

ARCHITECTURAL SPECIFICATIONS
Enova DVX-2155HD All-In-One Presentation Switcher
DVX-2155HD-SP (FG1905-12)
DVX-2155HD-T (FG1905-14)

SUMMARY

- The All-In-One Presentation Switcher shall contain a control processor, 6 x 3 audio/video switcher with UTP transport, video scaler, audio DSP and amplifier for integration of conference rooms, classrooms and auditoriums all in a 3RU integrated solution.

VIDEO REQUIREMENTS

- Presentation Switcher must support multi-format video inputs to support RGBHV, Component, S-Video, Composite, digital HDMI/HDCP and DVI signals - all on the same connector. Presentation Switchers that do not include multi-format input support shall not be accepted.
- Presentation Switcher must support video resolutions up to 1920 x 1200 @ 60Hz. Presentation Switchers that do not support video resolutions up to 1920 x 1200 @ 60Hz shall not be accepted.
- Presentation Switcher shall include built in SmartScale Technology which automatically outputs video that is perfectly scaled for each connected display, preventing inferior video quality which occurs when sources and displays have different supported resolutions. Presentation Switchers that do not include built in SmartScale Technology shall not be accepted.
- Presentation Switcher must provide pass through support of 3D and Deep Color. Presentation Switchers that do not support pass through of 3D and Deep Color shall not be accepted.
- Presentation Switcher shall utilize InstaGate Pro Technology to easily manage HDCP keys. Presentation Switchers that do not utilize InstaGate Pro technology to manage HDCP keys shall not be accepted.
- Presentation Switcher shall be non-blocking and thus any input may be sent to any or all outputs at any time without blocking or failure to switch due to system architecture. Presentation Switchers that are blocking shall not be accepted.
- Presentation Switcher must include at least two (2) independently scaled and processed HDMI video outputs. Presentation Switchers that do not include at least two (2) independently scaled HDMI video outputs shall not be accepted.

- Presentation Switcher must include at least one (1) DXLink output capable of sending audio, video, Ethernet and control up to 100 meters. Presentation Switchers that do not include at least one (1) DXLink output capable of sending audio, video, Ethernet and control up to 100 meters shall not be accepted.

AUDIO REQUIREMENTS

- Presentation Switcher must support audio matrix switching with 4 independently switched and processed audio paths to easily support integration with video conferencing, induction loop systems and audio recording. Presentation Switchers that do not support audio matrix switching shall not be accepted.
- Presentation Switcher must include at least two (2) unbalanced audio line inputs. Presentation Switchers that do not include at least two (2) unbalanced audio line inputs shall not be accepted.
- Presentation Switcher must include at least two (2) balanced audio inputs. Presentation Switchers that do not include at least two (2) balanced audio inputs shall not be accepted.
- Presentation Switcher must include at least two (2) mono microphone inputs capable of receiving both microphone and line-level audio. Presentation Switchers that do not include at least two (2) mono microphones inputs that accept microphone and line-level audio shall not be accepted.
- Presentation Switcher must include at least four (4) Digital Audio HDMI inputs. Presentation Switchers that do not include at least four (4) Digital Audio HDMI inputs shall not be accepted.
- Presentation Switcher must include two (2) channels of amplified audio output capable of providing at least 25 Watts RMS per channel into 8-Ohms. Presentation Switchers that do not include two (2) channels of amplified audio capable of providing the power stated above shall not be accepted (applicable on DVX-2150-SP).
- Presentation Switcher must include one (1) 75 watt amplified audio output supporting 70 V or 100 V mono audio. Presentation Switchers that do not include one (1) 75 watt amplified audio output supporting 70 V or 100 V mono audio shall not be accepted (applicable on DVX-2150-T).
- Presentation Switcher must include at least two (2) Stereo Balanced Line-Level Analog Audio outputs. Presentation Switchers that do not include at least two (2) Stereo Balanced Line-Level Analog Audio outputs shall not be accepted.

- Presentation Switcher must include at least one (1) S/PDIF Digital Audio output. Presentation Switchers that do not include at least one (1) S/PDIF Digital Audio output shall not be accepted.
- Presentation Switcher must support the Pass-Thru of Surround Sound audio formation including DTS-HD and Dolby TrueHD. Presentation Switchers that do not support Surround Sound Pass-Thru including DTS-HD and Dolby TrueHD shall not be accepted.
- Presentation Switcher must have integrated digital signal processor features including independent 10-band parametric EQ per analog output and independent gain and compression adjustments per input. Presentation Switchers that do not include an independent 10-band parametric EQ per analog output and independent gain and compression adjustments per input shall not be accepted.
- Presentation Switcher must support enhanced microphone processing with independent 3-band parametric EQ, compression, gating, auto-ducking, and limiting on all microphone inputs to ensure crystal clear communication. Presentation Switchers that do not support the enhanced microphone processing listed above shall not be accepted.
- Presentation Switcher shall have the capacity to support breakaway embedded audio and send to a separate audio system to distribute throughout an environment independent from video switching. Presentation Switcher that do not have breakaway audio configuration that allows independent audio and video switching shall not be accepted.
- Presentation Switcher shall have the capability to De-Embed audio from all HDMI inputs and send to a separate audio system. Presentation Switchers that do not De-Embed audio from all HDMI inputs shall not be accepted.
- Presentation Switcher shall have the capability to Re-Embed audio from any analog or digital source onto any HDMI or DXLink output. Presentation Switchers that do not embed audio from any audio source onto any HDMI or DXLink output shall not be accepted.

CONTROL / PROCESSOR REQUIREMENTS

- Presentation Switcher shall include a built-in Master Controller. Presentation Switchers that do not include a built-in Master Controller shall not be accepted.
- Presentation Switcher must be based on the AMCC PowerPC processor operating at 404 MIPS or faster. Controllers operating slower than 404 MIPS shall not be accepted.
- Controller must include at least three (3) communications ports capable of RS-232, RS422, and RS485 communications. Presentation Switchers with less than three (3)

communication ports or not capable of supporting RS232, RS422, and RS485 shall not be accepted.

- Presentation Switcher communication ports must support software handshaking (XON/XOFF) and hardware handshaking (CTS/RTS). Presentation Switcher communication ports that do not support software and hardware handshaking shall not be accepted.
- Presentation Switcher communication ports must support baud rates of 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200. Presentation Switcher communication ports that do not support the baud rates above shall not be accepted
- Presentation Switcher must include at least four (4) IR control ports. Presentation Switchers with less than four (4) IR control ports shall not be accepted.
- Presentation Switcher IR control ports must support carrier frequencies up to 1.142 MHz. Presentation Switcher IR control ports that do not support carrier frequencies up to 1.142 MHz shall not be accepted.
- Presentation Switcher IR control ports must support “wired-IR” control signals without the need for external devices or accessories. Presentation Switchers that do not support “wired-IR” or require external devices or accessories to generate “wired-IR” signals shall not be accepted.
- Presentation Switcher must include at least four (4) isolated and independent relay ports that provide contact closure output. Presentation Switchers with less than eight (8) relay ports or not isolated and independent shall not be accepted.
- Presentation Switcher must include at least four (4) I/O Ports that may be configured input or output functionality independently. Output function must provide for an open-collector output to a common ground. Input function must sense contact closure or 0-28 VDC voltage sensing. Presentation Switchers with less than four (4) I/O ports or do not meet the other requirements above shall not be accepted.
- Presentation Switcher must include at least one (1) Program port. Presentation Switcher that does not include at least one (1) Program port shall not be accepted.
- Presentation Switcher must include at least one (1) RJ-45 Ethernet 10/100 port for TCP/IP communication. Presentation Switchers that do not include at least one (1) RJ-45 Ethernet 10/100 port shall not be accepted.
- Presentation Switcher must include at least one (1) AxLink port. Presentation Switchers that do not include one (1) AXLink port shall not be accepted.
- Presentation Switcher must have a built in universal power supply able to support 100-240V AC at 50 to 60Hz. Presentation Switchers that do not have a built in universal power supply shall not be accepted.

- Presentation Switcher must support a low-power state where all audio and video processing circuitry is powered down. Presentation Switchers that do not support a low-power state shall not be accepted.

TECHNICAL SPECIFICATIONS

- Power requirements: 100-240V AC, 47-63 Hz
- Dimensions: 5.2" x 17" x 14" (13.2 cm x 43.2 cm x 35.6 cm) – 3RU
- Weight: 18.2 lbs. (8.26 kg)
- Memory: 256 MB SDRAM; 1 MB non-volatile (NV) SRAM; 256 MB Flash
- Enclosure: Metal with black matte finish
- Operate at temperatures between -10° C - 70° C (14° F – 158° F)
- Relative Humidity of 5% - 85%
- 2 x 25W into 8 Ohms Class D stereo amplifier (applicable on DVX-2155-SP)
- 75 watt amplified audio output supporting 70 V or 100 V mono audio (applicable on DVX-2155-T)
- Up to 1920 x 1200 @ 60Hz
- HDCP Support on all digital video inputs
- Integrated NI-2100 Central Controller

FRONT PANEL COMPONENTS

- LINK/ACT (green): Link/Activity LED blinks when receiving Ethernet data packets.
- STATUS (green): Status LED blinks to indicate that the system is programmed and communicating properly.
- INPUT (yellow): Input LED blinks to indicate that the Controller is receiving data.
- OUTPUT (red): Output LED blinks to indicate that the Controller is transmitting data.
- RS-232 / 422 / 485 (red/yellow): 3 sets of LEDs indicate that RS-232/422/485 Ports (1-3) are transmitting or receiving data.
- RELAYS (red): 4 LEDs indicate that one or more of the relay channels (1-4) are active (closed).
- IR/SERIAL (red): 4 LEDs indicate that one or more of the IR/Serial ports (1-4) are transmitting control data.
- I/O (yellow): 4 LEDs indicate that one or more of the I/O channels (1-4) are active.
- SWITCH pushbutton: Press to enter the SWITCH menu on the LCD display. Choose to switch audio, video or both from any input to any output. Press the TAKE pushbutton to implement the switch.

- TAKE pushbutton: While in the SWITCH menu, press to implement an audio/video switch. When not in the SWITCH menu, press to cycle through audio and/or video inputs.
- LCD display: Liquid crystal display (2 lines with 20 characters per line) indicates current volume level and displays the Video, Audio, and Tools menus.
- VIDEO MENU pushbutton: Press to access the Video menu on the LCD display. Multiple presses cycle through the various VIDEO menus.
- AUDIO MENU pushbutton: Press to access the Audio menu on the LCD display. Multiple presses cycle through the various AUDIO menus.
- Navigational pushbuttons: 4 directional buttons for navigating the options in the Video and Audio menu (on the LCD display).
- STATUS pushbutton: Press to access the STATUS menu on the LCD display.
- EXIT pushbutton: Press to exit any menu.
- VIDEO MUTE pushbutton: Press to mute/un-mute (enable/disable) all video output displays. Video Mute results in a blank screen on the output display.
- AUDIO MUTE pushbutton: Press to mute/un-mute all audio outputs.

REAR PANEL COMPONENTS

- RS-232/422/485 (Ports 1-3) provide serial control via DB9 (male) connectors:
 - XON/XOFF (transmit on/transmit off)
 - CTS/RTS (clear to send/ready to send)
 - 300-115,200 baud
- RELAYS (Port 4) provides relay control via two 8-pin 3.5 mm captive-wire connectors:
 - 8-channel single-pole single-throw relay ports
 - Each relay is independently controlled
 - Supports up to 8 independent external relay devices
 - Channel range = 1-8
 - Each relay can switch up to 24 VDC or 28 VAC @ 1 A
- IR/SERIAL (Ports 5-8) provide IR/Serial control via 2-pin 3.5 mm captive-wire connectors:
 - Supports high-frequency carriers of up to 1.142 MHz
 - 8 IR/Serial data signals can be generated simultaneously
- I/O (Port 9) provides 8-channel binary I/O port for contact closure with each input being capable of voltage sensing.
- UNBALANCED AUDIO LINE INPUTS 2 1/8th-inch mini-jack connectors receive up to four unbalanced line-level audio inputs
 - Nominal input level: -10 dBV (0.3162 Vrms)
 - Maximum input level: 2 Vrms

- Input impedance: >12k ohms unbalanced, >12k ohms balanced, DC coupled
- BALANCED AUDIO LINE INPUTS 2 3.5mm 5-pin captive-wire connectors receive up to four balanced/unbalanced line level audio inputs
 - Nominal input level: +4 dBu (1.228 Vrms) balanced or -10 dBV (0.3162 Vrms) unbalanced
 - Maximum input level: 2 Vrms
 - Input impedance: >12k ohms unbalanced, >12k ohms balanced, DC coupled
- DIGITAL AUDIO INPUTS: supported on all HDMI inputs
- MIC/LINE INPUTS: 2 3.5mm 3-pin captive-wire connectors receive up to 2 mono microphones (balanced or unbalanced audio and switchable Phantom Power).
- ANALOG AUDIO OUTPUTS:
 - AMP: 4-position captive wire connector provides amplified audio output with volume control (8 ohm or 70/100v options available)
 - LINE: 2 3.5mm 5-pin captive-wire connector provides for fixed or variable, balanced or unbalanced, mono or stereo line level audio output
- DIGITAL AUDIO OUTPUTS:
 - S/PDIF: 1 Coaxial RCA connector provides digital S/PDIF audio output that can mirror any of the 4 analog audio outputs or any of the 4 HDMI outputs.
 - HDMI: Digital versions of any analog audio output or direct pass-through audio are provided on each HDMI output
 - DXLink: Mirrors associated HDMI audio output
- VIDEO INPUTS
 - 2 MULTI-FORMAT VIDEO INPUTS (1-2): 2 DVI-I input connectors provide multi-format video inputs for up to four video sources. Each VIDEO INPUT connector supports HDMI/HDCP, DVI, RGBHV, S-Video, composite, or component video input.
 - 2 HDMI INPUTS (3-4): 4 HDMI input connectors provide support for HDMI/HDCP or DVI video input. Supports HDCP.
 - 2 DXLINK INPUTS (5-6): 2 DXLink inputs provide digital video, audio, Ethernet and bi-directional control over Category Cable to DXLink Receivers. Supports HDCP.
- VIDEO OUTPUTS
 - 2 HDMI OUTPUTS (1-2): 2 HDMI output connectors provide both digital video and audio. Supports HDCP
 - 1 DXLINK OUTPUT: DXLink CAT5 outputs mirror associated HDMI output. Provides digital video, audio, Ethernet and bi-directional control over Category Cable to DXLink Receivers. Supports HDCP.

- CONFIG DIP Switch: 8-position Master configuration DIP switch allows setting the Serial Programming port baud rate and onboard Master execution mode (PRD or normal)
- PROGRAM Port: DB-9 connector that supports RS-232 communications to a PC for system configuration and diagnostics
- ID Pushbutton: Black ID pushbutton sets the NetLinx Device ID assignments of the Internal Control Device. It has no effect on the Internal Switcher Device
- ETHERNET 10/100 Port: RJ-45 connector provides TCP/IP communication. This is an Auto MDI/MDI-X enabled port, which allows you to use either straight-through or crossover Ethernet cables. The Ethernet Port LEDs show communication activity, connection status, speeds, and mode information:
 - SPD (speed) - Yellow LED lights on when the connection speed is 100 Mbps and turns off when the speed is 10 Mbps.
 - L/A (link/activity) - Green LED lights on when the Ethernet cables are connected and terminated correctly, and blinks when receiving Ethernet data packets.
- AXLink Port: 1 3.5 mm captive-wire connector provides data and power to external control devices. The AXLink LED (green) indicates the state of the AXLink port.

CERTIFICATIONS

- RoHS
- FCC Class A
- CE

INCLUDED ACCESSORIES

- 2 CC-NIRC, IR Emitter w/3.5mm Phoenix (FG10-000-11)
- 2 Front Rack Mounting Brackets (62-1905-15)
- Enova DVX-2150HD All-In-One Presentation Switcher Installation Guide (93-1950-15)

OPTIONAL ACCESSORIES

- CC-DVI-5BNM: DVI to 5 BNC male cable
- CC-DVI-RCA3m: DVI to 3 RCA male cable
- CC-DVIM-VGAF: DVI to HS-15 female adapter
- CC-DVI-SVID: DVI to S-All-In-One cable
- CC-3.5ST5-RCA2F: 5-pin 3.5mm Phoenix to 2 RCA female cable

- AVB-RX-DXLINK-HDMI: DXLink HDMI HDCP RX with Scaler
- AVB-TX-HDMI-DXLINK DXLink HDMI Transmitter Module
- AVB-TX-MULTI-DXLINK DXLink Multi-Format Transmitter
- AVB-DWP-TX-MULTI-DXLINK DXLink Multi-Format Decor Style Wallplate Transmitter
- AVB-WP-TX-MULTI-DXLINK DXLink Multi-Format Wallplate Transmitter

PRODUCT ID

- The All in One Presentation Switcher shall be manufactured by AMX and shall be an Enova DVX-2155.

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.

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