

PowerCage 1600

MODULAR POWER ENCLOSURE FOR FIBER OPTIC AND TWISTED PAIR EXTENDERS

- ▶ Accommodates up to 16 single-slot or eight double-slot multi-function PowerCage® boards
- ▶ Modular, field-upgradeable, and hot-swappable design
- ▶ Optional redundant, hot-swappable power supplies for mission-critical environments
- ▶ Exceptional thermal management
- ▶ Space-saving design with a compact 3U, rack-mountable enclosure
- ▶ PowerCage FOX Fiber Optic Extenders support HDMI, DVI-D, 3G-SDI, RGB, or standard definition video, stereo audio, and RS-232 over fiber optic cabling
- ▶ PowerCage FOX Fiber Optic Extenders deliver pixel-for-pixel image quality at the highest resolutions
- ▶ PowerCage MTP Twisted Pair Extenders support high resolution or standard definition video, and audio or RS-232 over a single CATx cable



The Extron PowerCage 1600 is a compact 16-slot, rack-mountable enclosure that houses fiber optic and twisted pair AV transmitter and receiver boards for extending low or high resolution video, stereo audio, and RS-232 control signals over moderate to extreme distances. The PowerCage 1600 is designed for mission-critical environments and features a hot-swappable, modular design with optional redundant power supplies and active thermal management to optimize system reliability.



Extron Electronics
INTERFACING, SWITCHING AND CONTROL

DESCRIPTION

The Extron **PowerCage 1600** is a rack-mountable, 16-slot enclosure that supports a wide range of Extron fiber optic and twisted pair AV transmitter and receiver boards. Providing an efficient way to power and mount multiple transmitters and receivers, the PowerCage 1600 simplifies integration for large, rack-mounted systems. The enclosure also features an optional redundant, hot-swappable power supply plus thermal management to optimize reliability in mission-critical environments where continuous, 24/7 operation is essential. The hot-swappable, modular design allows for replacing or upgrading PowerCage® boards in the field at any time, without having to power down the system.

Exceptional thermal management provides channeled air flow to each board for optimal cooling and superior reliability. Air flows from the side of the unit to each board slot, eliminating the need for an air gap above or below the enclosure and preserving valuable rack space. The boards are designed to channel the air out the rear of the chassis for optimal cooling in each slot.

An LED on the front panel provides a real-time status alert of an over-temperature condition. Additional real-time status indicators on the front panel provide instant feedback for power status, communication, and alarm for each of the slots.

PowerCage boards occupy either a single-slot or double-slot space, depending on the board type and design. The front-panel configuration port enables communication to each board slot for configuration and convenient setup of PowerCage extender boards.

Modular Design Provides Maximum Flexibility

Available boards for the PowerCage 1600 include a collection of fiber optic and twisted pair extenders to support a broad range of video resolutions and formats. The fiber optic and twisted pair boards operate independently, and may be mixed and matched within the enclosure in any combination of transmitters and receivers to meet system needs. This versatility makes the PowerCage 1600 an ideal solution for larger systems that need to support remote sources and destinations. For example, matrix switchers generally reside in equipment racks, which are typically at some distance away from both the source equipment and display devices. In general, a mixture of transmitters and receivers are utilized to distribute signals to and from these locations, often with the need to overcome specific challenges such as limited conduit space, as well as distance limitations.

The ability to accommodate multiple transmitters and receivers in a single enclosure streamlines system design and installation. The PowerCage 1600 eliminates the need for managing individual power supplies and minimizes required rack space when factoring in additional rack units necessary for heat dissipation and cooling. The modular design also offers a degree of future-proofing, whereby unpopulated slots are available to support system growth without additional rack space, system downtime, or equipment relocation.

FEATURES

- ▶ **Accommodates up to 16 single-slot or eight double-slot multi-function boards** – The PowerCage 1600 accommodates a mix of FOX fiber optic boards and MTP twisted pair boards, providing a convenient rack mount solution for long-haul and extended transmission of AV signals.
- ▶ **Space-saving design with a compact 3U, rack-mountable enclosure** – Streamlines installation and eliminates individual power supplies for each transmitter and receiver.
- ▶ **Modular, field-upgradeable, and hot-swappable design** – Additional boards may be added at any time for quick and easy upgradeability or expansion. Hot-swappable components allow the user to replace boards or power supply at any time without the need to power down the system. This is especially useful for mission-critical applications that require continuous operation.
- ▶ **Optional redundant power supply** – Available for continuous, mission-critical applications where power reliability is crucial.
- ▶ **Hot-swappable power supplies** – Primary and optional redundant power supplies provide added reliability for critical applications.
- ▶ **Exceptional thermal management** – Provides channeled air flow to each board for optimal cooling and reliable operation.
- ▶ **PowerCage FOX Fiber Optic Extenders support HDMI, DVI-D, 3G-SDI, RGB, or standard definition video, stereo audio, and RS-232 over fiber optic cabling** – Extend high resolution or standard definition video over extreme distances.
- ▶ **PowerCage FOX Fiber Optic Extenders deliver pixel-for-pixel image quality for high resolution video** – Extron all-digital technology ensures pixel-perfect images over extreme distances at the highest resolutions.
- ▶ **PowerCage FOX Fiber Optic Extenders are compatible with FOX Series transmitters and receivers** – PowerCage FOX transmitter and receiver boards can be mixed and matched with FOX Series products for versatile system designs and configurations, including ultra-long distance digital-to-analog and analog-to-digital video conversion, without the need for external signal conversion devices. Please refer to the individual boards for full compatibility information.
- ▶ **PowerCage FOX Fiber Optic Extenders provide alarm notification for fiber link loss** – PowerCage FOX Fiber Optic Extenders can be set up to trigger an external control system for immediate notification when a fiber link has been lost.
- ▶ **PowerCage MTP Twisted Pair Extenders support high resolution or standard definition video, and audio or RS-232 over a single CATx cable** – Extend high resolution RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, and composite video long distances.

SPECIFICATIONS

CONTROL/REMOTE	
Serial control ports	
Enclosure	1 bidirectional RS-232, 2.5 mm mini stereo jack (front panel)
PowerCage FOX boards	
Control	1 bidirectional RS-232, 3.5 mm captive screw connector, 5 pole (uses 3 poles; shared with the alarm port)
Pass-through	1 RS-232, 3.5 mm captive screw connector, 5 pole (3 pins are used, "RS-232 Over Fiber")
PowerCage MTP 15HD boards	External device; pass-through, uni- or bidirectional Input/output: 1 set of proprietary signals on a female RJ-45 jack Output/input: 1 RS-232 via 3 poles of a 3.5 mm captive screw connector (3 pole for transmitter, 5 pole for receiver)
Baud rate and protocol	
PowerCage FOX boards	
Control	9600 baud, 8 data bits, 1 stop bit, no parity
Pass-through	9600 to 115,200 baud
PowerCage MTP 15HD boards	
Baud rates	Up to 38400 bps at up to 600' (182.9 m) (Higher data rates and distances are possible. Performance varies based on baud rate and cable length.)
Protocol	Data bits = 5 - 8 Stop bits = 1 or 2 Parity = odd, even, none Flow control = XON, XOFF, none Defaults: 8 data bits, 1 stop bit, no parity
Serial control pin configurations	
Captive screw connector	
PowerCage FOX boards	1 = Tx, 2 = Rx, 3 = GND
PowerCage MTP 15HD boards	Transmitter: 1 = Tx, 2 = Rx, 3 = GND Receiver: 3 = GND, 4 = Tx, 5 = Rx
Mini stereo jack	RS-232: tip = Tx, ring = Rx, sleeve = GND
Program control	For FOX boards only: Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™)
GENERAL	
Power supply	Internal, 1 or 2* (positive-negative), primary and redundant, hot-swappable 100-240 VAC, 50-60 Hz *A redundant power supply is optional.
Power consumption	
System	Enclosure without boards: 12.4 watts
Individual FOX boards	FOX Tx VGA: 5.68 watts FOX Rx VGA: 6.54 watts FOX Tx DVI: 5.67 watts FOX Rx DVI: 5.50 watts FOX 3G HD-SDI: 1.84 watts FOX Tx AV: 6.89 watts FOX Rx AV: 5.57 watts FOX DVI Plus Tx: 5.68 watts FOX DVI Plus Rx: 6.18 watts

Individual MTP boards	FOX Tx HDMI: 6.02 watts FOX Rx HDMI: 6.02 watts FOX SR HDMI: 8.8 watts FOX AEX 104: 7.9 watts MTP T 15HD RSA: 4.30 watts MTP R 15HD RSA SEQ: 8.38 watts MTP T AV: 2.69 watts MTP R AV: 3.92 watts	
Power input requirements for boards	12 VDC, 1.0 A, supplied by the PowerCage enclosure	
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	Enclosure: fans, front to back Boards: convection, within the PowerCage enclosure	
Thermal dissipation		
FOX SR HDMI board	29.8 BTU/hr	
FOX AEX 104	27.0 BTU/hr	
All other boards	27.6 BTU/hr	
Mounting — PowerCage enclosure		
Rack mount	Yes	
Enclosure type	Metal	
Enclosure dimensions		
PowerCage enclosure	5.25" H x 17.0" W x 12.25" D (3U high, full rack wide) 13.3 cm H x 43.2 cm W x 31.2 cm D (Depth excludes connectors on the optional boards. Width excludes rack ears.)	
PowerCage FOX boards	Each fits a double slot opening in a PowerCage enclosure.	
PowerCage MTP R 15HD RSA SEQ	Each fits a double slot opening in a PowerCage enclosure.	
All other boards	Each fits a single slot opening in a PowerCage enclosure.	
Product weight		
PowerCage enclosure	11.6 lbs (5.3 kg)	
PowerCage FOX boards	1.1 lbs (0.5 kg)	
PowerCage MTP R 15HD RSA SEQ	1.0 lbs (0.5 kg)	
All other boards	0.8 lbs (0.4 kg)	
Shipping weight		
PowerCage enclosure	13 lbs (6 kg)	
Boards	2 lbs (1 kg) each	
Vibration	ISTA 1A in carton (International Safe Transit Association)	
Regulatory compliance		
Safety	CE, c-UL, UL Additionally for FOX boards: FDA Class 1	
EMI/EMC	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%.		
Model	Version Description	Part number
PowerCage 1600 Enclosure	3U, 16-Slot Frame	60-978-01
PowerCage 1600 Power Supply Kit	Redundant Power Supply Option	70-784-01

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

FIBER OPTIC AND TWISTED PAIR BOARDS

Fiber Optic Boards for PowerCage 1600			
PowerCage FOX Tx HDMI MM	Fiber Optic Transmitter for HDMI, Audio, and RS-232	Multimode - Transmitter	70-889-11
PowerCage FOX Tx HDMI SM	Fiber Optic Transmitter for HDMI, Audio, and RS-232	Singlemode - Transmitter	70-889-12
PowerCage FOX Rx HDMI MM	Fiber Optic Receiver for HDMI, Audio, and RS-232	Multimode - Receiver	70-889-21
PowerCage FOX Rx HDMI SM	Fiber Optic Receiver for HDMI, Audio, and RS-232	Singlemode - Receiver	70-889-22
PowerCage FOX SR HDMI MM	Fiber Optic Scaling Receiver for HDMI, Audio, and RS-232	Scaling Receiver - Multimode	70-904-21
PowerCage FOX SR HDMI SM	Fiber Optic Scaling Receiver for HDMI, Audio, and RS-232	Scaling Receiver - Singlemode	70-904-22
PowerCage FOX Tx DVI Plus MM	Fiber Optic Transmitter for DVI-D, Audio, and RS-232	Multimode - Transmitter	70-873-11
PowerCage FOX Tx DVI Plus SM	Fiber Optic Transmitter for DVI-D, Audio, and RS-232	Singlemode - Transmitter	70-873-12
PowerCage FOX Rx DVI Plus MM	Fiber Optic Receiver for DVI-D, Audio, and RS-232	Multimode - Receiver	70-873-21
PowerCage FOX Rx DVI Plus SM	Fiber Optic Receiver for DVI-D, Audio, and RS-232	Singlemode - Receiver	70-873-22
PowerCage FOX Tx DVI MM	Fiber Optic Transmitter for DVI, Audio, and RS-232	Multimode - Transmitter	70-700-11
PowerCage FOX Tx DVI SM	Fiber Optic Transmitter for DVI, Audio, and RS-232	Singlemode - Transmitter	70-700-12
PowerCage FOX 3G HD-SDI MM	Fiber Optic Extender for 3G-SDI	Multimode - Transceiver	70-701-01
PowerCage FOX 3G HD-SDI SM	Fiber Optic Extender for 3G-SDI	Singlemode - Transceiver	70-701-02
PowerCage FOX Tx VGA MM	Fiber Optic Transmitter for VGA, Audio, and RS-232	Multimode - Transmitter	70-699-11
PowerCage FOX Tx VGA SM	Fiber Optic Transmitter for VGA, Audio, and RS-232	Singlemode - Transmitter	70-699-12
PowerCage FOX Rx VGA MM	Fiber Optic Receiver for VGA, Audio, and RS-232	Multimode - Receiver	70-699-21
PowerCage FOX Rx VGA SM	Fiber Optic Receiver for VGA, Audio, and RS-232	Singlemode - Receiver	70-699-22
PowerCage FOX Tx AV MM	Fiber Optic Transmitter for Video, Audio, and RS-232	Multimode - Transmitter	70-702-11
PowerCage FOX Tx AV SM	Fiber Optic Transmitter for Video, Audio, and RS-232	Singlemode - Transmitter	70-702-12
PowerCage FOX Rx AV MM	Fiber Optic Receiver for Video, Audio, and RS-232	Multimode - Receiver	70-702-21
PowerCage FOX Rx AV SM	Fiber Optic Receiver for Video, Audio, and RS-232	Singlemode - Receiver	70-702-22
PowerCage FOX AEX 104 MM	Four Port Fiber Optic Audio Extractor	Audio Extractor - Multimode	70-960-01
PowerCage FOX AEX 104 SM	Four Port Fiber Optic Audio Extractor	Audio Extractor - Singlemode	70-960-02
Twisted Pair Boards for PowerCage 1600			
PowerCage MTP R 15HD RSA SEQ	MTP Twisted Pair Receiver for VGA and Audio or RS-232 with Skew Equalization	Receiver w/Skew Equalizer	70-818-01
PowerCage MTP R AV	MTP Twisted Pair Receiver for Composite or S-Video and Audio	Receiver	70-816-01
PowerCage MTP T 15HD RSA	MTP Twisted Pair Transmitter for VGA and Audio or RS-232	Transmitter	70-817-01
PowerCage MTP T AV	MTP Twisted Pair Transmitter for Composite or S-Video and Audio	Transmitter	70-815-01

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