WARRANTY

MicroImage Video Systems warrants that each CL8800 is free from defects due to faulty materials or improper workmanship for a period of one (1) year. MicroImage Video Systems further warrants that any part which proves defective in materials or workmanship within one (1) year, will be replaced or repaired at no cost to the user. Labor to replace defective parts will be done without charge, provided the equipment is returned to MicroImage Video Systems prepaid, insured and properly packaged. Prior return authorization must be obtained from MicroImage Video Systems.

NOTE

This warranty covers the MicroImage CL8800 Video CrossLine Generator only.

CONDITIONS

This warranty is void if the warranted part has been altered or subjected to abuse or misuse. Defective parts must be returned to MicroImage Video Systems.

SOLE WARRANTY

This Warranty is in lieu of all other warranties expressed or implied including, without limitation, any implied warranty or any implied warranty of fitness for a particular purpose. MicroImage Video Systems shall have the final right to determination as to the existence and cause of any defect and its appropriate adjustment in accordance with the terms of this warranty. In no event shall MicroImage Video Systems be liable for any consequential or collateral damages.

RETURNS

All returns MUST have an RMA number. Please call, fax or email for an RMA form. The RMA form will have the proper shipping address for returns.

Phone	610-754-6800
Fax	610-754-9766
Email	techsupport@mivs.com

HD CrossLine Generator Operation Manual

Model CL8800

MicroImage Video Systems
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CONTENTS

Consumption	300mA typical at 12VDC, 350mA max. power on, 3mA typical at 12VDC, power off
Protection	Automatic electronic fuse, internal, self-resetting
Size (cased)	7.5" (W) x 5.6" (D) x 2.6" (H) 190mm (W) x 142mm (D) x 66mm (H)
Weight	1lb. 6oz. (625g)
Country of Origin	Manufactured in the USA by MicroImage Video Systems
Power Supply Country of Origin	Taiwan or China
The CL8800 is designed and manufactured in the USA by MicroImage Video Systems, Boyertown, PA, USA	
Cased units come with a universal power supply (USA style power cord) and operation manual. Board level products do not include a power supply module.	
Specifications are subject to change without notice	

Lines/Boxes	Up to 8 Lines (4 H and 4 V) or 2 Boxes
Front panel controls	(4) Line position controls multi-turn, precision sealed, optical encoders
Front panel switches	(11 total) control lock (4), track mode on/off, mirror mode on/off, box/line mode, display on/off, bank (B/W), setup, power
Origin	Selectable upper left or lower left
Line Locks	Individual each line
Line Movement Modes	Independent, tracking and mirror movement
Serration settings	More than 250 variations plus solid and line off
Colors	Each can be set to one of over 200 colors
Line Types	Box or full screen line modes
Remote port	Not used
Data format	Not used
X axis line width	1, 2 or 3 pixels
Y axis line width	1, 2 or 3 pixels
Line Resolution	Based on source signal, one pixel
Adjustment range	98% of raster minimum
Sync system	Embedded from source video
Input Levels	HDMI or DVI-D progressive scan
Output Levels	HDMI or DVI-D progressive scan
Connectors	
Video	HDMI female connector
Power	2.1mm coaxial barrel connector
RS232	9 pin D-sub Female (Not used)
Temperature	
Operating	0 deg - 50 deg C (32 deg - 122 deg F)
Storage	-40 deg - 60 deg C (-40 deg - 140 deg F)
Humidity	
Operating	10% - 90% (non-condensing)
Storage	5% ~ 95% (non-condensing)
Power	
Voltage	+12VDC (+10 to +25V), (100-240V, 50/60Hz power adapter included with cased units)

The CL8800 package includes the following items:

> CL8800 CrossLine Unit
> 12Volt Universal Power Supply or equivalent
> This operation manual

Please inspect all items carefully and report damaged or missing items to your dealer or MicroImage Video Systems.

Power

The CL8800 will operate from +12VDC power. A 120-240V universal power adapter is included. For medical applications, consult the factory for the availability of a very low leakage power adapter.

Video Connections

The MicroImage CL8800 Video CrossLine Generator will operate with 1080p, 720p, and most other common progressive scan HD video signals, at frequencies including 24, 30, 50, and 60 Hz. It will automatically detect which type is connected.

Connect the video source (i.e. a video camera) to the VIDEO IN connector on the CL8800.

Connect the VIDEO OUT signal from the CL8800 to the monitor or other video display device.

The CL8800 uses industry standard HDMI video connectors, and will work with most DVI-D and HDMI video sources.

If you are experiencing problems with any MicroImage product, you can contact MicroImage Support using the following methods:

Phone	610-754-6800
Fax	610-754-9766
Email	techsupport@mivs.com
Web	www.mivs.com

B/W　The Bank Select switch (Marked B/W) selects the currently active set of lines. The unit can generate up to 8 lines (4 vertical, 4 horizontal), and this switch determines which 4 lines may be changed using the 4 rotary controls. In default mode, the controls will affect lines V1, V2, H1, and H2. After pressing the B/W switch, the controls will affect lines V3, V4, H3, and H4. The B/W LED will light to indicate that the second group of lines is now active.

In addition to the front panel controls, the CL8800 has four DIP switches on the rear panel. These switches are used for custom applications or future expansion. They are numbered 1 through 4.

Dip Switch 1　Reserved for future use

Dip Switch 2　Reserved for future use

Dip Switch 3　Reserved for future use

Dip Switch 4　Reserved for future use

OPERATION

The CL8800 is designed to be easy to operate while also providing maximum flexibility. The unit is capable of generating up to 4 vertical and 4 horizontal lines with more than 200 different colors, a wide range of styles, and 3 different widths. The controls are listed below.

Power　The Power Switch and power indicator LED are located on the right side of the front panel. The power switch is a "soft touch" switch but it will remember its setting even when power is removed.

Position Controls　The primary function of the four rotary controls is to adjust the positions of the lines. They may also be used to set several line options such as color and width. The functions of the controls are dependent on the mode selected.

In the default Operation Mode, the first two controls adjust the positions of the first and second vertical lines, while the third and fourth controls adjust the positions of the first and second horizontal lines (V1, V2, H1, H2). This can be changed to "legacy" mode to match the CL5400 series (V1, H1, V2, H2). The unit can also be configured for either 4 vertical lines (V1, V2, V3, V4) or 4 horizontal lines (H1, H2, H3, H4). The unit will remember the last line positions on power down.

Lock (1 thru 4)　There is a lock switch for each control (4 total). Press the lock switch to lock the controls so the associated lines will not be moved in case a control is accidentally altered. An LED will light to indicate that the associated control is locked.

(Independent)　When both the Track and Mirror modes are off, the unit will be in Independent mode. In independent mode, each of the four lines may be adjusted by its

own control, depending on the Operation Mode. In default mode, that will be V1, V2, H1, H2. The unit is operating in Independent Mode when neither the Track nor Mirror LEDs are illuminated.

Track

Track Mode allows pairs of lines to be repositioned without affecting the spacing between them. The left control of each line pair adjusts the positions of the vertical or horizontal pairs of lines. The right control of each pair adjusts the spacing between the lines within a pair by moving the second line relative to the first. In default Operation Mode, the functions of the controls will be: V1+V2, V2, H1+H2, H2. In the 4 vertical or 4 horizontal line modes, the controls will affect different line pairs on the same axis. The Track LED will light to indicate that Track Mode is enabled.

Mirror

Mirror Mode allows the lines to be repositioned with the left control of each pair without affecting the spacing between them, as per Track Mode. Unlike Mirror Mode, the right control of each pair sets the spacing between the lines by moving both lines in opposite directions relative to a point centered between them (V1+V2, -V1+V2, H1+H2, -H1+H2). The Mirror LED will light to indicate that Mirror mode is enabled.

Box

Pressing this switch enables the box mode. Pressing it again returns the unit to displaying full lines. When the CL8800 is placed into box mode, the lines will be truncated at their intersections, forming a box. The sides of the box may be positioned using any of the three line control modes above: Independent, Track, or Mirrored. The unit is capable of generating two boxes using the primary and secondary line sets. The Box LED will light when the unit is in Box mode.

Setup

This switch brings up an on-screen menu. Changes of line color, style, or width may be made to the currently active set of lines. To alter the settings of the other 4 lines, you can activate them with the B/W bank select switch, make changes, then reactivate the original lines when the changes are complete.

When the Setup menu is visible, pressing the first Lock button on the left will allow you to change the color of each line using the corresponding rotary control. Note that it only requires a very small movement of the knob to change to the next color. A digit will appear after the line's entry in the menu, so you can find favorite colors again more easily.

By pressing the second Lock button, the lines may be set either as solid, serrated, or off. Each rotary control will affect its corresponding line, depending on the mode. The lengths of the serrations may be varied through more than 250 steps, with solid and off at the lower end of the control range. The Setup LED will light while Setup is enabled.

The third Lock button will allow you to change the Width of each line using the corresponding rotary control. Lines may be set to Thin, Medium, and Wide.

The fourth Lock button will allow you to change the vertical origin and the Operation Mode. The vertical origin can be set to either Upper Left corner (turning the rotary controls clockwise will move the horizontal lines DOWNWARD), or to Lower Left corner (turning the controls clockwise will move the horizontal lines UPWARDS). The Operation Mode settings allow you to change the arrangement of the controls from line pairs (X1, X2, Y1, Y2) to pairs of crossed lines (X1, Y1, X2, Y2), or to 4 Vertical Line or 4 Horizontal Line Modes.

Display

The Display switch will turn all lines on or off. Note that individual lines may be rendered transparent through other functions, and may not be visible regardless of the Display setting. The Display LED will light to indicate that the display is turned on.