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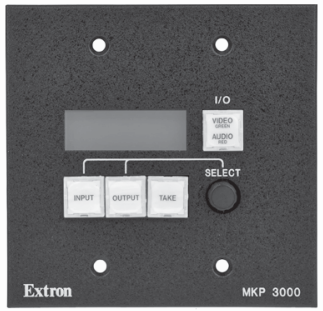
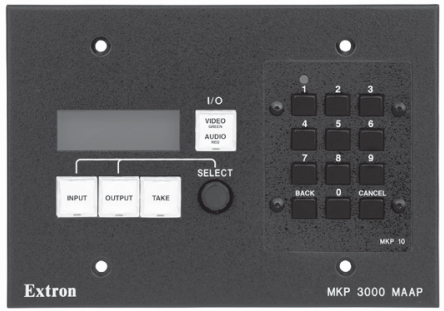
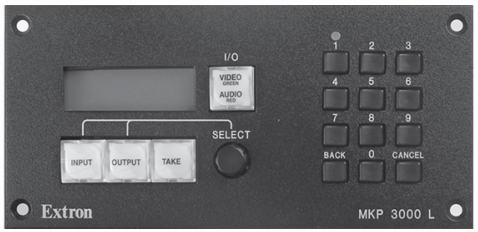
User's Manual







MKP 3000 Series

Remote Control Panels

68-1069-01 **Rev. C**
04 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.

Conserver 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 présentés 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.

Precaucion

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 especificamente recomendados por el fabricante, ya que podrian 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'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement 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 Erdanschluß, 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 Stomversorgung (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 dagegengestellt 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.

Litium-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 puentearia ni eliminaria.

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 sobrecalientamiento 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.

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:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Asia:

Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
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。

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.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Quick Start Guide — MKP 3000

Install and set up the MKP 3000 as follows:

Step 1

Turn all of the equipment off or disconnect it from its power source.

Step 2

Install the cables that will run to and from the control panel in a wall, podium, or desk.

Step 3

Prepare the wall, podium, desk, or other surface to mount the MKP. See "Preparing the site and installing the mounting bracket (mud ring) or wall box" in chapter 2, "Installation."

Step 4

Install the control panel in a wall, podium, desk, or other surface. See "Installation Procedures" in chapter 2, "Installation."

Step 5

Connect the input and output cables. See "Rear Panel and Side Panel Connections" in chapter 2, "Installation," for guidelines.

Step 6

Connect the power supply. See "Power supply wiring" in chapter 2, "Installation."

Step 7

Connect power cords and turn on the equipment in the following order: output devices (such as projectors or monitors), the connected matrix switcher, and input devices (such as DSSs or cable boxes).

Step 8

If necessary, set the IP parameters of the control panel and matrix switcher. See "Viewing and configuring the IP and MKP setup parameters" in chapter 3, "Local Operation;" or "System Settings page" in chapter 5, "HTML Operation."

Step 9

If necessary, set the control panel's RS-232 port for pass-through or no-pass-through mode, and specify whether the MKP is the primary device (connected to the switcher) or secondary device (connected through another device). See "Viewing and configuring the IP and MKP setup parameters" in chapter 3, "Local Operation," or "System Settings page" in chapter 5, "HTML Operation."

Quick Start Guide — MKP 3000, cont'd

Step 10

Program the control panel with the size of the connected switcher. See "System Settings page" in chapter 5, "HTML Operation."

Step 11

Use the control panel to select inputs and outputs. See "Front Panel Operations" in chapter 3, "Local Operation."

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Chapter One

Introduction

About this Manual

About the MKP 3000 Series Remote Control Panels

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About this Manual

This manual provides installation and operation instructions for the Extron MKP 3000, MKP 3000 L, and MKP 3000 MAAP Remote Control Panels.

The MKP 3000 Series are network-ready remote control panels that can control any Extron matrix switcher. The MKPs' RS-232 ports allow them to communicate with other devices (another MKP or a matrix switcher) locally and their Ethernet port allows them to communicate with multiple devices.

The MKP 3000 L and the MKP 3000 MAAP are each functionally the same device as the MKP 3000, but with the following differences in their front panels:

- The MKP 3000 MAAP front panel includes a four-space mini architectural adapter plate (MAAP) opening. Any MAAP device can be installed in this space; but a typical application would include an MKP 10 MAAP, which is an auxiliary keypad for the MKP 3000.
- The MKP 3000 L model is designed to be installed in a lectern. Its front panel is shorter and wider than that of the MKP 3000, and has a built-in 12-button keypad similar to the Extron MKP 10 MAAP. You can also install this model in a rack, using the optional UCM RAAP controller rack mounting kit.

NOTE *In this manual, the term "MKP 3000" applies to all three models unless the description specifically names a particular model.*

About the MKP 3000 Series Remote Control Panels

You can create ties on the MKP 3000 in two modes: matrix mode (the default) and input-only mode. In matrix mode, you specify an input and one or more outputs to be tied to it. In input-only mode, you select one output, then specify an input to be tied to it. The MKP can also be dedicated to a specific group of inputs and outputs when it is configured using the built-in Web pages. You can also recall global presets, view current connections, or adjust the volume for any output by using the front panel controls, SIS™ (Simple Instruction Set) commands, and/or the embedded Web pages.

The MKP 3000 panel is mounted on a two-gang wall plate that can be installed in a wall, conference table, podium, or other convenient location. The MKP 3000 MAAP is mounted in a three-gang wall plate, and the MKP 3000 L is mounted directly onto a lectern or other furniture.

Setup examples

The matrix switcher system can have up to 128 inputs and 128 outputs. However, for example, a conference room may have three input devices and two output devices, a training room next door may have four input devices and one output device, and so on. Typically, each room has one or more MKP control panels assigned to it, with each MKP limited to the inputs and outputs that it can control.

In the example in figure 1-1, the "presentation room" (top, center) has one output device, a projector (C), and four input devices: a video camera (13), a laptop computer (12), and two PCs (11 and 14). The "Media Room" (bottom, right) contains the matrix switcher, as well as other inputs (1-6) and possibly some control device(s).

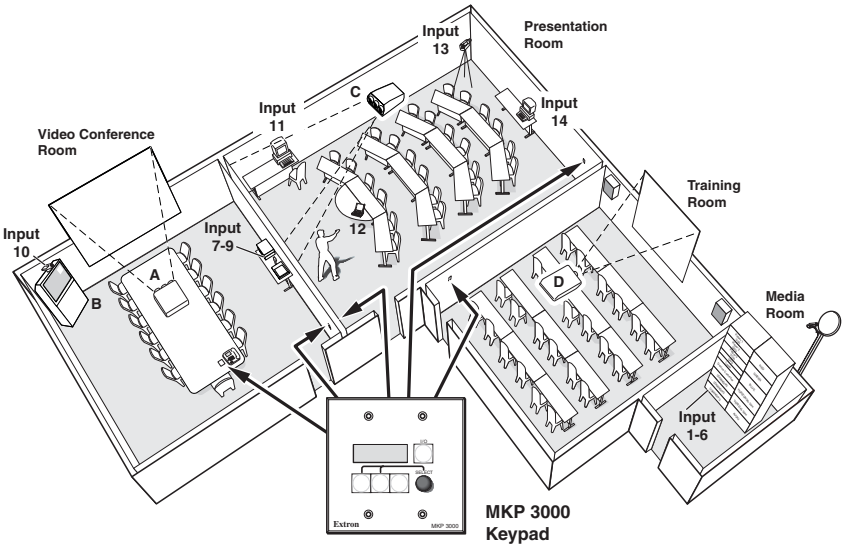


Figure 1-1 — Typical MKP 3000 applications

An overflow crowd in the video conference room and/or the training room may need to see a lecture going on in the presentation room. In this case, the video camera (input 13) must be available to those other rooms. Therefore, the MKPs in the video conference and training rooms will be programmed to allow selection of input 13 for displays in those rooms, in addition to any video sources and/or displays there.

RS-232 connection to the switcher

Any number of MKP 3000s can be connected to a matrix switcher through its RS-232 port, but one MKP must be designated as the primary controller. Other MKPs can be daisy chained through the primary MKP remote control panel.

Ethernet connection to the switcher

Any number of MKP 3000s can be connected to a matrix switcher as part of an Ethernet local area network (LAN).

Application diagram

Figure 1-2, below, shows an example of how multiple MKP 3000s can be connected to a matrix switcher.

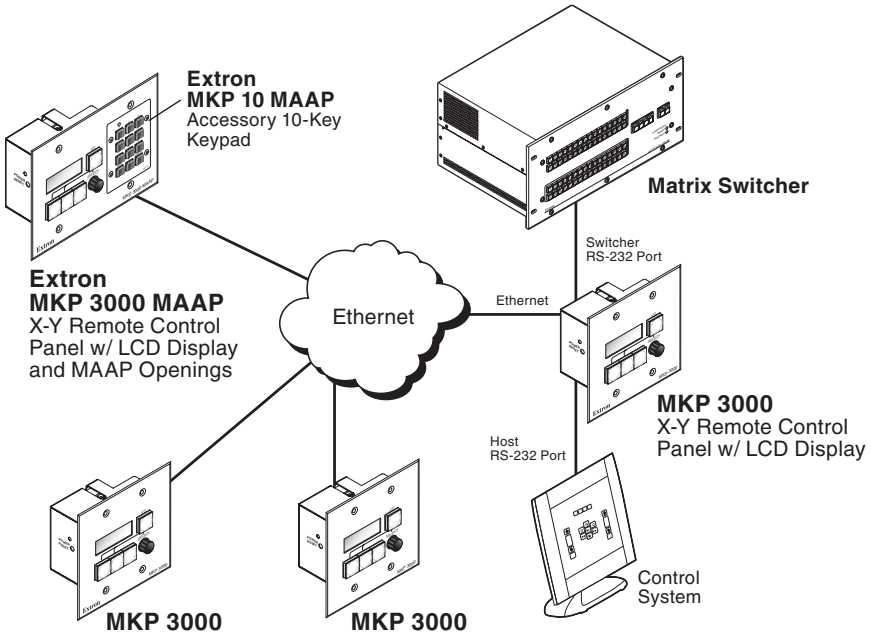


Figure 1-2 — MKP 3000 application diagram

Chapter Two

Installation

MKP Installation Overview

Installation Procedures

Rear Panel and Side Panel Connections

Mounting the MKP 10 MAAP

CAUTION *Installation and service must be performed by authorized personnel only. Extron recommends that only UL listed electrical boxes be used. See "UL Requirements for Wall Box Installation," on the next page.*

The MKP 3000 remote control panel should be installed in a standard, 2-gang electrical wall box (figure 2-1). The MKP 3000 MAAP should be installed in a 3-gang wall box. Figure 2-1 shows the MKP installed in a wall. This could also be in a desk, a podium, or any other convenient location. The MKP 3000 L can be installed in a lectern or in a rack using the optional UCM RAAP controller rack mounting kit.

The procedures provided here assume that the electrical wall boxes and the cables have been installed for the system. "Rear Panel and Side Panel Connections," starting on page 2-10, provides guidance for terminating the cables.

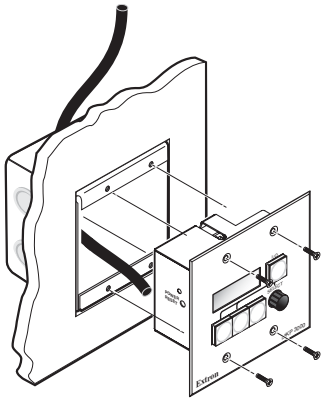


Figure 2-1 — MKP mounted in a wall box

MKP Installation Overview

To install an MKP 3000 remote control panel, follow these steps:

1. Disconnect power from the matrix switcher and all MKPs in the system.
2. Prepare the site: cut a hole in the wall or furniture, install the electrical box or mounting bracket ("mud ring") if needed, and prepare the cables. Instructions are included in this manual and/or with the wall box. See "Installation Procedures," on the next page.
3. Connect the cable between the MKP and the matrix switcher. See "Rear Panel and Side Panel Connections," on page 2-10.
4. Connect power cords to the MKP and the matrix switcher.
5. Test the MKP's ability to communicate with the matrix switcher.
6. Disconnect power from all the devices.
7. Mount the MKP into the electrical box or to the mud ring. If using a wall box, see "Mounting the MKP to a mounting mud ring or wall box," later in this chapter.
8. Restore power to the devices.

Installation Procedures

The MKPs can be mounted into a wall, furniture, or any other convenient location. The MKP 3000 L can also be installed in a rack, using the optional UCM RAAP Universal Controller Rack Mounting Kit, part #**70-344-02**, **-03**). Follow the instructions appropriate to the mounting option you have selected.

CAUTION *The control panel must be installed into a Underwriters Laboratories (UL) approved electrical wall box.*

NOTE *When installing MKP control panels, you must conform to all national and local electrical codes.*

Preparing the site

Choose a location that allows cable runs without interference. Allow enough depth for both the wall box and the cables. You may need to install the cables into the wall, furniture, or conduits before installing the control panel.

The installation must conform to national and local electrical codes and to the equipment's size requirements. Cutout templates that show the cut-out requirement for the circuitry enclosure on the rear of the control panel are provided in appendix A of this manual.

CAUTION *Only the **MKP 3000** template in this manual is to scale. Use the others for reference only.*

UL requirements for wall box installation

The following UL requirements pertain to the installation of the MKP 3000 into a wall (figure 2-1) or furniture.

1. These units are not to be connected to a centralized DC power source or used beyond their rated voltage range.
2. These units must be installed in UL listed junction boxes.
3. These units must be installed with conduit in accordance with the National Electrical Code.

Installing a mounting bracket (mud ring) or wall box

Extron recommends using a UL listed wall box (available from Extron) for most mounting options, but you can use the included mounting brackets (mud rings) instead.

NOTE *Before using the mud rings, verify that the installation conforms to national and local electrical codes.*

NOTE *The electrical box must be at least* 2.5*" (7 cm) deep to accommodate the MKP's rear enclosure.*

Install the mud ring or wall box as follows:

1. **If you are using a mud ring**, use the template that came with the mud ring. Cut out the indicated center portion.

   NOTE *To meet the UL listing requirements, the MKP* ***must*** *be installed in a wall box.*

   If you are using a wall box, refer to the cut-out template in appendix A that corresponds to the faceplate you are using, and cut out the center portion of it as indicated on the template.

   CAUTION *Extron provides one mud ring with each MKP control panel. However, the user may choose to use a wall box. Because the tolerances on electrical boxes are very loose, Extron recommends that you measure the actual box that you plan to use before making any precise cuts.*

2. Use the template (or place the wall box or mud ring against the installation surface), and mark the guidelines for the opening on the wall or furniture.
3. Cut out the wall material from the marked area.
4. Check the opening size by inserting the wall box, mud ring, or control panel into the opening. The box or mud ring and/or control panel should fit easily into the opening. Enlarge or smooth the edges of the opening if needed.
5. **If you are using a wall box**, feed the cables through the wall box punch-out holes, and secure them with cable clamps to provide strain relief.
6. Exposed cable shields (braids or foil) are potential sources of short circuits. Trim back and/or insulate shields with heat shrink (figure 2-2).

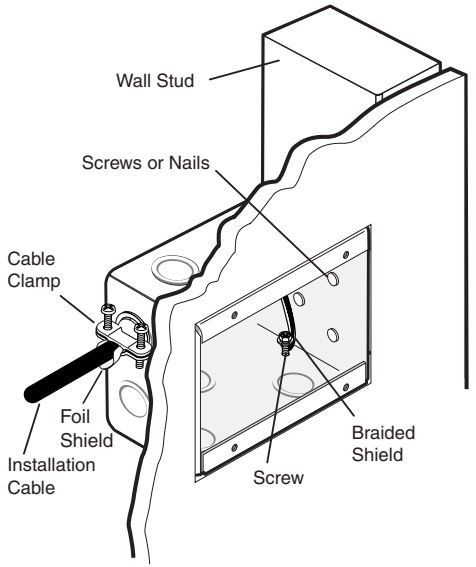


Figure 2-2 — Grounding braided and foil shields

WARNING *To prevent short circuits, the outer foil shield can be cut back to the point where the cable exits the cable clamp. Both braided and foil shields should be connected to an equipment ground at the other end of the cable.*

7. **If you are using a mud ring**, follow the directions, if any, that came with the mud ring to attach the clips that fasten it to the wall or furniture (figure 2-3).

   NOTE *To meet UL listing requirements, the MKP* ***must*** *be installed in a wall box.*

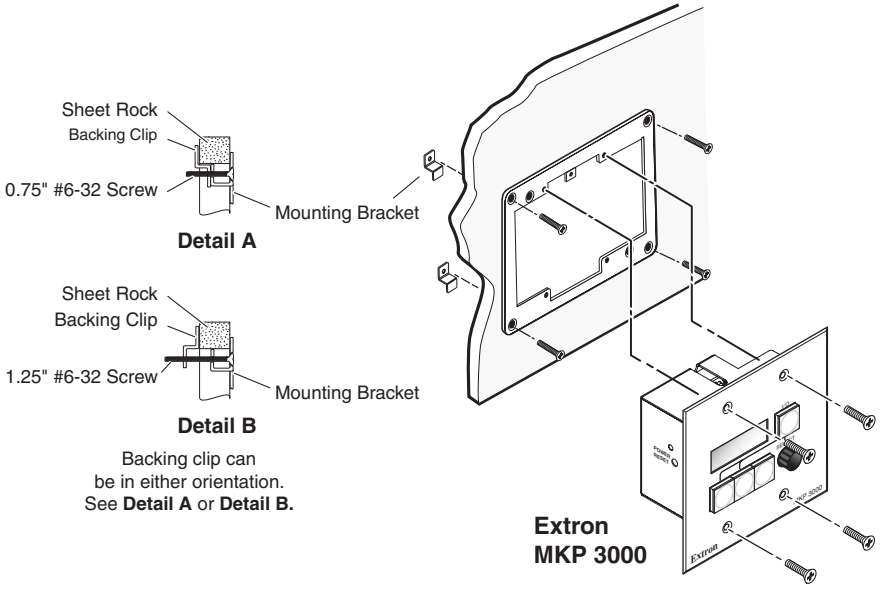


Figure 2-3 — Attaching a mud ring to a wall

If you are using a wall box, insert the wall box into the opening, and attach it to the wall stud or furniture with nails or screws, leaving the front edge flush with the outer wall or furniture surface (figure 2-4).

If attaching the wall box to wood, use four #8 or #10 screws or 10-penny nails. A minimum of ½ inch (1.3 cm) of screw threads must penetrate the wood.

If attaching the wall box to metal studs or furniture, use four #8 or #10 self-tapping sheet metal screws or machine bolts with matching nuts.

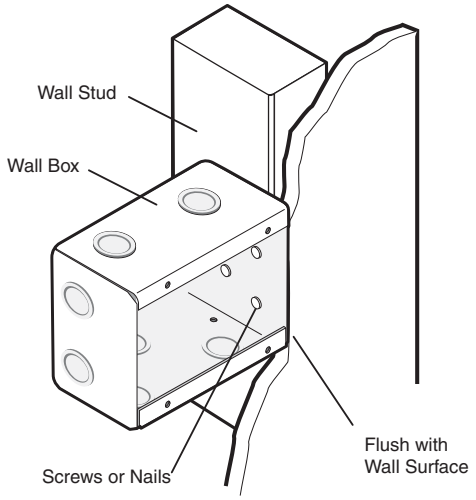


Figure 2-4 — Attaching a wall box to a wall stud

8. Connect the Ethernet and/or RS-232 cable (as appropriate) and the power cable, and test the MKP before fastening the MKP into the wall box. See "Rear Panel and Side Panel Connections," on page 2-10, for details.

NOTE *The rear panel connectors are inaccessible after installation.*

Mounting the MKP to a mud ring or wall box

NOTE *If the installation involves an MKP 3000 MAAP and an optional MKP 10 MAAP remote keypad, mount the MKP 10 MAAP to the MKP 3000 MAAP **before** installing the MKP 3000 MAAP into the mud ring or wall box. See "Mounting the MKP 10 MAAP," on page 2-19.*

1. Remove power from the control panel by disconnecting the power supply.
2. Place the control panel through the opening in the wall or furniture and through the mud ring or into the wall box. Take care not to damage the cables, which fit behind the MKP, at the back of the wall box.

3. Mount the MKP's faceplate to the mud ring or wall box with machine screws (figure 2-5).

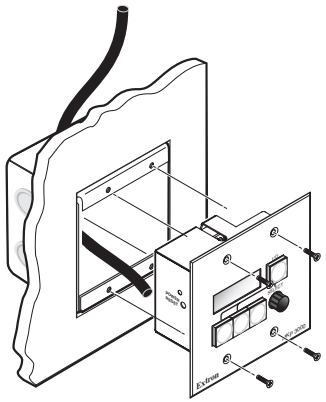


Figure 2-5 — Mounting the MKP to the wall box

4. Reconnect the power supply and restore power.

Mounting the MKP 3000 L

You can mount the MKP 3000 L in a lectern or other furniture, or you can mount it in a rack using the UCM RAAP controller mounting kit.

Mounting the MKP 3000 L in a lectern

To mount the MKP 3000 L in a lectern or other furniture,

1. Using the MKP 3000 L cut-out template in appendix A, measure and mark guidelines for the opening in the furniture.
2. Cut out the furniture material from the marked area.
3. Check the opening size by inserting the MKP into it. Enlarge and/or smooth the edges of the opening as needed.
4. Complete all necessary cabling, and, with power disconnected at the source, insert the MKP into the opening.
5. Fasten the MKP directly to the furniture using four #8 or #10 screws or 10-penny nails.

Mounting the MKP 3000 L in a rack

To mount the MKP 3000 L in a rack using the UCM RAAP,

1. Attach the MKP 3000 L to the UCM RAAP using the four flat Philips head machine screws provided with the UCM.
2. Cable the MKP and any AAPs within the UCM panel (see "Rear Panel and Side Panel Connections," later in this chapter).
3. Align the UCM panel in the rack, and secure it using the remaining screws.

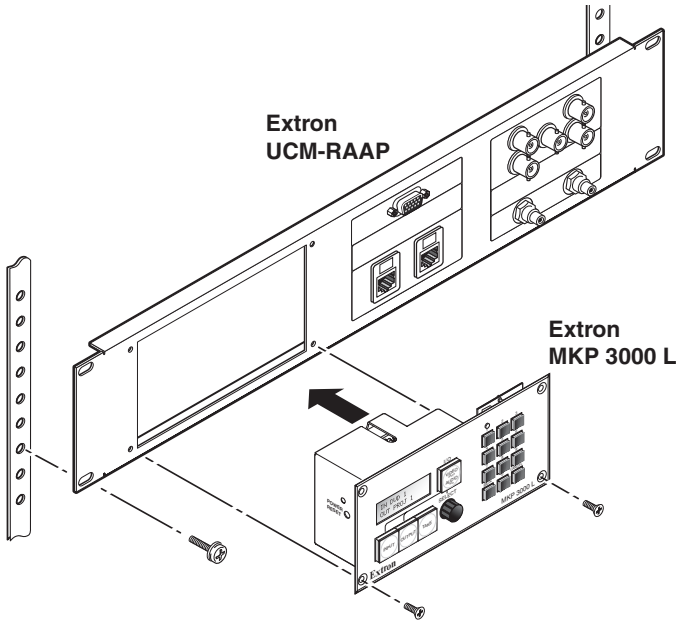


Figure 2-6 — Mounting the MKP 3000 L to the UCM RAAP and a rack

UL requirements for rack mounting

The following Underwriters Laboratories (UL) requirements pertain to the installation of the MKP 3000 L into a rack.

1. **Elevated operating ambient temperature** — If the equipment is installed in a closed or multiunit 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 (Tma) specified by the manufacturer. For the MKP 3000, the Tma is 122 °F (50 °C).
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 overcurrent 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 (for example, use of power strips).

Rear Panel and Side Panel Connections

All connectors are on the rear or side of the MKP (figure 2-7, 2-8, and 2-9). These connectors are inaccessible once the MKP is installed.

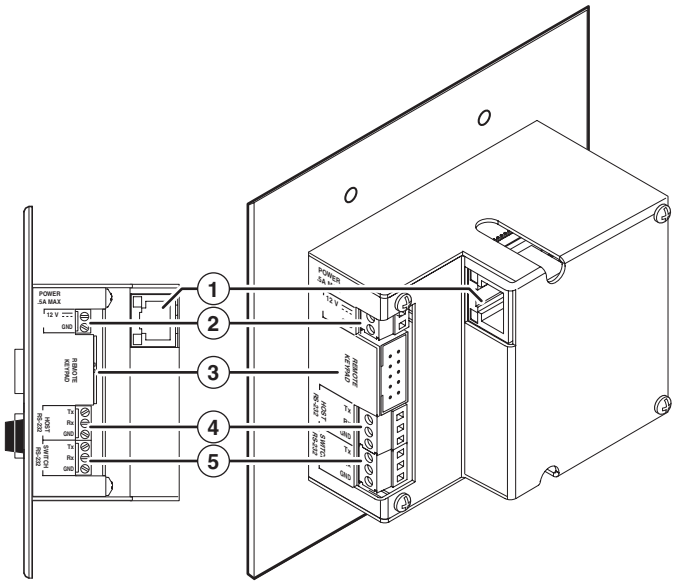


Figure 2-7 — MKP 3000 rear and side panels

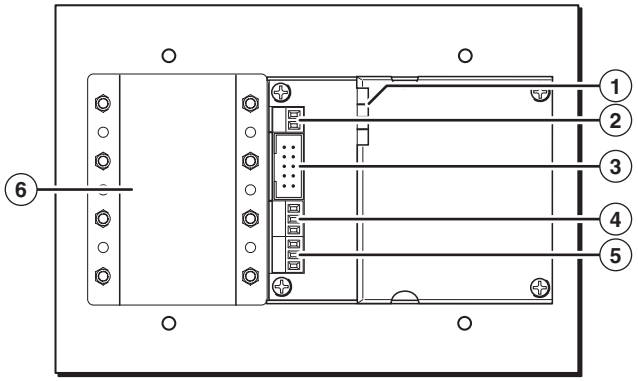


Figure 2-8 — MKP 3000 MAAP rear panel

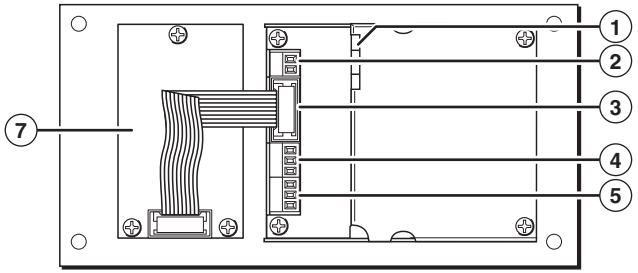
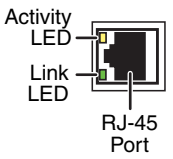


Figure 2-9 — MKP 3000 L rear panel

(1) **LAN (Ethernet) port** — If desired, connect a Category (CAT) 5e or higher (network) cable between this connector and either the matrix switcher to be controlled or to an Ethernet local area network (LAN). See "Ethernet cable termination," later in this chapter, to properly wire the RJ-45 connector for your application.



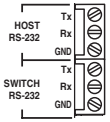
Ethernet connection indicators — The Link and Activity LEDs on the LAN port indicate the status of the Ethernet connection. The green Link LED indicates that the MKP is properly connected to an Ethernet LAN. This LED should light steadily. The yellow Activity LED indicates transmission of data packets on the RJ-45 connector. This LED should flicker as the MKP communicates.

(2) **Power connector** — Connect the included external 12 VDC power supply to this 2-pole direct insertion connector. See "Power supply wiring," on page 2-18, to wire the connector.

③ **Remote Keypad port** — If desired, plug the optional MKP 10 MAAP remote keypad into this 10-pin connector, using the cable included with the MKP 10 MAAP.

NOTE *This connector is always used on the standard keypad on an MKP 3000 L.*

④ **Host RS-232 port** — If desired, connect a host computer or control system to this 3-pole, 3.5 mm, RS-232 connector (figure 2-10).



Pin	Function
TX	Transmit data
RX	Receive data
Gnd	Signal ground

Figure 2-10 — RS-232 connector

⑤ **Switch RS-232 port —** If desired, connect a cable between this 3-pole, 3.5 mm, RS-232 connector and a matrix switcher (figure 2-10).

⑥ **MAAP Opening (MKP 3000 MAAP)** — The MKP 3000 MAAP has a space that allows the installation of up to four optional mini architectural adapter plates (MAAPs). This space is typically filled by an optional four space MKP 10 MAAP keypad, but a variety of other adapter plates are also available.

Blank plates (two single-space and one double-space plate) are included with the MKP to cover unused spaces. The MKP 10 MAAP or other MAAP(s) must be ordered separately. They also should be attached to the faceplate and cabled before the MKP is installed in the wall or furniture. See "Mounting the MKP 10 MAAP," later in this chapter.

⑦ **Keypad board (MKP 3000 L)** — The 12-button keypad that is built into the MKP 3000 L rear panel is connected to this board.

Control connections

The MKP has two RS-232 ports (a Host port [④] and a Switch port [⑤]) and an LAN (Ethernet) port (①). The following paragraphs describe different possible ways of connecting the MKP to a switcher via RS-232 or Ethernet.

RS-232 connection

An MKP control panel can be directly cross-connected to any Extron matrix switcher through the switcher's switch RS-232 port (see figure 2-16, later in this chapter, for pin assignments for the RS-232 cable). A control system or host computer can be connected via the MKP's Host RS-232 port.

Additional MKPs can be connected to the matrix switcher through the MKP that is RS-232 connected (the primary MKP). In the configuration shown in figure 2-11, additional (secondary) MKPs are connected to the primary MKP via the primary MKP's Ethernet port.

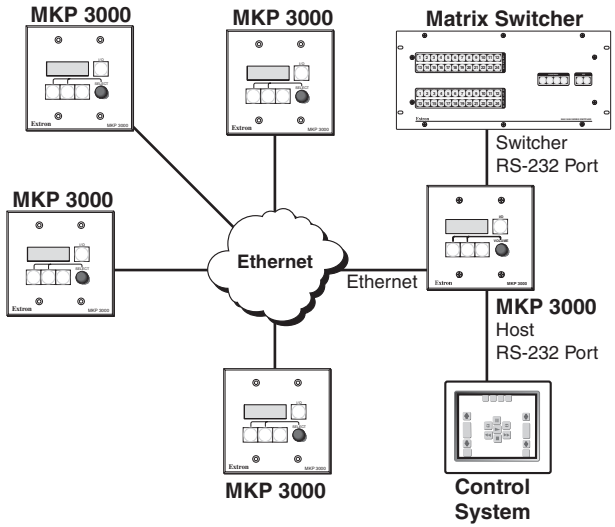


Figure 2-11 — MKP connection using the RS-232 port

Multiple primary MKPs can also be daisy-chained together, with the first MKP connected to the switcher's RS-232 port and the others connected to each other via their own RS-232 ports. Figure 2-12 shows an example of this type of configuration.

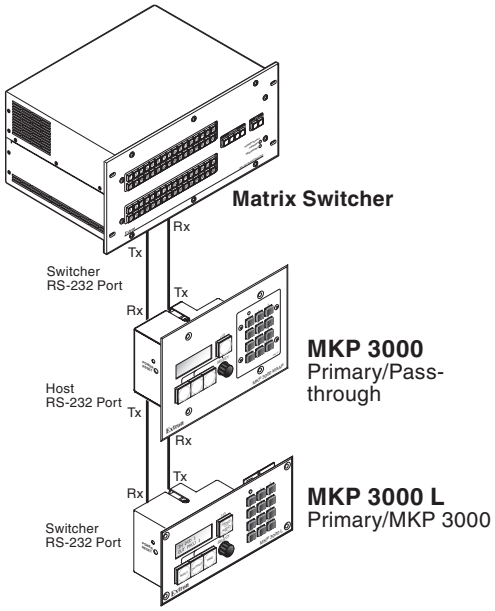


Figure 2-12 — Daisy-chaining MKP 3000s

RS-232 cable termination

Each MKP control panel has two RS-232 ports that are connected using 3.5 mm, 3-pole direct insertion connectors. Figure 2-13 shows the pin assignments for these ports.

Pin	Switcher RS-232	MKP RS-232
1	–	–
2	**Tx**	**Rx**
3	**Rx**	**Tx**
4	–	–
5	**Gnd**	**Gnd**
6	–	–
7	–	–
8	–	–
9	–	–

Figure 2-13 — RS-232 cross-connection table

Wire the connectors as follows:

NOTE *The total cable length between an MKP control panel and a matrix switcher should not exceed 100 feet (30 m).*

1. Choose a cable such as Extron's Comm-Link cable. The wire specifications for Comm-Link cable are in appendix A, "Reference Information." Colors may vary from this example.
2. Trim approximately 1.5" (3.8 cm) of the cable jacket to expose the four insulated wires and a bare drain wire (silver-colored).
3. Cut off the foil shield and discard it.
4. Strip ¼" (0.6 cm) of insulation from three of the four wires.
5. Twist the strands of each wire, insert them into the direct insertion connector, and tighten the captive screws.

Ethernet connection

An MKP control panel can be directly connected to any Ethernet-enabled matrix switcher via the switcher's Ethernet port (figure 2-13) using a TP (network) cable that is wired as a crossover cable (see "TP cable termination," later in this chapter, to properly wire the cable).

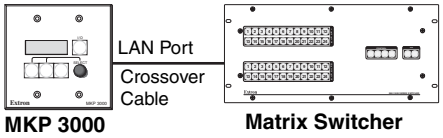


Figure 2-14 — Direct MKP connection using the LAN port

Any number of control panels can be connected as part of a network to any Ethernet-enabled matrix switcher via the switcher's Ethernet port (figure 2-14). All TP cables in this example are wired as patch (straight-through) cables.

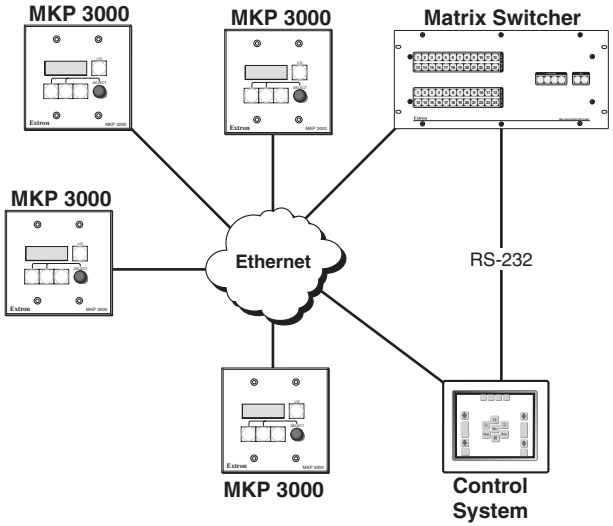


Figure 2-15 — Network MKP connection using the LAN port

Ethernet (TP) cable termination

It is vital that you use the correct Ethernet cables, and that they be properly terminated with the correct pinout. Ethernet links use Category (CAT) 5, 5e or CAT 6, unshielded twisted pair (UTP) or shielded twisted pair (STP) cables, terminated with RJ-45 connectors. Ethernet cables are limited to 328' (100 m).

CAUTION *Do not use standard telephone cables. Telephone cables do not support Ethernet or Fast Ethernet.*

Do not stretch or bend cables. This can cause transmission errors.

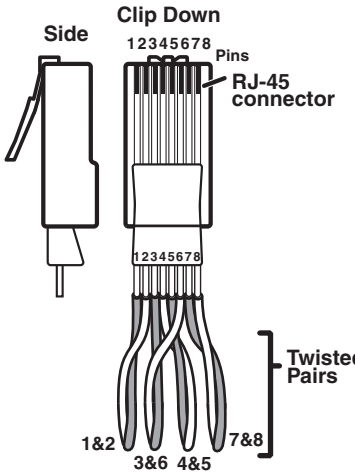
The cable you use depends on your network speed. The MKP supports both 10 Mbps (10Base-T — Ethernet) and 100 Mbps (100Base-T — Fast Ethernet), half-duplex and full-duplex, Ethernet connections.

- 10Base-T Ethernet requires CAT 5 UTP or STP cable as a minimum
- 100Base-T Fast Ethernet requires CAT 5e UTP or STP cable as a minimum

The Ethernet cable can be terminated as a straight-through cable or a crossover cable. It must be terminated properly for your application (figure 2-16).

- **Crossover cable —** Direct connection between the MKP and a host computer or an Ethernet-enabled matrix switcher (figure 2-14)
- **Patch (straight) cable —** Network connection between the MKP and an Ethernet LAN (figure 2-14)

For pin assignments, see figure 2-16, below.



Patch (straight) cable

Side 1		Side 2	
Pin	Wire color	Pin	Wire color
1	White-orange	1	White-orange
2	Orange	2	Orange
3	White-green	3	White-green
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Green
7	White-brown	7	White-brown
8	Brown	8	Brown

Crossover cable

Side 1		Side 2	
Pin	Wire color	Pin	Wire color
1	White-orange	1	White-green
2	Orange	2	Green
3	White-green	3	White-orange
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Orange
7	White-brown	7	White-brown
8	Brown	8	Brown

Figure 2-16 — RJ-45 connector and pinout tables

Power supply wiring

Figure 2-17 shows how to wire the power connector.

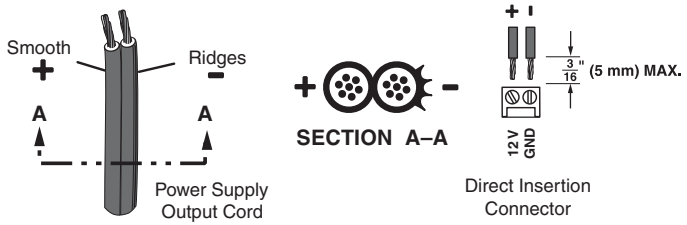


Figure 2-17 — Power connector wiring

CAUTION *Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the MKP. Identify the power cord negative lead by the ridges on the side of the cord (see figure 2-17, above).*

To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

NOTE *The length of the exposed (stripped) copper wires is important. **The ideal length is 3/16" (5 mm)**. Longer bare wires can short together. Shorter wires are not as secure in the direct insertion connectors and could be pulled out.*

NOTE *Do not tin the power supply leads before installing them in the direct insertion connector. Tinned wires are not as secure in the connectors and could be pulled out.*

WARNING *The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.*

Alternatively, you can use the optional Extron P/S 123 Universal 12 VDC Power Supply, part #**60-814-01**, which can power up to 10 Extron 12 VDC devices using only one AC power connector.

Mounting the MKP 10 MAAP

The MKP 3000 MAAP has a space that allows the installation of up to four optional mini architectural adapter plates. This space is typically filled by an optional four space MKP 10 MAAP keypad (figure 2-18).

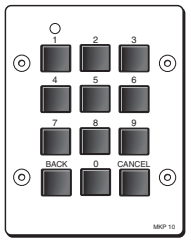


Figure 2-18 — MKP 10 MAAP keypad

When the connected switcher has a large matrix size (up to 128 by 128) selecting an input or output number by rotating the Select knob can be inconvenient. The optional MKP 10 MAAP keypad allows rapid input/output selection.

Mount the MKP 10 MAAP to the MKP 3000 MAAP before installing the MKP 3000 MAAP, as follows:

NOTE *The proper MKP 10 MAAP orientation is with the power LED up.*

1. Sandwich the MKP 3000 MAAP panel between the MKP 10 MAAP module (without its front panel) and the MKP 10 MAAP's front panel. Secure the front panel to the module with the included #4-40 screws (see figure 2-19).

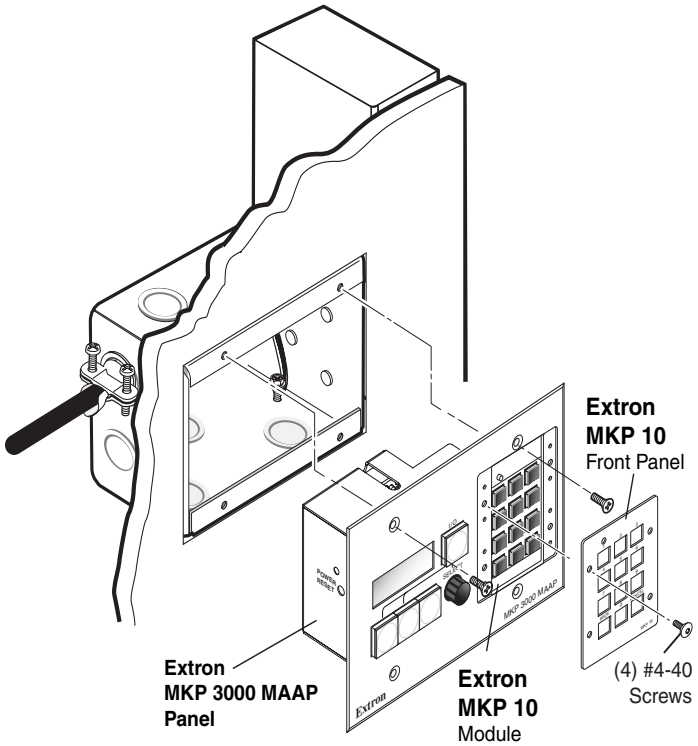


Figure 2-19 — Mounting the MKP 10 MAAP

2. See figure 2-20. If you have not already done so, connect the serial control and power cables between the J1 connector (①) on the MKP 10 MAAP and the Remote Keypad port (②) on the rear of the MKP 3000 MAAP.

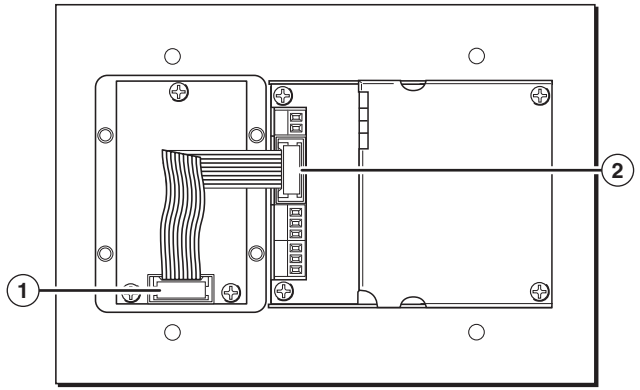


Figure 2-20 — MKP 3000 MAAP rear panel with MKP 10 MAAP mounted

① **MKP 10 MAAP J1 control connector**

② **MKP 3000 MAAP Remote Keypad port**

3. Mount the MKP 3000 MAAP (with the mounted MKP 10 MAAP) to the wall box or mounting bracket. See "Mounting the MKP to mud ring or wall box," earlier in this chapter.

Chapter Three

Local Operation

Front Panel Controls and Indications

Front Panel Operations

Rear Panel Resets

MKP 10 MAAP and MKP 3000 L Keypad Operation

Front Panel Controls and Indications

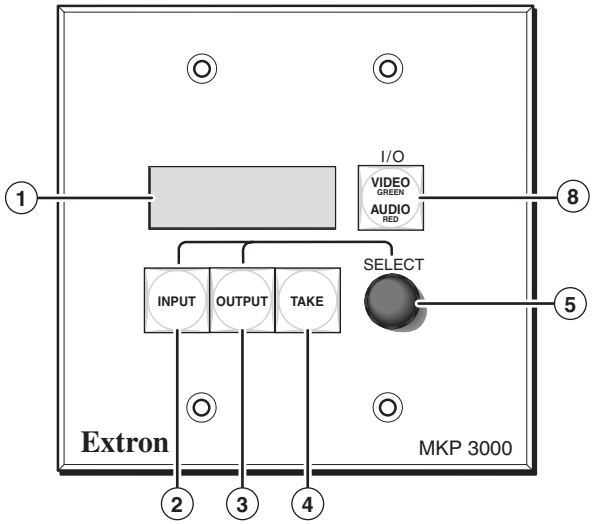


Figure 3-1 — MKP 3000 controls and indicators

NOTE *The MKP 3000 MAAP front panel has the same controls and indicators.*

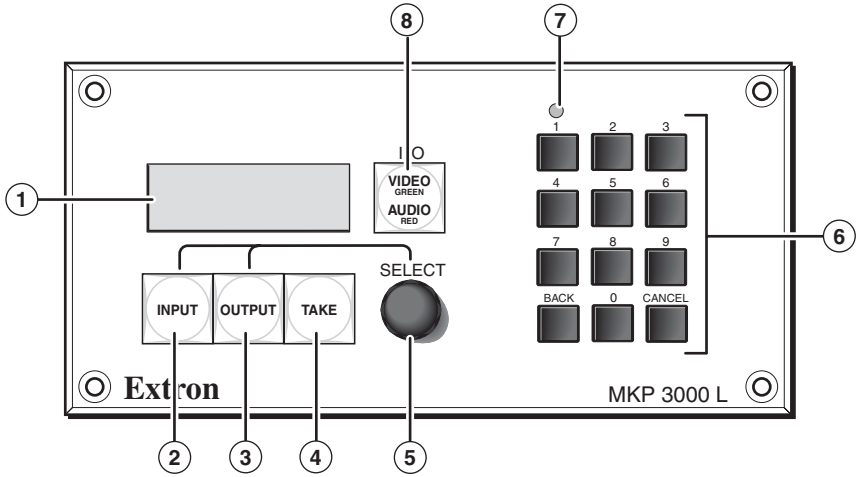


Figure 3-2 — MKP 3000 L controls and indicators

The buttons on this panel perform different functions, depending on the MKP's operating mode. See "Front Panel Operations," later in this chapter, for a more detailed description of the modes.

The labels in these buttons can be removed and replaced to reflect the function of the button. A sheet of labels is provided with the MKP. See "Changing Button Labels" in appendix A, "Reference Information," for the procedure for changing these labels.

(1) **LCD display** — Shows the input, output, preset name and number, or volume level during operation. In certain modes, it can also show the IP addresses programmed into the MKP.

NOTE *The LCD display shows the most recent input, output, or preset name and number entered **from this MKP**. Ties created using other devices (other MKPs, a PC or control system, or the matrix switcher's front panel) are not shown in the LCD display.*

(2) **Input/Preset button** — Selects an input or places the MKP in preset mode.

(3) **Output/View button** — Selects an output or places the MKP in view mode.

(4) **Take button** — Takes (activates) a new tie or preset. This button is the equivalent of the Enter button on the matrix switcher's front panel.

(5) **Select knob** — This knob, when rotated, scrolls through the available inputs, outputs, or presets. It also ramps volume up or down, depending on which of buttons (2) and (3) and which operating mode are selected. The inputs, outputs, presets, or volume level are shown in the LCD display ((1)).

NOTE *When the connected switcher has a large matrix size (up to 128 by 128) selecting an input or output number by rotating the Select knob can be inconvenient. An optional MKP 10 MAAP keypad allows rapid input/output selection.*

(6) **Keypad (MKP 3000 L)** — Use these buttons to select inputs and/or outputs as an alternative to using the Select knob ((5)), on the MLK 3000 L only.

(7) **Power LED (MKP 3000 L) —** When lit, this LED indicates that power is applied to the MKP 3000 L keypad.

(8) **Input/Output (I/O) (video/audio) selection button** — Press the I/O button to select video and audio, video only, or audio only for the current input and output selections. As you cycle through the selections, the button lights amber for video and audio, green for video only, and red for audio only. This button also selects audio volume mode.

Front Panel Operations

The MKP 3000 normally operates in the matrix input/output selection mode. This is the default mode, in which you can set up a tentative tie by selecting an input, selecting an output, and then taking (commanding) the tie. The MKP 3000 can also operate in input-only mode, in which you can view the current ties by scrolling the outputs. In this mode, you first select an output, then complete the tie by selecting an input.

Additionally, the MKP can operate in preset mode (select presets), view mode (view ties without changing them), audio volume mode (adjust the audio output volume), or setup mode (set the IP addresses and other parameters).

The MKP is provided with default labels installed in the front panel buttons (figure 3-3). It also includes a strip of alternative labels that you can insert in one or more of the mode selection buttons to make using the other modes more clear. These additional button labels are shown in the applicable front panel operation descriptions. See "Changing Button Labels" in appendix A, "Reference Information," for the procedure for replacing these button labels.

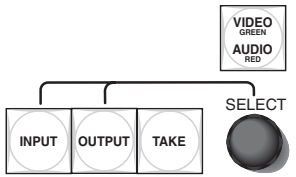


Figure 3-3 — Input/output selection mode labels

Changing the tie mode

You can create ties on the MKP 3000 in the following modes:

- **Matrix mode** (the default) — In matrix mode, you specify an input and one or more outputs to be tied to it.
- **Input-only mode** — In input-only mode, you select one output, then specify an input to be tied to it.

To change from one tie mode to the other,

1. Enter setup mode by simultaneously pressing and **holding** buttons ②, ③, and ④ (typically labeled Input, Output, and Take) for approximately 2 seconds until all buttons light amber and the LCD display changes.
2. Repeatedly press the Input button (button ②) until the LCD window displays "Tie Mode."
3. Turn the Select knob clockwise or counterclockwise until the desired mode (Matrix or Input-Only) is displayed.

NOTE *You can also change the tie mode by using SIS commands (see chapter 4, "SIS™ Operation,") or the Ethernet Web pages (see chapter 5, "HTML Operation").*

Figure 3-7, "Selecting setup parameters," later in this chapter, provides a diagram of the procedures for setting up the IP connection, backlight duration, and tie mode parameters using the front panel controls.

Creating ties

After selecting the tie mode, use one of the following procedures to create the ties.

Creating a tie in matrix mode (default)

To create a tie in matrix mode (the default mode),

1. Select the type of tie (video, audio, or both) by repeatedly pressing the I/O button until it lights the desired color:
   - **Video and audio selected** — The I/O button lights amber.
   - **Video only selected** — The I/O button lights green.
   - **Audio only selected** — The I/O button lights red.
2. Press the Input button to specify that the next number entered will be an input number.
   - The Input button lights amber.
   - If it was lit, the Output button turns off.
   - The most recently selected output is locked (unable to be changed; assigned as the output to which the entered input is tied unless a different output is assigned [see steps **4** and **5**]).
3. Use the Select knob to scroll through the available inputs until the LCD display shows the desired input.

NOTE *The Select knob scrolls through only those inputs that are within the available range for this MKP or the connected matrix switcher. See "Switcher Control Settings section" in chapter 5, "HTML Operation," for information on authorizing inputs and outputs.*

NOTE *If an optional MKP 10 MAAP keypad is connected or you are using an MKP 3000 L, you can use the keypad in place of the Select knob. See "MKP 10 MAAP and MKP 3000 L Keypad Operation," later in this chapter.*

- The LCD display shows the input that you select.
- The Take button blinks.

NOTE *The blinking Take button times out after 15 seconds if it is not pressed.*

4. Press the Output button to specify that the next number entered is an output number.
   - The Output button lights amber.
   - If it was lit, the Input button goes out.
   - The last selected input is locked (unable to be changed; assigned as the input to which the entered output is tied unless a different input is assigned [see steps **2** and **3**]).
5. Use the Select knob to scroll through the available outputs until the LCD display shows the desired output, or enter the desired output number on the keypad (MKP 3000 L or MKP 3000 AAP with keypad only).
   - The LCD display shows the output that you select.
   - The Take button blinks.

NOTE *The Select knob scrolls through only those outputs that are inside the available range for this MKP or the connected matrix switcher. See "Switcher Control Settings section" in chapter 5, "HTML Operation," for information on authorizing inputs and outputs.*

NOTE *When an input or output outside the available range for this MKP or the connected matrix switcher is selected using an optional MKP 10 MAAP keypad or the keypad of the MLC 3000 L, the LCD display shows* ***Invalid Input*** *or* ***Invalid Output****.*

6. Press the Take button to confirm the tie.

NOTE *The blinking Take button times out after 15 seconds if not selected.*

7. Repeat steps **5** and **6** for each additional output that you want to add to the tie.

Creating a tie in input-only mode

In input-only mode, you select an output to which you can tie only one input. To create a tie in input-only mode,

1. Select the type of tie (audio only, video only, or audio and video) by repeatedly pressing the I/O button until it lights the desired color:
   - **Video only selected** — The I/O button lights green.
   - **Audio only selected** — The I/O button lights red.
   - **Video and audio selected** — The I/O button lights amber.
2. Press the Output button to specify that the next number that is entered will be an output number.
   - The Output button lights amber.
   - If it was lit, the Input button turns off.
3. Turn the Select knob to scroll through the available outputs until the LCD window displays the desired output number.

NOTE *As you scroll through the outputs, the LCD display indicates whether or not the output is tied.*

NOTE *The Select knob scrolls through only those outputs that are within the available range for this MKP or the connected matrix switcher. See "Switcher Control Settings section" in chapter 5, "HTML Operation," for information on authorizing inputs and outputs.*

The LCD display shows the output that you selected and its status (tied or untied).

4. Press the Input button to specify that the next number entered will be an input number.
   - The Input button lights amber.
   - If it was lit, the Output button turns off.
   - The most recently selected output is locked (unable to be changed; assigned as the output to which the entered input is tied unless a different output is assigned [steps **2** and **3**]).
5. Turn the Select knob to scroll through the available inputs until the LCD window shows your desired input number.
   - The LCD display shows the input that you selected and its status (tied or untied).
   - The Take button blinks.

NOTE *The Select knob scrolls only through those inputs that are within the available range for this MKP or the connected matrix switcher. See "Switcher Control Settings section" in chapter 5, "HTML Operation," for information on authorizing inputs and outputs.*

6. Press the Take button to confirm the tie.

NOTE *The blinking Take button times out after 15 seconds if it is not pressed.*

NOTE *If an optional MKP 10 MAAP keypad is connected or you are using an MKP 3000 L, you can use the keypad in place of the Select knob. See "MKP 10 MAAP and MKP 3000 L Keypad Operation," later in this chapter.*

Deselecting a tie

To deselect (break) a tie,

1. Press the Input button.
2. Set the input to 0 by doing either of the following:
   - Turn the Select knob until No Signal is displayed in the LCD window.
   - If an MKP 10 MAAP is installed in your MKP or you are using an MKP 3000 L, press 0 on its keypad.

   The Take button begins to blink.
3. Press the Output button.
4. Select the output that you want to untie by doing either of the following:
   - Turn the Select knob until the desired output number is displayed in the LCD window.
   - On the MKP 10 MAAP or the MKP 3000 L keypad, press the desired output number.
5. Press Take.

Viewing ties

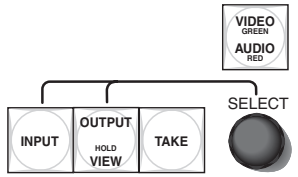


Figure 3-4 — Suggested button labels for* view *mode

To view existing ties,

1. Press and **hold** the Output button until the button lights green to indicate view mode (approximately 2 seconds), then release the button.
   - The I/O button lights green to indicate that the LCD will show video ties.
   - The tied inputs and outputs are locked (unable to be changed).
   - The LCD display shows the output that is currently selected (>).
   - The LCD shows the last tie created from the MKP.

   NOTE *Ties created using other devices (other MKPs, a computer or control system, or the matrix switcher's front panel) are not shown in the LCD display until the panel is accessed or the Output button is pressed to refresh the view.*
2. Use the Select knob to scroll through the available outputs. The LCD display shows the following:
   - The outputs as you scroll past them
   - The input that is tied to each output as it is displayed

   NOTE *If an optional MKP 10 MAAP keypad is connected, you can use it in place of the Select knob to select a specific output whose tied input you want to check. See "MKP 10 MAAP Operation," later in this chapter.*
3. If desired, press and release the I/O button to set the MKP to display audio ties.
   - The I/O button lights red.
   - If desired, view the audio ties as described in step **2**.
4. To exit view mode, press and **hold** the Output button until the button lights amber to indicate I/O Selection mode (approximately 2 seconds) .

Selecting a preset

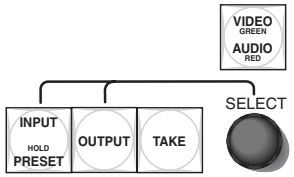


Figure 3-5 — Suggested button labels for* preset *mode

NOTE

- *Presets must have been created in the matrix switcher to be valid. Refer to the user's manual for the connected matrix switcher to create presets.*
- *Presets must be named in the MKP 3000 to be recallable. See chapter 4, "SIS™ Operation," and chapter 5, "HTML Operation," to name presets.*

To select (recall) a preset on the MKP 3000,

1. Press and **hold** the Input button until the button lights green to indicate preset mode (approximately 2 seconds) .
   - The I/O button becomes unlit.
   - The LCD display shows **Preset Mode** and the name of the last selected preset (if any).

NOTE *If no preset has been named in the MKP or if no preset has been selected, the LCD window shows **[Not Set]**.*

2. Use the Select knob to scroll through the available presets until the LCD display shows the desired preset name. The Take button starts to blink.
3. Press the Take button to recall the preset.
4. To exit preset mode, press and **hold** the Input button, until it lights amber to indicate I/O selection mode (approximately 2 seconds).

Adjusting the audio output

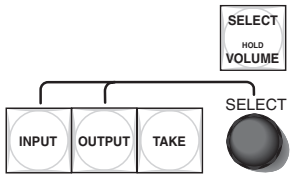


Figure 3-6 — Suggested button labels for* audio volume *mode

1. Press and **hold** the I/O button until it lights red to indicate audio volume mode (approximately 2 seconds), then release the button.
   - The output button lights.
   - The LCD display shows the selected (>) output and a slide bar that shows the audio output level of the selected output.
2. Press and release the Output button to toggle between selection (>) of the output and the audio level slide bar.
3. Use the Select knob to select an output, or to increase or decrease the audio level.
   - If Output is selected (>), the Select knob scrolls through the outputs.

NOTE *If an optional MKP 10 MAAP keypad is connected or you are using an MKP 3000 L, you can use the keypad in place of the Select knob. See "MKP 10 MAAP and MKP 3000 L Keypad Operation," later in this chapter.*

   - If the audio level slide bar is selected, the Select knob changes the audio level.
4. To exit audio volume mode, press and **hold** the I/O button for approximately 2 seconds until the button lights amber to indicate I/O selection mode.

Viewing and configuring the IP and MKP setup parameters

To configure the MKP to operate in your LAN, you may need to change one or more IP addresses and the host control port setting. The duration of the LCD display's back light is also adjustable. Figure 3-7, "Selecting setup parameters," later in this chapter, provides a diagram of the procedures for setting up the IP connection, backlight duration, and tie mode parameters using the front panel controls.

The following MKP parameters can be set from the front panel in setup mode:

- IP address (default = 192.168.254.253)
- Subnet address (default = 255.255.0.0)
- Gateway address (default = 0.0.0.0)
- The host matrix switcher's IP address (default = 0.0.0.0)
- Host control port setting (pass-through or no pass-through) (default = no pass-through)

- MKP connection setting
  - **Primary** — Controls the switcher directly (default).
  - **Secondary** — Controls the switcher through another MKP and its Switcher RS-232 port.
- LCD display backlighting interval
- Tie mode:
  - Matrix mode (default)
  - Input-only mode

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields (octets) separated by dots (periods). Each octet can be numbered from 000 through 255. Leading zeroes, up to three digits total per octet, are optional. Values of 256 and above are invalid.

If any of the default addresses conflict with other equipment at your installation, you can change them to any valid value.

NOTE *The MKP must be in the administrator executive mode for you to be able to set these parameters. In user executive mode, you cannot change the configuration.*

CAUTION *Editing the Extron IP address and other parameters while the MKP is connected via the LAN port can immediately disconnect the computer from the MKP. Extron recommends editing this field using the front panel or the RS-232 link, and restricting Ethernet access to these parameters by assigning an administrator's password that is available only to qualified and knowledgeable personnel.*

Edit these addresses and set the host control setting as follows:

1. Simultaneously press and **hold** buttons ②, ③, and ④ (typically labeled Input, Output, and Take) until all buttons light amber and the LCD display changes (figure 3-7) to enter setup mode (approximately 2 seconds).
   - The LCD display shows the MKP's IP address. The most significant octet (first one on the left) of the MKP's IP address is highlighted by a caret (>), indicating that it is editable.
   - Pressing button ② changes the IP address shown in the LCD display, cycling through the various IP addresses, and then selects the host control setting, the connection priority, and the LCD backlit duration, as shown in figure 3-6.
   - Pressing button ③ changes the editable octet (moves the caret) of the selected IP address, as shown in figure 3-6.
2. Use button ② and button ③ to select and display the desired address and octet.
3. Rotate the Select knob to increase or decrease the octet value until the LCD display shows the desired value.

   NOTE *If an optional MKP 10 MAAP keypad is connected or you are using an MKP 3000 L, you can use the keypad in place of the Select knob.*
4. Repeat steps **2** and **3** to select and change other addresses and/or octets.
5. Use button ② to select the host control setting display. (See "Host control port setting and pass-through communications," below.)
6. If necessary, use button ③ or the Select knob to toggle the setting between enabled (pass-through) and disabled (no pass-through). (See "Host control port setting and pass-through communications," below.)
7. Use button ② to select the connection priority display. If necessary, use button ③ or the Select knob to toggle the setting between primary and secondary.
8. If desired, set the LCD window's backlighting interval. (See "Setting the LCD window backlighting," on the next page.)
9. Select the tie mode. (See "Changing the tie mode," earlier in this chapter.
10. When all addresses and other settings have been made, press the Take button ④. The MKP 3000 reenters I/O selection mode.

Host control port setting and pass-through communications

When the MKP is

- Connected to a computer or control system via its Host RS-232 port **and**
- In pass-through mode,

the MKP redirects valid matrix switcher SIS commands that it receives on its Host RS-232 port to its Switcher RS-232 port.

When the MKP is

- Connected to a computer or control system via its Host RS-232 port **and**
- In no pass-through mode,

the MKP acts on all valid MKP commands received. It does not pass the command to its Switcher RS-232 port.

When the MKP is

- Selected as primary:
  - The MKP directly controls the matrix switcher via its Switch RS-232 port or LAN port
- Selected as secondary:
  - The MKP controls the matrix switcher through connection to the primary MKP's IP address

Setting the LCD window backlighting

You can use the front panel buttons to specify the amount of seconds that the MKP's LCD display will remain backlit after a front panel operation has been performed.

To set the backlighting interval, follow these steps:

1. Enter setup mode by simultaneously pressing and **holding** buttons ②, ③, and ④ (typically labeled Input, Output, and Take) until all buttons light amber and the LCD display changes (approximately 2 seconds).
2. Repeatedly press the Input button (button ②) until the LCD window displays "Backlight."
3. Turn the Select knob clockwise or counterclockwise until the desired number of seconds (0 to 255) is displayed. If you select 0 seconds, the backlighting is always on.

NOTE *You can also change the backlighting interval by using SIS commands (see chapter 4, "SIS™ Operation").*

Setup procedures diagram

Figure 3-7 on the next page provides a diagram of the procedures for setting up the IP connection, backlight duration, and tie mode parameters using the front panel controls.

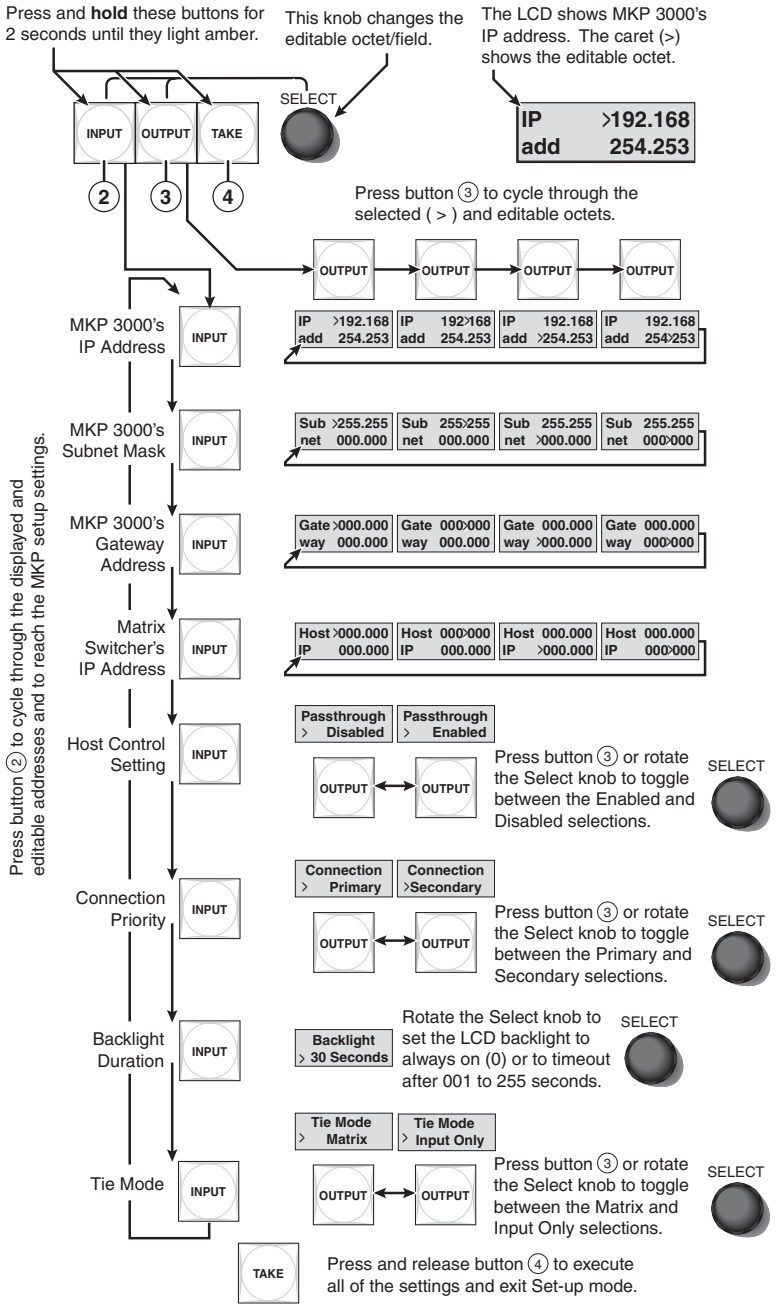


Figure 3-7 — Selecting setup parameters

Control panel security lockout (executive mode)

The front panel security lockout limits the MKP's front panel operation to input selection, output selection, preset selection, and volume control only, depending on the MKP's mode (IP address modification is locked).

The MKP 3000 provides the following three levels of front panel security lockout (executive modes):

Panel Locked mode — All front panel controls are locked. Selections and setup cannot be performed from the front panel.

User mode — Front panel operation is limited to input, output, and preset selection, and volume control. The panel configuration, IP, and switcher addressing functions are locked.

Administrator mode (default) — All front panel controls are available.

For an MKP 3000 <u>without</u> an MKP 10 MAAP connected,

1. Press and **hold** all four front panel buttons (figure 3-8) until all four buttons blink and then light amber, and the LCD displays the name of the executive mode that was entered (approximately 3 seconds).
   - **Administrator mode** — The LCD window briefly displays "Admin Mode," then returns to what was previously displayed.
   - **User mode** — The LCD window briefly displays "User Mode," then returns to what was previously displayed.
   - **Panel Locked mode** — The LCD window displays "Panel Locked" until the executive mode is changed.
2. If necessary, repeat step **1** until the desired executive mode is entered.

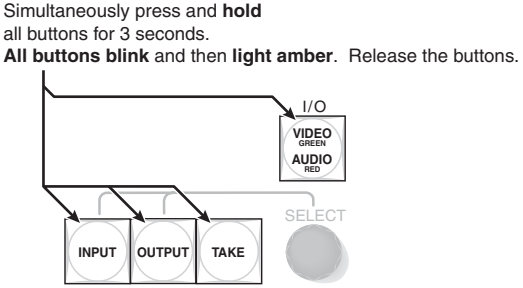


Figure 3-8 — Control panel lockout

NOTE *When you unlock the control panel, the MKP 3000 enters setup mode. Make changes if desired and then press the Take button to exit.*

For an MKP 3000 L or an MKP 3000 connected to an MKP 10 MAAP:

1. On the MKP 10 MAAP or the MKP 3000 L keypad, press and **hold** the 1, 3, Back, and Cancel buttons until the MKP 3000 LCD window displays the name of the executive mode that has been set approximately 3 seconds). (Admin Mode and User Mode are displayed briefly; Panel Locked remains displayed.)
2. If necessary, repeat step **1** until the LCD window indicates the mode you want.

Resets from the Rear Panel

You can perform two types of resets from the rear panel of the MKP 3000: *soft* and *hard*.

Performing soft resets

The remote control panel has three soft resets available that restore various tiers of MKP settings to their default settings.

- **Events (mode 3) reset —** Restarts the communications and control events.
- **IP system (mode 4) reset —** IP system reset resets most IP protocols to their default settings.

NOTE *IP system reset clears the Internet protocol (IP) settings, but does not reset the target address, the host control setting, the priority setting, or any user-loaded files.*

- **Absolute (mode 5) reset —** Performs all of the system reset functions **and** clears the MKP's IP address to 192.168.254.253 and its subnet mask to 255.255.0.0. This function is identical to the SIS command Esc ZQQQ ← (see chapter 4, "SIS™ Operation").

Perform a soft reset of the MKP as follows:

1. Press and **hold** the Reset (R) button until the Reset LED blinks once (events reset), twice (IP system reset), or three times (absolute reset) (figure 3-9).

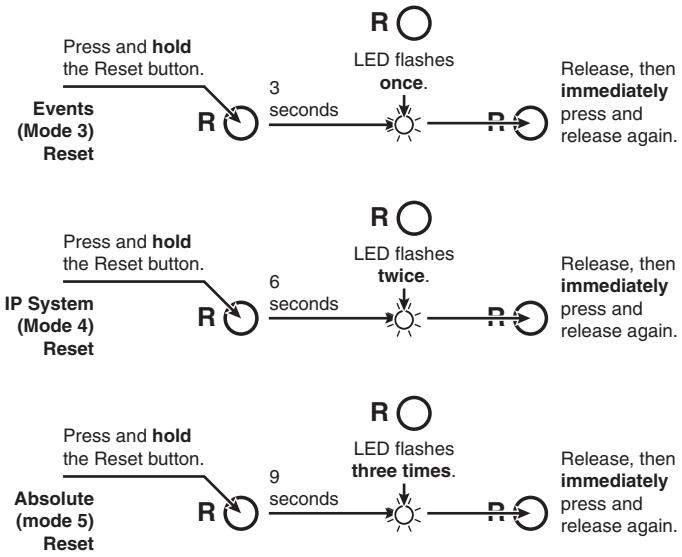


Figure 3-9 — Performing soft resets

2. Release the Reset button and then immediately press and release the Reset button again. Nothing happens if the second momentary press does not occur within 1 second.

Performing a hard reset

The hard reset restores the MKP to the original factory default firmware configuration and erases all user-installed software or firmware. (A hard reset does not perform all possible MKP reset functions.)

CAUTION *Ensure that you have backed up any locally-created HTML, JavaScript, or other files that you have uploaded to the MKP's user file space* ***before*** *you perform the hard reset. A hard reset* ***will erase*** *all locally-created files from the MKP.*

Perform a hard reset as follows:

1. If necessary, turn off power to the switcher.
2. Press and **hold** the Reset button on the rear panel **while** you apply AC power to the MKP (figure 3-10).

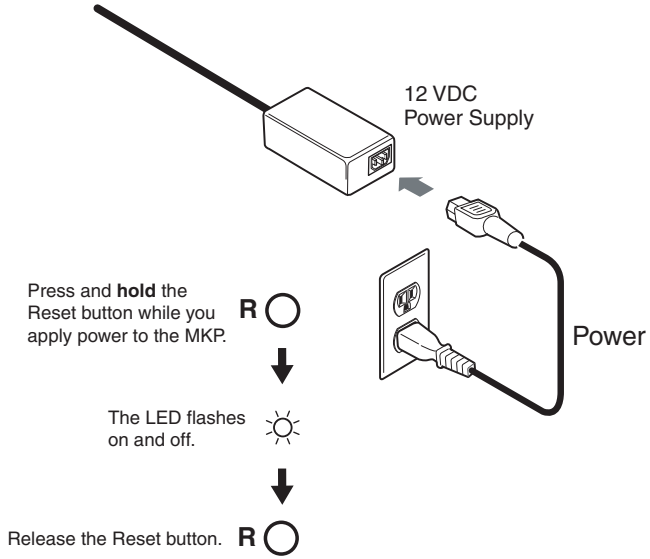


Figure 3-10 — Performing a hard reset

MKP 10 MAAP and MKP 3000 L Keypad Operation

When the connected switcher has a large matrix size (up to 128 inputs by 128 outputs), selecting an input or output number by rotating the Select knob can be inconvenient. The optional MKP 10 MAAP keypad (figure 3-11) and the built-in MKP 3000 L keypad allow rapid input/output selection.

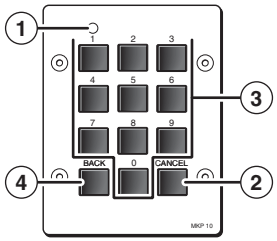


Figure 3-11 — Optional MKP 10 MAAP keypad

NOTE *The keypad on the MKP 3000 L is laid out and functions the identically to the MKP 10 MAAP keypad.*

(1) **Power LED —** When lit, this LED indicates that power is applied to the keypad.

(2) **Cancel key —** Press and release the Cancel key to reset the selected input or output value shown in the MKP 3000's LCD display to 000 before using the numeric keys ((3)) to enter a specific value.

(3) **Numeric keys —** Press and release the numeric keys (0 through 9) to enter a specific value as the selected input or output shown in the MKP 3000's LCD display.

(4) **Back key —** Press and release the Back key to backspace (erase) the least-significant (rightmost) digit shown in the LCD display.

Chapter Four

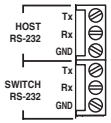
SIS™ Operation

RS-232 Links

The MKP's rear panel 3-pole, 3.5 mm, Host RS-232 connector (figure 4-1) can be connected to the RS-232 serial port output of a host device such as a computer running the HyperTerminal utility, an RS-232 capable PDA, or a control system. This connection makes software control of the control panel possible. The rear panel Switcher connector can be connected to the Remote or RS-232 port of a matrix switcher.

The default protocol for both ports is as follows:

- 9600 baud*
- 8-bit, 1 stop bit
- no parity
- no flow control



Pin	Function
TX	Transmit data
RX	Receive data
Gnd	Signal ground

Figure 4-1 — RS-232 connector pin assignments

NOTE **The default baud rate is 9600, but this can be changed, using the MKP's Web pages, to 300, 600, 1200, 1800, 2400, 3600, 4800, 14400, 19200, 28800, 38400, 57600, or 115200 baud to match the switcher's baud rate. See "Port (RS-232) Settings" in chapter 5, "HTML Operation," to change the baud rate.*

Routing matrix switcher commands

When the MKP is connected to the matrix switcher via its Switcher RS-232 port, the MKP can redirect SIS matrix switcher commands received on the Host RS-232 port to the matrix switcher.

If the MKP receives a valid matrix switcher SIS command on its Host RS-232 port, it redirects the command to its Switcher RS-232 port only if the MKP is set to Pass-through mode. See the "RS-232 port redirect" command set on page 4-9 or "Host Control Port settings" in chapter 5, "HTML Operation," to set the Pass-through mode.

Ethernet Link

The rear panel LAN connector on the MKP can be connected directly to a host computer (for setup) or a matrix switcher (for switcher control), or to an Ethernet LAN or WAN (to which a host computer, other MKPs, and a matrix switcher can also be connected).

- Connection **directly** to a host computer requires a **crossover cable**.
- Connection via an Ethernet LAN requires a **patch (straight-through) cable**.

NOTE *See "TP cable termination" in chapter 2, "Installation," to create crossover and patch cables.*

Default IP address

To access the MKP via the Ethernet port, you need the Extron IP address. If the address has been changed to an address comprised of words and characters (DHCP host name), you can determine the actual numeric IP address using the ping (ICMP) utility. If the address has not been changed, the factory-specified default is 192.168.254.253.

Host-to-MKP Instructions

The MKP accepts SIS (Simple Instruction Set) commands through the Host RS-232 and Ethernet ports. SIS commands consist of one or more characters per command field. They do not require any special characters to begin or end the command character sequence. Each MKP response to an SIS command ends with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

MKP-Initiated (Unsolicited) Messages

When a local event such as a front panel operation occurs, the MKP responds by sending a message to the host. The MKP-initiated messages are listed below (underlined).

(C) Copyright 2006, Extron Electronics, MKP 3000 LCD Keypad, Vx.xx, 60-710-00 ↵ **(for RS-232 connection)**

(C) Copyright 2006, Extron Electronics, MKP 3000 LCD Keypad, 60-710-00 ↵

Www, DD Mmm YYYY hh:mm:ss ↵ **(for IP connection)**

The MKP initiates the copyright message when it is first powered on or when connection via Internet protocol (IP) is established. In the IP connection response,

Vx.xx = firmware version number
Www = day of the week (first three letters)
DD = day of the month (two digits with leading zero if needed)
Mmm = month (first three letters)
YYYY = year

hh = hour; **mm** = minutes; **ss** = seconds

↵ Password:

The MKP initiates the password message immediately after the copyright message when the controlling system is connected using TCP/IP or Telnet, and the MKP is password protected. This message means that the MKP requires an administrator or user level password before it performs the commands entered via this link. The MKP repeats the password message response for every entry other than a valid password until a valid password is entered.

↵ Login Administrator ↵

↵ Login User ↵

The MKP initiates the login message when a correct administrator or user password has been entered. If the user and administrator passwords are the same, the MKP defaults to administrator privileges.

Str ↵

The MKP initiates the Str message whenever a front panel button or knob is operated. This includes the optional MKP 10 MAAP keypad, if connected, and the standard MKP 3000 L keypad.

MKP Error Responses

When the MKP receives an SIS command and determines that it is valid, it performs the command and sends a response to the host device. If the MKP is unable to perform the command because the command is invalid or contains invalid parameters, the MKP returns an error response to the host. The error response codes are:

E01 — Invalid input channel number (too large)
E10 — Invalid command
E12 — Invalid output number (too large)
E13 — Invalid value (out of range)
E14 — Illegal command for this configuration
E24 — Privilege violation (Ethernet, Extron software only)
E99 — Invalid or no response from target switcher

Using the Command/Response Table

The command/response table begins on page 4-9. Lowercase letters are acceptable in the command field except where indicated. The table below shows the hexadecimal equivalent of each ASCII character used in the command/response table.

ASCII to HEX Conversion Table

	20	!	21	"	22	#	23	$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
0	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	40	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	60	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	70	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	|	7C	}	7D	~	7E	DEL	7F

Esc	1B	CR	0D	LF	0A	

The MKP always redirects a subset of valid matrix switcher-specific SIS commands on its Ethernet port and, if configured in pass-through mode, on its Switcher RS-232 port.

NOTE *It is not the purpose of this manual to define in detail the passed-through matrix switcher-specific SIS commands. Refer to the applicable matrix switcher's manual.*

Symbols are used throughout the tables to represent variables in the command/response fields. Command and response examples are shown throughout the MKP SIS commands table.

Symbol definitions

↵ = CR/LF (carriage return/line feed)

← = CR (carriage return — no line feed)

• = space

X1 = On/off status — 0 = off/disable; 1 = on/enable

X2 = RS-232 port number — 1 = host; 2 = switcher

X3 = *n* = –1= redirect serial port data from the specified port to allow for a transparent pass through mode. The response is returned with leading zeroes.
n = the maximum number of serial ports that the IP link supports. X5 is verified at this port.

X4 = Time (in 10 ms increments) to wait for receive data before releasing the port to another source (min = 1 [10 ms], maximum = 32767 [32.767 seconds], default = 10 [100 ms]).

X5 = Numerical value (*nnnn*) to set **L** (length of message to receive) or assign as a **D** (delimiter).
L = number of byte count (min = 0, max = 32767, default = 0).
D = decimal number for ASCII character (min = 0, maximum = 00255, default = 00000L).

NOTE *The numeric value directly precedes the identifier; for example: X5 = "3L" to specify a 3-byte length or X5 = "10D" to specify an ASCII delimiter of 0A. The identifier, "L" or "D" is case sensitive and must be uppercase.*

X6 = Firmware version — Bootstrap version *(x.xx)*

X7 = Verbose firmware version-description-upload date/time. See page 4-10.

X8 = Voltage 1 (3.3 V), Voltage 2 (12.0 V), Temperature (degrees Fahrenheit) (*xxx.xx*), Voltage 3 (5.0 V)

X9 = Verbose/response mode — 0 = no password assigned; 1 = verbose mode; 2 = tagged responses for queries; 3 = 1 and 2 (verbose and tagged)

NOTE *The default X9 value is 0 for Telnet and 0 for RS-232.*

If tagged responses are enabled, all read commands return the constant string plus the data, the same as setting the value. For example, the MKP responds Ipn•X18↵ *to the* Esc•CN← *command.*

X10 = Security level — 0 = clear/none; 11 = user password assigned; 12 = administrator password assigned

X11 = Baud rate — 300, 600, 1200, 1800, 2400, 3600, 4800, 9600 (default), 14400, 19200, 28800, 38400, 57600, or 115200

X12 = Parity (1st character only) — **O**dd, **E**ven, **N**one (default), **M**ark, **S**pace

X13 = # of data bits — 7, 8 (default)

X14 = # of stop bits — 1 (default), 2

X15 = Input or output number — 0 through 999

X16 = Name — 11 characters maximum for inputs and outputs; 12 characters maximum for presets; 24 characters maximum for MKP name. Upper- and lowercase alphanumeric characters, spaces, – and / are valid.

NOTE *The following characters are invalid in the name:* **+ ~ , @ = ' [ ] { } < > ' " ; : | ** *and* **?**.

X17 = Preset number

X18 = Default name — Factory default name (combination of the model name + last 3 pairs of MAC address).

X19 = Time and date (set) — MM/DD/YY-HH:MM:SS
where:
MM = month: 01 (Jan.) — 12 (Dec.)
DD = day: 01 through 31
YY = year: 00 through 99
HH = hour: 00 through 24
MM = minutes: 00 through 59
SS = seconds: 00 through 59

X20 = Time and date (read) — Day,•DD•Mmm•YYYY•HH:MM:SS
where:
Day = weekday: Mon through Sun
DD = day: 01 through 31
Mmm = month: Jan through Dec
YYYY = year: 2000 through 2099
HH = hour: 00 through 24
MM = minutes: 00 through 59
SS = seconds: 00 through 59

X21 = GMT offset — –12.0 through +14.0. Hours and minutes removed from GMT

X22 =	Daylight Savings Time	0 = Daylight Savings Time off/ignore 1 = Daylight Savings Time on (northern hemisphere) 2 = Daylight Savings Time on (Europe) 3 = Daylight Savings Time on (Brazil)
X23 =	IP address	###.###.###.###
X24 =	Hardware (MAC) address	##-##-##-##-##-##
X25 =	Connection priority	0 = Primary 1 = Secondary
X26 =	Password	12 digits, alphanumeric

NOTE *The following characters are invalid in passwords:*
{space} + ~ @ = ' [ ] { } < > ' " ; : \ | and ?.

X27 =	Web page priority	0 = Internal (default on power up) 1 = User
X28 =	Executive mode	0 = Administrator mode (panel unlocked) 1 = User mode 2 = Panel locked
X29 =	Tie mode	0 = Matrix mode 1 = Input-only mode

Command/response table for MKP SIS commands

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Front panel security lockout (executive mode)			
Panel locked mode	2x	Exe2 ↵	Lock front panel.
User mode	1x	Exe1 ↵	Enable only input, output, preset, and volume selection from the front panel.
Administrator mode	0x	Exe0 ↵	Unlock front panel.
View front panel lock status	x	X28 ↵	Show front panel lock status. For X28: 0 = Administrator mode (panel unlocked). 1 = User mode. 2 = Panel locked.
Pass-through (RS-232 port redirect)			
Configure redirect mode	Esc X2 * X3 * X4 * X5 CD↵	Cpn X2 • Ccd X3 , X4 , X5 ↵	Turn redirect mode on.
Example:	Esc 1*2*50*10D*CD↵	Cpn01• Ccd00002,00050,00000L ↵	Redirect port 1 to port 2. Wait 500 ms for response.
NOTE *The "L" or "D" delimiter in value X5 is case sensitive and must be uppercase.*			
Disable redirect	Esc X2 * 0CD	Cpn X2 • Ccd00000,00000,00000L ↵	
View redirect	Esc X2 CD	X3 , X4 , X5 ↵	View redirect mode on/off status.
Information requests			
Information request	I	MKP • 3000 • LCD • KEYPAD or MKP • 3000 • LCD↵	
Request for part number	N	60-7xx-00↵	MKP 3000 and MKP 3000 MAAP without MKP 10: 60-708-00 MKP 3000 L: 60-709-00 MKP 3000 MAAP with MKP 10: 60-710-00

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Information requests, continued			
Query firmware version	Q	X6 ↵	Firmware version *x.xx*.
Query verbose firmware version	0Q	X7 ↵	Provide a detailed status of the Ethernet protocol firmware, the MKP controller firmware, and any firmware upgrade. The firmware that is running is marked by an asterisk (*). A caret (^) indicates that the firmware has a bad checksum or an invalid load. ?.?? indicates that firmware is not loaded.
Response description:	Ethernet protocol firmware version - controller firmware version - updated firmware version ↵		
Query status	S	X8 ↵	Voltage and temperature readings.
Resets			
Names reset	Esc ZXXX ←	Zpx ↵	Erases all presets, preset names, input names, and output names.
Absolute reset	Esc ZQQQ ←	Zpq ↵	Perform a Names reset plus restoration of all default IP settings.
Verbose mode			
Set verbose mode on	Esc X9 CV ←	Vrb1 ↵	The MKP reports all status changes to the device that sent the command.
Read verbose mode	Esc CV ←	↵	
Read connection's security level	Esc CK ←	X10 ↵	Password level protection assigned.

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
RS-232 port configuration			
Configure serial port	Esc X2 * X11 , X12 , X13 , X14 CP ←		
		Cpn X2 • Ccp X11 * X12 * X13 * X14 ↵	
Example:	Esc 1*9600,n,8,1CP ←	Cpn01•Ccp9600,N,8,1 ↵	
			9600 baud, no parity, 8 data bits, 1 stop bit.
View port configuration	Esc X2 Cp	X11 * X12 * X13 * X14 ↵	
Input and output names – video			
Name a video input	Esc X15 , X16 NI ←	Nmi X15 • X16 ↵	Name video input X15 "X16".
Example:	Esc 1,PC 1NI ←	Nmi001•PC 1 ↵	Name input 1 "PC 1".
Read a video input name	Esc X15 NI	X16 ↵	Input X15 is named "X16".
Name a video output	Esc X15 , X16 NO ←	Nmo X15 • X16 ↵	Name video output X15 "X16".
Example:	Esc 05,Monitor 5NO ←	Nmo005•Monitor 5 ↵	Name output 5 "Monitor 5".
Read a video output name	Esc X15 NO	X16 ↵	Output X15 is named "X16".
Input and output names – audio			
NOTE *The following audio input/output naming commands are case-sensitive.*			
Name an audio input	Esc X15 , X16 Na ←	Nma X15 • X16 ↵	Name audio input X15 "X16".
Example:	Esc 1, PC 1Na ←	Nma001•PC 1 ↵	Name input 1 "PC 1".
Read an audio input name	Esc X15 Na	X16 ↵	Input X15 is named "X16".
Name an audio output	Esc X15 , X16 NA ←	NmA X15 • X16 ↵	Name audio output X15 "X16".
Example:	Esc 05,Monitor 5NA ←	NmA005•Monitor 5 ↵	Name output 5 "Monitor 5".
Read an audio output name	Esc X15 NA	X16 ↵	Output X15 is named "X16".

Command/response table for MKP SIS commands (continued)

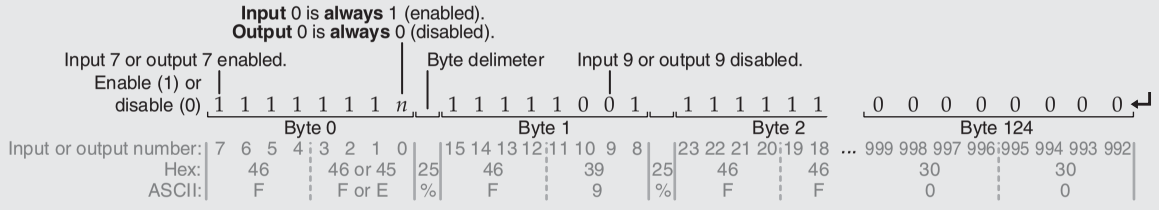
Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Preset names			
NOTE *Presets must be named in the MKP 3000 for them to be recalled from the front panel.*			
Name a preset	Esc X17 , X16 NG ←	Nmp X17 • X16 ↵	Name preset X17 "X16".
Example:	Esc 7,Staff mtg 3NG←	NmpStaff mtg 3•PC1↵	Name input 1 "Staff mtg 3".
Read a preset name	Esc X17 NG	X16 ↵	Preset X17 is named "X16".
Tie mode			
Select matrix mode	0 * 2 # ←	Tmd 0 ↵	Select matrix (the default) as the tie mode.
Select input-only mode	1 * 2 # ←	Tmd 1 ↵	Select input-only as the tie mode.
View the tie mode	2 # ←	X29 ↵	View the current tie mode. For X29 : 0 = matrix mode. 1 = input-only mode.
Disable/enable inputs and outputs			
Enable all inputs	Esc + 7BM ←	Upl ↵	Enable all inputs.
Disable all inputs	Esc + 6BM ←	Upl ↵	Disable all inputs.
Enable all outputs	Esc + 9BM←	Upl ↵	Enable all outputs.
Disable all outputs	Esc + 8BM←	Upl ↵	Disable all outputs.
Read enables for up to 125 inputs	Esc + 1BM ←	*data (see below)* ↵	Display a list of which inputs are enabled (available for selection) or disabled (unavailable for selection).
Example ***(for 16-input switcher)***:	Esc +1BM ←	%5B%FF%01%00%00%00%00%00%00%...%00%00%00%↵	In this example, inputs 2, 5, and 7 are disabled. All other **valid** inputs are enabled. Inputs 17 through 999 are **invalid** selections for a 16-input matrix switcher. See the ***Data description*** for the read outputs command for a detailed explanation.

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Disable/enable inputs and outputs, continued			
Read enables for up to 125 outputs	Esc + 5BM ←	*data (see below)* ↵	Display a list of which outputs are enabled or disabled.
Example ***(for 32-output switcher)***:	Esc +5BM ←	%FE%FF%FF%FF%01%00%00%00%00%...%00%00%00%↵	In this example, all outputs are enabled. Outputs 33 through 999 are **invalid** selections for a 32-output matrix switcher. See the ***Data description***, below, for a detailed explanation.

NOTE *The example below, shows the content of the returned data for* ***either*** *a read of input enables* ***or*** *a read of output enables.*

Data description: 125 bytes of data; each bit in a byte shows if an input or output is enabled (if set to 1) or disabled (if set to 0).



NOTE *Each byte is returned most-significant bit first (such as input 7 in byte 0), least-significant bit last (such as input 0 in byte 0). Bytes are returned in sequential order (byte, 0, byte 1, byte 2,...byte 124).*

NOTE *Input and output enables* ***can*** *be read using SIS commands, but the returned data is hard to interpret. Reading the enabled outputs is far simpler using the HTML pages. See "System Settings page" in chapter 5, "HTML Operation."*

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
IP setup			
Set MKP name	Esc X16 CN↵	Ipn X16 ↵	Assign a name to the MKP.
Set MKP name to factory default	Esc • CN ↵	Ipn • X18 ↵	Reset the MKP's name to the factory default.
Read MKP name	Esc CN ↵	X16 ↵	Read assigned MKP name (X16 may be X18).
Set time/date	Esc X19 CT ↵	Ipt X20 ↵	Set the time and date.
Read time/date	Esc CT ↵	X20 ↵	Read the time and date.
Set GMT offset	Esc X21 CZ ↵	Ipz X21 ↵	The divider between hours and minutes is a period.
Read GMT offset	Esc CZ ↵	X21 ↵	
Set Daylight Savings Time	Esc X22 CX ↵	Ipx X22 ↵	Set the switcher to display the local time as Daylight Savings Time (+1 hour) in summer months.
Read Daylight Savings Time	Esc CX ↵	X22 ↵	
Set DHCP on or off	Esc X1 DH ↵	Idh X1 ↵	
NOTE *Changing DHCP to off resets the MKP's IP address to its default value: 192.168.254.253.*			
Read DHCP status	Esc DH ↵	X1 ↵	
Set MKP IP address	Esc X23 CI↵	Ipi X23 ↵	
Read MKP IP address	Esc CI ↵	X23 ↵	
Read hardware (MAC) address	Esc CH ↵	X24 ↵	
Set subnet mask	Esc X23 CS ↵	Ips X23 ↵	
Read subnet mask	Esc CS ↵	X23 ↵	
Set gateway IP address	Esc X23 CG ↵	Ipg X23 ↵	

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
IP setup, continued			
Read gateway IP address	Esc CG ↵	X23 ↵	
Set target (switcher) IP parameters	Esc X23 — **or** — X25 SI ↵	Sip X23 , X24 , X25 ↵	
NOTE *The set target IP parameters command can be issued with **either** the target IP address (X23) **or** the connection priority (X25) variable, but not both. The response is as shown regardless of which variable is entered.*			
Read target (switcher) IP parameters	Esc SI ↵	X23 , X24 , X25 ↵	
Set target (switcher) password	Esc X26 PI ↵	Spw X26 ↵	
NOTE *For the* set target password *(Esc X26 PI ↵) command, the password (X26) variable can be either the administrator or the user password.*			
Clear target password	Esc • PI↵	Spw • ↵	
Read target password	Esc PI ↵	**** ↵	
NOTE *The returned value for the* read target password *command (Esc PI↵) is masked; the value is either empty (no return other than the ↵) if **no** switcher password is assigned, or four asterisks (****↵) if a password **is** assigned.*			
Set MKP administrator password	Esc X26 CA ↵	Ipa X26 ↵	
Clear MKP administrator password	Esc • CA↵	Ipa • ↵	
Read MKP administrator password	Esc CA ↵	X26 ↵	
Set MKP user password	Esc X26 CU ↵	Ipu X26 ↵	
NOTE *You must have an administrator password assigned before you can assign a user password.*			
NOTE *When you have connected multiple MKPs to control a switcher through a primary MKP control panel, do not set a user password on the primary MKP.*			
Clear MKP user password	Esc • CU↵	Ipu • ↵	
Read MKP user password	Esc CU ↵	X26 ↵	

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
IP setup, continued			
Switch Web page priority	Esc X27 Cpag ↓	Iwp X27 ↵	
Read Web page priority	Esc Cpag ↓	X27 ↵	
Set verbose mode	Esc X1 CV ↓	Vrb X1 ↵	Set MKP to report changes from other sources.
Read verbose mode	Esc CV ↓	X1 ↵	Read the verbose mode.
Read connection's security level	Esc CK ↓	X10 ↵	
Backup and restore unit configuration			
Save unit configuration	Esc 1* {config type} XF ↓	Cfg 1* {config type} ↵ {config type} = 2 = unit-specific parameters (box.config) such as global preset names, audio/video input and output names. The files are stored in the directory /nortxe-backup, created on the unit by the Save commands.	
Restore unit configuration	Esc 0 * {config type} XF ↓	Cfg 1 * {config type} ↵	

Chapter Five

HTML Operation

You can use a Web browser, such as Microsoft's Internet Explorer, to configure the MKP through its Ethernet port, when it is connected via a LAN or WAN. The browser's display of the MKP's configuration has the appearance of Web pages. This chapter describes the factory-installed HTML pages, which are always available and cannot be erased or overwritten.

NOTE *If your Ethernet connection to the matrix switcher is unstable, try turning off the proxy server in your Web browser as follows:*

1. *In Microsoft's Internet Explore, select* **Tools** > **Internet Options** > **Connections** > **LAN Settings**.
2. *Clear the* **Use a proxy server...** *check box.*
3. *Click* **Ok**.

Downloading the Startup Page

Access the MKP using HTML pages as follows:

1. Start the Web browser program.
2. Enter the MKP's IP address in the browser's Address field.

NOTE *If the local system administrators have not changed the value, the factory-specified default, 192.168.254.253, is the correct value for this field.*

3. If you want the browser to display a page other than the MKP 3000 Web page (such as a custom page that you have created and uploaded), enter a slash (**/**) after the address, and the name of the Web page file that you want to display.

NOTE *The browser's Address field should display the address in the following format:*
xxx.xxx.xxx.xxx/{optional_file_name.html}.

NOTE *Using any of the following characters results in an invalid name:*
{space} **+ ~ , @ = ' [ ] { } < > ' " ; : | ** *and* **?**.

4. Press Enter on your keyboard. The MKP checks to see if it is password protected.

   If the MKP is **not** password protected, proceed to step **6**.

   If the MKP has a password, the network password prompt window appears (figure 5-1).

Figure 5-1 — Enter Network Password page

NOTE *A User name entry is not required.*

5. In the Password field, enter the appropriate administrator or user password. Click **OK**.

   The MKP checks several possibilities, in the following order, and then responds accordingly:

   - If the address includes a specific file name, such as 10.13.156.10/file_name.html, the MKP downloads that HTML page.
   - If there is a file in the MKP's memory that is named "index.html," the MKP downloads "index.html" as the default startup page.
   - **If neither of the above conditions is true**, the MKP downloads the System Status page (figure 5-2), which is the factory-installed default startup page with the file name "nortxe_index.html."

You can now select the tabs at the top of the screen to display additional pages that enable you to configure and control the MKP 3000.

Viewing System Status

The System Status page on the Status tab (figure 5-2) provides an overall view of the MKP's current settings, including the IP and gateway addresses, the RS-232 port settings, the voltage, and the connections. Changes to these settings can be made via the Configuration Web pages, SIS programming, and/or the MKP front panel.

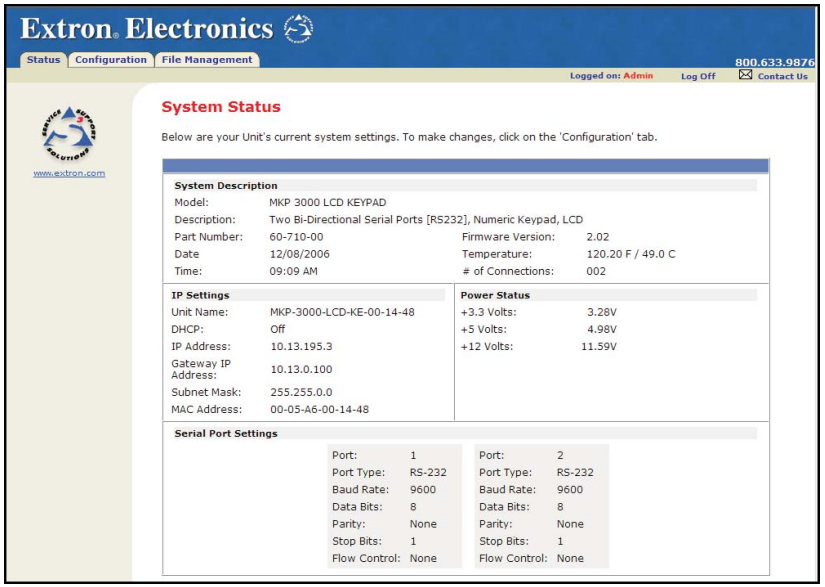


Figure 5-2 — System Status page

The System Status page is the default page that the MKP downloads when you connect to it. To access the System Status page from other MKP HTML web pages, click the **Status** tab.

This page shows only the current status of the MKP 3000. To change any of this information, select the **Configuration** tab to display the System Settings page.

NOTE *Personnel who have user access can view this page, but cannot access the Configuration pages; they see only the **Status** tab.*

Using the Configuration Pages

The Configuration tab has six Web pages, which only administrators can access. Links to them are listed in the sidebar menu at the left of the configuration screen. The following sections describe the changes you can make from these pages.

System Settings page

The System Settings page (figure 5-3) is divided into three sections: IP Settings, Switcher Control Settings, and Date/Time Settings. In each section, click **Submit** to enter your changes. Clicking the **Cancel** button in any section restores the previous settings, if the new values have not been submitted.

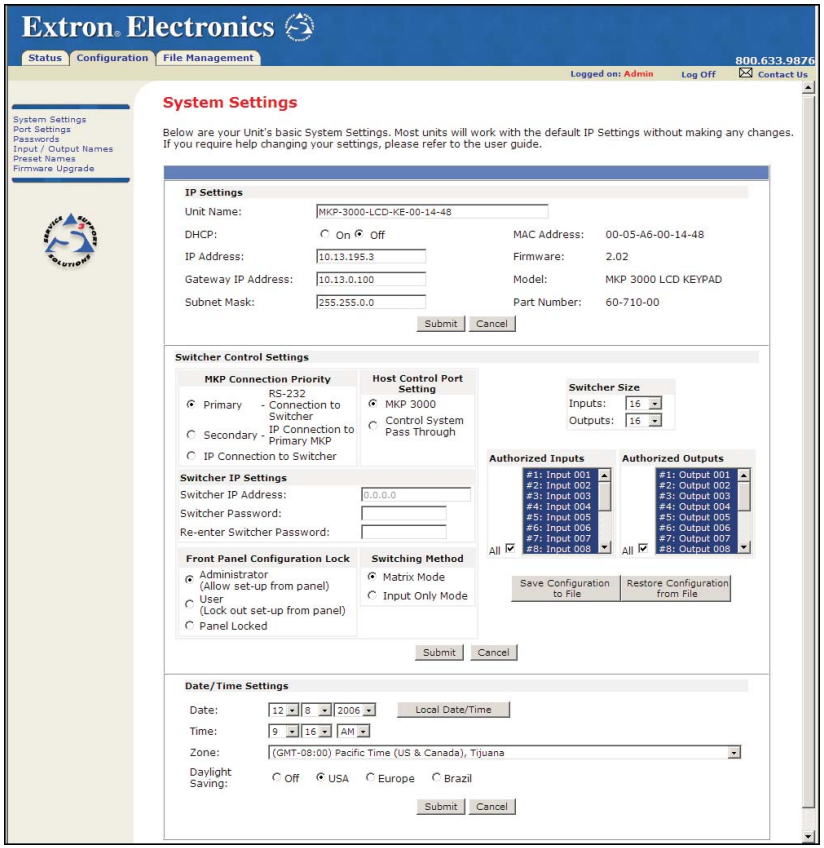


Figure 5-3 — System Settings page

IP Settings section

In this section, you enter all IP-related information for your MKP 3000. After making all desired changes to the fields in this section, click the **Submit** button at the bottom of the section to implement your changes. Click **Cancel** if you want to reject all your changes and restore the previous settings.

Unit Name field

The Unit Name field contains the locally-assigned name of the MKP. This name field can be changed to any valid name, up to 24 alphanumeric characters.

NOTE *Using any of the following characters results in an invalid name:*
+ ~ , @ = ' [ ] { } < > ' " ; : | ** *and* **?.

DHCP radio buttons

The **DHCP On** radio button directs the MKP to ignore any entered IP addresses and to obtain its IP address from a Dynamic Host Configuration Protocol (DHCP) server (if the network is DHCP capable).

The **DHCP Off** radio button turns DHCP off. Contact the local system administrator to determine if DHCP is appropriate.

IP Address field

The IP Address field contains the IP address of the MKP. This value is encoded in the MKP's flash memory.

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields (octets) separated by dots (periods). Each octet can be numbered from 000 through 255. Leading zeros, up to three digits per field, are optional. Values of 256 and above are invalid.

The factory-installed default address is 192.168.254.253, but if this conflicts with other equipment at your installation, you can change the IP address to any valid value.

CAUTION *IP address changes can cause conflicts with other equipment. Only local system administrators should change IP addresses.*

Gateway IP Address field

The Gateway IP Address field identifies the address of the gateway to the switcher that is to be used if the MKP and the switcher are not on the same subnet.

The gateway IP address has the same validity rules as the MKP's IP address. The default gateway address is 000.000.000.000.

Subnet Mask field

A subnet is a **sub**set of a **net**work – a set of IP devices that have portions of their IP addresses in common. The Subnet Mask field is used to determine whether the MKP is on the same subnet as the switcher's server when you are subnetting. The default is 255.255.000.000.

MAC Address field

The Media Access Control (MAC) address is hardcoded in the MKP and cannot be changed.

Firmware field

The Firmware field displays the currently version of firmware that is currently loaded on your MKP.

Model field

The Model field shows the name of your MKP model. (For the MKP 3000 MAAP, this field displays "MKP 3000 LCD KEYPAD.")

Part Number field

The Part Number field contains the generic part number of your MKP model:

- MKP 3000 and MKP 3000 MAAP without a keypad: **60-708-00**
- MKP 3000 L: **60-709-00**
- MKP 3000 MAAP with MKP 10 keypad: **60-710-00**

Switcher Control Settings section

This section contains switcher settings that can be configured via the MKP. After making all desired changes to the fields in this section, click the **Submit** button at the bottom of the section to implement your changes. Click **Cancel** if you want to reject all your changes and restore the previous settings.

MKP Connection Priority settings

Select the radio button for the type of connection that exists between the MKP and the switcher.

- **Primary – RS-232 Connection to Switcher** — The MKP directly controls the matrix switcher via its Switch RS-232 port.
- **Secondary – IP Connection to Primary MKP** — The MKP controls the switcher through another (primary) MKP's internet address.
- **IP Connection to Switcher** — The MKP directly controls the switcher through the Ethernet (IP) port.

Host Control Port settings

If **Primary – RS-232** has been selected in the MKP Connection Priority section, select one of the following radio buttons to specify how the Host RS-232 port will function:

- **MKP 3000** — Commands received on the Host RS-232 port are executed by the MKP.
- **Pass Through** — Commands received on the Host RS-232 port are forwarded to the connected switcher via the Switch RS-232 port.

If either **Secondary – IP Connection to Primary MKP** or **IP Connection to Switcher** was selected in the MKP Connection Priority section, the Host Control Port Settings selections are grayed out and unavailable.

Switcher Size settings

The MKP cannot determine the matrix size of the switcher to which it is connected. You must use the Switcher Size drop boxes to specify the number of inputs and outputs.

If the switcher size is not set, the default size is 16 x 16, and the input and output sizes range from 1 to 128.

NOTE *When you have set the size of the connected switcher's input/output matrix, the LED display shows* n-A *if you attempt to tie to an input or output outside the available range for this MKP or the connected matrix switcher, from the front panel.*

Switcher IP settings/Primary MKP settings

Depending on the connection type selected in the MKP Connection Priority section, you can enter an IP address and password (if one was assigned) for the switcher or the MKP. The address and password are required for the MKP and the matrix switcher to communicate via their RJ-45 LAN connections. The default IP address value is 000.000.000.000.

- **Primary – RS-232 Connection to Switcher** — The IP address fields are unavailable.
- **Secondary – IP Connection to Primary MKP** — Enter the IP address and/or password for the MKP that is directly controlling the switcher (via IP or RS-232).
- **IP Connection to Switcher** — Enter the IP address and/or the password for the switcher.

Authorized Inputs and Authorized Outputs settings

You can use the **Authorized Inputs** and **Authorized Outputs** drop boxes to narrow the number of inputs and outputs that are controllable from the MKP.

Front Panel Configuration Lock settings

Select the radio button for the executive mode that locks or unlocks the MKP front panel. The available modes are:

Administrator — All front panel controls are unlocked.

User — Limited front panel control is enabled (input and output selection, preset selection, and volume control). Panel configuration and IP and switcher addressing are not available.

Panel Locked — All front panel controls are locked and unavailable.

NOTE *This is the same function as the front panel security lock described in chapter 3, "Local Operation." The front panel can also be locked/unlocked via SIS commands, discussed in chapter 4, "SIS™ Operation."*

Switching method radio buttons

In this section, select the desired radio button to specify the mode in which the MKP 3000 will create input/output ties.

- **Matrix mode** (the default) — In matrix mode, you specify an input and one or more outputs to be tied to it.
- **Input-only mode** — In input-only mode, you select one output, then specify an input to be tied to it.

NOTE *You can also change the tie mode using the front panel controls. See "Changing the tie mode," in chapter 3, "Local Operation."*

Save/restore configuration buttons

Click the **Save Configuration to File** button to save the MKP 3000's current settings to a configuration file (.cfg extension) on your computer.

Click the **Restore Configuration from File** button to load a saved configuration file to the MKP, implementing the settings that were stored in that file.

See "Saving and Restoring a Configuration," later in this chapter, for these procedures.

Date/Time Settings fields

The Date/Time Settings fields enable you to view and set the time functions. After making all desired changes to the fields in this section, click the Submit button at the bottom of the section to implement your changes. Click Cancel if you want to reject all your changes and restore the previous settings.

Change the date and time settings as follows:

1. In the desired Date/Time Settings field, click on the drop box for the variable that you want to change. The adjustable variables are month, day, year, hours, minutes, AM/PM, and (time) zone. A drop-down scroll box appears.
2. Click and drag the slider, or click the scroll up or scroll down button, until the desired variable is visible.
3. Click on the desired variable.

NOTE *If you are setting the time, set the local time. The Zone variable allows you to then enter the offset from Greenwich Mean Time (GMT).*

NOTE *The Zone field identifies the selected standard time zone and displays the amount of time, in hours and minutes, that the local time varies from the GMT international time reference.*

4. Repeat steps **1** through **3** for other date/time parameters that you want to change.
5. Select the appropriate **Daylight Saving** radio button. To turn off daylight savings time, select Off.

NOTE *When daylight savings time is enabled, the MKP updates its internal clock between Standard Time and Daylight Savings Time, on the dates that the time change occurs in the United States of America and parts of Europe and Brazil. When daylight savings time is turned off, the MKP does not adjust its time reference.*

Port (RS-232) Settings page

The Port Settings page (figure 5-4) allows you to configure the MKP's two RS-232 ports (Host and Switch). To access the Port Settings page, click the Port Settings link on the left sidebar menu on the Configuration tab.

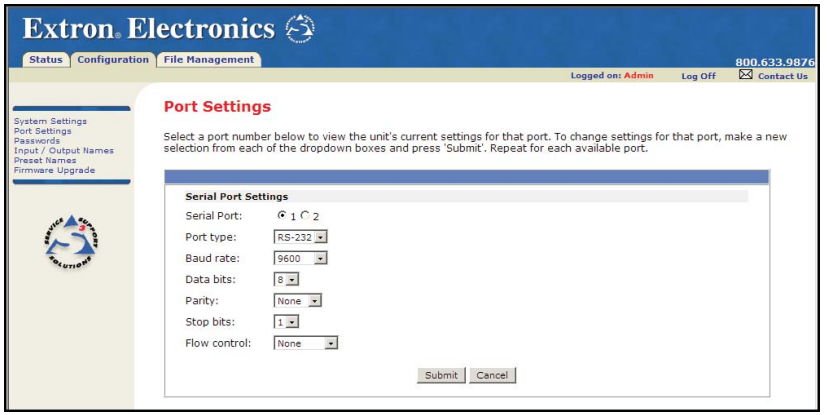


Figure 5-4 — Port Settings page

The **Serial Port 1** radio button selects the Host RS-232 port and the Serial Port 2 radio button selects the Switch RS-232 port.

To configure one of these ports,

1. Select **Serial Port** radio button **1** or **2**.
2. Make selections from the drop boxes as desired to configure the selected port.

   The Extron default settings for RS-232 ports are:

   - Baud rate: **9600**
   - Data bits: **8**
   - Parity: **None**
   - Stop bits: **1**
   - Flow control: **None**
3. Click **Submit** to confirm your settings. (To reject the changes and restore the previous settings, click **Cancel**.)

Passwords page

The Passwords page (figure 5-5) lets you assign an administrator and/or user password to control access to the MKP 3000 Web pages.

Passwords are case sensitive and are limited to 12 uppercase and lowercase alphanumeric characters. Symbols and spaces are not allowed.

To access the Passwords page, click the Passwords link on the left sidebar menu on the Configuration tab.

NOTE *When you have connected multiple MKPs to control a switcher through a primary MKP control panel, do not set a user password on the primary MKP.*

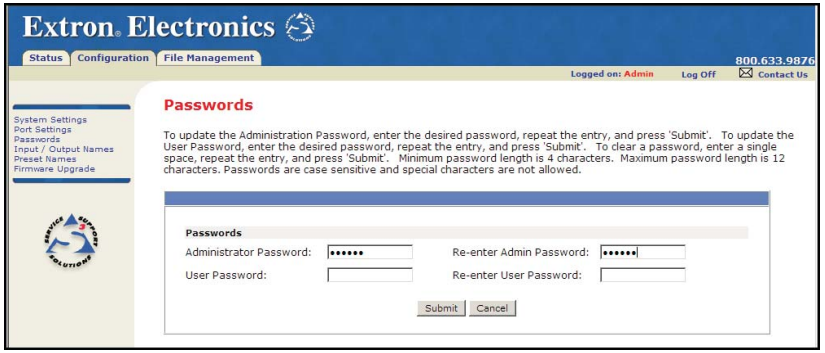


Figure 5-5 — Passwords page

Assigning a password

To assign passwords,

1. Enter the new administrator password in the Administrator Password field. Characters in these fields are masked (•••••) as you enter them.

NOTE *An administrator password must be created before a user password can be created.*

2. In the Re-enter Admin Password field, enter the same password again to confirm it.
3. If you want to assign a user password, enter it in the User Password field.

NOTE *You cannot assign a user password unless an administrator password has been assigned.*

4. Enter the same user password in the Re-enter the User Password field.
5. Click the **Submit** button to set the password(s).

Clearing a password

To remove an assigned password,

1. In the Administrator Password or User Password field, clear any text, then enter a single space.
2. Repeat step **1** in the Re-enter Admin Password or the Re-enter User Password field.
3. Click the **Submit** button.

Input/Output Names page

On the Input/Output Names page (figure 5-6), you can assign names to the audio and/or video inputs and outputs. To access the Inputs/Outputs Names page, click the Inputs/Outputs Names link on the left sidebar menu on the Configuration tab.

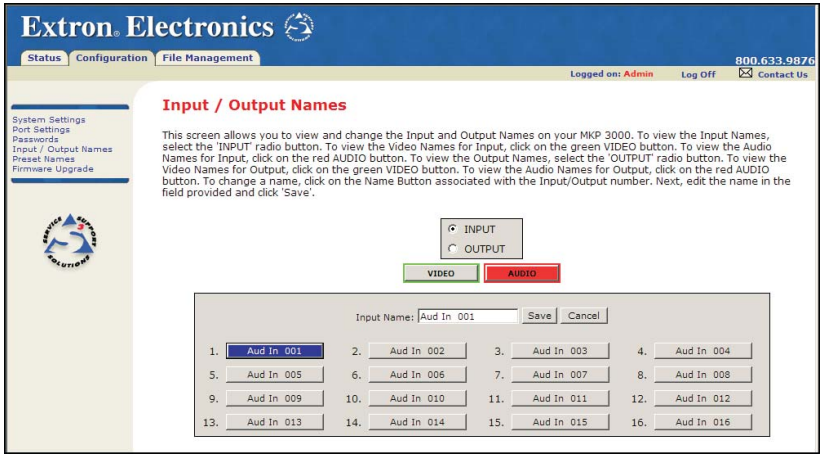


Figure 5-6 — Input/Output Names page

NOTE *The number of input and outputs available for naming on this page varies with the size of the connected switcher's input/output matrix.*

To assign or edit an input or output name,

1. Select the **Input** or **Output** radio button.
2. Click the **Video** or **Audio** button to select the type of input or output you want to name. When clicked, the **Video** button turns green; the **Audio** button turns red.

In addition, when you click the **Video** button, all the input/output screen buttons below it display their video names; and when you click **Audio**, the buttons display their audio names. By default the button names are **Input** ***nnn*** or **Output** ***nnn*** for Video, and **Aud In** ***nnn*** or **Aud Out** ***nnn*** for audio. (*nnn* is the three-digit input or output number, from 001 to the total number of inputs/outputs the connected switcher has.)

3. Click the button for the input or output that you want to rename. The selected button turns blue, and the current name of the input or output is displayed in the Input Name or Output Name text field.

4. In the Name text field, enter the name that you want to give the selected input or output.

5. Click the **Save** button, located to the right of the Name field. The selected input or output is renamed, and its new name appears on its screen button. The assigned name also appears in the LCD window on the front panel.

   If you do not want to give the input or output the name you entered, click **Cancel**.

6. Repeat steps **3** through **5** for each additional input or output (of the same type) that you want to rename.

NOTE *Valid names can be up to 11 upper- and lowercase alphanumeric characters, spaces, – and /.*

Using any of the following characters results in an invalid name:
+ ~ , @ = ' [ ] { } < > " ; : \| \ and ?.

Preset Names page

The Preset Names page (figure 5-7) enables you to change the names of presets on the MKP 3000.

NOTE
- *Presets must have been created in the matrix switcher to be valid. Refer to the manual for the connected matrix switcher to create presets.*
- *Presets must be named on the MKP 3000 to be recallable.*

To access the Preset Names page, click the **Preset Names** link on the left sidebar menu on the Configuration tab.

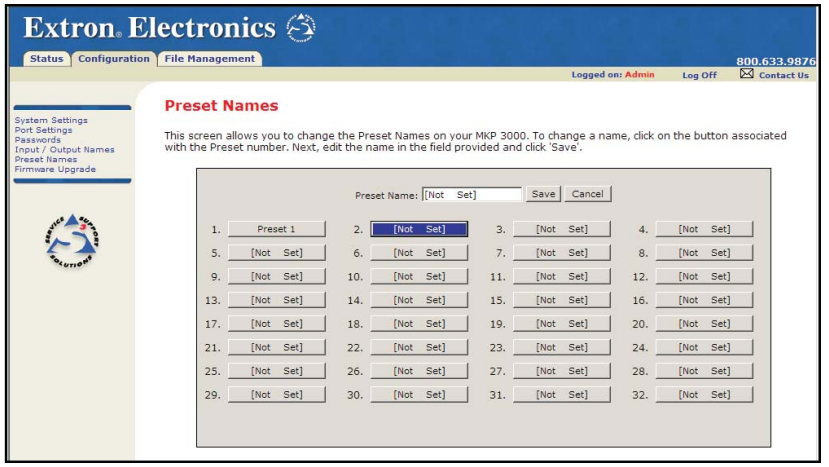


Figure 5-7 — Preset Names page

NOTE *The number of presets available for naming on this page varies with the connected matrix switcher; the maximum number of presets available on the MKP 3000 is 64.*

To assign a name to a preset,

1. Click the numbered button for the preset that you want to rename. The selected button turns blue, and its current name is displayed in the Preset Name text field. (If a button has no preset assigned to it, its name is shown as **[not set]**.)

2. In the Preset Name field, enter a new name for the selected button.

3. Click the **Save** button to the right of the Preset Name field. The new name is displayed on the button you selected. The assigned name also appears in the LCD window on the front panel.

   If you do not want to give the selected preset the name you entered, click **Cancel**.

4. Repeat steps **1** through **3** for each additional preset that you want to name.

NOTE *Valid names can be up to 12 upper- and lowercase alphanumeric characters, spaces, – and /.*

Using any of the following characters results in an invalid name:
+ ~ , @ = ' [ ] { } < > " ; : \| \ and ?.

NOTE *To remove a previously named preset from the MKP, rename the preset with a space in the Preset Name field, then click the **Save** button.*

Firmware Upgrade page

The Firmware Upgrade page (figure 5-8) enables you to replace the firmware that is coded on the MKP's control board without needing to take the MKP out of service, open the enclosure, and replace the firmware chip.

To access the Firmware Upgrade page, select the **Firmware Upgrade** link on the left sidebar menu of the Configuration tab.

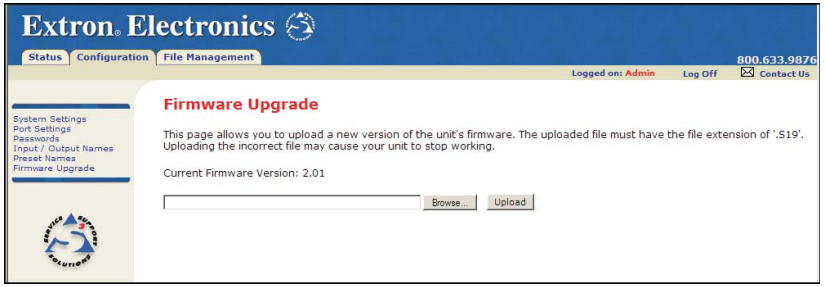


Figure 5-8 — Firmware Upgrade page

NOTE *The Firmware Upgrade page is **only** for replacing the firmware that controls all MKP operation. To insert your own HTML pages, see "Using the File Management Page," later in this chapter.*

Update the MKP firmware as follows:

1. Visit the Extron Web site, **www.extron.com**, and select either of the following:
   - Download tab > Firmware (from the sidebar menu) > MKP 3000
   - MKP 3000 product page > Downloads > MKP 3000 (in the FIRMWARE section)
2. Select the latest firmware file for the MKP and download it. Note the folder to which you save the firmware file.

NOTE *The firmware's file name may read, in part, MKP 2000 or MKP 3000. This is normal; the firmware is the same for both products.*

3. Connect the MKP to your computer via the MKP's Ethernet port.
4. Access the MKP using the HTML pages.

5. Select the **Configuration** tab.
6. Click the **Firmware Upgrade** link on the left sidebar menu.
7. On the Firmware Upgrade page, click the **Browse** button. A Choose File window opens (figure 5-9).

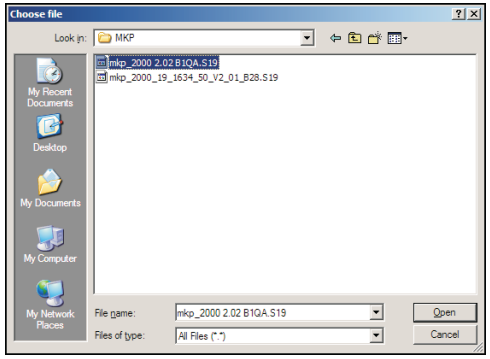


Figure 5-9 — Firmware upgrade Choose File window

8. Navigate to the folder where you saved the firmware upgrade file, and open the file. Its name is displayed in the field below "Current Firmware Version x.xx" on the Firmware Upgrade page.

CAUTION *Valid firmware files must have the file extension **.S19**. Any other file extension is **not** a firmware upgrade; uploading it could cause the MKP to stop functioning.*

NOTE *The original factory-installed firmware is permanently available on the MKP. If the attempted firmware upload fails for any reason, the MKP automatically reverts to the factory-installed firmware.*

9. On the Firmware Upgrade page, click the **Upload** button to start the update process.

   The firmware upload to the MKP may take several minutes. While the firmware is being uploaded, the **Upload** button changes to **Uploading...**; and the MKP's LCD window shows "Firmware Uploading," then "Re-starting Please Wait," then "Extron Electronics" with the firmware version number.

CAUTION *While the firmware is uploading, do not press any front panel buttons or submit any selections on the Web pages.*

When the LCD display shows "No Signal" and "Output 000," and all buttons are lit amber, the firmware upload is complete.

After you have uploaded the firmware to the MKP, refresh the Web page. The version number of the newly uploaded firmware is displayed on the System Status page (outlined in figure 5-10), and on the Firmware Upgrade page.

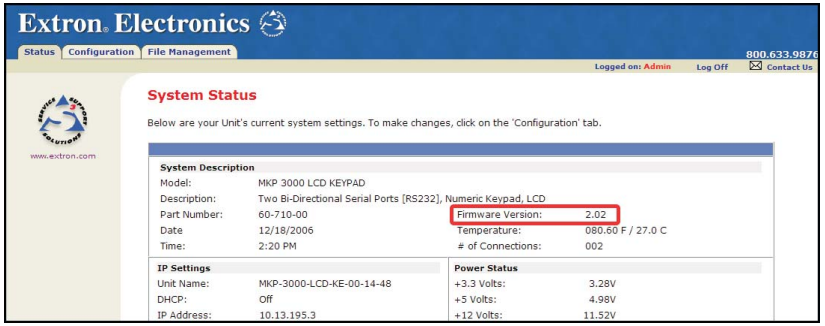


Figure 5-10 — Current firmware version on the System Status page

Updating the firmware using a direct computer-to-MKP connection

If you have no network access available, you can upgrade the MKP firmware via a direct connection between your computer and the MKP. Your computer must have Microsoft Windows® 2000, XP, or higher loaded.

NOTE *You can obtain the latest version of firmware only by downloading it from the Extron Web site. If the computer to which your MKP is connected has no network access, you must download the firmware to another computer that has network access, then copy it to your computer's hard disk.*

1. Connect a crossover cable from the LAN port on your computer to the MKP's LAN port.
2. On the Windows Start menu on your computer, right click on **My Network Places**.
3. From the pop-up menu that appears, select **Properties**. The Network Connections window opens.
4. Right click on **Local Area Connection**, and select **Properties** from the pop-up menu.
5. On the Local Area Connection window, select **Internet Protocol (TCP/IP)**, and click the **Properties** button. The Internet Protocol (TCP/IP) properties window opens.
6. Write down the existing IP address and subnet mask shown on the IP properties window. You will need these later in order to restore your computer's settings after you configure the MKP for internet use.
7. Select the **Use the following IP address** radio button.
8. If your MKP has not had an IP address assigned to it and is still using its factory default address, enter the following address in the IP Address field: **192.168.254.252**.

   If an IP address has been assigned to your MKP, enter a temporary address for your computer that is in the same subnet as the MKP's. (Your system administrator should have this information.)
9. Enter **255.255.0.0** in the Subnet Mask field. If required, enter the gateway address in the Default Gateway field. (Your system administrator can provide this information.)
10. Click **OK**, and close the remaining windows.
11. Open Internet Explorer, and enter the IP address of your MKP in the Address field.

    If the MKP has not been assigned an IP address, enter the factory default address: **192.168.254.253**.
12. Press Enter on your keyboard. The System Status Web page is displayed.
13. Perform the Firmware Upgrade procedure, beginning with step **5** (page 5-17).

Using the File Management Page

The File Management page (figure 5-11) lets you upload files to the MKP 3000 from your computer or network, and to delete files from the unit. You can also upload personalized Web pages or event files to the MKP via this screen. To display the File Management page, select the File Management tab.

NOTE *If you want one of the pages that you create and upload to be the default startup page, name that file "index.html."*

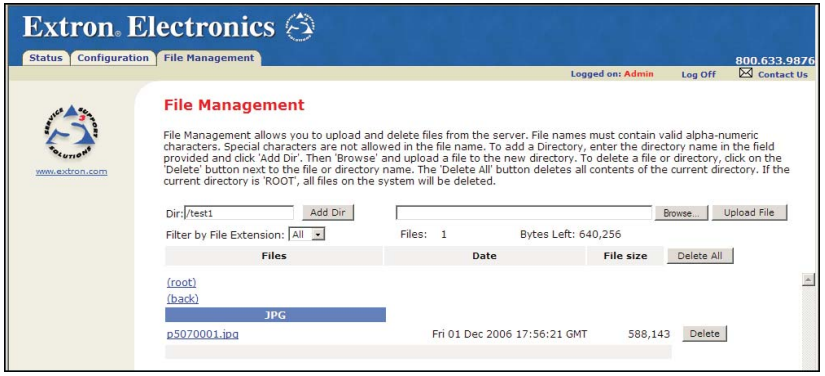


Figure 5-11 — File Management page

NOTE *Files listed in figure 5-11 are shown as examples only and may not appear on your MKP 3000.*

Uploading files

Files to be uploaded to the MKP 3000 must contain only valid alphanumeric characters and underscores. No spaces or special characters (symbols) are allowed.

Using any of the following characters results in an invalid name: {space} + ~ @ = [ ] { } < > ' " ; : | \ and ?.

To upload files from the server, follow these steps:

1. Click the **Browse** button to the right of the file name field.
2. Browse to locate the file that you want to upload, and open it. The file's name and directory path are displayed in the file name field on the File Management screen.
3. Click the **Upload File** button. The selected file name appears in the Files column on the File Management screen. (Files are listed separately under headings of their extensions.)

Adding a directory

To add a directory or folder to the MKP's file system, follow these steps:

1. Enter the directory name in the Dir: field, following the slash (/).
2. Click the **Add Dir** button.
3. With the directory name displayed, perform the Uploading files procedure described in the previous section to add a file to the directory. The directory name appears at the top of the Files column, preceded by a slash.

To add more files to the directory, click the directory name to open it, then use the uploading files procedure. To exit the directory, click **(root)**.

Other file management activities

You can also perform the following tasks on the File Management screen:

Opening a file — Click on the name of the file in the Files column.

Deleting a file — Click the **Delete** button at the right end of the line that contains the name of the file you want to remove.

Deleting all files — Click the **Delete All** button.

Selecting a file — From the Select menu, select a file name, or select **All** to select all uploaded files.

Saving and Restoring a Configuration

The MKP 3000 lets you save some of its current settings, including preset names and video/audio input and output names, to a configuration file (.cfg extension) on your computer. You can subsequently restore this file to your MKP if some of its settings were changed, or you can upload it to other MKPs.

Saving a configuration

To save the current MKP settings as a configuration file,

1. On the Configuration tab, System Settings page, click **Save Configuration to File**.

   The configuration file (box.cfg) is created and placed in the **/nortxe-backup** directory on the MKP. This file overwrites any box.cfg file that was already in that directory.

NOTE *The name of the configuration file is **box.cfg**. This is the only file name that the MKP accepts as a configuration. If you save this file under another name, you will not be able to upload it to any MKP.*

2. Select the **File Management** tab. The **/nortxe-backup** directory name should be displayed in the Files column on the File Management page.

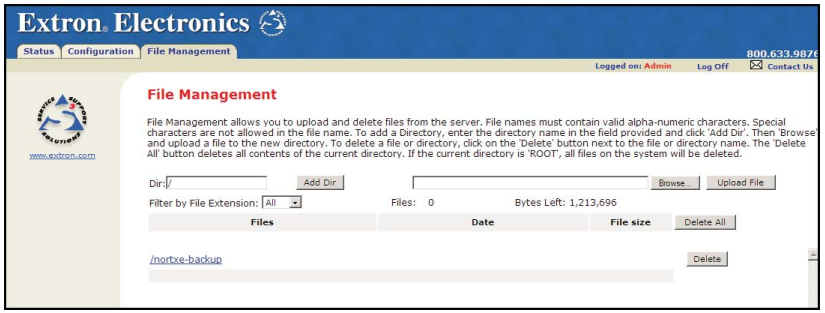


Figure 5-12 — Nortxe-backup directory on the File Management page

3. Click on **/nortxe-backup** to view the directory contents. The box.cfg file should be displayed in the Files column (figure 5-13).

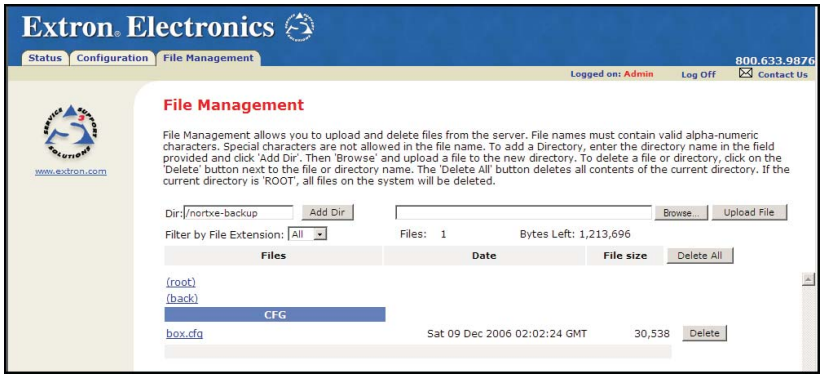


Figure 5-13 — Configuration file box.cfg in the nortxe-backup directory

4. Right click on the **box.cfg** file name, and select **Save Target As...** from the pop-up menu (figure 5-14).

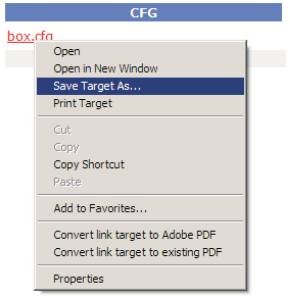


Figure 5-14 — Selecting Save Target As... to save the configuration file to the computer

5. On the Save As window, navigate to the folder on your computer where you want to save the configuration file, and click **Save**.

NOTE *Do not change the name or extension of the file.*

The configuration file is downloaded from the MKP to your computer.

Restoring a configuration

To restore (upload) a configuration file (box.cfg) from your computer to an MKP,

1. If there is no nortxe-backup directory on the MKP to which you are uploading the box.cfg file, you must create one in the MKP's File Management folder, in order for the MKP to be able to upload the configuration file.
   - The quickest way to create this directory is to click the **Save Configuration to File** button and save your current configuration. (See "Saving a configuration," earlier in this chapter.) The nortxe-backup directory is created as part of this process.
   - Alternatively, you can create the nortxe-backup directory manually, as follows:
     a. Select the **File Management** tab.
     b. In the Dir text box, enter **/nortxe-backup**.
     c. Click **Add Dir**.

If your MKP already has a nortxe-backup directory in its File Management folder, skip to step **2**.

2. Click on the **/nortxe-backup** link on the File Management page to open the directory.

NOTE *The nortxe-backup directory **must** be open on the File Management page in order for you to load the configuration file (box.cfg) from your computer to the MKP.*

3. On the File Management page, click **Browse...** . A Choose File window opens.
4. Locate the **box.cfg** file on your computer and double-click on its name. The name of the box.cfg file is displayed in the Browse field on the File Management page.
5. Click **Upload**. The box.cfg file is uploaded to the nortxe-backup directory on the MKP, replacing any box.cfg file that was there previously.
6. Select the **Configuration** tab. The System Settings page is displayed.
7. Click **Restore Configuration from File** to upload the saved settings to the MKP. The uploading process takes approximately 1½ minutes.
8. Refresh the Web page to update it.

Special Characters

The HTML language reserves certain characters for specific functions. The MKP cannot accept these characters as part of its name, passwords, or locally created file names.

Valid file names

- Can have a maximum of 24 uppercase or lowercase alphanumeric characters
- Cannot include spaces or underscore characters
- Cannot start with a number or a dash
- Cannot end with a dash

NOTE *These guidelines do not apply to input, output, and preset names.*

Appendix A

Reference Information

Specifications

Control/remote — keypad

Serial control port	(2) RS-232 on (2) 3.5 mm, 3-pole captive screw connectors
Baud rate and protocol	Variable (9600 to 115200 baud), 9600 baud (default), 8 data bits, 1 stop bit, no parity
Serial control pin configurations	1 = TX, 2 = RX, 3 = GND
Ethernet control port	1 RJ-45 female connector
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	ARP, DHCP, ICMP (ping), TCP/IP, Telnet, HTTP, SMTP client
Ethernet default settings	Link speed and duplex level = autodetected IP address = 192.168.254.253 subnet mask = 255.255.0.0 default gateway = 0.0.0.0 DHCP = off
Program control	Extron's Simple Instruction Set (SIS™) Microsoft® Internet Explorer, Telnet

General

External power supply	100 VAC to 240 VAC, 50/60 Hz, external, autoswitchable; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 400 mA
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	
MKP 3000	No, but furniture mountable, and wall mountable in a wall box or mud ring
MKP 3000 L	Yes, with optional UCM RAAP mounting plate; also furniture mountable
Enclosure type	Metal
Enclosure dimensions	
MKP 3000	
Plate	4.5" H x 4.6" W x 0.1" D (2 gang) (11.4 cm H x 11.7 cm W x 0.3 cm D)
Enclosure	2.7" H x 3.4" W x 2.0" D (6.7 cm H x 8.6 cm W x 5.1 cm D) Allow at least 1" (2.5 cm) D for connectors and cable. (Depth excludes connectors.)
MKP 3000 MAAP	
Plate	4.5" H x 6.4" W x 0.1" D (3 gang) (11.4 cm H x 16.3 cm W x 0.3 cm D)
Circuit board	2.8" H x 2.2" W x 1.3" D (7.1 cm H x 5.6 cm W x 3.3 cm D)
MKP 3000 L	
Plate	3.15" H x 6.5" W x 0.1" D (8.0 cm H x 16.5 cm x 0.3 cm D)
Circuit board	2.8" H x 2.2" W x 1.3" D (7.1 cm H x 5.6 cm W x 3.3 cm D)
Product weight	0.5 lbs (0.3 kg)
Shipping weight	2 lbs (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES
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.*

Part Numbers

MKP 3000 Remote Control Panel	Part number
MKP 3000, black	60-708-02
MKP 3000, white	60-708-03
MKP 3000, RAL 9010 white	60-708-05
MKP 3000 MAAP, black	60-709-02
MKP 3000 MAAP, white	60-709-03
MKP 3000 MAAP, RAL 9010 white	60-709-05
MKP 3000 L, black	60-709-22

Included parts

These items are included in each order for an MKP 3000:

Included parts	Part number
12 VDC, 1A external power supply	70-055-01
MKP 3000 Series User's Manual	
Button label sheet	
MR 200 two-gang mounting brackets (mud rings) *for standard MKP 3000* (black, white)	70-519-22, -23
MR 300 three-gang mounting brackets (mud rings) *for MKP 3000 MAAP* (black, white)	70-519-32, -33

Installation accessories

Accessory	Part number
Two-gang "J" box 2.5" deep *(for MKP 3000)*	980084
Three-gang "J" box 2.5" deep *(for MKP 3000 MAAP)*	980083

Cables

Cables		Part numbers
Comm-Link Cable	**Cut lengths:**	
	50 feet (15.2 m)	26-461-01
	100 feet (30 m)	26-461-02
	200 feet (60 m)	26-461-03
	300 feet (90 m)	26-461-05
	400 feet (120 m)	26-461-04
	Bulk spools:	
	500 feet (152 m)	22-119-02
	1,000 feet (305 m)	22-119-03

Optional accessories

Accessory	Part number
MKP 10 MAAP Remote Keypad:	
Black	60-710-10
White	60-710-20
RAL 9010 white	60-710-50
PS 123 Rack mountable, multiple output Power Supply	60-814-01
UCM RAAP Universal Controller Mounting Rack kit:	
Black	70-344-02
White	70-344-03

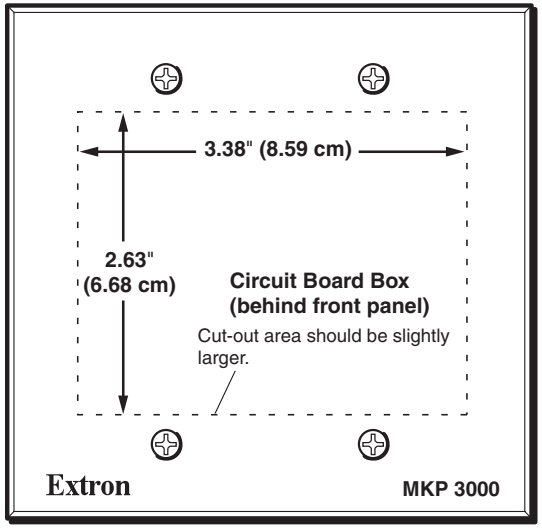
Mounting and Cabling Specifications

Electrical box cutout

Any standard box that meets the local electrical codes can be used, but boxes from different manufacturers may have different size openings. Extron recommends testing the fit of the MKP inside the electrical box and then placing the box flush against the mounting surface and tracing the cutout area.

Panel mount cutout templates

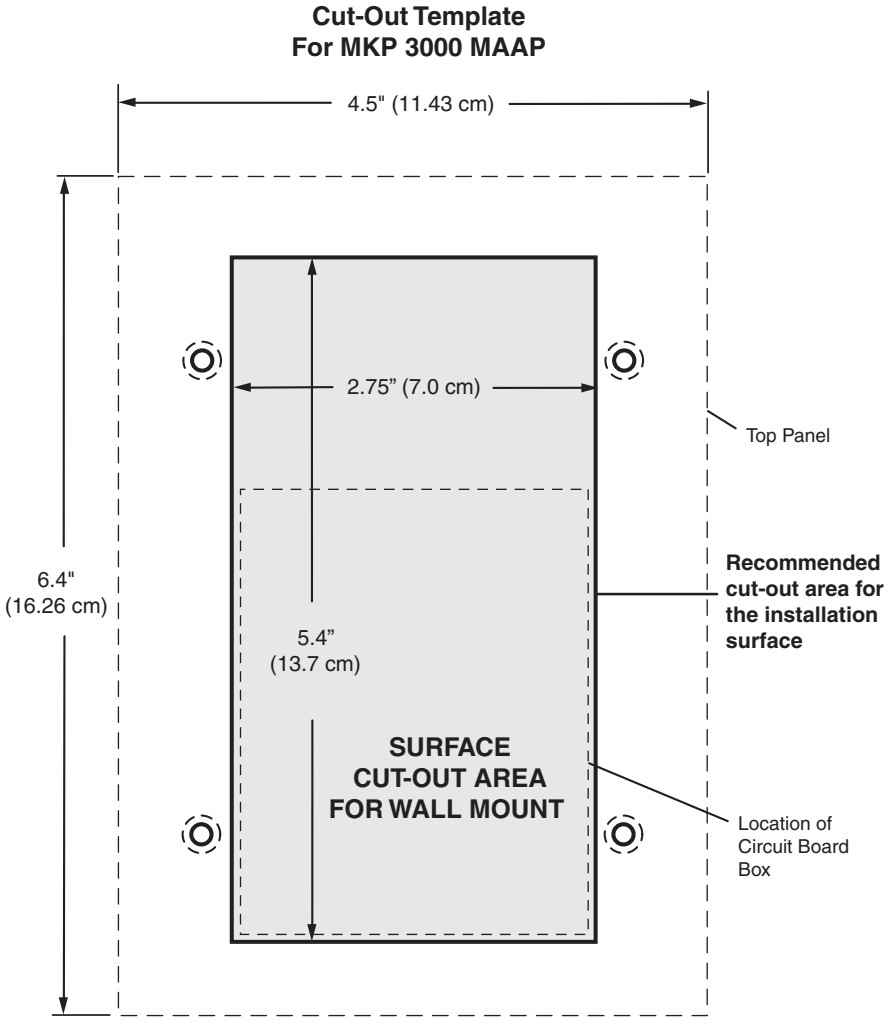
Figure A-1 shows the dimensions for cutting a hole to accommodate the keypad circuit board for mounting an MKP 3000 on a flat surface. This type of installation can include a desk or podium, or a control panel or dashboard, where the back is protected and does not require an electrical box.



TEMPLATE IS **NOT** FULL SIZE

Figure A-1 — MKP 3000 panel mount cutout template

Figure A-2 shows the dimensions for cutting a hole to accommodate the keypad circuit board for mounting an MKP 3000 MAAP on a flat surface.



TEMPLATE IS **NOT** FULL SIZE.

Figure A-2 — MKP 3000 MAAP panel mount cutout template

Figure A-3 shows the dimensions for cutting a hole to mount an MKP 3000 L on a lectern or other flat surface.

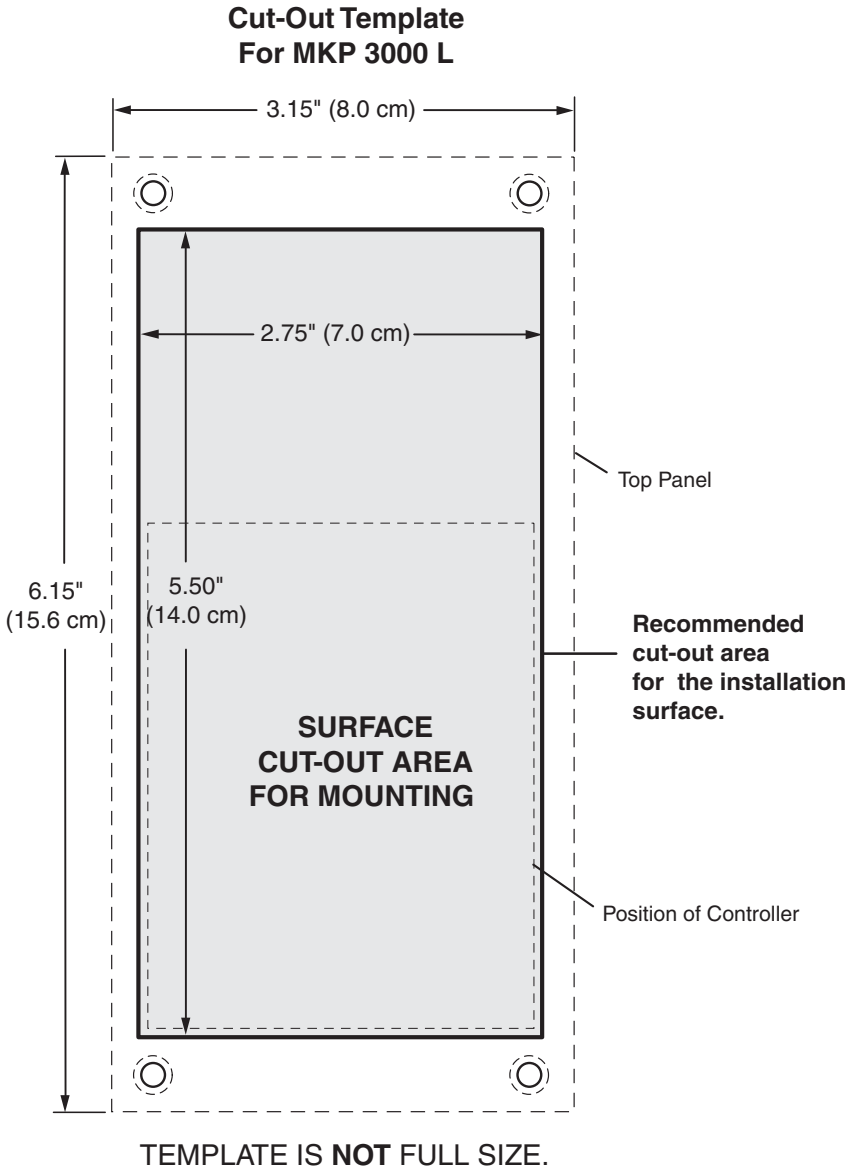


Figure A-3 — MKP 3000 L panel mount cutout template

Extron Comm-Link Control System cable

Wire specifications for Extron Comm-Link cable (figure A-4) are as follows:

A (red) = 18 American Wire Gauge (AWG)
B (violet or blue) = 22 AWG (grouped and shielded)
C (white) = 22 AWG
D (drain) = 24 AWG
E (black) = 18 AWG

NOTE *Comm-Link cable was designed for use with MKP control panels.*

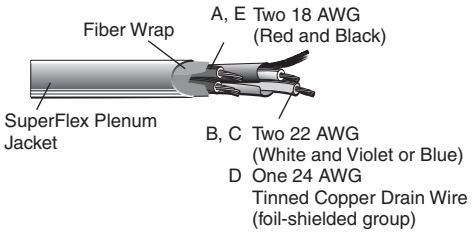


Figure A-4 — Extron Comm-Link cable

Changing Button Labels

The MKP ships with default labels installed in the front panel buttons (see figure 3-2, "Input/output selection mode labels"). It also includes a strip of alternate labels that you can insert in one or more of the mode selection buttons to make using the other modes clearer.

To change the labels in the MKP's buttons,

1. Remove the button from the MKP by grasping the button firmly and pulling it away from the panel.

NOTE *Various button models are available. Your buttons **may** appear different.*

2. Use a small screwdriver or Extron Tweeker to gently lever the button cap off of the white backing plate.
3. Insert a button label into the cap and gently but firmly press the cap onto the white backing plate.
4. Press the button into place in the MKP.