

# SMX SYSTEM MULTIMATRIX

MODULAR MULTI-PLANE  
MATRIX SWITCHER

Truly modular, field-configurable  
matrix switching system

- ▶ Field reconfigurable and updatable card cage frame design
- ▶ Selection of matrix cards in most common signal types and I/O sizes:
  - HDMI
  - DVI
  - 3G HD-SDI
  - Fiber Optic
  - Wideband RGB
  - VGA
  - S-Video
  - Composite Video
  - Stereo Audio
- ▶ RS-232 and IP Link® Ethernet control



# Introduction

The **SMX System MultiMatrix** Series of multi-plane matrix switchers combines multiple, independent digital and analog matrix switchers in a truly modular, field-configurable frame. It supports up to 10 independent matrix switchers, all under a single point of control.



The SMX combines the proven reliability and high performance of Extron's popular CrossPoint, MAV Plus, HDXP Plus, and MX Series matrix switchers with the efficiency of a modular matrix switcher design. The SMX System is an ideal choice for

medical imaging systems, conference and training facilities, and other mid-sized applications that require the switching of different signal types, a small footprint, and a cost-effective upgrade path for ongoing I/O or signal format changes.

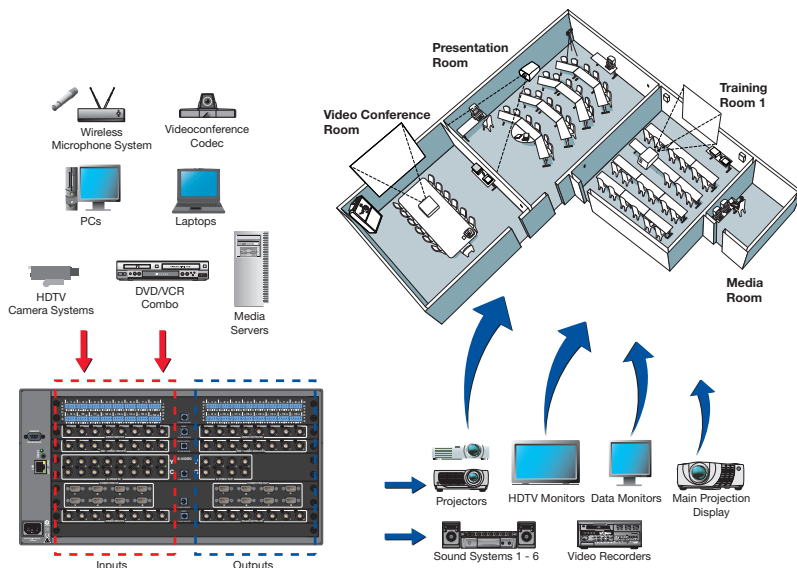
The heart of the SMX System MultiMatrix is a field reconfigurable frame designed to facilitate the installation of new and replacement matrix switcher boards with a minimum of time and labor. The unique, hot-swappable card-cage design quickly aligns each matrix board on its own horizontal plane. Matrix boards can be installed without switcher disassembly, new firmware, or even the need to remove a previously installed SMX switcher from the rack.

SMX frames are available in four sizes: 2U, 3U, 4U, and 5U, providing four, six, eight, and ten matrix boards slots, respectively. Simply select the frame and combination of digital, wideband, analog, and stereo audio boards that best fit the application. SMX matrix boards can be installed in any order. As A/V signal routing needs change over time, matrix boards can be added or changed to adapt the SMX to new system requirements.

SMX frames are also available with a redundant power supply for mission-critical applications. Power supplies are configured to automatically switch over to the spare, hot power supply in the event that the primary power supply fails, ensuring no loss of operation. SMX power supplies, internal operating temperature, and other key functions are continuously monitored by Extron's IP Link®, an integrated, high performance Web server that provides technical support personnel with the ability to receive critical service information via email through any authorized Web client.

In a conference center application, such as the one depicted below, A/V signal routing can require five or more separate matrix switchers - each with its own control panel and power supply. In addition to a large, complex A/V equipment rack, such a system design also requires a very complex control system, with a separate control port for each matrix switcher. With the SMX System MultiMatrix, these same, varied signal routing tasks can be consolidated, with one control point for the entire A/V signal routing system.

The SMX System MultiMatrix also requires significantly less rack space than a traditional, multiple switcher system. Many of the matrix boards require only one-half unit of rack space, allowing two separate switchers to be mounted in the same space as most small, standalone matrix switchers.



**Extron**  
**SMX System MultiMatrix**  
Modular Multi-Plane Matrix Switcher

# Overview

### Single Point of Control

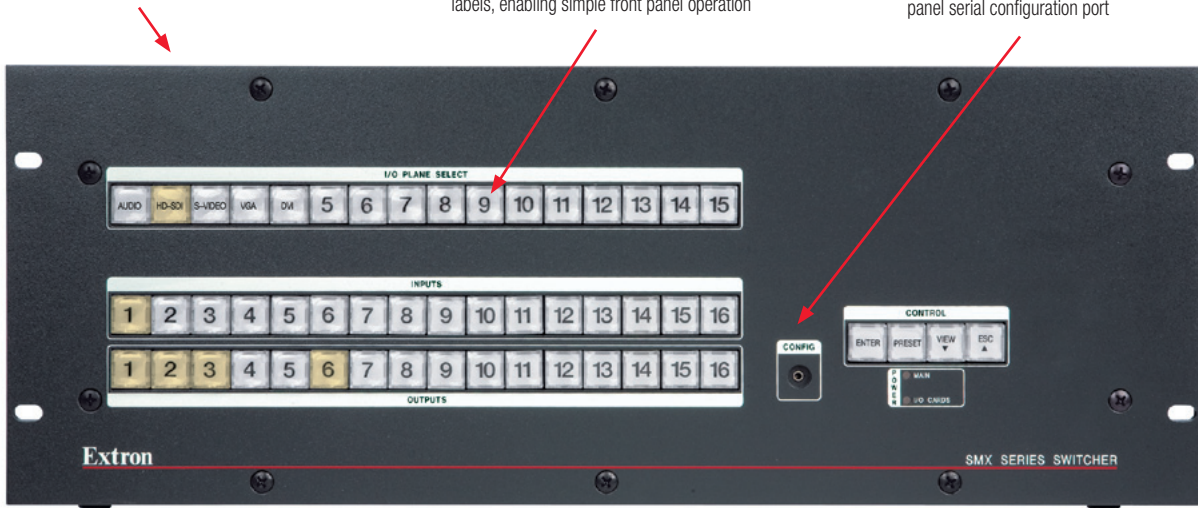
Select any of up to 10 separate switchers from the front control panel, RS-232, or IP Link

### Back-lit Input/Output Selection Buttons

I/O selection and crosspoint ties are easily identifiable using back-lit buttons with clear overlay labels, enabling simple front panel operation

### Configuration Port

The SMX MultiMatrix can be conveniently set up and configured after installation, using the front panel serial configuration port



Front - SMX 400 - 4U with 8 slots



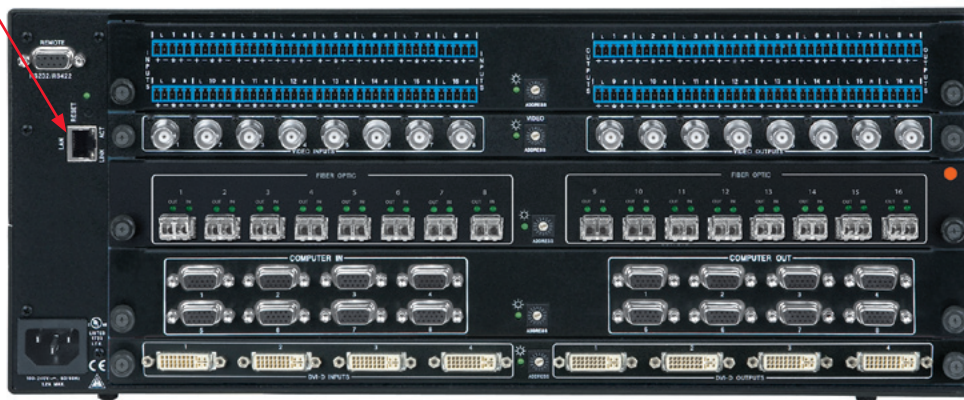
IP Link Ethernet control enables the SMX to be managed and proactively monitored from any authorized Web client

### Hot-swappable Back Plane

Matrix boards can be installed or removed at any time without disrupting other switcher planes

### Truly Modular and Field-Configurable

Modular, multi-plane chassis design supports multiple, independent switchers in any configuration



Back - SMX 400 - 4U with 8 slots



SMX 200 - 2U with 4 slots



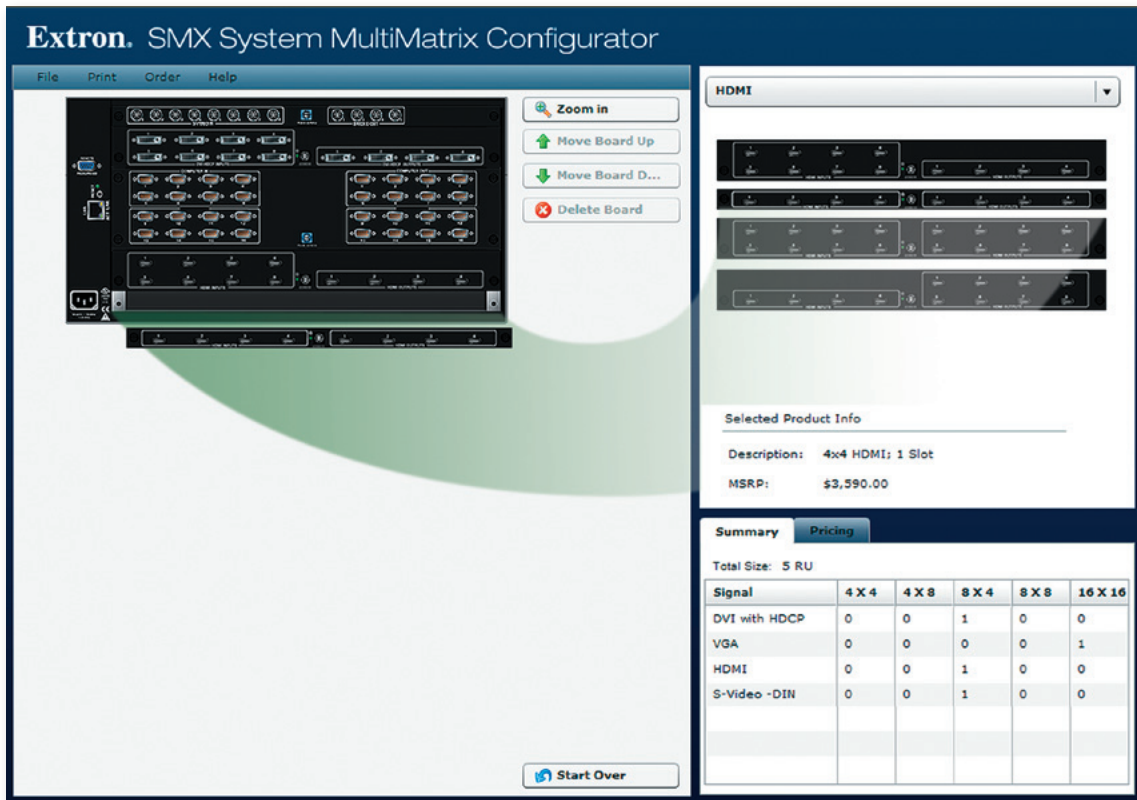
SMX 300 - 3U with 6 slots



SMX 500 - 5U with 10 slots

# Online Configurator

The SMX Matrix Configurator is an online configuration utility that allows you to virtually configure different SMX switchers, with the click of a mouse, using the Extron Web site. The dynamic, graphical user interface makes system customization easy. As you configure each SMX, a running price total and bill of materials reflects the changes in your system design. You can save system designs for later recall, print the designs and bills of material, or export them to Microsoft Excel®. Extron resellers can order configured systems online through the Extron Reseller-only Web site. This simple yet powerful configuration tool makes it easy to create and purchase an SMX System MultiMatrix for virtually any analog or digital signal routing need.



**The Web-Based SMX Matrix Configurator features:**

- **Point-and-click or drag-and-drop simplicity** – Simply drag matrix boards into the frame and click to rearrange or delete
- **Dynamic parts list and price total** – Automatically maintains a list of the SMX frame and matrix boards selected, and a running total of the as-configured price
- **Single, as-built part number** – Provides a unique identifier for each SMX configuration you order, simplifying the process for future orders of the same configuration
- **Save and Recall** – Creates an as-configured drawing and bill of materials for system documentation of client approval requirements
- **Export to Excel** – SMX pricing and materials data can be exported to Microsoft Excel® for billing, tracking, or archive purposes
- **Order online** – Once configured to your specifications, the SMX System MultiMatrix can be ordered online through the Extron Reseller-only Web site



As each SMX is configured, a running price total and price list reflects the changes in the system design. System designs can be saved for later recall, printed, or exported to Microsoft Excel®. Extron resellers can order configured systems online through the Extron Reseller-only Web site.

# Matrix Board Removal and Replacement

The SMX System MultiMatrix combines multiple, independent digital and analog matrix switchers in a modular, field-configurable frame system. Matrix boards are hot-swappable and can be installed, removed, or replaced in 3 easy steps, without disrupting the operation of other switcher planes.



## Step 1

**For new installations:** Loosen the screws retaining the cover plate over the slot(s) that will receive the new matrix board. Remove the cover plate.

**To remove a previously installed matrix board:** Disconnect the cables from the board. Loosen the screws retaining the matrix board and remove it from the frame.



Step 1

## Step 2

Slide in the new matrix board. Make sure that the new board is fully seated. Tighten the screws just until snug against the plate and attach the cables.

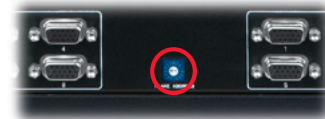


Step 2

## Step 3

Set the rotary switch, located in the center of the matrix board, to the number reflecting the switching plane for the new matrix board.

**Note:** For RGBHV systems, set the rotary switch to the same plane number for each board. This will allow the boards to switch as a single switcher.



Step 3

## Initializing the new matrix board

The SMX control panel firmware automatically recognizes the new matrix board or boards without disrupting the operation of other switching planes. The auto-recognition sequence takes approximately 45 seconds, after which the new matrix board is ready for use.







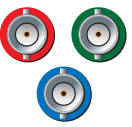
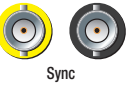
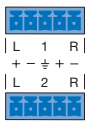
SMX 4U

# SMX Matrix Boards

Matrix switcher boards are available to support a wide variety of video and audio signal formats. The SMX System MultiMatrix supports up to 10 independent matrix switchers, all under a single point of control.



## SMX ANALOG MATRIX SWITCHER BOARDS

Signal Type	Description	I/O Size		
 Composite Video	<b>Composite Video Matrix Switcher Boards</b> <ul style="list-style-type: none"> <li>• 150 MHz (-3 dB) video bandwidth, fully loaded</li> <li>• NTSC, PAL, and SECAM compatible</li> <li>• Video input signal detection</li> <li>• Vertical interval switching and genlock</li> <li>• Use three boards for analog component video up to 720p and 1080i</li> </ul>	<b>Model</b> SMX 84 V SMX 88 V SMX 1616 V	<b>Version</b> 8x4 Composite video; 1 Slot 8x8 Composite video; 1 Slot 16x16 Composite video; 2 Slots	<b>Part#</b> 70-591-02 70-591-03 70-591-04
 S-video	<b>S-video Matrix Switcher Boards</b> <ul style="list-style-type: none"> <li>• 150 MHz (-3 dB) video bandwidth, fully loaded</li> <li>• NTSC, PAL, and SECAM compatible</li> <li>• Video input signal detection</li> </ul>	<b>Model</b> SMX 84 SV SMX 88 SV SMX 1616 SV	<b>Version</b> 8x4 S-video (DIN); 1 Slot 8x8 S-video (DIN); 1 Slot 16x16 S-video (DIN); 2 Slots	<b>Part#</b> 70-592-02 70-592-03 70-592-04
 S-video	<b>S-video (2 BNC) Matrix Switcher Boards</b> <ul style="list-style-type: none"> <li>• 150 MHz (-3 dB) video bandwidth, fully loaded</li> <li>• NTSC, PAL, and SECAM compatible</li> <li>• Video input signal detection</li> </ul>	<b>Model</b> SMX 84 YC SMX 88 YC SMX 1616 YC	<b>Version</b> 8x4 S-video (2 BNC); 2 Slots 8x8 S-video (2 BNC); 2 Slots 16x16 S-video (2 BNC); 4 Slots	<b>Part#</b> 70-593-02 70-593-03 70-593-04
 VGA	<b>Wideband VGA Matrix Switcher Boards</b> <ul style="list-style-type: none"> <li>• 350 MHz (-3 dB) RGB video bandwidth</li> <li>• Triple Action Switching™ for RGB delay</li> <li>• ADSP™ Advanced Digital Sync Processing technology</li> <li>• DSVP™ Digital Sync Validation Processing</li> </ul>	<b>Model</b> SMX 84 VGA SMX 88 VGA SMX 1616 VGA	<b>Version</b> 8x4 Wideband (15-pin HD); 2 Slots 8x8 Wideband (15-pin HD); 2 Slots 16x16 Wideband (15-pin HD); 4 Slots	<b>Part#</b> 70-596-02 70-596-03 70-596-04
 Ultra-Wideband Video	<b>Ultra Wideband Matrix Switcher Boards</b> <ul style="list-style-type: none"> <li>• 400 MHz (-3 dB) RGB video bandwidth</li> <li>• Triple Action Switching™ for RGB Delay</li> <li>• Use three boards for HD analog component video up to 1080p</li> </ul>	<b>Model</b> SMX 84 WB SMX 88 WB SMX 1616 WB	<b>Version</b> 8x4 Wideband (BNC); 1 Slot 8x8 Wideband (BNC); 1 Slot 16x16 Wideband (BNC); 2 Slots	<b>Part#</b> 70-594-02 70-594-03 70-594-04
 Sync	<b>Sync Matrix Switcher Boards</b> <ul style="list-style-type: none"> <li>• Designed for RGBHV matrix switching applications</li> <li>• ADSP™ Advanced Digital Sync Processing technology</li> <li>• DSVP™ Digital Sync Validation Processing</li> </ul>	<b>Model</b> SMX 88 SYNC SMX 1616 SYNC SMX 88 H+V	<b>Version</b> 8x8 Single-channel Sync; 1 Slot 16x16 Single-channel Sync; 2 Slots 8x8 H+V Sync; 2 Slots	<b>Part#</b> 70-595-03 70-595-04 70-595-05
 Stereo Audio	<b>Stereo Audio Matrix Switcher Boards</b> <ul style="list-style-type: none"> <li>• Switches balanced or unbalanced stereo audio signals</li> <li>• Audio input gain and attenuation</li> <li>• Audio output volume adjustment and muting</li> <li>• Audio breakaway</li> </ul>	<b>Model</b> SMX 84 A SMX 88 A SMX 1616 A	<b>Version</b> 8x4 Stereo Audio; 1 Slot 8x8 Stereo Audio; 1 Slot 16x16 Stereo Audio; 2 Slots	<b>Part#</b> 70-599-02 70-599-03 70-599-04

# SMX Matrix Boards

## SMX DIGITAL MATRIX SWITCHER BOARDS

Signal Type	Description	I/O Size		
 <p>HD-SDI</p>	<p><b>Multi-Rate Serial Digital Matrix Switcher Boards</b></p> <ul style="list-style-type: none"> <li>Complies with all SMPTE and ITU standards for SDI and HD-SDI Serial Digital video</li> <li>Supports data rates from 19 Mbps to 2.97 Gbps, including 3G-SDI</li> <li>Input equalization to 300 feet (100 m) or more</li> <li>Automatic reclocking</li> </ul>	<p><b>Model</b></p> <p>SMX 44 HD-SDI SMX 84 HD-SDI SMX 88 HD-SDI SMX 1616 HD-SDI</p>	<p><b>Version</b></p> <p>4x4 Multi-Rate SDI; 1 Slot 8x4 Multi-Rate SDI; 1 Slot 8x8 Multi-Rate SDI; 1 Slot 16x16 Multi-Rate SDI; 2 Slots</p>	<p><b>Part#</b></p> <p>70-597-01 70-597-02 70-597-03 70-597-04</p>
 <p>DVI</p>	<p><b>DVI Matrix Switcher Boards</b></p> <ul style="list-style-type: none"> <li>Single-link DVI-D data rates to 165 MHz</li> <li>Supports computer-video to 1920x1200, HDTV to 1080p</li> <li>EDID Minder automatically manages display ID communication between source and display</li> <li>Provides +5VDC, 250mA power on each output for external peripheral devices</li> <li>Input cable equalization to 50' (15 m) at 1920x1200 on Extron DVID SL Pro cable</li> <li>Automatic output reclocking</li> </ul>	<p><b>Model</b></p> <p>SMX 44 DVI SMX 48 DVI SMX 84 DVI SMX 88 DVI</p>	<p><b>Version</b></p> <p>4x4 DVI-D; 1 Slot 4x8 DVI-D; 2 Slots 8x4 DVI-D; 2 Slots 8x8 DVI-D; 2 Slots</p>	<p><b>Part#</b></p> <p>70-598-01 70-598-05 70-598-02 70-598-03</p>
 <p>DVI Pro</p>	<p><b>HDCP Compliant DVI Matrix Switcher Boards</b></p> <ul style="list-style-type: none"> <li>HDCP compliant</li> <li>Single-link DVI-D data rates to 225 MHz</li> <li>Also switches HDMI 1.3 compatible signals</li> <li>Supports computer-video to 1920x1200, HDTV to 1080p</li> <li>EDID Minder automatically manages display ID communication between source and display</li> <li>Provides +5VDC, 250mA power on each output for external peripheral devices</li> <li>Input cable equalization to 50' (15 m) at 1920x1200 on Extron DVID SL Pro cable</li> <li>Automatic output reclocking</li> </ul>	<p><b>Model</b></p> <p>SMX 44 DVI Pro SMX 48 DVI Pro SMX 84 DVI Pro SMX 88 DVI Pro</p>	<p><b>Version</b></p> <p>4x4 DVI-D/HDCP; 1 Slot 4x8 DVI-D/HDCP; 2 Slots 8x4 DVI-D/HDCP; 2 Slots 8x8 DVI-D/HDCP; 2 Slots</p>	<p><b>Part#</b></p> <p>70-598-11 70-598-15 70-598-12 70-598-13</p>
 <p>HDMI</p>	<p><b>HDMI Matrix Switcher Boards</b></p> <ul style="list-style-type: none"> <li>HDCP compliant</li> <li>HDMI 1.3 compatible</li> <li>Supports computer-video to 1920x1200, HDTV to 1080p</li> <li>EDID Minder automatically manages display ID communication between source and display</li> <li>Provides +5VDC, 250mA power on each output for external peripheral devices</li> <li>Input cable equalization to 50' (15 m) at 1920x1200 on Extron HDMI Pro cable</li> <li>Automatic output reclocking</li> </ul>	<p><b>Model</b></p> <p>SMX 44 HDMI SMX 48 HDMI SMX 84 HDMI SMX 88 HDMI</p>	<p><b>Version</b></p> <p>4x4 HDMI; 1 Slot 4x8 HDMI; 2 Slots 8x4 HDMI; 2 Slots 8x8 HDMI; 2 Slots</p>	<p><b>Part#</b></p> <p>70-773-01 70-773-05 70-773-02 70-773-03</p>
 <p>Fiber Optic</p>	<p><b>Fiber Optic Matrix Switcher Boards</b></p> <ul style="list-style-type: none"> <li>Fully compatible with Extron FOX Series Fiber Optic Extender product line</li> <li>High speed digital switching up to 4.25 Gbps</li> <li>Input video signal detection</li> <li>Alarm notification for input fiber link loss</li> <li>Industry-standard LC connectors</li> <li>MM - Multimode and SM - Singlemode versions available</li> </ul>	<p><b>Model</b></p> <p>SMX 88 FOX 4G MM SMX 88 FOX 4G SM SMX 1616 FOX 4G MM SMX 1616 FOX 4G SM</p>	<p><b>Version</b></p> <p>8x8 Multimode; 1 Slot 8x8 Singlemode; 1 Slot 16x16 Multimode; 2 Slots 16x16 Singlemode; 2 Slots</p>	<p><b>Part#</b></p> <p>70-634-03 70-635-03 70-634-04 70-635-04</p>

# Specifications

## SMX Enclosures

### CONTROL/REMOTE – SWITCHER HOST PORTS

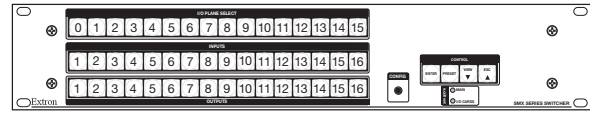
Serial host control port.....	1 bidirectional RS-232 or RS-422, rear panel 9-pin female D connector
Baud rate and protocol.....	1 bidirectional RS-232 front panel 2.5 mm mini stereo jack 9600 (default), 19200, 38400, 115200 baud (rear port only), adjustable; 8 data bits, 1 stop bit, no parity
Serial control pin configurations	
9-pin female D connector	
RS-232.....	2 = TX, 3 = RX, 5 = GND
RS-422.....	2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = Tx+
Mini stereo jack	
RS-232.....	Tip = TX, ring = RX, sleeve = GND
Ethernet control port.....	1 RJ-45 female
Ethernet data rate (for network communication)...	10/100Base-T, half/full duplex with autodetect
Ethernet protocol.....	ARP, DHCP, ICMP (ping), TCP/IP, Telnet, HTTP, SMTP
Ethernet default settings.....	Link speed and duplex level = autodetected IP address = 192.168.254.254 Subnet mask = 255.255.0.0 Default gateway = 0.0.0.0 DHCP = off
Web server.....	Up to 200 simultaneous sessions 7.0 MB nonvolatile user memory
Program control.....	Extron's control/configuration program for Windows® Extron's Simple Instruction Set (SIS™) Microsoft® Internet Explorer® ver. 6 or higher, Telnet

### GENERAL

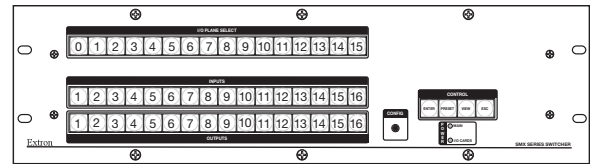
Power.....	100 VAC to 240 VAC, 50-60 Hz, 180 watts (200 watts with redundant power supply* installed), internal *A redundant power supply is available for some models.
Cooling.....	Fan, left to right (as viewed from front panel)
Rack mount.....	Yes
Enclosure type.....	Metal
Enclosure dimensions.....	(Depth excludes connectors. Width excludes rack ears.)
SMX 200 Frame.....	3.5" H x 17.0" W x 12.0" D (2U high, full rack wide) (8.9 cm H x 43.1 cm W x 30.5 cm D)
SMX 300 Frame.....	5.25" H x 17.0" W x 12" D (3U high, full rack wide) (13.3 cm H x 43.2 cm W x 30.5 cm D)
SMX 400 Frame.....	7.0" H x 17.0" W x 12" D (4U high, full rack wide) (17.8 cm H x 43.2 cm W x 30.5 cm D)
SMX 500 Frame.....	8.75" H x 17.0" W x 12" D (5U high, full rack wide) (22.2 cm H x 43.2 cm W x 30.5 cm D)
Product weight with boards installed	
SMX 200 Frame.....	16.2 lbs (7.3 kg)
SMX 300 Frame.....	18.1 lbs (8.2 kg)
SMX 400 Frame.....	20.3 lbs (9.2 kg)
SMX 500 Frame.....	23.9 lbs (10.8 kg)
Shipping weight with boards installed	
SMX 200 Frame.....	20 lbs (10 kg)
SMX 300 Frame.....	22 lbs (10 kg)
SMX 400 Frame.....	26 lbs (12 kg)
SMX 500 Frame.....	30 lbs (14 kg)
DIM weight with boards installed, all models.....	25 lbs (12 kg)
Vibration.....	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety.....	CE, c-UL, UL
EMI/EMC.....	CE, C-tick, FCC Class A, ICES, VCCI
MTBF.....	30,000 hours
Warranty.....	3 years parts and labor

NOTE: All nominal levels are at ±10%.

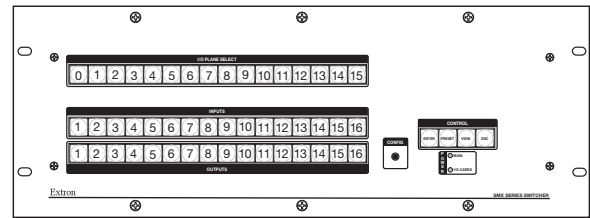
Model	Version Description	Part number
SMX 200 Frame	2U/4-Slot Frame.....	60-1021-01
SMX 200 Frame RPS	2U/4-Slot Frame with redundant power supply.....	60-1021-11
SMX 300 Frame	3U/6-Slot Frame.....	60-855-01
SMX 300 Frame RPS	3U/6-Slot Frame with redundant power supply.....	60-855-11
SMX 400 Frame	4U/8-Slot Frame.....	60-856-01
SMX 400 Frame RPS	4U/8-Slot Frame with redundant power supply.....	60-856-11
SMX 500 Frame	5U/10-Slot Frame.....	60-857-01
SMX 500 Frame RPS	5U/10-Slot Frame with redundant power supply.....	60-857-11



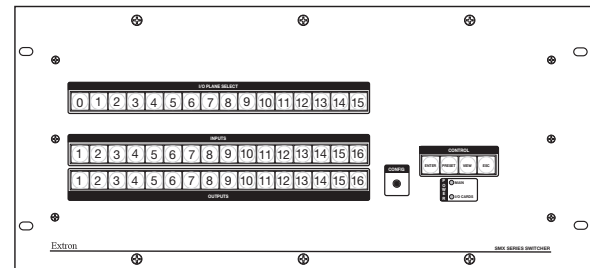
SMX 200 - 2U  
Four Slots



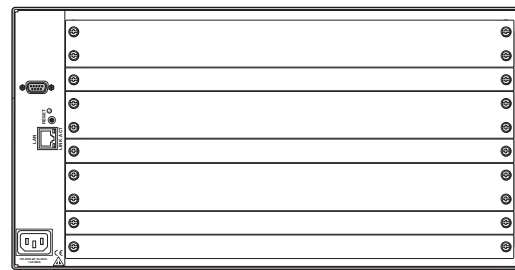
SMX 300 - 3U  
Six Slots



SMX 400 - 4U  
Eight Slots



SMX 500 - 5U  
Ten Slots



SMX 500 Back

Specifications are subject to change without notice. For full specifications see [www.extron.com](http://www.extron.com).



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