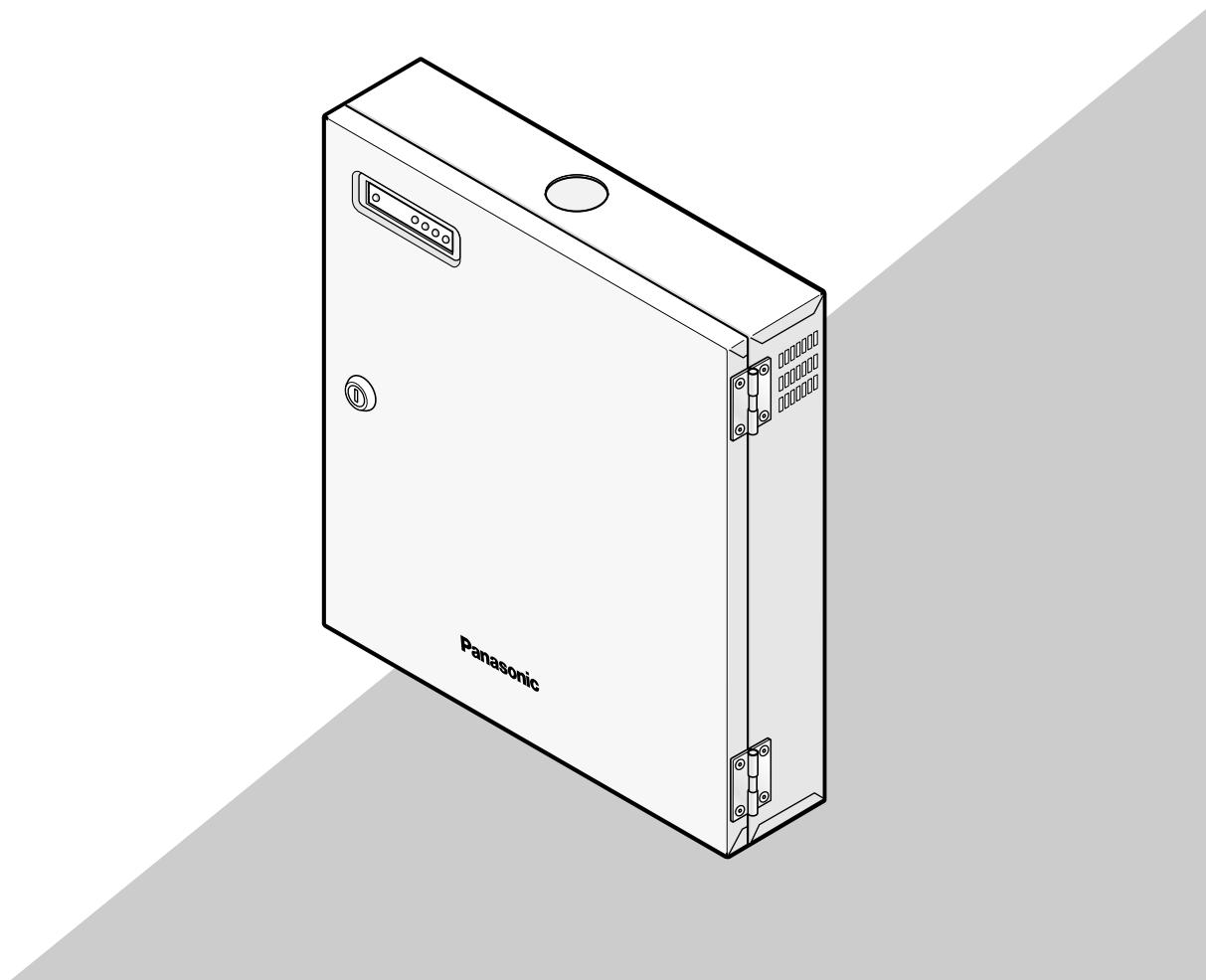


Panasonic

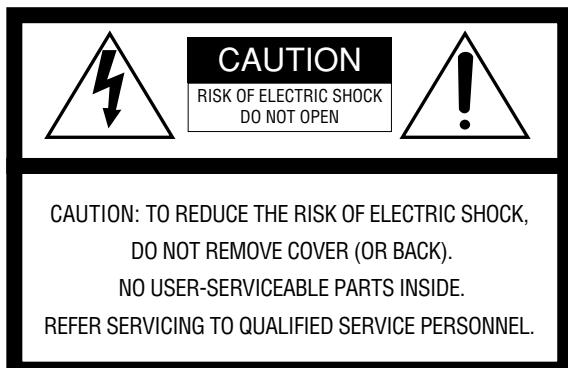
Control Unit Operating Instructions Model No. BM-ED500



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

Cautions:

- This unit is for indoor use only.
- Before attempting to connect or operate this product, please read the label on the bottom.



SA 1965

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



SA 1966

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



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

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

For U.S.A

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

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

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

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

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

Model No. BM-ED500

Serial No.

IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not use near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the points where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 13) All interconnecting devices must be UL Listed.

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PREFACE

Control Unit BM-ED500 is used in an access control system. The control unit, which carries out the enrollment and recognition of iris data, which is generated from the iris images captured by Iris Camera BM-ET500, is available for following uses. (Iris Camera BM-ET500 is sold separately, however, it must be used in combination with the control unit.)

• As a control unit for iris image capturing and Administration PC enrollment

To activate iris recognition, it is necessary to capture the iris images of a user and enroll the iris data in the administration PC. A control unit (for enrollment) generates iris data from iris images captured by an iris camera (for enrollment), and transfers the data to the administration PC in the LAN (Local Area Network). The iris data is enrolled in the iris database of the administration PC. Up to 2 000 users can enroll their iris data. ^{*1}

^{*1} To administer the iris data captured by an iris camera and generated by a control unit, you need to install the optional Administration Software BM-ES500E onto a PC. Refer to the manuals of BM-ES500E for details.

• As a control unit for iris recognition

The user can have his/her iris image captured only by looking at the iris camera (for recognition). It will take approx. 3 seconds between capturing and recognition.^{*2} The user can check the recognition result with the status indicator (ACCEPT/REJECT) on the front side of the iris camera.

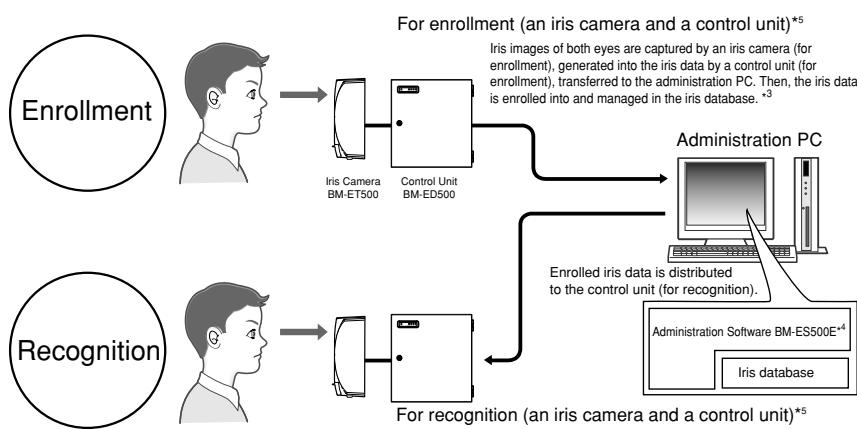
Iris data of up to 1 000 users can be distributed from the administration PC to recognition cameras.

^{*2} The recognition time may differ depending on capturing conditions.

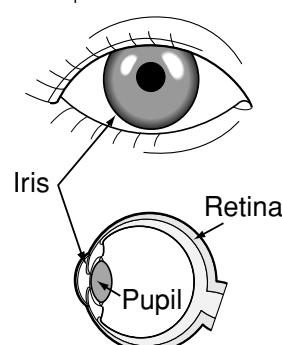
^{*3} The iris camera (for enrollment) captures the iris images of both eyes at the same time, but the iris data of each eye is enrolled separately.

^{*4} Capturing diagnosis is made by the administration software at the time of enrollment.

^{*5} Up to 127 gate systems (an iris camera and control unit) can be connected to the administration PC in the LAN. The control unit can also be used as both for enrollment and recognition by changing the operation mode.



- Iris recognition technology is a way to identify a person with iris patterns (an iris is the thin plate-shaped film in front of the eyeball), which differ among each person. The iris pattern of the left eye differs from that of the right eye.
- Using iris cameras, users can carry out recognition without touching any devices.
- The iris data of users need to be enrolled in the administration PC. In the iris recognition process, the users are recognized with the enrolled iris data.



FEATURES

- **Control of iris cameras (for enrollment and recognition)**

Up to 3 iris cameras (2 external power supply devices for iris cameras) can be connected to a control unit.

This product cannot control both of iris cameras for enrollment and recognition at the same time. Refer to Administration Software BM-ES500E Administrator's Guide.

- **One-time capturing of both eyes enables recognition in approx. 3 seconds***

An iris camera captures the iris images of both eyes at the same time. A control unit generates iris data from the captured iris images, and compares the data with that distributed to the control unit. If either of the iris data is corresponding with the iris data distributed, you will be recognized as an enrolled user. The recognition time will be approx. 3 seconds (approx. 2 seconds for capturing and 1 second for recognition)*1.

*1 The recognition time may differ depending on capturing conditions.

- **Access control system can be composed.**

Iris cameras, control units, and the administration PC can compose an access control system in combination with access control panels*2 and electric locks*2, etc.

*2 These devices are independent to BM-ED500.

- **Supporting a common access control interface**

Recognition result outputs support Wiegand, which is one of the interfaces commonly used for access control systems. Any access control panel supporting the interface can be directly connected to the control unit. The control unit can also output signals to RS-485 devices, as well as controlling Solenoid electric locks, if they are directly connected to the control unit.

NOTIFICATION ABOUT THIS DOCUMENT

- This document describes basic operating instructions of Control Unit BM-ED500.
- The operating instructions supplied to BM-ET500 Iris Camera describes operating instructions and installation guide of the iris camera. The instruction manuals supplied to Administration Software BM-ES500E, which is the software required for iris data enrollment, describe how to use the administration software. Normally, users of recognition cameras do not have to read them. These operating instructions and manuals are intended for system installers and administrators.
- System installers and administrators should read the following operating instructions and manuals as well as this document.

To use Iris Camera BM-ET500: BM-ET500 Operating Instructions

To use Administration Software BM-ES500E: BM-ES500E Installation Guide

BM-ES500E Administrator's Guide

BM-ES500E Backup Guide

- BM-ES500E Installation Guide, Administrator's Guide, and Backup Guide are PDF documents contained on the CD-ROM that is supplied with Administration Software BM-ES500E. To read the PDF documents, you need to install Adobe Acrobat® Reader, which you can obtain at the homepage of Adobe Systems Incorporated.

TRADEMARKS

- Adobe Acrobat is either a registered trademark or trademark of Adobe Systems Incorporated in the United States and/or other countries.
- Other company names and product names appearing in these operating instructions are registered trademarks or trademarks of the company concerned.

LIMITATION OF LIABILITY

This Product is used to recognize an individual person by using Iris data, and is not designed to protect against "theft" or "crime" independently.

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

- (1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
- (2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
- (3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
- (4) INCONVENIENCE OR ANY LOSS ARISING OUT OF NON-RECOGNITION WHEN IRIS DATA IS ALREADY ENROLLED, DUE TO ANY REASON OR CAUSE OTHER THAN ANY FAILURE OR PROBLEM OF THE PRODUCT;
- (5) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;
(It might be a case that the entrance-gate control system, for example, combining the Product and the electric lock devices, does not open/close the door properly because of before-mentioned reasons or other causes of such system except for the Product.)
- (6) ANY LOSS OR DAMAGE, OR CLAIMS ARISING OUT FROM LOSS OR LEAK OF PC DATA INCLUDING IRIS DATA IN THE ADMINISTRATION PC
(Iris data is nature of privacy. The customer shall be responsible for any Iris data stored in the administration PC.)

DOCUMENT CONVENTION

These operating instructions use the following convention when describing the use and operation of the camera.

Access control system: System which controls access using iris cameras, control units, and the administration PC, in combination with access control panels, card readers, and electric locks, etc.

Administration Software: Panasonic Administration Software BM-ES500E

This software is used for administering iris enrollment/recognition.

(This product is sold separately, however, it must be used in combination with an iris camera.)

Administration PC: PC in which the administration software is installed

The PC can administer control units in the LAN.

Control Unit: Panasonic Control Unit BM-ED500, which is used for iris enrollment/recognition, and controls electric locks

(This product is sold separately, however, it must be used in combination with iris cameras.)

Distribution: To transfer enrolled data from the administration PC to control units and to save the data in the control units

Enrollment: To save a user's iris data associated with the individual information (name and ID data, etc.) in the administration PC

Iris data is enrolled using the administration software.

Iris camera: Panasonic Iris Camera BM-ET500

Iris data: Data that are generated from captured iris images

Iris recognition: Way to identify a person with iris patterns, which differ between each person

Recognition: To identify a user by comparing the iris data that is generated (from iris images captured) with the data enrolled in the iris database

Wiegand: Transmission method used as an access control system interface

Warning(s): Warning statements identify conditions or practices that could result in severe injury or loss of life.

Caution(s): Caution statements identify conditions or practices that could result in damage to this product or light injury.

Note(s): Note statements identify special instruction, rule, or side comment related to the topic.

PRECAUTIONS

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

Consult an expert on the load bearing capacity of the installation surface and structure. If the surface is not strong enough, the camera may fall down. Refer to the product specifications for weights.

- Do not drop metallic parts through slots.**

This could permanently damage the appliance. Turn the power off immediately and contact qualified service personnel for service.

- Do not attempt to disassemble the appliance.**

To prevent electric shock, do not remove screws or covers.

There are no user-serviceable parts inside. Contact qualified service personnel for maintenance.

- Handle the appliance with care.**

Do not strike or shake, as this may damage the appliance.

- Do not expose the appliance to water or moisture.
Do not try to operate it in wet areas.**

Take immediate action if the appliance gets wet. Turn the power off and refer servicing to qualified service personnel. Moisture can damage the appliance and also cause electric shocks.

- Do not use strong or abrasive detergents when cleaning the appliance body.**

Use a dry cloth to clean the appliance when it is dirty. When the dirt is hard to remove, use a mild detergent and wipe gently.

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

Use the appliance at temperatures between 0 °C and 40 °C {between 32 °F and 104 °F} and humidity between 30 % and 80 %. The input power source for this appliance is 120 V AC, 60 Hz. Do not share an AC outlet with devices that consume much electricity (such as a copy machine or air conditioner).

- Do not operate the appliance while the door is open.**

- Power switch**

Power supply is not shut down only by turning off the power switch. To shut it down, remove the power cord from the AC socket, or turn off the external power-control device. Refer to p.21 for how to turn on/off the power.

Note: While the power is turned off, recognition and entrance will be unavailable.

- Replacement part**

Exchange the following parts for the same type.

F1: K5D632BK0002

F101: K5D122BK0002

- Indication**

Refer to the bottom of the unit as to the indications of equipment classification and power source, etc.

- This product is not designed to prevent theft in advance. We shall not guarantee you for any trouble caused by using this unit.**

- If you are in a situation that iris recognition is impossible from the exterior, recognition or enrollment will be invalid.**

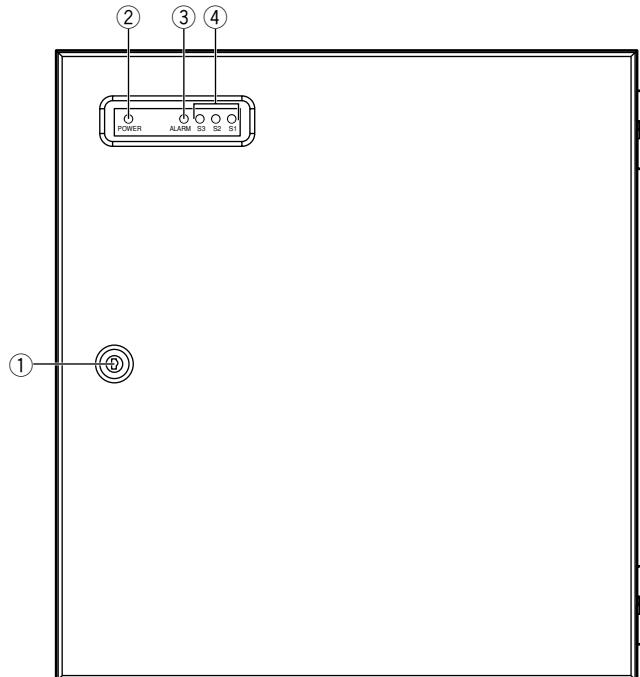
- Iris data is privacy. Take enough care not to leak the data out of the administration PC. It is also recommended that you should get an agreement from a person to register his or her data.**

- We recommend that you note down your settings and save them. Power or battery failure may erase the settings you enter.**

- Do the self-diagnostic test, when you open this unit door for maintenance, etc. The self-diagnostic test can be carried out by turning on a power supply. (Refer to p.21.)**

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

■ External View



① Door/Key hole

You can open the control box door by using the supplied key. When you close the door, turn the key counterclockwise to lock.

Caution: When you open the door with the power on and 10 seconds have passed after your turning on the power and opening the door, the buzzer will beep to notify you that the door is open. Then, the recognition with iris cameras will be disabled. To recover from the disabled condition, you need to reset the control unit through the administration PC. (Refer to the administrator's guide of the administration software.)

When you open the door for maintenance, refer to p.16.

② Power indicator (POWER)

Lights up when the power is turned on.

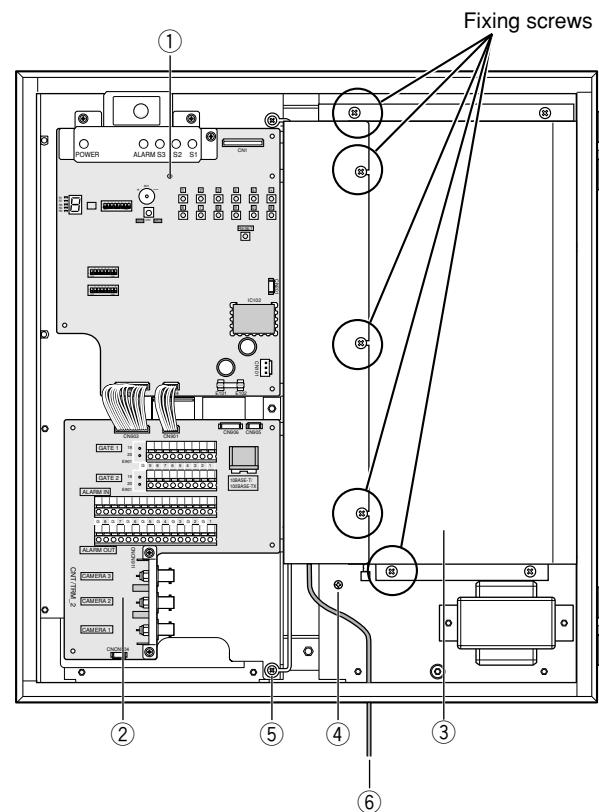
③ Alarm indicator (ALARM)

Lights up when trouble occurs to the control unit.

④ Status indicators (S1 to S3)

These indicators show the operation status of the control unit. (Refer to p.19.)

■ Internal View



① Setting board

② Input/Output board

③ Power board

This board is shielded for safety. Before the connections, do the following.

1. Loosen the 5 screws fixing the shield.
2. Remove the shield.

After the connections, attach the shield to the control unit as it was.

④ Earth terminal

⑤ Clamping bar

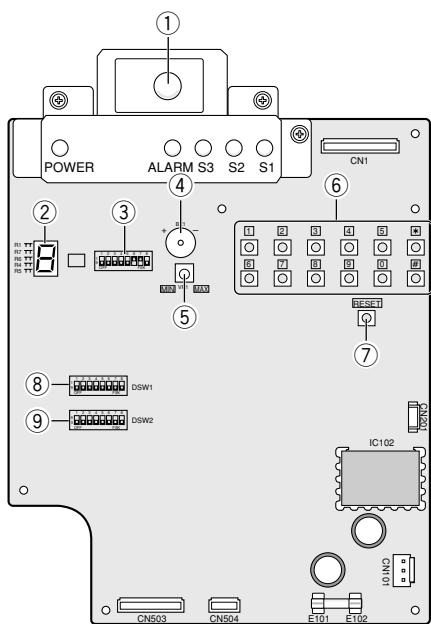
This bar is used for clamping the cables.

After the connections, fix them with the supplied clamping tools.

⑥ AC power cable

Do not connect to a receptacle controlled by a switch.

● Setting board



① Door sensor

Detects the door opening or closing. When you open the door with the power on or 10 seconds have passed after your turning on the power and opening the door, the buzzer will beep to notify the administration PC that the door is open. When you open the door for setting or maintenance, refer to p.18.

Note: During normal operation, door-opening for more than 10 seconds will disable the control unit. To reset the disabled status, use the administration software.

② Setup indicator

Shows the setting data or which numeric button has been pressed.

③ Operation mode switch (DSW3)

These switches are used for setting the operation mode of the control unit.

④ Buzzer

Beeps when the door is open or trouble has occurred to the control unit.

⑤ Buzzer-level adjustment knob

You can adjust the buzzer volume with this knob.

⑥ Numeric buttons (0 to 9, *, #)

These buttons are pressed when you set the IP address or confirm the setting data of the control unit.

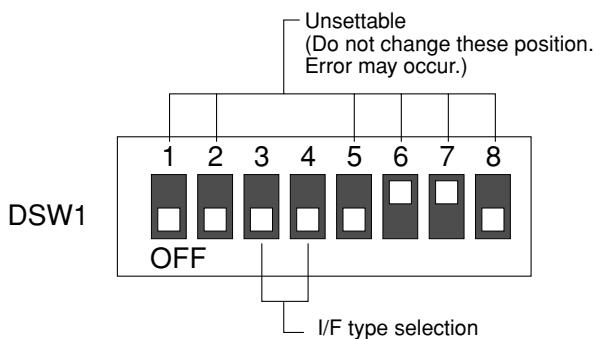
⑦ Reset button (RESET)

This button is reserved for service.

Note: Keep hands away from this button except for service personnel.

⑧ Setting switches 1 (DSW 1)

These switches are used for setting I/F type.



Setting	#3*	#4*	GATE 1	GATE 2
Electric lock I/F	OFF	OFF	Electric lock	Deactivated
Wiegand out I/F	ON	OFF	Deactivated	Wiegand out
RS-485 out I/F	OFF	ON	Deactivated	RS-485 out

* The numeric shows the setting switch number.

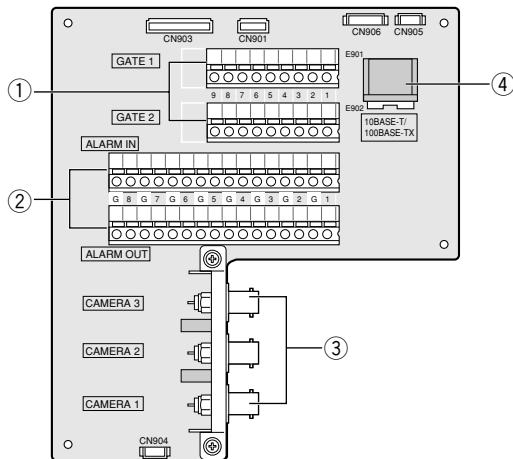
Notes:

- Setting change is available after turning on the system.
- I/F selection should be same as the setting in the administration software. (Refer to the installation guide of the administration software.)

⑨ Setting switches 2 (DSW 2)

These switches are used for setting electric lock type when you use electric locks. (Refer to p.20.)

● Input/Output Board



① Gate control I/F connectors

An electric lock is connectable to the GATE 1 connector.

Wiegand/RS-485 Interface is connectable to the GATE 2 connector.

Note: When using Wiegand/RS-485 interface, refer to UL Listed access control panel's installation instructions for compatibility information with iris camera model BM-ET500 and control unit model BM-ED500.

② Alarm input/output connectors (ALARM IN, ALARM OUT)

ALARM IN: These connectors are not used.

ALARM OUT: These are connectors to output the alarm signal from the control unit to the external devices. Alarm-related parameters are configurable through the administration PC. (Refer to the installation guide of the administration software.)

③ Iris camera connectors (CAMERA 1 to 3)

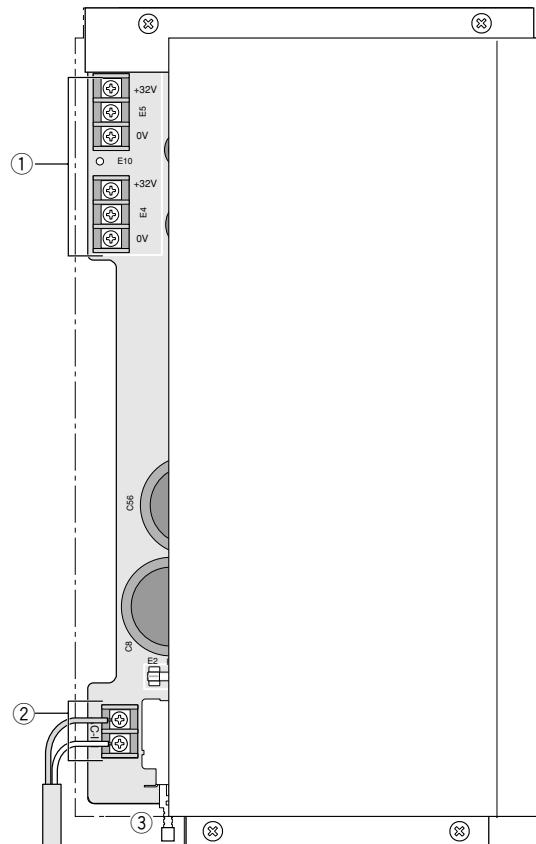
These are connectors for communication between iris cameras and the control unit. Up to 3 iris cameras are connectable (x 2 for recognition cameras and x 1 for an enrollment camera).

④ LAN connector (10Base-T/100Base-TX)

This is a port to connect the control unit to LAN (Local Area Network).

Note: Route all power limited wiring away from non-power limited wiring.

● Power board



① Camera power connectors (Power-limited terminal)

These are connectors to supply iris cameras with 32 V DC power. One connector can supply power to one camera.

Note: Power supply from one connector to more than one camera may cause trouble.

② Power input connectors (Power-limited terminal)

Route away from all other power limited wirings. (Refer to p.17.)

③ Power switch

Turns on/off the power of the control unit. When pressed, the power is on.

When the power is turned on, the power indicator lights up and 32 V DC power is supplied from the camera power connectors to iris cameras.

Note: Do not turn off the power during setting/initialization.

INSTALLATIONS AND SETTINGS

INSTALLATIONS

WARNING

The installations described in the figures should be made by qualified service personnel or system installers.

Caution: This system must be installed within the protected premise in accordance with the National Electrical Code (NFPA70), and the local authorities having jurisdiction.

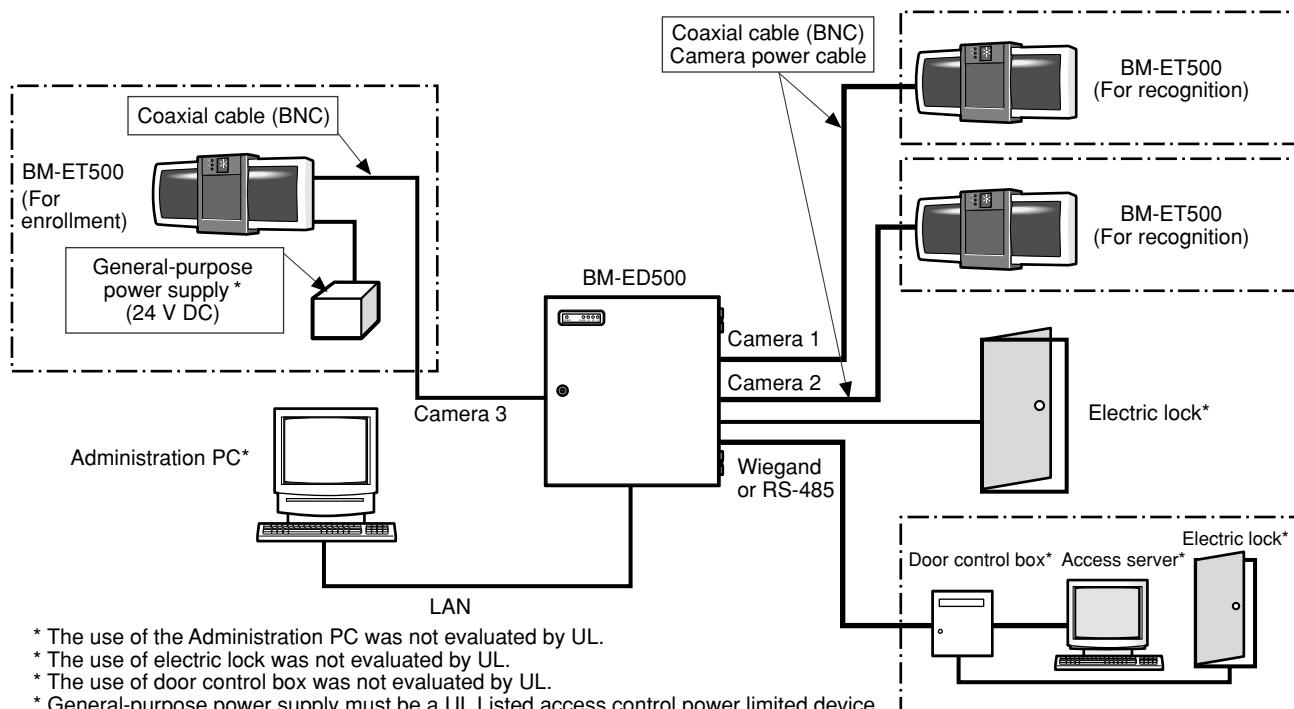
■ Caution on Installation

Secure the control unit with the supplied mounting bracket to prevent vibration, dropping and injury.

Notes:

- Keep the unit:
 - in the temperature between 0 °C and 40 °C {between 32 °F and 104 °F} and the humidity between 30 % and 80 %.
- Keep the unit away from:
 - vibration. (It may cause invalid recognition or injury.)
 - noise. (for example, places near air conditioners or ventilators)
 - electricity.
- This unit is for indoor use only.

System Instruction (Maximum System)



* The use of the Administration PC was not evaluated by UL.

* The use of electric lock was not evaluated by UL.

* The use of door control box was not evaluated by UL.

* General-purpose power supply must be a UL Listed access control power limited device.

In the case of Wiegand / RS-485 use

■ Preparation

Prepare the following items before the installation. The necessary items and their lengths differ depending on condition.

● Preparing the necessary items

Item	Item number/Recommended type	Use
DC power cable	UL type SVT (2 line cores) or equivalents ^{*1} Maximum distance: 20 m	Necessary when supplying DC power from the control unit to iris cameras Solder both ends of the cable with M3 screw clamp terminals.
Coaxial cable	UL Listed NEC type CM or CL2, RG-6/U type Recommended distance: 20 m or less Maximum distance: 100 m	For communication between iris cameras and the control unit Solder both ends with BNC plugs.
LAN cable	UL style 1666, CSA-FT4 or equivalents 10Base-T/100Base-TX (Category 5) ^{*2}	Necessary for communication between the administration PC and the control unit
Anchor bolt	M8	Necessary for mounting the control unit over the wall with the unicorn anchor
Unicorn anchor	UC-830 or equivalents	Necessary for mounting the control unit over the wall

*¹ Flexible Metal Conduit (According to NEC)

Total area: 823.9 mm²/100 % {1.277 in.²/100 %}

Trade size: 31.75 mm {1-1/4 in.}

Total number of iris cameras connected	Dimension and percent area of conduit and tubing
1	437 mm ² /53 % {0.677 in. ² /53 %}
2	255 mm ² /31 % {0.396 in. ² /31 %}

*² Cables with connector covers are unusable.

Note: When you use the GATE 1, GATE 2, and/or ALARM OUT connectors you need another cable suited for the connectors of the external device or control unit. Use the UL style 1571 or equivalents, AWG 22 -16 wire.

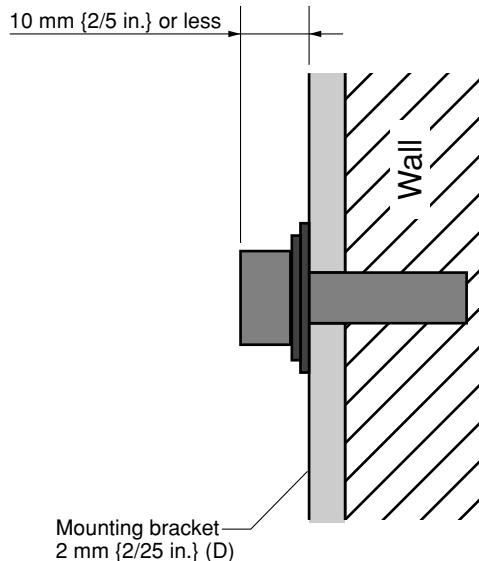
■ Installation

The following is the procedure to mount the control unit over the wall with the supplied mounting bracket.

When mounting, follow the procedure. After mounting the plate, secure the control unit to the mounting plate. Otherwise, it may drop and cause damage or injury.

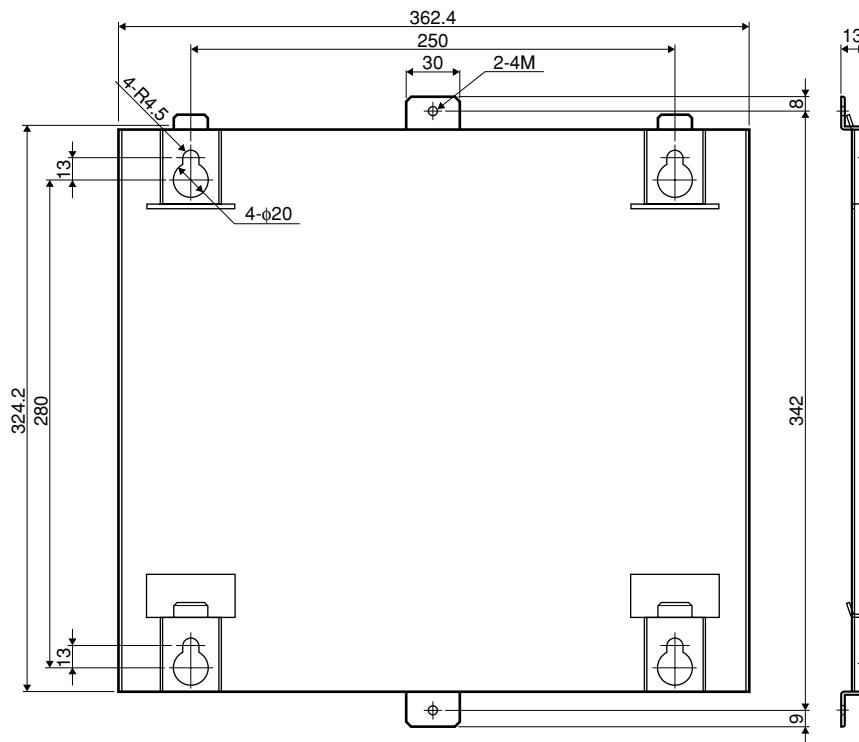
1. Attach the anchor into the wall and attach the supplied mounting bracket to the anchor.

Use an anchor bolt which meets the standards shown in the following figure.



Wall Type	Screw Type
Concrete wall	TAPMARK concrete screw anchors Part No. 21230, Size 6.35 x 57.15 mm (1/4 x 2 -1/4 in.)
Plaster wall	TAPMARK concrete screw anchors Part No. 21240, Size 6.35 x 69.85 mm (1/4 x 2 -3/4 in.)

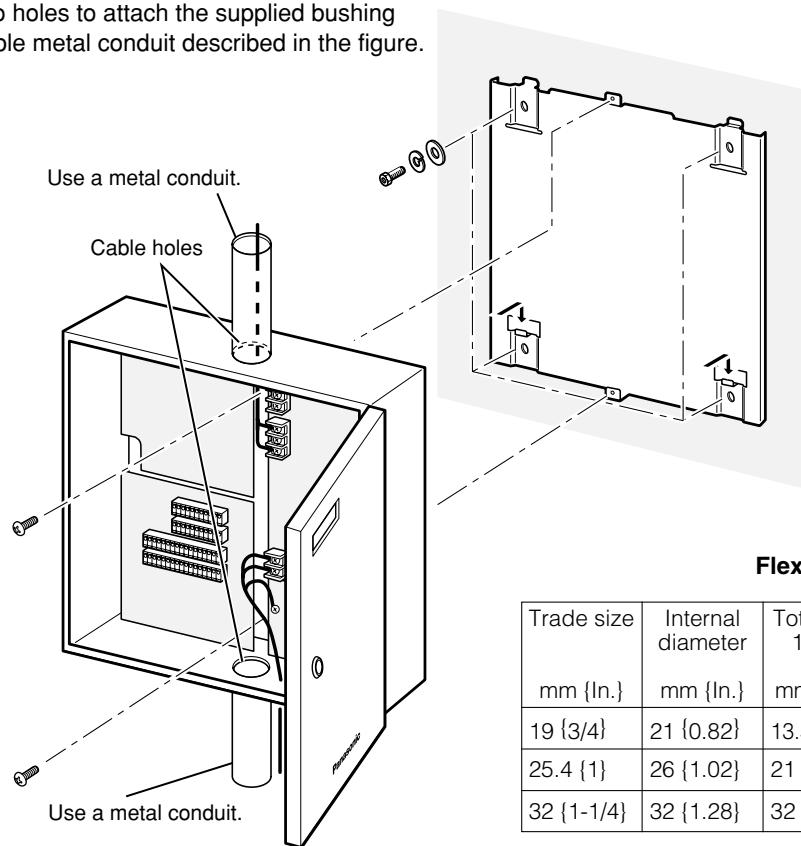
Hit the anchor into the wall by referring the following figure.



(Unit of length: mm)

2. Pass the DC power cable through the upper cable holes, and then mount the control unit over the wall.

Make two holes to attach the supplied bushing or a flexible metal conduit described in the figure.



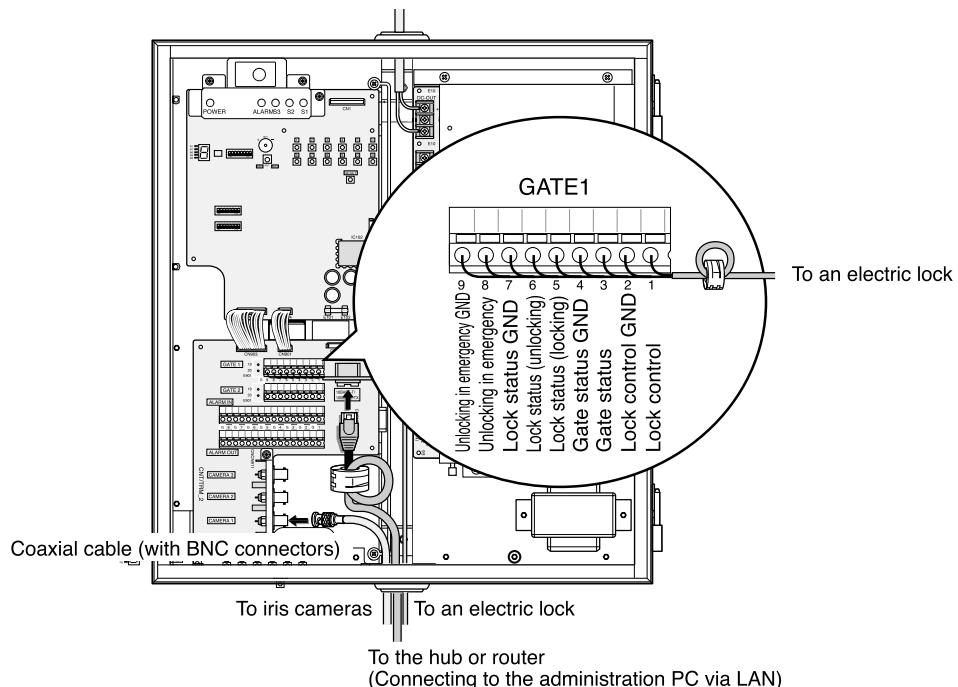
Flexible metal conduit

Trade size mm {In.}	Internal diameter mm {In.}	Total area 100 % mm ² {In. ² }	2 wires 31 % mm ² {In. ² }	Over 2 wires 40 % mm ² {In. ² }	1 wire 53 % mm ² {In. ² }
19 {3/4}	21 {0.82}	13.5 {0.53}	4.2 {0.17}	5.4 {0.21}	7.2 {0.28}
25.4 {1}	26 {1.02}	21 {0.82}	6.4 {0.25}	8.3 {0.33}	11 {0.43}
32 {1-1/4}	32 {1.28}	32 {1.28}	10 {0.40}	13 {0.51}	17 {0.68}

Note: Use metal conduits when designated by the electrical regulation.

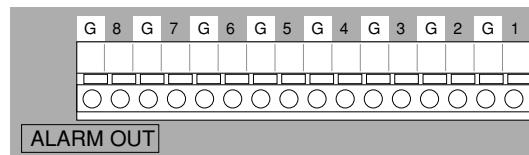
3. Do the following connections by referring the illustration.

- Connect iris cameras to the iris camera connectors.
- Connect an electric lock to the GATE 1 connector./ Connect an access control panel to the GATE 2 connector.
- Connect a LAN cable to the LAN connector.



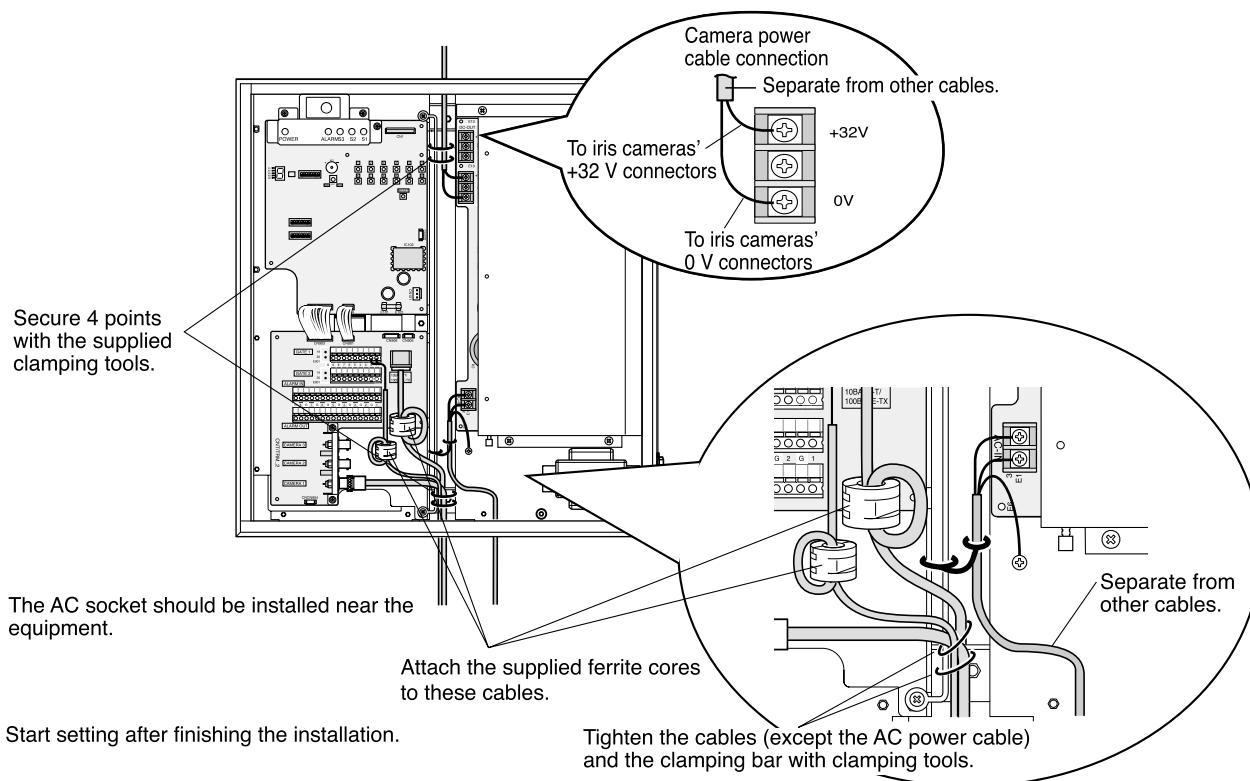
Wrap the supplied ferrite cores around the cables connected to the GATE 1 connector and LAN connector.

4. If you make the control unit output alarm signals to external devices and relate them to the alarm signals from the iris cameras or the control unit, connect the devices to ALARM OUT 1 to 8. For example, you can start alarm-related recording by connecting ALARM OUT and a recorder's alarm input connector.



Note: Alarm-related operations and alarm output timing are configurable through the administration PC.
(Refer to the installation guide of the administration software.)

5. After removing the power board's cover, connect the camera power cable to the control unit, as described in the figure.



Note: Connect the power cable and camera power cable after connecting electric locks and LAN cables to the control unit. The cables should be covered to prevent from pulling and pushing.

SETTINGS

■ Description

To use the control unit, the following settings are necessary with the setting switches or numeric buttons on the setting board.

- Setting/confirmation of the operation mode/IP address (Operation mode switches)
- I/F type setting (DSW1)
You will set the I/F of the control unit (Electric lock I/F, Wiegand out I/F, and RS-485 out I/F). Refer to p. 11 for details.
- Electric lock setting (DSW 2)
You will set the existence, type, polarity and unlocking timer of electric locks.

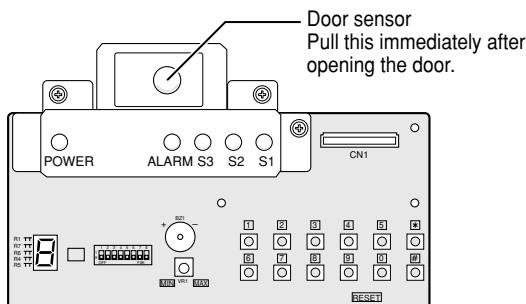
In addition to these settings, you need the configuration through the administration PC. (Refer to the installation guide and administrator's guide of the administration software.)

Note: When you set the control unit's operations through the administration PC, you need to change the operation mode to the SETUP mode.

■ To Do Setting without the Buzzer Sound

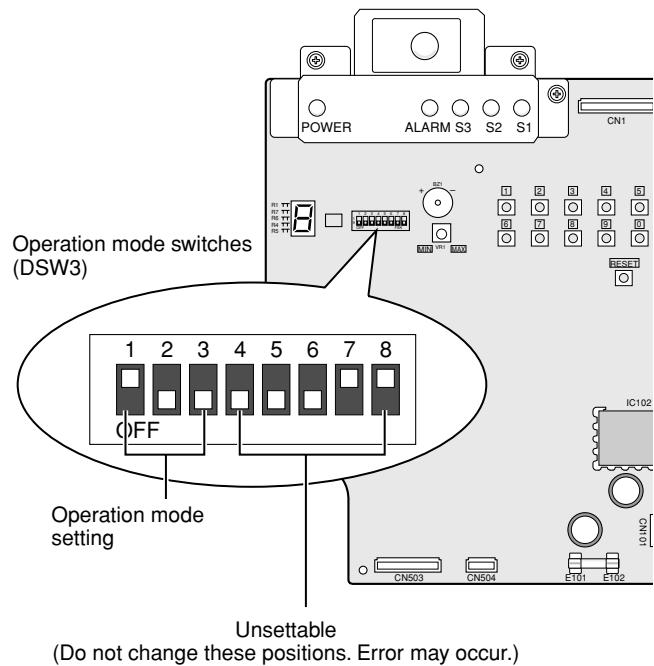
When you open the door, the buzzer will beep to notify you that the door is open. Then, the recognition procedures with iris cameras will be unavailable. If you open the door for maintenance, etc., do the following procedure.

1. Open the door with the supplied key.
The buzzer will beep and recognition is stopped.
2. Pull the door sensor.
3. Restart the recognition from the administration PC.
You can do setting without the buzzer sound and you can continue the recognition with iris camera during the setting. (Setting changes will not be reflected until turning on the power again.)
4. After the setting, close the door.
The buzzer will beep again.
5. Restart the recognition from the administration PC.
When you open the door again for setting, do steps 1 to 3 again.



■ Operation Mode Setting

The control unit has four operation modes. They are configurable with 1 to 3 of the operation mode switches. (The factory default setting is shown in the figure.)



Notes:

- Change the operation mode after turning off the power of the control unit. When you change the mode while power is on, the setting will not be reflected to the control unit until turning on the power again.
- To turn the power off, refer to p.21.

Operation mode	Description and setting
IP setting mode	This is the mode to set/confirm the IP address/subnet mask/gateway of the control unit.
SETUP mode	Set to this mode when you configure the control unit's operations via the administration PC. (Refer to the installation guide of the administration software.)
Recognition mode	Set to this mode when you make iris cameras recognize people.
Enrollment mode	Set to this mode when you make iris cameras enroll people.

● IP address/Subnet mask/Gateway setting

The following are the factory default settings of IP address, subnet mask, and default gateway.

IP address: 172.27.1.2

Subnet mask: 255.255.255.0

Gateway: 172.27.1.254

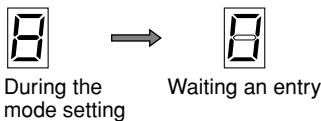
Note: You need to change these addresses depending on the classification or condition of LAN, which connects the control unit. If the settings of IP address, subnet mask, and default gateway are not correspondent with those in the LAN classification or condition, you cannot control this unit through the administration PC.

IP address, subnet mask, or gateway is changeable through the following procedure.

1. Turn off the power of the control unit, and then change the operation mode switches to the IP setting mode.

2. Turn on the power.

Wait until the Setup indicator changes from "8" to "0".



3. Enter the command with the numeric buttons to select the address setting.

IP address setting command: "113*002#"

Subnet mask setting command: "113*003#"

Gateway setting command: "113*004#"

4. Enter 12-digit numbers without period.

(The address is composed of numbers up to 255.)

Note: Enter "0" before the numerics from 0 to 99 to make it 3-digit.

Example: When you enter an IP address "192.168.1.20", enter "192168001020".

5. Enter the write command "113*000#".

Address will be checked. After the checking, the result will appear on the Setup indicator.

Completed: 0

Failed: 1 (The address may be wrong.)

Parameter error: E (The digits may be wrong./* or # may be used in the address.)

6. Turn off the power of the unit.

The address will become available when you turn on the power again.

● IP address/Subnet mask/Gateway confirmation

The following is the procedure to confirm the IP address, subnet mask, and default gateway with the Setup indicator.

1. Turn off the power of the control unit, and then change the operation mode switches to the IP setting mode.

2. Turn on the power.

Wait until the Setup indicator changes from "8" to "0".



3. Enter the command with the numeric buttons.

IP address confirmation command: "112*002#"

Subnet mask confirmation command: "112*003#"

Gateway confirmation command: "112*004#"

4. The address will appear on the LED display.

The display will be switched every second to show the address.

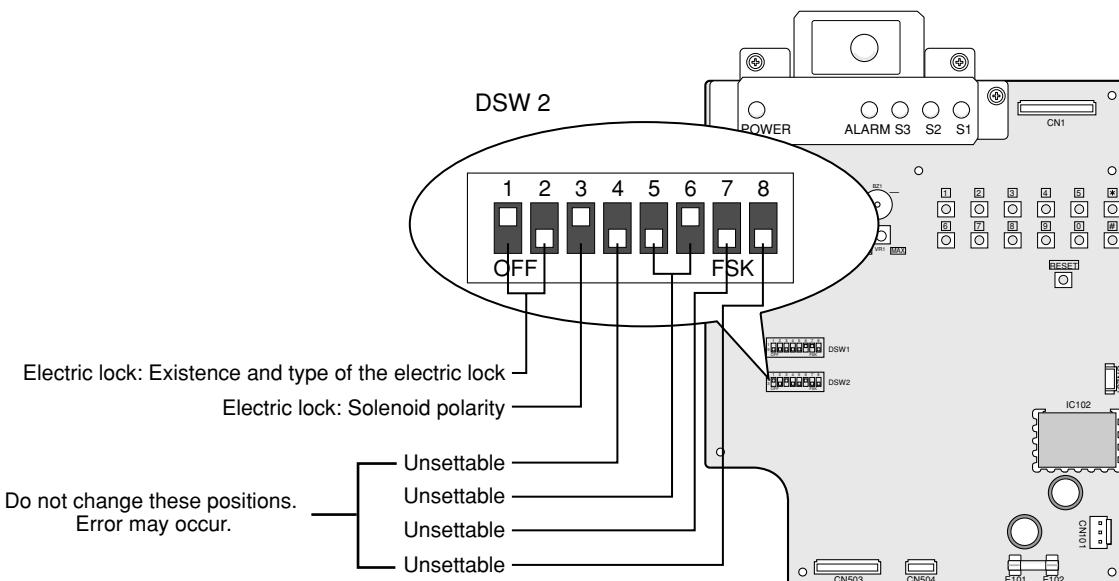
5. Turn off the power of the unit.

● Electric lock Setting

You can set the lock existence or types of electric locks with DSW 2.

Electric lock: This is an electric lock which is connected to the GATE 1 connector.

The factory default setting is shown in the figure.



Existence and types of electric locks

They are settable with Switch #1 and #2 of DSW 2.

Setting	#1*	#2*
Electric lock 1 not connected	OFF	ON
Locking/Unlocking with continuous electricity	ON	OFF
Locking/Unlocking with instantaneous/pulse electricity	ON	ON

* The numeric shows the setting switch number. Be sure to set either one of #1 or #2 to ON.

Solenoid polarity setting of electric locks

It is settable with Switch #3 of DSW 2.

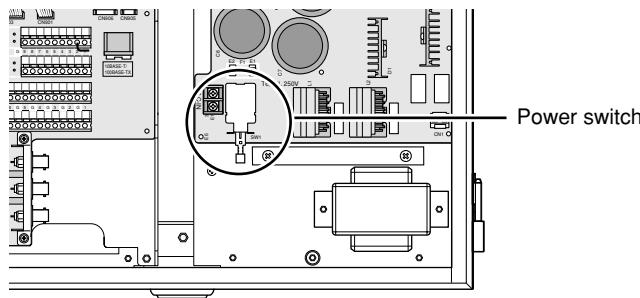
Setting	#3*
Positive/Fail Secure	ON
Negative/Fail Safe	OFF

* The numeric shows the setting switch number.

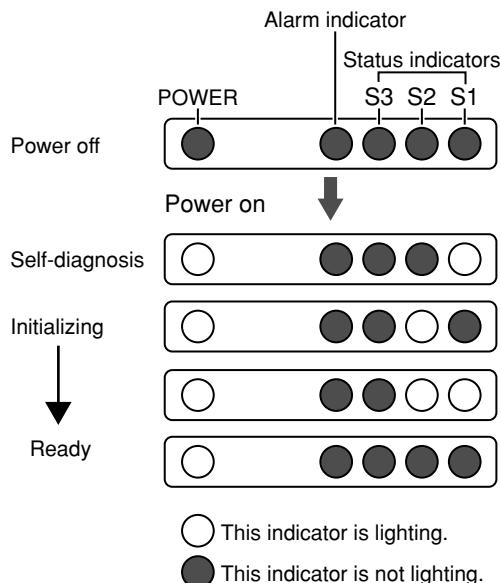
OPERATING PROCEDURES

■ Turning the Power On

Power switch is inside the control unit. To turn the power on, open the door with the supplied key, and then press the power switch. Close the door within 10 seconds after turning on the control unit.



When you turn the power on, POWER will light up, and indicators will light up as shown in the figures.



Note: When 10 seconds have passed after opening the door with the power turned on, the door sensor detects that the door is opening, and recognition/enrollment becomes unavailable. This condition is not recoverable by closing the door or turning on the power switch again.

(Refer to the administrator's guide of the administration software for troubleshooting.)

■ Turning the Power Off

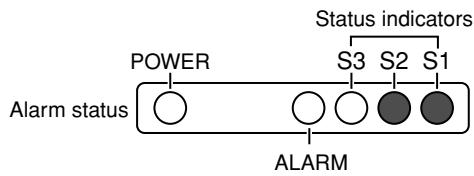
1. To turn the power off, open the door with the supplied key. The buzzer will beep and recognition will be stopped.
2. Pull the door sensor.
3. To reset the door-closed state, send the signal for operation start from the administration PC.
4. Confirm the door-closed state has been reset and READY is lighting on the iris camera.
5. Turn off the control unit and close the door.

Notes:

- When the power of the control unit is turned off, no power is supplied to the electric lock. In this case, the status may vary depending on the lock type. If you are using a "Fail Safe" type (refer to p.20), the door can be opened with the lock deactivation. However, be careful when you are using a "Fail Secure" type (refer to p.20). The door cannot be opened with the lock activation.
- After keep opening the cover and pulling the door sensor (e. g. maintenance), push the door sensor and do the procedure 1 - 5.
- Refer to the administrator's guide of the administration software for how to turn on/off the system.

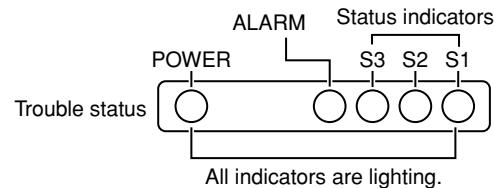
■ When the Door Trouble is Automatically Unrecoverable

When trouble has occurred to the door and it is automatically unrecoverable, ALARM and S3 light up to inform you of the trouble status. In this case, turn off and turn on the power again. (Refer to p.21.)



■ When the Door Trouble is Unrecoverable

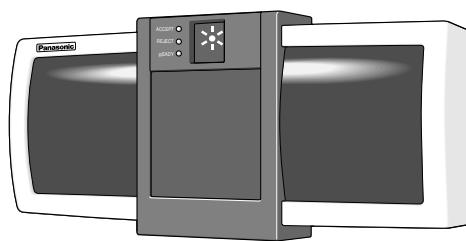
When trouble has occurred to the door and it is unrecoverable, all the indicators (POWER, ALARM, and S1 to S3) light up to inform you of the trouble status. In this case, turn off the power immediately and refer to service personnel. (Refer to p.21 for how to turn on/off the power.)



Note: When door trouble has occurred, the electric lock control will be stopped. In this case, the status may be different depending on the lock type. If you are using a "Fail Safe" type (refer to p.20), the door can be opened with the lock deactivation. However, be careful when you are using a "Fail Secure" type (refer to p.20). The door cannot be opened with the lock activation.

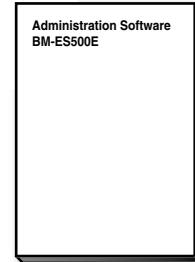
ADDITIONAL SYSTEM COMPONENTS

■ Iris Camera BM-ET500



This product is used for recognition/enrollment of iris data.
ID-and-password authorization is also available.

■ Administration Software BM-ES500E



This product is necessary to administer iris data, ID data, and passwords.

SPECIFICATIONS OF ELECTRICAL LOCK CONNECTORS (GATE 1)

Port No.	I/O	Signal Description	Remarks
1	OUT	Lock control	Solenoid SW Activated 300 mA or less
2	–	Lock control GND	Solenoid SW Activated
3	IN	Gate status	Reed SW Activated
4	–	Gate status GND	Reed SW Activated
5	IN	Lock status (locking)	Micro SW Activated
6	IN	Lock status (unlocking)	Micro SW Activated
7	–	Lock status GND	Micro SW Activated
8	IN	Unlocking in emergency	Micro SW Activated
9	–	Unlocking in emergency GND	Micro SW Activated

SPECIFICATIONS OF WIEGAND OUTPUT/RS-485 OUTPUT (GATE 2)

Port No.	I/O	Signal Description	Remarks
1	OUT	RS-485 (+)	0 V to 5 V
2	OUT	RS-485 (–)	0 V to 5 V
3	OUT	CH1 Wiegand DATA1	0 V to 5 V Wiegand I/F
4	IN*	CH1 Wiegand power	5 V
5	OUT	CH1 Wiegand DATA0	0 V to 5 V Wiegand I/F
6	OUT	CH2 Wiegand DATA1	0 V to 5 V Wiegand I/F
7	IN*	CH2 Wiegand power	5 V
8	OUT	CH2 Wiegand DATA0	0 V to 5 V Wiegand I/F
9	–	Wiegand GND	0 V

* Port 4 and 7 are not required for operation of this unit or iris camera. They are for wiring designation convenience only.

SPECIFICATIONS OF ALARM OUTPUT CONNECTORS (ALARM OUT)

Port No.	I/O	Signal Description	Remarks
1	OUT	Alarm output 1	Open-collector output
G	–	Alarm output 1 (GND)	Open-collector output
2	OUT	Alarm output 2	Open-collector output
G	–	Alarm output 2 (GND)	Open-collector output
3	OUT	Alarm output 3	Open-collector output
G	–	Alarm output 3 (GND)	Open-collector output
4	OUT	Alarm output 4	Open-collector output
G	–	Alarm output 4 (GND)	Open-collector output
5	OUT	Alarm output 5	Open-collector output
G	–	Alarm output (GND)	Open-collector output
6	OUT	Alarm output 6	Open-collector output
G	–	Alarm output 6 (GND)	Open-collector output
7	OUT	Alarm output 7	Open-collector output
G	–	Alarm output 7 (GND)	Open-collector output
8	OUT	Alarm output 8	Open-collector output
G	–	Alarm output 8 (GND)	Open-collector output

TROUBLESHOOTING

Check the following before requesting repair.

If a trouble cannot be corrected even after checking and trying remedy, contact your dealer.

Problem	Check item	Remedy
POWER does not light up.	Power may not be supplied to the AC power cord. The power of the control unit or the power breaker of the external power-control device may be turned off.	Check if the power is supplied to the power input connectors. Check if the screws of the power input connectors are not loosened. Turn on the power of the control unit or the external power-control device. (Refer to p.8.)
External devices (such as electric locks) do not work.	The power of the external devices may be turned off.	Turn on the power of the external devices. (Refer to pp.16 to 17.)
	The connection between the control unit and the external devices may be wrong.	Confirm the connection. (Refer to pp.16 to 17.)

SPECIFICATIONS

General

Power source:	120 V AC, 2.4 A, 60 Hz
Power consumption:	190 W
	150 W (when standby)
	230 W (max. when operating)
Ambient operating temperature:	0 °C to +40 °C {32 °F to 104 °F}
Ambient operating humidity:	30 % to 80 % (relative humidity)
Dimensions:	380 mm (W) x 410 mm (H) x 90 mm (D) {15 in. (W) x 16-1/10 in. (H) x 3-1/2 in. (D)}
Weight:	9.5 kg {21 lbs.}

Input/Output/Interface

Iris camera interface:	Exclusive control, BNC x 3
Camera power output:	32 V DC, 3 A, terminal x 2
Ethernet port:	10 Base-T/100 Base-TX, RJ-45 x 1
Electric lock interface:	Solenoid operation output (24 V DC, 300 mA or less) x 1
	Door-opening detector input (contact signal, 24 V DC, 100 mA or less) x 1
	Locking/Unlocking detector input (contact signal, 24 V DC, 100 mA or less) x 1
	Emergency unlocking activation input (contact signal, 24 V DC, 100 mA or less) x 1
Wiegand interface:	Output x 2 5 V TTL level (25 mA or less) Data Length 26 - 128 bit Pulse Width Time 30/40 µs Pulse Interval Time 1/2 ms
RS-485 interface:	Output x 1 Baud Rate 2400/4800/9600/19200/38400 Parity none/odd/even Stop Bits 1/2 bit Data Bits 7/8 bit
Alarm output:	Open collector x 8, 200 ms to 25.5 s, Normally open or normally closed selectable (Configurable through the administration PC, 24 V DC, 100 mA or less)

STANDARD ACCESSORIES

Operating instructions (This document)*	1 pc.
Key*	2 pcs.

The following parts are used during installation procedures.

Mounting bracket	1 pc.
Mounting screw (M4)	2 pcs.
Ferrite core	2 pcs.
Clamping tools	5 pcs.
Bushing	2 pcs.

* You will use this item for installation. Keep it in a safe place after use.

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