SONY

CINE ALTA™

HDCAM SR™

HD Portable Digital Video Recorder

SRW-1

HD Video Processor

SRPC-1


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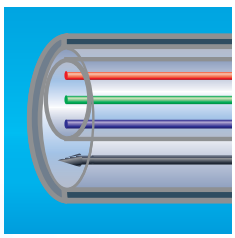
RGB Field Production

CineAlta™ products are Sony's response and commitment to the ITU 709 global standard, specifically intended for international high-definition (HD) program origination. Globally, HD programming is becoming far more mainstream, and the HDCAM™ format has become the most popular format supporting it. This popularity has escalated the demand for even higher quality and greater storage capacity to support extremely high-quality digital production and multi-channel audio mastering.

Responding to these demands, Sony has introduced a new state-of-the-art format that provides a platform with greater storage capacity, higher data-transfer rates, and more audio channels than current HDCAM models. This new format is the HDCAM-SR™ format.

The SRW-1 HD Portable Digital Video Recorder and the SRPC-1 HD Video Processor are the newest members of the CineAlta product lineup, and form the first Sony full-bandwidth 4:4:4 (RGB) portable VTR system, adopting the HDCAM-SR format. The SRW-1/SRPC-1 offers virtually lossless 1080-line high-definition recordings at multiple frame rates on the very latest HDCAM-SR tape media. This new system further enhances the flexibility of CineAlta products in field production applications.



The SRW-1/SRPC-1 connects to its companion HDC-F950 portable camera via a single optical fiber cable to create a convenient, portable full-bandwidth 4:4:4 (RGB) image-capturing system. The SRW-1 can be configured with not only the HDC-F950 portable camera but also the HDW-F900 HDCAM camcorder to record HD 4:2:2 component images. The SRPC-1 processor unit, specially designed for the SRW-1, provides a variety of video-processing functions and houses an array of input and output connectors, including HD/SD signals, 12 channels of digital audio, and 4 channels of analog audio. Its processing functions include the easy handling of 2-3 pull-down insertions, down conversion, and RGB 4:4:4 to Y/Pb/Pr 4:2:2 color-space conversion.

Offering unprecedented HD image quality, excellent operability, and powerful interfacing capabilities, the SRW-1 and SRPC-1 promise to be the ideal HD portable VTR system, especially for movie-making, commercial production, and high-end television production applications.

Features and Benefits

High-quality HD Field Recording

Connecting with its companion HDC-F950 camera, the SRW-1/SRPC-1 creates the highest-quality and most faithful portable HD image-capturing system ever seen. With full-bandwidth HD RGB 4:4:4 and top-quality 4:2:2 Y/Pb/Pr 10-bit recording capabilities, achieved by the new HDCAM-SR format, the SRW-1/SRPC-1 offers unprecedented picture quality – meeting the needs of even the most demanding customers in movie-making, commercial production, and high-end television production industries, as well as the requirements of digital-content mastering. In addition, the SRW-1/SRPC-1 offers up to 12 channels of 24-bit audio at 48 kHz.

Double-speed Recording

The SRW-1/SRPC-1 is equipped with a unique double-speed recording capability, which doubles the drum rotation and tape speed and thus achieves an amazing data transfer rate of 880 Mbps (standard quality is 440 Mbps)*. This extremely high-speed data transfer rate provides three selectable recording modes for different purposes. The high-quality mode** is used to record highest-quality RGB 4:4:4 HD images. This is the ideal mode for applications where the highest possible picture quality is a top priority.
The 1080/60P recording mode is used to achieve a slow-motion effect when playing back recordings in 1080/30P format. The 2CH video recording mode enhances flexibility and creative versatility. This mode allows the SRW-1/SRPC-1 to record the images of two cameras simultaneously – making it possible for users to shoot two different scenes simultaneously or achieve 3D stereo shooting.

* Recording time will be half that of the standard recording mode.
** The content recorded by the high-quality mode cannot be played back by the SRW-5000 VTR.

Multi-frame-rate 1080 HD Recording and Playback

The SRW-1/SRPC-1 supports both multi-frame-rate recording and playback using 1920 (H) x 1080 (V) active pixels as specified by the industry-standard ITU Common Image Format (CIF). This fulfills a wide range of needs such as digital cinematography, commercial, and high-end television program productions. The following range of both progressive and interlaced frame rates can either be recorded or played back:

- Progressive: 23.98PsF, 24PsF, 25PsF, 29.97PsF, 50P, 59.94P
- Interlace: 50i, 59.94i

720P Recording and Playback

In standard configuration, the SRW-1 also records in 4:2:2 720/59.94P format. This format can be used for North American DTV programming and transmission applications. As with the 1080 format, users still have up to 12 channels of 24-bit audio available when operating in 720P format.

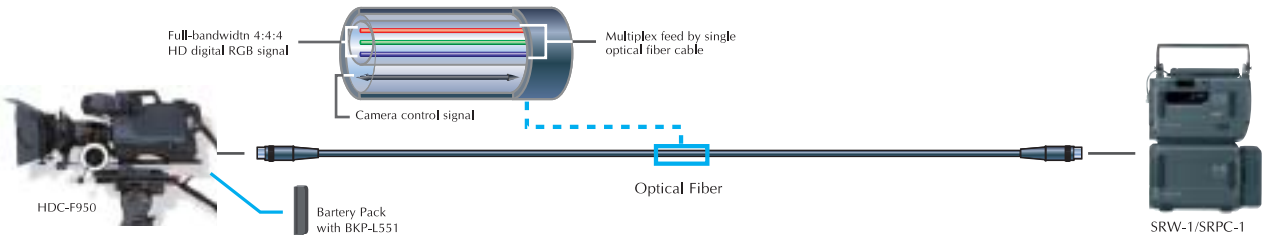
Long Recording Time

The SRW-1/SRPC-1 is capable of recording up to 50 minutes at 1080/23.98P and up to 40 minutes at 1080/59.94i or 720/59.94P on a single S-sized HDCAM-SR cassette. For even longer recording time, two SRW-1/SRPC-1 units can be cascaded to double the recording capacity.

Single Fiber Connection

Despite its outstanding HD image-capturing capability, the cable connections of the SRW-1/SRPC-1 remain extremely simple and clean. This is due to the implementation of an all-digital transmission system incorporating the latest optical technology. The result is a 'single-cable' transmission system that carries all required lossless RGB signals from the HDC-F950 camera to the SRPC-1 processor and then records them to the docked SRW-1 VTR*.

* The optional HKSR-101 Optical Interface Board required.



Operational Versatilities

RS-422 Interface for Server Connection

The industry-standard RS-422 Sony 9-pin interface allows editors to control the SRW-1/SRPC-1 remotely. Connecting to the server via a HD-SDI dual-link connection, the SRW-1/SRPC-1 acts as an on-line feeder, smoothly transferring the recorded material to the subsequent post-production operation.

Detachable Control Panel

A detachable control panel provides operators with a comfortable VTR operating environment. When the control panel is detached, the supplied extension cable allows operators to control the SRW-1/SRPC-1 remotely.

Built-in Tele-File Read/Write Capability

The SRW-1/SRPC-1 has a built-in Tele-File read/write capability. Because this VTR accommodates a wide range of recording formats, the Tele-File feature – which allows auxiliary information to be stored on a tape label containing an IC chip – is utilized to verify the proper format. Tele-File labels come as a standard feature on all HDCAM-SR tapes.

Internal Format-Conversion Capability

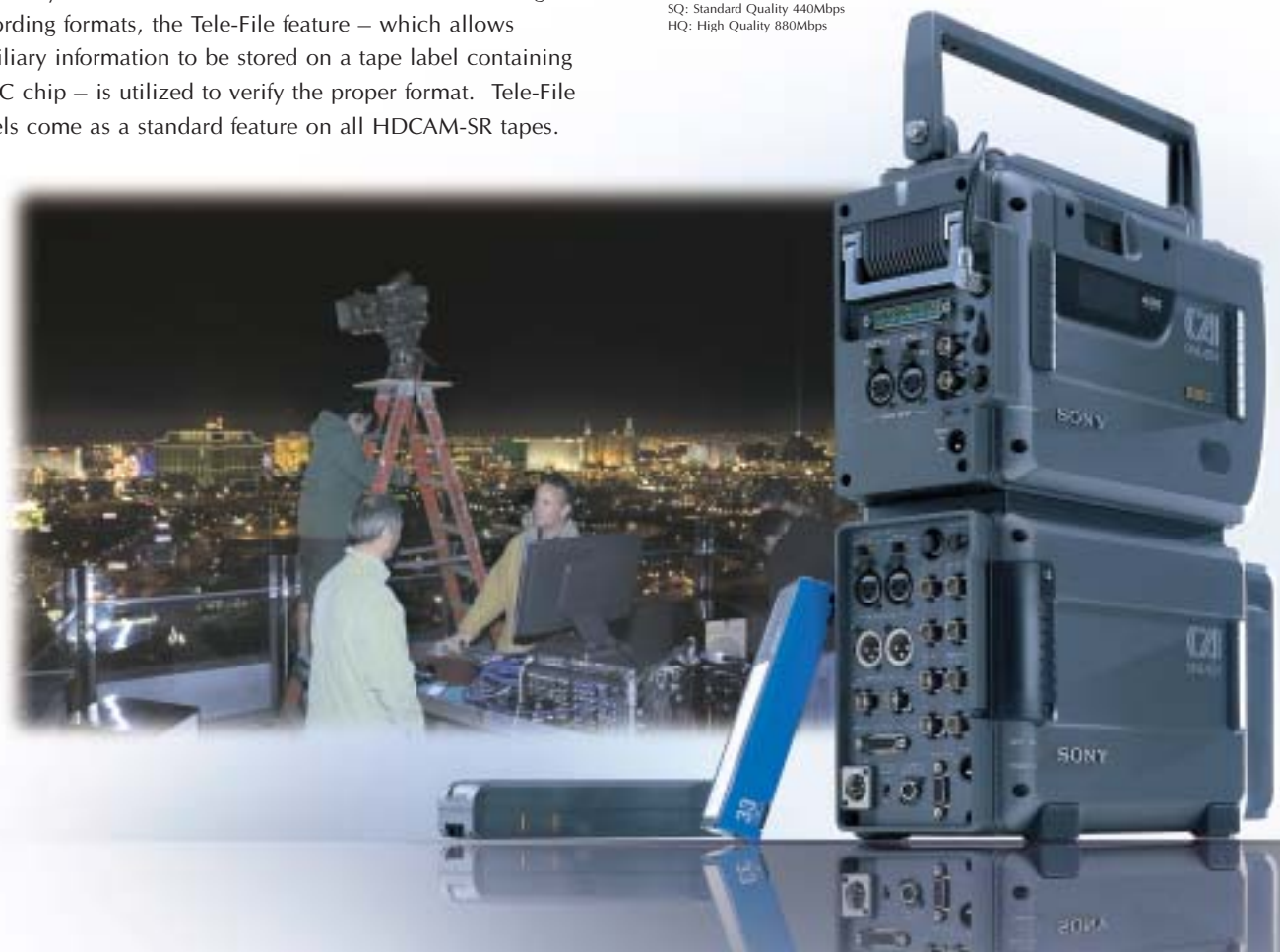
In addition to RGB 4:4:4 to Y/Pb/Pr 4:2:2 conversion, the SRW-1/SRPC-1 possesses a wide variety of format-conversion (including 2-3 pull-down) capabilities ranging from HD to HD and HD to SD, offering solutions for high-quality material monitoring and work-tape creation.

SRW-1 Internal Format-Conversion Capability

SYSTEM (HD-SDI IN/OUT)		HD MONITOR OUT		SD MONITOR OUT
1080/4:2:2	23.98PsF	1080/4:2:2	23.98PsF	525/59.94i
			59.94i*	
	24PsF		24PsF	625/50i**
	25PsF		25PsF	625/50i
	29.97PsF		29.97PsF	525/59.94i
	50i		50i	625/50i
	59.94i		59.94i	525/59.94i
1080/4:2:2	50P	1080/4:2:2	50i	625/50i
	59.94P		59.94i	525/59.94i
1080/4:4:4 SQ or HQ	23.98PsF	1080/4:2:2	23.98PsF	525/59.94i
			59.94i*	
	24PsF		24PsF	625/50i**
	25PsF		25PsF	625/50i
	29.97PsF		29.97PsF	525/59.94i
	50i		50i	625/50i
	59.94i		59.94i	525/59.94i
720/4:2:2	59.94P	720/4:2:2	59.94P	-

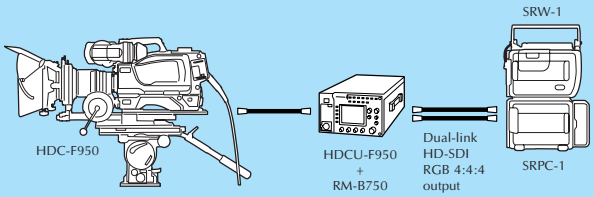
HD-SDI Dual Link
Alternative

* 2:3 pulldown
** 24P->50i pulldown before down conversion
SQ: Standard Quality 440Mbps
HQ: High Quality 880Mbps

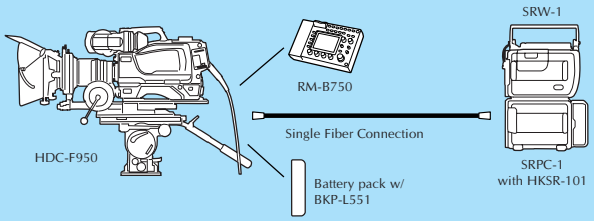


System Configuration

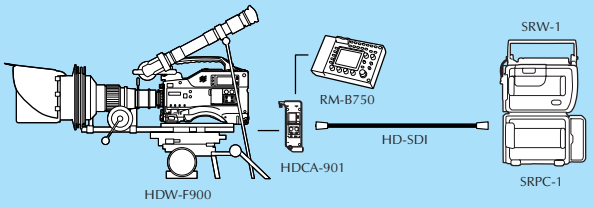
RGB 4:4:4 Recording (HD-SDI Dual-link)



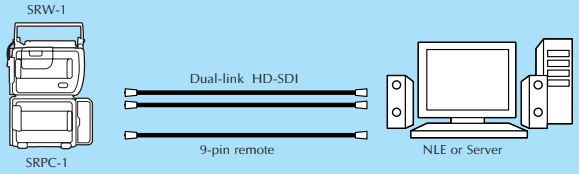
RGB 4:4:4 Recording (Direct Fiber Connection)



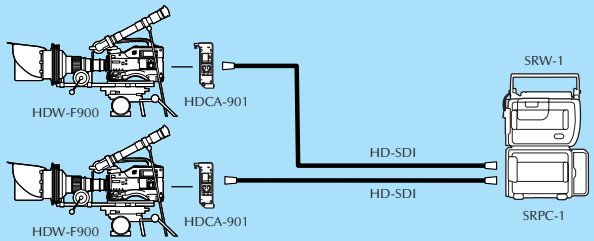
4:2:2 Recording



Source Feeding to NLE or Server



Two-camera Operation



Dimensions

SRW-1/SRPC-1 Rear Panel

Optional Accessories

AC-550A
AC Adapter

AC-DN10
AC Adapter

BP-GL95
Info Li-Ion Battery

BP-GL65
Info Li-Ion Battery

BP-IL75
Info Li-Ion Battery

BP-M50/M100
Ni-MH Battery

BC-M50
Battery Charger

BC-M150
Battery Charger

RM-B150
Remote Control Unit

RM-B750
Remote Control Unit

BCT-6/33/40SR
HDCAM-SR Video Cassette Tapes

BCT-HD12CL
Video Head Cleaning Cassette

HKSR-101
Optical Interface Board

SRW-1/SRPC-1 Specifications

General	
Power requirements	DC +12 V (DC +11 to +17 V)
Operating temperature	0 °C to +40 °C
Storage temperature	-20 °C to +60 °C
Humidity	25 % to 80 % (relative humidity)
Mass	8.5 kg (18 lb. 12 oz)
Dimensions (W x H x D)	279 x 399 x 139 mm (11 x 15 3/4 x 5 5/8 inches)
Recording format	HDCAM-SR
Recording/Playback time	Normal speed recording: 50 min. with BCT-40SR cassette (24P mode)
	Double speed recording: 25 min. with BCT-40SR cassette (24P mode)
Fast forward/rewind time	5 min.
Fast forward/rewind speed	±11 times
Search speed (Shuttle mode)	±11 times
Input/Output signals	
HD serial V/A input	BNC x 2, Serial Digital (1.485 Gbps), SMPTE-292M/SMPTE-372M/BTA-S004/ITU-R.BT709
HD reference video input	BNC x 1, Tri Level Sync, 0.6 Vp-p, 75 Ω, sync negative
SD reference video input	BNC x 1, Black Burst, 0.286 Vp-p, 75 Ω, sync negative
Digital audio input	BNC x 2 (AES/EBU)
Analog audio input	XLR-3pin x 4 (female)
Time code Input	BNC x 1, 0.5 to 18 Vp-p, 10 kΩ
HD serial V/A output	BNC x 2, serial digital (1.485 Gbps), SMPTE-292M/SMPTE-372M/BTA-S004/ITU-R.BT709
HD serial V/A monitor output	BNC x 1 (with character out), serial digital (1.485 Gbps), SMPTE-292M/BTA-S004/ITU-R.BT709
SD serial V/A monitor output	BNC x 1 (with character out), D1 serial digital (270 Mbps), SMPTE-259M
Digital audio output (ch1 to ch12)	D-sub multi connector
Analog audio monitor output	XLR-3pin x 2 (male)
Time-code output	BNC x 1, 1.0 Vp-p (75 kΩ), 2.2 Vp-p (10 kΩ)
Phones	Stereo mini jack x 2 -17 dBu
Remote input	D-sub 9-pin (female), Sony 9-pin remote interface

Digital video performance	
Sampling frequency	Y: 74.25 MHz, Pb/Pr: 37.125 MHz
	G: 74.25 MHz, B: 74.25 MHz, R: 74.25 MHz
Quantization	10 bits/sample
Compression	MPEG-4 Studio Profile
Channel coding	S-NRZ
Error correction	Reed-Solomon code
Digital audio performance	
Sampling frequency	48 kHz (synchronized with video)
Quantization	24 bits/sample
Wow & flutter	Below measurable level
Analog audio performance (Playback with the SRW-5000 VTR)	
Sampling frequency	24 bits/sample
Frequency response	20 Hz to 20 kHz, +0.5 dB/-1.0 dB (reference level)
Dynamic range	More than 100 dB (1 kHz)
Distortion	Less than 0.05 % (at 1 kHz, reference level)
Crosstalk	Less than -80 dB (at 1 kHz, between any two channels)
Accessories	
Supplied accessories	Operational manual (1)
Optional accessories	HKSR-101, Optical Interface Board
	AC-550A, AC Adapter
	AC-DN10, AC Adapter
	BP-GL65/GL95, Info Li-Ion Battery
	BP-IL75, Info Li-Ion Battery
	BP-M50/M100, Ni-MH Battery
	BC-M150, Battery Charger
	BC-M50, Battery Charger
	RM-B150, Remote Control Unit
	RM-B750, Remote Control Unit
	BCT-6/33/40SR, HDCAM-SR Video Cassette Tapes
	BCT-HD12CL, Video Head Cleaning Cassette

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Features and specifications are subject to change without notice.
All non-metric weights and measurements are approximate.
23.98P, 24P, 25P, and 29.97P are used as generic names in this literature for the industry standard 23.98PsF, 24PsF, 25PsF, and 29.97PsF (Progressive Segmented Frames), respectively.

CINEALTA™

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