

# Digital Video Recorder with Built-in Multiplexer

- An HDD recorder with a complete 16 / 9-ch multiplexer
- A clear picture with horizontal resolution of more than 520 TV lines
- Simultaneous recording and playback at 50 fields/sec.
- Live picture monitoring at 400 (25 x 16) frames/sec and 225 (25 x 9) frames/sec for DSR-3716P and DSR-3709P respectively
- Built-in SSP controller with camera telemetry control
- Networking capability

DSR-3716P DSR-3709P

PAL 9-channel

DIGITAL

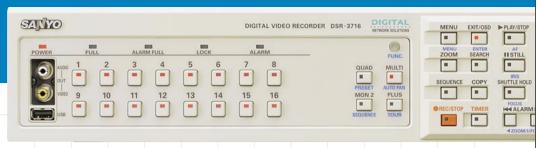
**NETWORK SOLUTIONS** 



## Digital Video Recorder with Built-in Multiplexer

DSR-3716P PAL DSR-3709P PAL DIGITAL

**NETWORK SOLUTIONS** 

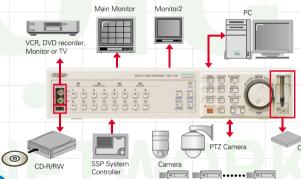


Simultaneous recording/playback with high picture quality of more than 520 TV lines at 50 fields/sec, plus availability of huge 300 GB HDD. Multiple screen display that is updated at 400 FPS\*. Also features built-in LAN terminal to add controls over a network.

\*DSR-3716P

#### An All-in-one Unit for a System Hub

Capable of processing analogue signals, SSP signals and network signals (through the LAN terminal), the DSR-3716P / DSR-3709P functions as a system hub that connects different devices such as cameras and monitors. It offers added benefits of 520 TVL high picture quality, real time (25FPS/screen) multiple screen monitoring, and USB terminals to output data to a CD-R/RW disc. The units also include a telemetry function that allows them to control cameras that support SSP via a coaxial cable. These brand new units cover all aspects of the expanded needs of surveillance equipment.



# More than 520 TV Lines Real time multiple screen monitoring

#### High Picture Quality of 520 TV Line Horizontal Resolution

The DSR-3716P / DSR-3709P supports simultaneous recording / playback in the Motion-JPEG video compression standard, a recording good enough for establishing cases against offenders. Naturally, the recording is free from smudges,



vertical shifts, and jitters. With a horizontal resolution of more than 520 TV lines and an S/N ratio of more than 50dB, the surveillance video recording is clearer than ever.

#### Simultaneous Recording and Playback at 50 fields/sec

The simultaneous recording and playback function makes it possible for the user to review recorded images without interrupting the recording in progress.

#### Full-motion, Multiple Screen Display of Live Video Images

Multiple live video images can be viewed simultaneously in 16, 9, or 4 split-screen display at the speed of 25FPS/channel. Full screen display is also available. Select the desired display mode without worrying about the update speed.



25FPS 25FPS 25FPS 25FPS

25FPS

#### **Audio Recording Available**

Audio recording is available for recording speeds from 50 fields/sec to 1 fields/sec.
(Audio input must be a single channel.)

#### HDD Lineup from 80 GB to 300 GB

The unit comes with two HDD bays to accommodate up to 300 GB HDD. Depending on the needs, 80 GB, 160 GB or 250 GB HDDs may also be selected. A 300 GB HDD offers 66 hours of non-stop recording in the normal mode (50fps). Note that the two HDDs must be of the same capacity. With two HDDs installed, mirroring\* to backup the recorded data. For further details about HDD expansion, contact the place of purchase.

\*As of November 2004

#### \*Mirror Recording

DSR-3716P / DSR-3709P each comes with two HDD bays. By adding an optional second HDD of the same capacity, it is possible to record the same video on two HDDs, thus allowing for a backup.

#### Five Different Picture Qualities and 27 Recording Speeds Enable Flexible Settings

The picture quality is selectable from BASIC, NORMAL, ENHANCED, FINE and SUPER FINE. Together with the 27 different recording speeds, the user can select the most suitable recording mode for each situation.

#### **Five Different Search Functions**

DSR-3716P / DSR-3709P features five different search functions — Time/Date Search, Alarm Search, Alarm Thumbnail Search, Archive Area Search and Motion Detection Search. Since all data is recorded on a HDD, the target image is brought up instantly despite the disk's ability to store a large amount of data.



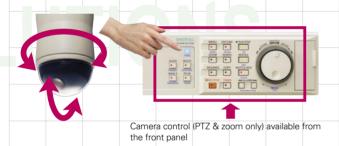


DSR-3709P

#### A DVR with Superior System Expansion Capability Supporting Various Media and **Network Connection**

#### **Camera Telemetry Control**

The buttons on the DSR-3716P / DSR-3709P front panel allow the user to control PTZ / zoom cameras. The unit transmits SSP\* signals by overlaying them on to the video signal through a coaxial cable. This makes it possible to control cameras that support coaxial SSP transmission without any additional device other than a video cable not only from the front panel, but also from a SANYO controller or via a network. In addition, BBV and PELCO cameras can also be controlled if they support coaxial signal transmission. SSP (SANYO Security Serial Protocol) is a communication protocol for security devices proposed by SANYO.



#### AV Output Terminal on the Front Panel

These terminal can be used for supplying signals to a consumer VCR or DVD recorder, thus enabling the use of analogue video tapes and DVD discs as recording media. When a TV monitor is connected, the same video signal as the main monitor can be supplied to it, including the menu screen.

## Multiple Backup Methods Depending on Data Size

Through USB terminals located both on the front and rear panels, it is possible to back up data in the HDD archiving area to CD-R/RW discs. The use of discs assures secure storage of necessary video and audio data. (Two USB terminals cannot be used simultaneously.)

#### CompactFlash or Microdrive

DSR-3716P / DSR-3709P comes with a CF Type II expansion slot. It allows the user to export video data to a CompactFlash or Microdrive, and provides an easy way to store data or transfer it to a PC. Downloading and uploading of setup menus by use of a CF card offer an easy option for setting up additional DSR-3716P / DSR-3709P recorders.



#### Print Directly from a CF Card or a Microdrive

By using SANYO digital photo printer DVP-P1, it is possible to print images directly from a CF card or a Microdrive. SANYO cannot guarantee performance when other printers are used.

As for the recommended products, visit our website www.sanyosecurity.com or contact the place of purchase.

## **Networking Capability**

#### **Remote Control by a PC**

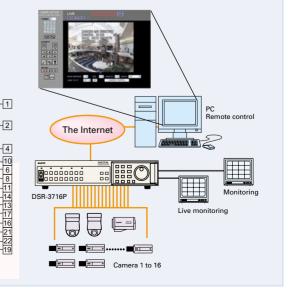
The built-in LAN terminal enables remote control of the DSR-3716P / DSR-3709P through a PC that is connected to the network (remote control is possible by using Internet Explorer Version 5.0 or higher without the need for any special

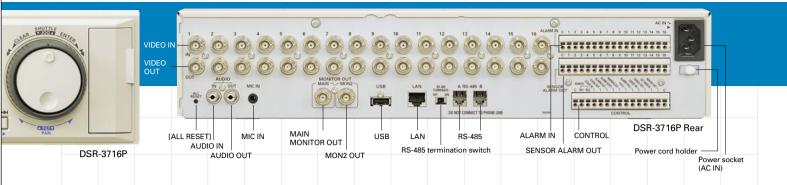
software). It is also possible to monitor the live video, play back recorded pictures, control cameras, and download video/audio recordings to the PC. Added security is provided by limiting the access level depending on the user and password setup. 3-

- 1. Channel number
- Channel selection (ID1/2/3)
   MULTIVIEW (ID1/2/3)
- 4. QUAD (ID1/2/3) 5. Previous event (ID2/3)
- 6. Next event (ID2/3) 7. Speed down (ID2/3)
- 8. Speed up (ID2/3)
- 9. Reverse playback (ID2/3) 10.Playback stop (ID2/3) 11.Playback (ID2/3)

- 13. Still (ID2/3)
- 15. Search (ID2/3)
- 16. Copy (ID2/3)

- 21. Record STOP (ID3)
- 12. Previous image (ID2/3) 14. Next image (ID2/3) 17. Download (ID2/3) 18. Menu settings (ID3) 19. Disconnect (ID1/2/3) 20. Record (ID3) 22. Timer (ID3)





#### **Series Connection**

When multiple units of DSR-3716P / DSR-3709P are connected in series, the recording automatically switches to the second DVR if the master DVR runs out of storage capacity. The process continues to the third DVR and onward and enables unlimited expansion of storage capacity and recording time.

#### Three Recording Modes for Flawless Recording

DSR-3716P / DSR-3709P has three recording modes; Alarm, Timer, and Programme. The three modes can operate individually or in any combination.

#### **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 analysing the situation.

#### 300 GB DSR-3716P / DSR-3709P Recording Time After expansion to 300 GB (100%-usage)

Recording Speed		Picture Quality					
C 11.7	Recording	Basic 15KB	Normal 22KB	Enhanced 30KB	Fine 42KB	Super Fine 50KB	Audio Recording
fields/sec	Interval		VHS (EP)	VHS (SP)	S-VHS	S-VHS +	
50.00	(sec.)		Recording Time (unit: hour)				
50.00	0.02	93	66	49	36	30	
25.00	0.03	187	133	99	72	61	
16.67	0.05	281	199	149	108	92	
12.50	0.07	375	266	199	145	122	
8.33	0.10	563	399	299	217	184	
6.25	0.13	751	532	399	290	245	
5.00	0.17	939	665	498	362	307	
4.17	0.20	1,126	798	598	435	368	
3.57	0.23	1,314	931	698	507	429	
3.13	0.27	1,502	1,054	798	580	491	Available
2.78	0.30	1,690	1,197	898	653	552	Available
2.50	0.33	1,878	1,330	997	725	614	
2.27	0.37	2,066	1,463	1,097	798	675	
1.92	0.43	2,441	1,729	1,297	943	798	
1.67	0.50	2,817	1,995	1,496	1,088	921	
1.47	0.60	3,193	2,261	1,696	1,233	1,043	
1.32	0.70	3,568	2,527	1,895	1,378	1,166	
1.19	0.80	3,944	2,793	2,095	1,523	1,289	
1.09	0.90	4,320	3,060	2,295	1,669	1,412	
1.00	1	4,695	3,326	2,494	1,814	1,535	
0.50	2	9,391	6,652	4,989	3,628	3,070	
0.33	3	14,087	9,978	7,483	5,442	4,605	
0.25	4	18,782	13,304	9,978	7,256	6,140	
0.20	5	23,478	16,630	12,472	9,071	7,675	Not
0.10	10	46,956	33,261	24,945	18,142	15,351	available
0.05	20	93,913	66,522	49,891	36,284	30,702	
0.03	30	140,870	99,783	74,837	54,427	46,053	
t The recording time may vary slightly depending on the complexity of the images and the presence							

The recording time may vary slightly depending on the complexity of the images and the presence

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

#### Alarm Recording

A full range of settings for picture quality, recording speed, and audio recording are possible. Alarm recording is triggered by an alarm signal from the built-in motion sensor or an external sensor. There are two operating modes in alarm recording alternate recording and continuous recording.



#### **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.

#### **Programmed Recording**

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

#### **Timer Functions**

By dividing a day into four time periods T1, T2, T3, and T4, you can set up an independent setting in each time period, for each of the following functions.

- (1) Motion Sensor
- (2) Monitor Masking
- (3) Display Interval for Full-screen Sequential Display

#### **Extensive Display Options**

For both live picture monitoring (during multiplex recording) and replay of pictures, the user can select from 16-screen display, 9-screen display, 4-screen display, and full-screen (1-screen) display.

Plus display					Plus display			
Plus display		3	4		Plus display		2	The m
		7	8				3	
9	10	11	12			ı		DSR-3
13	14	15	16		7	7	4	D3N-3

maximum numf cameras for 3709P is nine.

- Plus display
- 4-screen display
- Full-screen display
- Screen position assignment
- Monitor masking

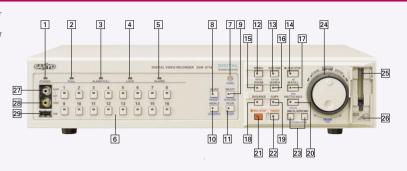
of an audio signal.

\* The table above lists the picture quality vs. recording time for field recording using the normal recording area of the 300 GB HD. The recording time will change depending on the settings for the storage area, the use of frame recording, and the availability of an optional HDD. Contact the place of purchase for details on increasing the capacity by adding a HDD

#### LOCATIONS OF CONTROLS AND INDICATORS

- 1. POWER indicator
- 3 ALARM FULL indicator
- 4. LOCK indicator
- ALARM indicator
- 6 CAMERA SELECT button and indicators
- [FUNC.] button and indicator
- 8. IQUADI button and indicator
- 9. [MULTI] button and indicator
- [MON2] button and indicator
- 11. [PLUS] button and indicator
- 12. [MENU] button and indicator
- 13. [EXIT/OSD] button and indicator 14. IPLAY/STOPI button and indicator
- 15. IZOOMI button and indicator

- 16. [SEARCH] button and indicator
- 17. [STILL] button and indicator
- ISEQUENCEI button and indicator 19. [COPY] button and indicator
- 20. [SHUTTLE HOLD] button and indicator
- 21. [REC/STOP] button and indicator 22. [TIMER] button and indicator
- 23 [ALARM] button and indicator
- 24. Jog dial (inside) and shuttle
- dial (ouside)
- 25. CompactFlash card slot 26. [MENU RESET] button
- . Audio output terminal
- 28. Video output terminal
- 29. USB terminal



#### Alarm Functions

Using the built-in motion sensor and external sensors, the following alarm functions are available.

#### (1) Monitor Display Switching

An alarm signal causes the monitor to switch to the designated mode of display (16-, 9-, or full-screen). It also causes letters "SA" (for a video alarm) or "EA" (for an external alarm) to be displayed alternately with the camera title. The user can also set each spot monitor to switch to the image from the camera from which the alarm was triggered.

#### (2) Buzzer and Indicator Lamp Warnings

An alarm signal triggers a buzzer sound as well as the blinking of the camera selection indicator light for the relevant camera.

#### **Built-in Motion Sensor**

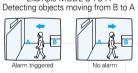
DSR-3716P / DSR-3709P comes with a built-in motion sensor. Different settings can be made for each camera image independently. The sensor can detect moving objects within the screen by picking up changes in brightness. The user can use this feature to trigger an alarm recording.

Example MODE A AND B Disregard movements of small objects









#### Other Features

- Duplex Recording with 1-Field Switching
- Two-level password security lock (admin / user)
- Video loss alarm
- 30-day memory back-up
- Resume function
- End-of-medium alarm.
- On-screen mode setting, menu languages built in: English / French / German / Spanish
- Built-in time date generator
- Auto repeat recording
- Alarm counter
- 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

## System Example

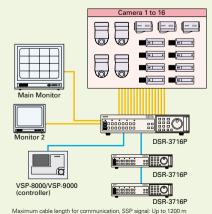
Analogue video signal

SSP signal

LAN

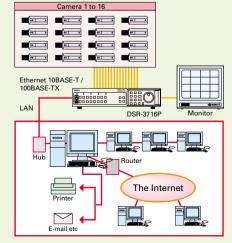
Example MODE B TO A

#### System Example No.1

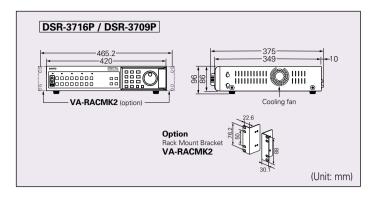




#### System Example No.2



LAN connection enables video monitoring and DVR setup/control from a remote location



MOD	EL	DSR-3716P	DSR-3709P			
General	Hard disk Capacity	80 GB, 160GB, 250GB or 300	GB (One HDD can be added.)			
	Picture resolution	720 x 288 (Field)				
	Compression	M-JPEG				
	Picture quality	5 levels (Basic, Normal, Enhanced, Fine, Super Fine)				
	Recording type	Field recording				
	Recording speed	27 levels.				
	Recording Area	Normal Recording Area / Alarm Recording Area / Archive Area				
	Number of cameras	16	9			
	Menu language	English / French / German / Spanish				
	Clock setup	Day, month, year, hour, minute, second				
Coorob N		Time/Date Search, Alarm Search, Alarm Thumbnail Search,				
Search Mode		Archive Area Search, Motion detection search				
Video	Signal format	PAL standard (Colour) / CCIR standard (B/W) auto select.				
video	Signal format	625 lines, 50 fields/sec				
	Video input					
	video iliput	VBS / VS 1.0 V (p-p) 75Ω	VBS / VS 1.0 V (p-p) 75Ω BNC x 9			
	Video output	BNC x 16	BNC x 9			
Main monitor output		VS 1.0 V (p-p) 75Ω BNC x 1				
	Monitor 2 output	VBS / VS 1.0 V (p-p) 75Ω BNC x 1				
Audio	Audio input	-8 dBs 27 kΩ unbalanced, RCA x 1				
	Audio output	-8 dBs 600 Ω unbalanced, RCA x 1				
	Microphone input					
Front AV	Video output	1.0 V (p-p) 75Ω unbalanced, RCA x 1				
	Audio output	-8 dBs 600 Ω unbalanced, RCA x 1				
	CompactFlash slot	CF type 2				
00111101	LAN	10BASE-T / 100BASE-TX, RJ-45 x 1				
signal		Compatible protocol: UDP, TCP/IP, HTTP server				
	RS-485	RJ-11 x 2 (With a termination switch)				
	USB	USB1.1 Series terminal x 2 (Front x 1, Rear x 1)				
	Alarm input	No-volt contacts	No-volt contacts			
		(100ms or more) x 16	(100ms or more) x 9			
	Sensor alarm output	Open collector, Low level	Open collector, Low level			
		active (Max. 25 mA) x 16	active (Max. 25 mA) x 9			
	Remote Control input					
	Clock set input	No-volt contacts (100ms or more ) x 1				
	Clock set output	Normal 5 V Low level active x 1				
	Alarm output	Active low, Open collector MAX. 500mA 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				
	Alarm full output	Normal DC 5 V Low level active x 1				
	Series input	Normal DC 5 V Low level active x 1				
	Series output	Normal DC 5 V Low level active x 1				
	External timer input	No-volt contacts (1 second or more ) x 1				
	NON Rec output	Normal DC 5 V Low level active x 1				
Electrical	Power source	120 to 240 V AC, 50 / 60 Hz				
	Power consumption	600 mA				
	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 [16.54(W) x 3.78(H) x 14.37(D) in.]				
,	Weight (Approx.)	6.3 kg [13.9 lbs.] (with one HDD unit)				
	J	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.

### Horizontal resolution more than 520 TV lines of compatible devices

#### Camera

Standard — 1/3\* Colour CCD DSP High-resolution Camera

VCC-6585P (12 V DC / 24 V AC dual type)

Line-operate

1/3" Colour CCD DSP VCC-6570P

VCC-6580P Available soon (220 to 230 V AC type)

High-sensitivity -

1/3" Colour CCD DSP High-resolution Camera

VCC-6592P (12V DC type) VCC-6594P (24V AC type)

Day/Night-

1/3" CCD DSP High-resolution Day/Night Camera (Colour + B/W)

VCC-4592P DAY NIGHT (12 V DC type) VCC-4594P DAY NIGHT (24 V AC type)

Pan Tilt Zoom -SSP coaxial camera control compatible
1/4\* Colour CCD DSP High-resolution Speed Dome Camera

VCC-9300P (12 V DC / 24 V AC dual type)

Weatherproof -1/4" Colour CCD High-resolution Weatherproof Day/Night Auto Focus Zoom Camera (Colour + B/W)

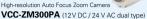
VCC-XZ400P DAY NIGHT

#### Recorder

\* 55 56 66 \* BB 22 50 1ch Digital Video Recorder DSR-300P

#### Zoom

SSP coaxial camera control compatible 1/4\* Colour CCD DSP High-resolution Auto Focus Zoom Came



1/4\* Colour CCD DSP High-resolution Day/Night Auto Focus Zoom Camera (Colour + B/W)

VCC-ZM400P DAY NIGHT

#### Vandal Resistant Dome Camera

1/4" Colour CCD DSP High-resolution Day/Night Vandal Resistant Dome Camera (Colour + R/W)

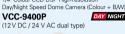
VDC-D1185VP DAY NIGHT

1/4" Colour CCD DSP High-resolution Day/Night Vandal Resistant Dome Camera (Colour + B/W)

VDC-D2185VP DAY NIGHT









16ch Digital Video Recorder DSR-5016P Available soon 9ch Digital Video Recorder DSR-5009P Available soon

6ch Digital Video Recorder DSR-3506P

#### Monitor

19" High-resolution Colour Video Monitor VMC-8619PA

15" High-resolution Colour Video Monitor VMC-8615FP

15" High-resolution Colour Video Monitor

VMC-8415FP

## SSP compatible devices

#### **SSP System Unit**

SSP System Controller VSP-8000

VSP-9000

VSP-CB10 SSP Signal Receiver VSP-RV200



DSR-5016P

#### Recorder

16ch Digital Video Recorder

1ch Digital Video Recorder DSR-M810P

4ch Digital Video Recorder DSR-M814P DSR-300P

6ch Digital Video Recorder DSR-3506P 9ch Digital Video Recorder DSR-5009P

1/4\* Colour CCD DSP High-resolution Speed Dome Camera (Colour + B/W)

VCC-9300P

1/4" Colour CCD DSP High-resolution Day/Night Speed Dome Camera (Colo

VCC-9400P DAY NIGHT 1/4" Colour CCD DSP High-resolution VCC-ZM300PA



1/4" Colour CCD DSP High-resolution Day/Night Auto Focus Zoom Camera (Colour + B/W) VCC-ZM400P 1/4\* Colour CCD High-resolution Weatherproof Day/Night Auto Focus Zoom Camera (Colour + B/W)

### **Network Product**

VCC-XZ400P

VSP-SV2000P

NEXUSAGE"



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









DI Solutions Company of SANYO Electric Co., Ltd. obtained Quality Management System ISO9001 and Environmental Management System ISO14001 certifications.

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