

DXLink™ HDMI Multimode Fiber Receiver, Simplex

DXF-RX-MMS (FG1010-563)



Overview

The DXLink HDMI Fiber Receiver features built-in SmartScale® Technology to deliver HDMI with HDCP that is perfectly scaled for each connected display automatically, eliminating the integration challenges that can occur when sources and displays have different optimal resolutions. It accepts audio and video over multimode fiber from up to 300 meters. Mount the low-profile DXLink Fiber Receiver behind a display or above a ceiling mounted projector.

COMMON APPLICATIONS

The ideal solution for any destination display or projector 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 LCDs, plasmas and projectors using the HDMI output connection while delivering room audio via the stereo audio output.

FEATURES

- **HDCP Compliance Over Fiber** – Transmit HDCP compliant video including HDMI up to 300 m
- **Industry Leading Data Rate** – DXLink is leading the way with an optical transport rate of 10 Gbps
- **SmartScale® Technology** – Automatically responds to the display's declared EDID information and scales the video to the best resolution and video parameters for that display without manual setup; this prevents inferior video quality when sources are forced to lower resolutions to support the least capable display in the system
- **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*
- **Field Serviceable Fiber Modules** – Easily remove and replace SFP modules in the field

*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 | Approx. 1.1 lb (0.50 kg) Shipping Weight: Approx. 2.20 lb (1.00 kg) |
| Shipping Weight | Approx. 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, typ), 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) • CC-MININUSB, Mini USB to PC Cable Adapter (FG5967-20) |
| Compatible AMX Products | <ul style="list-style-type: none"> • Enova DGX 8/16/32/64 Digital Media Switchers with Multimode Fiber Output Board installed including DGX-O-DXF-MMS (FG1058-633) or DGX-O-DXF-MMD (FG1058-632) installed • Direct point-to-point connection with a Multimode Fiber Transmitter including DXF-TX-MMS (FG1010-363) or DXF-TX-MMD (FG1010-362) <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 Multimode and Single Mode to Single Mode. A variety of boards can be used within a common enclosure.</p> |

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| | 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. |
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| ACTIVE POWER REQUIREMENTS | |
|---------------------------|--|
| AC Power | 100-240 VAC single phase, 50-60 Hz 0.8 A max. (100-240 VAC) |
| Power Consumption (Max) | 19 W |
| Power Connector | 2.1 mm DC Power Jack |

| POWER SUPPLY | |
|--------------------|---|
| External, Included | Each HDMI RX 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) | 65 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 |

| DXLINK FIBER | |
|----------------------------|---|
| Fiber Connector | LC Duplex conforming to ANSI TIA/EAI 604-10 (FOCIS 10A) Note: On the DXLink Mutlimode Simplex Receiver, only the receive portion of the SFP module is active |
| Fiber Cable Type | OM3 50/125µm |
| Fiber Cable Length | 300m (984 ft) |
| Transport Layer Throughput | 10.3125 Gbps |
| Fiber Transceiver Type | 10G SFP+ |
| Optical Wavelength | 850 nm |
| Optical Budget | 6.8 dB (typical) between DXLink Fiber Transceivers Optical Modulation Amplitude (OMA): -4.3 dBm (min) Optical Modulation Amplitude (OMA) Sensitivity: -11.1 dBm (typ) |
| Optical Transceiver Mean | -1 dBm (average power) |

| HDMI | |
|--------------------------------|--|
| Output Connector | (1) HDMI Type A Female |
| Compatible Formats | HDMI, HDCP , DVI |
| Signal Type Support | HDMI DVI-D (single link with HDMI cable adapter) |
| Progressive Resolution Support | All progressive resolutions between 480p and 1920 x 1200 @ 60 Hz via automatic SmartScale query of the display's preferred EDID Detailed Timing Definition |
| 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. |
| Output Scaling | SmartScale or Manual Configuration or Bypass |
| 2K Resolution Support | 2048 x 1024@47Hz, 2048 x 1080 @ 60Hz, 2048 x 1152 @ 60Hz, 2048 x 1536 @ 24Hz The scaler on cooresponding output board or RX must be set to Bypass mode |
| 3D Format Support | Yes, if Scaler on 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 When used with an Enova DGX Digital Media Switcher the key support is up to 16 sinks per output, independent of source device |
| CEC Support | None |
| Propagation Delay (Typical) | 26 ms when scaling, 5.2 us when in Bypass mode |
| CDR (Re-Clocking) | Yes |
| Output Voltage (Nominal) | 1.0 Vpp Differential |
| +5V DDC Pin Output | 55 mA |
| +5V USB Pin Output | 500 mA |
| Output Rise Time / Fall Time | 425 ps typ (20% - 80%) |
| 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 | Extraction |
| HDMI Audio Synchronization | Video formats @ 60Hz frame rate: in scaling mode, audio leads video by 12 ms typical (4 ms to 20 ms). In Bypass mode, audio lags video by 17 ms |

| ANALOG AUDIO | |
|-----------------------------------|---|
| Output Connections | 3.5mm Mini-Stereo Jack |
| Output Signal Types | Stereo Analog |
| Output Level (Max) | +2.5 dBu, unbalanced, >= 2 kΩ load |
| Output Frequency Response | < +0 dB to -0.5 dB, 50 Hz to 20 kHz |
| Audio THD+N | <0.04 %, 1 kHz, -10dBu to +2 dBu |
| Audio S/N Ratio | >93 dB, 20 Hz to 20 kHz Vin=+2dBu |
| Digital to Analog Reference Level | 0 dBfs = +0 dBu |
| Audio Synchronization | Video formats @ 60Hz frame rate: video formats @ 60Hz frame rate: In scaling mode audio leads video by 12ms typ (4ms to 20ms). In Bypass mode, audio lags video by 14ms |

| USB (HID) KEYBOARD & MOUSE | |
|----------------------------|--|
| USB (HID)* | <p>(1) USB Mini-A/B Connector ("DEVICE") Connect a keyboard & mouse and send commands to a PC connected to a DXLink Twisted Pair or Fiber TX</p> <p>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"</p> |

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| CONTROLS | |
|----------------------------------|--|
| 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) |

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supplemental independent network connection is used. See the "Instruction Manual – Enova DGX Digital Media Switchers" for details.

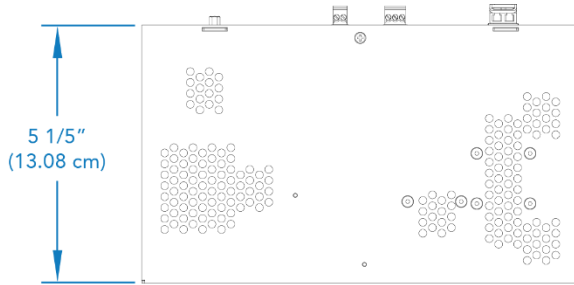
| INDICATORS | |
|-------------------------|--|
| Power Indicator | (1) LED that lights: <ul style="list-style-type: none"> •Green during normal operation state •Red when power is applied and boot sequence is started •Yellow when system initialization is in process |
| Video Indicator | (1) Green LED indicates the presence of video and audio signals through the module |
| Audio Indicator | (1) Green LED indicates the presence of audio signals through the module |
| Scaling Button and LEDs | (1) Pushbutton and (3) Green LEDs; use Scaling button to select one of the three options: Bypass, Auto (SmartScale), or Manual. The factory default is Auto (SmartScale). If the RX power cycles, it defaults to the last persisted mode (achieved by pressing scaling button and holding it until the desired scaling mode LED flashes) |
| 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 either a Keyboard or mouse is connected directly to the RX, or either and/or both are connected to a USB Hub connected to the RX |
| ID Pushbutton | Places system in NetLinX Device ID assignment mode |

| FRONT CONNECTORS | |
|----------------------------------|--------------------------|
| Advanced Configuration Interface | (1) USB Mini-B Connector |

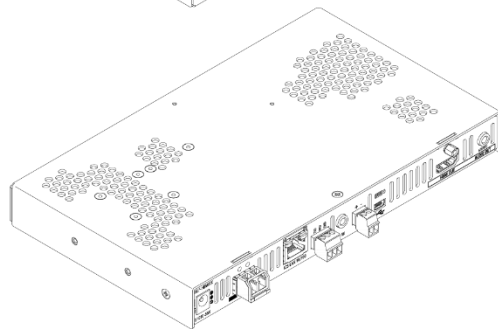
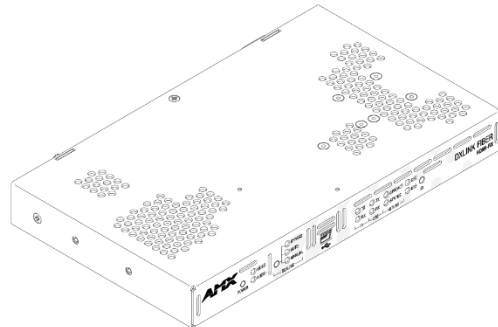
| BACK CONNECTORS | |
|----------------------------|---|
| Local Power | 2.1 mm DC Power Jack |
| DXLink Fiber Input | LC Duplex conforming to ANSI TIA/EAI 604-10 (FOCIS 10A) |
| ICS LAN/Ethernet Port | RJ-45 Connector, TCP/IP Port (ICS LAN 10/100) |
| Serial | 3.5mm Pluggable Phoenix Terminal Block 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; connect a keyboard & mouse and send commands to a PC connected to a DXLink Twisted Pair or Fiber |

| | |
|----------------------|------------------------|
| HDMI Output | HDMI Type A Female |
| Analog Stereo Output | 3.5mm Mini-Stereo Jack |

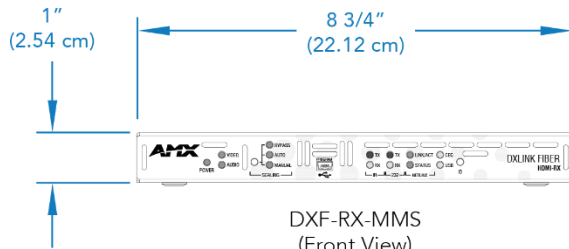
For a detailed pictorial drawing please visit: <http://www.amx.com/products/DXF-RX-MMS.asp>



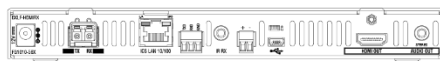
DXF-RX-MMS
(Top View)



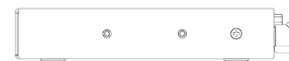
DXF-RX-MMS
(Isometric Views)



DXF-RX-MMS
(Front View)



DXF-RX-MMS
(Back View)



DXF-RX-MMS
(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 18-November-2014.

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