included will not be stored and will not be affected when the register is recalled. In the second row you can switch on global control per included channel. If global control is switched off for a global channel, that channel will not be affected by global channel parameters; e.g. by a global rotation.

AutoRun Button

When AutoRun is on a recall of an DPM effect will automatically run the effect. When AutoRun is off, the run has to be triggered either in the Show Timeline menu by pressing **Play** or by pressing the **Cut** button in the Effects area again while the section is delegated to DPM control.

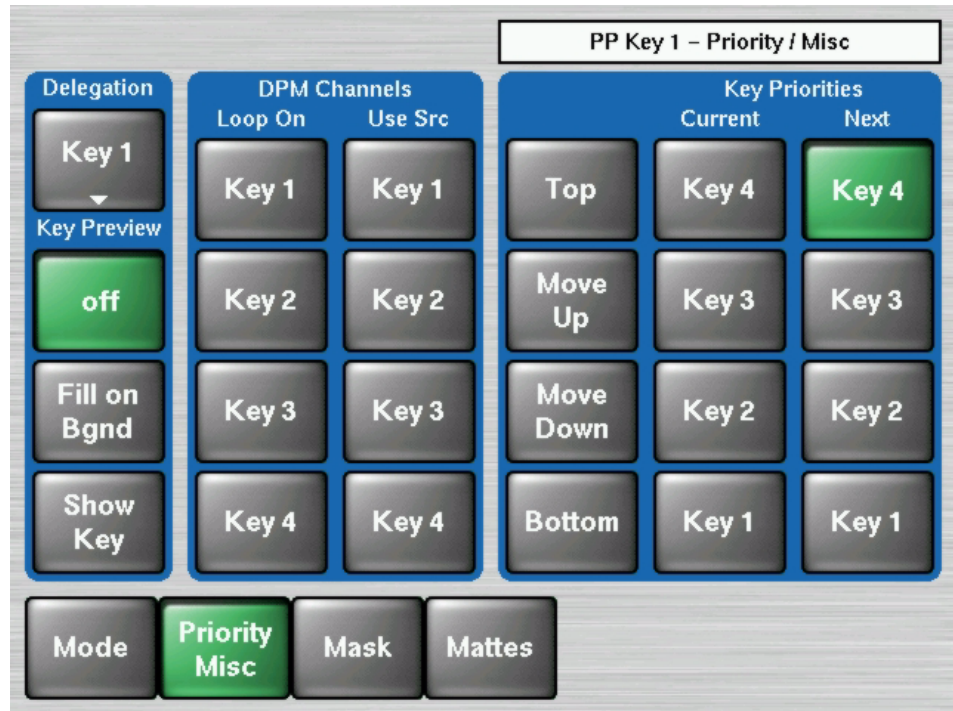
The **AutoRun** button is also used when a DPM effect is recalled by an **E-MEM**.

When On, a keyframe containing **DPM Eff. No** in the Define Memo will trigger an immediate run of the relevant DPM effect. (Define memo is set in the E-MEM define memo menu.)

When Off, a trigger has to be set to run the effect (in current software this is only possible via the Sidepanel program).

In the Key – Priority – Misc menu you can switch on DPM effect loop for the chosen keyers (Loop On) and select the flipside of an effect (Use Src). This information is not part of a DPM effect and should be set manually or recalled by an E-MEM recall (like the keyer parameter settings).

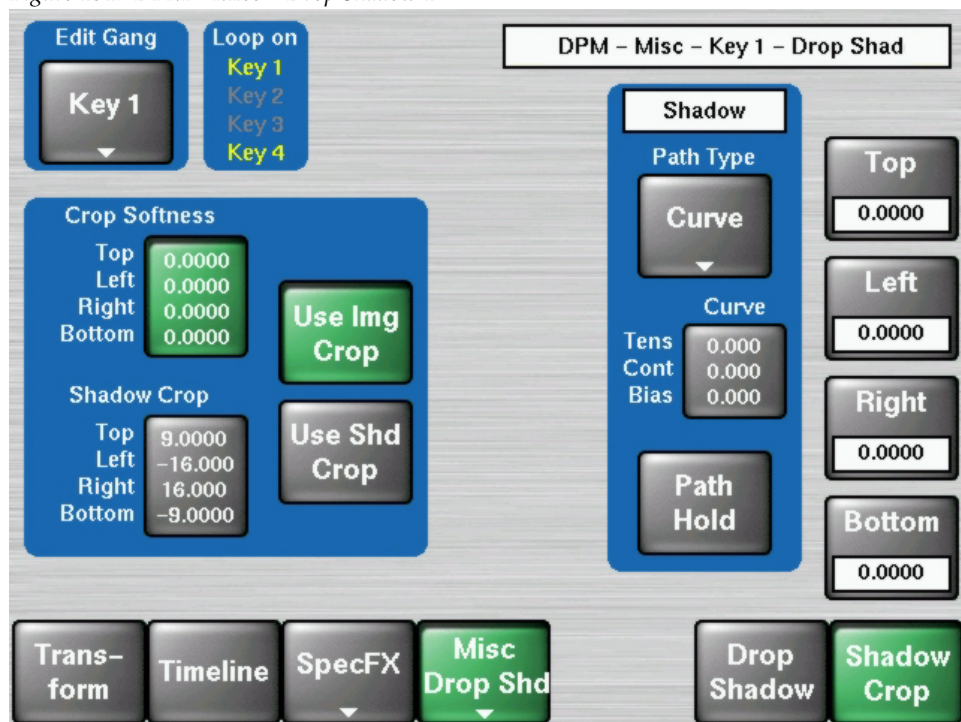
Figure 153. Key Selection for DPM Channels



Drop Shadow

The Drop Shadow feature is turned on with the **Drop Shadow** button. When turned on, soft knob controls become available on the right. Different soft knob controls appear, depending on which data pad has been selected in that pane. The current parameter names and values are displayed on each data pad.

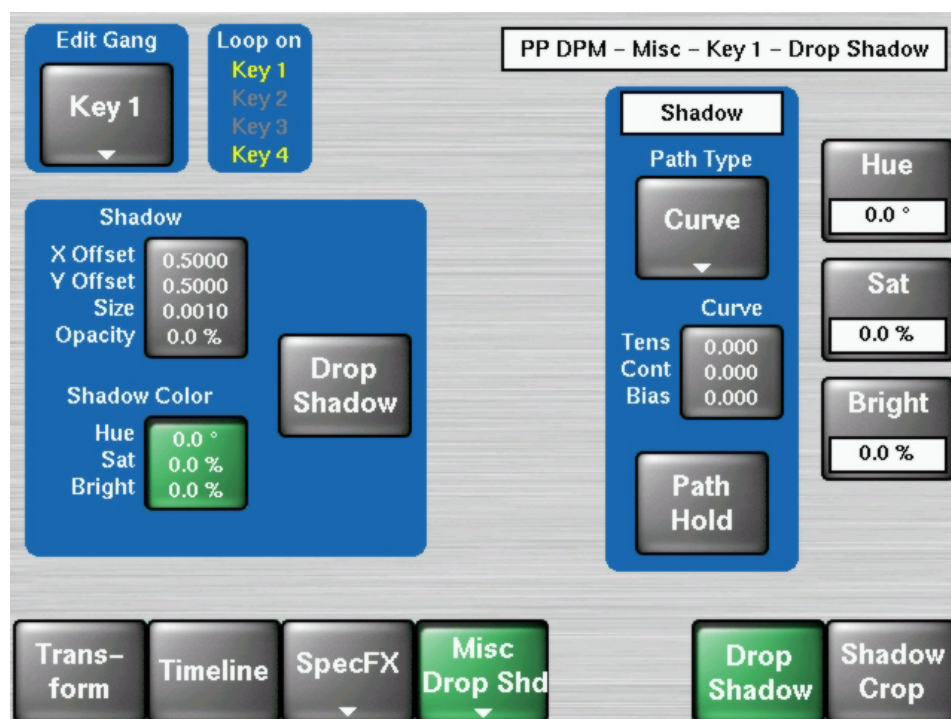
Figure 154. DPM – Misc – Drop Shadow 1



When **Shadow** is selected soft knobs for **X Offset**, **Y Offset**, **Size**, and **Opacity** are available (Figure 154).

When **Shadow Color** is selected soft knobs for **Hue**, **Saturation**, and **Brightness** are available.

Figure 155. DPM – Misc – Drop Shadow 2



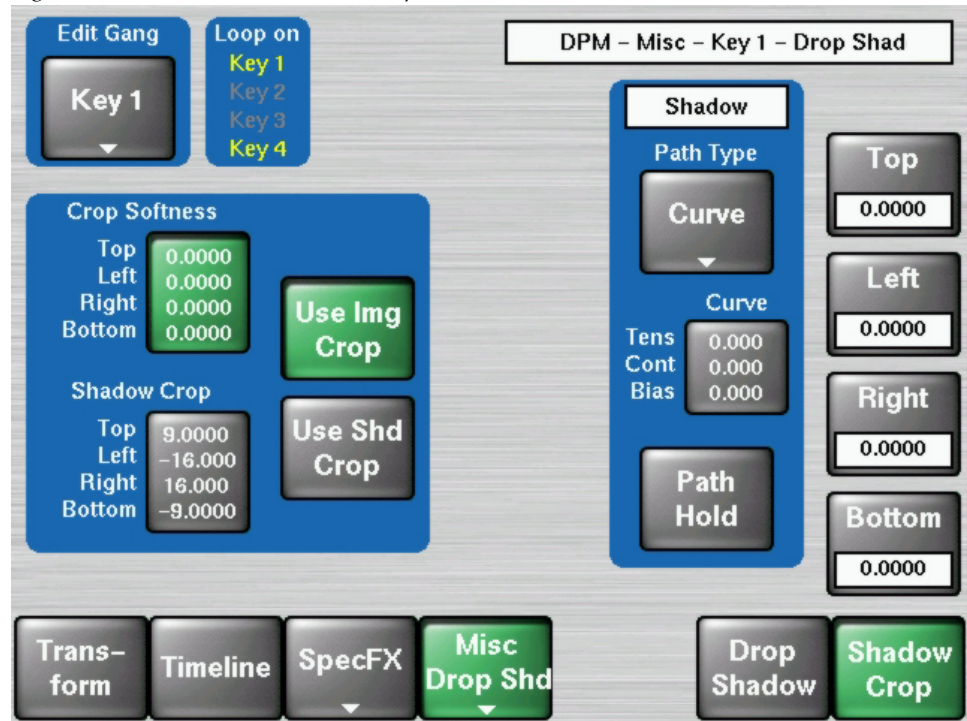
Drop Shadow Controls

The **DPM** button near the 3D positioner delegates it to drop shadow control. The 3D positioner X and Y axis adjust the drop shadow offset from the primary image and the Z axis controls the size of the drop shadow.

Shadow Crop

The **Shadow Crop** controls are used to adjust shadow cropping and edge softness. The current parameter names and values are displayed on the data pads.

Figure 156. DPM – Misc – Shadow Crop



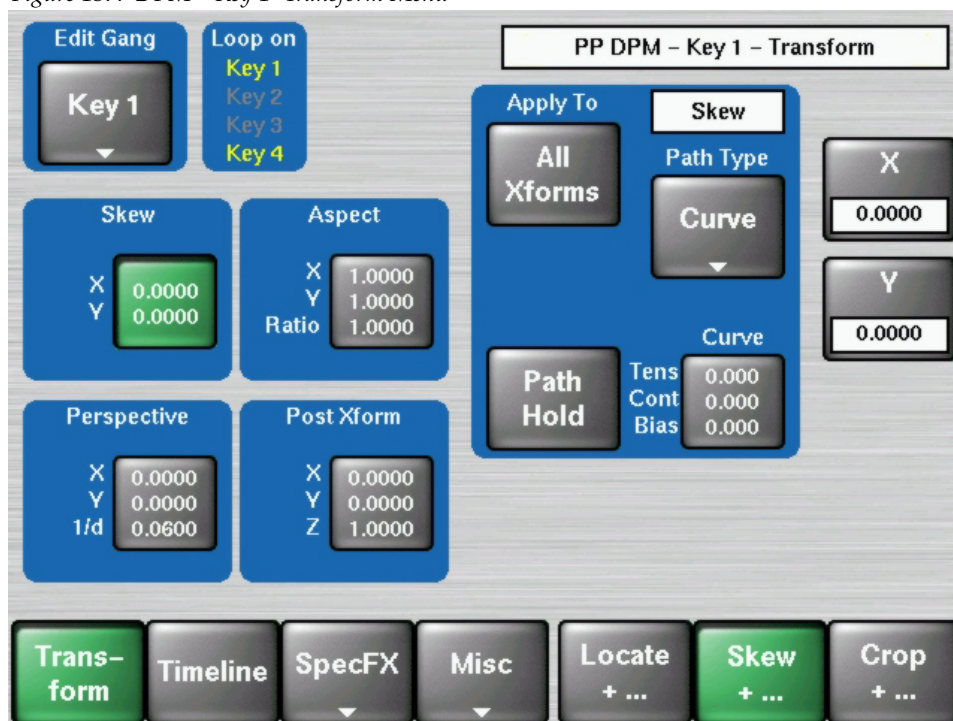
When **Use Image Crop** is selected, crop values of the shadow match the crop values used for the primary image. Only shadow edge softness controls are active in this mode.

When the **Crop Softness** data pad is selected soft knob controls for shadow edge softness are available (**Top**, **Bottom**, **Left**, and **Right**). The total softness of the drop shadow edges will be the softness of the shadow edge combined with any softness of the primary image.

When **Use Shadow Crop** is selected, the edges of the drop shadow can be given crop values different from the primary image.

Transform Menus

Figure 157. DPM – Key 1 -Transform Menu



All parameter manipulations for the DPM channels are performed in the various transform menus.

The main groups Locate, Skew, and Crop are selected in the bottom right corner of the screen. Inside the main group you can select the subgroup, e.g. Locate, Locate Axis, Target Rot., and Spin by pressing the appropriate button. Per Subgroup you can adjust the parameters for Source and for Target. For more information on this issue see chapter on Concepts.

Edit Gang

The **Edit Gang** button shows you for which channels parameters are adjusted in parallel. If more than one channel is selected, the values of the top channel are displayed.

Figure 158. DPM – Edit Gang Selection



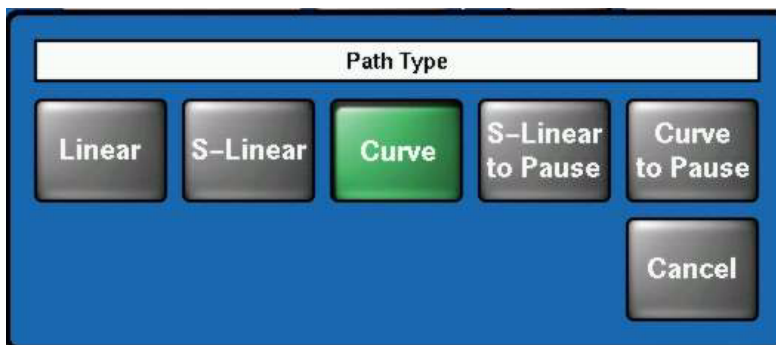
You can select all Keyer channels which are included in this effect. The last selected channel is the one which has its values displayed.

Selecting the Global channel will deselect the Keyer channels and vice versa.

Path Type

The path control section allows you to select different interpolation path types for all or some of the parameters.

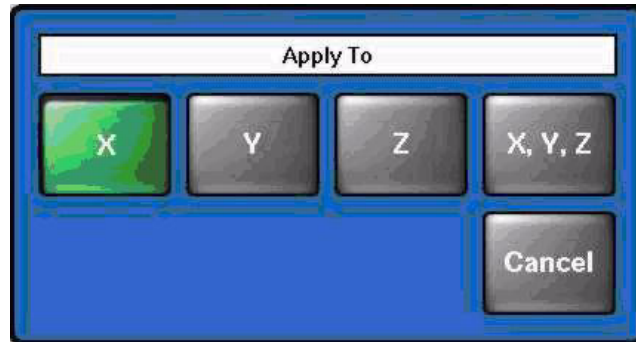
Figure 159. DPM – Path Type Selection



X, Y, Z Spin

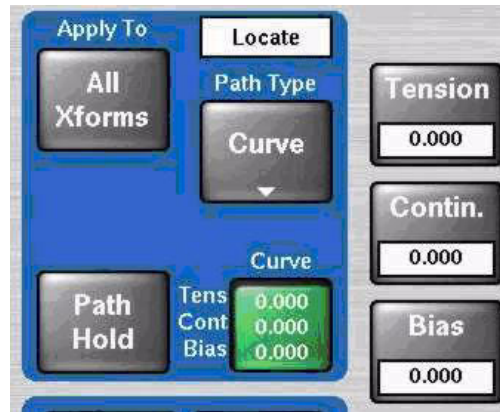
For the subgroup Spin the path type can be different for the X,Y, and Z spin.

Figure 160. DPM – Spin Selection



To adjust the parameters for Tension, Continuity, and Bias press the relevant button in the path control section.

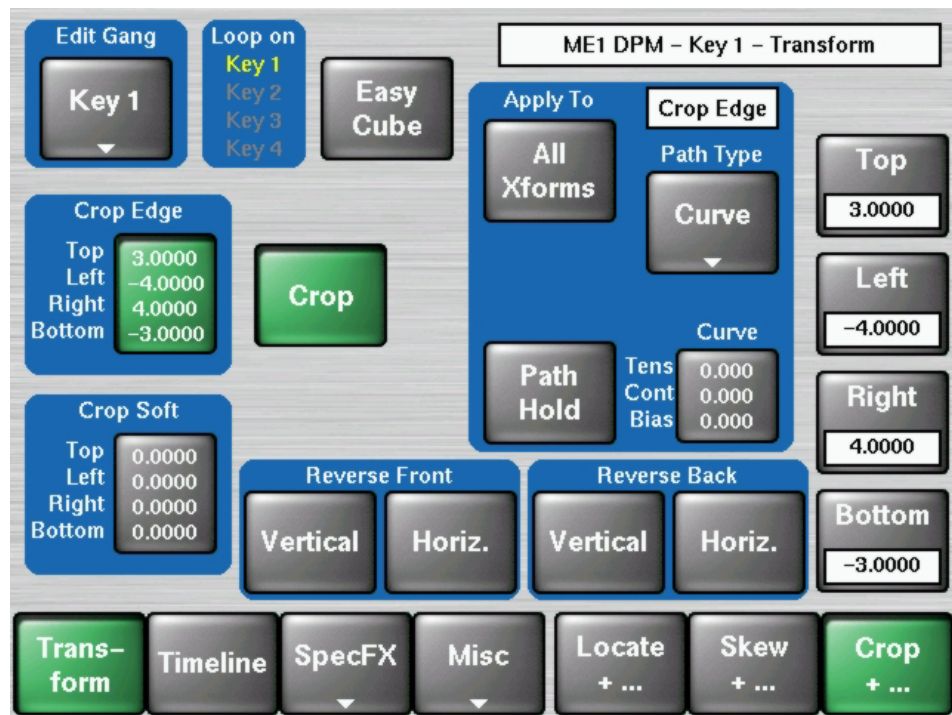
Figure 161. DPM – Adjust Tension, Continuity, and Bias



If Path Hold is selected, there will be no interpolation between the keyframes and the new value will be applied when the next keyframe is reached.

Crop

Figure 162. DPM – Key 1 – Transform - Crop



The menu serves to trim the image. In addition the softness of the edges can be adjusted and the image can be mirrored horizontal and vertical with **Reverse Front** and **Reverse Back**. The **Easy Cube** button forces channels built into a 6 sided solid to stay visible only when such an object would display them and also moves the channels automatically to their opposite side as the solid rotates. It does not build a cube automatically.

Timeline Menu

The timeline menus consist of two main groups, Save/Recall and Edit.

Save / Recall Menu

Figure 163. DPM – Timeline – Save/Recall Menu

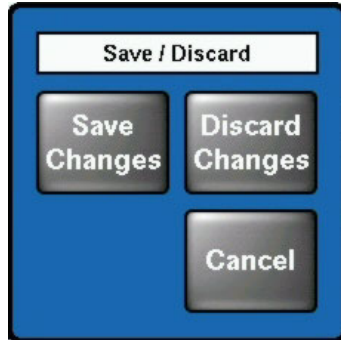


This menu gives you an overview of all 100 registers. You can select any register for recall, edit or modify. The green line indicates the current effect, the blue line is the cursor.

Save / Discard

This button is only enabled when you have modified the current effect in the Timeline/ Edit menu. Once you have made changes the pop-up menu shown below allows you to either save the changes permanently or discard them. If the Effects section is in control of DPM the question is also asked in the display there. It is answered by pressing **Enter** to save changes and by **Clear** to discard them.

Figure 164. DPM – Timeline – Save/Discard



Since the Timeline/Edit menu always refers to the current effect, there are two ways to start an effect for an empty register:

- Recall an empty register in the menu to select it as the current effect and add keyframes via Insert in the Timeline / Edit menu.
- Use the **Store** button in the main control panel to select an empty register by using the Store Free" dialogue as the current effect and add the first keyframe.

Recall

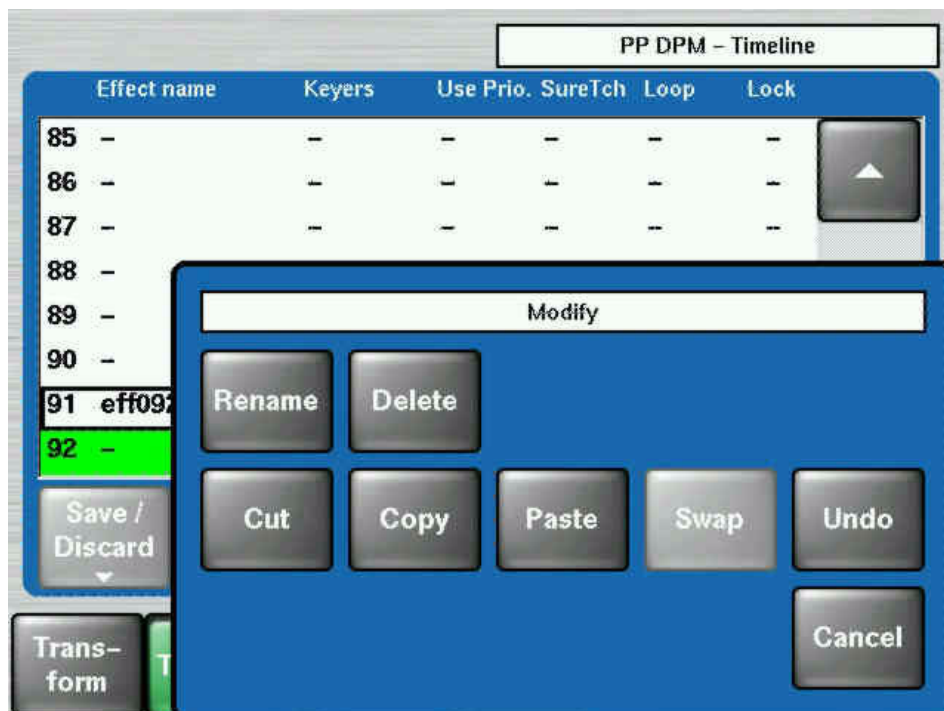
Select a register and press **Recall**.

This button is disabled when the current effect is modified and the modification is not yet saved or discarded.

Modify

The **Modify** button allows you to rename, delete, cut, copy, paste, or undo the last action to the selected register.

Figure 165. DPM – Timeline – Modify



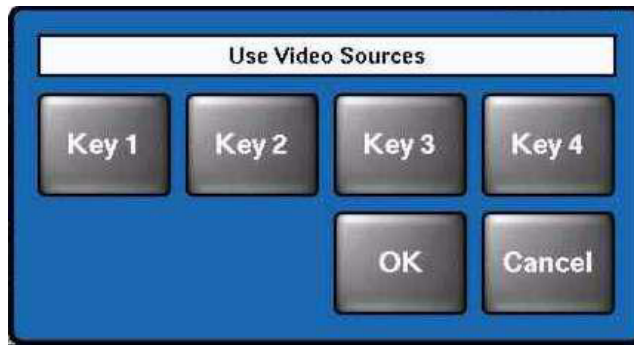
Use Priority

If the **Use Prio.** button is activated, the key priority of the included keyers will be set by the DPM effect on a keyframe by keyframe base. If such a DPM register is recalled by an E-MEM register, any priority information stored in the E-MEM register will be ignored.

Use Video Sources

If this function is activated for a keyer, the source selection for the selected keyer will be set by the DPM effect on a keyframe by keyframe base. If such a DPM-register is recalled by an E-MEM-register, the source information for the relevant keyer stored in the E-MEM-register will be ignored.

Figure 166. DPM – Timeline – Video Sources



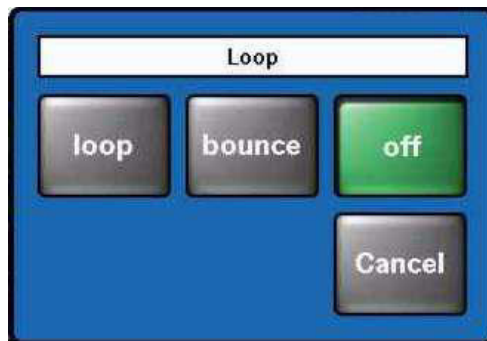
Loop

This function allows you to put the selected effect in an endless loop:

Loop: Run from begin to end.

Bounce: Run begin to end, then reverse to begin, etc.

Figure 167. DPM – Timeline – Loop



Protect

Protects the register against save, delete or rename.

The buttons **Modify / Use Priority / Use Video Sources / Loop / Protect** are direct permanent changes that do not need confirmation. Using these function does not select the chosen register as the current effect. A current effect is only selected by a Recall in the menu, by the **Store** and **Edit** button on the main control panel and by E-MEM recalls.

Show Timeline Menu

Figure 168. DPM – Show Timeline – Edit Menu

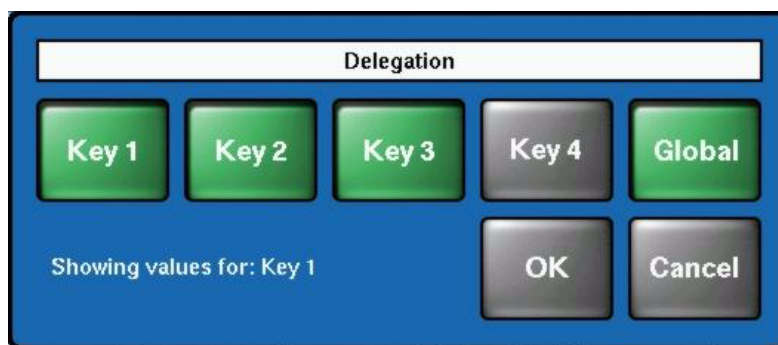


The Edit menu allows you to insert/modify/delete keyframes for the selected channels for the current effect.

Delegation

The **Delegation** button shows you for which channels the actions are executed.

Figure 169. DPM – Timeline – Delegation Selection



You can select all Keyer channels which are included in this effect. The last selected channel is the displayed one.

Sure Touch

Sure Touch changes the way in which effects behave during recall and playback, providing more control and flexibility. An effect can be safely recalled using two new modes which eliminate abrupt changes: hence the name Sure Touch is being used. When using a Sure Touch mode, the effect adapts itself to the switcher's current state. Upon recall of any effect, no changes are made to the current state, regardless of the nature or the composition of the effect. Then, when the effect is run, the relative changes from the interpolated effect are applied instead of the traditional absolute output. Only elements which changed over the course of the original effect are affected.

One way of thinking about safe touch is to think of it as running an effect in "relative" mode.

These changes can be applied in different ways, allowing the effect to interpolate on a path parallel to the original effect (Parallel mode), or on a path that converges the changing state smoothly to the actual end state of the original effect (Converge mode). A safe touch mode can be "forced on" just prior to recalling an effect, or it can be saved with the effect to be used automatically.

This feature changes the paradigm of control for effects, allowing effects to be applied under more flexible set of conditions and also to be used as specialized functions to perform specific actions.

Within the DPM timeline system, when an effect is first created, a snapshot of all values is saved. For any subsequent keyframes, only values which have changed are then saved. Those values that have changed are referred to as "bound elements" and are subject to interpolation as the effect runs.

When an effect is recalled in a sure touch mode, the current states of the bound elements are read by the timeline system. These values are compared with the original first keyframe (snapshot) of the effect, and an "offset" or "new zero" is established for each bound element of the effect. This "offset" is then applied during all subsequent fields of the effect. A new "offset" is established each time the effect is recalled. The result is that a "new effect" is established each time the effect is recalled.

The essential result is this: When an effect is recalled in a safe touch mode, only those values which underwent changes after the first key-frame of the original effect are touched, and only changes in values are applied.

Cursor Control

The top row buttons **Go To**, **Begin**, **Rev Play**, **Pause**, **Play**, and **End** let you run the current effect or position the cursor to a specific keyframe. The effect position can also be adjusted by the **Eff. Pos.** digipot.

Direct Mode

The **Direct Mode** button in the bottom row switches between a fast mode, accessing directly the most common functions, and a more detailed mode.

Figure 170. DPM – Timeline – Direct Mode Buttons



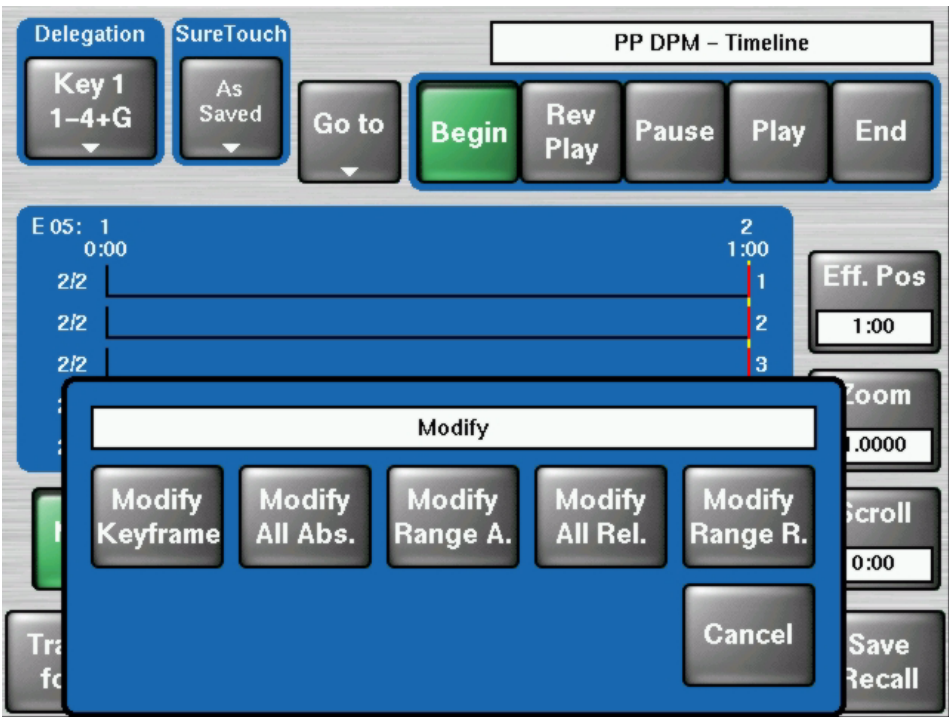
When Direct Mode is switched off, the direct edit buttons change into popup buttons:

Figure 171. DPM – Timeline – Popup Buttons



Modify Keyframe

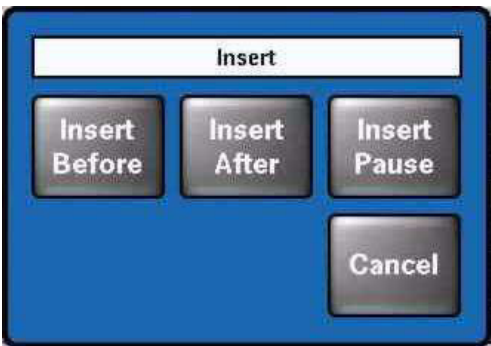
Figure 172. DPM – Timeline – Modify Keyframe



Note When the cursor is at a keyframe, the parameters of this keyframe will be modified to the current values, When the cursor is between keyframes, modify inserts a keyframe at the current position without adding any time. Modify All applies current keyframe changes to all keyframes.

Insert

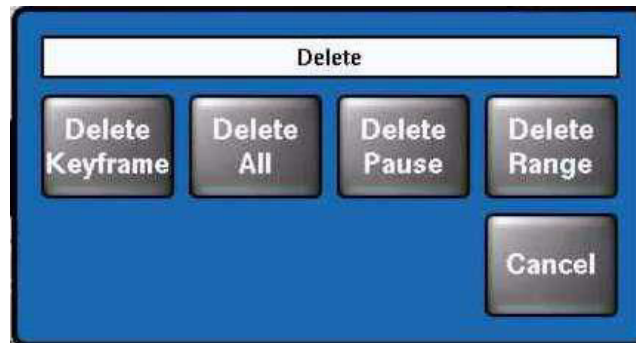
Figure 173. DPM – Timeline – Insert Buttons



Note When the cursor is at a keyframe, a new keyframe will be inserted, adding the time which is specified with Keyframe Duration, When the cursor is between keyframes, the keyframe is inserted at the current position without adding any time.

Delete Keyframe

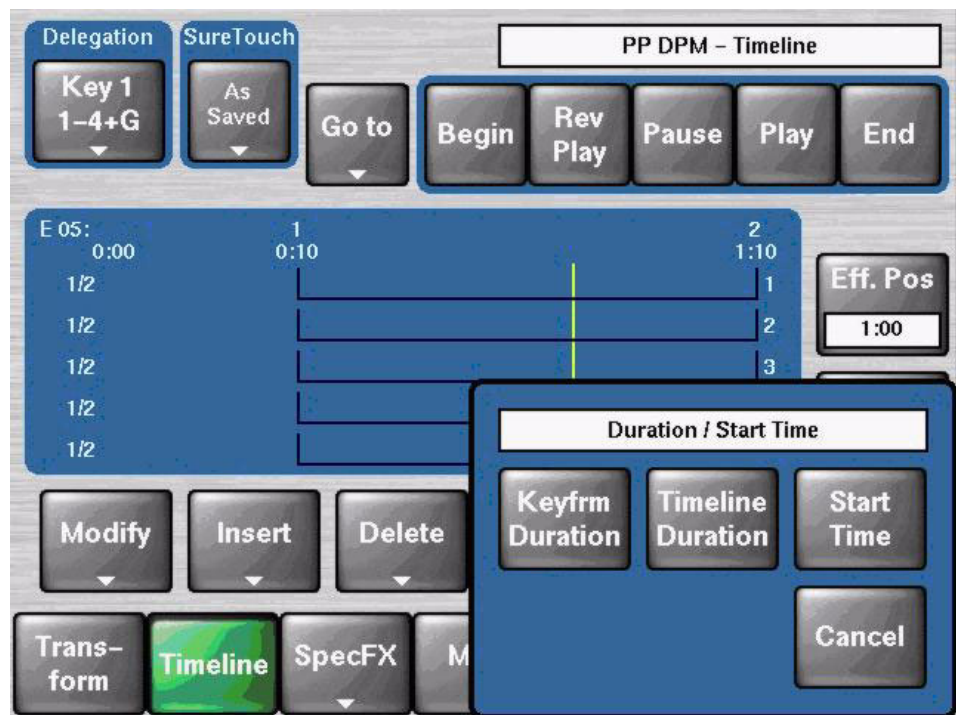
Figure 174. DPM – Timeline – Delete Buttons



Note When deleting a keyframe its duration is also deleted causing effect duration to change.

Keyframe Duration

Figure 175. DPM – Timeline – Duration / Start Time Buttons



Note The **Keyframe Duration** button is not used to change the keyframe duration of the current keyframe. The time is used for the insert of a new keyframe when inserted while the cursor is on a keyframe (see Insert Keyframe).

Constant Duration

The function of this button is the same in both modes. If selected, inserting or deleting will not change the total duration of the effect. Inserting a keyframe while the cursor is at a keyframe position, the new keyframe will add the time specified by Keyframe Duration, but the total effect duration will be rescaled to keep it at the previous duration. When a keyframe is deleted, its keyframe duration will be added to the previous keyframe.

SpecFX Kurl Menu

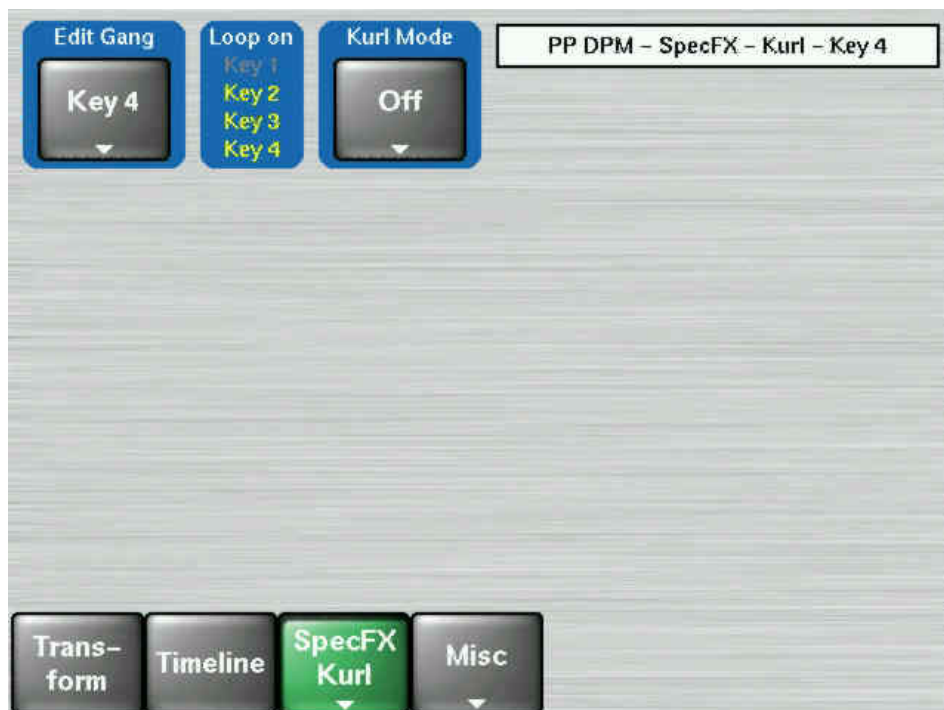
The Kurl effects are grouped into modes, each of which has its own set of menu panes and related soft knob controls.

The Kurl modes are:

- Page Turn
- Page Roll.
- Position/Size Modulation,
- Slits

A Digital Picture Manipulator can apply only one set of Kurl mode parameters at a time. If you wish to use more than one mode of Kurl effects simultaneously on the same video (for example, size modulation of an effect), use multiple Digital Picture Manipulators with re-entry.

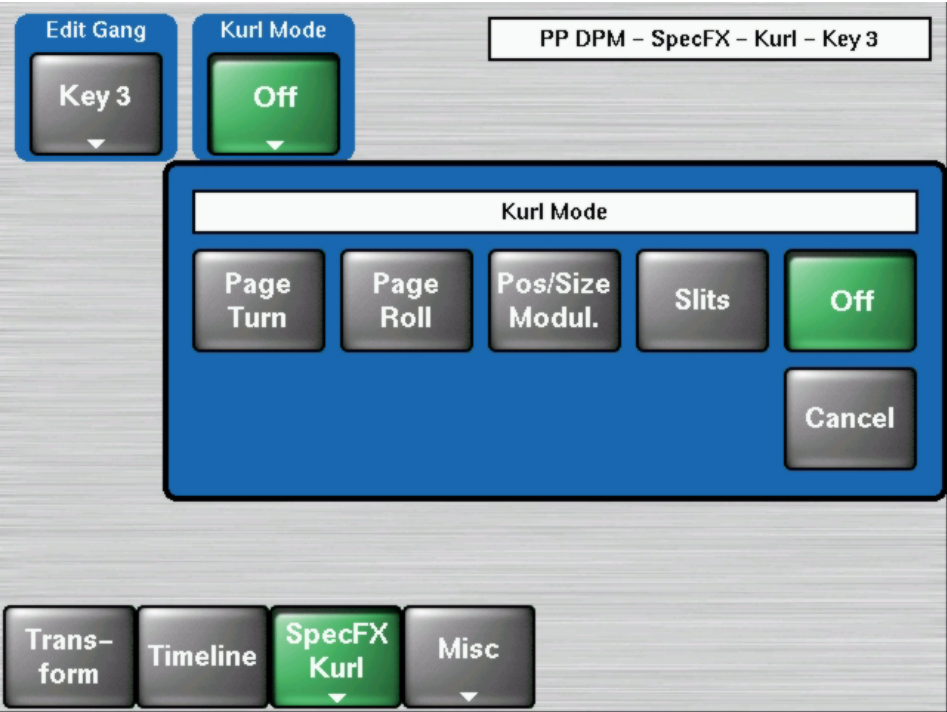
Figure 176. DPM – SpecFx – Kurl Menu (Off)



Selecting the Kurl Mode

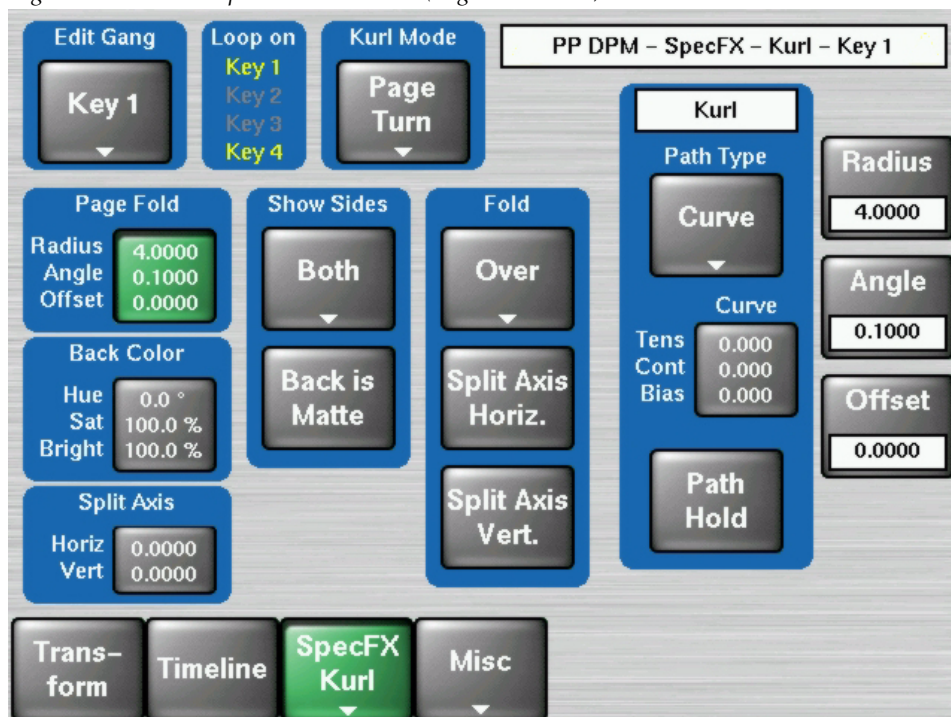
The **Kurl Mode** button allows you to select different operating modes.

Figure 177. DPM – SpecFx – Kurl Mode Selection



Page Turn / Roll Mode

Figure 178. DPM – SpecFx – Kurl Menu (Page Turn Mode)



Page Turn is a transition effect with the video being mapped to an original plane, a cylinder, and a final plane parallel to the original plane. Page Roll maps the video to an original plane and a cylinder. Page Turn and Roll are parallel projections to the target screen with no perspective.

Note For a Page Turn effect on a key or video that is not a full raster, you will need to set up two identical keys and use the **Show Sides Front** and **Back** buttons to define the position of each key.

Touch the **Page Turn/Roll Kurl Mode** button to access the Page Turn and Roll controls

Fold Pane:

The orientation of the fold (Over or Under the original plane) are selected in the **Fold** pane.

Split page turn and roll effects are controlled with the **Split Axis** buttons. The effect can be split Horiz, or Vert, or both ways using the labeled buttons. Selecting the **Split Axis** buttons brings up **Horiz** and **Vert** soft knobs that control the location of the split.

Page Fold

When the **Page Fold** data pad is selected, the following soft knob controls are available:

- Radius

Adjusts the radius of the page turn cylinder affecting the sharpness of the curl.

- Angle

Defines the orientation of the page turn cylinder with respect to the source X and Y axes, and specifies the direction of the turn.

- Offset

Positions the page turn cylinder with respect to the source plane and, when interpolated between keyframes, causes the page to turn. The offset would typically change from one edge or corner of the source raster to the opposite edge or corner for the turn. (Hint: Offset = 0 will put the turn at the middle of the screen.)

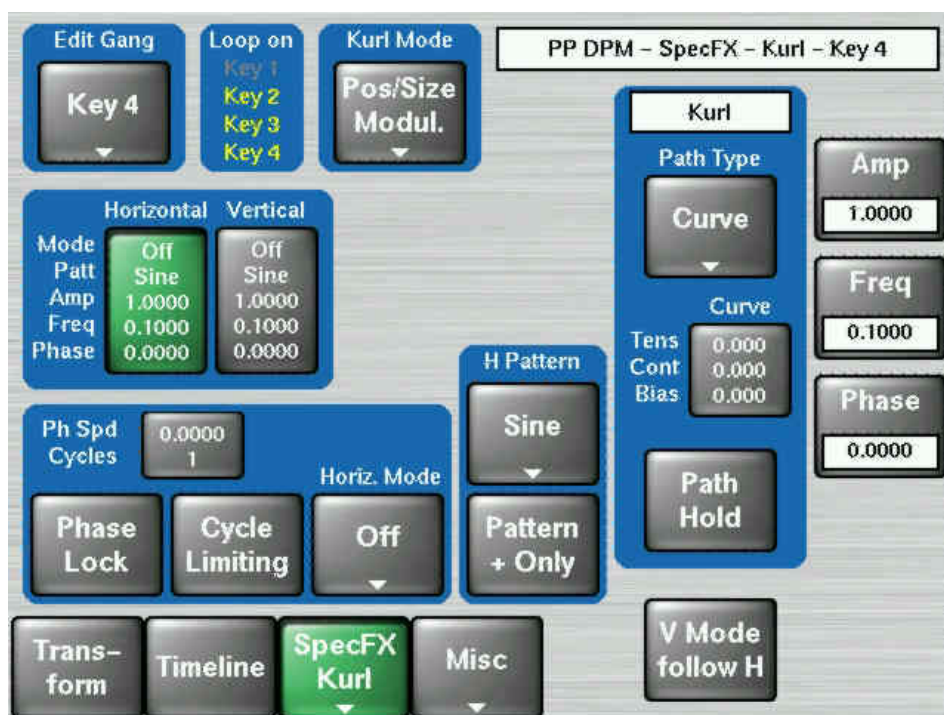
Show Sides Pane:

Choices of what sides of the effect to display (**Both, Front, Back**) are available in the **Show Sides** pane. Selecting only a portion of the effect can be used for multi-pass effect creation.

When Back is Matte is selected, the back of the effect will be a matte color. The color of the matte can be changed by touching the Back Color data pad to bring up soft knob controls for **Hue, Saturation, and Brightness**.

Pos / Size Mode

Figure 179. DPM – SpecFX – Kurl Menu (Pos/Size Mode)



Position and Size Modulation are effects in which the source video is position- or size-modulated through an additive process with either a single wave train, or two wave trains with the second wave at a right angle to the first. Each of the two wave trains (horizontal, vertical) may be selected independently from a set of modulation patterns.

Touch the **Pos/Size Modul. Kurl Mode** button to access the position and size modulation controls.

Horizontal or Vertical (Modulation) Pane:

In the Modulation pane you select the wave train axis (**Horizontal** or **Vertical**) for which the rest of the menu controls will apply. The following Soft knob controls appear on the right for the selected axis:

Amplitude

Defines the modulation amplitude (the height of the pattern waves).

Frequency

Defines the modulation frequency and therefore the number of pattern cycles that appear across the source.

Phase

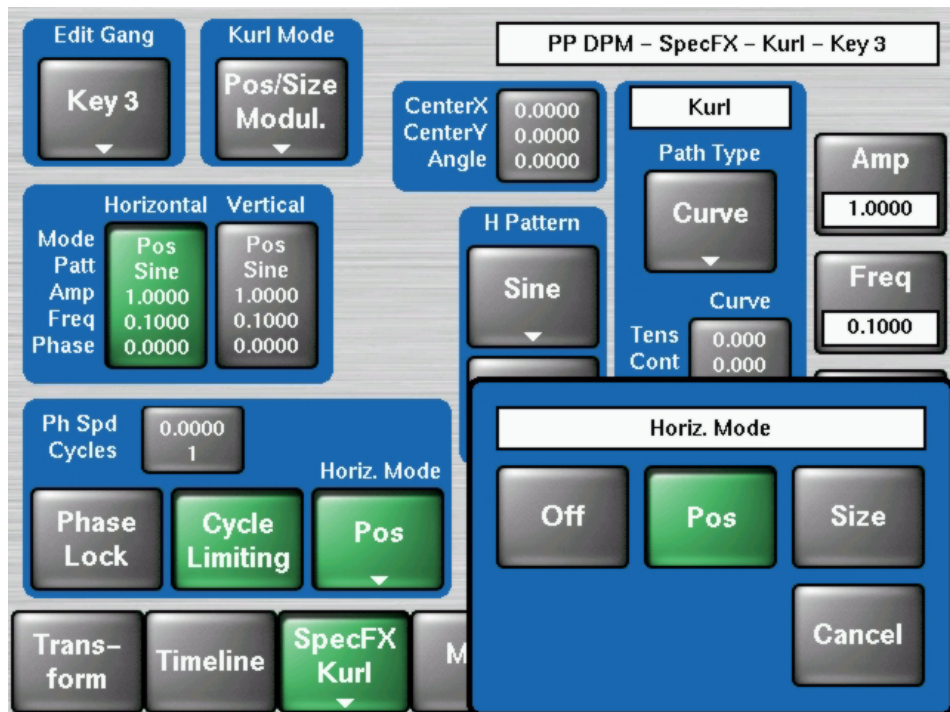
When Phase Lock is on, the Phase soft knob is available to control the static location of the phase of the pattern.

When Phase Lock is off, the Speed soft knob is available to adjust the speed of the pattern's motion. Negative values can be entered to reverse the direction of the motion.

When data pad **CenterX**, **CenterY**, **Axis** is selected soft knob controls for **CenterX**, **CenterY** and **Angle** are available to define the angle and position.

Horiz. or Vertical Mode Pane: With an axis selected, you select the type of modulation to be applied to that axis (**Off**, **Pos**, **Size** or **Cancel**) in the Mode Type pane.

Figure 180. DPM – SpecFx – Kurl Menu (Horiz. Mode Selection)



When the **Vertical** axis is selected, you can choose to have that axis' modulation values match the horizontal values with the **V Mode follow H** button.

When **Size** is selected in the Mod Type pane, the CenterX/Y/Angle data pad in the is active. When this data pad is selected soft knob controls for **CenterX**, **CenterY**, and **Angle** are available

Pattern Pane:

The type of wave pattern to be applied to the selected axis and modulation type is selected in the Pattern pane.

Figure 181. DPM – SpecFx – Kurl Menu (Pattern Selection)

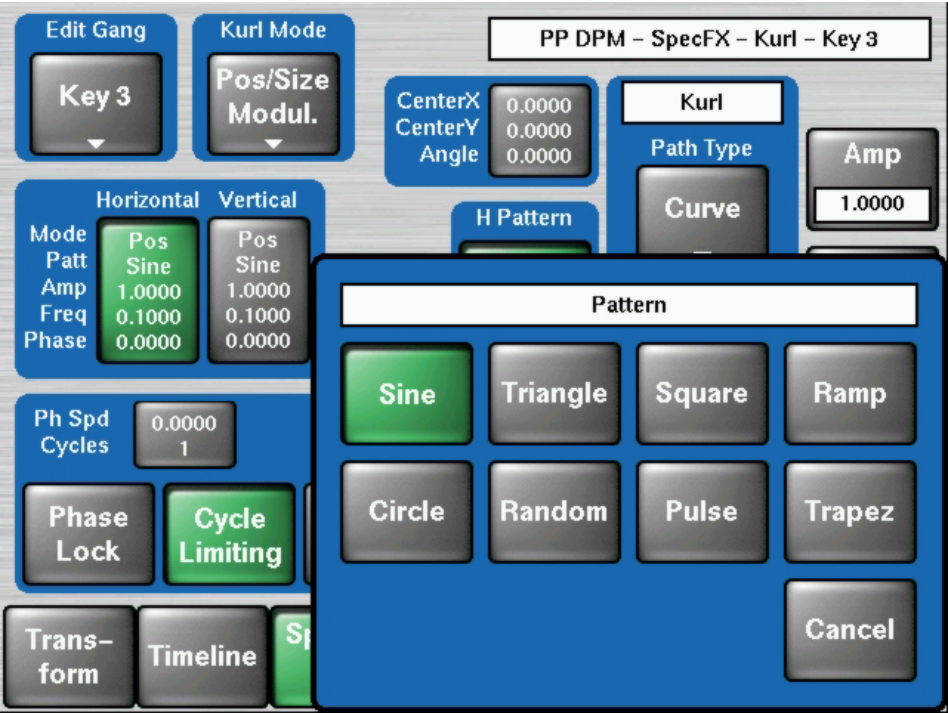


Figure 182. Available Wave Patterns

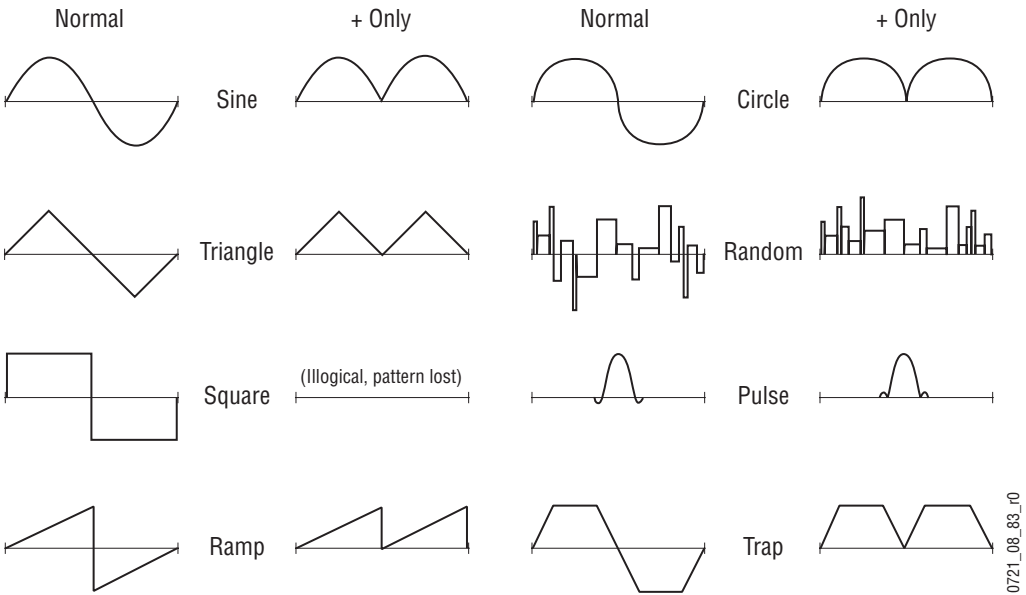
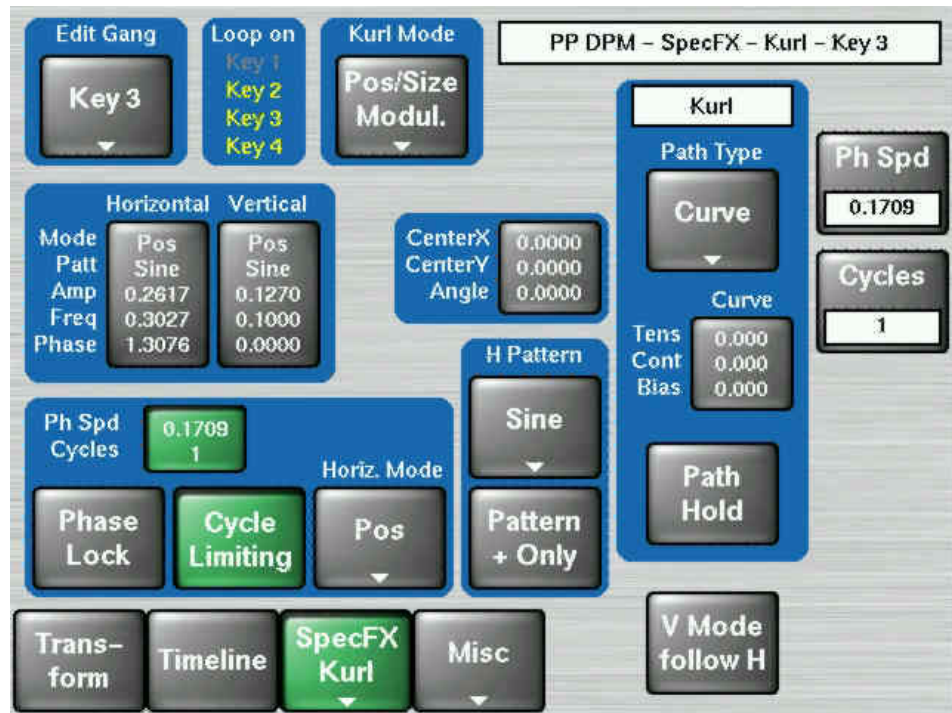


Figure 183. DPM – SpecFx – Kurl Menu (Pos/Size Mode)



Cycle Limiting

The **Cycle Limiting** Button activates the Cycles soft knob. This control can be used to limit the number of wave pattern cycles visible.

Pattern + Only

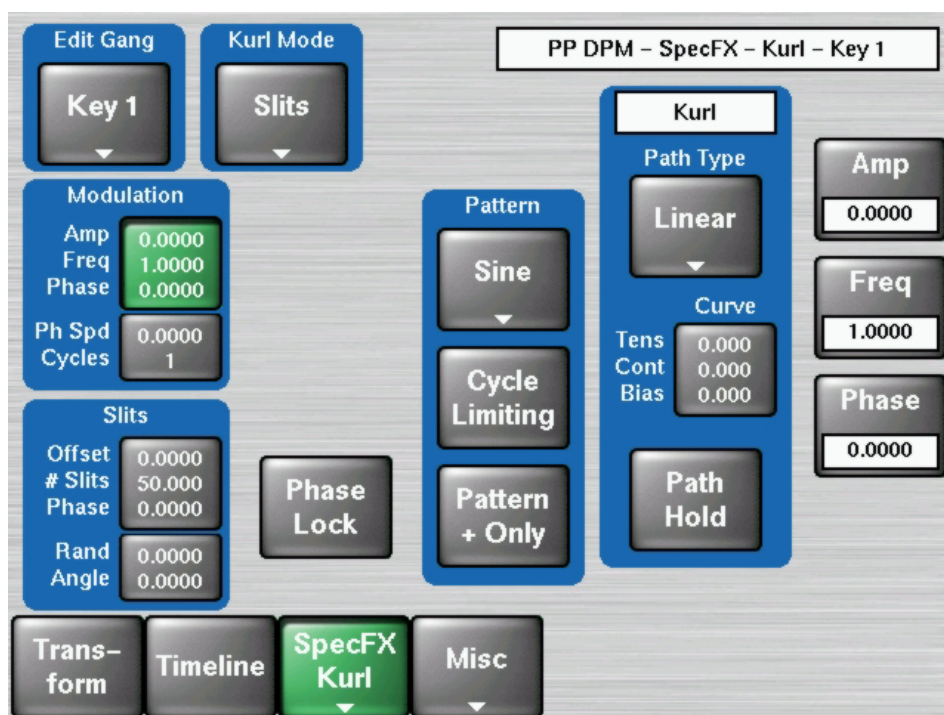
The **Pattern + Only** Button acts like a rectifier and converts all wave excursions to positive. Representative resulting wave shapes are shown in [Figure 182 on page 243](#).

Slits Mode

Slits is an effect in which the source video is split into a number of parallel slits. The width of the slits may be uniform or random, and an angle may be specified. An offset function is provided which controls the amount of displacement of alternating slits in opposite directions (to cause a transition type effect).

Touch the **Slits Kurl Mode** button to access the slits controls. When the **Modulation** data pad is selected the following menu appears.

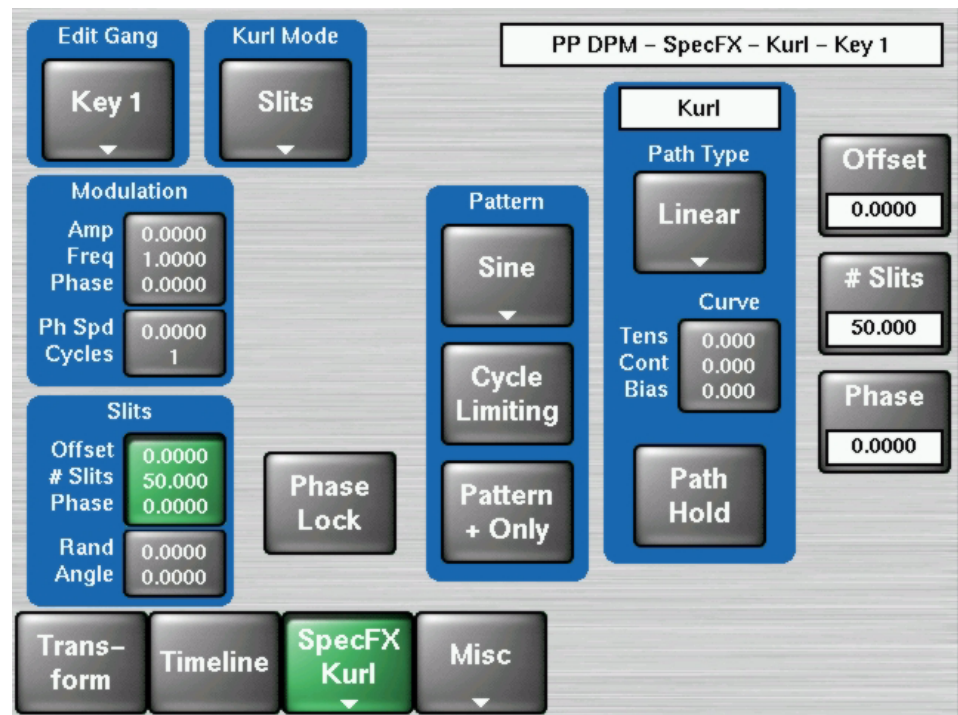
Figure 184. DPM – SpecFx – Kurl Menu (Slits Mode)



The Slits modulation soft knob controls and wave patterns are the same as the Position/Size mode specified in section *Pos / Size Mode* [on page 241](#)

When the **Slits** data pad is selected a menu similar to [Figure 176 on page 237](#) appears.

Figure 185. DPM – SpecFX – Kurl Menu (Slits Mode)



Soft knob controls are provided to control the following attributes of the slits:

Offset

Sets the distance adjoining slits move away from each other. This can be used for transition effects, using a zero offset for the first keyframe and an off-the-screen offset for the last keyframe.

Slits

Defines the number of slits.

Phase

Determines the starting point or phase of the modulation for the center point.

Random

Defines the degree of randomization of slit width.

Angle

Defines the angle of the slits with respect to the source X and Y axes.

Advanced Effect Options

Kayak HD systems equipped with the Advanced Effects option have additional Glow, and menus.

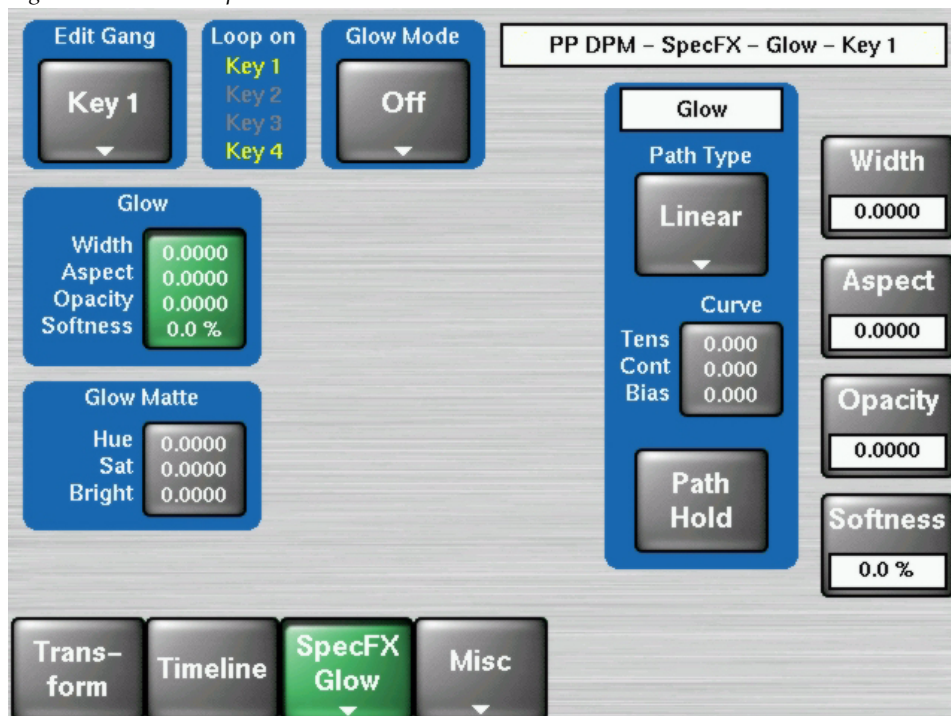
Glow adds a soft edged variable opacity border around keys, leaving the original keyed image unmodified. Defocus blurs the actual keyed image.

These features are available only when the respective license key has been activated. The Advanced Effect options are not available on Kayak DD systems.

Glow Effect

Glow controls are available on the SpecFX - Glow menu. The Glow controls on the menu affect the delegated keyer on the menu. Only one keyer can be delegated at a time.

Figure 186. DPM – SpecFX – Glow Mode



Glow Mode Pane

- **Off** — The Glow effect is deactivated.
- **Glow** — The Glow effect is applied around the keyed image which remains visible.
- **Glow Only** — The glow effect is applied to the entire keyed area, replacing the original keyed image. Only the glow is shown.
- **Outline** — The glow effect is shown around the keyed area, but the original keyed image is not shown. Only the border area of the glow is visible.

When the Glow is activated, knob controls for Glow Width, Aspect, Opacity, and Softness are available.

Note Glow Softness is linked with Drop Shadow Softness and has priority. When both the Glow and Drop Shadow features are on, Glow Softness values are applied to both Glow and Drop Shadow Softness.

Glow Matte Pane

When the Glow matte pane is activated, knob controls for matte Hue, Saturation, and Brightness become available. An approximation of the color of the matte is shown at the bottom of the pane.

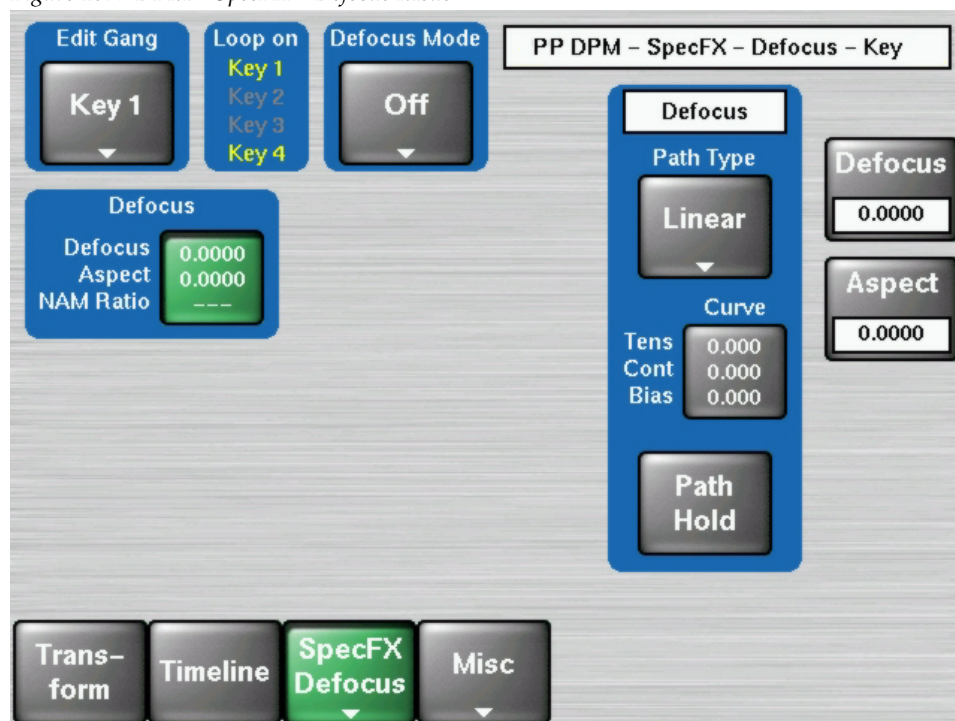
Path Type Pane

Controls for glow path, using the standard Hold, S Linear, Linear, and Curve parameters, are applied when the Glow feature is activated.

Defocus Effect

Defocus controls are available on the DPM - SpecFX -Defocus menu. The Defocus controls on the menu affect the delegated keyer on the menu. Only one keyer can be delegated at a time.

Figure 187. DPM – SpecFX – Defocus Mode



Defocus Mode Pane

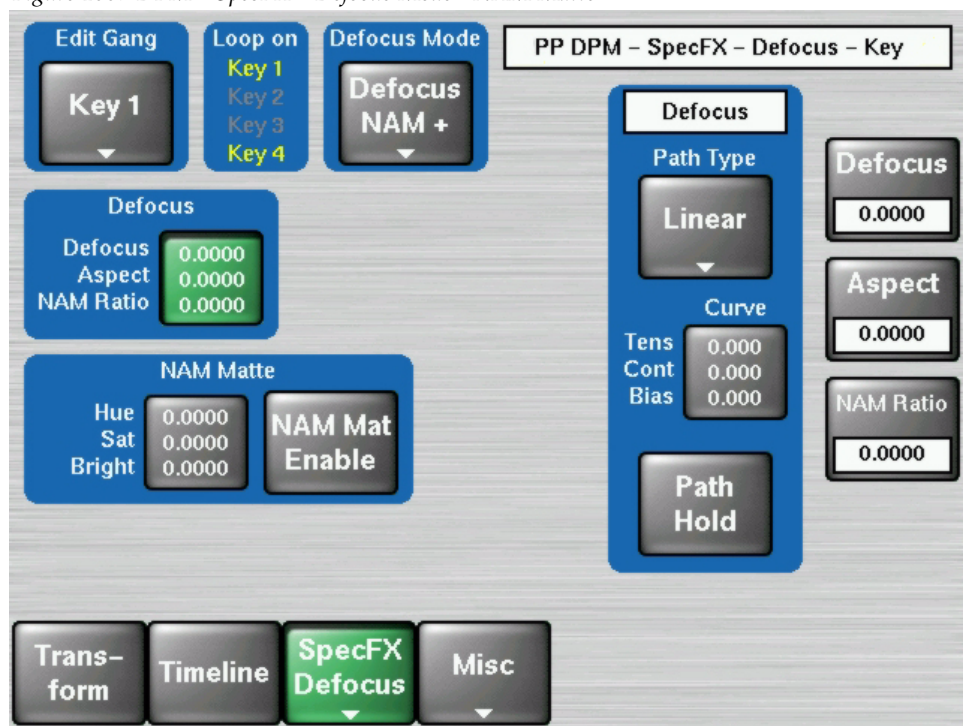
- **Off** — The Defocus effect is deactivated.
- **Defocus** — The Defocus effect is applied to the original keyed image.
- **Defocus NAM +** — The defocused image is compared to the original image on a pixel by pixel basis, and the lighter (higher luminance) pixel of the two is used in the final image.
- **Defocus NAM -** — The defocused image is compared to the original image on a pixel by pixel basis, and the darker (lower luminance) pixel of the two is used in the final image.

When the Defocus pane is activated, knob controls for Defocus, Aspect, and NAM Ratio are available.

- **Defocus** — Adjusts the total amount of defocus applied to the video image.
- **Aspect** — Adjusts the percentage of defocus applied to the vertical and horizontal axes of the video image.
- **NAM Ratio** — Adjusts the level of luminance at which the Defocus effect will be applied to NAM pixels. This value applies to both NAM + and NAM - modes.

NAM Matte Pane

Figure 188. DPM – SpecFX – Defocus Mode - NAM Matte



NAM Matte Enable — When selected a matte color is applied to the selected NAM (lighter or darker) portion of the keyed image.

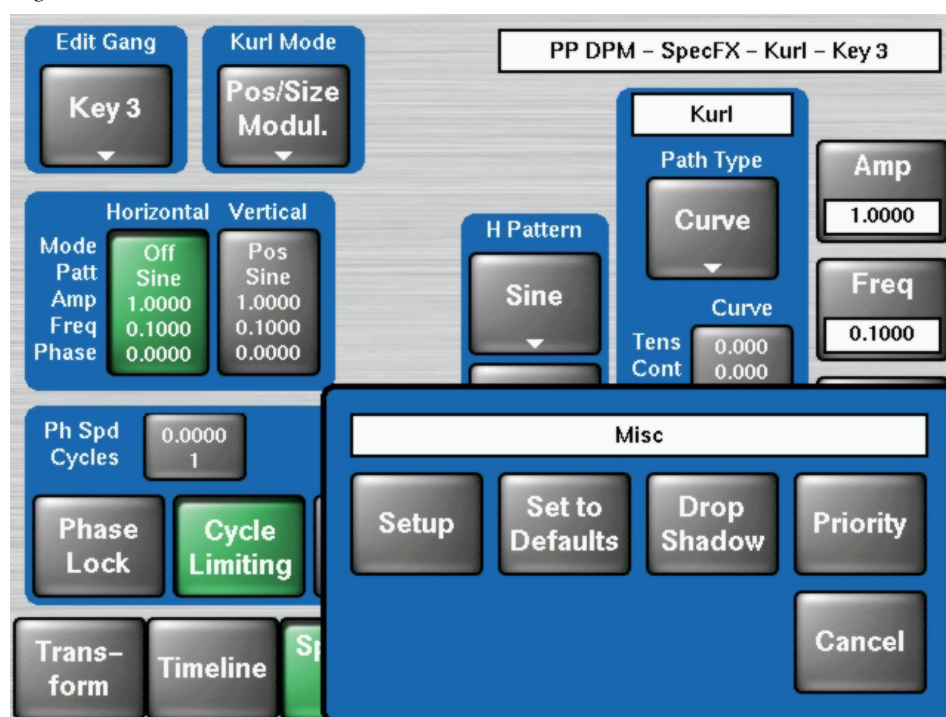
When the NAM Matte pane is activated, knob controls for matte Hue, Saturation, and Brightness become available. An approximation of the color of the matte is shown at the bottom of the pane.

Path Type Pane

Controls for defocus path, using the standard Hold, S Linear, Linear, and Curve parameters, are applied when the Defocus feature is activated.

Misc Menu

Figure 189. DPM – Kurl Mode – Misc Selection



Setup

Select the included keyer and allow global control. See [Misc Setup Menu on page 218](#) for details.

Set to Defaults

To reset all Digital Picture Manipulator parameters or groups of them to default you can use the Set to Defaults menu which is accessible through the Misc selection in the button row.

To reset only geometric parameters, i.e. those which affect position, size etc., use the **Geom Parm**s reset. The **All Parm**s reset sets everything, including matte colors, drops shadows, mirrors and Kurl values to default.

Figure 190. DPM – Set to Default

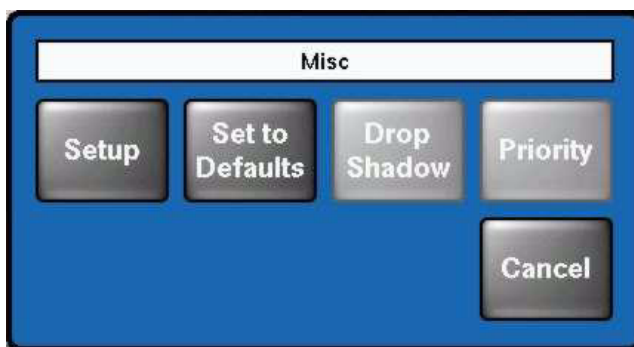
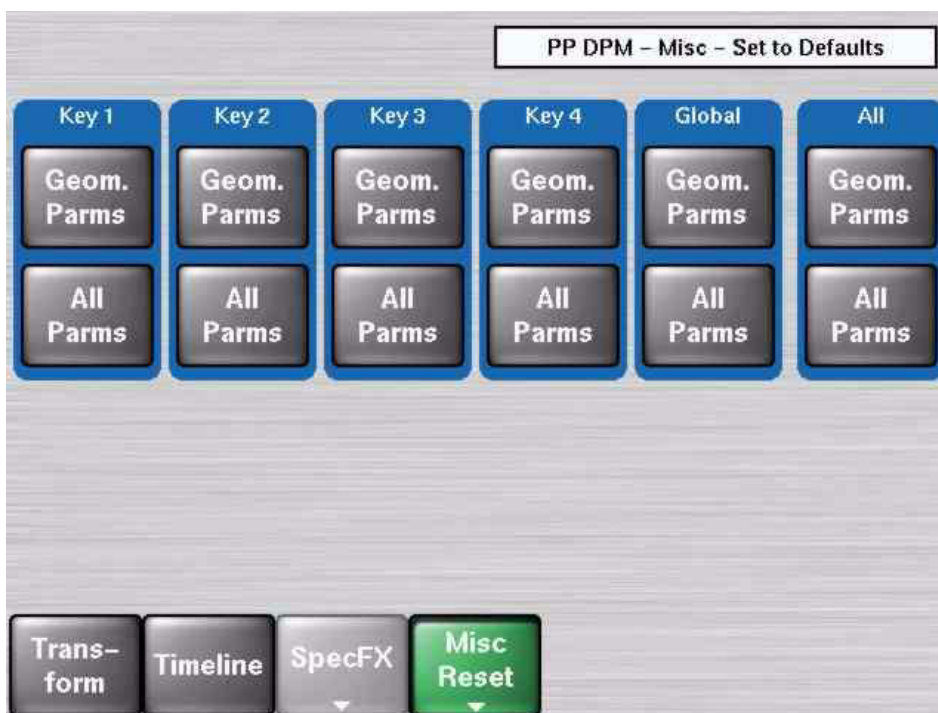


Figure 191. DPM – Default Selection

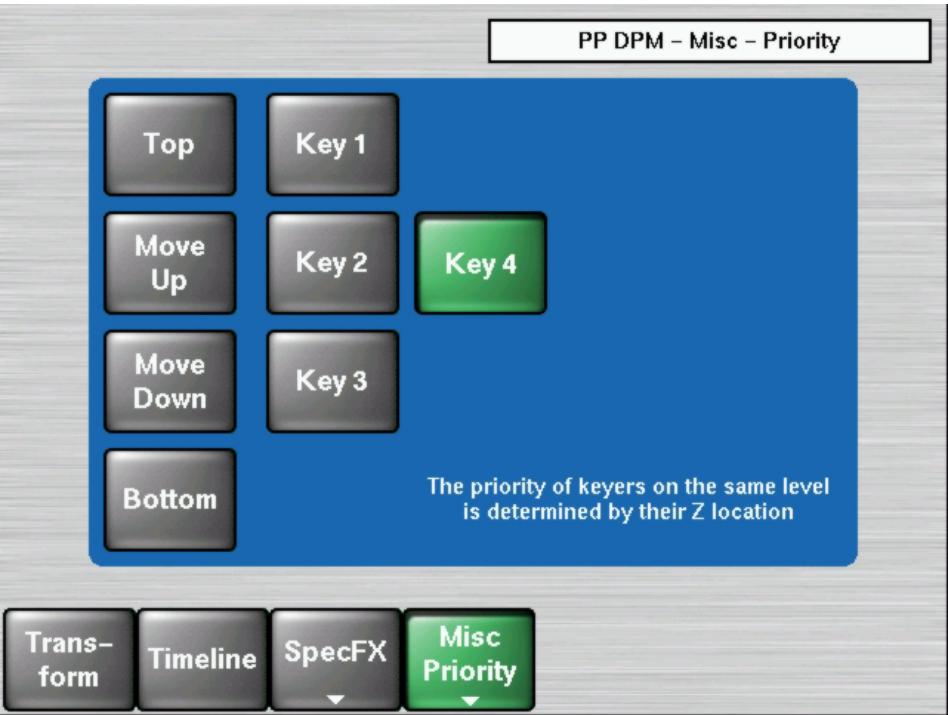


Drop Shadow

The Drop Shadow feature is turned on with the **Drop Shadow** button. When turned on, soft knob controls become available on the right. Different soft knob controls appear, depending on which data pad has been selected in that pane. The current parameter names and values are displayed on each data pad. See *Drop Shadow on page 219* for more information.

Priority

Figure 192. DPM – Misc - Priority



Digital Effects Library

The DPM effect library is provided to give users examples of the capabilities of the internal DPM as well as a starting point to create own effects.

The library is in 2 sections:

- C1fx is the section which uses only DPM channel 1 on P-P and ME1. This section uses 3D-planar transformations and can be easily used by owners of systems which do not have 4 DPM channels per M/E.
- C4fx is the section which uses up to 4 DPM channels per effect and uses the SpecFX: Kurl™ and Splits/Mirrors effects. This section will only show results for owners of fully loaded Kayak HD™ switchers.

Each effect is built in 2 parts: 1 to introduce a picture and the 2nd to remove the picture. This enables users to work live with the DPM recall area of the Kayak HD™ and also to integrate effects easily into E-MEM™ timelines.

- All effects were built using V664.2 software.
- The effects will not replay correctly, if at all, using earlier software versions.
- The effects were built for 4:3 aspect ratio.
- The effects can be used in 625/50 and 525/60 standard.

Configuration Notes for DPM

In the **Config / E-Box - DPM** settings area of your switcher are very important settings which affect the edges of pictures in DPM channels. If you use sources which have been digitally sourced you should ensure that the production crop settings for 4:3 are set to:

Top = 3.05

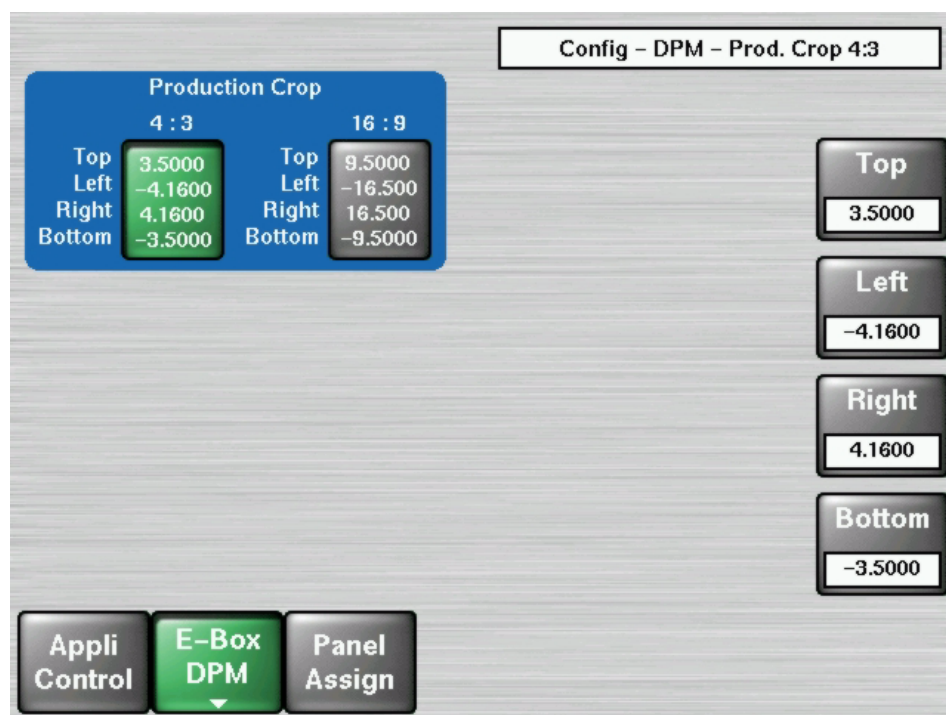
Left = -4.16

Right = 4.16

Bottom = -3.05.

These figures will ensure the correct viewing of the effects in this package.

Figure 193. Config - DPM - Timeline - Modify



How to Load the Effects to Your Switcher

Use the USB flash drive for your system to make a copy of your working application.

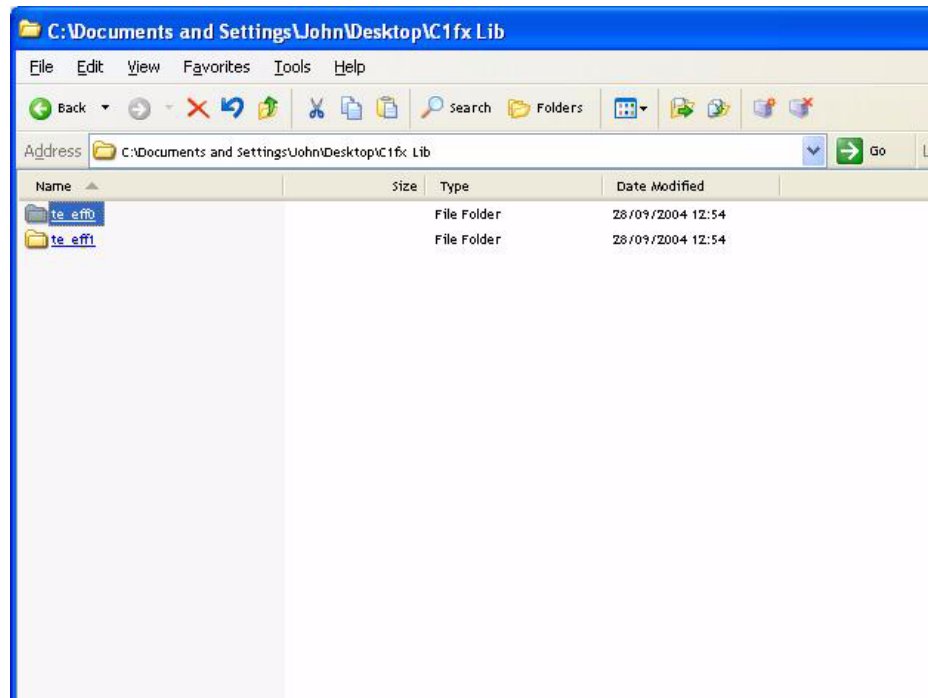
1. Insert your USB flash drive in USB slot 2 or 4.
2. Go to the Config menu. It will open in Application Control window
3. Press **Save**. Your application is saved to the USB flash drive.
4. Press **Save As** and give your application a new name. (This might include the letters FX.)

You now have two copies of your working application. The first is a working backup, the second will become your copy with an effects library.

Use your PC to add the effects library to your second application copy.

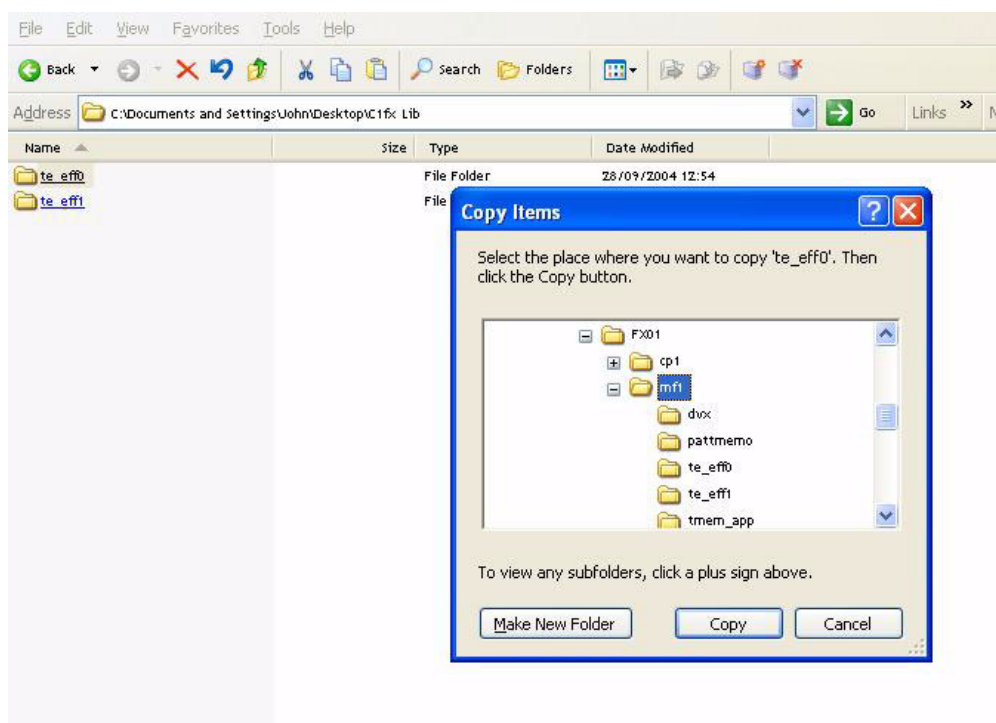
5. Connect your USB flash drive to your PC.
6. Navigate to the folder on your computer that contains the effects libraries. There are two folders; one is called C1fx, the other is called C4fx. In these are folders named te_eff0 and te_eff1. Highlight one of these folders and press the **Copy To** button in the folder toolbar.

Figure 194. Copy To Button



7. In the window that opens navigate to your USB flash drive and open the appli folder. In this navigate to the folder named as you named your copy of the active application on your Kayak HD™ and then to the MF1 folder.
8. With this folder highlighted press **OK**. A dialog box asks you to confirm overwriting the existing te_eff0 or te_eff1 folder as all data within it will be replaced with the library effects. If you have highlighted the correct application press **Yes**.

Figure 195. Copy Items



You do not have to copy both `te_eff0` and `te_eff1` to a 2 M/E Kayak HD™ unless you want both mix effect banks to have access to the effect library.

You do not have to copy the same library (C1fx or C4fx), so you could use C1fx from `te_eff0` and C4fx from `te_eff1`.

If you have a Kayak HD™ 1 M/E unit the `te_eff1` folder exists, but this is a folder made for compatibility only. If you save effects to this folder it will be emptied when the Kayak HD™ saves the application.

In the package of software you will find a folder named `ramrecStills`. This folder contains 4 files which are full frame graphics that you can use to name the 4 keyers on an M/E using Ram Recorder. You will have to use a PC running the sidepanel program to transfer these pictures to your Kayak HD™ and full instructions on how to use the RAM Recorder transfer system are in this Kayak HD™ user manual.

To replay and use an effect refer to the section on *Catalog of Effects* on [page 258](#) below.

Catalog of Effects

Naming

Table 13. Effect Naming Conventions


Type	
sl	slide
ps	perspective slide
lb	linear motion bounce
spir	spiral
bnc	multi position bounce
sw	swoop
bri	barrel roll in
bro	barrel roll out
Positions in or out of frame	
T	Top Centre
B	Bottom Centre
L	Left Centre
R	Right Centre
TL	Top Left corner
TR	Top Right corner
BL	Bottom Left corner
BR	Bottom Right corner
C	Fully centred
Channel names	
C1, C2, C3, C4	Channel numbers.

C1fx – for Channel 1 Only

All effects in the C1fx section may be used with either full frame pictures or keyed elements.

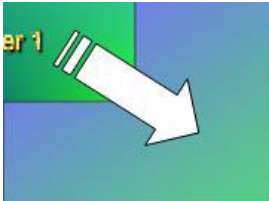
C1fx - Bank 00

Table 14. Slide and zoom with shadows. Effects are 1:00 second

	00	Zoom Out
	01	C1sl-LC
	02	C1sl-RC
	03	C1sl-TC
	04	1sl-BC
	05	C1sl-CL
	06	C1sl-CR
	07	C1sl-CT
	08	C1sl-CB
	09	

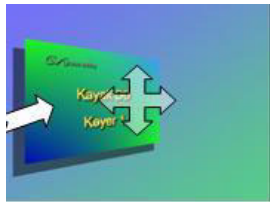
C1fx - Bank 01.

Table 15. Corner slides and spin zoom with shadows. Effects are 1:00 second

	10	SpinZoom Out
	11	C1sl-TLC
	12	C1sl-TRC
	13	C1sl-BLC
	14	C1sl-BRC
	15	SpinZoom IN
	16	C1sl-CTL
	17	C1sl-CTR
	18	C1sl-CBL
	19	C1sl-CBR

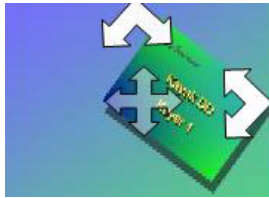
C1fx - Bank 02.

Table 16. Perspective slides and spiral zoom

	20	C1spir-OUT
	21	C1ps-LC
	22	C1ps-RC
	23	C1ps-TC
	24	C1ps-BC
	25	C1spir-IN
	26	C1ps-CL
	27	C1ps-CR
	28	C1ps-CT
	29	C1ps-CB

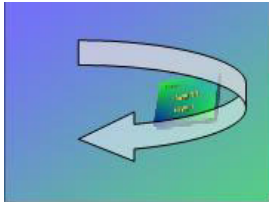
C1fx - Bank 03.

Table 17. Linear Bounce

	30	C1bncOUT
	31	C1lb-LC
	32	C1lb-RC
	33	C1lb-TC
	34	C1lb-BC
	35	C1bncIN
	36	C1lb-CL
	37	C1lb-CR
	38	C1lb-CT
	39	C1lb-CB


C1fx - Bank 04

Table 18. Swoop IN/OUT

	40	C1sw-OUT
	41	C1sw-TLC
	42	C1sw-TRC
	43	C1sw-BLC
	44	C1sw-BRC
	45	C1sw-IN
	46	C1sw-CTL
	47	C1sw-CTR
	48	C1sw-CBT
	49	C1sw-CBR

C1fx - Bank 05.

Table 19. Barrel Rolls

	50	C1-OUT
	51	C1bri-L
	52	C1bri-R
	53	C1bri-T
	54	C1bri-B
	55	C1-IN
	56	C1bro-L
	57	C1bro-R
	58	C1bro-T
	59	C1bro-B

C4fx for Kayak HD™ System

This Kayak HD system has 4 DPM Channels per M/E and the Advanced Effects Option:

C4fx: Bank 00

Table 20. *Push on/of*

00	QUAD-ON	Brings all 4 channels in from corners
01	C12sl-LR	Slides C1 off screen, slides C2 on screen
02	C12sl-RL	Slides C1 off screen, slides C2 on screen
03	C12sl-TB	Slides C1 off screen, slides C2 on screen
04	C12sl-BT	Slides C1 off screen, slides C2 on screen
05	QUAD-OFF	Removes all 4 channels to corners
05	C21sl-LR	Slides C2 off screen, slides C1 on screen
07	C21sl-RL	Slides C2 off screen, slides C1 on screen
08	C21sl-TB	Slides C2 off screen, slides C1 on screen
09	C21sl-BT	Slides C2 off screen, slides C1 on screen

C4fx: Bank 01

Table 21. *Reduced size effects (over shoulder position)*

10	Wipe12sq	Square wipe reveals 2 over 1
11	Wipe21sq	Square wipe removes 2 from 1
12	Wipe21LR	Wipes 1 from 1
13	Wipe12LR	Wipes 2 over 2
14	pgt12	Page turn adds 2
15	pgt21	Page turn removes 2
15	pgr12	Page roll adds 2
17	pgr21	Page roll removes 2
18	Wipe12sq	Square wipe reveals 2 over 1
19	Wipe21sq	Square wipe removes 2 from 1

C4fx: Bank 02

Table 22. *Page Turns full size*

20	K12pg-ON	Double sided page turn 2sec.
21	C1pgt-ON	
22	C2pgt-ON	
23	C3pgt-ON	
24	C4pgt-ON	
25	C1pgt-OFF	
25	C2pgt-OFF	
27	C3pgt-OFF	
28	C4pgt-OFF	
29	K12pg-OFF	

C4fx: Bank 03*Table 23. Page Rolls full size*

30	C1pgr-ON
31	C2pgr-ON
32	C3pgr-ON
33	C4pgr-ON
34	C1pgr-OFF
35	C2pgr-OFF
35	C3pgr-OFF
37	C4pgr-OFF
38	C1pgr-ON
39	C2pgr-ON

C4fx: Bank 04*Table 24. Double sided page turns and page rolls*

40	C12pgt-ON
41	C34pgt-ON
42	C12pgt-OFF
43	C34pgt-OFF
44	C12pgr-ON
45	C34pgr-ON
45	C12pgr-OFF
47	C34pgr-OFF
48	
49	

C4fx: Bank 05*Table 25. Cubes and Slabs*

50	smlcub	Small cube, centre screen rotates 3 times. 8s.
51	smlslb	Small slab, centre screen rotates 3 times. 8s.
52	CUB-R12	Full size cube. C2 replaces C1- rotate to see C3 top
53	CUB-R21	Full size cube. C1 replaces C2- rotate to see C3 top
54	SLB-TLC	6 sided slab fly
55	SLB-TRC	
55	SLB-CTL	
57	SLB-CTR	
58	SLB-IN	6 sided slab fly/rotate from centre
59	SLB-OUT	reverse

C4fx: Bank 06*Table 26. Tiles and modulation*

60	C1twinH
61	C1twinV
62	C1quad
63	C12twin
64	C1mod
65	C1expld
65	C1slitsON
67	C1slitsOFF
68	C1twinH
69	C1twinV

Notes**Use of GLOBAL Channel**

Although GLOBAL channel is supported, certain aspects may behave in a non-intuitive manner.

Most of the effects in these libraries do not use GLOBAL, but cubes and push/pull effects do. You may find that when you first load the effects library some effects are not running as intended. Before running any effects go to the menu **DPM – Misc - Reset to Defaults** and reset **ALL PARAMS**.

If some effects still run incorrect, be confident that there will be a software update shortly. It may be that another version of effects library will be required at that time.

Format

All effects in this library are built for 4:3 aspect ratio.

Standard

The effects in this library are built in 625/50 standard. The effects durations are stored internally in a format that allows the system to recalculate the duration for 525/60 standard. Effectively that means that effects do not need to be re-built for use in 525/60 standard.

E-MEM Menus

Default Mode of Operation

In the Default Mode the switcher behavior is closer to that of the Kalypso/Zodiak line of Grass Valley switchers. The DD Mode follows the E-MEM methods used by the Kayak DD line of switchers.

One of the big differences between DD and Default modes is that KayakDD switchers have an Edit mode that must be activated before a Timeline can be edited. Also, changes to the Timeline are not saved until the Edit mode is switched off again. Default Mode tries to make Edit mode more transparent through several means. First, edit mode is activated automatically whenever an editing action is initiated through the menu, and deactivated automatically whenever the user presses the **Run** button. Second, edit cursor position is preserved (as far as possible) when changing into and out of edit mode. The DD edit mode doesn't allow the edit cursor to be placed in between keyframes, therefore edit cursor snaps to the beginning of the current keyframe upon entering edit mode.

Edit mode cannot be made fully transparent, mainly because the number of buttons available in the E-MEM section of the Kayak panel is limited to provide numeric entry (register selection) and edit commands at the same time.

Another difference between DD and Default Modes is the definition of a keyframe duration. In DD Mode keyframe duration is the duration of the transition to the keyframe, while in Default Mode it is the duration of the transition to the next keyframe. KayakDD associates a transition with the *following* keyframe, while Kalypso/Zodiak associates it with the *preceding* keyframe.

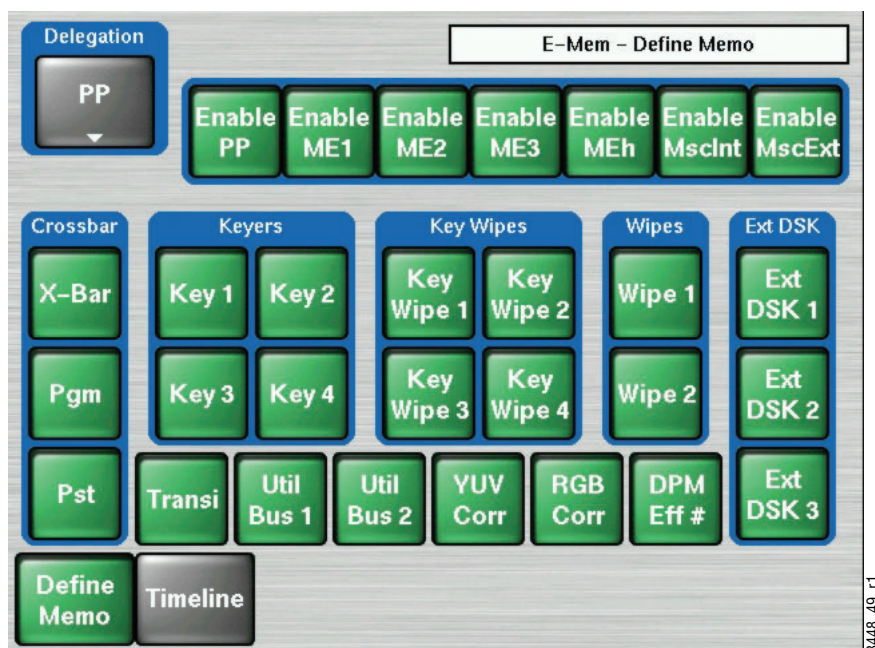
A third difference is that in Default Mode (Kalypso/Zodiak), keyframes are always inserted *behind* the cursor (**Insert After**), while in DD Mode, they are inserted *before* the cursor position (**Insert Before**). In Default Mode both methods are available with **Insert After** being the default.

Some features of Kalypso/Zodiak are not implemented in the Default Mode including “insert on the path”, non-linear paths, and Kalypso/Zodiak's multi-track system. “Insert on the path” means the ability to insert a keyframe at a position between two keyframes without changing the overall duration of the Timeline.

One last difference is that Default Mode handles any type of action in keyframes, while DD Mode has several different types of objects in a Timeline, such as Triggers, Waits, or Loops.

E-MEM Define Memo Menus

Figure 196. E-MEM – Define Memo PP



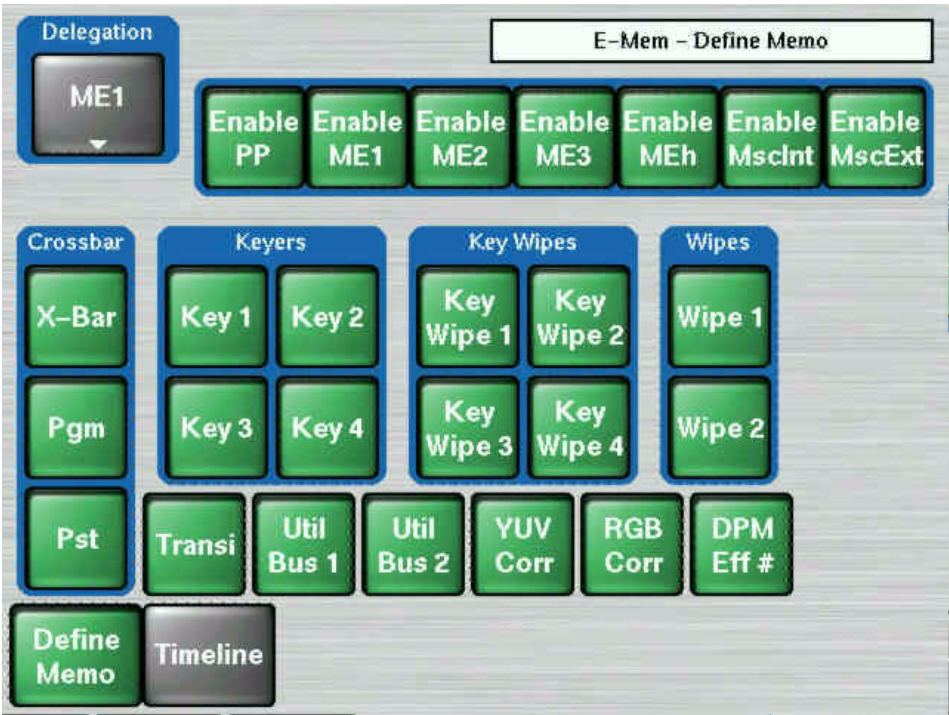
The Define Memo menu serves to define the function groups of the Kayak HD switcher, which are be stored or recalled in an E-MEM snapshot or timeline.

The top level buttons; **PP**, **ME1**, **Misc Int** and **Misc Ext** allow group enable or disable of the single functions named in the sub-menu relevant to the group on a keyframe by keyframe basis.(See next figures.) In each sub-menu individual functions may be enabled or disabled on a keyframe by keyframe basis.

Note The selection of recorded functions made in Define Memo menu for any E-MEM will only be honoured at recall if AUTO-RECALL is enabled.

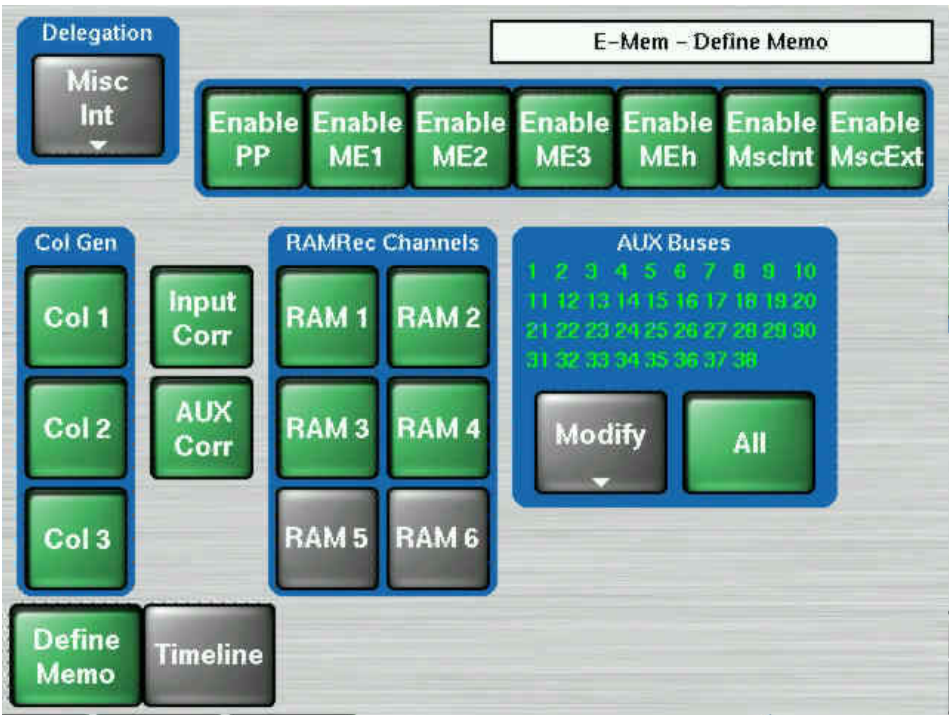
Page for selecting the ME1 switcher functions:

Figure 197. E-MEM – Define Memo ME1



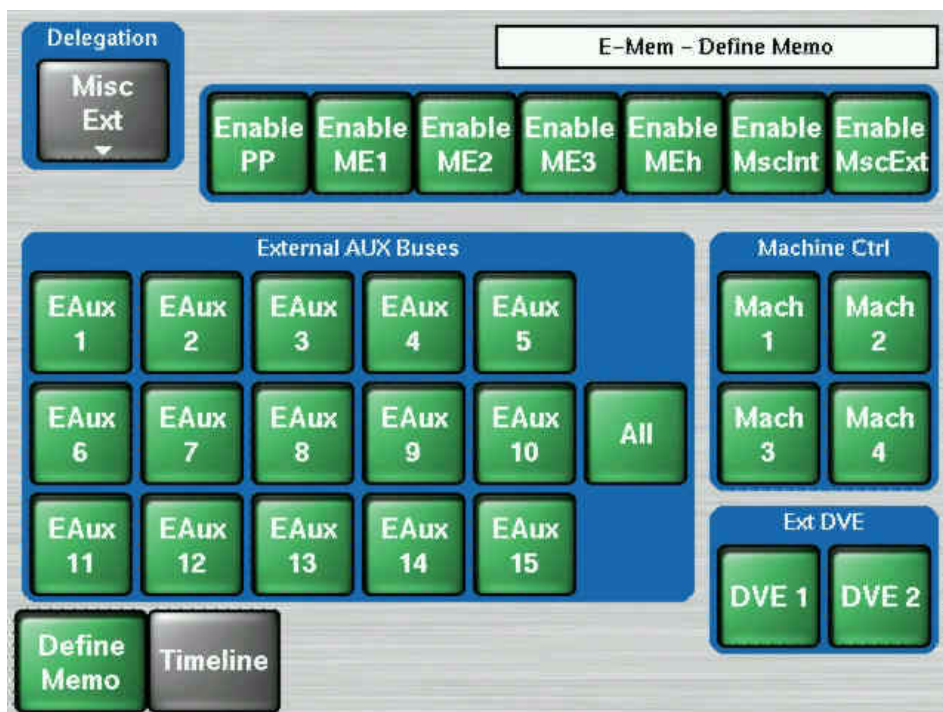
Page for selecting miscellaneous internal M/E switcher functions:

Figure 198. E-MEM – Define Memo Misc Intern



Page for selecting miscellaneous external switcher functions:

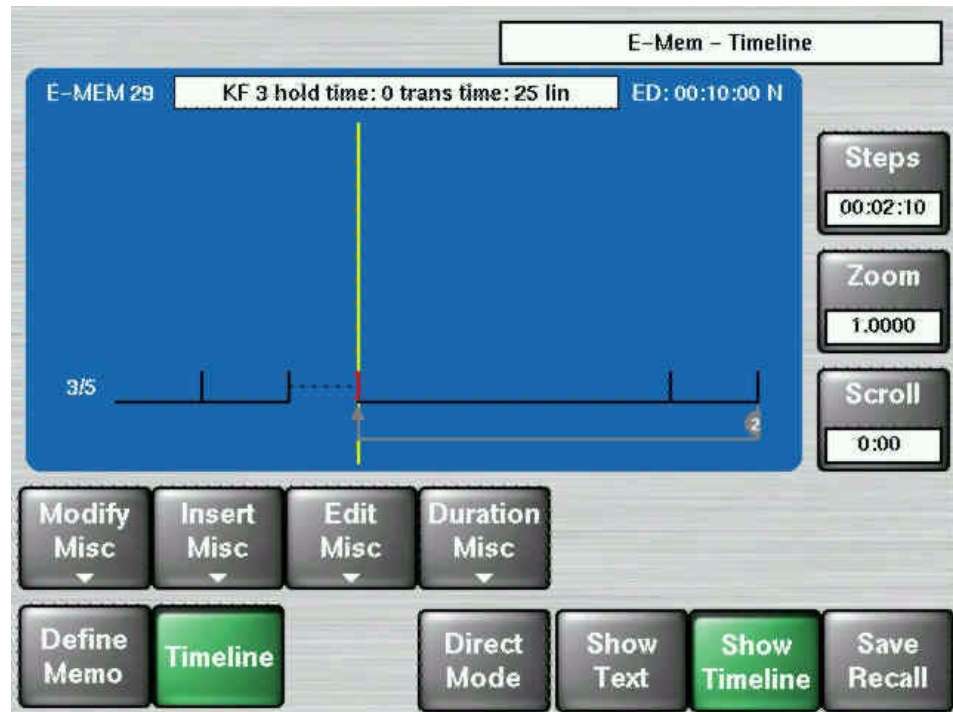
Figure 199. E-MEM – Define Memo Misc Extern



E-MEM Timeline Mode Menus

As the former KayakDD Menu had only a Define Memo menu until now, the Timeline menu is completely new. It supports both Default Mode and “classic” DD Mode. The Timeline menu consists of three submenus, labeled **Show Text**, **Show Timeline** and **Save / Recall**.

Figure 200. E-MEM – Timeline



The **Show Text** and **Show Timeline** menus are similar to the Timeline Edit menu of the Sidepanel, but they are always accessible, not only in edit mode. **Show Text** displays a textual representation of the current timeline, while **Show Timeline** is a graphical representation. Otherwise, both menus are identical. They offer several controls to view and edit the timeline.

Graphical Timeline Representation

In the **Show Timeline** submenu, the current timeline is visualized as a graph over time. Keyframes are drawn as vertical bars, followed by a horizontal line representing their duration. If a keyframe has a hold time, it is drawn as two vertical bars connected by a dotted line, visualizing start and end of the hold time.

Triggers are drawn as red triangles facing up, while waits are down-facing triangles. If multiple waits and/or triggers exist at the same timecode, they are arranged on top of each other. Up to seven waits/triggers can be displayed at one location; if there are more, an eighth triangle with an ellipsis (“...”) is added on top to represent the waits/triggers that did not fit onto

the screen. Wait objects of type “Wait number of frames” (i.e. hold) are drawn as a triangle with a following dotted line representing the hold time, similar to the hold time of keyframes.

Loops are visualized with an arrow below the keyframes, pointing from the loop end to the loop begin. The arrow is superimposed with a circle containing the loop count (or “inf” for infinite loops).

The edit cursor is shown as a vertical yellow line, while the currently selected object is drawn in red.

When **Show Text** is selected, timeline data is displayed as text (Figure 201).

Figure 201. E-MEM – Timeline – Show Text



Direct Mode and Digipots

These controls know two modes, **Direct Mode On** and **Direct Mode Off**. In **Direct Mode On**, the most frequently needed functions are accessible with a single button press, while non-direct mode offers the complete spectrum of functionality at the cost of more button presses necessary for each action.

Steps digipot

The **Steps** digipot allows to move the edit cursor. This automatically activates edit mode. The edit cursor can only be placed on timeline objects (keyframes, triggers, waits, loops), not between keyframes.

Zoom / Scroll digipots

These digipots are only available in the **Show Timeline** submenu, as they control the visible section of the graphical representation of the timeline. Usually, they are only needed for long timelines.

Modify Popup

The **Modify** popup provides three functions:

- **Modify Path** allows you to change the path type (linear or s-linear) of the transition belonging to the current keyframe.
- **Modify All** offers different modes for modifying all keyframes at once.
- **Modify <selected object>** allows to modify the currently selected object. What this actually means depends on the selected object.

For example, **Modify Keyframe** replaces the keyframe's content with the current state of the switcher, while **Modify Loop** allows to modify the loop count of the selected loop.

Figure 202. E-MEM – Timeline – Modify Misc

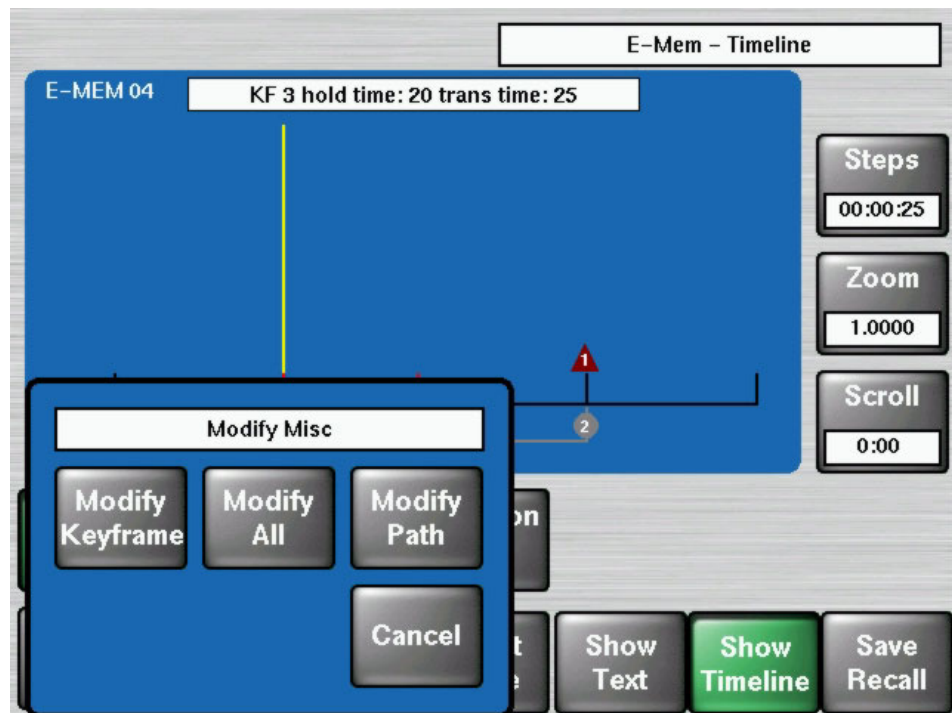


Figure 203. E-MEM – Timeline – Modify Path

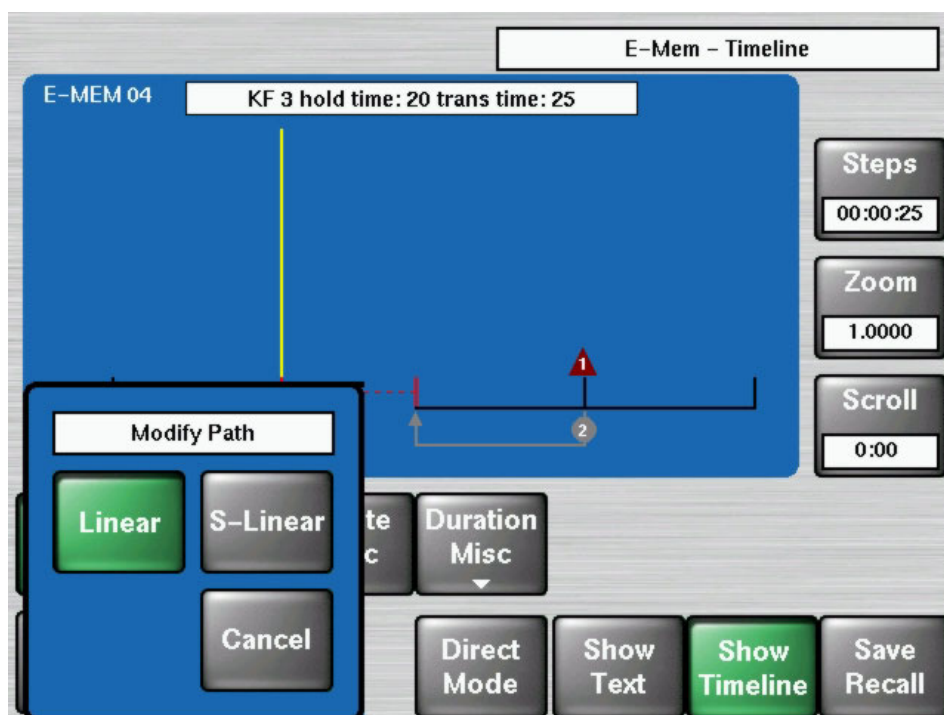


Figure 204. E-MEM – Timeline – Modify All

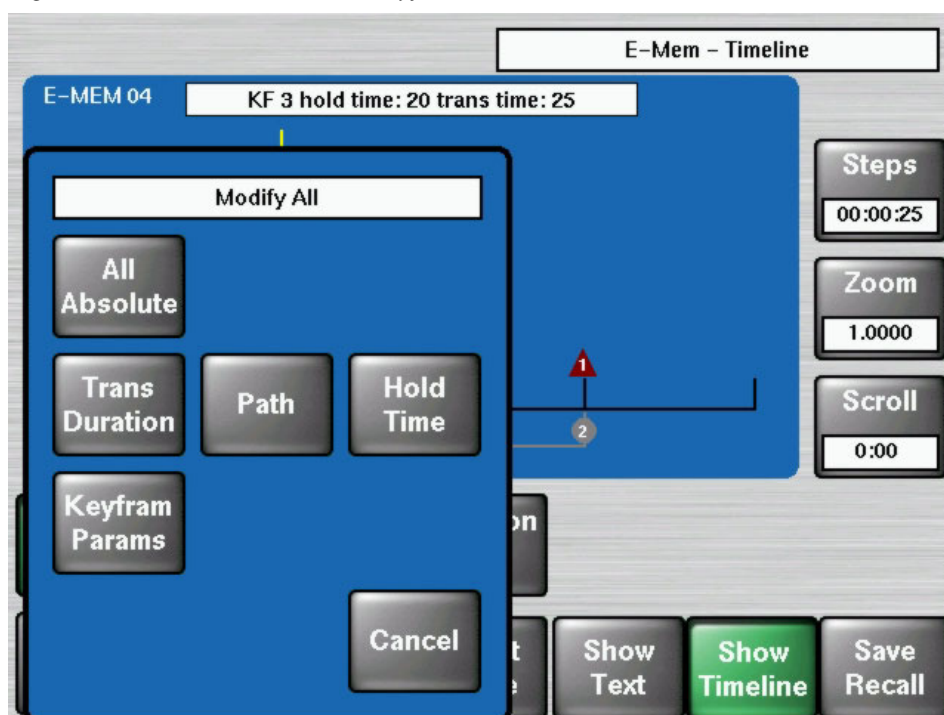


Figure 205. E-MEM – Timeline – Keyframe Parameter

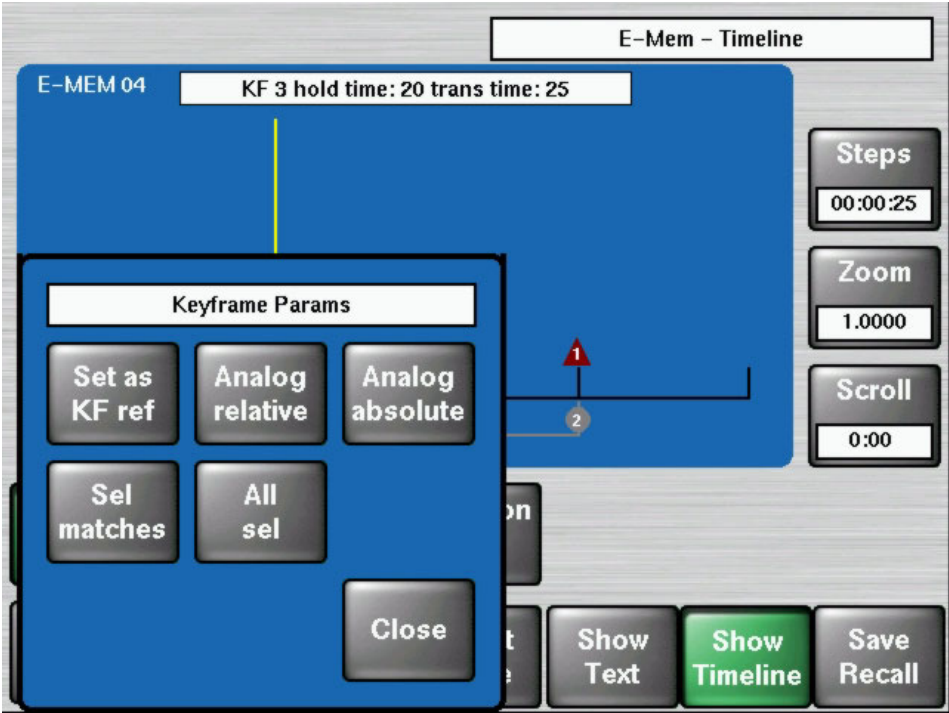
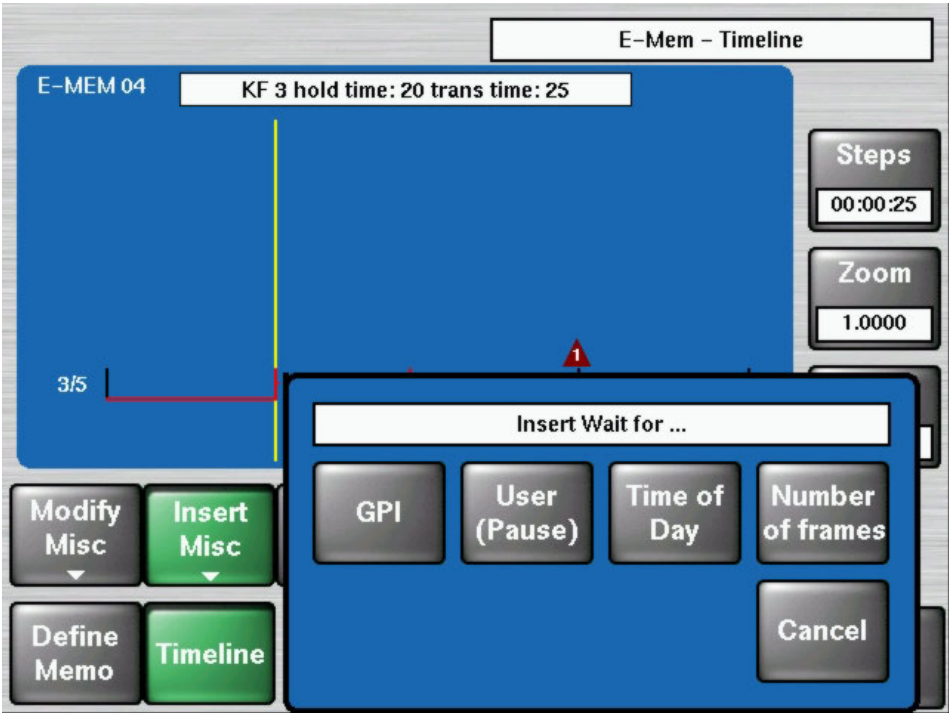


Figure 206. E-MEM – Timeline – Insert Wait for ...



Insert Misc. Popup

The Insert Misc. popup allows the user to insert various timeline objects: Keyframes, Snapshots and Timelines (other E-MEMs), Waits, Loops and Triggers (Figure 207)

Figure 207. E-MEM – Timeline – Insert MiscI

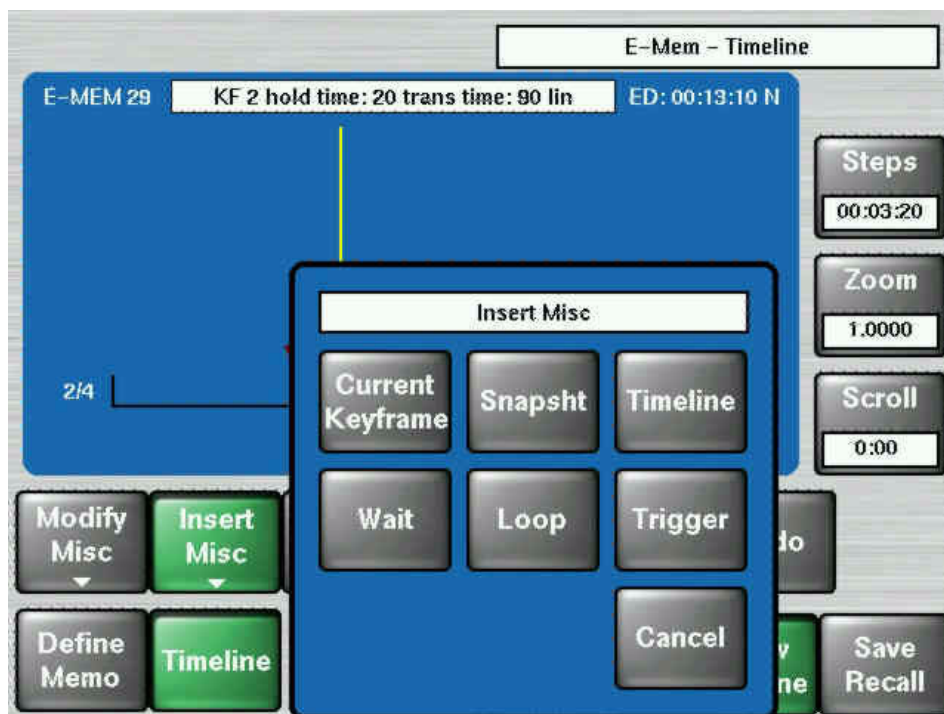


Figure 208. E-MEM – Timeline – Insert Snapshot or Timeline



Figure 209. E-MEM – Timeline – Insert Wait

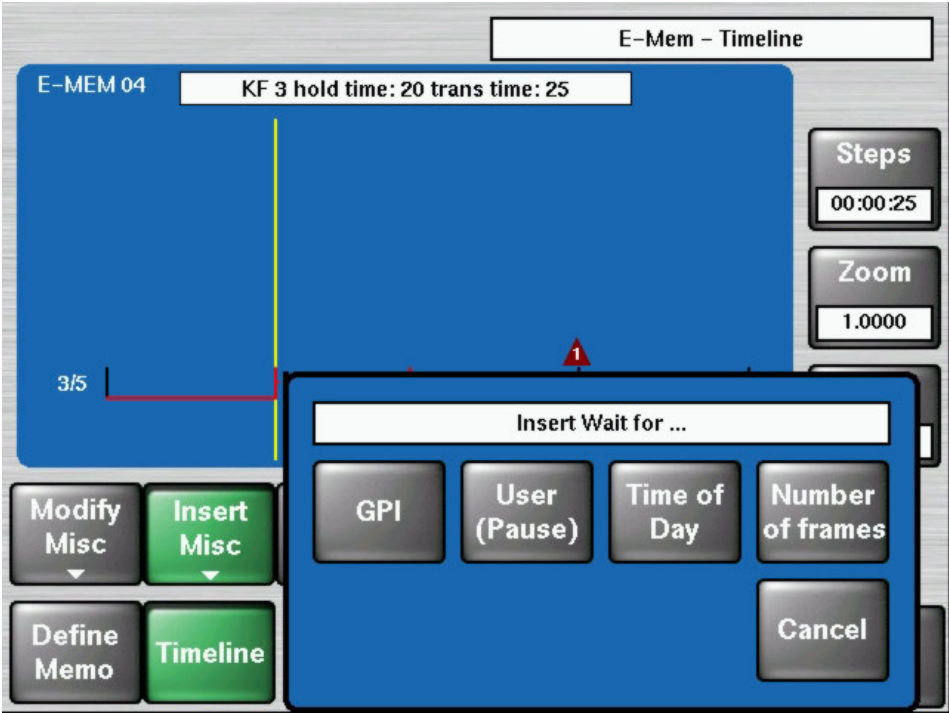


Figure 210. E-MEM – Timeline – Insert Wait for GPI

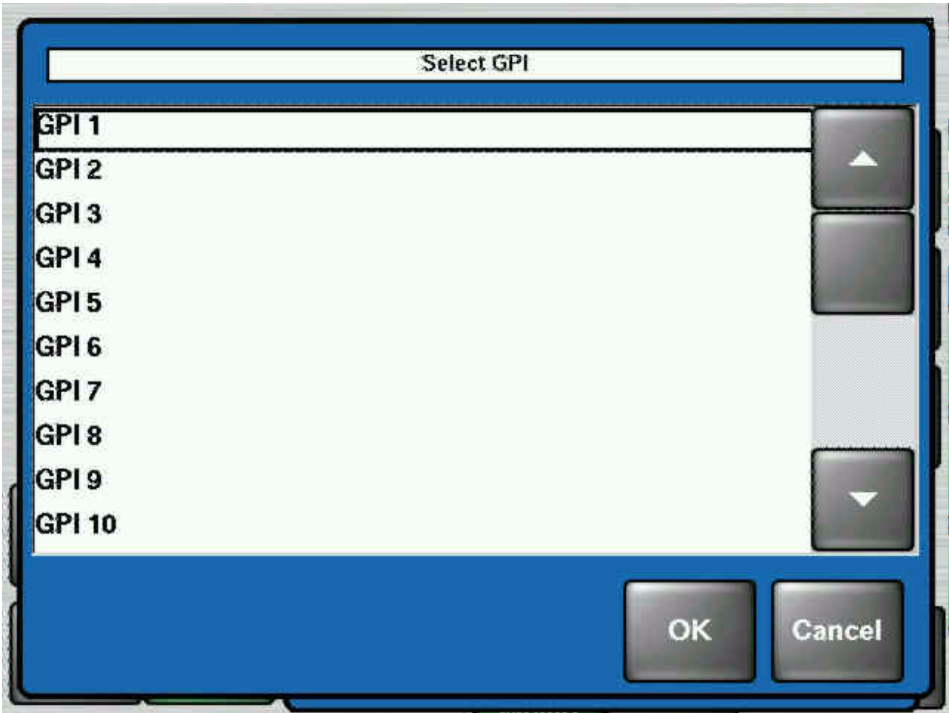


Figure 211. E-MEM – Timeline – Insert Loop

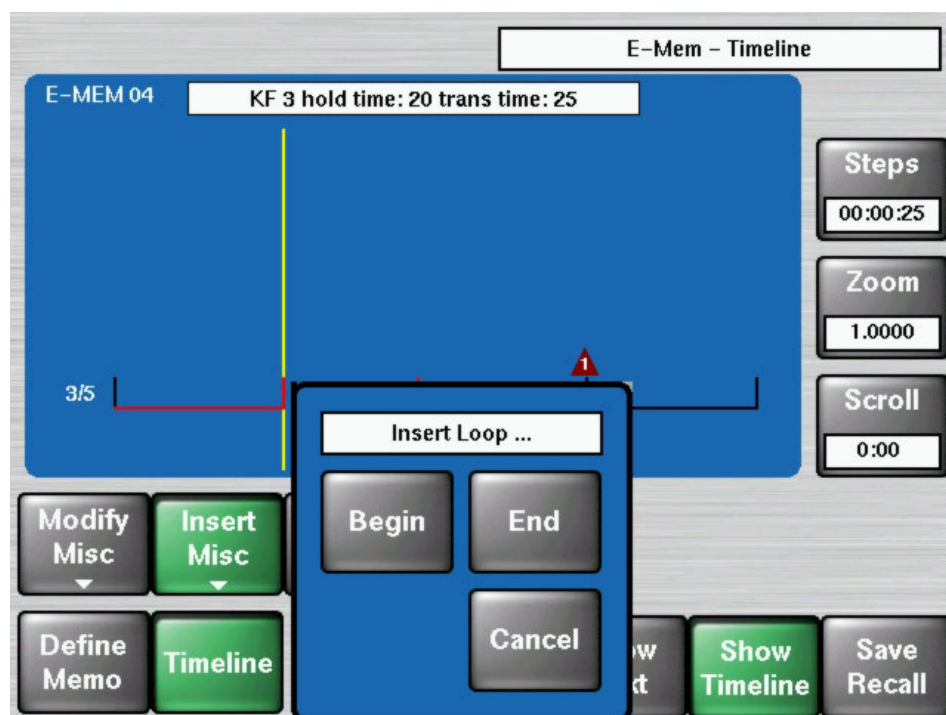


Figure 212. E-MEM – Timeline – Insert Trigger

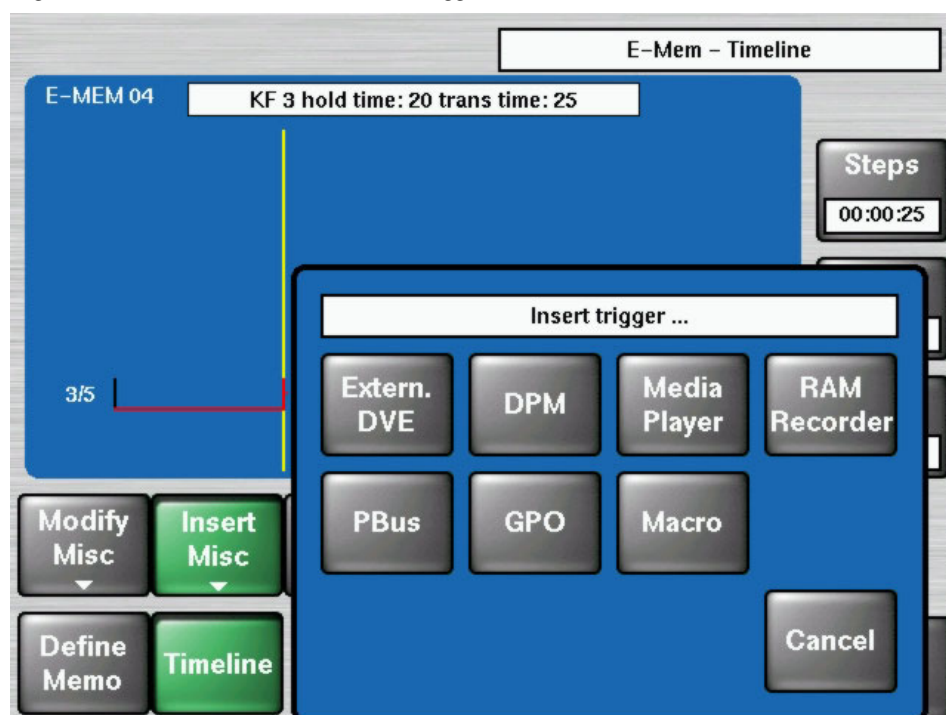


Figure 213. E-MEM – Timeline – Insert Trigger DVE

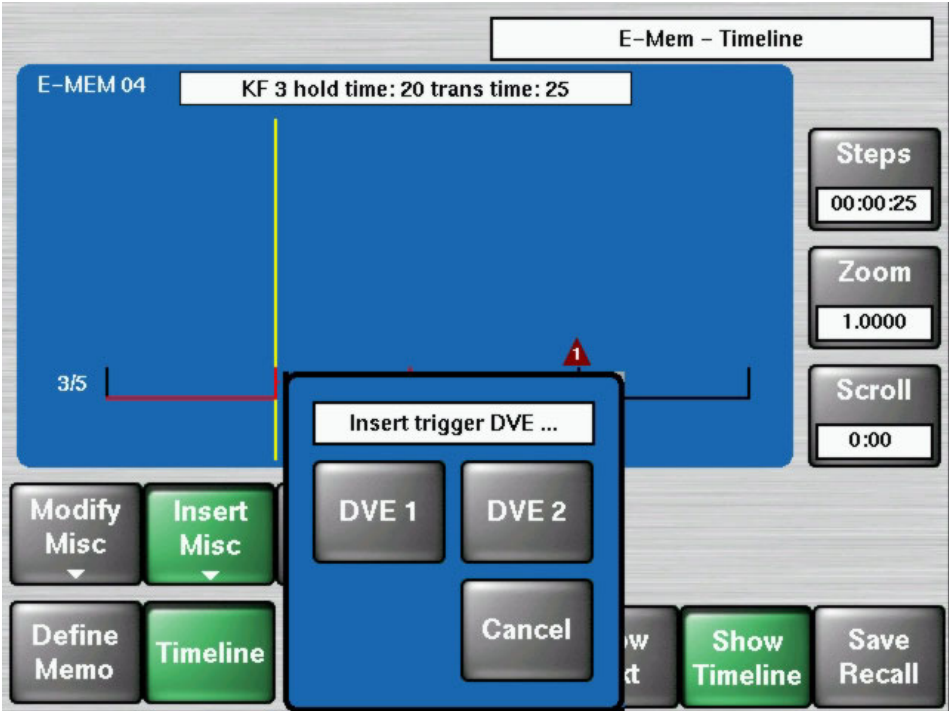


Figure 214. E-MEM – Timeline – Insert Trigger DPM ...

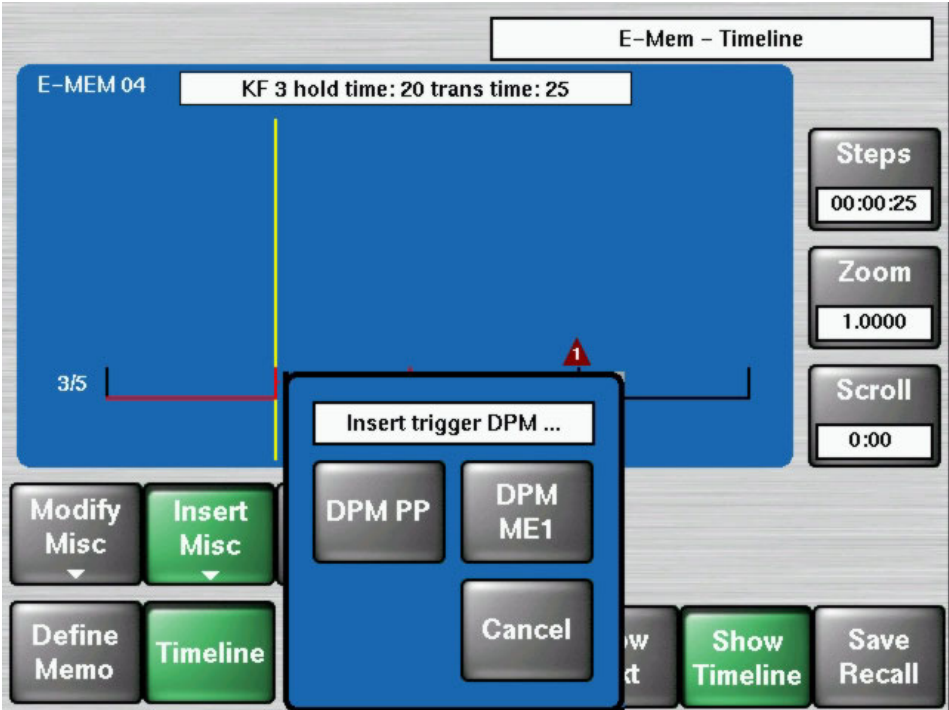


Figure 215. E-MEM – Timeline – Insert Trigger DPM PP

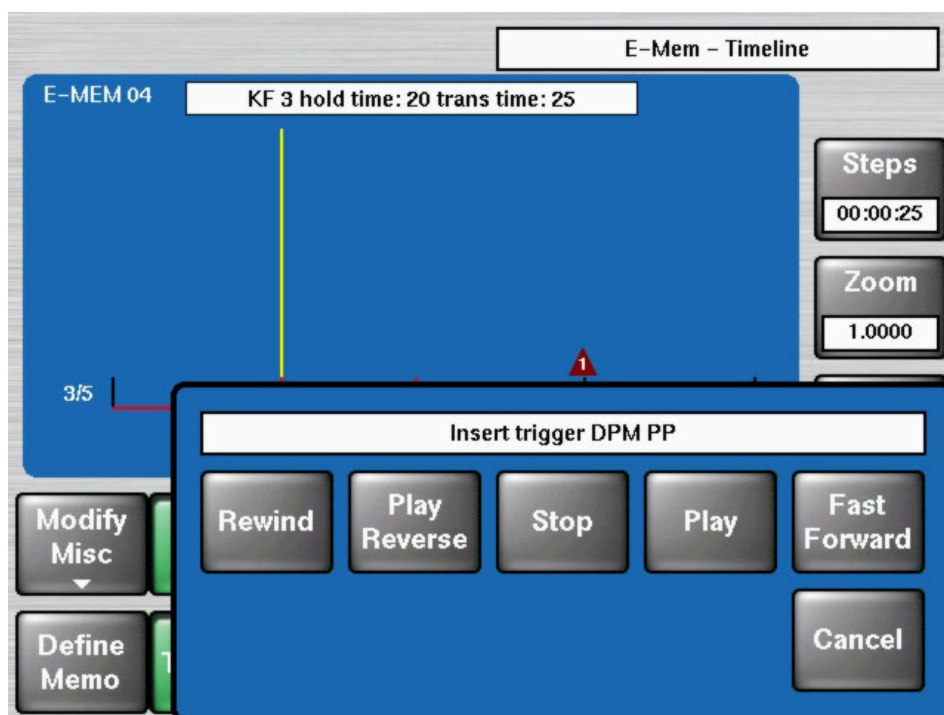


Figure 216. E-MEM – Timeline – Insert Trigger Media Player

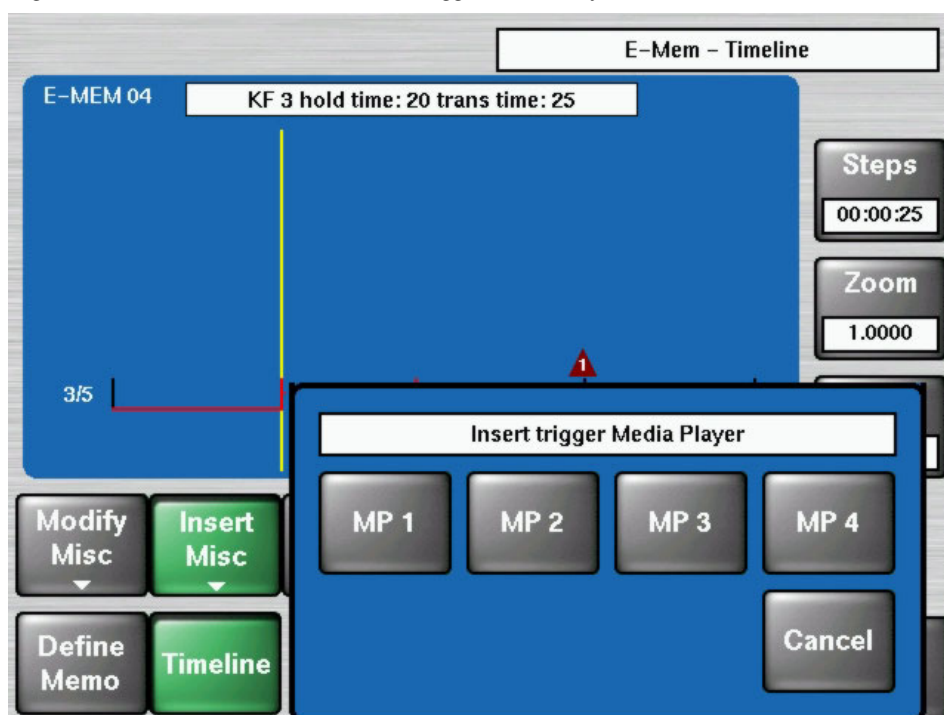
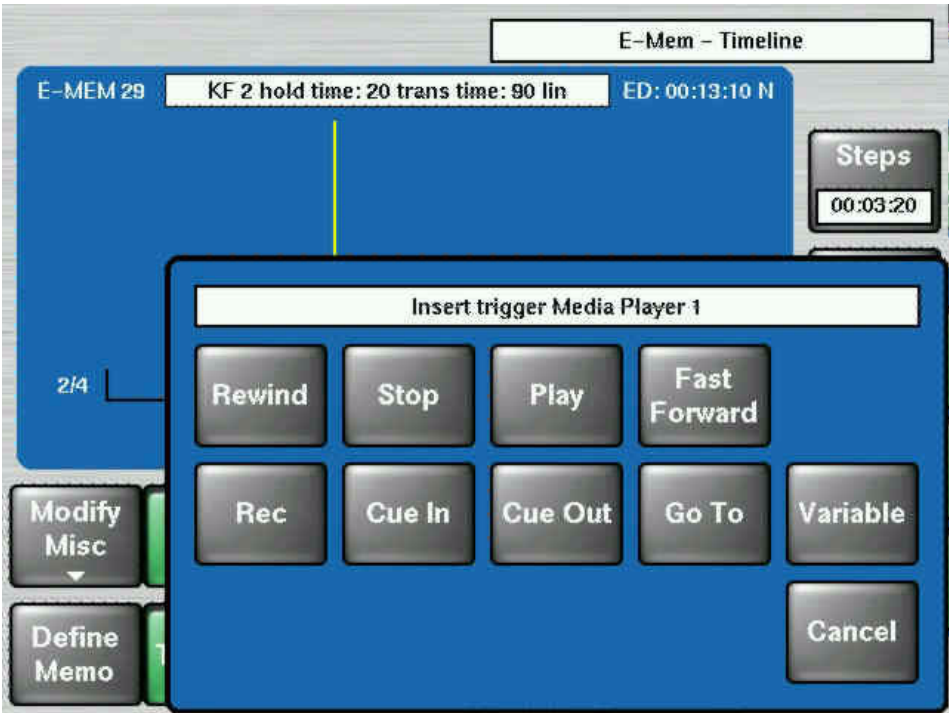


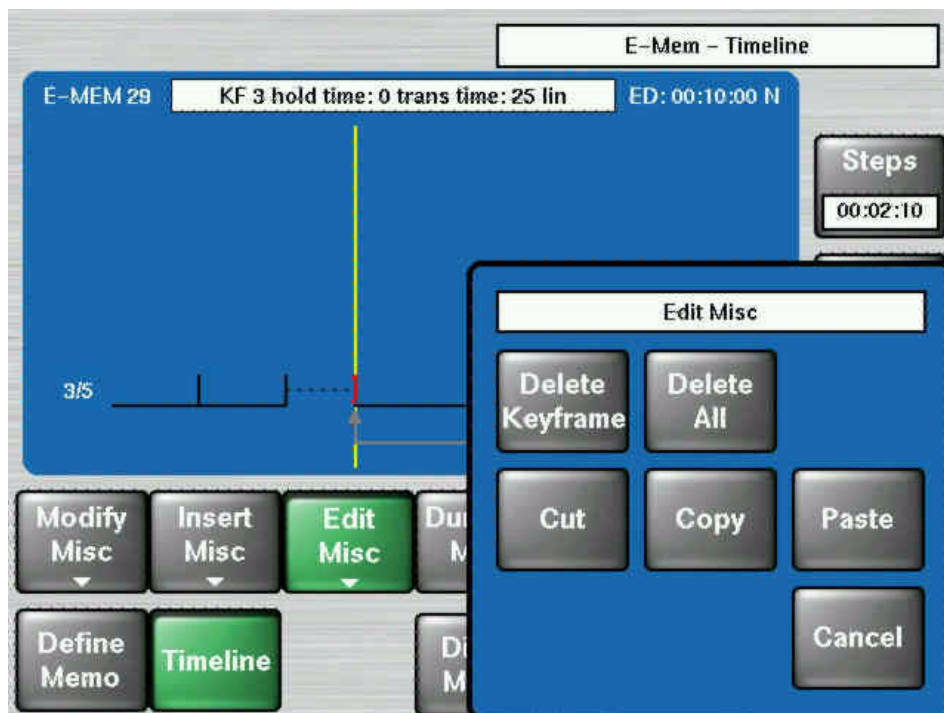
Figure 217. E-MEM – Timeline – Insert Trigger Media Player 1 Functions



Delete Popup

This popup is used to either delete the currently selected object, or to delete all objects in a timeline.

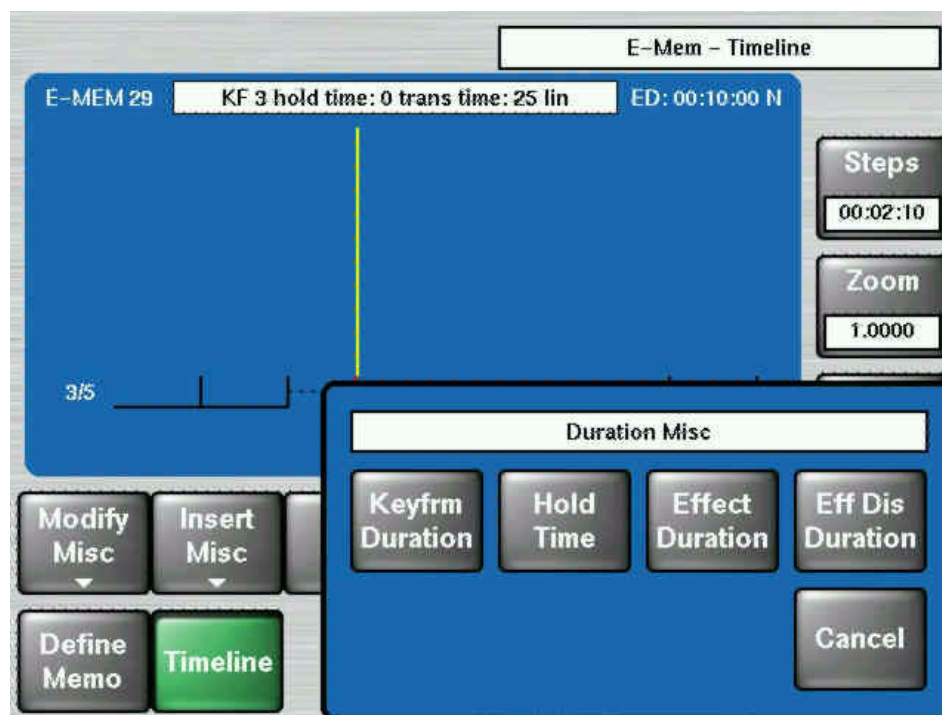
Figure 218. E-MEM – Timeline – Delete Misc



Duration Popup

This popup allows you to change duration and hold times of a keyframe.

Figure 219. E-MEM – Timeline – Duration Misc



Save / Recall

A central part of the **Save / Recall** menu is the Register List, which lists all E-MEM registers with their number, type (SN=snapshot, TL=timeline), name and lock status (“protect”).

Grouped together with this list are the six buttons on the left of the list, which affect the selected register. The selected register is marked with a black frame, while the last recalled or edited register is shaded green.

The eight buttons below the list are general E-MEM controls; they are not directly related to the currently selected register.

Figure 220. E-MEM – Timeline – Save Recall

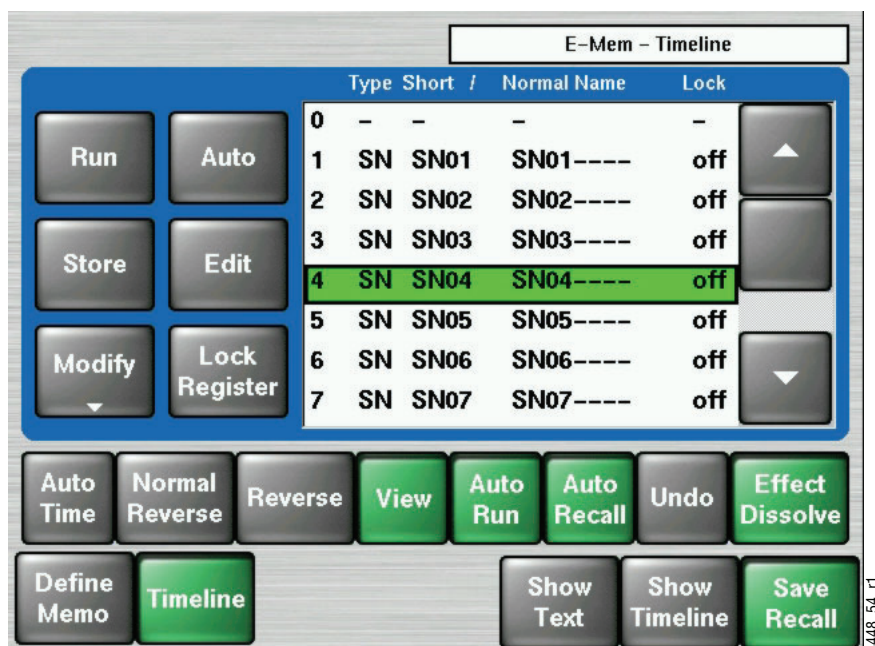


Figure 221. E-MEM – Timeline – Save Recall - Modify

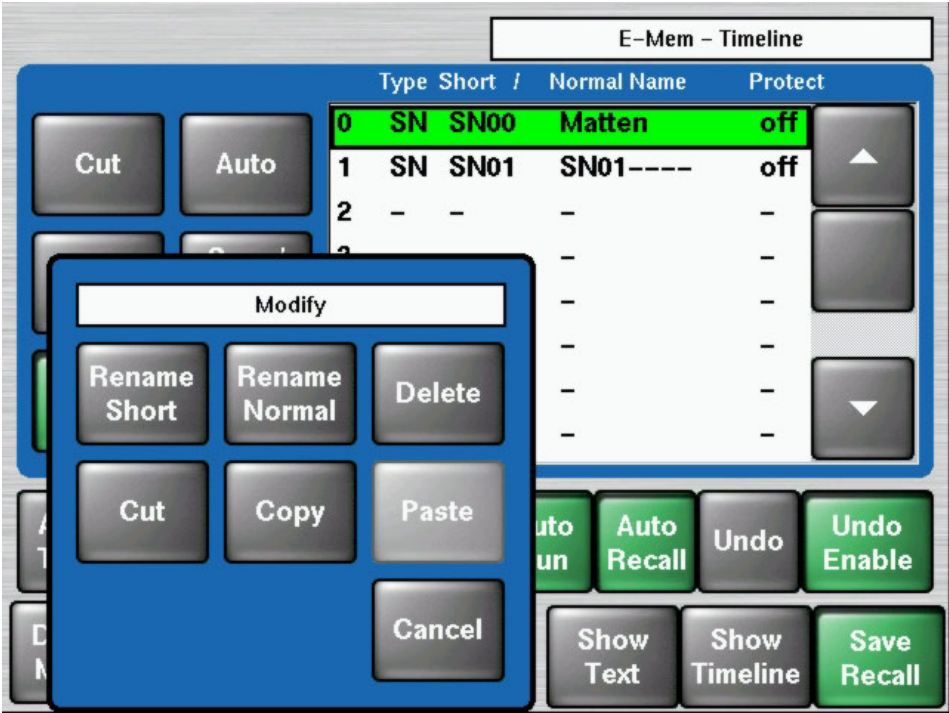


Figure 222. E-MEM – Timeline – Save / Discard

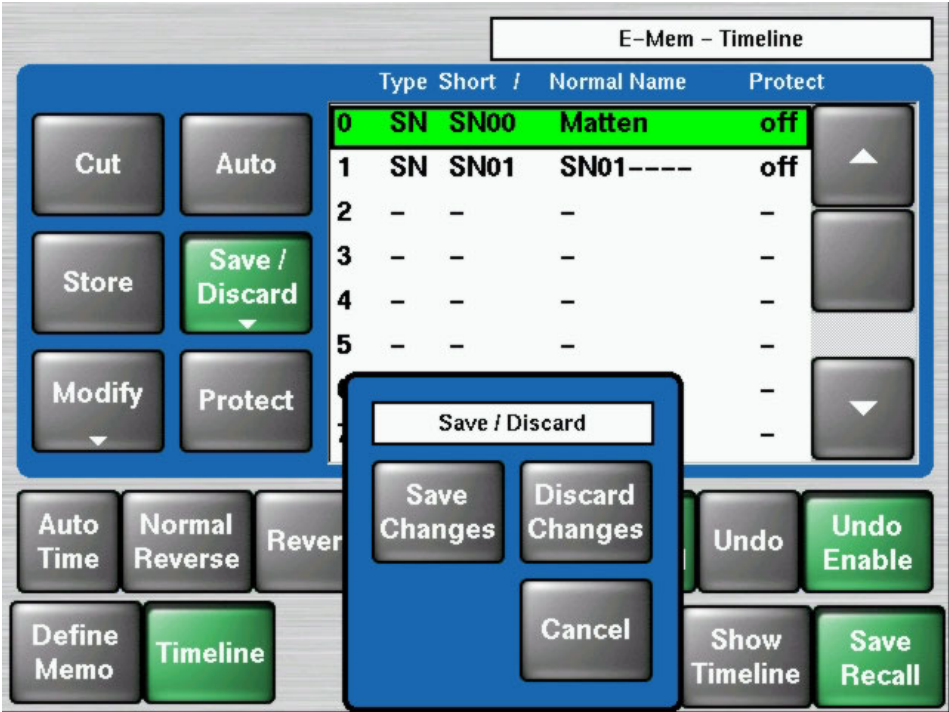
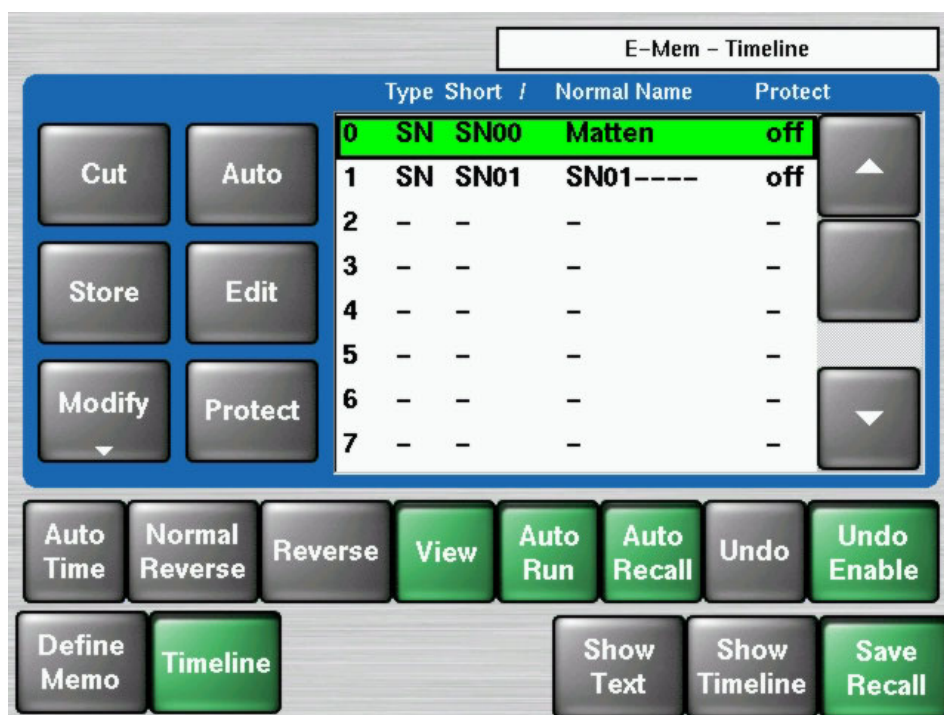


Figure 223. E-MEM – Timeline



Media Player Menus

The Media Player menus serve to control external VTRs or other Media Servers.

The Kayak HD offers a set of protocols that allow the user to connect and control virtually all video servers, disk recorders, and VTRs on the market.

The protocols to select from are:

- BVW75 (industry standard VTR protocol)
- Mediapool
- Odetics
- VDCP (aka Louth), there are specialized versions for the Profile™ server family.
- Pbus

With these protocols the Kayak HD can control:

- VTRs (BetaCam, DVCPro, etc.)
- Video Servers
- Disk Recorders
- Other media players

The list of servers that have at least one of the protocols implemented includes:

- Thomson Grass Valley: Profile, Profile XP, M-Series
- Thomson: Nextore
- Philips: Mediapool™
- Leitch (ASC): VR300, VR400
- DVS: ProntoVision
- Sea Change
- Pinnacle: MediaStream (HP), Thunder
- Pluto

Disk recorders that have at least one of the protocols implemented include:

- Accom: Attache, WSD
- Abekas: A66, Diskus
- Edifis: Brick, Sting
- Fast Forward Video: Omega deck

Several of the DDRs and servers listed offer more than one protocol, in many cases Odetics and VDCP. The set of implemented functions may differ. Please refer to the equipment manufacturer's documentation to find out which of those protocols is most suitable for your application.

Clip Select Menu

In the clip menu a clips list generated from a media server can be loaded.

Color coding in the list:

- Green marked clips: selected clip
- Blue marked clips: next selected clip

Figure 224. Media Player – Clip Select



Clips Play Menu

The **Clips Play** menu allows the user to control the connected machine.

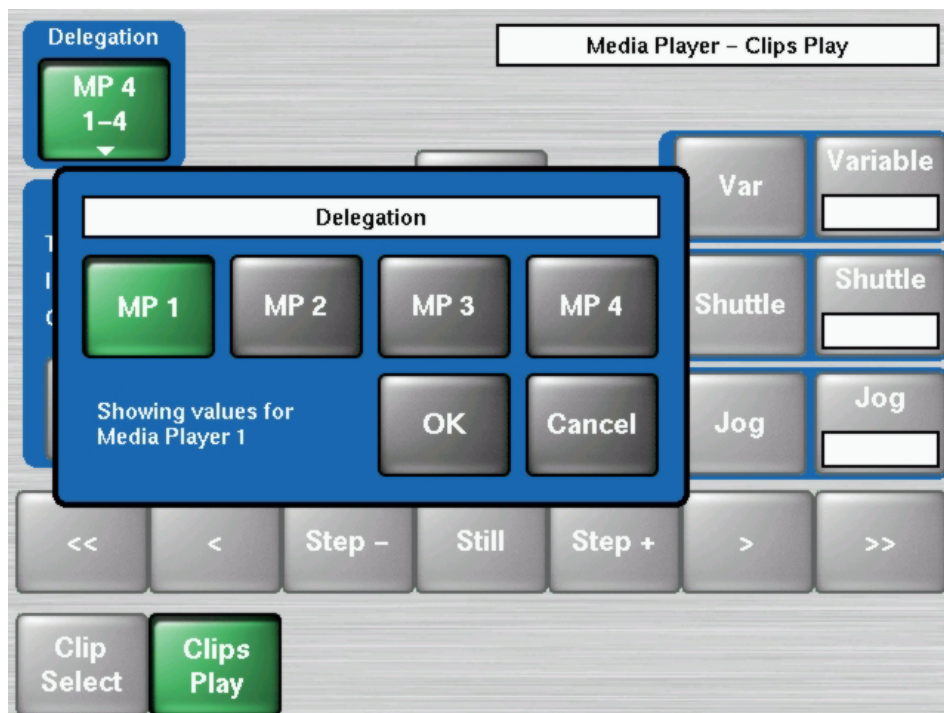
Figure 225. Media Player – Clips Play



Machine Delegation

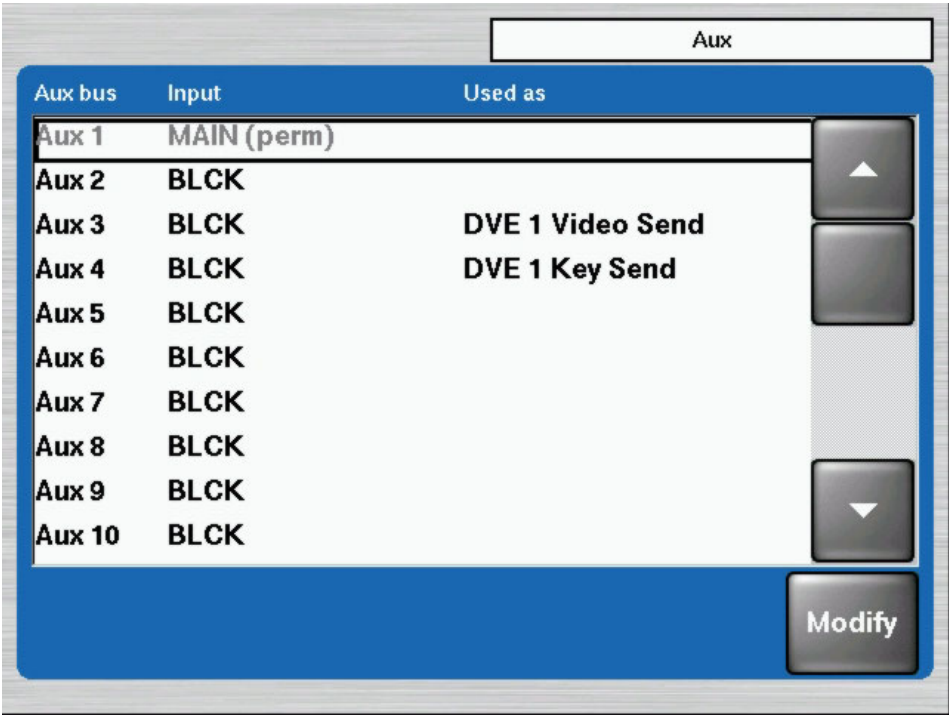
The external machines can be selected with the delegation buttons. Gang mode is possible by selecting more than one button.

Figure 226. Media Player – Delegation



AUX Menus

Figure 227. AUX Menu



The AUX buses (12 outputs on each M/E) are programmable to output any of the internal M/E or Program Preset outputs, including Program, Look Ahead Preview, and Cleanfeed, or as simple, timed AUX buses.

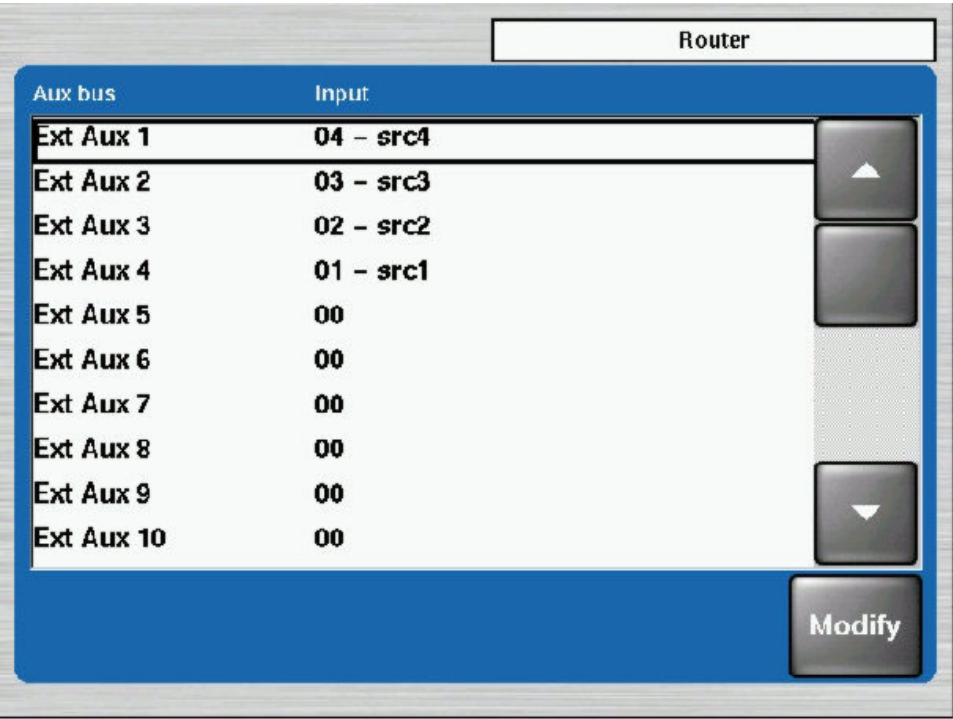
Permanent installed buses are displayed as gray. These buses cannot be selected from this menu.

The **Used as** column shows AUX channels which are assigned for external keyers (e.g. Video Send and Key Send to external DVE unit).

External Router Menu

Note Control of external routers is possible by using the respective Kayak or Sidepanel menu only! To call the menu touch first the Router button in Kayak`s Home menu.

Figure 228. Router Menu

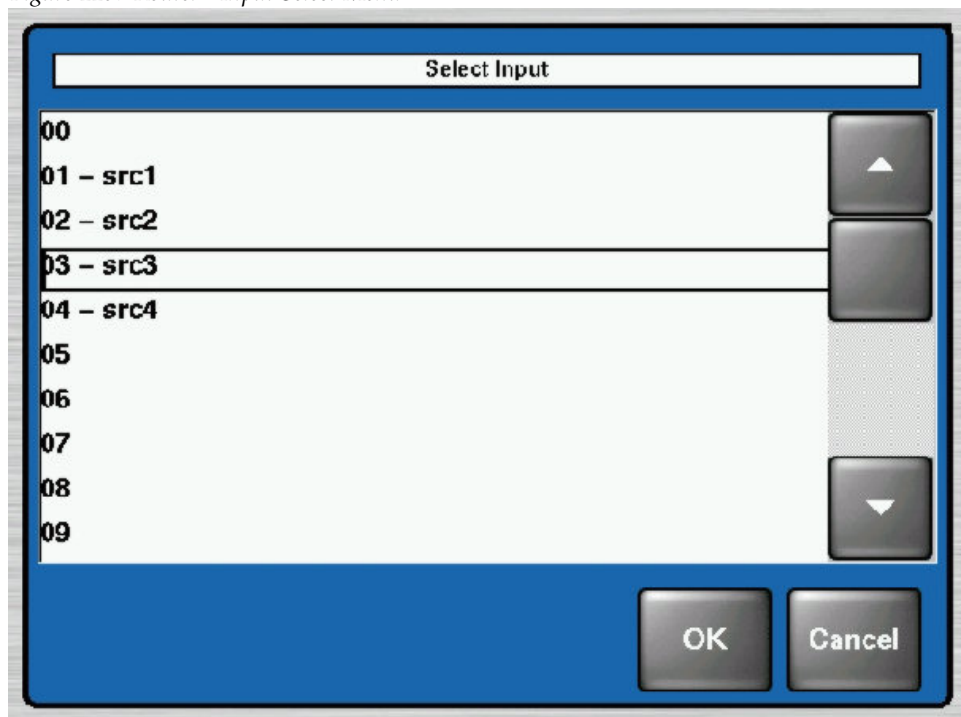


The Router menu shows in column Input Number and Name of the source which is currently connected to the External AUX Bus of the Kayak system.

Note Input name 00 means that the External AUX Bus is not assigned to the external router output!

To switch a source on the external router touch the **Modify** button.

Figure 229. Router - Input Select Menu



If the name of a sources is also provided, the name will be displayed as extension behind the source number (Example: 03 - src3). The number of selectable sources depends on the configuration of the external router system.

Note The maximum of source numbers is 96. On Encore and Pro-Bel router systems the source number 00 is obsolete and cannot be switched.

Scalar Menu

The MatchDef™ dual video input source scalars software option allows the Kayak HD switcher to seamlessly match video sources of different line rates and aspect ratios to the switcher's production format. The Scalars work by converting inputs of different formats to the same format as that used by the switcher. These converted/scaled inputs can then be used anywhere in the switcher. Current software (v685) supports the use of up to four scalars per M/E that can be used for up-conversion of SD sources to HD formats.

The MatchDef dual video input scalars allow you to match SD sources into an HD production or HD sources into an SD production. You can cross match different HD formats as well without sacrificing critical production elements such as keyers. Scalars also let you match video sources using different aspect ratios to the native production format.

Note The SD and HD standards use different colorimetry. Color bar signals of a different standard that pass through the Scalar will not align with the color boxes of a vectorscope. However, the actual color of the video image will be accurate on screen.

Setting Up Scalar Inputs

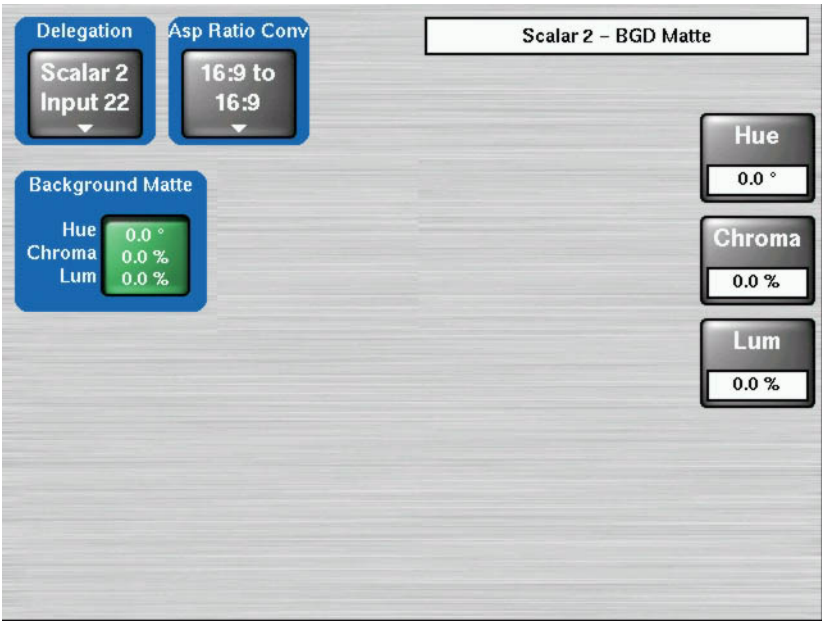
If you have purchased the scalar software license, plug a video source into one of the scalar BNC connectors on the back of the frame.

Enabled scalar inputs start at the lowest number of BNC connectors for the following inputs:

	Inputs
M/E 1	21, 22, 23, 24
M/E 2	45, 46, 47, 48
M/E 3	69, 70, 71, 72
M/E 4	93, 94, 95, 96 (not supported in release 6.8.6)

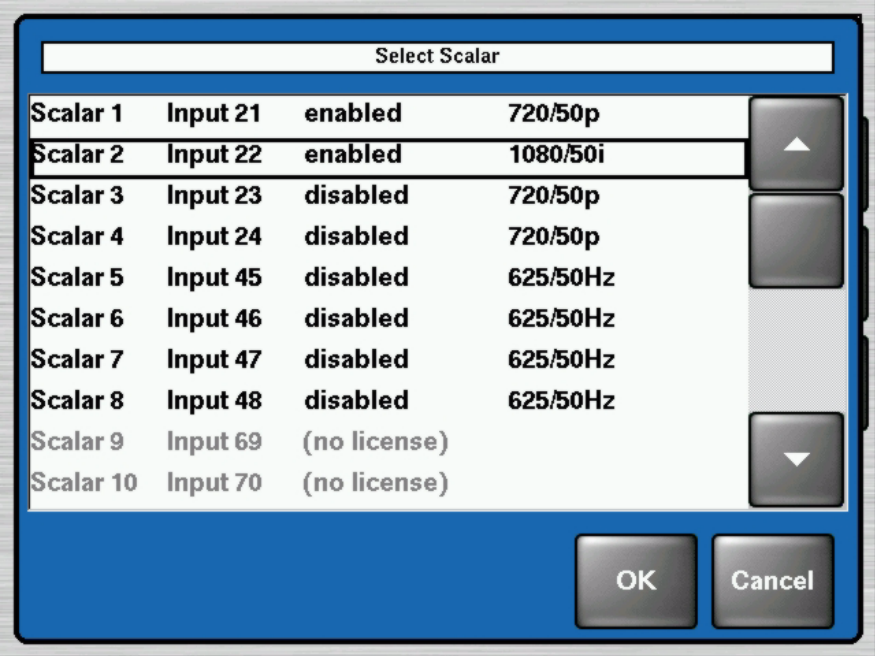
1. From the **Home** menu press the **Scalar** button in the lower left corner. The **Scalar Menu** screen displays (Figure 230).

Figure 230. Scalar Menu Screen



2. Press the **Delegation** button in the upper left corner of the **Scalar** menu to open a window that allows you to select an Input / Scalar (Figure 231).

Figure 231. Select Scalar Menu Screen

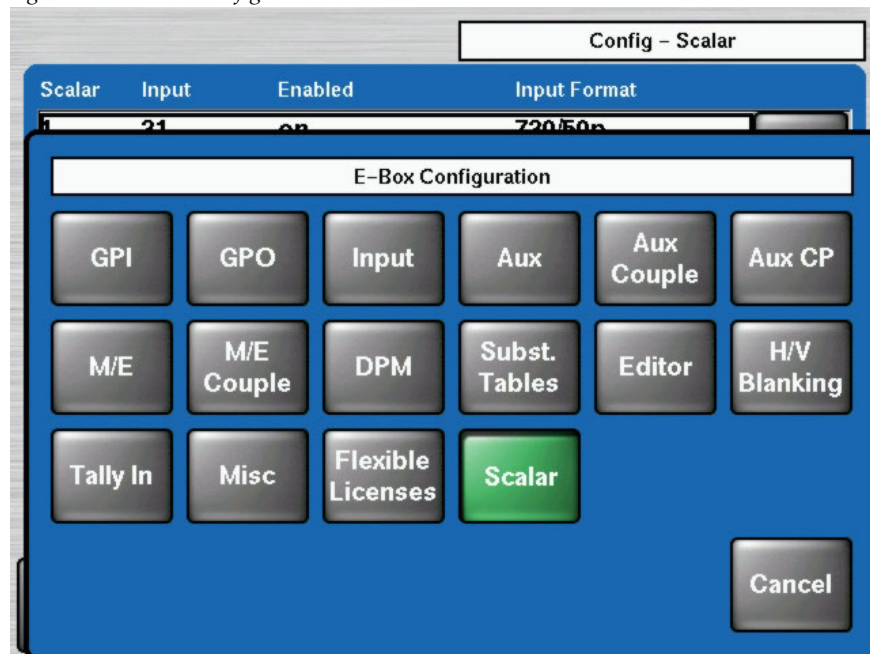


3. Select a Scalar and press the **OK** button to select or deselect the Scalar video path.
4. For the Input / Scalar you selected using the **Delegation** button you can configure these settings:
 - **Aspect Ratio**
You can set the Aspect Ratio to **16:9 to 16:9** or to **Pillarbox** (vertical black boxes on the sides of the video window).
 - **Background Matte**
Press the **Background Matte** button to adjust the colors used on the edges of the video window. The control knobs to the right of the control panel menu adjust the **Hue**, **Chroma**, and **Lum** settings shown on the Scalar menu ([Figure 230 on page 292](#)).

Scalar Configuration

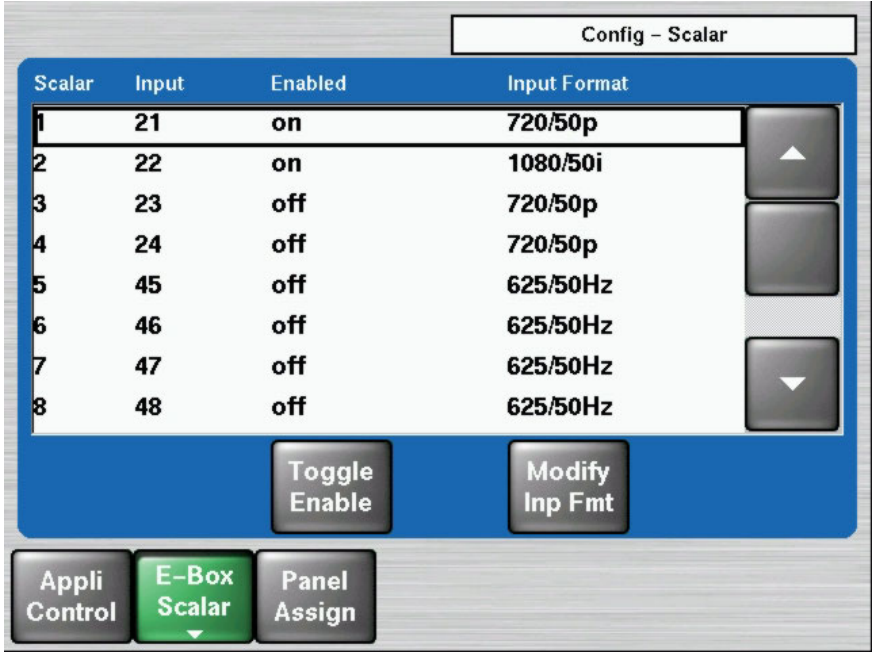
1. From the **Config - E-Box** menu ([Figure 232 on page 293](#)) press the **Scalar** button in the lower right corner.

Figure 232. E-Box Configuration Menu Screen



2. The menu serves to configure each Scalar channel.

Figure 233. E-Box Configuration Menu Screen



- **Modify Input Format (Line Rate)**

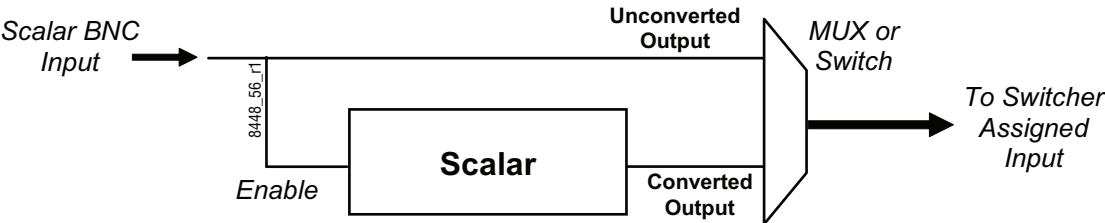
This sets the type of format to be used with the video signal coming in from the Input you selected.

- **Toggle Enable**

Selecting **Toggle Enable** tells the switcher to use the Scalar inputs (two to four per M/E) so the signals can be converted up or down to the **Input Format** selected.

As shown in [Figure 234](#) the video signal comes into the scalar BNC input. If the **Toggle Enable** button has been selected the signal then goes through the Scalar to be scaled up or down.

Figure 234. Scalar Option Signal Routing



Deselecting causes video inputs from the Scalar BNC connectors remain just as they come in from the video source.

Other Menus

As the Kayak HD software is enhanced, additional menus, subcategories, and controls will become available. Once you understand the principles of Kayak HD system menu organization and operation, you will be able to quickly learn these new menus and use them effectively for your work.

System Operation

Introduction

The basic Kayak HD system is operated using button and lever control on the control panel, and touch screen and knob controls on the Menu panel. Text and number entry is also possible via a popup keyboard.

The Main control panel is used during live operation for fast, real time control. The menus are generally used in conjunction with the panel controls to set up effects and for system configuration. Since some adjustments and selections can only be performed via menu, a special live mode is available for some menus, allowing limited – but fast access.

Effects can be saved for future immediate recall, allowing fast and precise control of complex visual effects in real time.

For advanced control a Sidepanel program is available which can run on a computer with operating system Windows95 or higher.

Matte Menu Controls

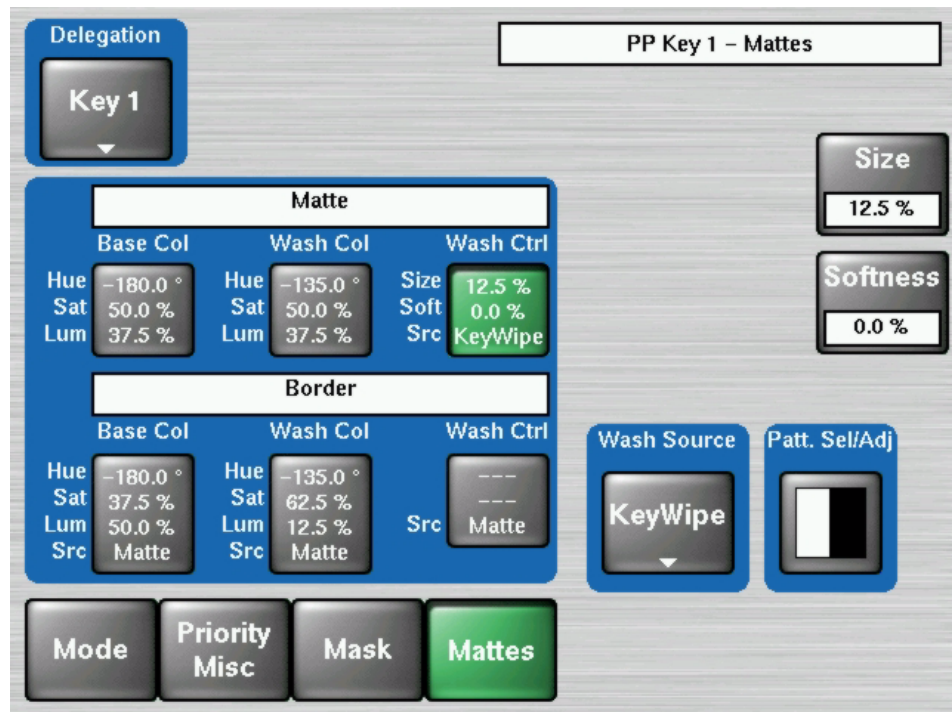
Use the following procedure to change matte settings in any of the Matte menus.

- Go to the corresponding Mattes menu.
- If not already selected, touch the **Wash Control** data pad to bring up the Wash Source selection and the control for **Size/Offset** and **Softness** via digipot controls.
- If necessary, use the **Size/Offset** and **Softness** knobs to make the wash edge visible on the screen.

Size/Offset

Normally this parameter is named Size. When you are e.g. adjusting the Border Matte for a wipe generator for a background transition, which uses the same wipe generator for wash control as is used for the wipe transition itself, it is named offset.

Figure 235. Matte Menu, Wash Control Selected



- Touch the **Base Color** data pad and use the top three digipots to adjust **Hue**, **Saturation**, and **Luminance** of the base fill color (See [Figure 236 on page 299](#)).
- Touch the **Wash Color** data pad to delegate the digipots on the right to adjust **Hue**, **Saturation**, and **Brightness** of the wash fill color (See [Figure 237 on page 299](#)).

Figure 236. Matte Menu, Base Color Selected

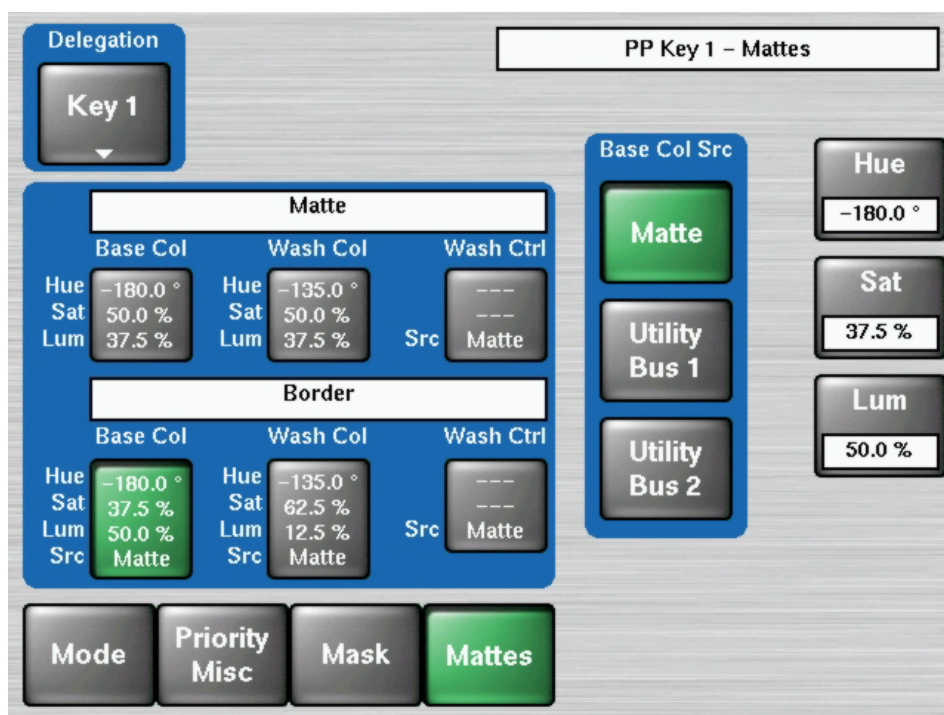
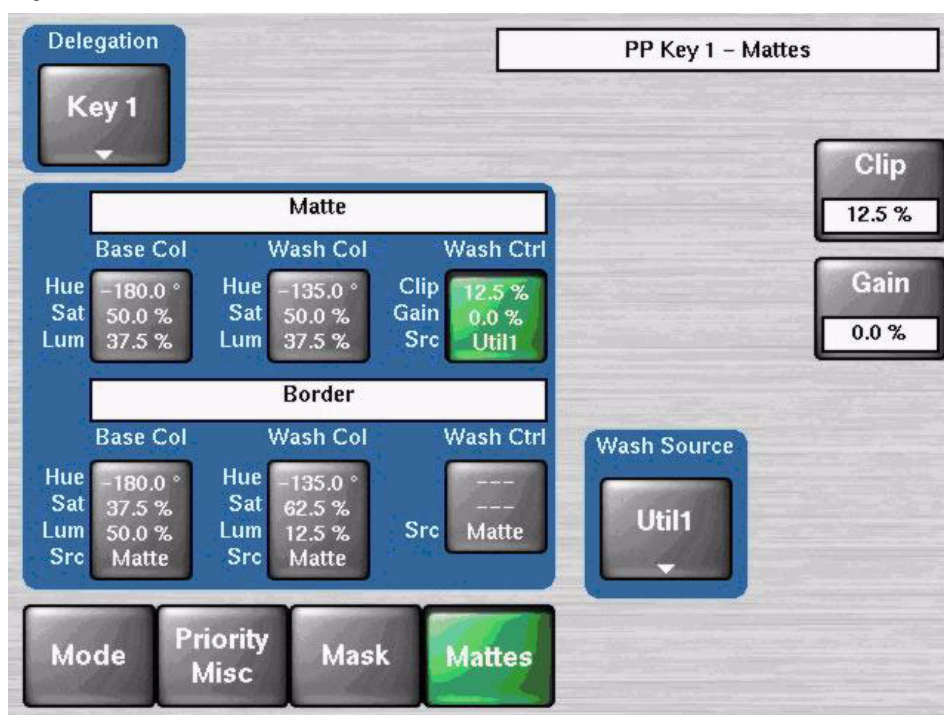


Figure 237. Matte Menu, Wash Control



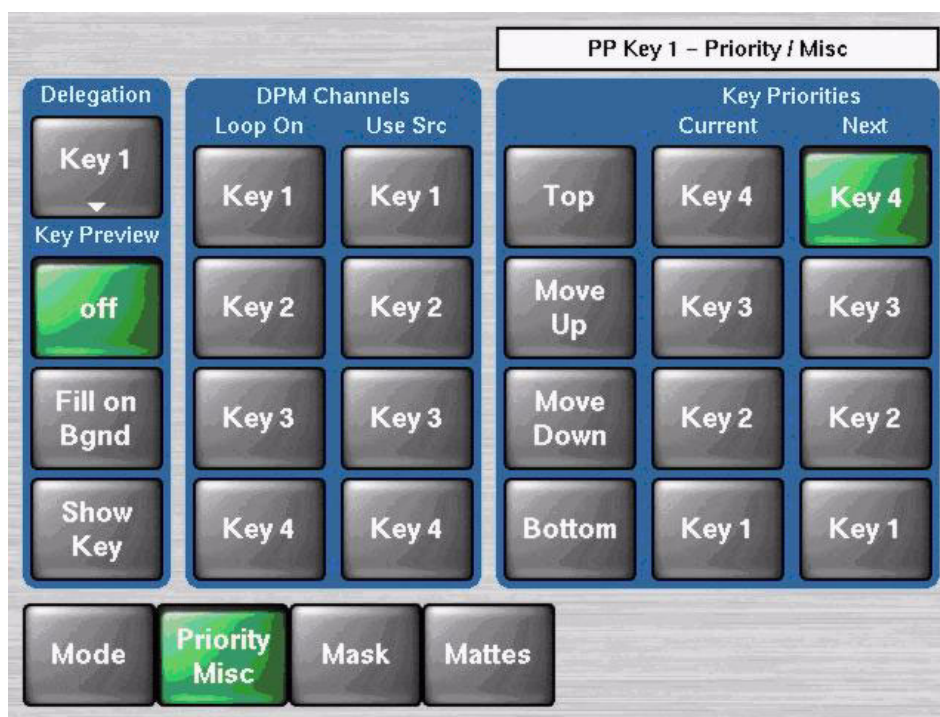
Keyer Priority

Video switchers with only two keyers per bank use a simple key over, key under mechanism to control the stacking of the keys. Only one key can be located over the other. The Kayak HD system has four keyers, so more complex stacking is possible. Keys can be placed between other keys, using key priority.

To Change the Current Keyer Priority

1. Go to the **Keyer – Priority** menu by touching the **Keyer** button in the **Home** menu, then touch the **Priority/Misc** category selection button

Figure 238. Keyer Priority Menu, Current Stack Selected



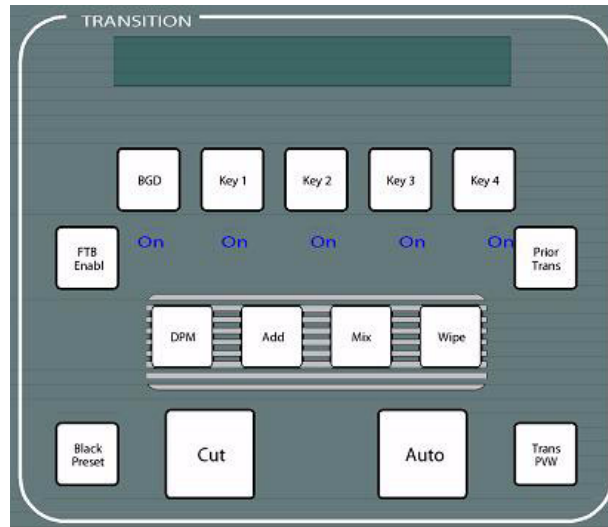
2. If not already set up, turn on the desired keys and arrange them so they overlap, observing the Program monitor. This will make the changes in key priority visible. For demonstration purposes, you can use four preset pattern keys.
3. Touch the keyer you wish to move in the stack in the Current column, then use the **Top**, **Move Up**, **Move Down**, and **Bottom** buttons on the left to place the key in the desired location. The key priority order changes immediately, as a cut.

To Transition Between Different Keyer Priorities

Key priority transitions use a Current priority stack and a Next priority stack. The transition occurs between the two stacks.

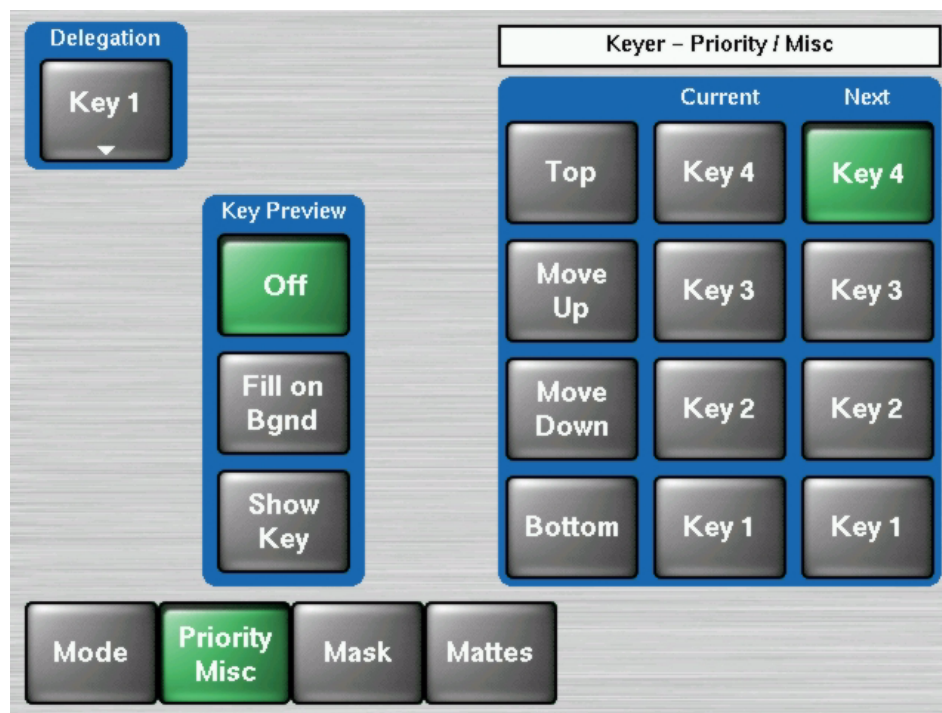
1. Press the **Key Prior** Transition element button in the Transition subpanel

Figure 239. Transition Subpanel



2. If not already set up, turn on the desired keys and arrange them so they overlap, observing the Program monitor. This will make the changes in key priority visible. For demonstration purposes, you can use four preset pattern keys.
3. Delegate that M/E for preview in the Preview subpanel. This shows the end result of the transition (the Next priority).
4. Go to the Keyer-Priority menu by pressing the **Keyer** button in the **Home** menu, then touch the **Priority/Misc** category selection button.
5. The current stack in the menu is automatically set to what is currently being output. You can change the Current priority stacking order if desired, as described in *To Change the Current Keyer Priority on page 300*.
6. Set up the Next priority stacking order, selecting the keyers in the Next column and then using the **Top**, **Move Up**, **Move Down**, and **Bottom** buttons (Figure below). The new stack will be visible on the preview monitor.

Figure 240. Keyer Priority Menu, Next Stack Selected



7. Select the type of transition, using the **Mix** or **Wipe** buttons in the Transition subpanel. If you selected a wipe, go to the **Wipes** menu by double pressing one of the **Wipe** buttons, and then touch the pattern and any modifiers to be used with the wipe.
8. Move the lever arm or press the **Auto Trans** button in the Transition subpanel to perform the key priority transition. The transition is shown on the Program monitor.

Chroma Key Operating Notes

The Kayak HD system features chroma keyers with powerful controls. These controls offer subtle adjustments to allow successful keying of difficult subject matter (fine hair, smoke, translucent objects, etc.), and to overcome some problems resulting from imperfect chroma key set coloring or lighting.

Section 2-Concepts of this Manual includes chroma key background information useful for understanding the chroma key controls. The following information provides more detailed instructions on how to set up a chroma key using the Auto Setup feature and the manual controls in the Keyer menu.

Auto Setup

The first step of setting up most chroma keys is to use Auto Setup. Auto Setup automates the first steps to achieving a chroma key. Auto Setup performs the following:

- Calculates primary suppression Hue and Luminance.
- Sets primary suppression Selectivity and Chroma to defaults.
- Calculates Clip Low, and sets Clip Hi to default.
- Sets all the secondary suppression values to duplicate the primary suppression values, but turns secondary suppression off.
- Changes Opacity temporarily to 100% to permit an accurate backing color sample, and then returns it to its original setting.
- Sets Key Position and Size values to default (0).

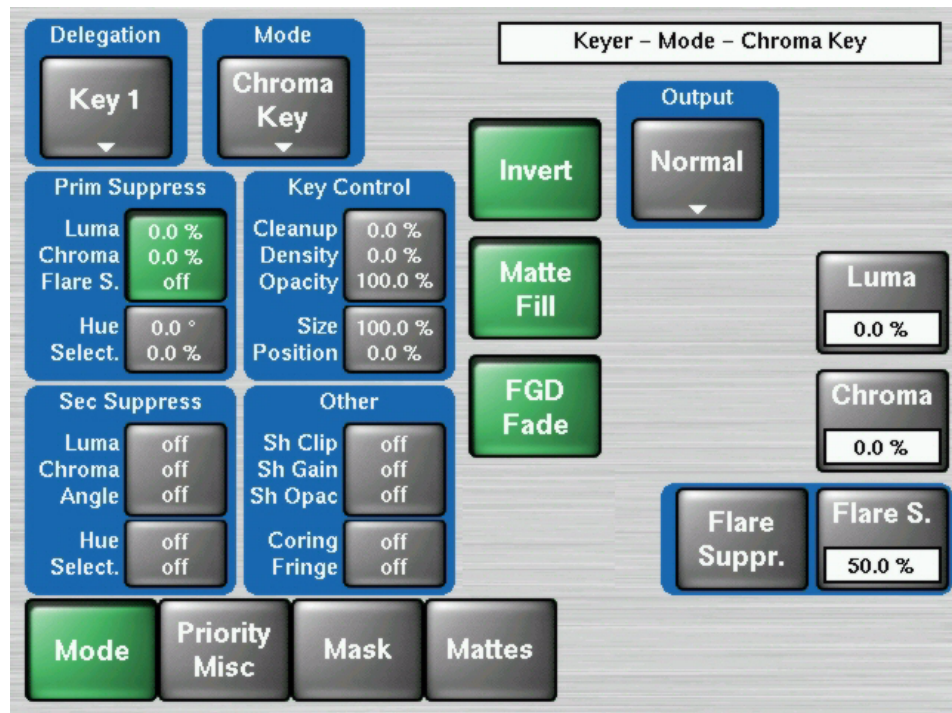
Two different Auto Setup algorithms are available, one for well designed and lighted sets (**FGD Fade** off), and the other for more challenging sets (**FGD Fade** on). Depending on individual circumstances, additional manual adjustments may be required after you use Auto Setup.

After an Auto Setup has been initiated, you can cancel it by pressing the **Auto Setup** button again, but the chroma key will retain the default settings imposed.

Chroma Key Using Auto Setup

1. Go to the Keyer – Mode menu by touching the **Keyer** button in the Home menu, then touch the **Mode** category and select **Chroma Key** as the key mode.
2. Choose on the selected keyer's key bus the chroma key source containing the chroma key backing color.
3. Choose on the Program bus the source that will be used to replace the backing color of the chroma key source.

Figure 241. Keyer menu, Chroma Keyer



4. Press the **Auto Setup** button or the **Positioner** button on the top of the joystick. Preview for that M/E will now display the chroma key source with a superimposed cross hair cursor. The cursor actually represents a box of 16 x 16 pixels.
5. Use the Positioner to position the cursor on the backing color. Select a darker area, if one exists, to optimize the backing color suppression.
6. Press the button on top of the Positioner. The chroma key will be set up automatically using the average of the colors selected by the cursor box. If **FGD Fade** was off, fine edges of the key will be preserved.

7. If this chroma key is acceptable, you are done. If set, lighting, or other conditions prevent the result from being acceptable, you need to decide whether to adjust the chroma key manually or use Auto Setup with **FGD Fade** on.

Manual adjustment permits retention of fine edge detail (see *Manual Chroma Key Adjustments* [on page 305](#)). In particular, if there are problems with translucent areas (hair, smoke) secondary suppression controls can be useful (see *Secondary Color Suppression* [on page 310](#)).

Auto Setup with **FGD Fade** on produces a chroma key with harder edges, but accommodates wider set variations (see below).

Chroma Key Using Auto Setup with FGD Fade

If the set is lit unevenly or has other problems, **FGD Fade** is available to help solve the problem. A better alternative, if time permits, is to adjust the lighting on the set to even out the backing color. This may improve the key so that **FGD Fade** is not needed.

1. If you decide you must use **FGD Fade**, follow the Auto Setup procedure described above, but set **FGD Fade** on in the Keyer menu. After selecting the backing color area and touching the top button on the Positioner, the chroma key will be set up with coarser values better able to handle set variations.
2. If this chroma key is acceptable, you are done. If you are still not satisfied, you can fine tune the chroma key using manual adjustments.

Manual Chroma Key Adjustments

If the Auto Setup of the hue fails to provide a suitable chroma key, additional controls are available in the Keyer Menu for fine tuning the key.

Chroma key manual set up consists of choosing the best set of compromises to provide adequate detail and color fidelity to meet your needs. While using this menu you need to view the chroma key scene on a monitor. A vectorscope and waveform monitor can also be very useful when setting up a chroma key. During set up you need to focus your attention on particular areas of the foreground, background, and/or composite. The areas you look at will change depending on the individual controls being used.

Using the popup button **Output** you can select **FG Only** or **BG Only** to remove extraneous picture information, allowing you to view only those areas of the composite.

Chroma key set up procedures follow a recommended order, as indicated by the numbered steps displayed on the menu. However, requirements can vary depending on each individual scene. You may need to go back to

earlier steps and readjust previous settings to optimize the key. Understanding what the chroma key controls do will help you decide what adjustments are required for your individual situation.

Primary Suppression

Primary suppression is the most critical chroma key parameter, and the easiest to set. Auto Setup should take care of this, but manual adjustments can be made if desired. If primary suppression is set wrong, however, it will be impossible to achieve a good chroma key with the other controls.

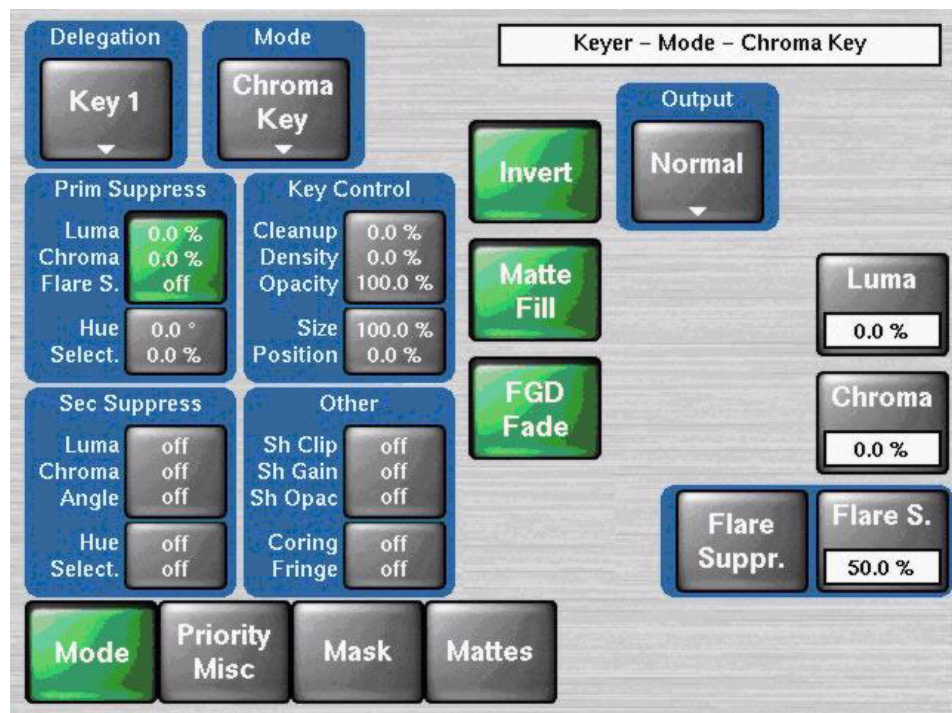
Primary Suppression should be set while looking at the foreground. Ideally the backing color will appear as a small dot on the vector scope and a perfectly flat line on the waveform display, but this never occurs due to set lighting variations, shadows, etc. This means you will need to pick the best suppression for the overall look of the key.

1. Touch the **1 Prim Suppress** data pads, if necessary, to activate these controls.

Data Pad 1 contains Luma / Chroma / Flare Suppression.

Data Pad 2 contains Hue and Selectivity.

Figure 242. Keyer Chroma Menu, Pri Suppress, Part1, Luma / Chroma / Flare S.



2. Adjust Hue, Selectivity, Chroma, and Luma primary suppression to eliminate the backing color.

- **Hue** can be set accurately with Auto Setup. **Hue** should center on the primary color of the backing area of the foreground scene. Depending on where **Luma** and **Chroma** primary suppression are set, adjusting **Hue** may not make any noticeable change on the scene. **Chroma** suppression should be preset to 100% and **Luma** set to 0%. Hue can then be tuned to remove the backing color.
 - **Selectivity** may need to be increased if there are colors in the foreground image that are being suppressed. **Selectivity** should be set as low as possible without including colors that should not be suppressed. For example, when keying on green, a greenish yellow shirt might be affected by the suppression. If so, adjust the selectivity high enough to reject that color. Too high a selectivity is one of the classic causes of a noisy key. If the foreground subject is stationary, consider using a force mask instead of increasing selectivity.
 - **Chroma** suppression can be set accurately with Auto Setup. To adjust, increase **Chroma** suppression and observe the backing color dot on the vector scope move toward the center. You want to center it exactly, so no chroma exists in the backing area. 100% chroma suppression is the correct setting for all chroma keys. At this point, you will probably see a line through the center of the vector scope. With increased selectivity, this line will become an arc.
 - **Luma** suppression adjustments may be necessary if shading is visible in the backing area with **FG Only** selected, or if the shading adversely affects the background image. Primary Luma suppression is hardly ever desired when FGD Fade is on. To adjust, increase **Luma** suppression and observe the backing color move toward black. You want to make the backing color just black. Increasing this control too much will make the chroma key hard and noisy. When not enough, highlights will be added to the background. Note that incomplete luminance suppression is not necessarily bad. The highlights added to the background will match the shading on the backing wall, adding natural shadows and perhaps eliminating the need to add artificial shadows.
 - All the above adjustments may need to be revisited later.
3. Another potential artifact of chroma keying is a tinting of the overall foreground subject due to lighting splash from the backing color or lens flare. Flare Suppression adds a small amount of color to the entire foreground image to cancel the splash or flare. Typically less than 2% of the backing color is needed to neutralize the flare.

Key Controls

The purpose in adjusting **Clip Hi** and **Clip Low** is to cause the proper hole to be cut in the background. All areas of the backing color should be full background while all areas of the foreground should make the background completely invisible. The easiest way to do this is to observe the key signal while making your adjustments.

The smaller the difference between **Clip Hi** and **Clip Low**, the higher the keyer gain. High gain amplifies noise present in the transition between transparent and opaque. The correct setting is with **Clip Hi** and **Clip Low** set to just barely achieve opacity and transparency, respectively.

1. Touch the **Key Controls** data pads to activate these controls.

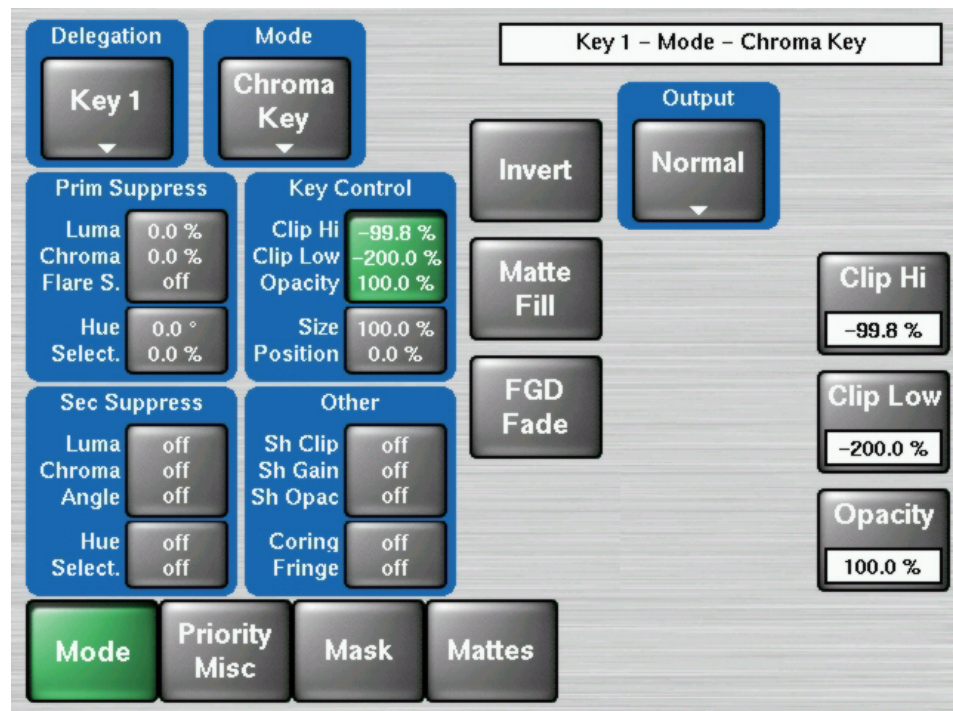
Data Pad 1 contains Clip Hi / Clip Low / Opacity.

Data Pad 2 contains Size and Position.

You can now manually adjust keyer clipping controls.

2. Press the **Key PVW** button on the Main control panel and look at the preview output on a picture and waveform monitor.

Figure 243. Key Controls, Part1, Clip Hi, Clip Low, Opacity



3. Adjust **Clip Hi** so that all areas of the foreground objects are white. If **Clip Hi** is set too low (too far clockwise), much of the translucent areas will be forced to be fully opaque, hardening the key and darkening the transition area between background and foreground.

4. **Clip Low** can be set accurately with Auto Setup. Adjust **Clip Low** so that all areas of the backing color are black. If **Clip Low** is set too high (too far counter-clockwise), translucent areas will be forced fully translucent, hardening the key.

Note When adjusting clip levels, remember that areas on the edge of the foreground subject should show as shades of gray. Gray indicates areas of translucency, which is desirable in chroma keying.

5. Check the final results with **Key PVW** off and the chroma keyer in normal mode (**FG Only** turned off). Note that incorrect adjustments can create a hard, noisy key.
6. If the chroma key now looks good, you are done. If dark edges are present, there may be too much primary **Luma** suppression or **Clip Hi** or **Clip Low** may be set improperly. If adjusting these parameters fails to solve the problem, you should consider activating the Reshape feature.

FGD Fade

FGD Fade is useful when shading variations exist in the backing color. A better alternative, if time permits, is to adjust the lighting on the set to even out the backing color. This may improve the key so that FGD Fade is not needed. FGD Fade helps with backing color suppression at the expense of a harder looking key with more noticeable edge artifacts. A drawback of FGD Fade is loss of detail in the keyed edge. For example, smoke and hair in the foreground will probably be lost.

1. Touch the **FGD Fade** button to activate this feature.
2. Set primary **Luma** suppression to 0.
3. You can now readjust the **Clip Hi** and **Clip Low** controls if necessary to fine tune the key as described above.
4. When **FGD Fade** is on, key resizing and positioning also become available to clean up the key edges.

Size narrows the key signal and can remove much of the blue or green edge on the foreground subject.

Position moves the key signal left and right, and can be used to reduce a color edge along only one side of the foreground.

Secondary Color Suppression

Secondary color suppression is intended to improve the color of translucent areas (e.g., glass or smoke) or fine detail near the edge of a foreground subject (e.g., hair). These areas can take on some of the backing color.

Much less secondary suppression will be needed than is used for primary suppression, because the foreground color is only partially corrupted by the backing color. Because there is a mixture of backing color and foreground color, the secondary suppression Hue and the direction (Angle) will be different from primary suppression. Primary suppression removes the backing color, while secondary suppression corrects the color in translucent areas.

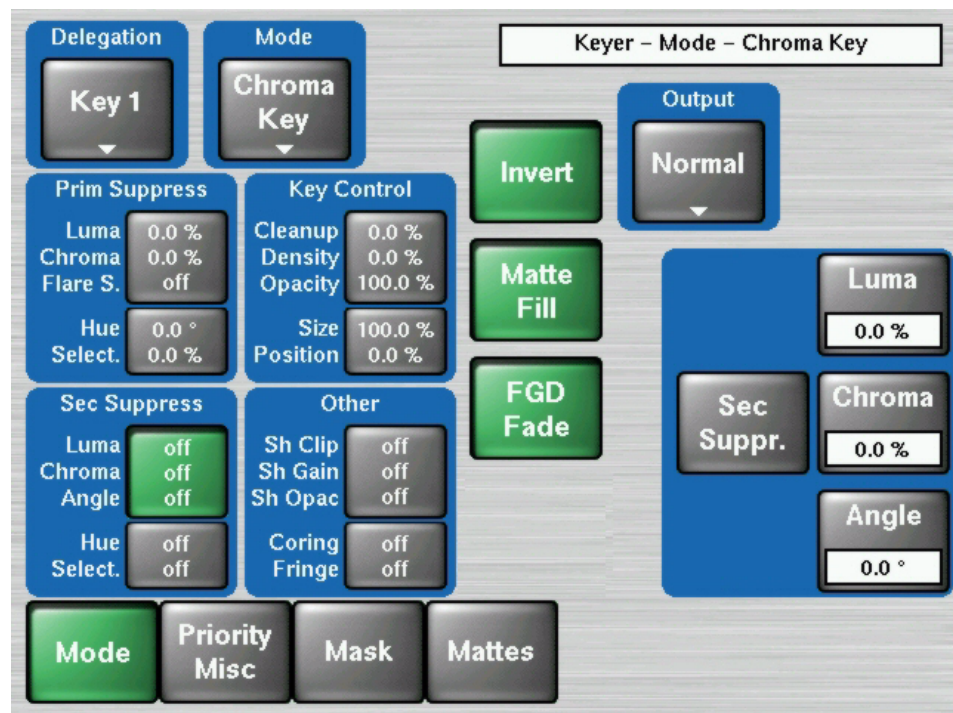
Note If FGD Fade has been applied, it is unlikely enough edge detail will remain to use secondary color suppression.

1. Touch the **Sec Suppress** data pads and then touch the **Sec Suppr.** button to activate this feature (Figure below).

Data Pad 1 contains Luma / Chroma / Angle

Data Pad 2 contains Hue and Selectivity

Figure 244. Sec Suppress Controls Part1, Luma / Chroma / Angle



2. Adjust secondary suppression **Hue** and **Selectivity** so that the translucent area is affected, but opaque areas of the foreground are not. The final hue will lie somewhere between the backing color (primary suppression hue) and the uncorrupted foreground color.
3. When making this adjustment, it is helpful to turn the secondary **Chroma Suppression** to maximum, and the secondary **Suppression Angle** to produce an unnatural color in the affected area. This makes the changes to secondary suppression more obvious.
4. **Selectivity** should be kept as wide as possible. You should only narrow selectivity (increase its value) if you cannot avoid changing opaque areas of the foreground.
5. Adjust the secondary **Angle** so that changing secondary **Chroma** suppression moves the color in the desired direction. You are trying to match the color of the translucent areas to an opaque (uncorrupted) area of the foreground subject.
6. Decrease secondary **Chroma** suppression for the best match between corrupted (translucent) and uncorrupted (opaque) areas. Interaction between secondary suppression **Angle** and **Chroma** suppression may require repeating these adjustments.
7. Increase secondary **Luma** suppression to balance lightness of the translucent and opaque areas.
8. Repeat secondary suppression **Angle**, **Chroma** suppression and **Luma** suppression for best results.

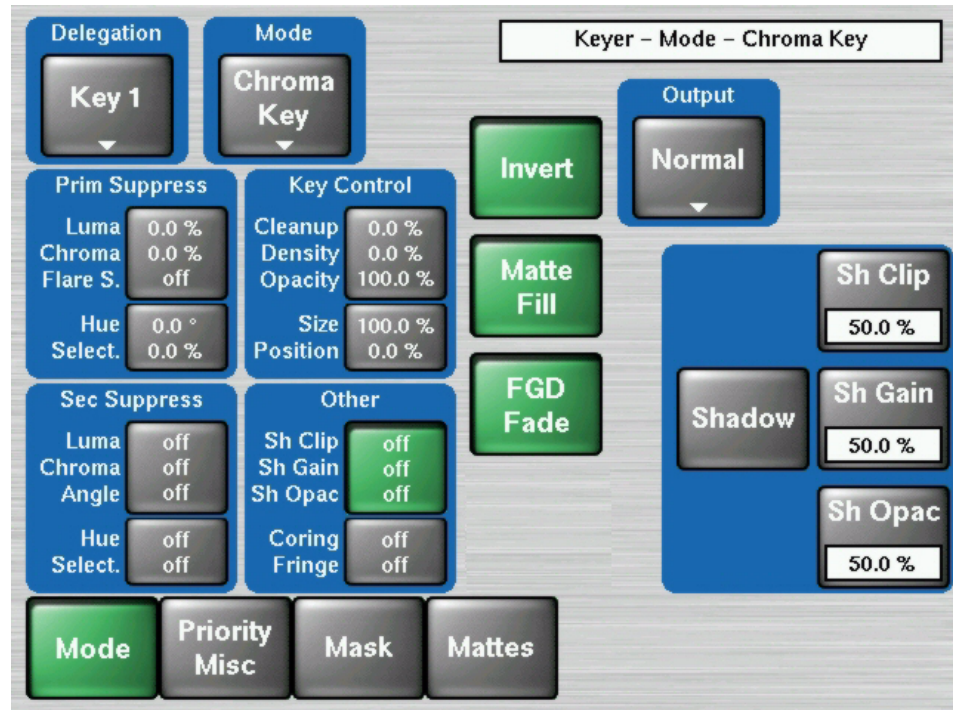
Other Chroma Key Controls

Additional chroma key controls are available by touching the **Other** data pads (Figure below). Coring, fringe, and shadow controls can be individually activated by touching the labeled buttons.

Data Pad 1 contains Shadow Clip / Shadow Gain / Shadow Opacity

Data Pad 2 contains Coring and Fringe

Figure 245. Other Controls Part1, Shadow Clip / Shadow Gain / Shadow Opacity



Coring replaces any pixels in the luminance signal after primary suppression that are below the adjustable threshold with black. This eliminates noise resulting from incomplete suppression. While coring can improve some keys, it can easily be over done. Coring thresholds much above black will affect dark grays that are actually part of the foreground subject, making the chroma key composite look unnatural.

Fringe is used to restore color to the gray portions of the foreground color resulting from secondary suppression adjustments. This control is only active when secondary suppression is on.

Shdw provides controls of shadows that fall on the backing. **Shadow Clip** and **Shadow Gain** allow selecting the range of the luminance portion of the foreground that produces a shadow. **Shadow Density** is an opacity control for the shadow and adjusts how much shadow is added to the background.

Pattern Mix

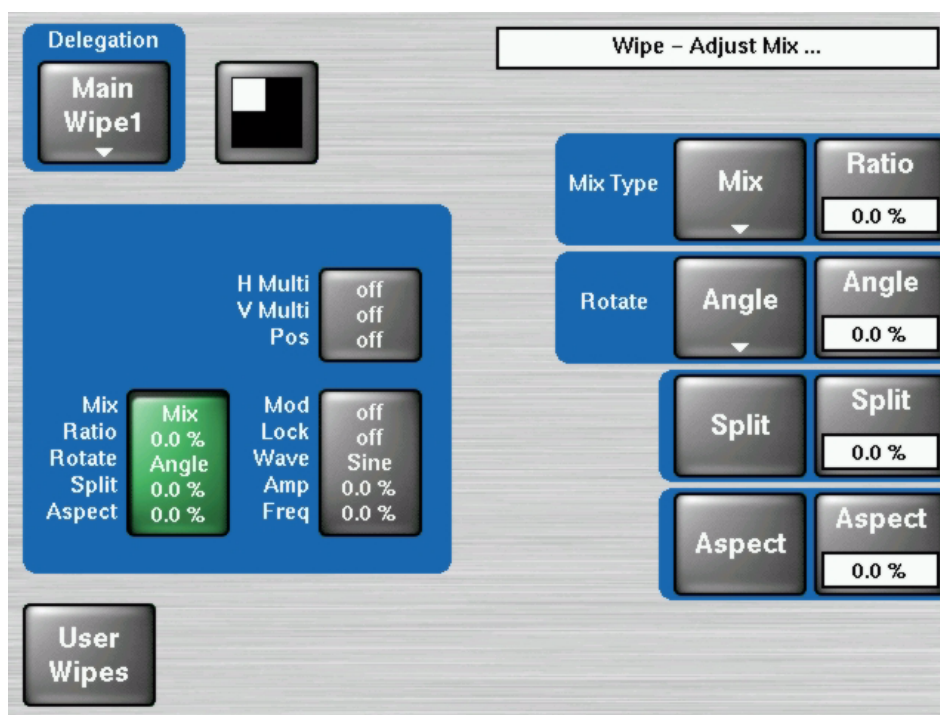
The Kayak HD system can combine the complex wipe pattern generators (**Wipe1** and **Wipe2**), to create a wide variety of customized wipes.

To Create a Pattern Mix

1. Double press the **Wipe** button in the Transition subpanel on the Main panel. This selects **Wipe** as the next transition type and also opens the Wipes menu with Wipe1 delegated for control.
2. Select the Wipe1 pattern to be used by touching the **Pattern** data pad, and then selecting one of the displayed patterns.
3. Touch the **Mix, Ratio, etc.** data pad.
4. Press the **Trans PVW** button in the Transition subpanel, and move the lever arm part way. This will display the Wipe1 pattern on preview.
5. Set Wipe delegation to Wipe2 and select the desired pattern to be mixed with Wipe1.
6. You can select the type of pattern mix with the Mix type buttons (**Mix**, **NAM +**, **NAM -**). The **NAM** buttons are used for **And** or **Or** pattern mixing.
7. You can also adjust the amount each wipe pattern contributes to the mix with the **Ratio** control digipot. At 50%, each pattern contributes equally. At 25%, the other pattern contributes only 25% to the final pattern.

Note It is always Wipe1 which is adjusted for pattern mix, i.e. you are mixing Wipe1 with Wipe2. Not Wipe2 with Wipe1.

Figure 246. Pattern Mix Menu



Sidepanel Program

Introduction

The Sidepanel program is a PC-based program, which is used as the menu part of the Grass Valley DD35/XtenDD control system.

Since the Kayak HD is also a member of this control system, the Sidepanel program can be used to enhance the possibilities of the Kayak HD switcher. More advanced features, which you normally do not find on a switcher of this size will become available by the use of this program.

The program runs on the Windows operating system requiring at least Windows 95 or later.

Note Since the Sidepanel program is also used for the larger production switchers of the XtenDD series with up to four M/E levels. Some screen shots in this manual show additional items which are not available for the Kayak HD system (e.g. more than 16 inputs, more than 10 AUX buses).

Note In some menus of the Sidepanel you may find features which are not yet implemented in the Kayak HD system or will not be available at all, due to a different hardware structure

Due to their logic structuring and application of standard elements, the menus are largely self-explaining. The setup is made according to the Graphical User Interfaces (GUI) usual in the PC world. Control of the individual functions is possible with the associated softkeys as well as with a mouse.

The following sections serve as an introduction into the philosophy of menu control, describing only the most important elements. Detailed information concerning the individual menus is contained in the following chapters of the manual.

Sidepanel Glossary

Button	Control element of the graphical user interface which in appearance and function corresponds to a button. Such as On/Off buttons, action buttons, etc.
Control Element	All graphic elements of the user interface that are able to react to user inputs.
Dialog Elements	All graphic elements of the user interface.
Dialog Button	Dialog keys are the 6 buttons to the left of the display. They are used for the selection of other control dialogs. The graphic equivalent on the display is the dialog button.
Menu Button	Buttons on the sidepanel keyboard for the selection of primary control dialogs.
Digipot	Control element for adjusting analog values

Sidepanel Menu

All sidepanel keyboard hardware controls (digipots, function and dialog buttons) have an associated control element within the display. This control element is placed as near as possible to the hardware control. The control elements belonging to the softkeys have two tasks:

- Identify the function of the control
- A mouse click on the control element results in the same action, like pressing button.

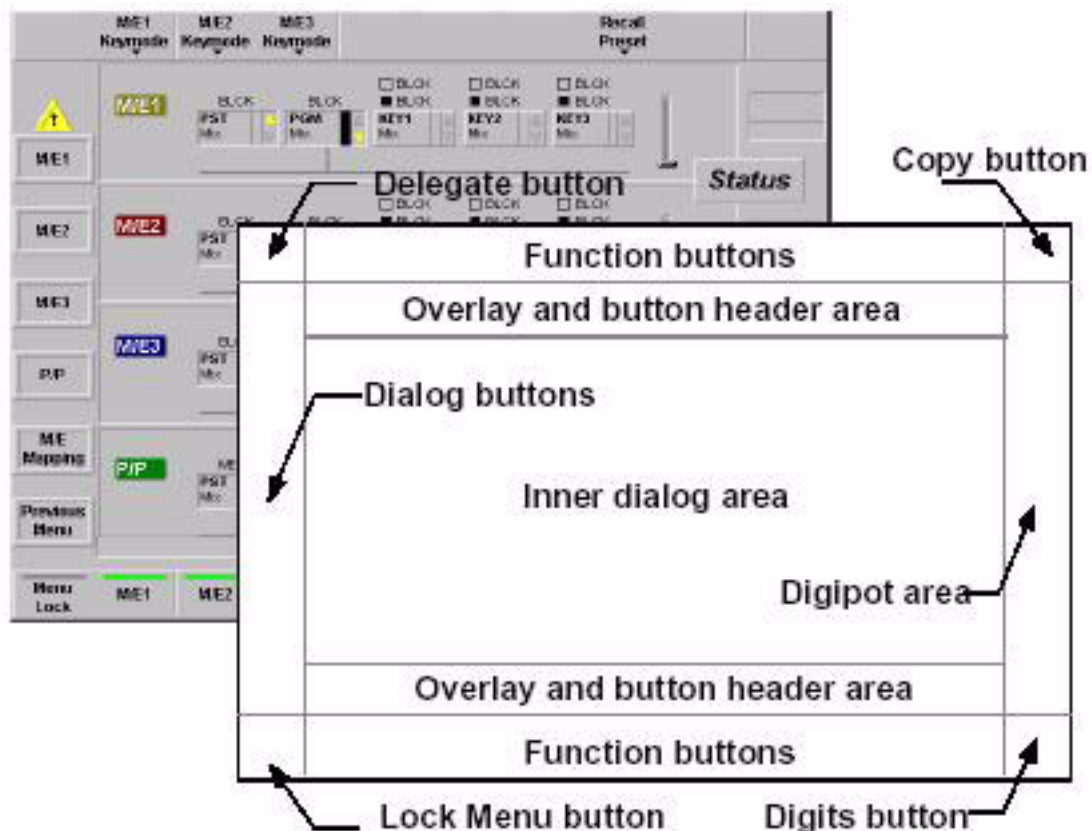
The controls belonging to the digipots describe the function of the digipots. Every dialog of this format is called a menu. Associated functions are grouped whenever possible. A group of co-operating analog controls is formed by stacking up to four *bar graphs* into one column. If a menu has more than one bar graph column the column must be mapped (delegated) onto the digipots. This delegation is done when the grouped functions are activated (e.g. "Mask On" or "Border On") from this menu or with any other key belonging to the same function group. When an analog control column is delegated, the digipot designators are updated.

The menus are structured using mainly 3D effects to provide a clear and appealing user interface without using many colors. Colors are used to signal events or represent states.

The inner dialog area is used for visualization of parameters and for setting parameters with the mouse. E.g. analog settings are represented by bar graphs inside the inner dialog area.

A definition of the various areas of a control dialog is given in the following diagram:

Figure 247. Sidepanel Menu Structure



Color Coding

Red	Attention (as the traffic signboard)
Medium blue	Active bars in bar-graphs
Green	On state in the case of On/Off buttons
Light blue	Marking of the active field in listboxes
Yellow	Attention
Light gray	Background
Dark gray	Inscription (inactive), shadow edges
Black	Inscription (active)
White	Bright edges
White	Background of delegated bar graphs

Fixed Softkeys

These buttons have the same function in most menus:

This button opens a button-overlay for direct selection of a similar hardware resource.

Delegation

Figure 248. Delegation Menu



Note The overlay is displayed in default for approximately 5 seconds. The time can be changed in the menu Personality / Sidepanel.

Transfer

This button opens a button-overlay for the available transfer modes **Transfer from**, **Transfer to**, **EXCHANGE with**, and **Undo**.

Note The overlay is displayed for approximately 5 seconds. The time can be changed in the menu Personality / Sidepanel. Example: Transfer of the wipe settings from M/E1, wipe 1.

1. Select **Transfer**
2. Select **From**

Figure 249. Select From Menu



3. Select **M/E1**

Figure 250. Select ME1 Menu



4. Select **Wipe1**

Figure 251. Select Wipe1 Menu



Lock Menu

As long as this button is switched on, the Auto Menu function is inhibited.

Figure 252. Menu Lock Button



Digits

This button is an on/off key that controls the numeric readout of analog values. The default setting of this button is a personality preference. A double-click on this button enables the numeric keypad.

Figure 253. Digits Button



Previous Menu

Recall the previous menu. Pushing **Previous Menu** again returns the operator to the menu they just left.

Figure 254. Previous Menu Button



Bar Graphics

A bar graph visualizes parameters with a continuous (analog) range of values. A bar graph is also used to adjust settings with a number of distinct values. It is assumed that the average user associates a potentiometer and not a switch with the setting.

A bar graph has the control state relevant/irrelevant and delegated/non-delegated which is represented optically. A bar graph in the delegated state is represented a blue color. An non-delegated diagram is shown in black and an irrelevant diagram shows only the frame and the text in gray color. The column and the numerical values are not shown.

Figure 255. *Opacity Density Clnup Bar Graph*

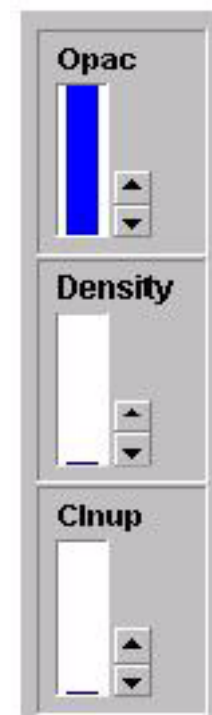


Figure 256 shows a bar graph in Digit View mode. The bar graph contains the numerical value and the unit of the parameter. A mouse click into this field enables numeric entry via a keyboard connected to the panel.

Figure 256. Opacity Density Clnup Bar Graph in Digit View Mode



Digipot Designator

A digipot designator is a control element which is used to describe the digipot function. It is represented in the digipot area on the right side, in each case in the height of the pertinent digipot. The inscription changes if another group is selected.

A numeric digipot designator has a small bar to give an overview of range and actual position of the value. This bar cannot be operated with the mouse, but you can enter the numeric value via the keyboard.

If the user turns the digipot slowly, it works in a linear mode. This means that the number of increments is proportional to the rotated speed of the digipot. If the user turns the digipot fast, the function will be nonlinear (e.g. quadratic).

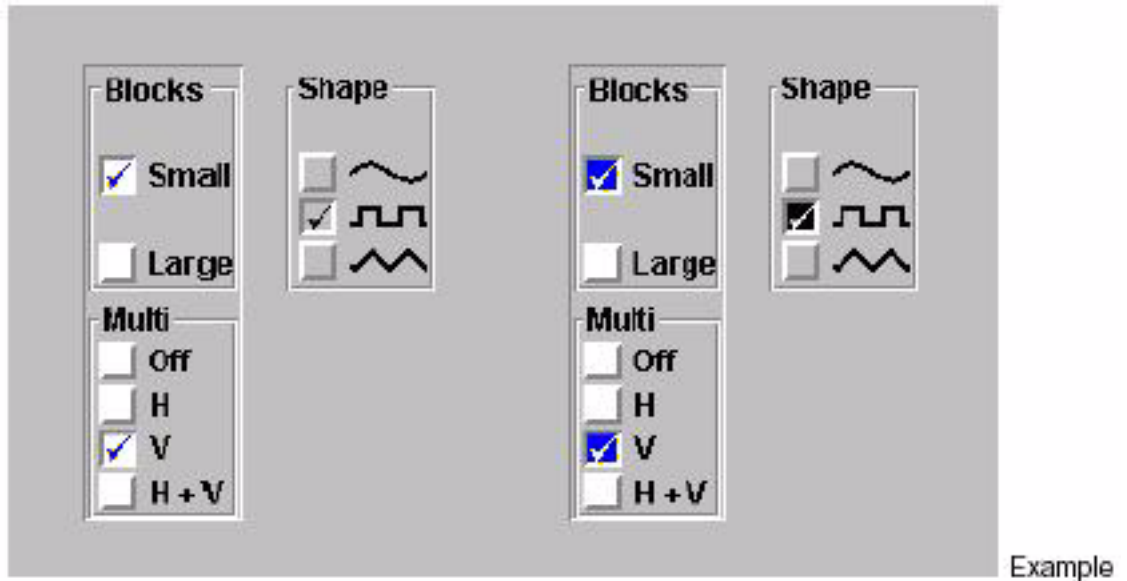
Figure 257. Clip Display



Selection Box

A selection box is a control that shows a number of elements. All elements of the group are inside a frame. In the upper frame the name of the group is shown. One element in the group is always selected. An element has a name or a bitmap as description.

Figure 258. Selection Box



Examples of selection boxes. The left three boxes are the default boxes. The right three boxes are optional (Personality Setup). Blocks and Multi are delegated. The Shape is non-delegated. A selection box can be controlled with the mouse or with a digipot if the box is delegated. When the user clicks to an unselected element the element is now selected. With the digipot the selection can be moved up and down.

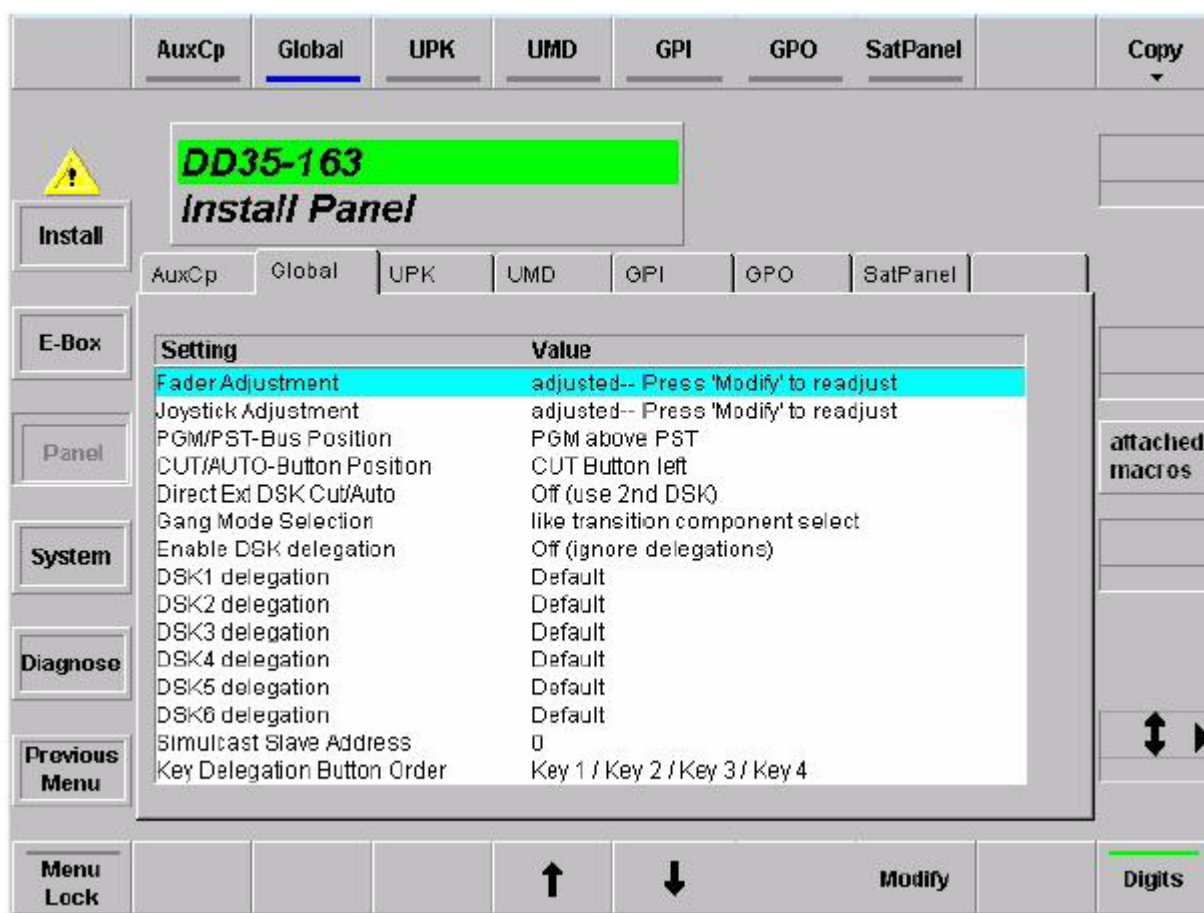
List Boxes and Index Cards

Listboxes are used to display and change lists of values. Most setup menus will have listboxes. A menu that uses a listbox must have cursor keys, a "Click" key **Modify**, and a select key **OK**. The digipots can also be used for listbox cursor positioning (digipot 0 for Up/Down and digipot 1 for Right/Left). Also the mouse can be used to position the cursor. The cursor follows the mouse cursor. The softkeys for cursor positioning do autorepeat when held down.

Sliderbar: If the listbox has more entries than lines, the sliderbar can be used to position the visible section.

Every listbox has a memory for the actual listbox cursor position when the user leaves the listbox or the menu. If the user selects the menu or listbox later the list box cursor appears at the last stored position. Menus with more than one listbox have only one set of control buttons. These buttons and the digipots will be delegated (with a cursor button) to the selected listbox.

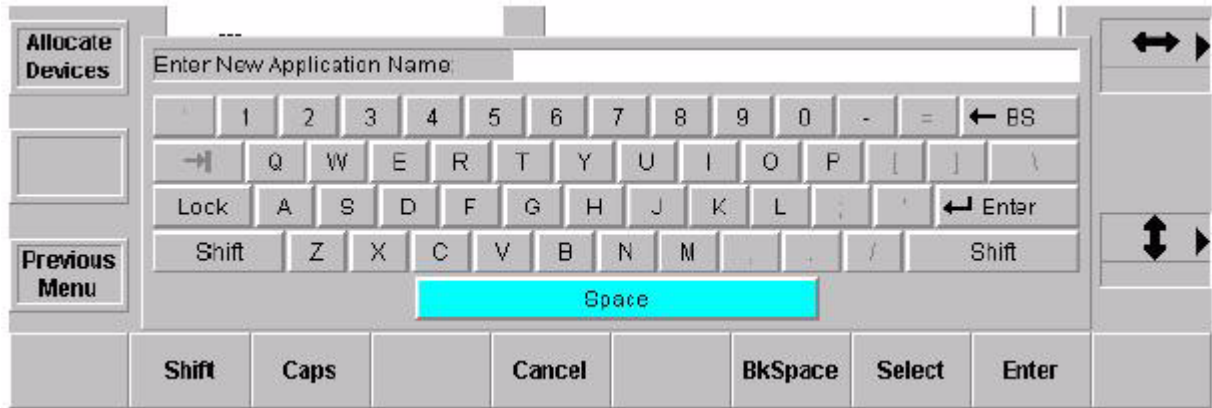
Figure 259. Sidepanel – List Box



Typewriter

When the system asks you to enter character input, a keyboard with typewriter layout (style US English) displays (Figure 260).

Figure 260. Sidepanel – Typewriter



There are two types of input, normal input and password input. If a password is requested, for each typed character, a star appears. The operation of the typewriter is possible with the following controls:

- Keyboard that is connected to the side panel PC
- Mouse or other pointing devices
- Digipot control: The left-right digipot changes the cursor position in a horizontal direction. When the cursor reaches the last button in the row it jumps to the first button in the next row. When the cursor reaches the first button in a row it jumps to the last button in the previous row. The top-down digipot changes the cursor in a vertical direction. When the cursor reaches the last row it jumps to the first row in the next column. When the cursor reaches the first row it jumps to the last row in the previous column.
- Numeric keypad (only for numbers)

The shift key operates like the second button of a pocket calculator. If the shift key is pressed the next character is a capital letter or a special character (~!@#\$%^&*()_+{|:."<>?) respectively. The label on the button changes. If the shift lock function is active, the corresponding button will be represented as a pressed button.

Numeric keypad of the control panel will now be activated in the following cases:

- Click on the EditField of a Slider
- Click on the EditField of a Digipot, which is connected to a slider

Double-clicking on the **Digit** button modifies the last Slider that was modified with the mouse or side panel digipot.

Using a Mouse

The menu can also be controlled by means of a mouse. Doing so, all functions contained in the menu are controllable with the mouse, thus enabling an operation without softkeys and digipots. That means, operation is possible from a normal PC without special hardware.

The functions are initiated by clicking or double-clicking with the left mouse button on the individual elements in the menu.

Clicking with the right mouse button calls a pop-up menu which enables a change into the other menu groups. This function replaces the menu buttons arranged to the left of the display.

Figure 261. Go To Menu



Dialog Title

A dialog title is presented inside the dialog area. It is edged by a graphic elevation. The hardware resources addressed by the control dialog as well as the addressed area come from the selection of this area. Example: hardware resource **M/E1**, area **Main** menu. The specified M/E text (e.g. **M/E1**) has the M/E color coding.

Clicking the mouse into the header selects the menu for the next associated hardware resource. For example, the control dialog of **M/E1** then changes to **M/E2**.

Figure 262. Dialog Title Selection



Menu Groups and Hierarchy

The root menu is the **Status** menu. From **Status** the top level menus of each group can be selected (when clicking the right mouse button) via the pop-up menu or pressing the respective menu buttons.

Table 27. *Opacity Density Cleanup Bar Graph*

Menu group	Top level menu	Sub-menus
Startup		Startup
Status	Status	Status
		P/P
M/E	M/E	Main
		Auto Times
		Color Background
Key	Not supported in Kayak HD	
Wipe	Not supported in Kayak HD	
Remote	Remote	Remote
		GP-I/O
		P-Bus
Montage Proc	Not supported in Kayak HD	
Color Bgnd	Color BGD	Color BGD 1, 2, 3
Correction	Correction	AUX
Install	Install	Main
		E-Box
		Panel
		System
		Diagnose
Configuration	Config	Config
		E-Box
		Panel
		Allocate Panel
Video Store	Not supported in Kayak HD	
TiM/E Memo_	TiM/E Memo	Select
		Define
DVE	DVE	DVE Extern
		DPM Main
		DPM EDit
Media Player	M/E	MP Status
		MP Clips
		RamRec Transfer
		Image Converter
Personality	Personality	Main
Auxiliary		AUX Main

In some cases it is necessary for convenient and fast operation that a menu in the context of an object provides a "link" into a menu of another object.

Example: The Paint Store Menu has a link to the Wipe Main Menu if a pattern is selected as Paint Store source. The button that activates the link has the look of a dialog button. It shows the name of the called menu. It is located in the function buttons area not in the dialog button area. Once the link is activated the **Previous Menu** button changes to **Return** to provide a direct return path into the "calling" menu. **Return** is changed back into **Previous Menu** when:

- The **Return** is done
- The context of the destination menu's object is left.

Example: Paint Store has link into M/E x Wipe1 Main, the link is followed. **Return** is valid as long as the user is in menus of that wipe generator. If another wipe generator or another top level menu is selected **Return** is discarded and the button changes to **Previous Menu**.

Startup Menu

After program start, the **Startup** menu is shortly called with the Kayak HD logo and then automatically the menu available last with all selected parameters.

With initial startup, the **Startup** menu is called in order to enable selection of the main frame and establishing the connection.

Figure 263. Sidepanel – Start Menu



The run-up bitmap (big one DD35 logo) and the background bitmap in the Startup menu can be replaced by user-defined ones. During run-up, the system is looking for the files

`c:\programme\dd35\bin\logo.bmp`

and

`c:\programme\dd35\bin\logo2.bmp`

If not available, the internal DD35 logo will be displayed. The file `logo2.bmp` is optionally. If not available, the `logo.bmp` is used for both purposes.

Selection of the Mainframe

Actuating the **E-Box** button calls a listbox in which the main frames connected to the mains are listed with IP Net Address. After selection of a main frame, the **Connect** and **Disconn** buttons are activated.

A corresponding selection connects or disconnects the connection.

Figure 264. E-Box Listbox

E-Boxes found:		
XtenDD-165	192.168.0.165	▲
XtenDD-210	192.168.0.210	
XtenDD-220	192.168.0.220	
XtenDD-236	192.168.0.236	
XtenDD-61	192.168.0.61	
XtenDD-70	192.168.0.70	▼

Selection of an Attached Panel

Actuating the **Panel** button calls a listbox in which the switcher panels connected to the mains are listed with IP Net Address. After selection of a panel, the **Attach** and **Detach** buttons are activated.

A corresponding selection connects or disconnects the connection.

Figure 265. Panel Button Listbox

Panels found:		
DD35-158	192.168.0.158	▲
DD35-163	192.168.0.163	
DD35-168	192.168.0.168	
DD35-213	192.168.0.213	
DD35-239	192.168.0.239	
DD35-73	192.168.0.73	▼

Close / Minimize / Shut Down

Close

A click (button or mouse) closes the XtenDD application.

Minimize

A click (button or mouse) minimizes the DtenDD GUI on the screen to the Windows95 Task bar. A minimized state can be restored to its original size by pressing any key

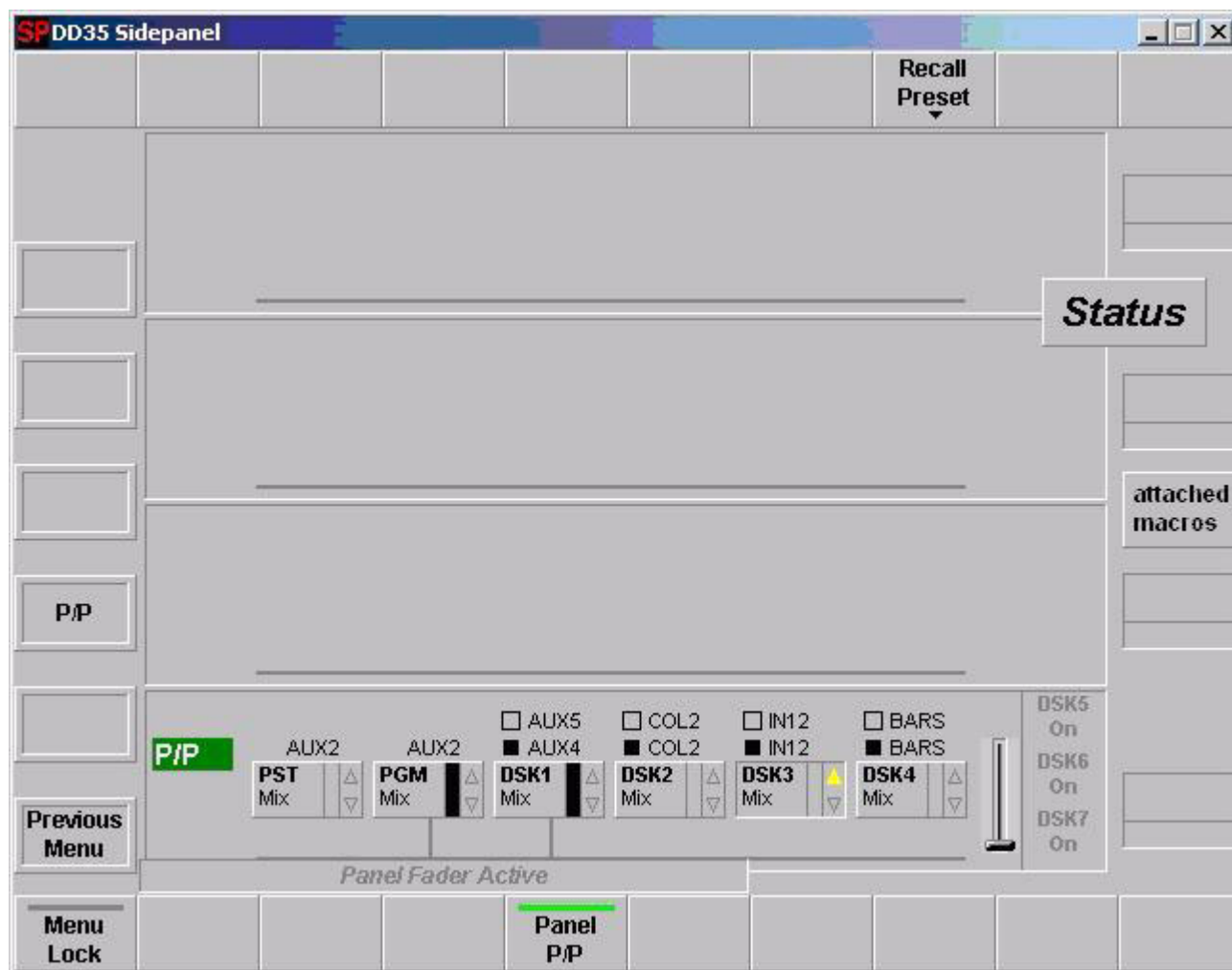
Shut Down

A double-click (button or mouse) closes the XtenDD application and shut down the control panel PC.

Status Menu

The root menu of the switcher is the **Status** menu. From **Status** the top level menus of other group can be selected (when clicking the right mouse button) via the pop-up menu or pressing the respective menu buttons.

Figure 266. Sidepanel – Status Menu



Selecting the M/E Main Menus

M/E1 - M/E2 - M/E3- P/P

Press the associated dialog button to select the associated M/E Main menu which serves to modify the switcher parameters. In Kayak HD-100 only PP, Kayak HD-200: M/E-1 and PP is available.

Enable / Disable the Faders

Fader Active: M/E1, M/E2 M/E3, P/P

Press the associated button to enable or disable the panel fader of the individual mixing levels and the menu fader in the M/E Main menus. The active status is displayed in the button. In Kayak HD only PP is available.

User Definable Presets

User definable preset of the mainframe operational state is possible for a single M/E or the complete switcher. For a recall of the complete switcher preset select the Status menu. A single switcher preset can be recalled in the M/Ex Main menu.

Refer to the **Install E-Box** menu to save the preset data.

Recall Preset

The following presets can be recalled:

Figure 267. User Definable Presets



Factory Preset

Recall the factory preset.

Operation Preset

Recall the user-defined operation preset. See section [Install E-Box Menu on page 389](#) to store the user-defined operation preset.

Undo

Recall the last user settings.

Attached Macros

This menu can be accessed in two ways:

- Via **Config / Attached Macros** menu
- By clicking the **Attached Macros** button, which is visible in all menus at the right side between the middle digipots. This button is only visible when there is at least one macro attachment. The button is gray or green, depending on the settings in the menu **Personality / Panel / MaKE Memo Attachment Playmode**.

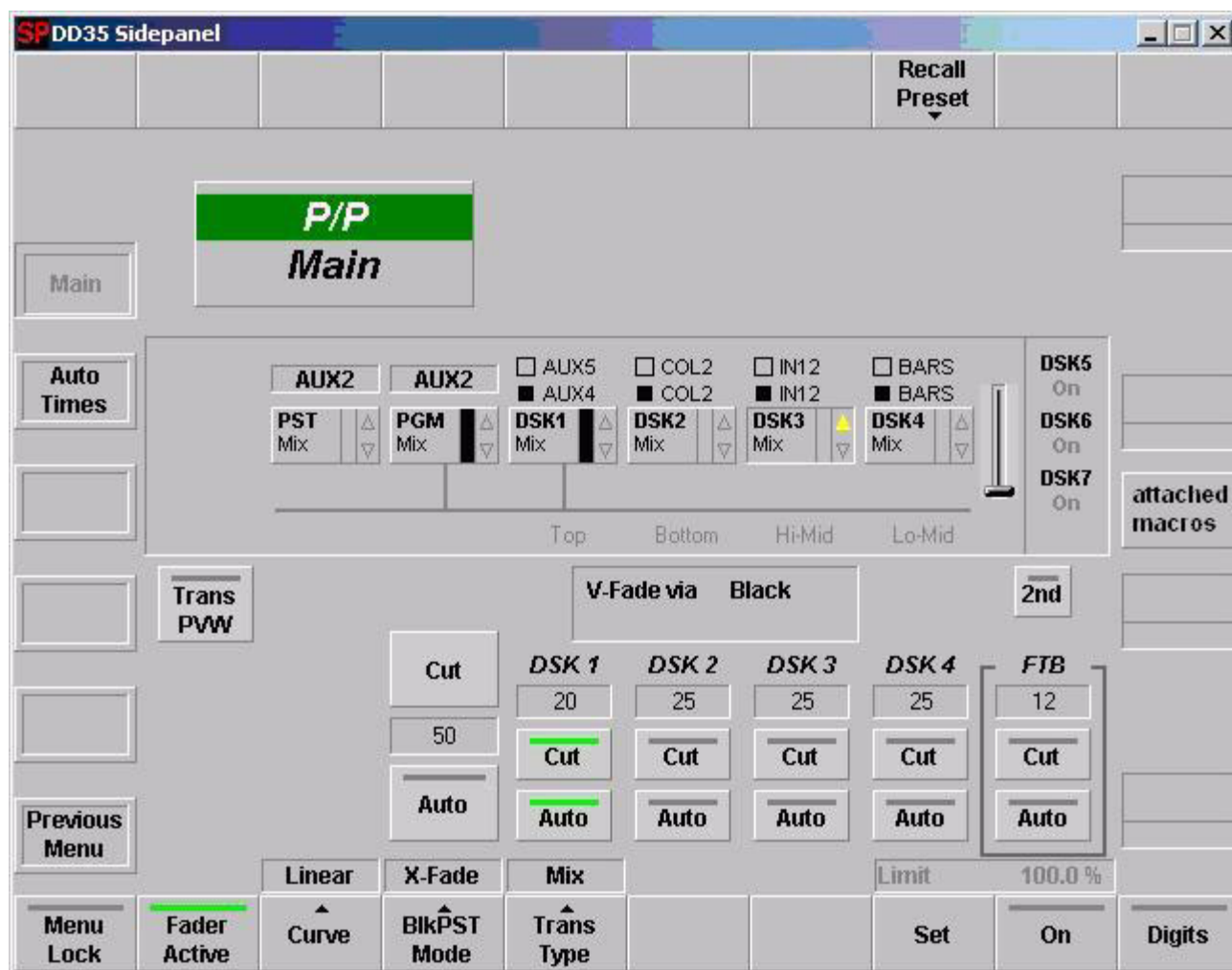
Figure 268. Attached Macros Button



M/E Menu

M/E Main Menu

Figure 269. Sidepanel – M/E Main Menu



The inner dialog area shows the status of the respective M/E stage. All transition functions (Cut, Auto, Trans PVW, and Trans Duration) can be controlled by trackball or mouse.

Select Trans Duration Time

1. Click on Duration field
2. Enter the desired value using the numeric keypad

Figure 270. Select Trans Duration Time



3. Click **E** (enter) or **C** (clear)

Dialog Buttons

Auto Times

For details refer to the section on *Auto Times Menu* on [page 341](#).

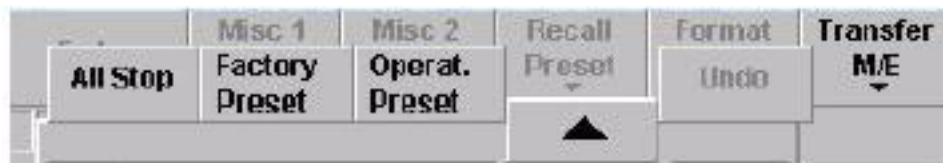
Previous Menu

Return to the previous menu. For details refer to the section *Introduction* on [page 315](#).

Recall Preset

Recall the single M/E Preset

Figure 271. Dialog Buttons



Factory Preset

Recall the factory preset

Operation Preset

Recall the user-defined operation preset. See below to store the user-defined operation preset.

All stop

Press the associated button to stop or reset the following functions:

- Stops all ongoing auto transitions
- Sets FTB to inactive (100%)
- Sets transition type to MIX
- Moves BGND transition to start position
- Removes all keyers
- Set Next Transition BGND
- Resets Next Transition for all other components.

This command does not

- Influence matrix crosspoints
- Stop TiM/E timeline play or TiM/E snapshot dissolve.

Menu Lock

For details refer to the *Introduction on page 315*.

Fader Active

Press the associated function button to enable or disable the fader of the individual mixing levels. The active status is displayed in the button.

Curve

Press the associated function button to select the transition characteristics for the faders.

Figure 272. Curve Dialog Button



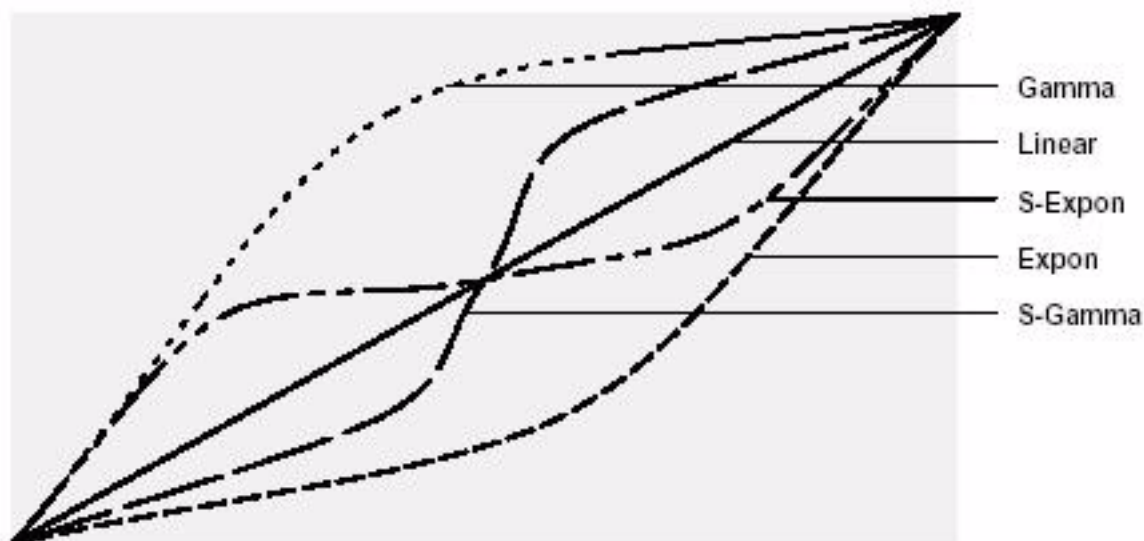
Linear Expon Dialog Buttons:

- Linear transition on the basis of a linear function
- Expon transition on the basis of an exponential function
- Gamma transition on the basis of a gamma function

- S-Expon transition on the basis of an exponential gamma function
- S-Gamma transition on the basis of a gamma exponential function

The selected curve function is displayed in the button header area.

Figure 273. Selected Curve Function Display



BlkPSTMode

The **BlkPST Mode** button permits selection of different modes of fading:

To select a fading mode, activate the button and then select a mode with the overlay button **X-Fade**, **V-Fade1**, **V-Fade2**, **V-Fade3** or **V-Fade4**.

Figure 274. Black Preset Mode



Note The system defaults back to X fade after transition is finished.

For the V-Fade two modes of operation are selectable by clicking the listbox:

Figure 275. VFade



Trans Type

The **Trans Type** button permits selection of different types of transitions:

To select a transition type, activate the button and then select a transition type with the overlay button **Undef**, **Mix**, **Add**, **Wipe1**, **Wipe2** or **DVE**.

Figure 276. Trans Type



The selected transition type is displayed in the button header area.

Note You can only change the transition type when the transition is finished, i.e. when an automatic transition has been completed or the fader is in end position.

Limit Set

The **Limit set** and **Limit on** buttons serve to create reproducible partial transitions. This mode is possible with all types of transitions. Limit set permits storing the desired value set with the fader.

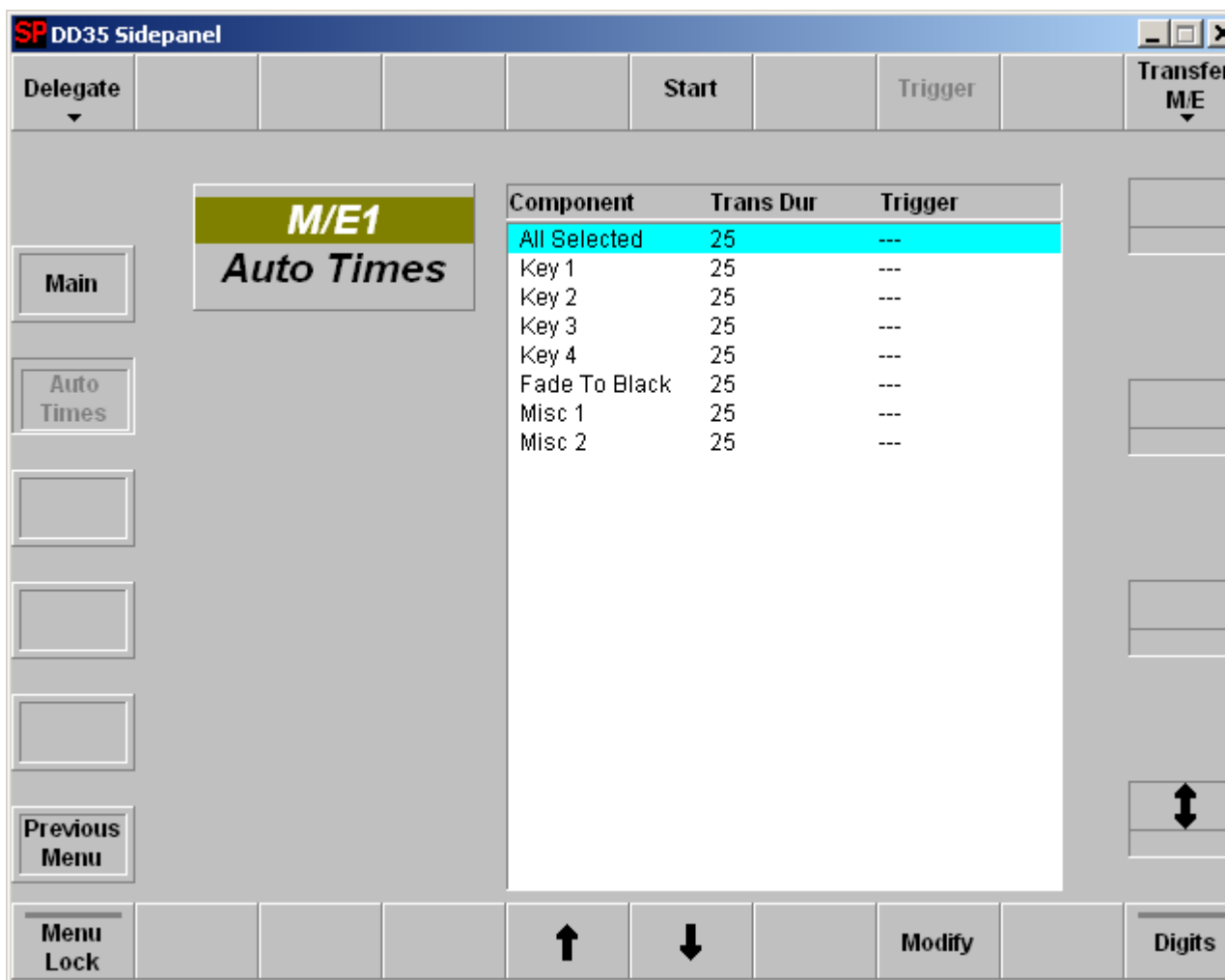
Limit On

Limit on enables the mode. Any transition with Cut or Auto and any manual transition with the fader is only executed up to the value previously defined with Limit set. If the transition is made with the fader, the yellow arrow to the left of the fader does not change the direction when the fader is moved to its end position, thus indicating that the transition is not completed.

If Limit on is switched off at the point defined by Limit set, a jerk free transition to the next contribution can be made with the fader. The remaining transition length is then stretched to the full fader path.

Auto Times Menu

Figure 277. Sidepanel – Auto Times Menu M/E



The menu permits setting the auto transition times.

Function Buttons

Start

Starts the transition selected in the list box.

Trigger

Press the associated function button to start the Auto times manually. The button is only active when a GPI in the Trigger column is pre-selected.

Modify

Selecting the button displays the numeric keypad to enter the auto transition times of the selected component. Only numbers are valid entries.

Figure 278. Trans Dur Function Buttons



Digits

For details refer to the *Introduction* on [page 315](#).

Auto Time P/P

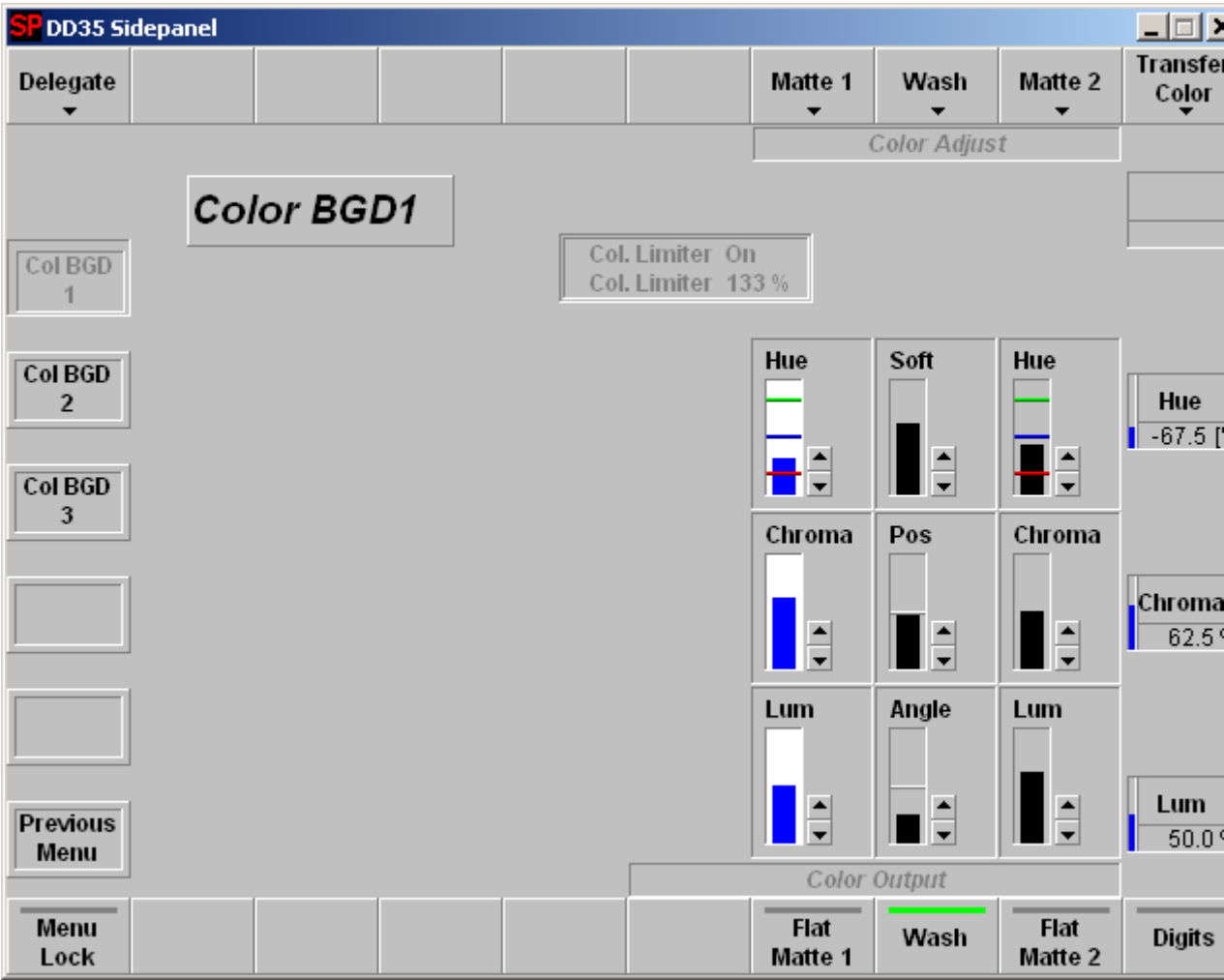
Components in the P/P mixing level:

Figure 279. Sidepanel – Auto Times Menu P/P

<div> <div>P/P</div> <div>Auto Times</div> </div>			Component	Trans Dur	Trigger
			All Selected	25	---
			DSK 1	25	---
			DSK 2	25	---
			DSK 3	25	---
			DSK 4	25	---
			Fade To Black	25	---
			DSK 5	25	---
			DSK 6	25	---
			DSK 7	25	---
			Misc 1	25	---
			Misc 2	25	---

Color Background Menu

Figure 280. Sidepanel – Color Background Menu



Function Buttons

Delegate

For details refer to the *Introduction on page 315*.

Figure 281. Delegate Function Buttons



Matte 1 / Matte 2

The **Matte 1 (Matte 2)** button delegates the digipots so that the desired colors can be adjusted. There are seven pre-adjusted matte colors selectable.

Figure 282. Matte Function Buttons



The Hue control serves to adjust the color. The Chroma control serves to adjust the color saturation (chrominance). The Luminance control serves to adjust the desired brightness of the color.

Note Certain combinations of chrominance and luminance values will cause levels to be too high and inadmissible colors. For this reason, an automatic can be switched on to control limits the chrominance for defined luminance values. You can easily check this by setting the Chroma control to maximum and then turning the Luminance control slowly to maximum; the chrominance will be reduced with increasing luminance values. If the automatic control is switched off an illegal sign indicates a wrong adjustment.

Wash

The **Wash** button serves to reset the wash to: Angle-Vert, Pos-Mid and Soft-Min and delegates the digipots to the wash parameters Angle, Pos, Soft.

Figure 283. Wash Function Buttons



Flat Matte 1

Flat matte 1 selects matte 1 as output.

Flat Matte 2

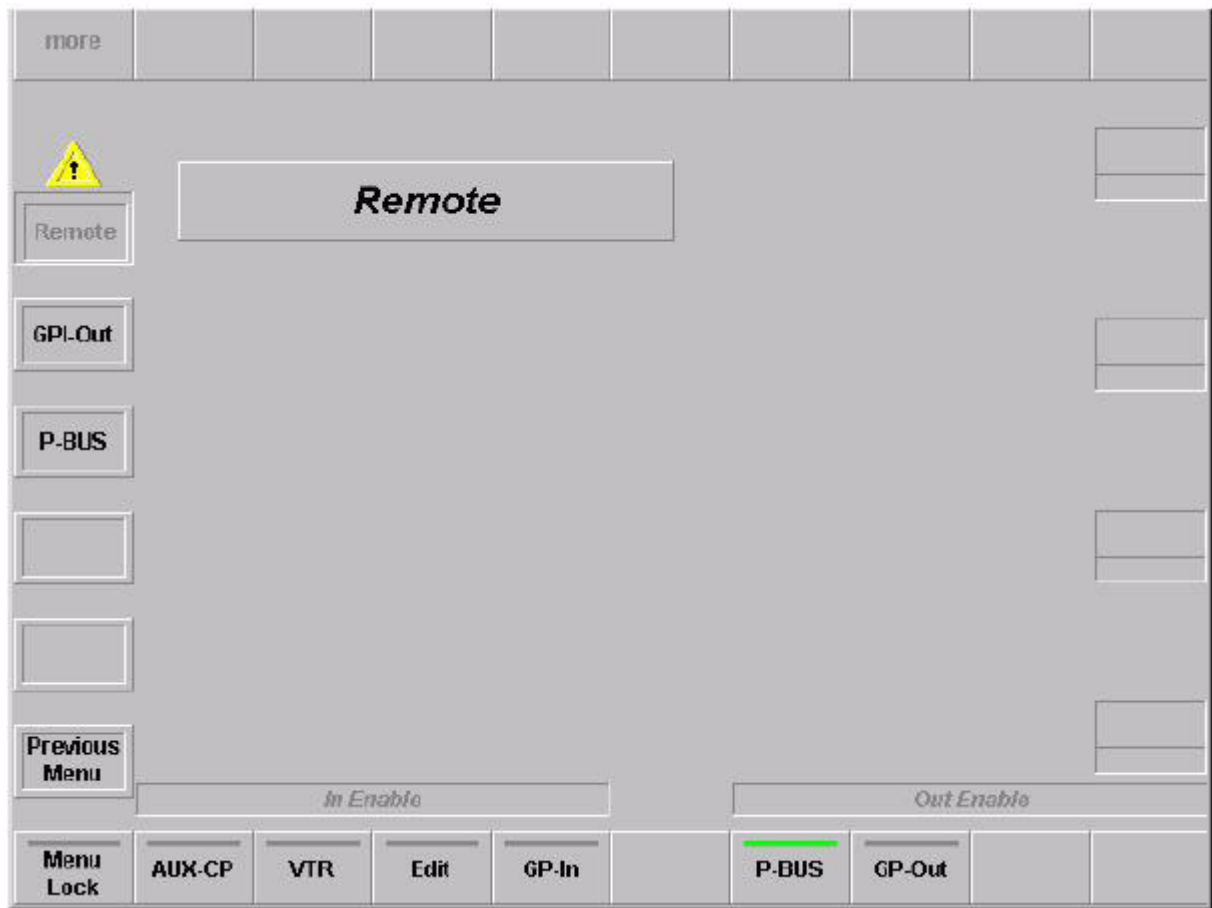
Flat matte 2 selects matte 2 as output.

Wash

Selecting Wash serves to select a matte that is composed of a color wash between matte 1 and matte 2. If only the **Wash** button lights up, it is possible to change the color wash individually with the Softness, Position, and Angle controls. The Softness control permits adjusting the width of the transition between the two colors. The Position control serves to shift the position of the transition. With the Angle control, the transition angle can be rotated. Select Matte 1 or Matte 2 if you wish to adjust the matte with the Hue, Chroma, and Luminance controls. Select Wash (upper row) to adjust Softness, Position, and Angle.

Remote Menu

Figure 284. Sidepanel – Remote Menu



In Enable

AUX CP - Enables AUX Control Panels

VTR - Enables the VTR control

Edit - Enables Editor control.

GP In - Enables GPI inputs

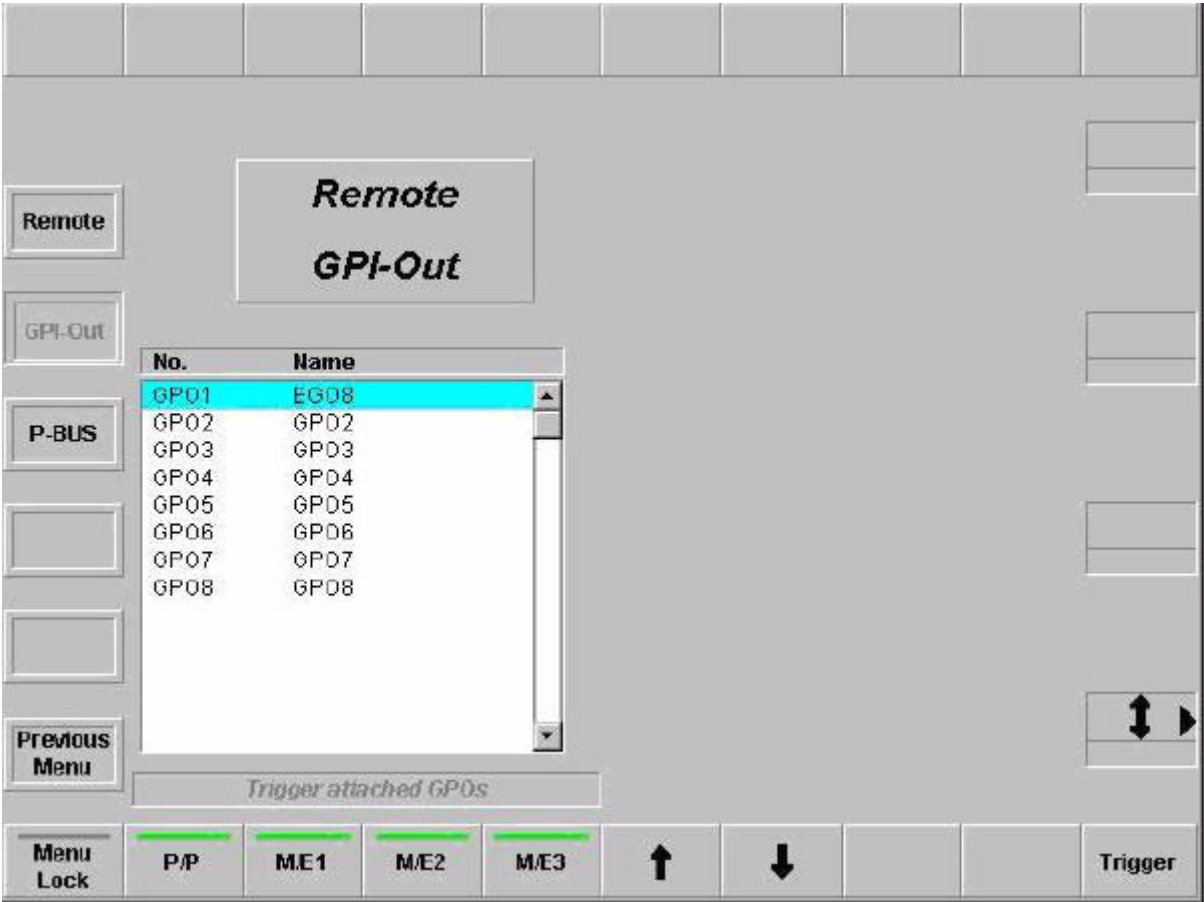
Out Enable

P-Bus - Enables Editor control.

GP Out - Enables GPI outputs

GPI-Out Menu

Figure 285. Sidepanel – GPI Menu



Function Buttons

Menu Lock

For details refer to the *Introduction* [on page 315](#).

Trigger Attached GPOs

- P/P
- M/E1 ... 3
- In preparation

Cursor Up/Down

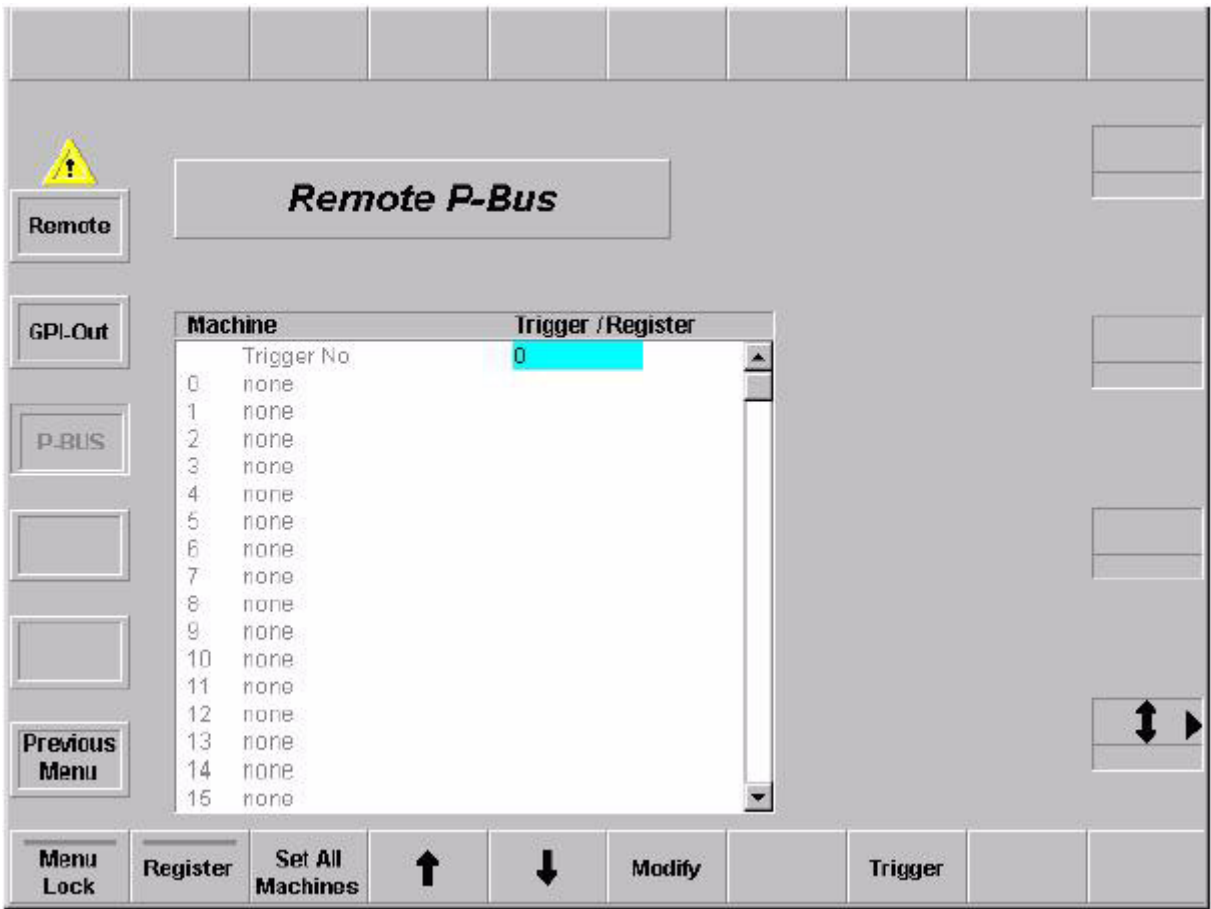
Moving the bar in the list box and select a GPO channels 1 to 32

Trigger

Set a manual trigger

Remote P-Bus

Figure 286. Sidepanel – Remote P-Bus Menu



Function Buttons

Remote P-Bus / Trigger

The Remote / P-Bus enables to manually trigger with Trigger the machines defined in the Install / E-Box / P-Bus menu. At present, only 1 trigger can be output on the P-Bus, which then reaches all machines for which in this case a trigger is adjusted.

In the 1st line, the trigger number is present (can be used, but must not). In the other lines, this trigger number is adjusted for the respective machines.

The popup of each machine provides the following selection possibilities:

- No Command:** This machine does not get any trigger
- Default Command:** This machine gets the trigger number being in the 1st line
- All other lines:** Here, each trigger is specified with the name being provided for this machine. A selection in this area also changes the general trigger number in the 1st line which then is applicable for all machines.

It is only possible to trigger those machines that are activated in the **Install / Pbus** menu. The trigger will then be performed by the button with a similar name. It then reaches all machines with the trigger name listed below.

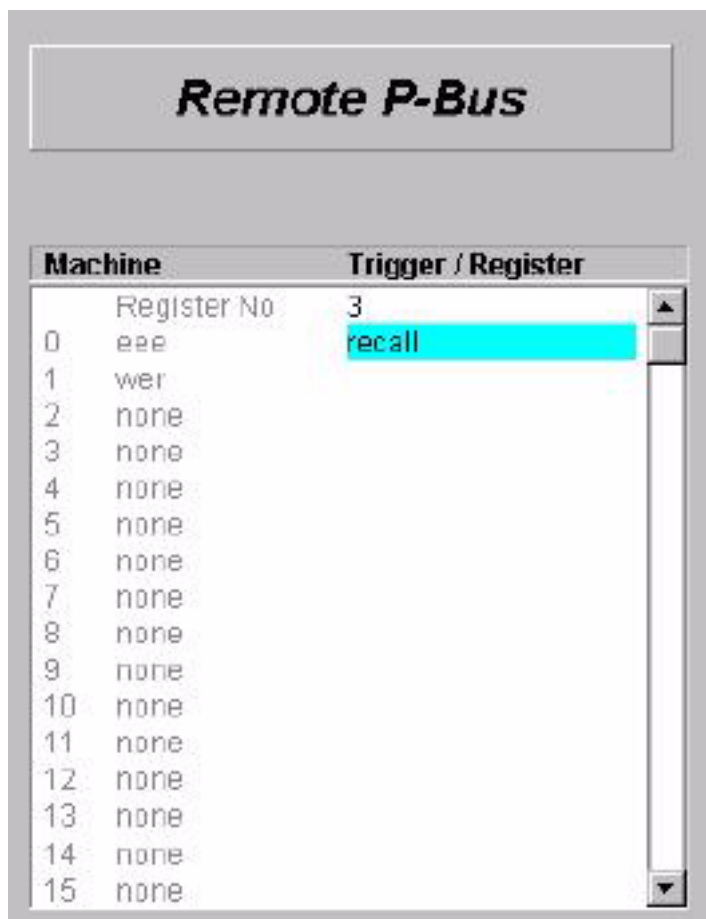
Figure 287. Remote P-Bus Trigger Function Buttons

Machine		Trigger / Reg	Trigger
	Trigger No	3	0
0	VTR active		1
1	DWE		2
2	PROFILE		✓ 3
3	no ne		4
4	no ne		5
5	no ne		6
6	no ne		7
7	no ne		8
8	no ne		9
9	no ne		10
10	no ne		11
11	no ne		12
12	no ne		13
13	no ne		14
14	no ne		15
15	no ne		

Remote P-Bus / Register

Sub-dialog of the trigger. Register are device-specific states. These registers can be read out or written in just as the trigger for a defined number of machines. The concerned machines are indicated in the field Trigger/Register where only Recall / No Recall can be selected.

Figure 288. Remote P-Bus Register Function Buttons

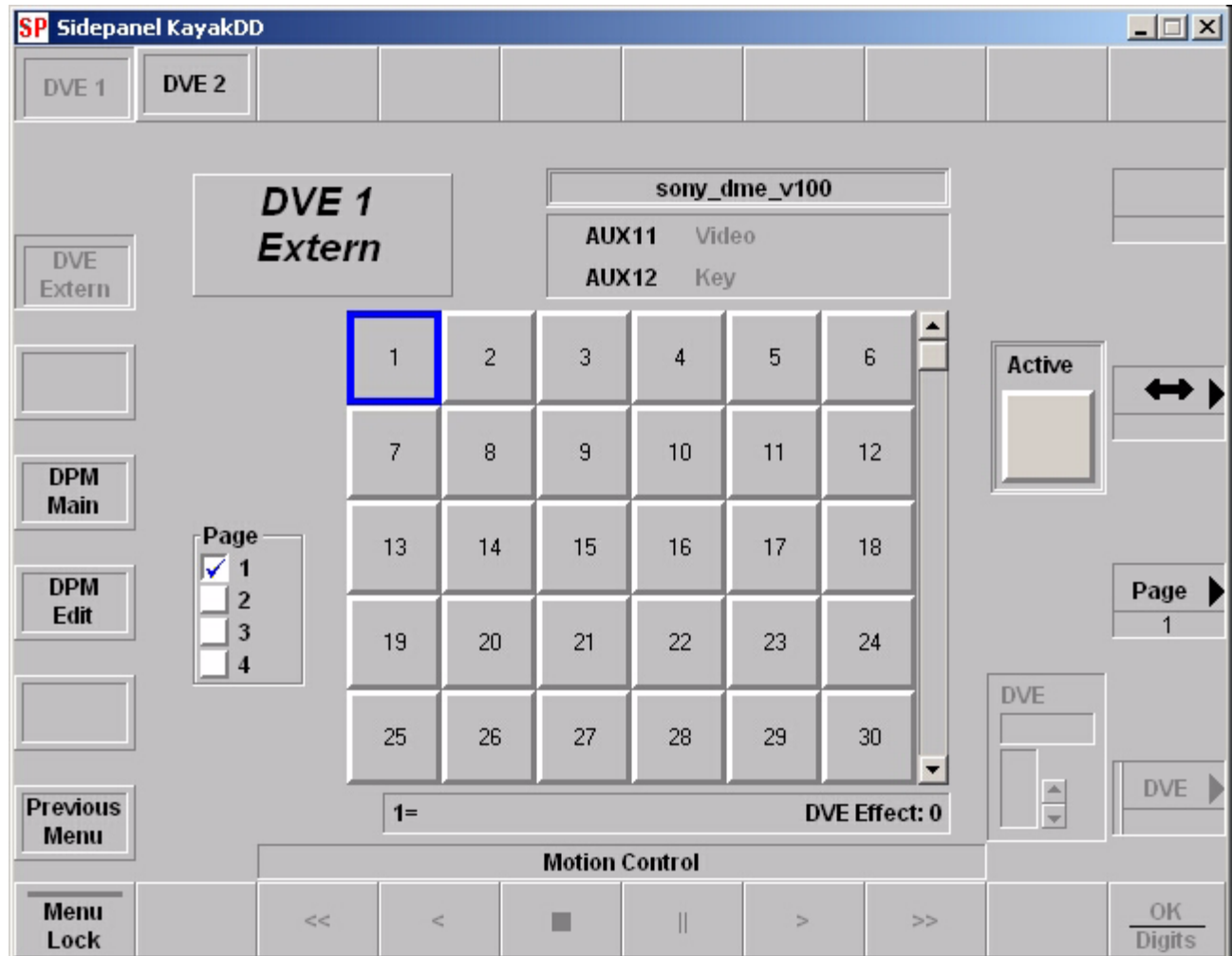


Storing or recalling is performed with the buttons **Save Register** and **Recall Register**.

DVE Menus

DVE External

Figure 289. Sidepanel – External DVE Menu



Dialog Buttons

DVE Extern

Menu serves to control an external DVE system.

DPM Main

Main menu page to control the internal iDPM system.

DPM Edit Menu

Edit menu page to create new effects.

Function Buttons

Menu Lock

For details refer to the *Introduction on page 315*.

DVE1 / DVE2

Selecting the channel of the external DVE.

DVE effects can be selected either by positioning the blue cursor box with the digipots or by clicking with the mouse on the desired effect and confirm with OK. The selected effect can be used as DVE transition or the DVE can be controlled by the Motion Controls in this menu. With the digipot DVE the DVE can be positioned to a fixed point in the timeline.

Motion Control

Figure 290. Motion Control Function Buttons



OK / Digits

For details refer to the *Introduction* [on page 315](#).

DPM Main

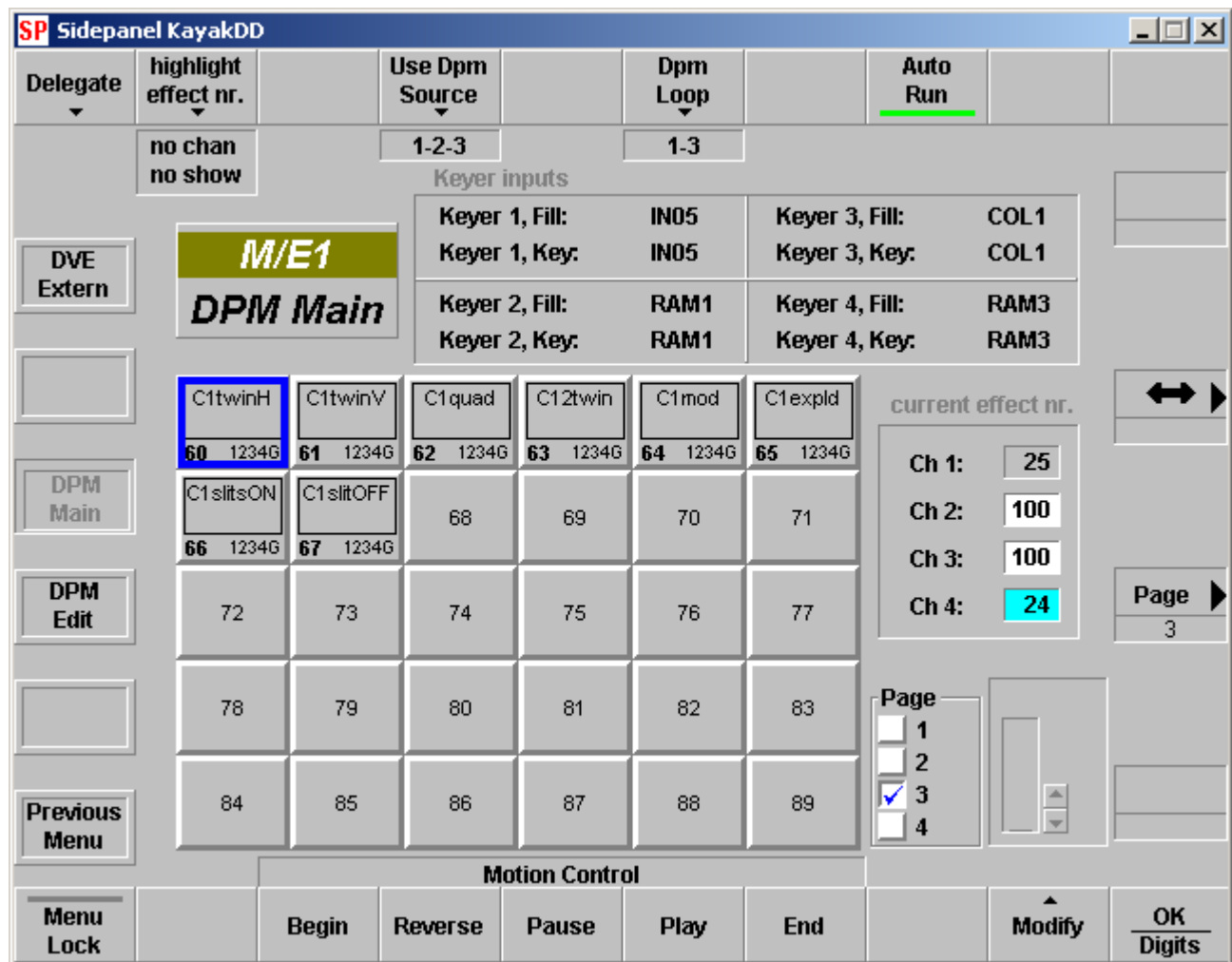
The Kayak HD system supports one DPM channel per keyer, that means a Kayak HD-100 may have up to 4 DPM channels, a Kayak HD-200 up to 8 DPM channels. For units currently shipping the DPM channel for the first keyer per M/E-bank is standard, the remaining 3 channels per M/E are options.

The menu allows to select up to 100 (0 to 99) and start the effects.

The parameters of the Digital Picture Manipulators are not stored as part of the E-MEM system. They are treated per M/E-bank like external DVE channels with a separate timeline system with 100 registers. That means the switcher can recall independently extra DPM effects per M/E while running an E-MEM timeline.

To offer even more flexibility the user can define per register, which of the 4 channels should be affected. E.g. register 1 could only include the DPM channel of keyer 1 running an endless loop to spin a logo while the user is able to recall independently other registers containing only channel 3+4 displaying differently sized boxes.

Figure 291. Sidepanel – DPM Main Menu



Inner Window

The inner window consists of several sections:

- Inputs Selection Keyer/Fill,
- Effect selection (6 x 5 buttons per page),
- Page selection

Input Selection

Input selection for the 4 channels, click on the corresponding fields for source selection.

Effect Selection

30 buttons for DPM effect selection (in total 100 effects on 4 pages). In the bottom part per button you find an indication of the channels used in the corresponding effect.

To select an effect, first preselect it (dark blue border) then press **OK** or double-click an effect directly. The selected effect (light blue background) can be controlled by the motion control buttons or by the DPM digipot on the right side.

The effect selection can be learned in a macro. Since you can run up to four DPM effects simultaneously, learning motion control commands in macros has to be done carefully.

Pressing the **Play** button while learning a macro, this macro will record a play command for the first channel in the selected effect.

Example:

If the effect contains channel 2, 3, 4 – the macro will record the play command for channel 2. This macro can be used to play any effect containing at least channel 2, because a play command for one of the used channels will play all used channels. So 4 macros is enough to play all effects.

Current Effect Number

In this section you find an indication of the selected effect per channel. This can differ from the last recalled effect, since an effect recall only loads the channels included in the DPM effect.

Dialog Buttons

DVE Extern

Menu serves to control an external DVE system.

DPM Edit Menu

Edit menu page to create new effects or edit existing ones.

Function Buttons

Delegate

Delegating the menu to an M/E or P/P stage of the switcher.

Highlight Effect No.

This feature is only a help to get a quick overview, which channel is used in which effect. This is only important for customers using the DPM as a multiple DVE. The overlay row is special and consists of two parts, which have to be selected independently:

no show	No highlighting
1 incl.	Highlight all effects which contain at least one of the selected channels.
all incl.	Highlight all effects which contain all of the selected channels.
exact	Highlight all effects which contain exactly the selected channels.
chan 1	Toggle selection channel 1: "-- -- --" is off, "chan 1" is on.
chan 2	Toggle selection channel 2: "-- -- --" is off, "chan 2" is on.
chan 3	Toggle selection channel 3: "-- -- --" is off, "chan 3" is on.
chan 4	Toggle selection channel 4: "-- -- --" is off, "chan 4" is on.
global	Toggle selection global: "-- -- --" is off, "global" is on.

Use DPM Source

Figure 292. DPM Channel Selection



DPM Channel selection: You can select per local channel whether this channel should be affected by the global channel. Click the buttons with the mouse to select or deselect.

DPM Loop

Figure 293. DPM Loop Menu Buttons



Activates the DPM function for the corresponding keyer, that means when on, the DPM is looped into the signal path.

Auto Run

When Auto Run is on a recall of an DPM effect will automatically run the effect. When Auto Run is off, the run has to be triggered either in the Show Timeline menu by pressing **Play** or by pressing the **Cut** button in the Effects area again while the section is delegated to DPM control.

The **Auto Run** button is also used when a DPM effect is recalled by an **E-MEM**. When **On**, a keyframe containing **DPM Eff. No** in the Define Memo will trigger an immediate run of the relevant DPM effect. (Define memo is set in the E-MEM define memo menu.) When **Off**, a trigger has to be set to run the effect.

DPM Edit Menu

General Control Principles of the Index Cards

The edit control consists of 2 rows of 8 index cards.

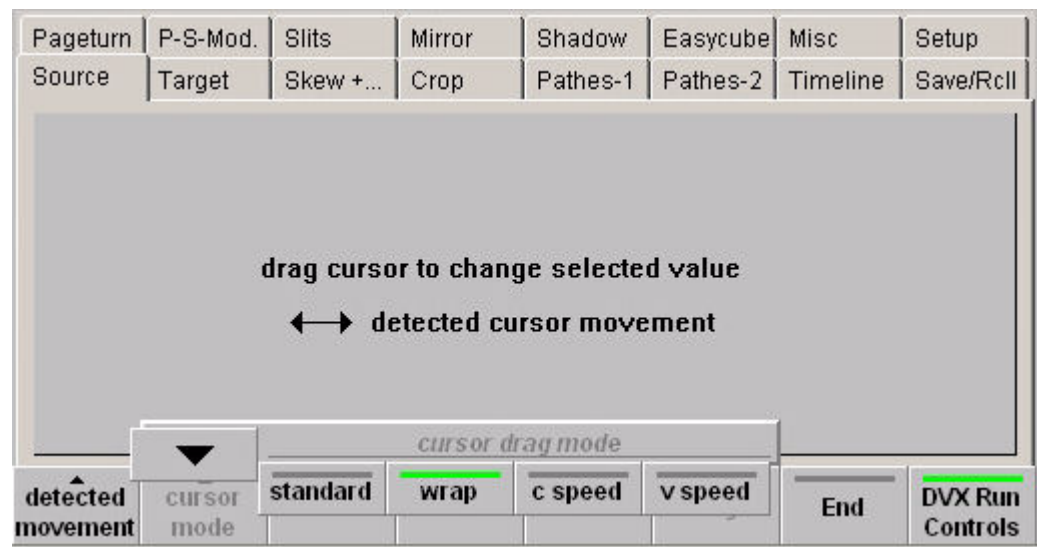
- You can toggle between the two rows of 8 with the arrow button (top row left).
- To select an index card press the corresponding button in the top row of the GUI panel.

Most index cards have several pages (functions) with up to 4 controls.

- You can toggle through the functions with the function select button (top row right of the GUI).
- The up to 4 controls per page can be controlled by the 4 digipots on the right side.
- Some controls can also be set with numeric values or using the mouse cursor (see below).

Cursor Modes

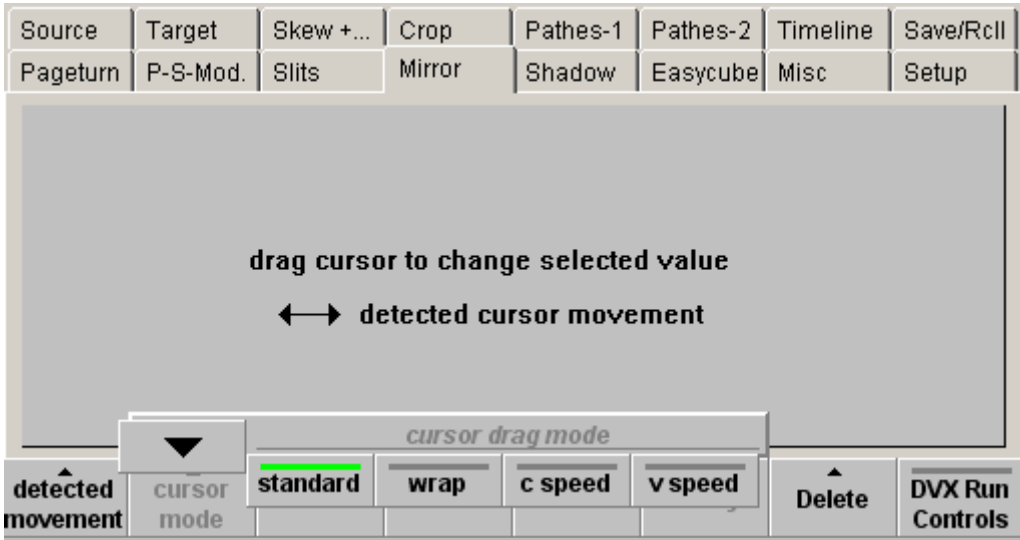
Figure 294. Sidepanel – Cursor Modes



Data entry of the parameters is possible by clicking into the respective parameter field (a numeric key pad appears) or by cursor movement inside the cursor pad. Different cursor modes are selectable:

Standard

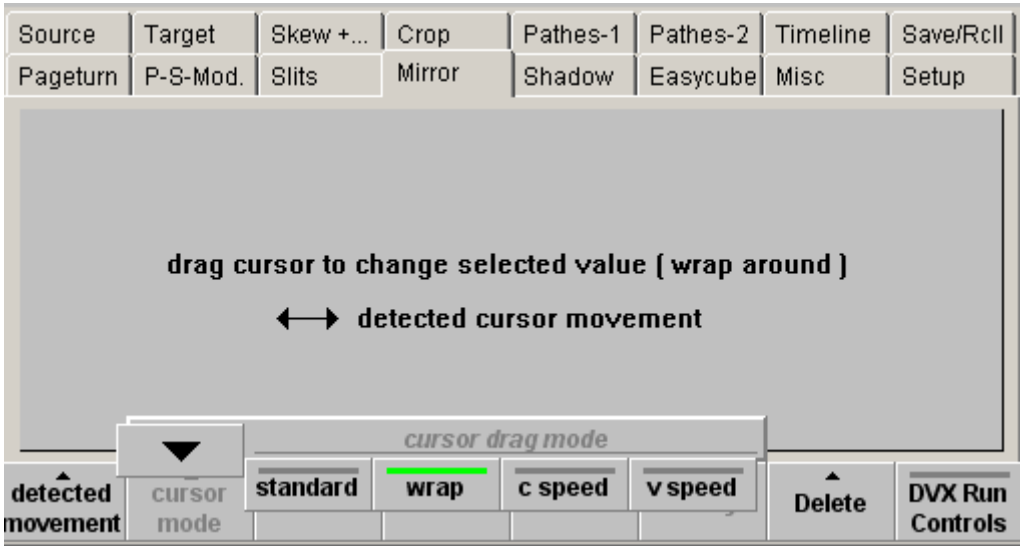
Figure 295. Sidepanel – Cursor Mode Standard



Right-click and drag your mouse to change analog values.

Wrap

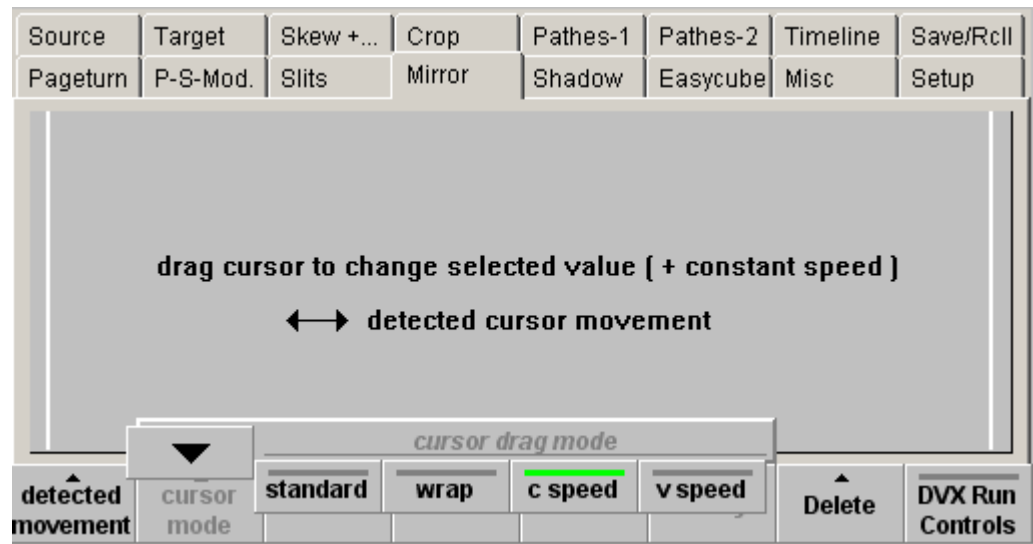
Figure 296. Sidepanel – Cursor Mode Wrap



Right-click and drag your mouse to change analog values. When the mouse reaches the end of the detection area it is automatically positioned to the opposite border (wrap around). This mode is recommended for mouse control.

C Speed

Figure 297. Sidepanel – Cursor Mode C Speed

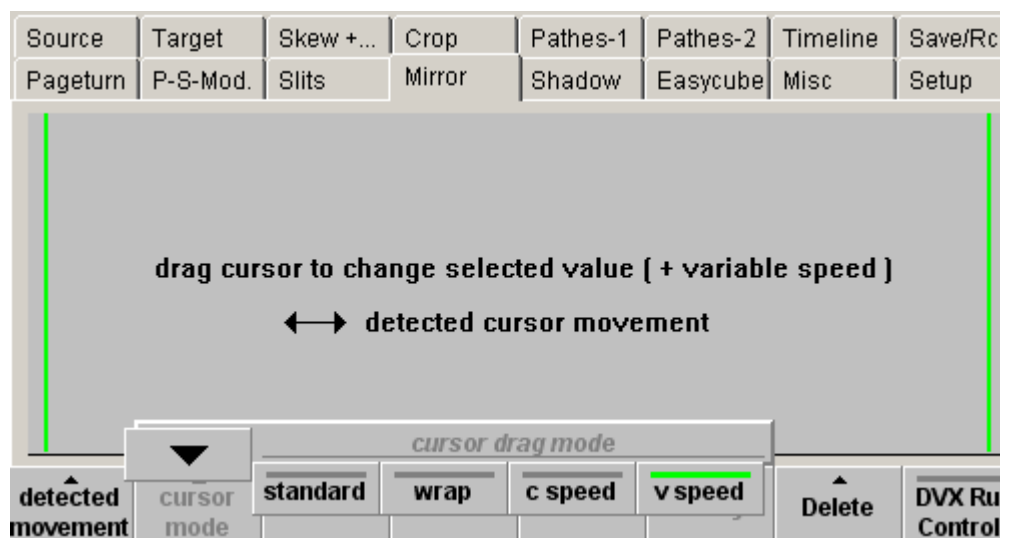


Inside the white lines same behavior as standard mode. When the mouse is outside the white border the value will change with a constant speed.

This mode is recommended for touch screen control.

V Speed

Figure 298. Sidepanel – Cursor Mode V Speed



Inside the green lines same behavior as standard mode. When the mouse is outside the green border the value will change with a variable speed. The speed is high at the top and low at the bottom. This mode is recommended for touch screen control.

Detected Movement

Selection of cursor movement direction horizontal ↔ and vertical ↑.

Figure 299. Selection of Cursor Movement



Editing Controls

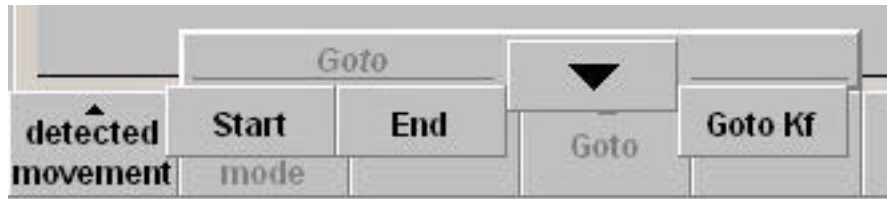
Default – Set **All / Geometric** parameter to default values

Figure 300. Editing Controls - Default



Goto – Navigation inside the timeline. **Goto Start / End / Kf (Keyframe nn)**

Figure 301. Editing Controls - GoTo



Insert – Insert current state as keyframe before (**Kf Before**), or after (**Kf After**), or insert a **Pause** after the last keyframe.

Figure 302. Editing Controls - Insert



Modify – Open the modify dialog

Figure 303. Editing Controls - Modify



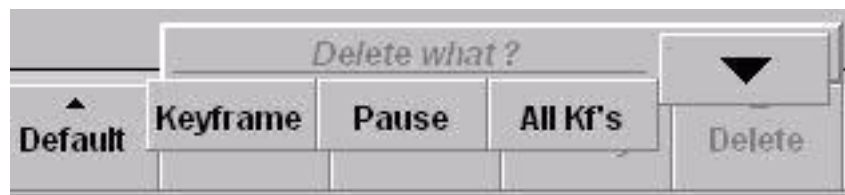
Sel. Kf – Modify the selected keyframe

Selected – Allows numeric input for geometric parameters.

Other commands are not yet supported

Delete

Figure 304. Editing Controls - Delete



- **Keyframe** – Delete the selected keyframe. The total duration of the effect will be reduced by the keyframe duration of the deleted keyframe. If this keyframe is the only one, the values are set to factory default.
- **Pause** – Deletes the selected Pause.
- **All Kf's** – Deletes all keyframes. One keyframe always remains with factory default values.

Run Controls

Motion control buttons for selected effect.

Figure 305. Motion Control Buttons



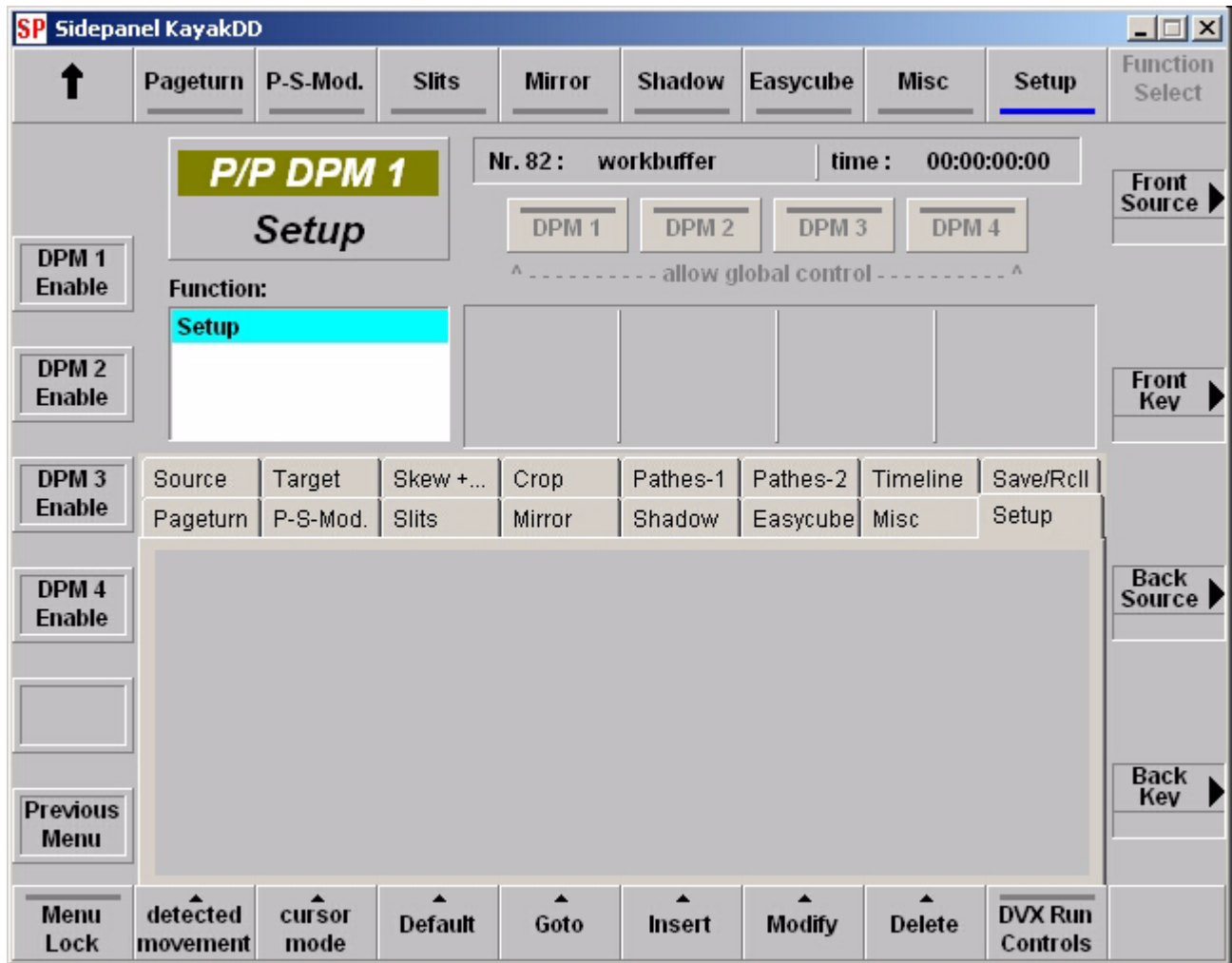
If the **DVX Run Controls** button is activated the buttons to the left change the function and a created effect can be started.

Start	Set effect to begin (first keyframe)
Reverse	Play effect in reverse direction
Pause	Pause effect
Play	Play effect in normal direction
End	Set effect to end (last keyframe)

Setup

This menu is the start menu for building an effect. Channels that are not enabled will not be stored and will not be affected when the register is recalled.

Figure 306. Sidepanel – DPM Edit – Setup Menu

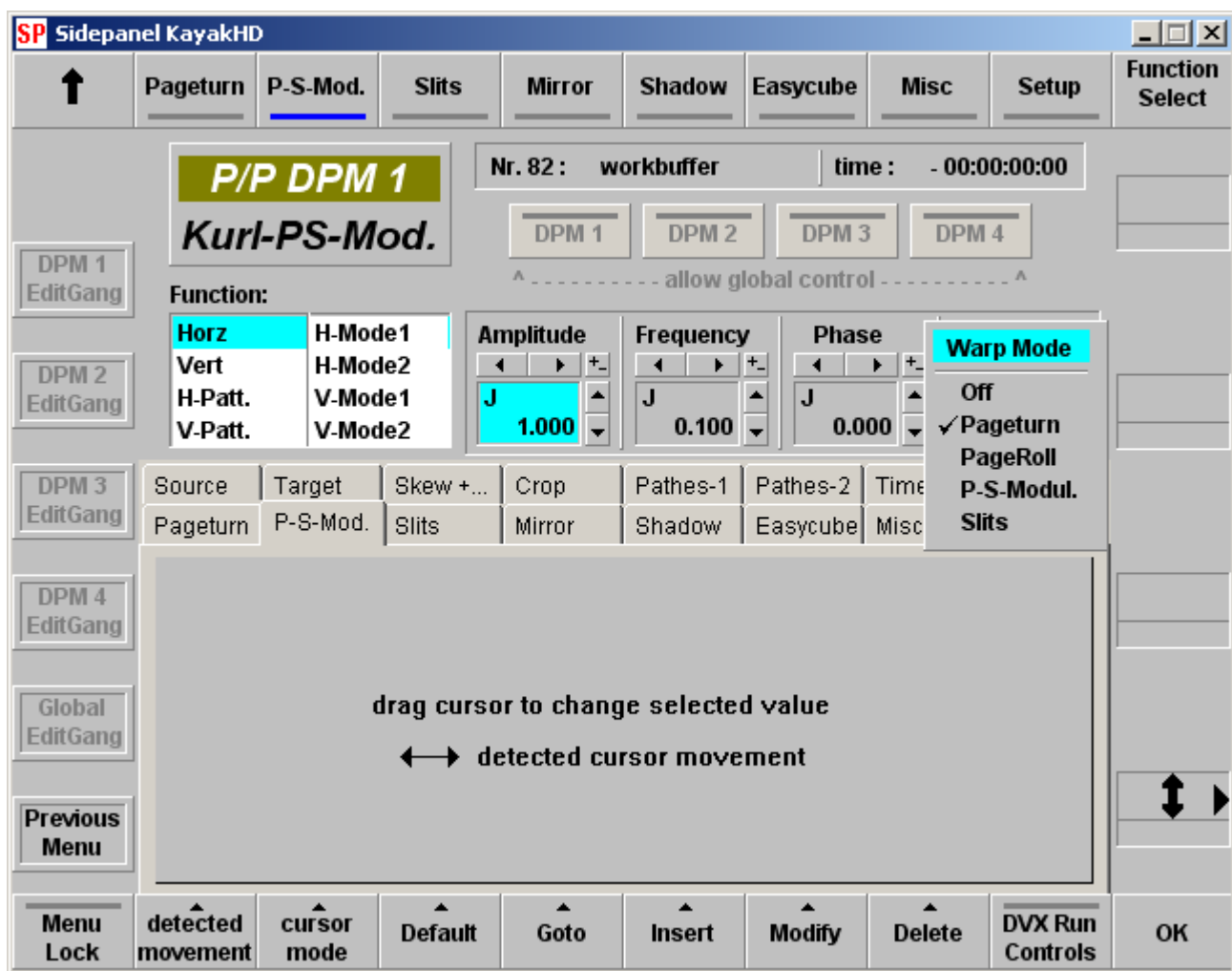


Kurl-PS-Modulation

This menu is used as an example how the different types of parameters are modified. The parameters “Amplitude”, “Frequency”, “Phase” are modified in the way described above, depending on the Cursor Mode. The parameter “Warp Mode” is modified via a popup selection. Most of the menus work in this way. For detailed descriptions of the corresponding parameters please refer to the description in the chapters on *Menu Summaries* on page 145 and *Concepts* on page 29 of this manual.

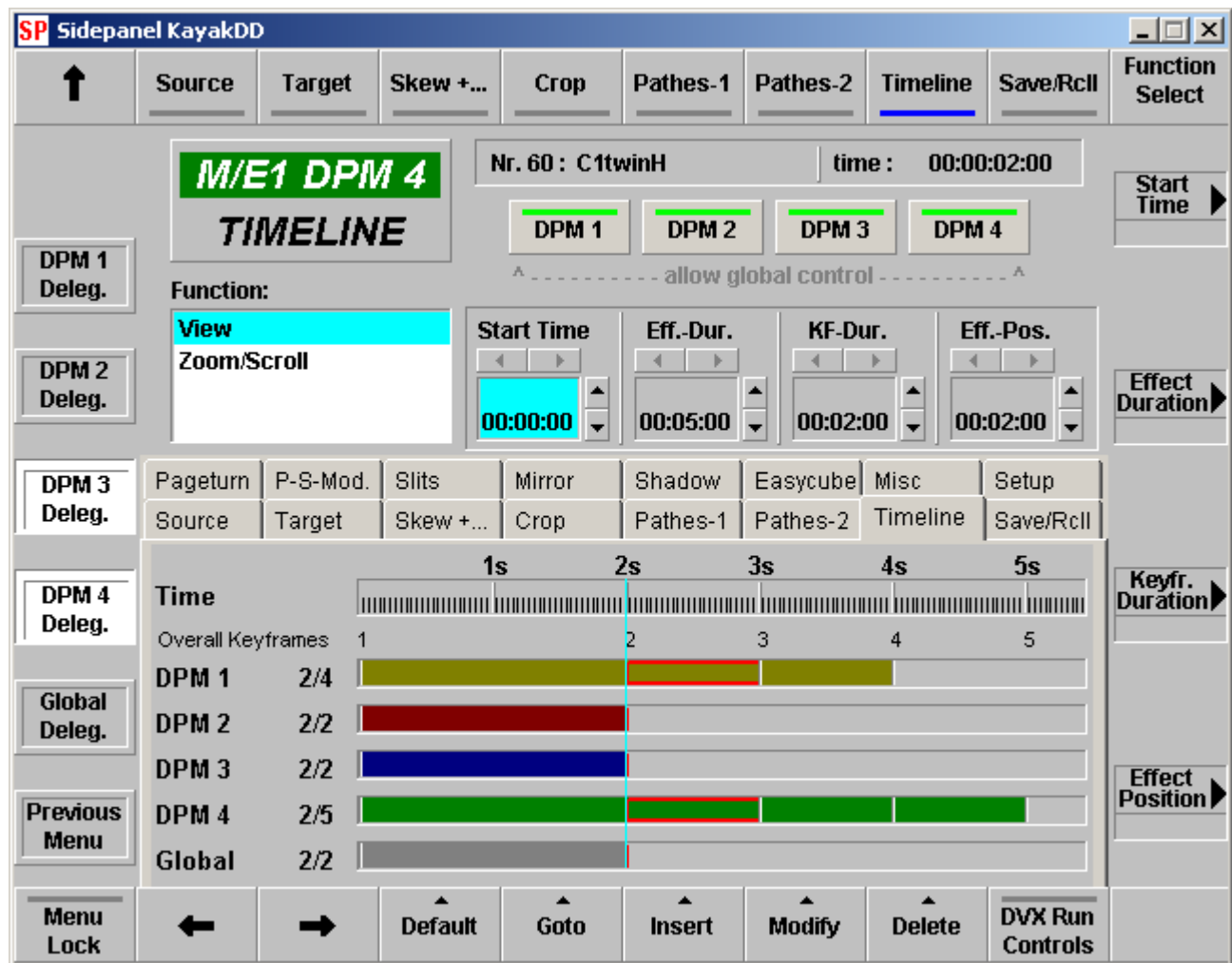
The up and down arrows at the right side of the value display can also be used to change the corresponding values.

Figure 307. Sidepanel – DPM Edit – Kurl PS Modulation Menu



Timeline

Figure 308. Sidepanel – DPM Edit – Timeline Menu



Page View

Start Time	Set timeline offset for selected DPM channel. Via "Modify / Selected" you can enter absolute timecode
Eff-Dur	Set the duration for the total timeline.
KF-Dur	Set the duration for the selected keyframe. Via "Modify / Selected" you can enter absolute timecode
Eff.-Pos	Moves the current position (cursor) in the timeline.

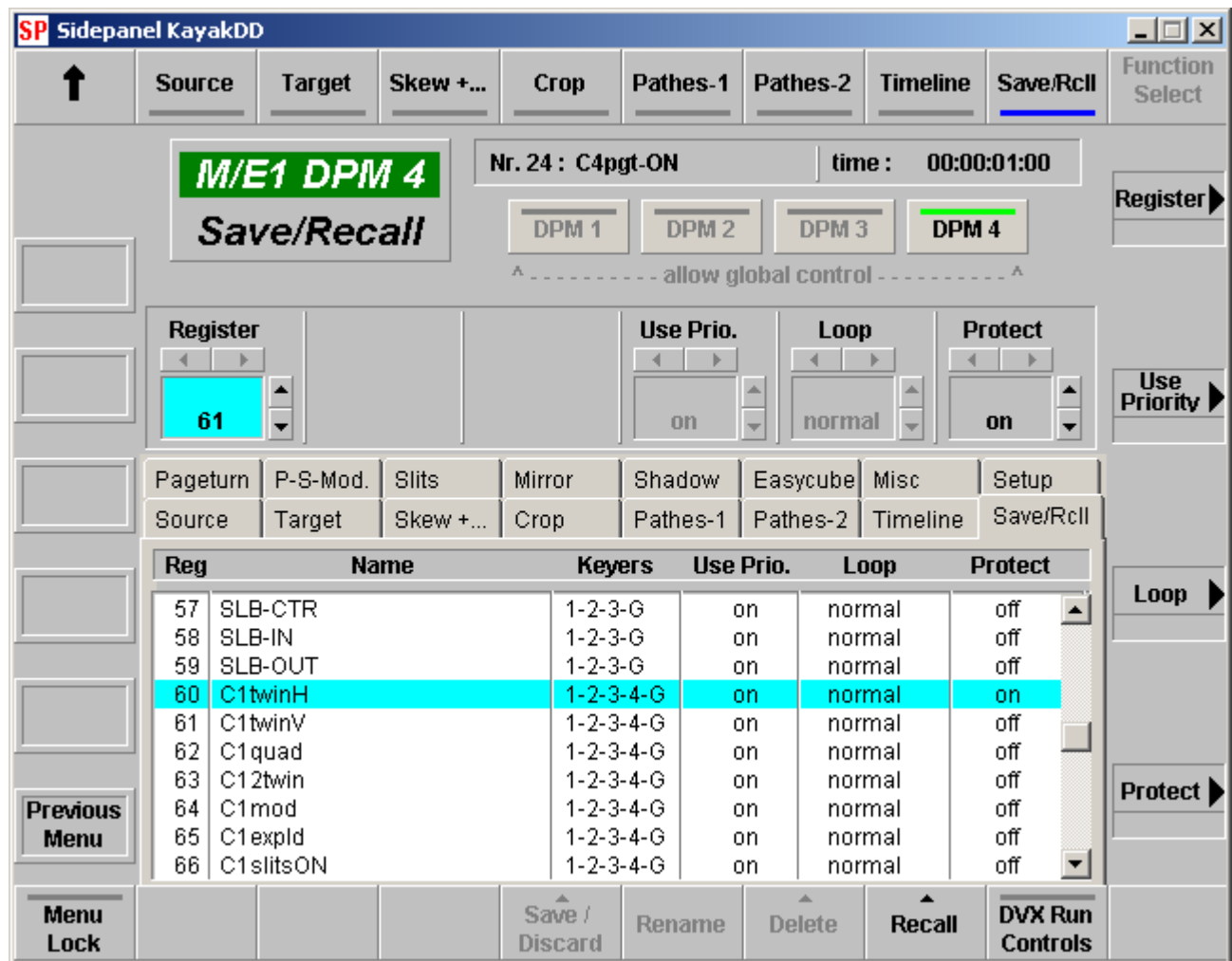
Page Zoom/Scroll

Zoom	Set the zoom window for the display
Scroll	Set the start timecode for the display.
Eff.-Pos	Moves the current position (cursor) in the timeline (same as in "page View")

With the left / right arrow at the bottom you step to the previous / next keyframe.

Save / Recall

Figure 309. Sidepanel – DPM Edit – Save / Recall Menu



Register

Select register for "Save/Discard"

"Rename"

"Delete"

"Recall"

"Use Priority"

"Protect"

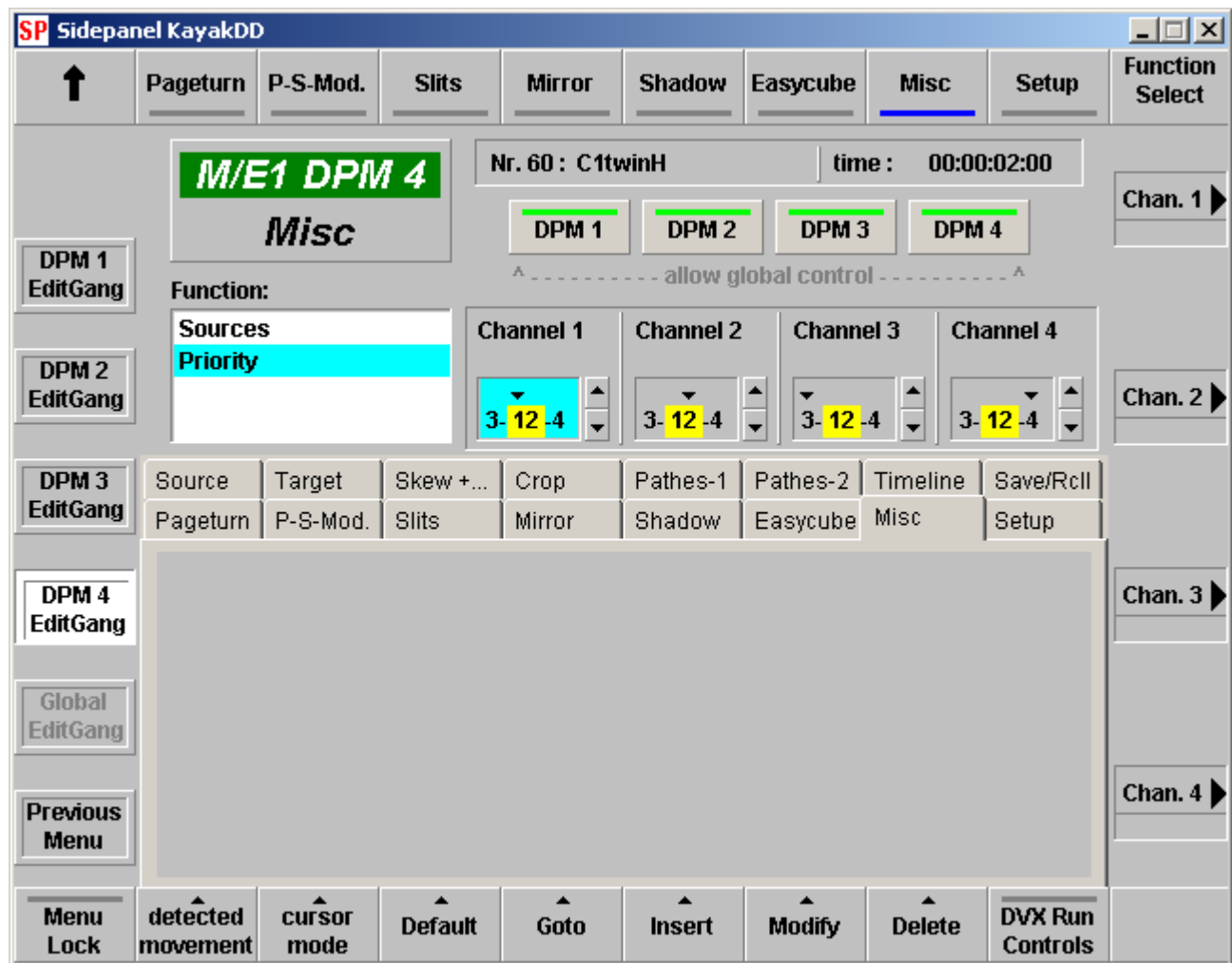
"Loop"

Use Priority	On: The DPM effect turns off the keyer priority of the corresponding M/E: The keyer priority is controlled in the transition section and via E-MEM.
Protect	On: Register cannot be saved, renamed, or deleted. Off: All operations are allowed.
Loop	Normal: Effect runs once. Loop: Effect runs endlessly, always in forward play. When the end is reached, it jumps to the beginning. Bounce: Effect runs endlessly, when the end is reached, it runs in reverse to the start, bouncing always between start and end.

In the listbox per effect the involved keyers are listed.

Misc / Priority

Figure 310. Sidepanel – DPM Edit – Misc Menu



Channel 1

Set the keyer priority for channel 1.

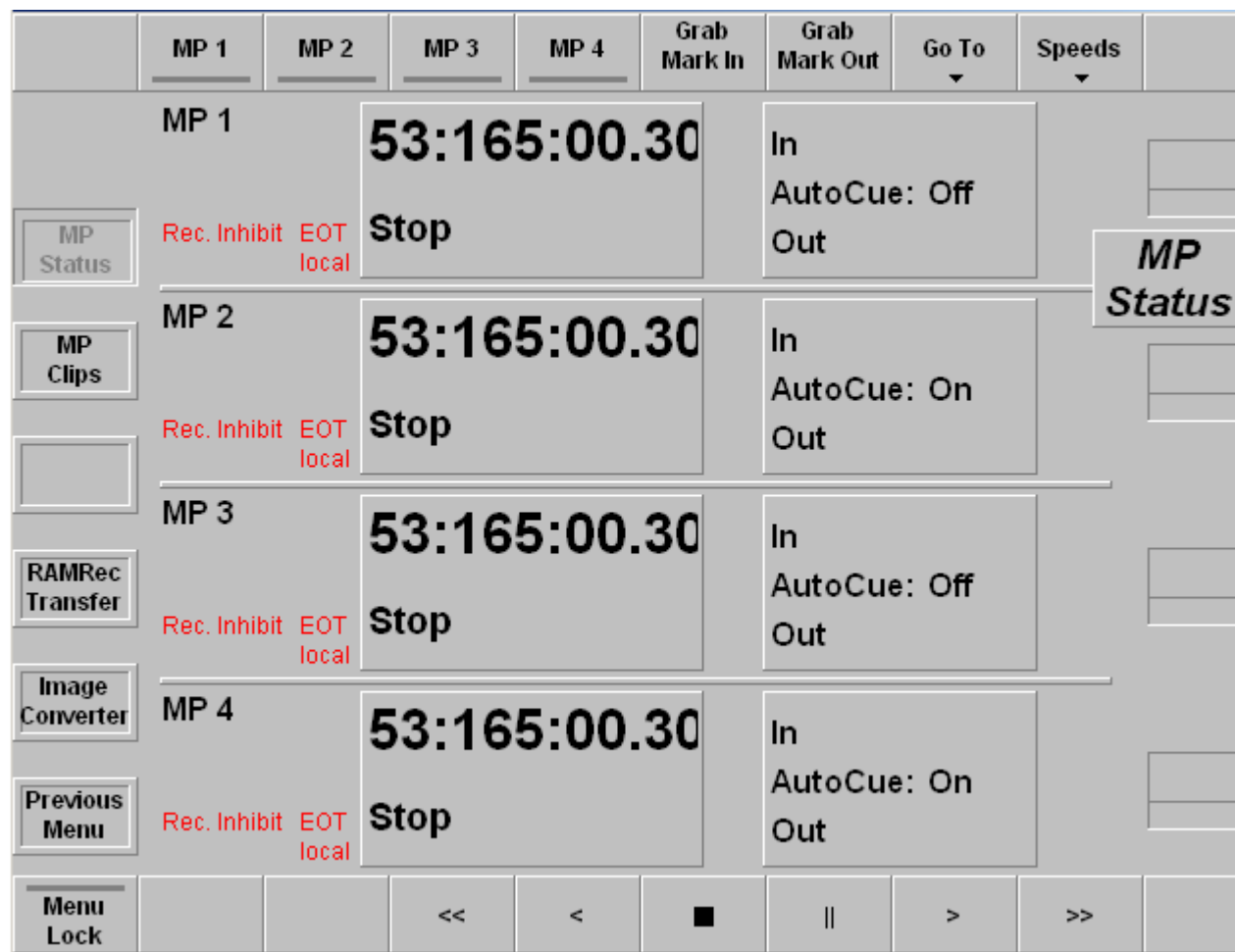
- If the channel priority is lower than another channels, the channel number ("1") is left of the other numbers, separated by a dash ("–").
- If the channel has z–priority with other channels, these channels are not separated by a dash and highlighted with yellow background.

Example: 3 – 12 – 4

This means: Channel 3 has the lowest priority, channel 1 and 2 are together in one group of z–priority, but this group has always a higher priority than channel 3 and a lower priority than channel 4Media Player Menu

MP Status Menu

Figure 311. Sidepanel – Media Player Status Menu



The **Status** menu shows the status of up to four Media Players defined in the **Install / EBox / Machine** menu.

Display:

- Timecode
- In mark
- Out mark
- VTR operation mode (Play, Stop, Rewind, ...)

Note Dropframe is indicated in the MediaPool format. In the example 01:23:12.06 the last colon is replaced by a dot in the case of a drop frame.

Dialog Buttons

MP Status

Selecting the Media Player Status menu.

MP Clips

Selecting the Media Player Clip menu.

RAM Recorder Transfer

Selecting the internal RAM Recorder menu.

Image Converter

Selecting the internal Image Converter menu.

MP1 - MP2 - MP3 - MP4

Selecting the desired machines

Grab Mark In

Current timecode value of the selected machine is stored as Mark In.

Grab Mark Out

Current timecode value of the selected machine is stored as Mark Out.

Go To

Selected machine go to Mark In (Marc Out)

Speeds

Selecting of the speed control:

Var - Variable speed control with Digipot and Fader

Jog - Jogging control with Digipot and Trackball

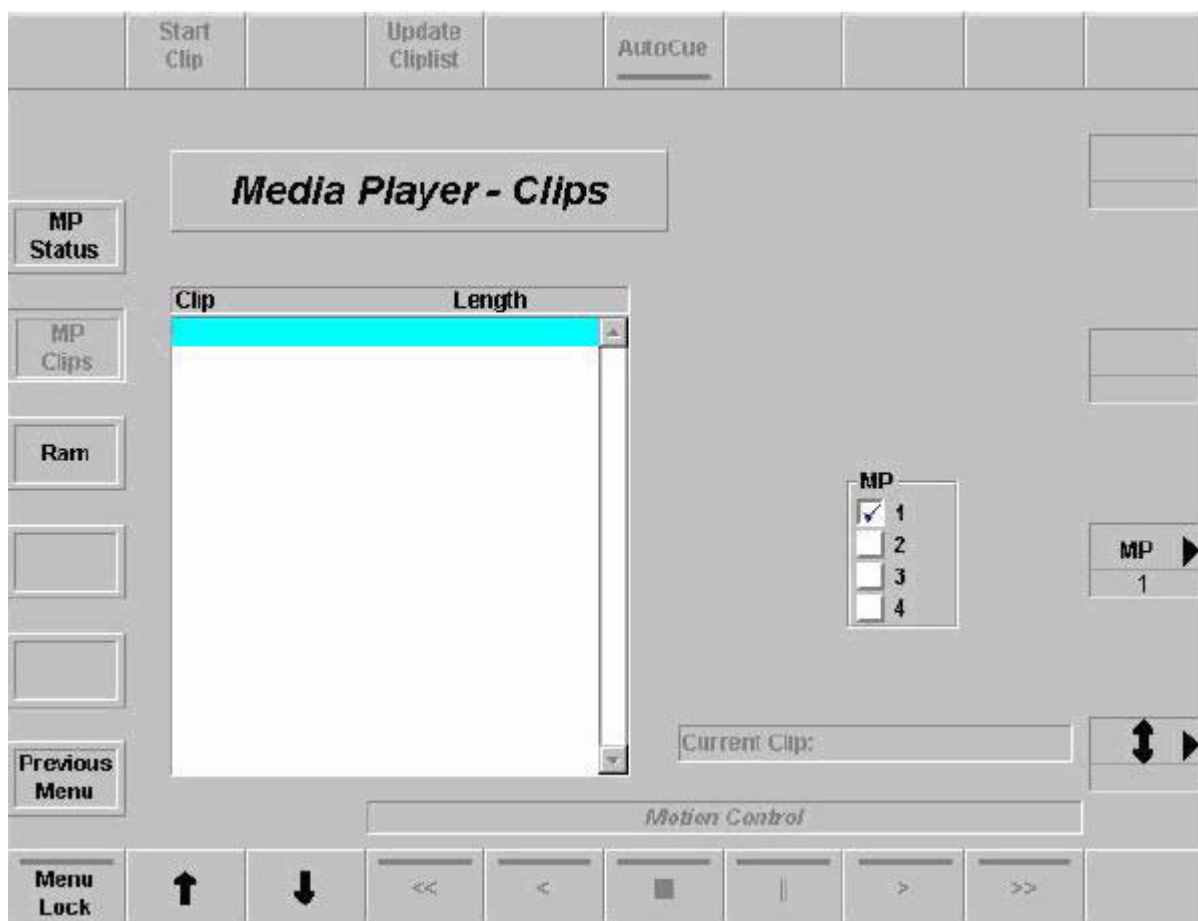
Shuttle - Shuttle control with Digipot and Fader

Motion control buttons available

Fast rewind, Play reverse, Stop, Pause, Play forward, Fast forward

Media Player Clip Menu

Figure 312. Sidepanel – Media Player Clip Menu



The Media Player Clip menu serves the drive control at VTR. For this purpose, the buttons in the Motion Control are provided. In addition, in this menu the clips list from a Media Server (e.g. MediaPool, EDIFIES) can be displayed.

Function Buttons

Start Clip

Load the chosen clip from the Media Server

Update Cliplist

Update Clip list requests a table of contents of all clips of the Media Server. This procedure may take some time.

Autocue

Selected machine jumps to the stored timecode value.

Motion control buttons

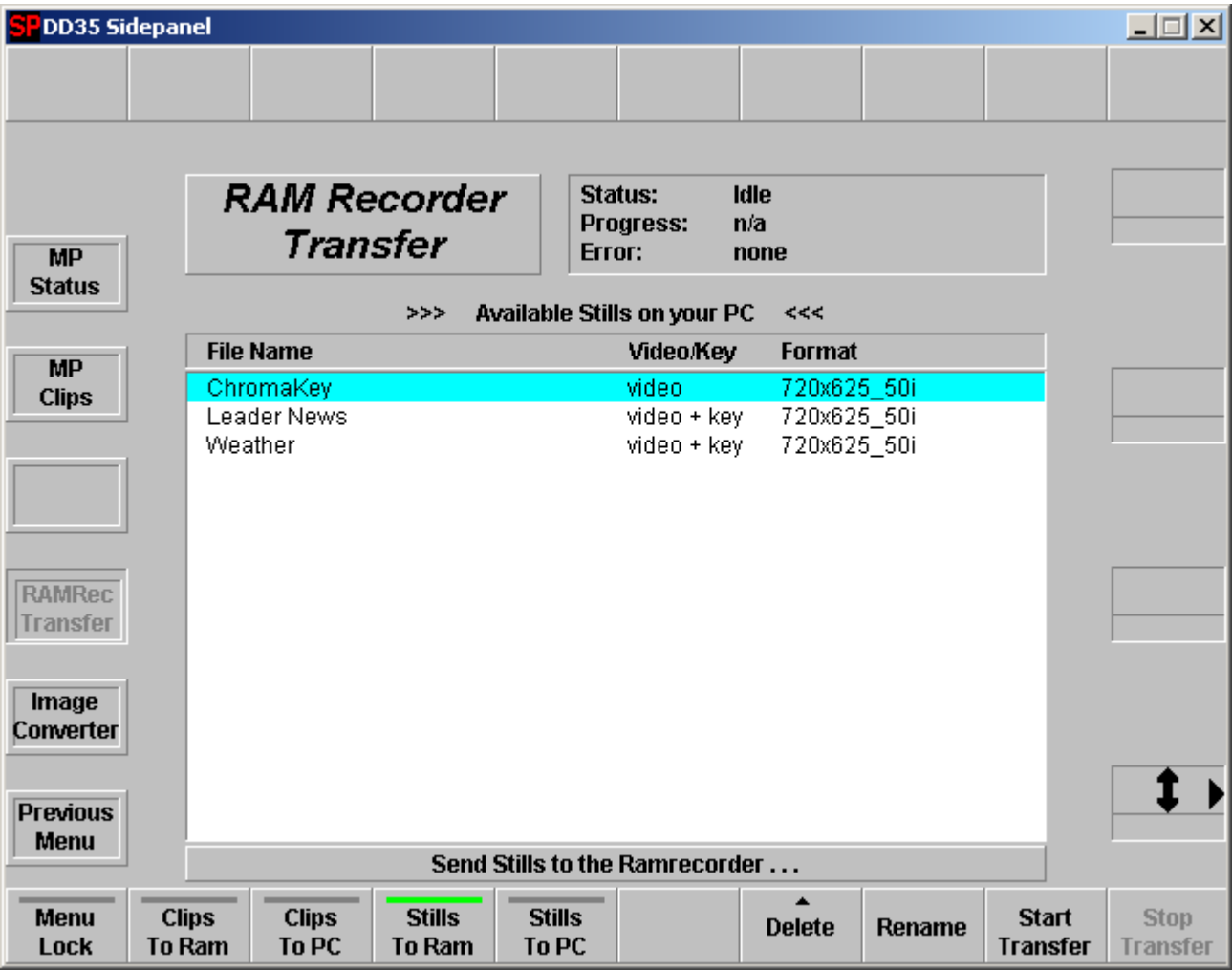
- Fast rewind
- Play reverse
- Stop
- Pause
- Play forward
- Fast forward

RAM Recorder Transfer Menu

The RAM Recorder Transfer menu allows the user to transfer images to and from the RAM Recorder.

Clips To RAM

Figure 313. RAM Recorder - Transfer



The list of available clips (video, key or video+key) is displayed from the directory path

```
c:\Programme\DD35\ramrec
```

- Delete** Deletes the selected clip on your hard disk
- Rename** Renames the selected clip on your hard disk

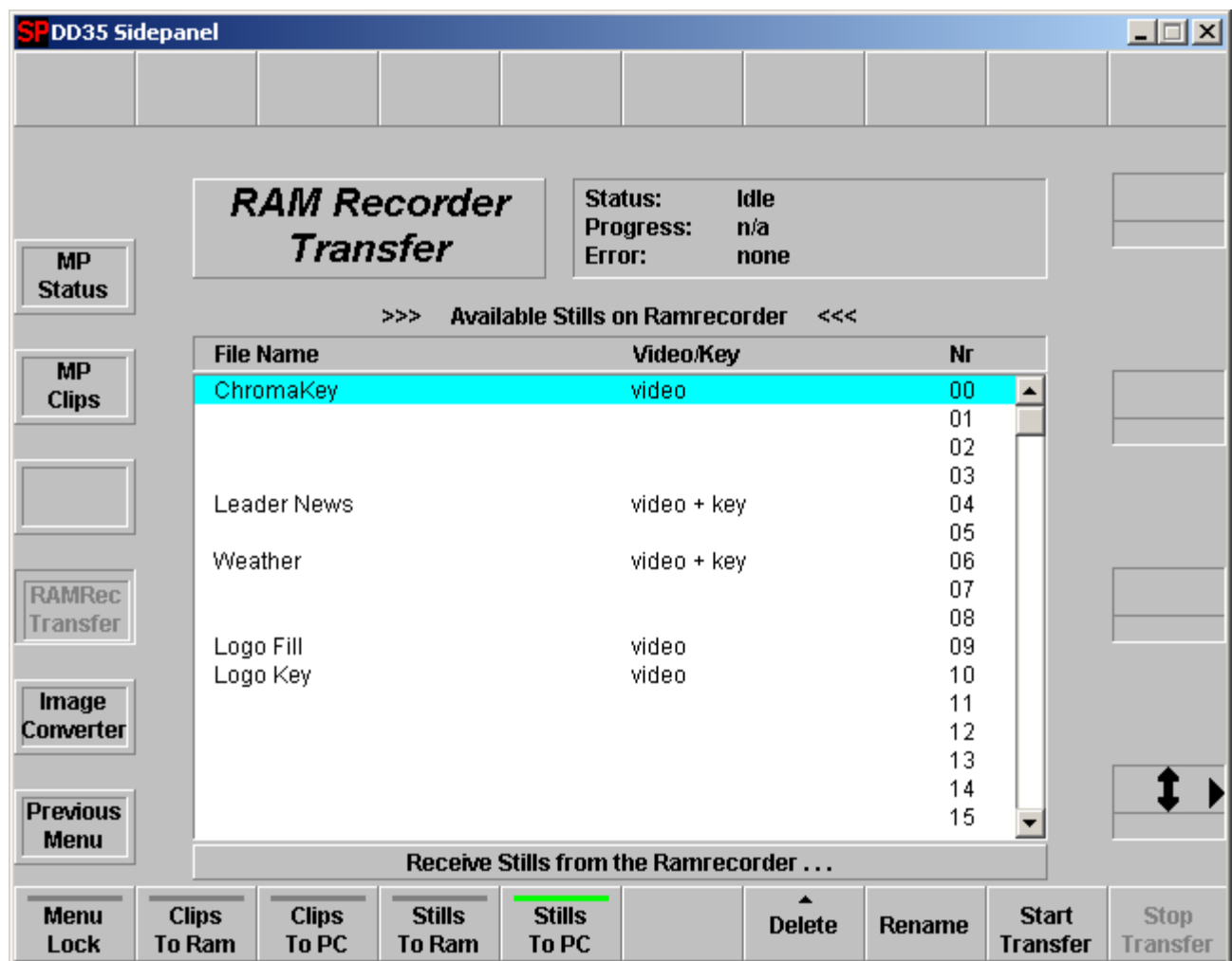
Start Transfer

Starts the file transfer of the selected clip to the RAM Recorder.

Before the transfer a typewriter pops up to allow you to change the name of the clip. A total length of 31 characters is allowed for clip names of the RAM Recorder

Clips To PC

Figure 314. RAM Recorder - Transfer

**Delete**

Deletes the selected clip on the RAM Recorder (in current software release enabled)

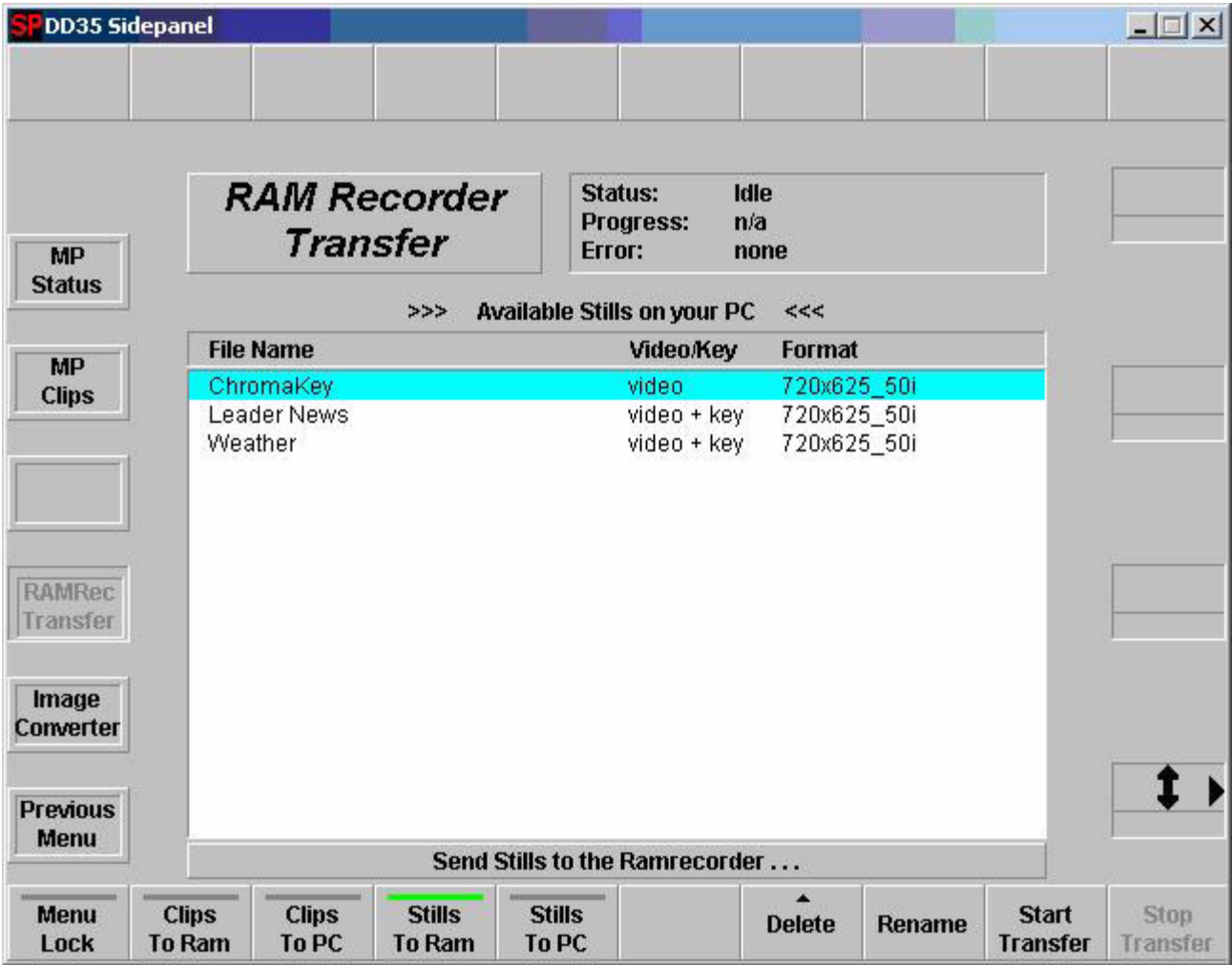
Rename

Renames the selected clip on the RAM Recorder (not yet supported)

Start Transfer Starts the file transfer of the selected clip to the RAM Recorder. Before the transfer a typewriter pops up to allow you to change the name of the clip.

Stills To Ram

Figure 315. RAM Recorder - Transfer



The list of available clips is displayed from the directory path:

c:\Programme\DD35\ramrecStills

Delete Deletes the selected still on your hard disk

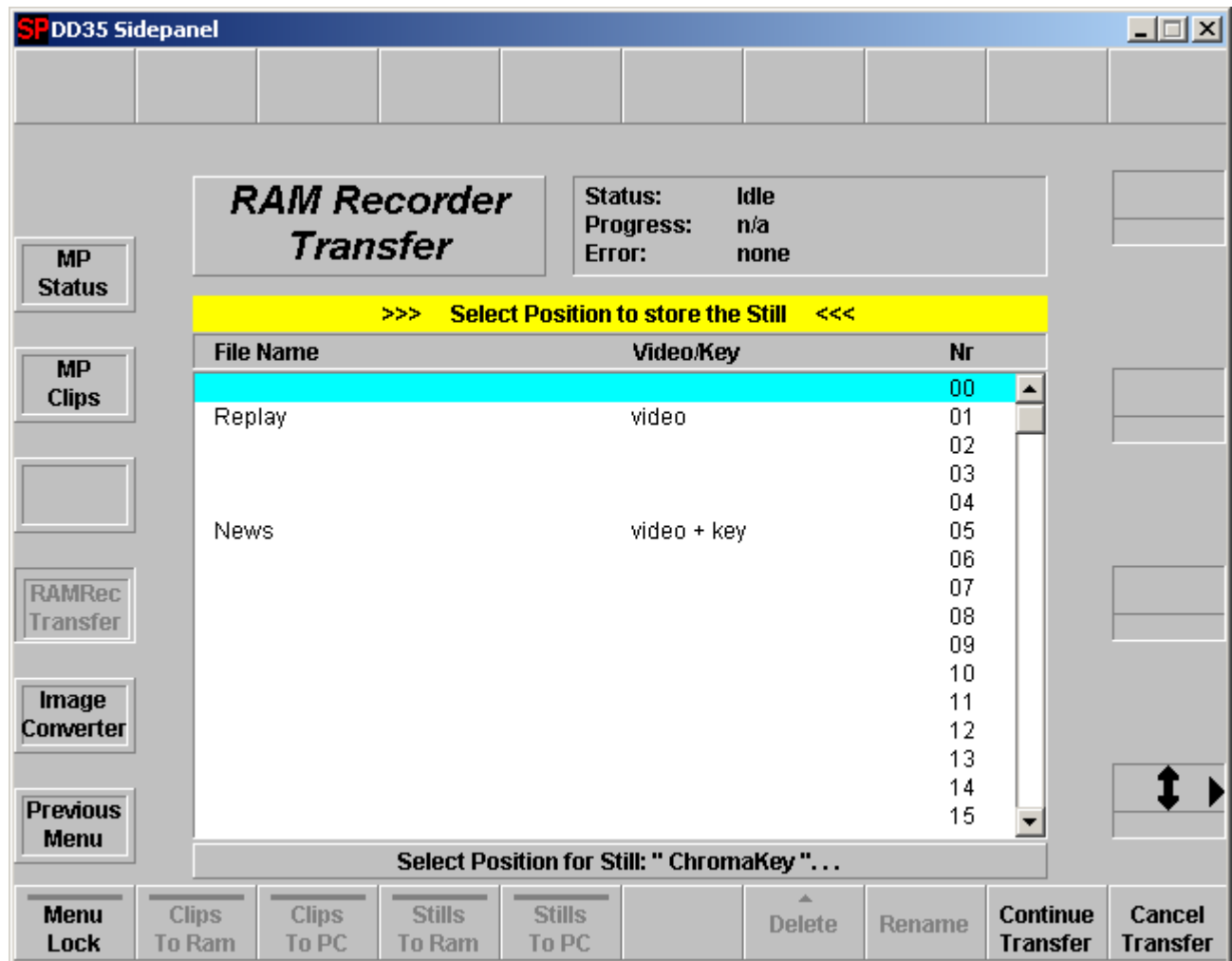
Rename Renames the selected still on your hard disk

Start Transfer

Starts the file transfer of the selected still to the RAM Recorder. Before the transfer a typewriter pops up to allow you to change the name of the still. A total length of 31 characters is allowed for still names of the RAM Recorder. Before the actual transfer starts you have to select the memory position you want to send the still to. (See next page)

Selection of the Memory Position for the Still to be Transferred

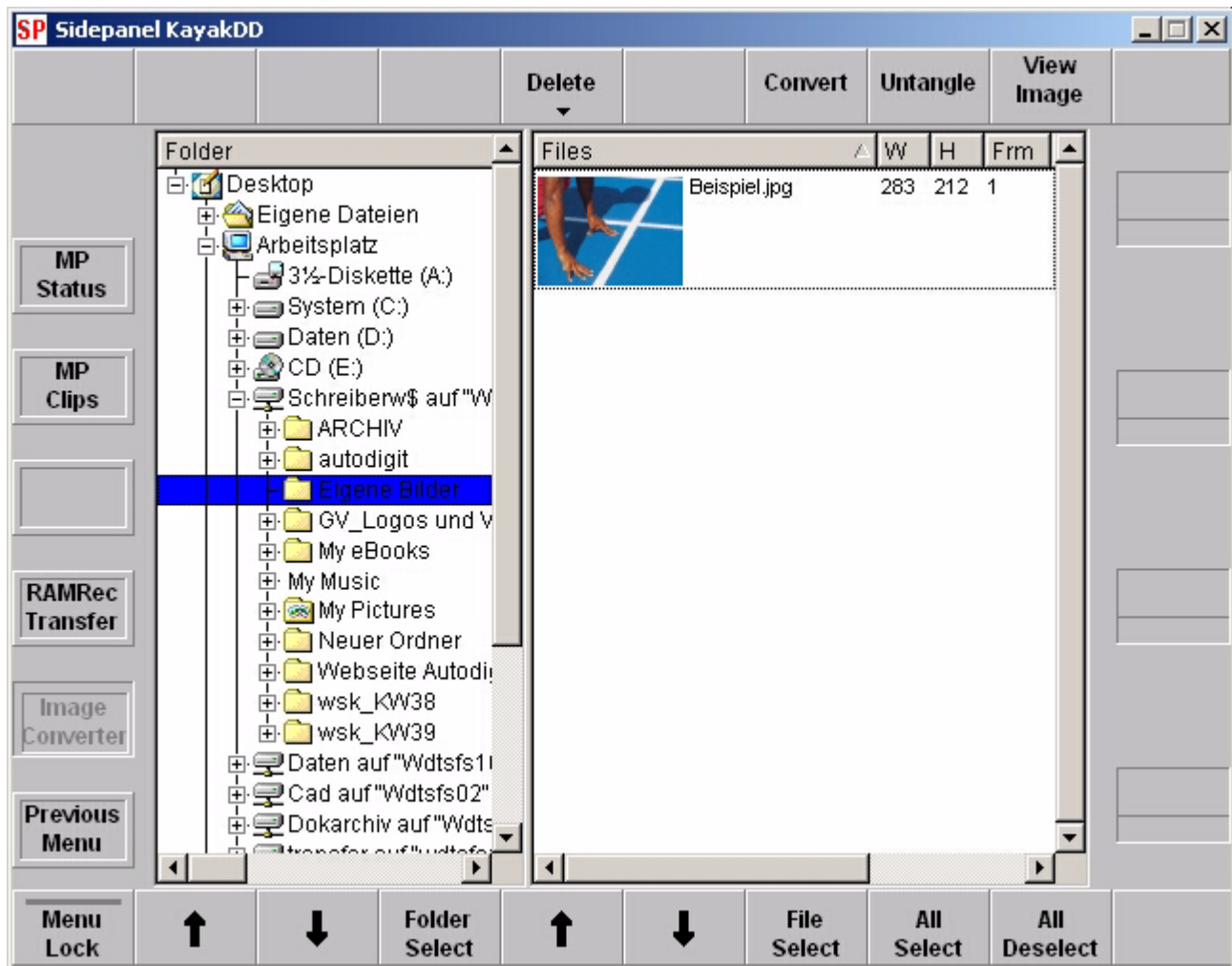
Figure 316. RAM Recorder - Transfer



Select a position and press **Continue Transfer** to start the actual transfer.

Image Converter Menu

Figure 317. RAM Recorder – Image Converter



The Image Converter is started with a browser. The left window shows the folders displayed as icons and the right window lists the files contained within the selected folder.

1. Double-click to select and open a folder.
2. Select a file to be converted with a left mouse click. You can select more than one file by using the right mouse key.

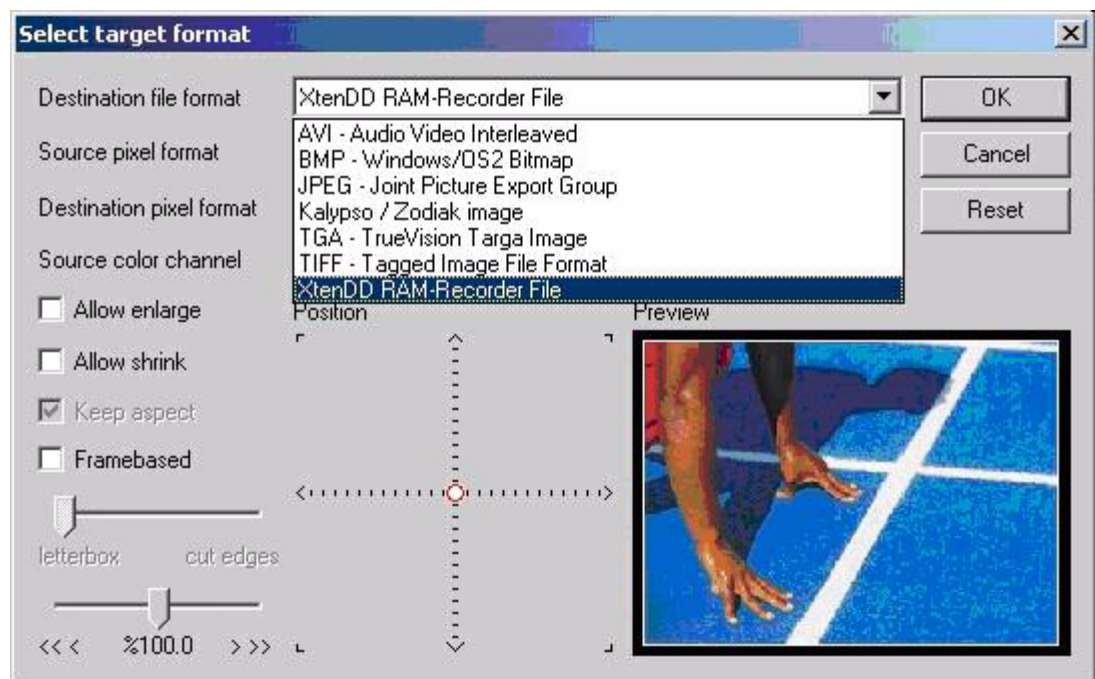
Note When converting, the associated filter is started and one single sequence is created from the individual files. The picture order in the sequence is determined by the order of the selected files.

Select Destination Format

Activating the **Convert** button opens a dialog window for the detail adjustments. The following picture formats can be converted among each other:

AVI	Audio Video Interleaved
BMP	Windows/OS2 Bitmap
JPG	Joint Picture Expert Group
TGA	TrueVision Targa Image
TIFF	Tagged Image File Format
XTENDD	RAM Recorder File

Figure 318. RAM Recorder – Image Converter – Select Target Format



Output File Name:

The name of the exit file has to be entered in a dialog box. The file extension is added automatically depending on destination pixel format. In general, the entered file name will be enlarged with a three-digit number to generate different file names if a sequence will be converted to single images.

Converting in AVI Format:

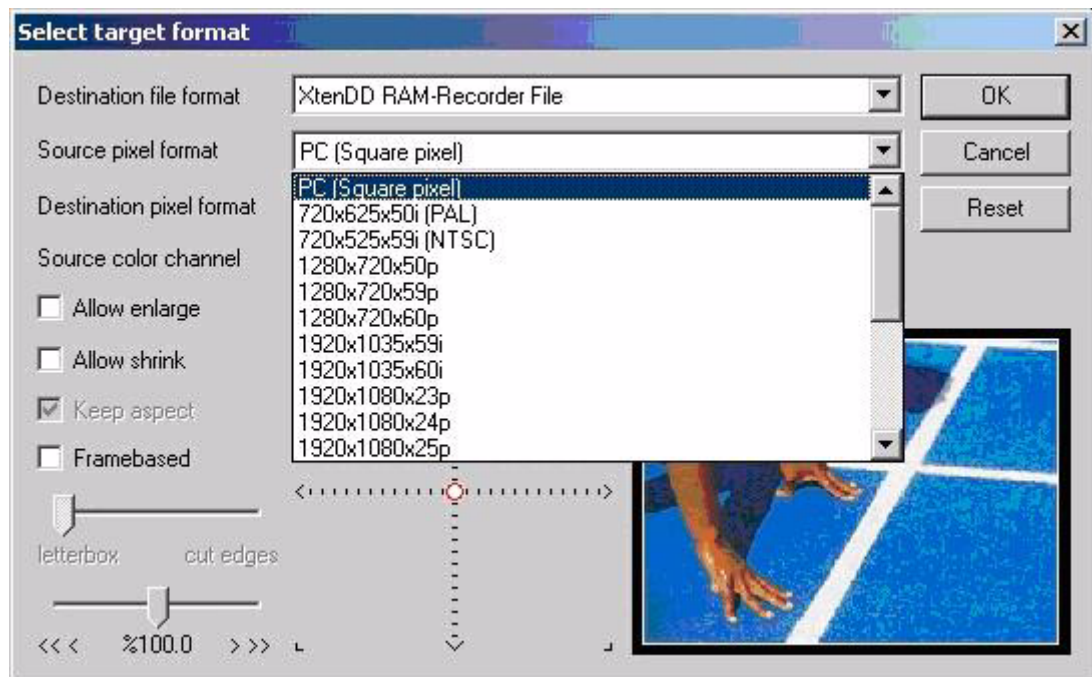
If AVI as target format is selected, a Codec dialog window appears. Select one of the listed Codec and close the dialog with OK.

Note If the dialog is canceled, an empty file will be generated.

Source Pixel Format

Touching the **Convert** button opens a dialog window for detail adjustments. The following Source Pixel formats can be adjusted:

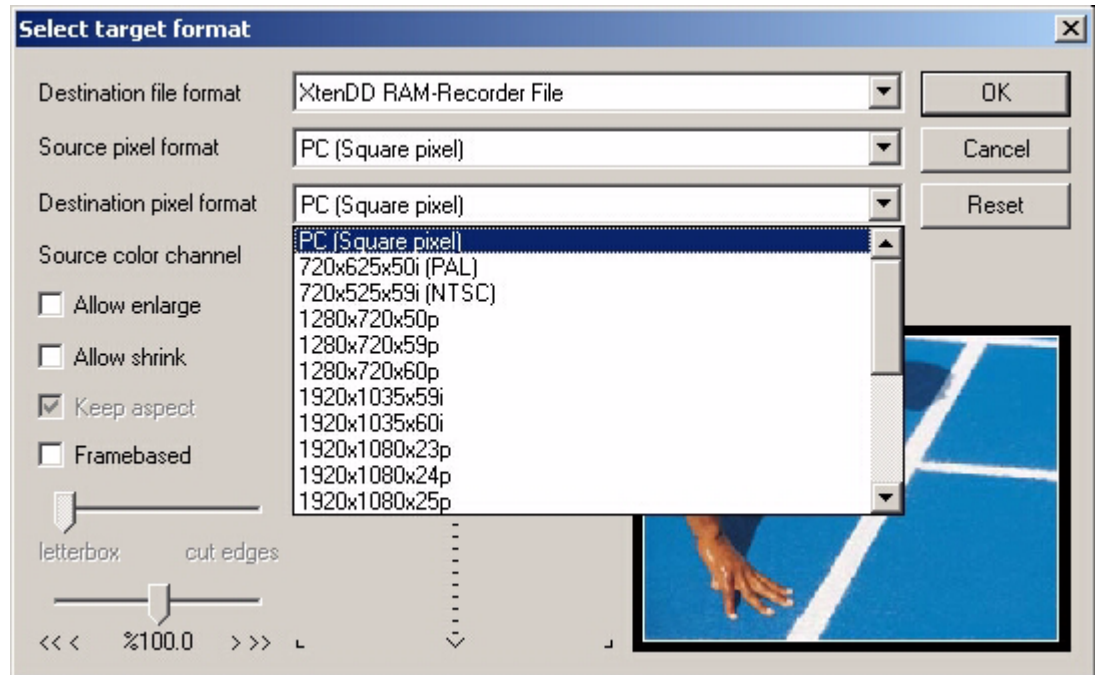
Figure 319. RAM Recorder – Image Converter – Source Pixel Format



Destination Pixel Format

Actuating the **Convert** button opens a dialog window for the detail adjustments. The following destination pixel formats can be adjusted:

Figure 320. RAM Recorder – Image Converter – Destination Pixel Format



If the source and destination pixel format is different, the image is resized to maintain the aspect ration of the image content.

- If PC as destination pixel format is selected, the first picture to be converted determines the picture format of the destination file.
- If a TV format is selected as destination pixel format is selected, the destination file is coupled with TV format.

Converting Size, Positioning, and Preview

Having selected the conversion parameters, you may have a look at the format in the Preview window. The red frame shows the outer edge of the picture (TV format only) to be converted and the white frame shows the limits of the picture screen after conversion.

The switches **Allow enlarge**, **Allow shrink**, **Keep aspect** and the controls located below enable adjusting and locating the desired picture section.

If PC is selected as destination pixel format, only the “size” control (<<< xx% >>>) is active.

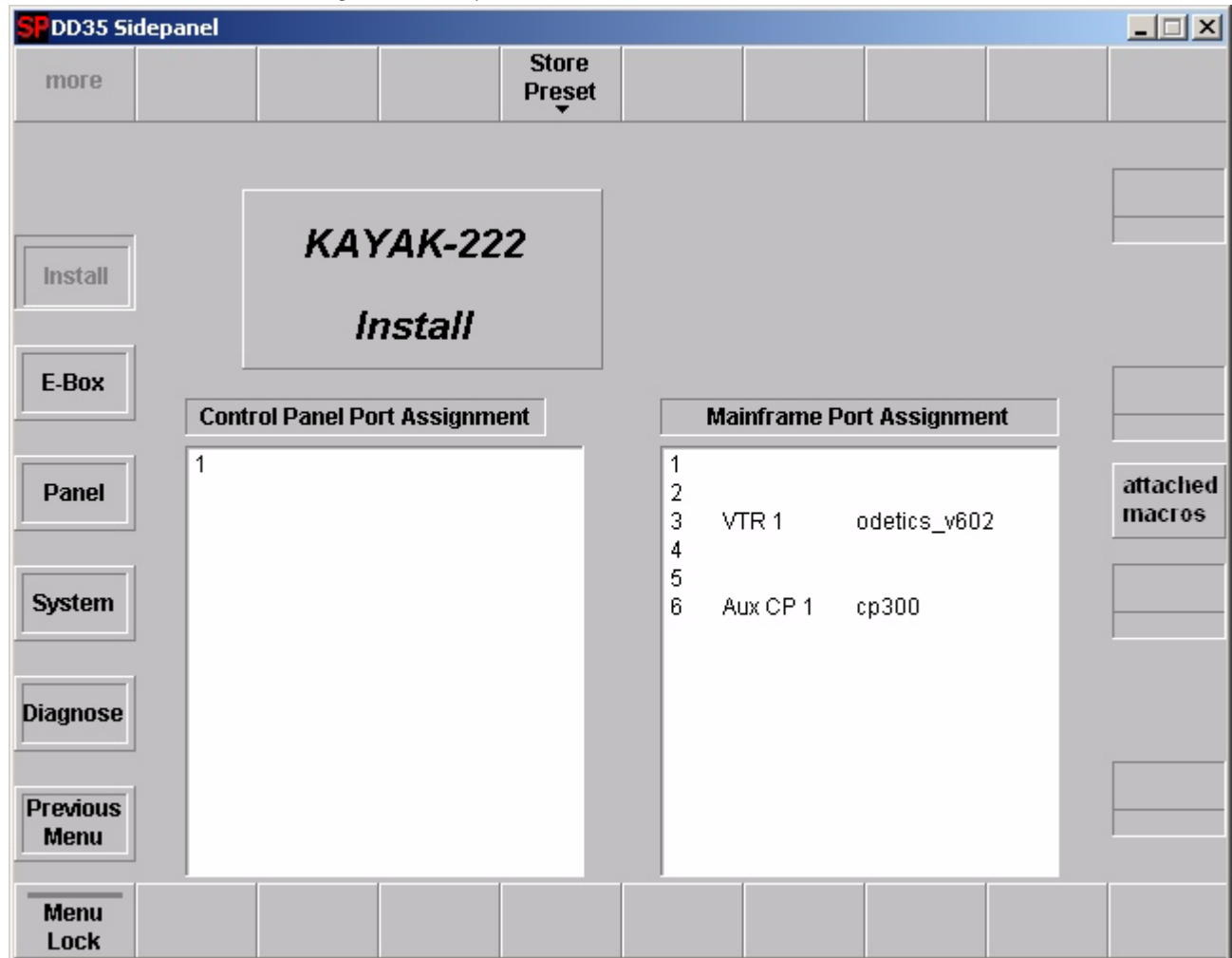
Untangle

The Untangle feature can be used for clips. Selecting the function cuts a clip in single frames.

Installation Menu

Install Main Menu

Figure 321. Sidepanel – Install Main Menu



Main menu with displays of the current control panel and mainframe port assignment.

Saving Operation Preset Data

Saving operation data as user-defined preset is possible with the button **Store Preset** in the Install / E-Box menu.

Figure 322. Install E-Box Menu Store Preset Button

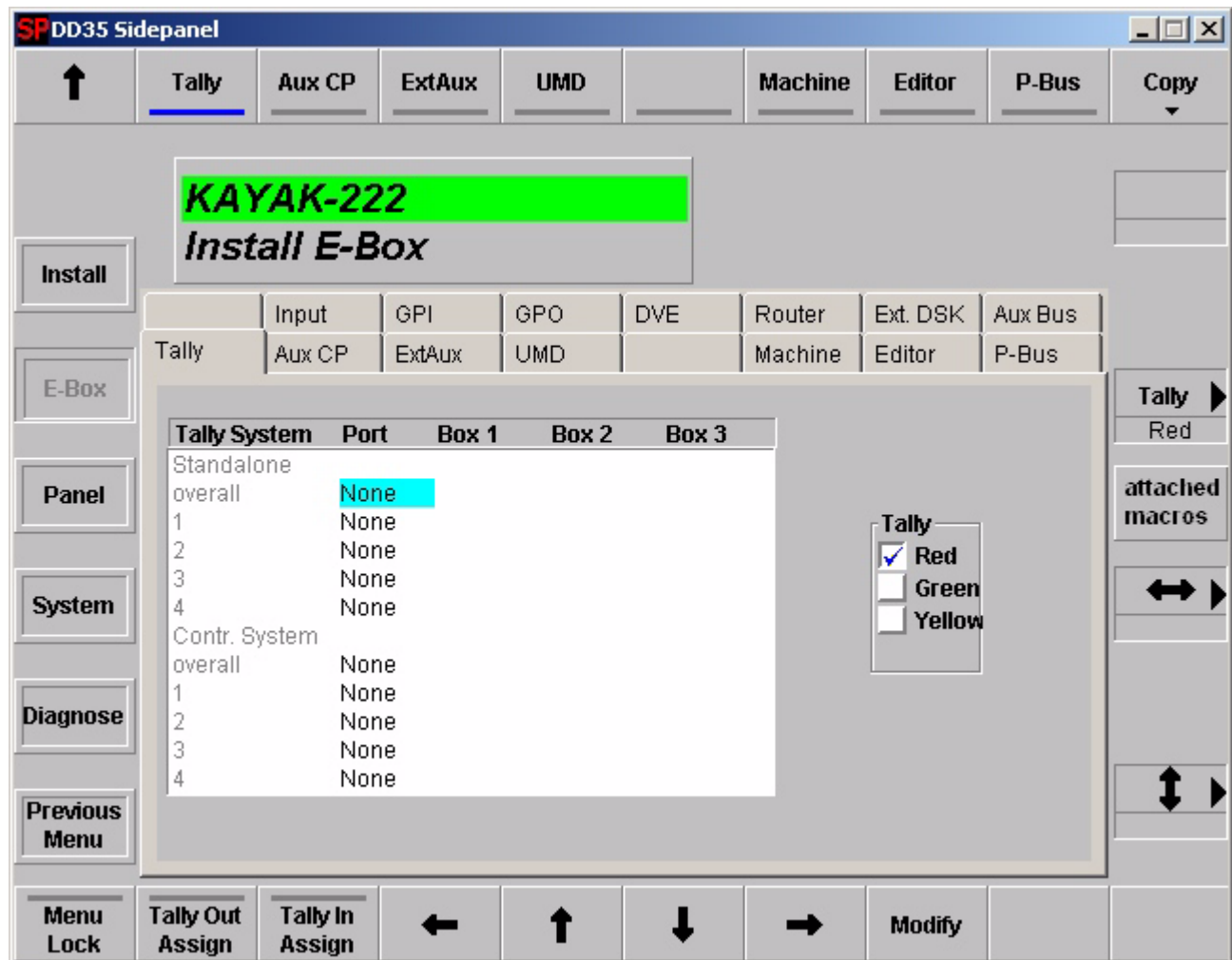


OK - The complete mainframe operational setting is saved as to be the new Operational Preset setting.

Cancel - Cancels the save procedure.

Install E-Box Menu

Figure 323. Sidepanel – Install E-Box Menu

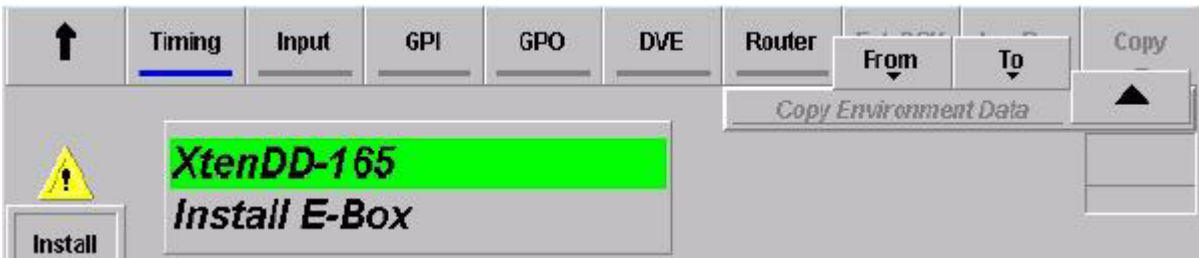


Function Buttons / Index Cards

Copy

With the softkey Copy it is possible to store or load the files ENVIRON.INI and License.txt (E-Box) or ENVIR_CP.INI (panel) from a floppy disk or hard disk.

Figure 324. Copy Function Button



CAUTION After loading the environment file, the switcher will reset.

Input

Index card for setting the input name transfer parameters and the Software patch Panel.

Figure 325. Sidepanel – Index Card Copy

Tally	Aux CP	ExtAux	UMD		Machine	Editor	P-Bus
	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus
Subst. Table none							
	Patched to	Ext. Name	Router Output	Router Level	Event Preroll	Event	
1 IN01	1	No	0	0	0	none	
2 IN02	2	No	0	0	0	none	
3 IN03	3	No	0	0	0	none	
4 IN04	4	No	0	0	0	none	
5 IN05	5	No	0	0	0	none	
6 IN06	6	No	0	0	0	none	
7 IN07	7	No	0	0	0	none	
8 IN08	8	No	0	0	0	none	
9 IN09	9	No	0	0	0	none	
10 IN10	10	No	0	0	0	none	
select the "Event" column to display the complete command							

ext. Name: Enable / Disable the name transfer mode with Yes/No

Patched to: Option “Software Patch Panel”:
Software License Key is required.
With the buttons **Reset Patch Panel** and **Patch Panel On/Off** the settings can be activated or reset.

Router Output: Select the router output channel

Router Level: Select the level of the routing system (e.g. Prosan router)

GPO Preroll: in preparation

Subst. Table: None / SUBSTAB1 ... 15

Selecting a substitution table.

Refer also to the **Config / Panel / SubstTab** menu.

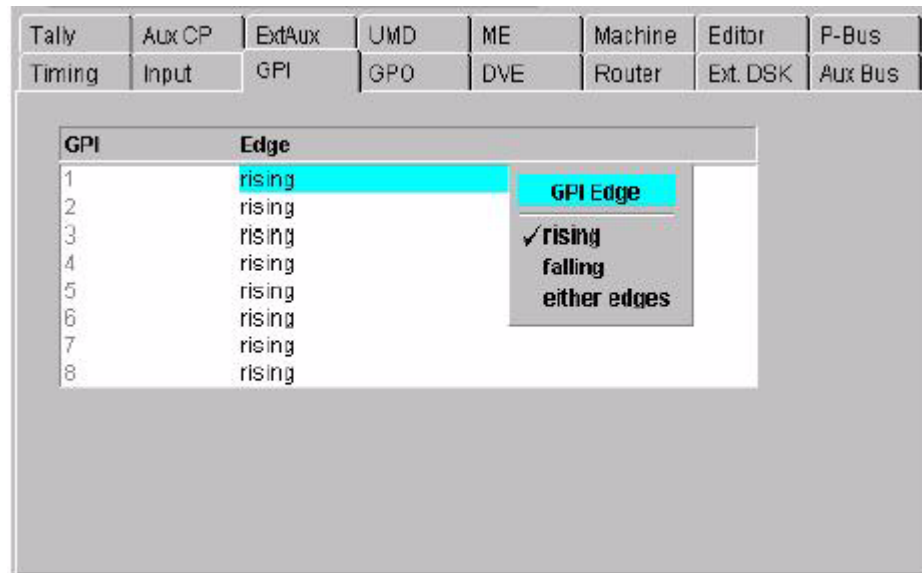
The substitution tables are used for Simulcast mode.

This entry in this index card can only be modified if in the sidepanel PC's registry the value "USERINTERFACE / INPUT_SUBSTAB_SELECTABLE is set to "1".

GPI

Index card for modifying the GPI parameters.

Figure 326. Sidepanel – Index Card GPI



Select Modify to determine whether the rising or falling edge of the arriving signal (GPI 1 ... 8) is to be used.

A GPI is considered Active when current flows through the LED of the opto-coupler at the GPI input. When no current flows the GPI is Inactive. Hence a Rising edge is the transition from Inactive to Active, and a Falling edge is the transition from Active to Inactive.

GPO

Index card for selecting and modifying the 32 GPO parameters.

Figure 327. Sidepanel – Index Card GPO

Tally	Aux CP	ExtAux	UMD		Machine	Editor	P-Bus
	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus

GPO	Name	Shape	Idle State	Pulse Duration [Fields]
GPO1G		Static	Open	2
GPO2G		Pulse	Open	2
GPO3G		Pulse	Open	2
GPO4G		Pulse	Open	2
GPO5G		Pulse	Open	2
GPO6G		Pulse	Open	2
GPO7G		Pulse	Open	2
GPO8G		Pulse	Open	2
GPO9G		Pulse	Open	2
GPO10		Pulse	Open	2
GPO11		Pulse	Open	2
GPO12		Pulse	Open	2
GPO13		Pulse	Open	2

Select Modify to change the parameters:

Shape: Pulse / Static

Idle State: Open / Closed

Pulse Duration: Enter the preroll time in frames (max 255 frames)

Attached to: Assign a fixed video source to the 32 GPI channel

DVE

Index card for selecting and modifying the DVE parameters.

Figure 328. Sidepanel – Index Card DVE

Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus
Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus

GPI	Edge
1	rising
2	rising
3	rising
4	rising
5	rising
6	rising
7	rising
8	rising

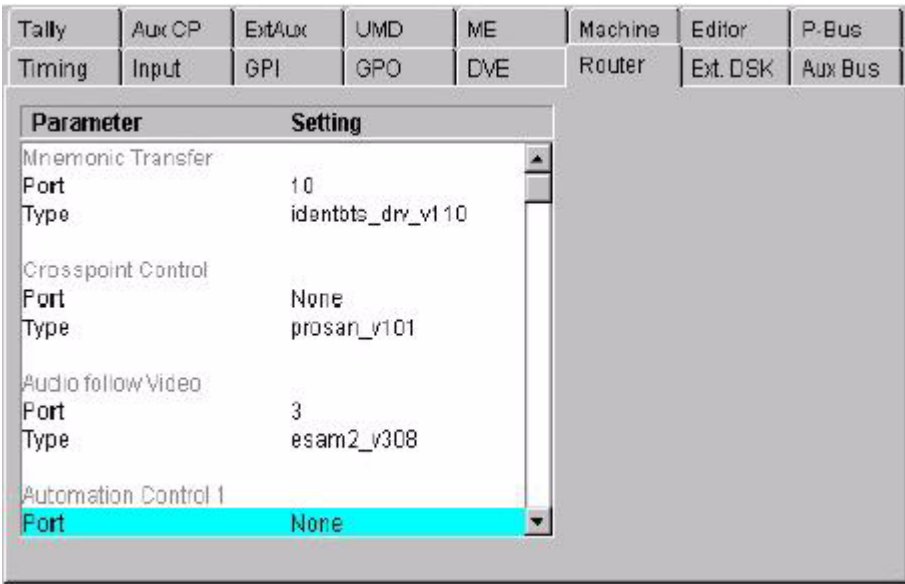
GPI Edge
✓ rising
falling
either edges

For details refer to the section on Digital Video Effect System Integration in the *Installation and Service Manual*.

Router

Index card for selecting and modifying the parameters of external routers.

Figure 329. Sidepanel – Index Card Router



Two protocols and the assigned ports are selectable:

Mnemonic Transfer: Name transfer from the external router to the switcher control.

Crosspoint Control: Control protocol for the external AUX buses.

Audio follow Video: Control protocol for Audio follow Video, e.g. "esam2_V308"

Automatic Control: Control protocol for Automatic control system protocol, e.g. "acos_V300"

Ext DSK

Index card for installation the external DSK parameters.

Figure 330. Sidepanel – Index Card External DSK

Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus
Timing	Input	OPI	OPO	DVE	Router	Ext. DSK	Aux Bus

Parameter	Setting
Port	None
Type	None
Tally	Intern
Key Send	none
Fill Send	none
BGD Source	none
Option Mask	No
Option Wipe	No
Option Fill Matte	No
Option Chroma Key	No
Option Key Opacity	No
Option FTB Auto	Yes
Option KEY Auto	No

Ext DSK
☒ DSK 5
☐ DSK 6
☐ DSK 7

For details refer to the section External Downstream Keyers in the *Installation and Service Manual*.

AUX Bus

Index card for installation the AUX Bus parameters.

Figure 331. Sidepanel – Index Card AUX Buses

Tally	Aux CP	ExtAux	UMD		Machine	Editor	P-Bus
	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus
AUX Bus	Output	Phaser	Permanent Input				
1	10 Bit	Phased	none				
2	10 Bit	Phased	none				
3	10 Bit	Phased	none				
4	10 Bit	Phased	none				
5	10 Bit	Phased	none				
6	10 Bit	Phased	none				
7	10 Bit	Phased	none				
8	10 Bit	Phased	none				
9	10 Bit	Phased	none				
10	10 Bit	Phased	none				

All 10 AUX buses of the Kayak HD are generally phased. Output coding and Permanent Input can be selected by pressing the **Modify** button.

Tally

Index card for selecting Tally ports and setting the MI-3040 box addresses.

Figure 332. Sidepanel – Index Card Tally

	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus
Tally	Aux CP	ExtAux	UMD		Machine	Editor	P-Bus

Tally System	Port	Box 1	Box 2	Box 3
Standalone				
overall	None			
1	None			
2	None			
3	None			
4	None			
Contr. System				
overall	None			
1	None			
2	None			
3	None			
4	None			

Tally
☒ Red
☐ Green
☐ Yellow

Note Two MI-3040 boxes can be addressed as to be one box with 80bits if they have the same MPK address and if they are installed in neighbor columns in the table above. Within a tally channel (Red, Green, Yellow) same box addresses may be used. However, a box address cannot be used in different colors. For details refer to the section on Tally Signaling in the *Installation and Service Manual*.

Pressing the button **Tally Out Assignment** opens a new dialog page for Tally Assignment:

Figure 333. Sidepanel – Index Card Tally Assignment

Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus
Tally	Aux CP	ExtAUX	UMD	ME	Machine	Editor	P-Bus
Tally Bit	Red	Green	Yellow				
1 (Box 1 Bit 1)	VID_INPUT_01	VID_INPUT_01	VID_INPUT_01				
2 (Box 1 Bit 2)	VID_INPUT_02	VID_INPUT_02	VID_INPUT_02				
3 (Box 1 Bit 3)	VID_INPUT_03	VID_INPUT_03	VID_INPUT_03				
4 (Box 1 Bit 4)	VID_INPUT_04	VID_INPUT_04	VID_INPUT_04				
5 (Box 1 Bit 5)	VID_INPUT_05	VID_INPUT_05	VID_INPUT_05				
6 (Box 1 Bit 6)	VID_INPUT_06	VID_INPUT_06	VID_INPUT_06				
7 (Box 1 Bit 7)	VID_INPUT_07	VID_INPUT_07	VID_INPUT_07				
8 (Box 1 Bit 8)	VID_INPUT_08	VID_INPUT_08	VID_INPUT_08				
9 (Box 1 Bit 9)	VID_INPUT_09	VID_INPUT_09	VID_INPUT_09				
10 (Box 1 Bit 10)	VID_INPUT_10	VID_INPUT_10	VID_INPUT_10				
11 (Box 1 Bit 11)	VID_INPUT_11	VID_INPUT_11	VID_INPUT_11				
12 (Box 1 Bit 12)	VID_INPUT_12	VID_INPUT_12	VID_INPUT_12				
13 (Box 1 Bit 13)	VID_INPUT_13	VID_INPUT_13	VID_INPUT_13				
14 (Box 1 Bit 14)	VID_INPUT_14	VID_INPUT_14	VID_INPUT_14				

With the following buttons the Tally Assignment can be changed:

- Tally Out Assign:** Dialog page appears/disappears
- Tally Assign:** Switched assignment on/off
- Modify:** Changed the assignment
- Reset Assign:** Reset the channels to Default or None
- Copy Assign:** Copied assignment from channel to channel

A modified state of each channel will be displayed in the headline of the assignment table.

AUX CP

Index card for installing the AUX Control Panels connected with the main-frame.

For details refer to the *Installation and Service Manual*.

Figure 334. Sidepanel – Index Card AUX CP

Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus
Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus

Aux CP No.	Type	Port	MPK Address
1	cp300	None	notinst.
2	cp330	None	notinst.
3	none	None	notinst.
4		None	notinst.

Type: Opens a pop-up window with all types of AUX Control Panels.

Port: Opens a pop-up window with all ports plus "None" like in all other menus where a port must be configured.

Note The port must be different to the ports used for DVEs, Editors, ext. DSKs, etc.

MPK Address: Opens the typewriter pop-up window. The physical MPK address of the AUX-CP must be entered. Refer the label at the rear of the panel modules (e.g. CP-3020: e0002d43).

Ext AUX

Index card for selecting and modifying the external AUX parameters.

Figure 335. Sidepanel – Index Card Ext AUX

Timing	Input	GPI	OPD	DVE	Router	Ext. DSK	Aux Bus
Tally	Aux CP	ExtAUX	UMD	ME	Machine	Editor	P-Bus
ExtAUX Bus		Router Output		Router Level			
1		1					0
2		2					1
3		3					2
4		4					3
5		5					4
6		6					5
7		7					6
8		8					7
9		58					0
10		59					1
11		60					2
12		61					3
13		62					4
14		63					5
15		64					6

The card enables the ability to select a special output at a defined level of the router.

Example:

If you select in the column Router Output the number 6 and in the column Router Level the number 1 then it corresponds to the specification that External AUX Bus 1 is connected with the router output 6 at level 1. The number of the levels and router outputs depends of the router control protocol.

UMD

Index card for installation the Under Monitor Displays and set the tally mode.

Figure 336. Sidepanel – Index Card UMD

Timing	Input	OP1	OP0	DVE	Router	Ext. DBK	Aux Bus
Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus
UMD Address	Display 1	Display 2	Display 3				
1	0	none	none	none			
2	notinst.	none	none	none			
3	notinst.	none	none	none			
4	notinst.	none	none	none			
5	notinst.	none	none	none			
6	notinst.	none	none	none			
7	notinst.	none	none	none			
8	notinst.	none	none	none			
9	notinst.	none	none	none			
10	notinst.	none	none	none			
11	notinst.	none	none	none			
12	notinst.	none	none	none			
				None	Red / Red		

For details refer to the section on Under Monitor Displays in the *Installation and Service Manual*.

Machine

Index card for installation the machine parameters (e.g. VTR) for Machine Control and VTR Emulation.

Figure 337. Sidepanel – Index Card Machine

Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus
Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus

Machine Control

Parameter	Setting
Machine 1	
Port	1
Type	bww75play_v102
Machine 2	
Port	2
Type	none
Machine 3	
Port	3
Type	none
Machine 4	
Port	4

VTR Emulation

Parameter	Setting
VTR Emulation 1	
Port	None
Type	None
Device	none
VTR Emulation 2	
Port	None
Type	None
Device	none
VTR Emulation 3	
Port	None
Type	None
Device	none

The setting can be changed by navigating the parameter and pressing the **Modify** button.

Editor

Index card for installation the Editor parameters.

Figure 338. Sidepanel – Index Card Editor

Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus						
Tally	Aux CP	ExtAUX	UMD	ME	Machine	Editor	P-Bus						
<table><thead><tr><th>Parameter</th><th>Setting</th></tr></thead><tbody><tr><td>Port</td><td>None</td></tr><tr><td>Type</td><td>none</td></tr></tbody></table>		Parameter	Setting	Port	None	Type	none	<div>Editor</div> <div><input checked="" type="checkbox"/> 1</div> <div><input type="checkbox"/> 2</div> <div><input type="checkbox"/> 3</div> <div><input type="checkbox"/> 4</div>					
Parameter	Setting												
Port	None												
Type	none												

For details refer to the section on Editor Control in the *Installation and Service Manual*.

P-Bus

Index card for setting the P-Bus parameters.

The **Install E-Box / P-Bus** (Peripheral Bus) menu defines the machines which can be controlled via an RS422 bus. In the left list box of the P-Bus index card, these machines can be provided with a name and can be activated or deactivated.

Figure 339. Sidepanel – Index Card P-Bus

Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus																																																
Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus																																																
<table border="1"> <thead> <tr> <th>Machine</th> <th>Name</th> <th>Active</th> </tr> </thead> <tbody> <tr><td>0</td><td>none</td><td>No</td></tr> <tr><td>1</td><td>none</td><td>No</td></tr> <tr><td>2</td><td>none</td><td>No</td></tr> <tr><td>3</td><td>none</td><td>No</td></tr> <tr><td>4</td><td>none</td><td>No</td></tr> <tr><td>5</td><td>none</td><td>No</td></tr> <tr><td>6</td><td>none</td><td>No</td></tr> <tr><td>7</td><td>none</td><td>No</td></tr> <tr><td>8</td><td>none</td><td>No</td></tr> <tr><td>9</td><td>none</td><td>No</td></tr> <tr><td>10</td><td>none</td><td>No</td></tr> <tr><td>11</td><td>none</td><td>No</td></tr> <tr><td>12</td><td>none</td><td>No</td></tr> <tr><td>13</td><td>none</td><td>No</td></tr> <tr><td>14</td><td>none</td><td>No</td></tr> </tbody> </table>								Machine	Name	Active	0	none	No	1	none	No	2	none	No	3	none	No	4	none	No	5	none	No	6	none	No	7	none	No	8	none	No	9	none	No	10	none	No	11	none	No	12	none	No	13	none	No	14	none	No
Machine	Name	Active																																																					
0	none	No																																																					
1	none	No																																																					
2	none	No																																																					
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<table border="1"> <thead> <tr> <th>Trigger</th> <th>Name</th> </tr> </thead> <tbody> <tr><td>Trigger 0</td><td></td></tr> <tr><td>Trigger 1</td><td>Trg1</td></tr> <tr><td>Trigger 2</td><td>Trg2</td></tr> <tr><td>Trigger 3</td><td>Trg3</td></tr> <tr><td>Trigger 4</td><td>Trg4</td></tr> <tr><td>Trigger 5</td><td>Trg5</td></tr> <tr><td>Trigger 6</td><td>Trg6</td></tr> <tr><td>Trigger 7</td><td>Trg7</td></tr> <tr><td>Trigger 8</td><td>Trg8</td></tr> <tr><td>Trigger 9</td><td>Trg9</td></tr> <tr><td>Trigger 10</td><td>Trg10</td></tr> <tr><td>Trigger 11</td><td>Trg11</td></tr> <tr><td>Trigger 12</td><td>Trg12</td></tr> <tr><td>Trigger 13</td><td>Trg13</td></tr> </tbody> </table>								Trigger	Name	Trigger 0		Trigger 1	Trg1	Trigger 2	Trg2	Trigger 3	Trg3	Trigger 4	Trg4	Trigger 5	Trg5	Trigger 6	Trg6	Trigger 7	Trg7	Trigger 8	Trg8	Trigger 9	Trg9	Trigger 10	Trg10	Trigger 11	Trg11	Trigger 12	Trg12	Trigger 13	Trg13																		
Trigger	Name																																																						
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Trigger 10	Trg10																																																						
Trigger 11	Trg11																																																						
Trigger 12	Trg12																																																						
Trigger 13	Trg13																																																						
None																																																							

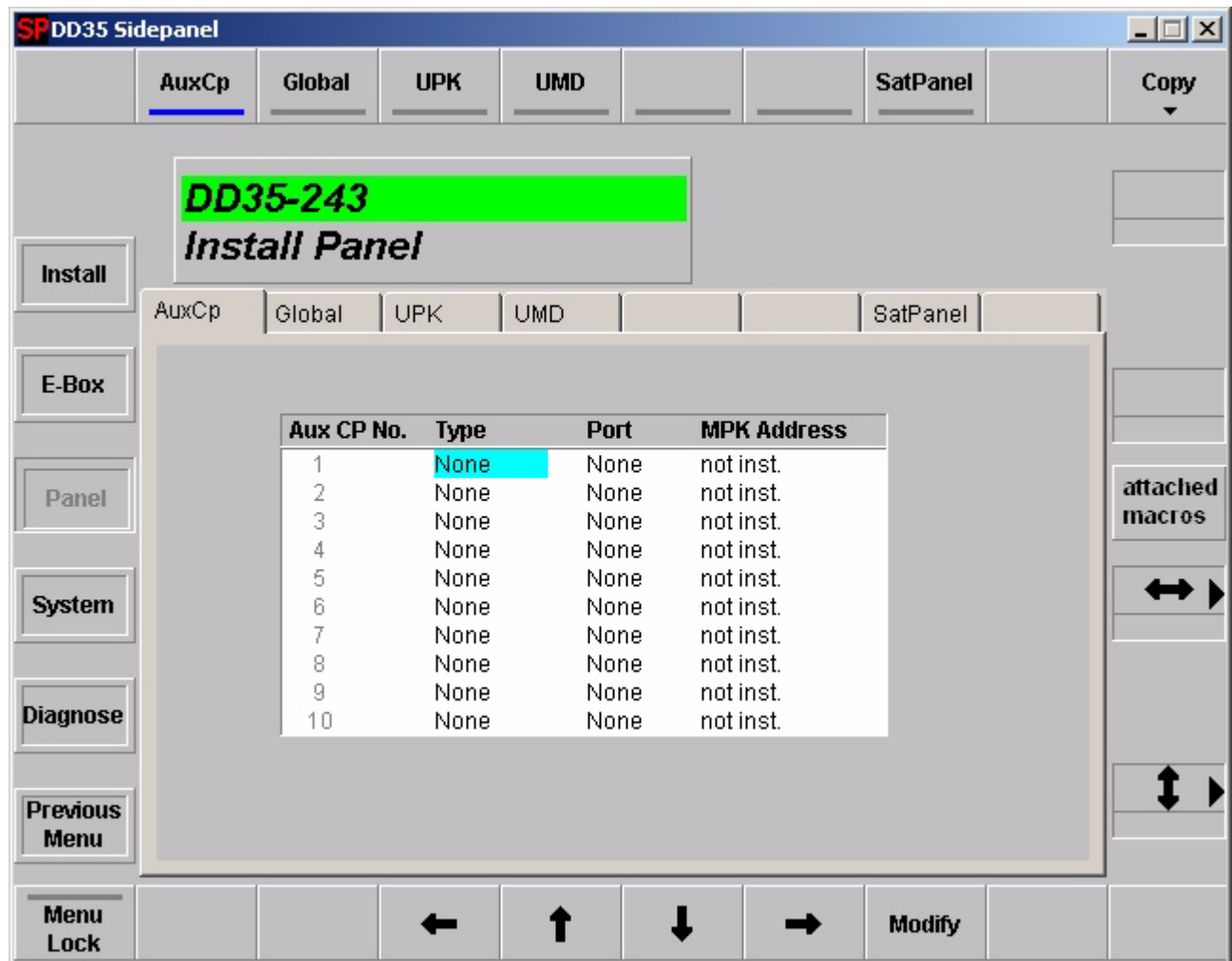
The right list box enables to provide for each of these machines the trigger events with function names (e.g. PLAY, SHUTTLE). For each machine there are the trigger from 0 ... 15 which can be assigned each to other function. The name can be selected from a list of default names which provides specific names for this application.

The list of trigger names consist of a fixed-programmed part and a freely definable part. The freely definable part – 16 names – can be adjusted in the sub-dialog Edit Names.

For controlling the machines refer to the section on *Remote P-Bus / Trigger* on page 350

Install Panel Menu

Figure 340. Sidepanel – Install Panel Menu



Dialog Buttons

Install

Selecting Install main menu.

E-Box

Selecting E-Box Install menu.

System

Selecting System menu.

Diagnose

Selecting Diagnose menu.

Previous Menu

Return to the previous menu. For details refer to the *Introduction on page 315*.

Function Buttons / Index Cards

Menu Lock

For details refer to the *Introduction on page 315*.

Cursor Up/Down/Left/Right

The cursor buttons are used to navigate within the table.

AUX CP

Index card for installing the AUX Control Panels connected to the switcher control panel. For details refer to the *Installation and Service Manual*.

Figure 341. Sidepanel – Index Card AUX CP

Aux CP No.	Type	Port	MPK Address
1	cp300	None	70027db
2	cp330	None	7002a52
3	cp300	None	7001b5a
4	cp330	None	not inst.
5		None	not inst.
6		None	not inst.
7		None	not inst.
8		None	not inst.
9		None	not inst.
10	cp300	None	not inst.

Type: Opens a pop-up window with all types of AUX Control Panels.

Port: Opens a pop-up window with all ports plus "None" like in all other menus where a port must be configured.

Note The port must be different to the ports used for DVEs, Editors, ext. DSKs, and similar devices.

MPK Address: Opens the typewriter pop-up window. The physical MPK address of the AUX-CP must be entered. Refer to the label at the rear of the panel modules (e.g. CP-3020: e0002d43).

Global

Index card for performing global panel settings and fader adjustment.

Figure 342. Sidepanel – Index Card AUX Global

AuxCp Global UPK UMD SatPanel	
Setting	Value
Fader Adjustment	adjusted-- Press 'Modify' to readjust
Joystick Adjustment	adjusted-- Press 'Modify' to readjust
PGM/PST-Bus Position	PGM above PST
CUT/AUTO-Button Position	CUT Button left
Direct Ext DSK Cut/Auto	Off (use 2nd DSK)
Gang Mode Selection	like transition component select
Enable DSK delegation	Off (ignore delegations)
DSK1 delegation	Default
DSK2 delegation	Default
DSK3 delegation	Default
DSK4 delegation	Default
DSK5 delegation	Default
DSK6 delegation	Default
Simulcast Slave Address	0
ME1-3 Key Delegation Button Order	BGD B / BGD A / Key 1 / Key 2

Fader/Joystick Adjustment:

Adjustment of the fader end-position values (fine adjustment of the A/D converters). Lower end-position: 0% signal, Upper end-position: 100% signal. End-position means: Move the fader gently as far as it will go.

During fader adjustment moving the fader does not affect video signals.

1. Press Modify, a pop-up menu with dialog messages appears.
2. Move all faders to the upper end-position and select the menu entry in the pup-up menu. Move all faders to the upper position and press OK.
3. Move all faders to the lower end-position and select the entry in the pop-up menu. Move all faders to the lower position and press OK. The automatic adjustment is finished.

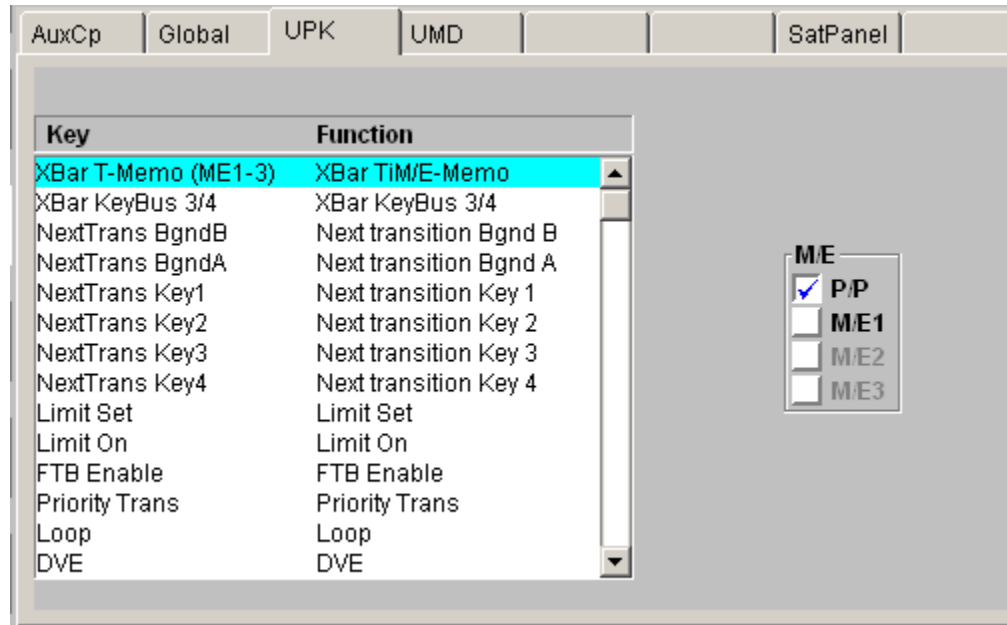
The following settings can be selected and/or adjusted:

- PGM/PST Bus Position - PGM above PST / ...
- CUT/AUTO Button Position: - CUT right / left
- ShiftButtons: - None / Left / Right / Left and Right
- Simulcast Slave Address: - Last byte of the defined mainframe IP address

UPK (User-Programmable Keys/Buttons)

In this index card, many buttons available in the panel sections, can be assigned to other functions. The functions are individual for each button. Select the desired function with pressing the **Modify** button.

Figure 343. Sidepanel – Index Card UPK



The buttons shown in [Table 28](#) are programmable:

Table 28. Programmable Buttons

DVE Transition
Mix Transition
Wipe1 Transition
Wipe2 Transition
BlkPst Transition
Trans PVW Transition
NextTrans Bgd B Transition
NextTrans Bgd A Transition
NextTrans Key 1 Transition
NextTrans Key 2 Transition
NextTrans Key 3 Transition

Note The number of buttons is dependent on its panel type.

The functions shown in TABLE can be programmed for the buttons described above:

Table 29. Available Programmable Functions

Default function (button specific)
None
Limit Set
Limit On
Wipe 1
Wipe 2
Add
DVE
GPO 1
GPO 2
GPO 3
GPO 4
GPO 5
GPO 6
GPO 7
GPO 8
Next Transition Bgnd B
Next Transition Bgnd A
Next Transition key 1
Next Transition key 2
Next transition key 3
Next Transition key 4
Mix Transition
Auto Transition key
Auto Transition key
Auto Transition key
Auto Transition key
Enable/Disable V-Fade 1
Enable/Disable V-Fade 2
Enable/Disable V-Fade 3
Enable/Disable V-Fade 4
Simulcast Master
Simulcast Slave
Show Button Macro Attachments
Transition Preview
Cut key 1
Cut key 2
Cut key 3
Cut key 4

UMD

Index card for installation the Under Monitor Displays and set the tally mode.

Figure 344. Sidepanel – Index Card UMD

UMD Address	Display 1	Display 2	Display 3
1	0 PP PwW Out	none	none
2	not inst.	none	none
3	not inst.	none	none
4	not inst.	none	none
5	not inst.	none	none
6	not inst.	none	none
7	not inst.	none	none
8	not inst.	none	none
9	not inst.	none	none
10	not inst.	none	none
11	not inst.	none	none
12	not inst.	none	none

None Red / Red

For details refer to the section Under Monitor Displays in the *Installation and Service Manual*.

Sat Panel

Index card for installation the Satellite Panel RSAT.

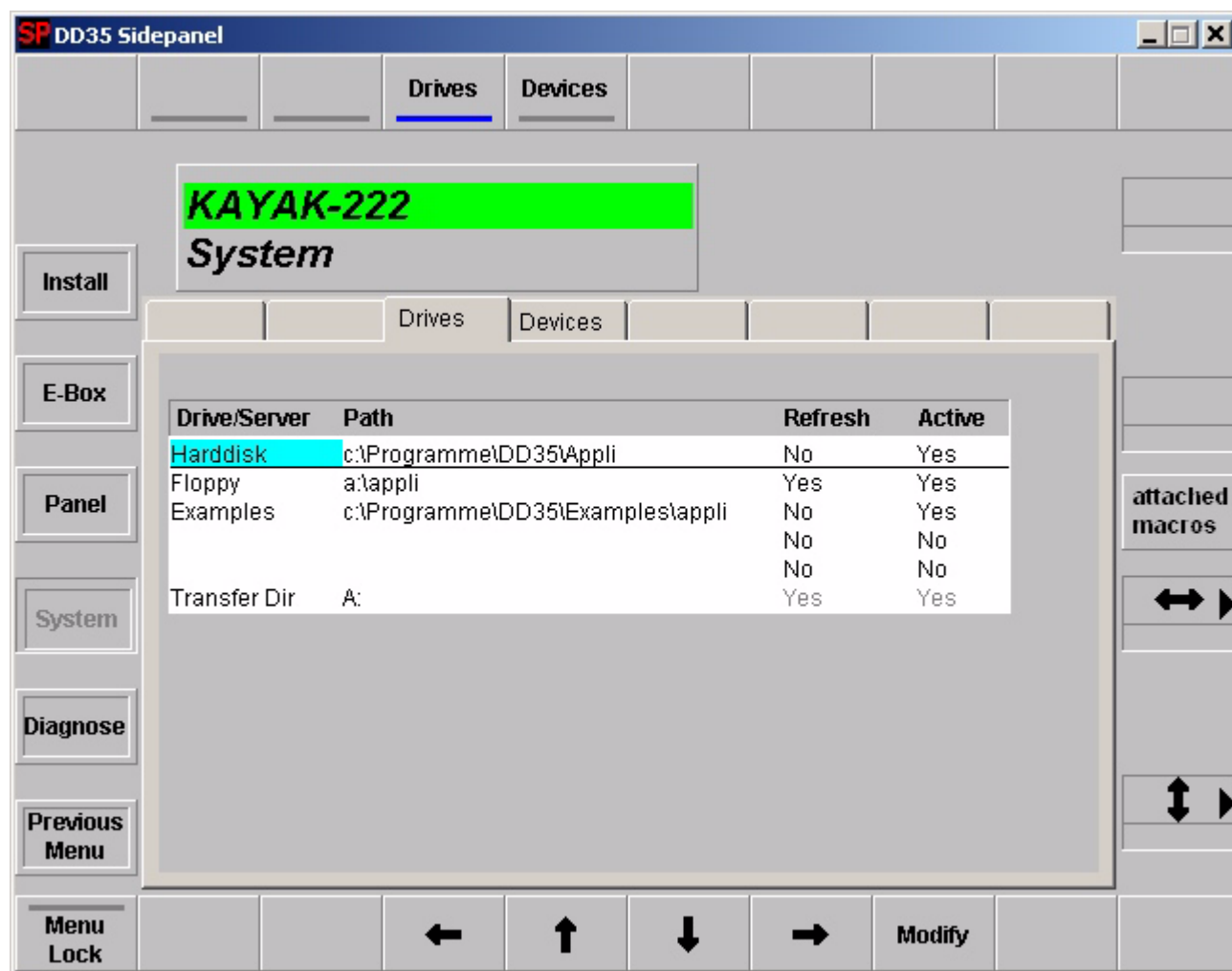
Figure 345. Sidepanel – Index Card Sat Panel

Setting	Value
Port	5
Type	satpanel_v100

Select **Modify** to set the port number and protocol type.

System Menu

Figure 346. Sidepanel – System Menu



Drives

Figure 347. Sidepanel – Index Card Drives

Drives			
Drive/Server	Path	Refresh	Active
Harddisk	c:\Programme\DD35\Appli	No	Yes
Floppy	a:\appli	Yes	Yes
Examples	c:\Programme\DD35\Examples\appli	No	Yes
		No	No
Transfer Dir	A:	No	No
		Yes	Yes

The Drives menu defines all drives which are provided with application data on the switcher.

The drive in the top line (separated by a horizontal line from the other drives in the list) enables loading and storing applications. All other drives displayed in the list are only important for the copying procedures **Copy Config Simple** and **Copy Config Detailed**.

Drive/Server:	Name of the drive or server
Path:	Path to the application directory
Refresh:	If Yes, it can be read in again in the Copy Config dialogs by means of the Refresh button.
Active:	If Yes, the drive is displayed in the Copy Config dialogs.

Devices

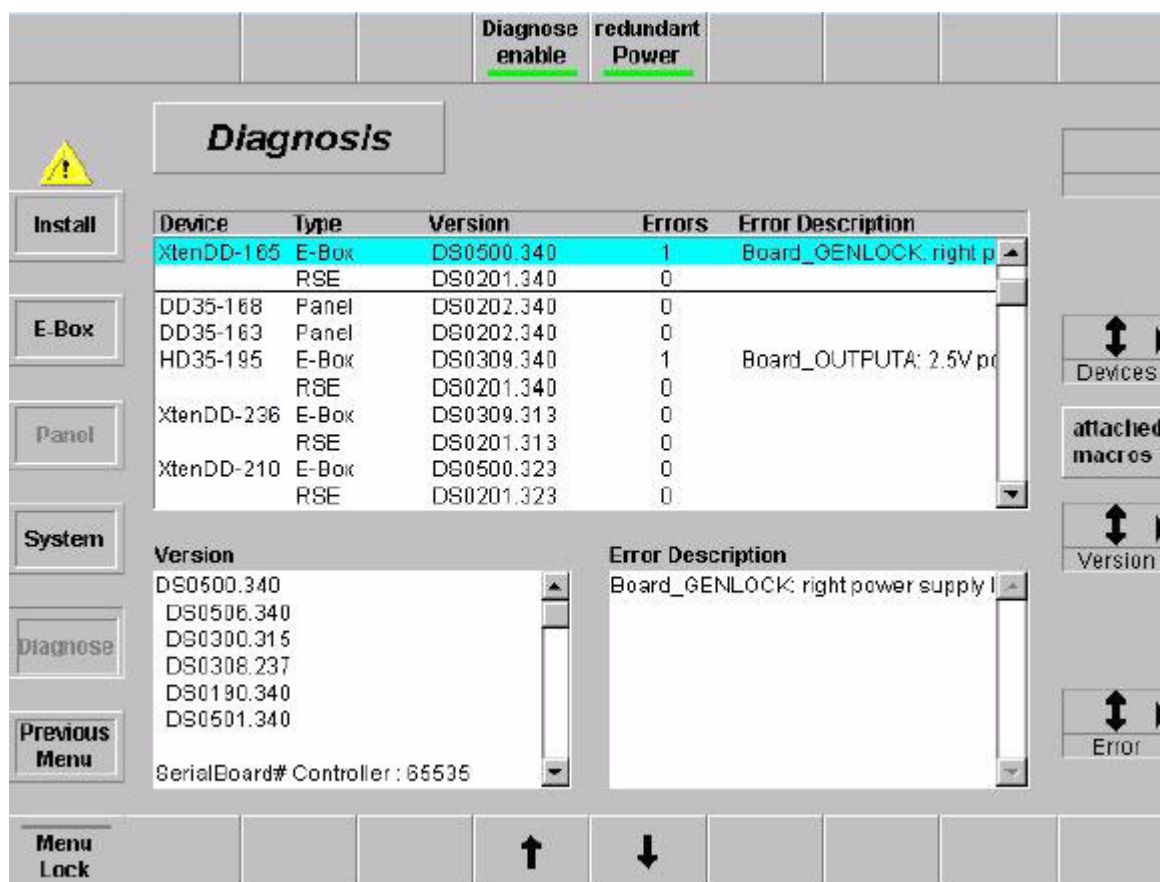
Figure 348. Sidepanel – Index Card Devices

Type	IP address	Device Name
Control Panel	192.168.0.203	KayakCP-203
Mainframe	192.168.0.239	KAYAK-239
Ramrecorder	192.168.0.250	(HD-mainframe only)

The Device name of control panel and mainframe can be renamed by using the **Modify** button.

Diagnosis Menu

Figure 349. Sidepanel – Diagnosis Menu



Enable / Disable Diagnosis Menu

Figure 350. Sidepanel – Enable/Disable Diagnosis Menu



Diagnose Enable

- Enables / Disables the diagnosis in the attached control panel and in the connected mainframe.

Redundant Power

- Includes / Excludes the option redundant power supply of control panel and mainframe in the diagnosis.

Possible Error Messages

Mainframe In preparation

If a local error message occurs, the alarm output conducts at the rear of the mainframe.

Figure 351. Sidepanel – Yellow Warning Triangle



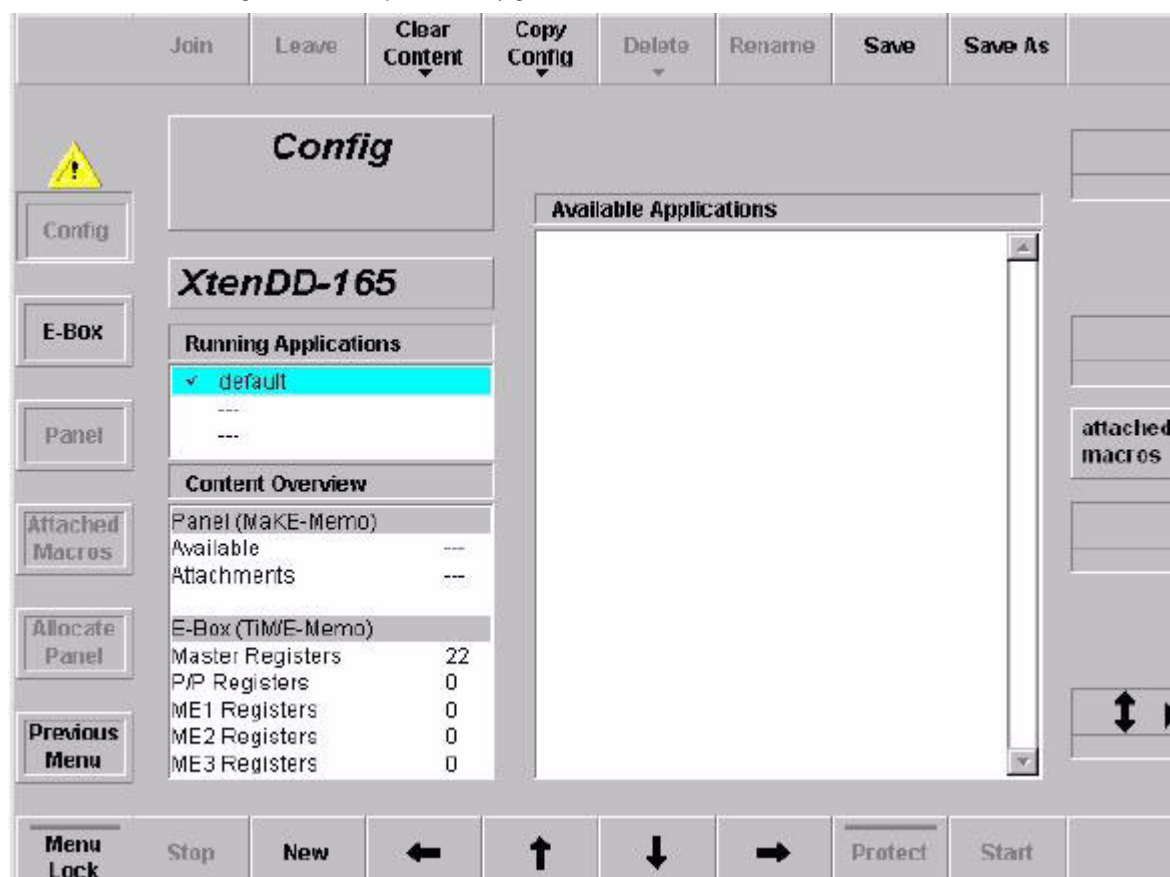
Additionally a yellow warning triangle is displayed in all menus. Mouse click on this warning sign opens the diagnosis menu also.

Control Panel In preparation

Configuration Menu

Config Main Menu

Figure 352. Sidepanel – Config Main Menu



The application main menu is designed to handle the use of applications within a switcher system. Applications can be loaded from the hard disk and started, stopped, modified or created new. If an application is modified or created it is normally done online. Online in this case means that each modification done in an application menu results in an action within a switcher system – device immediately. Offline means that those modifications are only stored in files on the local hard disk.

The **Application Main** menu has a list of the running applications of the connected mainframe "Running Applications" and a list of stored applications on the local hard disk "Available Applications." If the menu is entered the cursor should be on "Running Applications" and on the application the local sidepanel belongs to.

The name of the connected mainframe is displayed in a separate display field.

The list box **Running Applications** displays all known running applications of the mainframe connected to the local sidepanel. It has a fixed number of entries. The **Default** application that is always available is the top entry. It is followed by two user-defined applications. If less than applications are running in a mainframe, the related place remains empty ("– –"). The application where the local sidepanel belongs to is marked with a hook.

The list box **Available Applications** displays all applications stored on the local hard disk. The list box has two vertical sections. At the top there is a shortcut section that shows the last four applications loaded to a mainframe. It is displayed in loading order with the latest one at the top. Below there is a complete list of all applications available on the hard disk. It is listed alphabetical.

Each entry consists of an application name, a creation date and time.

The list box **Content Overview** displays the register resources of panel (MaKE memos) and mainframe (TiM/E memo).

Function Buttons

Join

This function is used to join the local sidepanel to a running application. The button is only relevant for the Running Applications list box.

Leave

This function is used to leave the application the local sidepanel is joined to. Leaving an application is identical to the function "join to default". The button is only relevant for the list box Running Applications list box.

Clear Content

The **Clear Content** button is used to delete the selected registers (MaKE memos, TiM/E memos) in the attached panel and connected mainframe.

Figure 353. Sidepanel – Clear Content



Figure 354. Sidepanel – Clear Content – Delete all macros



Copy Config

For details refer to the section on *Copy Config* [on page 421](#).

Delete

The **Delete** button is used to delete complete application entries on the local hard disk. Thus it is only relevant if the cursor points to an application stored there.

Rename

The rename function is used with running applications and on stored applications. The new application name is read with an input dialog. For stored applications it renames the application name on the local hard disk.

Save

Starts saving an application on the local hard disk. The button is only relevant if the cursor points to a running application.

Save As

Starts saving an application on the local hard disk after entering a new name for the application. The new application name is read by an input dialog.

Menu Lock

For details refer to the *Introduction* [on page 315](#).

Stop

Stops the running application where the cursor points to. All allocated resources are given to the default application.

New

Creates a new application. The button is relevant if the cursor points to a free application entry in "Running Application" (online), or on any position at "Available Applications" (offline).

Cursor Up/Down/Left/Right

The horizontal cursor buttons are used only to toggle between the two list boxes. The vertical cursor softkeys and the vertical cursor digipot are used to navigate within a list box.

Protect

Write protection of the selected application in the list box "Available Applications". Protected applications are marked with a cross.

Start

Loads an application from the local hard disk and starts it.

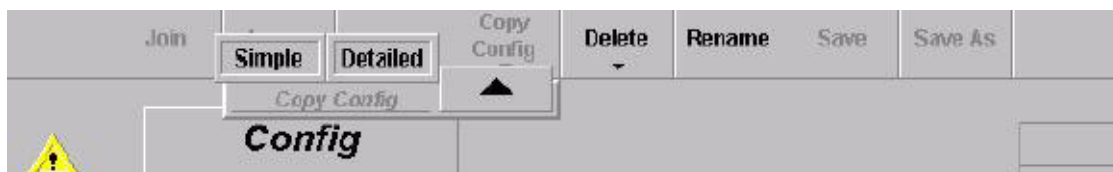
Copy Config

Simple

To save or exchange applications or user-specific data from the switcher hard disk to a floppy or vice versa:

1. Select the new menu in the Config menu:

Figure 355. Sidepanel – Copy Config



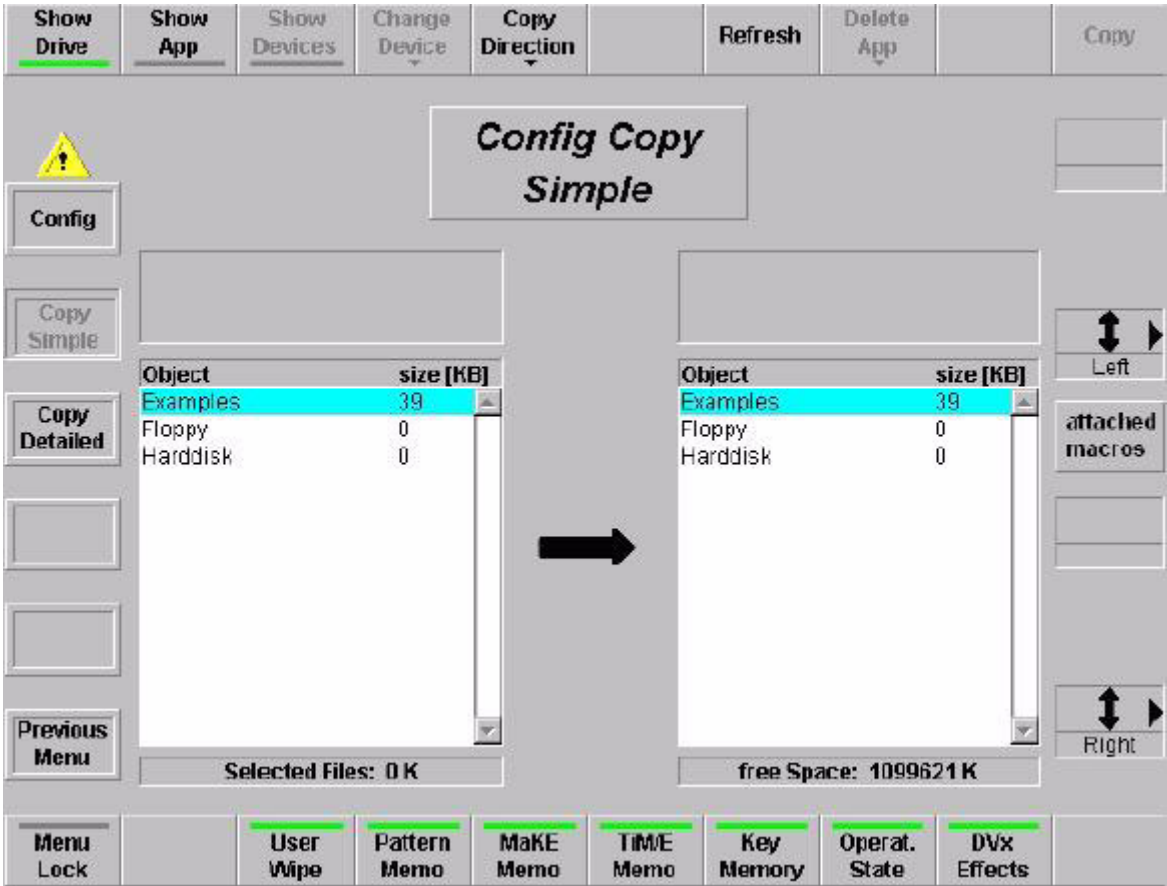
2. You can then choose **Simple** to store complete applications, or choose **Detailed** to store single files.

Config Copy Simple Menu

In the Copy Simple menu, whole applications can be copied. The menu shows lists for source and destination. In the lists, the available storage devices, the stored applications or the connected devices of an application can be shown.

After copying an application from another switcher, the application might use devices which are not available here. The devices can be changed with the **Change Device** button.

Figure 356. Sidepanel – Config Copy Simple Menu



Show Drive

Internal hard disk and floppy drive are shown in the two selection areas. There are all drives listed, which are activated in the **Install / System / Drivers** menu

Show Application

The applications of the selected drive are listed in the two selection areas.

Show Devices

The devices of the selected application are shown.

Change Devices

Allocates a different device (E-Box, Panel) for the currently selected application in the list box. A list of currently available devices is shown. Select the desired device. After copying an application from another switcher, the application might use devices which are not available here. The button is enabled only when Show Devices is selected.

Copy Direction

Changing the copy direction from the left to the right and vice versa.

Refresh

Reads the drive.

Delete App

Deletes the selected application files from the drive.

User Wipe - Wipe Pattern - MaKE Memo - TiM/E Memo - Key Memory Operation State - DVx Effects

Buttons act as a filter for the shown application. Only the selected file types are copied.

Config Copy Detailed Menu

In the Copy Detailed menu, selected files can be copied between two existing applications.

The menu shows two lists for source and destination. In each list, a specific part of an application can be viewed.

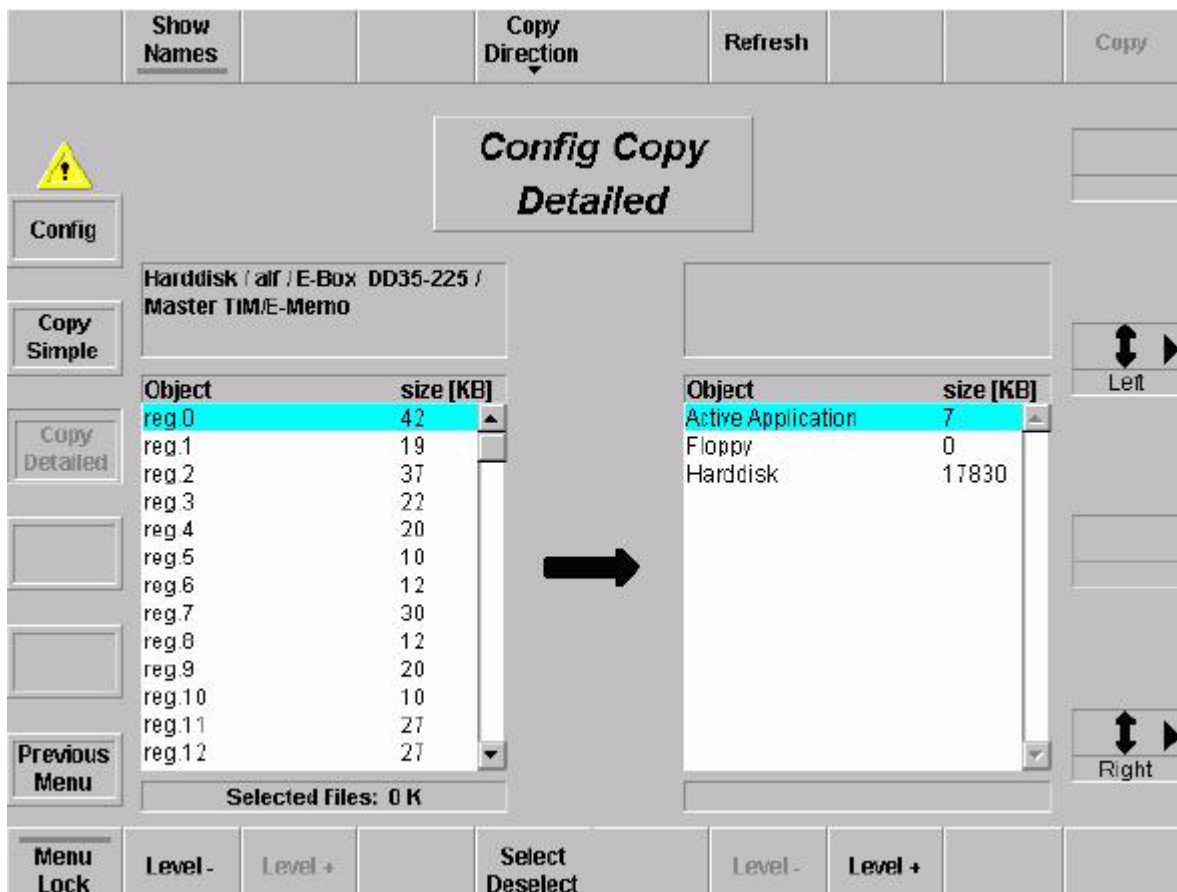
Note In the copy detailed mode only one file can be copied per procedure. If you select more than one file an error message appears.

On the highest level, all drives activated in the **Install / System / Drives** menu and the Active Application are listed.

Use the **Level+** and **Level–** buttons to navigate in the directory tree of the application. File types and files can be selected using the **Select** button or by double-clicking on an item in the source list box. In the destination list, the same directory level must be selected.

Press the **Copy** button to copy the selected file.

Figure 357. Sidepanel – Copy Config Detailed Menu



Show Names

Shows the object names of the files.

Copy Direction

Changing the copy direction from the left to the right and vice versa.

Refresh

Reads the drive.

Level +/-

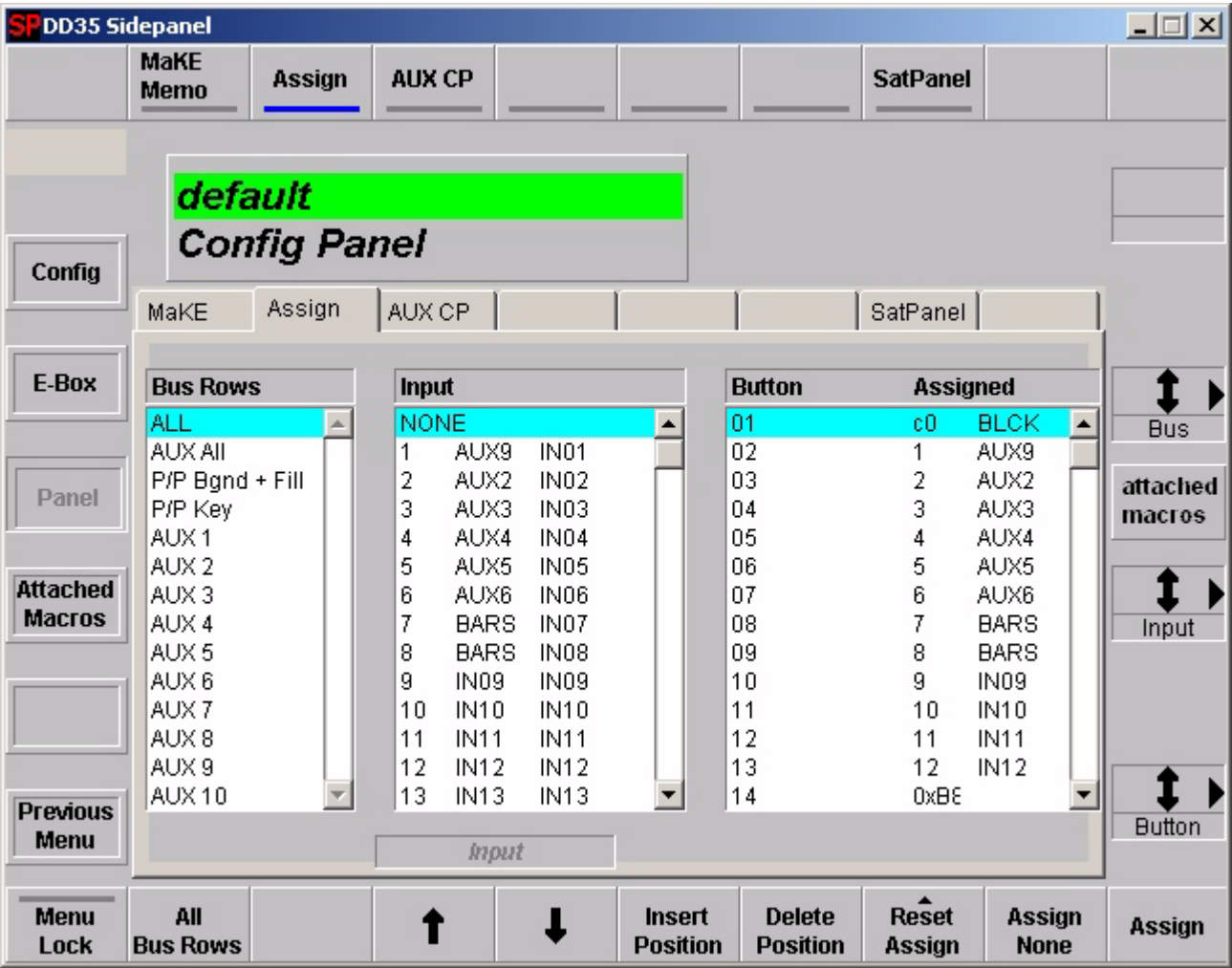
Changing the directory level.

Select / Deselect

Selects the blue marked file or file type for copying.

Config E-Box Menu

Figure 358. Sidepanel – Config E-Box Menu



Dialog Buttons

Allocate Resource

Selecting Allocate Resource menu.

Allocate Panel

Selecting Allocate Panel menu.

Function Buttons

Cursor Up/Down/Left/Right

All cursor softkeys and cursor digipots are used to navigate the cursor. The complete cursor control is always relevant.

Modify

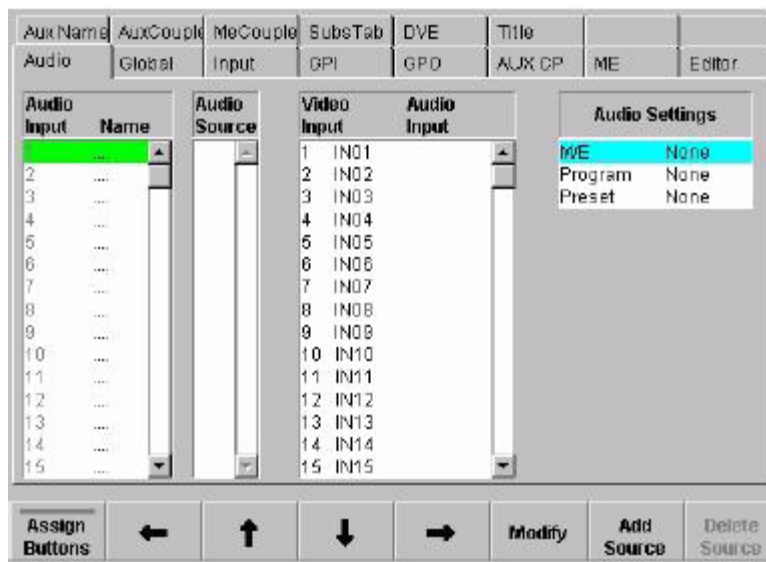
This button is only enabled if the cursor is set on an entry belonging to the own application.

Index Cards

Audio

Index card serves for adjustment of audio switchers via the ESAM2 protocol.

Figure 359. Sidepanel – Index Card Audio



It is possible to define up to 64 internal audio channels. In the left list box, they are provided with a name. To each of these internal audio channels can be assigned as many audio channels as you like. They are displayed in the list box Audio Source.

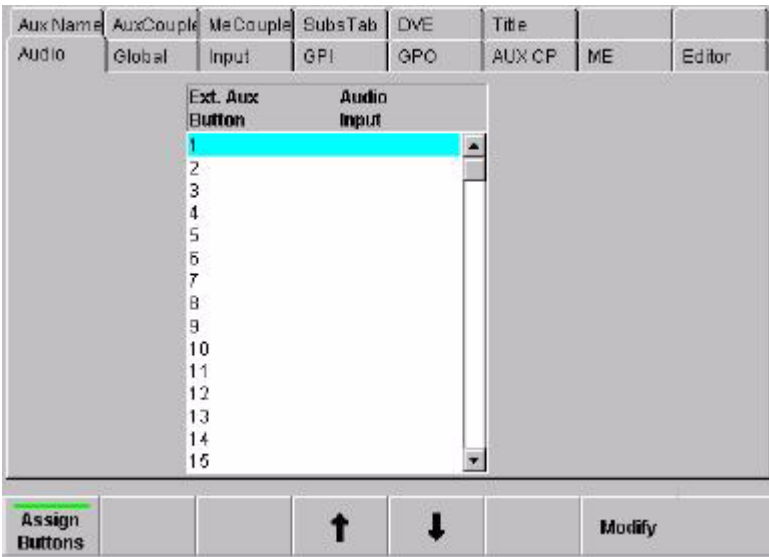
The buttons **Add Source** and **Delete Source** allow you to vary them. The respective internal audio channel is marked green for this purpose. To each video input can be assigned an internal audio channel. This is indicated in the third list box.

The list box Audio Settings is used to perform basic adjustments.

- M/E:** The audio switcher operates only on one M/E which is specified here.
- Program / Preset:** Audio Program and Audio Preset can be mapped on an external AUX bus.

The button **Assign Buttons** opens a second dialog page. This page enables assignment of the audio channels to the individual buttons of the external AUX buses for Audio Program / Audio Preset.

Figure 360. Sidepanel – Index Card Audio Assign



- Operating:** The audio switcher follows only PGM (PST). Only PGM is always to be heard. The crossbar selection only is switched. If there is no audio assigned to the video, the last audio source stays.
- CUT PGM and PST** Sources swap according to the video
- AUTO** Works only correctly when the associated audio sources differ from each other. Otherwise, the equal audio sources are temporarily muted.
- PGM/PST** Enables you to control the two buses as EXT AUX BUSES. When switching on these and simultaneously on the corresponding video crossbar, the last button pressed takes precedence.

With the ESAM2 protocol, transition with the fader is not possible.

Global

Index card for global settings.

Figure 361. Sidepanel – Index Card Global

Aux Name	Aux Couple	Me Couple	SubsTab	DVE	Title		
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
Parameter		Setting					
Color Limit Active		Yes					
Color Limit		133 %					
Format		4:3					
Field Dominance		Any Field					
Replace Async		No					
Aux Preview Bus		None					
Auto Aux Preview		Off					
KeyMemory AutoSave		On					
H/V Blanking Aux 1		transparent					
H/V Blanking Aux 2		blanked					
H/V Blanking Aux 3		blanked					
H/V Blanking Aux 4		blanked					
H/V Blanking Aux 5		transparent					
H/V Blanking Aux 6		blanked					
H/V Blanking Aux 7		blanked					

With the **Modify** button the following parameters are selectable:

Color Limit Active: No /Yes

The level limitation for the internal matte signals will be switched On or Off.

Color Limit: Adjustable between 100 ...133 %

Format: 4:3 or 16:9. An M/E specific TV format selection is possible in the respective M/E menu.

Field Dominance: The **Modify** button can be used to switch over between Any, Field1 and Field2.

The setting concerns the switching of the crosspoints on all buses, the start of auto transitions, switching with Cut and the recalling of snapshots and timelines. In position **Any** switching occurs at the beginning of the next frame. In position **Field 1/2** switching or starting occurs before the corresponding field.

Replace Async: On/Off

The **Modify** button permits the selection of different modes for the treatment of asynchronous sources in the switching levels (M/E1, M/E2, P/P):

On: If Background/Program are asynchronous, enabled keyers are disabled. If Background/Program are asynchronous and the fill signal of a keyer becomes asynchronous, the enabled keyer is disabled. If Background/Program or Preset are asynchronous and a transition is selected, a cut is performed at the end of the transition.

Off: Asynchronous signals are phased over H and are passed.

AUX Preview Bus: Selecting the desired AUX Preview Bus None, Aux1 ... Aux15

Auto AUX Preview: On/Off

Enable or disable the Auto PVW mode. In enabled condition the key PVW, mask PVW or the chroma key cursor signal of the respective mixing level is switched on the PVW bus.

**KeyMemory
AutoSave:**

On/Off

If the **KeyMemo** button is switched on in a Keyers menu, the key memory is always recalled if the key sources are changed during control panel operation.

These changes can occur directly by selecting another key source or also indirectly by changing the Fill source or the Split mode.

For storing the key settings in the key memory two modes are available:

Auto Save

If the switch Key Memory AutoSave=On, the settings of the previous key signal are stored automatically before the settings of the next key are recalled.

If the switch Key Memory AutoSave=Off, the stored settings of the new key are recalled without saving the previous settings.

Manual Storing

Key Memory AutoSave=Off. For storing the current settings into the key memory, press the button of the respective Fill source approximately 2 seconds. The storing is confirmed by a short beep in the control panel.

H/V Blanking:

The **Modify** button can be used to switch over between transparent and blanked. In blanked position the V-gap and the H-gap is replaced by BLACK and the DD35-internal sync frame is added. In transparent position the information contained in the V-gap (VITS, videotext etc.) are kept. This function can be selected for each output and AUX buses separately

Input

Index card for input settings

Figure 362. Sidepanel – Index Card Input

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor

Input	4 char ID	8 char ID	Coupled Key		Real Input
1	IN01	IN01	c4	WHIT	---
2	IN02	IN02	c4	WHIT	---
3	IN03	IN03	c4	WHIT	---
4	IN04	IN04	c4	WHIT	---
5	IN05	IN05	c4	WHIT	---
6	IN06	IN06	c4	WHIT	---
7	IN07	IN07	c4	WHIT	---
8	IN08	IN08	c4	WHIT	---
9	IN09	IN09	c4	WHIT	---
10	IN10	IN10	c4	WHIT	---
11	IN11	IN11	c4	WHIT	---
12	IN12	IN12	c4	WHIT	---
13	IN13	IN13	c4	WHIT	---
14	IN14	IN14	c4	WHIT	---
15	IN15	IN15	c4	WHIT	---

Entries belonging to the own application are marked with a green background, entries belonging to other applications are marked with a yellow background.

- Take:** Takes the input source selected with the cursor to the own application.
- Release:** Releases the input source selected with the cursor from the own application.
- Show All:** In the on-state, all input sources are displayed. In the off-state only the own (green marked) inputs are displayed.
- Coupled Key:** Set all coupled keys to Default (=self) or White.

GPI

Index card for GPI settings

Figure 363. Sidepanel – Index Card GPI

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor

GPI	Name	Function	Parameter
1	GPI1	None	GPI 1 Function <input checked="" type="checkbox"/> None Command Misc ==> Autotransition ==>
2	GPI2	None	
3	GPI3	None	
4	GPI4	None	
5	GPI5	None	
6	GPI6	None	
7	GPI7	None	
8	GPI8	None	

Double-click or pressing the **Modify** button calls a pop-up menu and in some cases pop-up lists.

The selected function will be triggered on the edge defined in the Install menu when button **GPI Enable** is On. However, there are some exceptions where the GPI works as a "static" input. i.e. actions take place after a change in the GPI state but the value depends on the GPI's state after the change. Also **GPI Enable** does not need to be On for these functions.

GPI Functions:

None:	GPI has no function.
Command:	User-defined command code. See note below.
Misc:	Switch over the Video Standard or Video Format Video Format (4x3, 16x9) Inactive = 4x3 Active = 16x9 Video Standard (625/50, 525/60) Inactive = 625/50 Active = 525/60 This is a very redundant function because the switcher can auto detect the video standard from the signal at the reference input.
Autotransition:	Starting Auto Transition, selected in the pop-up list
Recall Snapshot:	Starting Snapshot, selected in the pop-up list
M/E1:	Starting function, selected in the pop-up list
M/E2:	Starting function, selected in the pop-up list
M/E3:	Starting function, selected in the pop-up list
PP:	Starting function, selected in the pop-up list
Stores:	Starting Video Store or MPR Store, selected in the pop-up list

Note In the Command mode, user-defined commands are selected being transmitted to the switcher at a received trigger event. Selecting **Command** enables you to directly enter the command code. See for this purpose the DD35 command set, which can be obtained from the manufacturer. The other selections are defined in text files GPICMDMF . TXT (mainframe) and GPICMDCP . TXT (panel). These files are contained in the directory c : / programme/dd35/bin.

Note For entry, a special syntax has to be considered. It is possible to add pre-defined parameters to the command, the available commands are listed in these files. For editing, it is best to copy and match existing entries. In any case, the DD35 command set is required.

GPO

Index card for GPO settings.

Figure 364. Sidepanel – Index Card GPO

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor

GPO Name	
1	GPO1
2	GPO2
3	GPO3
4	GPO4
5	GPO5
6	GPO6
7	GPO7
8	GPO8

With the **Modify** button, names can be assigned to the GPOs.

AUX CP

Index card for configuration the AUX Control Panels connected to the mainframe.

Figure 365. Sidepanel – Index Card AUX CP

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title		
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
Aux Cp	Deleg 1	Deleg 2	Deleg 3	Deleg 4	Deleg 5	Deleg 6	
1 None	None	None	None	None	None	None	
2 None	None	None	None	None	None	None	
3 None	None	None	None	None	None	None	
4 None	None	None	None	None	None	None	
Assign		←	↑	↓	→	Modify	

Modify opens a pop-up window with the functions that can be programmed.

Figure 366. Sidepanel – Modify Programmable Functions

Deleg 1	
✓ None	
2nd	
3rd	
AUX	=>
Ext. Aux	=>
ME 1	=>
ME 2	=>
ME 3	=>
PP	=>
Video Store	
MPR 1	
MPR 2	
TIME Memo	=>

- None:

No function
- 2:

This button is used as 2nd button i.e. shifts the source selection buttons
- 3:

This button is used as 3rd button i.e. shifts the source selection buttons.

- AUX n - M/E Bus - P/P Bus:** These buttons delegate the AUX-CP to the crosspoint selection for the given bus.
- Ext. AUX n:** These buttons delegate the AUX-CP to crosspoint selection for the given external AUX bus.
- TiM/E Memo n:** This button delegates the AUX-CP to register recall for the given TiM/E Memo system.
- Make Memo:** This button delegates the AUX-CP to Make Memo macro recall.

Note This function is not available for AUX-CPs installed at the E-Box

At least one function other than None, 2nd or 3rd must be programmed. Otherwise the AUX-CP performs no action at all.

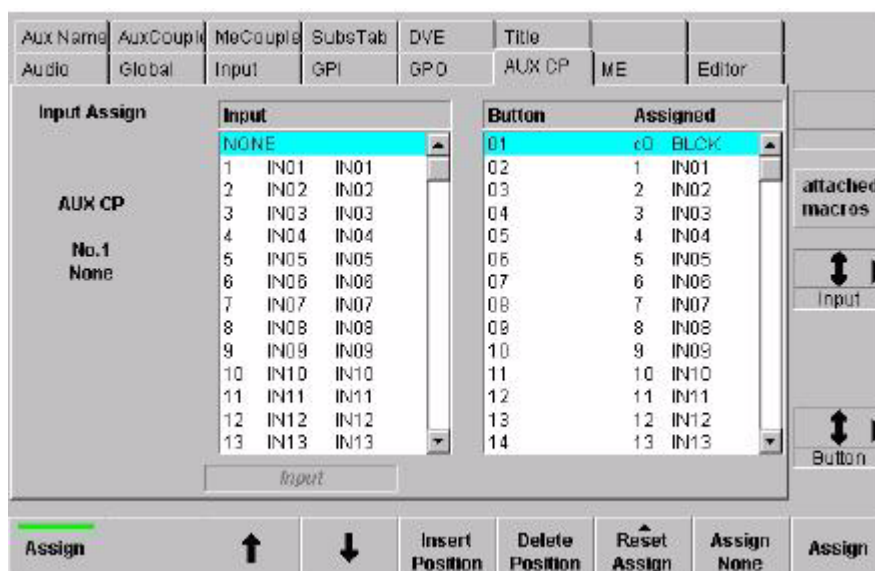
Since the CP-3020 AUX control panel module has only two delegation buttons, **Deleg 1** and **Deleg 2** may be programmed with 2nd and 3rd. In this case, Deleg 3 defines the function of the AUX-CP. Deleg 4..6 can be ignored.

Button Assign:

When the AUX Control Panel is used for crosspoint selection of internal buses, the sources can be assigned freely to the source selection buttons of the AUX-CP. To do this, Assign changes the contents of the index card. (See [Figure 367](#).)

The procedure for input assignment is very similar to the input assignment for the control panel.

Figure 367. Sidepanel – Index Card AUX CP Assign



Button Reset Assign:

Figure 368. Sidepanel – Reset Assign Button



- All None:** All buttons are assigned to no input.
- Default:** Sets the factory default input assign (see table below)
- = All:** Sets the input assign like the input assign for bus row ALL (control panel only)
- = AUX All:** Sets the input assign like the input assign for bus row AUX ALL (control panel only)

Button Insert Position:

Insert the selected input at the current cursor position and moves the previous inputs downwards to the end. At the end of the levels, the last assignment get lost.

Button Delete Position:

Deletes the selected input at the current cursor position and moves the all the next inputs upwards. At the end of the levels, a None will be inserted.

M/E

Index card for global settings for M/E1, M/E2, M/E3 and P/P

Figure 369. Sidepanel – Index Card M/E Settings, 1st page

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor

Parameter	Setting
Operation Mode	M/E
default Preview	Look Ahead PWW
Look-Ahead PWW	On
Black Preset Abort	Off
Transition Abort	Off
FTB Cancel	Off
Auto Trans. Abort Inhibit	Off
Clean (M1CF)	CleanFeed Layer4
Util A (M1CP)	Program
Util B (M1UB)	Program
Util C (M1UC)	Video Send
Util F (M1KY)	Key Send
Enable transition trigger preset bus	Off
Enable transition trigger key1 bus	Off

ME
☐ P/P
☒ ME1
☐ ME2
☐ ME3

Figure 370. Sidepanel – Index Card M/E Settings, 2nd page

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor

Parameter	Setting
Enable transition trigger key1 bus	Off
Enable transition trigger key2 bus	Off
Enable transition trigger key3 bus	Off
Enable transition trigger key4 bus	Off
Enable cut trigger program bus	Off
Enable cut trigger key1 bus	Off
Enable cut trigger key2 bus	Off
Enable cut trigger key3 bus	Off
Enable cut trigger key4 bus	Off
Keydrop Key 1	Off
Keydrop Key 2	Off
Keydrop Key 3	Off
Keydrop Key 4	Off

ME
☐ P/P
☒ ME1
☐ ME2
☐ ME3

Edit Input Name:

The **Edit Input Name** button is only active when one of the M/E Output configuration entries is selected (e.g. Util A...). The button serves to rename the input name of the respective output.

With the **Modify** button the following parameters are selectable:

- Look-Ahead PVW
- Defines the signal for PVW output:
- OFF PVW output = M/E output
- ON PVW output = Look-Ahead PVW
- On-Air PVW M/E on air: PVW output = Look-Ahead PVW
- M/E not on air: PVW output = M/E output

Black Preset Abort (Enable/Disable):

When another program source is selected a currently running transition with BLK PST on will be aborted, the **BLK PST** button lamp turns off and the selected source is taken as program.

Transition Abort (Enable/Disable):

When another program source is selected a currently running transition will be aborted and the selected source is taken as program. Only available in non-layered mode.

FTB Cancel (Enable/Disable):

When another program source is selected an active fade-to-black will be instantly cancelled, so that the image with the selected source is visible on the stages program output. This is available only in non-layered mode.

Auto Transition Abort Inhibit:

In On state, a Auto Transition can not stopped by pressing the **Auto** button again.

Key Drop ...:

The selected keys will be dropped, i.e. cutout, when another program source is selected. Mainly used for DSKs.

Editor

Index card for editor settings.

Figure 371. Sidepanel – Index Card Editor

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor

Parameter	Setting
map P/P to	P/P
map M/E 1 to	M/E 1
map M/E 2 to	M/E 2
map M/E 3 to	M/E 3
map DSK to	P/P
map AUX 1 to	AUX 1
map AUX 2 to	AUX 2
map AUX 3 to	AUX 3
map AUX 4 to	AUX 4
map AUX 5 to	AUX 5
map AUX 6 to	AUX 6
map AUX 7 to	AUX 7
map AUX 8 to	AUX 8
map AUX 9 to	AUX 9
map AUX 10 to	AUX 10

Editor
☒ 1
☐ 2
☐ 3
☐ 4

For details refer to the *Installation and Service Manual*.

AUX Name

Index card for AUX Bus name settings.

Figure 372. Sidepanel – Index Card AUX Names

Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	

Key No	Name
01	EX0
02	EX1
03	EX2
04	EX3
05	EX4
06	EX5
07	EX6
08	EX7
09	EX8
10	EX9
11	EX10
12	EX11
13	EX12
14	EX13
15	EX14

This configuration card is to be used if you want to have source names at the External AUX Bus and the router control protocol excludes the name transfer. E.g. ASCII protocol. The 4digit names occur at the external AUX bus source and they are fixed for each external AUX bus.

Router control protocols with a name transfer do not need the setting here. These protocols are able to grab the name from the external control unit, e.g. Prosan.

AUX Couple

Index card for coupling the AUX bus to other switcher buses (masters). If the source on the master is changed, the source on the coupled AUX bus follows.

Figure 373. Sidepanel – Index Card AUX Couple

Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
AuxBus	Coupled To	Mode	Subst. Table				
1	None						
2	None						
3	None						
4	None						
5	None						
6	None						
7	None						
8	None						
9	None						
10	None						

Coupled To: Select the desired switcher bus

Mode: Normal

In coupled mode, additional selection of sources on the AUX bus is possible.

Exclusive

In coupled mode, additional selection of sources on the AUX bus is not possible.

Subst. Table: Select the desired substitution table. Refer to the index card below.

Subst. Table

Index card for generating and editing a substitution table.

Figure 374. Sidepanel – Index Card Subst Table

Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	

Subst. Table	Input	Subst. Input
1 SUBSTAB1	IN04	IN12
2 SUBSTAB2	IN05	IN13
3 SUBSTAB3		
4 SUBSTAB4		
5 SUBSTAB5		
6 SUBSTAB6		
7 SUBSTAB7		
8 SUBSTAB8		
9 SUBSTAB9		
10 SUBSTAB10		
11 SUBSTAB11		
12 SUBSTAB12		
13 SUBSTAB13		
14 SUBSTAB14		
15 SUBSTAB15		

The index card contains 15 substitution tables. These tables can be used by coupled AUX buses or coupled M/Es to exchange the source when the coupled AUX bus follows his master. Refer also to the AUX Couple and M/E Couple index card above.

- Modify Name:** Enter a new name for the substitution table.
- All Subst:** Sets all substituted inputs to a selectable input, to white or delete all.
- Add Subst:** Enter a new substitution pair in the selected table.
- Remove Subst:** Remove a substitution pair from the selected table.
- Modify Subst:** Modify the selected table.

DVE

Index card for DVE settings.

Figure 375. Sidepanel – Index Card M/E Settings

Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	

Parameter	Setting
Key Bus Coupled	Off
map AUX 1 to	AUX 1
map AUX 2 to	AUX 2
map AUX 3 to	AUX 3
map AUX 4 to	AUX 4
map AUX 5 to	AUX 5
map AUX 6 to	AUX 6
map AUX 7 to	AUX 7
map AUX 8 to	AUX 8
map AUX 9 to	AUX 9
map AUX 10 to	AUX 10

DVE
☒ 1
☐ 2

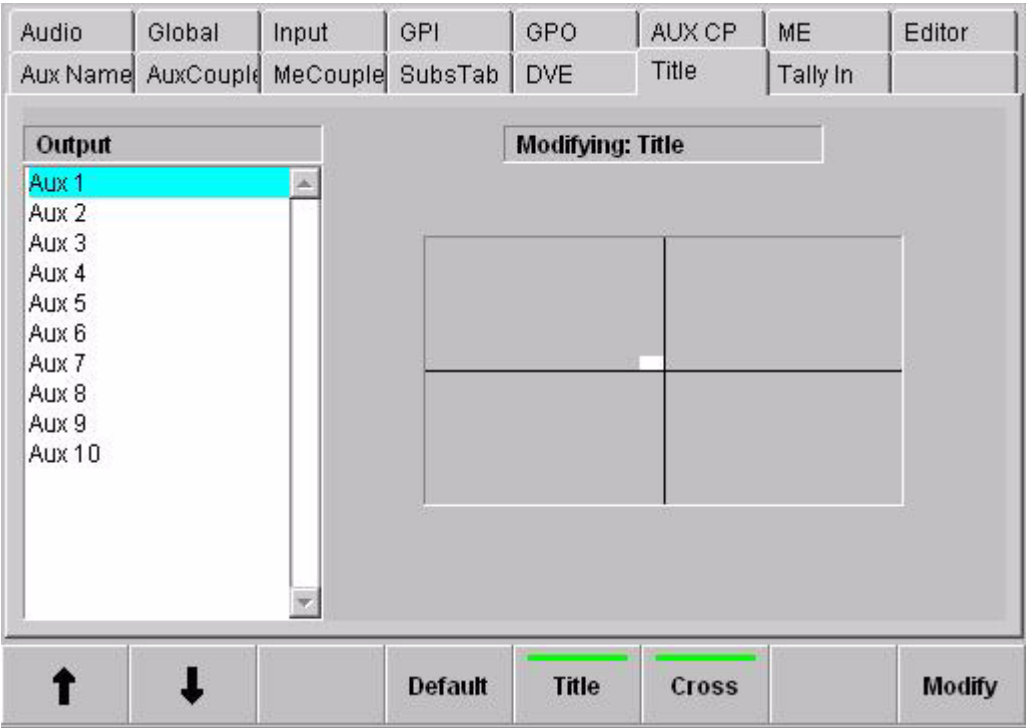
For DVE control, the AUX buses supplying the video and key signals have to be directly indicated in the GVG200 protocol. In order to keep an assignment variable, this index card is available enabling an AUX bus mapping. Thus, not only the permanently entered AUX buses can be used but also all the other AUX buses.

If the DVE Key and Fill source are assigned to AUX buses (that is the normal way working with the DVE) each time the DVE Fill source is changed at the AUX bus selection. The coupled key source is set on the corresponding DVE Key bus. This coupling can be activated or deactivated with the parameter Key Bus Coupled On/Off

Title

Index card for fixed title settings.

Figure 376. Sidepanel – Index Card Title



These adjusting elements enable fading-in different auxiliary lines (Box, Center Cross) into each individual AUX bus. The fading serve as an auxiliary means to mark at productions defined picture areas (e.g. areas for logos, subtitles, 4:3 raster). The digipots enable to adjust the title box or the center cross over the complete picture area.

- Center:** Centers the selected auxiliary line in the picture center
- Title:** Fades in a rectangular frame
- Cross:** Fades in a center cross

Tally In

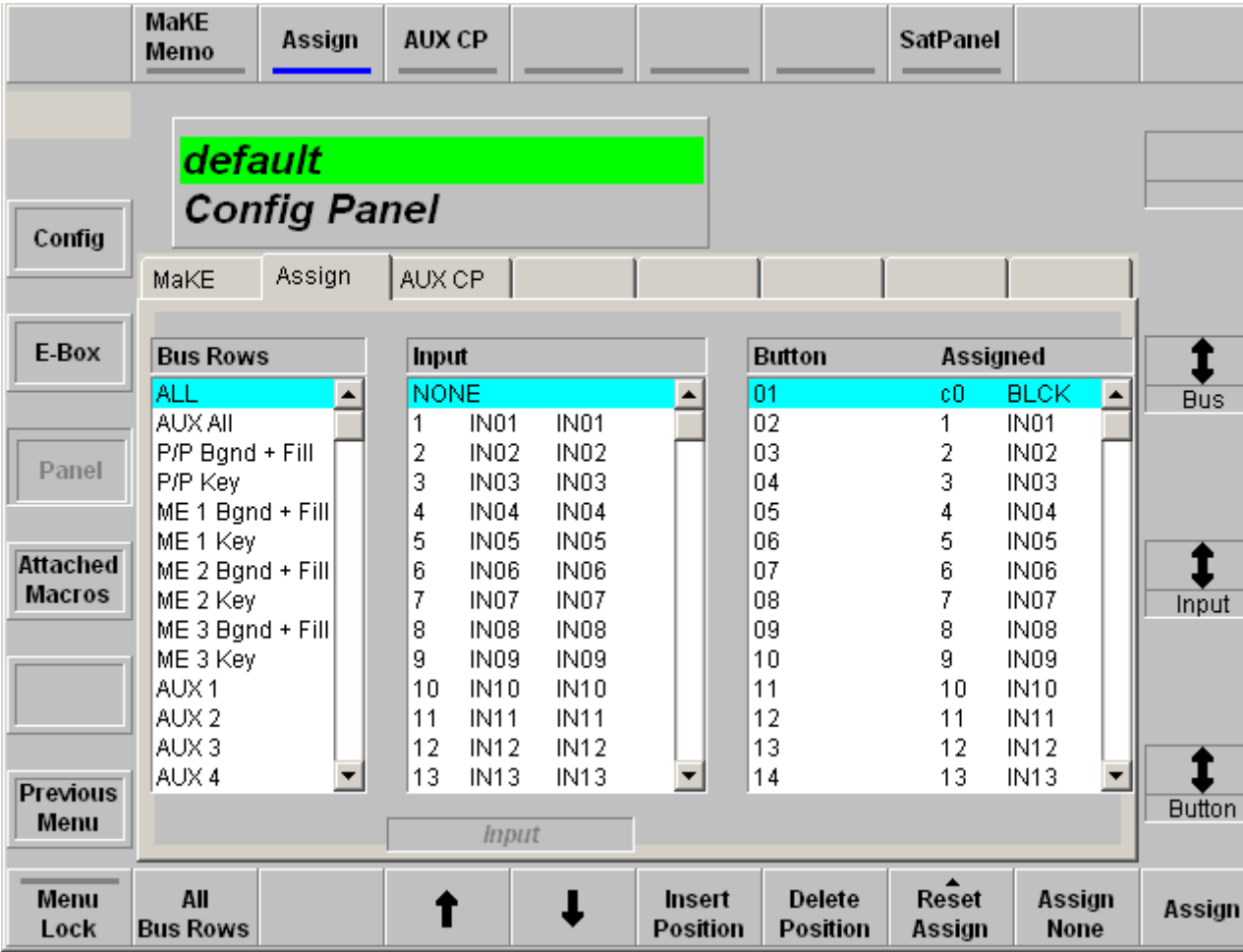
Index card for tally in settings.

Figure 377. Sidepanel – Index Card Tally In

Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Tally In	Red Tally	Green Tally	Yellow Tally				
Aux1	active	---	---				
Aux2	---	---	---				
Aux3	---	---	---				
Aux4	---	---	---				
Aux5	---	---	---				
Aux6	---	---	---				
Aux7	---	---	---				
Aux8	---	---	---				
Aux9	---	---	---				
Aux10	---	---	---				

Config Panel Menu

Figure 378. Sidepanel – Config Panel Menu



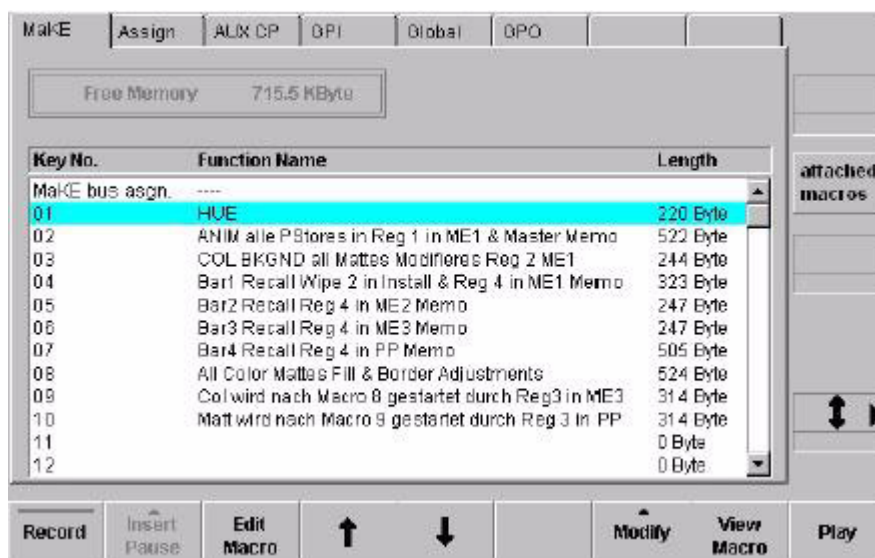
Function Buttons / Index Cards

Make Memo

Make Memo can store commands as macros (e.g. Cut, Auto, GPO trigger, etc.). By inserting **Pause** between commands it can also store a macro sequence. The difference between **TiM/E Memo** with snapshots and timelines to **Make Memo** is, that **TiM/E Memo** store states and sequences of states, **Make Memo** stores commands and sequences of commands.

For recall the stored macros the PP source selection panel is used. The **Make** button delegates the PP keyer bus to the Make Memo function.

Figure 379. Sidepanel – Index Card MaKE



Record

Start and stop recording macros.

Insert Pause

Active only if the **Record** button is selected.

Figure 380. Sidepanel – Insert Pause Button



Edit Macro - View Macro – Modify

For details refer to the section on *Macro Editor* [on page 456](#)

Cursor Up/Down

The vertical cursor softkeys and the vertical cursor digipot are used to navigate within a list box. The complete cursor control is always relevant.

How to Store a Macro

Make sure that in the Config menu the Running Application is selected to which you want to add the macros. If the cursor is not on a Running Application the menu item menu is disabled.

Select with the cursor button, the digipot or by mouse click a free Key No. in the Make Memo list field.

Push the **Record** button to start recording the macro. Push the desired control panel buttons and adjust the desired digipots. If a pause is needed between commands, push the Insert Pause and select the desired time (0.5, 1.0, 2.0, 3.0 or 5.0 in seconds), then proceed with the commands. At the end of the macro push Record again to stop recording.

Note If no pause is inserted all commands are executed immediately.

If you want to rename the stored commands push Modify and select Rename in the overlay. Type in the name with the keyboard overlay.

To copy a macro to another Key No. select the macro and push **Modify**. Select **Copy** in the overlay. Type in the desired Key No. and confirm with **Enter**.

Macros can also be swapped by selecting **Swap** in the Modify overlay.

To delete a macro select the macro in the list, push **Modify** and select **Delete**.

It is possible to assign other buses to the **Make** buttons in the control panel., e.g. AUX buses. Select **Key All** and push **Modify**. Select from the overlay the bus you want to assign to these buttons.

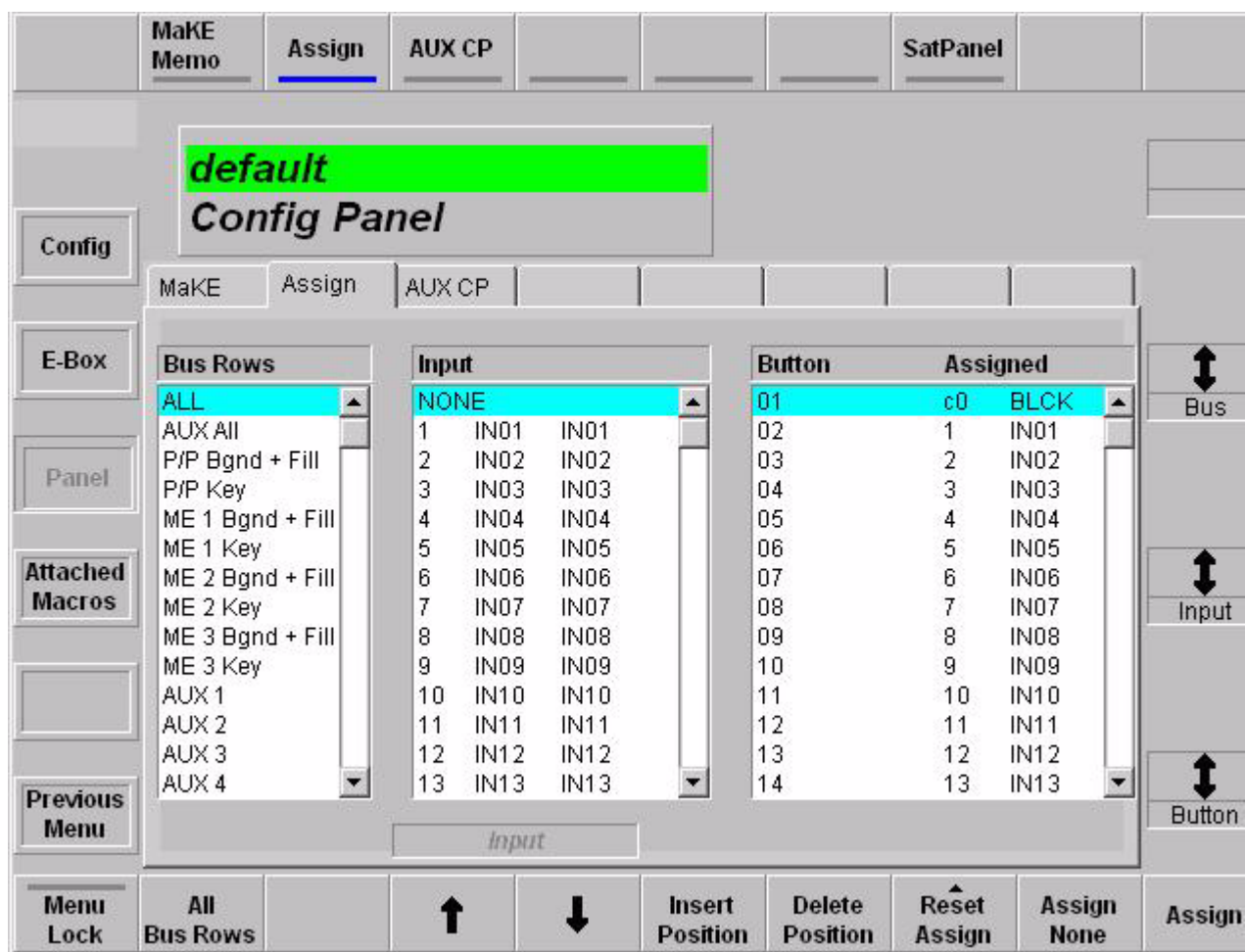
Transfer Key

Transfer the selected macro from one button to another.

Assign

Index card for Input Assignment. The menu is selectable only when a control panel is attached. Only a user with permit "APPLICATION MODIFY" can make changes.

Figure 381. Sidepanel – Index Card Config Panel



Box Bus Rows: Pre-selects the panel's bus rows for which the Input Assignment should be changed.

Selectable are:

ALL (= all bus rows on the panel)

P/P-Bgnd + Fill

P/P-Key

AUX All

AUX 1 ... AUX 10

Note Extern AUX is not selectable.

- Box Input:** Shows a sorted list of all assignable inputs (Number, four char ident, eight char ident) plus the entry None which must be used to assign no input to a button. The arrow in the column farthest to the right indicates the input that is assigned to the button which is currently marked in the box **Button**.
- Box Button:** Shows a sorted list of all assignable crosspoint buttons. The arrow in column 1 indicates the buttons which are assigned to the input currently marked in box Input.
- Column 2 is the numeric list of all buttons.
- Column 3 is a helper to show whether the Button is in first 2nd or 3rd level.
- Column 4 and 5 show the number and the four char ident of the assigned input. Dashes (– –) indicate that no input is assigned.
- All Bus Rows:** Shortcut for pre-selecting bus row ALL.
- Cursor Up/Down:** The vertical cursor softkeys and the vertical cursor digipot are used to navigate within a list box. The complete cursor control is always relevant.
- Insert Position:** Insert the selected input at the current cursor position and moves the previous inputs downwards to the end. At the end of the levels, the last assignment get lost.
- Delete Position:** Deletes the selected input at the current cursor position and moves the all the next inputs upwards. At the end of the levels, a None will be inserted.

Reset Assign

Resets the assignment to the following states:

Figure 382. Sidepanel – Reset Assign Button



Opens an overlay with some pre-defined input assignments:

Like Bgnd copies the input assignment from the Bgnd bus row into the key bus row (only for key buses):

Like AUX All:	Copies the input assignment from the AUX All bus row into the selected bus row.
Like ALL	Copies the input assignment from the ALL bus row into the selected bus row.
Black Left	Makes a default assignment with input Black on the button furthest to the left.
Black Right	Makes a default assignment with input Black on the button farthest to the right.
All None	Assigns no input to all buttons of selected bus row.
Assign None	Moves the cursor in the right table downwards.
Assign	Moves both cursors downwards.

AUX CP

Index card for configuration the AUX Control Panels connected with the switcher control panel.

Figure 383. Sidepanel – Index Card AUX CP

Make	Assign	AUX CP	OPI				
Aux Cp	Deleg 1	Deleg 2	Deleg 3	Deleg 4	Deleg 5	Deleg 6	
1 cp330	None	None	None	None	None	None	
2 cp330	None	None	None	None	None	None	
3 cp330							
4 cp330							
5 cp330							
6 cp330							
7 cp330							

Modify: For details refer to the section on *Config E-Box Menu* on [page 426](#).

Delegation: Pressing a delegation button delegates the AUX-CP to that function. The delegation button is lit to indicate that status. If possible, the source buttons show the current status of the delegated function. In most cases, this will be the selected crosspoint on the delegated bus. If the function is TiME Memo recall or Make Memo recall, no state is indicated because such recalls are events.

2nd, 3rd: Pressing a delegation button that is programmed to be 2nd or 3rd toggles the shift level of the source buttons.

Figure 384. Delegation Buttons

2nd	3rd	Source buttons CP-300	Source buttons CP-330	Source buttons CP-3020
off	off	1 .. 24	1 .. 48	1 .. 20 (+ 20 per CP 3021)
on	off	25 .. 48	25 .. 62	21 .. 40 (+ 20 per CP 3021)
off	on	49 .. 72	49 .. 96	41 .. 60 (+ 20 per CP 3021)
on	on	not allowed		

Source Buttons:

Pressing a source button performs the function according to the delegation. It selects the crosspoint or recalls the register or macro.

The response to a recall is a short flash of the source button. The response to a crosspoint selection is the indication of the new crosspoint.

AUX-CP Enable:

In menu Remote, the AUX-CPs can be enabled or disabled. In disabled state, the AUX-CP performs no function. Local delegation is still possible.

Macro Editor

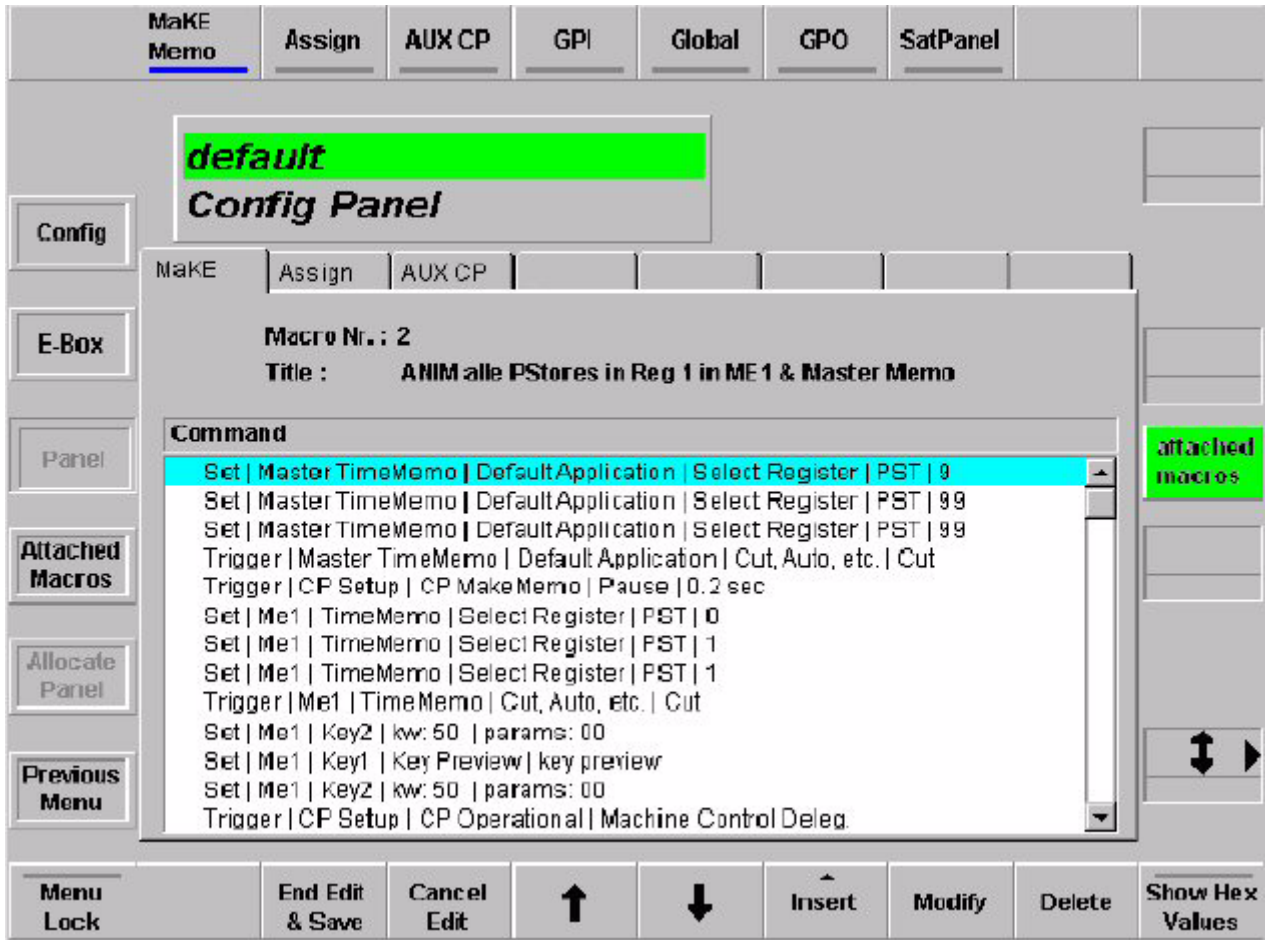
Edit Macro

Pressing the button actually enters a sub-dialog of the MaKE page (see below).

View Macro

Pressing the button enters the same dialog as **Edit Macro**, but without any buttons to change the contents

Figure 385. Sidepanel – Index Card MaKE



SubDialog Macro Editor:

End Edit & Save: Pressing the button saves the actual changes made in the macro editor and returns to the MaKE dialog.

Cancel Edit: Pressing the button discards changes made in the macro editor and returns to the MaKE dialog.

Insert:

Figure 386. Sidepanel – Insert Macro



**Insert new
command at
select.**

Insert an empty command line before the selected command.

**Insert new hard
disk. at end**

Insert an empty command line after the last command.

**Insert exist. macro
at select.**

Insert an existing macro before the selected command.

**Insert exist. macro
at end**

Insert an existing macro after the last command.

Modify

Pressing the button modifies selected command (or empty command line).

Delete

Pressing the button deletes selected command (or empty command line).

Show Hex Values

Pressing the button toggles the display between normal text mode and technical mode showing the command in hexadecimal code:

Figure 387. Macro Editor – Normal Text Mode

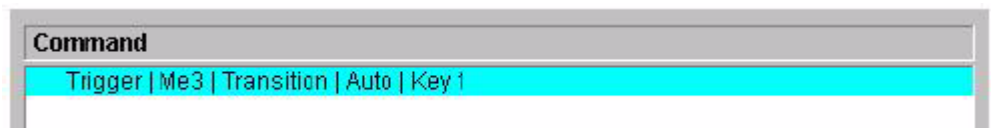
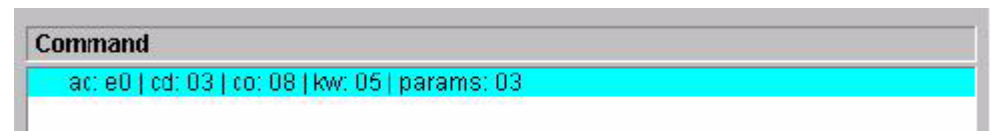
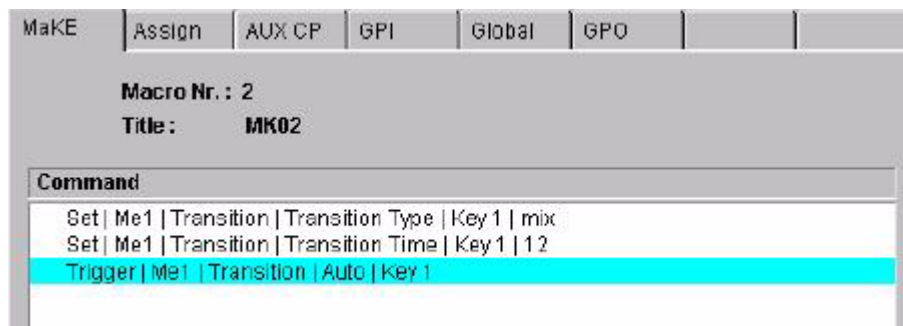


Figure 388. Macro Editor – Hexadecimal Mode



Principles of the Macro Editor:

Figure 389. Macro Editor



With the macro editor you can view and edit the contents of a macro. You can delete commands from the macro by just pressing the delete button. Insert a command can be done in two ways:

- Insert an empty command line and modify this line directly in the command editor.
- Create a (temporary) macro with the commands needed on the control panel and insert this macro.

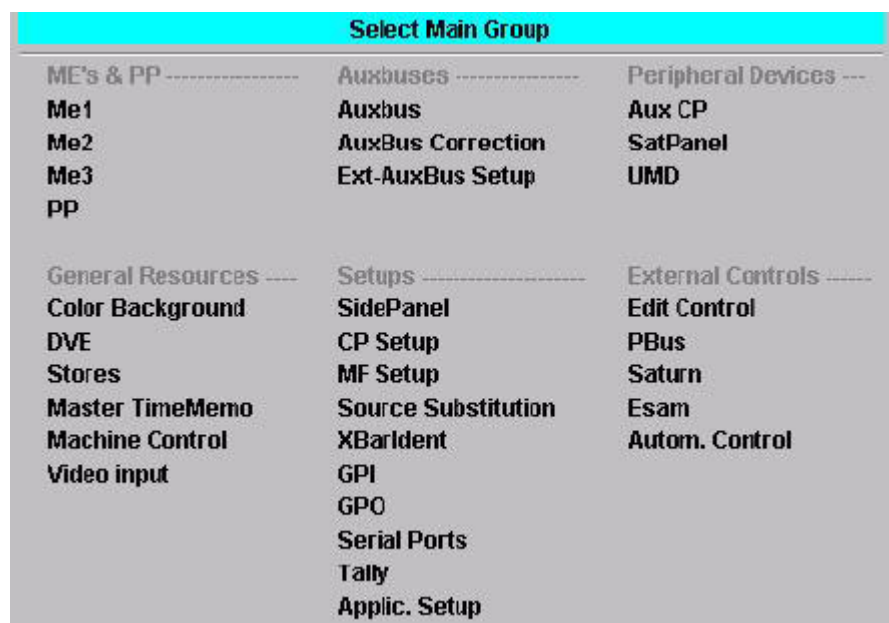
Inserting an existing macro is the simpler way to add commands, however creating command directly in the editor gives you more flexibility.

Creating/changing commands with Modify:

When you press the **Modify** button, a sequence of pop-up windows appears allowing you to create the command you want.

Example for a pop-up selection:

Figure 390. Macro Editor – Creating and Changing Commands with Modify



Depending whether the command deals with a switch value, an analog value, or an event you will find one of the following selection pop-ups:

Switch value (e.g. Wipe Rotation Mode):

Figure 391. Macro Editor – Switch Value Example



Set by value

Sets rotation mode to a fixed value.

Next selection will be: Angle / Speed / Coupled

Toggle up

When you execute this macro, the result depends on the actual state:

When Angle > Speed

When Speed > Coupled

When Coupled > Coupled some parameters allow wrap-around.

In this case Coupled would change to Angle.

On/Off parameters always allow wrap-around.

Toggle down

When you execute this macro, the result depends on the Actual state:

When Coupled > Speed

When Speed > Angle

When Angle > Angle some parameters allow wrap-around.

In this case Angle would change to Coupled.

On/Off parameters always allow wrap-around.

When you learn macros via the control panel, you will find out that some commands are learned as “set by value” and others by “toggle” (e.g. **On/Off** command).

When you create the commands directly in the command editor you have the choice to select the way most convenient to you.

Analog value (e.g. Wipe Border Width):

Figure 392. Macro Editor – Analog Value Example



Set by value	Sets border width to a fixed value. Next selection will allow you numeric entry.
Set to minimum	Sets the border width to minimum
Set to maximum	Sets the border width to maximum
Set to neutral	Some analog value like the border width have a symmetrical range (+/-). Set to neutral selects the middle position.
Increment	Allows you to create a macro which increases/decreases the value by a certain amount any time you execute the macro. Analog commands can only be created directly in the command editor. Via the control panel you can not learn analog macros.

An interesting analog macro might be similar to the following:

Figure 393. Macro Editor – Analog Macro Example



This macro will always set Dsk1 to **On**.

A macro learned on the control panel with **Cut** or **Auto** instead will toggle the state of the DSK.

Event (e.g. Transition Cut):

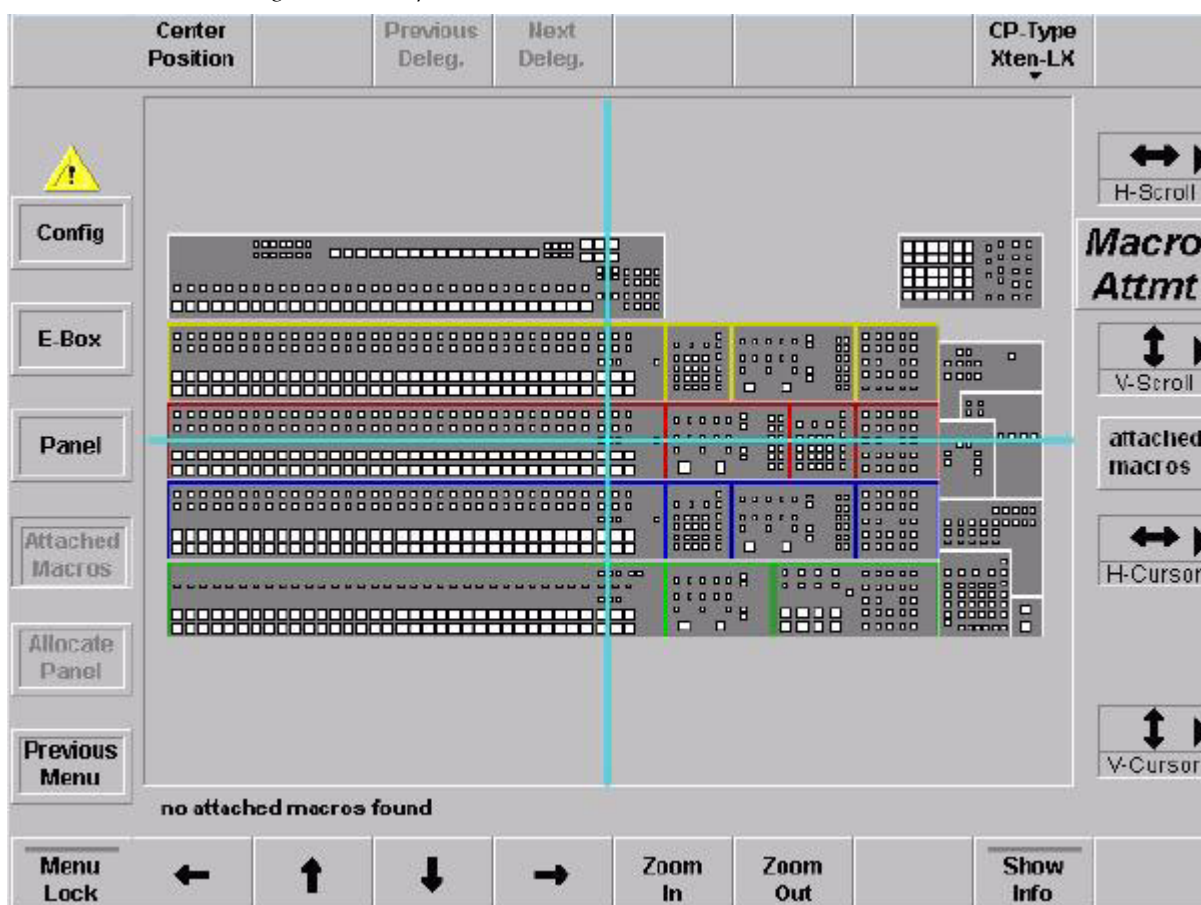
Figure 394. Macro Editor – Event Example



Trigger For this type there is only one selection possible: to trigger the event

Attached Macros Menu

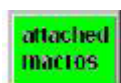
Figure 395. Sidepanel – Attached Macros Menu



Viewer for Attached Macros

This menu can be accessed in two ways:

Figure 396. Macro Editor – Attached Macros Button



Via the **Config / Attached Macros** menu by clicking the **Attached Macros** button, which is visible in all menus at the right side between the middle digipots. This button is only visible when there is at least one macro attachment. The button is gray or green, depending on the settings in the menu **Personality / Panel / MaKE Memo Attachment Playmode**.

Principles of Macro Attachment

Macros can be recalled manually via the macro bus row (Keyer row in Program/ Preset) and via the sidepanel. A more sophisticated way is to recall a macro automatically when you press any other button on the panel. Since a normal button has its own function, you can attach a macro which is executed BEFORE the actual function (pre-macro) and/or a macro which is executed AFTER the actual function (post-macro).

The macros are not attached to the physical buttons, but to the logical buttons. That means, when you attach a macro to the first button in the AUX bus row while the AUX bus delegation is on AUX bus 5 and second page is selected, this macro is only fired at the button press for this special setting.

- Center Position:

Centers the display and the cursor
- Previous Deleg.:

Toggles the info display backwards through the different delegations. Only enabled for buttons with more delegation levels (e.g. AUX bus row buttons, Keyer section buttons).
- Next Deleg.:

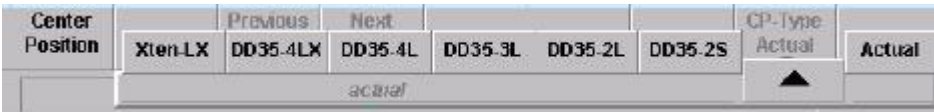
Toggles the info display forwards through the different delegations. Only enabled for buttons with more delegation levels (e.g. AUX bus row buttons, keyer section buttons, wipe selection buttons).
- CP-Type:

The default panel type to display is of course the actual panel type. You can select all other panel types in case you want to export your application to another type of panel. Since panels differ in button layout some button of type A may not exist on panel type B. Macro attached to this buttons will be shown as “not decoded macros” for panel type B.

Available panel types:

Automatically selects the connected panel type.

Figure 397. Macro Attachment Available Panel Types



Left/Right/Up/Down Arrow:

Scrolling the display in the corresponding direction.

Zoom In: Zoom in display. Starting from a certain zoom factor the text labels per button are displayed.

Zoom Out: Zoom out display.

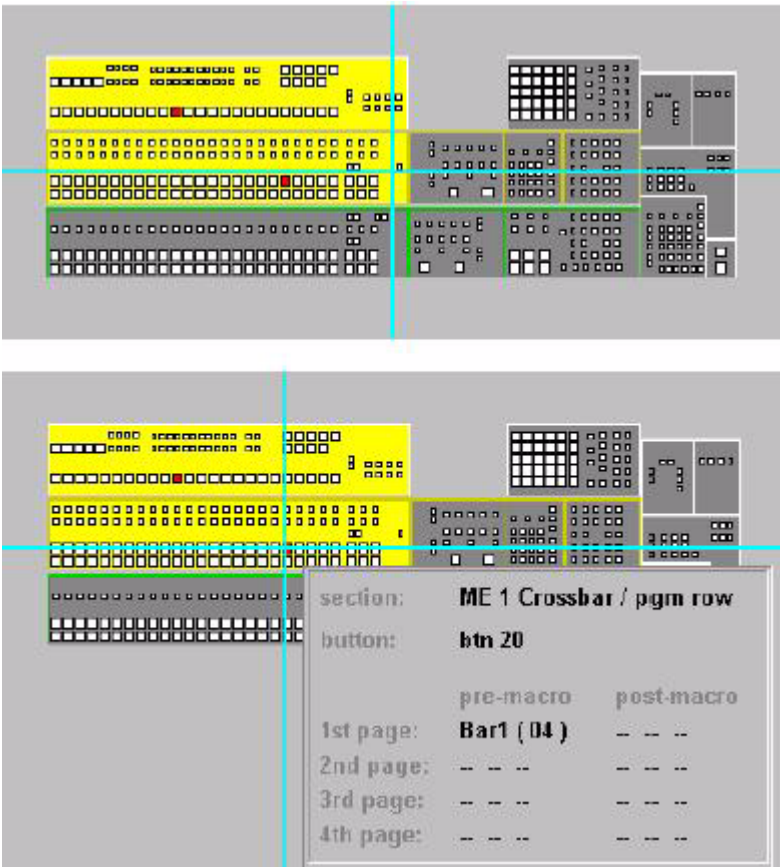
Show Info: If **On** the “info popup window” is shown whenever the cursor (blue crosshair) is over a button. If **Off** the “info popup window” is only shown as long as you hold down the left mouse button on the corresponding button. The 4 digipots also allow to scroll the display and to move the cursor (blue crosshair).

Attachment Display:

If a macro is attached to a button in a certain section (e.g. AUX row, M/E1 row) this section is displayed with a yellow background. The buttons with attached macros are displayed in red.

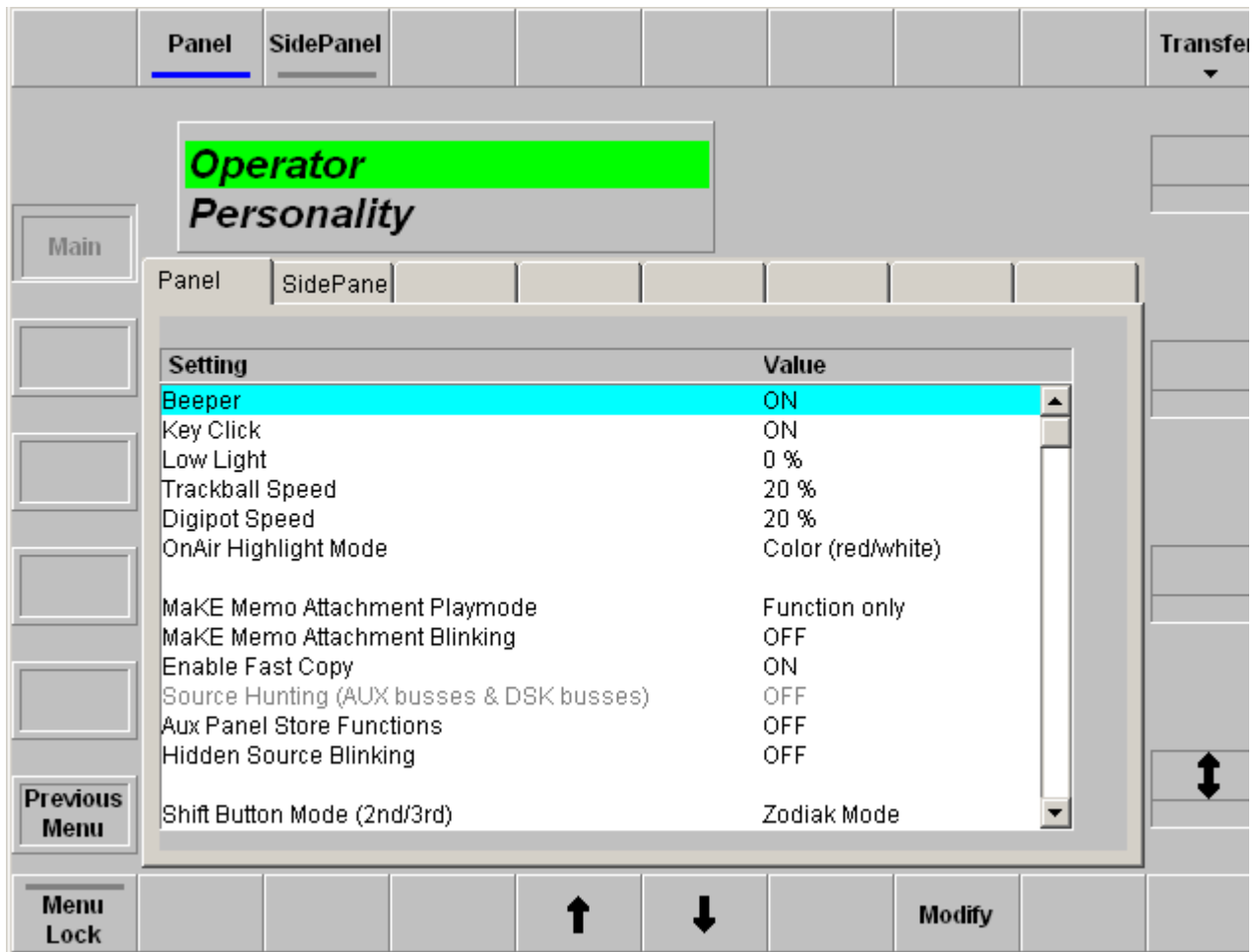
To see the details of the attachment, move the cursor to the corresponding button (or click on it) to open the “info popup window”. Here you will see for which delegations and which pages pre- and/or post-macros are attached with the name and the number of the macro.

Figure 398. Sidepanel – Attachment Display



Personality Menu

Figure 399. Sidepanel – Personality Menu



The menu permits personality settings for the panel and sidepanel (PC and display).

With the **Transfer** button, the settings can be saved (Export) on a diskette or loaded (Import) from a diskette.

Figure 400. Personality Menu – Transfer Button



Panel

Index card for panel settings.

Figure 401. Sidepanel – Index Card Panel, 1st page

Panel	
SidePane	
Setting	Value
Beeper	ON
Key Click	ON
Low Light	0 %
Trackball Speed	20 %
Digipot Speed	20 %
OnAir Highlight Mode	Color (red/white)
Make Memo Attachment Playmode	Function only
Make Memo Attachment Blinking	OFF
Enable Fast Copy	ON
Source Hunting (AUX busses & DSK busses)	OFF
Aux Panel Store Functions	OFF
Hidden Source Blinking	OFF
Shift Button Mode (2nd/3rd)	Zodiak Mode

Figure 402. Sidepanel – Index Card Panel, 2nd page

Panel	
SidePane	
Setting	Value
Flip-flop 2nd/3rd for PGM/PST	OFF
PP-Key (2nd/3rd) Follow Bgnd (2nd/3rd) (2S-Panel)	OFF
Macro Edit Buttons (2S Panel)	OFF
Simulcast UPK Mode	Latch Mode
X-Bar AuxBus Delegation	ON
X-Bar to Side Panel Delegation	ON
AutoMenu: Control Panel => Side Panel	ON
AutoDelegation: Side Panel => Control Panel	ON
AutoDelegation: RSat Panel => Control Panel	ON
Trans. DVE Menu Delegation	ON
Trans. Key Menu Delegation	ON
Trans. ME Menu Delegation	ON
Trans. Wipe Menu Delegation	ON

Use the **Modify** button to set your settings.

SidePanel

Index card for sidepanel settings.

Figure 403. Sidepanel – Index Card SidePanel

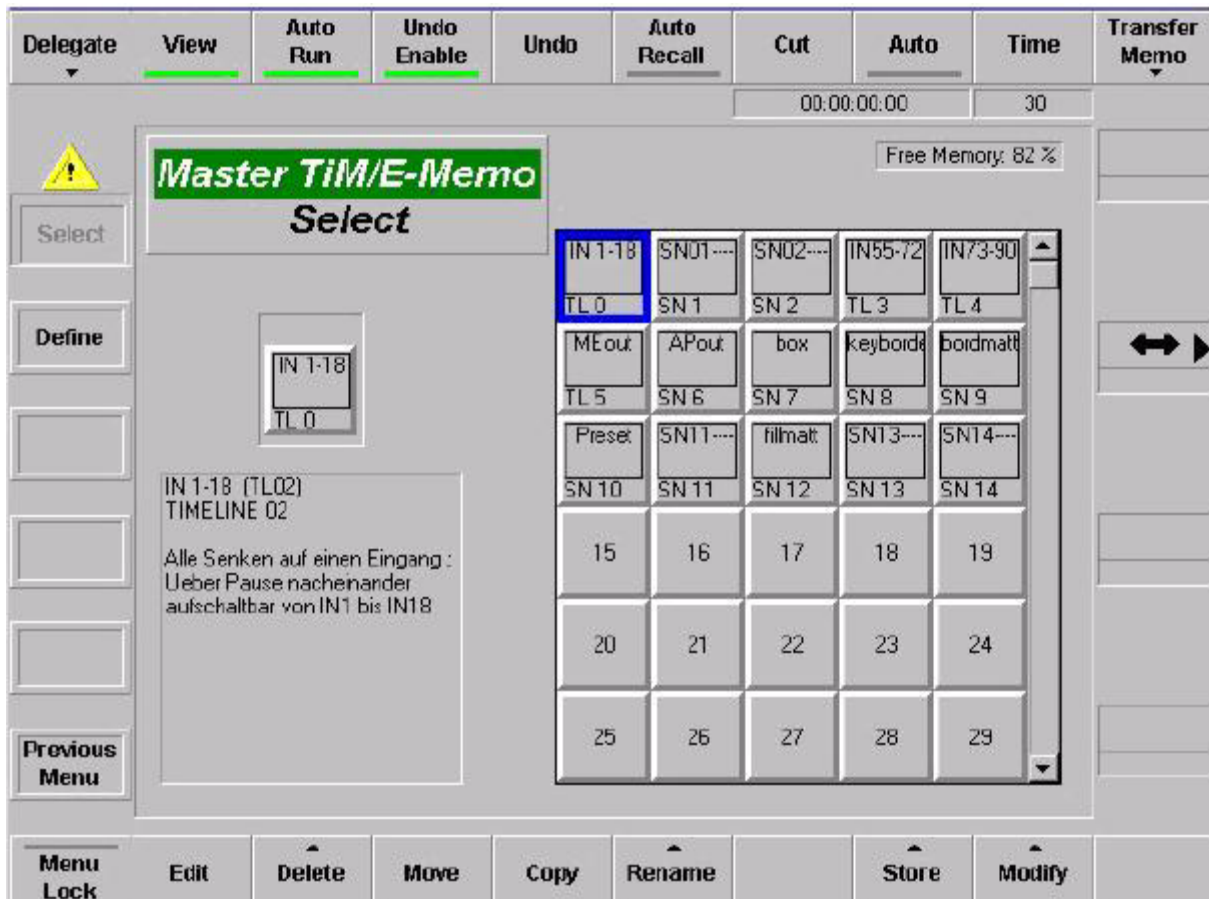
Panel		SidePanel						
Setting		Value						
TFT Intensity		100 %						
Popup Time		0 s						
Overlay Time		5 s						
Timeline Edit Direct Modify		off						
Main Page for WIPE		(after Sidepanel Restart)	Adjust					
Main Page for Mediaplayer		(after Sidepanel Restart)	Extern MP					
Main Page for DVE		(after Sidepanel Restart)	Extern DVE					
Switcher Type for Demo-Mode		(after Sidepanel Restart)	XtenDD SD					

Use the **Modify** button to set your settings.

TiM/E Memo Menu

TiM/E Memo Select Menu

Figure 404. Sidepanel – Master TiM/E Memo Menu



The Select menu enables to directly select the individual register 0 ... 99. The info field on the left side displays the short name, the long name and the text of the register just marked with the cursor frame.

Function Buttons

Delegate

If this button is pressed, the user can select another TiM/E Memo to go to. So it is possible to switch over to the PP, M/E1, M/E2, M/E3 or Master TiM/E Memo Select Menu.

Figure 405. Delegate Function Button



Note TiM/E Memo edit menu: If a M/E is in Edit mode and if the M/E changed with the **Delegate** button to a M/E which is in Select mode, the menu remains in edit mode and vice versa. The M/E cannot be changed with the **TiM/E Memo** menu button on the right side of menu display.

View

On: If the user is going to edit a timeline, then he will see the results of his modifications and cursor movement in the video, i.e. if a keyframe or snapshot object will be selected, it will be recalled and displayed in the video.

Off: If the user is going to edit a timeline, then he will not see the results of his modifications and cursor movement in the video, i.e. the state of any object and the video will not be affected.

Auto Run

When Auto Run is switched **off**, the timeline is played completely and only stopped when a **Wait** is inserted into the timeline.

When Auto Run is switched **on**, only the first keyframe of the timeline is recalled, thereafter the timeline is stopped until the user continues the timeline with Continue. Subsequently it continues running normally.

Undo Enable

If this button is pressed, the state before the last recall or timeline play is restored.

Undo Enable/Disable

For special application, the Undo function can be disabled. If Undo disabled, no undo state is stored before snapshot recalls and playing timelines. Recalling the undo state is therefore not possible. The reason for disabling the Undo feature is, that it saves time before snapshot recalls.

Auto Recall

If this button is pressed, snapshots and timelines will be recalled / played as they were stored or edited, i.e. they will not be filtered through the currently adjusted define memo. The define memo is changed after a snapshot recall / timeline play to that define memo which is implicitly stored within snapshots and timelines. Starts playing a selected timeline immediately.

Cut

- If snapshot selected: Recall
- If timeline selected: Timeline Play

Auto

If this button is pressed and a snapshot is selected, a dissolve operation with the Auto transition time for this snapshot will be done. If a timeline is selected and then the **Auto** button is pressed, the selected timeline will be played in the given Auto Time. While the dissolve or auto play operation the button LED is on. Timelines containing endless loops or waiting for an event (GPI, time) can't be played with Auto.

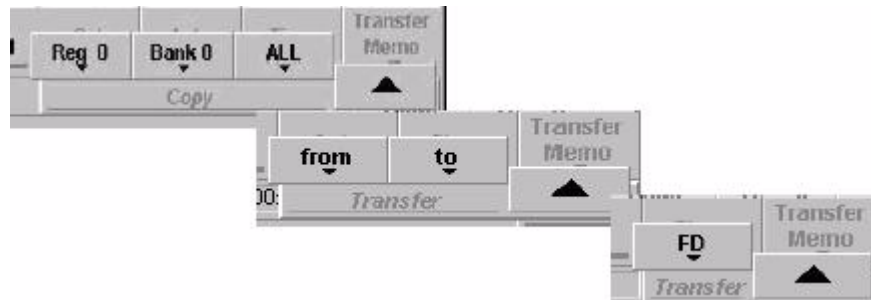
Time

If this button is pressed, the user can adjust the Auto Time for snapshot dissolves and timeline auto play and the default transition time for keyframes in timelines.

Transfer memo

If this button is pressed, the user can save the contents (snapshot or timeline) of a registers (Reg1 .. 99) to a floppy disk (FD) or load data into a register.

Figure 406. Transfer Memo Function Button



Menu Lock

Locks the current menu.

Edit

Selecting the Edit menu and enabling the edit function for the register selected with the blue cursor frame. For details refer to the section on *Edit Menu* on page 475.

Delete

Deletes the register selected with the blue cursor frame.

Move

Moves a snapshot from one register to another. If the destination register already contains a snapshot or timeline, both register contents will be changed.

Rename

Renames the currently selected register. The user can rename the 4, 8 and 20 character names and change the 256 character comment.

Figure 407. Rename Function Button



Store

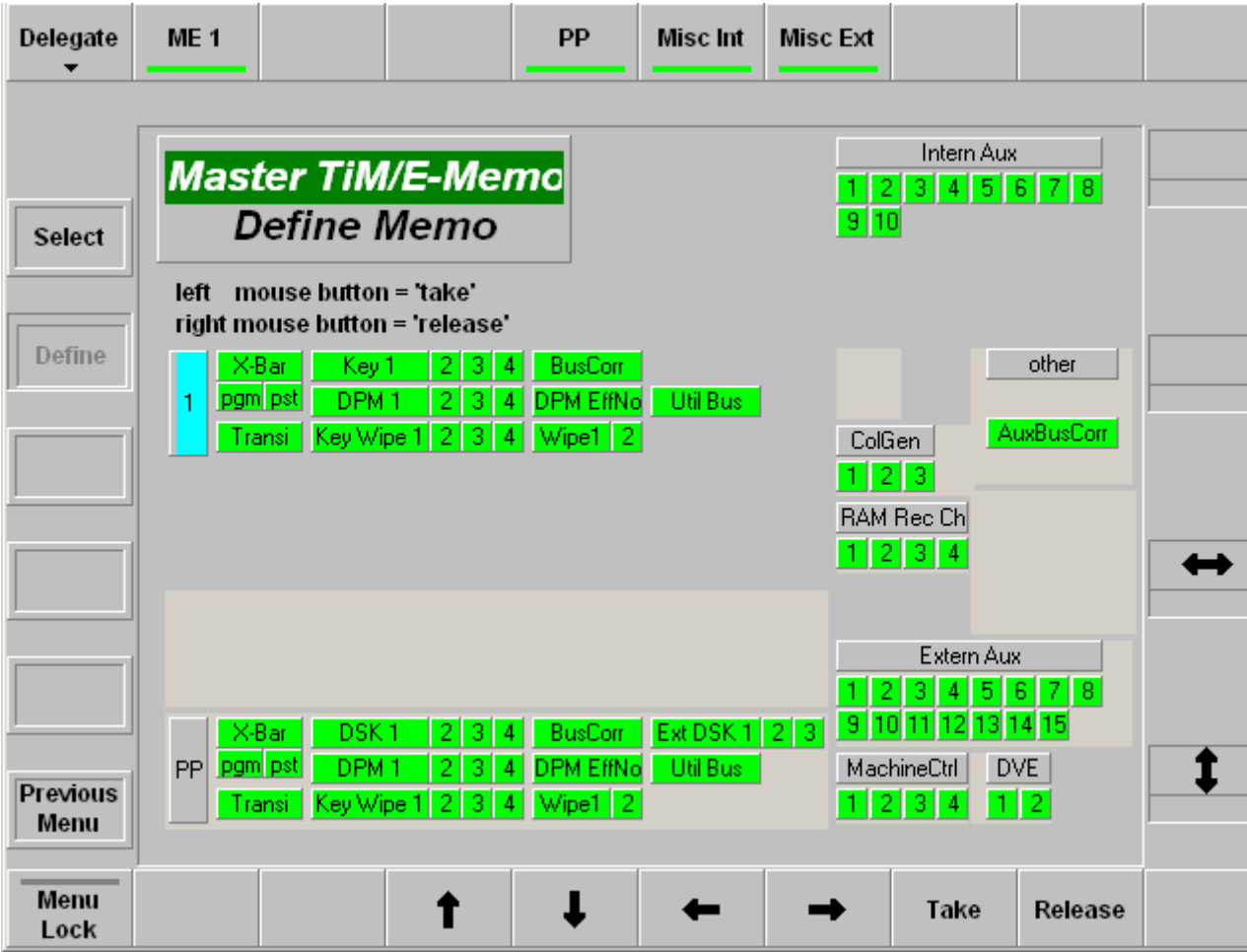
Stores the currently in Define Memo enabled entities to the selected (blue cursor frame) register as a snapshot.

Modify

Modifies a stored snapshot according to the currently defined Define Memo. The state of all currently in the Define Memo enabled entities will be changed in the selected snapshot to the currently adjusted state, e.g. if the border color of a wipe effect has to be changed from red to green in a already stored snapshot you have to select this snapshot, enable only the wipe in the Define Memo and adjust the mixer to the state where the border color is green. Then press Modify. The border color of this wipe now will be changed in the selected snapshot to green.

Define Memo Menu

Figure 408. Sidepanel – Define Memo Menu



The menu indicates which switcher resources are stored in snapshots and timelines.

For this purpose, a symbolic representation of the switcher appears in the menu.

- Blue:** Cursor position
- Yellow:** Selectable switcher functions
- Green:** Selected Switcher functions

Note Resource conflicts are possible. In the Define Memo menus of the M/E1..3 TiM/E Memo all resources not belonging to that M/E are “released” for default.

The X-Bar object in the menu Define Memo got the sub-entries `pgm` and `pst`. Thus, PGM sources and PST sources can be selected individually. The states of both are stored but only the activated bus will be recalled.

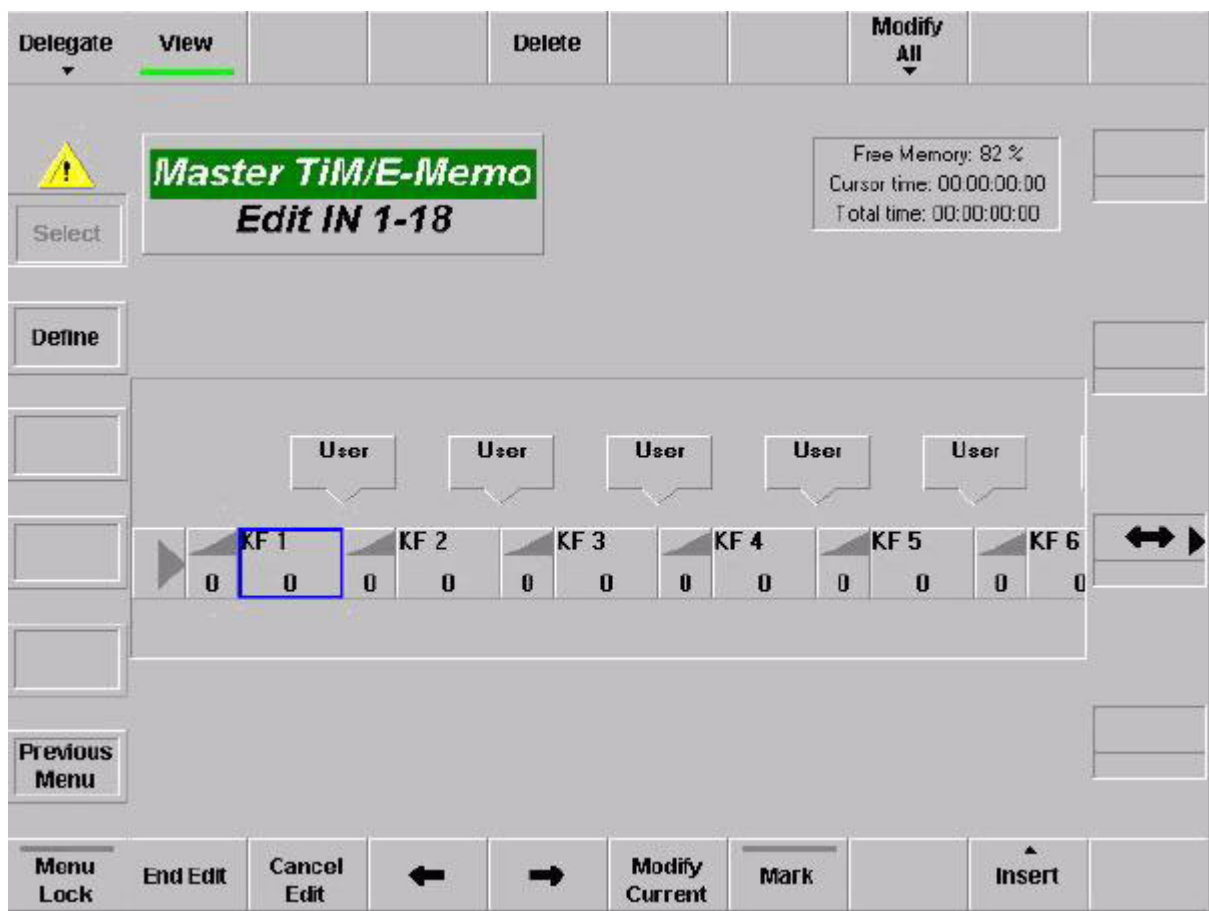
Example:

If PGM is disabled during Recall, the PGM row of the selected M/E is not affected by the snapshot recall (or timeline).

It is not recommended, to disable only one bus (PGM or PST) during Recall, in case of timelines that are including background transitions.

Edit Menu

Figure 409. Sidepanel – Master TiM/E Memo Edit Menu



Dialog Buttons

Note If the edit mode is activated the respective Select menu of the TiM/E memo cannot be selected.

Function Buttons

View

On: If the user is going to edit a timeline, then he will see the results of his modifications and cursor movement in the video, i.e. if a keyframe or snapshot object will be selected, it will be recalled and displayed in the video.

Off: If the user is going to edit a timeline, then he will not see the results of his modifications and cursor movement in the video, i.e. the state of any object and the video will not be affected.

Delete

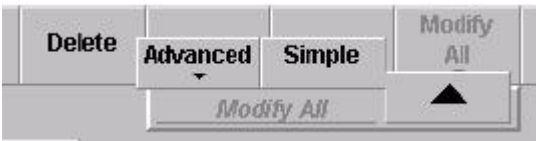
Delete the keyframe marked with the cursor.

Selecting of the Modify All mode:

Modify All / Modify range

If is range is selected, the changes refer only to this area, otherwise the changes are carried out in the entire timeline.

Figure 410. Modify All Simple Function Button



Simple:

Changes the parameters which can be adjusted with digipots and buttons absolutely on the adjusted value.

Advanced:

The following functions change the keyframe contents:

Figure 411. Modify All Advanced Function Button



Digipots Relative:

Changes the parameters which can be adjusted with the digipots in a relative amount, e.g. color, brightness, pattern size, clip level, etc.

Digipots:

Changes the parameters which can be adjusted with the digipots absolutely on the adjusted value, e.g. color, brightness, pattern size, clip level, etc.

Buttons:

Changes the state of values which can be adjusted with buttons, e.g. cross-points, key modes, wipe pattern, rotation on/off etc.

Exchange Buttons:

This function changes only values which have a certain value. In order to set this value pressed previously the Set KF Ref button. Then enter the desired new value and press the **Exchange Buttons** button.

Example:

Exchange the circles in the time line through stars.

1. Selected wipe pattern no 119 (circle).
2. Press **Set KF Ref**.
3. Selected wipe pattern no. 131 (stars).
4. Press **Exchange Buttons**.

The following functions do not change the keyframe contents:

Transition → Duration

Changes all transition times.

Transition → Type

Changes the transition type (Linear / S-Linear).

Hold Time

Changes the hold time of the keyframe.

End Edit

Close the edit mode with saving the modification.

Cancel Edit

Cancel the edit mode without saving.

Left / Right Cursor

Navigate the cursor inside the timeline

Modify Current

The parameter listbox appears for the current selected object. If it is a keyframe, the parameter listbox shows the entry Store Keyframe [Yes/No]. The default value depends on whether View On or Off is selected. Store Keyframe [Yes] means that the keyframe data of the object are also stored when the listbox is closed with OK. I.e. there is a simple possibility to change the keyframe data.

- When the listbox is opened, the cursor can be set with the mouse or the digipot to other objects in the timeline. The listbox then shows the state of the current selected object.
- Double-clicking an object with the mouse opens the listbox just the same as the button **Modify Current**.

Mark

This button enables selection of a range in the timeline. If a range is selected, the **Modify All** button changes its display to **Modify Range**. All modifications are performed in the selected range only.

Insert

Insert an object in a timeline. For details see below.

Figure 412. Insert Function Button



- Current:** Insert a keyframe with the actual settings
- Stored:** Insert a stored Snapshot or Sequence. Enter the desired number.
- Wait:** Insert a wait object GPI, User, TOD, Hold.
- Trigger:** Insert a trigger object GPO, DVE, Machine, Memo, MaKE, PBus.
- Loop:** Insert a loop object Begin, End

Note To insert a PBus Trigger/Register: Under Insert > Trigger > PBus, a **Trigger PBus** command or a **PBus Register** command can be inserted into the timeline.

PBus Trigger:

The listbox represents the machines and the meaning of the trigger for the machines.

The first line in the listbox shows the numeric value of the trigger. All machines get the same trigger whose meaning, however, can be different for the individual machines. If the trigger is changed for one machine, in general, the display of the other machines is also changed as well as the numeric value of the trigger.

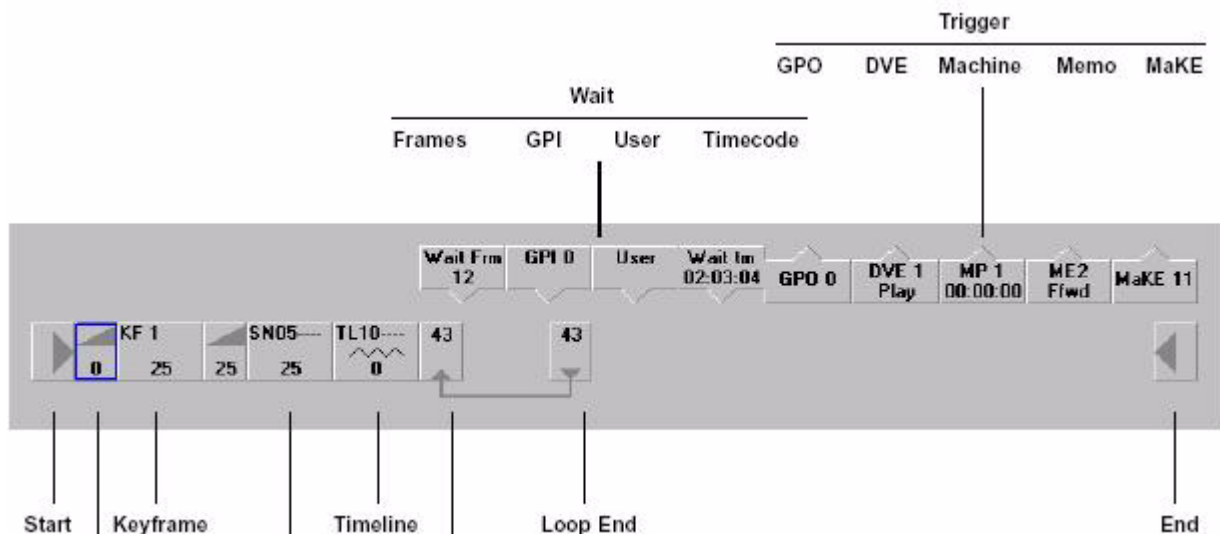
PBus Register:

In the first line, that register can be selected which has to be recalled. It shows the machines. For each machine, it can be individually selected whether the recall has to be performed or not.

Object Overview and Parameter Entry

The following section gives an overview on the objects with their parameters which can be inserted into a timeline.

Figure 413. Insert Object Overview



Start:

Object is always available. Cannot be erased or inserted.

Transition:

Is automatically inserted before keyframe or snapshot.

Keyframe:

When inserting, also the parameters of the associated transition can be indicated.

Parameters:

- Duration
- Transition Type (linear, s-linear)
- Holdtime

External Snapshot:

When inserting, also the parameters of the associated transition can be indicated.

Parameters:

- Snapshot No.
- Holdtime

Timeline:

Parameter - Timeline No.

Loop Begin:

The loop can be changed on the Loop Begin as well on the Loop End symbol.

Parameter - Loop count

Wait Frames

Parameter - Frames

Wait GPI

Parameter - GPI Number

Loop End

The loop can be changed on the Loop Begin as well on the Loop End symbol

Parameter - Loop count

Wait User

Parameter --

Wait TOD

Parameter -Time of Day

Trigger GPO

Parameter - GPIO Number

Trigger DVE

Parameter - Machine 1

Commands - Play, Stop, FFWD, FREW

Trigger Machine MP

Parameter - Machine 1

Commands - Play, Stop, FFWD, FREW, Cue In, Cue Out, Goto, Variable

Variable Speed - Only with command **Variable**

Timecode - Only with command **Goto**

Trigger Memo

Parameter - Machine

Commands - Play, Stop, FFWD, FREW, Goto, Variable

Speed - Only with command **Variable**

Timecode - Only with command **Goto**

Default Register [yes/no]

Yes means that the command is applied to the register just being selected in the TiM/E Memo control field. Register No [0 ... 99]

No means that the command is applied to the register indicated under the register no.

The parameter is already defined via the overlay menu.

Entry is possible only with certain commands.

Trigger P-Bus Trigger

Parameter - Trigger Number

Machine 1 - Recall, No Recall

Machine 24 - Recall, No Recall

Trigger P-Bus Register

Parameter - Register Number

Machine 1 - Recall, No Recall

Machine 24 - Recall, No Recall

Trigger MaKE Memo

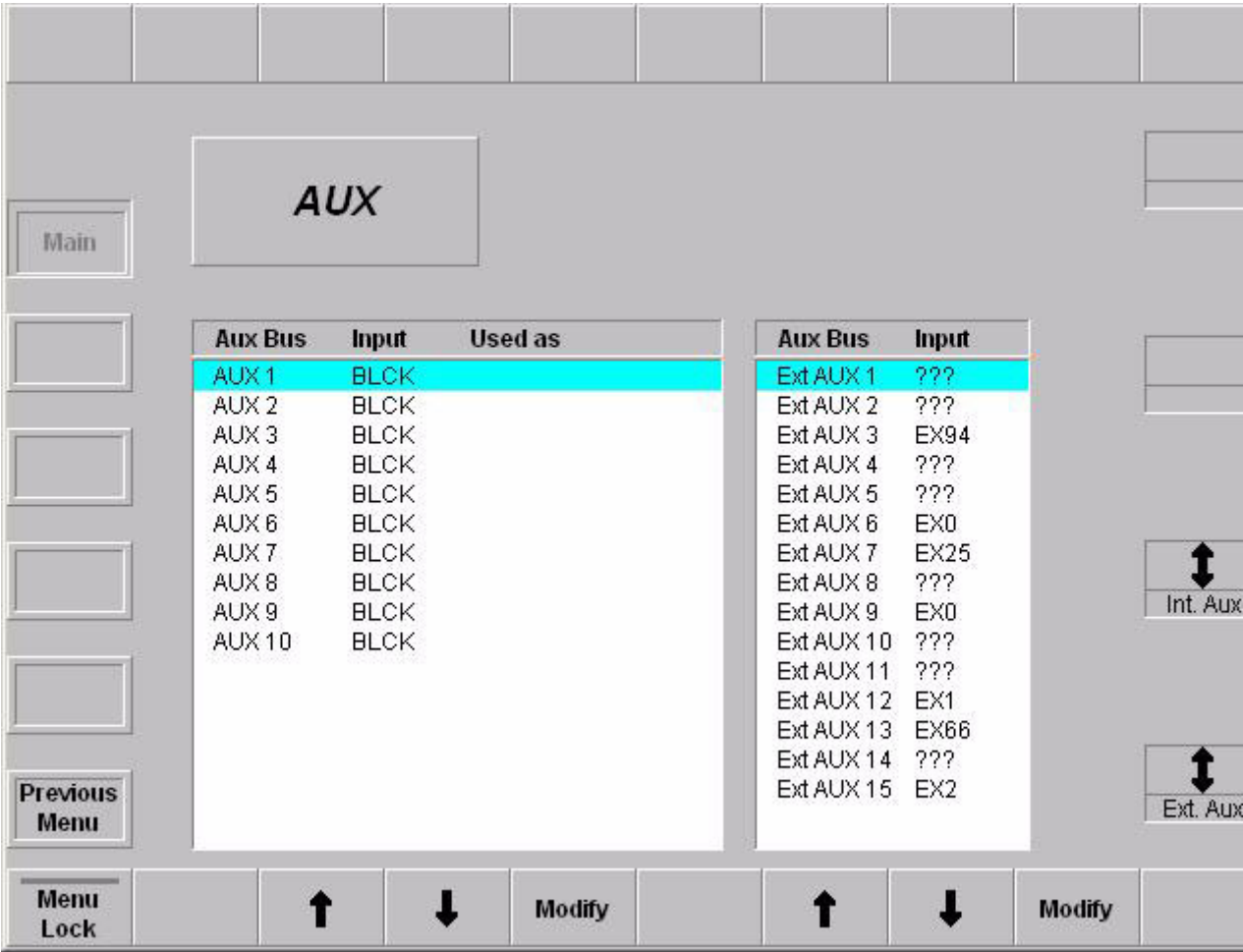
Parameter - Memo Number

End

Object is always available. Cannot be erased or inserted.

AUX Menu

Figure 414. Sidepanel – AUX Menu



The AUX menu enables to select the sources on the individual internal and external AUX buses. This is the only way to select AUX sources from a sidepanel without push buttons (e.g. with DD35 GUI PC (Network Control Station)).

Select the AUX bus with the cursor button and press **Modify**. Then select the desired AUX source in a popup menu.

Figure 415. Sidepanel – AUX Menu Sources

Input		
1	IN01	IN01
2	IN02	IN02
3	IN03	IN03
4	IN04	IN04
5	IN05	IN05
6	IN06	IN06
7	IN07	IN07
8	IN08	IN08
9	IN09	IN09
10	IN10	IN10
11	IN11	IN11
12	IN12	IN12
13	IN13	IN13
14	IN14	IN14
15	IN15	IN15
16	IN16	IN16
17	IN17	IN17
18	IN18	IN18
19	IN19	IN19
20	IN20	IN20
21	IN21	IN21
22	IN22	IN22
23	IN23	IN23
24	IN24	IN24
25	IN25	IN25
26	IN26	IN26
27	IN27	IN27
28	IN28	IN28
29	IN29	IN29
30	IN30	IN30
31	IN31	IN31
32	IN32	IN32
✓	c0	BLCK BLCK
	c1	COL1 COL1
	c2	COL2 COL2
	c3	COL3 COL3
	c4	WHIT WHIT
	r0	RAM1 RAM1
	r1	RAM2 RAM2
	r2	RAM3 RAM3
	r3	RAM4 RAM4
	m0	MAIN MAIN
	m1	ME1 ME1
	p0	PVWP PVWP
	p1	PVW1 PVW1
	kp	PPKY PPKY
	k1	M1KY M1KY
	fp	CLNF CLNF
	f1	M1CF M1CF
>>> more >>>		

Glossary

Auto Transition

A transition having a predefined duration generally initiated by pressing a control panel button.

Aspect

The ratio of a picture's horizontal and vertical dimensions when correctly displayed (4:3, 16:9).

Background Bus

A row of buttons on the M/E used to select background video signals. Typically labeled A and B, with A representing the current output, and B representing the next output.

Background Transition

A transition between the background video signals selected on the M/E.

Background Video

Video that forms a background scene into which a key may be inserted.

Backing Color

The color in a chroma key scene that will be replaced with another video signal.

Black

A black video signal generated within the switcher.

Box Wipe

A rectangular wipe pattern. For masking, the Kayak HD system provides a special box wipe pattern generator allowing independent control of the placement of each side of the box.

Chroma

The depth or saturation of color. Chroma, hue, and luminance make up the three characteristics of television color.

Chroma Key

A video key effect in which one video signal is inserted in place of areas of a particular color in another video signal. Blue and green are the chroma key colors most frequently used.

Clean Feed

A final output of the switcher that does not include downstream key effects or fade to black. Also see *Programmable Clean Feed* [on page 489](#).

Clip

A threshold level adjustment to which the keying attribute (luminance, chrominance) is compared for generating the internal key control signal. Clip, in conjunction with gain, sets the switching point between the background and the key fill. Also see *Gain* [on page 487](#).

Clip High, Clip Low

An alternative to Clip and gain keying, providing independent control of the points where the background video and the key fill video are each fully visible.

Complex Wipe Pattern Generator (Wipe1 + 2)

A wipe pattern generator with additional capabilities (for example, matrix wipes).

Compositing

Combining two or more video signals together into one output signal.

Control Signal

A signal used to perform an alteration or transition of video signals. For example, control signals are used for keying, masking, and wipe transitions.

Control Surface

The set of controls available to a single operator. These controls may reside on separate but related control panels.

Cross Fade

See *Mix on page 489*.

Crosspoint

An electronic switch, usually controlled by a button on the panel, that allows video or audio to pass when the switch is closed.

Cut

An instantaneous switch from one picture to another. Switching circuitry allows cuts only during the vertical interval of the video signal to prevent disruption of the picture.

VDR (Video Disk Recorder)

A video recorder and playback device using hard disk storage in place of video tape.

Delegate

To assign panel controls to a particular operating function. Some panel controls (buttons, knobs, Positioner) can affect more than one function. The operator can choose an alternative function by delegating the panel controls to that function (typically by pressing or holding down a panel button).

Deserializer

A device that converts serial digital information to parallel.

Dissolve

See *Mix on page 489*.

DPOP (Double Press Open)

Pressing a control panel button twice rapidly to open a related menu or submenu. This does not work if **Menu Lock** is turned on.

Effect

A setup of panel controls specifying the sources involved and any processing applied to those sources. Effects can be learned (saved) and recalled by the E-MEM effects memory system.

Effect Transition

Recalling an E-MEM effect so that a transition is automatically performed at the start of the recall.

Effects Processor

The portion of a switcher that performs mixes, wipes and cuts between background and/or effects key video signals.

E-MEM Effects Memory

A feature that permits control panel setups to be stored for later recall.

Engineering Setups (Installation)

On the Kayak HD system, a collection of settings that establishes an essential baseline for system operation and integrates the Kayak HD system into a facility.

Ethernet

A form of high speed data transport between devices on a network.

Fade To Black

A mix transition to black.

Field

One scan of an interlaced video image. In interlace systems, two fields are required to make a complete picture (video frame) because alternate lines are scanned.

Fill Video

A video signal which fills a hole cut in background video by a key control signal.

Flip-Flop

A transition where the sources selected on the background buses (for example, preset and program) of an M/E are exchanged at the end of a transition. The original preset bus source becomes selected on the program bus, and the original program bus source becomes selected on the preset bus.

FPGA

Field Programmable Gate Array.

Frame

One complete scan of a video image. For interlace video, alternate lines are scanned, and so a frame containing all the picture information consists of two fields.

Frame Rate

The number of frames presented per second. For interlace systems the frame rate is half the field presentation rate.

Gain

An amplification factor applied to a key control signal by a keyer that determines how much, if any, of the background and key fill video will be mixed together at the key edge areas. Low gain (1, or unity) generally results in a linear key.

General Purpose Interface (GP)

An interface that allows limited remote control of some of a device's functions.

GPI

General Purpose Interface Input

GPO

General Purpose Interface Output

General Purpose Interface (GPO)

An interface that allows limited remote control of some of a device's functions.

House Sync

Sync generated within a facility that is used as a reference for generating and/or timing other signals.

Hue

The location of a color on the color spectrum (i.e. red, yellow, green, blue). Chroma, hue, and luminance make up the three characteristics of television color.

Interlace

A system of video scanning where the odd and even numbered lines of a picture are presented consecutively as two separate interleaved fields. The two fields required to make a complete picture are called a frame.

Jitter

An undesirable variation in the timing of transitions in a digital signal.

Positioner

A hardware positioner with control of multiple axes.

Key

An effect where a portion of a background scene is replaced by a new video. Key cut and key fill signals are involved, though in some cases the same signal may be used for both (self key).

Key Cut

In key effects, the key cut signal is used to specify where to cut a hole in the background that will be filled with the key fill video. The key cut signal determines the shape of the key effect.

Key Fill

In key effects, the video signal which fills the hole cut in the background video.

Key Invert

Reversing the polarity of a key, such that material formerly keyed out will be keyed in, and vice versa.

Key Mask

A key mode which allows use of a wipe pattern generator to prevent some undesirable portions of the key cut signal from cutting holes in the background video.

Key Memory

A feature where the last keying and video processing settings for a source are retained and re-imposed when that source is re-selected. Default source memory values can be set for each source on each bus.

Key Priority

The stacking order of multiple keys. The keyed signal with the highest priority appears in front of all the others. Keyed signals appear below higher priority keys and in front of lower priority keys, in a stack. A key priority transition changes the order of the keys without changing the background output.

Key Frame

A complete definition of an effect at a single point in time. Default keyframe values can be set for a suite. See *Snapshot* [on page 490](#).

Linear Key

A Luminance key with a special parameter Setting: gain 100%, Clip 50%.

Look Ahead Preview

Video that shows the result of the currently setup next transition.

Looping, Loop-Through

An input that includes two connectors. One connector accepts the input signal, and the other connector is used as an output for connecting the input signal to another piece of equipment. On Kayak HD, only the analog reference input is loop through.

Luminance

The brightness of the picture or area of the screen being considered. Chroma, hue, and luminance make up the three characteristics of television color.

Luminance Key

A key effect in which the portions of the key cut signal that are greater in luminance than the clip level cuts the hole in the background scene. Generally used when the key cut and key fill signals originate from the same source. Luminance key clip and gain is adjustable.

Mask

See *Key Mask* [on page 488](#).

Matte

Internally-generated color video which can be adjusted for luminance, hue, and chroma. Matte can be used to fill areas of keys and borders.

Matte Fill

Using matte video to fill the hole of a key effect.

Matte Generator

A video generator that produces matte signals.

M/E

Abbreviation of Mix/Effects, pertaining to the circuitry and controls involved in compositing video signals.

Mix

A transition between two video signals in which one signal is faded down as the other is faded up.

Multiplier

A control circuit in which a control signal is multiplied with one or more input video signals. The resulting video output level varies from full on to full off according to the state of the control signal.

Object

An individual functional area of a system, typically one of several having similar capabilities.

Pattern Border

A variable width border that occurs at the edges of a wipe pattern.

Pixel

A picture element. A pixel is a digital sample of the luminance and color values of a picture at a single point.

Profile

Model name of a Thomson Grass Valley Video Disk Recorder.

Point of Use

A location in the system where a resource is used. A resource is generally used at different locations at different times. However, with some resources it is possible to use the same resource at different locations at the same time.

Preset Bus

A row of source buttons used to select the source that will be output by the M/E during the next background transition. Also called the B bus.

Preset Pattern

A key effect in which a wipe pattern that has been preset to a desired size and location is used to cut the key hole. The characteristics of the pattern are set using pattern controls.

Preview

A video signal that is viewed before it is output by the switcher. See also *Look Ahead Preview* on [page 488](#).

Program Bus

A row of source buttons used to select the source for the current output of the M/E. Also called the A bus.

Programmable Clean Feed

A type of clean feed where different keys can be selected for inclusion or exclusion from the clean feed.

RAM Recorder

A device that captures, saves, and outputs a still video image or in some cases motion video clips. On the Kayak system the RAM Recorder option can capture still images, motion video, and animation for playback. The RAM Recorder is also referred to as a Still Store.

Recall

To restore a previous panel setup that has been learned using E-MEM.

Reclocking

The process of clocking the data with a re-generated clock to remove jitter.

Resource

A capability of the system, typically consisting of a set of circuitry.

Register

A place to store an effect.

Saturation

The degree of purity of a color. Adding white to a color reduces its degree of saturation.

Self Key

A key effect in which a single video signal serves as both the key cut and key fill.

Serial Digital Video

Passing video data bits in serial form (one bit after another), along a single wire.

Serial Interface

An interface which allows the switcher to be controlled remotely by a computer editor or other serial controller. Data is passed serially between the editor and the switcher at selectable baud (transmission) rates.

Serializer

A device that converts parallel digital information to serial.

Snapshot

An E-MEM with only one keyframe.

Soft Border

A wipe pattern border which is mixed on the edges to give a soft effect.

Soft Edge

A pattern edge between two video signals in which the signals are mixed for a soft effect.

Source

- 1) An external device providing video. A source may provide only one video signal, or it may provide two signals (key fill and key cut).
- 2) The video signal(s) from a source, along with the source definition information associated with that source.

SPOP (Single Press Open)

Automatically opening a related menu when a control panel button is pressed.

Stack

See *Key Priority* [on page 488](#)

Store (Learn)

To save a panel setup using E-MEM.

Sync

- 1) General term for a synchronizing signal or signal component. Digital systems generally employ an analog external timing reference signal (such as color black or tri-level sync) to synchronize different pieces of equipment. Within the digital signal itself, however, synchronizing information is carried by special digital codes inserted at the beginning and end of each active line.
- 2) In analog television systems, sync is the portion of the video signal which occurs during blanking and is used to synchronize the operation of cameras, monitors, and other equipment. Horizontal sync occurs within the blanking period in each horizontal scanning line, and vertical sync occurs within the vertical blanking period. A color black signal is often used for synchronizing different pieces of analog equipment.

Tally

A light which lights up to indicate that the associated button has been selected or to indicate that the associated input to the switcher is on-air.

Terminate, Termination

To complete a circuit by connecting a resistive load to it.

Transition

A change from one picture to another. Cut, mix, and wipe are transitions.

Vertical Interval

The portion of the video signal that occurs between the end of one field or frame and the beginning of the next.

Video Fill

A video signal used to fill the hole made by a key cut signal.

Video Path

The path that video takes through the switcher.

Wash Matte

A type of matte that contains two elements rather than a single flat color. For example, a wash matte can have one color that mixes gradually across the screen to another color.

Wipe

A transition between two video signals that occurs in the shape of a selected pattern.

Wipe Pattern Generator

Circuitry that creates patterns that can be used to create wipe transitions, preset patterns, key masks, and matte washes.

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