

## User's Manual



### *MCP 1000* Remote Control Panel

68-456-01 **Rev. C**  
01 07



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# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

### Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

### Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présents dans la documentation utilisateur.

**Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

### Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

### Precaución

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

### Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

### Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

### Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluss, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegen gestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Lithium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

### Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

# FCC Class A Notice

Note: 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.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

# Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America, and Central America:**  
Extron Electronics  
1001 East Ball Road  
Anaheim, CA 92805, USA

**Europe, Africa, and the Middle East:**  
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The Netherlands

**Asia:**  
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Singapore 368363

**Japan:**  
Extron Electronics, Japan  
Kyodo Building  
16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

## 安全须知 • 中文



这个符号提示用户该设备用户手册中的操作和维护说明。



这个符号警告用户该设备机壳内暴露的危险电压，有触电危险。

### 注意

**阅读说明书** • 用户使用该设备前必须阅读并理解有安全和使用说明。

**保存说明书** • 用户应保存安全说明书以备将来使用。遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

**避免追加** • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

### 警告

**电源** • 该设备只能使用产品上标明的电源。设备必用有地线供电系统供电。第三条线（地线）是安设施，不能不用或跳过。

**拔掉电源** • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统电源线。

**电源线保护** • 妥善布线，避免被踩踏，或重物挤压。

**维护** • 所有维修必须由认证的维修人员进行。设备部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

**通风孔** • 有些设备机壳上有通风槽或孔，它们是用防止机内敏感元件过热。不要用任何东西挡住通风孔。

**锂电池** • 不正确的更换电池会有爆炸的危险。必须使与厂家推荐的相同或相近型号的电池。按照生产厂的议处理废弃电池。

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## MCP 1000 Remote Control Panel

# Chapter One

## Introduction

About this Manual

About the MCP 1000

Features

*All trademarks mentioned in this manual are the properties of their respective owners.*

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## About this Manual

This manual contains information about the Extron MCP 1000 master and slave remote control panels — the MCP 1000M and the MCP 1000S — and provides information on how to operate and configure them.

In this manual, "MCP 1000" is used to refer to either unit. The terms "master," "slave," "MCP 1000M," and "MCP 1000S" are used to refer specifically to one unit or the other.

## About the MCP 1000

The MCP 1000 is a multipurpose control panel that can be part of an A/V presentations system, or dedicated to controlling a particular Extron device.

There are two versions of the MCP 1000:

- **MCP 1000M** (Master), which includes an RS-232 port and comm-link voltage
- **MCP 1000S** (Slave), which has neither an RS-232 port nor comm-link voltage

A master can also function as a slave, if necessary.

The MCP 1000M can control any Extron SW switcher, system switcher, or matrix switcher that uses Extron's Simple Instruction Set (SIS™) commands.

The MCP 1000 features one-button crosspoint operation and one-button operation per preset for global and room presets.

An MCP 1000M can receive RS-232 commands from a host computer and can send them to a device that accepts Extron's SIS commands. It can also receive signals on the comm-link port, translate them to SIS commands, and send them to a matrix switcher or simple switcher.

A slave MCP 1000 uses a 5-pole, 5 mm comm-link connection to communicate with either an MCP 1000 master or a Matrix 3200/6400 switching system. This application can include up to 64 units mixed with MCP 1000 panels and MKP 1000 keypads.

The MCP operating modes include:

- Remote switching control for an Extron switcher or a matrix switcher (with MCP 1000 master only)
- Input selection for a switcher
- Global presets (with matrix switchers)
- Room presets (with Matrix 3200/6400 only).

**NOTE** *Although slave units must be given a unique address (1 – 64) within a system, redundant units can be set up to allow identical control from more than one location.*

## Features

- Front panel includes 16 large, illuminated push buttons.
- Graphic/text inserts are provided for button assignments.
- Internal power supply, 100 VAC – 240 VAC, 50/60 Hz
- Works with multiple MCP 1000 and MKP 1000 units.
- Controls any SIS-compatible switcher.
- Includes brackets for rack, table, or shelf mounting.
- Enclosure is 1U high and 5.0" deep.
- LCD panel displays the function name and number.

## Button functions

The first four buttons on the left are used during setup. During normal operation, however, they function the same as the other 12 buttons — as program or selection buttons. The MCP 1000 can be a control panel for many Extron products.

## Simple Instruction Set (SIS)

The master MCP 1000M is preprogrammed with SIS commands in several categories. After the unit has been configured for an application, appropriate SIS commands are issued when a button is pressed. Such commands include selecting an input number, a preset number, or a room preset number. For example, if the unit is set up to work with a matrix switcher as output 5 to handle inputs 1 through 16, pressing MCP 1000 panel button 9 selects (ties) input 9 to output 5. See chapter 3, "Operation," for detailed examples with illustrations.

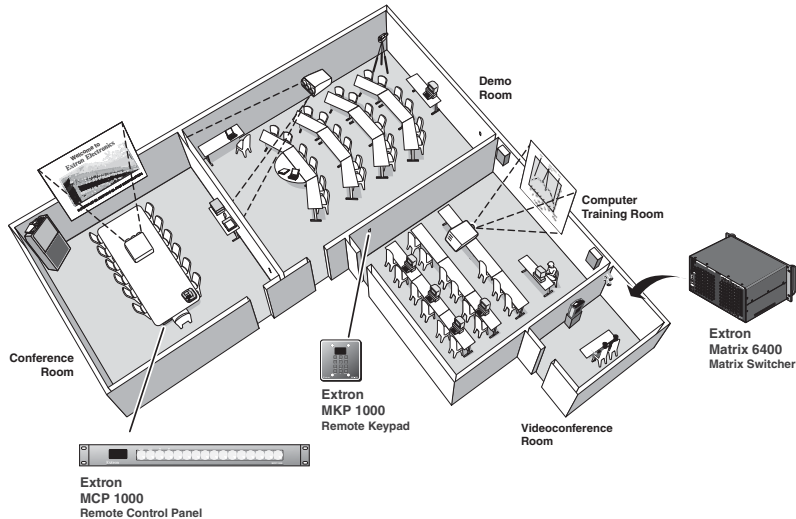
Any MCP 1000S slave unit connected to a master communicates through the comm-link ports. The master unit receives the comm-link command from a slave, translates it to an SIS command, and sends it out through the RS-232 port to the device being controlled.

## Mounting options

The MCP 1000 comes with a set of brackets for mounting the unit on a rack, or under or through a shelf, table, or podium. MCP 1000 panels can be located in various places throughout a business or educational complex.

### MCP 1000 as part of a Matrix 3200/6400 system

When used with an Extron Matrix 3200/6400 switcher, the MCP 1000 has the same functions as the MKP 1000 Remote Keypad. For this type of installation, the MCP 1000 panels are hard-wired to a Matrix 3200/6400 switcher, and they can be mixed with MKP 1000 keypads. For additional information, see the *MKP 1000 User's Manual*. As with the MKP 1000, the status of MCP 1000 units can be displayed on the front panel (FPC 1000) of the Matrix 3200/6400.



**Using the MCP 1000 with an MKP 1000 and a Matrix 3200/6400 switcher.**

### Comm-link requirements

The maximum total cable length in a comm-link system is 1000 feet (305 meters). It doesn't matter whether the configuration is a daisy-chain, a star, or a combination of both.

The maximum number of MKP 1000 and MCP 1000 units in one system is 64.

Through the comm-link port, an MCP 1000M (master) unit supplies voltage to MKP 1000 units. Matrix 3200/6400 BMEs (Basic Module Enclosures) also supply voltage through the comm-link ports for MKP 1000s.

#### **CAUTION**

*Damage may occur if more than one voltage source is connected to a system. See page "Comm-link connectors (master or slave)" in chapter 2, "Installation," for more details.*



## MCP 1000 Remote Control Panel

# Chapter Two

## Installation

Mounting the MCP 1000

Rear Panel Connections

Changing the Front Panel Button Labels

Using the Button Label Generator

# Installation

## Mounting the MCP 1000

The MCP is 1U high by 17.5" wide by 5" deep. It can be placed on a table or other furniture, or it can be mounted in a rack using mounting brackets ("rack ears").

### Tabletop use

Four self-adhesive rubber feet are included with the MCP 1000. For tabletop use, attach one foot to each corner of the bottom side of the unit and place the MCP in the desired location.

### Rack mounting

The MCP can optionally be mounted in a rack with the supplied MBD 149 rack mounting kit (part #70-077-03).

### UL requirements

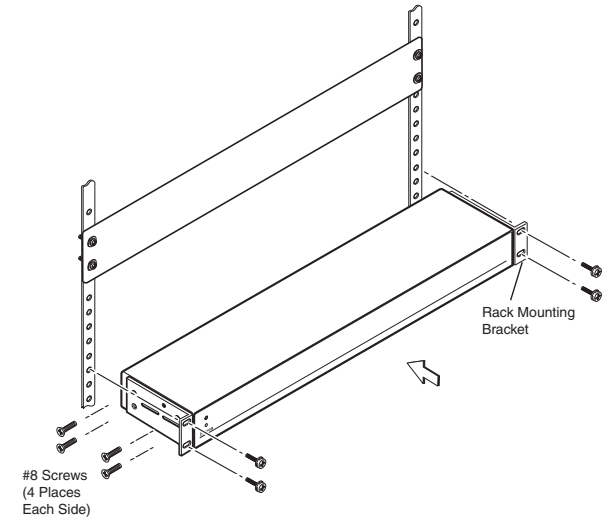
The following Underwriters Laboratories (UL) requirements pertain to the installation of the MCP 1000 into or onto a rack.

1. **Elevated operating ambient** — If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer.
2. **Reduced air flow** — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
3. **Mechanical loading** — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. **Circuit overloading** — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. **Reliable earthing (grounding)** — Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (such as the use of power strips).

## Mounting instructions

Follow these steps to rack mount the MCP 1000:

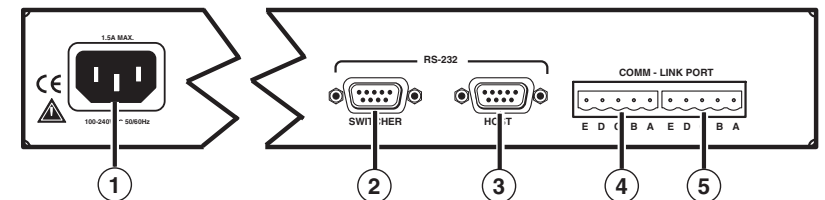
1. Attach the mounting brackets to the unit using eight of the machine screws supplied with the mounting kit.
2. Insert the unit into the rack and align the holes in the mounting brackets with the holes in the rack. Use four of the supplied machine screws to attach the brackets to the rack.



**Rack mounting the MCP 1000**

## Rear Panel Connections

There are many ways to connect the MCP 1000 to other products. However, there are two general applications: one using RS-232, and the other using the comm-link port. In some applications, both of these connectors are used. Chapter 3, "Operations," includes illustrated examples of several applications.



**MCP 1000 rear panel connectors**



## RS-232 connectors (master)

- ① **Power connector** — Plug the provided power cord into this connector to connect the MCP to a 100-250 VAC, 50/60 Hz power source.
- ② **Switcher** — Use this 9-pin connector for communication between the MCP 1000 and a comm port on the switcher that will be controlled by the MCP 1000.
- ③ **Host** — Use this 9-pin connector for communication between the MCP 1000 and a comm port on the RS-232 controlling device or a computer with Extron's control software for Windows installed.

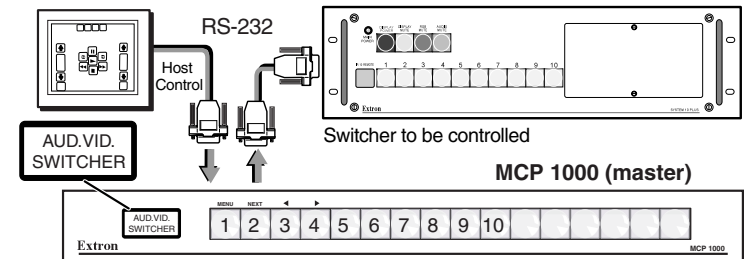
**CAUTION** Do not use delay or pause characters (commands that delay execution of the next SIS command) in RS-232 commands. Use contiguous SIS characters.

The RS-232 connector uses the following pin assignments:

Pin	Description
1	Not used
2	Transmit data
3	Receive data
4	Not used
5	Signal ground
6	Not used
7	Not used
8	Not used
9	Not used

The protocol is 9600 baud, 8-bit, 1 stop bit, no parity, and no flow control.

The illustration on the next page shows a host controller and a switcher connected to the RS-232 ports on the MCP 1000.



**MCP 1000, host controller, and switcher**

## Comm-link connectors (master or slave)

- ④ and ⑤ **Comm-link panel connectors** — Connect a matrix switcher or another (master or slave) MCP to these 5-pole, 5 mm male connectors. The MCP 1000 includes two female connectors for making cables.

Although comm-link connections can be used in a master application, the typical application is a large matrix system, such as a Matrix 6400. This can include multiple MCP 1000 units, as well as MKP 1000 units, intermixed. See the application examples illustrated in chapter 3, "Operations."

### Making cables

Choose a cable such as AMX/Panja's Axlink, Crestron's Cresnet, or Extron's Plenum Comm-Link cable. The wire specifications for comm-link cable are on page 2-5. After running the cables, follow the procedure below to install the connectors.

The appropriate connectors are shipped with each device:

**MCP 1000** — Use 5 mm connectors (Extron part number 10-163-13).

**MKP 1000** — Use 3.5 mm connectors (Extron part number 10-319-10).

**Matrix 3200/6400 master BME** — Use 5 mm connectors (Extron part number 10-163-13).

**CAUTION** Do not connect both a Matrix 3200/6400 BME and an MCP 1000M (master) unit on the same comm-link connection. Also, do not connect more than one master on the same comm-link connection. Both of these units supply voltage to the comm-link ports on pins A and B. Connect these pins to only one power source. This does not apply to MCP 1000S (slave) units.

## Installation, cont'd

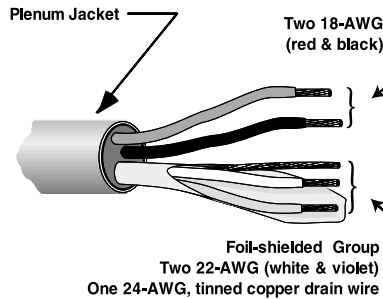
Cables must be made with the appropriate connector on each end. Regardless of the connector that is being used, the wiring must be one-to-one (for example, red-to-red and A-to-A).

**CAUTION** *Damage may occur to circuits if cable wire assignments are not the same on both ends.*

**NOTE** *The total cable length for connecting MCP 1000s and MKP 1000s to a matrix system must not exceed 1000 feet (305 meters).*

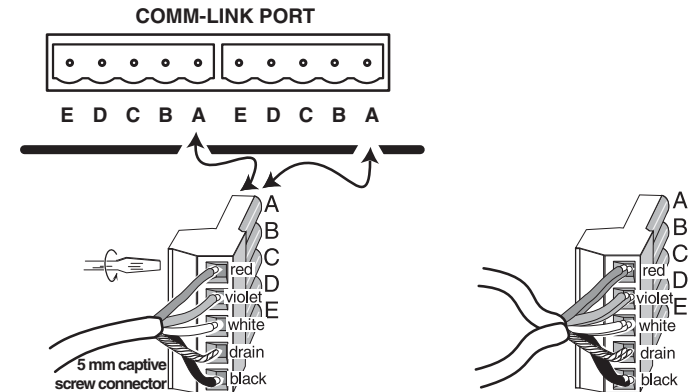
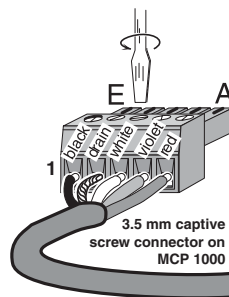
To attach connectors to the cables,

1. Trim approximately 1.5 inches of the cable jacket to expose the four insulated wires and a bare drain (ground) wire (silver colored).



### Trimming the cable jacket

2. Cut off and discard the foil shield.
3. Strip 0.25 inches of insulation from each of the four wires.
4. Twist the strands of the black wire, insert it into the opening that corresponds to pin E, and tighten its captive screw. (See the illustration at right.)
5. Twist the strand of the drain wire, insert it into position D, and tighten its captive screw.
6. Connect the remaining wires in the same way (for this example, white, violet, and red).



### Wiring the 5 mm captive screw plugs

7. Choose the appropriate captive screw connector and repeat steps 1 through 6 for each cable end.

Both types of captive screw connectors use a "moving cage" to damp the wires, without the need for soldering.

### Extron's Plenum Comm-Link cable

Extron's Plenum Comm-Link cable was designed for use with the MCP 1000 and MKP 1000. If another cable will be used, it must meet the following specifications:

**A (red)** — 18 AWG

**B (violet or blue)** — 22 AWG (grouped and shielded)

**C (white)** — 22 AWG

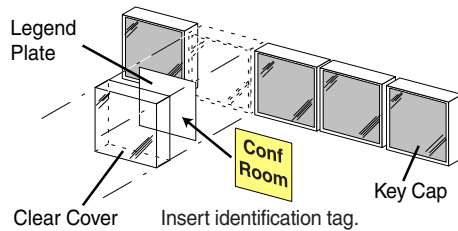
**D (drain)** — 24 AWG

**E (black)** — 18 AWG

See appendix A, "Specifications, Part Numbers, and Accessories," for a list of Extron cable part numbers.

### Changing the Front Panel Button Labels

The 16 buttons on the MCP 1000 are not marked for operation. You can remove the button caps to reveal a label plate (see the figure below). Remove each cap and insert a label (icon or text) for each button to identify its assignment. You can use the Extron Button Label Generator (page 2-8) to produce labels.



#### Replacing a button label

You can print labels on transparent or translucent material, and then cut them from a sheet. Also, see the colored button caps listed in the parts list in the appendix.



Button-Label  
Generator

### Using the Button Label Generator

#### Installing the software

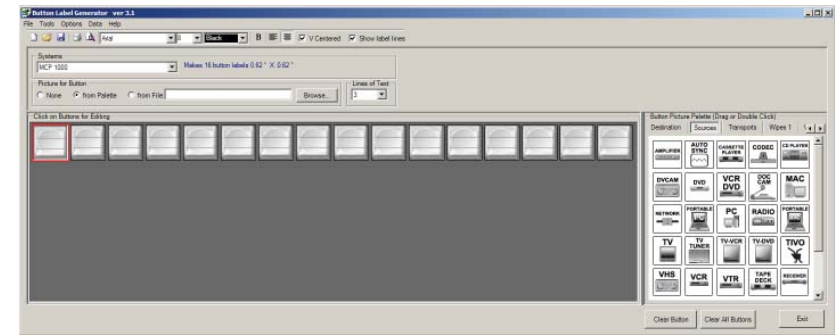
The program is provided on a CD-ROM, and you can run it from the CD drive. However, it is usually more convenient to load and run the program from the hard drive.

To install the Button Label Generator program from the CD-ROM to the hard drive, run SETUP.EXE from the CD and follow the instructions that appear on the screen. The program occupies approximately 0.5 MB of hard-drive space.

By default, the Windows installation program creates a C:\BUTTONS directory, and it places an icon (Button-Label Generator) into a group or folder named "Extron Electronics."

#### Using the software

1. To start the Button Label Generator program, double-click on the Button Label Generator icon (shown at the left) in the Extron Electronics group or folder, and click OK when prompted.
2. Under System selection, choose MCP 1000. The Extron's Button Label Generator window appears (see the figure on the next page).



Extron's Button Label Generator window

3. Using normal Windows controls, you can create and print labels that can be placed in the button panel inserts on the MCP 1000 front panel.

For more information about using the program, you can access the Button Label Generator online help by selecting Show Help from the Help menu on the main screen.



# 3

## **Chapter Three**

### **Operation**

Front Panel Features

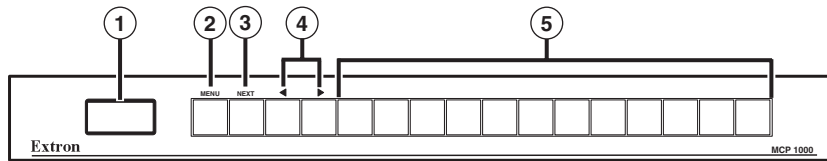
Application Examples

Setting Up the Operation Mode

## Front Panel Features

The buttons on the MCP 1000 front panel enable you to set up and operate the MCP and to control a connected switcher.

**NOTE** In setup mode, the Menu, Next, ◀, and ▶ buttons (②, ③, and ④ in the illustration below) provide access to the menus and submenus used for setting up the MCP. When the MCP is in one of the operating modes (switcher, output, room, or preset), these buttons function the same as the other 12 selection buttons (⑤ in the illustration). See "Using setup mode," later in this chapter, for more information.



**MCP 1000 front panel**

- ① **LCD window** — This screen displays messages, menu information, and selections you make by pressing front panel buttons in different operating modes. (See "Setting Up the Operation Mode," later in this chapter, for more information.)
- ② **Menu button** — In setup mode, press this button to access the MCP's menu system and step through the menus.  
In the operating modes, this button becomes another selection button.
- ③ **Next button** — In setup mode, after selecting a menu using the Menu button, press the Next button to step through the submenus.  
In the operating modes, this button becomes another selection button.
- ④ **Right and left arrow buttons** — In Setup mode, these buttons let you make selections from the current submenu that you accessed by pressing the Next button. From the submenus, you can select the operating mode, a preset, the IP address, etc.  
In the operating modes, these buttons become selection buttons.
- ⑤ **Selection buttons** — Press these buttons to issue SIS commands to select an audio or video input, an output, or a preset, depending on the operating mode specified at setup. (These buttons are disabled when the MCP is in setup mode.)

## Application Examples

This section shows some examples of how the MCP 1000 can be used to perform various functions with a variety of devices. In view mode, the LCD window displays a title for the type of operation (see "Title screen display," later in this chapter). Numbers, names, and symbols can be created and inserted in the button caps to identify the function of each button (see "Changing the Front Panel Button Labels" in chapter 2, "Installation").

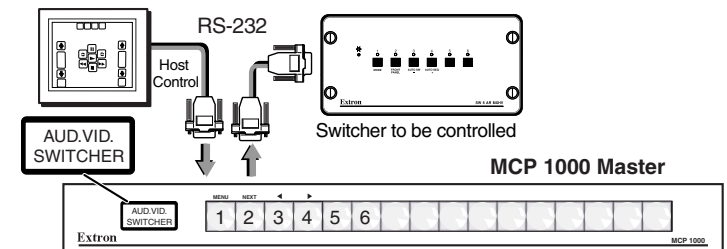
**CAUTION** Do not connect both a Matrix 3200/6400 BME and an MCP 1000M (master) unit on the same comm-link connection. Also, do not connect more than one master on the same comm-link connection. Both of these units supply voltage to the comm-link ports on pins A and B. Connect these pins to only one power source. This does not apply to MCP 1000S (slave) units.

### Master applications (RS-232)

For each configuration, a master sends out a specific SIS command for each button that is pressed. If the master has any slaves attached by comm-link, the master translates the comm-link signals to SIS commands and sends them to the device being controlled. The following examples include the SIS command, in which *i* is the input number, *o* is the output number, and *p* is the preset number.

**CAUTION** Do not use delay or pause characters in RS-232 commands. Use contiguous SIS commands.

#### Audio-video switcher — SIS command: i!



#### MCP 1000M, SW6 switcher, and host computer

Pressing a panel button generates an SIS command to switch audio and video for the corresponding button. For example, press panel button 5 for input 5. If the switcher has fewer than 16 inputs, the MCP 1000 still sends out commands for unused buttons, which may cause an error response from the switcher.

## Video switcher — SIS command: i&

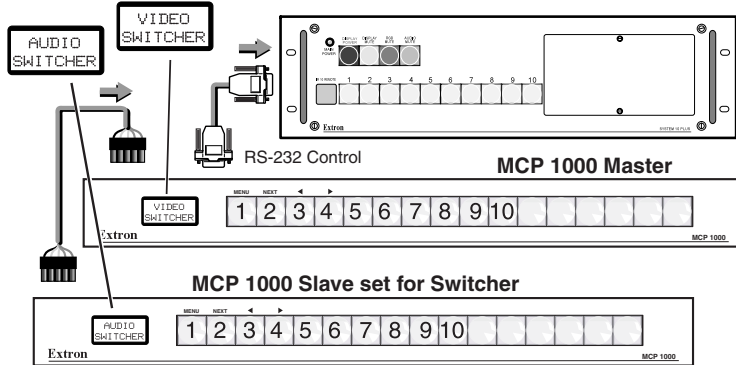
This configuration is the same as for the audio-video switcher shown on the previous page, except that only video signals are switched. This is called "audio breakaway."

## Audio switcher — SIS command: i\$

This configuration is the same as for the audio-video switcher, except that only audio signals are switched. This is called "audio breakaway."

**NOTE** *Audio breakaway is not available in matrix mode.*

In the illustration below, the master switches video only and the slave switches audio only. In this configuration, the two units are operationally identical, even though one is a master and one is a slave. The master could have been set for audio, and the slave could have been set for video.



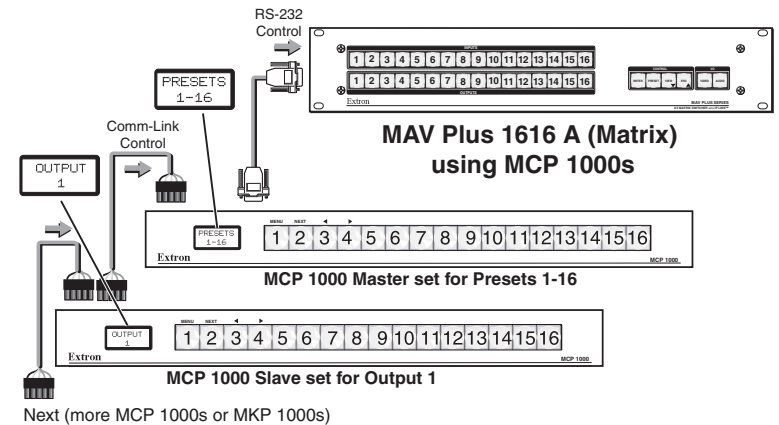
**MCP 1000M, MCP 1000S, and System 10 Plus**

## Output (matrix) — SIS command: i\*o!

Depending on the size of the matrix switcher, the MCP 1000 can be set up for one of 64 output numbers. In output mode, an MCP 1000 acts like a switcher for a specific output number on the matrix. For example, if the MCP 1000 is set up for output 5 and panel button 3 is pressed, the matrix ties input 3 to output 5.

## Preset (matrix) — SIS command: p.

A preset is a set of ties, inputs to outputs, that has been made and stored previously. Depending on the size of the matrix switcher, the MCP 1000 can be set up for presets 1 through 16, or 17 through 32. Pressing an MCP button recalls (activates) a preset in the matrix.



**Output mode and preset mode on a MAV Plus 1616 A**

## Slave applications (comm-link)

### CAUTION

*Do not connect both a Matrix 3200/6400 BME and an MCP 1000M (master) unit on the same comm-link connection. Also, do not connect more than one master on the same comm-link connection. Both of these units supply voltage to the comm-link ports on pins A and B. Connect these pins to only one power source. This does not apply to MCP 1000S (slave) units.*

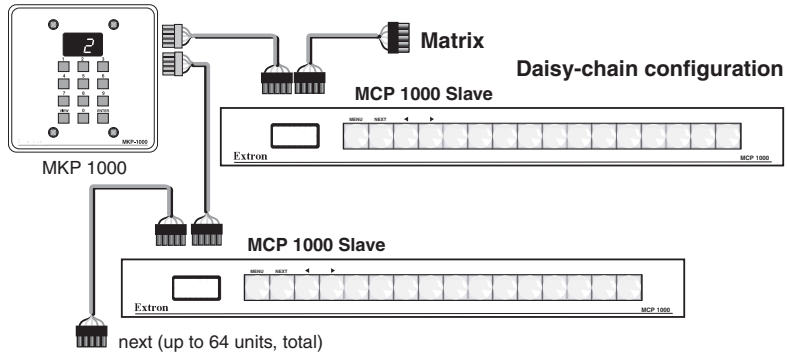
A slave unit has no RS-232 port; it communicates through the comm-link ports. This allows it to be used in a Matrix 3200/6400 system, either as a single control panel or with other MCP 1000 and MKP 1000 units.

An MCP 1000S must always connect to an MCP 1000M or to a Matrix 3200/6400 BME. See "Output (matrix) — SIS command: i\*o!" and "Preset (matrix) — SIS command: p.", earlier in this chapter, for two examples of slave units used with a master unit.

A slave sends signals by comm-link to the MCP 1000M or BME. An MCP 1000M translates those signals to SIS commands and sends them to the controlled device. A master BME sends control signals to the appropriate BMEs in the Matrix 3200/6400 system.

## Daisy-chain configuration

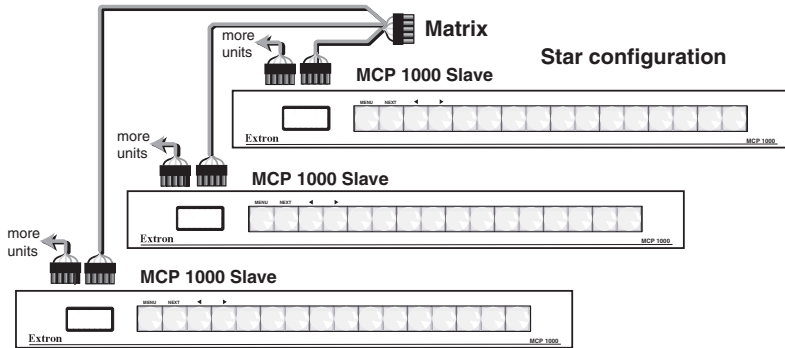
A daisy-chain configuration saves cable by allowing signals from units that are far away to be passed serially through units that are near the master unit. MCP 1000 and MKP 1000 units can be mixed in the same configuration.



**Daisy-chain configuration**

**Star configuration**

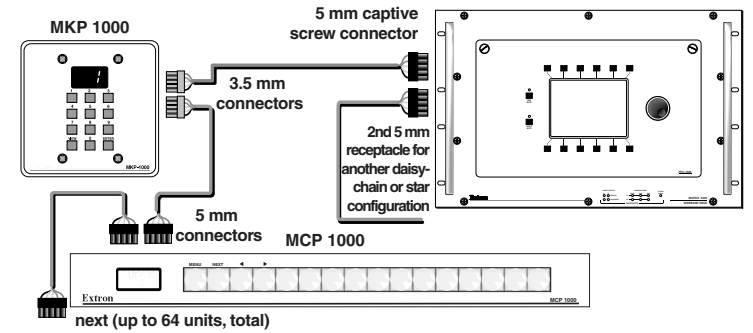
A star configuration uses separate, parallel cables to connect slave units to an MCP 1000M or to a BME. This configuration is recommended when slave units are located in opposite directions from the master unit. See the figure below.



**Star configuration**

**Star/daisy-chain configuration**

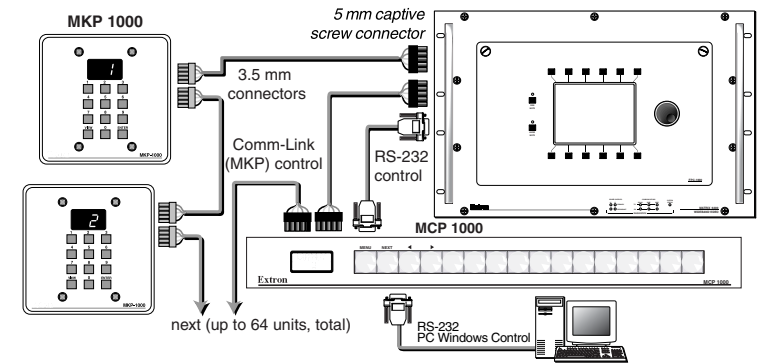
Depending on the physical layout of the configuration, you can cable the application in combinations of stars and daisy chains, as long as the total cable length does not exceed 1000 feet (305 meters). See the figure on the next page.



**Star/daisy-chain configuration**

**Master/slave applications (RS-232/comm-link)**

Some applications can use an MCP 1000M with an RS-232 host. The figure below shows an example.



**Master/slave application**

### Setting Up the Operation Mode

Review the application examples for the mode in which your MCP 1000 will be used, and then set up the unit following the flow charts at the end of this chapter.

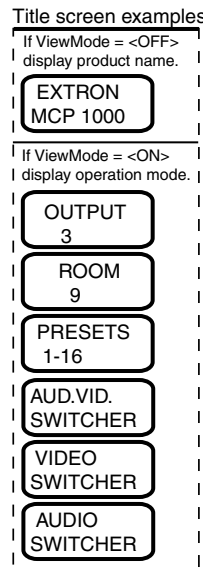
The following sections describe how the front panel operates.

#### LCD display

Before using the panel buttons and LCD menus, read the following descriptions.

##### Title screen display

When the MCP 1000 is powered up and operational, a title screen appears in the LCD display. If view mode is off, the product name appears. If view mode is on, a title indicates the operation mode. The example on the right shows output 3. If the MCP 1000 is configured as a room or as an output device, then the selected room number or output number is also displayed. In preset mode, the preset range numbers are also displayed.



##### Testing lights

If the panel buttons light one by one, in a left-to-right strobing fashion, the MCP 1000 is testing the lights. Check that each light is working.

##### Left-right selection arrows

During setup, some screens have graphic arrows on the left and/or right sides of the display. If these appear, the left and right (navigation) panel buttons can be used to change the selection. These arrows can be seen, for example, in the screens that allow you to change the displayed address or to change the operating mode.

#### Using setup mode

To enter setup mode, press the two end buttons at the same time. The LCD display changes, and the four left-most buttons light to indicate that the MCP 1000 is in setup mode. The markings above the four buttons (Menu, Next, ◀, and ▶) are valid only at this time.

#### Mode examples

The function of each panel button depends on the mode and the assigned range. In a permanent installation, the panel button caps can be removed, and a paper or plastic insert can be placed inside to display text or an icon that represents the button's function. See chapter 2, "Installation," for information about removing the button caps and printing button labels.

##### Preset mode

If the MCP 1000 is configured as a preset selector, the preset range is displayed. For example, if presets 17 through 32 are set, the first front panel button on the left corresponds to preset 17, and the first button on the right corresponds to preset 32. In this case, if the MCP 1000 is in preset mode and is set up to work with a matrix switcher, pressing button 3 on the MCP 1000 loads (activates) preset 19.

##### Switcher mode

In switcher mode, each button selects an input. For example, if the MCP 1000 is controlling a System 10 Plus, pressing buttons 11 through 16 results in an error display on the LCD panel. If a switcher has a breakaway feature, an MCP 1000 can be set up to switch audio only, video only, or both audio and video. See the examples on pages 3-3 and 3-4.

##### Output mode (matrix)

Output mode is like switcher mode, but for a specific output number on a matrix switcher. The assigned output number is displayed on the LCD panel. The MCP 1000 has 16 function buttons. If the matrix has more than 16 inputs, a set of 16 inputs must also be assigned. For example, if the MCP 1000 is set up to represent output 3 with inputs 1 through 16, pressing button 9 on the MCP 1000 panel selects (ties) input 9 to output 3. Another MCP 1000 can be set up to represent output 3 with inputs 17 through 32. A large matrix system such as this can have many MCP 1000s attached.

As another example, if you set the MCP 1000 to represent output 7 with inputs 49 through 64, output 7 appears in the LCD display. Button 1 selects input 49, button 2 selects input 50, and button 16 selects input 64.



## Room mode

Room mode is similar to output mode, in that each of the first 10 panel buttons represents a room number within a range of 10. For example, if you set the MCP 1000 to represent room 1 with room presets 1 through 10, Room 1 appears in the LCD display. Button 9 selects room preset 9, button 2 selects room preset 2, and so on. If you make a selection that is not within the range of that device, an error message appears on the LCD display.

## Setup flow charts

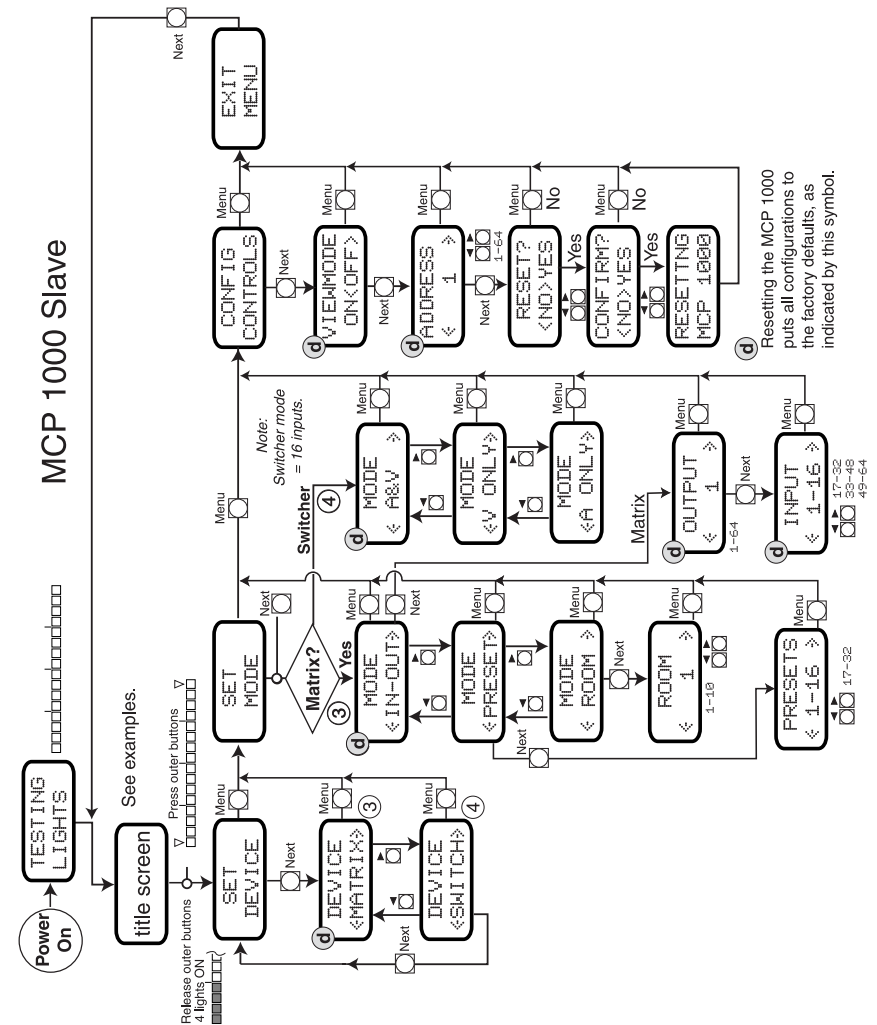
The MCP 1000 slave mode flow chart is on page 3-11, and the MCP 1000 master mode flow chart is on page 3-12. On the applicable flow chart, locate the mode in which you plan to operate the MCP 1000.

Enter setup mode and, following the flow chart, press the appropriate buttons to navigate through the menus and to make the appropriate selections for your application. The LCD display provides graphic prompts for the available choices. (See "LCD display," earlier in this chapter.)

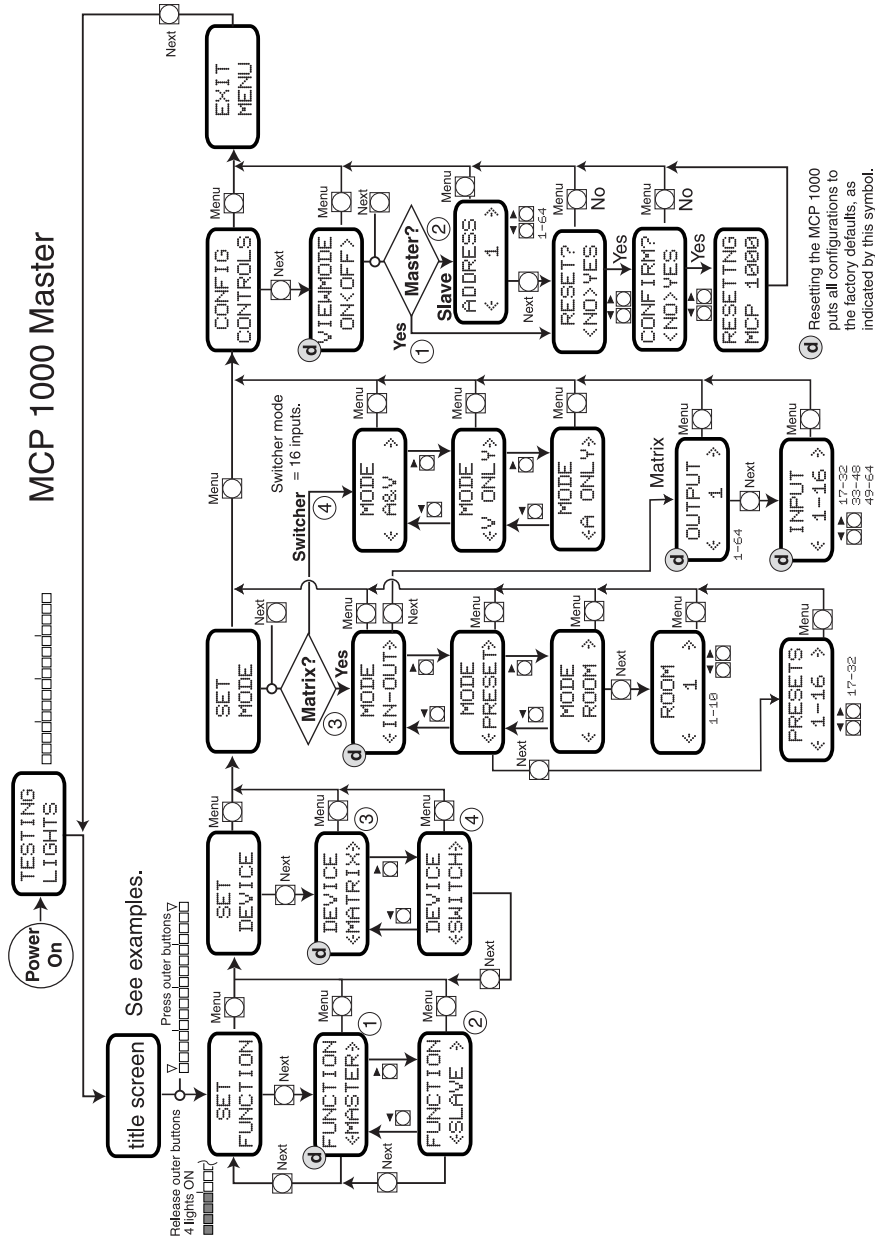
If necessary, you can reset the MCP 1000 to its default factory settings. The reset command is available from the Config Controls menu.

**NOTE** Each MCP 1000M and MCP 1000S must have a unique address of 1 through 64. Slave units are polled periodically by either the MCP 1000M or by the master BME in a Matrix 3200/6400 system. Duplicate addresses can cause the MCPs to lock up.

If you turned view mode on, when you exit setup mode the LCD window displays a title screen that indicates the selected operation mode.



MCP 1000 slave mode flow chart



MCP 1000 master mode flow chart

# Appendix A

## Specifications, Part Numbers, and Accessories

Specifications

Included Parts

Cables

# Specifications, Part Numbers, and Accessories

## Specifications

### Control/remote — control panel

Serial control ports .....	1 host 9-pin female D connector 1 switcher 9-pin male D connector
Baud rate and protocol .....	9600 baud, 8 data bits, 1 stop bit, no parity
Serial control pin configurations .....	2 = TX, 3 = RX, 5 = GND
Extron remote key pad control ...	(2) 5 mm, 5-pole captive screw connectors
Program control.....	Extron's Simple Instruction Set (SIS™)

### General

Power	
MCP 1000M.....	100 VAC to 240 VAC, 50/60 Hz, 15 watts, internal, autoswitchable
MCP 1000S .....	Supplied by the MCP 1000M or the matrix switcher
Temperature/humidity .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount .....	Yes, with included brackets. Also under-furniture mountable or shelf-mountable with included brackets.
Enclosure type .....	Metal
Enclosure dimensions .....	1.75" H x 17.5" W x 5.0" D (1U high, full rack wide) 4.4 cm H x 44.5 cm W x 12.7 cm D (Depth excludes connectors and knobs. Width excludes rack ears.)
Product weight	
MCP 1000M.....	3.0 lbs (1.4 kg)
MCP 1000S .....	2.5 lbs (1.1 kg)
Shipping weight	
MCP 1000M.....	7 lbs (4 kg)
MCP 1000S .....	6 lbs (3 kg)
Vibration .....	ISTA 1A in carton (International Safe Transit Association)
Listings.....	UL, CUL
Certifications.....	CE, FCC Class A
MTBF.....	30,000 hours
Warranty .....	3 years parts and labor

**NOTE** All nominal levels are at ±10%.

**NOTE** Specifications are subject to change without notice.

## Included Parts

These items are included in each order for an MCP 1000:

Included parts	Part numbers
MCP 1000M (master unit)	60-298-01
MCP 1000S (slave unit)	60-298-02
Red button caps (8)	70-111-01
Green button caps (8)	70-111-02
Yellow button caps (8)	70-111-03
Blue button caps (8)	70-111-04
Assorted button caps (8)	70-111-05
MBD 149 rack mounting kit	70-077-03
5-pole, 5 mm captive screw connector	10-163-13
<i>MCP 1000 User's Manual</i>	
Button Label Generator program	29-044-01

## Cables

Plenum comm-link cable	Part number
<b>Cut lengths:</b>	
CTLTP plenum 50' (15.2 m) long	26-461-01
CTLTP plenum 100' (30.4 m) long	26-461-02
CTLTP plenum 200' (61 m) long	26-461-03
CTLTP plenum 400' (122 m) long	26-461-04
<b>Bulk spools:</b>	
500' (152.4 m)	22-119-02
1000' (304.8 m)	22-119-03



## **Specifications, Part Numbers, Accessories, cont'd**

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