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DMS 1600 and DMS 3600

Modular DVI Matrix Switchers

Key Features

- Available in I/O sizes from 4x4 to 16x16 or 36x36, depending on the DMS Matrix Switcher Frame selected
- Modular and field-upgradeable design
- Choice of DMS DVI or Fiber Matrix I/O boards
- Supports data rates to 4.95 Gbps - 1.65 Gbps per color
- EDID Minder® automatically manages EDID communication between connected devices
- Ethernet monitoring and control



MODEL	VERSION DESCRIPTION	PART #
DMS 1600 Frame	4U, 4-Slot Frame	60-1091-01
DMS 3600 Frame	8U, 9-Slot Frame	60-1092-01
DMS Matrix Blank Plate	Blank Plate - Single I/O Slot	70-841-01
DMS 1600 Power Supply Kit	Redundant Power Supply Option	70-710-02
Power Supply Kit	FOX 14400 & DMS 3600 Power Supply Kit	70-772-01
Replacement Fan Kit	DMS 1600 Fan Kit	70-709-02
Replacement Fan Kit	FOX 7200, 14400, 320x & DMS 3600 Fan Kit	70-814-01

The Extron **DMS Series Modular DVI Matrix Switchers** represent a new level of matrix switching for DVI. They combine the simplicity and reliability of a fixed I/O matrix switcher with the convenience and flexibility of a modular matrix switcher. DMS Series matrix switchers accept any combination of available DMS DVI (http://www.extron.com/product/listbytype.aspx?subtype=333&s=3#459) or DMS Fiber (http://www.extron.com/product/listbytype.aspx?subtype=333&s=3#459) matrix boards. Input and output boards are available in 4-port input, 4-port output, and 4x4 I/O versions, providing various I/O size combinations with sizes from 4x4 to 36x36, depending on the DMS Matrix Switcher Frame selected. The DMS Series is ideal for a wide range of applications that require routing of high-resolution DVI digital video signals without copy protection.

The DMS Series provides substantial flexibility, expandability, and affordability by allowing the user to select the configuration required for the applications. DMS DVI and DMS Fiber matrix boards can be mixed-and-matched within a single DMS frame to support a wide variety of matrix switching system designs. Matrix boards may be added at any time for easy and quick upgradeability or expansion.

DMS Series Frames are available in sizes to fit I/O combinations from 4x4 to 36x36. For applications requiring a compact enclosure size with a single, fixed power supply, the DMS 2000 and DMS 3200 frames (http://www.extron.com/product/listbytype.aspx?subtype=333&s=3#459) support I/O configurations up to 20x20 or

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32x32, respectively. For mission critical, 24/7 applications that require dual AC power inputs and hot-swappable power supplies, the DMS 1600 and DMS 3600 frames support I/O configurations up to 16x16 or 36x36, respectively. All four DMS frames accept any combination of the available DMS DVI and Fiber Matrix Boards.

DMS Series DVI Matrix Boards feature automatic cable equalization for all inputs and output reclocking for each DVI output. This reduces the need for additional signal conditioning equipment by compensating for weak source signals or signal loss when using long input cable assemblies. Automatic output reclocking restores signal integrity for improved performance. Signals are reshaped and the timing is restored to allow for transmission over long DVI cables. Additionally, the matrix switchers provide +5 VDC, 250 mA on the DVI outputs for powering external peripheral devices.

DMS Series Fiber Matrix Boards are compatible with Extron DFX Series DVI extenders and can support transmitted distances of up to 300 meters (984 feet) on one multimode fiber. These boards utilize standard LC connectors, which provide reliable physical connectivity and precise fiber core alignment, and allow the use of low-cost, widely available pre-terminated cables.

To enhance and simplify integration of DVI-equipped sources and displays, the DMS Series matrix switchers feature EDID Minder, which automatically manages EDID communication between all connected input sources. EDID Minder allows the EDID from any of the displays, or pre-stored selectable EDID information, to be assigned to any input. By maintaining continuous EDID communication with all sources, EDID Minder ensures that all DVI sources power up at the proper resolution, and maintain their video outputs whether or not they are actively connected to the digital display devices through the matrix switcher's outputs.

The DMS Series DVI Matrix Switchers are ideal for various commercial, medical, military, and government environments where distribution of high resolution, digital video signals is needed, and a fully digital pathway is essential to maintain the highest possible image quality, from multiple sources to multiple displays.

Features

- **Available in I/O sizes from 4x4 to 16x16 or 36x36, depending on the DMS Matrix Switcher Frame selected**
- **Modular and field-upgradeable design** — DMS Series Matrix Switcher Frames provide substantial flexibility, expandability, and affordability by allowing users to select the configuration required for their systems. Additional input and output boards may be added at any time for easy and quick upgradeability or expansion, from 4x4 up to 36x36, depending on the DMS Frame size selected.
- **Hot-swappable components** — Allows the replacement of a fan assembly or power supply at any time without the need to power down the switcher. This is especially useful for mission-critical applications that require continuous system operation.
- **Choice of DMS DVI or Fiber Matrix I/O boards** — DMS Series DVI and Fiber Matrix input and output boards are available in 4-input, 4-output, and 4x4 I/O configurations. DMS Fiber Matrix Boards are compatible with Extron DFX Series DVI extenders, and can support transmitted distances of up to 300 meters (984 feet) on one multimode fiber.
- **Mix and match DVI and Fiber Matrix Boards** — DMS DVI and Fiber Matrix Boards can be mixed-and-matched within a single DMS Frame to support a wide variety of matrix switching system designs.
- **Supports data rates to 4.95 Gbps - 1.65 Gbps per color**
- **Supports computer video up to 1920x1200, including HDTV 1080p/60**
- **EDID Minder® automatically manages EDID communication between connected devices** — EDID Minder ensures that all sources power up properly and reliably output content for display.
- **QS-FPC™ - QuickSwitch Front Panel Controller with tri-color backlit buttons** — Provides a discrete button for each input and output, allowing for simple, intuitive operation. Buttons can be custom labeled for easy

identification. The buttons illuminate red, green, or amber, depending on function, for ease of use in low-light environments.

- **Ethernet monitoring and control** — DMS Series matrix switchers can be proactively monitored and managed over a LAN, WAN, or the Internet, using standard TCP/IP protocols. Ethernet control provides for remote selection of I/O ties, EDID Minder configuration, and monitoring system status.
- **Global presets** — Up to 32 frequently used I/O configurations may be saved and recalled either from the front panel, serial, or Ethernet control. This time-saving feature allows I/O configurations to be set up and stored in memory for future use.
- **I/O Grouping** — I/O Grouping allows the matrix switcher to be virtually divided into smaller sub-switchers. Specific outputs, such as those designated for a specific area or a particular room can be grouped together for ease of installation and control.
- **Rooming** — Rooming allows selected outputs into grouped together into specific "rooms", each with its own set of unique presets. A total of 10 rooms, with 10 presets per room, are available.
- **View I/O mode** — Users can easily view which inputs and outputs are actively connected.
- **Control software** — Provides a graphical, drag-and-drop interface for I/O configuration and other customization functions via RS-232 and RS-422 remote control.
- **RS-232 and RS-422 control port** — Using serial commands, the DMS Series matrix switchers can be controlled and configured via the included Windows®-based control software, or integrated into a control system. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming.
- **Optional remote control** — The optional MKP 2000 and MKP 3000 X-Y Remote Control Panels provide the flexibility to control the DMS Series matrix switcher from a remote location.
- **Front panel security lockout** — Prevents unauthorized use in non-secure environments. In lockout mode, a special button combination is required to operate the switcher from the front panel controller.
- **Redundant, hot-swappable power supplies** — A redundant power supply is included with the DMS 3600 and available as an option for the DMS 1600. Primary and back-up power supplies provide added reliability for critical applications.
- **Two AC power inputs** — For added power reliability, some 24-hour environments require two separate AC power sources, one as the primary source and the second for redundancy. The DMS 1600 and DMS 3600 matrix switcher frames offer two AC power inputs for continuous connection to both power sources.
- **Rack-mountable, full rack width metal enclosures**

Note: Replacement power supply, part number 70-772-01 is also designed for use with the DMS 3600 frame, part number 60-1092-01.

OPTIONAL ACCESSORIES

DMS DVI Matrix Boards	DVI Matrix Boards for DMS Series Matrix Switchers
DMS Fiber Matrix Boards	Single-Fiber Multimode Matrix Boards for DMS Series Matrix Switchers

Specifications

DMS 1600, DMS 2000, DMS 3200, and DMS 3600 Series

Video — DMS DVI	
Routing	
1600 Series	From 4 x 4 to 16 x 16 matrix, expandable by increments of 4 inputs and 4 outputs

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2000 Series	From 4 x 4 to 20 x 20 matrix, expandable by increments of 4 inputs and 4 outputs
3200 Series	From 4 x 4 to 32 x 32 matrix, expandable by increments of 4 inputs and 4 outputs
3600 Series	From 4 x 4 to 36 x 36 matrix, expandable by increments of 4 inputs and 4 outputs
Gain	Unity
Resolution range	Up to 1080p (HDTV) or 1920x1200 (the highest resolution of the single link DVI standard) @ 48, 50, or 60 Hz
Signal type	Single-link DVI digital video signals are supported.
Digital video	RGB digital video (DVI and HDMI standards) or Y, Cr, Cb digital component video (HDMI), actively buffered (supports all single link DVI and HDMI [if using an optional adapter] standards from 640x480 @ 60 Hz to 1600x1200 @ 60 Hz computer video)

NOTE *The DMS DVI Series boards are not HDCP compliant.*

Digital audio	Embedded audio from HDMI sources can be passed, as long as it is not HDCP encrypted content
Consumer Electronics Control (CEC)	Not supported
EDID and DDC	Supports Extended Display Identification Data (EDID) and Display Data Channel (DDC) data using DVI and HDMI standards. EDID and DDC signals are actively buffered.
HDCP	Not supported
HPD	Supports hot plug detection (HPD) of display as a pass-through signal.
Maximum data rate	4.95 Gbps (1.65 Gbps per color)
Maximum pixel clock	165 MHz
Standards	DVI 1.0
Switching speed	200 ns, max.

Video input — DMS 44 DVI and DMS 4i DVI input boards

Number/signal type	4 digital RGB single link DVI-D per input board
Connectors	4 female DVI-I (digital only) per input board
Equalization	Automatic
Input cable length	100' (30 m) at 1920x1200 @ 48, 50, or 60 Hz; or 1080p; 8 bit color

NOTE *The transmission distance varies depending on the signal resolution and on the type of cable, graphics card, and display used in the system.*

Video output — DMS 44 DVI and DMS 4o DVI output boards

Number/signal type	4 digital RGB single link DVI-D per output board
Connectors	4 female DVI-I (digital only) per output board
Re-clocking	Automatic
Output cable length	50' (15.24 m) at 1920x1200 @ 48, 50, or 60 Hz; or 1080p
Peripheral device power	250 mA per output

Optical specifications — fiber optic boards

NOTE *The I/O boards are class 1 laser products. They meet the safety regulations of IEC-60825, FDA 21 CFR 1040.10, and FDA 21 CFR 1040.11.*

Number/type	4 multimode fiber optic inputs and outputs (4 Tx and 4 Rx) per I/O board
Connectors	4 or 8 LC connectors per I/O board
Operating distance	300 m (985')

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NOTE *Operating distance is approximate. These are typical distances. The maximum distance may be greater than these typical numbers depending on factors such as fiber type, fiber bandwidth, connector splicing, losses, modal or chromatic dispersion, environmental factors, and kinks.*

Nominal peak wavelength	850 nm for multimode (MM)
Transmission power	-5 dBm, typical
Maximum receiver sensitivity	-12 dBm, typical
Optical loss budget	8 dB, maximum
Maximum channel data rate	6.25 Gbps

Video — fiber optic (DMS 44, DMS 4i, and DMI 4o fiber boards)

Routing	
1600 Series	4 x 4 to 16 x 16 matrix, expandable by increments of 4 inputs and 4 outputs
2000 Series	4 x 4 to 20 x 20 matrix, expandable by increments of 4 inputs and 4 outputs
3200 Series	4 x 4 to 32 x 32 matrix, expandable by increments of 4 inputs and 4 outputs
3600 Series	4 x 4 to 36 x 36 matrix, expandable by increments of 4 inputs and 4 outputs

Video input — DMS 44 fiber and DMS 4i fiber input boards

NOTE *The fiber optic input boards require connection to a DFX 100 Tx transmitter.*

Number/signal type	4 fiber optic, multimode (OM3 or OM4 fiber recommended)
Connectors	4 LC connectors
Input cable length	300 m (985')

NOTE *The transmission distance varies depending on the signal resolution and on the type of cable, graphics card, and display used in the system.*

Video output — DMS 44 fiber and DMS 4o fiber output boards

NOTE *The fiber optic output boards require connection to a DFX 100 Rx receiver.*

Number/signal type	4 fiber optic, multimode (OM3 or OM 4 recommended)
Connectors	4 LC connectors per board
Output cable length	300 m (985')

Communications — 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	9600 (default), 19200, 38400, 115200 baud, 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+
USB control ports	1 front panel female mini USB B
USB standards	USB 2.0, low speed
Ethernet control port	1 RJ-45 female
Ethernet data rate (for network communication)	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	ARP, ICMP (ping), IP, TCP, DHCP, HTTP, SMTP, Telnet
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

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Web server	Up to 200 simultaneous sessions
	7.0 MB nonvolatile user memory
Program control	Extron control/configuration program for Windows®
	Extron Simple Instruction Set (SIS™)
	Microsoft® Internet Explorer® ver. 6 or higher, Telnet

General

Power supply	
DMS 1600	Internal: 1 or 2* (positive-negative)
	Input: 100-240 VAC, 50-60 Hz
	*A redundant power supply is optional.
DMS 2000	Internal: 1
	Input: 100-240 VAC, 50-60 Hz
DMS 3200	Internal: 1
	Input: 100-240 VAC, 50-60 Hz
DMS 3600	Internal, 2*(positive-negative)
	Input: 100-240 VAC, 50-60 Hz
	*A redundant power supply is standard.
Power consumption	
DMS 1600	Primary power supply: 97 watts
	Primary and redundant supplies: 107 watts
	Measured fully loaded with (4) 4x4 I/O boards
DMS 2000	116 watts
	Measured fully loaded with (5) 4x4 I/O boards
DMS 3200	174 watts
	Measured fully loaded with (8) 4x4 I/O boards
DMS 3600	212 watts
	Measured fully loaded with (9) 4x4 I/O boards
I/O boards	

Per DMS Board	
Board	Power
4x4 I/O	18 watts
4 input	10 watts
4 output	7 watts

Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing
	Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Fan, right to left (as viewed from front panel)
Thermal dissipation, full load	
DMS 1600	Primary power supply: 332 BTU/hr
	Primary and redundant supplies: 366 BTU/hr
	Measured fully loaded with (4) 4x4 I/O boards
DMS 2000	398 BTU/hr
	Measured fully loaded with (5) 4x4 I/O boards
DMS 3200	596 BTU/hr
	Measured fully loaded with (8) 4x4 I/O boards
DMS 3600	724 BTU/hr
	Measured fully loaded with (9) 4x4 I/O boards
Rack mount	Yes
Enclosure type	Metal

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Enclosure dimensions	
DMS 1600	7.0" H x 17.0" W x 12" D (4U high, full rack wide) (13.3 cm H x 43.2 cm W x 30.5 cm D) (Depth excludes connectors and buttons. Width excludes rack ears.)
DMS 2000	5.2" H x 17.0" W x 12.2" D (3U high, full rack wide) (13.3 cm H x 43.2 cm W x 31.0 cm D) (Depth excludes connectors and buttons. Width excludes rack ears.)
DMS 3200	8.7" H x 17.0" W x 12.2" D (5U high, full rack wide) (22.1 cm H x 43.2 cm W x 31.0 cm D) (Depth excludes connectors and buttons. Width excludes rack ears.)
DMS 3600	14.0" H x 17.0" W x 12.25" D (8U high, full rack wide) (35.6 cm H x 43.1 cm W x 31.1 cm D) (Depth excludes connectors and handles. Width excludes rack ears.)
Product weight with boards installed	
DMS 1600	
With primary power supply only	26.9 lbs (12.2 kg)
With both primary and redundant power supplies	27.9 lbs (12.6 kg)
DMS 2000	16.4 lbs (7.5 kg)
DMS 3200	27.1 lbs (12.3 kg)
DMS 3600	38.5 lbs (17.5 kg)
Shipping weight with boards installed	
DMS 1600	32 lbs (15 kg)
DMS 2000	21 lbs (10 kg)
DMS 3200	33 lbs (15 kg)
DMS 3600	48 lbs (22 kg)
DIM weight with boards installed	
USA/Canada	
DMS 2000	23 lbs (11 kg)
DMS 3200	39 lbs (18 kg)
International	
DMS 2000	28 lbs (13 kg)
DMS 3200	47 lbs (22 kg)
DMS 3600	52 lbs (24 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	
DMS 1600 and DMS 3600	CE, C-tick, FCC Class A, ICES, KCC, VCCI
DMS 2000 and DMS 3200	CE, C-tick, FCC Class A, ICES, VCCI
Environmental	Complies with the appropriate requirements of RoHS, WEEE
Warranty	3 years parts and labor

NOTE *All nominal levels are at ±10%.*

NOTE *Specifications are subject to change without notice.*

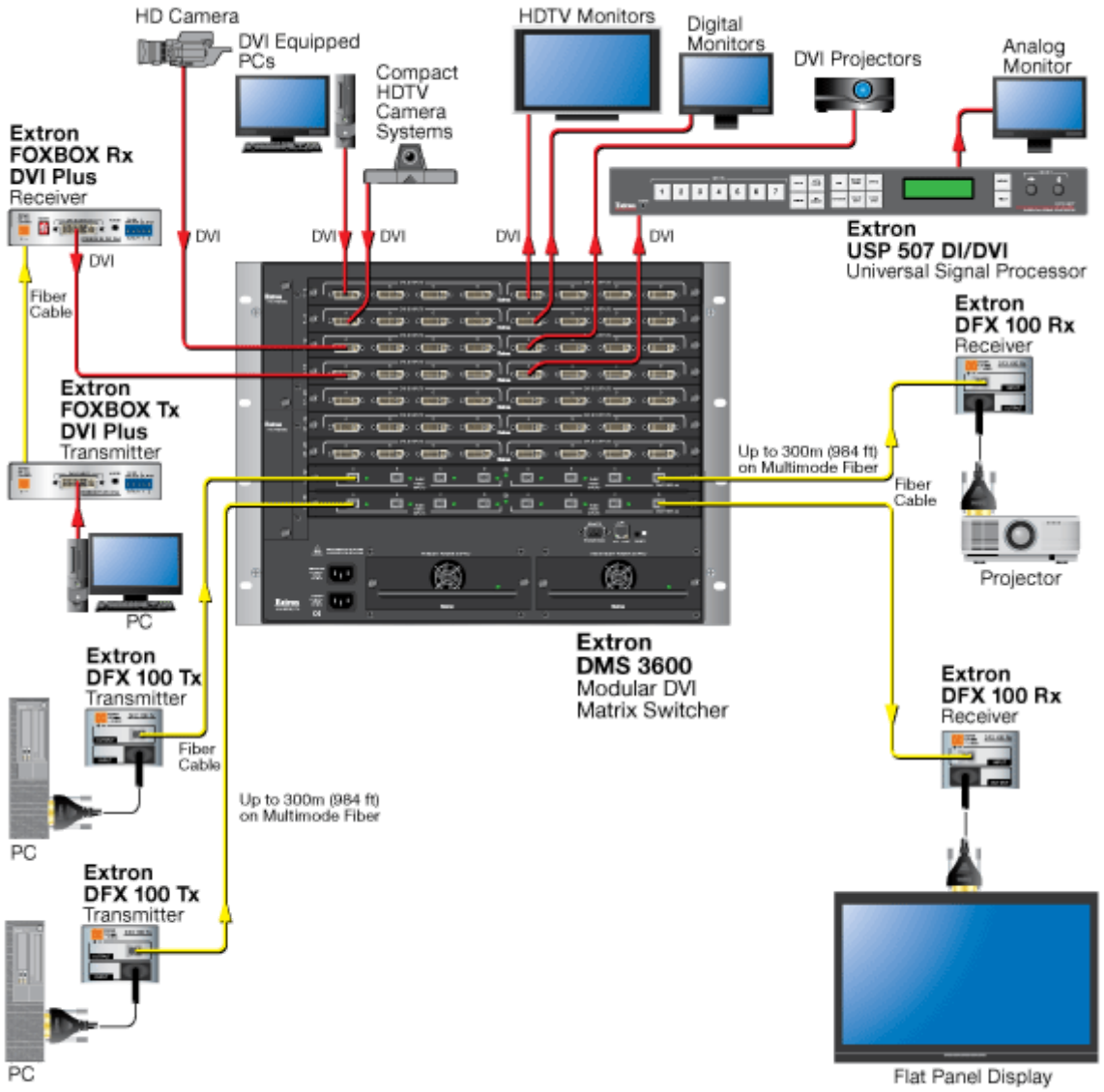
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Shipping Dimensions and Weights

Part #	Height	Width	Depth	Weight

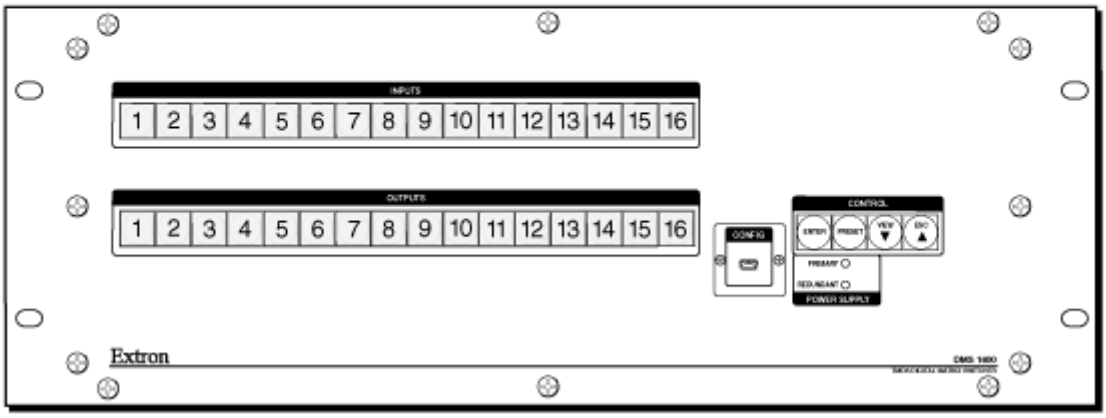
60-1091-01	12.38" (31.4 cm)	21.38" (54.3 cm)	21.38" (54.3 cm)	32.24 lbs (14.62 kg)
60-1092-01	22.0" (55.9 cm)	18.0" (45.7 cm)	18.0" (45.7 cm)	51.15 lbs (23.2 kg)
70-841-01	2.0" (5.1 cm)	18.0" (45.7 cm)	2.0" (5.1 cm)	0.77 lbs (0.35 kg)
70-710-02	2.75" (7.0 cm)	15.25" (38.7 cm)	9.5" (24.1 cm)	2.0 lbs (0.91 kg)
70-772-01	3.63" (9.2 cm)	17.2" (43.7 cm)	13.0" (33.0 cm)	3.0 lbs (1.36 kg)
70-709-02	2.5" (6.4 cm)	12.31" (31.3 cm)	8.75" (22.2 cm)	1.24 lbs (0.56 kg)
70-814-01	2.5" (6.4 cm)	9.0" (22.9 cm)	13.25" (33.7 cm)	1.7 lbs (0.77 kg)

Diagram

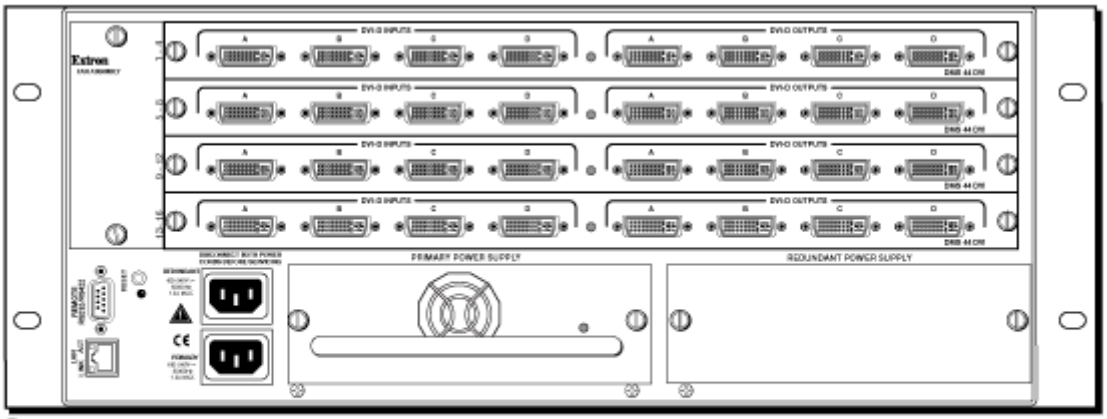


Panel Drawing

DMS 1600

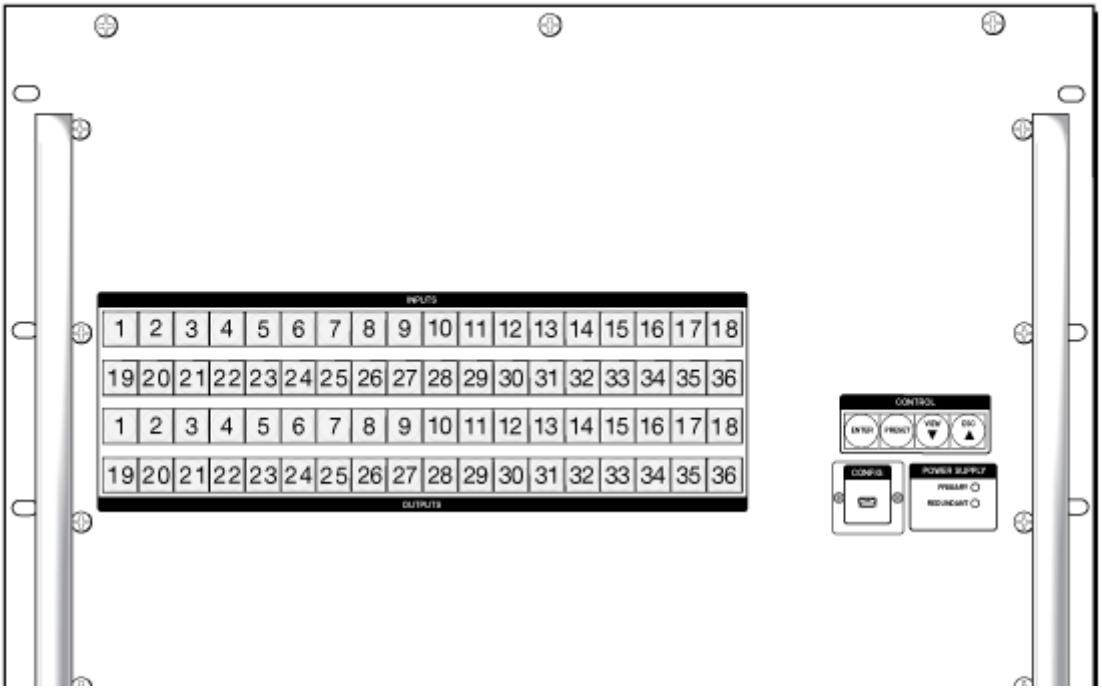


Front



Rear

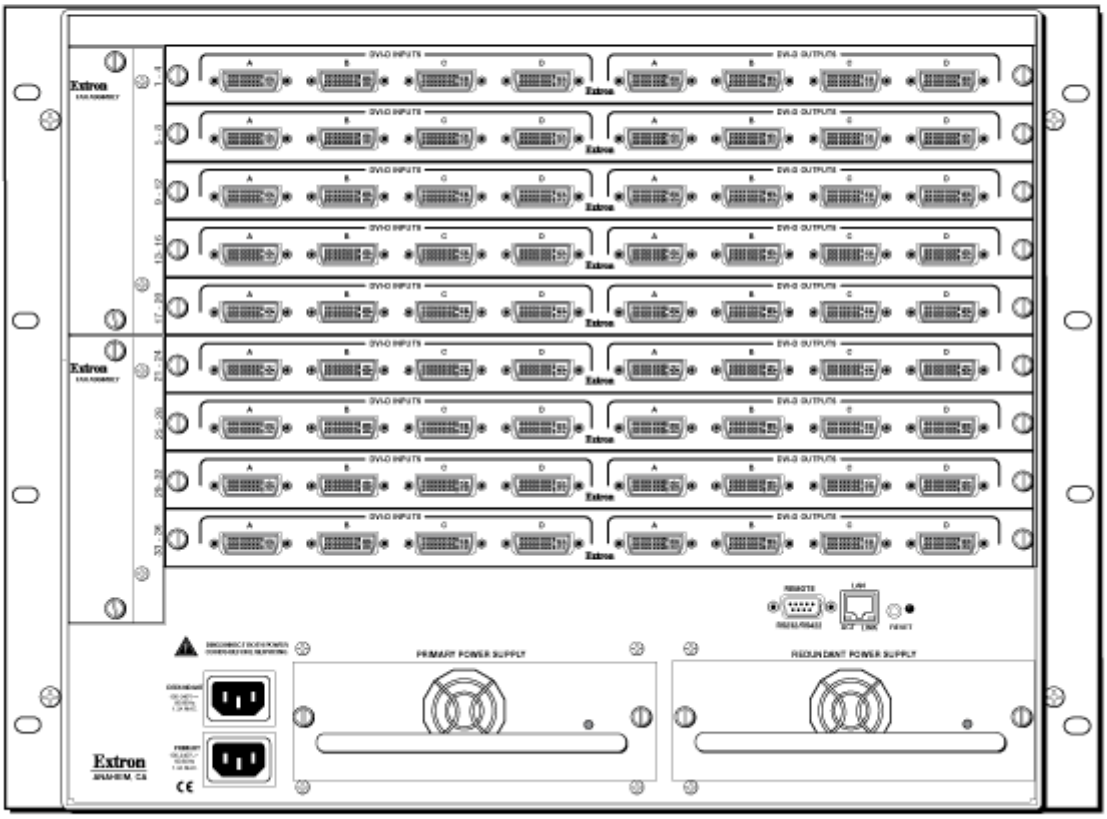
DMS 3600



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Front



Rear

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