



Quick Start Guide

DGX Fiber TX and RX Modules

Overview and Specifications

DGX Fiber Transmitters (TX) and Receivers (RX) are modules that work together or in conjunction with DGX SC Fiber boards on an AMX DGX Distribution Matrix.

The transmitters feature Auto-Detect, and the receivers feature SmartScale®. This *Quick Start Guide* contains basic installation information and specifications for the four modules listed below. For complete information and specifications, see the *Instruction Manual – DGX Transmitters & Receivers* at www.amx.com. For use with a DGX Distribution Matrix, see the product's *Quick Start Guide* and/or *Instruction Manual*.

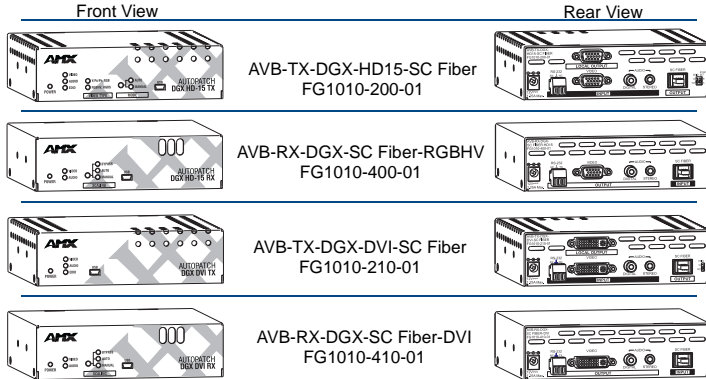


FIG. 1 DGX Fiber Transmitters and Receivers

Compatibility Note: DGX Fiber Transmitters and Receivers are not compatible with third party optical distribution amplifiers or multimode to single-mode converters.

General Specifications and Product Information	
Approvals	UL, cUL, CE, FCC Class A, RoHS
AC Power	100 to 240 VAC single phase, 50 Hz to 60 Hz 0.6 A @ 115 VAC max.
Power Consumption (max.)	12 V (+/-10%), 1.25 A (15 W)
Power Consumption (typ) DGX HD-15	TX: 12 V (+/-10%), 0.5 A (6 W) RX: 12 V (+/-10%), 1 A (12 W)
Power Consumption (typ) DGX DVI	TX: 12 V (+/-10%), 0.4 A (5 W); RX: 12 V (+/-10%), 0.8 A (10 W)
Thermal Dissipation (max.)	51 BTU/hr.
Thermal Dissipation (typ) DGX HD-15	TX: 21 BTU/hr; RX: 41 BTU/hr
Thermal Dissipation (typ) DGX DVI	TX: 17 BTU/hr; RX: 34 BTU/hr
Power Connector*	2.1 mm DC power jack
Operational Temperature	32° F to 113° F (0° C to 45° C)
Storage Temperature	-22° F to 158° F (-30° C to 70° C)
Humidity	0 to 90% non-condensing
Dimensions	5.15 in. (13.08 cm) depth; 5.80 in. (14.73 cm) width; 1.66 in. (4.22 cm) height
Weight / Shipping Weight	Approximately 1.75 lb. (0.8 kg) / 2.75 lb. (1.25 kg)
MTBF	92,000 hrs.
Safety Certifications (DGX DVI TX and DGX HD-15 TX)	Class 1 Laser Product (Class 3R Laser Product when fiber is disconnected from unit) IEC 60825-1, 2001
Compatible AMX Fiber Products	Other AMX DGX SC Fiber Signal Management products
Advanced Configuration Interface	USB Mini-B
Fiber Cable Type (SC Termination)	Multimode Simplex, 50/125 µm preferred or 62.5/125 µm
Fiber Cable Length	Up to 3000 ft. (914.4 m) with 50 µm cable** Up to 1500 ft. (457.2 m) with 62.5 µm cable
Optical Budget	9.75 dBm (typical) between DGX TX and RX Optical Modulation Amplitude (OMA): -6.25 dBm (typical) OMA Sensitivity: -16.0 dBm (typical)
Power Output of Laser Radiation (max.)	4.08 mW (DVI TX and HD-15 TX only)
Fiber Cable Connector	SC Optical
Analog Video and DVI Video	
Resolution Support	640x480 @ 60 Hz up to 1920x1200 @ 60 Hz
Data Rate (max.)	4.95 Gbps
Pixel Clock	25 MHz to 165 MHz
Video Digital Processing	24 bit, 165 MHz
Input Interlaced Video Support	1080i 60, 59.94, 50 fields/sec.; 576i 100 fields/sec. Analog video only 576i 100, 50 fields/sec. and 480i 60 fields/sec. Interface video supported into the TX Progressive only supported out of the RX
TX Propagation Delay	2 µs
RX Propagation Delay (typical)	24 ms for progressive; 48 ms for interlace
DDC/EDID Support	EDID provided by DGX TX (EDID is user re-programmable)
Analog Video Only	
TX Input Signal Types	RGBHV, RGBS, RGsB, Y/Pb/Pr
TX Auto-Adjust Input	Yes
TX Input and Local Output Connectors	HD-15 (RGBHV and Y/Pb/Pr)
RX Output Signal Type	RGBHV
RX Output Scaling	SmartScale®, Presets, Manual Configuration
RX Output Connector	HD-15 (RGBHV)

* A desktop power supply (ENERGY STAR® qualified) is provided with each module.

** 3,000 foot cable requires 50/125 µm OM2 class low loss fiber cable. Transmission distance will vary (more or less) depending on the type/quality of fiber used, fiber bandwidth, cable bend radius/kinks, splicing quality and quantity, and chromatic or modal dispersion.

DVI Video Only	
TX Input and RX Output Signal Types	DVI-D (single link)
TX HDCP Support	No
TX Input and Local Output Connectors	DVI-I (DVI-D single link is supported signal type)
RX Output Scaling	SmartScale®, Presets, Manual Configuration
RX Output Connector	DVI-I (DVI-D single link is supported signal type)
Input Cable Length	Meets DVI spec of 5 m (16.4 ft.)

Audio – Analog and Digital	
TX Input and RX Output Signal Types	Stereo analog, S/PDIF (2 Channel L-PCM) Video signal must be present to pass audio
TX Analog Input and RX Output Level (max.)	+8 dBu, unbalanced
TX and RX S/PDIF Resolution	16 bit to 24 bit
TX and RX S/PDIF Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 96 kHz*
TX Analog to Digital Reference Level RX Digital to Analog Reference Level	+8 dBu = 0 dBfs 0 dBfs = +8 dBu
Audio Synchronization	Progressive and interlace video formats @ 60 Hz frame rate. Audio is actively delayed to match video within 8 ms leading or lagging.
Connectors	RCA (S/PDIF) and 3.5 mm mini-stereo (analog) jacks

* 96 kHz audio only available for source video 800x600 @ 60Hz (40 MHz pixel clock) or greater. Otherwise, 48 kHz is the maximum.

Serial Data	
TX Input and RX Output Signal Type (video must be present to pass data)	Unidirectional RS-232, control signal transmitted in the same direction as the video/audio
TX Input Signal Level (max.)	+/-15 V
RX Output Signal Level (max.)	+/- 5 V
TX and RX Baud Rate (max.)	115.2 k baud, 25 ft. (7.6 m) copper cable
TX and RX Baud Rate (typical)	57.6 k baud, 150 ft. (45.7 m) copper cable
TX Input and RX Output Connectors	Pluggable 3.5 mm terminal block

EDID TX Standard Timing Identification

ID 1: 1920x1200 @ 60 Hz (preferred timing identified in EDID)	ID 5: 1280x800 @ 60 Hz
ID 2: 1920x1080 @ 60 Hz	ID 6: 1280x720 @ 60 Hz
ID 3: 1680x1050 @ 60 Hz	ID 7: 1280x1024 @ 60 Hz
ID 4: 1600x1200 @ 60 Hz	ID 8: 640x480 @ 120 Hz

EDID TX Established Timing

640x480 @ 60 Hz, 72 Hz, 75 Hz
800x600 @ 56 Hz, 60 Hz, 72 Hz, 75 Hz
1024x768 @ 60 Hz, 70 Hz, 75 Hz, 87 Hz
1280x1024 @ 75 Hz

Module Installation

System Setup

DGX TX Modules

The DGX DVI TX receives a DVI signal and the DGX HD-15 TX receives an analog video signal.** Both TXs receive either a digital audio or an analog stereo audio signal from the source device (digital takes precedence if both are connected). Video and embedded audio and data signals are sent over an SC fiber cable to an RX module. The RS-232 ports can supply unidirectional RS-232 serial data with the data flow in the same direction as the video. Each TX also has a local video output connector.

** Supports RGBHV, RGBS, RGsB, or Y/Pb/Pr (Y/Pb/Pr up to 1080p) video formats.

DGX RX Modules

Each DGX RX accepts its video, audio, and data signals from a DGX TX via the fiber cable, converts the video to either DVI or RGBHV (depending on the model), and sends the signal to the destination. Audio on each RX will be output on both the digital and analog stereo ports.

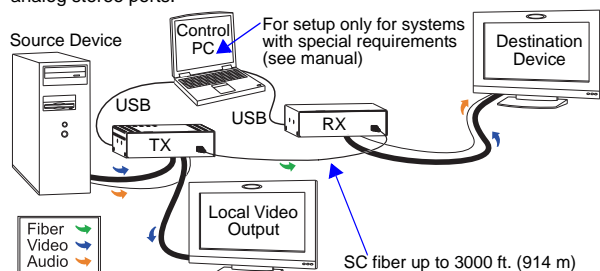


FIG. 2 Typical system setup (use either model DGX TX with either model DGX RX)

Cables and Pinouts

For the DGX HD-15 TX and DGX HD-15 RX, a variety of cables can be used for the HD-15 connection (FIG. 3). If using an HD-15 to 5 BNCs breakout cable to connect a Y/Pb/Pr source device to the TX, connect Pr to red, Y to green, and Pb to blue.

Important: The RX cannot read the EDID from the destination device when HD-15 to 5 BNCs breakout cable is used, resulting in the SmartScale® feature not functioning.



FIG. 3 HD-15 to HD-15

HD-15 to 5 BNCs

HD-15 to 3 RCAs

Mounting Options (Rack Trays and Mounting Brackets)

For details on the four versatile mounting kit options for V Style modules (rack tray, rack tray and fill plates, surface mount, and pole mount), see www.amx.com.

Safety Recommendations for Laser Products

Important: There are no user serviceable parts inside an AMX product; service should only be done by qualified personnel.

Warning: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Exercise caution to avoid direct eye exposure to invisible laser radiation. Follow the recommendations below whenever installing or working with DGX fiber products.

- Be sure to *apply the power last*, so that the fiber connector is not exposed when power is applied.
- Do *not* remove dust plugs from SC fiber connectors or the dust caps from the fiber cables until establishing connections; avoid direct eye exposure.
- Make sure all cables, including fiber cables, are correctly connected and/or terminated.
- If you need to unplug the fiber cable, be sure to unplug power to the TX first.

To attach connectors and power on the TX:

Caution: If you are providing the power supply – Use a UL (or equivalent) listed power supply. To avoid damage, electrical ratings for the power supply must not exceed those indicated in the specifications table on the previous page.

1. Check the EDID switch on the rear of TX to be sure that it remains in the down position (WP = Write-Protect).
2. **DGX HD-15 TX** – Attach the HD-15 cable from the source to the Video Input (HD-15) receptacle on the rear of the TX (FIG. 4). For an optional video out, attach an HD-15 cable connector to the Local Output.

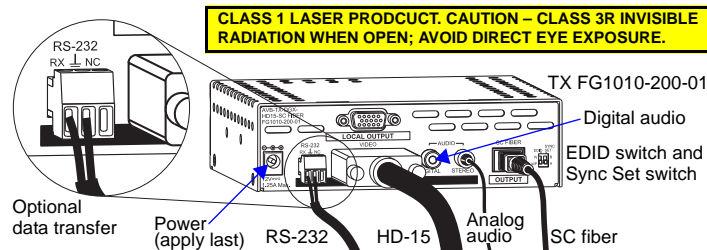


FIG. 4 Attach HD-15, audio, and SC fiber cables (RS-232 optional)

DGX DVI TX – Attach the DVI cable from the source to the Video Input (DVI-I) receptacle on the rear of the TX (FIG. 5). For an optional video out, attach a DVI-I cable connector to the Local Output.

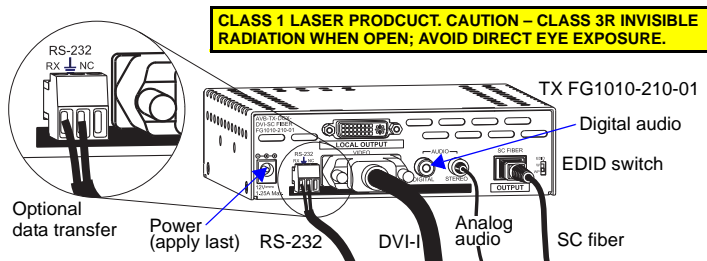


FIG. 5 Attach DVI-I, audio, and SC fiber cables (RS-232 optional)

3. If needed – Attach the digital audio cable from the source to the Digital jack or if using analog stereo audio, attach the analog audio cable to the Stereo jack.
4. If needed – Wire the RS-232 port for unidirectional data transfer from source to destination (data enters the system at the RX label on the TX module and leaves the system at the TX label on the RX module). Video signal *must* be present.
5. Clean the end face on the fiber cable plugs following the manufacturer's instructions.

Caution: Do *not* severely bend or kink the fiber cable. Irreversible damage can occur. The bend radius for AMX SC terminated fiber cables is 2 inches (5 cm).

6. Remove the dust plug from the SC Fiber jack on the TX and insert one end of the SC fiber cable into the jack (the fiber connector will click when fully engaged).
7. Connect the open end of the SC fiber cable to the RX before connecting power.

8. Plug power supply into an external AC source (LED turns red, then green).
9. Models with HD-15 connectors – Set the Sync Set switch on the TX for video signal type: For Y/Pb/Pr – set to A; for RGsB – set to B; for RGBHV or RGBS – set to either A or B.

Important: Do not set the EDID switch to W (Write) unless programming the module with EDID Programmer software (see the "Instruction Manual").

To attach connectors and power on the RX:

1. **DGX HD-15 RX** – Attach the HD-15 cable connected to the destination device to the Video Output (HD-15) receptacle on the rear of the RX.
2. **DGX DVI RX** – Attach the DVI cable connected to the destination device to the Video Output (DVI-I) receptacle on the rear of the RX.
2. If needed – Attach the digital audio cable for the destination to the Digital jack or, if using analog stereo audio, attach the analog audio cable to the Stereo jack.

Warning: Do not use the Stereo output connector as a headphone jack. This output is set at unity gain (line-level) and is not intended for headphones.

3. Remove the dust plug from the SC Fiber jack on the RX and insert the open end of the SC fiber cable from the TX into the jack (the fiber connector will click when fully engaged).
4. If needed – Wire RS-232 for unidirectional data transfer from the source to the destination. Video signal must be present.
5. Be sure the other end of the SC fiber cable is connected before applying power.
6. Plug the desktop power supply into the power jack on the RX.
7. Plug power supply into an external AC source (LED turns red, then green).

This ends the basic instruction information for TX and RX modules. Image adjustment and EDID scaling has automatically been applied. For almost all installations, the automatic features result in a satisfactory image on the monitor. If the installation has special requirements and needs additional adjustment, refer to the *Instruction Manual* – DGX Transmitters & Receivers at www.amx.com.

Note: If you want the RX to remain in either Manual or Bypass when power is cycled, press and release the Scaling button until the LEDs cycle to the option immediately before the one you want to persist. Press and hold the Scaling button about 5 seconds until the desired LED blinks green, indicating the option will persist on power cycle.

Troubleshooting

The following troubleshooting suggestions/strategies apply to the DGX modules. Before contacting technical support (contact information is at the bottom of this page), also check "Troubleshooting" in the manual.

Tip: When modules are used in conjunction with a DGX Distribution Matrix, we also suggest checking "Troubleshooting" in the product's *Instruction Manual*.

Power to Module

If the power indicator LED is *not* illuminated:

- Check the power cord on the module and at the power source. Cycle power by unplugging desktop power supply from AC power source and plugging it back in.

If the power indicator LED remains a constant red:

- Start over and cycle power by unplugging desktop power supply from AC power source and plugging it back in.

If the power indicator LED illuminates solid amber (can also occur after power up):

- See "Error Code Reporting" in the *Instruction Manual*.

Problems with Video and Audio Signals

If Video and Audio LEDs on the front of the module are not illuminated:

- Check all signal connectors on the module and on the source device.
- Check if source is sending a valid signal (cable source directly to destination).

Image Problems

If destination device does not have an image:

- Auto LED solid green – Check for correct input port on monitor.
- Auto LED blinking green and Bypass LED solid green – No EDID found; re-plug first one end of cable and then other end; try using alternate port on monitor.
- See "Scaling Modes" and/or "EDID Programmer" in the *Instruction Manual*.

If an image appears but is unsatisfactory:

- See "Adjusting Video with BoardConfig Software" in the *Instruction Manual*.

Audio Problems

If audio signal is not present (assumes video signal is present): check that audio signal is not compressed (e.g., Dolby); verify source is sending valid signal – cable directly to destination; check that audio sample rate is not out of spec for video signal (if using 96 k for PCM digital audio then the pixel clock must be at least 40 MHz or a video format of at least 800x600 @ 60 Hz).

Instruction Manual – DGX Transmitters & Receivers

For information on the following, see the *Instruction Manual* – DGX Transmitters & Receivers at www.amx.com:

- Creating a virtual Com port
- Using custom resolutions
- Adjusting the image
- Reading and writing EDID data
- Restoring the default settings
- Upgrading the firmware

For warranty information, refer to www.amx.com.

03/18/2013

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