

FOXBOX SR HDMI

FIBER OPTIC SCALING RECEIVER
FOR HDMI, AUDIO, AND RS-232

- ▶ Accepts fiber optic signals from FOX Series transmitters and provides scaled HDMI video, stereo audio, and RS-232 control signals
- ▶ High performance scaler provides selectable output resolutions up to 1920x1200, including HDTV 1080p/60 and 2K
- ▶ HDCP compliant
- ▶ Key Minder® continuously verifies HDCP-compliance
- ▶ HDMI audio de-embedding with analog stereo outputs
- ▶ Auto Input Memory
- ▶ RS-232 control
- ▶ Internal test patterns for calibration and setup
- ▶ Real-time status LED indicators for troubleshooting and monitoring
- ▶ Multimode and singlemode models available



The Extron FOXBOX SR HDMI is a high-performance fiber optic-to-HDMI scaling receiver for the FOX Series of fiber optic transmitters. It accepts a fiber optic signal from a FOX Series transmitter and provides HDMI video, stereo audio, and RS-232 control signals, scaling the video to the appropriate output resolution. With a host of integrator-friendly features, the FOXBOX SR HDMI is ideal for a wide range of long distance applications requiring scaling of high resolution content with the highest quality.



Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

DESCRIPTION

The Extron **FOXBOX SR HDMI** is a high performance fiber optic-to-HDMI scaling receiver for the FOX Series of fiber optic transmitters. It accepts a fiber optic signal with HDCP-compliant HDMI, DVI, VGA, or YUV video, audio, and RS-232 control, scaling the video to the selected output resolution. Engineered for reliability and exceptional high resolution image performance, the FOXBOX SR HDMI supports resolutions up to 1920x1200, including HDTV 1080p/60 and 2K. It also provides many integrator-friendly features such as Key Minder®, audio de-embedding, Auto Input Memory, and internal test patterns to help simplify integration. In addition, the compact, low profile enclosure of the FOXBOX SR HDMI allows for discreet installation behind a flat-panel display.

As part of the extensive FOX Series of fiber optic products from Extron, the FOXBOX SR HDMI is compatible with the FOXBOX, FOX 500, and PowerCage™ FOX HDMI, DVI Plus, DVI, and VGA transmitters. When paired with a FOXBOX HDMI transmitter, the FOXBOX SR HDMI supports long distance transmission and scaling of HDCP-encrypted content. Also, this scaling receiver can be used in combination with FOX Series matrix switchers to create an enterprise-wide, HDCP-compliant distribution system.

The FOXBOX SR HDMI is ideal for a wide range of long distance applications requiring scaling of high resolution content with the highest quality. The built-in scaler simplifies integration of sources and displays with different resolutions. The receiver provides support for audio and RS-232 control signals, while allowing HDMI, DVI, RGB, and HD component video signals to be scaled to the optimal resolution for the display device.

The FOXBOX SR HDMI is ideal for hybrid AV systems that include a variety of displays and sources at different resolutions. Pairing the FOXBOX SR HDMI with the FOX 500, FOXBOX, or PowerCage FOX VGA transmitters provides easy conversion of analog RGB to HDMI for non-HDCP content.

FEATURES

- ▶ **Compatible with FOX 500, FOXBOX, and PowerCage FOX transmitters to provide scaled HDMI video, stereo audio, and RS-232 control signals** – Accepts signals from Extron FOX Series HDMI, DVI Plus, DVI, VGA, and VGA/YUV transmitters for integration flexibility.
- ▶ **High performance scaler provides selectable output resolutions up to 1920x1200, including HDTV 1080p/60 and 2K** – Scales HDMI, DVI, RGB, or HD component video to the optimal image resolution for the display. The output rate can be selected manually using the on-screen menu system or via RS-232 control.
- ▶ **HDMI, DVI, RGB, and HD component video upscaling and downscaling** – The FOXBOX SR HDMI features an advanced scaling engine for optimized upscaling and downscaling of high resolution computer-video signals
- ▶ **HDCP compliant**
- ▶ **Key Minder® continuously verifies HDCP-compliance** – Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments, while enabling simultaneous distribution of a single source signal to one or more displays.
- ▶ **HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display** – A full-screen green signal is sent when HDCP-encrypted content is transmitted to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed on the display.
- ▶ **HDMI audio de-embedding with analog stereo outputs** – Digital HDMI audio is made available as a balanced or unbalanced analog stereo signal on captive screw connectors.
- ▶ **Selectable HDMI audio pass-through** – A rear panel toggle switch enables or disables audio signal pass-through on the HDMI output.
- ▶ **Internal test patterns for calibration and setup** – Test patterns include grayscale, crosshatch, crop pattern, color bars, and alternating pixels.
- ▶ **Auto Input Memory** – When activated, the receiver automatically stores position and detail settings based on the incoming signal. When the same signal is detected again, the image settings are automatically recalled from memory.
- ▶ **30 user memory presets** – In addition to Auto Memory, 30 user memory presets are available for saving and recall of position and detail information for multiple incoming sources. The ability to save and recall presets is useful in switcher-based environments.
- ▶ **RS-232 control** – Features rear panel RS-232 serial port for configuration and control.
- ▶ **Real-time status LED indicators for troubleshooting and monitoring** – Front and rear panel LEDs verify signal presence, HDCP authentication, link status, and power.
- ▶ **On-screen display** – The FOXBOX SR HDMI features an on-screen display that provides status data pertaining to the currently selected input, facilitating easy adjustment of picture settings.
- ▶ **Available as an 850 nm multimode model for moderate-range transmissions up to 2 km (1.25 miles), and a 1310 nm singlemode model for extreme distances up to 30 km (18.75 miles)**
- ▶ **Industry standard LC connectors provide reliable physical connectivity and precise fiber core alignment**
- ▶ **Alarm notification for fiber link loss** – The unit can be set up to trigger an external control system for immediate notification when a fiber link is lost.
- ▶ **Compatible with FOX Series Matrix Switchers for signal distribution systems up to 1000x1000 and larger**
- ▶ **1" (2.5 cm) high, half-rack width metal enclosure**
- ▶ **Includes LockIt® HDMI cable lacing brackets**
- ▶ **Energy-efficient external universal power supply included**

SPECIFICATIONS

NOTE: The FOXBOX SR HDMI is not compatible with the FOX 3G HD-SDI, FOX 3G DVC, or FOX AV models.

NOTE: This receiver is a class 1 laser product. It meets the safety regulations of IEC-60825, FDA 21 CFR 1040.10, and FDA 21 CFR 1040.11.

OPTICAL FIBER INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

Connectors	2 LC connectors
Operating distance	
Singlemode	30 km (18.75 miles) with singlemode (SM) cables with a FOXBOX SM
Multimode	300 m (985') with 62.5 µm OM1 multimode (MM) cables with a FOXBOX MM 1 km (3280') with 50 µm OM2 multimode (MM) cables with a FOXBOX MM 2 km (6561') with 50 µm OM3/OM4 2000 MHz bandwidth laser optimized multimode cable with a FOXBOX MM
NOTE: Operating distance is approximate. These are typical maximum distances that may vary 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 FOXBOX MM, 1310 nm for FOXBOX SM
Data rate	4.25 Gbps
Transmission power	
Singlemode	-5 dBm, typical
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

VIDEO

NOTE: *Appropriate HDMI to DVI-D cables or adapters are required for DVI signal input/output.

Resolution range	Up to 1920x1200 or 1080p @ 60 Hz pixel for pixel
Formats	RGB, YCbCr, and xvYCC digital video
HDCP	Compliant with High-bandwidth Digital Content Protection (HDCP) using DVI and HDMI standards
Standards	DVI 1.0, HDMI, HDCP 1.1, CEA-861E

VIDEO PROCESSING

Digital sampling	24 bit, 8 bits per color, 165 MHz standard
Colors	16.78 million

VIDEO OUTPUT

Number/signal type	1 single link HDMI (HDCP compliant)
Connectors	1 female HDMI type A
Nominal level	0.8 Vp-p
Video delay	1-2 frames
Scaled resolutions	640x480 ^{4,5,6} , 800x600 ^{4,5,6} , 852x480 ^{4,5,6} , 1024x768 ^{4,5,6} , 1024x852 ^{4,5,6} , 1024x1024 ^{4,5,6} , 1280x768 ^{4,5,6} , 1280x800 ^{4,5,6} , 1280x1024 ^{4,5,6} , 1360x765 ^{4,5,6} , 1360x768 ^{4,5,6} , 1365x768 ^{4,5,6} , 1366x768 ^{4,5,6} , 1365x1024 ^{4,5,6} , 1400x1050 ^{4,5} , 1440x900 ^{4,5,6} , 1600x1200 ^{4,5} , 1680x1050 ^{4,5} , 1920x1200 ^{4,5} HDTV: 480p ⁵ , 576p ⁴ , 720p ^{4,5} , 1080i ^{4,5} , 1080p ^{1,2,3,4,5} ¹ = at 24 Hz, ² = at 25 Hz, ³ = at 30 Hz, ⁴ = at 50 Hz, ⁵ = at 60 Hz, ⁶ = at 75 Hz.

AUDIO OUTPUT

Number/signal type	1 balanced/unbalanced stereo or 2 balanced/unbalanced mono
Connectors	(1) 3.5 mm captive screw connector, 5 pole
Impedance	50 ohms unbalanced, 100 ohms balanced
Nominal level	-10 dBV (316 mVrms)
Maximum level (Hi-Z)	+11.0 dBu, balanced at 1% THD+N
Maximum level (600 ohm)	>+10.0 dBu, balanced at 1% THD+N
Audio delay	1.5 frames

CONTROL/REMOTE

Serial control ports	
Control	1 RS-232, 2.5 mm mini stereo jack (front panel) 1 RS-232, 3.5 mm captive screw connector, 3-pole (rear panel)
Pass-through	1 RS-232, 3.5 mm captive screw connector, 5-pole (3 pins are used) (rear panel)
Baud rate and protocol	
Control	9600 baud, 8 data bits, 1 stop bit, no parity
Pass-through	9600 to 115,200 baud
Program control	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™)

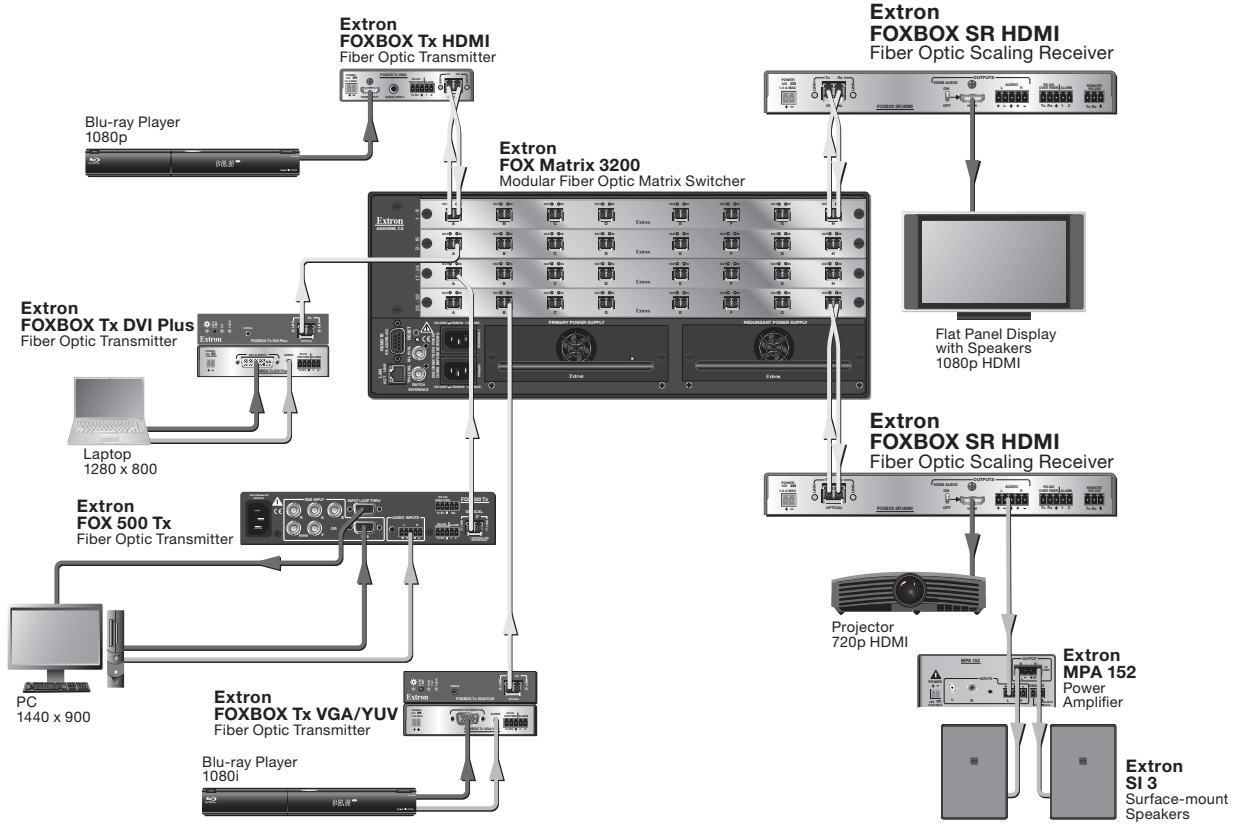
GENERAL

Power supply	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 1 A, 12 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	Convection, vents on top and side panels
Mounting	
Rack mount	Yes, with optional rack shelf
Furniture mount	Yes, with optional under desk mounting kit
Enclosure type	Metal
Enclosure dimensions	1.0" H x 8.75" W x 6.0" D (half rack wide) (2.5 cm H x 22.2 cm W x 15.2 cm D) (Depth excludes connectors and switch.)
Product weight	1.1 lbs (0.5 kg)
Shipping weight	3 lbs (2 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, c-UL, FDA Class 1, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI Class A
Environmental	Meets the requirements of RoHS and WEEE
MTBF	30,000 hours
Warranty	3 years parts and labor

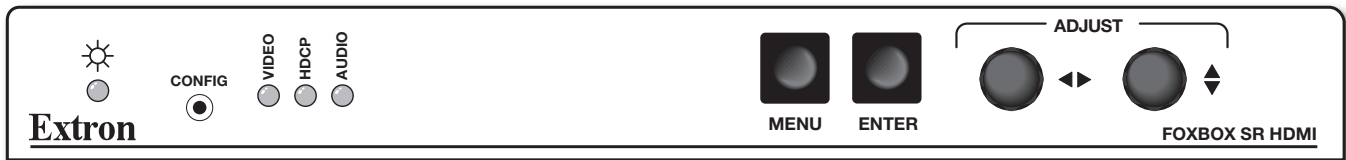
NOTE: All nominal levels are at ±10%.

Model	Version Description	Part number
FOXBOX SR HDMI MM	Multimode - Receiver	60-1187-21
FOXBOX SR HDMI SM	Singlemode - Receiver	60-1187-22

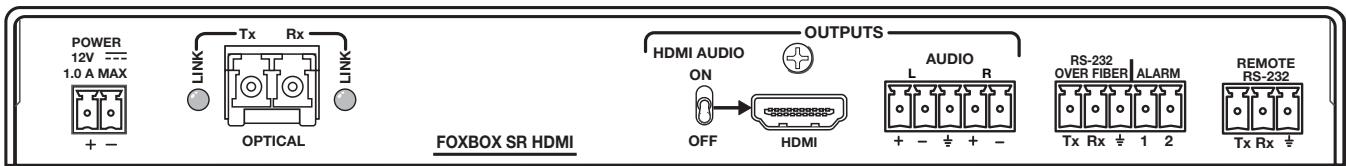
APPLICATION DIAGRAM



PANEL DRAWINGS



Front



Back

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