DATA SHEET

Enova® DGX DXLink™ Twisted Pair 4K Input Board

DGX-I-DXL-4K (FG1061-570)

Overview

The DGX-I-DXL-4K is a 4K and Ultra High Definition (UHD) capable and HDCP compliant twisted pair cable input board for the Enova DGX 800, Enova DGX 1600, Enova DGX 3200, and Enova DGX 6400 Digital Media Enclosures. It has four connections per board designed to receive audio and video from DXLink Twisted Pair Transmitters while passing bi-directional control and Ethernet signals over one shielded Cat6A or Cat7 standard twisted pair cable up to 70m. DXLink Power is available from the DXLink Input Board to power DXLink Twisted Pair Transmitters.

Common Applications

The Enova DGX DXLink Twisted Pair Input Board is ideal for applications where source devices are located up to 70 meters away from the Enova DGX Digital Media Switcher and need to be distributed throughout a commercial or residential environment.

Features

- **4K and Ultra High Definition (UHD) Support –** Experience high-quality video resolution for 4K devices
- **Only One Cable** – Receive audio and video while passing control, Ethernet and power over one twisted pair cable
- **Send HDMI signals up to 70 Meters** – Extend the reach of the HDMI with HDCP signals far beyond the capabilities of typical HDMI cabling

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- **Standard Twisted Pair Cable** – Save time and effort in installation by leveraging pre-existing cost effective twisted pair cable, see the Cabling for Success with DXLink white paper for more details
- **Hot Swappable** – Easily add or replace I/O boards at any time after deployment - the system automatically recognizes the new configuration and activates the boards
- **HDCP Compliant**

Additional Features

- **Remotely Powered Transmitters**- Power over DXLink* is available from the DXLink Input Board to power DXLink Transmitters
- **3D Support** - Pass through latest video formats including 3D and Deep Color
- **Surround Sound Support –** Pass through high definition surround sound including Dolby TrueHD, Dolby Digital, DTS-HD Master Audio, DTS, 2 CH through 8 CH L-PCM

*Power over DXLink to DXLink Transmitters must be supplied by one of the following DXLink Power sourcing devices: Enova DGX 800/1600/3200/6400 Digital Media Switcher (with a DXLink Twisted Pair Input Board installed), Compatible Enova DVX All-In-One Presentation Switcher (3155HD, 3156HD or 2155HD), PS-POE-AT-TC High Power PoE Injector or PDXL-2 Power over DXLink Controller. 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. The DXLink Transmitter Module can also be powered via the included desktop power supply (ENERGY STAR® qualified) with power cord

Specifications

GENERAL	
Compatible AMX Products	Must be used in conjunction with an Enova DGX 800, 1600, 3200 or 6400 Digital Media Enclosure and a DXLink Twisted Pair Transmitter. Compatible with all AMX 4K DXLink Twisted Pair Transmitters including 4K HDMI Decor Style Wallplate, 4K Solecis Digital Switchers (including 4x1, 5x1 and 8x1). Also compatible with (non 4K) DXLink Twisted Pair Transmitters including HDMI Transmitter Module, Multi-Format Decor Style Wallplate, and Multi-Format Wallplate, and Solecis Digital Switchers (including 4x1, 5x1 and 8x1). For passage of 4K signal content, DXLink Twisted Pair 4K Boards must be used in conjunction with DXLink Twisted Pair 4K Transmitters and Receivers. Additional compatibility is available between DXLink Twisted Pair 4K equipment and DXLink Twisted Pair (non-4K) equipment (see the “DXLink Compatibility” Appendix in the “DXLink Twisted Pair 4K Transmitters and Receivers Hardware Reference Manual” at www.amx.com).
Recommended Accessories	• DXLink 4K HDMI Receiver Module (FG1010-510) • DXLink 4K HDMI Decor Style Wallplate Transmitters (US) (FG1010-330-BL/WH) • SDX-414-DX, 4x1 4K HDMI Digital Switcher with DXLink Output (FG1010-314) • SDX-514M-DX, 5x1 4K Multi-Format Digital Switcher with DXLink Output (FG1010-355) • SDX-814-DX, 8x1 4K HDMI Digital Switcher with DXLink Output (FG1010-318)
Regulatory Compliance	See Enova DGX Digital Media Switcher Enclosure for regulatory compliance

USB (HID) KEYBOARD & MOUSE	
USB (HID) Transport	Use the Enova DGX Digital Media Switcher in

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	conjunction with DXLink Transmitters and Receivers (twisted pair and/or fiber), connect a DXLink Transmitter with HID hardware support to a PC and a DXLink Receiver to a keyboard and mouse, the system then emulates commands from the receiver back to the PC. A list is available of HID devices which have been tested and found to work well with the latest firmware (see "DXLink HID Keyboard and Mouse Supported Devices" on the RX's product page at www.amx.com/).

SIGNAL TRANSPORT – DXLINK W/HDCP	
Compatible Formats	HDMI Video, Audio, Ethernet, USB (HID), Power, Serial Control and IR Control
Signal Type Support	DXLink Twisted Pair
DXLink Twisted Pair Power	The DXLink Twisted Pair Input Board provides Power over DXLink DXLink Twisted Pair 4K (and non 4K) Transmitters and Receivers can have power supplied over twisted pair cable when connected to a DXLink Input or Output Board on the Enova DGX Digital Media Switcher. DXLink 4K HDMI Decor Style Wallplate Transmitters, and DXLink (non 4K) Wallplate Transmitters (including Multi-Format Decor Style Wallplate Transmitters and DXLink Multi-Format Wallplate Transmitters require a DXLink Power sourcing device. DXLink Transmitter Modules (both 4K and non-4K) can be powered via DXLink Power or desktop power supply (ENERGY STAR® qualified) with power cord. Approved Power over DXLink sourcing devices include: • Enova DGX 800/1600/3200/6400 Digital Media Switcher (with a DXLink Twisted Pair Board installed) • 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. To use PS-POE-AT-TC or PDXL-2 as a power source the wallplates require firmware v1.2.40 or above. Use the Enova DGX Configuration Tool located at AMX.com/enova to determine the power requirements of a configuration and whether any of the DXLink Transmitters or Receivers should be powered with the local power supply. The configuration tool contains instructions on how to determine power requirements.

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Connectors	(4) RJ-45 Ports
Transport Layer Throughput (max)	10.2 Gbps
Twisted Pair Cable Type	Shielded 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" available at www.amx.com or contact your AMX representative.
Twisted Pair Cable Length	Up to 262 ft. (80 m) for full 4K signal support Up to 328 ft. (100 m) for 1080p and below
Important Notice	DXLink twisted pair cable runs for DXLink equipment shall only be run within a common building. A "Common building" is defined as: Where the walls of the structure(s) are physically connected and the structure(s) share a single ground reference.
Video Data Rate (max)	8.91 Gbps (max)
Video Pixel Clock (max)	297 MHz
Progressive Resolution Support	480p up to 4096 x 2160p, 60 Hz* *Y/Cb/Cr 4:2:0, with 4K RX Scaler in Bypass mode NOTE: See full list of supported formats in "DXLink Twisted Pair 4K Transmitters and Receivers Hardware Reference Manual".
Interlaced Resolution Support	480i, 576i, 1080i 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.
Deep Color Support	Up to 1080p: 24-bit, 30-bit, 36-bit 30-bit, 36-bit only supported up to 1080p and when the HDMI Output Board Scaler or DXLink RX Scaler is in Bypass mode and format is 1080p/60 or less.
Color Space Support	RGB 4:4:4 Y/Cb/Cr 4:4:4 and 4:2:2 and 4:2:0 Input signal for Y/Cb/Cr 4:4:4 and 4:2:2, output color-space is converted to RGB 4:4:4 4:2:0 only supported at 2160p 50/60Hz with 4K RX Scaler in Bypass mode
3D Format Support	• Frame Packing 1080p up to 24 Hz • Frame Packing 720p up to 50/60 Hz • Frame Packing 1080i up to 50/60 Hz • Top-Bottom 1080p up to 24 Hz • Top-Bottom 720p up to 50/60 Hz • Side-by-Side Half 1080i up to 50/60 Hz For 3K support, Scaler on corresponding Output Board or RX must be set to Bypass mode
4K Resolution Support	• 3840 x 2160p @ 24/25/30 Hz • 4096 x 2160p @ 24/25/30 Hz • 3840 x 2160p @ 60 Hz, 4:2:0*

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	• 4096 x 2160p @ 60 Hz, 4:2:0* * Supported by DX-RX-4K when in Bypass Scaling mode NOTE: See full list of supported formats in “DXLink Twisted Pair 4K Transmitters and Receivers Hardware Reference Manual”.
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 48 kHz, 5.1 channels)
Audio Resolution	16 bit to 24 bit
Audio Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 96 kHz, 192 kHz
Local Audio Support	Insertion and/or extraction of 2 CH L-PCM selectable by channel
Audio Switching Board Support	• Supports break-away audio switching of 2 CH L-PCM for all channels • Supports downmix from one input channel of Dolby True-HD, Dolby Digital, DTS-HD, DTS, or 2 to 8 channel L-PCM
HDCP Support	Full matrix HDCP 1.4 support (includes any input to any or all outputs) • Key Management System • AMX HDCP InstaGate Pro® Technology • Key support up to 16 destinations per output, independent of source device
CEC Support	None
ICSP, TCP/IP, USB, IR, Serial, and Control Management	Control distribution is managed by the Enova DGX on-board NetLinx NX Master and Ethernet Switch
EDID Support	EDID provided by Enova DGX Digital Media Switcher to the digital (HDMI) input on the DXLink Transmitter EDID is user re-programmable
Input Board Propagation Delay	5 us

EDID – FACTORY LOADED[1]	
Note	The default EDID can be overwritten to include a broad range of features based on installation requirements. This section covers all of the default EDIDs. In the System Configuration interface, the EDIDs contained in this section's tables are displayed in a single dropdown menu (General section, Preferred EDID menu) and VICs are differentiated by the presence of a “p” or “I” in the format.
Important	The EDID can be configured to support additional resolutions through the local DDC using the EDID options in the System Configuration interface (see page 143).
DTD (Detailed Timing Descriptor)	3840 x 2160p* @ 30 Hz, CTA (VIC 95) 1920 x 1080p @ 60 Hz, CTA (VIC 16) 1920 x 1080p @ 50 Hz, CTA (VIC 31) 1920 x 1200 @ 50 Hz, CVR 1920 x 1200 @ 60 Hz, CVR *This is the preferred timing in the EDID
Standard Timing Identification	1920 x 1200 @ 60 Hz 1680 x 1050 @ 60 Hz 1600 x 1200 @ 60 Hz 1440 x 900 @ 60 Hz 1360 x 765 @ 60 Hz

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	1280 x 1024 @ 60 Hz 1280 x 800 @ 60 Hz 1280 x 720 @ 60 Hz
Established Timing	1280 x 1024 @ 75 Hz 1152 x 870 @ 75 Hz 1024 x 768 @ 60 Hz, 70 Hz, 75 Hz, 87 Hz 832 x 624 @ 75 Hz 800 x 600 @ 56 Hz, 60 Hz, 72 Hz, 75 Hz 720 x 400 @ 70 Hz, 88 Hz 640 x 480 @ 60 Hz, 67 Hz, 72 Hz, 75 Hz
CTA Video Information Code (VIC) Formats:	SVD 001 VIC = 95 3840x2160p 29.97/30 Hz 16:9 SVD 002 VIC = 94 3840x2160p 25 Hz 16:9 SVD 003 VIC = 93 3840x2160p 23.98/24 Hz 16:9 SVD 004 VIC = 100 4096x2160p 30 Hz 256:135 SVD 005 VIC = 98 4096x2160p 24 Hz 256:135 SVD 006 VIC = 99 4096x2160p 25 Hz 256:135 SVD 007 VIC = 105 3840x2160p 30 Hz 64:27 SVD 008 VIC = 103 3840x2160p 24 Hz 64:27 SVD 009 VIC = 104 3840x2160p 25 Hz 64:27 SVD 010 VIC = 16 1920x1080p 59.94/60 Hz 16:9 SVD 011 VIC = 32 1920x1080p 23.97/24 Hz 16:9 SVD 012 VIC = 34 1920x1080p 29.97/30 Hz 16:9 SVD 013 VIC = 31 1920x1080p 50 Hz 16:9 SVD 014 VIC = 33 1920x1080p 25 Hz 16:9 SVD 015 VIC = 5 1920x1080i 59.94/60 Hz 16:9 SVD 016 VIC = 20 1920x1080i 50 Hz 16:9 SVD 017 VIC = 4 1280x720p 59.94/60 Hz 16:9 SVD 018 VIC = 3 720x480p 59.94/60 Hz 16:9 SVD 019 VIC = 19 1280x720p 50 Hz 16:9 SVD 020 VIC = 2 720x480p 59.94/60 Hz 4:3 SVD 021 VIC = 17 720x576p 50 Hz 4:3 SVD 022 VIC = 6 720(1440)x480i 59.94/60 Hz 4:3 SVD 023 VIC = 7 720(1440)x480i 59.94/60 Hz 16:9 SVD 024 VIC = 18 720x576p 50 Hz 16:9 SVD 025 VIC = 21 720(1440)x576i 50 Hz 4:3 SVD 026 VIC = 22 720(1440)x576i 50 Hz 16:9 SVD 027 VIC = 39 1920x1080i 50 Hz 16:9 SVD 028 VIC = 90 2560x1080p 60 Hz 64:27 SVD 029 VIC = 89 2560x1080p 50 Hz 64:27 SVD 030 VIC = 1 640x480p 59.94/60 Hz 4:3
Audio Data Block	Basic Audio: 2 Channel L-PCM 32, 44.1, 48 kHz Sampling Frequency at 16, 20 or 24 bits per sample

[1]The default EDID can be overwritten to include a broad range of features, including HDMI mode, based on installation requirements

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 5.20.16. ©2016 Harman. All rights reserved. Specifications subject to change.

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