FOX3 302 Series

DUAL HDMI EXTENDERS



FOX3 302 Series Extenders provide secure long-haul transmission of two independent HDMI video signals, USB, stereo audio, control, and 3D sync signals over fiber optic cabling. Engineered for exceptional high resolution image performance, they use Extron all-digital technology to deliver visually lossless transmission of images up to 4K/60 @ 4:4:4 over a fiber optic cable.

- Extends two HDMI video signals with USB, stereo audio, RS-232 control, IR control, and 3D sync signals over fiber optic cabling
- Supports two visually lossless 4K video signals up to 4096x2160 at 60 Hz with a 4:4:4 chroma sampling over one fiber
- Supports USB 2.0 to 1.0 devices and USB 3.0 devices that can operate at USB 2.0 data rates of up to 480 Mbps
- Scaling receiver features a high performance scaler with selectable output resolutions up to 4096x2160 at 60 Hz with a 4:4:4 chroma sampling
- Available as an 850 nm multimode model for moderate-range transmissions up to 500 m (1640 feet) and a 1310 nm singlemode model for extreme distances up to 20 km (12.4 miles)

Extron

DESCRIPTION

Supporting data rates up to 18 Gbps, **FOX3 302 Series** extenders are designed to deliver visually lossless video images up to 4096x2160 at 60 Hz with 4:4:4 chroma sampling. Maintaining a 60 Hz frame rate with a 4:4:4 color space ensures smooth frame transitions in full-motion video and preserves the details of high-quality computer images, such as CAD drawings.

FOX3 302 Series Extenders are compatible with the complete line of FOX3 Matrix Switchers. Extron FOX3 Matrix Switchers are available in standard sizes up to 840x840 as well as custom designs up to 2000x2000 and larger. From point-to-point extension to fully non-blocking matrix applications up to 2000x2000 and beyond, FOX3 Systems securely deliver unrivaled performance and reliability to satisfy even the most discerning users.

Uncompromised Image Quality

Supporting data rates up to 18 Gbps, FOX3 302 Series extenders are designed to deliver dual visually lossless video images up to 4096x2160 at 60 Hz with 4:4:4 chroma sampling. Maintaining a 60 Hz frame rate with a 4:4:4 color space ensures smooth frame transitions in full-motion video and preserves the details of high-quality computer images, such as CAD drawings.

Enterprise-Wide KVM Signal Distribution Systems

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Designed for Secure Systems

FOX3 302 Dual HDMI extenders feature HDMI Protocol Security to ensure a secure HDMI connection between the source and destination. Consumer Electronics Control (CEC), Ethernet signal transport and Return Audio Channel (ARC) signal pathways are not supported on secure HDMI connections.

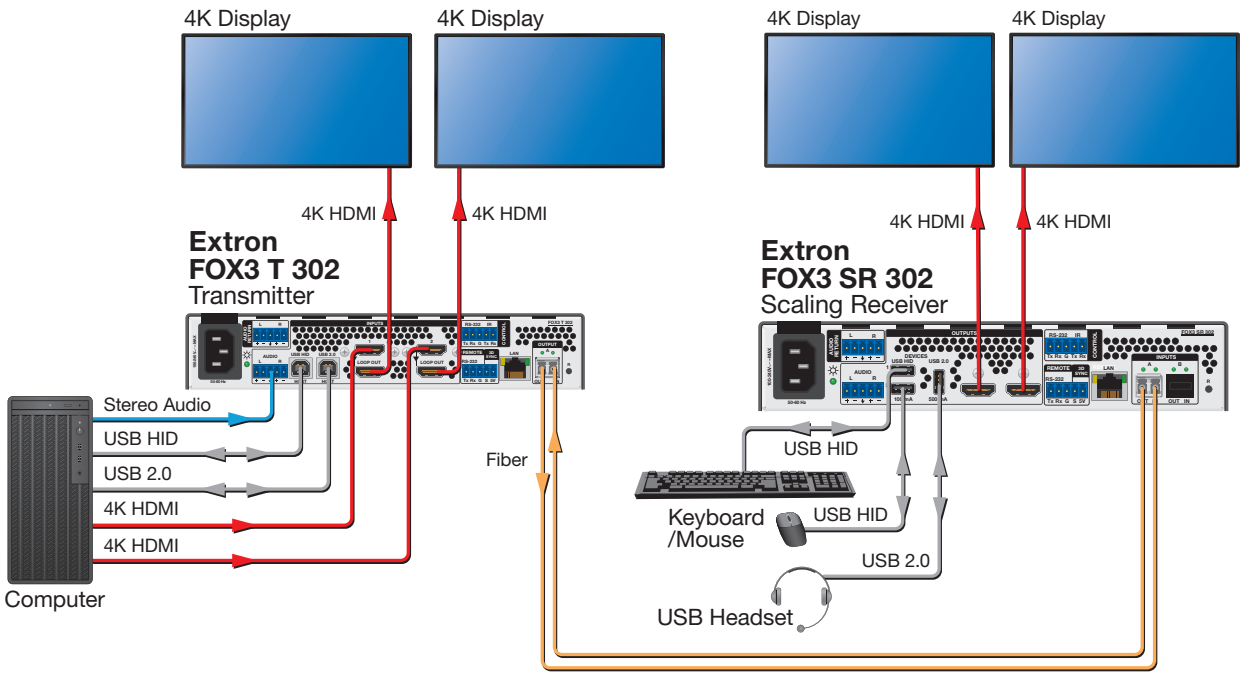
Additionally, FOX3 Systems use two methods to ensure sensitive data is properly segregated and protected - Priority Switching and Secure Partitioning. Priority Switching assigns a security level to each input and output. An output can only be tied to an input at the same security level or lower, preventing unauthorized access to sensitive data. Priority Switching is useful in systems with multiple security classification levels.

Secure Partitioning enables the matrix switcher to be divided into smaller sub-switchers for segregating sources and destinations into partitions. Sources can only be routed to destinations within the same partition. Any attempt to tie an input and output in different partitions is prohibited, returning an error code. Secure Partitioning is useful for separating secure and unclassified data.

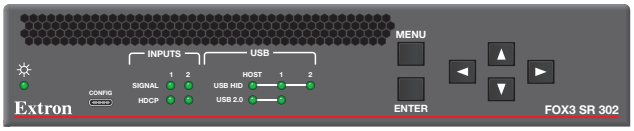
FEATURES

- Supported HDMI 2.0 specification features include data rates up to 18 Gbps, Deep Color up to 10-bit, and 3D
- HDCP 2.3 compliant
- Supports USB 2.0 to 1.0 devices and USB 3.0 devices that can operate at USB 2.0 data rates of up to 480 Mbps
- Device class filtering on USB HID port restricts the range of device types to HID
- Two independent buffered HDMI input loop-throughs
- Analog audio embedding and de-embedding with analog stereo outputs
- User-selectable HDCP authorization
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- EDID Minder® automatically manages EDID communication between connected devices
- Transmiter features audio gain and attenuation adjustment capability
- Analog audio return channel
- Bidirectional RS-232 and IR signal transmission over fiber optic cabling for AV device control
- HDMI Protocol Security
- HDCP Visual Confirmation
- HDMI video upscaling and downscaling
- Aspect ratio control
- Internal test patterns for calibration and setup
- Scaling receiver features integrated two-port HID hub with 100mA available on each port
- Peripheral emulation on USB HID port (transmitter)
- Host emulation on USB HID port (scaling receiver)
- Front panel USB-C configuration port
- Ethernet monitoring and control
- RS-232 control
- Easy setup and commissioning with Extron's PCS - Product Configuration Software
- Compatible with Extron FOX3 Series matrix switchers
- Compatible with Quantum FOX3 series fiber optic cards
- Industry standard LC connectors provide reliable physical connectivity and precise fiber core alignment
- 1U high, half rack width metal enclosure
- Internal Extron Everlast® power supply
- Extron Everlast Power Supply is covered by a 7-year parts and labor warranty

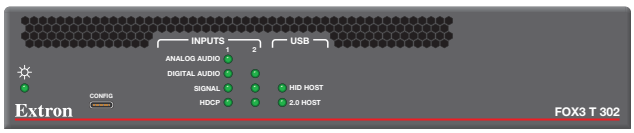
APPLICATION DIAGRAM



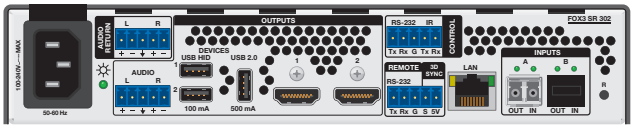
PANEL DRAWINGS



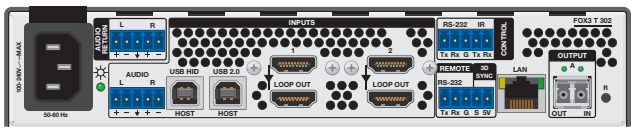
FOX3 SR 302 - Front



FOX3 T 302 - Front



FOX3 SR 302 - Back



FOX3 T 302 - Back

SPECIFICATIONS

TRUE 4K SPECIFICATION

Max 4K Capabilities		
Resolution and Refresh Rate	**Chroma Sampling**	**Max Bit Depth per Color**
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz 4096 x 2160 at 30 Hz 3840 x 2160 at 30 Hz	4:4:4	8 bit
		12 bit
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz	4:2:0	

Frame rate[2]	24, 25, 30, 50, or 60 fps
Chroma sampling[2]	4:4:4, 4:2:2
Color bit depth[2]	8 and 10 bits per color
Signal Type	HDMI 2.0, HDCP 2.3
Max. video data rate	18.0 Gbps

NOTE: [1]Supports lossless 4K video over one fiber.

[2]Subject to the maximum data rate limit. Use our calculator at www.extron.com/8Kdatarate to determine video parameters supported by this data rate.

NOTE: This product contains Class 1 laser. It meets the safety regulation of IEC 60825-1, FDA 21 CFR 1040.10, and FDA 21 CFR 1040.11.

OPTICAL FIBER INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

Connectors	1 or 2 LC connectors
NOTE: The system works with OM1, OM2, and OM3 fiber at reduced distances.	
Nominal peak wavelength	850 nm for multimode, 1310 nm for singlemode
Maximum channel data rate	10.0 Gbps (1 fiber)
Optical loss budget	
Singlemode	+7.4 dB, maximum
Multimode	+8.3 dB, maximum

VIDEO

Maximum data rate	18.0 Gbps
Maximum pixel clock	594 MHz
Resolution range	640x480[8] up to 4096x2160[1,2,3,4,5,6,7,8], 480p[7,8], 576p[6], 720p[3,4,5,6,7,8,9], 1080i[6,7,8], 1080p[1,2,3,4,5,6,7,8,9], 2K[1,2,3,4,5,6,7,8], 3840x2160[1,2,3,4,5,6,7,8], 4096x2160[1,2,3,4,5,6,7,8] [1]23.98 Hz, [2]24 Hz, [3]25 Hz, [4]29.97 Hz, [5]30 Hz, [6]50 Hz, [7]59.94 Hz, [8]60 Hz, [9]120 Hz
Frame rate	24, 25, 30, 50, 60, or 120 fps
Color space	4:4:4, 4:2:2
Color bit depth	8 and 10 bits per color
Standards	HDMI 2.0, HDCP 2.3
Horizontal frequency	24 kHz to 135 kHz for resolutions up to 18 Gbps
Vertical frequency	24 Hz to 120 Hz for resolutions up to 18 Gbps
Format	RGB and YCbCr digital video

VIDEO INPUT AND LOOP OUT

Number/signal type	2 HDMI inputs 2 HDMI loop outs
Power for active cables	x.x W max. for HDMI Port
CMRR	65 dB @ 20 Hz to 20 kHz
Stereo channel separation	>80 dB @ 1 kHz
Gain range	Adjustable, - 18 dB to +24 dB, 1 dB steps

AUDIO RETURN OUTPUT

Number/signal type	1 analog stereo, balanced/unbalanced
Gain error	±0.5 dB channel to channel
Volume control range	-100 dB to 0 dB (control 0-100 in 1 dB steps)
Audio delay	Compressed = 0.5 frame

COMMUNICATIONS

USB configuration port	
Number/type	1 front panel USB-C, female
Standard	Ethernet over USB
USB standards	USB 2.0, low speed
Control RS-232/IR over fiber	
Pass-through	1 RS-232, 3.5 mm captive screw connector, 5-pole (3 pins are used), rear panel
IR control port	(1) 3.5 mm captive screw connector, 5 pole (connector is shared with RS-232 pass thru) TTL level (0 to 5V) modulated infrared control from 30 kHz to 56 kHz
Ethernet control	
Ethernet port	1 RJ-45 connector, female
Ethernet data rate	10/100/1000Base-T, half/full duplex with autodetect
Protocols	ARP, ICMP (ping), DHCP, DNS, HTTPS, SFTP, SSH, TCP/IP, UDP/IP
Default settings	Link speed and duplex level = autodetected IP address = 192.168.254.254 Subnet mask = 255.255.255.0 Gateway = 0.0.0.0 DHCP = off

USB EXTENSION

Standards	USB 2.0, USB 1.1, USB 1.0 compatible
Host support	xHCI (USB 3.2 Gen 1/2, USB 3.1 Gen1/2, USB 3.0), EHCI (USB 2.0), OHCI/UHCI (USB 1.1)
Data rates	Low speed (1.5 Mbps), full speed (12 Mbps), high speed (480Mbps)

USB DEVICE PORTS

Number/signal type	1-port USB HID 1-port USB 2.0
Connectors	2 USB type B, female
Maximum built-in USB hubs	0
Minimum built-in USB hubs	0

NOTE: When configured endpoint to endpoint, there are 0 hubs. When configured with a FOX3 Matrix, there is 1 hub.

NOTE: This applies to the USB 2.0 hub only.

GENERAL

Power supply	Internal Input: 100-240 VAC, 50-60 Hz
Regulatory compliance	CE, c-UL, C-tick, FCC Class A, ICES, UL, VCCI Complies with the appropriate requirements of RoHS, WEEE.
Product warranty	3 years parts and labor
Everlast power supply warranty	7 years parts and labor

NOTE: All nominal levels are at ±10%.

Model	Version Description	Part number
FOX3 T 302 MM	Lossless 4K/60 Transmitter - Multimode	60-1959-11
FOX3 T 302 SM	Lossless 4K/60 Transmitter - Singlemode	60-1959-12
FOX3 SR 302 MM	Lossless 4K/60 Transmitter - Multimode	60-1959-21
FOX3 SR 302 SM	Lossless 4K/60 Transmitter - Singlemode	60-1959-22

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

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Letter - English - NP