Setup Guide

Matrix Switchers

IMPORTANT:
Go to www.extron.com for the complete user guide, installation instructions, and specifications before connecting the product to the power source.

CrossPoint 450 Plus Series
CrossPoint Ultra Series
MAV Plus Series

Matrix Switchers

Extron

68-521-50 **Rev. C**
10 19

Safety Instructions

Safety Instructions • English

WARNING: This symbol, ⚠, when used on the product, 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.

ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, **www.extron.com**.

Sicherheitsanweisungen • Deutsch

WARNUNG: Dieses Symbol ⚠ auf dem Produkt soll den Benutzer darauf aufmerksam machen, dass im Inneren des Gehäuses dieses Produktes gefährliche Spannungen herrschen, die nicht isoliert sind und die einen elektrischen Schlag verursachen können.

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

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, **www.extron.com**.

Instrucciones de seguridad • Español

ADVERTENCIA: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de voltaje peligroso sin aislar dentro del producto, lo que puede representar un riesgo de descarga eléctrica.

ATENCIÓN: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento recogidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, **www.extron.com**.

Instructions de sécurité • Français

AVERTISSEMENT: Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur la présence à l'intérieur du boîtier du produit d'une tension électrique dangereuse susceptible de provoquer un choc électrique.

ATTENTION: Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec le matériel.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, **www.extron.com**.

Istruzioni di sicurezza • Italiano

AVVERTENZA: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di tensione non isolata pericolosa all'interno del contenitore del prodotto che può costituire un rischio di scosse elettriche.

ATTENTZIONE: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con l'apparecchio.

Per informazioni su parametri di sicurezza, conformità alle normative, compatibilità EMI/EMF, accessibilità e argomenti simili, fare riferimento alla Guida alla conformità normativa e di sicurezza di Extron, cod. articolo 68-290-01, sul sito web di Extron, **www.extron.com**.

Instrukcje bezpieczeństwa • Polska

OSTRZEŻENIE: Ten symbol, ⚠, gdy używany na produkt, ma na celu poinformować użytkownika o obecności izolowanego i niebezpiecznego napięcia wewnątrz obudowy produktu, który może stanowić zagrożenie porażenia prądem elektrycznym.

UWAGI: Ten symbol, ⚠, gdy używany na produkt, jest przeznaczony do ostrzegania użytkownika ważne operacyjne oraz instrukcje konserwacji (obsługi) w literaturze, wyposażone w sprzęt.

Informacji na temat wytycznych w sprawie bezpieczeństwa, regulacji wzajemnej zgodności, zgodność EMI/EMF, dostępności i Tematy pokrewne, zobacz Extron bezpieczeństwa i regulacyjnego zgodności przewodnik, część numer 68-290-01, na stronie internetowej Extron, **www.extron.com**.

Инструкция по технике безопасности • Русский

ПРЕДУПРЕЖДЕНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии неизолированного опасного напряжения внутри корпуса продукта, которое может привести к поражению электрическим током.

ВНИМАНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии важных инструкций по эксплуатации и обслуживанию в руководстве, прилагаемом к данному оборудованию.

Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: **www.extron.com**, номер по каталогу - 68-290-01.

安全说明 • 简体中文

警告: ⚠产品上的这个标志意在警告用户该产品机壳内有暴露的危险电压，有触电危险。

注意: ⚠产品上的这个标志意在提示用户设备随附的用户手册中有重要的操作和维护(维修) 说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容，敬请访问 Extron 网站 **www.extron.com**，参见 Extron 安全规范指南，产品编号 68-290-01。

安全記事 • 繁體中文

警告: ⚠若產品上使用此符號，是為了提醒使用者，產品機殼內存在著可能會導致觸電之風險的未絕緣危險電壓。

注意 ⚠若產品上使用此符號，是為了提醒使用者，設備隨附的用戶手冊中有重要的操作和維護（維修）明。

有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊，請瀏覽 Extron 網站：**www.extron.com**，然後參閱《Extron 安全性與法規遵守手冊》，準則編號 68-290-01。

安全上のご注意 • 日本語

警告: この記号 ⚠ が製品上に表示されている場合は、筐体内に絶縁されて いない高電圧が流れ、感電の危険があることを示しています。

注意: この記号 ⚠ が製品上に表示されている場合は、本機の取扱説明書に 記載されている重要な操作と保守(整備)の指示についてユーザーの 注意を喚起するものです。

安全上のご注意、法規厳守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト**www.extron.com**より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01)をご覧ください。

안전 지침 • 한국어

경고: 이 기호 ⚠, 가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호 ⚠, 가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(**www.extron.com**)의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

NOTE: For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the "**Extron Safety and Regulatory Compliance Guide**" on the Extron website.

Contents

Introduction

NOTES:

- For more information on any subject in this guide, refer to the CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus User Guide, available on the Extron website (**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 Guide

This setup 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. The guide also shows you how to perform basic operations and 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

NOTES:

- 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.

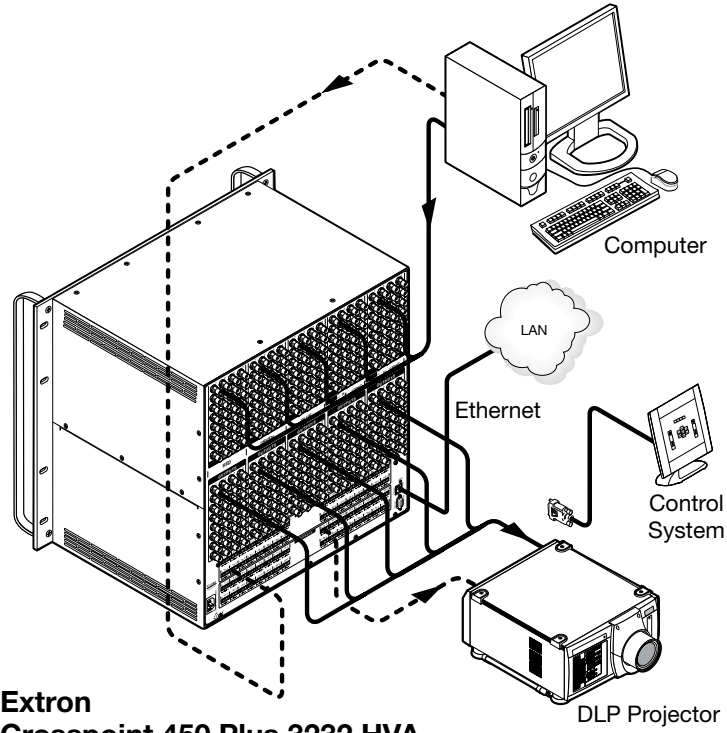


Figure 1. Typical Matrix Switcher Application

Installation

Rear Panel

NOTES:

- The CrossPoint 450 Plus switchers are housed in enclosures that range from 8U to 10U (see figure 2) to support their different video format and matrix sizes.
- The CrossPoint Ultra switchers are housed in enclosures that range from 3U to 6U to support their different video format and matrix sizes.
- Smaller matrix sizes within a form factor have fewer input and/or output connectors. The arrangement of connectors and features in switchers with different form factors is different from what is shown in figure 2.

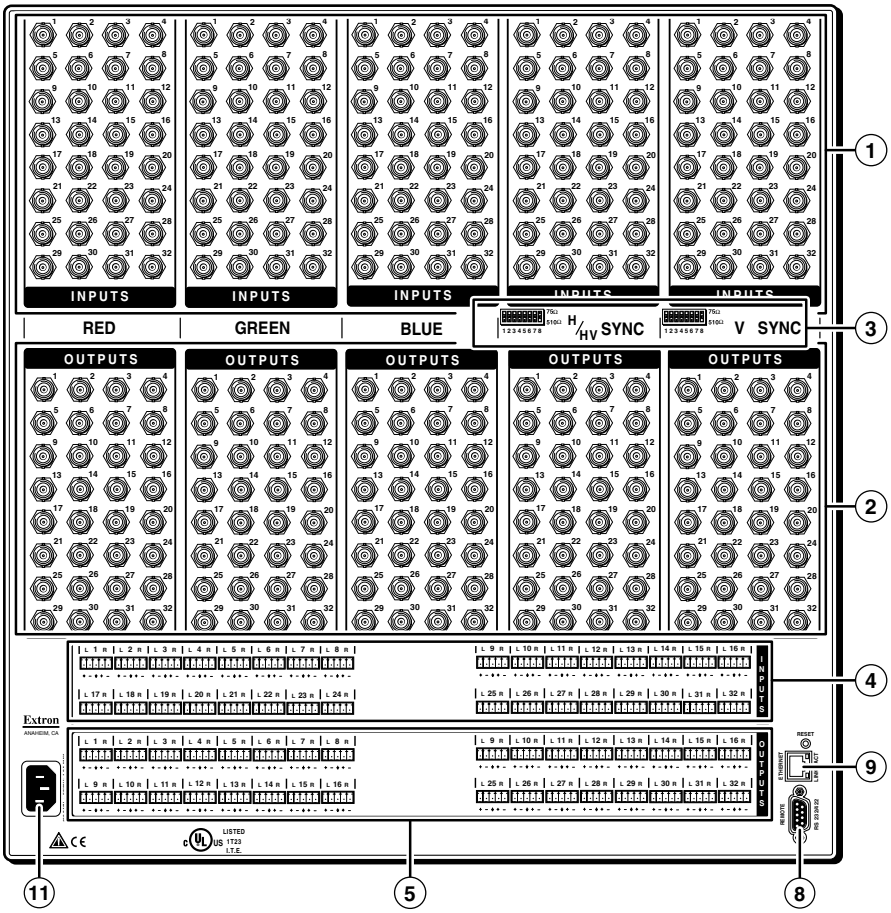


Figure 2. CrossPoint 450 Plus 3232 HVA Rear Panel

NOTE: The MAV Plus switchers are housed in enclosures that range from 8U (see figure 3) to 2U (see figure 4) to support their different 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.

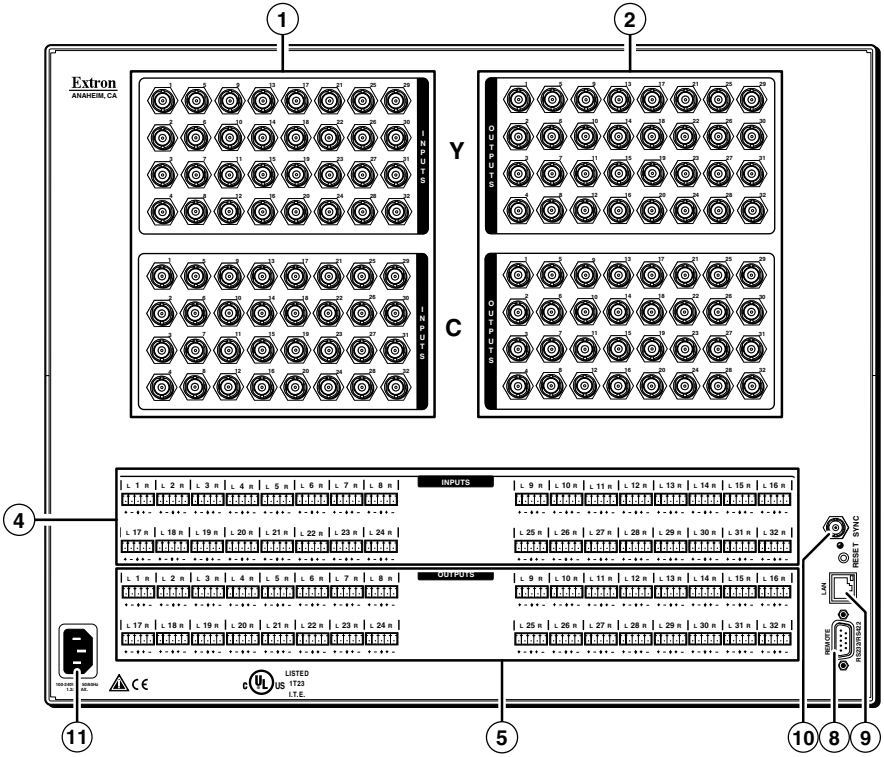


Figure 3. MAV Plus 3232 SVA Matrix Switcher

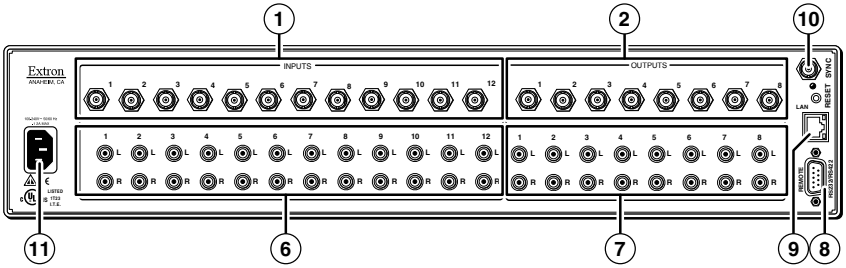


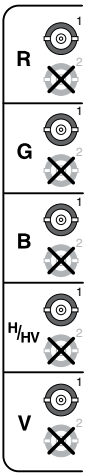
Figure 4. MAV Plus 128 AV RCA Matrix Switcher

Making connections and rear panel settings

WARNING: Turn the input and output devices off and unplug their power cords.

AVERTISSEMENT: Éteindre tous les appareils d'entrée et de sortie puis retirer les câbles d'alimentation.

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 the video format and matrix size or your switcher model.

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

③ **Sync termination switches (CrossPoint switchers)** — Set the switches as necessary to condition non-TTL sync levels greater than 5 Vp-p. Sync termination enables the sync to be properly passed from input to all selected outputs.

NOTES:

- 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.
- The matrix switchers have two sets of sync termination switches; one for horizontal or combined sync and a second set for vertical sync.

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 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.

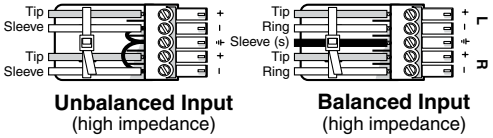


Figure 5. Audio Input Connector Wiring

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

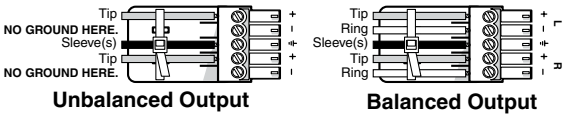


Figure 6. Audio output connector wiring

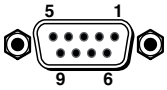
ATTENTION:

- For unbalanced audio, connect the sleeves to the ground contact. **DO NOT** connect the sleeves to the negative (-) contact.
- Pour l'audio asymétrique, connectez les manchons au contact au sol. **Ne PAS** connecter les manchons aux contacts négatifs (–).

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.

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		Matrix Sizes: 84 — 1616 MAV Plus 248 / 328 A		Matrix Sizes: 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.

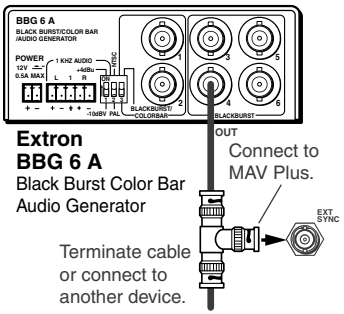


Figure 7. External Sync Connection

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

Front Panel Configuration Port (Matrix Sizes up to 1616, MAV Plus 32 A, and MAV Plus 248 A)

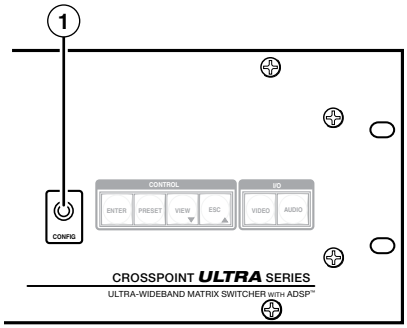


Figure 8. Front Panel Configuration Port

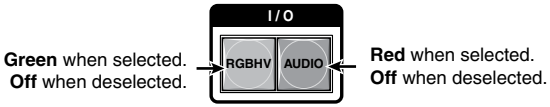
① **Configuration port** — If desired, connect a control system or computer to the front panel Configuration (RS-232) port. Use an optional Extron 9-pin D to 2.5 mm mini jack TRS RS-232 cable.

Operation

> **NOTE:** 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 guide.

Creating a Tie

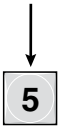
1. Press and release the **Esc** button to clear any input button, output button, or control button indicators that may be lit.
2. Press and release the **Video** button, **Audio** button, or both to select or deselect video, audio, or both, as desired.



> **NOTE:** Audio or video can be broken away (tied by itself) by selecting **only** the Video button or **only** the Audio button.

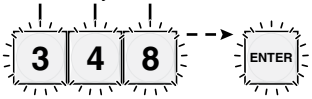
3. Press and release the desired input button.

The button lights to indicate the selection.



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.



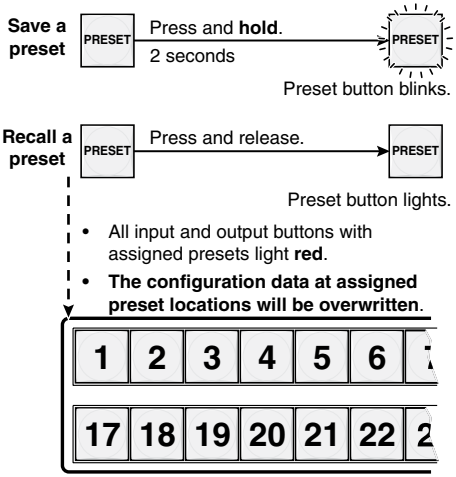
Green indicates the need to confirm the change.

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

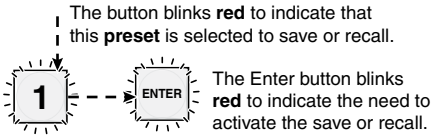
Saving or Recalling a Preset

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

   Recall a preset — Press and release the **Preset** button.



2. Press and release the desired input or output button.



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

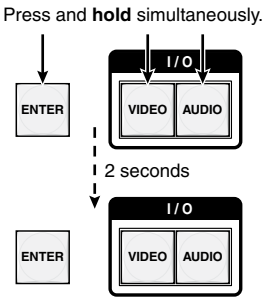
NOTE: The switcher is shipped in Lock mode 2.

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

NOTES:

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

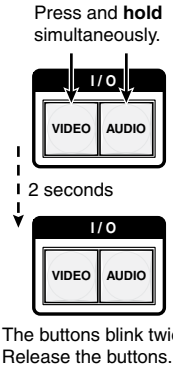


Selecting Lock mode 2 or toggling between mode 2 and mode 1

NOTES:

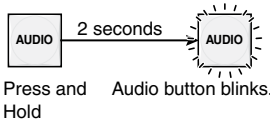
- If the switcher is in Lock mode 0 or mode 1, this procedure selects mode 2.
- If the switcher is in Lock mode 2, this procedure selects mode 1.

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



Viewing and Adjusting the Audio Level

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



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 and Adjusting the Audio Level

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

   NOTES:

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

Remote Control

Selected SIS Commands

The switchers have Simple Instruction Set commands that you can use for operation and configuration. You can run these commands from a PC connected to either of the serial ports of the switcher or the Ethernet port. See (8), (9) on page 7 and (1) on page 8, 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 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 and time.

   NOTES:
   - If the switcher is not password-protected, the device is now ready to accept SIS commands.
   - If the switcher is password-protected, a **`password`** prompt appears.
   - The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password.

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 20.

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 20. In verbose mode 3, the Telnet socket reports changes in messages that resemble SIS command responses.

Host-to-switcher instructions

The switcher accepts SIS 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, see the *CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus Switcher User Guide*, chapter 4, “Programmer’s Guide”.

Command	SIS command (host to switcher)	Response (switcher to host)	Aditional information
Create and view ties			
NOTES: • Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!02*02&003*003%4*24$. • The matrix switchers support 1-, 2-, and 3-digit numeric entries (1*1!, 02*02&, or 003*003%). • The & tie command for RGB and the % tie command for video can be used interchangeably. • The & read tie command for RGB and the % read tie command for video can be used interchangeably.			
Tie input to output X2, video and audio *Example:*	X1*X2! 1*3!	OutX2•InX1•All↵ Out03•In01•All↵	Tie input X1 video and audio to output X2. Tie input 1 video and audio to output 3.
Tie input X1 to output X2, RGBHV only *Example (see 3rd NOTE bullet, above):*	X1*X2& 10*4&	OutX2•InX1•RGB↵ Out04•In10•RGB↵	Audio breakaway. Tie input 10 RGB to output 4.
Tie input X1 to output X2, video only *Example (see 3rd NOTE bullet, above):*	X1*X2% 7*5%	OutX2•InX1•Vid↵ Out05•In07•Vid↵	Audio breakaway. Tie input 7 video to output 5.
Tie input X1 to output X2, audio only *Example:*	X1*X2$ 24*04$	OutX2•InX1•Aud↵ Out04•In24•Aud↵	Audio breakaway. Tie input 24 audio to output 4.
Read RGB output tie	X2&	X1↵	RGBHV input X1 is tied to output X2.
Read video output tie	X2%	X1↵	Video input X1 is tied to output X2.
Read audio output tie	X2$	X1↵	Audio input X1 is tied to output X2.

KEY: X1 = Input number — 00 – (maximum number of inputs for your model) (00 = untied)
X2 = Output number — 01 – (maximum number of outputs for your model)

Command	SIS command (host to switcher)	Response (switcher to host)	Aditional information
Video and audio mute commands			
RGB or video mute	X2*1B	VmtX2*1↵	Mute output X2 RGB (video off).
RGB or video unmute	X2*0B	VmtX2*0↵	Unmute output X2 RGB (video on).
Read RGB or video mute	X2B	X3↵	1 = mute on, 0 = mute off.
Global RGB or video mute	1*B	Vmt1↵	Mute all RGB outputs.
Global RGB or video unmute	0*B	Vmt0↵	Unmute all RGB outputs.
Audio mute	X2*1Z	AmtX2*1↵	Mute output X2 audio (audio off).
Audio unmute	X2*0Z	AmtX2*0↵	Unmute output X2 audio (audio on).
Read audio mute	X2Z	X3↵	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←	X4[1], X4[2], ... X4[n]↵	Each X4 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←	Mut02202000000000000000000000000000↵	Output 2, 3, and 5 audio is 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 XX.

KEY: X2 = Output number — 01 – (maximum number of outputs for your model)
X3 = Mute — 0 = off (unmuted) — 1 = on (muted)
X4 = Video/audio mute: — 0 = no mutes — 1 = video mute — 2 = audio mute

Command	SIS command (host to switcher)	Response (switcher to host)	Aditional information
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 a value of 50 (79% of max volume, 14 dB of attenuation).
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			
NOTES: • 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.

KEY:

X2	= Output number	01 – (maximum number of outputs for your model)
X5	= Volume	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	SIS command (host to switcher)	Response (switcher to host)	Aditional information
***Lock* (executive) modes**			
NOTE: See **Setting the front panel locks (Executive modes)** on page 19 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. AX8XX9 is the audio matrix size
Example: ***MAV Plus 3216 HDA***	I	V32X16•A32X16↵	
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).

KEY:

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	68-*nnnn-nn*
X11	= Firmware version number to second decimal place (x.xx)	

Command	SIS command (host to switcher)	Response (switcher to host)	Aditional information
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 ↵	
Read DHCP on/off status	Esc DH ←	X14 ↵	
Set verbose mode	Esc X15 CV ←	Vrb X15 ↵	
Read verbose mode	Esc CV ←	X15 ↵	
Configure current port timeout	Esc 0* X16 TC ←	Pti0* X16 ↵	
Read current port timeout	Esc 0TC ←	X16 ↵	
Configure global IP port timeout	Esc 1* X16 TC ←	Pti1* X16 ↵	
Read global IP port timeout	Esc 1TC ←	X16 ↵	

KEY:

X13	= IP address	###.###.###.###
X14	= DHCP	0 =off, 1 = on
X15	= Verbose mode	0 = clear/none (default for Telnet connection) 1 = verbose mode (default for RS-232/RS-422 connection) 2 = tagged responses for queries 3 = verbose mode and tagged for queries
X16	= Port timeout interval	1 (= 10 seconds) - 65000 (default is 30 = 300 seconds = 5 minutes)

Installing and Starting the Control Program

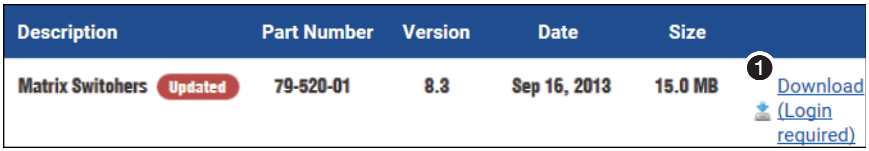
You can also operate the switcher via the Windows®-based Matrix Switchers Control Program. This program is available on the Extron website, **www.extron.com**. Run this program on a PC connected to either of the switcher's serial ports or the Ethernet port. See ⑧, ⑨ on page 7 and ① on page 8, for connection information.

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

Installing the program

1. Go to **www.extron.com** and hover the cursor over the **`Download`** tab (❶). The `Find Software & Downloads` link appears (❷).

2. Click the **`Software`** (❸) link. The main download page opens.
3. Click the M filtering letter (M) to jump to the page of downloads nearest the program.
4. Click **`Download`** for the Matrix Switchers Control Program (❹).



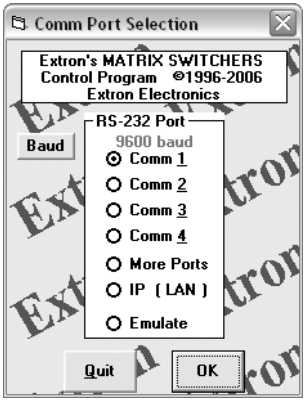
5. Follow the on-screen instructions. The installation program creates a `C:\Program Files\Extron\Matrix_Switchers` directory and an "Extron Electronics\Matrix Switchers" group folder. It installs the following four programs:

- 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.



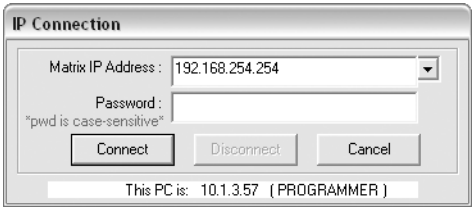
2. Choose the comm (serial) port that is connected to the switcher or **IP [LAN]**.

   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.

3. Click **OK**.

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

4. **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.

> **NOTE:** The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password.

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

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 HTML pages are accessible through its LAN port, connected via a LAN or WAN, using a web browser such as Microsoft Internet Explorer. See ① on page 8, for connection information.

Loading the start-up page

NOTES:

- 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**.
- For details on operating the switcher via HTML pages, refer to the *CrossPoint 450 Plus / CrossPoint Ultra / MAV Plus Switcher User Guide*, chapter 6, “HTML Operation”.

1. Start the web browser program.
2. Click in the **Address** field of the browser.
3. Enter the Matrix IP address in the **Address** field of the browser.

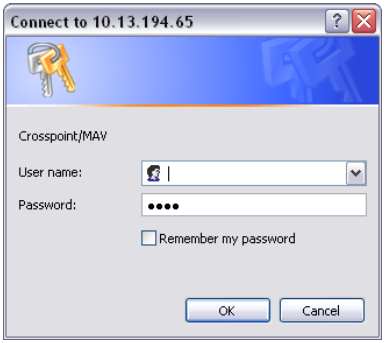
> **NOTE:** 192.168.254.254 is the factory-specified default value for this field.

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

> **NOTE:** The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password.

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.

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

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

Extron 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
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

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

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

Europe:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Middle East:
Extron Middle East
Dubai Airport Free Zone
F13, PO Box 293666
United Arab Emirates, Dubai

Africa:
Extron South Africa
South Tower
160 Jan Smuts Avenue
Rosebank 2196, South Africa

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 if modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an application engineer to receive an RA (return authorization) number. This will begin the repair process.

USA: 714.491.1500 or 800.633-9876 **Europe**: 31.33.453.4040
Asia: 65.6383.4400 **Japan**: 81.3.3511.7655

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.

Worldwide Headquarters: Extron USA West, 1025 E. Ball Road, Anaheim, CA 92805, 800.633.9876