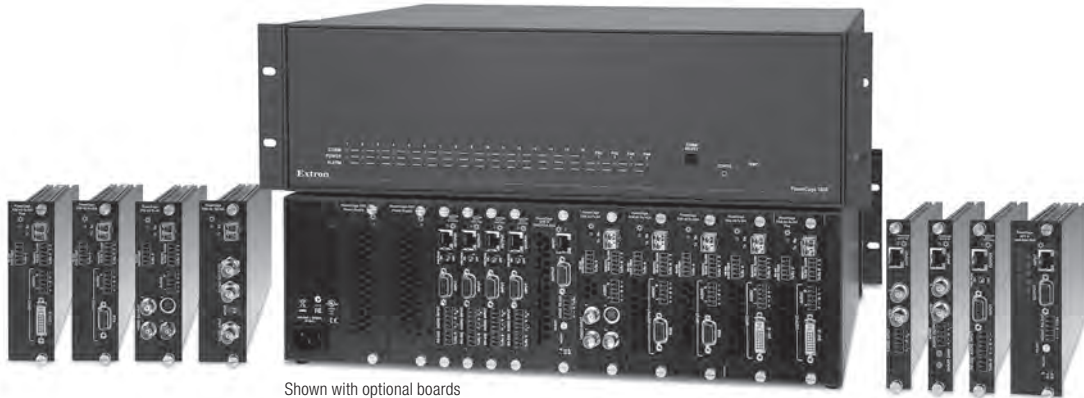


PowerCage™ 1600

Modular Power Enclosure for Fiber Optic and Twisted Pair Extenders



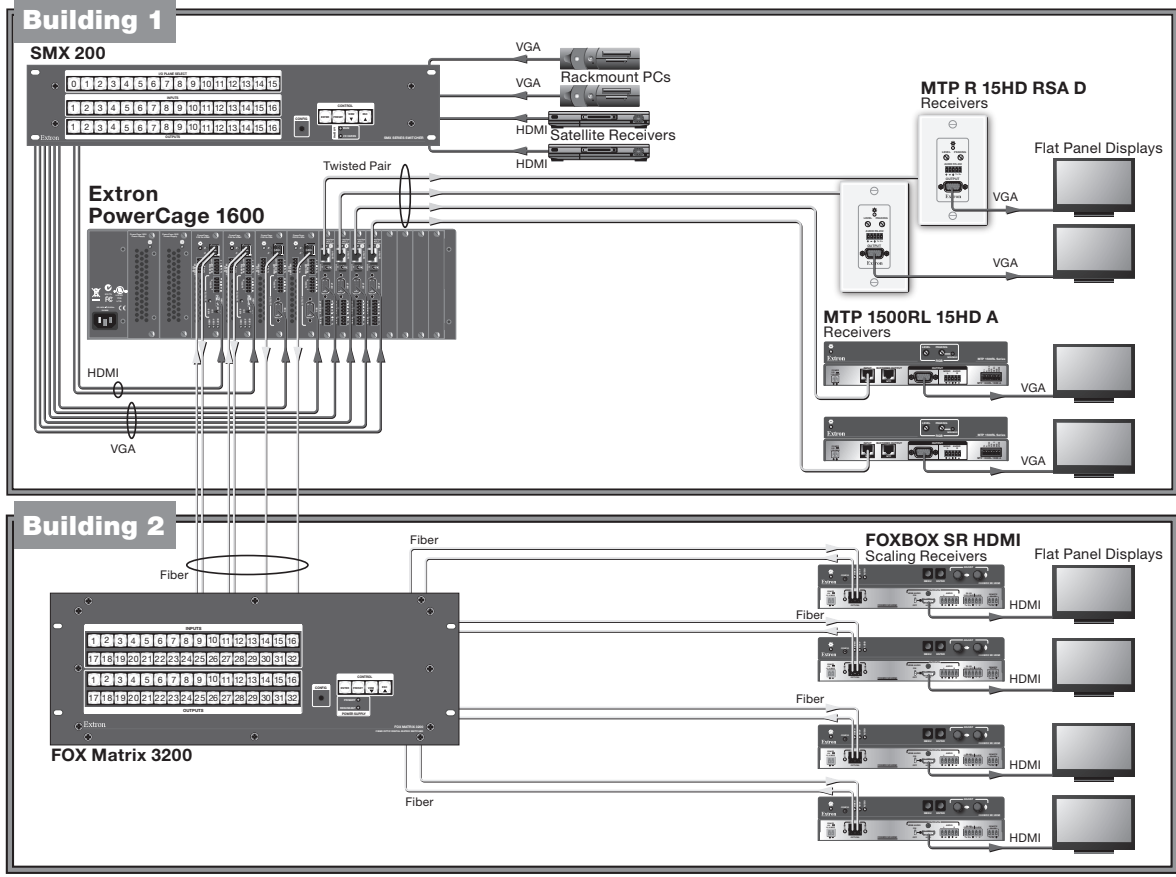
Shown with optional boards

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 PowerCage 1600 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 boards in the field at any time, without having to power down the system.

FEATURES

- Accommodates up to 16 single-slot or eight double-slot multi-function boards
- Space-saving design with a compact 3U, rack-mountable enclosure
- Modular, field-upgradeable, and hot-swappable design
- Optional redundant power supply
- Hot-swappable power supplies
- Exceptional thermal management
- PowerCage FOX Fiber Optic Extenders support standard definition or high resolution video, stereo audio, and RS-232 over fiber optic cabling
- PowerCage MTP Twisted Pair Extenders support standard definition or high resolution video, and audio or RS-232 over a single CAT 5-type cable



PowerCage 1600 Enclosure Modular Power Enclosure for Fiber Optic and Twisted Pair Extenders

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Shown with optional boards





MODEL	VERSION DESCRIPTION	PART #
PowerCage 1600 Enclosure	3U, 16-Slot Frame	60-978-01
PowerCage 1600 Power Supply Kit	Redundant Power Supply Option	70-784-01

PowerCage™ FOX HDMI Fiber Optic Extender for HDMI, Audio, and RS-232

FEATURES

- Extends HDMI, stereo audio, and RS-232 control signals very long distances over fiber optic cabling
- HDCP compliant
- All digital technology provides pixel-for-pixel performance with signals up to 1920x1200, including HDTV 1080p/60
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- EDID Minder® automatically manages EDID communication between connected devices
- HDMI 1.3 compatible
- Modular, field-upgradeable, and hot-swappable boards designed for the PowerCage 1600 enclosure
- Audio embedding with gain, attenuation, and muting control
- HDMI audio de-embedding with analog stereo outputs
- HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display



MODEL	VERSION DESCRIPTION	PART #
PowerCage FOX Tx HDMI MM 	Multimode - Transmitter	70-889-11
PowerCage FOX Rx HDMI MM 	Multimode - Receiver	70-889-21
PowerCage FOX Tx HDMI SM 	Singlemode - Transmitter	70-889-12
PowerCage FOX Rx HDMI SM 	Singlemode - Receiver	70-889-22

PowerCage™ FOX DVI Plus Fiber Optic Extender for DVI-D, Audio, and RS-232

FEATURES

- Extends single link DVI-D, stereo audio, and RS-232 control signals very long distances over a single fiber
- All digital technology provides pixel-for-pixel performance with signals up to 1920x1200, including HDTV 1080p/60
- Modular, field-upgradeable, and hot-swappable boards designed for the PowerCage™ 1600 enclosure
- EDID Emulation provides selectable resolutions and refresh rates to ensure reliable operation
- Daisy-chain capability
- Alarm notification for fiber link loss



Transmitter

Receiver

MODEL	VERSION DESCRIPTION	PART #
PowerCage FOX Tx DVI Plus MM	Multimode - Transmitter	70-873-11
PowerCage FOX Rx DVI Plus MM	Multimode - Receiver	70-873-21
PowerCage FOX Tx DVI Plus SM	Singlemode - Transmitter	70-873-12
PowerCage FOX Rx DVI Plus SM	Singlemode - Receiver	70-873-22

PowerCage™ FOX Tx DVI Fiber Optic Extender for DVI, Audio, and RS-232

FEATURES

- Extends single link DVI-D, stereo audio, and RS-232 control signals very long distances over a single fiber
- All digital technology provides pixel-for-pixel performance with signals up to 1600x1200, including HDTV 1080p/60
- Modular, field-upgradeable, and hot-swappable boards designed for the PowerCage 1600 enclosure
- EDID Emulation provides selectable resolutions and refresh rates to ensure reliable operation
- Daisy-chain capability
- Alarm notification for fiber link loss



MODEL	VERSION DESCRIPTION	PART #
PowerCage FOX Tx DVI MM	Multimode - Transmitter	70-700-11
PowerCage FOX Tx DVI SM	Singlemode - Transmitter	70-700-12

PowerCage™ FOX 3G HD-SDI Fiber Optic Extender for Multi-Rate SDI

FEATURES

- Extends SDI, HD-SDI, and 3G-SDI signals very long distances over a single fiber
- Modular, field-upgradeable, and hot-swappable boards designed for the PowerCage 1600 enclosure
- Input equalization and reclocking on buffered outputs
- Dual buffered outputs
- Daisy-chain capability



MODEL	VERSION DESCRIPTION	PART #
PowerCage FOX 3G HD-SDI MM	Multimode - Transceiver	70-701-01
PowerCage FOX 3G HD-SDI SM	Singlemode - Transceiver	70-701-02

PowerCage™ FOX VGA

Fiber Optic Extender for VGA, Audio, and RS-232

FEATURES

- Extends VGA, stereo audio, and RS-232 control signals very long distances over a single fiber
- All digital technology provides pixel-for-pixel performance with signals up to 1600x1200
- Modular, field-upgradeable, and hot-swappable boards designed for the PowerCage 1600 enclosure
- Daisy-chain capability
- Available as an 850 nm multimode model for moderate-range transmissions, and a 1310 nm singlemode model for extreme distances up to 30 km (18.75 miles)
- Alarm notification for fiber link loss
- Auto Input Memory
- RS-232 control at transmitter and receiver



Transmitter



Receiver

MODEL	VERSION DESCRIPTION	PART #
PowerCage FOX Tx VGA MM	Multimode - Transmitter	70-699-11
PowerCage FOX Rx VGA MM	Multimode - Receiver	70-699-21
PowerCage FOX Tx VGA SM	Singlemode - Transmitter	70-699-12
PowerCage FOX Rx VGA SM	Singlemode - Receiver	70-699-22

PowerCage™ FOX AV

Fiber Optic Extender for Video, Audio, and RS-232

FEATURES

- Extends standard definition video, stereo audio, and RS-232 control signals very long distances over a single fiber
- Accepts component video, S-video, and composite video signals
- All digital technology provides pixel-for-pixel performance
- Modular, field-upgradeable, and hot-swappable boards designed for the PowerCage 1600 enclosure
- Auto Input Format Detection
- Picture and audio adjustments
- Internal transcoding with selectable output format
- Daisy-chain capability
- Available as an 850 nm multimode model for moderate-range transmissions, and a 1310 nm singlemode model for extreme distances up to 30 km (18.75 miles)
- RS-232 control at transmitter and receiver
- Alarm notification for fiber link loss



Transmitter



Receiver

MODEL	VERSION DESCRIPTION	PART #
PowerCage FOX Tx AV MM	Multimode - Transmitter	70-702-11
PowerCage FOX Rx AV MM	Multimode - Receiver	70-702-21
PowerCage FOX Tx AV SM	Singlemode - Transmitter	70-702-12
PowerCage FOX Rx AV SM	Singlemode - Receiver	70-702-22

For information on PowerCage MTP twisted pair transmitters and receivers, see page 436.

SPECIFICATIONS	
NOTE: The optional PowerCage FOX 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.	
OPTICAL SPECIFICATIONS - POWERCAGE FOX BOARDS, INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER	
Number/type	1 singlemode or 1 multimode fiber optic input and output per FOX board, up to 8 double space boards per PowerCage enclosure
Operating distance	Singlemode 30 km (18.75 miles) with singlemode (SM) cables with a SM board Multimode 300 m (985') with 62.5 µm OM1 multimode (MM) cable and a MM board 1 km (3280') with 50 µm OM2 multimode (MM) cable and a MM board 2 km (6561') with 50 µm OM3/OM4 2000 MHz bandwidth laser optimized MM cable and a MM board
Nominal peak wavelength	850 nm for multimode (MM), 1310 nm for singlemode (SM)
Transmission power, singlemode or multimode	-5 dBm, typical
Maximum receiver sensitivity	Singlemode -18 dBm, typical Multimode -12 dBm, typical
Optical loss budget	Singlemode 13 dB, maximum Multimode 7 dB, maximum
Maximum channel data rate	PowerCage FOX AV boards 2.125 Gbps Other PowerCage FOX boards 4.25 Gbps
VIDEO - POWERCAGE FOX TX/RX VGA	
Maximum resolution	1600x1200 or 1080p @ 60 Hz, digitized pixel for pixel; higher resolutions up to 2048x1120, undersampled
VIDEO INPUT - POWERCAGE FOX TX VGA	
Number/signal type	1 VGA-UXGA RGBHV, RGBS, RGSB, RSGBsBs
VIDEO OUTPUT - POWERCAGE FOX RX VGA	
Number/signal type	With input from a FOXBOX Tx VGA or a FOX 500 Tx: 1 VGA-UXGA RGBHV, RGSB (follows input or can be set by user) With input from a FOXBOX Tx VGA/YUV: 1 VGA-UXGA RGBHV, component video (bi- or tri-level YUV, 480p, 576p, 720p, 1080i, 1080p)
Video delay	1-2 frames
VIDEO - POWERCAGE FOX TX DVI, POWERCAGE FOX TX/RX DVI PLUS	
Resolution range	PowerCage FOX Tx DVI Up to 1600x1200 or 1080p @ 60 Hz pixel for pixel; higher resolutions up to 1920x1200 @ 60 Hz, undersampled PowerCage FOX Tx/Rx DVI Plus Up to 1920x1200 or 1080p @ 60 Hz pixel for pixel
Formats	RGB and YCbCr digital video
Standards	DVI 1.0, HDMI 1.2
VIDEO INPUT - POWERCAGE FOX TX DVI, POWERCAGE FOX TX DVI PLUS	
Number/signal type	1 single link DVI-D (or HDMI*)
Connector	1 female DVI-I
NOTE: *Appropriate DVI-D to HDMI cables or adapters are required for HDMI signal input/output. The PowerCage FOX DVI and DVI Plus boards can be used to distribute HDMI signals if you use a DVI-to-HDMI adapter. However, when using HDMI signals, these units do not transmit audio and CEC signals. These boards do not support transmission of DVI signals with High-bandwidth Digital Content Protection (HDCP).	
VIDEO OUTPUT - POWERCAGE FOX RX DVI PLUS	
Video delay	1-2 frames
VIDEO INPUT - POWERCAGE FOX 3G HD-SDI TRANSMITTER	
Input cable equalization	Automatic for up to -30 dB of cable loss
HD-SDI	120 m (400') using Extron RG6 cable 90 m (300') using Extron RG59 cable
SDI	150 m (500') using Extron RG6 cable 120 m (400') using Extron RG59 cable
VIDEO - POWERCAGE FOX TX/RX AV	
Standards	Input NTSC 3.58, NTSC 4.43, PAL, SECAM, autodetected Output NTSC 3.58, PAL (follows vertical rate)
VIDEO OUTPUT - POWERCAGE FOX RX AV	
Video delay	1-2 frames
VIDEO - POWERCAGE FOX TX/RX HDMI	
NOTE: Appropriate HDMI to DVI-D cables or adapters are required for DVI signal input and output.	
Maximum data rate	4.95 Gbps (1.65 Gbps per color)
Maximum pixel clock	165 MHz
Resolution range	Up to 1920x1200 or 1080p @ 60 Hz, 8-bit color
Formats	RGB, YCbCr, xvYCC digital video

VIDEO INPUT - POWERCAGE MTP T 15HD RSA	
Number/signal type	1 analog RGBHV, RGBS, RGSB, RSGBsBs, component video (YUVi or YUVp/HDTV), S-video, or composite video
VIDEO OUTPUT - POWERCAGE MTP R 15HD RSA SEQ	
Number/signal type	1 analog VGA-UXGA RGBHV, RGBS, RGSB, RSGBsBs, component video (YUVi or YUVp/HDTV), S-video, or composite video
Maximum resolution	Up to 1920x1200 or 2048x1080 or 1080p at 300' Up to 1024x768 at 600'
AUDIO OUTPUT - POWERCAGE FOX RX VGA, POWERCAGE FOX RX DVI PLUS	
Number/signal type	1 unbalanced stereo or 2 unbalanced mono
Audio delay	1.5 frames
AUDIO OUTPUT - POWERCAGE FOX RX AV	
Number/signal type	1 stereo, balanced/unbalanced or 2 mono, balanced/unbalanced
Audio delay	1.5 frames
AUDIO OUTPUT - POWERCAGE FOX RX HDMI	
Audio delay	1.5 frames
AUDIO INPUT - POWERCAGE MTP T 15HD RSA	
Number/signal type	1 stereo, unbalanced
AUDIO OUTPUT - POWERCAGE MTP R 15HD RSA SEQ	
Number/signal type	1 mono, balanced/unbalanced
Connector	(1) 3.5 mm captive screw connector, 5 pole
AUDIO INPUT - POWERCAGE MTP T AV	
Number/signal type	1 stereo, balanced/unbalanced
AUDIO OUTPUT - POWERCAGE MTP R AV	
Number/signal type	2 mono, balanced/unbalanced
Connector	(1) 3.5 mm captive screw connector, 5 pole
GENERAL	
Power supply	Internal* 100-240 VAC, 50-60 Hz; 1 or 2* (positive-negative) hot-swappable power supplies *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 FOX Tx HDMI: 5.68 watts FOX Rx HDMI: 6.18 watts
Cooling	Enclosure: fans, front to back Boards: convection, within the PowerCage enclosure
Thermal dissipation	27.6 BTU/hr
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.)
Shipping weight	PowerCage enclosure 13 lbs (6 kg) Boards 2 lbs (1 kg) each
Regulatory compliance	Safety CE, c-UL, UL Additionally for FOX boards: FDA Class 1
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
MTBF	30,000 hours
Warranty	3 years parts and labor
NOTE: All nominal levels are at ±10%.	
NOTE: Specifications are subject to change without notice.	

For complete specifications, please go to www.extron.com