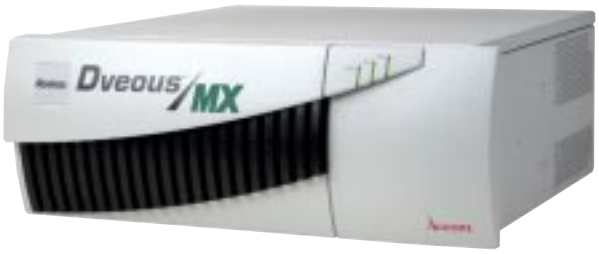
Quick Contents

Section 2:
Getting Started



Àccom®

Getting Started

This section outlines the basic steps for operating the Dveous/MX. You may also find it helpful to work through the examples in this section. By doing this you can familiarize yourself with the Control Panel and some basic operations. Unless otherwise noted the operation is the same in either SD or HD mode.

This section is divided into the following parts:

- Powering Up – how to turn your system on. How to deal with having several Control Panels plugged into your system.
- Selecting Formats – how to switch your Dveous/MX between SD and HD operations.
- Selecting Sources – how to select external and internal inputs, and assign Near/Far designation for the channel(s). Also, how to invert, freeze and soften the source video.
- Adjusting Input Sources – how to fine tune your inputs: inputs with different aspect ratios, blanking width compensation and motion detect.
- Delegating Channels – what is delegation and how to do it.
- Copying Channel Settings – copying information across channels.
- Channel Configuration – how to assign one of the three processing modes (video+video, video+key or video-key+shadow) to the twin (B) channel.
- Getting Back to Default – using the **CLEAR** and **NORMAL** buttons to reset the system.
- The Numbering System & Numeric Keypad – understanding how numeric values affect your image and how to use the numeric keypad functions.
- The Joystick – full details on operating the joystick, plus a few cool tricks.
- Creating a Simple Effect – step by step instructions. Plus how to read the LEDs on the menus buttons.
- Modifying an Effect – step by step instructions.
- Saving Effects – overwriting and recalling effects.
- The Effects Menu – using the **RECALL EFFECT** button to name and delete effects, browse the effects register and set Loop and Protect flags.

Powering Up

This section assumes that your Dveous/MX system is properly installed and configured. For details on installation and engineering configuration, see the Dveous/MX Technical Guide, P/N 9100-0402-00.

1. The main power switch is located in the back of the Chassis toward the center on the right side. Push the switch toward the "1" to turn it on.

   When you power up Dveous/MX, channel 1A appears full size at the video output, with input 1 as its source video. The key output is a full raster white field that duplicates the size of the transformed source video. You can change this default by reconfiguring the channels, as described later in this section.

2. If the cable connecting the Chassis to the Control Panel is less than 33 ft. (10 meters), the Control Panel can get its power from the Chassis, and boots up at the same time as the Chassis.

   If the Control Panel cable is more than 33 ft. (10 meters) long, you need an external power supply for proper operation. The external supply (Abekas® P/N 2800-0063) DIN connector plugs into the Control Panel connector labeled "POWER." The external supply AC cord then plugs into a standard AC Mains socket to power the Control Panel. (The external power supply is autoranging, accommodating 90 to 264 VAC at 47 to 63 Hz.)

3. When both the Chassis and Control Panel are powered up and running, the local 3D Trans menu appears in the Control Panel display.

Note: If the Chassis and Control Panel are not communicating, the menu display either remains blank or displays the message: "No chassis detected, check power and cable". If this is the case, check the cable connection at both the Control Panel and the Signal Chassis.

Note: Also be aware that the message: "No chassis detected, check power and cable" appears during bootup. This is normal.

4. If a single Control Panel is connected to the Chassis, its **ACQUIRE** button LED lights automatically.

Dveous/MX is now ready to use. See the discussions in this section for informa-

tion on input and output setups, channel configurations, and creating simple effects.

Powering Up Multiple Control Panels

If there is more than one Control Panel connected to the Chassis, you must make one the dominant Control Panel. This procedure is performed by first un-acquiring all the Control Panels, then acquiring the dominant one and saving this configuration in the Engineering menu. This way, each time you boot up Dveous/MX, the dominant Control Panel always has control.

1. Press ENG to go to the Engineering menu.
2. Unacquire all the Control Panels: Press and hold **ACQUIRE** on each remaining Control Panel. The Chassis menu function appears in the menu display.
3. While holding **ACQUIRE**, toggle the ***Chassis*** softkey so that **Chassis** is not highlighted in black. All Control Panels are now unacquired.
4. Acquire the dominant one: Press and hold the **ACQUIRE** button on the Control Panel you want to be dominant. The Chassis menu function appears in the menu display.
5. While holding **ACQUIRE**, press the ***Chassis*** softkey so that **Chassis** is highlighted in black. The Control Panel is now acquired and its **ACQUIRE** button is lit.
6. Press *Setup* and toggle it to *Panel*. Ensuing unacquire and acquire commands will now be remembered for bootup.

Temporarily Changing Dominance of a Control Panel

If you temporarily want to make another Control Panel the dominant one, simply un-acquire the current dominant Control Panel and acquire the new one.

Selecting Formats

Dveous/MX can operate in either SD (Standard Definition) or HD (High Definition) Mode. Once the machine is configured it will remember the settings and always boot back to that mode unless changed.

Note: At factory shipment or after a First Birthday (see section 3 of Dveous/MX technical guide, P/N 9100-0402-00, for more information on First Birthday) the machine will boot up to SD Mode.

To change the format, go to the Output Setup Menu and using the config softkey select (highlight) either SD or HD. When you have changed the format you will be prompted with the following message: "chassis reboot required to change format from SD to HD". You must now power cycle the main power on the chassis.

After the power cycle, Dveous/MX will boot up to the selected format and automatically change the aspect ratio to 1 x .75 for SD or 16 x 9 for HD. You must now return to the Output Setup Menu, highlight the Config softkey and, using the D softknob (Format), select the particular format of SD (525/625) or HD (720, 1035, 1080),

You must also be sure that the reference and all inputs match the selected format and frame rate. Dveous/MX is now ready to operate in your selected SD or HD format.

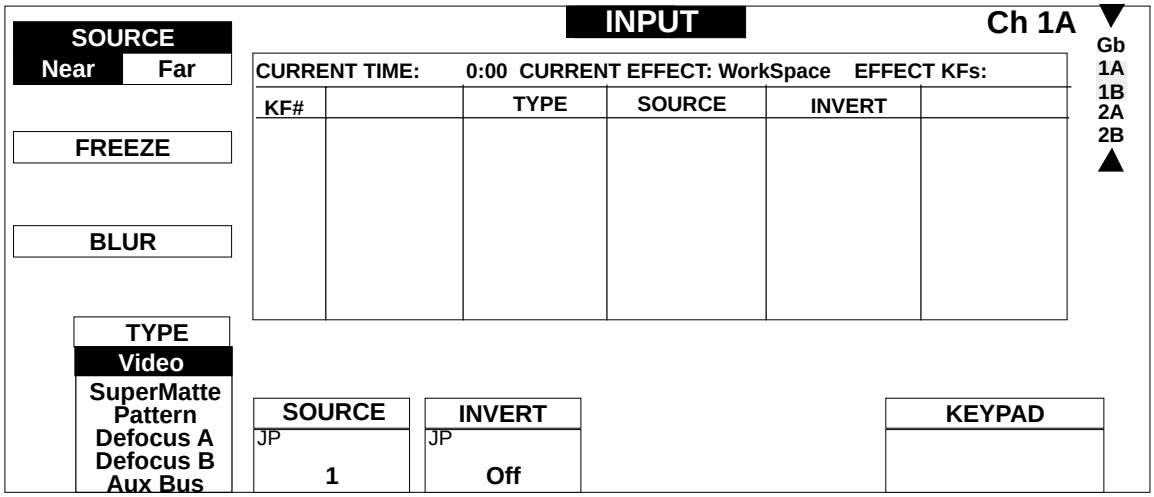
Selecting Sources

Dveous/MX has either 6 or 12 source inputs and up to four independent DVE channels in HD mode and always has four independent DVE channels in SD mode. An internal 16 input by 11 output crosspoint matrix lets you route all internal video, key, and texture signals.

External inputs are all available as DVE channel sources. Internally generated channel sources are the SuperMatte (color background) generator, the output of the Pattern Framestore, and the outputs of the wide range Defocus module. Since the Defocus module is dual channel, you have a total of 10 available sources in a Dveous/MX system (16 with the second input module option installed).

You can select any source as an input to any of these internal destinations: the four DVE channels (if dual twin system), the texture processors associated with each channel, the Background Framestore, and either input of the dual channel Defocus module.

Selecting a Channel Input Each DVE channel has a "near" and a "far" side. You can select a different source for each side, or you can send the same source to both. The near side is always the one you can see; the far side is always the one you cannot see. No matter how many times you rotate the DVE, you are always looking at the near side. In live situations, the far side can be used to pre-select the next source to air.



1. Delegate the channel for the source input by double pressing a Channel Select button (1A, 1B, 2A or 2B.) Make sure only one channel is delegated (unless you want to route the same video to multiple DVE channels.)
2. Press **INPUT** in the Channel Menu buttons to bring up the Input menu.
3. Toggle the ***Source*** softkey to Near to select a source for the near side of the channel. The **Type**, **Source** and **Invert** softknobs appear.
4. Use the Type softknob to select one of six source modes: Video lets you select one of the 12 external inputs using the *Source* parameter. Pattern brings in the output of the Pattern Framestore. SuperMatte selects the SuperMatte generator. Defocus A and Defocus B input the corresponding output of the Defocus module. Aux Bus enables the XPNT parameter, which lets you select the crosspoint from an external switcher auxiliary bus.

   You have now performed the basic steps to select source video. If you wish, you can further define source characteristics. The steps below will tell you how to invert the video, freeze it and soften it.

Inverting, Freezing and Softening the Source Video

1. Invert the source image horizontally, vertically, or both. The Invert softknob is **Off** by default, giving the image normal orientation. H inverts the video horizontally, V inverts the video vertically, and H+V inverts the image in both directions.
2. Freeze or strobe a source in the channel, by pressing the ***Freeze*** softkey to bring up the Mode and Strobe softknobs.

   The Mode softknob selects the freeze mode: **Off** (no freeze, i.e., live video); Fld 1 (freezes field one of the input video); Fld 2 (freezes field two of the input video); or Frm (freezes the full frame of the input video).

   The Strobe softknob lets you freeze the image indefinitely (Infinity), or create a strobe effect. To create a strobe effect, select the freeze duration, between 0-254 frames, with the Strobe softknob. Dveous/MX holds the frozen image for that duration before grabbing the next freeze. For example, with a freeze set to strobe every 10 frames, Dveous/MX freezes and holds an image for 10 frames, grabs a new image and freezes it for 10 frames, and so on.

3. Without using the Defocus feature, you can soften the source image to a certain extent. Press the ***Blur*** softkey to adjust the horizontal and vertical blur settings. The default is 0 (no blur); 100 gives the maximum blur.
4. Toggle the ***Source*** softkey to *Far* and repeat steps 4 through 7 for the far of the channel.

5. Toggle the ***Source*** softkey again to highlight both ***Near*** and ***Far*** if you wish to have the same image on both sides.

Note: With a freeze enabled on a channel, you cannot see new sources as you select them. Also, with a freeze enabled, the same video appears on both the near and far sides of the channel.

Adjusting Input Sources

The following pages cover source adjustments concerning

- Different aspect ratios using Anamorph
- Blanking
- Motion detect

Inputs with Different Aspect Ratios

Normally, Dveous/MX expects input video to use the 16:9 aspect ratio if working in HD and the 1 x .75 (4 x 3) aspect ratio if working in SD. However, if you are using video with a different inherent aspect ratio, you can change the expected aspect ratio of Dveous/MX to allow internal transforms, warps, crops, etc. to match the specified aspect ratio.

To change the aspect ratio, go to the Personality menu. Press the ***Anamorph*** softkey and adjust the H and V softknob, then press ***Anamorph*** again to confirm. For example, with an aspect ratio of 4x3, change H = 4 and V = 3.

Be sure to pick numbers that match the inherent aspect ratio of the video you are processing. For High Definition television video one uses numbers such as 16x9 and 1 x .5625. For normal television video, numbers such as 1 x .75, 4x3 and 8x6 work fine. For film, 16x9 is common. Using numbers that do not match the aspect ratio of the video being processed results in distorted video when rotated.

The status of Anamorph changes to match any effect that you load. Note, however, that Anamorph values are not keyframe attributes and you cannot change them within an effect. You can apply new Anamorph values to an existing workspace effect. Dveous/MX re-scales all affected parameters as you enter Anamorph values. Simply re-save the effect to keep the Anamorph settings.

Blanking Width Compensation

Dveous/MX let you compensate for input video with overly wide blanking, which results in horizontal and/or vertical black edges on the input video. To adjust the blanking, go to the Input Setup menu and press the ***Channel*** softkey. Use Input to select the video source. Then select either **Normal** or **Crop** (A57) with the Blanking softknob. Adjust the horizontal and vertical edges with the H Blank and VBlank softknobs.

Note that these adjustments apply only to video routed to the DVE channels and not to video selected as a background source.

Normal Mode Allows you to set different blanking compensation for each input individually. Normal maintains a true aspect ratio for the image by stretching the aspect ratio of the input video so that the blanking edges are not visible. The advantage to this method is that each input can have its own blanking compensation. The disadvantage is that the video is now stretched slightly, preventing you from transitioning or match-framing back to the original, unstretched image, either in Dveous/MX or in some external device, without seeing a visible difference between the two images.

Crop (A57) Blanks all inputs by the same amount by simply cropping in the edges to remove the offending blanking areas. The advantage to this method is that all images maintain their original aspect ratios so there is no visible difference between the original and the cropped image, allowing match-framing between the two. A disadvantage to this method, however, is that blanking compensation applies to all external inputs equally, and not individually.

Note: If you will be using Solid Builder to construct slabs and need to match unity size, you must use Crop (A57) mode.

Motion Detect

Among powerful Dveous/MX features is the sensitivity of its motion detector. Motion Detect looks at the amount of motion in the input video and uses this information to produce a clean image in later manipulations of size, location or rotation. Usually, Motion Detect's default setting will suffice, but depending on the kind of video you are bringing in, you may want to adjust settings when configuring Dveous/MX.

Note: Due to the inherent technical nature of progressive (frame based) HD video formats, Motion Detection is not required. Therefore **Motion Detect** is only applicable when using interlaced HD video formats. If working in progressive HD formats, Motion Detection defaults to frame mode and the Mot Det menu has no effect on the video.

Note: Don't confuse the motion created by running an effect on Dveous/MX with motion in the input video. It is only the input video that the motion detectors are concerned with. An exception is that Dveous/MX border width changes are considered input video motion.

Frame Based Precision To understand the power of Motion Detect, it is important to note that Dveous/MX is a frame based digital effects system: it uses a full frame (as opposed to a single field) of information when transforming the video to the size and position you define with the transform controls.

Transferring a full frame of video requires using information from two consecutive fields. When motion exists in the video, the two fields can be different, since they are scanning at different time intervals. Trying to reconcile them into a single image can result in chaos. What you see on the screen is loss of picture quality or visible banding. Motion Detect eliminates these resolution problems by telling the system how much or how little motion to look for so that the fields combine into a clear image.

Accessing and Adjusting Motion Detect

To access Motion Detect, press the **MULTI** button on the Control Panel. The Multi menu appears. Press the ***Motion Detect*** function softkey to enable to **Mot Det** parameter.

Mot Det

The **Mot Det** softknob lets you select one of sixteen settings. These settings represent a range of sensitivity to motion from low (frame) to high (field), and ranging from 1-14 in between. A low value causes Dveous/MX to treat the video as though it has less motion than is really present, and can cause banding artifacts in the motion portions of the video. A high value causes Dveous/MX to treat the video as though it has more motion than is really present, and can cause the picture to lose some detail.

Varying Amounts of Motion in the Same Video

With Motion Detect, you can also deal with varying amounts of motion within the video by defining settings between frame and field, For example, in video of a car driving past an otherwise stable shot, Dveous/MX would use the frame mode on the static parts of the video, and the field mode on the parts that contain motion, adapting the mode to the video.

Forcing frame mode

Sometimes it is useful to force frame mode. For example, if the still input video has a lot of noise. Dveous/MX can interpret noise as motion and the result is a too soft image. Setting Motion Detect to frame would compensate for the noise and clarify the image.

Forcing Field Mode

Sometimes it is useful to force field mode. It is possible for motion in the video (particularly when using animated computer generated graphics that contain a lot of the same color) to fool the system into thinking no motion has occurred. Select field in these cases to eliminate any artifacts you may see.

The Motion Detect Settings

Motion Detect's default setting is 9, which works well in almost all cases. Even with still video, this setting provides the best quality, since Dveous/MX automatically enables frame mode if the motion detector finds no motion.

Default:	9
Range:	Frame - 1 - 14 - Field
Align:	None

Note: The Personality menu's Film mode can override this setting. See the Film Mode text for details.

Film Modes

There are two different issues dealt with in the Personality menu's Film mode: How to handle motion detection of incoming video (*Mode)* and how to transition between keyframes when running an effect *(Motion*). The two settings do not interact with each other, but are used in similar situations. Access these settings by pressing the **PERSONALITY** button then the ***Film*** softkey.

Note: Some film mode settings are not applicable on certain format selections of Dveous/MX.

Video Types

There are four types of video Dveous/MX may encounter:

- *Static Video* - No movement in the video at all.
- *Field Based Video* - Each field has the possibility of different video from the preceding and next field. This is the typical video produced by video cameras and such.
- *Frame Based Video* - This is video that has motion only at frame changes; there is a frame of two identical fields (with respect to motion) followed by another frame with two more identical fields, with the possibility of motion occurring between the two frames.
- *3:2 Pull-Down Video* - This is mostly a 525 function. The idea is to convert film's 24Hz frame rate to 525 video's 60 fields per second rate by alternately recording three or two fields for each film frame. The end result is a pattern of three identical fields followed by two, then three, etc.

Film Settings

Mode The Mode setting determines how Dveous/MX should treat incoming video. It acts as an override to the Multi menu Motion Detect setting.

Normal With Mode set to *Normal*, the Multi menu Motion Detect setting controls how Dveous/MX interpolates two fields of video when creating the manipulated video output.

Film With Mode set to *Film*, Dveous/MX takes advantage of the fact 50% of the time the current field was preceded by an identical field (with respect to motion), and forces the Motion Detect setting to Frame. The other 50% of the

time it uses the actual Motion Detect setting. Set *Phase* to match the field dominance of the video (1/2 frames or 2/1 frames).

3:2 With Mode set to *3:2*, the Multi menu Motion Detect setting is ignored, forcing Field motion.

Note: While the Mode setting does affect the Multi menu Motion Detect function, there is no indication that this is happening when looking at its setting.

Keep in mind that none of these settings have an affect on the picture until you compress or expand it; at unity size the interpolator is inactive. Leaving **Mode** set to *Film* with incorrect video results in a venetian blind or tearing look to the video that is hard to miss.

The other thing to remember is that whatever you set this for, it applies to all channels and all video signals that are passing through them. This setting (like the other Personality settings) is not remembered as part of an effect.

Motion The Motion setting controls how Dveous/MX creates the video in between keyframes when running an effect.

Normal With Motion set to *Normal*, Dveous/MX creates 60 positions per second (one per field) when running an effect.

Film *With Motion set to* Film, Dveous/MX creates 30 positions per second (one per frame). The idea is to use this with frame based video so that the effect does not create any motion between two fields that are the same. Selecting *Film* causes a stuttering frame-based look when running an effect. The *Phase* setting is to ensure that Dveous/MX jumps to the next frame at the same time the video does, matching its field dominance.

3:2 With Motion set to *3:2*, Dveous/MX creates 24 positions per second (one per film frame). This works the same as the *Film* setting, with the exception that the *Phase* setting has five values. Choose one to exactly match the effect's running with the video's position in the 3/2 (five field) pattern.

Delegating Channels

When you want to make changes to a channel, or to several channels, you have to delegate them first. You can have one, several or all channels delegated at once. Changes you make in a menu affect the delegated channel(s). Use the five red Channel Select buttons to delegate channels. Please refer to the graphic on the following page.

While not technically regarded as a channel, the **GLOBAL** button can also be delegated, since it has its own timeline. Delegate the **GLOBAL** "channel" when making changes in one of the Global menus.

One channel is always the Master channel. The channel you choose to be the Master will be one whose menu displays in the Control Panel. If you are only working on one channel, then that channel is automatically the Master and appears delegated as well. If you are working on more than one channel, one must be chosen as the Master. The Master does not have priority over the other delegated channels, but changes you make to the Master will affect other delegated channels, all offsets being maintained.

Offsets Between Delegated Channels All offsets between channels are maintained when entering changes to the Master channel. For example, let's say both channels 1A and 1B are delegated, with channel 1A designated as the Master. Channel 1B has a .25 Z rotate value, and Channel 1A has a .5 Z rotate value. Since 1A is the Master channel, the menu shows a .5 Z rotate value. Increasing the rotation value maintains the relationship of the two channels, and rotates them as a single unit. As a result, channel 1A always has .25 more rotation on it than 1B.

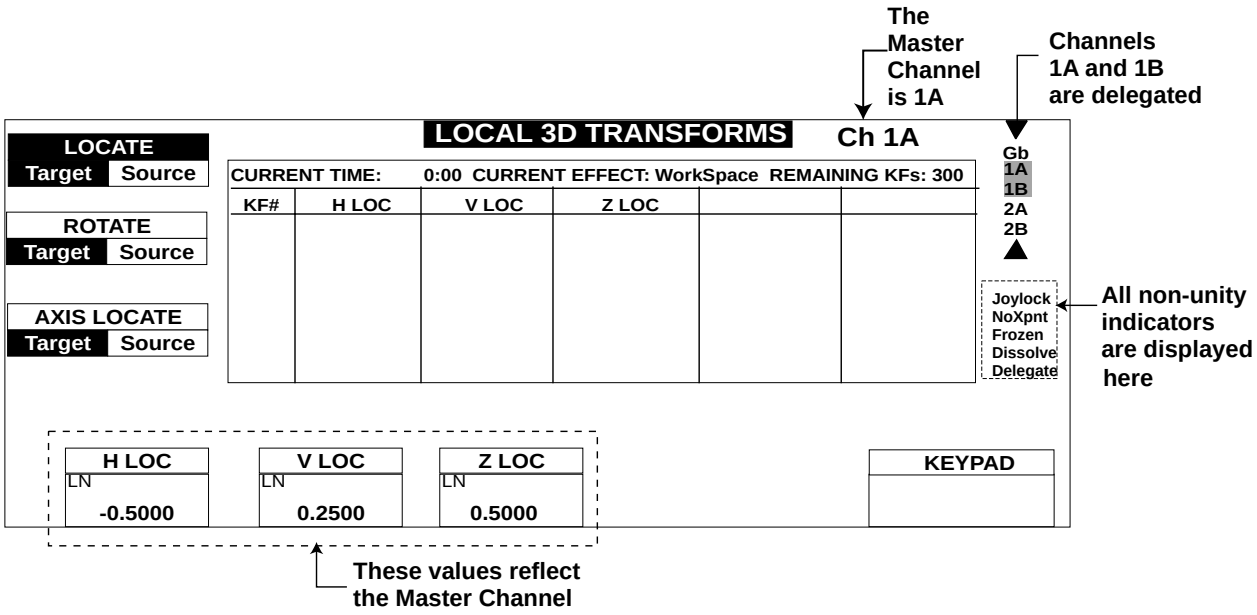
Note: Entering an absolute value with the keypad gives both channels identical rotations.

Note: If GLOBAL is the only delegated channel, you will not be able to make any changes in any of the Channel menus. The same is true if none of the channels are delegated.

How to Delegate Channels

You can toggle any channel on and off after designating the Master, including the Master itself. There are four different methods of delegating channels:

- Pressing a channel button once reverses the previous delegation status. So, a channel that was undelegated becomes delegated when pressed once. Conversely, a delegated channel becomes undelegated. By default, channel 1A is the Master channel.
- Pressing a channel button once and holding it assigns that channel to Master channel status without changing the delegation of any other channel. For example, if channels 1A, 1B and 2A were delegated, and 2A was the Master, pressing and holding 1A would now designate it as the Master while leaving 1B and 2A delegated.
- Pressing a channel button twice assigns that channel as the Master channel while undelegating all other channels.
- Pressing a channel button twice and holding it delegates all channels, including the Global channel and makes that channel the Master.



Note: If you are working with less than a dual twin system, the inaccessible channel buttons (1B, 2A or 2B) can be pressed but will appear as grayed out on the delegation menu. No functions can be performed on these channels.

Copying Channel Settings

You can easily copy the current setup of the Master channel to all other delegated channels. This method copies all menu settings for the Master channel to the delegated channels.

1. Select the Master channel by double-pressing one of the Channel Select buttons.
2. Press the Channel Select buttons of the channels into which you want to copy the Master channel settings.
3. Press **COPY CHANNEL**.
4. Press **ENTER**. The settings of the Master channel are now copied to the delegated channel(s).

Channel Copying for Specified Menus Instead of copying all menu settings for the Master channel, you can copy just those for specific menus (up to six at a time). After pressing **COPY CHANNEL**, press the menu button(s) whose Master channel settings you want to copy. Then press **ENTER**.

Channel Modes

As described in Section 1 – Introduction, each Dveous/MX twin channel can operate in three modes:

- Video+Video – two independent video channels.
- Video+Key – one video channel and an independent key channel.
- Video-Key+Shadow – also called SuperShadow; one video channel with a "slaved" key, and an independent shadow channel.

By definition, channel A is always video. The default configuration is two independent video channels. If your system is a dual twin system (channels 2A and 2B), you can configure one pair of channels differently from the other.

Note: If you have only one channel of HD, then the channel works in video only and the following configuration instructions are not applicable.

How to Configure Your Channels

1. Double press the 1A Channel Select button to configure the 1A/1B channel pair. Double press the 2A Channel Select button to configure the 2A/2B channel pair.
2. Press the **KEY** button to bring up the Key menu.
3. Press the ***Setup*** softkey to select it.
4. Use the Mode softknob to set the DVE board configuration:
   V+V (Video+Video mode) sets the transform boards to process two independent video channels.
   V+K (Video+Key mode) sets the transform boards to process one video channel (A) with an independent key channel (B).
   VK+S (Video-Key+Shadow mode) sets the transform boards to process a video channel plus a slaved key (A) and an independent shadow channel (B).

   In any configuration, you can select a near and far source for each channel, as described earlier in this section.

Note: The softknobs under the ***Mode*** softkey do not appear in Video+Video mode, as both channels are forced to a full white key signal.

Configuring Video+Key or Video-Key+Shadow

Continue with Step 5 if you have performed steps one through four on the preceding page and are choosing V+K or V-K+S modes.

5. Press the ***Mode*** softkey. For Video+Key mode, the Key softknob controls the key (B) channel only.

   In Video-Key+Shadow mode, the Key softknob is for the key portion of the A channel, and the Shadow softknob is for the shadow (B) channel.

   Both softknobs select the key mode for the channel:
   White – a full raster key signal (i.e., a white field) that matches the size of the transformed video.
   Video – generates a key signal based on the luminance in the source selected for the B channel.
   Inv Video – same as Video, except that it inverts the polarity of the generated key signal (i.e., black changes to white and white changes to black).

   Use Video or Inv Video when you want to replace the rectangular key with a shape (for example, the key signal from a character generator). Normally, use White in the Video-Key+Shadow mode when you want to derive a shadow from the normal rectangular raster.

6. Press the ***Setup*** softkey to bring up the Gain, Clip, and Phase controls for the keyer. For a full linear key, use the default values (Gain = 100 and Clip = 50). Gain adjusts the key edge sharpness. Clip is a threshold adjustment that sets the luminance level at which the key turns on or off.

   Phase adjusts the horizontal position of the key signal relative to the original video. Use it to compensate for key timing errors that originate outside Dveous/MX. Normally, you can leave it at its default value (0.00).

Note: With White selected as the key source, the Gain, Clip, and Phase adjustments have no effect.

Configuring Video-Key+Shadow

Continue with Step 7 if you are using V-K+S mode.

7. Press the ***Shadow*** softkey to access the color and opacity controls for the shadow channel. The Lum, Sat, and Hue softknobs adjust the shadow brightness, color saturation, and hue, respectively. The B Opac softknob sets a transparency value for the shadow. The default values for Lum, Sat, and Hue (0) and a B Opac value of about 50 yield a realistic looking drop shadow. You can also use the Input menu ***Blur*** softkey settings to soften the drop shadow for an even more realistic look.

Getting Back to Default

There are two different default states you can reset: factory defined default values or your own, user-defined, default values.

- **NORMAL** (in the Timeline Effects Editor buttons) resets channel values the user defined settings.
- **CLEAR** (in the numeric keypad) resets factory-defined default settings.

Using NORMAL

User-defined NORMAL Settings

User-defined Normals let you put all, or just parts of, a menu's settings to your preferred default settings. Using **NORMAL** commands, you can quickly set to your defaults. This feature is useful, for example, if you always want to reset to certain inputs. Or maybe you always want channel 1B squeezed down when you go the 3D Transforms, etc.

Setting Up and Modifying NORMAL Defaults

First, set all menu parameters to your preferred settings. Then:

- To set Normals for only delegated channels, press **MODIFY — NORMAL – – ENTER**.
- To modify all channels, press **MODIFY — MODIFY — NORMAL — ENTER**.

Using NORMAL to Reset the Normal Defaults

- To reset all parameters of the delegated channel(s) back to their user-defined settings, press **NORMAL — ENTER**. The delegated channels are reset to the personal-preference defaults that you entered.
- To reset all channels to the user-defined settings, press **NORMAL — NORMAL — ENTER**. All channels are reset to any personal preference defaults that you entered.
- To reset all channels to factory default, press **NORMAL — NORMAL — NORMAL — ENTER**.

Using CLEAR

CLEAR resets to the factory default.

Before You Start

To reset values using **CLEAR**, the message <Clear> must first be displayed in the keypad buffer. Press **CLEAR** once to empty the keypad buffer of any pre-existing value. Once there is no value in the buffer, or if no value exists in the buffer, pressing **CLEAR** now inserts the message <Clear> into the buffer. Conditions are now set to do a reset to default value.

- To reset an entire menu to default, hold **CLEAR** and press the menu button. For example, to set all 3D Trans menu parameters to default, press **CLEAR** + **3D TRANS**. All values for each menu function (***3D Locate***, ***Rotate*** and ***Axis Locate***) are reset to factory default.
- To reset all of the parameters for a function, hold **CLEAR** then press the function softkey. For example, to clear the parameters associated with the *Locate* function in the 3D Trans menu, press **CLEAR**+***Locate***. All values for each parameters, **H Loc**, **V Loc** and **Z Loc**, are reset to default.
- To reset a single parameter, press **CLEAR** and the keypad softkey (**A**, **B**, **C** or **D**) for the softknob whose parameter and motion path type you want to reset. For example, to clear the **H Loc** parameter under ***Locate*** in the 3D Trans menu, press **CLEAR**+ the **A** button. You can clear one or more parameters using this method.
- Set the entire machine back to factory default
  You can also reset the entire machine to the factory default (as shipped from Accom), regardless of channel delegation. Press **NORMAL** — **NORMAL** — **NORMAL** — **ENTER**. Even though you are using **NORMAL**, this command clears to factory default.

Note: Performing the **CLEAR** function **does not** affect the status of battery backed RAM. See "First Birthday" in Dveous/MX Technical Guide, P/N 9100-0402-00, for information on RAM reset.

The Numbering System

SD Mode

Dveous/MX in the SD mode uses a numbering system derived from the normal television aspect ratio of 4:3 – four units horizontally by three units vertically. Dividing both sides of this ratio by four yields 1:3/4, or 1:0.75. The SD mode uses this ratio as its numbering system. It indicates that the horizontal width of the screen, or the H axis, is one unit; the vertical height of the screen, or V axis, is three quarters of a unit, or 0.75 units. There is plenty of room for moving the image in both the Source and Target spaces (see Section 3 – Transforms for a discussion of Source and Target space); all planes have H and V dimensions of 200 units, or 200 times the height and width of the screen.

The third dimension, Z, is perpendicular to the H and V dimensions on each plane: it runs straight into and out of the plane at right angles to the horizontal and vertical directions. This value indicates depth, or distance from the next downstream plane.

The axis of each plane is defined as a point at which all three dimensions (H, V, and Z) have values of 0.0000. A point to the left of the axis on the plane has a negative H value; the left screen edge has an H value of -0.5000. A point to the right of the axis has a positive H value; the right screen edge has an H value of +0.5000. This gives a total width of 1.000.

Similar coordinates apply to the vertical dimension. A point above the axis has a positive V value; the top screen edge has a V value of +0.3750. A point below the axis has a negative V value; the bottom screen edge has a V value of -0.3750. The vertical range from screen edge to screen edge gives a total screen height of 0.7500.

The H and V position numbers may represent locations on the Source plane beyond the limits of the screen; the numbers always give you the exact location of the image on the plane, even if it is not visible in the video output.

In two dimensional transforms, the Z value represents picture size on the Source plane; it does not move the image in the Z (distance) direction. A value of 1.0000 gives a full size image. 0.5000 indicates that the horizontal and vertical dimensions of the image are reduced to one half of full size, and the image area is one quarter of full size (1/2H x 1/2V = 1/4).

In three dimensional transforms, the Z value represents the position of the image relative to the next downstream plane: its distance from it. At a value of 0.0000, the image's Z position image coincides with the plane; it is "sitting" on the plane. At values above 0.0000, the image is "behind" the plane, i.e., further away from the viewer. At negative values, the image is "in front of" the plane, i.e., closer to the viewer. At Z values equal to or less than -1.6667, the image disappears; it has moved past the eye's viewing point and is actually "behind" the viewer in 3D space.

Moving the axis (for either the Source or Target plane) moves the rotational center of the plane relative to the image. You can move the image, including the axis, on the plane (using the locate controls) or move the axis only, leaving the image alone (using the axis locate controls), or move the image only, leaving the axis alone (using the 2D Trans Pre controls).

HD Mode

Dveous/MX in the HD mode uses a numbering system derived from the high definition television aspect ratio of 16:9 – sixteen units horizontally by nine units vertically. The HD mode uses this ratio as its numbering system. It indicates that the horizontal width of the screen, or the H axis, is sixteen units; the vertical height of the screen, or V axis, is nine units. There is plenty of room for moving the image in both the Source and Target spaces (see Section 3 – Transforms for a discussion of Source and Target space); all planes have H and V dimensions of 3200 and 1800 units, or 200 times the height and width of the screen.

The third dimension, Z, is perpendicular to the H and V dimensions on each plane: it runs straight into and out of the plane at right angles to the horizontal and vertical directions. This value indicates depth, or distance from the next downstream plane.

The axis of each plane is defined as a point at which all three dimensions (H, V, and Z) have values of 0.0000. A point to the left of the axis on the plane has a negative H value; the left screen edge has an H value of -8.0000. A point to the right of the axis has a positive H value; the right screen edge has an H value of +8.0000. This gives a total width of 16.000.

Similar coordinates apply to the vertical dimension. A point above the axis has a positive V value; the top screen edge has a V value of +4.5000. A point below the axis has a negative V value; the bottom screen edge has a V value of -4.5000.

The vertical range from screen edge to screen edge gives a total screen height of 9.0000.

The H and V position numbers may represent locations on the Source plane beyond the limits of the screen; the numbers always give you the exact location of the image on the plane, even if it is not visible in the video output.

In two dimensional transforms, the Z value represents picture size on the Source plane; it does not move the image in the Z (distance) direction. A value of 1.0000 gives a full size image. 0.5000 indicates that the horizontal and vertical dimensions of the image are reduced to one half of full size, and the image area is one quarter of full size (1/2H x 1/2V = 1/4).

In three dimensional transforms, the Z value represents the position of the image relative to the next downstream plane: its distance from it. At a value of 0.0000, the image's Z position image coincides with the plane; it is “sitting” on the plane. At values above 0.0000, the image is “behind” the plane, i.e., further away from the viewer. At negative values, the image is “in front of” the plane, i.e., closer to the viewer. At Z values equal to or less than -26.6667, the image disappears; it has moved past the eye's viewing point and is actually “behind” the viewer in 3D space.

Moving the axis (for either the Source or Target plane) moves the rotational center of the plane relative to the image. You can move the image, including the axis, on the plane (using the locate controls) or move the axis only, leaving the image alone (using the axis locate controls), or move the image only, leaving the axis alone (using the 2D Trans Pre controls).

The Numeric Keypad

Use the numeric keypad to enter values for menu functions.

The Keypad Buffer

The keypad buffer always appears in the lower right corner of the menu display and shows the value or function ready to be applied to a menu setting. Entering a value in the keypad puts the number in the keypad buffer. The other buttons in the numeric keypad let you apply functions to settings. The list below shows the buttons and their functions.

Button	Function	Buffer Message
PATH	Selects the parameter motion path type. (Also used in disk menu to select or highlight more than one file)	<Set Path> JP LN SL T1 T2 SM
ALIGN	Sets the parameter to the closest 1/8th of full range. (Also used in disk menu to select or highlight all files)	<Align>
TRIM	Adds or subtracts the entered amount to/from the current value.	<Trim>
CLEAR	If a number or function is in the buffer, this erases it; If nothing is in the buffer, this resets the parameter to default. This button also clears entries in the Keyframe Edit Dialog area.	<Clear>
+/-	Inverts numeric values, and sets trims to subtract.	

Entering Values

This section tells you how to enter, clear, align, and trim, numeric values. It also covers copying values from one setting to another, and assigning motion path types to parameters.

Using the Keypad Softkeys (A,B,C,D)

Use the keypad softkeys (**A**, **B**, **C** and **D**) to enter values for one of the four function parameters. The keypad softkeys correspond to the parameters from left to right, **A** belonging to the leftmost softknob and so on. Simply enter a value for the parameter, then press its corresponding keypad softkey.

For example, look in the 2D Trans menu under the *Position/Pre* function. The Size setting is the right-most parameter, so its corresponding keypad softkey is

D. To enter a value of .5 for Size, enter .5 in the numeric keypad, then press **D**. The image shrinks to one half full size, horizontally and vertically.

Copying Values

You can copy values from one parameter to another, or from a parameter in one menu to a parameter in another menu.

First, make sure the keypad buffer is empty (press **CLEAR** to clear any existing values). Then, press the parameter's keypad softkey (**A**, **B**, **C** or **D**) to copy its value and motion path type into the keypad buffer. You can then press another keypad softkey in the current menu or in another menu to enter this value and motion path type in another softknob.

Also, make sure that the keypad buffer does not display before pressing **A**,**B**,**C** or **D**. When displays and you enter a value then press **A**,**B**,**C** or **D**, you are clearing that parameter to default. You may need to press **CLEAR** twice to ensure that the keypad buffer is completely empty.

For example, the Size setting has a value of 0.5000. Pressing the **D** button loads 0.5000 into the keypad buffer. Now pressing **B** sets the H softknob to 0.5000.

Inverting Values +/-

Use the **+/-** button to invert the number in the keypad buffer. To enter a negative value, you can either enter the value followed by the +/- key, or press +/- followed by the number value. For example, if softknob A has a value of 5, pressing +/- then A changes the softknob value to -5. Conversely, if the value is -5, pressing +/- inverts the value to 5.

Maximizing or Minimizing a Setting

If you want to quickly set the highest or lowest allowable value for a parameter, enter a value that is outside its range, then press its keypad softkey. Dveous/MX automatically sets the value to its minimum or maximum setting. For example, entering 1000 in the Size softknob sets it to 99.9999.

Trimming Values

You can change an existing value, or “trim” it, by adding or subtracting a given amount to or from it. To trim a parameter value, press the **TRIM** button to

enter the message in the keypad buffer. Then, enter the trim amount in the numeric keypad and press a keypad softkey. For example, to add 1.5 to the value in softknob A press TRIM — 1.5 — A. To subtract 1.5 from the value in softknob A, enter TRIM — +/- — 1.5 — A or +/- — 1.5 — TRIM — A.

Note that there is always a trim amount in the keypad buffer. On bootup, the default trim amount is +1. After you trim a value, the keypad buffer remembers the trim amount. Now when you press TRIM, the keypad buffer recalls the last trim amount used. This feature makes it easy to trim multiple values by the same amount.

Aligning Values

You can use the **ALIGN** button to reset an existing parameter value to the nearest one-eighth of the full range of that parameter. This command is handy if you have used the softknob or the joystick to roughly position the image, then want to position it more accurately. For most settings, the typical value is a one eighth increment. With rotations, for example, one eighth of a complete rotation is 45 degrees or 0.1250. Aligning a rotation value of 1.1111 resets it to 1.1250, the nearest multiple of 0.1250. Locate settings use one eighth of a screen unit as the logical value. For example, aligning an H locate value of 3.4739 sets it to 3.5, which is the nearest multiple of 0.1250, or one eighth of a screen unit.

For other functions, where there is no typical value, the align function sets the value to the closest one eighth of the parameter's entire range. For example, in the Multi menu, the full range for mosaic tile size is 0 - 100. Since the typical value is a multiple of 12.5000, or one eighth of the entire range, aligning a tile size of 28.3267 changes it to 25.0000, a multiple of 12.5000.

Assigning Motion Path Types

Motion paths define how Dveous/MX interpolates from the settings in one keyframe to the settings in the next. Use the **PATH** button to assign motion paths to keyframeable parameters. See Section 7 – Motion Control for more details on each motion path type.

When you press the **PATH** button, this message appears in the keypad buffer:

<Set Path>
JP LN SL T1 T2 SM

The letters across the bottom indicate the available path types:

JP	Jump (Hold)
LN	Linear
SL	Smooth Linear
T1	TCB1 (Tension, Continuity, Bias preset 1)
T2	TCB2 (Tension, Continuity, Bias preset 2)
SM	Smoothed Motion

Some parameters take only certain path types. If you try to assign an invalid path type to a parameter, the system assigns the highest "priority" path type available to it. The “priority” follows the list in the keypad buffer, left to right from lowest to highest. For example, if you try to assign SM to a parameter that takes only the JP, LN or SL path types, it assigns SL instead, because that is the highest priority path type allowed for that setting.

Methods of Assigning Path Type The highlight indicates the currently selected path type. Pressing the **PATH** button cycles the highlight through the list and selects a path type.

- To assign to a single parameter, select a path type, then press the keypad softkey (**A**,**B**,**C** or **D**) associated with the parameter. The path type abbreviation appears next to the parameter value.
- To assign the same path type to all the parameters related to a single menu function, select a path type and hold the **PATH** button, then press the menu softkey associated with that function.
- To assign a path type to all the parameters in a menu, select a path type and hold **PATH**, then press the menu button on the Control Panel.

Note: When assigning a path type to multiple settings, remember that the path “priority” rule applies to any setting that does not accept the path type you want to assign.

Remembering Last Used Path The keypad buffer “remembers” the last path type selected, making it easy to assign the same path type to many parameters. After you assign a different path, the next time you press PATH, the keypad buffer recalls the last path type used. When you boot up, the default path type is T1.

Note: When changing paths to an existing effect, you must first modify the effect before running the new **PATH** parameters.

The Joystick

The joystick lets you quickly adjust one or more of a menu's parameter settings. It gives you immediate visual feedback when positioning images, widening a border, playing with warps, etc.

If the joystick can be used in a menu you will see arrow icons in the function parameter display, next to the parameter's name. As you use the joystick to adjust the image, the values for that parameter change as well.

Move the joystick up or down to see that parameter change.

Move the joystick left or right to adjust that parameter.

Twist the joystick to see adjust that parameter.

Locking the Joystick to a Menu

You can tie, or lock, the joystick control to a menu's function parameters. After going into joystick lock mode in one menu, you can go into another menu and adjust its parameters by using the parameter softknob, while adjusting the locked parameters with the joystick. This feature is handy, for example, if you want to rotate the image using 3D Trans menu controls while playing with warp shapes in the Warp menu.

Press JOYSTICK LOCK on the Control Panel before leaving a menu. The joystick lock non-standard mode indicator status message displays.

Joystick Tricks

Applying Your Own Directional Arrows

In some menus, no directional menus appear, which indicates the joystick is not available for use. However, you can sneak around the system and temporarily tie the joystick to any unmarked parameters you wish. To do so, hold down the unmarked parameters corresponding keypad button (**A**, **B**, **C**, or **D**) while moving the joystick horizontally or vertically or by twisting it. Whichever way you first move the joystick determines the direction you tie to the parameter, and that directional arrow will appear in the parameter's menu display.

Joystick Lock Sneak Peek

When in joystick lock mode, you can easily find out what parameters you tied the joystick to in the other menu. Simply press and hold the **JOYSTICK LOCK** button. The menu display will change to show the menu, functions, and parameters that you were in when the joystick was locked. When you release the **JOYSTICK LOCK** button, the menu reverts to its previous display.

Creating a Simple Effect

Now that you know how to select a source and delegate channels, let's create a few simple effects. These effects are broken down as follows and become parts of one larger effect:

- Building an effect on Channel 1A
- Modifying the effect on 1A
- Creating an effect on Channel 1B
- Moving both channels in tandem
- Non-unity lights

Building an Effect on Channel 1A

In the following exercise, we will squeeze the picture down in size, move it around the screen, and rotate it 360 degrees.

1. Press **DELETE — DELETE — ALL — ENTER** in the TimeFrame Effects Editor to clear any existing keyframes from all channels, in the event an effect was hiding somewhere.
2. Press **NORMAL — NORMAL — NORMAL — ENTER** to clear all menu settings to the factory default. Default mode selects the Video+Video mode, and gives channel 1A keying priority over channel 1B.
3. Double press the 1A Channel Select button to delegate it and undelegate the other channels.
4. Press the **3D TRANS** menu button. The 3D Trans menu appears.
5. Press the ***Locate*** softkey and toggle it to *Source*.
6. Twist the joystick counterclockwise to make the image smaller. Or, you can turn the Z Loc softknob counterclockwise. The smaller channel 1A appears keyed over a full-size channel 1B.
7. Move the reduced image to the upper left corner of the screen with the joystick or with the **H Loc** and **V Loc** softknobs.
8. Press the **INSERT NEXT** button. The current parameters are now stored as keyframe 1.
9. Move the image to the upper right corner of the screen using the joystick or softknobs. Press **INSERT NEXT** again to store the new parameters as keyframe 2.
10. Move the image to the lower right corner of the screen. Press the Rotate softkey and toggle it to *Source*.

11. Rotate the image a full 360 degrees around its Z axis by entering the value 1 for Z Rot. To do this, enter 1 in the numeric keypad, then press the C keypad softkey. Press **INSERT NEXT** to store the current parameters as keyframe 3.
12. Press Locate and move the image to the lower left corner of the screen. Press Rotate and rotate the image horizontally by moving the joystick left or right. (You can also use the **H Rot** softknob.) To rotate the image exactly 180 degrees, enter .5 in the numeric keypad, then press the A keypad softkey. As the image rotates past "edge-on," the back source appears. Press **INSERT NEXT** to store the current parameters as keyframe 4. There is now a four keyframe effect in the workspace.
13. Press the **RUN→** button to run the effect. The image starts at the upper left corner, moves to the upper right corner, rotates about its center while moving to the lower right corner, and rotates to reveal the back side while moving to the lower left corner of the screen. Press **←RUN** to run the effect from the last keyframe to the first. Press **PAUSE** at any point to pause the effect, then press **RUN→** or **←RUN** to resume running the effect from that point. Press **START** to rewind the effect to the beginning.

Note: This effect is based on motion paths set to linear.

Modifying an Effect

To change the current effect, you can modify any parameter as follows:

1. Move to the keyframe you want to change by pressing **NEXT** (to step forward to the next keyframe) or **PREVIOUS** (to move back to the previous keyframe).
2. Change a parameter and press the Quick Keyframes **MODIFY** button. This modifies only the current keyframe. (For now, do not use the **MODIFY** button in the TimeFrame Effects Editor.)
3. Run the effect by pressing **RUN→**. The effect now runs with the modified keyframe.

Creating an Effect on 1B

So far, you have created and modified an effect for channel 1A only. To create an effect for channel 1B, double press the 1B button to delegate that channel and undelegate channel 1A. Then, using the above procedure as a guide, create a different effect for channel 1B.

When you create the effect for 1B, it will start running at the last keyframe you were on in the previous effect. So, if you run 1A to the end and don't rewind it, when you create 1B's effect, it will start after 1A runs its last keyframe. If you rewind 1A, before starting to build 1B's effect, then 1B will start when 1A starts, and both channels will simultaneously run their own effects.

Moving Both Channels in Tandem

You can also create an effect with both channels moving in tandem. Remember that Dveous/MX looks at what channels are delegated when it determines which channels to affect. So, to move 1A and 1B in tandem, they must both be delegated. Also, remember that one channel must always be delegated at the Master Channel. The Master Channel has no greater importance than any other, but just tells Dveous/MX which timeline to look at and whose menus to display.

1. Double press the 1A channel select button to make it the Master and to delegate it.
2. Press the 1B channel select button to delegate it.
3. Adjust parameter settings in the 3D Trans menu. Both channels will be affect equally, with all offsets maintained.

Non-unity Lights

The LEDS on the menu buttons are called non-unity lights. When lit, they tell you that a menu's parameters have been changed. The menu is no longer in default, or unity, state. This feature is handy as a quick reference to figure out what menus you have worked in and what menus are affecting the image.

Saving Effects

The place where effects are saved is called the effects register. You can store up to 100 effects in the register. Effects are numbered 0 through 99. Each effect can have a maximum of 300 keyframes. The keyframes for each effect come from a collected pool of keyframes in battery backed up RAM (a semi permanent storage device). There are over 1700 keyframes in memory. When you create an effect, the system sets aside a portion of these keyframes for that effect.

Note: Each delegated channel's timeline uses a keyframe from the system pool. This means that when you create an effect by inserting four keyframes into five channels (1A, 1B, 2A, 2B and Global), you actually use 20 keyframes from the pool.

Saving an Effect

You can quickly save effects to the register without having to enter a menu.

1. Enter an effect register number (0 - 99) in the numeric keypad.
2. Press the **SAVE EFFECT** on the Control Panel. The effect is now saved at that number in the register and its number displays next to Current Effect.

Overwriting Existing Effects

Depending on whether you have enabled the protect flags, one of two things happen if you try to overwrite an existing effect:

Protect Flag Not Enabled If the existing effect does not have the protect flag enabled, the workspace effect overwrites the one in the register. You will not be prompted that you are overwriting an existing effect.

Protect Flag Enable If the existing effect does have protect enabled, Dveous/MX does not save the workspace effect, and does not overwrite the existing effect. A prompt tells you that the register is protected.

Recalling an Effect

There are two ways to recall effects: recall directly from the Control Panel, or recall from within the Effects menu.

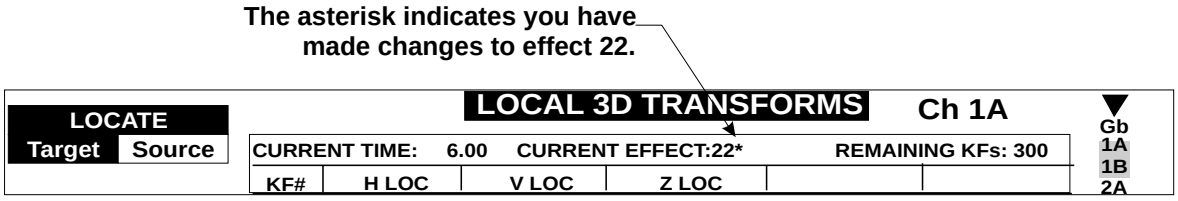
Recalling from the Control Panel

1. Enter an effect register number (0 - 99) in the numeric keypad.
2. Press the **RECALL EFFECT** button the Control Panel. The effect from that register loads and its number displays as the Current Effect in the menu's workspace display.

Recalling from the Effects Menu

1. Press **RECALL EFFECT**. The Effect menu appears.
2. Use the **REG#** parameter softknob to dial in the number of the effect you want to recall. Although the effect's number appears in the Workspace display as the Current Effect, the effect will not load until you press **RECALL EFFECT**.
3. Press **RECALL EFFECT**. The effect is now loaded in the workspace.

Modifying a Recalled Effect When you make changes to the currently loaded effect, an asterisk displays next to Current Effect in the menu display. The asterisk is a friendly reminder that you have changed the effect. The changes are not saved, however, unless and until you press **SAVE EFFECT**.



Workspace as the Current Effect When the word WorkSpace displays as the Current Effect, you are creating a brand new effect that has not been saved yet. Or, you have deleted all keyframes from all channels, in effect starting over again.

Note: See Section 8 – Saving and Recalling Effects for complete information about recalling effects and for information about using the disk drives to archive and recall effects.

The Effects Menu

Use the Effects menu to browse the effects registers, enable/disable the effect loop and protect flags, name effects, and delete effects. Access this menu by pressing the **RECALL EFFECT** button in the Effect area of the Control Panel.

Reading the Display For each effect register, the menu shows how many keyframes exist in each channel and the status of the Loop and Protect modes. Look at Remaining KFs to know the total remaining keyframes available in the system pool.

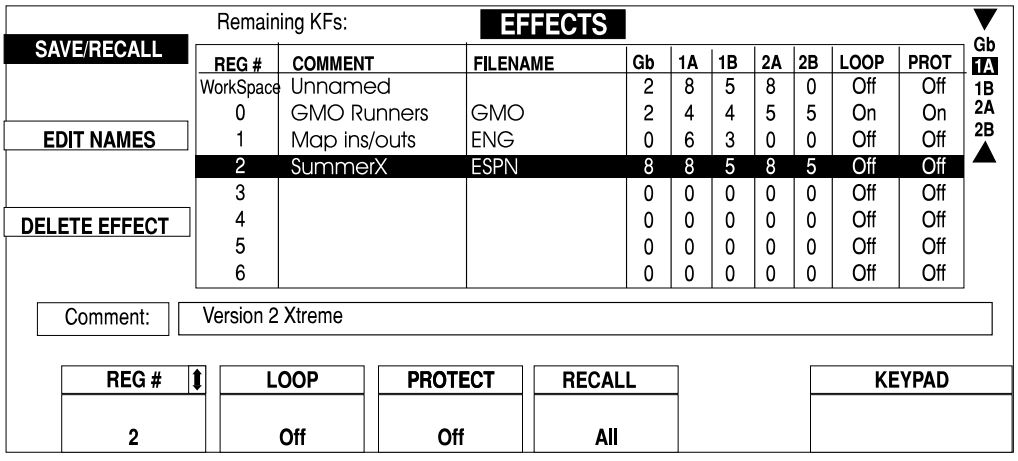
Reg # Use the Reg# softknob to scroll through the effect registers and view what numbers you have saved to. You can also use the joystick to move through the register, or go to an effect directly by entering its number in the keypad, then pressing A in the keypad register.

The Loop and Protect Flags

You can enable/disable the loop and protect flags for an effect in an on-line register as follows. Note that you can set the Workspace effect to loop, but you cannot enable the protect flag for it.

Enabling/Disabling Loop and Protect

1. Use the Reg# softknob or the joystick to highlight an effect register number. Or you can enter the number into the keypad and press A on the keypad register.
2. Turn the Loop and Protect softknobs to the desired status (on or off) for that effect register.



Deleting Effects

Only unprotected effects can be deleted. You can delete the current effect, or all effects, so long as they are unprotected, from the register(s) as follows. To delete an effect in a protected register, first use the Protect softknob to turn the register's flag off.

1. Use the Reg# softknob or the joystick to highlight the effect number to be deleted. Or you can enter the effect's number in the keypad and press A in the keypad register.
2. Press Delete Effect. Select is highlighted.
3. Press Delete Effect again to confirm the deletion. A message appears to indicate the effect register has been deleted, and all channels show 0 keyframes at that register.

Note: You cannot delete the workspace effect in this manner. To delete the workspace you must use the Timeframe Effects Buttons (**DELETE—ALL—ENTER**).

Note: For complete information about saving, naming and deleting effects, please see Section 8 – Saving and Recalling Effects.