DATA SHEET

Enova DGX DXLink 4K60 Twisted Pair Input Board

DGX-I-DXL-4K60 (FG1061-572)

Overview

The AMX Enova DGX DXLink 4K60 Input Board securely distributes full 4K60 4:4:4 video as well as audio, control, Ethernet, and USB 2.0 over one shielded Cat6, Cat6A or Cat7 standard twisted pair cable. It supports HDMI 2.0 features and is HDCP 2.2 compliant with support for full 4K60 4:4:4 video and High Dynamic Range (HDR) for optimum image quality and pixel-for-pixel image reproduction without chroma subsampling. It has four connections per board and is compatible with the Enova DGX 800, Enova DGX 1600, Enova DGX 3200, and Enova DGX 6400 enclosures. DXLink Power is available from the DXLink Input Board to power DXLink Twisted Pair Transmitters.

Common Applications

The Enova DGX DXLink 4K60 Twisted Pair Input board is ideal for extending full 4K60 4:4:4 video end-to-end securely in any situation where the highest video quality is required:

- Colleges and universities that transmit audio and video within or between classrooms for collaborative or distributed learning.
- Corporations that distribute audio and video within meeting spaces or throughout facilities for corporate communications.

- Healthcare facilities distributing high-resolution video within training rooms, simulation rooms, or labs.
- Government entities that have operation centers with multiple analysts screening and analyzing video from a variety of sources for threat assessment, security and operational monitoring.

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, including transport of HDCP 2.2 Premium Content protected media such as 4K UHD Movies
- **HDBaseT Compatible** – Compliant with the HDBaseT standard, making them compatible with third party HDBaseT sources and displays
- **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	
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. For passage of 4K60 signal content, DXLink Twisted Pair 4K60 Boards must be used in conjunction with DXLink Twisted Pair 4K60 Transmitters and Receivers. Additional compatibility is available between DXLink Twisted Pair 4K60 equipment and DXLink Twisted Pair (non-4K60) 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 4K60 HDMI Transmitter Module (FG1010-312-01)
Regulatory Compliance	See Enova DGX Digital Media Switcher Enclosure for regulatory compliance

USB	
USB Transport	USB HID and USB 2.0 are supported point-to-point to DXLink 4K60 HDMI Transmitters. The DXLink Input board is automatically configured as either Host or Device depending on the mode selected on the attached DXLink 4K60 Transmitter.
USB 2.0 Speed	High-Speed, Full-Speed and Low-Speed Support

SIGNAL TRANSPORT – DXLINK W/HDCP	
Compatible Formats	HDMI Video, Audio, Ethernet, USB (HID), USB (2.0), 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 to Connected DXLink Transmitters. DXLink Twisted Pair 4K60 Transmitters and Receivers can also receive power from external DXLink sourcing device. 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 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. DXLink Twisted Pair 4K60 Transmitters and Receivers can also be powered via a desktop power supply (ENERGY STAR® qualified) with power cord. 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.
Connectors	(4) RJ-45 Ports, (4) Micro-USB AB Ports
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" available at www.amx.com or contact your AMX representative.
Twisted Pair cable Length	Shielded Cat6A and Cat7 supports up to 328 ft. (100 m) all resolutions. Shielded Cat6 supports up to 262 ft (80 m).
Video Data Rate (Max)	18 Gbps
Video Pixel Clock (Max)	600 MHz

Resolution Support	480p up to 3840x2160 @ 60Hz 4:4:4 and 4:2:2 • 3840x2160p@50/60 Hz, 4:2:0 • 4096x2160p@50/60 Hz, 4:2:0
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 and 4096x2160p@50/60 Hz, 4:2:0 - 30 and 36-bit color formats require any downstream DXLink DX-RX-4K60 Scaler to be placed in Bypass mode
Color Space Support	sRGB, BT.601, BT.709, BT.2020 RGB 4:4:4, YCbCr 4:4:4, 4:2:2 and 4:2:0 - YCbCr 4:4:4, 4:2:2 and 4:2:0 will be output as RGB 4:4:4 when a downstream DX-RX-4K60 has its scaler enabled. - Output format color-space follows input format on non-scaled output boards
4K Resolution Support	• 3840x2160p@24/25/30/50/60 Hz 4:4:4 and 4:2:2 • 3840x2160p@50/60 Hz, 4:2:0 • 4096x2160p@50/60 Hz, 4:2:0 - Must be used in conjunction with an Enova DGX 800, 1600, 3200 or 6400 Digital Media Enclosure built after June 1, 2016.
Audio Format Support	Dolby TrueHD, Dolby Digital, Dolby Digital Plus, DTS-HD MA, DTS, 2 CH through 8 CH L-PCM - Dolby Digital and DTS support up to 48 kHz, 5.1 channels - When a downstream DX-RX-4K60 is in the signal path, audio formats other than 2CH LPCM 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, 192 kHz
Local Audio Support	Yes, extraction of 2 CH LPCM
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

	- Downmix supported on 4k video inputs with pixel clocks up to 297MHz (up to 3840x2160p @ 30Hz)
HDCP Support	Supports HDCP 1.x and HDCP 2.x for full matrix HDCP support (includes any input to any or all outputs) - HDCP 2.2 support required by input/output board for passage of HDCP 2.2 Premium Content - Key Management System - AMX HDCP InstaGate Pro Technology - Key support up to max 31 devices downstream on one output
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

EDID – FACTORY LOADED	
Note	The default EDID can be overwritten to include a broad range of features based on installation requirements. This section covers all 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.
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 and 4K60 (VIC 97) can be added via the EDID selector in the DGX Web GUI.
Standard Timing Identification	1920 x 1200@60Hz 1680 x 1050 @60Hz 1600 x 1200 @60Hz 1440 x 900 @60Hz 1360 x 765 @60Hz 1280 x 1024 @60Hz

	1280 x 800 @60Hz 1280 x 720 @60Hz
Established Timing	1280 x 1024 @ 75Hz 1152 x 870 @ 75Hz 1024 x 768 @ 60Hz, 70Hz, 75Hz, 87Hz 832 x 624 @ 75Hz 800 x 600 @ 56Hz, 60Hz, 72Hz, 75Hz 720 x 400 @ 70Hz, 88 Hz 640 x 480 @ 60Hz, 67Hz, 72Hz, 75Hz
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 Hz256:135 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 *4K60 (VIC 97) can be added via the EDID selector in the DGX Web GUI.
Audio Data Block	Basic Audio: 2 Channel L-PCM 32, 44.1, 48 kHz Sampling Frequency at 16, 20 or 24 bits per sample

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 3.8.2021.

www.amx.com | +1.469.624.7400 |800.222.0193