

# Setup Guide

## Fiber Optic Matrix Switchers

**IMPORTANT:**  
Refer to [www.extron.com](http://www.extron.com) for the complete user guide, installation instructions, and specifications before connecting the product to the power source.

# FOX Matrix 3200 FOX Matrix 7200

Modular Fiber Optic Matrix Switchers



**Extron Electronics**  
INTERFACING, SWITCHING AND CONTROL

68-1740-51 Rev. A  
08 14

# Safety Instructions

## Safety Instructions • English

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**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](http://www.extron.com).

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**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.

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

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**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](http://www.extron.com).

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## Korean

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

## 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. The Class A limits 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 interference; the user must correct the interference at his own expense.

**NOTE:** This unit was tested with shielded I/O cables on the peripheral devices. Shielded cables must be used to ensure compliance with FCC emissions limits.

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## Conventions Used in this Guide

### Notifications

The following are used:

**WARNING:** Potential risk of severe injury or death.

**AVERTISSEMENT:** Risque potentiel de blessure grave ou de mort.

#### ATTENTION:

- Risk of property damage.
- Risque de dommages matériels.

**NOTE:** A note draws attention to important information.

### Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene,,Op1 scene 1,1^B51^W^C
[01] R000400300004000080000600 [02] 35 [17] [03]
```

```
Esc X1 * X4 * Y35 * Y37 * Y36 CE ←
```

**NOTE:** For commands and examples of computer or device responses mentioned in this guide, the character “Ø” is used for the number zero and “O” is the capital letter “o.”

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 208.132.180.48: bytes=32 times=2ms TTL=32
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx -t
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.  
Click the **OK** button.

## Specifications Availability

Product specifications are available on the Extron website, [www.extron.com](http://www.extron.com).

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# Introduction

**WARNING:** The fiber optic I/O boards of the FOX matrix switchers output continuous invisible light, which may be harmful to the eyes; use with caution.

**Do not look** into the fiber optic cable connectors or into the fiber optic cables themselves.

Plug the attached dust caps into the optical transceivers when the fiber cable is unplugged.

**AVERTISSEMENT :** L'appareil émet une lumière invisible en continu, à utiliser avec précaution.

**Ne regardez pas** dans les connecteurs de câble fibre optique sur le panneau arrière ou dans les câbles fibre optique eux-mêmes.

Branchez les protections contre la poussière dans l'ensemble émetteur/récepteur lorsque le câble fibre optique est débranché.

This section provides an overview of the Extron FOX Matrix 3200 and FOX Matrix 7200 and describes their features. Topics that are covered include:

- [About this Guide](#)
- [About the FOX Matrix Switchers](#)

## About this Guide

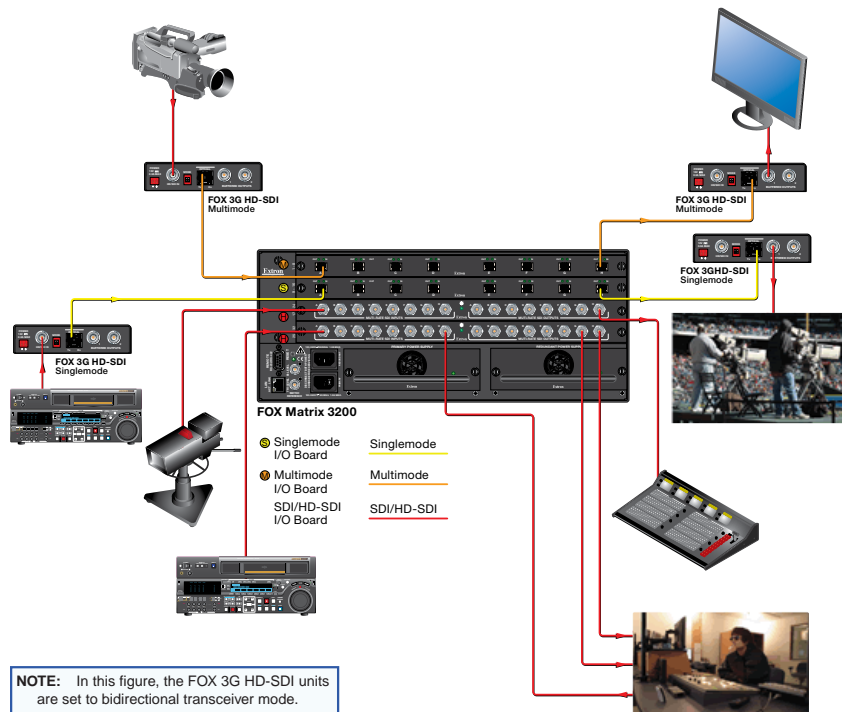
**NOTE:** For more information on any subject in this guide, see the *FOX Matrix 3200 and FOX Matrix 7200 Series User Guide*, available at [www.extron.com](http://www.extron.com).

This setup guide helps you easily and quickly set up and configure your FOX Matrix 3200 and FOX Matrix 7200 switcher. Step by step instructions show you how to:

- [Install the input and output boards](#)
- [Connect the hardware](#)
- [Perform basic operations](#)
- Use both the [front panel controls](#) and [selected Simple Instruction Set \(SIS\) commands](#)
- [Load and start the Matrix Switchers Control Program](#)
- [Connect to the built-in HTML pages](#), which you can use to operate the switcher

## About the FOX Matrix Switchers

The FOX Matrix Switchers (see figure 1 for a FOX Matrix 3200 example) are configurable matrix switchers that distribute optical signals. Fiber optic I/O boards route signals that are compatible with all Extron FOX 500, FOXBOX, FOX, FOX 2G, and FOX HD-SDI fiber optic product lines. 3G/HD-SDI/SDI I/O boards route 3G, high definition serial digital interface (HD-SDI), and serial digital interface (SDI) signals. The matrix switcher routes any input signal to any combination of outputs. An optical input can be tied to optical outputs, 3G/HD-SDI SDI outputs, or both and an 3G/HD-SDI SDI input can be tied to 3G/HD-SDI/SDI outputs, optical outputs, or both. The matrix switcher can route multiple input/output configurations simultaneously.



**Figure 1. Typical FOX Matrix 3200 application**

The Extron proprietary fiber optic signal, generated by Extron fiber optic transmitters, can include video, stereo audio, and transmitter-to-receiver RS-232 serial communications. The video component of the signal can be RGB video, Digital Visual Interface (DVI) video, HDMI video, 3G/HD-SDI/SDI video, or low resolution video, depending on the transmitter and receiver.

The matrix switcher can be remotely controlled via its Ethernet LAN port or either of two serial ports, one on the rear panel and one on the front panel, using either the Windows-based Extron Matrix Switchers Control Program or the SIS.

### NOTES:

- Compatible optical signals are digital signals from 270 Mbps through 4.25 Gbps that are sent and received via fiber optic small form factor pluggable (SFP) modules.
- The FOX transmitter-to-receiver communications, including the serial link, occupy one matrix switcher input and output. This matrix switcher can also support the FOX return (receiver-to-transmitter) serial communications, but returning this signal stream to the transmitter occupies a separate matrix switcher input and output.

The switcher has two internal, hot-swappable 100 VAC to 240 VAC, 50-60 Hz, 175-watt (FOX Matrix 3200) or 180-watt (FOX Matrix 7200) power supplies that provide worldwide power compatibility and reliability.

### Configurability and Transmission modes

The FOX Matrix Switchers are assembled from individual input/output (I/O) boards. The switcher can include up to four (FOX Matrix 3200) or nine (FOX Matrix 7200) I/O boards, each of which supports 8 inputs by 8 outputs. The four types of I/O boards are:

- **Singlemode fiber optic 8x8 I/O board**
- **Multimode fiber optic 8x8 I/O board**
- **Singlemode pathological fiber optic 8x8 I/O board.** This board addresses the compatibility issues of passing pathological signals generated from 3G HD-SDI, HD-SDI, and SDI signals over fiber optic systems
- **3G HD-SDI, HD-SDI, and SDI 8x8 I/O board**

**NOTE:** As listed above, three versions of the fiber optic I/O boards are documented in this manual. They are categorized by the type of fiber optic cable, multimode or singlemode, which defines the effective range of transmission:

- **Singlemode** — Very long distance, up to 30 km (18.75 miles)
- **Multimode** — Long distance, up to 300 m (984 feet)

By adding or removing I/O boards, you can expand and contract the FOX Matrix Switchers from an 8-input by 8-output matrix to up to either:

- **FOX Matrix 3200** — A 32-input by 32-output matrix
- **FOX Matrix 7200** — A 72-input by 72-output matrix

**NOTE:** On a fiber optic I/O board as delivered from Extron, all transceiver modules are configured the same: either all multimode or all singlemode. You can mix multimode and singlemode fiber optic I/O boards in a FOX matrix switcher, but you must ensure that you connect the proper transmission mode fiber cables to the board.

# Installation

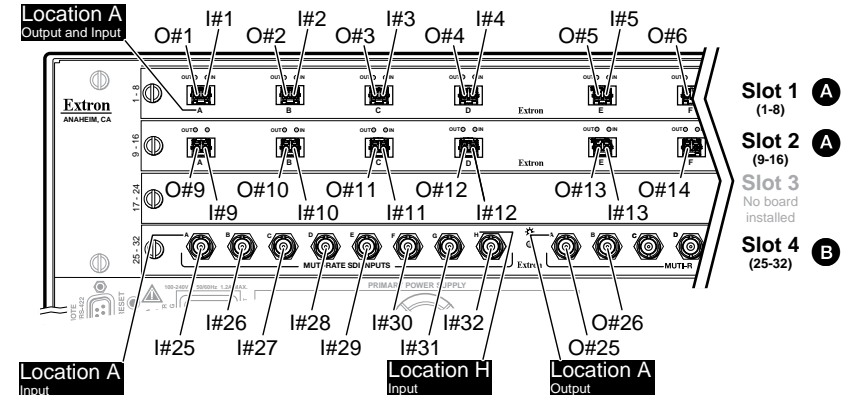
This section describes installation of the FOX matrix switchers, including connections and features. Topics that are covered include:

- Rear Panel
- Front Panel

## Rear Panel

### A Note on I/O Boards

As shown in figure 2, each I/O board is identified by the input and output numbers supported by the board position. The transceiver modules on the I/O boards are identified as A through H.



**Figure 2.** Arrangement of Inputs and Outputs on the I/O Boards

The board position designators, printed beside the fans, correspond to the input and output numbers served by that position (1 - 8, 9 - 16, and so on).

The location designators, A through H, correspond to the transceiver modules, numbered from left to right, each of which includes an input and an output.

See figure 2. The input and output numbers supported by the I/O board in slot 2 (location 9 - 16) are as follows: A = 9, B = 10, C = 11, D = 12, E = 13, F = 14, G = 15, and H = 16.

### ATTENTION:

- Turn off power to the input and output devices, and disconnect their power cords before making connections.
- Débranchez le produit et les autres appareils.

**WARNING:** This unit outputs continuous invisible light, which may be harmful to the eyes; use with caution. For additional safety, plug the attached dust caps into the optical transceivers when the fiber cable is unplugged.

**AVERTISSEMENT :** L'appareil émet une lumière invisible en continu, à utiliser avec précaution. Branchez les protections contre la poussière dans l'ensemble émetteur/récepteur lorsque le câble fibre optique est débranché.

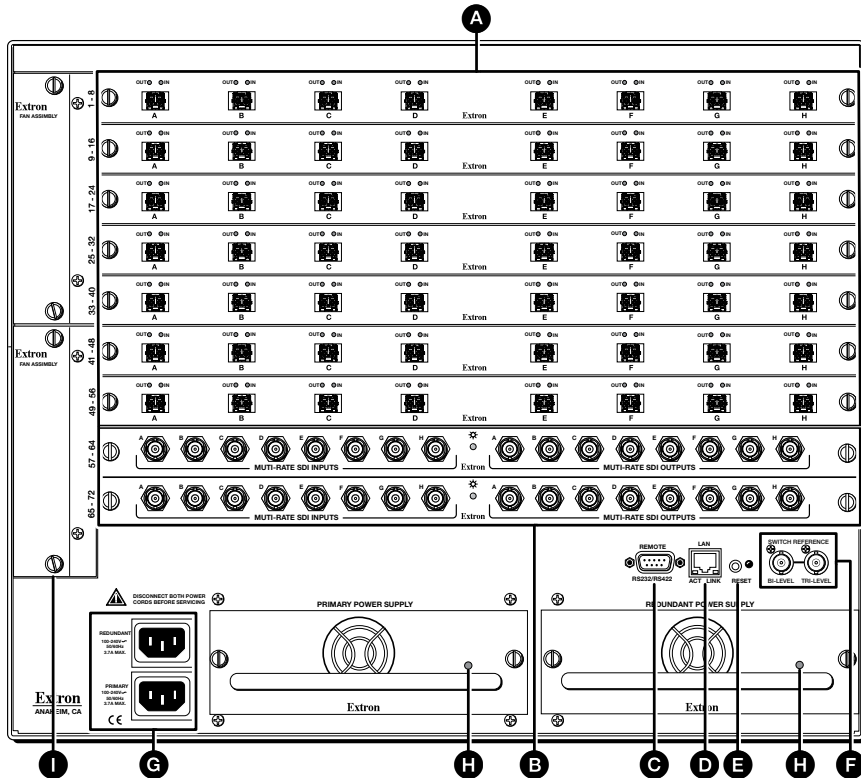


Figure 3. FOX Matrix 7200 Switcher Rear Panel

- A** Fiber optic boards with connectors and LEDs (see [page 7](#)).
- B** 3G HD-SDI, HDI-SDI, and SDI boards with connectors (see [page 8](#)).
- C** Remote port (see [page 8](#)).
- D** Ethernet port (LAN connector) (see [page 8](#)).
- E** Reset button and LED (see [page 8](#)).
- F** Switch Reference connectors (see [page 8](#)).
- G** Power connectors (see [page 9](#)).

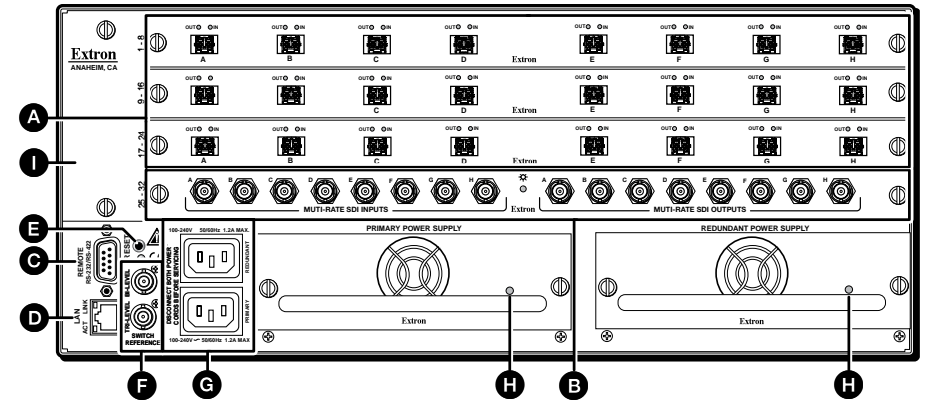


Figure 4. FOX Matrix 3200 Switcher Rear Panel

- H** Power Supply indicator LEDs (see [page 9](#)).
- I** Replaceable fans (see [Removing and Installing a Fan Module](#) on page 31 to replace the fan).

## Making Connections

- A** Fiber optic boards with connectors and LEDs —

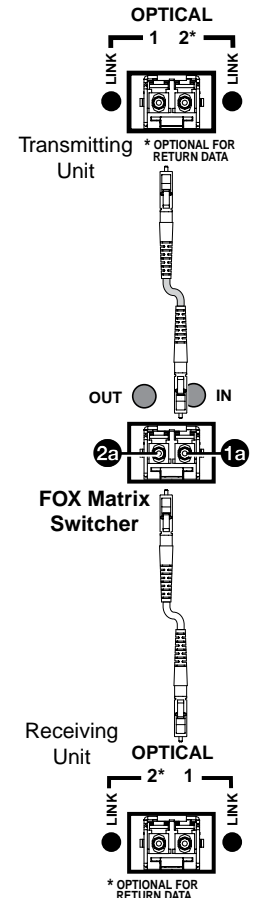
### NOTES:

- Ensure that you use the proper fiber cable for your I/O board. Typically, singlemode fiber has a yellow jacket and multimode cable has an orange or cyan jacket.
- The FOX matrix switcher uses one connector on the block as an input and the second connector on the same block as a separate output.

- 1a** Input connector — Connect a fiber optic cable between each Input LC connector and a FOX 500 Tx or any other compatible Extron FOX device.

**NOTE:** Or, for the serial return (receiver-to-transmitter) function, connect the far end to the Optical 2 connector on a FOX Rx receiver.

**Input LED** — See [Fiber optic I/O board LED indications](#) on page 9.



- 2a **Output connector** — Connect a fiber optic cable between each output LC connector and a FOX 500 Rx or any other compatible Extron FOX device.

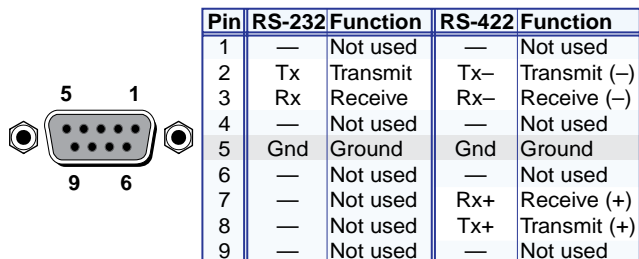
**NOTE:** Or, for the serial return (receiver-to-transmitter) function, connect the far end to the Optical 2 connector on a FOX Tx transmitter.

**Output LED** — See [Fiber optic I/O board LED indications](#) on the next page.

**B SDI/HDI-SDI boards with BNC connectors —**

- 1b **Multi-rate SDI Input connectors** — Connect HD-SDI, SDI, or 3G-SDI video inputs to these BNC connectors.
- 2b **Multi-rate SDI Output connectors** — Connect digital displays to these BNC connectors.

- C **Remote port** — If desired, connect a control system or computer to the rear panel Remote RS-232/RS-422 port.



**Figure 5. Audio Output Connector Wiring**

- D **LAN port** — If desired, connect a network WAN or LAN hub, a control system, or a 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.

- E **Reset button** — Initiates four levels of reset of the matrix switcher. For different reset levels, press and hold the recessed button while the switcher is running or while you power up the switcher. See the *FOX 3200 and 7200 Series User Guide*, available at [www.extron.com](http://www.extron.com).

- F **Switch Reference connectors** (affect SDI / HD-SDI inputs and outputs only) — Connect an external sync signal to this BNC connector to genlock the video signal in broadcast or other sync-critical applications.

- G **Power connectors** — Plug the switcher into two grounded AC sources.

**NOTE:** For reliability, connect the Redundant power cord to either an uninterruptible power source or to a power source that is completely independent from the primary power source.

- H **Primary and Redundant power supply indicator LEDs —**

**Green** — Indicates that the associated power supply is operating within normal tolerances.

**Red** — Indicates that the associated power supply is operating outside the normal tolerances or has failed. See [Removing and Installing a Power Supply Module](#) on page 29 to replace the power supply.

**Fiber optic I/O board LED indications**

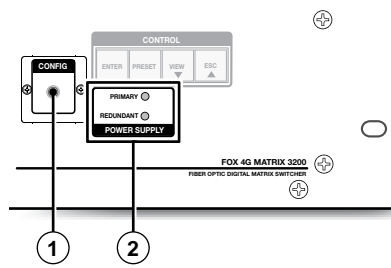
On the fiber optic I/O boards, the input and output LEDs on the transceivers provide useful indications of the status of the lasers and the reclocking function (see the table below).

Definition	OUT IN		Definition
	Output LED indication	Input LED indication	
Reclocked at 4.25 Gbps	On	On	Reclocked at 4.25 Gbps
Not reclocked, laser off, or no signal	Off	Off	Not reclocked or no signal
Non-4G signal present or not reclocked	Fast blink	Fast blink	Non-4G signal present or not reclocked
Not reclocked, laser on or no signal	Slow blink	Slow blink	N/A

**NOTE:** If reclocking is set to bypass, the Output LED is always on.



## Front Panel



- A 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.
- B Primary and Redundant Power Supply LEDs** —
- Green** — Indicates that the associated power supply is operating within normal tolerances.
- Red** — Indicates that the associated power supply is operating outside the normal tolerances or has failed (see [Removing and Installing a Power Supply Module](#) on page 29 to replace the power supply).

## Front Panel Operations

This section describes simple matrix switcher operation from the front panel. Topics that are covered include:

- [Creating a Tie](#)
- [Viewing Ties \(and Muting Outputs\)](#)
- [Saving or Recalling a Preset](#)
- [Locking the Front Panel \(Executive Mode\)](#)

### Creating a Tie

A "tie" is an input-to-output connection.

A "set of ties" is an input tied to two or more outputs. (An output can never be tied to more than one input.)

A "configuration" is one or more ties, one or more sets of ties, or a combination.

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 desired input button.  
The button lights to indicate the selection.

5

3. Press and release the desired output buttons.  
The output buttons blink to indicate the potential ties.



The Enter button blinks to indicate the need to confirm the change.

4. Press and release the Enter button. The tie is created and all button indicators turn off.

## Viewing Ties (and Muting Outputs)

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

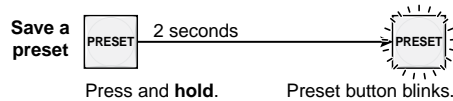
**NOTE:** If an output button blinks, that output is muted. To toggle mute on and off, press and hold the output button for 2 seconds.

2. Press an input button. The buttons for all tied outputs light.
3. Press an output button. The buttons for the tied input and all tied outputs light.
4. Press the View button again to exit View mode. All input and output buttons return to an unlit state.

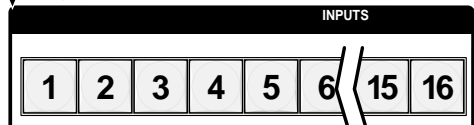
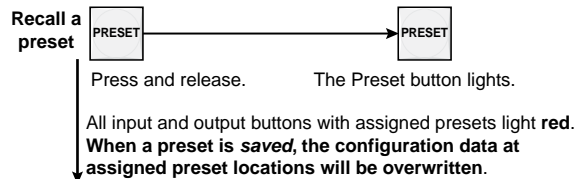
## Saving or Recalling a Preset

A "preset" is a configuration that has been stored.

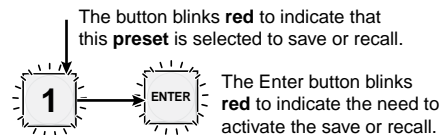
1. **Save a preset** — Press and hold the Preset button until it flashes.



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



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

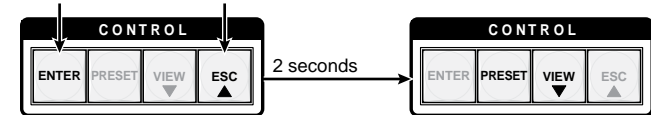


3. Press and release the Enter button.

## Locking the Front Panel (Executive Mode)

To toggle the lock on and off, simultaneously press and hold the Enter button and the Esc button for approximately 2 seconds..

Press and **hold** the Enter and Esc buttons simultaneously to toggle executive mode on or off.



The Preset and View buttons blink twice to indicate the mode change.  
 Release the buttons.

# Remote Control

This section describes using the remote control features of the FOX matrix switchers to control the devices. Topics that are covered include:

- [Selected SIS Commands](#)
- [Matrix Switchers Control Program](#)
- [Built-in HTML Pages](#)

## Selected SIS Commands

You can use Simple Instruction Set (SIS) commands for operation and configuration of the switchers. You can run these commands from a PC connected to the rear panel Remote RS-232/RS-422 port ([item C](#) on page 8), LAN port ([item D](#) on page 8), or front panel configuration port ([item A](#) on page 10) on the switcher.

**NOTE:** The table that begins on the next page is a partial list of SIS commands. For a complete listing, see the *FOX Matrix 3200 and FOX Matrix 7200 Series User Guide*.

### Command and Response Table for SIS Commands

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
<b>Create ties</b>			
<b>NOTES:</b> <ul style="list-style-type: none"> <li>• Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!02*02&amp;003*003%4*24!</li> <li>• The matrix switchers support 1-, 2-, and 3-digit numeric entries (1*1!, 02*02&amp;, or 003*003%).</li> <li>• The ! tie command, the &amp; tie command, and the % tie command can be used interchangeably, as can the ! read tie command, the &amp; read tie command, and the % read tie command.</li> </ul>			
Tie input <b>X1</b> to output <b>X2</b> <i>Example (see Note, above):</i>	<b>X1</b> * <b>X2</b> ! 1*3!	Out <b>X2</b> •In <b>X1</b> •A11↵ Out03•In01•A11↵	Tie input <b>X1</b> to output <b>X2</b> . Tie input 1 to output 3.
Tie input <b>X1</b> to output <b>X2</b> <i>Example (see Note, above):</i>	<b>X1</b> * <b>X2</b> & 10*4&	Out <b>X2</b> •In <b>X1</b> •RGB↵ Out04•In10•RGB↵	Tie input <b>X1</b> to output <b>X2</b> . Tie input 10 to output 4.
Tie input <b>X1</b> to output <b>X2</b> , <i>Example (see Note, above):</i>	<b>X1</b> * <b>X2</b> % 7*5%	Out <b>X2</b> •In <b>X1</b> •Vid↵ Out05•In07•Vid↵	Tie input <b>X1</b> to output <b>X2</b> . Tie input 7 to output 5.
Read output tie	<b>X2</b> &	<b>X1</b> ↵	Input <b>X1</b> is tied to output <b>X2</b> .
Read output tie	<b>X2</b> %	<b>X1</b> ↵	Input <b>X1</b> is tied to output <b>X2</b> .
Read output tie	<b>X2</b> !	<b>X1</b> ↵	Input <b>X1</b> is tied to output <b>X2</b> .
<b>NOTE:</b> <ul style="list-style-type: none"> <li>• = Space</li> <li><b>X1</b> = Input number</li> <li><b>X2</b> = Output number</li> <li>00 – maximum number of inputs for your configuration (00 = untied)</li> <li>01 – maximum number of outputs for your configuration</li> </ul>			

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
<b>Channel mutes</b>			
Channel mute	<b>X2</b> *1B	Vmt <b>X2</b> *1↵	Mute output <b>X2</b> (no signal is output, light output remains active).
Channel unmute	<b>X2</b> *0B	Vmt <b>X2</b> *0↵	Unmute output <b>X2</b> (signal is output).
Read channel mute	<b>X2</b> B	<b>X3</b> ↵	1 = mute on, 0 = mute off.
Global channel mute	1*B	Vmt1↵	Mute all light outputs.
Global channel unmute	0*B	Vmt0↵	Unmute all light outputs.
View output mutes	EscVM↵	<b>X3</b> <sup>1</sup> <b>X3</b> <sup>2</sup> ... <b>X3</b> <sup>n</sup> ↵	Each <b>X3</b> response is the mute status of an output, starting from output 1. n = the maximum of outputs for your configuration.
<b>Save and recall presets</b>			
<b>NOTE:</b> If you try to recall a preset that is not saved, the matrix switcher responds with the error code E11.			
Save current configuration as a global preset <i>Example:</i>	<b>X4</b> , 9,	Spr <b>X4</b> ↵ Spr09↵	Command character is a comma. Save current ties as preset 9.
Recall a global preset <i>Example:</i>	<b>X4</b> . 5.	Rpr <b>X4</b> ↵ Rpr05↵	Command character is a period. Recall preset 5 to become the current configuration.
<b>Front panel lock (executive mode)</b>			
Lock front panel functions	1X	Exe1↵	
Unlock front panel functions	0X	Exe0↵	
View lock status	X	<b>X5</b> ↵	
<b>NOTE:</b> <ul style="list-style-type: none"> <li><b>X2</b> = Output number</li> <li><b>X3</b> = Mute</li> <li><b>X4</b> = Global preset number</li> <li><b>X5</b> = Lock</li> <li>01 – maximum number of outputs for your configuration</li> <li>1 = mute on, 0 = mute off</li> <li>01 – 64</li> <li>0 = off (unlocked)      1 = on (locked)</li> </ul>			

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
<b>Information requests</b>			
Information request	I	V $\overline{x6}$ X $\overline{x7}$ •A $\overline{x6}$ X $\overline{x7}$ •S $\overline{x8}$ <sup>1</sup> $\overline{x8}$ <sup>2</sup> ... $\overline{x8}$ <sup>n</sup> ←	V $\overline{x6}$ X $\overline{x7}$ shows the number of available inputs and outputs for this configuration. A $\overline{x6}$ X $\overline{x7}$ has no meaning for this product. S $\overline{x8}$ <sup>1</sup> $\overline{x8}$ <sup>2</sup> ... $\overline{x8}$ <sup>n</sup> shows the board type installed in each slot. n is 4 (FOX Matrix 3200) or 9 (FOX Matrix 7200).
Request part number	N	$\overline{x9}$ ←	
Request part number and board configuration	*N	$\overline{x9}$ $\overline{x8}$ <sup>1</sup> $\overline{x8}$ <sup>2</sup> $\overline{x8}$ <sup>3</sup> $\overline{x8}$ <sup>4</sup> $\overline{x8}$ <sup>5</sup> $\overline{x8}$ <sup>6</sup> $\overline{x8}$ <sup>7</sup> $\overline{x8}$ <sup>8</sup> $\overline{x8}$ <sup>9</sup> ←	4 (FOX Matrix 3200) or 9 (FOX Matrix 7200) $\overline{x8}$ s.
Query firmware version	Q	$\overline{x10}$ ←	
<i>Example:</i>	Q	1.23←	The factory-installed firmware version is 1.23 (sample value only).

**NOTE:**  $\overline{x6}$  = Inputs Total number of inputs for this switcher  
 $\overline{x7}$  = Outputs Total number of outputs for this switcher  
 $\overline{x8}$  = Board installed  
 $\overline{x8}$ <sup>1</sup> = No board installed  
 $\overline{x8}$ <sup>2</sup> = 8x8 multimode board  
 $\overline{x8}$ <sup>3</sup> = 8x8 singlemode board  
 $\overline{x8}$ <sup>4</sup> = 3G/HD-SDI/SDI board  
 $\overline{x8}$ <sup>5</sup> = 3 = 3G/HD-SDI/SDI board  
 $\overline{x8}$ <sup>6</sup> = x = Unknown board or mix of transceivers installed  
 $\overline{x8}$ <sup>7</sup> = 3 = 3G/HD-SDI/SDI board  
 $\overline{x8}$ <sup>8</sup> = x = Unknown board or mix of transceivers installed  
 $\overline{x8}$ <sup>9</sup> = x = Unknown board or mix of transceivers installed  
 $\overline{x9}$  = Part number  
 $\overline{x10}$  = Firmware version number to second decimal place (x.xx)  
 $\overline{x8}$ <sup>1</sup> = No board installed  
 $\overline{x8}$ <sup>2</sup> = 8x8 multimode board  
 $\overline{x8}$ <sup>3</sup> = 8x8 singlemode board  
 $\overline{x8}$ <sup>4</sup> = 3G/HD-SDI/SDI board  
 $\overline{x8}$ <sup>5</sup> = 3 = 3G/HD-SDI/SDI board  
 $\overline{x8}$ <sup>6</sup> = x = Unknown board or mix of transceivers installed  
 $\overline{x8}$ <sup>7</sup> = 3 = 3G/HD-SDI/SDI board  
 $\overline{x8}$ <sup>8</sup> = x = Unknown board or mix of transceivers installed  
 $\overline{x8}$ <sup>9</sup> = x = Unknown board or mix of transceivers installed  
 $\overline{x9}$  = Part number  
 $\overline{x10}$  = Firmware version number to second decimal place (x.xx)

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
<b>IP setup</b>			
Set IP address	$\overline{Esc}$ $\overline{x11}$ CI←	Ipi $\overline{x11}$ ←	
Read IP address	$\overline{Esc}$ CI←	$\overline{y10}$ ←	
Set DHCP on or off	$\overline{Esc}$ $\overline{x12}$ DH←	Idh $\overline{x12}$ ←	
Read DHCP on/off status	$\overline{Esc}$ DH←	$\overline{x12}$ ←	
Set verbose mode	$\overline{Esc}$ $\overline{y13}$ CV←	Vrb $\overline{y13}$ ←	
Read verbose mode	$\overline{Esc}$ CV←	$\overline{y13}$ ←	
Configure current port timeout	$\overline{Esc}$ $\overline{0}$ * $\overline{y14}$ TC←	Pti $\overline{0}$ * $\overline{y14}$ ←	
Read current port timeout	$\overline{Esc}$ $\overline{0}$ TC←	$\overline{y14}$ ←	
Configure global IP port timeout	$\overline{Esc}$ 1* $\overline{y14}$ TC←	Pti1* $\overline{y14}$ ←	
Read global IP port timeout	$\overline{Esc}$ 1TC←	$\overline{y14}$ ←	

**NOTE:**  $\overline{x11}$  = IP address  
 $\overline{x12}$  = DHCP  
 $\overline{x13}$  = Verbose mode  
 $\overline{x14}$  = Port timeout interval  
nnn.nnn.nnn.nnn  
 $\overline{0}$  = off, 1 = on  
 $\overline{0}$  = clear or 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  
1 (= 10 seconds) – 65000 (default is 30 = 300 seconds = 5 minutes)

## Matrix Switchers Control Program

Another way to operate the switcher is via the Matrix Switchers Control Program, which runs on computers that use the Windows® operating system. This program is available on the Extron website. You can run this program from a PC connected to the rear panel Remote RS-232/RS-422 port (item C on page 8), LAN port (item D on page 8), or front panel configuration port (item A on page 10) on the switcher.

**NOTE:** For details on operating the program, see the “Matrix Software” section in the *FOX Matrix 3200 and FOX Matrix 7200 User Guide*.

### Installing the Program

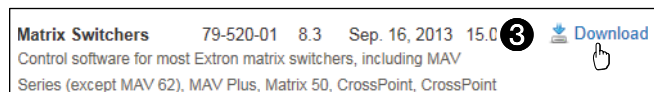
The Matrix Switchers Control Program is available on the Extron website. Download and install all programs as follows:

1. Visit [www.extron.com](http://www.extron.com) and click the **Download** tab.



2. Click the **Software** link.
3. Select the desired software to download and click **Download**.

**TIP:** Jump to the nearest page of downloads by clicking the desired filtering letter.



The Download Center dialog box appears (see figure 6, on the next page).

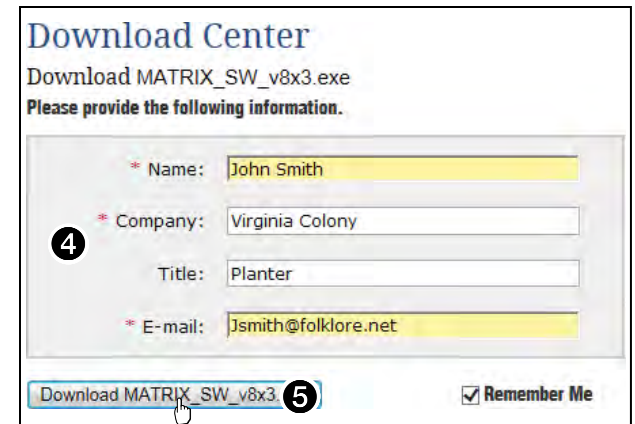
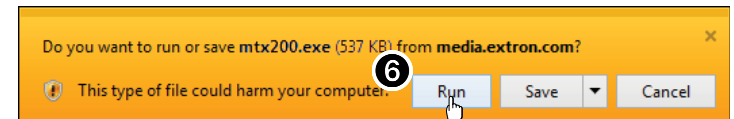


Figure 6. Download Center Dialog Box

4. Enter the requested personal information.

**TIP:** Click **Remember Me** to eliminate step 4 in future downloads.

5. Click **Download** to copy the software or firmware to your computer. The download warns you about downloads and asks you to confirm it.



6. Click **Run** to confirm that you want to run the installation.
7. Follow the on-screen instructions. The installation program creates the necessary directories and folders and installs the programs.

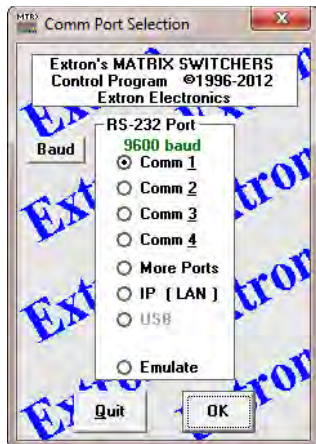
### LAN port Connection

The first time you connect your PC to the switcher via the LAN port, you may need to change the default settings (IP address, subnet mask, and [optional] administrator name and password) on the controller (see the "Configuring for Network Communication" in the *FOX Matrix 3200 and FOX Matrix 7200 User Guide*).

### Starting the Program

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

The Comm Port Selection window appears.



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

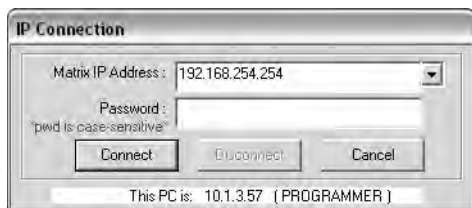
**NOTE:** For a comm port, check the baud rate displayed in the Comm Port Selection window. If you need to change the baud rate, click the **Baud** button and double-click the desired baud rate.

9600 baud  
19200 baud  
38400 baud  
115200 baud

- Click **OK**.

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

- If you selected **IP [LAN]** in step 2, the IP Connection window appears.



- 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.

- If the switcher is password-protected, enter the appropriate administrator or user password in the **Password** field.
- Click **Connect**. The Matrix Switchers Control Program is ready for operation.

## Built-in HTML Pages

Another way to configure and operate the switcher is via its factory-installed HTML pages, which are always available and cannot be erased or overwritten. The HTML pages that are pre-loaded on the switcher are accessible through its LAN port (item ④ on page 8), connected via a LAN or WAN, using a web browser such as Microsoft® Internet Explorer®.

## Configuring for Network Communication

The first time you connect a PC to a switcher via its LAN port, you may need to temporarily change the IP settings of the PC in order to communicate with the controller. Then you must change the default settings of the controller (IP address, subnet mask, and [optional] administrator name and password) in order to use the unit on an intranet (LAN) or on the Internet. After you have set up the FOX matrix switcher for network communication, you can reset the PC to its original network configuration.

**NOTE:** The computer and the switcher must both be connected to the same subnet on a LAN (using a straight-through cable). Alternatively, you can use a crossover Ethernet cable to connect the controller directly to the computer.

Use the ARP command to configure the IP address as follows:

- Obtain a valid IP address for the FOX matrix switcher from the network administrator.
- Obtain the MAC address (UID number) of the switcher from the label on its rear panel. The MAC address should have this format: 00-05-A6-xx-xx-xx.
- If the switcher has never been configured and is still set for factory defaults, go to step 4. If not, perform a Mode 4 system reset. For detailed information on reset modes, refer to "Reset Operations" in the *FOX Matrix 3200 and FOX Matrix 7200 User Guide*.

**NOTE:** The switcher must be configured with the factory default IP address (192.168.254.254) before the ARP command is executed, as described below.

- At the PC, access the MS-DOS® command prompt, then enter the arp -s command. Type in the desired new IP address for the unit (obtained in step 1) and the MAC address of the unit (from the rear panel of the unit). For example:  
arp -s 10.13.197.7 00-05-A6-03-69-B0 and then press <Enter>.

After receiving the arp -s command, the controller changes to the new address and starts responding to the ping requests, as described in step 5.

**NOTE:** You must ping the FOX matrix switcher as shown in step 5 for the IP address change to take place. The response should show the new IP address, as shown in the following figure.

- Execute a ping command by entering "ping" followed by a space and the new IP address at the command prompt. For example:  
ping 10.13.197.7

```
C:\>ping 10.13.197.7
```

```
Pinging 10.13.197.7 with 32 bytes of data:
```

```
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
```

```
Ping statistics for 10.13.197.7:
```

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

**NOTE:** You can reconnect using either Telnet or a Web browser to verify that the update was successful.

- After verifying that the IP address change was successful, enter and issue the "arp -d" command at the DOS prompt. For example:  
arp -d 10.13.197.7 removes 10.13.197.7 from the ARP table  
or  
arp -d\* removes all static IP addresses from the ARP table.

## 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 "HTML Operation" section in the *FOX Matrix 3200 and FOX Matrix 7200 User Guide*.

- Start the Web browser program.
- Click in the **Address** field.
- Enter the Matrix IP address in the **Address** field.

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

- 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**, it 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**.

The switcher downloads the HTML start-up page (see figure 7). The switcher is ready for operation via HTML remote control.

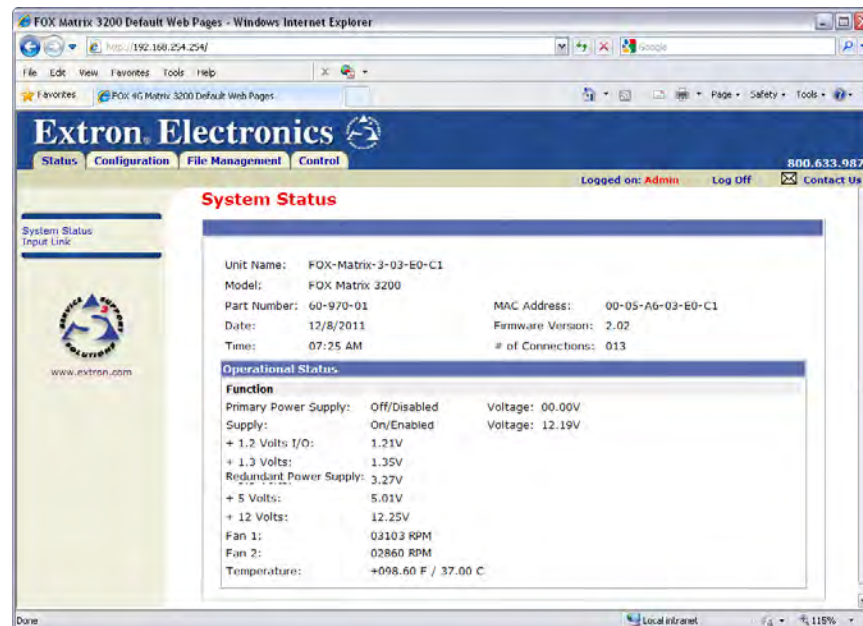


Figure 7. HTML Startup Page



# Maintenance and Modifications

This section describes repairing and reconfiguring the FOX matrix switchers by replacing components. Topics that are covered include:

[Removing and Installing a Board or Blank Panel](#)

[Removing and Installing a Power Supply Module](#)

[Removing and Installing a Fan Module](#)

## Removing and Installing a Board or Blank Panel

Circuit boards can be added or removed to increase or decrease the I/O configuration (size) of the switcher.

**WARNING:** The fiber optic I/O boards of the FOX matrix switchers output continuous invisible light, which may be harmful to the eyes; use with caution.

**Do not look** into the fiber optic cable connectors or into the fiber optic cables themselves.

Plug the attached dust caps into the optical transceivers when the fiber cable is unplugged.

**AVERTISSEMENT:** L'appareil émet une lumière invisible en continu, à utiliser avec précaution.

**Ne regardez pas** dans les connecteurs de câble fibre optique sur le panneau arrière ou dans les câbles fibre optique eux-mêmes.

Branchez les protections contre la poussière dans l'ensemble émetteur/récepteur lorsque le câble fibre optique est débranché.

### NOTES:

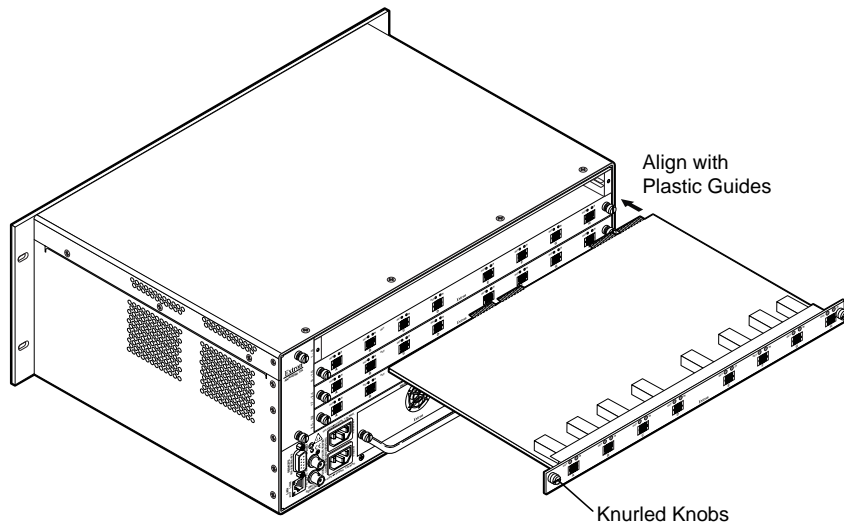
- On a fiber optic I/O board as delivered from Extron, all transceiver modules are configured the same: either all multimode or all singlemode. You can mix multimode and singlemode fiber optic I/O boards in a FOX matrix switcher, but ensure that you connect the proper transmission mode fiber cables to the board.
- Typically, singlemode fiber has a yellow jacket and multimode cable has an orange or cyan jacket.
- For proper cooling and air flow, boards or blank panels should be installed in all locations during normal switcher operations.
- See [A Note on I/O Boards](#) on page 5 to understand the different arrangement of connectors on the I/O boards.
- The FOX Matrix Switcher components that are user-replaceable are hot-swappable. You do not need to power down the switcher to remove or replace a component.

Remove and replace and I/O board or blank panel as follows:

1. **For a board**, disconnect any connected cables.
2. Rotate the left and right knurled knobs to completely loosen the captive screws.
3. Gently pull on the knurled knobs/captive screws to loosen the board or panel from the backplane.
4. Slide the board or panel out of the chassis (below).

#### ATTENTION:

- Do not touch the electronic components or the connectors on the backplane or on the circuit boards without being electrically grounded. Handle circuit boards by their edges only. Electrostatic discharge can damage circuits, even if you cannot feel, see, or hear it.
- Ne pas toucher les composants électroniques ou les connecteurs sur la carte mère ou sur les circuits imprimés sans être électriquement relié à la terre. Manipuler les circuits imprimés en les tenant seulement par leurs bords. Les décharges électrostatiques (ESD) peuvent endommager l'équipement, même si vous ne pouvez pas le sentir, le voir ou l'entendre.



5. Place the removed board on an anti-static surface or in an anti-static container.
6. **For an I/O board**, orient the board to be installed so that transceiver module A (fiber board) or input BNC A (3G/HD-SDI/SDI board) is on the left and transceiver module or output BNC H is on the right.
7. **For an I/O board**, align the board with the left and right chassis guides.

8. Gently slide the board or blank panel into the enclosure. For an I/O board, slide the board toward the front panel until it meets resistance.
9. Gently seat the board or panel in the backplane.
10. Use a screwdriver to tighten the left and right knurled knob captive screws to lock the board or panel in place.

## Removing and Installing a Power Supply Module

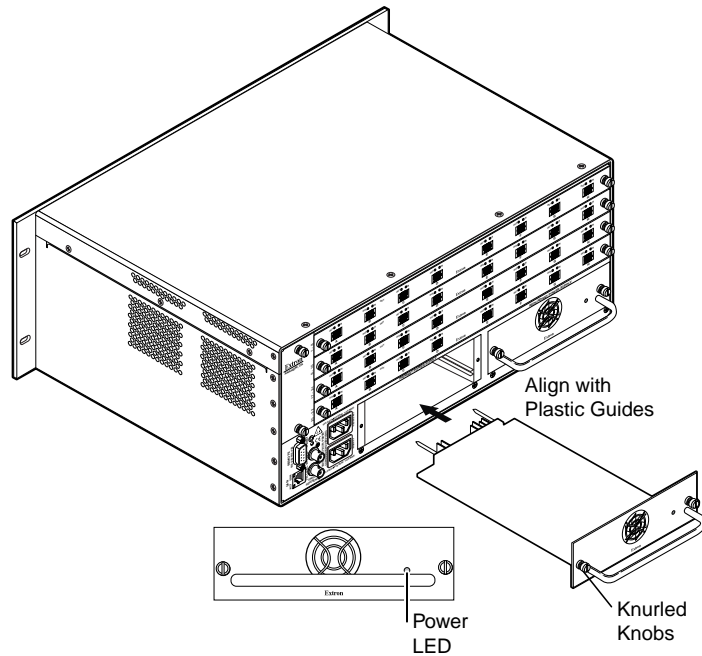
The two power supply modules (primary power supply and redundant power supply) are identical. Each power supply module has a 2-color LED, visible on the rear panel, that indicates the status of the power supply outputs. If the LED is lit green, the power supply is operating normally. If the LED is lit red, the supply has failed and should be replaced at the earliest opportunity. LEDs with identical meaning are also on the front panel.

#### ATTENTION:

- This unit uses double pole/neutral fusing. Do not operate the equipment with only one power supply cord connected.
- Cette unité utilise double pôles/fusion neutre. N'utilisez pas l'équipement avec seulement un cordon d'alimentation connecté.

**NOTE:** Power supply modules are not interchangeable between models.

1. Rotate the left and right knurled knobs to completely loosen the captive screws.
2. Gently pull on the handle to loosen the power supply from the backplane.
3. Slide the power supply out of the chassis.
4. Orient the power supply module to be installed with the LED to the right.
5. Align the flanges on the power supply module with the left and right power supply guides (see the next page).
6. Gently slide the power supply module into the enclosure until the power supply meets resistance.

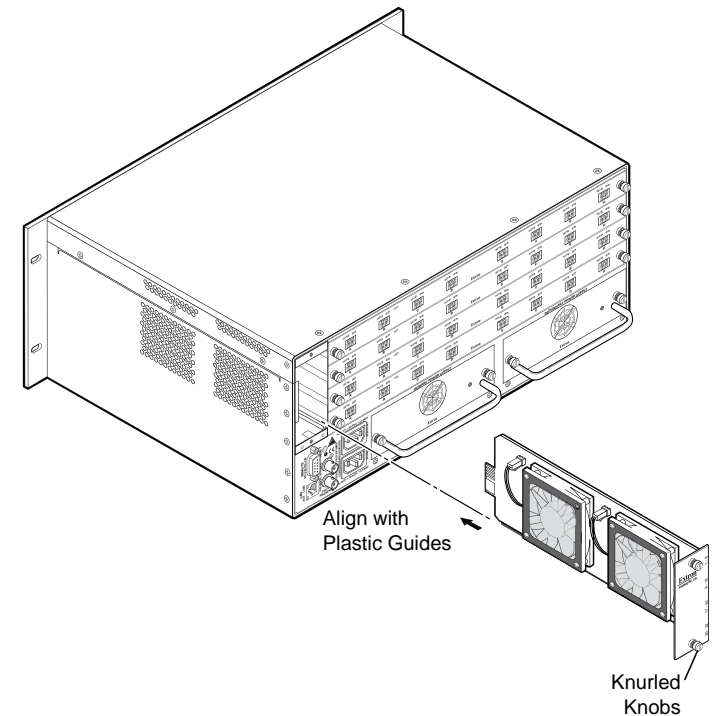


7. Gently seat the power supply in the backplane.
8. Use a screwdriver to tighten the left and right knurled knob captive screws to lock the power supply in place.

## Removing and Installing a Fan Module

The FOX Matrix 3200 has a single fan module. The FOX Matrix 7200 has two identical fan modules. If a fan fails, it should be replaced at the earliest opportunity.

1. Rotate the top and bottom knurled knobs to completely loosen the captive screws.
2. Gently pull on the screws to loosen the fan from the backplane.
3. Slide the fan out of the chassis.
4. Orient the fan to be installed so that the printing on the back of the panel is right-side up.
5. Align the flanges on the fan with the top and bottom fan guides.
6. Gently slide the fan into the enclosure until the fan meets resistance.
7. Gently seat the fan in the backplane.
8. Use a screwdriver to tighten the top and bottom knurled knob captive screws to lock the fan in place.



## 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  
1001 East Ball Road  
Anaheim, CA 92805  
U.S.A.

**Europe and Africa:**

Extron Europe  
Hanzeboulevard 10  
3825 PH Amersfoort  
The Netherlands

**Asia:**

Extron Asia  
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

**China:**

Extron China  
686 Ronghua Road  
Songjiang District  
Shanghai 201611  
China

**Middle East:**

Extron Middle East  
Dubai Airport Free Zone  
F12, PO Box 293666  
United Arab Emirates, Dubai

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.

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<b>Extron USA - West</b> +1.714.491.1500 +1.714.491.1517 FAX	<b>Extron USA - East</b> +1.919.850.1000 +1.919.850.1001 FAX	<b>Extron Japan</b> +81.3.3511.7655 +81.3.3511.7656 FAX	<b>Extron China</b> +4000.EXTRON +4000.398766 Inside China Only
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