SMX System MultiMatrix Switcher • Setup Guide

This setup guide describes basic instructions for the set up of the Extron SMX System MultiMatrix switcher. The SMX matrix switcher can be controlled via the front panel controls, Simple Instruction Set (SIS™) commands, or the SMX Control Program.

The 2U frame has 4 single board slots, the 3U frame has 6 board slots, the 4U frame has 8 slots, and the 5U frame has 10 slots. Each slot supports power and control connections to the I/O boards. When a board is installed into a slot, it may use more than one slot. The slots that a board covers are not available for other I/O board installation until that multi-slot board has been removed.

This guide provides instructions for an experienced installer to set up and operate the SMX System MultiMatrix Switcher. For full installation, configuration, and operation details, see the SMX System MultiMatrix Switcher User Guide available at www.extron.com.

UL Safety Requirements

Make sure to follow the safety requirements listed below for a safe installation and operation:

1. Do no use the switcher near water.
2. Clean only with a dry cloth.
3. Do not block any ventilation openings. Install in accordance with the manufacturer instructions.
4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produces heat.
5. Do not defeat the safety purpose of either the polarized or grounding type plug.
   A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third plug are provided for the installer’s safety. If the provided plug does not fit into the outlet, consult an electrician to replace the obsolete outlet.
6. Protect the power cord from being walked on or pinched; particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
7. Only use attachments/accessories specified by the manufacturer.
8. Only use the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
9. Unplug this apparatus during lightning storms or when unused for long periods of time.
10. Refer all servicing to qualified service personnel.
   Servicing is required when the apparatus has been damaged in any way, such as the power-supply cord or plug is damaged, liquid has been spilled, or has been dropped.

Installation Steps

Step 1 — Mounting and Installing I/O Boards

Turn off all of the equipment and disconnect it from the power source. Mount the switcher; the unit can be securely mounted in a rack space using optional Extron Mounting Brackets and accessories (see the Extron website for compatible optional mounting accessories) or on top of a table using the included self-adhesive rubber feet. Neither the brackets or rubber feet come attached to the matrix switcher.
Rack Ear Mounting

To rack mount the SMX, use two screws on each end of the switcher to attach it to the rack mount (see figure 1 below).

Installing I/O Boards

The I/O boards on any unit may vary with each installation, depending on desired configuration and use. Each board has input and output connectors that are clearly marked, and a 16-position rotary switch used to set the I/O plane address.

NOTES:

- The boards are hot-swappable meaning they can be installed or removed without turning off or disconnecting the power. However, turning the power off prior to installing or removing boards is recommended.
- Use ESD precautions when installing a board to avoid damaging it. Keep the board in the anti-static bag until needed. Use proper grounding techniques during installation.

Installing new boards into an empty SMX frame

1. Remove as many blank plates from the rear of the unit as needed.
2. When ready, remove the board from the anti-static bag, taking care not to touch any of the components on the board. Slide the board into the open rear slot (see figure 2 to the right), carefully aligning it with the plastic slides in the frame. Push the board firmly into place.
3. Tighten down the screws on each end of the board.

NOTE: Use a tool to fully tighten the screws after initial installation and subsequent removal and replacement of the boards.

4. Repeat steps 1 through 3 for all boards needing installation.

NOTE: If the unit is connected via RS-232 or RS-422, it responds with Reconfig when a board is installed or replaced.
Replacing an existing I/O board
1. Remove any input and output cables for the I/O board being replaced.
2. Loosen the outer screws on the existing board and remove it from the unit.
3. Slide the replacement board firmly into place and tighten down the screws.
4. Repeat for all boards to be replaced. Any new boards are now ready for cabling.

Set Up Recommendations
Excessive heat can decrease a switcher’s lifetime. If installed in an eclosed or multi-unit rack assembly, the ambient temperature can exceed the room’s temperature. It’s recommended to install the SMX System MultiMatrix Switcher in an environment that is compatible with the maximum ambient temperature of +122 °F (+50 °C).

To minimize the chances of overheating, the switcher should be installed in a rack so air flows freely and the equipment is not compromised. Mounting on a rack also avoids dangerous conditions due to uneven mechanical loading.

Consider the effect circuit overloading can have on overcurrent protection and supply wiring. Be sure to connect the switcher to the supply circuit.

And finally, pay attention to supply connections besides direct connections to the branch circuit, such as the use of power strips. It is important to maintain reliable grounding of rack mounted equipment.

Step 2 — Rear Panel Connections

**Figure 3** SMX Rear Panel Features

1. **AC power connector** — Plug a standard IEC power cord from a 100 to 240 VAC, 50 Hz or 60 Hz power source into this receptacle.

2. **LAN Ethernet port** — Connect the switcher to an Ethernet LAN or WAN via this RJ-45 connector. The green LINK LED lights when the SMX switcher is connected to an Ethernet LAN, and the amber ACT LED flickers to indicate data is transmitting as the devices communicate. Ethernet connection allows the operator to control the switcher from a remote location.

   The ethernet connection allows the operator to control the switcher via SW or a webpage from a remote location. When connected to an LAN or WAN, a password is required to access the switcher and to be operated from a computer running a standard internet browser.

   **NOTE:** The factory configured password for all accounts on this device has been set to the device serial number. Passwords are case sensitive, if the switcher is reset, the password reverts to the default, which is no password. A new password would need to be configured to secure the device.
NOTE: Do not use standard telephone cables, as they do not support Ethernet. Do not stretch or bend cables. Transmission errors can occur. See the user guide for information on which cables to use.

3 Reset button (recessed) — Press and hold in this recessed button to reset the SMX to the default factory setting mode. The LED blinks once to indicate a reset has occurred.

4 Remote port — Connect a host device, such as a PC or touchpanel control, to the SMX via this 9-pin D connector for serial RS-232 or RS-422 control.

<table>
<thead>
<tr>
<th>Pin</th>
<th>RS-232 Function</th>
<th>RS-232 Function</th>
<th>RS-422 Function</th>
<th>RS-422 Function</th>
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<tbody>
<tr>
<td>1</td>
<td>Not used</td>
<td>—</td>
<td>Not used</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>Tx Transmit data</td>
<td>Tx Transmit data</td>
<td>—</td>
<td>—</td>
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<tr>
<td>3</td>
<td>Rx Receive data</td>
<td>Rx Receive data</td>
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<td>4</td>
<td>—</td>
<td>—</td>
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<td>—</td>
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<tr>
<td>5</td>
<td>Gnd Signal ground</td>
<td>Gnd Signal ground</td>
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<td>6</td>
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<td>Rx+ Receive data</td>
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<td>—</td>
<td>—</td>
<td>Tx+ Transmit data</td>
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<td>9</td>
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Figure 3 on the previous page shows some, but certainly not all, of the board variations that can be installed in a SMX frame. I/O boards on any unit can vary per installation, depending on desired configuration and use. All board types have input and output connectors clearly marked, and each board has a 16-position rotary switcher for setting the I/O plane address. An LED next to the rotary switcher lights to indicate when power is present. The following numbers list out the I/O boards in Figure 2.

NOTE: Boards with the same plane address switch simultaneously.

5 SMX 44 DVI — Connect DVI single link high resolution digital input devices (up to 1600x1200 @ 60 Hz) or HDTV devices up to 1080p, to any of the DVI-I female input connectors. Connect suitable digital displays to the DVI-I female output connectors.

6 SMX 44 FOX 4G MM — Connect fiber optic input cables from a signal source to input ports and from output ports to a suitable display. LEDs light when signals are present.

7 SMX 88 HD-SDI — Connect SDI, HD-SDI, or dual link HD-SDI input sources to any of the BNC input connectors. Connect suitable display devices to the BNC output connectors.

NOTE: It is recommended to terminate unused I/Os with 75 ohm terminating connectors.

8 SMX 88 VGA — Connect high resolution computer-video rate input sources to any of the 15-pin HD female connectors. Connect suitable display devices to the 15-pin HD output connectors.
3 SMX 88 SV (DIN) and 10 SMX 84 YC — Connect S-video input sources to any of the BNC pairs or 4-pin mini DIN input connectors. Connect suitable display devices to the BNC pairs or 4-pin mini DIN output connectors.

SMX 84 V — Connect composite video input signals to the BNC input connectors. Connect display devices to the BNC output connectors.

SMX 88 A — Connect stereo or mono audio input signals to any of the eight sets of 3.5 mm, 5-pole captive screw connectors marked Inputs. Wire the connector for the appropriate signal type.

Connect audio devices, like an amplifier or powered speakers, to the eight sets of 3.5 mm, 5-pole captive screw connectors. See Wiring the Connectors below on how to wire an output connector. By default, audio and video use different boards. Audio breakaway is switched separately which be done via the front panel, ethernet, or the RS-232 or RS-422 link. This allows selecting from any of the audio input sources. See the SMX System MultiMatrix Switcher User Guide for more details.

Plane address rotary switch — This 16 position rotary switch defines a plane address for up to 16 I/O boards. To set an address, insert a small screwdriver in the slot and rotate it to the desired number (0-9, A-F). Each plane address is then identifiable during SMX control and configuration.

NOTE: The SMX 84 USB is an optional board if the installation requires connecting to USB devices. Connect a host device to any of the USB Type B Host inputs, and then connect USB devices to any of the USB Type A Device Hub outputs. Features of SMX USB boards include peripheral emulation, host emulation, hot key switching, and KVM application. See the SMX System MultiMatrix Switcher User Guide for more information.

Step 3 — Wiring the Connectors

Refer to the SMX 88 A above for the following section. Connect audio input devices to these 3.5 mm, 5-pole captive screw connectors; up to two groups of eight sets is possible. Wire the input connectors as shown below:

Balanced Audio Output Input
Unbalanced Stereo Input
Balanced Mono Input (high impedance)
Unbalanced Mono Input

Figure 4 Captive Screw Connector Wiring for Audio Input Signals
Wire the output connector as shown below:

**Figure 5** RCA Audio Connectors

**Figure 6** Captive Screw Connector Wiring for Audio Output Signals

**CAUTION:** For unbalanced audio, connect the sleeves to the center contact ground. Do not connect the sleeves to the negative (-) contacts.

### Step 5 — Powering on Equipment

**ATTENTION:**

- The amplifier must be powered on last.
- L'amplificateur doit être mis sous tension en dernier.

Reconnect all the power cables and switch on all of the other equipment prior to attaching the IEC power cable and powering on the SMX System MultiMatrix Switcher. The power LEDs on the front panel will both light green to indicate the entire matrix switcher is receiving power.

### Step 6 — Adjustments

Adjust addresses using the rear panel adjustment attenuators. To set an address, insert a small screwdriver in the slot and rotate it to the desired number (0-9, A-F). Each plane address is then identifiable during SMX control and configuration.

See the **SMX System MultiMatrix Switcher User Guide** for more information on how to set a respective address.