GRASS VALLEY GROUP

Release Notes

software release **5.0**

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KALYPSO

VIDEO PRODUCTION CENTER

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Version 5.0

December, 2000

Kalypso Release Notes

Introduction

This document provides installation and other information specific to Kalypso Video Production Center release 5.0 software.

Note A replacement PROM included with the Kalypso 5.0 release needs to be installed after the software has been updated (see page 13). The new PROM is not backward compatible with earlier versions of software.

New Features in Release 5.0

- Transform Engine option (see page 20)
- Internal and External Effects Send (see page 40)
- Machine Control Enhancements, including Gang Roll and Auto Start (see page 45)
- E-MEM Level mapping to Enable Groups (see page 47)
- Remote Aux Panel option, 24 Crosspoint models (see page 51)
- Editor Interface (see page 65)
- E MEM effect editing enhancements: KF Duration, KF Time, Mod All, and Constant Duration
- Chroma Key Coring
- Serial External Tally (Protocol Manual available from Grass Valley Group Customer Service)

Changes in Release 5.0

- Kalypso source numbers for some internal sources have changed to make them more compatible with GVeous using Peripheral Bus II (Table 1). Any effects built with changed source numbers will not run with the intended source and will have to be rebuilt. CPL control of switcher aux buses (either GVeous or Krystal) can also be affected by this change.

Table 1. New Kalypso Source ID Numbers

Number	Source
0	black
58	Still Store 1
59	Still Store 2
60	M/E 1 reentry
61	M/E 2 reentry
62	M/E 3 reentry
63	M/E 4 (PGM-PST) reentry

- E-MEM registers can be locked and unlocked.
- To adjust the key size of a Chroma key, the **Reshape** feature must be turned on in the Keyer menu.
- Smoother manual lever arm transitions (PROM replacement).
- Transition Lever Arms now displays a progress bar indicator in the M/E Status display. A bar and line appears during transitions. When the lever arm is out of sync with the transition, the bar is hollow.
- Switched preview automatically switches to the appropriate preview output during Hold to Preview, Show Key, and Chroma Key Auto Setup operations.
- Pressing **Seq** cancels a running sequence, but allows the current register operation to complete, including any Effect Dissolve and Run. Sequence Delay is not performed.
- Pressing either **Eff Dis** or **Run** cancels a running sequence and the current register operation. The current work buffer remains at the values of the last interpolation.
- Pressing **Rewind** cancels a running sequence and the current register operation. The current work buffer is restored to the values in the first keyframe of the current register. Note that during an Effect Dissolve interpolation occurs to the current register. For Effects Run and Sequence Delay, the current work buffer returns to the first keyframe.
- The **Insert Before** button has been deactivated due to operational problems. This feature will be reactivated in a future release.

Changes in Release 4.1

The Kalypso 4.1 Release included only two corrections and had a limited distribution. These changes have been incorporated into Release 5.0.

- Fixed field dominance now ensures all user initiated actions begin consistently on the odd field.
- Fixed a problem where saving and loading an E-MEM to and from disk and then performing a learn on that register could crash the frame.

Electronic Documentation

Note The Kalypso User Manual and Kalypso Installation and Service Manual have been updated to the Release 4.0 feature set and hardware. Release 5.0 features are documented in this Release Note.

A complete set of Kalypso documentation (User Manual, Installation and Service Manual, Release Notes, and related documents) is included on the *Kalypso Documentation CD*. An OmniBus Installation Instruction manual is also available for Profile and VTR control options. These files are in .pdf format. The Adobe Acrobat Reader application, required to view the files, is also included on the CD-ROM. The electronic documentation can be viewed on screen or printed out.

To View Electronic Documentation:

1. Insert the CD into any Windows PC. If you wish to use this CD on the Kalypso system, you will need to exit the Kalypso Menu program and any running OmniBus application. On the Kalypso system adding a mouse and keyboard is recommended for document navigation.
2. Open the **MANUALS.PDF** file.
3. Click on the document name or category. The document will open in Acrobat Reader, or you will go to another index page from which you can choose a document from that category.
4. To return to the index to select another document click the back arrow in the Acrobat Reader tool bar, or drop down the **File** menu and select **MANUALS.PDF**.

Hardware Installation

Note A replacement PROM included with the Kalypso 5.0 release needs to be installed after the software has been updated (see page 13). The new PROM is not backward compatible with earlier versions of software.

This document assumes an initial hardware installation has been completed. Refer to the Kalypso *Installation and Service Manual* for basic installation information.

Button Legend Changes

Two Keyers subpanel buttons have changed to support new functionality. Replacement legends are included with this software release package. See page 40 for more information.

Some earlier Kalypso panels shipped with incorrectly installed Transform subpanel buttons. See page 29 for more information.

Transform Engine Option Installation

TE Module Installation

Up to two Transform Engine modules can be installed in the Kalypso Video Processor frame. Using anti-static practices, insert the modules into slots A-15 and A-16 behind the front door of the Video Processor frame. The module in Slot A-15 supports Transform Engines 1-3, and the module in slot A-16 supports Transform Engines 4-6.

Note If you must hot swap the Transform Engine board and all three top LEDs (D10, D11, D12) do not start flashing within a few seconds after board insertion, and the board is not updating it's on board flash memory (the LEDs on D8 and D9 will be flashing the CPUs count through the memory update). If none of the LEDs are flashing after a few seconds, press the reset button (SW1) on the TE board.

Transform Subpanel Button Locations

Some early Kalypso systems shipped with incorrectly placed Transform subpanel buttons. The proper arrangement has the **Aspect** button left of the **Locate Axis** button, and the **Global Ch**, **Keyer Wipe**, **Drop Shdw**, and **Keyer T-Form** buttons left to right, as shown in Figure 20 on page 29. If not correct, rearrange the buttons on your panel to the proper locations.

Kalypso System IP Addresses

The Kalypso Video Production Center is shipped with default IP addresses (Table 2). These default addresses can be used if the Kalypso system is operating on a dedicated network with no other devices present. Note that these addresses can be changed during installation, and so your system may not be using the defaults:

Table 2. Default IP Addresses

Device	IP Address
Video Processor frame	192.168.0.20 (Facility LAN)
	192.168.1.21 (Panel LAN, not used in 4.0)
	192.168.0.22 (Still Store)
Main panel	192.168.0.26
Menu panel	192.168.0.25
	255.255.255.0 (Subnet Mask)
Local Aux panel	192.168.0.27

Note Though the Panel LAN is not used in Kalypso release 5.0, the Video Processor frame still requires a Panel LAN IP address that is different from the Facility LAN.

Changing IP Addresses

CAUTION If other devices are present on the network (including a different Kalypso system) make sure every device has a unique IP address before it is connected to the network.

If you change the IP address of a Kalypso device, the IP address settings stored in the other devices must also be changed so they match. See the *Kalypso Installation and Service Manual* for specific procedures for changing IP addresses.

Note The Video Processor frame IP address the Menu panel uses to communicate with the frame is set on the Menu panel in the Eng Setup-Misc menu. Press the **Eng Setup** button on the Menu panel, then touch the **Misc** category selection button to access this menu.

Replacement Reference Module

Video Processor IP addresses and other essential information resides in PROMs in the Reference In module (mounted in the rear of the Video Processor frame). If a Reference In module is swapped, the PROMs from the original module must be moved to the replacement module to prevent network communications problems and preserve authorization information.

Profile/OmniBus

If you install the OmniBus data base file to use the Profile interface (KAL-IF-PROFILE), a default Profile Video Disk Recorder (VDR) IP address (192.168.0.10) and “Profile 1" name is configured automatically when the OmniBus software is loaded. The Profile used with the Kalypso system needs to be configured with this default address. Otherwise, the OmniBus system configuration needs to be changed. OmniBus configuration procedures are outside the scope of this document, but some information is available in the separate *OmniBus Interfaces Installation* manual included on the Kalypso documentation CD.

The VTR interface option (KAL-IF-VTR) also requires an IP address. The hardware for this option does not ship with a default address. This will need to be set by the installation engineer to an IP address that is compatible with the Kalypso and OmniBus system components.

Software Installation

Note A replacement PROM included with the Kalypso 5.0 release needs to be installed after the software has been updated (see page 13). The new PROM is not backward compatible with earlier versions of software.

Software Versions

Kalypso systems ship with the latest software installed. If Release 5.0 software is already installed, there is no need to update the system. Systems running Release 1.8.0 and higher software can display the software versions of all their system components. Press the **Status/Diags** Menu panel button to access the Versions menu.

Kalypso systems running any software versions earlier than 5.0 should be updated. You can install Release 5.0 directly from any previous release, without having to install intermediate releases. Some additional upgrade steps may be required, depending version you are upgrading from.

Upgrade From Version 4.X Software

- Install Release 5.0 software, see page 8.
- Install replacement PROM, see page 13.

Upgrade From Version 3.X Software

CAUTION If you are upgrading from 3.0.X software, you must perform a FrameMon upgrade before installing 5.0 software.

All above steps, plus:

- Update the FrameMon kernel, see page 15.
- Install Release 5.0 software, see page 8.

Upgrade From Version 2.X Software

All above steps, plus:

- Update Touch Screen Software, see *Touch Screen Software Update (Releases Earlier Than 3.X)* on page 16.
- Local Aux button legend change.
- Release 3.0 or later software must be installed before the Still Store software can be installed. Install all the 5.0 software components except the Still Store, reset all the devices, then install only the Still Store software and power the Video Processor frame off and on (do not just reset the frame).

Installing Kalypso System Software

The Kalypso Software Update Tool installs various software elements to the Menu panel, Video Processor (Frame), Main panel, and Local Aux panel. The Update Tool and all the associated software is provided on CD-ROM. The Update Tool is also installed on the Menu panel Windows NT system, and so can be run without the CD.

A complete Kalypso software install usually takes less than 15 minutes. However, if the new software requires an update to M/E module flash, an additional 30 minutes may be required.

A mouse and PC computer keyboard are useful for a standard software installation. However, if IP addresses are to be changed from their defaults, a mouse and keyboard are essential.

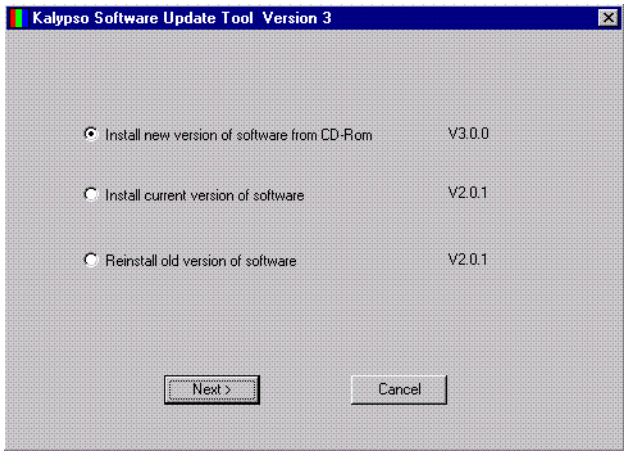
The basic Kalypso software installation will be discussed first. This procedure needs to be performed on all systems being updated.

Note A dialog box appears if the Menu panel touch screen driver is out of date or not installed. The driver can be installed immediately by cancelling the Kalypso software installation, or can be installed after you install the Kalypso software. See *Touch Screen Software Update (Releases Earlier Than 3.X)* on page 16 for instructions.

1. If you haven not already done so, save your system configuration files and E-MEM registers to disk as backup.
2. Exit the currently running Kalypso Menu software. Kalypso software is exited by touching the upper right message area of any Kalypso menu.

3. Insert the Kalypso Software CD into the CD-ROM drive. The Kalypso installation program will automatically load and the following Kalypso Software Update Tool screen appears (Figure 1).

Figure 1. Kalypso Install Screen 1

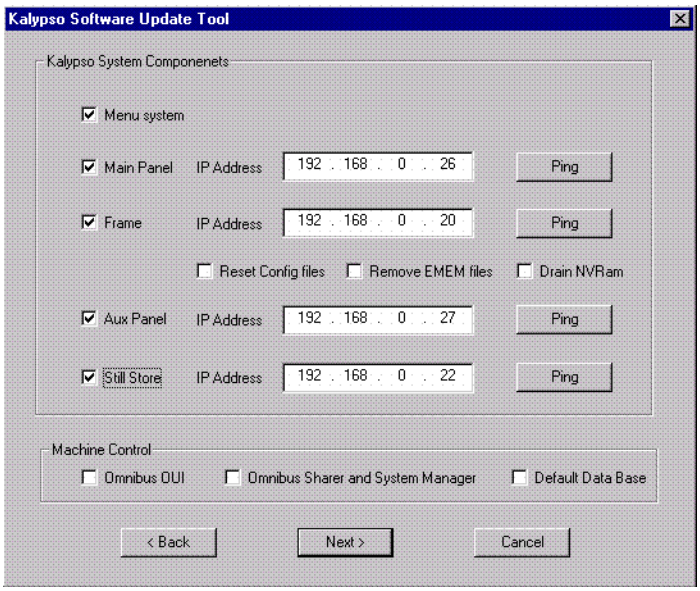


Three installation options are available.

- Install new version — Installs new software from CD-ROM only. Generally this is the option you should select.
- Install current version — Re-installs the currently loaded version of software. This is generally used to install the current software on new Kalypso hardware attached to the system. The CD-ROM disk is not required for this option.
- Reinstall old version — Installs the previously loaded software from a Kalypso system backup directory. This option is included for safety, and generally should not be necessary. The CD-ROM disk is not required for this option.

4. Select the installation option then touch the **Next>** button. The second Kalypso Software Update Tool screen will appear (Figure 2).

Figure 2. Kalypso Install Screen 2



The following five Kalypso system component installation options are available. Only the software of the selected targets will be affected.

- Menu System – Installs the Kalypso menu application software onto the NT system disk.
- Main Panel – Installs software to the Kalypso Main panel. For Release 5.0 the Main panel must be on the same LAN as the Menu system (the Facility LAN).
- Frame – Installs software to the Video Processor frame. The three extra check boxes (Reset Config Files, Remove EMEM files, Drain NVRam) are not used for normal software updates.

Note If your Kalypso system has been running beta software, you should check all three of these extra boxes to ensure system and E-MEM file consistency.

Note You can Reset Config files, Remove EMEM Files, and/or Drain NVRam without updating Kalypso system software by checking only these boxes.

- Aux Panel – Installs software to the Local Aux panel. For Release 5.0 the Local Aux panel must be on the same LAN as the Menu system and Main panel (the Facility LAN).
- Still Store – Installs software to the optional Still Store module.

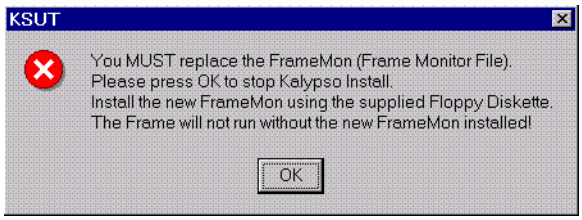
Note The Machine Control check boxes are used for OmniBus software installation only. See the *OmniBus Interfaces Installation* manual included on the Kalypso documentation CD for specific instructions.

5. Valid IP addresses must be specified so the software is installed to the correct destinations. You can confirm a device exists at the address with the **Ping** buttons on the screen. Use a standard computer keyboard and mouse connected to the ports on the rear of the Main panel to change the IP addresses, if necessary.

6. When the installation options and IP addresses are correct, touch the **Next>** button.

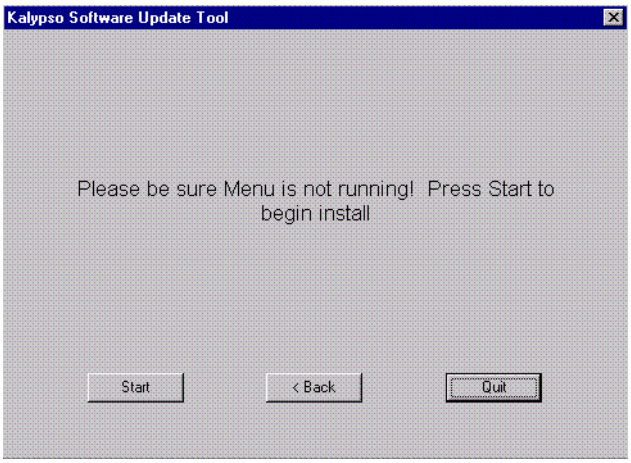
   - If an older FrameMon kernel is present, a message appears stating you must replace the FrameMon file (Figure 3). Press **OK** to stop the Kalypso installation, install the new FrameMon from floppy disk, and then install the Release 5.0 software. See *FrameMon Upgrade (Upgrade from 3.0.X and before only)* on page 15.

Figure 3. FrameMon Upgrade Warning Message



   - If the FrameMon kernel has been upgraded, the third Kalypso Software Update Tool screen will appear (Figure 4). The information on these remaining installation screens will vary, depending on what installation options have been selected.

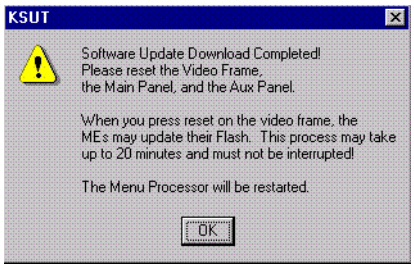
Figure 4. Kalypso Install Screen 3.



7. Click on the **Start** button to begin the actual file transfer to the selected targets. Clicking on the **Quit** button before the install has been started will exit without making any changes. During the installation process, a progress bar is displayed and the components being loaded are identified.

8. When the file transfers complete, a screen similar to Figure 5 appears indicating the need to reset hardware that has been updated. Select **OK**.

Figure 5. Kalypso Install Reset Prompt



CAUTION All components of the Kalpso system updated with new software (Menu system, Video Processor, Main panel, Local Aux panel) must be reset.

9. The Menu panel will automatically log off and back on to reset itself. You now need to reset all the other hardware system components you selected for update (see the *Kalypso Installation and Service Manual* for reset instructions).

Note If the new software includes M/E module flash updates, it may take up to 30 additional minutes for these Video Processor modules to initialize. The Kalypso system must not be disturbed during this process. Frame Not Connected messages will be displayed during module initialization. During the flash update LEDs on each M/E module display a unique counting sequence.

10. When Menu panel initialization completes (which may occur before the Video Processor initializes) the Kalypso Menu application will run and display its startup screen (Figure 6).

Figure 6. Kalypso Startup Screen



OmniBus Installation and Configuration

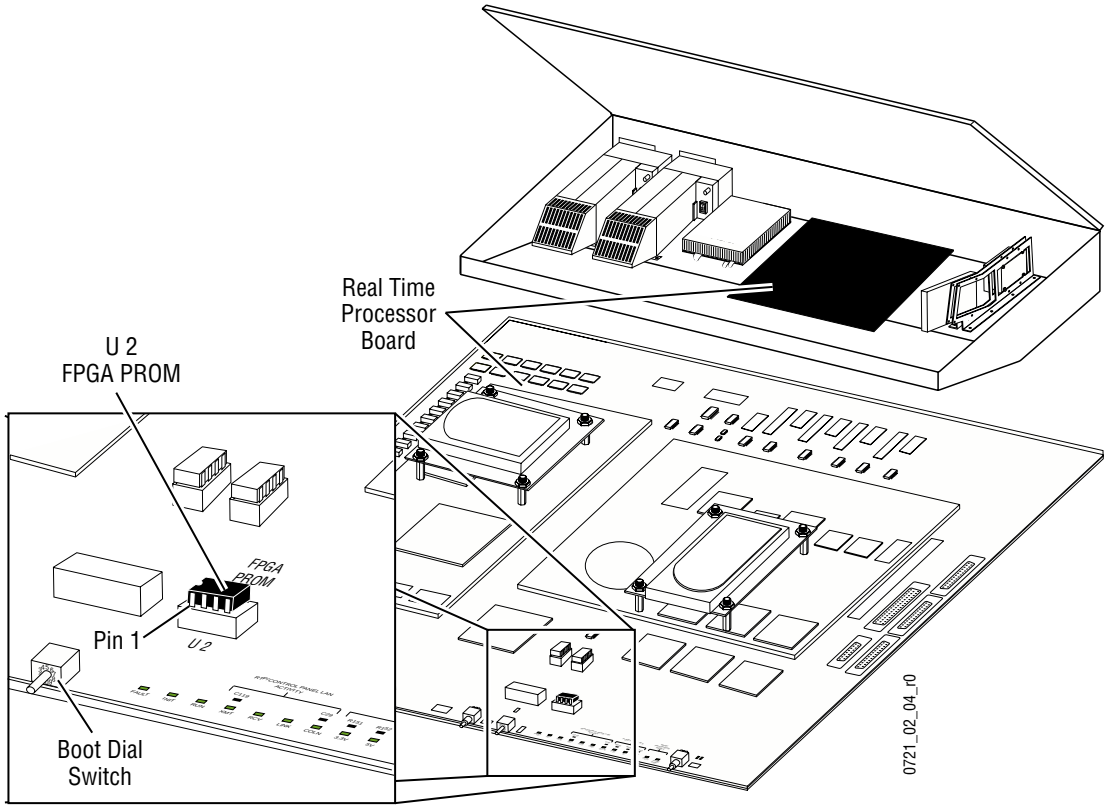
OmniBus software installation and configuration (only needed for external machine control) is discussed in the separate *OmniBus Interfaces Installation* manual included on the Kalypso documentation CD.

Firmware Change Procedure

A socketed PROM on the RT Processor board in the Main panel needs to be replaced for the Kalypso 5.0 release (Figure 7). The new PROM (163-8185-02) is included with the Kalypso software.

CAUTION The replacement PROM is not backward compatible. Save the old PROM should you want to downgrade to a software version earlier than 5.0.

Figure 7. U 2 Firmware Prom Location



To Change the U 2 PROM:

Note The PROM should be replaced after you have updated the system with the new Kalypso software.

1. Turn off all power (both power supplies if so equipped) on the Main panel.
2. Using anti-static practices, gently lift the U 2 PROM from its socket, using an extraction tool or small straight blade screwdriver. It is located near the Boot Dial switch on the Real Time Processor board. Save the PROM should you want to downgrade to a software version earlier than 5.0.
3. Gently insert the new PROM in the socket and seat it firmly, making sure the orienting notch is on the left, and pin 1 is in the lower left position.
4. Restore power to the Main panel.

FrameMon Upgrade (Upgrade from 3.0.X and before only)

CAUTION If you are upgrading from 3.0.X software, you must perform a FrameMon upgrade before installing 5.0 software. The Video Processor frame will not run with the older FrameMon version.

Previous Kalypso Video Processor frames shipped with a FrameMon bootable kernel allowing access to only 64 MB of RAM. In Releases 4.0.0 and 5.0, FrameMon has been upgraded to support all 128 MB of installed RAM. If you have just received a new system with Release 4.0.0 or 5.0 installed you do not need to upgrade FrameMon.

You will need a mouse and keyboard attached to the Main panel for the FrameMon upgrade.

To Upgrade the FrameMon Kernel:

CAUTION The following steps must be performed in the order listed.

1. Reset the Video Processor Frame using the engineering boot dial setting.
   a. Turn the Video Processor frame Control module **COMM Boot** dial switch (the lower dial) to position **1**. Position 1 boots the control processor operating system without launching the Kalypso application, to permit software update if the application hangs repeatedly.
   b. Press the **Reset** button and allow at least 10 seconds for the system to reboot. The frame must be reset after changing the boot switch position. Simply moving the switch does not affect a running system.
2. Install the new FrameMon kernel.
   a. Exit the Kalypso application by touching the upper right message area on the Menu display.
   b. Insert the FrameMon floppy disk into the Main Panel floppy drive inside the tub.
   c. Run **`A:InstallFrameMon.exe`**.
   d. Remove the floppy disk.
3. Reset the Video Processor frame again, using the operation boot dial setting.
   a. Turn the Video Processor frame **COMM Boot** dial switch to position **0**.
   b. Press the **Reset** button and allow at least 10 seconds for the system to reboot.

4. Confirm FrameMon upgraded successfully.
   - If the Video Processor frame reboots and the Kalypso Main panel controls operate, the upgrade was successful. Proceed to *Installing Kalypso System Software* on page 8.
   - If after reboot **NO COMMUNICATION WITH FRAME** appears on the Main panel and it fails to operate, the FrameMon did not upgrade. Do not proceed with the Kalypso software installation. See *FrameMon Correction* on page 16.

FrameMon Correction

If the FrameMon upgrade did not complete, first try to reinstall FrameMon making sure network communications is present.

1. Reset the Video Processor frame again with the engineering setting (Step 1 on page 15). Be sure to first set the **COMM Boot** dial switch to 1 and then reset the Video Processor frame.
2. Load the install program on the Menu panel (double click the Kalypso Install icon on the NT desktop), go to the second screen and ensure the **Frame** IP address is correct.
3. **Ping** the Video Processor frame from the install program.
   - If **Ping** is successful, continue with the FrameMon upgrade (Step 2 on page 15).
   - If **Ping** fails, contact Grass Valley Group Customer Support for assistance.
4. Confirm FrameMon upgraded successfully.
   - If this time the Video Processor frame does reboot and the Kalypso Main panel controls operate, the upgrade was successful. Proceed to *Installing Kalypso System Software* below.
   - If after reboot **NO COMMUNICATION WITH FRAME** again appears on the Main panel and it fails to operate, an earlier hard drive may be installed that does not support the FrameMon upgrade. Do not proceed with the Kalypso software installation. Contact Grass Valley Group Customer Support for assistance.

Touch Screen Software Update (Releases Earlier Than 3.X)

New Kalypso systems shipping with 5.0 software installed have an updated touch screen driver. This driver replaces a driver that on systems earlier than 3.0 caused problems that occasionally caused Blue Screen failures.

If you have a Kalypso system software earlier than 3.0, you should update the driver using a floppy disk provided by the Grass Valley Group. The driver is also available for download at ftp://ftp.grassvalley-group.com/pub/switcher/Kalypso/ FieldModNotes. The file to download is MMNT310C.EXE.

The following procedure is only required for these older systems, and only needs to be performed once for each Kalypso system Menu panel. You must first uninstall the old driver before installing the new driver.

To Uninstall the Old Driver

1. Exit the Kalypso or Omnibus window if either is currently displayed.
2. Connect a keyboard to the back of the Kalypso Main panel.
3. Logon as administrator:
   a. Press **Ctrl/Alt/Del** simultaneously.
   b. When prompted, hold down the **Shift** key, select **Logoff**, select **OK**, and continue holding the **Shift** key until the logon screen displays.
   c. Logon as administrator (password: kalypso).
4. If displayed, exit the Kalypso Main Menu by clicking in the upper right corner.
5. Uninstall the older ELO version 3.0 Touchscreen Driver (MonitorMice for Windows NT):
   a. In the Windows taskbar, select:

      START > SETTINGS > CONTROL PANEL > ADD/REMOVE PROGRAMS

   b. Select **MONITORMICE FOR WINDOWS NT** and click **ADD/REMOVE**.
   c. Follow the prompts for the uninstall process.
6. Restart the system when prompted to do so. You will be logged on as administrator (password: kalypso).

Note You are automatically logged on as administrator only if you logged on in Step 3 using the administrator password (kalypso) supplied to you when you received your system. If you changed the default password since receiving your system, you will not be automatically logged on.

To Install the New Driver

7. Close the Kalypso Main window and Omnibus Main window (if running).
8. Insert the floppy disk containing the new driver file into the Kalypso panel floppy drive.

9. Access the A drive and double-click on the file MMNT310C.EXE to extract the driver.
   a. Make sure the **Overwrite Files Without Prompting** and **When Done Unzipping Run: NOTEPAD README.TXT** boxes are checked.
   b. Select **UNZIP**.
   c. Accept the default to extract the installation files to the **C:\Elont** directory.
   d. If you choose not to read the Readme.txt file, close it.
10. Install the new driver:
    a. Access the **C:\Elont** directory.
    b. Double-click on Setup.exe.
    c. Follow the installation prompts and accept all defaults.
    d. When prompted to restart your computer, remove the floppy from the Kalypso floppy drive and click **Finish**.
11. After system restart (still logged on as Administrator), set the calibration by following the instructions in the **CALIBRATION** menu display.
12. Following calibration, logon as Kalypso:
    a. Press **Ctrl/Alt/Del** simultaneously.
    b. When prompted, select **Logoff**.
    c. Press the **Shift** key until the logon screen displays.
    d. Logon as Kalypso (password: Kalypso).

Following installation of the new driver, perform random tasks on the Kalypso Menu panel. If no Blue Screen failure occurs, the software update successfully corrected the problem. Should the Kalypso Menu panel exhibit a Blue Screen failure following this procedure, the Menu panel processor should be replaced. Contact Field Service should processor replacement be necessary.

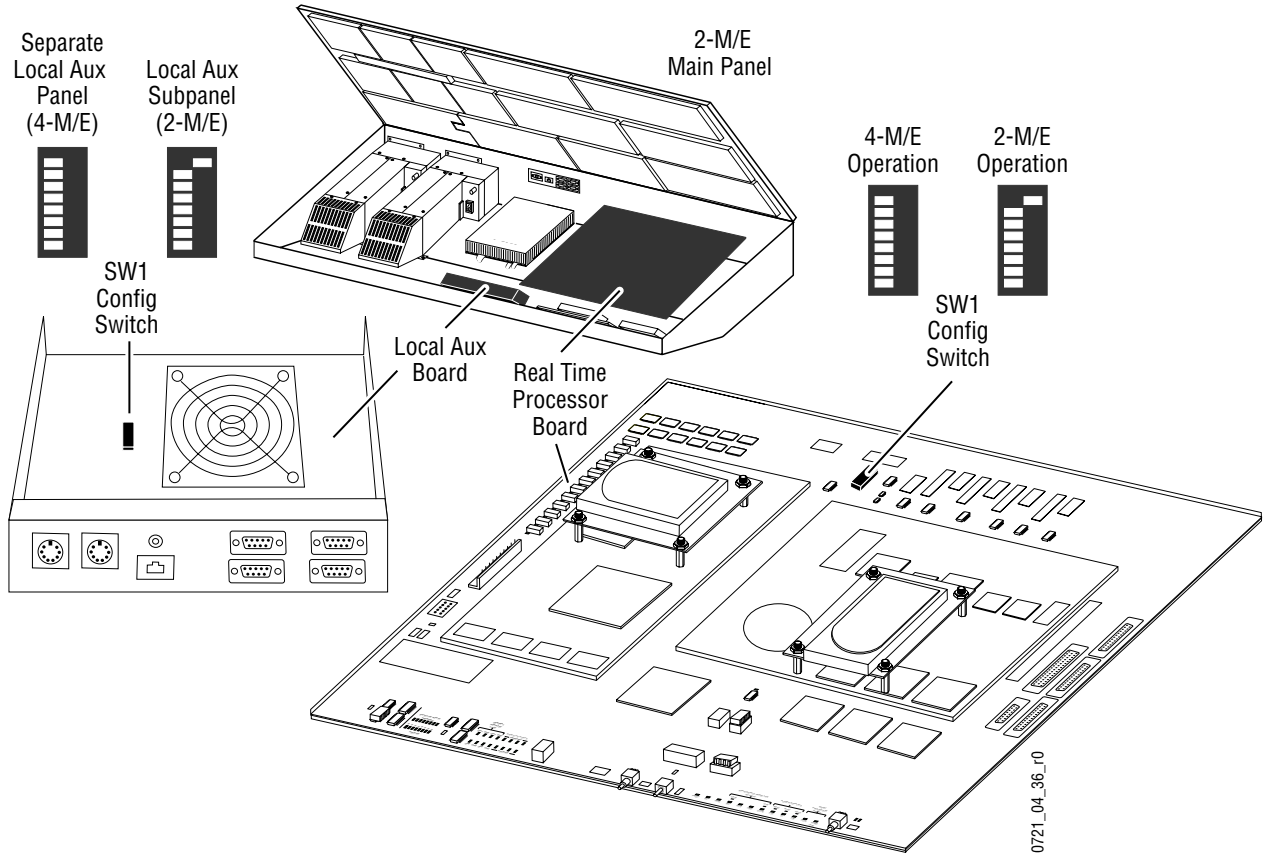
Main Panel Configuration Switches

A DIP configuration switch on the RT Processor board in the tub of the Main panel is used to set the panel for 4-M/E or 2-M/E operation (Figure 8). This switch is set at the factory for the correct panel type and should not need to be changed. If the switch is in the wrong position (a replacement board may have been installed) incorrect software will load during an update and the panel will not operate. If this occurs, set the

switch correctly and reinstall the panel software. The uppermost switch 1 (nearest the panel hinge) is set to the left (off) for 4-M/E operation, and to the right (on) for 2-M/E operation. All other switches should be off.

A DIP configuration switch located on the Aux panel board inside the 2-M/E Main panel (Figure 8) also controls software loading during an update. On 2-M/E systems this switch is set at the factory for Local Aux subpanel operation, rather than for the separate Local Aux panel used by 4-M/E systems. The uppermost switch 1 (farthest into the tub) is set to the right (on) for 2-M/E operation. All other switches should be off. The same switch resides inside the separate Local Aux panel used by 4-M/E systems, but it is not accessible to the user. This switch is set at the factory to the left (off) for 4-M/E operation.

Figure 8. Configuration Switches



Transform Engine Operating Notes

Introduction

The Kalypso Transform Engine option provides 3-D planar image translation and transformation from within the Kalypso system. Each Transform Engine module houses three Transform Engines. Up to two Transform Engine modules can be installed in a Kalypso system, permitting manipulation of six video and key pairs at the same time. A Global channel is also available on each M/E for easy control of complicated transforms.

The Kalypso system uses its Effects Send feature to supply translation and transformation capabilities to any keyer on any M/E (see *Effects Send Operating Notes* on page 40). In Release 5.0, the operator assigns available Transform Engines to the desired keyer. The Transform Engine does not have a separate source selector and no combiner is built in.

Transform Engine features include:

- Source and Target space selection,
- 3-D Locate, Size Locate, Rotate, Spin, Locate Axis,
- Aspect, Skew, Perspective,
- Post Transform,
- Global channel on each M/E and PGM PST, to which the Transform Engine channels in that M/E can be individually assigned,
- Cropping,
- E-MEM keyframe control,
- Near/Far & Front/Back, with horizontal and vertical reverse selection, and
- Tally (performs on screen/off screen and front/back calculations to tally only on air images).

See *3-D Digital Effects Concepts* on page 21 for background information about 3-D image controls.

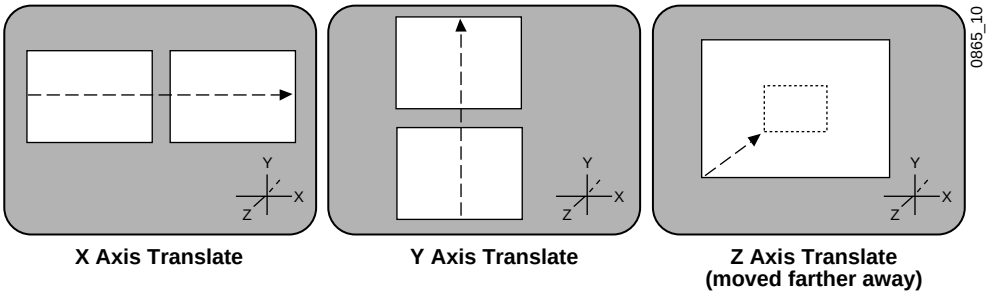
Most Transform Engine Main panel controls reside in the Transform subpanel. In addition, data entry of parameter values are performed on the Master E-MEM keypad, and Transform Engine effects are also controlled via E-MEM. Additional button controls (**Eff Send**, **Loop Sel**), used for Effects Send, reside in the Keyers subpanel. Transform Engine menus are also available to control all parameters available from the Main panel, as well as some additional capabilities.

3-D Digital Effects Concepts

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 9).

Figure 9. Picture Translation

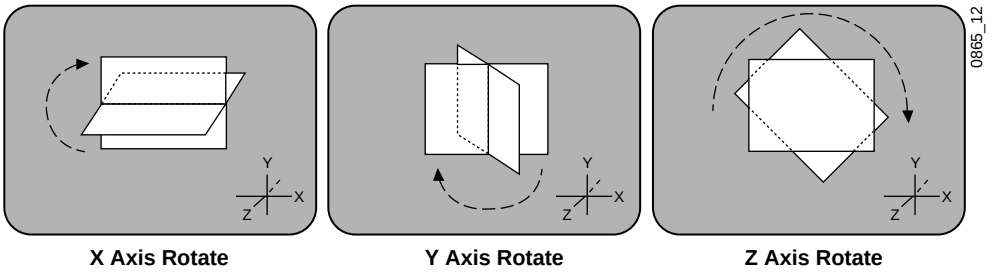


Transformation includes translation, and also includes these other functions:

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

Rotate — Picture rotation about the reference axis in the X, Y, and Z dimensions (Figure 10). Rotate is limited to ± one half revolution, and will always take the shortest path to the new position. Rotate uses Quaternian math to calculate the move with increased accuracy. Multiple rotations are performed with the Spin function.

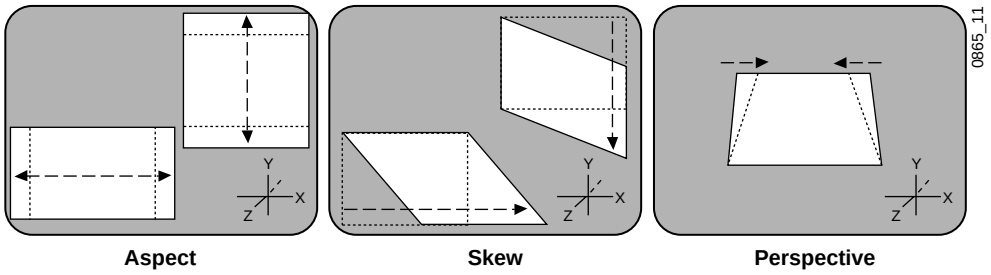
Figure 10. Rotate



Spin — Supports multiple rotations about the reference axis in the X, Y, and Z directions. Spin supports fractional values, and is similar to Rotate when the move is less than ±. one half revolution. Spin uses Euler math to calculate the move, which is not quite as precise as Quaternian, but permits multiple rotations.

Note Following broadcast conventions, moving the Joystick froward 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 11. Aspect, Skew, Perspective



Aspect — Scaling the X or Y components of the picture. X axis changes affect horizontal size, Y axis changes affect vertical size (Figure 11). Z axis changes affect both X and Y dimensions, and is the same as Size.

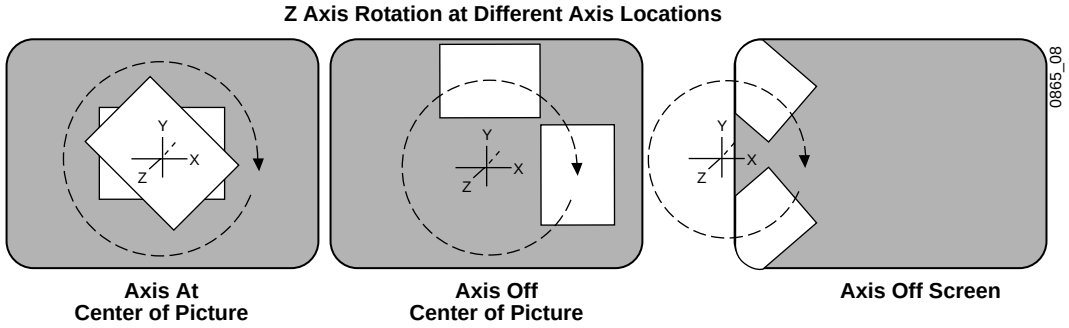
Skew — Slanting the picture in the X (horizontal) and Y (vertical) directions (Figure 11).

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 11). Multi-channel perspective is discussed later in this section.

Axis Location

The axis location of the channel determines the center point of translations, spins, and rotations for that channel. You can move the axis to a new location to change the behavior of that channel. The axis location can be within or outside the screen area (Figure 12).

Figure 12. Frame of Reference Axis Locations



Source and Target Space

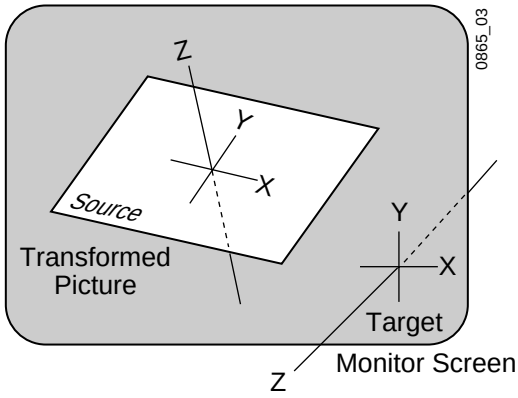
The Kalypso Transform Engine uses source and target space frames of reference.

- 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. Kalypso Transform Engine effects can also employ both source and target space directed transforms simultaneously, which can create complex and beautiful effects.

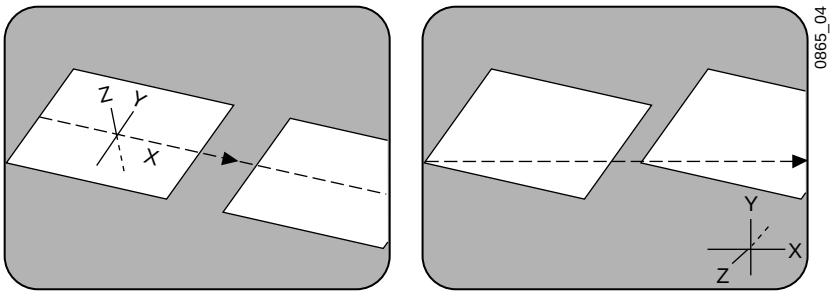
The simplest example for source and target space concerns a channel that has been rotated while the global channel remains unchanged (Figure 13).

Figure 13. 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 14).

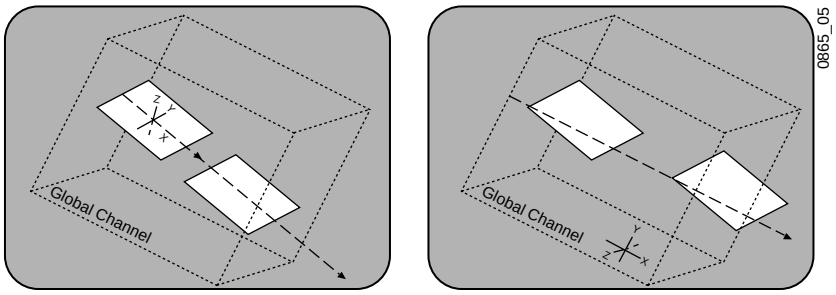
Figure 14. Source and Target Space Translation



If the channel is controlled by a global channel, and the global channel itself has been rotated, an X axis translation will depend on whether the channel itself or the global channel is being manipulated, and whether source or

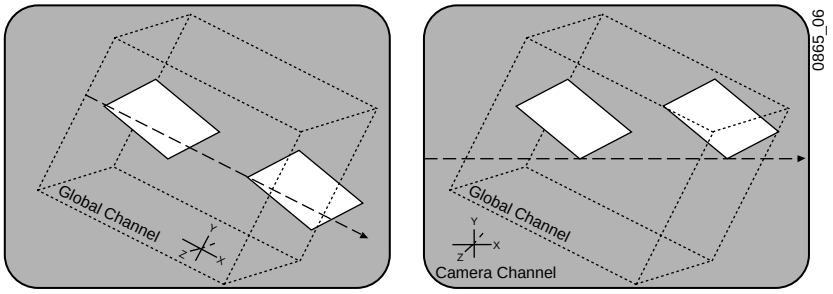
target space is being used (Figure 15 and Figure 16). Note that the target translate of the channel is the same as a source translate of the global channel.

Figure 15. Channel Translate with Global Rotated



Logical Channel Source Translate Along X-Axis | **Logical Channel Target Translate Along X-Axis**

Figure 16. Global Channel Translate with Global Rotated



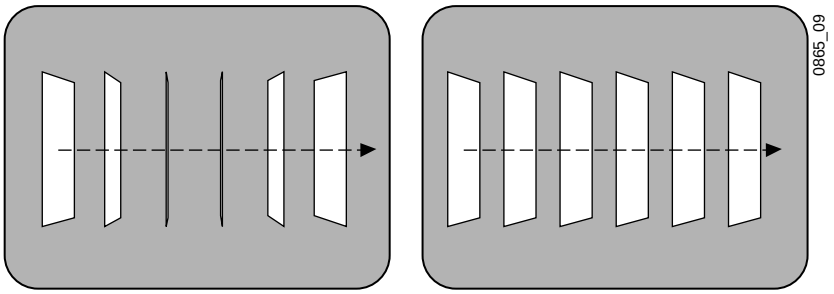
Global Channel Source Translate Along X-Axis | **Global Channel Target Translate Along X-Axis**

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 17). 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 17. Post Transform Translation



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

Front and Back, Near and Far

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

Transform Numbering Systems

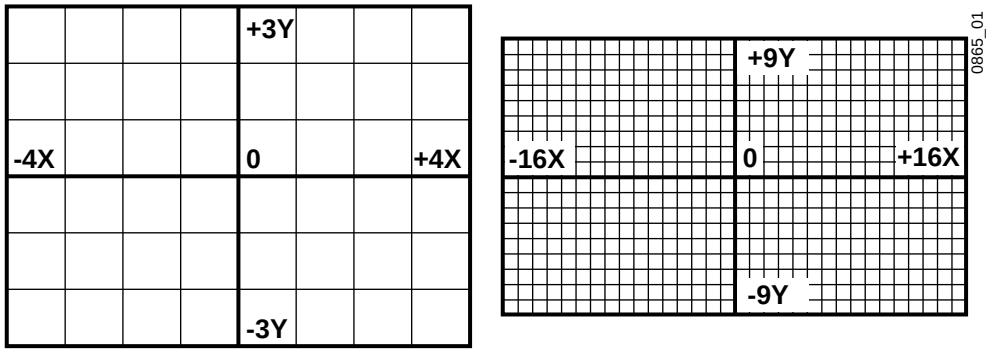
The Kalypso Transform Engine uses the following numbering systems to precisely define picture locations, picture size, and picture rotation and spin.

Screen Coordinates

The Kalypso Transform Engine 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 18). For simplicity, examples in this manual use the 4 x 3 aspect ratio.

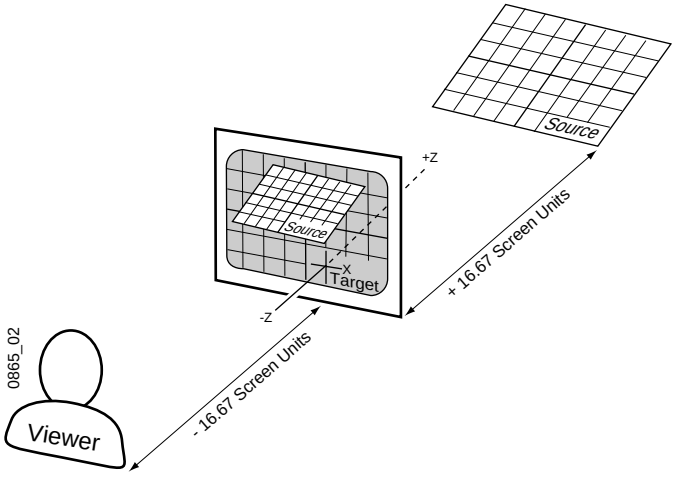
These coordinates can be used for monitor screen locations (channel target space with default global channel), or they can be applied to picture locations (channel source space).

Figure 18. 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 19).

Figure 19. Viewer Location in 3-D Space



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

Size

Picture size is defined relative to picture screen units. A size of 0.50 indicates a picture is one-half its full size.

Rotation

Rotation is measured fractionally with respect to 360°. A value of 0.25 indicates a rotation of 90 degrees; 0.50 indicates 180 degrees (maximum rotation). Rotation values can be positive or negative, which determines the direction of rotation.

Spin

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

Skew

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

Aspect

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

Perspective

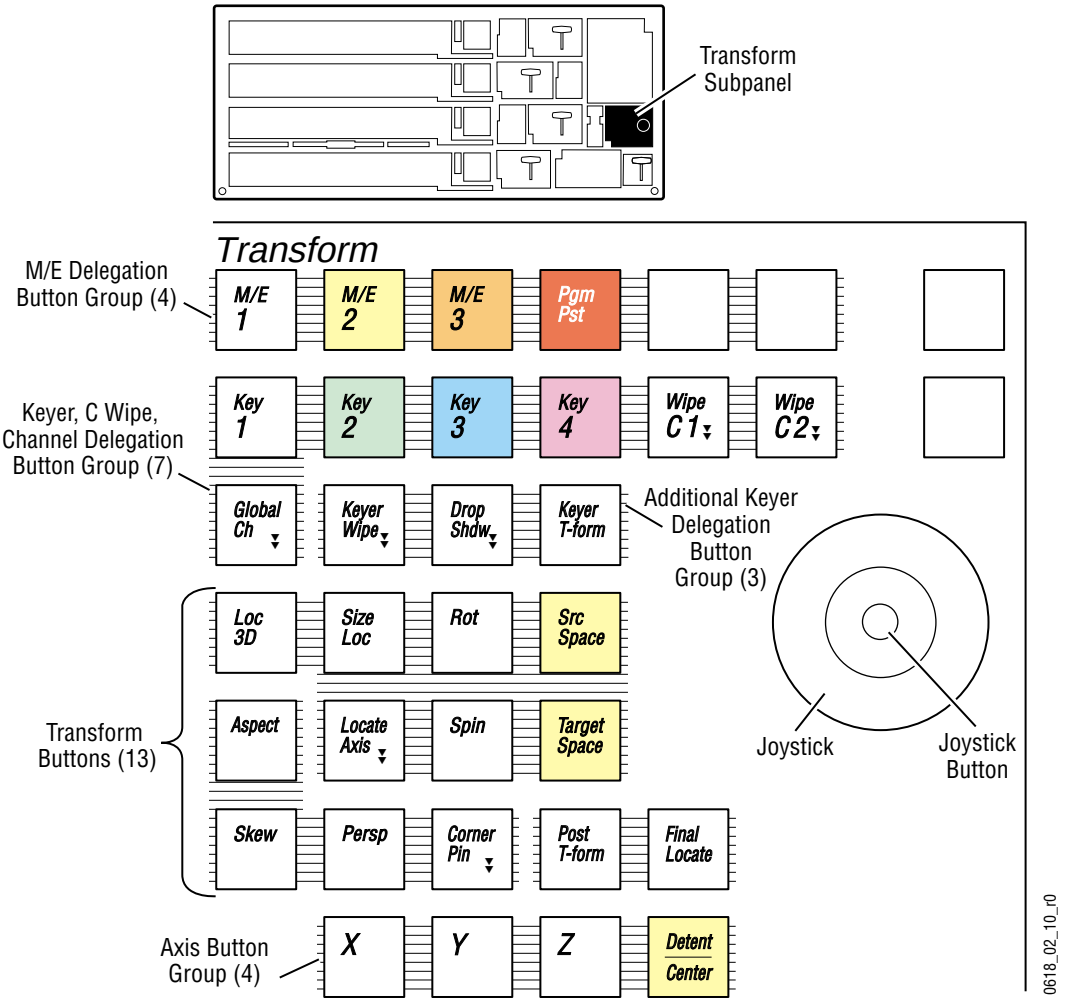
Perspective supports values from 0-100, with 0.06 as the default.

Transform Subpanel Controls

The Transform subpanel (Figure 20) is used to control image and wipe pattern placement, size, angle, and other attributes. This panel is equipped with a Joystick, making it particularly suitable for adjusting position and rotation parameters.

Note Some early Kalypso systems shipped with incorrectly placed Transform subpanel buttons. The proper arrangement has the **Aspect** button left of the **Locate Axis** button, and the **Global Ch**, **Keyer Wipe**, **Drop Shdw**, and **Keyer T-Form** buttons left to right, as shown in Figure 20. If not correct, rearrange the buttons on your Kalypso Main panel to the proper locations.

Figure 20. Transform Subpanel

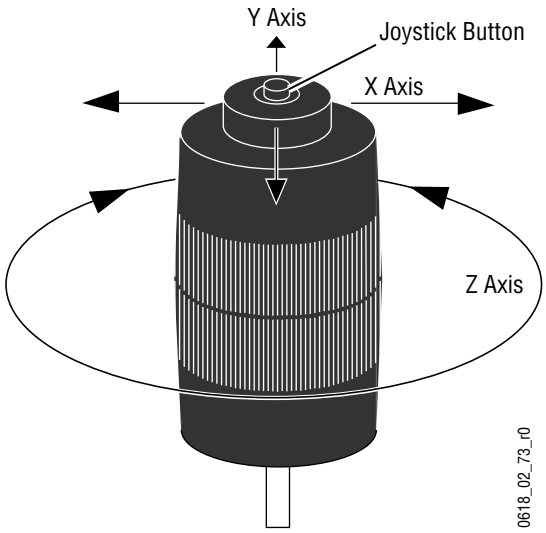


Operating the Transform subpanel involves delegating a resource and a set of associated parameters to the Joystick. The Joystick then provides control of the delegated parameter values. Parameters can also be delegated to the Master E-MEM subpanel for exact value entry.

Joystick

The Kalypso system Joystick is a precision three-axis device. Moving the Joystick 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 21).

Figure 21. Joystick



Joystick Button

The **Turbo** 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.

Joystick Delegation

Because the Transform subpanel Joystick acts as a positioner for many different functions, multiple stages of delegation can be required to access and control a specific set of parameters. Different types of delegation are available, depending on the parameters being controlled. The Transform subpanel delegation buttons have three tally levels, corresponding to the availability of that delegation. An off button indicates that delegation isn't appropriate for the current higher level delegation. A low tally button indicates the delegation is valid, but not currently used. A high tally button indicates the current delegation. The **Joystick** delegation buttons are discussed in detail later in this section. Auto delegation is also available that can automatically activate the **Joystick** for particular functions.

Joystick delegation is similar to that used in the Mattes subpanel. Delegations are made by selecting individual buttons in separate delegation button groups.

M/E Delegation Buttons

The **M/E 1-3** and **Pgm Pst** buttons are used to delegate the **Joystick** to a particular M/E. This level of delegation is required for all **Joystick** operations. Only one delegation at a time can be made. The button of the current delegation goes high tally.

Keyer, Wipe C, Channel Delegation Buttons

These delegation buttons select a specific component of the delegated M/E to be controlled by the **Joystick**. Only one button can be selected at a time. Pressing a single button selects that button and deselects all others in that group.

The **Key 1-4** buttons select the specific keyer(s) of the delegated M/E.

The **Wipe C 1** and **Wipe C 2** buttons selects that complex wipe generator of the delegated M/E.

The **Global Ch** button selects the global channel of the delegated M/E.

Additional Keyer Delegation Buttons

The buttons in this group are only active when at least one **Key 1-4** button has been selected, and are used to select a component of that keyer to control.

The **Keyer Wipe** button delegates the Joystick to that keyer's wipe generator.

The **Keyer T-Form** button delegates the Joystick to control a Transform Engine assigned to that keyer.

Transform Buttons

See *Translation and Transformation* on page 21 for background information about 3-D image controls.

The Transform buttons delegate the Joystick to control a particular Transform Engine parameter. They are only active when the **Keyer T-Form** button is selected.

Source and Target Space Related Buttons

The Source and Target Space buttons affect the five other transform parameter buttons in that group (**Loc 3D**, **Size Loc**, **Rot**, **Locate Axis**, **Spin**).

The **Src Space** button delegates source space control of the selected transform parameter.

The **Target Space** button delegates target space control of the selected transform parameter.

The **Loc 3D** button controls translation of a picture along the X, Y, and Z (depth) reference axes.

The **Size Loc** button controls picture positioning in the X and Y reference axes and controls picture size. Joystick deflection in its X and Y directions translates the picture the same as Locate 3D above. Twisting the Joystick scales the picture about its center. Locate changes are reference axes dependent, while size changes are reference axes independent.

The **Rot** button controls the rotation of the picture around the X,Y, and Z reference axes, limited to ±180 degrees between keyframes.

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).

The **Spin** button allows control of multiple rotations of the picture about the reference axes.

The **Locate Axis** button controls the placement of the reference axes of rotation of a picture. The Joystick can be used to locate the axes anywhere on or off the screen. The picture is not moved by this function, only its reference axes.

Other Transform Parameter Buttons

The **Aspect** button controls the scale of the picture in its X, Y and Z source axes only. The Z axis control duplicates the Z control of the **Size Loc** button. When scaling any component of the picture, the center of rotation maintains its proportion to the picture.

The **Skew** button controls the skew of the picture in the X and Y source axes only. The Z axis is disabled in skew.

The **Persp** button controls the picture's perspective and is reference axes independent.

The **Post T-form** button controls the movement of an image along the X and Y axes of two-dimensional screen space (this appears to move over a flat space and perspective changes do not occur). Deflecting the Joystick along its Z axis will scale the picture in 2D (post scale).

Axis Buttons

Holding down the **X**, **Y**, and **Z** axis buttons (located at the bottom of the transform area) individually or in any combination constrains the Joystick parameter changes to the selected axes. For example, if the **X** button is held down while the Joystick is moved, then only X axis deflection is performed. Axis constraints also apply to Centering functions.

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

Pressing and releasing the **X**, **Y**, and **Z** buttons transfers the current transform parameter to the Master E-MEM subpanel keypad. The Master E-MEM subpanel keypad may then be used to enter an exact value for that parameter. The **Trim** button can be used to successively trim parameter values, and the **Detent** button can be used to apply the default (center) value for the delegated axis.

Inactive Buttons

The **Drop Shdw**, **Post Transform**, **Final Locate** are inactive in Kalypso Release 5.0.

Master E-MEM Controls

For E-MEM operations, Transform Engine control resides in the M/E level to which the Transform Engine channel has been assigned. For example, if Transform Engine channels 1 and 2 have been assigned to keyers on PGM PST and the effect learned, recalling that effect will assign the necessary Transform Engines to PGM PST (if not already assigned). However, if Transform Engines are being used elsewhere making them unavailable, the E-MEM recall for PGM PST will still occur but transforms will not be performed for that effect.

Transform Engine effects are run by inserting keyframes into E-MEM registers, then running the effect from the Effects Run subpanel, or recalling the effect with **Auto Run** enabled.

Transform Engine Menus

Menu Navigation

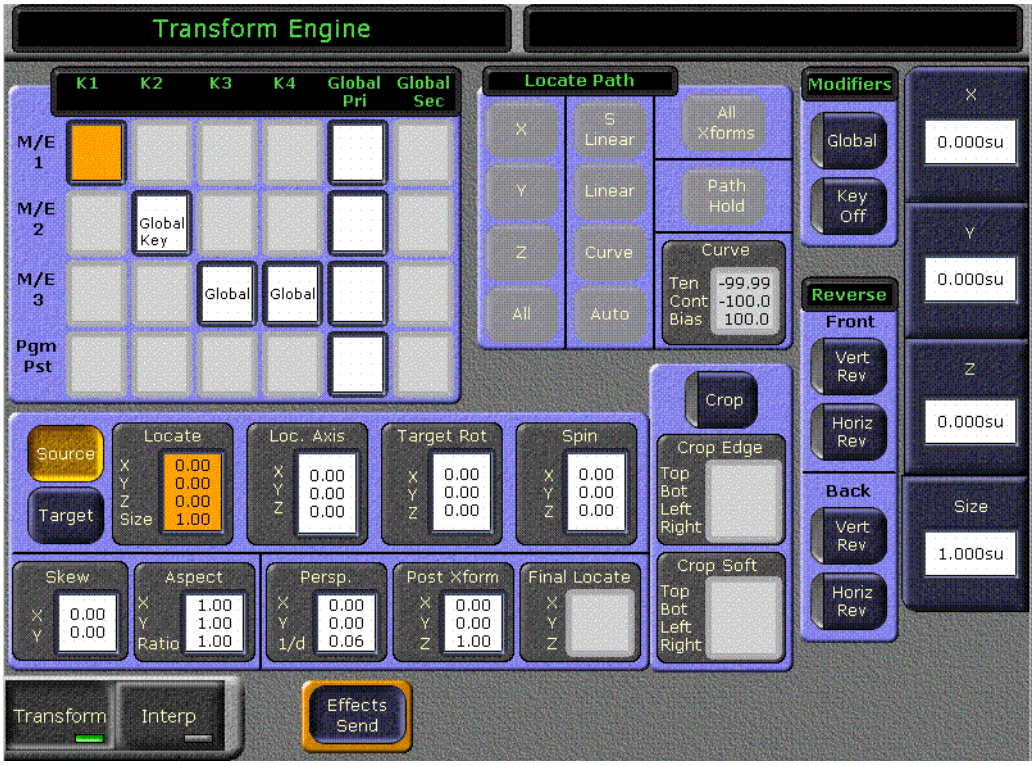
Transform engines can also be controlled by two menus (Transform Engine menu and Interpolation menu), accessed via the **Transform** button on the Menu panel. Menu selection buttons at the bottom of the menus permit the selection of each menu. Transform Engines also make use of the Effects Send menu. An **Effects Send** touch button is available on the Transform Engine menus that goes directly to the Effects Send menu. After using the Effects Send menu, you can return to your last Transform Engine menu by touching the menu title bar to return to the Hierarchy menu, then touch the **Transform Engine** button.

Transform Engine Menu

The Transform Engine menu (Figure 22) allows you to select the keyer or Global channel to control (delegation), select the desired type of transform control, and then adjust the parameters associated with the chosen control using the soft knobs or a pop-up keypad. The Transform Engine menu has all the transform controls on the Main panel's Transform subpanel except

the Joystick (soft knobs or keypad entry are used). The Transform Engine menu also has additional controls not present on the Main panel, including Crop and Reverse.

Figure 22. Transform Engine Menu



Transform Engine Menu Delegation

The Transform Engine menu contains a data pad matrix in the upper left for delegation (Figure 22). Data pads for keyers that do not have Transform Engines assigned will be grayed out and inactive. Touch an active data pads to delegate the menu to control one of the 16 keyers, or to control a **Global Pri** channel (see *Global Channel Assignments* on page 34). The keyer data pads themselves indicate whether Crop is enabled, Global Assignment is on, and if the Key is off.

Transform Engine values are displayed on the rest of the menu if a Transform Engine has been assigned to the delegated keyer. This assignment is accomplished with the **Eff Send** button on the Main panel, or with the Effect Send menu (see *Effects Send Operating Notes* on page 40).

Global Channel Assignments

When a keyers is assigned to a Global channel, it is also affected by transforms of that Global channel, permitting the easy creation of complicated moves. Multiple keyers can be assigned to Global channel, allowing coordinated moves of all the assigned keyers. A keyer is associated with the Global channel by delegating the keyer, then touching the **Global** modifier

button in the Modifiers pane on the upper right side of the Transform Engine menu so it is illuminated. No information appears in the **Global Pri** data pad itself, and some functions (Skew, Crop, Reverse) are inactive for these channels and so are grayed out.

The **Global Sec** delegation buttons are inactive in Release 5.0.

Transform Controls

The transform controls below the delegation matrix delegates what 3-D transformation will be controlled with the soft knobs or pop-up keypad entry. Selecting one of the transform buttons activates the soft knobs on the right side of the Menu panel to control specific parameters of that transform.

The transform controls are organized on the menu according to Source and Target space capabilities. See *3-D Digital Effects Concepts* on page 21 for background information about 3-D image controls, including Source and Target space. Note that some parameters intrinsically apply to either Source or Target space, and have no meaning in the other space. Size and aspect for example apply only to the Source space. Perspective applies to the projection of the transformed image on the TV screen and has no meaning in Source space.

The **Locate**, **Loc Axis**, **Target Rot**, and **Spin** transforms can be assigned to work in either source or target space with the touch buttons at the left of their pane. Selecting the **Source** button provides image adjustment using that channel's coordinate system for reference. Selecting the **Target** button provides image adjustment using the screen as the reference. Only one space button is selectable at a time.

Note **Target Rot** displays only Target Rotate transform parameter values, even when Source space is selected. The soft knobs still adjust either the Target or Source space rotation parameters, however.

The **Skew** and **Aspect** transforms work in Source space.

The **Persp.**, **Post Xform**, and **Final Locate** buttons work in Target space.

Final Locate is inactive in Release 5.0.

Crop Controls

The **Crop** button in the pane to the right of the Transform buttons is used to activate the crop feature for the delegated keyer (this button is inactive for Global channels). The Crop Edge data pad delegates the soft knobs to control each side's cropping, while the Crop Soft data pad delegates edge softness control.

Reverse Controls

The Reverse controls are located to the right of the Crop pane. The front and back sides of the Transform Engine picture can be reversed vertically and/or horizontally with these controls.

Key Off Control

The **Key Off** button located in the Modifiers pane on the upper right of the menu is used to turn off the key signal processing for the delegated keyer, resulting in a full raster image. For example, suppose you want to fly a graphic that is normally accompanied by a key signal. Turning the key off forces the graphic to full raster, ignoring the key. The **Key Off** button is inactive for Global channels.

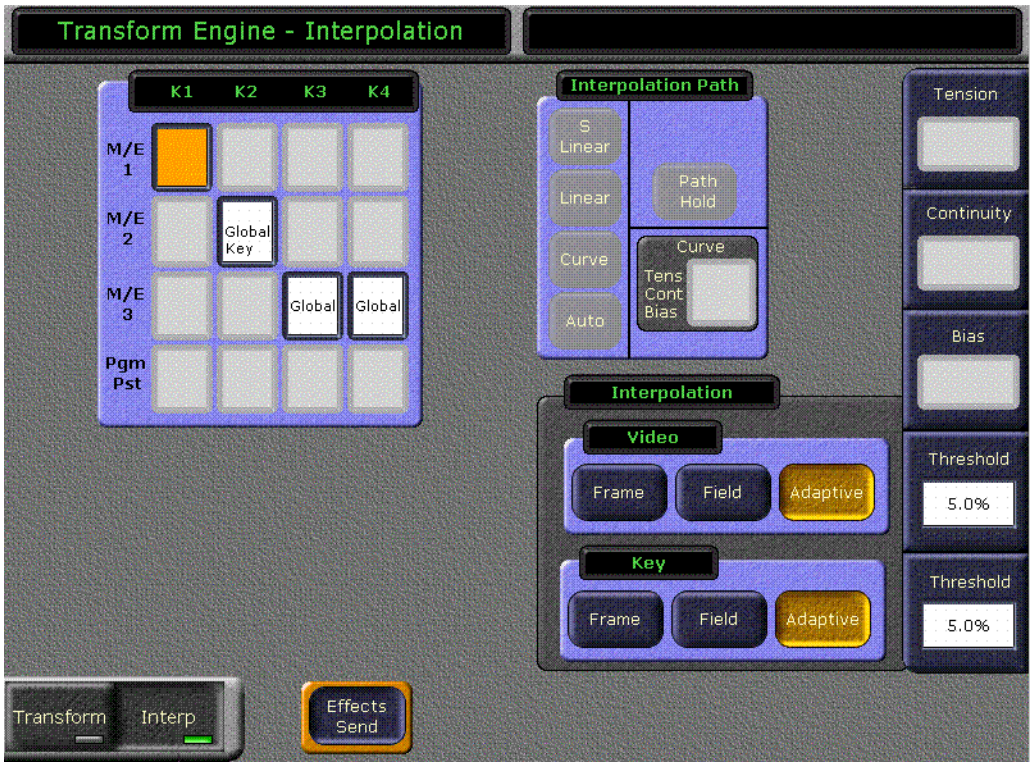
Path Controls

In Release 5.0, all Transform paths are **S-Linear**. The rate of change of parameter values will accelerate and decelerate between keyframes.

Interpolation Menu

The Interpolation menu (Figure 23) controls interpolation processing performed by the Transform Engine. The menu is accessed from the Transform Engine menu by touching the **Interp** category selection button at the bottom of the screen.

Figure 23. Transform Engine Interpolation Menu



Transform Engine Menu Delegation

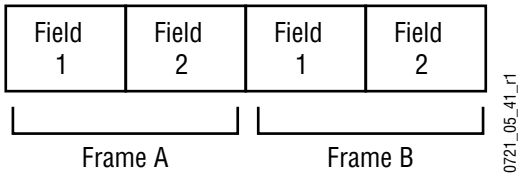
The Interpolation menu has a delegation matrix similar to the Transform Engine menu, but has no Global channels. Interpolation settings and values in the rest of the menu are for the currently delegated keyer.

Motion Interpolation Controls

When video is manipulated in any DPM, the video data must be resampled, and new pixels will need to be created. In the process of video resampling, unwanted artifacts can occur where there is motion in the video. Motion is assumed to occur when pixel values (luminance, chrominance) change from one point in time to another. Interpolation techniques can be used to smooth out or hide such artifacts. This interpolation is especially helpful for fast moving video. Actual motion prediction (like that used in MPEG) is not used by Kalypso, as they are not of any real benefit. All that is needed is to determine how missing pixels get created.

The Kalypso system performs different types of motion detection from frames stored in memory (Figure 24).

Figure 24. Fields and Frames



Frame motion detection looks for differences between similar fields or every other field for interpolation.

Frame A Field 1 vs. Frame B Field 1;
Frame A Field 2 vs. Frame B Field 2.
The data compared is one frame apart.

Field motion detection looks for differences between non-similar or adjacent fields for interpolation.

Frame A Field 1 vs. Frame A Field 2;
Frame A Field 2 vs. Frame B Field 1;
Frame B Field 1 vs. Frame B Field 2.
The data compared is one field apart.

Adaptive motion detection uses a threshold value to apply either Frame or Field interpolation. Motion threshold is the percentage of motion acceptable to allow the interpolators (resamplers) to use the full frame of data. If the actual motion for a given pixel is greater than the threshold, then the interpolators will not use both fields to do the interpolation for that pixel. If the actual motion is less than the threshold, then both fields will be used in the interpolation. Motion threshold is expressed as a percentage. When

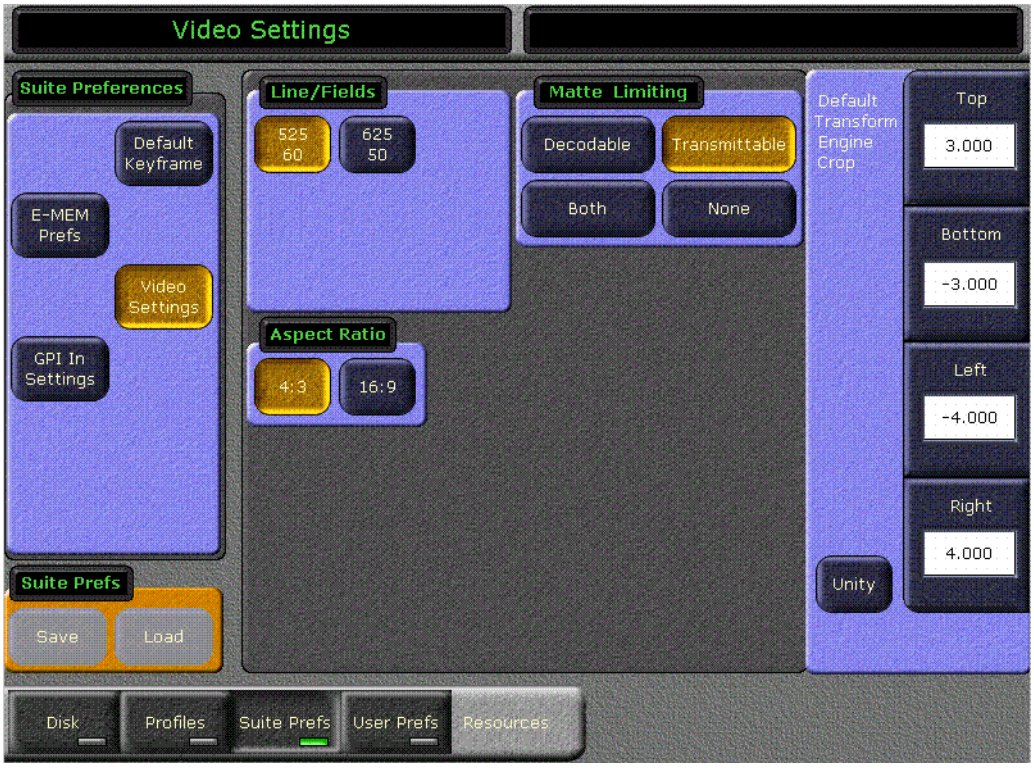
set at 5% then any motion less than 5% is acceptable for Frame interpolation. 0% means any motion is unacceptable and 100% means all motion is acceptable.

Default Transform Engine Image Cropping

A new Suite Preference has been added, to support uniform default cropping of Transform Engine images. The default crop adjusts cropping when individual Transform Engine channel crop is turned off. This is important because television images are surrounded by blanking (black). Not all images have the transition to blanking in exactly the same place. Normally, these blanking variations are hidden at the extreme edges of the picture and not visible. If an image smaller than expected is transformed, black lines can occur at its edges, which are now visible because they have moved inside the visible picture area. SMPTE has published recommended practices for standard image sizes (production aperture, clean aperture). If a facility conforms to these practices, the Kalypso system default values will be correct and no adjustment should be necessary. To compensate for variations in your facility's nominal blanking, you should adjust the default crops so they just remove black edges on the facility's normal image.

To access the default crop settings, press the **Daily Setups** button on the Menu panel, touch the **Suite Prefs** category selection button, then touch the **Video Settings** button (Figure 25).

Figure 25. Video Settings Menu



The data pads on the right are available for setting individual default crops with the adjacent soft knobs. You can also touch a data pad and enter an exact value with the pop-up keypad.

Internal Effects Send and Transform Engines

See *Effects Send Operating Notes* on page 40 for information on using Effects Send with Kalypso system Transform Engines.

Effects Send Operating Notes

Keyer Subpanel Button Legend Changes

Two Keyers subpanel buttons have changed. Replacement film for these buttons are included with your software release package. Remove the button overcap, replace with the new film, and replace the overcap.

- Replace **T-Form Loop** with **Eff Send**
- Replace **Ext Loop** with **Loop Sel**

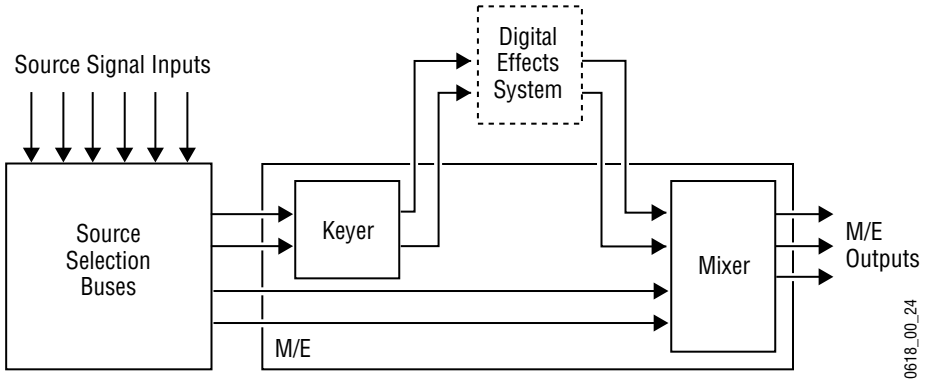
The correct Keyers subpanel button placement is shown in Figure 27 on page 42.

Introduction

Effects Send provides a method of integrating digital effects devices into an M/E subsystem. Effects Send switches the key cut and key fill outputs of the keyer of an 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 Kalypso system, Effects Send is integrated into each M/E and is an extension of the keying control system (Figure 26).

Figure 26. Effects Send Diagram



The Kalypso system supports both external and internal Effects Send. External Effects Send routes the key fill and key cut output signals from an M/E keyer to a separate, external digital effects system, like a Krystal DPM. The signals are manipulated by the external device and then sent directly back to that M/E's mixer inputs. Aux buses are used to route signals to and from the external DPM. If the Kalypso system is equipped with the Trans-

form Engine option, an internal effects send loop can be used. This internal loop switches the M/E keyer outputs to the Kalypso Transform Engine (TE), and then returns the manipulated signals directly back to that M/E's mixer.

The Kalypso system uses a special mechanism to assign and use Effects Send loops. When the system is first turned on, no TEs or external DPM channels are associated with any of the keyers. Turning Effects Send on without specifying a TE or DPM, automatically assigns an unused TE to that keyer. Turning off an Effects Send loop does not disturb an existing relationship between TE/DPM and a keyer. Turning the loop back on will reuse the same TE/DPM. TEs which are associated with a keyer are not available for use by another keyer if that Effects Send loop is active. For example, if M/E 1 Key 1 has Effects Send active and TE 1 is assigned, M/E 3 Key 2 would not be able to access TE 1. Turning it on makes the Kalypso system attempt to acquire a different TE. Eventually, all TEs will be associated with a keyer. In this case, turning on another keyer Effects Send makes the system attempt to reassign a TE. If a TE is found that belongs to a keyer that is not in Effects Send, that TE can be reassigned to a different keyer. To prevent this reassignment, the Effects Send loop can be left on or the TE can be locked to the keyer.

Effects Send Configuration

Internal Effects send capability is built into the Kalypso system and requires no special configuration, other than installing Transform Engine modules.

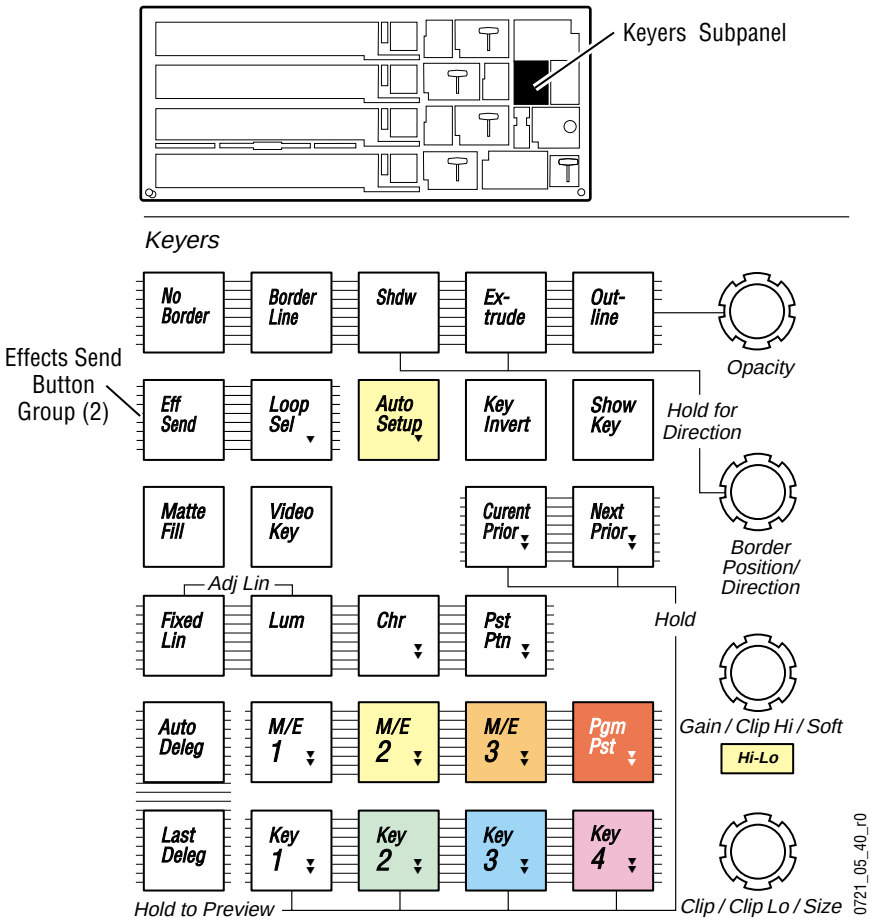
External Effects Send is installed and configured by:

- Defining a DPM Device with the correct number of channels and selecting the Aux Buses to be used (Eng Setup - Device menu),
- Assigning the outputs of those Aux Buses to outputs 41-48 on the Effects Send module, and selecting Aux Pair mode (Eng Setup Outputs menu),
- Connecting the Effects Send module video and key output cables to the inputs of the DPM,
- Connecting the video and key output cables of the DPM to Kalypso system inputs,
- Configuring each DPM source to use the previously defined DPM Device, selecting Shaped and Lin Key input, and assigning the correct DPM channel (Eng Setup - Sources menu), and

Once configured, you can use the Effect Send controls on the Main panel and/or the EFX Send menu to activate Effects Send for any keyer.

Effects Send controls reside on the Kalypso Main panel Keyers subpanel (Figure 27).

Figure 27. Keyers Subpanel



- The **Eff Send** button toggles Effects Send on or off for the delegated keyer.
- The **Loop Sel** button is an SPOP that delegates the Menu panel to the Effects Send menu, where additional controls are available.

Effects Send Menu

The Effects Send menu (Figure 28) is used to assign Transform Engines and DPMs to Keyers, and to turn keyer Effects Send on and off. The menu is accessed by pressing the **M/E** Menu panel button. The last menu category selected will be displayed. If the Mode menu appears, touch the **Effects Send** category selection button at the bottom of the screen to go to the menu.

Figure 28. Effects Send Menu



Effect Send Delegation

The matrix of 16 buttons on the upper left delegates an individual keyer for Effects Send menu control. The delegated keyer will be yellow.

With a keyer delegated, touching one of the Internal Transform Engines buttons (**TE 1 - TE 6**) at the lower part of the screen activates Effects Send for that keyer using that Transform Engine channel. Since all Transform Engines operate identically, it does not matter which one is used each time. Touching one of the External Loops buttons on the lower right will assign an external Effects Send path for the delegated keyer. Buttons grayed out are inactive. In Figure 28 two Transform Engines are installed, and an External DPM is not configured for use with Effects Send.

Touching the **Efx Send Active** button will toggle Effects Send on or off for the delegated keyer. When toggled off, the Transform Engine or DPM Effect Send path channel becomes available for assignment to another keyer.

Touching the **Lock** button locks the assignment of that Transform Engine or DPM to that keyer, and it will not be released when Effects Send is toggled off. Locked keyer touch buttons display a red indicator.

Effects Send Status

Two status indicators can be displayed above each delegation button. When Effects Send is on, **Send** appears. **On Air** appears when that keyer is being output by PGM PST. Note that the Pgm Pst A bus is always considered on air.

Machine Control Enhancements

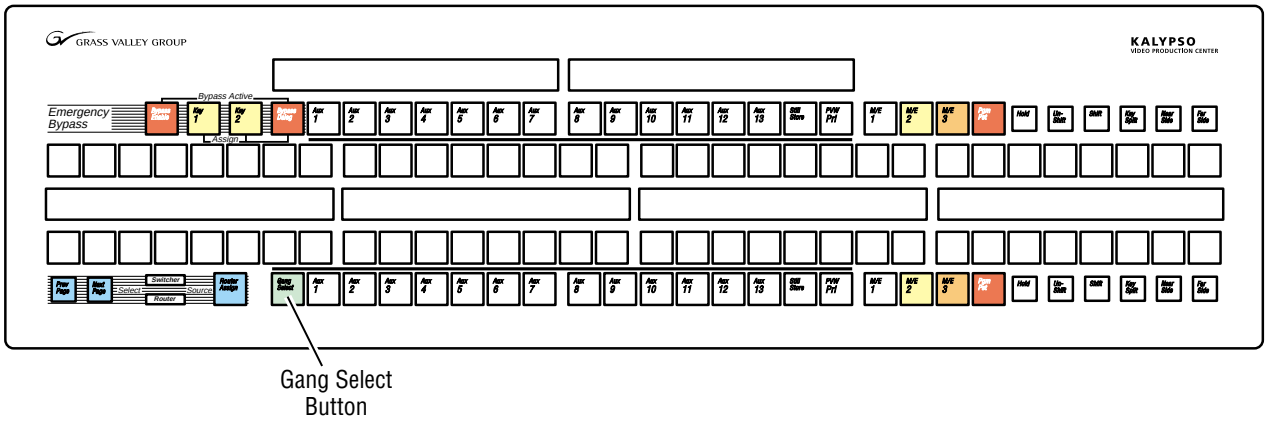
Gang Roll Operating Notes

Gang Roll permits rolling multiple external devices with the same set of panel controls. Devices can be linked so they play together at the same time (original and backup tapes, for example).

Note Kalypso Gang Roll does not synchronize multiple devices and there is a possibility devices may not respond to a Play or Stop command at precisely the same time. This may cause a slight offset in playback of multiple clips.

Devices are selected for Gang Roll on the Local Aux panel, and are then controlled together on the Machine Control subpanel.

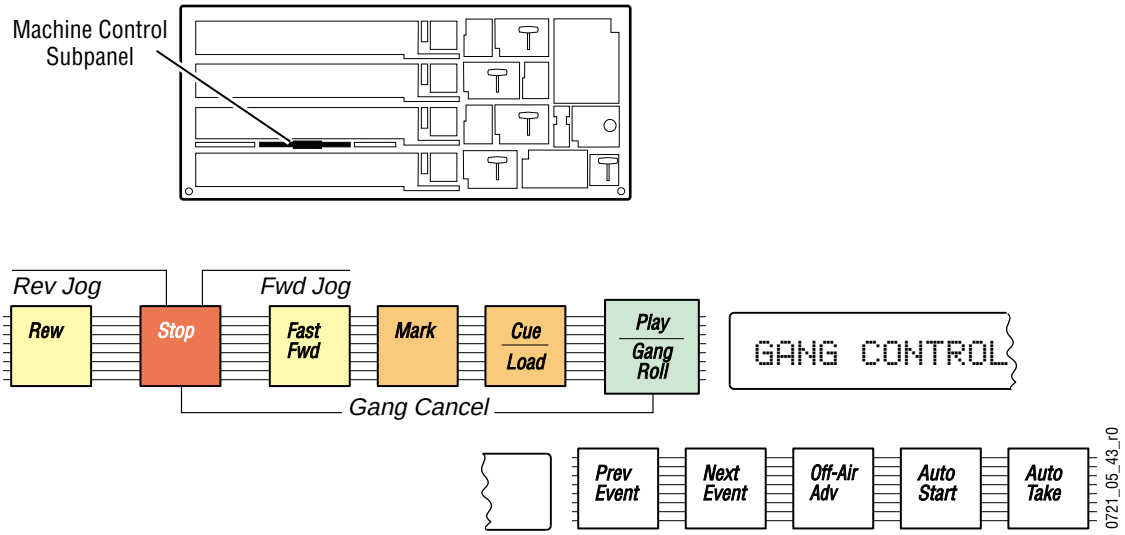
Figure 29. Local Aux Panel



Pressing the **Gang Select** button (Figure 29) on the Local Aux panel delegates the lower source selection bus to permit device selection. The source buttons for controllable devices only will go low tally to indicate they are available. Other source buttons on the bus will go off, and are inactive. Pressing a low tally source button includes it in the group to be controlled and the button goes high tally. You can select as many devices as are available. Pressing a high tally button de-selects the device from the group, and

its button returns to low tally. Gang Roll remains active as long as at least one source is selected for the group. For example, you can delegate the Local Aux panel to control an Aux bus without affecting the selected group.

Figure 30. Machine Control Subpanel



Once a group of devices has been selected, the Machine Control subpanel controls (Figure 30) apply to the entire group. The display reports GANG ROLL to indicate this special operating mode. The basic transport controls (Stop, Play, Rew, Fast Fwd, Forward Jog, Reverse Jog, Mark, and Cue are operational in Gang Roll mode.

Gang Roll is cancelled by holding down **Stop** and pressing **Play**, or holding down **Play** and pressing **Stop**. If both buttons are pressed simultaneously Gang Roll is canceled without rolling or stopping any devices.

Auto Start

The **Auto Start** button in the Machine Control subpanel (Figure 30) is used to make an external machine start playing when it is taken on-air. To do this, delegate the device with the PGM PST B bus, then press **Auto Start** so it is illuminated. On-air status causing playback can be achieved by a bus source change, turning on a key, or recalling an E-MEM register, to name a few.

Auto Start is a mode of the device. The device's source does not have to be selected on Pgm-Pst B for Auto Start to function. Once turned on, the device will start when it goes to air regardless of what's on the Pgm-Pst B row.

External Device Statuses

External Devices now report their condition on the Source Name Displays (Table 3).

Table 3. External Device Statuses

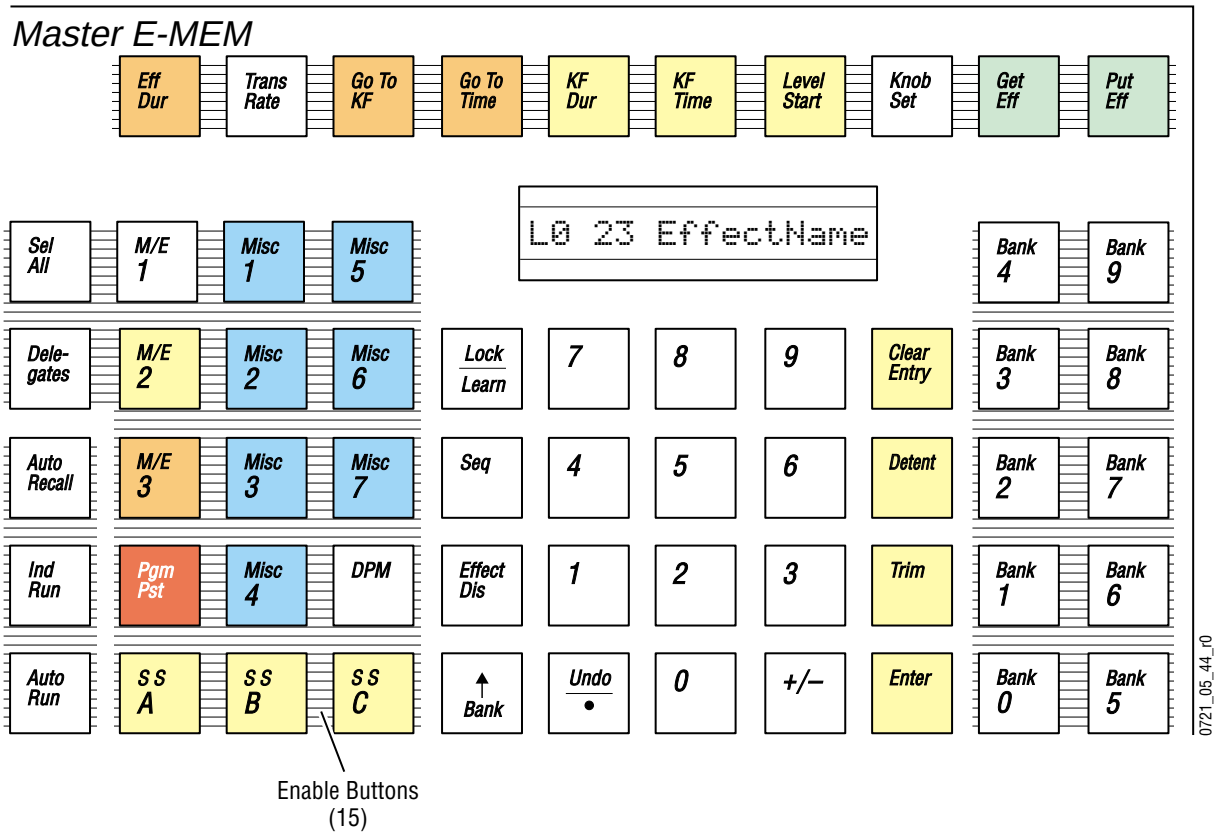
Symbol	•	>	>>	<<	^	?
Meaning	Stop	Play	F Forward	Rewind	No Media	Off Line

E-MEM Level Grouping Operating Notes

Introduction

The Kalypso E-MEM system has many levels (M/E 1 -4, PGM PST, etc.), the actual number depending on installed options and external devices. Each level offers independent E-MEM control of specific Kalypso system areas and capabilities. The total number of possible levels exceeds the 15 E-MEM Enable buttons on the Master E-MEM subpanel (Figure 31).

Figure 31. Master E-MEM Subpanel Enable Buttons



In previous releases the default E-MEM levels were fixed (Table 4). These assignments remain the default, but Release 5.0 allows you to assign E-MEM levels to different Enable buttons.

Table 4. E-MEM Level Default Assignments

E-MEM Level	E-MEM Level Group Button
Background 1 and 2	**Misc 1**
Aux buses	**Misc 4**
GPI outputs	**Misc 5**
Peripheral Bus II	**Misc 6**
External DPM (CPL)	**DPM**

Grouped level assignments can be used to isolate control of Kalypso components and external devices, and to logically associate things together. For example, you can assign GPIs 1-5 that are used for Play, Stop, Rewind, etc. with a particular external device to one of the **Misc** Enable buttons, making only those GPIs for that device active when that level is enabled.

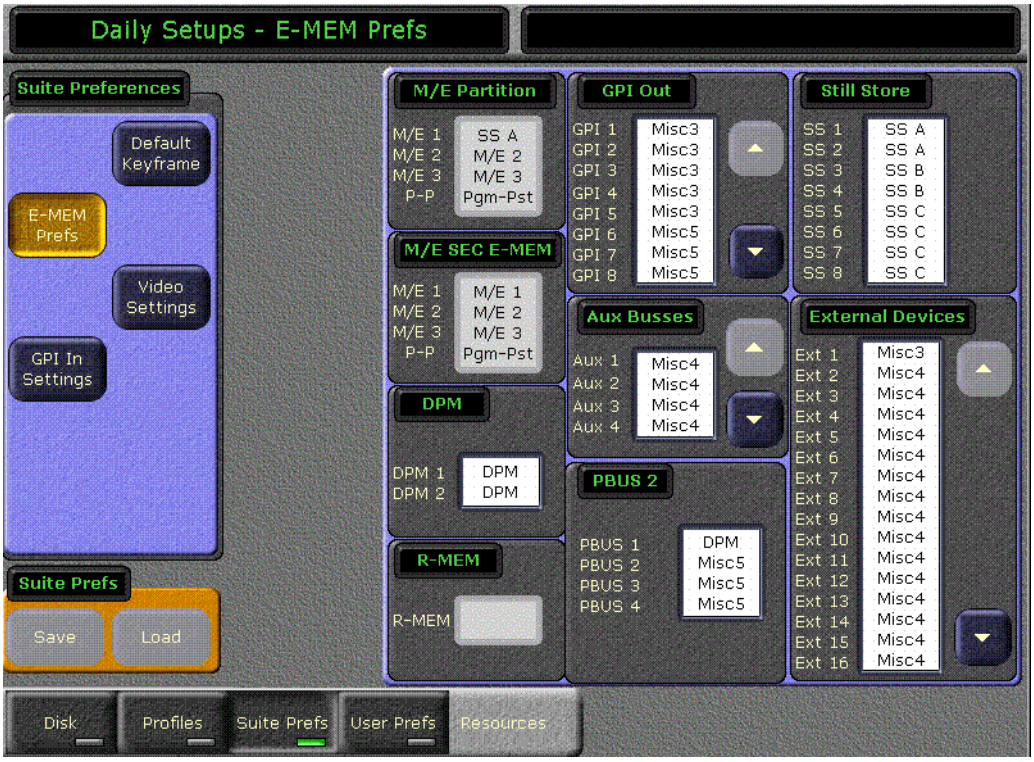
Level Group to Enable Button assignments are a Suite Preference, and are saved and loaded with Suite Profiles.

Note With Release 5.0, enable group to level mapping is not updated until the Suite Preference is saved and reloaded. The menu displays any changes made, but the rest of the Kalypso system is unaware of the changes until the save and reload occurs.

E-MEM Prefs Menu

E-MEM level assignments are made in the E-MEM Prefs menu, accessed by pressing **Daily Setups** on the Main menu, touching the **Suite Prefs** category selection button, then touching the **E-MEM Prefs** button (Figure 32).

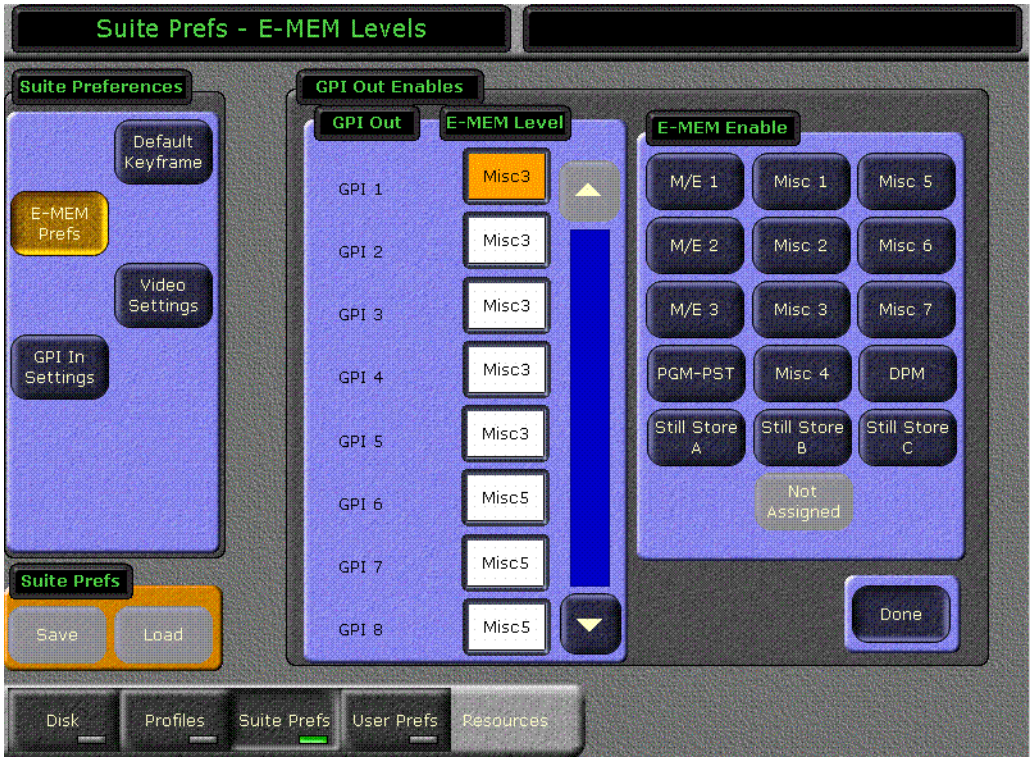
Figure 32. E-MEM Prefs Menu



The E-MEM Prefs menu displays all the Kalypso system levels in several labeled panes on the right. The current Enable button assignment is displayed in each pane's data pad. Some of these panes scroll to display additional available levels, which can vary in number in different Kalypso systems.

Touching a data pad on a pane opens another pane where the actual assignment is performed (Figure 33). On the left individual levels can be selected for assignment (the selected level is yellow). Touching one of the E-MEM Enable buttons will assign that level to that button. Click on **Done** to return to the previous menu, from which you can access other levels to change.

Figure 33. E-MEM Prefs GPI Out Menu



Optional 24-Crosspoint Remote Aux Panels

Introduction

Remote Aux panels control Kalypso aux buses from remote locations. Three 24-Crosspoint Remote Aux panels are available for 4-M/E and 2-M/E systems. Any combination of these aux panels may be included in a system package at initial purchase or added to a Kalypso system at a later time. For more information on Kalypso options, refer to the Kalypso *Ordering Guide.*

The 24-Crosspoint Remote Aux panels are designed to control 48 external sources (24 unshifted and 24 shifted). Thirty-two Remote Aux panels can be daisy-chained on a single serial control port on either the 4-M/E or 2-M/E electronics frame. Three 24-Crosspoint Remote Aux panel configurations are available, identified by the number of rack units (RUs) each occupies in an equipment rack (see Figure 34 through Figure 36). The 1 and 2 RU panels (KAL-24AUX1 and KAL-24AUX2) are dedicated to a single bus. The 3 RU panel (KAL-24AUX3) panel has 18 bus delegate buttons. All three panels have the same connector and DIP switch layout as that depicted for the KAL-24AUX1 in Figure 38 on page 52.

Figure 34. KAL-24AUX1 (1 RU) Remote Aux Panel

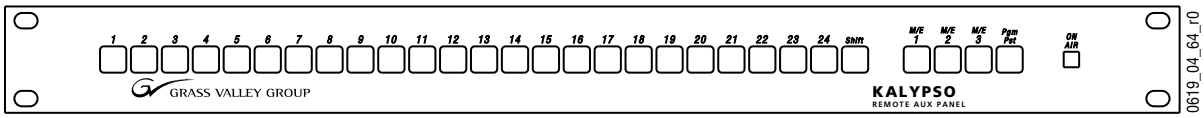


Figure 35. KAL-24AUX2 (2 RU) Remote Aux Panel

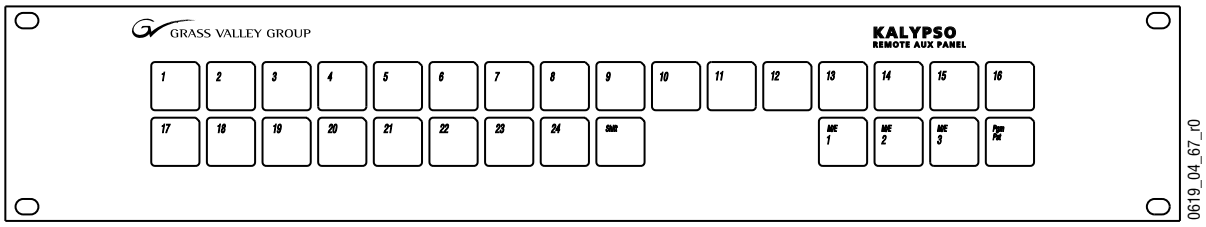
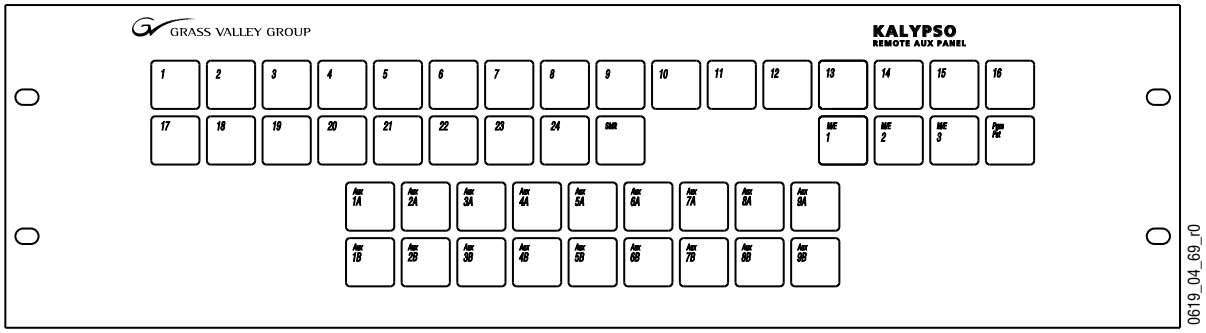


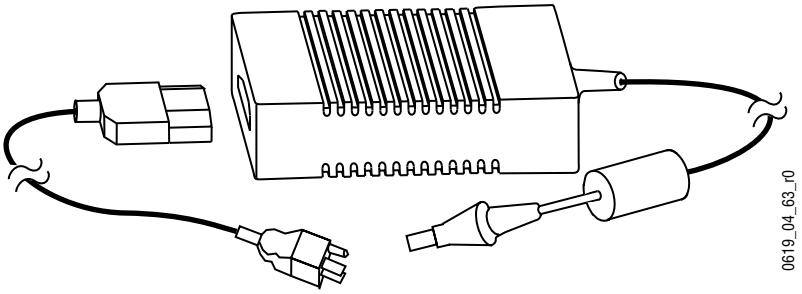
Figure 36. KAL-24AUX3 (3 RU) Remote Aux Panel



AC Power Supply

The 24-Crosspoint Remote Aux panel power supply (Figure 37) should be securely fastened to a horizontal surface or attached to a support inside the equipment rack. Verify that the power supply cord reaches the 24-Crosspoint Remote Aux Control panel and the AC source.

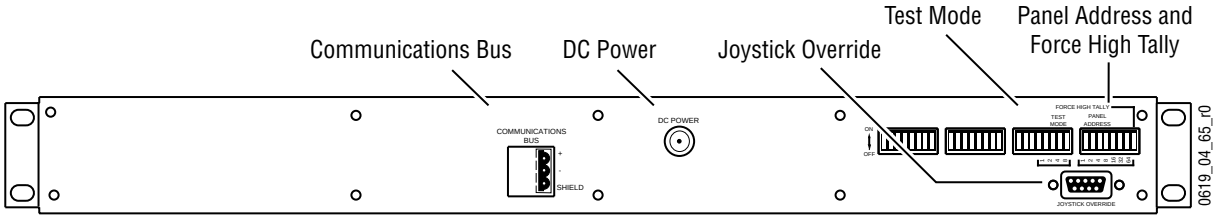
Figure 37. 24-Crosspoint Remote Aux Panel Power Supply



24-Crosspoint Remote Aux Connections

The 24-Crosspoint Remote Aux rear panels have connectors for Communications Bus, DC power, and Joystick Override (Figure 38).

Figure 38. KAL-24AUX1 (1 RU) Remote Aux Panel Rear



Note The rear panel layout is the same for all KAL-24 Remote Aux panels.

Communications Bus

The communications bus cable connector shipped with each panel must be attached to the supplied cable or a user fabricated cable (refer to Figure 39). The supplied cable is 50 m (164 ft) long and has a pre-wired 9-pin D connector on one end. If fabricating a cable, use a shielded twisted pair cable such as Belden 8451 and refer to Table 5 for wiring connections.

Thirty-two panels can be daisy-chained on a single serial control port on either the 4-M/E or 2-M/E electronics frame, but the total length of cable in the panel daisy-chain cannot exceed 320 m (1000 ft).

In Release 5.0, connect the serial cable to serial port J15 on the Control I/O module in slot B1 at the rear of the Video Processor frame.

Figure 39. 24-Crosspoint Remote Aux Panel Communications Bus Connector

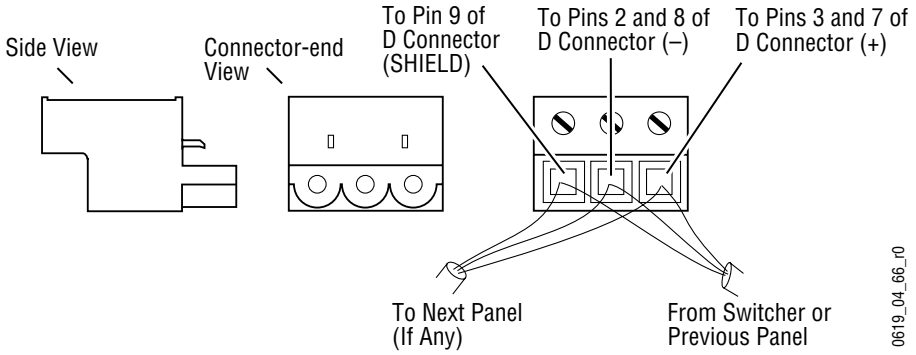


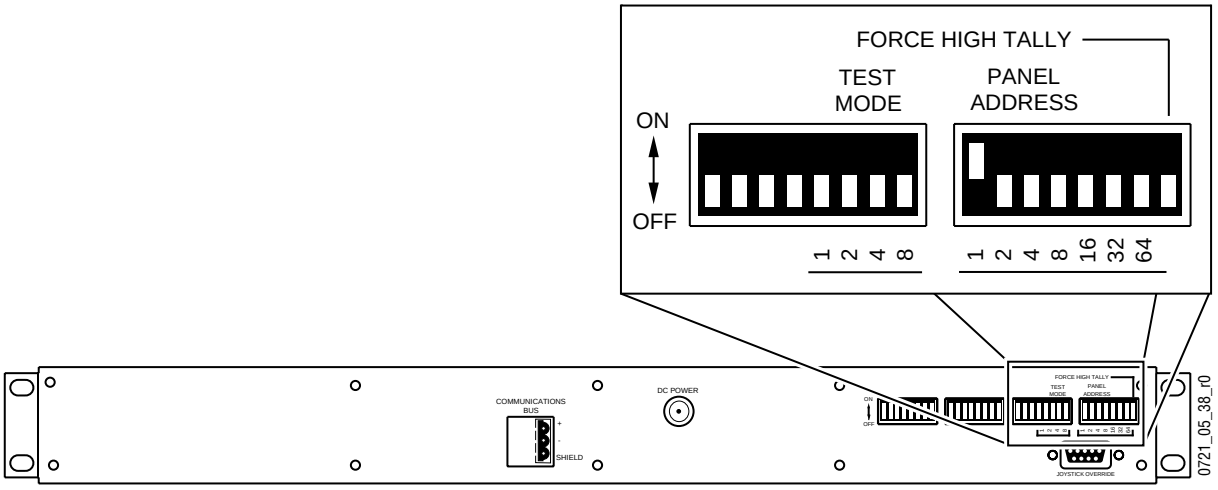
Table 5. Cable Polarity

Panel Connector	D-Connector Pins	Factory Supplied Cable
+ (Plus)	3 and 7	Red
- (Minus)	2 and 8	Black
Shield	9	Shield

24-Crosspoint Remote Aux Rear Panel Switch Settings

The Remote Aux rear panel includes a number of switches. The two groups of switches on the right are used to control panel address, high tally, and some test modes (Figure 40). The two switch groups on the left are inactive. The panel address is set to one in the figure.

Figure 40. 24-Crosspoint Remote Aux Rear View



Panel Address Switches

CAUTION Each Remote Aux panel must have a unique address. Setting the same address for two or more panels will cause the entire Remote Aux system to malfunction.

Set the address of the Remote Aux Panel (0 through 31) using the switches marked PANEL ADDRESS on the right rear of the panel. The seven switches have 32 possible combinations; however, only five of the switches may be used (1-16). Switches 32 and 64 must be in the off position. If there is more than one Remote Aux panel, maintain a record of each panel address.

Force High Tally Switch

When the Force High Tally switch is off (generally the normal condition) the Remote Aux panel tally follows the switcher on/off air status for that Aux bus. Use Force High Tally only if you want the Remote Aux panel buttons to always be on, such as for a bus which never goes on air (e.g., the video operator's monitor selector).

On the 1-RU panel, the Force High Tally switch forces the ON AIR lamp on at all times.

On the 2-RU and 3-RU panels, the Force High Tally switch disables the low tally condition. The lamps will be on bright whether the bus is on air or not.

Test Mode Switches

For normal operation set all four TEST MODE switches to OFF. See page 64 for information on using the test modes.

Joystick Override

Camera joystick override allows the Aux bus to be momentarily switched to a camera for shading, then switched back to what ever source was previously selected, typically Program.

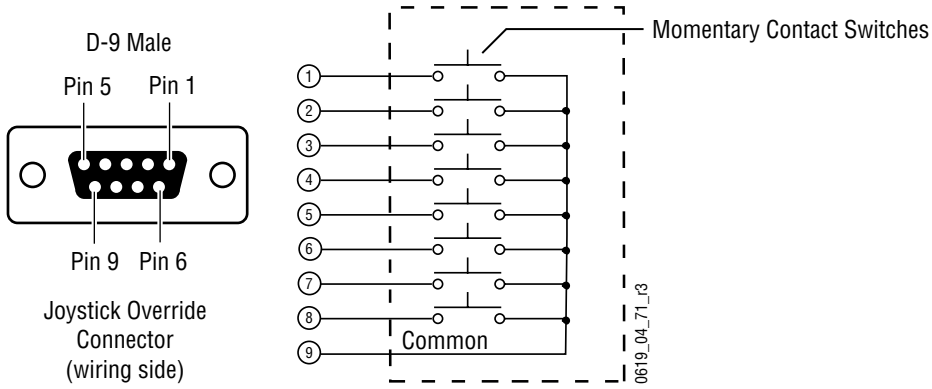
A user fabricated cable, external switch, and a 9-pin D connector are required to implement camera joystick override. Use shielded cable and connect the shield to the metal connector shell when fabricating the override cable.

The remote aux panel joystick override inputs are connected to camera shading panels which have a contact closure usually located on the shading iris/black level joystick. Each shading panel is connected to a different “JSO” input with all commons tied together. A user fabricated cable, external switch, and a 9-pin D connector are required to implement camera joystick override. Use shielded cable and connect the shield to the metal

connector shell when fabricating the override cable. Figure 41 indicates the wiring but not the fact that individual shading control switches are located in separate shading panels.

Once wired to camera shading panels, the relationship between each Joystick Override input and a specific Kalypso source ID can be established in the Button Mapping menu located in User Preferences. The JSO closures are located at the end of the panel button list.

Figure 41. KAL-24AUX Joystick Override Connector Cable Wiring



Joystick Override Programming

The default programming of the external switches to inputs is: pin 1 of the joystick override connector corresponds to input button #2, pin 2 to input #3, … pin 8 to input #9. The programming can be changed and saved in a local non-volatile memory.

Note The mapping is local to the aux bus control panel. More than one panel can have joystick override. Each panel needs to be programmed and can have different programming.

Changing the Joystick Override Programming

1. Verify that the external joystick override switches are connected to the 9-pin D connector.

   Operation of the switches can be checked using the test mode DIP switches. When the DIP switches are in test mode 7, closure of external override switches 1 through 8 will cause the corresponding input buttons to light.

2. Set test mode DIP switches to test mode 12 to enter the joystick override programming mode.

3. Program a joystick override panel button to an input button as follows:

   a. Close the first joystick override input. The aux bus will switch to the currently programmed source for that input.

b. If the current source is not correct, press the correct source button and release it.

c. Deactivate the joystick override input.

d. Repeat for the other joystick override inputs.

4. Verify the programming by individually pressing each joystick override button. The corresponding input button should light for each override switch.

Note More than one joystick override panel button can be programmed to the same input button.

5. Save the programming in non-volatile memory by exiting test mode 12 on the DIP switches. Normal operation is test mode 0.

Chop Mode

Chop mode allows automatic switching between two sources. The switching is two fields of one source followed by two fields of another source at frame rate. The rapid switching allows comparison of two video sources on a monitor.

Note Chop mode is available only when the Chop Enable DIP switch is ON. Turning the Chop Enable DIP switch to the OFF position when chop is not needed will prevent chop from engaging when a source button is inadvertently pressed twice.

To Enter Chop Mode

1. Press the first source button (of the pair to be compared) on the remote aux panel.

2. Rapidly double-press and release the second source button. Chop begins when the second source button is released.

Note The second press of the second source button must be within 1/4 of a second of the first press. If not, Chop will not start and you must start over with the first source selection.

To Exit Chop Mode:

Chop is cancelled if you do any of the following:

- Select a source on any remote aux panel controlling the aux bus in chop (including the panel which initiated the chop).
- Select a source on the main switcher panel for the aux bus in chop.
- Select a source via the edit controller for the aux bus in chop.
- Recall an E-MEM involving the aux bus in chop.
- Switch buses cancelling the chop if the chop was initiated from the delegated (three RU) remote aux panel.

Kalypso System Remote Aux Panel Configuration

After the Remote Aux panels are installed, powered up, and set to different addresses, they need to be configured to the Kalypso system. The following steps are involved.

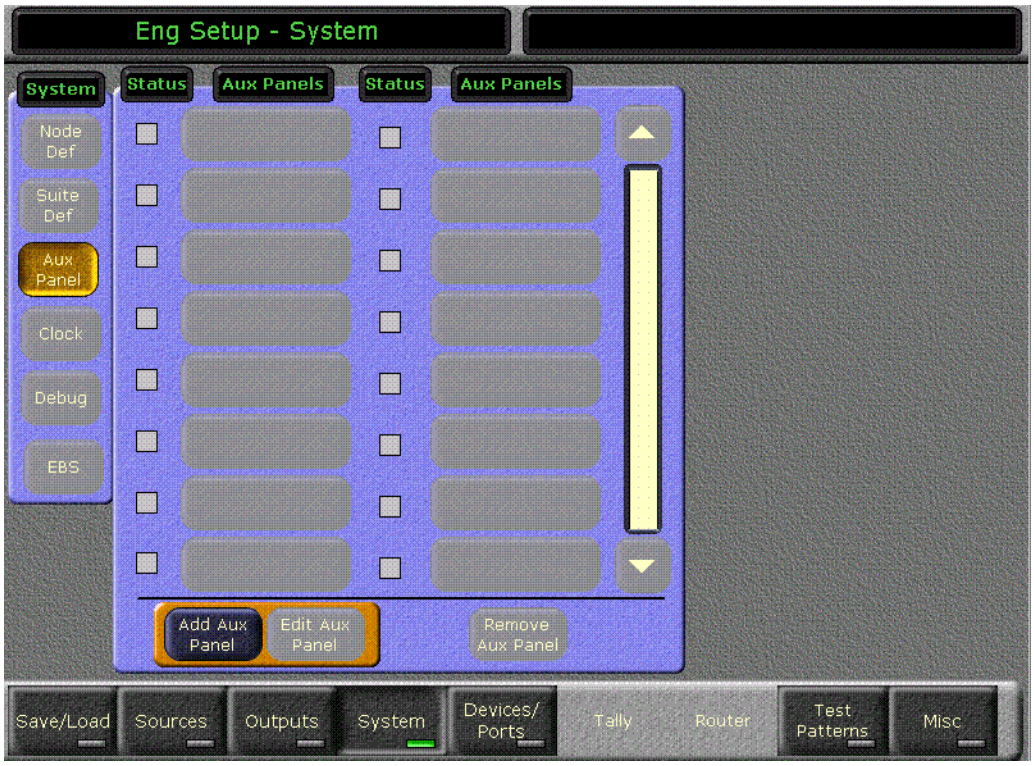
- Identify and name the Remote Aux panels in Engineering Setup,
- Map sources to Remote Aux panel buttons in Daily Setups
- On multiple destination Remove Aux panels, map the Aux buses to be controlled by the delegation buttons on each panel.

You must first identify each Remote Aux panel before you can map its buttons.

Identify and Name Aux Panels

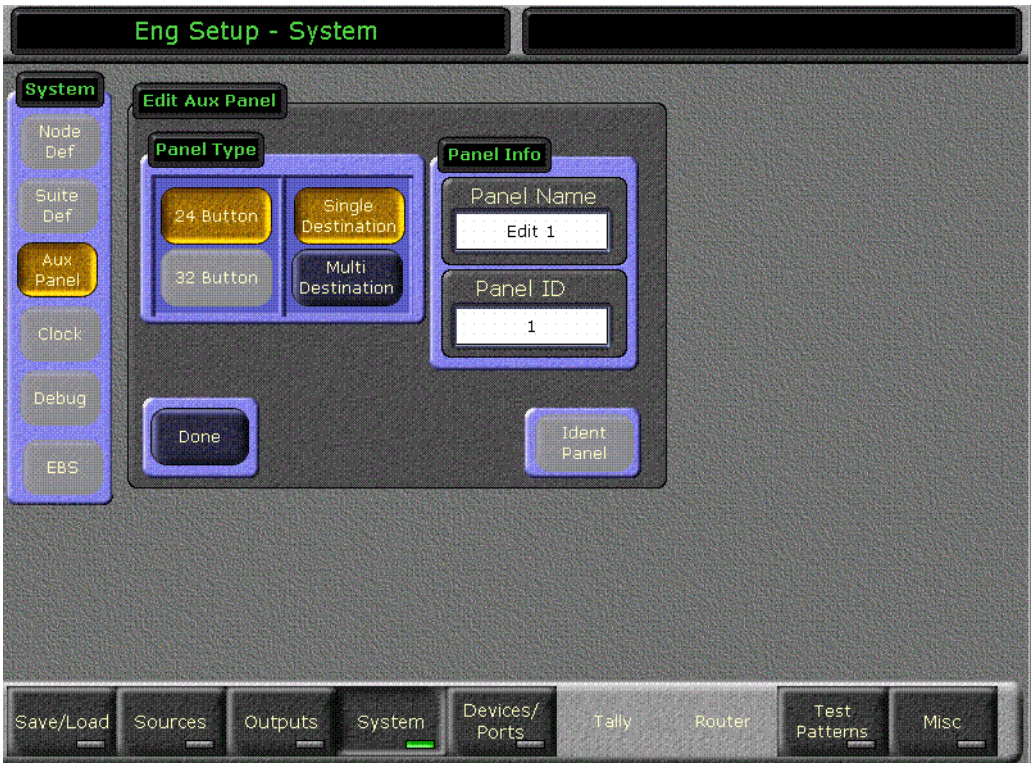
Remote Aux panels are setup using the Eng Setup - Aux Panels menu, accessed by pressing the **Eng Setup** Menu panel button, and touching the **System** category selection button (Figure 42).

Figure 42. Remote Aux Panels Menu, None Configured



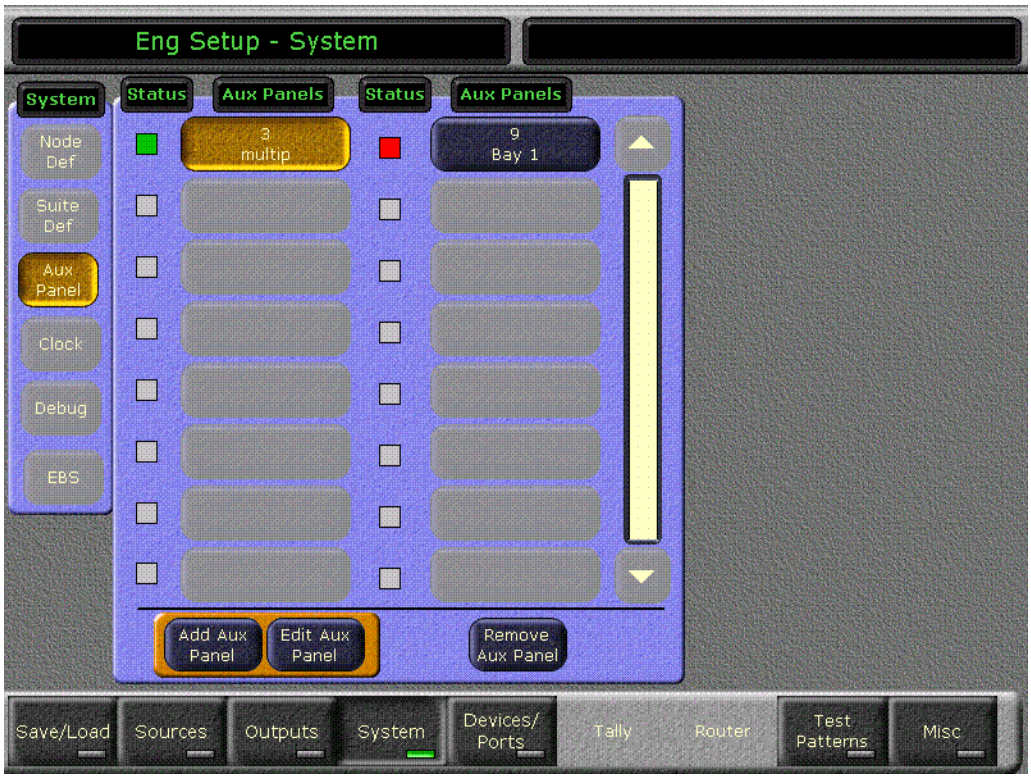
Pressing the **Add Aux Panel** button brings up a pane where you specify the panel type, give it a name, and identify its ID number. Enter the information and press **Done** (Figure 43). The ID number must match the number set on that Remote Aux panel with its DIP switches.

Figure 43. Remote Aux Panel Identification



After pressing **Done** you return to the previous menu. The Remote Aux panel will then appear on the list. Remote Aux panels operating correctly have a green status box. Red status boxes show panels that are not responding or may have a Remote Aux panel address conflict (Figure 44).

Figure 44. Remote Aux Panels Menu with Configured Panels



Selecting a panel on the list and pressing the **Edit Aux Panel** button or **Remove Aux Panel** buttons allows you to modify or remove the selected panel information.

Button Mapping

Remote Aux panel button mapping is done using the Daily Setups - Button Mapping menu. Delegation buttons and a data pad are located at the lower right corner of the screen. Touching **Local Panel** delegates the menu to

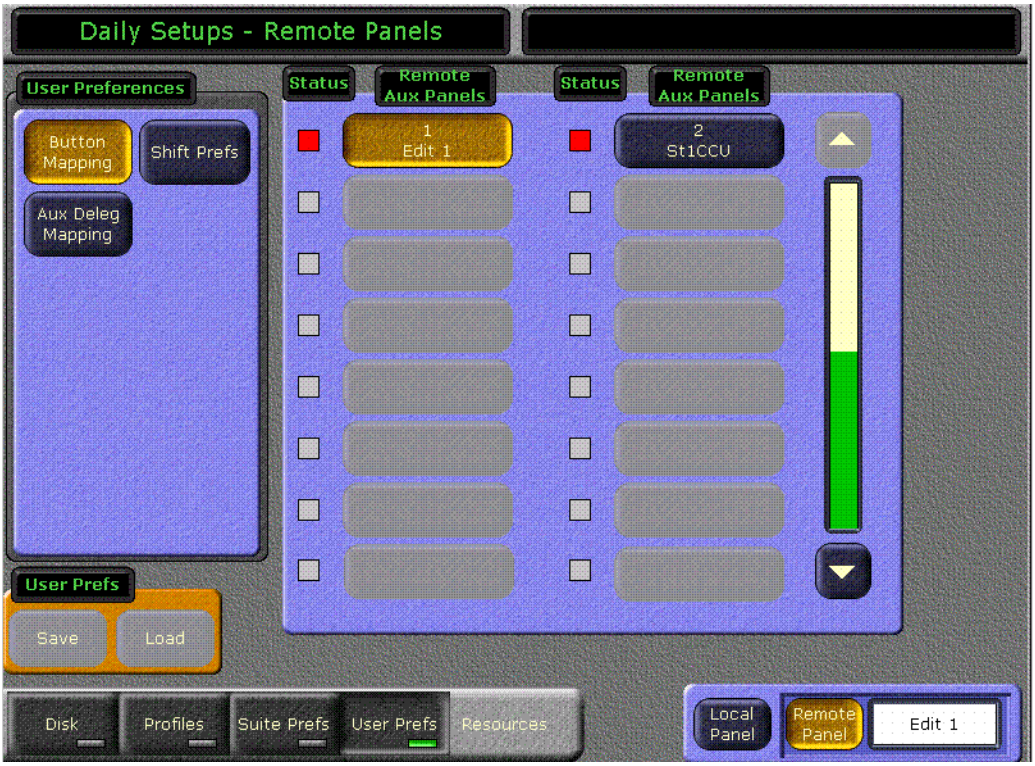
control button mapping on the Main panel and Local Aux panel. Touching the **Remote Panel** button delegates control to a Remote Aux panel (Figure 45).

Figure 45. Remote Aux Panel Button Mapping Menu



The name of the currently selected Remote Aux panel is displayed on the data pad. Touching the data pad opens a menu permitting selection of the desired Remote Aux panel (Figure 46).

Figure 46. Remote Aux Panel Selection for Button Mapping



Touching a Remote Aux panel button on the list delegates the menu to that panel and returns you to the Button Mapping menu. Use standard button mapping procedures to map sources to each button on each Remote Aux panel.

Aux Bus Delegation Mapping

On multiple destination Remote Aux panels, delegation buttons are used to select which Aux bus is delegated for control by that panel. You map Aux buses to buttons using the Daily Setups - Aux Delegation menu, accessed by pressing **Daily Setups**, **User Prefs**, **Aux Deleg Mapping** ().

Figure 47. Remote Aux Bus Delegation Button Mapping Menu



With the desired Remote Aux panel selected on the lower right corner of the screen, touch the Aux button to be mapped in the right pane, then touch the desired Aux bus button in the right pane, continuing until all the delegation buttons have been mapped.

Diagnostic Tests

A series of built in diagnostic tests are built into the Remote Aux panel. There are two ways to enter a diagnostic test:

- Setting the rear panel TEST MODE switches to something other than zero (see Table 6, column 2)
- Pressing a combination of front panel switches (see Table 6)

CAUTION Attempting to access test modes not listed in Table 6 may cause the system to malfunction.

Using the Test Mode Switches

The four TEST MODE switches can be set to any of 16 different settings. Not all of these switch settings address user-accessible tests, and some of the settings may cause system malfunction. For normal operation or to activate a test using the front panel buttons, the TEST MODE switches must all be in the OFF position (zero).

Table 6 lists the test numbers and switch positions for the built-in diagnostic tests. The test number is the sum of the numbers of the TEST MODE switches that are ON.

Tests Using the Front Panel Switches

Note For the front panel push-button tests to function, the rear panel TEST MODE switches must all be set to OFF (zero).

Activating a test from the front panel requires simultaneously pressing the M/E 1, M/E 2, M/E 3, PGM, and another push-button, as defined in Column 3 of Table 6 (“5th Panel Button”). The test will be activated for as long as all the buttons are held down.

Table 6. Test Modes

Test Number	Test Mode 1 2 4 8	5th Panel Button	Test
0	0 0 0 0		Normal Operation
1	1 0 0 0	SHIFT	Button Lamp — Press button to light lamp
2	0 1 0 0	24	Lamp Walk — Each lamp lights in sequence; Both high and low tally are displayed
3	1 1 0 0	23	Display Controlled/Enabled Buses — Single bus panels: Displays on source buttons (1A on left, then 1B etc.); 3 RU panel: Lights the delegate button for each bus that is enabled
4	0 0 1 0	22	Display Panel Address on Source Button Lamps — Number is binary; LSB on left
5	1 0 1 0	21	Display Panel Type on Source Button Lamps — 1 = 2 RU panel, 2 = 3 RU panel, 3 = 1 RU panel Number is binary; LSB on left
6	0 1 1 0	20	Display Panel Software Version on Source Button Lamps — Number is binary; LSB on left
7	1 1 1 0	18	Display Joystick Override Input Port on Source Button Lights Pin 1 on source button 1 … pin 8 on source button 8
12	0 0 1 1	n/a	Program Joystick Override Translation Table (see text)
13	1 0 1 1	n/a	Panel selects only Near side
	0 1 1 1	n/a	Panel selects only Far side

Editor Interface

Introduction

Kalypso Software Release 5.0 supports basic editor control. Capabilities include:

- Source select for A, B, Key 1 & 2, Aux buses
- Transition Mode, Rate, and Triggers
- All Stop
- E-MEM Recall and Run trigger
- Wipe Select

Installation and Configuration

- Connect the editor with a standard RS-422 9-pin serial cable to port 3 (J11) on the Kalypso Video Processor Control I/O Module (located in slot B1).
- Set the editor to use GVG 4000 Protocol.
- Set the editor to use the following serial communications settings:

Table 7. Kalypso Editor Control

Serial Settings	
Baud Rate	38400
Parity	Odd
Stop Bits	1
Data Bits	8

For Release 5.0, the Kalypso system does not respond with the same timing as a Grass Valley Group Model 4000 switcher. Edit controller adjustments will need to be made to make Kalypso changes line up with other commands issued by the edit controller. See your edit controller manual for adjustment procedures.