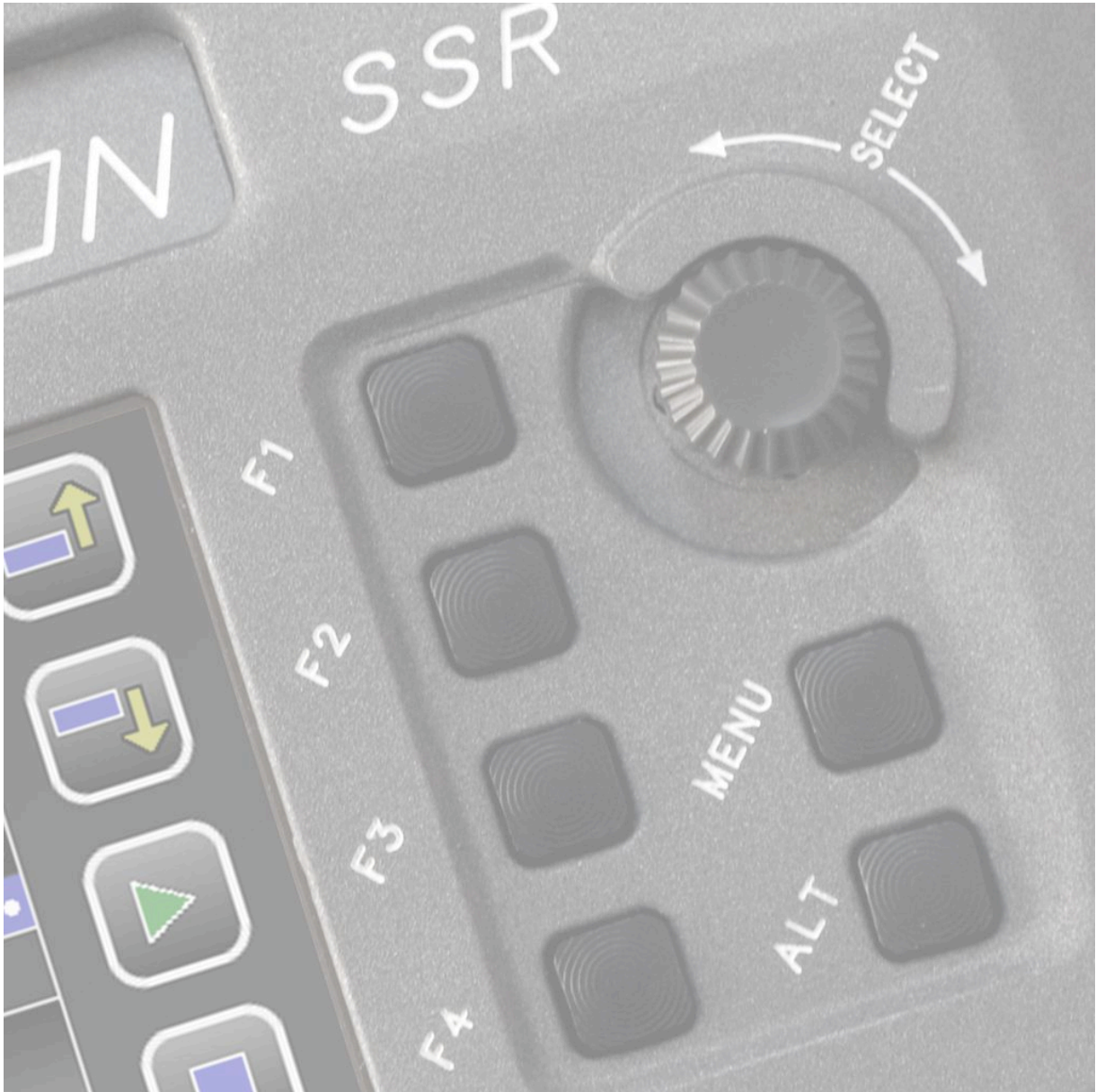


PANAVISION

SSR Operation Manual



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1.0 INTRODUCTION

The Panavision Solid State Recorder (SSR) is a solid-state recording device based on flash memory, which is designed to be mounted on to the Panavision Genesis camera system. The SSR can also be used as a standalone HD recorder when mounted on the SSRD docking station.

The SSR can record either 422 single-link HD-SDI or 444 dual-link HD-SDI at any of the fixed frame rates provided by the Genesis camera, as well as in Select frame 30 mode (S30) -- a range of Genesis variable speeds from 1 to 30 frames per second. The SSR does not currently support the Genesis Select frame 60 mode (S60). The SSR records the video signal as is, without any form of compression.

The SSR has the same docking mechanism as the Sony SRW-1 video recorder and can be mounted to either the top or rear docking ports of the Genesis camera. Genesis is able to control many functions of the SSR so that the two operate as an integrated package.

Before starting to use the SSR, one of two distinct system modes must be chosen (see section 6):

Standard Play (SP) mode allows full functionality, with the option of recording any take in either the 422 or the 444 format. In this system mode, you will get approximately 21 minutes of recording time at 24fps.

Long Play (LP) mode doubles the 24fps recording time to approximately 43 minutes, but limits all recordings to the 422 format only.

Caution: once the SP or LP mode has been chosen it cannot be changed until the SSR is reinitialized and all memory has been cleared.

The SSR supports two channels of analog audio, which can be assigned to any one of the four embedded audio groups. The SSR supports timecode from a variety of sources and will embed TC in the HD-SDI data stream, replacing existing data if required. Metadata and other possible HANC or VANC ancillary data are also recorded if present in the HD-SDI input stream.



The SSR can be docked on the rear (as shown) or on the top of the Genesis camera

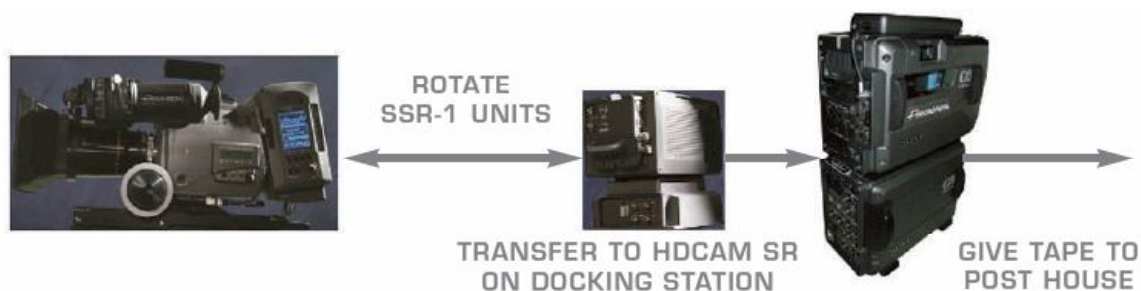
1.1 Comparison of the SSR and SRW-1

In many ways the Panavision SSR acts like a virtual version of the Sony SRW-1 videotape recorder. However there are important differences between the SSR and a VTR:

- The SSR is half the size and less than half the weight of the SRW-1
- Recorded takes can be accessed instantly, without shuttling or cueing
- There is no danger of recording over previous takes when you hit record
- There is no need for pre-roll at the beginning of a recording
- There is no concern of playback damaging footage, as there are no moving parts
- The SSR consumes considerably less power than a videotape recorder
- The SSR records everything uncompressed, allowing for seamless transfer to HDCAM SR, with its mild compression, or to other data formats, with or without compression
- The SSR has a built-in down-converter for NTSC or PAL output even when mounted on the Genesis. The SRW-1 cannot do so when docked to the camera
- The SSR also provides a HD SDI 422 output for monitoring when mounted on the Genesis. The SRW-1 has no such output.

1.2 Workflow Examples

The SSR, as a new digital filmmaking tool, brings new workflow possibilities.



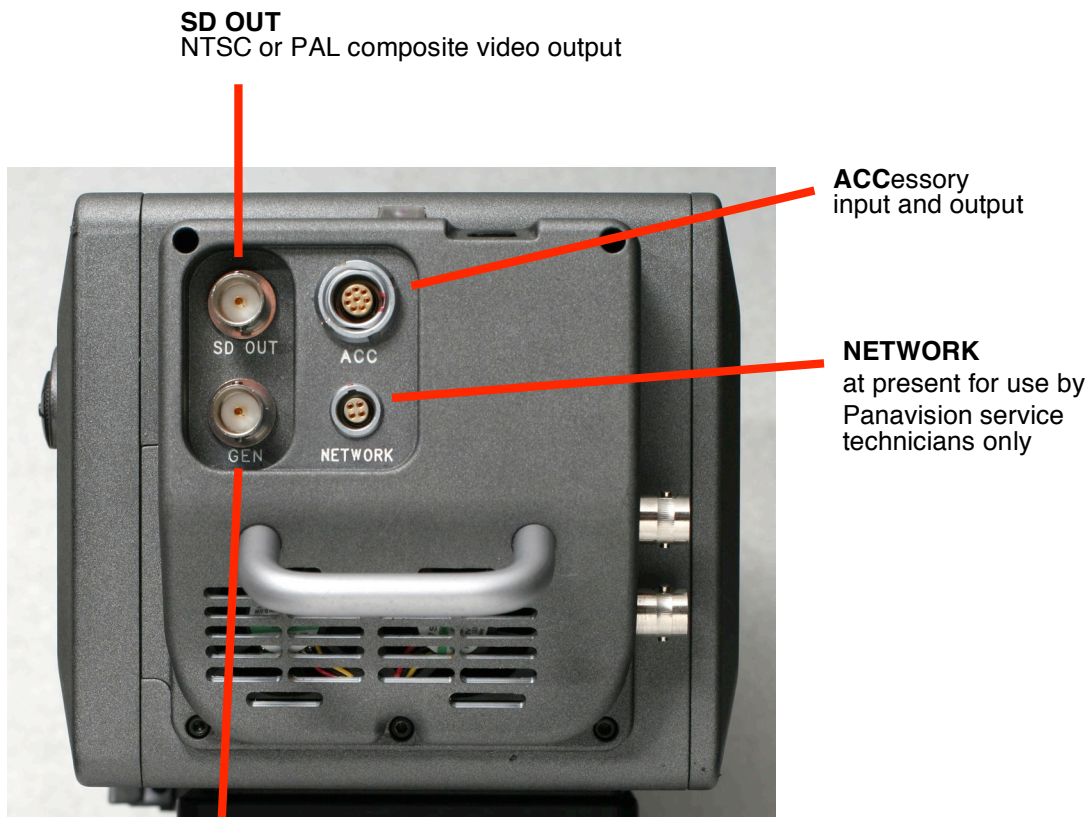
One possible workflow is to shoot with two SSR units. While one SSR is mounted on the camera, the other is put on the docking station and transferred to an HDCAM SR recorder, and then erased. Once the SSR on the camera is full, it is swapped with the empty one on the SSRD docking station. This approach would allow productions to integrate the SSR footage with other HDCAM SR material, in existing HDCAM SR workflows.



Some projects may elect to shoot with the SSR-1 at 4:4:4, and then transfer the footage onto hard disk or other data storage medium for a "data" workflow, with or without compression. This approach would also require rotating two or more SSR-1 units between shooting and transferring.

2.0 SSR CONNECTIONS

When the SSR is docked to the Genesis camera, the HD-SDI signal is input via the multi-pin connector in the docking mechanism. Other possible connections are shown below.



GENlock
Tri-Level Sync input
can only be used
when SSR is not
docked on camera

AUDIO
2 analog line-level
audio inputs

TC
LTC Timecode input

HDSDI
422 monitor output
with optional characters

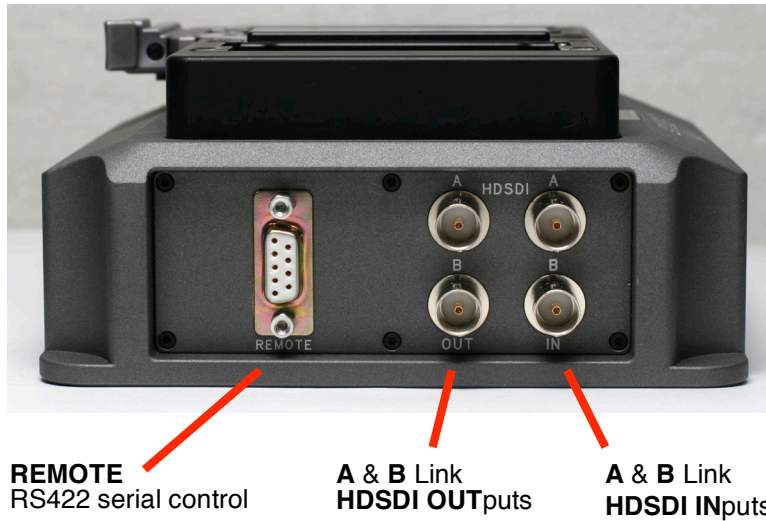


2.1 SSRD Docking Station Connectors

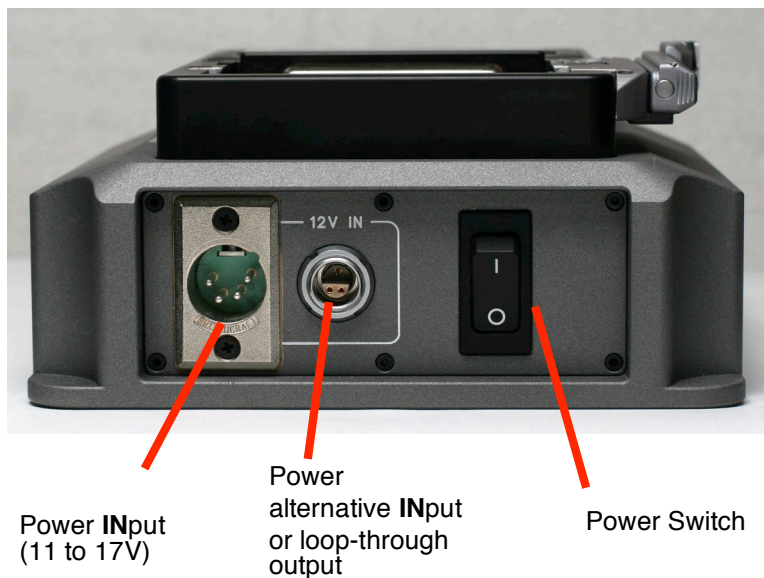
The SSRD is a small docking station for the SSR.

When the SSR is docked to the SSRD, the HD-SDI inputs and outputs are available on BNC connectors on the SSRD. The HD-SDI signal contains embedded audio from the SSR.

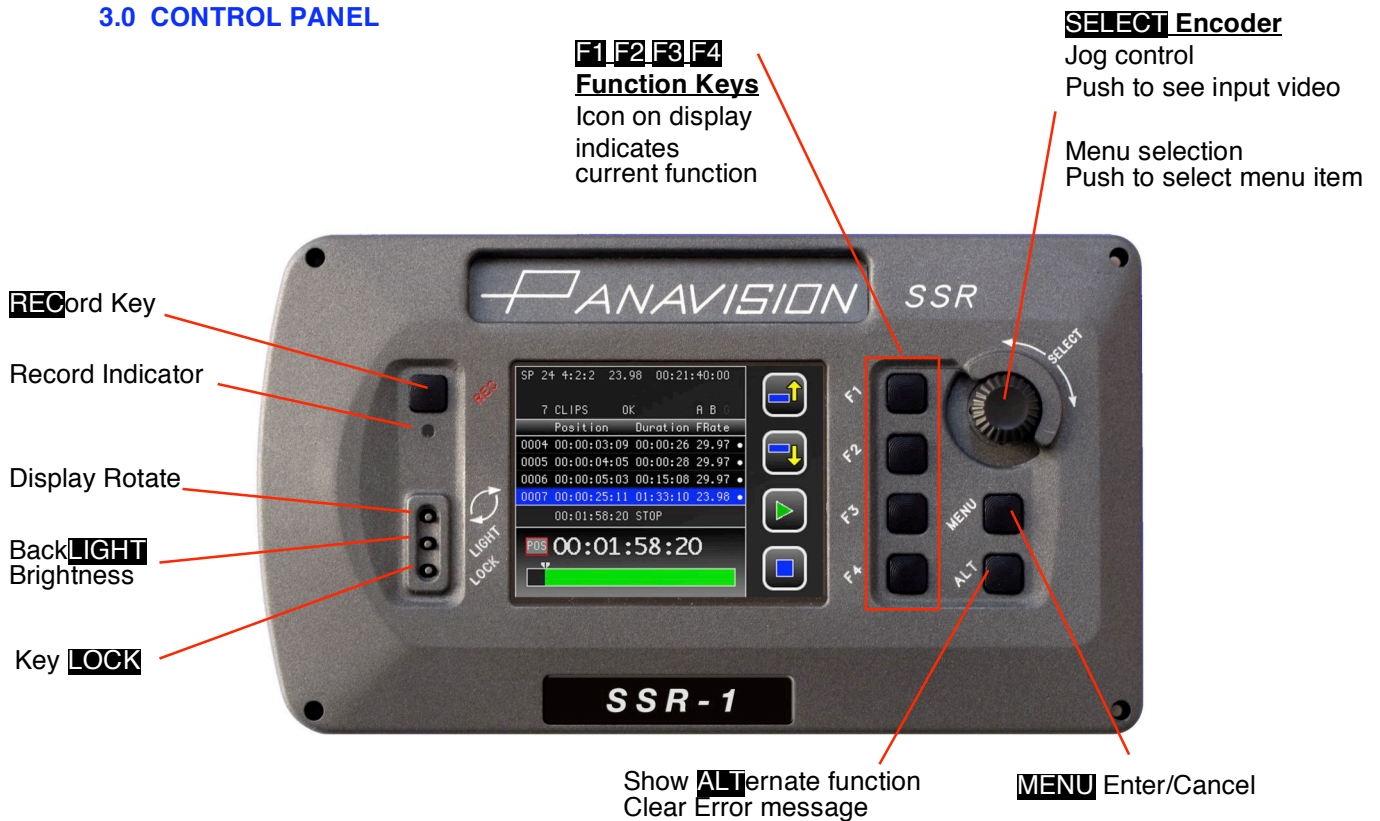
A 9-pin D connector on the SSRD allows the SSR to be controlled in slave mode by a serial controller implementing the Sony P2 9 pin protocol, just like a Sony videotape recorder. This Sony protocol compatibility makes it easy to integrate the SSR into existing post-production facilities and workflows.



The SSRD is provided 12 Volt power via a 4-pin XLR or a 3-pin LEMO connector, which can also serve as a loop-through power output.



3.0 CONTROL PANEL



RECORD KEY

Push to start and stop recording. Record is always available, no matter what menu is displayed.

FUNCTION KEYS F1 – F4

Function of each key is indicated by the icon on its left, and changes with context. Pushing ALT may display other functions.

MENU KEY

Push to enter or exit menu system, when changing a menu item, pushing acts as a cancel function.

ALT KEY

Changes display to show alternate functions of the function keys. Also used to clear non-fatal errors.

SELECT ENCODER - THUMBWHEEL WITH PUSH SWITCH

With the home screen, turning encoder will jog single frames forward and reverse, pushing will select input video at the HD outputs and show the timecode generator time (TCG).

With other screens, turning the encoder is used to select, and pushing to activate, different menu items.

DISPLAY ROTATE SWITCH

Rotates the display 90 degrees, used when the SSR is docked to the rear port of the camera

BACKLIGHT SWITCH

Select lcd backlight off, low or high intensity.

KEY LOCK SWITCH

Inhibit operation of all keys except record.

4.0 DISPLAY

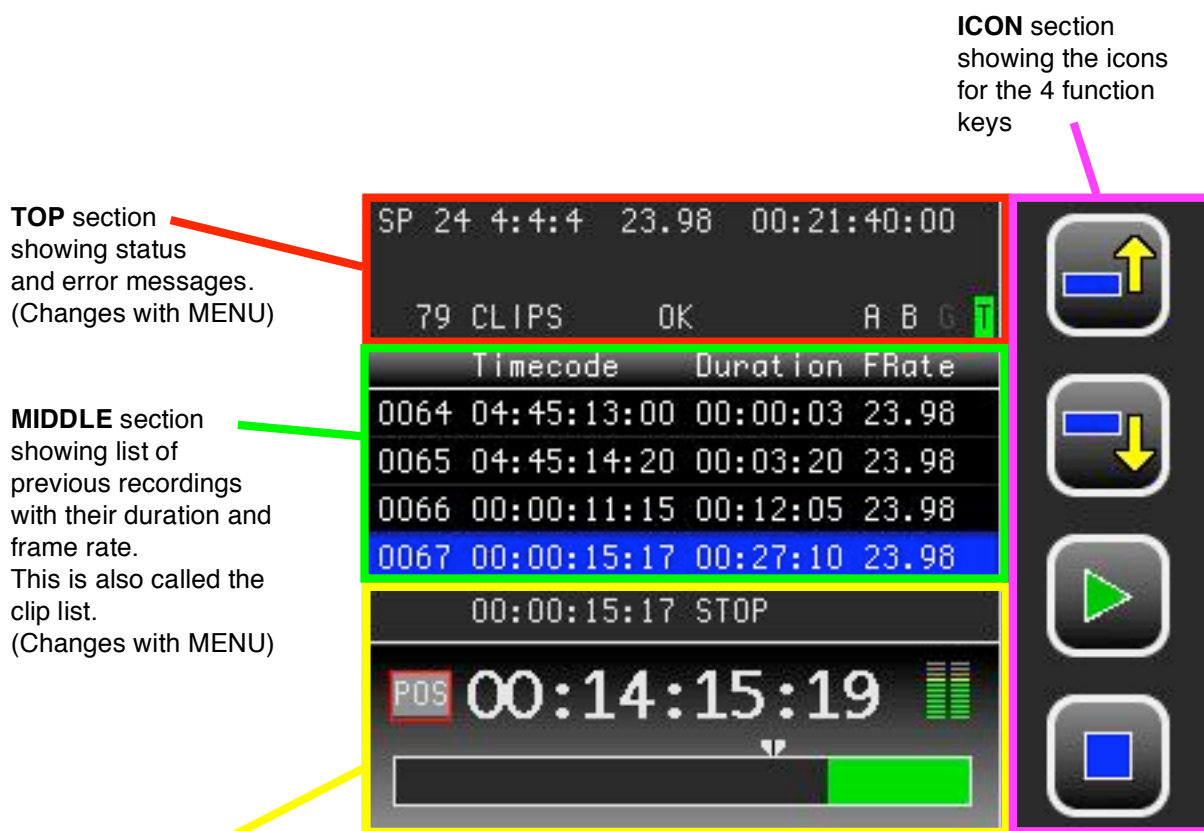
The SSR uses a 320 by 240 pixel LCD display as a graphical user interface (GUI).

The GUI displays information about SSR status, previously recorded clips, remaining capacity and offers a menu system for changing user-controlled settings. A “home screen” is displayed during the normal operating condition when the SSR is used as a recorder while docked to a camera.

The home screen is divided into the 4 distinct areas shown below: TOP, MIDDLE, BOTTOM and ICON

TOP and MIDDLE sections are changed by the menu system when activated.
BOTTOM and ICON sections are always displayed.

When the SSR is docked on top of the Genesis camera, use the Display Rotate switch to orient the screen like this:



BOTTOM section.

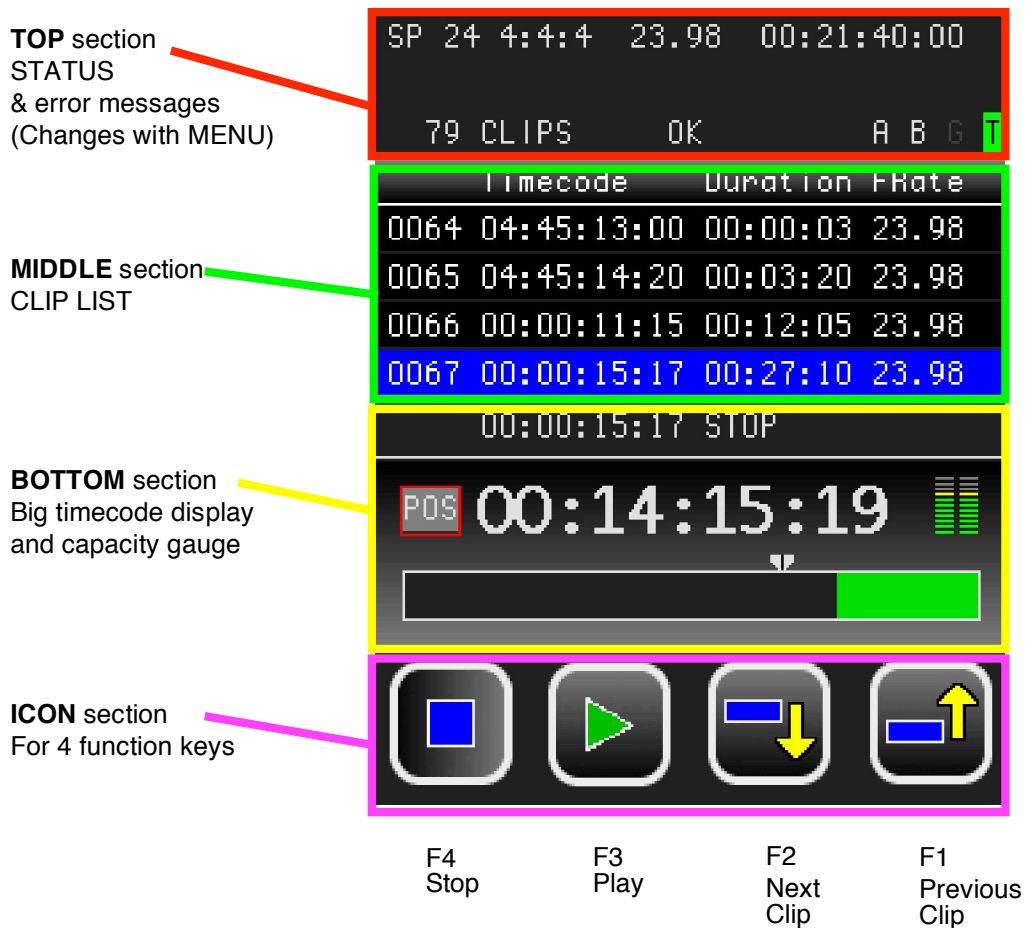
The top line shows SSR position and status in small characters.

The big characters below show SSR position, timecode, TC generator or remaining capacity. Remaining capacity is shown below as a “fuel gauge”, a green bar that decreases as the SSR memory is recorded into.

4.1 Display Rotated for rear docked SSR

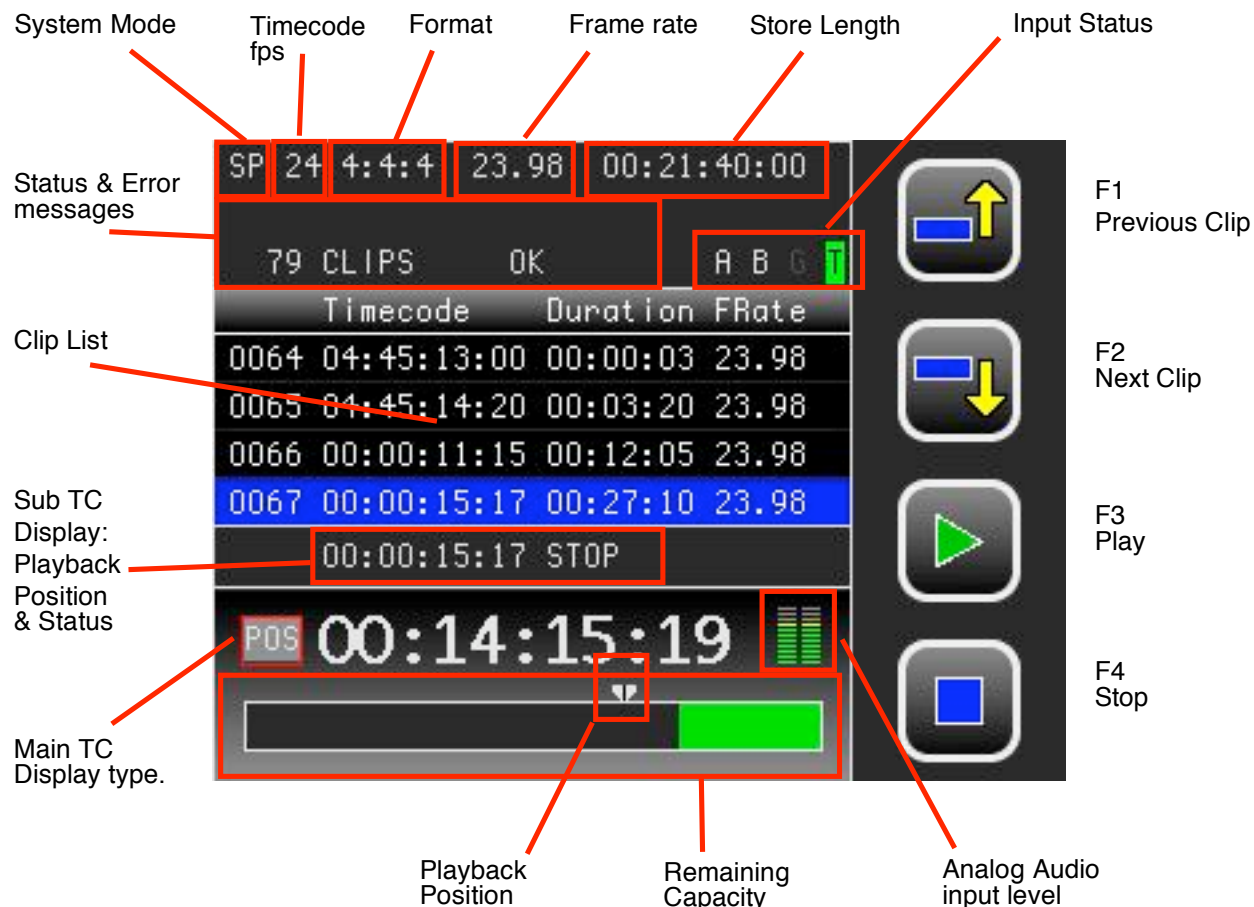
When the SSR is docked on the rear of the Genesis, use the DISPLAY ROTATE switch to change the orientation, as depicted below.

Note that in this position the ICON section is below the BOTTOM section:



4.2 HOME SCREEN

The home screen shows a lot of information about the current status of the SSR. If errors occur they are shown in the TOP section with an error code and a brief explanation. Most errors can be dismissed after the error condition is removed. This is the case, for example, with an error indicating that recording was attempted in the absence of input video. Critical system errors, such as hardware failure, will cause a full screen error message to be displayed, and will disable further recorder operation. (see Appendix A for more information about Error Messages).



Previous recordings are reviewed by using the 4 basic transport controls provided. Pushing the Previous **F1** and Next **F2** Clip controls jumps to the first frame of a clip, pushing Play **F3** starts playback. Playback will continue until the end of all recordings is reached or when Stop **F4** is pushed.

You can safely start recording at any time, either by pushing the SSR **RECORD** key, or by pushing the Genesis camera record button. This will automatically create a new clip and recording will start after all existing material. Starting to record will never erase previous recordings.

If you push Play **F3** after pushing the **RECORD** key to stop a recording, the SSR will playback the last clip from the beginning. This "record review" option, indicated by a highlighting of the play icon, disappears as soon as you push another button on the SSR.

Pushing the **ALT** key yields other icons and transport controls:

ALT F1 cues the SSR to the first frame of the very first clip. **ALT F2** cues to the first frame of the very last clip. **ALT F3** or **ALT F4** will rewind or fast forward. Alternate functions for the home screen are illustrated in section 4.3.

Pushing **ALT F3** to rewind before the very first clip will cue up to 25 seconds of color bars with legitimate timecode. This is useful when doing a dub from the SSR to a videotape recorder (see Appendix C).

The key features of the HOME SCREEN are:

TOP section - Status and Error messages

The first line shows the current system mode (LP/SP), timecode base (24/25/30), format (422/444), frame rate (23.98/24/25 etc...) and total SSR capacity at this frame rate.

The second line will display error code and message when needed.

The third line displays the total number of clips in the clip list, temperature status, key lock status (yellow if locked with switch, red if locked with user code).

TOP section - Input Status

Input status is indicated by four characters: A, B, G and T. A white coloring indicates that the input exists, a grey coloring means the input is absent.

The **A** and **B** characters indicate HD-SDI inputs Link A and Link B. When docked to Genesis, the input status should generally display both A and B in white.

The **G** character indicates the status of the Genlock input, and is only present when the SSR is used standalone.

The **T** character indicates the input status of external time code, it will have a green background when the internal timecode is jam synced to the external code.

MIDDLE section - Clip List

The Clip List display shows up to four lines of previous recordings. The current clip is highlighted in blue. The clip list shows either the Timecode (internal or external) that was recorded along with each clip, or the SSR absolute position (analogous to control track). The clip list timecode/position mode follows the setting of the Sub TC Display menu. See section 5.4.

BOTTOM section – Sub TC Display: Playback Position and Status

The smaller numerals show the current playback position, either in absolute position or as timecode, alongside with the status (STOP, PLAY etc...). See section 5.4.

BOTTOM section - Main TC Display and remaining capacity fuel gauge

The remaining recording capacity of the SSR is shown both numerically as a timecode, and graphically as a decreasing green bar. See section 5.4.

BOTTOM section – Bar Graph of Analog Audio input Level

If analog has been selected as the audio source, the bar graph will show the input level in EE and record modes. Audio levels are not shown during playback and the bars are absent. To set a precise audio input level you should use the expanded display in the audio menu, see section 5.5.

ICON section - Function key icons

The area on the right hand side (or bottom if the display is rotated) shows icons associated with the four function keys. When a function key is pushed, most icons will invert and display a red outline as a visual confirmation that the function has been selected.

4.3 HOME SCREEN – Alternate functions

Pressing the **ALT** key will display the following alternative functions.

Timecode	Duration	FRate
0064 04:45:13:00	00:00:03	23.98
0065 04:45:14:20	00:03:20	23.98
0066 00:00:11:15	00:12:05	23.98
0067 00:00:15:17	00:27:10	23.98

00:00:15:17 STOP

POS 00:14:15:19

F1 First Clip

F2 Last Clip

F3 Fast Forward

F4 Rewind

4.4 RECORD MODE

During recording the SSR position status line will turn red.

Select fps variable speed mode is shown here

Timecode	Duration	FRate
0077 00:02:13:06	00:11:19	23.98
0078 00:02:27:03	00:04:04	23.98
0079 00:09:49:03	00:14:14	23.98
0080 00:58:55:13	00:10:06	23.98

00:59:05:21 RECORD

POS 00:16:31:12

F1 Previous Clip

F2 Next Clip

F3 Play

F4 Stop

5.0 MENU SYSTEM

SSR Menus are accessed by pressing the **MENU** key on the control panel. There are 4 Standard menus and 2 Alternative Menus (at present). Disabled menu items are shown in grey rather than white.

You can navigate the list of menu items by rotating the Encoder thumbwheel. The current menu item is highlighted in Blue. Push the Encoder thumbwheel to select the current item.



Pushing and holding down the **ALT** key gives access to 2 other menu pages that are used less often.



5.1 SUB-MENUS

For most menu items, changes are made via a sub menu system. To activate the sub menu for a highlighted item, push the encoder switch, and the sub menu will then be displayed.



In the above example, the TC Source sub menu has been activated. To select a sub menu item turn the encoder thumbwheel to highlight the new item and then push the encoder switch. To cancel a sub menu selection, push the **MENU** key.

Certain functions will not display a sub menu but rather a new screen. For example, if the SET TCG sub menu item is selected, the following screen appears.



5.2 SYSTEM MENU

The System Menu is reached by pushing **F1** from any menu



FRAMERATE

Select system frame rate for playback. Disabled when the SSR is docked on Genesis, in which case the frame rate is set in the camera menus.

FORMAT

Set system format as **4:4:4** or **4:2:2**. Disabled when the SSR is docked on Genesis, in which case the format is set in the camera menus.

TC GEN

Select **PRESET** or **REGEN** when using the SSR internal timecode generator. There is a **SET TCG** sub-menu for both PRESET and REGEN. (See section 5.1 for illustration). This menu item is disabled when external or HDSDI is selected as timecode source. (See Appendix B for more information about TC options)

TC SOURCE

Select **INTERNAL**, **INTERNAL RTC** (real time clock), **EXTERNAL LTC** or **EXTERNAL HDSDI** video as the timecode generator source. (See Appendix B for more information about TC options)

TC USERBIT

Select **SOURCE** or User Bits **PRESET**, **TOD** (time of day) or **EXTERNAL TC**, **SET UB** (sub-menu).

REFERENCE

Select **AUTO**, **INTERNAL**, **EXTERNAL** or **INPUT** video as the video reference source. AUTO is the usual setting, and its priority is: input, external, internal. When the selected reference signal is removed, the SSR will switch to another reference source, in the same priority. When the SSR is docked to Genesis, this menu item is disabled and the reference is forced to INPUT video.

SELECT FRAME

Used to turn on and off Select frame variable speed mode. Disabled when the SSR is docked on Genesis, in which case the mode is set in the camera menus.

5.3 VIDEO MENU

The Video Menu is reached by pushing **F2** from any menu



MON OUT

Normally leave on **AUTO**. This menu item determines the HD-SDI 422 video output for the "HDSDI" BNC (next to TC). See section 2.0

Select between **AUTO**, **LinkA**, **LinkB** and **444** modes. **444** mode converts 444 to 422. This setting defaults back to AUTO when the SSR is power cycled.

Do not select LinkA or LinkB MON OUT when using the 444 format, as this will create a faulty signal.

TG

Enable and select video test signal generator. Select between **Off**, **CB** (color bars), **PATH**ological, **Ramp** and **Black**.

(The grey and magenta PATHological signal is used to check the serial digital interface)

SD MODE

Select the aspect ratio on the SD OUT BNC (next to GEN). See section 2.0

Select between **Letterbox**, **Edge crop** or **Squeeze** to fit the 16 by 9 frame in the SD (standard definition) 4 by 3 aspect ratio.

SD FORMAT

Select the format of the composite video output for the SD OUT BNC: **NTSC** or **PAL**.

MONITOR

Select the video output for the LINK A, LINK B and HDSDI monitor outputs in non-play modes. Select between **PB/EE** and **PB**.

In **PB/EE** mode, playback is selected when PLAY, SHUTTLE, FWD or REWIND and input video is seen when in STOP. If there is no video input then **EE** mode will not be selected.

In **PB** mode, playback video is always seen on the output, even when the SSR is stopped, in which case a still frame is displayed.

5.4 DISPLAY MENU

The Display Menu is reached by pushing **F3** from any menu

Timecode versus Position

The 8 digit numbers in the hour : minute : second : frame format on the SSR can indicate either Position or Timecode.

Position is analogous to Control Track. The Position is set to 00:00:00:00 at the beginning of the first recording on the SSR, and incremented with every subsequent recording. Position tells you how much you have recorded.

The Timecode signal is set either internally or externally in the System Menu. See section 5.2.



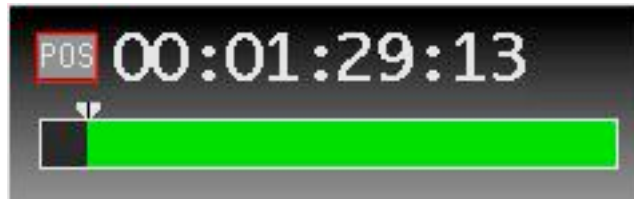
Main TC Display Values

The Main TC display is the big timecode number at the bottom of the display. It can indicate 4 different values:

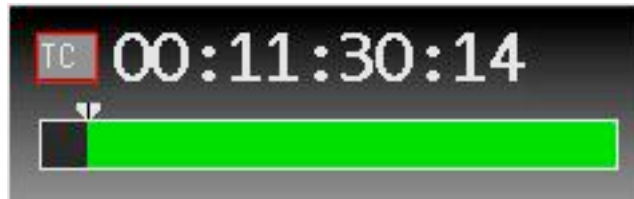
1. Remaining capacity left in the SSR, displayed in the current system timecode format. This mode is indicated by a **REM** box on left of the Main TC.



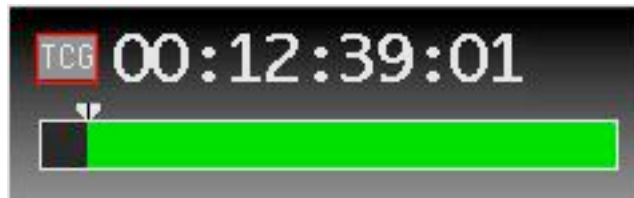
2. Position - Current position, starting with a value of zero at the beginning of the first recording made on the SSR. This mode is indicated by a **POS** box on left of the Main TC.



3. Timecode - Current timecode associated with the currently displayed frame. This mode is indicated by a **TC** box on the left of the Main TC HH;MM;SS:FF display.



4. Timecode generator. This is the TC set in the System Menu. This mode is indicated by **TCG** box on left of the Main TC. The only occasion you will see TCG is on the HOME screen, when you push the Encoder jog knob to see the EE video signal.



Main TC Disp

You can select 1 of 4 settings:

1. **Remaining capacity**
2. **Position**
3. **Timecode**
4. **Auto** – In record the Main TC will display remaining capacity, in playback the Main TC will display playback Position or Timecode. The playback mode (Position or Timecode) depends on the setting of the Sub TC Display discussed below.

Sub TC Disp

The sub timecode display is the smaller-sized timecode right above the Main TC. You can select either:

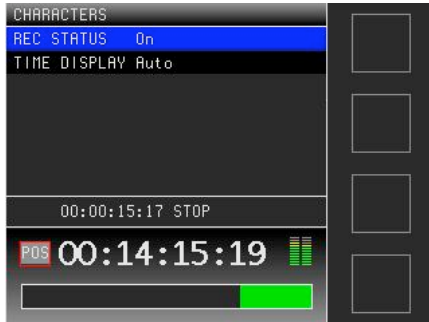
1. **Position** - Current position of the SSR starting from zero at beginning of first recording.
2. **Timecode** – The timecode associated with the current frame.

NOTE

The Sub TC Display setting of Position or Timecode determines the numerical setting for:

1. The Sub TC Display itself
2. Main TC Display (when it is in AUTO mode)
3. The Clip List

For example, if the Sub TC Display is set to Position, the Main TC will display Position if it is in AUTO mode, and the Clip list will also show Positions.

**CHARACTERS**

Select whether to turn characters **On** or **Off** in the video monitor 422 output and the SD output.

A sub-menu allows you to define the on-screen characters:

1. **REC STATUS** – Turn the recording status **On** or **Off**. When on, a red “REC” will appear on right-hand bottom of the image during recording.
2. **TIME DISPLAY** – Select **Auto**, **Remain**, **Timecode**, **Position** or **Off**



Time display

Record Status

5.5 AUDIO MENU

The Audio Menu is reached by pushing **F4** from any menu



Audio Input

The SSR can record 16 audio channels in total but most of these are only available via the HD-SDI input. Audio embedded in the HD-SDI signal is divided into 4 groups of 4 channels. The SSR has two analog line-level audio inputs (see section 2.0) which can be assigned to two channels in any of groups 1 through 4 (the other two channels in that group are not currently available and will be muted). Typically you will select **CH 1&2** when the SSR is docked on the Genesis camera.

Audio TG

Turn 1KHz audio test signal generator **On** or **Off**

Gain CH1 / Gain CH2

When selected, a sub-menu allows adjustment of the **Audio Gain** of the analog input channels. Functions in this sub menu are as follows.

Audio Gain

Use the Encoder thumbwheel to increase or decrease the **Audio Gain** of the selected channel. The gain units range from 0.000 to 15.999 (1.0 is unity).

Push **F1** or **F2**
to select between **CH1** and **CH2**

Push **F3**
to put the selected channel
back to unity gain.



5.6 SSR MENU

The SSR-specific Menu is reached by pushing **ALT F1** from any menu



FAN MODE

Set to **AUTO**, **OFF**, **MIN** or **MAX**.

AUTO mode turns the SSR fans to low speed during recording.

In all modes the fan speed will increase if the SSR temperature is too high for safe operation.

POWER MODE

Set to **NORMAL** or **STANDBY X MINS** where X is standby duration. A sub menu selects between **Normal**, **2 mins**, **5 mins**, **15 mins**.

In **NORMAL** mode the SSR stays fully powered and can start recording instantaneously.

In the **STANDBY** modes, parts of the SSR are powered down after the selected elapsed time.

This achieves significant power savings, however there will be a delay of approximately 5 seconds, when starting recording or playback.

INTERVAL

Select **OFF** or **ON**.

When **ON**, define the time interval.

The SSR intervalometer may be set to record 1 frame of video at intervals ranging from every 2 frames to every 24 hours.

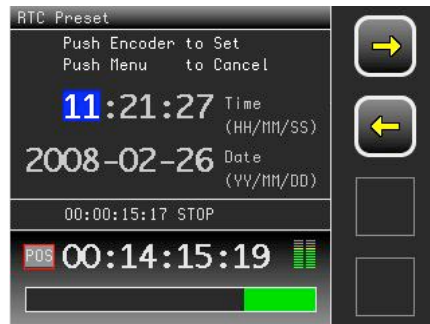
Pushing the **RECORD** key records the first frame, a decreasing counter then appears, and subsequent frames are recorded at every zero value, which restarts the countdown.



A timer symbol appears to the left of the TC number, and a yellow icon appears in the sub TC. The Interval mode is not saved between SSR power cycles.

TIME

Select to set the internal real time clock (RTC).



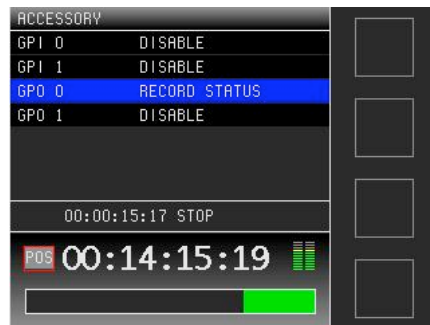
ACCESSORY

The SSR has two accessory inputs and two accessory outputs. Each input and output has assignable functions that are selected with this menu. At present the options are:

GPI - DISABLE and RECORD COMMAND

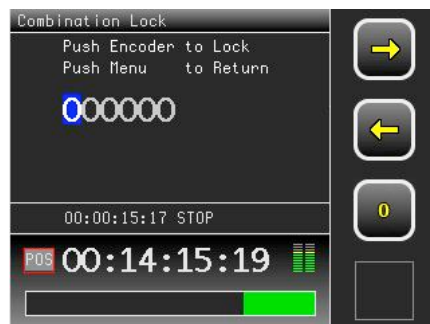
GPO - DISABLE, RECORD STATUS and SHUTTER PULSE

SHUTTER PULSE is a 1 field pulse every time the SSR records a frame, it is not an indication of the exact position of the camera exposure. Other GPI and GPO options will be included in the future as need arises. Note that the Accessory ports are opto-isolated for noise immunity and current surge protection.



LOCK

Allows a combination lock to be set to disable all record and playback functionality. The lock will retain its state even if the SSR is powered down. A lock code of 000000 is invalid to prevent accidental locking.



WARNING:

If the lock code is forgotten, the only way to unlock the SSR is to return the unit to the factory.

6.0 INITIALIZATION

WARNING:

Initializing erases all your recordings. There is no undo feature after initializing the SSR.

You should proceed with extreme caution when initializing. Panavision has made initialization a multi-key operation to avoid unintentional initialization.

Initialization is reached by pushing **ALT F4** from any top-level menu



Initializing the SSR causes the clip database to be deleted so that the full capacity of the SSR is available for recording. Initialization is made to one of two distinct modes.

1. **SP** or Standard play mode – **ALT + ENCODER + F1**

In SP mode both 444 and 422 recording are possible, and any recording format may be selected at any time. In SP mode, you will get approximately 21 minutes of recording time at 24fps.

2. **LP** or long play mode – **ALT + ENCODER + F4**

In LP mode only 422 recording is available. The LP capacity of the SSR is twice that of the SP mode. In LP mode, you will get approximately 43 minutes of recording time at 24fps. Once you are in the LP mode, you cannot record 444 unless you initialize the SSR in SP mode.

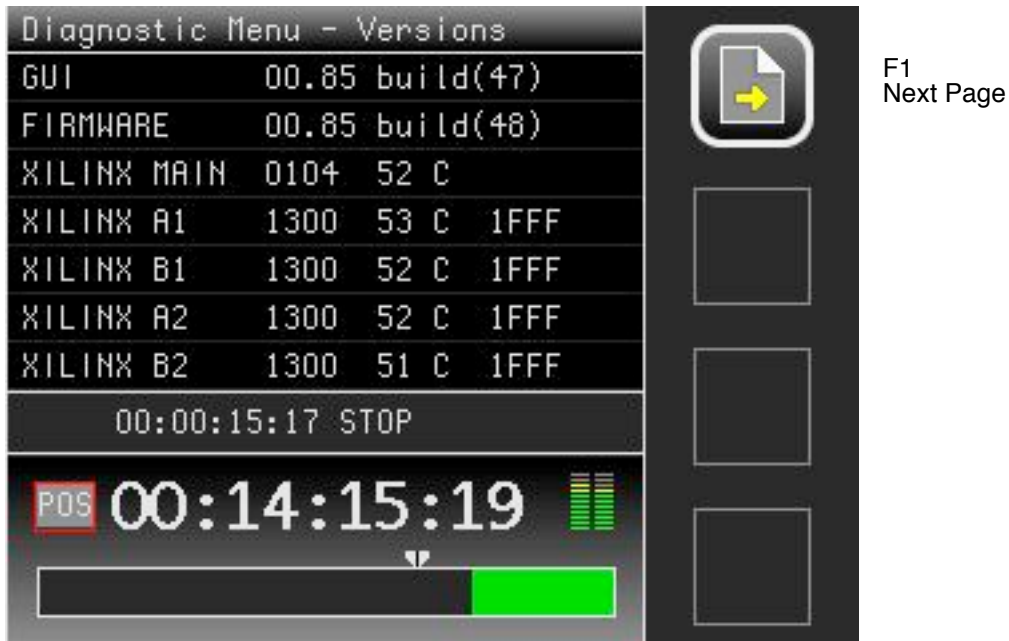
WARNING:

If the SSR is in LP mode and an attempt is made to dock to a camera that is in 444 format, then error **E33** will be displayed, indicating that the camera must be set to 422 before operation can continue. See Appendix A.

7.0 DIAGNOSTICS

The SSR has several diagnostic screens. At present, most of the information is only of interest to the development team. However there are 2 screens that Panavision service technicians may find useful.

To access Diagnostics, push and hold down **ALT** and then push **MENU**.



The above screen shows the SSR firmware version numbers, along with the version, temperature and status of various components in the system.

Page 2 is for factory use only.

Page 3 shown below indicates serial number and system status, including the lifetime total of operating hours and video frames recorded.



APPENDIX A – SSR Error Messages

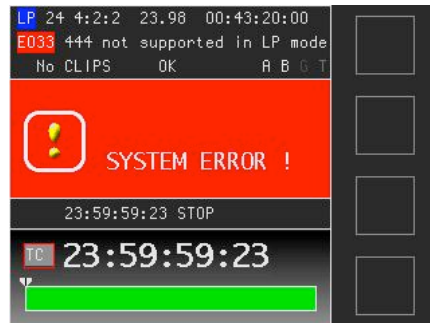
WARNING: Error codes below 64 are displayed as critical system error messages, and SSR operation will be halted.

E31	Memory DDR failure
E32	Memory Queue error
E33	444 not supported in LP mode
E34	Mixed Memory board sizes
E35	Overtemp - Memory shutdown

E31 and E32 are hardware failures and the SSR should be returned to Panavision for service. E33 indicates the SSR is in LP mode and has been asked to operate in the 444 format, this can be cleared by changing the camera format to 422.

E34 indicates a configuration error with the memory hardware.

E35 indicates an over heating. Note that the E35 shut down is preceded by 2 earlier HOME screen warnings: WARM (in yellow), then HOT (in red).



Example of System error 33. This error can be resolved by changing the camera's format to 422 mode.

The following error codes are less serious but should not be ignored. You will be able to continue recording. Contact your Panavision representative if you get any these errors. Operation should be stopped if these error codes persist.

E64	System int error
E65	System file load error
E66	System file save error

E121	Clip list error
E130	Fan failure

The following error codes can safely be ignored but should be reported to Panavision if persistent.

E100	Input Video Missing
E101	Link A Missing
E102	Link B Missing
E104	Input video lost during record

E105	Memory Status error
E106	Memory size was changed

E110	Input framerate error
E120	External framerate error

E140	Camera shutdown (shutdown was requested by the camera)
------	--

APPENDIX B – Timecode / Userbit Source Matrix

Timecode in the SSR is controlled by three settings in the SYSTEM menu. (See section 5.2)

1. TC GEN – only available when the TC source is internal.
PRESET
REGEN
2. TC SOURCE
INTERNAL
INT RTC (internal real-time clock)
EXTERNAL
HD-SDI
3. TC USERBITS – not available when the TC source is HD-SDI
SOURCE
PRESET
TOD (time of day)
EXT TC

Note: Most projects select INTERNAL REGEN or EXTERNAL.

The following table shows TC setting combinations and their effect.

SOURCE	TIMECODE	UB =source	UB = preset	UB = TOD	UB = ext TC
INTERNAL PRESET	Free running	Preset UB	Preset UB	Time Of Day UB	External UB or Preset UB(1)
INTERNAL REGEN	Rec Run May be Preset	Preset UB	Preset UB	Time Of Day UB	External UB or Preset UB(1)
INTERNAL RTC	Time Of Day	Preset UB	Preset UB	Time Of Day UB	External UB or Preset UB(1)
EXTERNAL	External TC or Free Run	External UB	Preset UB	Time Of Day UB	Preset UB
HD-SDI	HD-SDI TC	HD-SDI UB	HD-SDI UB	HD-SDI UB	HD-SDI UB

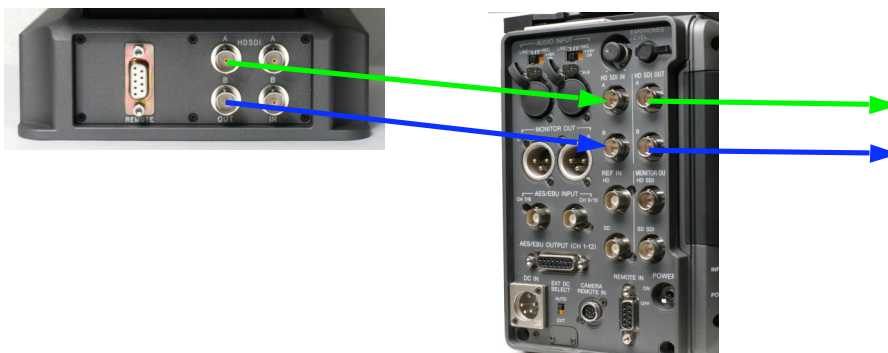
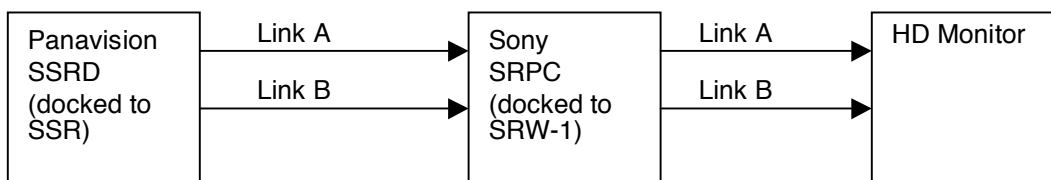
- (1) External TC if it is present, preset UB if no external TC.

Time code is inserted into the recorded data stream in Link A unless HD-SDI is selected as the source, in which case the original timecode is left unchanged.

Panavision recommends that you consult your post-production house about TC settings.

APPENDIX C – Dubbing SSR Footage to Sony SRW-1

1. Mount the Panavision SSR on the Panavision SSRD docking station. Mount the Sony SRW-1 on the Sony SRPC.
- 2A. To make a 444 dub, connect Link **A** and **B OUT** on the SSRD to the **HD SDI IN A** and **B** connectors on the Sony SRPC
- 2B. To make a 422 dub, connect Link **A OUT** on the SSRD to **HD SDI IN A** connector on the Sony SRPC
3. On the Sony SRPC, connect **HD SDI OUT A** (and optionally **B**, if in 444) to an HD monitor and perhaps a waveform monitor. Alternatively, you can connect the SRPC **MONITOR OUT HD SDI** to the HD monitor
4. Make sure that both the Panavision SSR and Sony SRW-1 have the correct format selected, either 422 or 444, for the material being copied. (See section 5.2).
The SSR will not convert material if its format setting is incorrect; that is, if 422 material has been recorded and the SSR system is set to 444, playback will be incorrect.
Select the correct frame rate on both SSR and SRW-1 (usually 23.98PsF).
5. On the Sony SRW-1 select TCG MODE as RGN, REGEN SRC as SDI-L and RUN MODE as RRUN.
6. On the Sony SRW-1 make sure that audio is being recorded from the HD-SDI input.
7. Cue the SSR to the first clip using **ALT F1**. If desired, the SSR can be rewound prior to the first clip by pushing **ALT F4**, providing up to 25 seconds of color bars. This allows the SSR to play into the first clip with timecode running.
8. Insert a new blank HDCAM-SR tape into the SRW-1.
9. Press record on the SRW-1 and, a few seconds later, press **F3** play on the SSR. Monitor the recording until all material has been copied. Check playback on the SRW-1.



APPENDIX D – Connector Pin-outs

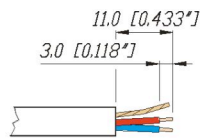
SSR AUDIO Connectors

Pin	Signal
1	Ground
2	Line (Hot)
3	return (Cold)

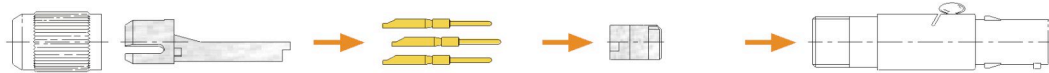
Below is the mating connector used for the audio cable, Neutrik nanacon NSC3M:

NSC3M

Cable Preparation:

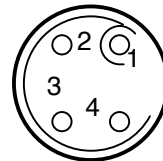


Contact Arrangement:



SSR NETWORK Lemo Connector, 4 pin #0

Pin	Signal
1	TxConn_N
2	TxConn_P
3	RxConn_N
4	RxConn_P



Ethernet cable connections assuming SSR is connected to Ethernet Hub or switch.

Lemo 4 Pin Male

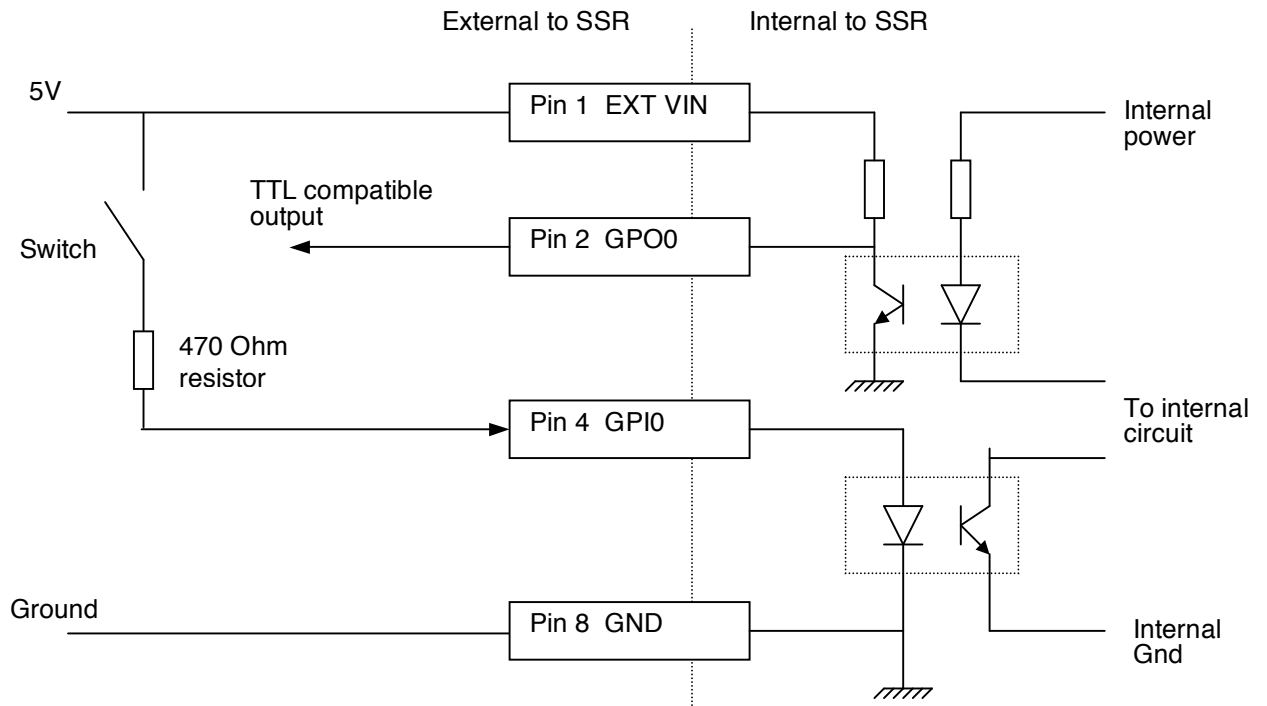
RJ45

Pin	Signal	Pin	RJ45 T568B Color
1	TxConn_N	2	Orange
2	TxConn_P	1	Orange/White
3	RxConn_N	6	Green
4	RxConn_P	3	green/White

SSR ACCessory LEMO Connector

Pin	Signal
1	EXT VIN
2	ExtA – Output GPO0
3	ExtB – Output GPO1
4	ExtC – Input GPIO
5	ExtD – Input GPI1
6	
7	
8	EXT GND

The SSR accessory connector provides true optically isolated inputs and outputs. EXT VIN should be in the range of 3 to 9v DC. A typical example is shown below:



SSRD 9 pin REMOTE connector

SSRD is wired as a slave (controlled) device

Pin	Signal
1	Frame Ground
2	Tx A (-)
3	Rx B (+)
4	Gnd
5	
6	Gnd
7	Tx B (+)
8	Rx A (-)
9	Frame Ground

APPENDIX E – SSR Specifications

WEIGHT - About 2.7 kg / 6 lbs

DIMENSIONS (L W H) - 240mm x 135mm x 120mm (9.5 x 5.3 x 4.7 inches)

POWER - 11-17V DC, 40 Watts maximum in record, 6W in low power standby

VIDEO FORMATS

4:4:4, 4:2:2, Dual 4:2:2, 4:4:4:4

1080/23.98PsF, 1080/24Psf, 1080/25PsF, 1080/29.97PsF, 1080/30PsF

1080/60i, 1080/50i, 1080/59.94i

At present, Genesis Select frame 1-30 (in future Select frame 1-60)

AUDIO CHANNELS

16 from HD-SDI signal

2 from Analog inputs

CAPACITY

62400 frames in LP mode 4:2:2 only

43 minutes @ 24 fps

41 minutes @ 25 fps,

34 minutes @ 30 fps

31200 frames in SP mode 4:4:4, Dual 4:2:2, 4:4:4:4

21 minutes @ 24 fps,

20 minutes @ 25 fps,

17 minutes @ 30 fps

SSR-1 CONNECTORS

Docking multi-pin connector Dual link HD-SDI A & B input and output

HD-SDI output - 1 BNC with 4:2:2 monitor signal

SD output - 1 BNC with NTSC/PAL composite video

Genlock input -1 BNC for tri-level sync

Audio input - 2x Line level balanced

Timecode input - 1 BNC

Network - 4-pin Lemo connector (100BaseT Ethernet)

Accessory – 8-pin Lemo connector