

Panasonic
ideas for life

Matrix System650

MATRIX SYSTEM 650



Matrix System 650 uses simple components to give you fully integrated control of up to 256 cameras and 32 monitors. And is expandable up to 512 inputs by 64 outputs.

Matrix System 650 from Panasonic is the new, easier way to configure mid-sized to large surveillance systems. This remarkable new system makes it simple to fully integrate up to 256 cameras, 32 monitors, and 60 registered users.* Adding WJ-HD300A Series Digital Disk Recorders delivers the high image quality and high storage capacity that state-of-the-art surveillance requires. Matrix System 650's simple, flexible architecture makes it ideal for a wide range of applications including shopping malls, sporting venues, multipurpose complexes, office buildings and banks. * 1 of the 60 users is reserved for recorder control.



Major Features and Functions

- Cameras**
- Supports up to 256 cameras (using 8 Video Input Boards).
 - All 256 channels are coaxial, multiplex cables, reducing the number of cables required and simplifying installation.
 - Supports up to 256 RS-485, remote-controlled cameras.
 - Pan, tilt and other lens motions can be controlled either by multiplex data over coaxial cable or RS-485 remote-control signals.
 - Cables can be up to 900 m (3,000 feet) long (RG59/U coaxial cable, Belden 9259 or equivalent).
- System**
- The maximum size (256 camera x 32 monitor) system requires four WJ-SX650/SX650U units.
 - Set up is simple with the Video Input and Video Output Boards, each composed of a front-access Main Board and rear-access Rear Boards.
 - Front access for Main Board and Power Supply maintenance.
 - Rich array of sequence, alarm, and scheduling features meet every surveillance need.
 - Supports up to 1,024 alarm inputs (Terminal/Camera/Recorder/Serial/Video Loss) and up to 64 alarm outputs (and 1,024 Serial Alarm Out).
 - Storage for up to 10,000 alarms, with downloadable alarm histories direct to PC.
 - Easy Set-up with simple menu and WJ-SX650 Administrator Console.
 - Up to 60 users* can be managed with individual priority and level settings.
- Monitors**
- Output support for up to 32 monitors (using 2 Video Output Boards).
 - Character displays show date, time, camera number, camera title and event information.
 - Set-up menus are available in seven languages: English, French, Spanish, German, Italian, Russian, and Japanese.
 - Alarm history displays up to 1,000 alarms.
- Recorders (WJ-HD300A Series)**
- Supports connection of up to 16 WJ-HD300A Series recorders (using 2 Video Output Boards).
 - Use of WJ-HD300A Series network features allow remote surveillance from a PC.
- Controllers**
- Supports simultaneous use of up to 16 WV-CU650 System Controllers + personal computer (PC).
 - Supports use of PS•Data (With DATA1 port set to PS•Data).



On screen menu to set Camera Title and Camera Position.

Camera

WJ-SX650 Series Administrator Console

The user-friendly GUI interface is designed to maximize usability and is available in any of 8 languages: English, French, Spanish, German, Italian, Russian, Chinese, Japanese.

Main Menu

Tips Feature Supports Set Up
To see an explanation and set-up tips, simply place the cursor over any of the buttons.

Schedule

Menu sets Timer Events and Camera Event.

Sequence

Set Tour Sequence and Group Sequence/Group presets.

The CSV format Export/Import feature allows use of spreadsheet software to organize setup data.

The calendar supports schedule construction and review in yearly, monthly, or weekly units.

MATRIX SYSTEM 650

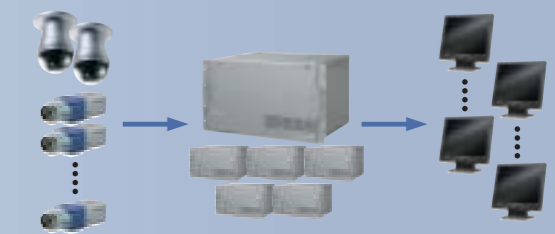
Large Scale System Expansion and Satellite Configuration.

The WJ-SX650 Matrix Switcher has been scaled up for large-sized surveillance systems. It is now possible to configure an expanded full matrix by interconnecting matrix switchers, or configure satellites at remote locations.

- Up to six WJ-SX650 Systems can be controlled by one WJ-MPU955A through Ethernet
- Each WJ-SX650 system is connected by Video Link or Loop Through (Video link and Loop through should be one hop)
- Maximum 512 Cameras and 64 Monitors non-blocking matrix system
- Only the WV-CU950 system controller can be used in the 512 x 64 system
- The WJ-ASC960 software is only required for the satellite system

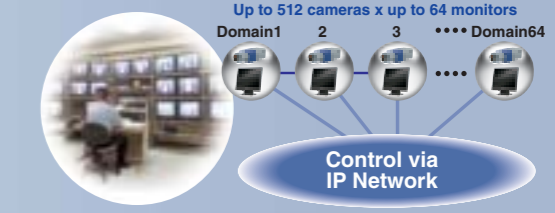
An expanded full matrix configuration enables the setup of a large-sized system

The system can be expanded to 512 cameras and 64 monitors.



Connect up to 64 domains in a satellite configuration.

Up to 64 domains can be networked by integrating an expanded full matrix configuration consisting of up to 512 cameras and up to 64 monitors as one domain.



A Rich Array of Features for More Reliable and Efficient Surveillance

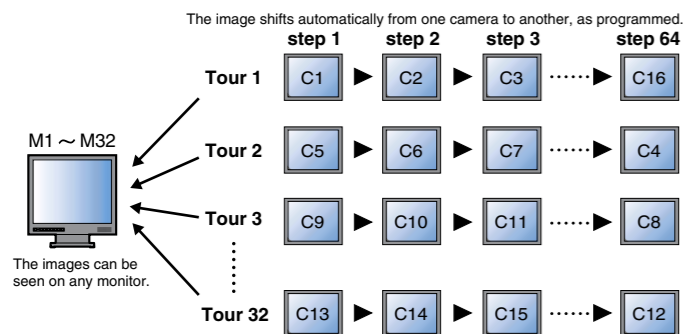


Three Sequencing Features for More Efficient Monitoring

These features allow you to determine the sequence in which you see images from multiple cameras. System Controller buttons make monitoring more efficient by enabling instant selection of the pattern of your choice.

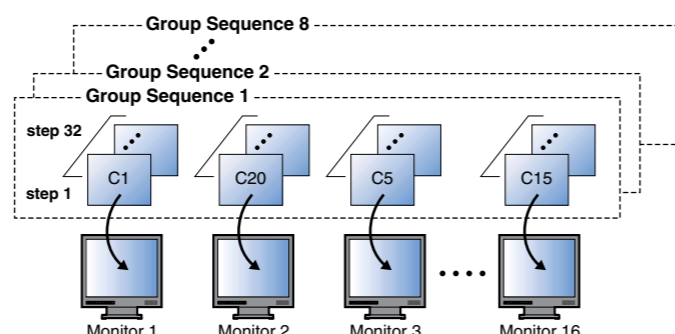
Tour Sequence

Automatically switches camera images in preset sequences on the monitor you select. You can preset up to 32 patterns with as many as 64 steps per pattern.



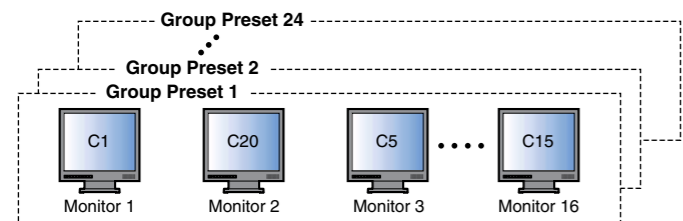
Group Sequence

Automatically switches camera images in preset sequences on up to 16 pre-selected monitors at once. You can preset up to 8 patterns with as many as 32 steps per pattern.



Group Preset

Allows instant spot display of selected camera images on up to 16 pre-selected monitors at once. You can preset up to 24 patterns.



Set switching interval and other parameters for each step

Setting	Content	Note
Camera Number*	001 - 999	Your choice for up to 256 cameras
Preset*	001 - 256	Preset positions for combination cameras
AUX. 1/2	ON / OFF	To operate buzzers or other external devices
Dwell Time**	0 - 30 sec.	Image switching interval

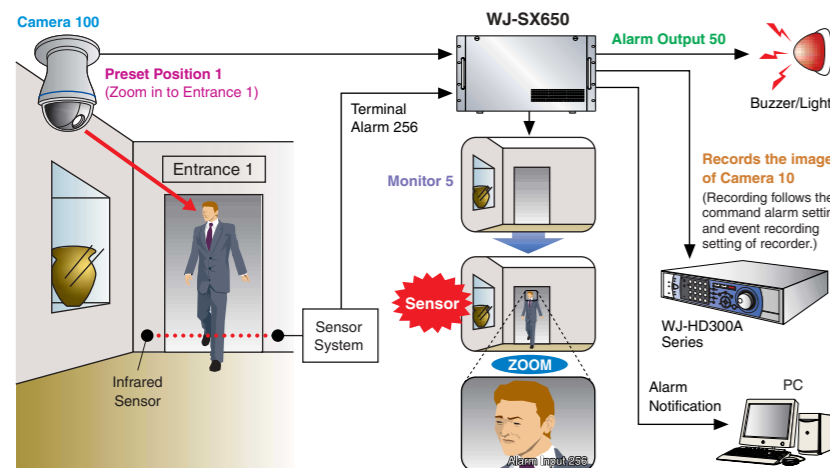
* Can also be set using pre-registered camera position numbers.
 ** Not available for Group Preset since switching is occurs once.

Up to 1,024 Alarm Events Ensure That You Capture Vital Scenes

Preset camera positions, sequences and recording can be automatically activated by all types of alarm signals (Terminal, Camera, Recorder, Serial, Video Loss). Register up to 1,024 Alarm Events.

For example: Terminal Alarm Event No.256

No.	Display Mode	SPOT		Monitors	Recording Source	Alarm Output
		Camera Number	Preset			
256	SPOT	100	1	5	10	50



Alarm Schedule for up to 64 Alarms

Used to schedule pre-registered alarm events (ON/OFF, daily, weekly, monthly).

Four Display Modes

Alarm events can be displayed in Spot, Tour Sequence, Group Sequence or Group preset modes.

Three Alarm Modes (Spot Display Only)

Choose any of three ways to display multiple alarm event images in Spot display mode.

Sequence mode — Alarm event images displayed on monitor in the sequence in which they occurred.

Latest mode — Show latest alarm event image (Hold Last).

Earliest mode — Show earliest alarm event image (Hold First). (When alarms occur with Tour Sequence or Group Sequence/Group Preset set, earlier alarms are reset on that monitor.)

Log Up to 10,000 Alarms

Matrix System 650 can store up to 10,000 alarm events. Alarm histories can be downloaded to a PC for analysis and management. The latest 1,000 alarm events can be viewed from a surveillance monitor.

Schedules for Simple, Certain Operation

Monitors and cameras can be automatically activated at preset dates and times using Daily, Weekly, and Monthly modes.

Timer Events

Spot, Tour Sequence and Group Sequence/Group Preset features can be automatically activated on designated monitors, following preset schedules. Up to 128 timer events can be registered and assigned priorities.

PROGRAM	ACTIVE PERIOD DESIGNATION	TIME	SCHEDULE MODE	ACTION	MONITOR	PRIORITY
1	JUL.19.2005 ~ JUL.23.2005	9:00 ~ 16:00	DAILY	TOUR SEQ	1 ~ 32	1 ~ 99
2	Always Active	10:00 ~ 17:00	WEEKLY (SUN)	GROUP SEQ	1 ~ 32	1 ~ 99
3	JAN.1.2005 ~ DEC.1.2005	22:00 ~ 01:00	MONTHLY (1)	CAMERA CLEANING (ALL CAMERA)	—	—
...
128	DEC.1.2005 ~ DEC.23.2005	12:00 ~ 17:00	MONTHLY (1)	GROUP PRESET	1 ~ 32	1 ~ 99

Camera Events

Designated cameras can be set for automatic tracking*, B/W switching and scene switching [PATROL(S)]*, and cleaning, following preset schedules. Up to 128 camera events can be registered.

* For only limited models.

The Camera You Need to Take Full Advantage of Camera Events

Super Dynamic III Color Dome Camera WV-CS954



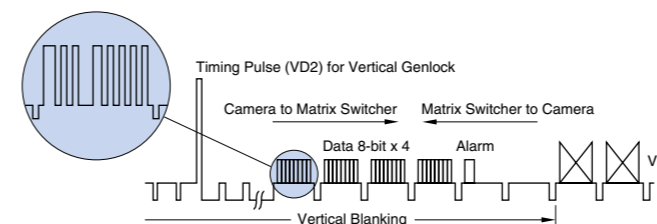
All 256 channels with multiplex data over coaxial cables

To simplify installation and for smoother system expansion, video signals, control data, synchronous signals (VD2) and alarm signals are all transmitted over the same coaxial cable. Cables can be up to 900 m (3,000 feet) long (RG59/U coaxial cable, Belden 9259 or equivalent).

VD2 Compatible Panasonic Camera List

B/W Cameras	WV-BP330 Series, WV-BP140 Series
Color Cameras	WV-CW484 Series, WV-CW244 Series, WV-CF294/284 Series, WV-CP480 Series, WV-CW374, WV-CL920A Series, WV-CP254H, WV-CP280 Series
Integrated Dome Cameras	WV-CS954, WV-CW964, WV-CS574

Since 1988, most of Panasonic cameras have been designed and manufactured to accept VD2 signal for system integration.



High image quality and high capacity storage

When connected to the Panasonic WJ-HD300A Series "Digital Disk Recorder", the Matrix System 650 can be used to construct surveillance systems that offer both high image quality and high capacity storage. WJ-HD300A Series Digital Disk Recorders can be operated seamlessly from Matrix System 650's WV-CU650 System Controller, to support multi-screen live monitoring and high-speed Filtered Search. These digital disk recorders' networking features also allow remote control from a PC.

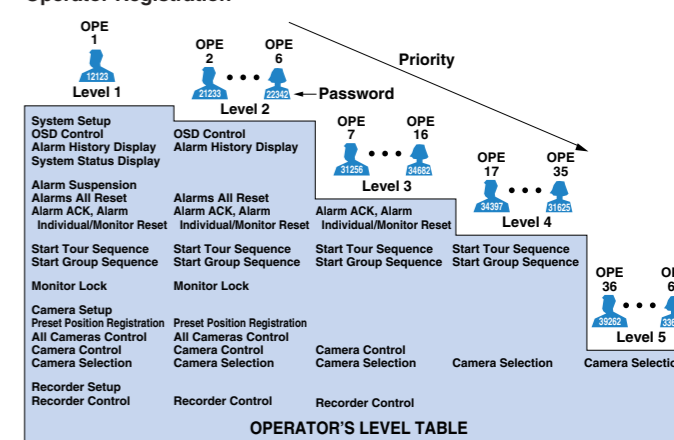


Preventing unauthorized access

Up to 60 users* can be registered with individual user IDs and passwords. Security can be fine-tuned with individual level, priority and camera/recorder display and operation restrictions, to guard against unauthorized access and unauthorized changes in settings.

* 1 of the 60 users is reserved for recorder control.

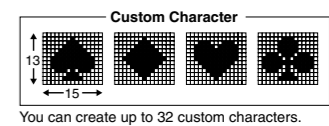
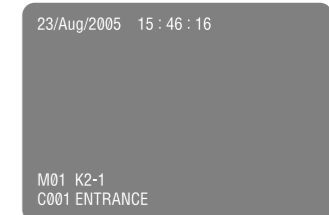
Operator Registration



Rich array of display options

Use of a newly developed LSI allows you to choose from any of seven languages (English, French, Spanish, German, Italian, Russian, or Japanese) when setting up a system. When monitoring date and time, camera title, monitor status, and event information can all be displayed. Camera titles can include roman alphabet, special alphabet (German or Russian), numbers, symbols, and Chinese and Japanese characters (approx. 1,000).

Example of Character Displays



Matrix Switcher: WJ-SX650 / Card Cage: WJ-SX650U

Front View
WJ-SX650/WJ-SX650U (Front Panel attached)

Rear View
WJ-SX650

Front View
WJ-SX650/WJ-SX650U (Front Panel detached)

Rear View
WJ-SX650U

① Operation Indicator ⑤ Video Input Board ⑨ Video Output Board Rear Panels
 ② Front Panel Fixing Screws ⑥ Video Output Board ⑩ AC Inlet Socket
 ③ Power Switch ⑦ Video Input Board Rear Panels ⑪ Signal Ground Terminal
 ④ Expansion Slot ⑧ Expansion Slot

SPECIFICATIONS
Matrix Switcher: WJ-SX650

Power Source	120 V AC, 60 Hz
Power Consumption	60 W
Ambient Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Ambient Operating Humidity	Less than 90 %
Video Input Board	x 1
Video Output Board	x 1
Expansion Slot	x 1
RS-485 (Camera) Port	6-conductor modular jack x 4 (2-wire or 4-wire communication, With termination switches (MODE 1 to 4))
Functions	Monitor control (Camera selection, tour sequence, group sequence, group preset, OSD display), Camera/Receiver control (Coaxial/RS-485 communication), Recorder control, Alarm control (Alarm event, Alarm ACK, Alarm reset, Alarm suspension, Alarm History Display), Timer event, Camera event
Dimensions (W x H x D)	420 mm x 265 mm x 372 mm [16-9/16" x 10-7/16" x 14-3/5"] (excluding rubber feet and projections)
Weight	19.0 kg (42 lbs.)

Card Cage: WJ-SX650U

Expansion Slot	x 3
RS-485 (Camera) Port	6-conductor modular jack x 12 (2-wire or 4-wire communication, With termination switches (MODE 1 to 4))
Extension Port (EXTENSION 1 IN, OUT)	6-conductor modular jack x 2 (With a termination switch (TERM: ON, OFF))
Extension Port (EXTENSION IN 2, 3)	37-pin D-sub connector x 2
Extension Port (EXTENSION OUT 2, 3)	37-pin D-sub connector x 2
Dimensions (W x H x D)	420 mm x 265 mm x 372 mm [16-9/16" x 10-7/16" x 14-3/5"] (excluding rubber feet and projections)
Weight	18.0 kg (40 lbs.)

Video Input Board: WJ-PB65C32

Front View

Rear View

SPECIFICATIONS

Camera Input (CAMERA IN 1 to 32)	1 V [P-P]/75 Ω (BNC x 32), composite video signal 0.5 V [P-P]/75 Ω data signal and 2.5 V [P-P]/75 Ω vertical timing pulse multiplexed
Video Output (VIDEO OUT 1 to 4)	1 V [P-P]/75 Ω (25-pin D-sub connector x 4), active loop-thru output
Alarm Input (ALARM IN)	N.O. (Normally Open contact) or N.C. (Normally Close contact) selectable x 32 (37-pin D-sub connector)
Dimensions (W x H x D)	
Main Board	346 mm x 42 mm x 225 mm [13-3/5" x 1-3/5" x 8-4/5"]
IN X-2 Board	355 mm x 21 mm x 115 mm [14" x 4/5" x 4-1/2"]
IN X-1 Board	355 mm x 38 mm x 115 mm [14" x 1-1/2" x 4-1/2"]

① Board Number Switch ④ Video Output Ports 1 to 4
 ② Input Mode Selection Switches ⑤ Alarm Input Port
 ③ Reset Switch ⑥ Camera Input Connectors 1 to 32

Video Output Board: WJ-PB65M16

Front View

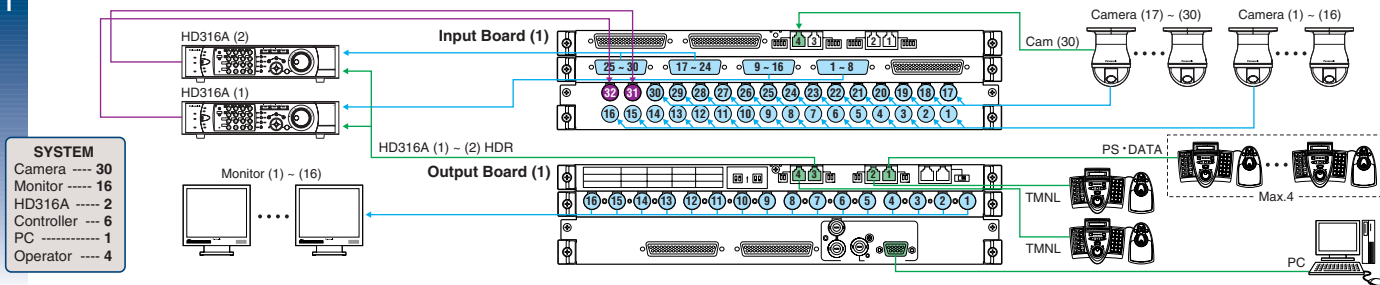
Rear View

SPECIFICATIONS

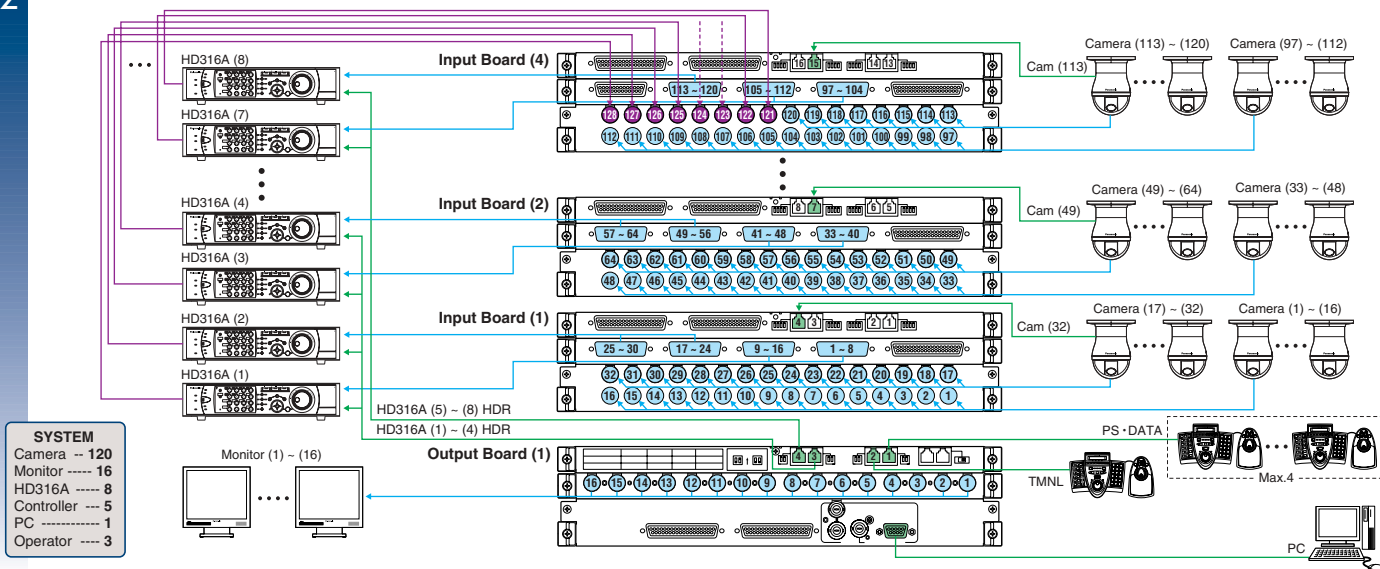
Monitor Output (MONITOR OUT 1 to 16)	1 V [P-P]/75 Ω (BNC x 16)
Data Port (DATA 1 to 4)	
DATA 1	Terminal Mode (TMNL)/PS-Data (PS-DATA) selectable
DATA 2	Terminal Mode (TMNL)
DATA 3, 4	Terminal Mode (TMNL)/Digital disk recorder (HDR) selectable 6-conductor modular jack x 4 (With termination switches (MODE 1 to 4))
Alarm Output (ALARM OUT 1, 2)	
Alarm Output	Open collector output x 32, Max. 24 V DC, 100 mA
Alarm Recover Input	Non-voltage make contact input x 16
Time Adjust Input	Non-voltage make contact input x 1
Time Adjust Output	Open collector output x 32, Max. 24 V DC, 100 mA
Extension Port (EXTENSION 1 IN, OUT)	6-conductor modular jack x 2 (With a termination switch (TERM: ON, OFF))
VS Input	1 V [P-P]/75 Ω (VS IN)
VS Output	(VS OUT (THRU)): VS loop-thru output, (VS OUT): 1 V [P-P]/75 Ω (VS)
Serial Port	9-pin D-sub connector x 2
Dimensions (W x H x D)	
Main Board	346 mm x 42 mm x 225 mm [13-3/5" x 1-3/5" x 8-4/5"]
OUT X-3 Board	355 mm x 21 mm x 115 mm [14" x 4/5" x 4-1/2"]
OUT X-2 Board	355 mm x 21 mm x 115 mm [14" x 4/5" x 4-1/2"]
OUT X-1 Board	355 mm x 38 mm x 115 mm [14" x 1-1/2" x 4-1/2"]

① Output Mode Selection Switches ⑥ Data Ports 3, 4 ⑩ Alarm Output Ports 1,2
 ② Reset Switch ⑦ Data Ports 1, 2 ⑪ VS Input Connector
 ③ Test Port ⑧ Rear Termination ⑫ VS Output Loop-thru Connector
 ④ Extension Ports 1 ⑨ Monitor Output Connectors ⑬ VS Output Connector
 ⑤ Termination Selector ⑪ MODE Switches 1 to 4 ⑭ Serial Port

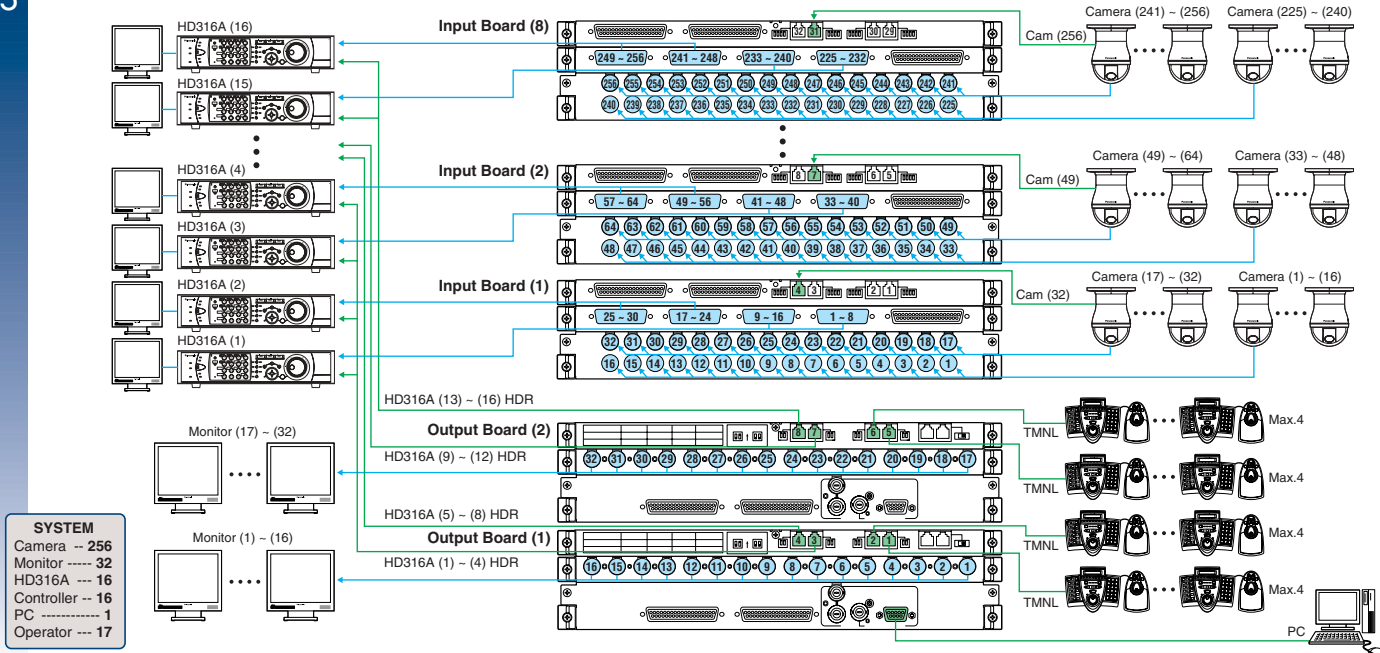
1 Basic System



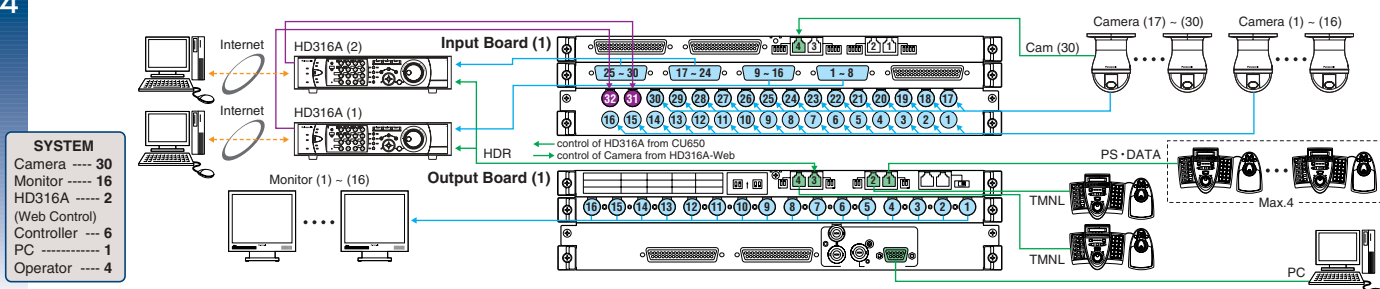
2 Medium-sized System



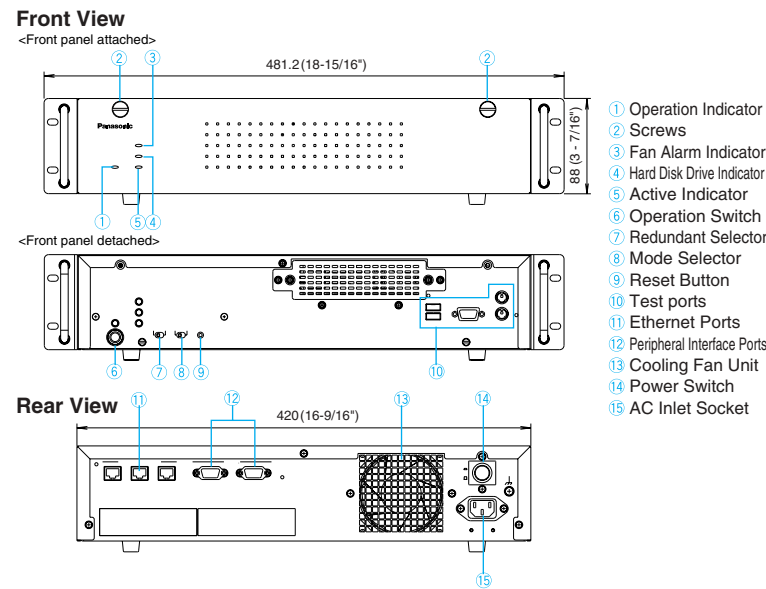
3 Maximum-sized 256-camera System (Image playback is only possible on the monitors connected WJ-HD300A Series Digital Disk Recorders)



4 WJ-HD300A Series Web Control System



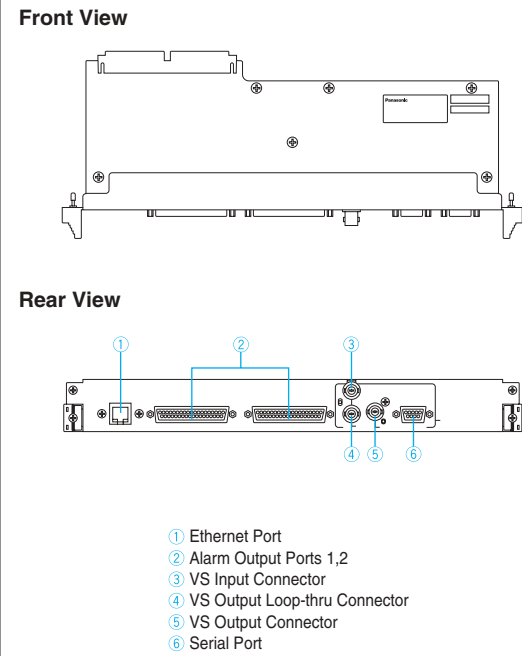
Central Processing Unit: WJ-MPU955A



SPECIFICATIONS

Power Supply	NTSC model: 120 V AC, 60 Hz
Power Consumption	60 W
Controllable Encoders (NTSC model only)	256 Encoders
Controllable Decoders (NTSC model only)	64 Decoders
Ethernet Ports	10Base-T/100Base-TX, RJ-45 x 3 System controller* (1 port), System device (1 port), other (1 port) * Maximum 64 controllers
RS-232C Port	9-pin D-sub connector x 2
Ambient Operating Temperature	+5 °C to +45 °C (41 °F - 113 °F)
Ambient Operating Humidity	Less than 90 %
Dimensions (W x H x D)	420 mm x 88 mm x 350 mm [16-9/16" x 3-7/16" x 13-3/4"]
Weight	9 kg (19.8 lbs.)

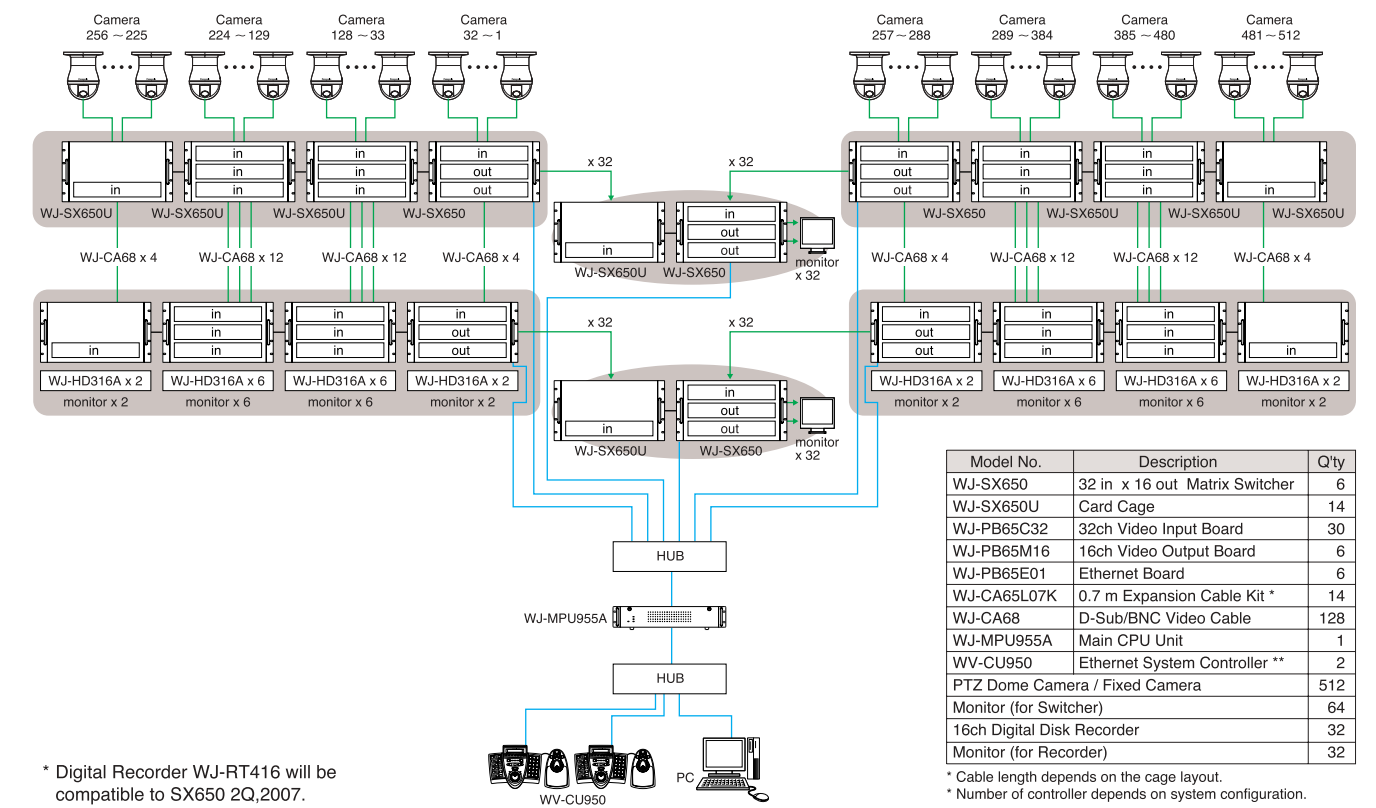
Network Board: WJ-PB65E01



SPECIFICATIONS

Ethernet Port	10Base-T/100Base-TX, RJ-45 x 1
Alarm Output Port 1, 2	Open collector output x 32, Max. 24 V DC, 100 mA
VS Input	1 V [P-P]/75 Ω (VS IN)
VS Output	(VS OUT (THRU)): VS loop-thru output (VS OUT): 1 V [P-P]/75 Ω (VS)
Serial Port	9-pin D-sub connector x 1
Dimensions (W x H x D)	355 mm x 38 mm x 134 mm [14" x 1-1/2" x 5-3/10"]

An expanded full matrix configuration for a maximum 512-camera x 64-output system.

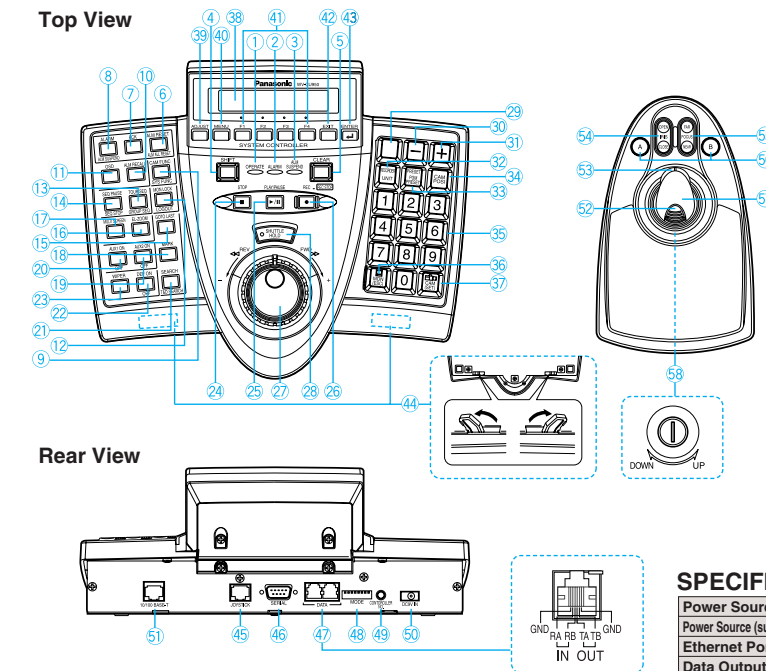


Model No.	Description	Qty
WJ-SX650	32 in x 16 out Matrix Switcher	6
WJ-SX650U	Card Cage	14
WJ-PB65C32	32ch Video Input Board	30
WJ-PB65M16	16ch Video Output Board	6
WJ-PB65E01	Ethernet Board	6
WJ-CA65L07K	0.7 m Expansion Cable Kit *	14
WJ-CA68	D-Sub/BNC Video Cable	128
WJ-MPU955A	Main CPU Unit	1
WV-CU950	Ethernet System Controller **	2
PTZ Dome Camera / Fixed Camera		512
Monitor (for Switcher)		64
16ch Digital Disk Recorder		32
Monitor (for Recorder)		32

* Digital Recorder WJ-RT416 will be compatible to SX650 2Q,2007.

Ethernet Controller: WV-CU950

MAJOR OPERATING CONTROLS

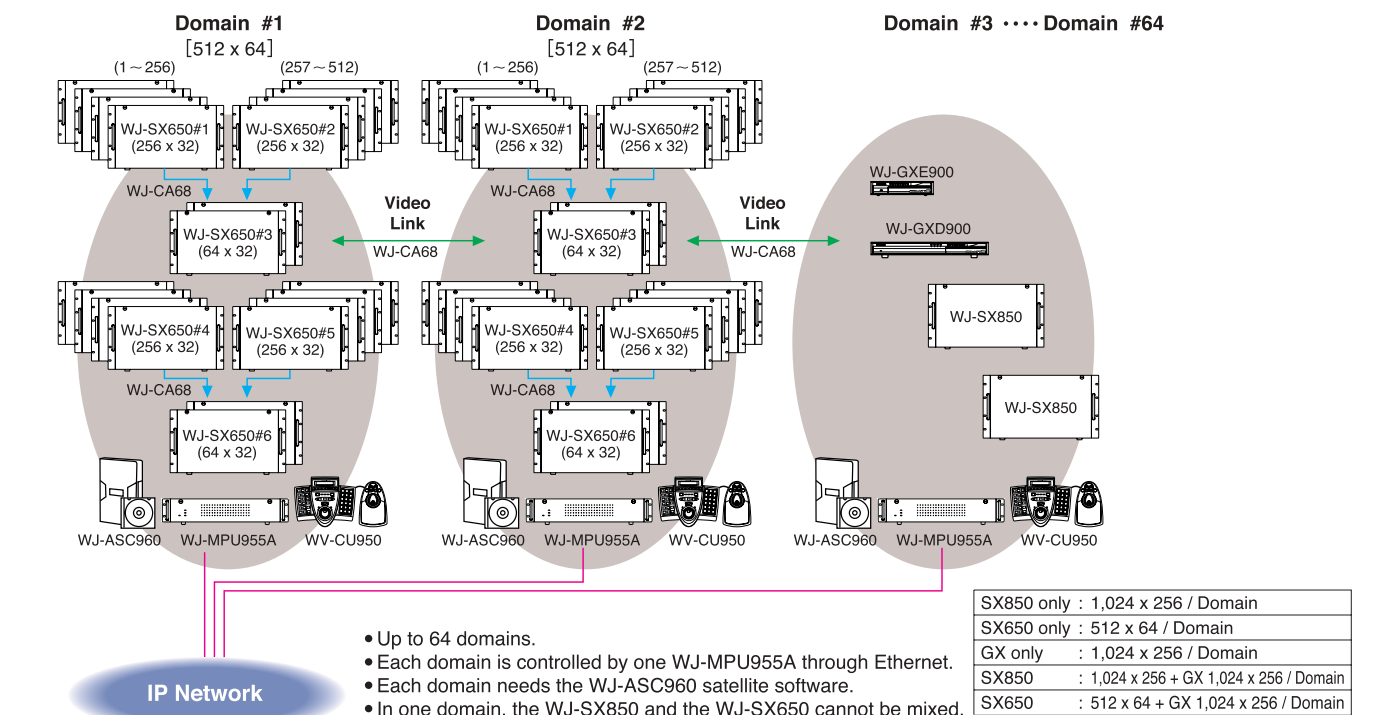


- Operation Indicator
- Alarm Indicator
- Alarm Suspend Indicator
- Shift Button
- Clear Button
- Alarm Reset/Alarm All Reset Button
- Alarm Acknowledge Button
- Alarm/Alarm Suspend Button
- Camera Function/System Function Button
- Alarm Recall Button
- On-Screen Display Button
- Monitor Lock/Logout Button
- Tour Sequence/Group Sequence Button
- Sequence Pause/Sequence Stop Button
- Go To Last Button
- Electronic Zoom Button
- Multiscreen Selection Button
- Mark Button
- Auxiliary 2 ON/OFF Button
- Auxiliary 1 ON/OFF Button
- Search/Time and Date Search Button
- Defroster Button
- Wiper Button
- Stop Button
- Play/Pause Button
- Recording Button
- Shuttle Ring (Outside)/JogDial (Inside)
- Shuttle Hold Button
- History Button
- Button
- +Button
- Recorder/Unit Selection Button
- Preset/Program Preset Button
- Camera Position Button
- Numeric Buttons
- Monitor/Escape Button
- Camera/Set Button
- LCD
- Adjustment Button
- Menu Button
- Function Buttons
- Exit Button
- Enter Button
- Feet
- Joystick Connector
- Serial Port
- Data Ports
- Mode Selection Switches
- Controller Number Switch
- DC 9V Input Jack
- Ethernet Port
- Top Button
- Zoom Wheel Controller
- Iris Control Buttons
- Focus Control Buttons
- A and B Buttons
- 3D Joystick
- Adjusting Screw

SPECIFICATIONS

Power Source	9 V DC, 600 mA (using the supplied AC adapter)
Power Source (supplied AC adapter)	120 V AC, 60 Hz, 200 mA
Ethernet Port	10Base-T/100Base-TX, RJ-45 x 1
Data Output/Input Port	6-conductor modular jack (RS-485, Full duplex) x 2
Serial Port	9-pin D-sub connector
Controller Number	1 to 8 (rotary switch)
Ambient Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Unit Number Selection	1 to 99
Monitor Number Selection	1 to 99
Camera Number Selection	1 to 256
Dimensions (W x H x D)	Main Unit: 290 mm x 111 mm x 221 mm [11-7/16" x 4-3/8" x 8-11/16"] 3D Joystick Unit: 134 mm x 146 mm x 218 mm [5-1/4" x 5-3/4" x 8-9/16"]
Weight (without the AC adapter)	Main Unit: 1.3 kg (2.86 lbs.) 3D Joystick Unit: 0.8 kg (1.76 lbs.)

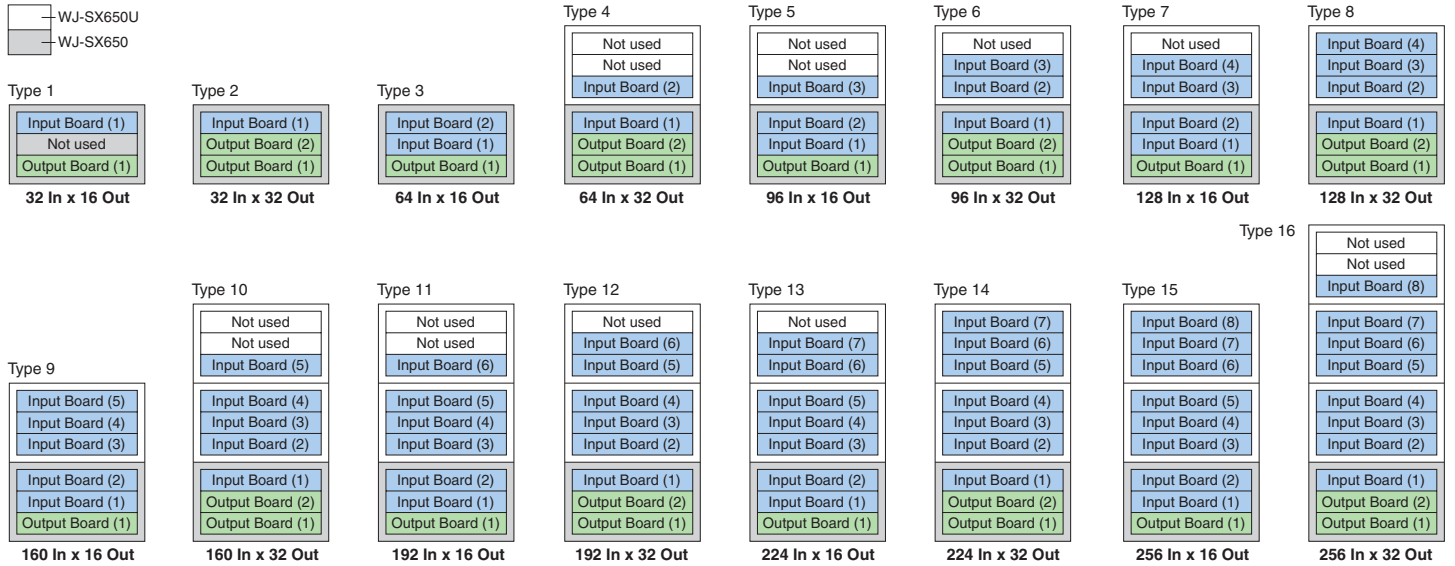
Up to 64 domains can be connected in a satellite configuration.



- Up to 64 domains.
- Each domain is controlled by one WJ-MPU955A through Ethernet.
- Each domain needs the WJ-ASC960 satellite software.
- In one domain, the WJ-SX850 and the WJ-SX650 cannot be mixed.

SX850 only	: 1,024 x 256 / Domain
SX650 only	: 512 x 64 / Domain
GX only	: 1,024 x 256 / Domain
SX850	: 1,024 x 256 + GX 1,024 x 256 / Domain
SX650	: 512 x 64 + GX 1,024 x 256 / Domain

VIDEO INPUT/OUTPUT BOARD COMBINATION



MATRIX SYSTEM650 PRODUCT COMPONENTS



OPTIONAL COMPONENTS



Trademarks and registered trademarks: Microsoft, and Windows are registered trademarks of Microsoft Corporation in the U.S. and other countries.

Important – Safety Precaution: carefully read the operating instructions and installation manual before using this product.

– Panasonic can not be responsible for network performance and/or other manufacturer products that reside on the network.

• All TV pictures are simulated. • Weights and dimensions are approximate. • Specifications are subject to change without notice. • These products may be subject to export control regulations.

Panasonic

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