

# KayakDD™

**DIGITAL PRODUCTION SWITCHER**

User Manual



SOFTWARE VERSION 6.8.8

071826207  
September 2006

*the most watched worldwide*

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# *1 Preface*

## **1.1 About This Manual**

This KayakDD User Manual Instructions is designed as reference manual for operators of KayakDD-1 and KayakDD-2 Production Switcher systems.

## **1.2 Standard Documentation Set**

The standard KayakDD documentation set consists of a:

- User Manual,
- Planning and Installation, and
- Release Notes.

The *User Manual* contains background information about the KayakDD-1/2 Digital Production Switcher and describes operating procedures. This manual can be used while learning about KayakDD and for enhancing your basic knowledge of the system.

The *Planning and Installation Manual* contains information about installing, configuring, and maintaining the system.

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.

## **1.3 Other Documentation**

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





# **2**    *Concept*

## **2.1**    *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 KayakDD-1 and KayakDD-2 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 KayakDD system.

### 2.1.1 KayakDD-1



Figure 1 KayakDD-1 Control Panel

One M/E production switcher with the following features:

- Switch able between 525-line and 625-line formats
- Fully digital 10-bit, 4:2:2 inputs, outputs, and video processing
- Compact, lightweight 2 RU video processing frame
- Low power consumption
- Intuitive menu with touch screen
- 16 inputs
- 5 fixed M/E outputs (2x PGM, 1x Preview, 1xClean, 1xCleanPVW)
- 10 timed auxiliary buses
- Internal frame optional RAMRecorder holds short clips and stills and works as frame synchronizer
- Remote monitoring support via optional NetCentral software
- Four keyers, each with linear, luminance and optional Chromatte™ chroma key functionality
- Optional RGB color correction
- Four channels of high-end digital effects (Option)

## 2.1.2 KayakDD-2



Figure 2 KayakDD-2 Control Panel

Two M/E production switcher with the following features:

- Switch able between 525-line and 625-line formats
- Fully digital 10-bit, 4:2:2 inputs, outputs, and video processing
- Compact, lightweight 3 RU video processor frame
- Low power consumption
- Intuitive menu with touch screen
- 32 inputs
- 10 fixed M/E outputs (2x PGM, 1x Preview, 1xClean, 1xCleanPVW per M/E)
- 10 timed auxiliary buses
- Internal frame optional RAMRecorder holds short clips and stills and works as frame synchronizer
- Remote monitoring support via optional NetCentral software
- Four keyers, each with linear, luminance and optional Chromatte™ chroma key functionality per M/E
- Optional RGB color correction
- Four channels of high-end digital effects (Option) per M/E

## 2.2 **KayakDD System Configuration Overview**

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

The way a KayakDD Digital Production Switcher is wired into your facility affects the KayakDD system's capabilities. For example, the number of sources physically connected to the system obviously determines what video the system can handle. However, because KayakDD 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 KayakDD system behavior.

KayakDD 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 KayakDD 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.

## 2.3 Installation (Engineering Setups)

Engineering Setups control how the KayakDD Digital Production Switcher's major components behave and interact, and how the KayakDD 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 (DDR's, VTR's, DPM, Router, Aux Control Panels, etc.),
- Various other system functions.

## 2.4 Configurations

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

Loading and Storing Configurations is possible via the Sidepanel Program

Suite Preferences include:

- E-MEM,
- Macros,
- Key Memory,
- Pattern Memory,
- Safe title behavior, etc.,
- Video specifications (aspect ratio, etc.),
- Various other suite functions.

## 2.5 Personality Settings

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

Personality Settings include:

- Menu delegation behavior,
- Shift preferences, and
- 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).

E.g. 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.

## **2.6 Signal Routing**

### **2.6.1 Inputs and Sources**

Incoming video signals are connected to the KayakDD system via BNC connectors on the rear of the KayakDD Digital Processor frame. All inputs are serial digital (SMPTE 259M, CCIR 601). 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 KayakDD system can control (Router, DPM, DDR).

For a KayakDD 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 KayakDD 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 KayakDD system uses ID numbers, not source names or input connectors, to identify each source. Defining each source is an important aspect of the KayakDD system.

### **2.6.2 Source Definition**

The source definition process includes assigning a name to each source. Once sources are defined, the user is able to select the source by name. Sources having separate video and key signal are coupled in the key couple menu to allow a single button selection for appropriate keying. Tally relays are assigned to the according inputs in the GPO menu.

All these settings are part of a configuration and can change from production to production.

### **2.6.3 Button Assignment (Source to Button Mapping)**

Source to button mapping makes it possible to organize sources on KayakDD control panels in a preferred order. For example, cameras can be placed on the left side or the right side of the button row, whichever is preferred.

Source mapping is distinct from source definition, as source mapping only involves the location of sources on the control panel and does not affect any capabilities defined for the sources. Note that E-MEM effects store the source IDs, not the source select buttons, so remapping sources will not change the appearance of recalled effects. Button assignment is possible via the Sidepanel program.

## 2.6.4 Key Memory

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

## 2.6.5 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 3*, source 2 has been selected on the background A bus. This signal can now be called *background video* and is available for further processing.

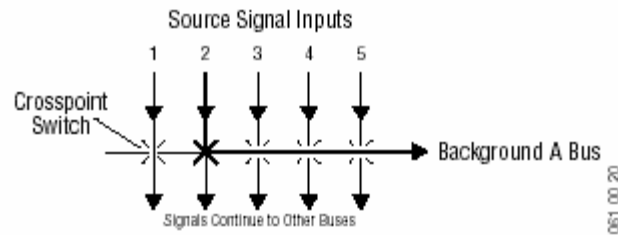


Figure 3 Buses With Crosspoints

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 KayakDD 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 KayakDD 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 KayakDD 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 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 4* below shows how the same source (source 4) can be selected for both the key fill and key cut signals.

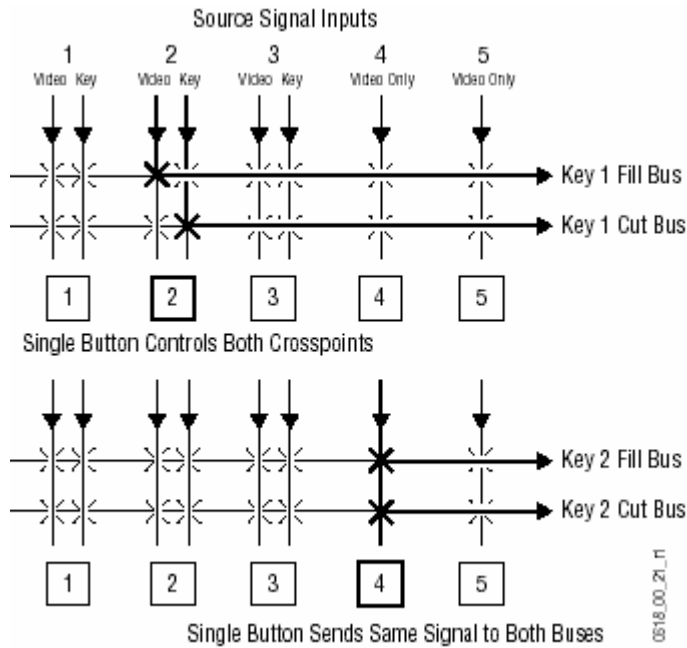


Figure 4 Multiple Crosspoint Control

## 2.6.6 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 KayakDD system provides shifted buttons to allow access to more input sources from the control panel.

For example, on the KayakDD-1 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.

## 2.7 The Mix/Effects (M/E) Stage

Each M/E of the KayakDD 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 2.7.3 below for more information).

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

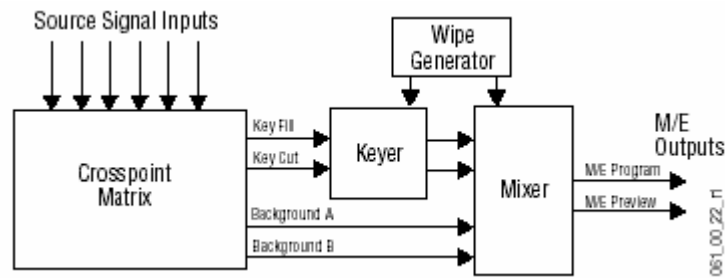


Figure 5 Simplified Mix Effects (M/E) Subsystem

The basic M/E shown in *Figure 5* 11 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).

### 2.7.1 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 KayakDD 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, KayakDD panels have alternate buses accessed by delegation, using Key and PVW/AUX delegation via the **Miscellaneous Bus selection** subpanels.

### 2.7.2 Utility Bus

Besides the standard A and B background inputs, each KayakDD also accepts a Utility input. The Utility bus 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.

### 2.7.3 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 KayakDD system, Effects Send is integrated into the M/E and is an extension of the keying control system.

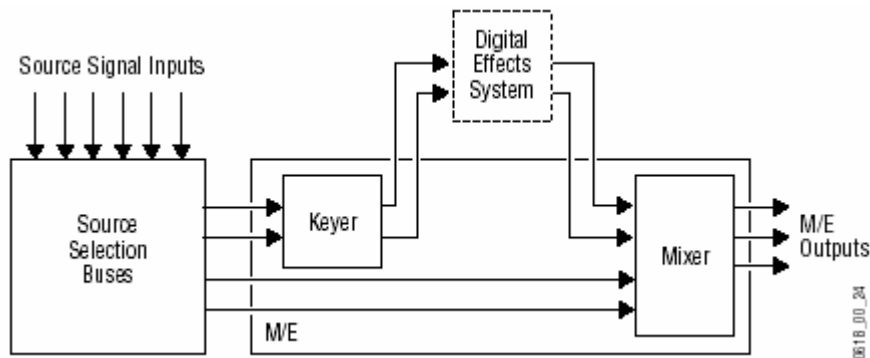


Figure 6 Effects Send Diagram

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

## **2.7.4 Outputs**

Video production switchers generate several different video outputs (Program, Preview, etc.). A final program output from PGM 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.

## **2.7.5 Program and Preview Output Buses**

For each M/E, the KayakDD system has dedicated BNC output connectors for the following signals:

- 2x Program
- 1x Preview
- 1x Clean
- 1x Clean Preview

In addition

- 1x Aux 1 ... Aux 10

## **2.7.6 Aux Buses**

Video production switcher Aux Buses can be used to select and route sources to specific destinations. For example, a source selected on an Aux bus can be sent to an recorder for instant replay. This can be done directly by the Technical Director while he/she switches the program.

Remote Aux panels can be used to give different operators control over one or more Aux buses.

The KayakDD system has 1 dedicated BNC output connector per aux bus.

## 2.8 Resource Sharing and Point Of Use

The KayakDD 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 KayakDD 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 KayakDD 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.

## 2.9 Transitions

A transition is a change from one image to another. The KayakDD 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.

### 2.9.1 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 KayakDD 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".

### 2.9.2 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 KayakDD 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.

### 2.9.3 Full Additive Mix

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

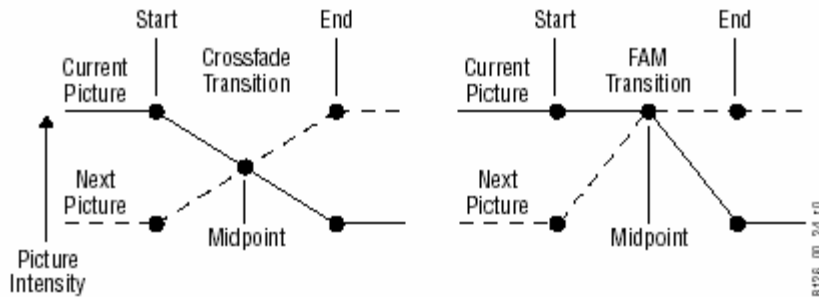


Figure 7 Normal and FAM Mixes

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.

### 2.9.4 Wipe

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 KayakDD 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.

### **2.9.5 Other Wipe Pattern Generator Uses**

Wipe pattern generator circuitry can be used for purposes that do not involve transitions. Each KayakDD 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.

### **2.9.6 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.

### **2.9.7 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.

### **2.9.8 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 the control panel. It is also possible to manually control transitions using a lever arm.

On the KayakDD 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.

### **2.9.9 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.



### **2.9.10 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.

### **2.9.11 Current and Next Stack**

KayakDD 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.

KayakDD 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 KayakDD 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.

### **2.9.12 Key Priority and Transitions**

The four keyers on a KayakDD 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.

## 2.10 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 KayakDD system supports the following types of keys:

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

The KayakDD system also supports self keys and split keys.

### 2.10.1 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 8). Because luminance values of the key cut signal are used to cut the hole in the background this is called a luminance key.

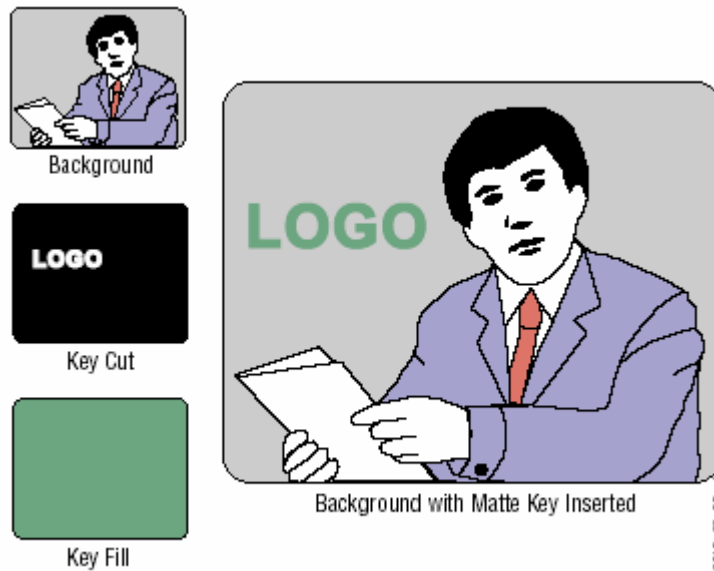


Figure 8 Matte Fill Luminance Keying Example

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.

### 2.10.2 **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 section 2.10.17 *Properly and Improperly Shaped Video* 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.

### 2.10.3 **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 KayakDD 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.

### 2.10.4 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.

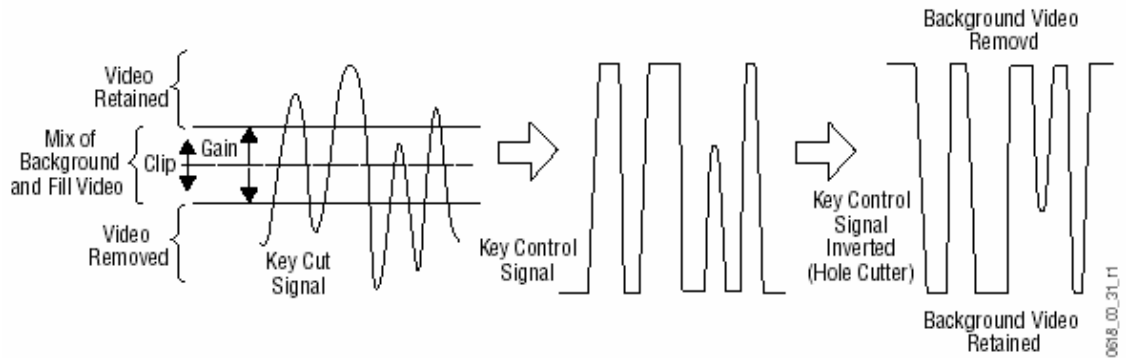


Figure 9 Key Clip, Gain, and Key Control Signal

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.

### 2.10.5 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 10). Note that the KayakDD system also supports keys that go below unity gain.

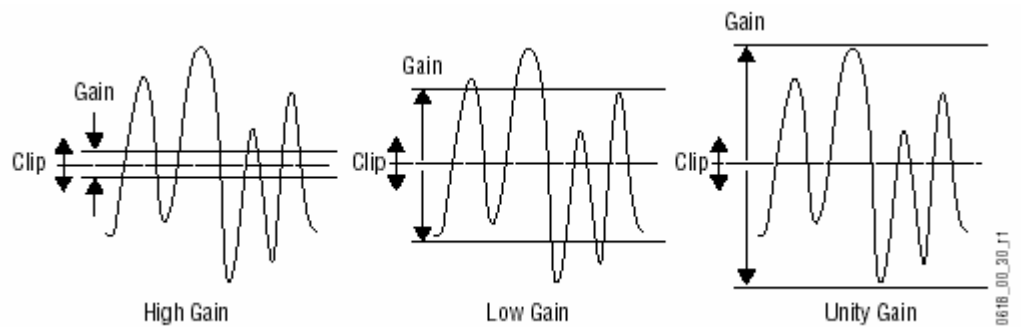


Figure 10 Keying Gain Values

On the KayakDD 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).

## 2.10.6 Clip Hi and Clip Lo

The KayakDD 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.

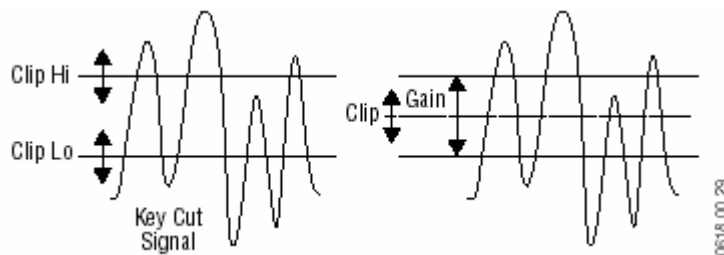


Figure 11 Key Hi, Clip Lo vs. Clip and Gain

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.

## 2.10.7 S-Shaped Key Signals

On the KayakDD 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.

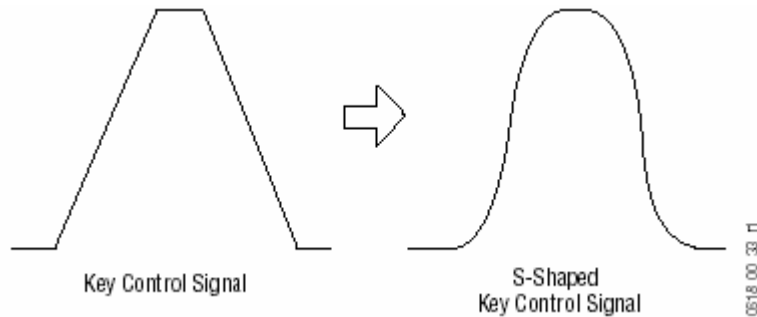


Figure 12 S-Shaped Luminance Key Control Signal

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.

## 2.10.8 Additional Keying Controls

The following additional controls are available for keying.

### 2.10.8.1 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.

### 2.10.8.2 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 KayakDD 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.

### **2.10.8.3 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.

### **2.10.8.4 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.

### **2.10.8.5 Key Size**

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

### **2.10.8.6 Coring**

Coring helps reduce video noise in chromakeys. 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.

### **2.10.8.7 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.



### 2.10.9 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.

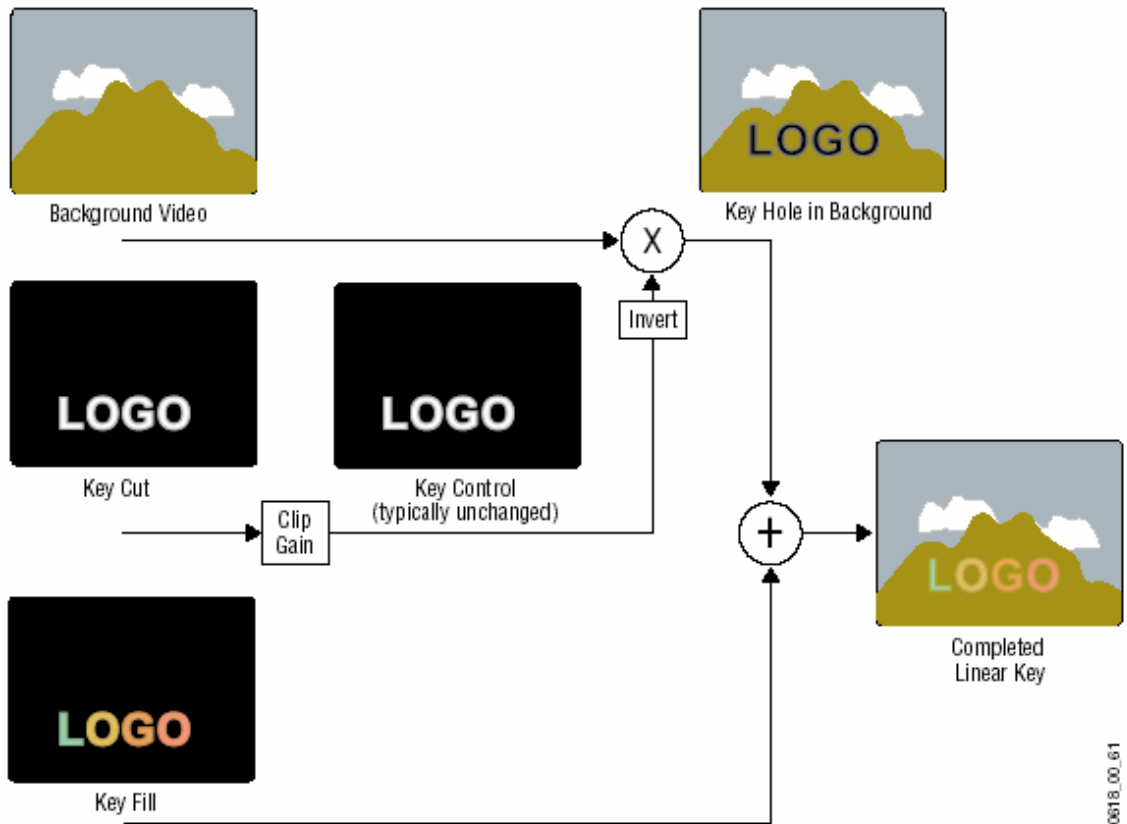


Figure 13 Linear Keying

**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 KayakDD System the Linear Key is just a special parameter setup of the Luminance Key

### 2.10.10 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.

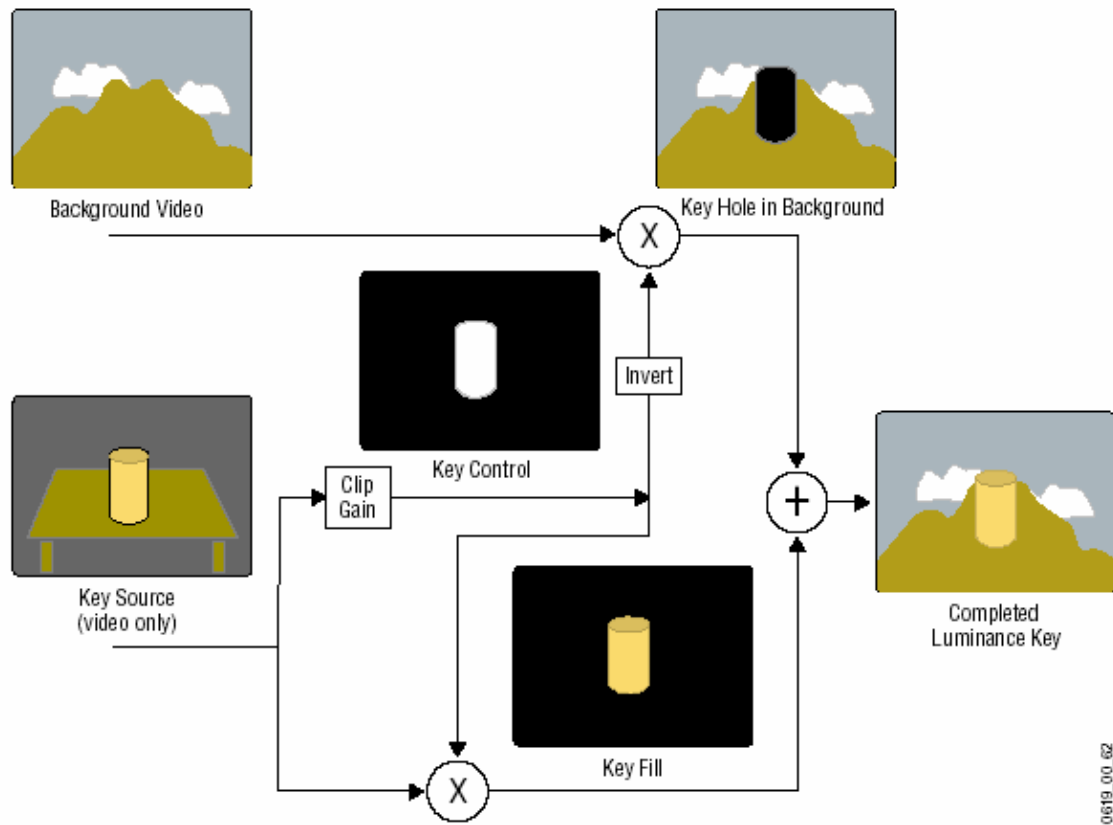


Figure 14 Luminance Keying (Self Key)

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

### 2.10.11 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.

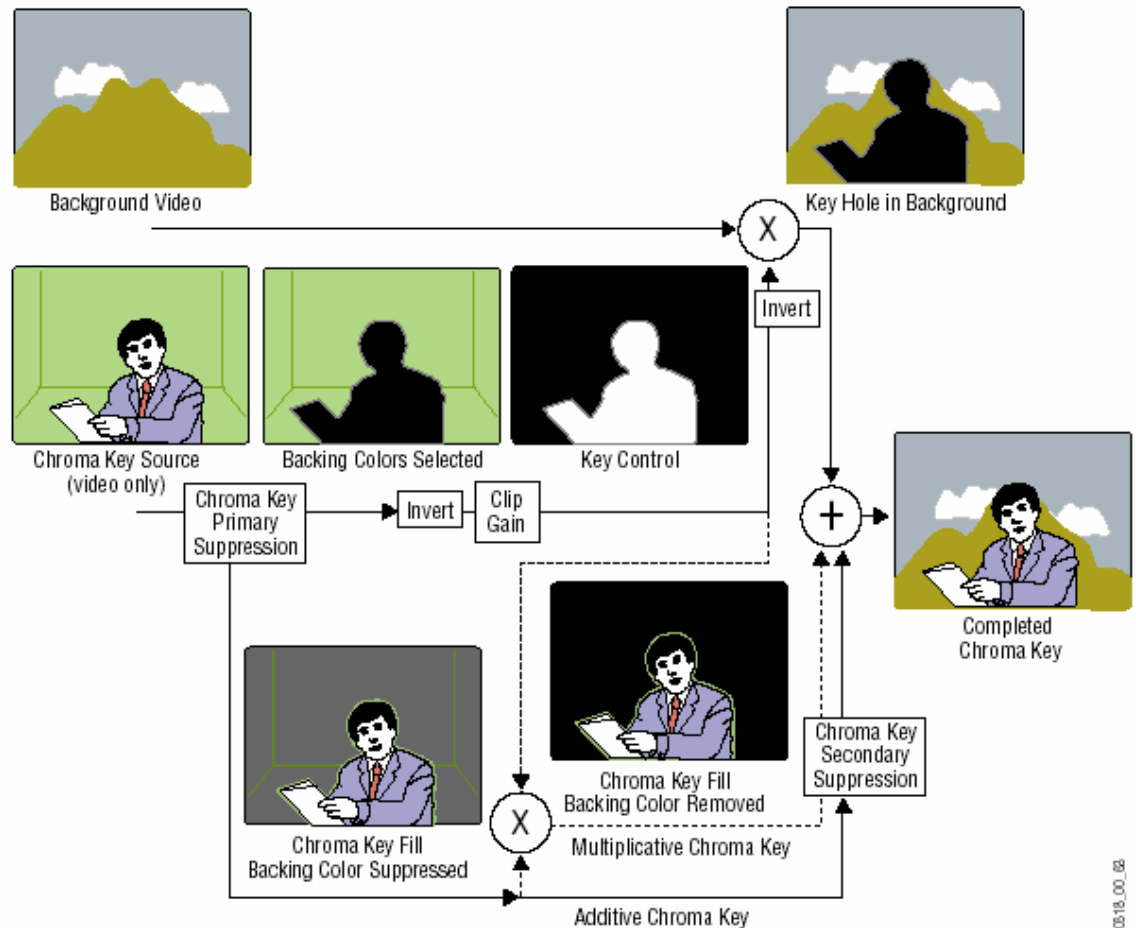


Figure 15 Chroma Key (Additive or Multiplicative)

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.

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 KayakDD 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 KayakDD 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.

### **2.10.12 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.

### **2.10.13 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.

### **2.10.14 Chroma Key Shadow Generator**

The KayakDD 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.

### 2.10.15 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.

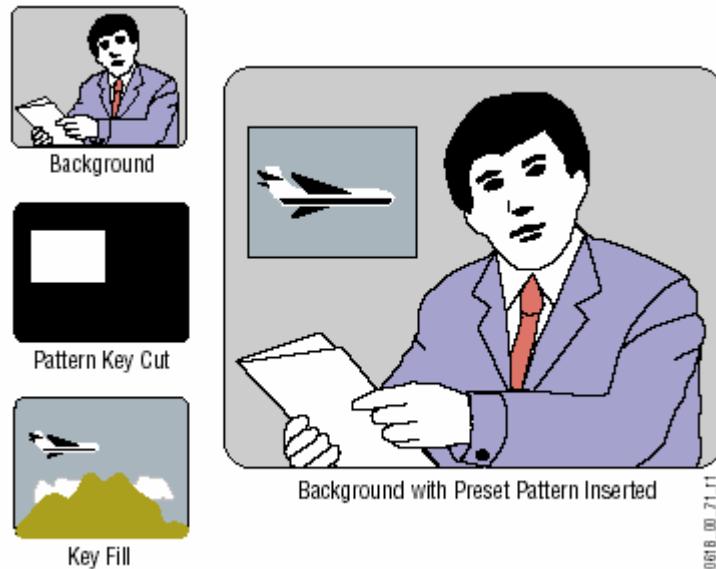


Figure 16 Preset Pattern

### 2.10.16 Split Key

A split key uses an alternative key cut signal for keying. On the KayakDD 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.

### 2.10.17 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 24.

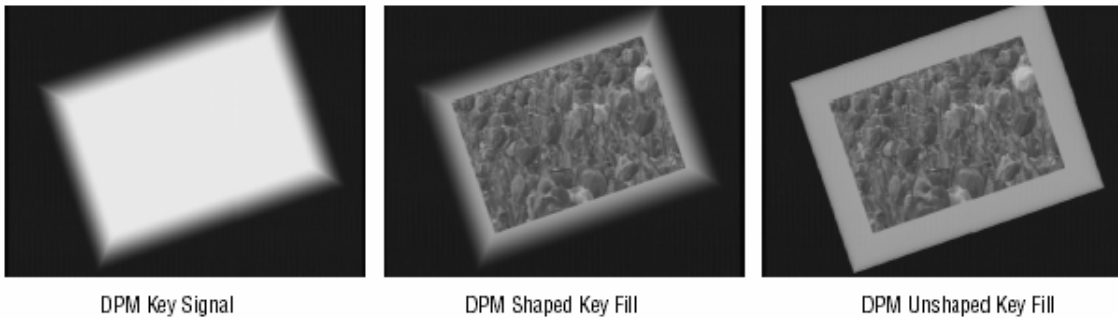


Figure 17 Video and Key Signals From DPM

When the shaping is done properly (using either shaped (Additive Key) or unshaped (Luminance Key) key fill) the desired output is the result (Figure 18).

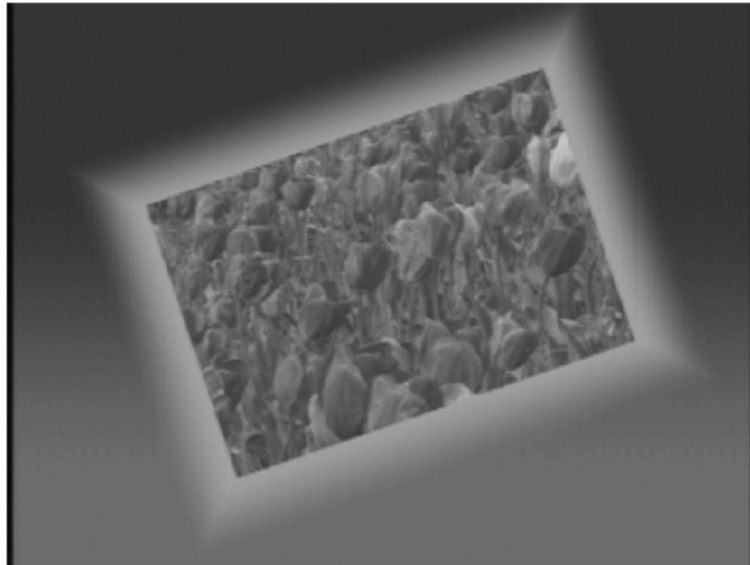


Figure 18 Correctly Shaped DPM Key Example

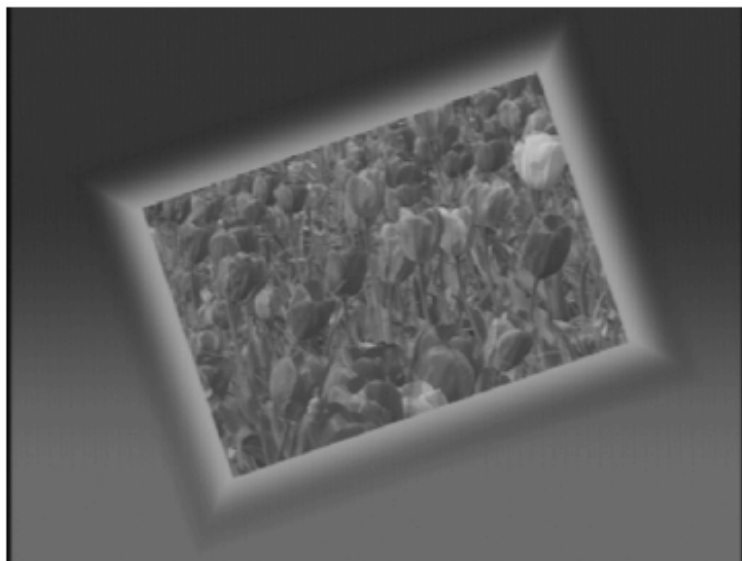


Figure 19 Incorrect Key With Dark Halo

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

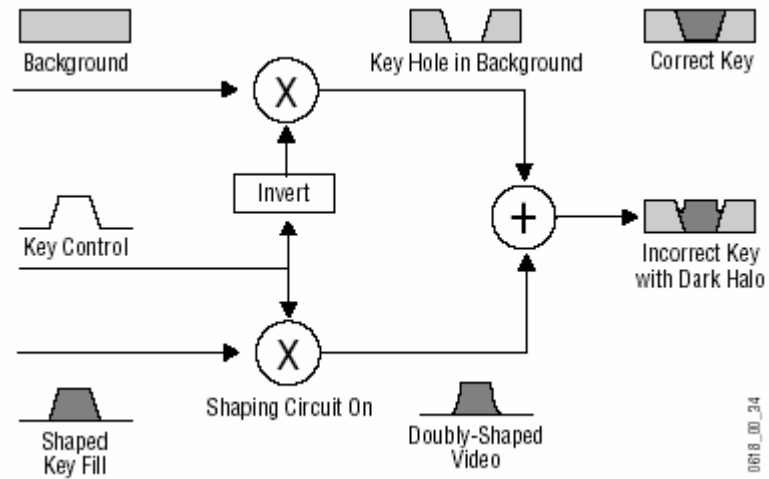


Figure 20 Incorrect Keying With Shaped Input

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.

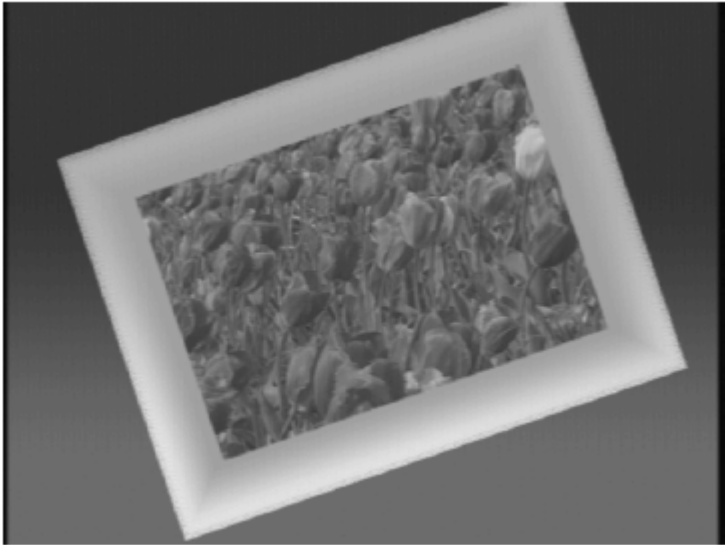


Figure 21 Incorrect Key With White Halo



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

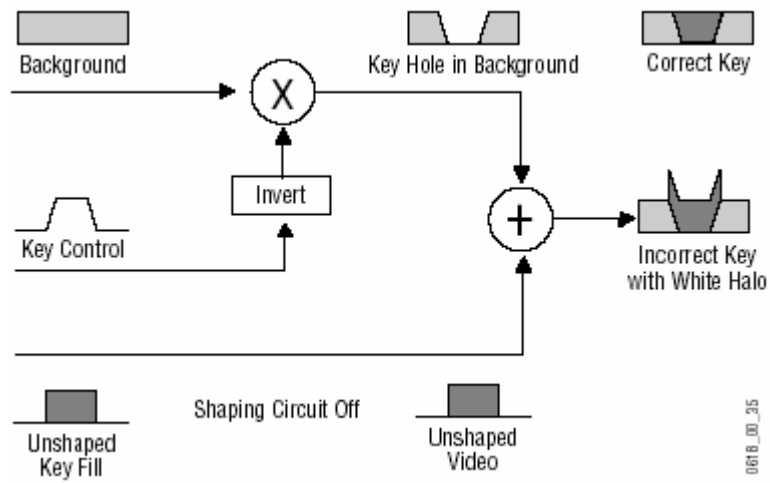


Figure 22 Incorrect Keying With Unshaped Key Fill

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

## 2.11 3-D Digital Effects Concepts

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

### 2.11.1 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.

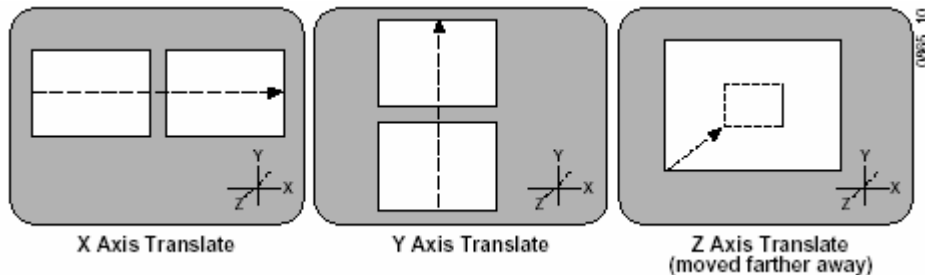


Figure 23 Picture Translation

Transformation includes translation, and also includes these other functions:

#### 2.11.1.1 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.

### 2.11.1.2 Rotate

Picture rotation about the reference axis in the X, Y, and Z dimensions (*Figure 24*). 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.

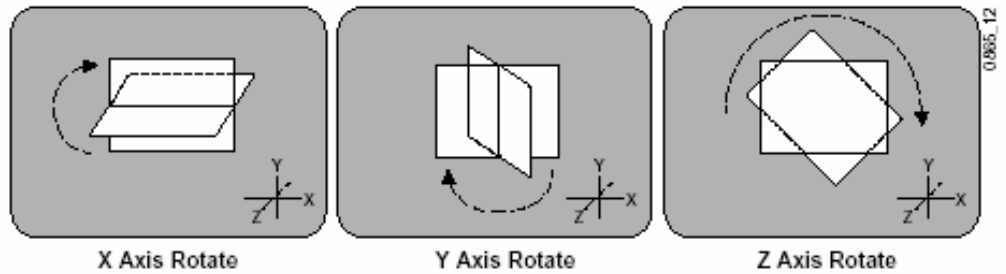


Figure 24 Rotate

### 2.11.1.3 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).

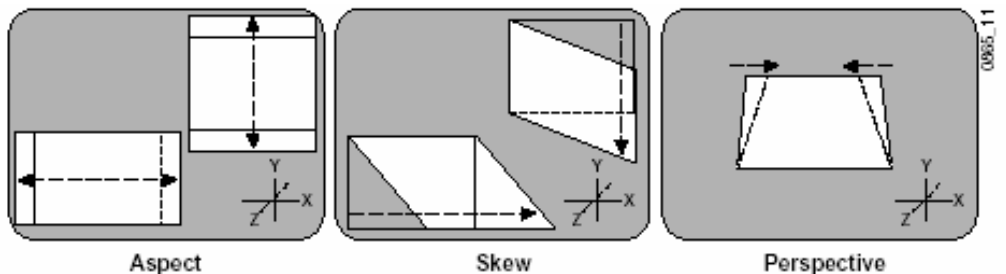


Figure 25 Aspect, Skew, Perspective

**2.11.1.4 Aspect**

Scaling the X or Y components of the picture. X axis changes affect horizontal size, Y axis changes affect vertical size (*Figure 25*). Z axis changes affect both X and Y dimensions, and is the same as Size.

**2.11.1.5 Skew**

Slanting the picture in the X (horizontal) and Y (vertical) directions (*Figure 25*).

**2.11.1.6 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 25*). Multi-channel perspective is discussed later in this section.

### 2.11.2 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

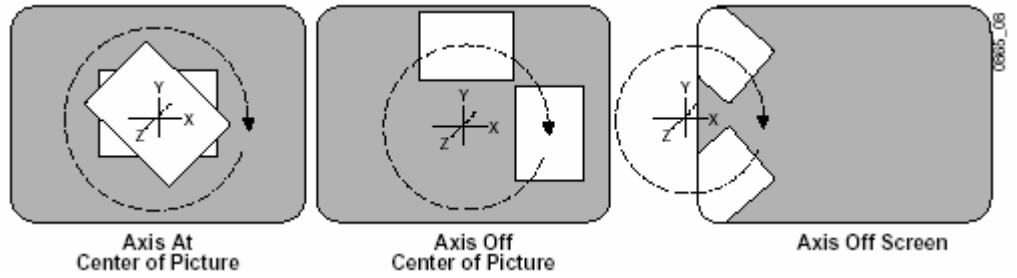


Figure 26 Frame of Reference Axis Locations

### 2.11.3 Source and Target Space

The KayakDD 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. KayakDD 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.

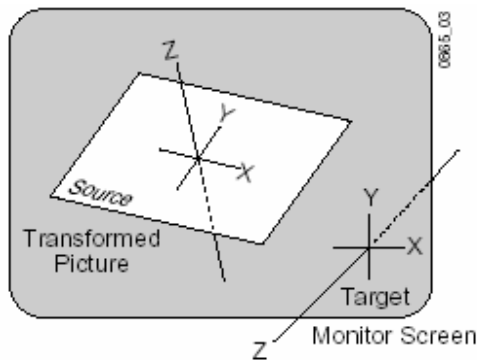


Figure 27 Source and Target Space

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.

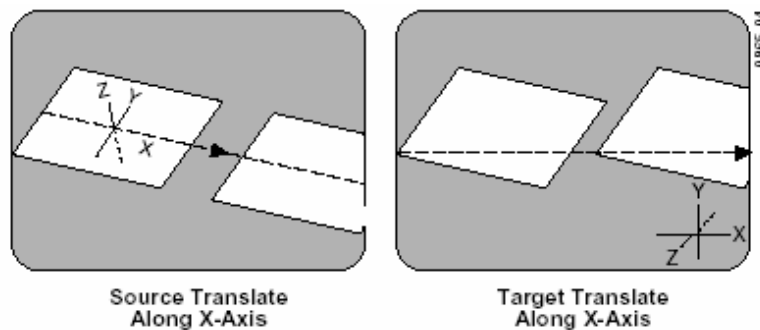


Figure 28 Source and Target Space Translation

If the channel is controlled by a global channel, and the global channel itself has been rotated, an X axis translate will depend on whether the channel itself or the global channel is being manipulated, and whether source or target space is being used (Figure 29 and Figure 30). Note that the target translate of the channel is the same as a source translate of the global channel.

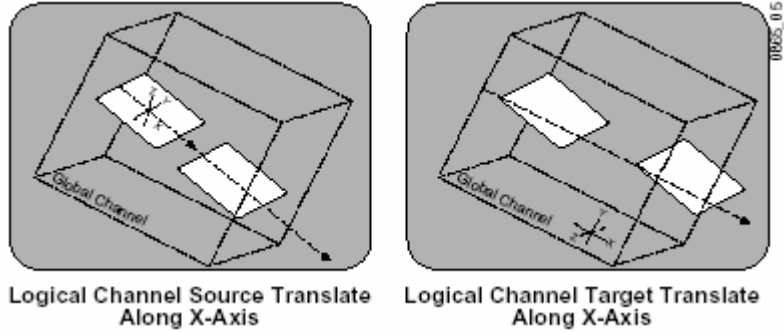


Figure 29 Channel Translate With Global Rotated

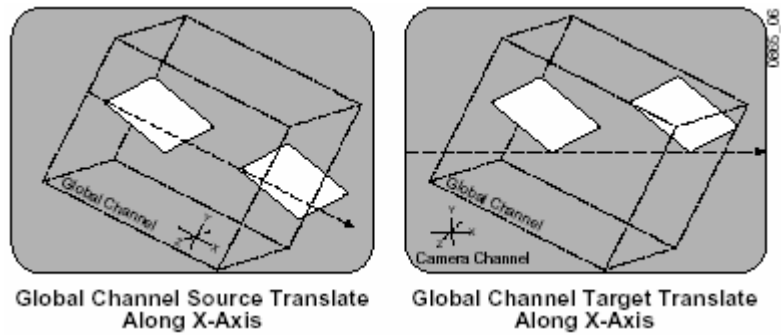


Figure 30 Global Channel Translate With Global Rotated

### 2.11.4 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 31*). 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.

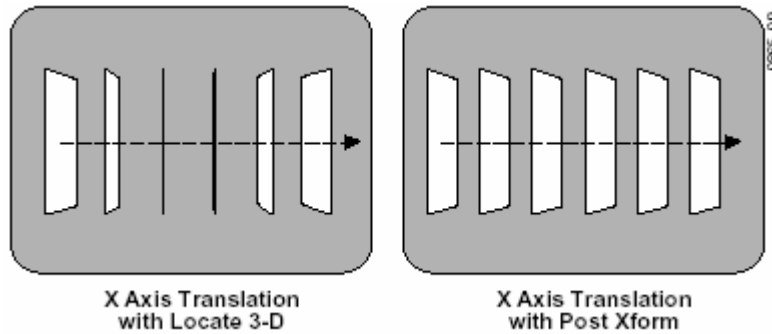


Figure 31 Post Transform Translation

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.



### **2.11.5 Front and Back, Near and Far**

Pictures manipulated by a KayakDD 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 KayakDD 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.

### **2.11.6 Transform Numbering Systems**

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

### 2.11.7 Screen Coordinates

The KayakDD 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 32). 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).

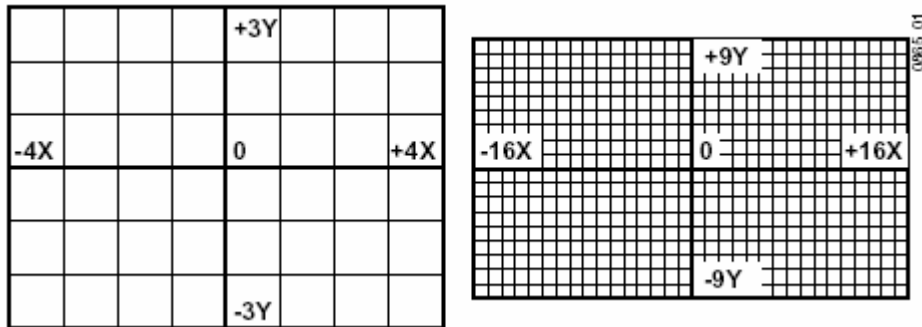


Figure 32 Screen Coordinates

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 33).

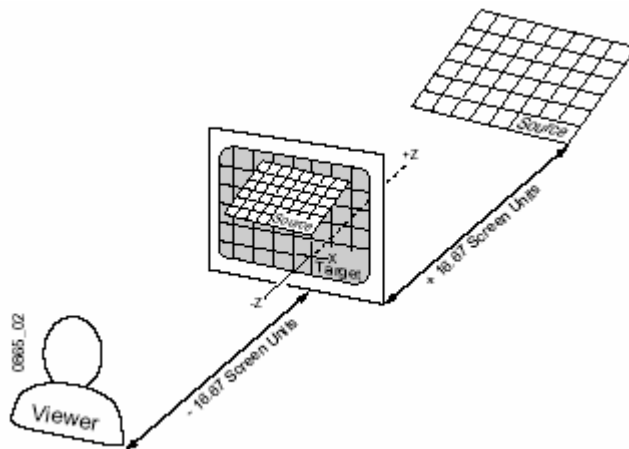


Figure 33 Viewer Location in 3-D Space

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.

**2.11.7.1 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.

**2.11.7.2 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.

**2.11.7.3 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.

**2.11.7.4 Skew**

Skew supports values of  $\pm 999$ , though extreme values will probably rarely be used.

**2.11.7.5 Aspect**

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

**2.11.7.6 Perspective**

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

### 2.11.8 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.

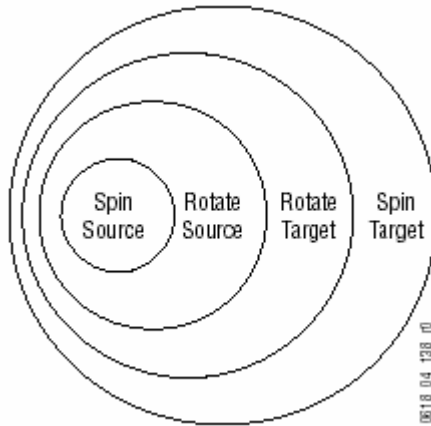


Figure 34 Spin and Rotate Transform Nesting

## 2.11.9 Path Control

### 2.11.9.1 Paths

Keyframes specify parameter values at specific times in an effect. Most of the duration of an effect, however, occurs between these keyframes. The KayakDD 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 KayakDD system offers you several path controls (Figure 56):

- **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.

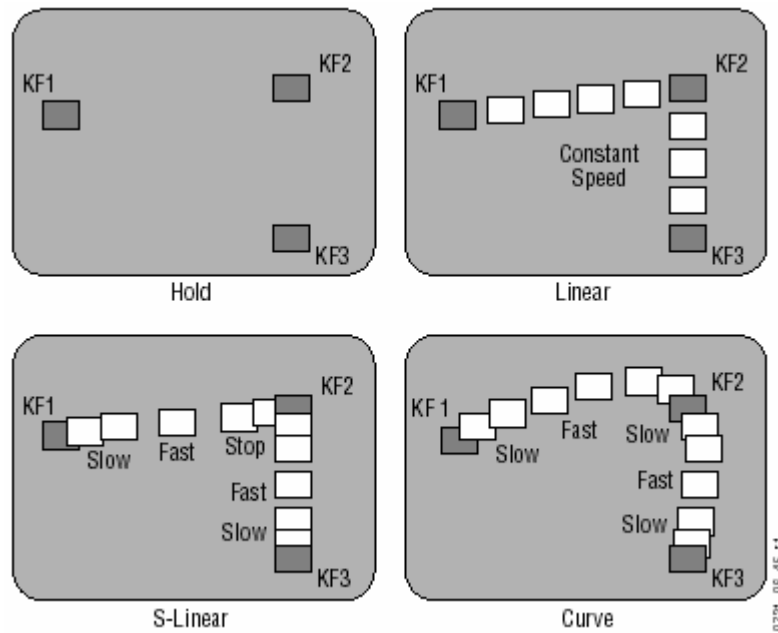


Figure 35 Path Types

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.

#### 2.11.9.2 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.

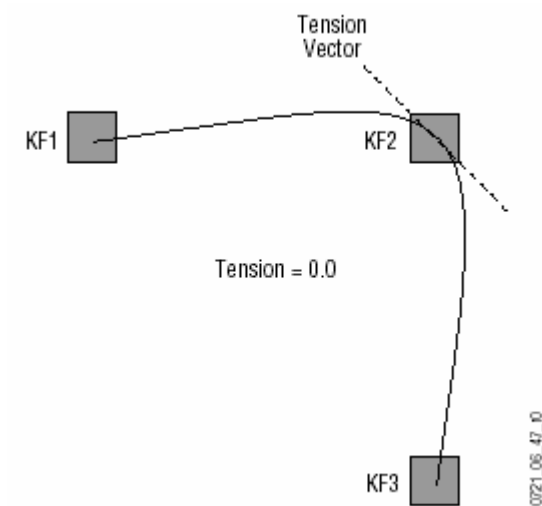
In the following examples, a physical path is shown between three keyframes. The first keyframe (KF1) is the upper left square; the last keyframe (KF3) is the lower right square. The adjustments in these examples are applied to the middle keyframe only (KF2).



### 2.11.10 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 37*).

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 37 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 38*). 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.



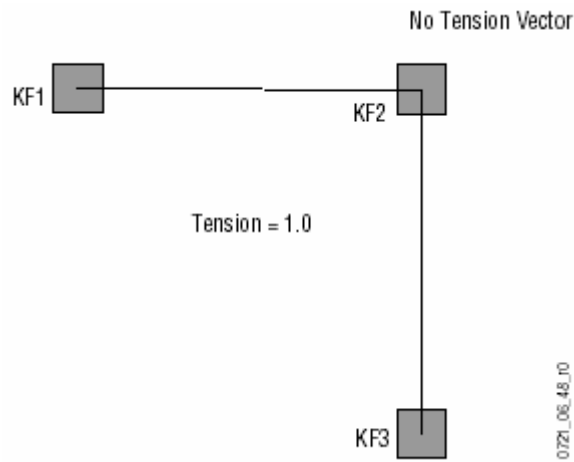


Figure 38 Tension Control Setting 1.0

In the example below, the **TENSION** control has been set to -1.0. This lengthens the Tension vector, causing the path through the middle keyframe to be longer and broader (Figure 39). The longer path will appear to make the image speed up through KF2 as it travels from KF1 to KF3.

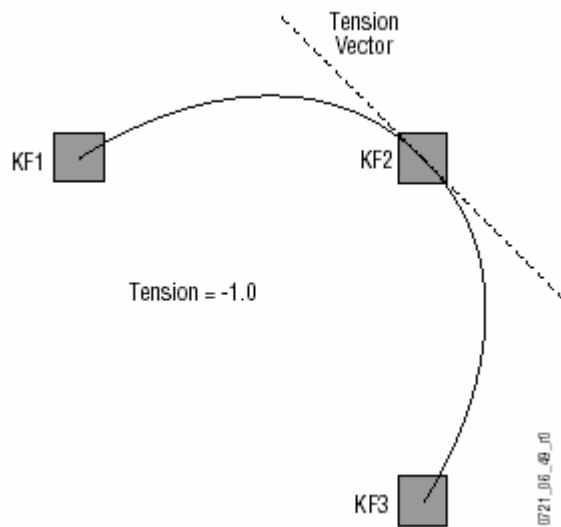


Figure 39 Tension Control Setting - 1.0

### 2.11.11 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 40*). The unmodified path shown is identical to the unmodified path of the other controls.

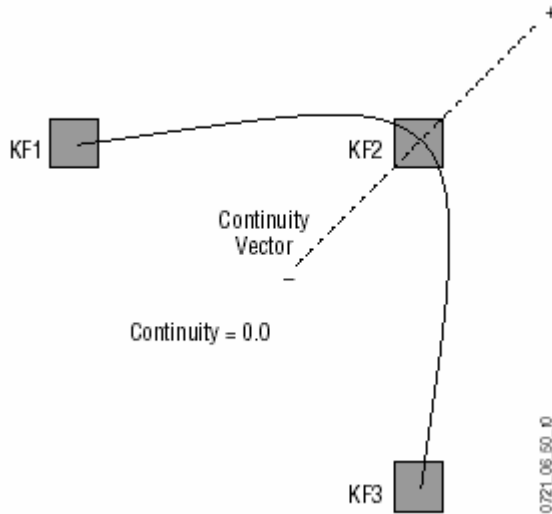


Figure 40 Continuity Control Setting Zero

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 40*).

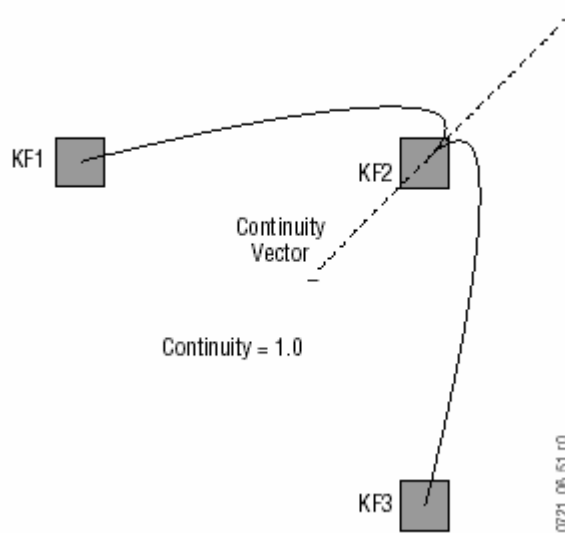


Figure 41 Continuity Control Setting 1.0

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.

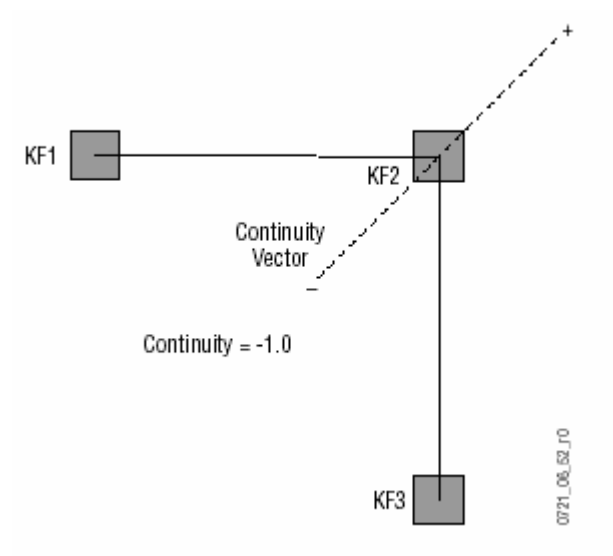


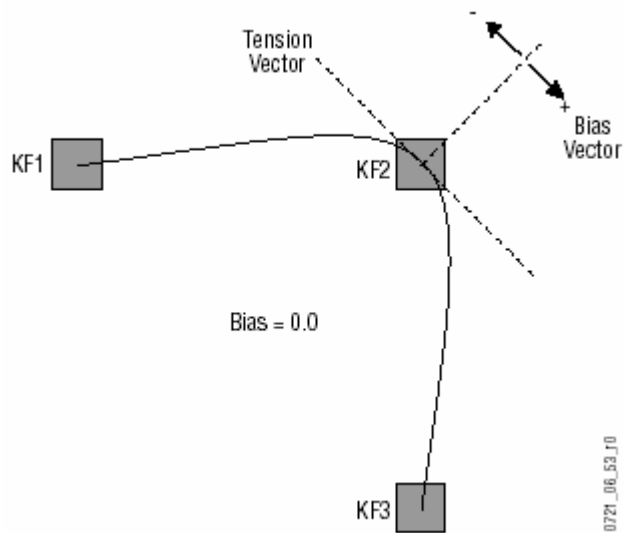
Figure 42 Continuity Control Setting - 1.0

### 2.11.12 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 43*.

**NOTE!**

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



*Figure 43 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.

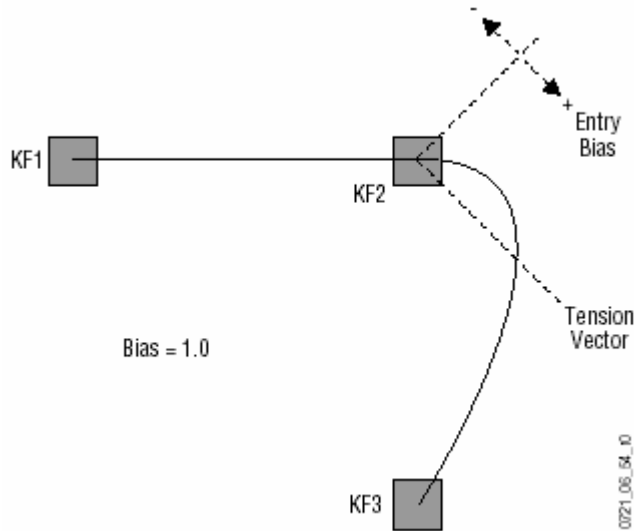


Figure 44 Bias Control Setting 1.0

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.

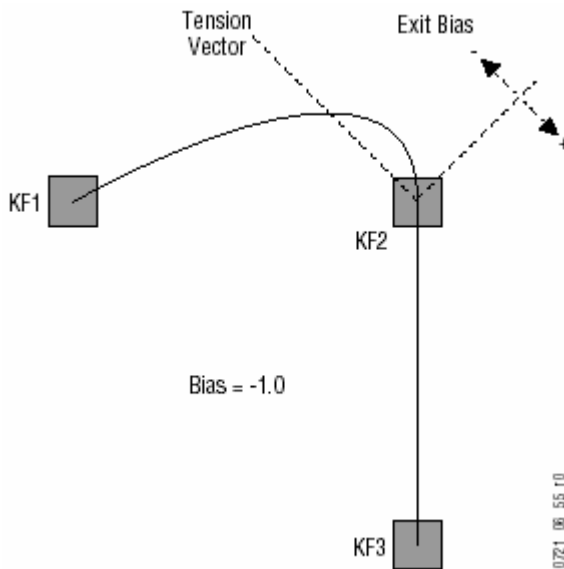


Figure 45 Bias Control Setting - 1.0

### 2.11.13 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.

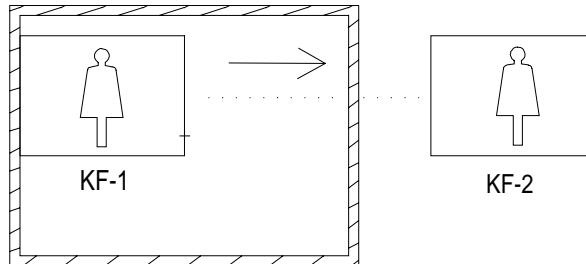
When an effect is recalled in a sure touch mode, the current states of the bound elements are read by the timeline system. These values are compared with the original first keyframe (snapshot) of the effect, and an “offset” or “new zero” is established for each bound element of the effect. This “offset” 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.

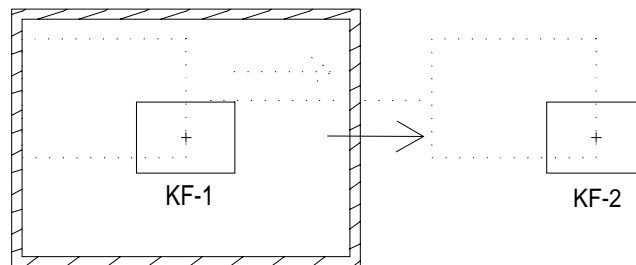
### 2.11.13.1 Parallel Mode Example

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.



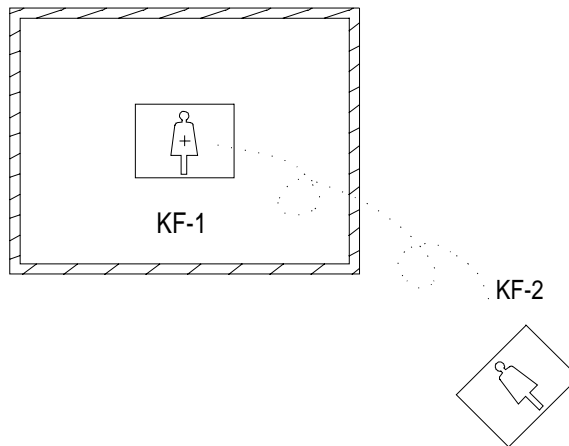
Now suppose that the image is centered and size = 30%. Next, effect 3 is recalled in sure touch "parallel" mode. The result would look like this:



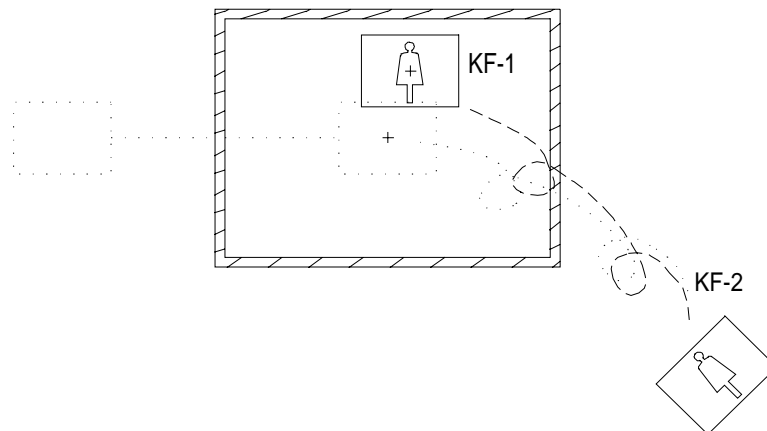
### 2.11.13.2 Converge Mode Example

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, spinZ = 1.875.



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 spinZ to exactly the same values as in the original effect.

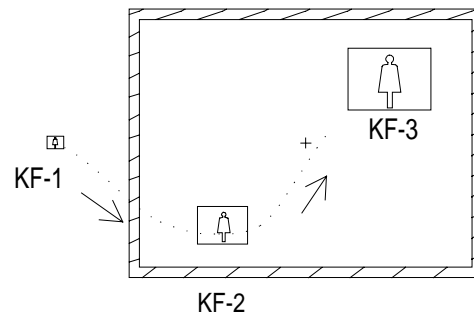




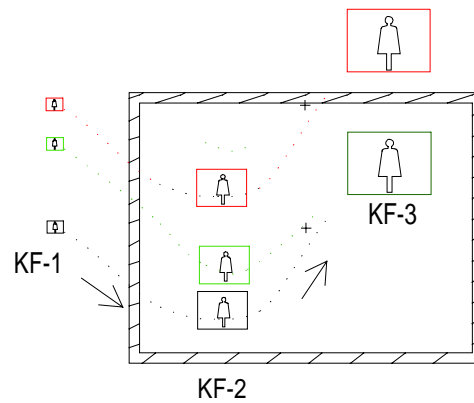
### 2.11.13.3 Comparing Parallel and Converge Modes

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.



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



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



# 3 Control Panels

## 3.1 Overview KayakDD-1 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.

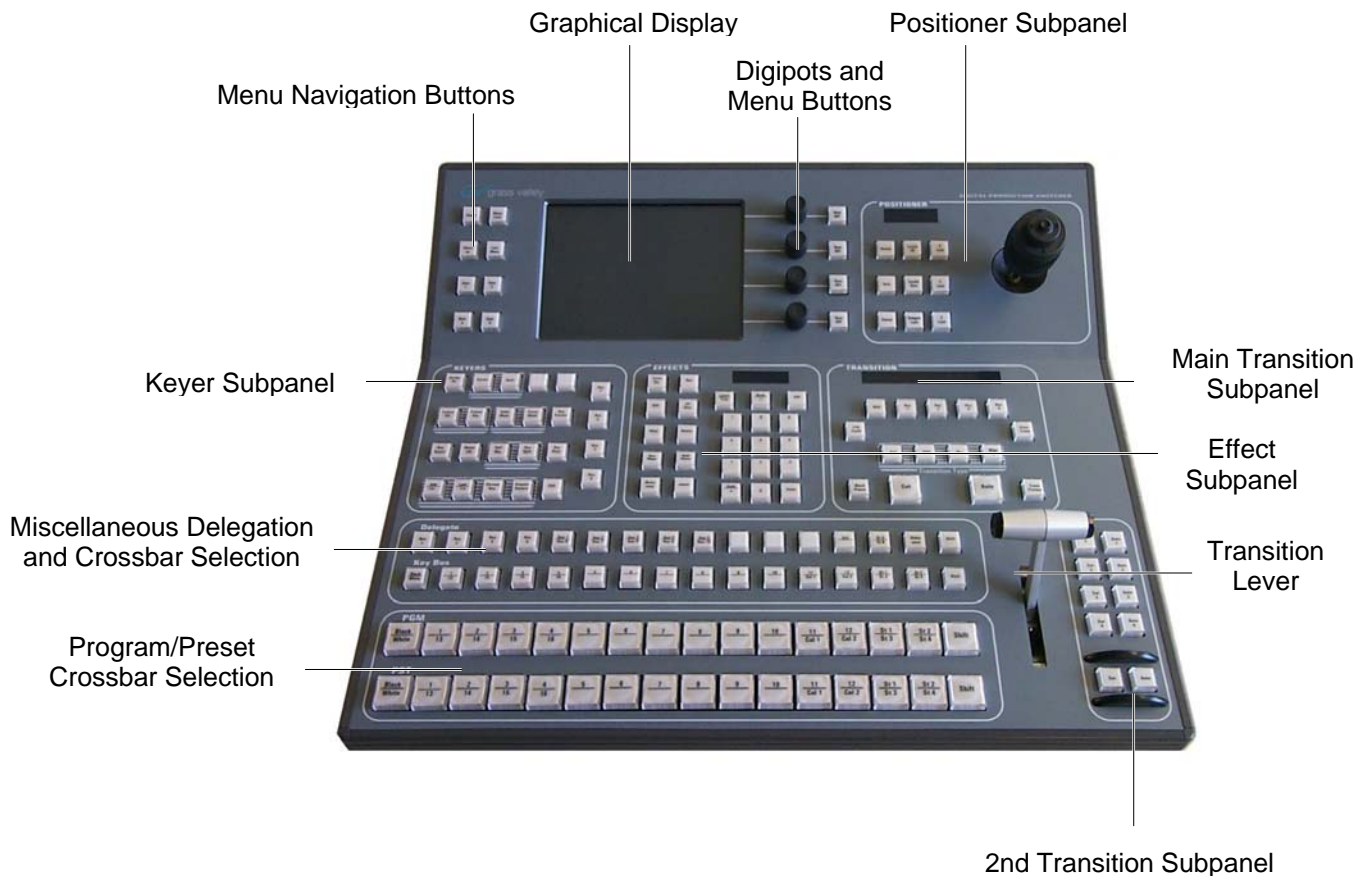


Figure 46 Overview KayakDD-1 Control Panel

### 3.2 Overview KayakDD-2 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/E 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.

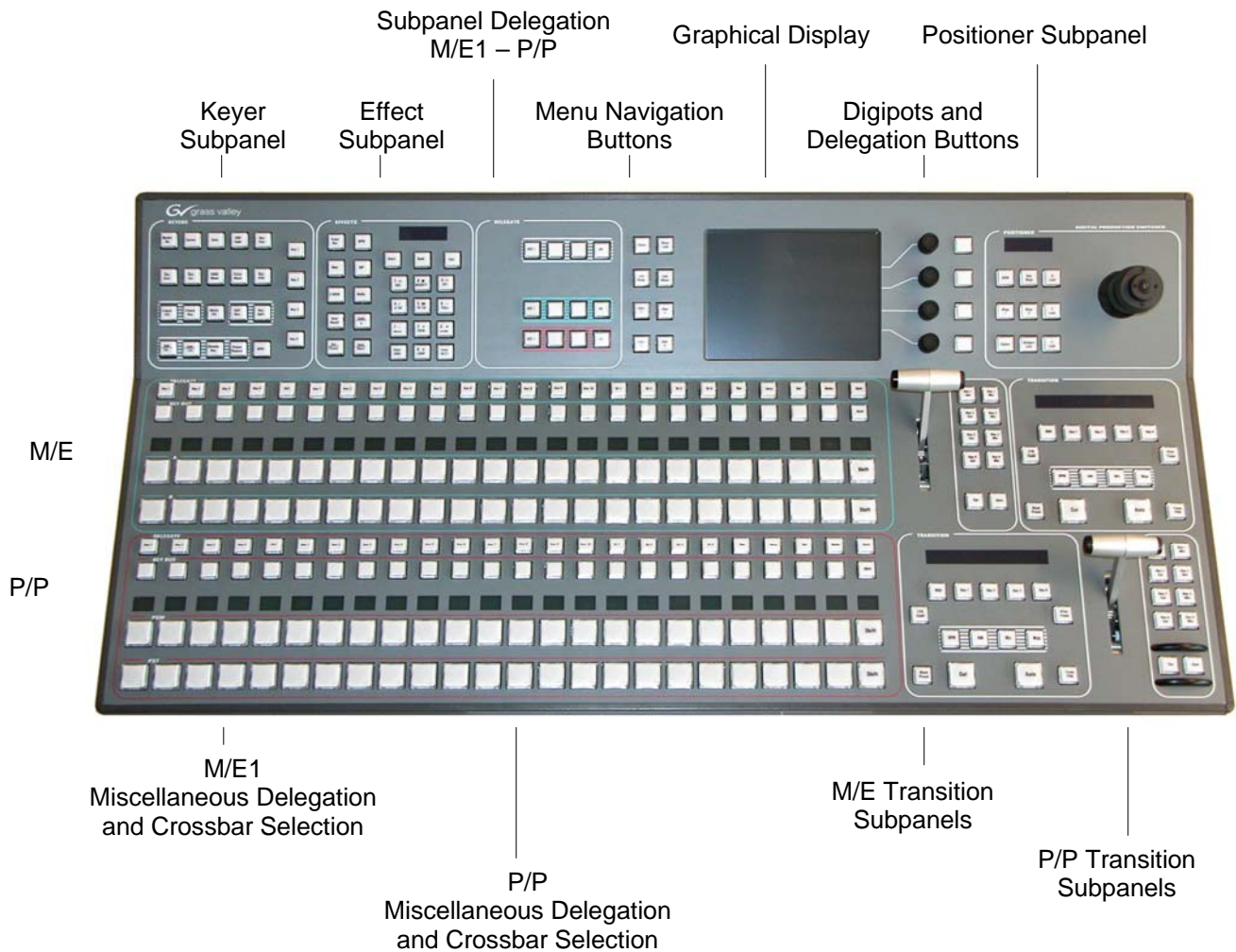


Figure 47 Overview KayakDD-2 Control Panel

### 3.3 Background Bus Selection

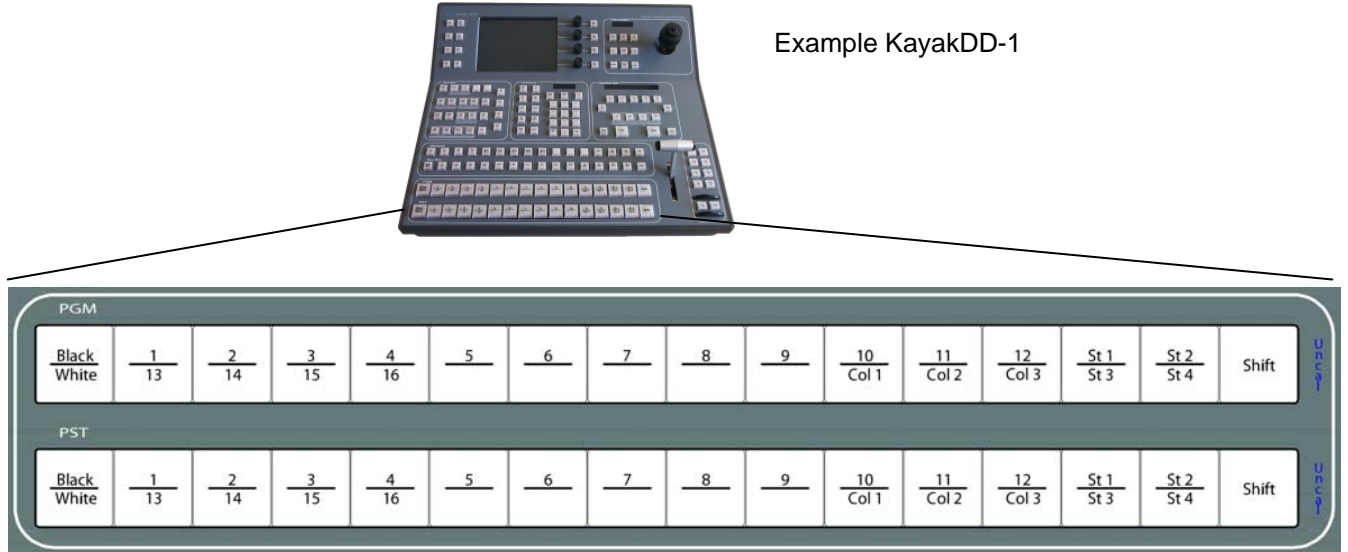


Figure 48 Subpanel Background Bus Selection

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.

#### 3.3.1 Unshifted and Shifted Sources

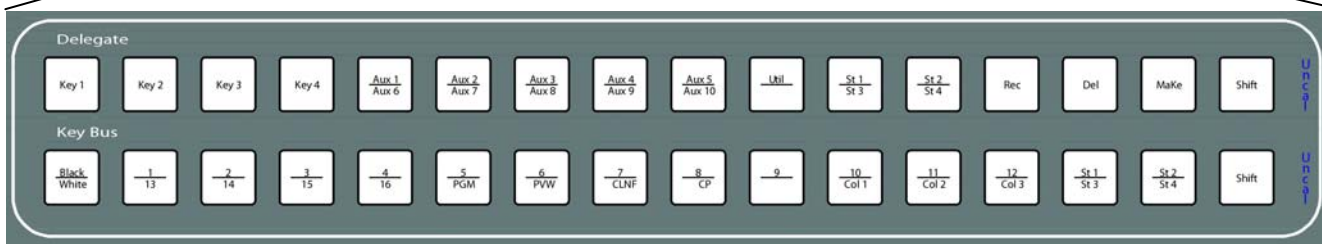
Of the available external 16sources, 12 are mapped to the unshifted source selection buttons, and 4 to shifted buttons. The resting buttons of the unshifted source selection buttons and some of the shifted buttons are used for internal sources like black, stillstores, and color backgrounds.

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.

### 3.4 Miscellaneous Bus Selection



Example KayakDD-1



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 according 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.

#### 3.4.1 Available Bus Delegations

##### 3.4.1.1 Key1 – Key4

A button press in the bus selection row selects the fill signal and the coupled key signal for the according 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.

##### 3.4.1.2 Aux1-Aux10

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

##### 3.4.1.3 Input Still Stores

The Stillstore inputs can be delegated in two groups, unshifted Stillstore 1+2, shifted Stillstore 3+4.

#### 3.4.1.4 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.

#### 3.4.1.5 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 according 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" button 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.

### 3.5 Transition Control

#### 3.5.1 Overview

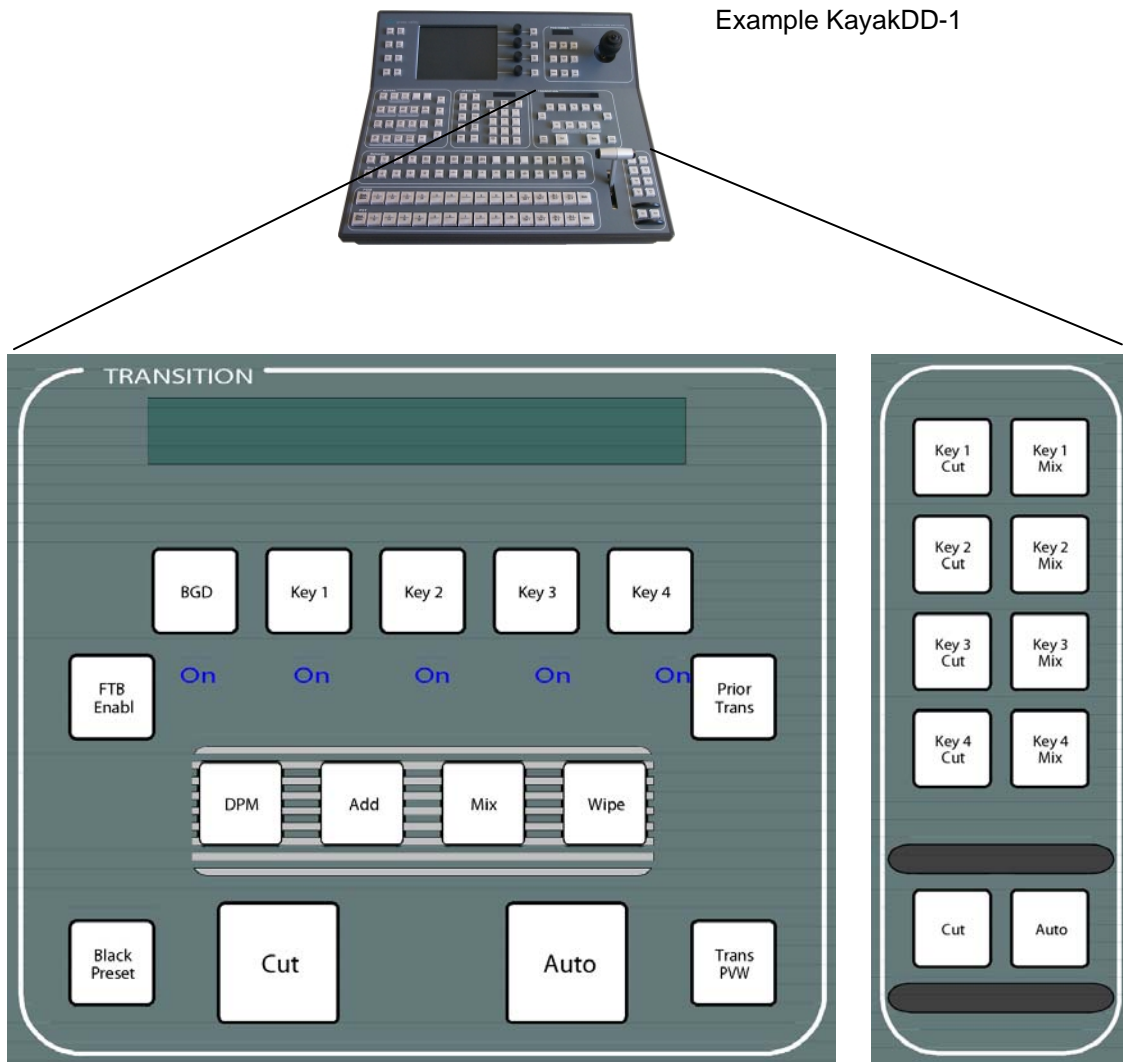


Figure 49 Subpanel Transition Control

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



### 3.5.1.1 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.

### 3.5.1.2 2nd 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 are 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 & Auto buttons as well as most buttons of the Main Transition Subpanel will be user programmable.*

### 3.5.1.3 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 select 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 **Key Prior** 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 **Key Prior** button in the Keyers subpanel or via a menu.

### 3.5.2 Transition Types

The **DPM**, **Add**, **Mix**, **Wipe**, and **User Tran** 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 **Add** button selects a Full Additive Mix as the next transition.
- The **Mix** button selects a mix as the next transition.
- The **Wipe** button selects a wipe as the next transition. Each wipe is predefined using either the complex wipe generators or the Utility buses as the wipe shape. Wipe pattern selections are made in the Wipe menu.
- The **User Tran** button selects customized user defined transition settings. Specialized enhancements and combinations of transition effects, including Mix through Video, FAM (Full Additive Mix) or DPM (Digital Picture Manipulator) transitions, can be programmed into a user transition.

*NOTE!*

***User Tran** is not supported in the software release version 1.0. Since the number of buttons for transition types is limited, User Trans would only be accessible via menu or after having reprogrammed buttons in the Main Transition Subpanel (later software).*

### 3.5.3 **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.

### 3.5.4 **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, **Cut** 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.

### 3.5.5 **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.

### 3.5.6 **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.

### 3.5.7 **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.

### 3.6 Keyer Subpanel

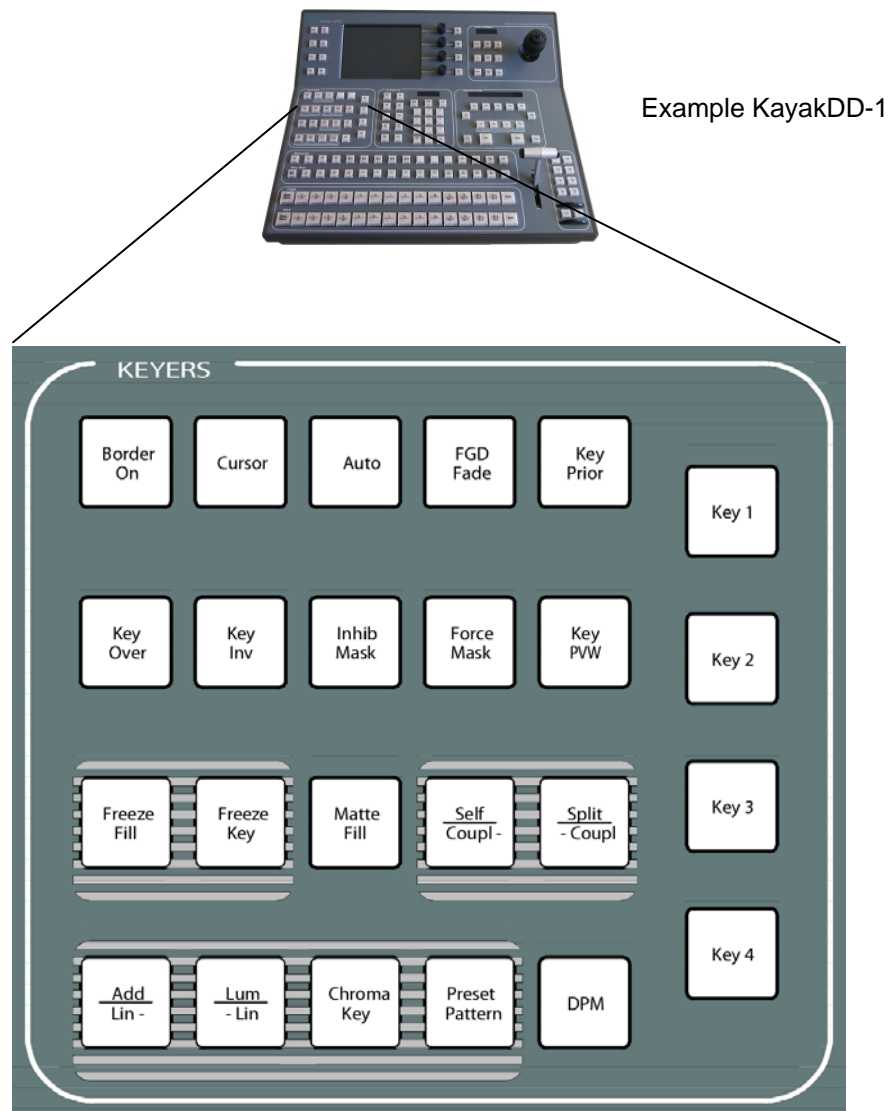


Figure 50 Subpanel Keyers

#### 3.6.1 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.

### 3.6.2 Key Types

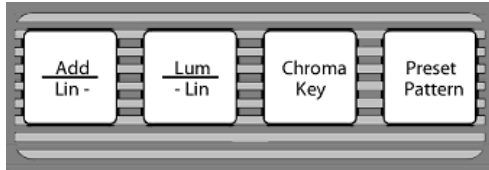


Figure 51 Key Type Buttons

**NOTE!**

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

The buttons are lit as follows:

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

#### 3.6.2.1 Add Key

Button **Add Key** 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.

#### 3.6.2.2 Lum Key

Button **Lum Key** 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.

### **3.6.2.3 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.

### 3.6.3 **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.

**NOTE!**

*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.*

### 3.6.4 **Key Sources**

#### 3.6.4.1 **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.

#### 3.6.4.2 **Self Key Button / Key Split Button (Software V618)**

When the Miscellaneous Bus is delegated to a keyer, a source selection always selects the Fill signal for the according keyer. The Self Key/Key Split buttons define the way in which the key signal is selected.

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

If Key Split is active, a selection of the Fill signal does not change the key signal. To select the Key signal, hold down the Key Split 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 Key. The Key Buses row will indicate the source as long as the button is held down.*

If none of the two buttons is 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 the input itself. 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.



### 3.6.4.3 Self/Couple Key Button / Split/Couple Key Button (Software V622 and higher)

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

### 3.6.4.4 Overview Key Selection Mode

Key Selection Mode	Indication	Operation
identical	<b>Self Key</b> is lit	Select Fill and Key source together
coupled	no button lit	Select Fill source and the Coupled Key input as Key source
split	<b>Key Split</b> is lit <b>Key Split</b> is not pressed	Select Fill source
split	<b>Key Split</b> is lit <b>Key Split</b> is pressed	Select Key source

### 3.6.5 Automatic Key Adjustment

#### 3.6.5.1 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.*

#### 3.6.5.2 Automatic ChromaKey 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 chromakey menu.

### 3.6.5.3 **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.

### 3.6.6 **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.

### 3.6.7 **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.

### 3.6.8 **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.

### 3.6.9 **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.

### **3.6.10 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.

### **3.6.11 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.

### **3.6.12 Freeze Fill Button**

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

### **3.6.13 Freeze Key Button**

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

### **3.6.14 DPM Button**

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

### 3.7 Positioner Subpanel

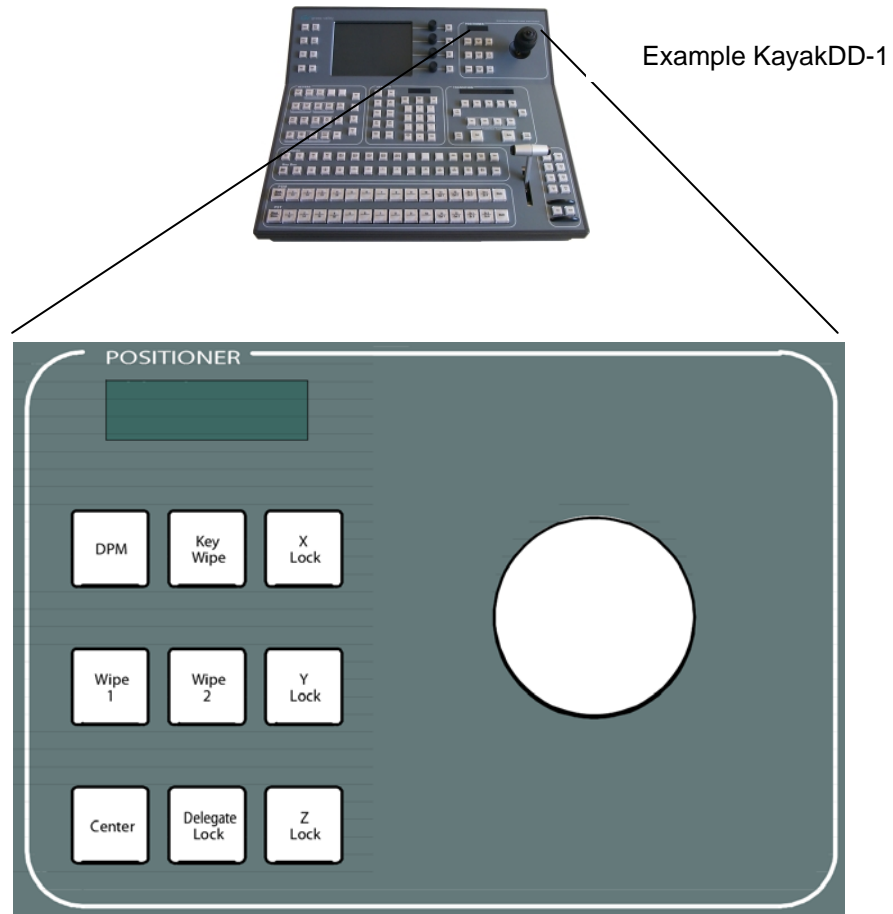


Figure 52 Subpanel Positioner

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, chromakey 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.

### 3.7.1 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.

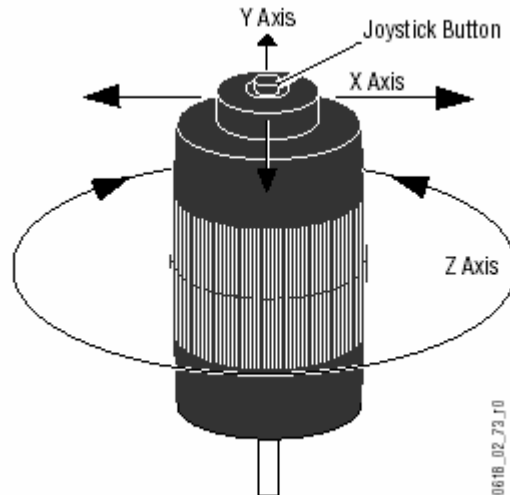


Figure 53 Positioner

### 3.7.2 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 chromakey.

### 3.7.3 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 according 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.

#### 3.7.3.1 DPM

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 according 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.

#### 3.7.3.2 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 according **wipe generator**. In this case the according 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.

### 3.7.4 **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.



### 3.8 Effects Subpanel



Example KayakDD-1

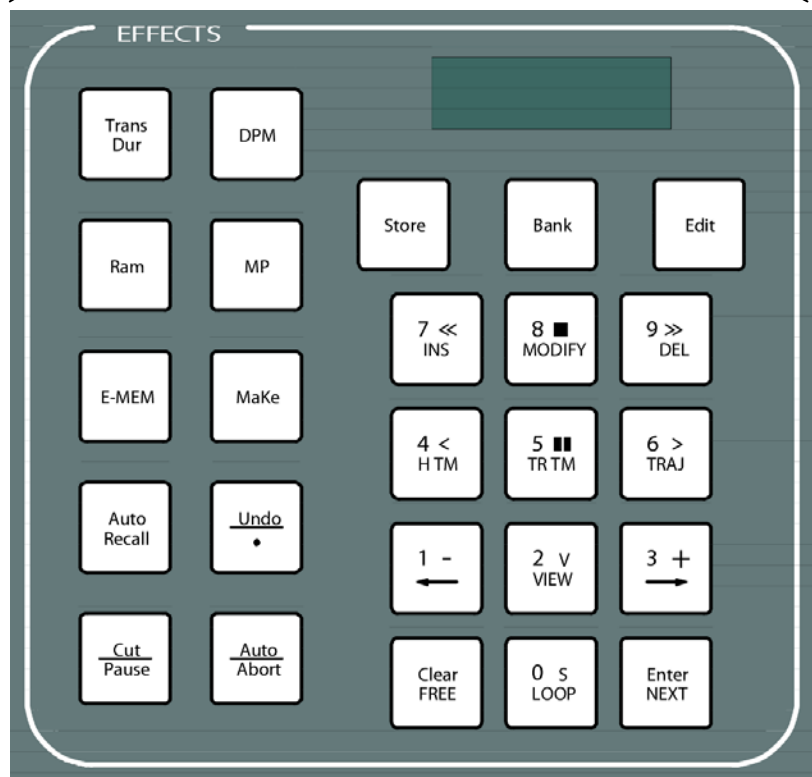


Figure 54 Subpanel Effects

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

On the following pages the different modes are described in detail.

### 3.8.1      **DPM**

In DPM Mode the Effects Subpanel serves for recalling and editing DPM effects. For general information on the DPM structure in the KayakDD system please refer to chapter 5.11

#### 3.8.1.1    **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 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 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.

### 3.8.1.2 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.

### 3.8.1.3 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. While you are in Bank mode you can change the current bank in the same way.

Example:

EFF	05	eff05	----
-----	----	-------	------

### 3.8.1.4 Disabling Bank Mode

Press the lighting **Bank** key.

### 3.8.1.5 Display

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

REG	????		
-----	------	--	--

No register is selected. The register is empty.

REG	24		
-----	----	--	--

Register 24 is selected. The register is empty.

REG	B24		
-----	-----	--	--

Register 24 is selected in Bank mode 2 (This corresponds to register 24). Register 24 is empty.

EFF	05	eff05	----
-----	----	-------	------

Register 5 is selected. The register contains a effect and has no particular name.

EFF	B05	eff05	----
-----	-----	-------	------

As above but Bank mode 0 with hotkey 5.

EFF	05	ABCD	EFGH
-----	----	------	------

Register 5 is selected. The register contains a effect with the name ABCDEFGH. The name can only be entered in the menu.

EFF	B05	ABCD	EFGH
-----	-----	------	------

As above but Bank mode 0 with hotkey 5.

### 3.8.1.6 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 keyframe with the current state of the enabled Digital Picture Manipulators.

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

- 0: no function
- 1: **Go to previous Keyframe**
- 2: no function
- 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** for discard the changes.

### 3.8.1.7 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

### **3.8.2 Ram**

In Ram Mode the Effects Subpanel serves to control the internal RAM Recorders.

To select the desired RAM Recorder channel for control, either toggle through the channels by repeatedly pressing the Ram button, or hold down the Ram button and select the according channel number.

Since the frames of a channel can be looked at as moving video or as independent stills, the Bank button is used to toggle between Clip and Stillstore Mode.

The display shows the channel number, and -depending on the mode - status and the timecode or the number of the still.

When the Bank button is lit, Clip Mode is selected.

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

### 3.8.2.1 Button Functions

<b>7 &lt;&lt;</b>	rewind
<b>8 #</b>	stop, shows the input signal of the channel
<b>9 &gt;&gt;</b>	fast forward
<b>4 &lt;</b>	reverse play
<b>5   </b>	still
<b>6 &gt;</b>	play
<b>1 -</b>	single step back (when the channel is in still) decrease variable speed (when the channel is in variable speed) decrease shuttle speed (when the channel is in shuttle mode)
<b>2 V</b>	variable speed
<b>3 +</b>	single step forward (when the channel is in still) increase variable speed (when the channel is in variable speed) increase shuttle speed (when the channel is in shuttle mode)
<b>0 S</b>	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.

<b>Auto Recall</b>	No functionality in <b>Clip Mode</b>
<b>Cut/Pause</b>	
<b>Auto/Abort</b>	
<b>Clear/Free</b>	

When the **Bank** button is off, **Stillstore Mode** is selected.

### 3.8.2.2 Storing a Still

- Press the store button
- Select a number
- Press the Enter button to confirm

**3.8.2.3 Recalling a Still**

- Select a number
- Press the Cut button to recall the still

**3.8.2.4 Deleting a Still**

- Press the Clear button
- Select a number
- Press the Enter button to confirm

**3.8.2.5 Hint**

**Auto Recall  
Undo  
Auto/Abort**

No functionality in Ram Mode.



### 3.8.3 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.

#### 3.8.3.1 Button Functions

<b>7 &lt;&lt;</b>	rewind
<b>8 #</b>	stop, shows E-to-E image, depending on machine setup
<b>9 &gt;&gt;</b>	fast forward
<b>4 &lt;</b>	reverse play
<b>5   </b>	still
<b>6 &gt;</b>	play
<b>1 -</b>	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)
<b>2 V</b>	variable speed
<b>3 +</b>	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)
<b>0 S</b>	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.

**3.8.3.2 Hint**

**Bank** No functionality in MP Mode.  
**Auto Recall**  
**Cut/Pause**  
**Auto/Abort**

### **3.9 E-MEM**

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

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.

### 3.9.1 Definition of Terms

<b>SNAPSHOT (SNAP)</b>	is a switcher status or the status of a switcher part.
<b>KEYFRAME (KF)</b>	is a static switcher status within one timeline.
<b>TIMELINE (TIML)</b>	is a stored sequence of switcher statuses (keyframes).
<b>DISSOLVE</b>	is a dissolve between static switcher statuses. The analogue values are dissolved, the switching functions are switched at the end of the dissolve procedure.
<b>DISSOLVE TIME</b>	is the time for dissolving between two static switcher statuses.
<b>STORE</b>	is the storing of a static switcher status.
<b>RECALL</b>	is the reproduction of a stored static switcher status.
<b>EDITING (EDIT)</b>	is the creation or the processing of a timeline outside real-time.
<b>PLAY</b>	is the play of a stored timeline.
<b>TRAJECTORY</b>	is the "trajectory" between keyframes.
<b>REGISTER</b>	is a memory location where a snapshot or a timeline can be stored. Registers are identified with a number between 0 ... 99.
<b>REGISTER MODE</b>	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 functional selections such as <b>Enter</b> , <b>Cut</b> or <b>Auto</b> .
<b>BANK MODE</b>	is an 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.

### 3.9.2 Display

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

REG	????		
-----	------	--	--

No register is selected..

REG	24		
-----	----	--	--

Register 24 is selected.

REG	B24		
-----	-----	--	--

Register 24 is selected in Bank Mode 2. This corresponds to register 24. Register 24 is empty

SNAP	05	SN05	----
------	----	------	------

Register 05 is selected. The register contains a snapshot and has no particular name.

SNAP	B05	SN05	EFGH
------	-----	------	------

As above but in Bank Mode 0 with hotkey 5

SNAP	05	ABCD	EFGH
------	----	------	------

Register 05 is selected. The register contains a snapshot with the name “ABCDEFGH”. The name can only be entered in the menu!

SNAP	B05	ABCD	EFGH
------	-----	------	------

As above but in Bank Mode 0 with hotkey 5

TL	16	TL16	----
----	----	------	------

Register 16 is selected. The register contains a timeline and has no particular name.

TL	B165	TL16	----
----	------	------	------

As above but in Bank Mode 1 with hotkey 6

TL	16	KLMN	OPQR
----	----	------	------

Register 16 is selected. The register contains a timeline with the name “KLMNOPQR”. The name can only be entered in the menu!

TL	B16	KLMN	OPQR
----	-----	------	------

As above but in Bank Mode 1 with hotkey 6

### 3.9.3 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.

#### 3.9.3.1 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	----
------	-----	------	------

#### 3.9.3.2 Disabling Bank Mode

Press the lighting **Bank** button.

### 3.9.4 Selecting a Register During 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 actuation of the **Store** or **Edit** button, no further selection is necessary.

*NOTE!*

*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.*

### 3.9.5 **Selecting a Register During 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**.

### 3.9.6 **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**

### 3.9.7 **Deleting Snapshots and Timelines**

4. Press **Clear**.
5. Select other register (0 ... 99). Only if not already displayed.
6. 3. Press **Enter**

### 3.9.8 Dissolve Functions Depending on Snapshot or Timeline Preselection

Button	Snapshot preselected	Timeline preselected
<b>Auto</b>	Dissolve to the snapshot in the time set with <b>Trans dur.</b>	Playing the timeline in the time set with <b>Trans dur.</b>
<b>Cut</b> 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 only be recalled with **Cut**.*

### 3.9.9 Other Button Functions

#### 3.9.9.1 Trans Dur

Entry of the Auto transition duration.

- Hold down the **Trans dur** button and press the **E-MEM** button.
- Enter transition duration with numeric keypad.
- The time is indicated in the **FRAMES** display.
- Complete the entry with **Enter** or **Trans dur** again.

#### 3.9.9.2 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.

#### 3.9.9.3 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.



#### 3.9.9.4 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.

#### 3.9.9.5 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**.

### 3.9.10 Timeline Editing

#### 3.9.10.1 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).

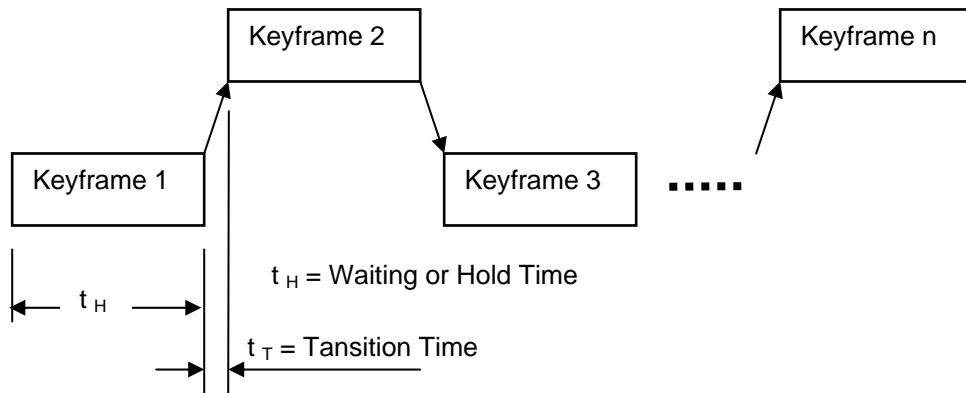


Figure 55 Components of Timeline

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:

<b>Start</b>					Timeline start symbol
<b>End</b>					Timeline end symbol
<b>Kfnnn</b>					Internal stored keyframe
<b>SNnn</b>					Ext. stored keyframe, snapshot in register nn
<b>TLnn</b>					Ext. stored timeline, timeline in register nn
<b>Loop</b>					Loop begin symbol
<b>ELoop</b>					Loop end symbol
<b>User</b>					Wait for a user input
<b>Hold</b>					Wait for a number of frames

<b>TOD</b>				Wait for a special time of day
<b>TC</b>				Wait for a special timecode of a conn. machine
<b>MaKnn</b>				Trigger MaKE Memo nn of the panel where the timeline was stated
<b>GPI n</b>				Wait for GPI n
<b>GPO n</b>				Wait for GPO n
<b>EGPO n</b>				Trigger external GPO n
<b>PGPI n</b>				Wait for panel GPI n
<b>PGPO n</b>				Trigger panel GPO n
<b>TGPI n</b>				Trigger GPI n
<b>Stop</b>				TMC stop
<b>Play</b>				TMC play
<b>Rec</b>				TMC record
<b>Var</b>				TMV variable
<b>Frew</b>				TMC fast rewind
<b>Ffwd</b>				TMC fast forward
<b>Cue</b>				TMC cue to specified timecode
<b>CueIn</b>				TMC cue to in point
<b>CueOut</b>				TMC cue to out point
<b>Jog</b>				TMC joggle
<b>Step</b>				TMC 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.

### 3.9.10.2 Generating a Timeline

To generate a timeline the following steps must be done:

- Ensure that no transition or anything else is running at the E-MEM
- Press **EDIT**
- Select register
- Press **ENTER**
- Insert timeline objects (keyframes, loops,...)
- Press **EDIT**
- The timeline is stored as a chain of keyframes, snapshots, loops, ... with related dissolves (transitions) between the keyframes.

### 3.9.10.3 Modifying a Timeline

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

- Ensure that no transition or anything else is running at the E-MEM
- Press **EDIT**
- Select Register
- Press **ENTER**
- Insert, delete, modify,... timeline objects (keyframes, loops,...)
- Press **EDIT**
- The timeline is stored as a chain of keyframes, snapshots, 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.*

#### 3.9.10.4 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.*

**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.

### 3.9.10.5 Changing the Hold Time of a Snapshot or Keyframe

The following procedure is used:

- Select Keyframe / Snapshot (button ← and →)
- Press HTM
- Enter hold time with numeric keypad
- Press Enter

*NOTE!*

*Errors can be deleted with Clear.*

### 3.9.10.6 Changing the Transition Time of a Snapshot or Keyframe

The following procedure is used:

- Select transition object
- Press TRTM
- Enter transition time with numeric keypad
- Press Enter

*NOTE!*

*Errors can be deleted with Clear.*

### 3.9.10.7 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.*

### 3.9.10.8 Entering a Loop During the Generation of a Timeline

The following procedure is used:

- Enter last timeline object before the loop
- Press LOOP
- 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.*

### 3.9.10.9 Inserting a Loop in an Existing Timeline

The following procedure is used:

- Select the timeline object after which the loop should start, or select transition before which the loop should start.
- 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.*

### 3.9.10.10 Modifying a Loop in an Existing Timeline

The following procedure is used:

- Shift LOOP or ELOOP indication at the end of the display (button ← and →)
- Press MOD
- Enter the loop counter with the numeric keypad
- Press Enter

**NOTE!**

*Errors can be deleted with Clear. If the loop counter is 000 the loop is an endless loop.*

### 3.9.10.11 Delete a Loop in an Existing Timeline

The following procedure is used:

- Shift LOOP or ELOOP indication at the end of the display (button ← and →)
- Press DEL

**NOTE!**

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

### 3.9.10.12 Delete a Timeline object in an Existing Timeline

The following procedure is used:

- Shift the timeline object to delete at the end of the display (button ← and →)
- Press DEL



## 3.10 MaKe

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

### 3.10.1 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 **Miscellaneous 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.*

### 3.10.2 **Recalling a Macro**

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

#### 3.10.2.1 **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.

#### 3.10.2.2 **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.*

### 3.11 Menu Subpanel

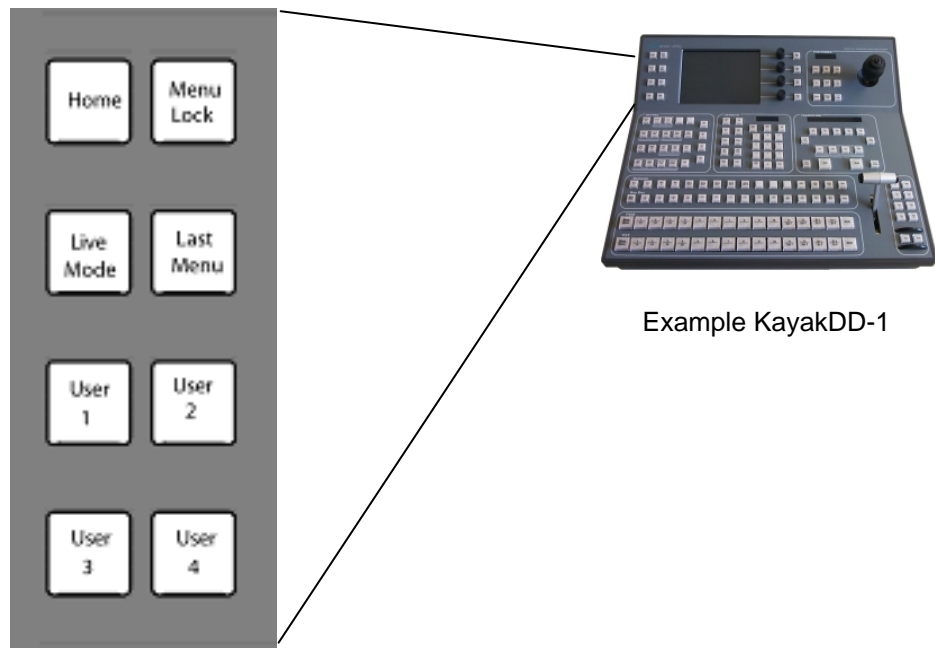


Figure 56 Components of Timeline

The Menu subpanel allows easy navigation in the menu display

#### 3.11.1 Home

Brings you to the top menu, allowing further navigation.

#### 3.11.2 Menu Lock

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

#### 3.11.3 Live Mode

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

#### **3.11.4    *Last Menu***

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

#### **3.11.5    *User1 – User4***

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

# 4 *Menus Overview*

## 4.1 *Introduction*

The KayakDD 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**. Sidepanel program can run on a computer with operating system Windows95 or higher.

### 4.1.1 *Menu Panel Description*

The Menu panel has a touch screen display and four soft knobs on the right

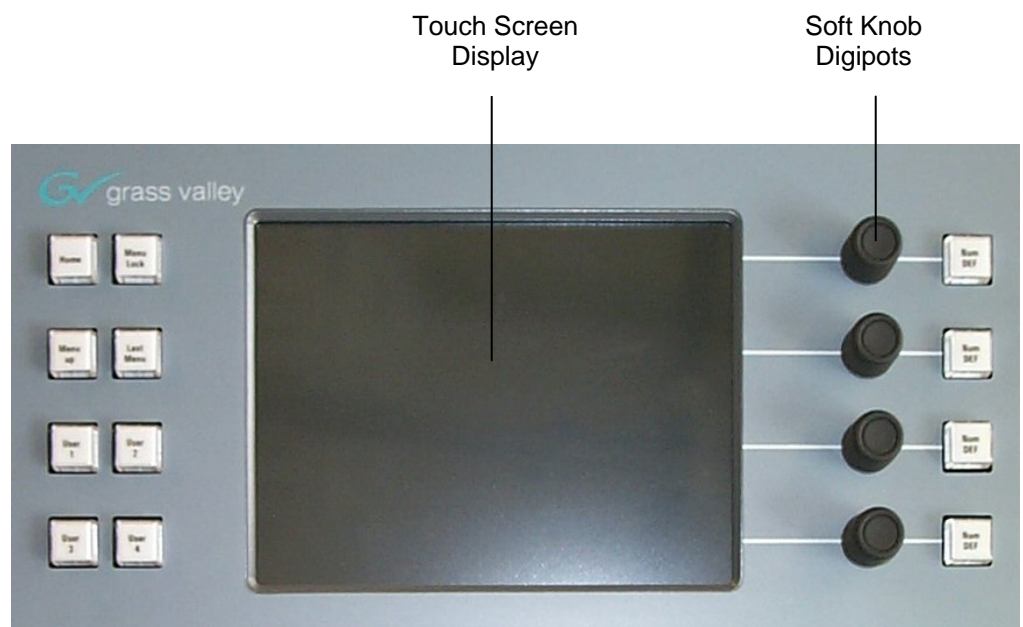


Figure 57 *Touch Screen Display*

### 4.1.2 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.

### 4.1.3 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.

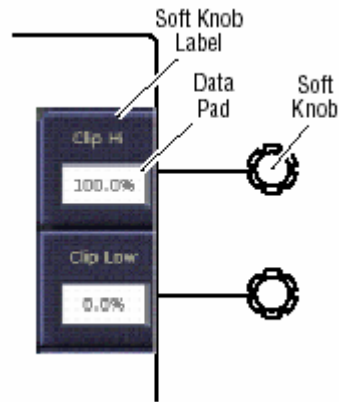


Figure 58 Soft Knobs (Digipots)

#### 4.1.4 Menu Screen Organization and Components

KayakDD 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 subcategory 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.

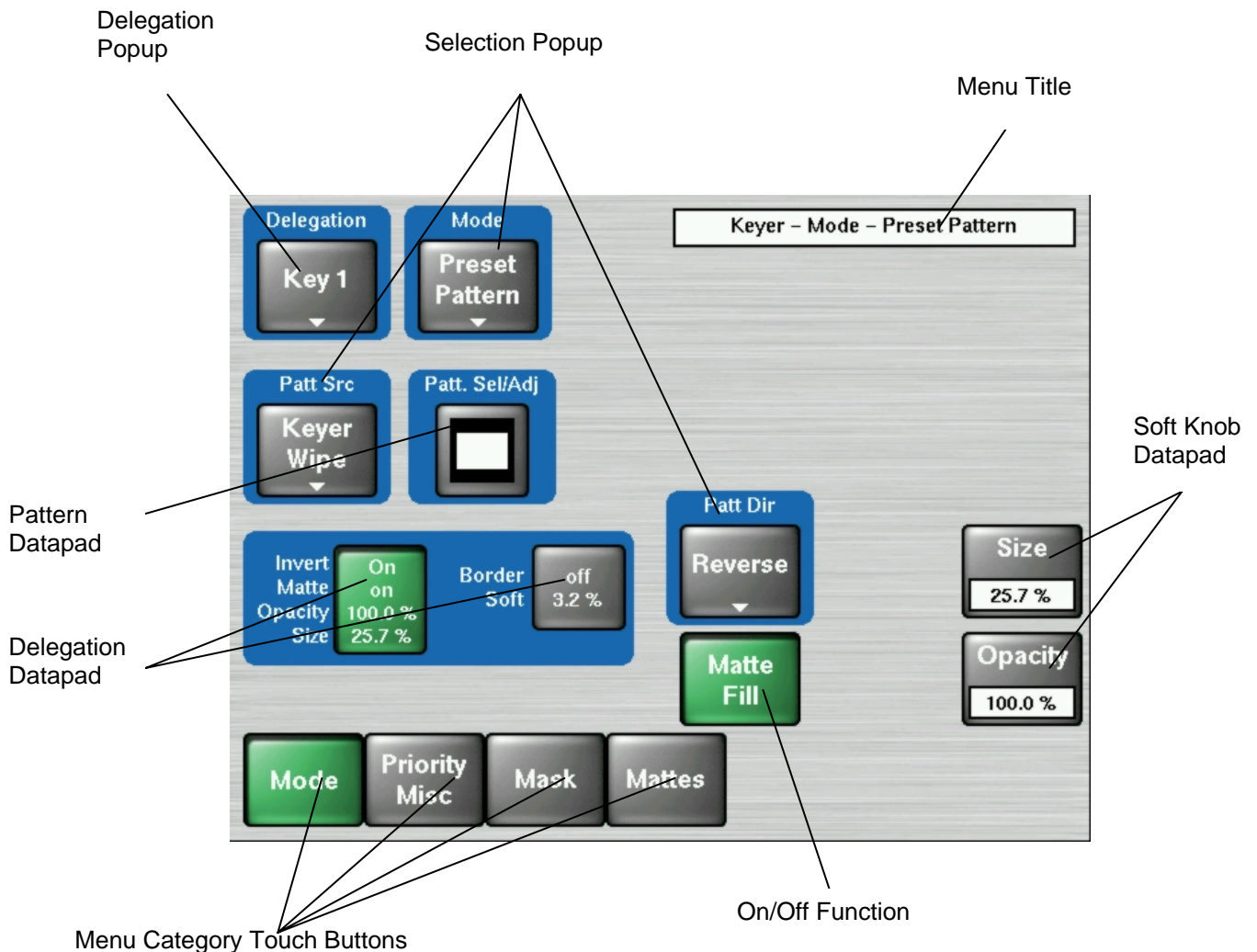


Figure 59 Example Screen Organization and Components

### 4.1.5 Data Pads and Touch Buttons

The KayakDD 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 59*). Touching this data pad provides a link to the Wipe.

Note that a single touch of a data pad will not change any KayakDD 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 59*), or turning on an attribute (**Matte Fill** in *Figure 59*). 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 KayakDD 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 59*), 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 59*).



#### **4.1.6 Menu Title**

The menu title is identical in all the KayakDD 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.

#### **4.1.7 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.

#### **4.1.8 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.

#### **4.1.9 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.

#### **4.1.10 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.

#### 4.1.11 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.

#### 4.1.12 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.

#### 4.1.13 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.

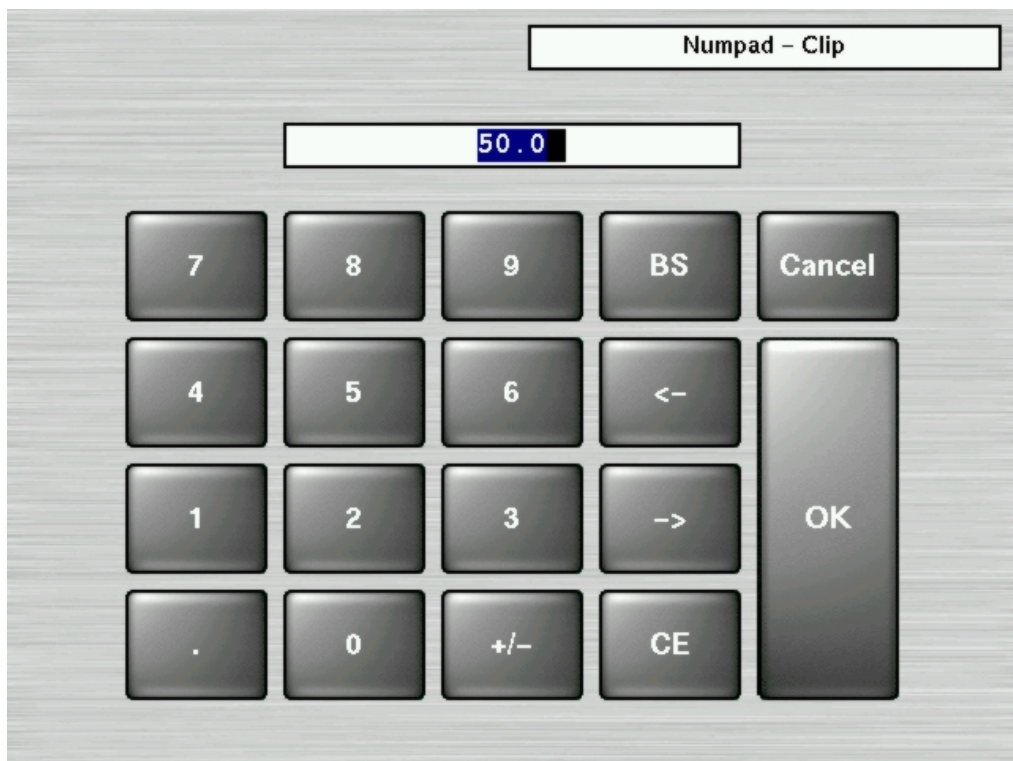


Figure 60 Numeric Key Pad

#### 4.1.14 Alphanumeric Keypad

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



Figure 61 Alphanumeric Key Pad

#### **4.1.15 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. Double Press Open (DPOP) and Single Press Open (SPOP) are convenient ways to access related menus when working on the Main panel. Double pressing or single pressing certain buttons bring 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.

## 5 *Menu Summaries*

In the remainder of this chapter, figures of several KayakDD 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 KayakDD system, the screen parameters and organization will vary, but the basic principles previously described are followed.

In general, to learn menu capabilities you can touch the screen where you think more information may be available (data pads and subcategory touch buttons). The actual video output of the system will not change unless a specific parameter button is touched, a value is changed with a soft knob, or a new value is entered with a popup keypad.

At system start the KayakDD will bring up the **Home menu**. You can always reach this menu by pressing the **Home** button in the top left of the control panel.

## 5.1 Home Menu

The Home menu is used to access the KayakDD system menus. Touch the button of the desired menu type to go directly to that menu. If multiple menus are available for that type, the last selected menu will be displayed.

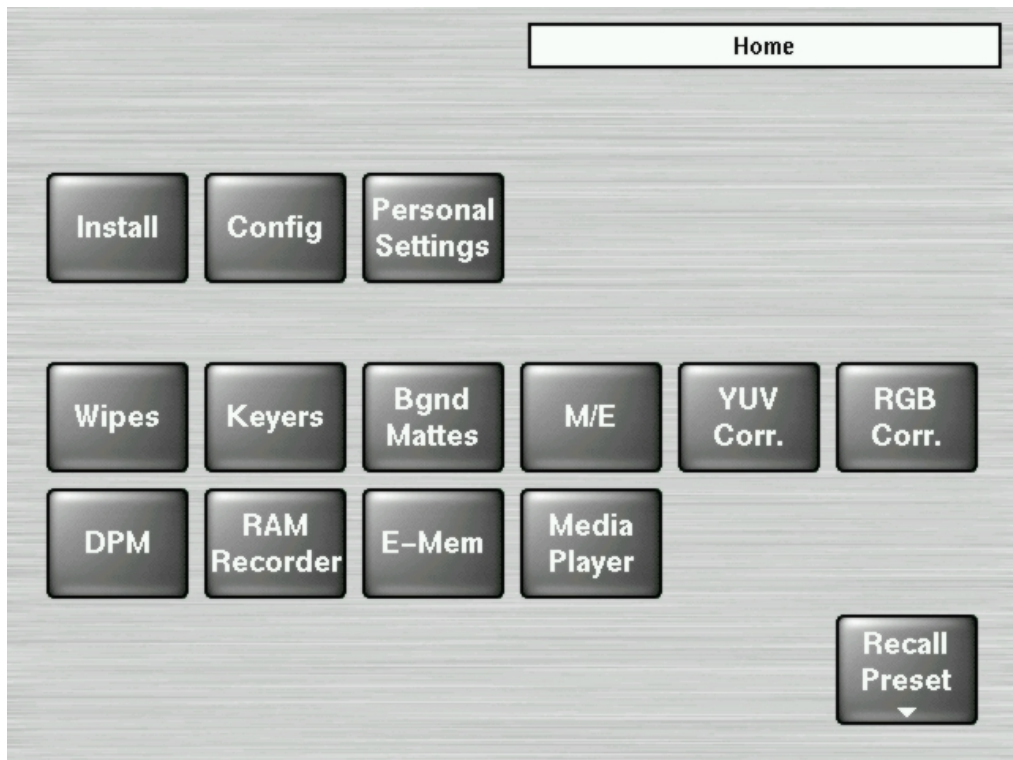


Figure 62 Home Menu

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

### 5.1.1 Home Menu Buttons

Some buttons on the Main control panel will open a specific menu automatically when pressed. For example, selecting the **Wipe** button in the Transition subpanel will open the Wipe menu.

The Home menu is used to navigate manually to the desired menu.

#### 5.1.1.1 Install

System setups, most of them are only setups during installation. Some more advanced system functions are not yet supported by the menu. If you want to set these functions now, we advice to run the Sidepanel application on a separate personal computer.

#### 5.1.1.2 Config

Configuration setups, these setups are part of an application. Some more advanced configuration functions like storing and loading applications are not yet supported by the menu. If you want to use these functions now, we advise you to run the Sidepanel application on a separate personal computer.

#### 5.1.1.3 Personal Settings

Menus for typical personal settings for different operators.

#### 5.1.1.4 Wipes

Menus for wipe selection and adjustment

#### 5.1.1.5 Keyers

Menus for keyer adjustment

#### 5.1.1.6 Bgnd Mattes

Menus for adjustment of the background mattes

#### 5.1.1.7 M/E

Menus for M/E adjustment

**5.1.1.8 Color Corr**

Menus for Color Correction adjustment

**5.1.1.9 DPM**

Menus for adjustment of the DPM (Digital Picture Manipulators) channels (optional)

**5.1.1.10 RAM Recorder**

Menus for adjustment of the RAM Recorder (optional)

**5.1.1.11 E-MEM**

Menus for E-MEM editing

**5.1.1.12 Media Player**

Menus for media player control

**5.1.1.13 Recall Presets**

Menus for recalling the different settings

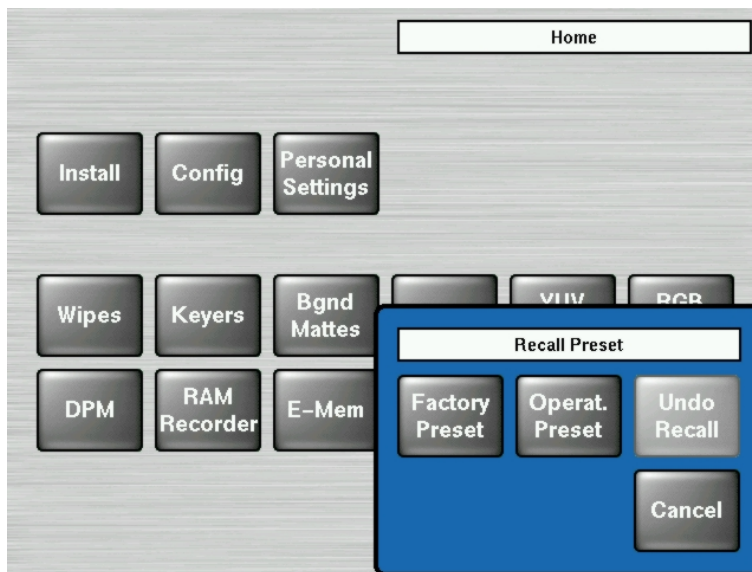


Figure 63 Home Menu - Recall Preset



## 5.2 Install Menus

The Install menu contains system setups. Most of them are only setups during installation. Some more advanced system functions are not yet supported by the menu. If you want to set these functions now, we advice to run the Sidepanel application on a separate personal computer.

### 5.2.1 Install - Calibration Menu

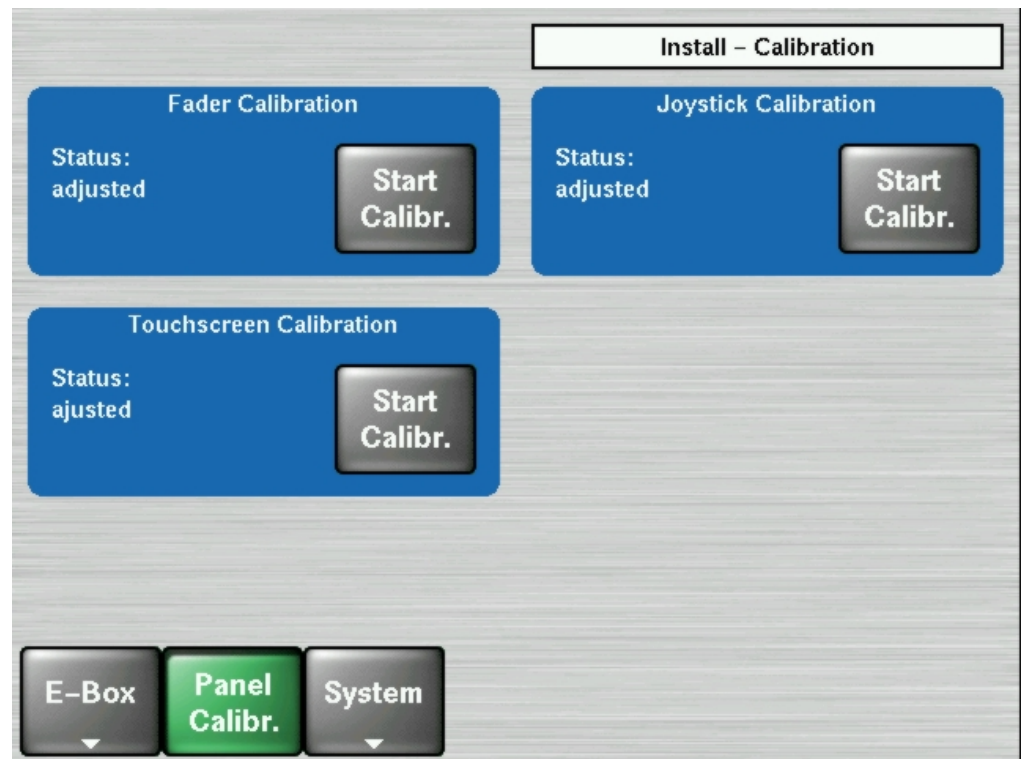


Figure 64 Install - Calibration Menu

#### 5.2.1.1 Fader Calibration

Press **Start Calibr.** button and follow the instructions:

- Move fader to the upper position and press OK
- Move fader to the lower position and press OK

### **5.2.1.2 Joystick Calibration**

Press **Start Calibr.** button and follow the instructions:

- Move joystick to the bottom right corner, twist to left stop and press OK
- Let joystick return to the center position and press OK
- Move joystick to the top left corner, twist to right stop and press OK

### **5.2.1.3 Touchscreen Calibration**

Press **Start Calibr.** button and follow the instructions:

- Please touch the red spot in the top left corner
- Please touch the red spot in the bottom right corner
- Please touch the red spot in the top right corner

## 5.2.2 Install – E-Box

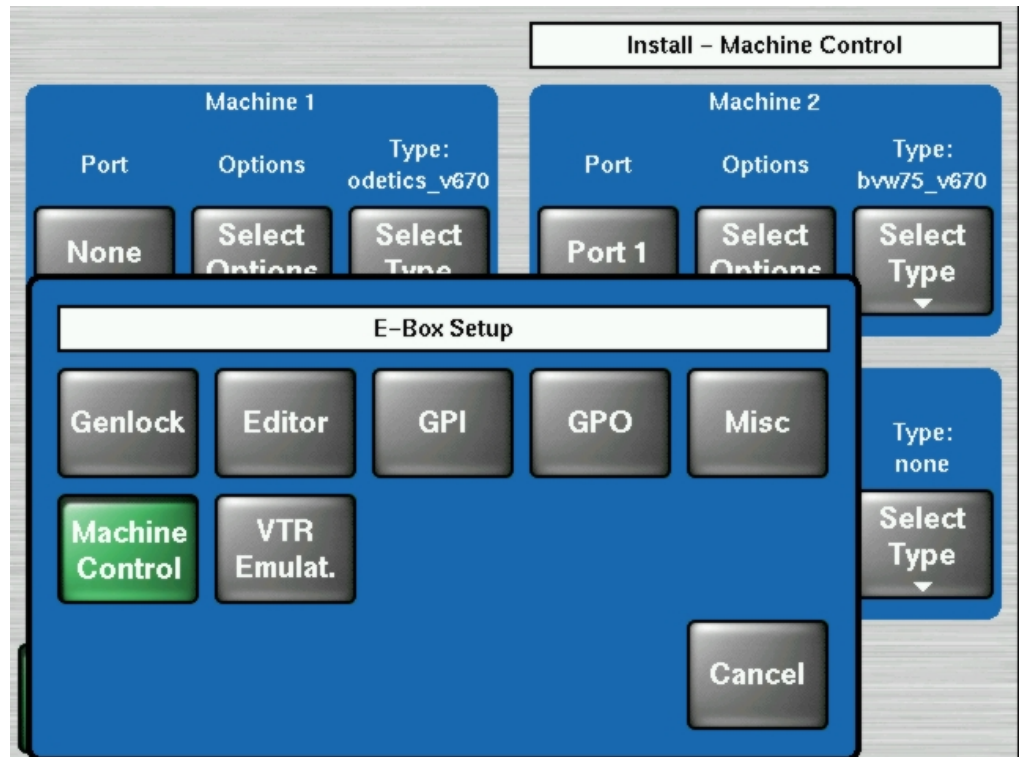


Figure 65 Install – E-Box Setup Dialog

After touching the **E-Box** button in the Home menu a new dialog appears with the following setup items:

- Genlock
- Editor
- GPI
- GPO
- Misc
- Machine Control
- VTR Emulation

5.2.2.1 Install - Genlock Menu

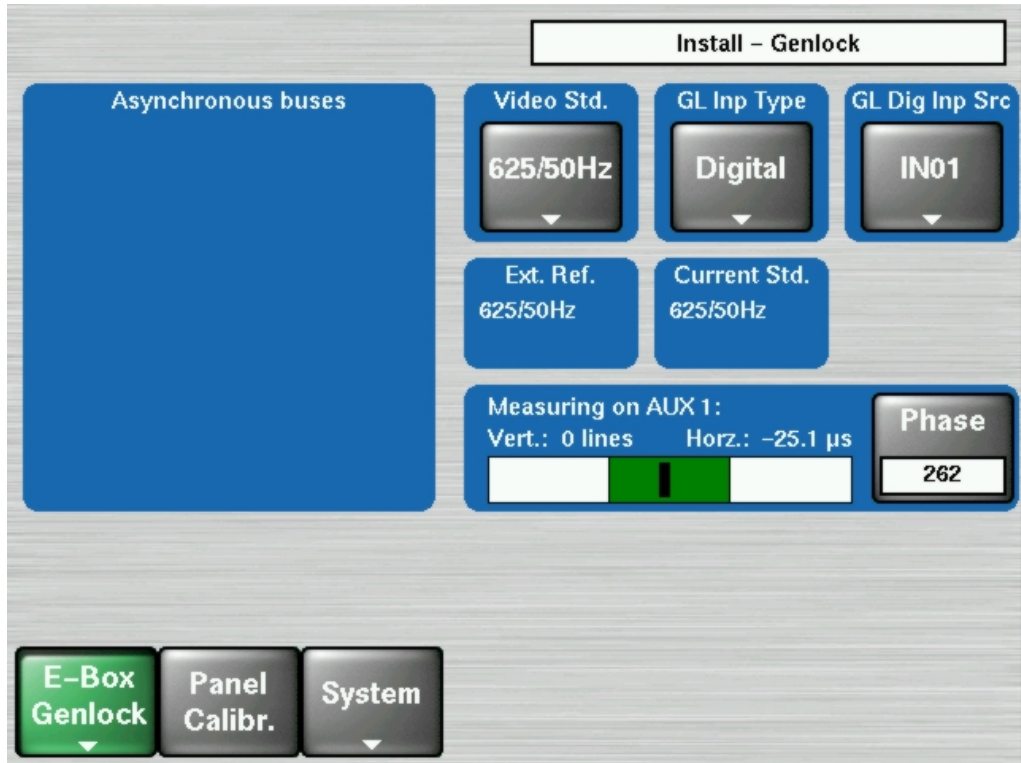


Figure 66 Install - Genlock Menu

- Button **Video Std.**  
Select the desired standard
- Button **GL Input Type**  
Select desired genlock input type **Analog** or **Digital**
- Button **GL Dig Inp Src**  
If **Digital** as genlock input type selected the reference source can be selected

When source signals are fed into the switcher, it must be ensured that the time difference between the sources is not outside the operating range of the internal switcher autophasers (41us). The output signals of the sources must correspond to the timing customary in operation.

The switcher's Genlock Phase can be adjusted to the fed reference signal in the range of -9 line to +10 lines.

The mixers include the possibility to perform the genlock adjustment of the individual input sources in Genlock menu.

When adjusting the genlock phase, **all** sources have to be successively checked for their timing by switching up on the bus **Aux1**. Select the inputs with the **GL Dig Inp Src** button.

With **Phase**, the phase relation of the mixer can be shifted +15/–15 lines in comparison with the genlock reference signal. The display (left of the button) serves for checking the timing of the sources. The bar diagram displays the timing of the source to the mixer that is current selected on bus **Aux1**. The bar diagram shows the timing of the input source relatively to the autophasing range. All sources should be timed between the two marker lines in the middle area of the bar. The right line (with the respective switcher type name) marks the earliest mixer input (latest timing of the sources). The left line marks the earliest timing of the sources. The bar is displayed black, if the timing is in the phasing range or yellow, if the timing is outside the phasing range.

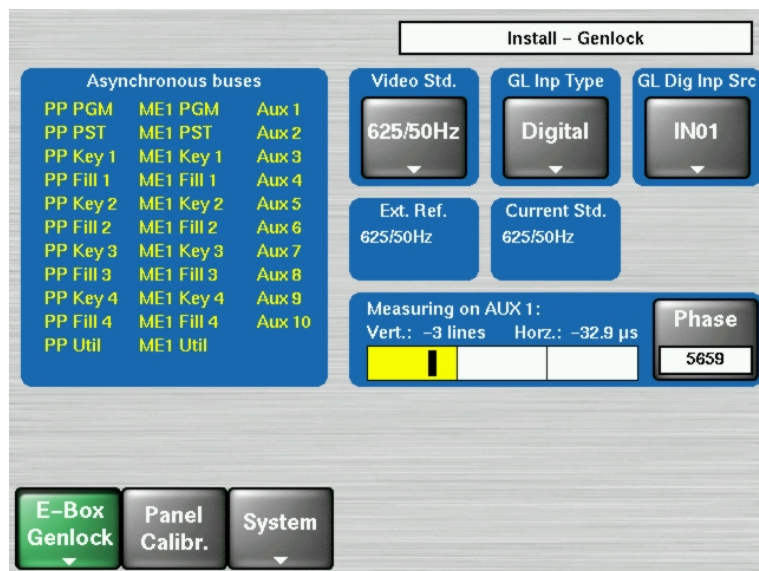


Figure 67 Install - Genlock Menu With Asynchronous Buses

The menu shows the following information:

- Aux1:** Shows the selected source on the Aux1 Bus witch is used for timing measurement.
- Vert:** Shows how many lines the source is off in comparison to the switcher timing.
- Hor:** Shows how many us the source is off in comparison to the switcher timing (only if Vert = 0).
- Ext. Ref.:** Shows the standard of the Black or Blackburst signal at the genlock input.
- Current Std.:** Shows the standard of the Black or Blackburst signal at the genlock input.

### 5.2.2.2 How to Adjust the Genlock Phase

- Make sure that the switcher is set to the same standard as the external reference and the sources.
- The video standard of the switcher can be modified by selecting the parameter **Video Standard** in the **Install E-Box** menu. Then push **Modify** to open an overlay with the selection modes **Auto Detect** (default), **625Lines/50Hz**, **525Lines/60Hz**. Confirm the selected mode with **OK**.
- Select a video source on Aux1. To adjust the genlock phase select **Genlock Phase**. Pressing **Modify** opens an overlay and delegates the digipots to adjust the phase.  
At first make a coarse adjustment that the display shows **Vert: 0 Lines** (For a quick adjustment the bar in the overlay can be dragged with the mouse.) If **Vert: 0 Lines** the display shows the horizontal offset. This offset should be for all inputs in the range of 0 ... -41us. This phasing range is also displayed in the horizontal bar. For a correct adjustment the bar should be black.
- Select all inputs on Aux1 and correct the timing if necessary.
- Finally all inputs should be in the range of 0 ... -41us

**NOTE!**

*The sources on **Aux1** (Timing index card) can also be selected by clicking with the mouse on Aux1 and selecting a source from the overlay. Adjusting the genlock phase may cause disturbances on monitors especially during coarse adjustment.*

### 5.2.2.3 Install - Editor Menu

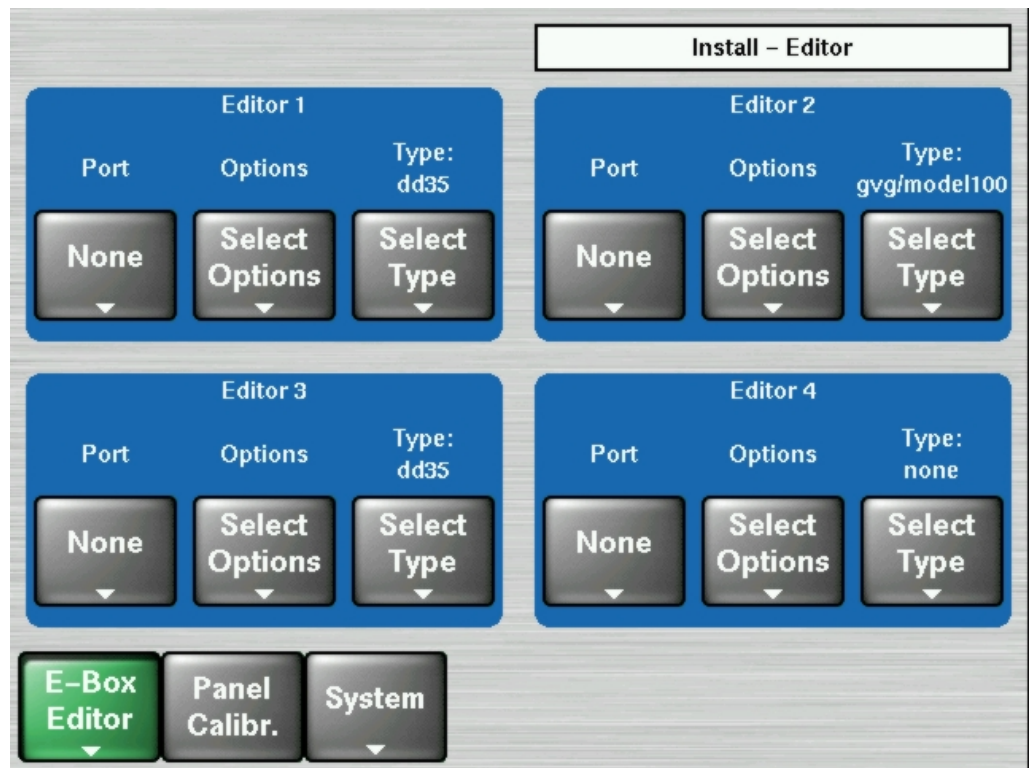


Figure 68 Install - Editor Menu

The Editor menu permits to configure the serial ports 1 ... 6.

- Select **Port #** (Port 1 –6)
- Select protocol type
- For some remote protocols configuration options are selectable. The options can be selected by pressing the **Select Options** button.

**Special Editor Protocol BVE-2000 Options:**

1. Wipe Mapping: "GVG Pattern Numbers", "XtenDD Pattern Numbers"
2. DSK Support: "BVE2000", "default"
3. DSK Mapping: "to Key4", "to Key3"

Default settings are underlined!

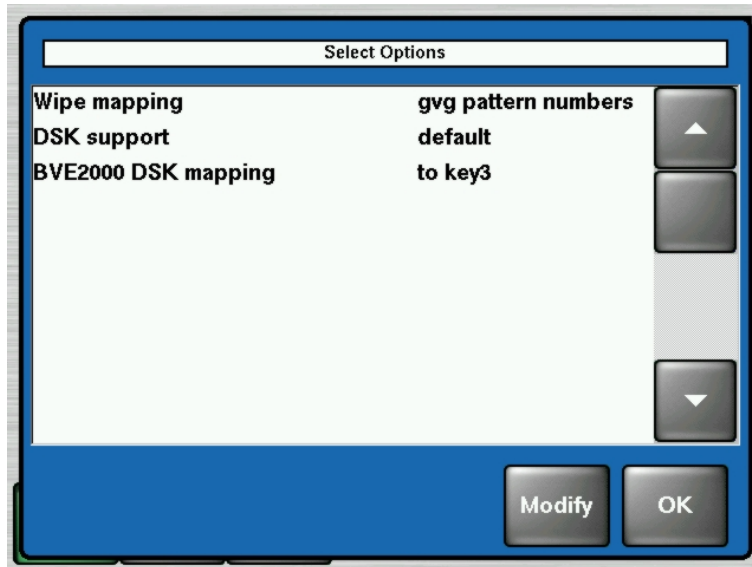


Figure 69 Install - Editor Menu



#### 5.2.2.4 Install - GPI Menu

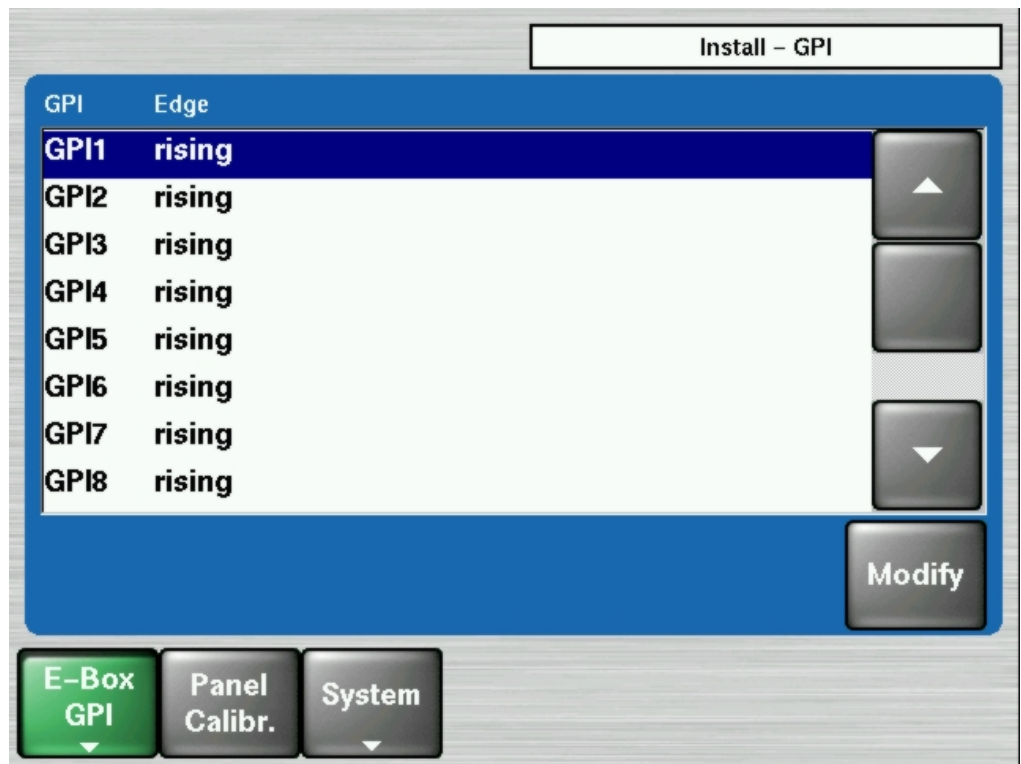


Figure 70 Install - GPI Menu

- Select **Modify** to determine wheatear the rising or falling edge of the arriving signal **GPI1 ... 8** is to be used.

**NOTE!**

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.

5.2.2.5 Install - GPO Menu

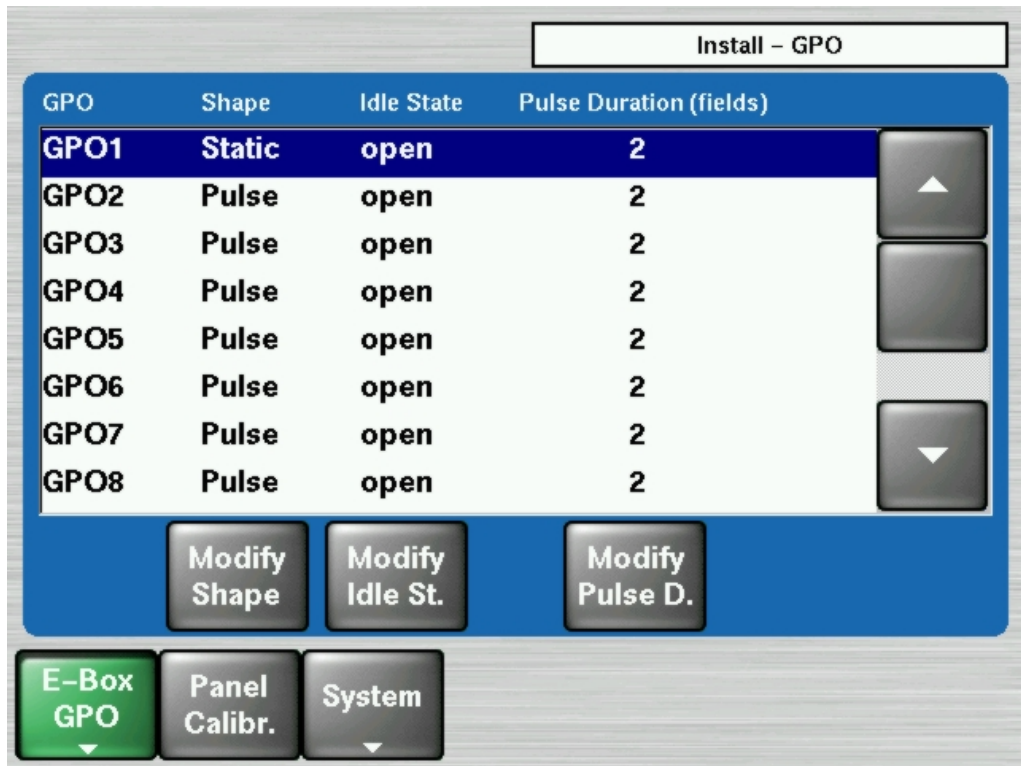


Figure 71 Install - GPO Menu

Select **Modify ...** to change the parameters:

- **Shape:** Pulse / Static
- **Idle State:** open / closed
- **Pulse Duration:** Enter the preroll time in frames (max 255 frames)

### 5.2.2.6 Install - Misc Menu

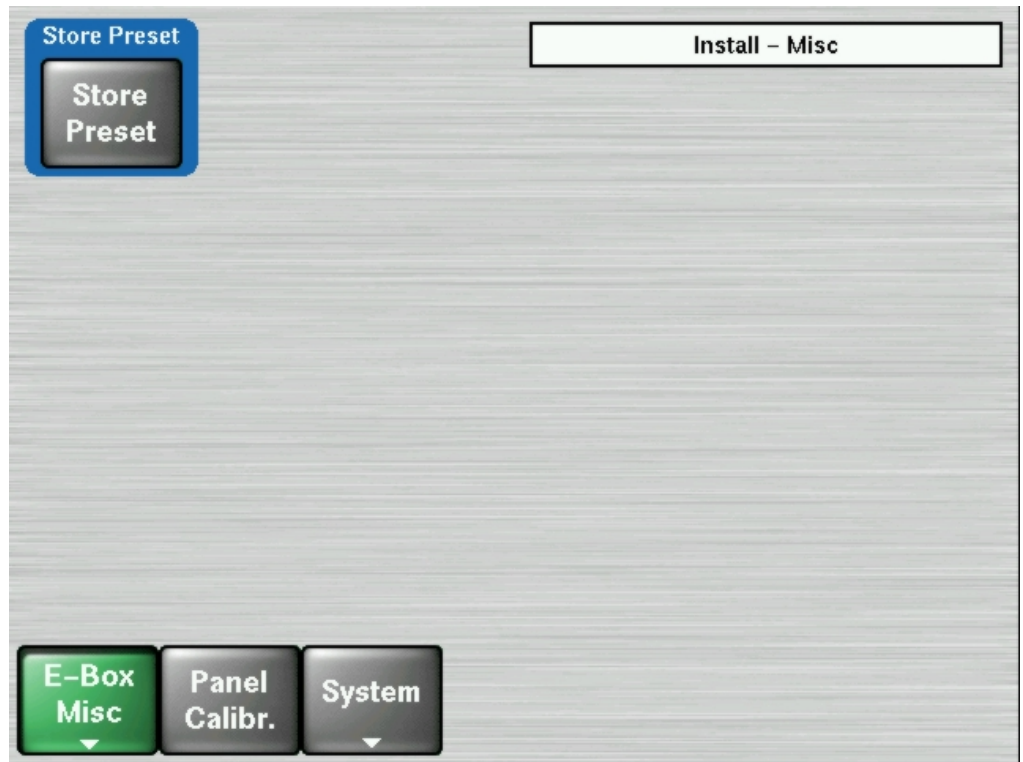


Figure 72 Install - Misc Menu

- Pressing **Store Presets** the panel user settings are saved. To recall the settings use the **Recall Preset** button in the Home menu.

### 5.2.2.7 Install – Machine Control

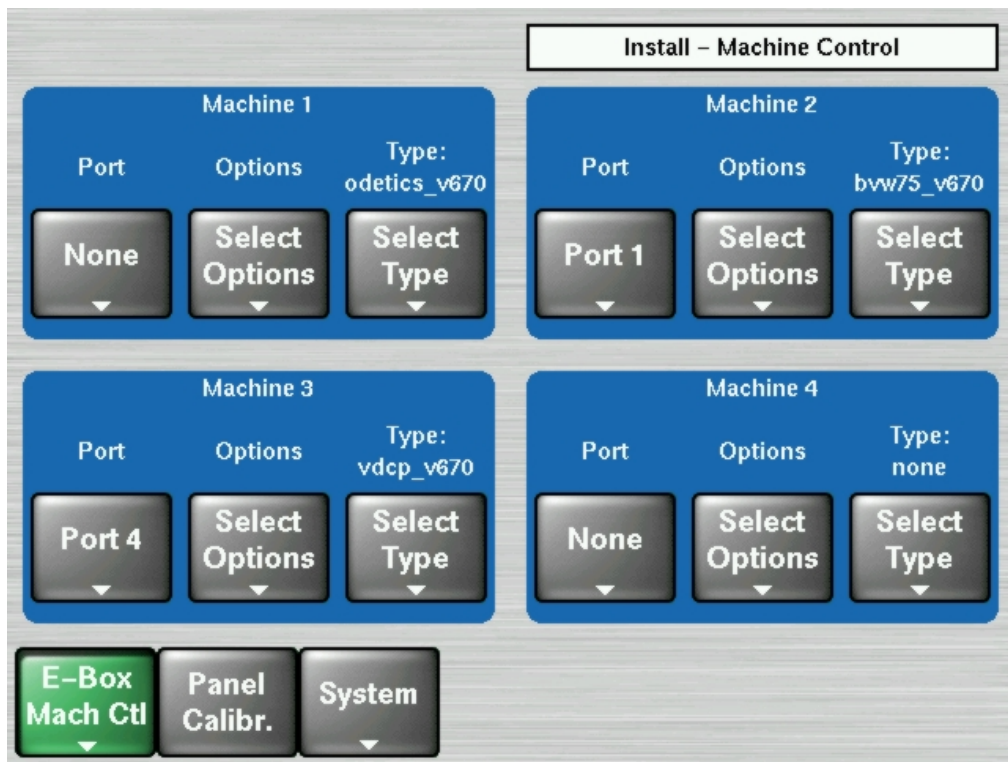


Figure 73 Install – Machine Control Menu

- Up to four external machines (VTR, DiscRecorders, LaserDiskPlayers) can be connected via Port 1...4. The menu serves to set the respective port numbers and protocol types.
- For some remote protocols configuration options are selectable (all GVG200 based protocols, AMP, Odetics, VDCP, BVW75). The options can be selected by pressing the **Select Options** button (see details below).
- Select option and change value by pressing the **Modify** button.

**Special Machine Control Options:**

**VDCP Protocol Options:**

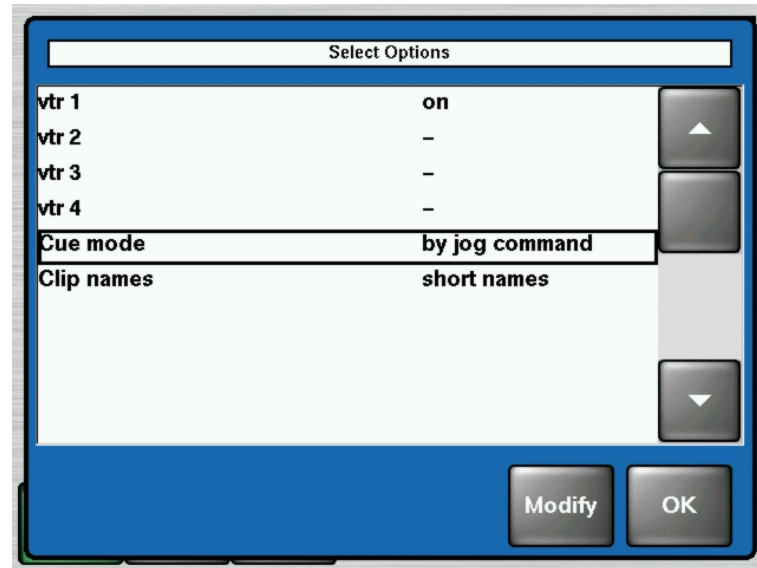


Figure 74 VDCP Protocol Options

1. VTR 1 – 4: Use this options to select the disk servers local video ports
2. Cue mode: “by jog command”, “default cue”  
When a clip is cued (“Go To Timecode”, “Go To MarkIn/MarkOut”) most disk servers are (re)initializing their local video port. While initializing the port the signal is switched to black for a short time. After cuing is completed it is usually not possible to play the clip to a timecode position less than the cueing timecode. The Cue Mode options “by jog command” prevents the disk server from (re)initializing the local video port.  
*NOTE!*  
*Not all disk servers are supporting this option.*
3. Clip names: “long names”, “short names”  
To select and activate clips with more than 8 character length, the option “long names” can be used. This option requires that the disk server also supports long clip names. The default setting “short names” should be supported by every disk server.

Default settings are underlined!

**ODETICS Protocol Options:**

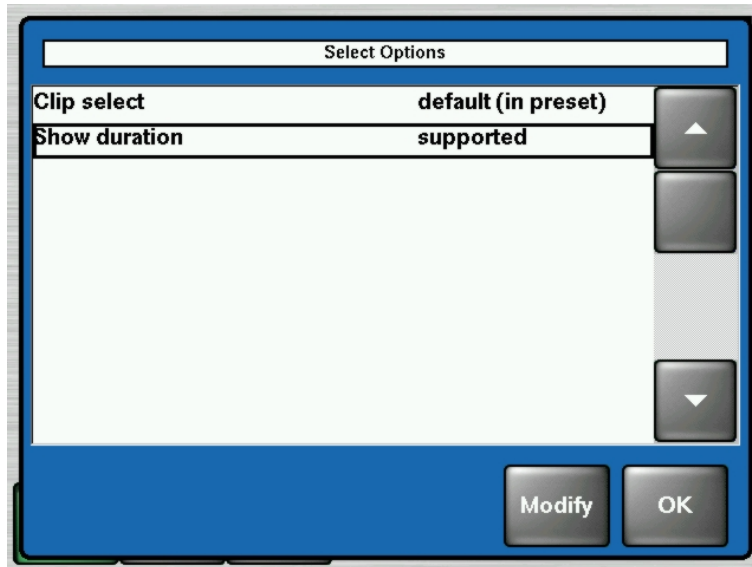


Figure 75 ODETICS Protocol Options

1. Clip select: mode1 (cue up), default (in preset)  
If clip selection with ODETICS doesn't work on default, use the "mode 1 (cue up)" option
2. Show duration: supported, not supported  
If the connected disk server supports an ODETICS protocol variant that supports clip duration requests, use the option "supported".

Default settings are underlined!

### BVW-75 Protocol Options:

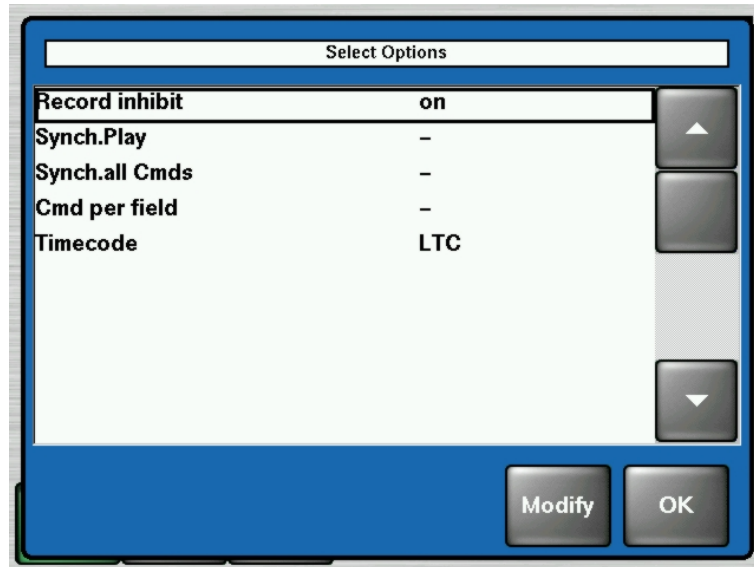


Figure 76 BVW-75 Protocol Options

1. Record Inhibit: "on" / "off"  
Prevents deleting already recorded material. The Rec command will be switched to a Play command.
2. Synch.Play: "on" / "off"  
Synchronized the Play command for 4 machines. This option is needed to synchronize all 4 machines (or these machines which have switched on this option).  
*NOTE!*  
*Only the Play command will be synchronized.*
3. Synch.all Cmds: "on" / "off"  
Option like Synch.Play, all Tape Motion commands will be synchronized.
4. Cmd per Field: "on" / "off"  
Because of the limitation of some VTRs in "on" state only one operating command per field will be transmitted.
5. Timecode: „LTC“ / „CTL“ Selecting the timecode mode

Default settings are underlined!

**AMP Protocol Options:**

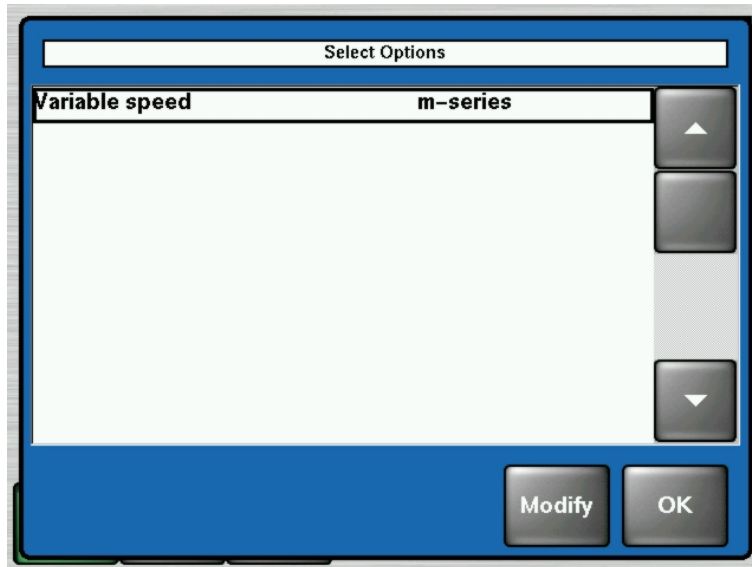


Figure 77 ODETICS Protocol Options

1. Variable speed: "m-series", "default"  
If a M-Series server cannot be controlled by using the Variable Speed controls with in the Sidepanel PC or the KayakDD panel menu, select the option "m-series".

Default settings are underlined!



### 5.2.2.8 Install – VTR Emulation

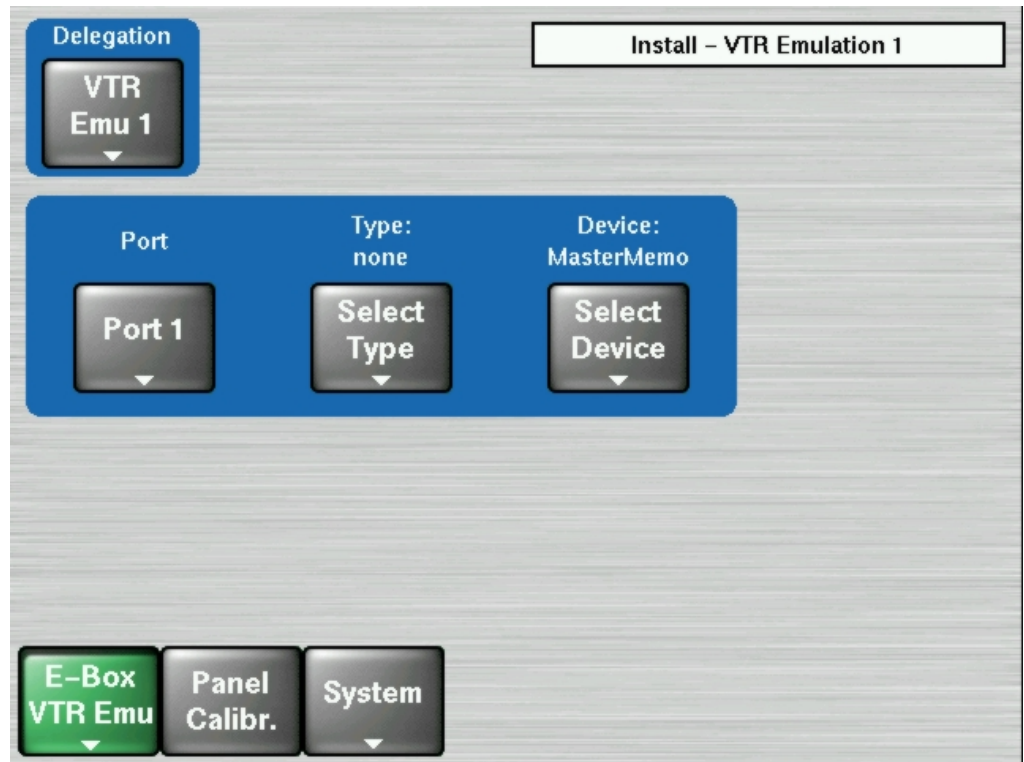


Figure 78 Install – VTR Emulation

VTR Emulation provides a mechanism to control internal VTR based switcher components by external editors using the BVW75 protocol. VTR based components in KayakDD are TiM/E-Memo (Master, PP, ME1) and RAM Recorder (Channel 1 - 4). It is possible to control up to 5 component instances simultaneously.

To setup an VTR emulation session, select the number of the serial KayakDD port (**Port** button) that is connected to a corresponding serial port of the editor. Select the BVW75 protocol with the **Select Type** button. After the internal component is selected (**Select Device** button), the chosen switcher instance can be controlled by the editor device. To setup additional sessions use the **VTR Emulation Delegation** button.

**NOTE!**

*Port and protocol type are environment data and therefore independent from loading and saving an application. In contrast the type of the internal component to control is stored within an application.*

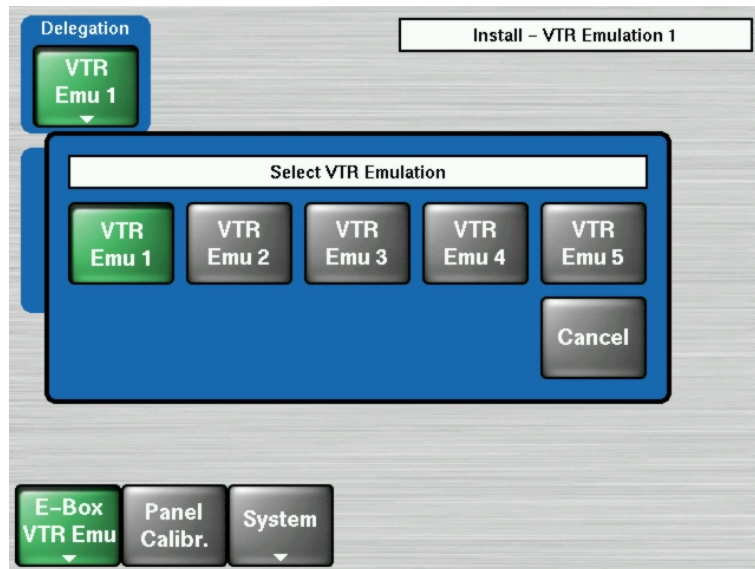


Figure 79 Install – Select VTR Emulation

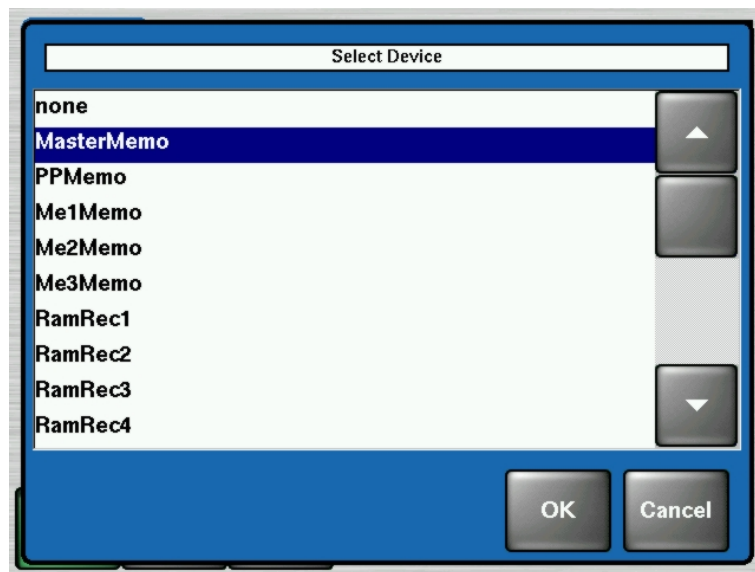


Figure 80 Install – Select VTR Emulation Devices

### 5.2.3 System Setup Menu

The System Setup menus can be selected via **Home – Install – System** menu

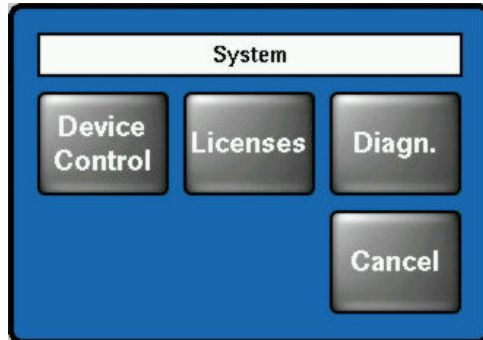


Figure 81 System Setup Dialog

After touching the **System** button a new dialog appears with the following setup items:

- Device Control
- Licenses
- Diagnosis

### 5.2.3.1 Device Control Menu

The Device Control menu shows on the left all in 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.

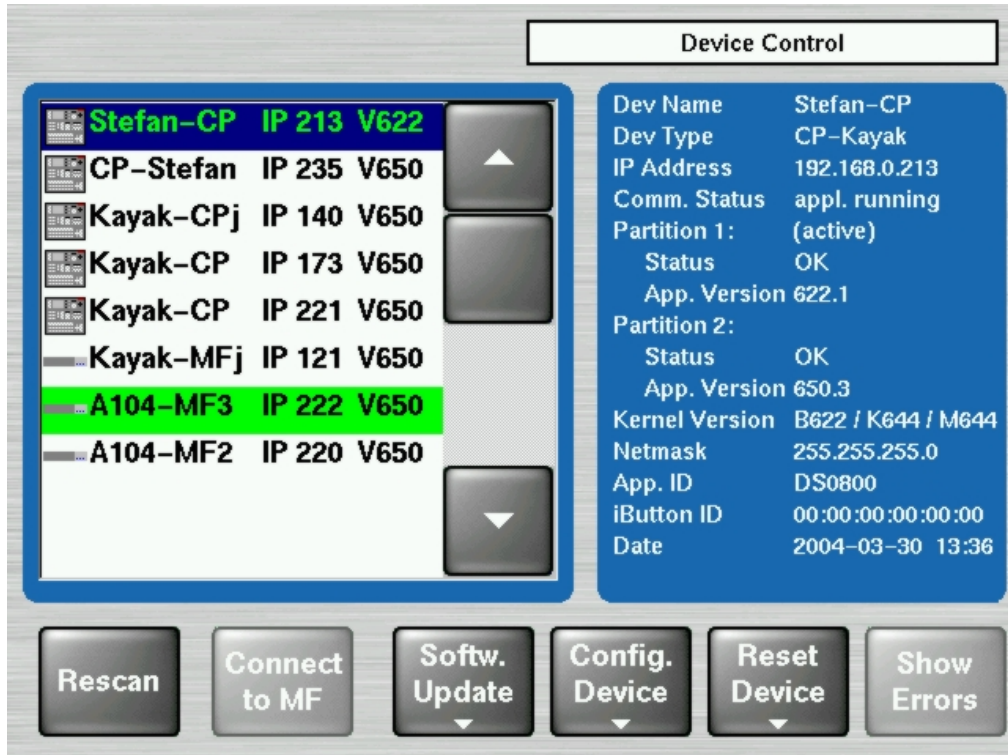


Figure 82 Device Control Menu

- **Rescan** button  
The network will be scanned and all devices (CP=panels, MF=video processor frame) are listed with device name, IP address and software version installed.
- **Connect to MF** button  
This button is used to connect the control panel to the mainframe selected in the list.

### 5.2.3.2 Software Update

Plug-in the memory stick in the control panel's USB 2 or USB 4 slot. In case that your stick doesn't fit (mechanically) in USB4 slot, please use the enclosed extension cable as adapter.

If the control panel software has recognized a valid Kayak release version on the memory stick, the Device Control menu is called automatically. The Device Control menu shows all in the network connected devices (Kayak-MF = Mainframe, Kayak-CP = Control Panel) with IP address and software version installed.

- Select the respective device in the menu list.
- Menu **Software Update** appears
- Push button **Start Install**.
- The correct software will be installed in the respective device (MF or CP) automatically.

**NOTE!**

Two partitions are available in the flash for the application software. With "Start Install" the empty or a partition which is older as the active partition (recommended) will be updated. With "Install Part. X" the current active software will be updated.

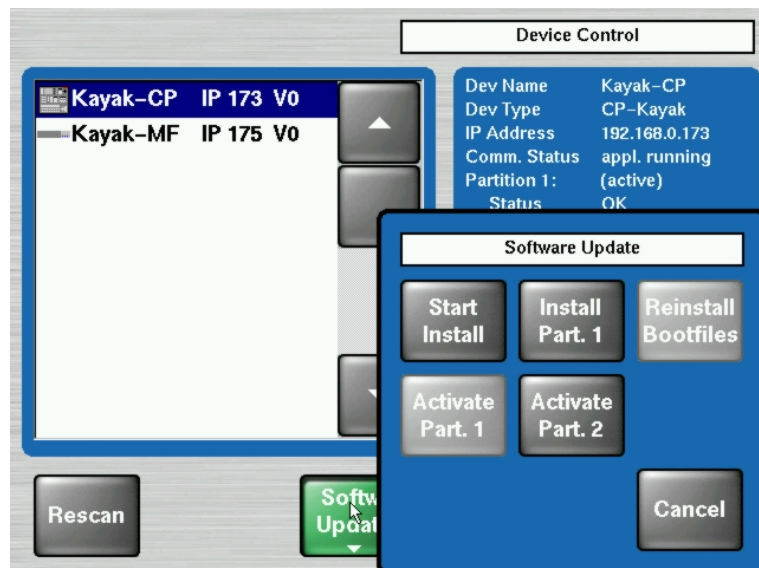


Figure 83 Device Control Menu With Software Update Dialog

- After pressing the **Start Install** button the available versions are shown. Select the version to install. The installation procedure starts.

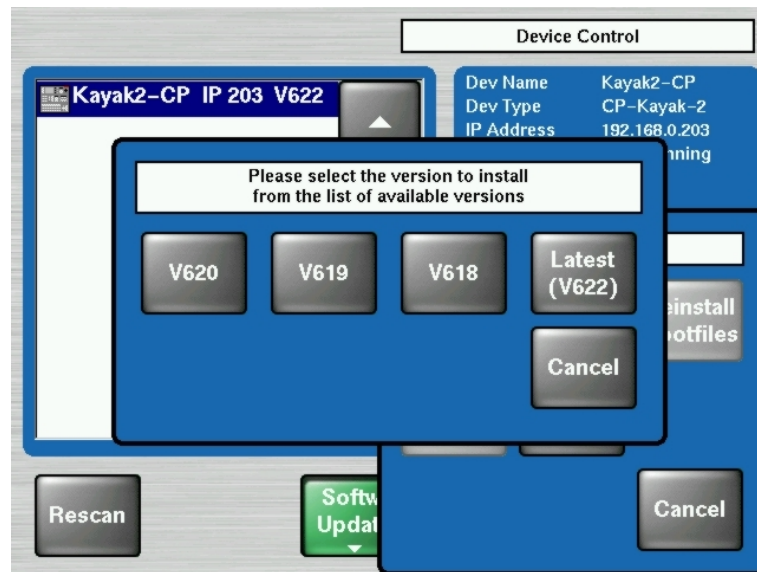


Figure 84 Start Installation Procedure

- The progress of the installation procedure is displayed in percent. The currently installed file (file name) is shown as well.

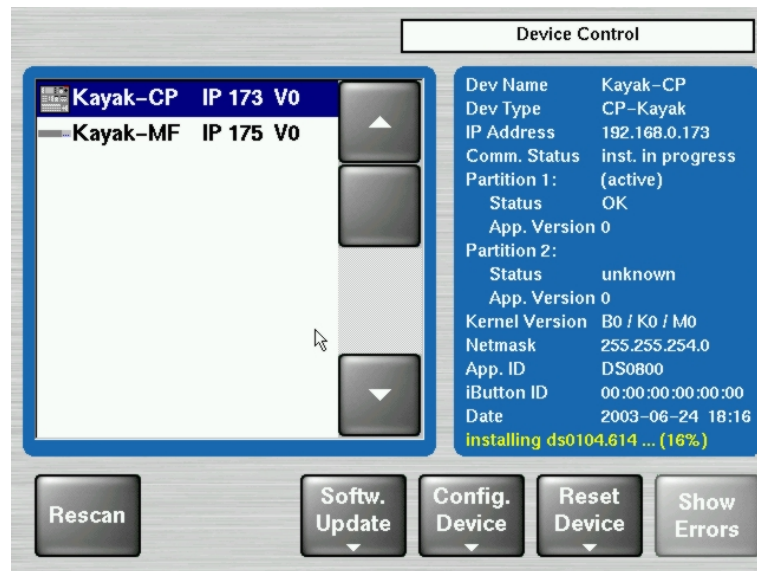


Figure 85 Installation Procedure

- The Installation Procedure can be cancelled by using the button **Abort Install** in the menu **Software Update**.

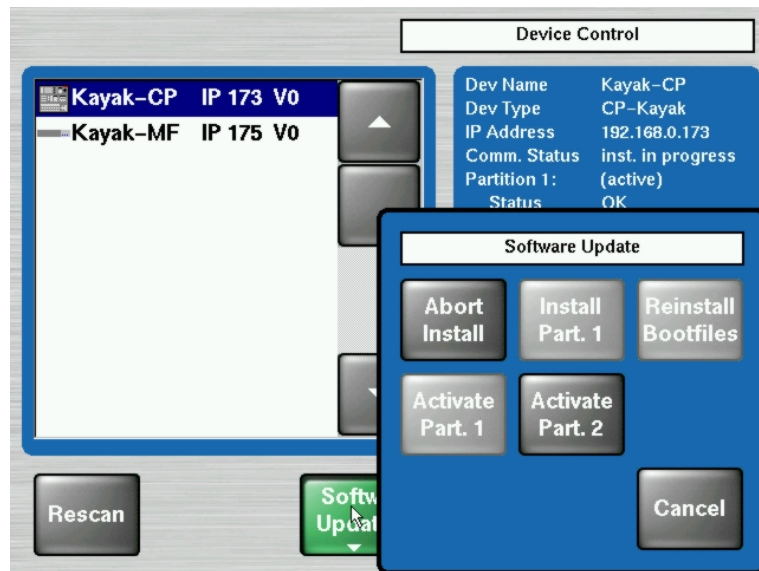


Figure 86 Cancel Installation Procedure

- After canceling the installation, the Status "inst. failed" is displayed.
- The respective partition can not be used and not be activated.
- After finishing the installation procedure, the system ask you "Do you want to reset the device now?" The installed software is available after a restart only!

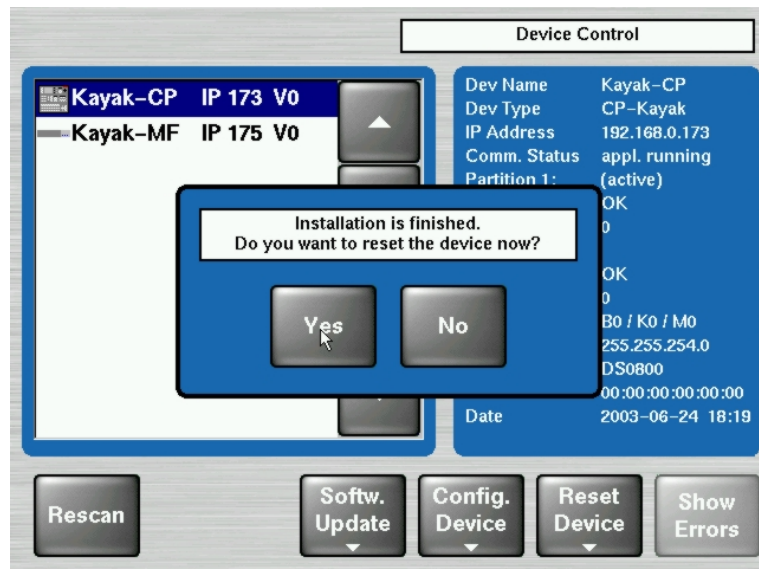


Figure 87 Finish

Installation

**Important NOTE!**

- **Do not cancel the installation by switching off the devices!**
- **Do not pull out the memory stick during the installation procedure!**
- **Cancel the installation with the Abort Install button only!**
- **Perform a reset after each device software upgrade**
- **Verify that the active partition shows the new software version (e.g. 6.2.2.8).**



### 5.2.3.3 Updating the CPLD Firmware

At the end of each installation process the system checks whether an CPLD update is necessary. This is done by comparing the versions of the installed CPLD firmware files on flash with the current CPLD version tags stored within an EEPROM of each hardware board. If the version of at least one file is newer an update of the CPLD is necessary and the user is notified.

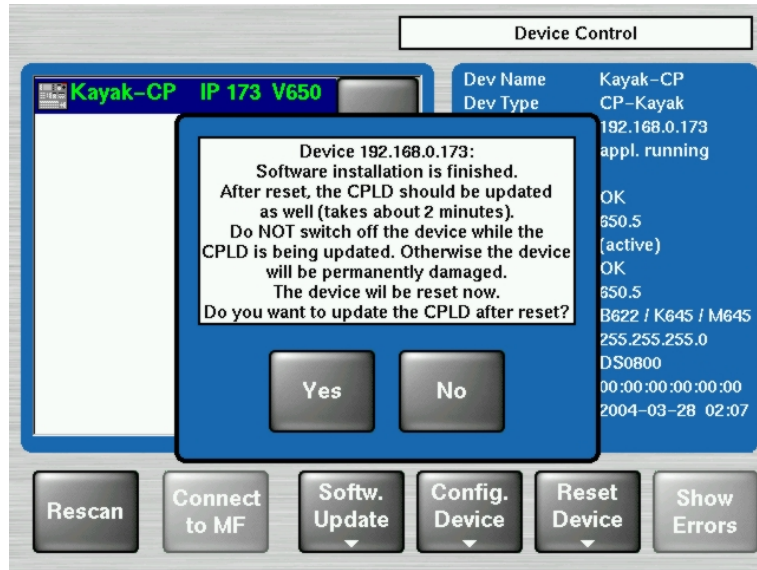


Figure 88 CPLD

Update

To skip the CPLD update press **No**, to confirm the update press the **Yes** button (recommended). After the user has confirmed the update, the device will be restarted. During this sequence the CPLD will be updated. The progress of the update procedure is displayed in percent within the Device Control menu. The currently installed file (file name) is shown as well.

**Don't change to a menu other than the Device Control menu after initiating an CPLD update on a Kayak mainframe! Otherwise the update process can't be monitored.**

**CAUTION!**  
**Do NOT switch off the device while the CPLD update is running – monitored by red progress indication. Otherwise the device will be permanently damaged!**

After the CPLD update is finished the system has to be restarted. This brings the device to normal operation mode.

If the installation process is terminated from the system refer to the Trouble Shooting in the Planning and Installation manual.

### 5.2.3.4 Configure Device Menu

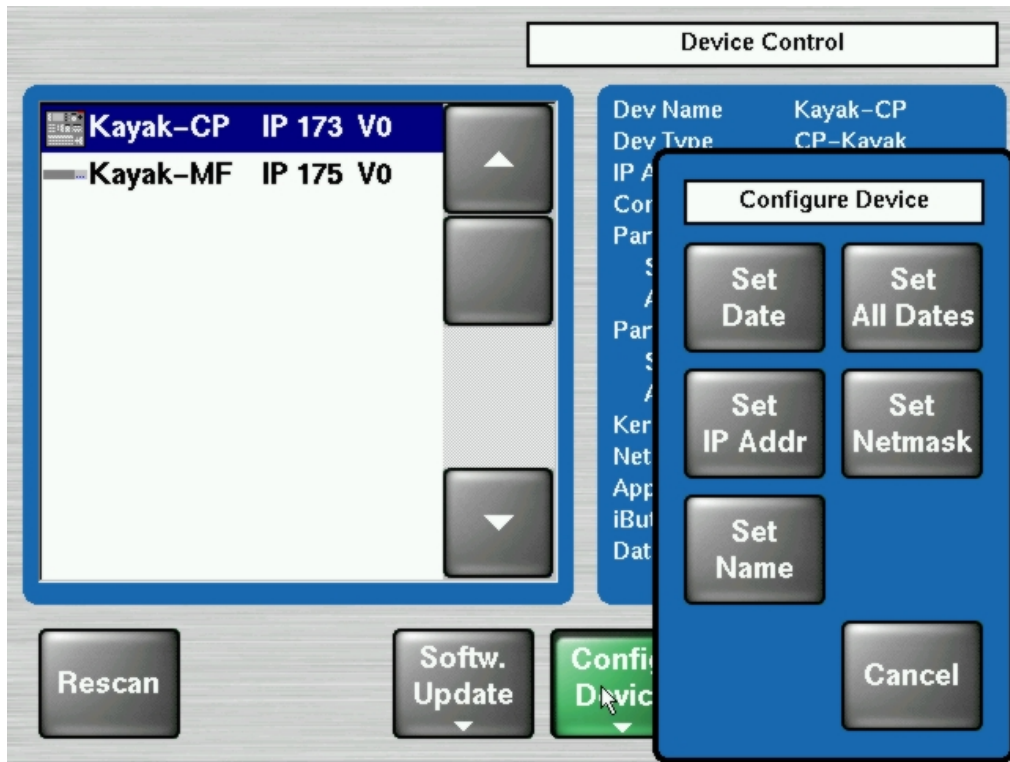


Figure 89 Configure Devices

With the menu "Configure Device" the following configuration data of a device can be changed:

- The date and time of the selected device (**Set Date**)
- The date and time of all connected devices (**Set all Data**)
- IP Address of the selected device (**Set IP Addr**)
- Net mask of the selected device (**Set Netmask**)

**Important Remark:**

***This function should be used by a qualified network administrators only. Different netmasks for MF and CP lead to limited communication between the net devices.***

- Logical device name ("**Set Name**"). Default Kayak-MF or Kayak-CP, the name is can be defined by the user.

### 5.2.3.5 Reset / Check / Clear Device Menu

The menu „Reset/Check/Clear Device“ should be used by qualified users only!  
The following functions can be configured:

Touch **Reset Device** to Start/Restart/Check the following devices:

- Reset to Kernel
- Reinit iButton
- Re-initialize the RAM disk area on the flash (**Clear RamDisk**)
- Re-initialize the Application disk area on the flash (**Clear AppDisk**)
- Re-initialize the DPM FX disk area on the flash (**Clear DPM FX**)
- Deleting the Application State (**Clear AppState**)
- Deleting the Operational State (**Clear OpState**)
- Re-initialize the State Memory Partition (**Clear StateMem**)
- Factory Clear
- File system check of four flash partitions (**Check" Flash 0...2**)

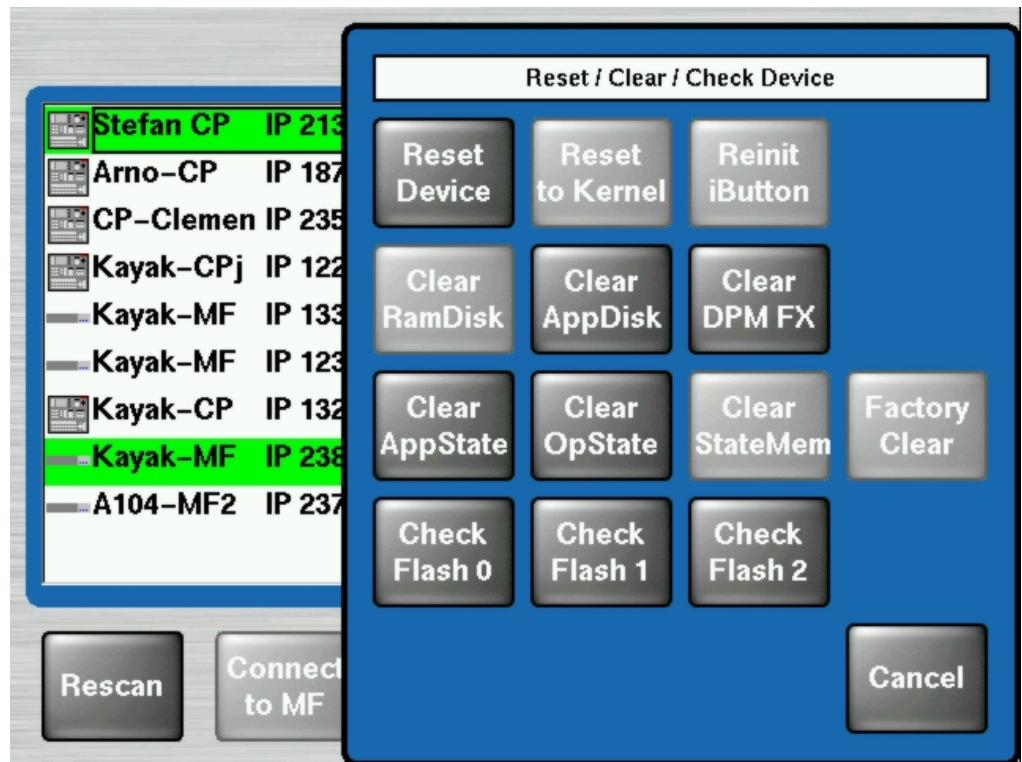


Figure 90 Reset/Clear/Check Devices Menu

**NOTE!**

The reset and clear functions with bright gray buttons are protected against unintentional starting. The button will be activated by pressing Menu Lock + Reset Devices.

### 5.2.4 Licenses Menu

The Licenses menu can be selected via **Home – Install – System** menu

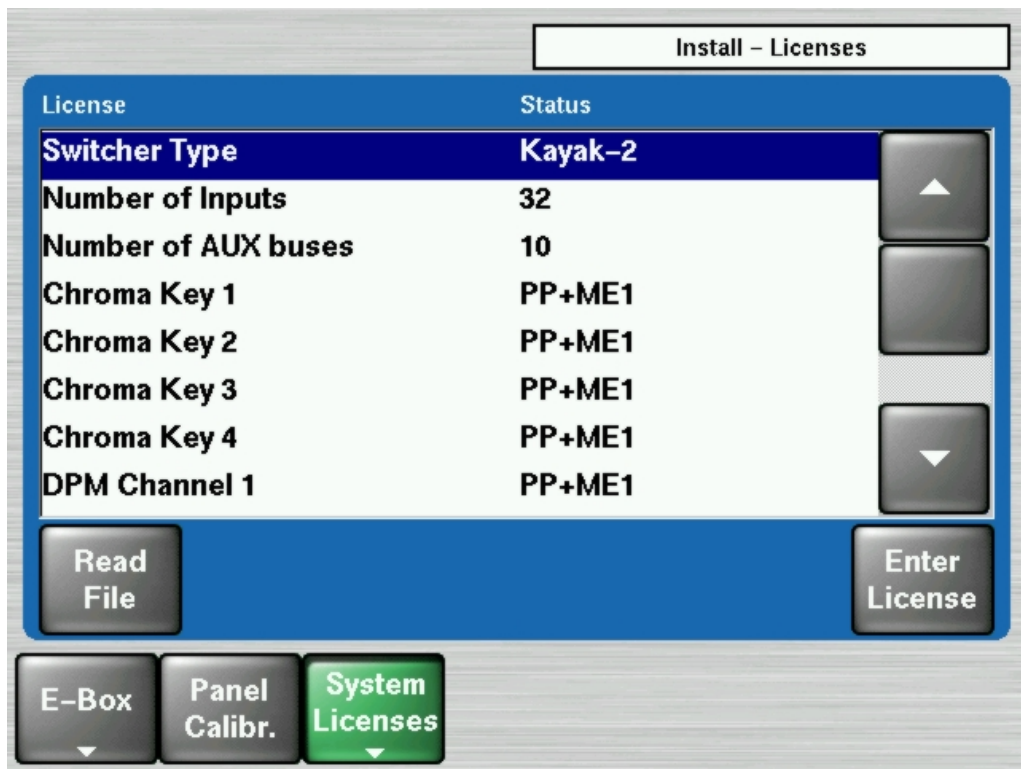
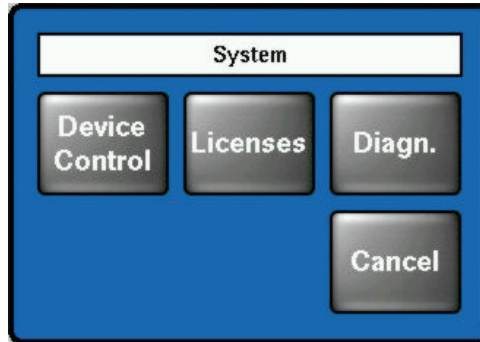


Figure 91 Install Licenses Menu

#### 5.2.4.1 License Handling with USB Stick (recommended)

- Copy the file “sp\_license.txt” directly of your USB Stick.
- Insert the USB Stick at the control panel USB port 2 or 4 and enter the “Install / System licenses / Licenses” Menu.
- Push the button “**ReadFile**” and follow the instructions.

#### 5.2.4.2 Manual Entry

A license is a text line in the following format (example a chromakey license):

```
key="LIC_CHROMA_KEY1", "1", "0000:00:00", "9999:12:31", "00:00:00:22:1e:ec", "8-xyz", "3489c00db5b1c548e9daf7fbe0ed67eb21"
```

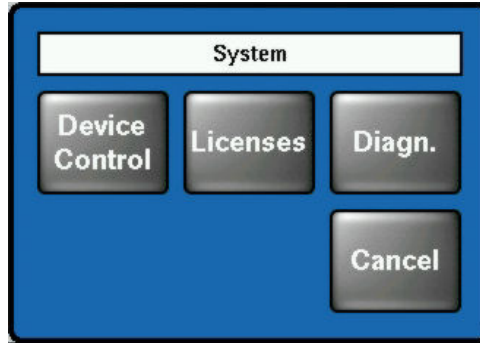
It contains:

<b>License name:</b>	LIC_CHROMA_KEY1
<b>License value:</b>	1
<b>Start date:</b>	0000:00:00
<b>End date:</b>	9999:12:31
<b>iButtonID:</b>	00:00:00:22:1e:ec
<b>wksID:</b>	5-xyz
<b>LicenseKey:</b>	3489c00db5b1c548e9daf7fbe0ed67eb21

- Enter the “Install / System licenses / Licenses” Menu.
- Select the option LIC\_CHROMA\_KEY1 with the menu cursor
- Push the “Enter License” button
- A window appear with headline “Enter value for Chroma Key 1”  
\_ Enter the value 1 (without quotation marks) and press OK
- Next window: “Enter start date for Chroma Key 1”  
\_ Enter the value 0000:00:00 (without quotation marks) and press OK.
- Next window: “Enter end date for Chroma Key 1”  
\_ Enter the value 9999:12:31 (without quotation marks) and press OK
- Next window: “Enter iButton ID for Chroma Key 1”  
\_ Enter the value 00:00:00:22:1e:ec (without quotation marks) and press OK
- Next window: “Enter wks ID for Chroma Key 1”  
\_ Enter the value 8-xyz (without quotation marks) and press OK
- Next window: “Enter license for Chroma Key 1”  
\_ Enter the value 3489c00db5b1c548e9daf7fbe0ed67eb21 (without quotation marks) and press OK
- If all values are correct the license will be installed successfully. Enter all the remaining licenses in the same way and do a power cycle at the mainframe afterwards.

### 5.2.5 Diagnosis Menu

The Diagnosis menu can be selected via **Home – Install – System** menu



The Diagnosis system shows all internal Error Messages from the selected devices.

Button **Diagn Enable** enables / disables the diagnosis in the attached control panel or in the connected mainframe.

The menu is divided in two sections. In the left list field all devices (panels, mainframes) in the network are listed. Devices marked with a yellow warning symbol has produced internal error messages. After selecting the device the respective error messages are listed in right list field

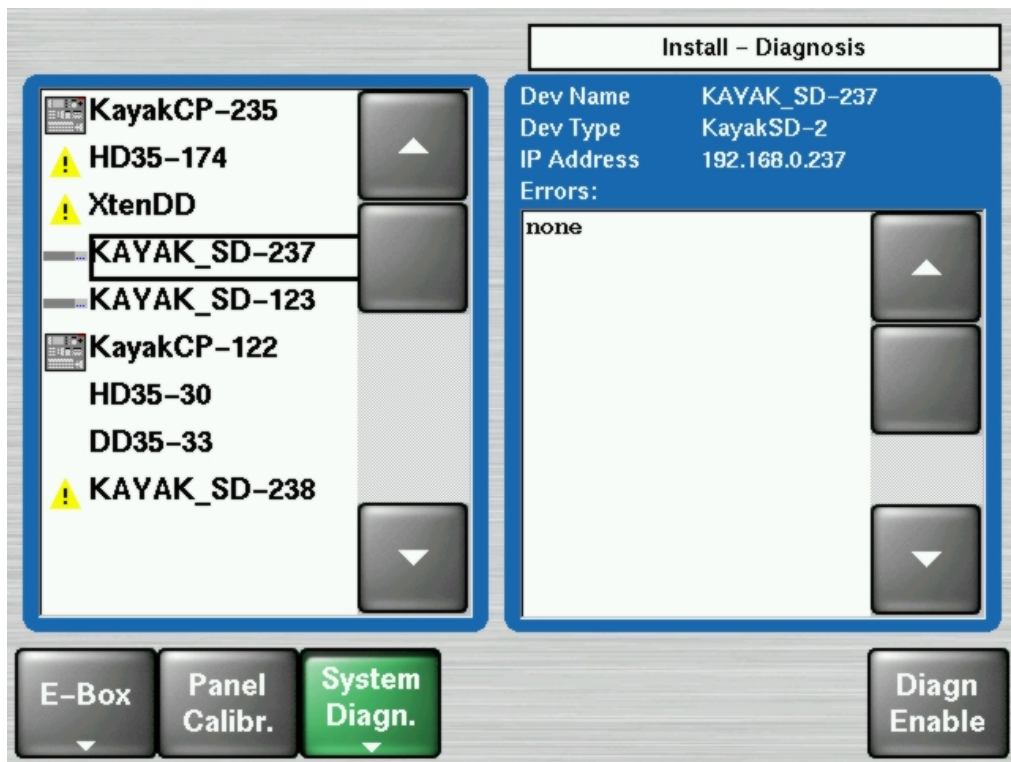


Figure 92 Install Diagnosis Menu

## 5.3 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.

### 5.3.1 Application Control

The application menu is designed to handle the use of applications within a KayakDD system. Applications can be loaded from a memory stick and started, stopped, modified or created new.

*NOTE!*

*Please save your application data regularly on a memory stick! Application data are stored in the internal RAM and can be lost, if the lifetime of the battery ends!*

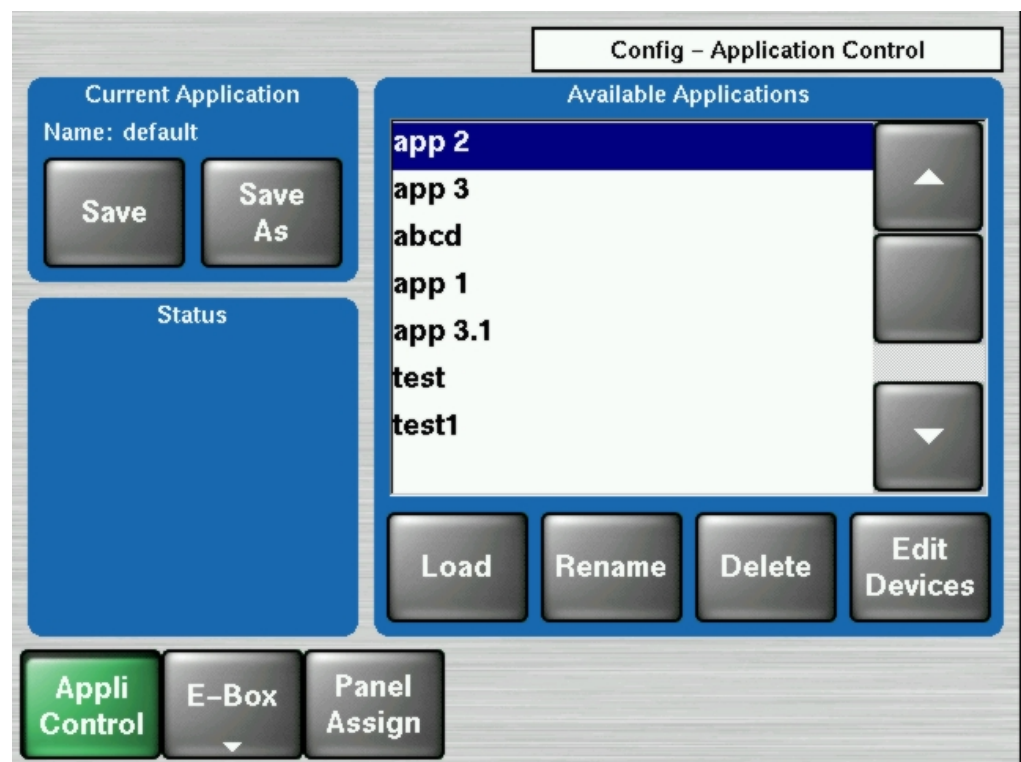


Figure 93 Config – Application Control

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

**NOTE!**

*If no memory stick is plugged in, the buttons are not active (light gray).*

Operating buttons:

- **Save** button, saves the current application
- **Save As** button, saves the current application with a selectable file name
- **Load** button, loads the application files from the memory stick into the KayakDD
- **Rename** button, opens a dialog window to rename the selected application file.
- **Delete** button, deletes the selected application file
  
- **Edit Devices** button  
 If an application file was loaded which stored in another switcher system, the device names of this application must be customized. A list appears with the IP addresses of the former devices.

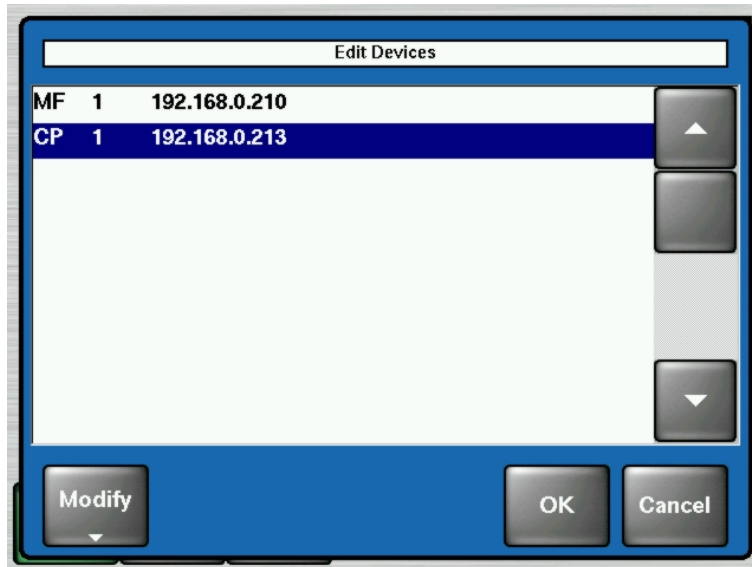


Figure 94 Config – Application Control – Edit Devices

- Select control panel and press **Modify** to generate a list of connected devices (figure below) in the network.
- Select the IP address of the desired device and press OK to update the application file



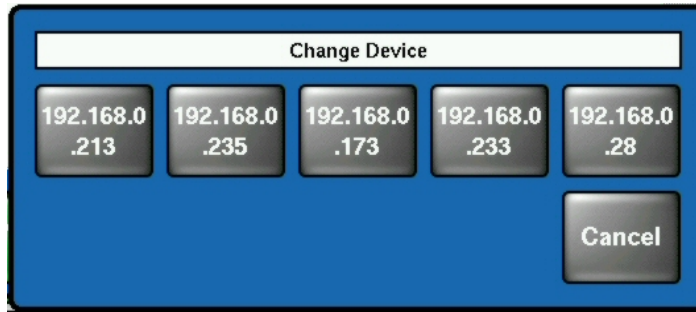


Figure 95 Config – Application Control – Change Devices

### 5.3.2 E-Box Configurations

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

- GPI
- GPO
- Key Couple
- AUX
- M/E
- DPM
- Misc

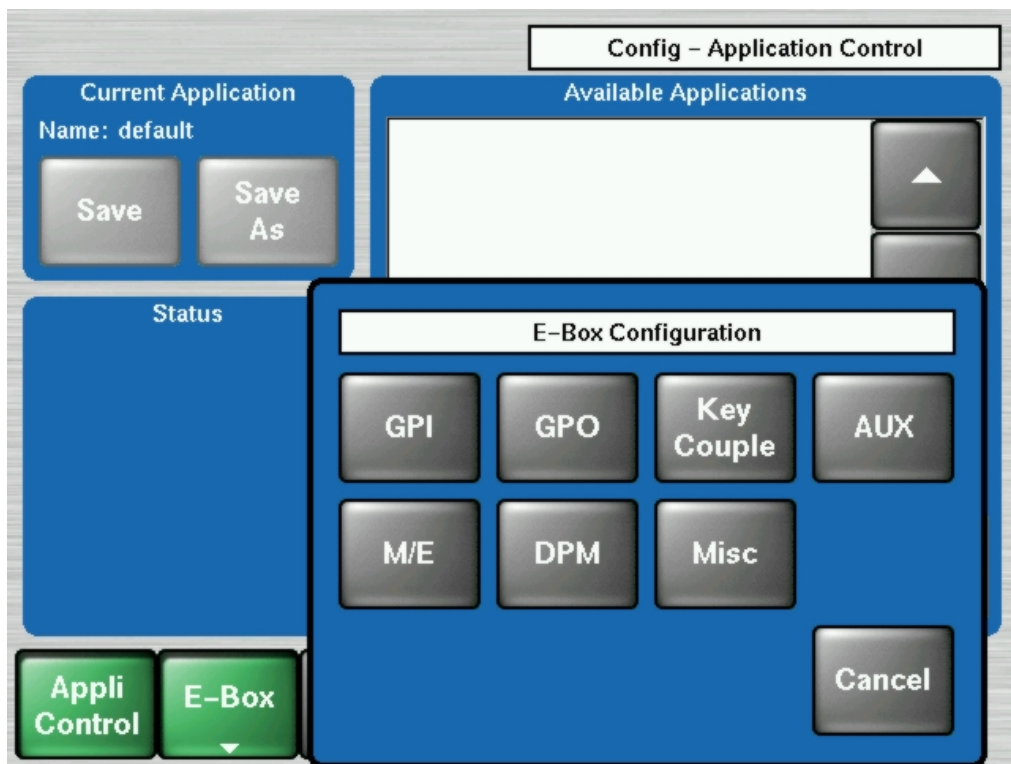


Figure 96 Config – E-Box Configuration

5.3.2.1 Config - GPI Menu

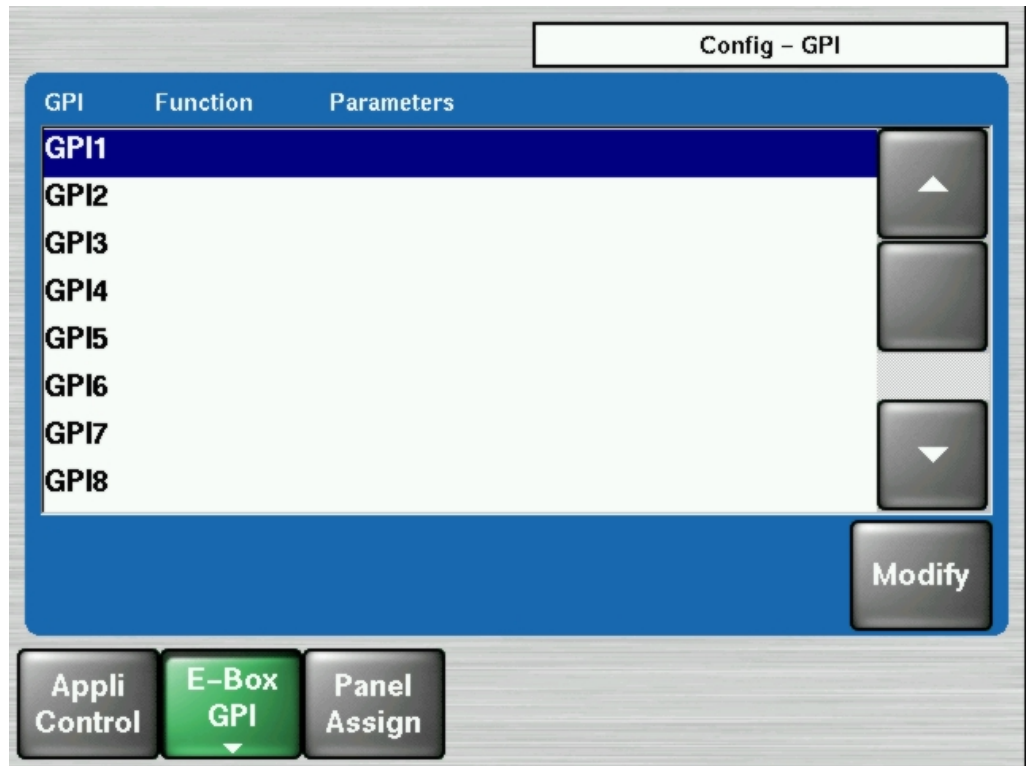


Figure 97 Config - GPI Menu

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

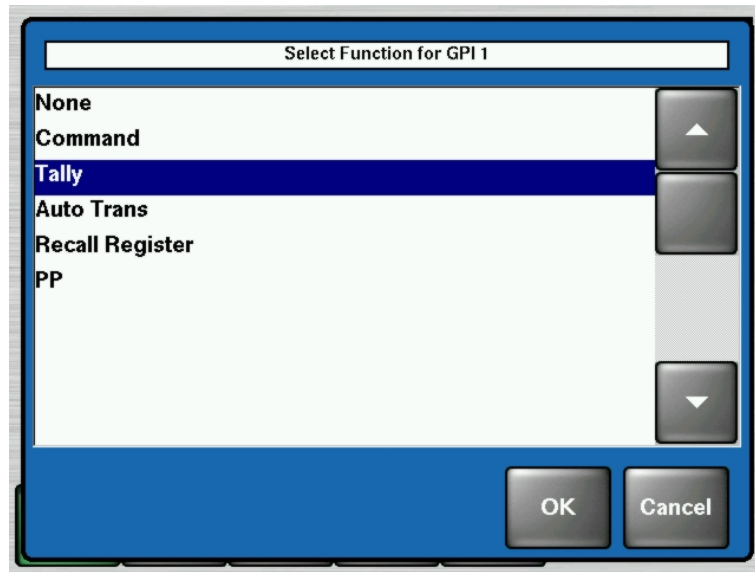


Figure 98 Config - GPI Functions

### 5.3.2.2 Config - GPO /Tally Menu

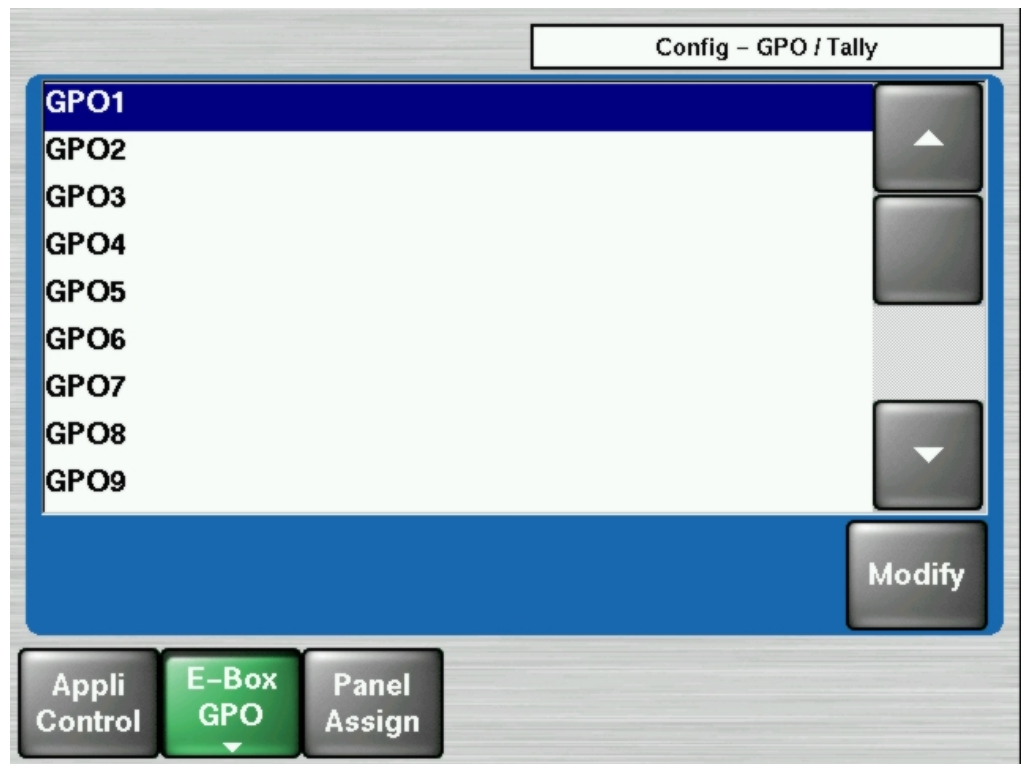


Figure 99 Config - GPO Menu

Touching the **Modify** button calls a sub-menu. In this menu the tally mode of the selected GPO channel 1 – 32 can be configured.

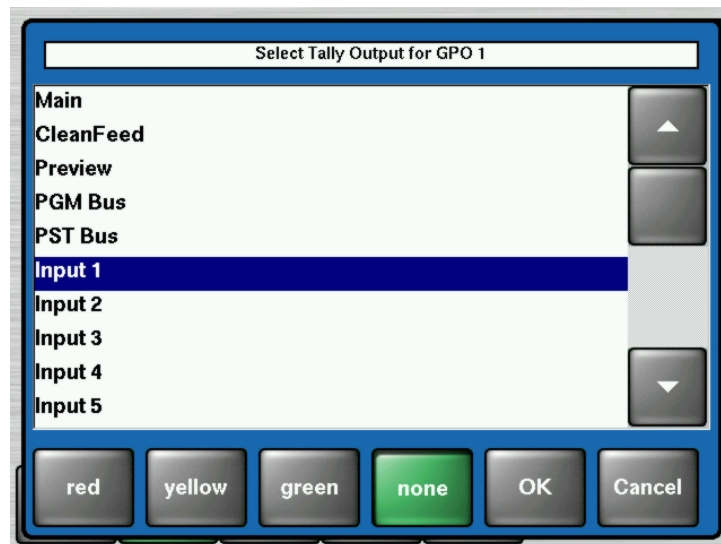


Figure 100 Config - GPO / Tally Mode Selection

5.3.2.3 Config - Key Couple Menu



Figure 101 Config - Key Couple Menu

Touching the **Modify** button calls a sub-menu. In this menu the coupled key to the selected fill source can be configured.

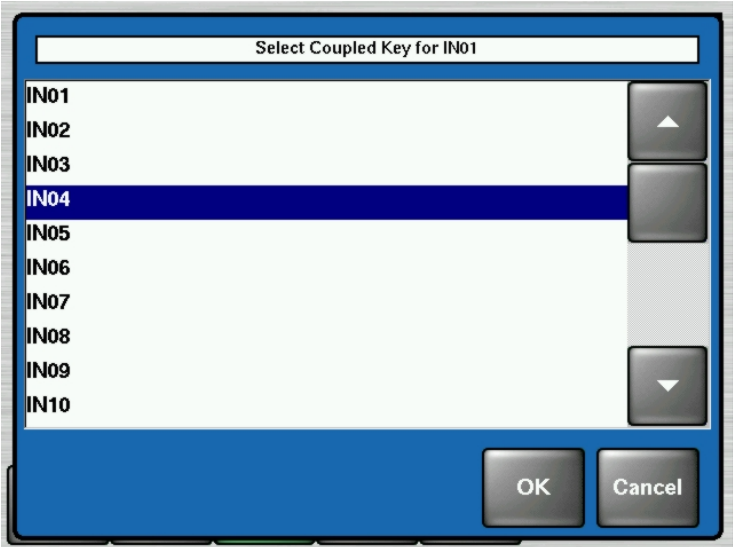


Figure 102 Config – Coupled Key Selection Menu

### 5.3.2.4 Config - Aux Menu

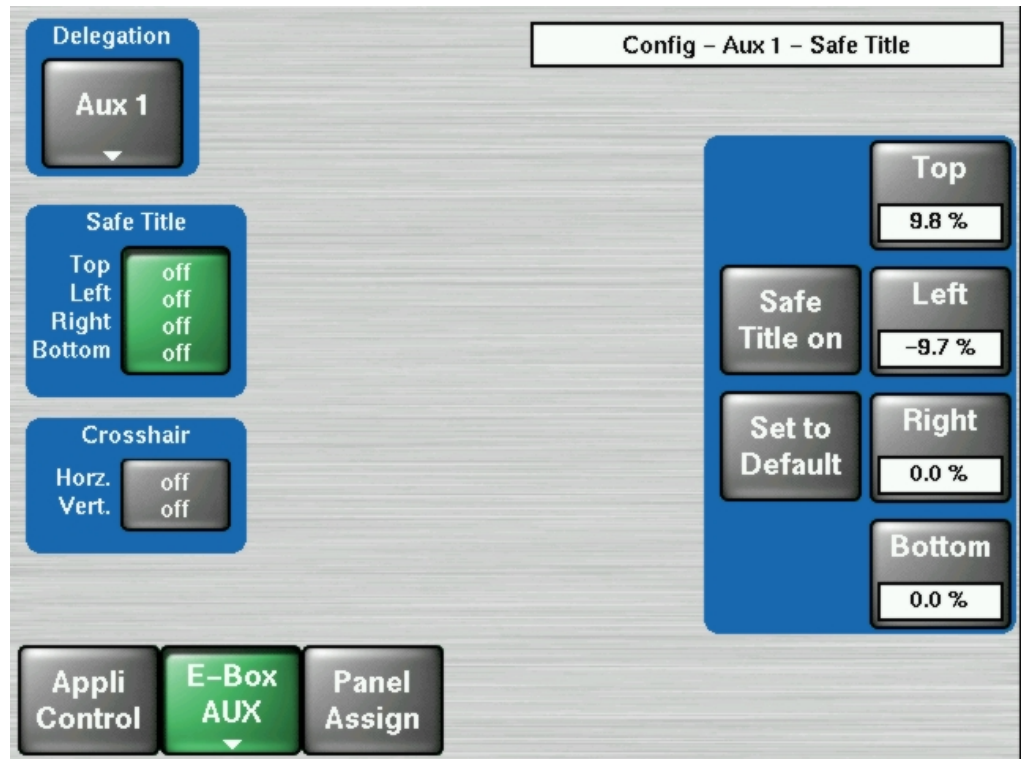


Figure 103 Config - Aux Menu

The Config - Aux menu serves to Aux bus delegation and Title configuration.

The safe Title adjusting elements enable fading-in different auxiliary lines (Box, Cross) into each individual Aux bus. The fadings 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.

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

5.3.2.5 Config - M/E Menu

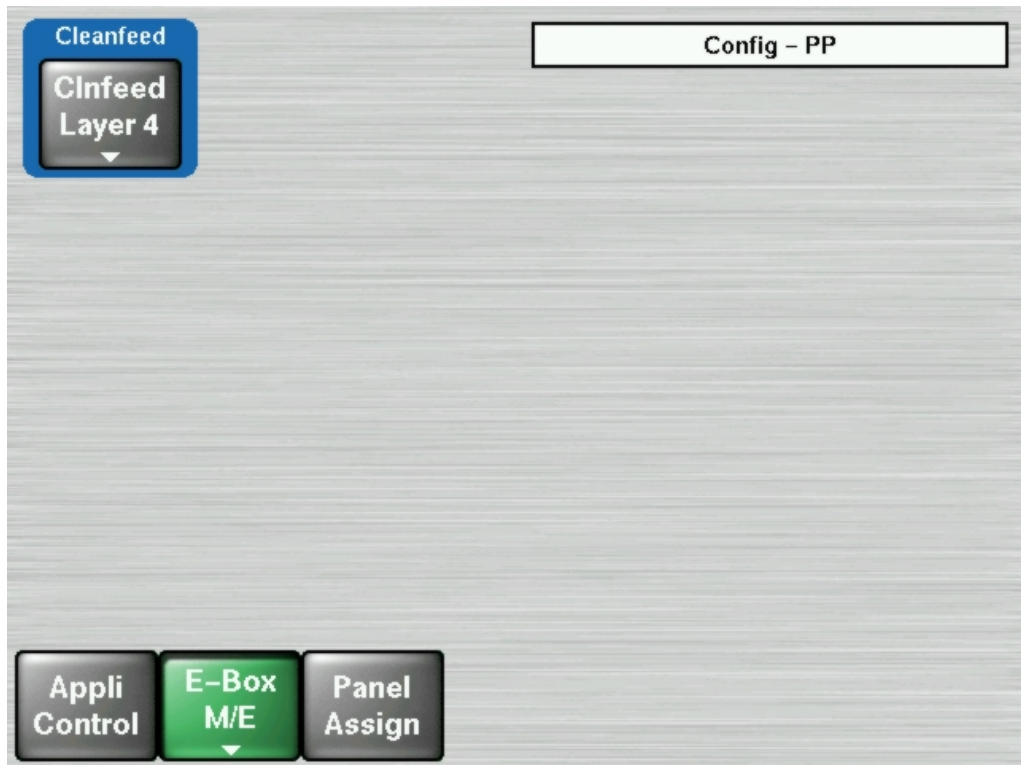


Figure 104 Config - M/E Menu

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

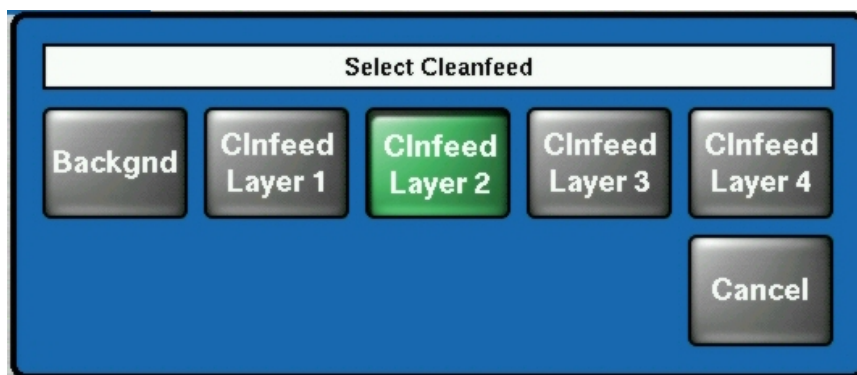


Figure 105 Config - Cleanfeed Layer



### 5.3.2.6 Config - DPM Menu

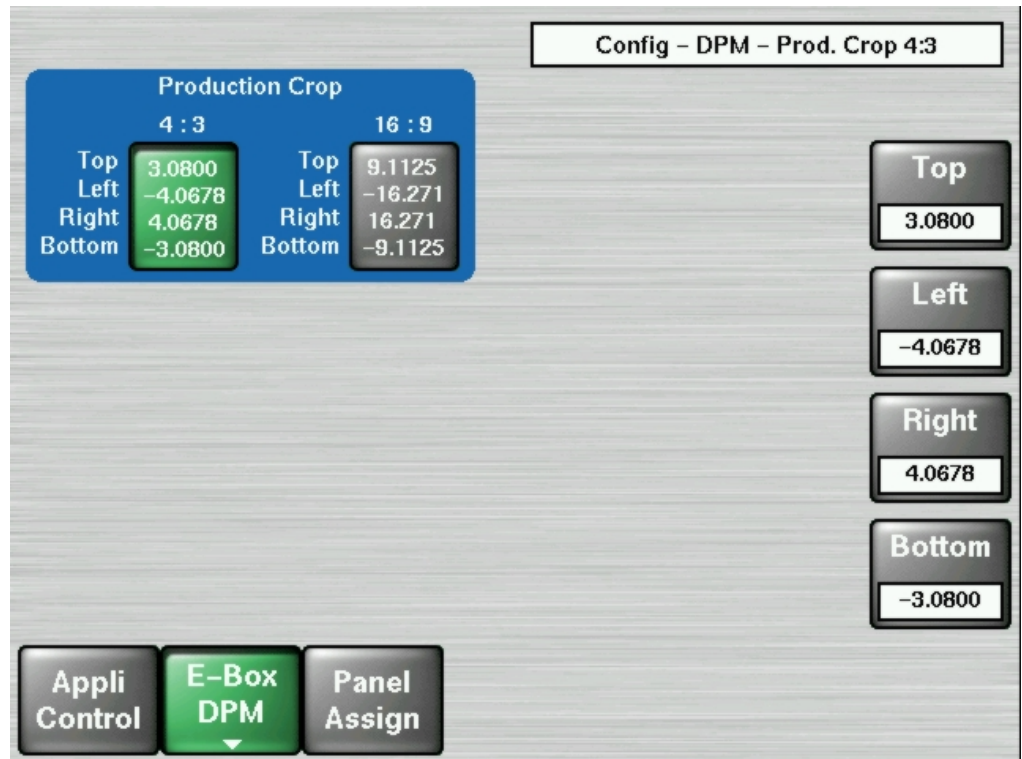


Figure 106 Config - DPM Menu

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.

### 5.3.2.7 Config - Misc Menu

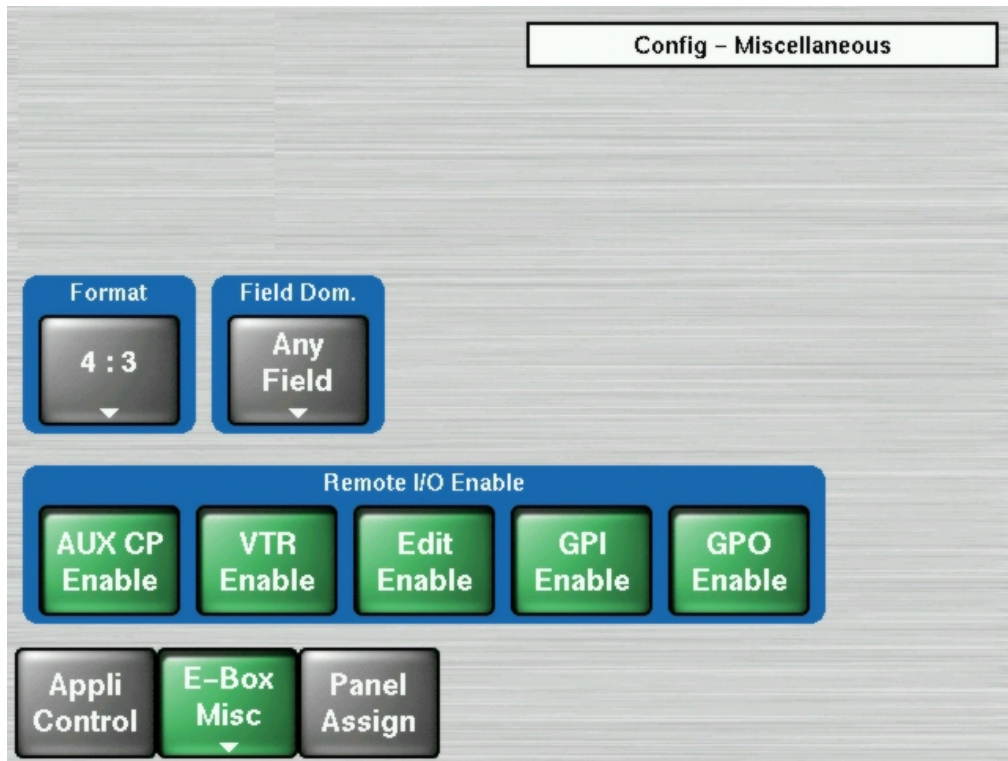


Figure 107 Config – DPM Menu

#### Format

Select TY size standard 4:3 or 16:9

#### 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 busses, 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.

#### 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

### 5.3.3 Config – Panel Assignment



Figure 108 Config – Panel Assignment Menu

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

**All Bus Rows** pre-selects the panel's bus rows for which the Input Assignment should be changed.

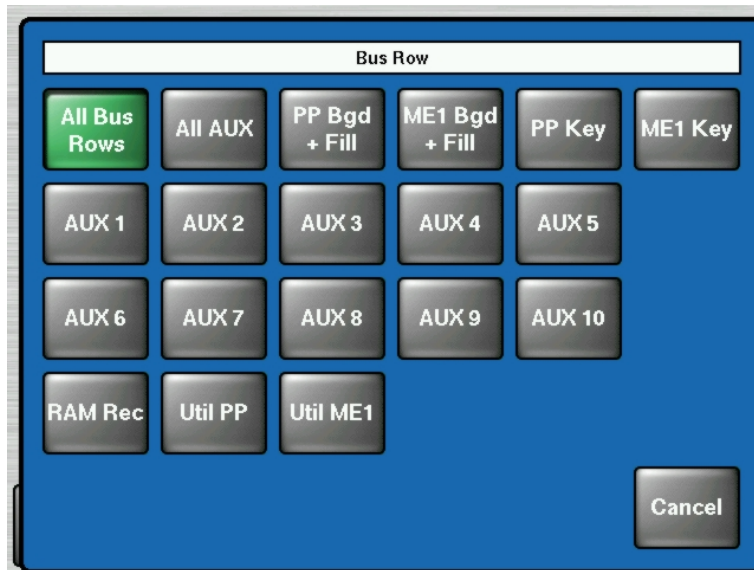


Figure 109 Config – Panel Assignment - Bus Row Selection Menu

Pressing **Reset Assignment** opens an dialog with some pre-defined input assignments:

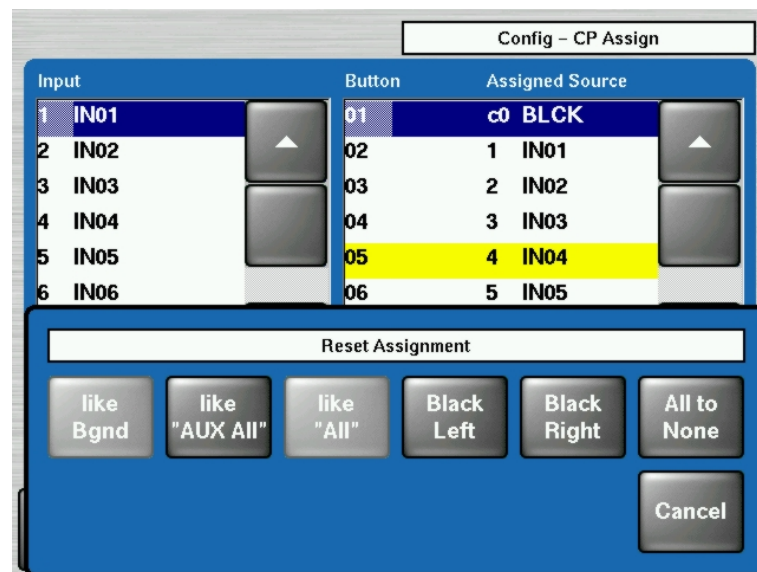


Figure 110 Config – Panel Assignment – Reset

- **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.

## 5.4 Personal Settings Menus

The menu permits personality settings for the panel.

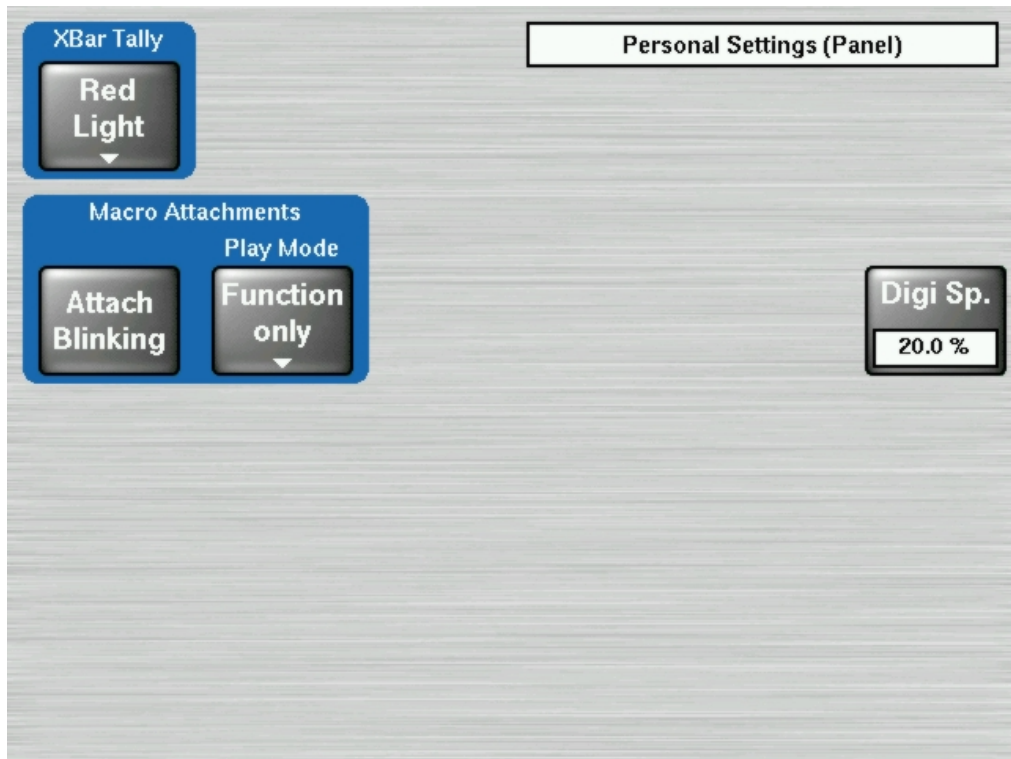


Figure 111 Personal Settings Menu

### Digi Sp.

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

Touching the **XBar Tally** button calls a sub-menu. In this menu the tally mode of crossbar buttons can be configured.

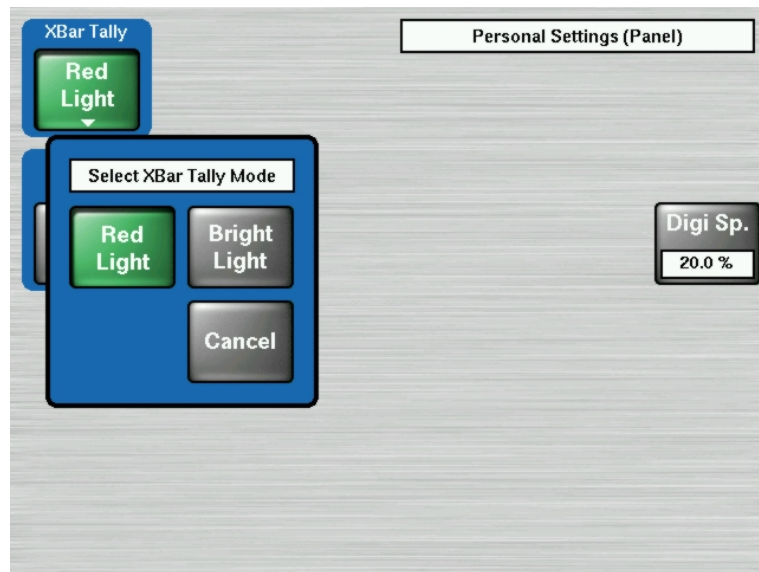


Figure 112 Personal Settings – XBar Tally Mode

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

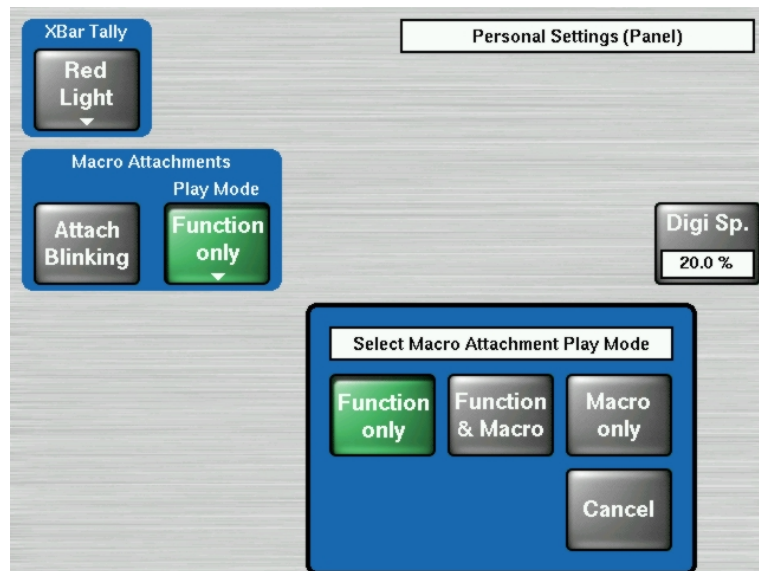


Figure 113 Personal Settings – Macro Attachment Play Mode

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

## 5.5 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 right to it contains a pattern touch pad, which displays the currently selected shape.

The **Wipe** button in the Transition subpanel is a DPOP button (double-pressing it brings up the M/E menu).

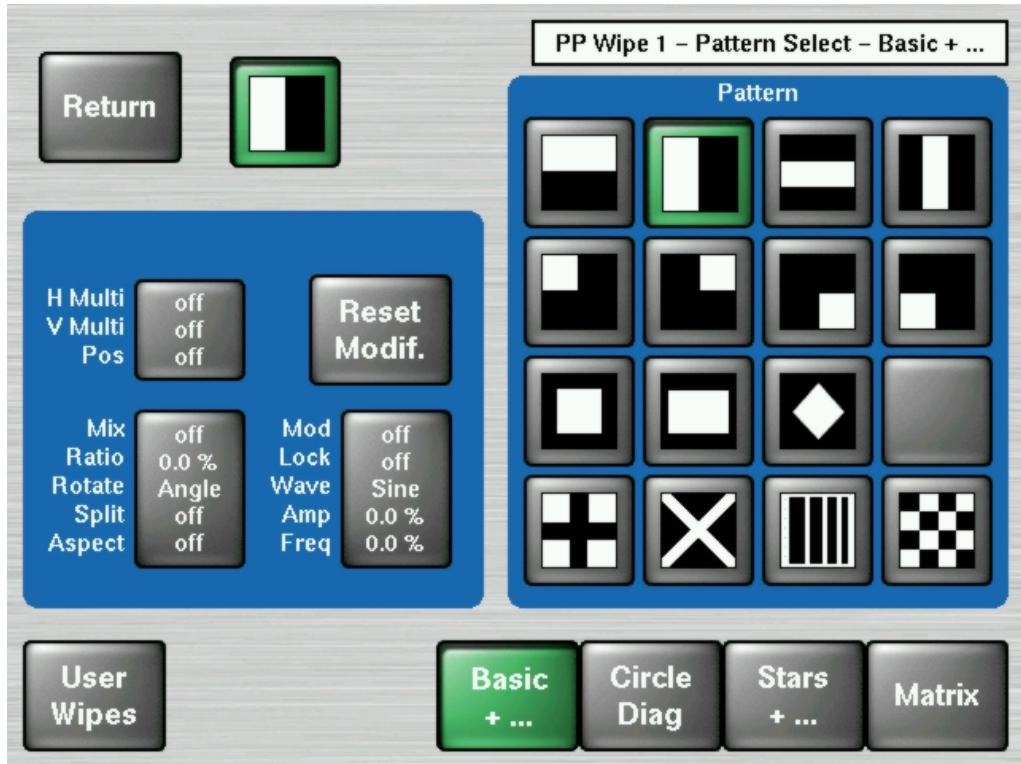


Figure 114 Wipe Menu – Pattern Selection

In the wipe pattern selection panel, 16 wipe patterns may be directly selected. Further wipe patterns can be recalled by pressing one of the wipe group selection buttons **Basic**, **Circle Diag**, **Stars** or **Matrix** a new selection appears. The selected wipe pattern is shown right of the delegation button.

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



### **5.5.1 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 according ME 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 KayakDD 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 115* below.

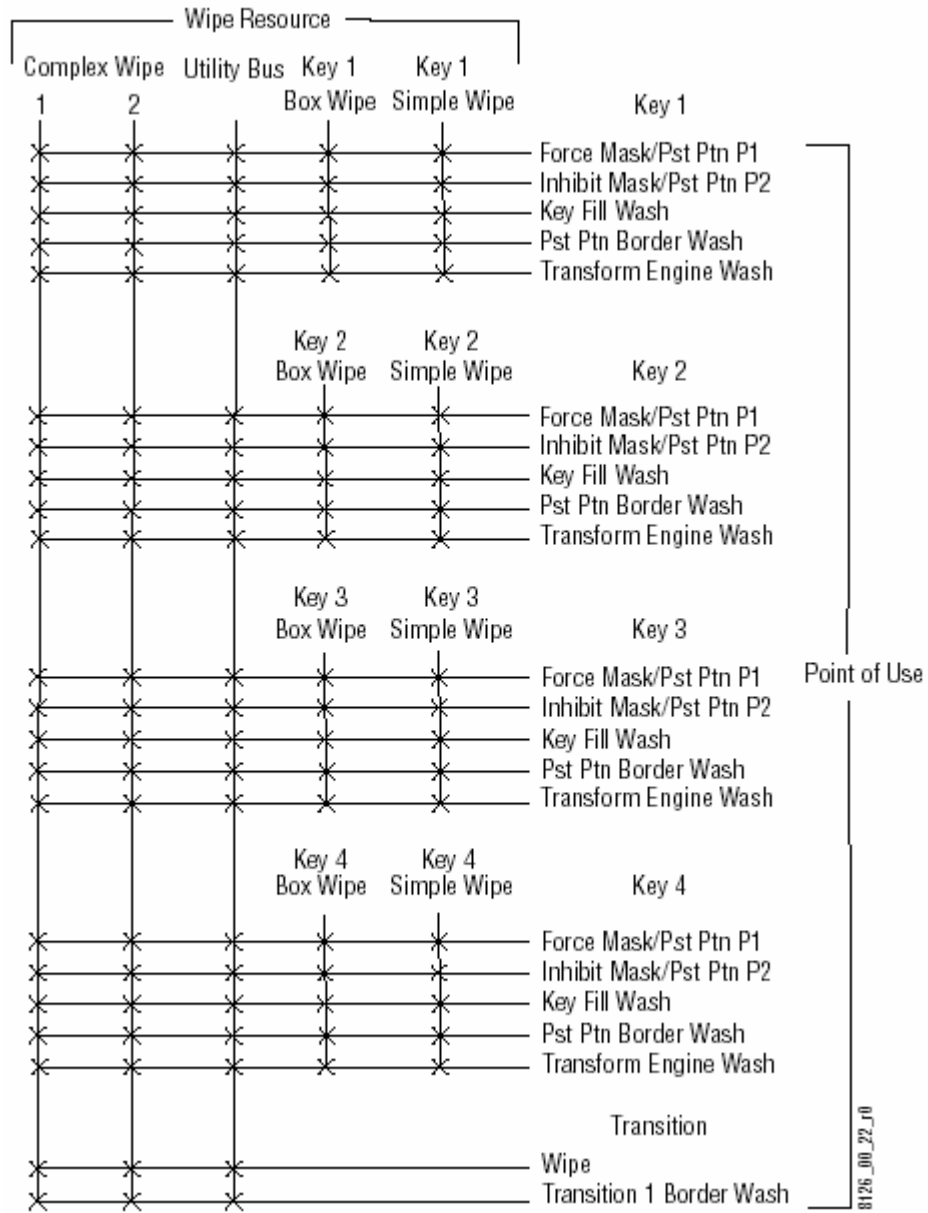


Figure 115 Typical Wipe Switching Matrix and Point of Use

## 5.5.2 Pattern Selection Menu

Touching the **Pattern** touch pad brings up the palette of wipe shapes available (Figure below). Selecting a pattern will change the shape of the pattern in the **Pattern** touch pad to indicate the new pattern. The available patterns are grouped in 4 submenus:

- **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)

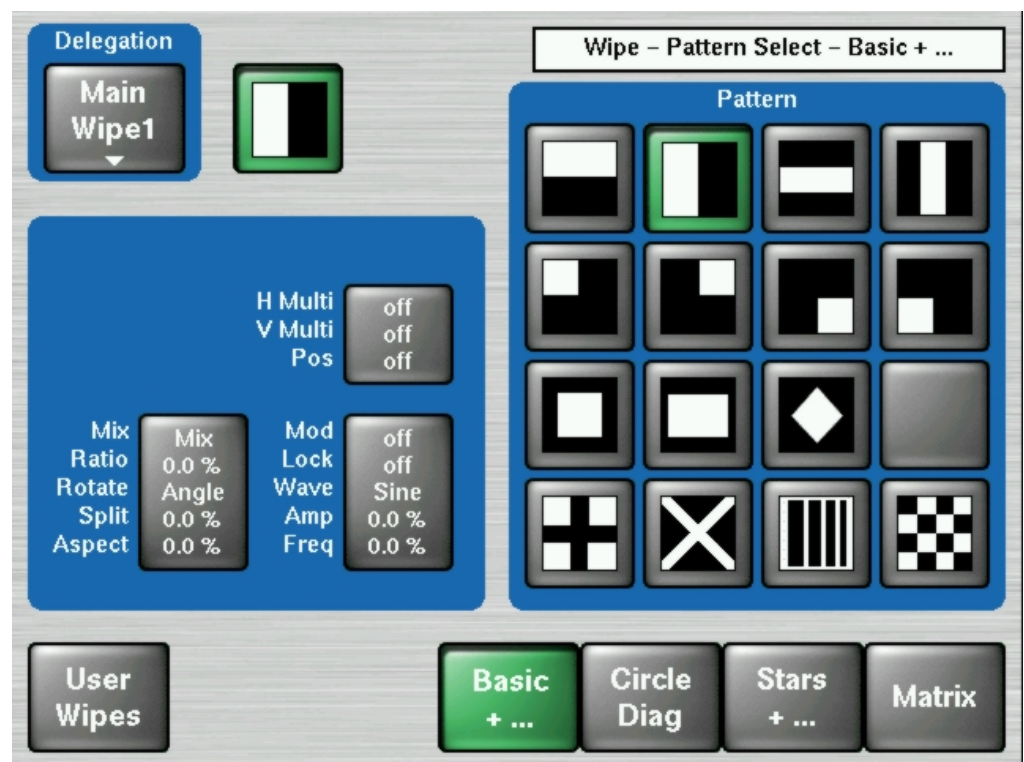
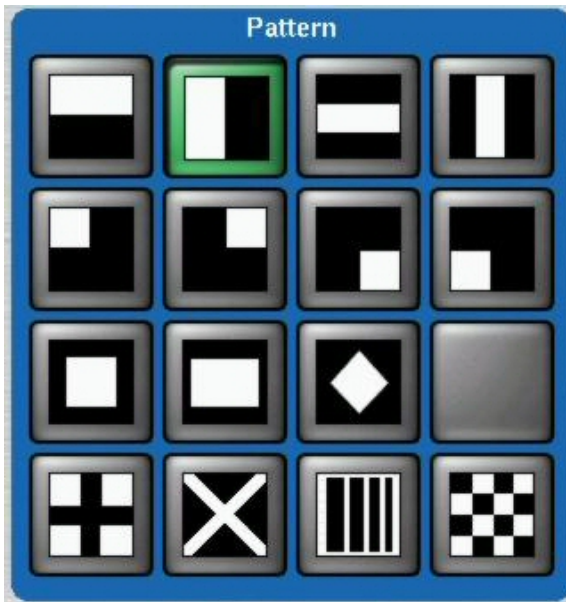


Figure 116 Pattern Selection Menu

### 5.5.3 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 GVG pattern numbers!

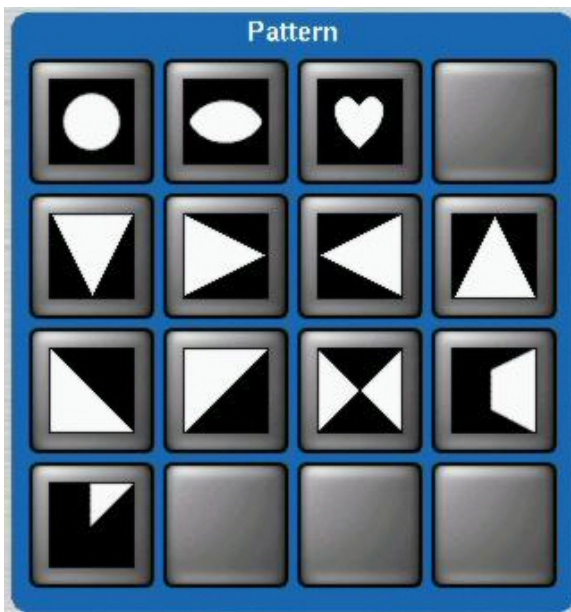
#### 5.5.3.1 Page 1 – Basic Pattern



Respective Code Number:

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

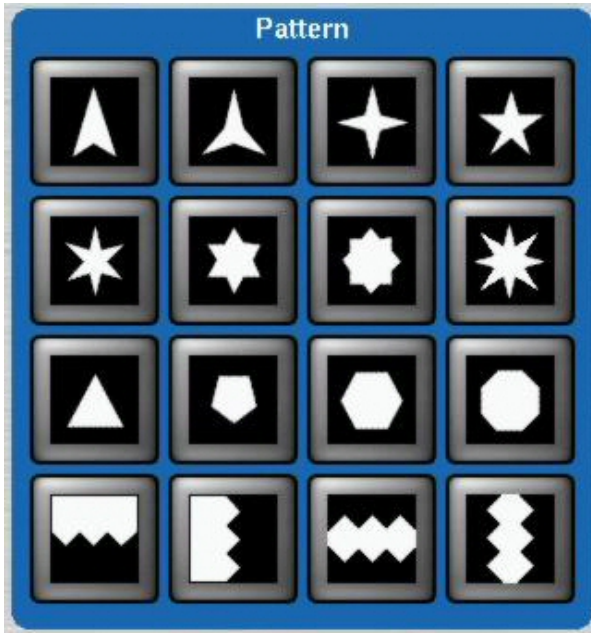
#### 5.5.3.2 Page 2 – Circle and Rotary



Respective Code Number:

119	122	130 [28]	
061	064	062	063
042	041	044	261 [16]
191 [6]			

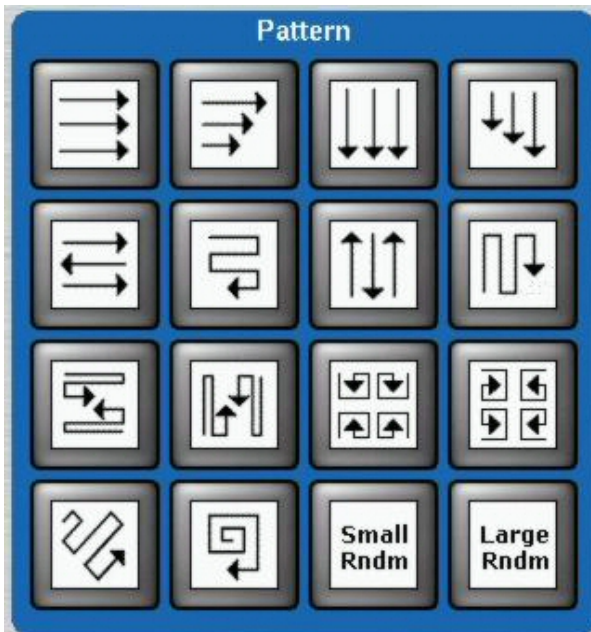
Page 3 – Stars and ZigZag



Respective Code Number:

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]

5.5.3.3 Page 4 – Matrix Wipes (in preparation)



Respective Code Number:

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]

### 5.5.4 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.

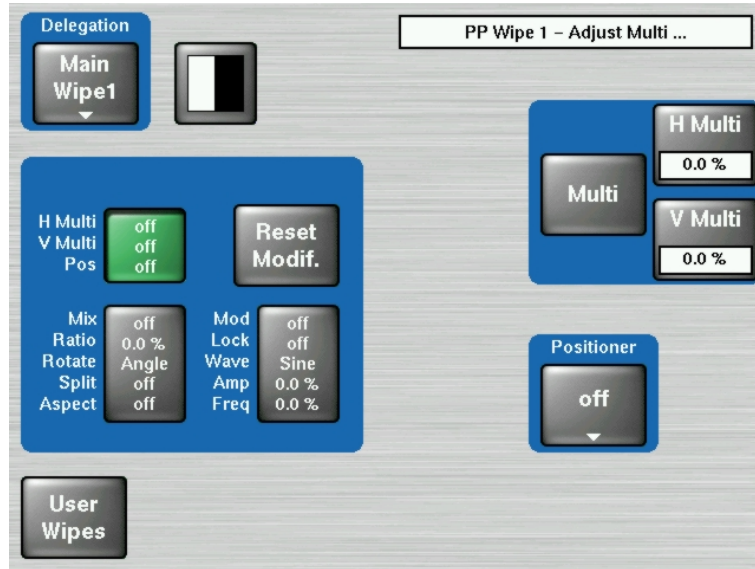


Figure 117 Wipe Menu – Modifier 1

**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.

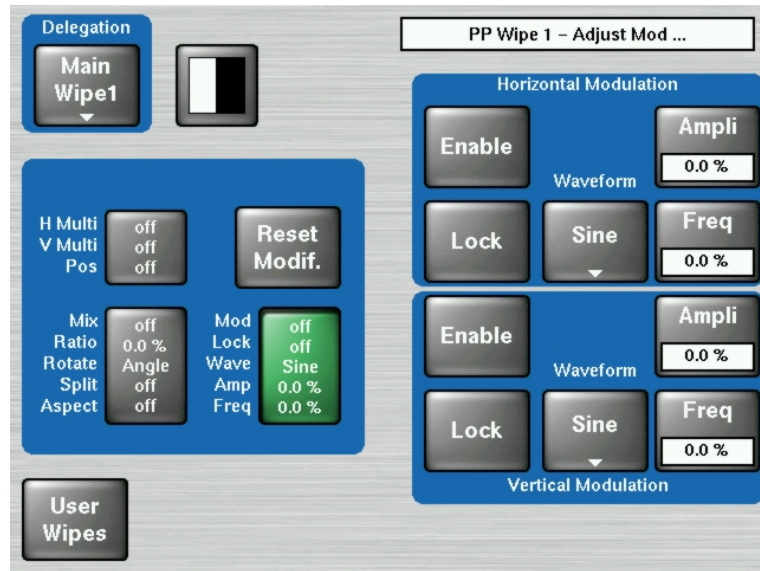


Figure 118 Wipe Menu – Modifier 3

**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.

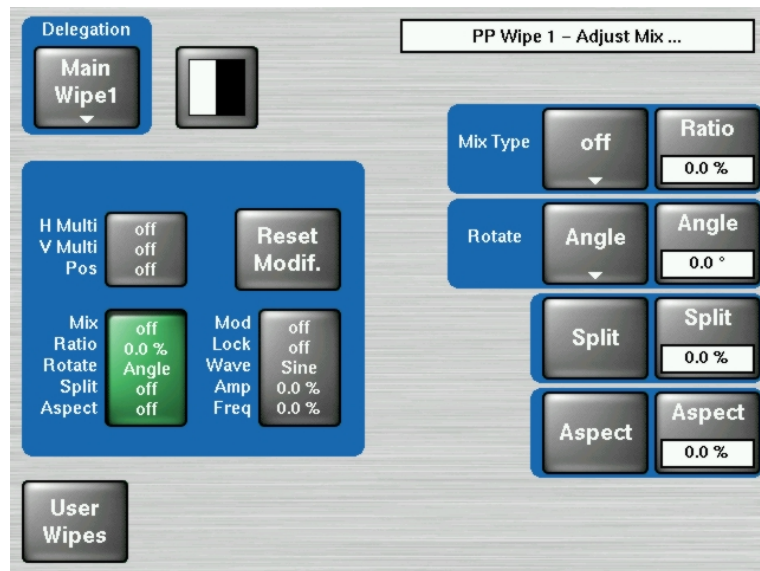


Figure 119 Wipe Menu – Modifier 3

**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.

## 5.6 Keyers 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.

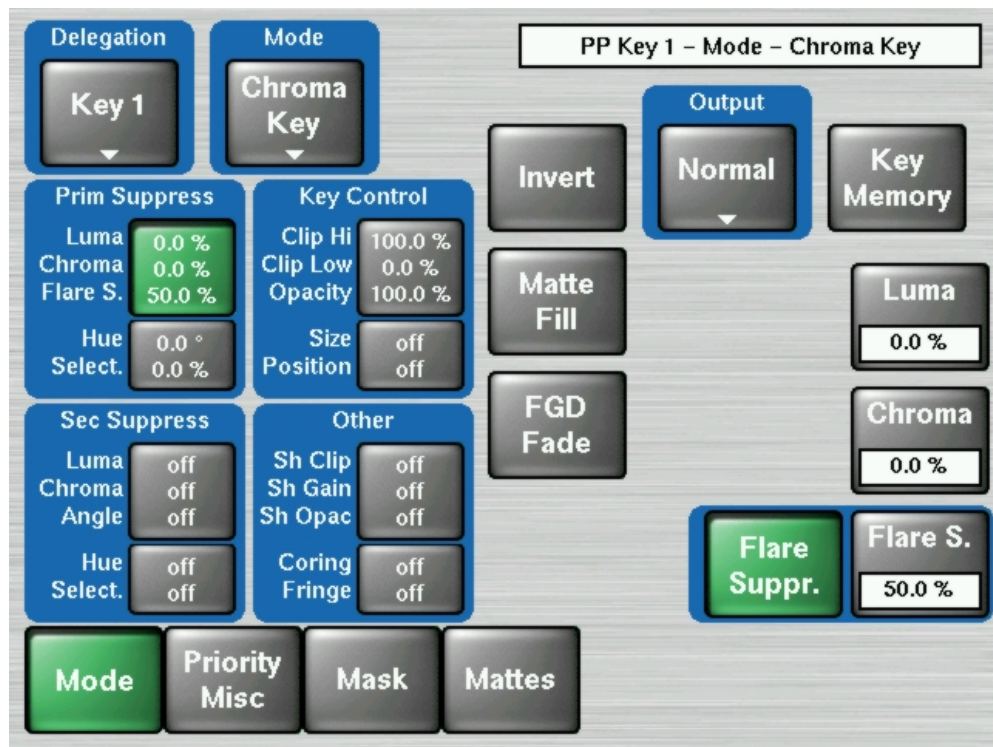


Figure 120 Keyer Menu

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.



## 5.6.1 Key Mode

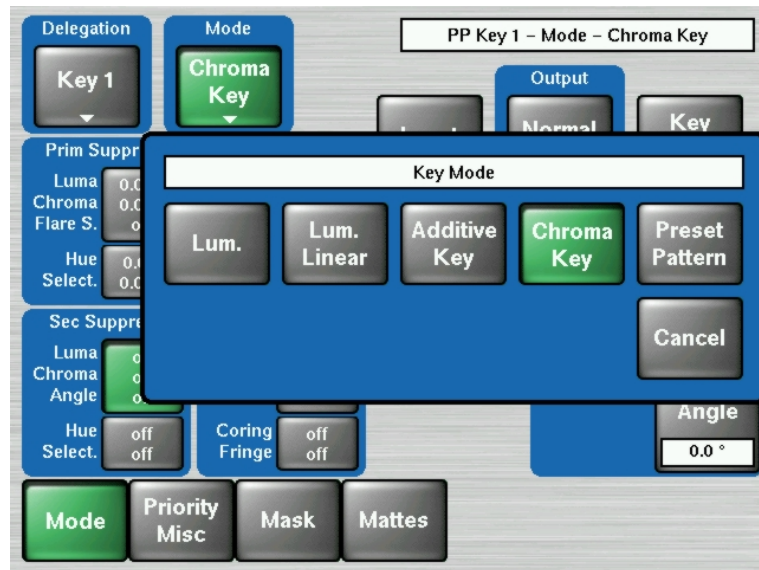


Figure 121 Keyer Menu – Mode Selection

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:

- Luminance
- Luminance Linear
- 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:  
Gain 100% and Clip 50%

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

For a complete overview on key types and adjustments, refer to section Keying on page 34.

### 5.6.2 Keyer Priority Misc Menu

Touching the **Priority Misc** subcategory button takes you to the Priority menu (Figure below). 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 *Key Prior Button and Key Over button*.

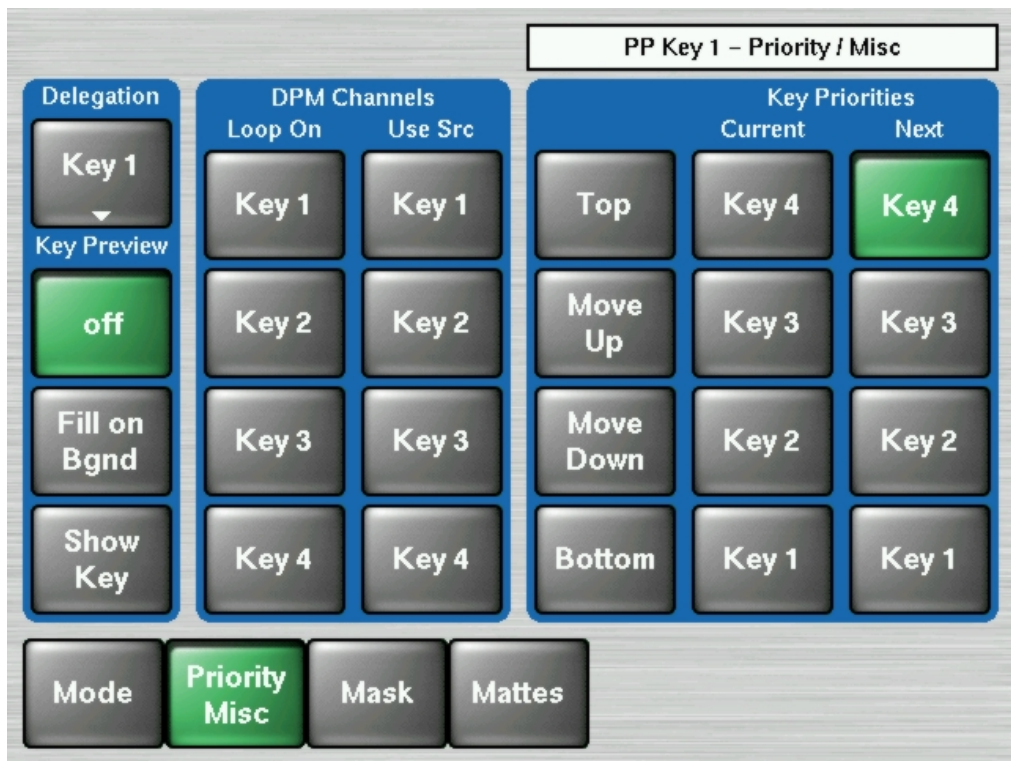


Figure 122 Keyer Menu - Priority

### 5.6.3 Keyer Mask Menu

Touching the **Mask** subcategory button takes you to the Keyer Mask Point of Use menu (Figure below). 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.

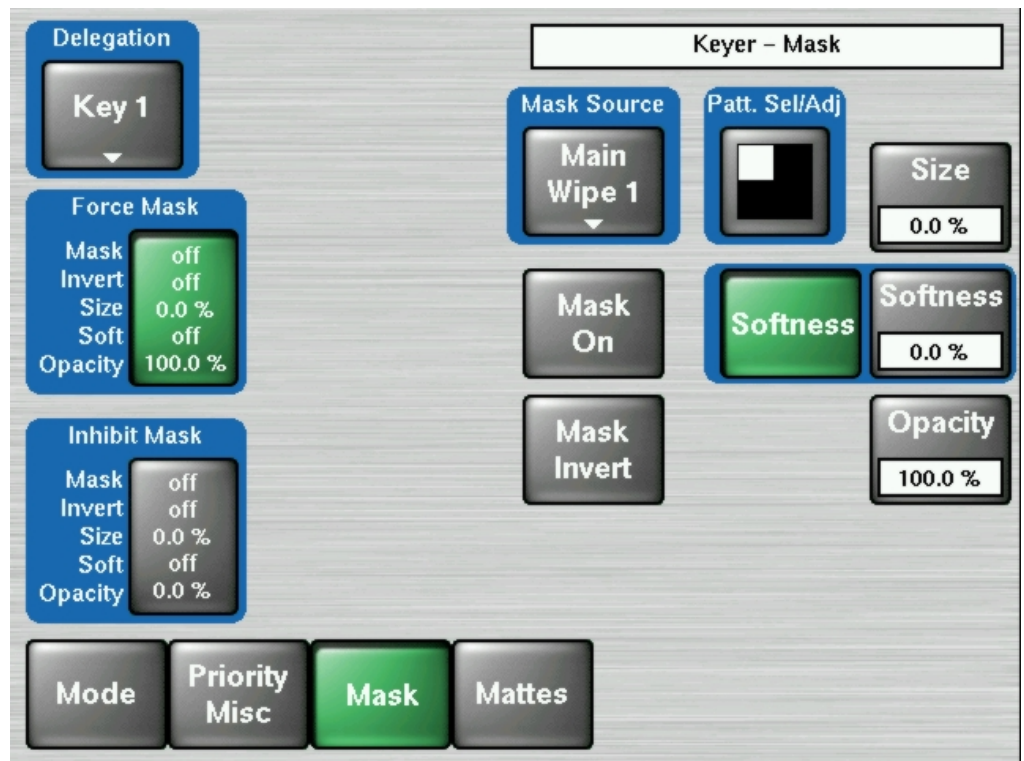


Figure 123 Keyer Menu – Mask

### 5.6.3.1 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.

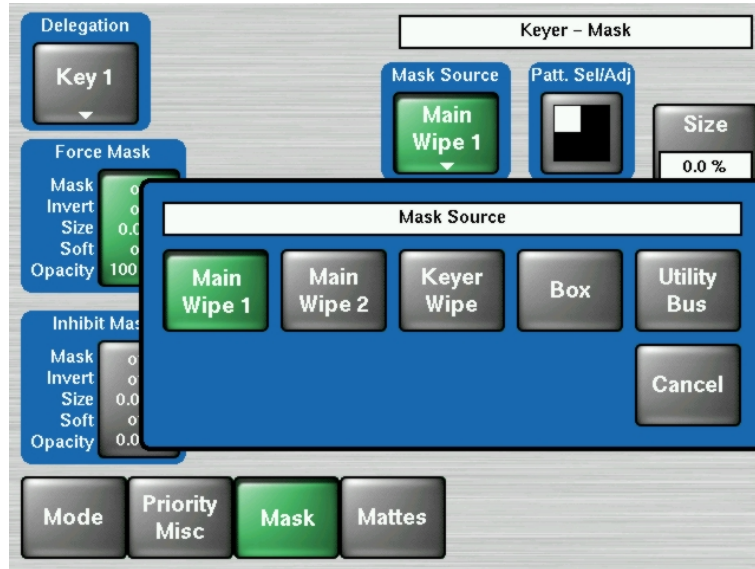


Figure 124 Keyer Menu – Mask Source

#### 5.6.3.1.1 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.

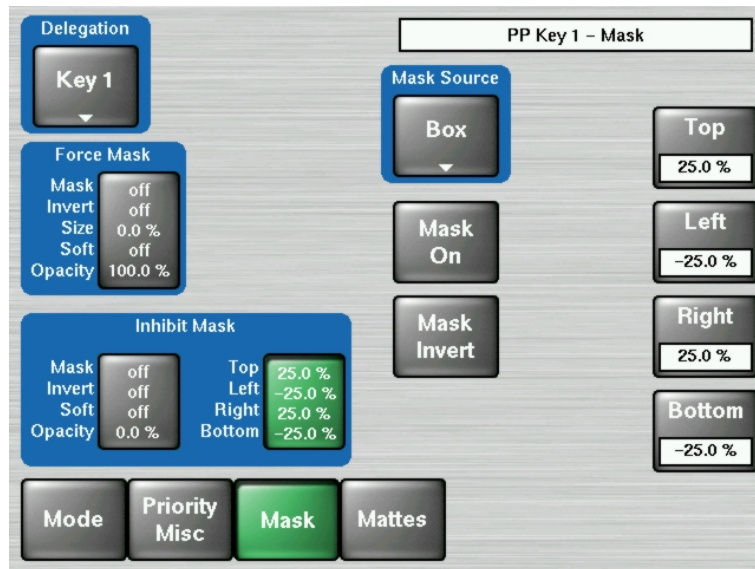


Figure 125 Keyer Menu – Box Mask

### 5.6.3.1.2 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 below). 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.

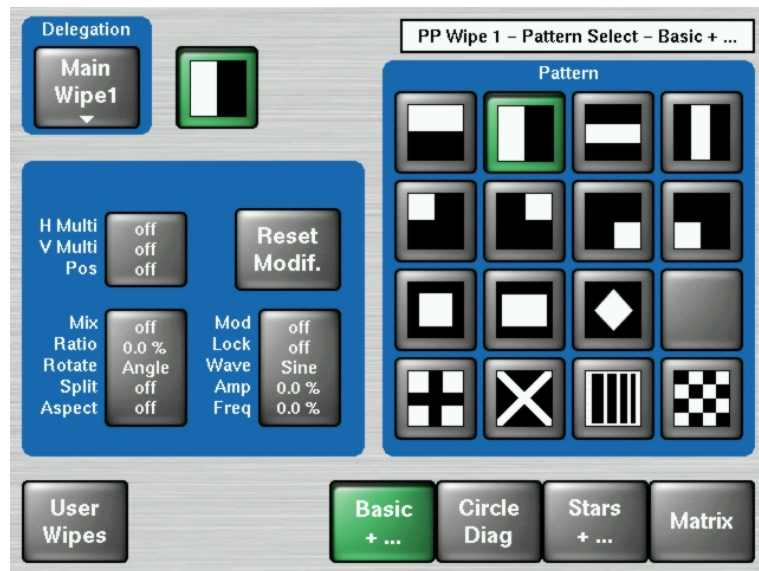


Figure 126 Keyer Menu - Wipe Mask

### 5.6.3.1.3 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.*

5.6.3.1.4 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 Still Store or some external device.

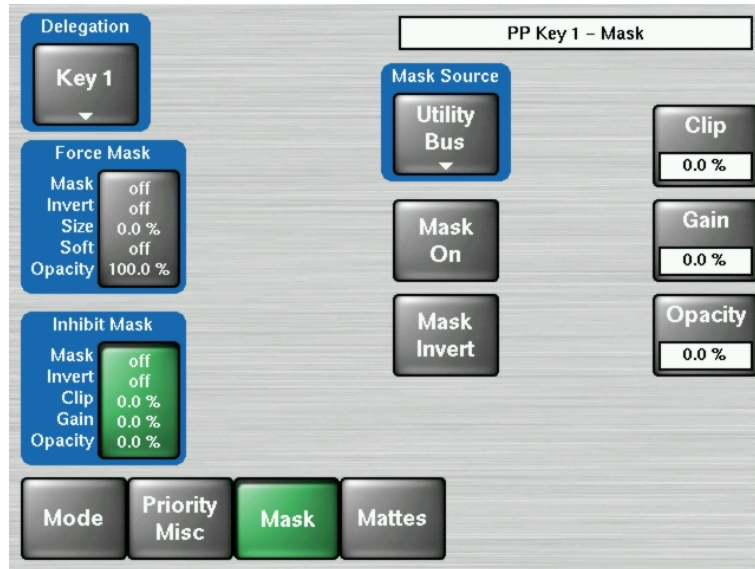


Figure 127 Keyer Menu – Utility Bus Mask

5.6.3.1.5 Mask On Button

The Mask may be turned on or off by selecting the **Mask On** button.

5.6.3.1.6 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.

### 5.6.4 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.

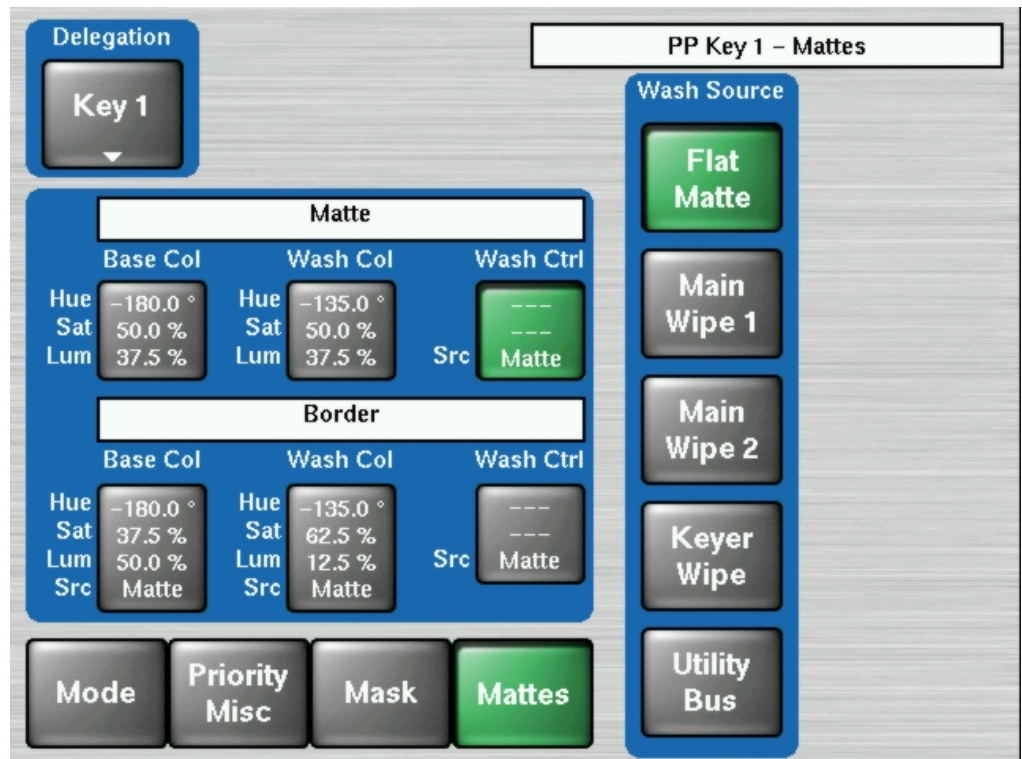


Figure 128 Keyers Mattes Menu

### 5.6.5 Chroma Key

When a chroma key is selected, the menu (Figure 129) 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 section *Chroma Key Operating Notes* on page 283 for more information on setting up a chroma key. For a concept overview of chroma keying, refer to section *Chroma Key* on page 43.

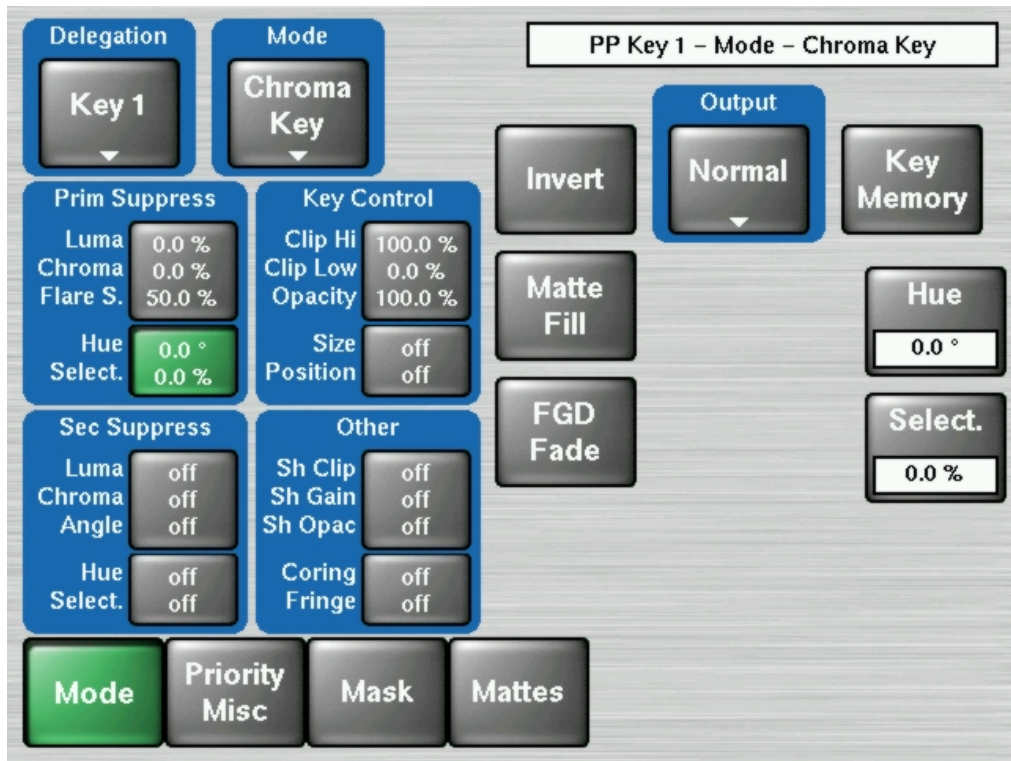


Figure 129 Keyers Mode Chroma Key Menu



### 5.6.6 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 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.

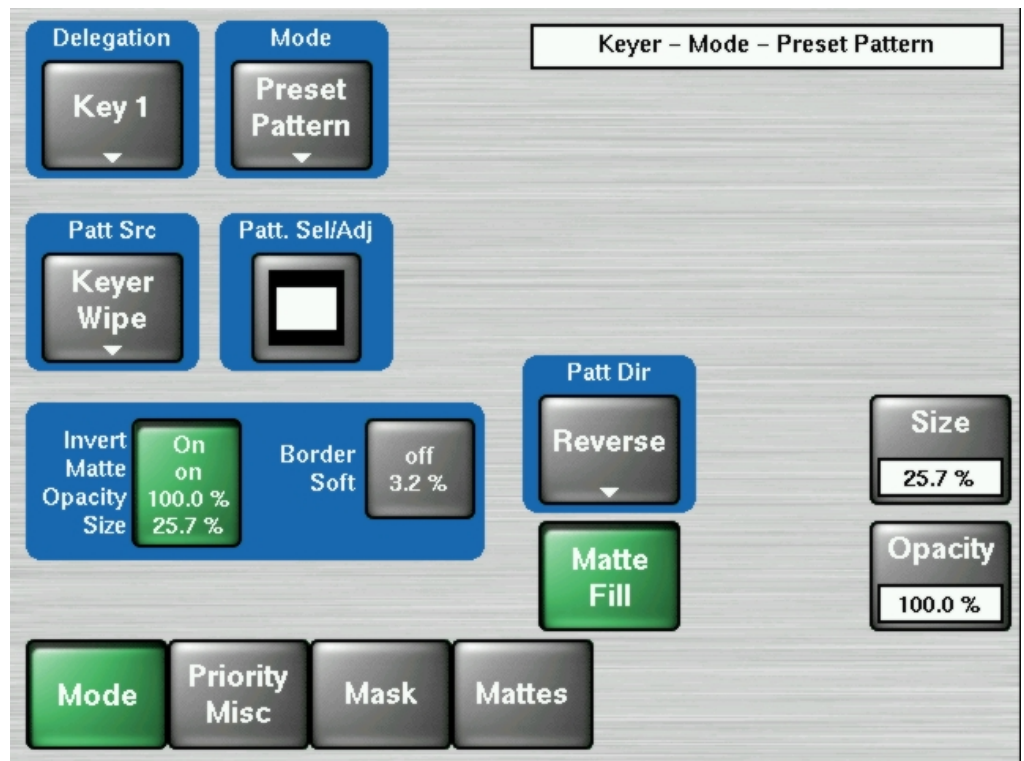


Figure 130 Keyer Mode – Preset Pattern

## 5.7 Background Mattes Menus

When **Bgnd Mattes** is selected, the menu displays two panes for control of Color BGD 1, Color BGD 2 and Color BGD 3, 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.

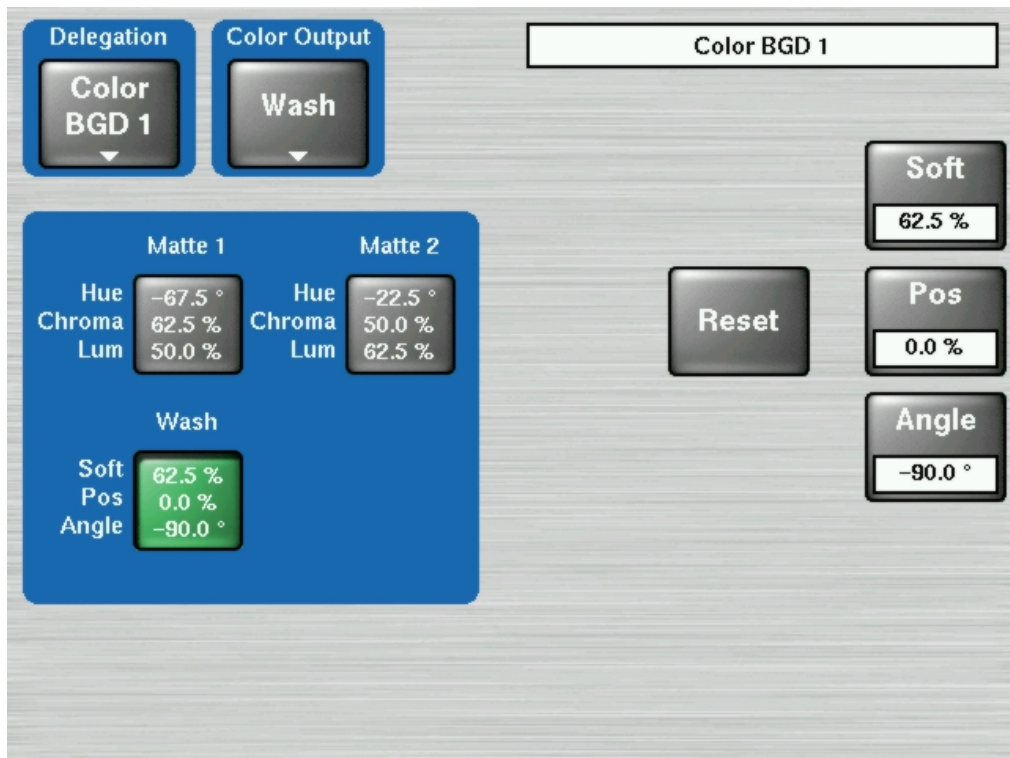


Figure 131 Background Matte Menu

Touch the **Color Output** pad, then select the desired color output:

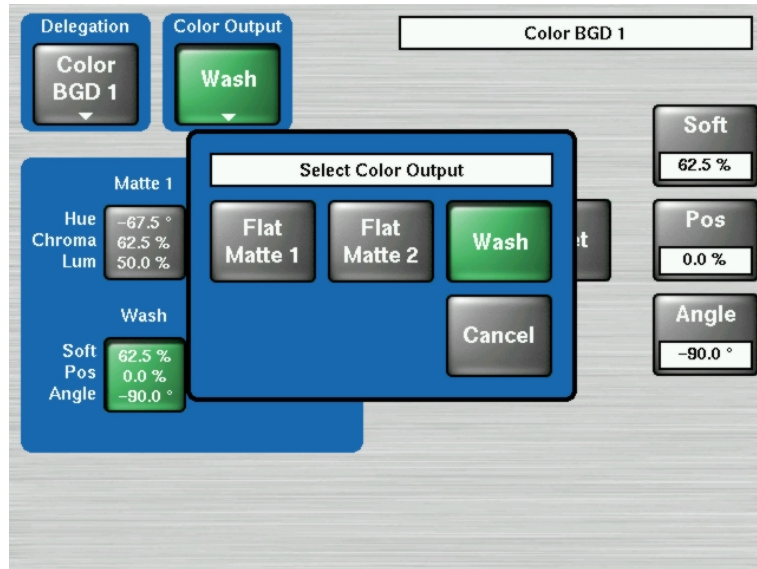


Figure 132 Background Mattes Menu - Wash

## 5.8 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.

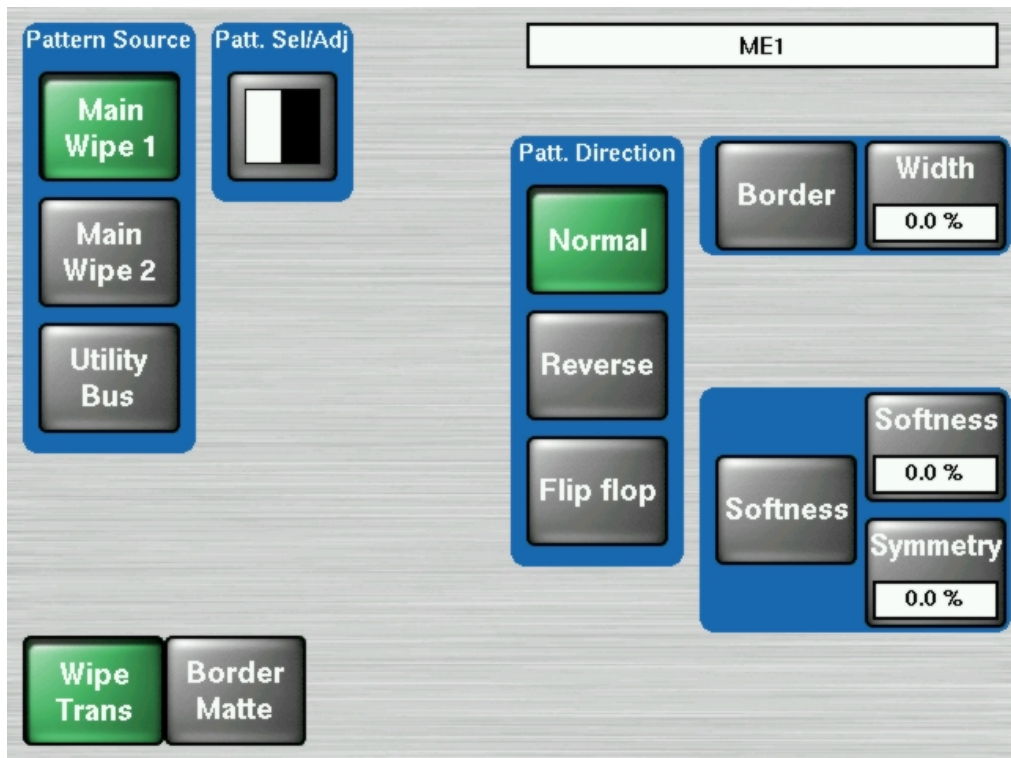


Figure 133 M/E Menu – Wipe Trans

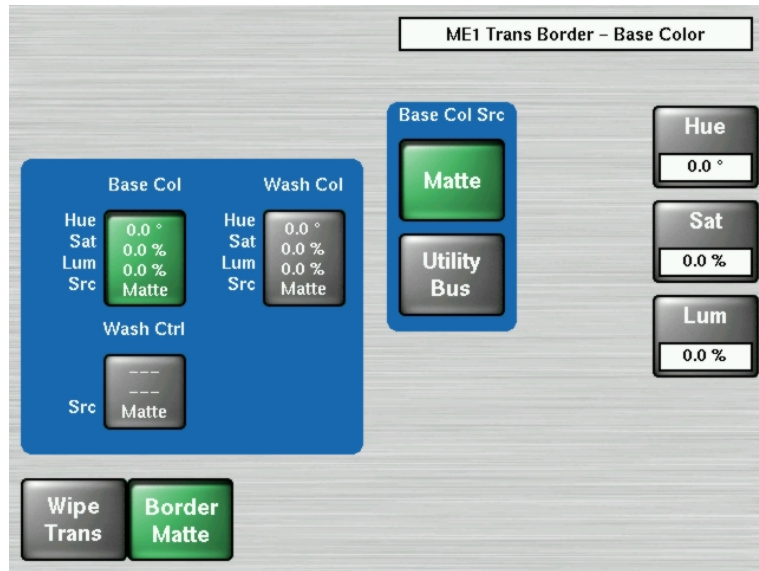


Figure 134 M/E Menu – Border Matte

## 5.9 YUV Bus Correction Menus

The YUV Correction menu serves to adjust brightness, contrast, saturation and color balance related to the bus.

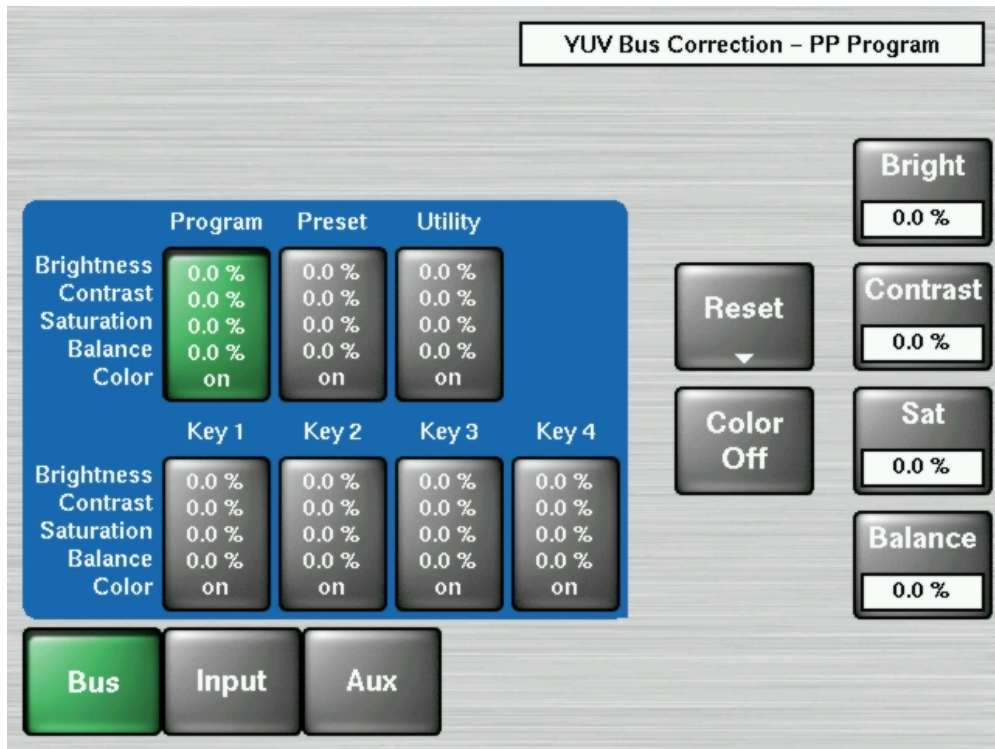


Figure 135 YUV Bus Correction Menu

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 busses of the selected ME to their default values.

### Color Off

Switched the color on/off completely separate for each bus.

## 5.10 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.

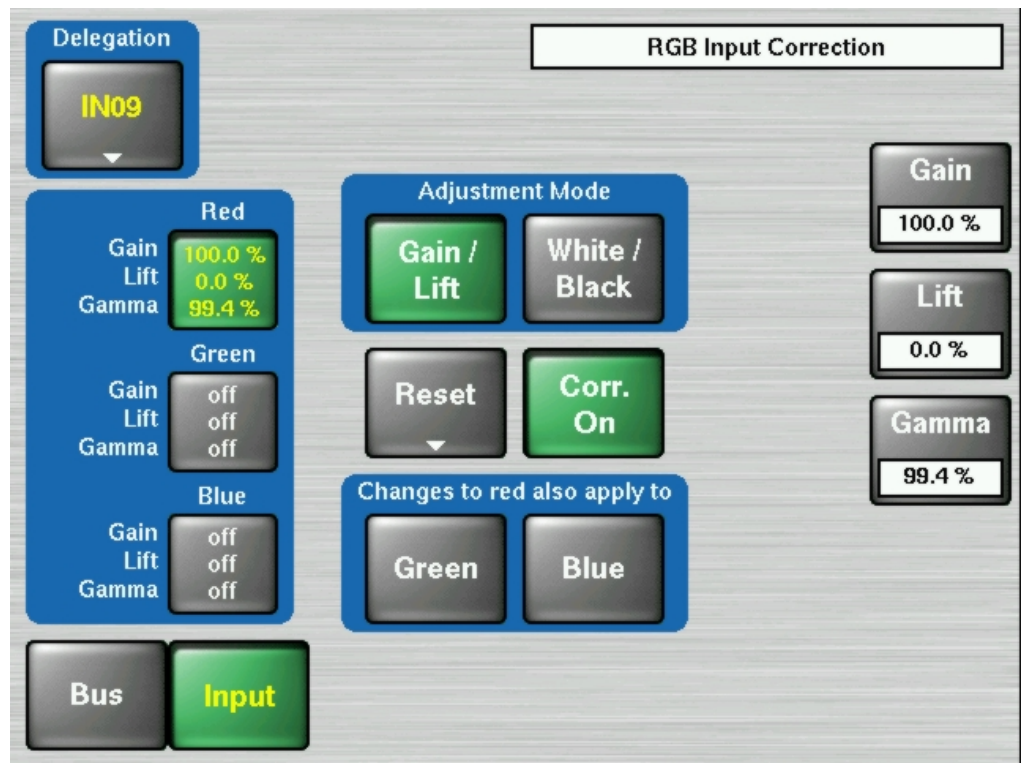


Figure 136 RGB Input Correction Menu

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**  
**White/ Black**

**Adjust a offset to Black level**  
Adjust Black and White in percent

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 that changing from Blue to either Green or Red in the Color Corrector Transfer Function panel will cancel the attachment.



## **5.11 DPM (Digital Picture Manipulators) Menus**

The KayakDD system supports one DPM channel per keyer, that means a KayakDD-1 may have up to 4 DPM channels, a KayakDD-2 up to 8 DPM channels. For units currently shipping the DPM channel for the first keyer per ME-bank is standard, the remaining 3 channels per ME are options.

### **5.11.1 General**

The parameters of the Digital Picture Manipulators are not stored as part of the E-MEM system. They are treated per ME-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 ME 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.

### 5.11.2 Misc. Setup Menu

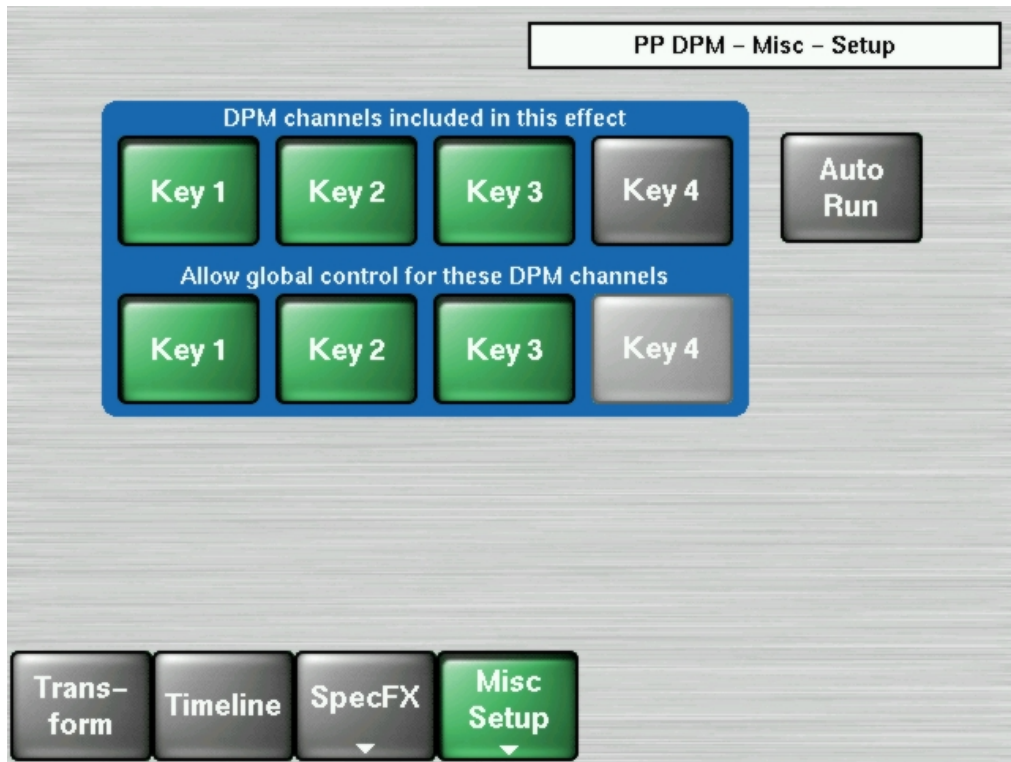


Figure 137 DPM – Misc - Setup Menu

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).

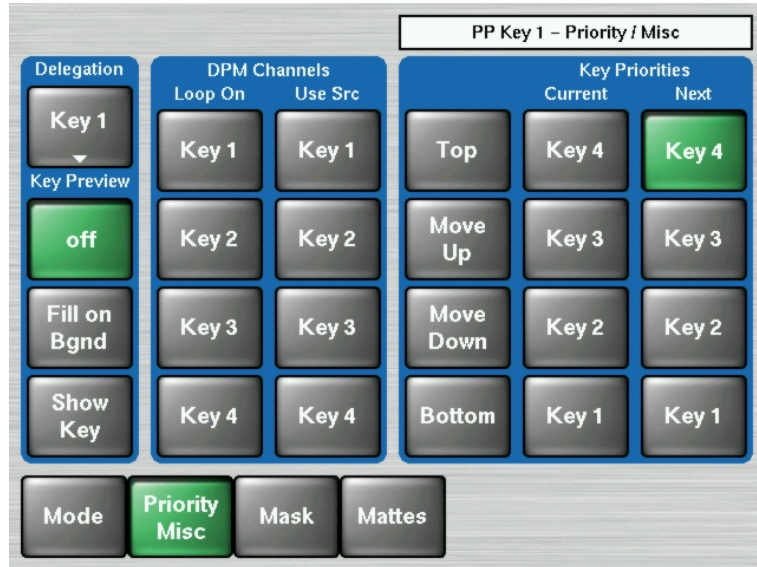


Figure 138 Key Selection for DPM Channels

### 5.11.3 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.

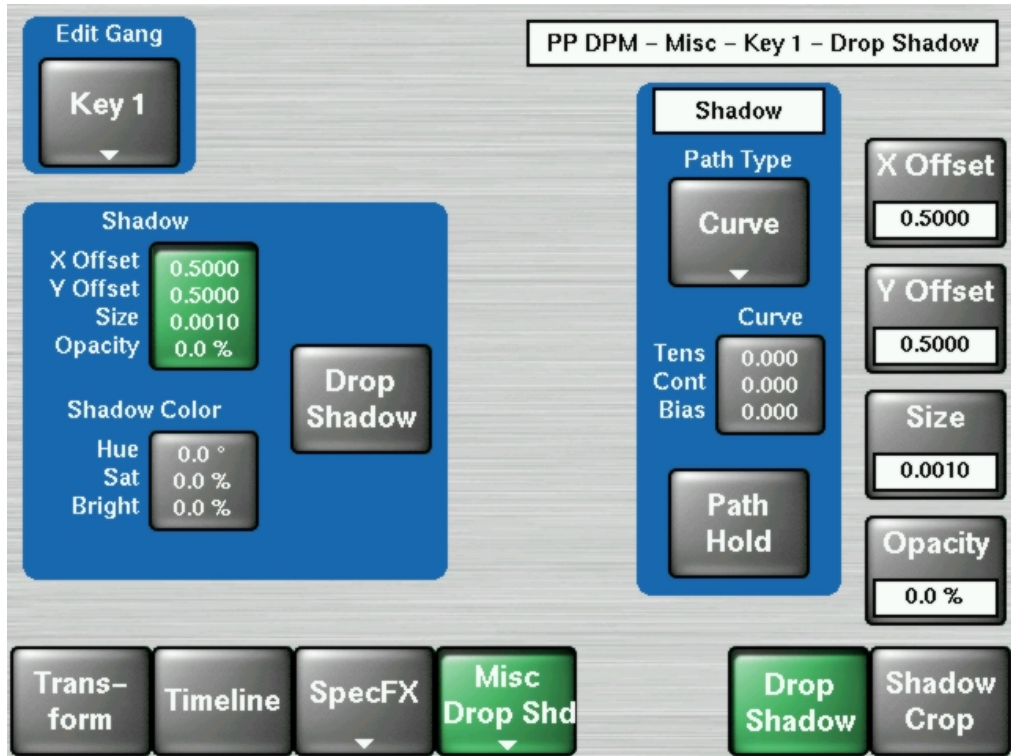


Figure 139 DPM – Misc – Drop Shadow 1

When **Shadow** is selected soft knobs for **X Offset**, **Y Offset**, **Size**, and **Opacity** are available. See figure above.

When **Shadow Color** is selected soft knobs for **Hue**, **Saturation**, and **Brightness** are available.

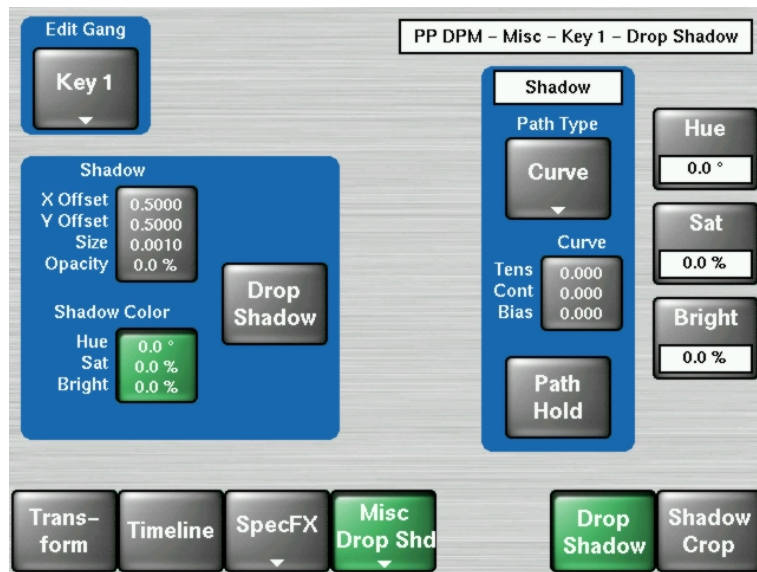


Figure 140 DPM – Misc – Drop Shadow 2

#### 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.

### 5.11.3.1 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.

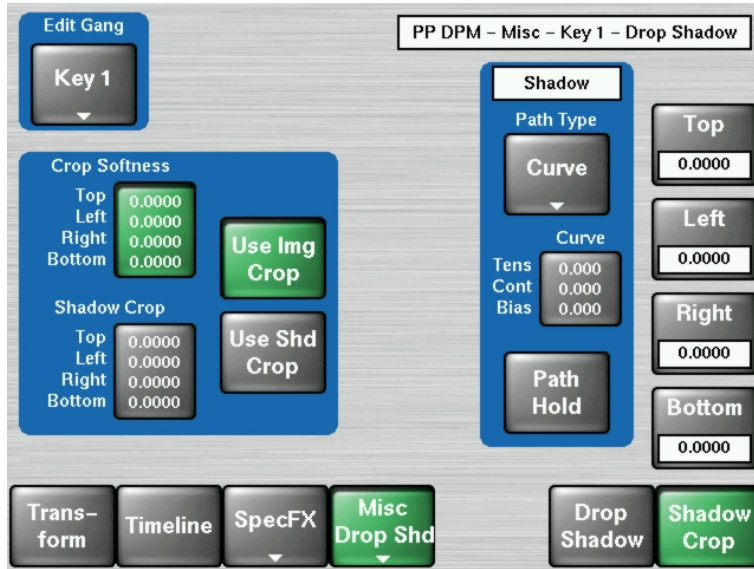


Figure 141 DPM – Misc – Shadow Crop

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.

### 5.11.4 Transform Menus

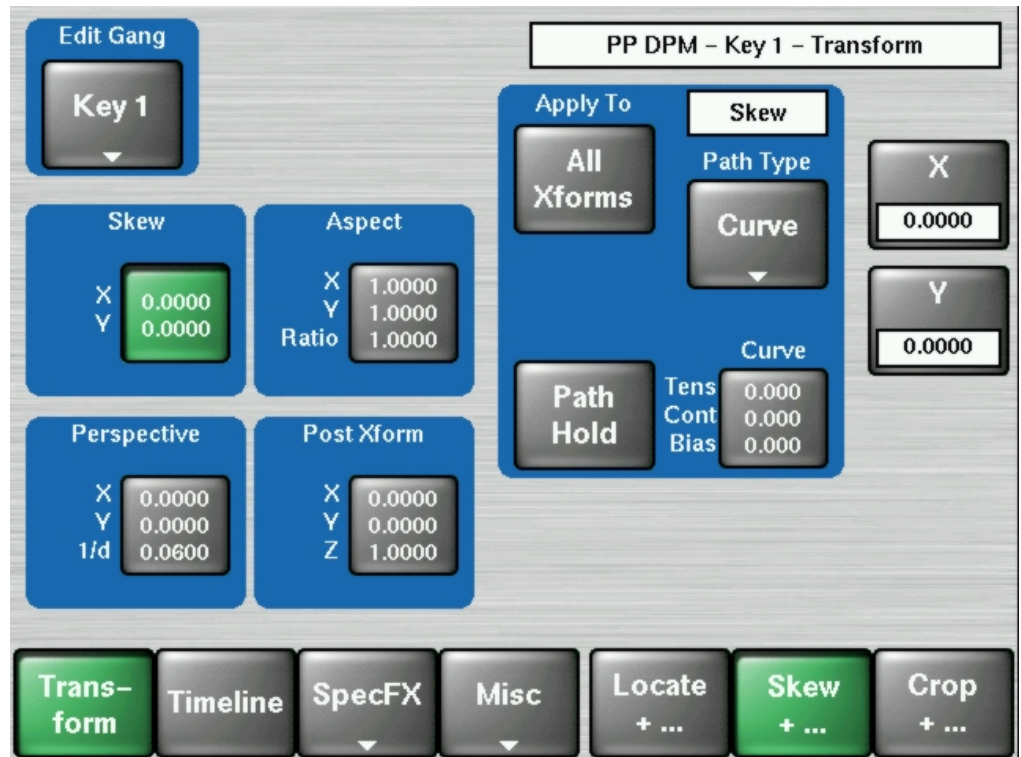


Figure 142 DPM – Key 1 -Transform Menu

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.

#### 5.11.4.1 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 143 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.

#### 5.11.4.2 Path Type

The path control section allows you to select different interpolation path types for all or some of the parameters.

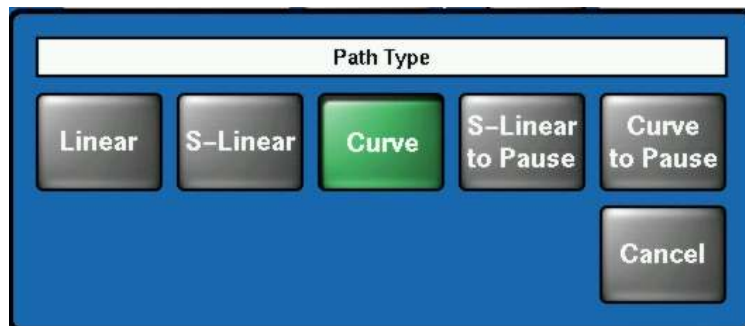


Figure 144 DPM – Path Type Selection



### 5.11.4.3 X, Y, Z Spin

For the subgroup Spin the path type can be different for the X,Y, and Z spin.

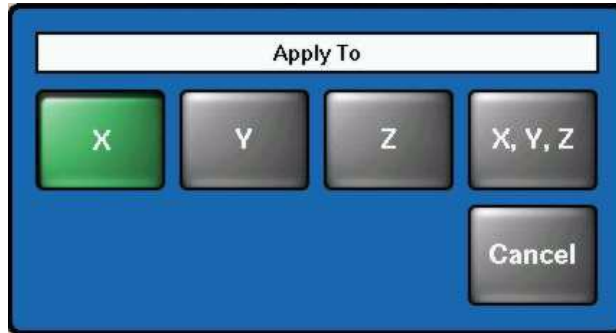


Figure 145 DPM – Spin Selection

To adjust the parameters for Tension, Continuity, and Bias press the relevant button in the path control section.

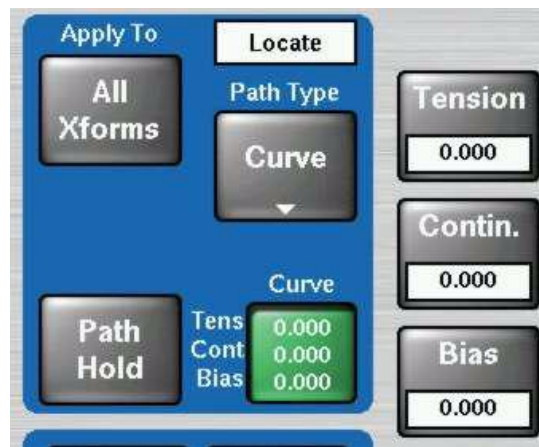


Figure 146 DPM – Adjust Tension, Continuity, and Bias

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.

5.11.4.4 Crop

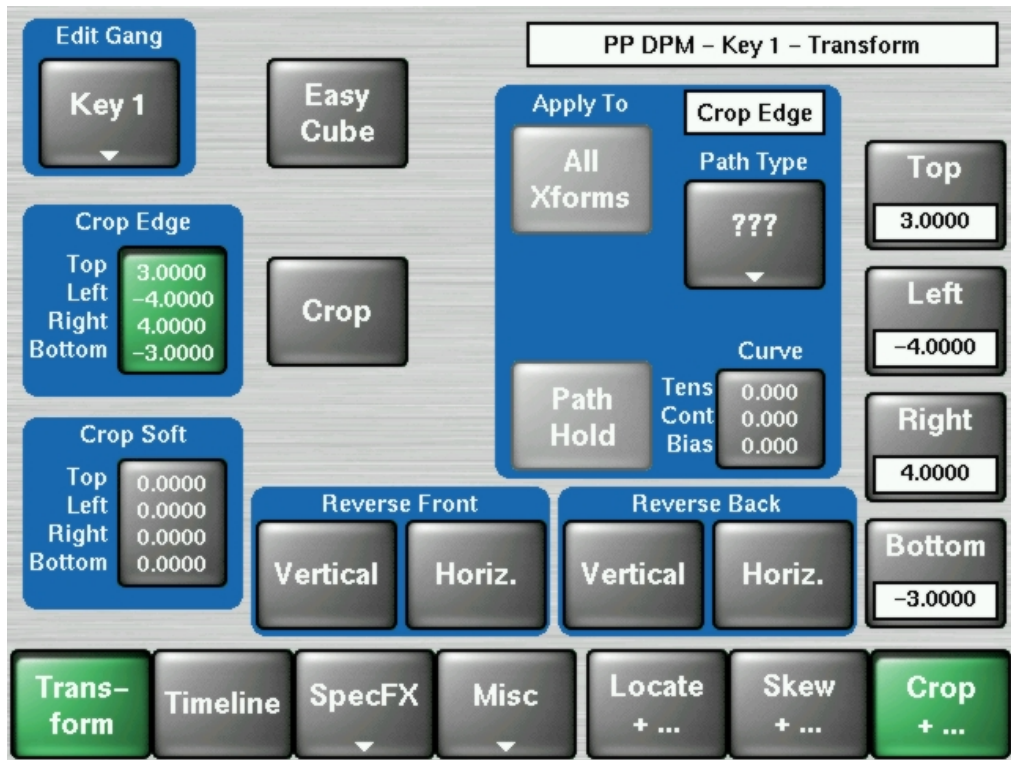


Figure 147 DPM – Key 1 – Transform - Crop

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.

### 5.11.5 Timeline Menus

The timeline menus consist of two main groups, Save/Recall and Edit.

#### 5.11.5.1 Save/Recall Menu



Figure 148 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.

### 5.11.5.2 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.

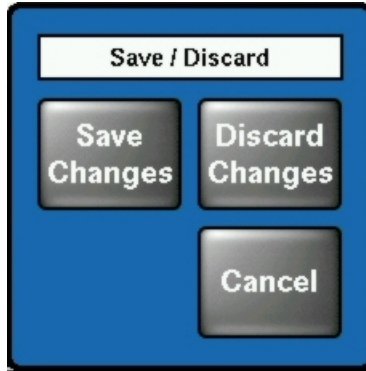


Figure 149 DPM – Timeline – Save/Discard

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.

### 5.11.5.3 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.

#### 5.11.5.4 Modify

The modify button allows you to rename or to delete the selected register.



Figure 150 DPM – Timeline – Modify

#### 5.11.5.5 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.

#### 5.11.5.6 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.

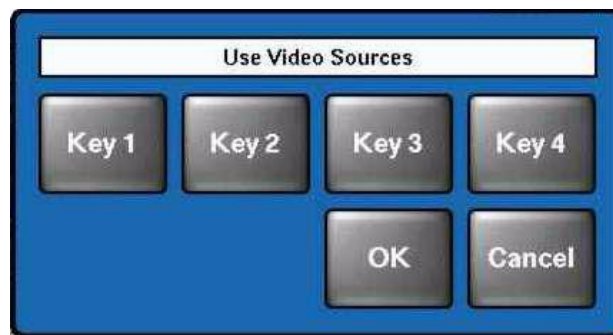


Figure 151 DPM – Timeline – Video Sources

### 5.11.5.7 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.

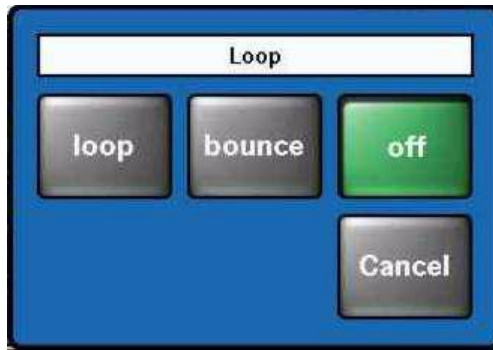


Figure 152 DPM – Timeline – Video Sources

### 5.11.5.8 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.

5.11.6 Show Timeline Menu



Figure 153 DPM – Timeline – Edit Menu

The Edit menu allows you to insert/modify/delete keyframes for the selected channels for the current effect.



### 5.11.6.1 Delegation

The Delegation button shows you for which channels the actions are executed.



Figure 154 DPM – Timeline – Delegation Selection

You can select all Keyer channels which are included in this effect. The last selected channel is the displayed one.

### 5.11.6.2 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.

### 5.11.6.3 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.

### 5.11.6.4 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 155 DPM – Timeline – Direct Mode Buttons

When Direct Mode is switched off, the direct edit buttons change into popup buttons:



Figure 156 DPM – Timeline – Popup Buttons

5.11.6.5 **Modify Keyframe**

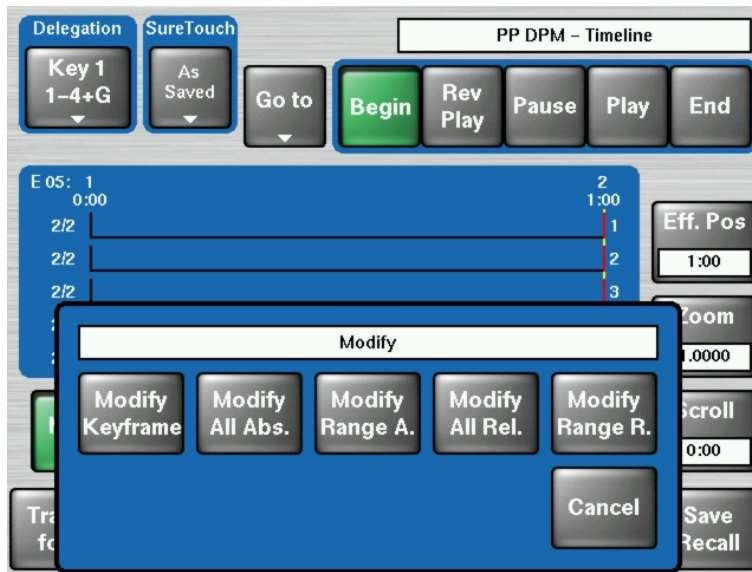


Figure 157 DPM – Timeline – Modify Keyframe

**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.

5.11.6.6 **Insert**

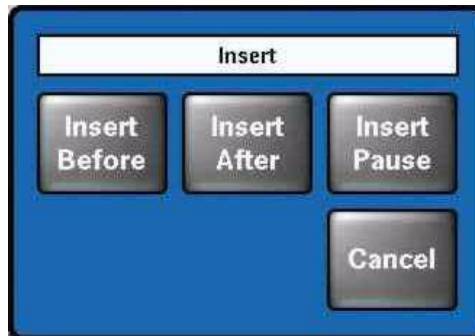


Figure 158 DPM – Timeline – Insert Buttons

**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.

### 5.11.6.7 Delete Keyframe

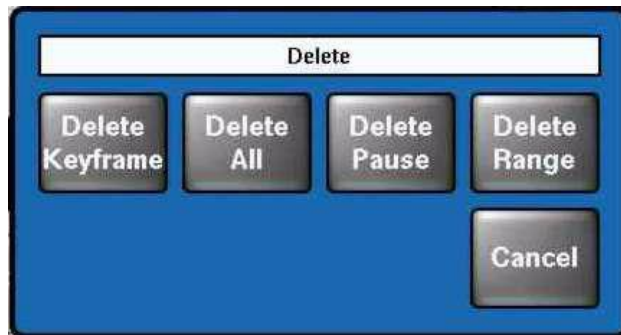


Figure 159 DPM – Timeline – Delete Buttons

**NOTE!**

When deleting a keyframe its duration is also deleted causing effect duration to change.

### 5.11.6.8 Keyframe Duration

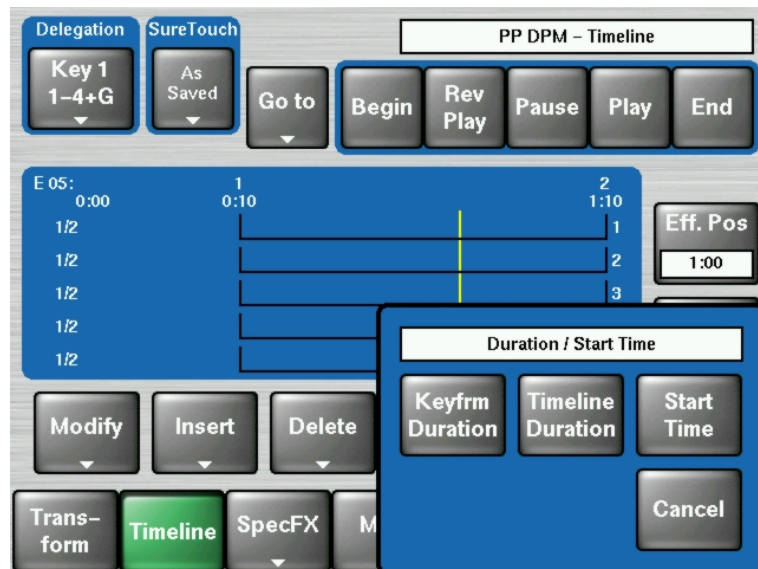


Figure 160 DPM – Timeline – Duration / Start Time Buttons

**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).

#### **5.11.6.9 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.

### 5.11.7 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.

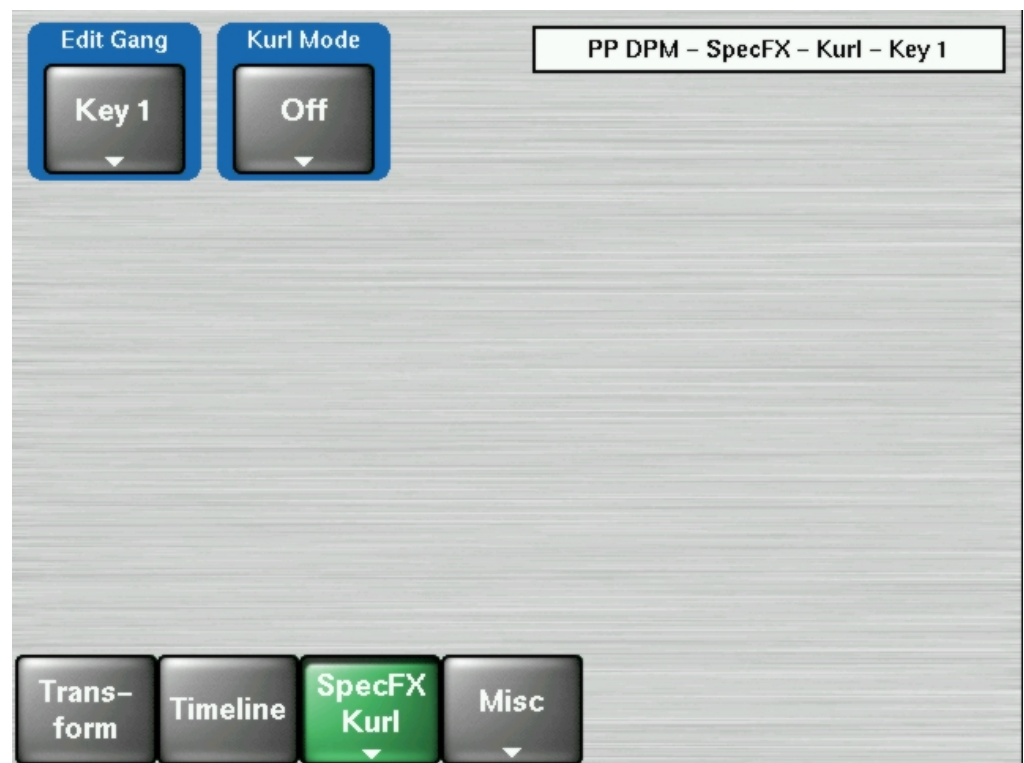


Figure 161 DPM – SpecFx – Kurl Menu (Off)

### 5.11.7.1 Selecting the Kurl Mode

The Kurl Mode button allows you to select different operating modes.

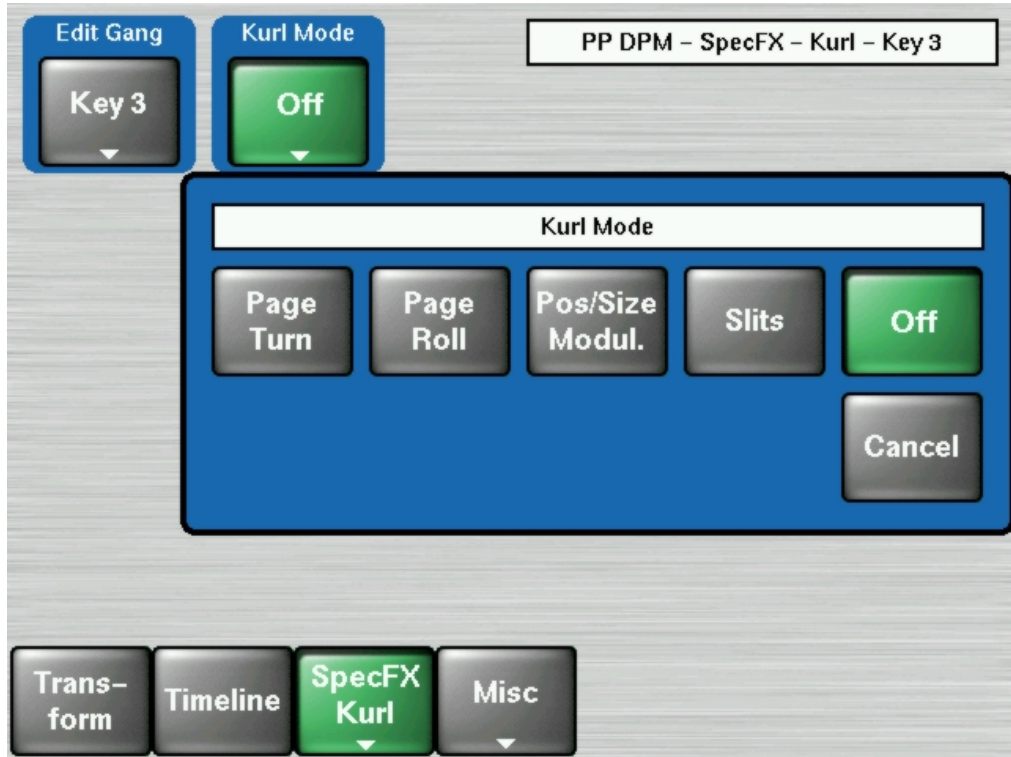


Figure 162 DPM – SpecFx – Kurl Mode Selection



### 5.11.7.2 Page Turn / Roll Mode

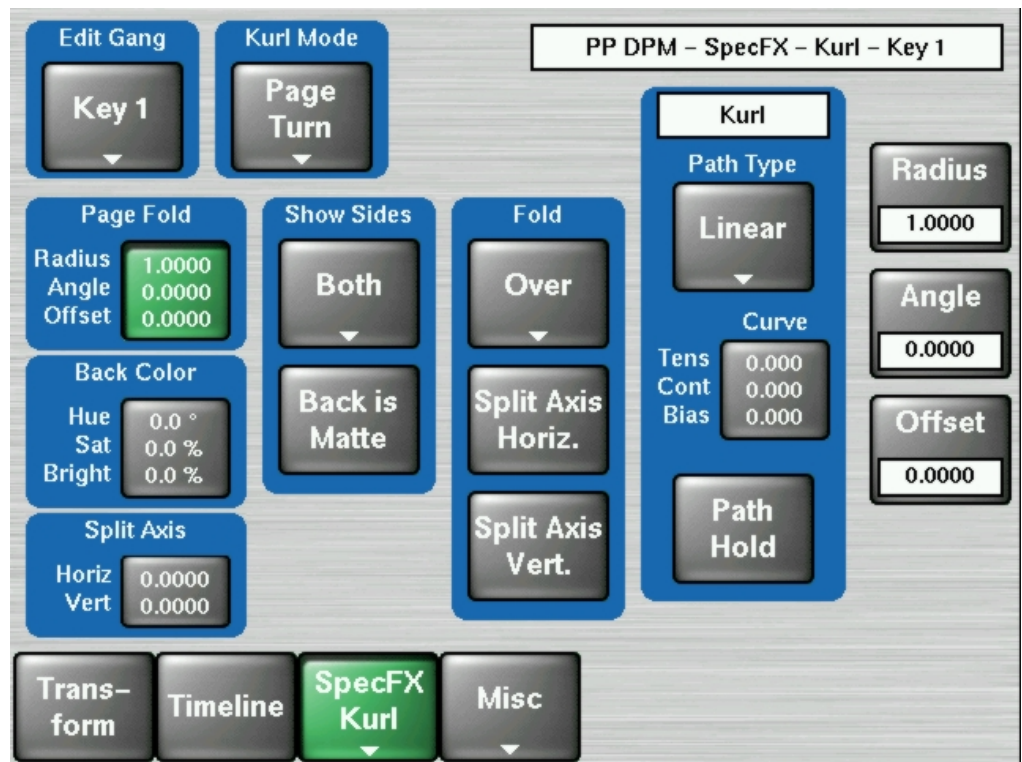


Figure 163 DPM – SpecFx – Kurl Menu (Page Turn Mode)

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**.

### 5.11.7.3 Pos / Size Mode

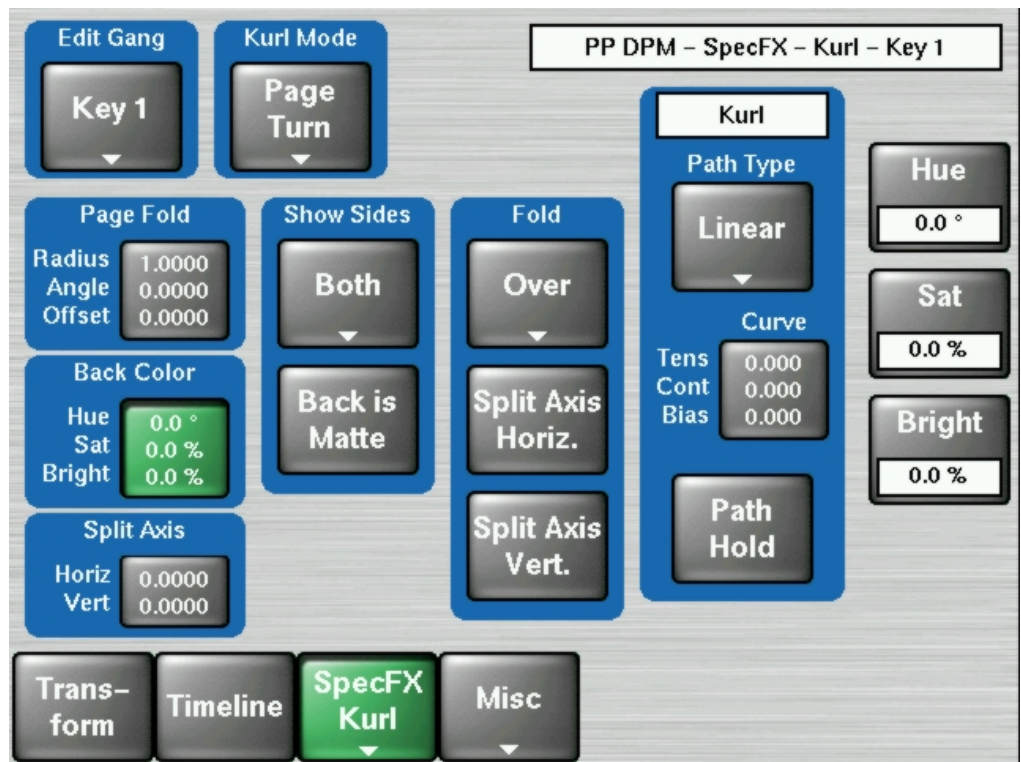


Figure 164 DPM – SpecFx – Kurl Menu (Pos/Size Mode)

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.

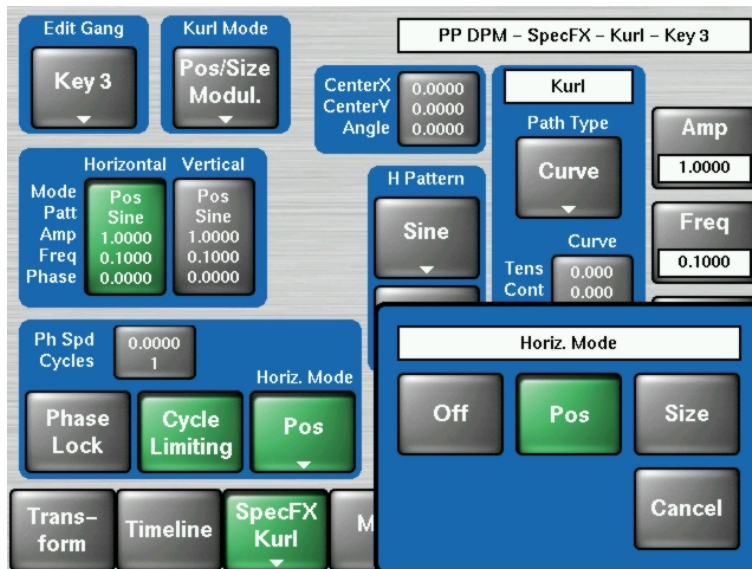


Figure 165 DPM – SpecFx – Kurl Menu (Horiz. Mode Selection)

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.

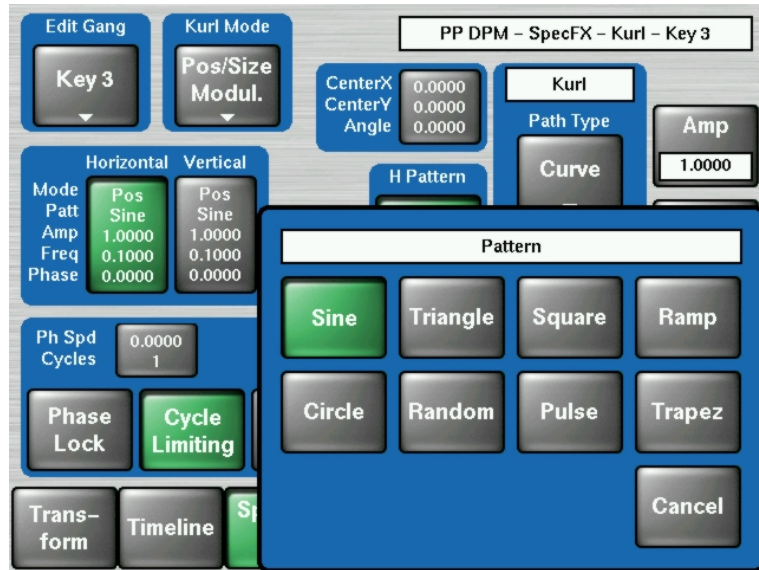


Figure 166 DPM - SpecFx - Kurl Menu (Pattern Selection)

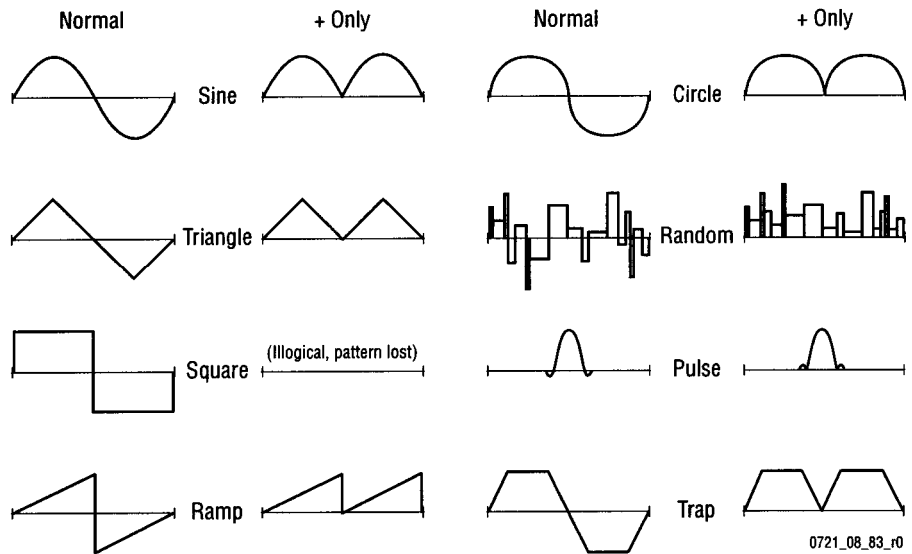


Figure 167 Available Wave Patterns

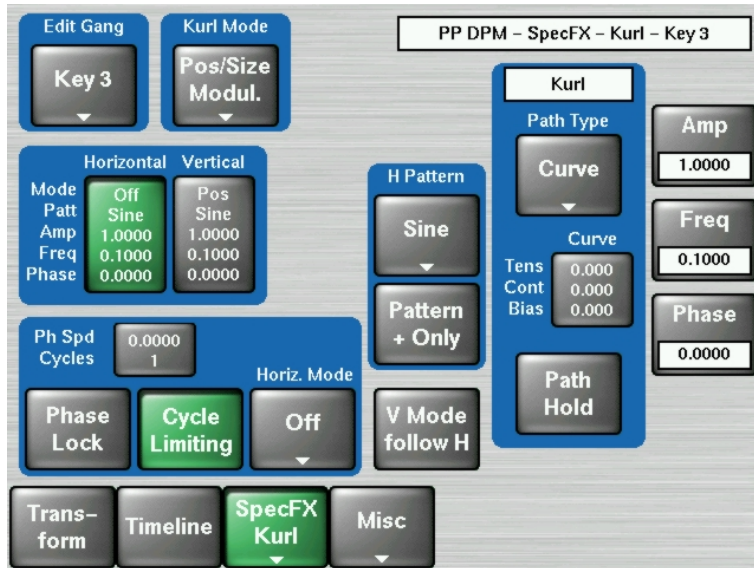


Figure 168 DPM – SpecFx – Kurl Menu (Pos/Size Mode)

- **Cycle Limiting**  
The Button activates the Cycles soft knob. This control can be used to limit the number of wave pattern cycles visible.
- **Pattern + Only**  
The Button acts like a rectifier and converts all wave excursions to positive. Representative resulting wave shapes are shown in Figure 167 Available Wave Patterns.

#### 5.11.7.4 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.

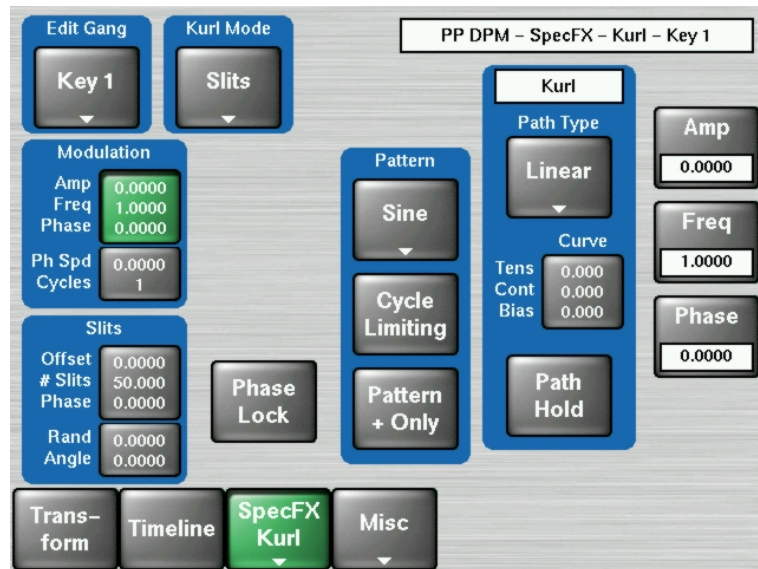


Figure 169 DPM – SpecFx – Kurl Menu (Slits Mode)

The Slit modulation soft knob controls and wave patterns are the same as Position/Size mode specified in section 5.11.7.3

When the **Slits** data pad is selected a menu similar to Figure 180 appears.

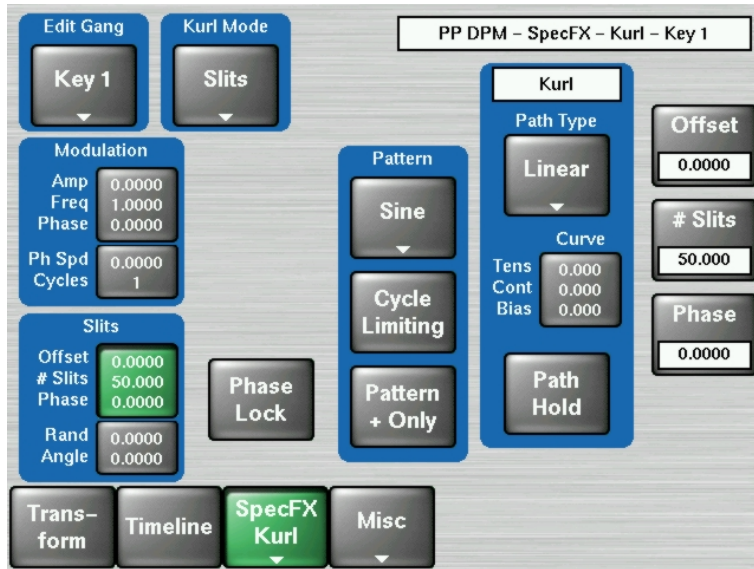


Figure 170 DPM – SpecFx – Kurl Menu (Slits Mode)

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.



### 5.11.8 Misc Menu

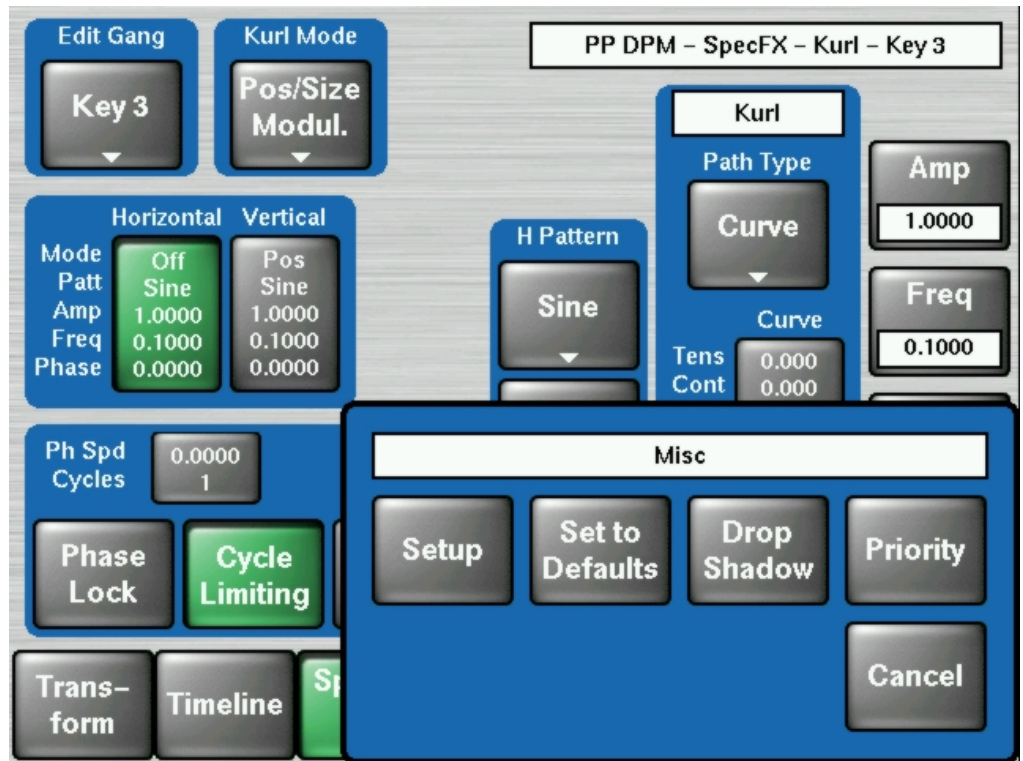


Figure 171 DPM – Kurl Mode – Misc Selection

#### 5.11.8.1 Setup

Select the included keyer and allow global control.

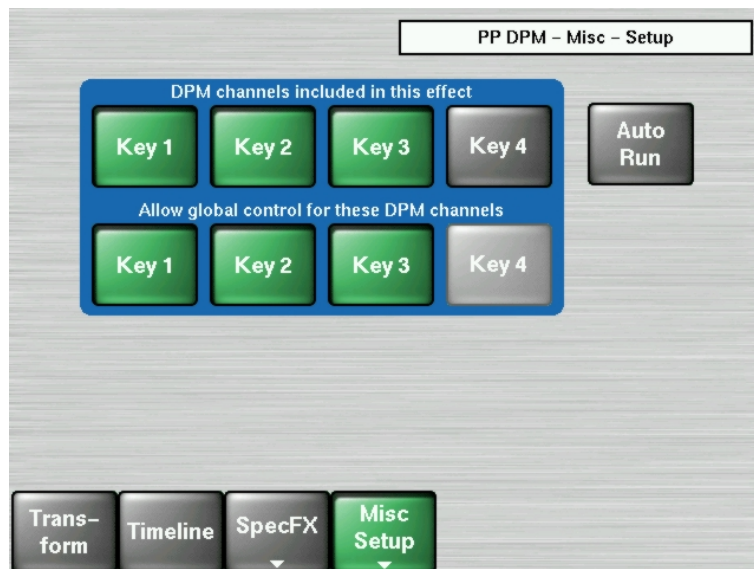


Figure 172 DPM – Misc Setup

**5.11.8.2 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" reset. The "All Parm" reset sets everything, including matte colors, drops shadows, mirrors and Kurl values to default.

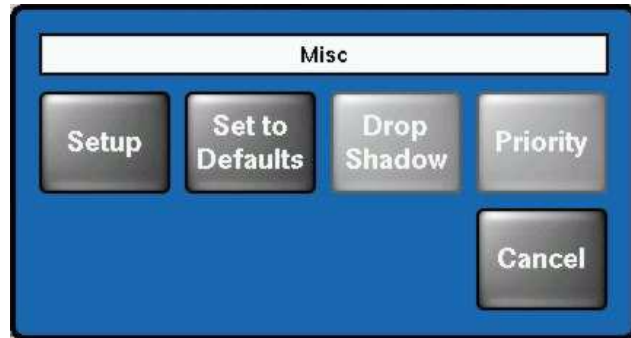


Figure 173 DPM – Set to Default



Figure 174 DPM – Default Selection

### 5.11.8.3 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. For more details refer to section 5.11.3.

### 5.11.8.4 Priority

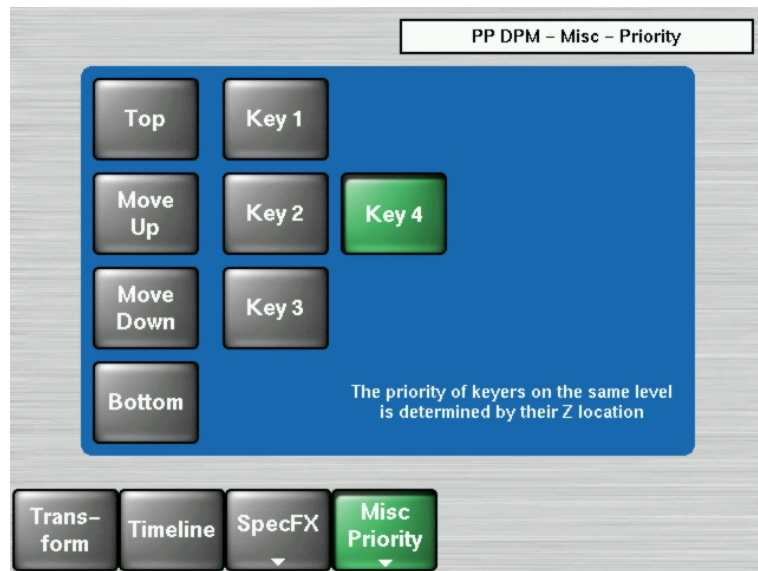


Figure 175 DPM – Timeline – Modify

### 5.11.9 Digital Effects Library

#### 5.11.9.1 What is it? How do I Use it?

This 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 KayakDD™ switchers.

Each effect is built in 2 parts: 1 to introduce a picture and the 2<sup>nd</sup> to remove the picture. This enables users to work live with the DPM recall area of the KayakDD™ 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.

#### 5.11.9.2 Configuration Notes for DPM

In the **Config / Ebox-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.

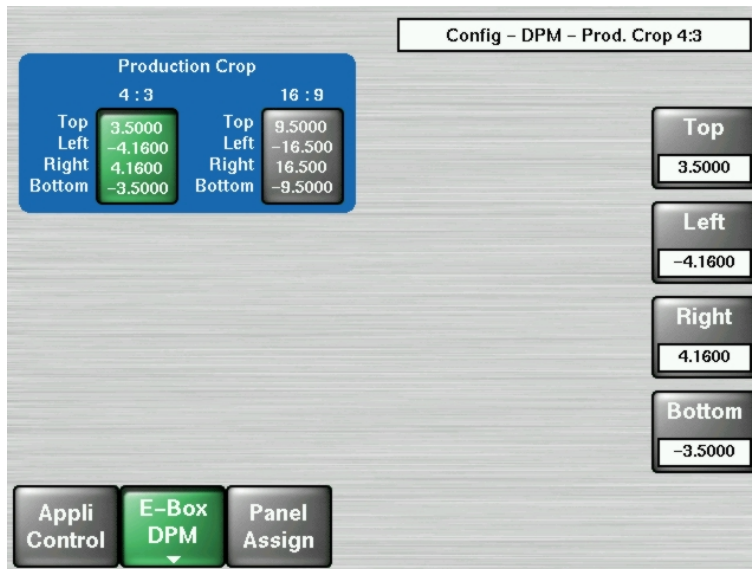


Figure 176 Config - DPM – Timeline – Modify

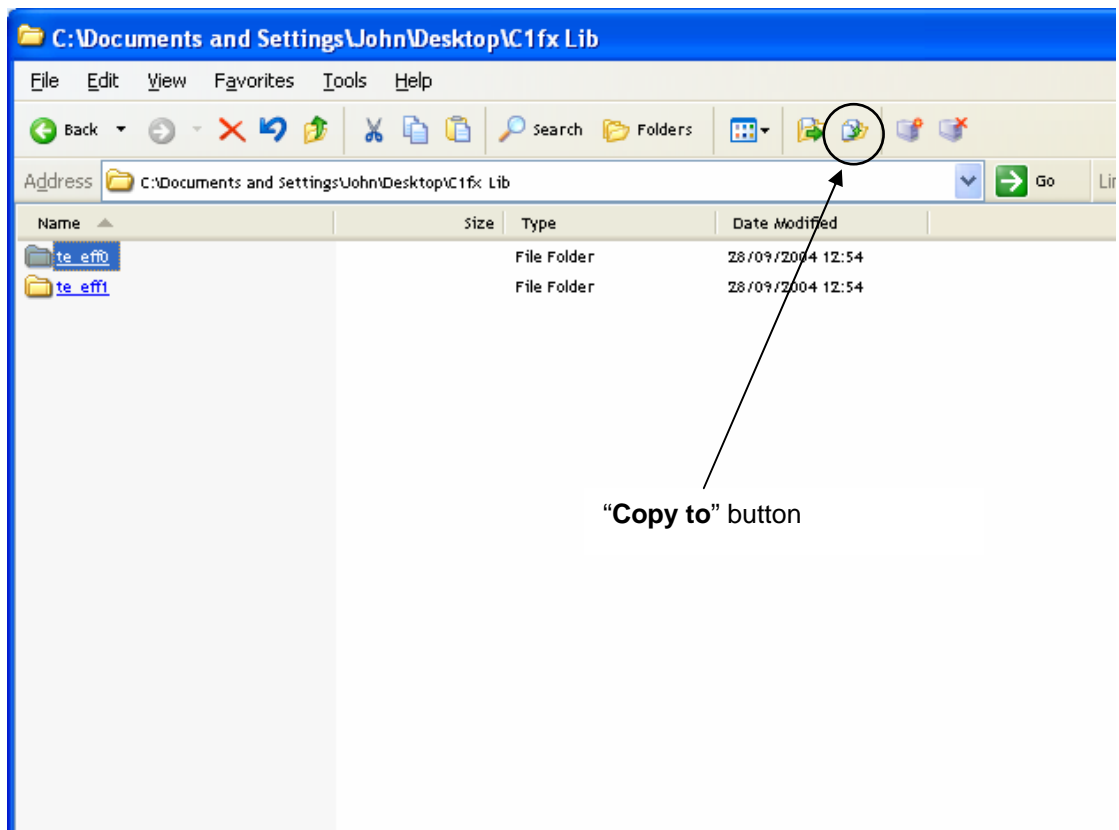
### 5.11.9.3 How to Load the Effects to Your Switcher

Use the memory stick for your system to make a copy of your working application.

- Insert your stick in USB slot 2 or 4.
- Go to the CONFIG menu. It will open in Application Control window
- Press SAVE – your application will be saved to the stick
- Press SAVE AS and give your application a new name, this could include the letters FX.
- You now have 2 copies of your working application. The first is a working backup, the second will become your copy with an effects library

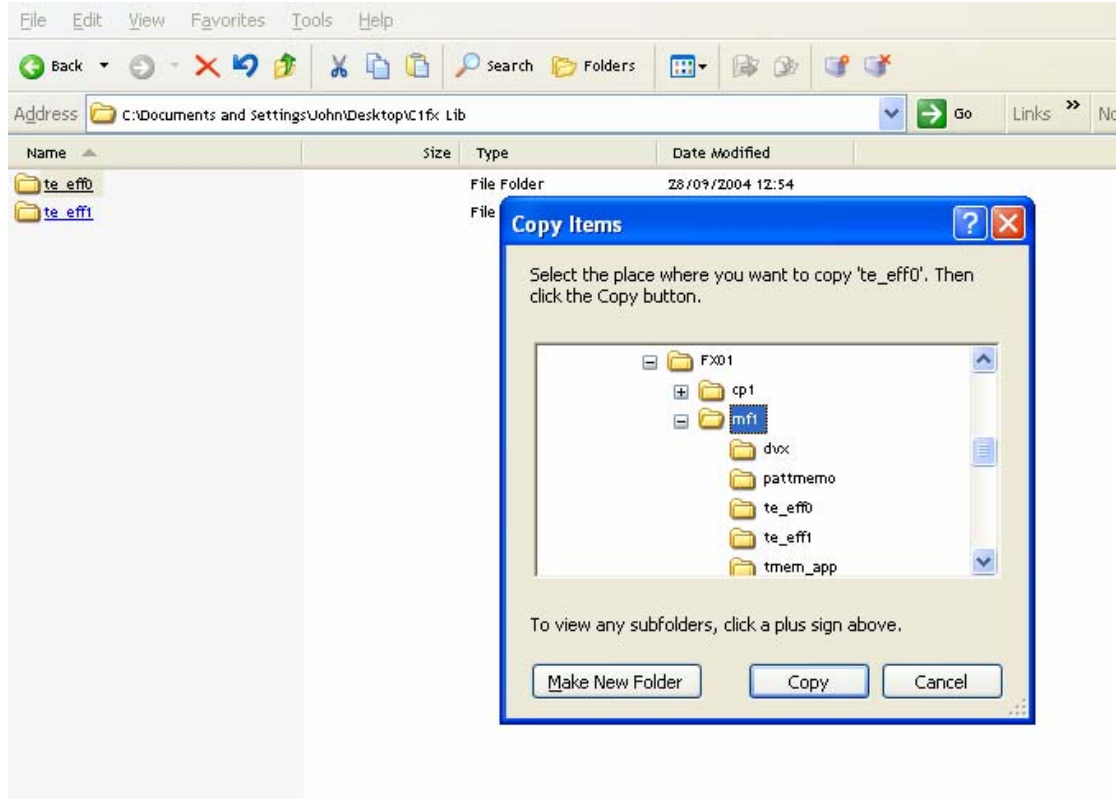
Use your PC to add the effects library to your 2<sup>nd</sup> application copy.

- Connect your USB memory stick to your PC
- Using windows explorer to navigate to the folder on your computer that contains the effects libraries. There are 2 folders; 1 is called C1fx, the other is called C4fx. In these are folders named te\_eff0 and te\_eff1. Highlight 1 of these folders and press the “copy to” button in the windows tool bar.



- In the window that opens navigate to your memory stick and open the “appli” folder. In this navigate to the folder named as you named your copy of the active application on your KayakDD™ and then to the MF1 folder.

With this folder highlighted press OK. Windows will ask you to confirm that the existing **te\_eff0** or **te\_eff1** folder may be overwritten as all data within it will be replaced with the library effects. If you are happy that you have highlighted the correct application answer “**yes**”.



You do not have to copy both **te\_eff0** and **te\_eff1** to a 2 M/E KayakDD™ 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 KayakDD™ 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 KayakDD™ 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 RamRecorder. You will have to use a PC running the sidepanel program to transfer these pictures to your KayakDD™ and full instructions on how to use the ram recorder transfer system are in this KayakDD™ user manual.

To replay and use an effect refer to the section **Catalogue of Effects** below.

## 5.11.10 Catalog of Effects

### 5.11.10.1 C1fx – for Channel 1 Only.

Naming:                   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

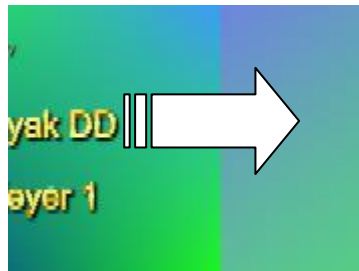
Positions in or out of frame:  
                              T = Top Centre  
                              B = Bottom Centre  
                              L = Left Centre  
                              R = Right Centre  
                              TL = Top Left corner  
                              TR = Top Right corner  
                              BL = Bottom Left corner  
                              BR = Bottom Right corner  
                              C = Fully centred

Channel names:           C1, C2, C3, C4 = Channel numbers.

All effects in the C1fx section may be used with either full frame pictures or keyed elements.

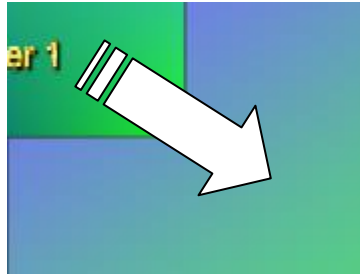
**Bank 00: Slide and zoom with shadows. Effects are 1:00 seconds in duration.**

Zoom OUT  
C1sl-LC  
C1sl-RC  
C1sl-TC  
C1sl-BC  
C1sl-CL  
C1sl-CR  
C1sl-CT  
C1sl-CB



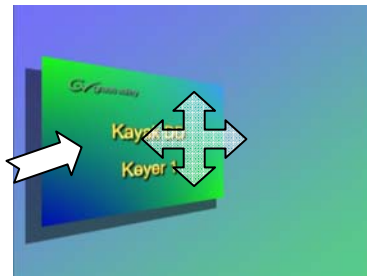
**Bank 01: Corner slides and spin zooms with shadows. Effects are 1.00**

- SpinZoom Out
- C1sl-TLC
- C1sl-TRC
- C1sl-BLC
- C1sl-BRC
- SpinZoom IN
- C1sl-CTL
- C1sl-CTR
- C1sl-CBL
- C1sl-CBR



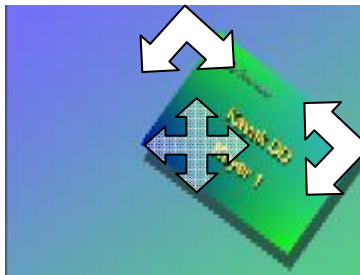
**Bank 02: Perspective slides and spiral zooms**

- C1spir-OUT
- C1ps-LC
- C1ps-RC
- C1ps-TC
- C1ps-BC
- C1spir-IN
- C1ps-CL
- C1ps-CR
- C1ps-CT
- C1ps-CB



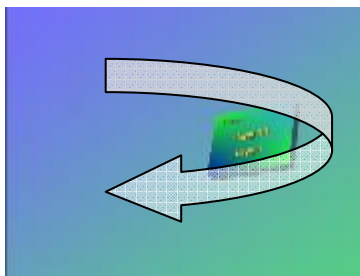
**Bank 03: Linear Bounce**

- C1bncOUT
- C1lb-LC
- C1lb-RC
- C1lb-TC
- C1lb-BC
- C1bncIN
- C1lb-CL
- C1lb-CR
- C1lb-CT
- C1lb-CB



**Bank 04: Swoop IN/OUT**

- C1sw-OUT
- C1sw-TLC
- C1sw-TRC
- C1sw-BLC
- C1sw-BRC
- C1sw-IN
- C1sw-CTL
- C1sw-CTR
- C1sw-CBT
- C1sw-CBR





**Bank 05: Barrel Rolls**

C1-OUT  
C1bri-L  
C1bri-R  
C1bri-T  
C1bri-B  
C1-IN  
C1bro-L  
C1bro-R  
C1bro-T  
C1bro-B



**5.11.10.2 C4fx for KayakDD™ System with 4 DPM Channels per M/E and Advanced Effects Option**

**Bank 00: Push on/off**

QUAD-ON	Brings all 4 channels in from corners
C12sl-LR	Slides C1 off screen, slides C2 on screen
C12sl-RL	Slides C1 off screen, slides C2 on screen
C12sl-TB	Slides C1 off screen, slides C2 on screen
C12sl-BT	Slides C1 off screen, slides C2 on screen
QUAD-OFF	Removes all 4 channels to corners
C21sl-LR	Slides C2 off screen, slides C1 on screen
C21sl-RL	Slides C2 off screen, slides C1 on screen
C21sl-TB	Slides C2 off screen, slides C1 on screen
C21sl-BT	Slides C2 off screen, slides C1 on screen

**Bank 10: Reduced size effects (over shoulder position)**

Wipe12sq	Square wipe reveals 2 over 1
Wipe21sq	Square wipe removes 2 from 1
Wipe21LR	Wipes 1 from 1
Wipe12LR	Wipes 2 over 2
pgt12	Page turn adds 2
pgt21	Page turn removes 2
pgr12	Page roll adds 2
pgr21	Page roll removes 2

**Bank 20: Page Turns full size**

K12pg-ON	Double sided page turn 2sec.
C1pgt-ON	
C2pgt-ON	
C3pgt-ON	
C4pgt-ON	
C1pgt-OFF	
C2pgt-OFF	
C3pgt-OFF	
C4pgt-OFF	
K12pg-OFF	

**Bank 30: Page Rolls full size**

C1pgr-ON  
C2pgr-ON  
C3pgr-ON  
C4pgr-ON  
C1pgr-OFF  
C2pgr-OFF  
C3pgr-OFF  
C4pgr-OFF

**Bank 40: Double sided page turns and page rolls**

C12pgt-ON	All effects are 2 seconds
C34pgt-ON	
C12pgt-OFF	Key 1 is front, K2 back
C34pgt-OFF	Key 3 is front, K4 back.
C12pgr-ON	
C34pgr-ON	May be used with keyable
C12pgr-OFF	sources. Make K1 and K2 the
C34pgt-OFF	same or K3 and K4 the same.

**Bank 50: Cubes and Slabs**

smlcub	Small cube, centre screen rotates 3 times. 8s.
smlslb	Small slab, centre screen rotates 3 times. 8s.
CUB-R12	Full size cube. C2 replaces C1- rotate to see C3 top
CUB-R21	Full size cube. C1 replaces C2- rotate to see C3 top
SLB-TLC	6 sided slab fly
SLB-TRC	
SLB-CTL	
SLB-CTR	
SLB-IN	6 sided slab fly/rotate from centre
SLB-OUT	reverse

**Bank 60: Tiles and modulation**

C1twinH  
C1twinV  
C1quad  
C12twin  
C1mod  
C1expld  
C1slitsON  
C1slitsOFF

### 5.11.10.3 Notes

#### 5.11.10.3.1 Use of GLOBAL Channel

Although GLOBAL channel is supported, certain aspects may behave unintuitive. 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.

#### 5.11.10.3.2 Format

All effects in this library are built for 4:3 aspect ratio.

#### 5.11.10.3.3 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.

## 5.12 RAM Recorder Menus

You access the RAM Recorder menu via the Home Menu.

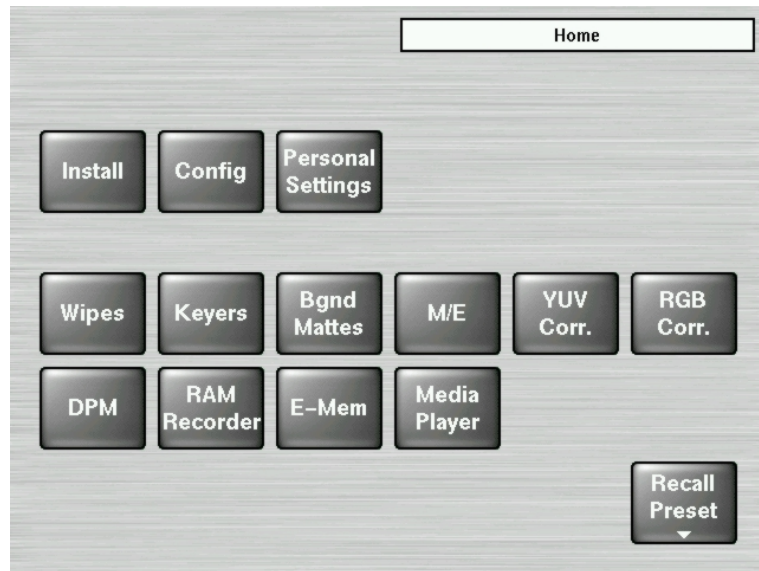


Figure 177 Home Menu

The RAM Recorder is a solid state video server with 4 input/output channels. This means that all stills and clips are stored within a common data pool and may be accessed by all 4 output channels.

For a 1 ME switcher the total amount of storage is 16 seconds. In current software this is segmented for 100 stills and 12 seconds of clip video. (In 50Hz).

For a 2 ME switcher the total storage is 32 seconds, segmented as 100 stills and 28 seconds of clip video. (In 50Hz).

**NOTE!**

**KayakDD RAM Recorder reserves 4 seconds for Stills that only 12 seconds live video is available!**

5.12.1 Stills Menu

The Stills menu allows the user to store or load stills using the delegated channels.

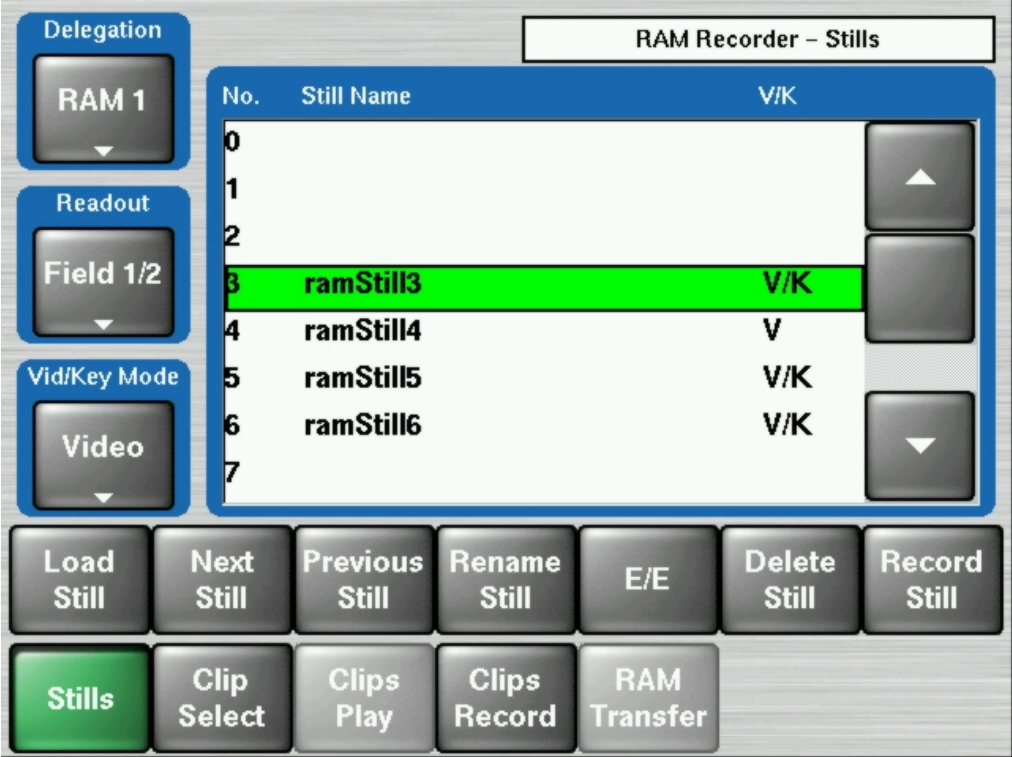


Figure 178 RAM Recorder - Stills

Select the desired channel with the **Delegation** button.

5.12.1.1 Delegation

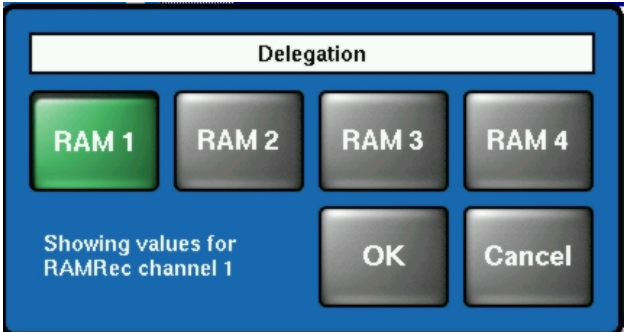


Figure 179 Delegation Buttons

### 5.12.1.2 Readout

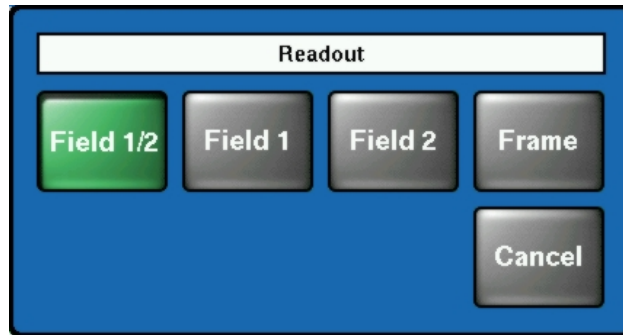


Figure 180 RAM Recorder – Readout Buttons

- **Field1/2**  
Field 1 or field 2 is replicated to make a frame and **Previous Still /Next Still** advances to the next field, which results in single stepping in field resolution.
- **Field 1**  
Field 1 is replicated to make a frame and **Previous Still / Next Still** advances to field 1 of the next still.
- **Field 2**  
Field 2 is replicated to make a frame and **Previous Still / Next Still** advances to field 1 of the next still.
- **Frame**  
Fields 1 & 2 are displayed in the normal order to show a frame and **Previous Still / Next Still** advances to field 1/2 of the next still.

### 5.12.1.3 Vid/Key Mode

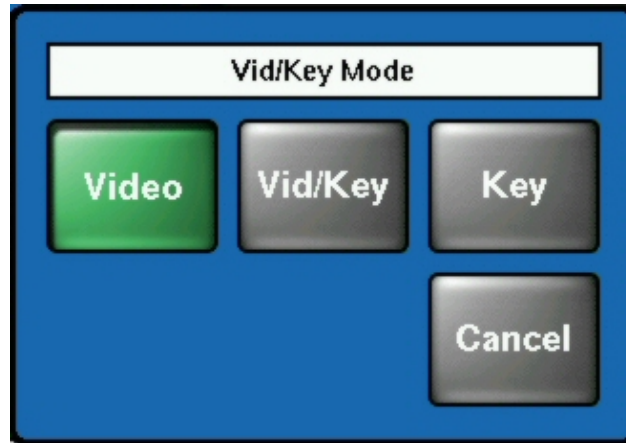


Figure 181 RAM Recorder – Vid/Key Mode Buttons

#### **Vid/Key Mode** button

When this button is active each video signal will have an associated key signal stored too. At recall the key signal will only be recalled if the Vid/Key Mode button is active. RAM 1 uses RAM 2 as its associated key channel for record and recall, while RAM 3 uses RAM 4. For more information please see the Config/Misc. menu.

#### **Stills Video/Key Mode: Video**

- **Load Still**  
Load still into delegated channel.
- **Record Still**  
Grab the still from the input of the delegated channel.
- **Rename Still**  
Rename the selected still.
- **Delete Still**  
Delete the selected still. If the still contains of video and key both parts are deleted, because a key part cannot exist without its video part.
- **Previous Still**  
Load the previous available still into the delegated channel.
- **Next Still**  
Load the next available still into the delegated channel.
- **E/E (E to E)**  
If selected show input signal of the delegated channel, otherwise the loaded still.



### Stills Video/Key Mode: Video/Key

In this mode Ram1+2 (Ram3+4) work together as a video/key pair. Ram1 and Ram3 are always the video path and Ram2 and Ram4 are the Key path.

- **Load Still**  
Load the video part of the still into Ram1 (Ram3) and the key part into Ram2 (Ram4). If a still without key was selected, Ram2 (Ram4) will still show the previously loaded still (shown as yellow selection)
- **Record Still**  
Grab the video part from the input of Ram1 (Ram3) and the key part from the input of Ram2 (Ram4)
- **Rename Still**  
Rename the selected still
- **Delete Still**  
Delete the selected still. If the still contains of video and key both parts are deleted
- **Previous Still**  
Load the previous available video into Ram1 (Ram3) and the according key part into Ram 2 (Ram4). If this still does not have a key part, Ram2 (Ram4) will still show the previously loaded still (shown as yellow selection)
- **Next Still**  
Load the Next available video into Ram1 (Ram3) and the according key part into Ram 2 (Ram4). If this still does not have a key part, Ram2 (Ram4) will still show the previously loaded still (shown as yellow selection)
- **E/E (E to E)**  
If selected show input signals of both channels, Ram1 and Ram2 (Ram3 and Ram4) otherwise the loaded Stills.

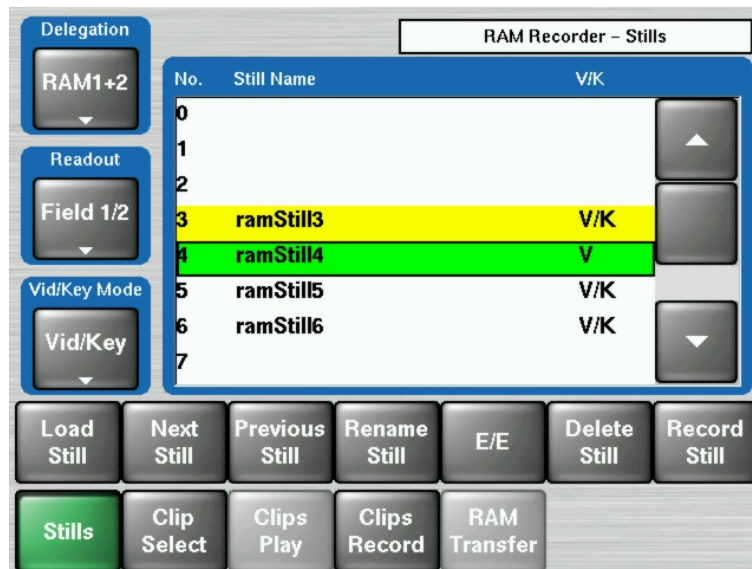


Figure 182 RAM Recorder – Stills

### 5.12.2 Clip Select Menu

The Clip Select menu allows the user to load, rename, and delete clips.



Figure 183 RAM Recorder – Clip Select

- **Load Clip**  
Selects the clip to the output of the delegated channel.
- **Rename Clip**  
Renames the default clip name and makes automatic name changes for associated key signals. The software will prevent changes in key signal names only and the rename button will go grey when a key signal is highlighted.
- **Delete Clip**  
Deletes the clip at the selected position

### 5.12.3 Clips Play Menu

The Clips Play menu provides the control for playing a clip.



Figure 184 RAM Recorder – Clips Play

<b>Begin</b>	Moves clip to the beginning
<b>End</b>	Moves clip to the end
<b>&lt;</b>	Play Reverse
<b>&gt;</b>	Play Forward
<b>Step - / Step +</b>	Advances one field or frame, depending on Readout mode
<b>Still</b>	Goes to stop, displaying the current image
<b>E/E</b>	Goes to stop, showing the input signal of the delegated channel
<b>Var</b>	Variable speed, adjustable by the digipot

### Modify

Allows you to modify the values displayed in the main display area

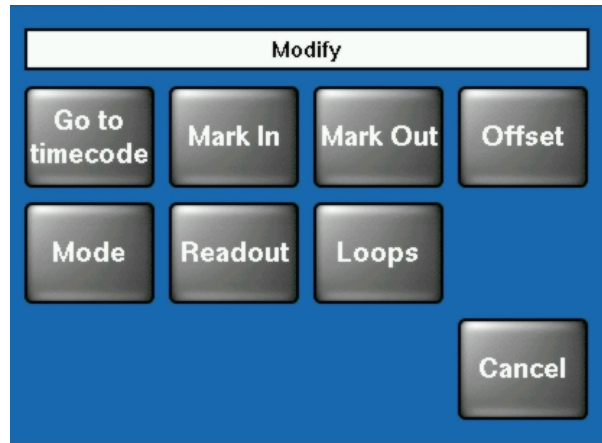


Figure 185 Modify Buttons

#### Go to timecode

Go to a timecode specified by the numeric popup panel

#### Mark In

Set a Mark In point via numeric popup panel

#### Mark Out

Set a Mark Out point via numeric popup panel

#### Offset

Used in **Extended Loop** mode

Used in **Delay Line** mode (not yet supported)

#### Mode

##### VTR

Standard behavior like a tape machine

##### Clip

Mark In and Mark Out limit the accessible timecode range. When you press play the clip is always played from Mark In to Mark Out.

##### Simple Loop

Mark In and Mark Out limit the accessible timecode range. When you press play the clip starts at the current position, plays to Mark Out and executes then total range from Mark In to Mark Out n times, where "n" is the numbers of loops (0 = for ever).

##### Extended Loop

The looped section is from Mark In to Mark Out as is the case for Simple Loop mode, but in this mode play may start before Mark In and Offset determines the post Mark Out play duration.

### 5.12.3.1 Readout

#### In Still mode

- Field 1: Field 1 is replicated to make a frame and **Previous Still / Next Still** advances to field 1 of the next still
- Field 2: Field 2 is replicated to make a frame and **Previous Still / Next Still** advances to field 1 of the next still
- Frame: Field 1 or Field 2 is replicated to make a frame and **Previous Still / Next Still** advances to field 1/2 of the next still
- Field1/2 Field 1 or field 2 is displayed and **Previous Still / Next Still** advances to the next fields, which results in single stepping in field resolution.

#### While playing

- Field 1: Only field 1 is played out resulting in "Film look" (only 25/30 motion updates per second)
- Field 2: Only field 2 is played out resulting in "Film look" (only 25/30 motion updates per second)
- Frame: Standard play out mode
- Field1/2: This mode is useful when a still or clip is made from a graphic source which has generated motion which is not in the expected field dominance. By stepping to Field 2 by pressing Previous Still / Next Still, before playing a clip, the display order of fields is reversed to F2/F1 using this mode.

#### Loops

Used in **Loop** mode to specify the number of loops to be executed (0 = for ever)

### 5.12.4 Clips Record Menu

The Clips Record menu allows the user to create or re-record clips. To create a new clip, press the **Record New** button. Recording starts immediately and the clip name is set to a default name. To stop recording press **Still** or **E/E**. The **Record Edit** button allows you start recording in an existing clip at the current position. The system allows recording over the end of the current clip which results in appending to the current clip.



Figure 186 RAM Recorder – Clips Record

**Trim**

This function is used to select the exact range out of a recorded clip, e.g. to create an endless loop without any disturbance. When pressed the total clip is trimmed to the “In” and “Out” values.

**Delay Line**

When switched on, the according channel behaves like a delay line, the desired delay can be specified via Modify/Record Length.

*NOTE!*

*When you change the Record Length value while you are in Delay Line mode the new value is not accepted unless you leave and re-enter this mode.*

<b>Begin</b>	Moves clip to the beginning
<b>End</b>	Moves clip to the end
<b>&lt; / &gt;</b>	Play Reverse / Play Forward
<b>Step - / Step +</b>	Advances one field or frame, depending on Readout mode
<b>Still</b>	Stops replay and displays the current image as a frame or field depending on Readout mode.
<b>E/E</b>	Goes to stop, showing the input signal of the delegated Channel
<b>Var</b>	Variable speed, adjustable by the digipot

### 5.12.5 RAM Recorder Live Mode Menu

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 RAM Recorder operation, a keypad with direct access to the stored stills and clips appears.

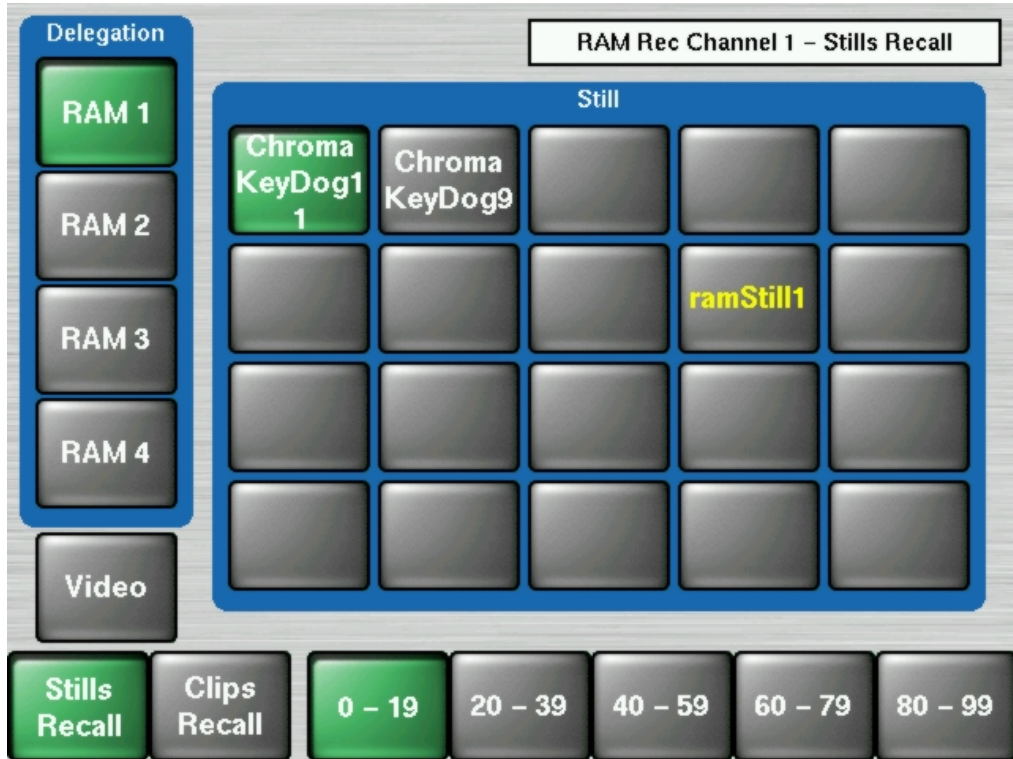


Figure 187 RAM Recorder – Live Mode Stills Recall

#### Stills Recall

- Select the according Ram channel via Delegation
- Select the group of stills, e.g. 0-19
- Select Video or Video/Key mode.
  1. Video Mode  
Only the video part of the still is loaded in the selected channel
  2. Video/Key Mode  
In this mode Ram1+2 (Ram3+4) work together as a video/key pair. The video part of a still is loaded in Ram1 (Ram3) and the key part of a still is loaded in Ram2 (Ram4). If a still does not contain a key part, only the video part will be loaded into Ram1 and Ram2 keeps its previous image.



**NOTE!**

***Stills containing video and key are displayed in yellow characters, video only in white.***

***In this Live-Menu the “Key-Only” video/key mode (only used for recording) is not supported.***

### 5.12.6 RAM Transfer Menu

The RAM Transfer menu provides possibilities to transfer clips or stills from/to RAM store or USB flash memory sticks:



Figure 188 RAM Recorder – Clips/Stills Transfer

In the different submenus (**Stills to USB**, **Stills to RAM**, **Clips to RAM** and **Clips to USB**) the clips or stills are listed, can be renamed and the transfer started.

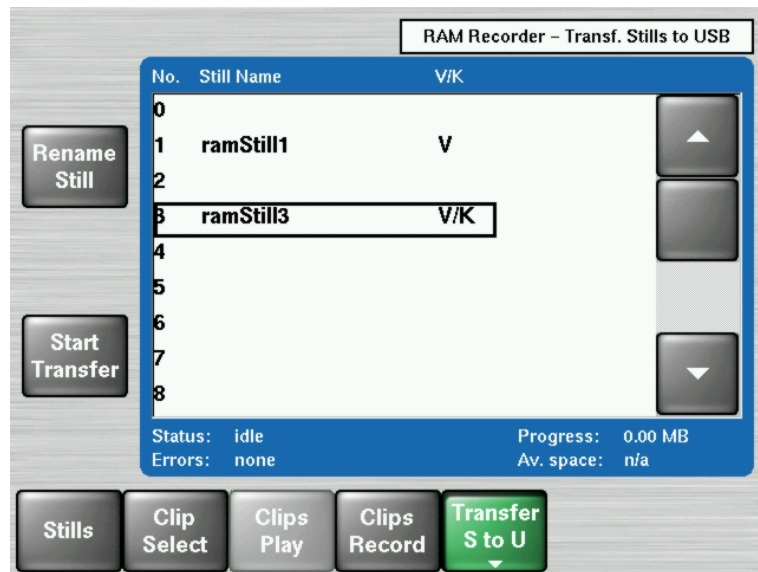


Figure 189 RAM Recorder – Transfer Stills to USB

In the submenu **Stills to RAM** and **Clips to RAM** clips and stills stored in the RAM can be deleted.



Figure 190 RAM Recorder – Transfer Stills to RAM

## 5.13 E-Mem Menus

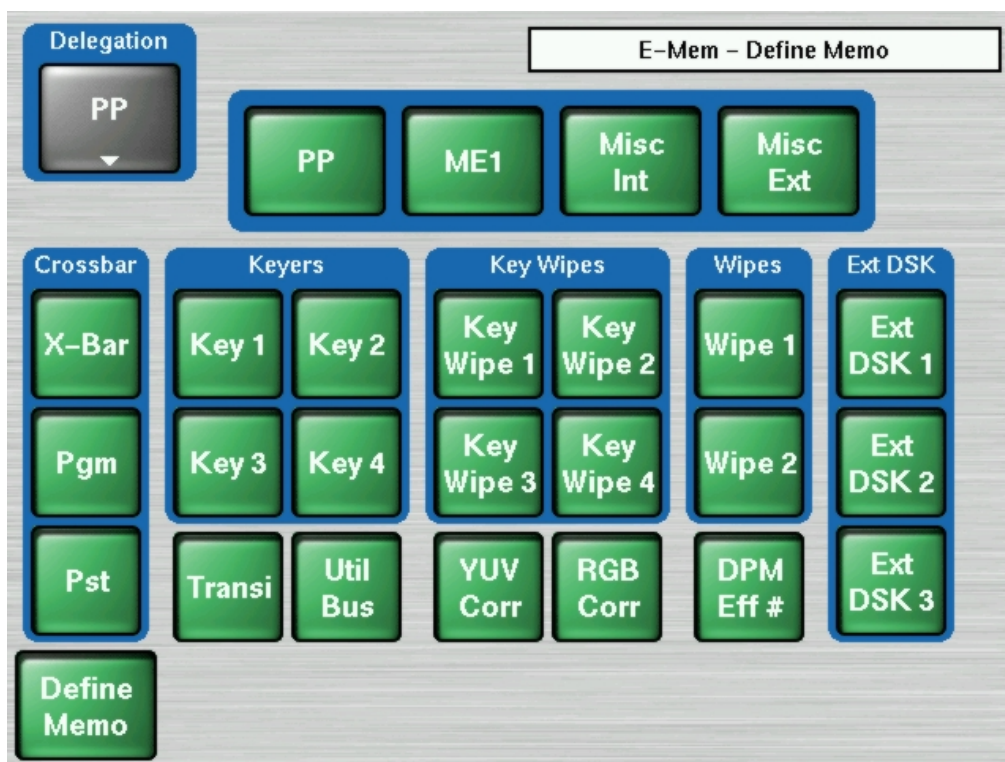


Figure 191 E-Mem – Define Memo PP

The Define Memo menu serves to define the function groups of the KayakDD 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:

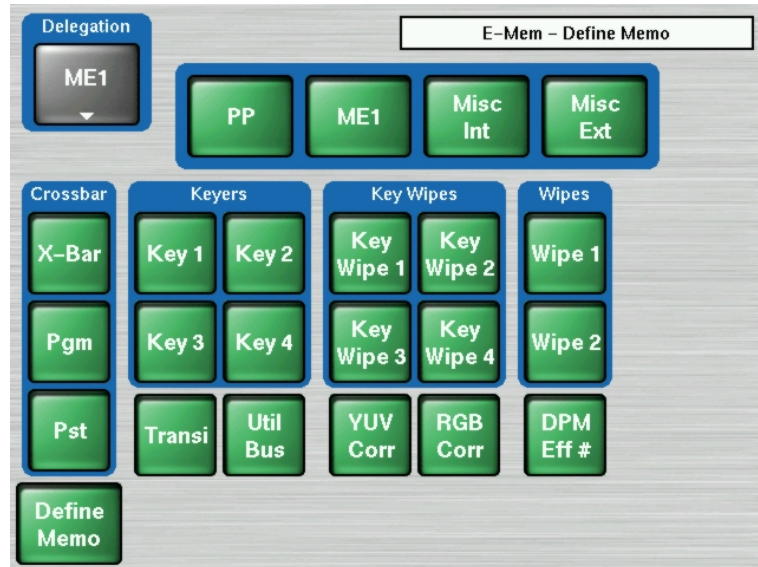


Figure 192 E-Mem – Define Memo ME1

Page for selecting miscellaneous internal ME independent switcher functions:

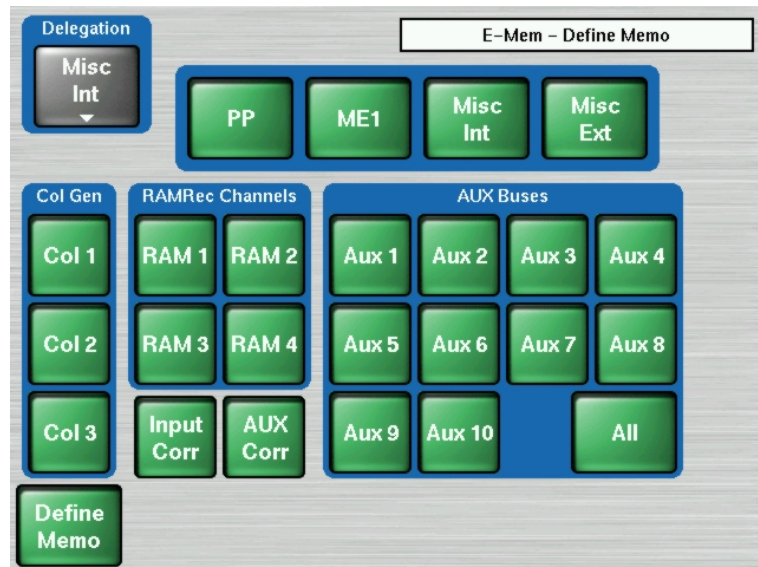


Figure 193 E-Mem – Define Memo Misc Intern

Page for selecting miscellaneous external switcher functions:

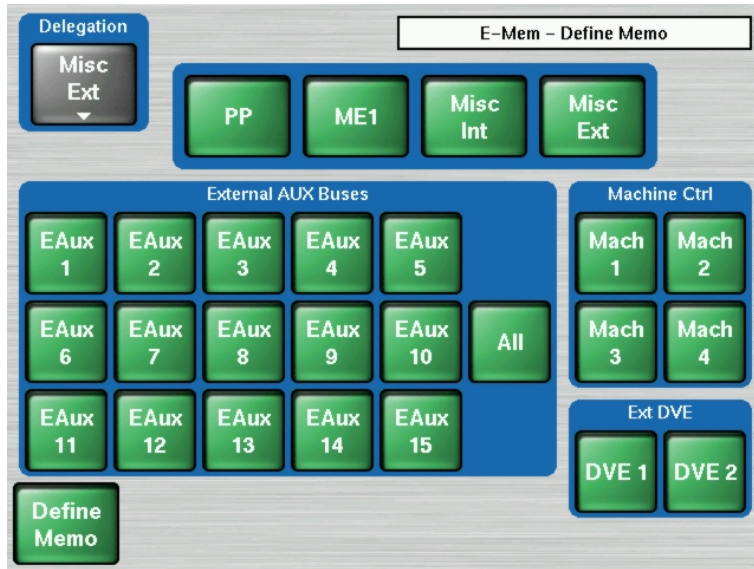


Figure 194 E-Mem – Define Memo Misc Extern

## 5.14 Media Player Menus

The Media Player menus serve to control external VTRs or other Media Servers. The KayakDD 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 KayakDD can control:

- VTRs (BetaCam, DVCPPro, 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, etc
- 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 respective manufacturer's documentation to find out which of those protocols is more suitable for your application.

### 5.14.1 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 195 Media Player – Clip Select



### 5.14.2 Clips Play Menu

The Clips Play menu allows the user to control the connected machine.



Figure 196 Media Player – Clips Play

### 5.14.2.1 Machine Delegation

The external machines can be selected with the delegation buttons. Gang mode is possible by selecting more than one button.

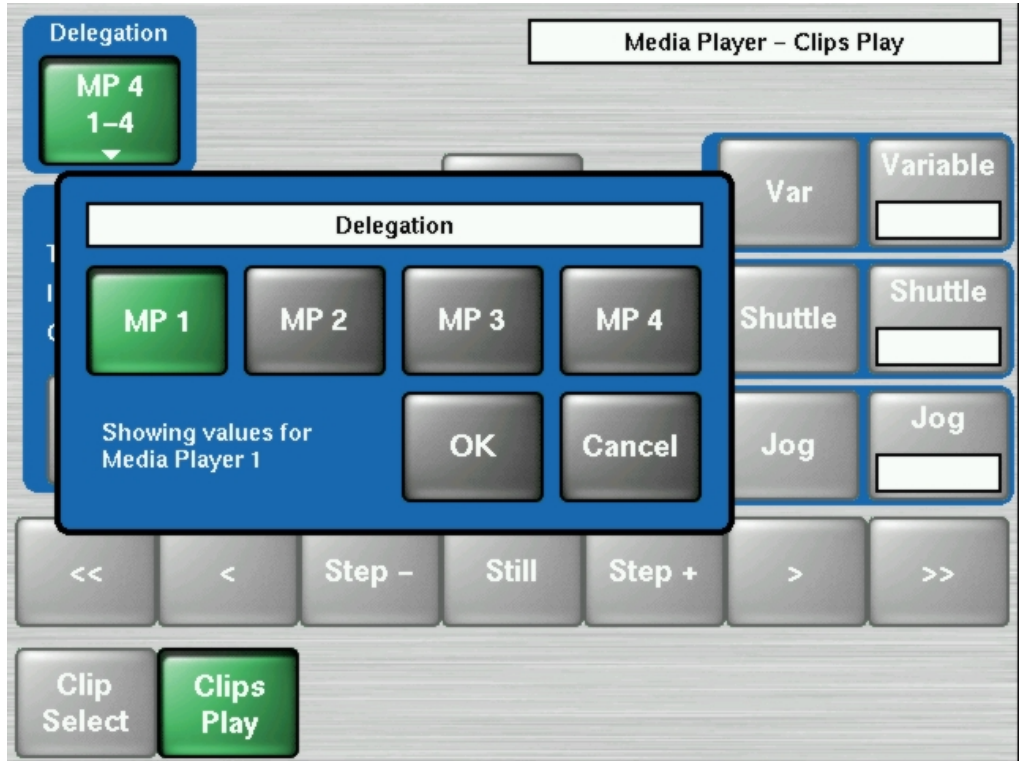


Figure 197 Media Player – Delegation

## **5.15 Other Menus**

As the KayakDD software is enhanced, additional menus, subcategories, and controls will become available. Once you understand the principles of KayakDD system menu organization and operation, you will be able to quickly learn these new menus and use them effectively for your work.



# **6** *System Operation*

## **6.1** *Introduction*

The basic KayakDD 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.

## 6.2 Matte Menu Controls

Use the following procedure to change matte settings in any of the Matte menus.

- Go to the according 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.

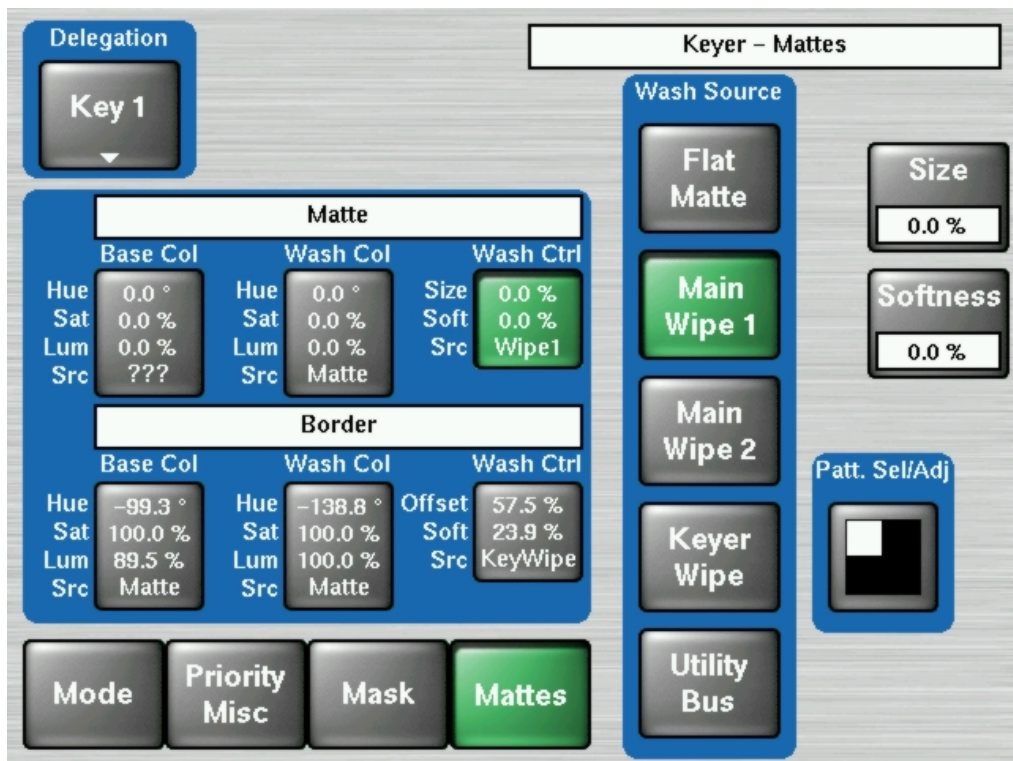


Figure 198 Matte Menu, Wash Control Selected

- Touch the **Base Color** data pad and use the top three digipots to adjust **Hue**, **Saturation**, and **Luminance** of the base fill color (Figure below).
- Touch the **Wash Color** data pad to delegate the digipots on the right to adjust **Hue**, **Saturation**, and **Brightness** of the wash fill color.

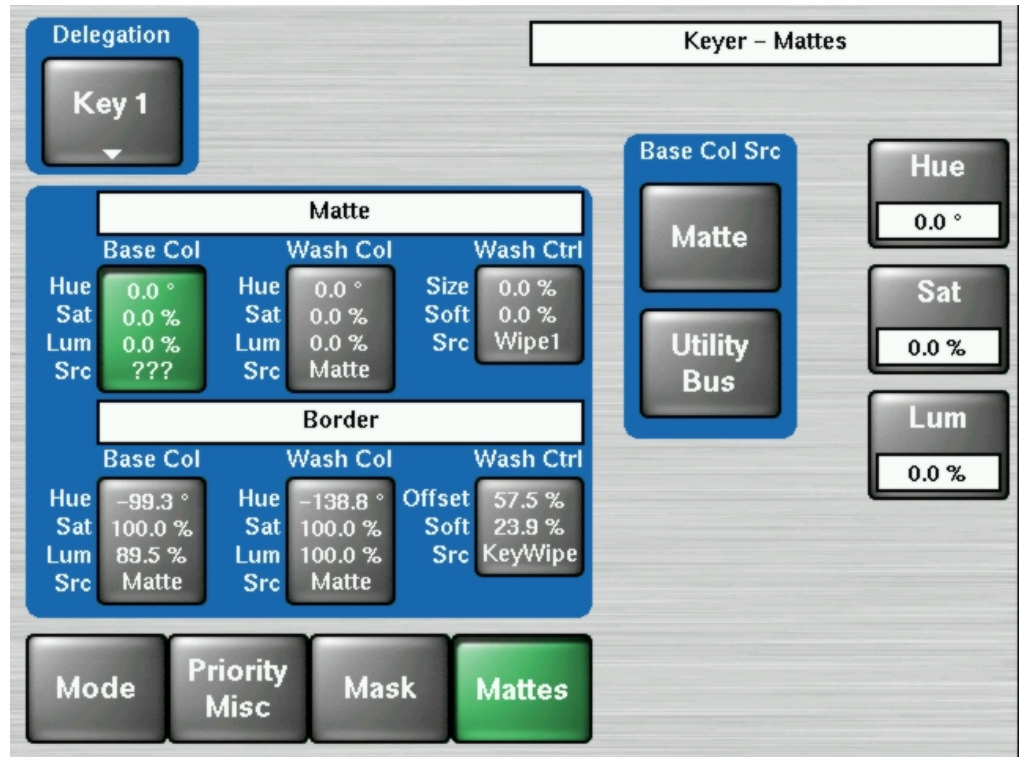


Figure 199 Matte Menu, Base Color Selected

## 6.3 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 KayakDD system has four keyers, so more complex stacking is possible. Keys can be placed between other keys, using key priority.

### 6.3.1 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

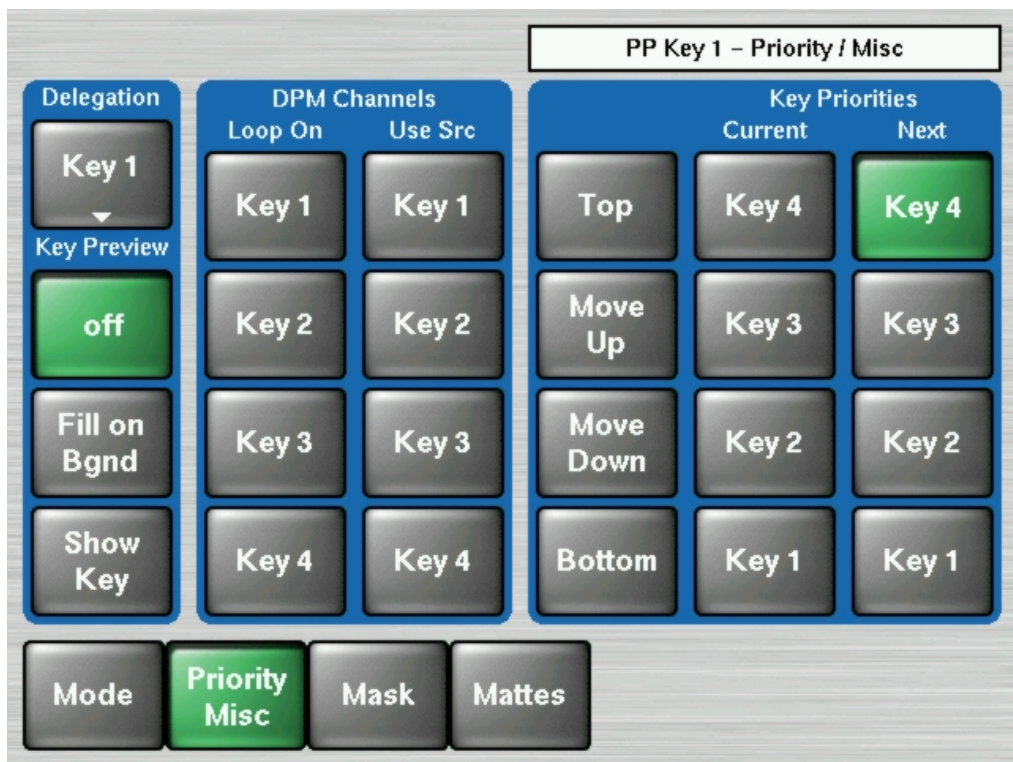


Figure 200 Keyer Priority Menu, Current Stack Selected

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.

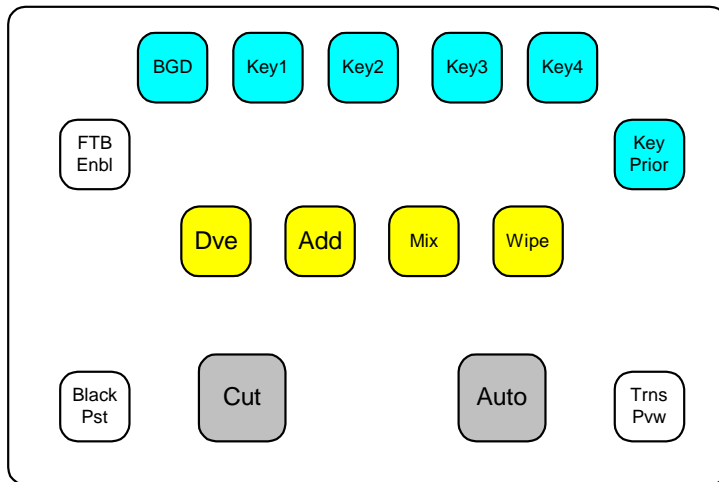


### 6.3.2 To Transition Between Different Keyer Priorities

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

*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*.
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.

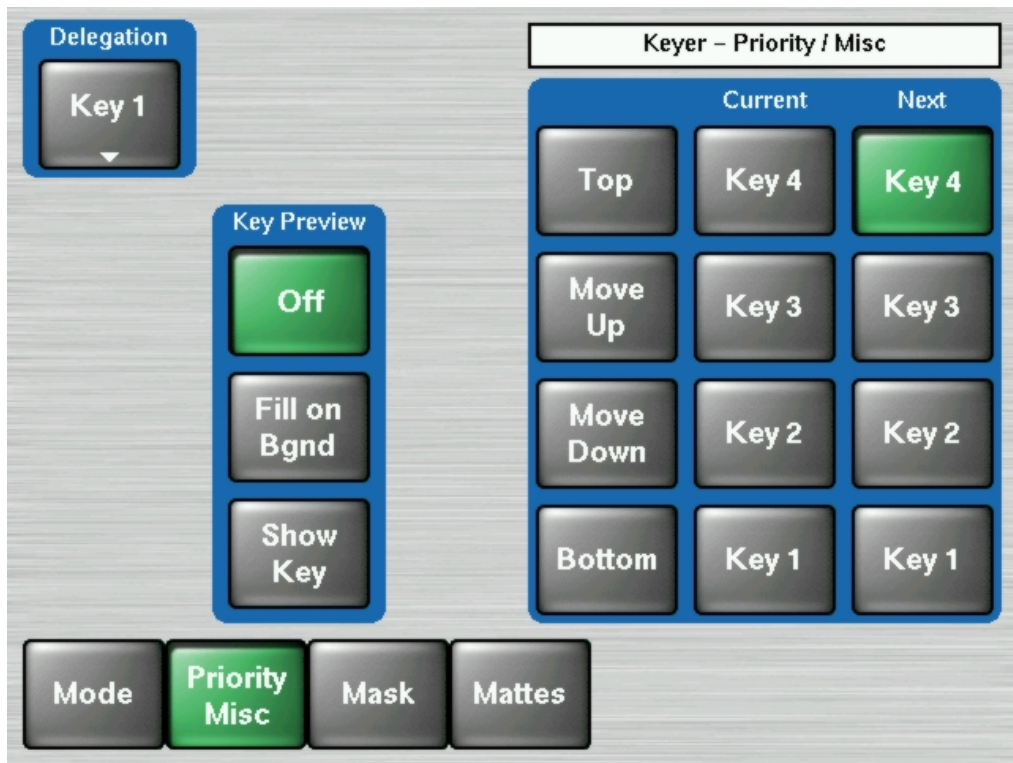


Figure 201 Keyer Priority Menu, Next Stack Selected

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.

## 6.4 Chroma Key Operating Notes

The KayakDD 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 - Concepts* of the KayakDD 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.

### 6.4.1 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.

### 6.4.2 To 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 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.

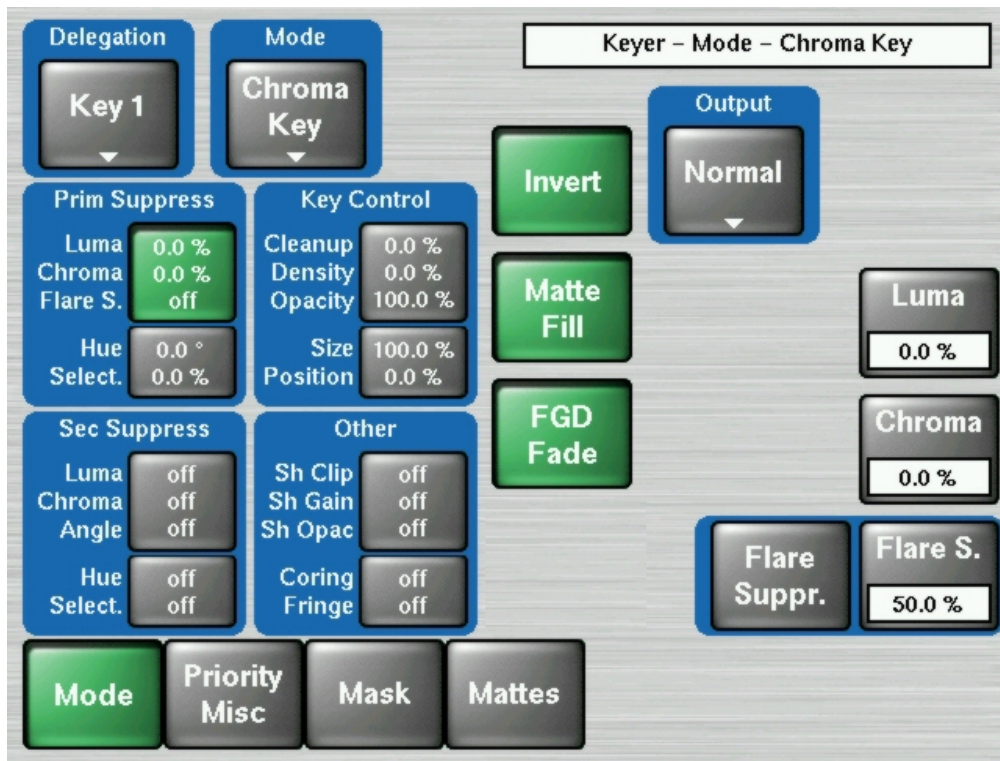


Figure 202 Keyer Menu, Chroma Keyer

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*). In particular, if there are problems with translucent areas (hair, smoke) secondary suppression controls can be useful (see *Secondary Color Suppression*).
  - Auto Setup with **FGD Fade** on produces a chroma key with harder edges, but accommodates wider set variations (see below).

### 6.4.3 To 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.

### 6.4.4 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.

Via 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.

### 6.4.5 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

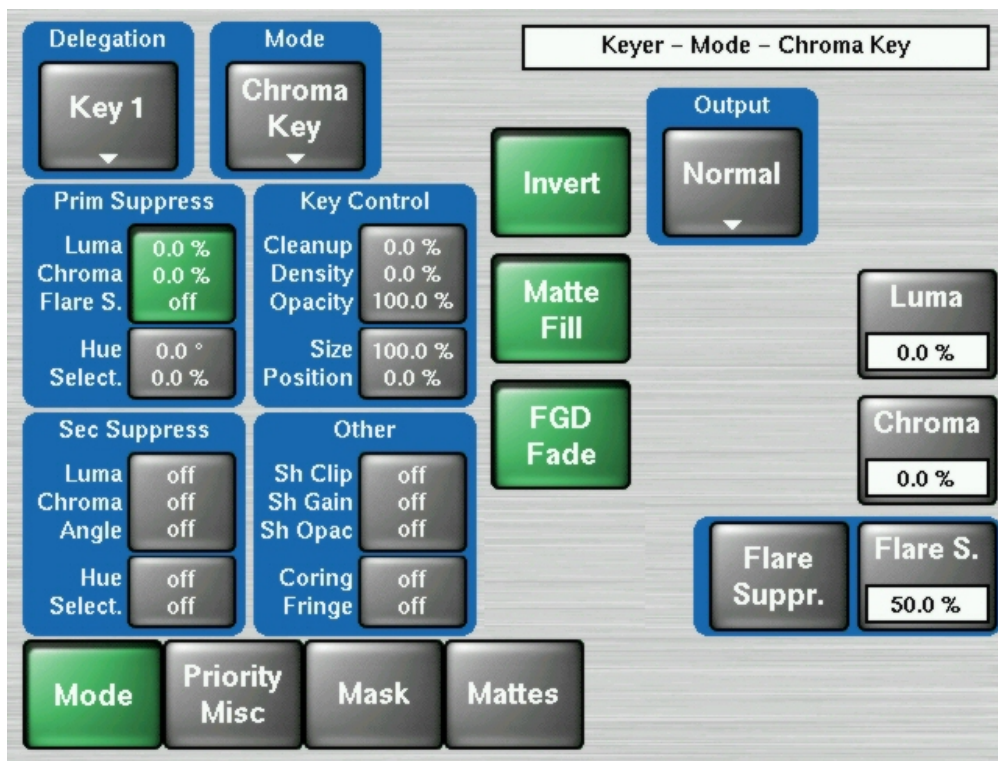


Figure 203 Keyer Chroma Menu, Pri Suppress, Part1, Luma / Chroma / Flare S.

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.

### 6.4.6 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.

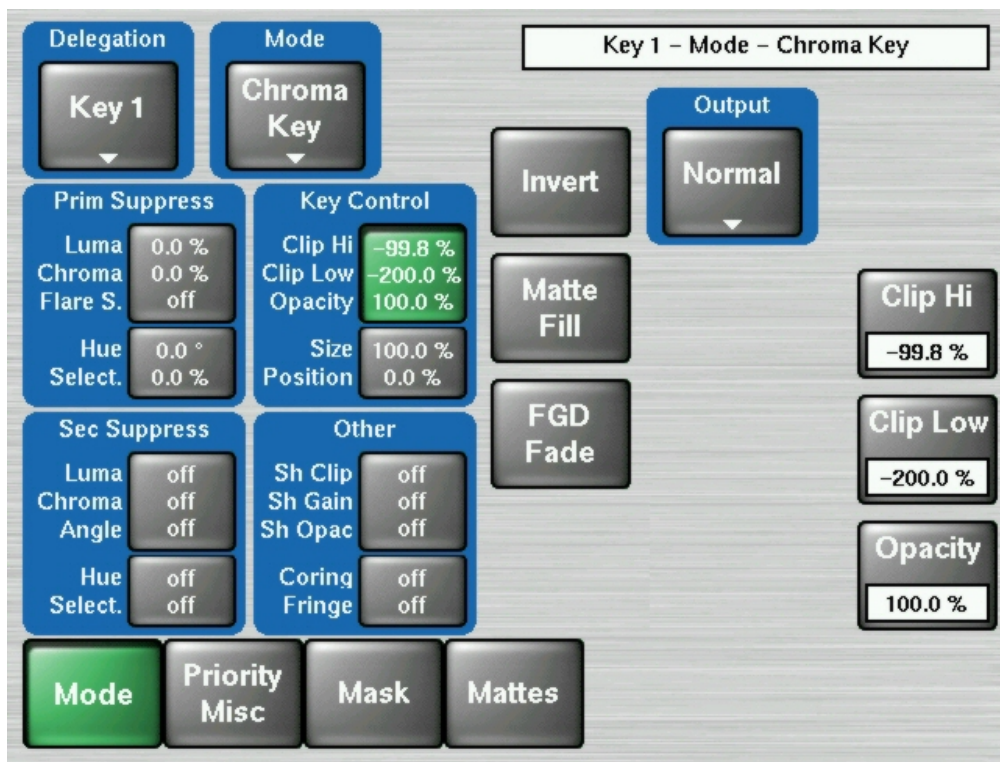


Figure 204 Key Controls, Part1, Clip HI, Clip Low, Opacity



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.

## 6.4.7 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.

### 6.4.8 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 be 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

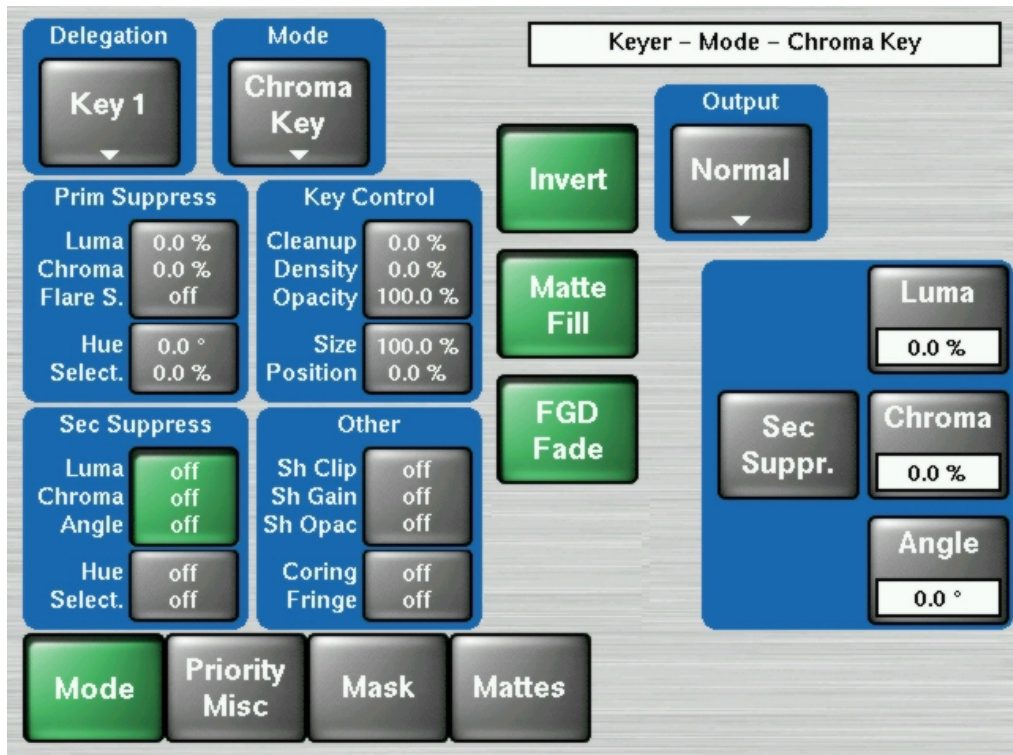


Figure 205 Sec Suppress Controls Part1, Luma / Chroma / Angle

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.

### 6.4.9 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

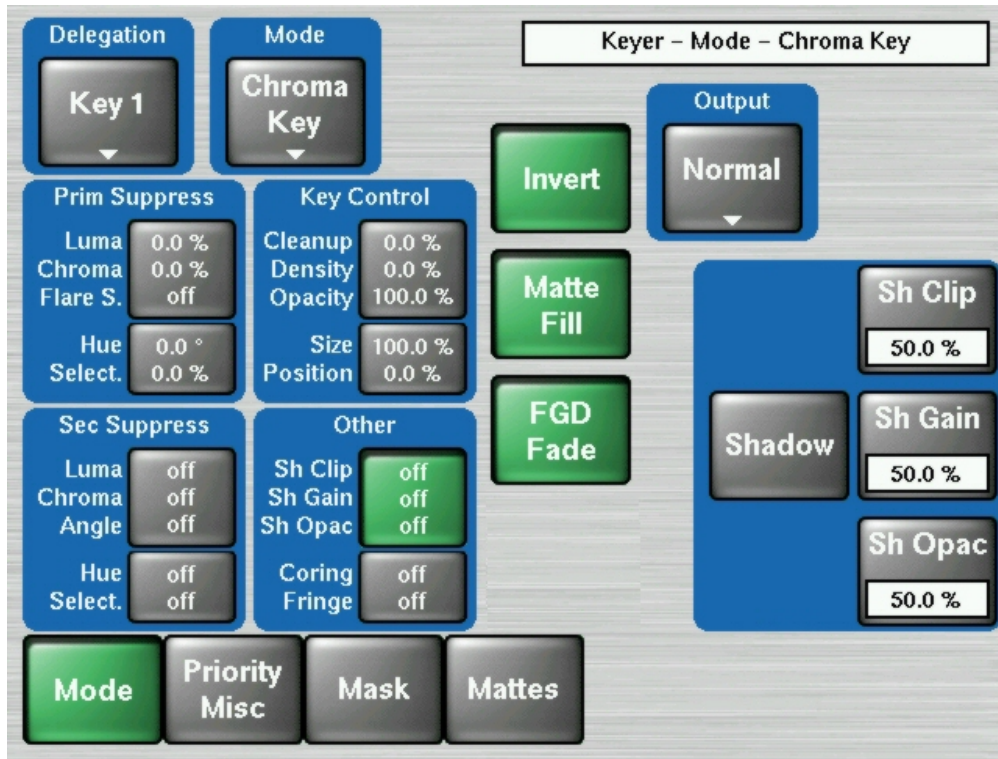


Figure 206 Other Controls Part1, Shadow Clip / Shadow Gain / Shadow Opacity

**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.

## 6.5 Pattern Mix

The KayakDD system can combine the complex wipe pattern generators (**Wipe1** and **Wipe2**), to create a wide variety of customized wipes.

### 6.5.1 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.*

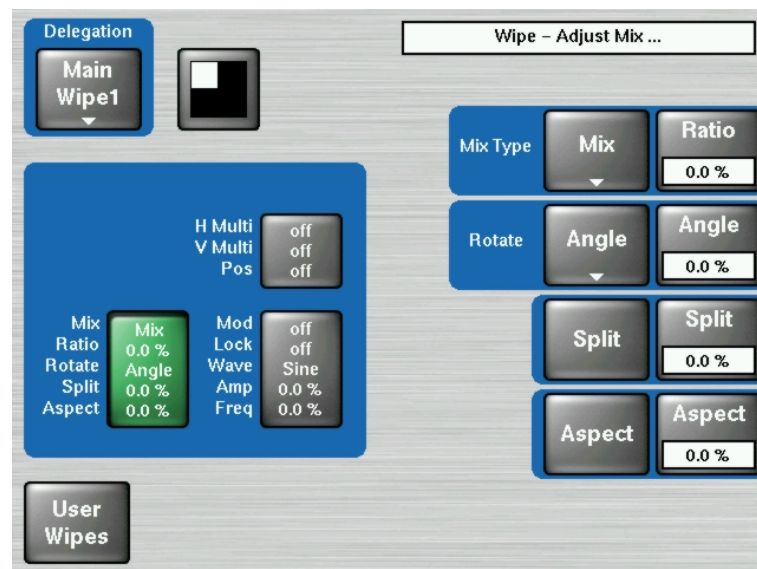


Figure 207 Pattern Mix Menu



# 7 *Sidepanel Program*

## 7.1 *Introduction*

The Sidepanel program is a Windows based program, which is used as the menu part of the Thomson Grass Valley DD35/XtenDD control system.

Since the KayakDD is also a member of this control system, the Sidepanel program can be used to enhance the possibilities of the KayakDD 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 will run on Windows 95 or higher operating systems.

***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 screenshots in this manual show additional items which are not available for the KayakDD 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 KayakDD 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.

### 7.1.1 Sidepanel Glossary

<b>Button</b>	Control element of the graphical user interface which in appearance and function corresponds to a button. Such as on/off-buttons, action buttons, etc.
<b>Control Element</b>	All graphic elements of the user interface that are able to react to user inputs.
<b>Dialog Elements</b>	All graphic elements of the user interface.
<b>Dialog Button</b>	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.
<b>Menu Button</b>	Buttons on the sidepanel keyboard for the selection of primary control dialogs.
<b>Digipot</b>	Control element for adjusting analog values

### 7.1.2 What's a 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:

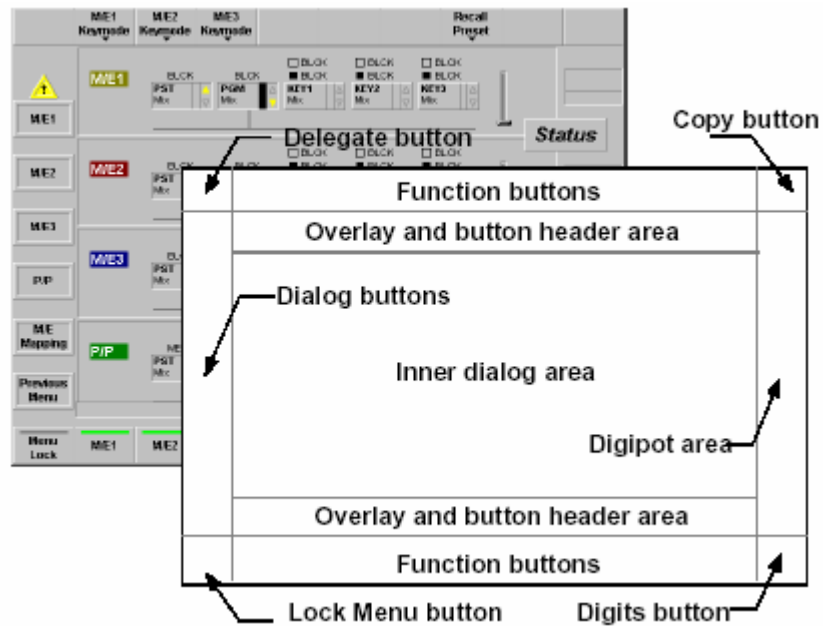


Figure 208 Sidepanel Menu Structure

### 7.1.3 Color Coding

<b>Red</b>	Attention (as the traffic signboard)
<b>Medium blue</b>	Active bars in bar-graphs
<b>Green</b>	ON state in the case of on/off buttons
<b>Light blue</b>	marking of the active field in listboxes
<b>Yellow</b>	Attention
<b>Light grey</b>	Background
<b>Dark grey</b>	Inscription (inactive), shadow edges
<b>Black</b>	Inscription (active)
<b>White</b>	Bright edges
<b>White</b>	Background of delegated bar graphs

### 7.1.4 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.

#### 7.1.4.1 Delegation



**NOTE!**  
 The overlay is displayed in default for approx. 5 seconds. The time can be changed in the menu **Personality / Sidepanel!**

#### 7.1.4.2 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 approx. 5 seconds. The time can be changed in the menu **Personality / Sidepanel!**

Example: Transfer of the wipe settings from M/E1, wipe 1.  
 Step 1: Select **Transfer**

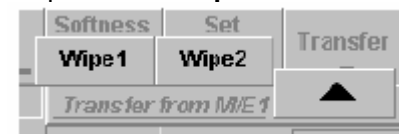
Step 2: Select **From**



Step 3: Select **M/E1**



Step 4: Select **Wipe1**



#### 7.1.4.3 Lock Menu

As long as this button is switched on, the Auto Menu function is inhibited.



#### 7.1.4.4 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.



#### 7.1.4.5 Previous Menu

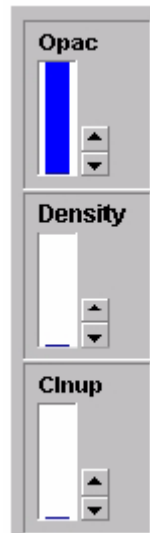
Recall the previous menu. Pushing **Previous Menu** again returns the operator to the menu they just left.



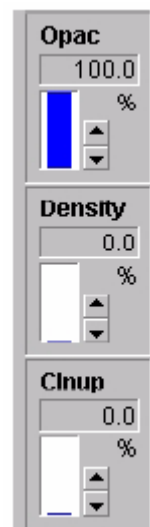
### 7.1.5 Bar Graphics

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/nondelegated 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.



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.



### 7.1.6 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.

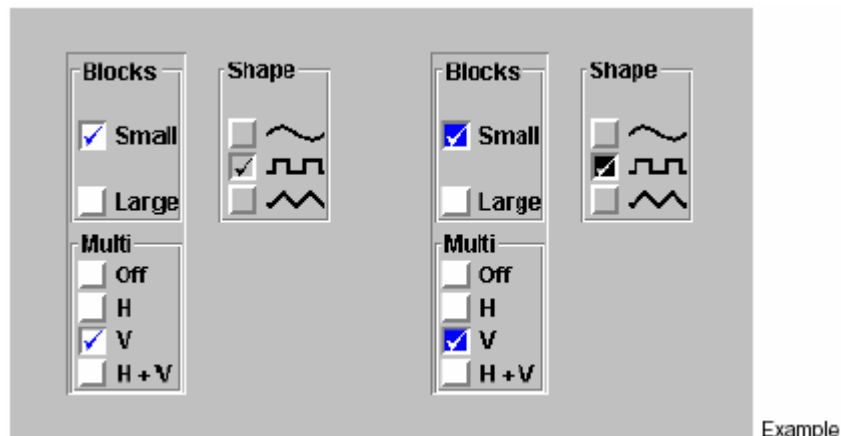
A numeric digipot designator has a small bar to give an overview of range and actual position of the value. This bar cannot be operated with the mouse, but you can enter the numeric value via the keyboard.

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).



### 7.1.7 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.



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 moved up and down.

### 7.1.8 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.

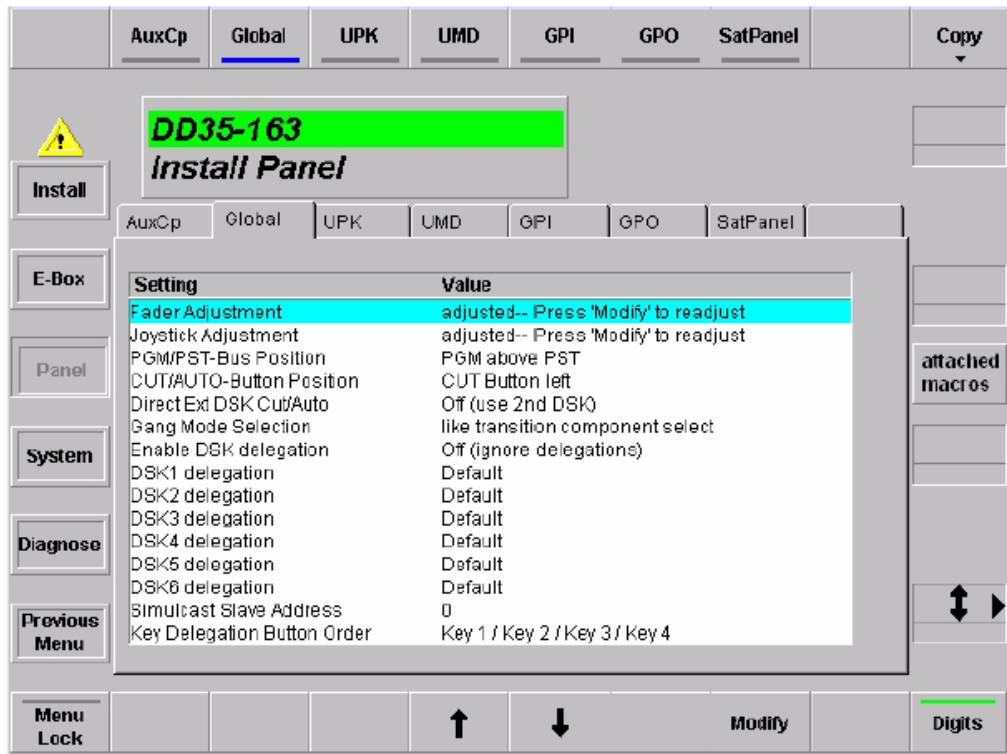


Figure 209 Sidepanel – List Box

### 7.1.9 Typewriter

When the user is requested to make a character input, a keyboard with typewriter layout (style US English) can be selected appear in the dialog window.

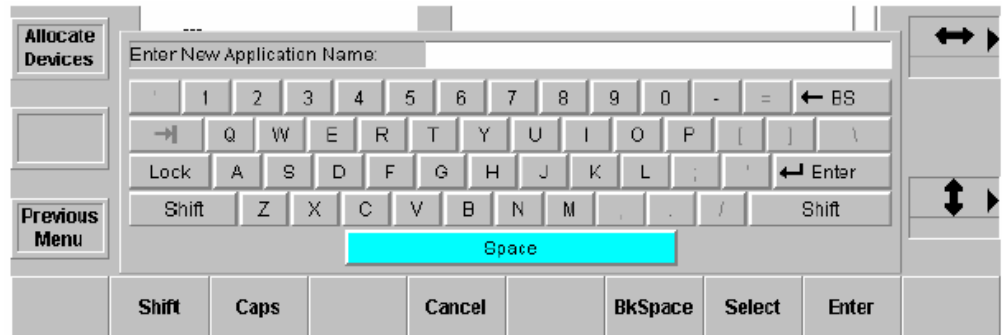


Figure 210 Sidepanel – Typewriter

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 2nd 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

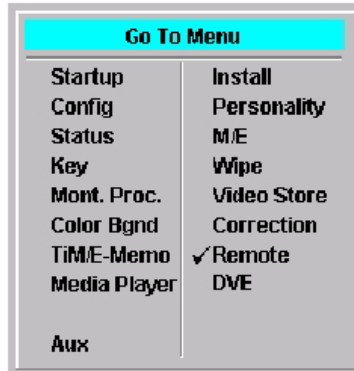
Double-clicking on the digit button modifies the last Slider that was modified with the mouse or side panel digipot.

### 7.1.10 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.



### 7.1.11 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**.





### 7.1.12 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.

<b>Menu group</b>	<b>Top level menu</b>	<b>Sub-menus</b>
<b>Startup</b>	Startup	
<b>Status</b>	Status	Status P/P
<b>M/E</b>	M/E	Main Auto Times Color Background
<b>Key</b>	<b>not supported in KayakDD</b>	
<b>Wipe</b>	<b>not supported in KayakDD</b>	
<b>Remote</b>	Remote	Remote GP-I/O P-Bus
<b>Montage Proc</b>	<b>not supported in KayakDD</b>	
<b>Color Bgnd</b>	Color BGD	Color BGD 1, 2, 3
<b>Correction</b>	<b>Correction</b>	Aux
<b>Install</b>	Install	Main E-Box Panel System Diagnose
<b>Configuration</b>	Config	Config E-Box Panel Allocate Panel
<b>Video Store</b>	<b>not supported in KayakDD</b>	
<b>TiM/E Memo_</b>	TiM/E Memo	Select Define
<b>DVE</b>	DVE	DVE Extern DPM Main DPM Edit
<b>Media Player</b>	M/E	MP Status MP Clips RamRec Transfer Image Converter
<b>Personality</b>	Personality	Main
<b>Auxiliary</b>	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:

1. the **Return** is done
2. 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**.

## 7.2 Startup Menu

After program start, the **Startup** menu is shortly called with the KayakDD 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 211 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.

### 7.2.1 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.

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	▼

### 7.2.2 Selection of a 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.

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	▼

### **7.2.3 Close / Minimize / Shut Down**

- **Close**  
A click (button or mouse) closes the XtenDD application.
- **Minimize**  
A click (button or mouse) minimizes the XtenDD 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.

### 7.3 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.

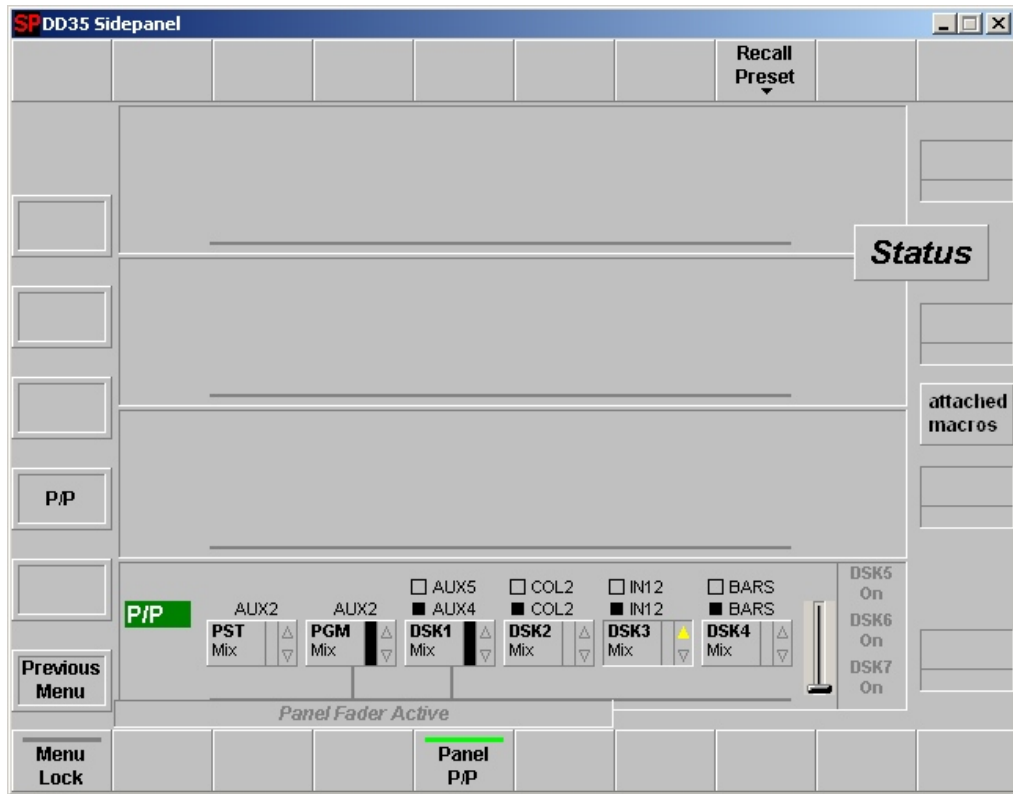


Figure 212 Sidepanel – Status Menu

### 7.3.1 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 KayakDD-1 only PP, KayakDD-2: ME-1 and PP is available.

### 7.3.2 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 KayakDD only PP is available.

### 7.3.3 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 for saving the preset data.

- **Recall Preset**  
The following presets can be recalled:



- **Factory Preset**  
Recall the factory preset.
- **Operation Preset**  
Recall the user defined operation preset. See section Install E-Box to store the user defined operation preset.
- **Undo**  
Recall the last user settings.

### 7.3.4 Attached Macros

This menu can be accessed in two ways:

- via Config / Attached Macros menu
- by clicking to “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*.



## 7.4 M/E Menu

### 7.4.1 M/E Main Menu

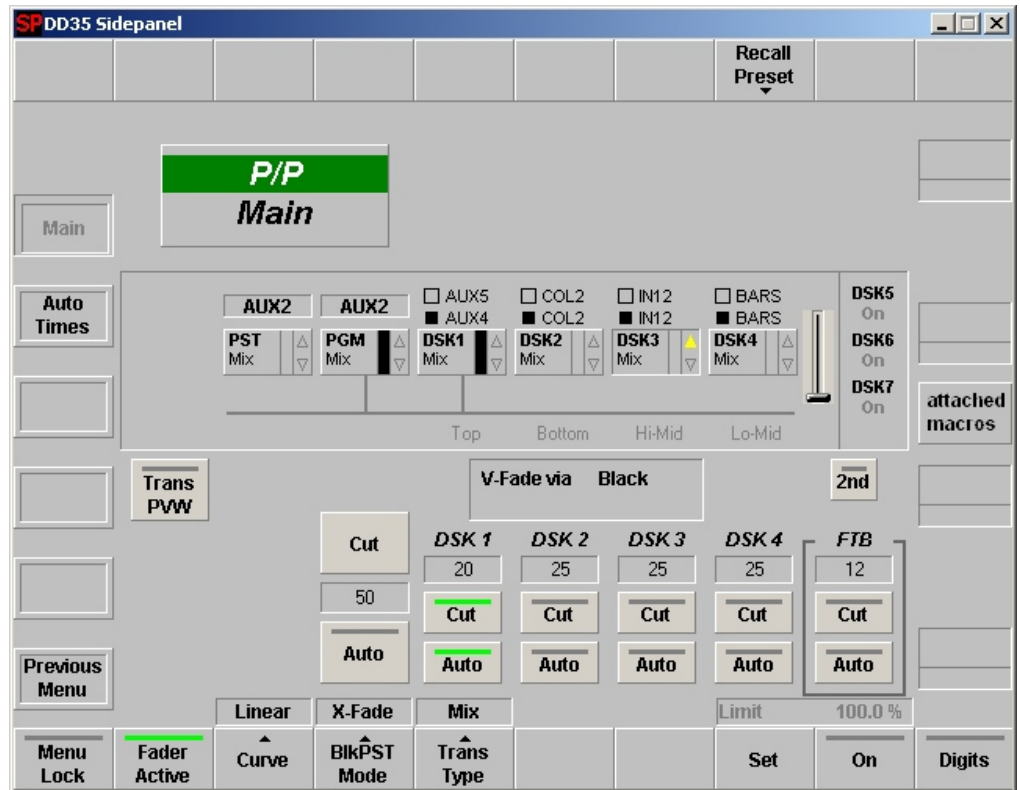


Figure 213 Sidepanel – M/E Main Menu

The inner dialog area shows the status of the respective M/E stage. All transition functions (Cut, Auto, Trans PVW, Trans Duration, ...) can be controlled by trackball or mouse.

### 7.4.1.1 Select Trans Duration Time

- Click on Duration field
- Enter the desired value using the numeric keypad



- Click E (enter) or C (clear)

### 7.4.1.2 Dialog Buttons

- **Auto Times**  
For details refer to section **Auto Times Menu**.
- **Previous Menu**  
Return to the previous menu. For details refer to section **Introduction**.
- **Recall Preset**  
Recall the single M/E Preset



- **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 section Introduction.

- **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.

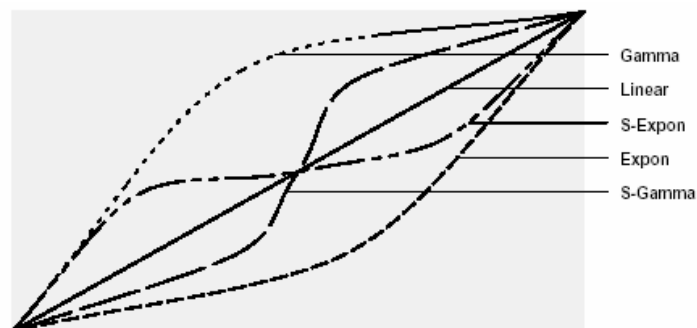
- **Curve**

Press the associated function button to select the transition characteristics for the faders.



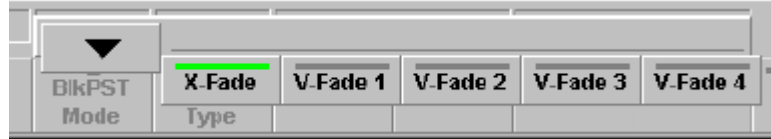
- Linear transition on the basis of a linear function
- Expon transition on the basis of an exponential function
- Gamma transition on the basis of a gamma function
- S-Expon transition on the basis of an exponential gamma function
- S-Gamma transition on the basis of a gamma exponential function

The selected curve function will be displayed in the button header area.



- **BIKPSTMode**

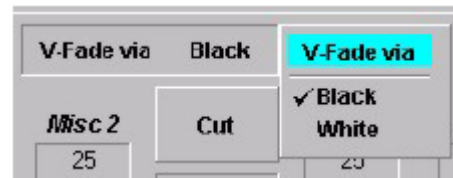
The BIKPST Mode button permits selection of different modes of fading:  
To select a fading mode, activate the button and then select a mode with the overlay button X-Fade, V-Fade1, V-Fade2, V-Fade3 or V-Fade4.



**NOTE!**

*Defaults back to X fade after transition is finished.*

For the V-Fade two modes of operation are selectable by clicking the listbox:



- **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.



The selected transition type is displayed in the button header area.

**NOTE!**

*Please note that 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.

## 7.4.2 Auto Times Menu

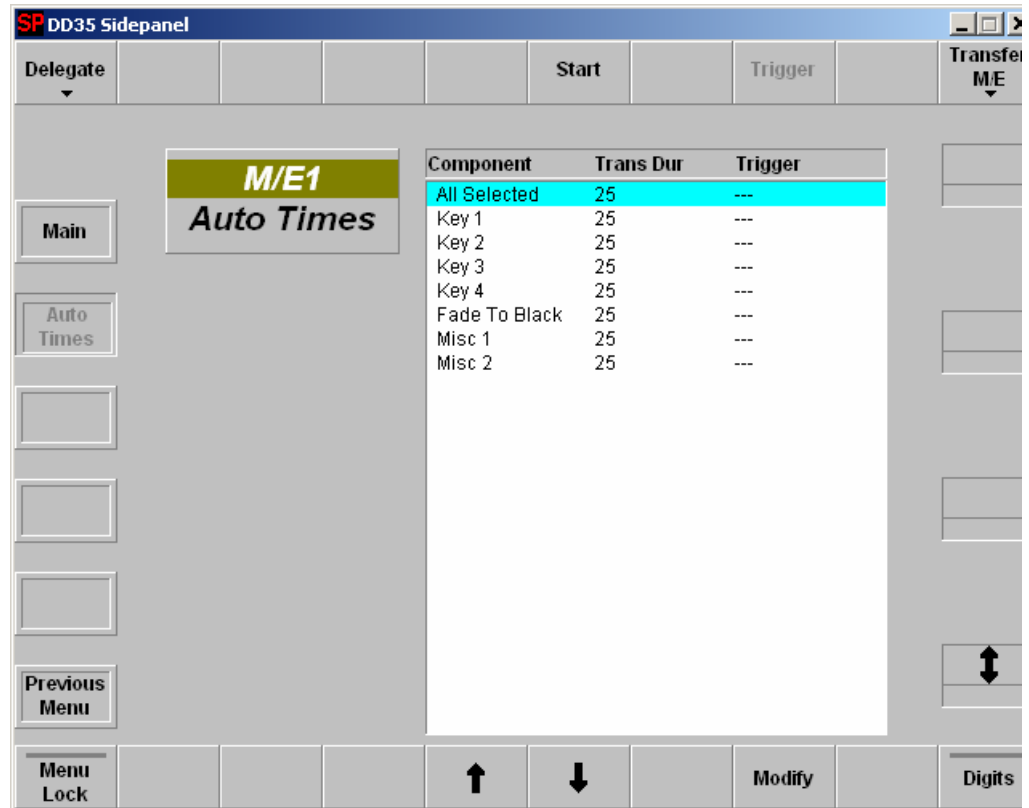


Figure 214 Sidepanel – Auto Times Menu M/E

The menu permits setting the auto transition times.

### 7.4.2.1 Dialog Buttons

- **Main**  
Selecting M/E Main menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section Introduction.

**7.4.2.2 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.



- **Digits**  
For details refer to section Introduction.

**7.4.2.3 Auto Time P/P**

Components in the P/P mixing level:

<b>P/P</b>	Component	Trans Dur	Trigger
<b>Auto Times</b>	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	---

Figure 215 Sidepanel – Auto Times Menu P/P

### 7.4.3 Color Background Menu

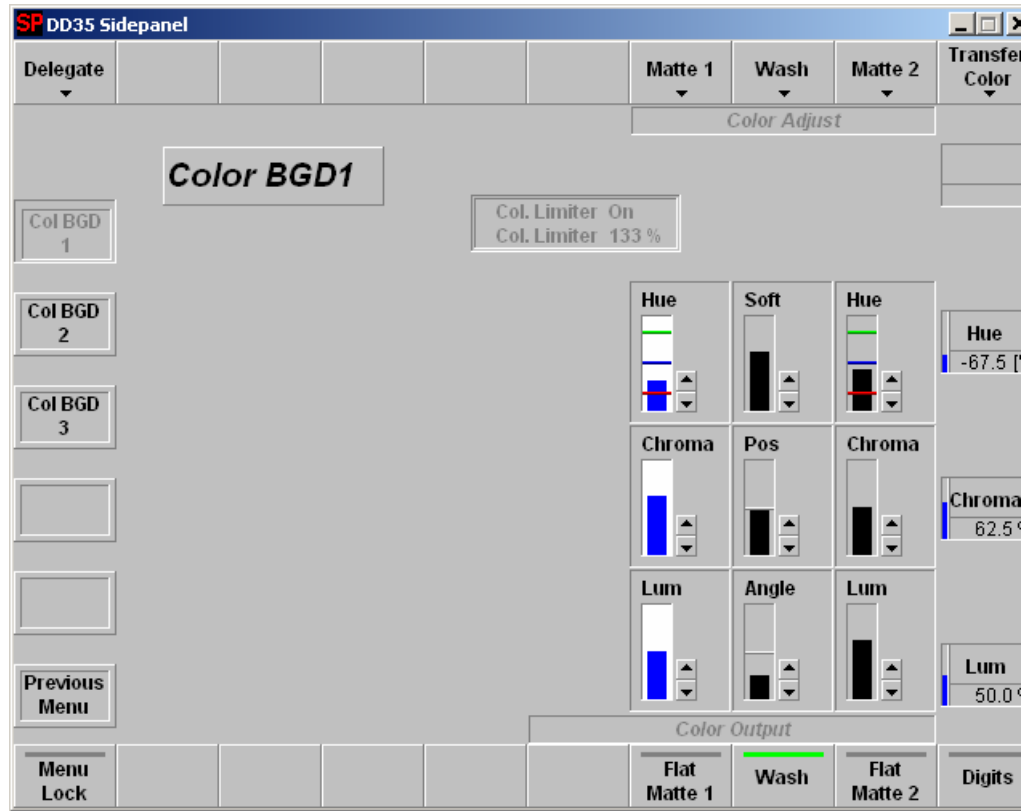


Figure 216 Sidepanel – Color Background Menu

7.4.3.1 Function Buttons

- **Delegate**  
For details refer to section Introduction.



- **Matte 1 / Matte 2**  
The Matte 1 (Matte 2) button delegates the digipots so that the desired colors can be adjusted. There are seven preadjusted matte colors selectable.



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!**

*Please note that certain combinations of chrominance and luminance values will cause overlevels 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.





- **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.

## 7.5 Remote Menu

### 7.5.1 Main Menu

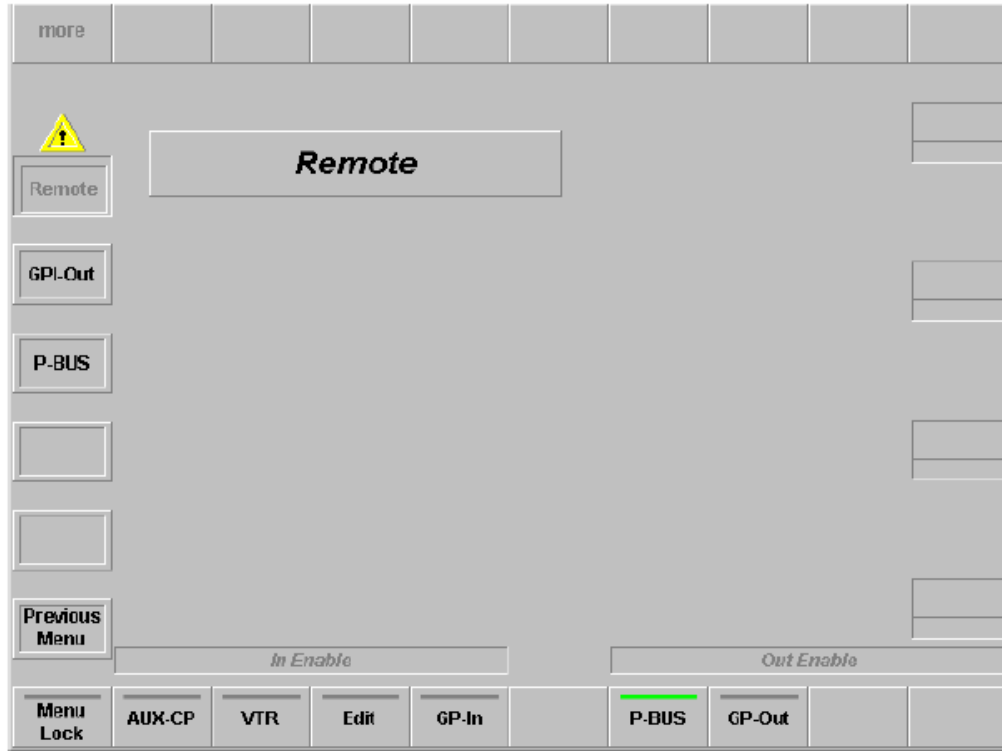


Figure 217 Sidepanel – Remote Menu

#### 7.5.1.1 Dialog Buttons

- **GPI-Out**  
Selecting GPI-Out menu
- **P-Bus**  
Selecting P-Bus (Periveral Bus) menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.
- **Menu Lock**  
For details refer to section *Introduction*.
- **In Enable AUX CP**  
Enables Aux Control Panels

- **In Enable VTR**  
Enables the VTR control
- **In Enable Edit**  
Enables Editor control.
- **In Enable GP In**  
Enables GPI inputs
- **Out Enable P-Bus**  
Enables Editor control.
- **Out Enable GP Out**  
Enables GPI outputs

## 7.5.2 GPI-Out Menu

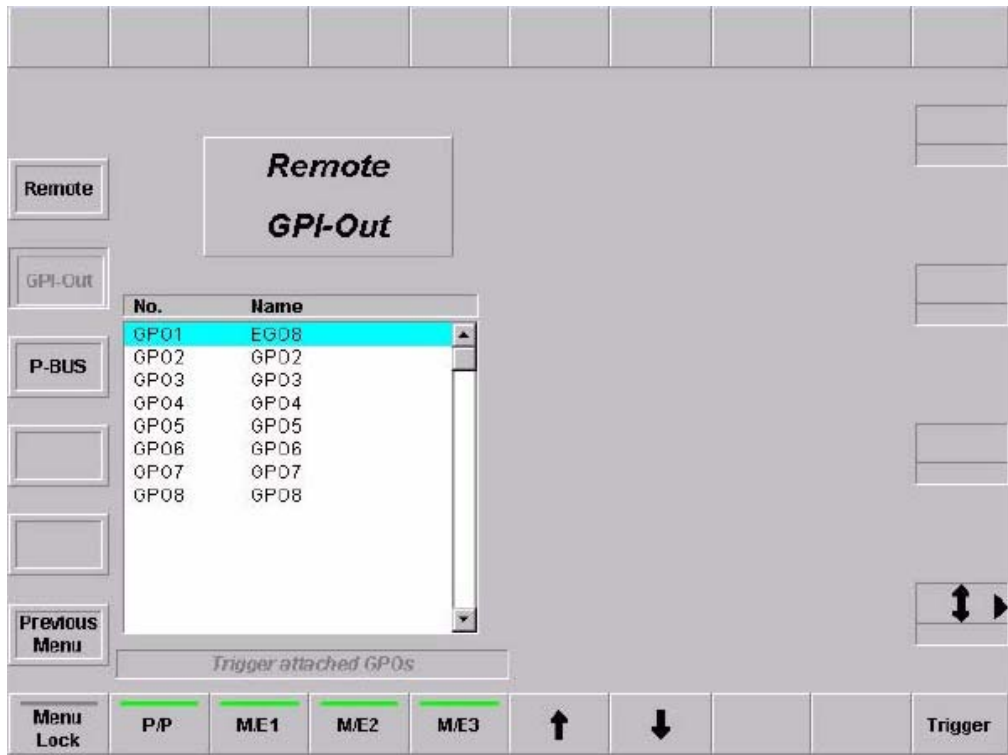


Figure 218 Sidepanel – GPI Menu

### 7.5.2.1 Dialog Buttons

- **Remote**  
Return to the Remote main menu.
- **P-BUS**  
Selecting P-Bus menu
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.5.2.2 Function Buttons

- **Menu Lock**  
For details refer to section Introduction.
- **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

### 7.5.3 Remote P-Bus

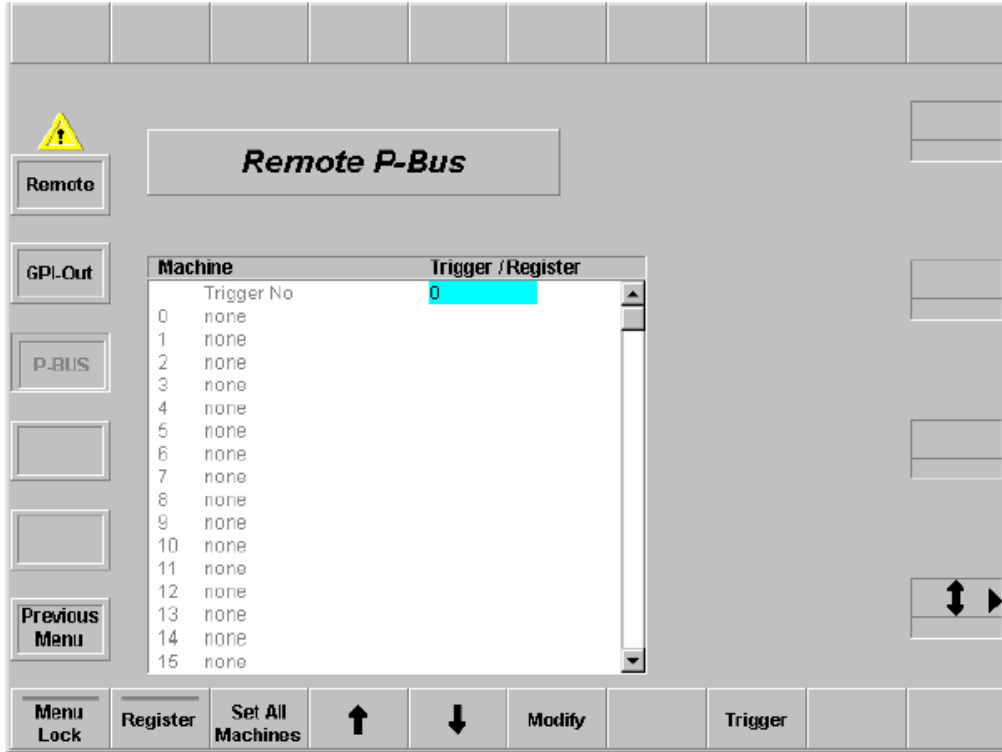


Figure 219 Sidepanel – Remote P-Bus Menu

#### 7.5.3.1 Dialog Buttons

- **Remote**  
Return to the Remote main menu.
- **GPI Out**  
Selecting GPI-In menu. Not yet implemented.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

**7.5.3.2 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:

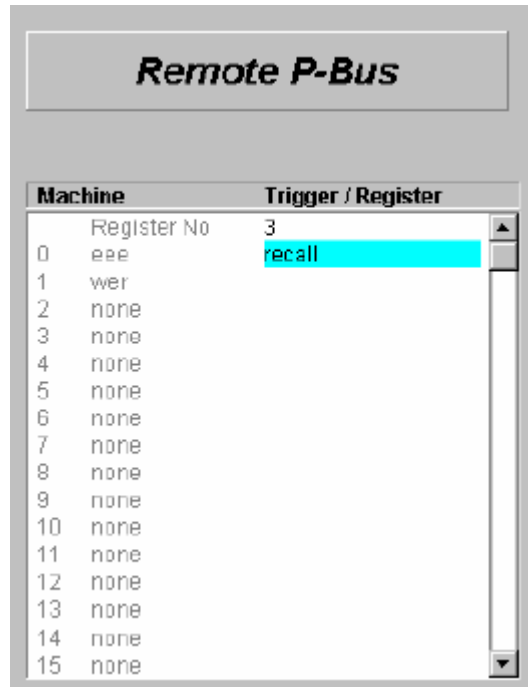
- no Command:** this machine does not get any trigger
- default Command:** this machine gets the trigger number being in the 1st line
- all other lines:** here, each trigger is specified with the name being provided for this machine. A selection in this area also changes the general trigger number in the 1st line which then is applicable for all machines.

It is only possible to trigger those machines which are activated in the Install / Pbus menu. The trigger will then be performed by the equal-named button. It then reaches all machines with a trigger name listed below.

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

- **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.



The screenshot shows a dialog box titled "Remote P-Bus". Inside, there is a table with two columns: "Machine" and "Trigger / Register". The "Machine" column lists machines from 0 to 15. The "Trigger / Register" column shows the current state for each machine. Machine 0 is highlighted in blue, and its "Trigger / Register" value is "recall".

Machine	Trigger / Register
0	Register No 3 eee recall
1	wer
2	none
3	none
4	none
5	none
6	none
7	none
8	none
9	none
10	none
11	none
12	none
13	none
14	none
15	none

Storing or recalling is performed with the buttons Save Register and Recall Register.



## 7.6 DVE Menus

### 7.6.1 DVE External

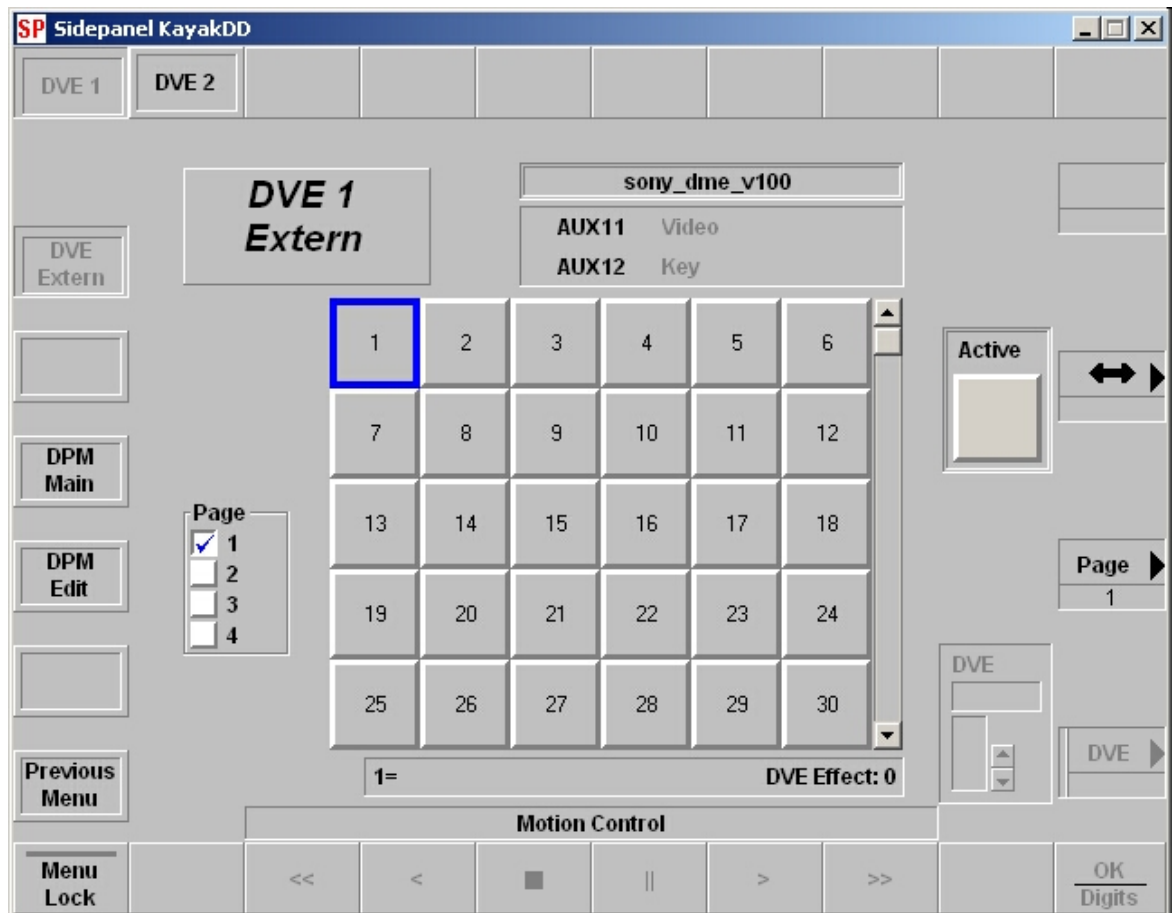


Figure 220 Sidepanel – External DVE Menu

#### 7.6.1.1 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.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.6.1.2 Function Buttons

- **Menu Lock**  
For details refer to section *Introduction*.
- **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**
  - << Fast rewind
  - < Rewind
  - Stop
  - || Pause
  - > Play
  - >> Fast forward
- **OK / Digits**  
For details refer to section *Introduction*.

## 7.6.2 DPM Main

The Kayak HD system supports one DPM channel per keyer, that means a Kayak HD-1 may have up to 4 DPM channels, a Kayak HD-2 up to 8 DPM channels. For units currently shipping the DPM channel for the first keyer per ME-bank is standard, the remaining 3 channels per ME 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 ME-bank like external DVE channels with a separate timeline system with 100 registers. That means the switcher can recall independently extra DPM effects per ME 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.

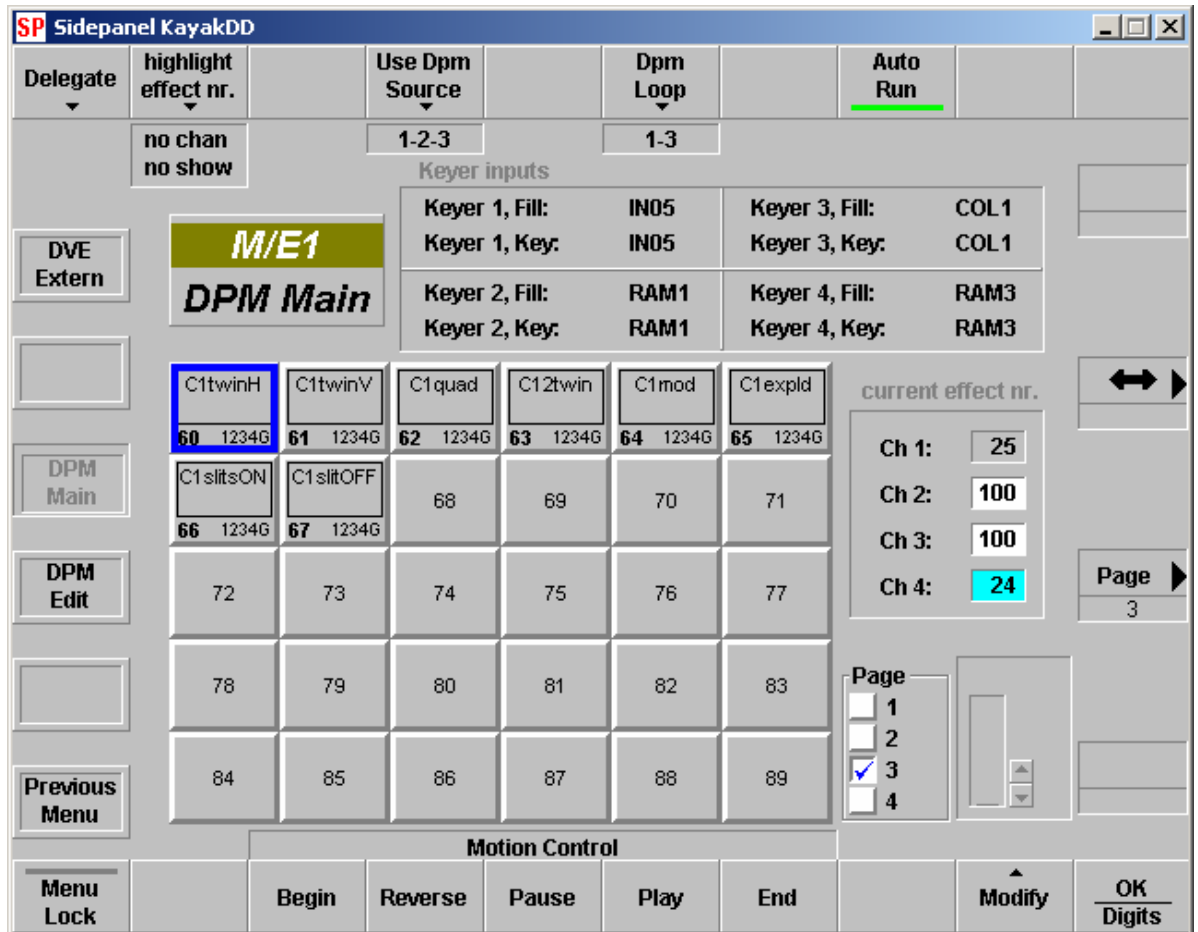


Figure 221 Sidepanel – DPM Main Menu

### 7.6.2.1 Inner Window

The inner window consists of several sections:

- Inputs Selection Keyer/Fill,
- Effect selection (6 x 5 buttons per page),
- Page selection

#### 7.6.2.1.1 Input Selection

Input selection for the 4 channels, click on the according fields for source selection.

#### 7.6.2.1.2 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 according 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.***

#### 7.6.2.1.3 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.

### 7.6.2.2 Dialog Buttons

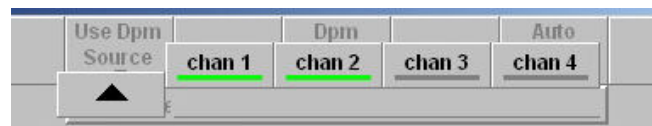
- **DVE Extern**  
Menu serves to control an external DVE system.
- **DPM Edit Menu**  
Edit menu page to create new effects or edit existing ones.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.6.2.3 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:

<b>no show</b>	No highlighting
<b>1 incl.</b>	Highlight all effects which contain at least one of the selected channels.
<b>all incl.</b>	Highlight all effects which contain all of the selected channels.
<b>exact</b>	Highlight all effects which contain exactly the selected channels.
<b>chan 1</b>	Toggle selection channel 1: "-- -- --" is off, "chan 1" is on.
<b>chan 2</b>	Toggle selection channel 2: "-- -- --" is off, "chan 2" is on.
<b>chan 3</b>	Toggle selection channel 3: "-- -- --" is off, "chan 3" is on.
<b>chan 4</b>	Toggle selection channel 4: "-- -- --" is off, "chan 4" is on.
<b>global</b>	Toggle selection global: "-- -- --" is off, "global" is on.

- **Use DPM Source**



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 / deselect.

- **DPM Loop**



Activates the DPM function for the according 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.

### 7.6.3 DPM Edit Menu

#### 7.6.3.1 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 according 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).

#### 7.6.3.2 Cursor Modes

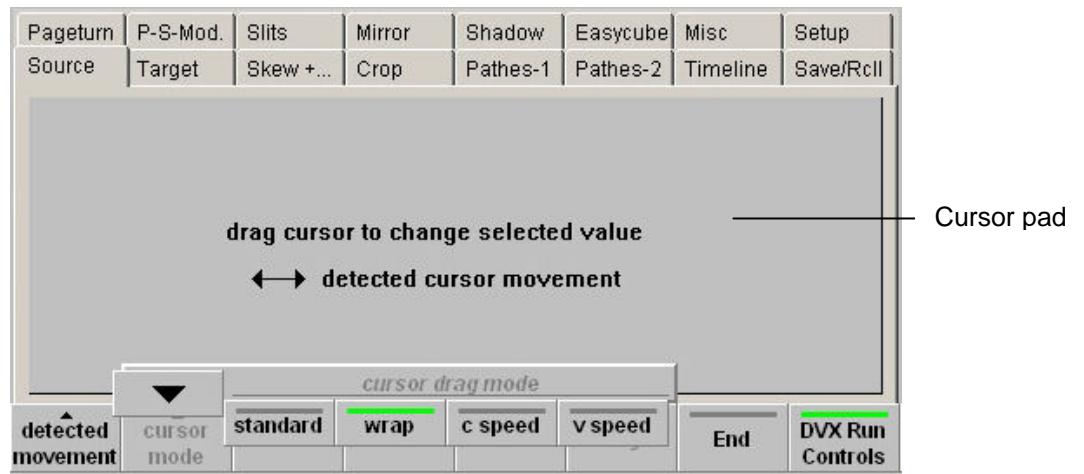


Figure 222 Sidepanel – Cursor Modes

Data entry of the parameters are 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:

7.6.3.2.1 Standard

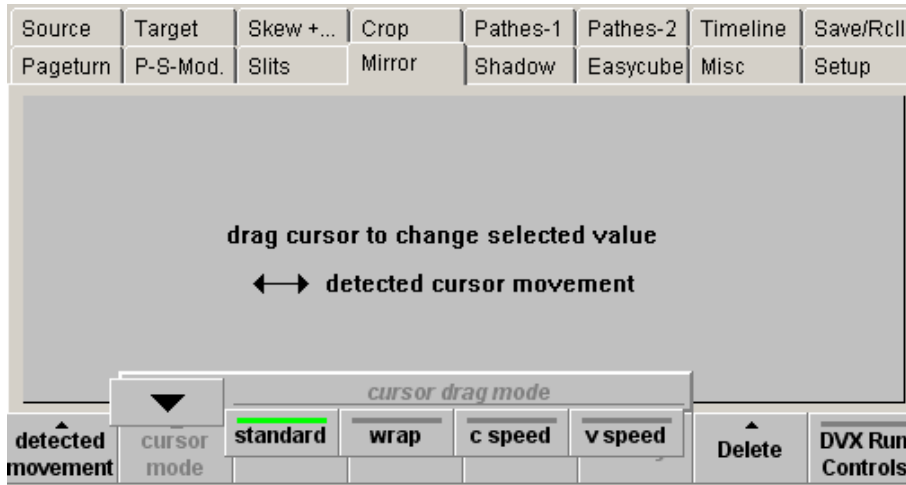


Figure 223 Sidepanel – Cursor Mode Standard

Right click and drag your mouse to change analog values.

7.6.3.2.2 Wrap

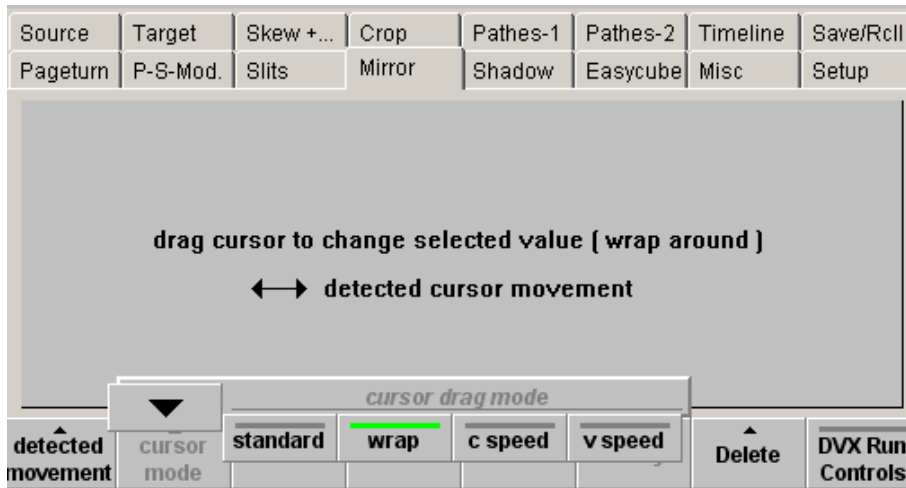


Figure 224 Sidepanel – Cursor Mode Wrap

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.



### 7.6.3.2.3 C Speed

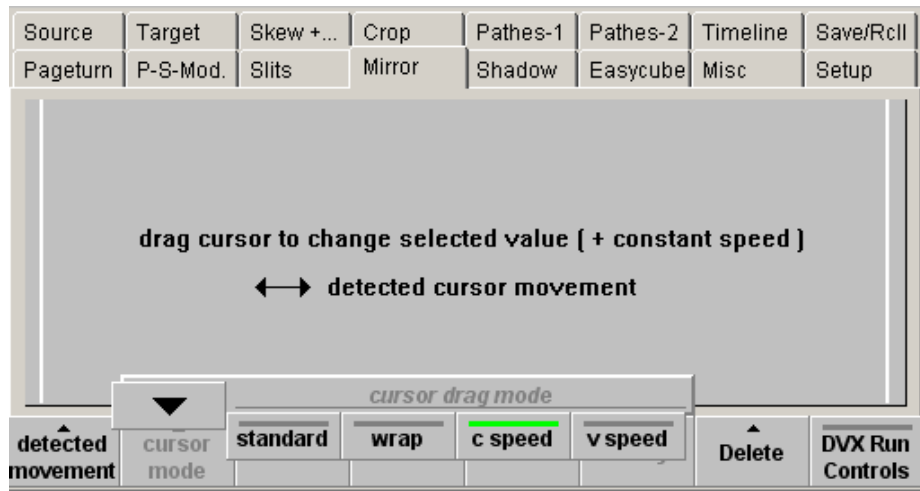


Figure 225 Sidepanel – Cursor Mode C Speed

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.

### 7.6.3.2.4 V Speed

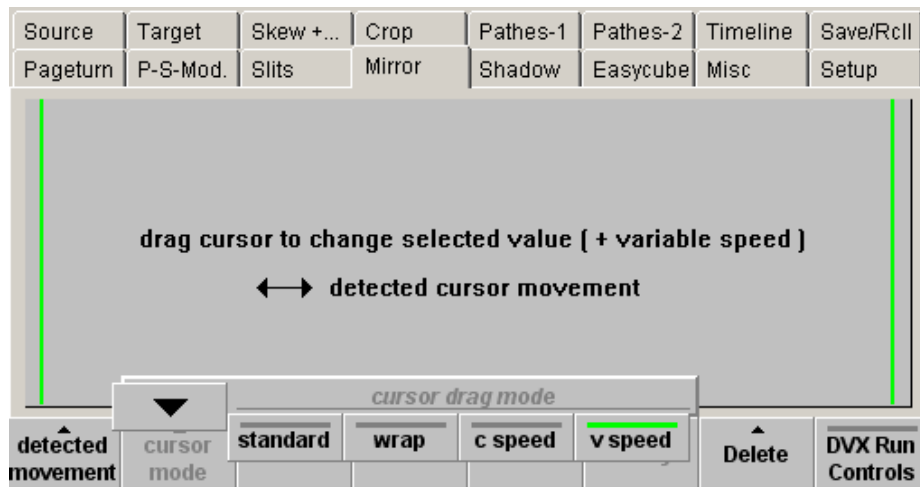


Figure 226 Sidepanel – Cursor Mode V Speed

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.

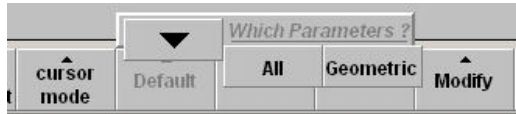
### 7.6.3.2.5 Detected Movement

Selection of cursor movement direction horizontal ↔ and vertical ↑..



### 7.6.3.3 Editing Controls

- **Default** – Set **All / Geometric** parameter to default values



- **Goto** – Navigation inside the timeline. **Goto Start / End / KF** (Keyframe nn)



- **Insert** – Insert current state as keyframe before (**Kf Before**), or after (**Kf After**), or insert a **Pause** after the last keyframe.



- **Modify** – Open the modify dialog



- Sel. KF** Modify the selected keyframe
- Selected** Allows numeric input for geometric parameters.

Other commands not yet supported

- **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.

#### 7.6.3.4 Run Controls

Motion control buttons for selected effect, see below Inner Window, middle part.



If the **DVX Run Controls** button is activated the buttons left changes the function and created effect can be started.

<b>Start:</b>	Set effect to begin (first keyframe)
<b>Reverse:</b>	Play effect in reverse direction
<b>Pause:</b>	Pause effect
<b>Play:</b>	Play effect in normal direction
<b>End:</b>	Set effect end (last keyframe)

### 7.6.3.5 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.

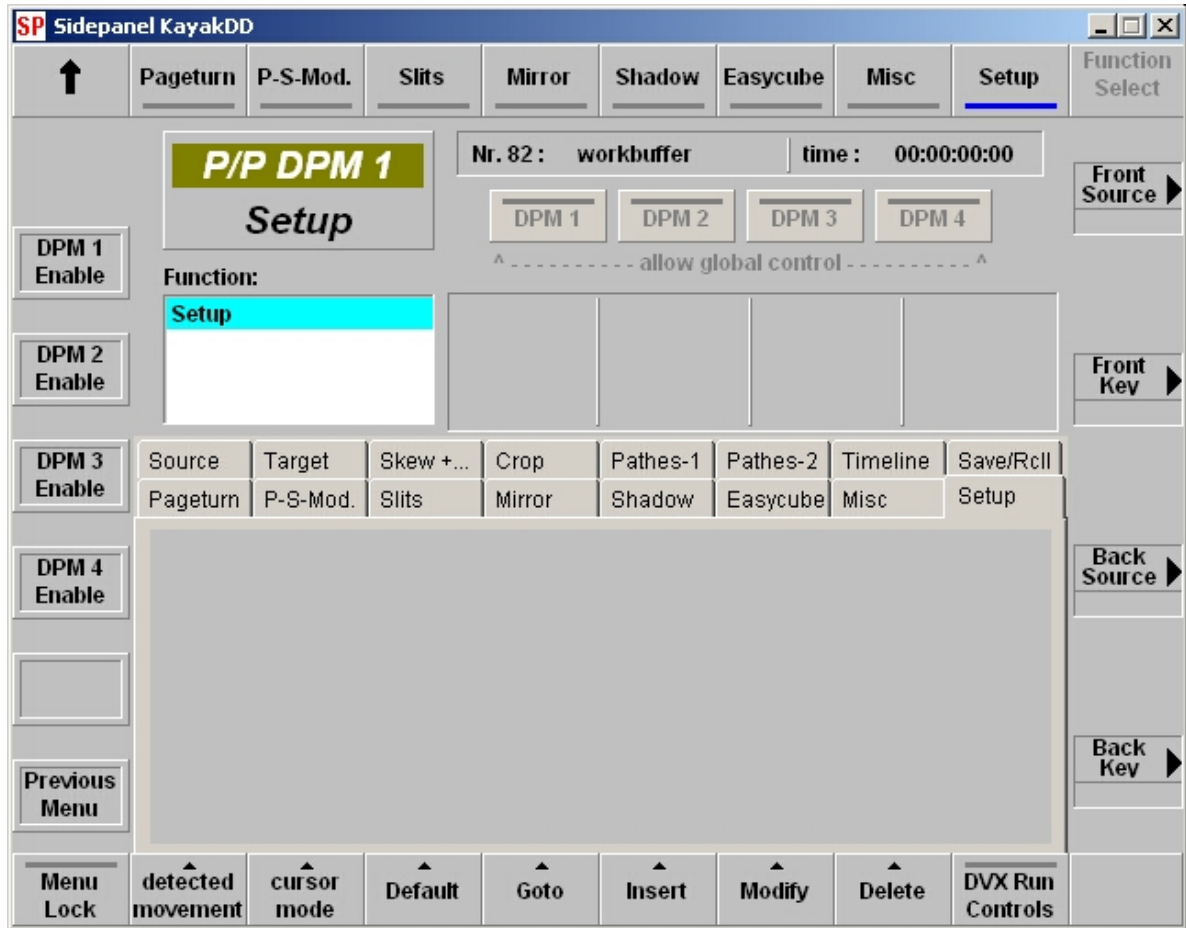


Figure 227 Sidepanel – DPM Edit – Setup Menu

### 7.6.3.6 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 according parameters please refer to the description in the Menu Summaries section and the Concept section of this manual.

The up and down arrows at the right side of the value display can also be used to change the according values.

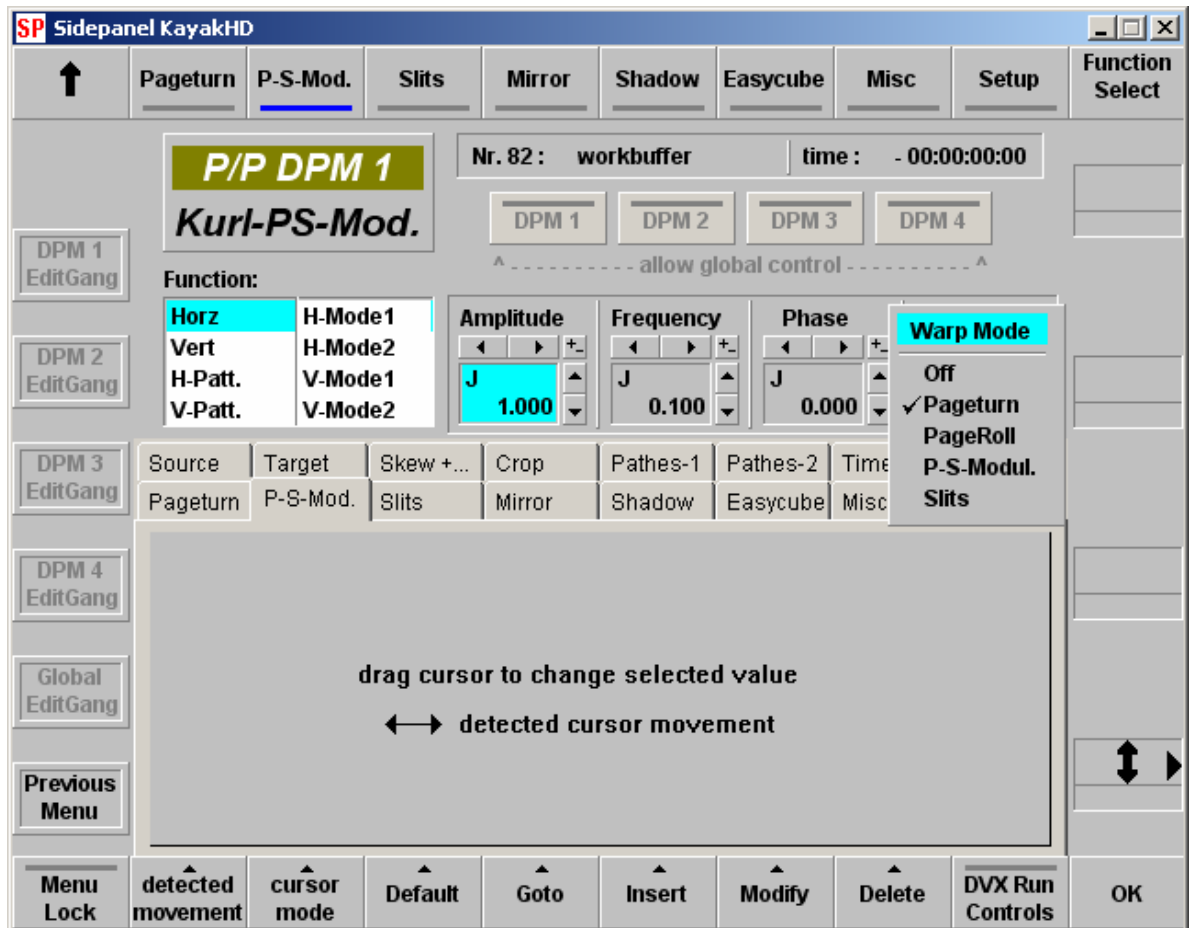


Figure 228 Sidepanel – DPM Edit – Kurl PS Modulation Menu

### 7.6.3.7 Timeline

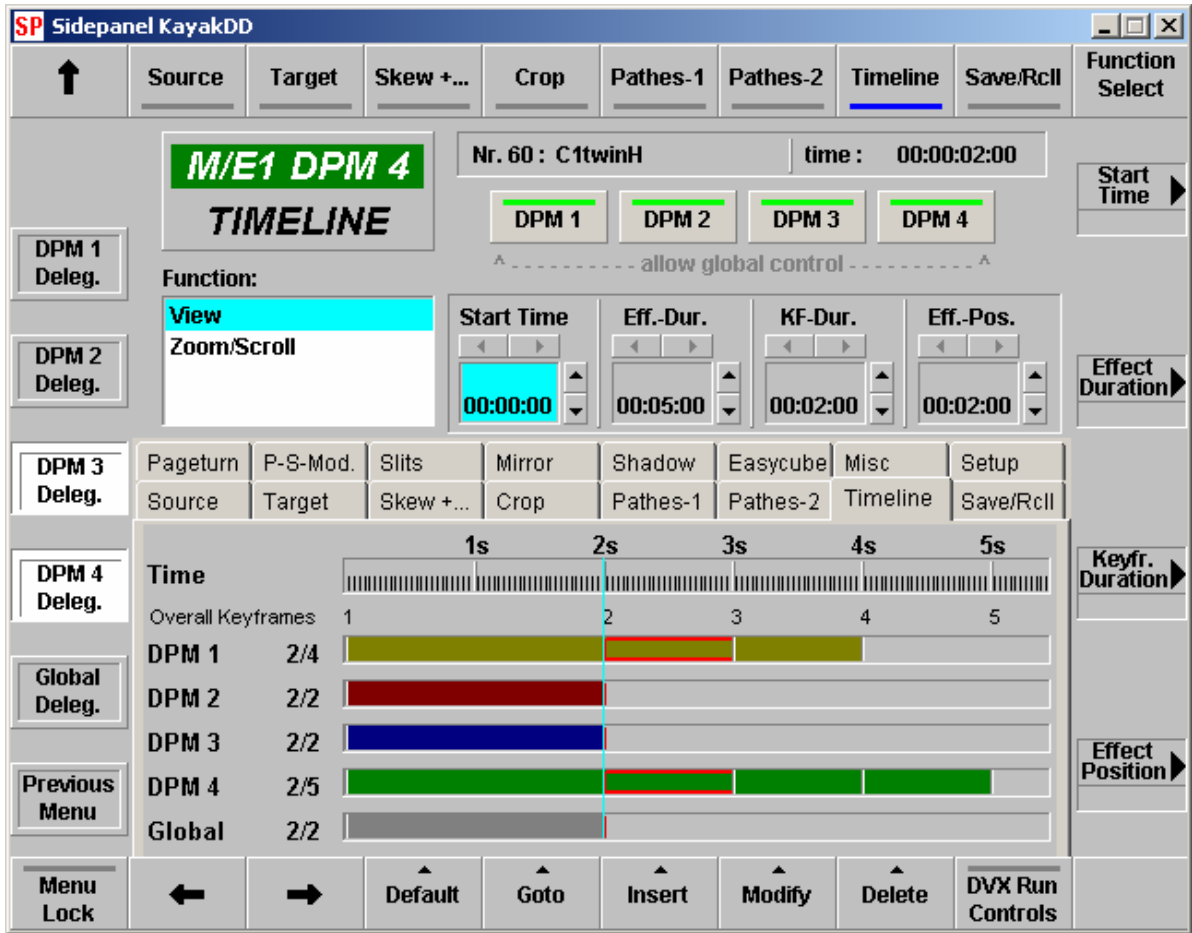


Figure 229 Sidepanel – DPM Edit – Timeline Menu

#### 7.6.3.7.1 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.

#### 7.6.3.7.2 Page Zoom/Scroll

<b>Zoom</b>	Set the zoom window for the display
<b>Scroll</b>	Set the start timecode for the display.
<b>Eff.-Pos</b>	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.





**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.

7.6.3.9 Misc / Priority

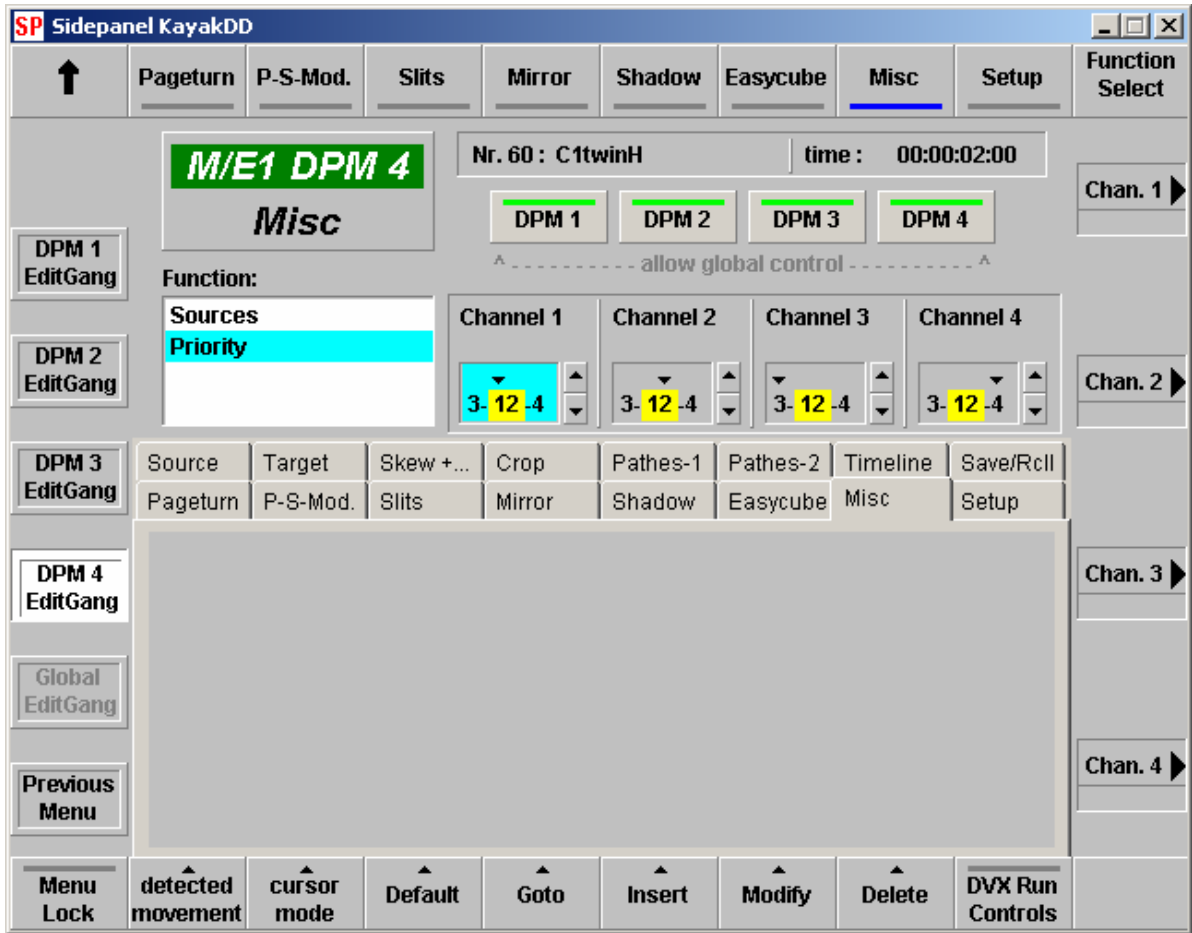


Figure 231 Sidepanel – DPM Edit – Misc Menu

**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 indication 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 4.*

- Channel 2** See channel 1
- Channel 3** See channel 1
- Channel 4** See channel 1

## 7.7 Media Player Menu

### 7.7.1 MP Status Menu

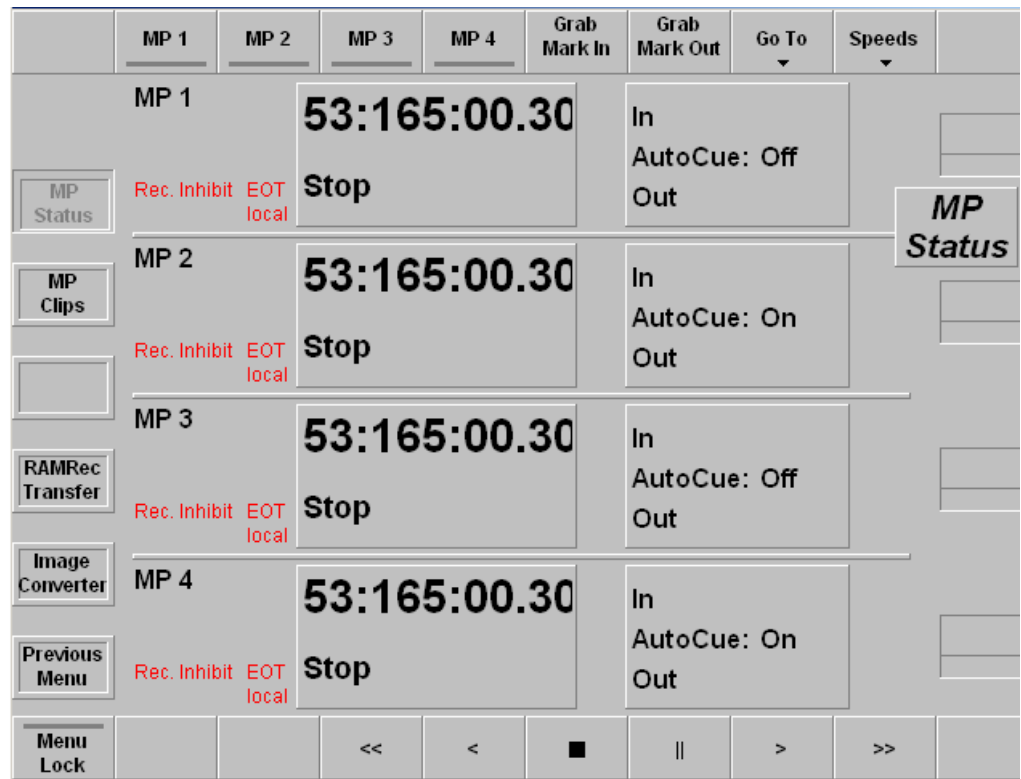


Figure 232 Sidepanel – Media Player Status Menu

The Status menu shows the status of up to four “Media Player“ 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. For example **01:23:12.06**  
The last colon is replaced by a dot in case of a drop frame.

### 7.7.1.1 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.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.7.1.2 Dialog Buttons

- **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 (Mark 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**
  - Fast rewind
  - Play reverse
  - Stop
  - Pause
  - Play forward
  - Fast forward

## 7.7.2 Media Player Clip Menu

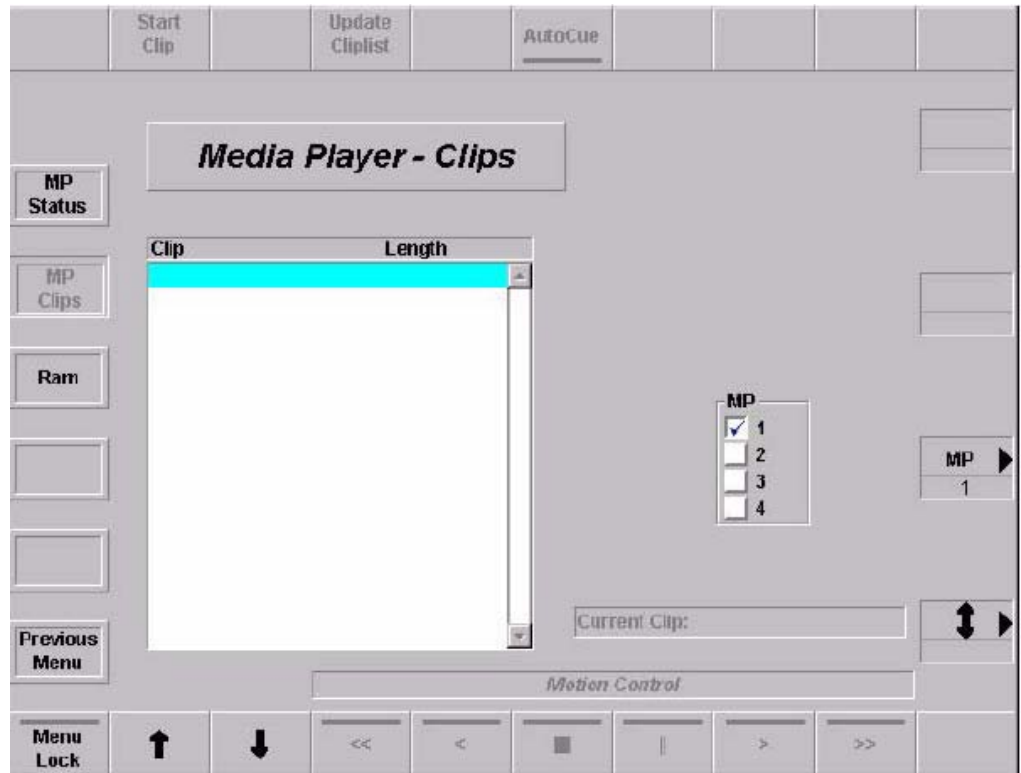


Figure 233 Sidepanel – Media Player Clip Menu

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.

### 7.7.2.1 Dialog Buttons

- **MP Status**  
Selecting the Media Player menu.
- **RAM**  
Selecting the internal RAM Recoder menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### **7.7.2.2 Function Buttons**

- **Start Clip**  
Load the chosen clip from the Media Server
- **Update Clist**  
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

### 7.7.3 RAM Recorder Transfer Menu

The RAM Recorder Transfer menu allows the user to transfer images to and from the RAM Recorder.

#### 7.7.3.1 Clips To Ram

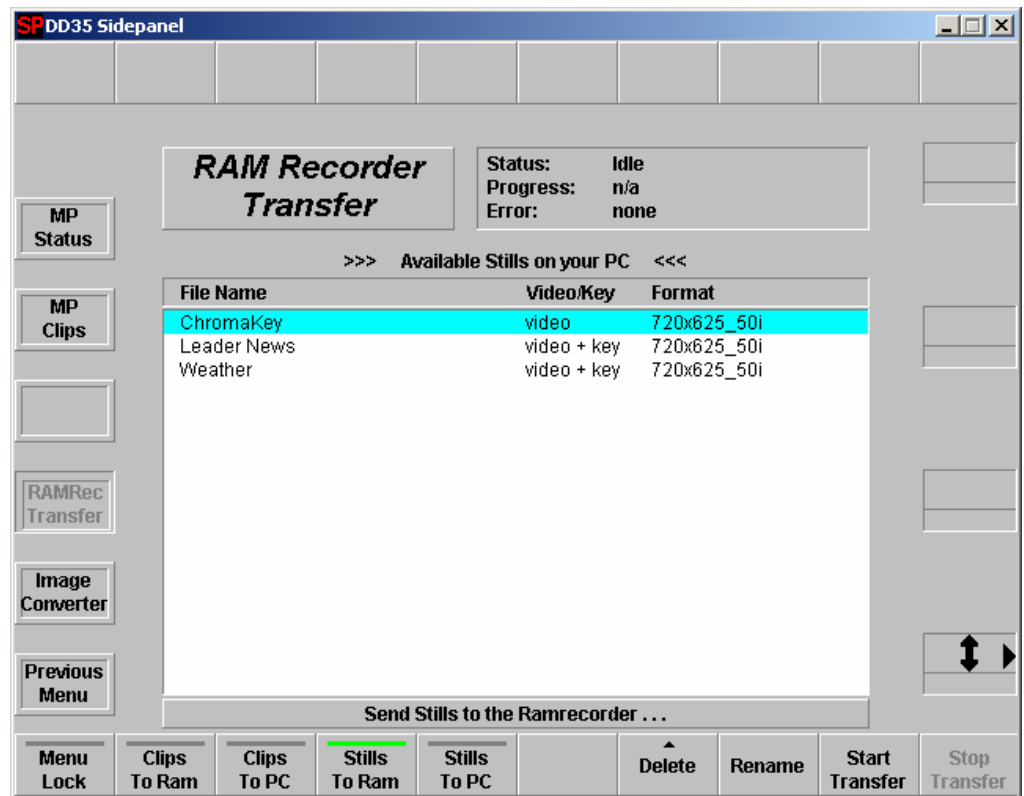


Figure 234 RAM Recorder - Transfer

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

7.7.3.2 Clips To PC

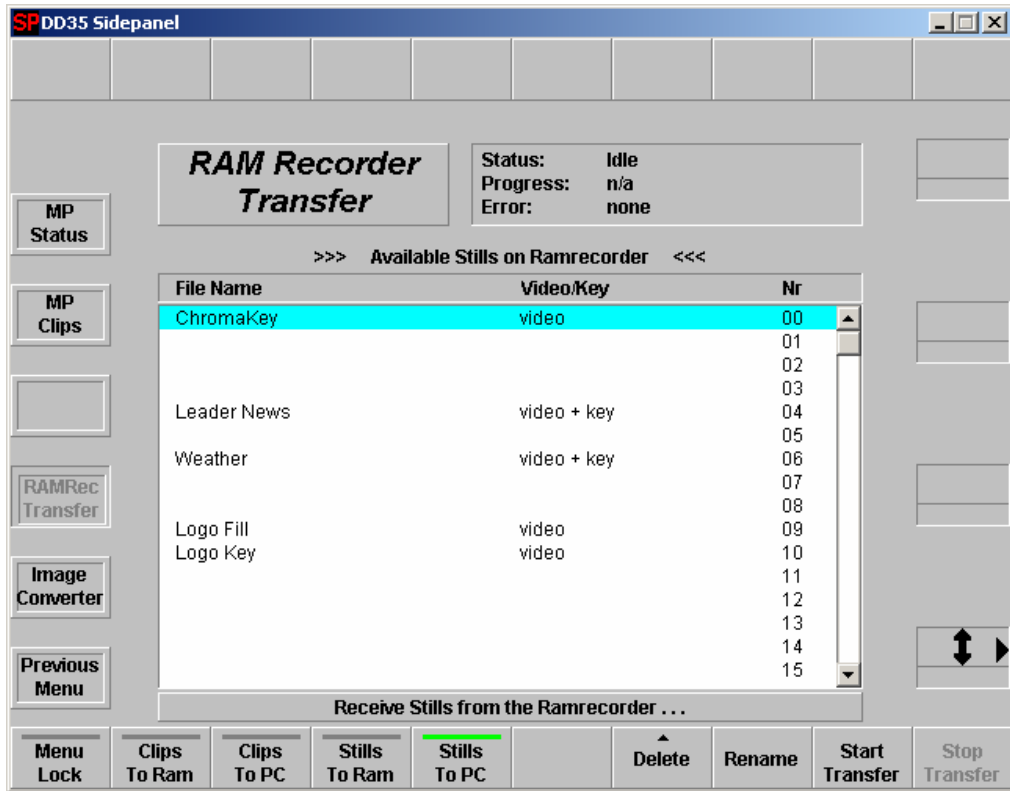


Figure 235 RAM Recorder - Transfer

- 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.



### 7.7.3.3 Stills To Ram

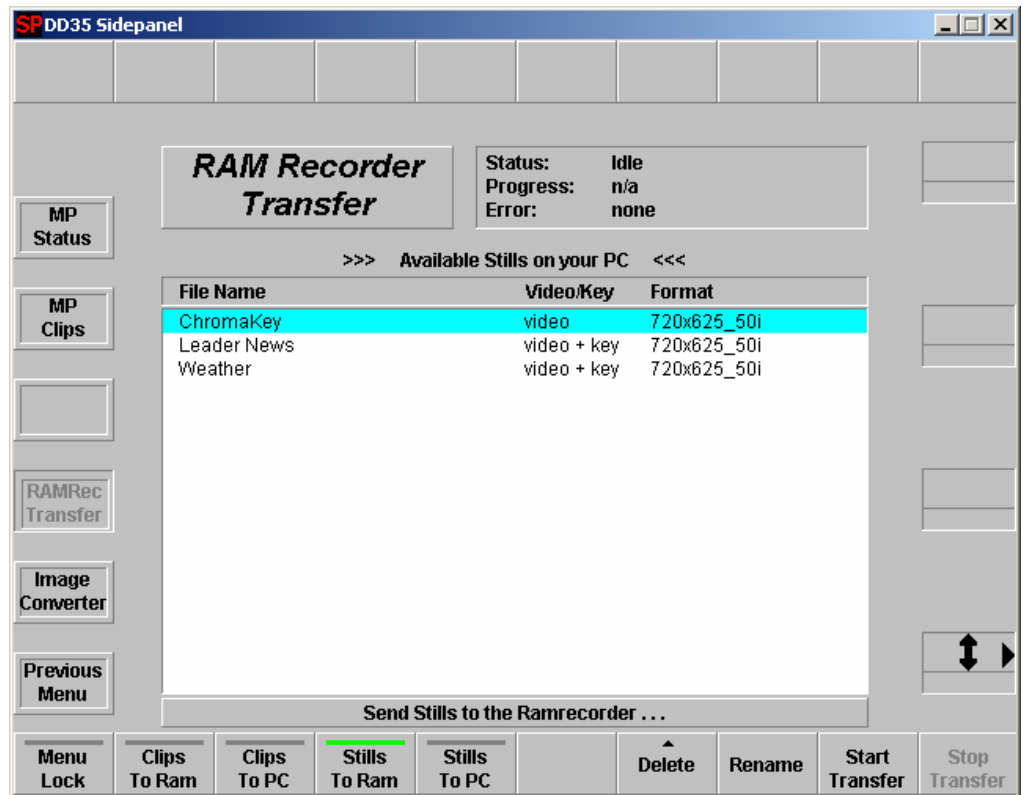


Figure 236 RAM Recorder - Transfer

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)

7.7.3.4 Selection of the Memory Position for the Still to be Transferred

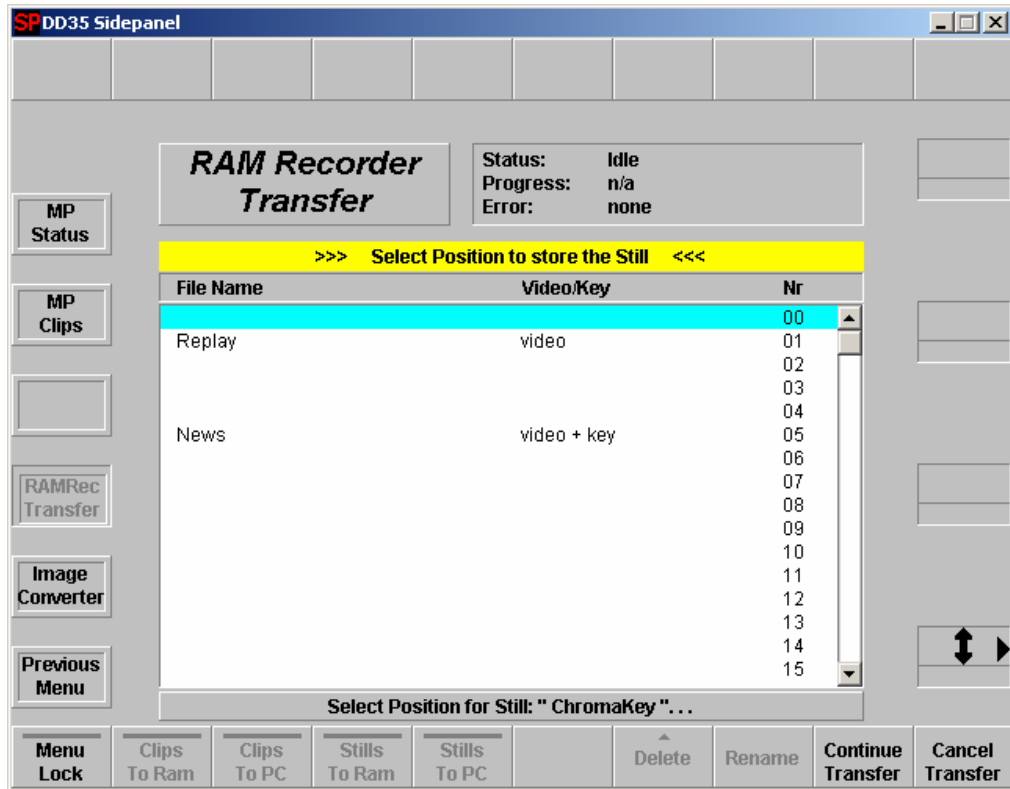


Figure 237 RAM Recorder - Transfer

Select a position and press **Continue Transfer** to start the actual transfer

### 7.7.4 Image Converter Menu

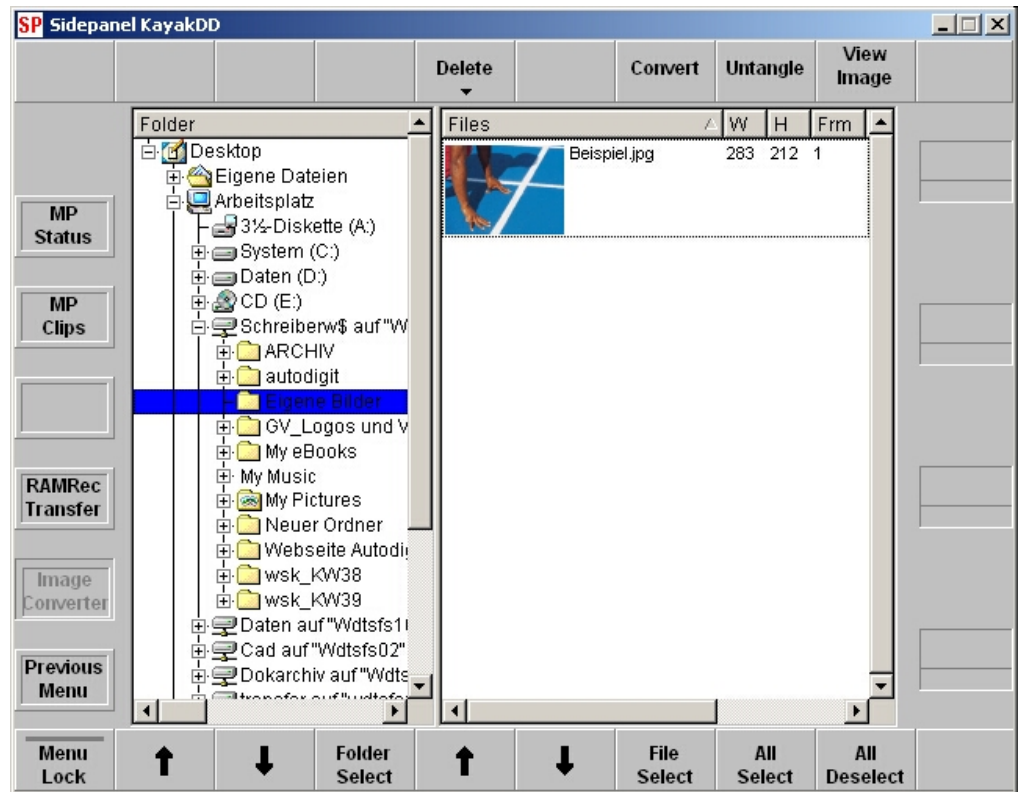


Figure 238 RAM Recorder – Image Converter

- The Image Converter is started with a browser. The left window shows the folders in a windows-typical way and the right window lists the files of the respectively selected folder.
- Double click to folder
- Selecting files, which have to be converted, is made by a left mouse click. Multiple selection is possible with 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.***

7.7.4.1 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:

<b>AVI</b>	Audio Video Interleaved
<b>BMP</b>	Windows/OS2 Bitmap
<b>JPG</b>	Joint Picture Expert Group
<b>TGA</b>	TrueVision Targa Image
<b>TIFF</b>	Tagged Image File Format
<b>XTENDD</b>	RAM Recorder File

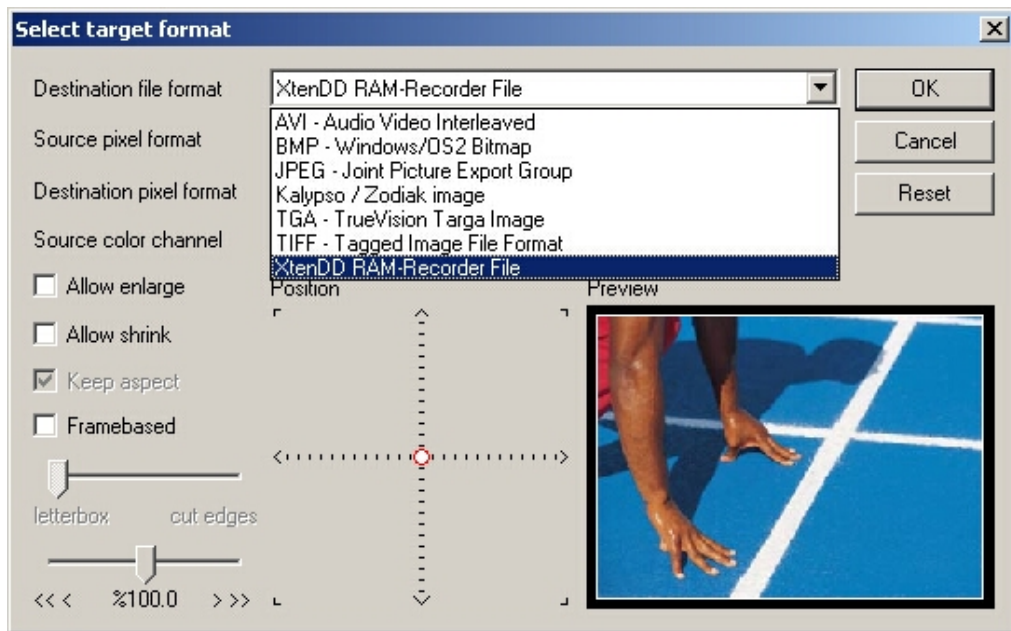


Figure 239 RAM Recorder – Image Converter – Select Target Format

**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!***

### 7.7.4.2 Source Pixel Format

Activating the **Convert** button opens a dialog window for detail adjustments. The following Source Pixel formats can be adjusted:

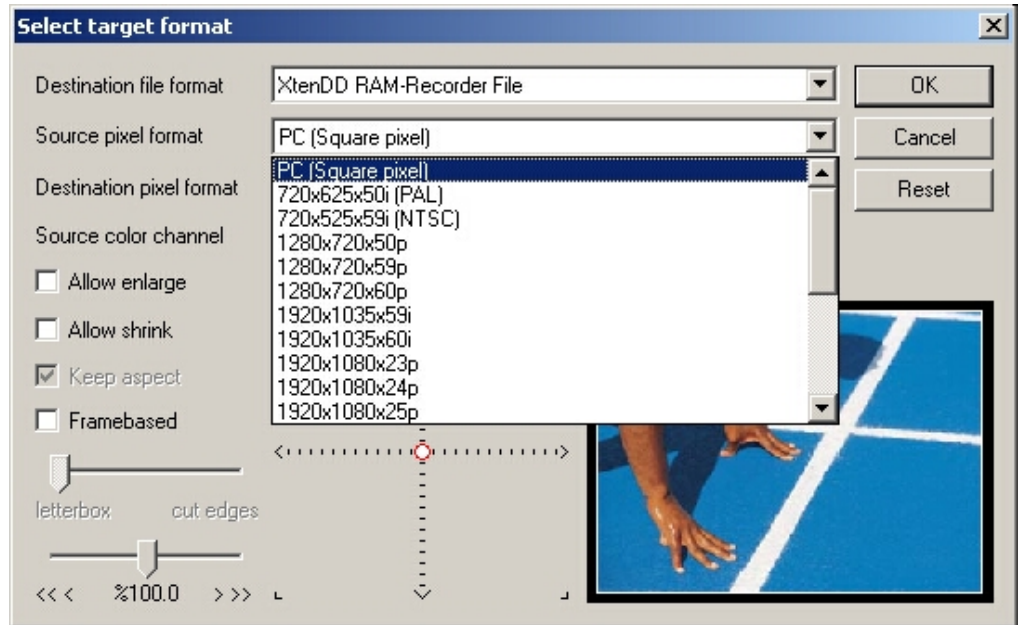
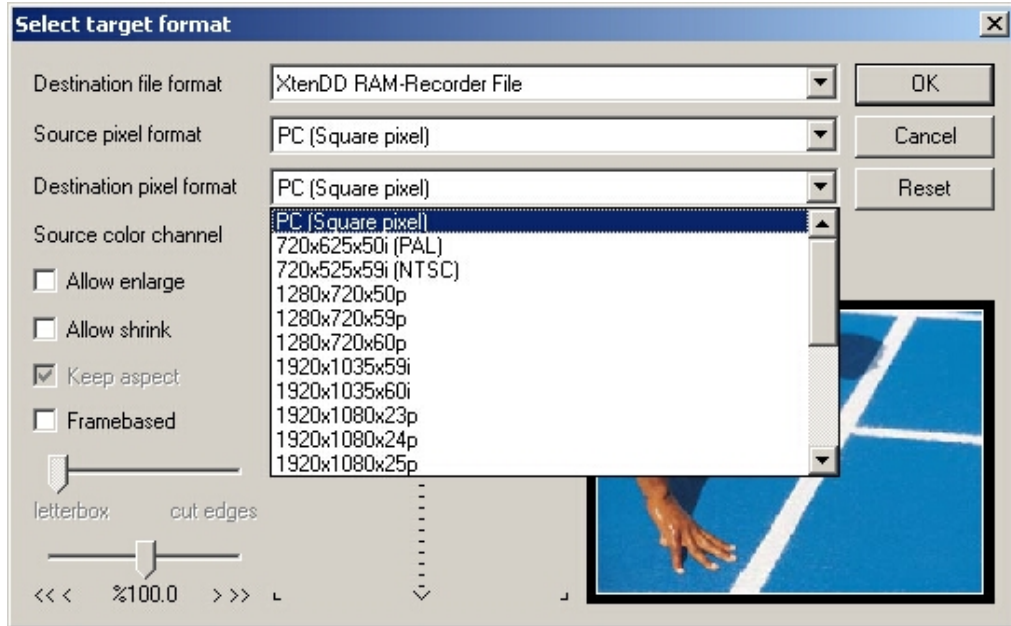


Figure 240 RAM Recorder – Image Converter – Source Pixel Format

### 7.7.4.3 Destination Pixel Format

Actuating the **Convert** button opens a dialog window for the detail adjustments. The following destination pixel formats can be adjusted:



If the source and destination pixel format is different, the image is resized to maintain the aspect ratio 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.

### 7.7.4.4 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.

#### **7.7.4.5 Untangle**

The UNTANGLE feature can be used for clips. Selecting the function cuts a clip in single frames.

## 7.8 Installation Menu

### 7.8.1 Install Main Menu

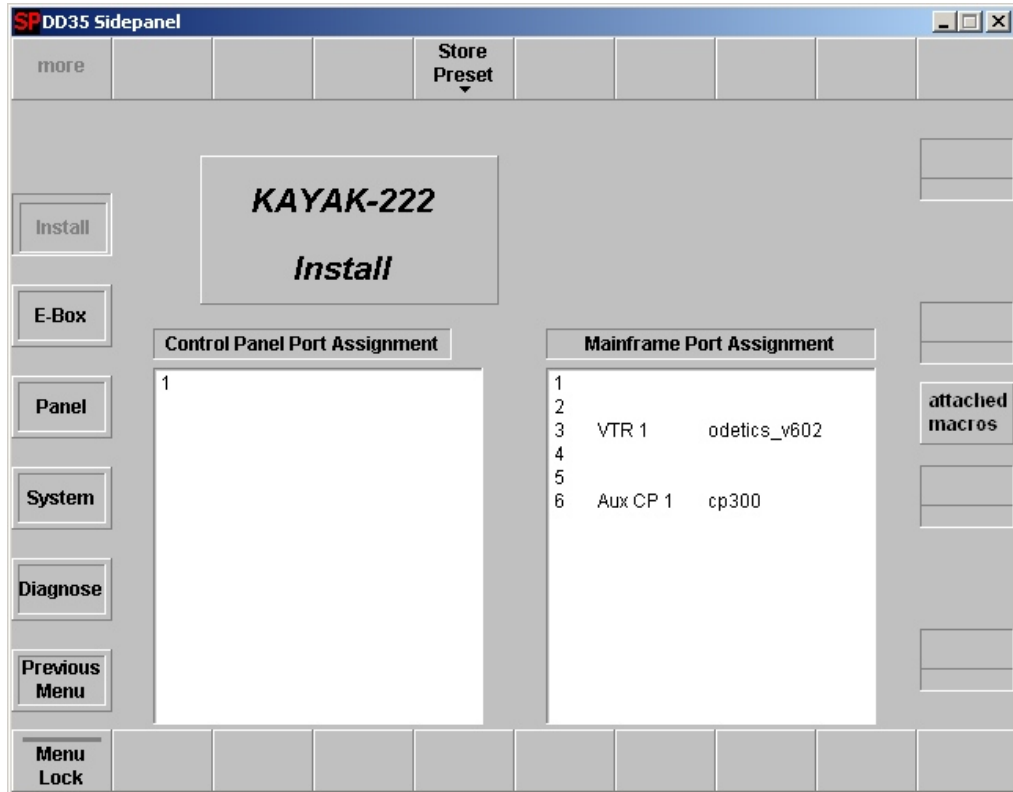


Figure 241 Sidepanel – Install Main Menu

Main menu with displays of the current control panel and mainframe port assignment.

#### 7.8.1.1 Dialog Buttons

- **E-Box**  
Selecting E-Box Install menu.
- **Panel**  
Selecting Panel Install menu.
- **System**  
Selecting System menu. Menu not yet implemented.
- **Diagnose**  
Selecting Diagnose menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.



### 7.8.1.2 Saving Operation Preset Data

Saving operation data as user defined preset is possible with the button Store Preset in the Install / E-Box menu.



- **OK**  
The complete mainframe operational setting is saved as to be the new "operational preset" setting.
- **Cancel**  
Canceling the save procedure.

## 7.8.2 Install E-Box Menu

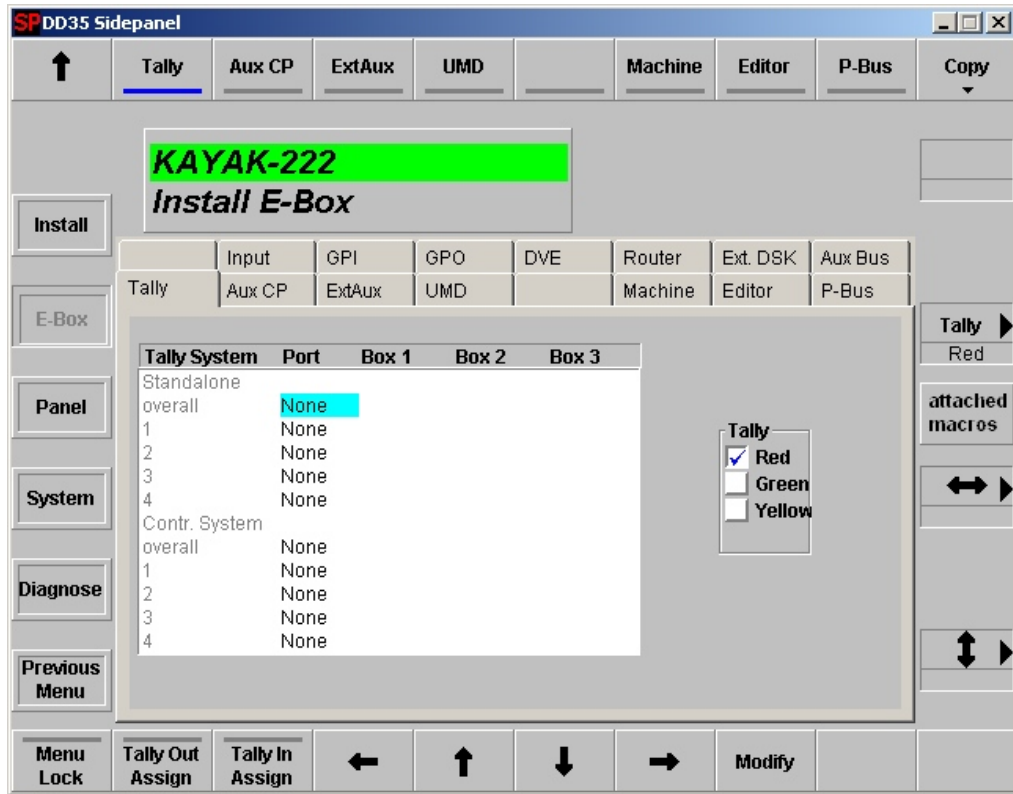


Figure 242 Sidepanel – Install E-Box Menu

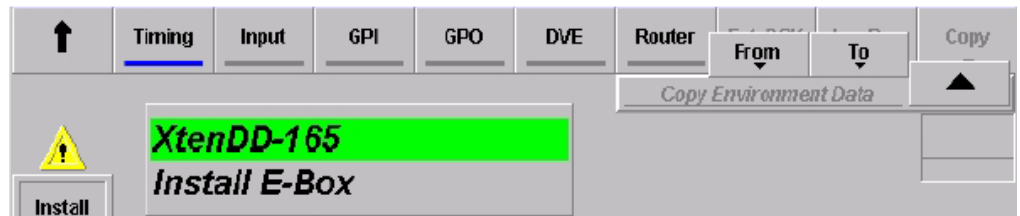
### 7.8.2.1 Dialog Buttons

- **Install**  
Selecting Install main menu.
- **Panel**  
Selecting Install Panel menu.
- **System**  
Selecting System menu.
- **Diagnose**  
Selecting Diagnose menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

## 7.8.2.2 Function Buttons / Index Cards

### 7.8.2.2.1 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 harddisk.



**CAUTION!** After loading the environment file, the switcher will reset!

7.8.2.2.2 Input

Index card for setting the input name transfer parameters and the Software patch Panel.

Tally	Aux CP	ExtAux	UMD		Machine	Editor	P-Bus
	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus
Subst. Table none							
Input	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							

Figure 243 Sidepanel – Index Card Copy

- 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 resetted.
- 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 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".

7.8.2.2.3 GPI

Index card for modifying the GPI parameters.

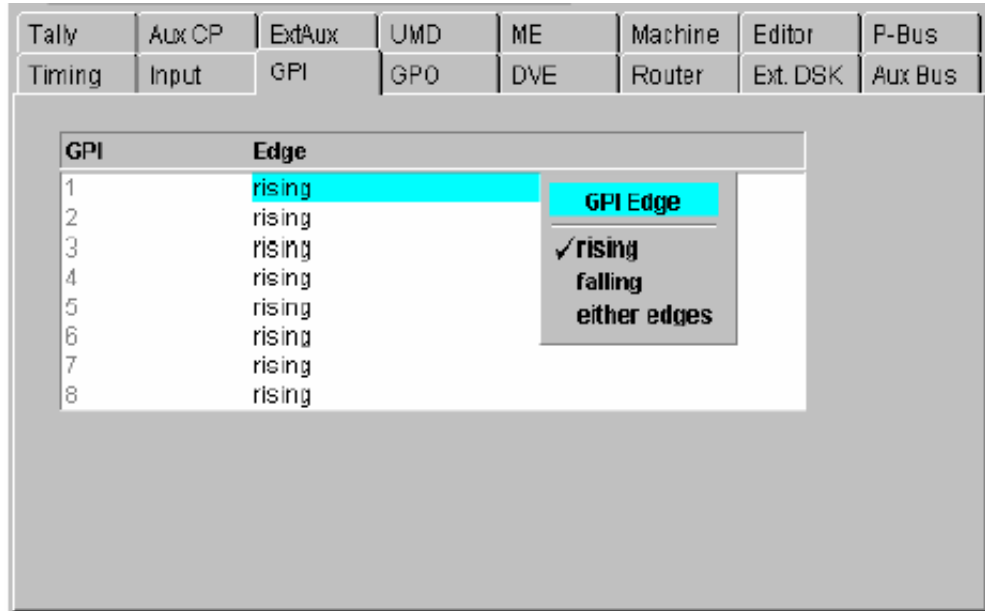


Figure 244 Sidepanel – Index Card GPI

Select Modify to determine wheatear 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.

7.8.2.2.4 GPO

Index card for selecting and modifying the 32 GPO parameters.

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

Figure 245 Sidepanel – Index Card GPO

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

7.8.2.2.5 DVE

Index card for selecting and modifying the DVE parameters.

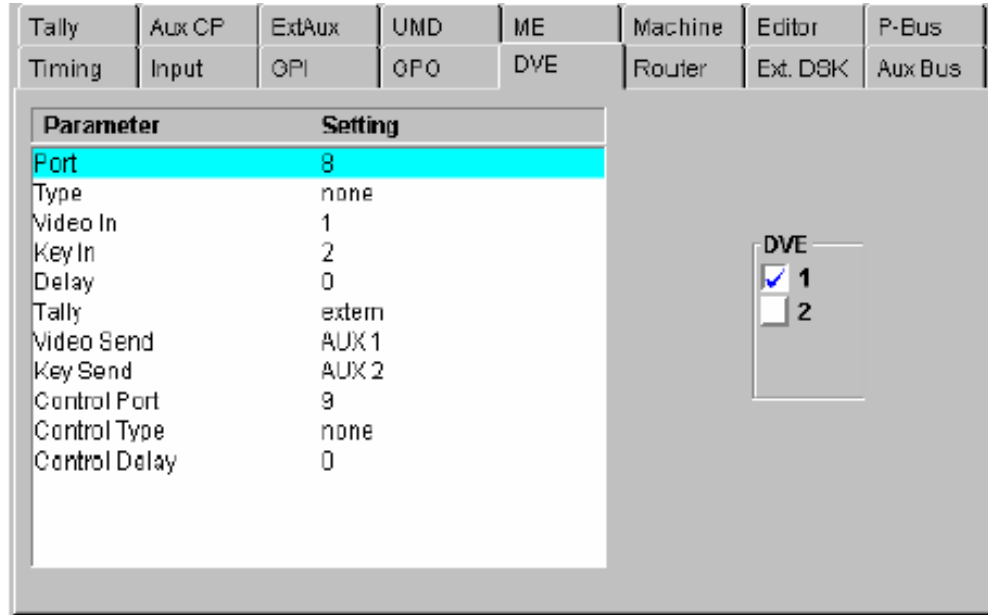


Figure 246 Sidepanel – Index Card DVE

For details refer to the respective section *Digital Video Effect System Integration* in your Planning & Installation Manual.

7.8.2.2.6 Router

Index card for selecting and modifying the parameters of external routers.

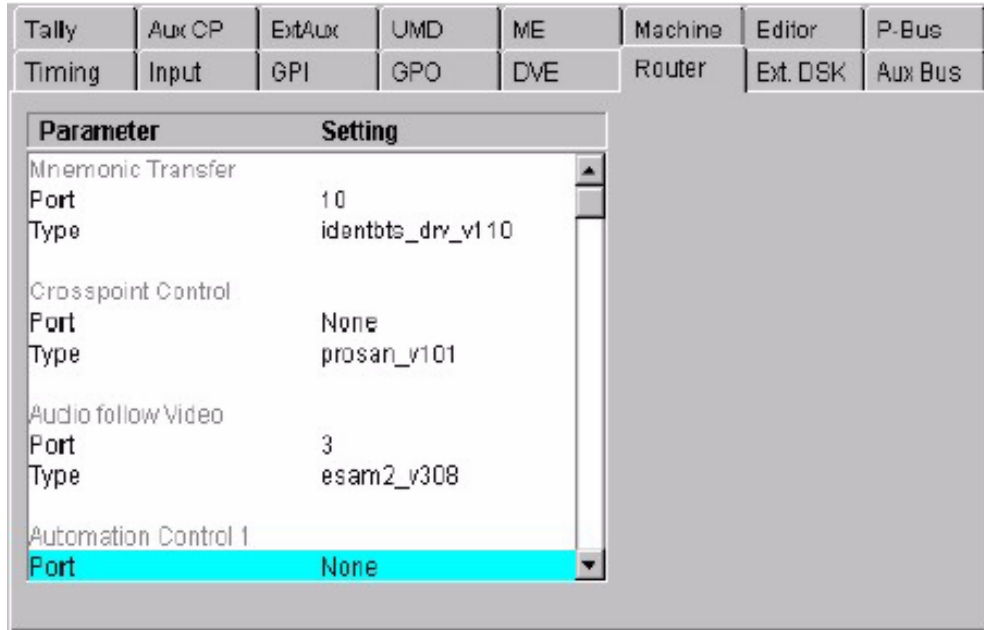


Figure 247 Sidepanel – Index Card Router

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 busses.
- Audio follow Video:** Control protocol for Audio follow Video, e.g. "esam2\_V308"
- Automatic Control:** Control protocol for Autom. control system protocol , e.g. "acos\_V300"



7.8.2.2.7 Ext DSK

Index card for installation the external DSK parameters.

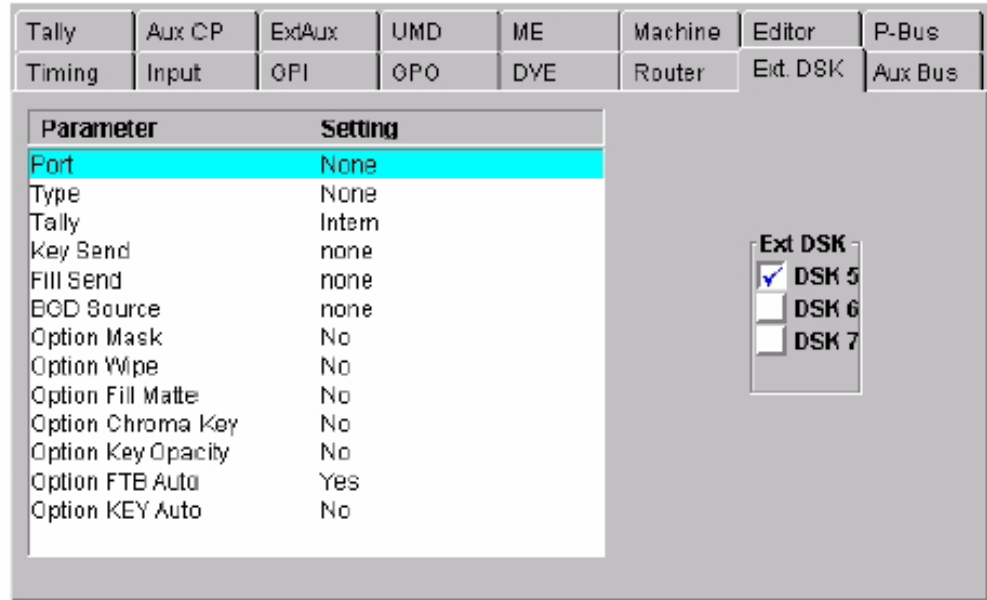


Figure 248 Sidepanel – Index Card External DSK

For details refer to the section *External Downstream Keyers* in your Planning & Installation Manual.

7.8.2.2.8 Aux Bus

Index card for installation the Aux Bus parameters.

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				

Figure 249 Sidepanel – Index Card Aux Busses

All 10 Aux buses of the KayakDD are generally phased. Output coding and Permanent Input can be selected by pressing the Modify button.

7.8.2.2.9 Tally

Index card for selecting Tally ports and setting the MI-3040 box addresses.

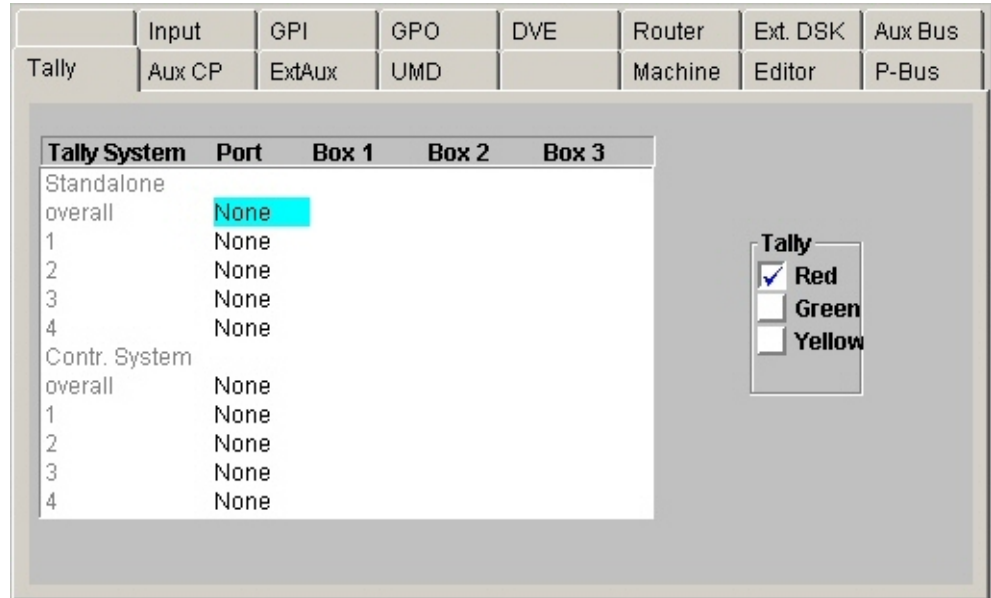


Figure 250 Sidepanel – Index Card Tally

**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 "Tally Signaling" in your Planning & Installation Manual.

Pressing the button Tally Out Assignment opens a new dialog page for 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

Figure 251 Sidepanel – Index Card Tally Assignment

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.

7.8.2.2.10 Aux CP

Index card for installing the Aux Control Panels connected with the mainframe. For Details refer to the Planning and Installation Manual.

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	not inst.
2	cp330	None	not inst.
3	none	None	not inst.
4		None	not inst.

Figure 252 Sidepanel – Index Card Aux CP

**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).

7.8.2.2.11 Ext Aux

Index card for selecting and modifying the external Aux parameters.

Timing	Input	GPI	OPO	DVE	Router	Ext. DSK	Aux Bus																																																
Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus																																																
<table border="1"> <thead> <tr> <th>ExtAux Bus</th> <th>Router Output</th> <th>Router Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>2</td> <td>1</td> </tr> <tr> <td>3</td> <td>3</td> <td>2</td> </tr> <tr> <td>4</td> <td>4</td> <td>3</td> </tr> <tr> <td>5</td> <td>5</td> <td>4</td> </tr> <tr> <td>6</td> <td>6</td> <td>5</td> </tr> <tr> <td>7</td> <td>7</td> <td>6</td> </tr> <tr> <td>8</td> <td>8</td> <td>7</td> </tr> <tr> <td>9</td> <td>58</td> <td>0</td> </tr> <tr> <td>10</td> <td>59</td> <td>1</td> </tr> <tr> <td>11</td> <td>60</td> <td>2</td> </tr> <tr> <td>12</td> <td>61</td> <td>3</td> </tr> <tr> <td>13</td> <td>62</td> <td>4</td> </tr> <tr> <td>14</td> <td>63</td> <td>5</td> </tr> <tr> <td>15</td> <td>64</td> <td>6</td> </tr> </tbody> </table>								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
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																																																					

Figure 253 Sidepanel – Index Card Ext Aux

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.

7.8.2.2.12 UMD

Index card for installation the Under Monitor Displays and set the tally mode.

Timing	Input	OPI	OPO	DVE	Router	Ext. DBK	Aux Bus
Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	F-Bus
UMD Address	Display 1	Display 2	Display 3				
1	D	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

Figure 254 Sidepanel – Index Card UMD

For details refer to the section “Under Monitor Displays” in your Installation Manual.

7.8.2.2.13 Machine

Index card for installation the machine parameters (e.g. VTR) for Machine Control and VTR Emulation.

Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	Aux Bus																																																		
Tally	Aux CP	ExtAux	UMD	ME	Machine	Editor	P-Bus																																																		
<b>Machine Control</b>				<b>VTR Emulation</b>																																																					
<table border="1"> <thead> <tr> <th>Parameter</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Machine 1</td> <td></td> </tr> <tr> <td>Port</td> <td>1</td> </tr> <tr> <td>Type</td> <td>bw75play_v102</td> </tr> <tr> <td>Machine 2</td> <td></td> </tr> <tr> <td>Port</td> <td>2</td> </tr> <tr> <td>Type</td> <td>none</td> </tr> <tr> <td>Machine 3</td> <td></td> </tr> <tr> <td>Port</td> <td>3</td> </tr> <tr> <td>Type</td> <td>none</td> </tr> <tr> <td>Machine 4</td> <td></td> </tr> <tr> <td>Port</td> <td>4</td> </tr> </tbody> </table>				Parameter	Setting	Machine 1		Port	1	Type	bw75play_v102	Machine 2		Port	2	Type	none	Machine 3		Port	3	Type	none	Machine 4		Port	4	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>VTR Emulation 1</td> <td></td> </tr> <tr> <td>Port</td> <td>None</td> </tr> <tr> <td>Type</td> <td>None</td> </tr> <tr> <td>Device</td> <td>none</td> </tr> <tr> <td>VTR Emulation 2</td> <td></td> </tr> <tr> <td>Port</td> <td>None</td> </tr> <tr> <td>Type</td> <td>None</td> </tr> <tr> <td>Device</td> <td>none</td> </tr> <tr> <td>VTR Emulation 3</td> <td></td> </tr> <tr> <td>Port</td> <td>None</td> </tr> <tr> <td>Type</td> <td>None</td> </tr> <tr> <td>Device</td> <td>none</td> </tr> </tbody> </table>				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
Parameter	Setting																																																								
Machine 1																																																									
Port	1																																																								
Type	bw75play_v102																																																								
Machine 2																																																									
Port	2																																																								
Type	none																																																								
Machine 3																																																									
Port	3																																																								
Type	none																																																								
Machine 4																																																									
Port	4																																																								
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																																																								

Figure 255 Sidepanel – Index Card Machine

The setting can be changed by navigating the parameter and pressing the Modify button. For operating refer to section *Machine Control*.



7.8.2.2.14 Editor

Index card for installation the Editor parameters.

Timing	Input	GPI	GPO	DVE	Router	Ext. DSK	AUX BUS
Tally	Aux CP	ExtAUX	UMD	ME	Machine	Editor	P-Bus

Parameter	Setting
Port	None
Type	none

**Editor**

- 1
- 2
- 3
- 4

Figure 256 Sidepanel – Index Card Editor

For details refer to the section “Editor Control” in your Installation Manual.

7.8.2.2.15 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.

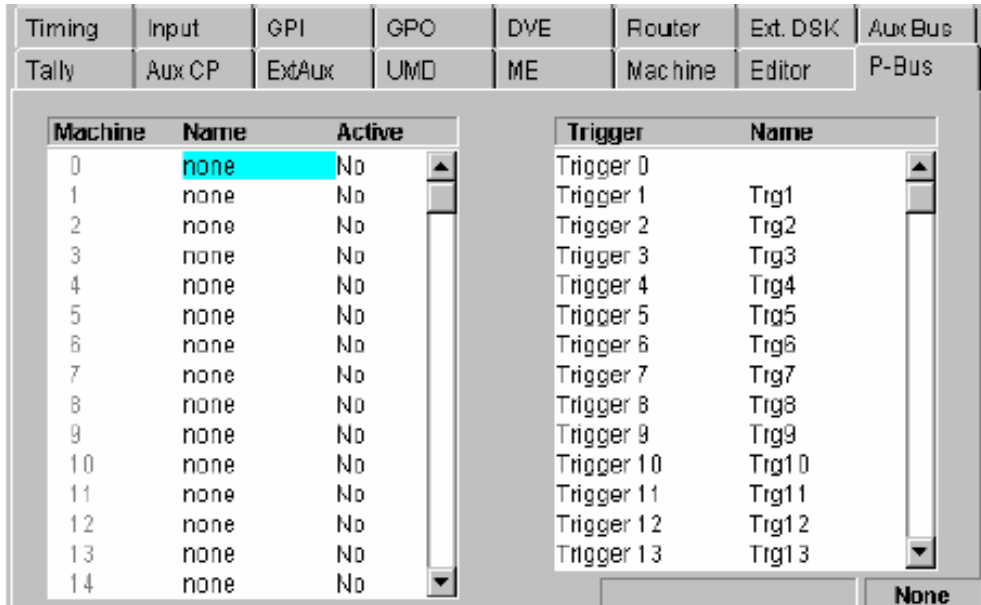


Figure 257 Sidepanel – Index Card P-Bus

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 section Remote P-Bus / Trigger.

### 7.8.3 Install Panel Menu

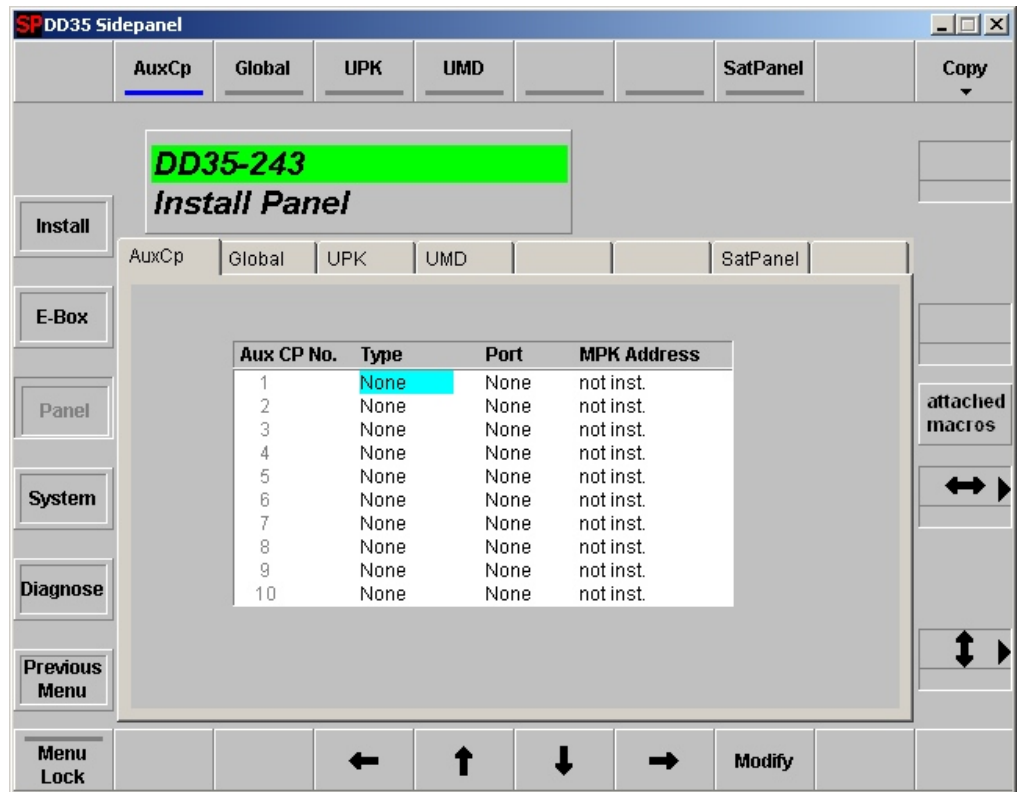


Figure 258 Sidepanel – Install Panel Menu

#### 7.8.3.1 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 section *Introduction*.

**7.8.3.2 Function Buttons / Index Cards**

7.8.3.2.1 Menu Lock

For details refer to section *Introduction*.

7.8.3.2.2 Cursor Up/Down/Left/Right

The cursor buttons are used to navigate within the table

7.8.3.2.3 Aux CP

Index card for installing the Aux Control Panels connected to the switcher control panel. For Details refer to your the Planning and Installation Manual.

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.

Figure 259 Sidepanel – Index Card Aux CP

**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 to the label at the rear of the panel modules (e.g. CP-3020: e0002d43).

7.8.3.2.4 Global

Index card for performing global panel settings and fader adjustment.

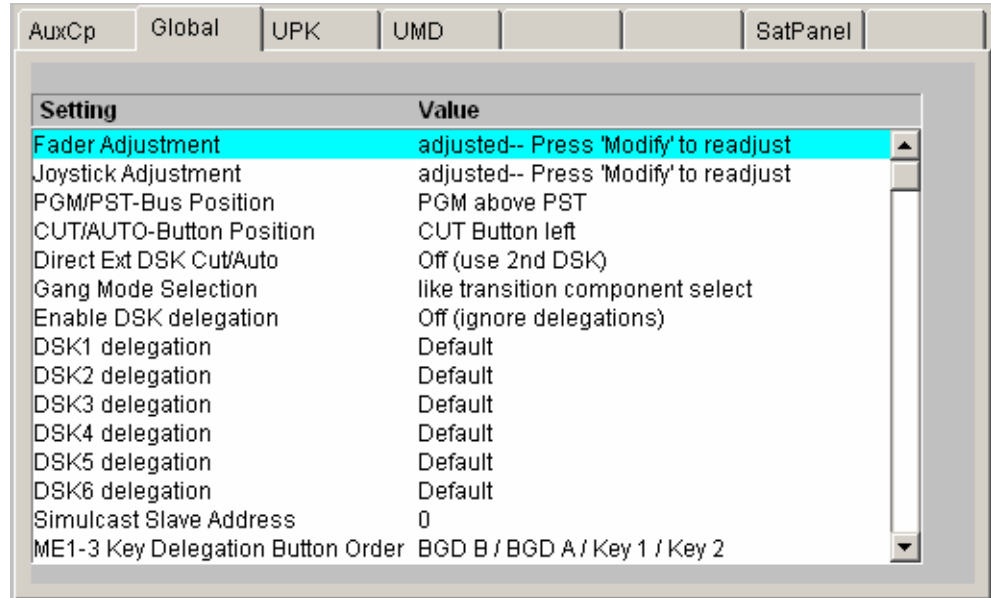


Figure 260 Sidepanel – Index Card Aux Global

**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. Press Modify, a pup-up menu with dialog messages appears. 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”.

Move all faders to the lower end-position and select the entry in the pup-up menu “Move all faders to the lower position and press OK”. The automatic adjustment is finish.

End-position means: Move the fader with gentle force as far as it will go.

During the fader adjustment the fader moving have no effect on video signals!

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

7.8.3.2.5 **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.

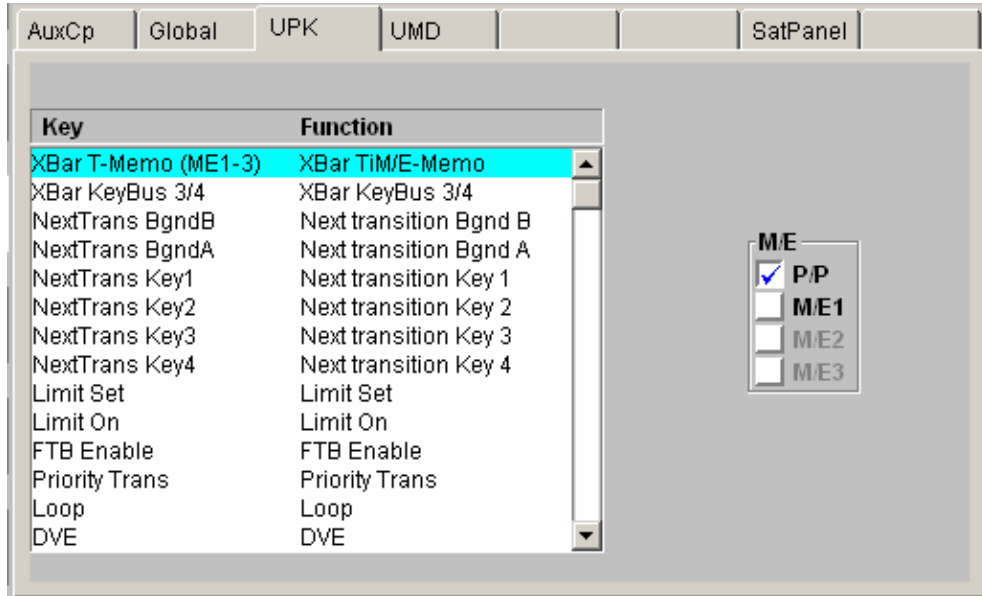


Figure 261 Sidepanel – Index Card UPK

The following buttons are programmable:

- **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 that the number of buttons is dependent on it panel type.

The following functions are programmable for the respective buttons described above:

- **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**

7.8.3.2.6 UMD

Index card for installation the Under Monitor Displays and set the tally mode.

AUXCp Global UPK UMD GPI GPO SatPanel					
UMD	Address	Display 1	Display 2	Display 3	
1	0	PP PwW Out	none	none	
2	not inst.	none	none	none	
3	not inst.	none	none	none	
4	not inst.	none	none	none	
5	not inst.	none	none	none	
6	not inst.	none	none	none	
7	not inst.	none	none	none	
8	not inst.	none	none	none	
9	not inst.	none	none	none	
10	not inst.	none	none	none	
11	not inst.	none	none	none	
12	not inst.	none	none	none	

None Red / Red

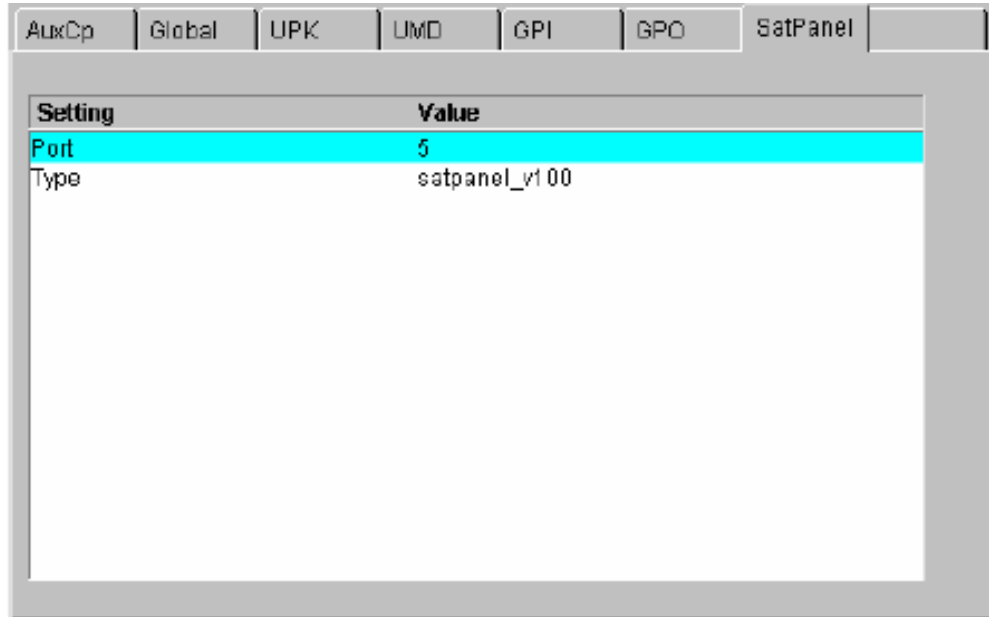
Figure 262 Sidepanel – Index Card UMD

For details refer to the section *Under Monitor Displays* in your Planning & Installation Manual.



7.8.3.2.7 Sat Panel

Index card for installation the Satellite Panel RSAT.



Setting	Value
Port	5
Type	satpanel_v100

Figure 263 Sidepanel – Index Card Sat Panel

Select Modify to set the port number and protocol type.

## 7.9 System Menu

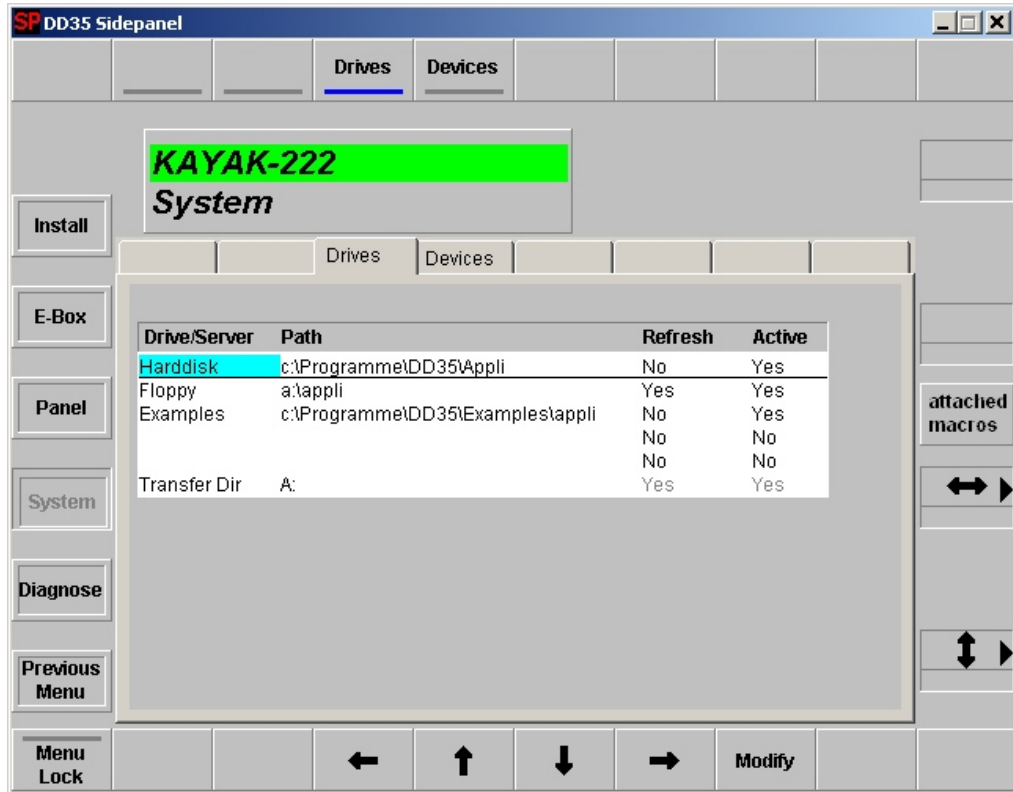


Figure 264 Sidepanel – System Menu

### 7.9.1 Dialog Buttons

- **Install**  
Selecting Install main menu.
- **E-Box**  
Selecting E–Box Install menu.
- **Panel**  
Selecting Panel Install menu.
- **Diagnose**  
Selecting Diagnose menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.9.1.1 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:	Yes	Yes

Figure 265 Sidepanel – Index Card Drives

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.

7.9.1.2 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)

Figure 266 Sidepanel – Index Card Devices

The Device name of control panel and mainframe can be renamed by using the Modify button.

## 7.9.2 Diagnosis Menu

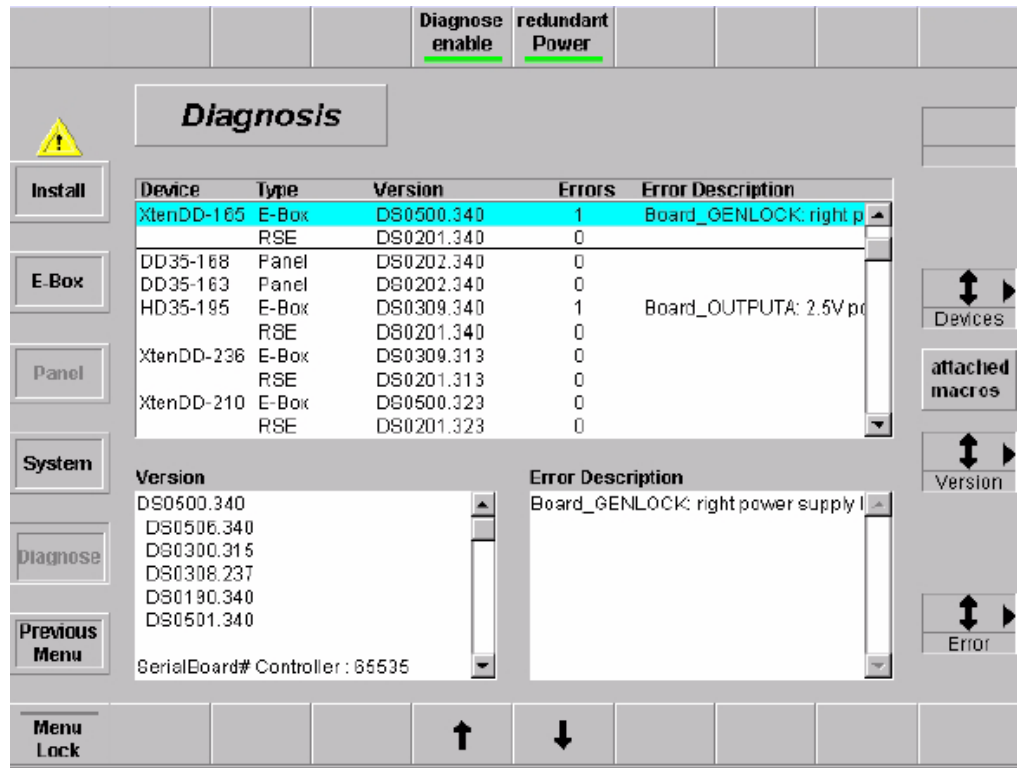
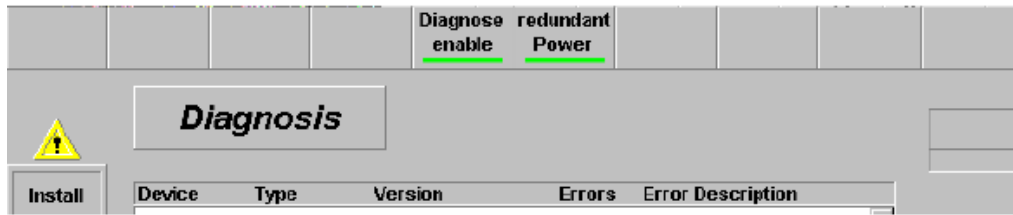


Figure 267 Sidepanel – Diagnosis Menu

### 7.9.2.1 Dialog Buttons

- **Install**  
Selecting Install main menu.
- **E-Box**  
Selecting E-Box Install menu.
- **Panel**  
Selecting Panel Install menu.
- **System**  
Selecting System menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.9.2.2 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.

### 7.9.2.3 Possible Error Messages

**Mainframe** in preparation

If a local error message occurs, the alarm output conducts at the rear of the mainframe.



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

## 7.10 Configuration Menu

### 7.10.1 Config Main Menu

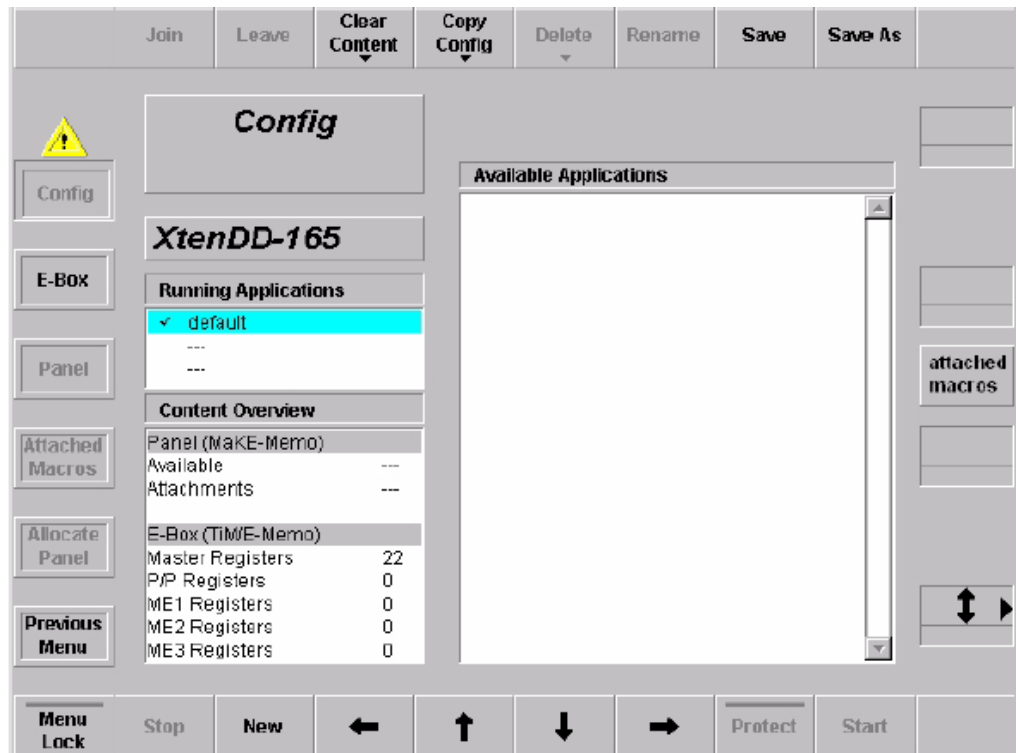


Figure 268 Sidepanel – Config Main Menu

The application main menu is designed to handle the use of applications within a switcher system. Applications can be loaded from harddisk 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 harddisk.

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 harddisk "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 harddisk. 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 harddisk. 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).

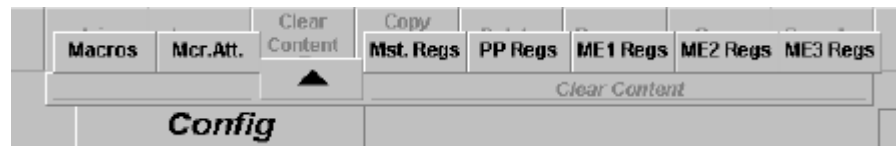
#### 7.10.1.1 Dialog Buttons

- **E-Box**  
Selecting Config E-Box menu.
- **Panel**  
Selecting Config Panel menu.
- **Allocate Resource**  
Selecting Allocate Resource menu.
- **Allocate Panel**  
Selecting Allocate Panel menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.



### 7.10.1.2 Function Buttons

- Join**  
 This function is used to join the local sidepanel to a running application. The button is only relevant for the list box "Running Applications".
- 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".
- Clear Content**  
 The Clear Contents is used to delete the selected registers (MaKE memos, TiM/E memos) in the attached panel and connected mainframe.



- Copy Config**  
 For details refer to section 3.16.1.3 *Copy Config*.
- Delete**  
 The Delete button is used to delete complete application entries on the local harddisk. Thus it is only relevant if the cursor points to an application stored there.
- Rename**  
 The rename function is apply able on 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 harddisk.
- Save**  
 Starts saving an application on the local harddisk. The button is only relevant if the cursor points to a running application.
- Save As**  
 Starts saving an application on the local harddisk after entering a new name for the application. The new application name is read by an input dialog.

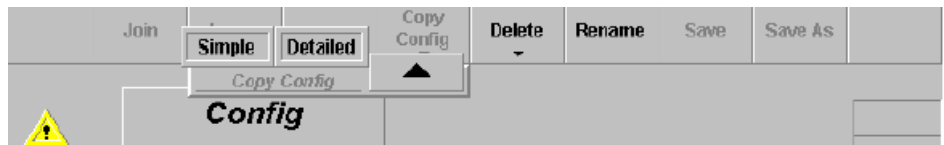
- **Menu Lock**  
For details refer to section *Introduction*.
- **Stop**  
Stops the running application where the cursor points to. All allocated resources are given to the default application.
- **New**  
Creates a new application. The button is relevant if the cursor points to a free application 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 harddisk and starts it.

## 7.10.2 Copy Config

- **Simple**

To save or exchange applications or user-specific data from the switcher harddisk to a floppy or vice versa, a new Copy function with new menus is implemented.

Select the new menu in the Config menu:



Complete applications can be stored.

- **Detailed**

Single files can be stored.

### 7.10.3 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.

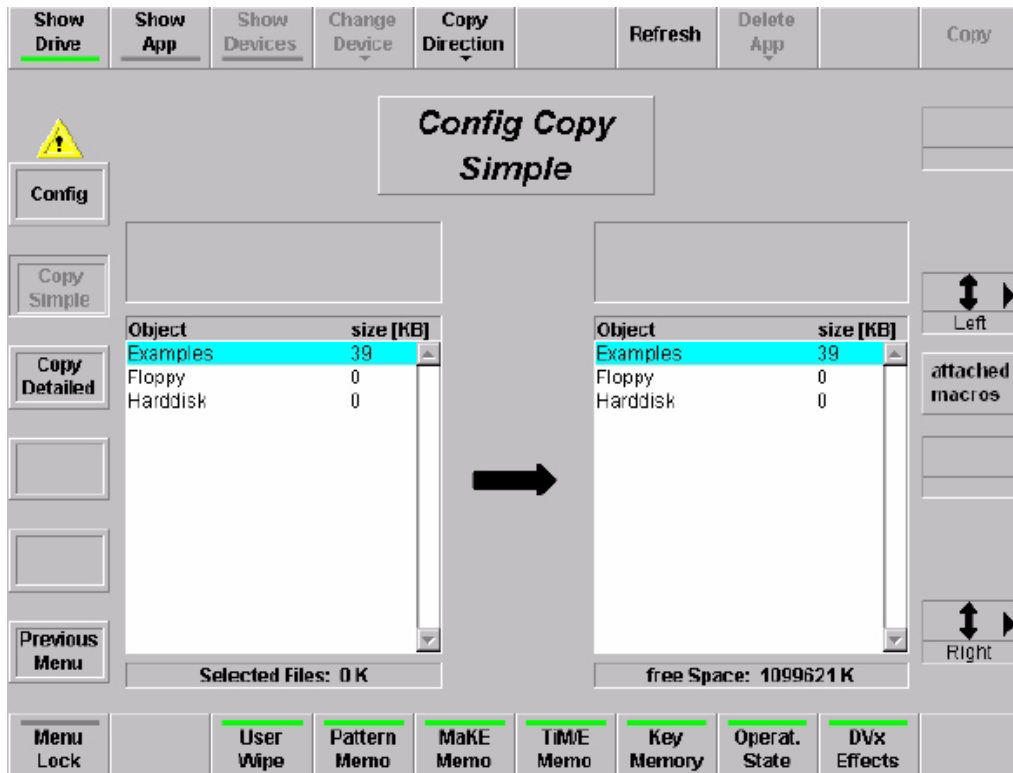


Figure 269 Sidepanel – Config Copy Simple Menu

- **Show Drive**  
Internal harddisk 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.

### 7.10.4 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.

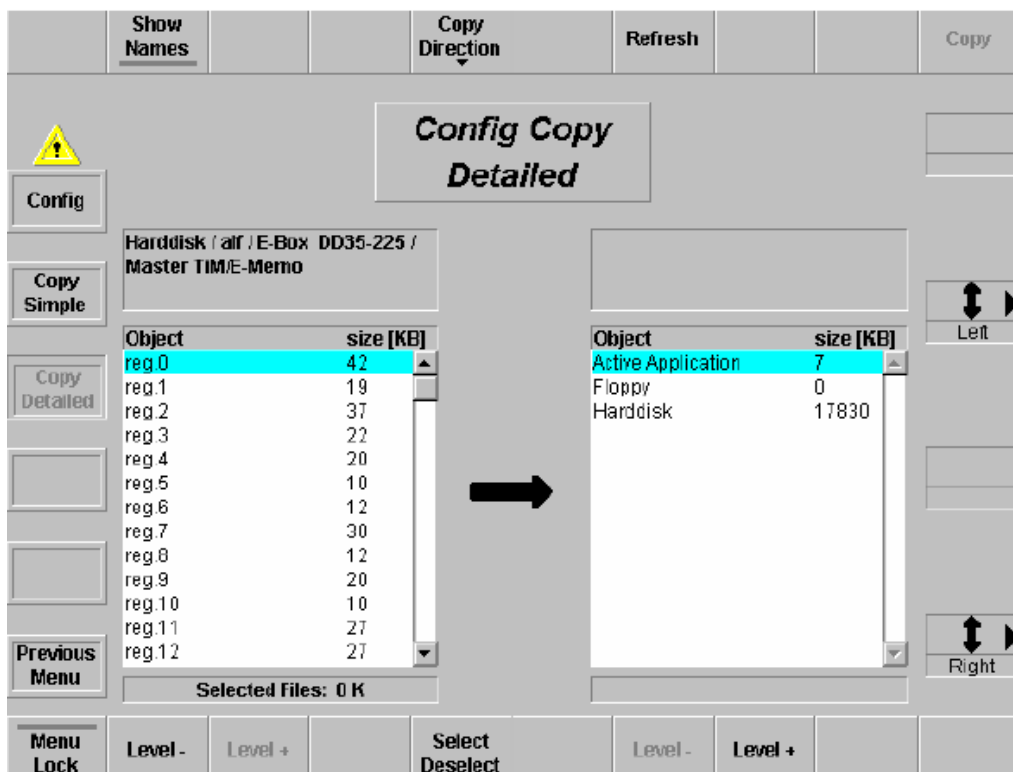


Figure 270 Sidepanel – Copy Config Detailed Menu

- **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.

### 7.10.5 Config E-Box Menu

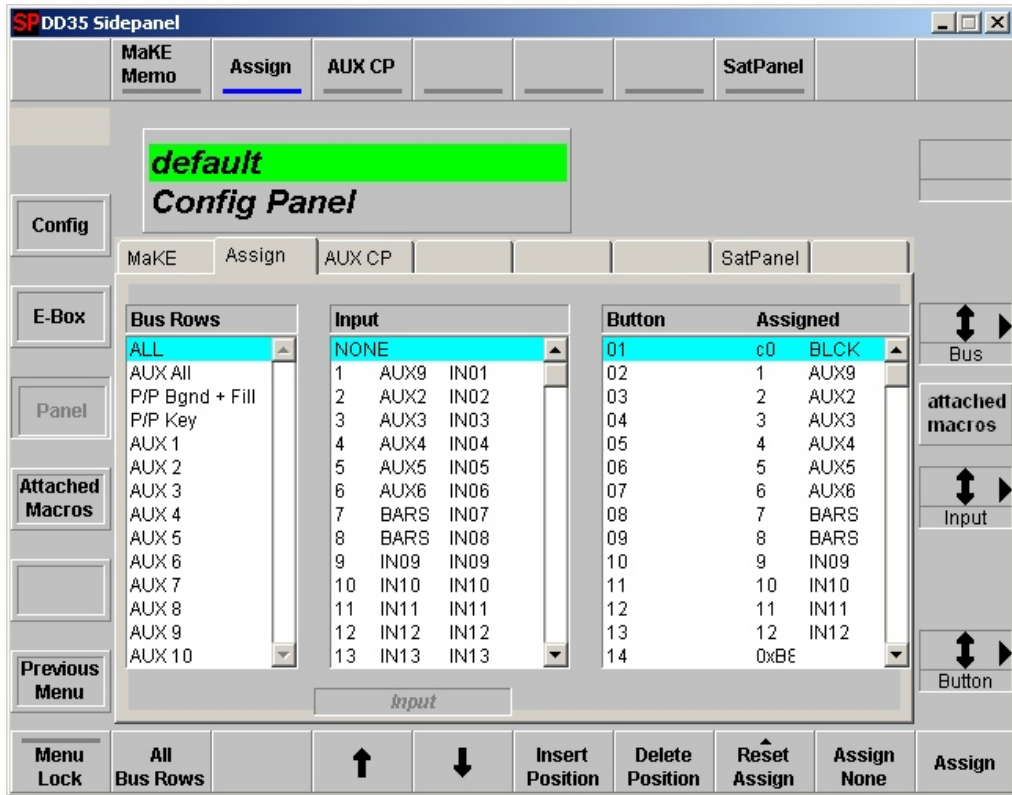


Figure 271 Sidepanel – Config E-Box Menu

#### 7.10.5.1 Dialog Buttons

- **Config**  
Selecting Config menu.
- **Panel**  
Selecting Panel menu.
- **Allocate Resource**  
Selecting Allocate Resource menu.
- **Allocate Panel**  
Selecting Allocate Panel menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section Introduction.



### 7.10.5.2 Function Buttons

- **Menu Lock**
- **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.

### 7.10.5.3 Index Cards

#### 7.10.5.3.1 Audio

Index card serves for adjustment of audio switchers via the ESAM2 protocol.

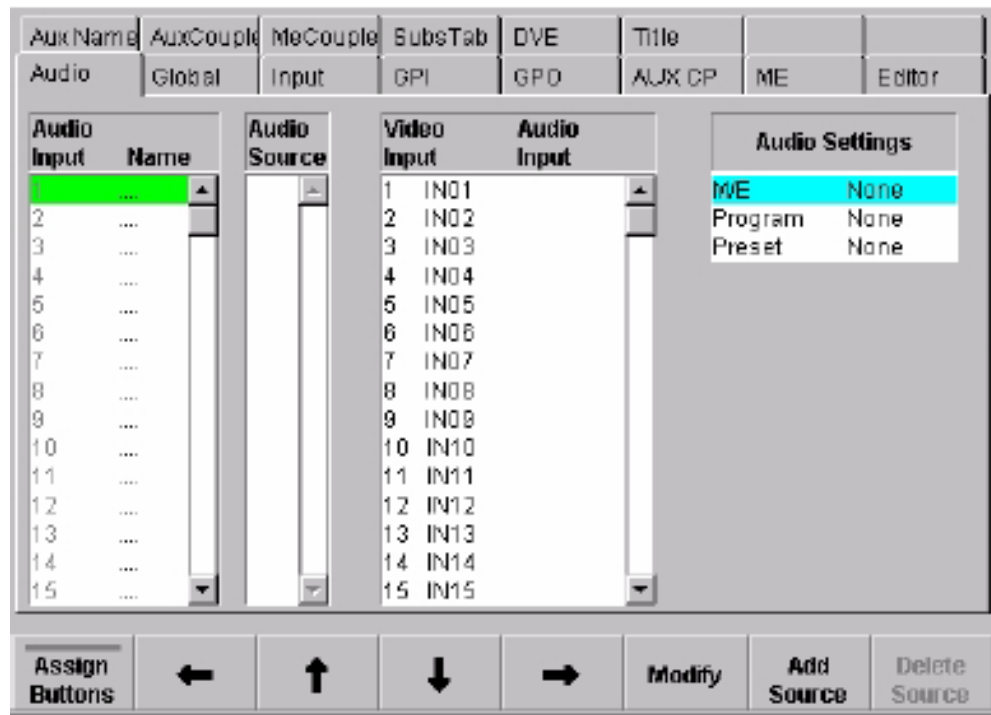


Figure 272 Sidepanel – Index Card Audio

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 enable 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 busses for Audio Program / Audio Preset.

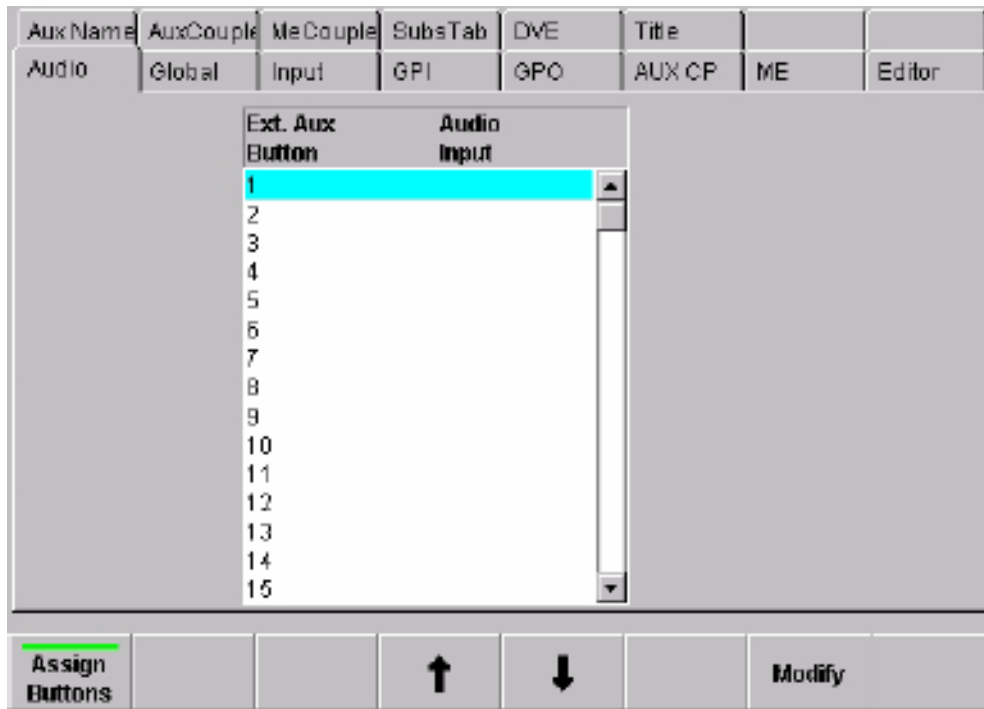


Figure 273 Sidepanel – Index Card Audio Assign

**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 to control the two busses as EXT AUX BUSSES. When switching on these and simultaneously on the corresponding video crossbar, the principle is applied that "the last" is winning.

With the ESAM2 protocol, transition with the fader is not possible.

**NOTE!**

**The YAHAMA DM1000 audio switcher has different Input No. as in the ESAM-2 protocol defined:**

- **When selecting "Video Input 1" "Audio fader input 8" is responding!**
- **When selecting "Video Input 2" "Audio fader input 7" is responding!**
- **When selecting "Video Input 3" "Audio fader input 6" is responding!**
- **When selecting "Video Input 4" "Audio fader input 5" is responding!**
- **When selecting "Video Input 8" "Audio fader input 1" is responding!**
- **When selecting "Video Input 9" "Audio fader input 16" is responding!**
- **When selecting "Video Input 10" "Audio fader input 15" is responding!**

7.10.5.3.2 Global

Index card for global settings.

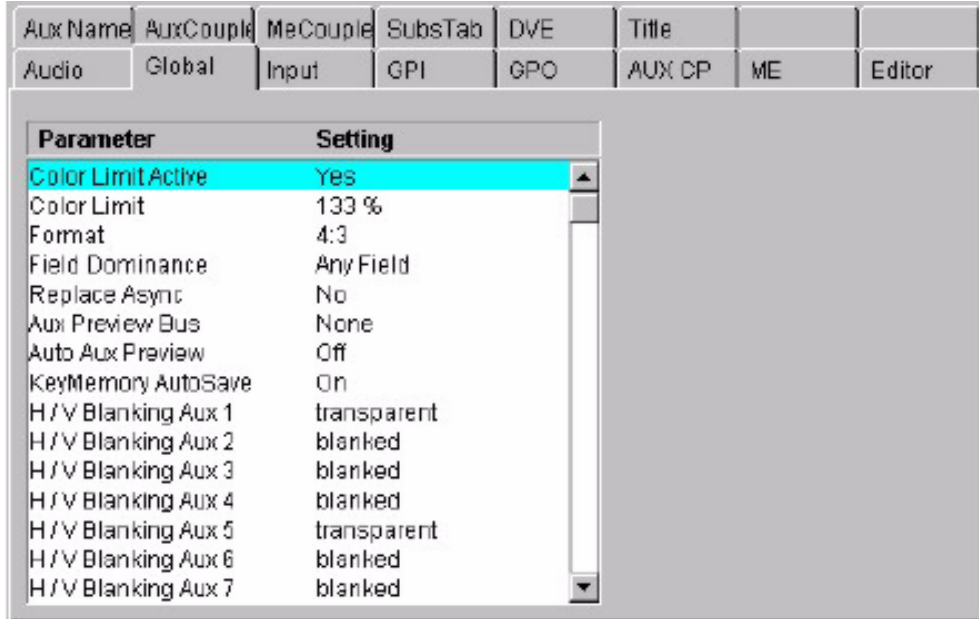


Figure 274 Sidepanel – Index Card Global

With button Modify 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 busses, 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 FIELD1/2 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:
1. 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.
2. Manual Storing
- Key Memory AutoSave=Off. For storing the current settings into the key memory, press the button of the respective Fill source approx. 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 busses separately

7.10.5.3.3 Input

Index card for input settings

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	---		

Figure 275 Sidepanel – Index Card Input

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.

7.10.5.3.4 GPI

Index card for GPI settings

Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title	Tally In	
Audio	Global	Input	GPI	GPO	AUX CP	ME	Editor
GPI Name		Function		Parameter			
1	GP11	None		<b>GPI 1 Function</b>			
2	GP12	None		✓ None			
3	GP13	None		Command			
4	GP14	None		Misc =>			
5	GP15	None		Autotransition =>			
6	GP16	None					
7	GP17	None					
8	GP18	None					

Figure 276 Sidepanel – Index Card GPI

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 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 needs not 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.
- Auto transition:** 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 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 GPICDMDF.TXT (mainframe) and GPICMDCP.TXT (panel). These files are contained in the directory c:/programme/dd35/bin.*

*For entry, a special syntax has to be considered. It is possible to add predefined 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.*



7.10.5.3.5 GPO

Index card for GPO settings.

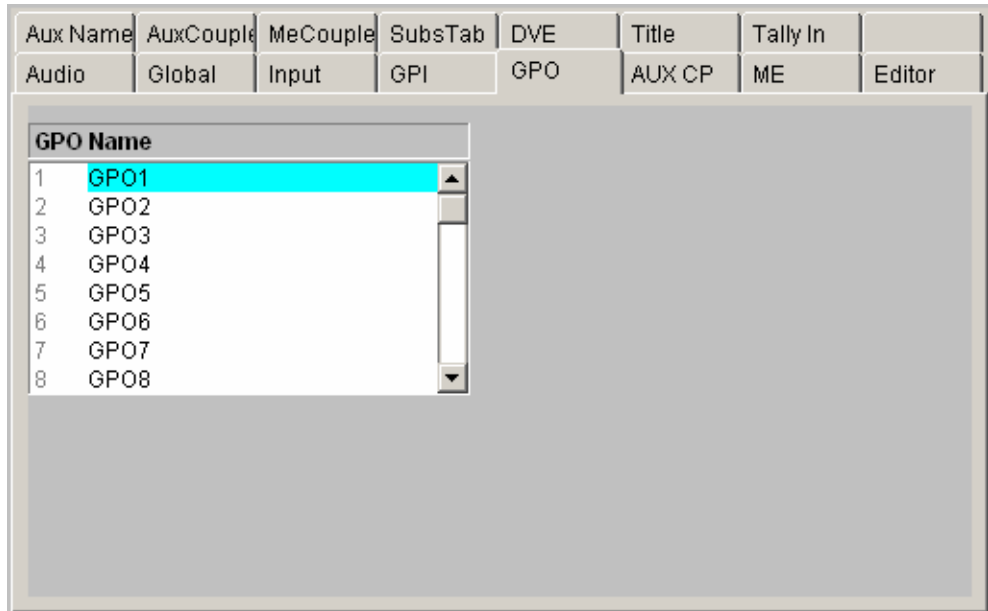


Figure 277 Sidepanel – Index Card GPO

With the Modify button, names can be assigned to the GPOs.

7.10.5.3.6 Aux CP

Index card for configuration the Aux Control Panels connected to the mainframe.

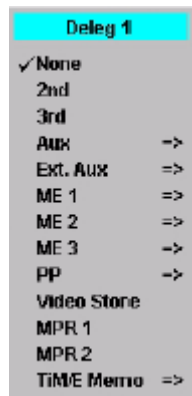
Aux Name	AuxCouple	MeCouple	SubsTab	DVE	Title		
Audio	Global	Input	GPI	GPD	AUX CP	ME	Editor
Aux Cp	Deleg 1	Deleg 2	Deleg 3	Deleg 4	Deleg 5	Deleg 6	
1	None	None	None	None	None	None	None
2	None	None	None	None	None	None	None
3	None	None	None	None	None	None	None
4	None	None	None	None	None	None	None

Assign	←	↑	↓	→	Modify
--------	---	---	---	---	--------

Figure 278 Sidepanel – Index Card Aux CP

Modify Opens a pop-up window with the functions that can be programmed.



**None:** no function

**2<sup>nd</sup>:** This button is used as 2nd button i.e. shifts the source selection buttons

**3<sup>rd</sup>:** This button is used as 3<sup>rd</sup> button i.e. shifts the source selection buttons

**AUX n - M/E Bus - P/P Bus:**

This buttons delegates the AUX-CP to 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, 2<sup>nd</sup> or 3<sup>rd</sup> 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 2<sup>nd</sup> and 3<sup>rd</sup>. 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 busses, 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 below.

The procedure for input assignment is very similar to the input assignment for the control panel.

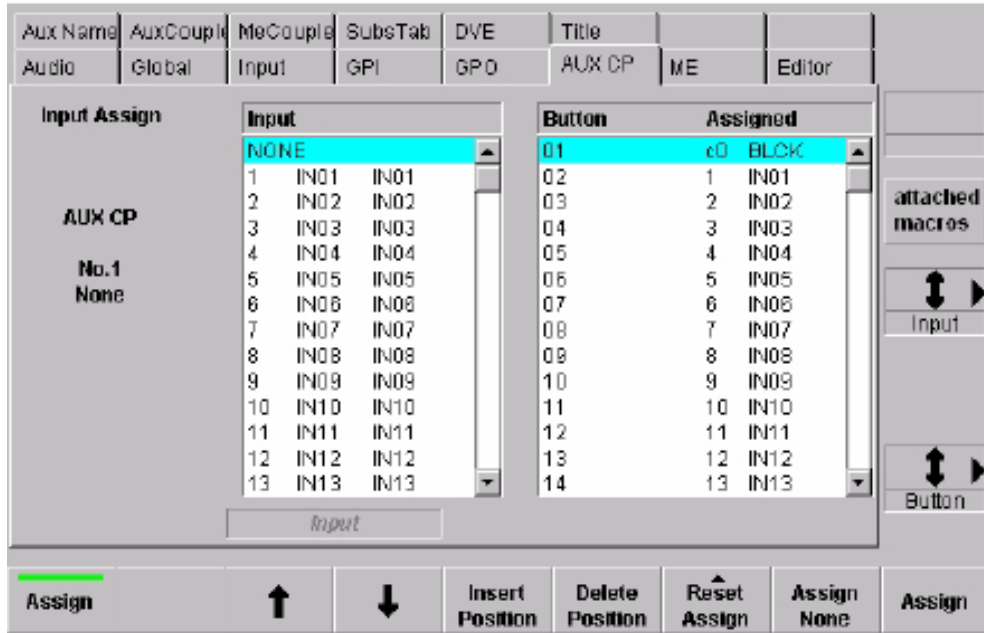


Figure 279 Sidepanel – Index Card Aux CP Assign

**Button Reset Assign:**



- 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.

7.10.5.3.7 ME

Index card for global settings for M/E1, M/E2, M/E3 and P/P

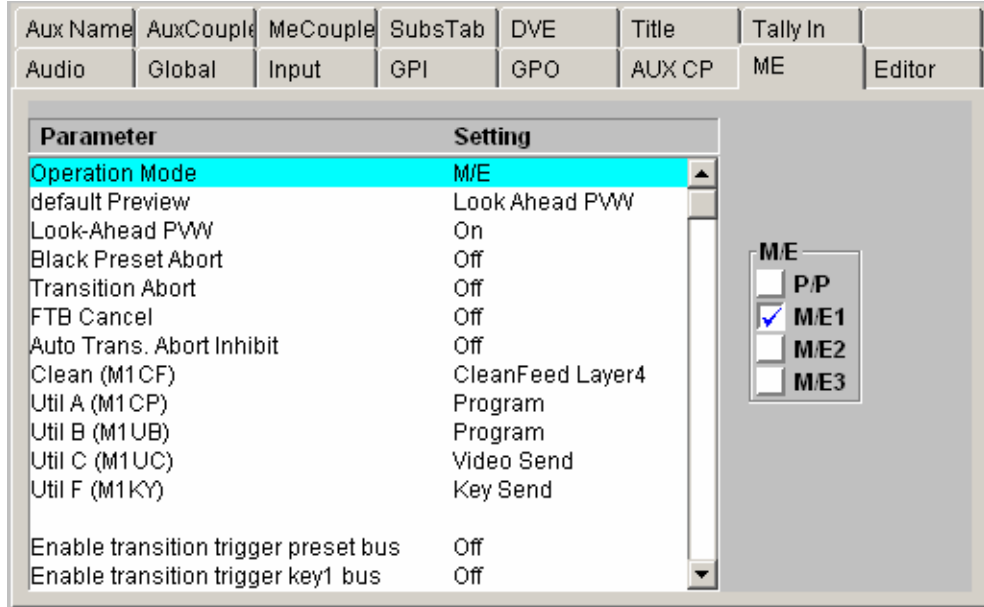


Figure 280 Sidepanel – Index Card ME Settings, 1st Page

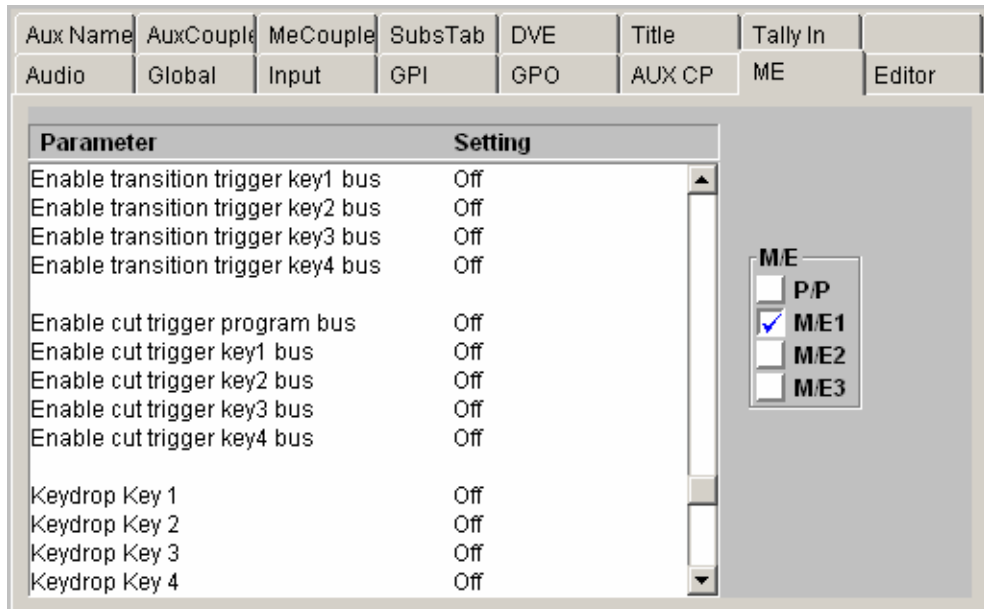


Figure 281 Sidepanel – Index Card ME Settings, 2nd Page

**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 button **Modify** the following parameters are selectable:

- Look-Ahead PVW
- Defines the signal for PVW output:
- OFF PVW output = ME output
- ON PVW output = Look-Ahead PVW
- On-Air PVW ME on air: PVW output = Look-Ahead PVW
- ME not on air: PVW output = ME 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. Only available in non-layered mode.

**Auto Trans. 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.

7.10.5.3.8 Editor

Index card for editor settings.

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

Figure 282 Sidepanel – Index Card Editor

For details refer to your *Installation Manual*



7.10.5.3.9 Aux Name

Index card for aux bus name settings.

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

Figure 283 Sidepanel – Index Card Aux Names

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.

7.10.5.3.10 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.

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						

Figure 284 Sidepanel – Index Card Aux Couple

**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 index card below.

7.10.5.3.11 Subst. Table

Index card for generating and editing a substitution table.

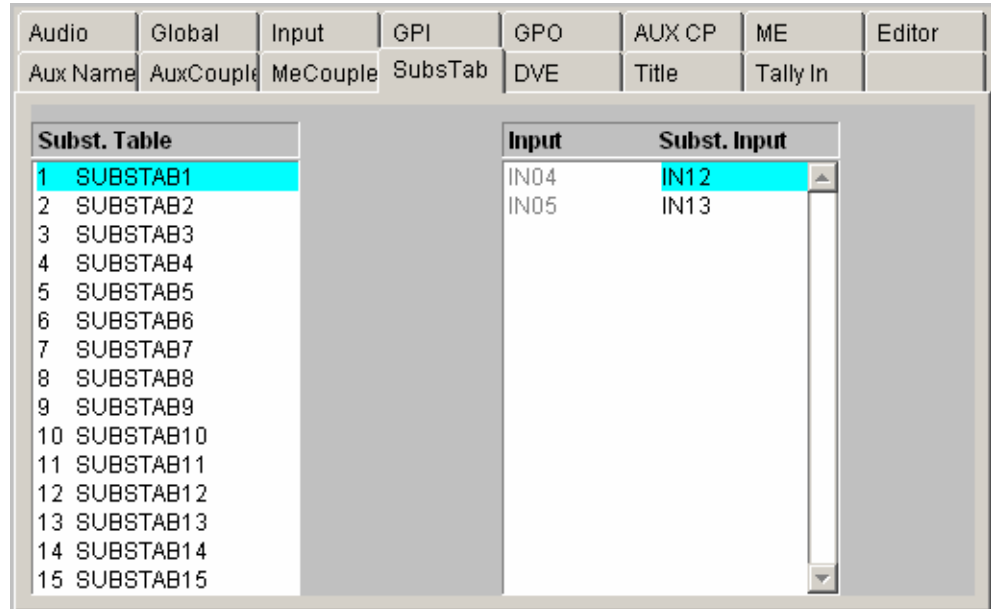


Figure 285 Sidepanel – Index Card Subst Table

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 Aux Couple and M/E Couple index card above.

- Modify Name:** Enter a own 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.

7.10.5.3.12 DVE

Index card for DVE 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

Figure 286 Sidepanel – Index Card ME Settings

For DVE control, the Aux busses 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 busses can be used but also all the other Aux busses.

If the DVE Key and Fill source are assigned to Aux busses (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

7.10.5.3.13 Title

Index card for fixed title settings.

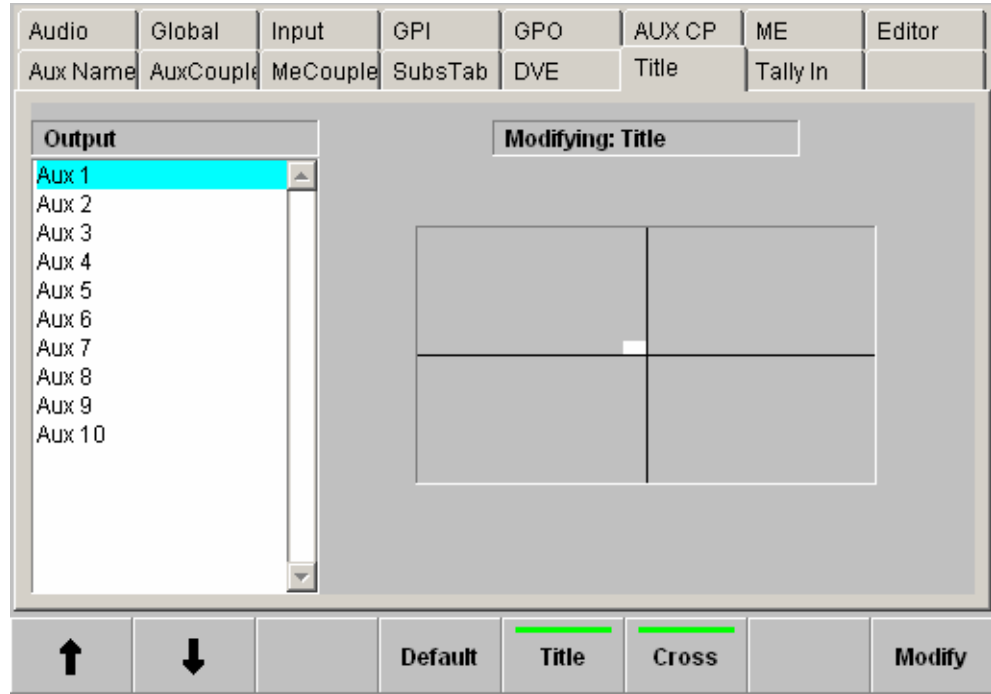


Figure 287 Sidepanel – Index Card Title

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



## 7.10.6 Config Panel Menu

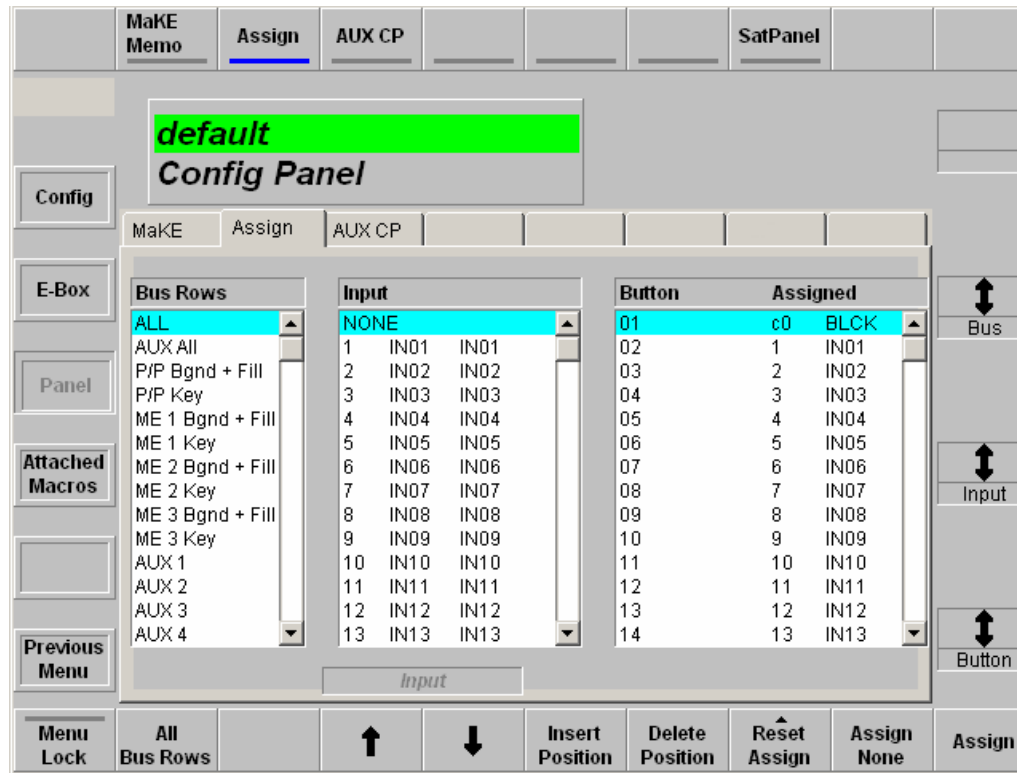


Figure 289 Sidepanel – Config Panel Menu

### 7.10.6.1 Dialog Buttons

- **Config**  
Selecting Config menu.
- **E-Box**  
Selecting Config E-Box menu.
- **Attached Macros**  
Selecting Attached Macro menu.
- **Allocate Panel**  
Selecting Allocate Panel menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

**7.10.6.2 Function Buttons / Index Cards**

7.10.6.2.1 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 290 Sidepanel – Index Card MaKE

- **Record**  
Start and stop recording macros.
- **Insert Pause**  
Only active, if Record button is selected.





- **Edit Macro - View Macro – Modify**  
For details refer next section Macro Editor.
- **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 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 were 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 busses to the Make buttons in the control panel., e.g. Aux busses. 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.

7.10.6.2.2 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.

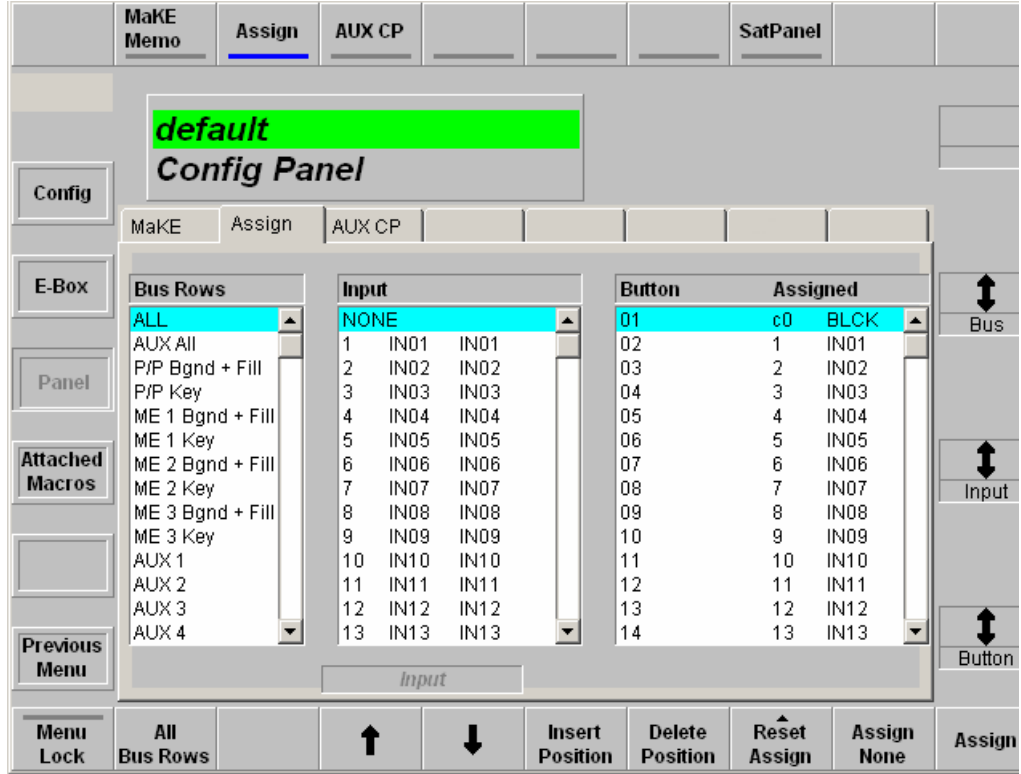


Figure 291 Sidepanel – Index Card Config Panel

**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 rightmost column 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:



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 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.

- **Assign None** Moves the cursor in the right table downwards.

- ***Assign*** Moves both cursors downwards.

7.10.6.2.3 AUX CP

Index card for configuration the Aux Control Panels connected with the switcher control panel.

MaKE	Assign	AUX CP	OPI				
Aux Cp	Deleg 1	Deleg 2	Deleg 3	Deleg 4	Deleg 5	Deleg 6	Deleg 7
1 cp330	None	None	None	None	None	None	None
2 cp330	None	None	None	None	None	None	None
3 cp330							
4 cp330							
5 cp330							
6 cp330							
7 cp330							

Figure 292 Sidepanel – Index Card Aux CP

**Modify:** For details refer to *Config E-Box Menu*.

**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.

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. I.e., 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.

### 7.10.6.3 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

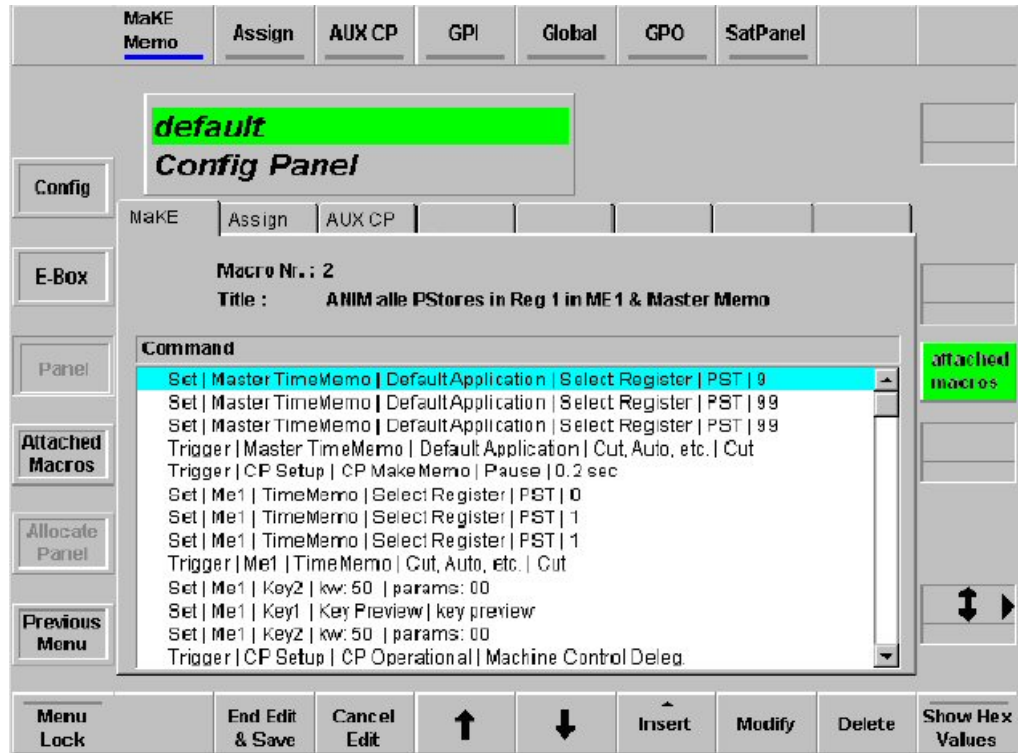


Figure 293 Sidepanel – Index Card MaKE

#### 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:**



**Insert new comm. at select.**

Insert an empty command line before the selected command.

**Insert new comm. 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**

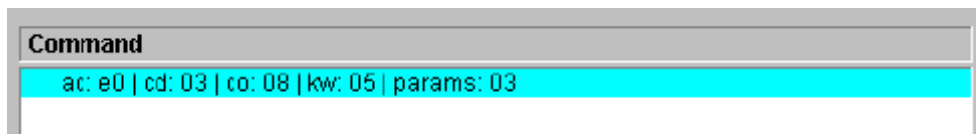
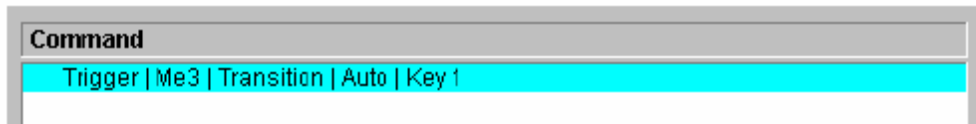
Pressing the button modifies selected command (or empty command line).

**Delete**

Pressing the button deletes selected command (or empty command line).

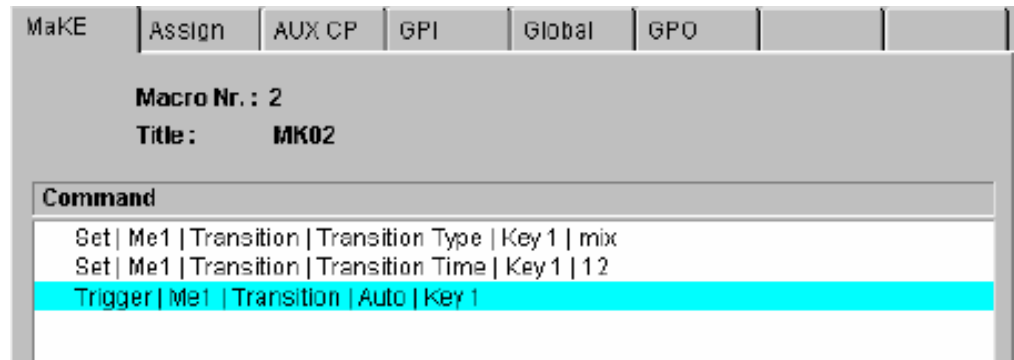
**Show Hex Values**

Pressing the button toggles the display between normal text mode and technical mode showing the command in hexadecimal code:





**Principles of the 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:

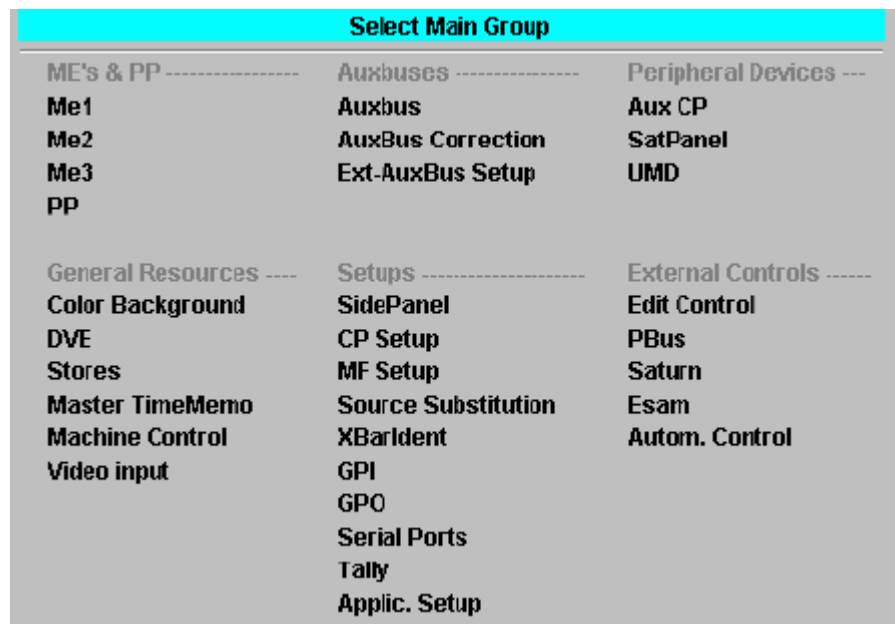
- Insert an empty command line and modify this line directly in the command editor.
- Create a (temporary) macro with the commands needed on the control panel and insert this macro.

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”:**

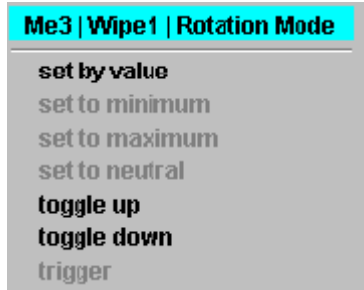
When you press the Modify button, a sequence of pop-up windows appears allowing you to create the command you want.

Example for a pop-up selection:



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):**

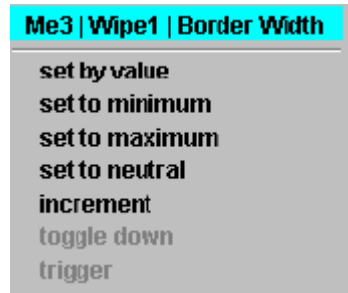


- Set by value**                      Sets rotation mode to a fixed value.  
Next selection will be: Angle / Speed / Coupled
  
- Toggle up**                        When you execute this macro, the result depends on the actual state:  
when Angle > Speed  
when Speed > Coupled  
when Coupled > Coupled  
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).

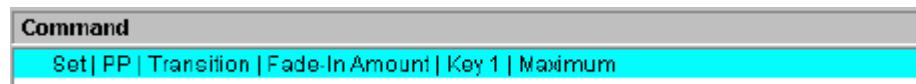
When you create the commands directly in the command editor you have the choice to select the way most convenient to you.

**Analog value (e.g. Wipe Border Width):**



- |                       |   |
|-----------------------|---|
| <b>set by value</b>   | Sets border width to a fixed value. Next selection will allow you numeric entry.  |
| <b>set to minimum</b> | Sets the border width to minimum  |
| <b>set to maximum</b> | Sets the border width to maximum  |
| <b>set to neutral</b> | Some analog value like the border width have a symmetrical range (+/-). Set to neutral selects the middle position.   |
| <b>increment</b>      | 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 could be e.g. the following:



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):**



**trigger** For this type there is only one selection possible:  
to trigger the event

## 7.10.7 Attached Macros Menu

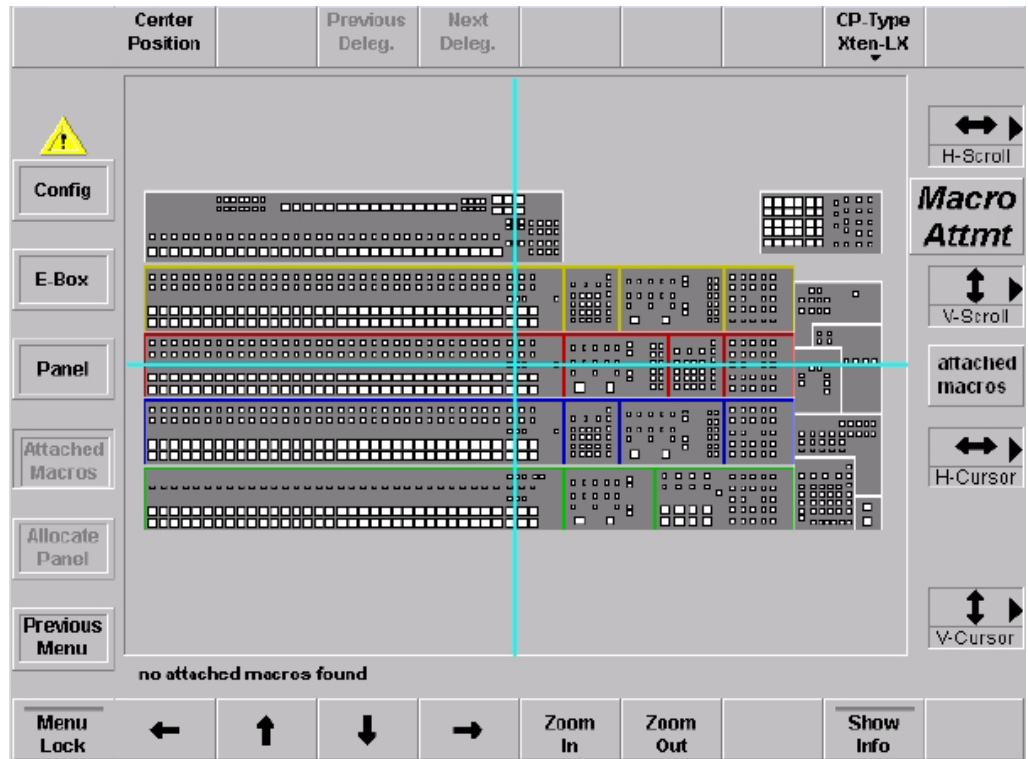


Figure 294 Sidepanel – Attached Macros Menu

### 7.10.7.1 Dialog Buttons

- **Config**  
Selecting Config menu.
- **E-Box**  
Selecting Config E-Box menu.
- **Attached Macros**  
Selecting Attached Macro menu.
- **Allocate Panel**  
Selecting Allocate Panel menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.10.7.2 Viewer for Attached Macros

This menu can be accessed in two ways:

via *Config / Attached Macros* menu by clicking to “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 grey or green, depending on the settings in the menu *Personality / Panel / MaKE Memo Attachment Playmode*.

### 7.10.7.3 Principles of Macro Attachment

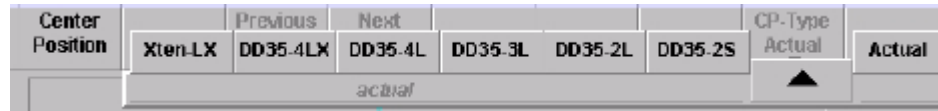
Macros can be recalled manually via the macro bus row (Keyer row in Program/ Preset) and via the sidepanel. A more sophisticated way is to recall a macro automatically when you press any other button on the panel. Since a normal button has its own function, you can attach a macro which is executed BEFORE 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 auxbus delegation is on Aux bus 5 and second page is selected, this macro is only fired at the button press for this special setting.

<b>Center Position:</b>	Centers the display and the cursor
<b>Previous Deleg.:</b>	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).
<b>Next Deleg.:</b>	Toggles the info display forwards through the different delegations. Only enabled for buttons with more delegation levels (e.g. auxbus row buttons, keyer section buttons, wipe selection buttons).
<b>CP-Type:</b>	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:**

Selects automatically the connected panel type!



**Left/Right/Up/Down Arrow:**

Scrolling the display in the according 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 according 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 according 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.

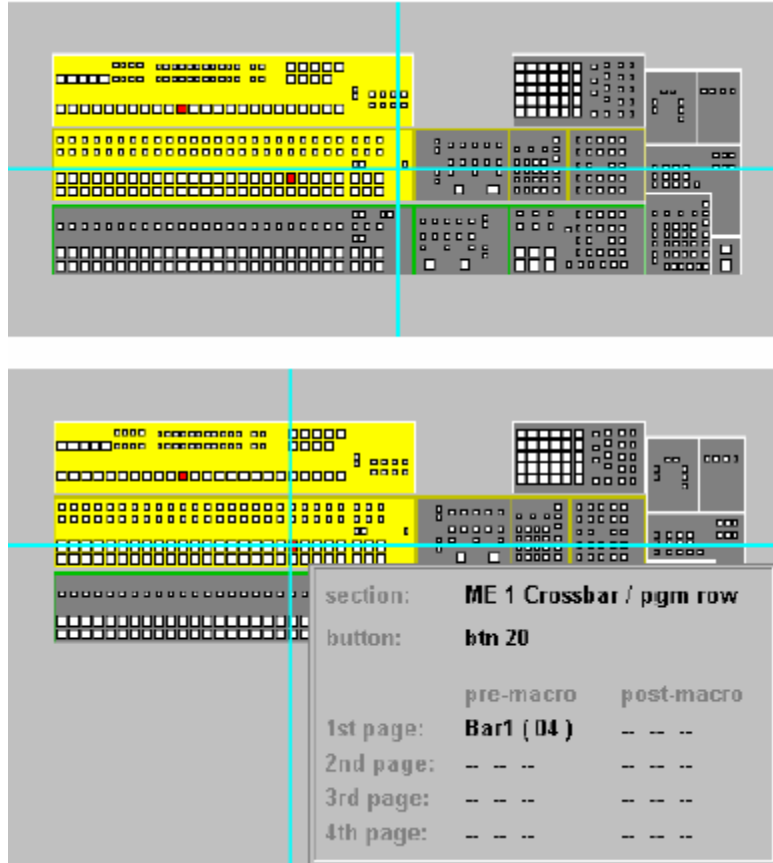


Figure 295 Sidepanel – Attachment Display



## 7.11 Personality Menu

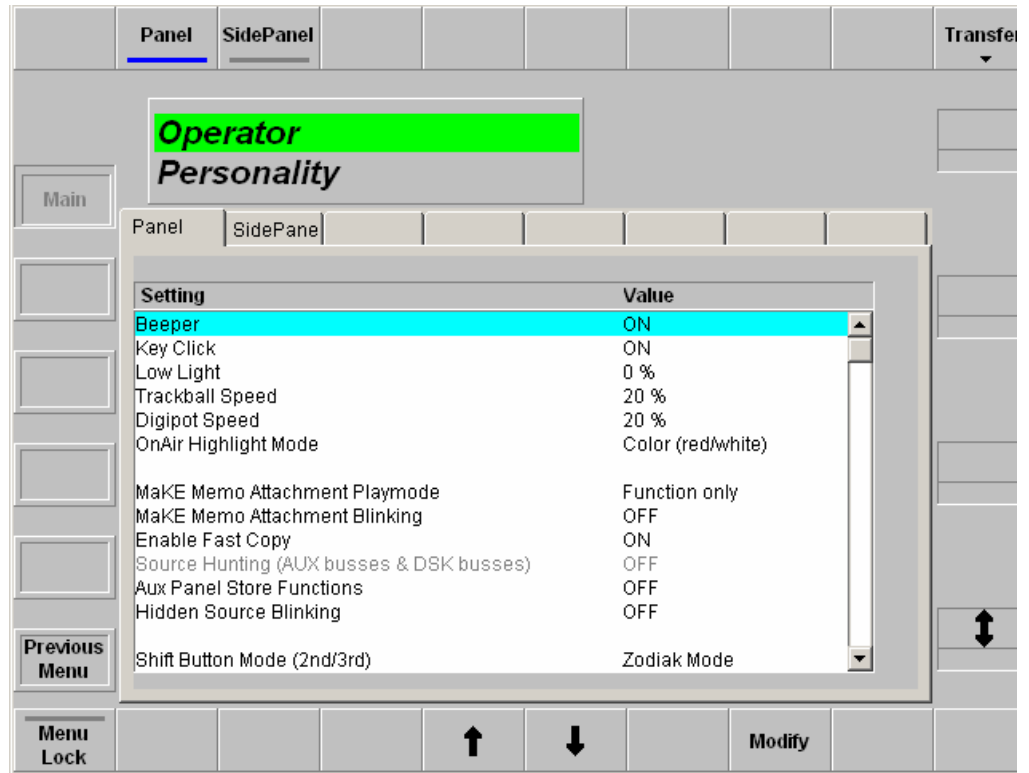


Figure 296 Sidepanel – Personality Menu

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.



7.11.1.1.1 Panel

Index card for panel settings.

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 297 Sidepanel – Index Card Panel, 1st Page

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

Figure 298 Sidepanel – Index Card Panel, 2nd Page

Use Modify button to set your settings.

7.11.1.1.2 SidePanel

Index card for sidepanel settings.

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 Medioplayer (after Sidepanel Restart)	Extern MP
Main Page for DVE (after Sidepanel Restart)	Extern DVE
Switcher Type for Demo-Mode (after Sidepanel Restart)	XtenDD SD

Figure 299 Sidepanel – Index Card SidePanel

Use Modify button to set your settings.

## 7.12 TiM/E Memo Menu

### 7.12.1 TiM/E Memo Select Menu

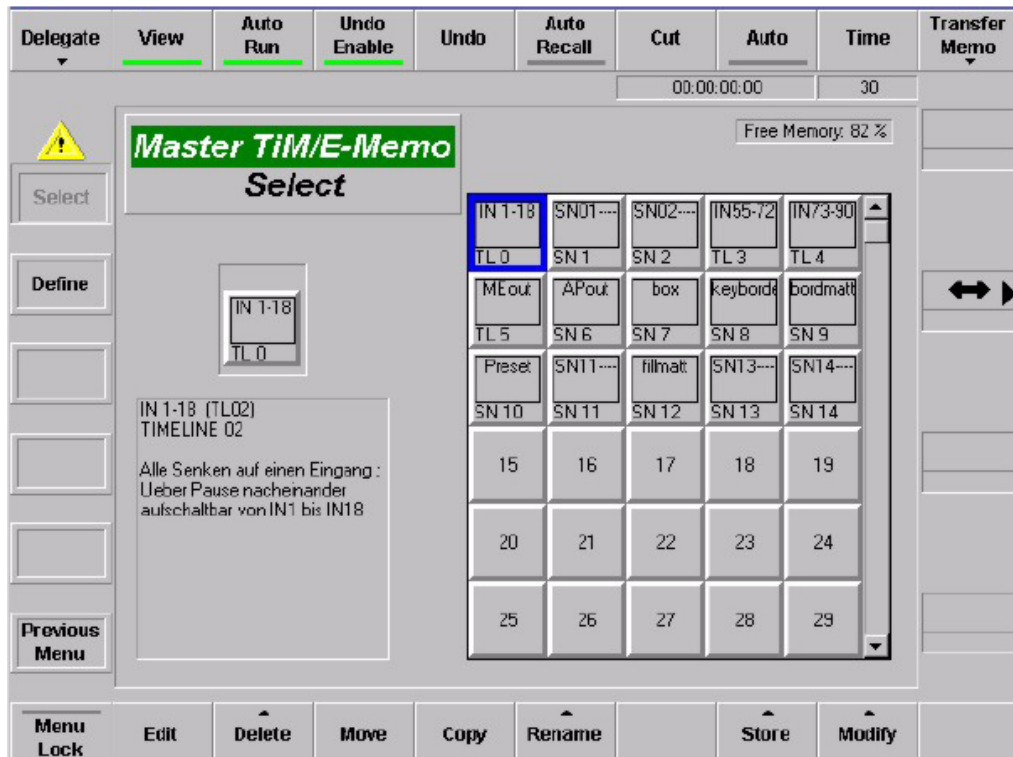


Figure 300 Sidepanel – Master TiM/E Memo Menu

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.

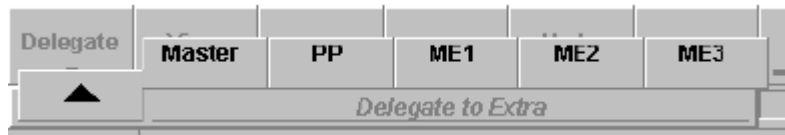
#### 7.12.1.1 Dialog Buttons

- **Define**  
Selecting the Define menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.12.1.2 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.



*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.

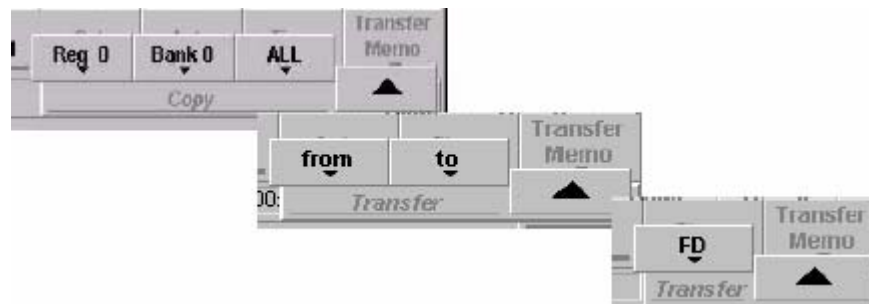
Starts playing a selected timeline immediately.

- **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.



- **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 section Edit Menu.
- **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.



- **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.

7.12.2 Define Memo Menu

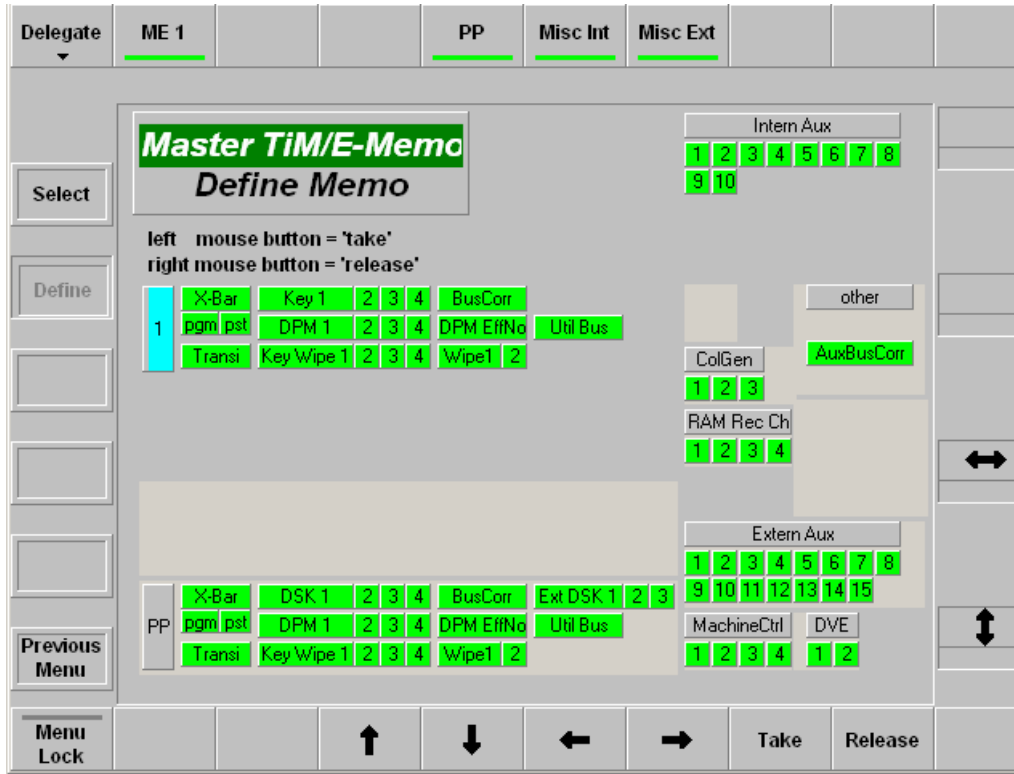


Figure 301 Sidepanel – Define Memo Menu

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

**ATTENTION!**  
 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.

### 7.12.2.1 Dialog Buttons

- **Select Menu**  
Selecting the TiM/E Memo Select menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section *Introduction*.

### 7.12.3 Edit Menu

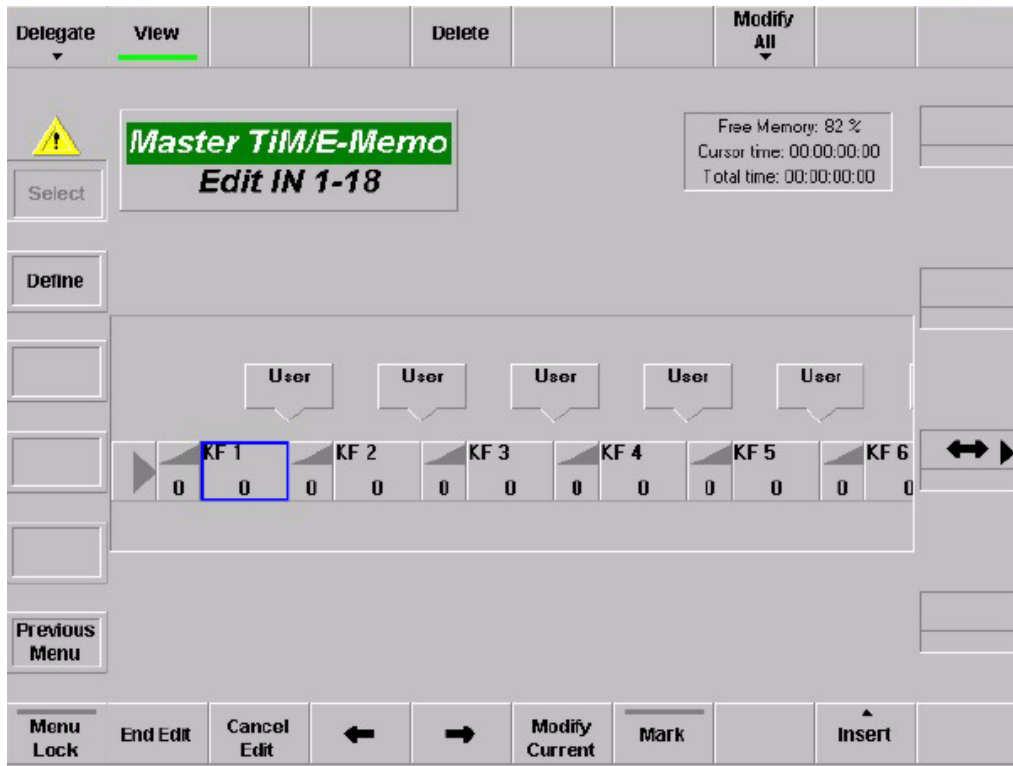


Figure 302 Sidepanel – Master TiM/E Memo Edit Menu

#### 7.12.3.1 Dialog Buttons

- **Define**  
Selecting the Define menu.
- **Previous Menu**  
Return to the previous menu. For details refer to section Introduction.

**NOTE!**

If the edit mode is activated. The respective Select menu of the TiM/E memo cannot be selected.

### 7.12.3.2 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.

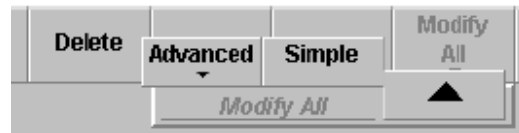
- **Delete**

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.



**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:



**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. crosspoints, 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.  
Selected wipe pattern no 119 (circle).  
Press Set KF Ref.  
Selected wipe pattern no. 131 (stars).  
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 button Modify all changes its inscription into Modify Range. All modifications are performed in the selected range only.

- **Insert**

Insert an object in a timeline. For details see below.



**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:*

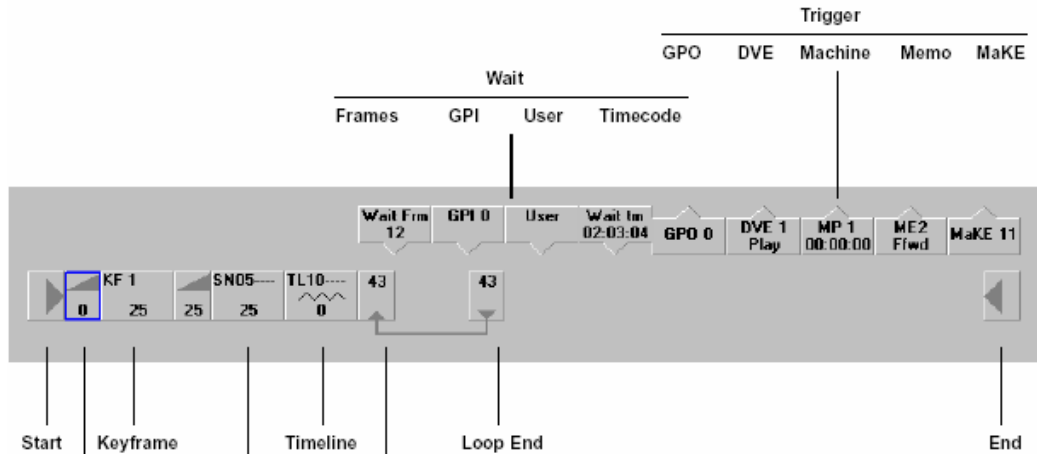
*The listbox represents the machines and the meaning of the trigger for the machines. The first line in the listbox shows the numeric value of the trigger. All machines get the same trigger whose meaning, however, can be different for the individual machines. If the trigger is changed for one machine, 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.*

### 7.12.3.3 Object Overview and Parameter Entry

The following section gives an overview on the objects with their parameters which can be inserted into a timeline.



**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:**  
Parameters: Timeline No.

**Loop Begin:**  
The loop can be changed on the Loop Begin as well on the Loop End symbol  
Parameters: Loop count

<i>Wait Frames</i>	Parameters:	Frames
<i>Wait GPI</i>	Parameters:	GPI No.
<i>Loop End</i>	The loop can be changed on the Loop Begin as well on the Loop End symbol	
Parameters:	Loop count	
<i>Wait User</i>	Parameters:	–
<i>Wait TOD</i>	Parameters:	Time of Day
<i>Trigger GPO</i>	Parameters:	GPIONo.
<i>Trigger DVE</i>	Parameters:	Machine 1
Commands:	Play, Stop, FFWD, FREW 1	
<i>Trigger Machine MP</i>	Parameters:	Machine 1
Commands:	Play, Stop, FFWD, FREW, Cue In, Cue Out, Goto,	
Variable 1	Speed: only with command “Variable” 2	
	Timecode: only with command “Goto” 2	
<i>Trigger Memo</i>	Parameters:	Machine 1
Commands:	Play, Stop, FFWD, FREW, Goto, Variable 1	
	Speed: only with command “Variable” 2	
	Timecode: only with command “Goto” 2	
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.		

1 The parameter is already defined via the overlay menu.  
2 Entry only possible with certain commands

*Trigger P-Bus Trigger*

Parameters: Trigger No  
Machine 1: recall, no recall  
:  
Machine 24: recall, no recall

*Trigger P-Bus Register*

Parameters: Register No  
Machine 1: recall, no recall  
:  
Machine 24: recall, no recall

*Trigger MaKE Memo*

Parameters: Memo No.

*End*

Object is always available. Cannot be erased or inserted.



### 7.13 Aux Menu

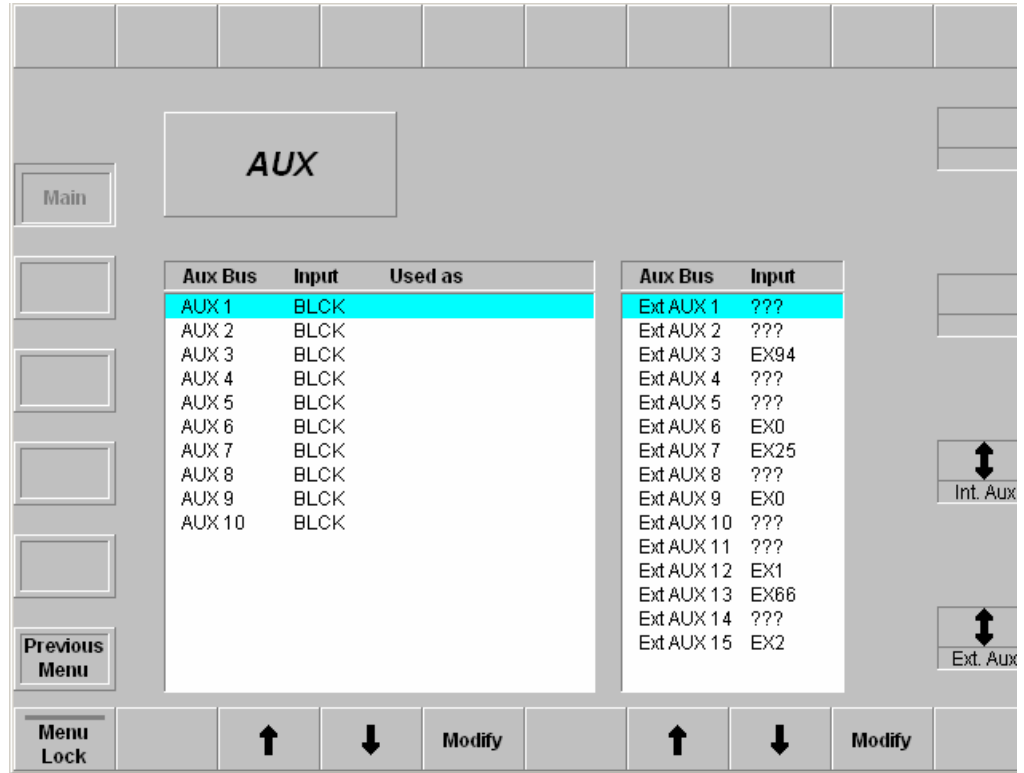
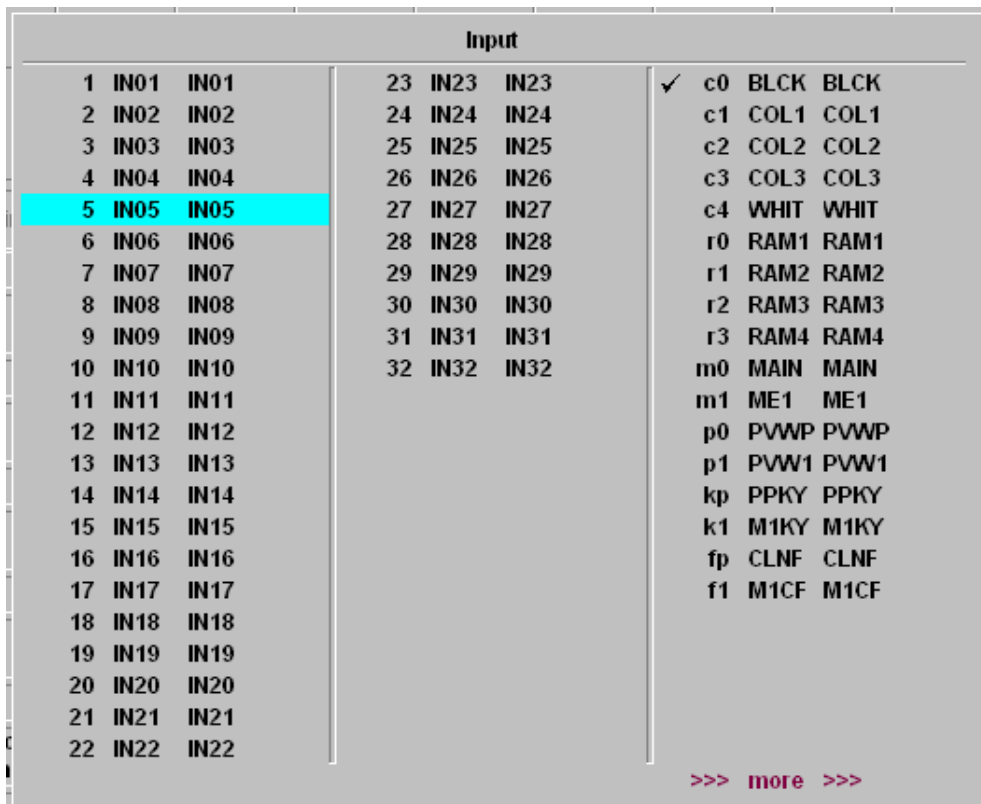


Figure 303 Sidepanel – Aux Menu

The Aux menu enables to select the sources on the individual internal and external aux busses. This is the only way to select aux sources from a sidepanel without pushbuttons (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.



# 8 *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.

**Bit Rate**

The number of bits per second passed from one point to another.

**Black**

A black video signal generated within the switcher.

**Box Wipe**

A rectangular wipe pattern. For masking, the KayakDD 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*.

**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*.

**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).

**Component Video**

A video signal that keeps color and luminance information separate. RGB; Y, R-Y, B-Y; and Y, Cr, Cb are examples of component video.

**Composite Video**

An encoded video signal that combines color information with luminance information. NTSC, PAL, and D-2 are examples of composite video.

**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*.

**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*.

**DPOP (Double Press Open)**

Pressing a control panel button twice rapidly to open a related menu. On the KayakDD system, buttons supporting DPOP are labeled with a graphical indicator.

**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 KayakDD system, a collection of settings that establishes an essential baseline for system operation and integrates the KayakDD 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.

**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 KayakDD, 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*.

**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 a 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* and *Switched Preview*.

**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.

**Recall**

To restore a previous panel setup that has been learned using E-MEM.

**Reclocking**

The process of clocking the data with a regenerated 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.

**Standard**

Definition serial digital video (SMPTE 259M) operates at 270 Mbits/sec (2 x 13.5 MHz x 10 bits).

**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. On the KayakDD system, buttons supporting SPOP are labeled with a graphical indicator.

**Stack**

See *Key Priority*.

**Still Store**

A device that captures, saves, and outputs a still video image. On the KayakDD system the RAM Recorder option is a still store with additional capabilities, including animation.

**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.

