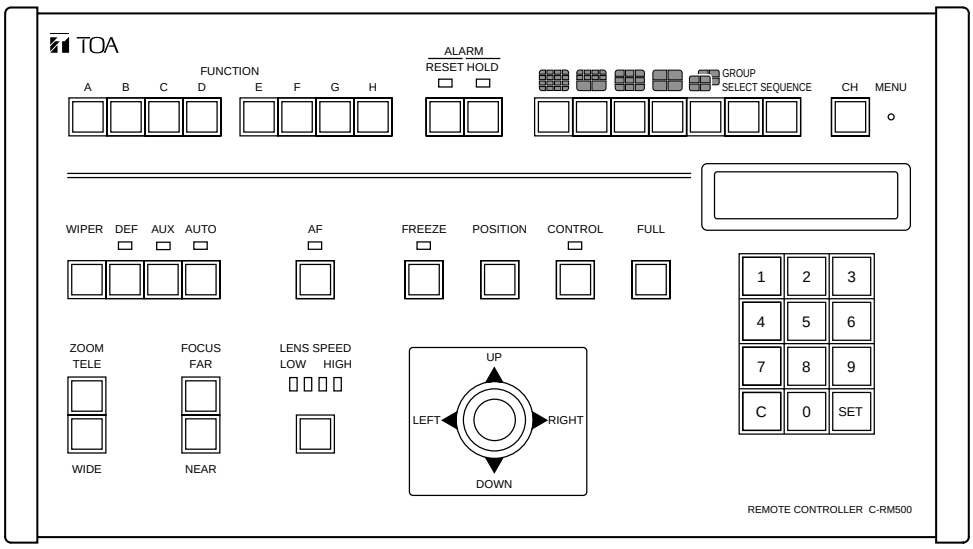
TOA

OPERATING INSTRUCTIONS

REMOTE CONTROLLER C-RM500



Please follow the instructions in this manual to obtain the optimum results from this unit.
We also recommend that you keep this manual handy for future reference.

TOA Corporation

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6. SETTINGS

7. CONNECTIONS

Underwriters Laboratories Inc. (UL) has not tested the performance or reliability of the security aspects of this product. UL has only tested for fire, shock or casualties as outlined in UL's Standard(s) for Safety. UL Certification does not cover the performance or reliability of the security hardware and security operating software. UL MAKES NO REPRESENTATIONS, WARRANTIES OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY RELATED FUNCTIONS OF THIS PRODUCT.

1. SAFETY PRECAUTIONS

- Be sure to read the instructions in this section carefully before use.
- Make sure to observe the instructions in this manual as the conventions of safety symbols and messages regarded as very important precautions are included.
- We also recommend you keep this instruction manual handy for future reference.

⚠ WARNING	Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.

⚠ WARNING	Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.
- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.
- Should the following irregularity be found during use, immediately stop the power supply to the unit and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  - · If you detect smoke or a strange smell coming from the unit.
  - · If water or any metallic object gets into the unit
  - · If the unit falls, or the unit case breaks
  - · If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  - · If it is malfunctioning (no tone sounds.)
  - · If it is malfunctioning (no image appears.)
- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to your nearest TOA dealer.
- Do not touch a power plug during thunder and lightning, as this may result in electric shock.
- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.

⚠ CAUTION	Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.
- Contact your TOA dealer as to the cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire or damage to the unit may result.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Disconnect the power supply cord for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

2. GENERAL DESCRIPTION

The TOA C-RM500 Remote Controller is used to remotely control TOA's Combination cameras over communication lines (RS-485). It can remotely control video image switching and cameras in combination with TOA's Multi-Switcher or Smart Switcher.

3. FUNCTIONS

- **Display Selection**
  The following screen formats can be selected for display of camera images connected to the Multi-Switcher: full screen, 4-segment, sequential 4-segment, 9-segment, 10-segment or 16-segment split-screen and sequential full-screen.
- **Manual Operation**
  Controls the Combination camera's zoom, focus, pan and tilt functions.
- Camera Position Selection
  Controls the Combination camera's orientation, and displays the camera image on the monitor in the selected orientation.
- **Function Key Programming**
  Camera numbers or camera number/position combinations can be programmed into the function keys (A – H). Pressing the function key displays the camera image on the full screen. If position numbers have been set, images of the selected camera orientation can be displayed.
- **Abbreviated Number Display**
  Permits camera numbers or camera number/position combinations to be programmed for numbers 1 – 512. Entering the programmed number followed by the SET key displays the corresponding camera number on the full screen, and the image of selected camera orientation if the position number has been set.
- **Alarm Function**
  Controls the display in synchronization with alarm signals received from a camera. When an alarm signal is detected, the image of the corresponding camera takes display precedence. The C-RM500 Controller also features an Alarm Hold function that temporarily disables channel (camera number) switching in response to an alarm signal. This prevents the display from being forcibly switched to an alerted camera during close inspection (when the Multi-Switcher is connected).

Equipment Which Can Be Controlled with the C-RM500

Shown below are equipment that can be controlled with the C-RM500.

Camera: C-CC501, C-CC504, C-CC551, and C-CC554
Up to 31 cameras can be connected to the unit's Camera control terminal and controlled. The use of the C-IF500 Interface Unit will increase the number to up to 64 cameras (when the C-SS8 switcher is in use). Note that the cameras cannot be controlled if their number is greater than the number of inputs of a connected switcher.

Switcher: C-MS90D, C-MS90S, C-MS160D, C-MS160S, and C-SS8
Only one switcher can be connected for remote camera control. However, as to the C-SS8, 1 master-designated unit and up to 7 slave-designated units can be connected to remotely control the cameras.

About the Camera Control Terminal

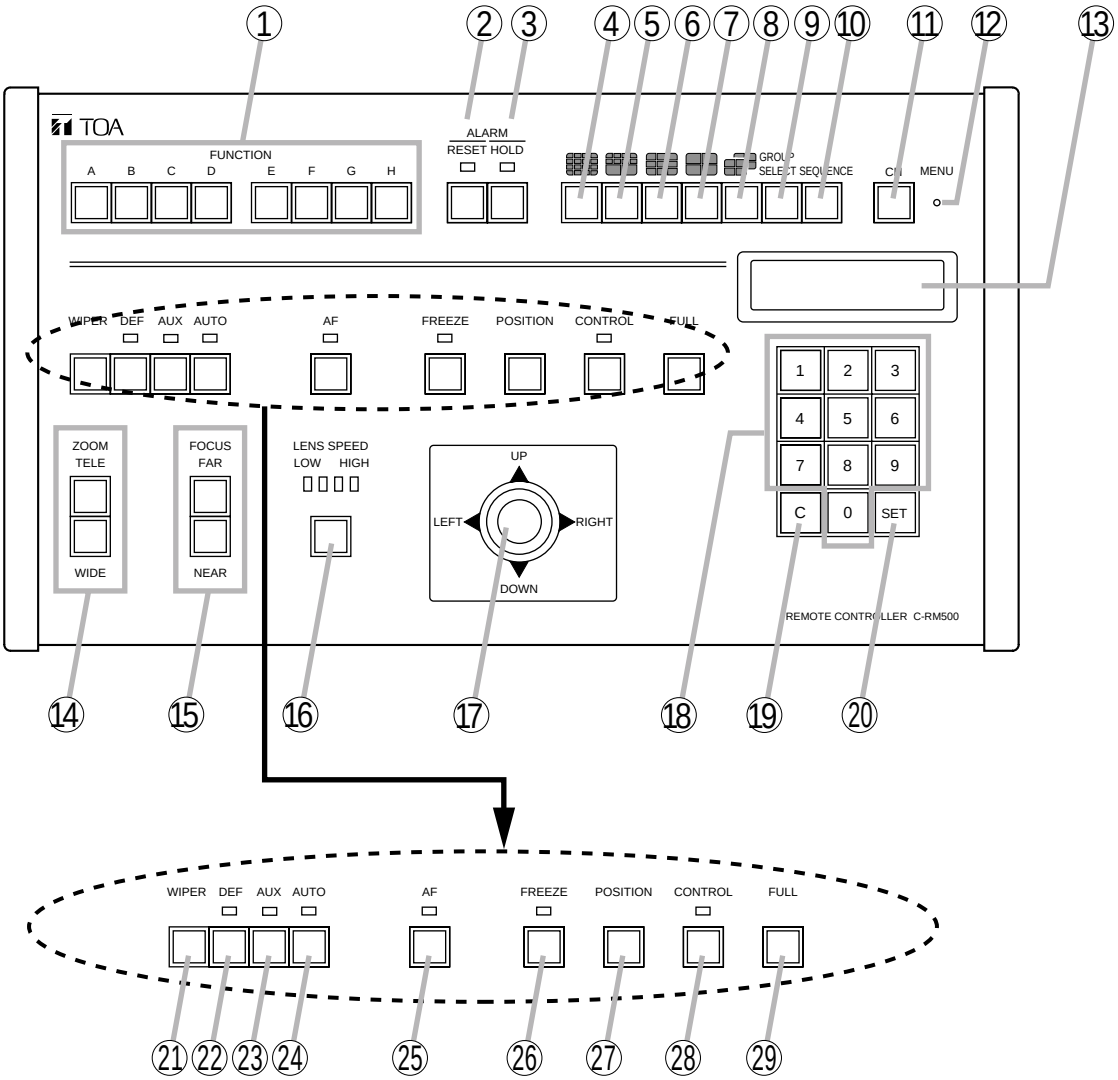
The Camera control terminal is used to connect the C-CC501, C-CC504, C-CC551, or C-CC554 Combination Camera or the C-IF500 Interface Unit. Up to 31 pieces of equipment can be connected to the terminal.

About the Descriptions in This Manual

- The explanations in this manual assume that the C-RM500 Remote Controller is connected to a C-MS160D/S or C-MS90D/S Multi-Switcher and the C-SS8 Smart Switcher.
- Camera number: Refers to the camera input terminal number connected to the switcher.
- Position number: Combination camera orientation can be programmed for No. 1 – 255.

4. NOMENCLATURE AND FUNCTIONS

[Top]



Notes

Depending on the system configuration, the operation of some keys may be disabled. The corresponding keys are marked with the following indications.

*1 Does not function in systems using only with Combination cameras.

*2 Does not function in systems using the Smart Switcher.

*3 Functions only when connected to the Combination camera.

*4 Connect the DC power supply of 12 V/over 150 mA to either input terminal.

1. Function keys [A – H]
A single depression of one of these keys displays the full-screen image of the key's corresponding camera number and position number. Each key can also be set to activate automatic operations (panning, tracing, and sequential switching) of the selected Combination camera.

2. Alarm reset key / Alarm indicator
Resets the system's Alarm mode. The indicator light flashes during Alarm operation.

3. Alarm hold key / Hold indicator
Places activated Alarm inputs on hold. The indicator light flashes during Alarm Hold.

4. 16-segment split-screen key *1, *2
Displays camera images in the 16-segment split-screen format.

5. 10-segment split-screen key *1, *2
Displays camera images in the 10-segment split-screen format. Subsequent depressions of this key can toggle between two separate groups of 10-segment split-screen displays.

6. 9-segment split-screen key *1, *2
Displays camera images in the 9-segment split-screen format. Subsequent depressions of this key can toggle between two separate groups of 9-segment split-screen displays.

7. 4-segment split-screen key *1, *2
Displays camera images in the 4-segment split-screen format. Subsequent depressions of this key can cycle through 4 separate groups of 4-segment split-screen displays.

8. Sequential 4-segment split-screen key *1
Sequentially cycles through all connected camera outputs of up to 4 groups of cameras at a preset time interval. Program sequencing and viewing intervals are set at the Smart Switcher when connected.

9. Group selector key *1, *2
Switches on-screen camera groups during 4-, 9- or 10-segment split-screen display.

10. Sequence key *1, *2
Sequences all connected camera outputs to the full screen at the specified time interval. (Viewing intervals are set at the switcher.)

11. CH call key *1, *2
Displays the camera number on the monitor for a preset period of time. This key is convenient for finding the camera number when no indication or only the camera name is displayed.

12. Menu key
Displays the menu on the Remote Controller's LCD screen for setting functions. To enable, press lightly with a pointed object. When the menu is opened and the desired item is selected, the screen under the setting will be displayed. Pressing the key again will close the setting screen and the display will disappear.

13. LCD screen
Displays character information for the setting menu, numeric keypad input status, current operation, etc.

14. Zoom key *3
Sets the Combination camera's zoom lens for "TELESCOPE" or "WIDE ANGLE" operation. The Zoom key can only be used while the Control indicator is on.

15. Focus key *3
Sets the Combination camera's zoom lens for "FAR" or "NEAR" operation. The Focus key can only be used while the Control indicator is on.

16. Lens speed key / Indicator *3
Adjusts the speed of lens operation when the Zoom or Focus key is pressed.

17. Joystick *3
Controls the attached pan/tilt head's horizontal and vertical movement. The joystick can only be used while the Control indicator is on.

18. Numeric keypad [0 – 9]
Used to enter the camera number, position number, abbreviated number, etc.

19. Clear key [C]
Used to correct entry errors. Also, turns off the buzzer when sounded by an activated alarm.

20. SET key
Used in conjunction with the numeric keypad to program the camera number or position number. Also, if pressed after entering the set abbreviated number with the numeric key, the camera image corresponding to that number can be displayed on the monitor.

21. Wiper key *3
Remotely controls the outdoor-use Combination camera's wiper. This key can only be used while the Control indicator is on.

22. Defroster key/Indicator *3
Remotely controls the outdoor-use Combination camera's defroster. This key can only be used while the Control indicator is on.

23. Auxiliary contact key / Indicator *3
Controls (makes or breaks) the Combination camera's Auxiliary Contact Output 1. The indicator is on when auxiliary contact is at make, and off when the contact is at break. This key can only be used when the Control indicator is on.

24. Auto key / Indicator *3
Enables or disables the Combination camera's automatic functions (Auto-Pan, Auto-Trace, and Preset Sequence). The Auto key can only be used when the Control indicator is on.

- Auto-Pan
  Automatically pans a camera pan/tilt head.
- Auto-Trace
  Automatically executes manual camera operations stored in memory.
- Preset Sequence
  Automatically sequences camera positions in the order of preset position numbers.

25. Auto-focus key / Indicator *3
Enables the Combination camera's Auto-Focus function. This key can only be used when the Control indicator is on.

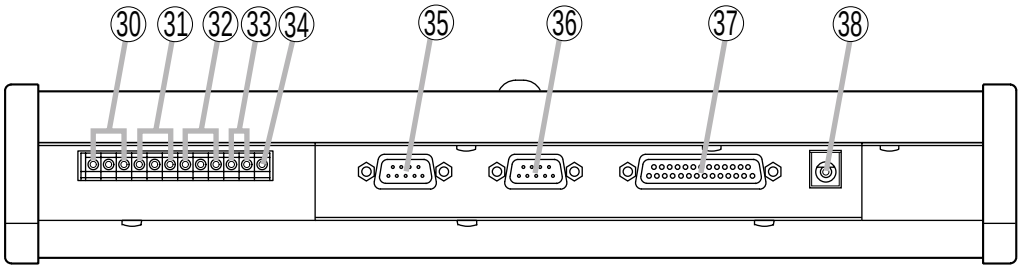
26. Freeze screen key / Indicator *1, *2
Freezes camera images. However, sequential displays cannot be made still. The indicator flashes when there is a freeze image on the screen.

27. Position key
Orients the Combination camera toward the set direction. The Position key can only be used when the Control indicator is on. Pressing the Position key without designating the position number orients the camera toward the direction programmed under Position No. 1 (Home position).

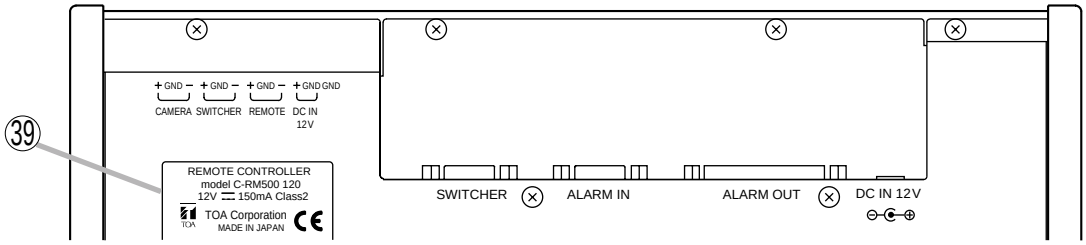
28. Control key *2 **/ Indicator**
Used to designate the camera to be manually controlled during a multi-screen display. This key cannot be used during a full-screen or sequential display. Also, nothing is operated even if this key is pressed without designating the channel number. The indicator lights when the camera is controllable.

29. Full-screen key
Displays the designated camera output on the full screen. This key cannot be used unless the camera number is entered.

[Rear]



[Bottom] (Function indications for the rear parts)



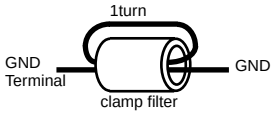
30. Camera control terminal (RS-485)
Connects to the Combination camera.

31. Switcher control terminal (RS-485)
Connects to the Multi-Switcher's dedicated remote control terminal, and controls the Switcher's screen display.

32. Slave unit remote control terminal
Connects to another C-RM500 Remote Controller to be designated as a slave unit for remote control from different locations.

33. Power input terminal [DC IN 12 V] *4
Used to supply power from a source other than the supplied AC adapter.

34.Ground Terminal [GND]
Please ground by the cable that attached the supplied clamp filter.



(Please attach a clamp filter to the nearest possible position of this controller.)

35. Switcher control terminal (RS-232C)
Connects to the RS-232C I/O terminal of the Multi-Switcher and Smart Switcher to control these switchers.

36. Alarm input terminal (RS-232C)
Connects to an alarm input unit to receive alarm signals. This terminal is also a serial I/O terminal that functions as an interface with external systems.

37. Alarm output / Control input terminal
Makes contact corresponding to the alarm-activated channel (camera number).

38. AC adapter power input terminal [DC IN 12 V] *4
Insert the DC plug of the dedicated AC adapter into this terminal.

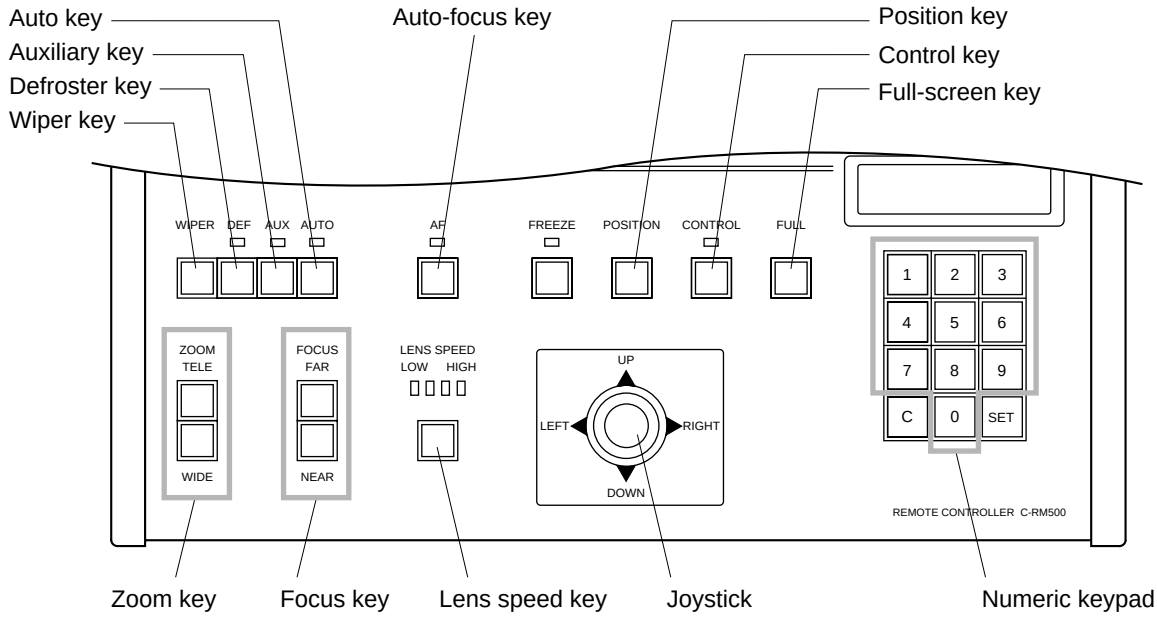
39. Rating label

5. OPERATION

5.1. Operating the Camera

The following camera operations can be performed when the Control indicator is on.

[Operating keys]

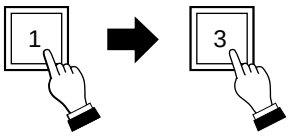


5.1.1. Selecting cameras for operation

Cameras to be manually controlled can be selected during full-screen or multi-segment screen display.
(Refer to p. 10 – 12 for individual camera operations.)

Step 1. Using the numerical keypad, press the desired camera number.

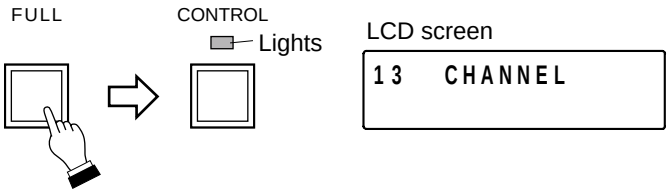
(Example)



Step 2. Press either the Full-Screen key or Control key.

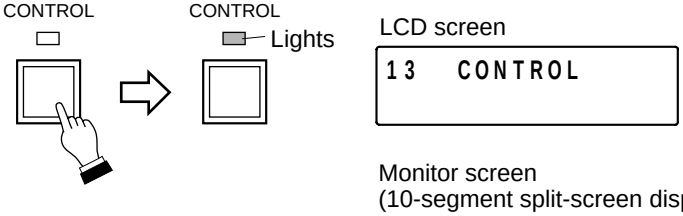
2-1. Operation in full-screen display format

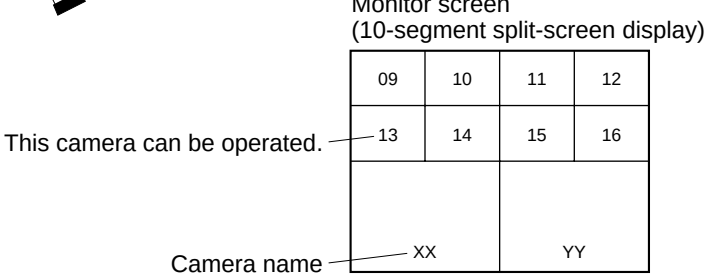
Press the Full-Screen key.
The Control indicator will light, permitting operation of the designated camera.



2-2. Operation in multi-screen display format

Press the Control key during multi-screen display.
The Control indicator will light, permitting operation of the designated camera.





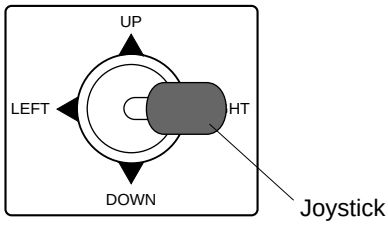
Note
Both XX and YY camera images can be freely set using the switch.

5.1.2. Rotating the camera with the joystick

Any connected Combination camera can be rotated in the desired direction using a joystick.

With the camera selected, tilt the joystick in the direction in which the camera is to be rotated.
The camera will rotate in the direction the joystick was tilted.

(Example)
When panning the camera to the right.

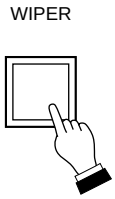


LCD screen

5.1.3. Activating the wiper

When a Combination camera with built-in wiper is connected to the system, the wiper can be activated using the Wiper key.

Press the Wiper key while the camera is selected.
The camera's built-in wiper is activated while the key is held down.

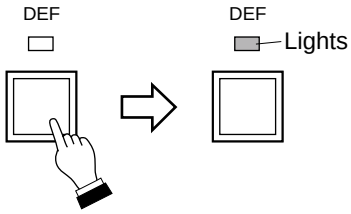


LCD screen

5.1.4. Activating the defroster

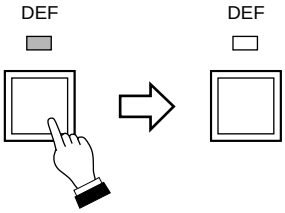
When a Combination camera with built-in defroster is connected to the system, the defroster can be activated using the Defroster key.

Step 1. Press the Defroster key while the camera is selected.
The defroster indicator will light and the camera's built-in defroster will be activated.



LCD screen

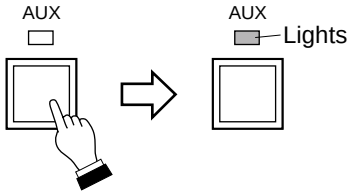
Step 2. Press the Defroster key again.
The defroster indicator will extinguish and the defroster will stop.



5.1.5. Controlling an auxiliary contact

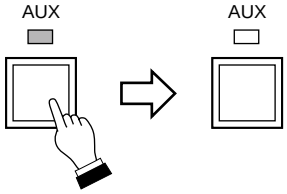
The Combination camera's Auxiliary Contact Output 1 can be switched ON and OFF.

Step 1. Press the Auxiliary key while the camera is selected.
The Auxiliary indicator will light and the auxiliary contact is switched ON.



LCD screen

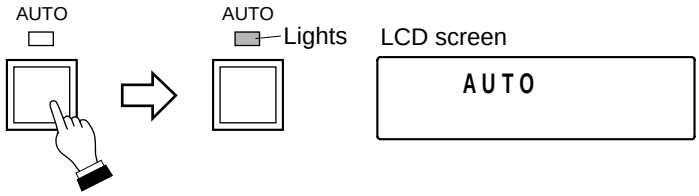
Step 2. Press the Auxiliary key again.
The Auxiliary indicator will extinguish and the auxiliary contact is switched OFF.



5.1.6. Activating the automatic functions

When a Combination camera is connected to the system, its automatic functions can be enabled using the Auto key.

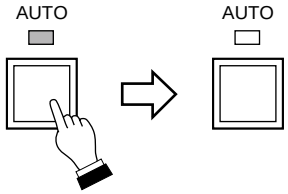
Step 1. Press the Auto key while the camera is selected. The camera's automatic functions (Auto-Pan*1, Auto Trace*2, or Preset Sequence*3) will begin to operate.



Set the automatic functions to be enabled on the Camera Menu. (Refer to p. 40.)

*1 The camera's automatic panning function.
*2 Automatic repetition of manual camera operations that have been stored in memory.
*3 Automatic sequential display of camera positions in the order that their position numbers were selected.

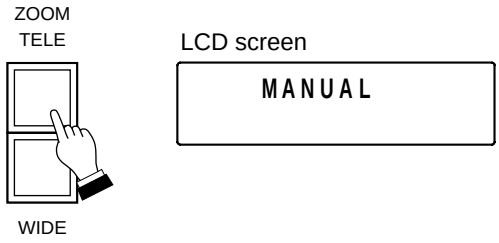
Step 2. Press the Auto key again.
The Auto indicator extinguishes and automatic operations are stopped.



5.1.7. Activating the zoom function

When a Combination camera is connected, its zoom lens can be activated using the Zoom key.

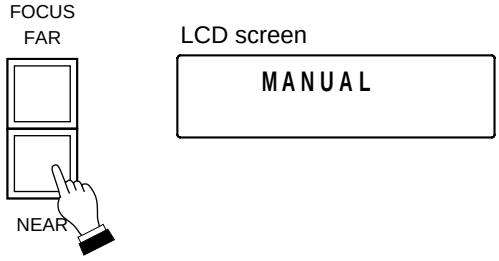
Press the Zoom ("Telescope" or "Wide Angle") key while the camera is selected. Zooming continues as long as the key is pressed.



5.1.8. Activating the focus function

When a Combination camera is connected, its image can be focused using the Focus key.

Press the Focus ("Far" or "Near") key while the camera is selected. Focusing continues as long as the key is pressed.

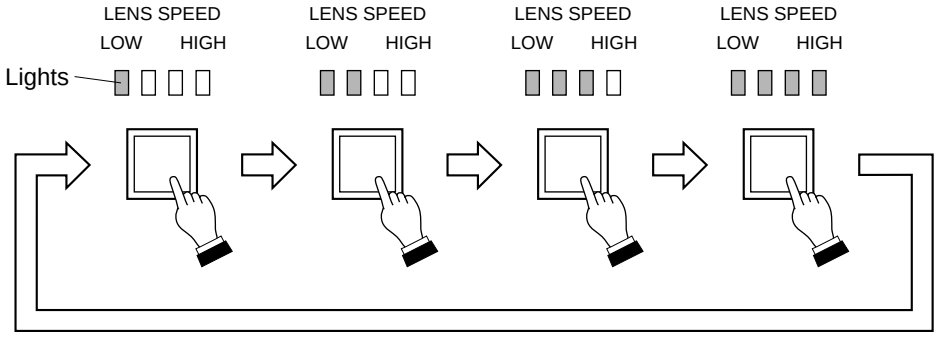


5.1.9. Changing the lens speed

The speed of lens movement when the Zoom or Focus key is pressed can be adjusted in 4 steps of operation: 1) Very slow, 2) Slow, 3) Moderately fast, 4) Fast.

Step 1. Press the Lens Speed key.
The speed indicator number increases by one each time the Speed key is depressed to indicate that the lens speed has been increased by one level. (Lens operating speed returns to "Very slow" when the Speed key is pressed while in Fast mode.)

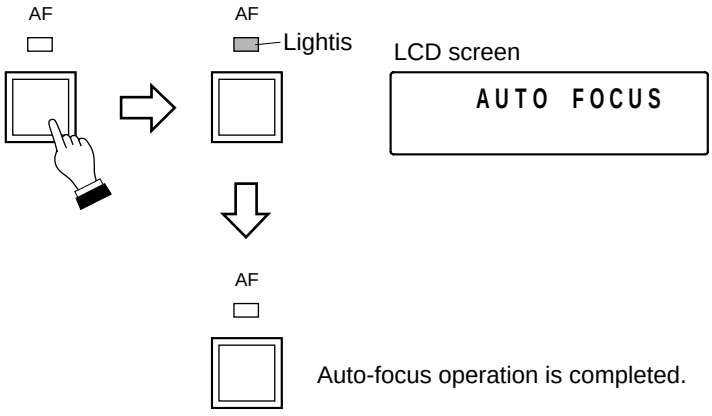
Step 2. Repeat Step 1. until the desired speed is displayed.



5.1.10. Activating the auto-focus function

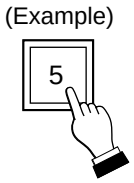
When a Combination camera is connected, the Auto-Focus function can be activated with a press of the Auto-Focus key.

Press the Auto-Focus key while the camera is selected.
The indicator remains lit while the Auto-Focus function is in operation.

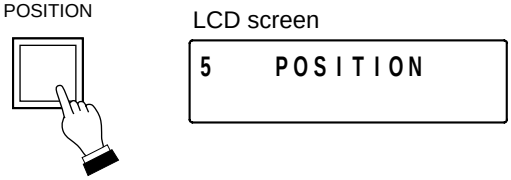


5.1.11. Selecting the camera position

Step 1. Enter the camera position number with the numeric keypad.



Step 2. Press the Position key.
The camera image corresponding to the selected position will be displayed on the monitor.

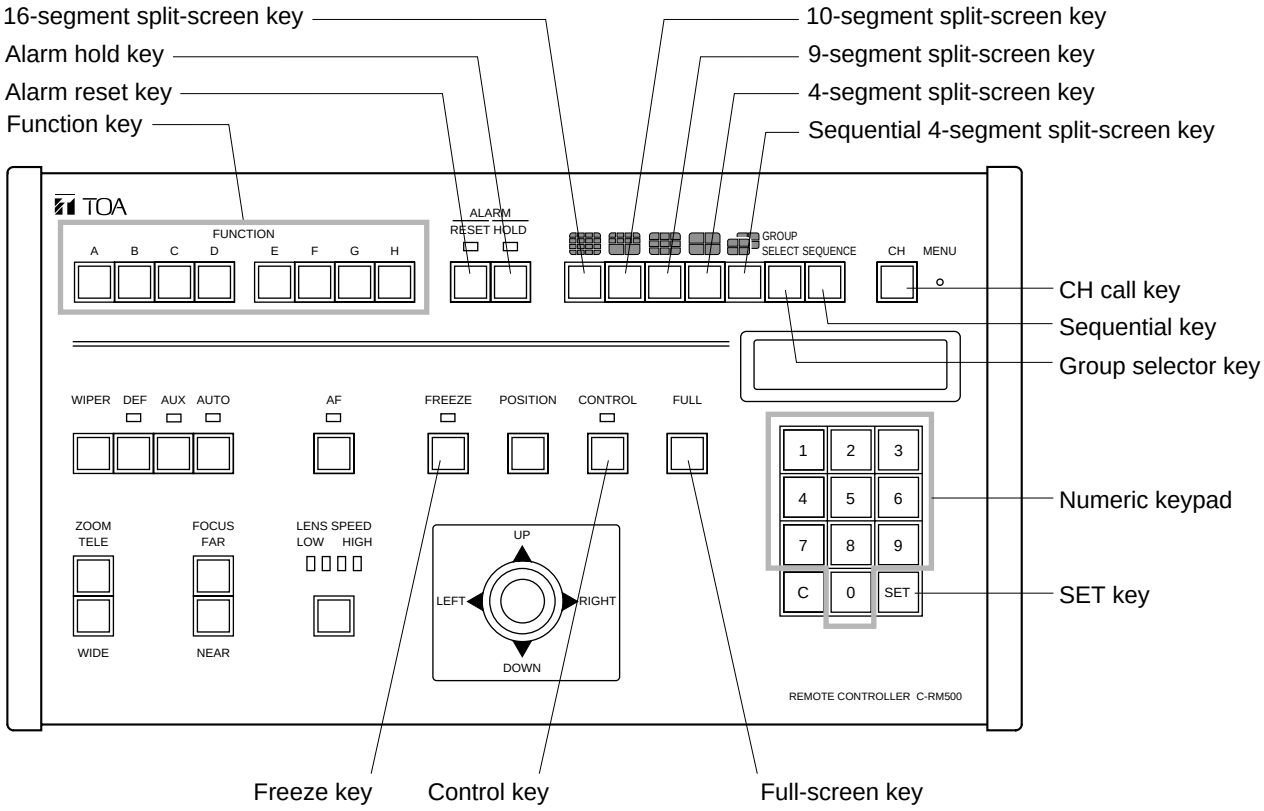


Note

When the Trace function is used in the camera setting, the selection of Position No. 255 executes Auto-Trace operations.

5.2. Monitor Display

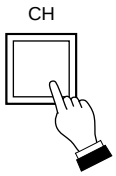
[Operation keys]



5.2.1. Displaying the camera number (only active when the Multi-Switcher is connected)

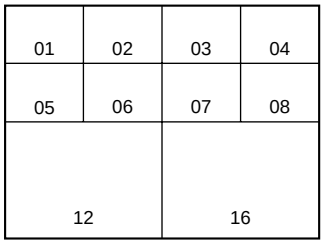
Step 1. Press the Channel Call key while a camera image is displayed on the monitor.
All connected camera numbers will be displayed.

Note
The camera number is displayed even when the camera is not connected.



LCD screen

Monitor screen
(10-segment split-screen display)



[When confirming the camera number and operating its display]

Step 2. Enter the camera number with the numeric keypad.

Step 3. Press either the Full Screen or Freeze Screen key.
The camera image will be displayed in full-screen or freeze-screen format.

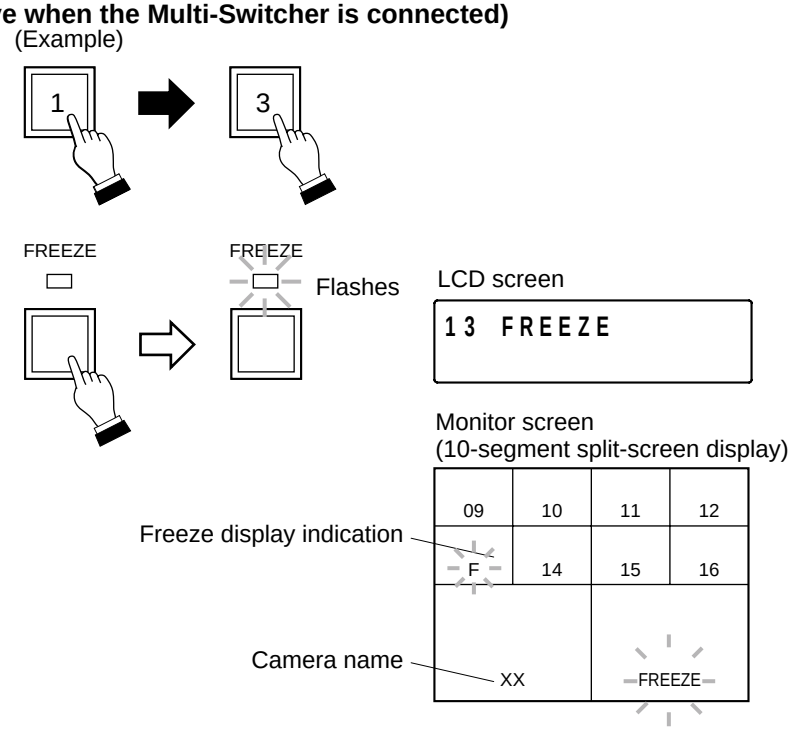
5.2.2. Viewing the freeze screen (only active when the Multi-Switcher is connected)

Step 1. Enter the camera number to freeze using the numeric keypad.

Step 2. Press the Freeze Screen key. The "F" indication will flash on the corresponding camera image screen.

Step 3. Repeat Steps 1 and 2 to freeze other camera images.

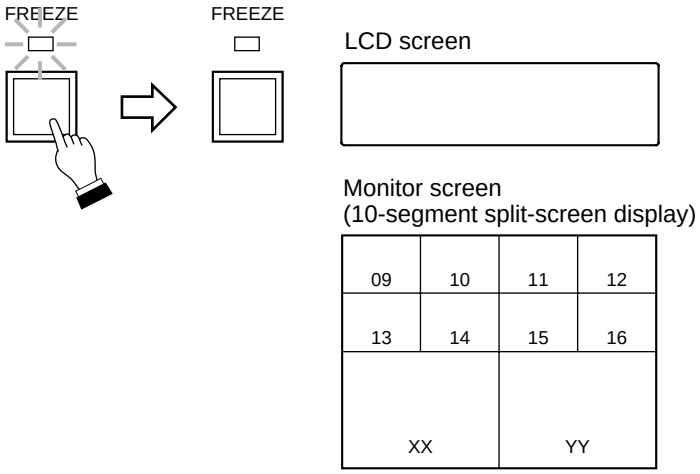
Note
In a system using the RS-232C to control the Multi-Switcher, the freeze screen display is only possible when the full-screen mode is selected.



Note: Two lower screens can be freely set using the switcher.

[Simultaneously resetting all freeze displays]

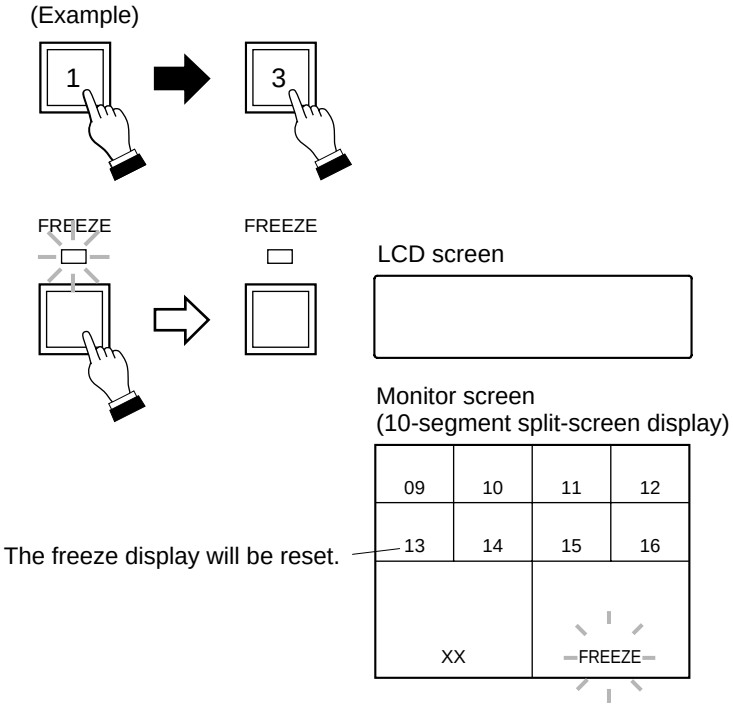
Press the Freeze Screen key.



[Resetting individual freeze displays]

Step 1. Enter the camera number to reset the freeze display using the numeric keypad.

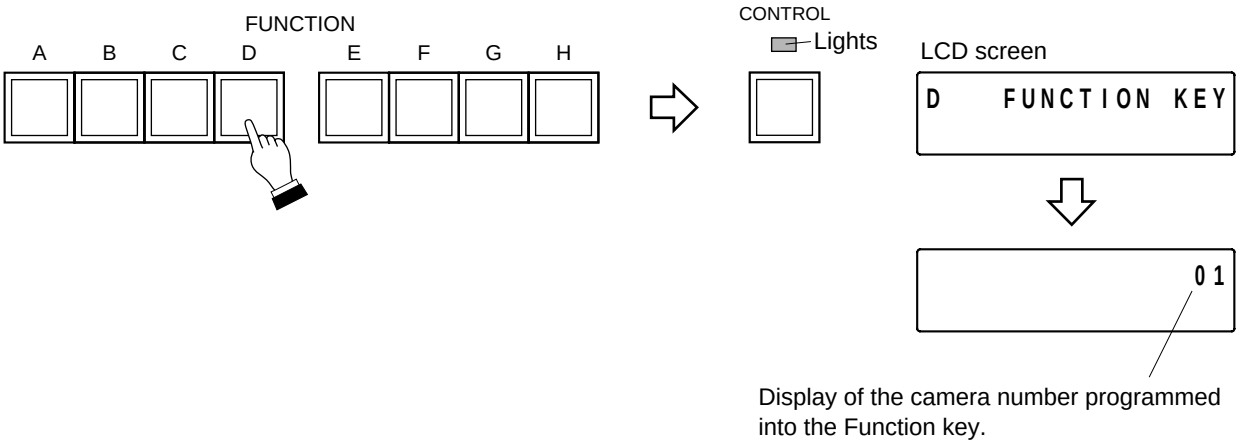
Step 2. Press the Freeze Screen key.



5.2.3. Using the Function keys

By simply pressing a Function key (A – H), the camera image (camera number and position number) programmed into the key can be displayed on the monitor. (Refer to p. 37 "Function key programming.")

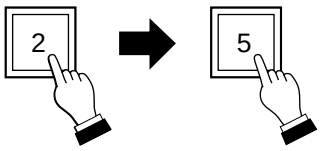
Press a Function key (A – H).
The corresponding camera image (camera number and position number) is displayed on the full screen of the monitor.



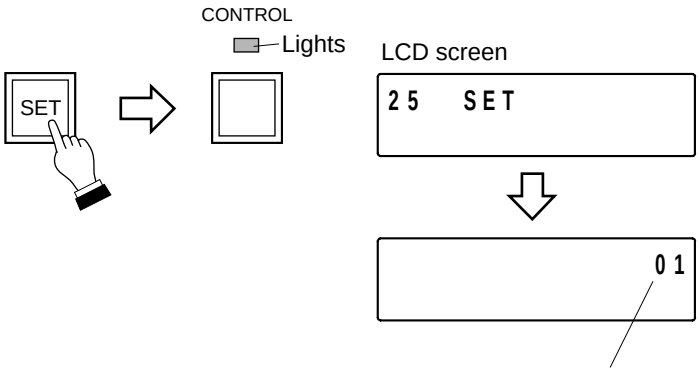
5.2.4. Using the abbreviated numbers

By merely pressing the abbreviated number followed by the SET key, the camera image (camera number and position number) programmed under the abbreviated number can be displayed on the monitor.
(Refer to p. 38 "Abbreviation.")

Step 1. Enter the abbreviated number with the numeric keypad.

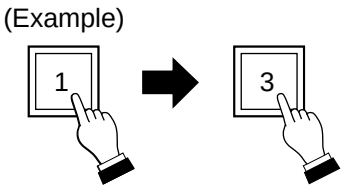


Step 2. Press the SET key.
The programmed camera position's image will be displayed on the full screen. Simultaneously, the Control indicator lights, permitting camera operations with the joystick.

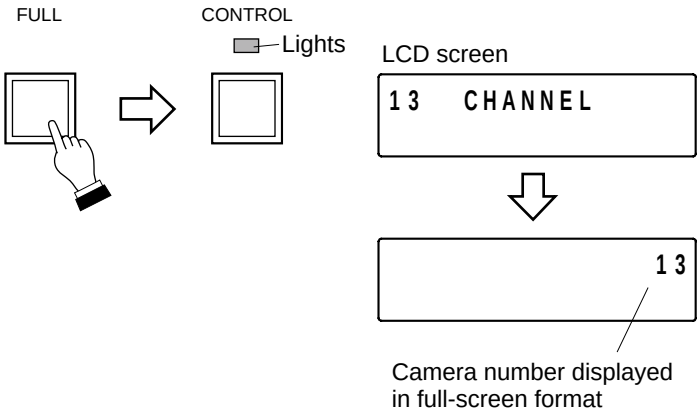


5.2.5. Viewing full-screen displays

Step 1. Enter the camera number to be displayed on the full screen using the numeric keypad.



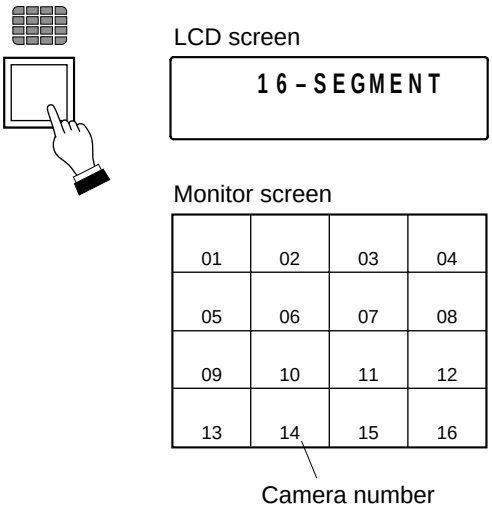
Step 2. Press the Full Screen key.
The designated camera image will be displayed on the full screen. Simultaneously, the Control indicator lights, permitting camera operations with the joystick.



5.2.6. Viewing multi-screen displays (only active when the Multi-Switcher is connected)

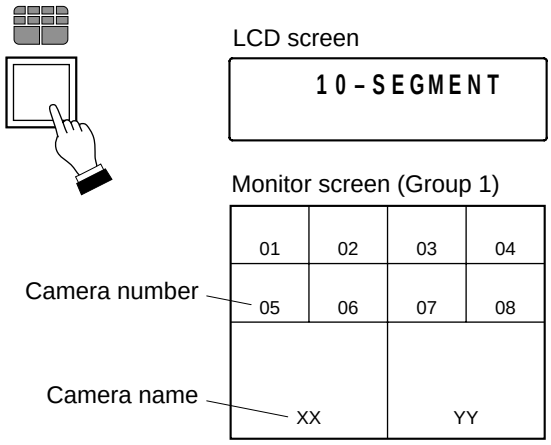
[16-segment split-screen viewing]

Press the 16-Segment Split-Screen key.
All connected camera images will be displayed on the monitor.



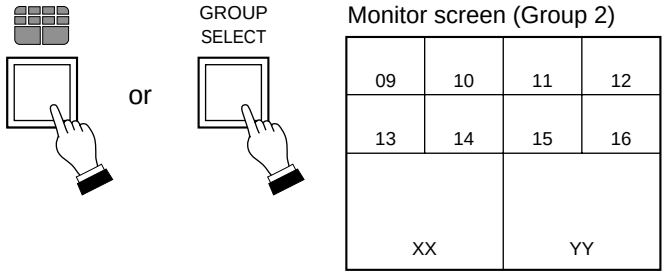
[10-segment split-screen viewing]

Step 1. Press the 10-Segment Split-Screen key.
The images of camera numbers 1 – 8 (Group 1) and 2 more images (set with the Switcher) will be displayed on the monitor.



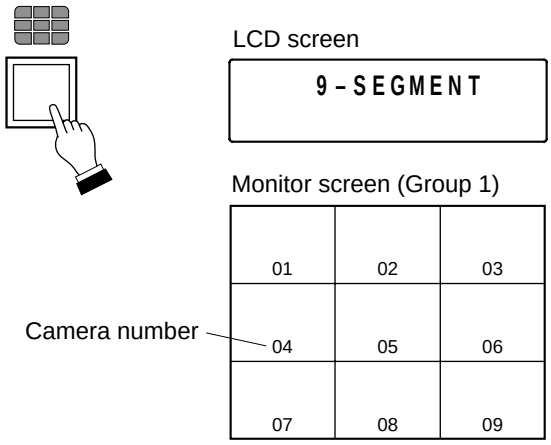
Note: Camera images can be freely selected for Screens XX and YY using the switcher.

Step 2. Press the 10-Segment Split-Screen key again, or the Group Selector key.
The images of camera numbers 9 – 16 (Group 2) and 2 more images (set with the Switcher) will be displayed on the monitor.

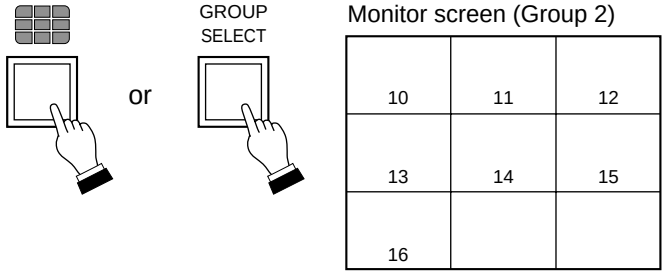


[9-segment split-screen viewing]

Step 1. Press the 9-Segment Split-Screen key.
The images of camera numbers 1 – 9 (Group 1) will be displayed on the monitor.

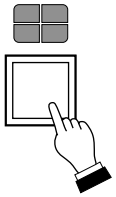


Step 2. Press the 9-Segment Split-Screen key again, or the Group Selector key.
The images of camera numbers 10 – 16 (Group 2) will be displayed on the monitor.



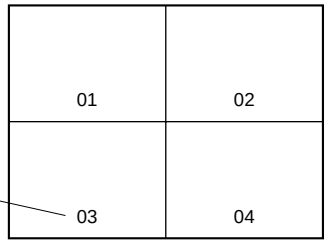
[4-segment split-screen viewing]

Step 1. Press the 4-Segment Split-Screen key.
The images of camera numbers 1 – 4 (Group 1) will be displayed on the monitor.



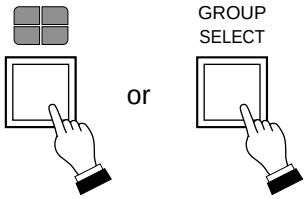
LCD screen

Monitor screen (Group 1)

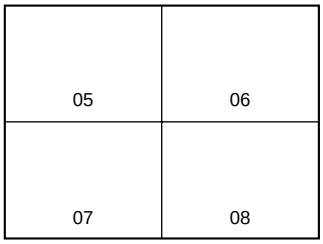


Camera number

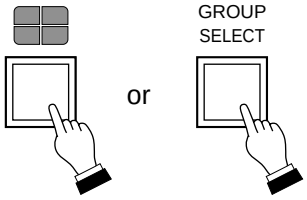
Step 2. Press the 4-Segment Split-Screen key again, or the Group Selector key.
The images of camera numbers 5 – 8 (Group 2) will be displayed on the monitor.



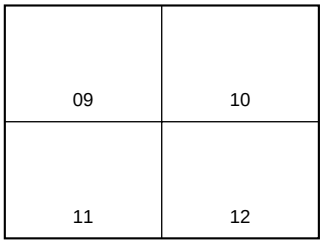
Monitor screen (Group 2)



Step 3. Repeat Step 2 to display other succeeding the images of camera numbers. The displayed camera group is switched to Group 3 (Cameras 9 – 12), Group 4 (Cameras 13 – 16) and then back to Group 1 each time the 4-Segment Split-Screen key is pressed.



Monitor screen (Group 3)



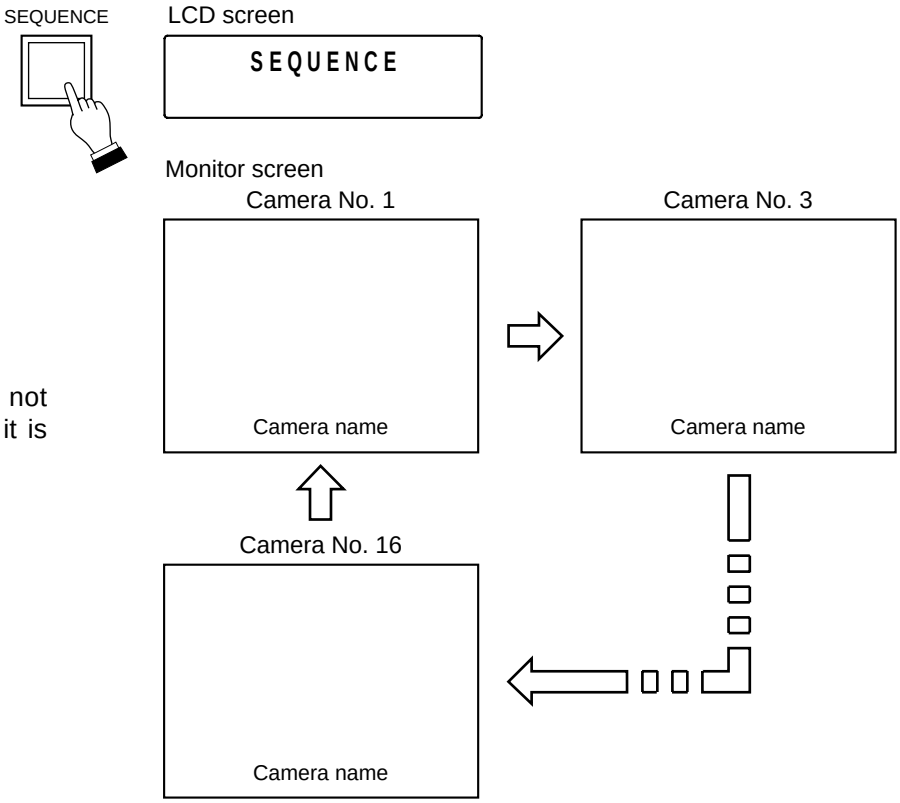
5.2.7. Viewing sequential displays

The outputs of all cameras connected to the switcher can be displayed on the monitor in sequential order at viewing intervals preset at the switcher. For details, refer to the instruction manual included with the switcher.

[Sequential full-screen viewing]

Press the Sequence key. The images for Cameras 1 – 16 are displayed in sequential order.
Note that if the Tour Sequence function has been set, the camera images will be switched in the order of the specified reproduction number. Refer to p. 39 "Tour sequence.")

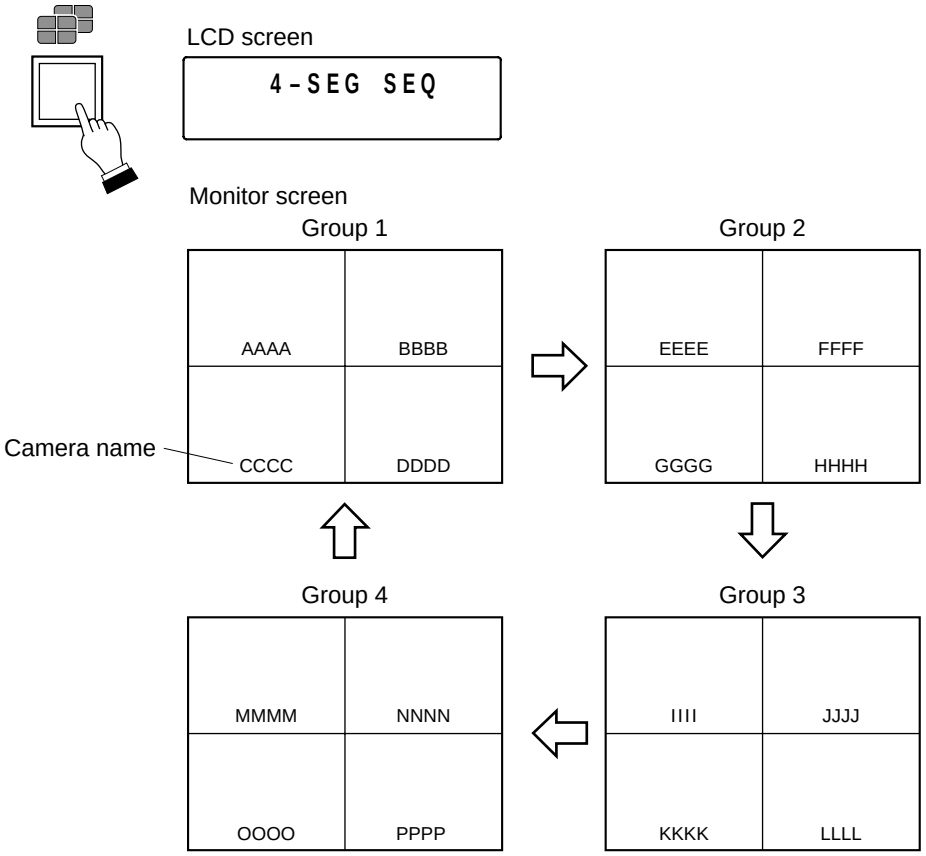
Note
In this example, Camera No. 2 is not displayed on the monitor because it is not connected.



[Sequential 4-segment split-screen viewing]

Press the sequential 4-Segment Split-Screen key.

Tip
The Program Sequence function is made operational when the Smart Switcher is connected. For details, refer to the instruction manual included with the Smart Switcher.

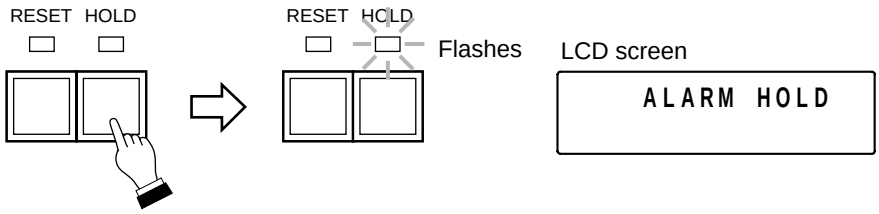


5.3. Alarm Hold and Reset

The Alarm can be held or reset when "1. KEY" has been selected in the "Alarm Hold" setting, and is not activated when "2. ALWAYS" has been selected. (Refer to p. 36 "Alarm hold.")

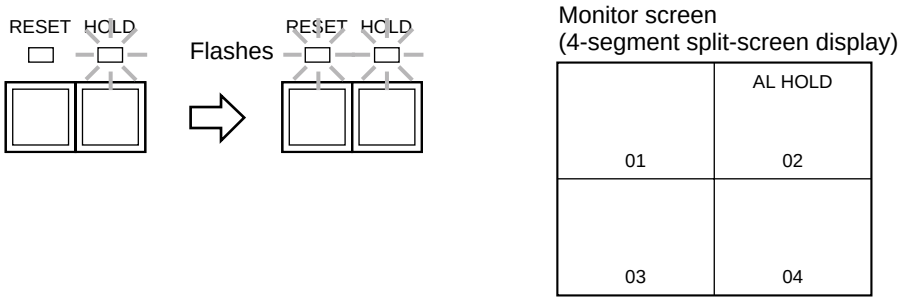
5.3.1. Holding the alarm

Press the Alarm Hold key.
The Alarm Hold indicator light will flash.



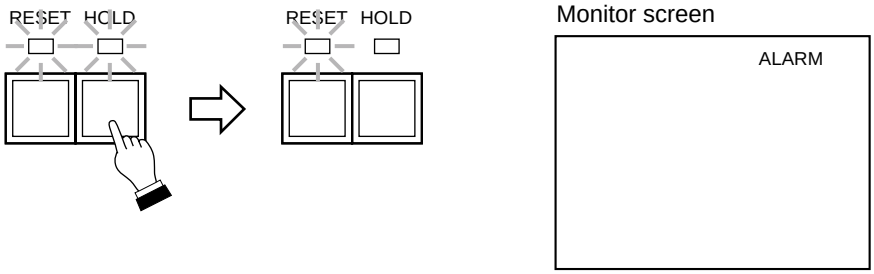
[When an alarm signal is received during Alarm Hold]

The Alarm Reset indicator light flashes while the "AL HOLD" indication is displayed on the monitor.



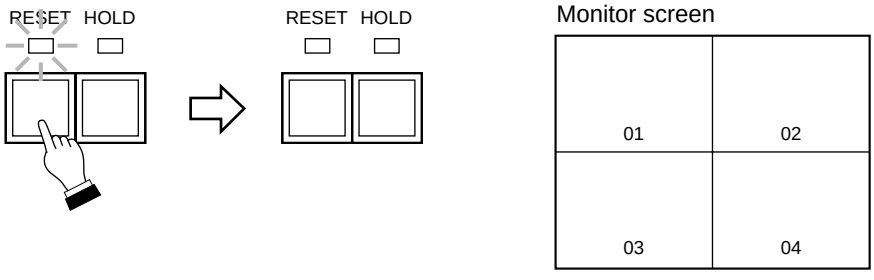
5.3.2. Displaying alarm-activated camera images

Press the Alarm Hold key.
The Alarm Hold indicator light will extinguish, displaying the alerted camera image on the monitor in full-screen format.



5.3.3. Resetting the alarm

Press the Alarm Reset key.
The Alarm Reset indicator light will extinguish, resetting the alarm state.



Note
The alarm cannot be reset when "2. LEVEL" has been selected in the Alarm Signal setting. The state of alarm continues as long as an alarm signal input is received. (Refer to p. 35 "Alarm signal.")

6. SETTINGS

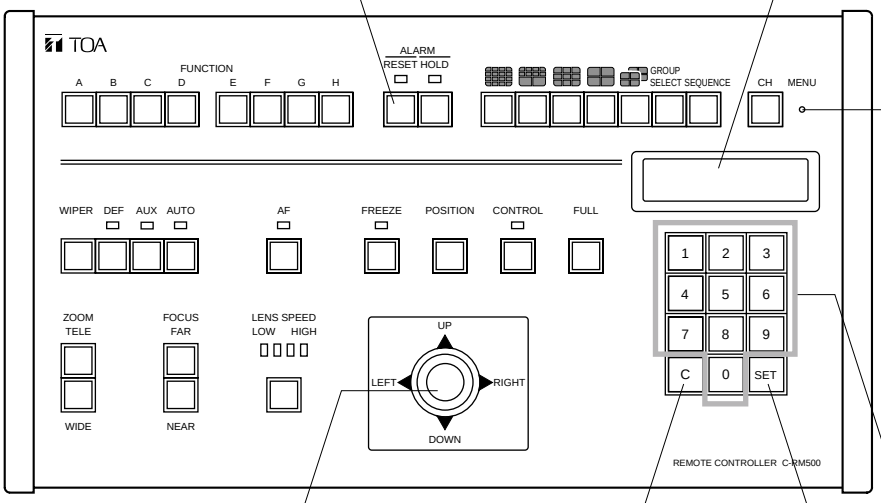
6.1. Setting Items and Their Descriptions

Operation mode*	(Refer to p. 24)	Designates the unit as a master or slave.
Switcher*	(Refer to p. 25)	Determines the type of switcher to be connected to the unit.
Contact point	(Refer to p. 26)	Sets the Alarm Contact Output Terminal's operation. (Only valid when "MASTER" has been selected in the "Option mode" setting.)
Automatic reset	(Refer to p. 27)	Sets the function to automatically return the camera to a specified (Home) position after operation completion.
Home position	(Refer to p. 28)	Sets the Combination camera's standby status.
I/O speed*	(Refer to p. 29)	Sets the transfer rate of each control terminal.
Buzzer*	(Refer to p. 30)	Sets whether or not to sound a buzzer when an alarm is engaged.
Initial screen	(Refer to p. 30)	Sets the screen to be displayed on the monitor immediately after the power is switched ON.
Channel designation	(Refer to p. 31)	Sets the channel (camera number) to be displayed first when the power is switched ON.
Sensor alarm	(Refer to p. 32)	"ON" when using the Sensor Alarm function.
Camera alarm	(Refer to p. 32)	"ON" when using the Combination camera's alarm contact input.
Camera check	(Refer to p. 33)	Checks the Combination camera connected to the camera control terminal for 30 seconds.
Camera alarm preset	(Refer to p. 34)	Sets the position number and direction in which the Combination camera will automatically face when an alarm signal is received from the camera. (Only valid when "ON" has been selected in the "Camera alarm" setting.)
Alarm signal	(Refer to p. 35)	Sets the type of alarm activation signal.
Alarm interval	(Refer to p. 35)	Sets the time interval from alarm signal reception to reset.
Alarm function	(Refer to p. 36)	Sets the monitor display method when an alarm signal is received. (Only valid when "EDGE" has been selected in the "Alarm signal" setting.)
Alarm hold	(Refer to p. 36)	Sets the monitor display to be switched when an alarm signal is received.
Function key	(Refer to p. 37)	Displays the corresponding preset camera image (camera number and position number) on the monitor.
Abbreviation	(Refer to p. 38)	Displays the corresponding preset camera image (camera number and position number) on the monitor when the abbreviated number (entered with the numeric keypad) is entered, followed by the SET key.
Tour sequence	(Refer to p. 39)	Sequentially displays two or more camera outputs on full screen in order of reproduction (1 – 128) at preset time interval (seconds).
Camera menu	(Refer to p. 40)	Calls up the camera's built-in menu screen, permitting various Combination camera settings, such as present position.
Password	(Refer to p. 40)	Sets the password required to open the menu.

* Can be set when "SLAVE" has been selected in the "Operation mode" setting. In this event, other items are not displayed on the menu screen.

6.2. Operating Keys and Display Screen

[Keys to be used in setting operations]



Alarm Reset key
Used for password setting.

LCD screen
Displays the setting items and their contents.

Menu key
Pressing this key calls up the menu display on the LCD screen. The menu display returns to the normal screen if the key is pressed again during setting (except during "Camera menu" and "Password" settings).
(Refer to p. 40.)

Numeric keypad
Used for entering numbers.

Joystick
Selects setting items when tilted up and down, and setting contents when tilted left and right.

Clear key
Returns the mode to the setting item selection without confirming or changing the setting contents.

SET key
Confirms the setting items and contents.

[LCD screen display]

6.3. Basic Setting Operations

This section shows basic operating procedures for each setting item. Note, however, that the password setting differs from those explained here. Refer to p. 40 for the password setting procedure.

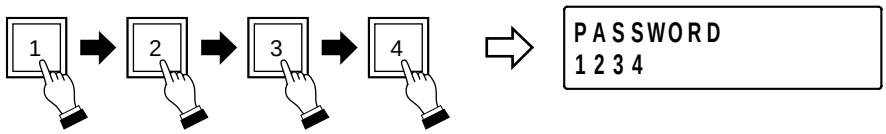
Step 1. Press the Menu key with a pointed object.

[When the password has been set]

The password entry screen is displayed.

1-1. Enter the password (4 digits) using the numeric keypad.

(Example)



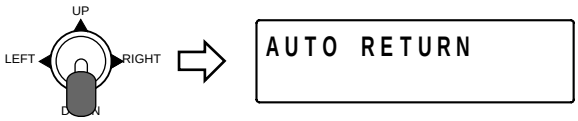
1-2. Press the SET key.
If the password is correct, the menu screen appears.

[When the password has not been set]

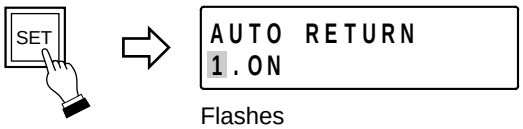
The menu screen appears.

Step 2. Tilt the joystick up or down to select the setting item.

(Example)



Step 3. Press the SET key to confirm the setting item.
The current setting contents (if not set, the factory-predetermined setting contents) are displayed at the lower part of the LCD screen. In this event, one character "1" of the setting contents flashes. (The flashing character differs depending on the content.)

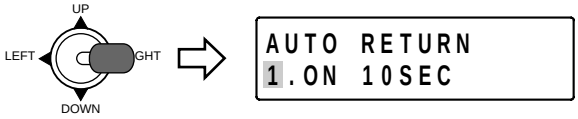


Flashes

Step 4. Tilt the joystick left or right to select the desired setting content.

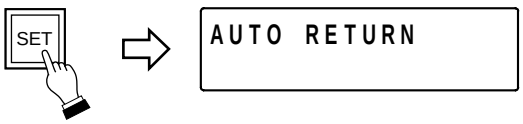
Tip
Pressing the Clear key before Step 4 is completed will return the display to the screen last shown (in Step 2) before the SET key was pressed.

(Example)



Step 5. Press the SET key to confirm the setting contents.
The display returns to the screen (in Step 2) to select the setting item.

(Step. 2)



Step 6. Repeat Steps 2 – 5 to continue to set other items.
Press the Menu key when returning to the normal screen after setting completion.

6.4. Setting the Functions

Perform the following settings referring to the Basic Setting Operations on p. 23.

6.4.1. Operation mode

Sets the unit's operation mode.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "OPERATION MODE," and confirm it by pressing the SET key. The setting contents will be displayed on Line 2.

Step 3. Tilt the joystick left or right to select either of the following setting contents and confirm it with the SET key.

[Setting contents]

1. MASTER	Be sure to select Master when only a single C-RM500 unit is used. When 2 units are connected, set either unit as the Master and the other as "SLAVE."
2. SLAVE	When 2 units are connected, set either unit as "SLAVE," and the other as "MASTER."

Note: Operation mode is set as "1. MASTER" by the factory.

6.4.2. Switchers

Sets the type of switcher to be connected to the unit.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "SWITCHER" and confirm it with the SET key.
The setting contents will appear on Line 2.

Step 3. Tilt the joystick left or right to select one the following setting contents and confirm it with the SET key.

[Setting contents]

1. 16 INPUT*1	Select this setting when the 16 channels Multi-Switcher is connected to the switcher control terminal (RS-485). Select this setting when the system includes a switcher other than Multi-Switcher or Smart Switcher, and the number of control channels is 16 or less.
2. 9 INPUT A*1	Select this setting when the 9 channels Multi-Switcher is connected to the switcher control terminal (RS-485) and Camera 9's 4-segment split-screen display is set for "OFF" in the Multi-Switcher settings.
3. 9 INPUT B*1	Select this setting when the 9 channels Multi-Switcher is connected to the switcher control terminal (RS-485) and Camera 9's 4-segment split-screen display is set for "ON" in the Multi-Switcher settings.
4. 16 INPUT-2*1	Select this setting when the 16 channels Multi-Switcher is connected to the switcher control terminal (RS-232C).
5. 9 INPUT A-2*1	Select this setting when the 9 channels Multi-Switcher is connected to the switcher control terminal (RS-232C) and Camera 9's 4-segment split-screen display is set for "OFF" in the Multi-Switcher settings.
6. 9 INPUT B-2*1	Select this setting when the 9 channels Multi-Switcher is connected to the switcher control terminal (RS-232C) and Camera 9's 4-segment split-screen display is set for "ON" in the Multi-Switcher settings.
7. SMART	Select this setting when a Smart Switcher is connected to the switcher control terminal (RS-232C). Confirming this setting will cause the unit to wait for the entry of the number of connected Smart Switchers. SWITCHER 7.SMART 1 Enter the number of Smart Switchers connected to the system. If the number has already been set, the set number is displayed. Confirm the number of switchers with the SET key. **Note:** Up to 8 Smart Switchers can be connected. Be sure to enter the correct number. If the wrong number is entered, such symptoms will occur that unconnected cameras are selected or connected cameras cannot be selected.
8. OTHER 16*2	Select this setting when the system includes a switcher other than Multi-Switcher or Smart Switcher, and the number of control channels is 16 or less.
9. OTHER 16 → 64*2	Select this setting when the system includes a switcher other than Multi-Switcher or Smart Switcher, and the number of control channels is between 17 and 64.
10. OTHER*2	Test mode

*1 Power synchronization cannot be chosen by setup menu of the camera in this setting.
*2 Camera alarm is unreceivable in this setting.

Note: The switcher type is set to "4. 16 INPUT-2" by the factory.

6.4.3. Contact

Sets the alarm contact output terminal's operation.

Note
Contacts can only be set when "MASTER" has been selected in the "Operation mode" setting. This setting item is not displayed on the menu screen if "SLAVE" has been selected.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "CONTACT" and confirm it with the SET key.
The setting content will appear on Line 2.

Step 3. Tilt the joystick left or right to select one of the following setting contents, and confirm it with the SET key.

[Setting contents]

1. SELECTION CHANNEL	Makes the contact corresponding to the channel number (camera number) when each channel is selected for full-screen display. Also, if the connection of a switcher with 16 or more input channels has been set, the channel number selected for full-screen display is converted into binary data, and contacts 1 – 16 are assigned bits 0 – 15.
2. ALARM	Makes the contact corresponding to the alarm-activated channel number (camera number) when the number of connected switcher inputs is 16 or less and there is an alarm signal input to each channel. Also, if 16 or more inputs are set, the last channel to receive an alarm signal is converted into binary data, and contacts 1 – 16 are assigned bits 0 – 15. In the normal state, no contacts are enabled.
3. BOTH	In the normal state, the contact corresponding to the channel number (camera number) is made when each channel is selected for full-screen display. In the alarm state, when an alarm signal is input, the contact corresponding to the channel number is made.

Notes
- When "10. OTHER" has been selected in the "Switchers" settings, only "1. SELECTION CHANNEL" can be set.
- This selection is set to "2. ALARM" by the factory.

6.4.4. Automatic reset

Enables the function that automatically resets the camera to a fixed position if the camera is not operated for a preset time interval.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "AUTO RETURN" and confirm it with the SET key.
The setting will appear on Line 2.

Step 3. Tilt the joystick left or right to select either of the following settings and confirm it with the SET key.

[Setting contents]

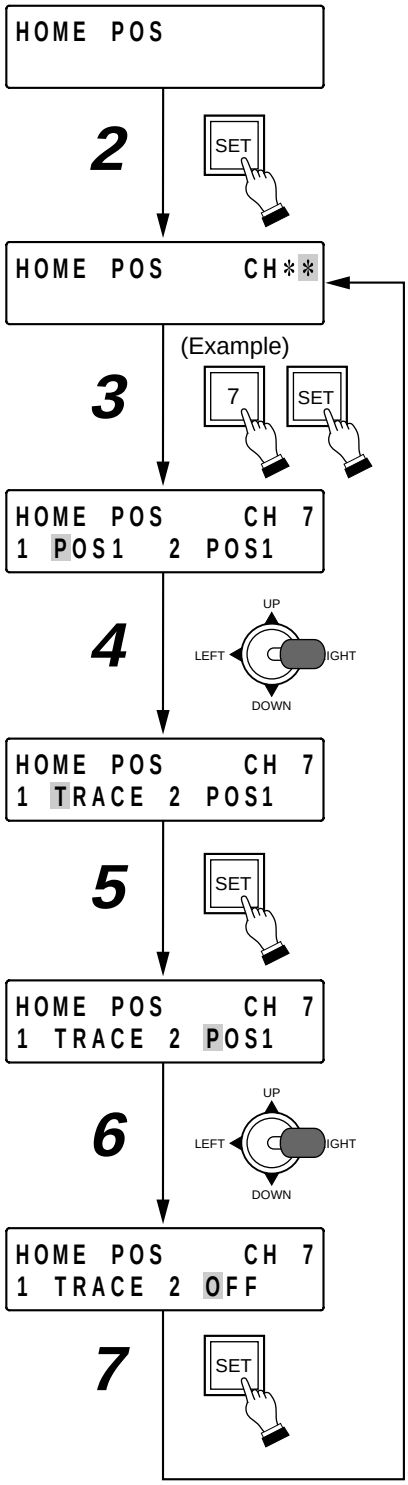
1. ON	Confirming this setting displays the screen for setting the time interval before Automatic Reset occurs following camera operation.  Tilt the joystick left or right to select the reset interval: "10 SEC," "15 SEC," "20 SEC," "30 SEC," "1 MIN," "2 MIN," "3 MIN," "4 MIN" and "5 MIN." The selected time is confirmed with the SET key. **Note:** "SEC" stands for seconds, and "MIN" for minutes.
2. OFF	Disables the Automatic Reset function.

Note: This selection is set to "2. OFF" by the factory.

6.4.5. Home position

Sets the Combination camera to standby status when not being operated.

Note
When "10. OTHER" is selected in the "Switchers" setting, set the operation common to all channels. In this event, the screen described in Step 2 below and the rightmost [∗∗CH] indication on the LCD screen are not shown.



Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "HOME POS," then confirm it with the SET key.
The channel (camera number) input screen for the Home Position setting will appear.

Step 3. Enter the channel number with the numeric keypad, and confirm the entry with the SET key.
The operation setting is displayed on the bottom line, and the cursor moves to the position "P" (left). The No. "1" on the left shows the operation setting when the Home Position selection input terminal in the unit's rear panel-mounted Alarm output/control input terminal is broken. Similarly, the No. "2" on the right shows the operation setting when the Home Position terminal is made.
(Refer to p. 49 "Alarm Output/Control Input Terminal Connections.")

Step 4. Tilt the joystick left or right to select the operation settings for "1" from the list shown below.

Step 5. Press the SET key to confirm the operation setting for "1."
The cursor moves to "P" (right).

Step 6. Tilt the joystick left or right to select the operation settings for "2" from the list shown below.

Step 7. Press the SET key to confirm the operation setting for "2."
The procedure returns to Step 3, and the settings are displayed on the LCD screen.

Step 8. To further set other channels, repeat Steps 3 – 7.
To return to the setting display, press the Clear key.

[Home position selector terminal operation settings]

POS1	Orients the camera in the direction of Position 1, as set at the camera.
POS2	Orients the camera in the direction of Position 2, as set at the camera.
PAN	Activates the Auto-Pan function*1.
TRACE	Activates the Auto Trace function*2.
P-SEQ	Activates the Preset Sequence function*3.
OFF	

*1 Automatically pans the camera pan/tilt head.
*2 Automatically executes manual camera operations stored in memory.
*3 Automatically sequences camera positions in the order that the position numbers were selected.

Notes
- Make sure to perform each camera setting when "POS2", "TRACE" or "P-SEQ." is selected. The unit could malfunction if this setting is not correctly performed.
- This selection is set to "POS1" by the factory.

6.4.6. I/O speed

Sets each control terminal's transfer rate.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "I/O SPEED" then press the SET key to confirm the selection.
The screen for selecting the control terminal is displayed.

Step 3. Tilt the joystick left or right to select the control terminal.
Select the control terminal from "CAMERA," "SWCHER" (switcher), "REMOTE" (Remote Control Unit), and "ALARM."

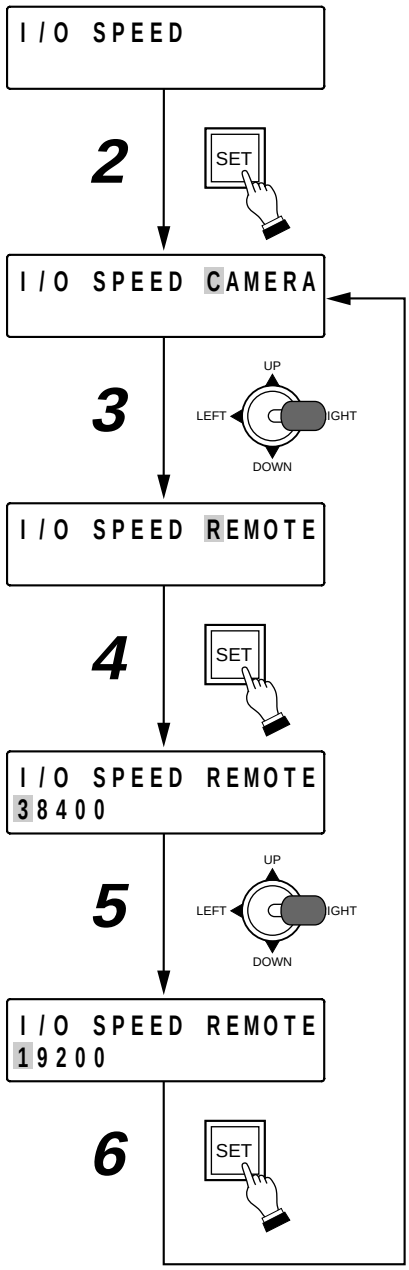
Step 4. Press the SET key to confirm the selected control terminal.
The transfer rate is shown on Line 2. In this event, the current setting is displayed.

Step 5. Tilt the joystick left or right to select the transfer rate.
The transfer rate can be selected from "2400," "4800," "9600," "19200," and "38400."
Note
Set the same transfer rate as those of equipment connected to each control terminal.

Control Terminal	Factory Setting
Camera	38400 bps
Switcher	19200 bps
Remote control unit	19200 bps
Alarm	38400 bps

Step 6. Press the SET key to confirm the set transfer rate.
The procedure returns to Step 3, and the settings are displayed on the LCD screen.

Step 7. To further set other control terminals, repeat Steps 3 – 6.
To return to the display of the setting item, press the Clear key.

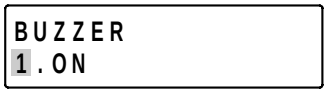


6.4.7. Buzzer

Sets whether or not to sound the buzzer when an alarm signal is received.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "BUZZER," then confirm the selection with the SET key. The setting is displayed on Line 2.



Step 3. Tilt the joystick left or right to select either of the following settings, and confirm it with the SET key.

[Setting contents]

1. ON	Sounds a buzzer when alarm is activated.
2. OFF	Sounds no buzzer when alarm is activated.

Note: This selection is set to "1. ON" by the factory.

6.4.8. Initial screen

Sets the screen to be displayed immediately after the power is turned on.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "INITIAL SCREEN," then confirm the selection with the SET key. The setting will appear on Line 2.

Step 3. Tilt the joystick left or right to select one of the following settings, and confirm it with the SET key.
Note: The settings differ depending on the type of switcher connected to the system.

[Setting contents]

Switcher Type	Setting
Multi-Switcher	1. FULL (full screen) 2. SEQUENCE 3. 4-SEG SEQ (sequential 4-segment split-screen display) 4. 4-SEG (4-segment split-screen display) 5. 9-SEG 6. 10-SEG 7. 16-SEG **Notes** • Make sure that the selected setting is the same as that for the connected switcher. • This selection is set to "3. 4-SEGMENT SEQ" by the factory.
Smart Switcher	1. FULL 2. SEQUENCE **Note:** This selection is set to "SEQUENCE" by the factory.
Other switchers	1. FULL

6.4.9. Channel designation

Sets the first channel (camera number) to be displayed after the power is turned ON.

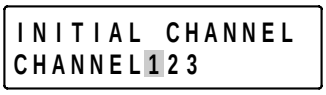
Note
This channel setting can only be performed when one of the settings "1. FULL," "4. 4-SEG," "5. 9-SEG," or "6. 10-SEG" has been selected in the "Initial screen" setting. The Channel Designation item is not displayed on the menu screen when another setting has been selected.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "INITIAL CHANNEL," then confirm the selection with the SET key. The setting corresponding to the Initial Screen setting is displayed on Line 2.

Step 3. Using the joystick and numeric keypad, select the setting depending on the "Initial screen" setting, and confirm the selected setting with the SET key. (Refer to the table shown below.)

[Setting contents]

"Initial screen" Setting	Setting
1. FULL (full screen)	Enter the channel to be designated with the numeric keypad, and confirm the setting with the SET key.  **Note:** This selection is set to "1" by the factory.
4. 4-SEG (4-segment split-screen display)	Tilt the joystick to the left or right to select "1 – 4," "5 – 8," "9 – 12," or "13 – 16" and confirm with the SET key.  **Note:** This selection is set to "1 – 4" by the factory.
5. 9-SEG (9-segment split-screen display)	Tilt the joystick to the left or right to select "1 – 9" or "10 – 16," and confirm with the SET key.  **Note:** This selection is set to "1 – 9" by the factory.
6. 10-SEG (10-segment split-screen display)	Tilt the joystick to the left or right to select "1 – 8" or "9 – 16," and confirm with the SET key.  **Notes** • Make sure that this setting is the same as that of the connected switcher. • This selection is set to "1 – 8" by the factory.

6.4.10 Sensor alarm

Select "1. ON" to use the Sensor Alarm function.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "SENSOR ALARM," and confirm the selection with the SET key. The setting is displayed on Line 2.

Step 3. Tilt the joystick to the left or right to select either of the following settings, and confirm it with the SET key.

[Setting contents]

1. ON	Uses Sensor Alarm.
2. OFF	Does not use Sensor Alarm.

Note: This selection is set to "1. ON" by the factory.

6.4.11. Camera alarm

Select "1. ON" to use the Combination camera's alarm contact input.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "CAMERA ALARM," and confirm the selection with the SET key. The setting is displayed on Line 2.

Step 3. Tilt the joystick to the left or right to select either of the following settings, and confirm it with the SET key.

[Setting contents]

1. ON	Uses the Combination camera's alarm contact input.
2. OFF	Does not use the Combination camera's alarm contact input.

Notes
- When operating the alarm by setting "Camera alarm" to "2. OFF," be sure to connect the optional C-AL80 Alarm Input Unit.
- This selection is set to "1. ON" by the factory.

6.4.12. Camera check

Checks Combination cameras connected to the camera control terminal for 30 seconds.

Note
Once the Camera Check has been completed, only the cameras connected when the check was made can be controlled. Therefore, be sure to perform the camera check again whenever new cameras are added.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "CAMERA CHECK," and confirm the selection with the SET key. The check takes approximately 30 seconds. All keys are disabled during the check.

The check interval is counted down from 30 (seconds) displayed to the right of Line 1. The camera numbers of the connected Combination cameras are displayed in numerical order on Line 2.

(Example)

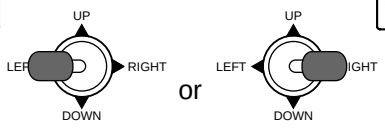
```
CAMERA CHECK  20
1,2,10,15,16,20→
```

The indication "OK" is displayed after the 30-second check is completed.

```
CAMERA CHECK  OK
1,2,10,15,16,20→
```

After check completion, connected cameras can be confirmed by tilting the joystick to the left or right to scroll the screen.

```
CAMERA CHECK  OK          CAMERA CHECK  OK
1,2,10,15,16,20→          ←30
```



Step 3. Press the Clear key to return to the menu screen.

6.4.13. Camera alarm preset

Sets the position number to automatically change the Combination camera's orientation when an alarm signal is received from the camera.

Note
This setting can only be performed when "1. ON" has been selected in the "Camera alarm" setting. This setting item is not displayed on the menu screen when "2. OFF" has been selected.

Different camera positions can be programmed into each of 8 camera alarm contact inputs. It is also possible to make a camera contact output that has received an alarm signal by interlocking the contact output with the alarm.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "PRESET CAM ALARM," and confirm the selection with the SET key.
The Camera Alarm Preset setting is displayed on Line 2, and the unit switches to Camera Number Entry Waiting mode.

Step 3. Enter the camera number using the numeric keypad, and confirm with the SET key.
The flashing cursor will move to the alarm number.

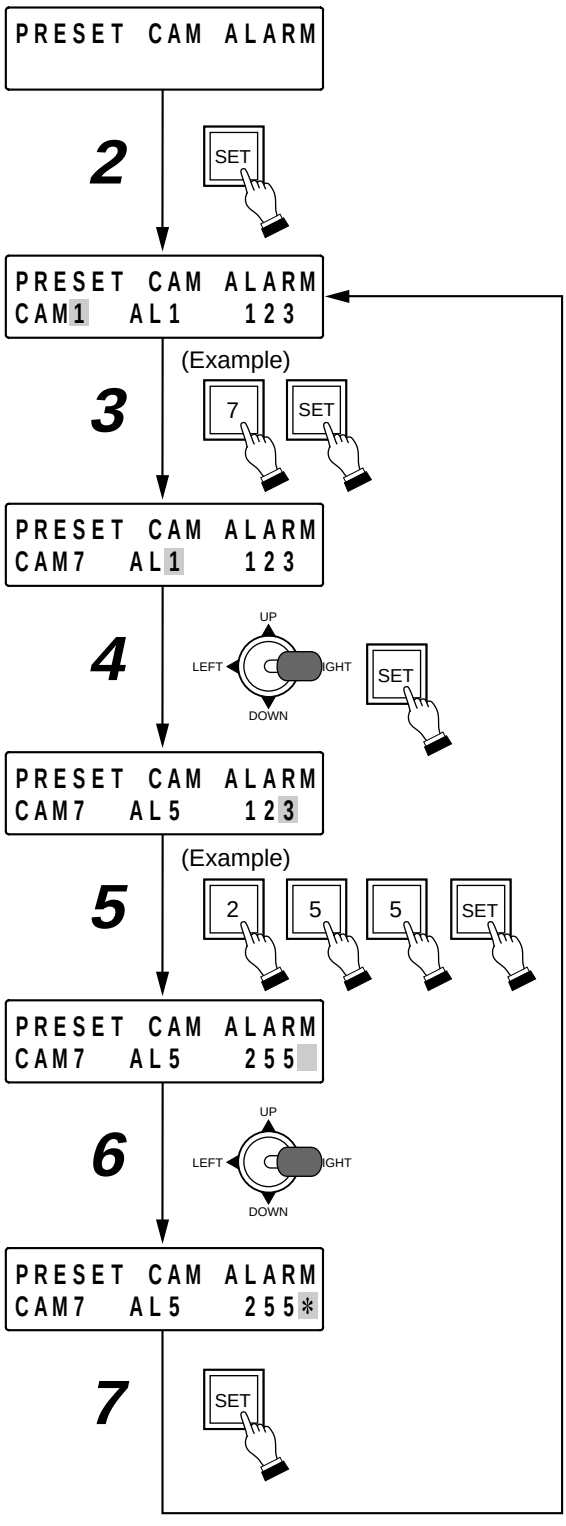
Step 4. Tilt the joystick to the left or right to select the alarm number, and confirm the selected alarm number with the SET key.
The flashing cursor will move to the preset position number.

Step 5. Using the numeric keypad, enter the number of the position to be displayed when the alarm contact is made, and confirm the number with the SET key.
The flashing cursor will move to the rightmost position.

Step 6. Tilt the joystick to the left or right to select either [ ] (space) or [∗].
If [∗] is selected, the camera's auxiliary contact output 2 can be set to be made when the camera alarm signal is received.

Step 7. Press the SET key to confirm the settings.
The procedure returns to Step 3, and the settings are displayed on the LCD screen.

Step 8. Repeat Steps 3 – 7 to continue setting the Camera Alarm Preset.
Press the Clear key to return to the setting item display.



6.4.14. Alarm signal

Sets continuous alarm operations.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "ALARM SIGNAL," and confirm the selection with the SET key. The setting is displayed on Line 2.

Step 3. Tilt the joystick to the left or right to select either of the following settings, and confirm it with the SET key.

[Setting contents]

1. EDGE	Terminates alarm operations when the time interval set in the "Alarm time" setting (next item) passes or when an alarm reset signal is received.
2. LEVEL	Terminates alarm operations when the alarm input terminal receives alarm end data. Also, if "1. ON" has been selected in the "Camera alarm" setting, alarm operation will stop when all alarm signals from the camera change from make to break data.

Note: This selection is set to "1. EDGE" by the factory.

6.4.15. Alarm time

Sets the interval between alarm input and alarm reset.

Note
The Alarm Time can only be set when "1. EDGE" has been selected in the "Alarm signal" setting. This setting item is not displayed on the menu screen when "2. LEVEL" has been selected.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "ALARM TIME," and confirm the selection with the SET key. The setting is displayed on Line 2.

Step 3. Tilt the joystick to the left or right to select one of the following settings, and confirm it with the SET key.

[Setting contents]

1. 10SEC	(10 seconds)	6. 2MIN	(2 minutes)
2. 15SEC	(15 seconds)	7. 3MIN	(3 minutes)
3. 20SEC	(20 seconds)	8. 4MIN	(4 minutes)
4. 30SEC	(30 seconds)	9. 5MIN	(5 minutes)
5. 1MIN	(1 minute)	10. NO LIMIT	(no time limit)

Notes
- If "10. NO LIMIT" is selected, the alarm can only be reset when the Alarm Reset key on the unit's top panel is pressed.
- This selection is set to "3. 20SEC" by the factory.

6.4.16. Alarm function

Sets the camera image monitor method to be used when an alarm signal is received.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "ALARM FUNCTION," and confirm the selection with the SET key. The setting will appear on Line 2.

Step 3. Tilt the joystick to the left or right to select either of the following settings, and confirm it with the SET key.

[Setting contents]

1. SEQ (sequence)	Sequences the alarm-activated camera outputs to the monitor in full-screen display in the order of alarm signal reception.
2. LAST	The output of the camera corresponding to the last received alarm signal is displayed on the monitor in full-screen display.

Notes
- Only the selection "2. LAST" can be set when a Smart Switcher is connected to the system.
- This selection is set to "1. SEQ" by the factory.

6.4.17. Alarm hold

Always places on hold alarm signals to the surveillance camera system.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "ALARM HOLD," and confirm the selection with the SET key. The setting is displayed on Line 2.

Step 3. Tilt the joystick to the left or right to select either of the following settings, and confirm it with the SET key.

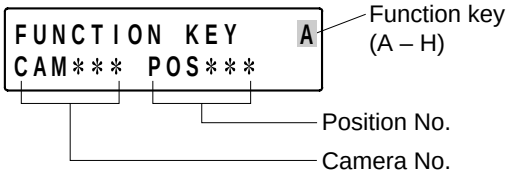
[Setting contents]

1. KEY	Permits the alarm to be held or reset using the unit's front panel-mounted keys. (Refer to p. 20.)
2. ALWAYS	Always places the alarm on hold when an alarm signal is input. Select this setting when it is not desirable to have the screen automatically switched every time an alarm signal is received.

Note: This selection is set to "1. KEY" by the factory.

6.4.18. Function key programming

By simply pressing the function key, the camera image (camera number and position number) can be displayed on the monitor. It is also possible to control alarm contact switching and instruct the camera to perform multiple automatic operations.



Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "FUNCTION KEY" and confirm the selection with the SET key.
The settings is displayed on Line 2, and the unit switches to Function Key Entry Waiting mode.
Note that when the camera number or the position number is not programmed in advance, the "＊＊＊" indication is displayed in place of the number.

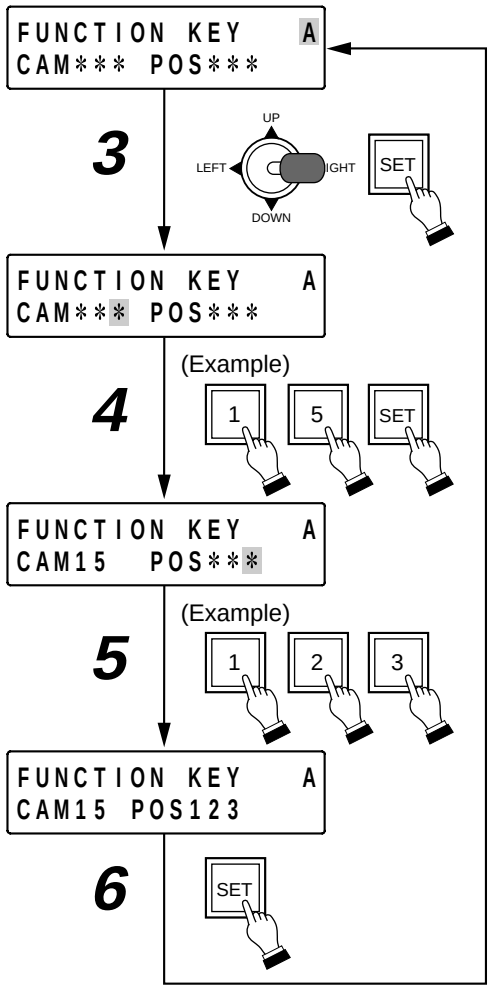
Step 3. Tilt the joystick to the left or right to select the desired function key and confirm the setting with the SET key.
The flashing cursor moves to the camera number.

Step 4. Enter the camera number using the numeric keypad, and confirm it with the SET key.
Enter a number from 1 to 999.
The flashing cursor moves to the position number.

Step 5. Enter the position number with the numeric keypad.
Enter a number from 1 to 255.
Tip
Entering "0" will switch the screen to full-screen display, and will not execute position playback.

Step 6. Press the SET key to confirm the entered position number.
The procedure returns to Step 3, and the set contents are displayed on the LCD screen.

Step 7. Repeat Steps 3 – 6 to continue to set other Function keys.
Press the Clear key to return to the setting item display.



[Automatic operation settings]

After performing the settings in Steps 1 – 3 above, tilt the joystick up or down to select one of the following settings, then press the SET key to confirm it.

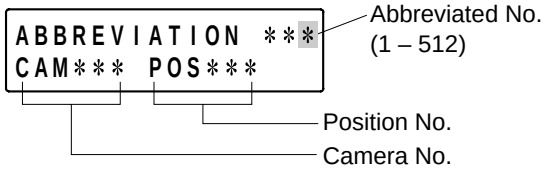
AUTO PAN	Continues panning between 2 points set on the camera menu.
AUTO TRACE	Repeats manual operations set on the camera menu.
PRESET SEQUENCE	Plays back the positions stored in the camera in setting order.
AUX2 (auxiliary2)	Makes or breaks the Combination camera's auxiliary contact output #2.

[Deleting settings]

After pressing the Alarm Reset key, press the SET key.

6.4.19. Abbreviation

By merely pressing the preprogrammed abbreviated number (numeric keypad entry and SET key), the camera image (camera number and position number) can be displayed on the monitor. Up to 512 camera numbers or 512 camera/position numbers can be set. (The abbreviated number provides the same function as the function key.)



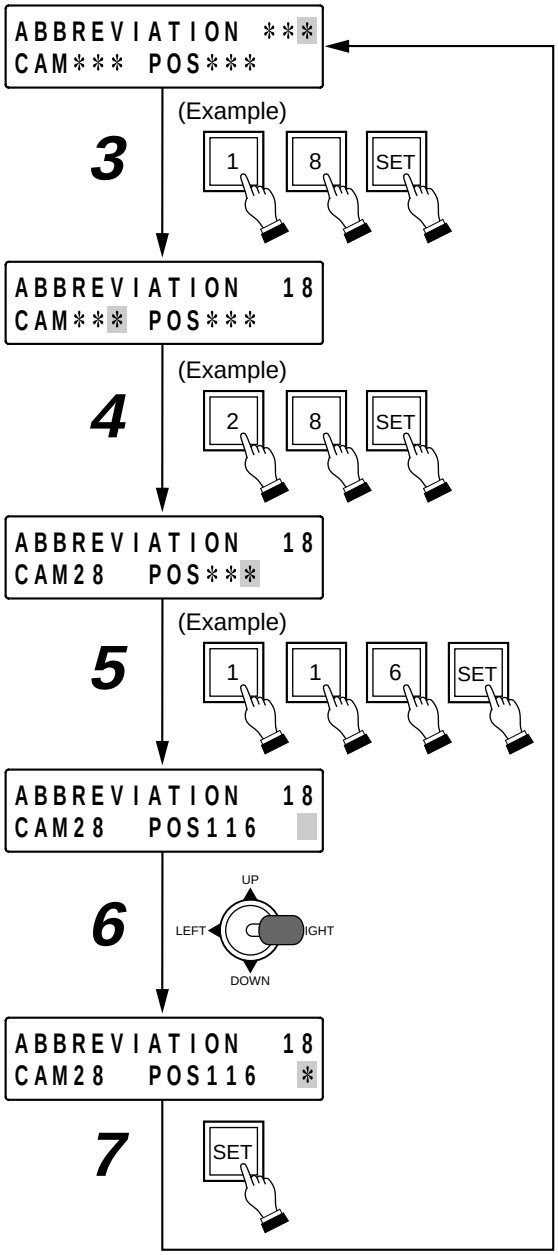
Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "ABBREVIATION," and confirm the selection with the SET key.
The settings are displayed on Line 2, and the unit switched to Function Key Entry Waiting mode.
Note that when the camera number or the position number is not programmed in advance, the "＊＊＊" indication is displayed in place of the number.

Step 3. Tilt the joystick to the left or right, or use the numeric keypad to enter the designed abbreviated number and confirm the setting with the SET key.
Enter a number from 1 – 512.
The flashing cursor moves to the camera number.

Step 4. Enter the camera number using the numeric keypad, and confirm with the SET key.
Enter a number from 1 to 999.
The flashing cursor moves to the position number.

Step 5. Enter the position number with the numeric keypad.
Enter a number from 1 to 255.
Tip
Entering "0" will switch the screen to full-screen display, and will not execute position playback.



[Setting the camera's alarm contact output]

After confirming the camera number and position number, the flashing cursor will move to the rightmost position.

Step 6. Tilt the joystick to the left or right to select either [ ] (space) or [＊].
If [＊] is selected, the camera's auxiliary contact output 2 can be set to be made when the camera designed with the abbreviated number receives an alarm signal.

Step 7. Press the SET key to confirm the settings.
The procedure returns to Step 3.

Step 8. Repeat Steps 3 – 6 to continue setting other abbreviated numbers.
Press the Clear key to return to the setting item display.

[Deleting Settings]

After pressing the Alarm Reset key, press the SET key.

6.4.20. Tour sequence

The Tour Sequence function switches multiple camera outputs in sequence at a set time interval. Merely pressing the Sequence key permits up to 128 camera outputs to be displayed on the full screen in the order of their set playback number. The camera number, position number and viewing time can be set for individual playback numbers.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "TOUR SEQ" and confirm the selection with the SET key.
The unit will wait for the entry of "YES" (to use the function) or "NO" (to not use the function). (Set by the factory)

Step 3. Tilt the joystick to the left or right to select either "YES" or "NO," and confirm the entry by pressing the SET key.
The setting is displayed on Line 2 if "YES" is selected, and the unit switched to Playback Number Entry Waiting mode.

Note that when the camera number or the position number is not programmed in advance, the "＊＊＊" indication is displayed in place of the number.

Step 4. Enter the playback number using the numeric keypad or by tilting the joystick to the left or right, and confirm the entered number with the SET key.
Enter a number from 1 to 128.
The flashing cursor moves to the camera number.

Step 5. Enter the camera number with the numeric keypad, and confirm the number with the SET key.
Enter a number from 1 to 999.
The flashing cursor moves to the position number.

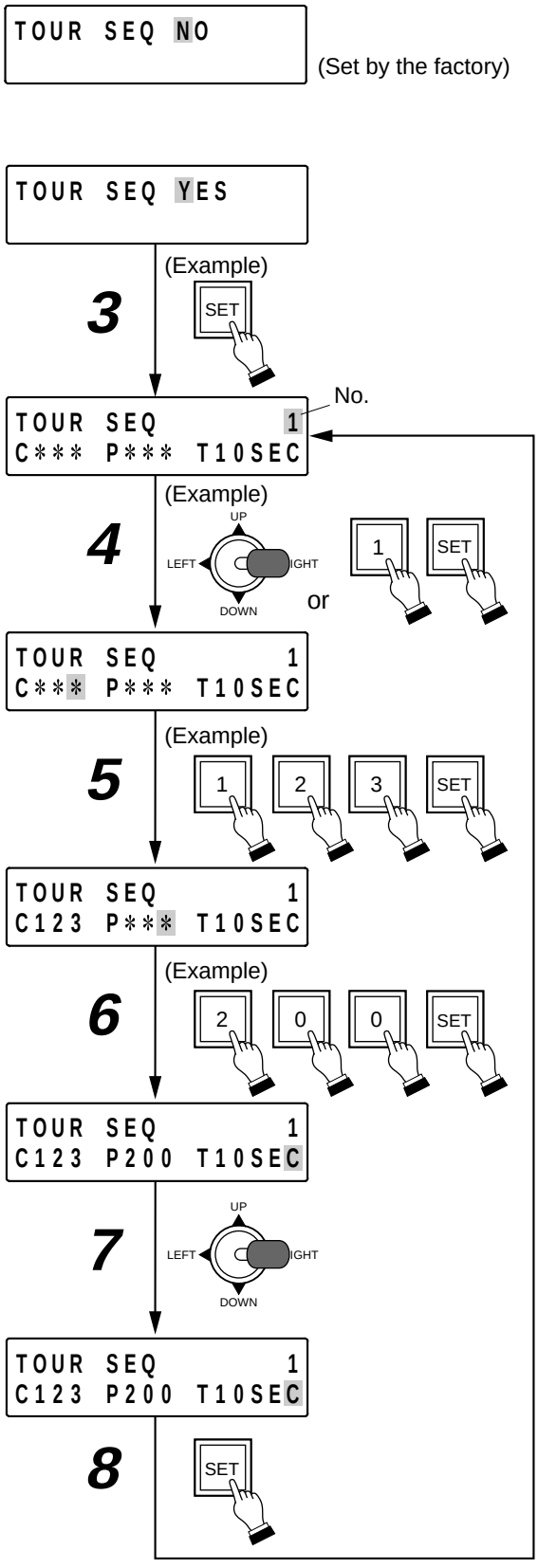
Step 6. Enter the position number with the numeric keypad, and confirm the number with the SET key.
Enter a number from 1 to 255.
Tip: Entering "0" will switch the screen to full-screen display, and does not execute position playback.

The flashing cursor moves to the rightmost viewing interval selection indication on Line 2.

Step 7. Tilt the joystick to the left or right to select the viewing interval: "3SEC," "10SEC," "15SEC," "20SEC," "30SEC," or "1MIN." (SEC: seconds, MIN: minutes)

Step 8. Press the SET key to confirm the set interval.
The procedure returns to Step 4.

Step 9. Repeat Steps 4 – 8 to continue setting the playback numbers.
Press the Clear key to return to the setting item display.



[Deleting Settings]

After pressing the Alarm Reset key, press the SET key.

6.4.21. Camera menu

Calls up the camera's menu screen, and performs various Combination camera settings, such as the storage of preset camera positions. For detailed operations and settings of the camera menu, refer to the instruction manual included with the camera.

Step 1. Press the Menu key to display the menu screen.

Step 2. Tilt the joystick up or down to select "CAMERA MENU," and confirm the selection with the SET key.
The unit will wait for entry of the camera number that starts up the menu.

Step 3. Enter the camera number with the numeric keypad, and confirm the entered number with the SET key.
The selected camera menu appears on the monitor.
Pressing the Menu key again while the menu is being displayed on the monitor will turn off the display, returning the display to the camera number entry screen.

Step 4. Repeat Steps 2 and 3 to continue to set other camera numbers.
Press the Clear key to return to the setting item display.

6.4.22. Password

Sets the password required when opening the menu.

Step 1. Press the Menu key while holding down the Alarm Reset key.
The password setting screen will appear.

Step 2. Enter the password (4 digits) with the numeric keypad, and confirm the password with the SET key.
The display will return to the normal screen.

7. CONNECTIONS

Note

To eliminate noise, be sure to connect the shield of a shielded twisted-pair cable to be used for connection between control terminals (for control) to the [GND] terminal.

Equipment Which Can Be Controlled with the C-RM500

Shown below are equipment that can be controlled with the C-RM500.

Camera: C-CC501, C-CC504, C-CC551, and C-CC554

Up to 31 cameras can be connected to the unit's Camera control terminal and controlled. The use of the C-IF500 Interface Unit will increase the number to up to 64 cameras (when the C-SS8 switcher is in use). Note that the cameras cannot be controlled if their number is greater than the number of inputs of a connected switcher.

Switcher: C-MS90D, C-MS90S, C-MS160D, C-MS160S, and C-SS8

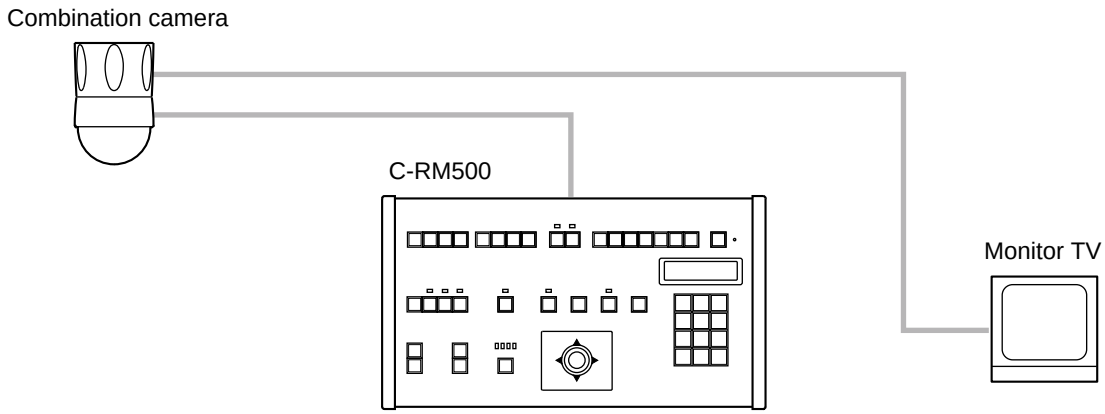
Only one switcher can be connected for remote camera control. However, as to the C-SS8, 1 master-designated unit and up to 7 slave-designated units can be connected to remotely control the cameras.

About the Camera Control Terminal

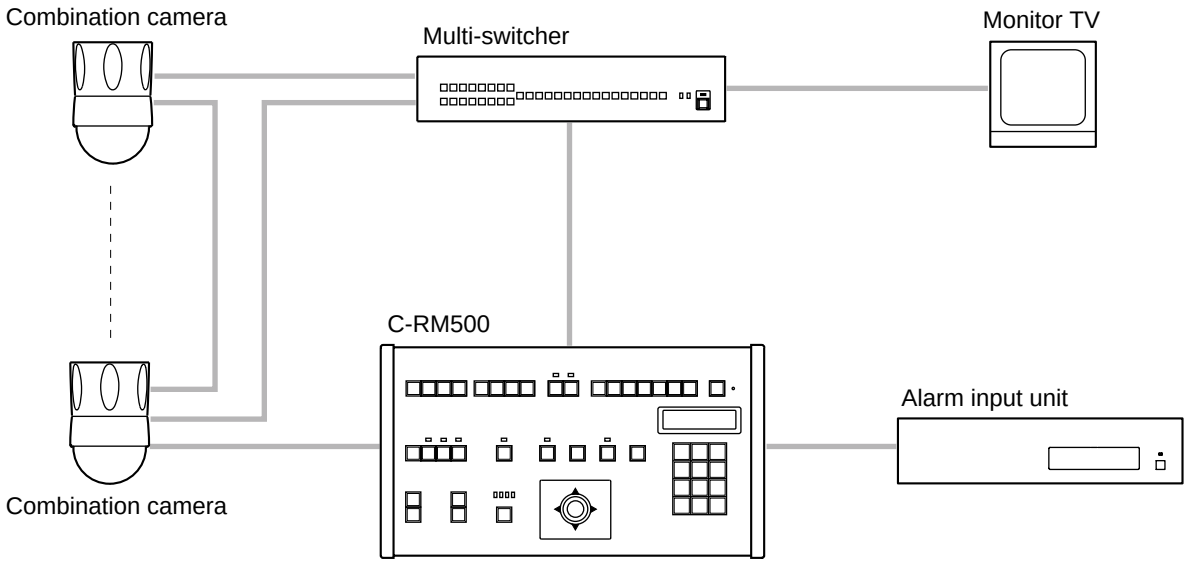
The Camera control terminal is used to connect the C-CC501, C-CC504, C-CC551, or C-CC554 Combination Camera or the C-IF500 Interface Unit. Up to 31 pieces of equipment can be connected to the terminal.

7.1. System Examples

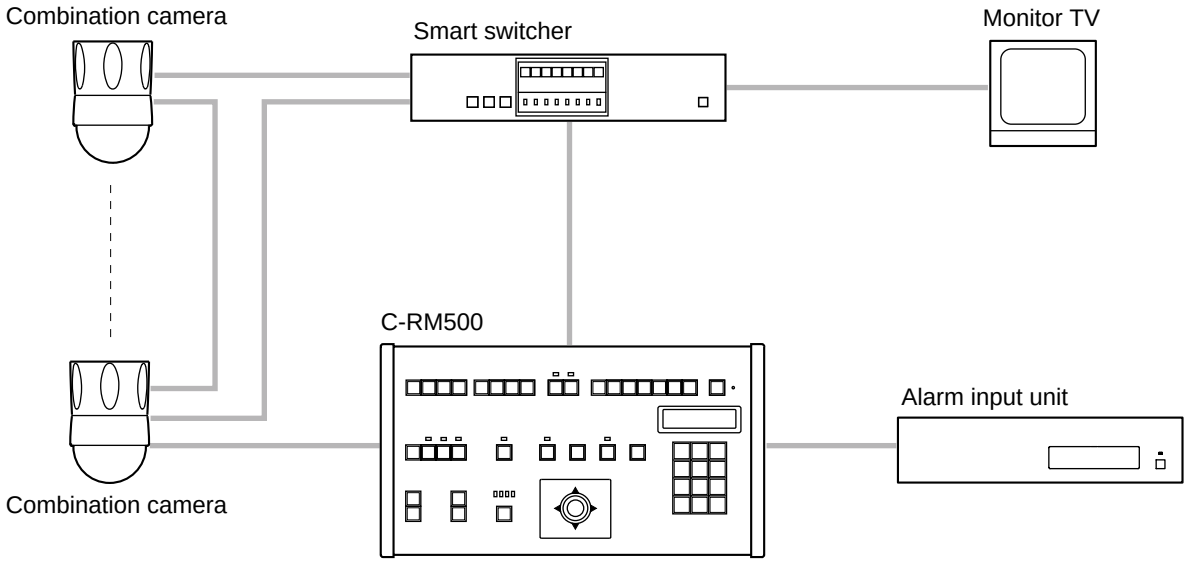
[Example 1]



[Example 2]

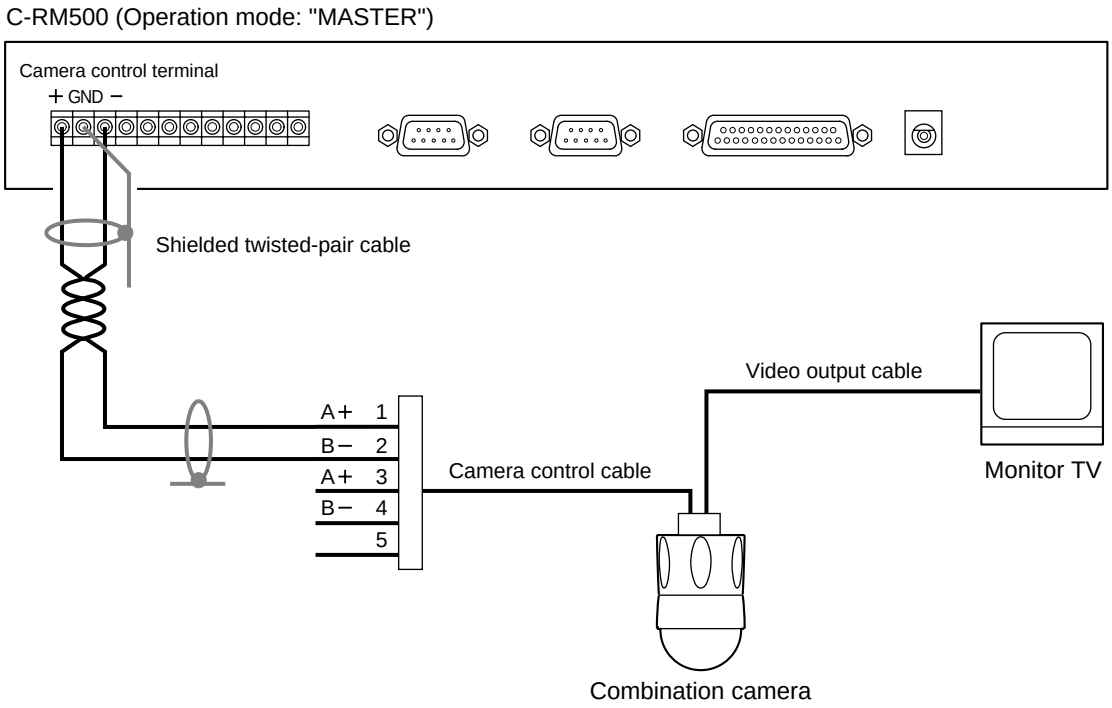


[Example 3]



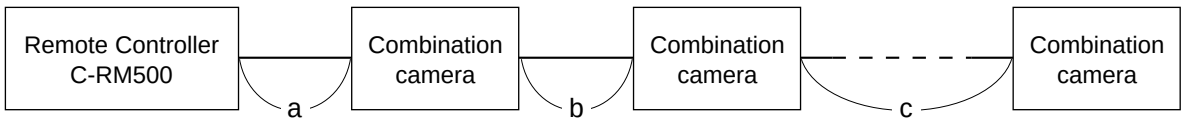
7.2. Connection to Combination Cameras

Connect the Combination camera's control cable to the unit's Camera Control terminal, making sure to match their polarities.



[Connection cables]

- Recommended cable type: CPEV-S type (shielded twisted-pair cable) thicker than 0.65 mm in diameter.
- The maximum cable distance between the unit and the Combination camera is 1.2 km when connected in a matched pair. If multiple cameras are connected to a system, the maximum distance between connected equipment is 1.2 km in total.

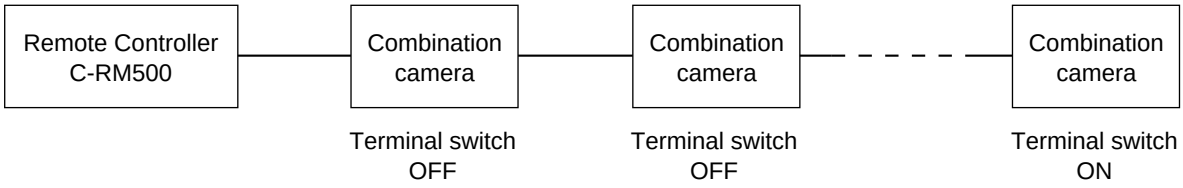


$a + b + c \leqq 1.2$ km

[Connected Camera Termination Switch Setting]

Make sure that the termination switches of the cameras connected to the system are set as follows.

Cameras other than the last connected camera: Termination switch OFF
Last connected camera: Termination switch ON

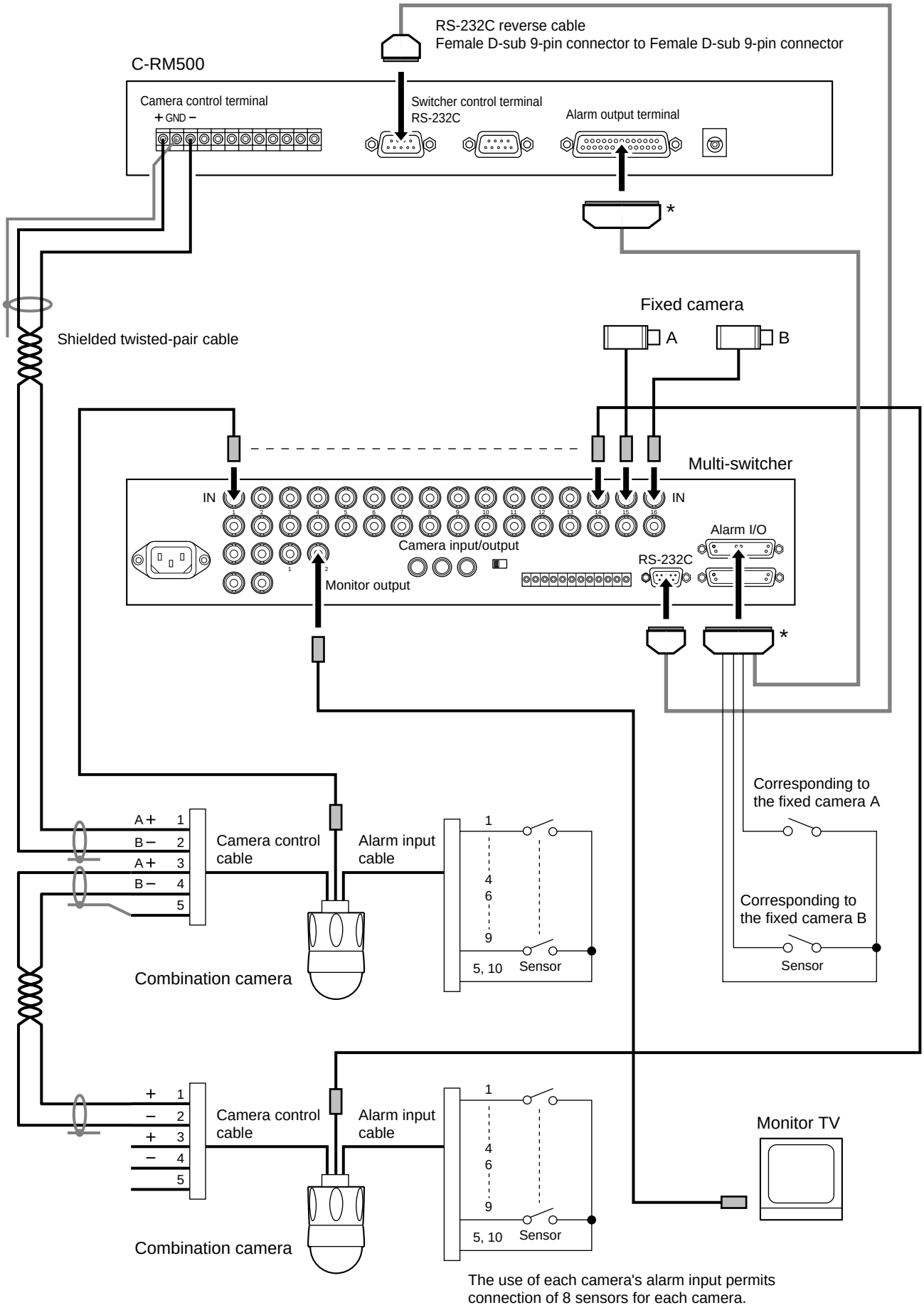


7.3. Connection to the Multi-Switcher's RS-232C Terminal

- When connecting the camera's video output cable to the Multi-Switcher, match the Multi-Switcher's camera input terminal number with the camera's address number.

- The C-CC551 and C-CC554 Combination cameras permit settings of up to 255 camera positions (camera orientation), and the C-CC501 and C-CC504 permit settings of up to 64 positions. All are equipped with 8 alarm input terminals. To expand the alarm input, connect the C-AL80 Alarm Input Unit to the C-RM500 Remote Controller.

- To switch the display to the fixed camera output when an alarm signal is received, connect a sensor to the switcher's alarm input terminal that corresponds to the video input number the fixed camera is connected to.



* Connect this cable only when "2. LEVEL" is selected in the unit's "Alarm signal" setting. (Refer to p. 35.) Connect the C-RM500's alarm output corresponding to the Combination Camera address to the Multi-Switcher's alarm input, while leaving other output terminals not corresponding to any Camera address unconnected.

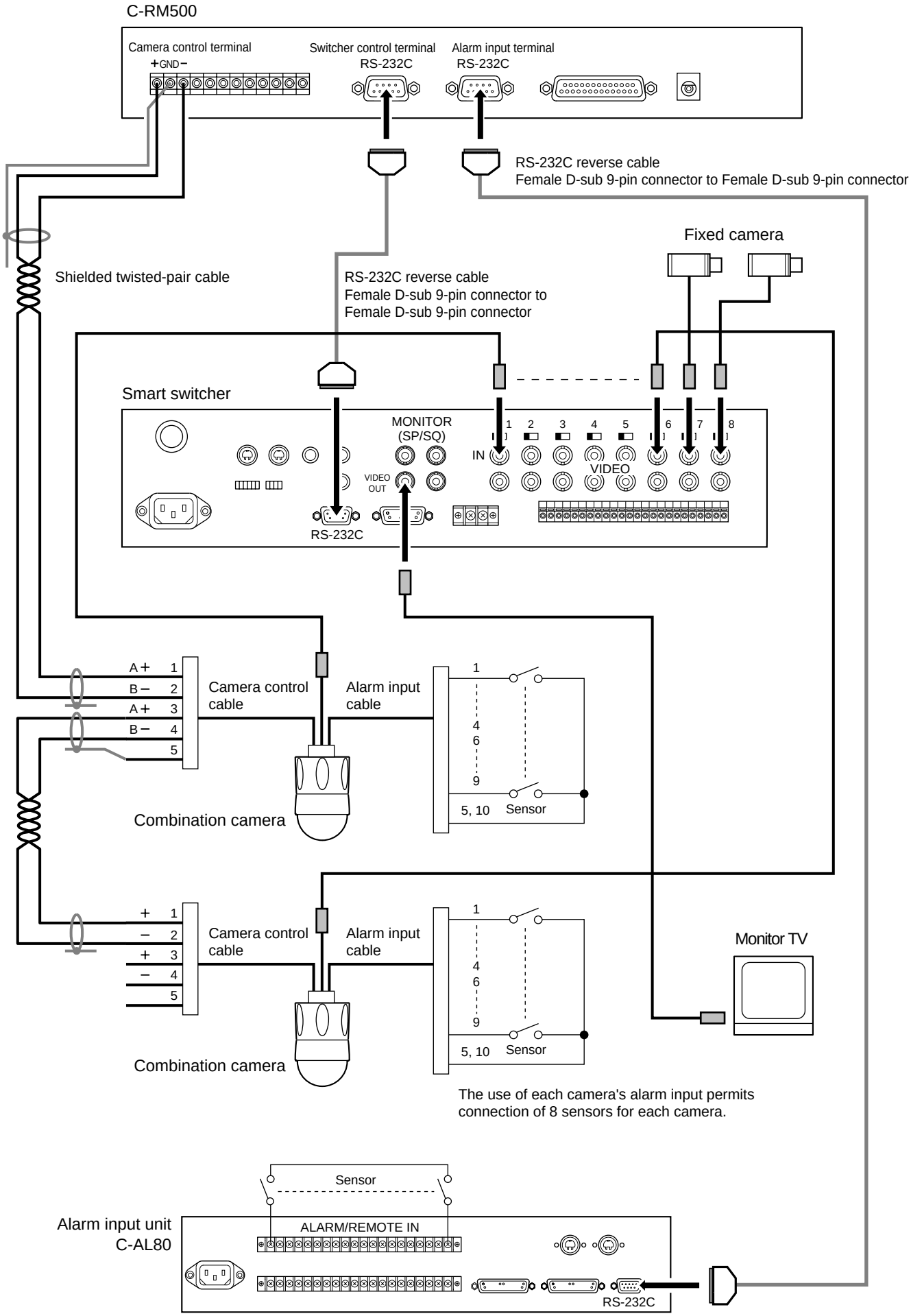
7.4. Connection to the Smart Switcher's RS-232C Terminal

- When connecting the camera's video output cable to the Multi-Switcher, match the Multi-Switcher's camera input terminal number with the camera's address number.

- The C-CC551 and C-CC554 Combination cameras permit settings of up to 255 camera positions (camera orientation), and the C-CC501 and C-CC504 permit settings of up to 64 positions. All are equipped with 8 alarm input terminals. To expand the alarm input, connect the C-AL80 Alarm Input Unit to the C-RM500 Remote Controller.
  Note
  Do not use the Smart Switcher's Alarm input terminal as the unit could malfunction.

- To switch the display to the fixed camera output when an alarm signal is received, connect the Alarm Input Unit to the unit. Also, in the unit's abbreviated number setting, set the position number of the fixed camera to be switched to when an alarm signal is received to "0".

- The Alarm Input Unit activates the alarm for the abbreviated number. For details, refer to the section "Abbreviation" on p. 38 in this manual, and the instruction manual included with the Alarm Input Unit.



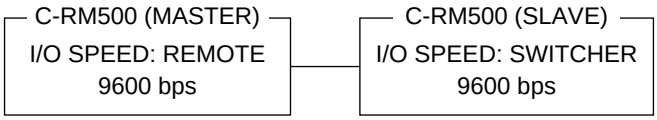
7.5. Connection When Controlling the System from 2 Locations

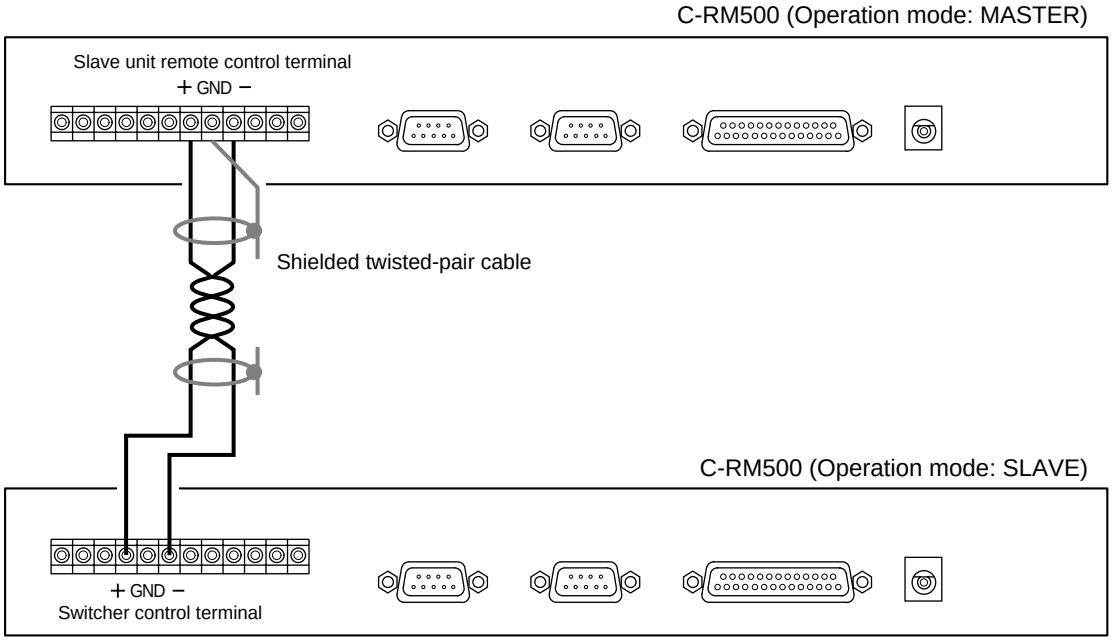
By connecting 2 C-RM500 Remote Controllers, the system can be controlled from 2 locations.

Set the operation mode of one controller for "MASTER," and the other controller for "SLAVE." (Refer to p. 24 "Operation mode".)

Note
Set the "I/O SPEED: REMOTE" of the MASTER-designated C-RM500 Controller and "I/O SPEED: SWITCHER" of the SLAVE-designated C-RM500 Controller to the same transfer rate. (Refer to p. 29 "I/O SPEED.")

(Example)

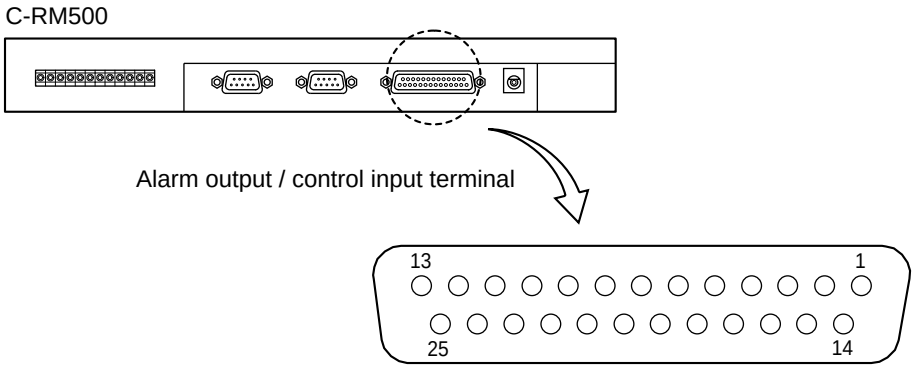




7.6. Alarm Output/Control Input Terminal Connections

7.6.1. Pin functions

Shown below are the numbers and names of the Alarm I/O terminal pins.



Pin No.	Function	Pin No.	Function
1	Ground	14	Alarm Output 10
2	Alarm Output 1	15	Alarm Output 11
3	Alarm Output 2	16	Alarm Output 12
4	Alarm Output 3	17	Ground
5	Ground	18	Alarm Output 13
6	Alarm Output 4	19	Alarm Output 14
7	Alarm Output 5	20	Alarm Output 15
8	Alarm Output 6	21	Alarm Output 16
9	Ground	22	Alarm Output
10	Alarm Output 7	23	Alarm Input
11	Alarm Output 8	24	Home Position Selection Input
12	Alarm Output 9	25	Auxiliary Input
13	Ground		

[Alarm Output Terminal] (Pin No. 1 – 16)
The terminal of the number corresponding to the alarm-activated camera number shorts with the ground terminal. Alarm output terminals 1 – 16 are the NPN open collector output.
Operating current: Maximum 20 V, 20 mA

[Alarm Output Terminal] (Pin No. 22)
This terminal is shorted with the ground terminal even when only one of the alarm input terminals receives an alarm signal. The alarm output terminal is the NPN open collector output.
Operating current: Maximum 20 V, 20 mA

[Alarm Input Terminal] (Pin No. 23)
Shorting this terminal with the ground terminal when "OTHER16," "OTHER16-64" or "OTHER" has been selected in the "SWITCHER" setting will sound a buzzer and cause the Alarm Reset indicator to flash while it is shorted. (Refer to p. 25 "Switchers.")
Open voltage: 5 V DC, short-circuit current: Maximum 5 mA

[Home Position Selection Input Terminal] (Pin No. 24)
When Auto-Return is performed while this terminal is being shorted to the ground terminal, the camera's operation follows the setting made for "2" in the "Home position" setting. (Refer to p. 28 "Home position.")
Open voltage: 5 V DC, short-circuit current: Maximum 5 mA

[Auxiliary Input] (Pin No. 25)
Leave this input unconnected.
Open voltage: 5 V DC, short-circuit current: Maximum 5 mA

7.6.2. Assembling D-sub connectors onto cables

Prepare the D-sub connector supplied with the Unit.

Step 1. Solder the cable wires to the corresponding connector pins to be used.

Step 2. Bend back the braided shield and wrap with the copper foil tape.

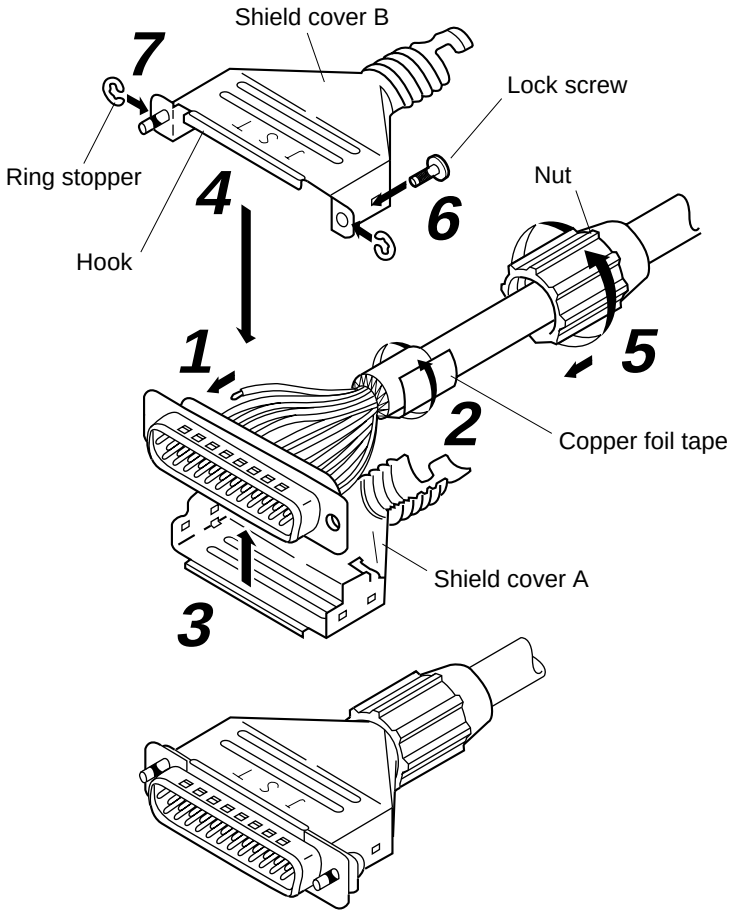
Step 3. Cover the connector with shield cover A.

Step 4. Align shield cover B with shield cover A, and press till its hook fits into place.

Step 5. Tighten the nut.

Step 6. Install the lock screws.

Step 7. Mount the ring stopper to the screws.



8. SPECIFICATIONS

Power Source	12 V DC (AC adapter)
Current Consumption	150 mA
Slave Remote Controller	RS-485, screwless connector
Camera Control	RS-485, screwless connector
Switcher Control	RS-485, screwless connector RS-232C, D-sub connector (9 pins, male)
Alarm Input	RS-232C, D-sub connector (9 pins, male)
Alarm Output / Control Input	Alarm output: 16 channels, NPN open collector output, withstand voltage: 30 V DC, control current: 20 mA Alarm input: 1 channel, no-voltage make contact input, open coltage: 5 V DC, short-circuit current: 5 mA max. Home position selection input: 1 channel, no-voltage make contact input, open voltage: 5 V DC, short-circuit current: 5 mA max. D-sub connector (25 pins, female)
Display	LED indication of control status, alarm status, alarm hold status, still picture status, defroster, auxiliary setting, auto panning, and lens speed LCD indication of key entry confirmation
Alarm Signal	Continuous alarm tone (can be turned on and off)
Number of Unit Connections	Up to 2 (one to be set for MASTER unit, another for SLAVE unit)
Maximum Cable Distance	1.2 km* (between the Remote controller and the Combination cameras)
Operating Temperature	0 to +50°C
Operating Humidity	Under 90% (no due condensation produced)
Finish	Panel: Surface-treated steel plate, sand gray, paint Sides: Rubber
Dimensions	326 (w) x 62 (h) x 185.2 (d) mm
Weight	1.8 kg (AC adapter excluded)

* Applies to the system where the unit and Combination camera are connected in a matched pair. Represents the total of connected cable distances if multiple Combination cameras or Interface units are connected in the system (when the CPEV-S cable thicker than 0.65 mm in diameter is used).

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

D-sub connector (9 pins, male) 1
D-sub connector (25 pins, male) 1

C-RM500 complies with Part 15 of the FCC Rules.

Note
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications
Any modifications made to this device that are not approved by TOA Corporation may void the authority granted to the user by the FCC to operate this equipment.

TOA Corporation

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