The Extron FOXBOX VGA Fiber Optic Extender is a transmitter and receiver set for long haul transmission of high resolution VGA, 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 technology, and also includes a host of features for enhancing A/V system integration.

- Extends VGA, stereo audio, and RS-232 control signals long distances over a single fiber
- All-digital technology for high performance signal transmission
- Pixel-for-pixel image quality, up to 1600x1200
- 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
- Low profile, mountable enclosures
The Extron FOXBOX VGA Fiber Optic Extender is a transmitter and receiver set for long haul transmission of high resolution VGA, 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 technology, to deliver perfect pixel-for-pixel transmission of computer-video images up to UXGA (1600x1200) resolution. Designed specifically for A/V systems, the FOXBOX VGA also includes a host of integrator-friendly features such as image adjustments and calibration, 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 VGA 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 VGA transmitter and receiver feature industry standard LC-type connectivity.

The FOXBOX VGA MM supports multimode fiber at 850 nm, which is typically used within buildings or facilities with moderate-range transmission distances up to 150 meters (492 feet). The FOXBOX VGA 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 VGA transmitter accepts, digitizes, and transmits all RGB format signals – RGBHV, RGBS, RGSB, and RsGsBs, along with unbalanced stereo audio and RS-232 control signals. The transmitter also provides controls for optimizing video and audio signals. The FOXBOX VGA receiver features sync format conversion for RGBHV or RGSB output. Several receivers may be daisy-chained to support applications with displays in multiple locations. When paired with the FOXBOX VGA/YUV transmitter, the FOXBOX Rx VGA receiver output follows the input format, RGBHV or HD component.

At the FOXBOX VGA transmitter, both transmitter and receiver can be controlled and configured through RS-232. 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 video and audio at the receiver. It also allows for verification of fiber link status between the units as well as the presence of VGA and audio input signals at the transmitter.

**DVI-to-Analog RGB and Analog RGB-to-DVI Conversion**

The FOXBOX VGA transmitter and receiver are available separately. Either device can be paired with the FOXBOX DVI or FOX 500 DVI transmitter or receiver to provide ultra-long distance conversion of DVI-D signals to analog RGB and vice versa.

**DESCRIPTION**

- Extends VGA, stereo audio, and RS-232 control signals very long distances over a single fiber
- All digital technology provides pixel-for-pixel performance with signals up to 1600x1200 – The FOXBOX VGA delivers pixel-for-pixel transmission of video signals to ensure optimal image quality at resolutions up to UXGA (1600x1200). Signal resolutions higher than UXGA can be accommodated, but will not be sampled at a 1:1 pixel ratio.
- Daisy-chain capability – Several FOXBOX VGA 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 RGB 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 VGA 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 VGA automatically stores size, position, and detail information based on the incoming signal. When the same signal is detected again, these image settings are automatically recalled from memory.
- 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 are available for saving and recall of size, 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 VGA transmitter and receiver feature RS-232 serial ports for control and configuration. The second fiber link allows for control of both units at either location, as well as remote verification of fiber link status and the presence of input VGA and audio signals.
- Internal test patterns for calibration and setup – Three test patterns are available, including grayscales, color bars, and alternating pixels.
- Auto-Image™ automatically optimizes output – The FOXBOX VGA can automatically adjust the sizing, centering, and filtering to optimize the output image. This can save time and effort in fine tuning displayed images. Requires second fiber link.
- Compatible with FOXBOX DVI and FOX 500 DVI transmitter and receiver – Enables ultra-long distance DVI-to-analog RGB and analog RGB-to-DVI conversion without the need for extra signal conversion devices.
- 1” (2.5 cm) high, quarter rack width metal enclosures – With a low profile enclosure, both devices can be discreetly installed, such as behind a plasma or LCD flat-panel display.
- Energy-efficient external universal power supply included – Provides worldwide compatibility, low power consumption, and reduced operating costs.

**FEATURES**

- Extends VGA, stereo audio, and RS-232 control signals very long distances over a single fiber
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**SPECIFICATIONS**

**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
- **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: -12 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**: VGA-UXGA, RGBHV, RGBS, RGsB, RgSb
- **Gain**: Unity
- **Pixel data bit depth**: 8 bits per channel, 3 channels (R, G, B; or YUV)
- **Maximum resolution**: 1600x1200 or 1080p @ 60 Hz, digitized pixel for pixel; higher resolutions up to 2048x1120, undersampled

**VIDEO INPUT**

- **Number/signal type**: 1 VGA-UXGA, RGBHV, RGBS, RGsB, RgSb, RgSb
- **Nominal level**: 1 Vp-p for Y of component video
- **Impedance**: 75 ohms
- **Horizontal frequency**: 24 kHz to 100 kHz
- **Vertical frequency**: 40 Hz to 120 Hz
- **Return loss**: < -40 dB @ 5 MHz

**VIDEO OUTPUT**

- **Number/signal type**: With input from a FOXBOX Tx VGA:
  - 1 VGA-UXGA, RGBHV, RGBS, RGsB (follows input or can be set by user)
- **Nominal level**: 1 Vp-p for Y of component video
- **Impedance**: 75 ohms
- **Return loss**: < -30 dB @ 5 MHz
- **DC offset**: ±5 mV with input at 0 offset
- **Video delay**: 1-2 frames

**SYNC**

- **Input type**: RGBHV, RGBS, RGB, RGsB
- **Output type**: RGBHV, RGBS (follows input or can be set by user)
- **Input level**: 2.5 V to 5.0 Vp-p
- **Output level**: TTL: 5.0 Vp-p, unterminated, on HV; for RGBHV, RGBS
  - 0.3 Vp-p for component video (bi-level sync, unterminated)
  - or for Gs (SOG), terminated
  - 0.6 Vp-p for component video (tri-level sync)

**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.

**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 (TX UNITS)**

- **Number/signal type**: 1 unbalanced stereo or 2 unbalanced mono

**AUDIO OUTPUT — RECEIVERS (RX UNITS)**

- **Number/signal type**: 1 unbalanced stereo or 2 unbalanced mono
- **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
- **Cooling**: Convection, vents on top and side panels
- **Thermal dissipation**
  - Transmitter: 115 VAC, 60 Hz 7.8 BTU/hr
  - 240 VAC, 50 Hz 11.4 BTU/hr
  - Receiver: 115 VAC, 60 Hz 8.0 BTU/hr
  - 240 VAC, 50 Hz 10.9 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 4.5” W x 6.0” D (quarter rack wide)
  - (2.5 cm H x 11.9 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
- **Regulatory compliance**
  - Safety: CE, c-UL, FCC Class A, ICES, VCCI
  - EN/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**

- FOXBOX Tx VGA MM — Multimode — Transmitter
- FOXBOX Rx VGA MM — Multimode — Receiver
- FOXBOX Tx VGA SM — Singlemode — Transmitter
- FOXBOX Rx VGA SM — Singlemode — Receiver

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