

### Overview

DG (Digital Generation) RGBHV MTP® Fiber Transmitter (TX) and Receiver (RX) Modules work together (FIG. 2) or in conjunction with fiber boards on an AMX AutoPatch Distribution Matrix. This guide contains complete information for stand-alone use. For use with a distribution matrix, see the distribution matrix's instruction manual on the AMX AutoPatch Software & Documentation CD or visit [www.amx.com](http://www.amx.com).

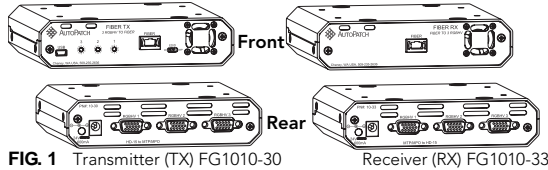


FIG. 1 Transmitter (TX) FG1010-30 Receiver (RX) FG1010-33

### Product Specifications

Specifications	
Approvals	CE
Power Consumption (max.)	+12 V - +24 V DC, 13 W
Power Connector	2.1 mm DC power jack
Humidity	0 to 90% non-condensing
Operational Temperature	32° - 110° F (0° - 43° C)
Dimensions	5.22 in. (13.26 cm) depth 5.82 in. (14.78 cm) width 1.42 in. (3.61 cm) height without feet
Weight	Approximately 1.5 lbs (0.68 kg)
Compatible Fiber Modules	DG DVI MTP Fiber
Resolution Support	Up to 1920x1200 @ 60 Hz refresh rate (with reduced sync blanking)
DDC/EDID Support	EDID resolutions provided by RGBHV TX (see reverse)
Pixel Bandwidth	1.65 Gbps
RGB Input/Output Level	700 m Vpp
HV Sync Input/Output Level	TTL compatible
RGB Input/Output Impedance	75 ohms
Fiber Cable Types	12 Fiber Multimode MTP, 50/125 µm or 62.5/125 µm with female MTP/MPO connectors (male on module)
Fiber Cable Length	Up to 3000 ft. (914.4 m) cable requires low loss, controlled skew, such as, Alcoa 50/125 µm Laser-Link 550
Fiber Cable Termination	Female MTP
Fiber Connector on Module	Male MTP (guide pins define it as male)
RGBHV Connector	HD-15

### Mounting Options

- Desktop – attach the rubber feet (included) on the bottom of the module.
- Rack Trays & Mounting Brackets – contact your AMX representative.

### Installation

#### Typical System Setup

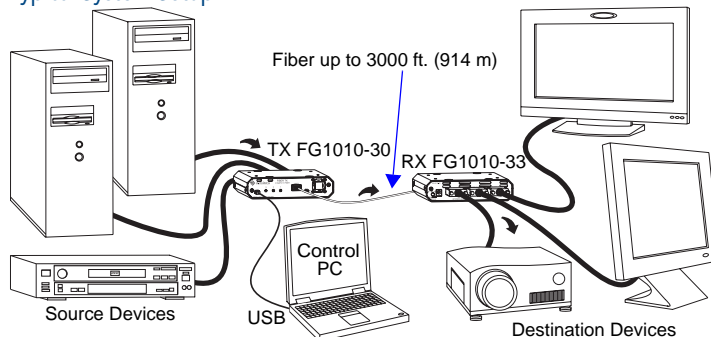


FIG. 2 Typical system setup (USB connection to PC for setup only)

The TX receives RGBHV signals from 3 source devices and sends them over a single high-density 12-fiber multimode cable. The RX accepts the signals from the fiber cable, converts the signals back to RGBHV, and sends each RGBHV signal to its corresponding destination device.

**Tip:** Before installing in a permanent location, place equipment close together, so the Control PC and the Destination Monitor can be seen simultaneously during fine tuning.

#### To attach connectors:

- Check EDID switch on front of TX to be sure that it remains set to the right (WP).
- For each source device, insert the HD-15 connector into the RGBHV (HD-15) jack on the rear of the TX (FIG. 3). The connector number corresponds to the channel number. For HD-15 pinout, see FIG. 6 on reverse.

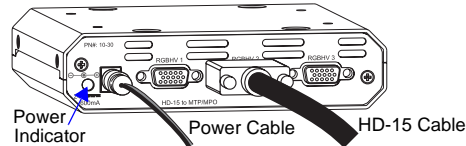


FIG. 3 Attach HD-15 and power cables

- For each destination device, insert the HD-15 plug into the RGBHV jack on the rear of the RX. The connector number corresponds to the channel number.

**Caution:** Do not severely bend or kink the fiber cable. It can cause irreversible damage to the cable.

- Insert the MTP/MPO plug on one end of the fiber cable into the Fiber (MTP/MPO) jack on the front of the TX (FIG. 4).

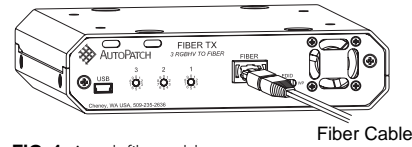


FIG. 4 Attach fiber cable

- Insert the other end of the fiber cable into the Fiber jack on the front of the RX.
- Insert the power plugs into the power jacks on the TX and RX (FIG. 3).
- Plug the power cords into the power sources.

**Important:** Do not set the EDID switch to W (Write) unless directed to do so by technical support.

#### To adjust resolution / refresh rate for a channel:

- Set the rotary switch on the front to position 9 "AutoResolution" using a small screwdriver (see FIG. 5 for rotary switch alignment).

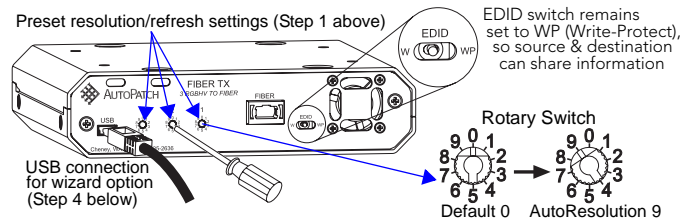


FIG. 5 Adjust one channel at a time

#### If fine tuning is necessary:

- Determine the resolution/refresh setting for the Source PC\* attached to the channel (see instructions on reverse in first column).
- Set rotary switch to preset number – 0, 1, or 2 – whose default settings (see table below) correspond closest to the Source PC's settings per Step 2.
- Insert USB plug from running Control PC into USB jack on the front of the TX. Windows recognizes the new device as an HID and installs default drivers.
- Adjust the image using the supplied software, the RGB-Optical Wizard (see "Video Display Adjustment" on reverse in first column).

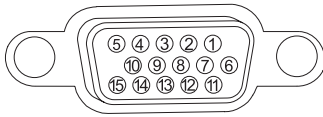
\*If source resolution is changed later, a new preset or adjustment sequence is needed.

**Tip:** After a resolution / refresh file has been fine-tuned using the Wizard, it can be saved and then used for other channels connected to the same type of equipment.

Preset Resolution / Refresh Settings		
Setting	Resolution	Refresh
0	User Configurable (default 1024x768)	60 Hz (default)
1	User Configurable (default 1280x1024)	60 Hz (default)
2	User Configurable (default 1600x1200)	60 Hz (default)
3	640x480 (cannot be tuned with software)	60 Hz
4	800x600 (cannot be tuned with software)	60 Hz
5	1024x768 (cannot be tuned with software)	60 Hz
6	1280x1024 (cannot be tuned with software)	60 Hz
7	1600x1200 (cannot be tuned with software)	60 Hz
8	Reserved	
9	AutoResolution (scans settings 3 through 7)	

**Note:** Default resolution / refresh files are in the <installation folder>\presets\default.

## TX & RX HD-15 Pinouts



Input (VESA DDC Compliant)														
1. Red	6. Red GND	11. ID Bit	2. Green	7. Green GND	12. DDC SDA	3. Blue	8. Blue GND	13. Horizontal Sync	4. ID Bit	9. +5 V in DDC	14. Vertical Sync	5. GND	10. GND	15. DDC SCL
Output														
1. Red	6. Red GND	11. ID Bit	2. Green	7. Green GND	12. ID Bit	3. Blue	8. Blue GND	13. Horizontal Sync	4. ID Bit	9. NC	14. Vertical Sync	5. GND	10. GND	15. ID Bit

FIG. 6 TX & RX HD-15 input & output pinouts

## Equipment & Requirements for Video Adjustment with Wizard

**Important:** Do not use the RGB-Optical Wizard, unless the preset resolution / refresh settings in the table on the reverse do not provide a satisfactory image.

### Control PC (with monitor) for Installation Only

- Windows 2000® or Windows XP®. 2 MB free disk space, 15 MB RAM, USB port
- Runs RGB-Optical Wizard, which adjusts configuration of display settings

### Source PC (or any other RGB video source)

Equipped with a video card that supplies analog RGBHV at one of the EDID supported resolutions listed (determine which one before attempting to adjust video display):

1920x1200 @ 60 Hz reduced sync blanking only	1280x960 @ 60 Hz - 85 Hz
1920x1080 @ 60 Hz reduced sync blanking only	1280x720 @ 60 Hz - 85 Hz
1680x1050 @ 60 Hz	1152x864 @ 60 Hz - 85 Hz
1600x1200 @ 60 Hz	1024x768 @ 60 Hz - 85 Hz
1280x1024 @ 60 Hz - 75 Hz	800x600 @ 60 Hz - 85 Hz
1280x768 @ 60 Hz - 85 Hz	640x480* @ 60 Hz - 85 Hz

\*For 640x480, it may work best to select 800x600 from supplied files.

**Note:** Other resolutions may be supported; try the directions for "Specialized Resolution Adjustments" and for "Fine Tune Adjustments" to the right.

### Destination Monitor(s) or Device(s)

- Adjustments made with Wizard are seen on the destination monitor or device

### RGB-Optical Wizard (with Help file)

- Install on the Control PC (see Step 3 of "To adjust the video display")

### Optional – Adobe Acrobat

- Use to view supplied test images (<installation folder>\Test Patterns) for checking resolution, color, and phase timing

## To determine Source PC's video card resolution/refresh settings on Windows® operating systems:

- Minimize all applications on the Source PC.
- Right click on the desktop.
- Select Properties from the Shortcut menu.
- Select the Settings tab in the Display Properties dialog box.
- Check the Screen area setting (resolution).
- Click Advanced, and select the Monitor tab.
- Check the Refresh Frequency, expressed in Hz (try other tabs if not visible).
- Click Cancel on each dialog box to exit.

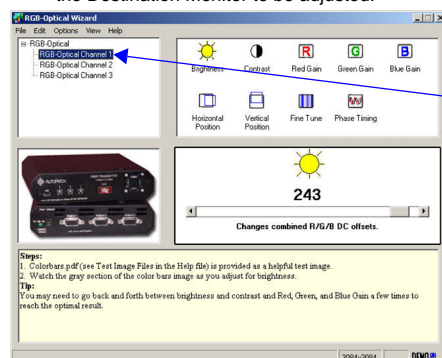
## Video Display Adjustment

We recommend the following sequence for using the Wizard to adjust the video display on Destination Monitor and save the settings as a User Configurable Preset.

**Note:** The Destination Monitor controls may need adjusting during this procedure.

### To adjust the video display:

- Set the rotary switch on the front of the TX to 0, 1, or 2.
- Connect the Control PC to the TX via the USB port.
- Install the RGB-Optical Wizard on the Control PC by running the BoardConfig.exe file on the AMX AutoPatch CD (CDDrive:\Configuration\BoardConfig\Optical).
- Transfer the test image files from the Control PC to the Source PC.
- Select the channel in the upper left corner of the Wizard that corresponds to the Destination Monitor to be adjusted.



Select channel corresponding to Destination Monitor

- On the Wizard, use the File-Open menu and select the supplied resolution file (<installation folder>\presets\encoder) that matches or closely matches the Source PC's settings. (The .xml file name consists of the resolution followed by the refresh rate. If not indicated, the refresh rate is 60 Hz.)

If an image does not appear: see "Specialized Resolution Adjustments" below before continuing.

- On the Source PC, open the Colorbars.pdf to display the color bars test image.
- On the Source PC, in Adobe Acrobat Reader select View menu / Actual Size.

**Note:** You may need to go back and forth between Steps 9 and 10 a few times to reach your desired result.

- On the Wizard, select Brightness and then Contrast, adjusting each respectively as you watch the Destination Monitor.
- On the Wizard, select Red Gain, Green Gain, and Blue Gain, adjusting each respectively as you watch the Destination Monitor.
- On the Source PC, open the .pdf file of the test image that matches its resolution setting.
- On the Wizard, select Horizontal Position and then Vertical Position, adjusting each as you watch the Destination Monitor.
- If not satisfied with the image, see "Fine Tune Adjustments" below. If the image is okay, go to Step 14.

**Note:** Although the settings are automatically downloaded as the User Configurable Preset that the rotary switch is set to, we recommend saving these settings on the Control PC for future reference.

- Select Save As from the File menu.

- Enter a file name and click Save.

- Repeat Steps 1 and 5 through 15 for each channel that needs adjustment.

**Time Saving Tip:** The file saved in Step 15 can be opened in Step 6 for the other channels if they are connected to the same type of equipment.

- When satisfied, disconnect the Control PC.
- On the TX, cycle power to verify that the preset was saved correctly.

### Options Menu Adjustment Items (also see Shortcut Keys in Help file)

- Horizontal Pulse Width – increases or decreases the pulse width to shift the entire picture if the Horizontal Position element cannot move screen far enough.
- Fine Tune Shift – bumps the fine tune configuration element up or down a notch resetting the Fine Tune, which allows continued adjustments in same direction.
- ReSync Monitor – resyncs the monitor to clear up distortion. Resyncing is useful as you close in on your final settings.

## Specialized Resolution Adjustments

Do not use this section unless the supplied resolution files do not provide an image.

### To use specialized adjustments:

- With the closest resolution file open, increase and decrease Fine Tune Shift (under Options menu) several times in each direction until an image appears. Repeat with all close resolution files if necessary.

If an image does not appear:

- Repeat the process in Step 1 using the sample video card files found at <installation folder>\presets\samples.

If an image still does not appear:

- Change the Source PC's video card settings to match one of the supplied resolution files and adjust the image accordingly.

Or

- On the Wizard (under Options menu), set the resolution and refresh rate to match the video card settings on the Source PC.
- When an image appears, resume adjusting the video display at Step 7 in the adjustment procedure at the top of this column.

## Fine Tune Adjustments

Use this section if the image requires further adjustment after normal adjustments have been made.

### To fine tune the image:

- On the Wizard, select and adjust Fine Tune one step at time (click the scroll bar), watching the vertical noise lines on the Destination Monitor move farther apart. Stop when the bands disappear. (The picture may still be slightly distorted; however, the next step should clear any distortion).
- Under the Options menu, select ReSync Monitor.
- Select Phase Timing. As you watch the Destination Monitor, try adjusting it. If the image does not change, adjustment is not needed. If the image changed and adjustment is needed, open the PhaseTest.pdf on the Source PC. Watching the image, adjust until the transitions from dark to light are even.
- Resume at Step 14 in the adjustment procedure at the top of this column.

### Tips for Working with Video Displays

- CRT monitors seem more sensitive to losing sync when changing vertical position.
- "ReSync Monitor" can be useful when closing in on final settings. Sometimes re-syncing will clear up small irregularities in the display.
- Watch the sync / no sync light on the Destination Monitor. Dramatic movements in a setting can cause the monitor to go blank temporarily because it loses sync. As long as the adjustments are in the acceptable range for the Destination Monitor, the sync light will shine constant a few seconds before the image reappears. If the sync light does not shine constant, return to the previous settings.

**Note:** The DDC (Display Data Channel) information is supplied by the EDID.

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