



SCANDO® HD



**DVI and Analog RGB Computer
Video to 3G/HD/SD-SDI Scan
Converter with Genlock Input
and Fiber Optic Output**

**Installation and Operations
Manual**

WWW.ARTEL.COM

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- 1 - ScanDo HD DVI-I Computer Video to 3G/HD/SD-SDI Scan Converter
- 1 - AC Power Line Cord
- 1 - DVI-I Computer Input Cable
- 1 - VGA Computer Input Cable
- 2 - DVI-I Male to HD-15 Female Adapters
- 1 - CAT5 Ethernet cable
- 1 - RS-232 Serial Cable
- 1 - User's Manual (This document)
- 1 - Remote Control Manual
- 1 - ScanDo HD Front Panel Quick Reference Chart
- 1 - Rack Mounting Kit
- 1 - Accessory Pack (Replacement fuse, rubber feet)

Available Optional Accessories:

- Fiber Matrix Optical Router for 3G/HD/SD signal distribution
- Fiber Optic to Electrical Receiver for 3G/HD/SD-SDI optical output
- Fiber Optic DVI Extender
- Fiber Optic and Coaxial Cables
- AC line cords for North America, Japan, UK, Europe or Australia

For more about available accessories for your ScanDo HD, please see page 13.

Thank you for purchasing **ScanDo HD**, the high-performance DVI-I computer video to 3G/HD/SD-SDI scan converter.

With ScanDo HD, you now have the ability to convert your high-resolution DVI computer video sources into a SMPTE standard 3G, HD or SD SDI signal for broadcasting on air or integrating into a professional video production system. ScanDo HD does not require that you install any special software or hardware on your computer.

Like all the products from Artel Video Systems, ScanDo HD comes with our continuing commitment to provide support. Should you need to contact us for support, our office is open Monday through Friday, from 8:30 AM to 5:00 PM Eastern Time. Our Singapore office is open Monday through Friday, from 9:00 AM to 5:00 PM Singapore time.

We also offer a comprehensive web site for your added convenience.

Visit us at scandohd.tv

To avoid fire and/or personal injury, please observe these safety and operating precautions:

Use the Proper Power Cord. Use only the proper power cord specified for this product and certified for the country of use.

Ground the Product. This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to the earth ground. Before making connections to the input and output of the product, make sure that the product is properly grounded.

Prevent Electrical Circuit Overloading. The unit operates from a single-phase power source with the neutral conductor at or near earth ground. The line conductor is fused for over-current protection. A protective ground connection through the grounding conductor in the power cord is essential for safe operation. Ensure that the available AC line power is sufficient to meet the power requirements of the unit without exceeding the rated load for the supply circuit and its wiring.

Observe These Rack Mount Installation Precautions. If the product is to be rack mounted, make sure the following are observed:

- * The unit operates correctly in ambient temperatures from 0 degrees C to +50 degrees C. Leave space for cooling by ensuring standard side clearance for rack mounting or 2 inches of side clearance for table top use. Also, ensure rear clearance of approximately 3 inches so that cables are not damaged by sharp bends.
- * Reduced air flow through and around the unit may have an adverse effect on the operation and safety of the unit. Make sure that air flow is adequate to ensure the ambient temperature does not rise above or below the specified levels. When rack mounted, no equipment or other item is to be placed directly on top of the unit as this will make the mounting of the unit unsafe and unstable.

Follow these steps for a simple and successful ScanDo HD Installation

- Step 1:** Power Off both your computer and the ScanDo HD and disconnect your monitor from the monitor port on your computer.
- Step 2:** Using the supplied DVI input cable and the supplied VGA adapter if necessary, connect one end to the monitor port on your computer and the other to the connector on the rear panel of the ScanDo HD marked DVI-I Input.
- Step 3:** Connect your monitor, if you have one, to the ScanDo HD connector labeled DVI-I Loop Through. See DVI-I Loop Through in the Available Outputs section below.
- Step 4:** Connect the AC line cord provided with the ScanDo HD to the AC power connector. Plug the AC line cord to the wall outlet to provide power.
- Step 5:** Connect the ScanDo HD's 3G/HD/SD-SDI output to your video equipment. If desired, you may use all outputs simultaneously. (Refer to the next section.)
- Step 6:** Turn On the ScanDo HD first. Then, turn On the monitor. Finally, turn On your computer. The green input LED's on the front panel labeled Locked and Valid should illuminate, indicating the unit is receiving a valid signal from the computer.

Available Outputs

3G/HD/SD-SDI (2): These outputs generate a SMPTE 424M-2006, 292M or 259M compatible serial digital signal. These outputs simultaneously produce the same signal and are not capable of producing two different resolutions. The signal produced at these outputs is determined by the settings for Line Count, Vert Rate, I/P, and Rate Div.

Note: If one of the 3G/HD/SD-SDI Outputs is not used, it should be terminated at the connector in 75 ohms to improve the eye pattern of the output that is used.

Fiber Optic: This output is an optical version of the copper 3G/HD/SD-SDI outputs. This optical output is in accordance with SMPTE 297-2006 and uses an LC optical connector. This output will support either single mode or multimode (62.5u or 50u) fiber types. The factory default is off.

DVI-I Loop Through: This output is for a connection to a local DVI or VGA monitor. It will show what is present on the DVI-I input. The DVI-I Loop Through format (DVI or Analog) must match the DVI-I input format (DVI or Analog). With a DVI monitor attached to this output, the EDID information from the monitor connected to this output will be passed to the computer's DVI port. If no monitor is connected to this output, then the ScanDo HD will provide EDID information to the computer. You may also capture and store a monitor's EDID information. See the "Capturing & Storing EDID" section of this manual.

Video Standard Selection

The output video standard and timing is established by a combination of settings of the Line Count, Vert Rate, I/P, and Rate Div front panel settings.

The ScanDo HD will only allow valid SMPTE standards to be chosen. Please refer to the section "Setting the Output Format" for instructions on selecting the video standard from the front panel.

Setting the Output Format

Output Format Button:



Cancel Changes:



then



Special Operation Notes:

For NTSC or PAL output formats, you need only select 483 or 576. All other selections are implied when either of these Line Count selections are made.

If, at any time, the ScanDo HD detects that no more valid selections can be made, no additional LEDs will illuminate and it will set your selections as the Output Format after a 2-3 second delay.

If you accidentally enter Output Format mode, please wait 4-6 seconds and the ScanDo HD will not change the Output Format and will exit Output Format mode.

The desired output format is established by pressing the Output Format button on the front panel. The following represents the output settings you can modify while in Output Format mode:

Line Count:

Determines the number of active horizontal lines in the image.

Vertical Rate:

Determines the base vertical refresh rate of the output. This is the number of frames per second if the output is progressive and the number of fields per second if the output is interlaced.

Rate Division:

Determines if the base Vert Rate is to be divided by 1.001 or not. For example, to set the output vertical field rate to 59.94 the user would set the Vert Rate to "60", the Rate Div to "1/1.001".

Interlaced/Progressive/Psf:

Determines if the output format is to be Interlaced, Progressive or Progressive Segmented Frame (Psf). Not all options are available for all Line Counts and Vert Rates in accordance with SMPTE standards.

Note: The allowed output format combinations of the above are specified in the Specifications section of this manual.

To set a specific output format:

Step 1: Press the OUTPUT FORMAT button. Available resolutions will illuminate in the Line Count row. The flashing LED indicates your selection. Use the LEFT and RIGHT Arrow keys to change your desired Line Count.

Step 2: After making your Line Count selection, use the DOWN arrow key to navigate to the Vertical Rate row. The available Vertical Rates for your chosen Line Count will illuminate. The flashing LED indicates your selection. Use the LEFT and RIGHT Arrow keys to make your selection.

If the default options are desired, go to Step 5.

Step 3: After making your Vertical Rate selection, use the DOWN Arrow key to navigate to the Rate Division row. The available Rate Divisions for your chosen Line Count and Vertical Rate will illuminate. The flashing LED indicates your selection. Use the LEFT and RIGHT Arrow keys to make your selection.

If the default options are desired, go to Step 5.

Step 4: After making your Rate Division selection, use the DOWN arrow key to navigate to the Interlaced, Progressive & Psf row. The valid Interlaced, Progressive or Psf settings will illuminate and the default selection will blink. Use the LEFT and RIGHT arrow keys to make your selection.

If the default options are desired, go to Step 5.

Step 5: Press the OUTPUT FORMAT button. The LEDs will illuminate momentarily. After a few seconds, only your selections will remain illuminated. The Output Format has now been changed and is active.

Moving the Image

PAN Button Operation

Enter Pan Mode	
Move Left or Right	or
Move Up or Down	or
Center vertically	+
Center horizontally	+
Upper left corner	+
Lower left corner	+
Upper right corner	+
Lower right corner	+

PAN: Press PAN to enter Pan Mode. The LED to the right of the button will light to indicate the function is active. Use the LEFT, RIGHT, UP or DOWN ARROW keys to position your image. Press and hold for a series of fine steps followed by a more coarse adjustment.

Pressing certain combinations of arrow buttons simultaneously will perform specific functions when in the Pan mode:

- * UP and DOWN arrows: Centers the image vertically
- * LEFT and RIGHT arrows: Centers the image horizontally
- * LEFT and UP arrows: Places the top left corner of the input image in the top left corner of the output
- * LEFT and DOWN arrows: Places the bottom left corner of the input image in the bottom left corner of the output
- * RIGHT and UP arrows: Places the top right corner of the input image in the top right corner of the output
- * RIGHT and DOWN arrows: Places the bottom right corner of the input image in the bottom right corner of the output

Sizing the Image

Zoom Button Operation

Choose Parameter	
Increase Zoom	
Decrease Zoom	
Full Screen, maintain aspect ratio:	+
Full Screen, both H & V:	+
1:1 Ratio, when in H Only or V Only modes:	+

ZOOM: This button will size the image either by increasing or decreasing the visible size in the raster. The UP and DOWN arrows are used to increase and decrease respectively the size of the image. Press and hold for a series of fine steps followed by a more coarse adjustment.

When in H&V mode, both the Horizontal and Vertical outputs will be affected. When in H Only mode, only the Horizontal output will be affected. When in V Only mode, only the Vertical output will be affected.

Pressing certain combinations of arrow buttons simultaneously will perform specific functions when in the Zoom mode:

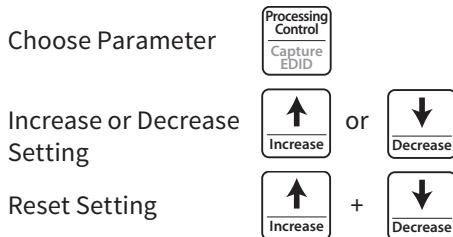
- * UP and DOWN arrows: Zooms the image in one direction while keeping the input aspect ratio the same by proportionately zooming the opposite direction.

When in H Only or V Only mode, the UP and DOWN arrows provide a 1:1 input/output ratio.

- * LEFT and Right arrows: Zooms the image to full screen both horizontally and vertically when in H&V mode, horizontally when in H Only mode, and vertically when in V Only mode.

Changing the Image Appearance

Processing Control Button Operation



PROCESSING CONTROL: This function alters the displayed image's appearance by varying the Brightness, Contrast, Hue, Saturation and Sharpness. The PROCESSING CONTROL button is pressed to sequence through the different image process functions. Once the desired function is selected, use the UP and DOWN arrows to increase or decrease respectively the degree of augmentation to that image parameter.

Pressing the UP and DOWN arrows simultaneously, while in the PROCESSING CONTROL mode, will return the active function to its default state.

Genlock

Genlock Button Operation



The GENLOCK button turns the genlock mode On and Off. When the genlock mode is on, the unit looks at the genlock input and determines if a signal is present. During this time the Searching LED will be lit. If a signal is present, the unit determines if its format is compatible with the output format selected. If the genlock input is valid, the Locked LED will illuminate.

The ScanDo HD will accept either NTSC/PAL composite video or HD tri-level sync. The genlock vertical rate must match the output vertical rate in order to achieve genlock but the horizontal rates do not have to match. Therefore, it is possible to lock to an NTSC signal and produce a 1080i/59.94 output, for example.

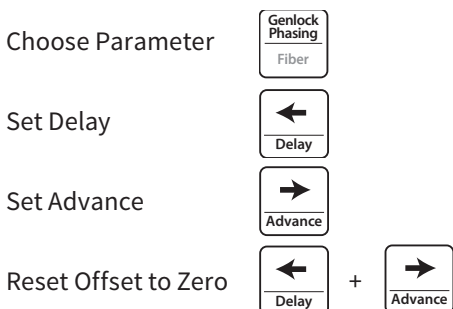
The factory default setting is genlock mode off.

To genlock the ScanDo HD, connect a genlock signal to the Genlock Input connector on the rear panel. There is a passive loop through from the genlock input which is accessible on the Genlock Loop Through connector.

NOTE: If the Genlock Loop Through is not used, it should be terminated at the connector in 75 ohms.

Genlock Phasing

Genlock Phasing Button Operation



The GENLOCK PHASING button, along with the DELAY and ADVANCE arrow buttons will allow for phasing the output of the ScanDo HD relative to the genlock reference. Horizontal, Vertical and Pixel Clock phasing can be adjusted.

Press the GENLOCK PHASING button to sequence through the three LEDs to select the parameter to phase.




When the desired genlock phasing mode is enabled, use the DELAY and ADVANCE buttons to edit your selection. Pressing the DELAY and ADVANCE buttons simultaneously will reset the phasing mode to zero offset.

NOTE: For NTSC and PAL output formats, set the Vertical Phasing to Zero Offset before adjusting any phasing.

NOTE: Clock Phasing movement is in 840 picosecond (ps) increments and may not be visible on some TV waveform monitors and rasterizers.

Anti-Flicker Function

Anti-Flicker Button Operation

Auto Mode		Until Led is off
Manual Mode		Until Led is on
Increase Anti-Flicker Level (1- 8)		While Led is on

The ANTI-FLICKER button will step through 8 levels of flicker reduction. This function is used primarily for interlaced output settings to reduce vertical flicker at the expense of vertical detail.



When the ANTI-FLICKER LED is off, the function is in automatic mode where the best level of flicker reduction is selected for you based on the input and output timing parameters detected.

Pressing the ANTI-FLICKER button will put the function in manual mode and the LED will be lit. Sequential pressing of the button will increase the anti-flicker level from 1 (least reduction) to 8 (most reduction). Pressing it again after level 8 will extinguish the LED and return the function to auto mode.

If OSD is enabled, the mode and value of the Anti-Flicker function will be shown in the upper left corner of the output display.

Test Signals

Test Button Operation

100% Color Bars		1x
75% Color Bars		2x

ScanDo HD will generate several test signals in place of the converted video output:

- 100% Color bars
- 75% Color bars

These test patterns can be enabled by pressing the TEST button. The first press will generate the 100% Color bars signal. The second press will generate the 75% color bar signal and the next press will shut off the test signal generator and return to the converted output.

Restoring to Factory Default Settings

Factory Defaults Button Operation

Factory Defaults		then	
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You may quickly return all ScanDo HD functions to their factory default settings by pressing the ALTERNATE FUNCTION button and then the FACTORY DEFAULTS button.

Note: Any previously stored presets will remain intact when resetting ScanDo HD to factory defaults.

Locking the Button Panel

Lock/Unlock Button Operation

Lock/Unlock		then	
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The front panel may be locked or unlocked by pressing the ALTERNATE FUNCTION button and then the KEYBOARD button. If the keypad is locked, the Keypanel Locked LED will illuminate.

Fiber Optic Output On/Off

On/Off Button Operation

Turn On/Off		then	
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The fiber optic output may be turned On and Off by pressing the ALTERNATE FUNCTION button and then the FIBER button. If the fiber optic output is on, the Fiber Optics On LED will illuminate.

On Screen Display (OSD) On/Off

On/Off Button Operation

Turn On/Off



The OSD feature of the ScanDo HD may be turned On and Off by pressing the ALTERNATE FUNCTION button and then the OSD button. If the OSD is on, the OSD On LED will illuminate.

Note: On Screen Displays are active on all SDI outputs and will appear live on-air. It is recommended to turn OSD on only when configuring your ScanDo HD offline.

Capturing & Storing EDID

Capture & Store



ScanDo HD allows you to capture and store the EDID information from a DVI monitor connected to the DVI-I Loop Through port. When EDID information is stored, ScanDo HD will pass this information to the computer connected to the DVI-I Input port upon the computers start-up.

If no EDID information is stored, ScanDo HD will use its built in EDID intelligence and pass the best possible match to the computer. Whether EDID information is stored or not, ScanDo HD will always pass the EDID information of any DVI monitor connected to the DVI-I Loop Through port.

Capturing & Storing EDID: To capture and store EDID information in ScanDo HD, connect a DVI monitor to the DVI-I Loop Through port and power it on. Press the ALTERNATE FUNCTION button and then the CAPTURE EDID button. Your EDID is now stored.

Erasing EDID Information: To erase any previously stored EDID information, detach any monitor connected to the DVI-I Loop Through port and press the ALTERNATE FUNCTION button and then the CAPTURE EDID button.

Preset Operation

Enter Preset Store Mode



Enter Preset Recall Mode



Change Preset Position



Execute Preset Store



Execute Preset Recall



Creating a Preset: Configure the various features of ScanDo HD to your liking. Press the STORE button. ScanDo HD has 6 Preset LEDs, one for each storage position. If there are any previously stored presets, their respective LEDs will illuminate. The flashing LED is your current selection. Press the PRESET SELECT button until the LED of your desired save position is flashing. Press the STORE button. All preset LEDs except your chosen position will extinguish.

Recall a Preset: Press the RECALL button. Positions with a valid preset to recall will illuminate. The flashing LED indicates your current selection. Press the PRESET SELECT button until the desired preset LED is flashing. Press the RECALL button. ScanDo HD will now reconfigure and your chosen preset LED will remain illuminated.

Note: After recalling or storing a preset the respective preset LED will remain illuminated. However, should you make any configuration changes (Zoom, Pan, etc), this LED will extinguish as the modified configuration no longer matches the stored configuration.

Image Freeze On/Off

On/Off Button Operation

Turn On/Off



ScanDo HD allows you to freeze the outputs at any time. This allows you to change your source material without displaying the operation live and on-air. To freeze the output, press the ALTERNATE FUNCTION button and then the F1 button. The Valid input LED will blink if the output is frozen.

Connecting to the Ethernet Port

ScanDo HD can be controlled remotely in two ways. A standard Ethernet port can be used to control the unit using a standard browser (i.e. Internet Explorer, Firefox) enabled with Java version 1.6 (JRE 6) or later. It can also be controlled using ASCII command strings through the RS-232 serial port.

10/100 BASE-T: The rear panel Ethernet port will accept a standard 10/100 Base-T Ethernet connection. The unit will automatically adjust to either speed from the hub, switch or router that it is connected to.

The default setting for the unit is to accept an IP address from the router to which it is connected. This is referred to as **DHCP** mode.

Viewing the IP Address

To see the IP settings the unit has acquired from the router after the connection is made, **ensure that the On Screen Display is enabled** and press the ALTERNATE FUNCTION button and then the IP ADDRESS button. ScanDo HD's IP address will appear on-screen for 30 seconds.

If you connect the ethernet cable after you have powered on your ScanDo HD, you may have reset the ethernet port by pressing the ALTERNATE FUNCTION and then the RESET ETHERNET button.

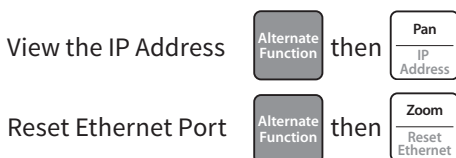
The unit may also be assigned an IP address manually. Please refer to your ScanDo HD Remote Control manual.

Once the ScanDo HD is connected, launch the browser on your PC. In the Address bar of the browser enter the IP address of the unit. For example: `http://192.168.1.54`

You will now see the control screen of the ScanDo HD.

Note: It is important that your browser have Java version 1.6 (JRE 6) or later installed. This is normally standard on most browsers. However, the latest version of Java can be downloaded at: java.sun.com

IP Address Button Operation



Connecting to the RS-232 Port

RS-232: This port is designed to work with a standard RS-232 serial port. The signalling parameters are:

19200, 8, N, 1

There is no hardware or software flow control and Generic TTY should be used. A "straight-through" DB-9 M/F cable should be used when connecting to a standard PC. ScanDo HD is designed to be DCE equipment.

The following pins on the DB-9F connector are used:

- 2 - Data Transmit from ScanDo HD
- 3 - Data Receive into ScanDo HD
- 5 - Signal Ground

A complete list of commands can be found in the ScanDo HD Remote Control manual.

Nothing seems to be working

- Are any of the green LEDs lit on the front panel? If not, check to make sure that the AC power cord is connected and plugged into the AC wall outlet and the power switch on the rear panel is On.
- Check to make sure that the computer is properly sending out a DVI-D or analog RGB signal by plugging the monitor directly into the computer's video output.

There is no video on the DVI Loop-thru or the SDI outputs

- It is important for most PC's with a DVI output to have the DVI monitor connected at the time the PC is booted. When using the ScanDo HD with a PC having a DVI output, make sure the ScanDo HD's DVI input is connected to the PC's DVI output and the ScanDo HD is On *before* the PC is booted. Failure to do so may cause the PC to fail to recognize a DVI monitor is connected and shut off all DVI signalling from the DVI output of the PC.
- Press the TEST button to see if you get color bars on the SDI outputs. If you do get color bars, then the problem is related to your input signal. Check the items mentioned in the above bullet. If you do not get color bars, the problem is related to your output.
- When using a laptop, try turning off the laptop's LCD screen and having the video signal output through the external port only.

The color on the TV monitor is different than the computer monitor

- The colors on your SDI monitor will never exactly match the colors on your computer monitor because each of these devices reproduce color differently. It is also likely that the color temperature of each monitor is set differently.

There is no fiber optic output

- Check to make sure that Fiber Optic Output is turned On by pressing the ALTERNATE FUNCTION button and then the FIBER button. The factory default setting is off.

For additional support, please visit artel.com or scandohd.tv

The following accessories are available for ScanDo HD. They may be ordered from your dealer or directly from Artel Video Systems

Convert ScanDo's Optical Output to Copper

FiberLink 3350 Series

The FiberLink 3350 Series allows you to transmit 3G, HD or SD-SDI as per SMPTE 424M-2006, 292 and 259, with or without embedded audio and data, as well as DVB-ASI over one single mode or multimode fiber. Signals are equalized and re-clocked prior to fiber optic transmission. The 3350 transmitter features a re-clocked and equalized SDI loop through and the 3351 receiver features two re-clocked and equalized SDI outputs.

The 3350 Series is compliant with SMPTE 297-2006 and has the ability to operate seamlessly with FiberLink Matrix and other SMPTE 297-2006 fiber optic compliant devices. The 3350 Series is immune to pathological signals over the entire budget link and operating temperature range.

DVI over Fiber

FiberLink 7500 Series

The FiberLink 7500 Series supports DVI transmission (up to 1920x1200) and stereo audio over one single mode or multimode fiber without compression, scaling or adjustments. It is ideal for broadcast or corporate studios!

The 7500 transmitter box provides a convenient DVI loop-thru port and the 7501 receiver provides 2 DVI outputs along with stereo audio. The 7500 transmitter will generate EDID information internally, acquire it via the DVI loop-thru, or you may capture and store EDID information.

Please visit artel.com for the latest products, specifications and other breakthrough products.

FCC Statement**WARNING:**

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

CE Information

Standards to which conformity is declared:

EMC EN 55022: 1994, CISPR 22: 1993, Class A Limit
 EN 50082-1: 1992
 IEC 801-2: 1991
 IEC 801-3: 1984
 IEC 801-4: 1988

FDA & IEC Statement

Complies with FDA performance standard for laser products, Title 21, Code of Federal Regulations, Sub-Chapter J and IEC 60825-1

DANGER!

Turn off unit or laser before connecting or disconnecting optical cable!

The fiber optic transmitting element in the ScanDo HD contains a solid state Laser Diode located within the optical connector. This device emits invisible infrared electromagnetic radiation which can be harmful to human eyes. The radiation from this optical connector, if viewed at close range without a fiber optic cable connected to the optical connector, may be of sufficient intensity to cause instantaneous damage to the retina of the eye. Direct viewing of this radiation should be avoided at all times.

**WARNING**

TO REDUCE THE RISK OF FIRE OR ELECTRONIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

**CAUTION**

RISK OF ELECTRIC SHOCK. DO NOT OPEN!

**CAUTION**

TO REDUCE THE RISK OF ELECTRONIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol warns the user of uninsulated voltage within the unit that can cause dangerous electronic shocks.



This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this unit.



In the literature accompanying this unit, this symbol warns the user of dangerous conditions to avoid.

Input Resolutions	<ul style="list-style-type: none"> • DVI-I single link resolutions • RGB, Progressive or Interlaced, up to 1920 x 1200 @ 60 Hz • Pixel clock frequency 25 to 165 MHz
Input/Output	<ul style="list-style-type: none"> • Input: DVI-D, or DVI-I single link with active loop-through • Coaxial SDI output x 2; per SMPTE 424M-2006 Level A, 292M & 259M-C • Optical SDI output x 1; per SMPTE 297-2006 (1310 nm, single mode or multimode, LC, -3.5 dBm nominal output power)
Output Resolutions	<p>10-bit 3G-SDI per SMPTE 242M-2006:</p> <ul style="list-style-type: none"> • 1080/60/P • 1080/59.94/P • 1080/50/P <p>10-bit HD-SDI per SMPTE 292M:</p> <ul style="list-style-type: none"> • 720/60/P • 720/59.94/P • 720/50/P • 720/30/P • 720/29.97/P • 720/25/P • 720/24/P • 720/23.98/P • 1035/60/I • 1035/59.94/I • 1080/60/I • 1080/59.94/I • 1080/50/I • 1080/30/P • 1080/30/PsF • 1080/29.97/P • 1080/29.97/Psf • 1080/25/P • 1080/25/PsF • 1080/24/P • 1080/24/Psf • 1080/23.98/P • 1080/23.98/PsF <p>10-bit SD-SDI per SMPTE 259M:</p> <ul style="list-style-type: none"> • 525/59.94/I (NTSC) • 625/50/I (PAL)
Video Processing	<ul style="list-style-type: none"> • 10-bit, all digital
Genlock	<ul style="list-style-type: none"> • NTSC/PAL black burst or HD tri-level sync • 3G/HD resolutions will genlock to NTSC/PAL black burst at the same vertical rate • Passive loop-through • H, V and Clock phasing with a range of one output vertical period and resolution of 840 pS
Processing Controls	<ul style="list-style-type: none"> • Brightness • Contrast • Hue • Color Saturation • Sharpness
Image Size & Positioning	<ul style="list-style-type: none"> • Separate H & V positioning • Zoom and Shrink; H & V separate or together
Control Interfaces	<ul style="list-style-type: none"> • 10/100 Base-T ethernet LAN port with internal HTML host • RS-232 port • Front panel push button
Additional Features	<ul style="list-style-type: none"> • Variable flicker reduction • Test pattern generator: color bars at 100% and 75% Saturation • Multiple pre-set storage and recall settings • On Screen Display (OSD) • Factory defaults reset • Rack mount kit included • RoHS compliant
Dimensions	<ul style="list-style-type: none"> • 16.75 W (without rackmount ears) x 1.75 H x 10 D (inches) • 425 W x 44 H x 254 D (mm) • Weight: 5.5 pounds; 2.49 kg
Power	<ul style="list-style-type: none"> • Internal universal input AC power supply • 95 - 250 volts AC, 47 - 63 Hz, 20 watts, 68.24 BTU/Hr

Serial Number:

Date of Purchase:

Purchased From:

Installed By:

Installation Location:

Configuration:

Output Format Button Operation

Edit Output Format	
Cancel Changes:	then
Change Value	or
Change Line	or

PAN Button Operation

Enter Pan Mode	
Move Left or Right	or
Move Up or Down	or
Center vertically	+
Center horizontally	+
Upper left corner	+
Lower left corner	+
Upper right corner	+
Lower right corner	+

Zoom Button Operation

Choose Parameter	
Increase Zoom	
Decrease Zoom	
Full Screen, maintain aspect ratio:	+
Full Screen, both H & V:	+
1:1 Ratio, when in H Only or V Only modes:	+

Processing Control Button Operation

Choose Parameter	
Increase or Decrease Setting	or
Reset Setting	+

Genlock Button Operation

Turn On/Off	
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Genlock Phasing Button Operation

Choose Parameter	
Set Delay	
Set Advance	
Reset Offset to Zero	+

Anti-Flicker Button Operation

Auto Mode	Until Led is off
Manual Mode	Until Led is on
Increase Anti-Flicker Level (1- 8)	While Led is on

Test Button Operation

100% Color Bars	1x
75% Color Bars	2x

Factory Defaults Button Operation

Factory Defaults	then
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Keypanel Lock/Unlock Button Operation

Lock/Unlock	then
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Fiber Optic Output On/Off Button Operation

On/Off	then
--------	------

On Screen Display On/Off Button Operation

On/Off	then
--------	------

Image Freeze On/Off Button Operation

On/Off	then
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Ethernet Settings Button Operations

View the IP Address	then
Enter Edit Mode	then
Change Value	or
Change Line	or
Save Changes	then
Cancel Changes	then
Reset Ethernet Port	then

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