SONY ®

EIA/NTSC

HSR-1

Digital Surveillance Recorder

Hybrid Technology - An Essential Requirement
for High-Performance
Digital Video Recording & Archiving

Preliminary

How do you rate your security

● **Can it record as long as you would like ?**

● **Does it cost too much to maintain ?**

● **Has it ever missed key scenes ?**

● **Are its bulky cassettes taking up too much space ?**

● **Do its pictures lack sharp resolution ?**

Because the Sony HSR-1 is a HDD/DV hybrid, it delivers and benefits for your surveillance system.

Why hybrid ?

To many, digital simply means recording onto a hard disk. But conventional systems may compromise picture quality because of limited storage capacity, of which there simply is not enough. For archiving purposes and to make space for new recordings, the user must then transfer data to another media such as DAT. Based on a firm understanding of today's demand for high video quality, high storage capacity, high reliability and easy archiving, Sony, the world leader in video and digital technology, is proud to introduce the HSR-1.

At last there is a time-lapse surveillance recorder today's most advanced digital recording technologies

recorder ?

practical new solutions

What is unique about this HDD/DV hybrid ?

The HSR-1 uses both a hard disk drive (HDD) and a DV (digital video) tape drive for storage. Unique DV tape technology adds the advantages of high density recording, large storage capacity and superb picture quality - in other words innovative video performance. Thanks to the "hybrid" approach of this system, the burden on the tape drive is dramatically reduced to minimize maintenance.

that offers the optimum combination of
in one easy-to-use, reliable system.

A Wide Variety of Applications for the Surveillance Market

Bank headquarters and branches

Surveillance is indispensable to all banks. And it is specially important to monitor ATM machines, cash dispensers, windows, etc. around the clock. Using the HSR-1, it is possible to build a flexible surveillance system that is ideal for bank applications. The HSR-1 provides a variety of excellent features including large storage capacity for long time recording and a compact body. In addition, DV cassette tapes are very compact, requiring less space for storage. And because it is essential to keep recorded tapes for a long time to protect against fraud, DV tapes help you reduce the amount of space typically associated with standard cassettes.

Office buildings

Monitoring the inside and outside of office buildings is needed for the safety and security of employers and the facility. Up to 16 surveillance cameras can be connected to one HSR-1. Accordingly, by installing cameras in entrances and exits, the HSR-1 records for hours, allowing you to monitor the people coming and going from the building. When reviewing recorded images, using conventional equipment, key scenes may not be as legible due to poor picture quality. On the other hand, the HSR-1 provides excellent picture quality, enabling you to easily make out any scenes.

Airport terminals

Surveillance at airports is critical and requires system flexibility in order to secure facilities and people from disasters, terrorism and so on. The HSR-1 can be used at airports as well. For example, the HSR-1 features versatile monitoring applications. Various monitoring patterns are available, allowing you to freely assign multiple cameras on the screen. The HSR-1 is also equipped with two terminals for output signals, which can send video signals to other monitors. This makes it possible to simultaneously monitor two monitors; one is for the multiple screen, the other is for the full screen of the alarmed camera.

Stores and shopping malls

It is of great importance to keep goods safe and secure from theft in stores, especially at night. The HSR-1 has up to 16 camera inputs and you can create your own surveillance system depending on your application and facility. For instance, when a burglar breaks into a store at night, the HSR-1 records images in higher quality and higher refresh modes and captures key scenes with sharper images and greater data.

Features

Four Alternative Quality Modes

The HSR-1 can be switched between four levels of picture quality: Super, High, Middle and Low modes. This enables the appropriate balance between picture quality and recording time to be selected depending on the application.

The Super mode provides excellent picture quality with a horizontal resolution of more than 500 TV lines. The High mode provides higher quality than that of conventional equipment, with much higher S/N ratio and equivalent resolution.

More Shots Recorded

Large Storage Capacity

By using a DV cassette tape (270-minute tape) as the storage medium, the HSR-1 provides a large storage capacity of more than 60 G bytes.
This means that you can handle a larger quantity of images compared to conventional equipment.

Number of recording pictures for each mode

Super mode	972,000
High mode	1,944,000
Middle mode	3,888,000
Low mode	7,776,000

Long Recording Time

With its long-time recording capability, the HSR-1 releases you from frequent tape changes.

Number of days per camera
when recording at one second interval

Super mode	11.25 days
High mode	22.5 days
Middle mode	45 days
Low mode	90 days

High Refresh Rate

With conventional equipment, there is always the possibility that key scenes such as criminal events and alarm incidents may be missed due to the long recording interval of each camera.
The HSR-1 is capable of recording images at a high refresh rate for each camera, so you no longer have to worry about failing to record key scenes.

Recording interval per camera (in High mode)

24-hour recording mode with 16 camera inputs	0.7 sec.
1-week recording mode with 8 camera inputs	2.5 sec.

High Reliability and Less Maintenance

Reduced Use of Tape Mechanism

The hybrid configuration of HDD and DV tape drive makes it possible to achieve higher reliability as well as reducing maintenance.
While conventional equipment has to work continuously during the recording operation, the tape transport and heads of the HSR-1 are stationary most of the time because the DV tape drive works only while recording the image data being transferred from the HDD.
Therefore the mechanical transient motion and head running time are drastically reduced to 1/4* compared with conventional equipment, resulting in excellent reliability and reduced costs.

*in 24-hour recording mode using a 270-minute tape.

Multiple Protection

In the event of a recording problem, the HSR-1 provides multiple protection. If the HDD fails, the HSR-1 records the image data directly onto a DV tape. Conversely, in case of the failure of the DV tape drive, recording operation continues on the HDD. For additional protection, the HSR-1 checks whether data is accurately recorded onto a tape. If a recording failure is detected, the HSR-1 re-records the same data on the tape.

Less Space Required

Compact Body

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

Compact Storage Medium

Space being a premium these days, a DV cassette is only 1/3 in volume compared to VHS tape. This compact size means your tape library takes up much less space.

Features

System Versatility

16 Camera Inputs
The HSR-1 has four camera inputs as standard. Up to three optional HSRA-11, four-input boards can be installed, so up to 16 camera inputs can be provided.

Built-in Multiplexing Capability
The HSR-1 has a built-in multiplexing capability which allows for independent recording and monitoring of up to 16 camera input. Thanks to this duplex process, an external multiplexer or switcher is not required. There is also a choice of various monitoring patterns by freely assigning multiple cameras on a single monitor. This feature helps you to create the optimum monitoring environment for your particular application.
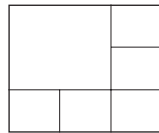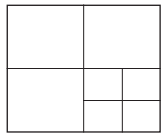
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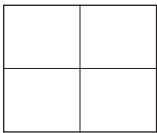
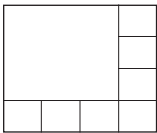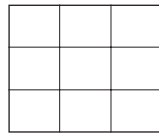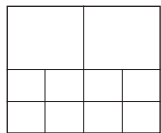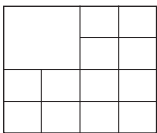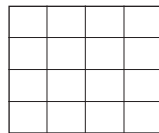|		
Full screen	4-division split screen	6-division split screen
7-division split screen	8-division split screen	9-division split screen
10-division split screen	13-division split screen	16-division split screen

Output for a Second Monitor
The HSR-1 has two monitoring outputs: 'A' output for a first monitor and 'B' output for a second monitor. The 'B' output can be selected to be the same as the 'A' output, a full screen of one selected camera image or sequential switch between all connected cameras. For example, it is possible to monitor the image from one key camera on the second monitor, while checking the playback images on the first monitor.

Flexible Camera Assignment
There are five preset recording modes which can be flexibly combined with picture quality mode, tape length, recording time, number of camera inputs and the recording cycle of each camera. This feature allows you to assign cameras as you like. It is possible, for instance, to record all the cameras in High mode during the day and then select some of these cameras to be recorded in Super mode at night.

RS-232C Interface
The HSR-1 is equipped with an RS-232C interface for communication with external equipment such as a personal computer, to facilitate machine control, status sense, parameter preset and user data read/write.

37-pin Parallel Port
The HSR-1 provides a 37-pin parallel I/O interface. This port provides 12 V DC, GND (ground) together with control input and output functions. The pin functions can be freely configured for a particular application via the setup menu.

Flexibility in Alarm Mode

Once an alarm incident occurs, the HSR-1 shows a high level of functionality.
To capture more and even sharper images, the HSR-1 changes its recording mode to the desired recording mode on alarm. It can also record images from the alarmed camera only for a preset duration. In addition, since alarm and timer recordings can be combined, the HSR-1 can be set in normal recording mode during office hours and set to alarm recording at night.

Continuous Recording Function

The HSR-1 can continuously record images, even while changing or rewinding tapes, so you don't have to worry about the breakup of a recording.

Sophisticated Security Functions

The function lock button on the front panel makes it impossible to change settings accidentally. Also, by typing in a password either with the ten keys on the front panel or from a personal computer via the RS-232C interface, all the functions are locked.

Water Mark

Using an original water mark system, the HSR-1 can identify image data that has been artificially altered. When an alternation is detected, a message is displayed on screen.

Intelligent Search Functions

For smooth search operations, the HSR-1 offers a variety of search functions such as time/date search and alarm search. These can be controlled from the main unit or through the RS-232C interface.
The HSR-1 is also capable of user data read/write via the RS-232C interface, allowing the specific user data to be searched from a personal computer. Noiseless picture search can also be carried out from the main unit or the optional remote controller SVRM-100A using its Jog/Shuttle dial.

Quick Recording Start

Event Recording
Event recording in the past has been difficult to achieve, because there are times when the trigger signal is received too late.
Thanks to the HSR-1 Pre Alarm recording capability, chances are you'll have the information you need on tape.

Power On Recording
In the Power On Recording mode, the HSR-1 automatically starts recording when power is turned on. This allows unattended automatic timer operation.

Frame Recording in Hyper Mode

In addition to four alternative quality modes, the HSR-1 offers its highest frame quality mode to meet specific recording requirement. It can record 486,000 pictures in a 270-minute tape.

Specifications

General

Mass	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	80 W (without options), 115 W (with full options)
Operating temperature	5 ˚C to 40 ˚C (41 ˚F to 104 ˚F)
Operating humidity	Less than 80 %
Tape format	Based on DV format (SP mode)
Usable tape	DV cassette tape (standard size, mini size)
HDD capacity	More than 4.3 GB

System

Video signal	EIA standard, NTSC color
Recording system	Rotary two-head helical scanning system
	Digital components
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	VBS, VS (BNC type) : 1.0 Vp-p, 75 Ω, unbalanced
Output	VBS (BNC type) : 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	500 TV lines (HYPER and SUPER modes)
Signal-to-noise ratio	48 dB

Built-in Multiplexer

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Input	4 inputs (up to 16 inputs with optional boards)
Output	2 outputs
Split screen display	9 patterns

Connectors

Parallel input/output	D-SUB 37-pin (x 1)
	Input : 24 terminals to be freely assigned
	(Alarm, Clock set, Series rec, Alarm cancel, etc.)
	Output : 8 terminals to be freely assigned
	(Auto off, Tape end, Series rec, Rec tally, etc.)
	Power output : +12 V (max. 100 mA)
Control S	Stereo mini (x 1)

Supplied Accessories

AC power cord (x 1)
Operation manual (x 1)

Distributed by

Dimensions

355 (14)

120 (5)

410 (16 1/4)

unit : mm (inches)
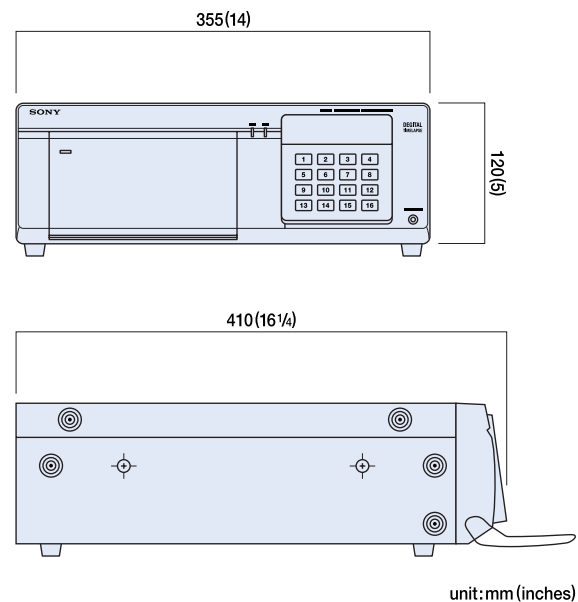
Optional Accessories

HSRA-11 (Input Board)

SVRM-100A (Remote Control Unit)