

2005-2007

[www.chasecam.com](http://www.chasecam.com)

# SS1000

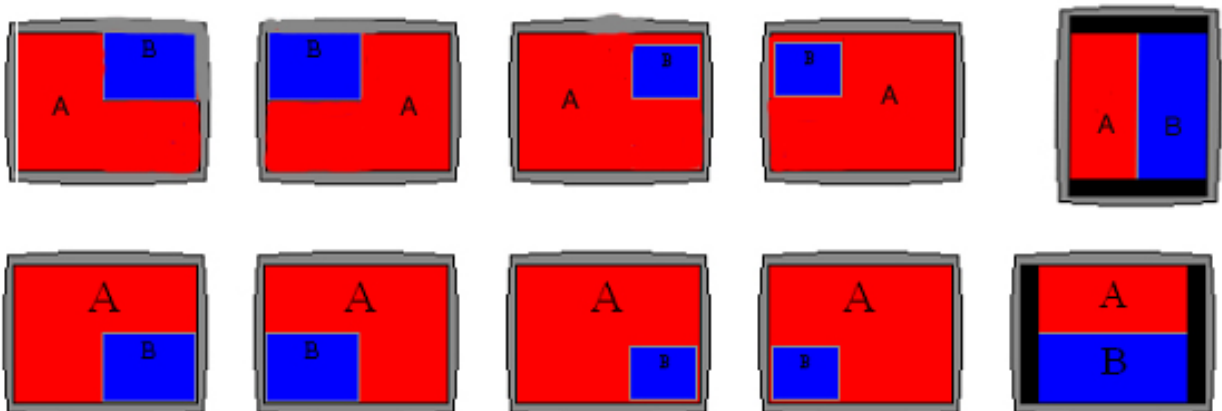
User Manual

Issue 6, April 2007



## DESCRIPTION

The SS1000 is a self-contained Picture-in-Picture and Split-Screen video processor. It allows a single video recording device to record simultaneously from 2 cameras by resizing and overlaying the video in several ways. No post-production necessary!



## FEATURES

- ❑ The SS1000 accepts either NTSC or PAL video inputs for support for most countries. The output will be the same format as the inputs.
- ❑ Operates on standard 12VDC and can power the remote video cameras.
- ❑ Power switch turns unit on and off and also turns on and off power to remote cameras.

- ❑ Clock time (lap time) can be overlaid on video
- ❑ One video camera can be mirrored.

## **GENERAL INFORMATION**

### **Safety**

- ❑ In order to keep the unit performing properly:
- ❑ It should be mounted in a dry place. If wet, remove and let dry completely before use.
- ❑ It should be cleaned only with dry or slightly damp cloth.
- ❑ Temperature while in operation must be within specifications below.
- ❑ Only proper-sized connectors and cables should be used.
- ❑ Switches should be operated with care.
- ❑ Switches should not be use as a passenger car **active** rear-view mirror system.

### **Connectors:**

**+12V:** This jack accepts 12VDC power (center pin +, outside is ground.) There is also a supplied two-position terminal block as an alternate and more secure power source. The terminal block can also be used to connect to the supplied power (for powering other devices). The plus sign indicates +12V and the minus sign is the ground connection.

***DO NOT POWER THE SS1000 from the POWER OUTPUT OF A PDR100!!***

**Video Input 1:** This RCA or miniDIN jack accepts the Main video signal.

**Video Input 2:** This RCA or miniDIN jack accepts the Secondary video signal, which becomes the inset or secondary screen picture.

**Video Output:** This RCA or miniDIN jack outputs the processed image in NTSC or PAL format to a standard monitor or recording device (such as the PDR100).

## **SPECIFICATIONS**

**Video Inputs:** NTSC or PAL, 1V peak-peak baseband video.

**Video Output:** NTSC or PAL (follows input type), 1V peak-peak baseband video.

**Resolution:** 525-line NTSC: 480 lines processed ; 625-line PAL: 576 lines processed.

**Frame Rate:** full 29.97 (NTSC) or 25.00 (PAL) frames/sec.

**ADC and DAC:** 10-bit

**Power:** +9V to +26V DC input. Nominal ~240mA at +12V (will vary inversely

to voltage). Power jack is commonly called '2.1mm co-ax'. Outside is 5.5mm (ground), inside is 2.1mm (positive). Power use does not include external powered devices including remote video cameras.

***DO NOT POWER THE SS1000 from the POWER OUTPUT OF A PDR100!!***

**On-screen Timer resolution:**  $\pm 0.2$  sec/hour

**Temperature (operating):** 0°C to 50°C (32°F to 122°F)

## **HOOKUP**

Note that the SS1000 does not process Audio; an external microphone must be directly connected to the recorder to capture sound, or the recorder must include an on-board microphone.

Insert the primary video input device to the VIDEO INPUT 1 connector. If you are using a ChaseCam bullet camera, insert the MiniDIN connector, aligning the arrow molded into the cable with the arrow on the rear panel above the connector. Repeat for VIDEO INPUT 2.

Connect the output using either a MiniDIN cable or the yellow RCA jack, to a suitable recording or viewing device.

Connect 12V DC power to the device. Power must come from a source with 1amp current to be capable of powering the SS1000 and both bullet cameras.

***DO NOT POWER THE SS1000 from the POWER OUTPUT OF A PDR100!!***

## **MODES**

All output modes of the SS1000 are controlled by the 6 switches on the front panel.

**Switches** (in order from left to right):

**Mirror Mode:** The input from the AUX connector is horizontally flipped. This can be used to create a rear-view mirror effect along with any of the Basic modes.

**Timer Mode:** The on-screen timer, showing time up to 9:59:59.9 (10 hours) with 1/10<sup>th</sup> second resolution, can be turned on or off. To reset the time to zero, the timer switch is turned off, then on (unit powered up).

**PIP or Splitscreen Mode:** This switch changes the unit from a Splitscreen device to a PIP device. Up is Splitscreen. Down is PIP.

**Flip Splitscreen or Size of PIP:** This switch in splitscreen mode will change the split to a left-right screen. In PIP mode, it will change the size of the PIP from large (1/4 screen) to small (1/6<sup>th</sup> of the screen).

**PIP side setting:** This switch changes the PIP window from left to right.

**PIP vertical setting:** This switch changes the PIP window from bottom to top.

**Single-input Mode (not a switch setting):** The input signals are continuously monitored by the

SS1000. If either signal is lost (for example a camera failure or removal of the cable), the system automatically outputs the other signal at full-screen size. (The on-screen timer and mirror function settings, as described below, will both still apply). If the lost signal is restored, the system returns to the selected mode. If both signals are lost, 'blue-screen' is output.

## MODE DETAILS

The split-screen mode reduces both pictures to 3/4 of their size, to avoid losing too much area of the pictures. This allows the top 2/3 of each camera image to be displayed at the same time. The compromise is that this creates some black space on the left and right sides of the screen.

The timer position on the screen is controlled by the RIGHT/LEFT switch. It forces the timer (if displayed) to be on the opposite side from the PIP display. When in split-screen mode, this switch still has the same effect on the timer location, allowing you to choose on which side it will be displayed.

The half-size PIP modes are designed to align with the edges of the television viewing area. The one-third-size PIP modes, and the timer display, are designed to be slightly inside the edges, when viewed on a television.

While timer is on, time is saved in memory every 10 minutes. It is retained when powered down. When next powered up, the timer is incremented to the next even 10-minute point.

## NOTES

### **CAMERAS**

One of the benefits of using two cameras is the ability to effectively capture areas of greatly different brightness. Almost all cameras have automatic gain control to make the picture quality acceptable over a range of lighting conditions, but camera specs include a LUX number to indicate the minimal amount of light expected. As the SS1000 does not adjust brightness/contrast of its inputs, choose cameras according to your conditions. 0 LUX would indicate night-vision, 4 LUX would be bright sunlight only, etc.

### **NTSC/PAL AUTO-DETECT**

The SS1000 will set which standard to operate on (NTSC or PAL) based on the first signal seen after power-up. No user action is required for proper selection.

If one of the camera pictures appears without color or an incorrect size, check that both cameras are for the same system (NTSC or PAL). If the entire screen appears without color or an incorrect size, check that the recorder or monitor is the same system as the cameras (NTSC or PAL).

### **DIGITAL VIDEO CAPTURE NOTES**

The view of any signal on a television misses some of the pixels that are outside the edges of the screen. When capturing video signals with a computer video capture card or digital recorder these pixels can be saved and viewed. Normally at full resolution, video will be digitized at 720x480 (NTSC) or 720x576 (PAL) pixels. In viewing the captured image, the pixels at the edges make the inset pictures appear closer to the center as compared to television viewing. Also some black space will exist at the very edges of the captured image, as some pixels are not processed by the SS1000. This is normal.

Depending on the program used, the captured video or still images may not appear the same as during live playback. The reason is that standard analog video is interlaced, meaning that instead of 30 (25 for PAL) whole images per second, there are 60 (50 for PAL) 'fields', each made up of every other line. For anything in motion, this causes a combed look to the full captured image (odd + even fields) because the odd and even field lines were recorded at slightly different times. For this reason, many digital capture products simply use every other video line (one field), but duplicate each line to keep the aspect ratio the same. The downside of this method is that small details, like the timer on the SS1000, or nearly horizontal features, will not look correct and will have poor resolution. Check for other 'de-interlacing' algorithms in your digital capture software to optimize your results.