SONY

Digital Surveillance Recorder

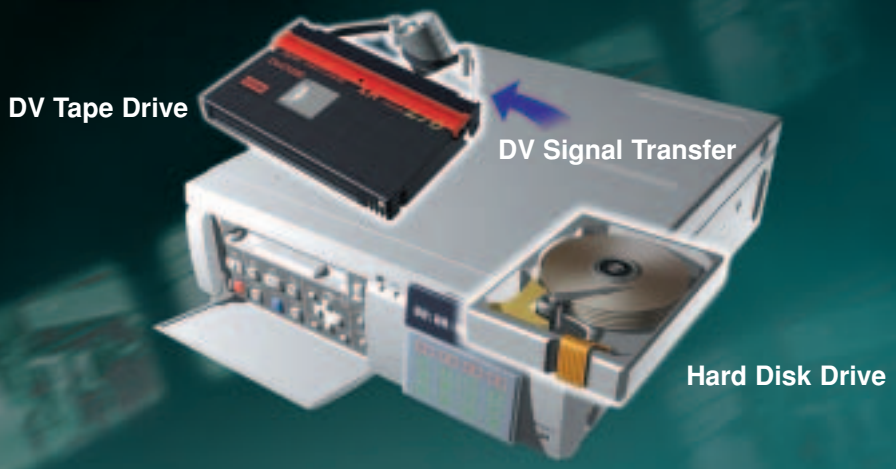
HSR-2/1

Hybrid Digital Recorder for High-Performance Digital Video Recording & Archiving

In 1999, Sony introduced the HSR-1 digital hybrid recorder, a new type of surveillance recorder providing superior picture quality, longer recording time and higher reliability than analog recorders. This type of hybrid recorder also relieved the user of lengthy upload times and high operational costs.

In 2000, Sony released the HSR-2 recorder that incorporated two new exciting features: a greatly increased recording time with a 20GB hard disk and the ability to playback during recording.

Today, Sony continues to upgrade and increase the power of its HSR recorders with its new HSR-2/1 recorder. The HSR-2/1 recorder triples its recording time with a built-in 60GB hard disk, ensuring support for demanding surveillance applications.



The HSR Advantage: HDD/DV Hybrid Recording

The hybrid approach of the HSR-2/1 recorder offers a clear advantage for video surveillance applications by providing both a hard disk drive (HDD) and a DV (digital video) tape drive as the storage media. With this HSR recorder, images are first stored on hard disk and then, at given intervals, automatically transferred to DV tape. This unique recording process significantly reduces maintenance costs, and provides superior picture quality and operational flexibility.

High Reliability

The hybrid configuration of HDD and DV tape drive achieves high reliability and reduces tape transport and head maintenance. The tape transport and heads of the HSR-2/1 work only when an image is transferred from hard disk to DV tape, whereas conventional time-lapse recorders must work continuously while recording. The mechanical transient motion and head running time of the HSR-2/1 recorder is drastically reduced, resulting in excellent reliability and further reducing maintenance costs.

Backup Recording

The hard disk and DV tape hybrid operation of the HSR-2/1 provides a backup recording capability for continuous recording in the event of a failure in the recorder. If the HDD fails, image data is recorded directly to DV tape. On the other hand, if the DV tape drive fails, recording continues on the hard disk. For additional backup protection, the HSR-2/1 recorder always checks for accurate data recording to tape and, if a recording failure is detected, the HSR-2/1 re-records the same data to tape.

Features

Excellent Picture Quality

The HSR-2/1 recorder offers four levels of picture quality to select from: Super, High, Middle and Low modes. This choice enables you to select a balance between picture quality and recording time, depending on your application requirements. Super mode provides excellent picture quality with a horizontal resolution of more than 500 TV lines. In addition to these four modes, the HSR-2/1 recorder features Hyper mode full frame recording to capture the highest quality images in response to an external trigger or alarm event.

Large Storage Capacity

Built-in 60 GB HDD

The built-in 60 GB hard disk of HSR-2/1 recorder can contain a large volume of data – approximately equivalent to the capacity of a 270-minute DV tape. This allows you to access the required scenes faster than from a tape.

High-Density Recording with DV Format

A 270-minute DV cassette tape allows a larger quantity of images to be stored, as well as provide an easy way to archive data.

DV 270-minute tape

Number of images recorded in a 270-minute DV tape

Recording Mode	HSR-2/1
Super	945,000
High	1,890,000
Middle	3,779,000
Low	7,558,000

Number of days recorded in a 270-minute DV tape*

Recording Mode	HSR-2/1
Super	10.9 days
High	21.8 days
Middle	43.7 days
Low	87.4 days

* at one second intervals with one camera input

Comprehensive Recording Modes

Five Preset Modes

With five types of preset modes, the HSR-2/1 recorder gives you the flexibility to choose your preferred combination of picture quality, tape length, recording time, number of camera inputs and recording cycle.

Timer Recording

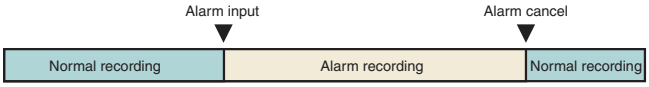
The timer recording function allows you to change variables such as the number of cameras, recording cycle and picture quality at set times on a weekly or daily basis. For example, you can select all cameras to record in High mode throughout the day, and select only certain cameras to record in Super mode at night.

Alarm Recording

With five alarm-recording modes, HSR-2/1 recorder provides a high level of functionality during alarm incidents. When an alarm signal is detected, the HSR-2/1 automatically switches to alarm recording. You are free to set the alarm recording mode and duration.

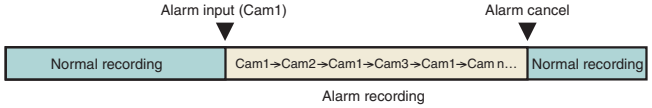
Normal mode

When an alarm signal is detected, the HSR-2/1 switches to the alarm-recording mode with higher picture quality and/or higher recording cycle.



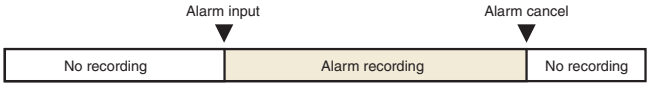
Interleave mode

This mode prioritizes the recording cycle of a specific camera that detects an alarm event. In Normal mode, the recording sequence is: camera 1 → camera 2 → camera 3 → … camera n → camera 1, and so on.
In Interleave mode, when an alarm signal input is received by camera 1, the recording sequence is: camera 1 → camera 2 → camera1 → camera 3 → … camera n → camera 1, and so on.



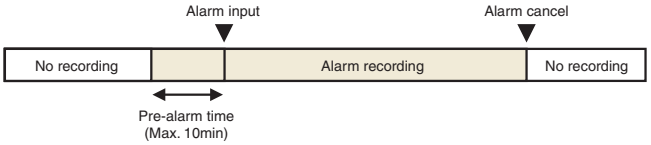
Event mode

In Event mode, recording starts when an alarm signal input is received. When the alarm is canceled, the HSR-2/1 stops recording.



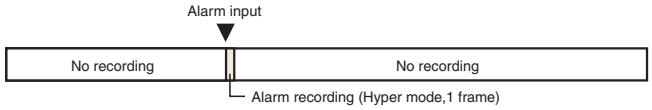
Pre-alarm mode

With this mode, the images recorded prior to an alarm input are stored on hard disk and can be played back. This mode helps to verify how alarm incidents occurred. You can set the pre-alarm time and alarm recording length.



Frame mode

In Frame mode, one frame image is recorded, in highest quality Hyper mode, immediately after an alarm signal is detected.



Intelligent Search Functions

Time/Alarm/Rec End Search

Various functions such as Alarm Search, Time Search and Rec End Search allow you to quickly locate and review the required segments. The alarm number, date, time and the corresponding camera number can be recorded on tape for up to 99 alarm events. Simply press the alarm search button and these search functions can also be listed on the monitor. The Rec End Search function allows you to search for the end of the most recent recording on a tape and then continue recording from this point.

Noiseless Picture Search

The HSR-2/1 recorder is equipped with a "no noise" variable-speed picture search function. Simply use the Jog/Shuttle dial on the optional SVRM-100A Remote Control Unit to perform search operations.

Network Capability with the Optional SNT-V304*

HSR-2/1 recorder gives you the option to expand your surveillance systems to be network-ready. By connecting the SNT-V304 Video Network Station using an RS-232C connection, the HSR-2/1 can be fully remote-controlled via a network. The playback-during-recording feature is especially effective when controlled from the SNT-V304 because it allows remote-site surveillance over virtually any network.

*** HSR-2/1: Version 2.20 or higher required**

Features

Advanced Surveillance Features

Playback-during-recording

The playback-during-recording function of the HSR-2/1 allows you to view previously recorded images from the HDD, or change a tape without having to stop recording. For even greater operation flexibility, the HSR-2/1 also offers continuous recording when playing back video from DV tapes.

High Refresh Rate

The HSR-2/1 recorder can record images from each camera at a high refresh rate so crucial moments will not be missed.

Recording interval per camera (in High mode)

	HSR-2/1
24-hour recording mode with 16 camera inputs	0.7 sec
1-week recording mode with 8 camera inputs	2.6 sec

Power On Recording

In the Power On Recording mode, HSR-2/1 recorder automatically starts recording when power is turned on. This allows the recording operation to automatically recover from power interruptions.

Security Protections

For secure operations, the HSR-2/1 recorder offers several security protection functions. The function lock button on the front panel prevents the setting from being accidentally changed. In addition, three levels of password protection can be assigned to specific controllable functions upon entering the proper password via the front panel 10 keys or a personal computer.

Less Space Required

Compact Body

The HSR-2/1 recorder features a compact body and is similar in width to a 14 inch monitor.

Compact Storage Medium

A DV cassette measures approximately one third the volume of a VHS tape and drastically reduces the storage space required for your tape library.

System Versatility

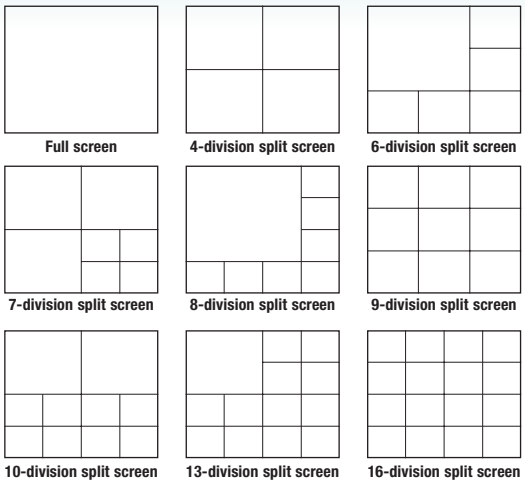
16 Camera Inputs

The HSR-2/1 recorder is equipped with four camera inputs and can be expanded to a maximum of 16 camera inputs by installing up to three optional HSRA-11 four-input boards.

Built-in Multiplexing Capability

Using the built-in multiplexing capability, up to 16 camera images can be recorded and monitored independently. This eliminates the need for an external multiplexer or switcher. Multiple monitoring patterns such as four way, six way, seven way, eight way, etc., split screens are available and freely assignable cameras in each view allow you to create your optimum monitoring environment.

Monitoring patterns



RS-232C Interface

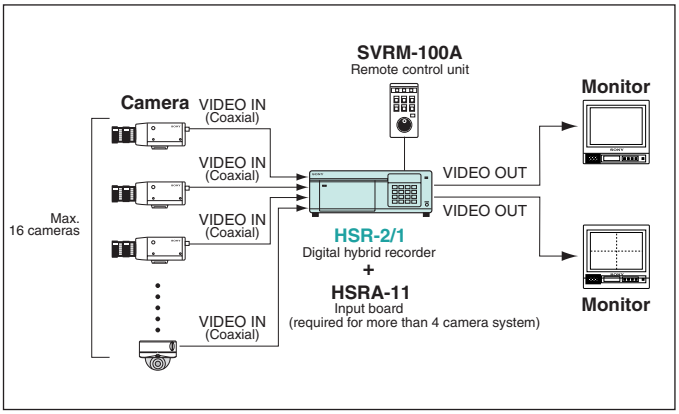
The HSR-2/1 recorder is equipped with an RS-232C interface. This enables communication from the recorder to external equipment such as the SNT-V304 Video Network Station or personal computers to facilitate remote monitoring, playback, status settings and parameter preset.

37-pin Parallel Port

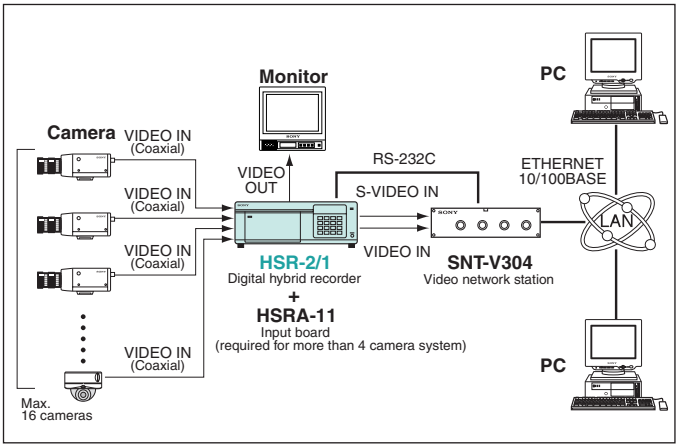
Alarm input, outputs and remote control of the HSR-2/1 recorder can be achieved via the 37-pin parallel interface. Pin functions can be freely configured via the on-screen set up menu.

System Configurations

Multiple Camera Operation



Network Operation(ex.LAN application)



Specifications HSR-2/1

General

Weight	10 kg (22 lb 1 oz)
Dimensions	355 (W) x 125 (H) x 410 (D) mm (14 x 5 x 16 1/4 inches)
Power requirements	AC 100 V to 120 V, 50/60 Hz
Power consumption	58 W (without options), 78 W (with full options)
Operating temperature	5 ˚C to 40 ˚C (41 ˚F to 104 ˚F)
Operating humidity	Less than 80 %
Usable tape	DV*1 or DVCAM*2 cassette tape (standard size, mini size)

System

Video signal	EIA standard, NTSC color
Recording system	Rotary two-head helical scanning system Digital components
Tape format	Based on DV format (SD standard)
HDD capacity	60 GB
Quantization	8-bit
Sampling frequency	13.5 MHz (4 : 1 : 1 components)
Recording/Playback time	Maximum 9999 hours (approx. 400 days)
Fast forward/Rewind time	Less than 3 min (with a 270-minute tape)

Video

Input	VIDEO IN x 4 (BNC-type) VBS, VS: 1.0 Vp-p, 75 Ω, unbalanced
Output	VIDEO OUT x 2 (BNC-type) VBS: 1.0 Vp-p, 75 Ω, unbalanced S-VIDEO (DIN 4-pin): Y : 1.0 Vp-p, 75 Ω, sync negative C : 0.286 Vp-p, 75 Ω, at burst level
Quality mode	Super, High, Middle and Low modes (selectable) (Field-by-field recording) Hyper mode (Frame-by-frame recording with a trigger signal)
Horizontal resolution	More than 500 TV lines (Hyper and Super modes) 360 TV lines (High mode)
Signal-to-noise ratio	More than 48 dB

Built-in Multiplexer

Input	4 inputs (up to 16 inputs with 3 optional HSRA-11 input boards)
Split screen display	9 patterns

Connectors

Parallel input/output	D-SUB 37-pin (1) Input : 24 terminals to be freely assigned (Alarm, Clock set, Series rec, Alarm 1, etc.) Output : 8 terminals to be freely assigned (Auto off, Tape end, Series rec, Alarm out, etc.)
Control S	Stereo mini (1)

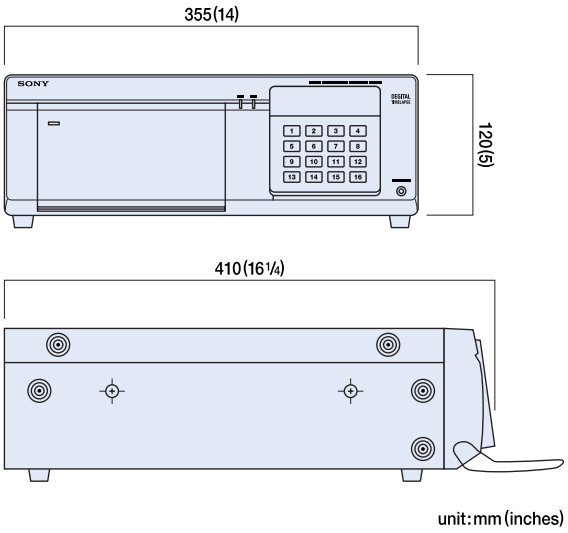
Supplied Accessories

AC power cord (1), Operation manual (1), DV 270-minute tape (1), 37-pin parallel connector (1)

*1 Because of the unique recording format of the HSR-2/1 recorder, tapes recorded on the HSR recorders cannot be played on conventional DV equipment.

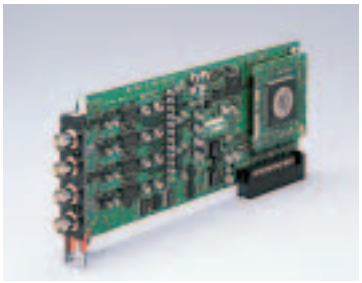
*2 A DVCAM 184-minute tape, with the same storage capacity as a DV 270-minute tape, can be used with the HSR-2/1 recorder.

Dimensions



unit: mm (inches)

Optional Accessories



HSRA-11
Input Board

SVRM-100A
Remote Control Unit

SNT-V304
Video Network Station

SONY

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