257010 Electronics

STEADICAM®

Base Connectors

Shadow™ stabilizer base connectors

- •Top Left: HDSDI, direct connection to HDSDI connector in stage; no connection to the video distribution amplifier. If your electronics fail, you can use this connector to send a composite video signal to the monitor. BNC.

- •Top Center: Video out and +14 VDC. 4 pin HRS.

- •Top Right: Monitor connector: 12 and 24 volt power, composite video, and data transmit and receive lines. 8 pin Lemo.

- •Bottom Left: RGB, HD component video

- •Bottom Center: RCA video in/out for a video recorder. A small slide switch on the back sets in or out.

- •Bottom Right: Auxiliary 28 and 14 volt, 3 pin Lemo, good for powering gyros or other accessories.

A word about 12 and 24 volts as used in the manual: 12 and 24 volts typically refer to the nominal voltages required by cameras and accessories, but the voltage range accepted by the device might be 10 to 16 volts or 20 to 34 volts. Each camera or accessory has its own range of useful voltages.

Different battery chemistries and numbers of cells typically result in nominal battery voltages of 14.4 or 14.8 volts, or with two batteries in series, 28.8 or 29.6 volts. The actual voltage in a battery might be from 11 to 17 volts, depending on charge and battery type. Nominal battery voltages are always higher than the nominal required by the device, so that when the battery is almost depleted, it still has more voltage than that required by the device.

Some "12 volt" connectors on the sled may have a regulated (fixed) output of 12 to 14.4 volts, regardless of the voltage of the batteries at any given moment.

Note: If you are not using the HDSDI and/or the HD component lines, you may use them for other purposes, such as a microphone line down the post or speaker wires up the post.

Shadow™ Video Matrix

On top of the base is a multi-position switch that determines what standard definition video signal appears on the monitor and at the three video output connectors. It has no effect on High-definition signals.

There are two possible sources for the video signal: the camera (via the BNC on the stage), and a signal fed into the RCA jack on the front panel of the sled base. The latter is only available if the "In-Out" switch is set to "In."

There are four video outputs: the monitor, the two Hirose connectors, and the RCA jack when set to "Out."

You can add framelines to the camera's video signal to each output.

It is not possible to add framelines to a video signal coming into the RCA jack.

The RCA jack, when set to "In," sends video only to the monitor. The two Hirose connectors always are fed a signal from the camera.

The default setting (#8) adds framelines to camera's video signal going to the monitor, but not to the RCA connector, nor to the two Hirose connectors.

Settings 0 though 7: Framelines are not added to the camera's video signal that is sent to the monitor. You have various choices and combinations of adding framelines or not to the other outputs.

Settings 8 though F: Framelines are added to the camera's video signal that is sent to the monitor. You have various choices and combinations of adding framelines or not to the other outputs.

Example: You want framelines added to the monitor and to the RCA output (i.e., to a recorder), but not to either Hirose connector. Use setting #9.

Connector	0
*** Mon (Front Panel)**	
Camera Video Input	X
Camera Video Input with FLG Overlay	
RCA Video Input	
† Mon (Front Panel)	
Camera Video Input	
Camera Video Input with FLG Overlay	
RCA Video Input	X
*** RCA (Front Panel)**	
Camera Video Input	X
Camera Video Input with FLG Overlay	
Hirose (Front panel)	
Camera Video Input	X
Camera Video Input with FLG Overlay	
Hirose (Stage)	
Camera Video Input	X
Camera Video Input with FLG Overlay	

NOTE:
* = RCA switch set to "OUT" position.
† = RCA switch set to "IN" position.
    Position #8 is the default position.

The 12 and 24 volt low battery warning levels are set at the factory. If you want to alter the settings, there are two pots, marked 12T and 24T for this purpose.

To adjust each pot: Set the sled for 12 or for 24 volt operation. Hook the sled up to a variable power supply, dial in the voltage that you want as the warning point, and adjust the pot until "low battery" is indicated: LED's flash next to the on-off switch and the on-screen indicator blinks.

An alternative method: power the sled from a battery. Wait until the low voltage indicator on the battery starts to show low, then adjust the pot until the sled shows a low voltage. Or you can calibrate using the battery voltage indicator on some cameras.

Selector Switch Position Clipper 312/324 (257-0003 PCB) 02-25-08

1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
x	x	x	x	x	x	x								
							x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	x		x		x		x		x		x		x	
x		x		x		x		x		x		x		x
x	x	x					x	x	x	x				
			x	x	x	x					x	x	x	x
x			x	x			x	x			x	x		
	x	x			x	x			x	x			x	x

Frameline Generator

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.

#	Frameline Mode Descriptions — MODE	MODE ENTRY REQUIREMENTS — UP	DOWN	LEFT	RIGHT	KEY FUNCTIONS WHILE IN MODE — 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 MODE	IN-MODE INDICATION DISPLAYED ON SCREEN "*" displayed in top center of screen while in any mode	MODE EXIT REQUIREMENTS	COMMENTS
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.

Note: Pure white graphics won't dim (mode 10). Choose a gray graphic or frameline if you want to dim it.

Phantom™ base

The Artificial Horizon

Adjustments, and displays

The artificial horizon has three controls – a button and two rotary switches. The button on the back of the electronics base controls the zero offset, direction, type of display, and horizon on/off. The switches are accessible via holes on the port side of the base. One switch controls the "range" of the display and the other the "rate."

The button on the back

Pushing the button (LVL) for less than 1 second will reset the sled level (sets the "zero offset").

Place a small bubble level on a surface parallel to the bottom frame of your camera (usually the dovetail plate works well). Angle and hold the sled until this bubble reads level, then push and release the horizon button quickly. The display should now read "level."

Pressing the button for more than one second but less than three will flip the display direction – useful for going to low mode and back. If an UltraBrite™

monitor is being used, the center two LED's on display will flash to confirm that a mode change has occurred. Be sure to re-set the zero offset when going to low mode and back.

Pressing the button for three to five seconds will switch the LED display from bar graph mode to "night rider" dot mode. Again, the center two LED's on the display will flash to indicate that a mode change has occurred.

Pressing the button for five to thirty seconds turns horizon system off or on. All LED's will be off.

Pressing the button for more than 30 seconds resets everything to default values.
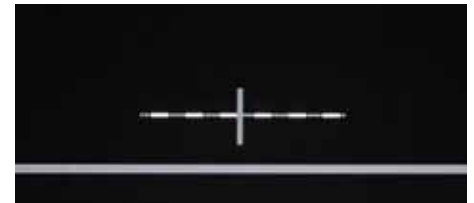
On-screen level display — only available with composite video signals.

Level, UltraBrite[2]™ Monitor

Off-level, "Night-Rider" mode

Off-level, "Normal" mode

Choosing a Range

The range switch sets the sensitivity of the display. The smaller the range, the more sensitive the display will be. The default setting is "0" or +/– 5 degrees. We suggest you experiment with settings 1 through 6. The range choices beyond 5 degrees might be useful if one wanted to hold a specific Dutch angle. Setting "F (15)" is the full range of the sensor.

Range Choices

Setting	+/- Degrees
0 (default)	5
1	2
2	2.5
3	3
4	3.5
5	4
6	4.5
7	5
8	5.5
9	6
A (10)	6.5
B (11)	7
C (12)	8
D (13)	9
E (14)	10
F (15)	180

The range switch interacts with the rate switch. Typically, the smaller the range, the less integration you will need. Ranges or rates significantly larger than the default values are not typically used.

Setting a Rate

The rate switch sets the integration (or averaging) time. The longer the integration time (the lower the frequency or Hz), the slower the system responds. A longer integration time avoids the big, erroneous signals as you accelerate or decelerate. The faster the integration time, the more the indicator will jump around. Experiment and pick the "rate" you like.

There are sixteen positions, from zero to nine, and A through F. The default setting is "0" which equals 5Hz, a good compromise. Position one (.75Hz) has the most integration and slowest response. Position F has the least integration and fastest response.

Rate Choices

Low Pass filter settings (6-Pole IIR filter)

Setting	Hz
0 (default)	5
1	0.75
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
A (10)	10
B (11)	12
C (12)	13
D (13)	16
E (14)	18
F (15)	40

10

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