

# PowerCage 401 FOX D HD

DUAL FIBER OPTIC EXTENDERS  
FOR HDMI, AUDIO, AND RS-232

- ▶ Extends HDMI, stereo audio, and RS-232 control signals very long distances over fiber optic cabling
- ▶ HDCP compliant
- ▶ User-selectable HDCP authorization
- ▶ All-digital technology provides pixel-for-pixel performance with signals up to 1920x1200, including 1080p/60
- ▶ Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- ▶ EDID Minder® automatically manages EDID communication between connected devices
- ▶ Modular, hot-swappable modules designed for the PowerCage 401 enclosure
- ▶ Audio embedding and de-embedding with analog stereo outputs
- ▶ RS-232 insertion from the Ethernet port on the PowerCage 401 enclosure
- ▶ Available as 850 nm multimode and 1310 nm singlemode models



PowerCage 401 FOX DT HD

PowerCage 401 FOX DR HD

The Extron PowerCage 401 FOX DT HD and PowerCage 401 FOX DR HD are modular, dual fiber optic extenders designed for the PowerCage 401 enclosure, providing HDMI, audio, and control signal extension over fiber optic cabling. Each hot-swappable module includes two independent FOX HDMI transmitters or receivers. The design of the PowerCage 401 FOX D HD modules allow up to eight extenders in a single, 1U rack space.



**Extron Electronics**  
INTERFACING, SWITCHING AND CONTROL

## DESCRIPTION

The Extron **PowerCage 401 FOX DT HD** and **PowerCage 401 FOX DR HD** are modular, dual fiber optic extenders designed for the PowerCage 401 enclosure, providing HDMI, audio, and control signal extension over fiber optic cabling. Engineered with uncompromising quality and proven performance, they use Extron all-digital technology to deliver pixel-for-pixel images up to 1920x1200. Each hot-swappable module is HDCP compliant, and includes two independent FOX HDMI extenders. Integration-friendly features include audio embedding, HDMI audio de-embedding with analog stereo outputs, Auto-Input Memory, real-time status monitoring, and RS-232 insertion via the enclosure. Available in multimode and singlemode versions, the PowerCage 401 FOX D HD modules are designed to allow up to four dual-extender boards in a single 1U rack space.

## KEY FEATURES

- ▶ Extends HDMI, stereo audio, and RS-232 control signals very long distances over fiber optic cabling
- ▶ HDCP compliant
- ▶ User-selectable HDCP authorization
- ▶ All-digital technology provides pixel-for-pixel performance with signals up to 1920x1200, including 1080p/60
- ▶ Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- ▶ EDID Minder® automatically manages EDID communication between connected devices
- ▶ Hot-swappable modules designed for the PowerCage 401 enclosure
- ▶ Audio embedding
- ▶ Audio gain and attenuation adjustment capability
- ▶ HDMI audio de-embedding with analog stereo outputs
- ▶ Audio muting capability
- ▶ RS-232 insertion from the Ethernet port on the PowerCage 401 enclosure
- ▶ HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display
- ▶ Space-saving design enables up to four dual-extender boards to be mounted in a 1U rack-mountable enclosure
- ▶ Real-time status LED indicators for troubleshooting and monitoring
- ▶ Compatible with Extron FOX Series HDMI, DVI, and VGA extenders, as well as FOX II Series DisplayPort receivers
- ▶ Compatible with Extron FOX Matrix Switchers for signal distribution systems up to 1000x1000 and larger

## SPECIFICATIONS

**NOTE:** The PowerCage 401 FOX DT HD and PowerCage 401 FOX DR HD boards are a class 1 laser product. It meets the safety regulations of IEC-60825.

### OPTICAL FIBER INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

<b>Number/type</b>	4 singlemode or 4 multimode fiber optic input and output per FOX board
<b>Operating distance</b>	
Singlemode	30 km (18.75 miles) with singlemode (SM) cables with a SM board
Multimode	300 m (984') 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 2000/4700 MHz bandwidth laser optimized MM cable and a MM board

<b>Optical loss budget</b>	
Singlemode	13 dB, maximum
Multimode	7 dB, maximum

<b>Maximum channel data rate</b>	4.25 Gbps
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### VIDEO

<b>Maximum data rate</b>	4.95 Gbps
<b>Maximum pixel clock</b>	165 MHz
<b>Color space</b>	4:4:4
<b>Formats</b>	RGB and YCbCr digital video
<b>Standards</b>	DVI 1.0, HDMI 1.4a, HDCP 1.4, CEA-861E

### VIDEO INPUT – TRANSMITTERS

<b>Number/signal type</b>	2 single link HDMI
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### VIDEO OUTPUT – RECEIVERS

<b>Number/signal type</b>	2 single link HDMI
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### AUDIO INPUT – TRANSMITTERS

<b>Number/signal type</b>	2 stereo, unbalanced or 4 mono, unbalanced 2 stereo, de-embedded from HDMI (2-ch, PCM only)
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### AUDIO OUTPUT – RECEIVERS

<b>Number/signal type</b>	2 stereo, unbalanced or 4 mono, unbalanced 2 stereo, de-embedded from HDMI (2-ch, PCM only)
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### COMMUNICATIONS – SERIAL PASS-THROUGH PORT

<b>Serial pass-through port</b>	2 bidirectional RS-232, 3.5 mm captive screw connector, 3 pole (through FOX DT HD or FOX DR HD)
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### GENERAL

<b>Power supply</b>	Supplied by PowerCage 401 enclosure.
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<b>Regulatory compliance</b>	
Safety	CE, c-UL, FDA Class 1, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
Environmental	Complies with the appropriate requirements of RoHS, WEEE.

<b>Warranty</b>	3 years parts and labor
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Model	Version Description	Part number
PowerCage 401 FOX DT HD MM	Dual Transmitter - Multimode	70-1092-11
PowerCage 401 FOX DT HD SM	Dual Transmitter - Singlemode	70-1092-12
PowerCage 401 FOX DR HD MM	Dual Receiver - Multimode	70-1092-21
PowerCage 401 FOX DR HD SM	Dual Receiver - Singlemode	70-1092-22

For complete specifications, please go to [www.extron.com](http://www.extron.com)  
Specifications are subject to change without notice.

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