GRASS VALLEY GROUP

Installation Planning Guide

071-0619-04

FIRST PRINTING: **SEPTEMBER 1999**

REVISED PRINTING: **SEPTEMBER 2000**

KALYPSO

VIDEO PRODUCTION CENTER

Contacting Grass Valley Group

Region	Voice	Fax	Address	Web Site
North America	(800) 547-8949 530-478-4148	(530) 478-3347	Grass Valley Group P.O. Box 599000 Nevada City, CA 95959-7900 USA	www.grassvalleygroup.com
Pacific Operations	+852-2585-6688 Support: 852-2585-6579	+852-2802-2996		
U.K., Europe, Asia, Middle East	+44 1753 218 777	+44 1753 218 757		
France	+33 1 45 29 73 00			
Germany	+49 221 1791 234	+49 221 1791 235		

Copyright © Grass Valley Group. All rights reserved.

This document may not be copied, in whole or in part, or otherwise reproduced, except as specifically permitted under U.S. copyright law, without the prior written consent of Grass Valley Group, P.O. Box 599000, Nevada City, CA 95959-7900 USA. GRASS VALLEY GROUP is a registered trademark and Grass Valley is a trademark of Grass Valley Group. All registered trademarks and trademarks are property of their respective holders. Grass Valley Group products are covered by U.S. and foreign patents, issued and pending. Product options and specifications subject to change without notice. The information in this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Grass Valley Group. Grass Valley Group assumes no responsibility or liability for any errors or inaccuracies that may appear in this publication.

Contents

Installation Planning Guide

Kalypso Video Production Center 1
Standard System Components 1
  Control Surface 2
    Main Panel 2
    Menu Panel 2
    Local Aux Panel 3
    Removable Media Drives 3
  Main Panel 3
    4-M/E Main Panel 4
    2-M/E Main Panel 6
  Local Aux Panel 7
  Menu Panel 10
  Video Processor 13
    Video Processor Options 16
  Video Processor Power Supply 16
  Optional Remote Aux Panels 17
    24-Crosspoint Remote Aux Panels 17
    32-Crosspoint Remote Aux Panels 20
Typical Kalypso System Video Cabling 22
Kalypso System Control Cabling 23
  4-M/E Kalypso System 23
  2-M/E Kalypso System 24
  LAN Requirements 25
    Ethernet Switches and Hubs 25
Pinouts 28
  Main Control Panel 28
  Video Processor 28
    Communications I/O Module 28
    Reference Input Module 32
Specifications 33

Installation Planning Guide

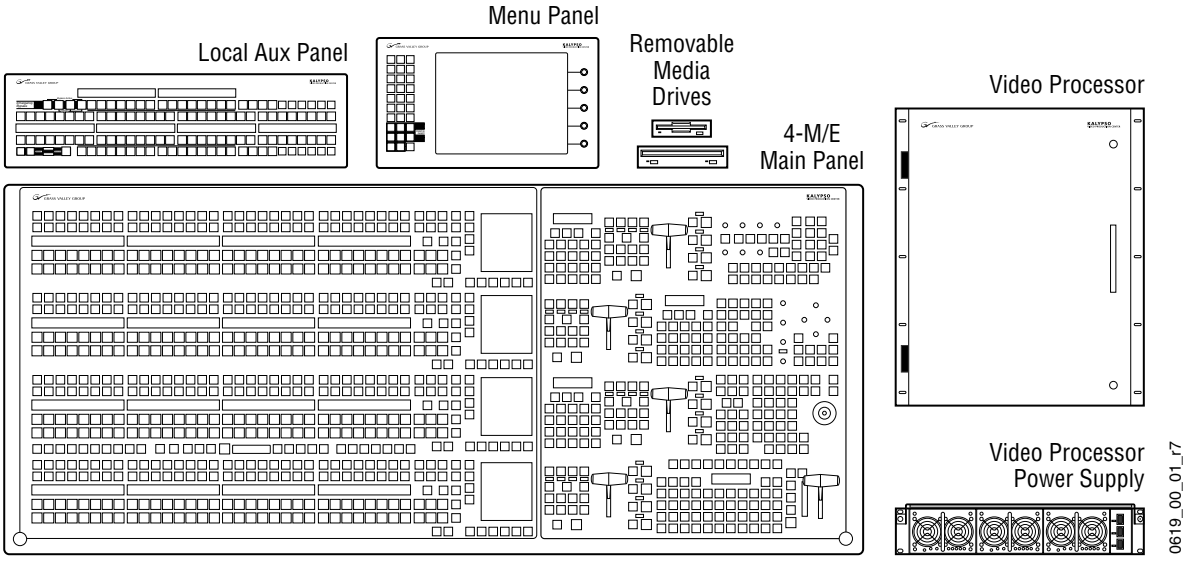
Kalypso Video Production Center

The Kalypso Video Production Center features powerful digital video switching, mixing, and keying with E-MEM, plus integrated control of other production devices such as external effects systems, VDRs, and facility routers. The architecture of the system provides a flexible, quickly reconfigurable system able to meet the demanding requirements of live production and post production applications. Please refer to the Kalypso *Ordering Guide* for information on the many hardware and software options available.

Standard System Components

A Kalypso System consists of a Control Surface comprised of two or more control panels, a Video Processor, Video Processor Power Supply, and removable media drives. Several of the standard 4-M/E system components depicted in Figure 1 are also common to 2-M/E systems.

Figure 1. 4-M/E System Components

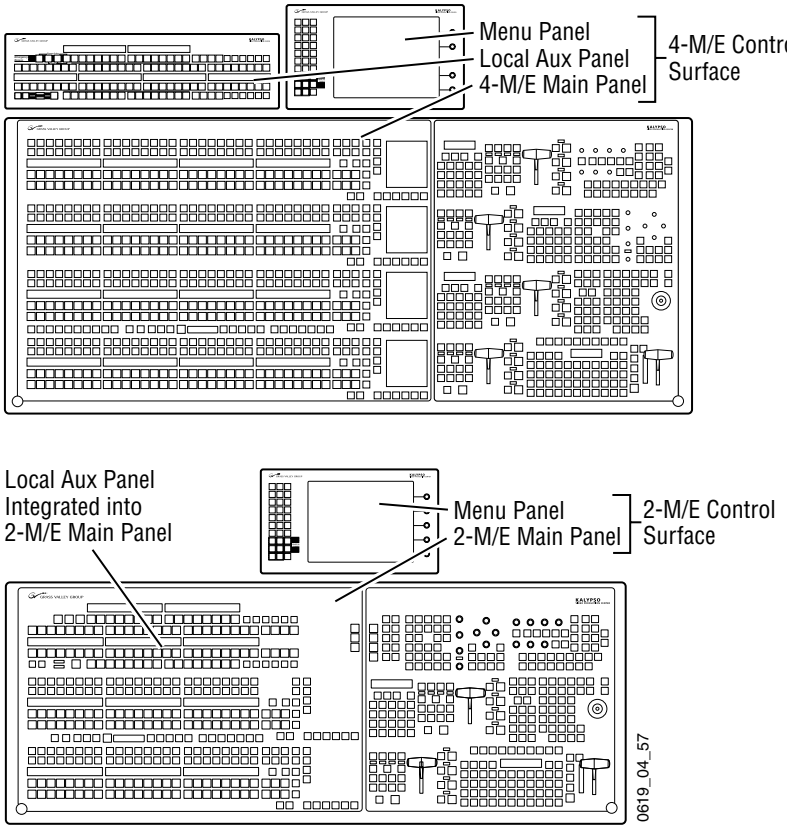


Main Panel	4-M/E	Refer to page 4	Local Aux Panel	Refer to page 7	Removable Media Drives	Refer to page 3
	2-M/E	Refer to page 6	Menu Panel	Refer to page 10	Video Processor	Refer to page 13
					Video Processor Power Supply	Refer to page 16

Control Surface

The modular design of Kalypso control panels provides flexibility for mounting component panels in various environments, and allows the addition of specialized accessory control panels. A group of panels available to a single operator is called a Control Surface. A Control Surface consists of at least two components, a Main panel and a Menu panel. The 4-M/E has a separate Local Aux panel, while the 2-M/E has a Local Aux subpanel integrated into the Main panel (refer to Figure 2).

Figure 2. Kalypso Control Surface



Main Panel

The Main panel provides the operator with real time control of the system. Panel ventilation is accomplished by two fans which draw air through slots around buttons and expel it at the rear of the panel, where connections to the Kalypso Video Processor and other Control Surface components are located.

Menu Panel

The Menu panel provides access to additional system controls that generally do not require real-time adjustment.

Local Aux Panel

The Local Aux panel provides control of Kalypso System Aux buses, Still Store source selection, switched preview, and router source selection.

Removable Media Drives

Three removable media drives are standard components of a Kalypso system, and are connected to the Main panel. Included are a CD-ROM drive (which connects to the Main panel SCSI port), a 250 MB Zip drive (which is connected to the SCSI chain via the CD-ROM), and a standard 1.4 MB 3.5 in. floppy disk drive. The floppy drive is mounted in the Main panel tub and is not intended for routine user access. No special mounting brackets or specific placement is required for the CD-ROM or Zip drives; placement of these drives is restricted only by cable length and proximity to AC power. A 3 m (10 ft) SCSI cable is provided for the CD-ROM, and the Zip drive ships with a 61 cm (2 ft) SCSI cable. The SCSI chain supports up to seven devices and a maximum total cable length of 6 meters (20 ft).

Main Panel

Main panel installation requires careful attention to the console support structure and the console cutout dimensions necessary to accommodate the mounting flanges located on the front and sides of the tub (Figure 3).

CAUTION The 4-M/E Main panel weighs approximately 86 kg (189 lb) and the 2-M/E Main panel weighs approximately 63 kg (138 lb). Prior to installation, ensure that your console is structurally capable of supporting the Main panel.

The Main panel was designed to be flush mounted in a console, but it may also be surface mounted. Figure 4 provides installation details for both flush mount and surface mount installations. Refer to *4-M/E Main Panel on page 4* for dimensions and other information specific to the 4-M/E Main panel, or *2-M/E Main Panel on page 6* for information specific to the 2-M/E Main panel.

Figure 3. Mounting Flanges

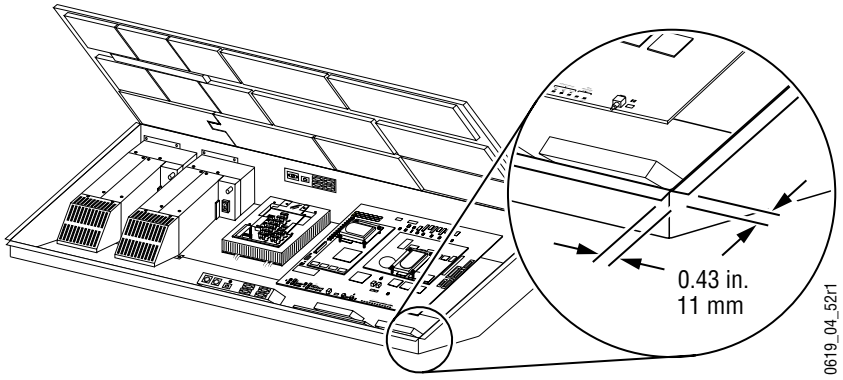
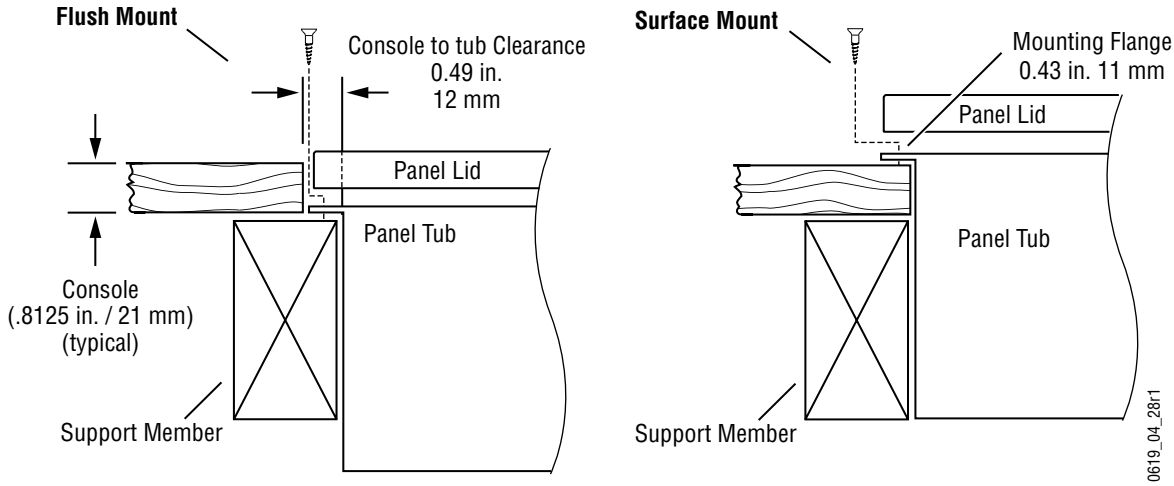
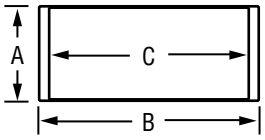


Figure 4. Main Panel Mounting Options (Front Left View)



Mounting Option	Cutout Dimensions					
	A[1]		B[1]		C[2]	
	2-M/E	4-M/E	2-M/E	4-M/E	2-M/E	4-M/E
Flush Mount[3]	20.09 in. (510 mm)	25.06 in. (637 mm)	49.51 in. (1258 mm)	55.63 in. (1413 mm)	48.66in. (1236 mm)	54.78in. (1391 mm)
Surface Mount[3]	18.70 in. (475 mm)	23.81 in. (605 mm)	48.66in. (1236 mm)	54.78in. (1391 mm)	n/a	n/a



[1] Console surface cutout.

[2] Distance between flush mount support members.

[3] Recommended tilt of 5˚; maximum tilt of 15˚. The recommended five degree tilt may be obtained by elevating the rear of the panel approximately two inches relative to the front of the panel.

WARNING The Main panel lid is held in the open position by two gas spring assemblies. The ability of these devices to support the lid is compromised if the installed panel tilts toward the user at an angle greater than 15 degrees.

4-M/E Main Panel

4-M/E Main panel options include a redundant power supply and Source ID displays for M/E 1, 2, and 3. (Source ID displays are standard on Pgm/Pst and on the Local Aux panel.) Refer to Figure 5 through Figure 7 for panel dimensions and connector layout.

Figure 5. 4-M/E Main Panel Dimensions

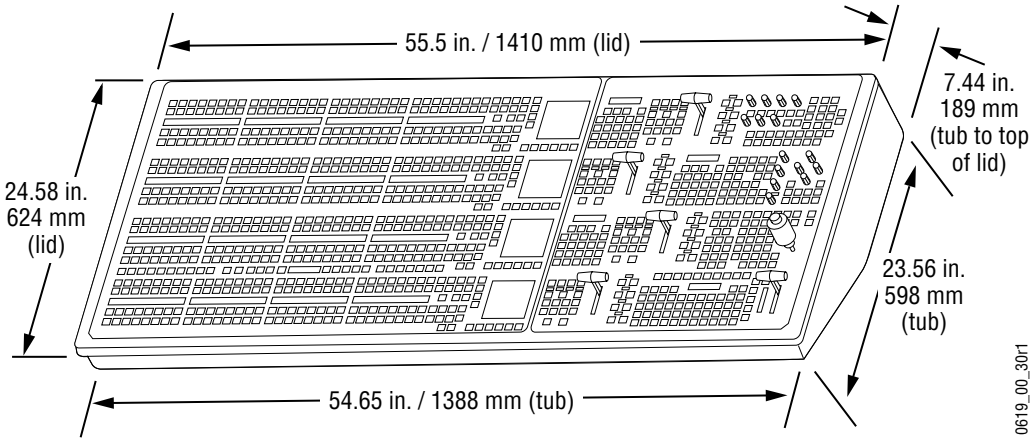
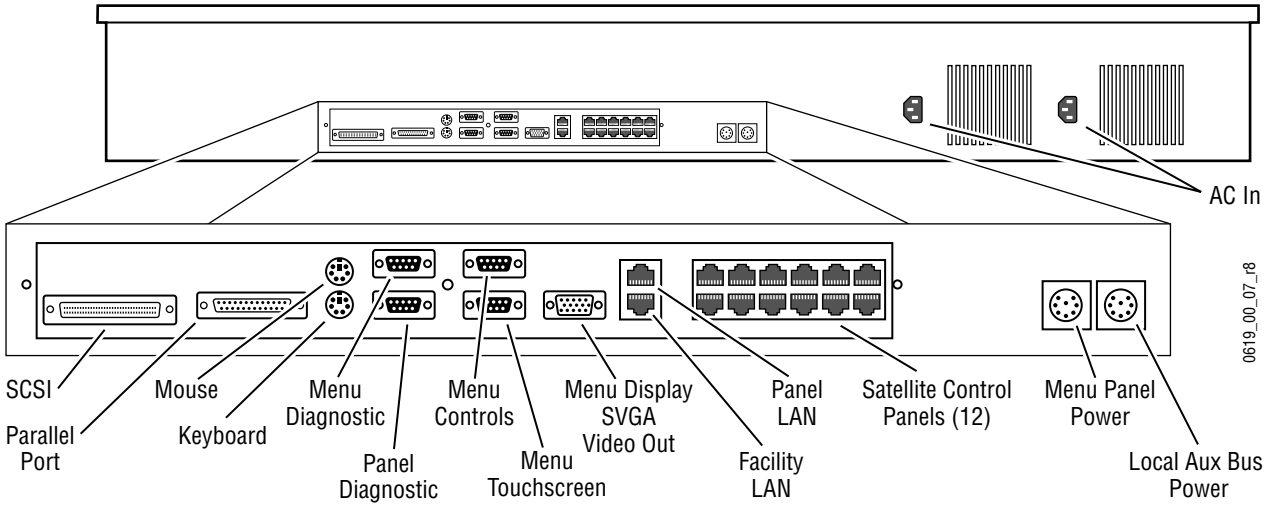
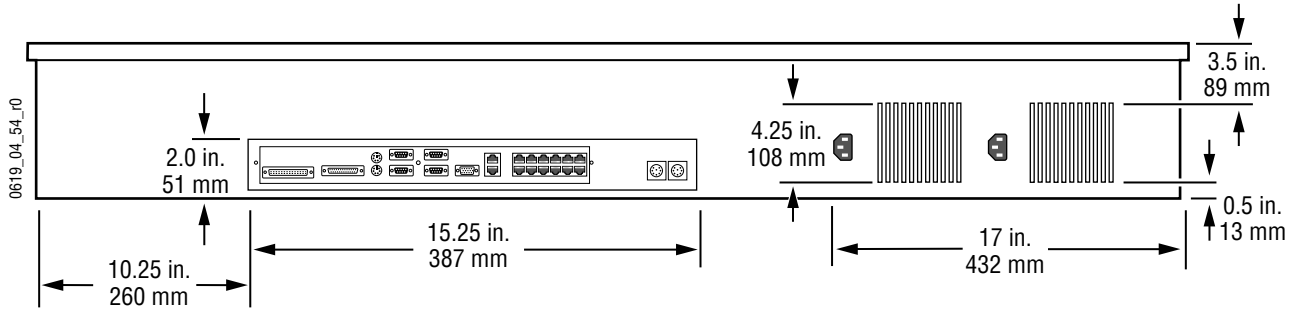


Figure 6. 4-M/E Main Panel Rear View



CAUTION Regardless of mounting method or cutout dimensions, ensure that there is at least 152 mm (6 in.) of clear space at the rear of the Main panel below the mounting surface for proper cable clearance and air flow. Allow an extra 203 mm (8 in.) to 254 mm (10 in.) of mounting surface behind the Main panel for peripheral components (e.g., Local Aux panel).

Figure 7. 4-M/E Rear Main Panel Dimensions



2-M/E Main Panel

Source ID displays are standard on the 2-M/E Main panel, M/E 1, Program/Preset row and on the Local Aux subpanel. A redundant power supply is optional. Refer to Figure 8, Figure 9, and Figure 10.

Figure 8. 2-M/E Main Panel Dimensions

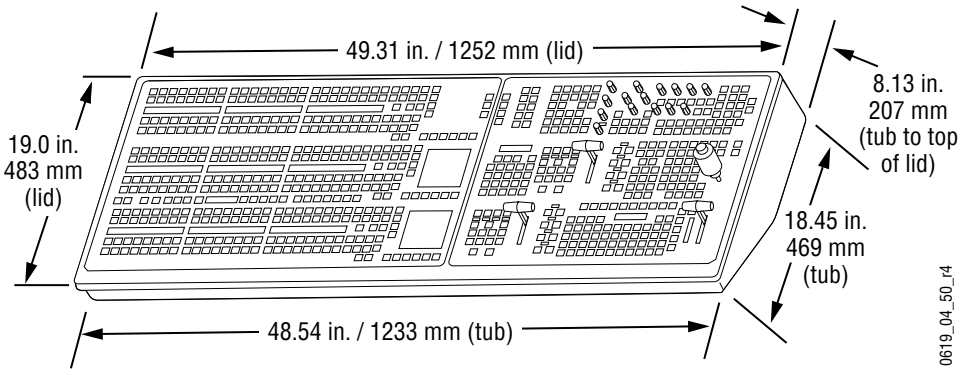
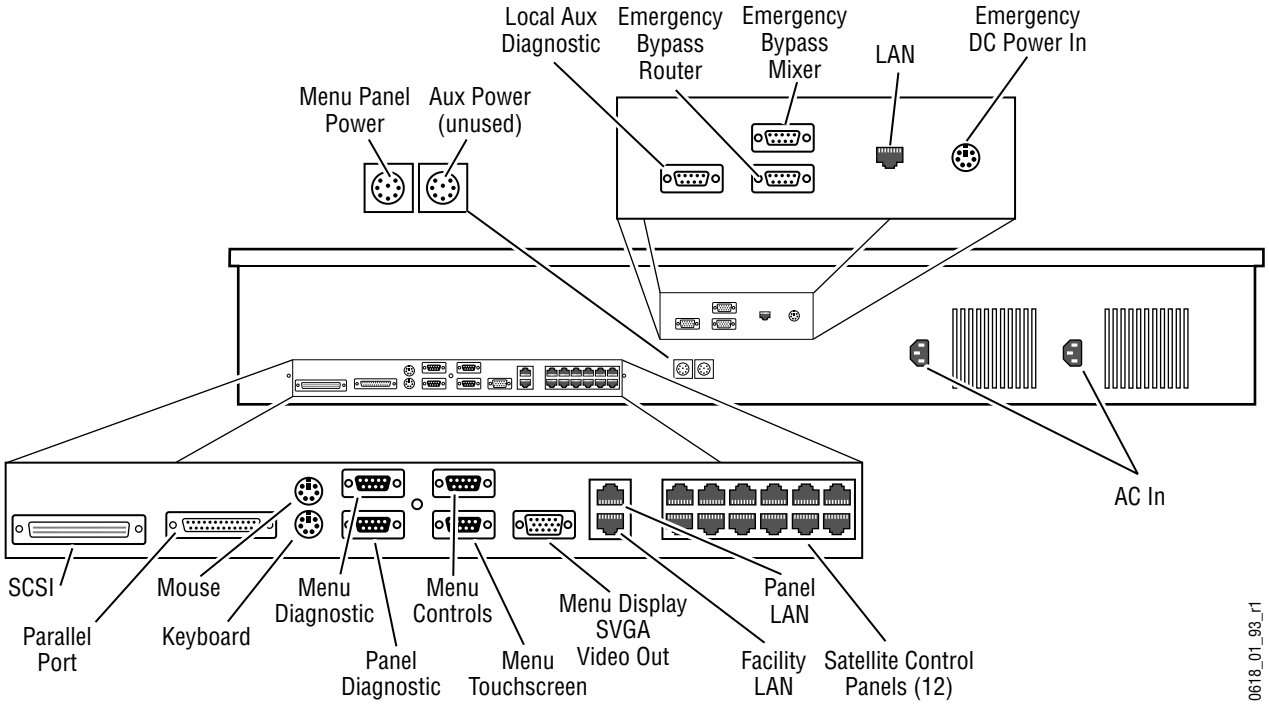
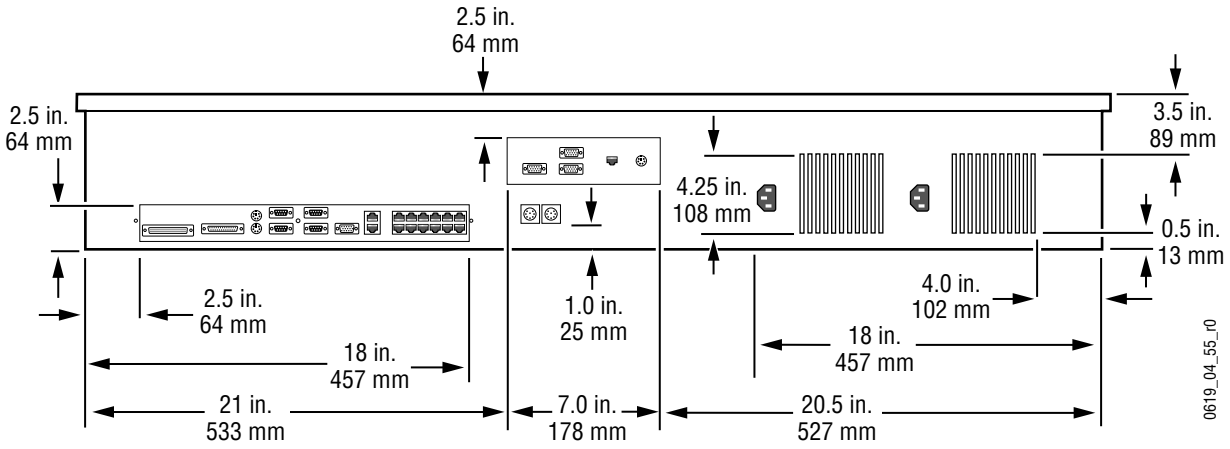


Figure 9. 2-M/E Main Panel Rear View



CAUTION Regardless of mounting method or cutout dimensions, ensure that there is at least 152 mm (6 in.) of clear space at the rear of the Main panel below the mounting surface for proper cable clearance and air flow. Allow an extra 203 mm (8 in.) to 254 mm (10 in.) of mounting surface behind the Main panel for peripheral components.

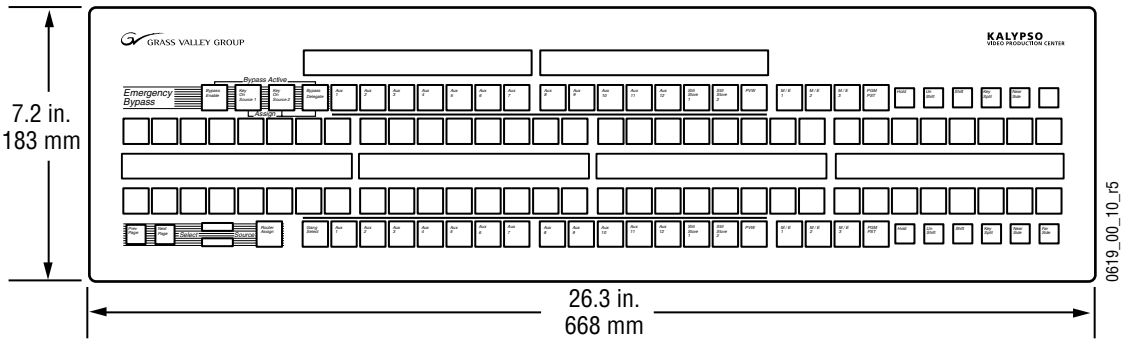
Figure 10. 2-M/E Rear Panel Dimensions



Local Aux Panel

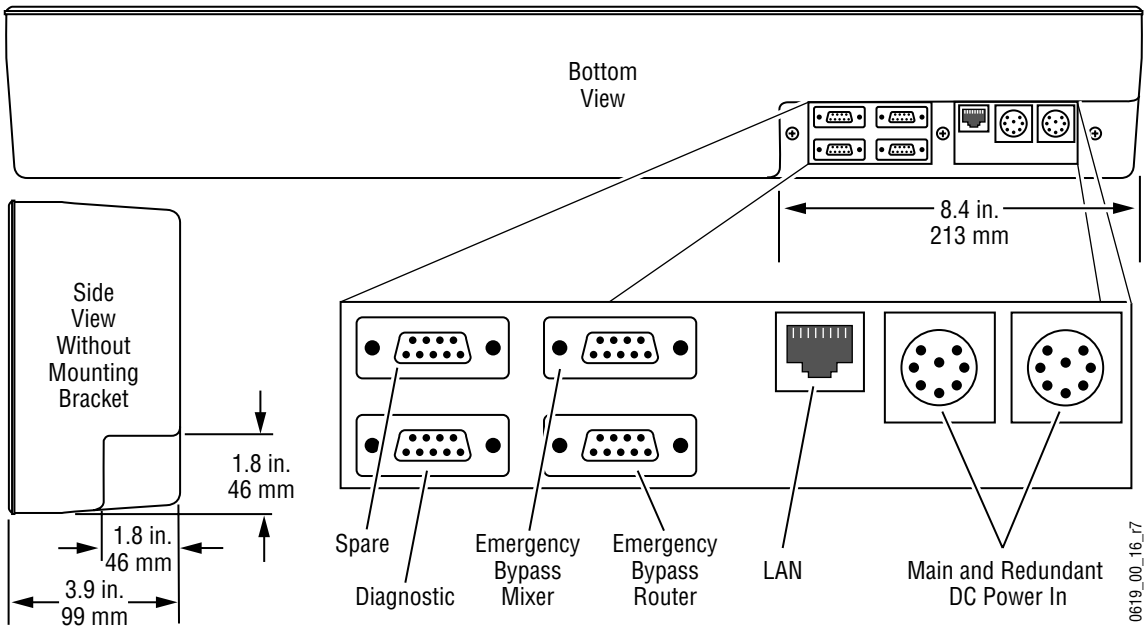
The Local Aux panel (Figure 11) provides control of Kalypso System Aux buses, Still Store source selection, switched preview, and router source selection. The Local Aux Panel has been integrated into the design of the 2-M/E Main panel, so a separate Local Aux panel is not provided with 2-M/E systems.

Figure 11. Local Aux Panel Dimensions



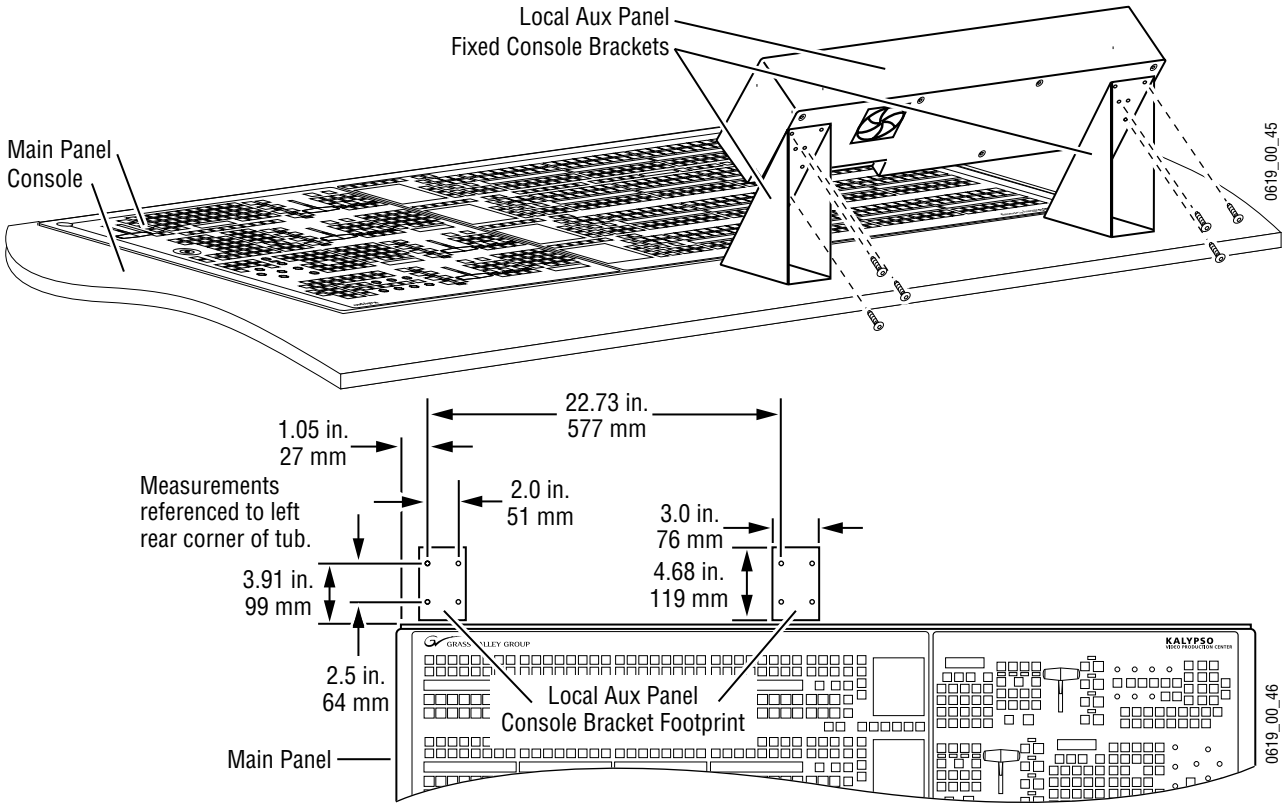
Ports located on the rear of the Local Aux panel (Figure 12) provide connections to the Kalypso Main panel. The Kalypso system may be configured with several other types of Remote Aux panels. Refer to the Kalypso *Ordering Guide* for more information on these panels.

Figure 12. Local Aux Panel Connections



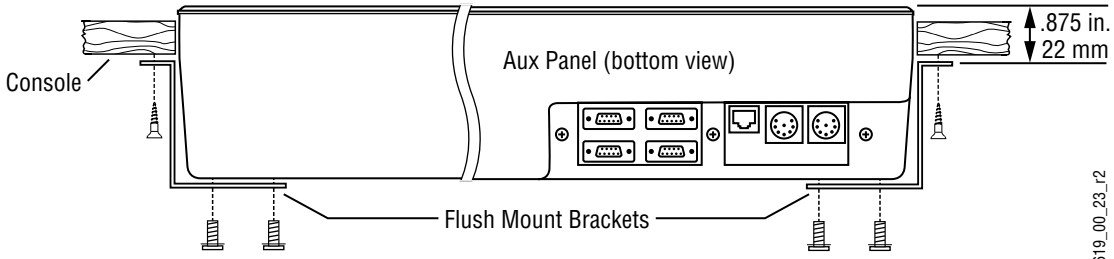
Console mounting brackets ship with the Local Aux panel. Figure 13 provides guidance for mounting the Local Aux panel on its console brackets so that its Source Selection buttons align with those on the 4-M/E Main panel.

Figure 13. Recommended Bracket Placement for Console Mounting Local Aux Panel

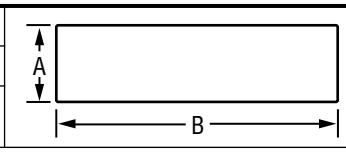


As an alternative to the console surface mount brackets shown above, the optional flush mount brackets depicted in Figure 14 provide console flush mount capability.

Figure 14. Local Aux Panel Console Flush Mount

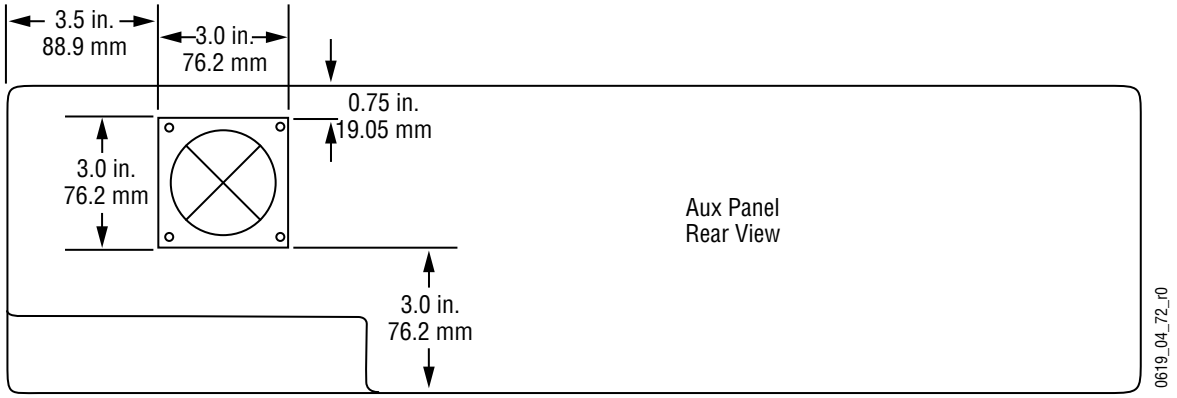


Aux Panel Console Cutout Dimensions	
A	**B**
7.32 in. (186 mm)	26.42 in. (671 mm)



When flush mounting the Local Aux panel, leave the area near the fan open for cooling (Figure 15).

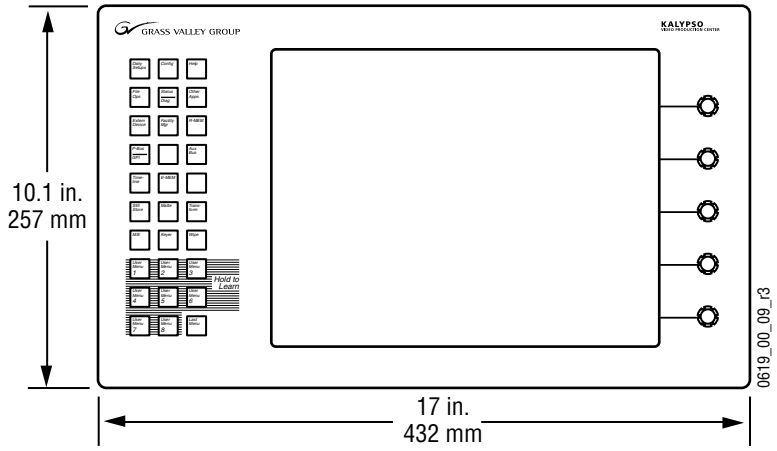
Figure 15. Local Aux Panel Fan Position



Menu Panel

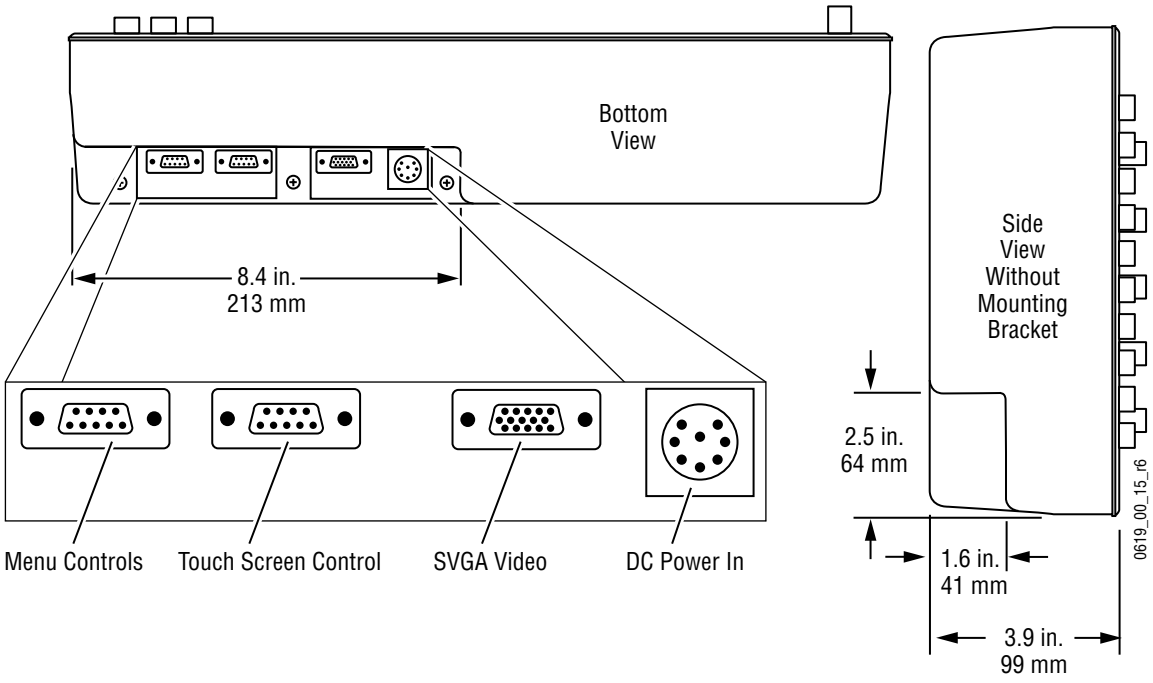
The Menu panel includes a touch screen display, buttons for accessing menus, and knobs for adjusting parameter values (Figure 16).

Figure 16. Menu Panel Dimensions



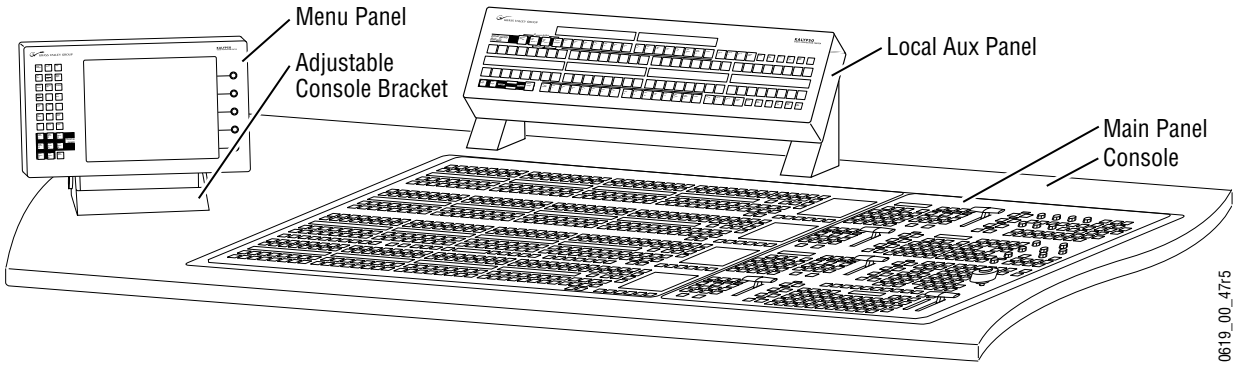
Ports located on the rear of the Menu panel (Figure 17) provide connections to the Kalypso Main panel.

Figure 17. Menu Panel Connections



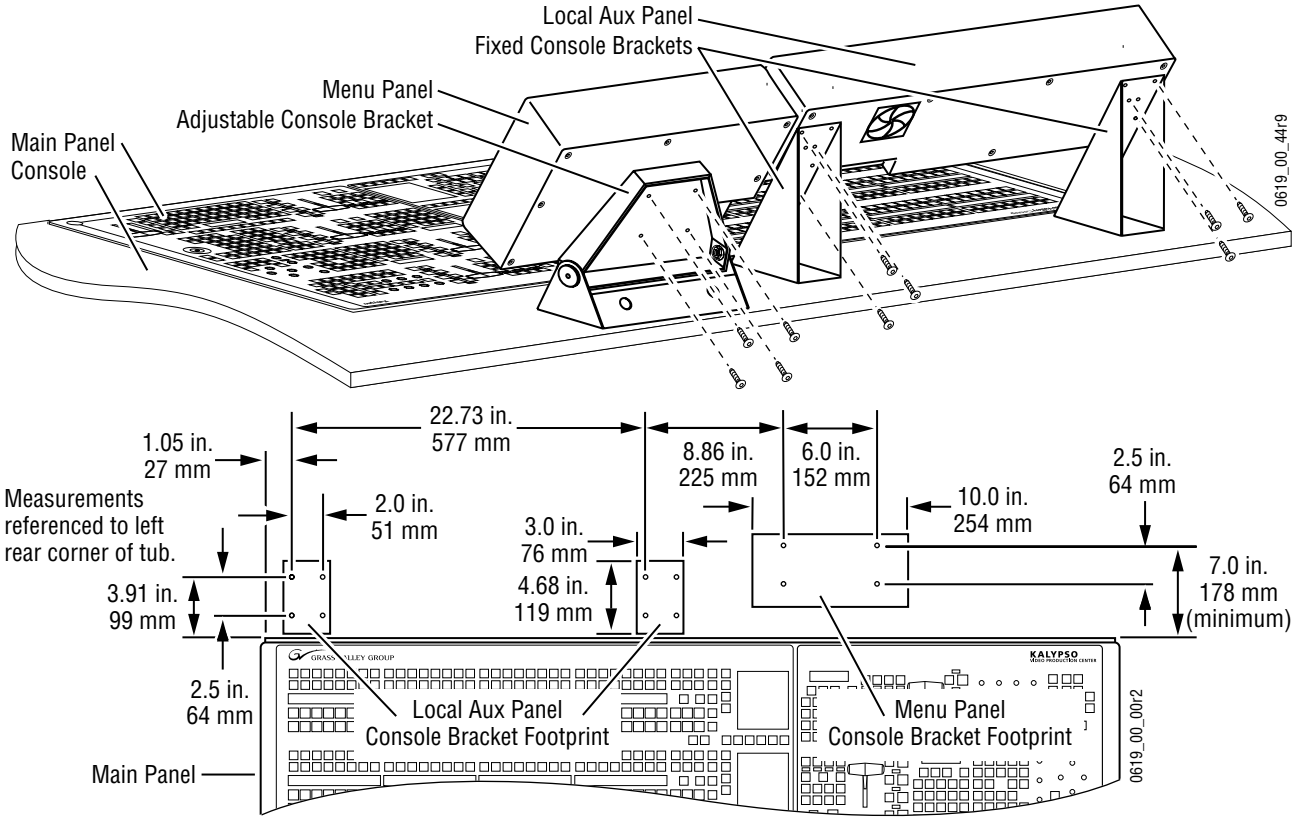
The recommended mounting location for the Menu panel is to the left or right of the Main panel (refer to Figure 18). This provides the most comfortable reach to the touch screen and soft knobs, and also clears the splash area for better viewing of monitors beyond the Main panel.

Figure 18. Recommended Menu Panel Mounting Location



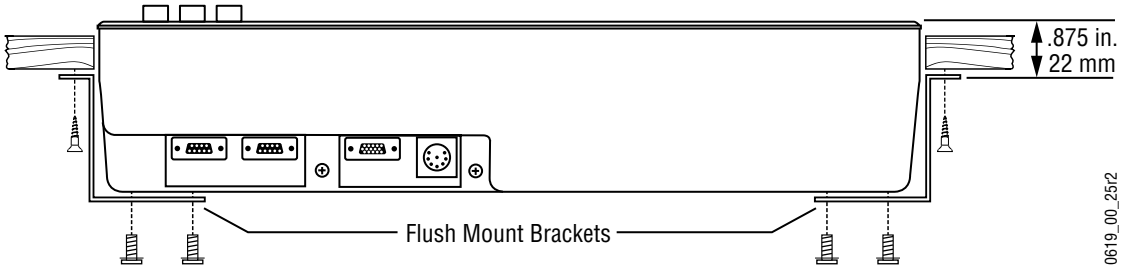
The adjustable console mounting bracket that ships with the Menu panel also allows it to be mounted above the Main panel as shown in Figure 19.

Figure 19. Optional Placement of Menu Panel

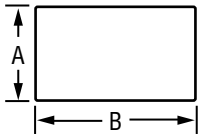


Utilizing the optional flush mount brackets depicted in Figure 20, the Menu panel can be mounted in a console, tabletop, splash panel, or standard 19 in. (483 mm) rack. When considering mounting options, remember that the optimum viewing angle is 90 degrees in both the horizontal and vertical planes. The upright console bracket and an adjustable version of the flush mount brackets allow the Menu panel to be tilted vertically for optimum viewing.

Figure 20. Menu Panel Console Flush Mount



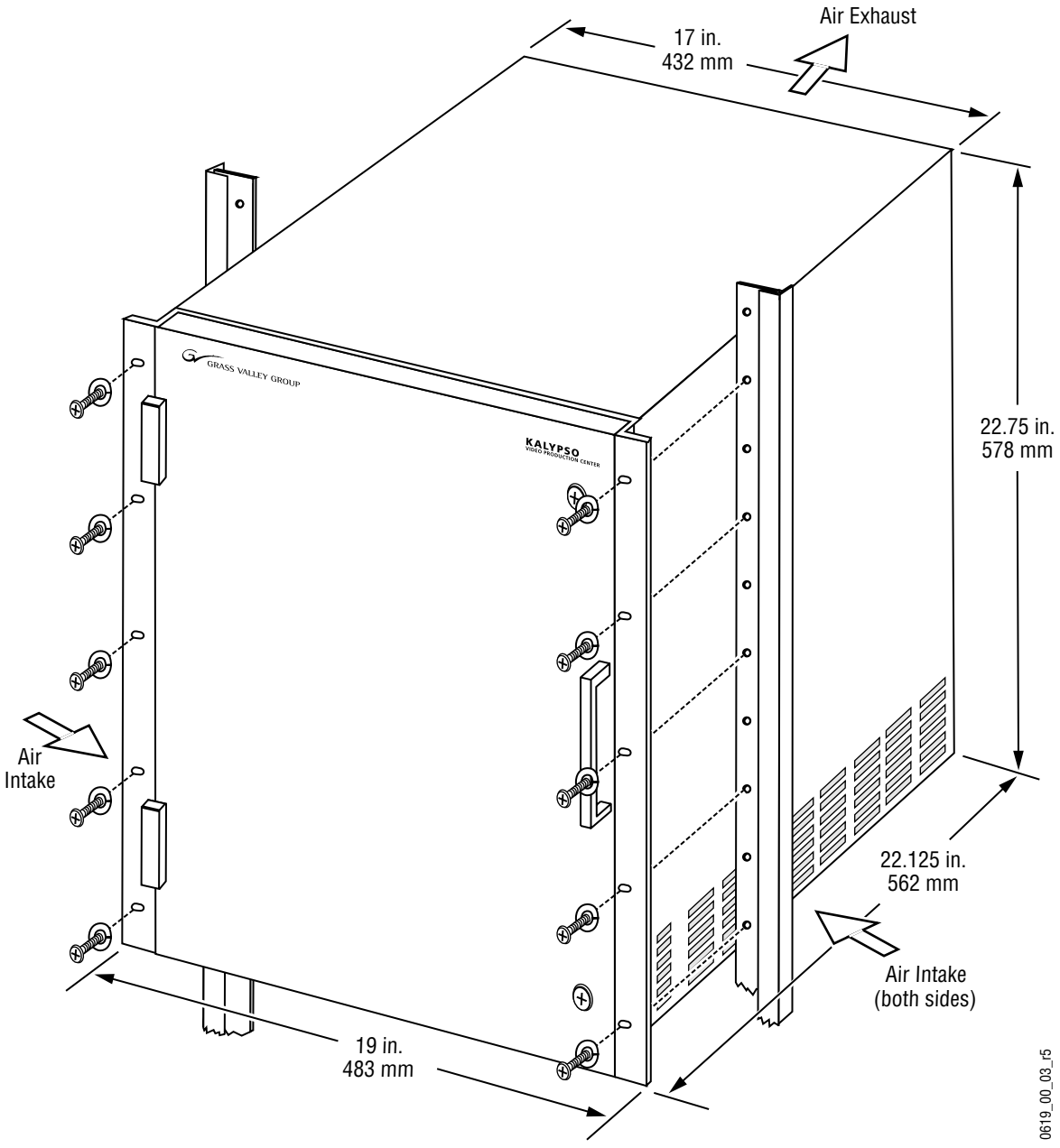
Menu Panel Mounting Option	Cutout Dimensions	
	A	B
Flush Mount, Fixed	10.22 in. (260 mm)	17.22 in. (437 mm)
Flush Mount, Adjustable	Depends on desired adjustability.	



Video Processor

The Kalypso Video Processor is a 13 rack unit chassis which mounts in a standard 483 mm (19 in.) rack (Figure 21). It has a built-in cooling system consisting of a fan/plenum mounted in the upper section of the frame, and an air filter in the lower section. Cooling air is drawn in at the lower sides of the frame, up through the filter and modules, then expelled out the back of the fan/plenum unit.

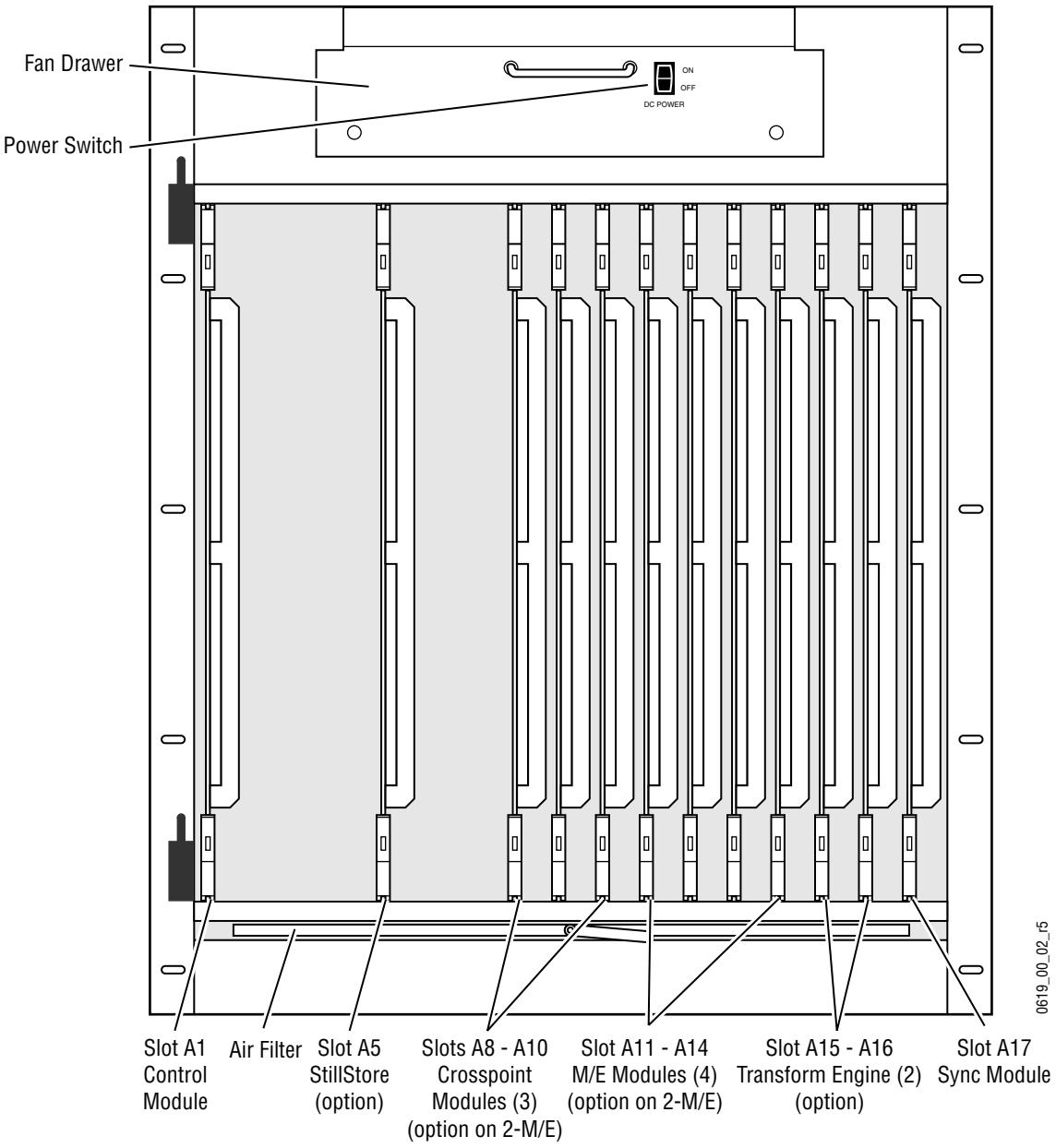
Figure 21. Video Processor Rack Installation



The Kalypso Video Processor has front and rear bays. The front bay (Figure 22) provides access to the Fan Drawer, Air Filter, and removable modules such as the Control, Sync, Crosspoint, and M/E modules.

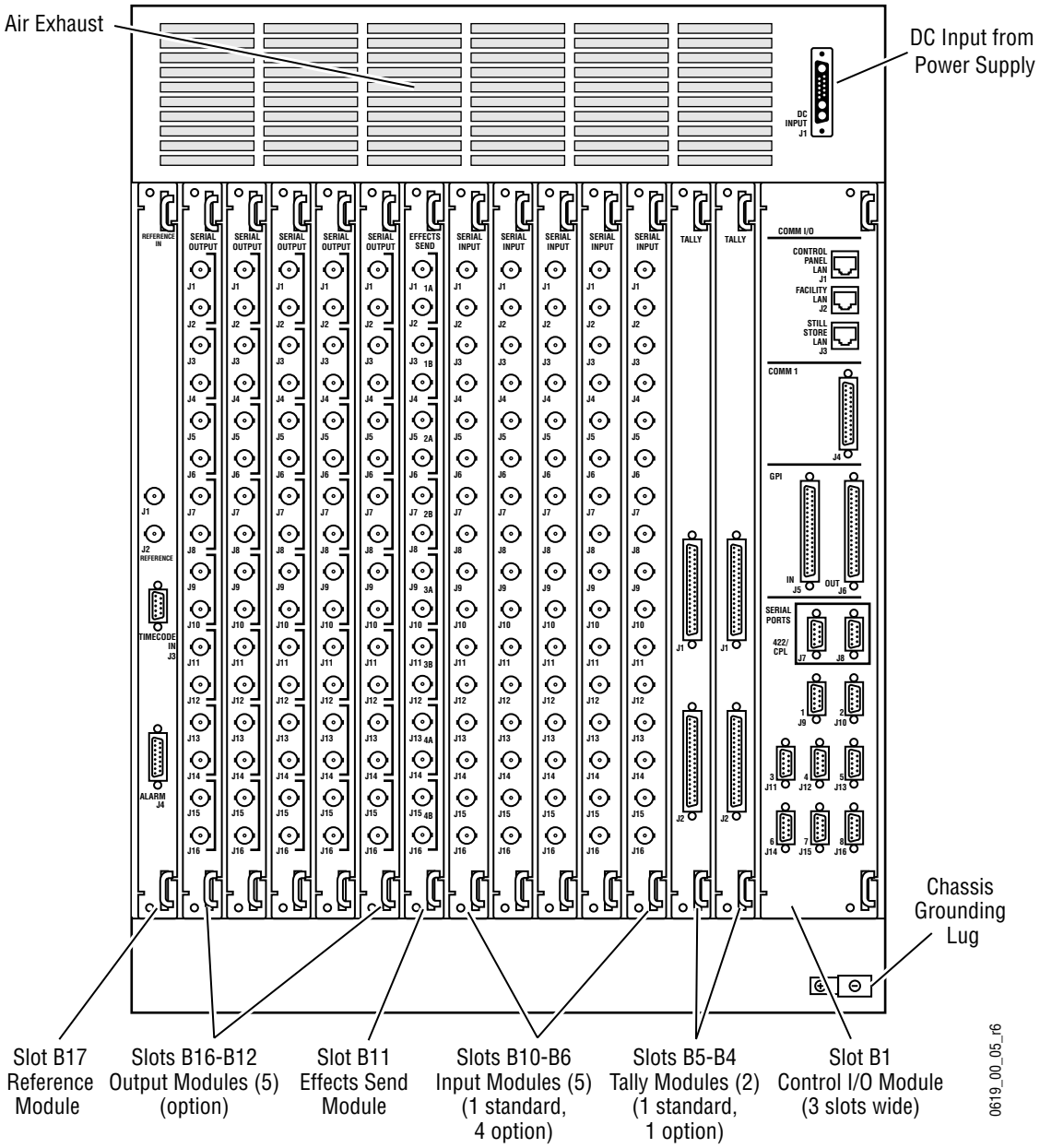
CAUTION For clarity, the Kalypso Video Processor is shown below with the front door removed. The front door must remain in place and closed during normal system operation to maintain maximum cooling efficiency.

Figure 22. Video Processor Front Bay View



Power, control, and video connections are made at the rear of the video processor. Figure 23 shows a fully loaded rear bay. Some of the modules shown are optional and may not be included in your system configuration.

Figure 23. Video Processor Rear Bay View



Video Processor Options

Table 1 lists the plug-in modules that may be purchased as options.

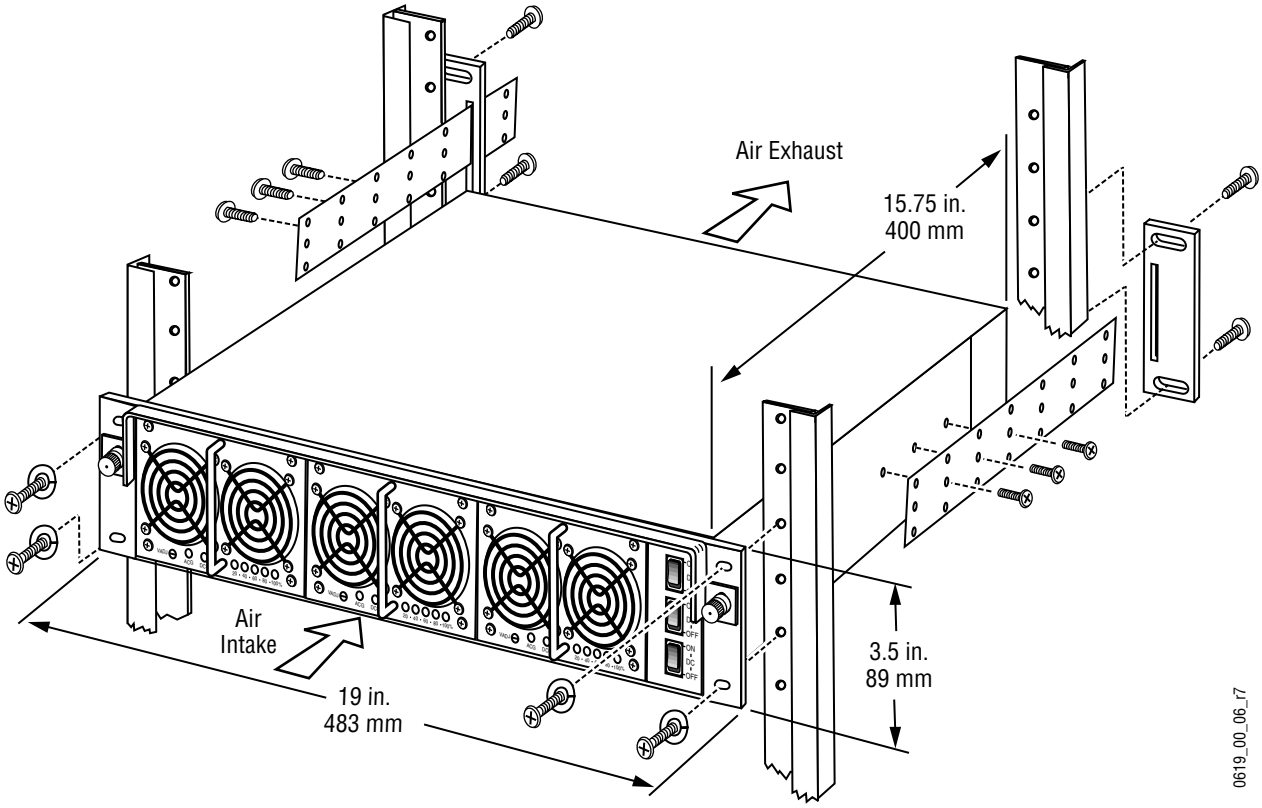
Table 1. Video Processor Module Options

Option Name	Hardware Location (Frame Front/Rear)	Description
Transform Engine	Front, Slot 15 and/or 16	Each option module contains three transform engines.
Stillstore	Front, Slot 5	Option includes 2 inputs, 8 outputs. Storage for 100 + frames, hard drive storage for thousands of frames, and animation capability.
Tally	Rear; either Tally slot indicated in Figure 23 may be used.	One Tally Module is standard and one may be added as an option. The standard module provides tally relay closures 1 through 64. The optional module provides tally relay closures 65 through 128. Two levels of tally per module allowed.
Input Options	Rear; any of the Input Module slots indicated in Figure 23 may be used.	One Input Module is standard. Up to four optional Input Modules may be added.
Output Options	Rear; any Output Module slot indicated in Figure 23 may be used.	Up to five optional Output Modules may be installed. (The Effects Send Module, which is standard, may be used as an Output Module for up to eight outputs.)

Video Processor Power Supply

The Kalypso Video Processor Power Supply is rack-mountable, occupying 2 rack units (Figure 24). It is separate from the Video Processor and has its own cooling fans.

Figure 24. Video Processor Power Supply Installation

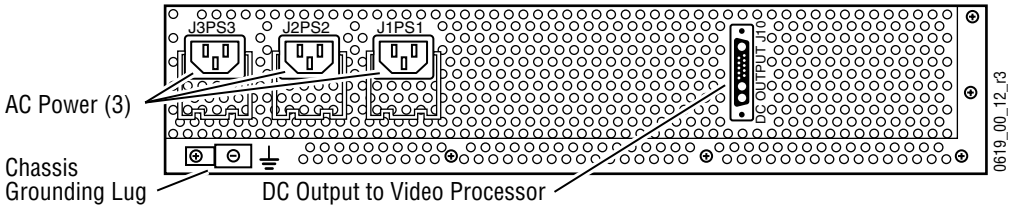


The power supply can contain up to three slide-in modules rated at 1000 watts each. Two power supply modules are required to run the system. An optional third module may be added to provide redundant power. With three modules installed, one module can fail without causing system failure. Modules are hot-swappable and current sharing. It is recommended that each module's AC input be connected to a separate AC supply circuit. Any module(s) for which a separate supply circuit is not available should be connected to a UPS.

A blank module must be installed in the empty slot when the power supply frame is not fully populated with three power modules. Every Kalypso power supply is shipped with one blank power module for this purpose, regardless of whether two or three power modules are ordered.

An included 1 m (3.28 ft) interconnecting DC power cable allows the Video Processor Power Supply to be installed either above or below the Video Processor frame. All power connections are located at the rear of the power supply (Figure 25).

Figure 25. Video Processor Power Supply Rear View



Optional Remote Aux Panels

Remote Aux panels control Kalypso aux buses from remote locations. Three 24-Crosspoint and two 32-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.*

24-Crosspoint Remote Aux Panels

These 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 26 through Figure 28). 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 29 on page 18.

Figure 26. KAL-24AUX1 (1 RU) Remote Aux Panel

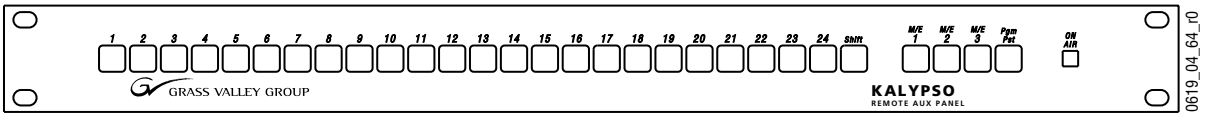


Figure 27. KAL-24AUX2 (2 RU) Remote Aux Panel

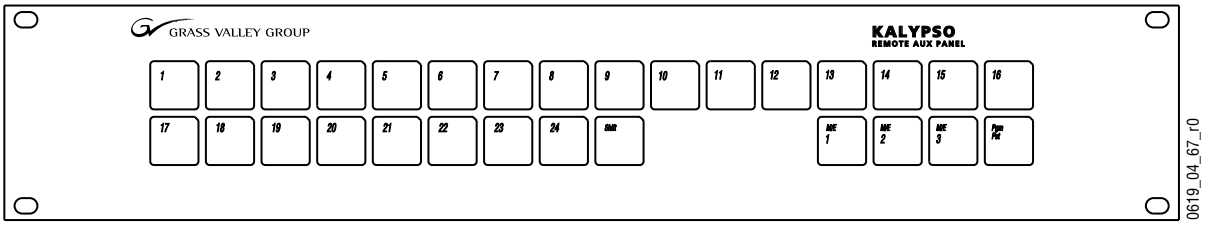
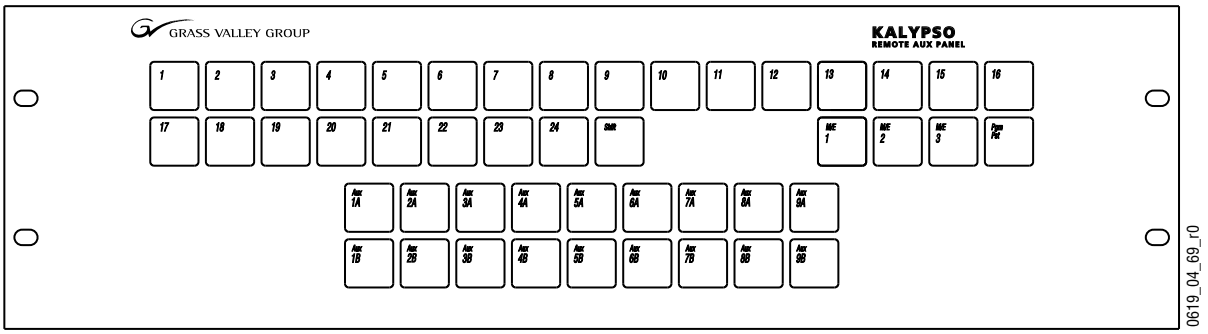


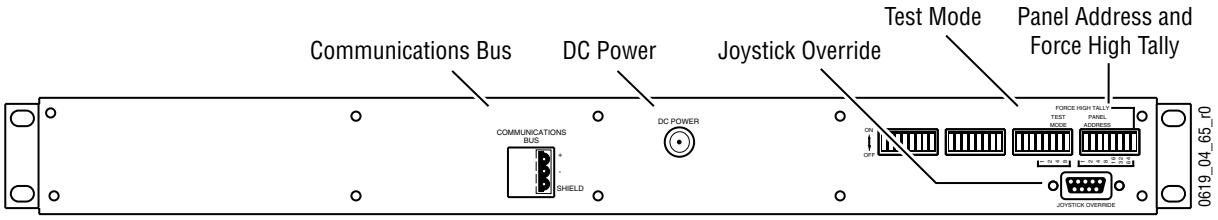
Figure 28. KAL-24AUX3 (3 RU) Remote Aux Panel



24-Crosspoint Remote Aux Connections

The 24-Crosspoint Remote Aux rear panels have connectors for Communications Bus, DC power, and Joystick Override (Figure 29).

Figure 29. KAL-24AUX1 (1 RU) Remote Aux Panel Rear

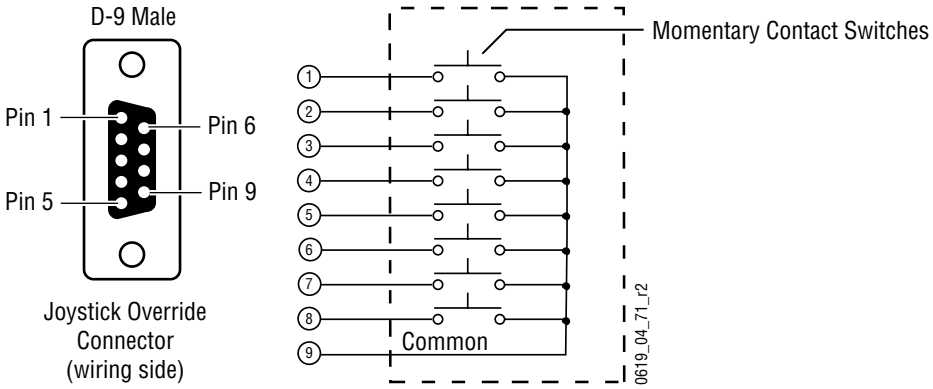


Note The rear panel layout is the same for all KAL-24 Remote Aux panels.

Joystick Override

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 joystick override cable. Refer to Figure 30 for connector wiring.

Figure 30. KAL-24AUX Joystick Override Connector Cable Wiring



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 31). 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 2 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). Allow enough cable to reach each control panel connector, plus about 1 m (~ 3 ft) extra.

Figure 31. 24-Crosspoint Remote Aux Panel Communications Bus Connector

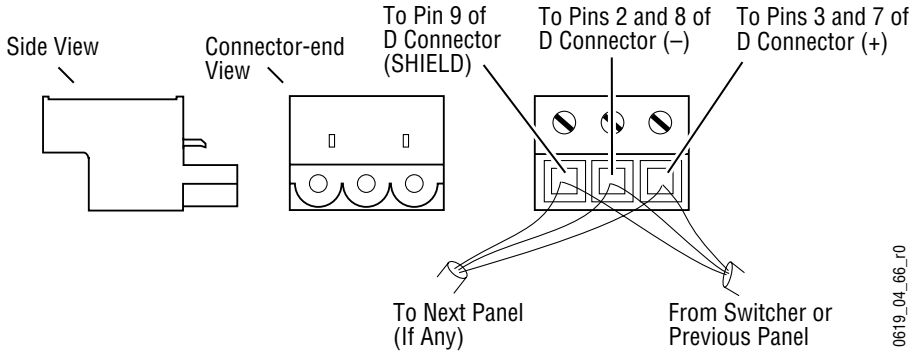


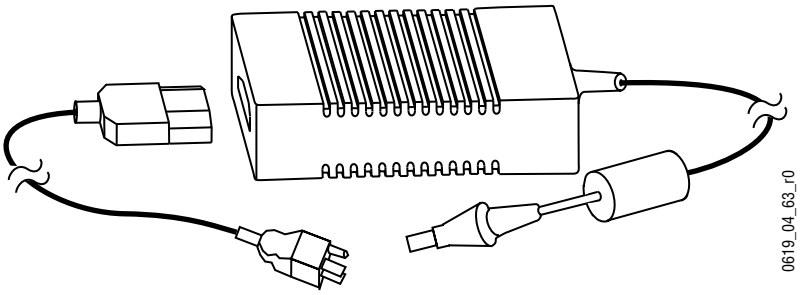
Table 2. Cable Polarity

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

AC Power Supply

The 24-Crosspoint Remote Aux panel power supply (Figure 32) 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 32. 24-Crosspoint Remote Aux Panel Power Supply



32-Crosspoint Remote Aux Panels

These panels are designed to control 64 external sources (32 unshifted and 32 shifted). The number of 32-Crosspoint Remote Aux panels that can be network connected to the 4-M/E or 2-M/E electronics frame is unlimited. Two 32-Crosspoint Remote Aux panel configurations are available, identified by the number of rack units (RUs) each occupies in the equipment rack (see Figure 33 and Figure 34). Both panels have the same connector and DIP switch layout as that depicted for the KAL-32AUX1 in Figure 35 on page 21.

The 1 RU panel (KAL-32AUX1) is dedicated to a single bus. The 2 RU panel (KAL-32AUX2) panel has 16 bus delegate buttons.

Figure 33. KAL-32AUX1 (1 RU) Remote Aux Panel

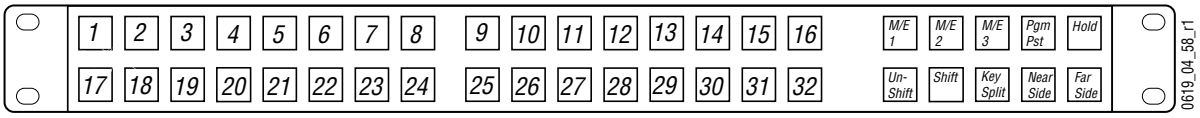
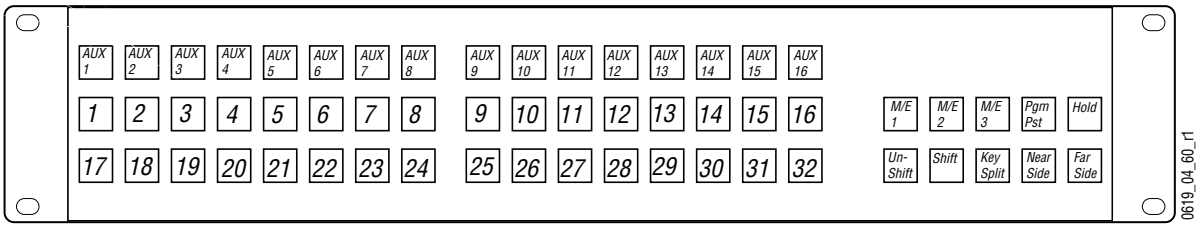


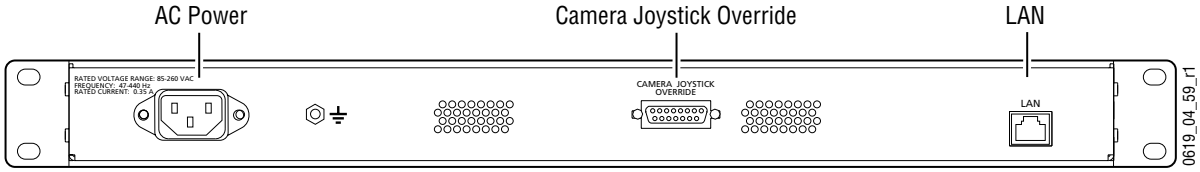
Figure 34. KAL-32AUX2 (2 RU) Remote Aux Panel



32-Crosspoint Remote Aux Connections

The 32-Crosspoint Remote Aux rear panels have connectors for AC power, Camera Joystick Override and LAN (Figure 35).

Figure 35. KAL-32AUX1 (1 RU) Remote Aux Panel Rear View



Note The rear panel layout is the same for both KAL-32 Remote Aux panels.

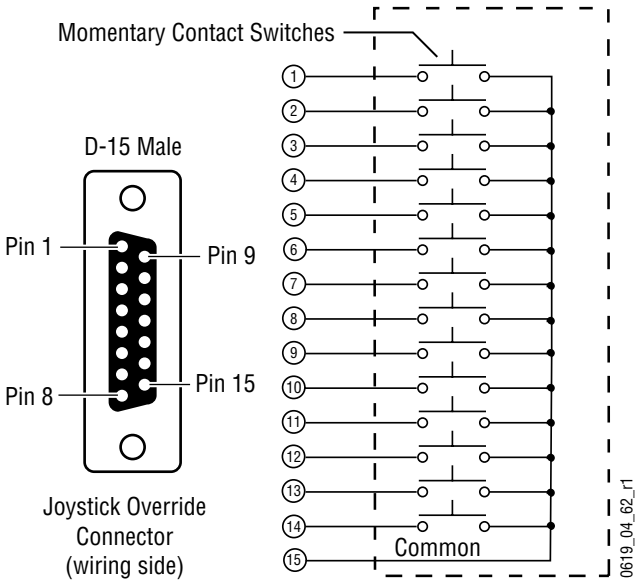
LAN

The 32-Crosspoint Remote Aux panels employ Ethernet network configuration. Refer to *Ethernet Switches and Hubs* *on page 25* for information on system topography.

Camera Joystick Override

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 joystick override cable. Refer to Figure 36 for connector wiring.

Figure 36. Joystick Override Connector Cable Wiring



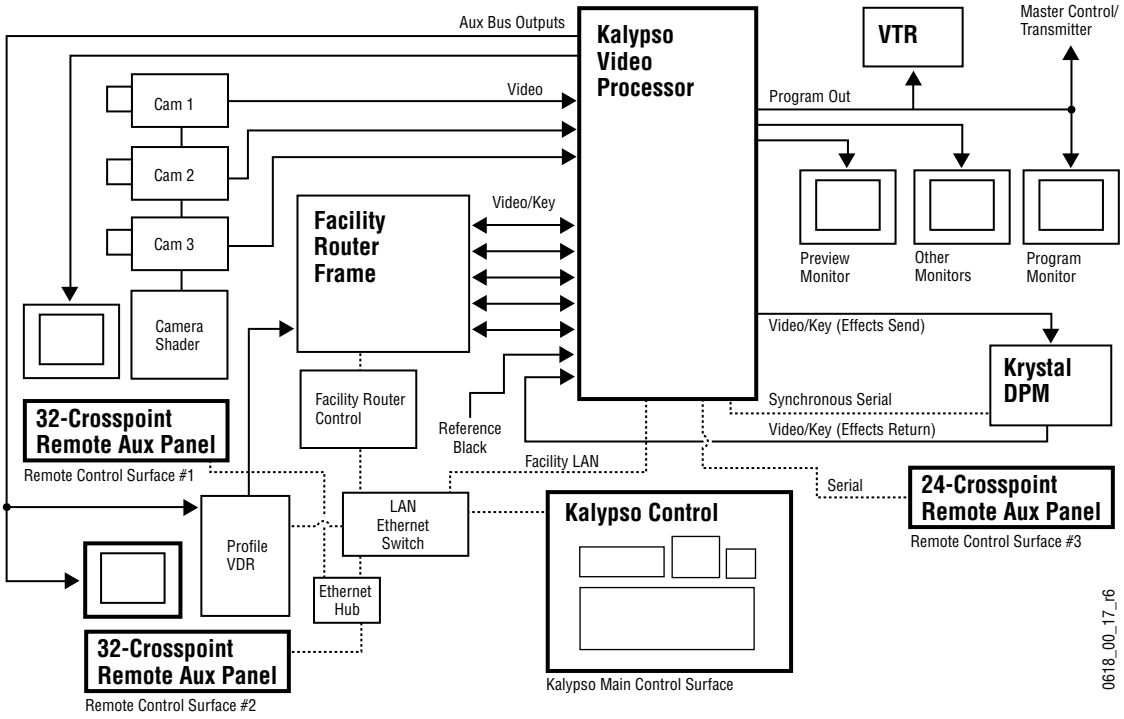
AC Power

The 32-Crosspoint Remote Aux panels have internal power supplies which connect directly to facility AC power by supplied line cords.

Typical Kalypso System Video Cabling

Typical Kalypso system connections are shown in Figure 37. Different video and control wiring configurations may be used to meet individual facility requirements. All Kalypso system video inputs and outputs are configurable. Each input can be mapped to any Kalypso panel source select button, and any Kalypso system video signal can be mapped to any pair of output connectors.

Figure 37. Typical Kalypso System

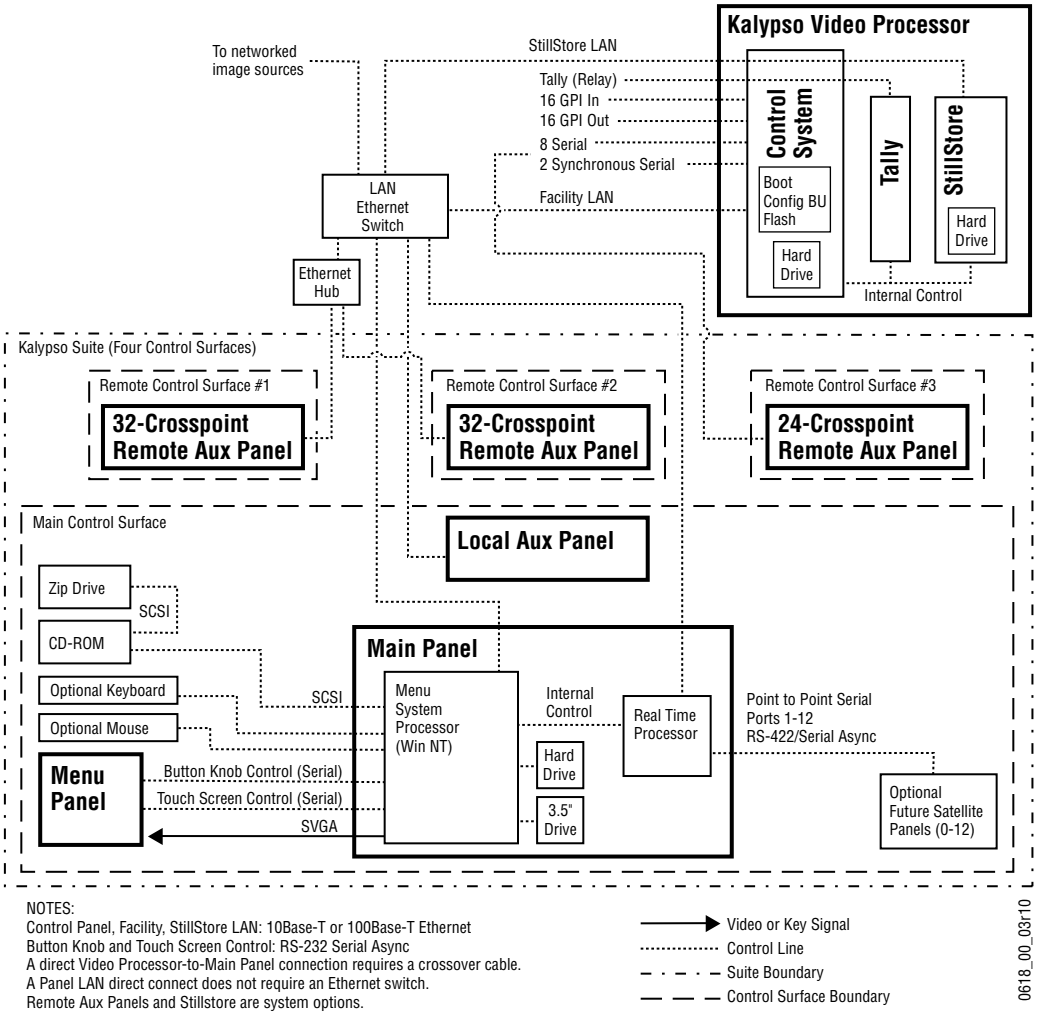


Kalypso System Control Cabling

The Kalypso system uses Ethernet, serial, parallel, and SCSI control. Tally and GPI control are also available (see Figure 38). Refer to Table 3 for a list of supplied cables.

4-M/E Kalypso System

Figure 38. Typical 4-M/E Kalypso System Control



2-M/E Kalypso System

Figure 39. Typical 2-M/E Kalypso System Control

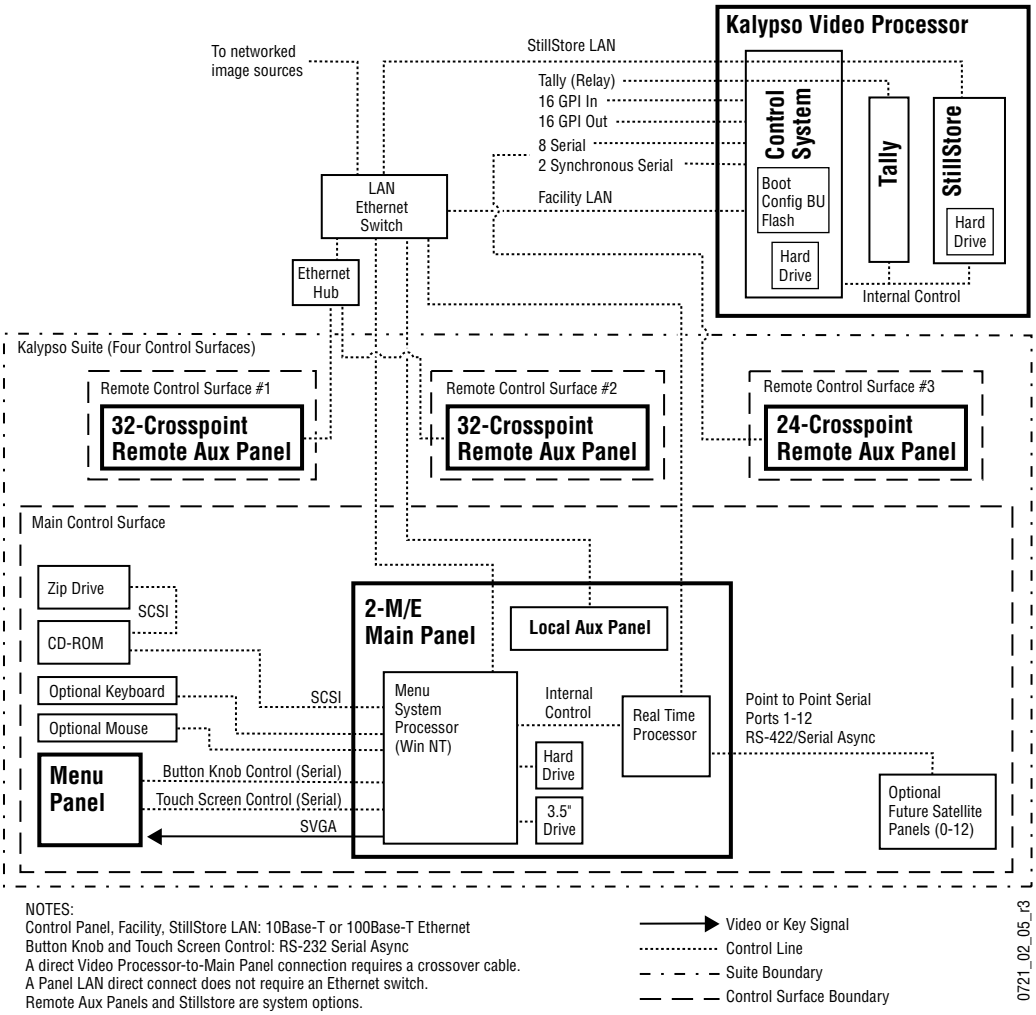


Table 3. Supplied Cables

Cable	Description	Quantity	Part Number
AC Power Supply Cable	AC line cord kit	1	650-4175-00
Main Panel to Local Aux Panel DC power[1]	8-pin DIN, male-to-male, 0.61 m (2 ft)	1	174-4447-00
Main Panel to Menu Panel DC power	8-pin DIN, male-to-male, 3 m (10 ft)	1	174-4447-10
Main Panel to Menu Panel SVGA	15-pin D connector, male-to-male, 3 m (10 ft)	1	174-4437-00
Main Panel to Menu Panel RS-232	9-pin D connector, male-to-female, 3 m (10 ft)	2	174-4438-00
Main Panel to CD-ROM SCSI-3 to SCSI-2	68-pin to 50-pin D connector, male-to-male, 3 m (10 ft)	1	174-8048-00
CD-ROM to ZIP 250 SCSI	50-pin to 25-pin D connector, male-to-male, 0.91 m (3 ft)	1	174-8059-00

[1] Cable factory installed inside Main Panel on 2-M/E systems.

LAN Requirements

The Kalypso system requires an Ethernet Local Area Network (LAN). The Video Processor frame, Main panel, Local Aux and Menu panels, StillStore option, remote Aux panels and Omnibus devices are all connected via an appropriately sized Ethernet switch (refer to Figure 40, Figure 41 and Figure 42).

Note Ethernet hubs are not acceptable for the main Kalypso Ethernet interconnect. Use of a hub instead of a switch may cause sluggish responses to panel button presses and erratic lever arm motion. Connect all Kalypso nodes to the same switch to avoid sluggish or erratic response. An existing facility Ethernet switch (not hub) can support Kalypso if an adequate number of ports are available.

Refer to Table 4 for Ethernet specifications.

Note All Ethernet components must be supplied by the customer.

Table 4. Ethernet Specifications

Cables	**Type**	10Base-T and 100Base-T compatible. Category 5 cable, 8 conductor twisted pair.
	Connectors	RJ-45 male connector at each end of cable.
	Length[1]	10Base-T: 300 m (984 ft) maximum. 100Base-T: 100 m (328 ft) maximum.
Switch	**Speed**	Dual: 10 and 100 Mb
	Ports	RJ-45 auto-negotiating 10/100 Mb; number of ports required is dependent upon system size.
	Unmanaged	Recommended. Configuration not required, but do not provide remote monitoring capability.
	Managed	May be used. Require configuration, but offer remote monitoring capability.

[1] Use a hub when necessary to exceed maximum cable runs.

Ethernet Switches and Hubs

Kalypso components rely primarily on Ethernet switches for LAN interconnects. Remote Auxiliary panels may be connected directly to the Kalypso switch, or through an Ethernet hub. A hub is required only if there is a need to exceed 100 m (328 ft) between the Main panel and Video Processor (refer to Figure 41 and Figure 42). If a hub is used, connect hub to switch via the Uplink port, or through a peer-to-peer crossover cable. Reserve a port on Kalypso's Ethernet switch if you will be utilizing an Omnibus hub or switch (refer to Figure 41).

Note The number and type of components in your Kalypso system determines the size of the switch (number of ports) required. Refer to the following examples of system topography and the accompanying worksheet to determine the number of ports required for your system.

Figure 40. Example Topography Requiring an Eight Port Ethernet Switch

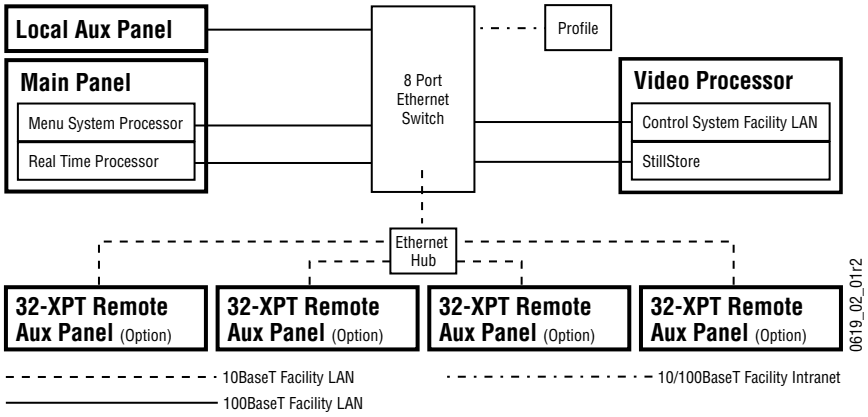


Figure 41. Example Topography Requiring a Fourteen Port Ethernet Switch

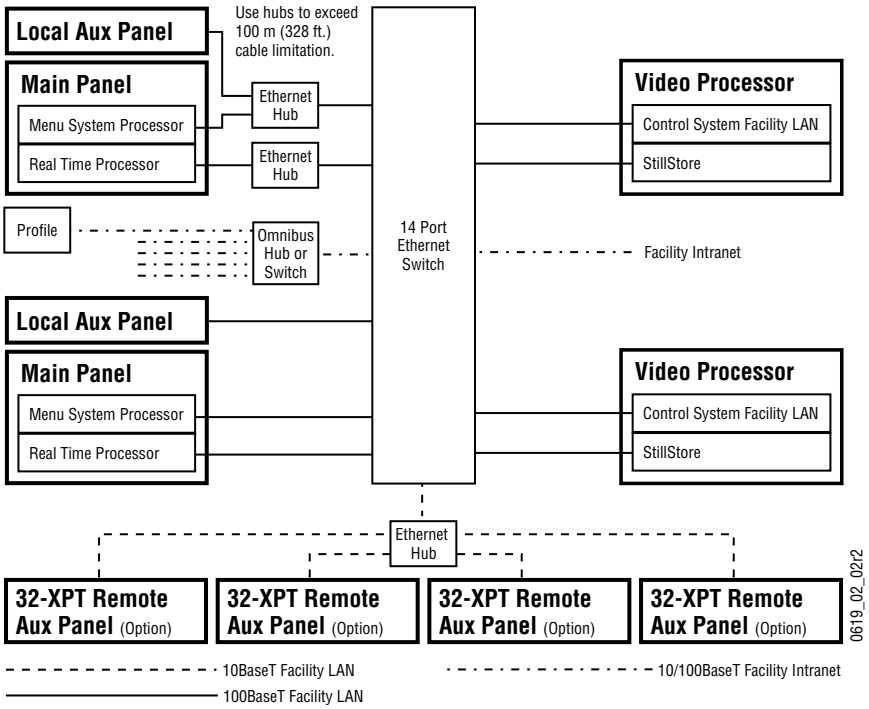
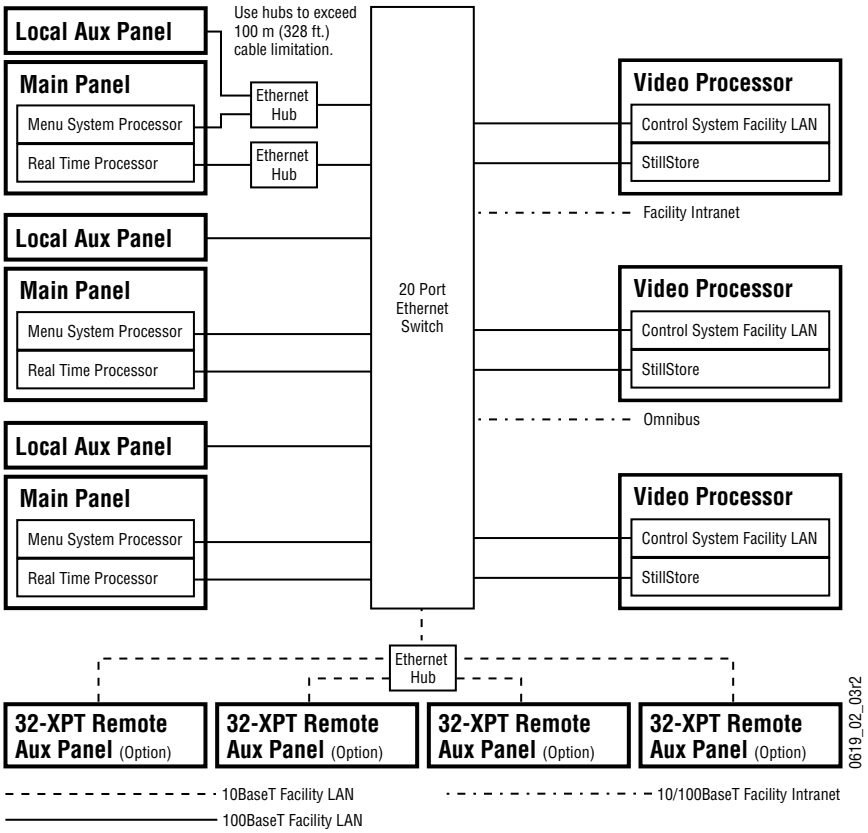


Figure 42. Example Topography Requiring a Twenty Port Ethernet Switch



System Component	Ports Required		Number of Components		
Frame	3	x		=	
Main Control Panel	1	x		=	
Local Auxiliary Panel	1	x		=	
Menu Panel	1	x		=	
Facility Intranet	1	x		=	
Omnibus[1]	1	x		=	
Profile[2]	1	x		=	
Remote Aux Panel Hub	1	x		=	
				Total Number of Ports Required:	

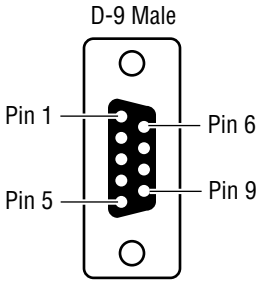
[1] An Omnibus system will typically have a switch or hub which connects all Link boxes, Profiles and Omnibus control panels and managers. One port on the Omnibus switch will connect to the Kalypso switch via a peer to peer (crossover) cable.

[2] It is not necessary to count Profiles which are part of an Omnibus system. Connect Profiles directly to the Kalypso switch in small systems which have no other Omnibus components.

Pinouts

Main Control Panel

Table 5. Console Ports

Console Ports	Pin	Menu Proc. Com 1, Menu Proc. Com 2, Menu Proc. Com 3, Real Time Proc. Com 2
	1	DSD
	2	RXD
	3	TXD
	4	DTR
	5	Chassis Ground
	6	DSR
	7	RTS
	8	CTS
	9	Reserved

Video Processor

Communications I/O Module

Table 6. RS-232 Port

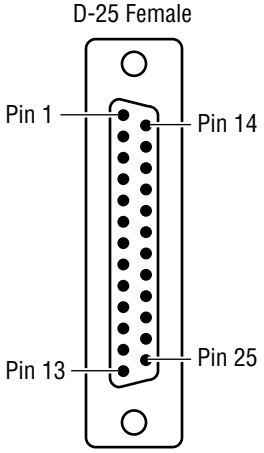
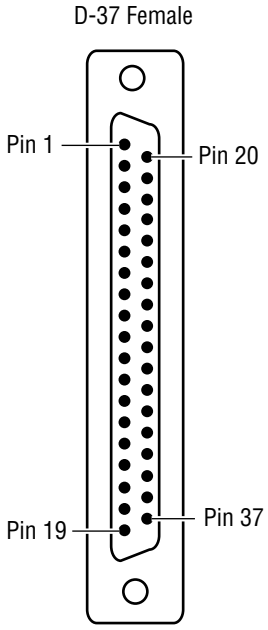
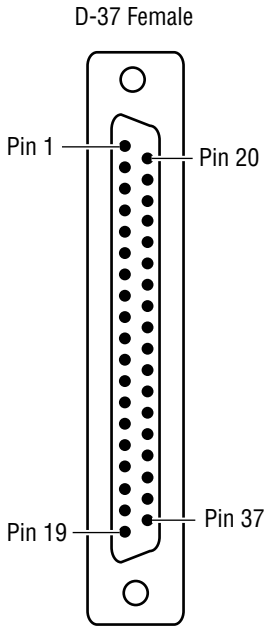
COM1 Port - J4	Pin	Function	Pin	Function
	1	Chassis Ground	14	–
	2	RXD	15	–
	3	TXD	16	–
	4	RTS	17	–
	5	CTS	18	–
	6	DSR	19	–
	7	Chassis Ground	20	DTR
	8	DCD	21	–
	9	–	22	–
	10	–	23	–
	11	–	24	–
	12	–	25	–
	13	–		

Table 7. GPI Inputs

GPI Inputs Port – J5	Pin	Function	Pin	Function
	1	Chassis Ground	20	IN 1 B
	2	IN 1 A	21	IN 2 B
	3	IN 2 A	22	IN 3 B
	4	IN 3 A	23	IN 4 B
	5	IN 4 A	24	Chassis Ground
	6	IN 5 A	25	IN 5 B
	7	IN 6 A	26	IN 6 B
	8	IN 7 A	27	IN 7 B
	9	IN 8 A	28	IN 8 B
	10	Chassis Ground	29	IN 9 B
	11	IN 9 A	30	IN 10 B
	12	IN 10 A	31	IN 11 B
	13	IN 11 A	32	IN 12 B
	14	IN 12 A	33	Chassis Ground
	15	IN 13 A	34	IN 13 B
	16	IN 14 A	35	IN 14 B
	17	IN 15 A	36	IN 15 B
	18	IN 16 A	37	IN 16 B
	19	Chassis Ground		

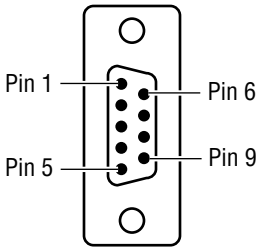
Notes:
Inputs are opto-isolated.
A and B are polarity independent.
Apply from 5 to 24 volts to A and B to turn on.

Table 8. GPI Outputs

GPI Outputs Port – J6	Pin	Function	Pin	Function
	1	Chassis Ground	20	Out 1 B
	2	Out 1 A	21	Out 2 B
	3	Out 2 A	22	Out 3 B
	4	Out 3 A	23	Out 4 B
	5	Out 4 A	24	Chassis Ground
	6	Out 5 A	25	Out 5 B
	7	Out 6 A	26	Out 6 B
	8	Out 7 A	27	Out 7 B
	9	Out 8 A	28	Out 8 B
	10	Chassis Ground	29	Out 9 B
	11	Out 9 A	30	Out 10 B
	12	Out 10 A	31	Out 11 B
	13	Out 11 A	32	Out 12 B
	14	Out 12 A	33	Chassis Ground
	15	Out 13 A	34	Out 13 B
	16	Out 14 A	35	Out 14 B
	17	Out 15 A	36	Out 15 B
	18	Out 16 A	37	Out 16 B
	19	Chassis Ground		

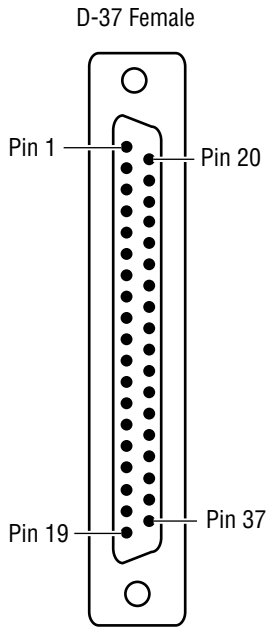
Notes:
Outputs are normally open relay closures between A and B.

Table 9. Serial Ports

RS-422 Ports	Pin	CPL Ports - J7, J8	J9, J10, J11, J12, J13, J14, J15, J16 Serial Ports
	1	Chassis Ground	Chassis Ground
	2	RX -	RX -
	3	TX +	TX +
	4	Chassis Ground	Chassis Ground
	5	–	–
	6	Common	Common
	7	RX +	RX +
	8	TX -	TX -
	9	Chassis Ground	Chassis Ground

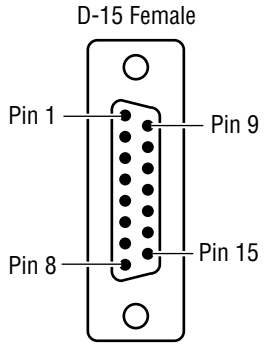
Notes:
For Ports J9 – J16 only: The data directions specified on pins 2&3 and 7&8 as RX and TX may be reversed in software configuration.

Table 10. Tally Ports

Tally Ports	Pin	Tally Module 1 Tally 1-32, J1	Tally Module 1 Tally 33-64, J2	Tally Module 2 Tally 65-96, J1	Tally Module 2 Tally 97-128, J2
	1	Tally 1	Tally 33	Tally 65	Tally 97
	2	Tally 2	Tally 34	Tally 66	Tally 98
	3	Tally 3	Tally 35	Tally 67	Tally 99
	4	Tally 4	Tally 36	Tally 68	Tally 100
	5	Tally 5	Tally 37	Tally 69	Tally 101
	6	Tally 6	Tally 38	Tally 70	Tally 102
	7	Tally 7	Tally 39	Tally 71	Tally 103
	8	Tally 8	Tally 40	Tally 72	Tally 104
	9	Tally 9	Tally 41	Tally 73	Tally 105
	10	Tally 1 0	Tally 42	Tally 74	Tally 106
	11	Tally 11	Tally 43	Tally 75	Tally 107
	12	Tally 12	Tally 44	Tally 76	Tally 108
	13	Tally 13	Tally 45	Tally 77	Tally 109
	14	Tally 14	Tally 46	Tally 78	Tally 110
	15	Tally 15	Tally 47	Tally 79	Tally 111
	16	Tally 16	Tally 48	Tally 80	Tally 112
	17	Tally 17	Tally 49	Tally 81	Tally 113
	18	Tally 18	Tally 50	Tally 82	Tally 114
	19	Tally 19	Tally 51	Tally 83	Tally 115
	20	Tally 20	Tally 52	Tally 84	Tally 116
	21	Tally 21	Tally 53	Tally 85	Tally 117
	22	Tally 22	Tally 54	Tally 86	Tally 118
	23	Tally 23	Tally 55	Tally 87	Tally 119
	24	Tally 24	Tally 56	Tally 88	Tally 120
	25	Tally 25	Tally 57	Tally 89	Tally 121
	26	Tally 26	Tally 58	Tally 90	Tally 122
	27	Tally 27	Tally 59	Tally 91	Tally 123
	28	Tally 28	Tally 60	Tally 92	Tally 124
	29	Tally 29	Tally 61	Tally 93	Tally 125
	30	Tally 3 0	Tally 62	Tally 94	Tally 126
	31	Tally 31	Tally 63	Tally 95	Tally 127
	32	Tally 32	Tally 64	Tally 96	Tally 128
	33	-	-	-	-
	34	-	-	-	-
	35	-	-	-	-
	36	Tally Common Tally 1-32	Tally Common Tally 33-64	Tally Common Tally 65-96	Tally Common Tally 97-128
	37	Chassis Ground	Chassis Ground	Chassis Ground	Chassis Ground

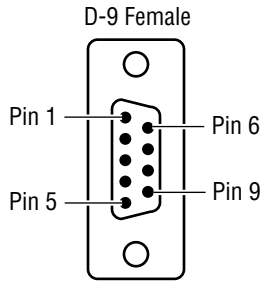
Reference Input Module

Table 11. Alarms

Alarms Port - J4	Pin	Function	Alarm Status		
			Pins	Normal	Alarm
	1	Normally Closed A	1, 3	Closed	Open
	2	Normally Open A	2, 3	Open	Closed
	3	COM A	4, 6	Closed	Open
	4	Normally Closed B	5, 6	Open	Closed
	5	Normally Open B			
	6	COM B			
	7	–			
	8	–			
	9	–			
	10	–			
	11	–			
	12	–			
	13	–			
	14	–			
	15	Chassis Ground			

Notes:
Relay contacts A and B are totally isolated from each other.

Table 12. Linear Timecode

Linear Timecode Port - J3	Pin	Function
	1	–
	2	–
	3	–
	4	Chassis Ground
	5	LTC +
	6	–
	7	Chassis Ground
	8	–
	9	LTC –

Notes:
Currently unused. A time code reference may be supplied as VITC on the reference input or as LTC to this DB-9.

Specifications

Table 13. Kalypso System Specifications

Power		
Video Processor Power Supply		100-240 VAC autorange, 50-60 Hz power factor corrected
Power Consumption		700 W (no options), 850 W (typical), 1200 W (maximum)
Main Panel Power Supply		100-240 VAC autorange, 50-60 Hz power factor corrected
Power Consumption		600 W (typical)
Remote Aux Panel Power Supply		85-264 VAC, 47-63 Hz or 12-370 VDC
Environmental		
Temperature Range	Frame, Local Aux Panel, Menu Panel	Specification: 20° to 30° C (68° to 86° F) Operational: 0° to 40° C (32° to 104° F)
	Main Control Panel	Specification: 20° to 30° C (68° to 86° F) Operational: 0° to 35° C (32° to 95° F)
Relative Humidity		Up to 95% (non-condensing)
Serial Digital Video Inputs		
Number		16 standard, 64 optional, 80 total (non-looping)
Type of Connectors		75 ohm BNC, (SMPTE 259M)
Nominal Amplitude		800 mV peak-to-peak terminated
Return Loss		> 15 dB, 5 MHz to 270 MHz
Channel Coding		Conforms to SMPTE RP-259M
Ancillary Data		Ancillary Data is blanked or passed from A background to M/E outputs (includes reentries)
Input Impedance		75 ohm
Autotiming Range		± 10 microsecond
Maximum Cable Length Equalized (Belden 8281 type cable)		225 m (738 ft)
Number of Bits		10
Serial Digital Video Outputs		
Number		8 standard video (2 connectors each), or up to 4 video/key pairs of Effects Send. An additional 40 standard video (2 connectors each) are optional.
Type of Connectors		75 ohm BNC, self terminating (SMPTE 259M)
Amplitude		800 mV peak-to-peak across 75 ohm ± 10% (SMPTE 259M)
Return Loss		> 15 dB, 5 MHz to 270 MHz
Rise and Fall Times (between 20% and 80% amplitude points)		Between 400 picosecond and 1.5 nanosecond across 75 ohm termination
Jitter		Timing of rising edges of data signal shall be within ± 0.25 nanosecond of average timing of rising edges over a period of 1 line.
Channel Coding		Conforms to SMPTE RP-259M
Output Impedance		75 ohm
DC Offset on Output		< 50 mV across 75 ohm termination
Number of Bits		10
Number of Outputs		2 BNC connectors per channel

Table 13. Kalypso System Specifications - (continued)

Analog Reference Input	
Black	525 (60 Hz) or 625 (50 Hz)
Connectors	2 BNC
Return Loss	> 40 dB to 5 MHz
Impedance	75 ohm loop through
System Timing	
Switcher Output Delay	53 microsecond

Table 14. Kalypso Mechanical Specifications

Component	Depth	Width	Height	Weight [1]	Rack Units
Video Processor Frame	562 mm / 22.13 in.[2]	483 mm / 19 in.	578 mm / 22.75 in.	75.75 kg / 167 lb	13
4-M/E Main Control Panel	624 mm / 24.58 in.[3, 4]	1410 mm / 55.5 in.[4]	189 mm / 7.44 in.[5]	86 kg / 189 lb	N/A
2-M/E Main Control Panel	483 mm / 19.0 in.[3, 4]	1252 mm / 49.31in.[4]	207 mm / 8.3 in.[5]	63 kg / 138 lb	N/A
Local Aux Panel	99 mm / 3.9 in.	668 mm / 26.3 in.	183 mm / 7.2 in.	15.88 kg / 35 lb	N/A
Menu Panel	99 mm / 3.9 in.	434 mm / 17.1 in.	256 mm / 10.1 in.	15.88 kg / 35 lb	N/A
Video Processor Power Supply	406 mm / 16.0 in.	482 mm / 19.0 in.	89 mm / 3.5 in.[6]	15 kg / 33 lb[7]	2[6]
KAL-24AUX1 Remote Aux Panel	51 mm / 2.0 in.	482 mm / 19.0 in.	45 mm / 1.75 in.	1.02 kg / 2.25 lb	1
KAL-24AUX2 Remote Aux Panel	64 mm / 2.5 in.	482 mm / 19.0 in.	89 mm / 3.5 in.	2.04 kg / 4.5 lb	2
KAL-24AUX3 Remote Aux Panel	64 mm / 2.5 in.	482 mm / 19.0 in.	133 mm / 5.25 in.	3.06 kg / 6.75 lb	3
KAL-32AUX1 Remote Aux Panel	133 mm / 5.25 in.	482 mm / 19.0 in.	44 mm / 1.75 in.	0.93 kg / 2.06 lb	1
KAL-32AUX2 Remote Aux Panel	108 mm / 4.25 in.	482 mm / 19.0 in.	89 mm / 3.5 in.	1.02 kg / 2.25 lb	2

[1] All weights approximate.

[2] Allow an extra 102 mm (4 in.) for cable.

[3] Allow a minimum of 152 mm (6 in.) of clear space at the rear of the Main panel below the mounting surface for proper cable clearance and air flow. Allow an extra 203 mm (8 in.) to 254 mm (10 in.) of mounting surface behind the Main panel for peripheral components (e.g., Local Aux panel).

[4] Indicated measurement is for lid. Refer to installation detail for tub measurements.

[5] Add 13 mm (.5 in.) for rubber feet on bottom of tub if required. Indicated measurement is from bottom surface of tub to top surface of lid.

[6] Allow for additional height of 133 mm (5.25 in.), in the event that a 3 RU replacement Video Processor Power Supply is required.

[7] Includes optional redundant power supply module.

GRASS VALLEY GROUP

Grass Valley Group Headquarters
P.O. Box 599000
Nevada City, CA 95959-7900
USA

0 7 1 0 6 1 9 0 4

w w w . g r a s s v a l l e y g r o u p . c o m