ELMO

PAN • TILT • ZOOM COLOR CAMERA

PTC-201C IP

INSTRUCTION MANUAL

Please read this instruction manual carefully before using this
PTC-201C IP and keep it for future reference.

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 outdoors.
6. Do not use this apparatus near water.
7. Clean only with dry cloth.
8. Do not install near heat sources such a radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not touch this apparatus during lightning storms.
10. Unplug when unused for long periods of time.
11. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have been fallen onto the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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.

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

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

CAUTION

• Do not use any power supply other than specified.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

* The CAUTION label is attached on the base of product.

INFORMATION

This equipment has been tested and found to comply with the limits for 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, use, 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.

USER-INSTALLER

CAUTION: Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party responsible for compliance to Part of the FCC Rules.
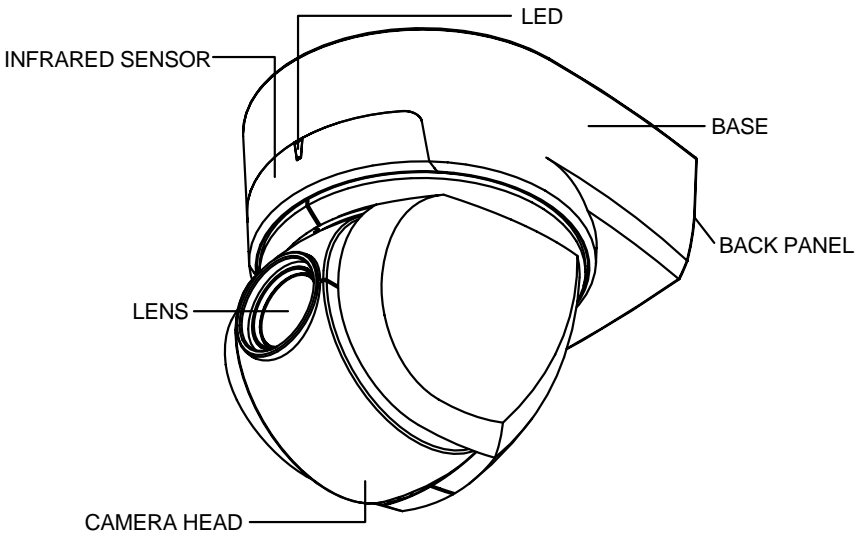
HANDLING PRECAUTIONS

■ Be sure to use the provided AC adapter.

■ Do not leave the Camera under direct sunlight or by heater, or the Camera may be discolored, or damaged.

■ Do not place the Camera in any humid, dusty, windy or vibrating location. Use the Camera in the following environmental condition:
    Temperature: 0 °C ~ 40 °C (32 ° ~ 104 °F)
    Humidity: 30% ~ 85% (No condensation)

■ Use a soft, dry cloth for cleaning. Do not use any volatile solvent, such as thinner or benzin.

■ Do not directly point the camera lens into the sun, or the camera may be damaged.

■ Caring for the batteries:
   • If the Camera is not used for long time, take out the batteries from the case.
   • Do not use rechargeable Ni-Cd batteries.
   • Do not use new and old batteries, or batteries of different type together.
   • Do not try to recharge or short-circuit the batteries.

■ Do not use the Camera continuously for a long time, or the life of the Camera will be shortened.
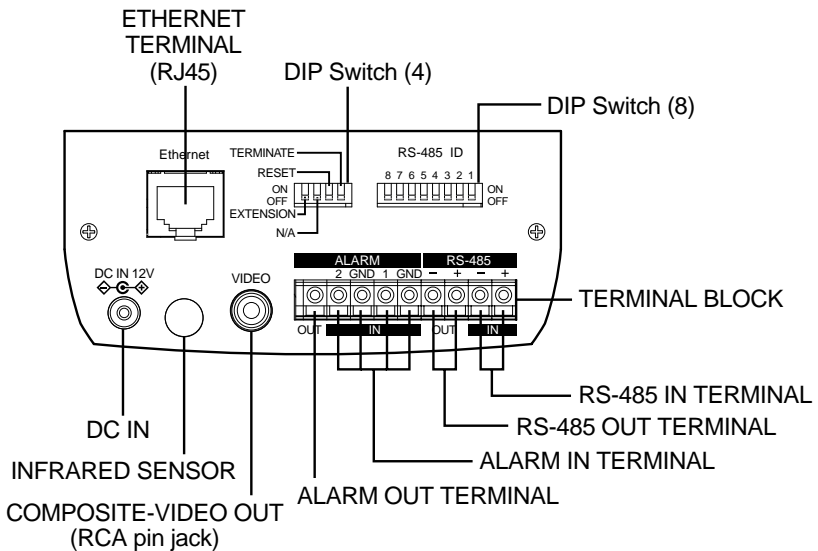
CONTENTS

1. PART NAMES AND FUNCTIONS

● Overall View

INFRARED SENSOR

LED

BASE

BACK PANEL

LENS

CAMERA HEAD

● Back Panel

ETHERNET
TERMINAL
(RJ45)

DIP Switch (4)

DIP Switch (8)

Ethernet

TERMINATE

RESET

ON
OFF

EXTENSION

N/A

RS-485 ID

8 7 6 5 4 3 2 1

ON
OFF

DC IN 12V

VIDEO

ALARM

2 GND 1 GND

RS-485

− + − +

TERMINAL BLOCK

OUT

IN

OUT

IN

RS-485 IN TERMINAL

RS-485 OUT TERMINAL

ALARM IN TERMINAL

DC IN

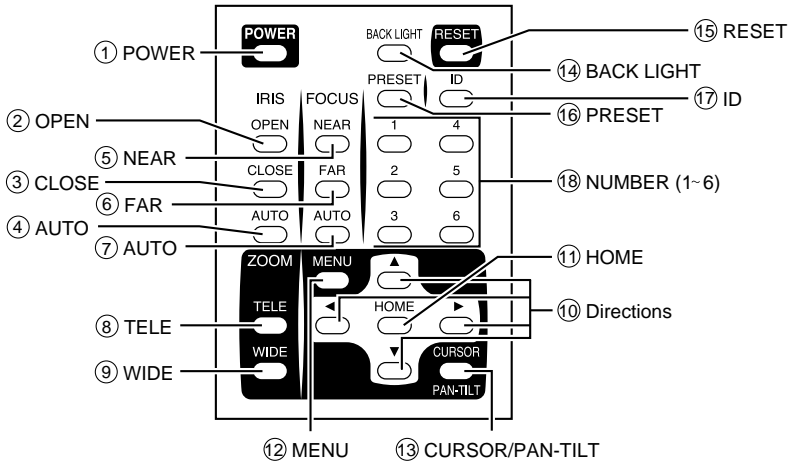ALARM OUT TERMINAL

INFRARED SENSOR

COMPOSITE-VIDEO OUT
(RCA pin jack)

This camera is designed to mount on ceiling panels only.

● Wireless Remote Controller

No.	Button Name	Function	Reference Page
①	POWER	To turn ON/OFF the Camera power.	P.14, P.19
②	OPEN	To open the iris manually.	P.16
③	CLOSE	To close the iris manually.	P.16
④	AUTO	To iris automatically.	P.16
⑤	NEAR	To move the focus near.	P.16
⑥	FAR	To move the focus far.	P.16
⑦	AUTO	To focus automatically.	P.16
⑧	TELE	To zoom in.	P.16
⑨	WIDE	To zoom out.	P.16
⑩	Direction	To change the Camera head direction.	P.15
	(▲ ▼ ◀ ▶)	To operate the OSD[1] cursor.	P.19, P.20, P.21
⑪	HOME	To turn the Camera head to the front.	P.15
		To operate the OSD[1] cursor.	P.19, P.20, P.21
⑫	MENU	To turn ON/OFF the OSD[1] display.	P.18, P.19, P.20, P.21
⑬	CURSOR/ PAN-TILT	To switch the operation mode between the menu operation and the PAN-TILT operation.	P.19
⑭	BACK LIGHT	Back light control.	P.17, P.20
⑮	RESET	To readjust the Camera head and LENS position.	P.15
⑯	PRESET	To register the preset.	P.17
⑰	ID	To operate multiple Cameras individually.	P.14, P.18
⑱	NUMBER (1~6)	To set the preset position and the ID No.	P.17, P.18

[1] OSD (On-Screen Display)

2. WIRELESS REMOTE CONTROLLER

Point the infrared emitting window of the wireless remote controller at the infrared sensor of the Camera, located at the front, and the rear panel, and select the desired function.

● Receivable range
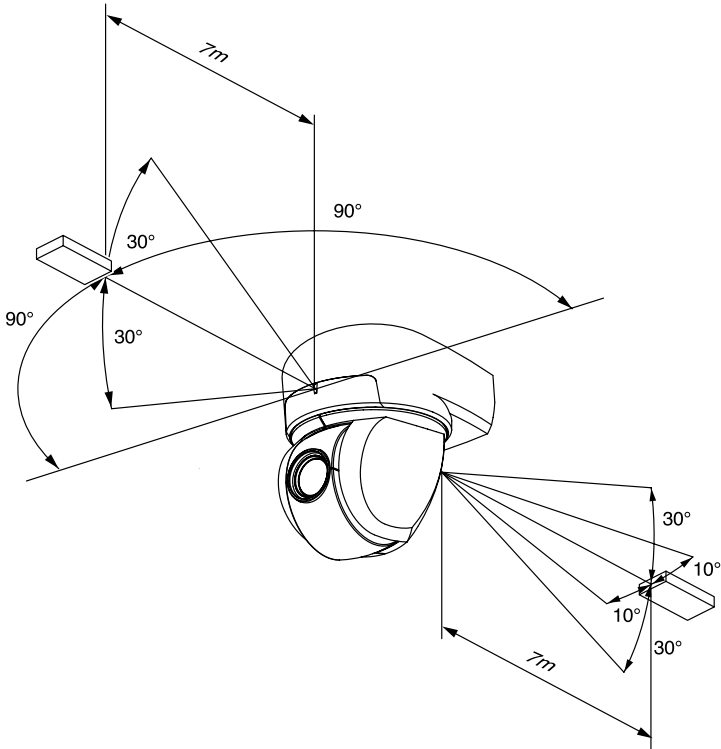
Note: The infrared sensors may receive the infrared rays only within a narrower receivable range or may not receive them at all depending on the ambient environment, such as being placed under the sunlight or near an inverter fluorescent lamp. In such case, relocate the installation place of the receiving side or block off the sunlight.

● Preparation

Remove the battery case cover by pressing downward on the [▼] mark part in the direction as indicated by the arrow.

Install 2 pcs. of batteries (type R03,AAA) into the case in the direction as indicated there.

> **Note:** Install the batteries with the proper $\oplus$ to $\oplus$ and $\ominus$ to $\ominus$ polarity.
>
> **Note:** For dry cells, be sure to use the size AAA.
>
> **Note:** Change the batteries at least once a year or when even nesessary.
>
> **Note:** The batteries supplied with the Camera are only for use in initially confirming the operation of the Camera.
> It is not guaranteed that these batteries will work effectively for the indicated period.

● When multiple Cameras are operated through the wireless remote controller

Refer to "5. THE ID NUMBER SETTING" on P. 18.

3. SETTING UP

[1] Installation

> **Note:** When carrying the Camera, be sure to hold the base.
>
> **Note:** Do not turn the Camera head in the PAN-TILT direction by hand, or the Camera head may be broken.

(1) Mounting the Fixing Plate

SCREW M3x5 (attached) , 4 PCS

FIXING PLATE

HEXAGON HEAD BOLT M5x40, 4 PCS
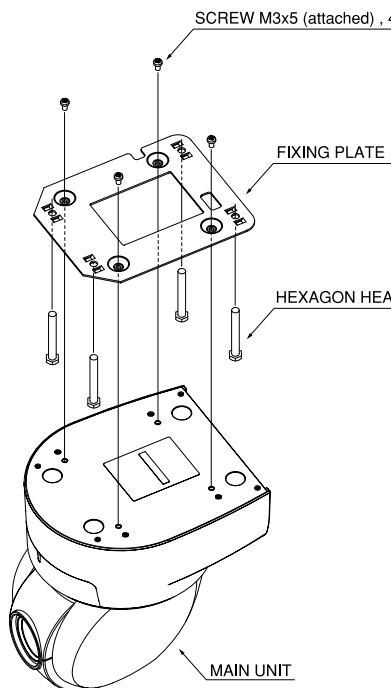
MAIN UNIT

- Put 4 Hexagon Head Bolts M5x40 (supplied) through the Fixing Plate, and screw the Fixing Plate to the Main Unit with 4 Screws M3x5 (supplied).

> **Note:** For fastening the Fixing Plate, be sure to use the 4 Phillips-head Screw M3x5 (supplied). Be careful that using any screws other than the supplied may damage the inside of the Main Unit. (Do not use longer screws)
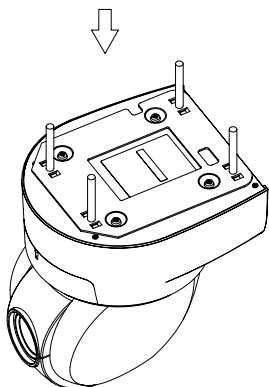
(2) Making mounting holes to the Ceiling Tile

- Make 4 holes of ϕ 8mm (5/16 in.) to the Ceiling Tile as shown.

MOUNTING HOLE
ϕ 8mm (5/16 in.), 4 LOCATIONS

102mm (4 in.)

70mm (2-3/4 in.)

BACK

54mm
(2-1/8 in.)

FRONT

CEILING TILE
(t 1/2 in. – 1 in.)
t = thickness of tile
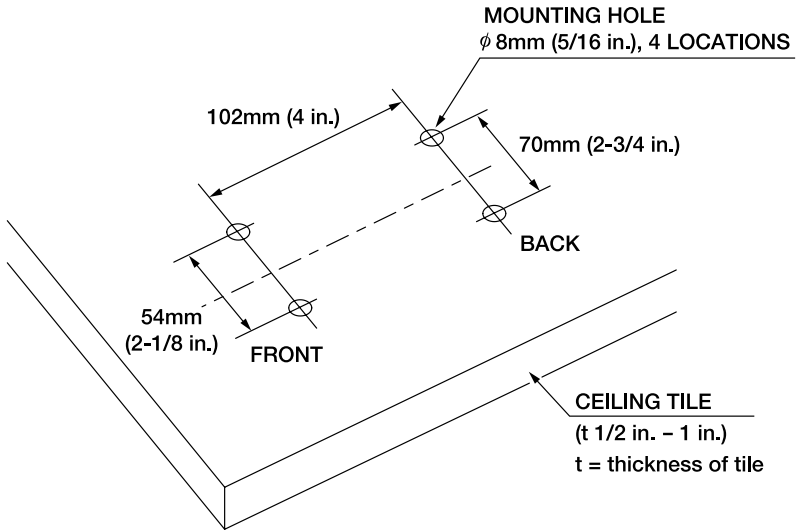
(3) Fixing the Main Unit

- Put the Ceiling Tile between the Main Unit and the Ceiling Plate, and fix the Main Unit by fastening 4 wing Nuts.

WING NUT M5 (supplied), 4 PCS

CEILING PLATE

MOUNTING HOLE: ϕ 5/16 in., 4 LOCATIONS

CEILING TILE
(t 1/2inch-1inch)
t=thickness of tile

HEXAGON HEAD BOLT M5x40 (supplied), 4 PCS

MAIN UNIT
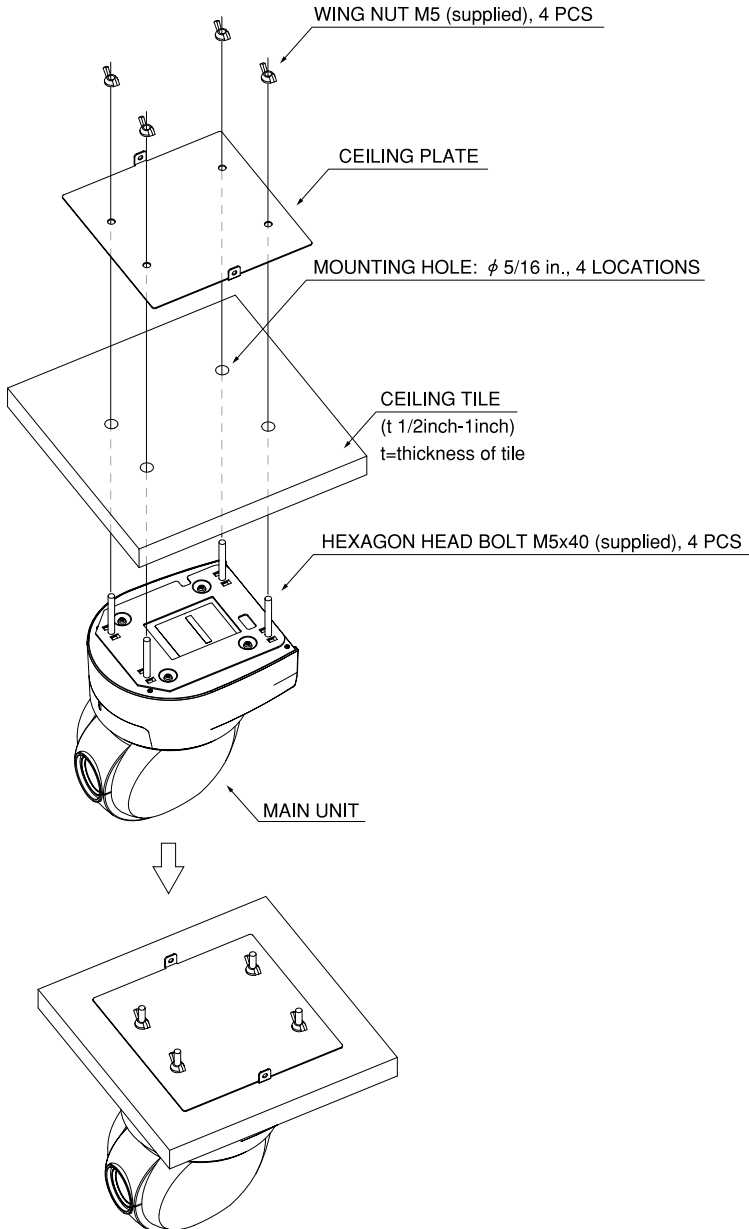
(4) Mounting the Safety Wires

• Loop up one end of the Safety Wires through the respective safety wire looping holes made on the Ceiling Plate, and then loop up the other end of the same around the beams or anything that is used to mount ceiling tile channel for structure safety.

SAFETY WIRE (not supplied)

SAFETY WIRE LOOPING HOLE

CEILING PLATE

CEILING TILE
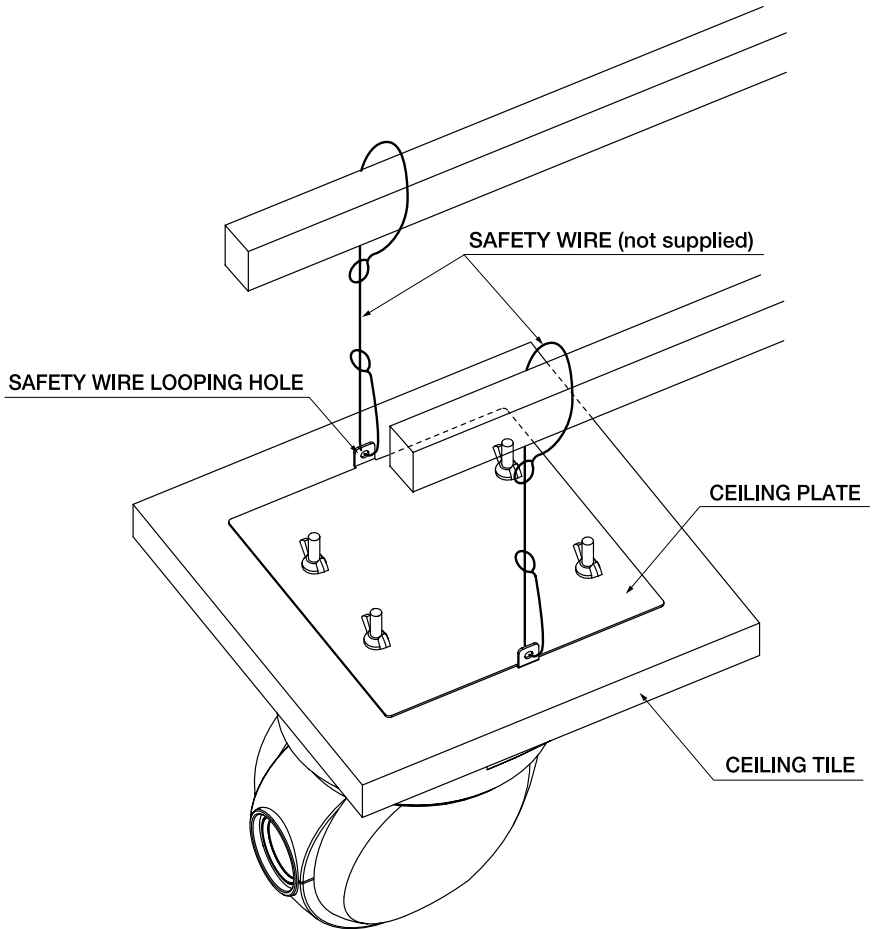
● Connection examples for the Camera

BNC/RCA ADAPTOR PLUG (supplied)

TWIST PAIR CABLE

TWIST PAIR CABLE

VIDEO CABLE (BNC)

MONITOR

ETHERNET STRAIGHT CABLE (RJ45)

HUB

PC

PTC-201C IP

POWER CORD (supplied)

AC ADAPTER (supplied)

CONTROLLER (ESD-CC1)
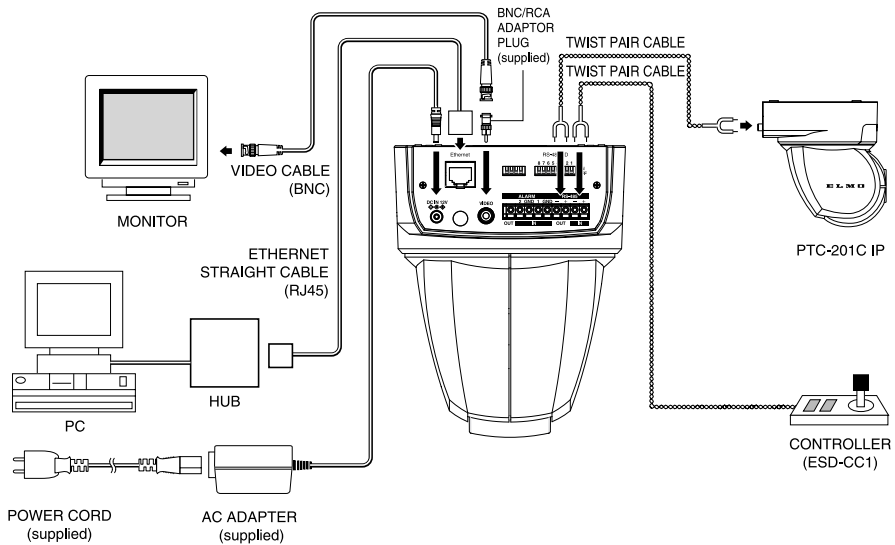
4. OPERATION PROCEDURES

[1] Power supply to the Camera

The Camera has no POWER switch. Power is supplied to the Camera when the AC adapter is connected to the wall socket and the Camera.

When power is supplied to the Camera, the Camera turns to the right and then to the center automatically (viewed from the front), returning the Camera position to the default home position.

[2] Turning ON/OFF of the Camera power
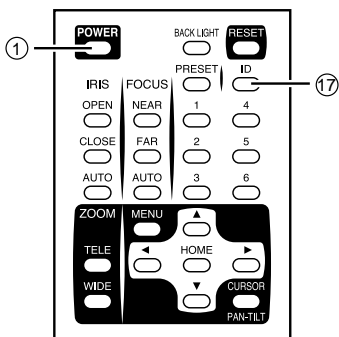
(1) Turning OFF the Camera

- When the Camera is ready for operation through the wireless remote control and ① POWER button is pressed, the Camera power is turned OFF. (However, even after the Camera is turned OFF, power is still being supplied to the Camera as power supply to the Camera is not OFF.)
- The image disappears, and the LED on the Camera lights up in red. Now, no buttons on the wireless remote control are functional other than ① POWER button and ⑰ ID button.

- When the TIMER OFF function is ON (refer to the settings in the OSD Menu screen), Camera power is turned OFF automatically upon the lapse of the set time.

> **Note:** When the Camera is not in use, make it a rule to keep the Camera OFF. This will save power consumption. When the Camera is not to be used for a long time, it is advisable to unplug the AC adapter to render the Camera OFF.

(2) Turning ON the Camera

- When the Camera is OFF and ① POWER button is pressed, the Camera power is turned ON.
- The image appears, and the LED on the Camera goes out. Now, the Camera is ready for operation of all functions through the wireless remote control.
- If the ID number is changed (Refer to "5. THE ID NUMBER SETTING" on P.18), the Camera power may not be turned ON. In such case, redo the ID number setting, and press ① POWER button.

[3] Operating PAN/TILT
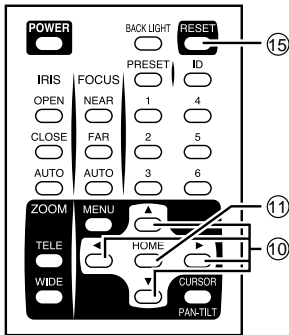
- While watching the screen, press any of ⑩ ▲ ▼ ◄ ► (UP, DOWN, LEFT, RIGHT) direction buttons for the direction in which you want to watch the image.
- To change the direction minutely, jog the direction button. To change the direction largely, hold down the direction button.
- Two operation modes are available according to the speed: AUTO mode changing the speed according to the zoom position, and MANUAL mode setting the speed manually. (Refer to the settings in the OSD Menu screen.)

- When ⑪ HOME button is pressed, the Camera turns to the front (and the lens moves to the WIDE side).

- If the Camera direction is changed manually by mistake, press ⑮ RESET button. Then, the Camera remembers the last PAN/TILT position in memory.

[4] Lens operation
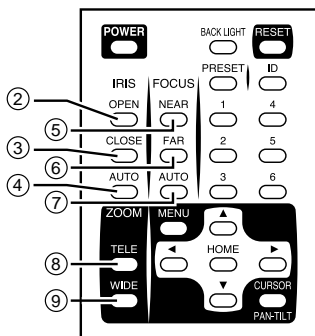
(1) Zoom operation

- The object is zoomed in (appears larger in the screen) when ⑧ $\boxed{\text{TELE}}$ button of ZOOM is pressed, or zoomed out (appears smaller in the screen) when ⑨ $\boxed{\text{WIDE}}$ button of ZOOM is pressed.

- When ⑧ $\boxed{\text{TELE}}$ button or ⑨ $\boxed{\text{WIDE}}$ button is held down for over one second, the zoom speed increases.

(2) Focus operation

- When ⑦ $\boxed{\text{AUTO}}$ button of FOCUS is pressed, the FULL AUTO FOCUS status is established. (However, focusing may be difficult for such objects as listed below.)

■ Objects with no contrast between light and shade, such as white walls and night views

■ Objects reflecting an intensive light

■ Objects moving fast

■ Objects with many horizontal stripes, such as blinds

■ Objects viewed through a glass pane with water drops or stains

- To adjust the focus manually, press ⑤ $\boxed{\text{NEAR}}$ button or ⑥ $\boxed{\text{FAR}}$ button.

  When ⑤ $\boxed{\text{NEAR}}$ button is pressed, the focus shifts near to you.

  When ⑥ $\boxed{\text{FAR}}$ button is pressed, the focus shifts far away from you.

(3) Iris operation

- When ④ $\boxed{\text{AUTO}}$ button of the IRIS, the AUTO IRIS status (the brightness remains unchanged even if the object is changed) is established.

- To adjust the iris manually, press ② $\boxed{\text{OPEN}}$ button or ③ $\boxed{\text{CLOSE}}$ button.

  When ② $\boxed{\text{OPEN}}$ button is pressed, the iris opens.

  When ③ $\boxed{\text{CLOSE}}$ button is pressed, the iris closes.

[5] BLC (Back Light Control)
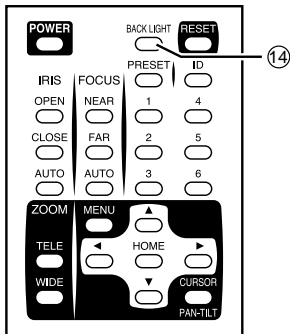
In case the back lighting is too bright to shoot the main object clearly, press ⑭ BACK LIGHT button.
To cancel this mode, press the button.

[6] Preset operation
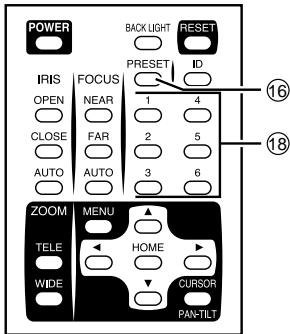
The Camera head direction, the zoom position, the focus status and the brightness level can be registered up to 6 items. The registration contents remain retained even if the Camera power is turned OFF.

(1) Setting presets
  • Set the Camera head direction, the zoom position, the focus status and the brightness level.
  • When ⑯ PRESET button is pressed, the LED on the Camera blinks in green (for 0.4 sec). To cancel this, press ⑯ PRESET button again.
• Then, press ⑱ one of the 1 through 6 buttons. Now, the registration is over, and the LED on the Camera goes out. (The preset contents, if already registered, are overwritten.)

(2) Execution of preset
  • When ⑱ one of the 1 through 6 buttons are pressed, the Camera head direction, the zoom position, the focus status and the brightness level are set to that specific preset position.

5. THE ID NUMBER SETTING

When more than one Cameras are laid out adjacently and operated via the wireless remote controller, the Cameras received the infrared rays operates in unison in the same way. When each Camera is allocated with a different ID No., the Camera can be operated selectively when its ID No. is specified via the wireless remote controller. The ID Nos. can be allocated to up to 6 Cameras.
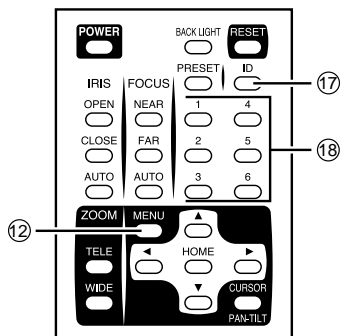
(1) Setting an ID No.
- Turn ON only the camera to be set with an ID No. Leave other adjacent Cameras in the OFF position. (Disconnect AC adapters, from the Cameras or plug outlet.)
- Set the remote ID No. to the Camera. (See "6. OSD (On-Screen Display)" on P. 19.) After setting, close the Menu screen by pressing ⑫ MENU button. Then, repeat the ID No. setting for all other Cameras in the same way.

(2) Operating the Cameras selectively
- Press ⑰ ID button, and the LED's of all adjacent Cameras will start blinking (at intervals of 0.2 sec). (To cancel this, press ⑰ ID button again.) Then, press ⑱ 1 through 6 buttons, and the LED's will go out, and selective operation by specifying the ID No. will be ready. Now, only the selected Camera can be operated via the wireless remote controller.

(3) Canceling the specific ID of the Cameras
- Hold down ⑰ ID button for over 2 sec, and the blinking LED on the Camera will light up. Then, unhand ⑰ ID button. Now, the selective operation has been cancelled, and all adjacent Cameras start operation via the wireless remote controller.
- Alternatively, the selective operation by specifying the ID No. can also be cancelled by unplugging the DC jack from the Camera and turning ON the Camera power again.

6. OSD (On-Screen Display)
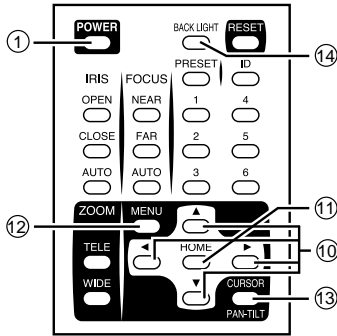
The ⑫ MENU button is used to turn ON/OFF the OSD display. When the Sub menu is displayed, the screen goes back to the previous screen by using ⑫ MENU button.

When the OSD display is available, ⑩ ▲ ▼ ◀ ▶ direction buttons and ⑪ HOME button function as the menu operation keys.

To halt the menu operation and perform the PAN-TILT operation, press ⑬ CURSOR/PAN-TILT button. To resume the menu operation, press ⑬ CURSOR/PAN-TILT button again.

● OSD Display menu

<<MAIN MENU>> (1) MAIN CONTROL (2) CAMERA SETUP (3) TITLE SET (4) PAN TILT MOTOR	▲ ▼ SELECT ⇒ ▶ ENTER (Return to ⑫ MENU)
(1) MAIN CONTROL	▲ ▼ SELECT ⇒ ◀ ▶ ADJUST (Return to ⑫ MENU)
<1> TITLE	ON/OFF: To change the ON/OFF of the character in the bottom of the screen.
<2> SELECT	PRESET/CAMERA: To change the title to be displayed. (This setting is enabled only when the above TITLE is ON.) PRESET: To display preset position names from 1 to 6. CAMERA: To display the name of the Camera.
<3> SET INDICATE	ON/OFF: To display the preset position in the screen upon its registration (for about 2 sec).
<4> REMOTE ID	1~6: To set the ID No. of the Camera for the selective operation via the wireless remote control. If the ID No. is not to be set, set this to "0." (This has been factory set to "0.")
<5> OFF TIMER	OFF, 5min, 10min, 30min 1h, 2h, 5h: To set the time for the Low Power Consumption mode. If no operation status continues longer than the above set time, the Camera power will be turned OFF automatically. To turn ON the Camera power again, press ① POWER button. (This has been factory set to "OFF.")

<6> ALARM IN		Sets the alarm position time [10 sec (default), 20 sec, 30 sec, 1 min, 5 min, 10 min, OFF]. When the set time has passed, automatic resetting is made to the lastly executed preset position.
<7> ALARM OUT		Sets the alarm signal output time [0.1 sec (default), 0.5 sec, 1 sec, 2 sec, 5 sec, 10 sec, 30 sec].
(2) CAMERA SETUP		▲ ▼ SELECT ⇒ ◀ ▶ ADJUST (Return to ⑫ MENU)
<1> BLC		ON/OFF: To balance the difference between light and dark background. This function can also be operated easily by pressing ⑭ BACK LIGHT button on the wireless remote control.
<2> AGC		0dB, 4dB, 8dB, 12dB, 16dB, 20dB, 24dB: To adjust the maximum AGC gain.
<3> AP GAIN		-6 to +9: To adjust the contour correction level between.
<4> FL		ON/OFF: To change the ON/OFF of the flicker correction.
<5> NEXT PAGE		To go to the next screen.
<6> MEMORY		To save the current settings of the Camera by pressing ⑪ HOME button.
<7> CLEAR		To reset the settings of the Camera to the factory-settings by pressing ⑪ HOME button.
<8> WB To change the White Balance mode.	1. ATW	To adjust the white balance by way of the automatic following. (The white balance will not be effected by colors of lighting changes.)
	2. AWC	To adjust the white balance by way of one-push of button. The white balance is adjusted once by selecting the AWC mode and pressing ⑪ HOME button. When the WB mode has been changed or the R-SHIFT or B-SHIFT function has been changed, the white balance must be adjusted again by pressing ⑪ HOME button.
	3. INDOOR	To be used indoors. The color temperature is 3,200K.
	4. OUTDOOR	To be used outdoors. The color temperature is 6,300K.
	5. LIGHT	To be used under fluorescent lamps. The color temperature is 4,200K.
<9> R SHIFT *1		±30: The larger this value is, the screen is more reddish.
<10> B SHIFT *2		±30: The larger this value is, the screen is more bluish.
<11> COLOR To adjust the color.	1. R GAIN	±30 To adjust the intensity of red.
	2. B GAIN	±30 To adjust the intensity of blue.
	3. RY HUE	±30 To adjust the hue of red.
	4. BY HUE	±30 To adjust the hue to blue.
<12> PREVIOUS PAGE		To return to the previous screen.

*1: <9> "R SHIFT" and <10> "B SHIFT" are available in 2 types, respectively: one for the ATW and AWC functions, and the other for the INDOOR, OUTDOOR and LIGHT functions. For example, it is possible to set "R SHIFT" to +10 in the ATW mode and to ± 0 in the INDOOR mode. *2: <11> "COLOR" is available for all modes irrespective of the mode of "WB". *3: To change and save the Camera settings, be sure to press ⑪ |HOME| button in the >MEMORY display on the first screen.	
(3) TITLE SET ▲ ▼ SELECT ⇒ ◀ ▶ ADJUST (Return to ⑫ |MENU|)	• To set the title for each preset position and Camera. Make the title to be set blink, and press ⑩ |▶| direction button to go to the set character. Then, set the character one by one by using ⑩ |▲||▼||◀||▶| direction buttons. The types of characters that can be set are alphabetic characters in capital and small ("A" through "Z" and "a" through "z") and symbols (e.g., < > - / . :). After setting all, press ⑪ |HOME| button to save the settings.
(4) PAN TILT MOTOR	▲ ▼ SELECT ⇒ ◀ ▶ ADJUST (Return to ⑫ |MENU|)
<1> MOTOR SPEED	• To set the motor speed when the PAN-TILT function is in operation. • AUTO: The operation speed can be changed automatically according to the zoom position. • MANUAL: The operation speed can be selected freely.
<2> SPEED	• To set the motor speed when "MANUAL" has been selected for the motor speed. The motor speed can be changed in 8 steps from 0 to 7.
<3> L/R DIRECTION	• STANDARD/REVERSE: To change the PAN direction.

7. ALARM IN/OUT TERMINALS

[1] Alarm input

By short-circuiting the ALARM 1 IN or ALARM 2 IN Terminal Block to the GND
terminal on the Terminal Block, the Camera moves to the allocated preset position.

- When short-circuiting the ALARM 1 IN terminal to the GND terminal,
  the Camera moves to the preset position 1.
- When short-circuiting the ALARM 2 IN terminal to the GND terminal,
  the Camera moves to the preset position 2.

Then, when the time set from the OSD menu has passed, the Camera moves back
automatically to the lastly executed preset position.

- Regarding time setting, refer to the setting in the OSD menu screen.

[2] Alarm output

When the alarm input signal has been activated and the Camera has moved to the specified
position, the alarm signal is outputted at the ALARM OUT terminal for the time preset
from the OSD menu.

(1)   Regarding time setting, refer to the setting in the OSD menu screen.
(2)   Signal specification
       Max 12V, 30mA (open-collector output)

● Pin arrangement

Terminal name	Function	Signaling
1 IN	Inputs the alarm signal <1>.	GPI
GND	Grounds.	-
2 IN	Inputs the alarm signal <2>.	GPI
OUT	Outputs the alarm signal.	Open-collector output
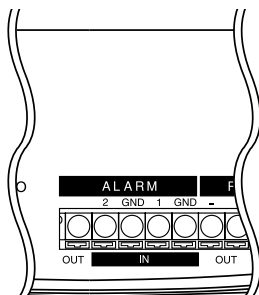
8. INITIALIZATION OF THE CAMERA SETTINGS

The camera settings can be initialized with the DIP switch (4) located on the back panel.

- In the power supply OFF state (the AC adapter is not connected), turn ON the RESET switch.
- Turn on the power supply (connect the AC adapter), and 10 seconds later, turn OFF the power supply.
- When the power supply is turned on again, the PAN/TILT settings, lens settings, preset settings, and camera settings by the OSD (on-screen display) are reset to factory-shipped condition.

    Note: After the initialization, be sure to turn OFF the RESET switch. If the switch remains ON, every time the power supply is turned on, the settings are initialized, so that each setting is not stored.

    Note: The extension switch and N/A switch not in use must be kept OFF.

    Note: When this operation is performed, the "initialization of the network settings" (page 32) is also carried out at the same time.

● Switch assignment

Switch No.	Normal	Operation	Function
EXTENSION	OFF	ON	RSU-200 (optional) mode
N/A	OFF	Kept OFF	-
RESET	OFF	ON → OFF	Initialization of settings
TEMINATE	OFF	ON	Terminator setting (see P.25.)

● DIP Switch (4)

DIP Switch (4)

ON
OFF

TERMINATE
RESET
N/A
EXTENSION

Back Panel of the Camera
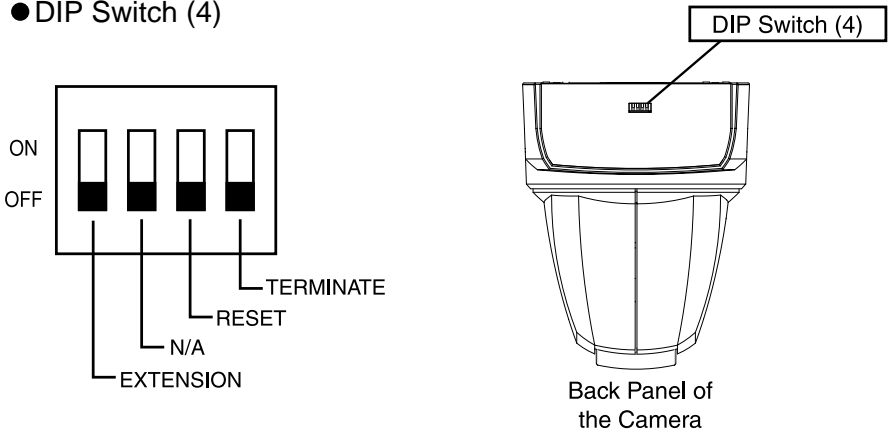
9. RS-485

This system can be controlled from the controller by connecting the RS-485 terminal on the Terminal Block to the controller via an RS-485 converter.

Make the connection as shown below.

Each camera can be set for the ID address via the DIP Switch (8) located on the bottom so that a selected camera can be controlled.

Up to 223 Cameras can be controlled from one controller.

To raise the reliability, connect the DATA (+)and the DATA (-) with a twist pair cable.

To protect this system and the controller, be sure to turn OFF the POWER switches of all units before starting the connection.
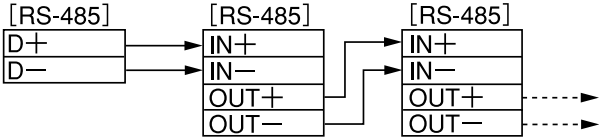
● Communication specifications
- • Communication mode: Synchronous half duplex
- • Communication speed: 9600bps
- • Start bit: 1 bit
- • Stop bit: 1 bit
- • Parity bit: None

● Pin assignment

Terminal name	Signal name	Function
+IN	DATA (+)	+ side: Inputs the transmitted/received
-IN	DATA (-)	- side: Inputs the transmitted/received
+OUT	DATA (+)	+ side: Outputs the transmitted/received data.
-OUT	DATA (-)	- side: Outputs the transmitted/received data.
GND	GND	Grounds.
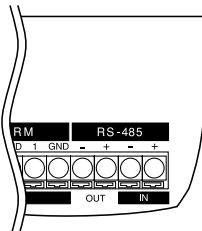
If you need the data format specifications and the command table, please contact our distributor.

1O. TERMINATING RESISTANCE AND ID ADDRESS SETTINGS

[1] Setting the terminating resistance

The terminating resistance is built in each Camera, and it can be turned ON/OFF by using TEMINATE switch of the DIP Switch (4) of each Camera. To prevent the attenuation of the signal, turn ON the terminating resistances of the Camera located at end of the longest route, of all cameras to be connected to the RS-485 interface, and turn OFF the terminating resistances of the other Cameras.

● DIP Switch (4)

DIP Switch (4)

ON

OFF

TERMINATE

Back Panel of
the Camera
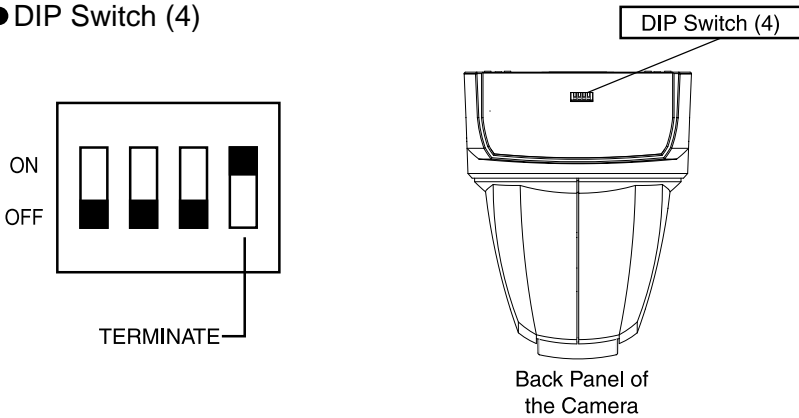
[2] Setting the ID address

The ID address for communication of the RS-485 can be set by using the switches No. 1 through 8 of the DIP Switch (8). (Refer to "Setting the ID address" table - P26, 27)

● DIP Switch (8)

DIP Switch (8)

RS-485 ID

8   7   6   5   4   3   2   1

ON

OFF

Back Panel of
the Camera

● Setting the ID address

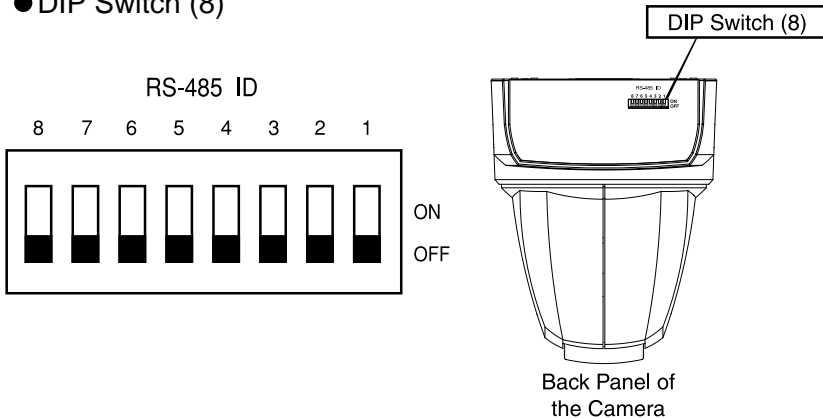| Camera ID address	Switch No. of DIP Switch (8)							
	1	2	3	4	5	6	7	8
Disabled	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF	OFF
31	ON	ON	ON	ON	ON	OFF	OFF	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
33	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
34	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
35	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
36	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
37	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
38	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
39	ON	ON	ON	OFF	OFF	ON	OFF	OFF
40	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
41	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
42	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
43	ON	ON	OFF	ON	OFF	ON	OFF	OFF
44	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
45	ON	OFF	ON	ON	OFF	ON	OFF	OFF
46	OFF	ON	ON	ON	OFF	ON	OFF	OFF
47	ON	ON	ON	ON	OFF	ON	OFF	OFF
48	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
49	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
50	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
51	ON	ON	OFF	OFF	ON	ON	OFF	OFF
52	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
53	ON	OFF	ON	OFF	ON	ON	OFF	OFF
54	OFF	ON	ON	OFF	ON	ON	OFF	OFF
55	ON	ON	ON	OFF	ON	ON	OFF	OFF

Camera ID address	Switch No. of DIP Switch (8)							
	1	2	3	4	5	6	7	8
56	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
57	ON	OFF	OFF	ON	ON	ON	OFF	OFF
58	OFF	ON	OFF	ON	ON	ON	OFF	OFF
59	ON	ON	OFF	ON	ON	ON	OFF	OFF
60	OFF	OFF	ON	ON	ON	ON	OFF	OFF
61	ON	OFF	ON	ON	ON	ON	OFF	OFF
62	OFF	ON	ON	ON	ON	ON	OFF	OFF
63	ON	ON	ON	ON	ON	ON	OFF	OFF
64	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
65	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
66	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF
67	ON	ON	OFF	OFF	OFF	OFF	ON	OFF
68	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
69	ON	OFF	ON	OFF	OFF	OFF	ON	OFF
70	OFF	ON	ON	OFF	OFF	OFF	ON	OFF
71	ON	ON	ON	OFF	OFF	OFF	ON	OFF
72	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF
73	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
74	OFF	ON	OFF	ON	OFF	OFF	ON	OFF
75	ON	ON	OFF	ON	OFF	OFF	ON	OFF
76	OFF	OFF	ON	ON	OFF	OFF	ON	OFF
77	ON	OFF	ON	ON	OFF	OFF	ON	OFF
78	OFF	ON	ON	ON	OFF	OFF	ON	OFF
79	ON	ON	ON	ON	OFF	OFF	ON	OFF
80	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
81	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
82	OFF	ON	OFF	OFF	ON	OFF	ON	OFF
83	ON	ON	OFF	OFF	ON	OFF	ON	OFF
84	OFF	OFF	ON	OFF	ON	OFF	ON	OFF
85	ON	OFF	ON	OFF	ON	OFF	ON	OFF
86	OFF	ON	ON	OFF	ON	OFF	ON	OFF
87	ON	ON	ON	OFF	ON	OFF	ON	OFF
88	OFF	OFF	OFF	ON	ON	OFF	ON	OFF
89	ON	OFF	OFF	ON	ON	OFF	ON	OFF
90	OFF	ON	OFF	ON	ON	OFF	ON	OFF
91	ON	ON	OFF	ON	ON	OFF	ON	OFF
92	OFF	OFF	ON	ON	ON	OFF	ON	OFF
93	ON	OFF	ON	ON	ON	OFF	ON	OFF
94	OFF	ON	ON	ON	ON	OFF	ON	OFF
95	ON	ON	ON	ON	ON	OFF	ON	OFF
96	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
97	ON	OFF	OFF	OFF	OFF	ON	ON	OFF
98	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
99	ON	ON	OFF	OFF	OFF	ON	ON	OFF
100	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
101	ON	OFF	ON	OFF	OFF	ON	ON	OFF
102	OFF	ON	ON	OFF	OFF	ON	ON	OFF
103	ON	ON	ON	OFF	OFF	ON	ON	OFF
104	OFF	OFF	OFF	ON	OFF	ON	ON	OFF
105	ON	OFF	OFF	ON	OFF	ON	ON	OFF
106	OFF	ON	OFF	ON	OFF	ON	ON	OFF
107	ON	ON	OFF	ON	OFF	ON	ON	OFF
108	OFF	OFF	ON	ON	OFF	ON	ON	OFF
109	ON	OFF	ON	ON	OFF	ON	ON	OFF
110	OFF	ON	ON	ON	OFF	ON	ON	OFF
111	ON	ON	ON	ON	OFF	ON	ON	OFF

Camera ID address	Switch No. of DIP Switch (8)								Camera ID address	Switch No. of DIP Switch (8)							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
112	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	168	OFF	OFF	OFF	ON	OFF	ON	OFF	ON
113	ON	OFF	OFF	OFF	ON	ON	ON	OFF	169	ON	OFF	OFF	ON	OFF	ON	OFF	ON
114	OFF	ON	OFF	OFF	ON	ON	ON	OFF	170	OFF	ON	OFF	ON	OFF	ON	OFF	ON
115	ON	ON	OFF	OFF	ON	ON	ON	OFF	171	ON	ON	OFF	ON	OFF	ON	OFF	ON
116	OFF	OFF	ON	OFF	ON	ON	ON	OFF	172	OFF	OFF	ON	ON	OFF	ON	OFF	ON
117	ON	OFF	ON	OFF	ON	ON	ON	OFF	173	ON	OFF	ON	ON	OFF	ON	OFF	ON
118	OFF	ON	ON	OFF	ON	ON	ON	OFF	174	OFF	ON	ON	ON	OFF	ON	OFF	ON
119	ON	ON	ON	OFF	ON	ON	ON	OFF	175	ON	ON	ON	ON	OFF	ON	OFF	ON
120	OFF	OFF	OFF	ON	ON	ON	ON	OFF	176	OFF	OFF	OFF	OFF	ON	ON	OFF	ON
121	ON	OFF	OFF	ON	ON	ON	ON	OFF	177	ON	OFF	OFF	OFF	ON	ON	OFF	ON
122	OFF	ON	OFF	ON	ON	ON	ON	OFF	178	OFF	ON	OFF	OFF	ON	ON	OFF	ON
123	ON	ON	OFF	ON	ON	ON	ON	OFF	179	ON	ON	OFF	OFF	ON	ON	OFF	ON
124	OFF	OFF	ON	ON	ON	ON	ON	OFF	180	OFF	OFF	ON	OFF	ON	ON	OFF	ON
125	ON	OFF	ON	ON	ON	ON	ON	OFF	181	ON	OFF	ON	OFF	ON	ON	OFF	ON
126	OFF	ON	ON	ON	ON	ON	ON	OFF	182	OFF	ON	ON	OFF	ON	ON	OFF	ON
127	ON	ON	ON	ON	ON	ON	ON	OFF	183	ON	ON	ON	OFF	ON	ON	OFF	ON
128	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	184	OFF	OFF	OFF	ON	ON	ON	OFF	ON
129	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	185	ON	OFF	OFF	ON	ON	ON	OFF	ON
130	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	186	OFF	ON	OFF	ON	ON	ON	OFF	ON
131	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	187	ON	ON	OFF	ON	ON	ON	OFF	ON
132	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	188	OFF	OFF	ON	ON	ON	ON	OFF	ON
133	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	189	ON	OFF	ON	ON	ON	ON	OFF	ON
134	OFF	ON	ON	OFF	OFF	OFF	OFF	ON	190	OFF	ON	ON	ON	ON	ON	OFF	ON
135	ON	ON	ON	OFF	OFF	OFF	OFF	ON	191	ON	ON	ON	ON	ON	ON	OFF	ON
136	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	192	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON
137	ON	OFF	OFF	ON	OFF	OFF	OFF	ON	193	ON	OFF	OFF	OFF	OFF	OFF	ON	ON
138	OFF	ON	OFF	ON	OFF	OFF	OFF	ON	194	OFF	ON	OFF	OFF	OFF	OFF	ON	ON
139	ON	ON	OFF	ON	OFF	OFF	OFF	ON	195	ON	ON	OFF	OFF	OFF	OFF	ON	ON
140	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	196	OFF	OFF	ON	OFF	OFF	OFF	ON	ON
141	ON	OFF	ON	ON	OFF	OFF	OFF	ON	197	ON	OFF	ON	OFF	OFF	OFF	ON	ON
142	OFF	ON	ON	ON	OFF	OFF	OFF	ON	198	OFF	ON	ON	OFF	OFF	OFF	ON	ON
143	ON	ON	ON	ON	OFF	OFF	OFF	ON	199	ON	ON	ON	OFF	OFF	OFF	ON	ON
144	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	200	OFF	OFF	OFF	ON	OFF	OFF	ON	ON
145	ON	OFF	OFF	OFF	ON	OFF	OFF	ON	201	ON	OFF	OFF	ON	OFF	OFF	ON	ON
146	OFF	ON	OFF	OFF	ON	OFF	OFF	ON	202	OFF	ON	OFF	ON	OFF	OFF	ON	ON
147	ON	ON	OFF	OFF	ON	OFF	OFF	ON	203	ON	ON	OFF	ON	OFF	OFF	ON	ON
148	OFF	OFF	ON	OFF	ON	OFF	OFF	ON	204	OFF	OFF	ON	ON	OFF	OFF	ON	ON
149	ON	OFF	ON	OFF	ON	OFF	OFF	ON	205	ON	OFF	ON	ON	OFF	OFF	ON	ON
150	OFF	ON	ON	OFF	ON	OFF	OFF	ON	206	OFF	ON	ON	ON	OFF	OFF	ON	ON
151	ON	ON	ON	OFF	ON	OFF	OFF	ON	207	ON	ON	ON	ON	OFF	OFF	ON	ON
152	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	208	OFF	OFF	OFF	OFF	ON	OFF	ON	ON
153	ON	OFF	OFF	ON	ON	OFF	OFF	ON	209	ON	OFF	OFF	OFF	ON	OFF	ON	ON
154	OFF	ON	OFF	ON	ON	OFF	OFF	ON	210	OFF	ON	OFF	OFF	ON	OFF	ON	ON
155	ON	ON	OFF	ON	ON	OFF	OFF	ON	211	ON	ON	OFF	OFF	ON	OFF	ON	ON
156	OFF	OFF	ON	ON	ON	OFF	OFF	ON	212	OFF	OFF	ON	OFF	ON	OFF	ON	ON
157	ON	OFF	ON	ON	ON	OFF	OFF	ON	213	ON	OFF	ON	OFF	ON	OFF	ON	ON
158	OFF	ON	ON	ON	ON	OFF	OFF	ON	214	OFF	ON	ON	OFF	ON	OFF	ON	ON
159	ON	ON	ON	ON	ON	OFF	OFF	ON	215	ON	ON	ON	OFF	ON	OFF	ON	ON
160	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	216	OFF	OFF	OFF	ON	ON	OFF	ON	ON
161	ON	OFF	OFF	OFF	OFF	ON	OFF	ON	217	ON	OFF	OFF	ON	ON	OFF	ON	ON
162	OFF	ON	OFF	OFF	OFF	ON	OFF	ON	218	OFF	ON	OFF	ON	ON	OFF	ON	ON
163	ON	ON	OFF	OFF	OFF	ON	OFF	ON	219	ON	ON	OFF	ON	ON	OFF	ON	ON
164	OFF	OFF	ON	OFF	OFF	ON	OFF	ON	220	OFF	OFF	ON	ON	ON	OFF	ON	ON
165	ON	OFF	ON	OFF	OFF	ON	OFF	ON	221	ON	OFF	ON	ON	ON	OFF	ON	ON
166	OFF	ON	ON	OFF	OFF	ON	OFF	ON	222	OFF	ON	ON	ON	ON	OFF	ON	ON
167	ON	ON	ON	OFF	OFF	ON	OFF	ON	223	ON	ON	ON	ON	ON	OFF	ON	ON

11. NETWORK FUNCTIONS

By connecting this Camera to the network using Ethernet (10BASE-T/100BASE-TX), the following functions are made available from the host (e.g., PC) on the network:

- Web server functions – Displaying moving images, displaying static images, quad disply and operating remote control through the Web browser.
- Alarm function - Saving image files to the remote host by input of the alarm signal.
- IP address filtering functions - Restricting clients who have access to the Camera.
- LIVE connection list - Listing the clients connected to the LIVE page.
- telnet server functions – Operating remote control and acquiring status data.

> **Note:** It is not assured that this Camera can be connected to all units on the network.

> **Note:** The applicable Web browsers are Internet Explorer 4.0 and newer and Netscape 6.0 and newer. For any other browser, consult your dealer or an authorized ELMO service center.

[1] Preparation for connection

Before connecting the Camera to the network for use, the network must be set up (e.g., IP address).This Camera provides two procedures for setting up the network as follows:

- Connecting the Camera from the host on the network through the Web browser.
- Connecting the Camera from the host on the network through telnet.

Here, the setup procedure using the Web browser is described.

For the setup procedure using telnet, consult your dealer or an authorized ELMO service center.

● Preparation before setting up

Before starting the setup, specify the IP address and subnet mask to be set up in the Camera. For the IP address and subnet mask to be specified, ask the administrator of the network to be used.

This Camera has been factory set on the network as follows:

IP address   192.168.0.100
Subnet mask   255.255.255.0

If the network address of the network to be used is not 192.168.0.0 or if there is any other host with the IP address 192.168.0.100 is already in operation on the same network, this Camera cannot be connected to the network for setup. In this case, a network with the IP address 192.168.0.0 must be configured with this Camera and the host for setting up this Camera. Prepare a host having the IP address 192.168.0.X (X: 1~254, excluding 100) and the subnet mask 255.255.255.0, and connect such host to the Camera.
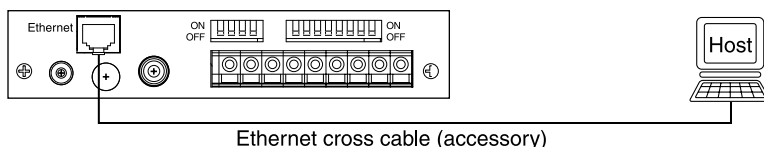
● Connection to the network

• Connection using HUB
Connect the Ethernet terminal (RJ-45) of the Camera to the HUB port with an Ethernet straight cable (UTP Category 5). For the HUB port, use a port other than the MDI port.

Ethernet straight cable
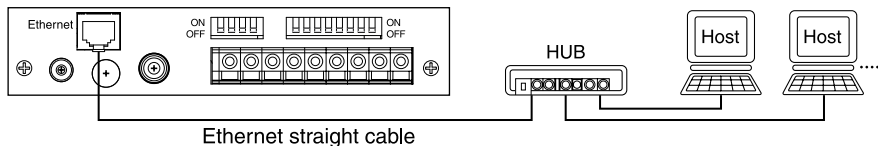
• Connection to one host
Connect the Ethernet terminal (RJ-45) of the Camera to the Ethernet terminal of the host with an Ethernet cross cable (UTP Category 5).

Ethernet cross cable (accessory)

Note: Upon connection of this Camera to other unit on the network through the Ethernet terminal, the communication protocol is adjusted automatically between the Camera and the connected unit to 10BASE-T/100BASE-TX and HDX/FDX (i.e., "automatic negotiation"). Therefore, this Camera may not be properly connected to some units on the network that do not comply with automatic negotiation.

● Setting up of the network

• Start the Web browser from the host connected to the Camera.
• Enter the IP address or host name (if allocated) of the Camera, following [http://], followed by [/config.htm], in the Address bar's text box of the Web browser.For example, enter the IP address of this Camera as "http://192.168.0.100/config.htm" since it has been factory set to 192.168.0.100.
• When configuration page is displayed in the Web browser, click the link [Network Configuration].

Configurations

Network Configuration
IP address filtering Configuration
Alarm Configuration
Setting for quad display
LIVE connection list

TOP

Network Configuration

IP address	192 . 168 . 0 . 100
Subnet mask	255 . 255 . 255 . 0
Default gateway	0 . 0 . 0 . 0
Port for Web server	⊙ well-known ○ other [ ] (1024-65535)
root password	[ ]
operator password	[ ]
user password	[ ]

[Submit] [Clear]

Configurations

- • When [Network Configuration] is displayed, change the set values according to the environment of the network to be used. To reset the changed set values to the original set values, click the clear button [CLEAR].
- • When all items have been set, click the submit button [SUBMIT].
  When the message "The saving of the setup was completed. Please restart." is displayed, the setting up of the network is completed. Being as restarted automatically, it will be accessible on the updated settings about one minute later. If the message "Incorrect value of setting exists. Please set up again." is displayed when the submit button [SUBMIT] is clicked, there is an incorrect value entered for setting. Go back to [Network Configuration] and redo the setting.

  [Reference Page] [7] Configurations ● Network Configurations   P.43

Note: If there are more than one unit with the same IP address on the network, a disorder would be caused to the network. Therefore, set the IP address carefully.

Note: Once the submit button [SUBMIT] is clicked, do not turn OFF the power supply until the next screen is displayed. Otherwise, the set values will be destroyed and connection from the network will be disabled. If the connection is disabled, reset the settings to the factory settings by referring to "Initialization of Network Settings" in the next section, and the redo the setting.

● **Initialization of the network settings**

If the connection from the network is disabled due to destruction of the network settings or disremembering of the set value, reset the settings to the factory settings by using the following procedure and then redo the settings:

- If the Camera is in connection to the network, disconnect the Camera from the network.
- In the power supply OFF state, turn ON the RESET switch located on the backside of the Camera.
- Turn ON the power supply, and wait for approx. 10 seconds.
- Turn OFF the power supply, and turn OFF the RESET switch.
- Turn ON the power supply again. Then, the network settings, IP adrress filtering setting, alarm setting, quad display setting are reset to the factory settings.

> **Note**: After the initialization, be sure to turn OFF the RESET switch. If the switch remains ON, every time the power supply is turned on, the settings are initialized, so that each setting is not stored. Besides, the connection from the network is disabled.

> **Note**: When this operation is performed, the camera settings are also initialized. (Refer to [8] "Initialization of the camera settings" on page 23.)

[2] Web server functions – Displaying moving images, displaying static images, quad disply and operating remote control through the Web browser.

When the Camera is connected from the Web browser, moving images can be displayed, static images cab be displayed, and remote control can be operated. To connect the Camera from the Web browser, enter the IP address or host name (if allocated) of the Camera, following [http://], in the address column of the Web browser provided for entering the URL to be opened. Then, the PTC-201C IP page is displayed. Click the desired link there. Then, the selected function can be used.

If the password has been set on the [Network Configuration], the Authentication page is displayed. In that case, if authentication by the [root], [operator], or [user] account is cleared successfully, the Web server functions can be used.

> **Note**:   Since no password is factory set, the Authentication page is not displayed.

● **Display of moving images (LIVE page)**

By clicking the link [QVGA] next to *LIVE
on the "PTC-201C IP" page or the link
[QVGA] next to MONITOR SIZE on the
LIVE page, the QVGA (320X240) moving
live image page can be displayed. Moreover,
by clicking the link [VGA] next to *LIVE or
the link [VGA] next to MONITOR SIZE on
the LIVE page, the VGA (640X480) moving
live image page can be displayed.
However, to display moving images, Java
must have been set enabled.
Moving images can be displayed

ELMO

*LIVE : QVGA / VGA / QUAD
*CAPTURE : QVGA / VGA

simultaneously at up to 10 clients. If more clients access the Camera, the screen displays the
message "Maximum number for LIVE image now accessing. Please wait"
The frame rate of the Moving image is max. 30 frames per second. However, the frame rate
depends on the processing capacity of the host, the network environment, the number of
connections units, etc.

> **Note:** If the power supply to the Camera is turned OFF while the moving image is in
> display, the host displaying the moving image may, depending on the Web
> browser in use, continue the internal processing even if the Web browser is
> closed. Normally, this causes no problem. However, if this is repeated again
> and again, the operation of the host may be destabilized. If the host becomes
> unstable, restart the host.

> **Note:** When moving images break up for some reason, moving display section in
> the browser gets black.

● **Display of static images**

By clicking the links [VGA] and [QVGA] of CAPTURE at the PTC-201C IP page, and the
LIVE page, the static images of 320X240 and 640X480 in size can be displayed,
respectively. To save the static image, use the function of the Web browser.
When any link at the PTC-201C IP page is clicked, the static image is displayed in the same
window. However, when any link at LIVE pages is clicked, another window opens, and the
static image is displayed in that window.

● **Operation of remote control**

When on the LIVE page the mark CONTROL is displayed above the [HOME] button, remote control is enabled. For display/non-display of the mark CONTROL, refer to the next paragraph "About control".
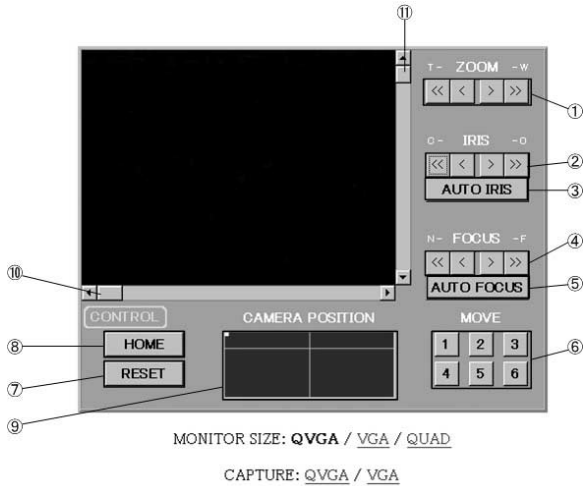
(1) Zoom operation

Clicking the buttons ① effects zoom operation. Clicking the TELE (T-) buttons and the WIDE (-W) buttons provides zoom-in and zoom-out operation, respectively. The buttons « » or coarse control buttons enable the zoom position to change by a large amount, and the buttons ‹ › or fine control buttons permit the zoom position to change by a small amount.

(2) Iris operation

By clicking the buttons ②, the iris can be adjusted manually. Clicking the OPEN (-O) buttons opens the iris diaphragm, and clicking the CLOSE (C-) buttons closes the iris diaphragm. The buttons « » or coarse control buttons enable the lens aperture to change by a large amount, and the buttons ‹ › or fine control buttons permit the lens aperture to change by a small amount. Clicking the AUTO IRIS button ③ brings the camera into the Auto Iris mode.

(3) Focus operation

By clicking the buttons ④, the focus can be adjusted manually. Clicking the NEAR (N-) buttons and the FAR (-F) buttons shifts the focus toward you and away from you, respectively. The buttons « » or coarse control buttons enable the focus shift to change by a large amount, and the buttons ‹ › or fine control buttons permit the focus shift to change by a small amount. Clicking the AUTO FOCUS button ⑤ brings the camera into the Auto Focus mode.

(4) Move operation

By clicking the 1 to 6 buttons ⑥, the camera can be moved to the registered preset position assigned to each button.

(5) Operating PAN/TILT

To move the camera while watching the moving image, drag the slider boxes horizontally and vertically on the scroll bars ⑩ and ⑪. When the mouse button is clicked on some point within the area ⑨, the marker moves to the point on which the mouse button was clicked, and the camera also moves to the position corresponding that point. Clicking the RESET button ⑦ matches the PAN/TILT position stored in the camera with the actual position. Clicking the HOME button ⑧ orients the camera frontward.

● **About control**

Remote control of the Camera can be accomplished by only one client. Control is given to the client who satisfies the following conditions.

- Client who has been authenticated by the [root] or [operator] account in the case where the password is specified for [operator] or [user] on [Network Configuration] page. (Refer to the paragraph "Network Configurations" in [7] "Configurations" on page 43.)
- All clients when in as-shipped condition (no password is set).

Control is transferred on an earlier authenticated client basis.

For example, in the case where the client who obtained control when multiple clients were displayed on the LIVE page leaves the LIVE page, control is transferred to the client displayed in the mode incapable of remote control. Then, it is undefined to which client control is transferred next.

> **Note:** Depending on network environments, control is not transferred immediately.

● **Quad display**

By clicking the link [QUAD] next to *LIVE on the "PTC-201C IP" page or the link [QUAD] next to MONITOR SIZE on the LIVE page, the Quad Display page can be displayed.

Before utilizing this function, the setting of quad display must be made.

The Camera provides the following two procedures for quad display setting.

- Connecting to the Camera from the host on the network through the Web browser.
- Connecting to the Camera from the host on the network through telnet.

Here, the setup procedure using the Web browser is described.

For the setup procedure using telnet, consult your dealer or an authorized ELMO service center.

(1) Setting

- Enter the IP address or host name (if allocated) of the Camera, following [http://], followed by [/config.htm], in the Address bar's text box of the Web browser. For example, enter the IP address of this Camera as "http://192.168.0.100/config.htm", since it has been factory set to 192.168.0.100.
- When the Authentication page is displayed, undergo authentication by the [root] account. Authentication cannot be cleared successfully by any other account. (The Authentication page is not displayed, since no password has been set in as-shipped condition.)
- When the Configurations page is displayed in the Web browser, click the link [Setting for quad display].
- When the "Setting for quad display" page is displayed, enter camera settings for the images to be displayed on the upper-left, upper-right, lower-left, and lower-right screen segments. To reset the changed settings to the original settings, click the clear button [CLEAR].
- When all items have been set, click the submit button [SUBMIT]. When the message "The saving of the setup was completed." is displayed, the setting of quad display is completed. The updated settings are effective. Click the link [Configurations] to go to the Configurations page.
  If the message "Incorrect value of setting exists. Please set up again." is displayed when the submit button [SUBMIT] is clicked, there is an incorrect value entered for setting. Go back to the "Setting for quad display" page and redo the setting.

$\boxed{\text{Reference Page}}$ [7] Configurations ● Setting for quad display   P.45

Note: In the case where is an NAT router between this Camera and other camera registered in the Camera setting for quad display, change the IP address of other camera to be registered, to the IP address of this Camera router, and specify it. If a host name is allocated to the camera to be registered, specify that host name. For the IP address and host name of this Camera-side router, consult the network administrator.

Setting for quad display

1.Upper left image	2.Upper right image
	Display ◯ Enable ◉ Disable
	URL http:// [_____]
Still image size ◉ VGA ◯ QVGA	Still image size ◉ VGA ◯ QVGA
LIVE image size ◯ VGA ◉ QVGA	LIVE image size ◯ VGA ◉ QVGA
3.Under left image	4.Under right image
Display ◯ Enable ◉ Disable	Display ◯ Enable ◉ Disable
URL http:// [_____]	URL http:// [_____]
Still image size ◉ VGA ◯ QVGA	Still image size ◉ VGA ◯ QVGA
LIVE image size ◯ VGA ◉ QVGA	LIVE image size ◯ VGA ◉ QVGA

[Submit] [Clear]

Configurations
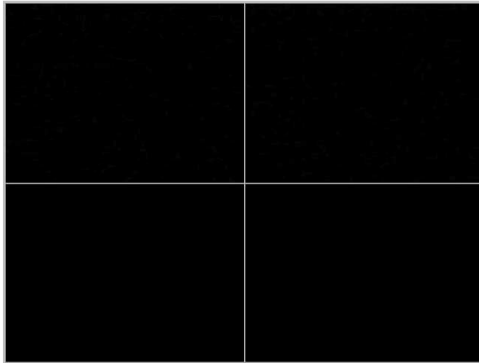
(2) Operation

- The cameras specified on the [Setting for quad display] page are displayed. (The upper-left screen segment always displays moving images provided by the Camera.)
- When the mouse's left button is clicked on a screen segment, the static image of that clicked image is displayed in another window. The resolution of that static image is the resolution selected on the [Setting for quad display] page.
- When the mouse's right button is clicked on a screen segment, the LIVE page for that clicked image appears. The resolution of that moving image is the resolution selected on the [Setting for quad display] page.

[3] Alarm function - Saving image files to the remote host by input of the alarm signal

By shorting the alarm signal input terminal <1> or <2> on the back panel of the Camera to the GND terminal, the Camera can be moved to the preset position assigned to each terminal. (Refer to [1] "Alarm input" in paragraph 7 " Alarm in/out terminals" on page 22.) At this time, it is possible to save image files to the host on the network specified for File Transfer on the Alarm Configuration page. When this function is utilized, the FTP server must be in operation in the host at the saving destination.

> **Note**: If alarm signals are input continuously at short intervals, the image corresponding to the preset position cannot be saved in some cases. Also, all the images as many numbers as alarm inputs could not be saved in some cases.

> **Note**: Image could not be saved on some network conditions.

The Camera provides the following two procedures for alarm setting.

- Connecting to the Camera from the host on the network through the Web browser.
- Connecting to the Camera from the host on the network through telnet.

Here, the setup procedure using the Web browser is described.

For the setup procedure using telnet, consult your dealer or an authorized ELMO service center.

● Setting

- Enter the IP address or host name (if allocated) of the Camera, following [http://], followed by [/config.htm], in the Address bar's text box of the Web browser. For example, enter the IP address of this Camera as "http://192.168.0.100/config.htm", since it has been factory set to 192.168.0.100.
- When the Authentication page is displayed, undergo authentication by the [root] account. Authentication cannot be cleared successfully by any other account. (The Authentication page is not displayed, since no password has been set in as-shipped condition.)
- When the Configurations page is displayed in the Web browser, click the link [Alarm Configuration].
- When the Alarm Configuration page is displayed, specify whether to enable or disable the alarm action. To disable the alarm action, select the radio button [No action]. To enable it, select the radio button [File transfer]. To reset the changed settings to the original settings, click the clear button [CLEAR].

Alarm Configuration

| Alarm action | ⊙ No action   ○ File transfer |

Submit   Clear

Configurations

File transfer Configuration

IP address of image receiving server	0 . 0 . 0 . 0
Port number of image receiving server	21
Account of image receiving server	anonymous
Password of image receiving server	
Passive mode	○ On ◉ Off
Directory to save	
Resolution	◉ VGA ○ QVGA
File name	img
Add sequential number to file name?	◉ Yes ○ No
First number of sequence	0
Last number of sequence	999

Submit   Clear

Back Configurations

• After the selection, click the submit button [SUBMIT]. If [No action] is selected, when the message "The saving of the setup was completed." is displayed, the setting of the alarm function is completed. If [File transfer] is selected, the File Transfer Setting Input page is displayed.

• When the File Transfer Setting Input page is displayed, change the set values according to the host at the saving destination. To reset the changed set values to the original set values, click the clear button [CLEAR].

• When all items have been set, click the submit button [SUBMIT]. When the message "The saving of the setup was completed." is displayed, the setting of file transfer is completed. If the message "Incorrect value of setting exists. Please set up again." is displayed when the submit button [SUBMIT] is clicked, there is an incorrect value entered for setting. Go back to the File Transfer Setting Input page and redo the setting.

Reference Page   [7] Configurations ● Alarm Configurations   P.43

Reference Page   [7] Configurations

● File transfer Configurations   P.44

Note: Image could not be saved on some network conditions.

[4] IP address filtering functions - Restricting clients who have access to the Camera

This function is intended to restrict clients who have access to the Camera. By registering the IP address allocated to each client, access to the Camera can be permitted. The number of clients that can be registered is limited to 10. One of those clients is granted administrative privileges.

The Camera provides the following two procedures of setting the IP address filtering function.
- Connecting to the Camera from the host on the network through the Web browser.
- Connecting to the Camera from the host on the network through telnet.

Here, the setup procedure using the Web browser is described.

For the setup procedure using telnet, consult your dealer or an authorized ELMO service center.

● Setting

- Enter the IP address or host name (if allocated) of the Camera, following [http://], followed by [/config.htm], in the Address bar's text box of the Web browser. For example, enter the IP address of this Camera as "http://192.168.0.100/config.htm", since it has been factory set to 192.168.0.100.

- When the Authentication page is displayed, undergo authentication by the [root] account. Authentication cannot be cleared successfully by any other account. (The Authentication page is not displayed, since no password has been set in as-shipped condition.)

- When the Configurations page is displayed in the Web browser, click the link [IP Address Filtering Configuration].

- When the IP Address Filtering Configuration page is displayed, enter the IP addresses for which access to the Camera is permitted. To reset the changed settings to the original settings, click the clear button [CLEAR].

- When all items have been set, click the submit button [SUBMIT]. When the IP address for the administrator is changed, the message "You are now

IP address filtering Configuration

IP filtering	○ Enable ⊙ Disable
Access permitted IP address 1 (for administrator)	0 . 0 . 0 . 0
Access permitted IP address 2	0 . 0 . 0 . 0
Access permitted IP address 3	0 . 0 . 0 . 0
Access permitted IP address 4	0 . 0 . 0 . 0
Access permitted IP address 5	0 . 0 . 0 . 0
Access permitted IP address 6	0 . 0 . 0 . 0
Access permitted IP address 7	0 . 0 . 0 . 0
Access permitted IP address 8	0 . 0 . 0 . 0
Access permitted IP address 9	0 . 0 . 0 . 0
Access permitted IP address 10	0 . 0 . 0 . 0

Submit   Clear

Configurations

You are now about to change the IP address for the administrator.

Once this IP address is changed, you, who is the administrator currenty, will not be able to change the settings on this camera.
Are you sure to change the IP address for the administrator?

New IP address for the administrator   192.168.0.1

Yes

back

about to change the IP address for the administrator." or other message is displayed.
Confirm the changed IP address for the administrator. If it checks OK, click the [Yes]
button.When the message "The saving of the setup was completed." is displayed, the
setting of the IP address filtering function is completed. If the message "Incorrect
value of setting exists. Please set up again." is displayed when the submit button
[SUBMIT] is clicked, there is an incorrect value entered for setting. Go back to the IP
Address Filtering Configuration page and redo the setting.

Reference Page   [7] Configurations
● IP address filtering Configurations   P.43

Note: When updating the IP address for the administrator on the IP Address
Filtering Configuration page, exercise added care in setting. If the IP
address for the administrator cannot be remembered, it is impossible to
go to the Configurations page. In this case, follow the step "Initialization
of the network".

Reference Page   [1] Preparation for connection
● Initialization of the network setting   P.31

[5] LIVE connection list - Listing the clients connected to the LIVE page

This function is intended to display in list form the IP addresses of the clients connected to the LIVE page of the Camera, the authenticated clients, and the duration of connection. Also, if a client connected has an unauthorized address, it is possible to break the connection from on the list.

● **Display method**

- Enter the IP address or host name (if allocated) of the Camera, following [http://], followed by [/config.htm], in the Address bar's text box of the Web browser. For example, enter the IP address of this Camera as "http://192.168.0.100/config.htm", since it has been factory set to 192.168.0.100.
- When the Authentication page is displayed, undergo authentication by the [root] account. Authentication cannot be cleared successfully by any other account. (The Authentication page is not displayed, since no password has been set in as-shipped condition.)
- When the Configurations page is displayed in the Web browser, click the link [LIVE Connection List].
- When the LIVE connection list appears, the number of clients connected, the IP address, account, and duration of connection, of each client, are displayed in list form. When the refresh button is clicked, the contents of the list are updated. When there is a client connected, the [Disconnect] button is shown in the rightmost column of the list. In order to avoid the LIVE page from being seen because of an unauthorized address or for other reason, click the [Disconnect] button to break the connection to that client.

LIVE connection list

refresh

No.	IP Address	Account	Time	
1	192.168.0.1	root	0days 0:00:00	Disconnect

Configurations

[6] telnet server functions – Performing remote operation and acquiring the status

This Camera can be remotely controlled and its status can be acquired through telnet. For the information of the command, etc., consult your dealer or an authorized ELMO service center.

[7] Configurations
● Network Configurations

Item	Outline
IP Address	The IP address of the Camera. Specifies the value allocated by the administrator of the network in use. Factory set to 192.168.0.100.
Subnet mask	The mask value for separating the network address from the host address. Used in combination with the IP address to specify the network to which this Camera belongs.Specifies the value allocated by the administrator of the network in use. Factory set to 255.255.255.0.
Default Gateway	Specifies the IP address of the router when this Camera is used on the network equipped with a router. For the IP address of the router, ask the administrator of the network to in use. Factory set to 0.0.0.0. Set to 0.0.0.0. when using the Camera on the network equipped with no router.
Port for the Web server	Specifies the port number to access the Web server of the Camera. When "Default" is selected, the port number of 80 is assigned. When specifying an arbitrary port number, consult the administrator for the network to be used.
root password	The password for using Change of the settings, Camera control functions, Display of the LIVE page, Display of static images, and telnet.Not factory set. Should preferably be set for the security purpose.
operator password	The password for using Camera control functions, Display of the LIVE page, and Display of static images. Not factory set.
user password	The password for using Browsing of the LIVE page and Obtaining of static images. Not factory set.

● IP address filtering Configurations

Item	Outline
IP filtering	Specifies whether to enable or disable the IP address filtering function. Factory set to Disable.
Access permitted IP address 1 (for administrator)	Registers the IP address of the client to whom administrative privileges are granted. The registered client can use Display and Change of the settings, Camera control functions, Display of the LIVE page, Display of static images, and telnet. Factory set to 0.0.0.0.
Access permitted IP address 2 to Access permitted IP address 10	Registers the IP address of the client who can use Camera control functions, Display of the LIVE page, and Display of static images. Even if the client registered here is authenticated by the [root] account, that client cannot use Display and Change of the settings, and telnet. Factory set to 0.0.0.0.

● Alarm Configurations

Item	Outline
Alarm action	Specifies whether not to effect the alarm action or to transfer images by File transfer. Factory set to No action.

● File transfer Configurations

Item	Outline
IP address of image receiving server	Specifies the IP address of the destination host to save. Factory set to 0.0.0.0.
Port number of image receiving server	Specifies the port number used by the FTP server in operation at the destination host to save. Normally, no need to be changed. Factory set to 21.
Account of image receiving server	Specifies the account name used for connection to the destination host to save. Factory set to anonymous.
Password of image receiving server	Specifies the password of the above account. Not factory set
Passive mode	Specifies which mode is used for file transfer, the passive mode or active mode. When the port is limited by firewall, etc., use the passive mode. For whether the passive mode should be used or not, ask the administrator of the network in use. Factory set to no use.
Directory to save	Specifies the directory to save the image file. Specifies the write-enabled directory of the assigned account. Not factory set. (The root directory has been specified.)
Resolution	Specifies the resolution of the image to be saved, from among VGA and QVGA. The resolution is 640X480 for VGA and 320X240 for QVGA. Factory set to VGA.
File name	Specifies the name of the file to be saved. Automatically adds the extension [.jpg] to the file name. Since any file under the same name in the saving destination is overwritten, specify a different file name from the existing file names. Factory set to [img].
Add sequential number to file name?	Specifies whether Yes/No to the addition of sequential number to the file name. When [Yes] is specified, the image is saved under the file name specified for the image with the sequential number added (e.g., img000000.jpg img000001.jpg) each time the file is saved. When the power supply to the Camera is turned ON or the FTP client settings are changed, the sequential number to be added to the file name is reset to the number specified for the first number of sequence. Factory set to Yes.
First number of sequence	Specifies the first number of sequence when the sequential number is added to the file name. Factory set to [0].
Last number of sequence	Specifies the last number of sequence when the sequential number is added to the file name. Then, if there is a file already saved with the first number of sequence, that file will be overwritten when the new file is saved. Therefore, the last number of sequence should preferably be larger. Factory set to [999].

● **Settings for quad display**

Item	Outline
Display	Specifies whether to enable or disable the display of moving images on the Quad Display page. Factory set to Disabled. However, this item is set to Enabled for the upper-left screen segment only (this setting cannot be changed.)
URL	Registers the IP address of the camera that images are sent from. Enter the IP address or host name (if allocated), following [http://]. Not factory set. However, the Camera is specified for the upper-left screen segment only. (This setting cannot be changed.)
Still image size	Specifies the resolution of static images to be displayed when the mouse's left button is clicked on the screen. Factory set to VGA.
LIVE image size	Specifies the resolution of the LIVE page to be displayed when the mouse's right button is clicked on the screen. Factory set to QVGA.

12. TROUBLESHOOTING HINTS

Symptom	Possible cause/remedy
No images on TV monitor	• Cable is not properly connected to the video-in terminal of monitor. • The power plug is disconnected from the wall outlet. • The AC adapter output plug is disconnected from the DC jack of the Camera. • Zoom is set at TELE to display only white/black part of the material. • The LED is lit red, and the Camera is in the OFF position. • The LED is lighting, and the OFF Timer mode of the Camera power is working. (See P.19) • The cable is not connected to each output terminal. • The iris is not in the proper position. (If the iris is closes too much, the image cannot be seen.) • The chosen video output type (NTSC) is different from the system of the monitor .
Out of focus	• The focus is in the Manual mode. Set the focus to the Auto mode by pressing the AUTO button of focus. (See P.16) • The light/shade contrast of the object is too low. (See P.16) • The object is moving too fast. (See P.16)
No operation via the wireless remote control	• Operation is made with wrong ID number settings. (See P.18) • Operate within the operation range of the wireless remote control. (See P.7) • Check the remaining battery life of the wireless remote control. • The sunlight or the light from the inverter fluorescent lamp or the like is received by the infrared sensor on the Camera. Relocate the Camera or block the light. (See P.7) • The EXTENSION switch of the DIP Switch (4) is ON.
The preset position is blurry	• The Camera head has been moved directly due to some cause. Adjust the Camera direction by setting the "RESET" button to the normal position. (See P.15)

Symptom	Possible cause/remedy
Connection to the network cannot be established.	• The Ethernet cable is not connected to the Ethernet terminal. • When the hub is used between, the Ethernet cross cable is used. • The setting of the network is incorrect. (See P.29.)

If the problem still remains after checking the above, consult your nearest dealer or an authorized ELMO service center.

13. SPECIFICATIONS

● General

Item	Specifications		
Power source	12V DC		
Current consumption	1.5A		
Outside dimensions	124mm(W) X 153mm(D) X 160mm(H) (4.9 X 6.0 X 6.3 in.)		
Weight /Mass	mainbody only:1,200g (2.6 lb), with plates:1,500g (3.3 lb)		
Television system	NTSC compatible		
Output terminal	Composite-video output	RCA pinjack/75ohm unbalanced	1
Control terminal	RS-485	Terminal Block	1
Power terminal	EIAJ RC-5320 type4		

● Camera

Item	Specifications
Lens	f = 4.0 - 88.0 (22-times zoom) F1.6-3.8
Zoom	22-times powered (with double speed function) optical zoom
Field of view (Horizontal)	2.3°- 47.5°
Lens filter diameter	37mm (1 15/32 in.), pitch = 0.75mm (1/34 in.)
Focusing	Full-auto/Manual
Image pick-up element	1/4" CCD
Effective picture element	768(H) X 494(V)
Total picture element	811(H) X 508(V) (approx. 410,000 pixels)
Minimum illumination	2 lx
Backlight control	ON/OFF
Iris	Auto/Manual
White balance	Auto/Push-set/Manual
Color balance	Auto/Push-set/Manual
AGC	Built-in
AP gain control	Built-in
Sync. System	Internal
Resolution	More than 460 TV lines (Y signal with horizontal)
	More than 350 TV lines (Vertical)
S/N ratio	49 dB

● Network

Item	Specifications
Physical interface	10Base-T/100Base-TX Ethrnet X 1
Compatible protocol	TCP/IP,ARP,UDP,ICMP,HTTP,FTP,telnet
Compatible browser	Internet Explorer 4.0 or newer, Netscape Navigator 6.0 or newer
Image compression format	JPEG
Display of moving image	Resolution 640 X 480, 320 X 240
	Frame rate: Max. 30 frames/sec.(320 X 240)
Connection count during the display of moving image	Max. 10 clients
Display of static image	Resolution 640 X 480, 320 X 240
Remote control	Pan/Tilt, Focus, Iris, Preset, Home, Reset
Security	IP address filtering, BASIC authentication
CPU used for the system	333-MHz Pentium III or higher processor
	(500-MHz Pentium III or higher processor recommended)
RAM used for the system	Min. 128 MB (Min. 256 MB recommended)
Display and video card used for the system	800X600 pixels or larger
	(1024X768 pixels or larger recommended)

● Pan/Tilt

Item	Specifications
Pan range	Left 150° Right 150°
Tilt range	Up 30° Down 90°
Pan Tilt Speed	Auto/Manual (8 speed)

● Other

Item	Specifications
Title setting	Provided (Camera/Preset selection)
Daisy chain connection	Max 223 (PTC-200C/PTC-201C IP) cameras

14. SUPPLIED ACCESSORIES

Item	Quantity
AC adapter Model NO: SA-121A6F-11 (5Z0541) (rated input AC100-250V 47-63Hz)	1
Power Cord	1
Infrared wireless remote controller (RCW-PTZS)	1
Batteries (Type R03,AAA)	2
BNC/RCA adaptor plug.	1
Ethernet Cable (UTP category 5 cross cable)	1
Fixing Plate	1
Screw M3x5	4
Ceiling Plate	1
Wing Nut M5	4
Hexagon head bolt M5x40	4
Instruction manual	1

*Weight and dimensions are approximate.

*Design and specification are subject to change without prior notice.

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