DXLink 4K60 HDMI Twisted Pair Receiver Module

DX-RX-4K60 (FG1010-512-01)
DX-RX-4K60-TAA (FG1010-512-02)

Overview

The AMX DXLink 4K60 HDMI Twisted Pair Receiver Module is a 4K60 4:4:4 capable distance transport solution that features built-in SmartScale® Technology to deliver HDMI 2.0 with HDCP 2.2 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 distributes full 4K60 4:4:4 video end-to-end securely as well as audio, control, Ethernet, and USB 2.0 over one shielded Cat6, Cat6A or Cat7 standard twisted pair cable. The DXLink 4K60 Receiver Module is perfect for receiving HDMI and control signals over long distances from a remote DXLink 4K60 Transmitter Module. The DXLink 4K60 HDMI Twisted Pair Receiver Modules can also be used in conjunction with the Enova DGX DXLink 4K60 Twisted Pair Output Boards or Enova DVX-4K All-In-One Presentation Switchers. The receiver's built-in control ports can be used to control a destination device and the ICSLan port provides an IP network access point.

Common Applications

The DXLink 4K60 Receiver Module is ideal for distributing full 4K60 4:4:4 video end-to-end securely in any situation where the highest video quality is required or when a simple installation is desired:

- Colleges and universities that distribute audio and video within or between classrooms for collaborative or distributed learning.
- Corporations that distribute audio and video within meeting spaces.
- Healthcare facilities distributing high-resolution video within training rooms, simulation rooms, or labs.

Features

- **HDMI 2.0 4K60 4:4:4 Over Distance** – Ideal for users running critical viewing applications such as operations centers requiring transport which uses the full fidelity of their displays.
- **High Dynamic Range (HDR) and Deep Color Support** – Support for HDR10 and 36-bit Deep Color.

- **HDCP 2.2** – Supports the latest video standards to realize the full capabilities of HDMI interfaces.
- **HDBaseT Compatible** – Fully compliant with the HDBaseT standard, compatible with third party HDBaseT sources.
- **USB 2.0** – High-speed USB 2.0 data from devices like web cameras and storage devices are transmitted without the need for separate cables.
- **As Always, Just One Cable** – Just like all current DXLink solutions, video, audio and control are delivered over a single twisted pair cable. Many competitive products require dual cable runs which adds significant cost. 4K60 4:4:4 can be transmitted up to 100m when using Cat6a shielded cable or better.
- **Twisted Pair Cable** – Save time and effort in installation by leveraging cost effective twisted pair cable.

Specifications

General	
Dimensions (HWD)	1" x 8 2/3" x 6 1/3" (2.54 cm x 22.0 cm x 16.0 cm)
Weight	Approx. 2.2 lb (1.0 kg)
Mounting Options	Compatible with all V Style versatile mounting options including rack, surface, or pole
Transport Layer Throughput (Max)	10.2 Gbps
Compatible AMX Products	• Enova DGX 800/1600/3200/6400 Digital Media Switchers • Enova DVX-2265-4K, DVX-3266-4K All-In-One Presentation Switchers • DX-TX-4K60 as a point-to-point solution • PS-POE-AT-TC High Power PoE Injector • PDXL-2 Power over DXLink Controller
Twisted Pair Cable Type	Shielded Cat6, Cat6A and Cat7 DXLink twisted pair cable runs for DXLink equipment shall only be run within a common building where a common building is defined as: the walls of the structure(s) are physically connected, and the structure(s) share a single ground reference For more details and helpful cabling information, reference the white paper titled Cabling for Success with DXLink, or contact your AMX representative
Twisted Pair Cable Length	For shielded Cat6A and Cat7, Up to 100m (328 ft) all resolutions Shielded Cat6 can be used for distances up to 70 m (229 ft)
Airflow	Convection (openings on top of case)
Regulatory Compliance	FCC CE EN 55032 CE EN 55035 CE EN 61000-3 ICES-003 IEC 62368-1 UL 62368-1 UL 60950-1 RCM RoHS/REACH/WEEE Compliance
Included Accessories	Each DXLink 4K60 RX ships with a desktop power supply with

	power cord, 1 IR emitter, 1 IR receiver, 4 rubber feet and 2 mounting brackets with screws. Unless using DXLink Power, only the provided desktop power supply should be used, and it must not be altered in any way
Optional Accessories	•AVB-VSTYLE-SURFACE-MNT, V Style Module Surface Mount (FG1010-722) •AVB-VSTYLE-RMK-1U, V Style Module Tray (FG1010-720) •AVB-VSTYLE-RMK-FILL-1U, V Style Module Tray w/fill Plates (FG1010-721) •AVB-VSTYLE-POLE-MNT, V Style Module Pole Mount (FG1010-723) •CC-NIRC, NetLinx IR Emitter Cable (FG10-000-11) •IR03, External IR Receiver Module (FG-IR03) •PS-POE-AT-TC High Power PoE Injector (FG423-84) •PDXL-2 Power over DXLink Controller (FG1090-170)

POWER SUPPLY	
External, Included	Each DXLink 4K60 RX ships with a desktop power supply with power cord
AC Power	100-240 VAC single phase, 50-60 Hz 0.6 A @ 115 VAC max
Power Consumption (Max)	Local 12V supplied: 18.2W Power over DXLink supplied: 20.2W
External, Optional	Power can also be supplied by a DXLink Power sourcing device such as: •Enova DGX 800/1600/3200/6400 Digital Media Switcher (with a DXLink 4K60 Twisted Pair Output Board installed) •Enova DVX-4K All-In-One Presentation Switcher (DVX-3266-4K or DVX-2265-4K) •PS-POE-AT-TC High Power PoE Injector •PDXL-2 Power over DXLink Controller When installed in conjunction with an Enova DGX use the Enova DGX Configuration Tool located at AMX.com/enova to determine the power requirements of the configuration **AMX only supports the use of these approved Power over DXLink solutions. Other third party power supplies or non-compatible standard PoE solutions may damage the DXLink equipment.**

ENVIRONMENTAL	
Temperature (Operating)	32° to 104° F (0° to 40° C)
Temperature (Storage)	4° to 158°F (-20° to 70°C)
Humidity (Operating)	5% to 85% RH (non-condensing)
Humidity (Storage)	0% to 90% RH (non-condensing)
Thermal Dissipation (Max)	Local 12V supplied: 61 BTU/HR Power over DXLink supplied: 69 BTU/HR

FRONT CONNECTORS	
None	None

BACK CONNECTORS	
HDMI Output	HDMI Type A Female
Analog Stereo Output	3.5mm Mini-Stereo Jack
ICS LAN/Ethernet Port	RJ-45 Connector, TCP/IP Port (ICS LAN 10/100)
IR RX	3.5mm Mini-Stereo Jack Port for IR03 Receiver (Optional)
IR TX	3.5mm Pluggable Phoenix Terminal Block Port for IR01 Emitter (Optional)
Serial	3.5mm Pluggable Phoenix Terminal Block Bidirectional RS-232 Standard NetLinx Baud Rate 1200-115k Parity support Odd/Even/None
USB 2.0	(1) USB 2.0 Type A connector for USB peripheral device (1) USB 2.0 Type B connector for Host Either Host or peripheral device active based on front USB mode switch selections
DXLink Output	RJ-45 Connector
Local Power	Screw down locking power connector

USB	
USB Transport	(1) USB Type A connector for USB peripheral device (1) USB Type B connector for Host USB HID and USB 2.0 are supported point-to-point to a DXLink 4K60 Twisted Pair Transmitter. When used in conjunction with an Enova DGX Digital Media Switcher (with a DXLink 4K60 Twisted Pair Output Board installed) or an Enova DVX-4K Presentation Switcher, USB HID and USB 2.0 are supported point-to-point. The USB A/B port on Enova DGX DXLink 4K60 Output Board or Enova DVX-4K presentation switcher is automatically configured as either Host or Device depending on the mode selected on the attached DXLink 4K60 Transmitter.

CONTROLS & INDICATORS	
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
Power Indicator	(1) LED (green) indicates whether the module is powered on
LINK/ACT	(1) LED (green) lights when the Ethernet cable is connected and an active link is established. This LED also blinks when receiving Ethernet data packets
Status	(1) LED (green) lights when the Controller is programmed and communicating properly
HDCP	(1) LED (Yellow) blinks when Non-HDCP content is transmitted, solid ON when HDCP content is transmitted
Scaler Indicator	(1) LED (Blue) lights when in auto or manual scaling mode
DIP Switch	NOTE: See full introduction in the DXLink Twisted Pair 4K60 Transmitters/Receiver Quick Start Guide
USB Mode Switch	Settable USB Directional Control - Enables USB Host or Peripheral Device For USB 2.0 Pass-through

HDMI	
Compatible Formats	HDMI2.0, HDCP2.2, DVI (DVI requires adapter cable)
Output Signal Type	HDMI DVI-D (Single Link with Cable Adapter)
Output Connector	HDMI Type A Female
Output Scaling	SmartScale®, Manual Configuration, or Bypass
SmartScale® Output Resolution Support	All resolutions between 480p and 4096x2160 @ 60 Hz via automatic SmartScale® query of the display's preferred EDID Detailed Timing Definition
Propagation Delay (Typ)	25 ms when scaling; 5 us when in Bypass mode
Output Voltage (Nominal)	1.0 Vpp Differential
Output Re-clocking	Yes
+5V DDC Pin Output	50 mA when using Enova DXLink Power, 500 mA when using local 12V supply
+5V USB Output	150 mA when using Enova DXLink Power, 500 mA when using local 12V supply
Output Rise Time / Fall Time	70 ps typ (20% - 80%)
HDMI Audio Synchronization	Video Formats @ 60Hz frame rate: In scaling mode, Audio lags video by 25ms typ. In bypass mode, Audio lags video by 18ms Video Formats @ 30Hz frame rate: In scaling mode, Audio lags video by 8ms typ. In bypass mode, Audio lags video by 15ms
Video Data Rate (Max)	18 Gbps
Video Pixel Clock (Max)	600 MHz
Progressive Resolution Support	480p up to 4096x2160 @ 60 Hz (including but not limited to those resolutions shown in the DXLink Twisted Pair 4K60 Transmitters/Receiver Hardware Reference Manual)
Interlaced Resolution Support	480i, 576i, 1080i (including but not limited to those resolutions shown in the DXLink Twisted Pair 4K60 Transmitters/Receiver Hardware Reference Manual) Note-Reminder: Interlace video supported into the Transmitter, progressive only supported out of the Receiver unless in non-scaling Bypass
4K Resolution Support	• 3840x2160p@24/25/30 Hz • 4096x2160p@24/25/30 Hz • 3840x2160p@60 Hz, 4:2:0 • 4096x2160p@60 Hz, 4:2:0 • 3840x2160p@60 Hz, 4:4:4 • 4096x2160p@60 Hz, 4:4:4* * Supported by DX-RX-4K60 HDMI output when in Auto/Manual scaling mode NOTE: See full list of formats in the DXLink Twisted Pair 4K60 Transmitter/Receiver Hardware Reference Manual
Deep Color Support	24-bit, 30-bit, 36-bit 30 and 36-bit color are supported in CTA-861 formats up to 3840x2160p@30Hz 4:4:4; 3840x2160p@50/60Hz 4:2:2; 3840x2160p@50/60Hz 4:2:0 4096x2160p@24Hz, 25Hz, 30Hz only support deep color when using YCbCr 4:2:2 Chroma-Subsampling. Output of 30 and 36-bit color formats require any downstream DXLink DX-RX-4K60 Scaler to be placed in Bypass mode
Color Space Support	RGB 4:4:4

	YCbCr 4:4:4, 4:2:2 and 4:2:0
HDMI Cable Requirement	Premium High Speed HDMI Cable (18 Gbps), Required
Audio Format Support	Dolby TrueHD, Dolby Digital, DTS-HD MA, DTS, 2 CH through 8 CH L-PCM Dolby Digital and DTS support up to 48kHz, 5.1 channels When a downstream DX-RX-4K60 is in the signal path, audio formats other than 2CH L-PCM require the DX-RX-4K60 to have its scaler set to bypass.
Audio Resolution	16 bit to 24 bit
Audio Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 96 kHz, 192kHz
Local Audio Support	Yes for audio extraction
HDCP Support	Yes, HDCP1.4, HDCP2.2 Supports AMX HDCP InstaGate Pro Technology When used with an AMX Digital Media Switcher, the key support is up to max 31 sinks per output, independent of source device When used as a single point-to-point solution the key support is defined by the source device
CEC Support	Yes
DDC/EDID Support	EDID in point-to-point mode is passed up from the sink Device When used with Enova DGX 800/1600/3200/6400 Digital Media Switcher or Enova DVX-4K Presentation Switcher, the EDID is read from the switcher and presented to the source through the TX on the digital HDMI connector, See the Enova DGX DXLink 4K60 Twisted Pair Input Board specifications or Enova DVX-4K Presentation Switcher specifications for the specific EDID list The digital HDMI input EDID is user re-programmable via the switcher

ANALOG AUDIO	
Output Signal Types	Stereo Analog Video signal must be present to pass Audio
Analog Audio Output Level (Max)	+1.6 dBu, unbalanced, >= 2 kohm load
Analog Audio Output Frequency Response	<+0.2 dB to -0.8 dB, 20 Hz to 20 kHz
Analog Audio Output THD+N	<0.2%, 1 kHz, -10 dBU to +2 dBU
Analog Audio Output SNR	>85 dB, 20 Hz to 20 kHz Vin=+2 dBU
Analog to Digital Reference Level	+3.4 dBu = 0 dBfs
Audio Synchronization	Video Formats @ 60Hz frame rate: In scaling mode, Audio lags video by 18ms typ. In bypass mode, Audio lags video by 0ms. Video Formats @ 30Hz frame rate: In scaling mode, Audio lags video by 24ms typ. In bypass mode, Audio lags video by 14ms.
Output Connector	3.5mm Mini-Stereo Jack

About AMX by HARMAN

Founded in 1982 and acquired by HARMAN in 2014, AMX® is dedicated to providing AV solutions for an IT World. AMX solves the complexity of managing technology with reliable, consistent and scalable systems comprising control, video switching and distribution, digital signage and technology management. AMX systems are deployed worldwide in conference rooms, classrooms, network operation/command centers, homes, hotels, entertainment venues and broadcast facilities, among others. AMX is part of the HARMAN Professional Group, the only total audio, video, lighting, and control vendor in the professional AV market. HARMAN designs, manufactures and markets premier audio, video, infotainment and integrated control solutions for the automotive, consumer and professional markets. Revised 2021.01.27. ©2021 Harman. All rights reserved. Specifications subject to change.
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