

Setup Guide

Matrix Switchers

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

DMS 1600, DMS 2000, DMS 3200, DMS 3600

Configurable Digital Video Matrix Switchers



Extron Electronics
INTERFACING, SWITCHING AND CONTROL

68-1829-50 Rev. C
09 13

Safety Instructions

Safety Instructions • English

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Instructions de sécurité • Français

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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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Chinese Simplified (简体中文)

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Korean

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

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안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(www.extron.co.kr)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 interference must be corrected at the expense of the user.

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FDA/IEC 60825-1 Requirements

CLASS 1 LASER PRODUCT

Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 5, dated June 24, 2007.

The product is intended to be used with the fiber optic cables fully installed.

This product meets the applicable requirements of IEC 60825-1, Edition 1 (2007).

Any service to this product must be carried out by Extron Electronics and its qualified service personnel.

Conventions Used in this Guide

Notifications the following are used:

WARNING: A warning indicates a situation that has the potential to result in death or severe injury.

ATTENTION: Attention indicates a situation that may damage or destroy the product or associated equipment.

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 Y1 * Y17 * Y20 * Y23 * Y21 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.

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AAP, AFL (Accu-Rate Frame Lock), ADSP (Advanced Digital Sync Processing), AIS (Advanced Instruction Set), Auto-Image, CDRS (Class D Ripple Suppression), DDSP (Digital Display Sync Processing), DMI (Dynamic Motion Interpolation), Driver Configurator, DSP Configurator, DSVP (Digital Sync Validation Processing), FastBite, FOXBOX, IP Intercom HelpDesk, MAAP, MicroDigital, ProDSP, QS-FPC (QuickSwitch Front Panel Controller), Scope-Triple, SIS, Simple Instruction Set, Skew-Free, SpeedNav, Triple-Action Switching, XTRA, ZipCaddy, ZipClip

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Introduction

WARNING: Risk of serious physical injury — The DMS fiber optic I/O boards 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.

This section gives an overview of this guide and the DMS 1600, DMS 2000, DMS 3200, and DMS 3600 and describes their features. Topics that are covered include:

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

About this Guide

NOTES:

- For more information on any subject in this guide, see the *DMS Series Matrix Switcher User Guide*, available on the Extron DVD or at www.extron.com.
- Throughout this guide, all of the covered switchers are referred to as "DMS matrix switchers" unless a significant difference is noted in their features or operation.

This setup guide helps you to easily and quickly set up and configure your Extron DMS matrix 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 commands](#).
- [Load and start the Matrix Switchers Control Program.](#)
- [Connect to the built-in HTML pages](#), which you can use to operate the switcher.
- [Reconfigure](#) the switcher by adding or removing boards, power supplies, and fans.

About the DMS Matrix Switchers

The DMS 1600, DMS 2000, DMS 3200, and DMS 3600 (see figure 1) are configurable matrix switchers that distribute DVI signals and DFX transmitter and receiver outputs and inputs. I/O boards route signals that are compatible with all Extron DVI video product lines and the fiber optic outputs and inputs of DFX transmitters and receivers. The matrix switcher routes any input signal to any combination of outputs. The matrix switcher can route multiple input/output configurations simultaneously.

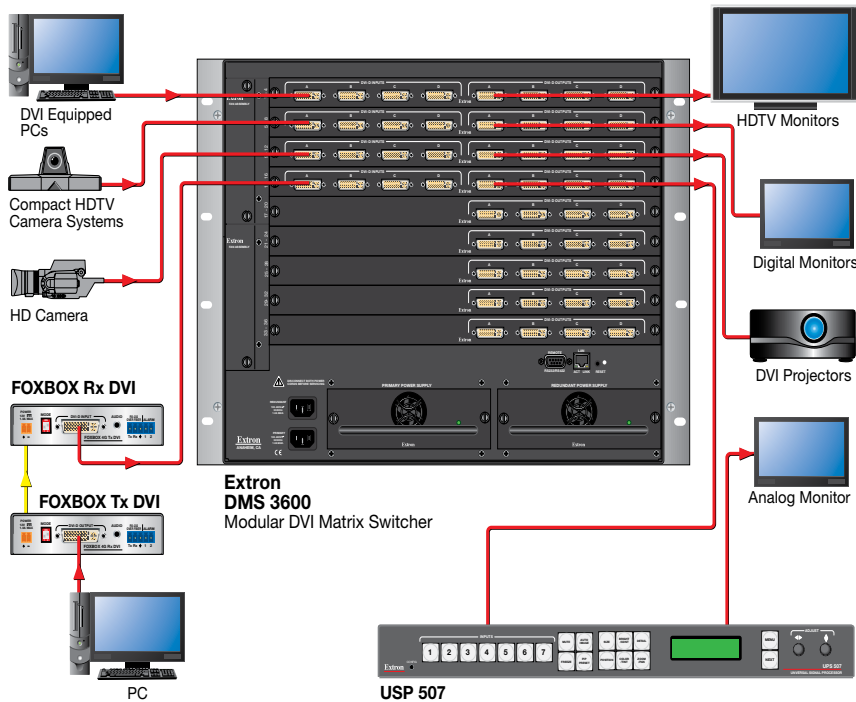


Figure 1. Typical DMS 3600 Application

Each matrix switcher model can be remotely controlled via its Ethernet LAN port, a serial port, or a USB port using either the Windows-based Extron Matrix Switchers Control Program or the SIS.

The switcher has two internal, hot-swappable 100 VAC to 240 VAC, 50-60 Hz, 175-watt power supplies that provide worldwide power compatibility and reliability.

Configurability

The DMS matrix switchers are assembled from I/O boards.

- The DMS 1600 can include up to four I/O boards.
- The DMS 2000 can include up to five I/O boards.
- The DMS 3200 can include up to eight I/O boards.
- The DMS 3600 can include up to nine I/O boards.

There are six types of I/O boards available:

- 4x4 DVI inputs and outputs
- 4x4 fiber inputs and outputs
- 4 DVI inputs
- 4 fiber inputs
- 4 DVI outputs
- 4 fiber outputs

By adding or removing I/O boards within certain rules that are detailed in "Configurability rules," below, you can expand and contract each switcher model from a 4-input by 4-output matrix to up to:

- **DMS Matrix 1600** — A 16-input by 16-output matrix
- **DMS Matrix 2000** — A 20-input by 20-output matrix
- **DMS Matrix 3200** — A 32-input by 32-output matrix
- **DMS Matrix 3600** — A 36-input by 36-output matrix

Configurability rules

There are certain rules for configuring the DMS matrix switcher for proper operation, as detailed below:

- The top slot (slot 1) **MUST** contain a 4x4 DVI or fiber optic input and output board.
- The next slot (slot 2) can contain any of the six board types.
- A 4x4 input and output board can be followed (in the slot directly underneath it) by any of the board types.
- After you insert a 4-input board or a 4-output board, all active boards underneath it **MUST** be the same size (4 inputs or 4 outputs).
- Fiber boards can follow DVI boards and DVI boards can follow fiber boards within the above size rules.
- If you install a blank panel, all slots under it **MUST** contain blank panels (you cannot skip a slot).

Installation

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

- **Rear Panel**
- **Front Panel**

Rear Panel

I/O Board Configuration Overview

See figure 2. Each I/O board is identified by the input and output connector numbers supported by the board position. The input and output numbers on the boards are identified as locations A through D.

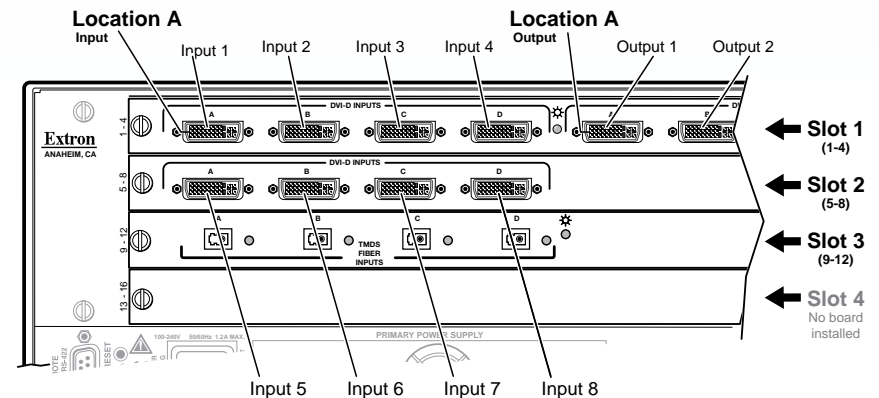


Figure 2. Arrangement of Inputs and Outputs on the I/O boards

The board position designators correspond to the input and output numbers served by that position (1 through 4, 5 through 8, and so on).

The location designators, A through D, correspond to the DVI input or output, grouped with inputs on the left and outputs on the right and numbered from left to right.

The input numbers supported by the I/O board in slot 2 (locations 5 through 8) are as follows: A = 5, B = 6, C = 7, D = 8.

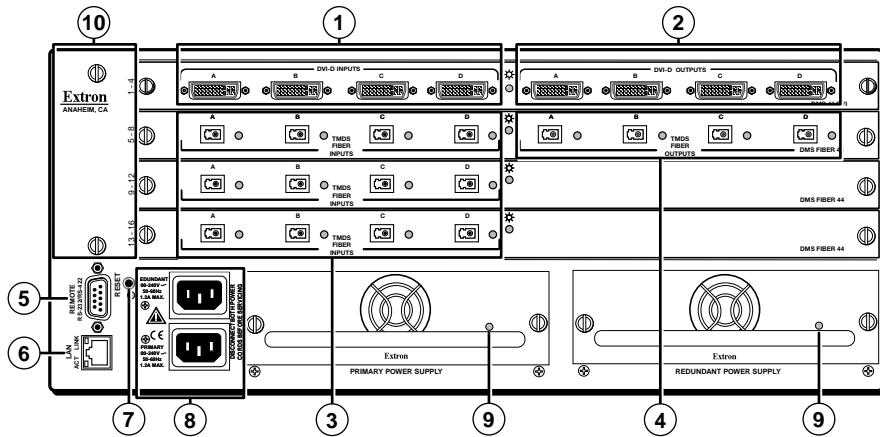


Figure 3. DMS 1600 Features

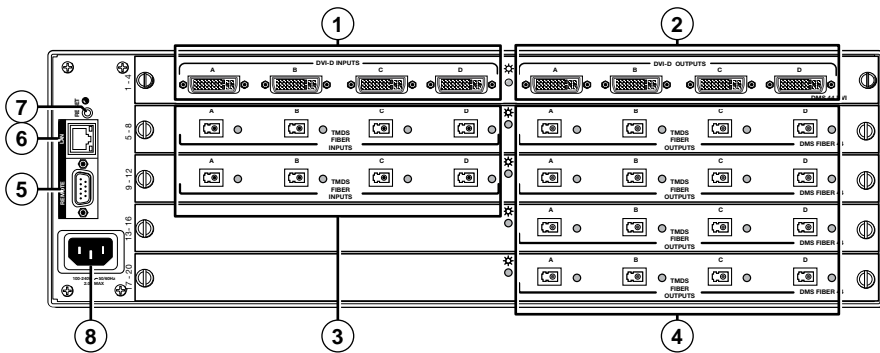


Figure 4. DMS 2000 Features

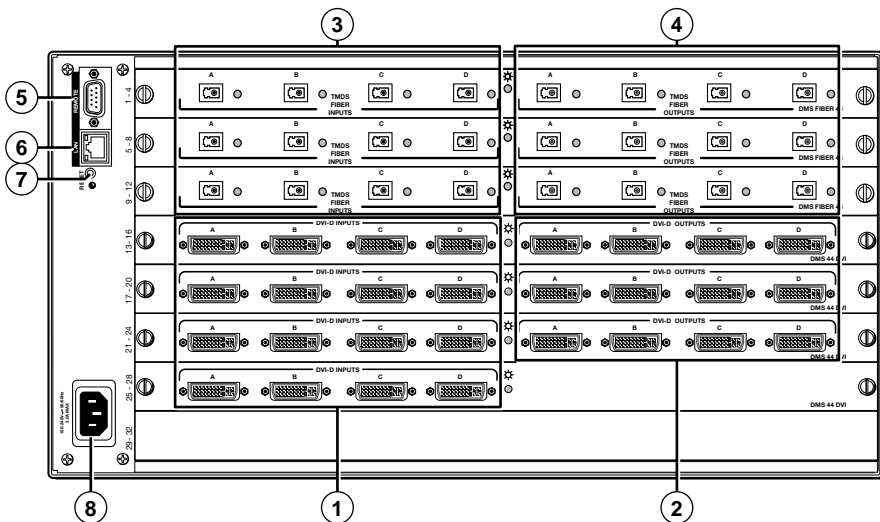


Figure 5. DMS 3200 Features

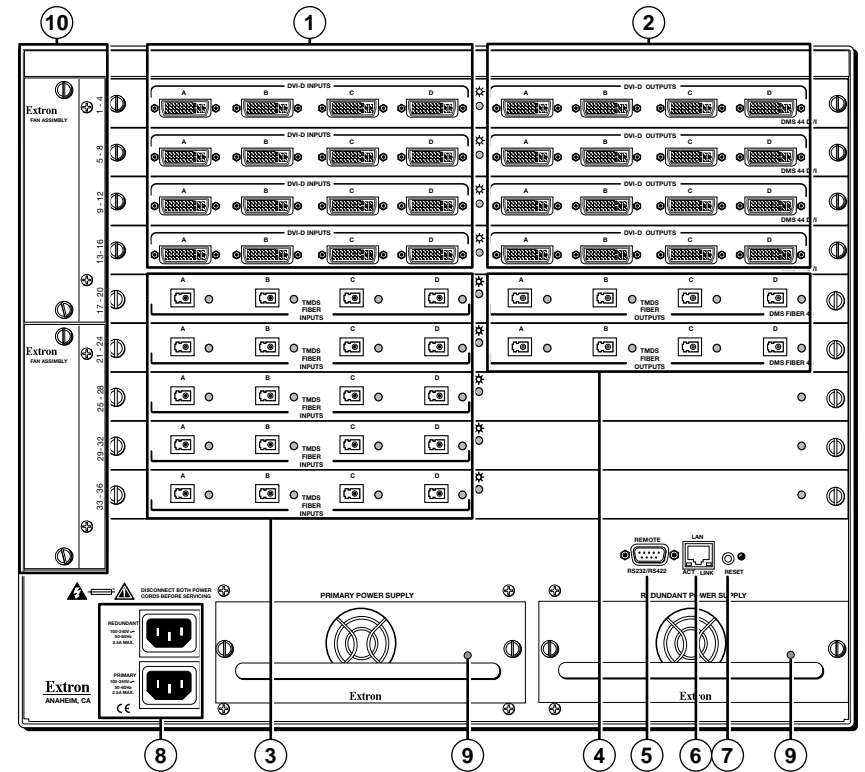




Figure 6. DMS 3600 Features

Making Connections

- ① **DVI-I Input connectors** — Connect DVI cables between these ports and the DVI output ports of the digital video sources.
- ② **DVI-I Output connectors** — Connect DVI displays for the routed DVI image.
- ③ **Fiber optic input ports** — Connect fiber optic cables to the Input LC connectors. 
Connect the opposite ends of these fiber optic cables to the Output connectors on DFX 100 Tx transmitters.
Input LEDs — These LEDs light amber to indicate fiber connections. These LEDs light green to indicate signal detection.
- ④ **Fiber optic output ports** — Connect fiber optic cables to the Input LC connectors. 
Connect the opposite ends of these fiber optic cables to the Input connectors on DFX 100 Rx receivers.
Input LEDs — These LED light amber to indicate fiber connections. These LEDs light green to indicate signal transmissions.

- ⑤ **Remote port** — If desired, connect a control system or computer to the rear panel Remote RS-232/RS-422 port.

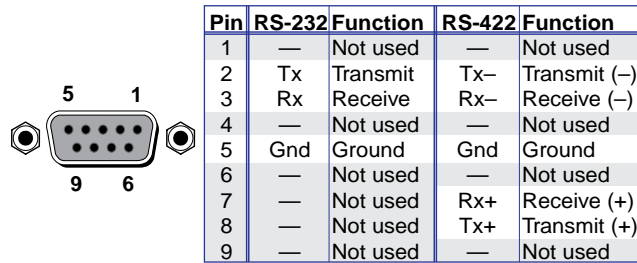


Figure 7. Remote RS-232/RS-422 Output Connector Wiring

- ⑥ **Ethernet port (LAN connector)** — If desired, connect a network WAN or LAN hub, a control system, or a computer to the Ethernet RJ-45 port.

Network connection — Use a patch (straight-through) cable.

Computer or control system connection — Use a crossover cable.

NOTE: The factory default IP address is 192.168.254.254.

- ⑦ **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 *DMS Series Matrix Switcher User Guide*, available on the Extron DVD or at www.extron.com.
- ⑧ **Power connectors** — Plug the switcher into one or two (depending on the DMS model) grounded AC sources.

NOTE: For reliability in switchers with Primary and Redundant power supplies, connect the power cord from the Redundant power connector to either an uninterruptible power source or to a power source that is completely independent of the primary power source.

- ⑨ **Primary and Redundant power supply indicator LEDs (DMS 1600 and DMS 3600)** —

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 \(DMS 1600 and DMS 3600\)](#) on page 31 to replace the power supply).

- ⑩ **Fans (DMS 1600 and DMS 3600)** — See [Removing and Installing a Fan \(DMS 1600 and DMS 3600\)](#) on page 32.

Front Panel

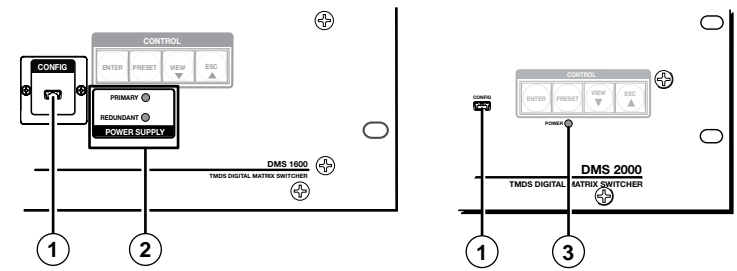


Figure 8. Front Panel Features

- ① **Configuration port** — If desired, connect a control system or computer to the front panel Configuration port, a mini USB B port.

- ② **Primary and Redundant Power Supply LEDs (DMS 1600 and DMS 3600)** —

NOTE: The meaning of these indicators is identical to the LEDs on the power supplies ([item 9](#)), on the previous page).

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 \(DMS 1600 and DMS 3600\)](#) on page 31 to replace the power supply).

- ③ **Power LED (DMS 2000 and DMS 3200)** — Indicates that the power supply is operating within normal tolerances.

NOTE: The power supply is fixed, and not field replaceable, on the DMS 2000 and DMS 3200.

Front Panel Operations

This section describes simple DMS 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 Out 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.



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. 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.

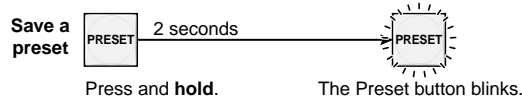
2. Press an input button. The buttons for all tied outputs light.

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.

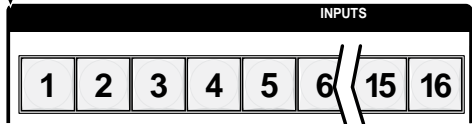
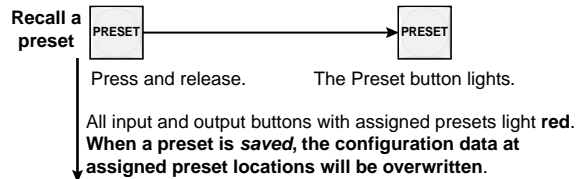
Saving or Recalling a Preset

The DMS switchers have 32 global memory presets.

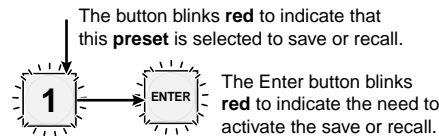
1. **Save a preset** — Press and hold the Preset button until it flashes.



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



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

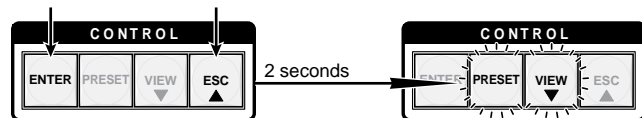


4. Press and release the Enter button.

Locking Out the Front Panel (Executive Mode)

To toggle the front panel lock on and off, simultaneously press and hold the Enter button and the Esc button until the Preset and View buttons blink twice (approximately 2 seconds).

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



Remote Control

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

- [Selected SIS Commands](#)
- [Installing and Starting the Control Program](#)
- [Accessing the 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 a serial port (item ⑤ on page 8), Ethernet port (item ⑥ on page 8), or USB port (item ① on page 9) on the switcher.

Establishing a Network (Ethernet) Connection

NOTE: The first time you connect to the switcher via the LAN port, you may need to change the default settings (IP address, subnet mask, and [optional] administrator password) of the switcher.

Establish a network connection as follows:

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

NOTE: The factory default IP address is 192.168.254.254.

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

2. If necessary, 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.

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 the performance of your switcher, keep the number of connections low and close unnecessary open sockets.

Establishing a USB Port Connection

A standard USB cable and the Extron DataViewer utility, version 2.0 or newer, can be used for connection to the DMS matrix switcher Configuration port. The USB cable, available at any local electronics store, should be terminated on one end with a mini USB B male connector

NOTE: Before you use the USB port for the first time, install the USB driver on your computer. The simplest way to do this is to install version 8.0 or newer of the Matrix Switchers Control Program and then run the Found New Hardware Wizard (see [Installing the Program](#) on page 21 and [First-time Connection Considerations](#) on page 22).






Host-to-Switcher Instructions

The switcher accepts SIS commands through its serial port, its USB port, or its LAN 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 *DMS Series Matrix Switcher User Guide*, available on the Extron DVD or at www.extron.com.

Common SIS Command Symbols

The following symbols are used throughout the command and response table, which starts on the next page:

- = Space
-  = Carriage return and line feed
-  = Carriage return (no line feed)
- | = Pipe (can be used interchangeably with the  character)
-  = Escape key (hex 1B)
- W = Can be used interchangeable with the  character

Command and Response Table for SIS Commands

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
NOTES:			
<ul style="list-style-type: none"> Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!02*02&003*003%. The matrix switchers support 1-, 2-, and 3-digit numeric entries (1*1!, 02*02&, or 003*003%). 			
Create ties			
NOTES:			
<ul style="list-style-type: none"> The ! tie command, the & tie command, and the % tie command can be used interchangeably. The ! read tie command, the & read tie command, and the % read tie command can be used interchangeably. 			
Tie input $\overline{x1}$ to output $\overline{x2}$ <i>Example (see Notes, above):</i>	$\overline{x1}*\overline{x2}!$ 1*3!	Out $\overline{x2}$ •In $\overline{x1}$ •All← Out03•In01•All←	Tie input $\overline{x1}$ to output $\overline{x2}$. Tie input 1 to output 3.
Tie input $\overline{x1}$ to output $\overline{x2}$ <i>Example (see Notes, above):</i>	$\overline{x1}*\overline{x2}\&$ 10*4&	Out $\overline{x2}$ •In $\overline{x1}$ •RGB← Out04•In10•RGB←	Tie input $\overline{x1}$ to output $\overline{x2}$. Tie input 10 to output 4.
Tie input $\overline{x1}$ to output $\overline{x2}$ <i>Example (see Notes, above):</i>	$\overline{x1}*\overline{x2}\%$ 7*5%	Out $\overline{x2}$ •In $\overline{x1}$ •Vid← Out05•In07•Vid←	Tie input $\overline{x1}$ to output $\overline{x2}$. Tie input 7 to output 5.
Read output tie	$\overline{x2}\&$	$\overline{x1}$ ←	Input $\overline{x1}$ is tied to output $\overline{x2}$.
Read output tie	$\overline{x2}\%$	$\overline{x1}$ ←	Input $\overline{x1}$ is tied to output $\overline{x2}$.
Read output tie	$\overline{x2}!$	$\overline{x1}$ ←	Input $\overline{x1}$ is tied to output $\overline{x2}$.
NOTE:			
<ul style="list-style-type: none"> • = Space $\overline{x1}$ = Input number 00 – maximum number of inputs for your configuration (00 = untied) $\overline{x2}$ = Output number 01 – maximum number of outputs for your configuration 			

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description											
EDID														
NOTE: In the commands below, the EDID data can come from either an active output or be set to a specified value.														
Assign EDID data to an input	<code>[Esc]A[x1]*[x3]EDID←</code>	<code>EdidA[x1]*[x3]←</code>	[x1] = Input number											
Assign EDID data to all inputs	<code>[Esc]A*[x3]*EDID←</code>	<code>EdidA0*[x3]←</code>												
Save output #1 EDID data to a user-defined space	<code>[Esc]S*[x3]EDID←</code>	<code>EdidS[x3]←</code>												
View EDID data assignment	<code>[Esc]A*[x1]EDID←</code>	<code>[x3]←</code>	[x1] = Input number											
[x3] (EDID) values:														
[x3] value for DMS model		Source	[x3] value for DMS model		Source	[x3] value for DMS model		Source						
1600	2000	3200	3600	1600	2000	3200	3600	1600	2000	3200	3600	Source		
01	01	01	01	Output 1	13	13	13	13	Output 13	N/A	N/A	25	25	Output 25
02	02	02	02	Output 2	14	14	14	14	Output 14	N/A	N/A	26	26	Output 26
03	03	03	03	Output 3	15	15	15	15	Output 15	N/A	N/A	27	27	Output 27
04	04	04	04	Output 4	16	16	16	16	Output 16	N/A	N/A	28	28	Output 28
05	05	05	05	Output 5	N/A	17	17	17	Output 17	N/A	N/A	29	29	Output 29
06	06	06	06	Output 6	N/A	18	18	18	Output 18	N/A	N/A	30	30	Output 30
07	07	07	07	Output 7	N/A	19	19	19	Output 19	N/A	N/A	31	31	Output 31
08	08	08	08	Output 8	N/A	20	20	20	Output 20	N/A	N/A	32	32	Output 32
09	09	09	09	Output 9	N/A	N/A	21	21	Output 21	N/A	N/A	N/A	33	Output 33
10	10	10	10	Output 10	N/A	N/A	22	22	Output 22	N/A	N/A	N/A	34	Output 34
11	11	11	11	Output 11	N/A	N/A	23	23	Output 23	N/A	N/A	N/A	35	Output 35
12	12	12	12	Output 12	N/A	N/A	24	24	Output 24	N/A	N/A	N/A	36	Output 36

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description						
[x3] (EDID) values (continued):									
[x3] value for DMS model		Resolution	[x3] value for DMS model		Resolution				
1600	2000	3200	3600	1600	2000	3200	3600	Resolution	
17	21	33	37	640x480 @ 60 Hz	32	36	48	52	1365x768 @ 75 Hz
18	22	34	38	640x480 @ 75 Hz	33	37	49	53	1366x768 @ 60 Hz
19	23	35	39	800x600 @ 60 Hz	34	38	50	54	1366x768 @ 75 Hz
20	24	36	40	800x600 @ 75 Hz	35	39	51	55	1400x1050 @ 60 Hz
21	25	37	41	852x480 @ 60 Hz	36	40	52	56	1600x1200 @ 60 Hz
22	26	38	42	852x480 @ 75 Hz	37	41	53	57	1920x1200 @ 60 Hz
23*	27*	39*	43*	1024x768 @ 60 Hz	38	42	54	58	480p @ 60 Hz
24	28	40	44	1024x768 @ 75 Hz	39	43	55	59	576p @ 50 Hz
25	29	41	45	1024x852 @ 60 Hz	40	44	56	60	720p @ 50 Hz
26	30	42	46	1024x852 @ 75 Hz	41	45	57	61	720p @ 60 Hz
27	31	43	47	1280x768 @ 60 Hz	42	46	58	62	1080p @ 60 Hz
28	32	44	48	1280x768 @ 75 Hz	43	47	59	63	1080i @ 60 Hz
29	33	45	49	1280x1024 @ 60 Hz	44	48	60	64	1080p @ 50 Hz
30	34	46	50	1280x1024 @ 75 Hz	45	49	61	65	1080p @ 60 Hz, stereo
31	35	47	51	1365x768 @ 60 Hz	46-53	50-57	62-69	66-73	User defined

* = Default setting

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Channel mute commands			
Channel mute	$\boxed{x2} * 1B$	Vmt $\boxed{x2} * 1 \leftarrow$	Mute output $\boxed{x2}$ (no signal is output).
Channel unmute	$\boxed{x2} * \emptyset B$	Vmt $\boxed{x2} * \emptyset \leftarrow$	Unmute output $\boxed{x2}$ (signal is output).
Read channel mute	$\boxed{x2} B$	$\boxed{x4} \leftarrow$	1 = mute on, 0 = mute off.
Global channel mute	1 * B	Vmt 1 \leftarrow	Mute all outputs.
Global channel unmute	$\emptyset * B$	Vmt $\emptyset \leftarrow$	Unmute all outputs.
View output mutes	$\boxed{Esc} VM \leftarrow$	$\boxed{x4}^1 \boxed{x4}^2 \dots \boxed{x4}^n \leftarrow$	Each $\boxed{x4}$ response is the mute status of an output, starting from output 1. n = the maximum number of outputs for your configuration.
Save and recall presets			
NOTE: If you try to recall a preset that is not saved, the matrix switcher responds with the error code E11.			
Save current configuration as a global preset	$\boxed{x5}$,	Spr $\boxed{x5} \leftarrow$	Command character is a comma.
<i>Example:</i>	9,	Spr $\emptyset 9 \leftarrow$	Save current ties as preset 9.
Recall a global preset	$\boxed{x5}$.	Rpr $\boxed{x5} \leftarrow$	Command character is a period.
<i>Example:</i>	5.	Rpr $\emptyset 5 \leftarrow$	Recall preset 5, which becomes the current configuration.

NOTE:	$\boxed{x2}$ = Output number	$\emptyset 1$ – maximum number of outputs for your configuration
	$\boxed{x4}$ = Mute status	\emptyset = not muted, 1 = muted
	$\boxed{x5}$ = Global preset number	$\emptyset 1$ – 32

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Information requests			
Information request	I	$V \boxed{x6} X \boxed{x7} \bullet A \emptyset X \emptyset \bullet S \boxed{x8}^1 \boxed{x8}^2 \dots \boxed{x8}^n \leftarrow$	In the response: $V \boxed{x6} X \boxed{x7}$ shows the number of available inputs and outputs for this configuration. $A \emptyset X \emptyset$ has no meaning for this product. $S \boxed{x8}^1 \boxed{x8}^2 \dots \boxed{x8}^n$ shows the board type installed in each slot. n is the highest numbered board in your system, 4, 5, 8, or 9.
Request part number	N	$\boxed{x9} \leftarrow$	See the Extron website, www.extron.com , for part numbers.
Request part number and board configuration	*N	$\boxed{x9} \cdot \boxed{x8}^1 \boxed{x8}^2 \boxed{x8}^3 \dots \boxed{x8}^n \leftarrow$	n is the highest numbered board in your system, 4, 5, 8, or 9.
Query controller firmware version	Q	$\boxed{x10} \leftarrow$	
<i>Example:</i>	Q	1.23 \leftarrow	The factory-installed controller firmware version is 1.23 (sample value only).

NOTE:	$\boxed{x6}$ = Inputs	Total number of inputs for this switcher
	$\boxed{x7}$ = Outputs	Total number of outputs for this switcher
	$\boxed{x8}$ = Board installed	$X \emptyset$ = No board installed
		C1 = 4 DVI inputs by 4 DVI outputs
		C2 = 4 DVI inputs by 0 outputs
		C3 = 0 inputs by 4 DVI outputs
		$6 \emptyset - nnnn - nn$
	$\boxed{x9}$ = Part number	F1 = 4 fiber inputs x 4 fiber outputs
	$\boxed{x10}$ = Firmware version number to second decimal place (x.xx)	F2 = 4 fiber inputs x 0 outputs
		F3 = 0 inputs x 4 fiber outputs

Command and Response Table for IP-Specific SIS Commands

Command	ASCII Command (host to unit)	Response (unit to host)	Additional Description
IP and serial port setup			
Set IP address	Esc [X11]CI ←	Ipi[X11]↵	Default: 192.168.254.254
Read IP address	Esc CI ←	[X11]↵	
Set subnet mask	Esc [X11]CS ←	Ips[X11]↵	Default: 255.255.0.0
Read subnet mask	Esc CS ←	[X11]↵	
Set gateway IP address	Esc [X11]CG ←	Ipg[X11]↵	Default: 0.0.0.0
Read gateway IP address	Esc CG ←	[X11]↵	
Set DHCP on or off	Esc [X12]DH ←	Idh[X12]↵	Default: 0 (Off)
Read DHCP on/off status	Esc DH ←	[X12]↵	

NOTE: [X11] = Address
[X12] = DHCP

nnn.nnn.nnn.nnn
0 = off, 1 = on

Installing and Starting the Control Program

Another way to operate the switcher is via the Windows®-based Matrix Switchers Control Program. This program is contained on the Extron Software Products DVD (included with the switcher) or on the website. Run this program on a PC connected to a serial port (item 5 on page 8), Ethernet port (item 6 on page 8), or USB port (item 1 on page 9) on the switcher. The program must be installed on a Windows-based computer and cannot be run from the DVD.

NOTE: For details on operating the program see the “Matrix Software” section in the *DMS Series Matrix Switchers User Guide*.

Installing the Program

NOTE: To run this program while your computer is connected to the Configuration (USB) port, use version 8.0 or newer of the Matrix Switchers Control Program.

1. Insert the DVD into the drive. The Extron software DVD window should appear automatically.



Figure 9. Software DVD Window

NOTE: If the window does not open automatically, run Launch.exe from the DVD.

2. Click the **Software** tab.
3. Scroll to the Matrix Switchers program and click **Install**.



Figure 10. Select Matrix Switchers Program

4. Follow the on-screen instructions. The installation program creates a C:\Program Files\Extron\Matrix_Switchers directory and an "Extron Electronics\Matrix Switchers" group folder. It installs the following four programs:
 - MATRIX Switcher+ Control Program
 - MATRIX Switcher+ Help
 - Uninstall MATRIX Switcher
 - Check for Matrix Updates

First-time Connection Considerations

LAN port connection

If you connect your PC to the switcher via the LAN port, and it is the first time you have done so, you may change the default settings (IP address, subnet mask, and [optional] administrator password) on the controller (see [Configuring for Network Communication](#) on page 25 for details.)

USB port connection

When you connect your PC to the DMS matrix switcher via the USB port for the first time, the Found New Hardware Wizard opens.



Activate the connected USB port for your device as follows:

NOTE: If you have not installed the latest Matrix Switchers Control Program, click **Cancel** and install the program. Reconnect the switcher to the Configuration port.

1. Select the **No, not this time** radio button and click **Next**. The wizard installs the necessary driver to access the switcher via the Configuration (USB) port (this may take a few minutes).

2. On the next page that appears, select the **Install the software automatically** radio button and click **Next**. Follow the on-screen instructions. The wizard assigns the driver necessary to access the switcher to the connected Configuration (USB) port (this may take a few minutes).
3. Click **Finish** to exit the wizard.

NOTE: You may need to repeat these steps if you subsequently connect the switcher to a different USB port on the same computer.

Starting the Program

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

The Comm Port Selection window appears.

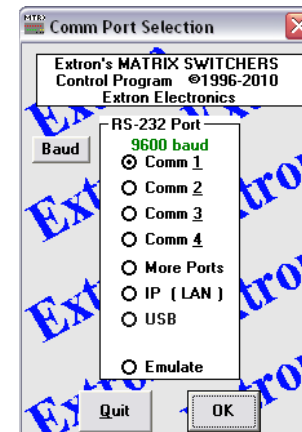


Figure 11. Comm Port selection Window

2. Choose the comm (serial) port that is connected to the switcher, **USB**, 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

3. Click **OK**.

If you selected a serial port or the **USB** 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.



Figure 12. IP Connection Window

- a. Examine the **Matrix IP Address** field, which displays the last Matrix IP address entered.

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

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

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

Accessing the 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, connected via a LAN or WAN, using a web browser such as Microsoft® Internet Explorer® (see [item 6](#) on page 8, for connection information.)

Configuring for Network Communication

The first time you connect a PC to the LAN port of a switcher, 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 DMS 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:

1. Obtain a valid IP address for the DMS matrix switcher from the network administrator.
2. Obtain the MAC address (UID #) of the switcher from the label on its rear panel. The MAC address should have this format: 00-05-A6-xx-xx-xx.
3. 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, see “Reset Operations” in the *DMS Series Matrix Switchers 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.

4. 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 (see step 1) and the MAC address of the unit (from the rear panel of the unit). For example (where the new address is 10.13.197.7):
`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 DMS 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, see the "HTML Operation" section in the *DMS Series Matrix Switchers 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 whether 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. The switcher is ready for operation via HTML remote control.

System Status	
Unit Name:	DMS-3600-05-D0-66
Model:	DMS 3600
Part Number:	60-1092-01
Date:	7/07/2010
Time:	11:21 AM
MAC Address:	00-05-A6-05-D0-66
Firmware Version:	1.00
# of Connections:	009

Operational Status	
Function	
Primary Power Supply:	On/Enabled Voltage: 12.00V
Secondary Power Supply:	Off/Disabled Voltage: 00.00V
+ 1.2 Volts I/O:	1.20V
+ 3.3 Volts:	3.31V
+ 5 Volts:	4.98V
+ 12 Volts:	11.81V
Fan 1:	02721 RPM
Fan 2:	02721 RPM
Fan 3:	02678 RPM
Fan 4:	02721 RPM
Temperature:	+078.80 F / 26.00 C

Figure 13. Downloaded Start-up Page

Maintenance and Modifications

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

- [Removing and Installing an I/O Board or Blank Panel](#)
- [Removing and Installing a Power Supply Module \(DMS 1600 and DMS 3600\)](#)
- [Removing and Installing a Fan \(DMS 1600 and DMS 3600\)](#)

Removing and Installing an I/O Board or Blank Panel

NOTES:

- For proper cooling and air flow, boards or blank panels should be installed in all locations during normal switcher operations.
- See [I/O Board Configuration Overview](#) on page 5 to understand the different arrangement of connectors on the I/O boards and the rules for arranging the configuration of you switcher.
- The I/O boards are hot-swappable. You do not need to power down the switcher to remove an I/O board.

Circuit boards can be added or removed to increase or decrease the I/O configuration (matrix size) of the switcher. Remove and replace an I/O board or blank panel as follows:

1. **For an I/O board**, disconnect any connected cables.
2. Rotate the left and right knurled knobs to completely loosen the captive screws (see [figure 14](#) on the next page).
3. Gently pull on the knurled knobs to loosen the board or panel from the backplane.
4. Slide the board or panel out of the chassis.

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.

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 connector A (of either the input group of connectors or the output group of connectors) is on the left and connector D (of the same group of connectors) is on the right.

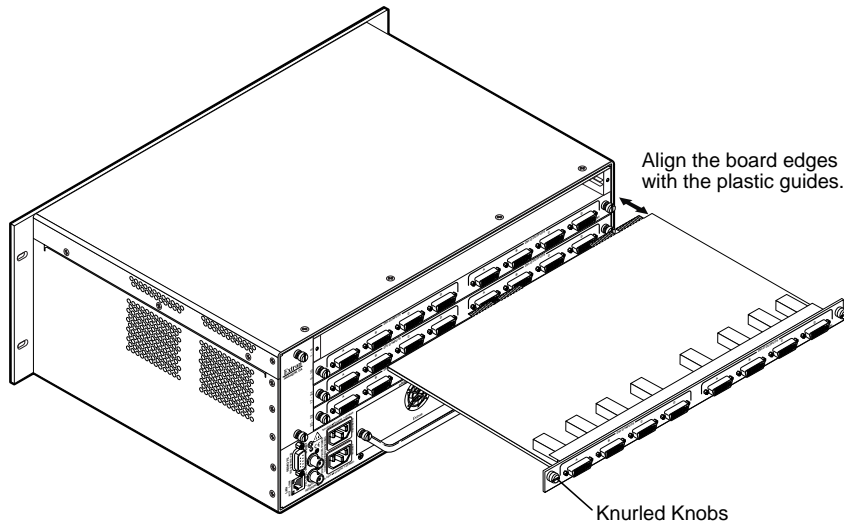


Figure 14. Remove and Install an I/O Board

7. **For an I/O board**, align the board with the left and right chassis guides (above).
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 knobs to lock the board or panel in place.

Removing and Installing a Power Supply Module (DMS 1600 and DMS 3600)

Each power supply module has a two-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 meanings are also on the front panel.

The two power supply modules (primary power supply and redundant power supply) are identical and hot-swappable; you do not need to power down the switcher to install or remove either power supply module.

ATTENTION: The DMS matrix switchers use double pole/neutral fusing. Power must be disconnected before servicing internal components.

NOTE: **DMS 2000 and DMS 3200** — The power supplies are fixed in place and are not field replaceable.

1. Rotate the left and right knurled knobs to completely loosen the captive screws (see figure 15).

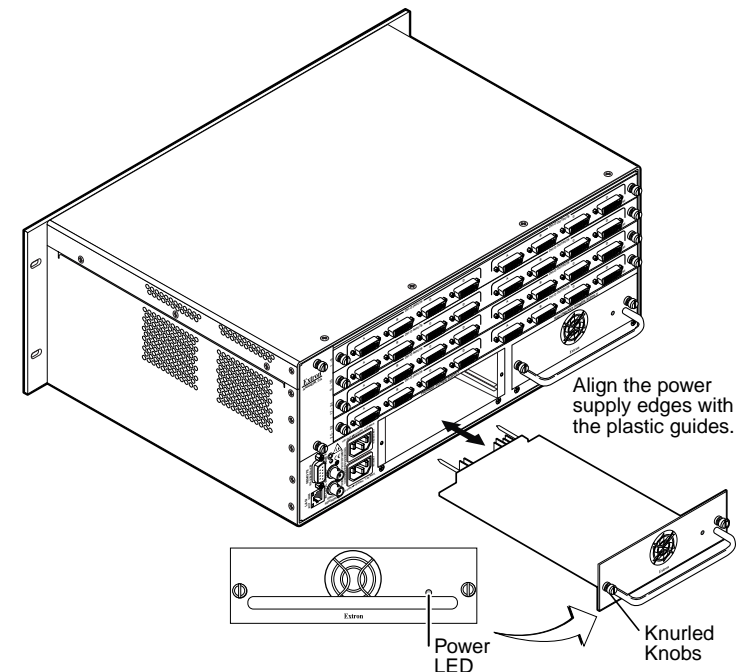


Figure 15. Remove and Install a Power Supply Module

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.
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 knobs to lock the power supply in place.

Removing and Installing a Fan (DMS 1600 and DMS 3600)

The DMS 1600 has a single fan module. The DMS 3600 has two identical fan modules. If a fan fails, it should be replaced at the earliest opportunity.

The fan modules are hot-swappable; you do not need to power down the switcher to install or remove either fan.

NOTE: DMS 2000 and DMS 3200 — The fans are fixed in place and are not field replaceable.

1. Remove and retain the two screws that secure the row identification plate (identifying the rows of the adjacent DVI input and output connectors) to the fan. Retain the plate.

2. Rotate the top and bottom knurled knobs to completely loosen the captive screws (see figure 16).

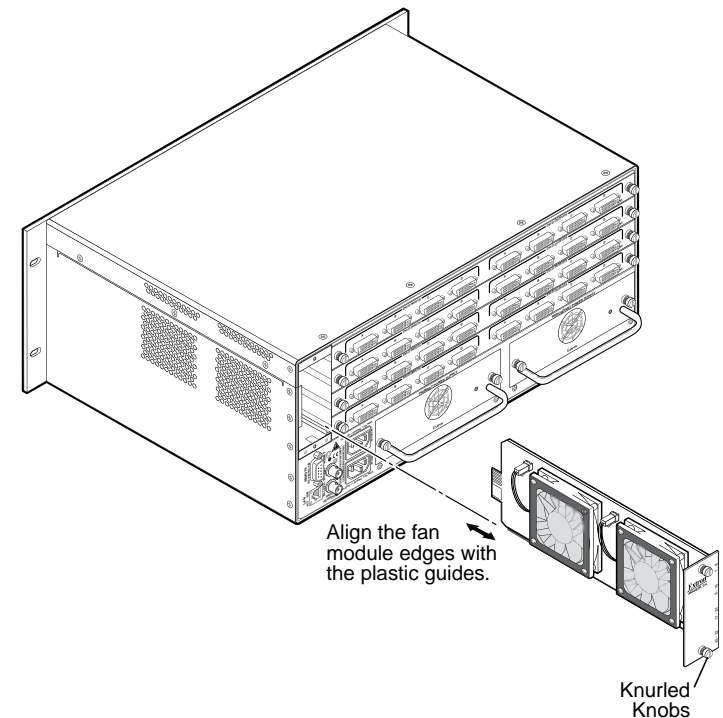


Figure 16. Remove and Install a Fan

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

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:

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and Central America:**

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USA: 714.491.1500 or 800.633-9876

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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.

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