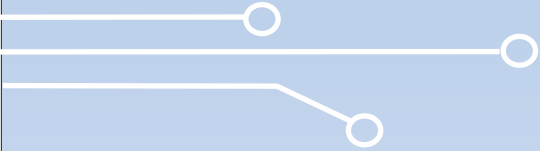


# DD626CS Hi-Def Video Reticle Generator



## 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 DD626CS, 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 DD626 High Definition Reticule Overlay Generator allows you to overlay a combination of concentric circles and crosshair with tick marks or a grid onto a high definition DVI (HDMI) video signal.

Colorado Video Hi-Def Reticule Generators overlay up to three objects, including one or two circles and a cross hair or grid, sharing a common center. Both are collectively controllable as to position, intensity, color, line-width, and shadowing. Each object's size is independently adjustable. Selectable colors include White, Black, Red, Green, Blue, Cyan, Magenta, or Yellow.

An HDMI signal at the input by means of a simple adapter is acceptable provided it is not HDCP Encrypted. The DD624CS will not pass any audio or encrypted content that may be present in an HDMI signal.

#### **1.2 DESCRIPTION OF EQUIPMENT**

The Model DD626CS accepts DVI-D Single Link Video at its input, adds a user-set overlay pattern, and provides a DVI-D Single Link Video output for display on a compatible monitor.

The DD626CS, 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 CC624CS Overlay Generator should be considered.

### 1.3 SPECIFICATIONS

<b>Size:</b>	8.875"W x 6.5"L x 2.75"H sloping to 1.25"H
<b>Mounting:</b>	Table Top
<b>Construction:</b>	Solid-state, SMT PC Board, Optionally RoHS Compliant
<b>Power:</b>	+5VDC, 1000mA regulated
<b>Input Signal:</b>	DVI-D, Single Link (HDMI with adapter) HDCP not permitted
<b>Output Signal:</b>	DVI-D, Single Link, Output Resolution follows Input Resolution
<b>Controls:</b>	<b>Button:</b> Multiple Functions <b>Knob X</b> (lower Multi-Function Knob) <b>Knob Y</b> (upper Multi-Function Knob)
<b>Indicators:</b>	Power (Flashing), Video OK (Steady)
<b>Connectors:</b>	Video In & Out: DVI-I Power: Coaxial 5.5mm x 2.5mm (5.5mm x 2.1mm for UK)

## SECTION II

### 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 DD626CS. 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 DD626CS. Some consumer HDMI equipment may operate only if its output is set to 480p or 480i.

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

Connect the coaxial power input to a regulated 5VDC, >1000mA, center pin positive regulated power source. The “Power/Video OK” LED should appear steady. If the LED flashes, power is present but the signal at the video input is absent or incompatible.

A steady green “Video OK” indicator but blank picture indicates that the DVI or HDMI source is HDCP encrypted and processing by the DD624CS is not permitted..

### 2.2 SETUP

#### 2.2.1 Menu Settings

The menu appears when the control button is tapped. Its size, position, and persistence are controllable. To adjust these parameters:

1. Tap the button to enter the "Main Menu".
2. Use Knob X to select the "Tools" icon and tap the button.
3. Use Knob X to select the "Menu Settings" icon and tap the button.
4. To adjust the menu's persistence, use Knob X to select the "Persistence" icon, tap the button, use Knob X to make your setting, and tap the button.
5. To adjust the menu's size, use Knob X to select the "Size" icon, tap the button, use Knob X to make your setting, and tap the button.
6. To adjust the menu's position, use Knob X to select the "Position" icon, and tap the button. Use Knob X to adjust the menu's horizontal position and Knob Y to adjust its vertical position, then tap the button.
7. Select the "Return" icon and tap the button to exit the "Menu Settings" menu.

## 2.2.2 Display Options: Cross-Hair, Tick Marks, Grids, Circles

### 2.2.2.1 Cross Hair Style

The Cross Hair can be set to off, plain, horizontal tick marks only, vertical tick marks only, horizontal and vertical tick marks, vertical gridlines only, horizontal gridlines only, or horizontal and vertical gridlines. To select the Cross Hair style:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Display Options” icon and tap the button.
3. Use Knob X to select the “Crosshair Style” icon and tap the button.
4. Use Knob X to select the desired style icon and tap the button.
5. Use Knob X to select the “Return to Main” icon and tap the button.
6. Use Knob X to select the “Exit Menu” icon and tap the button.

### 2.2.2.2 Circle Style: Off, One, Two

Circles can be set to off, one, or two. To select the number of circles:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Display Options” icon and tap the button.
3. Use Knob X to select the “Circle Style” icon and tap the button.
4. Use Knob X to select the desired style icon and tap the button.
5. Use Knob X to select the “Return to Main” icon and tap the button.
6. Use Knob X to select the “Exit Menu” icon and tap the button.

### 2.2.2.3 X-Y Axis Symmetry: Total, Axis-Line Independent, Fully Independent.

Three selections are available for Axis Symmetry:

**Total Symmetry:** Axis-line lengths and tick spacing are equal in both axes.

**Axis Independent:** Axis-line lengths are independently adjustable but X and Y tick spacing are equal.

**Fully Independent:** Axis-line length and tick spacing are all independently adjustable.

To select the Axis Symmetry setting:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Display Options” icon and tap the button.
3. Use Knob X to select the “X-Y Symmetry” icon and tap the button.
4. Use Knob X to select the desired mode and tap the button.
5. Use Knob X to select the “Return to Main” icon and tap the button.
6. Use Knob X to select the “Exit Menu” icon and tap the button.

### **2.2.3 Axis Size Setting**

To adjust the lengths of the X and Y axis lines:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Adjust Axis Size” icon and tap the button.
3. If X-Y Symmetry is set to Total Symmetry, use Knob X to set the desired length. If X-Y Symmetry is set to Axis or Fully Independent, use Knob X to set the desired horizontal length and Knob Y to set the desired vertical length.
4. Tap the button to return to the Main Menu
5. Use Knob X to select the “Exit Menu” icon and tap the button.

### **2.2.4 Circle Radius Setting**

To adjust circle radius:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Adjust Circle Radius” icon and tap the button.
3. Use Knob X and Knob Y to independently adjust the size of each circle.
4. Tap the button to return to the Main Menu
5. Use Knob X to select the “Exit Menu” icon and tap the button.

### **2.2.5 Tick Mark or Grid Spacing Adjustment**

To adjust the spacing of the tick marks or grid:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Adjust Tick Spacing” icon and tap the button.
3. If X-Y Symmetry is set to Total Symmetry or Axis Independent, use Knob X to set the desired spacing. If X-Y Symmetry is set to Fully Independent, use Knob X to set the desired horizontal spacing and Knob Y to set the desired vertical spacing.
4. Tap the button to return to the Main Menu
5. Use Knob X to select the “Exit Menu” icon and tap the button.

### **2.2.6 Selecting Distance Measurement Units**

The Reticle Generator can express the size and spacing of overlay objects in a variety of units including yd, ft, in, mil, m, cm, mm,  $\mu\text{m}$ , nm, and pixels. Selection of units should be based upon the picture’s field of view and the dimensions of subjects of interest within the picture. Changing units maintains calibration (2.2.7). If calibration is such that an object measures



1.000 m, switching to inches will give a reading of 39.37 in. To select the measurement unit:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Set Units” icon and tap the button.
3. Use Knob X to select the desired unit and tap the button.
4. Use Knob X to select the “Exit Menu” icon and tap the button.

### **2.2.7 Calibrating Distance Measurement**

After selecting the distance measurement unit, it is possible to calibrate to the picture width. To calibrate distance units:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Calibrate” icon and tap the button.
3. Use Knob X to set the displayed numerical value to correspond to the entire picture width and tap the button. The apparent size of the reticle pattern will change as unit calibration is adjusted. This is because the pattern’s size as measured by the units is constant. Therefore, as the units change, the pattern changes with them.
4. Use Knob X to select the “Exit Menu” icon and tap the button.

### **2.2.8 Editing Pattern Style: Color, Line Width, Intensity, Shadow, & Tick Mark Length**

Style settings for the cross hair, tick marks or grid, circle 1, and circle 2 can be edited individually or simultaneously. To edit object style:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Style” icon and tap the button.
3. Objects are represented by the four icons at the left end of the menu. Use Knob X to select the objects whose style is to be edited. When selected for editing, an object’s icon will have a blue checkmark at its lower-right. Tap the button to toggle editing On or Off for each object.
4. The five remaining icons represent the style attribute to edit. Use Knob X to select the desired attribute icon and tap the button.
5. Use Knob X to make the attribute adjustment and tap the button.
6. Use Knob X to select the “Exit Menu” icon and tap the button.
7. When editing object attributes is complete, use Knob X to select the “Return to Main Menu” icon and tap the button.
8. Use Knob X to select the “Exit Menu” icon and tap the button.

## **2.2.9 Tools Menu**

### **2.2.9.1 Menu Settings**

See section 2.2.1

### **2.2.9.2 Video Information**

The video input resolution and frame rate can be displayed. To display the video information:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Tools” icon and tap the button.
3. Use Knob X to select the “Video Settings” icon and tap the button.
4. Use Knob X to select the “Video Info” icon and tap the button. The video information will be displayed.
5. Tap the button to exit
6. Use Knob X to select the “Return to Tools” icon and tap the button.
7. Use Knob X to select the “Return to Main Menu” icon and tap the button.
8. Use Knob X to select the “Exit Menu” icon and tap the button.

### **2.2.9.3 Factory Reset**

To return all menu and reticle pattern settings to factory original:

1. Tap the button to enter the “Main Menu”.
2. Use Knob X to select the “Tools” icon and tap the button.
3. Use Knob X to select the “Factory Reset” icon and tap the button.
4. Use Knob X to select the “Yes” icon and tap the button. This resets the Reticle Generator.

## 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.

