

Video Matrix and the Frameline generator

The “Video Matrix”

Your analog video in and video out signals — and the superimposed framelines — can be routed in various ways via two switches on the front of the electronics module.



The Matrix has three possible video sources: the camera, the output of the frameline generator (FLG), and the RCA connector if set to “IN.”

The Matrix routes a video source to the frameline generator and to any or all of four outputs. The four “final” outputs are the Hirose output connector on the stage, the RCA connector if set to “OUT,” the output to the monitor, and the Hirose output on the base.

The “In/Out” switch for the RCA jack determines which signal is the main input – either the signal from the camera or from the on-board recorder (or other device) connected to the RCA jack. This switch (called “S2”) is the only switch you will normally use.

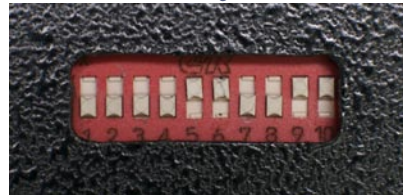


The other switch, “S1” is a rarely accessed, ten-position DIP switch under the Ultra2 logo on the top of the electronics. Remove the four screws on the panel to access the switch. This group of ten switches allows you to choose which source feeds each “output” – including routing a source signal through the frameline generator, and/or which outputs are terminated.

It’s a bit confusing – there are many choices. For most people, the factory defaults will be fine. The engineering matrix follows, but read this text first.

The factory default settings: 0000 1100 11 or Modes 1, 3a, 4, C or 6, and 7.

What these defaults mean



When the “In/Out” switch is set to OUT, the signal from the camera is sent to the RCA out, the Hirose output on the stage, the Hirose output on the lower electronics, and to the frameline generator. The output from the FLG (i.e., the camera signal and the overlaid framelines) is sent to the monitor; thus only the monitor will display the framelines.

When the “In/Out” switch is set to IN, the signal from the on-board recorder is routed to the monitor only and not sent to other outputs. This restricts your playback of your shots to your monitor. The camera continues to feed the two Hirose outputs. The RCA out is defeated (it’s the input!!)

Choices, choices — It’s time to look at the video matrix

The default settings are 0000 1100 11 or Modes 1, 3a, 4, C or 6, and 7. Both Hirose outputs and the RCA output are terminated. These settings route the sources to the outputs as explained above, depending on the position of the RCA IN/OUT switch.

When the RCA switch set to OUT, you have five choices (and many combinations of those choices) – “modes” 1 – 8 on the chart. It is possible to send the signal from the camera directly to any combination of the four outputs, or via the FLG (i.e., with framelines added), to any or all of the four outputs as you wish.

If the RCA switch is set to IN, you have four other choices (Modes A, B, C (the default), and/or D), where you can choose to send the RCA input signal directly to the monitor, to either or both Hirose connectors, and/or to those outputs via the FLG with added framelines. Your choice.

Some modes are mutually exclusive. Other modes can “toggle” as you change the “In/Out” switch from in to out. Again, it’s your choice.



An alternate for the dip switch settings, 1010110011, enabling modes 2, 3b, 4, 6 or C (via S2), and 7.

Some alternate, “typical” ways to use the Video Matrix:

With the In/Out switch set to OUT:

- **If you do not want framelines on the signal going to the monitor**, turn switch S1-5 to “0” or OFF (mode 5). The default for this switch is “1” or ON (mode 6). Modes 5 and 6 are mutually exclusive.
- **If you want to send your framelines to “video village” while shooting**, you will want the camera signal to output to the FLG (S1-4 OFF, the default) and switches S1-1 and S1-7 to ON (modes 2 & 8). The defaults for S1-1 and S1-7 are OFF (modes 1 & 7). Modes 1 and 2 are mutually exclusive, as are modes 7 and 8.
- **If you want framelines added to your recording via the RCA output**, turn switch S1-3 ON (mode 3b). The default is S1-3 OFF (mode 3a). Modes 3a and 3b are mutually exclusive.

With the In/Out switch set to IN, modes A, B, C, and/or D become available.

- **Mode C (and only mode C) is the default, with Switch S1-6 set to ON. Mode C sends the signal from the RCA input only to the monitor.** Depending on the position of switch S1-5, the C mode will toggle between mode C and mode 5 (S1-5 OFF) or mode C and mode 6 (S1-5 ON). Mode C and mode 6 is the default combination.
- **It is unlikely that you would use mode “B” – routing the RCA input through the FLG, but it’s possible – with switch S1-4 set to ON.** Suppose you were running an HDSDI signal directly to the monitor, and chose to have a downconverter mounted near the monitor. Then with the RCA jack set to IN, you might want to send the signal to your video transmitter and/or to a recorder, and you might want to add framelines to those signals. Modes B and 4 are mutually exclusive. Mode 4 is the default, with the signal from the camera feeding the FLG.
- **Mode A is slightly more likely to be used (S1-2 set to ON).** The input signal from the RCA jack is sent directly up the post to the stage’s Hirose output. Mode 1 is the default (S1-1 OFF).
- **Mode D sends the RCA input signal to the Hirose connector on the electronics (S1-8 ON).** Mode 7 is the default (S1-7 OFF).

Note: Without the FLG installed, modes 2, 3b, 4, B, 6, and 8 are not available – i.e., you can’t send a signal to a non-existent FLG and then on to any output.

800-0004 VIDEO SWITCHING MATRIX

VIDEO SWITCH MATRIX

S1-1	S1-2	S1-3	S1-4	S1-5	S1-6	S1-7	S1-8	S2	MATRIX SWITCHED	Comments
0	0							IN / OUT	1	
0	1							IN	A	See Note 1.
0	1							OUT	n/a	
1	0							IN / OUT	2	
1	1							IN	n/a	
1	1							OUT	n/a	
		0						OUT	3a	See Note 1.
		1						OUT	3b	See Note 1.
			0					IN / OUT	4	
			1					IN	B	See Note 1.
			1					OUT	n/a	
				0	0			IN / OUT	5	
				0	1			IN	C	See Note 1
				0	1			OUT	5	
				1	0			IN / OUT	6	
				1	1			IN	C	
				1	1			OUT	6	
						0	0	IN / OUT	7	
						0	1	IN	D	See Note 1.
						0	1	OUT	n/a	
						1	0	IN / OUT	8	
						1	1	IN	n/a	
						1	1	OUT	n/a	

VIDEO SOURCES	VIDEO OUTPUTS				
STAGE VID IN FLG OUT RCA IN (VIA S2)	STAGE VID OUT (HIROSE)	RCA OUT (VIA S2)	FLG IN	MONITOR OUT	BASE VID OUT (HIROSE)
1	3a	4	5	7	
2	3b		6	8	
A		B	C	D	

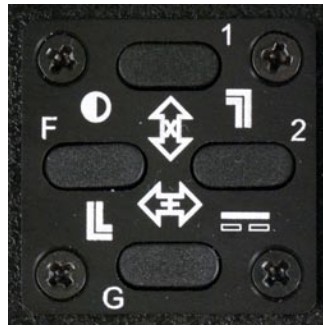
DEFAULTS HIGHLIGHTED IN YELLOW
OPTIONS HIGHLIGHTED IN GREEN
N/A OPTIONS HIGHLIGHTED IN BROWN

S1-1 and S1-2 control modes 1, 2, and A
 S1-3 controls modes 3a and 3b
 S1-4 controls modes 4 and B
 S1-5 and S1-6 control modes 5, 6, and C
 S1-7 and S1-8 control modes 7, 8, and D
 S1-9 controls termination of Stage video
 S1-10 controls termination of RCA video
 S2 controls "IN/OUT" of RCA connector

Notes:

- 1: Modes 3a or 3b cannot be active at the same time as modes A, B, C, or D.
- 2: S1-9 = STAGE VID OUT 75ohm termination switch. Default = ON = terminated.
- 3: S1-10 = RCA VID 75ohm termination switch. Default = ON = terminated.
- 4: Factory default switch positions are 0000110011.
 I.e. modes 1, 3a, 4, 6 or C (via S2), and 7

How to set up your frameline generator



The four buttons on the frameline generator control the framelines, crosshairs, on-screen horizon position, and battery indicator position, as well as the frameline style, crosshair style, graphic brightness, graphic elements on or off, and two stored frameline and graphic presets.

We suggest you print out these pages (or the two “FLG instruction” PDF files on the Ultra² CD) and keep them with the Ultra² at all times.

#	Frameline Mode Descriptions	MODE ENTRY REQUIREMENTS				KEY FUNCTIONS WHILE IN MODE			
		UP	DOWN	LEFT	RIGHT	UP	DOWN	LEFT	RIGHT
1	Recall Frameline Position #1	>2 sec.							
2	Store Frameline Position #1	>4 sec.							
3	Recall Frameline Position #2				>2 sec.				
4	Store Frameline Position #2				>4 sec.				
5	FLG On/Off			>1 sec.					
6	Graphics On/Off		>1 sec.						
7	Cross Hair position			>1 sec.	>1 sec.	Move UP	Move DOWN	Move LEFT	Move RIGHT
8	Horizon position			>2 sec.	>2 sec.	Move UP	Move DOWN	Move LEFT	Move RIGHT
9	Battery position			>3 sec.	>3 sec.	Move UP	Move DOWN	Move LEFT	Move RIGHT
10	Graphics Brightness	>1 sec.		>1 sec.				DECREASE all	INCREASE all
12	Lower & Left Frameline position		>1 sec.	>1 sec.		Move UP	Move DOWN	Move LEFT	Move RIGHT
13	Upper & Right Frameline position	>1 sec.			>1 sec.	Move UP	Move DOWN	Move LEFT	Move RIGHT
14	Frameline style select		>1 sec.		>1 sec.	Style #1	Style #2	Style #3	Style #4
15	Cross Hair style select		>2 sec.		>2 sec.	Style #1	Style #2	Style #3	Style #4
16	EXIT	X	X						
17	Factory Reset	X	X						

The charts tell you how it all works — here’s one example. Suppose you want to move the position of the horizon display. You enter the horizon position mode by simultaneously pushing down the left and right buttons for about two seconds. The horizon graphic will pulse on and off. You move the graphic UP, DOWN, LEFT, or RIGHT by pushing the appropriate button.

If no buttons are pressed for several seconds, the FLG will exit the horizon position mode. You could also press the up and down buttons simultaneously to exit the programming mode.

You can store the current settings for the framelines, crosshair, horizon, and battery by holding down the UP button for about four seconds. “SET #1” will be displayed on the screen for one second. If you

change something and want to return to these settings, just push the UP button for about 2 seconds — “PRESET #1” will be displayed on screen for one second. Note the little “1” symbol by the upper button.

The second preset is controlled by the RIGHT button — it’s also marked “2.”

#	Frameline Mode Descriptions	IN-MODE INDICATION DISPLAYED ON SCREEN	MODE EXIT REQUIREMENTS	COMMENTS
	MODE	*** displayed in top center of screen while in any mode		
1	Recall Frameline Position #1	"RCL 1" confirmation displayed on screen for 1 sec.	n/a	All position #1 settings recalled and displayed for Frameline, Cross Hair, Horizon, and Battery
2	Store Frameline Position #1	"SET #1" confirmation displayed on screen for 1 sec.	n/a	All position #1 settings stored for Frameline, Cross Hair, Horizon, and Battery
3	Recall Frameline Position #2	"RCL 2" confirmation displayed on screen for 1 sec.	n/a	All position #2 settings recalled and displayed for Frameline, Cross Hair, Horizon, and Battery
4	Store Frameline Position #2	"SET #2" confirmation displayed on screen for 1 sec.	n/a	All position #2 settings stored for Frameline, Cross Hair, Horizon, and Battery
5	FLG On/Off	Frameline display is toggled on and off	n/a	Frameline OSD is toggled on and off.
6	Graphics On/Off	Horizon, Cross Hair, and Battery OSD's are toggled on and off.	n/a	Horizon, Cross Hair, and Battery OSD's are toggled on and off.
7	Cross Hair position	Cross Hair graphic pulses on and off	Timed-out if no buttons pressed or activate EXIT mode	Cross Hair graphic can be moved anywhere on screen.
8	Horizon position	Horizon graphic pulses on and off	Timed-out if no buttons pressed or activate EXIT mode	Horizon graphic can be moved anywhere on screen.
9	Battery position	Battery graphic pulses on and off	Timed-out if no buttons pressed or activate EXIT mode	Battery graphic can be moved anywhere on screen.
10	Graphics Brightness	Entire frameline graphics pulses on and off	Timed-out if no buttons pressed or activate EXIT mode	Brightness adjustment of OSD graphics.
12	Lower & Left Frameline position	Lower and Left frameline graphic line pulses on and off	Timed-out if no buttons pressed or activate EXIT mode	Framelines can be moved anywhere on screen.
13	Upper & Right Frameline position	Upper and Right frameline graphic line pulses on and off	Timed-out if no buttons pressed or activate EXIT mode	Framelines can be moved anywhere on screen.
14	Frameline style select	A selection of frameline styles will be shown on the screen.	Frameline style changes to selected pattern after button press.	Selection between 1 of 4 pre-determined Frameline line graphics.
15	Cross Hair style select	A selection of cross hair styles will be shown on the screen.	Cross Hair style changes to selected pattern after button press.	Selection between 1 of 4 pre-determined Cross Hair graphics.
16	EXIT	n/a	n/a	Exit all modes and returns to main display.
17	Factory Reset	n/a	n/a	With both buttons pressed at power up, system is reset to factory default settings.