Extron® Electronics
INTERFACING, SWITCHING AND DISTRIBUTION

Set Up Guide

For the complete user's manual, go to www.extron.com.

CrossPoint 450 Plus Series
CrossPoint Ultra Series
MAV Plus Series

Matrix Switchers

68-521-50 **Rev. A**
05 08

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 elektrishen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst zu 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 sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

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

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

Asia:
Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363

Europe, Africa, and the Middle East:

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

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有重要的操作和维护说明。

⚡ 这个符号警告用户该设备机壳内有暴露的危险电压，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所有安全和使用说明。

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。 设备必须使用有地线的供电系统供电。 第三条线（地线）是安全设施，不能不用或跳过。

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

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。 设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来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。 必须使用与厂家推荐的相同或相近型号的电池。 按照生产厂的建议处理废弃电池。

FCC Class A Notice

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. 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. The Class A 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 with FCC emissions limits.*

Table of Contents

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

CrossPoint / MAV Matrix Switchers

1

Chapter One

Introduction

About this Manual

About the Matrix Switchers

Introduction

For more information on any subject in this guide, refer to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual, *available on the Extron CD or at www.extron.com.*

In this manual, the term "CrossPoint", when "450 Plus" or "Ultra" is not specified refers to either the CrossPoint 450 Plus or the CrossPoint Ultra.

About this Manual

This set up guide allows you to easily and quickly set up and configure your matrix switcher. Step by step instructions show you how to connect the hardware. It also shows you how to perform basic operations, use both the front panel controls and selected Simple Instruction Set (SIS™) commands. This guide also shows you how to load and start up the Windows®-based Matrix Switchers Control Program. Lastly, this guide shows you how to connect to the built-in HTML pages, which you can use to operate the switcher.

About the Matrix Switchers

The Extron matrix switchers covered in this manual distribute any input to any combination of outputs. The switchers can route multiple input/output combinations simultaneously. The switchers are available in a variety of matrix sizes (the number of inputs and outputs).

The CrossPoint switchers are available in HV (RGBHV video) and HVA (RGBHV video and audio) models.

The MAV Plus matrix switchers are available in the following models:

*   **HDA** — HDTV/component video and audio
*   **HD** — HDTV/component video only
*   **SVA** — S-video and audio
*   **SV** — S-video only
*   **AV** — Composite video and audio
*   **AV RCA** — Composite video and audio on RCA connectors (128 size only)
*   **V** — Composite video only
*   **A** — Audio only

In this manual, the term "video model" refers to any CrossPoint or MAV Plus switcher that switches video.

In this manual, the term "audio model" refers to any CrossPoint or MAV Plus switcher that switches audio.
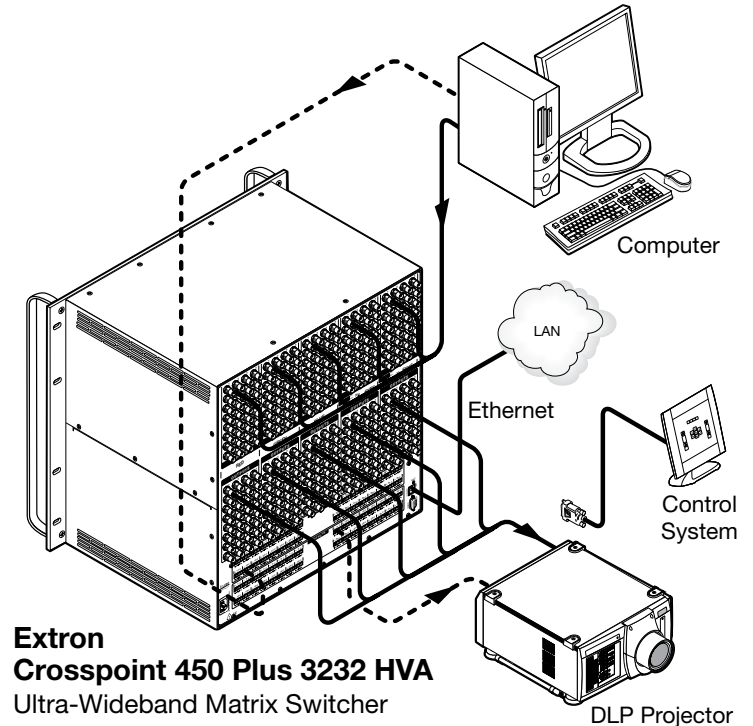
Extron
Crosspoint 450 Plus 3232 HVA
Ultra-Wideband Matrix Switcher

Figure 1-1 — Typical matrix switcher application

CrossPoint / MAV Matrix Switchers

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Chapter Two

Installation

Rear Panel

Front Panel Configuration Port (Matrix Sizes up to 1616)

Installation

Rear Panel

Figure 2-1 — CrossPoint 450 Plus 3232 HVA rear panel

NOTE *The MAV Plus switchers are housed in enclosures that range from 8U (figure 2-2) to 2U to support their diffent video format and matrix sizes. The arrangement of connectors and features in switchers with different form factors is different from what is shown in figure 2-2.*
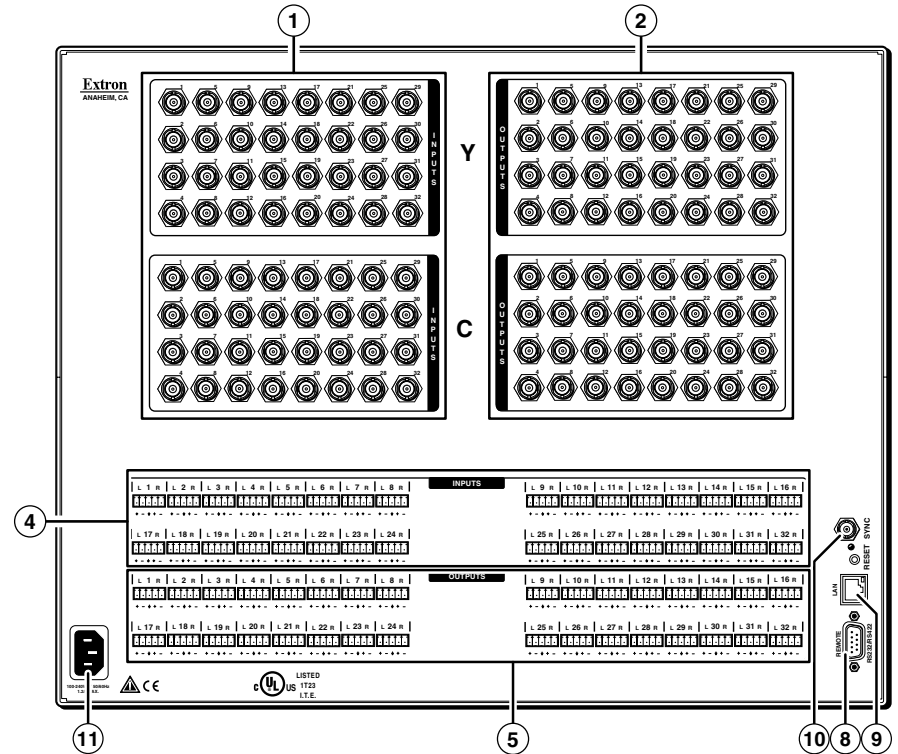
Figure 2-2 — MAV Plus 3232 SVA matrix switcher
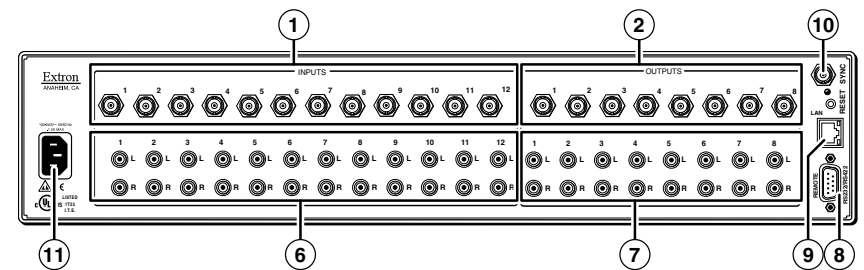
Figure 2-3 — MAV Plus 128 AV RCA matrix switcher

2-2   CrossPoint / MAV Matrix Switchers • Installation
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual at www.extron.com.

CrossPoint / MAV Matrix Switchers • Installation   2-3
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual at www.extron.com.

Making connections and rear panel settings

CAUTION *Turn off power to the input and output devices, and disconnect their power cords.*

NOTE *Video connectors are grouped by video plane. Connect the input or output on each video plane to the corresponding connector in the correct group. Refer to the* CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus Switcher Manual *to connect the various video formats to and from the various models if you are not sure.*
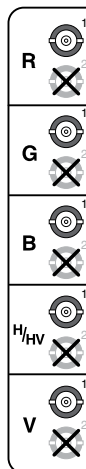
① **Video inputs** — Connect RGBHV, RGBS, RGsB, RsGsBs, component/HDTV video, S-video, or composite video sources, as appropriate to your switcher model's video format and matrix size.

② **Video outputs** — Connect RGBHV, RGBS, RGsB, RsGsBs, component/HDTV video, S-video, or composite video displays, as appropriate to your switcher model's video format and matrix size.

③ **Sync termination switches (CrossPoint switchers)** — As necessary for inputs that are equipped with Sync termination switches

NOTE *CrossPoint 450 Plus switchers have Sync termination switches for inputs 1 through 8.*

CrossPoint Ultra switchers have Sync termination switches for inputs 1 through 4.

510 ohms — The default position, suitable for most video.

75 ohms — Typically required only for an input with non-TTL sync (greater than 5 V p-p).

NOTE *An input that produces an out of sync display, a display that is rolling vertically and/or tearing horizontally, could indicate a non-TTL sync input. If you are not sure, check the specifications in the user's manual for the input device.*

④ **Connections for balanced and unbalanced audio inputs (most audio models)** — Connect balanced or unbalanced stereo audio inputs to these 5-pole captive screw connectors.

Unbalanced Input (high impedance)   **Balanced Input** (high impedance)
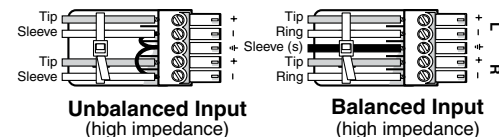
Figure 2-4 — Audio input connector wiring

⑤ **Local audio outputs (most audio models)** — Connect balanced or unbalanced stereo audio output devices to these 5-pole captive screw connectors.

NO GROUND HERE.   NO GROUND HERE.
Unbalanced Output   **Balanced Output**
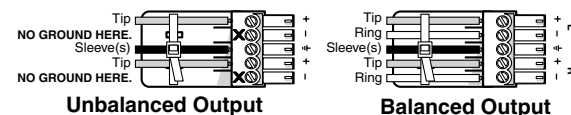
CAUTION *Connect the sleeve to ground. Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.*

Figure 2-5 — Audio output connector wiring

⑥ **Connections for unbalanced audio inputs (MAV Plus 126 AV RCA)** — Connect unbalanced stereo audio inputs to each pair (left and right) of female RCA connectors.

⑦ **Connections for unbalanced audio outputs (MAV Plus 126 AV RCA)** — Connect unbalanced stereo audio output devices to each pair (left and right) of female RCA connectors.

2-4 **CrossPoint / MAV Matrix Switchers • Installation**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual *at www.extron.com.*

CrossPoint / MAV Matrix Switchers • Installation **2-5**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual *at www.extron.com.*

Installation, cont'd

⑧ **Remote port** — If desired, connect a control system or computer to the rear panel Remote RS-232/RS-422 port.
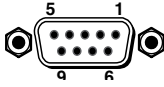
| NOTE | *Serial port defaults: RS-232, 9600 baud, no parity, 8-bit, 1 stop bit, no flow control.* |

	RS-232		**RS-422**			
	All Models		**84 — 1616**		**2412 — 3232**	
Pin#	Pin	Function	Pin	Function	Pin	Function
1	—	Not used	—	Not used	TX+	Transmit +
2	TX	Transmit	TX–	Transmit –	TX–	Transmit –
3	RX	Receive	RX–	Receive –	RX+	Receive +
4	—	Not used	—	Not used	RX–	Receive –
5	Gnd	Ground	Gnd	Ground	Gnd	Ground
6	—	Not used	—	Not used	—	Not used
7	—	Not used	RX+	Receive +	—	Not used
8	—	Not used	TX+	Transmit +	—	Not used
9	—	Not used	—	Not used	—	Not used

⑨ **LAN port** — If desired, connect a network WAN or LAN hub, a control system, or computer to the Ethernet RJ-45 port.

- **Network connection** — Wire as a patch (straight) cable.

- **Computer or control system connection** — Wire the interface cable as a crossover cable.

| NOTE | *The factory default IP address is 192.168.254.254.* |

⑩ **External Sync (MAV Plus)** — If desired, attach an external sync timing device to the external sync connector.

Extron BBG 6 A
Black Burst Color Bar Audio Generator

Connect to MAV Plus.

Terminate cable or connect to another device.
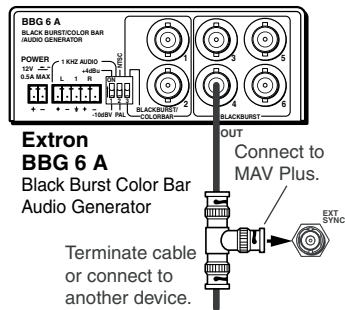
Figure 2-6 — External Sync connection

⑪ Power — Plug the switcher into a grounded AC source.

Front Panel Configuration Port (Matrix Sizes up to 1616)
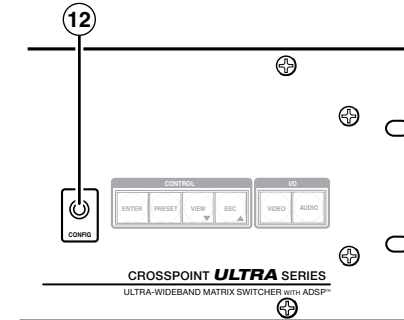
Figure 2-7 — Front panel configuration port

⑫ **Configuration port** — If desired, connect a control system or computer to the front panel Configuration (RS-232) port. Use an optional 9-pin D to 2.5 mm mini jack TRS RS-232 cable, part #**70-335-01**.

2-6   **CrossPoint / MAV Matrix Switchers • Installation**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual at www.extron.com.

CrossPoint / MAV Matrix Switchers • Installation   **2-7**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual at www.extron.com.

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Chapter Three

Front Panel Operation

Creating a Tie

Saving or Recalling a Preset

Setting the Front Panel Locks (Executive Modes)

Viewing and Adjusting the Audio Level

Viewing Ties (and Muting Outputs)

Front Panel Operation

The video selection button is labeled "RGBHV" on the CrossPoint switchers and "Video" on the MAV Plus switchers. The two labels are used interchangeably in this manual.

Creating a Tie

1. Press and release the Esc button to clear any input button, output button, or control button indicators that may be lit.

2. Press and release the Video and/or Audio I/O button(s) to select or deselect video and/or audio as desired.
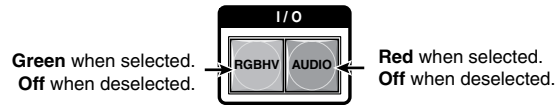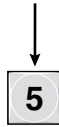
I / O

Green when selected.   RGBHV   AUDIO   **Red** when selected.
Off when deselected.   **Off** when deselected.

NOTE *Audio or video can be broken away (tied by itself) by selecting **only** the Video button or **only** the Audio button.*
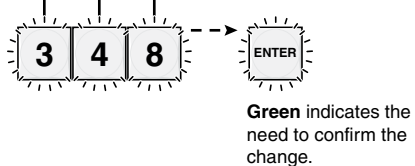
3. Press and release the desired input button.

The button lights to indicate the selection.

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4. Press and release the desired output button(s).

Amber indicates **RGBHV/video** and **audio** tie.
Green indicates **RGBHV/video** only tie.
Red indicates **audio** only tie.

3 **4** **8** ---▶ **ENTER**

Green indicates the need to confirm the change.

5. Press and release the Enter button. All button indicators turn off.

Saving or Recalling a Preset

1. **Save** a preset — Press and **hold** the Preset button until it flashes.

   Recall a preset — Press and release the Preset button.

Save a preset   PRESET   Press and **hold**.   ▶   PRESET
                             2 seconds
                                          Preset button blinks.

Recall a preset   PRESET   Press and release.   ▶   PRESET
                                          Preset button lights.
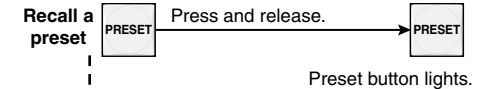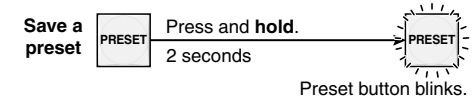
- All input and output buttons with assigned presets light **red**.
- **The configuration data at assigned preset locations will be overwritten**.

1	2	3	4	5	6	7
17	18	19	20	21	22	2
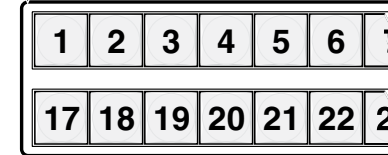
2. Press and release the desired input or output button.

The button blinks **red** to indicate that this **preset** is selected to save or recall.

1 - - -▶ **ENTER**   The Enter button blinks **red** to indicate the need to activate the save or recall.

3. Press and release the Enter button.

Setting the Front Panel Locks (Executive Modes)

The matrix switcher has three levels of front panel security lock that limit the operation of the switcher from the front panel. The three levels are:

- **Lock mode 0** — The front panel is completely unlocked.

- **Lock mode 1** — All changes are locked from the front panel (except for setting Lock mode 2). Some functions can be viewed.

- **Lock mode 2** — Basic functions are unlocked. Advanced features are locked and can be viewed only.

  Basic features consist of:

  ❏ Making ties

  ❏ Saving and recalling presets

  ❏ Setting input audio gain and attenuation

  ❏ Changing Lock modes

  Advanced features consist of:

  ❏ Setting video and audio output mutes

  ❏ Setting audio output volume

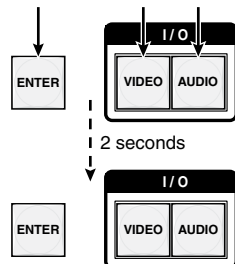 **NOTE** *The switcher is shipped from the factory in Lock mode 2.*

Selecting Lock mode 2 or toggling between mode 2 and mode 0

NOTE *If the switcher is in Lock mode 0 or mode 1, this procedure selects mode 2.*

If the switcher in in Lock mode 2, this procedure selects mode 0 (unlocks the switcher).

Toggle the lock on and off by pressing and holding the Enter button, the Video button, and the Audio button for approximately 2 seconds.

Press and **hold** simultaneously.

ENTER | I/O VIDEO AUDIO |

2 seconds

ENTER | I/O VIDEO AUDIO |

The buttons blink twice.
Release the buttons.

Selecting Lock mode 2 or toggling between mode 2 and mode 1

NOTE *If the switcher is in Lock mode 0 or mode 1, this procedure selects mode 2.*

If the switcher in in Lock mode 2, this procedure selects mode 1.

Toggle the lock on and off by pressing and holding the Video button and the Audio button for approximately 2 seconds.

Press and **hold** simultaneously.

| I/O VIDEO AUDIO |

2 seconds

| I/O VIDEO AUDIO |
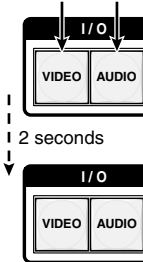
The buttons blink twice.
Release the buttons.

Viewing and Adjusting the Audio Level

1. Press and **hold** the Audio button until it flashes.

   AUDIO 2 seconds AUDIO
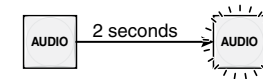
   Press and
   Hold   Audio button blinks.

2. Press an input or output button. Refer to the *CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus Switcher Manual*, chapter 3, "Operation", to read the displayed value.

3. Increase/decrease the level or volume by pressing the Esc (▲) and View (▼) buttons.

4. Press and release the Audio button to exit.

Viewing Ties (and Muting Outputs)

1. Press the View button. Output buttons light for outputs that have no ties established.

   NOTE *If the Audio button blinks, audio is broken away (switched separately from video).*

   NOTE *If an output button blinks, that output is muted.* **To toggle mute on and off***, press and hold the output button for 2 seconds.*

2. Press an input button. The buttons for all tied outputs light (amber for video and audio, green for video only, and red for audio only).

3. Press an output button. The buttons for the tied input and all tied outputs light.

4. Press the View button. All input and output buttons return to an unlit state.

CrossPoint / MAV Matrix Switchers

Chapter Four

Remote Control

Selected SIS Commands

Instaling and Starting the Control Program

Accessing the HTML Pages

Remote Control

Selected SIS Commands

The switchers have Simple Instruction Set (SIS™) commands that you can use for operation and configuration. You can run these commands from a PC connected to either of the switcher's serial ports or the Ethernet port. See ⑧, ⑨, and ⑫, on pages 2-6 and 2-7, for connection information.

Establishing a network (Ethernet) connection

Establish a network connection as follows:

1. Open a TCP socket to port 23 using the switcher's IP address.

   NOTE *The factory default IP address is 192.168.254.254.*

   The switcher responds with a copyright message including the date, the name of the product, firmware version, part number, and the current date/time.

   NOTE *If the switcher is not password-protected, the device is now ready to accept SIS commands.*

   NOTE *If the switcher is password-protected, a* `password` *prompt appears.*

2. If the switcher is password protected, enter the appropriate password.

   If the password is accepted, the switcher responds with *Login User* or *Login Administrator*.

   If the password is not accepted, the *Password* prompt reappears.

Connection timeouts

The Ethernet link times out and disconnects after a designated period of time of no communications. By default, this timeout value is set to five minutes but the value can be changed. See the Set Connection Timeout command on page 4-8.

NOTE *Extron recommends leaving the default timeout at five minutes and periodically issuing the Query (Q) command to keep the connection active or disconnecting the socket and reopening the connection when necessary.*

Number of connections

A switcher can have up to 200 simultaneous TCP connections, including all HTTP sockets and Telnet connections. When the connection limit is reached, the switcher accepts no new connections until some have been closed. No error message or indication is given that the connection limit has been reached. To maximize performance of your switcher, the number of connections should stay low and unnecessary open sockets should be closed.

Verbose mode

Telnet connections to a switcher can be used to monitor for changes that occur on the switcher, such as front panel operations and SIS commands from other Telnet sockets or a serial port. For a Telnet session to receive change notices from the switcher, the Telnet session must be in verbose mode 3. See the Verbose Mode command on page 4-8. In verbose mode 3, the Telnet socket reports changes in messages that resemble SIS command responses.

Host-to-switcher instructions

The switcher accepts SIS (Simple Instruction Set) commands through either serial port. 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 switcher 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.

NOTE *The table that begins on the next page is a partial list of SIS commands. For a complete listing, refer to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus Switcher Manual, chapter 4, "Programmer's Guide".*

4-2 **CrossPoint / MAV Matrix Switchers • Remote Control**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual *at www.extron.com.*

CrossPoint / MAV Matrix Switchers • Remote Control **4-3**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual *at www.extron.com.*

Command	ASCII command (host to switcher)	Response (switcher to host)	Additional description
Create ties			
NOTE • Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!02*02&003*003%4*24$.			
• The matrix switchers support 1-, 2-, and 3-digit numeric entries (1*1!, 02*02&, or 003*003%).			
NOTE The & **tie** command for RGB and the % **tie** command for video can be used interchangeably.			
NOTE The & **read tie** command for RGB and the % **read tie** command for video can be used interchangeably.			
Tie input X_1 to output X_2, video and audio	X_1*X_2!	OutX_2•InX_1•All↵	Tie input X_1's video and audio to output X_2.
Example:	1*3!	Out03•In01•All↵	Tie input 1 video and audio to output 3.
Tie input X_1 to output X_2, RGBHV only	X_1*X_2&	OutX_2•InX_1•RGB↵	Audio breakaway.
Example (see 2nd Note, above):	10*4&	Out04•In10•RGB↵	Tie input 10 RGB to output 4.
Tie input X_1 to output X_2, video only	X_1*X_2%	OutX_2•InX_1•Vid↵	Audio breakaway.
Example (see 2nd Note, above)	7*5%	Out05•In07•Vid↵	Tie input 7 video to output 5.
Tie input X_1 to output X_2, audio only	X_1*$X_2$$	OutX_2•InX_1•Aud↵	Audio breakaway.
Example:	24*04$	Out04•In24•Aud↵	Tie input 24 audio to output 4.
Read RGB output tie	X_2&	X_1↵	RGBHV input X_1 is tied to output X_2.
Read video output tie	X_2%	X_1↵	Video input X_1 is tied to output X_2.
Read audio output tie	$X_2$$	X_1↵	Audio input X_1 is tied to output X_2.

NOTE X_1 = Input number   00 – (maximum number of inputs for your model) (00 = untied)
X_2 = Output number   01 – (maximum number of outputs for your model)

Command	ASCII command (host to switcher)	Response (switcher to host)	Additional description
Video and audio mute commands			
RGB/video mute	X_2*1B	VmtX_2*1↵	Mute output X_2 RGB (video off).
RGB/video unmute	X_2*0B	VmtX_2*0↵	Unmute output X_2 RGB (video on).
Read RGB/video mute	X_2B	X_3↵	1 = mute on, 0 = mute off.
Global RGB/video mute	1*B	Vmt1↵	Mute all RGB outputs.
Global RGB/video unmute	0*B	Vmt0↵	Unmute all RGB outputs.
Audio mute	X_2*1Z	AmtX_2*1↵	Mute output X_2 audio (audio off).
Audio unmute	X_2*0Z	AmtX_2*0↵	Unmute output X_2 audio (audio on).
Read audio mute	X_2Z	X_3↵	1 = mute on, 0 = mute off.
Global audio mute	1*Z	Amt1↵	Mute all audio outputs.
Global audio unmute	0*Z	Amt0↵	Unmute all audio outputs.
View output mutes	Esc VM←	$X_4{}^1$, $X_4{}^2$, ... $X_4{}^n$↵	Each X_4 response is the mute status of an output, starting from output 1. n = the maximum number of outputs for this model.
Example: CrossPoint 450 Plus 3232 HVA	Esc VM←	Mut00001000000230000000000000000000↵ Output 2, 3, and 5 audio or RS-232 are muted. All other outputs are unmuted.	

NOTE The "Mut" portion of the response appears only when the switcher is in Verbose mode 3. See the Verbose mode command on page 4-8.

NOTE X_2 = Output number   01 – (maximum number of outputs for your model)
X_3 = Mute   0 = off (unmuted)
      1 = on (muted)
X_4 = Video/audio mute: 0 = no mutes
      1 = video mute
      2 = audio mute

4-6   CrossPoint / MAV Matrix Switchers • Remote Control

Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual at www.extron.com.

Command	ASCII command (host to switcher)	Response (switcher to host)	Additional description
Audio output volume			
Set the audio volume to a specific value	X2*X5V	OutX2•VolX5↵	
Example:	1*50v	Out01•Vol50↵	Set output 1 volume to 79%.
Increment volume	X2+V	OutX2•VolX5↵	Increase volume by 1 step.
Example:	1+V	Out01•Vol51↵	
Decrement volume	X2-V	OutX2•VolX5↵	Decrease volume by 1 step.
Read output volume	X2V	X5↵	
Save and recall presets			

NOTE • If you try to recall a preset that is not saved, the matrix switcher responds with the error code E11.

• The following characters are invalid in preset names: + - , ` @ = [ ] { } ' " ; : | \ and ?.

Save current configuration as a global preset	X6,	SprX6↵	Command character is a comma.
Example:	9,	Spr09↵	Save current ties as preset 9.
Recall a global preset	X6.	RprX6↵	Command character is a period.
Example:	5.	Rpr05↵	Recall preset 5, which becomes the current configuration.

NOTE   X2 = Output number   01 – (maximum number of outputs for your model)
           X5 = Mute   0 – 64 (1 dB/step except for 0-to-1, which is 22 dB) (default = 64 [0 dB])
           X6 = Preset number   00 - 32 (00 = current configuration)

Command	ASCII command (host to switcher)	Response (switcher to host)	Additional description
***Lock* (executive) modes**			

NOTE   See "Setting the front panel locks (Executive modes)" on page 3-3 for more information on the Lock modes.

Lock all front panel functions	1X	Exe1↵	Enable *Lock* mode 1.
Lock advanced front panel functions	2X	Exe2↵	Enable *Lock* mode 2.
Unlock all front panel functions	0X	Exe0↵	Enable *Lock* mode 0.
View lock status	X	X7↵	
Information requests			
Information request	I	VX8XX9•AX8XX9↵	VX8XX9 is the video matrix size.
Example: MAV Plus 3216 HDA	I	V32X16•A32X16↵	AX8XX9 is the audio matrix size.
Request part number	N	X10↵	
Query controller firmware version	Q	X11↵	
Example:	Q	1.23↵	The factory-installed controller firmware version is 1.23 (sample value only).

NOTE   X7 = Lock mode   0, 1, or 2
           X8 = Inputs   Total number of inputs for this switcher
           X9 = Outputs   Total number of outputs for this switcher
           X10 = Part number
           X11 = Firmware version number to second decimal place (*x.xx*)

CrossPoint / MAV Matrix Switchers • Remote Control   4-7

Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual at www.extron.com.

Remote Control, cont'd

Command	ASCII command (host to switcher)	Response (switcher to host)	Additional description
IP setup			
Set IP address	Esc X13 CI ↵	Ipi X13 ↵	###.###.###.###
Read IP address	Esc CI ↵	X13 ↵	
Set subnet mask	Esc X13 CS ↵	Ips X13 ↵	
Read subnet mask	Esc CS ↵	X13 ↵	
Set gateway IP address	Esc X13 CG ↵	Ipg X13 ↵	
Read gateway IP address	Esc CG ↵	X13 ↵	
Set DHCP on or off	Esc X14 DH ↵	Idh X14 ↵	0 =1 off, 1 = on
Read DHCP on/off status	Esc DH ↵	X14 ↵	
Set verbose mode	Esc X15 CV ↵	Vrb X15 ↵	0 = clear/none (default for Telnet connection)
Read verbose mode	Esc CV ↵	X15 ↵	1 = verbose mode (default for RS-232/RS-422 connection)
Configure current port timeout	Esc 0* X16 TC ↵	Pti0* X16 ↵	2 = tagged responses for queries
Configure current port timeout	Esc 0TC ↵	X16 ↵	3 = verbose mode and tagged for queries
Configure global IP port timeout	Esc 1* X16 TC ↵	Pti1* X16 ↵	1 (= 10 seconds) - 65000 (default is 30 = 300 seconds = 5 minutes)
Configure global IP port timeout	Esc 1TC ↵	X16 ↵	

NOTE
X13 = IP address
X14 = DHCP
X15 = Verbose mode

X16 = Port timeout interval

Installing and Starting the Control Program

Another way to operate the switcher is via the Windows®-based Matrix Switchers Control Program. This program is contained on the Extron Software Products CD-ROM (included with the switcher). Run this program on a PC connected to either of the switcher's serial ports or the Ethernet port. See ⑧, ⑨, and ⑫, on pages 2-6 and 2-7, for connection information. The program must be installed on a Windows-based computer and cannot be run from the CD-ROM.

NOTE *For details on operating the program, refer to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus Switcher Manual, chapter 5, "Matrix Software".*
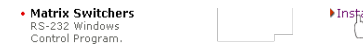
Installing the program

1. Insert the CD-ROM into the drive. The installation program should start automatically.

   The Extron software CD window appears.
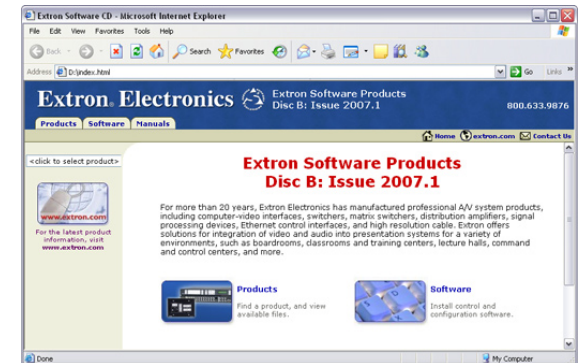
   NOTE *If the installation program does not self-start, run Launch.exe from the CD.*

2. Click the **Software** tab.

3. Scroll to the Matrix Switchers program and click **Install**.

4. Follow the on-screen instructions. The installation program creates a C:\Program Files\Extron\ Matrix_Switchers directory and an "Extron Electronics\ Matrix Switchers" group folder. It installs the following four programs:

    •   MATRIX Switcher+ Control Program
    •   MATRIX Switcher+ Help
    •   Uninstall MATRIX Switcher
    •   Check for Matrix Updates

Starting the program

1. Click **Start** > **Programs** > **Extron Electronics** > **Matrix Switchers** > **MATRIX Switcher + Control Pgm**.

   The Comm Port Selection window appears.
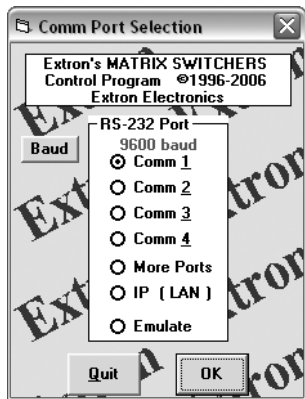
2. Choose the comm (serial) port that is connected to the switcher or **IP [LAN]**.

    NOTE **For a comm port**, *check the baud rate displayed in the comm port selection window. If you need to change the baud rate, click the* **Baud** *button and double-click the desired baud rate.*

    Click **OK**.

    If you selected a serial port in step 2, the Matrix Switchers Control Program is ready for operation.

3. **If you selected IP [LAN] in step 2**, the IP Connection window appears.
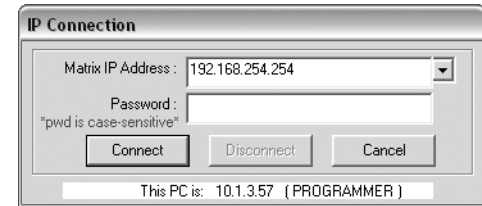
    a. Examine the Matrix IP Address field, which displays the last Matrix IP address entered.

        If necessary, enter the correct IP address in the field.

    NOTE *192.168.254.254 is the factory-specified default value for this field.*

    b. If the switcher is password protected, enter the appropriate administrator or user password in the Password field.

    c. Click **Connect**. The Matrix Switchers Control Program is ready for operation.

4-10   **CrossPoint / MAV Matrix Switchers • Remote Control**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual *at www.extron.com.*

CrossPoint / MAV Matrix Switchers • Remote Control   **4-11**
Refer also to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User's Manual *at www.extron.com.*

Accessing the HTML Pages

Another way to operate the switcher is via its factory-installed HTML pages, which are always available and cannot be erased or overwritten. The switcher's HTML pages are accessible through its LAN port, connected via a LAN or WAN, using a web browser such as Microsoft Internet Explorer. See ⑨ on page 2-6, for connection information.

Loading the start-up page

NOTE *If your Ethernet connection to the matrix switcher is unstable, try turning off the proxy server in your Web browser. In Microsoft Internet Explorer, click* **Tools** > **Internet Options** > **Connections** > **LAN Settings**, *uncheck the* **Use a proxy server...** *box, and then click* **OK**.

NOTE *For details on operating the switcher via HTML pages, refer to the* CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus Switcher Manual, *chapter 6, "HTML Operation".*

1. Start the Web browser program.

2. Click in the browser's Address field.

3. Enter the Matrix IP address in the browser's Address field.

NOTE *192.168.254.254 is the factory-specified default value for this field.*

4. Press the keyboard Enter key. The switcher checks to see if it is password protected.

   If the switcher is not password protected, it checks and downloads the HTML start-up page. The switcher is ready for operation via HTML remote control.

   If the switcher is password protected, the switcher downloads the Enter Network Password page.

NOTE *A User name entry is not required.*

5. Enter the appropriate administrator or user password in the **Password** field and click **OK**.

6. The switcher downloads the HTML start-up page. The switcher is ready for operation via HTML remote control.