SANYO

Digital Video Recorder with Built-in Multiplexer

DSR-5716P 16-channel PAL
DSR-5709P 9-channel PAL

- HDD recorder with a complete 16 / 9-ch multiplexer
- Simultaneous recording and playback at 100 IPS.
- Live picture monitoring at 800 (50 x 16) IPS and 450 (50 x 9) IPS for DSR-5716P and DSR-5709P respectively
- Built-in H-SSP controller with camera telemetry control
- Networking capability
- Comes with VA-SW5000 DVR management software

DIGITAL
NETWORK SOLUTIONS

All-in-one JPEG2000 recorder
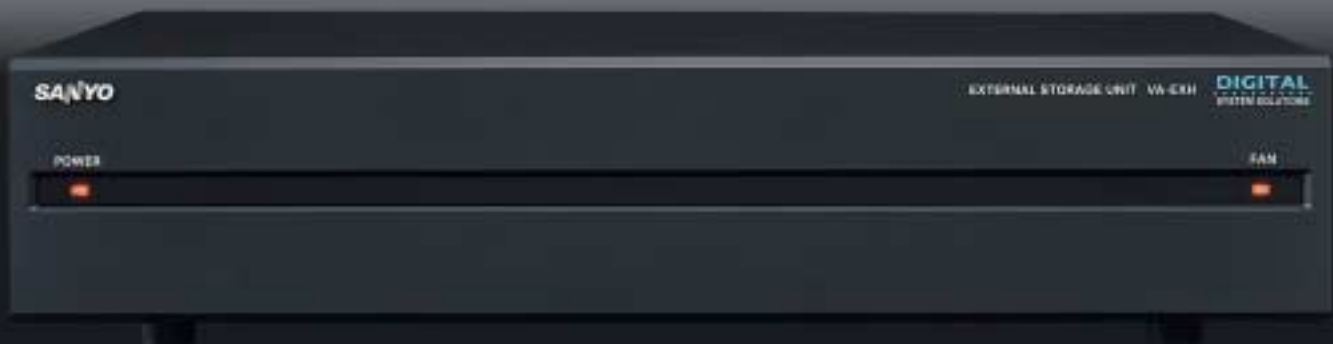
Made in Japan

The product introduced here is manufactured in Japan utilizing advanced technologies and quality control.

A High-end Recorder Offering 100IPS in JPEG2000
Enables extended recording in superior picture quality.
It's an advanced model with new network features.

JPEG2000

A high compression rate is achieved while eliminating block noise and pixcelation associated with the JPEG format. The new, elaborate compression method assures better picture quality and longer recording time. By using the ROI (Region of Interest) feature, it is possible to record at a higher picture quality for defined areas on the screen. Additional advantages of using JPEG2000 over JPEG format are:
- Smaller image file size, enabling more images to be transmitted
- Unique Progressive Scan method which allows higher refresh rate for multi-channel view at remote PCs

DSR-5709P

Conventional picture   JPEG2000

*Images used may differ slightly from actually recorded scenes.

An all-in-one Unit with Superior Expandability that Also Serves as a System Hub

The DSR-5716P / DSR-5709P processes a variety of signals — digital, SSP, network — and can play the role of a system hub. It offers clear picture recording and split-screen surveillance and comes with USB terminals. Its video terminals enable multi-screen real-time monitoring at 100 IPS. And it comes with a telemetry function that offers control over PTZ / zoom cameras, including those supplied by other manufacturers. It is an all-new unit that is capable of accommodating even the most sophisticated surveillance need.

Extended Recording Time

JPEG2000 improves picture quality without increasing the size of the data file, or maintains current quality with a reduced file size. This means you get more recording time from the same HDD capacity.

Simultaneous Recording and Playback at 100 IPS (720 x 288 pixels)

SANYO's expertise in the field has made it possible to record and playback simultaneously at a maximum speed of 100 IPS.

Exclusive Extension Units

The VA-EXH, an external HDD unit for further extending recording time, and the VA-EXD1 B, a disc writer for backing-up or copying data to portable media, are both available for the DSR-5716P / DSR-5709P.
(Note) The S-ATA board VZU-SATB1 is needed when connected to the external HDD unit, VA-EXH.

System extension units

External HDD unit **VA-EXH**
The VA-EXH is an expansion unit that employs four HDD (S-ATA) bays and enables further extension of recording time.

S-ATA Board **VZU-SATB1 for VA-EXH**
The VZU-SATB1 enables the connection to an external HDD unit.

Disc writer (DVD+R/+RW, CD-R/RW) **VA-EXD1 B**
This CD / DVD-writer is a perfect match for the DSR-5716P / DSR-5709P.

SCSI Board **VZU-SCB1 for Some external RAID system**
The VZU-SCB1 enables the connection to an external RAID system. For further details on compatible devices, please contact the place of purchase.

New Developments in Network Surveillance

Choosing Live Picture Resolution at Remote Terminals

When the main unit is set to record video at basic quality, you can still choose enhanced quality for monitoring live video on a remote PC. It is also possible to record super-fine quality pictures on the main unit and monitor the basic quality video on a terminal to reduce network load. In short, the unit allows the user to choose the quality of live video independently, regardless of its recording mode.

* This does not apply when the recording is done at the maximum rate of 100IPS.

Recording at basic quality → **Internet** → **Live video monitoring at fine quality**

Internet

PC

Network operation frame

1. Channel number
2. Channel selection
3. Multi 9/16 screen display
4. Quad-screen display
5. Previous event
6. Next event
7. Slower
8. Faster
9. Reverse playback
10. Stop
11. Play
12. Previous image
13. Still
14. Next image
15. Search
16. Copy (by setting)
17. Download (by setting)
18. Menu settings
19. Disconnect
20. Record
21. Stop
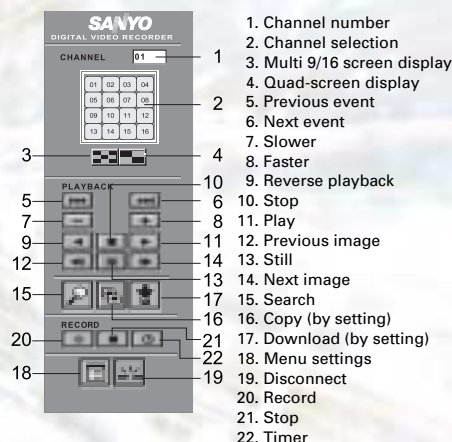22. Timer

Multi-screen Display for Network PCs

The DVR Viewer2 software allows the user to select from full-screen, Quad, Multi-9, and Multi-16 displays on any PC on the network. The DVR Viewer2 software is automatically downloaded by copying an image. It is also available for download on our website.
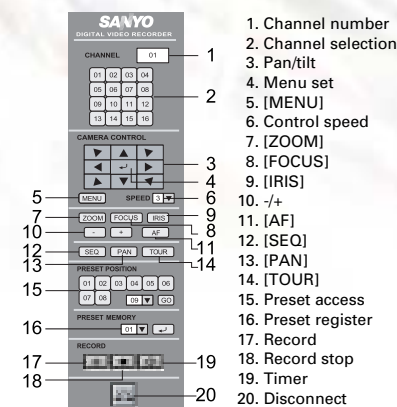
Remote Control by a PC

The built-in network terminal enables remote control of the DSR-5716P / DSR-5709P through a PC that is connected to the network (by using Internet Explorer Version 5.0 or higher, without the need for exclusive software). It is also possible to monitor live video, playback recorded pictures, control PTZ dome camera systems, and download video/audio recordings to the PC. Limiting user access to certain functions of the machine by the use of passwords ensures the security of the system.

Network camera control frame

1. Channel number
2. Channel selection
3. Pan/tilt
4. Menu set
5. [MENU]
6. Control speed
7. [ZOOM]
8. [FOCUS]
9. [IRIS]
10. -/+
11. [AF]
12. [SEQ]
13. [PAN]
14. [TOUR]
15. Preset access
16. Preset register
17. Record
18. Record stop
19. Timer
20. Disconnect

Other Features

•Triplex recording with 1-field switching •Four-level password security lock (Level 1 to 4) •Video loss alarm •30-day memory back-up •Resume function •Disk full alarm •On-screen mode setting, menu languages built in: English / French / German / Spanish •Built-in time date generator •Six different search functions •Alarm counter •Auto delete •Jog shuttle •Forward / reverse field advance •Automatic summer time adjustment •Lifetime counter •Through output of video •Position adjustable camera titles (10-character) •One push adjustable clock •Push-lock terminals for easy installation

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By installing the VA-SW5000 software bundled with the unit, remote surveillance of a large-scale system can be easily accomplished from a local PC. System setup and DVR operation is also possible. In addition, it allows simultaneous access of up to eight users. The four-level security feature effectively prevents hacking and maintains the system integrity. Each user is allowed to sign-on independently and can access a maximum of 256 DVR units. Also included in the features is e-mailing any alarm event to a predefined mail address. The user-friendly GUI, which is customized the way only possible with exclusive software, ensures easy operation of the surveillance system.

CCTV System Management Software VA-SW5000 Version 2.01

CCTV system Management Software
VA-SW5000

VA-SW5000

System environment

	Master computer	Slave computer
OS	Windows® 2000 Professional (SP4), Windows® XP Professional	
CPU	Pentium® 4 - 3.4GHz or faster [RECOMMENDED: Pentium® 4 - 3.4GHz]	Pentium® 4 - 3.0GHz [RECOMMENDED: Pentium® 4 - 3.4GHz]
RAM	1024MB or more	
VIDEO	XGA (1024 x 768pixel) 16-bit color, DirectX® 9.0 or above [Recommended graphics cards] ATI RADEON 9000 series or later NVIDIA® GeForce 4 series or later, Quadro 4 series or later Matrox Millennium P series or later (On-board video is not recommended.)	
MONITOR	XGA (1024 x 768 pixel) 16-bit color	
HDD	System setup area: 120MB Data save area: 2GB or above	System setup area: 120MB
LAN PORT	100Mbps x 1 [RECOMMENDED: 1Gbps x 1]	100Mbps x 1
NET WORK Computer side	LAN: 100Mbps [RECOMMENDED: 1Gbps] Internet: 1.5Mbps (Downstream) [RECOMMENDED: 5Mbps]	
DVR side	LAN: 10Mbps [RECOMMENDED: 100Mbps] Internet: 1.5Mbps (Upstream) [RECOMMENDED: 5Mbps]	
OTHERS	CD-ROM Drive (for Software Install) E-mail account x 1 (SMTP / POP)	CD-ROM Drive (for Software Install)

ROI (Region of Interest)

ROI is one of the advanced features included in the JPEG2000 compression method. By setting ROI, it is possible to apply better picture quality for particular areas preset on the screen.

The ROI area setting is up to the user.

ROI: OFF BASIC mode (12KB)

Use the same amount of data …

ROI: MAX Static ROI recording (12KB)

for enhancing the picture quality of regions of interest

Camera Telemetry Control

The DSR-5716P / DSR-5709P are capable of controlling PTZ dome cameras and zoom cameras through coaxial cables or RS-485. It also allows this control from a network PC or a controller. The unit also supports protocols of other major brands.

PTZ Camera

Camera control (PTZ cameras & zoom cameras only) available from the front panel, PC or a controller
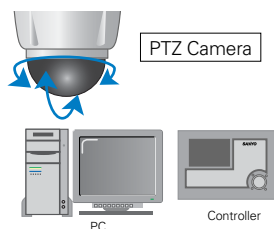
PC   Controller

Camera with no Alarm Input Controlled by an External Alarm

Through this unit, an external alarm can prompt PTZ cameras such as VCC-9500P / VCC-9600P / VCC-9700P / VCC-9800P to return to preset positions and perform other operations. There are four operations available — PRESET, TOUR, AUTO PAN and SEQUENCE.

* This control is activated only when the setting of alarm recording is ON and the setting of alarm trigger is the external alarm.

Built-in VGA (1024 x 768 pixels) Terminal

The VGA terminal allows direct connection to a PC monitor, which can then be used to monitor surveillance video. It also enables remote terminals to replay video with VGA quality, thus improving the thoroughness of monitoring.
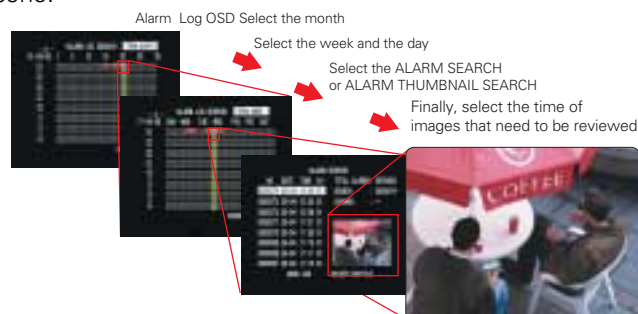
Supports up to 2TB HDD

The unit has two HDD bays, each supporting up to 2TB HDD to make the unit the right choice in today's trend for bigger drives. Selecting a drive of the same capacity will allow the use of the mirroring* function for data backup.

For the latest available range of optional drives, contact the place of purchase.

* Mirror Recording

DSR-5716P / DSR-5709P each comes with two HDD bays. With two HDDs of the same capacity installed, it is possible to record the same video on two HDDs, thus allowing for a backup.

Alarm Log Search

Recordings made during a particular period are shown in a user-friendly GUI. By designating the hour, minute, month, or day of the week of alarm events, a search is performed on a log file to narrow the search and bring up the desired scene.

Alarm Log OSD Select the month

Select the week and the day

Select the ALARM SEARCH or ALARM THUMBNAIL SEARCH

Finally, select the time of images that need to be reviewed

Longer Recording Time with an Expansion Unit

The DSR-5716P or DSR-5709P with two 750 GB HDD units (1.5TB total capacity) can, for example, be connected to external HDD unit VA-EXH with 3 TB capacity (750 GB x 4, using Serial ATA HDD units) to further increase its storage capacity to a stunning 4.5 TB. This enables unprecedented uninterrupted recording. Adding HDD units also allows extensive storage of recorded data or data backup with mirror recording.

* The DSR-57xxP unit with VZU-SCB1 cannot be connected to the VA-EXH extension unit.

Multi Alarm Events Copy

Now it is possible to copy recorded video and audio directly to external media without the use of the archive area. This allows the user to retrieve desired video quickly.

CD-R/RW, DVD+R/+RW

The unit comes with two USB terminals located on both the front and rear panels. Using one of these terminals, it is possible to back-up data to CD-R/RW discs (Max. 640MB), DVD+R/+RW (Max. 4.6GB). The use of discs ensures secure storage of necessary video and audio data.

* Recommended products only

USB Ports

The DSR-5716P and DSR-5709P come with two USB ports, one each on the front and rear panel. The front USB port is handy for using USB memories, for features such as Downloading and Uploading in the setup menu, newly added firmware update, and downloading images. The rear port can be used to connect VA-EXD1B, which enables the downloading of images to a CD or DVD.

* When the front and rear USB ports are used simultaneously, the front port is always given priority.

Pre-alarm Recording

The pre-alarm recording mode allows the user to save up to 15 minutes of video prior to an alarm input, offering a great advantage when analyzing a situation.

Timer Recording

The timer recording mode allows the user to set eight different settings. Different settings for each day of the week and multiple settings for the same day are possible. It is also possible to specify the start / stop time or use a different recording speed.
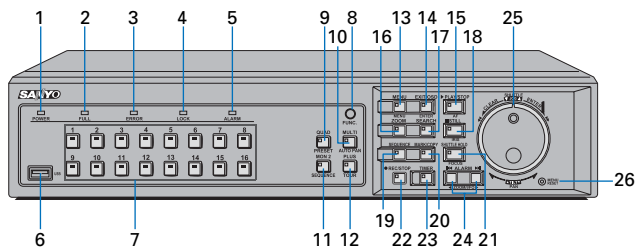
1. POWER indicator
2. FULL indicator
3. ERROR indicator
4. LOCK indicator
5. ALARM indicator
6. USB 2.0 terminal
7. [CAMERA SELECT] buttons
8. [FUNC.] button
9. [QUAD] button
10. [MULTI] button
11. [MON2] button
12. [PLUS] button
13. [MENU] button
14. [EXIT/OSD] button
15. [PLAY/STOP] button
16. [ZOOM] button
17. [SEARCH] button
18. [STILL] button
19. [SEQUENCE] button
20. [MARK / COPY] button
21. [SHUTTLE HOLD] button
22. [REC/STOP] button
23. [TIMER] button
24. [ALARM] button
25. Jog dial (inside) and shuttle dial (outside)
26. [MENU RESET] button
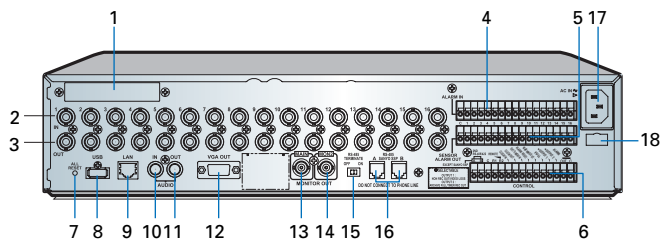
1. Optional board slot
2. VIDEO IN terminals
3. VIDEO OUT terminals
4. ALARM IN terminals (1 to 16)
5. SENSOR ALARM OUT terminals
6. Control terminals
7. [ALL RESET] button
8. USB terminal
9. LAN terminal (10BASE-T/100BASE-TX)
10. AUDIO IN terminal
11. AUDIO OUT terminal
12. VGA OUT terminal
13. MAIN MONITOR output terminal
14. MON2 output terminal
15. RS-485 termination switch
16. RS-485 control connectors (A) (B)
17. power socket (AC IN)
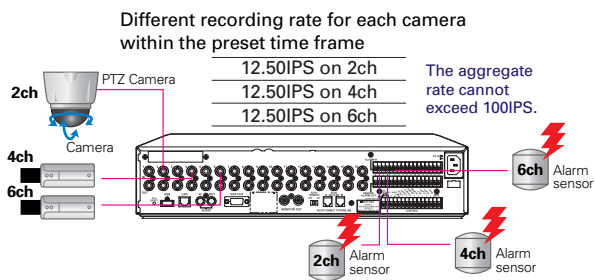18. Power cord holder

Programmed Recording

For each of four available programs (P1 to P4), the user can specify particular cameras for recording. In addition, different recording speeds can be set for each program. These programs can also be used when making a timer recording or a pre-alarm recording.

Motion Sensor

DSR-5716P / DSR-5709P comes with a built-in motion sensor. Different settings can be made for each channels independently. The sensor can detect moving objects within the screen by picking up changes in brightness. The user can use this feature to trigger an alarm recording.

Independent Alarm Recording Rate for Each Channel

The unit lets the user set different rates of recording for each camera for recordings activated by the motion sensor or an alarm input. Within the preset time frame, the user has freedom to change the recording rate for each camera according to needs.

Different recording rate for each camera within the preset time frame

12.50IPS on 2ch
12.50IPS on 4ch
12.50IPS on 6ch

The aggregate rate cannot exceed 100IPS.

Alarm Functions

Using the built-in motion sensor and external sensors, the following alarm functions are available.
(1) Monitor Display Switching
(2) Buzzer and Indicator Lamp Warnings
(3) E-mail notification
(4) Controlling external devices through relay outputs

Extensive Display Options

For both live picture monitoring (during multiplex recording) and playback of pictures, the user can select from 16-screen, 13-screen, 9-screen, 6-screen, 4-screen and full-screen (1-screen) display.
• Plus display • Screen position assignment
• Monitor masking

Live, full-motion video monitoring with split-screens

Live video images from multiple cameras can be simultaneously displayed on one monitor without interrupting motion, at the speed of 50 IPS. 16-screen, 13-screen, 9-screen, 6-screen, 4-screen and full-screen display are all available. The maximum number of cameras for DSR-5709P is nine respectively.
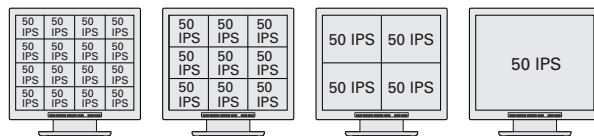
Five Different Picture Qualities and 28 Recording Speeds Enable Flexible Settings

The picture quality is selectable from BASIC, NORMAL, ENHANCED, FINE and SUPER FINE. Together with the 28 different recording speeds, the user can select the most suitable recording mode for each situation.
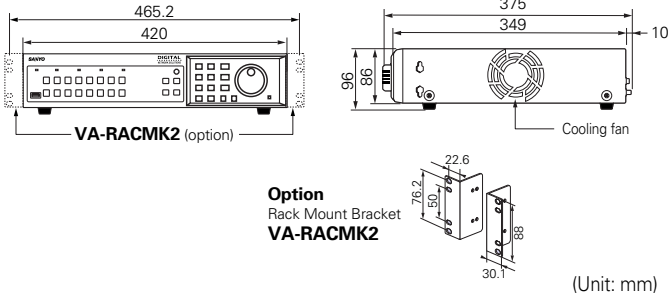
■750 GB — Recording Time

Recording Speed		Picture Quality					Audio Recording
IPS	Recording Interval (sec.)	Basic 12kB	Normal 16kB	Enhanced 24kB	Fine 32kB	Super Fine 40kB	(unit: hour)
100.00	0.01	130	102	71	53	42	
50.00	0.02	260	206	140	108	86	
25.00	0.04	518	413	281	213	10	
16.67	0.06	778	618	420	318	258	
12.50	0.08	1,038	825	560	425	342	
8.33	0.12	1,558	1,238	840	638	513	
6.25	0.16	2,077	1,647	1,121	851	683	
5.00	0.20	2,595	2,060	1,403	1,062	855	
4.17	0.24	3,112	2,471	1,680	1,272	1,025	Available
3.57	0.28	3,635	2,885	1,962	1,488	1,197	
3.13	0.32	4,145	3,293	2,238	1,695	1,365	
2.78	0.36	4,667	3,596	2,520	1,910	1,538	
2.50	0.40	5,190	4,122	2,802	2,123	1,710	
2.27	0.44	5,715	4,541	3,087	2,337	1,883	
1.92	0.52	6,758	5,367	3,650	2,765	2,225	
1.67	0.60	7,770	6,170	4,196	3,177	2,558	
1.47	0.68	8,827	7,010	4,767	3,611	2,907	
1.32	0.76	9,830	7,805	5,307	4,020	3,237	
1.19	0.84	10,903	8,658	5,888	4,460	3,590	
1.09	0.92	11,903	9,453	6,428	4,871	3,920	
1.00	1	12,975	10,302	7,008	5,307	4,272	
0.50	2	25,950	20,607	14,013	10,616	8,546	Not available
0.33	3	39,317	31,223	21,233	16,085	12,945	
0.25	4	51,898	41,216	28,025	21,233	17,088	
0.20	5	64,873	51,518	35,033	26,540	21,360	
0.10	10	129,747	103,035	70,062	53,078	42,723	
0.05	20	259,493	206,067	140,127	106,158	85,443	
0.03	30	432,490	343,448	233,546	176,928	142,406	

* The recording time may vary slightly depending on the complexity of the images and the presence of an audio signal.

* The recording time will change depending on the settings for the storage area, and the availability of an optional HDD. Contact the place of purchase for details on increasing the capacity by adding a HDD.

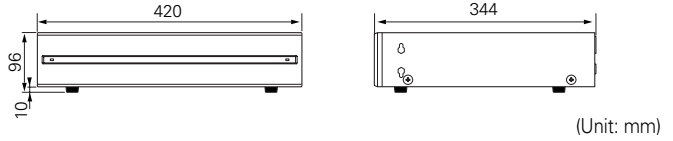Reference: 24H = 1 day, 168H = 1 week, 720H = 1 month, 8760H = 1 year

465.2
420

375
349
10

96
86

VA-RACMK2 (option)

Cooling fan

Option
Rack Mount Bracket
VA-RACMK2

22.6
76.2
50
88
30.1

(Unit: mm)

420
344
96
10

(Unit: mm)

420
329.5
54
10
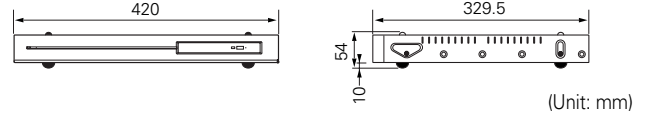
(Unit: mm)

MODEL		DSR-5716P	DSR-5709P
General	Hard disk capacity	Max HDD Capacity (Technically) per bay 2TB	
	Picture resolution	720 x 288 (pixels)	
	Compression	JPEG2000	
	Picture quality	5 levels (Basic, Normal, Enhanced, Fine, Super Fine)	
	Recording speed	28 levels. (100 to 0.033 FPS)	
	Recording area	Recording area / Archive area	
	Number of cameras	16	9
	Menu language	English / French / German / Spanish	
	Date / Clock setup	Day / Month / Year (last two digits) / Hour / Minute / Second	
	Magnification	2x digital zoom using the [ZOOM] button	
Search Mode		Alarm log Search, Alarm Search, Alarm Thumbnail Search, Time/Date Search, Archive Area Search, Motion detection Search, Bookmark Search	
Memory backup		Approximately 30 days (for 48 hours of electrification)	
Video	Signal format	PAL standard (Color) / CCIR standard (B/W) auto select, 625 lines, 50 IPS	
	Video input	VBS / VS 1.0 V (p-p) 75 Ω BNC x 16	VBS / VS 1.0 V (p-p) 75 Ω BNC x 9
	Video output	BNC x 16	BNC x 9
	Main monitor output	VS 1.0 V (p-p) 75 Ω BNC x 1, VGA x 1	
	Monitor 2 output	VBS / VS 1.0 V (p-p) 75 Ω BNC x 1	
	VGA output	Dsub-15 pin	
Audio	Audio input	-8 dBs 27 kΩ unbalanced RCA x 1	
	Audio output	-8 dBs 600 Ω unbalanced RCA x 1	
Control signal	LAN	10BASE-T / 100BASE-TX, RJ-45 x 1 Compatible protocol: UDP, TCP/IP, HTTP server, NTP, SMTP, DHCP	
	RS-485 / 422	RJ-11 x 2, (With a termination switch)	
	USB	USB2.0 Series terminal x 2 (Front x 1, Rear x 1)	
	Alarm input	No-volt contacts (100ms or more) x 16	No-volt contacts (100ms or more) x 9
	Alarm output	Relay (DC24 V Max. 1A / AC125 V Max. 0.3 A)	
	Sensor alarm output	Open collector, Low level active (Max. 25 mA) x 16	Open collector, Low level active (Max. 25 mA) x 9
	Remote control input	Two-wire voltage control x 2	
	Non rec out	Normal 5 V DC, Low level active x1	
	Clock set input	No-volt contacts (100ms or more) x 1	
	Clock set output	Active low, Open collector Max. 25mA x 1	
	Alarm reset	No-volt contacts (100ms or more) x 1	
	Warning output	Normal DC 5 V Low level active x 1	
	Disk full output	Normal DC 5 V Low level active x 1	
	Output 1 / Output 2	Normal DC 5 V Low level active x 1	
	External timer input	No-volt contacts (100 ms or more) x1	
Protocols		SANYO, Pelco, GE, AD, BBV	
Expandable slot		Option SCSI board (Ultra 160 SCSI), Option S-ATA board	
Electrical	Power source	120 V to 240 V AC, 50 / 60 Hz	
	Power consumption	720mA	
	Operating conditions	Temperature: 5°C to 40°C [41°F to 104°F], Humidity: 80% or less	
Physical	Dimensions	420(W) x 96(H) x 365(D) mm [16.5(W) x 3.8(D) x 14.4(D) in]	
	Weight (Approx.)	6.1 kg [13.5 lbs.] (without HDD), 6.6 kg [14.6 lbs.] (with one HDD) 7.2 kg [15.9 lbs.] (with two HDDs)	

NOTE: Specifications subject to change without notice

Warnings regarding HDDs
• Do not attempt to install or replace a HDD on your own. You cannot use these HDDs on PCs.
• The unit may be damaged if it is exposed to an impact or vibration, or the power plug is disconnected during operation.
• Sanyo will not be held liable for any data loss due to an HDD error or a failure during recording.

* "Microsoft", "Internet Explorer" and "Windows" are registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
* All other company and product names are registered trademarks and/or trademarks of their respective owners.

MODEL	VA-EXH
Product name	External storage unit
EMC standard	CE
Safety standard	CE
Mirroring	Available
Hard disk bay	3.5-inch (x4)
Terminal	7-pin external storage unit connection terminal (x4)
Power supply voltage	120 V to 240V AC, 50 / 60 Hz
Power consumption	680 mA
Operating conditions	Temperature: 5°C to 40°C [41°F to 104°F], Humidity: 80% or less
Dimensions	420 (W) x 96 (H) x 344 (D) mm [16.5(W) x 3.8(H) x 13.5(D) in.]
Weight (Approx.)	6 kg [13.0 lbs.] (without HDD), 6.6 kg [14.0 lbs.] (with a HDD), 7.2 kg [15.0 lbs.] (with 2 HDDs)

MODEL	VA-EXD1 B
Product name	External disc unit
Disk drive	Slim type
Recording format	ISO9660
Supported media	DVD+R/+RW and CD-R/RW
Terminals	USB terminal (USB2.0, series B terminal) (x1)
Power supply	120 V to 240 V AC, 50 / 60 Hz
Power consumption	1000 mA
Operating conditions	Temperature: 5°C to 40°C [41°F to 104°F], Humidity: 80% or less
Dimensions	420 (W) x 54 (H) x 329.5 (D) mm [16.5(W) x 2.1(H) x 13.0(D) in.]
Weight	3.9 kg [8.0 lbs.]

H-SSP Control Camera Lineup

1/4" Color CCD High-resolution AF Speed Dome Camera
36x Optical zoom **DAY NIGHT** **VCC-9800P**

1/4" Color CCD High-resolution AF Speed Dome Camera
36x Optical zoom **VCC-9700P**

1/4" Color CCD High-resolution AF Speed Dome Camera
30x Optical zoom **DAY NIGHT** **VCC-9600P**

1/4" Color CCD High-resolution AF Speed Dome Camera
30x Optical zoom **VCC-9500P**

1/4" Color CCD High-resolution Weatherproof Auto Focus Zoom Camera
2.6x Optical zoom **DAY NIGHT** **VCC-XZ200P** **+ VA-20ST**

1/4" Color CCD High-resolution Vandal-resistant PT Network Dome Camera
2.6x Optical zoom **DAY NIGHT** **VDC-DP9585P**

1/4" Color CCD High-resolution PT Indoor mini Dome Network Camera
2.6x Optical zoom **VCC-P9575P**

1/4" Color CCD High-resolution Vandal-resistant Dome Camera
2.6x Optical zoom **DAY NIGHT** **VDC-DP7585P** **+ VA-50ST**

1/4" Color CCD High-resolution Indoor mini Dome Camera
2.6x Optical zoom **VCC-P7575PA** **+ VA-50ST**

*Caution: Please consult the instruction manual to ensure safe and proper operation of the product.

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