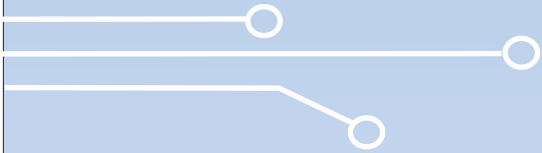


DD623CS Hi-Def Video Line Generator



Users' Manual



Colorado Video



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 of J 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.

If Your Unit Carries the Optional CE Mark:

Colorado Video Inc., Boulder CO, USA, declare under our sole responsibility that the Model DD422CS, if installed and operated in accordance with instructions, is in conformity with the following European, harmonized and published standards at date of this declaration:

Safety:

EN/IEC 60950-1:2001: safety of information technology equipment

Electro-Magnetic Compatibility:

EN 55022:1998: Electro magnetic *emissions:* Class A

EN 61000-3-2:1996: Harmonic current emissions

EN 61000-3-3:1995 Limitation of voltage fluctuations

EN 55024:1998: Product group *immunity* standard IT equipment:

EN 61000-4-2: electrostatic discharge (ESD) immunity

EN 61000-4-3: Radiated Electro-Magnetic field immunity

ENV 50204:1995: Digital radio telephones immunity

EN 61000-4-4:1995: Electrical fast transients (EFT) immunity

EN 61000-4-5:1995: Surge transient immunity

EN 61000-4-6: 1996: Conducted Radio-Frequency disturbances imm.

EN 61000-4-8: 1993: Power frequency magnetic field immunity.

EN 61000-4-11: 1994: Immunity to voltage dips and short interrupts

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SECTION I

GENERAL DESCRIPTION

1.1 PURPOSE OF EQUIPMENT

The Model DD623CS Hi-Def Video Line Generator adds reference lines to an unencrypted digital video signal. It allows rapid alignment of subject material with a predetermined location when used in conjunction with a DVI (or HDMI) video camera and monitor.

An HDMI signal at the input is also acceptable provided it is not HDCP Encrypted. The DD623CS will not pass any audio that may be present in an HDMI signal.

1.2 DESCRIPTION OF EQUIPMENT

The Model DD623CS accepts a DVI or HDMI video input (HDCP not supported), adds full raster lines to the video, and provides an output of the video with lines superimposed for display on a DVI or, with an adapter, HDMI monitor.

The position of the lines can be varied over all of the raster using the front panel controls. The parallel vertical lines can be tilted from vertical, pivoting at the lower edge of the picture.

Width (thickness) of the four lines is adjustable. Line color can be selected for White, Black, Red, Orange, Yellow, Green, Cyan, Blue, or Magenta. The lines can be solid or dashed and dash length is adjustable.

In order to make the lines visible even where they are the same color as subjects in the picture, an adjustable shadow can be turned on.

Lines displayed can be selected between zero, one, or two each vertical and horizontal.

The DD623CS, constructed in an ABS plastic and aluminum chassis with an internal EMI shield coating, is free standing with a sloping face for bench top use. It requires an external power supply to provide 5 Volts DC regulated, 1 Amp, at its 5.5x2.5mm coaxial power connector.

The Input/Output connectors are physically compatible with all DVI cables. The signal must be DVI-D Single Link or HDMI without HDCP Encryption. Passive adapters and cables to interconnect DVI and HDMI equipment are widely available. Generally, cameras are free of HDCP but DVD, Blu-Ray, and Satellite sources are frequently encrypted. If a source is found to be encrypted, use of its Hi-Def Component-Analog outputs, if present, and a Model CC623CS or CD6232CS Line Generator should be considered.

1.4 SPECIFICATIONS

Size:	9"W x 6.5"L x 2.7"H sloping to 0.875"H excluding controls and connectors
Mounting:	Free standing
Construction:	Solid-state PC Boards in shielded ABS case
Power:	+5 VDC Regulated, 5 Watts (12VDC for opt-12 models)
Input Signal:	DVI-D or HDMI with adapter 480i 720p 1080i 1080p HDCP not acceptable
Output Signal:	Corresponds to Input
Operating controls:	<p>H position (2 knobs): move vertical lines left/right</p> <p>V position (2 knobs): move horizontal lines up/down</p> <p>Tilt (1 knob): tilts parallel vertical lines or adjusts parameter selected by holding down a button</p> <p>Solid/Dashed (button): selects solid/dashed lines & while held down, enables Tilt knob to adjust Dash Length.</p> <p>Off/Single/Dual (button): selects 0, 1, or 2 sets of H & V lines & while held down, enables Tilt knob to adjust Line Width.</p> <p>Shadow On/Off (button): Turns Line Shadowing On/Off & while held down, enables Tilt knob to adjust Shadow Intensity.</p> <p>Color (button): Sets Line Color to White, Black, Red, Orange, Yellow, Green, Cyan, Blue, or Magenta & while held down, enables Tilt knob to adjust Line Intensity.</p>
Indicators:	<p>Power/Video: Flashing: Indicates invalid or absent Input</p> <p>Steady: Indicates proper operation</p>
Connectors:	<p>Video In and Video Out: DVI-I Dual Link Female</p> <p>Power: 5.5mm X 2.5mm coaxial barrel, center pin positive</p>

SECTION II

INSTALLATION AND OPERATION

2.1 INSTALLATION

Connect a camera or other source of a DVI-D or HDMI video signal to the “input” connector on the rear of the DD623CS. If the video source provides HDMI, a simple HDMI-DVI adapter or cable will be required. HDCP encrypted video is not permitted and any audio will not pass through the DD422CS.

Connect a DVI-D video monitor to the “output” connector. HDMI monitors are also suitable with use of a DVI-HDMI adapter or cable.

Power Up: Apply power to the camera, monitor and the Line Generator. The green LED on the Line Generator's upper right corner should light. A flashing green LED indicates that power is present but the Video Input is invalid or absent. If connections are verified to be correct and the green LED persists in flashing, try changing the resolution mode or frame rate of the video source. A steady green LED indicates the Line Generator is operating properly and a picture should appear on the monitor. A steady green LED with a blank picture display indicates that the video content is HDCP protected by the video content provider and can not be altered or processed by the Line Generator.

Adjustment: The Line Generator can superimpose up to four lines onto the DVI Video Image. Each line is independently adjustable as to position, and in the case of the two parallel vertical lines, tilt. Settings for color, width, and shadowing are made for all lines as a group.

2.3 CONTROLS

To adjust **Line Position**, use the four position control knobs across the lower portion of the Line Generator's front panel. The inner two knobs adjust positions for the single H and V line display and the outer two knobs adjust positions for the second set of lines when the Line Generator is set to superimpose two sets of lines.

Vertical Line Tilt, is adjusted by turning the (upper) Tilt knob to obtain the desired display.

The number of lines superimposed on the display is selected by pressing the Single/Dual button to toggle the display between no cross hair, a single cross hair set, or two cross hair sets.

Line Thickness or Width is controlled by holding down the Single/Dual button and simultaneously turning the Tilt knob.

Solid or Dashed Lines are selected by pressing the Solid/Dashed button to toggle between the two possible settings.

Dash Length is adjusted by holding down the Solid/Dashed button while simultaneously turning the Tilt knob.

Line Color can be toggled by pressing the Color button repeatedly until the desired color appears. Available colors include: White, Black, Red, Orange, Yellow, Green, Cyan, Blue, and Magenta.

Line Intensity is adjusted by holding down the Color button while simultaneously turning the Tilt knob.

A **Shadow** can be put around the lines in order to make them visible when they are superimposed over objects of the same color and intensity. Press the Shadow button to toggle the shadow On or Off.

Shadow Intensity is adjusted by holding down the Shadow button while simultaneously turning the Tilt knob.

warranty

Colorado Video, Incorporated warrants the equipment of its manufacture to be free of defects in material and/or workmanship under normal use and service. Colorado Video, Incorporated's obligation under this warranty is limited to making good at its laboratories any part or parts thereof, which shall within one (1) year after delivery to the original purchaser be returned to Colorado Video, Incorporated at its laboratories, with transportation charges prepaid, and which Colorado Video, Incorporated's examination shall disclose to its satisfaction to have been defective.

This warranty is expressly in lieu of all other warranties and representation, express or implied, and of all other obligations or liabilities on the part of Colorado Video, Incorporated. In no event shall Colorado Video, Incorporated be liable for damages of any kind connected with the use of its equipment or its failure to function properly.

This warranty shall not apply to any equipment which shall have been repaired or altered outside of Colorado Video, Incorporated's laboratories so as to, in Colorado Video, Incorporated's judgement, affect its use, function, reliability, or which shall have been subject to misuse, alteration, improper installation, negligence, or accident.

Before any equipment is returned to Colorado Video, Incorporated for repairs or adjustments, shipping instructions should be obtained from Colorado Video, Incorporated. Colorado Video, Incorporated assumes no responsibility for unauthorized returns.