FOXBOX DVI Plus

FIBER OPTIC EXTENDER FOR DVI, AUDIO, AND RS-232

- **Extends DVI, stereo audio, and RS-232 control signals long distances over a single fiber**
- **All digital, zero compression technology for high performance signal transmission**
- **Pixel-for-pixel image quality, up to 1920x1200, including HDTV 1080p/60**
- **Daisy-chain capability**
- **Available as 850 nm multimode and 1310 nm singlemode models**
- **Real-time status LED indicators for troubleshooting and monitoring**
- **Alarm notification for fiber link loss**
- **Auto Input Memory**
- **EDID emulation**
- **Audio gain & attenuation adjustment and muting capability**
- **RS-232 serial control at transmitter and receiver**
- **Internal test patterns for calibration and setup**
- **Low profile, mountable enclosures**

FOXBOX Tx DVI Plus

FOXBOX Rx DVI Plus

The Extron FOXBOX DVI Plus Fiber Optic Extender is a transmitter and receiver set for long haul transmission of DVI, audio, and RS-232 control signals over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron's exclusive all digital, zero compression technology, and also includes a host of features for enhancing A/V system integration.

DESCRIPTION

The Extron **FOXBOX DVI Plus** Fiber Optic Extender is a transmitter and receiver set for long haul transmission of DVI, audio, and RS-232 control signals over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron-exclusive all digital, zero compression technology, to deliver perfect pixel-for-pixel transmission of DVI computer-video images up to WUXGA 1920x1200 resolution, including HDTV 1080p/60. The FOXBOX DVI Plus also includes an EDID emulation mode, Auto Input Memory, RS-232 control from multiple locations, internal test patterns, and real-time system monitoring. Compact, low profile enclosures allow for discreet installation behind a flat-panel display, and multiple receivers can be daisy-chained.

The FOXBOX DVI Plus is ideal for a wide range of applications requiring long distance transmission of high resolution content with the highest quality. Because transmission of content is inherently secure and immune to outside interference, fiber applications are favored in government, military, and medical environments. The FOXBOX DVI Plus transmitter and receiver feature industry standard LC-type connectivity.

The FOXBOX DVI Plus MM supports multimode fiber at 850 nm, which is typically used within buildings or facilities with moderate-range transmission distances up to 300 meters (985 feet). The FOXBOX DVI Plus SM supports singlemode as well as multimode fiber at 1310 nm. Singlemode fiber offers long-range transmission capability over extreme distances of up to 30 km (18.75 miles). It is used in very large facilities such as airports and stadiums, as well as connecting over very long distances between facilities such as university campuses.

The FOXBOX DVI Plus transmitter accepts and digitizes unbalanced stereo audio and RS-232 control signals, and transmits them along with the DVI-D signals. EDID emulation ensures that the transmitter properly communicates with the DVI source. Several FOXBOX DVI Plus receivers may be daisy-chained to support applications with displays in multiple locations.

The transmitter and the receiver can be controlled and configured using the RS-232 port on the FOXBOX DVI Plus transmitter. With a second fiber link installed, functions for both units can be controlled at either location. Since the units are typically situated far apart, this capability adds considerable versatility, enabling adjustment and calibration of audio at the receiver. It also allows for verification of fiber link status between the units as well as the presence of DVI-D and audio input signals at the transmitter.

Analog RGB-to-DVI Conversion

The FOXBOX DVI Plus transmitter and receiver are available separately. The Plus transmitter is compatible only with the Plus receiver. However, the Plus receiver can be used with FOX Series DVI transmitters including the FOX 500 DVI and FOXBOX DVI. It can also be paired with the FOX 500, FOX 500 DA6, and FOXBOX VGA analog RGB transmitters for ultra-long distance transmission plus analog-to-digital video conversion.

The FOXBOX DVI Plus transmitter and receiver can also be used in conjunction with all FOX Series fiber optic distribution products including distribution amplifiers, switchers, and matrix switchers.

FEATURES

- **Extends single link DVI-D, stereo audio, and RS-232 control signals very long distances over a single fiber**
- **All digital, zero compression technology provides pixel-for-pixel performance with signals up to 1920x1200, including HDTV 1080p/60**
- **Daisy-chain capability** – Several FOXBOX DVI Plus receivers can be daisy-chained so that displays in multiple locations can be served from a single transmitter.
- **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)**
- **Real-time status LED indicators for troubleshooting and monitoring** – LEDs on the transmitter and receiver front panels verify the presence of DVI and audio signals at the transmitter as well as active fiber links between the units. Requires second fiber link.
- **Alarm notification for fiber link loss** – The FOXBOX DVI Plus can be set up to trigger an external control system for immediate notification when a fiber link has been lost. Requires second fiber link.
- **Auto Input Memory** – When activated, the FOXBOX DVI Plus receiver automatically stores position and detail settings based on the incoming signal. When the same signal is detected again, these image settings are automatically recalled from memory.
- **EDID emulation** – The FOXBOX DVI Plus transmitter provides a means for specifying the rate of the incoming DVI signal through the RS-232 serial port. EDID emulation allows proper communication with the DVI source.
- **Industry standard LC connectors provide reliable physical connectivity and precise fiber core alignment**
- **30 user memory presets** – In addition to Auto Memory, 30 user memory presets on the FOXBOX DVI Plus receiver 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.
- **Audio gain & attenuation adjustment and muting capability**
- **RS-232 serial control at transmitter and receiver** – The FOXBOX DVI Plus transmitter and receiver feature RS-232 serial ports for control and configuration.
- **Internal test patterns for calibration and setup** – Three test patterns are available, including grayscale, color bars, and alternating pixels.
- **1" (2.5 cm) high, quarter rack width metal enclosures** – With a low profile enclosure, both devices can be discreetly installed, such as above a projector or behind a flat-panel display.
- **External universal ENERGY STAR® qualified power supply included** – Provides worldwide compatibility, low power consumption, and reduced operating costs.

SPECIFICATIONS

NOTE: The FOXBOX Tx DVI Plus transmitter is compatible only with the FOXBOX Rx DVI Plus receiver.
NOTE: These transceivers 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 FIBER INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

Number/type	1 or 2 fiber optic
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 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.

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 DVI-D to HDMI cables or adapters are required for HDMI signal input/output. The FOXBOX DVI Plus Series 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.
The FOXBOX DVI Plus does not support transmission of DVI signals with High-bandwidth Digital Content Protection (HDCP).

Resolution range	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

Number/signal type	1 single link DVI-D (or HDMI*)
Connectors	1 female DVI-I

VIDEO OUTPUT

Number/signal type	1 single link DVI-D (or HDMI*)
Connectors	1 female DVI-I
Nominal level	0.8 Vp-p
Video delay	1-2 frames

AUDIO

Gain	
Range	Adjustable, -18 dB to +10 dB
Default	Unbalanced output: 0 dB
Frequency response	20 Hz to 20 kHz, ±0.5 dB
THD + Noise	0.10% @ 1 kHz at nominal level
S/N	>80 dB at maximum output (unweighted)
CMRR	65 dB @ 20 Hz to 20 kHz
Audio bits per sample	18 bits per channel, 2 channels (L, R)
Sampling rate	48 kHz

AUDIO INPUT — TRANSMITTERS

Number/signal type	1 unbalanced stereo or 2 unbalanced mono
Connectors	(1) 3.5 mm mini stereo jack
Impedance	18k ohms unbalanced, DC coupled
Nominal level	-10 dBV (316 mVrms)
Maximum level	+8.9 dBV, (unbalanced) at 1% THD+N

NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

AUDIO OUTPUT — RECEIVERS

Number/signal type	1 unbalanced stereo or 2 unbalanced mono
Connectors	(1) 3.5 mm mini stereo jack
Impedance	50 ohms unbalanced
Nominal level	-10 dBV (316 mVrms)
Maximum level (Hi-Z)	+7.6 dBu, unbalanced at 1% THD+N
Maximum level (600 ohm)	>+6.3 dBu, unbalanced at 1% THD+N
Audio delay	1.5 frames

CONTROL/REMOTE

Serial control ports on each unit (transmitter and receiver)	
Control	1 RS-232, 2.5 mm mini stereo jack (front 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

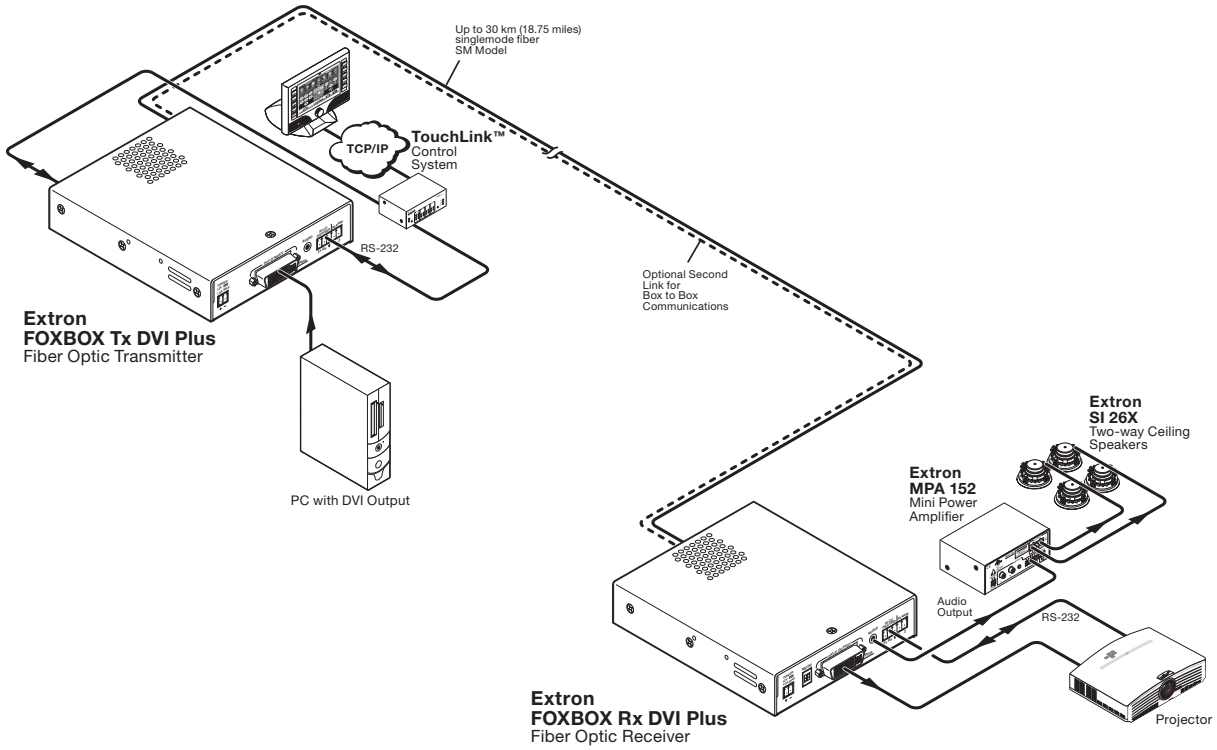
External power supply	100 VAC to 240 VAC, 50-60 Hz, external; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 0.6 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, vents on top and side panels
Thermal dissipation	
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
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 4.3" W x 6.0" D (quarter rack wide) (2.5 cm H x 10.9 cm W x 15.2 cm D) (Depth excludes connectors.)
Product weight	0.7 lbs (0.3 kg) per unit, 1.4 lbs (0.6 kg) per pair
Shipping weight	3 lbs (2 kg) per unit, 6 lbs (3 kg) per pair
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
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE: All nominal levels are at ±10%.

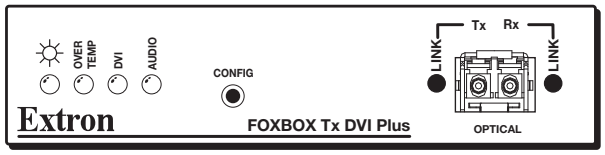
Model	Version Description	Part number
FOXBOX Tx DVI Plus MM	Multimode - Transmitter	60-1060-11
FOXBOX Rx DVI Plus MM	Multimode - Receiver	60-1060-21
FOXBOX Tx DVI Plus SM	Singlemode - Transmitter	60-1060-12
FOXBOX Rx DVI Plus SM	Singlemode - Receiver	60-1060-22

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

APPLICATION DIAGRAM

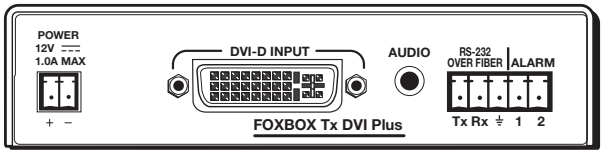


PANEL DRAWINGS

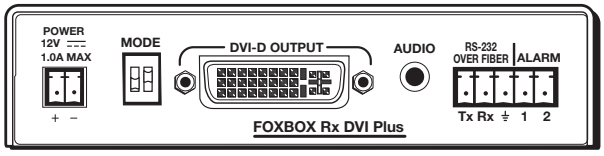


FOXBOX Tx DVI Plus - Front

FOXBOX Rx DVI Plus - Front



FOXBOX Tx DVI Plus - Back



FOXBOX Rx DVI Plus - Back

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