

# 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 delivers high resolution video up to 1920x1200, including HDTV 1080p/60
- ▶ HDCP compliant
- ▶ Key Minder® continuously authenticates HDCP-compliant devices
- ▶ HDMI audio de-embedding with analog stereo outputs
- ▶ Auto Input Memory
- ▶ RS-232 control
- ▶ Auto-Image™ automatically optimizes output
- ▶ 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 HDMI video, stereo audio, and RS-232 control signals, scaling the video to the appropriate output resolution. Engineered for reliability and exceptional high resolution image performance 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

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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. 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 larger, comprehensive 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 fiber optic distribution amplifiers, switchers, and matrix switchers to create an enterprise-wide digital video signal 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

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- ▶ **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 80 selectable output resolutions up to 1920x1200, including HDTV 1080p/60** – 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 serial control. It can also be automatically selected based on the display EDID.
- ▶ **HDMI, DVI, RGB, and YUV 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** – Ensures display of content protected media and interoperability with other HDCP-compliant devices. Requires an HDCP-compliant transmitter to pass HDCP content to this scaling receiver.
- ▶ **Key Minder®** – Continuously authenticates HDCP-compliant input and output devices to provide quick and reliable switching in professional AV environments.
- ▶ **HDCP Visual Confirmation** – Outputs a full-screen green signal when HDCP-encrypted content is sent to a non-HDCP compliant 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** – Three test patterns are available, including grayscale, 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 recalled automatically.
- ▶ **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**
- ▶ **Real-time status LED indicators for troubleshooting and monitoring**
- ▶ **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.
- ▶ **Auto-Image™ automatically optimizes output** – For expedited presentation set-up, the FOXBOX SR HDMI automatically optimizes the image by analyzing and then adjusting to the incoming source, eliminating complex and time-consuming setup procedures.
- ▶ **Multimode and singlemode models are available**
- ▶ **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 distribution amplifiers, switchers, and matrix switchers** – Enables enterprise-wide distribution of high resolution video, including HDCP-compliant HDMI.
- ▶ **1" (2.5 cm) high, half-rack width metal enclosure**
- ▶ **Energy-efficient external universal power supply included**

# SPECIFICATIONS

**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

<b>Connectors</b>	2 LC connectors
<b>Operating distance</b>	
Singlemode	30 km (18.75 miles) with singlemode (SM) cables with a FOXBOX SM
Multimode	300 m (985') with 62.5 µm multimode (MM) cables with a FOXBOX MM 1 km (3280') with 50 µm multimode (MM) cables with a FOXBOX MM 2 km (6561') with 50 µm 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.

<b>Nominal peak wavelength</b>	850 nm for FOXBOX MM, 1310 nm for FOXBOX SM
<b>Data rate</b>	4.25 Gbps
<b>Transmission power</b>	
Singlemode	-5 dBm, typical
Multimode	-5 dBm, typical
<b>Maximum receiver sensitivity</b>	
Singlemode	-18 dBm, typical
Multimode	-12 dBm, typical
<b>Optical loss budget</b>	
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.

<b>Resolution range</b>	Up to 1920x1200 or 1080p @ 60 Hz pixel for pixel
<b>Formats</b>	RGB, YCbCr, and xvYCC digital video
<b>EDID</b>	Supports emulation of custom or factory preset Extended Display Identification Data (EDID) tables.
<b>HDCP</b>	Compliant with High-bandwidth Digital Content Protection (HDCP) using DVI and HDMI 1.3 standards
<b>Standards</b>	DVI 1.0, HDMI 1.3, HDCP 1.1, CEA-861E

## VIDEO PROCESSING

<b>Digital sampling</b>	24 bit, 8 bits per color, 165 MHz standard
<b>Colors</b>	16.78 million

## VIDEO OUTPUT

<b>Number/signal type</b>	1 single link HDMI (HDCP compliant)
<b>Connectors</b>	1 female HDMI type A
<b>Nominal level</b>	0.8 Vp-p
<b>Video delay</b>	1-2 frames
<b>Vertical frequency</b>	24 Hz, 25 Hz, 30 Hz, 50 Hz, 60 Hz, or 75 Hz, depending on selected output resolution
<b>Scaled resolutions</b>	640x480 <sup>4,5,6</sup> , 800x600 <sup>4,5,6</sup> , 852x480 <sup>4,5,6</sup> , 1024x768 <sup>4,5,6</sup> , 1024x852 <sup>4,5,6</sup> , 1024x1024 <sup>4,5,6</sup> , 1280x768 <sup>4,5,6</sup> , 1280x800 <sup>4,5,6</sup> , 1280x1024 <sup>4,5,6</sup> , 1360x765 <sup>4,5,6</sup> , 1360x768 <sup>4,5,6</sup> , 1365x768 <sup>4,5,6</sup> , 1366x768 <sup>4,5,6</sup> , 1365x1024 <sup>4,5,6</sup> , 1400x1050 <sup>4,5</sup> , 1440x900 <sup>4,5,6</sup> , 1600x1200 <sup>4,5</sup> , 1680x1050 <sup>4,5</sup> , 1920x1200 <sup>4,5</sup> HDTV: 480p <sup>5</sup> , 576p <sup>4</sup> , 720p <sup>4,5</sup> , 1080i <sup>4,5</sup> , 1080p <sup>1,2,3,4,5</sup> 1 = at 24 Hz, 2 = at 25 Hz, 3 = at 30 Hz, 4 = at 50 Hz, 5 = at 60 Hz, 6 = at 75 Hz Also available: automatic (based on display EDID setting) or locked to the input signal's refresh rate and resolution (Accu-RATE Frame Lock™)

## AUDIO OUTPUT

<b>Number/signal type</b>	1 balanced/unbalanced stereo or 2 balanced/unbalanced mono
<b>Connectors</b>	(1) 3.5 mm captive screw connector, 5 pole
<b>Impedance</b>	50 ohms unbalanced, 100 ohms balanced
<b>Nominal level</b>	+4 dBu (1.23 Vrms), -10 dBV (316 mVrms)
<b>Maximum level (Hi-Z)</b>	+7.6 dBu, unbalanced at 1% THD+N
<b>Maximum level (600 ohm)</b>	>+6.3 dBu, unbalanced at 1% THD+N
<b>Audio delay</b>	1.5 frames

## CONTROL/REMOTE

<b>Serial control ports</b>	
Control	1 RS-232, 3.5 mm captive screw connector, 3-pole (front panel)
Pass-through	1 RS-232, 3.5 mm captive screw connector, 5-pole (3 pins are used) (rear panel)
<b>Baud rate and protocol</b>	
Control	9600 baud, 8 data bits, 1 stop bit, no parity
Pass-through	9600 to 115,200 baud
<b>NOTE:</b> Protocol is mirrored between the transmitter, switcher, or distribution amplifier and the receiver.	
<b>USB control port</b>	1 front panel female mini USB B
<b>USB standards</b>	USB 2.0, low speed
<b>Program control</b>	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™)

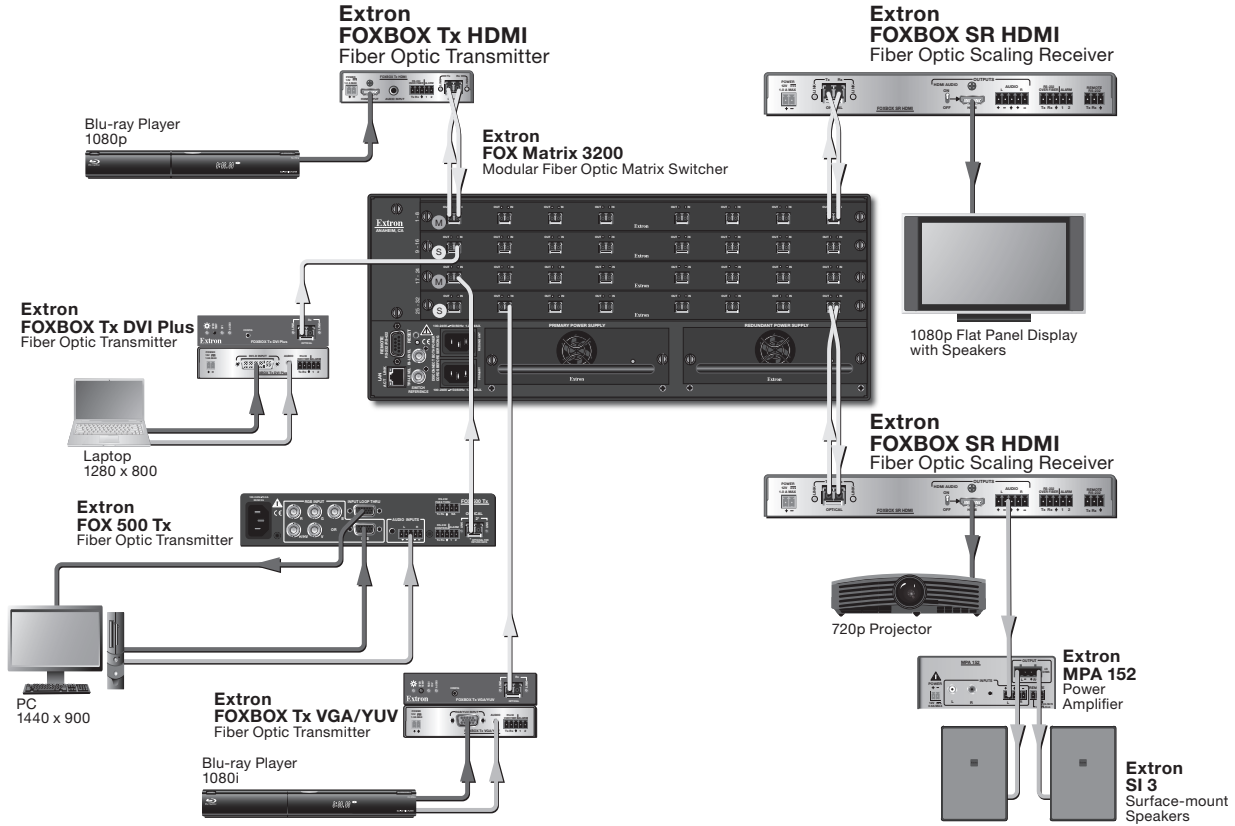
## GENERAL

<b>Power</b>	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 1 A
<b>Power consumption</b>	3.6 watts
<b>Temperature/humidity</b>	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
<b>Cooling</b>	Convection, vents on top and side panels
<b>Thermal dissipation</b>	
Transmitter	
115 VAC, 60 Hz	2.9 BTU/hr
240 VAC, 50 Hz	4.0 BTU/hr
Receiver	
115 VAC, 60 Hz	2.7 BTU/hr
240 VAC, 50 Hz	3.9 BTU/hr
<b>Mounting</b>	
Rack mount	Yes, with optional rack shelf
Furniture mount	Yes, with optional under desk mounting kit
<b>Enclosure type</b>	Metal
<b>Enclosure dimensions</b>	1.0" H x 9.5" W x 6.0" D (half rack wide) (2.5 cm H x 24.1 cm W x 15.2 cm D) (Depth excludes connectors and switch.)
<b>Product weight</b>	1.1 lbs (0.5 kg)
<b>Shipping weight</b>	3 lbs (2 kg)
<b>Vibration</b>	ISTA 1A in carton (International Safe Transit Association)
<b>Regulatory compliance</b>	
Safety	CE, c-UL, FDA Class 1, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
<b>MTBF</b>	30,000 hours
<b>Warranty</b>	3 years parts and labor
<b>NOTE:</b> 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

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

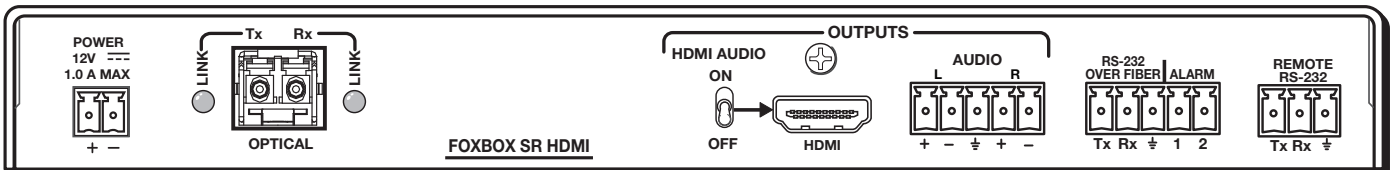
# APPLICATION DIAGRAMS



# PANEL DRAWINGS



Front



Rear

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