

Panasonic
ideas for life

Digital Disk Recorders
WJ-HD316
WJ-HD309

The Comprehensive Digital Recording Solution



DIGITAL DISK RECORDERS
WJ-HD300
SERIES

The WJ-HD300 Series offers high quality pictures and disk saving recording utilizing a new compression technology.

Panasonic presents the new WJ-HD300 Series with a unique new system featuring a high compression ratio of 1/30 for practical use. Under the "All-in-One Solution" concept, all the vital recording components and features are condensed into one unit. With one single unit, unprecedented, highly reliable surveillance recording is possible in a wide range of applications. The WJ-HD300 Series also features System Scalability to meet extended user needs.

1/30 Super Compression: Proprietary Algorithm, Core Development of the WJ-HD300 Series

- New algorithm divides entire screen into high and low frequency elements to reduce artificial distortion and noise compared to conventional compression.
- In addition, the mode-A compression data calculation within four (4) field images (called "Temporal Transforms"), outputs data according to the amount of movement: "No Movement," "Slow Speed Movement," "Medium Speed Movement," and "High Speed Movement." Redundant data can be reduced through this compression process.



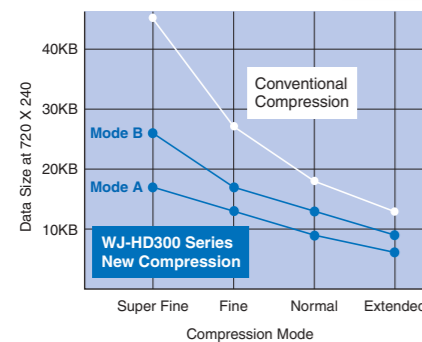
WJ-HD316

WJ-HD309

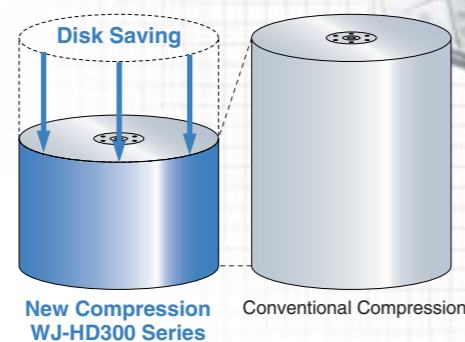
Picture Quality & Disk Saving

Compared to a conventional algorithm, the data compression ratio has improved approximately 1.5 ~ 2, depending on object and compression mode.

■ Data Size and Compression Mode



■ Comparison

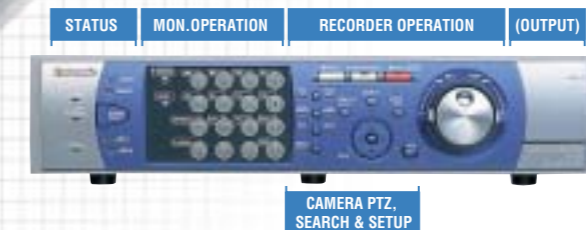


All in One Solution

Instinctive Operation

Simple and instinctive, the functional base layout of the WJ-HD300 Series front panel is designed for ease-of-use. Eight (8)* directly connected Panasonic dome cameras can be controlled from the front panel. Also, the GUI based menu screen enables quick set up for flexible, more complex operations. (* Six (6) cameras for the WJ-HD309)

OPERATION BASE LAYOUT



GUI BASE MENU



Value Added Features

The WJ-HD300 Series is equipped with the latest value added features to satisfy your requirements such as system reliability, operation efficiency, and cost savings.

Features include:

- High-density recording: 60 ips* (120 ips* @SIF)
- Full rate live multi screen: 60 ips*
- Simultaneous Live/Rec./Playback/Network
- 16 independent recording profiles
- Disk partitioning: Normal, Alarm, and Copy
- RAID 5 and mirror redundant recording
- Advanced VMD (Video Motion Detector): Area, direction, and vector.
- Various Network Operations: Live, PTZ control, Recording, Playback, and Downloading
- Network and serial open architecture

(* ips = image per second)

Superior surveillance made possible by state-of-the-art digital features.

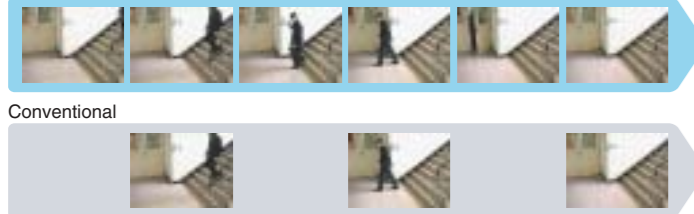


High-Refresh Rate Recording

High-speed digital processing enables high-refresh rate recording — to ensure critical moments are not missed.

Max. **30** image per sec. @ 720 x 480 (FRAME/NTSC)
 Max. **60** image per sec. @ 720 x 240 (FIELD/NTSC)
 Max. **120** image per sec. @ 360 x 240 (SIF/NTSC)

WJ-HD300 Series

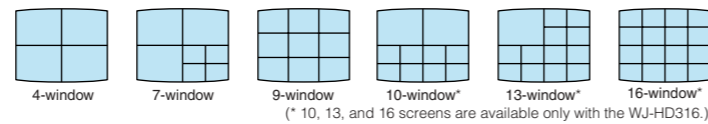


Full Rate Live Multi-Screen

Even when images from multiple cameras are displayed on a multi-screen, live monitoring can be achieved on all cameras at a full rate of 60 ips (image per second). Experience real-time, full surveillance with full-rate video images.



Multi-screen in versatile variations



16 Independent Recording Profiles

Flexible recording setup

Independent recording settings (recording mode/recording rate/picture quality) for each camera* enables flexible setup. (*16 cameras for the WJ-HD316 and 9 cameras for the WJ-HD309.)
 • **Recording mode:** Manual / Schedule / Event / Emergency • **Recording rate:** Set the ips (image per second) as needed. • **Picture quality:** Super Fine / Fine / Normal / Extended

User-friendly setup

The user friendly GUI supports easy and smooth setup while confirming current status graphically.

GUI Setup Menu

Recording Action PROG 1

Resolution: FIELD
 Recording Table: Manual REC 15 ips Schedule REC 15 ips Event REC 30 ips

CAM	MANUAL		SCHEDULE		EVENT(PRE)		EVENT(POST)			
	RATE	QUALITY	RATE	QUALITY	RATE	QUALITY	RATE	QUALITY		
CAM1	AUTO	EXA	1ips	EXA	1ips	FQB	5s	4ips	EXB	30s
CAM2	AUTO	NQA	1ips	NQA	1ips	FQB	5s	4ips	NQB	30s
CAM3	AUTO	FQA	1ips	FQA	1ips	FQB	5s	2ips	FQB	10s
CAM4	AUTO	SFA	1ips	SFA	1ips	SFB	5s	2ips	SFB	20s
CAM5	AUTO	NQA	1ips	EXA	1ips	EXB	5s	1ips	EXB	30s
CAM6	AUTO	FQA	1ips	NQA	1ips	NQB	5s	1ips	NQB	30s
CAM7	AUTO	SFA	1ips	FQA	1ips	FQB	5s	1ips	FQB	30s
CAM8	AUTO	SFA	1ips	NQA	1ips	SFB	5s	1ips	SFB	30s
CAM9	AUTO	EXA	OFF	—	1ips	EXB	5s	1ips	EXB	30s
CAM10	AUTO	NQA	OFF	—	1ips	NQB	5s	1ips	NQB	30s
CAM11	AUTO	FQA	OFF	—	1ips	FQB	5s	1ips	FQB	30s
CAM12	AUTO	SFA	OFF	—	1ips	SFB	5s	1ips	SFB	30s
CAM13	AUTO	EXA	1ips	EXA	1ips	SFB	5s	3ips	EXB	10s
CAM14	AUTO	NQA	1ips	NQA	1ips	SFB	5s	3ips	NQB	30s
CAM15	AUTO	FQA	1ips	FQA	1ips	FQB	5s	2ips	FQB	30s
CAM16	AUTO	SFA	1ips	SFA	1ips	SFB	5s	2ips	SFB	30s

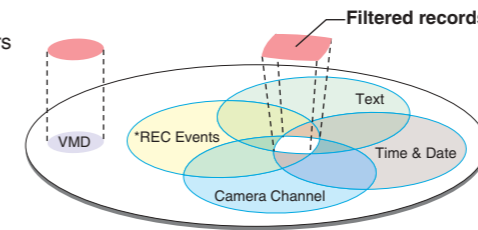
Actual recording result (Example)

Time	Manual	Schedule	Event
00:00	1ips EXA	4ips EXB	1ips EXA
CAM2	1ips NQA	4ips NQB	1ips NQA
CAM3	1ips FQA	2ips FQB	1ips FQA
CAM4	1ips SFA	2ips SFB	1ips SFA
CAM5	1ips EXA	1ips NQA	1ips EXA
CAM6	1ips NQA	1ips FQA	1ips NQA
CAM7	1ips FQA	1ips SFA	1ips FQA
CAM8	1ips NQA	1ips SFA	1ips NQA
CAM9	1ips EXA	OFF	1ips EXA
CAM10	1ips NQA	OFF	1ips NQA
CAM11	1ips FQA	OFF	1ips FQA
CAM12	1ips SFA	OFF	1ips SFA
CAM13	1ips EXA	3ips EXB	1ips EXA
CAM14	1ips NQA	3ips NQB	1ips NQA
CAM15	1ips FQA	1ips FQA	1ips FQA
CAM16	1ips SFA	1ips SFA	1ips SFA

Instant Search and Playback

Filtered Search

Various parameters/filters such as time & date, camera channel, REC events, text and VMD enables instant search and playback from mass recorded data.



* REC Event filter

REC mode	Emergency, Event, Schedule, Manual
Alarm mode	VMD, Terminal, Command, Video loss

Filtered Search (Example)

Filter parameters:
 Time & Date : 9:40-10:10
 CAM Channel : CAM1 - CAM2 - CAM3 - CAM4
 REC mode : Event
 Alarm mode : VMD - TRM - COM - LOSS

Filtered records:

CAM1	Manual	VMD	TRM
CAM2	COM		
CAM3	VMD	LOSS	
CAM4	Manual		
CAM5	Manual	VMD	TRM

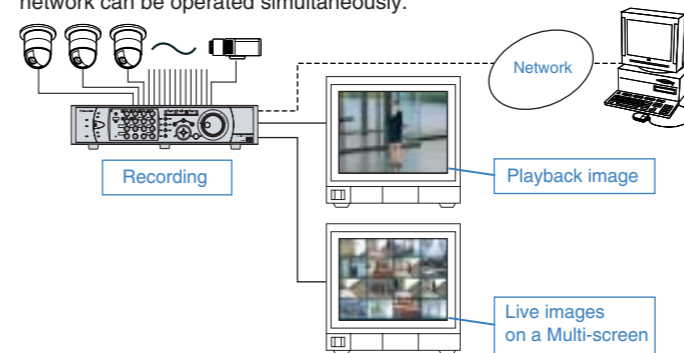
Thumbnail Display

In addition to search result by "list", "thumbnail" display is available for visual confirmation.



Live / Recording / Playback / Network Simultaneous Performance

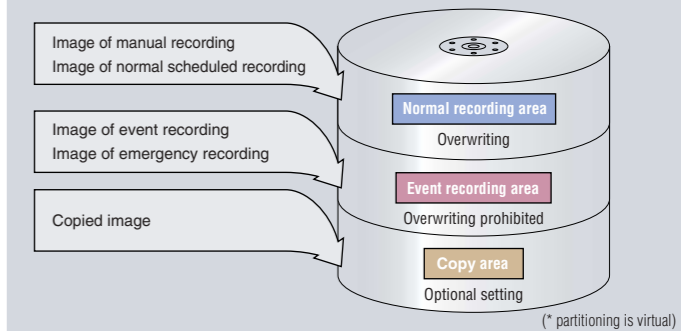
By adopting high speed signal processing, live / recording / playback / network can be operated simultaneously.



Disk Management

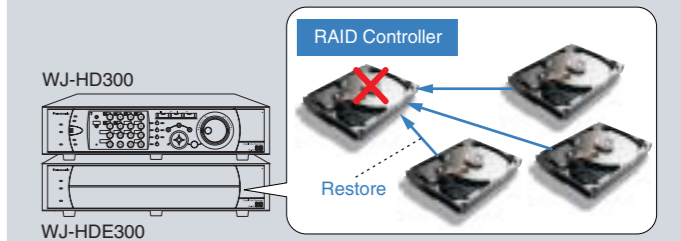
Hard Disk Partitioning Function* automatically selects the partition to be recorded.

The hard disk is divided into three partitions: "Normal Recording," "Event Recording," and "Copy." Image data is automatically recorded to the appropriate partition according to the recording mode. For the normal recording partition, the data is overwritten when the capacity is full. The event recording partition prohibits overwriting to protect data. Copy partition prepares data for retrieval to external medium.



RAID5 / Mirroring Function

RAID5 distributes image data to multiple hard disks in the extension unit. Upon hard disk breakdown, lost data can be restored from other hard disks. When using one WJ-HD300 Series unit, mirroring function is available for data backup.



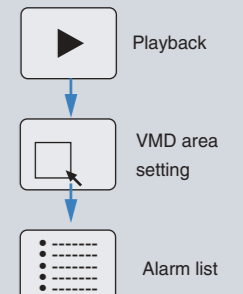
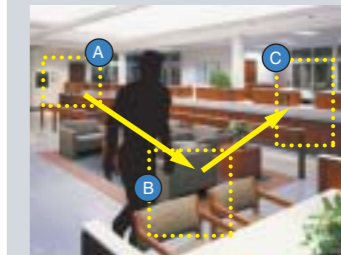
Advanced VMD

A new mode is added for sophisticated VMD detection.

Playback VMD

One VMD area can set one playback image for motion search.

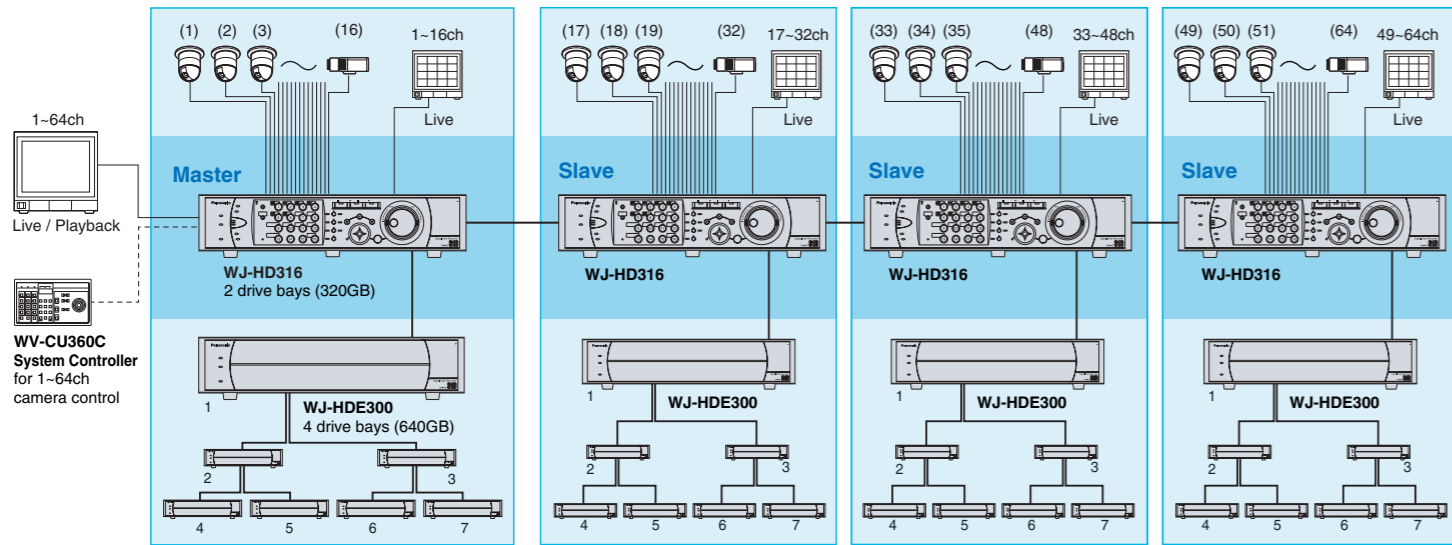
DETECT VECTOR & DURATION



System Scalability:

Viewing cascade connection (up to 4 main units)

Up to four (4) WJ-HD316 units can be cascaded to increase maximum 64 video inputs. All 64 cameras can be switched and viewed in live and playback from the master, while each slave unit has its own live viewing monitor.

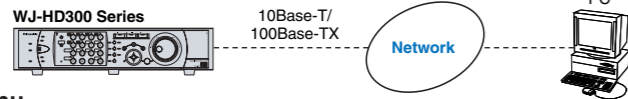


Expandable to 4.8 Terabytes (TB)

In addition to a total 320 GB capacity of the main unit WJ-HD316/309, one WJ-HDE300 extension unit provides up to 640 GB. With seven (7) extension units, the maximum capacity can be extended up to 4.8 TB to satisfy long recording requirements.

Built-In Network Interface:

Network functions include live image monitoring through multi-screen display, camera PTZ control, recording/search/playback, downloading image/log data, e-mail notification, and setup data upload/download.



Network Operating Menu



Control Tab
The switcher function for live monitoring is operable.



Cam Tab Remote control the camera selected on control tab page. (Only for 1-8ch Panasonic PTZ dome cameras)



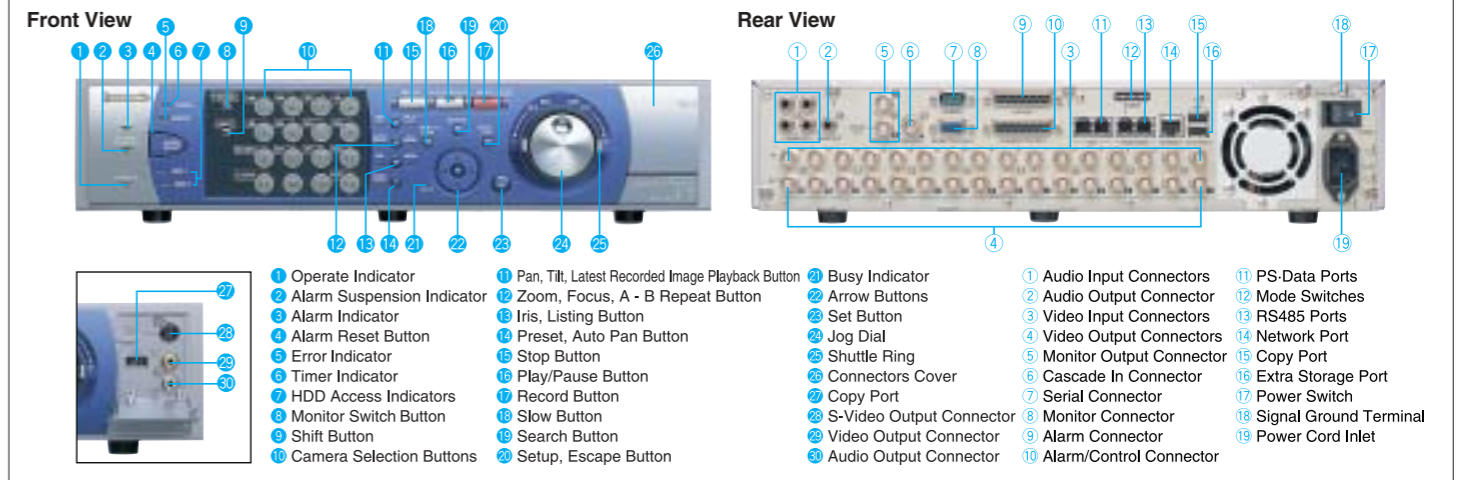
HDD Tab Operation for recorded images such as playback or downloading (saving) to PC.



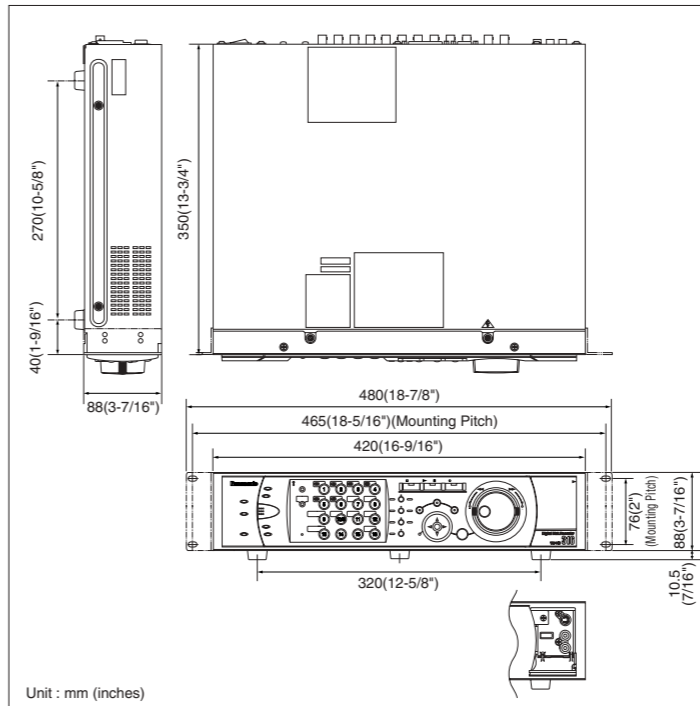
Setup Tab
Setup of WJ-HD300 Series can be performed.



MAJOR OPERATING CONTROLS: WJ-HD316



DIMENSIONS: WJ-HD316



SPECIFICATIONS: WJ-HD316

General	
Power Source	120 V AC, 60 Hz
Power Consumption	85 W
Ambient Operating Temperature	+5°C - +45°C (41°F - 113°F)
Ambient Operating Humidity	Less than 90 %
Dimensions	420 mm (W) x 88 mm (H) x 350 mm (D) [16-9/16" (W) x 3-7/16" (H) x 13-3/4" (D)] (excluding rubber feet and projections)
Weight	9.5 kg (21 lbs.)
Input/Output	
Video Video Input Connectors	1 V [P-P] / 75 Ω, with auto termination loop-thru, vertical timing pulse multiplexed, x8 (1 to 8 CH) (BNC) 1 V [P-P] / 75 Ω, with auto-termination loop-thru, x8 (9 to 16 CH) (BNC)
Cascade Input Connector	1 V [P-P] / 75 Ω (BNC)
Video Output Connectors	1 V [P-P] / 75 Ω, active loop-thru output, x8 (1 to 8 CH) (BNC)*1 1 V [P-P] / 75 Ω, active loop-thru output, x8 (9 to 16 CH) (BNC)
Monitor Output Connectors	1 V [P-P] / 75 Ω, x2 (BNC)
Monitor Output Connector (VGA)	RGB output, x1 (15-pin D-sub)
S-Video Output Connector	Y = 1 V [P-P] / 75 Ω, C = 0.286 V [P-P] / 75 Ω, x1 (S-video output connector)
Video Output Connector (Front Panel)	1 V [P-P] / 75 Ω, x1 (RCA pin)
Audio Audio Input Connectors	-10 dB, 10 KΩ, x4 (RCA pin)
Audio Output Connectors	-10 dB, 600 Ω, unbalanced, x2 (RCA pin)
Others Expansion Connector	High-speed serial interface, 480 Mbps (theoretical value), x1
Copy Connectors	High-speed serial interface, 480 Mbps (theoretical value), x2
Control Connectors	Emergency recording input ² , additional space warning output ³ (for devices connected to copy connectors), HDD trouble output ³ , camera trouble output ³ , trouble output ³ , electricity failure recovery completion output ⁴ , time adjust input/output ⁵ , sequence switching input/output ⁵ , electricity failure detection input ² , external recording mode switching ² (25-pin D-sub), +5 V output ⁷
Alarm Port	1 to 8 CH alarm input ² , 1 to 16 CH alarm input ² , 1 to 16 alarm output ³ , alarm recovery input ² , alarm suspension input ³ (25-pin D-sub)
RS-485 Ports	RS-485 (full duplex/half duplex ³), x2 (RJ-11)
DATA Ports	RS-485, x2 (RJ-11)
SERIAL Connector	RS-232C, x1 (9-pin D-sub)
Ethernet Port	10 Base-T/100 Base-TX (RJ-45)

*1. When power is not supplied, video output signal was not sent from the unit even if video input signal is supplied.
*2. Non-voltage N.O. Contact, 100 mA, +5 V pull-up *3. Open collector output, maximum under conditions of 24 V DC and 100 mA or less *4. High (+12 V, 6.3 mA) *5. 30 KΩ, 5 V pull-up, -100 mA, N.O. Contact *6. 5 V pull-up, -100 mA, Non-voltage N.O. Contact input *7. 240 mA at maximum *8. Changeable with the mode switch

DISK DATA REFERENCE CHART NTSC Color Video Signal, 320GB (160GB unit x 2), 16 Channel Video Inputs, Audio Signal: Off, Auto Mode Manual Recording

Sampling Pixel Size: 720 x 240 **Field Mode (Mode A)**

Compression Mode	EXTENDED	NORMAL	FINE	SUPER FINE
Global IPS*				
3	7,500	5,600	3,700	2,800
6	2,500	1,800	1,200	930
7.5	1,800	1,400	930	700
15	1,500	1,100	750	560
30	750	560	370	280
60	250	180	120	90

*IPS (Image Per Second) (Hours)

Sampling Pixel Size: 360 x 240 **SIF Mode (Mode A)**

Compression Mode	EXTENDED	NORMAL	FINE	SUPER FINE
Global IPS*				
3	15,000	11,200	7,500	5,600
6	5,000	3,700	2,500	1,800
7.5	3,700	2,800	1,800	1,400
15	3,000	2,200	1,500	1,100
30	1,500	1,100	750	560
60	500	370	250	180
120	200	150	100	70

*IPS (Image Per Second) (Hours)

Sampling Pixel Size: 720 x 240 **Field Mode (Mode B)**

Compression Mode	EXTENDED	NORMAL	FINE	SUPER FINE
Global IPS*				
3	5,600	3,700	2,800	1,800
6	1,800	1,200	930	620
7.5	1,400	930	700	460
15	1,100	750	560	370
30	560	370	280	180
60	180	120	90	60

*IPS (Image Per Second) (Hours)

Sampling Pixel Size: 360 x 240 **SIF Mode (Mode B)**

Compression Mode	EXTENDED	NORMAL	FINE	SUPER FINE
Global IPS*				
3	11,200	7,500	5,600	3,700
6	3,700	2,500	1,800	1,200
7.5	2,800	1,800	1,400	930
15	2,200	1,500	1,100	750
30	1,100	750	560	370
60	370	250	180	120
120	150	100	70	50

*IPS (Image Per Second) (Hours)

(above figures are approximate, actual recording time may differ depending on picture imaging)

STANDARD PRODUCT CONFIGURATIONS

Digital Disk Recorder WJ-HD316



- 16ch camera inputs & independent recording settings
- Built-in 160GB HDD unit, and 1 drive bay for optional HDD unit
- Built-in an Ethernet port

Digital Disk Recorder WJ-HD309



- 9ch camera inputs & independent recording settings
- Built-in 160GB HDD unit, and 1 drive bay for optional HDD unit
- Built-in an Ethernet port

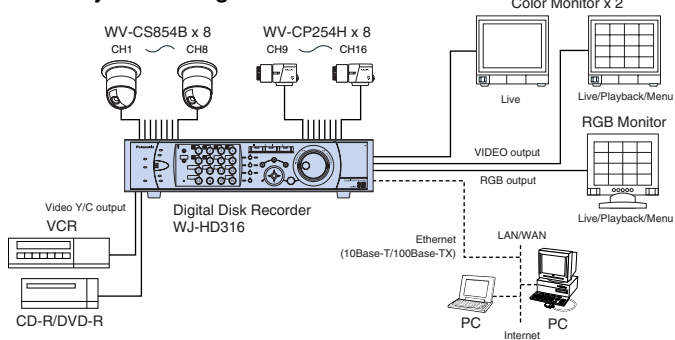
OPTIONAL COMPONENT

Extension Unit WJ-HDE300 (4 drive bays for optional HDD units)

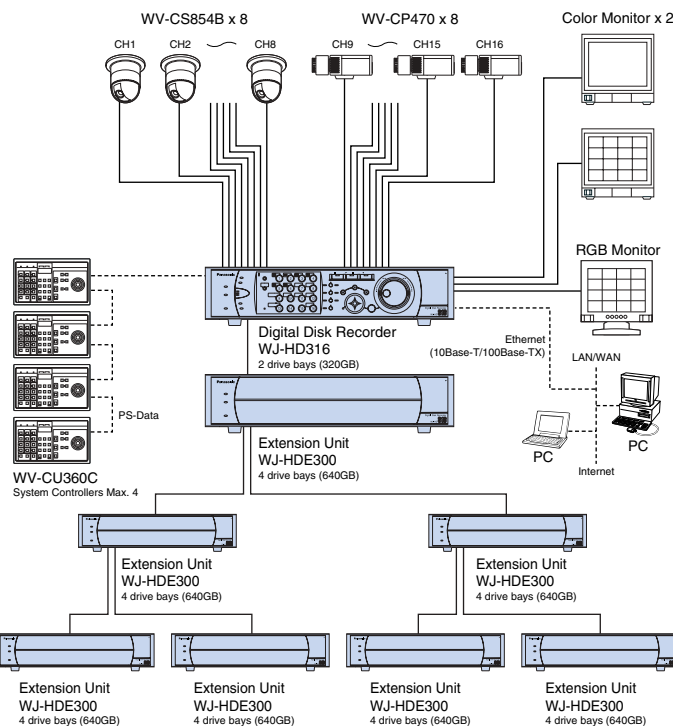


SYSTEM EXAMPLES

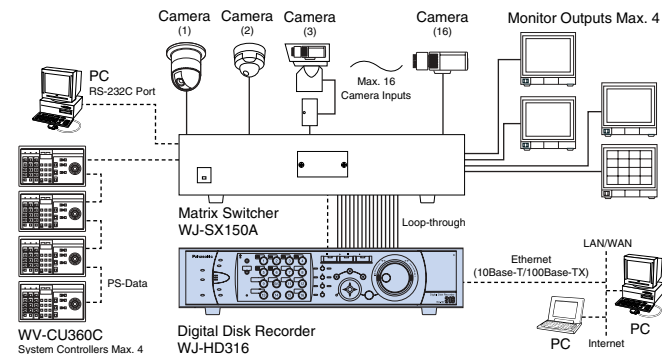
1 Basic System Configurations



3 Up to 4.8TB Capabilities with Optional Extension Unit & HDDs



2 With optional Panasonic Matrix System 150



OPTIONAL COMPONENTS

COLOR SURVEILLANCE CAMERAS

Weather Proof & Vandal Resistant
Color Dome Camera
WV-CW864A



SDII

Super Dynamic II
Color Surveillance Cameras
WV-CP470 Series



SDII

(Lens: option)

Super Dynamic II
Color Dome Camera
WV-CS854B



SDII

Compact Color Surveillance Camera
WV-CP254H



(Lens: option)

Vandal Proof
Super Dynamic II Color Cameras
WV-CW474 Series



SDII

1/3-type DSP Color CCD Cameras
WV-CP240 Series



(Lens: option)

Vandal Proof
Color Cameras
WV-CW244 Series



SDII

Color Dome Camera
WV-CF224



MATRIX SYSTEM 150

Matrix Switcher System Controller
WJ-SX150A WV-CU360C



SYSTEM CONTROLLER

System Controller
WV-CU360C



PS•Data

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