

# Enova® DGX 1600 Enclosure

DGX1600-ENC (FG1061-16)



## Overview

The new Enova DGX 1600 Enclosure (DGX1600-ENC) is a Digital Media Switcher that is ready to support 4K60 4:4:4 and Ultra High Definition (UHD) content. This robust solution includes a NetLinx® NX Integrated Controller, redundant power supplies and can be populated with Enova DGX video input and output boards in addition to optional audio -switching boards. There are four connections per video board, and each enclosure holds four video input boards and four video output boards for a maximum matrix of 16x16.

The Enova DGX 1600 adds several new capabilities such as automatic setup of DXLink endpoints, single IP addressing for multiple endpoints, and a new web interface to greatly simplify installation and configuration. The new advanced Audio Switching Boards add audio breakaway capabilities and parametric EQ on each DGX output.

The Enova DGX 1600 is far beyond a modular media switcher with built-in controller – it functions as the centerpiece of a complete integrated solution that manages and distributes analog and digital audio and video including HDMI/HDCP, control and Ethernet. Easily integrate HDCP into system designs and enjoy hassle-free plug- and-play operation. No tools, no delays and no key constraints – it just works with AMX's exclusive InstaGate Pro® Technology. Built for today's and tomorrow's needs, a comprehensive set of Enova DGX boards can be used in conjunction with DXLink and DGX Transmitters and Receivers to provide an end-to-end distribution system over twisted pair cable or fiber. An integrated NetLinx NX Controller and embedded Ethernet switch enables management of the entire solution including source equipment and display devices located throughout the environment – all from a single point of control.

In addition to eliminating HDCP delays, InstaGate Pro allows traditionally key limited sources to be switched freely to all connected HDCP compliant displays – eliminating HDCP key limitations that plague large applications. Built- in SmartScale® Technology on every output provides video that is perfectly scaled for each connected display, eliminating the integration

challenges that can occur when sources and displays have different supported resolutions – making it easy to specify, easy to install and easy to use. With the powerful combination of analog-to-digital signal conversion, video scaling and high speed digital switching the system delivers perfect video every time – regardless of signal type.

As part of a complete distribution system, easily send analog or digital audio and video including HDMI with HDCP signals, plus control 10 Km over single mode fiber or 300 meters over multimode fiber; send all this plus power up to 100 meters over standard twisted pair cable to and from the Enova DGX using the DXLink Twisted Pair and Fiber Transmitters/Receivers.

## Common Applications

- The Enova DGX is ideal for dramatically simplifying AV control and distribution in large spaces such as lecture halls, auditoriums, hotel ballrooms, casinos, museums and stadiums/arenas.
- The Enova DGX is ideally suited for multi-room or configurable room applications, where multiple collaboration spaces share a single DGX for control.
- Enova DGX fiber capabilities enable transport of audio, video and control up to 10 Km making it a perfect solution for tall buildings with multiple floors, large campuses with multiple buildings or large facilities such as a factory.
- Enova DGX fiber solutions provide secure distribution of content for applications which data security is critical such as government, banking/finance or network operation centers.

## Features

- **HDMI/HDCP Switching** – End-to-end distribution of HDMI/HDCP without interruption or key constraints using InstaGate Pro® Technology
- **4K60 4:4:4 and Ultra High Definition (UHD) Content Ready** – Designed to support future resolutions for years to come
- **HDCP Compliance Over Fiber** – Compatible DXLink Fiber boards transmit uncompressed video, including HDCP protected content, up to 10 Km at 10 Gbps (single mode fiber options transmit 10 Km, multimode 300 m)
- **Fiber Your Way** – DXLink Fiber boards are available in single mode or multimode; simplex or duplex
- **AV and Control over Twisted Pair, Fiber or Both** – Send audio, video, bi-directional control and Ethernet over twisted pair or fiber cable, or integrate both into the same system
- **Embedded NetLinx NX Integrated Control Processor** – Allows any connected device to be managed, monitored or controlled
- **Integrated Ethernet Switch** – Pass Ethernet through the attached DXLink Twisted Pair or Fiber Transmitters and Receivers
- **Analog to Digital Video Conversion with Scaled Outputs** – Converts any source signal to digital and uses SmartScale Technology to automatically output video that is perfectly scaled for each connected display
- **Onboard Web Configuration for all Aspects of the DGX System** – Greatly simplifies the setup and configuration of Enova DGX systems including DXLink endpoints drastically reducing installation time
- **Automatic Setup of DXLink Endpoints** – Simplified installation by auto-discovering DXLink devices when they are connected to an Enova DGX
- **Single IP Address Required for Multiple Endpoints** – Reduces the need for IT administrators to provision numerous IP addresses across the system for transmitters and receivers
- **Unrivaled Network Security** – With Dual NIC to isolate AMX or third-party AV equipment from the primary network, IPv6 and wired 802.1X for protected network access, and user-defined LDAP login group support, the Enova DGX provides rock-solid security
- **Independent Routing of Audio and Video Using Audio Switching Boards** – Provides increased flexibility to combine and separate audio from video in a variety of applications
- **AxLink Port** – Makes it easier to connect AxLink devices like keypads directly to the Enova DGX
- **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
- **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

- **DXLink Twisted Pair Input and Output Boards** – HDCP Compliant boards send audio, video, control, Ethernet and power over one standard twisted pair cable up to 200 m – 100 m to the matrix switcher and 100 m after the matrix switcher; see the Cabling for Success with DXLink white paper for more details
- **Built-in NetLinx NX Integrated Controller** – Easily program and manage the entire solution including source equipment and display devices located across multiple rooms – all from a single point of control
- **Easily Convert Analog to Digital Signals** – Use the Enova DGX Digital Media Switcher in conjunction with DXLink Multi-Format Transmitters (Twisted Pair or Fiber), and easily integrate legacy analog sources and automatically convert their signals to digital
- **Hot Swappable Video Input / Output Boards** – Easily add or replace I/O boards at any time after deployment - the system automatically recognizes the new configuration and activates the boards
- **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, and 2-channel through 8-channel L-PCM
- **High Speed Digital Switching** – 26 Gbps ensures perfect pixel for pixel reproduction of video
- **Fully Redundant Power Supplies With Independent Power Paths** – Ensures maximum reliability for applications that require 24/7 uptime

\*Enclosures manufactured on or after June 1, 2016, those manufactured before that time have a per channel aggregate data rate of 12.8 Gbps

## Specifications

GENERAL	
Supported Signal Styles/ Compatible Input and Output Boards	<ul style="list-style-type: none"> <li>• DGX-I-HDMI, Enova DGX HDMI Input Board (FG1058-540)</li> <li>• DGX-O-HDMI, Enova DGX HDMI Output Board (FG1058-550)</li> <li>• DGX-I-DVI, Enova DGX DVI Input Board (FG1058-600)</li> <li>• DGX-O-DVI, Enova DGX DVI Output Board (FG1058-610)</li> <li>• DGX-I-DXL, Enova DGX DXLink Twisted Pair Input Board (FG1058-570)</li> <li>• DGX-O-DXL, Enova DGX DXLink Twisted Pair Output Board (FG1058-580)</li> <li>• DGX-I-DXF-MMD, Enova DGX DXLink Multimode Fiber Input Board, Duplex (FG1058-622)</li> <li>• DGX-O-DXF-MMD, Enova DGX DXLink Multimode Fiber Output Board, Duplex (FG1058-632)</li> <li>• DGX-I-DXF-MMS, Enova DGX DXLink Multimode Fiber Input Board, Simplex (FG1058-623)</li> <li>• DGX-O-DXF-MMS, Enova DGX DXLink Multimode Fiber Output Board, Simplex (FG1058-633)</li> <li>• DGX-I-DXF-SMD, Enova DGX DXLink Single Mode Fiber Input Board, Duplex (FG1058-620)</li> <li>• DGX-O-DXF-SMD, Enova DGX DXLink Single Mode Fiber Output Board, Duplex (FG1058-630)</li> <li>• DGX-I-DXF-SMS, Enova DGX DXLink Single Mode Fiber Input Board, Simplex (FG1058-621)</li> </ul>

	<ul style="list-style-type: none"> <li>• DGX-O-DXF-SMS, Enova DGX DXLink Single Mode Fiber Output Board, Simplex (FG1058-631)</li> <li>• DGX-AIE, Enova DGX Audio Insert / Extract Board for Enova DGX 8/16/32/64 (FG1058-705)</li> <li>• DGX800/1600-ASB, Enova DGX Audio Switching Board for Enova DGX 800/1600 (FG1061-716)</li> <li>• DGX-I-HDMI-4K, Enova DGX 4K HDMI Input Board (FG1061-540)</li> <li>• DGX-I-DXL-4K, Enova DGX 4K DXLink Twisted Pair Input Board (FG1058-570)</li> <li>• DGX-O-DXL-4K Enova DGX 4K DXLink Twisted Pair Output Board (FG1061-580)</li> <li>• DGX-I-DXL-4K60 Enova DGX DXLink 4K60 Twisted Pair Input Board (FG1061-572)</li> <li>• DGX-O-DXL-4K60 Enova DGX DXLink 4K60 Twisted Pair Output Board (FG1061-582)</li> <li>• DX-TX-4K60 DXLink 4K60 HDMI Transmitter Module (FG1010-312-01)</li> <li>• DX-RX-4K60 DXLink 4K60 HDMI Receiver Module (FG1010-512-01)</li> </ul> <p>Note: Use fiber duplex models for bidirectional control over fiber. Simplex models do not support control transport over fiber; 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 100 Series Digital Media Switchers" for details.</p>
Dimensions (HWD)	<ul style="list-style-type: none"> <li>• Without Extractors, With Mounting Ears: 10 1/2" x 19" x 20" (26.54 cm x 48.3 cm x 51 cm)</li> <li>• With Extractors and Mounting Ears: 10 1/2" x 19" x 21" (26.54 cm x 48.3 cm x 53.54 cm)</li> </ul>
Rack Units	6
Weight	<ul style="list-style-type: none"> <li>• Approximately 73 lbs (33.1 kg) per loaded enclosure</li> <li>• Shipping Weight: Approximately 83 lbs (37.6 kg) per loaded enclosure</li> </ul>
Regulatory Compliance	<p>FCC CFR Title 47 Part 15 Subpart B Class A</p> <p>CE EN 55022 Class A</p> <p>CE EN 55024</p> <p>CE EN 60950-1</p> <p>IEC 60950-1</p> <p>ICES-003 Class A</p> <p>CSA 60950-1</p> <p>UL 60950-1</p>

	RoHS WEEE
MTBF	168,000 hours
Recommended Accessories	<ul style="list-style-type: none"> <li>• EXB-IRS4 ICSLan IR/S Interface, 4 IR/S and 4 Inputs (FG2100-23)</li> <li>• EXB-COM2 ICSLan Serial Interface, 2 Ports (FG2100-22)</li> <li>• EXB-REL8 ICSLan Relay Interface, 8 Channels (FG2100-20)</li> <li>• EXB-I/O8 ICSLan Input/Output Interface, 8 Channels (FG2100-21)</li> <li>• EXB-MPI ICSLan Multi-Port, 1 COM, 1 IR/S, 2 I/O, 1 IR RX (FG2100-26)</li> <li>• CBL-HDMI-FL HDMI High Speed Flat Cable with RedMere Technology (FG10-2180-16)</li> <li>• CBL-RGB+A-FL RGB with Audio Flat Cable (FG10-2183-16)</li> <li>• DGX8/16/3200-CPU, Enova DGX CPU Replacement Kit For Enova DGX 800/1600/3200 (FG1061-132K)</li> <li>• ENOVADGX-PI-PS, 850 W Power Supply Replacement (FG1058-130K)</li> <li>• FAN REPLACEMENT KIT (FG1060-110K)</li> <li>• BATTERY REPLACEMENT KIT (FG1060-120K)</li> </ul> <p>Note: Compatible boards are listed above under "supported signal styles/ compatible input and output boards". Transmitter, Receiver and Digital Switcher compatibility is dependent on board selection, please see the data sheet for the selected board for compatible Transmitters, Receivers and Digital Switchers.</p>
Per Channel Aggregate Data Rate (Max)	26 Gbps*  *Enclosures manufactured on or after June 1, 2016, those manufactured before that time have a per channel aggregate data rate of 12.8 Gbps
Noise Level	< 52.5 dBA @ 1m (Typical @ 25°C)
Airflow	Forced Air (inlet on sides, exhaust on back & top)

AC POWER REQUIREMENTS	
AC Power	100-240VAC single phase, 50-60 Hz
Power Capacity (Max)	977 Watts, with redundancy
Power Consumption (Max)	835 Watts, fully loaded DXLink Power enclosure with redundancy

Power Consumption (Typ)	362 Watts, fully loaded HDMI enclosure with redundancy
Power Factor Correction	Supported, Complies with EN60555-2 and EN61000-3-2MTBF

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 (Typical)	1235 BTU/hr; fully loaded HDMI enclosure with redundancy
Heat Dissipation (Max)	3334 BTU/hr; with redundancy
Heat Dissipation (Max)	2849 BTU/hr; fully loaded DXLink Power enclosure with redundancy

CONTROL PORTS AND INDICATORS	
AxLink Port	(1) 4-position 3.5mm Screw Terminal, provides data and power to external AxLink control devices
AxLink Indicator	(1) AxLink LED (green) indicates the state of the AxLink port One 5-position 3.5mm Screw Terminal

INTEGRATED CONTROLLER	
Recommended Accessories	<ul style="list-style-type: none"> <li>(1) RJ-45 Connector; NetLinx on Board Master is an NX Class Controller</li> <li>TCP/IP Uplink Port (LAN 10/100/1000)</li> <li>Supports up to 64-Port Unmanaged 10/100 Ethernet Switch (Cascaded architecture actual throughput dependent on loading; Worst case per port throughput 10 Mbps, best case 100 Mbps when used with 16 DXLink Transmitters and 16 DXLink Receivers)</li> <li>Static IP or DHCP/DNS, SSL, Auto-negotiating, Half/Full duplex, Auto MDI/MDI-X Cross-Over TCP/IP, UDP/IP, CIP, SMTP, SNMP, Built-in Web server Includes support for DXLink Devices</li> </ul>
Processor	1600 MIPS
Program Port (USB)	USB Mini-AB (used for NetLinx Studio control)

ID Pushbutton	Black ID pushbutton for setting IP mode and reverting to default configuration and firmware
Configuration Dip Switch	2-position

MEMORY	
SDRAM	512 MB
NVRAM	1 MB
Flash	8 GB

ENCLOSURE CONTROL	
Control Port (Serial)	(1) DB-9 Connector, Bidirectional RS-232, Baud Rates of 9600 (default), 19200, 38400, 57600
Control Port (USB)	(1) USB Mini-B



**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 2.4.2020. ©2020 Harman. All rights reserved. Specifications subject to change.

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