Panasonic®
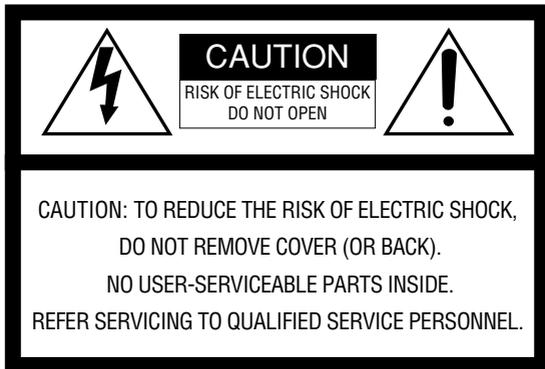
Color CCTV Camera
Operating Instructions

Model No. WV-CS854B

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

ENGLISH VERSION

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,

DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

SA 1965

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.

SA 1966

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.

The serial number of this product may be found on the top 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. _____WV-CS854B_____

Serial No. _____

WARNING: To prevent fire or electric shock hazard, do not expose this appliance to rain or moisture. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

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 use 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 points 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-overs.

S3125A

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 fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

CONTENTS

PREFACE

Panasonic presents highly advanced CCTV technology that meets the demands of new and ever-changing applications.

This high-performance combination color camera is utilized as a video surveillance device.

The camera incorporates Super-Dynamic Ⅱ Digital Signal Processor, pan-tilt mechanism, 22 zoom lens and RS485 communication in a compact enclosure.

A newly developed 1/4-inch CCD is employed for use under extremely low light conditions: 0.06 lx for monochrome and 1 lx for color.

It also assures clear display of pictures in which bright and dark objects coexist without mutual interference thanks to Super-Dynamic Ⅱ DSP. Setup menus allow the camera to fulfill surveillance tasks by such means as Motion Detector, Digital Flip, Patrol Learn and Privacy Zones.

FEATURES

- High quality picture of 768 x 494 pixels
- Minimum illumination of 1 lx for color and 0.06 lx for black/white surveillance
- Super-Dynamic Ⅱ extends the dynamic range up to 48 dB.
- Privacy zone feature enables users to veil unwanted zones.
- Protocol adaptability to Panasonic's protocol
- Auto black/white mode enables the camera to switch between C/L and B/W in response to input lights.
- Reduction in minimum illuminance to 0.03 lx in the black/white mode thanks to PIX SENS UP
- Digital flip allows 180° tilting to trace objects passing under the camera.

- A run of manual operations is memorized in the patrol-learn mode for repetitive use in future.
- Built-in digital motion detector and alarm outputs
- Up to 64 preset positions
- 360 ° panning at a rotation speed of 300 °/s
- Sync selectable from among internal, line-lock and VD2
- Automatic gain control circuit
- Image hold
- Digital noise reduction effect
- Setting change executable only by authorized personnel thanks to the password lock function
- Enhanced horizontal resolution by resolution setting

Digital Flip Operation

① Tilting down   ② The picture is turned upside-down instantly around at 135 degrees of the tilt angle.   ③ Tilting down

0°   180°   0°   180°   0°   180°
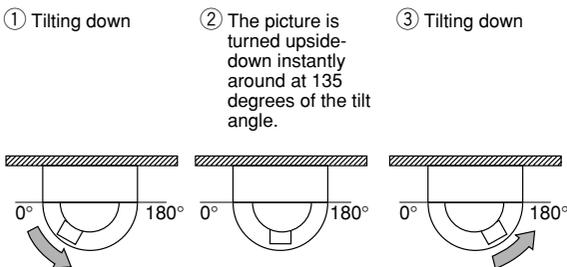
■ Camera Cleaning

Even if this function is used, noise may be produced on the monitor screen, or the preset position may deviate in the course of prolonged use.
In such cases, activate the refresh mode on the special 2 menu. (See page 42.)

To use this camera with WJ-SX550C, WJ-SX150 Matrix Switcher, set the auto cleaning function activated on the Matrix Switcher side, then clean WV-CS854B once a day.

■ Preset Data Uploading or Downloading

To download the preset data from the camera to the controller or upload the downloaded data to the camera, set the following functions to OFF.

Downloading or uploading the data may not work normally if these functions are set to ON.
- Alarm (see page 31)
- Preset alarm (see page 33)
- Cleaning (see page 32)
- Motion detection (see page 39)
- Auto mode (see page 23)
- Self return (see page 23)

Aim the camera at a motionless object such as a wall, if possible, to download or upload the preset data.

Note: Take notice of the following when uploading the downloaded data to the camera.
- Preset positions may vary. If a preset position has deviated, delete the preset position and set the correct preset position newly.
- Uploading of WV-CS854B preset data to other models (e.g. WV-CS854, WV-CS854A and WV-NS324) may cause an error and failure of the uploading process.

PRECAUTIONS

1. **Do not attempt to disassemble the camera.**
   To prevent electric shock, do not remove screws or covers.
   There are no user-serviceable parts inside.
   Ask qualified service personnel for servicing.

2. **Handle the camera with care.**
   Do not misuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handling or storage.

3. **Do not expose the camera to rain or moisture, nor try to operate it in wet areas.**
   This product is designed for indoor use or locations where it is protected from rain and moisture.
   Turn the power off immediately and ask qualified service personnel for servicing.
   Moisture can damage the camera and also create the danger of electric shock.

4. **Do not use strong or abrasive detergents when cleaning the camera body.**
   Use a dry cloth to clean the camera when it is dirty.
   When the dirt is hard to remove, use a mild detergent and wipe gently. Care should be taken not to scratch the dome cover when wiping it.

Afterwards, wipe off the remaining detergent with a dry cloth.

5. **Never aim the camera at the sun.**
   Whether or not the camera is in use , never aim it at the sun or other extremely bright objects. Otherwise, blooming or smear may be caused.

6. **Never aim the camera at strong light sources for an extended period of time.**
   A light source such as a spot light causes burn-in on the display screen. Failure to observe this may cause the image to become discolored due to deterioration of the color filter in the CCD.

7. **Do not install this camera upside down.**
   This camera is designed for mounting on the ceiling or wall. Using this camera installed upside down, for example, mounted on the floor, may cause malfunction.

8. **If "OVER HEAT" appears on the monitor screen.**
   The temperature inside the camera exceeds the normal level because of a malfunction of the cooling fan or other reasons. If this happens, turn the power off immediately and refer servicing to qualified service personnel.

9. **Do not operate the camera beyond the specified temperature, humidity or power source ratings.**

Do not use the camera in an extreme environment where high temperature or high humidity exists. Do not place the camera near heat sources such as radiators, stoves or other units that produce heat.

Use the camera under conditions where temperature is between −10 °C - +50 °C (14 °F - 122 °F), preferably +40 °C (104 °F)], and humidity is below 90 %.

The input power source is 24 V AC 60 Hz.

10. **Do not install the camera near the air outlet of an air conditioner.**

The lens may become cloudy due to condensation if the camera is used under the following conditions.

• Rapid temperature fluctuations by switching the air conditioner on and off.

• Rapid temperature fluctuations due to frequent door opening and closing.

• Use in an environment where eyeglasses become foggy.

• Use in a room filled with cigarette smoke or dust.

If the lens becomes cloudy due to condensation, remove the dome cover and wipe all moist surfaces with a soft cloth.

11. **Consumables**

Parts having contacts such as the lens-drive motors, cooling fan motor and slip-rings inside the camera are subject to wear with time. Please ask the nearest service center about replacement and maintenance of such parts.

12. **Do not aim the camera at the same object for a long time.**

Burn-in of an image may be caused on the fluorescent screen of CRT.

13. **Self-diagnosis Function**

If the camera continues operating abnormally for 30 seconds or more due to such an accident as external noise, the camera will automatically reset its power. In the case it happens frequently, check if there would be any environmental cause.

14. **Prevention of blooming and smear**

When the camera is aimed at a bright light source, such as a spotlight, or a surface that reflects bright light, smear or blooming may appear. Therefore, the camera should be operated carefully in the vicinity of extremely bright objects to avoid smear or blooming.

Smear
Bright object
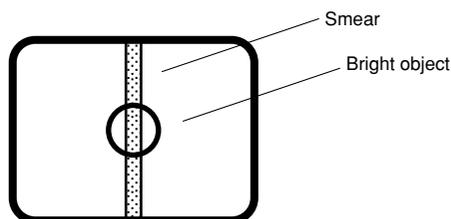
* Matsushita Electric Industrial Co., Ltd. herewith declares that it will not be liable for any damage, whether direct or indirect, caused by using the product for business transaction or security, or malfunctioning of this product.
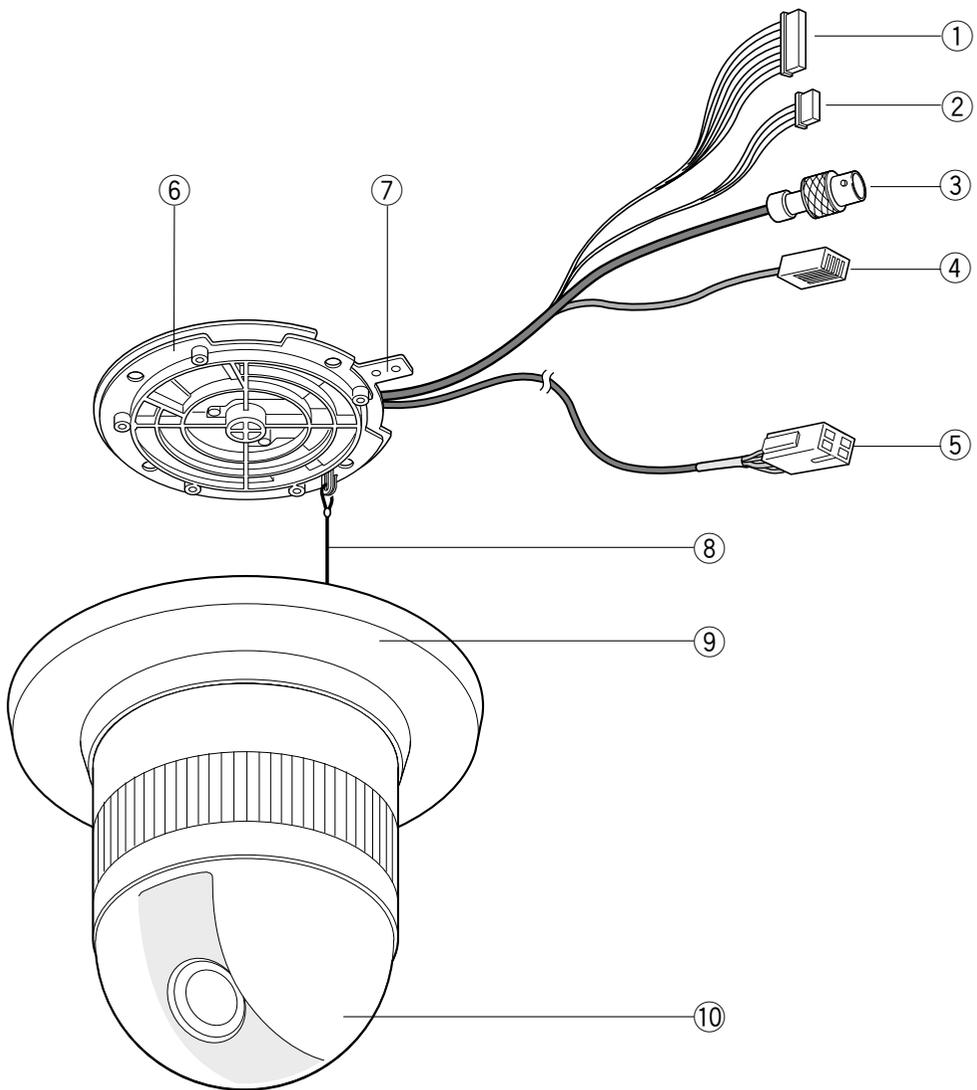
① **Alarm Input Connector**

② **Alarm Output Connector**

③ **Video Output Connector**

④ **Data Port**

⑤ **Power Cable**

⑥ **Camera Mounting Base**

⑦ **Panning Start Point**

⑧ **Fall Prevention Wire**

⑨ **Decoration Cover**

⑩ **Dome Cover**

■ Setup Menu

Setup menus are shown in the diagram below. You can adapt the camera to your requirements by setting up the respective items in these menus. Menus are incorporated in a hierarchical structure, from the setup menu at the top to manual mask area selection at the bottom. These menus are described on the following pages for reference. Switches, keys and the joystick are used in the setup operations.

Setup Menu
- Preset Menu (P. 18)
  - Preset No.Setting (P. 18)
    - Preset Setting Menu (P. 18)
- Map Menu
- Home Position Setting (P. 23)
- Self Return Setting (P. 23)
- Auto Mode Selection (P. 23)
  - Auto Pan Setting (P. 25)
- Auto Pan Key Setting (P. 25)
- Digital Flip Setting (P. 25)
- Special 1 Menu (P. 27)
  - Privacy Zone ON/OFF (P. 27)
  - Proportional Pan/Tilt (P. 28)
  - Area Title (P. 28)
  - Patrol Learn (P. 30)
  - Alarm IN/OUT (P. 31)
  - Cleaning (P. 32)
  - Electric Zoom (P. 32)
  - Preset Alarm (P. 33)
  - Image Hold (P. 33)
  - Tilt Angle (P. 33)
- Camera Menu (P. 34)
  - Camera ID Editing (P. 34)
    - Camera ID Display Position (P. 34)
  - Light Control Setting (P. 35)
    - ALC Mode with Super-D2 ON (P. 35)
    - ALC Mode with Super-D2 OFF (P. 35)
      - Manual Mask Area Selection (P. 35)
  - Shutter Speed Setting (P. 36)
  - AGC Mode Selection (P. 36)
  - Electronic Sensitivity Enhancement (P. 36)
  - Synchronization (P. 37)
    - INT Manual Selection (P. 37)
    - LL Manual Selection (P. 37)
    - VD2 Automatic Selection (P. 37)
      - V-phase Manual Adjustment (P. 37)
  - White Balance (P. 38)
    - Manual Level Adjustment (ATW1, ATW2) (P. 38)
    - Manual Level Adjustment (AWC) (P. 38)
  - Motion Detector (P. 39)
    - Sensitivity Level Adjustment (P. 39)
      - Mask Area Selection (P. 39)
      - Demonstration Display
  - Auto Focus Setting (P. 40)
  - Special 2 Menu (P. 40)
- RS-485 Setup (P. 43)
- Password Lock (P. 26)
  - Password Verification (P. 26)
    - Password Registration (P. 26)

The keys (switches) to be used for setup are shown in the table below. The joystick on the connected controller may also be used for setup. The table also shows the functions and the operations of the individual controllers. For details, see the manual for the controller to be used. Switches and controls are abbreviated as SW and CTRL respectively in the table.

[WV-CU550C/CJ]

Joystick
FOCUS Switch
ZOOM Switch

MON (ESC) Key   CAM (SET) Key

[WV-CU360C/CJ]

Joystick
FOCUS Switch
ZOOM Switch

MON (ESC) Key   CAM (SET) Key

[WV-CU161C]

Up Switch   Right Switch
Left Switch   Joystick

CAM (SET) Key   SET Key
Down Switch

[WV-RM70]

Up Switch
Set Switch   Right Switch

Left Switch   Down Switch
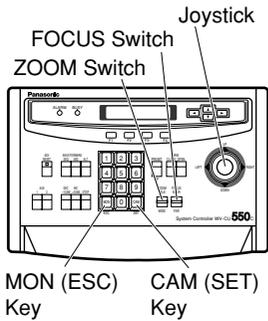
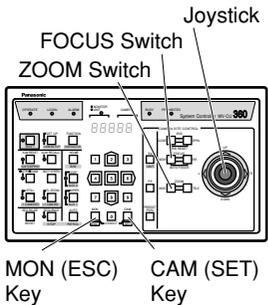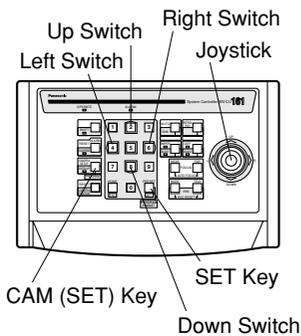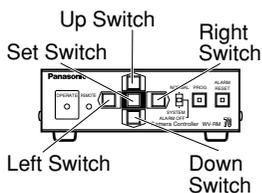| Function/Controller	WV-CU550C/CJ	WV-CU360C/CJ	WV-CU161C	WV-RM70
Open CAM SETUP	See page 17	CAM SETUP key (for 2 seconds or more)	CAMERA SETUP key (for 2 seco-nds or more)	See page 17
Close CAM SETUP	F4 key	CAM SETUP key (for 2 seconds or more)	CAMERA SETUP key (for 2 seco-nds or more)	PROG SW
Move the cursor	Joystick ($\leftarrow, \uparrow, \downarrow, \rightarrow$)	Joystick ($\leftarrow, \uparrow, \downarrow, \rightarrow$)	Direction SW ($\leftarrow, \uparrow, \downarrow, \rightarrow$)	Direction SW ($\leftarrow, \uparrow, \downarrow, \rightarrow$)
Select a parameter	Joystick ($\leftarrow, \rightarrow$)	Joystick ($\leftarrow, \rightarrow$)	Direction SW ($\leftarrow, \rightarrow$)	Direction SW ($\leftarrow, \rightarrow$)
Adjust the level	Joystick ($\leftarrow, \rightarrow$)	Joystick ($\leftarrow, \rightarrow$)	Direction SW ($\leftarrow, \rightarrow$)	Direction SW ($\leftarrow, \rightarrow$)
Move the camera direction	Joystick ($\leftarrow, \uparrow, \downarrow, \rightarrow$)	Joystick ($\leftarrow, \uparrow, \downarrow, \rightarrow$)	Joystick ($\leftarrow, \uparrow, \downarrow, \rightarrow$)	Direction SW ($\leftarrow, \uparrow, \downarrow, \rightarrow$)
Zoom & Focus	ZOOM CTRL & FOCUS CTRL	ZOOM CTRL & FOCUS CTRL	ZOOM CTRL & FOCUS CTRL	Direction SW ($\leftarrow, \uparrow, \downarrow, \rightarrow$)
Enter the setting	CAM (SET) key	CAM (SET) key	CAM (SET) key	SET SW
Open a submenu	CAM (SET) key	CAM (SET) key	CAM (SET) key	SET SW
Enter CAM ID & PRESET ID display position	MON (ESC) key	MON (ESC) key	SET key	SET SW (for 2 seconds)
Enter MASK setting	MON (ESC) key	MON (ESC) key	SET key	SET SW (for 2 seconds)
All Reset	F3 key	4+5+6 key (for 2 seconds or more)	4+5+6 key (for 2 seconds or more)	R+SET+L SW (for 2 seconds)
Open Special 2	F2 key	4+6 key (for 2 seconds or more)	4+6 key (for 2 seconds or more)	R+L SW (for 2 seconds)

Notes:
- A changed parameter is entered only when you move the cursor to another item or open a new menu. If you close the setup menu without either of the above actions, the changed parameter will not be entered.
- Setting procedures on the following pages are described on the assumption that the camera is used with WJ-SX550C Matrix Switcher and WV-CU550C/CJ System Controller.

■ Setup Menu Description

● Presetting

(1) Position (POSITION SET)
Aligns the camera position and focal point by panning, tilting, zooming and focusing.
See page 18 for the setting.

(2) Preset Identification (PRESET ID)
Assigns the name for preset IDs (identification of up to 16 alphanumeric characters) and can be switched on or off on the monitor screen.
See page 20 for the setting.

(3) Light Control (ALC/MANUAL)
Selects the ALC or MANUAL mode for adjusting the lens iris.
See page 21 for the setting.

(4) Dwell Time (DWELL TIME)
Displays the picture at each camera position for the selected duration.
You can select a preset duration from the menu.
See page 21 for the setting.

(5) Scene File (SCENE FILE)
Stores up to 10 files.
Each file has a set of detailed parameters for the shutter speed, AGC, electronic sensitivity enhancement, white balance, motion detector and AF mode. The scene files can be recalled later to reproduce the parameter settings under the same conditions as stored in the files.
See page 21 for the setting.

● Home Position (HOME POSITION)

The home position is the camera's basic position.
The camera returns to this position automatically after a specific time following a manual operation. This setting functions only when AUTO MODE is OFF.
See page 23 for the setting.

● Self Return (SELF RETURN)

The self return function allows the camera to resume one of the operations described below after specified time.
This function automatically works after a lapse of setting time from manual operation finished.

OFF: Cancels the auto mode (SEQ, SORT, AUTO PAN and PATROL).

AT (the auto mode is set to OFF): Shifts the camera direction to the home position.

AT (the auto mode is set to other than OFF): Activates the auto mode.

HP: Shifts the camera direction to the home position.

AP: Starts the auto pan function.

SQ: Starts the sequence function.
SR: Starts the sort function.
PT: Starts the patrol function.
See page 23 for the setting.

● Auto Mode (AUTO MODE)

The auto mode is used for setting the movement of the camera.
You can select one of four automatic operation modes and one manual operation mode as follows:

OFF: No automatic operation. The camera can be operated only manually.

SEQ: The camera operates in the sequence of preset positions in numerical order.

SORT: The camera operates in the sequence of preset positions counterclockwise from pan starting point.

AUTO PAN: The camera automatically turns within the preset panning range.

PATROL: The camera operates in the patrol-learn function.
See page 30 for the setting.

● Auto Pan Key (AUTO PAN KEY)

This setting assigns the SEQ, SORT, AUTO PAN or PATROL (PLAY) mode to the AUTO key on the controller.
After this setting, the AUTO key performs as assigned.

Note: The AUTO PAN LED on the controller does not light if a mode other than AUTO PAN is assigned.

● Digital Flip (DIGITAL FLIP)

Tilt range is limited within –5° to 90° if OFF is selected.
If ON is selected it widens the range up to 190° with the digital flip that reverses horizontal and vertical scanning when the camera is tilted beyond 90° point (Downright position if the camera is installed on a ceiling). Tilt range narrows from –5° to 90° if PAN LIMIT is set to ON.

● Password Lock (PASSWORD LOCK)

This menu limits setting changes.

● Special 1 Menu

(1) Privacy Zone (PRIVACY ZONE)
This setting is used for masking unwanted zones, hiding them from display on the monitor screen.
Up to 8 zones can be registered. Submenus are provided for zone number selection and parameter setting. See page 27 for details.

(2) Proportional Pan-Tilt Speed (PROPO. P/T)

If ON is selected, the pan-tilt speed changes automatically corresponding to the zoom ratio. For example, the pan-tilt speed slows down when the camera zooms in. See page 28 for details.

(3) Area Title (AREA TITLE)

Up to 8 area titles can be assigned to specific scenes on the DIRECTION (NESW) menu or by alphanumeric (USER) assignment. The area title is displayed under the camera ID on the monitor screen when the camera turns to a position that has been assigned an area title. See page 28 for details.

(4) Patrol-learn and Patrol Play (PATROL)

A set of manual operations is stored (LEARN), reproduced (PLAY) or turned inactive (OFF). Patrol operation stops if SEQ, SORT or AUTO PAN is set to AUTO MODE on the SETUP menu. See page 30 for details.

(5) Alarm Input/Output (ALARM IN/OUT)

Alarm input and output are set on a submenu. Preset positions are assigned to ALARM IN 1 to 4. When alarm inputs are supplied via the alarm input connector, the camera turns to the respective positions. Then the camera sends output signals via the alarm output connector or the coaxial cable to the external devices. The B/W mode may be chosen if light is insufficient. CNT-CLS (Contact Closure) 1, 2 and COAX ALM OUT are used for alarm output setting. See page 31 for details.

(6) Cleaning (CLEANING)

This is used for refreshing the electro-mechanical contacts built in the camera. Use this function for maintenance when the camera has been directed at a specific spot or panned over a specific range for a long time.

(7) Electronic Zoom (EL-ZOOM)

Up to 10-fold electronic zooming is available besides 22-fold optical zooming.

(8) Preset Alarm (PRESET ALM)

Alarm signals are generated in the following cases if ON is selected.
- When a preset positioning sequence is completed while AUTO MODE is set to SEQ.
- When a preset positioning sequence is completed while AUTO MODE is set to SORT.
- Positioning is completed at the HOME position in the SELF RETURN mode.
- Positioning is completed in the ALARM IN mode.
- When positioning to the starting point is completed while AUTO MODE is set to AUTO PAN.
- When positioning to the starting point is completed while PATROL is set to PLAY.

(9) Image Hold (IMAGE HOLD)

The camera picture remains as a still image on the monitor screen or until the camera reaches the preset position. This function is useful for surveillance via a local area network.

(10) Tilt Angle 0 °/5 °

You can select a titling range. If 5 ° is selected, the tilting angle is adjustable up to 5 ° beyond the horizontal position.

● Camera

(1) Camera Identification (CAMERA ID)

You can use the camera identification to assign a name to the camera. The camera ID consists of up to 16 alphanumeric characters. You can select whether to have the camera ID displayed on the monitor screen or not. See page 34 for the setting.

(2) Light Control (ALC/MANUAL)

You can select a mode for adjusting the lens iris. There are two modes as follows:

ALC: The lens iris is automatically adjusted according to the brightness of an object.
You can select one of two modes (SUPER-D2 ON or SUPER-D2 OFF) of backlight compensation.
Backlight compensation is available in the ALC mode. It eliminates strong background light which makes the camera picture dark such as a spotlight.

MANUAL: The lens iris is fixed at the value that you have set regardless of the brightness of an object.

• ALC Mode with SUPER-D2 ON

Super-Dynamic 2 Function (SUPER-D2)
The important object in a scene is usually placed in the center of the monitor's screen. In the SUPER-D2 mode, photometric weight is given more to the center of the screen (where the important object is located) than to the edge of the picture (where a bright backlight would most likely to be located).
You can use the SUPER-D2 function if you select ALC. The function eliminates interference by strong background lighting which makes the camera picture dark, such as a spotlight.
See page 35 for the setting.

• ALC Mode with SUPER-D2 OFF

In this mode, the picture is divided into 48 areas. If there is a source of brightness that interferes with the clarity of the picture in these masks, corresponding areas mask the light to keep the clarity of the picture.

Generally, when a light from the background is too strong such as a spotlight, all objects except the main object in the picture are displayed darker because the lens iris is adjusted with respect to strong brightness. This model ignores strong brightness by masking the source of the strong brightness, thereby the main object is displayed clearly.

Notes:
- The result of field setup of the mask area and level adjustment is fed back (effected) to the lens iris control in the ALC mode.
- Select OFF for SUPER-D2 on the ALC CONT menu when using only for the outdoors.
  If ON is selected for the SUPER-D2 parameter, a shadow (black line) may appear at the boundary between the bright and the dim scenes. This is a natural phenomenon and does not indicate trouble.

(3) Shutter Speed (SHUTTER)
You can select a shutter speed from among 1/60 (OFF), AUTO, 1/100, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000, and 1/10 000 seconds.
See page 36 for the setting.

(4) Gain Control (AGC)
You can set the gain of an image to automatic adjustment [AGC ON (LOW, MID, HIGH)] or fixed (AGC OFF).
See page 36 for the setting.

(5) Electronic Sensitivity Enhancement (SENS UP)
The electronic sensitivity enhancement function varies the shutter speed to increase the sensitivity in low light conditions.
You can select either of the following shutter speeds for SENS UP.
1/30 seconds (x2), 1/15 seconds (x4), 1/10 seconds (x6), 1/6 seconds (x10), 1/3.8 seconds (x16) or 1/1.9 seconds (x32).
See pages 36 for the setting.
There are two modes for SENS UP as follows:
AUTO: If you select x32, the sensitivity is increased automatically up to x32.
FIX: If you select x32, the sensitivity is increased to a fixed x32.

Notes:
- Moving objects will appear blurred when shot in the electronic sensitivity enhancement mode since SENS UP is equivalent to reducing the shutter speed in a still picture camera.
- The horizontal and vertical resolution will be lowered in this mode.
- If the iris opening is too small, the SENS UP/AUTO mode will not function.

(6) Synchronization (SYNC)
You can select the internal sync (INT) mode or the line-lock sync (LL) mode. Additionally, this model accepts the VD2 signal from a specified component. Whenever the VD2 signal is supplied to this camera, the camera automatically switches to the VD2 sync mode.
When you select the line-lock (LL) mode, you can adjust vertical phase.
See page 37 for the setting.

Important Notices:
The priorities of sync modes are assigned as follows:
1. Multiplexed vertical drive (VD2) (highest)
2. Line-lock (LL)
3. Internal sync (INT) (lowest)

Note: The priorities of the automatic sync modes are the same as the above.

(7) White Balance (WHITE BAL)
You can select either of three modes shown below for white balance adjustment:

- **Auto-Tracing White Balance (ATW1)**
  In this mode, the color temperature is monitored continuously and thereby white balance is set automatically. The color temperature range for the proper white balance is between approx. 2 700 and 6 000 K. Proper white balance may not be obtained under the following conditions:
  1. When the color temperature is out of the range of 2 700 - 6 000 K.
  2. When the scene contains mostly high color temperature (bluish) objects, such as a blue sky.
  3. When the scene is dim.
  In these cases, select the AWC mode.

- **Auto-Tracing White Balance (ATW2)**
  This mode enables the camera to trace the white balance when it is used in an area lit by sodium lamps.

- **Automatic White Balance Control (AWC)**
  In this mode, accurate white balance is obtained within a color temperature range of approx. 2 300 - 10 000 K.
  See page 38 for the setting.

(8) Motion Detector (MOTION DET)
The motion detector detects motion in a scene by monitoring changes in the brightness level. You can select the sensitivity level for the motion on the setup menu.
When the camera detects motion, it sends an alarm signal to the external equipment and stops at its position for the preset dwell time.
See page 39 for the setting.

(9) Auto Focus (AF MODE)

The camera adjusts the focus automatically by sensing the center of the picture. S, M and L stand for the size of the sensing area: Small, Middle and Large.

See page 40 for details.

MANUAL S, M, L: Auto-focus is activated only when the AF key on the controller is pressed.

AUTO S, M, L: Auto-focus is activated automatically while a manual pan, tilt or zoom operation is performed.

Note: If SENS UP is set to ON except x2 FIX or x2 AUTO, the AUTO (S/M/L) mode is disabled and the MANUAL (S/M/L) mode is automatically selected.

(10) Special 2 Menu (SPECIAL2)

This menu allows you to adjust and set up the following items and functions: chroma level, aperture level and pedestal level.

You can also reset your parameters to the factory default settings.

See page 40 for the setting.

(11) Self-diagnosis Function

If the camera continues operating abnormally for 30 seconds or more due to such accident as external noise, the camera will automatically reset its power. In the case it happens frequently, check if there would be any environmental cause.

● RS485 Communication

Refer to the following pages for the communication parameter settings.

- Full/Half duplex (page 45)
- Transmission speed (4 900 - 19 200 bps) (page 45)
- Parity bit, Stop bit, Flow control (page 43)
- Wait time, Delay time, Alarm output (page 43)
- Camera units (96 units max.) (page 43)
- Termination ON/OFF (page 43)
- Reset parameters (page 43)
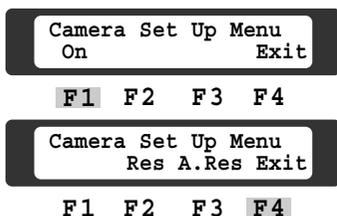
SETTING PROCEDURES

The following setting procedures are described on the assumption that this model is used in combination with WJ-SX550C Matrix Switcher and WV-CU550C/CJ System Controller. In case a controller other than WV-CU550C is used, refer to the table on page 12.

■ Menu Display
● Setup Menu Display

WV-CU550C/CJ

1. Select the number of the camera you want to set up and a monitor to display SET UP MENU.
2. Display the D4 menu on the LCD by pressing the appropriate direction buttons.

```
Camera Set Up Menu
 On            Exit

 F1   F2   F3   F4
```

```
Camera Set Up Menu
         Res A.Res Exit

 F1   F2   F3   F4
```

3. Press the F1 button.
   SET UP MENU appears on the monitor.
4. To close SET UP MENU, press the F4 button.

WV-CU360C/CJ

Press the CAM SETUP key for 2 seconds or more to open the SETUP menu.

```
   ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION OFF
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```
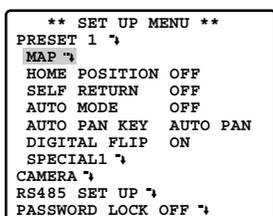
WV-CU161C

Press the CAMERA SETUP key for 2 seconds or more to open the SETUP menu.

WV-RM70

1. Turn the MODE SELECTION switch to the NORMAL or ALARM OFF position.
2. Press the PROG switch for 2 seconds or more to open the Program menu.
3. Move the cursor to Camera Set Up Menu, and press the SET switch to open SETUP MENU.

● Submenu Display

The items marked O can be selected/changed on the submenu.

```
   ** RS485 SET UP **
UNIT NUMBER     1
SUB ADDRESS     1
BAUD RATE       19200
DATA BIT        8
PARITY CHECK    NONE
STOP BIT        1
XON/XOFF        NOT USE
WAIT TIME       OFF
ALARM DATA      AUTO2
DELAY TIME      OFF
RET
```

• Move the cursor to an item with the O mark and press the CAM (SET) key. The submenu appears.

■ Preset Menu
● Preset Menu Display

1. Displaying the preset menu directly

(1) Move the cursor to PRESET 1 "↓ and select the position number with the joystick.

(2) Press the CAM (SET) key.

The preset setting menu appears on the monitor screen.

```
    ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION  OFF
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

2. Displaying the preset menu from the PRESET NUMBER SET menu

(1) Move the cursor to MAP "↓ and press the CAM (SET) key.

```
    ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION  OFF
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

The PRESET NUMBER SET menu appears on the monitor screen.

```
** PRESET NUMBER SET **

  1*    2    3    4
  5     6    7    8
  9    10   11   12
 13    14   15   16
 17    18   19   20
 21    22   23   24
 25    26   27   28
 29    30   31   32
    ID:DOOR
33-64  RET
```

```
** PRESET NUMBER SET **

 33    34   35   36
 37    38   39   40
 41    42   43   44
 45    46   47   48
 49    50   51   52
 53    54   55   56
 57    58   59   60
 61    62   63   64
    ID:
1-32   RET
```

(2) Move the cursor to the position number to be set and press the CAM (SET) key.

The preset setting menu appears on the monitor screen. To display any position number between 33 and 64, move the cursor to "33-64" in the lower left of the screen and press the CAM (SET) key.

Notes:

- The * mark indicates that the position number has been preset.
- The character H refers to the home position.
- The second line from the bottom shows the preset ID corresponding to the selected number. "DOOR" next to "ID" in the example shown right is for preset position number 1.
- Preset numbers 1 to 4 are linked to alarm inputs 1 to 4 respectively. If alarm input 1 comes in, the camera turns to preset position 1, and to other positions according to alarm input 2, 3 or 4.

● Position Setting (POSITION SET)

1. Move the cursor to POSITION SET on the preset setting menu and press the CAM (SET) key.

The position setting menu appears.

```
    PRESET NO. 1*

POSITION SET    ↴
PRESET ID       ON    ↴
ALC/MANUAL      ALC   ↴
DWELL TIME      10S
SCENE FILE      1
PRESET SPEED    •••••••|
                L      H

RET   DEL
```

2. To Set Panning/Tilting Positions

(1) For PAN/TILT, move the cursor to PUSH SET and press the CAM (SET) key. The PAN/TILT setting menu appears.

(2) Select panning/tilting positions with the joystick, and press the CAM (SET) key.

The positions are set and the screen returns to the position setting menu.

```
    ** POSITION 1 **
PAN/TILT       →PUSH SET
ZOOM/FOCUS     →PUSH SET


  U TILT D/L PAN R
PAN OFFSET SET ←  -0.0 →

RET
FLOOR1
DOOR
```

```
    ** POSITION 1 **
PAN/TILT       →PUSH SET
ZOOM/FOCUS     →PUSH SET



PAN OFFSET SET ←  -0.0 →

RET
FLOOR1
DOOR
```
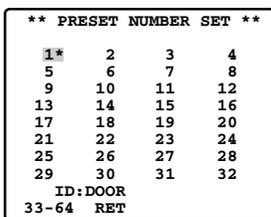
3. Pan Offset

If the camera is replaced with a new one, the pan offset function is used to adjust its positions to be the same as before except patrol setting.

The system controller can download or upload the preset position data.

Caution: The preset data for other cameras (WV-CS654 for example) is incompatible with WV-CS854B's. WV-CS854B's preset data will be destroyed if you upload the conventional data. If this happened, reset the WV-CS854B to the default settings. Download the factory settings into the controller and upload the correct preset data newly to the initialized WV-CS854B.

(1) Display the PRESET NUMBER SET menu.

```
** PRESET NUMBER SET **

  1*    2     3     4
  5     6     7     8
  9    10    11    12
 13    14    15    16
 17    18    19    20
 21    22    23    24
 25    26    27    28
 29    30    31    32
        ID:DOOR
33-64   RET
```

(2) Select a position number for the picture to be most enlarged among the numbers with the joystick. Then press the CAM (SET) key. The position setting menu appears.

(3) Move the cursor to PAN OFFSET SET and select the right or left arrow with the joystick.

```
** POSITION 1 **
PAN/TILT      →PUSH SET
ZOOM/FOCUS    →PUSH SET



PAN OFFSET SET  ←  -0.0  →


RET
FLOOR1
DOOR
```
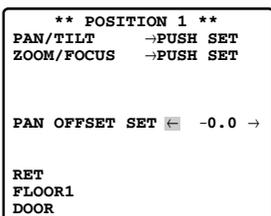
(4) Press the CAM (SET) key until the desired offset value appears.

(5) Move the cursor to an item other than PAN OFFSET SET, and press the MON (ESC) key.
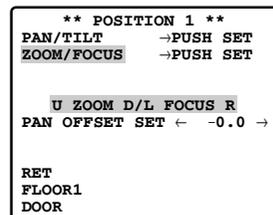
Notes:
- Further adjustment of the other positions is unnecessary. This adjustment applies to all other positions.
- Make sure to move the cursor before pressing the key in step 5. Otherwise the settings will be ignored.
- Retry the loading when the camera fails to upload or download the data.

4. To Set the Lens Zoom and Focus Positions

(1) Move the cursor to PUSH SET for ZOOM/FOCUS and press the CAM (SET) key. The ZOOM/FOCUS setting menu appears.

```
** POSITION 1 **
PAN/TILT      →PUSH SET
ZOOM/FOCUS    →PUSH SET



PAN OFFSET SET ←  -0.0  →


RET
FLOOR1
DOOR
```
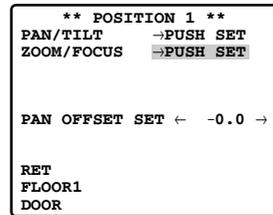
(2) Select a zoom position by moving the zoom control up and down and a focus position by moving the focus control up and down, and then press the CAM (SET) key.

```
** POSITION 1 **
PAN/TILT      →PUSH SET
ZOOM/FOCUS    →PUSH SET


   U ZOOM D/L FOCUS R
PAN OFFSET SET ←  -0.0  →


RET
FLOOR1
DOOR
```

The positions are set and the screen returns to the position setting menu.

Notes:
- When the camera is used at a nearly horizontal angle, the focus may not be adjustable to a high level of accuracy.
- If you move the cursor to the position number and move the joystick right or left, the position number can be selected.
  The selected preset position number can also be set after pressing the CAM (SET) key.
- The preset and camera IDs appear in the lower-left corner of the position setting menu after setting them.

5. Move the cursor to RET and press the CAM (SET) key to return to the preset setting menu.

```
** POSITION 1 **
PAN/TILT      →PUSH SET
ZOOM/FOCUS    →PUSH SET



PAN OFFSET SET ←  -0.0  →


RET
FLOOR1
DOOR
```

● Preset Identification Setting (PRESET ID)

1. Move the cursor to PRESET ID on the preset setting menu and select ON or OFF with the joystick.
The factory default setting is OFF.

```
┌─────────────────────────────┐
│      PRESET NO. 1*          │
│                             │
│  POSITION SET   ↴           │
│  PRESET ID      ON   ↴      │
│  ALC/MANUAL     ALC  ↴      │
│  DWELL TIME     10S         │
│  SCENE FILE     1           │
│  PRESET SPEED   ●●●●●●●|     │
│                 L        H   │
│                             │
│  RET   DEL                  │
└─────────────────────────────┘
```

ON: Preset ID appears on the monitor screen.
OFF: Preset ID does not appear.

2. Press the CAM (SET) key to display the preset ID setting menu.

To Enter a New Preset ID
(1) Move the cursor to the desired character using the joystick, and press the CAM (SET) key.
(2) The selected character appears in the editing area. (The pointer in the editing area moves to the right automatically at this moment.) To enter a blank, select SPACE.
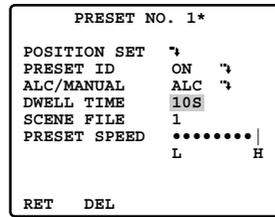(3) Repeat the above procedure until all characters are entered.

Character Cursor

```
┌─────────────────────────────┐
│  PRESET NO. 1*              │
│  0123456789                 │
│  ABCDEFGHIJKLM              │──── Character
│  NOPQRSTUVWXYZ                     Area
│  ().,'":;&#!?=              │
│  +-*/%$                     │
│                             │
│  SPACE                      │
│  COPY POSI RET RESET        │──── Command
│                             │
│  DOOR............           │──── Editing
│      ↑                      │      Area
└─────────────────────────────┘
```

Pointer

To Copy a Preset ID from Another Position
(1) Move the cursor to COPY and press the CAM (SET) key. The preset ID in the preceding position is immediately shown. Each consecutive pressing of the CAM (SET) key displays the ID preceding the one currently displayed.

```
┌─────────────────────────────┐
│  PRESET NO. 1*              │
│  0123456789                 │
│  ABCDEFGHIJKLM              │
│  NOPQRSTUVWXYZ              │
│  ().,'":;&#!?=              │
│  +-*/%$                     │
│                             │
│  SPACE                      │
│  COPY POSI RET RESET        │
│                             │
│  DOOR............           │
│      ↑                      │
└─────────────────────────────┘
```

(2) Display the most prospective ID.
(3) Follow the step "To Change an Entered Preset ID" if necessary.

To Change an Entered Preset ID
(1) Move the pointer to the character to be edited in the editing area with the joystick.
(2) Select a new character with the joystick.
(3) Press the CAM (SET) key to determine the Preset ID.

```
┌─────────────────────────────┐
│  PRESET NO. 1*              │
│  0123456789                 │
│  ABCDEFGHIJKLM              │
│  NOPQRSTUVWXYZ              │
│  ().,'":;&#!?=              │
│  +-*/%$                     │
│                             │
│  SPACE                      │
│  COPY POSI RET RESET        │
│                             │
│  DOOR............           │
│      ↑                      │
└─────────────────────────────┘
```

To Delete an Entered Preset ID
Move the cursor to RESET and press the CAM (SET) key.

```
┌─────────────────────────────┐
│  PRESET NO. 1*              │
│  0123456789                 │
│  ABCDEFGHIJKLM              │
│  NOPQRSTUVWXYZ              │
│  ().,'":;&#!?=              │
│  +-*/%$                     │
│                             │
│  SPACE                      │
│  COPY POSI RET RESET        │
│                             │
│  DOOR............           │
│      ↑                      │
└─────────────────────────────┘
```

To Set a Display Position for a Preset ID
(1) Move the cursor to POSI and press the CAM (SET) key. The display position set menu appears.

```
┌─────────────────────────────┐
│  PRESET NO. 1*              │
│  0123456789                 │
│  ABCDEFGHIJKLM              │
│  NOPQRSTUVWXYZ              │
│  ().,'":;&#!?=              │
│  +-*/%$                     │
│                             │
│  SPACE                      │
│  COPY POSI RET RESET        │
│                             │
│  DOOR............           │
│      ↑                      │
└─────────────────────────────┘
```

(2) Move the ID to the desired position with the joystick, and press the MON (ESC) key. The display position is set and the monitor screen returns to the preset ID setting menu.

```
                    FLOOR 1
                    DOOR
```

To Enter the Next ID without Returning to the Preset Setting Menu

(1) In the preset ID setting menu, move the cursor to the top line and select a desired position number with the joystick.

(2) Enter, copy, change or delete the ID as described above.

```
          PRESET NO. 1*
          0123456789
          ABCDEFGHIJKLM
          NOPQRSTUVWXYZ
          ().,'":;&#!?=
          +-*/%$

          SPACE
          COPY POSI RET RESET

          DOOR............
          ↑
```

To Return to the Preset Setting Menu

Move the cursor to RET and press the CAM (SET) key.

● Light Control Setting (ALC/MANUAL)

1. Move the cursor to ALC/MANUAL and select ALC or MANUAL with the joystick.
   The factory default setting is ALC.
   ALC: The lens iris is automatically adjusted to suit the brightness of the object.
   MANUAL: The lens iris is fixed at the set value regardless of the brightness of the object.

```
          PRESET NO. 1*

          POSITION SET   ↴
          PRESET ID      ON    ↴
          ALC/MANUAL     ALC   ↴
          DWELL TIME     10S
          SCENE FILE     1
          PRESET SPEED   •••••••|
                         L       H

          RET   DEL
```
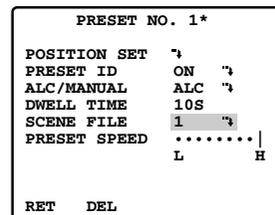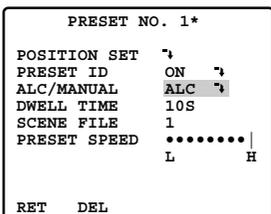
2. In case of ALC ⁣↴
   Press the CAM (SET) key. The backlight compensation menu appears on the monitor screen. See page 35 for the setting.

3. In case of MANUAL ↴
   Press the CAM (SET) key. The setting menu appears on the monitor screen. Set the lens iris level as desired with the joystick.

```
          ** MANUAL CONT **

  IRIS           ••••│••••
                 CLOSE  OPEN




  RET
```

● Dwell Time (DWELL TIME)

• Move the cursor to DWELL TIME and set a dwell time with the joystick. The factory default setting is 10S. Dwell time changes as follows:
   S stands for second(s), and MIN stands for minute(s).

```
          PRESET NO. 1*

          POSITION SET   ↴
          PRESET ID      ON    ↴
          ALC/MANUAL     ALC   ↴
          DWELL TIME     10S
          SCENE FILE     1
          PRESET SPEED   •••••••|
                         L       H

          RET   DEL
```

● Scene File Setting (SCENE FILE)

1. To set a scene file number
   Move the cursor to SCENE FILE and select a scene file number (1 to 10, or OFF) with the joystick. The factory default setting is 1. No scene file is selected at OFF.

```
          PRESET NO. 1*

          POSITION SET   ↴
          PRESET ID      ON    ↴
          ALC/MANUAL     ALC   ↴
          DWELL TIME     10S
          SCENE FILE     1     ↴
          PRESET SPEED   •••••••|
                         L       H

          RET   DEL
```

2. To set scene file details
   Move the cursor to a scene file number and press the CAM (SET) key. The setting menu appears.

```
          ** SCENE FILE 1 **

          SHUTTER        AUTO
          AGC            ON(MID)
          SENS UP        OFF
          WHITE BAL      ATW1↴
          MOTION DET     1
          AF MODE        MANUAL L



          RET
```

-21-
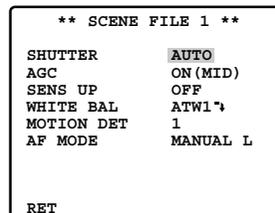
See the pages below for the settings respectively.
Shutter speed: page 36
AGC: page 36
Electronic sensitivity enhancement: page 36
White balance: page 38
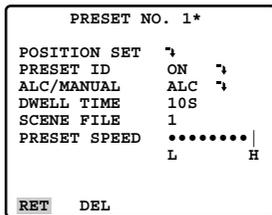Motion detector: page 39
Auto focus: page 40

● Preset Speed Setting (PRESET SPEED)

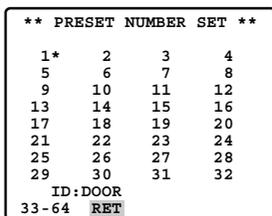Move the cursor to PRESET SPEED and select a speed with the joystick.

```
        PRESET NO. 1*

POSITION SET    ↳
PRESET ID       ON    ↳
ALC/MANUAL      ALC   ↳
DWELL TIME      10S
SCENE FILE      1
PRESET SPEED    ●●●●●●●|
                L       H

RET   DEL
```
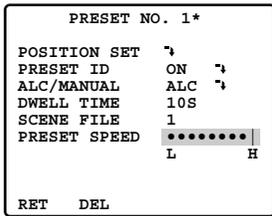
● To Return to the Preset Number Set Menu

Move the cursor to RET and press the CAM (SET) key. The PRESET NUMBER SET menu appears with the * mark on the right of the preset position number.

```
        PRESET NO. 1*

POSITION SET    ↳
PRESET ID       ON    ↳
ALC/MANUAL      ALC   ↳
DWELL TIME      10S
SCENE FILE      1
PRESET SPEED    ●●●●●●●|
                L       H

RET   DEL
```

● To Return to the Setup Menu

Move the cursor to RET and press the CAM (SET) key.

```
** PRESET NUMBER SET **

   1*    2     3     4
   5     6     7     8
   9    10    11    12
  13    14    15    16
  17    18    19    20
  21    22    23    24
  25    26    27    28
  29    30    31    32
     ID:DOOR
 33-64  RET
```

■ Deleting Preset Positions

1. Move the cursor to PRESET 1 and select the position number to be deleted with the joystick.

```
      ** SET UP MENU **
PRESET 1 ↳
  MAP ↳
  HOME POSITION  OFF
  SELF RETURN    OFF
  AUTO MODE      OFF
  AUTO PAN KEY   AUTO PAN
  DIGITAL FLIP   ON
  SPECIAL1 ↳
CAMERA ↳
RS485 SET UP ↳
PASSWORD LOCK OFF ↳
```
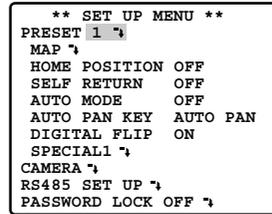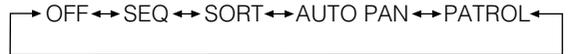
2. Press the CAM (SET) key to display the preset setting menu.
3. Move the cursor to DEL and press the CAM (SET) key.

```
        PRESET NO. 1*

POSITION SET    ↳
PRESET ID       ON    ↳
ALC/MANUAL      ALC   ↳
DWELL TIME      10S
SCENE FILE      1
PRESET SPEED    ●●●●●●●|
                L       H

RET   DEL
```
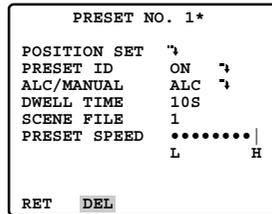
This deletes the preset position and the PRESET NUMBER SET menu appears. The * mark on the right of the number disappears.

```
** PRESET NUMBER SET **

   1*    2     3     4
   5     6     7     8
   9    10    11    12
  13    14    15    16
  17    18    19    20
  21    22    23    24
  25    26    27    28
  29    30    31    32
     ID:DOOR
 33-64  RET
```
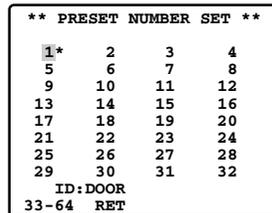
Note: Your selected preset number is cancelled only in the SEQ and SORT mode. The previously set parameters (for PAN, TILT positions, etc.) are not changed. If you want to change these parameters, you must set them again.

■ Home Position Setting (HOME POSITION)

1. To set a position number for the home position
   Move the cursor to HOME POSITION and select a desired position number with the joystick.
2. Select OFF if you are not using the home position function.

```
        ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION 15
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

■ Self Return Setting (SELF RETURN)

You can set a return time and one of operation modes with this menu.

1. Move the cursor to SELF RETURN, select a return time from among the following with the joystick and press the CAM (SET) key to confirm your selection.

```
        ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION  1
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

```
  ┌→ 1MIN ←→ 2MIN ←→ 3MIN ←→ 5MIN ←→ 10MIN ←┐
  └──→ OFF ←→ 60MIN ←→ 30MIN ←→ 20MIN ←─────┘
```
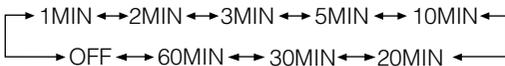
MIN stands for minute(s).

2. Select an operation from among the following with the joystick and press the CAM (SET) key to confirm your selection.

```
        ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION  1
 SELF RETURN    10MIN AT
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

```
  ┌→ OFF ←→ AT ←→ HP ←→ AP ←→ SQ ←┐
  └──────→ PT ←→ SR ←─────────────┘
```

■ Auto Mode Selection (AUTO MODE)

1. To set auto mode
   Move the cursor to AUTO MODE and select a mode with the joystick. Modes change as follows:

```
        ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION OFF
 SELF RETURN    OFF
 AUTO MODE      AUTO PAN ↴
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

2. When AUTO PAN is selected, set details as follows:

```
  ┌→ OFF ←→ SEQ ←→ SORT ←→ AUTO PAN ←→ PATROL ←┐
  └────────────────────────────────────────────┘
```

Move the cursor to AUTO PAN ↴ and press the CAM (SET) key to display the AUTO PAN setting menu.

3. To set a panning starting point and panning endpoint
   Follow the steps below.
   (1) Move the cursor to POSITION and press the CAM (SET) key. The cursor moves to START.

```
       ** AUTO PAN **

POSITION      START
              END
SPEED         ●●●●│●●●●
              L       H
ENDLESS       OFF
DWELL TIME    1S
PAN LIMIT     OFF
ZOOM LIMIT    OFF

RET
```

```
       ** AUTO PAN **

POSITION      START
              END
SPEED         ●●●●│●●●●
              L       H
ENDLESS       OFF
DWELL TIME    1S
PAN LIMIT     OFF
ZOOM LIMIT    OFF

RET
```

   (2) Move the joystick to select a panning starting point and press the CAM (SET) key.

This determines the starting point and the cursor moves to END.

```
      ** AUTO PAN **

POSITION       START
               END
SPEED          ••••|••••
               L        H
ENDLESS        OFF
DWELL TIME     1S
PAN LIMIT      OFF
ZOOM LIMIT     OFF

RET
```

(3) Move the joystick to select a panning endpoint and press the CAM (SET) key.
This determines the endpoint and the cursor moves to POSITION.

4. To set a panning speed
Move the cursor to SPEED, and set a panning speed with the joystick.

```
      ** AUTO PAN **

POSITION       START
               END
SPEED          ••••|••••
               L        H
ENDLESS        OFF
DWELL TIME     1S
PAN LIMIT      OFF
ZOOM LIMIT     OFF

RET
```

The panning speed increases when the joystick is moved to the right, and decreases when it is moved to the left.

Caution: If the panning range is changed after the camera has not panned for a long time or has been panning in the same panning range, the picture may not be clear or noise may appear. In such cases, pan the camera fully several times.
If this does not eliminate the problem, refer servicing to qualified service personnel.

5. To set ENDLESS to ON/OFF
Move the cursor to ENDLESS, and select ON or OFF with the joystick.

```
      ** AUTO PAN **

POSITION       START
               END
SPEED          ••••|••••
               L        H
ENDLESS        ON
DWELL TIME     1S
PAN LIMIT      OFF
ZOOM LIMIT     OFF

RET
```

ON: The camera pans from the starting point to the endpoint, and keeps rotating in the same direction to return to the starting point. Set PAN LIMIT to OFF before ENDLESS is set to ON.

OFF: The camera pans from the starting point to the endpoint, and rotates backward to the starting point.
This movement is repeated over and over.

6. To set a dwell time
Move the cursor to DWELL TIME and select a dwell time with the joystick.

```
      ** AUTO PAN **

POSITION       START
               END
SPEED          ••••|••••
               L        H
ENDLESS        OFF
DWELL TIME     1S
PAN LIMIT      OFF
ZOOM LIMIT     OFF

RET
```

Dwell time changes as follows:

```
 ┌─→ 0S ←──→ 1S ←──→ 2S ←──→ 3S ←┐
 └→ 30S ←──→ 20S ←──→10S ←──→ 5S ←┘
```
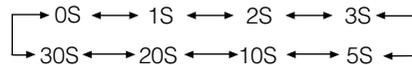
7. To set pan limit ON/OFF
Move the cursor to PAN LIMIT and select ON or OFF with the joystick.
The factory default setting is OFF.
ON: Manual pan is limited from the starting point to the endpoint specified by position setting. Set ENDLESS to OFF before PAN LIMIT is set to ON.
OFF: Manual pan is not limited.
Note: When ON is selected for PAN LIMIT, manual pan moves the camera away from the other side (PAN LIMIT) of the start-end range.

8. To set zoom limit ON/OFF
Move the cursor to ZOOM LIMIT and select ON or OFF with the joystick.

```
      ** ZOOM LIMIT **

ZOOM            →PUSH SET




RET
```

ON: Limits the manual zoom operation by following the procedure below.
(1) Move the cursor to ZOOM LIMIT, select ON and press the CAM (SET) key.
The ZOOM LIMIT setting menu appears.

(2) Move the cursor to ZOOM, press the CAM (SET) key, move the joystick to settle the ZOOM position and return to the AUTO PAN menu. The manual zoom operation is not available in the TELE direction beyond the settled zoom position.

```
         ** ZOOM LIMIT **

ZOOM             →PUSH SET

          U ZOOM D




RET
```
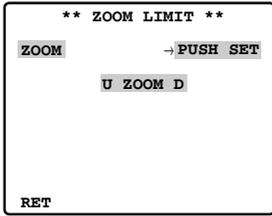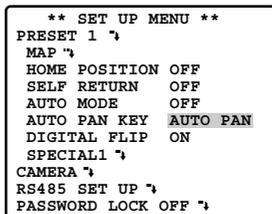
OFF: Does not limit the manual zoom operation.
Notes:
• When the panning, tilting, zooming or focusing in the SEQ, SORT or PATROL mode is controlled manually, the auto mode function should be cancelled.
  To activate the auto mode, select the desired auto mode again or set a time for SELF RETURN in the SET UP menu.
• When 0S is selected, the camera stops without dwelling and starts.
• Auto refreshing may be activated during the patrol play or the auto mode to calibrate the lens position.

■ Auto Pan Key Setting (AUTO PAN KEY)

This is used for assigning one of the following auto functions to the AUTO key on the controller. Pressing the AUTO key activates the assigned function after this setting.
• Move the cursor to AUTO PAN KEY and select an auto function with the joystick.
  The factory default setting is AUTO PAN.

```
      ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION  OFF
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

The mode changes as follows:

SEQ ↔ SORT ↔ PATROL
      └──→ AUTO PAN ←──┘

AUTO PAN: Assigns the auto panning function to the key.
SEQ: assigns the SEQUENCE function to the key.
SORT: assigns the SORT function to the key.
PATROL: assigns the PATROL PLAY function to the key.
Note: AUTO PAN LED on the controller does not light if something other than AUTO PAN is assigned. AUTO PAN does not stop with the AUTO PAN key.
  If PASSWORD LOCK is set to ON, you cannot operate AUTO PAN, SEQ, SORT, and PATROL even by pressing the AUTO key.

■ Digital Flip Setting (DIGITAL FLIP)

• Move the cursor to DIGITAL FLIP and select ON or OFF with the joystick.

```
      ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION  OFF
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```
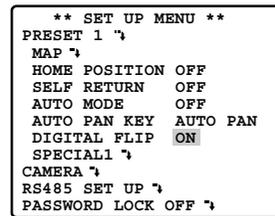
OFF: The tilt range is limited from 0° to 90°.
ON: The digital flip function allows the tilt angle to widen up to 180°. The image on the monitor screen is flipped horizontally and vertically at the tilt angle of approx. 135° (If the camera is installed on a ceiling).
Note: The tilt range narrows from 0° to 90° if PAN LIMIT is set to ON.

Notes:
• Digital flip functions while moving the joystick downwards. In case of moving the joystick to other directions, it does not function.
• When OFF is selected for DIGITAL FLIP, the following operations are required to move the camera 180° vertically.
  1) Move the joystick downwards to aim the camera down.
  2) Move the joystick to the right or left to rotate the camera 180° horizontally.
  3) Move the joystick upwards.
• To set the preset position directly from WV-CU360 System Controller, it is temporarily required to set both the electronic zoom function and digital flip function to OFF.
  Tilt range setting is disabled between 90° and 185°.

● Password Lock (PASSWORD LOCK)

Caution: For security, do not operate your VCR for recording while the password menus are displayed on the monitor.

A 3-digit number is used for a password to limit access to all settings.

1. Move the cursor to PASSWORD LOCK, then select ON or OFF with the joystick.

```
     ** SET UP MENU **
PRESET 1 ⤵
 MAP ⤵
 HOME POSITION  OFF
 SELF RETURN    OFF
 AUTO MODE      OFF
 AUTO PAN KEY   AUTO PAN
 DIGITAL FLIP   ON
 SPECIAL1 ⤵
CAMERA ⤵
RS485 SET UP ⤵
PASSWORD LOCK ON  ⤵
```

```
    ** PASSWORD? **
    0 1 2 3 4 5 6 7 8 9



          . . .
          ↑


OK   RESET
NEW PASSWORD ⤵
RET
```
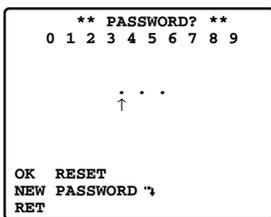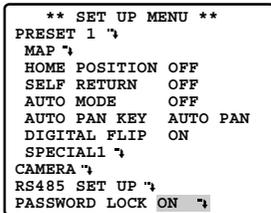
Note: ON or OFF can be selected only after going through the password verification.

OFF: You can change all settings.

ON: You cannot change settings at all nor operate AUTO PAN, SEQ, SORT, and PATROL.

2. Press the CAM (SET) key.

Password Verification

3. The password verification menu appears.

3-1 Select a numeral for the first digit with the joystick, and press the CAM (SET) key. Though the entered password is not displayed, the up-arrow moves one character to the right.

3-2 Repeat the above step for the 2nd and 3rd digits.
Default: 123

3-3 The cursor moves to OK after all the three digits have been entered. Unless you want to change the password, press the CAM (SET) key.
If the correct password is entered, the screen returns to SET UP MENU. ON and OFF settings are the same as made on the SET UP MENU menu is as set in step 1.
If a wrong password is entered, the screen returns to the verification menu. Repeat steps 3-1 to 3-3 to verify the password.

3-4 To cancel an incomplete password, move the cursor to RESET, and press the CAM (SET) key. The screen returns to the verification menu.

3-5 To return to the SET UP MENU menu without verifying the password, move the cursor to RET, and press the CAM (SET) key.

New Password

4. To change the password in step 3-3 above, move the cursor from OK to NEW PASSWORD, then press the CAM (SET) key. NEW PASSWORD menu appears.

```
   **  NEW PASSWORD? **

  0  1  2  3  4  5  6  7  8  9



          . . .
         ↑
          . . .


OK   RESET
RET
```
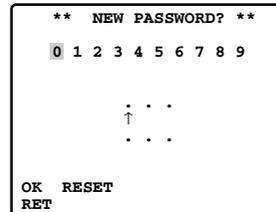
Note: The NEW PASSWORD menu is accessible only after the verification has been completed.
The up-arrow mark appears indicating the first digit on the first line.

4-1 Enter a new three-digit password in the same way as in steps 3-1 to 3-2.

4-2 The cursor moves to OK after all the three digits have been entered. Press the CAM (SET) key to move the cursor to the first digit on the second line.

4-3 Enter the same password as the one you have entered on the first line.

4-4 The cursor moves to OK. Press the CAM (SET) key. If the new password is successfully entered, the screen returns to SET UP MENU.

4-5 Retry steps 4-1 to 4-4. If the first entry for the password is different from the second one, the screen returns to the NEW PASSWORD? menu.

4-6 To return to the SET UP MENU menu without changing the password, move the cursor to RET, and press the CAM (SET) key.

■ Special 1 Menu Setting (SPECIAL 1)

● Privacy Zone (PRIVACY ZONE)

Up to 8 unwanted zones can be masked on the monitor screen.

1. Move the cursor to PRIVACY ZONE and select ON or OFF with the joystick. Press the CAM (SET) key to display the ZONE NUMBER setting menu.
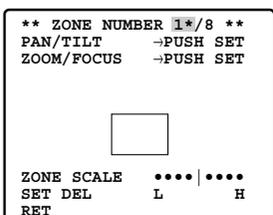
```
       ** SPECIAL 1 **
PRIVACY ZONE   OFF ↱
PROPO.P/T      ON
AREA TITLE     ON(USER)↱
PATROL         STOP
ALARM IN/OUT   ↱
CLEANING       OFF
EL-ZOOM        ON
PRESET ALM     OFF
IMAGE HOLD     OFF
TILT ANGLE     0°
RET
```

```
** ZONE NUMBER 1*/8 **




RET
```
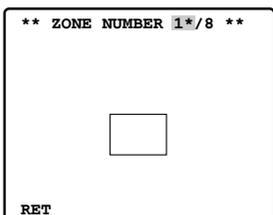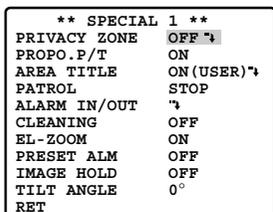
ON: Preset privacy zones are veiled on the monitor screen.
OFF: The veiling function does not work.

2. Select a zone number with the joystick, and press the CAM (SET) key.
• A zone number followed by * (asterisk) indicates that the zone has already been registered.

```
** ZONE NUMBER 1*/8 **
PAN/TILT     →PUSH SET
ZOOM/FOCUS   →PUSH SET




ZONE SCALE   ••••|••••
SET DEL      L      H
RET
```

• When a zone number having no * is selected, the picture is zoomed out fully.
• When a registered zone number is selected, the camera moves to the preset position. Note that if you move PAN/TILT, ZOOM/FOCUS or ZONE SCALE in that position, the registered zone number having "*" is cancelled.
• The zone frame appears in the center of the screen if 3 or fewer mask areas exist in that picture and if the zone number is not registered yet.

• The privacy zone may appear on the monitor screen depending on the direction of the camera.
• The privacy zone function will not work at start-up immediately after turning the power on.

3. To register a new zone
   3-1 For PAN/TILT, move the cursor to PUSH SET and press the CAM (SET) key.

```
** ZONE NUMBER 3*/8 **
PAN/TILT     →PUSH SET
ZOOM/FOCUS   →PUSH SET




ZONE SCALE   ••••|••••
SET DEL      L      H
RET
```
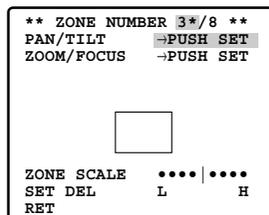
   3-2 Adjust the pan and tilt position so that the desired position comes into the zone frame with the joystick.

```
** ZONE NUMBER 3*/8 **
PAN/TILT     →PUSH SET
ZOOM/FOCUS   →PUSH SET
      U TILT D/L PAN R




ZONE SCALE   ••••|••••
SET DEL      L      H
RET
```
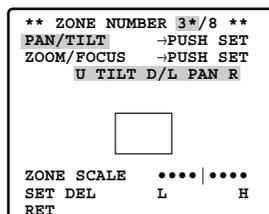
   3-3 For ZOOM/FOCUS, move the cursor to PUSH SET , and press the CAM (SET) key.

```
** ZONE NUMBER 3*/8 **
PAN/TILT     →PUSH SET
ZOOM/FOCUS   →PUSH SET
      U ZOOM D/L FOCUS R




ZONE SCALE   ••••|••••
SET DEL      L      H
RET
```
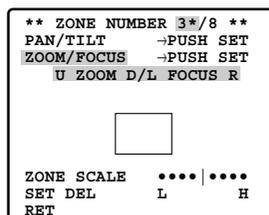
   3-4 Adjust zoom and focus, and press the CAM (SET) key.
       Zoom can be adjusted within the range of 1 to 10 magnifications.
   3-5 Move the cursor to ZONE SCALE, and move the joystick to the right or left to adjust the zone frame. Press the CAM (SET) key after the adjustment.

```
** ZONE NUMBER 3*/8 **
PAN/TILT        →PUSH SET
ZOOM/FOCUS      →PUSH SET



ZONE SCALE   ••••|••••
SET DEL       L       H
RET
```
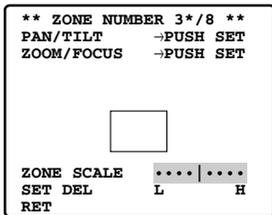
Moving the joystick in the L direction decreases the zone frame, and moving it in the H direction increases it. However, the aspect ratio is fixed at 3 to 4.
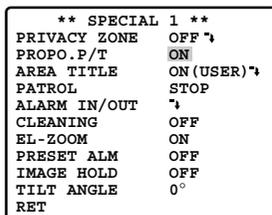
The privacy zone setting has been completed.

The menu returns to the ZONE NUMBER setting menu. If DEL is selected, zone setting is released and the ZONE NUMBER setting menu appears.

3-6

- To complete new settings and repeat other settings, move the cursor to SET and press the CAM (SET) key. The ZONE NUMBER setting menu reappears.
- To cancel new settings and return to the SPECIAL 1 menu, move the cursor to DEL and press the CAM (SET) key. New settings are not registered.
- To complete new settings and return to the SPECIAL 1 menu, move the cursor to RET and press the CAM (SET) key.

● Proportional Pan/Tilt (PROPO. P/T)

- Move the cursor to PROPO. P/T and select either ON or OFF with the joystick.
  Factory default setting: ON

```
** SPECIAL 1 **
PRIVACY ZONE    OFF↴
PROPO.P/T       ON
AREA TITLE      ON(USER)↴
PATROL          STOP
ALARM IN/OUT    ↴
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      OFF
IMAGE HOLD      OFF
TILT ANGLE      0°
RET
```

ON: Pan/tilt speed is in inverse proportion to the zoom ratio as follows:

Zoom ratio	Speed level
x1	7 (fastest)
x2	5
x4	3
x8	1
x15 or more	0 (slowest)

* The speed level values are approximate.

OFF: The speed is constant at the fastest level regardless of the zoom ratio.

● Area Title (AREA TITLE)

Up to 8 area titles can be added in specific positions.

1. Select ON (NESW), ON (USER) or OFF with the joystick.

```
** SPECIAL 1 **
PRIVACY ZONE    OFF↴
PROPO.P/T       ON
AREA TITLE      ON(USER)↴
PATROL          STOP
ALARM IN/OUT    ↴
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      OFF
IMAGE HOLD      OFF
TILT ANGLE      0°
RET
```
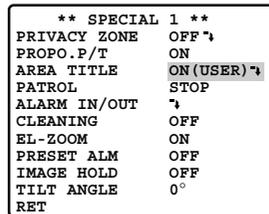
ON (NESW): An area title is displayed for indicating the camera direction: North (N), North-East (NE), East (E), South-East (SE), South (S), South-West (SW), West (W) and North-West (NW).

```
** DIRECTION(NESW) **
PAN/TILT        →PUSH SET
ZOOM/FOCUS      →PUSH SET
POSI ↴


            +
            N


RET
```
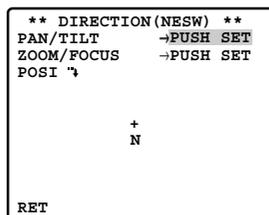
ON (USER): A user customized area title appears in a maximum of 16 characters.
OFF: Area tittle does not appear.
  Factory default setting: OFF

2. Press the CAM (SET) key. A submenu appears except when OFF is selected.

Settings for ON (NESW)
1. Move the cursor to PUSH SET for PAN/TILT, and press the CAM (SET) key. PAN/TILT is highlighted and "U TILT D/L PAN R" appears.

```
** DIRECTION(NESW) **
PAN/TILT        →PUSH SET
ZOOM/FOCUS      →PUSH SET
POSI ↴
      U TILT D/L PAN R

            +
            N


RET
```
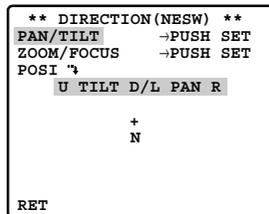
2. Turn the camera north with the joystick, and press the CAM (SET) key. The origin of the direction (North) is set.
   Note: Area titles are highlighted until the origin is set.

3. Move the cursor to PUSH SET for ZOOM/FOCUS, and press the CAM (SET) key. ZOOM/FOCUS is highlighted and "U ZOOM D/L FOCUS R" appears.

```
   ** DIRECTION(NESW) **
PAN/TILT        →PUSH SET
ZOOM/FOCUS      →PUSH SET
POSI ⤷
     U ZOOM D/L FOCUS R


             +
             N


RET
```

4. Adjust the zoom or focus with the joystick.

5. Move the cursor to POSI ⤷, and press the CAM (SET) key. The area title position appears on the monitor screen. If needed, change the display position with the joystick, and press the MON (ESC) key.
   An area title always appears under the camera ID.
   If the camera ID and an area title are set to be shown in separate positions, the area title appears above the camera ID.

```




                         FLOOR 1
                         N
```

6. Move the cursor to RET, and press the CAM (SET) key. The SPECIAL 1 menu appears again.

Setting for ON (USER)
If ON (USER) is selected on the SPECIAL 1 menu, the AREA TITLE (USER) menu appears. The screen has a number column and title column above RET and RESET.

```
     ** SPECIAL 1 **
PRIVACY ZONE   OFF ⤷
PROPO.P/T      ON
AREA TITLE     ON(USER)⤷
PATROL         STOP
ALARM IN/OUT   ⤷
CLEANING       OFF
EL-ZOOM        ON
PRESET ALM     OFF
IMAGE HOLD     OFF
TILT ANGLE     0°
RET
```

Note: An area number followed by an asterisk * has already been preset.

```
   ** AREA TITLE(USER) **
1*⤷    NORTH ⤷
2  ⤷   ⤷
3  ⤷   EAST ⤷
4  ⤷   SOUTH-EAST ⤷
5  ⤷   SOUTH ⤷
6  ⤷   SOUTH-WEST ⤷
7  ⤷   ⤷
8  ⤷   NORTH-WEST ⤷

RET  RESET
```

1. To select a camera direction, move the cursor to the desired number, and press the CAM (SET) key. The direction menu of the selected number appears.
2. Adjust PAN/TILT, ZOOM/FOCUS and display the position in the same way as AREA TITLE, DIRECTION (NESW). See page 28.

```
   ** DIRECTION(USER) 1 **
PAN/TILT        →PUSH SET
ZOOM/FOCUS      →PUSH SET



            +
          NORTH


RET   DEL
```

3. To add a user-customized title, move the cursor to the title of the desired number, and press the CAM (SET) key. The AREA TITLE menu of the selected number appears.

Area Title Editing
1. Move the cursor to the desired character in the character field with the joystick, and press the CAM (SET) key.
2. The selected character appears in the editing field and the blinking cursor moves one position to the right.

```
     AREA TITLE 1*
  0123456789
  ABCDEFGHIJKLM
  NOPQRSTUVWXYZ
  ().,'":;&#!?=
  +-*/%$

  SPACE
  ──── POSI RET RESET

  ................
  ↑
```

3. Repeat steps 1 and 2 until one area title is completed.
4. Move the cursor to POSI ⤷, and press the CAM (SET) key. The area title appears on the monitor screen. If needed, change the display position with the joystick, and press the MON (ESC) key.

To Quit Editing

- To return to the AREA TITLE menu, move the cursor to RET, and press the CAM (SET) key.
- To cancel one area title, move the cursor to RESET in the AREA TITLE menu, and press the CAM (SET) key.
- To return to the SPECIAL 1 menu, move the cursor to RET, and press the CAM (SET) key.
- To erase all the area titles, move the cursor to RESET in the AREA TITLE (USER) selection menu, and press the CAM (SET) key.

```
┌─────────────────────────┐
│                         │
│                         │
│                         │
│                         │
│                         │
│           FLOOR 1       │
│           NORTH         │
└─────────────────────────┘
```
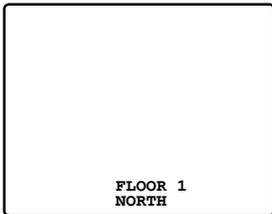
Notes:

- An area title appears under the camera ID if both are set in the same position. If the setting is different, they appear in the area title position.
- In case of sharing a common subject in a scene of other camera number, the nearest area title appears while the camera direction deviates within 45° from the set position. If two or more area numbers are set in the same position, the title of the highest number appears.

● Patrol-learn and Patrol Play (PATROL)

A routine of manual operations can be stored for 1 minute at the maximum and reproduced repetitively.

PATROL

```
┌─────────────────────────┐
│    ** SPECIAL 1 **       │
│ PRIVACY ZONE   OFF ⌐     │
│ PROPO.P/T      ON        │
│ AREA TITLE     ON(USER)⌐ │
│ PATROL         PLAY      │
│ ALARM IN/OUT   ⌐         │
│ CLEANING       OFF       │
│ EL-ZOOM        ON        │
│ PRESET ALM     OFF       │
│ IMAGE HOLD     OFF       │
│ TILT ANGLE     0°        │
│ RET                      │
└─────────────────────────┘
```

1. Set the following parameters for the patrol-learn starting position. These parameters are stored when the patrol-learn mode starts.
   - PAN/TILT/ZOOM/FOCUS
   - IRIS
   - SHUTTER
   - AGC
   - SENS UP
   - WHITE BALANCE

- IMAGE HOLD
- AREA TITLE
- DIGITAL FLIP
- PRIVACY ZONE
- CAMERA ID
- PROPO.PT
- PAN LIMIT
- ZOOM LIMIT
- TILT ANGLE
- BURST
- CLEANING

After starting the patrol-learn, the following manual operations are stored.
- PAN/TILT/ZOOM/FOCUS operation
- IRIS operation
- Preset positioning

2. Open the SET UP menu and move the cursor to SPECIAL 1. For PATROL, select LEARN, PLAY or STOP with the joystick.
   The factory default setting is STOP.
   LEARN: A series of manual operations is stored.
   PLAY: Stored operations are reproduced.
   STOP: LEARN or PLAY is not activated.

PATROL LEARN with a Controller Having PATROL Key

1. Press the PATROL key and the CAM (SET) key simultaneously to start patrol-learn. The setup menu displays "LEARNING(60S)", and the starting points are stored.

```
┌─────────────────────────┐
│                         │
│                         │
│                         │
│                         │
│      LEARNING(60S)      │
│                         │
│                         │
│                         │
└─────────────────────────┘
```
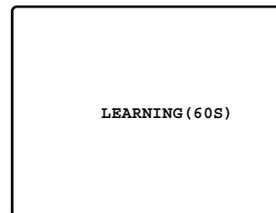
2. Operate patrol-learn manually. The operation data is stored. The countdown to complete learning is displayed.
3. To stop patrol-learn, press the PATROL STOP key.

Patrol-learn with a Controller not Having the PATROL Key

1. Close the SET UP or SPECIAL 1 menu to start PATROL LEARN. Starting point parameters are stored and "LEARNING(60S)" is displayed on the monitor.
2. Operate patrol-learn manually.

3. Open the SET UP menu to stop learning.
   Notes:
   - It is recommended to set PAN LIMIT to ON for patrol-learn. Otherwise PAN LIMIT is invalid in playback.
   - If the power fails in the patrol-learn mode, start the patrol-learn function again from the starting point.
   - LEARN also stops 1 minute after starting if the memory is full.
   - Auto refreshing may be activated in the patrol play mode or the auto mode to calibrate the lens position.

Patrol Play with a Controller Having the PATROL Key

1. Press the PATROL PLAY key. The camera turns to the starting point and reproduces the operations stored in the memory. Iris operation is valid only in the playback mode.
2. Press the PATROL STOP key and PROGRAM key simultaneously to stop playback or press any manual operation key (e.g., PAN/TILT/ ZOOM/FOCUS) except the iris keys.

Patrol Play with a Controller not Having the PATROL Key

1. Select patrol play in the setup menu, and then close the menu. The camera turns to the starting point and the operations stored in memory are reproduced. Iris operation is valid only in the playback mode.
2. Open the SET UP menu, or press any of manual operation keys (e.g., PAN/TILT/ ZOOM/FOCUS) except the iris keys to stop playback.

Patrol Play with the AUTO PAN Key

1. If the PATROL PLAY function is assigned to the AUTO PAN key, press the AUTO PAN key to turn the camera back to the starting point and to reproduce the operation data stored in the memory.
2. To stop playback, press the PATROL STOP key or any manual operation key (e.g., PAN/ TILT/ ZOOM/ FOCUS) except the iris keys.

Notes:
- In the patrol play mode, the camera movement may occasionally deviate from the entered routine when the routine includes a move to a preset position. If this happens, re-enter the routine of manual operations for patrol-learn.
- In the patrol play mode, black and white automatic switching does not work.
- In the patrol play mode, when the power of the controller is turned on or off, the patrol play stops. In this case, press the PATROL PLAY key again. (If SELF RETURN is set to ON, the patrol play will start again after elapsing the setting return time.)

● Alarm Input/Output (ALARM IN/OUT)

Move the cursor to ALARM IN/OUT, and press the CAM (SET) key. The ALARM IN/OUT submenu appears.

```
      ** SPECIAL 1 **
PRIVACY ZONE    OFF ⌐
PROPO.P/T       ON
AREA TITLE      ON(USER)⌐
PATROL          STOP
ALARM IN/OUT    ⌐
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      OFF
IMAGE HOLD      OFF
TILT ANGLE      0°
RET
```

Note: While the camera is in the AF mode or the lens moves between WIDE and TELE, alarm input may be ignored if several alarm inputs are received in succession.

ALARM IN 1-4

Alarm input signals are supplied from external devices through the ALARM IN connector to turn the camera to a preset position.

1. Move the cursor to ALARM IN 1* and select a preset position or OFF with the joystick, then press the CAM (SET) key.
   The factory default setting is OFF.

```
    ** ALARM IN/OUT **
ALARM IN 1      OFF
ALARM IN 2      OFF
ALARM IN 3      OFF
ALARM IN 4      OFF

CNT-CLS 1       OFF
 TIME OUT       100MS
CNT-CLS 2       OFF
COAX ALM OUT    OFF

RET
```

* Set ALARM IN 2, 3 and 4 in the same way as ALARM IN 1.

1 POSI, 2 POSI, 3 POSI and 4 POSI: Preset position. If an alarm input is received, the camera turns to a preset position, and sends an alarm output signal. The position number corresponds to the alarm input number (1-1, 2-2, 3-3 and 4-4).

B/W: Available for ALARM INPUT 4 only. The camera changes its mode from color to black and white if ALARM IN 4 is supplied.

OFF: The camera ignores alarm inputs.

CNT-CLS 1, 2 (Output)

Two contact closure signals (Open collector type) are output through the Alarm Output connector.

1. Move the cursor to CNT-CLS 1, and select OFF, ALARM or AUX 1 with the joystick.
   The factory default setting is OFF.
   When ALARM is selected, TIME OUT appears. Select an appropriate duration from among 100 MS, 200 MS, 1000 MS (1 s), 2000 MS (2 s) and 4000 MS (4 s) with the joystick.
   The factory default setting is 100 MS.

   Note: The shorter the duration, the more frequent will be the detection output.

2. Move the cursor to CNT-CLS 2, then select OFF, B/W or AUX 2 with the joystick.
   The factory default setting is OFF.
   OFF: Contact closure signals are deactivated.
   ALARM: Available for CNT-CLS 1 only. A motion detection signal is output.
   AUX 1(2): An alarm signal is output when the camera receives a command from the controller.
   B/W: Available for CNT-CLS 2 only. ON (active) is output when the camera operates in the black and white mode if ALARM IN 4 is set to B/W.

   Note: It is recommended to set the connected external device to ignore the shorter alarm outputs of 90 ms or less from the camera.

COAXIAL ALARM OUT

Alarm output signals are supplied through the coaxial cable.

1. Move the cursor to COAX ALM OUT and select ON or OFF.
2. Press the CAM (SET) key.
   The factory default setting is OFF.
   ON: The camera sends an alarm output signal after it turns to a preset position.
   OFF: The camera does not send an output signal.

   Notes:
   • The camera ignores alarm inputs during manual operation.
   • Select OFF when the camera downloads or uploads the preset data.

● Cleaning (CLEANING)

With CLEANING in the ON position, the camera's built-in electromechanical contacts are cleaned at regular intervals (approx. every 7 days).
A dry contact adversely affects picture quality and motors operation.

1. Move the cursor to CLEANING and select ON or OFF with the joystick.

```
       ** SPECIAL 1 **
    PRIVACY ZONE    OFF ↵
    PROPO.P/T       ON
    AREA TITLE      ON(USER)↵
    PATROL          STOP
    ALARM IN/OUT    ↵
    CLEANING        ON
    EL-ZOOM         ON
    PRESET ALM      OFF
    IMAGE HOLD      OFF
    TILT ANGLE      0°
    RET
```

ON: The contacts are cleaned for approx. 1 minute. "CLEANING" disappears when the cleaning process is completed.

```
            CLEANING
```

OFF: No contact cleaning.
Note: Select OFF when the camera downloads or uploads the preset data.

● Electronic Zoom (EL-ZOOM)

The electronic zoom magnifies a scene 10-fold. With a 22-fold optical zoom lens, the camera is capable of 220-fold zoom.

1. Move the cursor to EL-ZOOM and select ON or OFF with the joystick, and then press the CAM (SET) key.

```
       ** SPECIAL 1 **
    PRIVACY ZONE    OFF ↵
    PROPO.P/T       ON
    AREA TITLE      ON(USER)↵
    PATROL          STOP
    ALARM IN/OUT    ↵
    CLEANING        ON
    EL-ZOOM         ON
    PRESET ALM      OFF
    IMAGE HOLD      OFF
    TILT ANGLE      0°
    RET
```

ON: 10 - fold electronic zoom is available with the ZOOM switch on the controller.

OFF: The electronic zoom function is not used.

Notes:

- A scene magnified by the electronic zoom function may be inferior in picture quality to a non-magnified one.
- The electronic zoom does not function in the preset position setting mode.
- To set preset positions directly from WV-CU360 System Controller, you need to set the electronic zoom function temporarily to OFF.

● Preset Alarm (PRESET ALM)

An alarm output is sent when the camera moves to the designated position depending on the mode.

1. Move the cursor to PRESET ALARM and select ON or OFF.

```
      ** SPECIAL 1 **
PRIVACY ZONE    OFF ↴
PROPO.P/T       ON
AREA TITLE      ON(USER)↴
PATROL          STOP
ALARM IN/OUT    ↴
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      ON
IMAGE HOLD      OFF
TILT ANGLE      0°
RET
```

ON: Alarm signals are output in the following cases.

- When a preset positioning sequence is completed while AUTO MODE is set to SEQ.
- When a preset positioning sequence is completed while AUTO MODE is set to SORT.
- When the self-return function has returned the camera to its home position.
- Positioning is completed for a position request command.
- Positioning to the designated point is completed for ALARM IN/OUT.
- When positioning to the starting point is completed while AUTO MODE is set to AUTO PAN.
- When positioning to the starting point is completed while PATROL is set to PLAY.

OFF: Alarm signals are not output.

Note: Select OFF when the camera downloads or uploads the preset data.

● Image Hold (IMAGE HOLD)

The camera picture remains as a still image on the monitor screen until the camera reaches the preset position. This function is useful for surveillance via local area network.

1. Move the cursor to IMAGE HOLD and select ON or OFF.

```
      ** SPECIAL 1 **
PRIVACY ZONE    OFF ↴
PROPO.P/T       ON
AREA TITLE      ON(USER)↴
PATROL          STOP
ALARM IN/OUT    ↴
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      OFF
IMAGE HOLD      ON
TILT ANGLE      0°
RET
```

ON: The last displayed still image is shown till the camera finishes moving to a preset position. However, the still image may be distorted with the effect of panning or tilting.

OFF: The current image is being displayed while the camera is moving to a preset position.

● Tilt Angle (TILT ANGLE 0 °/5 °)

You can select the tilting range.

1. Move the cursor to TILT ANGLE and select 0 ° or 5 °.

```
      ** SPECIAL 1 **
PRIVACY ZONE    OFF ↴
PROPO.P/T       ON
AREA TITLE      ON(USER)↴
PATROL          STOP
ALARM IN/OUT    ↴
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      OFF
IMAGE HOLD      ON
TILT ANGLE      0°
RET
```

0 °: The tilting range is between 0 ° and 180 °.

5 °: The tilting range is between –5 ° and 185 °.

Note: When 5 ° is selected in the WIDE mode, a subject is not displayed on approximately the upper half of the screen or the screen becomes white for some subjects due to the AGC effect.

■ Camera Setting
● To Display the Camera Setting Menu

Move the cursor to CAMERA "↓, and press the CAM (SET) key. The camera setting menu appears.

```
     ** SET UP MENU **
PRESET 1 ↴
  MAP ↴
  HOME POSITION  OFF
  SELF RETURN    OFF
  AUTO MODE      OFF
  AUTO PAN KEY   AUTO PAN
  DIGITAL FLIP   ON
  SPECIAL1 ↴
  CAMERA ↴
RS485 SET UP ↴
PASSWORD LOCK OFF ↴
```

```
      ** SET UP **
CAMERA ID      OFF ↴
ALC/MANUAL     ALC ↴
SHUTTER        AUTO
AGC            ON(MID) ↴
SENS UP        OFF
SYNC           INT
WHITE BAL      ATW1 ↴
MOTION DET     OFF
AF MODE        AUTO L

RET      SPECIAL2 ↴
```

● Camera Identification (CAMERA ID)

1. Move the cursor to CAMERA ID, and select ON to display the camera identification with the joystick.

```
      ** SET UP **
CAMERA ID      ON  ↴
ALC/MANUAL     ALC ↴
SHUTTER        AUTO
AGC            ON(MID) ↴
SENS UP        OFF
SYNC           INT
WHITE BAL      ATW1 ↴
MOTION DET     OFF
AF MODE        AUTO L

RET      SPECIAL2 ↴
```

2. Follow the steps below to edit the camera ID characters.
   2-1 Move the cursor to CAMERA ID and press the CAM (SET) key to display the character editing menu.
   2-2 Move the cursor to the character you want to edit or change with the joystick, and press the CAM (SET) key. The selected character appears in the editing area.
   2-3 Repeat the steps above until all characters are edited.

3. After editing the camera identification characters, follow the steps below to decide the position of CAMERA ID.
   3-1 Move the cursor to POSI, and press the CAM (SET) key to display the ID position menu.

```
CAMERA ID ──
0123456789
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
().,'":;&#!?=
+-*/%$

SPACE
──  POSI RET RESET

CAM1............
↑
```

3-2 Decide the position of the camera ID with the joystick. Press the MON (ESC) key to fix the position, and return to the character editing menu.

Notes:
- When you want the pointer to move to a specific character in the editing area, select a new character, and press the CAM (SET) key. This function allows you to edit or correct a specific character.
- To enter a blank space into the camera ID, move the cursor to SPACE, and press the CAM (SET) key.
- To erase all characters in the editing area, move the cursor to RESET, and press the CAM (SET) key.
- The positioning of CAMERA ID stops at the edges of the screen.
- CAMERA ID moves faster when the joystick is kept at the right or left for one second or more.
- Move the cursor to RET to return to the SET UP menu, and press the CAM (SET) key.

```
       CAM1
```

```
CAMERA ID ──
0123456789
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
().,'":;&#!?=
+-*/%$

SPACE
──  POSI RET RESET

CAM1............
↑
```

```
CAMERA ID ──
0123456789
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
().,'":;&#!?=
+-*/%$

SPACE
──  POSI RET RESET

CAM1............
↑
```

● Light Control Setting (ALC/MANUAL)

1. Move the cursor to ALC/MANUAL and select ALC or MANUAL with the joystick. When you select ALC, set backlight compensation.

```
        ** SET UP **
CAMERA ID      OFF ⌐
ALC/MANUAL     ALC ⌐
SHUTTER        AUTO
AGC            ON(MID)⌐
SENS UP        OFF
SYNC           INT
WHITE BAL      ATW1⌐
MOTION DET     OFF
AF MODE        AUTO L

RET      SPECIAL2 ⌐
```
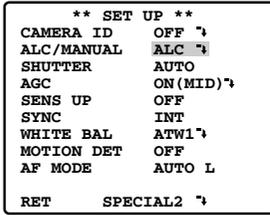
Note: The backlight compensation submenu associated with this menu is described separately and should be set up after installing the camera at the site and observing the actual site picture.

2. When MANUAL is selected, quit the setup menu by pressing the MON (ESC) key. Press the OPEN or CLOSE key on the controller for iris adjustment.

(1) ALC Mode with SUPER-D2 ON

1. Press the CAM (SET) key after selecting ALC. The ALC CONT menu appears.

```
    ** ALC CONT **
    BACK LIGHT COMP

SUPER-D2      OFF

MASK SET ⌐

LEVEL        ····|····
              -        +

RET
```
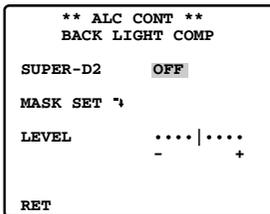
2. Move the cursor to the SUPER-D2 parameter and select ON.

```
    ** ALC CONT **
    BACK LIGHT COMP

SUPER-D2      ON


LEVEL        ····|····
              -        +

RET
```
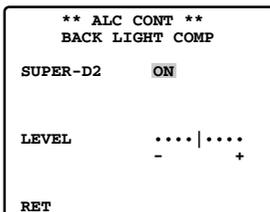
3. If you want to adjust the video output level, move the "I" cursor for LEVEL. Adjust it to the desired level with the joystick.

4. Move the cursor to RET and press the CAM (SET) key to return to the CAM SET UP menu. To return to the camera picture, press the F4 button.

(2) ALC Mode with SUPER-D2 OFF

1. Move the cursor to SUPER-D2 and select OFF. (When you select MANUAL, SUPER-D2 is not available.) MASK SET appears on the menu.
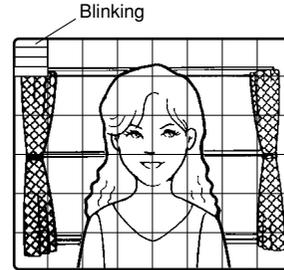
Blinking

2. Move the cursor to MASK SET and press the CAM (SET) key. The 48 mask areas appear on the monitor screen. The cursor is blinking in the top left corner of the screen.

Blinking
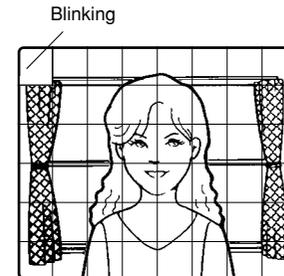
3. To mask an area where backlight is bright, move the cursor to the area and press the CAM (SET) key. The mask turns white. Repeat this procedure to mask the desired areas.

Turns to white
Blinking
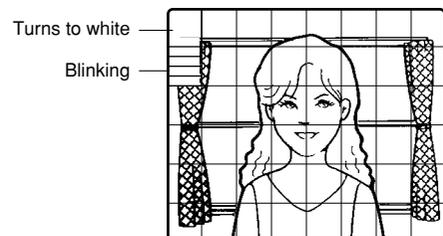
4. To cancel a masked area, move the cursor to the area, and press the CAM (SET) key. To cancel all masking areas, press the F2 button of WV-CU550C. For WV-RM70, press the right and left switches simultaneously.

5. After masking is completed, press the MON (ESC) key. The 48 mask areas on the monitor screen disappear and the ALC CONT menu appears.

6. If you want to change the picture contrast, move the "I" cursor for LEVEL and adjust the level.

```
   ** ALC CONT **
   BACK LIGHT COMP

SUPER-D2      OFF

MASK SET ↴

LEVEL         ••••|••••
              -        +


RET
```

7. Move the cursor to RET and press the CAM (SET) key to return to the CAM SET UP menu.

```
   ** ALC CONT **
   BACK LIGHT COMP

SUPER-D2      OFF

MASK SET ↴

LEVEL         ••••|••••
              -        +

RET
```
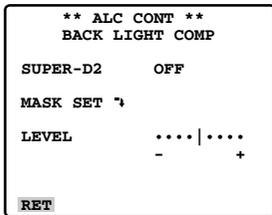
To return to the camera picture, press the F4 button.

● Shutter Speed Setting (SHUTTER)

Note: When ON is selected for SUPER-D2 on the ALC CONT menu, only OFF and AUTO are available.
To select an electronic fixed shutter speed, select OFF for SUPER-D2 in the menu.

```
       ** SET UP **
CAMERA ID     OFF ↴
ALC/MANUAL    ALC ↴
SHUTTER       AUTO
AGC           ON(MID)↴
SENS UP       OFF
SYNC          INT
WHITE BAL     ATW1↴
MOTION DET    OFF
AF MODE       AUTO L

RET     SPECIAL2 ↴
```
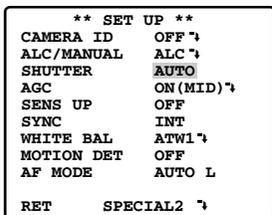
Move the cursor to SHUTTER and select the electronic shutter speed with the joystick. The electronic shutter speed changes as follows with the joystick:

• When OFF is selected for SUPER-D2 on the ALC CONT menu

```
┌→ OFF (1/60)←→ AUTO ←→1/100←→1/250←→1/500┐
└→1/10 000 ←→1/4 000 ←→1/2 000 ←→1/1 000 ←┘
```
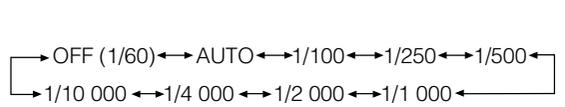
• In the AUTO mode, an object is clearly imaged under highlighted conditions by using the combination technology of iris and shutter functions.
  Note: When the selected shutter speed caused flicker on condition that fluorescent lamps stay on, change this setting to 'OFF'.

● Gain Control [AGC ON (LOW/ MID/ HIGH)/OFF]

Move the cursor to AGC and select ON (LOW), ON (MID), ON (HIGH) or (OFF) with the joystick.

```
       ** SET UP **
CAMERA ID     OFF ↴
ALC/MANUAL    ALC ↴
SHUTTER       AUTO
AGC           ON(MID)
SENS UP       OFF
SYNC          INT
WHITE BAL     ATW1↴
MOTION DET    OFF
AF MODE       AUTO L

RET     SPECIAL2 ↴
```
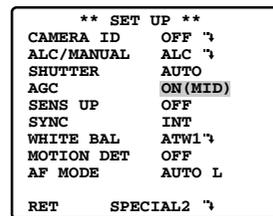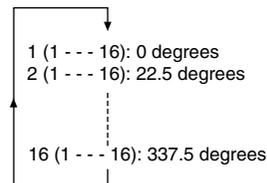
Notes:
• Even if AGC is set to ON and if the noise reduction function is enabled, afterimages may be produced by shooting a moving object or by panning or tilting the camera.
• For more information, refer to Digital Noise Reduction on page 41.

● Electronic Sensitivity Enhancement (SENS UP)

Move the cursor to SENS UP and select the desired electronic sensitivity enhancement mode with the joystick. The electronic sensitivity enhancement mode changes as follows with the joystick:

```
       ** SET UP **
CAMERA ID     OFF ↴
ALC/MANUAL    ALC ↴
SHUTTER       AUTO
AGC           ON(MID)↴
SENS UP       OFF
SYNC          INT
WHITE BAL     ATW1↴
MOTION DET    OFF
AF MODE       AUTO L

RET     SPECIAL2 ↴
```

• When OFF is selected for SUPER-D2 on the ALC CONT menu

```
┌→OFF←→X2 AUTO←→ X4 AUTO←→ X6 AUTO ←→ X10 AUTO ←┐
└→X16 AUTO ←→X32 AUTO ←→OFF ←→ X2 FIX ←→ X4 FIX←┘
└→X6 FIX←→X10 FIX←→ X16 FIX←→ X32 FIX←┘
```

- When ON is selected for SUPER-D2 on the ALC CONT menu

OFF ←→ X2 AUTO ←→ X4 AUTO ←→ X6 AUTO ←→ X10 AUTO
  └────────→ X32 AUTO ←→ X16 AUTO ←────────┘

Notes:
- When ON is selected for SUPER-D2 in the ALC CONT menu, FIX is not available for this item.
- When AUTO is selected for SENS UP and ON is selected for SUPER-D2, the SENS UP function has priority so that the SUPER-D2 function is not activated automatically.
- While the SENS UP function is selected, noise or spots may appear in the picture when the sensitivity of the camera is increased. This is a normal phenomenon.

● Synchronization (SYNC)

Move the cursor to SYNC and select LL or INT with the joystick.

```
        ** SET UP **
CAMERA ID     OFF ⌐
ALC/MANUAL    ALC ⌐
SHUTTER       AUTO
AGC           ON(MID)⌐
SENS UP       OFF
SYNC          INT
WHITE BAL     ATW1⌐
MOTION DET    OFF
AF MODE       AUTO L

RET      SPECIAL2 ⌐
```

Important Notices:
1. The priorities of SYNC modes are assigned as follows:
   1. Multiplexed vertical drive (VD2) (highest priority)
   2. Line-lock (LL)
   3. Internal sync (INT) (lowest priority)
2. To use internal sync, select INT.
3. Whenever the vertical drive pulse (VD2) is supplied to the camera, the camera sync mode is automatically switched to the multiplexed vertical drive pulse (VD2) regardless of the selected sync mode.

Line-lock Sync Mode (LL)
1. Move the cursor to SYNC and select LL with the joystick. The LL sync mode is not available when the multiplexed vertical drive (VD2) pulse is supplied.

2. After selecting LL, press the CAM (SET) key. The SYNC menu appears on the monitor screen.
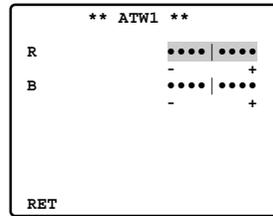
```
        ** SET UP **
CAMERA ID     OFF ⌐
ALC/MANUAL    ALC ⌐
SHUTTER       AUTO
AGC           ON(MID)⌐
SENS UP       OFF
SYNC          LL  ⌐
WHITE BAL     ATW1⌐
MOTION DET    OFF
AF MODE       AUTO L

RET      SPECIAL2 ⌐
```

3. Supply the video output signal of the camera to be adjusted and the reference video output signal to a dual-trace oscilloscope.

4. Set the dual-trace oscilloscope to the vertical rate and expand the vertical sync portion on the oscilloscope.

5. Move the cursor to COARSE with the joystick.

```
        ** SYNC **
V PHASE

COARSE        1(1--16)

FINE          • | • • • • • • •
              -           +

RET
```

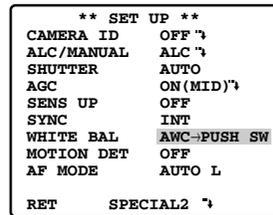6. Match the vertical phases for both video output signals as closely as possible with the joystick. The coarse adjustment can be performed in steps of 22.5 degrees (16 steps) with the joystick.

```
1 (1 - - - 16): 0 degrees
2 (1 - - - 16): 22.5 degrees

16 (1 - - - 16): 337.5 degrees
```

Note: After the 16th step, the adjustment level returns to the first step.

7. Move the cursor to FINE by using the joystick.

```
        ** SYNC **
V PHASE

COARSE        1(1--16)

FINE          • | • • • • • • •
              -           +

RET
```

8. Match the vertical phase for both video output signals as closely as possible with the joystick.

```
        ** SYNC **

V PHASE

COARSE        4(1--16)

FINE          ••••••|••
              -        +


RET
```

⬇

```
        ** SYNC **

V PHASE

COARSE        1(1--16)

FINE          •|•••••••
              -        +


RET
```

Notes:
- When the "l" cursor reaches the "+" end, it jumps back to "−". At the same time, COARSE is incremented by one step to enable a continuous adjustment. The reverse takes place when the "l" cursor reaches the "−" end.
- When the joystick is kept at the right or left for one second or more, the "l" cursor moves quickly.
- To reset COARSE and FINE to the preset values, press the F2 button of WV-CU550C. For WV-RM70, press the right and left switches simultaneously. COARSE is preset to zero-crossing of the AC line phase.
- If the AC line phase contains spike noise, etc., the vertical phase of the video output signal may be disturbed.

● White Balance (WHITE BAL)
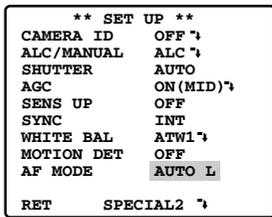
(1) Auto-Tracing White Balance Mode (ATW1/ATW2)

1. Move the cursor to WHITE BAL and select ATW1 with the joystick. The white balance of the camera is automatically adjusted.

```
      ** SET UP **
CAMERA ID      OFF ⌐
ALC/MANUAL     ALC ⌐
SHUTTER        AUTO
AGC            ON(MID)⌐
SENS UP        OFF
SYNC           INT
WHITE BAL      ATW1⌐
MOTION DET     OFF
AF MODE        AUTO L

RET    SPECIAL2 ⌐
```

2. For fine adjustment of ATW1/ATW2, press the CAM (SET) key. The ATW1/ATW2 fine adjustment menu appears on the monitor screen.

```
        ** ATW1 **

R              ••••|••••
               -        +
B              ••••|••••
               -        +




RET
```

3. Move the cursor to RET with the joystick and press the CAM (SET) key to return to the SET UP menu.

(2) Automatic White Balance Control Mode (AWC)

1. Move the cursor to WHITE BAL and select AWC → PUSH SW with the joystick.

```
      ** SET UP **
CAMERA ID      OFF ⌐
ALC/MANUAL     ALC ⌐
SHUTTER        AUTO
AGC            ON(MID)⌐
SENS UP        OFF
SYNC           INT
WHITE BAL      AWC→PUSH SW
MOTION DET     OFF
AF MODE        AUTO L

RET    SPECIAL2 ⌐
```

2. Press the CAM (SET) key to start the white balance setup. PUSH SW is highlighted to indicate that white balance is being set.

3. PUSH SW returns to normal when balance setting is completed.

4. For fine adjustment of the AWC, move the cursor to AWC and press the CAM (SET) key. The AWC fine adjustment menu appears on the monitor screen.

```
      **  AWC  **

R              ••••|••••
               -        +
B              ••••|••••
               -        +




RET
```

5. Move the cursor to RET with the joystick and press the CAM (SET) key to return to the SET UP menu.

● Motion Detector (MOTION DET)

1. Move the cursor to MOTION DET and select ON or OFF with the joystick.

```
       ** SET UP **
CAMERA ID    OFF ⌐
ALC/MANUAL   ALC ⌐
SHUTTER      AUTO
AGC          ON(MID)⌐
SENS UP      OFF
SYNC         INT
WHITE BAL    ATW1⌐
MOTION DET   ON  ⌐
AF MODE      AUTO L

RET    SPECIAL2 ⌐
```

2. If ON is selected, press the CAM (SET) key. The MOTION DETECT menu appears.
   You can mask the areas in this menu.

3. Move the cursor to MASK SET and press the CAM (SET) key. 48 mask areas appear on the monitor screen.
   Refer to Light Control Setting on page 35 for masking operations.

4. After masking areas, press the MON (ESC) key. The MOTION DETECT menu appears on the monitor screen.

5. Move the cursor to ALARM and select ON or OFF with the joystick.
   ON: The alarm signal is supplied while the display mode is activated.
   OFF: The alarm signal is not supplied while the display mode is activated.

6. Move the cursor to DISPLAY MODE.
   Press the CAM (SET) key to see the present setting. The areas that detect the motions blink.

7. Move the cursor to LEVEL with the joystick.
   Obtain the optimum detection level with the joystick.

```
    ** MOTION DETECT **

LEVEL          ••••|••••
               -        +
DWELL TIME    2S
DISPLAY MODE⌐
     ALARM    OFF
MASK SET   ⌐

RECOVER TIME  1MIN

RET
```

Note: Repeat the above procedure until you obtain the adjusted results.

8. Dwell Time
   Move the cursor to DWELL TIME, and select a time with the Joystick.
   When the time specified here elapses after motion detection, the camera will notify the connected device of the alarm activation. The default setting is 2 seconds.
   Selectable times (seconds): 2s, 5s, 10s, 30s

9. Move the cursor to RECOVER TIME with the joystick. You can select the following recover times.

```
┌─→ 1MIN ←→2MIN ←→3MIN ←→ 5MIN ←→ 10MIN←┐
└──→ OFF ←→ 60MIN ←→ 30MIN ←→20MIN ←───┘
```

10. Move the cursor to RET and press the CAM (SET) key to return to SET UP.

Important Notices:
- The motion detection should meet the following conditions.
  1) The picture size on the screen should be larger than 1/48 of the actual picture size.
  2) The contrast ratio between the object and the background picture should be more than 5 % at the maximum detection level.
  3) The time that takes the object to move from one end of the screen to the other should be more than 0.1 second.
- Also under the following conditions, mask or adjust the detection level to prevent malfunction.
  1) When leaves, curtains, etc. are swayed by the wind.
  2) When a picture has a high noise content due to low light conditions.
  3) When the object is illuminated by lighting equipment that constantly turns on and off.

• The alarm signal will take approx. 0.2 seconds to reach the alarm terminal of the VCR after the camera detects the object.

Because the alarm signal is multiplexed on the video signal, it may be mistakenly interpreted by other video equipment as a time code signal. Therefore, when this camera is not used in a Panasonic Intelligent CCTV System, select OFF to prevent the above from occurring.

● Auto Focus Setting (AF MODE)

1. Move the cursor to AF MODE, and select the following mode with the joystick. S, M and L stand for Small, Middle and Large areas respectively in the center of a scene that are used for sensing sharpness in auto-focusing.
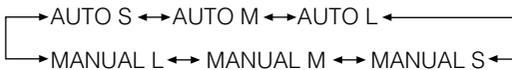
```
       ** SET UP **
CAMERA ID      OFF ⌐
ALC/MANUAL     ALC ⌐
SHUTTER        AUTO
AGC            ON(MID)⌐
SENS UP        OFF
SYNC           INT
WHITE BAL      ATW1⌐
MOTION DET     OFF
AF MODE        AUTO L

RET      SPECIAL2 ⌐
```

```
  →AUTO S ←→ AUTO M ←→ AUTO L ←
  └→ MANUAL L ←→ MANUAL M ←→ MANUAL S ←
```

MANUAL S, M, L: Auto focus is activated only when the AF key on the controller is pressed.

AUTO S, M, L: Auto focus is activated automatically while the pan, tilt or zoom operation is manually performed. These may be selected in the same way as MANUAL by pressing the AF key on the controller.

2. To confirm auto-focus operation, press CAM (SET) key.

Notes:
• When the electronic sensitivity enhancement (SENS UP) is activated except in the x2 FIX or x2 AUTO mode, this function is automatically set to MANUAL (S, M, L).
• The auto focus lens does not function properly in the AUTO mode after using the WIDE lens.
• The auto focus lens may not function properly in the AUTO mode under the following conditions.
  1. Dirt or water on window glass.
     The auto focus may focus on the dirt or water.
  2. Low lighting or illumination.
  3. Bright objects or high intensity objects.
  4. Single color object such as a white wall or fine felt
  5. No center objects and sloping objects
  6. Far and near objects on the screen

● Special 2 Menu (SPECIAL2)

This menu lets you adjust and set up the picture quality to meet your requirements.

Move the cursor to SPECIAL2 and press the F2 button of WV-CU550C. The special menu appears on the monitor screen. For WV-RM70, hold down the right and left switches simultaneously for 2 seconds or more.

```
       ** SET UP **
CAMERA ID      OFF ⌐
ALC/MANUAL     ALC ⌐
SHUTTER        AUTO
AGC            ON(MID)⌐
SENS UP        OFF
SYNC           INT
WHITE BAL      ATW1⌐
MOTION DET     OFF
AF MODE        AUTO L

RET      SPECIAL2
```
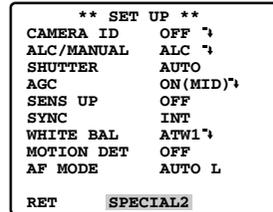
• Chroma Level (CHROMA GAIN)
   Aperture Level (AP GAIN)
   Pedestal Level (PEDESTAL)
   Hue Level Setting (HUE)

1. Move the cursor to CHROMA GAIN, and the "I" cursor is highlighted.

```
      ** SPECIAL2 **
CHROMA GAIN  −●●●●│●●●●+
AP GAIN      −●●●●│●●●●+
PEDESTAL     −●│●●●●●●●+
HUE          −●●●●│●●●●+
RESOLUTION      NORMAL
DNR             LOW2
BW MODE⌐
PIX OFF⌐
REFRESH       →PUSH SET
CAMERA RESET  →PUSH SET
RET
```
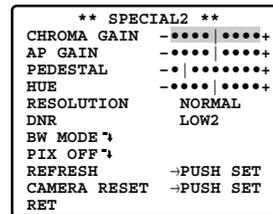
2. Move the "I" cursor to your desired position with the joystick and press the CAM (SET) key to confirm the level.

Notes:
• For setting the aperture, pedestal and hue levels, perform the same steps described above (but in the step 1, move the cursor to AP GAIN for the aperture level, to PEDESTAL for the pedestal level and to HUE for the hue level.).
• To reset the settings to the factory default, press the F2 button of WV-CU550C/CJ. (For WV-RM70, hold down the right and left switches simultaneously for 2 seconds or more.)

• Resolution (RESOLUTION)

Move the cursor to RESOLUTION and move the joystick to select NORMAL or HIGH.

```
      ** SPECIAL2 **
CHROMA GAIN  −●●●●│●●●●+
AP GAIN      −●●●●│●●●●+
PEDESTAL     −●│●●●●●●●+
HUE          −●●●●│●●●●+
RESOLUTION      NORMAL
DNR             LOW2
BW MODE⌐
PIX OFF⌐
REFRESH       →PUSH SET
CAMERA RESET  →PUSH SET
RET
```
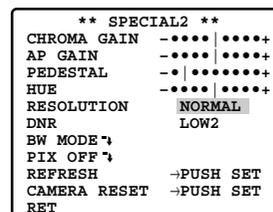
NORMAL: Sets the horizontal resolution to more than 480 lines.

HIGH: Sets the horizontal resolution to more than 510 lines.

Note: After selecting HIGH, noise may increase when the SENS UP function is activated under low illumination.

• **Digital Noise Reduction (DNR)**

DNR may be used to improve quality under low light conditions. There are 4 levels of DNR, which may be selected depending on local site conditions. Factory default setting: LOW2

You may need to try different settings to find the most suitable conditions for your application.

Move the cursor to DNR and select LOW1, LOW2, HIGH1 or HIGH2 with the joystick.

```
       ** SPECIAL2 **
CHROMA GAIN   -••••|••••+
AP GAIN       -••••|••••+
PEDESTAL      -•|•••••••+
HUE           -••••|••••+
RESOLUTION      NORMAL
DNR             LOW2
BW MODE↴
PIX OFF↴
REFRESH       →PUSH SET
CAMERA RESET  →PUSH SET
RET
```
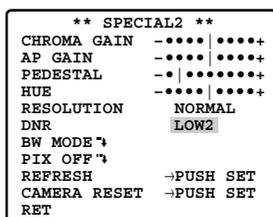
LOW1: DNR level is low. The after-image remains.

LOW2: DNR level is low. The after-image is reduced.

HIGH1: DNR level is high. The after-image remains.

HIGH2: DNR level is high. The after-image is reduced.

• **Black and White Mode (BW MODE)**

Move the cursor to BW MODE and press the CAM (SET) key. The BW MODE menu appears. You can set up the BW mode on this menu.

BW Setting

1. Move the cursor to BW and select AUTO, ON or OFF with the joystick. Factory default setting: OFF.

```
      ** BW MODE **

BW              OFF


PIX SENS UP     OFF
BURST(BW)       OFF


RET
```
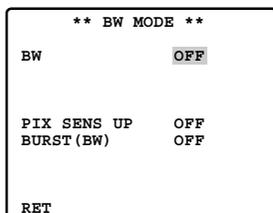
AUTO: The camera selects the black and white mode if the picture is dark, or the color mode if the picture is bright enough.

ON: The black and white mode is selected.

OFF: The color mode is selected.

Note: Selecting the color mode is disabled if ALARM IN 4 is set to B/W on the special 1 menu.

2. If you have selected AUTO, press the CAM (SET) key to open the BW AUTO submenu.

3. Select HIGH or LOW for the threshold level at which the camera automatically switches to BW or color mode. Default: HIGH

The illuminance shown below is based on the assumption that the camera is used in an area lit by halogen lamps, and that AGC on the menu is set to MID.

HIGH: approximately 6 lx

LOW: approximately 2.5 lx

Note: When near-infrared lamps are used, the image may be displayed out of focus and mode switching may not perform automatically.

4. Move the I cursor to set DURATION TIME. Default: 30 seconds

The camera determines whether to switch the mode when the time set for holding a picture motionless on the screen has elapsed.

Available duration times: (S) 10 s ↔ 30 s ↔ 60 s ↔ 300 s (L)

Note: A pan/tilt, zoom or focus operation will restart after the holding time.

PIX SENS UP Setting

Move the cursor to PIX SENS UP and move the joystick to select OFF or X2 AUTO.

```
       ** BW MODE **

BW              AUTO
 LEVEL          HIGH
 DURATION TIME  •|••
                L  H
PIX SENS UP     OFF
BURST(BW)       OFF


RET
```
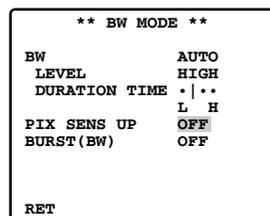
X2 AUTO: Sensitivity will be automatically doubled at the maximum in the black and white mode.

OFF: Sensitivity will not be enhanced.

Notes:

• "X2 AUTO" is not available when AGC is set to OFF. "X2 AUTO" is automatically set to OFF.

• When the picture becomes stable, the luminance may change for a moment.

BURST (BW) Setting

Move the cursor to BURST (BW) and select ON or OFF with the joystick. Default: ON.

ON: The burst signal is supplied along with the black and white composite video.

OFF: The burst signal is not output.

Note: It is recommended to select ON usually.

• PIX OFF Setting (PIX OFF)

In this setting, you can assign a blemish position and compensate the blemish.

1. Move the cursor to PIX OFF and press the CAM (SET) key. The PIX OFF menu appears.

```
     ** PIX OFF **

 1*    2*    3*    4*
 5*    6*    7*    8


 000 000
RET
```
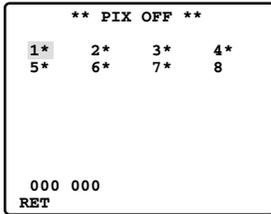
2. Select a number and press the CAM (SET) key. The blemish compensation position setting screen appears.

   Move the joystick to place the "+" cursor on the blemish position. After moving the "+" cursor to a position where the blemish looks inconspicuous, press the CAM (SET) key. Consequently, the blemish compensation position is set up and the PIX OFF menu is restored.

   After a blemish compensation position is set up, "*" is attached at the right of the number.

3. If you would like to delete a blemish compensation position, move the cursor to the applicable number and press the CAM (SET) key.

```
+
```
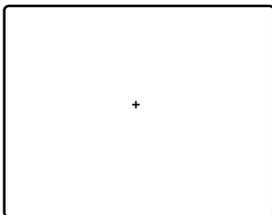
The blemish compensation position setting screen appears. Press the F2 button of WV-CU550C/CJ when the setting screen is active.

For WV-RM70, hold down the right and left buttons simultaneously for 2 seconds or more.

For WV-CU360C/CJ and WV-CU161C, hold down the [4] and [6] keys simultaneously for 2 seconds or more.

The screen is restored to the PIX OFF menu, the blemish compensation position is deleted and "*" is also deleted from the right of the number.

• To Restore the Camera Default Position (REFRESH)

Move the cursor to REFRESH with the joystick and press the F2 button of WV-CU550C/CJ.
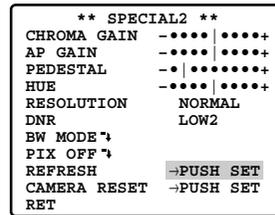
```
     ** SPECIAL2 **
CHROMA GAIN  -●●●●|●●●●+
AP GAIN      -●●●●|●●●●+
PEDESTAL     -●|●●●●●●●+
HUE          -●●●●|●●●●+
RESOLUTION      NORMAL
DNR             LOW2
BW MODE ↴
PIX OFF ↴
REFRESH      →PUSH SET
CAMERA RESET →PUSH SET
RET
```

For WV-RM70, hold down the right and left buttons simultaneously for 2 seconds or more.

For WV-CU360C/CJ and WV-CU161C, hold down the [4] and [6] keys simultaneously for 2 seconds or more.

• Camera Resetting (CAMERA RESET)

Move the cursor to CAMERA RESET with the joystick and press the F3 button of WV-CU550C/CJ.

```
     ** SPECIAL2 **
CHROMA GAIN  -●●●●|●●●●+
AP GAIN      -●●●●|●●●●+
PEDESTAL     -●|●●●●●●●+
HUE          -●●●●|●●●●+
RESOLUTION      NORMAL
DNR             LOW2
BW MODE ↴
PIX OFF ↴
REFRESH      →PUSH SET
CAMERA RESET →PUSH SET
RET
```
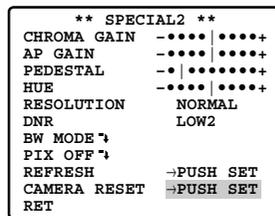
The camera is reset to the factory default settings.

For WV-RM70, hold down the right, left and set switches simultaneously for 2 seconds or more. For WV-CU360C/CJ and WV-CU161C, hold down the [4], [5] and [6] keys simultaneously for 2 seconds or more.

Note: In case of performing this operation on the condition that the cursor is positioned on other than CAMERA RESET, you cannot perform the operations on the menu thereafter. In that event, set the camera menu to ON again with the controller referring to page 12.

• To Close the SPECIAL2 Menu

Move the cursor to RET and press the CAM (SET) key.

The setup menu appears on the monitor screen.

```
     ** SPECIAL2 **
CHROMA GAIN  -●●●●|●●●●+
AP GAIN      -●●●●|●●●●+
PEDESTAL     -●|●●●●●●●+
HUE          -●●●●|●●●●+
RESOLUTION      NORMAL
DNR             LOW2
BW MODE ↴
PIX OFF ↴
REFRESH      →PUSH SET
CAMERA RESET →PUSH SET
RET
```
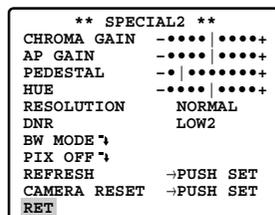
Reset to the Factory Default Settings

Any of the above settings plus the ALC/MANUAL level control and phase adjustments can be reset to the factory default settings by placing the cursor over the desired mode and then pressing the F2 button of WV-CU550C/CJ.

For WV-RM70, hold down the right and left switches simultaneously for 2 seconds or more.

For WV-CU360C/CJ and WV-CU161C, hold down the [4] and [6] keys simultaneously for 2 seconds or more.

■ RS485 Setup
● Initial Camera Communication Parameters

In an RS485 chain, the matrix switcher, PC, controllers and cameras should be set to the same protocol and parameters for communication. Confirm the system protocol and parameters prior to setting the communication parameters for the camera.

The initial communication parameters for WV-CS854B are shown on the RS485 setup menu below. Other than the on-screen setup parameters, the 4-bit DIP switch may be used to select 2-line (half duplex) or 4-line (full duplex) communication.

● Changing the Camera Communication Parameters

You can remotely control this camera by using a specified extension unit such as a computer with a modem.

1. Display SET UP MENU. Move the cursor to RS485 SET UP and press the CAM (SET) key. The RS485 SET UP menu appears on the monitor.

```
    ** RS485 SET UP **
UNIT NUMBER      1
SUB ADDRESS      1
BAUD RATE        19200
DATA BIT         8
PARITY CHECK     NONE
STOP BIT         1
XON/XOFF         NOT USE
WAIT TIME        OFF
ALARM DATA       AUTO2
DELAY TIME       OFF
RET
```

2. Move the cursor to the item and select the parameter with the joystick.

Unit Number (UNIT NUMBER)
Displays the unit number set by the DIP switch. If the switch is set to 1-96, select a number with the joystick. In an RS485 chain each unit must have a unique number.
Factory default setting: 1. See INSTALLATION for DIP switch setting.

Sub Address (SUB ADDRESS)
Do not set.

Baud Rate (BAUD RATE)
Specifies the transmission speed (2 400, 4 800, 9 600, 19 200 bit per second) for the RS485 communication. The factory default setting is 19 200.

Data Bit (DATA BIT)
Specifies the number of data bits (7 or 8 bits) for the RS485 communication. The factory default setting is 8.

Parity Check (PARITY CHECK)
Specifies the parity check mode (NONE, ODD, EVEN). The factory default setting is NONE.

Stop Bit (STOP BIT)
Specifies the number of stop bits (1 or 2 bits). The factory default setting is 1.

X ON/X OFF (X ON/X OFF)
Specifies whether to apply flow control or not (USE or NOT USE). The factory default setting is NOT USE.

Wait Time (WAIT TIME)
Specifies the time to wait until retrying after confirming that no data is received from the controller.
(OFF: no retry, 100, 200, 400, 1 000 ms).

Alarm Data (ALARM DATA)
Specifies the alarm transmission mode depending on the protocol selected by the 8-bit DIP switch.
    POLLING: Transmits the alarm data in response to requests from the controller.
    AUTO 1: Transmits the alarm data each time an alarm signal is received by the camera.
    AUTO 2 (Default): Transmits alarm data at intervals of 5 seconds.

Delay Time (DELAY TIME)
Specifies the time to transmit the acknowledge request when communicating on a 2-line connection.
[----, 100 ms] Factory default setting: ---- (no set).
This menu appears only when a 2-line communication is used. Make sure to be 100 ms when connecting the camera with WJ-FS616 Video Multiplexer or Matrix Switcher WJ-SX350 in a 2-line communication system.

The settings become effective with the closing of SET UP MENU.

Note: Set the same parameters for the cameras, controllers and personal computers in an RS485 chain.

Factory Default Setting

Menu	Item	Setting	Menu	Item	Setting
TOP MENU	HOME POSITION	OFF	PRESET MENU	PRESET ID	ON
	SELF RETURN	OFF		ALC/MANUAL	ALC
	AUTO MODE	OFF		SUPER-D2	OFF
	AUTO PAN KEY	AUTO PAN		DWELL TIME	10S
	DIGITAL FLIP	ON		SCENE FILE	1
	PASSWORD LOCK	OFF		PRESET SPEED	· · · · · · · · I
SPECIAL 1	PRIVACY ZONE	OFF	SCENE FILE	SHUTTER	AUTO
	PROPO.P/T	ON		AGC	ON (MID)
	AREA TITLE	OFF		SENS UP	OFF
	PATROL	STOP		WHITE BAL	ATW1
	CLEANING	OFF		MOTION DET	OFF
	EL-ZOOM	ON		AF MODE	MANUAL L
	PRESET ALM	OFF	AUTO PAN	SPEED	· · · · I · · · ·
	IMAGE HOLD	OFF		PAN LIMIT	OFF
	TILT ANGLE	0 °		ENDLESS	OFF
CAMERA MENU	CAMERA ID	OFF		DWELL TIME	1S
	ALC/MANUAL	ALC	RS485 SET UP	UNIT NUMBER	1
	SUPER-D2	OFF		SUB ADDRESS	1
	SHUTTER	AUTO		BAUD RATE	19200
	AGC	ON (MID)		DATA BIT	8
	SENS UP	OFF		PARITY CHECK	NONE
	SYNC	INT		STOP BIT	1
	WHITE BAL	ATW1		XON/XOFF	NOT USE
	MOTION DET	OFF		WAIT TIME	OFF
	AF MODE	AUTO L		ALARM DATA	AUTO2
SPECIAL 2	CHROMA GAIN	· · · · I · · · ·		DELAY TIME	OFF
	AP GAIN	· · · · I · · · ·	ALARM IN/OUT	ALARM IN1	OFF
	PEDESTAL	· · I · · · · · ·		ALARM IN2	OFF
	RESOLUTION	NORMAL		ALARM IN3	OFF
	DNR	LOW2		ALARM IN4	OFF
	BW	OFF		CNT-CLS 1	OFF
	PIX SENS UP	OFF		TIME OUT	100ms
	BURST (BW)	ON		CNT-CLS 2	OFF
				COAX ALM OUT	OFF

INSTALLATION

1. Disassembling the Camera

(1) Loosen the fixing screw to separate the camera mounting base and the camera. Push up the screwdriver once before removing the screw.

(2) Turn the camera mounting base approximately 15 degrees counterclockwise and remove the base from the camera.
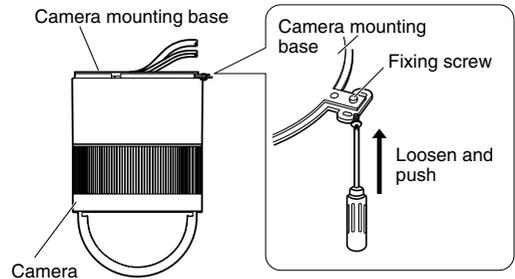
2. Setting the Switches

The 8-bit DIP switch has two functions. It is used to restore the factory default settings and to specify the unit number. Before setting, peel off the seal covering the switch holes. After setting the switch, replace the seal. The 4-bit DIP switch selects termination ON/OFF and half/full duplex for RS485 communication. The switch settings are read into the camera when the power is turned on. After changing the switch settings, be sure to turn the power off, then turn it back on again. Switch positions and functions are shown below.
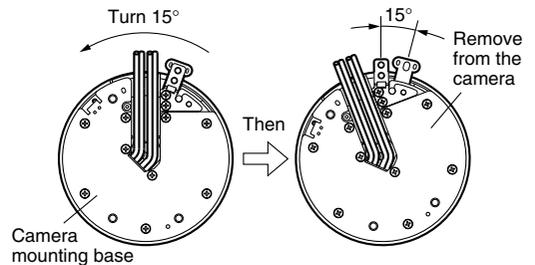
RS485 Parameter Setup
The selected protocol, communication parameters, and set unit numbers are read into the camera when the power is switched on.
(1) Switch off the camera.
(2) Set the switch as shown in the table below.
(3) Switch on the camera to read in the changed switch settings around 5 seconds.
(4) Switch off the camera.
(5) Set the unit number with the DIP switch (see the next page).
(6) Switch on the camera to read in the changed switch settings.

> **Note:** The changed communication parameters are displayed on the RS485 SETUP menu after the camera.
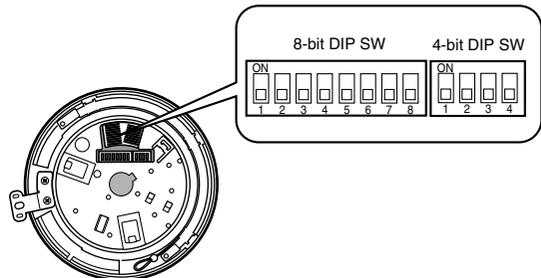
Switch position	
	Returns to the factory default settings.

Switch position	Parameter selection			
	Baud rate	Data bit	Parity check	Stop bit
	19 200	8	None	1
	9 600	8	None	1
	4 800	8	None	1

Unit Number

Switch 1, an 8-bit DIP switch, specifies the unit number or restores the factory default settings when using the Panasonic protocol.
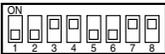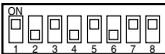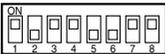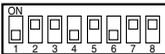
When the switch position corresponding to the unit number 1 - 96* is selected, setting should be made on the RS485 SET UP menu (see page 43).

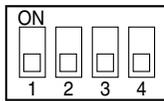8-bit DIP SW
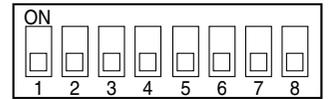
For Panasonic's Protocol

Switch position	Unit number	Switch position	Unit number	Switch position	Unit number
	1-96*		23		46
	1		24		47
	2		25		48
	3		26		49
	4		27		50
	5		28		51
	6		29		52
	7		30		53
	8		31		54
	9		32		55
	10		33		56
	11		34		57
	12		35		58
	13		36		59
	14		37		60
	15		38		61
	16		39		62
	17		40		63
	18		41		64
	19		42		65
	20		43		66
	21		44		67
	22		45		68
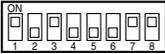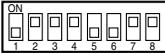
Switch position	Unit number	Switch position	Unit number	Switch position	Unit number
ON 1 2 3 4 5 6 7 8	69	ON 1 2 3 4 5 6 7 8	78	ON 1 2 3 4 5 6 7 8	87
ON 1 2 3 4 5 6 7 8	70	ON 1 2 3 4 5 6 7 8	79	ON 1 2 3 4 5 6 7 8	88
ON 1 2 3 4 5 6 7 8	71	ON 1 2 3 4 5 6 7 8	80	ON 1 2 3 4 5 6 7 8	89
ON 1 2 3 4 5 6 7 8	72	ON 1 2 3 4 5 6 7 8	81	ON 1 2 3 4 5 6 7 8	90
ON 1 2 3 4 5 6 7 8	73	ON 1 2 3 4 5 6 7 8	82	ON 1 2 3 4 5 6 7 8	91
ON 1 2 3 4 5 6 7 8	74	ON 1 2 3 4 5 6 7 8	83	ON 1 2 3 4 5 6 7 8	92
ON 1 2 3 4 5 6 7 8	75	ON 1 2 3 4 5 6 7 8	84	ON 1 2 3 4 5 6 7 8	93
ON 1 2 3 4 5 6 7 8	76	ON 1 2 3 4 5 6 7 8	85	ON 1 2 3 4 5 6 7 8	94
ON 1 2 3 4 5 6 7 8	77	ON 1 2 3 4 5 6 7 8	86	ON 1 2 3 4 5 6 7 8	95

RS485 Setting

The 4-bit DIP switch is used for RS485 termination.

4-bit DIP SW

	BP 1	Function
Switch position	ON	Termination ON
	OFF	Termination OFF *

	BP 2	BP 3	BP 4	Function
Switch position	ON	ON	ON	Half duplex (2 line)
	OFF	OFF	OFF	Full duplex (4 line) *

Notes:
- Defaults are marked with *.
- BP stands for Bit Position.
- Full duplex is not available in a daisy chain connection. (Panasonic system controllers only)

3. Assemble the Camera

Reverse the disassembly procedure. Take care not to cut any cables.

Precaution: Be sure to select a ceiling board strong enough to support 4 times the total weight of the camera.

a. Sideway Cable Exit

Prepare a cutout in the diecast case and decoration cover as shown in the following figures.

Cutout in Diecast Case
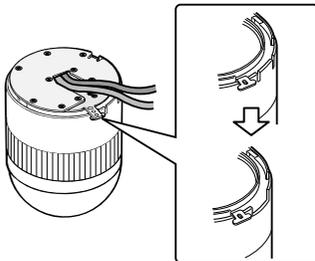
Cutout in Decoration Cover
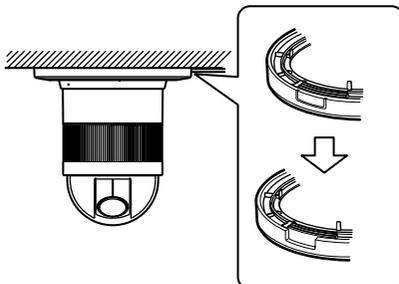
Note: Remove sharp edges to protect the cables.

b. Top Cable Exit

Prepare a hole in the ceiling board to run the cables.
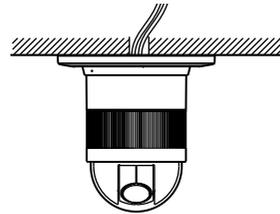
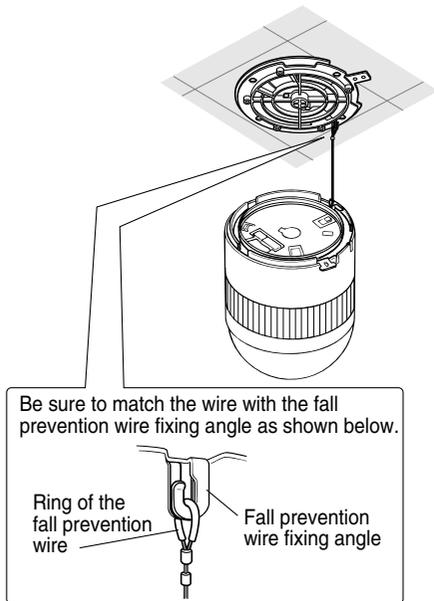1. Mark the mounting holes on the ceiling, using the removed camera mounting base as a template.
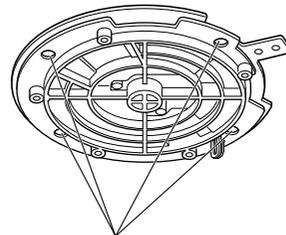

Marking
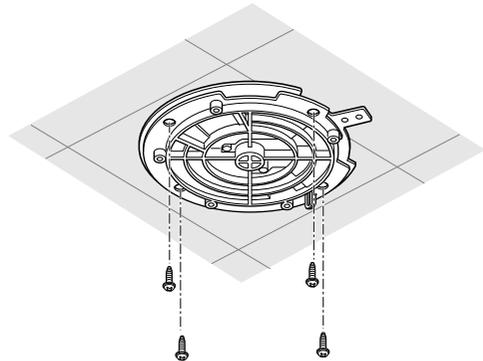
2. Fix the camera mounting base to the ceiling with four screws (not provided, M4).

3. Hook the fall prevention wire on the camera mounting base.

Be sure to match the wire with the fall prevention wire fixing angle as shown below.

Ring of the fall prevention wire

Fall prevention wire fixing angle

Cautions:

- Use the supplied dust protection sheet if the camera mounting base is liable to be exposed to a dusty atmosphere. Remove the cover from the dust protection sheet, then stick the sheet on the camera mounting base.
- Remove the sheet before mounting the camera on the base.
- While the camera is separated from the base, keep the camera in the supplied polyethylene sack.

4. Mount the camera on the camera mounting base and rotate the camera clockwise.

15°
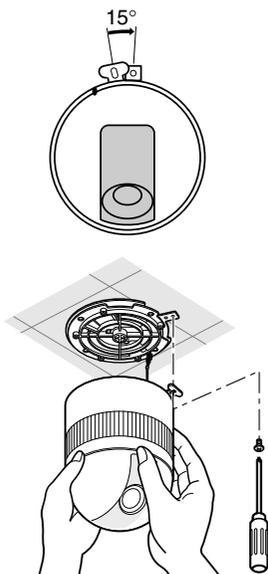
5. Tighten the fixing screw M3 (provided).

 Notes:
   (1) Tighten the camera fixing screw with a screwdriver.
   (2) Follow the instructions given here to ensure that the camera and camera mounting base are installed safely.
   (3) When removing the camera from the camera mounting base, loosen and press up the camera fixing screw (M3) with a screwdriver.
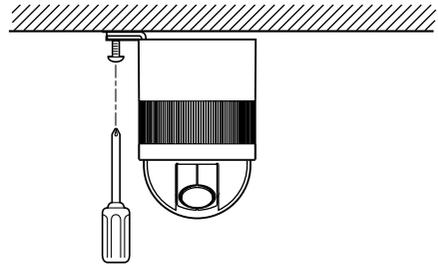
6. Fix the decoration cover to the camera mounting base.

a. Sideway Cable Exit
   Pass the cables through the cutout made in the diecast case and decoration cover.
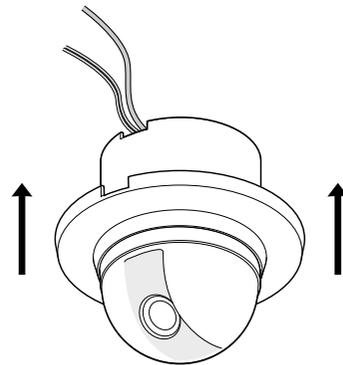

b. Top Cable Exit
   Push the decoration cover against the camera mounting base.

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CONNECTIONS

Precautions
- The following connections should be made by qualified service personnel or system installers in accordance with all local codes.
- See the reverse side of the cover page for main lead connection.

※ The coaxial cable length (RG-59/U, BELDEN 9259) for the connection is up to 1 200 meters (4 000 ft.)
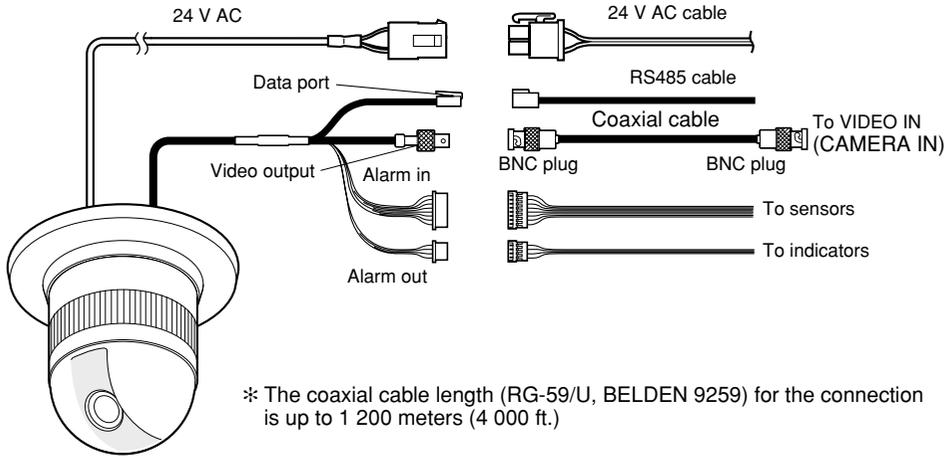
Note: When powered up, the unit performs a self-check (including one panning, tilting, zooming and focusing operation).

• 24 V AC Power Supply Connection

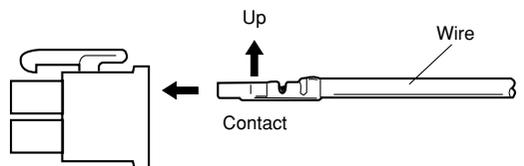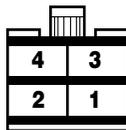Recommended wire gauge sizes for 24 V AC line

Copper wire size (AWG)		#24 (0.22mm²)	#22 (0.33mm²)	#20 (0.52mm²)	#18 (0.83mm²)
Length of cable (approx.)	(m)	20	30	45	75
	(ft)	65	100	160	260

Accessory Connector Information

Pin no.	Power source
1	24 V AC LIVE
2	24 V AC NEUTRAL
3	Ground
4	Not use

How to Assemble the Cable with the Accessory Connector

Strip back the cable jacket approx. 3 mm (0.1 inch) and separate the individual conductors.

Prepare the individual conductors for clamping. Use MOLEX band tool part number 57027-5000 (for UL-Style Cable UL1015) or 57026-5000 (for UL-Style UL1007) for clamping the contacts.

After clamping the contacts, push them into the proper holes in the accessory connector of this camera until they snap in place.
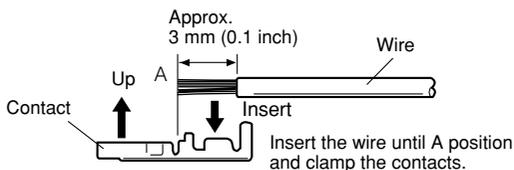

CAUTIONS
- Shrinking the cable-entry seal is a one-time procedure. Do not shrink the cable-entry seal until ascertaining that the unit is functioning.
- CONNECT THIS TO 24 V AC CLASS 2 POWER SUPPLY ONLY.

• RS485 Connection
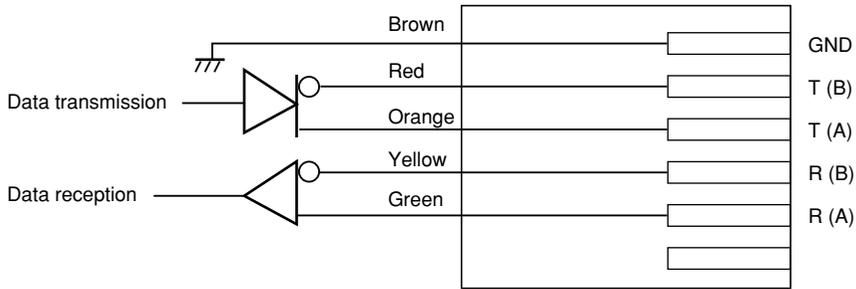
Note:

Use the cable that is described below for RS485 site communication.

- Shielded, twisted pair cable
- Low impedance
- Wire gauge size is thicker than AWG #22 (0.33 mm²).

• ALARM IN Connections

An 8-pin and a 4-pin harness are supplied with the camera as standard accessories. Connect external sensors to this connector. Input specifications are low-active, non-voltage contact (ON when active) or open collector (Low when active). The table below shows wire colors versus pin functions.

Alarm IN (8-pin)

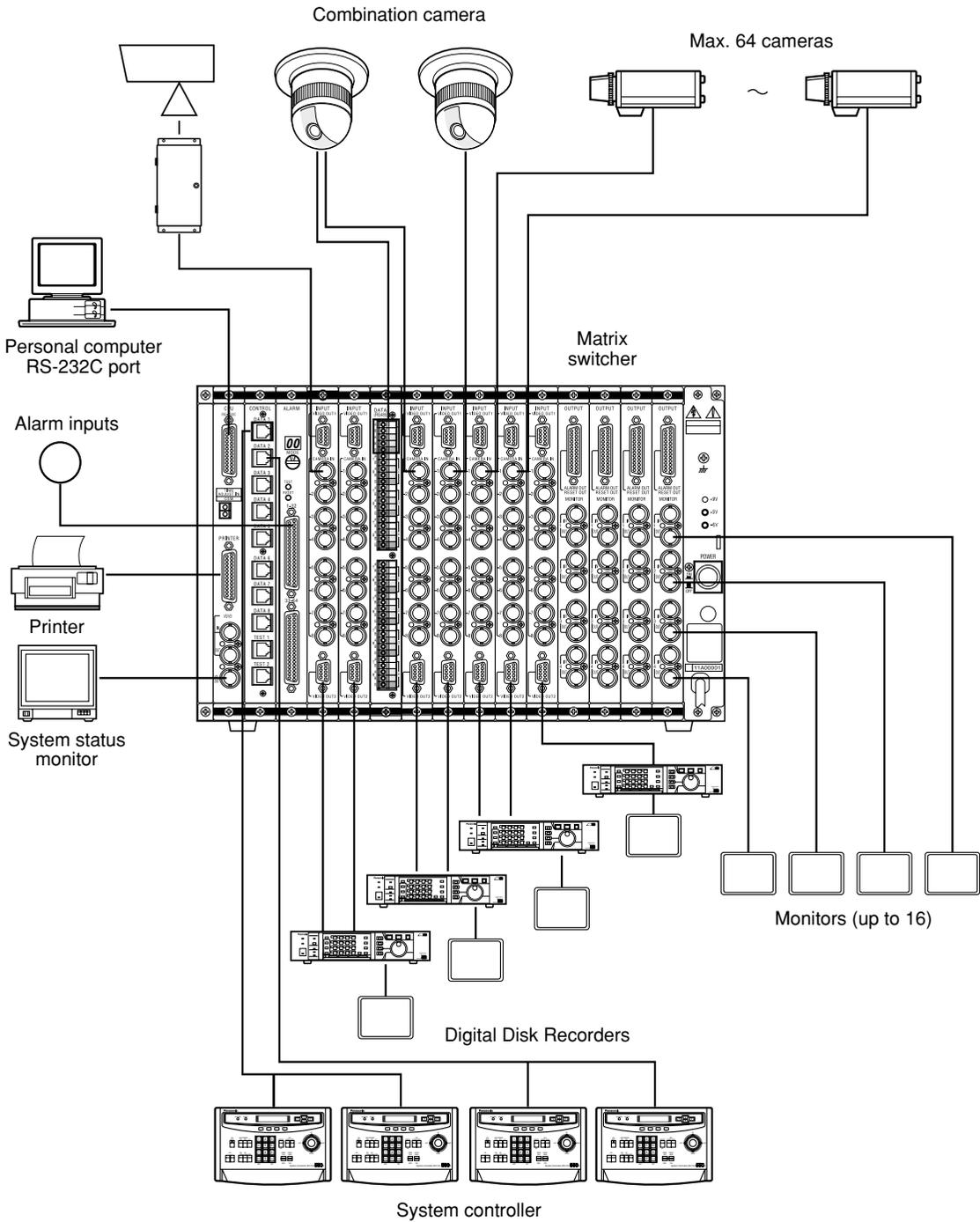| Wire color	Function
Black	IN 1
Brown	GND
Red	IN 2
Orange	GND
Yellow	IN 3
Light blue or green	GND
Blue	IN 4
Purple	GND

• ALARM OUT Connections

Connect an external device, for example, a buzzer or lamp, to this connector. Output specifications are low-active, open-collector and a drive capacity of 16 V DC 100 mA maximum. The table below shows wire colors versus pin functions.

Alarm OUT (4-pin)

Wire color	Function
Grey	OUT 1
White	GND
Pink	OUT 2
Yellow green or light blue	GND

Note: Use a relay if the voltage or current of the connected device exceeds the ratings.

Combination camera

Max. 64 cameras

Personal computer
RS-232C port

Alarm inputs

Matrix
switcher

Printer

System status
monitor

Monitors (up to 16)

Digital Disk Recorders

System controller

Note: When any peripherals are turned off and turned on again, the camera is also turned off and turned back on.

SPECIFICATIONS

		WV-CS854B
Effective Pixels		768 (H) x 494 (V)
Scanning Area		3.65 mm (H) x 2.74 mm (V), 1/4 in.
Synchronization		internal/line-lock / multiplexed vertical drive (VD2)
Horizontal Scanning Frequency		15.734 kHz
Vertical Scanning Frequency		59.94 Hz
Video Output		1.0 V [P-P] NTSC composite/75 Ω
Horizontal Resolution		more than 480 lines at center (C/L, NORMAL), more than 510 lines at center (C/L, HIGH), 570 lines at center (B/W)
Vertical Resolution		more than 350 lines at center
Signal-to-Noise Ratio		50 dB (AGC OFF, weight on)
Dynamic Range		48 dB (Super Dynamic Ⅱ ON)
Minimum Illumination		1 lx (0.1 foot-candle) C/L at SENS UP OFF (AGC HIGH) 0.06 lx (0.006 foot-candle) with PIX SENS UP OFF, B/W, SENS UP OFF (AGC HIGH) 0.03 lx (0.003 foot-candle) with PIX SENS UP B/W at SENS UP OFF (AGC HIGH)
Zoom Speed		approx. 4.5 s (TELE/WIDE) in manual mode
Focus Speed		approx. 5 s (FAR/NEAR) in manual mode
Iris		automatic (open/close is possible)/manual
Maximum Aperture Ratio		1 : 1.6 (WIDE) - 3.0 (TELE)
Focal Length		3.79 - 83.4 mm
Angular Field of View	H	2.6° - 52.3°
	V	2.0° - 39.9°
Electronic Shutter		1/60 (OFF), AUTO 1/100, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000, 1/10 000 s
AGC		ON (LOW)/ON (MID)/ON (HIGH)/OFF
Sens Up		MAX 32 times, AUTO/FIX
Super Dynamic Ⅱ		selectable ON/OFF (SETUP MENU)
Zoom Ratio		x 22 +digital zoom x10
Iris Range		F1.6 - 22, CLOSE

Power Source	24 V AC, 60 Hz
Power Consumption	13 W
Ambient Operating Temperature	−10 °C - +50 °C (14 °F - 122 °F)
Dimensions	120 (D) x 191 (H) mm (4-3/4" (D) x 7-1/2" (H))
Weight	approx. 2 kg (4.4 lbs)

Auto Focus	MANUAL/AUTO
Auto Mode	OFF/SEQ/SORT/AUTO PAN/PATROL
Auto Pan Key	SEQ/SORT/AUTO PAN/PATROL PLAY
Digital Flip	ON/OFF
Camera ID	preset ID, camera ID, area title : up to 16 characters
Motion Detector	ON/OFF
Alarm IN	4 inputs (ALARM IN 1 - 4) pulled up to 5.0 V DC OFF (open or 4 V DC - 5 V DC)/ON (0 V 0.2 mA)
Alarm OUT	2 outputs (ALARM/AUX1, B/W/AUX2) open collector - output max. 16 V DC 100 mA OFF (OPEN)/ON (0 V)
B/W Mode	AUTO/ON/OFF
Privacy Zone	ON/OFF, up to 8 zones
Proportional PAN/TILT	ON/OFF
Patrol	LEARN/PLAY/STOP, up to 60 seconds
Cleaning	ON/OFF
Image Hold	ON/OFF

Panning Range	360° endless
Panning Angle Setting	possible (in auto-pan mode)
Panning Mode	manual/sequential position/sort position/auto pan
Panning Speed	manual : approx. 0.1°/s - 120°/s 8-steps/64-steps sequence position : maximum approx. 300°/s
Tilting Range	0° to 180° (–5° to 185° at 5° tilt angle setting)
Tilting Mode	manual/sequential position/sort position
Tilting Speed	manual : approx. 0.1°/s - 120°/s. 8-steps/64-steps sequential position : maximum approx. 300°/s
Controls	pan/tilt, lens, 64 preset positions, home position

Weights and dimensions indicated are approximate.

Specifications are subject to change without notice.

ACCESSORIES

Operating Instructions (this document) .... 1 pc.
The following parts are for installation:
Decoration Cover .... 1 pc.
Alarm In Cable .... 1 pc.
Alarm Out Cable .... 1 pc.
Connector for 24 V AC .... 1 pc.

OPTIONAL ACCESSORIES

Dome Cover (approx. 60 % transparency, smoked type) WV-CS2S
Dome Cover (approx. 50 % transparency, smoked type) WV-CS2SH
Dome Cover (approx. 70 % transparency, metal type) WV-CS2M

Shortcuts

Shortcut operations are available for controllers having the CAM FUNCTION key. Entering from one to three digits with the numeric key(s) and pressing the CAM FUNCTION key will create a shortcut to the respective functions. The CAM FUNCTION key is abbreviated as [CAM FUNC] in the table below.

Function	Key	Function	Key
Selecting a PRESET position From #1 to #64		On	[9] + [8] + [CAM FUNC]
#1	[1] + [CAM FUNC]	Off	[9] + [9] + [CAM FUNC]
#10	[1] + [0] + [CAM FUNC]	RESTART	
#64	[6] + [4] + [CAM FUNC]	Begin	[1] + [0] + [0] + [CAM FUNC]
AUTO PAN		Memorize PRESET	From #1 to #64**
ON	[6] + [5] + [CAM FUNC]	Position #1	[1] + [0] + [1] + [CAM FUNC]
OFF	[6] + [6] + [CAM FUNC]	Position #10	[1] + [1] + [0] + [CAM FUNC]
Speed Up	[6] + [7] + [CAM FUNC]	Position #64	[1] + [6] + [4] + [CAM FUNC]
Speed Down	[6] + [8] + [CAM FUNC]	PATROL	
Setting Start Point	[6] + [9] + [CAM FUNC]	PLAY	[1] + [6] + [5] + [CAM FUNC]
Setting End Point	[7] + [0] + [CAM FUNC]	STOP	[1] + [6] + [6] + [CAM FUNC]
Setting PAN Reverse	[7] + [4] + [CAM FUNC]	LEARN(Start)	[1] + [6] + [7] + [CAM FUNC]
AUTO MODE		IRIS	
MODE Off	[7] + [1] + [CAM FUNC]	Open	[1] + [6] + [9] + [CAM FUNC]
SEQ On	[7] + [2] + [CAM FUNC]	Close	[1] + [7] + [0] + [CAM FUNC]
SORT On	[7] + [3] + [CAM FUNC]	EL-SHUTTER	
ENDLESS PAN		On	[1] + [7] + [1] + [CAM FUNC]
On	[7] + [6] + [CAM FUNC]	Off	[1] + [7] + [2] + [CAM FUNC]
Off	[7] + [7] + [CAM FUNC]	Speed Up	[1] + [7] + [3] + [CAM FUNC]
DIGITAL FLIP		Speed Down	[1] + [7] + [4] + [CAM FUNC]
On	[7] + [8] + [CAM FUNC]	AGC	
Off	[7] + [9] + [CAM FUNC]	On	[1] + [7] + [5] + [CAM FUNC]
PROP. PAN/TILT		Off	[1] + [7] + [6] + [CAM FUNC]
On	[8] + [0] + [CAM FUNC]	SENS UP	
Off	[8] + [1] + [CAM FUNC]	On	[1] + [7] + [7] + [CAM FUNC]
SUPER-D2		Off	[1] + [7] + [8] + [CAM FUNC]
On	[8] + [4] + [CAM FUNC]	Up	[1] + [7] + [9] + [CAM FUNC]
Off	[8] + [5] + [CAM FUNC]	Down	[1] + [8] + [0] + [CAM FUNC]
AUTO FOCUS		SENS UP AUTO	
STOP AF On*	[8] + [6] + [CAM FUNC]	On	[1] + [8] + [1] + [CAM FUNC]
STOP AF Off*	[8] + [7] + [CAM FUNC]	Off	[1] + [8] + [2] + [CAM FUNC]
AF On (Activate)	[8] + [8] + [CAM FUNC]	Up	[1] + [8] + [3] + [CAM FUNC]
HOME POSITION		Down	[1] + [8] + [4] + [CAM FUNC]
Move to HOME	[8] + [9] + [CAM FUNC]	LL SYNC phase	
B/W or C/L		INC	[1] + [8] + [5] + [CAM FUNC]
B/W On*	[9] + [0] + [CAM FUNC]	DEC	[1] + [8] + [6] + [CAM FUNC]
B/W Off*	[9] + [1] + [CAM FUNC]	PAN	
B/W AUTO*	[9] + [2] + [CAM FUNC]	180° turn	[1] + [8] + [7] + [CAM FUNC]
CAMERA ID		CLEANING	
On	[9] + [3] + [CAM FUNC]	On	[1] + [8] + [8] + [CAM FUNC]
Off	[9] + [4] + [CAM FUNC]	Off	[1] + [8] + [9] + [CAM FUNC]
AREA TITLE		BW SW AUTO	
NESW On	[9] + [5] + [CAM FUNC]	10 sec.	[1] + [9] + [0] + [CAM FUNC]
USER On	[9] + [6] + [CAM FUNC]	30 sec.	[1] + [9] + [1] + [CAM FUNC]
TITLE Off	[9] + [7] + [CAM FUNC]	60 sec.	[1] + [9] + [2] + [CAM FUNC]
EL-ZOOM		300 sec.	[1] + [9] + [3] + [CAM FUNC]

Notes:

- Shortcut operations marked with * will change parameter settings only. Actual operation takes place when the conditions for the changed settings are met.
- When entering a shortcut marked with **, "NO REGS. ; FLIP ON" may appear on the monitor. Re-enter the shortcut.
- Shortcuts may be ignored while PAN/TILT, ZOOM or FOCUS is in operation.
- PATROL LEARN saves only [1] through [6]+[4], [1]+[6]+[9] and [1]+[7]+[0] in the memory.
- PATROL PLAY stops when a shortcut other than [1]+[6]+[9] or [1]+[7]+[0] is entered.