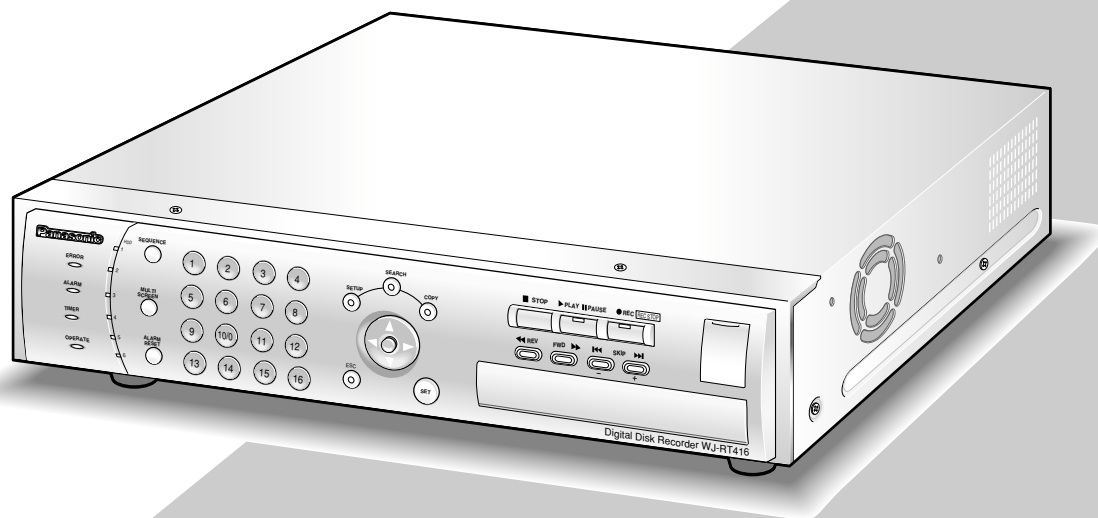


# Panasonic

## Digital Disk Recorder Installation Guide

Model Nos. **WJ-RT416**

**WJ-RT416V**



WJ-RT416 is shown above.

Before attempting to connect or operate this product,  
please read these instructions carefully and save this manual for future use.  
No model number suffix is shown in this Operating Instructions.



We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives 2006/95/EC and 2004/108/EC.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit der folgenden Normen oder normativen Dokumenten übereinstimmt. Gemäß den Bestimmungen der Richtlinie 2006/95/EC und 2004/108/EC.

Nous déclarons sous notre seule responsabilité que le produit auquel se réfère la présente déclaration est conforme aux normes ou autres documents normatifs conformément aux dispositions des directives 2006/95/CE et 2004/108/CE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con las normas u otros documentos normativos siguiendo las estipulaciones de las directivas 2006/95/CE y 2004/108/CE.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi conformi alle disposizioni delle direttive 2006/95/CE e 2004/108/CE.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatieve documenten, overeenkomstig de bepalingen van Richtlijnen 2006/95/EC en 2004/108/EC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med standarder eller andre normative dokumenter i følge bestemmelserne i direktivene 2006/95/EC og 2004/108/EC.

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framställs i direktiv nr. 2006/95/EC och 2004/108/EC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 2006/95/EC ja 2004/108/EC säädöksiä.

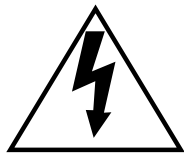
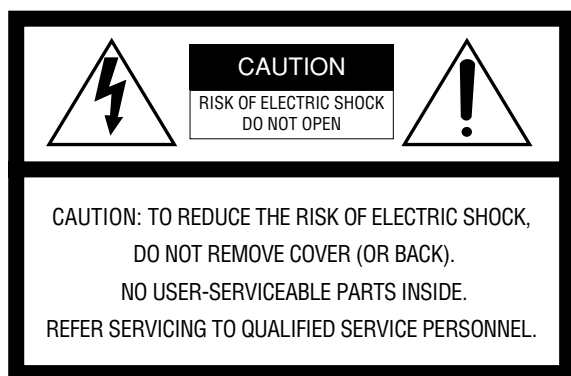
Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som følger bestemmelsene i direktivene 2006/95/EC og 2004/108/EC.

#### WARNING:

- This apparatus must be earthed.
- Apparatus shall be connected to a mains socket outlet with a protective earthing connection.
- The mains plug or an appliance coupler shall remain readily operable.
- To prevent fire or electric shock hazard, do not expose this apparatus to rain or moisture.
- The apparatus should not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, should be placed on the apparatus.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- The connections should comply with local electrical code.

#### CAUTION:

Before attempting to connect or operate this product, please read the label on the bottom.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Power disconnection. Unit with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. Unplug the power cord to disconnect the main power for all units.



#### For U.K.

#### FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amp and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

**IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.**

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.


**WARNING: This apparatus must be earthed.**

#### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code.

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wire in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

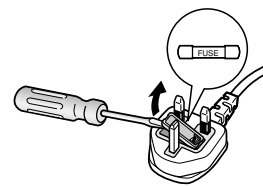
The wire which is coloured **green-and-yellow** must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol  or coloured **green** or **green-and-yellow**.

The wire which is coloured **blue** must be connected to the terminal in the plug which is marked with the letter **N** or coloured **black**.

The wire which is coloured **brown** must be connected to the terminal in the plug which is marked with the letter **L** or coloured **red**.

#### How to replace the fuse

Open the fuse compartment with a screwdriver and replace the fuse and fuse cover.



The serial number of this product may be found on the surface of the unit.

You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

For Canada

This Class A digital apparatus complies with Canadian ICES-003.

## CLASS 1 LASER PRODUCT

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**FCC Caution:** To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### Important Notice: (for U.S. filed only)

This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material - special handling may apply.

See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate).

## Limitation of liability

THIS PUBLICATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THE THIRD PARTY'S RIGHT.

THIS PUBLICATION COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE ADDED TO THE INFORMATION HEREIN, AT ANY TIME, FOR THE IMPROVEMENTS OF THIS PUBLICATION AND/OR THE CORRESPONDING PRODUCT (S).

## Disclaimer of warranty

IN NO EVENT SHALL MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

- (1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
- (2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;

- (3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
- (4) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;
- (5) ANY CLAIM OR ACTION FOR DAMAGES, BROUGHT BY ANY PERSON OR ORGANIZATION BEING A PHOTOGENIC SUBJECT, DUE TO VIOLATION OF PRIVACY WITH THE RESULT OF THAT SURVEILLANCE-CAMERA'S PICTURE, INCLUDING SAVED DATA, FOR SOME REASON, BECOMES PUBLIC OR IS USED FOR THE PURPOSE OTHER THAN SURVEILLANCE.

# Important safety instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

# CONTENTS

Limitation of liability .....	4	RS485 (CAMERA) port .....	49
Disclaimer of warranty .....	4	AUDIO IN/ALARM OUT terminal .....	49
Important safety instructions .....	5	ALARM IN/CONTROL terminal .....	50
Precautions .....	7	Setup menu .....	51
Preface .....	9	Setup menu chart .....	51
Features .....	9	Basic operation of the setup menu .....	52
About these operating instructions .....	10	Configure the system settings [System Setup] .....	53
Trademarks and registered trademarks .....	10	Configure the recording settings [Recording Setup] .....	55
Major operating controls and their functions .....	11	Configure the alarm action settings [Event Setup] .....	58
■ Front View .....	11	Configure the display settings [Display Setup] .....	61
■ Rear View .....	13	Configure the settings relating to the camera control [Camera Control Setup] .....	62
Image display .....	15	Configure the settings relating to communications with other devices [Communication Setup] .....	63
Startup .....	16	Configure the settings relating to user information [User Management] .....	66
Adjustment of the clock of the recorder .....	17	Maintenance functions [Maintenance] .....	68
Shutdown of the recorder .....	18	Operation using the system controller .....	73
Monitor live images from the cameras .....	19	Troubleshooting .....	75
Display images on a single screen .....	19	Specifications .....	78
Display images from cameras on a multi-screen .....	19	Standard accessories .....	79
Display images from the cameras sequentially (sequential display) .....	20	Recording time length .....	79
Recording .....	21		
Manual recording .....	21		
Timer recording .....	21		
Alarm recording .....	21		
Playback .....	22		
Search and play .....	24		
Start playback by designating the desired time and date of recorded images to be played .....	24		
Search and play with multiple search filters .....	25		
Alarm function .....	27		
Action at an event occurrence (alarm action) .....	27		
Cancel the alarm action .....	28		
Copying (Duplicate) .....	29		
Log in as a different user .....	31		
Log out .....	31		
Log in .....	32		
Disk management .....	33		
Check HDD information .....	33		
Format the HDD .....	35		
Operate the recorder using a PC .....	38		
Functions and their descriptions .....	38		
System requirements for a PC .....	38		
Installation .....	39		
HDD safety mode .....	39		
Operating the recorder for the first time .....	39		
Installation .....	39		
HDD replacement .....	40		
HDD addition .....	40		
Rack mounting .....	41		
Connection .....	42		
Basic connection .....	42		
Connection with RS485 cameras .....	43		
Connection with PS-Data systems .....	44		
Connection with a PC .....	46		
DIP Switch Setting .....	47		

# Precautions

**Refer all work related to the installation of this product to qualified service personnel or system installers.**

**When the model in use is the NTSC model, connect the unit to a 120 V AC power source.**

**When the model in use is the PAL model, connect the unit to a 220 - 240 V AC power source.**

Do not connect this unit to an outlet to which appliances with high power consumption such as an air conditioning or a copy machine is already being connected.

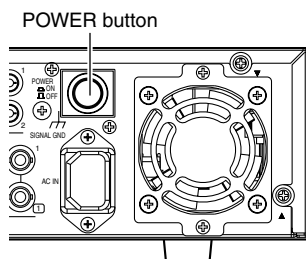
**Do not operate the unit beyond its specified temperature, humidity, or power source ratings.**

Use the unit at temperatures between 5 °C - 45 °C {41 °F - 113 °F} and where the humidity is between 5 % - 90 %.

Performance and lifetime of hard disk drives are easily affected by heat (used at high temperature) characteristically. It is recommended to use this unit at temperatures between 20 °C - 30 °C {68 °F - 86 °F}.

## POWER button

The POWER button is located on the rear of the unit. Even though the POWER button is set to "OFF", the power supply will not be cut. To cut the power supply, unplug the power plug of the unit from the AC outlet. When using the power supply control unit, turn off the power of the power supply control unit.



## Built-in backup battery

The built-in battery life is approximately 5 years as an indication of replacement. (This is just an indication of replacement. We are not providing any guarantee of the built-in battery lifetime. Replacement cost of the built-in battery is not covered by the warranty even if it needs to be done within the warranty period.) When reaching the end of its lifetime, the time and date setting will not be saved after the power of the unit is turned off. Ask the shop where you purchased the unit when replacement of the battery is required.

## Built-in hard disk drives

Hard disk drives are vulnerable to vibration. Handle them with care.

It is possible to damage them if they are moved while their motors are still running. Do not move them just after turning their power on or off (for around 30 seconds).

A lifetime of hard disk drives is limited by use.

It is recommended to replace them after around 18 000 hours of operation to prevent data loss from disk failures.

Write error may occur frequently after around 20 000 hours of operation and the head and motor deterioration may

occur and will reach their lifetime after 30 000 hours of operation when they have been used at the recommended ambient temperature (approx. 25 °C {77 °F}).

When hard disk drive trouble occurs, replace it immediately. Consult your dealer for servicing.

When replacing the hard disk drives, take notice of the following.

- Protect the hard disk drives from static electricity.
- Do not stack them, or keep them upright.
- Do not use an electric screwdriver to fix them. (Tightening torque: Approx. 0.49 N·m {5 kgf·cm})
- Avoid rapid changes of the temperature/humidity to prevent condensation. (Acceptable change: within 15 °C/h {59 °F/h})

## Avoid the following locations for installation.

- Places exposed to direct water, moisture, or sunlight directly
- Places subject to having strong vibration or impact
- Near magnetic field sources such as a television or speakers, magnet, etc.
- Steamy and oily places such as kitchens
- Places which are not level
- Place where condensation forms easily, where temperature changes greatly

## Place the recorder horizontally on a level surface.

Do not place the recorder in an upright position. When stacking multiple recorders, clear a space of more than 5 cm from both sides, the top, the bottom and the rear of the recorders.

## Heat dissipation

Refer to the following to prevent fire and malfunction of the recorder.

- Do not block the ventilation openings in the cover to prevent the recorder from overheating. Maintain the recorder periodically to prevent dust from blocking openings.
- A lifetime of the cooling fan is limited by use. Contact your dealer for servicing.

## Avoid placing the recorder near noise sources

If the recorder is placed near noise sources such as fluorescent lamps, noises may be produced. In this case, rewire avoiding the noise sources, or move the recorder to the place far from them.

## Grounding

Confirm that the wire is connected from the SIGNAL GND terminal to earth ground.

A grounding connection must be made before connecting the power plug of the recorder to the main power supply. When disconnecting the grounding wire, make sure that the power plug of the recorder is disconnected from the main power supply.

**Prevent condensation from forming on the surface of the hard disk.**

If this happens, do not turn on the power of the recorder and leave the recorder for around 2 hours.

Wait until the dew evaporates in any of the following cases:

- The recorder is placed in an extremely humid place.
- The recorder is placed in a room where a heater has just been turned on.
- The recorder is moved from an air-conditioned room to a humid and high-temperature room.

When the unit has not been used for a certain period, turn on the power of the unit (approximately once a week), and perform recording/playback to prevent interferences with functions.

**Avoid placing receptacles that contain liquids such as water near the unit.**

If liquid spills onto the unit, it may cause fire or an electric shock.

**Cleaning**

Turn the power off when cleaning the unit. Otherwise it may cause injuries.

Do not use strong or abrasive detergents when cleaning the unit body.

Use a dry cloth to clean the unit when it is dirty.

When the dirt is hard to remove, use a mild detergent and wipe gently.

When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

**Product disposal/transfer**

Images saved on the hard disk drives may lead to personal information leakage. When it is necessary to dispose or give this product to someone, even when for repair, make sure that there is no data on the hard disk drives.

**Indication label**

Refer to the indication label placed on the surface of the unit as to the indications of equipment classification and power source, etc.

Just in case, make a note of your settings and save them. They are helpful when you are required to change the system configuration, or when unexpected trouble or failure occurs.

Distributing, copying, disassembling, reverse compiling, reverse engineering, and also exporting in violation of export laws of the software provided with this product, is expressly prohibited.

**MPEG-4 Visual patent portfolio license**

This product is licensed under the MPEG-4 Visual patent portfolio license for the personal and non-commercial use of a consumer for (i) encoding video in compliance with the MPEG-4 Visual Standard ("MPEG-4 Video") and/or (ii) decoding MPEG-4 Video that was encoded by a consumer engaged in a personal and non-commercial activity and/or was obtained from a video provider licensed by MPEG LA to provide MPEG-4 Video. No license is granted or shall be implied for any other use. Additional information including that relating to promotional, internal and commercial uses and licensing may be obtained from MPEG LA, LLC.

See <http://www.mpegla.com>.



# Preface

The Digital Disk Recorder WJ-RT416 is designed for use within a surveillance system. The digital disk recorder is a recording device using a hard disk drive to record pictures of surveillance cameras instead of using videotapes so that pictures recorded by repeated overwriting will not experience deterioration of the recorded picture quality.

Up to 16 cameras can be connected directly with this unit and it is possible to record images from them. It is also possible to display images from multiple cameras (multi-screen), to display images from a camera to camera sequentially (sequential display), and to operate the connected cameras using the recorder.

The following models are described as "WJ-RT416" in these operating instructions.

- WJ-RT416K: No built-in HDD is provided
- WJ-RT416: Built-in HDD x1
- WJ-RT416VK: Built-in DVD drive x1, no built-in HDD is provided
- WJ-RT416V: Built-in DVD drive x1, Built-in HDD x1

## Features

### Various Recording Functions

#### Real time recording

Images from all connected cameras (up to 16) can be recorded at 30 ips.

#### Timer recording

It is possible to perform recording automatically at a scheduled time on a designated day of the week.

#### Terminal recording

Recording will start automatically when an event occurs such as when a signal is input from a sensor, etc.

#### Video motion detection function (VMD)

Recording will start automatically when motion is detected in the area set in advance.

#### Remote operation via a network

It is possible to perform the settings or operate the unit using a PC via a network such as a LAN (local area network). It is also possible to monitor images from the cameras connected to this unit.

#### Alarm notification function

Notification can be provided to a PC when an event occurs.

#### Security Function and Reliability

User authentication function (registration of user name and password) allows users access to predetermined selection of the available functions.

#### Internal CD/DVD drive (Only for the WJ-RT416V)

Images recorded on the internal hard disk drive can be copied onto a CD or a DVD. (It is impossible to play CD/DVD with this internal CD/DVD drive.)

## About these operating instructions

There are 2 sets of operating instructions for the WJ-RT416 as follows.

- Installation Guide (this book)
- Operating Instructions (PDF) of the monitoring software

The "Installation Guide" contains descriptions of how to install/connect this unit, and descriptions of how to operate this unit with the buttons on the front panel.

Refer to the "Operating Instructions (PDF)" of the monitoring software on the provided CD-ROM for descriptions of how to operate this unit using a PC via a network.

Adobe® Reader® is required to read the "Operating Instruction (PDF)" of the monitoring software on the provided CD-ROM. When the Adobe® Reader® is not installed on the PC, download the latest Adobe® Reader® from the Adobe web site and install it.

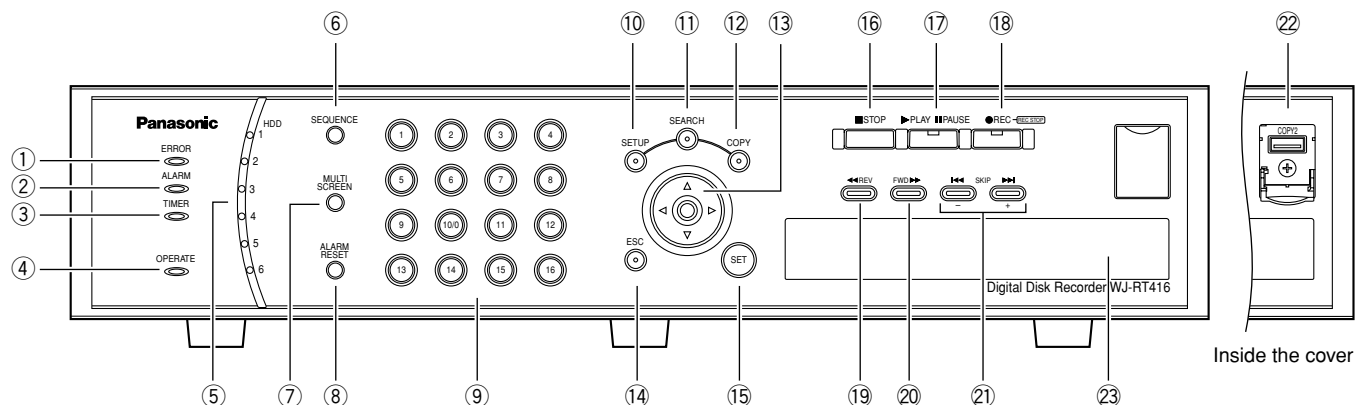
The illustrations of the setup menus in this installation guide are of the NTSC model.

## Trademarks and registered trademarks

- Microsoft, Windows, Windows Media, Windows Media Player and DirectX are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Adobe and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- Other names of companies and products contained in these operating instructions may be trademarks or registered trademarks of their respective owners.
- DVD is trademark of DVD Format/Logo Licensing Corporation.

# Major operating controls and their functions

## ■ Front View



### ① Error indicator (ERROR)

Blinks orange when an error that may interfere with the unit's operation occurs. (e.g. thermal error, cooling fan malfunction, etc.)

### ② Alarm Indicator (ALARM)

Blinks red when an alarm occurs. The indicator will stop blinking and light red steadily when the alarm is reset. The blinking or lighting indicator will go off when the [ALARM RESET] button is pressed.

### ③ Timer Indicator (TIMER)

Lights orange when the timer recording is set. Blinks while the timer recording is being performed.

### ④ Operate Indicator (OPERATE)

Lights green when the power is turned on.

### ⑤ HDD Access Indicators (HDD1/HDD2/HDD3/HDD4/HDD5/HDD6)

Blinks green when the hard disk is accessed respectively.

When an error is detected, the indicator will light red.

\* The HDD6 indicator is not provided for the WJ-RT416V.

### ⑥ Sequence button (SEQUENCE)

Images from the connected cameras will be displayed sequentially (sequential display) when this button is pressed. To stop the sequential display, press this button again.

### ⑦ Multi-screen button (MULTI SCREEN)

Images from the connected cameras will be displayed on a multi-screen (4/6/9/16) when this button is pressed. Each time this button is pressed, the multi-screen will change as follows.

16 (CAM1 - CAM16) → 4A (CAM1 - CAM4) → 4B (CAM5 - CAM8) → 4C (CAM9 - CAM12) → 4D (CAM13 - CAM16) → 6A (CAM1 - CAM6) → 6B (CAM7 - CAM12) → 9 (CAM1 - CAM9) → 16 (CAM1 - CAM16)

### ⑧ Alarm reset button (ALARM RESET)

The unit will be released from the alarm status when this button is pressed.

### ⑨ Camera selection buttons

Images from the camera selected using these buttons will be displayed.

The button will light orange to indicate the camera channel of which images are currently being recorded.

The camera selection buttons (1 - 10/0) can be used to enter numbers when operating the setup menu.

### ⑩ Setup button (SETUP)

Press this button to display the setup menu.

### ⑪ Search button (SEARCH)

Press this button to display the time & date search window or the list search window. Refer to pages 24 and 25 for further information about the time & date search window and the list search window.

### ⑫ Copy button (COPY)

Press this button to display the copy window.

Refer to page 29 for further information about the copy window.

### ⑬ Arrows button (▼▲◀▶)

Use this button for the following.

- To move the cursor to select an area (camera channel) when displaying images on a multi-screen.
- To move the cursor when operating the setup menu.

When a user is currently logged in the recorder, the indicator on the button will light blue.

### ⑭ **Escape button (ESC)**

Press this button to mute audio when displaying live/recorded images. When operating the setup menu, press this button to cancel the settings currently being edited and go back to the previous page.

⑮ **Set button (SET)**

Press this button to determine the settings when operating the setup menu.

①⑥ **Stop button (STOP)**

Press this button to stop playback.

**⑪ Play/Pause button (PLAY/PAUSE)**

Press this button to start playback of the latest recorded image from the currently selected camera channel. When this button is pressed during playback, playback will be paused. Press this button again to release pausing and resume playback. This button lights green during playback and blinks green during pausing.

⑱ **Record/Record stop button (REC)**

Press this button to manually start recording images from all camera channels (manual recording). When this button is held down for 2 seconds or more, the manual recording will stop.

This button lights orange during recording.

**⑪ Fast reverse playback button (REV)**

Press this button to start fast reverse playback. Playback speed can be changed in 6 steps. (see page 22) When this button is pressed during pausing, the previous frame is displayed.

②② **Fast forward playback button (FWD)**

Press this button to start fast forward playback. Playback speed can be changed in 7 steps. (☞ page 22) When this button is pressed during pausing, the frame by frame playback will start.

## ②① Skip buttons (SKIP)

Press these buttons to skip to the previous/next recorded images. When operating the setup menu, pressing this button moves the cursor between the setup items or change the settings.

②② **Copy 2 port (COPY2)**

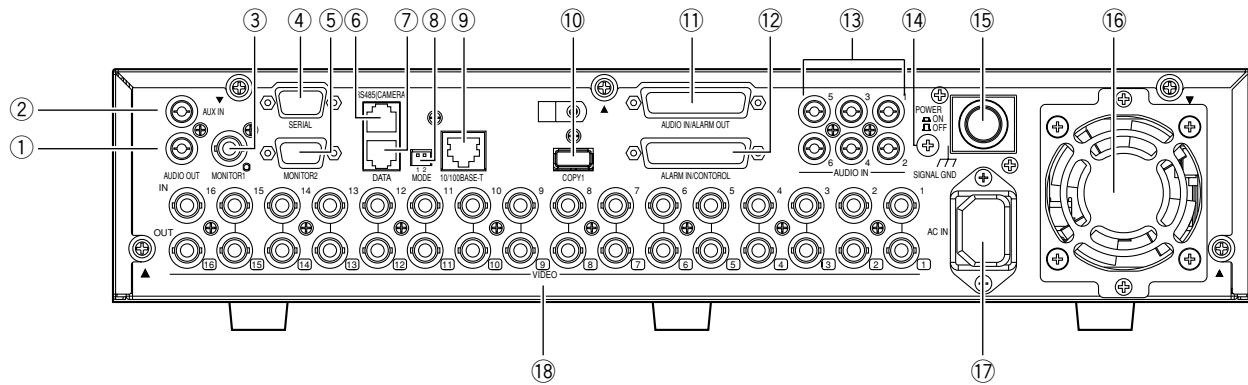
When an external recording device is connected to this port, images recorded on the built-in HDD can be copied onto it.

②③ Internal CD/DVD drive (Only for the WJ-RT416V)

Images recorded on the internal hard disk drive can be copied onto a CD or a DVD. (It is impossible to play CD/DVD with this internal CD/DVD drive.)

Open the cover and press the button on the front side of the drive to open the disk tray.

## ■ Rear View



### ① Audio out connector (AUDIO OUT)

Audio will be output from this connector. Audio being input to the AUDIO IN/ALARM OUT terminal or to the AUDIO IN connectors will be output. When playing recorded images, audio recorded with the images will be output.

### ② Aux in connector (AUX IN)

Use for audio communication between the recorder and the PC (remote talk). Audio from the microphone connected to this connector will be input.

### ③ Monitor 1 connector (BNC) (MONITOR1)

Images from the cameras connected to the VIDEO IN connectors will be output.

### ④ Serial terminal (D-SUB, 9-pin) (SERIAL)

This terminal is unavailable.

### ⑤ Monitor 2 terminal (D-SUB, 15-pin) (MONITOR2)

Connect a video monitor to this connector.

### ⑥ RS485 port (RS485 (CAMERA))

Connect an RS485 combination camera to this port.

### ⑦ Data port (DATA)

Connect a PS-Data compatible device to this port.

### ⑧ Mode switch (MODE)

Use to determine the operational mode of this recorder. (▶ page 47)

### ⑨ Network port (10/100BASE-T)

Connect a LAN cable between this port and the network port of a PC. When the recorder is connected with a network correctly, the link indicator beside the port will light orange. When data flows through the network port, the access indicator beside the port will blink green.

### ⑩ Copy 1 port (COPY1)

When an external recording device is connected to this port, images recorded on the built-in HDD can be copied onto it.

### ⑪ Audio in/Alarm out terminal (D-SUB, 25-pin) (AUDIO IN/ALARM OUT)

Connect an alarming device such as a buzzer or an alarm lamp to this terminal. When a device such as a microphone amplifier is connected, audio from it will be input. Audio being input to this terminal will be output from the AUDIO OUT connector of the unit and the connected PC.

### ⑫ Alarm in/Control terminal (D-SUB, 25-pin) (ALARM IN/CONTROL)

Connect an alarming device such as a sensor or a door switch to this terminal.

### ⑬ Audio in connectors (RCA) (AUDIO IN, 1 - 6)

This connector is the line-in connector. Connect a device such as a microphone amplifier to input audio from it. Audio being input to this terminal will be output from the AUDIO OUT connector of the unit and the connected PC.

### ⑭ Signal ground terminal (SIGNAL GND)

Connect a grounding wire between this terminal and the signal ground terminal of the other device in the system.

Otherwise, it may cause oscillation or noise.

### ⑮ Power button (POWER ON/OFF)

When this button is pressed and the power is turned on, the unit starts operation.

When this button is pressed again and the power is turned off, operation stops.

### ⑯ Cooling fan

When the temperature inside the unit becomes high, this fan starts automatically.

⑰ **Power cord inlet (AC IN)**

Connect the provided power cord to this inlet.

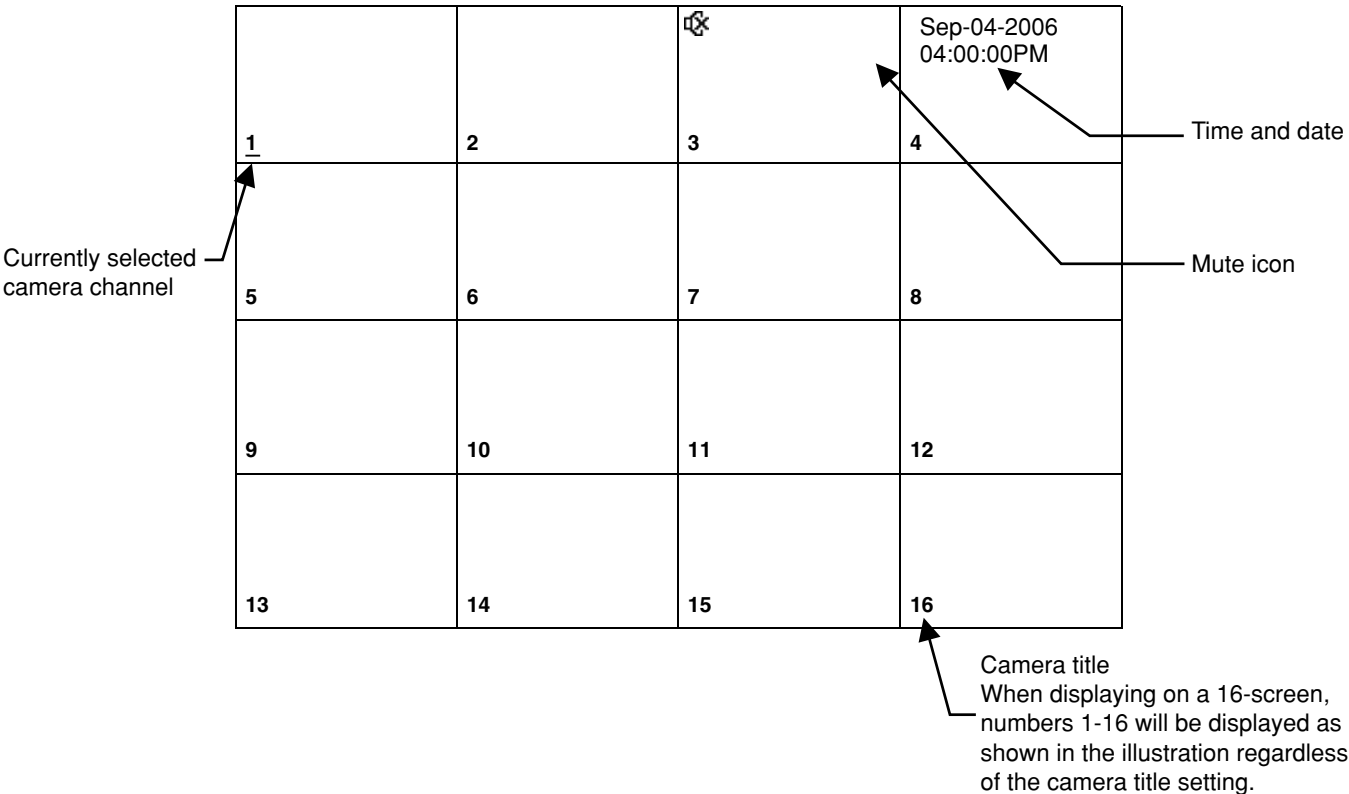
⑱ **Video in connectors (BNC) (VIDEO IN 1 - 16)/  
Video out connectors (BNC) (VIDEO OUT 1 - 16)**

Images (video signals) from the cameras connected to the VIDEO IN connectors will be looped through to the VIDEO OUT connectors.

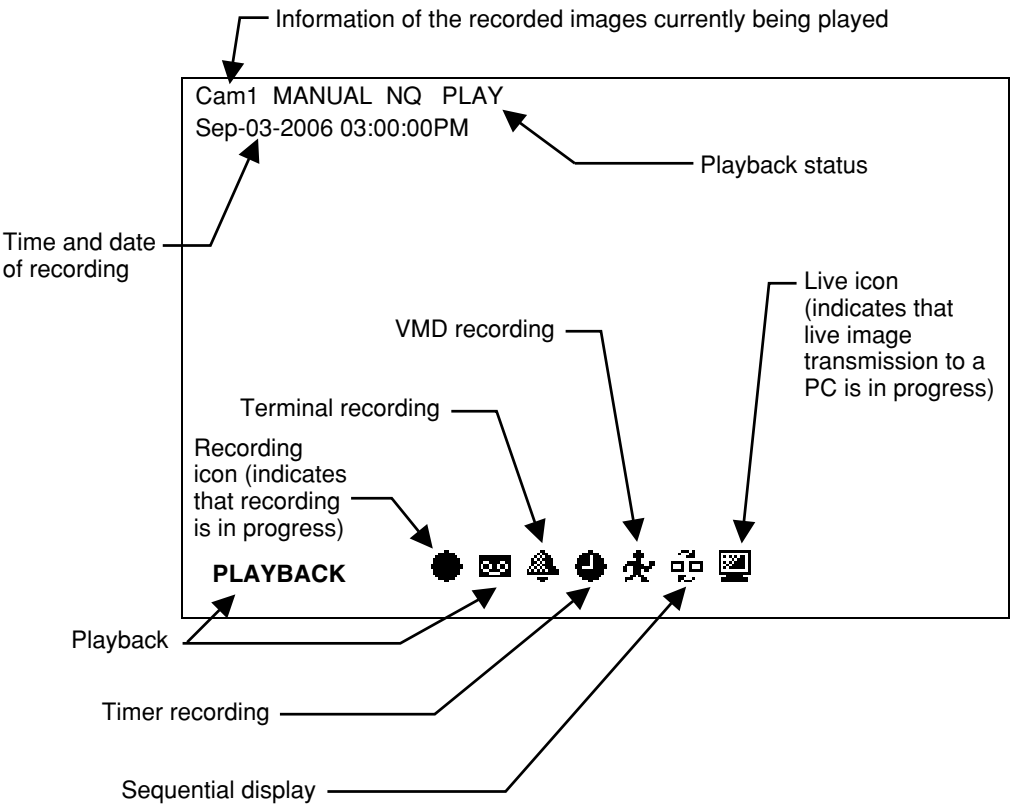
Connect system cameras or combination cameras to the VIDEO IN connectors. The VIDEO IN 1 - 4 connectors are compatible with coaxial cable. When connecting a combination camera, connect it either to the VIDEO IN 1 - 4 connectors.

# Image display

## When displaying images on a 16-split screen



## Example: When displaying images from camera channel 1



# Startup

Start up the recorder as follows.

**1**

**Connect the power cord to a 120 V AC 60 Hz outlet when the model in use is the NTSC model.  
When the model in use is the PAL model, connect the power cord to a 220 - 240 V AC 50 Hz outlet.**

**2**

**Press the power button to turn on the power of the recorder.**

- The OPERATE indicator will light and the system check will start. In the process of the system check, the startup window will be displayed on a monitor.
- When the system check is completed, live images from the connected cameras will be displayed.

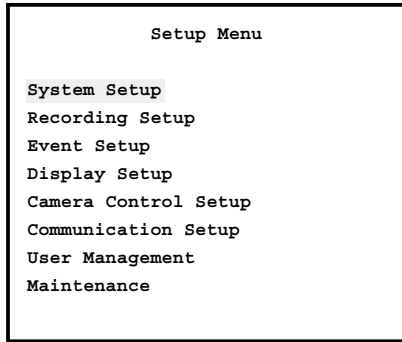


# Adjustment of the clock of the recorder

Adjust the clock of the recorder as follows. Check the clock periodically and correct it in the following way if it displays wrong time. It is also necessary to correct the clock after replacing the built-in backup battery.

## Screenshot 1

Display the setup menu by pressing the SETUP button.

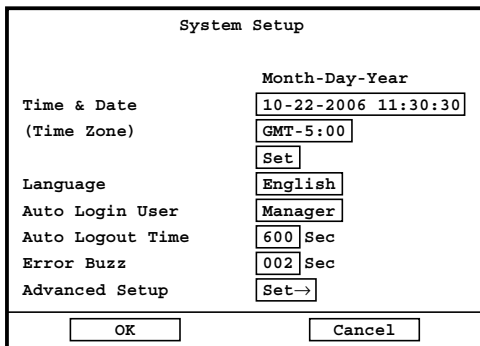


## Step 1

Move the cursor onto "System Setup", and then press the [SET] button.

## Screenshot 2

The "System Setup" window will be displayed.



## Step 2

Set the time and date using the camera selection buttons (1 - 10/0).

## Step 3

Move the cursor to "Time Zone", and then select a time zone using the skip buttons (◀▶).

## Step 4

When completing the adjustment, move the cursor onto "SET" and press the [OK] button.

→ The adjusted time and date will be applied.

## Important:

When the clock is adjusted during recording, some of the recorded images cannot be searched.

# Shutdown of the recorder

To shut down the recorder, do the following.

**1**

**When the manual recording is currently being performed, stop recording.**

- Hold down the [REC] button for 2 seconds or more. The lit camera selection button indicating the current recording camera channel will go off and all recordings will stop.  
Refer to page 21 for how to stop the timer recording or the alarm recording.

**When playing recorded images, stop playback.**

- Press the [STOP] button.

**2**

**Press the power button on the rear panel after confirming that all the HDD access indicators are off.**

- When the power supply is cut, the OPERATE indicator will go off.

---

**Important:**

- Unplug when unused for long period of time.
  - When the recorder has not been used for a certain period, turn on the power of the recorder (approximately once a week) to prevent interferences with functions.
-

# Monitor live images from the cameras

It is possible to display live images on a single screen or a multi-screen on the monitor.  
It is also possible to display live images sequentially (sequential display).

## Display images on a single screen


**1**

**Select a camera channel by pressing the camera selection buttons (1 - 16).**

- Live images from the selected camera channel will be displayed on a single screen.

### Available functions when displaying live images

#### Mute

When the [ESC] button is pressed, audio will be muted. When audio is muted, the  icon (mute icon) will be displayed.  
To cancel the audio mute, press the [ESC] button again.

---

#### Important:

The audio mute will be applied to all camera channels. Audio will be recorded with images even when muted during recording. It is impossible to mute only a specified camera channel.

---

## Display images from cameras on a multi-screen

Images can be displayed on the following multi-screens.

- 4-split screen
- 6-split screen
- 9-split screen
- 16-split screen

Each time the [MULTI SCREEN] button is pressed, the multi-screen will change as follows.

16 (CAM1 - CAM16) → 4A (CAM1 - CAM4) → 4B (CAM5 - CAM8) → 4C (CAM9 - CAM12) → 4D (CAM13 - CAM16) →  
6A (CAM1 - CAM6) → 6B (CAM7 - CAM12) → 9 (CAM1 - CAM9) → 16 (CAM1 - CAM16)

For 4A - 4D, 6A, 6B and 9, the camera channels can be assigned to specific areas of the multi-screen respectively on the setup menu. Refer to page 61 for further information.

# Display images from the cameras sequentially (sequential display)

It is possible to sequentially display images from cameras automatically. Images from the cameras will be displayed sequentially according to the settings configured in advance.

The sequential display can be carried out on a single screen or a 4-split screen.

## Sequential display on a single screen

### **1** Make sure that images are displayed not on a 4-split screen, and then press the [SEQUENCE] button.

- The sequential display will start and the  icon (sequential display icon) will be displayed.
- To stop the sequential display, press the [SEQUENCE] button again.

## Sequential display on a 4-split screen

### **1** Make sure that images are displayed on a 4-split screen, and then press the [SEQUENCE] button.

- The sequential display will start and the  icon (sequential display icon) will be displayed.
- To stop the sequential display, press the [SEQUENCE] button again.

---

#### Notes:

- The dwell time (interval of switching from a camera channel to the next camera channel) can be configured on the setup menu ("Display Setup" – "Sequence Dwell") (see page 61).
  - It is impossible to carry out the sequential display during playback.
  - The sequence step that is unavailable to display (such as when no video signal) will be skipped.
-


# Recording

## Manual recording

Start/stop recording manually.


**1**

**Press the [REC] button.**

- Recording of images from all the camera channels except channels which supply no video input signal will start. The [REC] button and the camera channel selection buttons respective to the channels used for the current recording will light.
- When recording starts, the  icon (recording icon) will be displayed in the area on which images from the camera channels used for the current recording are displayed.
- To configure the image quality and the recording rate for camera channels independently, configure them on the setup menu ("Recording Setup" – "Manual Rec. Setup") (☞ page 57).

**2**

**To stop recording, hold down the [REC] button for 2 seconds or more.**

- The lit camera selection button and the [REC] button will go off and recording will stop. When recording stops, the  icon (recording icon) will also disappear.

## Timer recording

It is possible to start and stop recording according to a recording schedule set in advance.

Recording schedule can be set on the setup menu ("Recording Setup" – "Timer Rec. Setup") (☞ page 57).

---

### Important:

The timer recording cannot be stopped by holding down the [REC] button for 2 seconds or more. To stop the timer recording, select "Off" for each day of the week and for "DAILY" on the setup menu ("Recording Setup" – "Timer Rec. Setup") (☞ page 57).

---

## Alarm recording

It is possible to start recording at an alarm occurrence (according to the settings configured in advance). Refer to page 27 for further information about the events.

The setting for the alarm recording can be configured on the setup menu ("Event Setup" – "Alarm Rec. Setup") (☞ page 59).

The alarm recording will stop when the [ALARM RESET] button is pressed or when the set alarm recording duration has passed.

---

### Important:


- The alarm recording cannot be stopped by holding down the [REC] button for 2 seconds or more.
  - The order of recording priority is as follows: (1) Alarm recording, (2) Timer recording, (3) Manual recording
-

# Playback

Recorded images can be played as follows. Recorded images will be played on a single screen.

**1** Select the desired camera channel by pressing the camera channel selection buttons (1 - 16) or by moving the cursor onto the area respective to the desired camera channel using the arrows button (▼ ▲ ◀ ▶) when displaying images on a multi-screen.

**2** Click the [PLAY] button.

- Recorded images will be displayed on a single screen. When playback starts, the  icon (playback icon) will be displayed and the [PLAY] button will light.
- When selecting a multi-screen display during playback, recorded images will be displayed in the area of camera channel 1. Live images will be displayed in the other areas.

---

### Important:


- Playback of the latest recorded image using the selected camera channel will start. It is impossible to play images currently being recorded.
- When the recording duration of recorded images to be played is too short, it may be impossible to play the recorded images.
- When recorded images are played on this recorder, the recorded images currently being played cannot be played using a PC via a network. Likewise, when recorded images are played using a PC via a network, the recorded images currently being played cannot be played using the recorder.

### Note:

When playing recorded images whose image quality and recording rate are low, audio may not be heard properly.

---

**3** To stop playback, press the [STOP] button. When displaying recorded images on a multi-screen, press the [STOP] button after selecting the area of camera channel 1.

- When the lit [PLAY] button goes off and the playback stops, the  icon (playback icon) will also disappear.

## Available functions when playing images

### Fast forward playback/Fast reverse playback

When the [FWD] button is pressed during playback, fast forward playback will start.

When the [REV] button is pressed during playback, fast reverse playback will start.

Each time the [FWD] button is pressed, playback speed will change as follows.

SLOW/1FF/2FF/3FF/4FF/5FF/6FF

Each time the [REV] button is pressed, playback speed will change as follows.

1REW/2REW/3REW/4REW/5REW/6REW

When the [PLAY] button is pressed during fast forward playback/fast reverse playback, playback speed will return to the normal playback speed.

Playback speed can be set on the setup menu ("Recording Setup" – "Common Setup" – "Advanced Setup" – "I Frame Interval") (☞ page 56). The current playback speed will be displayed on the screen.

Playback speed \ I Frame Interval	I Frame Interval			
	1	2	3	4
SLOW	×1/2	×1/2	×1/2	×1/2
1FF, 1REW	×1	×2	×3	×4
2FF, 2REW	×2	×4	×6	×8
3FF, 3REW	×4	×8	×12	×16
4FF, 4REW	×8	×16	×24	×32
5FF, 5REW	×16	×32	×48	×64
6FF, 6REW	×32	×64	×96	×128

The "I Frame Interval" setting is applied only for playback images. The values in the table are approximate playback speed as indications when the playback speed is normal (×1).

**Skip playback**

When the [SKIP ◀◀] button is pressed during playback, playback will be skipped to the recorded image of the previous recorded images. When the [SKIP ▶▶] button is pressed during playback, playback will be skipped to the recorded image of the next recorded images.

**Pausing**

Playback will be paused when the [PLAY] button is pressed during playback. Playback will be resumed when the [PLAY] button is pressed again.

**Frame by frame forward playback**

When the [FWD] button is pressed during pausing, frame by frame forward playback will start.

**Frame by frame reverse playback**

When the [REV] button is pressed during pausing, frame by frame reverse playback will start.

Interval of the frame by frame reverse playback will be determined by the "I Frame Interval" setting ("Recording Setup" – "Common Setup" – "Advanced Setup" – "I Frame Interval" (▶▶▶ page 56)).

The following values are only as indications.

I Frame Interval=4: 4 seconds interval

I Frame Interval=3: 3 seconds interval

I Frame Interval=2: 2 seconds interval

I Frame Interval=1: 1 seconds interval

## Search and play

It is possible to search the desired recorded images and play them. The search and play can be carried out when displaying images on a single screen.

The following is available as the search filter for the search and play.

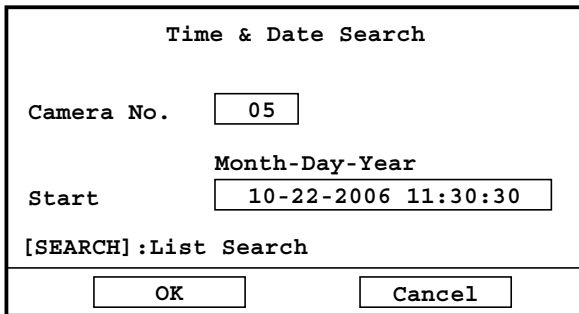
- Time and date when images had been recorded
- Recording type (Manual recording/Timer recording/Alarm recording)
- Type of the alarm recording (Terminal alarm recording/VMD alarm recording/Command alarm recording)

### Start playback by designating the desired time and date of recorded images to be played

It is possible to start playback by designating the desired camera channel and the start time and date of recording.

#### Screenshot 1

Display the Time & Date Search window by pressing the [SEARCH] button.



Time & Date Search	
Camera No.	05
Start	10-22-2006 11:30:30
[SEARCH]:List Search	
OK	Cancel

#### Step 1

Move the cursor onto each setup item and set the search filter.

##### Camera No.

Enter the camera channel number to be played using the camera selection buttons (1 - 10/0).

##### Start

Enter the start time and date of recording to be played using the camera selection buttons (1 - 10/0).

Time and date that is specified minutes ago from the current time will be automatically displayed. The difference between the displayed time and the current time varies according to the value selected for "Default Search Time" (page 54).

#### Step 2

When finishing entering, move the cursor onto "OK" and press the [SET] button.

→ Playback of searched recorded images will start.

Refer to page 22 for further information about playback operations.

---

#### Note:

When no recorded image found, playback of the next recorded image will automatically start from the beginning.

---



# Search and play with multiple search filters

The following search filters are available for search and play.

- Camera CH: Only recorded images of the selected camera channels will be searched.
- Start/End: Images recorded in the period designated by entering the start time and end time will be searched.
- Filtering: Images recorded by the designated recording type (Manual recording/Timer recording/Alarm recording) and the alarm recording type (Terminal alarm recording/VMD alarm recording/command alarm recording) will be searched.

## Screenshot 1

Display the search window by pressing the [SEARCH] button twice.

List Search	
Camera No.	<input type="text" value="01"/>
Month-Day-Year	
Start	<input type="text" value="10-21-2006 11:30:30"/>
Month-Day-Year	
End	<input type="text" value="10-22-2006 11:30:30"/>
Filtering	<input type="text" value="Off"/>
[SEARCH]:Time & Date Search	
<input type="button" value="OK"/>	<input type="button" value="Cancel"/>

## Step 1

Move the cursor onto each setup item and set the search filter.

### Camera No.

Enter the camera channel number to be searched using the camera selection buttons (1 - 10/0).

### Start/End

Designate the time period to be searched by entering the start and end time and date using the camera selection buttons (1 - 10/0).

### Filtering

Select the recording type and the alarm recording type to be searched using the skip buttons (◀▶).

**Off:** Searches without filtering

**Manual:** Searches for only images recorded manually

**Timer:** Searches for only images recorded by the timer recording

**Alarm:** Searches for only images recorded by the alarm recording (Terminal alarm recording/VMD alarm recording/command alarm recording)

**Terminal:** Searches for only images recorded by the terminal alarm recording

**VMD:** Searches for only images recorded by the VMD alarm recording

**Com:** Searches for only images recorded by the alarm recording triggered by a command alarm reception

## Step 2

When determining the filter settings, move the cursor onto "OK" and press the [SET] button.

### Note:

When "00" is entered for "Camera No.", all of the camera channels will be searched.

## Screenshot 2

The search result window will be displayed.

Search List			
Cam	Quality	Start	End
08	SF	01-24-2006 10:43:22	01-24-2006 10:53:22
07	FQ	01-24-2006 10:43:22	01-24-2006 10:53:22
06	SF	01-24-2006 10:43:22	01-24-2006 10:53:22
05	NQ	01-24-2006 10:43:22	01-24-2006 10:53:22
04	EX	01-24-2006 10:43:22	01-24-2006 10:53:22
03	SF	01-24-2006 10:43:22	01-24-2006 10:53:22
02	FQ	01-24-2006 10:43:22	01-24-2006 10:53:22
01	SF	01-24-2006 10:43:22	01-24-2006 10:53:22

Page 001/002

### Step 3

Move the cursor to the desired recorded images to play.

**Prev:** The previous page will be displayed.

**Next:** The next page will be displayed.

**Return:** The search window will be displayed again.

### Step 4

Press the [SET] button after selecting the desired recorded images.

→ Playback of the selected recorded images will start.

Refer to page 22 for further information about playback operations.

---

#### Note:

The latest 5 000 recorded images will be displayed in the list form.

---

# Alarm function

The recorder will take the alarm action according to the settings when the following events occur.

- **Terminal alarm:** When a signal is supplied from an external device such as a door sensor to the ALARM IN/CONTROL terminal, this is stated as an event of a terminal alarm.
- **VMD (Video motion detection) alarm:** When motion is detected by the VMD function, this is stated as an event of a VMD alarm.
- **Command alarm reception:** When a command alarm is supplied from the DATA port and the RS485 port, this is stated as an event of a command alarm reception.

---

## Notes:

- **VMD (Video motion detection) function**

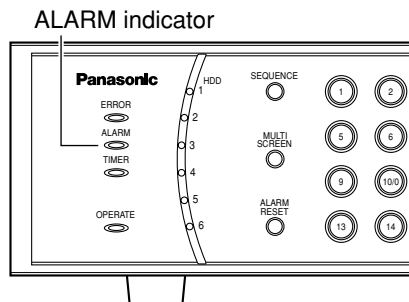
When motion (luminance change) is detected in the set VMD area, it will be regarded as a VMD alarm occurrence. It is possible to configure to record images from the camera to which a VMD alarm has occurred.

---

## Action at an event occurrence (alarm action)

The recorder will take the following alarm action according to the settings at an alarm occurrence.

- **The ALARM indicator on the front of the recorder blinks red**



- **Sounds the buzzer**

Refer to page 58 for how to set the buzzer to sound at an event occurrence.

- **Provides notification to the connected system device at an event occurrence (Alarm output)**

Outputs an alarm signal from the ALARM IN/CONTROL terminal on the rear of the recorder in order to activate an alarming device (when installed).

Refer to page 60 for how to configure the alarm output port settings.

- **Displays images from the camera to which an event has occurred on a single screen (Alarm spot)**

Refer to page 58 for how to configure the alarm spot settings.

---

## Notes:

- The alarm spot action will not be taken when the setup menu or a dialogue box (message window) is displayed or in the process of copying.
  - When an event occurred during playback, playback will automatically stop and the alarm spot action will be taken.
- 

- **Moves a camera to the preset position**

The camera will move to the preset position registered in advance at an event occurrence.

Refer to page 60 for how to configure the settings.

Refer to the operating instructions of the connected camera for the descriptions of how to register the preset position.

- **Transmits alarm information to a PC via a network**

Refer to the operating instructions (PDF) of the monitoring software on the provided CD-ROM for further information.


- **Records alarm logs**

Time and date or description of the event will be recorded as an alarm log at an event occurrence. Refer to page 68 for further information about the alarm log.

- **Starts recording automatically (Alarm recording)**

Recording images from the camera to which an event occurred will start automatically at an event occurrence. Refer to pages 59 and 60 for how to configure the settings for recording at an event occurrence (terminal/command alarm recording/VMD alarm recording).

Depending on the event type, a different icon will be displayed as follows.

Terminal alarm input/Command alarm reception: 

VMD (video motion detection): 

- **Starts recording of images before an event occurs (pre-alarm recording)**

It is possible to start recording images several seconds before an event occurred automatically. Refer to page 58 for how to configure the pre-event recording settings.

- **Notification mail of an event occurrence**

Notification mail of an event occurrence can be sent to the registered mail addresses. Refer to the operating instructions of the monitoring software (PDF) on the provided CD-ROM for how to configure the settings.

- **Provide notification of an event occurrence to the PC according to the setting of Panasonic alarm protocol**

Notification of an event/error occurrence (time and date, event/error type) can be automatically provided to the PC according to the settings of Panasonic alarm protocol.

Refer to the operating instructions of the monitoring software (PDF) on the provided CD-ROM for how to configure the settings.

---

**Note:**

Even when an event occurred, the alarm action (including the alarm recording) will not be taken when "AL-M" or "AD-M" is not selected for "Alarm Duration" of "Terminal" and "VMD". When "AD-M" is selected, the following alarm action will be taken.

- Move a Camera to the Preset Position
  - Alarm recording
  - Pre-alarm recording
  - Archive the alarm log
- 

## Cancel the alarm action

The recorder will take the alarm action according to the settings when an event is detected. To cancel the alarm action, press the [ALARM RESET] button.

---

**Note:**

When the setup menu is displayed or when being logging out, the alarm action will not be canceled even when the [ALARM RESET] button is pressed.

---

# Copying (Duplicate)

It is possible to copy recorded images onto an external recording device (HDD, DVD-R, CD-R, USB memory, etc.) connected to the recorder. It is recommended to make back-up copies on a regular basis for unexpected situations such as malfunction of the HDD.

## Important:

- Do not disconnect the cable connecting between the external recording device and the recorder in the process of copying. Otherwise, it may damage both the recorder and the external recording device.
- When copying recorded images using the WJ-RT416V with the internal CD/DVD drive, the disk drive to be used for copying will be determined in the following priority.
  1. External recording device connected to the COPY2 port (Front)
  2. External recording device connected to the COPY1 port (Rear)
  3. Internal CD/DVD drive(When external recording devices are connected to both the COPY1 port (rear) and the COPY2 port (front), recorded images will be copied only onto the external recording device connected to the COPY2 port.)
- When using an external HDD or a USB memory, format it in FAT32 system in advance.

## Screenshot 1

Display the Copy window by pressing the COPY button.

Copy	
Camera No.	<input type="text" value="05"/>
Start	<input type="text" value="10-21-2006 11:30:30"/>
End	<input type="text" value="10-22-2006 11:30:30"/>
Filtering	<input type="text" value="Off"/>
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

## Step 1

Search for recorded images to be copied by setting each search filter on the "Copy" window.

### Camera No.

Enter the camera channel number to be searched using the camera selection buttons (1 - 10/0).

### Start/End

Designate the time period to be searched by entering the start and end time and date.

### Filtering

Select the recording type and the alarm recording type to be searched using the skip buttons (◀▶).

**Off:** Searches without filtering

**Manual:** Searches for only images recorded manually

**Timer:** Searches for only images recorded by the timer recording

**Alarm:** Searches for only images recorded by the alarm recording (Terminal alarm recording/VMD alarm recording/command alarm recording)

**Terminal:** Searches for only images recorded by the terminal alarm recording

**VMD:** Searches for only images recorded by the VMD alarm recording

**Com:** Searches for only images recorded by the alarm recording triggered by a command alarm reception

## Step 2

When determining the filter settings, move the cursor onto "OK" and press the [SET] button.

### Note:

When "00" is entered for "Camera No.", all of the camera channels will be searched.

## Screenshot 2

The "Copy List" window will be displayed.

Copy List				
Cam Quality		Start		End
08 SF	01-24-2006	10:43:22	01-24-2006	10:53:22
07 FQ	01-24-2006	10:43:22	01-24-2006	10:53:22
06 SF	01-24-2006	10:43:22	01-24-2006	10:53:22
05 NQ	01-24-2006	10:43:22	01-24-2006	10:53:22
04 EX	01-24-2006	10:43:22	01-24-2006	10:53:22
03 SF	01-24-2006	10:43:22	01-24-2006	10:53:22
02 FQ	01-24-2006	10:43:22	01-24-2006	10:53:22
01 SF	01-24-2006	10:43:22	01-24-2006	10:53:22
Total:20		Size:12.08GB		Page 001/023
Copy A:Data Only		Copy B:Copy with Viewer		
Prev		Next		Return

### Notes:

- The latest 5 000 recorded images will be displayed in the list form.
- When copying is started, all recorded images displayed in the "Copy List" window will be copied. It is impossible to copy a specified recorded image.
- Configure the filtering settings and set the start/end time and date in order to make the size of data to be copied smaller than the available capacity of the external recording device (copying destination).

### Important:

Copying time varies depending on the operating conditions of the recorder. Copying speed becomes lower if the recorder is used for recording, playing, monitoring live images on the PC, or other operations at the same time.

## Step 3

Move the cursor to the desired recorded images to be copied.

**Prev:** The previous page will be displayed.

**Next:** The next page will be displayed.

**Return:** The copy window will be displayed again.

## Step 4

Press the [SET] button after moving the cursor onto "Copy A" or "Copy B".

When "Copy A" is selected, only recorded images will be copied.

When "Copy B" is selected, the viewer (image player) will be copied together with recorded images.

→ Copying will start.

When copying is completed, the copy completion message window will be displayed.

When the [SET] button is pressed in the process of copying, the dialog box asking you whether you wish to cancel the copying or not will be displayed.

When clicking the [OK] button on the dialog box, copying will be canceled.

When the [OK] button is clicked to cancel copying recorded images onto a CD-R/DVD-R, the disk being used to copy recorded images cannot be used again.

Refer to the operating instructions of the monitoring software for how to operate the viewer.

# Log in as a different user

To log in as a different user, log out first and log in again.

When logged out, the buttons on the front panel will be locked and the password entry window will be displayed when any of the buttons is pressed. Enter the user password.

---

**Important:**

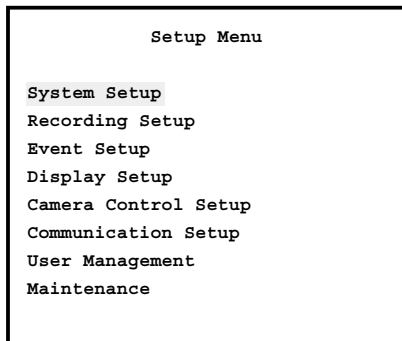
According to your needs, select "Disable" for "Auto Login User" on the setup menu ("System Setup" – "Auto Login User") (page 53). When "Disable" is not selected, a user who logged out will automatically logged in as the registered auto login user when no operation had been made for around 1 minute after logout.

---

## Log out

### Screenshot 1

Display the setup menu by pressing the SETUP button.

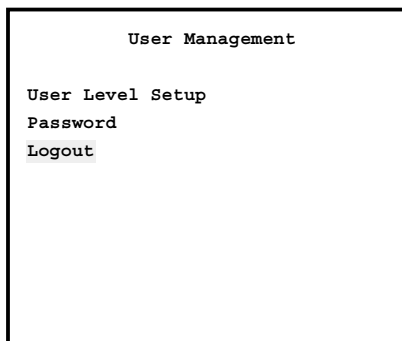


### Step 1

Move the cursor onto "User Management", and then press the [SET] button.

### Screenshot 2

The "User Management" window will be displayed.



### Step 2

Move the cursor onto "Logout", and then press the [SET] button.

→ The confirmation window will be displayed. Move the cursor onto "OK", and then press the [SET] button.

# Log in

## Screenshot 1

When logged out once and press any of the buttons on the front panel, the password entry window will be displayed.

Input Password

## Step 1

Enter the user password and press the [SET] button.

→ When logged in, the indicator on the arrows button will light. When failed to log in, the error message window will be displayed.

### Note:

The default password is different according to the user level as follows.

Manager1: 12345678

Operator1: 123456

Viewer1: 1234

## Operation restriction differences between the user levels

	Logout	Viewer	Operator	Manager
Live image display	*1	*1	*1	○
Camera channel selection/ Multi-screen selection	—	○	○	○
Camera channel selection using the cursor	—	○	○	○
Sequential display control	—	○	○	○
Mute control	—	—	○	○
Manual recording control	—	—	○	○
Alarm reset	—	—	○	○
Playback recorded images/Playback control (Search/Copying)	—	*1	*1	○
Setup menu	—	*2	*2	○

\*1 The settings can be edited on the setup menu ("User Management" – "User Level Setup"). (📖 page 66)  
When being logged out, the user level of "Viewer" will be applied.

\*2 Depending on the user level, the available operations of the setup menu varies as follows.

Operator: Logout, alarm log reference, error log reference, system information reference, current recording setting display

Viewer: Logout only



# Disk management

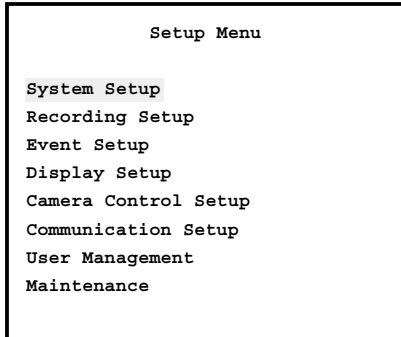
It is possible to format the built-in HDDs and restore HDD management information (list information of recorded images).

## Check HDD information

HDD information (total disk size, used disk size, hour meter) and time and date of the latest/oldest data on the HDD can be checked as follows.

### Screenshot 1

Display the setup menu by pressing the SETUP button.

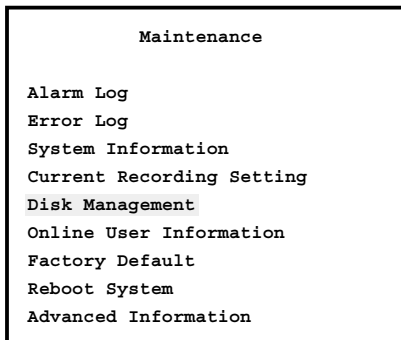


### Step 1

Move the cursor onto "Maintenance", and then press the [SET] button.

### Screenshot 2

The "Maintenance" window will be displayed.



### Step 2

Move the cursor onto "Disk Management", and then press the [SET] button.

### Screenshot 3

The "Disk Management" window will be displayed.

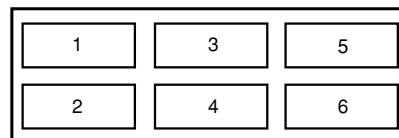
Disk Management			
No.	Capacity	Used	Hour Meter
1	232.884GB	232.250GB	400h
2	232.884GB	232.250GB	389h
3	232.884GB	138.034GB	153h
4	232.884GB	0.008GB	400h
5	No Disk Detected		
6	No Disk Detected		
[REC]:Start Format      [STOP]:Change HDD			
All Format		Information	Return

### Step 3

The status of the active built-in HDD will be displayed.

**No.**

The position where the HDD is installed will be displayed.



Anterior view

---

**Notes:**

- The used disk space will not be displayed as "0 GB" even when no data is saved on the disk since the system uses some of the disk space.
  - HDD6 is not provided for the WJ-RT416V.
- 

**Capacity**

The total size of the HDD will be displayed.

**Used**

The used size of the HDD will be displayed.

**Hour Meter**

The hour meter of the HDD will be displayed.

---

**Note:**

When a HDD is in the faulty state, the indication will be displayed on the "Disk Management" window as follows.

**No Disk Detected:** Indicates that no HDD is connected.

**Disk Unformatted:** Indicates that the HDD is not formatted with this recorder.

**Disk Access Error:** Indicates that a HDD access error occurred.

**Data Error:** Indicates that the directory structure of the HDD is broken.

**Disk Unacknowledged:** Indicates that the recorder failed to mount the HDD for a reason such as data number limitation, even though the HDD is in the normal state.

**Disk Type Unfitting:** Indicates that the model number and the disk size of the newly mounted HDD is different from the replaced HDD.

---

**Screenshot 4**

The "Disk Information" window will be displayed.

Disk Information	
Oldest	Latest
HDD1:01-01-2006 10:00:00	01-31-2006 09:45:00
HDD2:01-31-2006 10:00:00	02-28-2006 09:45:00
HDD3:02-28-2006 10:00:00	03-31-2006 09:45:00
HDD4:03-31-2006 10:00:00	04-30-2006 09:45:00
HDD5:	No Data
HDD6:	No Data
Close	

**Step 4**

Move the cursor onto "Information", and then press the [SET] button.

**Step 5**

Check time and date of the oldest data and the latest data, and then press the [SET] button.

## Format the HDD

There are two ways of how to format the HDD as follows.

- Format only the selected HDD
- Format all the HDDs simultaneously

### Format only the selected HDD

#### Screenshot 1

Display the "Disk Management" window (☞ page 33).

Disk Management			
No.	Capacity	Used	Hour Meter
1	232.884GB	232.250GB	400h
2	232.884GB	232.250GB	389h
3	232.884GB	138.034GB	153h
4	232.884GB	0.008GB	400h
5	No Disk Detected		
6	No Disk Detected		
[REC]:Start Format      [STOP]:Change HDD			
All Format		Information	Return

#### Step 1

Move the cursor onto the HDD to be formatted, and then press the [REC] button.

→ The confirmation window will be displayed. Move the cursor onto "OK", and then press the [SET] button.

#### Important:

- When the correctly mounted HDD is currently being used for recording, it is impossible to format it.
- When the selected HDD is in the "Disk Type Unfitting" state, it is impossible to format it.

### Format all the HDDs

#### Screenshot 1

Display the "Disk Management" window (☞ page 33).

Disk Management			
No.	Capacity	Used	Hour Meter
1	232.884GB	232.250GB	400h
2	232.884GB	232.250GB	389h
3	232.884GB	138.034GB	153h
4	232.884GB	0.008GB	400h
5	No Disk Detected		
6	No Disk Detected		
[REC]:Start Format      [STOP]:Change HDD			
All Format		Information	Return

#### Step 1

Move the cursor onto "All Format", and then press the [SET] button.

→ The confirmation window will be displayed. Move the cursor onto "OK", and then press the [SET] button.

## Stop power supply to the HDD

When replacing the HDD, it is necessary to stop power supply to the HDD in advance.  
Contact your dealer when it is necessary to replace the HDD.

### Screenshot 1

Display the "Disk Management" window (☞ page 33).

Disk Management			
No.	Capacity	Used	Hour Meter
1	232.884GB	232.250GB	400h
2	232.884GB	232.250GB	389h
3	Disk Access Error		
4	232.884GB	0.008GB	400h
5	No Disk Detected		
6	No Disk Detected		
[REC]:Start Format		[STOP]:Change HDD	
All Format		Information	
		Return	

### Screenshot 2

The following message window will be displayed after around 30 seconds.

Replace HDD

HDD1   **HDD3**   HDD5

HDD2   HDD4   HDD6

The power supply of the HDD have been  
turned off. Replace the HDD and  
press [SET] button to turn on again.

OK

### Screenshot 3

The "Disk Management" window will be displayed again.

Disk Management			
No.	Capacity	Used	Hour Meter
1	232.884GB	232.250GB	400h
2	232.884GB	232.250GB	389h
3	Disk Unformatted		
4	232.884GB	0.008GB	400h
5	No Disk Detected		
6	No Disk Detected		
[REC]:Start Format      [STOP]:Change HDD			
All Format		Information	Return

### Step 1

Move the cursor onto any of No.1 - 6, and then press the [STOP] button.

→ The confirmation window will be displayed. Move the cursor onto "OK", and then press the [SET] button.  
Power supply to the HDD corresponding to the indication "Disk Access Error", "Data Error", "Disk Type Unfitting" or "Disk Unacknowledged" will be cut.

### Step 2

Replace the HDD. Contact your dealer when it is necessary to replace the HDD.

### Step 3

When completing the HDD replacement, press the [SET] button.

### Step 4

Since the replace HDD is unformatted yet, format the HDD (☞ page 35).

## Restore HDD management information

When information of recorded images on the HDD and HDD management information (list information) do not match, restore the HDD management information.

Restore of HDD management information sometimes resolves problems such as a playback failure.

### Screenshot 1

Display the "Disk Management" window (☞ page 33).

Disk Management			
No.	Capacity	Used	Hour Meter
1	232.884GB	232.250GB	400h
2	232.884GB	232.250GB	389h
3	232.884GB	138.034GB	153h
4	232.884GB	0.008GB	400h
5	No Disk Detected		
6	No Disk Detected		
[REC]:Start Format      [STOP]:Change HDD			
All Format		Information	Return

### Step 1

Move the cursor onto the HDD whose management information is to be restored, and then press the [PLAY] button.

→ The HDD management information check will start.

When there is nothing wrong with the HDD management information, the confirmation window will be displayed.

Press the [SET] button the "Disk Management" window will be displayed again.

When there is something wrong with the HDD management information, the message window asking whether or not to restore the HDD management information will be displayed.

To restore the HDD management information, press the [SET] button after moving the cursor onto "OK".

# Operate the recorder using a PC

It is possible to configure the settings and operate the recorder on a network using the monitoring software when it is installed on the PC from the provided CD-ROM.

The following are some functions and their features of the monitoring software, and the system requirements for a PC on which the software can be installed.

Refer to the operating instructions (PDF) of the monitoring software on the provided CD-ROM for further information about each function and for how to operate the software.

## Functions and their descriptions

The operable functions using the monitoring software are as follows.

### Monitoring images from the cameras

Images from the cameras can be monitored on the PC.

### Playback of recorded images

Recorded images on the recorder can be played and monitored on the PC.

### Configuration of the settings of the recorder

The settings of the recorder such as the system setup and the recording setup can be configured on the PC.

### Notification of an event occurrence and its information

Notification of an event/error occurrence (time and date,

event/error type) can be provided to the PC.

### Download of recorded images

Recorded images monitored on the PC can be downloaded (saved) onto the PC.

When an event occurs, it is possible to transmit images from the camera to which an event occurred.

### Audio communication

Audio can be transmitted/received between the recorder and the PC.

## System requirements for a PC

It is recommended to operate the monitoring software on a PC that meets the following system requirements. If using a PC that does not meet the following system requirements, it may cause problems such as slow imaging or the software becomes inoperable.

OS	Microsoft® Windows® XP Professional SP2* Microsoft® Windows® XP Home Edition SP2* *: Tested and confirmed full compatibility with the English edition. Full compatibility with other language editions cannot be guaranteed.
Computer	IBM PC/AT Compatible
CPU	Pentium® 4 3.0 GHz or faster
Memory	512 MB or more
Graphic memory	256 MB or more (independent)
Display driver	Overlay compatible
Monitor	1 024 x 768 pixels or more, 24-bit True color or better
Network Interface	10/100 Mbps Network interface card must be installed
Plug-in	Microsoft® Windows Media™ Player 9 Series or later
Others	DirectX 8.0a or later CD-ROM Drive: It is necessary to read the operating instructions and use the software on the provided CD-ROM. Adobe® Reader: It is necessary to read the operating instructions on the provided CD-ROM.

---

### Notes:

- When the graphic memory is less than 32 MB, the monitoring software can access only four camera channels concurrently. (When the graphic memory is less than 64 MB, the monitoring software can access only six camera channels concurrently.)
  - When the overlay control is not enabled for the display driver, the monitoring software may not start.
  - The monitoring software may not start depending on the version of the display driver. In this case, upgrade the display driver to the latest version.
-

# Installation

## HDD safety mode

When installing the recorder in the rack without turning the power of the recorder off, activate the HDD safety mode.

When the HDD safety mode is activated, the power of the all HDDs will be off. (Recording and playback will be forcibly canceled.)

At the default, the recorder will start up in the HDD safety mode to protect the HDDs from shock, vibration, etc. during installation.

## Operating the recorder for the first time

When turning on the power of the recorder, the following message will be displayed.

"ALL HDD MOTORS STOPPED. PRESS [SET] BUTTON TO RESTART."

Press the [SET] button to start up the recorder.

## Installation

When installing/uninstalling the recorder (into/from the rack) after starting operation of the recorder in the system, do the following.

- 1 Restart the recorder using the setup menu ("Maintenance" – "Reboot System").** (☞ page 70)
- 2 The message "SYSTEM SETTING..." will be displayed (for around 3 seconds) in the process of startup.**  
Press the [STOP] button while the message "SYSTEM SETTING..." is being displayed.  
→ The following message will be displayed.  
"ALL HDD MOTORS STOPPED. PRESS [SET] BUTTON TO RESTART."
- 3 When completing the installation, press the [SET] button.**
  - The recorder will start up.

## HDD replacement

When the indication "Disk Access Error", "Data Error", "Disk Unacknowledged" or "Disk Type Unfitting" is displayed, it is possible to replace the HDD without stopping the operation of the recorder. (A new HDD must be the same model as of the HDD to be replaced with.)

It is necessary to stop the power supply to the HDD before starting the HDD replacement. Refer to page 36 for how to stop the power supply to the HDD, Contact your dealer when it is necessary to replace the HDD.

## HDD addition

When the indication "No Disk Detected" is displayed in the "Disk Management" window, an HDD can be added to the recorder. (It is necessary to turn off the power of the recorder before adding a new HDD.) The recorder is operable with up to six built-in HDDs. Contact your dealer when it is necessary to add a new HDD.



# Rack mounting

Use an EIA-standard 19" rack (depth: 550 mm or more).

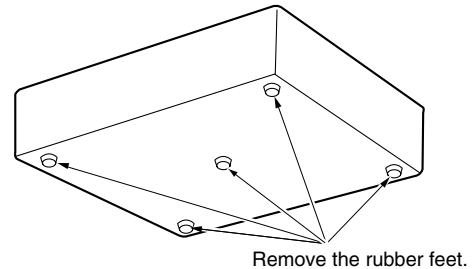
---

**Note:**

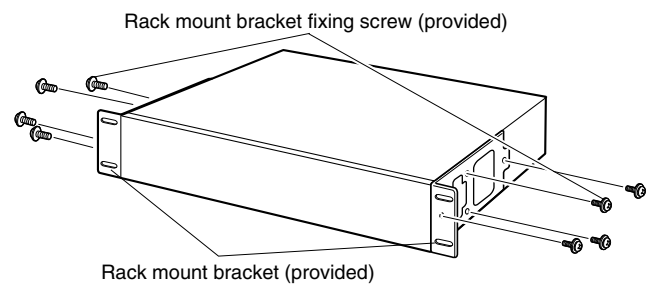
It is necessary to procure four optional rack mount screws (W2-MSS/5008 or M5 x12).

---

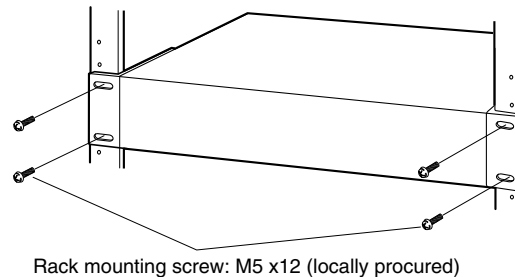
- 1 Remove the five rubber feet from the bottom of the recorder using a flathead screwdriver.**



- 2 Place the provided rack mounting brackets on both sides of the recorder and tighten with the eight provided screws.**



- 3 Install the recorder with the rack mounting brackets in the rack by using four rack mounting screws.**

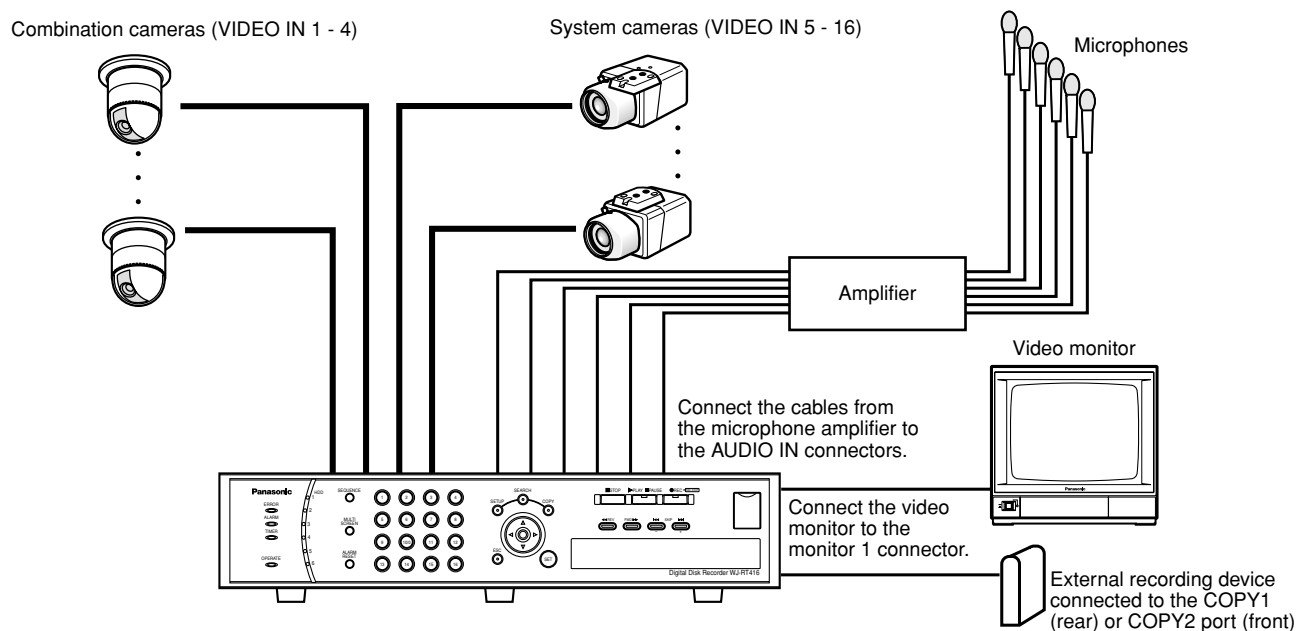


---

**Important:**

- Keep the temperature in the rack below +45 °C {113 °F}.
  - Install the recorder in the rack as low as possible, and make a space of 1 unit (44 mm, 1.73") between the recorder and the other mounted appliances.
  - Do not block the front side of the rack such as by attaching a door panel, etc.
  - It is recommended to install cooling fans or equivalent equipment to keep the temperature in the rack below +30 °C {86 °F}.
-

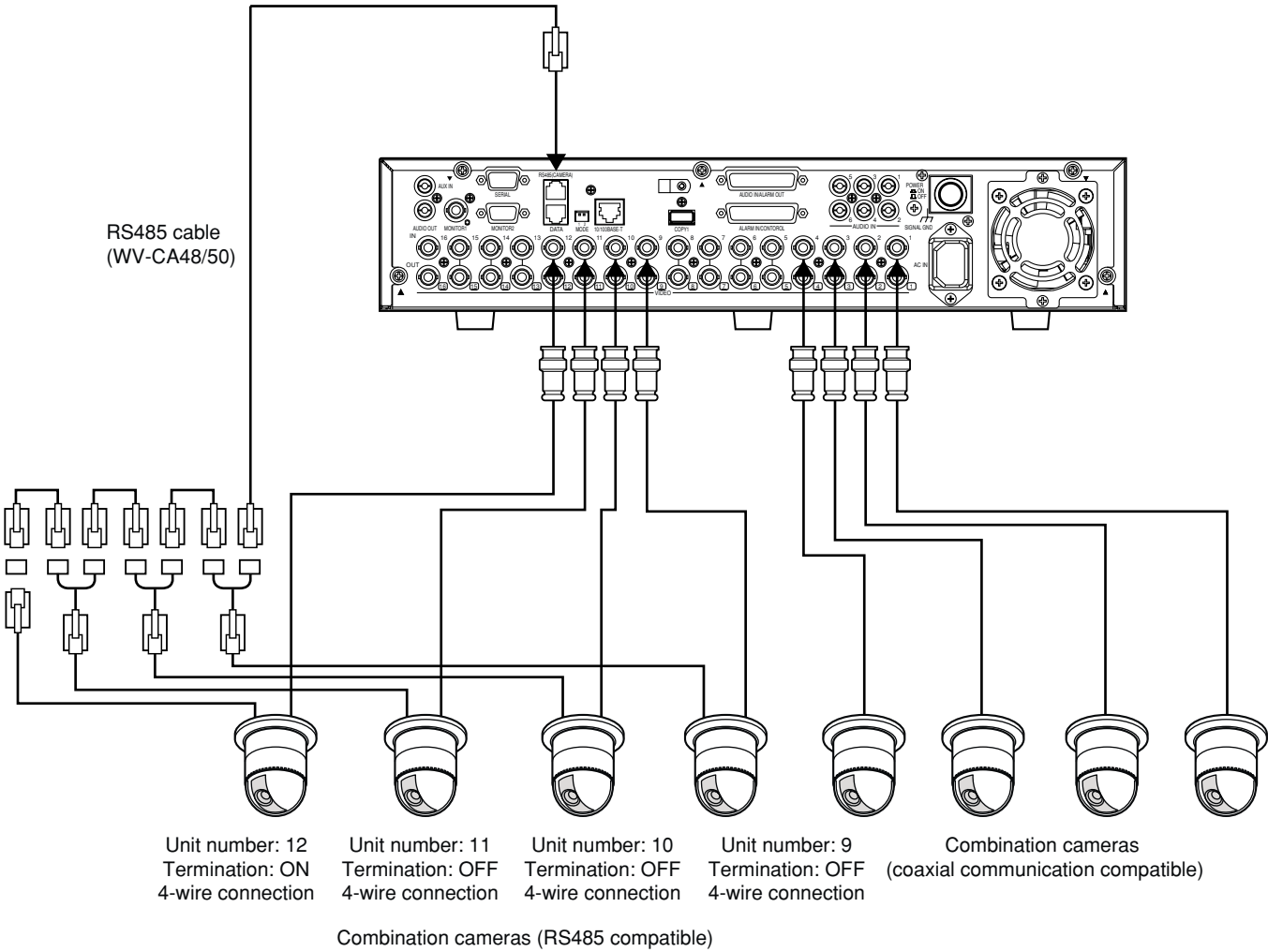
## Basic connection



### Important:

- When connecting an external recording device, use an optional USB cable to connect it to the COPY1 port on the rear or to the COPY2 port on the front of the recorder.
- Transmission loss of video signals from the cameras connected to the VIDEO IN 1-8 connectors (VIDEO IN 5-8 connectors are available only when an optional board is installed) can be compensated by selecting a proper value for the cable compensation setting (Comp.).
  - S:** Suitable when the total cable length between the camera and the recorder is shorter than 500 m
  - M:** Suitable when the total cable length between the camera and the recorder is 500 – 900 m
  - L:** Suitable when the total cable length between the camera and the recorder is 900 – 1 200 m
- Use 5C-2V cable to connect between the recorder and the camera.
- Select a proper value for the cable compensation setting (Comp.) according to the actual length of the cable in use. Otherwise, images from the camera will not be displayed/recorded correctly.
- Audio signal from a microphone should be supplied to the recorder after amplifying to line level (–10 dBv, 51 k $\Omega$ ) by an amplifier.

# Connection with RS485 cameras



**Important:**

The maximum length of the cable to be used to connect between a RS485 camera and the recorder is 1 200 m.

## Connection with PS·Data systems

This is an example of connection when the unit is used together with the PS·Data devices.

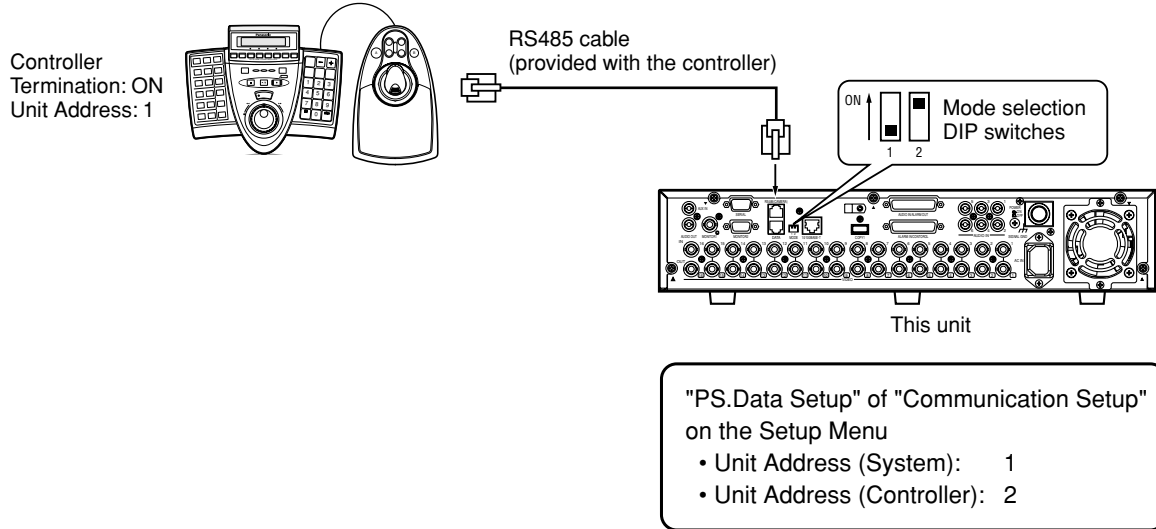
If a connected system controller is PS·Data compatible, it is possible to operate this unit or connected devices using the system controller.

Use the RS485 cable provided with the system controller.

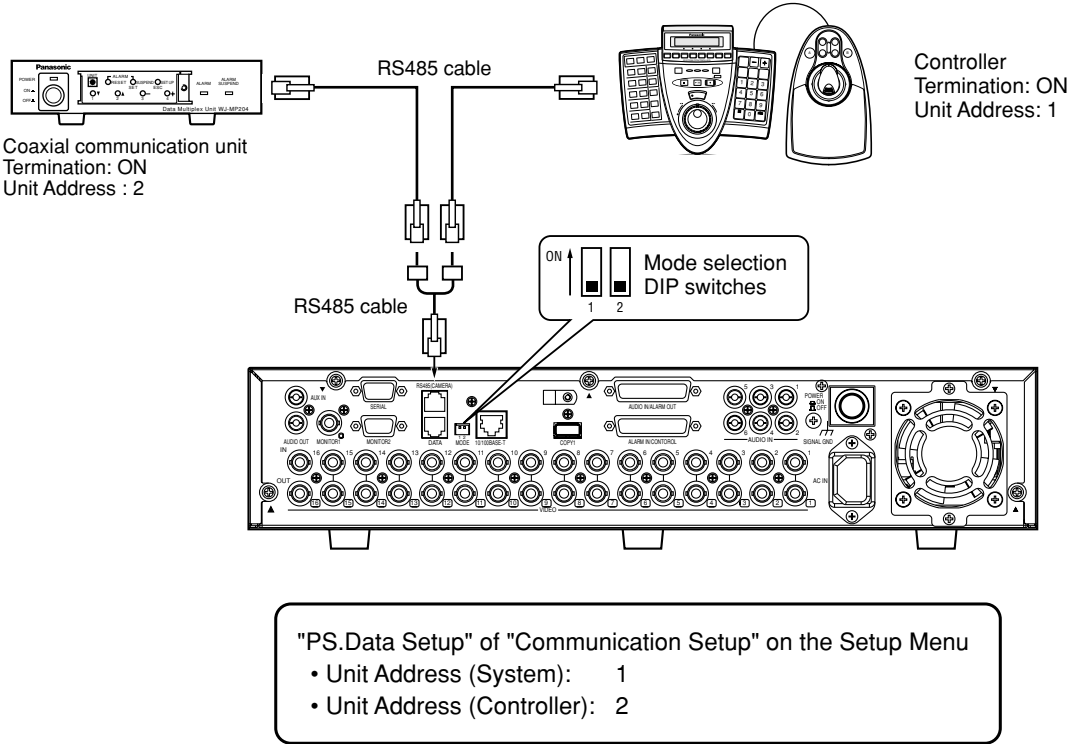
### Important:

- Terminate both devices on both ends of the connection. Refer to the respective operating instructions for the descriptions of how to terminate. Termination of this unit can be set with the mode selection DIP switch on the rear panel. (See page 47.)
- When connecting a PS·Data compatible device, it is necessary to set each item of "PS·Data Setup" of "Communication Setup" according to the system configuration.
- The following are available PS·Data compatible devices.
  - System controller: WV-CU650 (Ver 2.10 or later)
  - Data multiplex unit: WJ-MP204
  - Matrix switcher: WJ-SX650 (Ver. 3.00 or later)(Any other PS·Data compatible devices are not to be connected.)

### When connecting a single unit with a controller



**When installing this unit between a controller and a system device**



## Connection with a PC

Required devices and cables vary depending on how to connect them. Before starting the connections, check the required devices and cables for your environment. The IP addresses of the recorders in the following connection examples are the default settings.

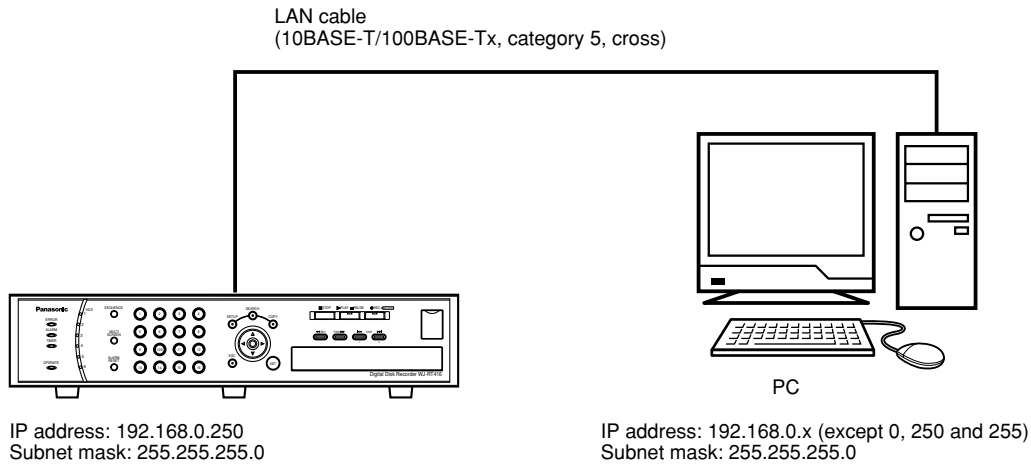
### Connect the recorder and a PC directly

---

**Important:**

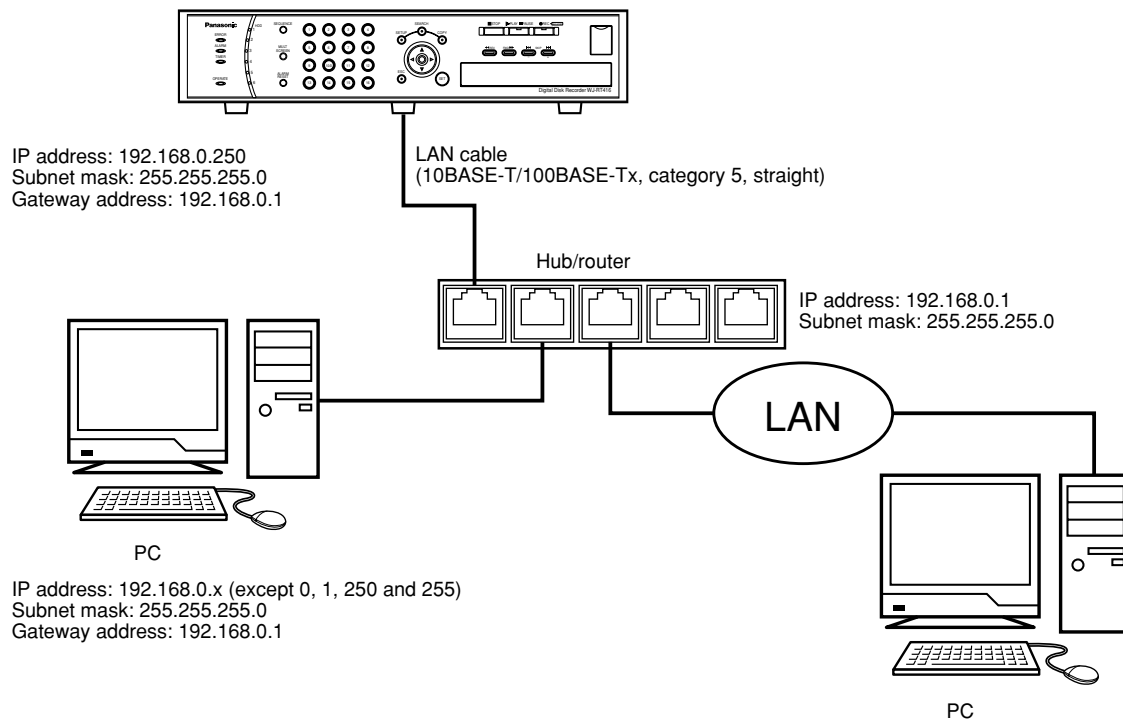
When connecting the recorder and a PC directly without using a hub or a router, use a cross LAN cable to connect them.

---

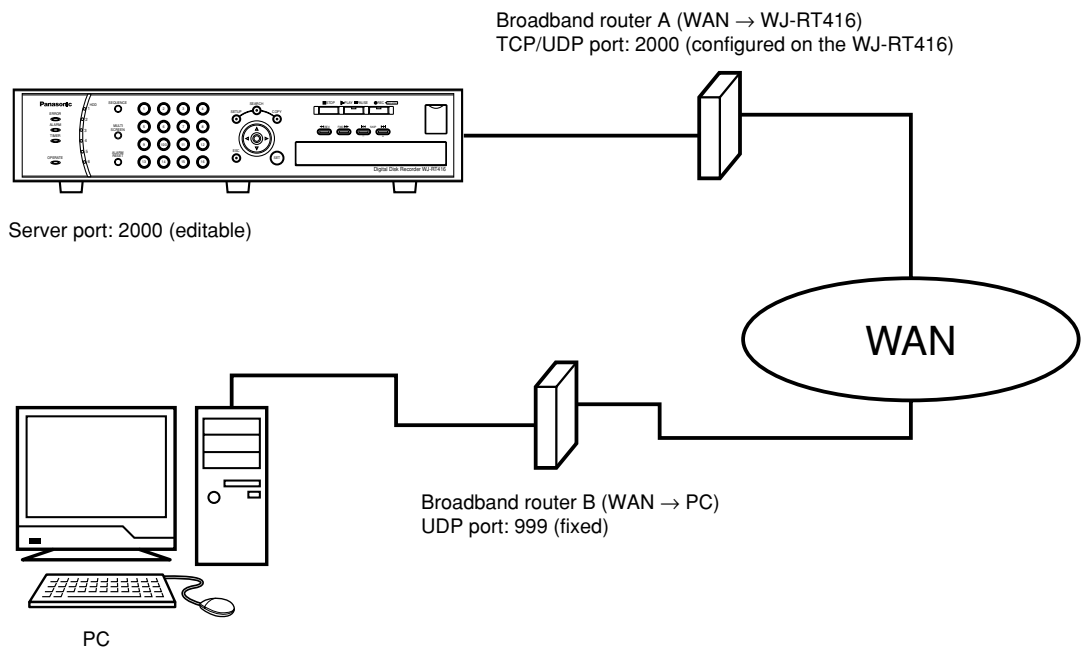


### Add the recorder to the existing network

Install a hub or a router between the recorder and a PC. Use a LAN cable to connect between the recorder and the hub.



## Add the recorder to a broadband WAN (Wide Area Network)



---

### Important:

When the recorder is in a WAN, maximum accessible number will become as follows.

Operation	Accessible number*
Monitoring of live images	Total of 16 areas
Playback of recorded images	Total of 4 areas
Frame display	4 PCs (4 users)
Download of recorded images	4 PCs (4 users)
Audio transmission/reception	1 PC (1 user)

\* "Accessible number" is the number of the camera channels that can be displayed in the display area of the monitoring software.

- It is necessary to log in first to play/download recorded images and transmit/receive audio.
- If live images are transmitted using Multicast, the chart above is not applicable.
- Only "Manager1" is capable of voice call. (☞ page 67)
- When displaying images from 5 or more camera channels, or when displaying recorded images in an area on a multi-screen, only I-frame\* will be displayed in all areas on a multi-screen and audio may not be heard.

\*: Short for intra frame. I-frame is an image that is to be inserted in the intra refresh period of MPEG images.

---

## DIP Switch Setting

When the unit is used together with the PS-Data devices, use the RS485 cable provided with the system controller.

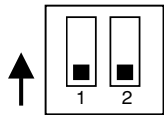
In this case, it is necessary to terminate both devices on both ends of the connection if they are connected with the RS485 cable.

Termination of this unit can be set with the DIP termination switch on the rear panel, and the setting of the mode selection DIP switch varies whether to use this unit as a receiver or a system controller.

When connecting to the system controller and this unit is connected as the end of the PS-Data connection, set mode selection DIP switch 2 to "ON".

When connecting to the system device and this unit is connected as the end of the PS-Data connection, set mode selection DIP switch 1 to "ON".

Mode selection DIP switch:



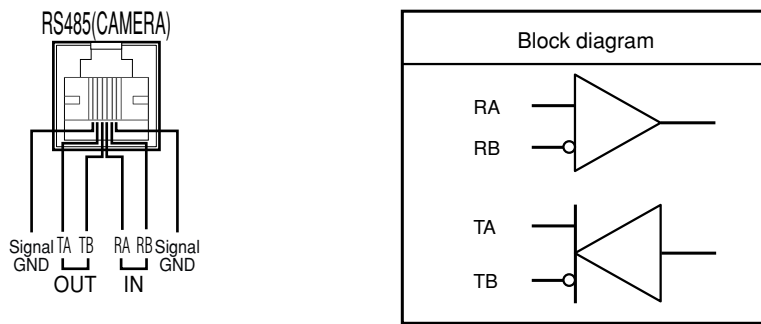
The dip switch positions are defined by the attribute of the unit connected to the system's DATA terminal.

Machine connected to the DATA port	DIP switch 1	DIP switch 2
Controller	OFF	ON
System Device	ON	OFF

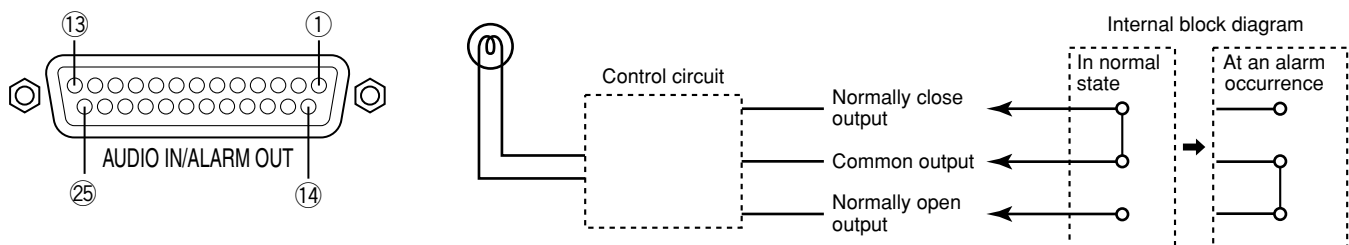


## RS485 (CAMERA) port

When connecting an RS485 camera, connect it to the RS485 (CAMERA) port on the rear of the recorder.

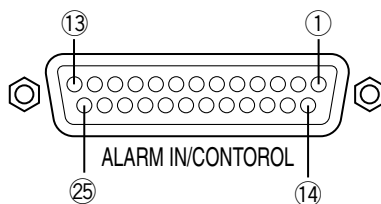


## AUDIO IN/ALARM OUT terminal



Pin No.	Signal	Operation	Remark
①	Audio input CH7	Audio input (CH7)	-10 dBv 51 k $\Omega$ , unbalanced
②	Audio input CH8	Audio input (CH8)	-10 dBv 51 k $\Omega$ , unbalanced
③	Audio input CH9	Audio input (CH9)	-10 dBv 51 k $\Omega$ , unbalanced
④	Audio input CH10	Audio input (CH10)	-10 dBv 51 k $\Omega$ , unbalanced
⑤	Audio input CH11	Audio input (CH11)	-10 dBv 51 k $\Omega$ , unbalanced
⑥	Audio input CH12	Audio input (CH12)	-10 dBv 51 k $\Omega$ , unbalanced
⑦	Audio input CH13	Audio input (CH13)	-10 dBv 51 k $\Omega$ , unbalanced
⑧	Audio input CH14	Audio input (CH14)	-10 dBv 51 k $\Omega$ , unbalanced
⑨	Audio input CH15	Audio input (CH15)	-10 dBv 51 k $\Omega$ , unbalanced
⑩	Audio input CH16	Audio input (CH16)	-10 dBv 51 k $\Omega$ , unbalanced
⑪	(Signal GND)		
⑫	Alarm 1 Output (COMMON)	Common output 1	1 A, 30 V DC max.
⑬	Alarm 1 Output (NO)	Output 1, Normally open-collector	1 A, 30 V DC max.
⑭	Alarm 1 Output (NC)	Output 1, Normally closed-collector	1 A, 30 V DC max.
⑮	Alarm 2 Output (COMMON)	Common output 2	1 A, 30 V DC max.
⑯	Alarm 2 Output (NO)	Output 2, Normally open-collector	1 A, 30 V DC max.
⑰	Alarm 2 Output (NC)	Output 2, Normally closed-collector	1 A, 30 V DC max.
⑱	Alarm 3 Output (COMMON)	Common output 3	1 A, 30 V DC max.
⑲	Alarm 3 Output (NO)	Output 3, Normally open-collector	1 A, 30 V DC max.
⑳	Alarm 3 Output (NC)	Output 3, Normally closed-collector	1 A, 30 V DC max.
㉑	Alarm 4 Output (COMMON)	Common output 4	1 A, 30 V DC max.
㉒	Alarm 4 Output (NO)	Output 4, Normally open-collector	1 A, 30 V DC max.
㉓	Alarm 4 Output (NC)	Output 4, Normally closed-collector	1 A, 30 V DC max.
㉔	(Signal GND)		
㉕	+12 V	+12 V output	800 mA max.

## ALARM IN/CONTROL terminal



Pin No.	Signal	Operation	Remark
①	Alarm input CH1	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
②	Alarm input CH2	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
③	Alarm input CH3	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
④	Alarm input CH4	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑤	Alarm input CH5	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑥	Alarm input CH6	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑦	Alarm input CH7	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑧	Alarm input CH8	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑨	Alarm input CH9	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑩	Alarm input CH10	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑪	Alarm input CH11	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑫	Alarm input CH12	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑬	Alarm input CH13	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑭	Alarm input CH14	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑮	Alarm input CH15	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑯	Alarm input CH16	An event action will be taken according to the setting.	Non-voltage make contact input, pulse width: 100 ms or more
⑰	Time adjust input	The clock of the recorder will be set to 00 (min) by signal input. (Time correction range: $\pm 15$ minutes)	Non-voltage make contact input, pulse width: 100 ms or more
⑱	Error output	Signal output upon an error detection (Thermal error (47 °C {117 °F} or higher), fan error, video loss, password entry failure (3 times straight incorrect password entry), no HDD detection)	Open collector output, 100 mA or less, 24 V DC max.
⑲	HDD error output	Signal output upon a HDD error detection	Open collector output, 100 mA or less, 24 V DC max.
⑳ - ㉔	(Signal GND)		
㉕	(N.C.)	Not available	

# Setup menu

It is necessary to configure the settings on the setup menu in advance to operate the recorder.  
Display the setup menu on the monitor and configure the settings.

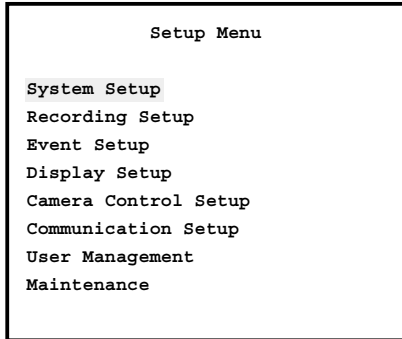
## Setup menu chart

Setup item	Description	Page
<b>System Setup</b>	Configure the settings relating to the system such as the clock adjustment, language setting, auto login user, etc.	53
<b>Recording Setup</b>		
Common Setup	Configure the basic settings to be applied regardless of the recording type (manual recording, timer recording, alarm recording).	55
Manual Rec. Setup	Configure the image quality and the recording rate for the manual recording.	57
Timer Rec. Setup	Configure the schedule settings of the timer recording.	57
<b>Event Setup</b>		
Common Setup	Configure the basic settings relating to the event action to be applied regardless of the event type.	58
Alarm Rec. Setup	Configure the settings for the alarm recording.	59
<b>Display Setup</b>	Configure the settings relating to image display.	61
<b>Camera Control Setup</b>	Configure the communication type for the camera control and the cable compensation setting for each channel.	62
<b>Communication Setup</b>		
Network Setup	Configure the basic settings relating to the network connection.	63
RS485 Setup	Configure the RS485 settings.	64
PS.Data Setup	Configure the PS·Data settings.	64
<b>User Management</b>		
User Level Setup	Configure the operational level of "operator" and "viewer" for each channel.	66
Password	Set the password for each user level.	67
Logout	Log out the recorder.	67
<b>Maintenance</b>		
Alarm Log	Log of event occurrences can be checked.	68
Error Log	Log of error occurrences can be checked.	68
System Information	System information such as the firmware version, MAC address, etc. can be checked.	69
Current Recording Settings	The current recording settings for each camera channel such as the recording rate can be checked.	69
Disk Management	Format of the built-in HDDs and restore of HDD management information (list information of recorded images) are available.	69
Online User Information	Information and operational status (user name, etc.) of the users who is currently accessing the recorder can be checked.	70
Factory Default	Reset the current settings to the default.	70
Reboot System	Reboot of the recorder is available.	70
Advanced Information	Log of operations and accesses can be checked. Firmware upgrade is also available.	71

# Basic operation of the setup menu

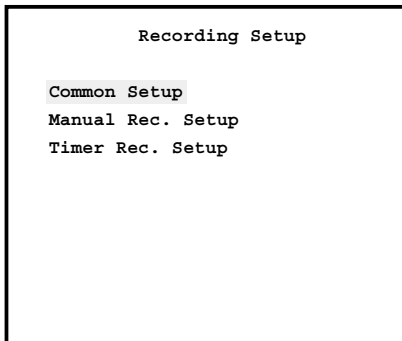
## Screenshot 1

Display the setup menu by pressing the SETUP button.



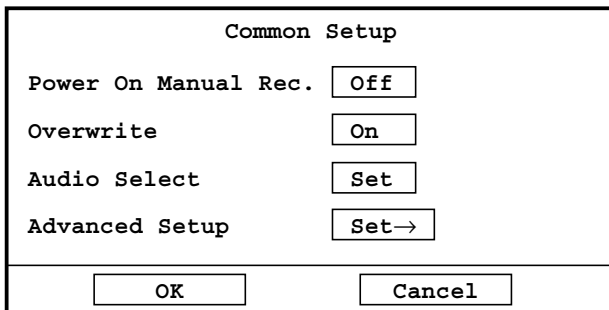
## Screenshot 2

The submenu of the selected setup item will be displayed.  
(Example: When "Recording Setup" is selected)



## Screenshot 3

The setup window of the selected submenu will be displayed.  
(Example: When "Common Setup" is selected)



## Step 1

Press the [SET] button after selecting the desired setup item using the arrows button (▼ or ▲).

## Step 2

Press the [SET] button after selecting the desired submenu using the arrows button (▼ or ▲).

## Step 3

Configure each setting on the setup window.

**To select the setup item:** Move the cursor onto the desired setup item using the arrows button (▼ ▲ ◀ ▶).

**To change the parameter, to move the cursor on the setup window:** Press the [SKIP ◀◀] or [SKIP ▶▶] button.

**To enter a number:** Press the camera selection buttons.

**To go back to the previous page:** Press the [ESC] button.

## Step 4

To save the settings, move the cursor onto "OK" and press the [SET] button.

To cancel the edited settings, move the cursor onto "Cancel" and press the [SET] button.

# Configure the system settings [System Setup]

Configure the settings relating to the system such as the clock adjustment, language setting, auto login user, etc.

System Setup

Month-Day-Year

Time & Date 10-22-2006 11:30:30

(Time Zone) GMT-5:00

Set

Language English

Auto Login User Manager

Auto Logout Time 600 Sec

Error Buzz 002 Sec

Advanced Setup Set->

OK Cancel

## ■ Time & Date Setup (Time Zone)

Adjust the clock of the recorder. Select the time zone according to the location where the recorder is. Refer to page 17 for how to adjust the clock.

**Default:** GMT -5:00 (NTSC model)  
GMT +0:00 (PAL model)

## ■ Language

Select the display language from the following.

English/Japanese/Chinese/Custom

When selecting "Custom", display characters can be changed according to your needs. Refer to the operating instructions of the monitoring software (PDF) on the provided CD-ROM for further information.

**Default:** English

## ■ Auto Login User

Configure the auto login user setting.

**Disable:** No user can log in automatically.

**Viewer/Operator/Manager:** Log in the recorder with its own user level.

**Default:** Manager

## ■ Auto Logout Time

When no operation has been made for a period specified in advance by a currently logged user (who is not an auto login user), this user will forcibly be logged out.

005 - 999 (Sec)

**Default:** 600 (Sec)

## ■ Error Buzz

Set the sounding duration of the buzzer that starts sounding at an error occurrence.

000 - 180 (sec)

When "000" is selected, the buzzer will not sound.

**Default:** 002 (sec)

## ■ System Setup(Advanced)

The following window will be displayed when the [Set] button is pressed after moving the cursor onto "Set->".

System Setup (Advanced)

Date Format mmm-dd-yyyy

Time Format 12h

Auto Adjust Time off

Summer Time (DST) off

Summer Time (DST) Table Set

Auto Data Delete 000 Days

Default Search Time 15 Min Before

OK Cancel

## Date Format

Select a time format from the following.

(Example: October 5, 2006)

yyyy-mm-dd: 2006-10-05

mmm-dd-yyyy: Oct-05-2006

mm-dd-yyyy: 10-05-2006

dd-mm-yyyy: 05-10-2006

dd-mmm-yyyy: 05-Oct-2006

**Default:** mmm-dd-yyyy (NTSC model)

dd-mm-yyyy (PAL model)

## Note:

Display of month will be "mm (numeric)" except when displaying images (☞ page 15) and "Highest Temperature" of "System Information" (☞ page 69). (Month will not be displayed in alphabet (mmm).)

## Time Format

Select a time format to be displayed when displaying live/recorded images from the following.

(Example for 3 o'clock in the afternoon)

12h: 3:00:00 PM

24h: 15:00:00

**Default:** 12h (NTSC model)

24h (PAL model)

Auto Adjust Time

When signal is input to the time adjust input terminal on the rear of the recorder (see page 50), the clock of the recorder will be set to "00" minute. The clock will be set to "00" minute only when signal is input at the following time.

- Between 00 minutes 00 seconds and 14 minutes 59 seconds, every hour
- Between 45 minutes 00 seconds and 59 minutes 59 seconds, every hour

The clock will be set to "00 minutes 00 seconds" of the closest hour.

Example:

When "15:00" is set for "Time"  
Signal is supplied at 14:50:00 (hour:minute:second) → Set at 15:00:00  
Signal is supplied at 15:14:45 → Set at 15:00:00  
Signal is supplied at 15:20:00 → Time will not be adjusted.

- On:** Adjust the clock automatically.  
**Off:** Do not adjust the clock automatically.  
**Default:** Off

Summer Time (DST)

Select "Auto" or "Off" to determine whether or not to apply summer time.  
**Auto:** Apply summer time automatically in accordance with the settings for switching to summer time.

- Off:** Do not apply summer time.  
**Default:** Off

Summer Time (DST) Table

Set the start/end date and time for summer time. The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set".

Summer Time (DST) Table					
	IN		OUT		
	Month-Day-Year	Time	Month-Day-Year	Time	
1	03-25-2007	02:00	10-28-2007	02:00	
2	03-30-2008	02:00	10-26-2008	02:00	
3	03-29-2009	02:00	10-25-2009	02:00	
4	03-28-2010	02:00	10-31-2010	02:00	
5	03-27-2011	02:00	10-30-2011	02:00	
		OK			Cancel

**Default:** As shown in the illustration above.

Auto Data Delete

Configure the settings to delete recorded images automatically when the set days have passed from the day the images were recorded.

- 000 - 200 (Days)  
When "000" is selected, images will not be deleted automatically.

**Default:** 000 (Days)

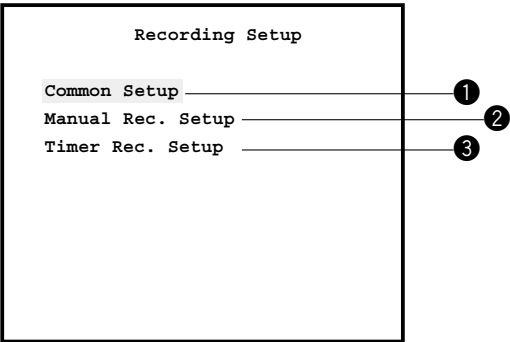
Default Search Time

It is possible to automatically set the start time (of time ranged to be searched) that is specified minutes ago from the current time when displaying the search window such as the "Time & Date Search" window.  
For example, when "15 (Min Before)" is selected and the search window is displayed at 10:00, "9:45" will automatically be entered for the start time on the search window.

- 00 - 60 (Min Before)  
**Default:** 15 (Min Before)

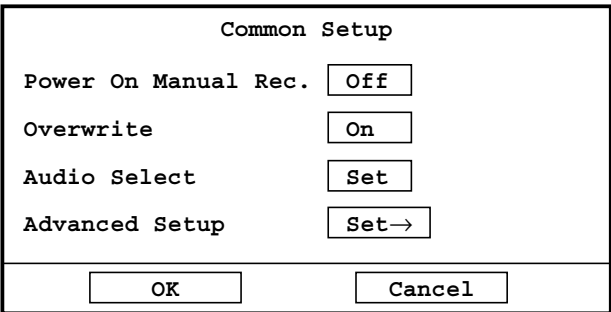
# Configure the recording settings [Recording Setup]

Configure the settings for recording (manual recording, timer recording, alarm recording).



## 1 Configure the common recording settings [Common Setup]

Configure the basic settings to be applied regardless of the recording type (manual recording, timer recording, alarm recording).



### ■ Power On Manual Rec.

Select "On" or "Off" to determine whether or not to automatically start manual recording when the power of the recorder is turned on.

**On:** Start recording automatically.

**Off:** Do not start recording automatically.

**Default:** Off

### ■ Overwrite

Select "On" or "Off" to determine whether or not to overwrite recorded images when the available disk space is running out.

**On:** Overwrite recorded images.

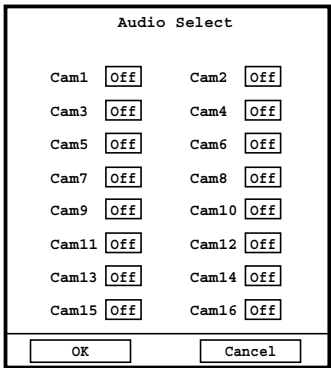
**Off:** Do not overwrite recorded images.

**Default:** On

### ■ Audio Select

Select "On" or "Off" for each camera channel to determine whether or not to record images with audio.

The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set".



**On:** Record audio together with images.

**Off:** Record only images.

**Default:** Off

### Note:

When "Off" is selected, no audio will be heard through this software.

## ■ Advanced Setup

The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set→".

Common Setup (Advanced)	
Time Per File	<input type="text" value="15"/> Min
I Frame Interval	<input type="text" value="4"/>
Resolution	<input type="text" value="Set"/>
<div><input type="button" value="OK"/> <input type="button" value="Cancel"/></div>	

### Time Per File

Determine the recording time length of the recorded images to be saved as a file. Recorded images will be divided into files and the recording time length of each file will be the selected time length.

05 - 60 (Min)

**Default:** 15 (Min)

### I Frame Interval

Determine the I-Frame insertion interval.

1 - 4 (Sec)

**Default:** 4 (Sec)

### Resolution

Determine the resolution of recorded images. The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set".

Resolution	
Cam1 <input type="text" value="Field"/>	Cam2 <input type="text" value="Field"/>
Cam3 <input type="text" value="Field"/>	Cam4 <input type="text" value="Field"/>
Cam5 <input type="text" value="Field"/>	Cam6 <input type="text" value="Field"/>
Cam7 <input type="text" value="Field"/>	Cam8 <input type="text" value="Field"/>
Cam9 <input type="text" value="Field"/>	Cam10 <input type="text" value="Field"/>
Cam11 <input type="text" value="Field"/>	Cam12 <input type="text" value="Field"/>
Cam13 <input type="text" value="Field"/>	Cam14 <input type="text" value="Field"/>
Cam15 <input type="text" value="Field"/>	Cam16 <input type="text" value="Field"/>
<div><input type="button" value="OK"/> <input type="button" value="Cancel"/></div>	

Select a resolution for each camera channel from the following.

**Field:** Standard (NTSC model: 704 x 240, PAL model: 704 x 288)

**SIF:** Low (NTSC model: 352 x 240, PAL model: 352 x 288)

**---**: No recording and image transmission is carried out.

**Default:** Field



## ② Configure the manual recording settings [Manual Rec. Setup]

Configure the settings for manual recording that starts recording when the [REC] button is pressed.

Manual Rec. Setup	
Camera No.	01▲
Rec. Quality	SP Fine
Rec. Frame Rate	Full
<div>All OK Cancel</div>	

### ■ Camera No.

Select a camera channel to be used for manual recording.

#### Note:

The camera selection buttons (1 - 10/0) are available for the camera channel selection.

### ■ Rec. Quality

Select an image quality for recorded images from the following.

**SP Fine:** Highest quality

**Fine:** High quality

**Normal:** Standard quality

**Extended:** Low quality

**Default:** SP Fine

### ■ Rec. Frame Rate

Select a recording frame rate from the following.

Full, 1/2F, 1/4F, 1/8F, 1/16F

(When "Full" is selected, recording frame rate will be 30 frames/sec for NTSC model and 25 frames/sec for PAL model.)

**Default:** Full

#### Note:

When the [SET] button is pressed after moving the cursor onto "All", the same settings for "Rec. Quality" and "Rec. Frame Rate" will be applied to all of the camera channels.

## ③ Configure the timer recording settings [Timer Rec. Setup]

Designate a day of the week and time when the timer recording is to be started (timer recording schedule).

Timer Rec. Setup						
Camera No.	01▲		SP Fine	Full		
SUN	00: 00	24: 00	Off	00: 00	24: 00	Off
MON	00: 00	24: 00	Off	00: 00	24: 00	Off
TUE	00: 00	24: 00	Off	00: 00	24: 00	Off
WED	00: 00	24: 00	Off	00: 00	24: 00	Off
THU	00: 00	24: 00	Off	00: 00	24: 00	Off
FRI	00: 00	24: 00	Off	00: 00	24: 00	Off
SAT	00: 00	24: 00	Off	00: 00	24: 00	Off
DAILY	00: 00	24: 00	Off	00: 00	24: 00	Off
<div>All OK Cancel</div>						

### ■ Camera No., Rec. Quality, Rec. Frame Rate

These settings can be configured in the same manner as for "Manual Rec. Setup". Refer to the "Manual Rec. Setup" section.

### ■ Recording time range

Set the start time and end time for the desired day of the week, and then select "On".

Up to 2 time ranges can be set as the timer recording schedule.

To set the same time range for every day of the week, enter the start and end time for "DAILY".

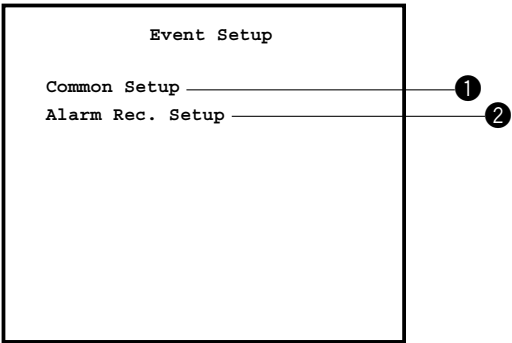
When "On" and "Off" of 2 different schedules are set in the same time range, the timer recording will be carried out according to the schedule for which "On" is selected.

#### Note:

When the [SET] button is pressed after moving the cursor onto "All", the same settings for "Rec. Quality", "Rec. Frame Rate" and "Recording time range" will be applied to all of the camera channels.

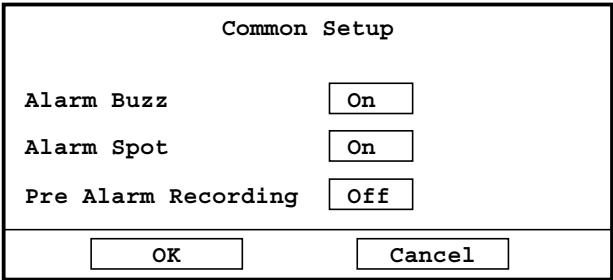
# Configure the alarm action settings [Event Setup]

Configure the settings relating to the alarm action that is to be taken at an event occurrence.  
Refer to page 27 for further information about the event type and the alarm action.



## 1 Configure the common settings for the alarm recording [Common Setup]

Configure the common settings relating to the alarm action that is to be taken when an event (terminal alarm, VMD alarm, command alarm) occurred.



### ■ Alarm Buzz

Select "On" or "Off" to determine whether or not to sound the buzzer at an event occurrence. The selected duration for "Alarm Duration" of "Alarm Rec. Setup" (☞ page 59) will be applied as the sounding duration of the buzzer.

- On:** Sound the buzzer
- Off:** Do not sound the buzzer
- Default:** On

### ■ Alarm Spot

Select "On" or "Off" to determine whether or not to display images from the camera that is selected for "Alarm Spot Camera No." of "Alarm Rec. Setup (Advance)" (☞ page 59) on a single screen at an event occurrence.

- On:** Display images from the selected camera.
- Off:** Do not display images from the selected camera.
- Default:** On

#### Note:

The screen that was displayed immediately before an event resumes after the event is finished.

### ■ Pre Alarm Recording

Select "On" or "Off" to determine whether or not to start recording from the specified seconds before an event occurrence (pre-alarm recording).

- On:** Start the pre-alarm recording.
- Off:** Do not start the pre-alarm recording.
- Default:** Off

#### Notes:

- Maximum recording duration of the pre-alarm recording is approximately 5 seconds. Recording duration of the pre-alarm recording varies depending on the following settings.
  - I Frame Interval
  - Capture Resolution
  - Rec. Quality
  - Rec. Frame Rate
- Audio is not recorded during pre-alarm recording.

## ② Configure the alarm recording settings [Alarm Rec. Setup]

Configure the settings relating to the alarm recording that starts upon an event occurrence.

Alarm Rec. Setup		
Alarm No.	01 ▲	SP Fine Full
Term	00:00 24:00 Off	00:00 24:00 AL-M
Rec. Channel	01	
VMD	00:00 24:00 Off	00:00 24:00 Off
Rec. Channel	01	
Sensitivity	10	
Area Setup	Set	
Advanced Setup	Set→	
All OK Cancel		

### ■ Alarm No.

"Alarm No." indicates the following according to the event type.

**Terminal input:** Terminal used for the terminal alarm recording.

**VMD:** Camera channel

**Command alarm reception:** Camera channel

#### Note:

The camera selection buttons (1 - 10/0) are available for the camera channel selection.

### ■ Rec. Quality

#### ■ Rec. Frame Rate

These settings can be configured in the same manner as for "Manual Rec. Setup". Refer to page 57 for further information.

### ■ Term (Alarm Duration)

Determine the alarm action to be taken and the time range when the alarm action is to be taken upon a terminal input or a command alarm reception. The alarm action to be taken can be determined from the following.

**AL-M:** All the set alarm actions will be taken upon a terminal input.

**AD-M:** Some of the alarm action will be taken upon a terminal input.

(Refer to the "Action at an event occurrence (alarm action)" section on page 27.)

**Off:** No alarm action will be taken.

**Default:** Alarm Duration 1: 00:00 - 24:00, Off

Alarm Duration 2: 00:00 - 24:00, AL-M

#### Note:

When "AL-M" and "AD-M" of 2 different alarm durations are set in the same time range, the alarm action will be taken according to the setting for the alarm duration with "AL-M".

### ■ Term (Rec. Channel)

Set the camera channel to be used for the alarm recording upon a terminal input or a command alarm reception.

00 - 16

When "00" is selected, images from all of the camera channel will be recorded.

**Default:** (Same value set for "Alarm No.")

### ■ VMD (Alarm Duration)

Determine the alarm action to be taken and the time range when the alarm action is to be taken upon a VMD alarm. The alarm action to be taken can be determined from the following.

AL-M, AD-M, Off

**Default:** 00:00 - 24:00, Off (for both Alarm Duration 1 and 2)

### ■ VMD (Rec. Channel)

The camera channel used for the alarm recording upon a VMD alarm will be displayed.

The displayed camera channel is the same camera channel number as "Alarm No." (camera channel number from which the VMD alarm is detected). Editing is unavailable.

### ■ VMD (Sensitivity)

Set the sensitivity level of the VMD function.

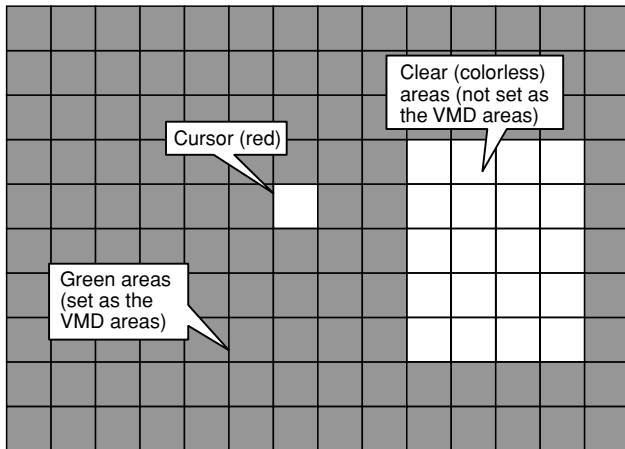
01 (high) - 99 (low)

**Default:** 10

## ■ VMD (Area Setup)

Set the VMD area.

The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set".



**Green area:** Set as the VMD area.

**Clear area:** Not set as the VMD area.

**Red area:** Cursor

**Light blue area:** Set as the VMD area, and currently motion is being detected.

The VMD area can be set using the following buttons.

Arrows button: Select an area.

[SKIP ►►]/[SKIP ◀◀] buttons: Determine whether or not to set the selected area as the VMD area (green: set as the VMD area, clear: not set as the VMD area).

When completing the VMD area setting, press the [ESC] button.

The "Alarm Rec. Setup" window will be displayed.

Move the cursor onto "OK" and press the [SET] button to apply the settings.

**Default:** All areas are set as the VMD area.

### Notes:

- The colors of the VMD areas may look not exactly as described depending on the brightness or contrast of the images displayed in the areas.
- The VMD area cannot be set for "Alarm No." to which no video signal is supplied.

## ■ Advanced Setup

The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set→".

Configure the following settings on the setup window of each "Alarm No." (see page 59).

No.01 Alarm Rec. Setup(Advanced)		
Rec. Duration	<input type="text" value="060"/>	Sec
Alarm Duration	<input type="text" value="030"/>	Sec
Alarm Output Port	<input type="text" value="0"/>	
Alarm Spot Camera No.	<input type="text" value="01"/>	
Preset Camera No.	<input type="text" value="01"/>	
Preset Position	<input type="text" value="000"/>	
<div><input type="button" value="OK"/> <input type="button" value="Cancel"/></div>		

## Rec. Duration

Set the alarm recording duration.

000, 030 - 999 (sec)

When "000" is selected, recording will not stop until the alarm is reset.

**Default:** 030 (sec)

## Alarm Duration

Set the active duration of the alarm action (LED blinking, buzzer sounding, alarm output from the terminal on the rear of the recorder).

001 - 999 (Sec)

**Default:** 030 (Sec)

## Alarm Output Port

Select a port from which an alarm signal is output.

0 - 4

When "0" is selected, no alarm signal will be output.

**Default:** 0

## Alarm Spot Camera No.

Select a camera channel from which images are to be displayed on a single screen at an event occurrence.

1 - 16

**Default:** (Same value set for "Alarm No.")

## Preset Camera No.

Select a camera channel that the connected camera is to be moved to the preset position at an alarm occurrence.

1 - 16

**Default:** (Same value set for "Alarm No.")

## Preset Position

Set the preset position to which the camera moves at an event occurrence.

000 - 256

When "000" is selected, the camera will not move at an event occurrence.

**Default:** 000

## [All] button

When the [SET] button is pressed after moving the cursor onto "All", the same settings will be applied to the following for all of the "Alarm No.".

- Rec. Quality
- Rec. Frame Rate
- Time range of each schedule
- Sensitivity
- Rec. Duration (Advanced Setup)
- Alarm Duration (Advanced Setup)
- Alarm Output Port (Advanced Setup)

# Configure the display settings [Display Setup]

Display Setup

Status Display

All

Sequence Dwell

05

Sec

Camera Allocation Setup

Set

OK

Cancel

## ■ Status Display

Determine which information is to be displayed.

**All:** All information will be displayed.

**Status:** The status icons and time and date will be displayed.

**Name:** The camera title and time and date will be displayed.

**Play:** Time and date of the recorded images currently being played will be displayed.

**Off:** No information will be displayed.

**Default:** All

### Note:

Error information will be displayed regardless of the setting.

## ■ Sequence Dwell

Set the dwell time of the sequential display (interval of switching from a camera channel to the next camera channel).

5 - 30 (sec)

**Default:** 5 (sec)

## ■ Camera Allocation Setup

Allocate the camera channels to the areas of multi-screen (4/6/9). Move the cursor to the desired area of multi-screen and determine the camera channel to be allocated to the selected area using the camera selection buttons (1-10/0).

Camera Allocation Setup

4-screen A

01020304

4-screen B

05060708

4-screen C

09101112

4-screen D

13141516

6-screen A

010203040506

6-screen B

070809101112

9-screen

010203040506070809

OK

Cancel

**Default:** As shown in the illustration above.

### Important:

- The area allocated for camera channel 1 is impossible to change.
- The same camera channel cannot be allocated to two or more areas of the same multi-screen.

# Configure the settings relating to the camera control [Camera Control Setup]

Configure the communication type for the camera control and the cable compensation setting for each channel.

Camera Control Setup

	Type	Protocol	Compensation
Cam 1	Coax	Panasonic	S
Cam 2	Coax	Panasonic	S
Cam 3	Coax	Panasonic	S
Cam 4	Coax	Panasonic	S
Cam 5	PSD	Panasonic	S
Cam 6	PSD	Panasonic	S
Cam 7	PSD	Panasonic	S
Cam 8	PSD	Panasonic	S

9 - 16

OK

Cancel

Camera Control Setup

	Type	Protocol
Cam 9	PSD	Panasonic
Cam 10	PSD	Panasonic
Cam 11	PSD	Panasonic
Cam 12	PSD	Panasonic
Cam 13	PSD	Panasonic
Cam 14	PSD	Panasonic
Cam 15	PSD	Panasonic
Cam 16	PSD	Panasonic

1 - 8

OK

Cancel

## ■ Type

Select a camera control method from the following.

**Coax:** Control the camera using the coaxial communication. (Cam 1 - 8 are available (Cam 5-8 are available only when an optional board is installed).)

**RS485:** Control the cameras using the RS485 communication.

**Off:** Do not control the cameras.

**Default:** Coax (Cam 1 - 4), PSD (Cam 5 - 16)

## ■ Protocol

Select "Panasonic" when "RS485" is selected for "Type".

**Default:** Panasonic

## ■ Compensation

Select the cable length when "Coax." is selected for "Type". (Cam 1 - 8 are available (Cam 5-8 are available only when an optional board is installed).)

It is necessary to configure to control the camera using the coaxial communication.

**S:** Suitable when the total cable length between the camera and the recorder is shorter than 500 m

**M:** Suitable when the total cable length between the camera and the recorder is 500 - 900 m

**L:** Suitable when the total cable length between the camera and the recorder is 900 - 1 200 m

**Default:** S

### Notes:

- To display the "Camera Control Setup" page for camera channels 9-16, click the [9-16] button.
- The setting of compensation (cable loss) will be ignored when receiving any alarm from cameras during communication setup.

### Important:

Stop recording before changing the settings relating to the camera control. Otherwise, the cable compensation setting (Comp.) may not be saved.

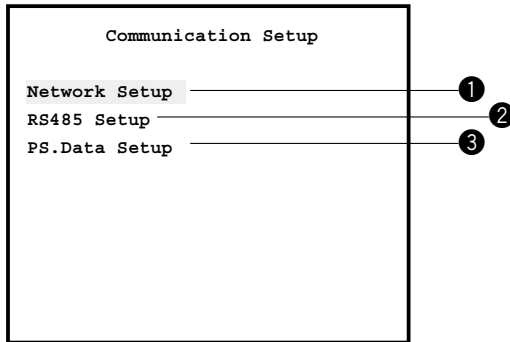
# Configure the settings relating to communications with other devices

## [Communication Setup]

It is necessary to conform the setting such as the communication protocol and the line speed when connecting an external device such as a system controller to the DATA port or the RS485 port.

It is also necessary to configure the network settings such as the IP address and the gateway address to operate the recorder using a PC via a network.

The following is the required setting to communicate with external devices.



### ❶ Configure the network settings [Network Setup]

To operate the recorder using a PC via a network, configure the basic network settings.

The screenshot shows a dialog box titled "Network Setup". It contains the following fields and controls:

- DHCP**: A button labeled "Off".
- IP Address**: A text box containing "192.168.000.250".
- Subnet Mask**: A text box containing "255.255.255.000".
- Gateway**: A text box containing "192.168.000.001".
- Line Speed**: A button labeled "Auto".
- Advanced Setup**: A button labeled "Set→".
- At the bottom, there are two buttons: "OK" and "Cancel".

#### ■ DHCP

Select "On" or "Off" to determine whether or not to use the DHCP server.

Select "On" when obtaining values for "IP Address", "Subnet Mask" and "Gateway" from the DHCP server.

Select "Off" when entering values for "IP Address", "Subnet Mask" and "Gateway" manually.

**On:** Use the DHCP server

**Off:** Not use the DHCP server

**Default:** off

#### ■ IP Address

Enter an IP address. For this recorder, enter 4 units from the decimal numbers (0-255).

**Default:** 192.168.0.250

#### ■ Subnet Mask

Enter a subnet mask according to the network configuration.

**Default:** 255.255.255.000

#### ■ Gateway

Enter a gateway address according to the network configuration.

**Default:** 192.168.0.1

#### ■ Line Speed

The following is available for the line speed.

**Auto:** Line speed will be applied automatically.

**100M-Half:** 100 Mbps half duplex

**10M-Half:** 10 Mbps half duplex

**100M-Full:** 100 Mbps full duplex

**10M-Full:** 10 Mbps full duplex

**Default:** Auto

### ■ Advanced Setup

The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set→".

Network Setup (Advanced)	
DNS	<input type="button" value="Off"/>
IP Address (Primary)	<input type="text" value="---.---.---.---"/>
IP Address (Secondary)	<input type="text" value="---.---.---.---"/>
Server Port	<input type="text" value="02000"/>
<div><input type="button" value="OK"/> <input type="button" value="Cancel"/></div>	

### ■ DNS

Select "Manual" or "Auto" to enable IP address searching by the host name using the DNS.

Select "Off" when not using the DNS.

Selecting "Auto" is available only when "On" is selected for "DHCP" (using the DHCP server).

When "Manual" is selected for the DNS, enter the DNS server addresses in "IP Address (Primary)" and "IP Address (Secondary)".

Enter 4 units from the decimal numbers (0-255) according to the network configuration.

**Default:** Off

### Server Port

Set the server port number of the recorder (required to use the monitoring software).

1 - 65535

**Default:** 2000

## ② Configure the RS485 settings [RS485 Setup]

Configure the RS485 settings.

RS485 Setup	
Baud Rate	<input type="text" value="19200"/>
Data Bit	<input type="text" value="8"/>
Parity	<input type="text" value="None"/>
Stop Bit	<input type="text" value="1"/>
<div><input type="button" value="OK"/> <input type="button" value="Cancel"/></div>	

### ■ Baud Rate

Select a line speed for data communication with the connected device from the following.

2 400/4 800/9 600/19 200/38 400 (bps)

**Default:** 19 200 (bps)

### ■ Data Bit

The data bit will be displayed. It is impossible to change the value.

### ■ Parity

A method of checking for errors in communication functioning will be displayed. It is impossible to change the value.

### ■ Stop Bit

The stop bit type will be displayed. It is impossible to change the value.

## ③ Configure the PS-Data settings [PS-Data Setup]

Configure the PS-Data settings.

PS-Data Setup	
Unit Address (System)	<input type="text" value="001"/>
Unit Address (Controller)	<input type="text" value="002"/>
Baud Rate	<input type="text" value="9600"/>
Data Bit	<input type="text" value="8"/>
Parity	<input type="text" value="None"/>
Stop Bit	<input type="text" value="1"/>
Retry Timing	<input type="text" value="Off"/>
Alarm Data	<input type="text" value="1s"/>
Camera Number Setup	<input type="text" value="Set"/>
<div><input type="button" value="OK"/> <input type="button" value="Cancel"/></div>	

### ■ Unit Address (System)

A unit address (Sys) is a unique number assigning to PS-Data devices. The addresses must be unique to identify system devices when connecting multiple devices compatible with PS-Data.

Numbers, "001"-"099", are to be assigned as the unit addresses to the system devices.

**Default:** 001

### ■ Unit Address (Controller)

A unit address (Ctrl) is a unit address assigning to control PS-Data devices. Numbers, "002"-"099", are to be assigned as the unit addresses to the system controller.

**Default:** 002



### ■ Baud Rate

Select the communication speed for data transmission with a connected device from the following.

2 400/4 800/9 600/19 200/38 400 bps

**Default:** 9 600

### ■ Data Bit

The data bit will be displayed. It is impossible to change the value for this setting.

8 (bit)

### ■ Parity

Select a method to check a transmission error at communication from the following.

**None:** No parity check

**Even:** Even parity

**Odd:** Odd parity

**Default:** None

### ■ Stop Bit

Select a stop bit from the following.

1 bit/2 bit

**Default:** 1 (bit)

### ■ Retry Timing

Select a retransmission interval for when data reception is not confirmed from the following.

Off/100 ms/200 ms/400 ms/1 000 ms

**Default:** Off

### ■ Alarm Data

Select a method to inform the connected controller of an event occurrence from the following.

**Off:** Does not function.

**0s:** Informs the controller every time an event is detected.

**1s/5s:** Informs the controller when a specified time has passed after detecting an event.

**Default:** 1 s

### ■ Camera Number Setup

It is possible to assign a number to each camera channel to operate cameras using the controller compatible with PS-Data.

Do the following to assign numbers to the camera channels.

(1) Move the cursor onto "Set" next to "Channel No." and press the [SET] button.

The "Channel No." menu will be displayed.

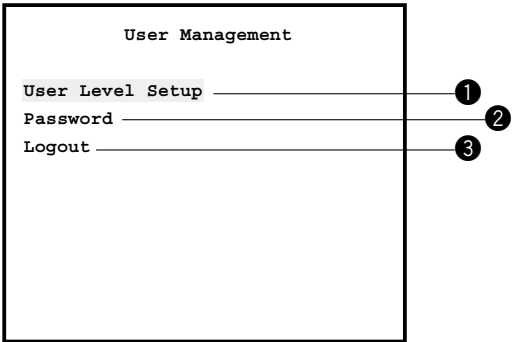
Camera Number Setup			
Port	Cam	Port	Cam
1	<input type="text" value="001"/>	2	<input type="text" value="002"/>
3	<input type="text" value="003"/>	4	<input type="text" value="004"/>
5	<input type="text" value="005"/>	6	<input type="text" value="006"/>
7	<input type="text" value="007"/>	8	<input type="text" value="008"/>
9	<input type="text" value="009"/>	10	<input type="text" value="010"/>
11	<input type="text" value="011"/>	12	<input type="text" value="012"/>
13	<input type="text" value="013"/>	14	<input type="text" value="014"/>
15	<input type="text" value="015"/>	16	<input type="text" value="016"/>
<input type="button" value="OK"/>		<input type="button" value="Cancel"/>	

(2) Assign a camera number (to be operated using the controller) for each camera port using the camera selection buttons.

(3) After completing the camera number assignment, move the cursor onto [OK] and press the [SET] button.

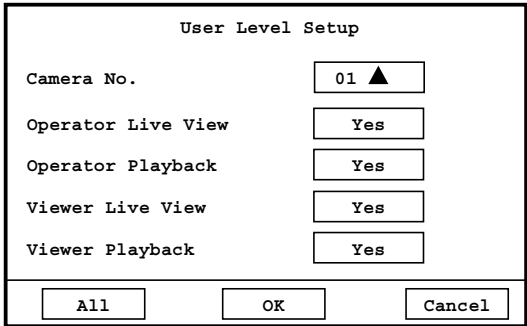
# Configure the settings relating to user information [User Management]

User information such as the user level, password, etc. can be managed (registration, editing, deletion).



## ① Restrict the operable functions [User Level Setup]

Configure the operational level of "operator" and "viewer" for each channel.



### Step 1

Select a camera channel to which this setting is to be applied. (Camera No.)

→ When a camera channel is selected, the current user level information of the selected camera channel will be displayed.

#### Note:

The camera selection buttons (1 - 10/0) are available for the camera channel selection.

### Step 2

Configure the operational level of "operator" and "viewer" for the selected camera channel. To allow operation, select "Yes". To forbid operation, select "No".

**Live View:** Monitoring of live images

**Playback:** Playback of recorded images

#### [All] button

When the [SET] button is pressed after moving the cursor onto "All", the same settings will be applied to all of the camera channels.

## ② Set the password [Password]

Set the password for each user level. Password entry will be required to log in the recorder.

Password		(Confirm)
Manager 1	*****	*****
Manager 2	*****	*****
Manager 3	*****	*****
Manager 4	*****	*****
<div>Operator    Viewer    OK    Cancel</div>		

Password		(Confirm)
Operator 1	*****	*****
Operator 2	*****	*****
Operator 3	*****	*****
Operator 4	*****	*****
Operator 5	*****	*****
Operator 6	*****	*****
Operator 7	*****	*****
Operator 8	*****	*****
<div>Manager    Viewer    OK    Cancel</div>		

Password	
Viewer 1	****
Viewer 2	****
Viewer 3	****
Viewer 4	****
Viewer 5	****
Viewer 6	****
Viewer 7	****
Viewer 8	****
Viewer 9	****
Viewer 10	****
Viewer 11	****
Viewer 12	****
Viewer 13	****
Viewer 14	****
Viewer 15	****
Viewer 16	****
Viewer 17	****
Viewer 18	****
Viewer 19	****
Viewer 20	****
<div>Manager    Operator    OK    Cancel</div>	

Enter the password for each user level. Enter the same password in the "Confirm" box to set the password for "Manager" or "Operator". Character number for the password is as follows. Enter the password using the camera selection buttons (0 - 9).

**Manager:** Up to 8 characters

**Operator:** Up to 6 characters

**Viewer:** Up to 4 characters

Display the desired password setup window using the [Operator], [Viewer] and [Manager] buttons on the bottom of the window.

---

### Important:

Set a unique password, not something that would be easily guessed by a third person. The password also should be memorable.

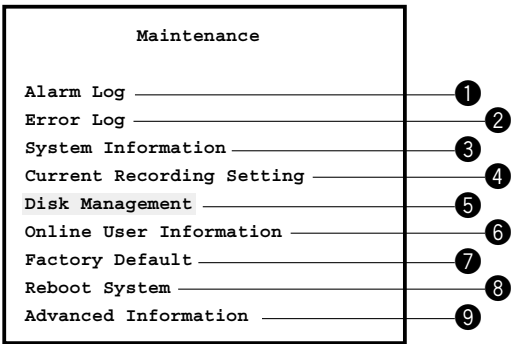
---

## ③ Logout of the recorder [Logout]

Refer to page 31 for how to log out of the recorder.

# Maintenance functions [Maintenance]

Configuration of the settings relating to the HDDs, the system information check, log check, and initialization of the settings are available.



## 1 Check the alarm log [Alarm Log]

The alarm logs (time and date of the event occurrence and event) will be displayed in the list form.

Refer to page 27 for further information about the events.

Up to 9 990 alarm logs can be kept and the older logs will be overwritten by the newer logs.

The following is the descriptions of the alarm log.

Port=n Terminal input: Terminal input

Cam=n VMD: VMD alarm

Cam=n Command alarm reception: Command alarm

\* n: Alarm No.

## 2 Check the Error Log [Error Log]

The error logs (time and date of the error occurrence and event) will be displayed in the list form.

Up to 500 error logs can be kept and the older logs will be overwritten by the newer logs.

The following is the descriptions of the error log.

Thermal Error

Fan=a Error

HDD Full

Full Records (Reached the maximum number of files possible to keep.)

HDD=n Access Error

HDD=n SMART Warning

Cam=m Loss Signal

Cam=m Get Signal

Password Error (Incorrect password has been entered three times in a row.)

No Disk

HDD=n Write Error

\* a: Fan number (1 - 5)

\* n: HDD number (1 - 6)

\* m: Camera No. (1 - 16)

### ③ Check the system information [System Information]

System information such as the firmware version, MAC address, etc. can be checked.

System Information	
Firmware Version	*. **
MAC Address	AA:BB:CC:DD:EE:FF
Video Format	NTSC
Optional Board	Coax1
Current Temperature	28 degC/82 degF
Highest Temperature	37 degC/98 degF
10-05-2006 10:00:00	
<input type="button" value="Return"/>	

The following can be checked.

#### **Firmware Version**

#### **MAC Address**

#### **Video Format**

#### **Optional Board**

Information about the coaxial communication board (optional) will be displayed.

Coax1, Coax2: 2 of the coaxial communication board are installed.

Coax1: A single coaxial communication board is installed.

--: No coaxial communication board is installed.

#### **Current Temperature**

#### **Highest Temperature**

The current temperature inside the recorder, the highest temperature ever recorded and its time and date will be displayed.

### ④ Check the current recording settings [Current Recording Settings]

The current recording settings such as the image quality and the frame rate for each recording type (manual recording/timer recording/alarm recording) for each channel, etc. can be checked.

Current Recording Settings				
No.	Title	Manual	Timer	Alarm
1	Cam1	NQ/Full	NQ/Full	NQ/Full
2	Cam2	NQ/Full	NQ/Full	NQ/Full
3	Cam3	NQ/Full	NQ/Full	NQ/Full
4	Cam4	NQ/Full	NQ/Full	NQ/Full
5	Cam5	NQ/Full	NQ/Full	NQ/Full
6	Cam6	NQ/Full	NQ/Full	NQ/Full
7	Cam7	NQ/Full	NQ/Full	NQ/Full
8	Cam8	NQ/Full	NQ/Full	NQ/Full

p 1 / 2

The "Title" setting can be configured with the monitoring software. Refer to the operating instructions of the monitoring software (PDF) on the provided CD-ROM for further information.

### ⑤ Manage the HDDs [Disk Management]

Format of the built-in HDDs and restore of HDD management information (list information of recorded images) are available. Refer to pages 33 - 37 for further information.

## ⑥ Check the user information of the current login user [Online User Information]

By using the monitoring software, it is possible to check user information of the online users such as user name, operational status and IP address.

Online User Information			
No.	User Name	Type	IP Address
1	Manager 1	Control	192.168.0.10
2	Operator 1	Monitor	192.168.0.12
3	Viewer 1	Monitor	192.168.0.11
4	Manager 1	Playback	192.168.0.10
5		No Online User	
[STOP]:Disconnect Online User p 1 / 6			
Prev Next Return			

The following information will be displayed for "Type".

Monitor: Displayed live images from the cameras using the monitoring software  
Control: Logged in the recorder using the monitoring software  
Backup: Downloaded recorded images using the monitoring software  
Talk: Communicated with audio using the monitoring software  
Frame: Displayed I-Frame\* using the monitoring software  
Playback: Played recorded images using the monitoring software

To force the user to logout, do the following.

### Step 1

Select a user to be logged out, and then press the [STOP] button.

→ The confirmation window will be displayed.

### Step 2

Move the cursor onto "OK", and then press the [SET] button.

→ The selected user will be forcibly logged out.

## ⑦ Reset the current settings to the default [Factory Default]

It is possible to reset the settings to the default except the time and date setting.

When the [SET] button is pressed after selecting "Factory Default", the confirmation window will be displayed.

The settings except the time and date setting will be reset to the default when the [SET] button is pressed after selecting "OK".

### Important:

When the unit has been operated with the edited server port before resetting to the default, enter the previously used server port again after resetting to the default.

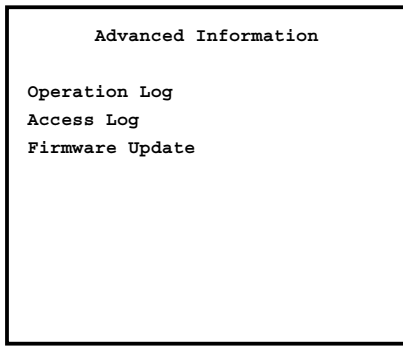
## ⑧ Reboot the recorder [Reboot System]

When the [SET] button is pressed after selecting "Reboot System", the confirmation window will be displayed. The recorder will reboot when the [SET] button is pressed after selecting "OK".

## 9 Check the detailed information [Advanced Information]

Operation log and access log can be checked and the firmware can be upgraded.

The following window will be displayed when the [SET] button is pressed after moving the cursor onto "Set".



### ■ Operation Log

Operation log of the recorder (time and date of operations and event) will be displayed in the list form.

Up to 500 operation logs can be kept and the older logs will be overwritten by the newer logs.

The following is the descriptions of the operation log.

System Startup:

[L] System Updated:

[R] System Updated:

[L] Reboot System:

[R] Reboot System:

[L] Update Settings:

[R] Update Settings:

Modify Timer Rec.:

Modify Alarm Rec.:

Modify Network:

Modify Auto Delete:

[&\_%] Modify Password:

[L] TC YYYY-MM-DD HH:MM:SS:

[R] TC YYYY-MM-DD HH:MM:SS:

Restore Default Settings:

HDD=n Format:

HDD=n Repair Directory:

HDD=n Replace:

User Allow Overwrite:

[&\_%] Disconnect User:

HDD Safety Mode:

[&\_%] Data Copy:

Backup via Network:

\* [L]: Operation using the buttons on the recorder

\* [R]: Operation using a PC via a network

\* n: HDD No.

\* &: User name (M: Manager, O: Operator, V: Viewer)

\* %: User number (1 – 20, A: Auto Login User)

### ■ Access Log

Access log (time and date, event) will be displayed in the list form.

Up to 100 access logs can be kept and the older logs will be overwritten by the newer logs.

The following is the descriptions of the access log.

[L] Manager#

[(IP address)] Manager#

[L] Operator#

[(IP address)] Operator#

[L] Viewer#

[(IP address)] Viewer#

Manager Auto Login

Operator Auto Login

Viewer Auto Login

\* #: User number (1 - 20)

## ■ Firmware Update

Upgrade the firmware as follows. Contact your dealer for the firmware upgrade.

### Step 1

Save the firmware onto the following directory of an external recording device, and then connect the external recording device to the recorder.

[Drive](Copy Data):\Panasonic\RT\Firmware\rt4flash.img

### Step 2

Move the cursor onto "Firmware Update", and then press the [SET] button.

→ Versions of the current firmware and the new firmware will be displayed.

### Step 3

Move the cursor onto "OK", and then press the [SET] button.

→ When the firmware upgrade is completed, the recorder will reboot on its own.

---

#### Notes:

- Before starting the firmware upgrade, stop recording, playback and the monitoring software operation.
  - The firmware will be overwritten and never can be downgrade when upgraded once.
  - When using an external HDD or a USB memory stick, format it to FAT32 using a PC in advance.
-





















































# Operation using the system controller

The following are descriptions of how to operate the unit using the system controller WV-CU650.

To operate the unit using the system controller WV-CU650, configure the settings required to use a PS-Data compatible system controller in advance.

## ■ Operation using the WV-CU650

Operation	WJ-RT416	WV-CU650	Note
Open/close the "Setup Menu"	SETUP  (Open) ESC  (Close)	After displaying the "System Setup (301)" submenu of the WV-CU650 F1  Open the "SETUP MENU" F2  Close the "SETUP MENU"	At the default setting of the WV-CU650, it is possible to display the "System Setup (301)" submenu by pressing the [F1]  button while holding the [SHIFT]  button down.
Select an item			
Change the set parameter	 SKIP   	 ,  or 	
Enter a value	Camera selection buttons 1 - 10/0	 ,  , ...	
Change the cursor position	 SKIP   	 ,  or 	
Press the button to go to the next menu		 or 	
Return to the previous menu	ESC 		
Display the time and date search window	SEARCH 	SEARCH  T & D SEARCH	
Display the list search window	SEARCH 	SEARCH  T & D SEARCH	
Close the search window	ESC 		
Suspend alarm	—	SHIFT  ALARM  ALM SUSPEND	Same action as when "AD-M" is selected for "Alarm Duration" of "Terminal" and "VMD" will be taken during the alarm suspension.
Alarm reset	ALARM RESET 	ALM RESET  ALM ALL RESET	
Manual recording	 REC  	REC  	
Stop recording	 REC   Press for 2 seconds or more	   Press for 2 seconds or more	Available only during recording



# Troubleshooting

## Before asking for repairs, check the symptoms with the following table.

Contact your dealer if a problem cannot be solved even after checking and trying the solution or a problem is not described below, and when having a problem with installations.

Symptom		Cause/solution	Reference pages
Cannot turn on the power of the recorder.	▶	<ul style="list-style-type: none"> <li>Is the power cord connected to an AC outlet firmly? Confirm that the cord is firmly connected.</li> </ul>	—
	▶	<ul style="list-style-type: none"> <li>Is the provided power cord connected to the recorder firmly? Confirm that the cord is firmly connected.</li> </ul>	—
No live image is displayed.	▶	<ul style="list-style-type: none"> <li>Is the lens cap detached from the camera? Confirm that the lens cap is detached from the camera.</li> </ul>	—
	▶	<ul style="list-style-type: none"> <li>Are the power of the camera and the connected devices on? Confirm that the power of the cameras and the connected devices are on.</li> </ul>	—
	▶	<ul style="list-style-type: none"> <li>Are the cables connected correctly and firmly? Confirm that the cables are connected correctly and firmly.</li> </ul>	—
	▶	<ul style="list-style-type: none"> <li>Are the brightness and contrast settings of the monitor adjusted correctly? Check the settings.</li> </ul>	—
	▶	<ul style="list-style-type: none"> <li>Is the user level of the current login user set to allow monitoring of live images? Confirm that the user level of the current login user.</li> </ul>	32, 66
Displayed images do not fit in the screen.	▶	<ul style="list-style-type: none"> <li>It may be due to the effective pixels of the monitor in use. This is not malfunction.</li> </ul>	—
Blurred images are displayed.	▶	<ul style="list-style-type: none"> <li>Is there dust or dirt on the lens? Check the lens.</li> </ul>	—
Cannot select the setup item on the setup menu	▶	<ul style="list-style-type: none"> <li>Some of the setup items on the setup menu cannot be selected/configured depending on the user level settings. Confirm that the user level of the current login user.</li> </ul>	32, 66
Noise appears when playing recorded images, and sometimes distorted.	▶	<ul style="list-style-type: none"> <li>Sometimes this may occur due to the performance of the recorder. This is not malfunction.</li> </ul>	—

Symptom		Cause/solution	Reference pages
The recorder starts up in the HDD safety mode when turning on the power.	▶	<ul style="list-style-type: none"> <li>The recorder always starts up in the HDD safety mode when the power is turned on. This is not malfunction.</li> </ul>	39
Cannot start recording.	▶	<ul style="list-style-type: none"> <li>Check if the HDD has any available disk space.</li> </ul>	33, 34
	▶	<ul style="list-style-type: none"> <li>Check the schedule settings.</li> </ul>	57
Cannot play recorded images.	▶	<ul style="list-style-type: none"> <li>Is this user allowed to play recorded images? Check the user level setting of the user who is currently logged in.</li> </ul>	32
Cannot operate the camera.	▶	<ul style="list-style-type: none"> <li>Check the connection of the camera to be operated. Coaxial communication control is available for the cameras connected to the VIDEO IN 1 to 4 connectors.</li> </ul>	43
	▶	<ul style="list-style-type: none"> <li>Check if the camera to be controlled is a combination camera.</li> </ul>	—
	▶	<ul style="list-style-type: none"> <li>Check the camera control settings.</li> </ul>	62
No alarm action is taken.	▶	<ul style="list-style-type: none"> <li>Check if alarm output signals are properly input to the AUDIO IN/ALARM OUT or ALARM IN/CONTROL terminal on the rear of the recorder.</li> </ul>	13, 49, 50
	▶	<ul style="list-style-type: none"> <li>Check the settings for "Event Setup".</li> </ul>	58-60
No notification mail is sent.	▶	<ul style="list-style-type: none"> <li>When alarms occurred sequentially for a long period, notification mail of a new alarm occurrence may not be sent.</li> </ul>	—
The clock does not keep correct time.	▶	<ul style="list-style-type: none"> <li>Check if the built-in backup battery has been worn out. The lifetime of the battery is approx. 5 years. (The lifetime of the battery differs depending on the condition of the environment.) Contact your dealer for replacement of the built-in backup battery.</li> </ul>	—
It takes some time to start playback after the search.	▶	<ul style="list-style-type: none"> <li>The hard disk in which the images to be played are stored may be in the stand-by mode. It may take some time for the hard disk to resume from the stand-by mode and start playback. This is not malfunction.</li> </ul>	—

**Inspect the power cord, power plug and connectors periodically.**

Symptom	Cause/solution	
Cannot copy recorded images onto a disk using the internal CD/DVD drive. (Only when using the WJ-RT416V.)	<ul style="list-style-type: none"><li>Isn't the inserted disk incompatible with the internal CD/DVD drive?</li><li>Is a disk placed on the disk tray correctly?</li><li>Isn't any external recording device connected to the COPY1 or COPY2 port?</li></ul>	—
The recorder needs much time to start up.	<ul style="list-style-type: none"><li>Increased image data volume in the hard disk prolongs the time for startup and search.</li></ul>	—
The power cord insulation is damaged.	<ul style="list-style-type: none"><li>The power cord, plug and connectors are worn out. This may result in electric shock or a fire. Unplug the power plug from the AC outlet immediately, and refer to qualified service personnel.</li></ul>	
The power cord, plug and connectors get hot during use.		
The power cord gets hot when bent or stretched.		

# Specifications

## General

Power source	120 V AC, 60 Hz (NTSC model), 220 - 240 V AC, 50 Hz (PAL model)	
Power consumption	WJ-RT416, WJ-RT416K:	110 W
	WJ-RT416V, WJ-RT416VK:	120 W
Ambient operating temperature	5 °C - 45 °C {41 °F - 113 °F}	
Ambient operating humidity	WJ-RT416, WJ-RT416K:	5 % - 90 % (non condensing)
	WJ-RT416V, WJ-RT416VK:	10 % - 80 % (non condensing)
Dimensions	430 mm (W) x 88 mm (H) x 459 mm (D) {16-15/16" (W) x 3-7/16" (H) x 18-1/16"(D)} (excluding rubber feet and projections)	
Weight	WJ-RT416K, WJ-RT416VK:	11 kg {24.28 lbs.}
	WJ-RT416, WJ-RT416V:	12 kg {26.49 lbs.}

## Input/Output

Video	VIDEO IN connectors	Composite video input signal 1 V[P-P]/75 $\Omega$ , x16 input (BNC) Control-signal multiplex x4 input (CH1-CH4) *CH5 - CH8 (when an optional board is installed)
	MONITOR1 connector	Composite video output signal 1 V[P-P]/75 $\Omega$ , x1 output (BNC)
	VIDEO OUT connectors	Active-through output 1V[P-P]/75 $\Omega$ x4 output (CH1 - CH4) Loop-through output (auto termination) 1V[P-P]/75 $\Omega$ x12 output (CH5 - CH16) (BNC) * When an optional board is installed Active-through output 1V[P-P]/75 $\Omega$ x8 output (CH1 - CH8) Loop-through output (auto termination) 1V[P-P]/75 $\Omega$ x8 output (CH9 - CH16)
	MONITOR2 terminal	RGB output x1 (D-SUB, 15-pin), 1024 x 768 resolution
	AUDIO IN connectors	-10 dBv 51 k $\Omega$ , unbalanced, x16 (CH1 - 6: RCA, CH7 - 16, D-SUB 25-pin)
Audio	External AUDIO IN connector	-52dBv 2.2 k $\Omega$ , unbalanced, x1 input (RCA)
	AUDIO OUT connector	-10 dBv 1 k $\Omega$ , unbalanced, x 1 output (RCA)
Alarm	ALARM IN	Non-voltage make contact, pulse width 100 ms or more, x16 input (D-SUB, 25-pin)
	ALARM OUT	Normally open/Normally closed/Common, 1A 30 V DC max., 4 each output (D-SUB, 25-pin)
Network (10/100BASE-T) port	10BASE-T/100BASE-TX x1 (RJ-45)	
RS485 (CAMERA) port	RS485 x1 (RJ-11)	
Data port (DATA)	RS485 x1 (RJ-11) (Currently unavailable)	
COPY port	WJ-RT416, WJ-RT416K:	SERIAL interface x2
	WJ-RT416V, WJ-RT416VK:	SERIAL interface x2, internal CD/DVD drive x1 (CD-R, DVD-R compatible)

## Function

Image compression method	MPEG-4
Resolution	NTSC model: Field (704 x 240), SIF (352 x 240) PAL model: Field (704 x 288), SIF (352 x 288)
Rec. Frame Rate	NTSC model: Max. 30 ips (for each channel) PAL model: Max. 25 ips (for each channel)

## Standard accessories

CD-ROM*	1 pc.
Installation Guide (this book)	1 pc.
Warranty (only for NTSC model)	1 set

\* The following are included on the CD-ROM.

- Operating instructions of the monitoring software (PDF)
- Monitoring software (RT4Client)

The following is for installation.

Power cable for NTSC model	1 pc.
Power cable for PAL model	2 pcs.
HDD mounting screw, sleeve, damper for the WJ-RT416K	24 pcs. each
HDD mounting screw, sleeve, damper for the WJ-RT416	20 pcs. each
HDD mounting screw, sleeve, damper for the WJ-RT416VK	20 pcs. each
HDD mounting screw, sleeve, damper for the WJ-RT416V	16 pcs. each
Rack mounting brackets	2 pcs.
Fixing screw for rack mounting brackets	8 pcs.

## Recording time length

Approximate possible recording time length (days) is as follows.

Possible recording time length varies depending on object of shooting.

- Camera channel: 16 channels
- Audio: Off
- I Frame Interval: 4 (Default)
- Resolution: Field

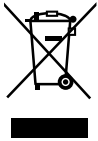
Rec. Frame Rate	Rec. Quality	Rec. Duration: 10 hours/day			Rec. Duration: 24 hours/day		
		HDD capacity			HDD capacity		
		500 GB*1	1000 GB*2	1500 GB*3	500 GB*1	1000 GB*2	1500 GB*3
Full	SP Fine	3.0	6.0	9.0	1.2	2.5	3.7
	Fine	3.7	7.3	11	1.5	3.1	4.6
	Normal	4.7	9.4	14	2.0	3.9	5.9
	Extended	6.6	13	19	2.7	5.5	8.2

\*1 Consisted of two 250 GB HDDs

\*2 Consisted of four 250 GB HDDs

\*3 Consisted of six 250 GB HDDs

### Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority

for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

### For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

### Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

#### For U.S., Canadian and Puerto Rican fields:

##### **Panasonic System Solutions Company**

Unit Company of Panasonic Corporation of North America

##### **Security Systems**

[www.panasonic.com/security](http://www.panasonic.com/security)

For customer support, call 1.877.733.3689

**Executive Office:** Three Panasonic Way 2H-2, Secaucus, New Jersey 07094

##### **Zone Office**

**Eastern:** Three Panasonic Way, Secaucus, New Jersey 07094

**Central:** 1707 N. Randal Road, Elgin, IL 60123

**Southern:** 1225 Northbrook Parkway, Suwanee, GA 30024

**Western:** 6550 Katella Ave., Cypress, CA 90630

##### **Panasonic Canada Inc.**

5770 Ambler Drive, Mississauga,

Ontario, L4W 2T3 Canada (905)624-5010

<http://www.panasonic.ca>

##### **Panasonic Sales Company**

Division of Panasonic Puerto Rico Inc.

San Gabriel Industrial Park 65th Infantry Ave. KM. 9.5 Carolina

P.R. 00985(809)750-4300

#### For European and other fields:

##### **Matsushita Electric Industrial Co., Ltd.**

Osaka, Japan

<http://panasonic.net>

Importer's name and address to follow EU rules:

Panasonic Testing Centre

Panasonic Services Europe GmbH

Winsbergring 15, 22525 Hamburg F.R.Germany