

FOX 3G HD-SDI

FIBER OPTIC EXTENDER FOR 3G-SDI

- ▶ Extends 3G-SDI, HD-SDI, and SDI signals over a single fiber
- ▶ Supports data rates from 270 Mbps to 2.97 Gbps
- ▶ Integrates easily into a wide range of 4K and UHD environments
- ▶ Input equalization and reclocking on buffered outputs
- ▶ Immunity to pathological signal patterns - FOX 3G HD-SDI P SM
- ▶ Dual buffered outputs
- ▶ Daisy-chain capability
- ▶ Real-time status LED indicators for troubleshooting and monitoring
- ▶ 850 nm multimode and 1310 nm singlemode models available



The Extron FOX 3G HD-SDI Fiber Optic Extender is a transceiver for long haul transmission of 3G-SDI, HD-SDI, and SDI signals over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron all-digital technology, and includes many integrator-friendly features for enhancing AV system design.



Extron Electronics
INTERFACING, SWITCHING AND CONTROL

DESCRIPTION

The Extron **FOX 3G HD-SDI** Fiber Optic Extender enables long haul transmission of 3G-SDI video, with embedded audio and metadata, over a single fiber. Engineered for reliability and exceptional high resolution image performance, it uses Extron all-digital technology to transmit signals up to 2.97 Gbps including 3G-SDI, HD-SDI, and SDI. To optimize signal transmission to and from the FOX 3G HD-SDI, input signals are automatically equalized, and output signals are reclocked. The FOX 3G HD-SDI can function as a transmitter and a receiver in various user-configurable modes. It is ideal for use in digital signage, broadcast and production, rental and staging, and medical applications.

The FOX 3G HD-SDI is designed for 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 FOX 3G HD-SDI features industry standard LC-type connectivity.

The FOX 3G HD-SDI MM supports multimode fiber at 850 nm, which is typically used within buildings or facilities with moderate-range transmission distances up to 2 km (1.25 miles). The FOX 3G HD-SDI 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, and for connecting between facilities such as on university campuses.

The FOX 3G HD-SDI P SM complies with SMPTE 297-2006 and adds immunity to pathological signals, including test patterns defined by SMPTE RP 178 and RP 198 for 3G-SDI, HD-SDI, and SDI. This enables the FOX 3G HD-SDI P SM to successfully transmit and receive pathological signals without degrading the performance of the optical transmission.

The FOX 3G HD-SDI automatically recognizes and transmits 3G-SDI, HD-SDI, and SDI signals, and is compliant with SMPTE 259M, 292M, 424M, and ITU digital video standards. Because the FOX 3G HD-SDI is a transceiver, signals can be simultaneously transmitted and received between a pair of FOX 3G HD-SDI units. It is also configurable as a dedicated transmitter with outputs for previewing on a local monitor, and as a dedicated receiver with the capability to daisy-chain units for supporting multiple displays.

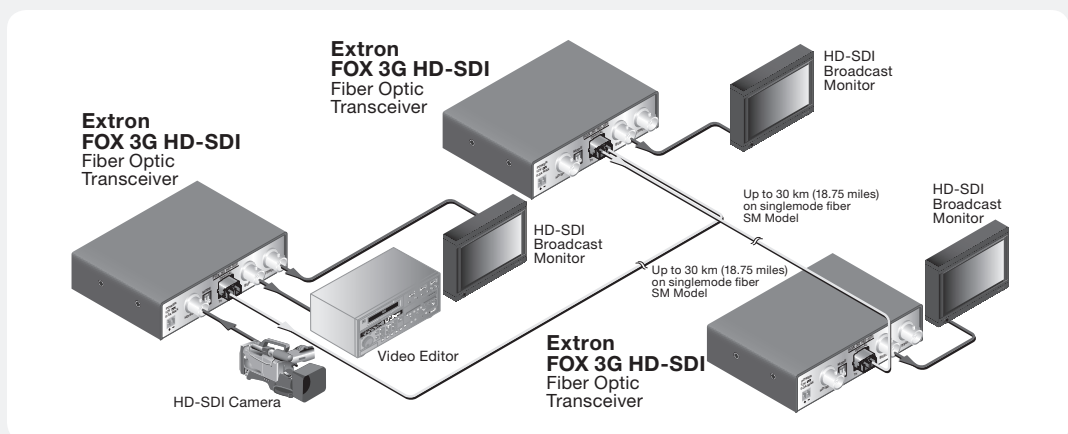
FEATURES

- ▶ **Extends 3G-SDI, HD-SDI, and SDI signals very long distances over a single fiber** – The FOX 3G HD-SDI supports data at rates up to 2.97 Gbps, and complies with SMPTE 259M, 292M, 424M, and ITU digital video standards. The FOX 3G HD-SDI P SM also complies with SMPTE 297-2006.
- ▶ **Supports data rates from 270 Mbps to 2.97 Gbps**
- ▶ **Integrates easily into a wide range of 4K and UHD environments** – FOX Series matrix switchers and extenders can be configured for use with 4K sources and displays with resolutions up to 4096x2160.
- ▶ **Passes embedded audio, ancillary ID and metadata information, and SD/HD-SDTI digital video signals** – Passes all data allowed within published SMPTE and ITU digital video standards, including embedded audio, ancillary ID and metadata.
- ▶ **Input equalization and reclocking on buffered outputs** – The FOX 3G HD-SDI automatically equalizes incoming signals, and reshapes and restores signals on its buffered outputs.
- ▶ **Immunity to pathological signal patterns - FOX 3G HD-SDI P SM**
- ▶ **Dual buffered outputs** – Provide additional system capability. When the FOX 3G HD-SDI is configured as a dedicated transmitter, the outputs can also be used for previewing on a local monitor.
- ▶ **Daisy-chain capability** – When configured as a dedicated receiver, multiple units can be daisy-chained so that multiple displays can be served from a single transmitter location.
- ▶ **3G-SDI transceiver sends to and receives from a second FOX 3G HD-SDI unit over fiber in bidirectional transceiver mode**
- ▶ **1" (2.5 cm) high, quarter rack width metal enclosure** – With a low profile enclosure, the FOX 3G HD-SDI can be conveniently and discreetly installed in a variety of locations.

NOTE: The FOX 3G HD-SDI is not compatible with the FOX AEX 108 or PowerCage FOX AEX 104 Audio Extractors, or FOXBOX Fiber Optic Extenders.

Daisy-Chain Capability

The FOX 3G HD-SDI offers several user-configurable modes, including a dedicated receiver mode that allows for daisy-chaining between FOX 3G HD-SDI units, so that displays at multiple locations can be served from a single transmitter location.



SPECIFICATIONS

NOTE: The FOX 3G HD-SDI is a transceiver that can function as a transmitter and/or as a receiver. Two units are required for a transmitter-receiver system with one fiber optic cable linking the two units. The FOX 3G HD-SDI is available in singlemode or multimode versions.

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.

NOTE: FOX 3G HD-SDI P SM transceivers are immune to pathological signals only when P model units are used for both transmitter and receiver with no other equipment between the two units. If the signal is routed through a Fiber Matrix, FOX DA8, or FOX SW8, the system does not provide immunity.

OPTICAL FIBER INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

Number/type	1 fiber optic
Connectors	1 LC connector
Operating distance	
Singlemode	30 km (18.75 miles) with singlemode (SM) cables with a FOX 3G HD-SDI SM
Multimode	500 m (1640') with 62.5 µm OM1 multimode (MM) cables with a FOX 3G HD-SDI MM 1 km (3280') with 50 µm OM2 multimode (MM) cables with a FOX 3G HD-SDI MM 2 km (6561') with 50 µm OM3/OM4 2000 MHz bandwidth laser optimized multimode (MM) cables with a FOX 3G HD-SDI 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 FOX 3G HD-SDI MM; 1310 nm for FOX 3G HD-SDI SM
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

Signal type	HD-SDI, SDI, and 3G-SDI digital video signals
Gain	Unity
Resolution	8 or 10 bits, automatic
Data rates	270 Mbps, 1.485 Gbps, 2.970 Gbps
Operation standards	SMPTE 259M-C, SMPTE 292M, SMPTE 424M, ITU-R BT.601, ITU-R BT.1120
Auto data rate lock	Yes

VIDEO INPUT — TRANSMITTER

Number/signal type	1 single link SDI, HD-SDI, or 3G-SDI digital component video
Connectors	1 female BNC
Data rates	19 Mbps to 2.97 Gbps
Nominal level	0.8 Vp-p
Minimum/maximum levels	0.5 V to 1 Vp-p with no offset
Impedance	75 ohms
Return loss	≥15 dB @ 5 MHz to 1.5 GHz ≥10 dB @ 1.5 GHz to 3.0 GHz
DC offset (max. allowable)	5 V
Input coupling	AC
Input cable equalization	
HD-SDI	Automatic for up to -30 dB of cable loss 120 m (400') using Extron RG6 cable 90 m (300') using Extron RG59 cable
SDI	150 m (500') using Extron RG6 cable 120 m (400') using Extron RG59 cable

NOTE: The transmission distance varies depending on the signal resolution and on the type of cable, graphic card, and display used in the system.

VIDEO OUTPUT — RECEIVER

Number/signal type	2 single link SDI, HD-SDI, or 3G-SDI digital component video
Connectors	2 female BNC
Re-clocking	Automatic for 270 Mbps, 1.485 Gbps, 2.97 Gbps, or bypassed for unrecognized rates
Nominal level	0.8 Vp-p
Minimum/maximum levels	0.5 V to 1.0 Vp-p
Impedance	75 ohms
Return loss	<-25 dB @ 100 MHz
DC offset	±5 mV with input at 0 offset

GENERAL

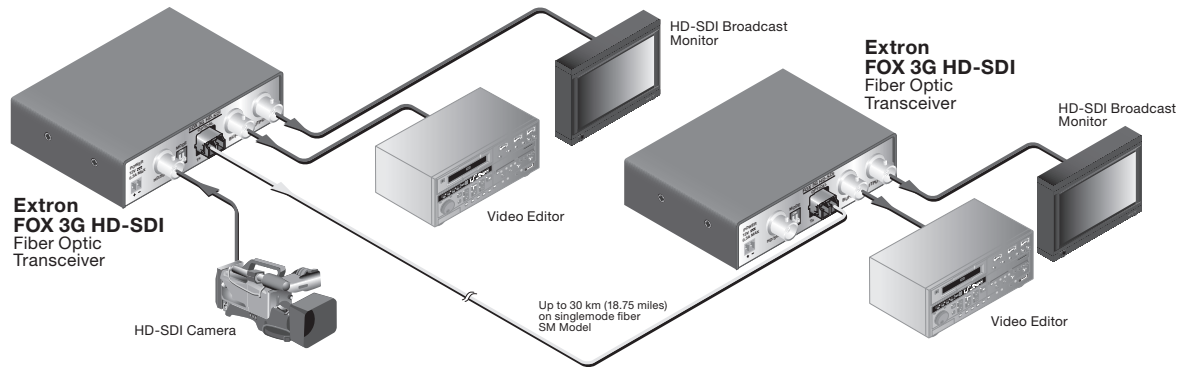
Power supply	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 1 A, 12 watts
Power input requirements	12 VDC, 0.3 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents
Mounting	
Rack mount	Yes, with optional rack shelf kit
Furniture mount	Yes with optional through-desk or under-desk mounting kit
Pole mount	Yes, with optional pole mounting kit
Enclosure type	Metal
Enclosure dimensions	1.0" H x 4.3" W x 3.0" D (quarter rack wide) (2.5 cm H x 10.9 cm W x 7.6 cm D) (Depth excludes connectors.)
Product weight	0.5 lb (0.3 kg) per each unit
Shipping weight	3 lbs (2 kg) per each unit
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
Warranty	3 years parts and labor

NOTE: All nominal levels are at ±10%.

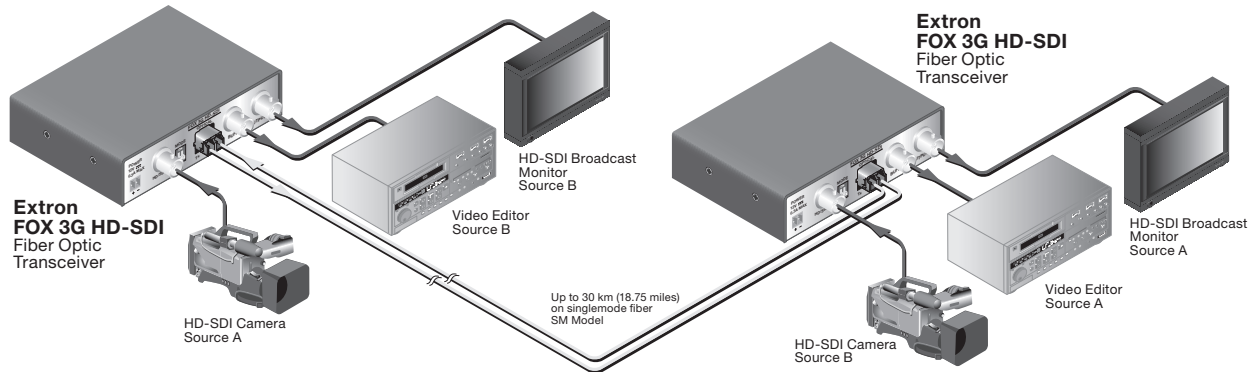
Model	Version Description	Part number
FOX 3G HD-SDI MM	Multimode, Qty. 1	60-900-01
FOX 3G HD-SDI SM	Singlemode, Qty. 1	60-901-01
FOX 3G HD-SDI P SM	Singlemode, Pathological Comp., Qty. 1	60-1056-02

APPLICATION DIAGRAM

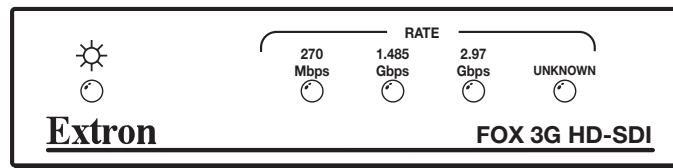
TRANSMITTER / RECEIVER MODE



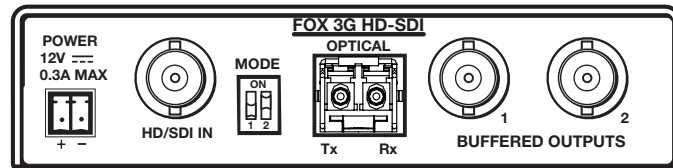
BI-DIRECTIONAL TRANSCIEVER MODE



PANEL DRAWING



Front



Back

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