

DXLink™ Multi-Format Single Mode Fiber Transmitter, Simplex

DXF-TX-SMS (FG1010-361)



Overview

The DXLink Multi-Format Fiber Transmitter sends analog and digital audio and video signals including HDMI with HDCP up to 10 Km over single mode fiber. Use the DXLink Fiber Transmitter in conjunction with the Enova DGX 8, 16, 32 or 64 to transmit clear, uncompressed video beyond 6 miles at the fastest data rate in the industry – 10 Gbps.

COMMON APPLICATIONS

The ideal entry-point for any source designed into an Enova DGX integrated system that requires the distance capabilities and inherent security of fiber – or both; including campus-wide distribution of sources that are shared between classrooms, secure military applications, casinos, arenas and museums. Directly connect video sources such as PCs using the HD-15 multi-format input connection or HDMI input and easily include audio on the same fiber cable by using the stereo or digital audio connection.

FEATURES

- **HDCP Compliance Over Fiber** – Transmit HDCP compliant video including HDMI up to 10 Km (over 6 miles)
- **Industry Leading Data Rate** – DXLink is leading the way with an optical transport rate of 10 Gbps
- **Secure and Isolated** – Fiber inherently provides extra security and electrical isolation making it the transport method of choice for many mission-critical secure environments further, by removing the fiber return path simplex models provide an added layer of security*
- **InstaGate Pro® Technology** – Easily integrate HDCP into system designs and enjoy hassle free matrix switching to all compliant displays, no tools, no delays and no key constraints – it just works
- **Field Serviceable Fiber Modules** – Easily remove and replace SFP modules in the field
- **Multi-Format Analog Port and HDMI Port** – Supports legacy analog signals – RGBHV, Component, S-Video, and Composite, and digital HDMI/HDCP, DisplayPort and DVI signals

*See Duplex models for bidirectional control over fiber. Simplex models do not support control transport over fiber (such as Ethernet, USB, IR, Serial Control or EDID); although when used as part of a complete Enova DGX solution, control can be provided if a supplemental independent network connection is used. See the "Instruction Manual – Enova DGX Digital Media Switchers" for details.

SPECIFICATIONS

GENERAL	
Dimensions (HWD)	1" x 8 3/4" x 5 1/5" (2.54 x 22.12 cm x 13.08 cm)
Weight	Approximately 1.1 lb (0.50 kg)
Shipping Weight	Approximately 2.2 lb (1 kg)
MTBF	124,232 hours
Noise Level	0 dBA @ 1m (typ), 45.3 dBA @ 1m (max)
Airflow	Convection (openings on top of case), forced air (out of front plate, when fan is active)
Mounting Options	Compatible V Style mounting options: <ul style="list-style-type: none"> •AVB-VSTYLE-RMK-FILL-1U, V Style Module Rack Mounting Tray with Fill Plates (FG1010-721) •AVB-VSTYLE-RMK-1U, V Style Module Rack Mounting Tray (FG1010-720) •AVB-VSTYLE-SURFACE-MNT, V Style Single Module Surface Mount Brackets (FG1010-722) •AVB-VSTYLE-POLE-MNT, V Style Single Module Pole Mounting Kit (FG1010-723)
Regulatory Compliance	<ul style="list-style-type: none"> •UL 60950-1 •CSA 60950-1 •IEC 60950-1 •CE EN 60950-1 •CE EN 55022 Class A •CE EN 55024 •FCC CFR Title 47 Part 15 Subpart B Class A •ICES-003 Class A •RoHS / WEEE Compliant
Safety Certification	Class 1 Eye safe per requirements of IEC 60825-1 / CDRH
Included Accessories	Ships with a desktop power supply with power cord
Optional Accessories	<ul style="list-style-type: none"> •AVB-VSTYLE-RMK-FILL-1U, V Style Module Rack Mounting Tray with Fill Plates (FG1010-721) •AVB-VSTYLE-RMK-1U, V Style Module Rack Mounting Tray (FG1010-720) •AVB-VSTYLE-SURFACE-MNT, V Style Single Module Surface Mount Brackets (FG1010-722) •AVB-VSTYLE-POLE-MNT, V Style Single Module Pole Mounting Kit (FG1010-723) •CC-NIRC, NetLinx IR Emitter Cable (FG10-000-11) •IR03, External IR Receiver Module (FG-IR03)
Compatible AMX Products	<ul style="list-style-type: none"> •Enova DGX 8/16/32/64 Digital Media Switchers with Single Mode Input Board installed including DGX-I-DXF-SMS (FG1058-621) or DGX-I-DXF-SMD (FG1058-620) installed •Direct point-to-point connection with a Single Mode Fiber Receiver including DXF-RX-SMS (FG1010-561) or DXF-RX-SMD (FG1010-560) <p>Note: Connectivity between DXLink Fiber Transmitters and DXLink Fiber Input Boards / DXLink Fiber Output Boards and DXLink Fiber Receivers products requires matching model types, Multimode to Mutimode and Single Mode to Single Mode. A variety of boards can be used within a common enclosure</p>

ACTIVE POWER REQUIREMENTS	
AC Power	100-240 VAC single phase, 50-60 Hz 0.8 A max. (100-240 VAC)
Power Consumption (Max)	20 W
Power Connector	2.1 mm DC Power Jack
POWER SUPPLY	
External, Included	Each Multi-Format TX ships with a desktop power supply with power cord 2.5 A at 12 V, Max 13.5 V
ENVIRONMENTAL	
Temperature (Operating)	32° to 104° F (0° to 40° C)
Temperature (Storage)	-22° to 158° F (-30° to 70° C)
Humidity (Operating)	5% to 85% RH (non-condensing)
Humidity (Storage)	0% to 90% RH (non-condensing)
Heat Dissipation (On)	69 BTU/hr
ETHERNET	
Ethernet Connection	(1) RJ-45, TCP/IP Port (ICS LAN 10/100) Note: Simplex DXLink solutions do not support an Ethernet transport layer on the simplex fiber path, therefore an Ethernet connection is required to provide IR/RS-232/USB Keyboard/Mouse or NetLinX program control to this device
USB (HID) KEYBOARD & MOUSE	
USB (HID)	(1) USB Mini A/B Connector ("HOST"); connect a DXLink Fiber TX to a PC and emulate keyboard and mouse commands from a DXLink Fiber Receiver For a list of HID devices which have been tested and found to be working well with the latest firmware please visit: http://www.amx.com/products/AVB-RX-DXLINK-HDMI.asp and view the document "DXLink HID Keyboard and Mouse Supported Devices" See Duplex models for bidirectional control over fiber. Simplex models do not support control transport over Fiber (such as Ethernet, USB, IR, Serial Control or EDID); although when used as part of a complete Enova DGX solution, control can be provided if a supplemental independent network connection is used. See the "Instruction Manual – Enova DGX Digital Media Switchers" for details.
CONTROLS	
ICS LAN/Ethernet Port	(1) RJ-45, TCP/IP Port (ICS LAN 10/100) Note: Simplex DXLink solutions do not support an Ethernet transport layer on the simplex fiber path, therefore an Ethernet connection is required to

	provide IR/RS-232/USB Keyboard/Mouse or NetLinX program control to this device
ID Pushbutton	Toggle between DHCP and static IP addressing Places system in NetLinX Device ID assignment mode Reset the factory default settings Restore the factory firmware image
Advanced Configuration Interface	(1) USB Mini-B Connector ("PROGRAM")
Serial*	(1) 3.5mm Pluggable Phoenix Terminal Block Bidirectional RS-232 Standard NetLinX Baudrate 1200-115k Parity support Odd/Even/None
IR RX*	(1) 3.5mm Mini-Stereo Jack Port for IR03 Receiver (Optional)
IR TX*	(1) 3.5mm Pluggable Phoenix Terminal Block Port for IR01 Emitter (Optional)

*See Duplex models for bidirectional control over fiber. Simplex models do not support control transport over fiber (such as Ethernet, USB, IR, Serial Control or EDID); although when used as part of a complete Enova DGX solution, control can be provided if a supplemental independent network connection is used. See the "Instruction Manual – Enova DGX Digital Media Switchers" for details.

INDICATORS	
Power Indicator	(1) Green LED indicates whether or not the DXLF-MFTX-MM-D is powered on
Digital Video Indicator	(1) Green LED indicates the presence of video signals through the module
Audio Indicator	(1) Green LED indicates the presence of digital audio signals through the module
Analog Video Indicator	(3) Green LEDs, 1 lights to indicate the presence of the type of analog video through the Multi-Format TX (composite, Y/c; Y/Pb/Pr or RGB; RGBHV or RGBS)
IR TX Indicator	(1) Red LED lights during the transmission of IR data via the rear IR port
IR RX Indicator	(1) Yellow LED lights during the receipt of IR data via the rear IR port
RS-232 TX Indicator	(1) Red LED shows serial transmit (TX) data activity
RS-232 RX Indicator	(1) Yellow LED shows serial receive (RX) data activity
LINK/ACT	(1) Green LED lights when the Ethernet cable is connected and an active link is established. This LED also blinks when receiving Ethernet data packets
Status	(1) Green LED lights when the Controller is programmed and communicating properly
CEC Indicator	Not currently supported
USB Indicator	(1) Yellow LED lights when host device is connected

DXLINK FIBER	
Fiber Connector	LC Duplex conforming to ANSI TIA/EAI 604-10 (FOCIS 10A) Note: On the DXLink Single Mode Simplex Transmitter output, only the transmit portion of the SFP module is active
Fiber Cable Type	9/125 μm
Fiber Cable Length	10 km (6.21 miles)
Transport Layer Throughput	10.3125 Gbps
Fiber Transceiver Type	10G SFP+
Optical Wavelength	1310 nm
Single Mode Optical Budget	7.4 dB (typ) between DXLink Fiber Transceivers

	Optical Modulation Amplitude (OMA): -5.2 dBm (min)
	Optical Modulation Amplitude (OMA) Sensitivity: -12.6 dBm (typ), -10.3 dBm (stressed)
Single Mode Optical Transceiver Mean	-8.2dBm to 0.5dBm (avg pwr)

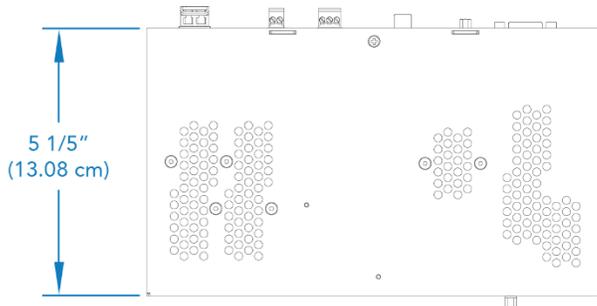
HDMI	
Input Connector	(1) HDMI Type A Female
Compatible Formats	HDMI, HDCP , DVI
Signal Type Support	HDMI DVI-D (single link with HDMI cable adapter) DisplayPort ++ (Input Only, with HDMI or DVI cable adapter)
Local Loopback Output Connector	(1) HDMI Type A Female Local Loopback Output, +5 V DDC Pin Output 55 mA, non-scaling
Local Loopback Output +5V DDC Pin Output	55 mA
Progressive Resolution Support	480p up to 1920x1200 @ 60 Hz (including but not limited to those resolutions shown in the "Instruction Manual – DXLink Fiber Transmitters and Receivers")
Interlaced Resolution Support	480i, 576i, 1080i (including but not limited to those resolutions shown in the "Instruction Manual – DXLink Fiber Transmitters and Receivers") System design note: If input is interlaced, all scaled outputs will deinterlace video to a progressive resolution format. If in scaler Bypass mode interlaced input will pass through unaltered to DXLink Twisted Pair and Fiber Receivers; if in scaler Bypass mode local DVI and HDMI output boards will still deinterlace video to a progressive resolution format.
2K Resolution Support	2048x1024 @ 47Hz, 2048x1080 @ 60Hz, 2048x1152 @ 60Hz, 2048x1536 @ 24Hz Note: 2K formats are only compatible with the DVI, HDMI and DXLink Fiber Input/Output boards and require the output or RX Scaler to be set in Bypass mode
3D Format Support	Yes, if Scaler on corresponding output board or DXLink Fiber RX is set to Bypass mode Frame Packing 1080p 24Hz Frame Packing 720p 50/60Hz Frame Packing 1080i 50/60Hz Top-Bottom 1080p 24Hz Top-Bottom 720p 50/60Hz Side-by-Side Half 1080i 50/60Hz
Deep Color Support	24-bit, 30-bit 30-bit supported when the HDMI Output Board scaler or DXLink RX scaler is in Bypass mode using CEA-861 formats and resolution is 1080p60 or less
Color Space Support	RGB 4:4:4 YCbCr 4:4:4 and 4:2:2 (Input signal support for YCbCr 4:4:4 and 4:2:2, output color-space is converted to RGB 4:4:4)
HDCP Support	Yes Supports AMX HDCP InstaGate Pro Technology DXLink fiber products have HDCP key support for up to 16 sinks per output, independent of source device
CEC Support	None

DDC/EDID Support	The HDMI EDID is user re-programmable with DGX Configuration Software via the USB Program port on the Transmitter For the specific EDID list, see the specifications in the “Enova DGX DXLink Fiber Boards” chapter in the Instruction Manual – Enova DGX 8/16/32/64 Digital Media Switchers
Propagation Delay (Typical)	4.8 us
Input Voltage (Nominal)	1.0 Vpp Differential
Input Re-clocking (CDR)	Yes
Input Equalization	Yes, Adaptive
Video Data Rate (Max)	4.95 Gbps / 5.568 Gbps 5.568 Gbps supported when the HDMI Output Board scaler or DXLink RX scaler is in Bypass mode using CEA-861 formats and resolution is 1080p60 or less
Video Pixel Clock (Max)	165 MHz/185.625 MHz 185.625 MHz supported when the HDMI Output Board scaler or DXLink RX scaler is in Bypass mode using CEA-861 formats and resolution is 1080p60 or less
Audio Format Support	Dolby TrueHD, Dolby Digital, DTS-HD Master Audio, DTS, 2 CH through 8 CH L-PCM Dolby Digital and DTS support up to 48kHz, 5.1 channels
Audio Resolution	16 bit to 24 bit
Audio Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 96 kHz, 192kHz
Local Audio Support	Insertion

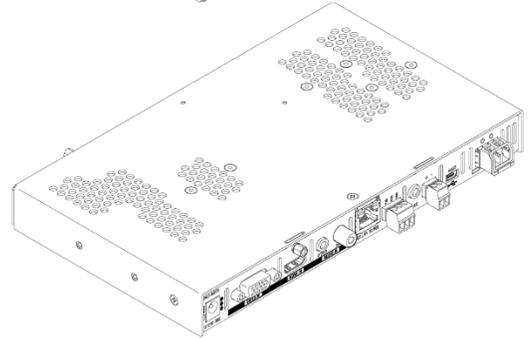
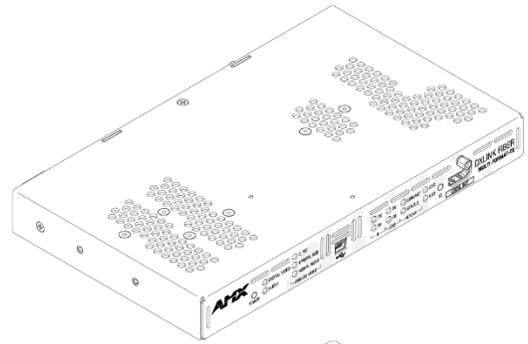
ANALOG VIDEO	
Input Connector	(1) HD-15, breakout cable required for RGB formats
Compatible Formats	RGBHV, RGBs, RGSB YPbPr (HDTV) Y/c (S-Video), C (Composite)
Progressive Resolution Support	480p up to 1920x1200 @ 60 Hz including but not limited to those resolutions shown in the “Instruction Manual – DXLink Fiber Transmitters and Receivers”
Interlaced Resolution Support	480i, 576i, 1080i including but not limited to those resolutions shown in the “Instruction Manual – DXLink Fiber Transmitters and Receivers” System design note: If input is interlaced, all scaled outputs will deinterlace video to a progressive resolution format. If in scaler Bypass mode interlaced input will pass through unaltered to DXLink Twisted Pair and Fiber Receivers; if in scaler Bypass mode local DVI and HDMI output boards will still deinterlace video to a progressive resolution format.
Auto-Adjust Input	Supported
RGB Input Signal Level Range	1 Vpp nominal
RGB Input Impedance	75 Ω
HV Sync Input Signal Level Range	2 to 5 Vpp
HV Sync Input Impedance	2.5 pF Typ, 10 pF Max
Digital Processing	24 bit, 165 MHz
Y/Pb/Pr Input Signal Level Range	1.0 Vpp for Y, 700 mVpp for Pb Pr
Y/Pb/Pr Input Impedance	75 Ω
Y/c (S-Video) Input Signal Level Range	1.0 Vpp for Y, 1.0 Vpp for c
Y/c (S-Video) Input Impedance	75 Ω
C (Composite) Input Signal Level Range	1.0 Vpp

C (Composite) Input Impedance	75 Ω
S/PDIF DIGITAL AUDIO	
Input Connector	(1) RCA Jack, video signal must be present to pass audio
Input Signal Types	S/PDIF, video signal must be present to pass audio
S/PDIF Audio Format Support	Dolby Digital, DTS, 2 CH L-PCM Dolby Digital and DTS support up to 48kHz, 5.1 channels
S/PDIF Resolution	16 to 24 bit
S/PDIF Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 96 kHz
S/PDIF Input Signal Level Range	200 mVpp to 600 mVpp terminated
S/PDIF Input Impedance	75 Ω
Analog to Digital Reference Level	+2.5 dBu = 0 dBfs
ANALOG AUDIO	
Input Connector	(1) 3.5mm mini-stereo jack, video must be present to pass audio
Input Signal Types	Stereo analog, video must be present to pass audio
Analog Input Level (Max)	+2.5 dBu, unbalanced
Analog Input Impedance	10k Ω
Analog to Digital Conversion	48 kHz Sample Rate, 24-bit
Analog to Digital Reference Level	+2.5 dBu = 0 dBfs
FRONT CONNECTORS	
Advanced Configuration Interface	(1) USB Mini-B Connector ("PROGRAM")
Local Loopback Output Connector	(1) HDMI Type A Female, non-scaling
BACK CONNECTORS	
Video Input	(1) HD-15 (RGBHV, RGBs, RGsB, Y/Pb/Pr, Y/c / S-Video, composite (breakout cable is required for RGB formats))
HDMI Input	(1) HDMI Type A Female
Analog Stereo Input	(1) 3.5mm Mini-Stereo Jack
S/PDIF Digital Audio Input	(1) RCA Jack
ICS LAN/Ethernet Port	(1) RJ-45 Connector, TCP/IP Port (ICS LAN 10/100)
Serial	(1) 3.5mm Pluggable Phoenix Terminal Block Bidirectional RS-232 Standard NetLinx Baudrate 1200-115k Parity support Odd/Even/None
IR RX	(1) 3.5mm Mini-Stereo Jack Port for IR03 Receiver (Optional)
IR TX	(1) 3.5mm Pluggable Phoenix Terminal Block Port for IR01 Emitter (Optional)
USB (HID) Keyboard & Mouse	(1) USB Mini A/B Connector ("HOST"); connect a DXLink Fiber TX to a PC and emulate keyboard and mouse commands from a DXLink Fiber Receiver
DXLink Fiber Output	(1) LC Duplex conforming to ANSI TIA/EAI 604-10 (FOCIS 10A)
Local Power	2.1 mm DC Power Jack

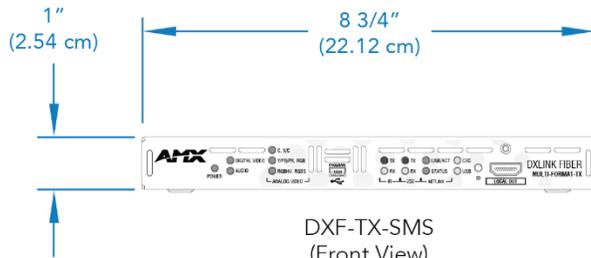
For a more detailed pictorial drawing please visit: <http://www.amx.com/products/DXF-TX-SMS.asp>



DXF-TX-SMS
(Top View)



DXF-TX-SMS
(Isometric Views)



DXF-TX-SMS
(Front View)



DXF-TX-SMS
(Back View)



DXF-TX-SMS
(Right View)

About AMX

AMX hardware and software solutions simplify the implementation, maintenance, and use of technology to create effective environments. With the increasing number of technologies and operating platforms at work and home, AMX solves the complexity of managing this technology with reliable, consistent and scalable systems. Our award-winning products span control and automation, system-wide switching and audio/video signal distribution, digital signage and technology management. They are implemented worldwide in conference rooms, homes, classrooms, network operation / command centers, hotels, entertainment venues, broadcast facilities, and more. ©2014 AMX. All rights reserved. Specifications subject to change. Revised 7-November-2014.

AMX.com | 800.222.0193 | 469.624.8000 | +1.469.624.7400 | fax 469.624.7153