

Epica DGX 144

Customizable Matrix Switcher for configurations as large as 144x144 (see last page for parts list)



Overview

The Epica DGX 144 is a modular fiber optic matrix switcher designed to transport uncompressed video, embedded audio and one-way control up to 3000 feet away over single strand multimode fiber. With its exclusive DGX Technology, the system offers simple signal conversion between analog and digital signals and vice versa whether it is needed at the source, the switch or the destination. Supporting 4.95 Gbps, the DGX ensures perfect pixel for pixel reproduction for all video resolutions up to 1920x1200. Designed with flexibility, the compact 16 RU enclosure is expandable from 16x16 to 144x144 by increments of 16 and supports DGX Fiber, DVI and HD-15 input boards and DGX Fiber, and our DVI output boards. It features several integrator friendly tools designed to simplify setup and reduce installation issues including hot-swappable I/O boards, real-time system monitoring, and fully redundant, hot-swappable power supplies with redundant power feeds.

When paired with the DGX Fiber Transmitters and Receivers the system can also pass audio and control sent from the TX through the matrix switcher to the RX. The DGX Fiber Receivers (both HD-15 and DVI) feature SmartScale™ Technology which automatically responds to the display's declared EDID information and scales the video resolution and adjusts the video parameters to match the displays native format. SmartScale Technology ensures every display operates at its preferred resolution and eliminates the incompatibilities that can arise in matrix switching systems when the output resolution of the source is not supported by some or all of the displays in the system.

Common Applications

The Epica DGX 144 can route and transmit pure high resolution analog and digital video up to 3,000 feet making it the perfect solution government agencies, command-and-control environments, universities, hospitals, casinos, retail environments or any facility that demands the highest quality video be shared between rooms or even buildings.

Features

- Designed for use with single strand multimode fiber; the most common, easily terminated and installed fiber cable solution
- Compatible DGX Fiber Receivers feature SmartScale™ Technology which 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
- DGX Technology offers simple signal conversion between analog and digital signals whether it is needed at the source, the switch or the destination
- Use in conjunction with our DGX Fiber Transmitters and Receivers to send video, audio and one-way control over a single fiber cable up to 6,000 feet – 3,000 feet to the matrix switcher and 3,000 feet after the matrix switcher
- Supports matrix switching of embedded digital or analog audio and one-way control when used in conjunction with any DGX Fiber TX / RX pair running through the Epica DGX 144 SC Fiber Input and Output Boards
- Supports analog video resolutions and DVI resolutions up to 1920 x 1200 @ 60Hz
- True uncompressed DVI digital matrix switching ensures the purity of the digital image is never compromised
- Pre-loaded with the most common EDID settings on each of the matrix switcher's input connectors to emulate the display's response when queried, which ensures transmission of the video from the source device
- Custom EDID settings can be loaded on each input with the use of the included EDID Programmer
- Standard RS-232 control port
- Standard USB (mini-B) port can be used as a virtual Com port for serial communication with a PC
- Supports AutoPatch's simple BCS serial control protocol
- Standard Integrated TCP/IP APWeb control
- Ships with free AutoPatch matrix switcher configuration software
- Ships with free APControl to provide easy single-user PC control of the matrix switcher
- Rack mounting ears included
- AMX limited lifetime warranty
- Fully redundant power supplies with independent power paths for maximum reliability
- Local presets allow quick recall of a pre-programmed set of switches with a single command; multiple presets can exist within a system at the same time
- Global presets allow quick recall of a comprehensive snapshot of all switches

Dealer Benefits

- **SmartScale Technology** - The Epica DGX Receivers automatically scale the video output to match the display's preferred resolution
- **Easily Convert Between Analog and Digital Signals** - DGX Technology offers simple signal conversion between analog and digital signals whether it is needed at the source, the switch or the destination
- **Field Serviceable and Upgradable** - Easily add or replace I/O boards at any time after deployment - the system automatically recognizes the new configuration and activates the boards

Customer Benefits

- **Securely Transport AV Signals** – As a fiber based product, it's inherent features protect information from security threats while delivering visual data as it was intended
- **Perfect Reproduction of the Source Image** – The DGX supports high speed digital switching 4.95 Gbps, which ensures perfect pixel for pixel reproduction of original source image for all video resolutions up to 1920x1200
- **Cost Effective Fiber Transportation Solution** – The Epica DGX Fiber Matrix Switchers utilize the easy to install and terminate industry standard single strand multimode fiber to transport audio, video and control

Specifications

| GENERAL | |
|----------------------------------|---|
| AC Power | 110 - 220 VAC single phase, 50-60 Hz |
| Power Consumption (Maximum) | 1563 Watts |
| Power Consumption (Typical) | 850 Watts, fully loaded enclosure |
| Power Factor Correction | Supported, complies with EN60555-2 and EN61000-3-2 |
| BTU/HR (Maximum) | 5333 |
| BTU/HR (Typical) | 2900, fully loaded enclosure |
| Operational Temperature | 32° to 110° F (0° to 43° C) |
| Humidity | 0 to 90% non-condensing |
| Noise Level | <62 dBA @ 1m (Typical @ 25°C) |
| Approvals | CE, FCC Class A, UL, cUL, RoHS/WEEE compliant |
| Dimensions (HWD) | 28" x 19" x 20 1/16" (71.1 cm x 48.3 cm x 51 cm) RU: 16 |
| Dimensions (HWD) with Extractors | 28" x 19" x 21 1/16" (71.1 cm x 48.3 cm x 53.5 cm) RU: 16 |
| Weight | Appx. 160 lbs (72.6 kg) per loaded enclosure Shipping Weight: Appx. 205 lbs (93 kg) per loaded enclosure |
| I/O Range | 16x16 through 144x144 (Increments of 16 inputs and/or outputs) |

| SC Fiber | |
|------------------------------------|--|
| Compatible AutoPatch Fiber Modules | DGX DVI TX/RX, DGX HD-15 TX/RX , Epica DGX 32, Epica DGX 144 |
| Signal Types over Fiber | Video, Audio, Serial Data (Video signal must be present to pass Audio and Serial Data) |
| Progressive Resolution Support | 640x480 @ 60 Hz up to 1920x1200 @ 60 Hz |
| Interlaced Resolution Support | 1080i 60, 59.94, 50 (fields per second) 576i 100, 50 (fields per second)* 480i 60 (fields per second)* *480i and 576i are only available when being transmitted from a DGX HD-15 Tx as a YPbPr signal |
| Audio Support | Analog Stereo or S/PDIF (S/PDIF up to 96 kHz Sample Rate, 96 kHz audio only available when source video resolution is 800x600 @ 60Hz(40 MHz pixel clock) or greater, otherwise 48 kHz max) |
| Serial Data Support | Unidirectional RS-232, up to 115.2k Baud |
| Fiber Cable Type | Multimode Simplex (with SC termination) 50/125 um (preferred) or 62.5/125 um |
| Fiber Cable Length | Up to 3000 ft In / Out with 50 um cable (3000 ft cable requires 50/125 um OM2 class low loss fiber cable) Up to 1500 ft In / Out with 62.5um |
| Fiber Connector | SC Optical |
| Safety Certifications | Class 1 Laser Product (Class 3R Laser Product when fiber is disconnected from the unit) IEC 60825-1, 2001 (Fiber Output Board) |

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| Power Output of Laser Radiation (max) | 4.08 mW (Fiber Output Board) |
| Optical Budget | 9.75 dBm (typ) between DGX TX and Input board 9.75 dBm (typ) between Output board and DGX RX Optical Modulation Amplitude (OMA) Output: -6.25 dBm (typ) Optical Modulation Amplitude (OMA) Input Sensitivity: -16.0 dBm (typ) |
| HDCP Support | None |
| Fiber Input Board Propagation Delay | 1 us |
| Fiber Output Board Propagation Delay | 2 us |
| Compatibility Note | Not compatible with third party optical distribution amplifiers or multimode to single mode converters |

| DVI | |
|------------------------------------|--|
| Signal Type | DVI-D (Single Link) |
| Resolution Support | 640x480 @ 60 Hz up to 1920x1200 @ 60 Hz |
| Interlaced Resolution Support | 1080i 60, 59.94, 50 (fields per second) 576i 100, 50 (fields per second) 480i 60 (fields per second) |
| Video Rate (max) | 4.95 Gbps |
| Video Pixel Clock (max) | 165 MHz |
| DDC/EDID Support | EDID provided by Epica DGX 144 EDID is user re-programmable |
| HDCP Support | None |
| Input Voltage (nominal) | 1.0 Vpp Differential |
| Input Cable Equalization | Up to 50 ft |
| Output Voltage (nominal) | 1.0 Vpp Differential |
| Output Reclocking | Yes |
| Output +55V DDC Pin | 50 mA |
| Output Rise Time / Fall Time | 80 ps min -200 ps max (20% - 80%) 0.13 UI min - 0.33 UI max (@ 1.65 Gbps, 20% - 80%) |
| DVI Input Board Propagation Delay | 1 us |
| DVI Output Board Propagation Delay | 2 us |
| Connector | DVI-D Single Link is the supported signal type |

| EDID DVI | |
|--------------------------------|---|
| Standard Timing Identification | ID 1: 1920 x 1200 @ 60 Hz* ID 2: 1920 x 1080 @ 60 Hz ID 3: 1680 x 1050 @ 60 Hz ID 4: 1600 x 1200 @ 60 Hz ID 5: 1280 x 800 @ 60 Hz ID 6: 1280 x 720 @ 60 Hz ID 7: 1280 x 1024 @ 60 Hz ID 8: 640 x 480 @ 120 Hz * This is the preferred timing identified in the EDID |
| Established Timing | 720 x 400 @ 70 Hz, 88 Hz 640 x 480 @ 60 Hz, 67 Hz, 72 Hz, 75 Hz 800 x 600 @ 56 Hz, 60 Hz, 72 Hz, 75 Hz 1024 x 768 @ 60 Hz, 70 Hz, 75 Hz, 87 Hz 1280 x 1024 @ 75 Hz 1152 x 870 @ 75 Hz |

| RGBHV (HD-15) | |
|----------------------|---|
| Signal Type | RGBHV Input |
| Resolution Support | 640x480 @ 60 Hz up to 1920x1200 @ 60 Hz |
| Pixel Clock (max) | 165 MHz |

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| DDC/EDID Support | EDID provided by Epica DGX 144 EDID is user re-programmable |
| RGB in Signal Level Range | 0 - 700 mVpp (0 - 750 mVpp max) |
| RGB Input Impedance | 75 Ohms |
| HV Sync Input Signal Range | 0 to +5 V |
| HV Sync Input Impedance | 510 Ohms |
| HV Sync Input Trigger Voltage | + 1.25 V |
| Input Connector | HD-15 |

| EDID RGBHV | |
|--------------------------------|---|
| Standard Timing Identification | ID 1: 1920 x 1200 @ 60 Hz* ID 2: 1920 x 1080 @ 60 Hz ID 3: 1680 x 1050 @ 60 Hz ID 4: 1600 x 1200 @ 60 Hz ID 5: 1280 x 800 @ 60 Hz ID 6: 1280 x 720 @ 60 Hz ID 7: 1280 x 1024 @ 60 Hz ID 8: 640 x 480 @ 120 Hz * This is the preferred timing identified in the EDID |
| Established Timing | 720 x 400 @ 70 Hz, 88 Hz 640 x 480 @ 60 Hz, 67 Hz, 72 Hz, 75 Hz 800 x 600 @ 56 Hz, 60 Hz, 72 Hz, 75 Hz 832 x 624 @ 75 Hz 1024 x 768 @ 60 Hz, 70 Hz, 75 Hz, 87 Hz 1280 x 1024 @ 75 Hz 1152 x 870 @ 75 Hz |

Epica DGX 144 Configuration Guide:

Easily customize an Epica DGX 144 by selecting any combination of available input and output boards (as space allows). The Epica DGX 144 enclosure has space for 9 input boards and 9 output boards. Each board has 16 connections. Backplane architecture in the DGX 144 enclosure provides a physical path for all routing connections – meaning any input can be routed to any or all outputs in any combination without limitations; even if you add boards later in the field. Start as small as 16x16 and install more boards as the requirements of the installation grow.

Epica DGX 144 Enclosure

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| FG1055-11 | AVS-EPDGX144-ENC | Epica DGX 144 Matrix Switcher Enclosure, 16RU compatible with all Epica DGX 144 Matrix Switcher input and output boards for a maximum configuration of 144x144 |
|-----------|------------------|--|

Epica DGX 144 Input Boards

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| FG1055-460 | AVS-EPDGX144-VI-DVI | 16 Connection DVI Epica DGX 144 Input Board |
| FG1055-480 | AVS-EPDGX144-VI-HD15 | 16 Connection HD-15 Epica DGX 144 Input Board |
| FG1055-500 | AVS-EPDGX144-VI-HD-SDI | 16 HD-SDI BNC Connection Epica DGX 144 Input Board |
| FG1055-440 | AVS-EPDGX144-OI-SC | 16 SC Fiber Connection Epica DGX 144 Input Board, receives fiber from DGX DVI and DGX HD-15 Fiber Transmitters |

Epica DGX 144 Output Boards

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|------------|---------------------|---|
| FG1055-470 | AVS-EPDGX144-VO-DVI | 16 Connection DVI Epica DGX 144 Output Board |
| FG1055-450 | AVS-EPDGX144-OO-SC | 16 SC Fiber Connection Epica DGX 144 Output Board, sends fiber to DGX DVI and DGX HD-15 Fiber Receivers |

DGX Transmitters and Receivers

Use SC Fiber Input and Output Boards with the DGX Fiber Transmitters and Receivers

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|---------------|--------------------------|--|
| FG1010-210-01 | AVB-TX-DGX-DVI-SC FIBER | DGX DVI Fiber Transmitter featuring Digital Generation Technology |
| FG1010-410-01 | AVB-RX-DGX-SC-FIBER-DVI | DGX DVI Fiber Receiver with SmartScale and Digital Generation Technology |
| FG1010-200-01 | AVB-TX-DGX-HD15-SC FIBER | DGX HD-15 Fiber Transmitter featuring Digital |

| | | |
|---------------|--------------------------|--|
| | | Generation Technology |
| FG1010-400-01 | AVB-RX-DGX-SC-FIBER-HD15 | DGX HD-15 Fiber Receiver with SmartScale and Digital Generation Technology |

Epica DGX 144 Power Supply Replacement Kit / Accessories

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|-------------|--------------------------------|---|
| FG1055-110K | AVS-EPDG-PS-G,KIT EPICA DG, R- | EPICA DG, POWER SUPPLY, REPLACEMENT KIT |
| FG1055-052K | REPLACEMENT KIT, EPICADG CPU | REPLACEMENT KIT, EPICADG CPU |

For pictorial drawing please visit: <http://www.amx.com//assets/drawings/EpicaDGX144-Pictorial.pdf> and <http://www.amx.com/products/EpicaDGX144.asp>

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. Specifications subject to change. Revised 13 May 2014.

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