grass valley

JEP–100

JUPITER / ENCORE CONTROL PANEL

Installation and Operating Manual

SOFTWARE RELEASE 1.0.1

Product part number 610 1138 01
Product nomenclature JUP-JEP-100

Manual part no. 071 8372 00
November 12, 2004

the most watched worldwide

Contacting Grass Valley

Region	Voice	Fax	Address	Web Site
North America	(800) 547-8949 Support: (530) 478-4148	Sales: (530) 478-3347 Support: (530) 478-3181	Grass Valley P.O. Box 599000 Nevada City, CA 95959- 7900 USA	www.thomsongrassvalley.com
Pacific Operations	+852-2585-6688 Support: 852-2585-6579	+852-2802-2996		
U.K., Asia, Middle East	+44 1753 218 777	+44 1753 218 757		
France	+33 1 45 29 73 00			
Germany, Europe	+49 6150 104 782	+49 6150 104 223		

Grass Valley Web Site

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

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

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

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

Contents

Preface

About This Manual

This manual provides installation and operating instructions for the JEP–100 Jupiter / Encore Control Panel, including information specific to Jupiter table entries.

Additional Documentation

Configuration information for the Jupiter control system itself is contained in the Jupiter documentation set:

- Jupiter Control System Field Engineering Bulletin series, 071 8275 xx.
- Jupiter CM–4000 Installation and Operating Manual, 071 8261 xx.
- Jupiter Getting Started Guide, 04–045707–003.

A printed copy of the documentation set is normally provided with the system. Individual manuals may be ordered by contacting Thomson Technical Support (see page ii). Electronic copies of all routing products documentation are available on the following documentation CDs:

- CD 071 8274 xx. Includes Apex, Jupiter, Saturn, Trinix, and Venus manuals.
- CD 071 8130 xx. Includes Encore Control System manuals.

Many of these documents are also available on our web site. See page ii.

Safety Summary

Read and follow the important safety information below, noting especially those instructions related to risk of fire, electric shock or injury to persons. Additional specific warnings not listed here may be found throughout the manual.

WARNING Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Safety Terms and Symbols

Terms in This Manual

Safety–related statements may appear in this manual in the following form:

WARNING Warning statements identify conditions or practices that may result in personal injury or loss of life.

CAUTION Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non–operational.

Terms on the Product

The following terms may appear on the product:

DANGER — A personal injury hazard is immediately accessible as you read the marking.

WARNING — A personal injury hazard exists but is not immediately accessible as you read the marking.

CAUTION — A hazard to property, product, and other equipment is present.

Symbols on the Product

The following symbols may appear on the product:

Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Indicates that user, operator or service technician should refer to product manual(s) for important operating, maintenance, or service instructions.

This is a prompt to note fuse rating when replacing fuse(s). The fuse referenced in the text must be replaced with one having the ratings indicated.

Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.

Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.

Indicates that static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Warnings

The following warning statements identify conditions or practices that can result in personal injury or loss of life.

Dangerous voltage or current present — Disconnect power before removing protective panels, soldering, or replacing components.

Do not service alone — Do not internally service this product unless another person capable of rendering first aid and resuscitation is present.

Remove jewelry — Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.

Avoid exposed circuitry — Do not touch exposed connections, components or circuitry when power is present.

Use proper power cord — Use only the power cord supplied or specified for this product.

Ground product — Connect the grounding conductor of the power cord to earth ground.

Operate only with covers and enclosure panels in place — Do not operate this product when covers or enclosure panels are removed.

Use correct fuse — Use only fuse type and rating specified for this product.

Use only in dry environment — Do not operate in wet or damp conditions.

Use only in non-explosive environment — Do not operate this product in an explosive atmosphere.

High leakage current may be present — Earth connection of product is essential before connecting power.

Double pole neutral fusing — Disconnect mains power prior to servicing.

Use proper lift points — Do not use door latches to lift or move equipment.

Avoid mechanical hazards — Allow all rotating devices to come to a stop before servicing.

Cautions

The following caution statements identify conditions or practices that can result in damage to equipment or other property

Use correct power source — Do not operate this product from a power source that applies more than the voltage specified for the product.

Provide proper ventilation — To prevent product overheating, provide equipment ventilation in accordance with installation instructions.

Use anti-static procedures — Static sensitive components are present which may be damaged by electrostatic discharge. Use anti−static procedures, equipment and surfaces during servicing.

Do not operate with suspected equipment failure — If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.

Ensure mains disconnect — The power cord of this equipment provides the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible. Verify that all mains power is disconnected before installing or removing power supplies and/or options.

Route cable properly — Route power cords and other cables so that they ar not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.

Use correct power supply cords — Power cords for this equipment, if provided, meet all North American electrical codes. Operation of this equipment at voltages exceeding 130 VAC requires power supply cords which comply with NEMA configurations. International power cords, if provided, have the approval of the country of use.

Troubleshoot only to board level — Circuit boards in this product are densely populated with surface mount technology (SMT) components and application specific integrated circuits (ASICS). As a result, circuit board repair at the component level is very difficult in the field, if not impossible. For warranty compliance, do not troubleshoot systems beyond the board level.

Regulatory Notices

Certifications and Compliances

FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley Group can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

EN 55103 Class A Warning

For products that comply with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

Canadian Certified AC Adapter

Canadian approval includes the AC adapters appropriate for use in the North America power network. All other AC adapters supplied are approved for the country of use.

Laser Compliance

Laser Safety Requirements

The device used in this product is a Class 1 certified laser product. Operating this product outside specifications or altering from its original design may result in hazardous radiation exposure, and may be considered an act of modifying or new manufacturing of a laser product under U.S. regulations contained in 21CFR Chapter1, subchapter J or CENELEC regulations in HD 482 S1. People performing such an act are required by law to recertify and reidentify this product in accordance with provisions of 21CFR subchapter J for distribution within the U.S.A., and in accordance with CENELEC HD 482 S1 for distribution within countries using the IEC 825 standard.

Laser Safety

Laser safety in the United States is regulated by the Center for Devices and Radiological Health (CDRH). The laser safety regulations are published in the "Laser Product Performance Standard," Code of Federal Regulation (CFR), Title 21, Subchapter J.

The international Electrotechnical Commission (IEC) Standard 825, "Radiation of Laser Products, Equipment Classification, Requirements and User's Guide," governs laser products outside the United States. Europe and member nations of the European Free trade Association fall under the jurisdiction of the Comite European de Normalization Electrotechnique (CENELEC).

For the CDRH: The radiant power is detected trough a 7 mm aperture at a distance of 200 mm from the source focused through a lens with a focal length of 100 mm.

For IEC compliance: The radiant power is detected trough a 7 mm aperture at a distance of 100 mm from the source focused through a lens with a focal length of 100 mm.

FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may no cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. This device has been tested and found to comply with FCC Part 15 Class B limits for a digital device when tested with a representative laser–based fiber optical system that complies with ANSI X3T11 Fiber Channel Standard.

Certification

Category	Standard	Designed/tested for compliance with:
Safety	ANSI/UL 1950-1997 3rd Ed. CAN/CSA-C22.2 No. 950-95 EN 60950	Professional Video and Audio Equipment

Warranty

THOMSON BROADCAST & MEDIA SOLUTIONS (“TBMS”) warrants that the products purchased will be free from defects in materials and workmanship for the period stated in the Complimentary Warranty Services Summary or when no period is stated for a period ending at the earlier of one (1) year from the date of installation or fifteen (15) months from the date of shipment. If any such product proves defective during this warranty period, TBMS, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, Customer must notify TBMS of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by TBMS, with shipping charges prepaid. TBMS shall pay for the return of the product to Customer.

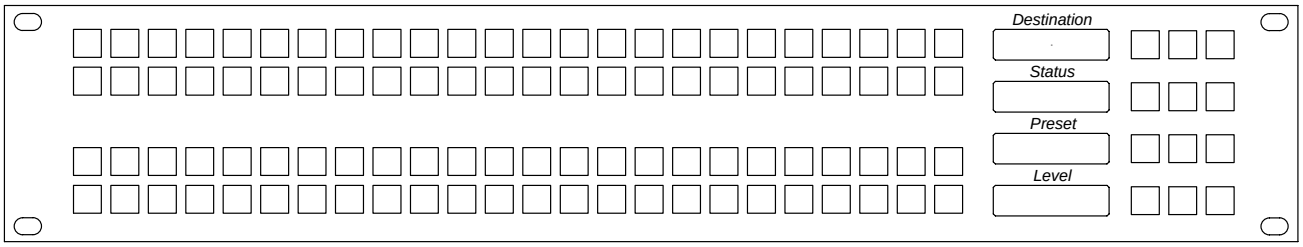
This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. TBMS shall not be obligated to reimburse Customer for service provided by personnel other than TBMS representatives or to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than TBMS representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; or c) to service a product that has been modified or integrated with other products without Thomson’s written approval.

THIS WARRANTY IS GIVEN BY TBMS WITH RESPECT TO PRODUCTS PURCHASED UNDER THIS AGREEMENT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. TMBS AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TBMS’S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. TBMS AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER TBMS OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGE. Furthermore, in no event shall Thomson’s liability to the Customer exceed the purchase price paid for the products.

Section 1

Introduction

Figure 1. JEP–100 Control Panel.



The JEP–100 Jupiter/Encore Control Panel is a locally–programmable, eight–character mnemonic, full–matrix control, multiple level break-away panel designed especially for use in television production vans.

The panel includes a fully–enclosed auto–sensing power supply with an inrush current rating of 7. 9 A. The nominal power requirement is 0.4 A @ 240 VAC or 0.65 A @ 120 VAC. There is no power switch (the AC cord must be disconnected to power down the panel).

The 96 keys on the left side of the panel are initially assigned to inputs using the control system file server, but some or all can be re–assigned to new inputs at any time using only the panel itself. The keys can alternatively be used to control outputs or levels.

Sources, destinations, and levels can also be selected by scrolling up/down in the various LED displays.

Space has been provided for adhesive strips to be placed on the front surface for identification of buttons as they are arranged for specific projects.

The JEP–100 control panel is designed for use with either a Jupiter CM–4000 System Controller or an Encore Control System.

NOTE At present the JEP-100 can only be used with Jupiter CM- 4000 System Controllers. Encore support is under development.

NOTE The CM-4000 must be operating with Jupiter / Saturn / AccuSwitch version 7.3.2 to support the JEP-100 1.0.1 feature set.

NOTE The JEP-100 is not intended for use with Jupiter VM-3000 System Controllers.

In Jupiter applications, the JEP–100 can be connected to the CM–4000 System Controller via a 115k Baud serial bus (maximum distance of 2000 feet); or via a Cat 5 Ethernet connection (maximum distance per segment 329 feet). An Ethernet connection is required for software upgrade purposes.

Section 2

Hardware Installation – Jupiter System

The JEP–100 can be connected to the CM–4000 System Controller via a 115k Baud serial bus or via a Cat 5 Ethernet connection. It is also possible to combine these methods by connecting some panels serially and others through the LAN.

In all cases, an Ethernet connection is required for software upgrade purposes.

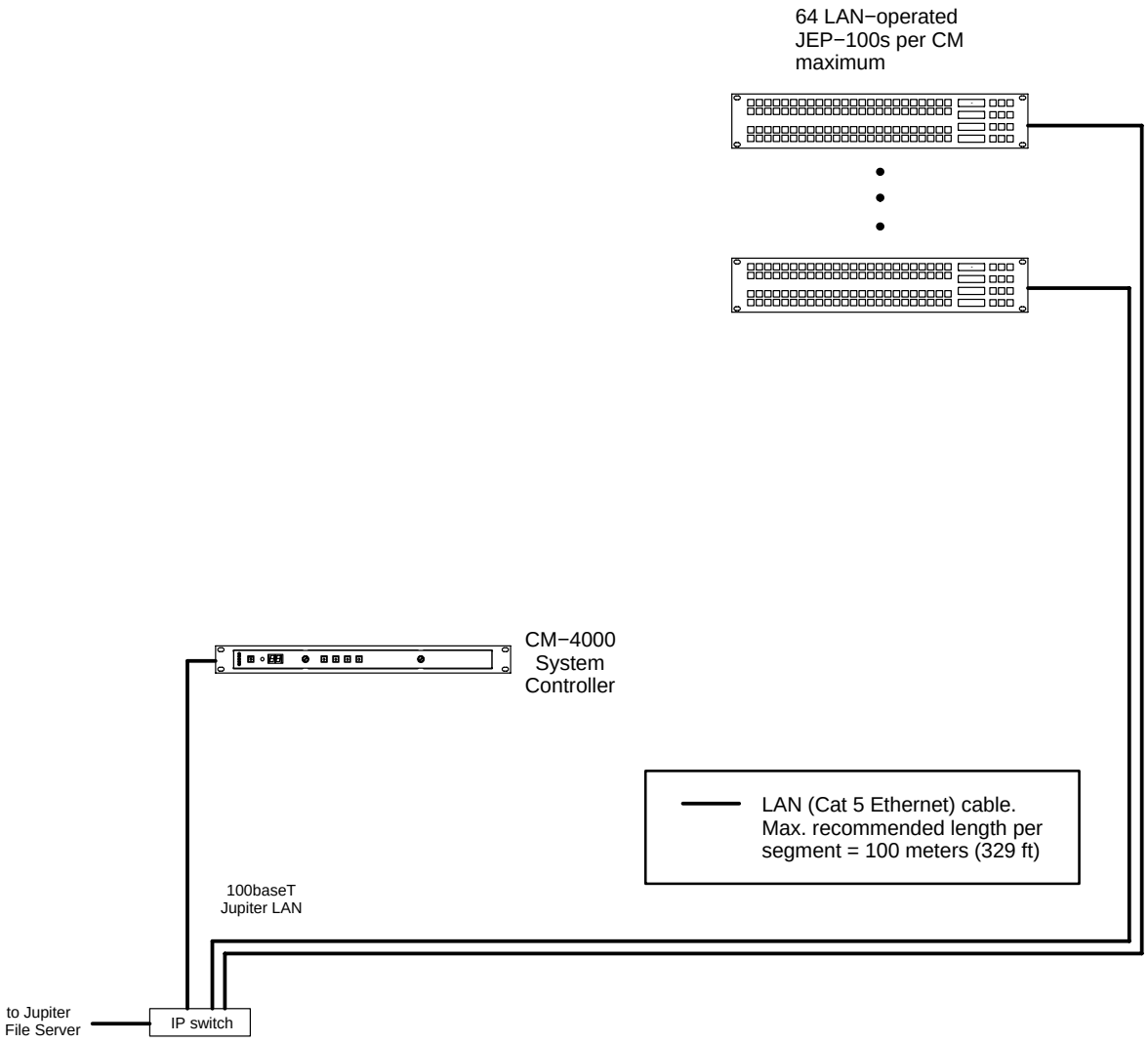
LAN Only System

In this arrangement the JEP–100 is operated in Ethernet mode, where the LAN connection is used both for operation and for software upgrade purposes. See Figure 2.

NOTE The LAN must be capable of 100 Mb operation.

NOTE Each Ethernet segment (hub to panel) has a 100 meter limit.

Figure 2. LAN only system connections.



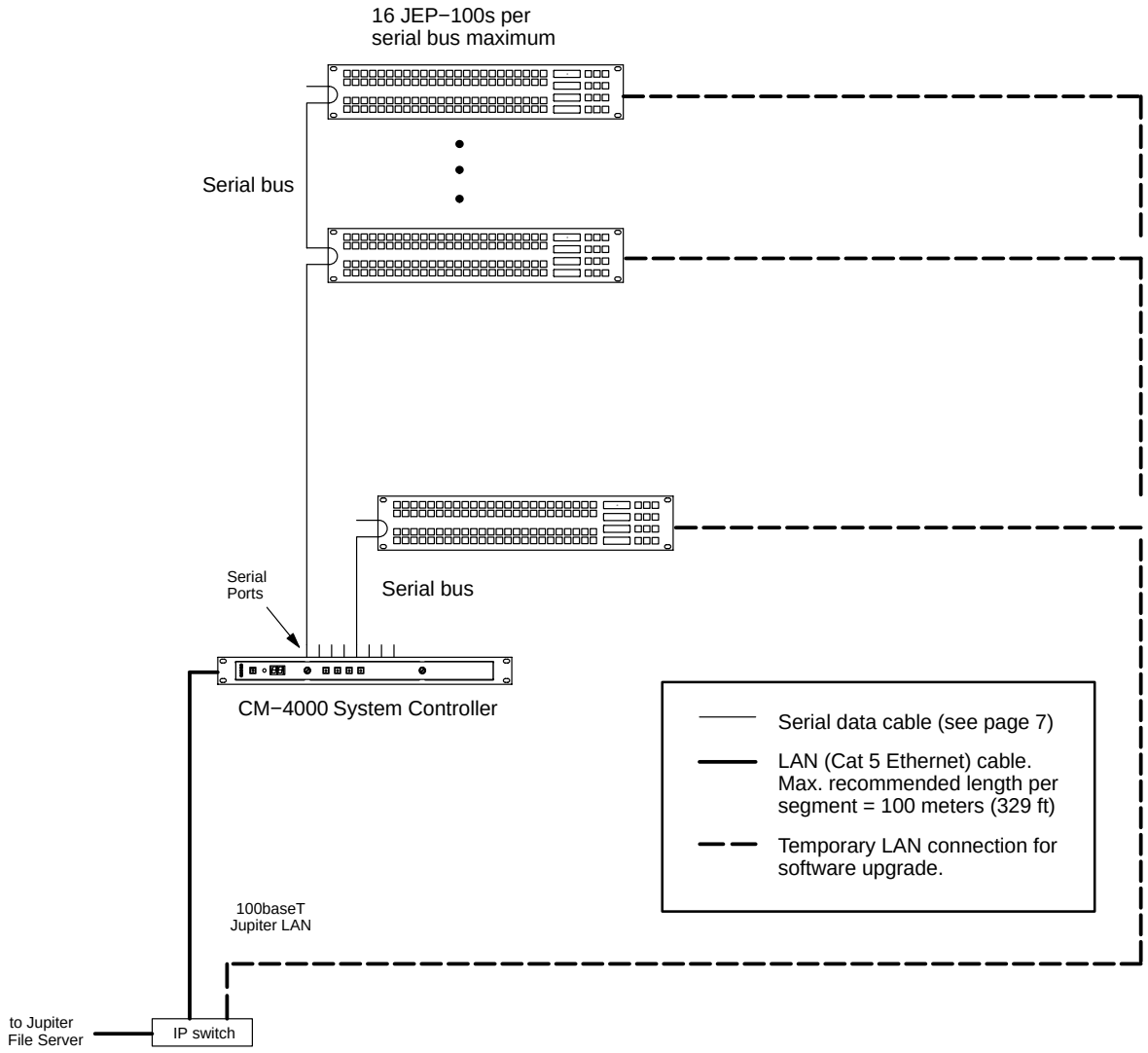
Serial System

This wiring arrangement assumes that the JEP–100(s) will be operated in Serial mode, with the LAN typically connected to one panel at a time only during software upgrades. See Figure 4.

NOTE The LAN must be capable of 100 Mb operation.

NOTE The Ethernet segment (IP switch to panel) has a 100 meter limit.

Figure 3. Serial system connections.



LAN + Serial System

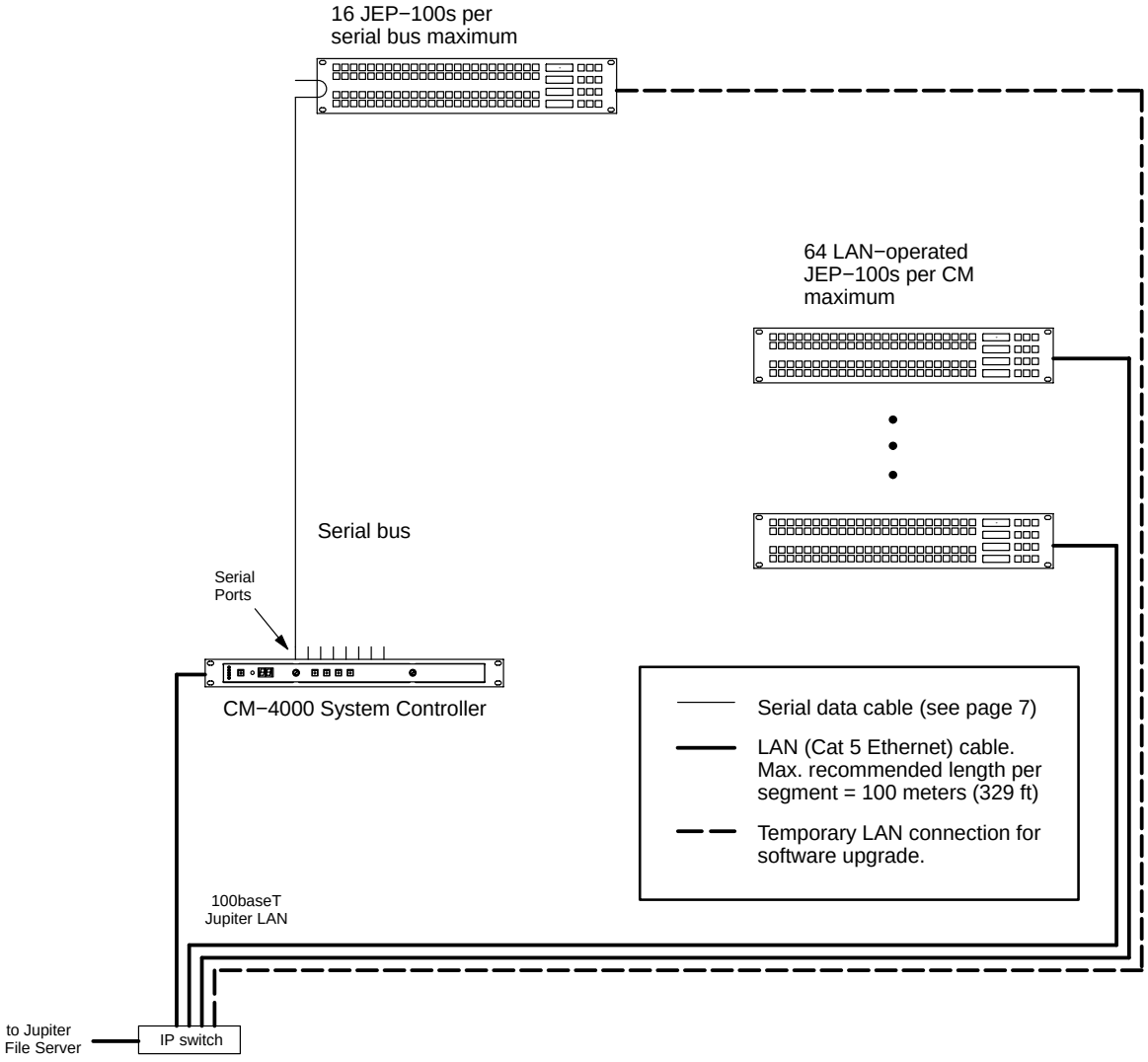
In this system, one or more JEP–100s are operated in Serial mode, while other JEP–100s are operated in LAN mode.

The JEP–100(s) operated in Serial mode will require a LAN connection only during a software upgrade session. See Figure 4.

NOTE The LAN must be capable of 100 Mb operation.

NOTE Each Ethernet segment (hub to panel) has a 100 meter limit.

Figure 4. LAN + Serial system connections.



Serial Data Cables

The RS–422 cables used to connect CM–4000 System Controllers and control panels consist of a 4–conductor (plus ground) cable.

Maximum length per bus, at 115k Baud, is 610 meters (2000 ft).

The rear panel serial data cable connectors on the CM–4000 and control panels are 9–pin D, female. The control panel connectors are arranged for loop–through wiring. No termination is required. While these connectors are ESbus compatible, it should be noted that the Thomson serial data cables use only 5 of the 9 pins described in the ESbus specification.

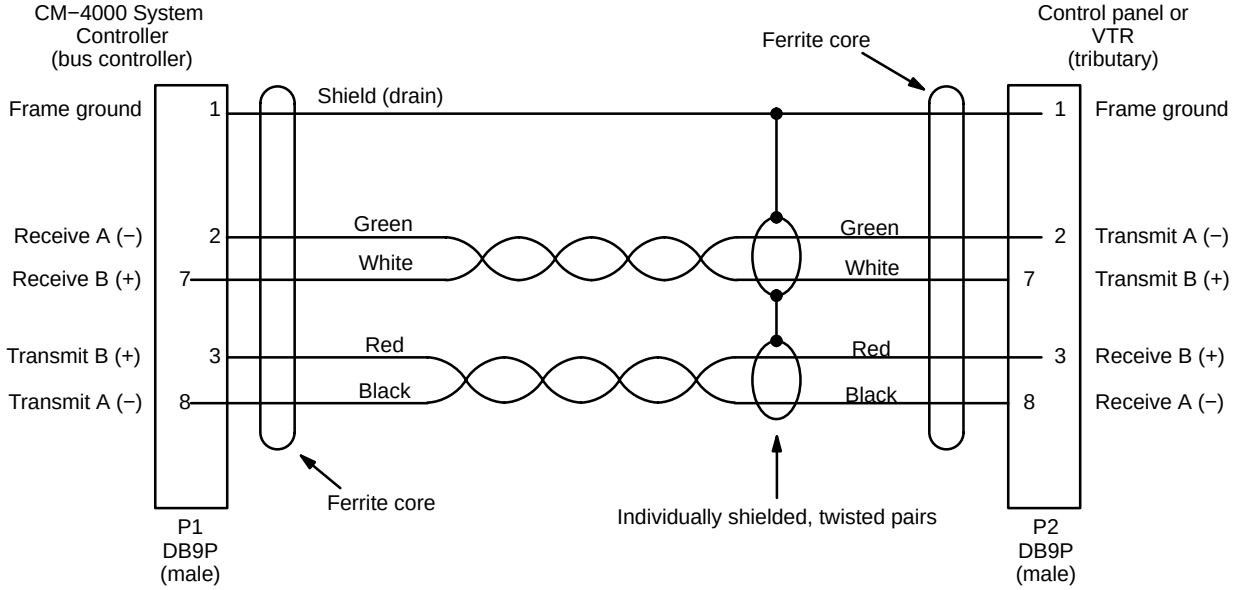
The following ready–made cables, with installed 9–pin D male connectors, are available from Thomson (VDE cables include ferrite cores):

1 meter (3.3 ft)	8 meters (26.2 ft)
2 meters (6.6 ft)	16 meters (52.5 ft)
4 meters (13.1 ft)	32 meters (105 ft)

For those who wish to prepare their own cables, the pin–outs are shown in Figure 5. The cable itself should be Belden 8723 or equivalent.

Details concerning ferrite cores are given in Figure 6.

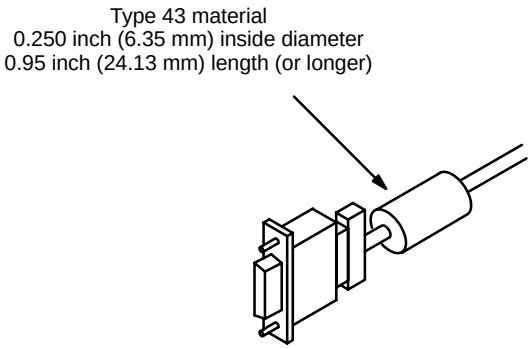
Figure 5. Serial data cable wiring. Reference: "Assembly, BCS–3000 Serial Data Cable," Thomson drawing no. 01–041600–TAB.



VDE EMI/RFI Modifications to Serial Data Cables

User–supplied serial data cables for VDE installations require a ferrite core over each end of the cable, adjacent to the connector.

Figure 6. Serial data cable VDE modifications.



Type 43 material sources

Fair−Rite, part no. 2643480002

Fair−Rite Products Corp., P.O. Box J, Commercial Row, Wallkill, NY 12589, USA; Tel. (914) 895−2055.

Chomerics, part no. 83−10−A636−1000

Chomerics Inc., 77 Dragon Ct., Woburn, MA 01888 USA; Tel. (617) 935−4850.

Section 3

Internet Protocol Configuration

IP connection and configuration allows Ethernet operation and provides a downloading path for software upgrades. The JEP–100, CM–4000, and file server PC must be on the same IP network, or else be connected through a network router/gateway.

The following applies to JEP–100 configuration using the panel's built–in HTTP web page.

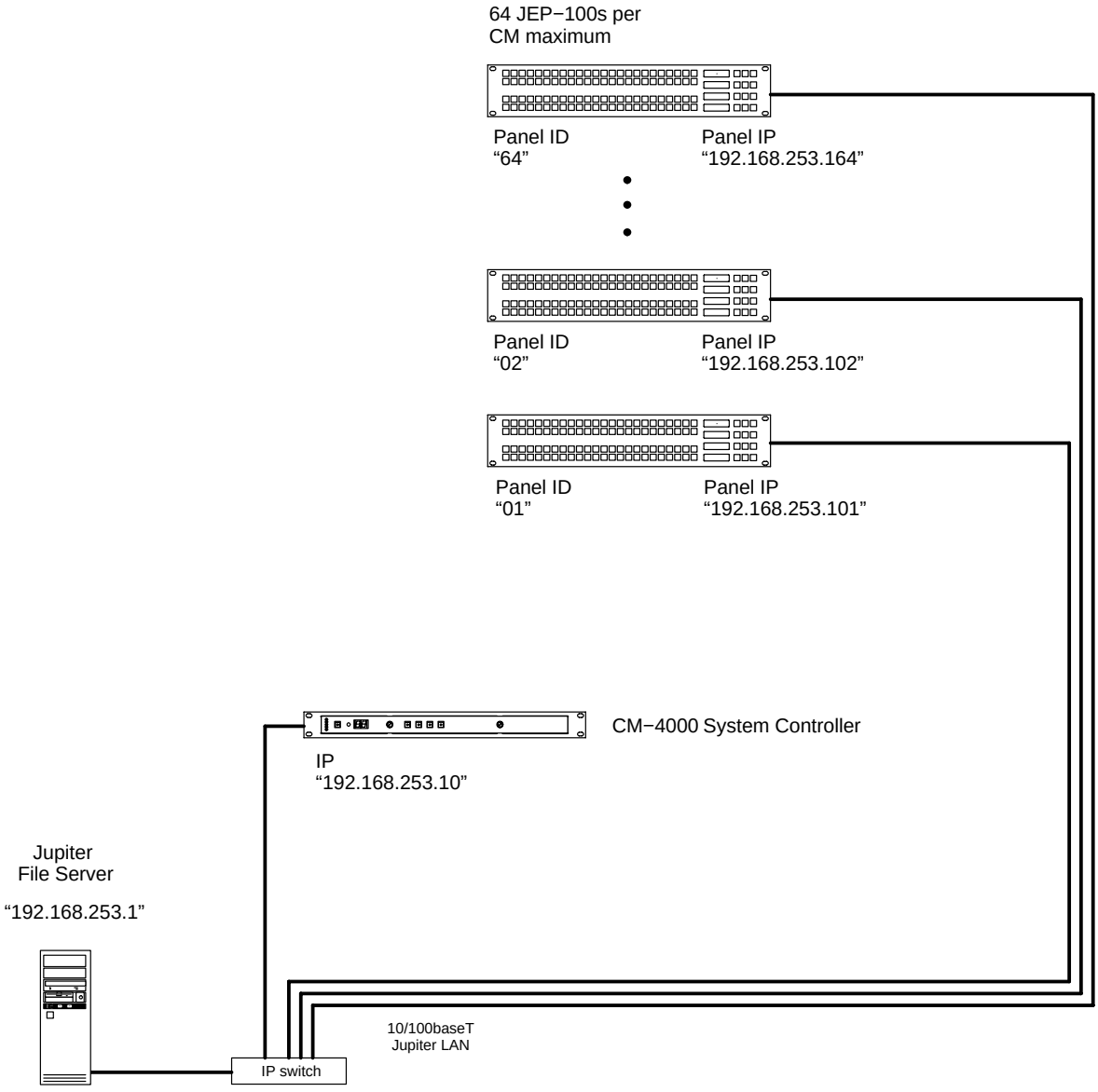
Single Network IP Configuration

The following discussion applies when the Jupiter equipment (file server, CM–4000, and JEP–100) is in an isolated network environment.

LAN Only System

Figure 7 shows an example of a system addressing where the JEP–100s will be operated entirely in Ethernet mode. Up to 64 JEP–100s can be controlled per CM–4000.

Figure 7. LAN only system addressing(example).

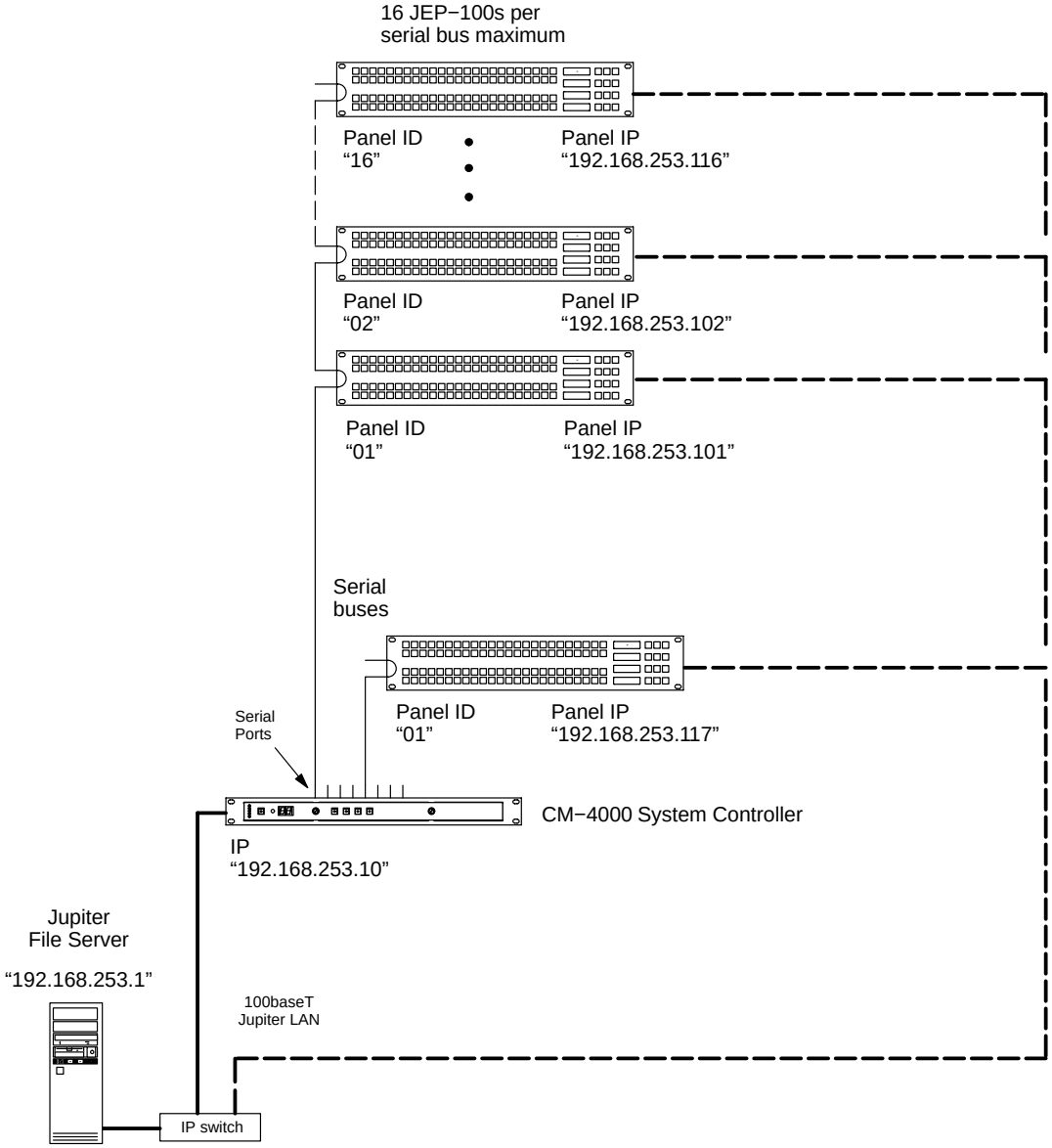


Serial System

Figure 8 shows an example of a system addressing where the JEP–100s will be operated in Serial mode (the LAN connections are for software upgrade). Because there are more than 16 panels, the 17th panel must be connected to a second CM port. This results in two panels with an ID of "01."

This arrangement assumes that the LAN connections will be made to one panel at a time only for the purpose of software upgrade. In this case, it isn't strictly necessary to have a different IP address for each panel; however, to prevent confusion if more than one panel is connected it is recommended that unique IP addresses are assigned.

Figure 8. Serial system addressing (example)

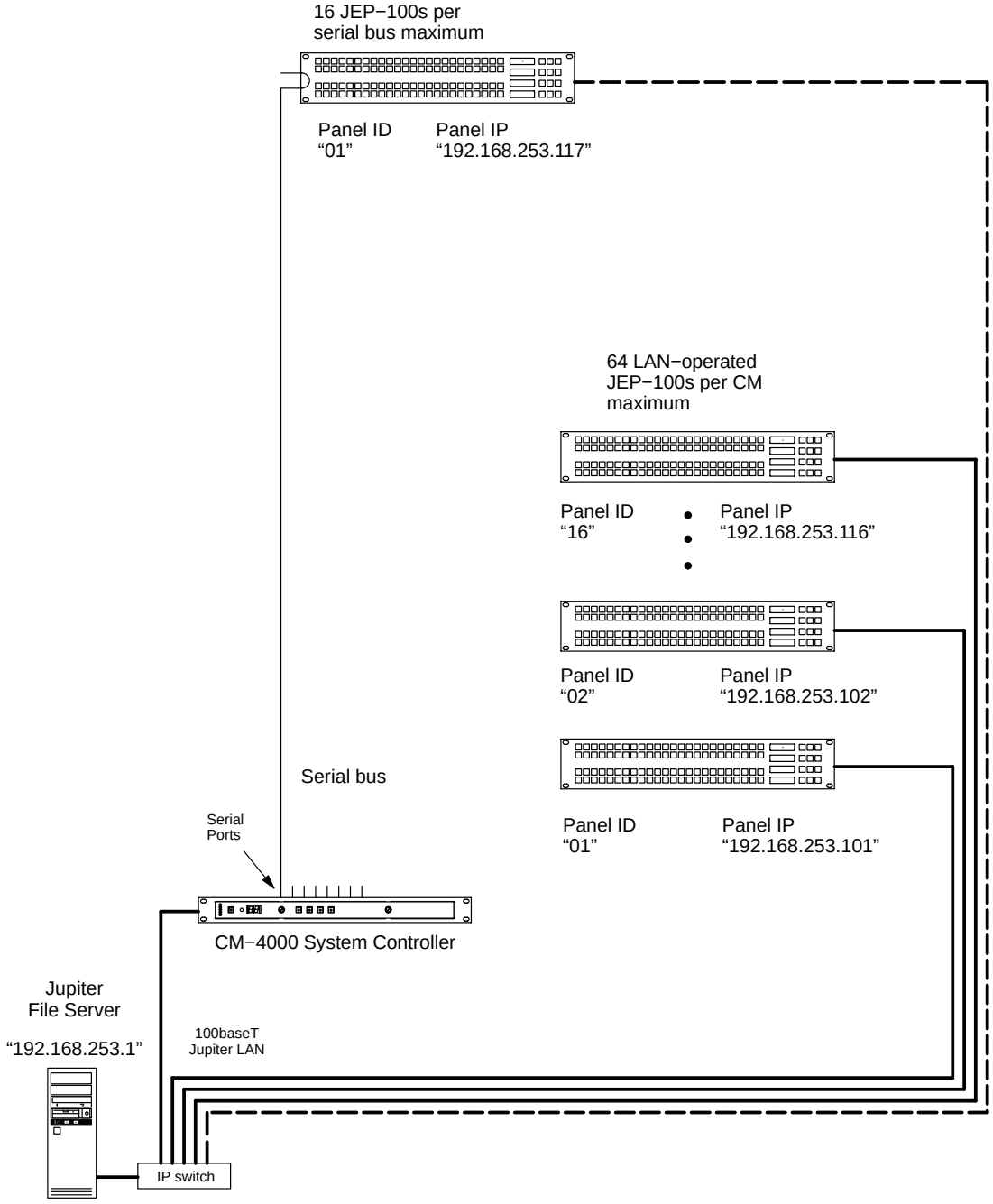


LAN + Serial System

Figure 9 shows an example of system addressing where one or more JEP–100s will be operated in Serial mode, while other JEP–100s are operated in LAN mode.

The JEP–100(s) operated in serial mode will require a LAN connection only during a software upgrade session.

Figure 9. LAN + serial system addressing (example)



IP Configuration Procedure

During the following steps, you will need to know the IP address of the CM–4000 that will be associated with the JEP–100. Use the Jupiter File Server JNS Control Center application to determine the CM–4000 IP address (the Control Center application is described in the Jupiter CM–4000 manual).

You will also need to know the normal IP settings of the file server so they can be restored at the end of this procedure.

1. At the (first) JEP–100, determine the present IP address of the panel by pressing MENU, then UP/DOWN until the address is displayed in the Preset and Level windows.

2. If there are other devices on the Jupiter LAN with this same address, they must be disconnected at this time.

   JEP–100 panels are normally shipped with a default IP address of 192.168.253.100.

3. At the file server PC:

   a. Use the PC's Network Settings dialog to *temporarily* set the TCP/IP address within the same local network as the JEP–100.

      For example, if the JEP–100 address is presently 192.168.253.100, then the PC address should be changed to be compatible with the 192.168.253.x network (such as "192.168.253.1"). The PC's sub-net mask should be set to 255.255.255.0 (class C network). In a simple network environment, all other TCP/IP network settings are irrelevant at this point.

   b. Reboot the PC to apply the changes.

      If desired, you can use the MS–DOS "ipconfig" command to verify the settings.

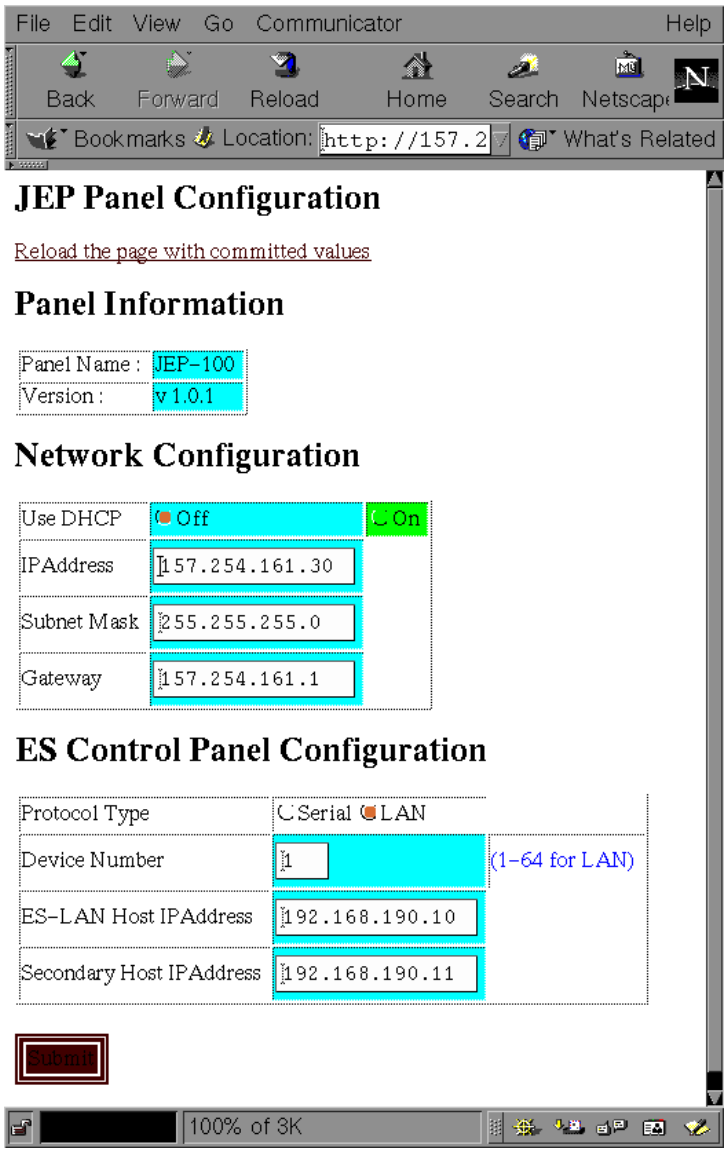
      You must have admin privileges to change Internet settings on a Windows 2000 PC.

   c. Start the http browser (e.g. MS Internet Explorer).

      The browser Proxy setting must be turned off. To check the Proxy setting for Internet Explorer, go to Tools > Internet Options > Connections > LAN Settings.

   d. Enter the JEP–100 IP address in the URL window. This will display the JEP–100 web page:

Figure 10



4. The Panel Information fields are system-generated.

5. For the Network Configuration section:

a. Select DHCP – OFF (unless IP addresses are being set automatically by a Dynamic Host Configuration Protocol server).

b. IP address – set to a unique value within the same network as the CM-4000.

For example, if the CM–4000 address is 192.168.253.10, then the JEP–100 address should be changed to reside in the 192.168.253.x network (such as "192.168.253.101").

c. Subnet Mask – set to 255.255.255.0.

d. Gateway – not used in a simple network environment.

If the JEP–100 and the CM–4000 are on separate networks, the gateway connecting them must be specified.

6. ES Control Panel Configuration:

a. Protocol Type:

For a LAN only system (as shown on page 10): select "LAN."

For a Serial system (page 11): select "Serial" for normal operation of panel. Select "LAN" only during the software upgrade process.

For a LAN + Serial system (page 12): For panels always operated in LAN mode, select "LAN." For panels normally operated in Serial mode, select "Serial" (select "LAN" only during the software upgrade process).

Note that this selection is identical to the "ELAN on" setting accessed with the front–panel MENU button.

b. Device Number:

LAN only system: enter a number from 1 to 64. This number must be unique on this LAN (e.g., unique on network 192.168.253.x).

Serial system: enter a number from 1 to 16. This number must be unique on the CM–4000 serial bus being used.

LAN + Serial system: for panels always operated in LAN mode, enter a number from 1 to 64. For panels normally operated in Serial mode, enter a number from 1 to 16; this number must be unique on the CM–4000 serial bus being used.

Note that the Device Number is referred to as the "ID" within the JEP–100 MENU system and as the "Address" on the Jupiter MPK Devices table.

c. ES–LAN Host ID Address: enter the IP address of the CM–4000 associated with this panel.

d. Secondary Host ID Address: enter the IP address of the redundant CM–4000 (if any).

7. Select Submit.

   This will apply the settings and reboot the JEP–100.

   NOTE Once the JEP-100 reboots the panel may (depending on the address used) no longer be visible from the PC. To return to the page, enter the new IP address in the browser's URL window.

8. Go to the next JEP–100 and repeat steps 1 through 7 above.

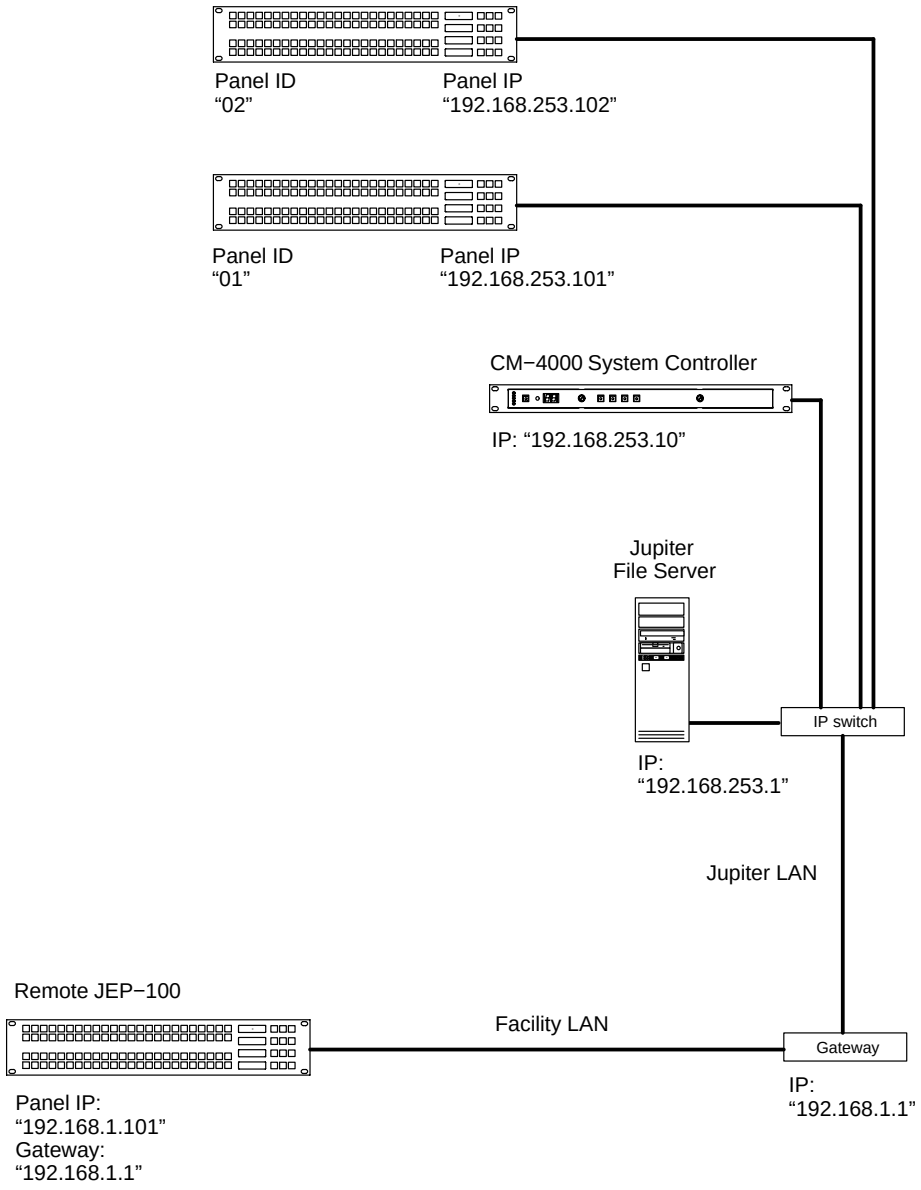
9. When finished, restore the file server PC to the original IP settings.

10. Proceed to the panel configuration instructions in the following section.

Multi-Network IP Configuration

A "remote" JEP–100 can be placed on a network separate from the other Jupiter devices, such as on a facility LAN. In Figure 11, an IP router serves as a gateway between two networks.

Figure 11. LAN addressing with remote JEP–100 (example).



Configuration is similar to that just described, except that the address of the gateway must be entered on the web page for the remote JEP–100.

Section 4

Software Installation

JEP panels are shipped with all current software installed.

If the software is being upgraded from a previous version, you must follow the special upgrade instructions in the appropriate Thomson Field Engineering Bulletin. Failure to do so could result in loss of user data. For more information, please contact Thomson Technical Support (see page ii).

Section 5

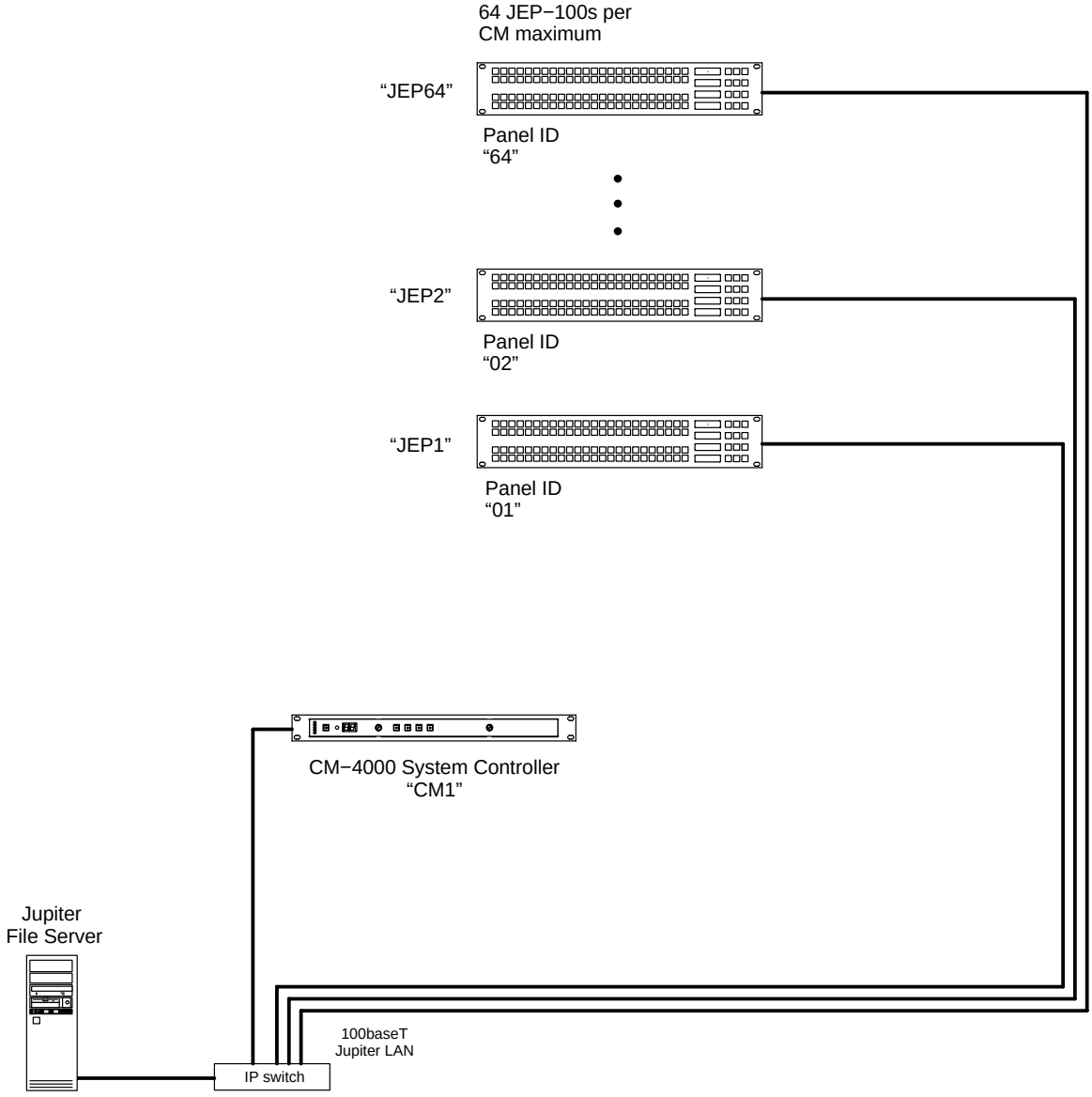
Configuration – Jupiter System

The following overview of JEP–100 installation and configuration assumes that the reader is familiar with the Jupiter Facility Control System. If not, please refer to the Jupiter CM–4000 Installation and Operating manual, part. no. 071 8261 xx.

LAN Only System

In this system, the JEP is operated in Ethernet mode, where the LAN connection is used both for operation and for software upgrade purposes. See Figure 12.

Figure 12. LAN only system naming and addressing



MPK Table Entries

Although the JEP is not actually an MPK–type panel (it has an on–board microprocessor and does not use the Message Per Keystroke protocol), the MPK table is used for configuration purposes. An example is shown in Figure 13.

Figure 13. MPK Devices table corresponding to system shown in Figure 12.

MPK Devices

	MPK Devices	Device Type	Expansion	Pass word	Board	Port	Address	Input Sets	In Panel	Output Sets	Out Panel	Level Set	Overide Set	Sequence Set
1	JEP1	ES–LAN	☐		CM1		01	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		K
2	JEP2	ES–LAN	☐		CM1		02	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		
⋮														
64	JEP64	ES–LAN	☐		CM1		64	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		

MPK Devices This column is used to create a name, up to eight characters in length, for each JEP–100. This name must be unique system–wide.

Type Select type "ES–LAN" on the pull–down menu.

Expansion Not used for JEP–100 (leave unchecked).

Pass word Not used for JEP–100.

Board Name of CM–4000 associated with this JEP–100. The source of this name is the Network Description table.

Port Not used for LAN only installation.

Address Panel address from 01 to 64. Must be unique for panels associated with the same CM–4000.

JEP–100 panels are normally shipped with a panel address of "01." Modification of this address was discussed on page 15.

This number is referred to as the "Device Number" on the IP configuration page and "ID" within the JEP–100 MENU system .

Input Sets Name of CP Input Set to be assigned to this panel. The usual practice is to have one CP Input Set, containing the names of all inputs, apply to all panels. However, special CP Input Sets could be created which list only selected inputs; such a set could be used to prevent certain panels from selecting specific inputs.

In Panel This column is not used for JEP–100 panels.

Out Set Output Set name.

If the entry is an actual CP Output Set, then the control panel will be able to control all the outputs listed in that Set. Depending on the contents of the set, this would allow for full–matrix or multi–bus control.

Alternatively, this field can be used to enter the name of a single switcher output to be controlled. The source of the output name is the Switcher Output table.

Out Panel This column is not used for JEP–100 panels.

Level Set Select the CP Level Set name.

Override Set Not used for JEP–100 panels.

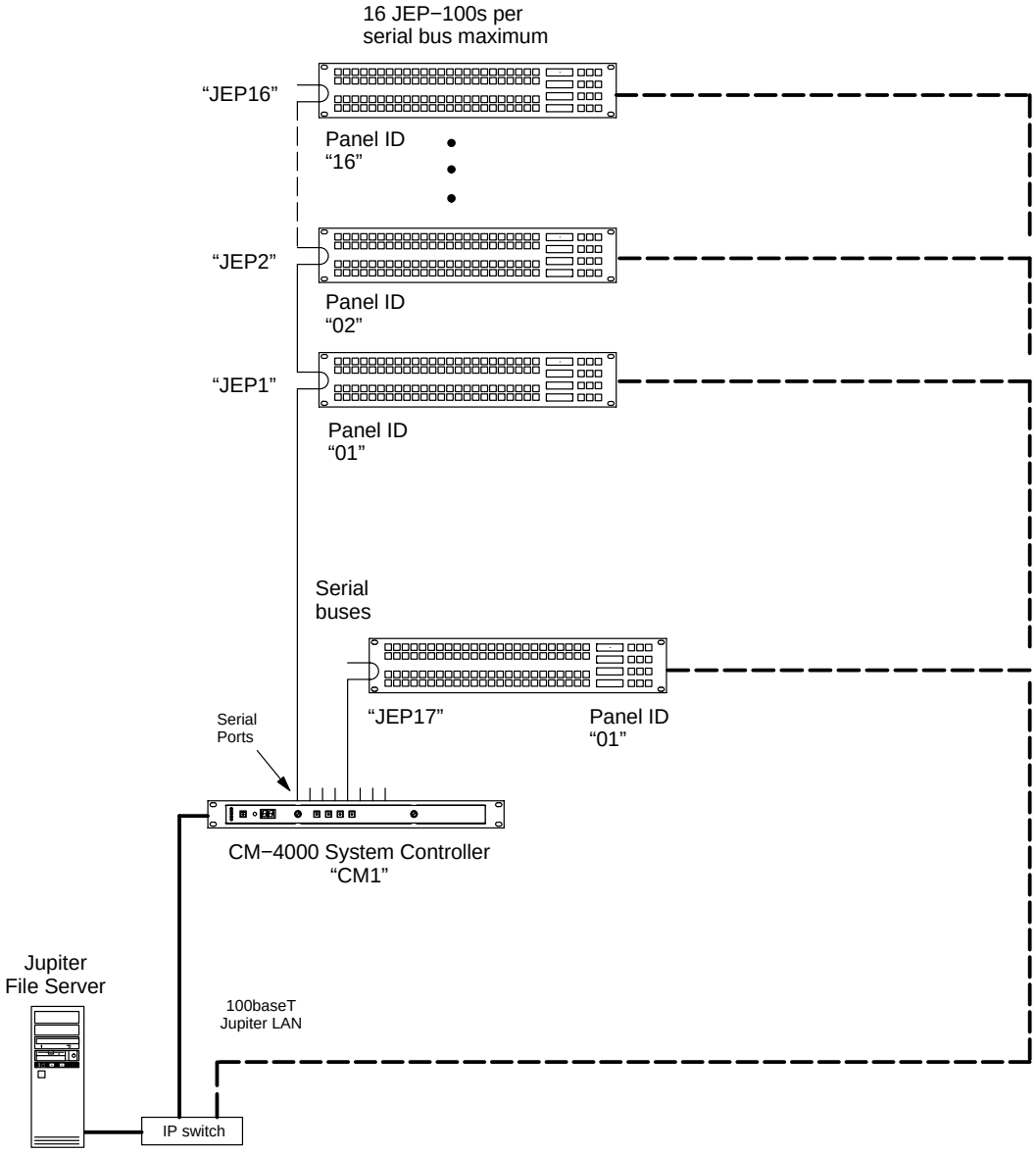
Sequence set Not used for JEP–100 panels.

This page intentionally left blank.

Serial System

In this application the JEP-100 is operated in Serial mode, with the LAN connection used only for software upgrade purposes. See Figure 14.

Figure 14. Serial system naming and addressing (example).



Serial Protocol Table Entries

When a JEP-100 is connected to a CM-4000 serial port (and operated in Serial mode), the panel must be configured for “ESCP” protocol using the Serial Protocol table. The Baud rate should be set at 115K.

MPK Table Entries

Although the JEP–100 is not actually an MPK–type panel (it has an on–board microprocessor and does not use the Message Per Key-stroke protocol), the MPK table is used for configuration purposes. An example is shown in Figure 15.

Figure 15. MPK Devices table corresponding to system shown in Figure 16.

MPK Devices

	MPK Devices	Device Type	Expansion	Pass word	Board	Port	Address	Input Sets	In Panel	Output Sets	Out Panel	Level Set	Overide Set	Sequence Set
1	JEP1	Serial	☐		CM1	1	01	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		K
2	JEP2	Serial	☐		CM1	1	02	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		
⋮														
16	JEP16	Serial	☐		CM1	1	16	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		
17	JEP17	Serial	☐		CM1	8	01	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		

MPK Devices This column is used to create a name, up to eight characters in length, for each JEP–100. This name must be unique system–wide.

Type Select type “Serial” on the pull–down menu.

Expansion Not used for JEP–100 (leave unchecked).

Pass word Not used for JEP–100.

Board Name of CM–4000 connected to this JEP–100. The source of this name is the Jupiter Network Description table.

Port Number of CM–4000 port connected to this JEP–100.

Address Panel address from 1 to 16. Must be unique for panels sharing the same CM–4000 serial port.

JEP–100 panels are normally shipped with a panel address of “01.” Modification of this address was discussed on page 15.

This number is referred to as the “Device Number” on the IP configuration page and “ID” within the JEP–100 MENU system.

Input Sets Name of CP Input Set to be assigned to this panel. The usual practice is to have one CP Input Set, containing the names of all inputs, apply to all panels. However, special CP Input Sets could be created which list only selected inputs; such a set could be used to prevent certain panels from selecting specific inputs.

In Panel This column is not used for JEP–100 panels.

Out Set Output Set name.

If the entry is an actual CP Output Set, then the control panel will be able to control all the outputs listed in that Set. Depending on the contents of the set, this would allow for full–matrix or multi–bus control.

Alternatively, this field can be used to enter the name of a single switcher output to be controlled. The source of the output name is the Switcher Output table.

Out Panel This column is not used for JEP–100 panels.

Level Set Select the CP Level Set name.

Override Set Not used for JEP–100 panels.

Sequence set Not used for JEP–100 panels.

Special Entries Needed to Upgrade Serial Panels

In a Serial system, downloading new software to panels normally operated in Serial mode will require IP settings. These settings are entered using the web page. See page 9.

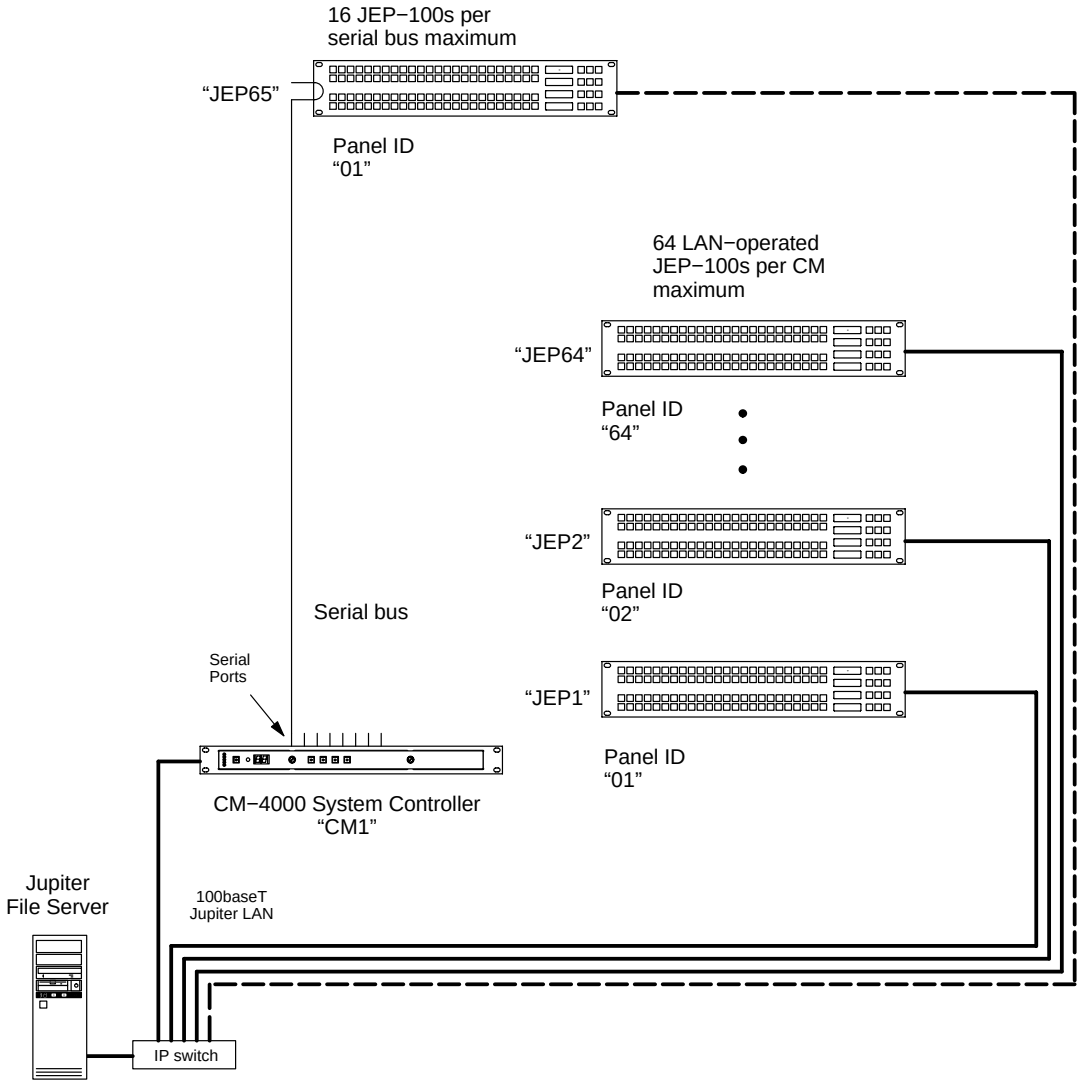
This page intentionally left blank.

LAN + Serial System

Figure 16 shows an example of a system where one or more JEP–100s will normally be operated in Serial mode, while other JEP–100s are always operated in LAN mode.

The JEP–100(s) operated in Serial mode will require a LAN connection only during a software upgrade session.

Figure 16. LAN + serial system naming and addressing (example).



Serial Protocol Table Entries

When a JEP–100 is connected to a CM–4000 serial port (and operated in Serial mode), the panel must be configured for “ESCP” protocol using the Serial Protocol table. The Baud rate should be set at 115K. Panels normally operated in LAN mode do not require a Serial Protocol table entry.

MPK Table Entries

Although the JEP–100 is not actually an MPK–type panel (it has an on–board microprocessor and does not use the Message Per Keystroke protocol), the MPK table is used for configuration purposes. An example is shown in Figure 17.

Figure 17. MPK table for system shown in Figure 16.

MPK Devices

	MPK Devices	Device Type	Expansion	Pass word	Board	Port	Address	Input Sets	In Panel	Output Sets	Out Panel	Level Set	Overide Set	Sequence Set
1	JEP1	ES–LAN	☐		CM1		01	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		K
2	JEP2	ES–LAN	☐		CM1		02	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		
⋮														
64	JEP64	ES–LAN	☐		CM1		64	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		
65	JEP65	Serial	☐		CM1	1	01	KXYZ–INP		KXYZ–OUT		KXYZ–LEV		

Type For the panels always operated in LAN mode, select type "ES–LAN" on the pull–down menu. For the panels normally operated in Serial mode, select type "Serial."

Expansion Not used for JEP–100 (leave unchecked).

Pass word Not used for JEP–100.

Board Name of CM–4000 connected to this JEP–100. The source of this name is the Jupiter Network Description table.

Port For LAN panels: Not used. For serial panels: Number of CM–4000 port connected to this JEP–100.

Address For the panels always operated in LAN mode: enter the panel address from 1 to 64; must be unique for panels associated with the same CM–4000. For the panels normally operated in Serial mode: enter the panel address from 1 to 16; must be unique for panels sharing the same CM–4000 serial port.

JEP–100 panels are normally shipped with a panel address of "01." Modification of this address was discussed on page 15.

This number is referred to as the "Device Number" on the IP configuration page and "ID" within the JEP–100 MENU system.

Input Sets Name of CP Input Set to be assigned to this panel. The usual practice is to have one CP Input Set, containing the names of all inputs, apply to all panels. However, special CP Input Sets could be created which list only selected inputs; such a set could be used to prevent certain panels from selecting specific inputs.

In Panel This column is not used for JEP–100 panels.

Out Set Output Set name.

If the entry is an actual CP Output Set, then the control panel will be able to control all the outputs listed in that Set. Depending on the contents of the set, this would allow for full–matrix or multi–bus control.

Alternatively, this field can be used to enter the name of a single switcher output to be controlled. The source of the output name is the Switcher Output table.

Out Panel This column is not used for JEP–100 panels.

Level Set Select the CP Level Set name.

Override Set Not used for JEP–100 panels.

Sequence set Not used for JEP–100 panels.

Special Entries Needed to Upgrade Serial Panels

In a LAN + Serial system, downloading to panels normally operated in Serial mode will require IP settings. These settings are entered using the web page. See page 9.

All Systems

Control Panel Sets

Switcher inputs and outputs for the JEP–100 are specified by creating a CP Level Set of type "CP3000," a CP Input Set of type "Serial," and a CP Output Set of type "Serial." These sets are assigned to each panel using the MPK Devices table.

NOTE With the JEP-100, the CP Level Set does establish the order in which levels are displayed on the panel; however, this table is *not* the source of the display mnemonics used for the various levels ("Video," "Left," etc.). The level names are instead based on the Switcher "Name" (i.e., level name) as entered in the Switcher Description table, with a maximum length of eight characters. For this reason, systems with JEP-100 panels require that all Switcher Names in the Switcher Description table be unique (not just unique within a given switcher). For example, if switcher "Main" has a level Name "Video," then switcher "News" could not also have a level name "Video."

NOTE The Type "Serial" Input and Output sets used for the JEP-100 must have an Entry number "0" in the first row, Entry number "1" in the second row, and so on in sequence.

The CP Input and Output sets are also the source of the eight–character mnemonics displayed on the panel.

Further, the CP Input set determines which of the 96 button–per–source buttons is assigned to which source. The upper left–hand button of the JEP–100 will select the first input listed on the CP Input Set created and selected for this particular panel, the next button to the right will select the next listed input, etc. Override sets are not used.

Audio Mode (Special Stereo Switching)

When used to control Venus or Apex audio routers, the JEP–100 can provide stereo switching modes, which are Normal, Left, Right, Mix, and Reverse. In this case, the Switcher Description table must define Left and Right levels in the Audio column. For more information, refer to the Switcher Description Table in Section 5 of the Jupiter CM–4000 manual.

Audio mode operating instructions are detailed on page 45.

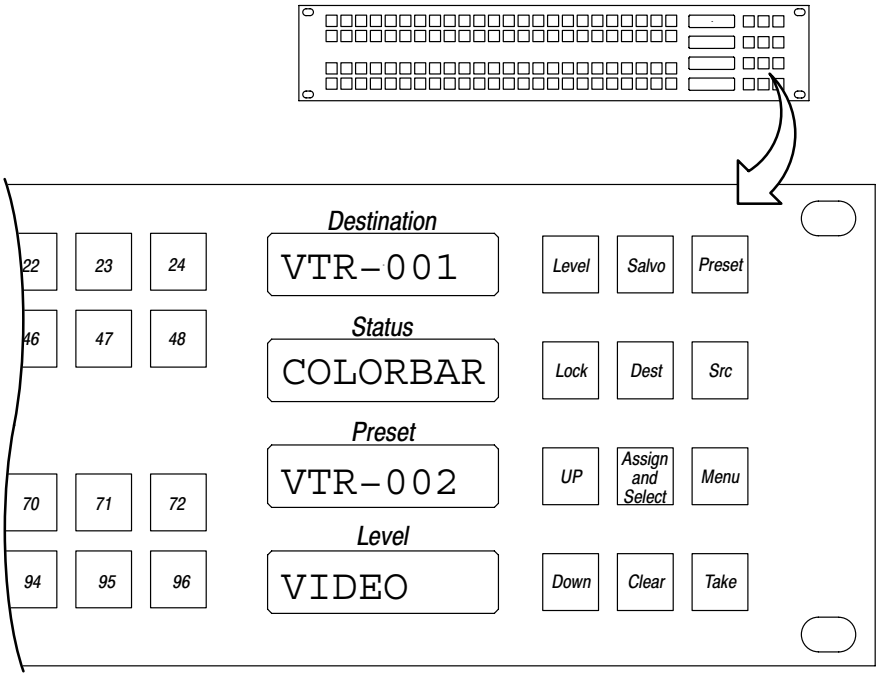
Compiling

Before the panel can be used, the edited Jupiter set must be compiled and the appropriate configuration set made active using the Control Center. For more information, please refer to Section 5, "Configurator" in the Jupiter CM–4000 manual.

Section 6

Operation

Figure 18. JEP–100 LEDs and mode select buttons.



LED Displays

Destination – the output presently controlled by the panel.

Status – the source presently switched to the panel's controlled output.

Preset – shows the new sources as they being entered, e.g., scrolled using the UP and DOWN buttons. After TAKE is pressed, the *previous* source is shown in the Preset window. This allows "flip–flopping" the sources, or switching between the current and preset sources by simply pressing the TAKE button.

Level – used for level breakaway (split) switching and level–by–level statusing.

Destination Selection / Status Check

To select a destination prior to making a switch or to check status:

1. ASSIGN/SELECT button – ON.

2. DEST button – ON.

3. Select a new destination by using the UP and DOWN arrows to scroll through all destinations.

   When using the UP/DOWN buttons, scrolling past the end of the list will wrap around to the other end.

   It is also possible to program one or more buttons to control outputs directly. See page 41.

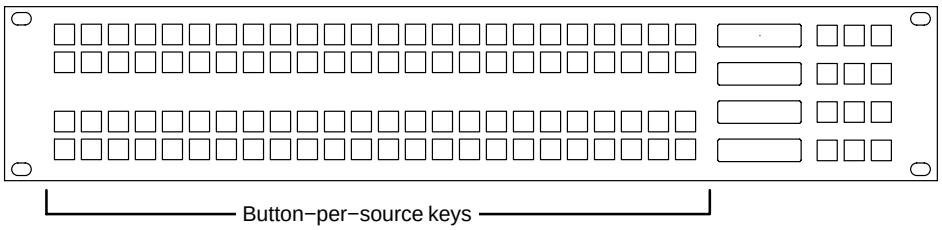
4. When the desired destination is displayed in the Destination window, press the TAKE button to select it.

   The name of the input currently switched to this destination will be shown in the Status window.

NOTE If panel "A" does not have access to a certain input, but that input has been selected by panel "B" for the output presently being statused by panel A, then panel A has no way of reporting the mnemonic of the input. Under these conditions, panel A will show asterisks (****) for status.

NOTE If the panel cannot be changed to the desired output, it may have been limited to certain outputs by the CP Output set used on the MPK Devices table. See page 32.

Source Selection (All Levels Take)



1. The PST (Preset) and LEVEL buttons should be OFF.

2. Select the desired input:

   — Press one of the button−per−source (BPS) keys on the left side of the panel (which immediately completes the switch), or

   — When the SOURCE button is ON, the UP/DOWN buttons can be used to find a source in the Preset window. Press TAKE to complete the switch.

The newly switched source will be shown in the Status window.

If a BPS button was used to select the source (or if an BPS button corresponds to the selected source) the button will illuminate. However, the button will not illuminate if the first level assigned to the panel on the Level set table has been set to "No" switching. Nor will it illuminate unless all levels assigned to the button are switched.

BPS button programming

The BPS button assignments are based on the entries to the CP Input table (see page 33), but these assignments can be changed using the panel itself (see page 40).

It is also possible to assign these buttons to a destination (see page 41) or to levels (see page 42).

Level Breakaways (Split Switching)

This function allows different sources to be selected for different levels. For example, switching video without switching audio. There are two methods available:

- Default mode – level names are scrolled in the Level window and toggled on/off before the switch is made.
- Button–per–level mode – levels are assigned to specific buttons and toggled on/off before the switch is made. A level can be assigned to to one of the 96 keys on the left side of the panel or one of the top six keys on the right side of the panel.

Default Mode Breakaway

1. SOURCE button – ON.
2. Use UP/DOWN to step to the desired source.
3. LEVEL button – ON.
4. Deselect the unwanted levels:
   a. Use UP/DOWN to step to the first unwanted level
   b. Press ASSIGN/SELECT to toggle the level on/off. Dashes in the Level window mean the level is de–selected.
   c. Repeat as needed for remaining levels.
   d. (Optional) Use UP/DOWN to return to a selected level (so you can monitor the switch in the Status window).
5. Press TAKE to complete the switch on the selected level(s).

Checking Status of Selected Level

Press CLEAR. With the LEVEL button ON, press UP/DOWN to step to the desired level. The status of the selected level with be shown in the Status window.

Button-per-Level Mode Breakaway

This method assumes that the levels have been assigned to specific buttons; if not see "Defining a Level Button" on page 42 or "Alternate Mode" on page 44.

1. SOURCE – ON.
2. Use UP/DOWN to step to the desired source.
3. LEVEL – ON.

NOTE In this mode, when using a subset of the 96 buttons on the left side of the panel, the LEVEL button must *always* be On for the Level buttons to be effective. If LEVEL is not On, the panel will perform an *all-level switch* regardless of the condition of the Level buttons.

4. Toggle on/off the desired level(s).
5. Press TAKE to complete the switch on the selected level(s).

Checking Status of Selected Level

Press CLEAR. With the LEVEL button ON, press UP/DOWN to step to the desired level. The status of the selected level with be shown in the Status window.

Defining a Source Button

By default, the 96 keys on left side of the panel are assigned to the inputs listed in the the CP Input set table. However, these buttons can also be programmed from the front panel using the ASSIGN/SELECT key. In case of conflict, the assignment made at the front panel takes precedence.

1. Press CLEAR.

   This returns the panel to the "home state."

2. (Optional) Check the desired key position for the new input:

   a. PRESET – ON.

   b. Press the key you would like to use. Check the Preset window for the current assignment.

   c. Repeat if necessary to find a suitable location.

   d. PRESET – OFF.

3. ASSIGN/SELECT – ON

4. SOURCE – ON.

5. Use the UP/DOWN buttons to select the new input.

   The name of the new input is shown in the Preset window.

6. Press the desired button.

   The input is now assigned to the button.

The top six function buttons on the right side of the panel can also be used for sources but only when Alternate mode is active (see page 44).

Defining a Destination Button

Any group of the "96 buttons" can be assigned to individual outputs for "X-Y" style switching where the operator first selects an output button and then completes the switch by selecting an input button.

1. Press CLEAR.

   This returns the panel to the "home state."

2. (Optional) Check the desired key position for the output:

   a. PRESET – ON.

   b. Press the key you would like to use. Check the Preset window for the current assignment.

   c. Repeat if necessary to find a suitable location.

   d. PRESET – OFF.

3. ASSIGN/SELECT – ON

4. DEST – ON.

5. Use the UP/DOWN buttons to select the new output.

   The name of the new output is shown in the Preset window.

6. Press the desired button.

   The output is now assigned to the button.

The top six function buttons on the right side of the panel can also be used for destinations but only when Alternate mode is active (see page 44).

Defining a Level Button

Any group of the "96 buttons" can be assigned to individual levels, allowing the operator to toggle buttons on and off during a split switch.

1. Press CLEAR.

   This returns the panel to the "home state."

2. (Optional) Check the desired key position for the level:

   a. PRESET – ON.

   b. Press the key you would like to use. Check the Preset window for the current assignment.

   c. Repeat if necessary to find a suitable location.

   d. PRESET – OFF.

3. ASSIGN/SELECT – ON

4. LEVEL – ON.

5. Use the UP/DOWN buttons to select the level.

   The name of the level is shown in the Level window.

6. Press the desired button.

   The Level is now assigned to the button.

   The button will illuminate to show that the level is selected for switching.

For level breakaway instructions, see page 39.

The top six function buttons on the right side of the panel can also be used for levels but only when Alternate mode is active (see page 44).

Locking or Unlocking an Output

Locking an output prevents that output from being switched by any panel in the system, including the initiating panel.

To lock an output:

1. Press the LOCK button.

   This has the effect of locking only those levels this control panel can control (as defined on the CP Level set assigned to the panel). The LOCK button will remain on, indicating the output has been locked by this panel.

   If another Jupiter panel selects this output for control, that panel's LOCK button will light.

To unlock the output:

1. Press the LOCK button again.

   The LOCK button lamp will go off.

   If the output will not unlock, it has been locked by another panel.

For additional lock information – please refer to the Jupiter CM–4000 manual.

Salvos

This function is under development.

Menu Functions

The various menu modes are entered by selecting MENU, then UP/DOWN to scroll to the desired item in the Preset window.

In general, the window describes what will happen if TAKE is pressed. For example, "Alm. on?" means that Alternate mode will be turned On by pressing TAKE.

AlM. - Alternate Mode

Alternate mode may be useful when all 96 buttons to the left of the status displays have been assigned to inputs, outputs, or levels and the operator wants to make additional assignments on a temporary basis. Alternate mode allows the top six buttons in the right–hand button cluster to be used for this purpose. For example, the buttons could be used for level selection during breakaway switching.

Button assignments must be made *prior* to entering Alternate mode:

Assigning a source – see page 40

Assigning a destination – see page 41

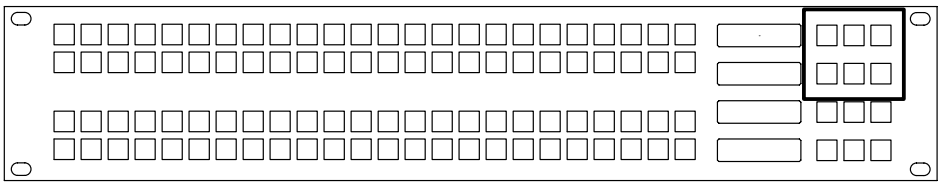
Assigning a level – see page 42

Alternate mode operation

1. MENU button – ON.
2. Use UP/DOWN to display "Alm on" (Alternate mode On), meaning that this is the mode that will be selected if TAKE is pressed.
3. Press TAKE.

   This activates the six "temporary level" buttons (the outlined buttons in Figure 6–1). Lighted buttons initially indicate defined levels.

Figure 6–1.



4. Select the new input.
5. Toggle OFF the level(s) you **don't** want to switch.
6. Press TAKE to complete the switch on the selected level(s).

SelAMod. - Select Audio Mode (Special Stereo Switching)

The JEP–100 can provide stereo switching modes, which are Normal, Left, Right, Mix, and Reverse. These changes are made to individual levels prior to completing a switch.

NOTE Audio mode will only appear in the Preset window if a Venus or Apex router is connected and configured for special stereo switching. In particular, the Jupiter Switcher Description table must define Left and Right levels in the Audio column. For more information, refer to the Jupiter CM-4000 manual.

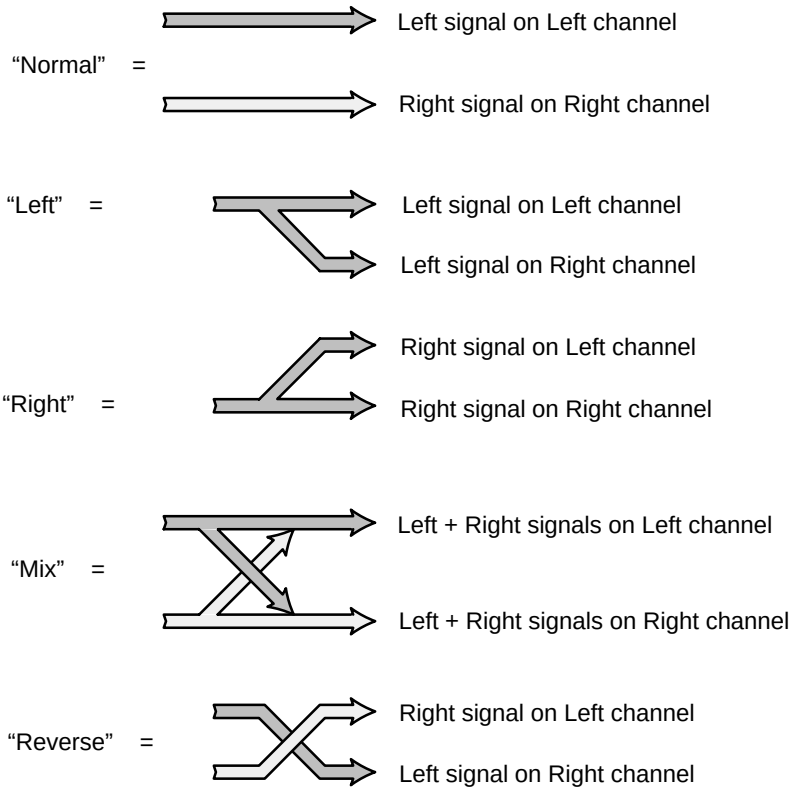
To perform a special stereo switch:

1. SOURCE – ON.
2. Use the UP/DOWN buttons to select the new input.
3. Press MENU.
4. Use UP/DOWN to display “SelAMod?” meaning that this is the mode that will be selected if TAKE is pressed.
5. Press TAKE.

   The Preset window will display “Pair 1,” referring to the first two audio levels listed in the Jupiter CP Level Set; e.g., Left and Right.
6. If this is the desired pair, press TAKE. If not, use UP/DOWN to select the appropriate audio pair, and then press TAKE.

   The current audio mode for the selected pair will be shown.

   A maximum of four audio pairs can be defined.
7. Toggle to the desired mode:



8. Press TAKE.

9. The last selected Audio mode will remain in effect until explicitly changed by the operator.

DspAMod. - Display Audio Mode (Special Stereo Switching)

This mode provides a method of checking the Audio mode that is presently in effect.

1. Press MENU.

2. Use UP/DOWN to display "DspAMod?" meaning that this is the mode that will be selected if TAKE is pressed.

3. Press TAKE.

The Preset window will display "Pair 1," referring to the first two audio levels listed in the Jupiter CP Level Set; e.g., Left and Right.

4. If this is the desired pair, press TAKE. If not, use UP/DOWN to select the appropriate audio pair, and then press TAKE.

The current Audio mode for the selected pair will be shown.

5. Press CLEAR to exit.

S.M. - Sticky Level Mode On/Off

This function allows breakaway operation during which the selected Levels remain selected after a TAKE. For example, you may want to keep switching different video test signals to a destination but not switch audio tone. To turn on sticky mode:

1. MENU – ON.
2. Use UP/DOWN to step to "S.M. on?"
3. Press TAKE. Sticky mode is now active.
4. Perform a breakaway switch (see page 38).

   The breakaway pattern of this switch will remain in effect after the TAKE is executed (and also if CLEAR is selected).

   For example, if Sticky mode is on, and the operator makes a video–only switch, the next switch will also be video only unless specified otherwise. In other words, as long as Sticky mode is on the last–selected breakaway settings will persist.

To find out which levels are sticky, press LEVEL, then UP/DOWN. The Level window will show the levels that will switch. If Level buttons have been assigned, the appropriate buttons will illuminate.

To **cancel sticky levels**, press MENU, then use UP/DOWN to toggle the display to "S.M off?" Then press TAKE.

M.O. - Multiple Output Mode On/Off

This function allows "gang" switching where the same input is switched to multiple outputs with a single TAKE. The following procedure assumes that destination buttons have been assigned (see page 41).

To turn on Multiple Output mode:

1. MENU – ON.
2. Use UP/DOWN to step to "M.O. on?"
3. Press TAKE. Multiple Output mode is now active.
4. Toggle on/off the outputs that you want to switch.
5. Select the desired input.
6. Press TAKE. The input will be switched to all selected outputs.

   The breakaway pattern of subsequent switches will remain in effect after the TAKE is executed (and also if CLEAR is selected).

To **cancel multiple output mode** press MENU, then use UP/DOWN to toggle the display to "M.O. off?" Then press TAKE.

ELAN - Ethernet Mode On/Off

Ethernet mode enables communication through a LAN cable connection (as shown on page 6). The ELAN OFF setting enables communication through a serial connection.

When a LAN + Serial arrangement is used the panel will normally be operated in the Serial mode; however, during software upgrades the Ethernet mode must be used.

NOTE When switching between Serial and LAN modes, multiple startup messages may be seen momentarily.

D.T. - Display Time On/Off

In this mode, the time of day (HH:MM:SS) is displayed in the Level window. The source of this clock is the CM–4000.

NOTE The clock is synchronized with the CM-4000 approximately every 10 minutes.

Chg ID - Change Panel ID Mode

The panel ID is used to identify an individual panel on the Jupiter MPK Devices table.

When "Chg Id?" is displayed, press TAKE; the Name of the panel (as created on the Jupiter MPK Devices table) will be displayed in the Level window. Then use UP/DOWN to select the desired ID in the Preset window.

In Serial mode, the ID can range from 1 to 16; in Ethernet mode the ID can range from 1 to 64. When the desired ID is shown, press and hold the "24" button and press TAKE to apply the change. You should see the panel restart.

NOTE The panel ID can also be changed on the IP configuration (web) page, where it is referred to as the "Device Number" (see page 15). On the MPK Devices table the panel ID is called "Address" (see pages 31 and 23).

v - Version Number Display

Displays the panel software version. Exit with TAKE.

Internet Protocol Address Display

Displays the IP address for reference. The address can be changed using the web page (as described on page 14). Exit with TAKE or CLEAR.

Diag - Diagnostic Mode

Provides a test of the LED character set and all button lamps. Exit with TAKE or CLEAR.

NOTE Buttons 65, 73, and 81 may not light while in Diagnostics mode. This is a diagnostics code problem and does not affect the function of the panel.

C.B. - Change Brightness

Changes brightness of LEDs in display windows.

When "C.B. ?" is displayed, press TAKE; then use UP/DOWN to select the desired brightness level. Exit with TAKE or CLEAR.

Index

M

N

O

P

R

S

T

U

V

W

X