



Air Conditioning Control System

*Changes for the Better*

**2016**

Service Handbook

## Service Handbook

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### Centralized Controller

Model name

**AE-200A/AE-50A/EW-50A**

**AE-200E/AE-50E/EW-50E**

AE-200A/AE-50A/EW-50A AE-200E/AE-50E/EW-50E

**MITSUBISHI ELECTRIC CORPORATION**

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# 1. Safety precautions

- ▶ Observe these precautions carefully to ensure safety.
- ▶ After reading this manual, pass the manual on to the end user to retain for future reference.
- ▶ The user should keep this manual for future reference and refer to it as necessary. This manual should be made available to those who repair or relocate the units. Make sure that the manual is passed on to any future air conditioning system user.

 <b>WARNING</b>	: indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	: indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
<b>CAUTION</b>	: addresses practices not related to personal injury, such as product and/or property damage.

## 1-1. General precautions

### **WARNING**

Do not install the controller in areas where large amounts of oil, steam, organic solvents, or corrosive gases (such as ammonia, sulfuric compounds, or acids), or areas where acidic/alkaline solutions or special chemical sprays are used frequently. These substances may significantly reduce the performance and corrode the internal parts, resulting in electric shock, malfunction, smoke, or fire.

To reduce the risk of short circuits, current leakage, electric shock, malfunction, smoke, or fire, do not wash the controller with water or any other liquid.

To reduce the risk of electric shock, malfunction, smoke, or fire, do not touch the electrical parts, USB memory, or touch panel with wet fingers.

To reduce the risk of injury or electric shock, before spraying a chemical around the controller, stop the operation and cover the controller.

To reduce the risk of injury, keep children away while installing, inspecting, or repairing the controller.

If you notice any abnormality (e.g., burning smell), stop the operation, turn off the controller, and consult your dealer. Continuing the operation may result in electric shock, malfunction, or fire.

Properly install all required covers to keep moisture and dust out of the controller. Dust accumulation and the presence of water may result in electric shock, smoke, or fire.

### **CAUTION**

To reduce the risk of fire or explosion, do not place flammable materials or use flammable sprays around the controller.

To reduce the risk of electric shock or malfunction, do not touch the touch panel, switches, or buttons with a sharp object.

To avoid injury from broken glass, do not apply excessive force to the glass parts.

To reduce the risk of injury, electric shock, or malfunction, avoid contact with the sharp edges of certain parts.

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Consult your dealer for the proper disposal of the controller. Improper disposal will pose a risk of environmental pollution.

### 1-2. Precautions for relocating or repairing the unit

#### **WARNING**

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The controller must be repaired or moved only by qualified personnel. Do not disassemble or modify the controller. Improper installation or repair may result in injury, electric shock, or fire.

### 1-3. Additional precautions

#### **CAUTION**

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To avoid discoloration, do not use benzene, thinner, or chemical rag to clean the controller. When the controller is heavily soiled, wipe the controller with a well-wrung cloth that has been soaked in water with mild detergent, and then wipe off with a dry cloth.

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This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

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# I About this manual

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## [1] About the information in this manual

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This manual contains information regarding service work for the air conditioning control system centralized controller AE-200/AE-50/EW-50.

Please note that the information about functions contained in this manual is as of May 2015 and so information about any improvements made to functions after that is not included.

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- Terms used in this manual
  - “Microsoft® Windows 7 Home Premium” is referred to as “Windows 7”, and “Microsoft® Windows 8.1” is referred to as “Windows 8.1”.
  - “Centralized Controller AE-200/AE-200E” is referred to as “AE-200”.
  - “Centralized Controller AE-50A/AE-50E” is referred to as “AE-50”.
  - “Centralized Controller EW-50A/EW-50E” is referred to as “EW-50”.
  - “Advanced HVAC CONTROLLER” is referred to as “AHC”.
  - “DIDO controller (PAC-YG66DCA)” is referred to as “DIDO controller”.
  - “PI controller (PAC-YG60MCA)” is referred to as “PI controller”.
  - “AI controller (PAC-YG63MCA)” is referred to as “AI controller”.
  - “OA Processing unit (LOSSNAY with heater and humidifier)” is referred to as “OA Processing unit”.
  - Energy management and peak-cut control can be performed without a PI controller by directly inputting the pulse signals of a meter to CN7 of the AE-200/AE-50/EW-50. In this manual, this method will be called pulse input (PI).
  - “Booster unit” and “Water HEX unit” are referred to as “Air To Water (PWFY) unit”.
  - “Hot Water Heat Pump unit” is referred to as “HWHP (CAHV, CRHV) unit”.
  
- About screen display
  - The screens displayed in this manual may differ from those of the latest version.
  
- About terms

SSL: Stands for Secure Sockets Layer, which is a protocol for securely exchanging data via the Internet.  
PLC: Stands for programmable logic controller, which performs the operation of a sequencer.  
In the AE-200/AE-50/EW-50 system, there are a total of three types: PLC for Electric Amount Count (PAC-YG11CDA), PLC for Demand Input (PAC-YG41CDA), and PLC for General Equipment (PAC-YG21CDA) (TG-2000A is required).  
Java®: A programming language that runs independent of a given computer architecture or platform.  
OS: Stands for operating system. It is the basic software for running programs on a computer.

## **II Be sure to read before performing service work**

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## [1] Safety when performing service work

---

**Be sure to carefully read "Safety Precautions" at the beginning of this manual and perform service work while paying attention to safety.**

To ensure inspection and replacement work is performed safely, observe the following precautions when performing the work.

- |                                      |  |
|--------------------------------------|--|
| 1. Turn off the breakers             | Before replacing parts, be sure to turn off the breaker in the control panel and the main breaker outside the control panel to shut off the power supply to the AE-200/AE-50/EW-50.            |
| 2. Take electrical shock precautions | If inspection work must be performed while the equipment is energized, do not touch live parts and take sufficient precautions against electric shock.   |
| 3. Use appropriate tools             | Use appropriate tools for inspection and replacement work.<br>Using worn out tools may result in an accident due to inadequate tightening, contact failure, etc.                               |
| 4. Ground                            | Be sure to ground the equipment. Furthermore, inspect the grounding state and perform the work again if the grounding is inadequate.   |
| 5. Clean                             | After performing the inspection and replacement work, clean the equipment and the area around the equipment and then notify the customer that the inspection and replacement work is complete. |

## [2] Equipment and materials required for service work

---

Prepare the following equipment and materials for the service work. (Note: Prepare the items that will be required for the particular site.)

<Tools>

- Screwdriver
- Hex key                      Used to remove the front cover of the AE-200/AE-50.  
Width across flats: 2.5 mm (0.1 in)  
A hex key is included with the AE-200/AE-50.

<Measuring instruments>

- Tester                        Used to check the wiring and voltage.
- Oscilloscope                Used to check the M-NET transmission waveform.

<Reference materials>

- Diagram of air conditioning control system at the site
- AE-200/AE-50 Installation and Instructions Manual
- EW-50 Installation and Instructions Manual
- AE-200/AE-50/EW-50 Web Browser Instruction Book (Administration and Initial Settings)
- Instruction Manual and Installation Manual for each air-conditioning unit, controller, and power supply unit
- Service Handbook (this manual)
- Air-conditioning Unit Service Handbook
- Air-conditioning Unit Service Parts Catalog

<Other items>

- License numbers            License numbers of AE-200/AE-50/EW-50 required for the functions to be used  
(Required when new installation, replacement, etc.)
- USB memory device        Used to back up the initial settings data.  
(Use a USB memory device specified in "III [9] (2) About USB memory devices.")
- PC                              Used for various tools and Web display.
- LAN cable                    100BASE-TX compatible LAN cable (category 5 or better)

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## [1] System configuration restrictions

(1) Managed equipment

The devices that AE-200/AE-50/EW-50 can control are shown in the following table.

[Legend] ○: Use possible, ×: Use not possible

Model	Function	Monitoring/operation	Peak cut	Night mode
CITY MULTI	S series	○	○	○
	Y series*1	○	○	○
	HP series	○	○	○
	R2 series*1	○	○	○
	WY series	○	○	○
	WR2 series	○	○	○
	HVRF series	○	○	○
LOSSNAY		○	×	×
OA Processing unit		○	○	×
A-control unit (Mr. Slim)		○*2	○*3	×
AK-control unit (Mr. Slim)		○	○*3	×
K-control unit		×	×	×
Room air conditioner (RAC)		○*2	○*3	×
Air To Water (PWFY) Booster unit		○	×	○
Air To Water (PWFY) HEX unit				
DOAS (Dedicated Outside Air System)		○	○	×
Commercial PAC (PFAV)		○	○	×
Commercial PAC (PEV/PFV)		○	○	×
Computer room PAC (PFD)*4		○	×	×
AHC		○	×	×
HWHP (CAHV/CRHV)		○	×	×
General equipment (DIDO controller connection)		○	×	×
General equipment (indoor unit free contact connection)		○	×	×

\*1 Also includes Replace Multi.

\*2 A separate adapter is required.

A-control (Mr. Slim) model: M-NET connection adapter  
Room air conditioner: M-NET control interface

\*3 Only set temperature control or stop control can be performed for RAC and HAC.

\*4 When the Computer room PAC is in maintenance mode, operation is not possible.

Apportioned electricity billing function

[Legend] ○: Use possible, x: Use not possible

Model \ Function		Apportioned electricity billing function*2	
		Metering method	Manual input method
CITY MULTI	S series	○	○
	Y series	○	○
	HP series	○	○
	R2 series	○	○
	WY series	○	○
	WR2 series	○	○
	HVRF series	x	x
LOSSNAY		○	○
OA Processing unit		○	○
A-control unit (Mr. Slim)*1		○	○
AK-control unit (Mr. Slim)*1		x	x
K-control unit		x	x
Room air conditioner (RAC)		○*3	x
Air To Water (PWFY) Booster unit		○	○
DOAS (Dedicated Outside Air System)		x	x
Commercial PAC (PFAV)		○	○
Commercial PAC (PEV/PFV)		○	○
Computer room PAC (PFD)		○	○
AHC		x	x
HWHP (CAHV/CRHV)		x	x
General equipment (DIDO controller connection)		○*3	x
General equipment (indoor unit free contact connection)		○*3	x

\*1 [Capacity save amount] can be selected in outdoor unit apportioned electricity mode only when the M-NET adapter is one of the following models.

PAC-SJ19MA-E, PAC-SJ83MA-E

\*2 Registration of the license is required for each AE-200/AE-50/EW-50.

\*3 The apportioned electricity billing function can be used if an electricity meter is connected individually to each unit.

Bar graph and line graph for energy management (\*1)

[Legend] ○: Use possible, x: Use not possible, -: No item

Model \ Graph display details		Bar graphs				Line graphs					
		Electric energy amount	Fan operation time	Thermostat on (total)	Thermostat on (cooling)	Thermostat on (heating)	Outdoor air temperature	Set cooling temperature	Set heating temperature	Indoor temperature	Measured value
CITY MULTI	S series	○	○	○	○	Measurement values of AHC and AI controller can be displayed	○	○	○	○	○
	Y series	○	○	○	○		○	○	○	○	○
	HP series	○	○	○	○		○	○	○	○	○
	R2 series	○	○	○	○		○	○	○	○	○
	WY series	○	○	○	○		○	○	○	○	○
	WR2 series	○	○	○	○		○	○	○	○	○
	HVRF series	○	○	○	○		○	○	○	○	○
LOSSNAY	x	○	x								
OA Processing unit	○	○	○								
A-control unit (Mr. Slim)	○	○	○								
AK-control unit (Mr. Slim)	○	○	○								
K-control unit	x	x	x								
Room air conditioner (RAC)	○	○	○								
Air To Water (PWFY) Booster unit	○	○*2	○								
DOAS (Dedicated Outside Air System)	○	○	○								
Commercial PAC (PFAV)	○	○	○								
Commercial PAC (PEV/PFV)	○	○	○								
Computer room PAC (PFD)	○	○	○								
AHC	-	-	-								
HWHP (CAHV/CRHV)	-	-	-								
General equipment (DIDO controller connection)	x	x	x								
General equipment (indoor unit free contact connection)	x	x	x								

\*1 Registration of the license is required for each AE-200/AE-50/EW-50.

\*2 Becomes the cumulative operation time.

● The above functions are subject to change without notice for improvement.

[III System restrictions and notes]

(2) Number of connectible/controllable units in a system

1. Number of controllable units for AE-200/AE-50/EW-50

Item	Description	Managed equipment
Number of controllable indoor units	Max. 50 *1	IC, LC, FU, AIC, RAC, PWFY, HWHP, AI controllers, PI controllers, DIDO controllers*2, AHC*3

[Code] IC: Indoor unit (OA Processing unit [without interlock control]), LC: Free-plan LOSSNAY, FU: OA Processing unit (with interlock control), AIC: Mr. Slim air conditioner, RAC: Room air conditioner, PWFY: Air To Water (PWFY), HWHP: HWHP (CAHV, CRHV)

\*1 AE-50 cannot be operated individually.

\*2 One contact is counted as one unit for a DIDO controller.

\*3 Maximum number of connectible/controllable units in the case of AHC: Indoor units + AHC = 70 units.

2. Number of controllable units in an AE-200 + expansion controller (AE-50/EW-50) system

Item	Description	Managed equipment
Number of controllable indoor units	Max. 200 (When using three AE-50/EW-50)*1	IC, LC, FU, AIC, RAC, PWFY, HWHP, AI controllers, PI controllers, DIDO controllers*2, AHC*3

\*1 When M-NET of AE-200 is not used or the apportioned electricity billing function of AE-200 is used, four AE-50/EW-50 units can be connected. (Max. 200 indoor units)

\*2 One contact is counted as one unit for a DIDO controller.

\*3 Maximum number of connectible/controllable units in the case of AHC: Indoor units + AHC = 70 units.

(3) When performing integrated centralized control with the integrated centralized control software TG-2000A.

Use Ver.6.60 or later of TG-2000A.

(4) Number of connectable units

The table below summarizes the number of connectable units in an M-NET system.

Unit type	Number of connectable units
Indoor units, PWFY, HWHP, LOSSNAY, OA Processing unit, DIDO controllers, PI controllers*1, and AI controllers per AE-200/AE-50/EW-50	Up to 50 units*2 (including the interlocked LOSSNAY units)
AHC per AE-200/AE-50/EW-50	Maximum of 70 indoor units for indoor units+AHC
Indoor units, PWFY, HWHP, LOSSNAY, OA Processing unit, and DIDO controllers in one group	1-16 units*3*4 (Indoor units, PWFY, HWHP, LOSSNAY, OA Processing unit, and DIDO controllers cannot be used together in the same group.)
AHC in a group	1 unit (At least one indoor unit is required in the same group.)
Remote controllers in a group	0-2 units
System controllers in a group (AE-200/AE-50/EW-50 included)	0-5 units (Up to four remote and system controllers combined can be assigned to each group.)
LOSSNAY unit that can be interlocked with each indoor unit	1 unit
Indoor units that can be interlocked with each LOSSNAY unit	1-16 units

\*1 15 PI controllers can be connected to each AE-200/AE-50/EW-50 and a maximum of 20 can be connected within an AE-200 system. A PI is counted as one unit.

\*2 By connecting AE-50/EW-50 controllers to an AE-200, up to 200 units can be controlled.

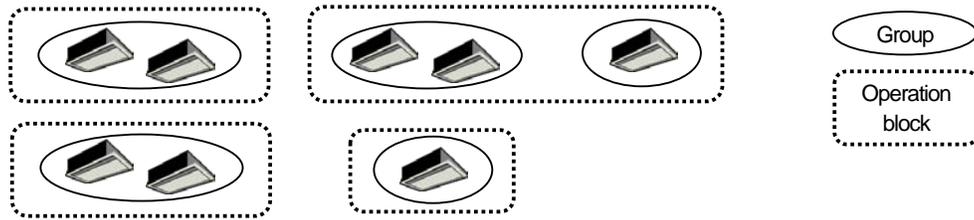
\*3 The maximum number of controllable units for DIDO controllers differs depending on the number of channels used.

\*4 One contact of a DIDO controller is calculated as one unit.

[III System restrictions and notes]

(5) Operation block setting restrictions

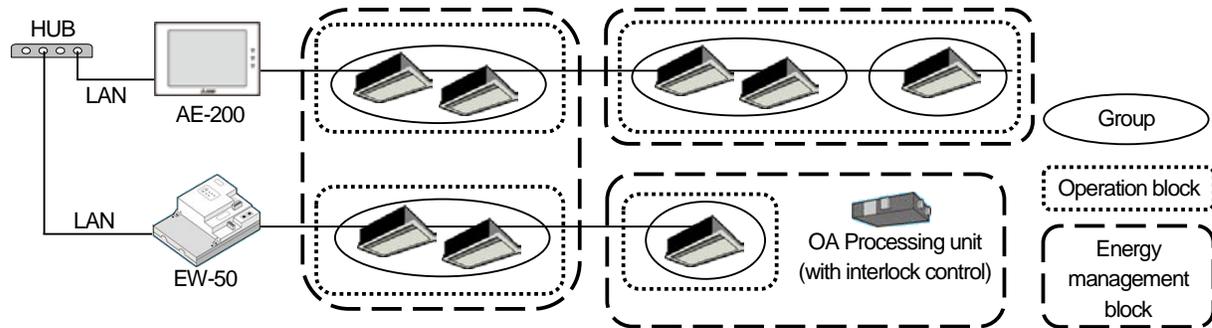
- An operation block is a collection of groups, and groups of different models (air-conditioning units, LOSSNAY, general equipment, etc.) can even be set in the same operation block.



- An operation block that spans AE-200/AE-50/EW-50 systems cannot be set.
- The operation items differ so we recommend setting operation blocks separately for each of the indoor units, LOSSNAY units, and A-control models.
- When peak-cut control is used, blocks become the setting target unit so be sure to set the operation blocks.

(6) Energy management block setting restrictions

- An energy management block is a collection of operation blocks and OA Processing unit (with interlock control), and operation blocks of different models (air-conditioning units, LOSSNAY, general equipment, etc.) can also be set in the same energy management block.



- An energy management block that spans multiple AE-50/EW-50 in an AE-200 system can be set, but an energy management block cannot span multiple AE-200 systems.
- When the apportioned electricity billing function is used, energy management blocks become the apportioning target unit so be sure to set the energy management blocks.

(7) Group setting restrictions

Restrictions also apply to group settings.

Item	Description	Remark
Number of remote controllers that can be connected	Up to two remote controllers in one group	MA remote controllers do not need to be registered and set on this equipment.* 1
Number of indoor units that can be connected in one group	1 to 16	IC, AIC, FU, and LC cannot be connected to the same group. However, groups that span multiple AE-200/AE-50/EW-50 cannot be configured.* 2
Number of SC and RC units that can be connected in one group	Up to four units in one group	
Number of groups per area Number of groups per floor	Up to 30 groups per area Up to 180 groups per floor	

\*1 An ME remote controller and MA remote controller cannot be used together in the same group.

\*2 If a group is made up of indoor units with different functions, only the function of the indoor unit with the lowest address in the group is operated and monitored.

## [2] System Connection Examples

The following shows the equivalent power supply of the AE-200/AE-50/EW-50 and transmission line power supply unit and the equivalent power consumption and the equivalent number of units of the DIDO controller, PI controller, and AI controller.

Leave the power jumpers (CN41) of the outdoor units that are connected to M-NET centralized control transmission lines all connected to the CN41 in the same way as they were connected at the time of shipment.

If the equivalent power supply is insufficient because system remote controllers and other equipment are connected to the M-NET centralized control transmission lines, transmission line power supply units need to be added.

When connecting system remote controllers and other equipment to the M-NET centralized control transmission lines, make sure that the equivalent number of units total will be 40 or less.

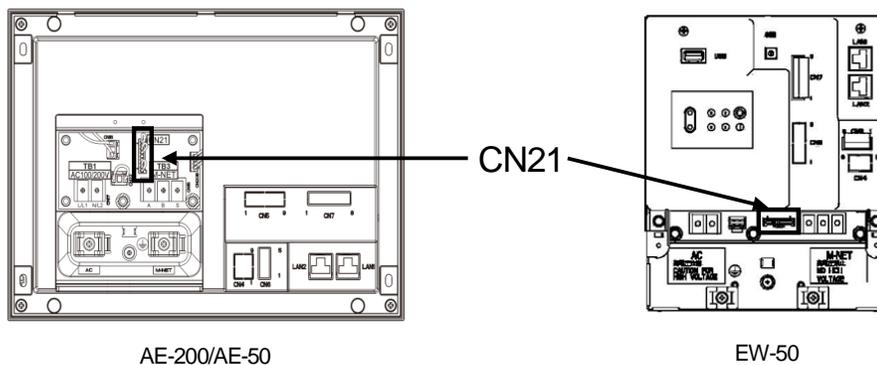
If the equivalent number of units will exceed 40, add transmission line power supply units so that the equivalent number of units will be 40 or less.

To supply M-NET power from a transmission line power supply unit, disconnect the CN21 jumper from the AE-200/AE-50/EW-50.

Product	Model	The equivalent power supply	The equivalent power consumption	The equivalent number of units
Air Conditioning Control System Centralized Controller	AE-200	0	-	-
Air Conditioning Control System Centralized Controller (Expansion controller)	AE-50	0	-	-
Air Conditioning Control System Centralized Controller (Controller or Expansion Controller without LCD)	EW-50	1.5	-	-
Power Supply Unit for Transmission Line	PAC-SC51KUA	5	-	-
Power Supply Expansion Unit for Transmission Line	PAC-SF46EPA	25	-	-
System Remote Controller	AT-50B, TC-24B	-	1.5	5
	AT-50A, TC-24A	-	1.5	5
	PAC-SF44SRA	-	1/2	1
ON/OFF Remote Controller	PAC-YT40ANRA	-	1	1
ME Remote Controller	PAR-U02MEDA, PAR-U01MEDU	-	1/2	1
	PAR-F27MEA, PAR-F27MEA-US	-	1/4	1
AHC	PAC-IF01AHC-J	-	1/2	1
DIDO Controller	PAC-YG66DCA	-	1/4	1
PI Controller	PAC-YG60MCA	-	1/4	1
AI Controller	PAC-YG63MCA	-	1/4	1
MN Converter	CMS-MNG-E	-	2	1
	CMS-MNF	-	1/2	1
Simple ME Remote Controller	PAC-SE51CRA	-	1/4	1
Group Remote Controller	PAC-SC30GRA	-	1/2	1
Schedule Timer	PAC-YT34STA	-	1/2	1

**NOTE:**

- If you remove the service cover from the back of the unit, you will find the power jumper (CN21) of the AE-200/AE-50 in the place indicated in the figure below.
- If you remove the service cover from the front of the unit, you will find the power jumper (CN21) of the EW-50 in the place indicated in the figure below.

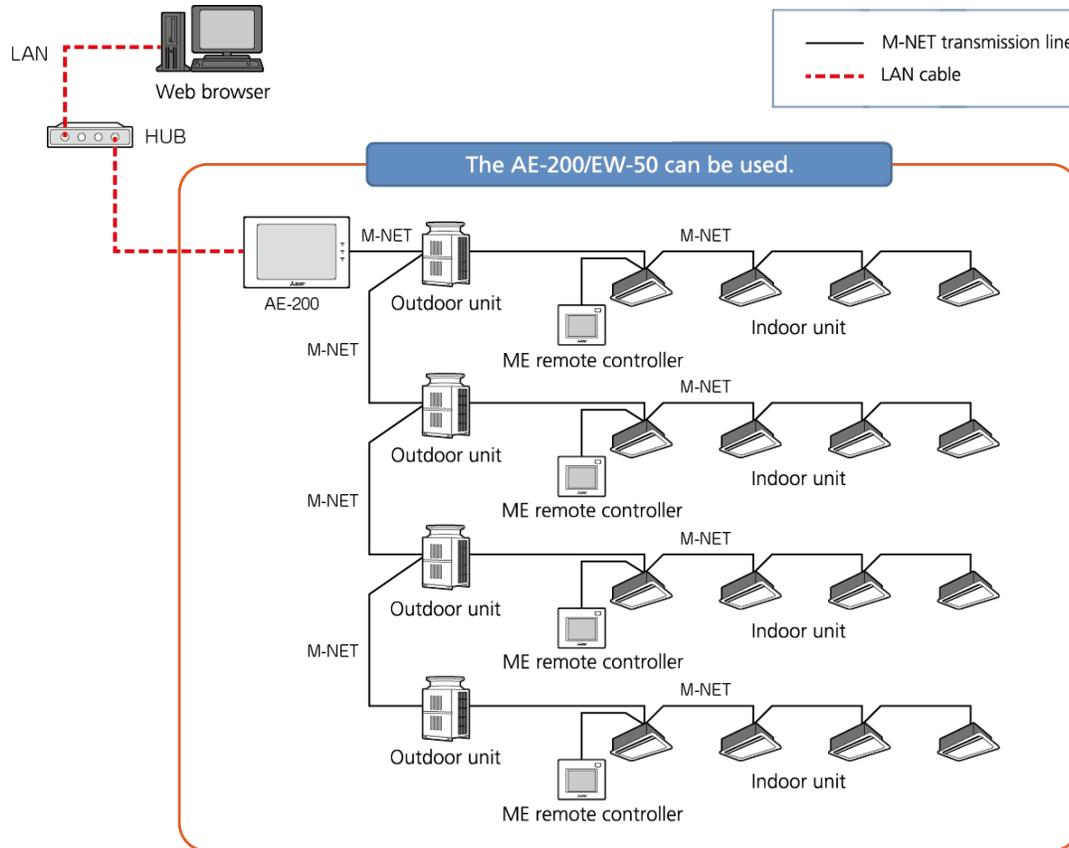


AE-200/AE-50

EW-50

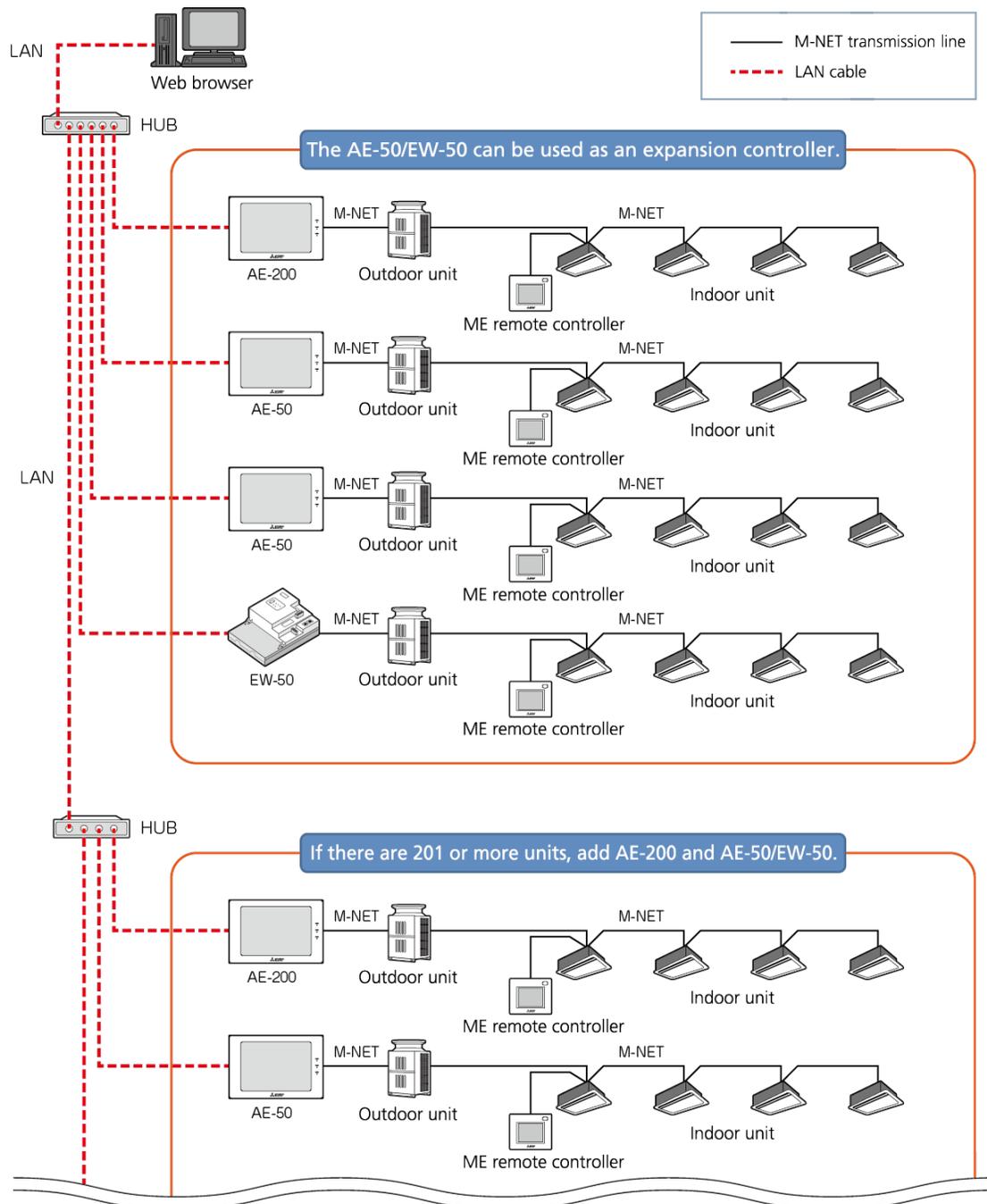
[III System restrictions and notes]

- (1) When using the M-NET transmission line of the AE-200 and there are 50 or fewer air-conditioning units (apportioned electricity billing function is not used)  
With the AE200, up to 50 air-conditioning units can be monitored and operated from the unit LCD screen or a Web browser.  
Also, if the EW-50 is connected instead of the AE-200, monitoring and operation from a Web browser are possible.
- The AE-50 cannot be used on its own.



[III System restrictions and notes]

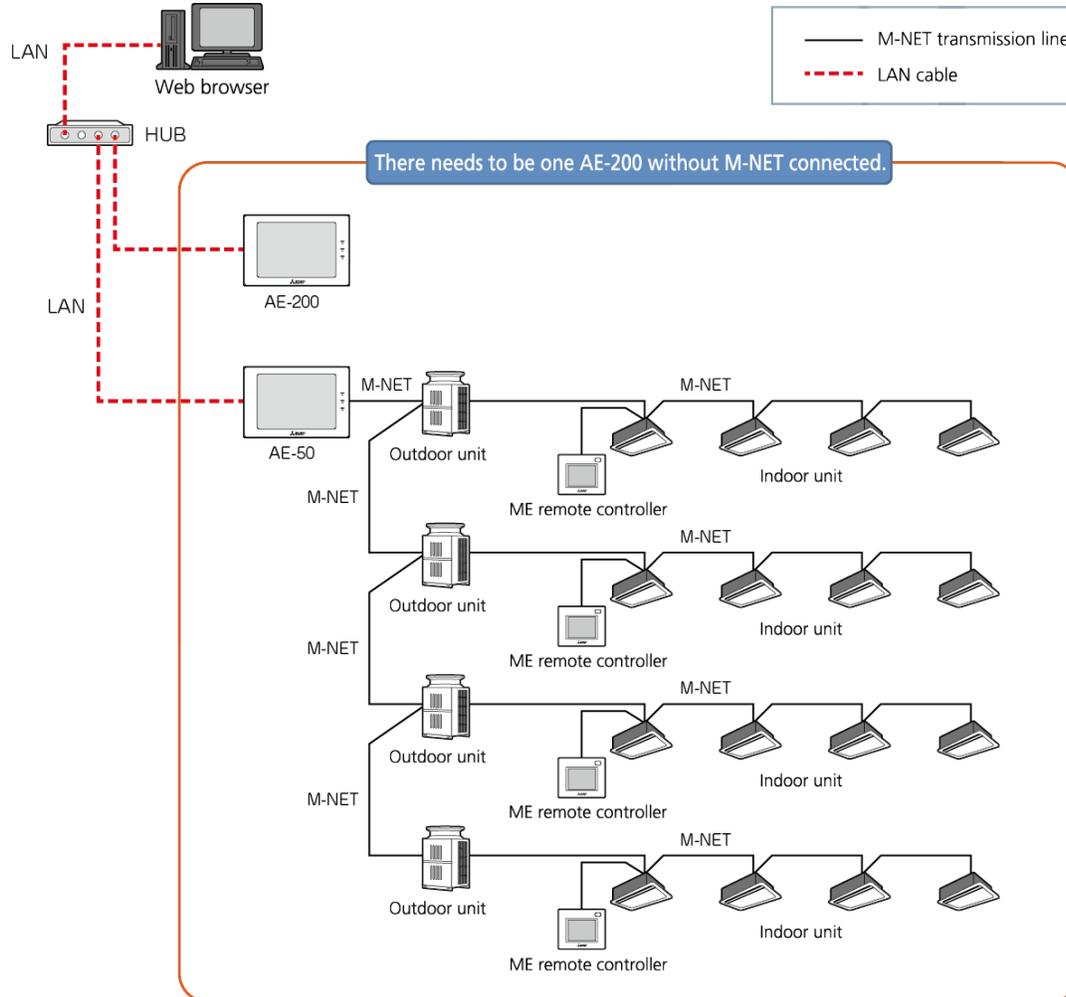
- (2) When using the M-NET transmission line of the AE-200 and there are 51 or more air-conditioning units (apportioned electricity billing function is not used)  
Up to 200 air-conditioning units can be monitored and operated by using three AE-50/EW-50 expansion controllers.
- When using the Web browser function, access each AE-200/AE-50/EW-50 to perform monitoring and operation.



[III System restrictions and notes]

- (3) When there are 50 or fewer air-conditioning units (apportioned electricity billing function is not used and M-NET transmission of the AE-200 is not used)  
When M-NET is connected to one AE-50 expansion controller, and AE-200 is used without using M-NET transmission line, up to 50 air-conditioning units can be monitored and operated from two AE-200/AE-50 locations.  
Also, monitoring and operation from an AE-200 can be performed by connecting an EW-50 in the same way.

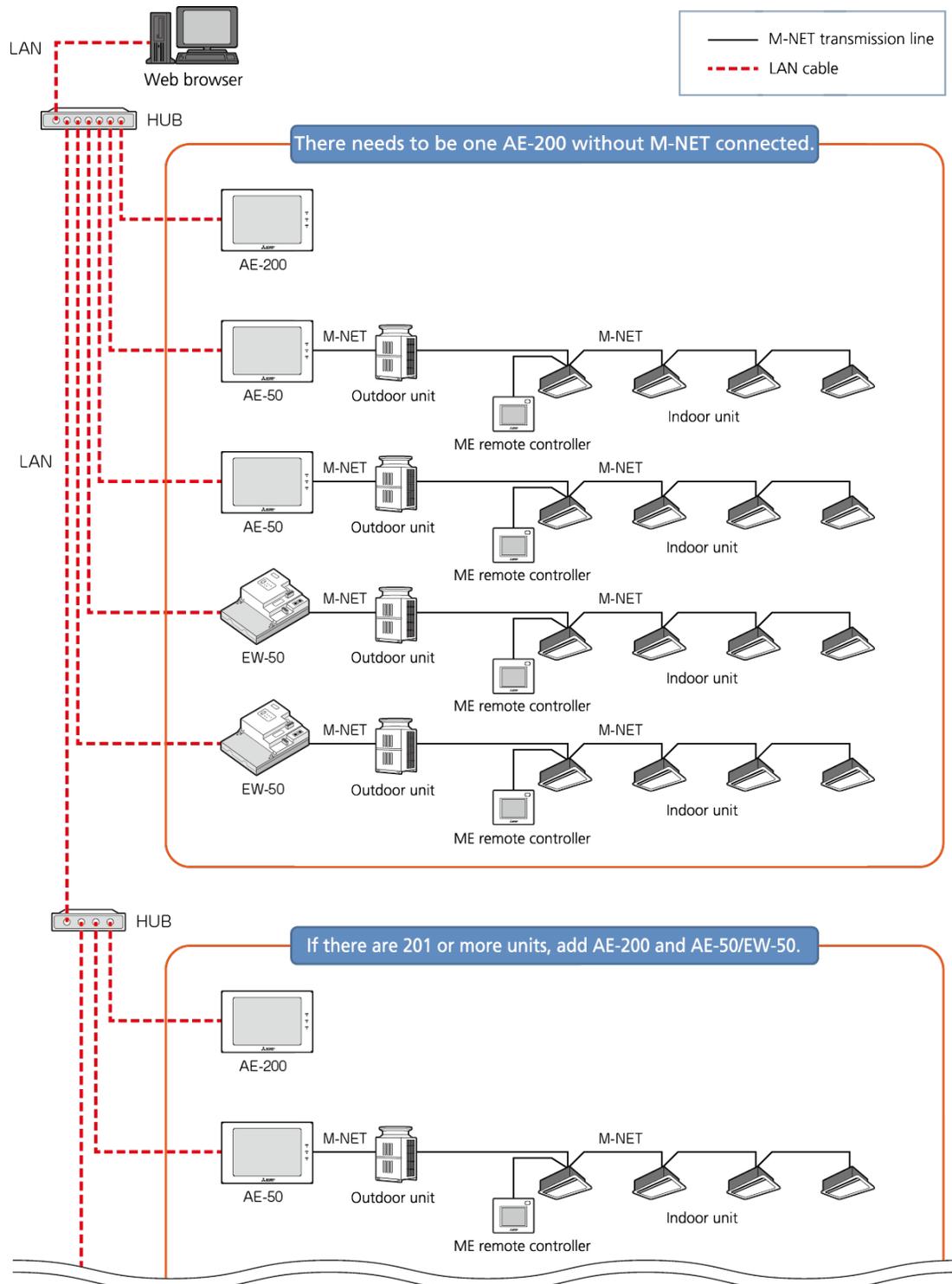
- When using the Web browser function, access each AE-50/EW-50 to perform monitoring and operation.



[III System restrictions and notes]

(4) When there are 51 or more air-conditioning units (apportioned electricity billing function is not used and M-NET transmission of the AE-200 is not used)  
Up to 200 air-conditioning units can be monitored and operated by connecting an AE-200 and up to four AE-50/EW-50 expansion controllers.

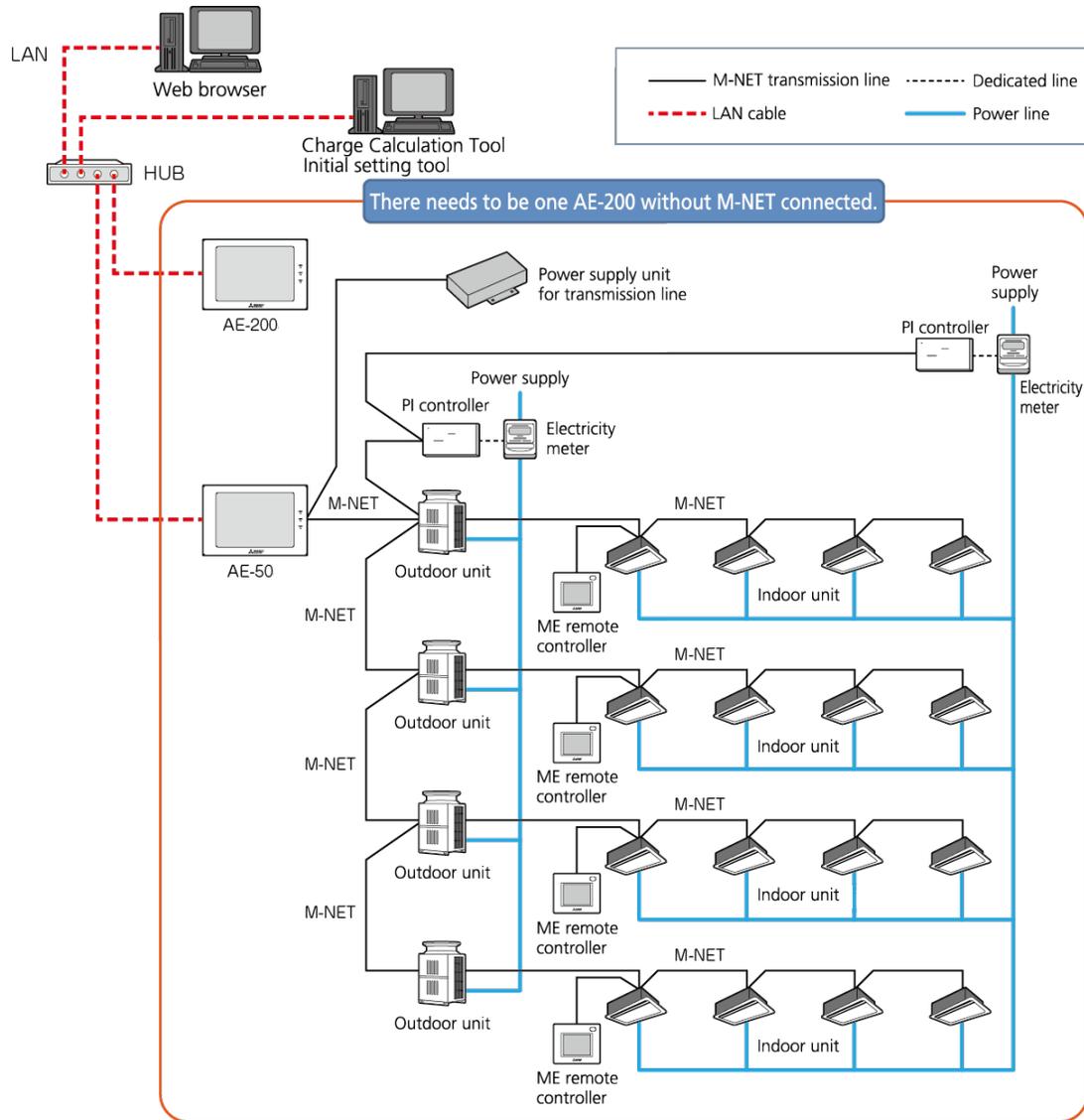
- When using the Web browser function, access each AE-50/EW-50 to perform monitoring and operation.



[III System restrictions and notes]

(5) When using the apportioned electricity billing function and there are 50 or fewer air-conditioning units  
 Each AE-50/EW-50 expansion controller can monitor and operate up to a total of 50 air-conditioning units using the apportioned electricity billing function.

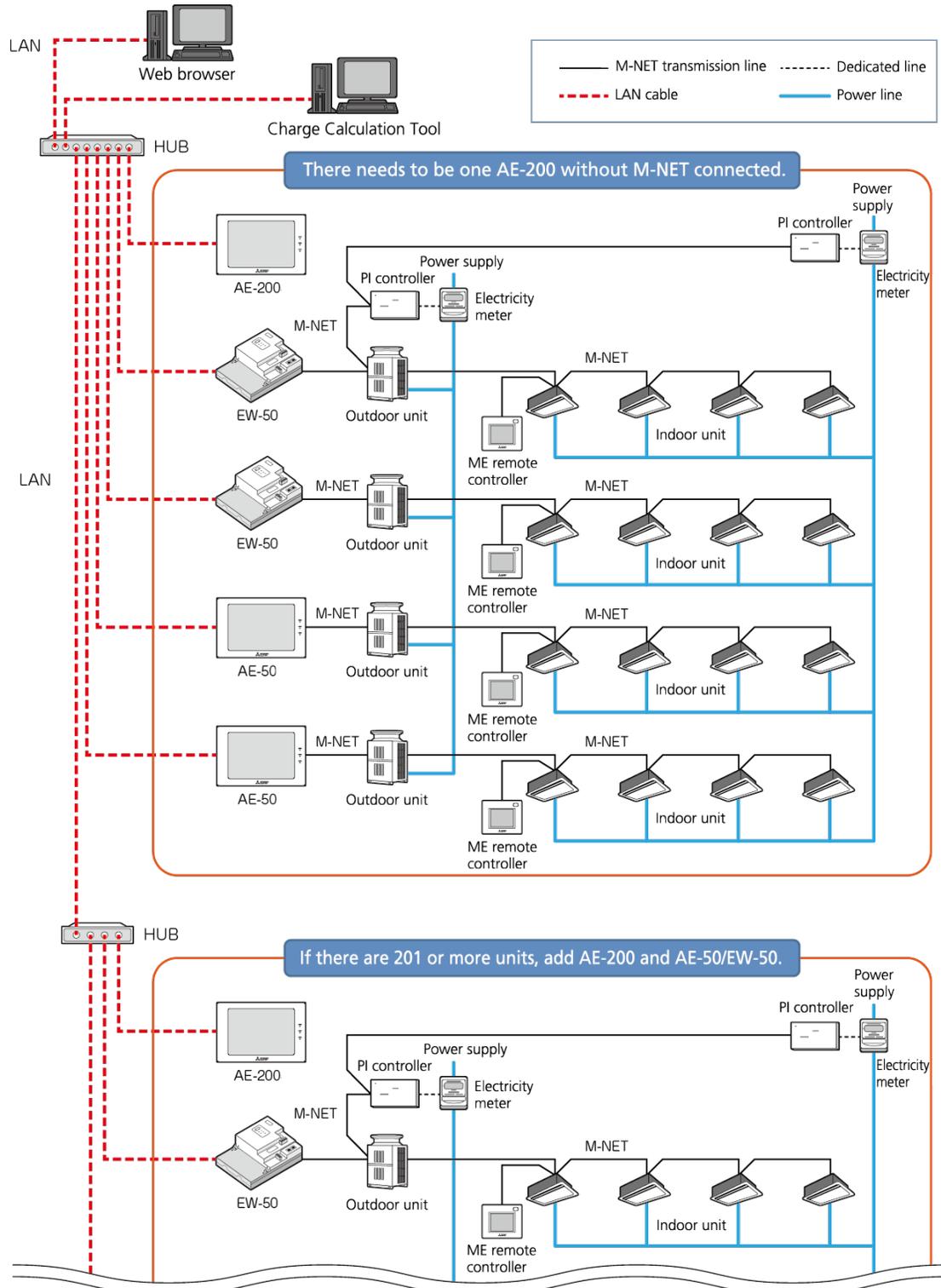
- When the apportioned electricity billing function is used, the combination of an AE-200 (without M-NET connection) and AE-50/EW-50 expansion controller is required to obtain a backup of the data.
- When the apportioned electricity billing function is used, the M-NET transmission line of the AE-200 cannot be used.
- When using the Web browser function, access the AE-50/EW-50 to perform monitoring and operation.
- Registration of the license is required for each centralized controller.
- An electricity meter needs to be connected to each AE-200 system. Electricity meters connected to other AE-200 systems cannot be set.
- To set the apportioned electricity billing function, Initial Setting Tool is required.
- To perform the charge calculation of the apportioned electricity billing function, Charge Calculation Tool is required.
- When using the apportioned electricity billing function, use Ver.7.23 or later of AE-200/AE-50/EW-50.



[III System restrictions and notes]

(6) When using the apportioned electricity billing function and there are 51 or more air-conditioning units  
 By using 4 AE-50/EW-50 expansion controllers, up to a total of 200 air-conditioning units can be monitored and operated using the apportioned electricity billing function.

- When the apportioned electricity billing function is used, the M-NET transmission line of the AE-200 cannot be used.
- When using the Web browser function, access the AE-50/EW-50 to perform monitoring and operation.
- Registration of the license is required for each centralized controller.
- An electricity meter needs to be connected to each AE-200 system. Electricity meters connected to other AE-200 systems cannot be set.
- To set the apportioned electricity billing function, Initial Setting Tool is required.
- To perform the charge calculation of the apportioned electricity billing function, Charge Calculation Tool is required.
- When using the apportioned electricity billing function, use Ver.7.23 or later of AE-200/AE-50/EW-50.



### [3] Restrictions and Notes on AC Power Supply Wiring

(1) Notes

1. Perform electrical work in accordance with the instructions in the installation manual.
2. To prevent electrical noise from the power supply wiring affecting the wiring for transmission (control), lay the power supply wiring at least 5 cm (2 in) apart if laying the wiring in parallel.  
(Do not insert them in the same conduit.)
3. Be sure to connect the ground wire for protection.
4. Select electrical wiring that meets the requirements in the following table.

Recommended power cable type	VCT, VVF, VVR, or its equivalent
Power cable size	0.75 to 2.00 mm <sup>2</sup> (ø1.0 to ø1.6 mm)

### [4] Restrictions and Notes on Transmission Wiring

(1) Notes

1. Perform electrical work in accordance with the instructions in the installation manual.
2. To prevent the wiring for transmission (control) from being affected by electrical noise from the power supply wiring, lay the wiring for transmission (control) at least 5 cm (2 in) apart from the power supply wiring.  
(Do not insert them in the same conduit.)
3. Never connect a 100 V or 200 V power supply to the terminal block for the transmission wiring. In the event that a power supply is connected, the electrical components will burn out.
4. Use a 2-core shielded cable for the transmission wiring. Never use the same cable with multiple cores for wiring multiple systems because the transmission signals will become unable to be sent and received normally, resulting in erroneous operation.

(2) M-NET transmission line

The type and tolerance of wiring differ depending on the system configuration. Furthermore, if the transmission line is long and there is a noise source within the vicinity of a unit, move the noise source away from the unit to prevent noise interference.

Transmission line type*1	CPEVS ø1.2 to ø1.6 mm: PE insulated PVC jacketed shielded communication cable CVVS, MVVS 1.25 to 2 mm <sup>2</sup> : PVC insulated PVC jacketed shielded control cable
Maximum length for indoor/outdoor transmission line	Max. 200 m (656 ft)
Farthest distance for M-NET transmission line (maximum length via an outdoor unit)	Max. 500 m (1640 ft) * The maximum wire length from the transmission line power supply unit installed for the centralized control transmission line to each outdoor unit and system controller is 200 m (656 ft).

\*1 PE: Polyethylene, PVC: Polyvinyl chloride

(3) Remote controller line

		MA remote controller*1	M-NET remote controller*2	
Wiring type	Type	VCTF, VCTFK, CVV, CVS, VVR, VVF, VCT	10 m (32 ft) or less	If 10 m (32 ft) is exceeded
	Number of wires	2-core cable	Shielded wire CVVS, CPEVS, MVVS 2-core cable	
	Wire diameter	0.3 to 1.25 mm <sup>2</sup> *3*4 (0.75 to 1.25 mm <sup>2</sup> )*5	0.3 to 1.25 mm <sup>2</sup> *3*4 (0.75 to 1.25 mm <sup>2</sup> )*5	At least 1.25 mm <sup>2</sup>
Total length		Max. 200 m (656 ft)*6	Max. 10 m (32 ft)	The portion that exceeds 10 m (32 ft) must be included in the calculation for the maximum length of the indoor/outdoor transmission line.

\*1 MA remote controllers include simple MA remote controllers and wireless remote controllers.

\*2 M-NET remote controllers refer to ME remote controllers and LOSSNAY remote controllers.

\*3 A wire diameter of up to 0.75 mm<sup>2</sup> is recommended.

\*4 When connecting an MA remote controller, use a 0.3 mm<sup>2</sup> cable with a sheath for the wiring.

\*5 When connecting to the terminal block of a simple MA remote controller, use wire with a diameter within the parentheses.

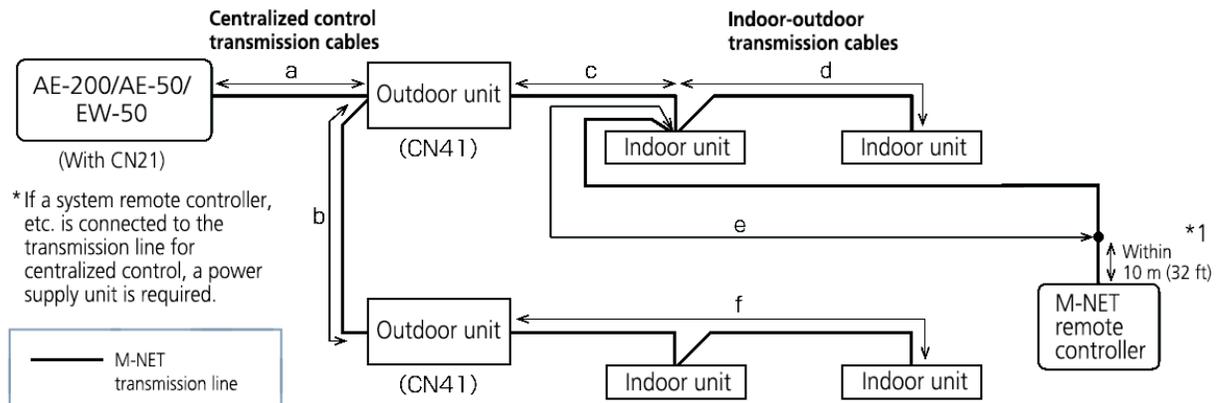
\*6 Maximum 100 m (328 ft) when connecting a pair of remote controllers including an MA remote controller.

**The following shows an example of a wiring diagram for the M-NET transmission line of CITY MULTI.**

The example in the figure below shows the cable length limit of centralized control M-NET transmission line and indoor-outdoor M-NET transmission line for each system.

1. Farthest distance for M-NET transmission line (limited by attenuation of the signal waveform)
  - Make the distance between the transmission source and transmission destination of signals no more than 500 m (1640 ft). If this maximum distance is exceeded, communication will become impossible due to the attenuation of the waveform.  
 $a+c+d \leq 500$  m (1640 ft),  $a+c+e \leq 500$  m (1640 ft),  $a+b+f \leq 500$  m (1640 ft),  $c+d+b+f \leq 500$  m (1640 ft),  $c+e+b+f \leq 500$  m (1640 ft)
  
2. Maximum power supply distance for M-NET transmission line (limited by voltage drop)
  - (1) Maximum total length of power feed for the centralized control transmission lines
    - Make the distance between the supply source and supply destination of power no more than 200 m (656 ft). If this maximum distance is exceeded, communication will become impossible due to the voltage drop.  
 $a+c+d \leq 200$  m (656 ft),  $a+c+e \leq 200$  m (656 ft),  $a+b+f \leq 200$  m (656 ft)

\* If a system remote controller, etc. is connected to the transmission line for centralized control, a power supply unit (PAC-SC51KUA) is required.  
 \* There are cases where the supply source and supply destination of M-NET power differ depending on the setting of the M-NET supply connector.
  
  - (2) Maximum total length of power feed for the indoor-outdoor transmission lines
    - Make the distance from an outdoor unit to the supply destination no more than 200 m (656 ft).  
 $c+d \leq 200$  m (656 ft),  $c+e \leq 200$  m (656 ft)



**Limitation of cable length of M-NET transmission line**

\*1 The wiring length of the M-NET remote controller must be 10 m (32 ft) or less. If 10 m (32 ft) is exceeded, the portion that exceeds 10 m (32 ft) must be included in the calculations for the maximum total wiring length of the M-NET transmission line (500 m (1640 ft)) and the maximum total power supply distance (200 m (656 ft)).

## [5] M-NET address settings

The setting range for the address setting differs depending on the device.

### (1) AE-200

Use "0" (factory setting) for the address of the AE-200.

Change it to a value within the range of 201 to 250 only if it duplicates the address of another controller (BM adapter, etc.).

	Address setting range	Setting method	When enabled
Unit address	0, 201–250	Any address within the address range on the left.	Always*1 (Network setting screen)

\*1 The setting is applied after a restart. (A restart is performed automatically after the setting is changed.)  
The setting can be checked from the network setting screen of the LCD screen or a Web browser.

### (2) AE-50/EW-50

Use "0" (factory setting) for the address of the AE-50/EW-50.

Change it to a value within the range of 201 to 250 only if it duplicates the address of another controller (BM adapter, etc.).

	Address setting range	Setting method	When enabled
Unit address	0, 201–250	Any address within the address range on the left.	Always*1 (Network setting screen)

\*1 The setting is applied after a restart. (A restart is performed automatically after the setting is changed.)  
The setting can be checked from the network setting screen of the LCD screen or a Web browser.

### (3) Various M-NET devices

Designate the address for each M-NET device. The addresses cannot be overlapped within the same M-NET system.

	Address setting method	M-NET address
Indoor unit	Assign the lowest address to the main indoor unit in the group, and assign sequential addresses to the rest of the indoor units in the same group.	1–50
Outdoor unit	Assign an address that equals the lowest indoor unit address in the same refrigerant system plus 50.	51–100
Auxiliary outdoor unit (BC controller etc.)	Assign an address that equals the address of the outdoor unit in the same refrigerant system plus 1.	52–100
Interlocked OA Processing unit/LOSSNAY	Assign an arbitrary but unused address to each of these units after assigning an address to all indoor units.	1–50
A-control Mr. Slim outdoor unit	Make the settings in the same way as with the indoor units. Requires PAC-SJ19MA-E/PAC-SJ83MA-E (sold separately).	1–50
Room air conditioner	Make the settings in the same way as with the indoor units. Requires MAC-333IF (sold separately).	1–50
AHC	Assign an address that equals the address of the main indoor unit with the lowest address in the group plus 200. If the address overlaps with the Sub system controller's address, assign an arbitrary but unused address between 201 and 250 to the Advanced HVAC CONTROLLER.	201–250
Air To Water (PWFY) unit	Make the settings in the same way as with the indoor units.	1–50
HWHP (CAHV, CRHV) unit (Main Box)	Make the settings in the same way as with the indoor units.	1–50
HWHP (CAHV, CRHV) unit (Sub Box)	Assign addresses that equal the addresses of the main and sub units in the Main Box plus 50 to the units in the Sub Box.	51–100
M-NET remote controller	Assign an address that equals the address of the main indoor unit with the lowest address in the group plus 100. Add 150 instead of 100 to set the address for a sub remote controller.	101–200
MA remote controller	Address setting is not required. Connection of two remote controllers requires the Main/Sub setting for each controller to be made.	-
Sub System controller	Assign an address that equals the group number of the smallest controlled group plus 200.	201–250
DIDO controller	Assign an arbitrary but unused address to the controller after completing the address setting for the units with an address between 1 and 50. The number of controllable units varies with the number of channels used.	1–50
PI controller	Assign an arbitrary but unused address to the controller after completing the address setting for the units with an address between 1 and 50.	1–50
AI controller	Assign an arbitrary but unused address to the controller after completing the address setting for the units with an address between 1 and 50.	1–50

\* Some models cannot be controlled from the AE-200/AE-50/EW-50.

For details on the managed equipment, refer to "III [1] (1) Control target equipment."

## [6] Restrictions and notes on network wiring

**NOTE:**

When connecting the AE-200/AE-50/EW-50 to the Internet, be sure to use a VPN router or other security device to prevent unauthorized access.

(1) About LAN

We recommend using 100BASE-TX for the LAN.

Also, with regard to the category of LAN cables, use category 5 or better for reasons such as availability and connectivity with optical cables (100BASE-FX).

The main cable type is shown in the following table.

LAN standard	Cable specification	Maximum wiring length	Communication speed
100BASE-TX	Twisted pair cable (T)	100 m (328 ft)	100 Mbps

(2) About HUB

Use a switching HUB for the HUB.

(3) LAN cable length

The maximum cable length for 100BASE-TX when connecting to the AE-200/AE-50/EW50 is 100 m (328 ft).

Therefore, if the LAN cable length exceeds 100 m (328 ft), you can increase the distance between the PC for state monitoring and operation and the AE-200/AE-50/EW-50 by connecting via a switching HUB or other device.

**NOTE:**

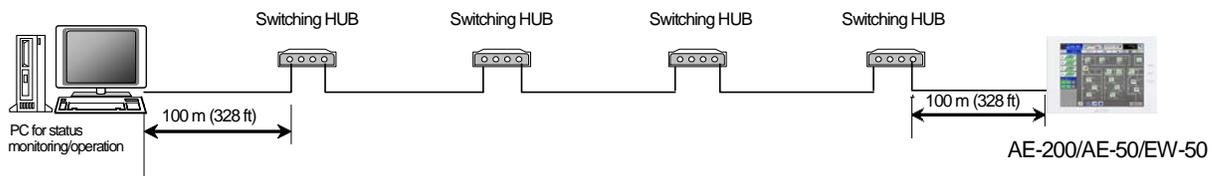
For details on the switching HUB, refer the instruction manual supplied with the switching HUB.

There is no limit on the number of switching HUB connections, but if the load on the network becomes extremely high, delays will occur and connecting normally with the network may not be possible.

The recommended number of devices, including a HUB, gateway, router, or layer 3 switch, to connect between the AE-200/AE-50/EW-50 is four or less.

(The transmission delay time must be 4 seconds or less round trip. If the transmission delay time needs to be checked because, for example, five or more devices are connected, refer to "V [5] 2. About the check method using ping.")

If a LAN communication error code appears, check the error as described in "V [5] LAN communication error check procedure."



**NOTE:**

- Use commercially available LAN cables.

## [7] IP address settings

We recommend using the IP addresses in the following table for the AE-200/AE-50/EW-50, TG-2000A, and other equipment when using a dedicated LAN.

Model	IP address range
AE-200/EW-50 unit *1	[192.168.1.1] to [192.168.1.40]
AE-50/EW-50 unit *1	[192.168.1.211] to [192.168.1.249]
PC for browser	[192.168.1.101] to [192.168.1.149]
PC for integrated centralized control software TG-2000A	[192.168.1.150]
PLC for Electric Amount Count (PAC-YG11CDA)	[192.168.1.151] to [192.168.1.170]
PLC for General Equipment (PAC-YG21CDA)	[192.168.1.171] to [192.168.1.190]
PLC for Demand Input (PAC-YG41CDA)	[192.168.1.191] to [192.168.1.194]
Router	[192.168.1.254]

\*1 Set an address within the range of [192.168.1.1] to [192.168.1.40] when using EW-50 individually and within the range of [192.168.1.211] to [192.168.1.249] when using it as an expansion controller.

Unless otherwise specified, leave the subnet mask of the AE-200/AE-50/EW-50 set to the initial value of [255.255.255.0].

### NOTE:

When connecting to an existing LAN, set the IP address and subnet mask specified by the LAN administrator.

The IP address range for various software of PLC differs depending on the model. We recommend using the IP address in the following table.

Software name	Model name	IP addresses
Electric Amount Count PLC Software	PAC-YG11CDA	[192.168.1.151] to [192.168.1.155]
General Control PLC Software	PAC-YG21CDA	[192.168.1.171] to [192.168.1.190]
Demand Input PLC Software	PAC-YG41CDA	[192.168.1.191] to [192.168.1.194]

## [8] Switch Settings

(1) AE-200/AE-50/EW-50 Switch Settings

The power jumper (CN21) needs to be set (disconnected/connected) depending on the system configuration. For details, refer to "III [2] System connection examples."

(2) Main board of outdoor units

The following shows the DIP switches to use for a system with the AE-200/AE-50/EW-50 connected. When connecting the AE-200/AE-50/EW-50, set the centralized control switch to ON.

Switches	Function	Operations according to switch setting		Switch setting timing
		OFF	ON	
SWU1, 2	Unit address setting	Set to 51 to 100 with the dial switch		Before power on
SW2-1 (SW 5-1 depending on the model)	Centralized control switch	Without connection to centralized controller	With connection to centralized controller	Before power on

Change the setting of the power jumper of the outdoor units in accordance with the system to be built. For details, refer to the illustrations in "III [2] System connection examples."

(3) Indoor Units

The following shows the switch settings to change to the free contact mode that can generally use external inputs and outputs of an indoor unit.

The free contact compatible models of indoor units are R410A compatible models and R407C compatible Ver.33 or later<sup>\*1</sup>.

\*1 The version can be verified in the indoor unit version display part in Maintenance Tool.

Function	Switch settings			Other functions		Remarks
	SW1-10	SW1-9	SW1-5	Power ON/OFF and power failure automatic recovery	Remote display switching	
Free contact	ON	ON	ON	Power failure auto recovery	Disabled	Differs from switch setting.
			OFF	Disabled		
Disabled	ON	OFF	ON	Power ON/OFF	Thermostat ON signal display	Depends on the original switch setting.
			OFF		Fan output display	
	OFF	ON	ON	Power failure auto recovery	Thermostat ON signal display	
			OFF		Fan output display	
		OFF	ON	Disabled	Thermostat ON signal display	
			OFF		Fan output display	

(Reference) For a model prior to the free contact compatible models, SW1-5 is remote display switching, SW1-9 is power failure auto recovery, and SW1-10 is power ON/OFF.

## [9] Other points to note

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(1) About using General equipment

- There may be cases when the general equipment cannot be monitored or operated due to, for example, a disconnection of the wiring between the general equipment or a failure of the DIDO controller or PLC. In such a case, Mitsubishi Electric will not be held liable in the event of any damages. We recommend providing a circuit that enables emergency remedial operation, etc. to be performed when a failure occurs.
- With the Ver.1 series of General Control PLC Software, the license number does not need to be registered to the AE-200/AE-50/EW-50.
- With the Ver.2 series of General Control PLC Software, General Control PLC Software License is not required to operate and monitor general equipment and use the schedule functions, but TG-2000A is required.  
To use interlock control, General Control PLC Software License is required for each AE-200/AE-50/EW-50.  
General Control PLC Software License is required even for interlock control within the PLC.
- A license number does not need to be registered to, for example, operate general equipment with a DIDO controller.

(2) About USB memory devices

- Select a USB memory device that meets the following conditions and verify operation several times before use.
  - \* Reading and writing with a memory device for which operation has not been verified may cause an unexpected operation.  
Therefore, verify operation of the memory device (during trial operation) before use.  
Do not use a USB memory device for which a data writing error has occurred.
- 1. USB standard: Supports USB 2.0.
- 2. Formatted with FAT32 or FAT (FAT16)
- 3. Security function is not provided or not required to be set.  
(Depending on the security function, there may also be some USB devices for which use is possible.)  
In cases such as when data writing can still not be performed normally when a USB memory device has been replaced with another one after a data error occurs, restart the AE-200/AE-50/EW-50 (turn the power off and then back on) and then perform the check again with a USB memory device other than the one with which the error first occurred.
- Do not remove and insert a USB memory device during writing to a USB memory device.  
A USB memory device may not be recognized if it is removed and inserted within a short period of time.  
If that happens, the unit needs to be restarted (turn the power off and then back on).

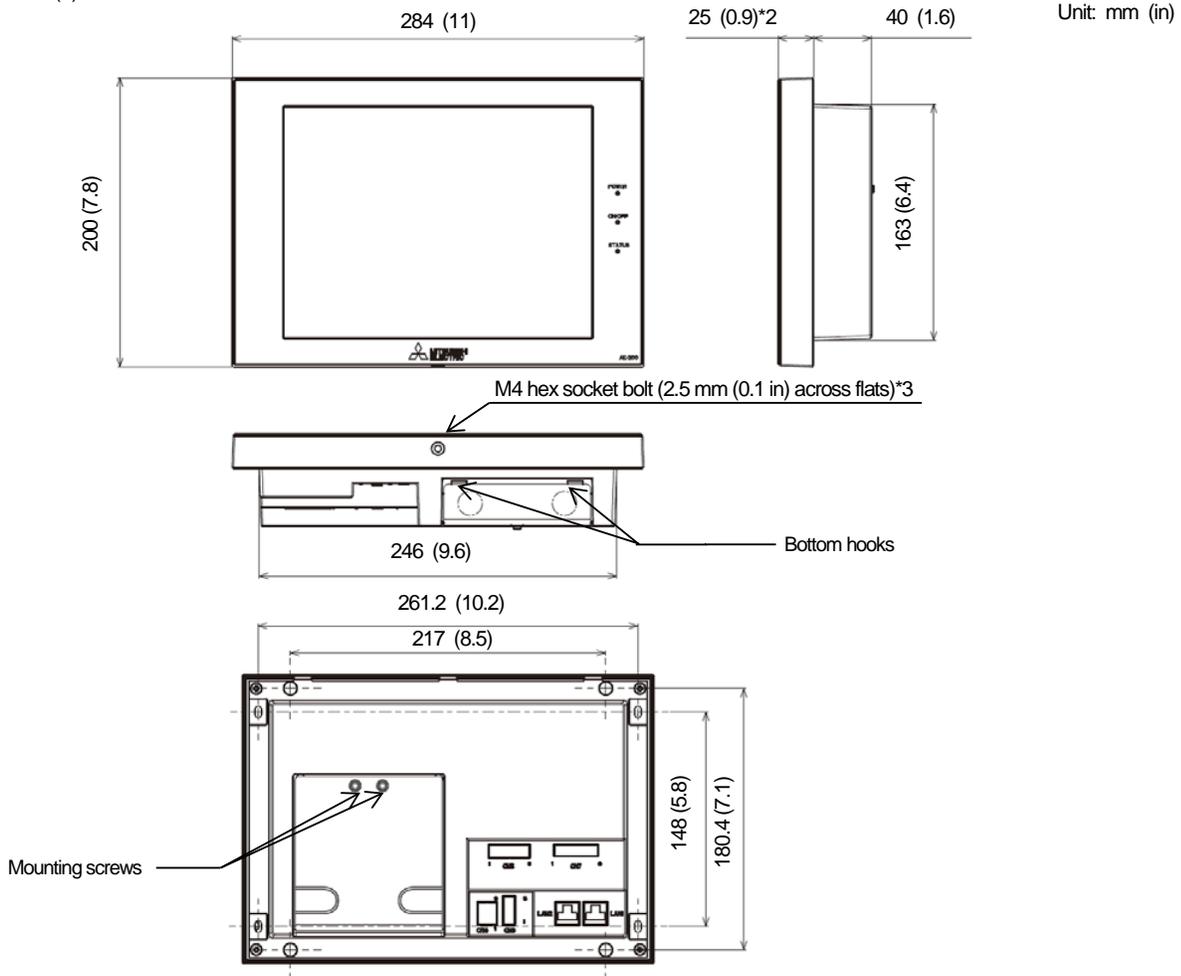
## IV Product specifications and functions

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# [1] Structure of AE-200/AE-50/EW-50

## 1. External dimensions

(1) AE-200/AE-50 \*1



\*1 The dimensions of the AE-200 and AE-50 are the same.

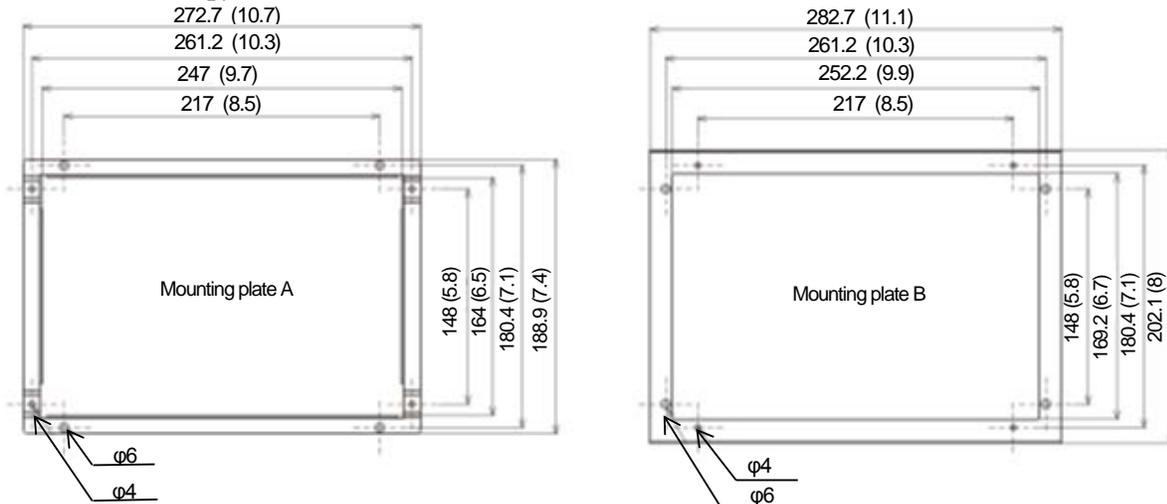
\*2 The protrusion when the unit is mounted to a wall or metal control box is 25.0 mm.

\*3 A hex key for removing the hex socket bolt is supplied with the AE-200/AE-50 unit.  
For how to use it, refer to "IV [1] 4. How to remove and attach the cover."

Mounting plate (supplied)

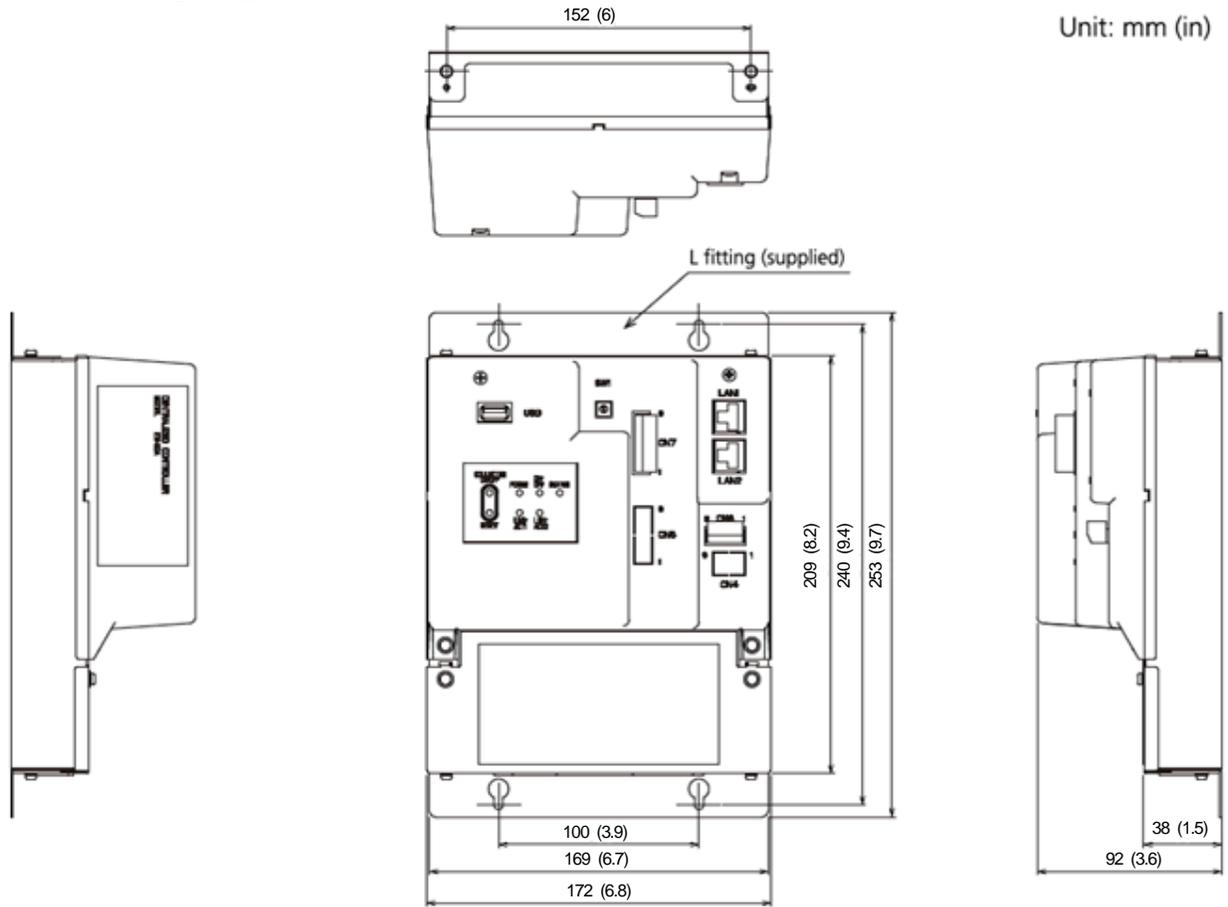
Used when mounting to a wall or metal control box.

For the mounting procedure, refer to "4-1-2 Wall-embedded installation" in the AE-200/AE-50 Installation Manual.

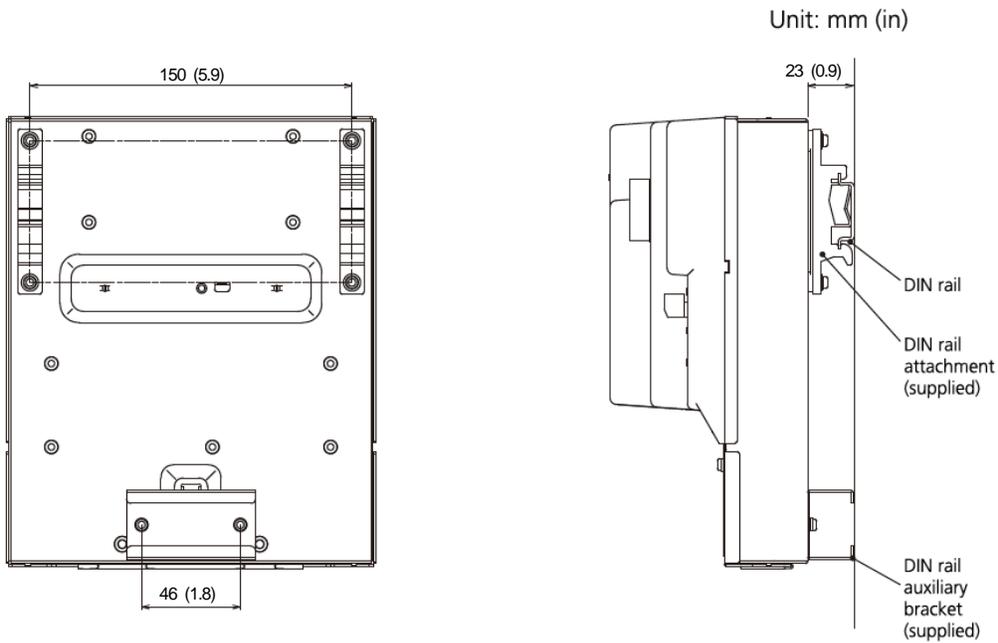


(2) EW-50

When attaching L-fittings



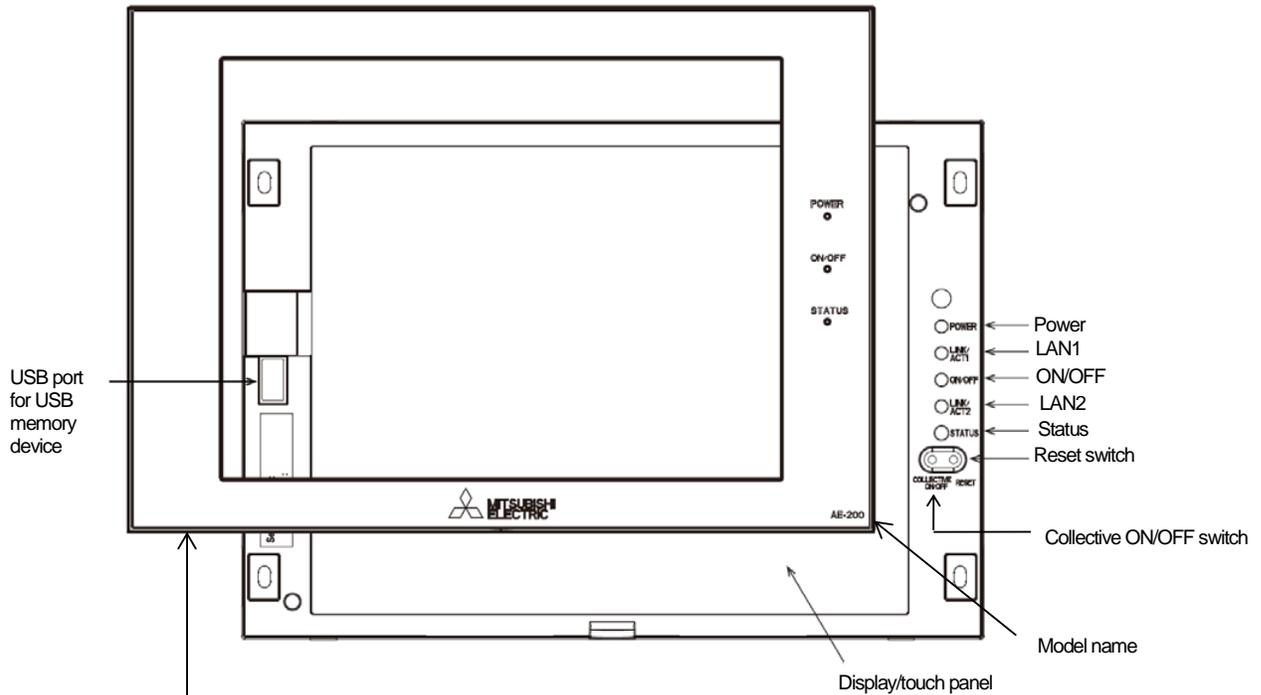
When mounting on DIN rails



\* For the installation method, refer to "4. Installation" in the EW-50 Installation and Instructions Manual

## 2. Location of main parts

### (1) Front of AE-200/AE-50



Decorative cover

\* In the case of the AE-50, the model name at the bottom right is "AE-50."

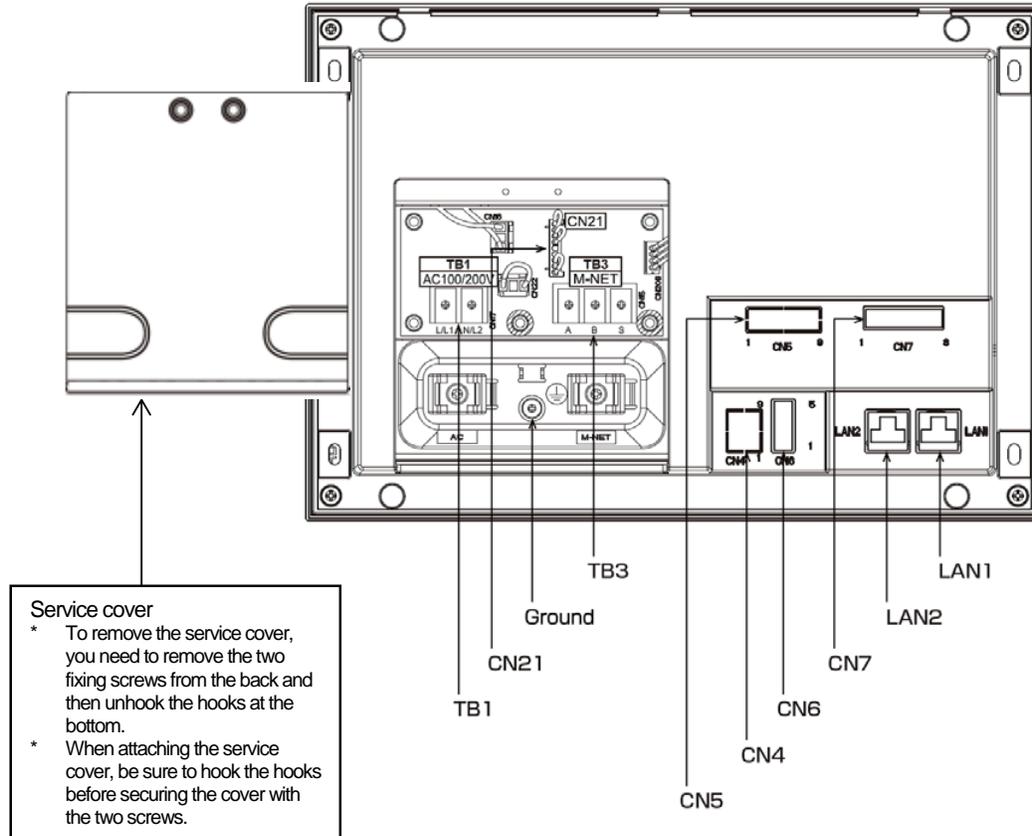
\* To remove the decorative cover, you need to remove the hex socket bolt at the bottom.

\* If the separately sold cover with a USB door (PAC-YE72CWL) is used, a USB memory device can be connected without removing the decorative cover.

LED		Description
Power	Lit in green	Power ON
	Unlit	Power OFF
LAN1	Blink in orange	Data transmission in progress (LAN1)
LAN2		Planned to be used with BACnet
ON/OFF	Lit in green	One or more air conditioning units are ON.
	Blink in green	One or more air conditioning units or other related equipment are in error.
	Unlit	All air conditioning units are OFF.
Status	Blink in orange	Error in SD card, or startup failed
	Blink in blue	Software update in progress
	Blink in pink	Software update failed

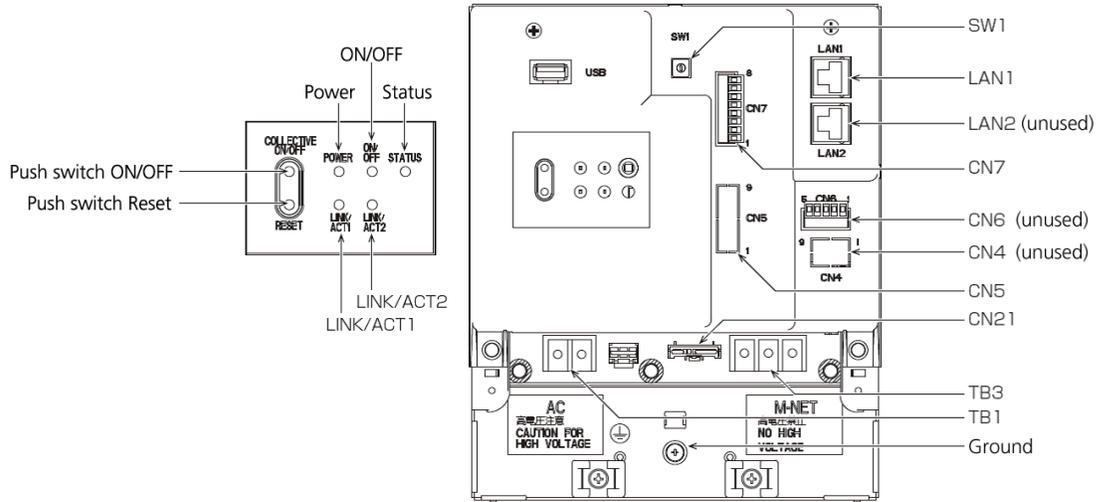
Item	Description
Reset switch	Used to reboot the AE-200/AE-50.
Collective ON/OFF switch	Collectively runs/stops air-conditioning units that have their own M-NET connected. The operation becomes the collective stop operation if even one air-conditioning unit is operating, and the collective run operation if they are all stopped.
USB port	Used when updating the software version, backing up the setting data, and acquiring billing data.

(2) Back of AE-200/AE-50



Item	Description	
LAN1		Connect with other equipment over a LAN via a switching HUB.
LAN2		Planned to be used with BACnet
CN7	Pulse input	Connect the pulse detector of an electricity meter.
CN6	RS-422/485	Unused
CN4	RS-232C	Unused
CN5	External I/O	Cut out the knockout hole and then connect an external I/O adapter (PAC-YG10HA).
TB3	M-NET A, B, S (M3.5)	M-NET transmission line terminal block Connect with an outdoor unit using an M-NET transmission line. (A, B: Non-polarized, S: Shielded)
Ground	(M4)	Connect a ground wire for protection.
CN21	M-NET power jumper	Connect the power jumper to supply power to M-NET (default). If another system controller is connected to the same M-NET, disconnect the power jumper to supply power to the M-NET from the power supply unit.
TB1	AC power supply L/L1, N/L2 (M3.5)	Connect an AC power supply cable.

(3) Front of EW-50



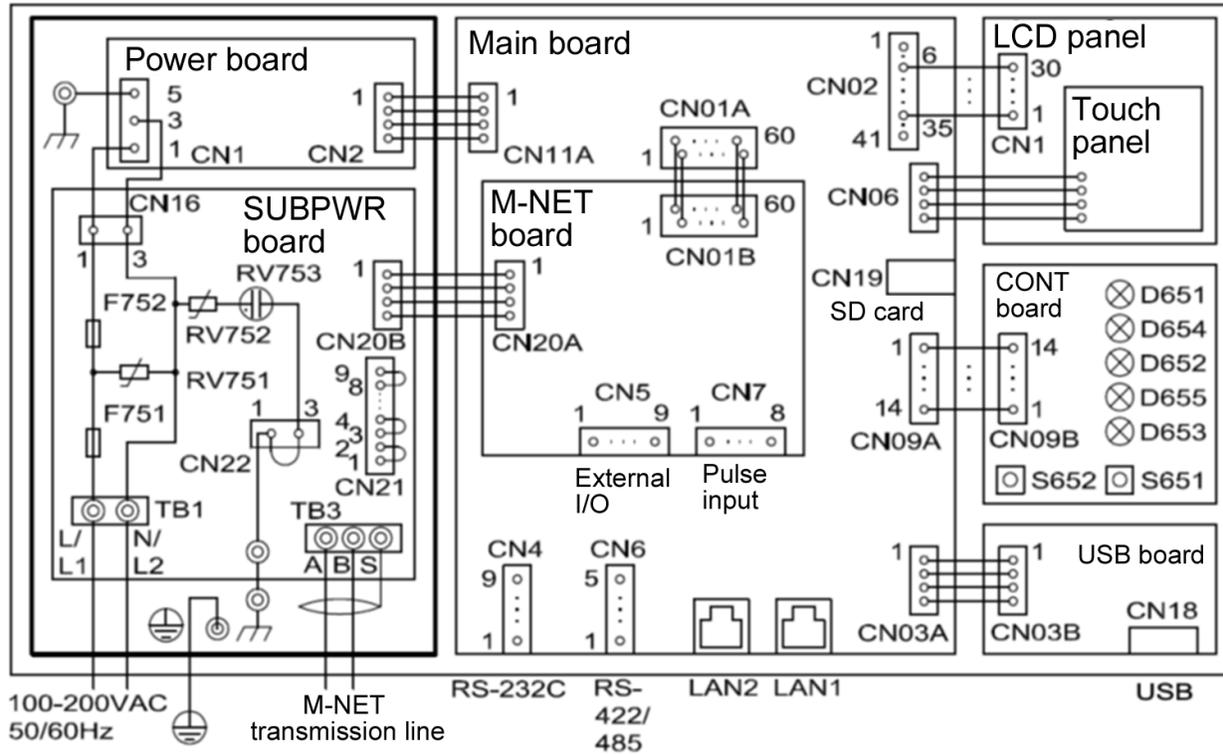
LED		Description
Power	Lit in green	Power ON
	Unlit	Power OFF
ON/OFF	Lit in green	One or more air conditioning units are ON.*1
	Blink in green	One or more air conditioning units or other related equipment are in error.
	Unlit	All air conditioning units are OFF.*1
Status	Blink in orange	Startup error
	Blink in blue	Software update in progress
	Blink in pink	Software update failed
LINK/ACT1	Blink in orange	Data transmission in progress (LAN1)
LINK/ACT2		Unused (planned to be used with BACnet)

\*1 The statuses of other related equipment are not indicated.

Item	Description	
Push switch	ON/OFF	Collectively runs/stops air-conditioning units that have their own M-NET connected. The operation becomes the collective stop operation if even one air-conditioning unit is operating, and the collective run operation if they are all stopped.
	Reset	Used to reboot the EW-50. (This will not affect the operation status of the air conditioning units.)
USB port		Unused
SW1	Simple address setting	IP addresses can be easily set with SW1.
LAN1	LAN connection	Connects to other units of equipment over the LAN via a HUB.
LAN2		Planned to be used with BACnet
CN7	PI	Connects to metering devices using the supplied connector.
CN6		Unused
CN4		Unused
CN5	External I/O	Connects to an external input/output adapter (PAC-YG10HA) by cutting out the knockout hole.
CN21	M-NET power jumper	Connects to the M-NET power jumper to supply power (default). If another system controller is connected to the same M-NET system and the equivalent power consumption is 6 or above, disconnect the M-NET power jumper to supply power from the separately-sold power supply unit.
TB3	M-NET A,B,S (M3.5)	M-NET transmission terminal block Connects to M-NET transmission lines from the outdoor unit. (A, B: Non-polarized, S: Shield)
TB1	Power source AC L/L1, L/L2 (M3.5)	Connects to the power cable.
Ground	(M4)	Connects to the protective ground wire.

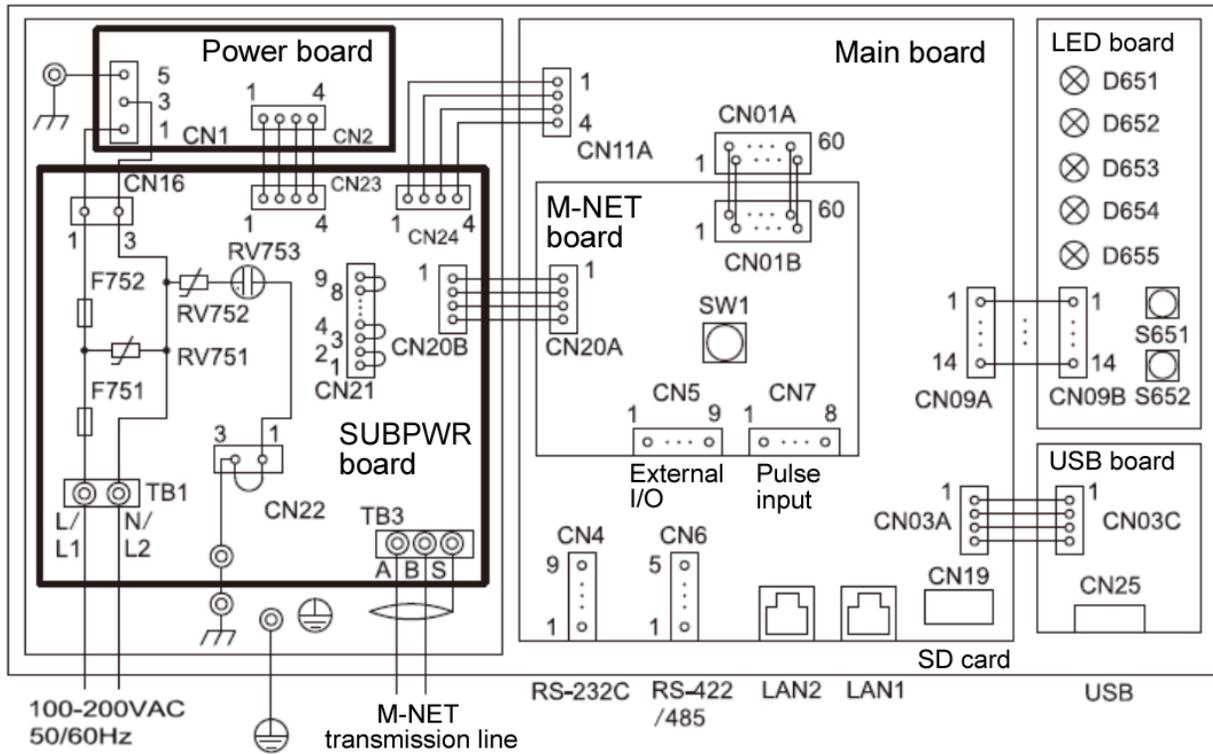
### 3. Electrical wiring diagram

(1) AE-200/AE-50



Board	Code	Name	Board	Code	Name
SUBPWR	TB1	Power terminal block	M-NET	CN5	Connector (external I/O)
	TB3	M-NET transmission terminal block		CN7	Connector (pulse input)
	CN21	Jumper (power supply selector)	CONT	D651	LED (POWER)
	F751	Fuse (250 VAC T6.3AH)		D652	LED (ON/OFF)
	F752	Fuse (250 VAC T2A)		D653	LED (STATUS)
MAIN	CN4	Connector (RS-232C)	CONT	D654	LED (LAN1 LINK/ACT)
	CN6	Connector (RS-422/485)		D655	LED (LAN2 LINK/ACT)
	CN19	Connector (SD card)		S651	Reset switch
	LAN1	Connector (LAN1)		S652	Collective ON/OFF switch
	LAN2	Connector (LAN2)	USB	CN18	Connector (USB)

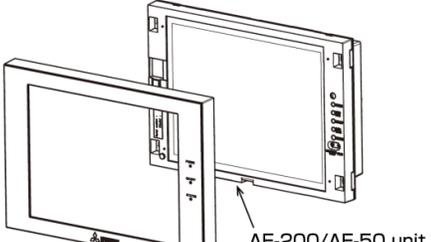
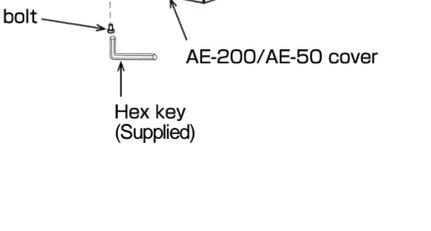
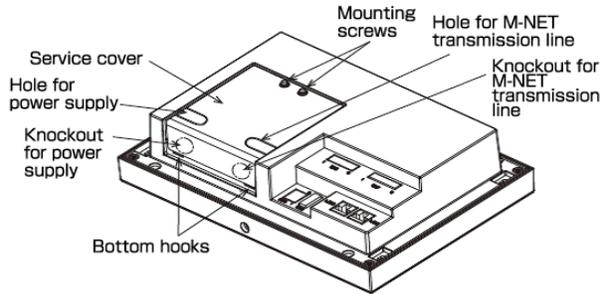
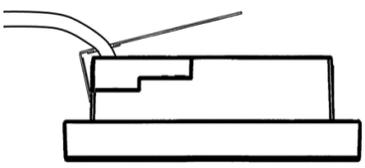
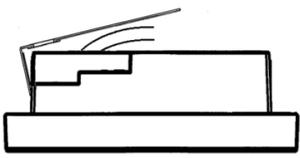
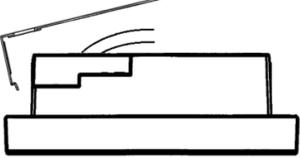
(2) EW-50



Board	Code	Name	Board	Code	Name
SUBPWR	TB1	Power terminal block	M-NET	CN5	Connector (external I/O)
	TB3	M-NET transmission terminal block		CN7	Connector (pulse input)
	CN21	Jumper (power supply selector)		SW1	Switch (IP address setting)
	F751	Fuse (250 VAC T6.3AH)	LED	D651	LED (POWER)
	F752	Fuse (250 VAC T2A)		D652	LED (ON/OFF)
	MAIN	CN4		Connector (RS-232C)	D653
CN6		Connector (RS-422/485)		D654	LED (LAN1 LINK/ACT)
CN19		Connector (SD card)	D655	LED (LAN2 LINK/ACT)	
LAN1		Connector (LAN1)	S651	Reset switch	
MAIN	LAN2	Connector (LAN2)	S652	Collective ON/OFF switch	
	USB	CN25	Connector (USB)		

#### 4. How to remove and attach the cover

(1) AE-200/AE-50

Item	Work procedure	Illustrations
How to remove the decorative cover	Use the supplied hex key to remove the hex socket bolt from the bottom of the decorative cover.	 <p>AE-200/AE-50 unit</p> <p>AE-200/AE-50 cover</p> <p>Hex socket bolt</p> <p>Hex key (Supplied)</p>
How to attach the decorative cover	Attach the decorative cover to the AE-200/AE-50 unit and then use the supplied hex key to screw the hex socket bolt into the bottom of the decorative cover.	 <p>AE-200/AE-50 unit</p> <p>AE-200/AE-50 cover</p> <p>Hex socket bolt</p> <p>Hex key (Supplied)</p>
How to remove the service cover	<p>[Wiring at the back]</p> <p>Remove the two fixing screw, lift up the service cover, and remove the cables from the holes for wiring.</p> <p>Unhook the bottom hooks from the AE-200/AE-50 unit.</p> <p>[Wiring at the bottom]</p> <p>Remove the two fixing screws and unhook the bottom hooks from the AE-200/AE-50 unit.</p>	 <p>Service cover</p> <p>Mounting screws</p> <p>Hole for M-NET transmission line</p> <p>Knockout for M-NET transmission line</p> <p>Hole for power supply</p> <p>Knockout for power supply</p> <p>Bottom hooks</p> <ul style="list-style-type: none"> <li>• How to remove the service cover</li> <li>1. Remove the two fixing screws and lift up the cover. (Do the same for the wiring at the bottom)</li> </ul> 
How to attach the service cover	<p>[Wiring at the back]</p> <p>Insert the bottom hooks of the service cover into the AE-200/AE-50 unit.</p> <p>Close the cover so that the power supply cable and M-NET transmission line pass through the holes for the wiring of the service cover.</p> <p>Secure the service cover with the two fixing screws.</p> <p>[Wiring at the bottom]</p> <p>Check that the power cable and M-NET transmission line are routed through the knockout holes and connected to the terminals.</p> <p>Insert the bottom hooks of the service cover into the AE-200/AE-50 unit and then secure cover the two fixing screws.</p>	<ul style="list-style-type: none"> <li>2. Remove the cables from the holes for wiring. (Only for the wiring at the back)</li> </ul>  <ul style="list-style-type: none"> <li>3. Unhook the bottom hooks from the AE-200/AE-50 unit. (Do the same for the wiring at the bottom)</li> </ul> 

(2) EW-50

Item	Work procedure	Illustrations
<p>How to remove the service cover</p>	<p>Remove the two fixing screw and lift up the service cover.</p>	<p>The illustration shows a perspective view of the EW-50 unit with a service cover being removed. Two screws are shown being taken out from the top of the cover. A circular inset shows a close-up of the 'Claws (service cover)' hooking into the 'Openings (unit)'. Another inset shows the 'Mounting screws' being used to secure the cover. A warning label on the unit reads 'DANGER NO HIGH VOLTAGE'.</p>
<p>How to attach the service cover</p>	<p>Hook the claws at the top of the service cover onto the EW-50 unit and then secure the cover with the fixing screws.</p> <p>Note: When attaching the service cover, take care that the power supply cable and transmission line are not trapped between the EW-50 unit and service cover.</p>	

**[2] Product specifications of AE-200/AE-50/EW-50****1. Product specifications**

## (1) Product specifications

The following shows the product specifications of the AE-200/AE-50.

Item		Specifications
Power supply (for driving unit)	Rated input	100–240 VAC $\pm$ 10%; 50/60 Hz Single-phase
Power consumption		12 W
M-NET equivalent power supply		No specifications Only an MN converter can be connected.
Ambient conditions	Operating temperature range	0°C – +40°C (+32°F – +104°F)
	Storage temperature range	-20°C – +60°C (-4°F – +140°F)
	Humidity	30%–90% RH (Non-condensing)
Weight		2.3 kg (5-5/64 lbs)
Dimensions (W x H x D)		284 x 200 x 65 mm (11-5/32 x 7-55/64 x 2-17/32 in) * When installed, AE-200/AE-50 will protrude 25.0 mm (31/32 in) from the wall or the metal control box.
Installation environment		Indoor only • For an office environment, install inside a metal control box or similar environment.

- The above specifications are subject to change without notice for improvement.

The following shows the product specifications of the EW-50.

Item		Specifications
Power supply (for driving unit)	Rated input	100–240 VAC $\pm$ 10%; 50/60 Hz Single-phase
Power consumption		12 W
M-NET equivalent power supply		The equivalent power supply of 1.5
Ambient conditions	Operating temperature range	-10°C – +55°C (14°F – +131°F)
	Storage temperature range	-20°C – +60°C (-4°F – +140°F)
	Humidity	30%–90% RH (Non-condensing)
Weight		1.7 kg (4 lbs)
Dimensions (W x H x D)		172 x 209 x 92 mm (6-13/16 x 8-4/16 x 3-10/16 in) (172 x 253 x 92 mm (10 x 6-13/16 x 3-10/16 in) when using L-fittings)
Installation environment		Only in a metal control box indoors

- The above specifications are subject to change without notice for improvement.

(2) Default Settings

The following table lists the default settings of the AE-200/AE-50/EW-50.

Item		AE-200A/AE-50A/EW-50A	AE-200E/AE-50E/EW-50E
Common settings	Date and time settings	April 1, 2014	
	IP addresses	192.168.1.1	
	Subnet mask	255.255.255.0	
	Gateway address	Unset	
	M-NET address	0	
	Range of prohibited controllers	SC/RC	
	External input setting*1	Do not use	
	External output setting*1	ON/OFF and Error/Normal	
	Time master setting	Master	
	Schedule/Season setting	Enabled	
	Old model compatible mode	OFF	
	System expansion	Do not expand	
	AE-200 M-NET *1	Use	
	AE-200 apportioning *1	Do not use	
	Occupancy sensor display setting	Show occupancy mark	
	Brightness sensor display setting	Hide	
	Date format	dd/mm/yyyy	yyyy/dd/mm
	Time format	AM/PM	24-hour display
	Unit of temperature display	°F	°C
	Room temperature display	*2	
	Unit of pressure display	PSI	MPa
	Humidity display	Display	
	Maintenance user name	initial	
Maintenance user password	init		
Administrator user name	administrator		
Administrator user password	admin		
Unit screen settings	Sound	Level 1	
	Brightness	100%	
	Test run	Do not use	
	Screen lock	Do not use	
	Administrator user restriction functions	Unit information Advanced settings Network settings Group settings (group configuration) Interlock LOSSNAY settings Block settings (block configuration) Floor layout (floor configuration) Energy management settings Peak cut (system configuration)	
Web browser settings	List screen group name display	ON	
	Filter sign display	ON	
	Administrator user restriction functions	Basic system Group settings (group configuration) Interlock LOSSNAY settings Block settings (block configuration) Peak cut (system configuration) Measurement settings	

\*1 AE-200 only

\*2 The settings differ between the LCD screen and the Web browser.



[IV Product specifications and functions]

Item	Description	Unit	Web browser
Enable/disable schedule	Schedules can be enabled or disabled per group, per block, or per floor, or collectively.	○	○
Prohibit local remote controller operation setting	The items for prohibiting operation from a local remote controller can be selected per group, per block, or per floor, or collectively. (The items that can be prohibited are ON/OFF, operation mode, set temperature, filter sign, fan speed, air direction, and timer.) Note: The items that can be prohibited differ depending on the model of the air conditioner, LOSSNAY, etc.	○	○
External input function settings*3	Emergency stop/normal, emergency stop recover/normal, ON/OFF, prohibit/permit local remote controller operation, and peak cut level settings be set for all managed air conditioners by inputting a wet contact signal (12 V DC or 24 V DC) from an external device. (The PAC-YG10HA external I/O adapter is required separately.) Note: An external I/O adapter needs to be connected to each AE-200, AE-50, and EW-50. (An emergency stop of the AE-50 system cannot be performed by an external input to the AE-200.)	○	○
External output function settings*4	The operation signal is output when one or more air-conditioning units are in operation, and the error signal is output when one or more air-conditioning units are in error (with the exception of the operation output signal of general equipment (DIDO controller connection), which is output when the equipment is in error). (The PAC-YG10HA external I/O adapter is required separately.) Note: In the case of external output of an error signal with the AE200, an error signal is output when an error occurs with any of the AE-200, AE-50, and EW-50. In the case of output of an error signal with the AE-50/EW-50, an error signal is output when an error occurs with each of the AE-50 and EW-50.	○	○
Filter sign reset	The filter sign display can be reset per group, per block, or per floor, or collectively.	○	○
Error reset	An error that is currently occurring can be reset.	○	○
Error history reset	The error history (unit errors and communication errors) can be reset.	○	○
ON/OFF display (Collective)	The ON/OFF LED of the AE-200/AE-50/EW-50 is on when one or more groups are operating and off when all groups are stopped (with the exception of general equipment (DIDO controller connection)).	○	
Energy management table*5	The apportioning results can be displayed using the AE-200 apportioned electricity billing function. Also, the apportioning results can be output to a USB memory device.	○	
Operation status per group	ON/OFF, operation mode, set temperature, fan speed, air direction, ventilation mode, interlocked LOSSNAY ON/OFF, schedule operation enabled/disabled, peak cut, and night purge can be displayed per group Note: The items that can be displayed differ depending on the models in the group.	○	○
Filter sign display	The filter sign can be displayed per group, per block, or per floor, or collectively.	○	○
Local remote controller operation prohibited display	The items for which operation with a local remote controller is prohibited for this unit or another system controller are displayed.	○	○
Display of errors occurring on air-conditioning units	The address and error code are displayed for a unit with an error, and the address of the unit that detected the error is displayed.	○	○
Monitoring of error history of air-conditioning units	Up to 512 errors that occurred in the past are stored. 128 for each AE-200/AE-50/EW-50. (64 unit errors and 64 communication errors)	○	○
Error mail send history	The history of mail sent at the time of error occurrence and error recovery can be checked.		○
Monitoring of measurement status	The measurement values of the temperature sensor and humidity sensor of the AI controller and the measurement values of the electricity meter, water supply meter, etc. of the PI controller can be monitored.	○	○
Refrigerant system display	A list of refrigerant systems (connection information of outdoor units and indoor units) connected to the AE-200/AE-50/EW-50 can be displayed.	○	
Current date and time settings	The current date and time can be set.	○	○
License registration	Purchased licenses can be registered.	○	○

Item	Description	Unit	Web browser
Unit information (Basic system)	Items common to the AE-200/AE-50/EW-50 unit and Web browser The unit name, ID number, whether expand system, date display format, time display format, temperature display format, room temperature display, pressure display format, and sensor display format (occupancy, lighting, and humidity) show/hide settings can be set. AE-200/AE-50 unit only The display language (Japanese, English, French, German, Spanish, Italian, Russian, Chinese, or Portuguese) can be changed and the LCD screen brightness, volume, whether test run usable, and whether screen lock function usable can be set. Web browser only The list screen group name display and filter sign show/hide settings can be set.	○	○
Network settings	The IP address, subnet mask, and gateway settings of the LAN of the AE-200/AE-50/EW-50, the M-NET address related to M-NET, local remote controller operation prohibited range settings, external input settings, and external I/O settings can be set.	○	○
Advanced settings	The time master/sub, ON/OFF of old model compatible mode, and enable/disable of schedule season settings can be set.	○	○
Group settings	Register indoor units, LOSSNAY, general equipment, remote controllers, and sub system controllers to a group.	○	○
Block settings	Register set groups to a block. Note: A block that spans AE-200/AE-50/EW-50 systems cannot be set.	○	○
Interlock LOSSNAY settings	Register indoor units to interlocked LOSSNAY as interlocking sources.	○	○
Floor layout settings	The basic floor settings, group display location settings, and floor plan settings can be set.	○	
Error mail settings	Various settings such as the e-mail server and error e-mail send address for using error mail notification can be set.		○
Peak cut control settings *2	Settings such as the control system or the control method of indoor units and outdoor units for using peak cut control can be set.	○	○
Measurement settings	The settings of the temperature sensor and humidity sensor of the AI controller and the settings of the electricity meter, water supply meter, etc. of the PI controller can be set.	○	○
Set temperature range limit setting	The temperature range of each remote controller can be set for when limiting the operation range of the set temperature of local remote controllers. Note: The range for which monitoring operation is possible differs depending on the model. This cannot be used with A control models (Mr. Slim), room air conditioners, and residential air conditioners.		○
Energy management settings*2	The external temperature sensor, apportioning mode, and the electricity meter of the apportioning source can be set.	○	○
Night mode schedule settings	The time period for operation in night mode can be set for when using the night mode (low-noise operation) of outdoor units. Note: This cannot be used with Mr. Slim and room air conditioners.		○
Changeover settings	The operation mode (cooling/heating) of all indoor units connected to the same outdoor unit can be switched based on changes in the room temperature. (Other than the R2 series) The outdoor unit for which to switch between cooling and heating and the changeover mode (auto/representative group) can be set.		○
External temperature interlock control	The external temperature sensor unit can be selected and the control level can be set for each group for using the external temperature interlock control function.	○	○
Setback function	Set the control period setting and the upper limit temperature and lower limit temperature for each group for using the setback function.	○	○
Interlock control *2	Perform interlock control between connected equipment with interlocking conditions set. (Up to 150 interlocking conditions can be registered for each AE-200/AE-50/EW-50.) Note: Interlock control that spans AE-200/AE-50/EW-50 systems cannot be performed.		○
Maintenance user	The maintenance user name and password can be set.	○	○
Building manager (administrator user)	The building manager (administrator user) name and password and the available functions can be set.	○	○
Data backup	The setting data, user information, and other data can be saved.	○	○
Data loading	The setting data can be loaded.	○	○
CSV output	The operation data (charge parameters and power consumption data) for up to 62 days when the data type is 1-day intervals and up to 4 days when the data type is 30-minute intervals can be saved to a USB memory device.	○	○
Energy management data output	The energy management data can be output. Note: The data needs to be output from each AE-200/AE-50/EW-50.	○	○

Item	Description	Unit	Web browser
Clear comparison data *5	If an AE-50, EW-50, or PI controller is replaced when using the apportioned electricity billing function, clear the comparison data of the AE-50/EW-50 or PI controller. * Comparison data is the data used to compare the latest values on the AE-50/EW-50 and PI controller with the values on the AE-200 when the previous apportionment was calculated, and calculate the increment.	○	
Clear carried-over data *5	When the charge time period settings are changed and a unit price in use is changed to unused, clear the carried-over data for the unit price that was set to unused.	○	
Restore apportioned data *5	When the AE-200 is replaced, restore the apportioned data from the AE-50/EW-50 to the new AE-200. Also, when the AE-50/EW-50 is replaced, restore the apportioned data from the AE-200 to the new AE-50/EW-50.	○	
Touch panel calibration	The touch positions of the touch panel can be calibrated.	○	
Software update	The software can be updated by either connecting a USB memory device to the AE-200/AE-50 unit and then operating the LCD screen or by inserting a CD into a PC and then operating the Web browser.	○	○
Group setting information and interlocked LOSSNAY information backup	The group setting information and interlocked LOSSNAY information are retained even if the power is turned off.	○	
Error information backup	The error history data is retained even if the power is turned off.	○	
Schedule settings backup	The group schedule information set for each group is retained even if the power is turned off.	○	
Current date and time backup	When the power is turned off, the current time is backed up in an internal capacitor for approximately three days. (The internal capacitor takes approximately one day to charge. There is no need to replace it.)	○	
Lock function	Touch panel operation can be locked to prevent operation until a user name and password are entered.	○	
Touch panel cleaning	The touch panel can be locked and then cleaned.	○	
Time management	The clocks on the managed controllers and units are synchronized once a day (applicable only to controllers and units that support time synchronization).	○	

\*1 Refers to LOSSNAY and OA Processing unit.

\*2 A separate license is required.

\*3 The external input function for emergency stop, ON/OFF, and peak cut level cannot be used with general equipment (DIDO controller connection).

However, emergency stop input can be used by setting the switch settings of the DIDO controller.

\*4 The operation status of general equipment (DIDO controller connection) is not output.

\*5 This can be used only when using the AE-200 apportioned electricity billing function.

- The above functions vary depending on the equipment connected and the combination of equipment.
- The above functions are subject to change without notice for improvement.

### [3] PC operating environment

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PC operating environment for Web monitoring

The following environment is required for the PC to monitor and operate air-conditioning units with a Web browser.

Item	Description
CPU	1 GHz or faster
Memory	512 MB or more
Screen resolution	1024 x 768 or higher recommended
Browser	Microsoft® Internet Explorer 8.0 Microsoft® Internet Explorer 9.0 Microsoft® Internet Explorer 10.0 Microsoft® Internet Explorer 11.0 * Java runtime environment (Oracle® Java Plug-in) is required. Operation has been verified with Oracle® Java Plug-in Ver.1.8.0_40. * The version of the Oracle Java Plug-in can be verified by clicking [Java] in the Control Panel. * Install Oracle Java Plug-in that is appropriate for your operating system. When using an Internet Explorer (64-bit), install a 64-bit Java Plug-in.
On-board LAN port or LAN card	1 (Must support 100 BASE-TX)
Other	Pointing device such as mouse CD-ROM drive (when using CD)

## [4] Various Functions

### 1. Functions and required equipment and materials

The following table lists the functions supported by the AE-200/AE-50/EW-50 and the products and software required for those functions.

[Legend] ○: Required

Function	System components								Other					
	Centralized controller	Integrated centralized control software (TG-2000A)	Web	Electric Amount Count PLC Software	General Control PLC Software	Demand Input PLC Software	Other System method	Initial Setting Tool	Charge Calculation Tool	License registration	Sequencer (PLC)*1	DIDO controller	PI controller	AI controller
Web browser	○		○											
Personal browser	○		○						○					
Error mail notification	○		○											
Integrated management (TG-2000A)	○	○												
Yearly/weekly schedule	○													
TG-2000A Electric energy charge (electric energy manual entry method)	○	○							○					
TG-2000A Electric energy charge (electric energy metering-device method)	○	○		○					○	○				
TG-2000A Meter charge (electric energy metering-device method)	○	○							○			○		
AE-200 Electric energy charge (electric energy manual entry method)	○								○	○				
AE-200 Electric energy charge (electric energy metering-device method)	○								○	○			○	
Operation and monitoring of general equipment	DIDO controller method	○										○		
	Free contact method	○	○											
	PLC method	○	○			○			○	○				
Interlocked control of general equipment	DIDO controller method	○		○					○			○		
	Free contact method	○		○					○					
	PLC method (between PLC equipment)	○	○			○			○	○				
	PLC method (between air-conditioning units and PLC equipment)	○	○			○			○	○				
Night mode	○													
External temperature interlock control	○													○
Night setback function	○													
Set temperature range limit setting	○		○											
Temperature and humidity measurement	○													○
Upper and lower limit warning mail	○		○											
Energy management function	○												○	○
Peak cut control (other system method)	○						○		○					
Peak cut control (PLC method)	○			○					○	○				
Peak cut control (PI controller method)	○			○					○			○		
Peak cut control (Peak cut level contact input)	○								○					

\*1 Refers to PLC for Electric Amount Count (PAC-YG11CDA), PLC for General Equipment (PAC-YG21CDA), and PLC for Demand Input (PAC-YG41CDA).

● The above functions are subject to change without notice for improvement.

**NOTE:**

- About the peak cut function
  - When using the peak cut function, please understand that Mitsubishi Electric cannot compensate for any damages in the event of electricity consumption exceeding the electricity values of the contract as a result of a control operation setting mistake, failure of an AE-200/AE-50/EW-50, PLC, PI controller, E-Energy, or demand controller, or other problem.
  - The peak cut control units are the blocks of indoor units and the outdoor units in the AE-200/AE-50/EW-50 unit.
  - For the peak cut control for the electricity meter which is performed using the counting function of a PI controller or PLC, the electricity meter to be monitored by the AE-200/AE-50/EW-50 must be one only, and it can be set for each AE-200/AE-50/EW-50.  
Peak cut control cannot be used with air-conditioning units to be controlled by one AE-200/AE-50/EW-50 in a system with two or more electricity meters connected. Furthermore, use version 1.01 or later of the Electric Amount Count Software when using a PLC.
  - Peak cut control using a peak cut control device (peak cut level contact input method)  
This method directly inputs a peak cut level signal to the AE-200/AE-50/EW-50 via an external input adapter (PAC-YG10HA).  
A PLC is not required for this method. The peak cut level monitoring and control commands can be issued from up to three AE-200/AE-50/EW-50 in addition to the connected AE-200/AE-50/EW-50.
  - Peak cut control using a peak cut control device (PLC method)  
The PLC method sends a peak cut level signal from the demand controller to the AE-200/AE-50/EW-50 via a PLC. Furthermore, PLC software (PAC-YG41/42/43/91/92/93ATM) is required.  
Up to 10 AE-200/AE-50/EW-50 units can be set. If the number of AE-200/AE-50/EW-50 exceeds 10, install multiple PLC.
  - For peak cut control (other system method), up to 10 AE-200/AE-50/EW-50 units can be set.
  - Using a PI controller enables peak cut control from up to three AE-200/AE-50/EW-50 in addition to the connected AE-200/AE-50/EW-50.
  
- About apportioned electricity billing
  - The apportioned electricity billing function of the AE-200 and the apportioned electricity billing function of the TG-2000A cannot be used at the same time. (Electricity apportioning will no longer be able to be performed correctly.)

## 2. Functions and licenses

Legend ○: License required

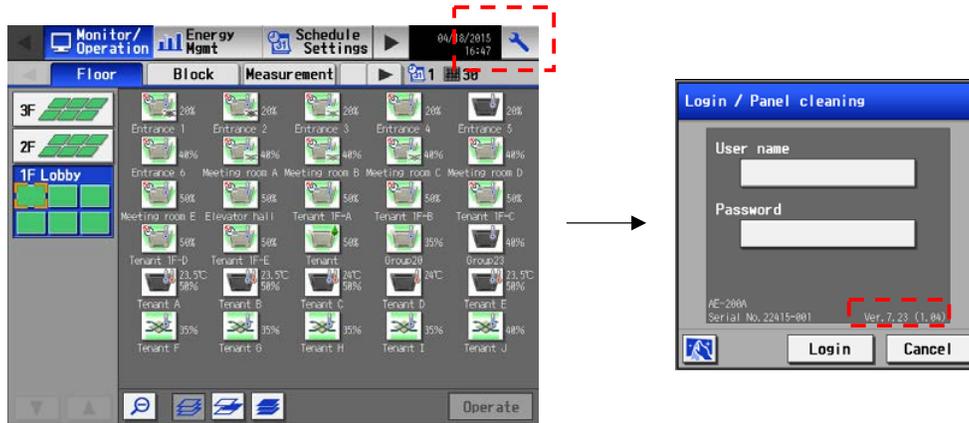
Function		Supplementary explanation	Licenses								
			License not required	Apportioned electricity/billing	Personal Web	Maintenance tool	Energy management license pack	General control PLC	Interlock control	Outdoor unit operation status monitoring	Super user
Web browser			○								
Personal browser					○						
Error mail notification			○								
Integrated management (TG-2000A)			○								
Yearly/weekly schedule			○								
TG-2000A Electric energy charge (electric energy manual entry method)		Method that does not use an electricity meter. TG-2000A is required.		○							
TG-2000A Electric energy charge (electric energy metering-device method)		Method to charge for electric energy used by air conditioner. TG-2000A is required.		○							
TG-2000A Meter charge (electric energy metering-device method)		Function to charge for outlet and other general electric power, gas, water, etc. TG-2000A is required.		○							
AE-200 Electric energy charge (electric energy manual entry method)		Method that does not use an electricity meter.		○							
AE-200 Electric energy charge (electric energy metering-device method)		Method to charge for electric energy used by air conditioner.		○							
AE-200 Meter charge (electric energy metering-device method)		Function to charge for outlet and other general electric power, gas, water, etc.		○							
Operation and monitoring of general equipment	DIDO controller method		○								
	Free contact method	TG-2000A is required.	○								
	PLC method	TG-2000A is required.	○								
Interlocked control of general equipment	DIDO controller method	When using interlocked control of the AE-200/AE-50/EW-50							○		
	Free contact method	When using interlocked control of the AE-200/AE-50/EW-50							○		
	PLC method (between PLC equipment)	TG-2000A is required.	○								
	PLC method (between air-conditioning units and PLC equipment)	TG-2000A is required.						○			
Night mode			○								
External temperature interlock control			○								
Night setback function			○								
Set temperature range limit setting			○								
Temperature and humidity measurement			○								
Upper and lower limit warning mail			○								
Energy management function								○			
Peak cut control (other system method)								○			
Peak cut control (electric energy amount monitoring method)		A PI controller is required.						○			
Peak cut control (Peak cut level contact input)		Method to directly input the peak cut level from the demand controller to the external input of the AE-200/AE-50/EW-50.						○			
Peak cut control (PLC method)		Demand Input PLC Software is required.						○			
Outdoor unit operation status monitoring										○	
Super user											○
Maintenance tool								○			

- Registration of the license is required for each AE-200/AE-50/EW-50.
- The above functions are subject to change without notice for improvement.

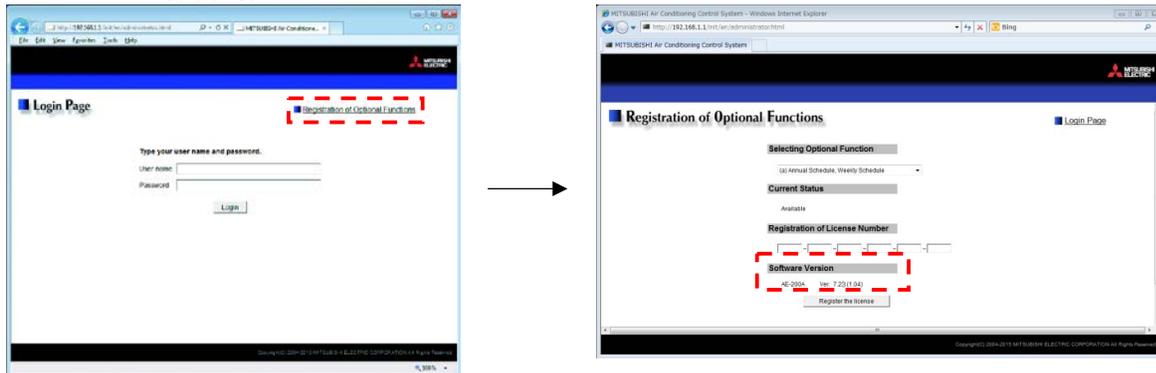
## [5] How to check the version of AE-200/AE-50/EW-50

Check the version of AE-200/AE-50/EW-50 in one of the following ways.

Method 1: While the Monitor/Operation screen is displayed on the AE-200/AE-50 unit, press the  button at the top right of the screen to display the Login screen. The version is displayed at the bottom right of the login screen.



Method 2: The software version is displayed on the Registration of Optional Functions screen for the AE-200/AE-50/EW-50 in the Web browser.



## V Troubleshooting

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## [1] Before performing failure diagnosis

If the AE-200/AE-50/EW-50 is not operating normally, first check the following items.  
(The following items are for the maximum system configuration. Just check the items for the applicable equipment.)

No.	Item	Yes	No
1	Are the AE-200/AE-50/EW-50, PC, PLC, HUB, power supply unit, and other equipment and air-conditioning units powered on?		
2	Is a power cable or transmission line disconnected?		
3	Is 100 to 240 VAC applied on the AC power cable of the AE-200/AE-50/EW-50?		
4	Is 17 to 32 VDC applied on the M-NET transmission line?		
5	Have the initial settings been configured for the AE-200/AE-50/EW-50 and each equipment?		
6	Are the correct date and time set on the AE-200/AE-50/EW-50?		
7	Is the required license number registered for each AE-200/AE-50/EW-50?		
8	Is a LAN cable disconnected? (Are the LAN cables compliant with the relevant standards?)		
9	Is the IP address of each equipment set?		
10	Is a terminal screws loose or a connector not inserted properly?		

If you answered "No" for any of the above items, remove the cause for that item.  
If there is no problem, refer to the following sections.

## [2] Error code list

### 1. List of error codes for errors detected by the AE-200/AE-50/EW-50

The following shows the error codes of errors detected by the AE-200/AE-50/EW-50.

Error code	Error description	Unit where error occurred					Remarks
		Outdoor unit	Indoor unit	Remote controller	AE-50 EW-50	AE-200	
0092	Version combination error				○		AE-200 only
0093	System configuration change warning				○		AE-200 only
0094	"Charge" license not registered				○		AE-200 only
0095	Warning - possibility of damaged metering device				○		AE-200 only
0097	Apportioned calculation data collection error				○		AE-200 only
6204	External memory read/write error				○		
6600	Communication error - Address duplicate	○	○	○	○		
6601	Communication error - Polarity unsettled				○		
6602	Communication error - Transmission processor hardware error				○		
6603	Communication error - Transmission line busy				○		
6606	Communication error - Transmission processor communication error				○		
6607	Communication error - No ACK return	○	○	○			
6608	Communication error - No return of response frame	○	○	○			
6920	Communication error - No response				○		
7106	System abnormality - Attribute setting error				○		
7109	System abnormality - Connection setting error				○		
7905	Version error				○		

For details on the error codes, refer to "V [3] Troubleshooting and solutions depending on the equipment."

[Supplementary explanation] Error codes 0092 to 0095 and 0097 are for error occurrences of the AE-200 and are stored in the error history.

Error codes 6607 and 6608 are detected only by the AE-200/AE-50/EW-50 and are for error occurrences of the AE-200/AE-50/EW-50 and are stored in the error history.

## 2. Error and preliminary error code list

The following shows the error and preliminary error codes used for air-conditioning systems. Each air-conditioning unit and other equipment uses some of these error and preliminary error codes.

Error and preliminary error codes	Description	Error and preliminary error codes	Description
0100	Equipment abnormality	1510	Refrigerant cycle - Gas leakage
01*0	Equipment abnormality (PAC-YG66DCA) in system *	1511	Refrigerant cycle not operate due to oil slick abnormality
01**	Equipment abnormality in system **	1512	Refrigerant cycle not operate due to a stop of freezing protection function
0403	Serial transmission trouble	1513	Refrigerant cycle - Brine freezing
0404	Indoor unit EEPROM error (A)	1559	Oil balance circuit abnormality
0701	Combustion circuit abnormality (A)	2000	Water system abnormality (Pump interlock abnormality)
0702	Combustion heat exchange overheating protection (A)	20*0	Water system abnormality in line *
0703	Accidental fire (A)	21**	Water system temperature abnormality - Common operand: **
0704	Heater abnormality (A)	23**	Water system pressure abnormality - Common operand: **
0705	Seismoscope malfunction (A)	2500	Water system not operate due to water leak
0706	Flame current sensor abnormality (A)	2501	Water system not operate due to water supply suspension
0707	Ignition abnormality (A)	2502	Water system not operate due to drain pump abnormality
0708	Blower motor rotation abnormality (A)	2503	Water system not operate due to drain sensor abnormality/float switch function
0709	Oil pump circuit abnormality (A)	2504	Water system not operate due to liquid level abnormality
0900	Test run	2505	Water system not operate due to cool water valve abnormality
1000	Refrigerant cycle abnormality	2506	Water system not operate due to warm water valve abnormality
10*0	Refrigerant cycle abnormality in line *	2507	Water system not operate due to dew condensation prevention control activated
1102	Discharge temperature abnormality (TH4) (A)	2600	Water system operation restricted due to water leak
1108	Inner thermo (49C) operation (A)	2601	Water system operation restricted due to water supply suspension/humidifier water supply suspension
11**	Refrigerant cycle temperature abnormality - Common operand: **	2602	Water system operation restricted due to drain pump abnormality
13**	Refrigerant cycle pressure abnormality - Common operand: **	2603	Water system operation restricted due to drain sensor abnormality
1300	Low-pressure abnormality (63L operation) (A)	2604	Water system operation restricted due to liquid level abnormality
1500	Refrigerant cycle not operate due to overcharge	2613	Drop in water flow rate
1501	Refrigerant cycle not operate due to undercharge (compressor shell temperature abnormality)	3152	Air system operation restricted due to inverter control box inner temperature abnormality
1502	Refrigerant cycle not operate due to liquid back/Low-discharge super heat abnormality (A)	3182	Air system operation restricted due to housing inner temperature abnormality
1503	Refrigerant cycle not operate due to coil frost	3600	Air system operation restricted due to filter clogging
1504	Refrigerant cycle not operate due to overheat protection	3601	Air system operation restricted due to filter maintenance
1505	Refrigerant cycle not operate due to compressor vacuum operation protection/refrigerant low temperature abnormality	3602	Air system operation restricted due to damper position detecting abnormality
1506	Refrigerant cycle not operate due to refrigerant pump abnormality	37**	Air system operation humidity abnormality allowance - Common operand: **
1507	Refrigerant cycle not operate due to composition detection abnormality	38**	Air system operation humidity abnormality - Common operand: **
1508	Refrigerant cycle not operate due to control valve fault	4000	Electric system abnormality
1509	Refrigerant cycle not operate due to high pressure abnormality (ball valve closed)	40*0	Electric system abnormality in line *

Error and preliminary error codes	Description	Error and preliminary error codes	Description
4100	Electric system not operate due to overcurrent shut-off	426*	Inverter cooling fan trouble - Inverter No.: *
4101	Electric system not operate due to overcurrent protection	5000	Sensor trouble
4102	Electric system not operate due to open phase/Open phase (T phase) (A)	50*0	Sensor trouble in system *
4103	Electric system not operate due to reversed phase/open phase	51**	Temperature sensor trouble - Sensor No.: **
4104	Electric system not operate due to electric leak	5202	Connector (63L) open (A)
4105	Electric system not operate due to short circuit	52**	Pressure sensor trouble - Sensor No.: **
4106	Electric system not operate due to self power supply OFF/power failure	5300	Current sensor abnormality (A)
4107	Electric system not operate due to overload	53**	Current sensor trouble - Sensor No.: **
4108	Electric system not operate due to overload protection/OCR51C/Open phase (S phase),51CM connector open (A)	54**	Humidity sensor trouble - Sensor No.: **
4109	Electric system not operate due to OCR51F	55**	Gas sensor trouble - Sensor No.: **
4110	Electric system not operate due to high voltage part	56**	Air speed sensor trouble - Sensor No.: **
4111	Electric system not operate due to bus current	57**	Limit switch trouble - Switch No.: **
4112	Electric system not operate due to coil overheat 49°C (120°F)	58**	Sensor trouble - Sensor No.: **
4113	Electric system not operate due to heater overheat	59**	Other sensors trouble - Sensor No.: **
4114	Electric system not operate due to fan controller abnormality	6000	System abnormality
4115	Electric system not operate due to power supply synchronism abnormality/Input circuit (board) failure	6101	System not operate due to abnormality - With response frame
4116	Electric system not operate due to motor abnormality/speed abnormality	6102	No answer back
4117	Compressor self-protection function operation (A)	6200	Controller H/W abnormality
4118	Opposite phase detection circuit (board) failure (A)	6201	E2PROM abnormality
4119	Open of 2 or more connectors (A)	6202	RTC abnormality
4121	Electric system not operate due to trouble in equipment to which a measure against higher harmonics is taken	6204	External memory read/write error
4123	Electric system not operate due to Inverter output error	6500	Communication error
4124	Electric system not operate due to damper abnormality	6600	Communication error - Address duplicate
4125	Electric system - Rush-proof circuit abnormality	6601	Communication error - Polarity unsettled
4200	Inverter abnormality	6602	Communication error - Transmission processor hardware error
420*	Inverter abnormality - Inverter No.: *	6603	Communication error - Transmission line busy
4210	Inverter overcurrent shut-off	6604	Communication error - No ACK (06H) (communication circuit error)
421*	Inverter overcurrent shut-off - Inverter No.: *	6605	Communication error - No response frame
4220	Inverter bus voltage insufficiency/Voltage abnormality (A)	6606	Communication error - Transmission processor communication error
422*	Inverter bus voltage insufficiency - Inverter No.: *	6607	Communication error - No ACK return
4230	Inverter radiating thermostat abnormality	6608	Communication error - No return of response frame
423*	Inverter radiating thermostat abnormality - Inverter No.: *	6800	Communication error - Other communication errors
4240	Inverter overcurrent (overload) protection	6801	Communication error - V-control communication error
424*	Inverter overcurrent protection - Inverter No.: *	6810	Communication error - UR communication error
4250	Inverter IPM/bus voltage abnormality/Power module abnormality (A)	6811	Communication error - UR communication synchronism not recover
425*	Inverter IPM abnormality *	6812	Communication error - UR communication hardware error
4260	Inverter cooling fan trouble	6813	Communication error - UR communication status bit detection error

Error and preliminary error codes	Description	Error and preliminary error codes	Description
6820	Other communication errors	7105	System abnormality - Address setting over 254
6821	Other communication errors - Transmission line busy	7106	System abnormality - Attribute setting error
6822	Other communication errors - No communication ACK	7107	System abnormality - Distributor setting error
6823	Other communication errors - No response command	7108	System abnormality - Refrigerant system setting error
6824	Other communication errors - Receive data error	7109	System abnormality - Connection setting error
6830	Communication error - MA communication refrigerant address double setting error	7110	System abnormality - Refrigerant system connection/connection data unsettled
6831	Communication error - No MA communication reception error	7111	System abnormality - I/O connection equipment not connected/remote controller sensor abnormality
6832	Communication error - MA communication synchronism not recover	7112	System abnormality - I/O type setting error
6833	Communication error - MA communication transmission/reception hardware trouble	7113	System abnormality - Equipment unsettled
6834	Communication error - MA communication start bit detection error	7116	System abnormality - Replace non-wash setting error
6840	Communication error - A control no indoor/outdoor communication/reception abnormality	7117	System abnormality - Model identification setting error
6841	Communication error - A control indoor/outdoor communication synchronization recovery abnormal	7130	System abnormality - Different unit model error
6844	Communication error - A control indoor/outdoor communication incorrect indoor/outdoor wiring connection, excessive number of indoor units (more than five units)	7131	System abnormality - Mixed cooling only H/P connection error (Facility PAC)
6845	Communication error - A control indoor/outdoor communication incorrect indoor/outdoor wiring connection (telecommunication, disconnection)	7132	System abnormality - Multiple entries of operation performance (Facility PAC)
6846	Communication error - A control indoor/outdoor communication startup time exceeded	7200	System abnormality - Numeric values unsettled
6920	Communication error - No response	7201	System abnormality - Numeric values unsettled
6922	Communication error - Receiving frame ID error	73**	System abnormality - LON system equipment abnormality
7000	System abnormality	7901	Maximum connectable No. of units exceeded
7100	System abnormality - Total capacity error	7902	Connection lock error
7101	System abnormality - Capacity code error	7903	Unit information error
7102	System abnormality - Connecting unit number excess	7904	System setting error
7103	System abnormality - Piping length setting error	7905	Version error
7104	System abnormality - Floor height setting error		

**NOTE:**

- For the error codes and preliminary error codes used with each air-conditioning unit, refer to the service handbook for the corresponding air-conditioning unit.
- The unit error and communication error history can be displayed on the AE-200/AE-50/EW-50 unit LCD and in a Web browser. The preliminary error history can be monitored with the service LEDs or by connecting Maintenance Tool to the AE-200/AE-50/EW-50 via the LAN.

### [3] Troubleshooting and solutions depending on the equipment

#### 1. How to determine the cause and resolve trouble based on the detected error display of the AE-200/AE-50/EW-50

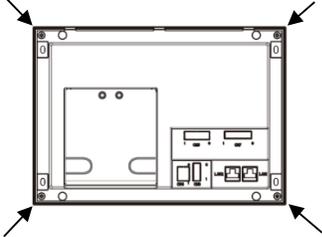
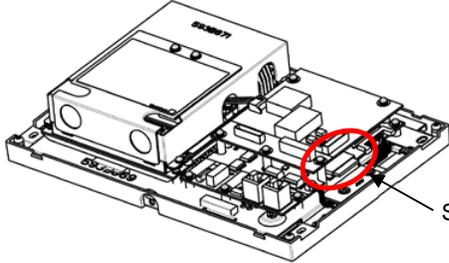
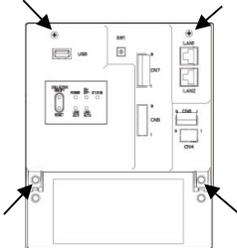
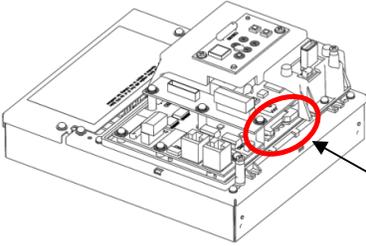
The following shows the details, causes, and solutions for the error codes of errors detected at the detection source by the AE-200/AE-50/EW-50.

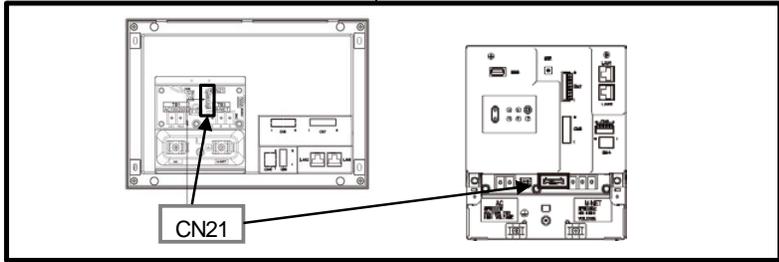
First confirm that there is no mistake for each setting.

\* The detection address displayed on the error monitor and in the error history is the address of the controller that detected the error.

Error code	Description and method of detection	Cause	Check procedure and remedy
0092	Version combination error Error detected when the versions of the AE-200/AE-50/EW-50 are not a compatible combination for the apportioned electricity billing function.	1) The apportioned electricity billing function of the AE-200 has been enabled but the AE-50/EW-50 is a version that is not supported (version earlier than 7.23) by the apportioned electricity billing function.	The apportioned electricity billing function of the AE-200 does not operate while this error code is displayed. Update the AE-50/EW-50 to Ver.7.23 or later. Note: The equipment recovers from the error and then data collection resumes after a maximum of 30 minutes elapse. For how to update the software, refer to "VIII [1] AE-200/AE-50/EW-50 update procedure."
0093	System configuration change warning Error detected when the apportioned data is not restored when the AE-200/AE-50/EW-50 is replaced while the apportioned electricity billing function of the AE-200 is enabled.	1) The AE-200 and AE-50/EW-50 back up each other's data with the apportioned electricity billing function of the AE-200, but the backup data no longer matches after the AE-200/AE-50/EW-50 was replaced.	To prevent a loss of backup data, the apportioned electricity billing function of the AE-200 does not operate while this error code is displayed. Perform an apportioned data restore for the new AE-200/AE-50/EW-50. Note: The equipment recovers from the error and then data collection resumes after a maximum of 30 minutes elapse. For how to restore apportioned data, refer to AE-200 Instruction Book (Apportioned Electricity Billing Function).
0094	"Charge" license not registered Error detected when a license is not registered to any of the AE-200/AE-50/EW-50 while the apportioned electricity billing function is enabled for an AE-200 without an apportioned electricity billing function license.	1) With the apportioned electricity billing function of the AE-200, the "Charge" license needs to be registered to all the AE-50/EW-50 under the control of the AE-200, but there is equipment to which it is not registered.	The apportioned electricity billing function of the AE-200 does not operate while this error code is displayed. Register the "Charge" license to all the AE-50/EW-50 under the control of the AE-200.
0095	Warning - possibility of damaged metering device Error detected when the state of the measurement value of the meter not counting up continues for at least three days even though the operation amount of the air-conditioning units is being counted up while the apportioned electricity billing function of the AE-200 is enabled.	1) There is a wiring connection failure between the electricity meter and PI controller. (When a PI controller is used) 2) There is a wiring connection failure between the electricity meter and the built-in PI of the AE-50/EW-50. (When meter pulse input (PI) of the AE-50/EW-50 is used) 3) There is an error with communication between the PI controller and AE-50/EW-50. 4) An electricity meter with pulse output of 10 kWh/pulse or higher is being used. 5) The carried-over data was not cleared after the time period of the unit price was deleted.	Causes 1 to 3) Check the wiring connections to ensure there is no connection mistake or broken/disconnected wire. Cause 4) If an electricity meter with a large pulse output such as 10 kWh/pulse is used, three days or longer may be required to add one pulse depending on the operating conditions of the air-conditioning units. If changing the pulse output of the electricity meter is possible, change it to a value such as 1 kWh/pulse. Cause 5) Perform the carried-over data clearing process for the deleted unit price. For how to clear the carried-over data, refer to AE-200 Instruction Book (Apportioned Electricity Billing Function). Note: The equipment recovers from the error and then data collection resumes after a maximum of 30 minutes elapse.

Error code	Description and method of detection	Cause	Check procedure and remedy
0097	<p>Apportioned calculation data collection error</p> <p>Error detected when an error with communication between the AE-200 and AE-50/EW-50 continues for at least three days while the apportioned electricity billing function of the AE-200 is enabled.</p> <p>* When the communication error is less than three days and the apportioned electricity billing function of the AE-200 is disabled, the error will be 6920.</p>	<ol style="list-style-type: none"> <li>1) LAN contact failure</li> <li>2) The power of the HUB is not on.</li> <li>3) The IP address has not been set.</li> <li>4) Is the length of the LAN cable 100 m (328 ft) or less?</li> <li>5) Is the transmission delay time 4 seconds or less round trip?</li> </ol>	<p>Cause 1) Check that the LAN cables between the AE-200/AE-50/EW-50 and HUB are connected.</p> <p>Cause 2) Check that the power of the HUB is on.</p> <p>Cause 3) Check the IP address of the AE-200/AE-50/EW-50.</p> <p>Cause 4) Use LAN cables that are 100 m (328 ft) or less.</p> <p>Cause 5) Check the communication state by pinging. For the ping check method, refer to "V [5] 2. About the check method using ping." If the ping is timed out, check the following.</p> <ul style="list-style-type: none"> <li>• Are LAN cables of category 5 or better being used?</li> <li>• Is there not connections to four or more layers using a gateway, router, etc.?</li> </ul>
6204	<p>External memory read/write error</p> <p>Error detected when writing or reading to/from the internal SD card of the AE-200/AE-50/EW-50 could not be performed properly.</p>	<ol style="list-style-type: none"> <li>1) An error occurred because the reading or writing from/to the internal SD card could not be performed due to an unexpected erroneous operation of the AE-200/AE-50/EW-50 on which the error occurred.</li> <li>2) The internal SD card has come out of the slot.</li> <li>3) The AE-200/AE-50/EW-50 has malfunctioned (circuit failure, etc.).</li> </ol>	<p>Shut down the AC power of the AE-200/AE-50/EW-50 and then turn it back on and check the STATUS LED.</p> <ol style="list-style-type: none"> <li>a) If it is blinking in orange, shut down the AC power of the AE-200/AE-50/EW-50 and then remove the back cover. Reinsert the SD card, attach the back cover, and then turn on the AC power again. → If the LED is still blinking in orange, the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50. Note: A commercially available SD card cannot be used.</li> <li>b) If the LED is not blinking in orange but the 6204 error is not resolved, the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50.</li> </ol>

Error code	Description and method of detection	Cause	Check procedure and remedy
		<p>When AE-200/AE-50</p> <p>Remove the four screws in the positions indicated in the figure below, and remove the back cover.</p>  <p>When you remove the back cover, you will be able to see the SD card.</p>  <p style="text-align: right;">SD card</p>	
<p><b>Note:</b> When attaching the back cover to the AE-200/AE-50 unit, be sure to follow the procedure below.</p> <ol style="list-style-type: none"> <li>1. Check that the SD card is inserted properly.</li> <li>2. Place the back cover on the unit cover so that the right edge (SD card side) of the back cover is aligned.</li> <li>3. Move the placed back cover to the left so that it fits to the AE-200/AE-50 unit.</li> <li>4. Press the top of the back cover to insert the back cover below the claws at the top of the AE-200/AE-50 unit.</li> <li>5. Tighten the screws in four places on the back cover.</li> </ol> <p>* When attaching the cover, be very careful not to trap a wire or the SD card.</p>			
		<p>When EW-50</p> <p>Remove the four screws in the positions indicated in the figure below, and remove the back cover.</p>  <p>When you remove the back cover, you will be able to see the SD card.</p>  <p style="text-align: right;">SD card</p>	

Error code	Description and method of detection	Cause	Check procedure and remedy
6600	Communication error - Address duplicate Error detected when units with the same address are transmitting.	<ol style="list-style-type: none"> <li>1) There are two more units with the same address among the AE-200/AE-50/EW-50, outdoor units, indoor units, LOSSNAY, M-NET remote controllers, and other units.</li> <li>2) Two or more AE-200/AE-50/EW-50 with the same address set are installed in the same transmission line system. &lt;Example&gt; The part in ( ) indicates the detection source. 000-6600(000) There are two or more controllers with the address "000".</li> <li>3) The transmitted data changed due to noise during transmission.</li> <li>4) While AE-200 M-NET is set to [Do not use], the power jumper (CN21) of the AE-200 was removed.</li> </ol>	<p>Causes 1) and 2) Find the unit that has the same address as the unit where the error occurred.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>If the same address could be verified, check whether there are any mistakes with the wiring and whether there are any mistakes with the addresses in the system, and fix any mistakes you find. Turn off the power of the air-conditioning units, controllers, and other equipment at the same time, leave it off for at least 5 minutes, and then turn it back on.</p> </div> <p>Cause 3) Check the transmission waveform and noise on the transmission line. For the check procedure, refer to "V [4] M-NET transmission waveform and noise check procedure." Cause 4) Check the connection of the power jumper of the AE-200. Be sure to connect the power jumper even when AE-200 M-NET is set to [Do not use].</p>
6601	Communication error - Polarity unsettled 1. Error detected when the transmission processor which is an M-NET communication component cannot verify the + and - voltage polarity of the M-NET transmission line.	<ol style="list-style-type: none"> <li>1) There is no voltage between the M-NET transmission line connected to the AE-200/AE-50/EW-50.</li> <li>2) The M-NET transmission line connected to the AE-200/AE-50/EW-50 is shorted.</li> <li>3) The M-NET power supply is duplex feeding and has a different polarity connection.</li> </ol>	<p>Causes 1) and 2) Check whether there is a voltage to the M-NET transmission line of the AE-200/AE-50/EW-50 and fix any wiring work mistakes. In the case of a system for which power is supplied from the AE-200/AE-50/EW-50 to the MN converter, check that the M-NET power jumper (CN21) is connected.</p>
			<p>Cause 3) Check whether power is being supplied to the M-NET transmission line from multiple equipment, and fix the power supply configuration if it is incorrect.</p>
	2. Detected invalid signal due to a transmission waveform error or noise on the M-NET transmission line.	<ol style="list-style-type: none"> <li>4) Contact failure of the transmission line of an outdoor unit or indoor unit.</li> <li>5) Attenuation of the transmission voltage/signal because the allowable range for the transmission line wiring has been exceeded. <ul style="list-style-type: none"> <li>• Farthest end: Exceeds 200 m (656 ft)</li> <li>• Remote controller line: Exceeds 10 m (32 ft)</li> </ul>                     However, there is no problem if the portion where the remote controller line exceeds 10 m (32 ft) is 1.25 mm<sup>2</sup>.                 </li> <li>6) Attenuation of the transmission voltage/signal because mismatch of transmission line types Wire diameter: Less than 1.25 mm<sup>2</sup></li> <li>7) The M-NET power supply is duplex feeding and has a same polarity connection.</li> <li>8) Failure of control board in the outdoor unit</li> </ol>	<p>Causes 4) to 8) → If you find the cause, fix the problem. → If you cannot find the cause, check the transmission waveform and noise on the transmission line. Perform the check procedure in accordance with "V [4] M-NET transmission waveform and noise check procedure" and &lt;Transmission waveform and noise check procedure&gt; in the Service Handbook of the air-conditioning unit. The part causing the error may be a different line than the one where the error was detected so check all wiring in the same system.</p>
3. Polarity not set error	9) Defective AHC ADAPTER	Check the voltage and short circuit. Replace the product.	

Error code	Description and method of detection	Cause	Check procedure and remedy
6602	<p>Communication error - Transmission processor hardware error</p> <p>The transmission processor intended to send "0" but "1" is output on the transmission line.</p>	<p>Cause 1) When work was performed or the polarity was changed for the transmission line of either an indoor unit or outdoor unit while the power was left on, the waveform changed and an error was detected when the transmission data collided.</p> <p>Cause 2) When a 100 V power supply was connected to the indoor unit.</p> <p>Cause 3) Ground fault of the transmission line.</p> <p>Cause 4) When a power supply unit for the transmission line is not used in a system with the AE-200/AE-50/EW-50 connected, the power jumper is inserted in CN40 on multiple outdoor units.</p> <p>Cause 5) When a power supply unit for the transmission line is used in a system with the AE-200/AE-50/EW-50 connected, the power jumper is inserted in CN40 on one of the outdoor units.</p> <p>Cause 6) Failure of the controller on which the error occurred.</p> <p>Cause 7) When the transmitted data changed due to noise during transmission.</p> <p>Cause 8) Defective AHC ADAPTER Refer to the CITY MULTI (Outdoor Unit) Service Handbook.</p>	
6603	<p>Communication error - Transmission line busy</p> <p>1. Collision over error. Error when the state of data not being able to be transmitted continues for a period of 4 to 10 minutes due to a transmission collision.</p> <p>2. Error when the state of data not being output to the transmission line continues for a period of 4 to 10 minutes due to, for example, noise.</p>	<ol style="list-style-type: none"> <li>1) The transmission processor is in the state of being unable to transmit due to a voltage of a short period such as noise continuing to be generated and causing an interference on the transmission line.</li> <li>2) Failure of controller on which error occurred.</li> <li>3) Defective AHC ADAPTER</li> </ol>	<p>Check the transmission waveform and noise on the transmission line. Perform the check in accordance with &lt;Transmission waveform and noise check procedure&gt;.</p> <p>→ If there is no noise, the controller at the source of occurrence has failed. If the AE-200/AE-50/EW-50 has failed, replace the AE-200/AE-50/EW-50.</p> <p>→ If there is noise, refer to "V [4] M-NET transmission waveform and noise check procedure." Refer to the CITY MULTI (Outdoor Unit) Service Handbook.</p>

Error code	Description and method of detection	Cause	Check procedure and remedy
6604	M-NET communication error - No ACK return Error detected by AHC ADAPTER when the other party fails to return the ACK signal after a command transmission on M-NET.	<ol style="list-style-type: none"> <li>1) Incorrect initial settings</li> <li>2) The address of the other party on the M-NET transmission line changed during transmission.</li> <li>3) Defective M-NET transmission line</li> <li>4) Transmission line or connector disconnected at the address of the other party in M-NET communications.</li> <li>5) Other party in M-NET communications is effective</li> <li>6) For communications about multiple refrigerants, the transmission line or connector is disconnected from the terminal block for centralized control (TB7).</li> <li>7) For communications about multiple refrigerants, power is cut to an outdoor unit.</li> <li>8) For communications about multiple refrigerants, the power connector (CN40) was not inserted in an outdoor unit.</li> <li>9) For communications about multiple refrigerants, two or more power connectors (CN40) were inserted for centralized control.</li> <li>10) For communications about multiple refrigerants, an outdoor unit power supply system is defective.</li> <li>11) Transmitted data changed due to noise on the M-NET transmission line.</li> </ol>	<p>An AHC ADAPTER No ACK return error was displayed on the remote controller or centralized controller.</p> <p>Follow the procedure below to determine the address of the unit that caused the AHC ADAPTER error.</p> <ol style="list-style-type: none"> <li>(1) Use the centralized controller or Maintenance Tool to check for abnormalities in the I/O data held in Mitsubishi air conditioners set by the initial settings. (No value is displayed when data is abnormal.) → If an abnormality exists, check for problems in the unit at the address where the corresponding data is held and for problems in the M-NET transmission line connected to the unit or in the unit itself. (For communications about multiple refrigerants, also investigate intermediate outdoor units.)</li> <li>(2) Check for incorrect remote controller or centralized controller settings that do not correspond to (1) above. → If incorrect settings are discovered at steps (1) or (2), use Maintenance Tool to repeat the initial settings.</li> </ol> <p>If the cause does not correspond to steps (1) or (2), check for noise in the M-NET transmission line.</p>
6605	M-NET communication error - No return of response frame Error indicating that the ACK signal was returned to acknowledge receipt but no response was returned when a communication command was sent over M-NET.	<ol style="list-style-type: none"> <li>1) Transmission line work was performed while power is supplied to M-NET.</li> <li>2) Transmitted data changed due to noise on the M-NET transmission line.</li> <li>3) Transmission line voltage/signal attenuation as M-Net transmission line exceeded its permitted length range. Remote end: 200 m max.</li> <li>4) Transmission line voltage/signal attenuation due to mismatch in M-Net transmission line types. Cable cross-sectional area: 1.25 mm<sup>2</sup> min.</li> </ol>	<p>Cut the power supply from the unit (outdoor unit or power supply unit) that supplies power to AHC ADAPTER, or reset the error from the remote controller or centralized controller.</p> <p>→ If the same error recurs, see causes 3) and 4). → If causes 3) and 4) do not apply, check the transmission waveform and noise in the transmission line. For details about the check procedures, refer to the CITY MULTI (Outdoor Unit) Service Handbook.</p>
6606	Communication error - Transmission processor communication error Failure with communication between the device processor on the board and the transmission processor.	<ol style="list-style-type: none"> <li>1) Error that occurs when data was not transmitted normally due to an unexpected erroneous operation of the controller on which the error occurred.</li> <li>2) Failure of the controller on which the error occurred.</li> <li>3) Error due to abnormal data transmission due to a chance malfunction of the AHC ADAPTER.</li> <li>4) Defective AHC ADAPTER</li> </ol>	<p>Causes 1) and 2) Shut off the AC power of the AE-200/AE-50/EW-50 and then turn it back on. → If the same error occurs again, the controller on which error occurred has failed. If the AE-200/AE-50/EW-50 has failed, replace the AE-200/AE-50/EW-50.</p> <p>Causes 3) and 4) Cut the power supply from the unit (outdoor unit or power supply unit) that supplies power to AHC ADAPTER, or reset the error from the remote controller or centralized controller. → If the same error recurs, AHC ADAPTER is defective.</p>

Error code	Description and method of detection	Cause	Check procedure and remedy
6607	<p>Communication error - No ACK return</p> <p>Error detected by the controller on the transmission side when there is no reply (ACK signal) from the other party after transmission.</p>	<p>Occurrence source address: Outdoor unit</p> <ol style="list-style-type: none"> <li>1) The transmission line of the centralized control terminal block (TB7) of the outdoor unit is disconnected or shorted.</li> <li>2) Power of the outdoor unit is shut off.</li> <li>3) The electric system of the outdoor unit has failed.</li> <li>4) When the address of the outdoor unit changes or is changed part way through or when the error occurred after normal operation was performed once, there are the following causes.                             <ul style="list-style-type: none"> <li>• System abnormality - Total capacity error (7100)</li> <li>• System abnormality - Capacity code error (7101)</li> <li>• System abnormality - Connecting unit number excess (7102)</li> <li>• System abnormality - Address setting over 254 (7105)</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>a) Check causes 1) to 4). Fix the problem if you find the cause, and proceed to b) if you do not find the cause.</li> <li>b) Shut off the power of the AE-200/AE-50/EW-50 and then turn it back on. Fix the problem if you find the cause, and proceed to c) if you do not find the cause.</li> <li>c) Check whether or not an error has occurred by checking the remote controller or the LED for failure diagnosis on the outdoor unit. When there is an error → Fix the failed part in accordance with the details on the error code.</li> </ol>
	<p>* If recovery from the error is not possible with this check method and solution, refer to the service manual of the air-conditioning unit.</p>	<p>Occurrence source address: Indoor unit</p> <ol style="list-style-type: none"> <li>a) Error for only some indoor units.                             <ol style="list-style-type: none"> <li>1) When the address of the indoor unit changes or is changed part way through.</li> <li>2) The transmission line of the indoor unit is defective or disconnected.</li> <li>3) The connector (CN2M) of the indoor unit is disconnected.</li> <li>4) The indoor unit controller has failed.</li> </ol> </li> </ol>	<p>Turn off the power of the outdoor units and indoor units at the same time, leave it off for at least 5 minutes, and then turn it back on. Shut off the power of the AE-200/AE-50/EW-50 and then turn it back on. The equipment recovers normally if an unexpected error occurred. If it does not recover normally, check causes 1) to 4).</p>
		<ol style="list-style-type: none"> <li>b) All indoor units in one refrigerant system are in error                             <ol style="list-style-type: none"> <li>5) Outdoor unit detects the error.                                     <ul style="list-style-type: none"> <li>• System abnormality - Total capacity error (7100)</li> <li>• System abnormality - Capacity code error (7101)</li> <li>• System abnormality - Connecting unit number excess (7102)</li> <li>• System abnormality - Address setting over 254 (7105)</li> </ul> </li> <li>6) The transmission line of the centralized control terminal block (TB7) of the outdoor unit is disconnected or shorted.</li> <li>7) Power of the outdoor unit is shut off.</li> <li>8) The electric system of the outdoor unit has failed.</li> <li>9) The address switch of the outdoor unit is mistakenly set to 000 (00).</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>a) Check the failure diagnosis LED on the outdoor unit. → When an error is occurring, perform a check in accordance with the details on the error code. → When an error is not occurring, proceed to b)</li> <li>b) Check the details of causes 6) to 9).</li> </ol>
		<ol style="list-style-type: none"> <li>c) All indoor units are in error                             <ol style="list-style-type: none"> <li>10) When a power supply unit for the transmission line is used, the power jumper (CN40) is inserted for supplying power to the centralized control transmission line of the outdoor unit.</li> <li>11) When outdoor units are used, the power jumper (CN40) is inserted for supplying power to the centralized control transmission line of multiple outdoor units.</li> <li>12) The transmission line power supply unit is disconnected or the power is shut off.</li> <li>13) The AE-200/AE-50/EW-50 has failed.</li> </ol> </li> </ol>	<p>Check the voltage of the centralized control transmission line. (Voltage between A and B of TB3 in the case of the AE-200/AE-50/EW-50)</p> <ul style="list-style-type: none"> <li>• When 17 V or higher → Check causes 5) to 11)</li> <li>• When less than 17 V → Check cause 12)</li> </ul>
	<p>Occurrence source address: Remote controller</p> <p>* Same as when the occurrence source is an indoor unit (Read that section and replace the term "indoor unit" with "remote controller" or "system remote controller")</p>	<p>Occurrence source address: System remote controller</p>	

Error code	Description and method of detection	Cause	Check procedure and remedy
	Communication error - No ACK return Error detected by the controller on the transmission side when there is no reply (ACK signal) from the other party after transmission.	<b>Address that should not exist</b> An address that does not exist is set in the group registration, interlock LOSSNAY settings, or measurement settings of the AE-200/AE-50/EW-50.	Check whether the address that does not exist in the system configuration is set in the group registration, interlock LOSSNAY settings, or measurement settings. If it is set, delete it.
6608	Communication error - No return of response frame When transmission was performed, there was an acknowledgment (ACK) to notify that the transmission was received from the other party but the response command was not returned. The transmission side detects an error 10 consecutive times at 3-second intervals.	<ol style="list-style-type: none"> <li>1) When work was performed or the polarity was changed for the transmission line while the power was left on, the waveform changed and an error was detected when the transmission data collided.</li> <li>2) Transmission fails repeatedly because of, for example, noise.</li> <li>3) Attenuation of the transmission line voltage/signal because the allowable range for the transmission line wiring has been exceeded. <ul style="list-style-type: none"> <li>• Farthest end: 200 m (656 ft) or less</li> <li>• Remote controller line: 10 m (32 ft) or less</li> </ul> </li> <li>4) Attenuation of the transmission voltage/signal because mismatch of transmission line types. <ul style="list-style-type: none"> <li>• Wire diameter: 1.25 mm<sup>2</sup> or more</li> </ul> </li> <li>5) The set temperature range limit is set in a system with a remote controller that does not support the set temperature range limit connected.</li> </ol>	<ol style="list-style-type: none"> <li>a) When occurs during test run Turn off the power of the outdoor units, indoor units, and LOSSNAY at the same time, leave it off for at least 5 minutes, and then turn it back on. → If the equipment recovers from the error normally, the error was detected because transmission work was performed while the power was on. → If the error occurs again, proceed to b).</li> <li>b) Check causes 3) and 4). → If you find the cause, fix the problem. → If you do not find the cause, proceed to c).</li> <li>c) Check the transmission waveform and noise on the transmission line. Perform the check in accordance with &lt;Transmission waveform and noise check procedure&gt;. <div style="border: 1px solid black; padding: 2px; margin: 5px 0;">                     If 6608 is occurring, it is very likely to be due to noise.                 </div> </li> <li>d) If the cause is not any of 1) to 4), check the system operating status and configuration. → If you find the cause, reset the remote controller.</li> </ol>
6920	Communication error - No return of response frame	<ol style="list-style-type: none"> <li>1) LAN contact failure.</li> <li>2) The power of the HUB is not on.</li> <li>3) The IP address has not been set.</li> <li>4) Is the length of the LAN cable 100 m (328 ft) or less?</li> <li>5) Is the transmission delay time 4 seconds or less round trip?</li> </ol>	<p>Cause 1) Check that the LAN cables between the AE-200/AE-50/EW-50 and HUB are connected.</p> <p>Cause 2) Check that the power of the HUB is on.</p> <p>Cause 3) Check the IP address of the AE-200/AE-50/EW-50.</p> <p>Cause 5) Check the communication state by pinging. For the ping check method, refer to "V [5] 2. About the check method using ping." If the ping is timed out, check the following.</p> <ul style="list-style-type: none"> <li>• Are LAN cables of category 5 or better being used?</li> <li>• Is there not connections to four or more layers using a gateway, router, etc.?</li> </ul>
7106	System abnormality - Attribute setting error	<ol style="list-style-type: none"> <li>1) A unit with a different attribute (air-conditioning unit or other unit) is set for the address for which the PI controller or other device should be set.</li> <li>2) The unit address set for the interlock source in the interlock LOSSNAY settings is not a LOSSNAY.</li> <li>3) The attribute (IC/FU) setting of the OA Processing unit is not correct.</li> </ol>	<p>Cause 1) In the case of AE-200/EW-50, change the setting address of the PI controller, etc. to the correct address. Alternatively, delete it.</p> <p>Cause 2) Change the address set for the interlock source in the interlock LOSSNAY settings to the correct address. Alternatively, delete it.</p> <p>Cause 3) Switch the attribute with the dip switch. For details, refer to the installation manual for OA Processing unit.</p>

Error code	Description and method of detection	Cause	Check procedure and remedy
7130	System abnormality - Different unit model error ALPHA2 program version mismatch error	<ol style="list-style-type: none"> <li>1) The ALPHA2 program was created and run without using the base program supplied with AHC ADAPTER.</li> <li>2) Version data has been overwritten in the base program supplied with AHC ADAPTER.</li> <li>3) The ALPHA2 base program used did not correspond to the AHC ADAPTER version.</li> </ol>	<p>Causes 1) and 2) Confirm that the ALPHA2 internal program uses the base program supplied with AHC ADAPTER. Check that the program version number matches the base program version number. =&gt; If not, recreate the ALPHA2 program from scratch using the base program supplied with AHC ADAPTER. Cause 3) (N/A as of April 2013)</p>
7905	Version error	PAC-YG50ECA is connected.	Disconnect PAC-YG50ECA from the system. If an expansion controller is required, use the AE-50/EW-50.

**NOTE:** When the error code is for a detection source other than AE-200/AE-50/EW-50, refer to the service handbook or each air-conditioning unit and perform the checks and take the corresponding measures.

## 2. Error judgment based on the STATUS LED display of the AE-200/AE-50/EW-50

The AE-200/AE-50/EW-50 indicates its internal status with the STATUS LED.

The following table shows the LED lighting states, operating status, check methods, and solutions.

STATUS LED (Lighting color and state)		Operation status	Cause	Check procedure and remedy
Off	Normal	The equipment is operating normally.	-	-
Blinking in blue	Normal	The software of the AE-200/AE-50/EW-50 unit is being updated.	-	The LED will turn off after the update completes. Please wait until the process completes.
Blinking in pink	Error	The software update of the AE-200/AE-50/EW-50 unit failed.	<p>When updating the software using a USB memory device</p> <ol style="list-style-type: none"> <li>1) An error occurred because the update process could not be performed normally due an unexpected erroneous operation.</li> <li>2) The update file is incorrect.</li> <li>3) The USB memory device is not inserted properly.</li> <li>4) The USB memory device is not compatible with the AE-200/AE-50/EW-50.</li> <li>5) The USB memory device is damaged.</li> <li>6) The USB memory device was removed and then reinserted within a short period of time.</li> <li>7) The AE-200/AE-50/EW-50 has failed.</li> </ol>	<ol style="list-style-type: none"> <li>1) Perform the update again. Check the file. Has the software for the AE-200, AE-50, and EW-50 been mixed up?</li> <li>3) Check that the USB memory device is inserted properly.</li> <li>4) Refer to "III [9] (2) About USB memory devices."</li> <li>5) Connect the USB memory device to a PC or other device and check that the data inside it can be read correctly.</li> <li>6) Reset the power of the AE-200, AE-50, and EW-50 and then perform the update again.</li> <li>7) If the update fails after resetting the power, the product is likely to have failed so replace it.</li> </ol>
			<p>When updating via the Web</p> <ol style="list-style-type: none"> <li>1) An error occurred because the update process could not be performed normally due an unexpected erroneous operation.</li> <li>2) The update file is incorrect.</li> <li>3) The AE-200/AE-50/EW-50 has failed.</li> </ol>	<ol style="list-style-type: none"> <li>1) Check that the LAN cable is connected properly and then perform the update again.</li> <li>2) Check the file. Has the software for the AE-200, AE-50, and EW-50 been mixed up?</li> <li>3) If the update fails after resetting the power, the product is likely to have failed so replace it.</li> </ol>
Blinking in orange	Error	The LED blinks in orange after the power is turned on and then a unit reset is performed 30 minutes after the power was turned on.	<p>Reading from the SD card failed.</p> <ol style="list-style-type: none"> <li>1) An error occurred because the reading or writing from/to the internal SD card could not be performed due to an unexpected erroneous operation.</li> <li>2) The internal SD card has come out of the slot.</li> <li>3) The AE-200/AE-50/EW-50 has failed. (Memory circuit failure, etc.)</li> </ol>	<p>The LED is blinking in orange and the [6204] error is also detected. Check causes 1) and 2). Check how to perform the procedure to resolve the problem of error code [6204] in "V [3] 1" and then resolve the problem. → If the LED is still blinking in orange after taking the measure, the AE-200/AE-50/EW-50 has malfunctioned. Replace the AE-200/AE-50/EW-50.</p>
		The unit does not start up. (A reset is not performed.)	<p>Startup error</p> <ol style="list-style-type: none"> <li>1) A normal startup was not possible due to an unexpected erroneous operation of the controller on which the error occurred.</li> <li>2) The AE-200/AE-50/EW-50 has failed.</li> </ol>	<ol style="list-style-type: none"> <li>1) Shut down the power of the AE-200/AE-50/EW-50 and then turn it back on. → If the unit still does not start up after taking the measure, the AE-200/AE-50/EW-50 has malfunctioned. Replace the AE-200/AE-50/EW-50.</li> </ol>

### 3. Troubleshooting depending on the trouble symptoms of the AE-200/AE-50/EW-50 and trouble examples

#### (1) When AE-200/AE-50/EW-50 unit functions

Symptom		Cause	Check procedure and remedy
1	The LCD remains off and no operation is possible.	<ol style="list-style-type: none"> <li>1) AC power is not being supplied.</li> <li>2) The AE-200/AE-50 has failed. (Internal power supply failure, etc.)</li> </ol>	<p>Cause 1) Check the voltage of the AC power supply terminal block of the AE-200/AE-50.</p> <ol style="list-style-type: none"> <li>a) When 0 V → Check whether the circuit breaker connected to the AC power supply is ON.</li> <li>b) When 100 to 240 VAC → Proceed to cause 2)</li> </ol> <p>Cause 2) Shut off the AC power of the AE-200/AE-50 and then turn it back on. → If the same error occurs again, the AE-200/AE-50 has failed. Replace the AE-200/AE-50.</p>
2	The LCD screen turns on and off every few seconds and normal startup is not possible.	<ol style="list-style-type: none"> <li>1) A software update of the AE-200/AE-50 did not end normally.</li> <li>2) The AE-200/AE-50 has failed. (Internal connector contact failure, etc.)</li> </ol>	<p>Cause 1) Check the STATUS LED. → If it is blinking in pink, perform the software update again. Refer to "VIII [1] AE-200/AE-50/EW-50 update procedure."</p> <p>Cause 2) If the cause is not cause 1) above, shut off the power and then turn it back on. If the same symptoms occur, the AE-200/AE-50 has failed. Replace the AE-200/AE-50.</p>
3	The LCD screen becomes red and a restart is performed repeatedly.	The AE-200/AE-50 has failed. (SDRAM failure, etc.)	The AE-200/AE-50 has failed. Replace the AE-200/AE-50.
4	Prohibiting operation with the local remote controller does not work.	The M-NET remote controller is not registered to the group of the AE-200/AE-50/EW-50.	Check whether the M-NET remote controller is registered to the group on the AE-200/AE-50/EW-50, and if it is not, perform group registration for the M-NET remote controller.
5	The time is significantly different from the set time.	<ol style="list-style-type: none"> <li>1) Incorrect setting from upper level equipment.</li> <li>2) The AE-200/AE-50/EW-50 has failed.</li> </ol>	<p>Cause 1) Check the upper level equipment (TG-2000A, etc.) to see whether there is equipment for which the time is wrong.</p> <p>[Supplementary explanation] If the cause is not incorrect setting from upper level equipment, disconnect from the LAN and leave the equipment for one hour without a connection to the LAN and then check. → If the time is significantly slow (10 seconds or more per hour), the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50.</p>
6	Error output of the external output always continues to be ON even though an error has not been detected.	<ol style="list-style-type: none"> <li>1) The power supply of the external circuit is connected with the polarity reversed.</li> <li>2) AC power is applied to the external input.</li> <li>3) The AE-200/AE-50/EW-50 has failed.</li> </ol>	<p>Cause 1) Check the polarity of the connection of the external power supply of the external circuit. If it is reversed, fix the polarity. If output is not normal even after changing the polarity, replace the AE-200/AE-50/EW-50.</p> <p>Cause 2) and 3) Replace the AE-200/AE-50/EW-50.</p>
7	The unit icon remains in the starting up state and does not change.	A communication error is occurring.	The startup process will complete approximately five minutes after the power is turned on. After that, check the error code and remove the cause of the communication error. For the error codes detected by the centralized controller, refer to "V [3] 1. How to determine the cause and resolve trouble based on the detected error display of the AE-200/AE-50/EW-50."

Symptom		Cause	Check procedure and remedy
8	The initial settings data cannot be output to a USB memory device.	<ol style="list-style-type: none"> <li>1) The USB memory device is not inserted properly.</li> <li>2) There is no free space in the USB memory device.</li> <li>3) The USB memory device is not supported by the AE-200/AE-50.</li> <li>4) The USB memory device is damaged.</li> <li>5) The USB memory device was removed and then reinserted within a short period of time.</li> <li>6) The AE-200/AE-50 has failed.</li> </ol>	<p>Check causes 1) to 5). Take the measure corresponding to the cause.</p> <p>Cause 1) Check that the USB memory device is inserted properly.</p> <p>Cause 2) Check that there is free space on the USB memory device and free up space if necessary. (Minimum of 64 MB)</p> <p>Cause 3) Refer to "III [9] (2) About USB memory devices."</p> <p>Cause 4) Try using another USB memory device.</p> <p>Cause 5) Restart the AE-200/AE-50 (power OFF → ON).</p> <p>If the cause of the problem was none of causes 1) to 5), the AE-200/AE-50 has failed. Replace the AE-200/AE-50.</p>
9	The charge parameters cannot be output to a USB memory device.	<ol style="list-style-type: none"> <li>1) The USB memory device is not inserted properly.</li> <li>2) There is no free space in the USB memory device.</li> <li>3) The USB memory device is not supported by the AE-200/AE-50.</li> <li>4) The USB memory device is damaged.</li> <li>5) The USB memory device was removed and then reinserted within a short period of time.</li> <li>6) The "Charge" license is not registered.</li> <li>7) The AE-200/AE-50 has failed.</li> </ol>	<p>Check causes 1) to 6). Take the measure corresponding to the cause.</p> <p>For causes 1) to 5), check causes 1) to 5) for the item above.</p> <p>Cause 6) Check whether the apportioned electricity billing license is valid, and if it is invalid, register a license.</p> <p>If the cause of the problem was none of causes 1) to 6), replace the AE-200/AE-50.</p>
10	The date and time of the AE-200/AE-50/EW-50 are a date and time in the past.	<ol style="list-style-type: none"> <li>1) The date and time were not set after installation.</li> <li>2) If the power of the AE-200/AE-50/EW-50 is turned off after the power has been off for at least one week, the date and time will not have been retained.</li> <li>3) An AE-200/AE-50/EW-50 was added to the system but its time was not set.</li> </ol>	<p>Cause 1) Set the current date and time on the date and time setting screen.</p> <p>Cause 2) When the power remains off for about one week, the date is returned to April 1, 2014.</p> <p>(Supplementary explanation) The billing results will be affected in a system with a billing function, so set the current date and time on the date and time setting screen. If there is a TG-2000A, set the date and time on the TG-2000A.</p> <p>Cause 3) The date at the initial startup becomes April 1, 2014. Set the current date and time on the date and time setting screen.</p>
11	A place that differs from the touched position responds.	<ol style="list-style-type: none"> <li>1) You are not pressing firmly enough.</li> <li>2) There is an offset due to the viewing angle.</li> <li>3) The AE-200/AE-50 has failed. (Touch panel input circuit failure, etc.)</li> </ol>	<p>Causes 1) and 2) If a place that differs from the touched position responds, perform touch panel position adjustment on the calibration screen.</p> <p>(Supplementary explanation) The calibration screen can be opened from [Initial Settings] → [Maintenance] → [Touch Panel Calibration].</p> <p>→ If touch panel position adjustment is not successful, the AE-200/AE-50 has failed. Replace the AE-200/AE-50.</p>

	Symptom	Cause	Check procedure and remedy
12	A floor plan cannot be read.	<ol style="list-style-type: none"> <li>1) The USB memory device is not inserted properly.</li> <li>2) A USB memory device that is supported by the AE-200/AE-50 is not being used.</li> <li>3) The name of a file you are attempting to read is incorrect.</li> <li>4) There are no files in the correct location in the USB memory device.</li> <li>5) The created gif files contain extension data (XMP, etc.).</li> <li>6) The file size is not correct.</li> <li>7) The USB memory device is damaged.</li> <li>8) The USB memory device was removed and then reinserted within a short period of time.</li> <li>9) The AE-200/AE-50 has failed.</li> </ol>	<p>Check causes 1) to 8). Take the measure corresponding to the cause.</p> <p>Cause 1) Check that the USB memory device is inserted properly.</p> <p>Cause 2) Refer to "III [9] (2) About USB memory devices."</p> <p>Cause 3) Set a correct file name as described in the instruction manual. E.g.: floor_01.gif If [Hide extensions for known file types] is set in the folder settings of the PC on which the file was created, check the file name in the properties.</p> <p>Cause 4) Place the files in the root directory of the USB memory device.</p> <p>Cause 5) When creating gif files, set extension data to not be included and then create the files.</p> <p>Cause 6) Create a file in gif format that is fixed to 1890 dots wide by 900 dots high for each floor.</p> <p>Cause 7) Try using another USB memory device.</p> <p>Cause 8) Restart the AE-200/AE-50 (power OFF → ON).</p> <p>If the cause of the problem was none of causes 1) to 8), the AE-200/AE-50 has failed. Replace the AE-200/AE-50.</p>
13	The display of the read floor plan is strange in terms of size, colors, etc.	<ol style="list-style-type: none"> <li>1) The size of the prepared images is incorrect.</li> <li>2) The colors used in the prepared images are other than the specified ones.</li> <li>3) Free software was used to create the gif images.</li> </ol>	<p>Cause 1) If the prepared images are enlarged or displayed tilted, the image sizes may be different than the designated 1890 dots wide by 900 dots high. Check that the prepared images are the correct size.</p> <p>Cause 2) If the colors become different from those of the prepared images, check whether the images have been created using the colors specified in the instruction manual. Also, transparent gifs and animation gifs cannot be used.</p> <p>Cause 3) If free software is used to create the images, the format may differ from the standard gif format. If normal display is not possible, we recommend using the following software to create images.</p> <p>[Recommended software] Photoshop CS* (* is the version) Photoshop Elements * (* is the version)</p>
14	Logged in to the initial setting screen but the setting buttons are in the pressed state and operation is not possible.	You are logged in as the administrator user so you do not have setting privileges.	Log in by entering the login name and password of the maintenance user.
15	The initial settings data cannot be read from a USB memory device.	<ol style="list-style-type: none"> <li>1) The USB memory device is not inserted properly.</li> <li>2) The SetupData folder does not exist in the USB memory device. Or the folder is incorrect.</li> <li>3) A USB memory device that is supported by the AE-200/AE-50/EW-50 is not being used.</li> <li>4) The USB memory device is damaged.</li> <li>5) The USB memory device was removed and then reinserted within a short period of time.</li> <li>6) The AE-200/AE-50/EW-50 has failed.</li> </ol>	<p>Check causes 1) to 5). Take the measure corresponding to the cause.</p> <p>Cause 1) Check that the USB memory device is inserted properly.</p> <p>Cause 2) Check that the name of the folder containing the initial settings data is correctly set to SetupData (including uppercase and lowercase).</p> <p>Cause 3) Refer to "III [9] (2) About USB memory devices."</p> <p>Cause 4) Try using another USB memory device.</p> <p>Cause 5) Restart the AE-200/AE-50/EW-50 (power OFF → ON).</p> <p>If the cause of the problem was none of causes 1) to 5), the AE-200/AE-50/EW-50 has failed. Replace the AE-200/AE-50/EW-50.</p>

Symptom		Cause	Check procedure and remedy
16	The displayed set temperature differs from the set temperature.	<ol style="list-style-type: none"> <li>1) External temperature interlock control is set.</li> <li>2) Peak cut control is being performed.</li> <li>3) A schedule is set.</li> <li>4) Interlock control is set.</li> </ol>	<p>Cause 1) If external interlock control is set, the set temperature is changed automatically according to the outdoor temperature. Check the external interlock control settings.</p> <p>Cause 2) If peak cut control is being performed, the temperature may change. Check the peak cut control settings.</p> <p>Cause 3) Check whether or not changing of the set temperature is registered in the schedule settings.</p> <p>Cause 4) Check whether or not changing of the set temperature is set in the interlock control.</p>
17	Air-conditioning units start operating on their own even though they are supposed to be stopped.	The setback function is set.	If the setback function is set to [Use], air-conditioning units start performing the cooling or heating operation automatically when a set condition is met while the air-conditioning units are stopped.
18	LOSSNAY units start operating on their own even though they are supposed to be stopped.	Night purge is set on the LOSSNAY units.	If the night purge setting is set on the LOSSNAY units, the operation to take in outside air is performed automatically according to the settings that are set on the LOSSNAY units.
19	A schedule does not operate.	<ol style="list-style-type: none"> <li>1) Incorrect settings are set.</li> <li>2) The period settings of the schedule are incorrect.</li> <li>3) The [OK] button was pressed while the display area in today's schedule was still blank.</li> <li>4) The current time is not correct.</li> </ol>	<p>Open the today's schedule screen of the group to be operated and check the set schedule is displayed. If it is not displayed, check causes 1) to 3) below.</p> <p>Cause 1) The schedule settings are retained for each group so check whether or not the schedule settings of the group you wish to operate are incorrect.</p> <p>Cause 2) One of the weekly schedules operates in accordance with the set period so check whether or not there is a mistake in the period settings of the season settings screen.</p> <p>Cause 3) If the [OK] button is pressed while the display in the today's schedule settings screen is left blank, the schedule is handled as having been set not to operate. If the settings of causes 1) and 2) are set correctly and a blank area is displayed when the today's schedule settings screen is opened, the cause is highly likely to be cause 3). Set the schedule to be operated again from the today's schedule settings screen.</p>
20	Error mail is not sent.	<ol style="list-style-type: none"> <li>1) Incorrect settings are set.</li> <li>2) Communication is cut off.</li> <li>3) The mail is blocked by the mail server.</li> </ol>	<p>Check causes 1) to 3) below.</p> <p>Cause 1) Check the mail address setting and SMTP server settings. For the setting procedures, refer to "3-2-1. Mail settings" in AE-200/AE-50/EW-50 Instruction Book (Web Browser for Initial Settings).</p> <p>Cause 2) Check the following items.</p> <ul style="list-style-type: none"> <li>• Is the power of the HUB turned on?</li> <li>• Is the HUB broken?</li> <li>• Is the LAN cable disconnected?</li> <li>• Is the LAN cable 100 m (328 ft) or less?</li> <li>• Is a straight LAN cable of category 5 or better being used?</li> </ul> <p>Cause 3) Port 25 (SMTP) (factory default setting) is used for sending mail of the AE-200/AE-50/EW-50. Mail sent using port number 25 may be blocked by the mail server for security enhancement purposes. If it is blocked, sending will not be possible so consult with the information system administrator.</p> <p>After checking causes 1) to 3), check whether or not error mail is sent.</p> <p>Method: Register an unconnected indoor unit or local remote controller in the group registration screen of the AE-200/AE-50/EW-50 in order to generate an error and then check whether or not error mail is sent.</p>

Symptom		Cause	Check procedure and remedy
21	A buzzer sounds (continuous beeping sound) and the screen is not displayed after turning on the power of the unit.	The AE-200/AE-50 has failed. (Internal power supply failure, etc.)	The AE-200/AE-50 has failed. Replace the AE-200/AE-50.
22	The set temperature is not reflected when the operation mode and set temperature are changed at the same time. Or the set temperature is not reflected when the operation mode and set temperature are changed at the same time in the schedule settings.	<ol style="list-style-type: none"> <li>One of the following local remote controllers is connected to the air-conditioning unit. <ul style="list-style-type: none"> <li>ME remote controller (model before PAR-U02MEDA and PAR-U01MEDU)</li> <li>MA remote controller (model before PAR-31MAA(E))</li> <li>MA remote controller (model before PAR-21MAA)</li> </ul> </li> <li>The air-conditioning unit is set to one of the following. <ul style="list-style-type: none"> <li>The set temperature is 18°C (64°F) or less in the "Heat" operation mode.</li> <li>The set temperature is 29°C (84°F) or more in the "Cool" or "Dry" operation mode.</li> </ul> </li> <li>The operation mode and set temperature change at the same time. <ul style="list-style-type: none"> <li>* The operation mode changes from "Heat" to "Cool" or "Dry," or from "Cool" or "Dry" to "Heat."</li> <li>* The set temperature is set to an arbitrary temperature.</li> </ul> </li> </ol>	<p>This symptom is likely when causes 1) to 3) are all met and multiple air-conditioning units are operated at the same time from the centralized controller or system remote controller. Perform the check using the method described below.</p> <p>Cause 1) Confirm the model name printed on the local remote controller or from the supplied instruction manual.</p> <p>Cause 2) Display the operation screen and check the settings.</p> <p>Cause 3) Check the settings before the change and settings after the change in the operation screen.</p> <p>If this symptom occurred, the problem can be prevented by taking the following measure.</p> <p>If the operation mode is "Heat" for cause 2), change the setting for the set temperature to 19°C (66°F) or more, and if it is "Cool," change the setting for the set temperature to 28°C (82°F) or less.</p> <p>If schedule settings are used and the symptom occurred, the problem can be prevented by taking the following measure.</p> <p>If the operation mode is "Heat," set the schedule setting for the set temperature to 19°C (66°F) or more, and if it is "Cool," set the schedule setting for the set temperature to 28°C (82°F) or less before the time you wish to set in the schedule (five minutes before is recommended).</p> <p>Example: When wish to set to heating 26°C (79°F) at 8:00.  7:55 Cooling 28°C (82°F) (schedule setting)  ↓  8:00 Heating 26°C (79°F) (schedule setting)</p>
23	The temperature does not return to the original set temperature when control ends for setback control.	<ol style="list-style-type: none"> <li>One of the following local remote controllers is connected to the air-conditioning unit. <ul style="list-style-type: none"> <li>ME remote controller (model before PAR-U02MEDA and PAR-U01MEDU)</li> <li>MA remote controller (model before PAR-31MAA(E))</li> <li>MA remote controller (model before PAR-21MAA)</li> </ul> </li> <li>The setting is one of the following before setback control is executed. <ul style="list-style-type: none"> <li>The lower limit temperature is 18°C (64°F) or less in the "Cool," "Dry," or "Auto" operation mode.</li> <li>The upper limit temperature is 29°C (84°F) or more in the "Heat" or "Auto" operation mode.</li> </ul> </li> <li>Setback control starts in one of the following states. <ul style="list-style-type: none"> <li>Heating control that exceeds the lower limit temperature is started in the "Cool," "Dry," or "Auto" operation mode.</li> <li>Cooling control that exceeds the upper limit temperature is started in the "Auto" or "Heating" operation mode.</li> </ul> </li> </ol>	<p>This symptom is likely when causes 1) to 3) are all met and setback controlled is used, Perform the check using the method described below.</p> <p>Cause 1) Confirm the model name printed on the local remote controller or the model number from the supplied instruction manual.</p> <p>Cause 2) Display the operation screen and check the settings. Furthermore, check the upper limit temperature and lower limit temperature from the initial settings screen.</p> <p>If this symptom occurred, the problem can be prevented by taking the following measure.</p> <p>In the winter season, set the operation mode to "Heat" before setback control is executed.</p> <p>In the summer season, set the operation mode to "Cool" or "Dry" before setback control is executed.</p>

## (2) When Web browser for AE-200/AE-50/EW-50

Symptom	Cause	Check procedure and remedy
1 Display by the Web browser is not possible.	LAN communication error.	Enter the following in the command prompt on the PC, press the [Enter] key, and check the response. <b>Ping</b> [IP address of AE-200/AE-50/EW-50] E.g.: ping 192.168.1.1 (IP address of PC: 192.168.1.101) If communication was successful, the reply is as follows. <b>Reply from 192.168.1.1: bytes=32 time=1 ms TTL=64</b> If the LAN cable is not connected or the IP address setting is incorrect, the reply is as follows. <b>Request timed out.</b> If the subnet mask, gateway, or other network setting is incorrect, the reply is as follows. <b>Reply from 192.168.1.250: Destination host unreachable.</b>
	The LAN cable connector is disconnected or the connection is incorrect.	Insert the connector of the LAN cable properly into the LAN port at the back of the AE-200/AE-50/EW-50. Furthermore, old types of HUBs have two port types, one for a terminal connection and one for a HUB connection, so check whether or not the LAN cables of the AE-200/AE-50/EW-50 and PC for the browser are connected to ports for terminal connections.
	The IP address and subnet mask settings are incorrect.	Unless other specified, set the IP address as follows. AE-200: <b>192.168.1.1 to 192.168.1.40</b> AE-50: <b>192.168.1.211 to 192.168.1.249</b> EW-50 (standalone): <b>192.168.1.1 to 192.168.1.40</b> EW-50 (expansion controller): <b>192.168.1.211 to 192.168.1.249</b> PC for browser: <b>192.168.1.101 to 192.168.1.149</b> PC for integrated centralized control software TG-2000A: <b>192.168.1.150</b>  Set the subnet mask to <b>255.255.255.0</b> .
	The gateway address setting is incorrect.	If a router is connected to the network, the gateway address needs to be set on the AE-200/AE-50/EW-50. Set the IP address of the router to which the AE-200/AE-50/EW-50 will be connected as the gateway address.
	LAN communication equipment (HUB or router) has failed. LAN cable disconnected or contact failure.	If a connection error reply is returned for the ping command even after checking the various settings above, the cause is probably a failure of the LAN communication equipment (HUB or router) or a defect of the LAN cable itself. Replace the HUB or other communication equipment or the LAN cable and then perform a connection check.

	Symptom	Cause	Check procedure and remedy
1	Display by the Web browser is not possible.	Other than the login page is registered in Favorites of Internet Explorer.	Register the login page to Favorites from the login screen.
		Display by the Web browser is not possible because the cache file is damaged.	<p>Clear the cache (temporary files) of Internet Explorer and Java Plug-in.</p> <ul style="list-style-type: none"> <li>• Procedure for Internet Explorer 8 *                             <ol style="list-style-type: none"> <li>(1) Select [Internet Options] from the [Tools] menu in the browser.</li> <li>(2) Select [Delete] under [Browser history] on the General tab.</li> <li>(3) Select the [Temporary Internet Files] check box in the Delete Browsing History window and then click the [OK] button. (It is alright to clear the check boxes for the other items.)</li> </ol> </li> <li>• Procedure for the Java Plug-in                             <ol style="list-style-type: none"> <li>(1) Click [Start] - [Control Panel].</li> <li>(2) When [Control Panel] appears, click [Java].</li> <li>(3) When [Java Control Panel] appears, click the [Settings] button under [Temporary Internet Files].</li> <li>(4) When [Temporary Files Settings] appears, click the [Delete Files] button.</li> <li>(5) When [Delete Files and Applications] appears, click the [OK] button while the check boxes for all of the items are selected.</li> <li>(6) Click the [OK] button in [Temporary Files Settings].</li> <li>(7) Click the [OK] button in [Java Control Panel].</li> <li>(8) Close [Control Panel].</li> </ol> </li> </ul> <p>* The setting procedure differs depending on the Internet Explorer version.</p>
		A Web browser setting is incorrect.	If a Web browser setting is incorrect, the Web screen of the AE-200/AE-50/EW-50 may not be able to be displayed at all even if a response to the ping command could be received normally. If the Web screen is not displayed at all, check the following setting.
		The AE-200/AE-50/EW-50 is not registered as an exception in the proxy server settings.	In the case of a PC with Internet access that is installed in an internal LAN or the like, a proxy server may be set. If a proxy server is set, enter the IP address of the AE-200/AE-50/EW-50 in the exception field to enable a connection that is not via the proxy server.
2	A residual image remains when the screen is scrolled with the scroll bar.	Browser drawing process.	<p>When this symptom occurs, refresh the screen (click the Refresh button in the Web browser, navigate to another screen, etc.) to resolve the problem.</p> <p>Furthermore, the problem may be resolved by clicking [Internet Options] in the [Tools] menu of Internet Explorer, selecting the [Advanced] tab, and then clearing the [Use smooth scrolling] check box of [Browsing].</p> <p>Also, the problem may be resolved by updating the browser to the latest version.</p>

	Symptom	Cause	Check procedure and remedy
3	The controls of the Web browser are grayed out and display is not possible or extremely slow.	Web browser and Java versions are different.	The Web browser with which AE-200/AE-50/EW-50 Web can be used is Internet Explorer version 8.0 or later. If the browser used is earlier than version 8.0, problems may occur, such as not being able to display the Web screen at all or not being able to select numerical values. Furthermore, if the version of Java VM (Java Virtual Machine) used as a plug-in of the browser is old or a VM that can be used is not installed, the screen may be displayed normally but the controls of the Web screen will remain grayed out.
		Version of the Web browser (Internet Explorer) is earlier than 8.0	Update the version of Internet Explorer to 8.0 or later.
		Web browser other than Internet Explorer is used.	Use Internet Explorer version 8.0 to 11.0.
		The Oracle Java Plug-in is not enabled (or is not installed).	If the Oracle Java Plug-in is enabled, a picture of a coffee cup is displayed at the top left when the controls of the Web screen are grayed out . Click [Internet Options] in the [Tools] menu of Internet Explorer, select the [Advanced] tab, and then select the [Use ... for <applet>] check box of [Java (Sun)]. If the Oracle Java VM is not installed, it can be downloaded from the Oracle website. Download and install it.
		Version of the Oracle Java Plug-in is earlier than 1.7.0_51.	Update the version of the Oracle Java Plug-in to 1.7.0_51 or later. (You can check the version by clicking [Java] in the control panel and clicking the [About...] button on the [General] (or [Basic]) tab.)
		Internet Explorer and Oracle Java Plug-in mismatch.	Install the 32-bit version of the Oracle Java Plug-in when using the 32-bit version of Internet Explorer, and the 64-bit version of the Oracle Java Plug-in when using the 64-bit version of Internet Explorer.
4	Display by the Web browser is not possible using the HTTPS (SSL) protocol.	LAN communication error.	Check the same items as "LAN communication error" and "A Web browser setting is incorrect" of "Display by the Web browser is not possible."
		Web browser and Java VM versions are different.	Check the same items as "Web browser and Java VM versions are different" of "The controls of the Web browser are grayed out and display is not possible or extremely slow."
		A Web browser setting is incorrect.	If a setting of the Web browser has been set incorrectly or not been set, display by the Web browser is not possible using the HTTPS (SSL) protocol. → Set the settings as described in "2-3. Java settings" of AE-200/AE-50/EW-50 Instruction Book (Web Browser for Administrator).
		Combination of OS, Internet Explorer, and Oracle Java Plug-in.	There are cases where display by the Web browser is not possible because of the combination of the OS, Internet Explorer, and Java Plug-in versions. → If the problem is not resolved even after implementing the check methods and solutions for the three causes above, change the version of one of the OS, Internet Explorer, and Java Plug-in or use the Web browser with the HTTP protocol. → If the version of the Oracle Java Plug-in is between Java 7 and Java 7 update 5, a connection with the HTTPS protocol is not possible, so update the version to Java 7 update 6 or later.
5	Sometimes the entire icon for an error or filter sign that is occurring blinks.	Refresh the display screen.	The problem may be resolved by replacing the display, updating the driver software, changing the refresh rate of the display, etc.

Symptom	Cause	Check procedure and remedy
<p>6</p> <p>A message such as "Application blocked by Java Security," "If you see this you don't have a Java-enabled Web browser. Here's a picture of what you are missing," or "Error. Click to find out more." appears and the login screen is not displayed.</p>	<p>When caused by Java</p> <ol style="list-style-type: none"> <li>1) Java content in the browser is not enabled.</li> <li>2) The site is not registered in the Java exception site list.</li> <li>3) Display by the Web browser is not possible because the cache file is damaged.</li> </ol> <p>When caused by Internet Explorer</p> <ol style="list-style-type: none"> <li>4) Display by the Web browser is not possible because the cache file is damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1) Enable Java content.             <ol style="list-style-type: none"> <li>1. Click [Control Panel] → [Java] to open [Java Control Panel].</li> <li>2. Click the [Security] tab.</li> <li>3. If the [Enable Java content in the browser] check box is not selected, select the check box.</li> <li>4. After you finish configuring the setting, close any open Internet Explorer windows and then access the Web page again to confirm that a connection is possible.</li> </ol> </li> <li>2) Register the site in the Java exception site list.             <ol style="list-style-type: none"> <li>1. Click [Control Panel] → [Java] to open [Java Control Panel].</li> <li>2. Click the [Security] tab.</li> <li>3. Click [Edit Site List] of Exception Site List.</li> <li>4. Click [Add] of Exception Site List.</li> <li>5. Enter "http://[IP address of AE-200/AE-50/EW-50]."                      Example: When the IP address is 192.168.1.1                      http://192.168.1.1                      Enter the Web address of the AE-200/AE-50/EW-50 and then click [Add].                      The user needs to enter HTTP or HTTPS separately.</li> </ol> </li> <li>6. When the Security Warning pop-up screen appears, click [Continue].                      If other AE-200/AE-50/EW-50 are connected, enter the other Web addresses in the Location field.</li> <li>7. When input for all of the AE-200/AE-50/EW-50 is complete, click the [OK] button to close the screen.</li> <li>8. After you finish configuring the setting, close any open Internet Explorer windows and then access the Web page again to confirm that a connection is possible. (Clear the cache of Internet Explorer and the cache of Java before connecting. For the procedure, refer to "Display by the Web browser is not possible because the cache file is damaged" of No. 1.)</li> <li>3) Clear the cache of Java. For the procedure, refer to "Display by the Web browser is not possible because the cache file is damaged" of No. 1.</li> <li>4) Clear the cache of Internet Explorer. For the procedure, refer to "Display by the Web browser is not possible because the cache file is damaged" of No. 1. For details, refer to the one point service information PW1013070.                      If the problem is not resolved even after carrying out the above, reset the settings of Internet Explorer.             <ol style="list-style-type: none"> <li>1. Select [Internet Options] from the [Tools] menu in the browser.</li> <li>2. Click [Reset] on the [Advanced] tab. The following settings are reset. Make a note beforehand if necessary.                     <ul style="list-style-type: none"> <li>▪ Disable toolbars and add-ons</li> <li>▪ Advanced options</li> <li>▪ Default web browser settings</li> <li>▪ Tabbed browsing settings</li> <li>▪ Privacy settings</li> <li>▪ Pop-up settings</li> <li>▪ Security settings</li> </ul> </li> </ol> </li> </ol>

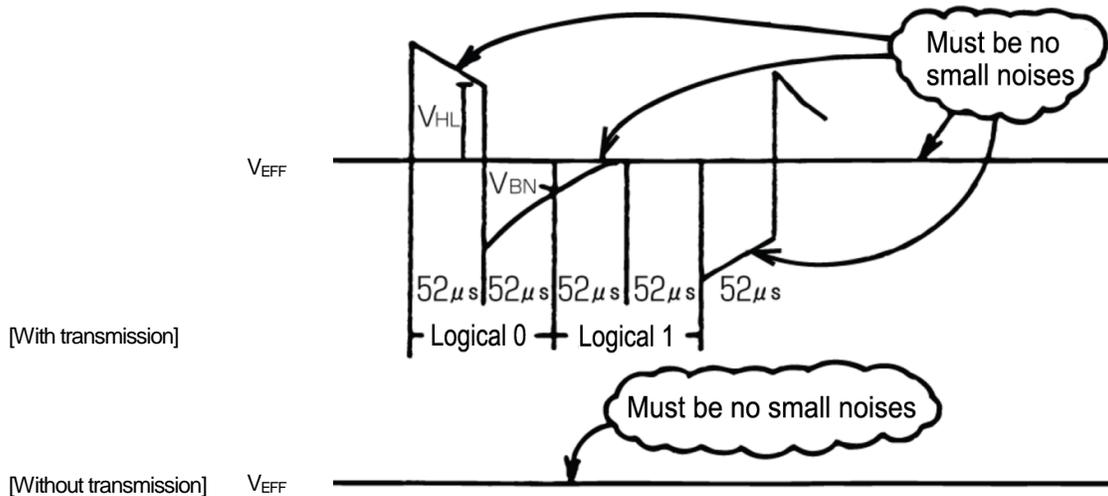
#### [4] M-NET transmission waveform and noise check procedure

The AE-200/AE-50/EW-50 performs control while signals are exchanged between AE-200/AE-50/EW-50, outdoor units, indoor units, and remote controllers (M-NET remote controllers) through M-NET. The interference of noise or the like on the transmission line will cause normal transmission to no longer be possible and erroneous operation.

(1) Symptoms caused by the interference of noise on the transmission line

Cause	Malfunction	Error code	Error description
Interference of noise on the transmission line	The signal is transformed and is mistaken as a signal from a different address.	6600	Communication error - Address duplicate
	The sent waveform is transformed to a different signal due to noise.	6602	Communication error - Transmission processor hardware error
	The sent waveform is transformed due to noise and the other party cannot receive the signal normally leading to no acknowledgment (ACK).	6607	Communication error - No ACK return
	The state of being unable to send continues due to small noise interference.	6603	Communication error - Transmission line busy
	Sending is successful but the acknowledgment (ACK) or the response is not returned normally due to noise.	6607 6608	Communication error - No ACK return/No return of response frame

(2) Waveform check procedure



Waveform check procedure

Check the waveform of the transmission line with an oscilloscope. The following conditions must be met.

- There must be no small waveform (noise) in the transmission signal.  
(Small noise of approximately 1 V caused by the operation of a DC-DC converter or inverter may be noticeable but such noise should not be a problem when the unit and transmission line shield are grounded.)
- The voltage level of each portion of the transmission signal must be as follows.

Logic	Transmission line effective voltage level	Transmission line signal voltage level
0	$17 V \leq V_{EFF} \leq 32 V$	$V_{HL} = 2.5 V$ or higher
1		$V_{BN} = 1.3 V$ or lower

[Supplementary explanation] Oscilloscope settings

- Band with 300 MHz or higher
- V/div: 2 V/div AC coupling
- T/div: 20 to 100  $\mu sec/div$

(3) Check and solution

If noise is confirmed in the waveform or any of the errors of the error codes in (1) occur, perform the following checks.

	Error description	Action
Wiring method check	1. Are the transmission line and power cable (100—240VAC) routed together?	Lay the power cable as far away as possible. When laying the cables over a long distance, provide a space of at least 5 cm between them. In particular, do not insert them in the same conduit.
	2. Is the transmission line bundled together with the transmission line of another system?	Lay the transmission line so that it is separate from other transmission lines. When it is bundled with another transmission line, there is the risk of erroneous operation.
	3. Is the specified cable being used for the transmission line?	Use the specified transmission line. Transmission line type CVVS/CPEVS/MVVS shielded cable (for M-NET remote controller) Transmission line diameter At least 1.25 mm <sup>2</sup> (Remote controller wire: 0.5 to 1.25 mm <sup>2</sup> )
	4. When the transmission line is daisy-chained on the indoor unit terminals, is the shield daisy-chained too?	The two wires of the transmission line are daisy-chained. The shield must also be daisy-chained in the same way as the transmission lines. If the shield is not daisy-chained, its effect on reducing noise will be small.
	5. Is the transmission line grounded with the earth?	Prevent parts from being grounded with the earth.
	6. Is the transmission line connected to the junction terminals properly?	If bare wires are twisted together, connect the wires properly by, for example, crimping them together.
Grounding method check	1. When the transmission line is daisy-chained, is the shield daisy-chained too?	Ground one point of the shield at a unit that supplies power. If no grounding is provided, the noise on the transmission line cannot escape so there is the risk that the transmission signal will be transformed.
	2. Check the treatment method of the shield of the transmission line (for centralized control).	The transmission line for centralized control is less susceptible to noise interference if it is grounded from one outdoor unit in the case of group operation between units with different refrigerant or from the system controller in the case of using a system controller. However, the environment against noise varies depending on the distance of the transmission lines, the number of the connected units, the type of the controllers to be connected, and the environment of the installation site, so check that the transmission line work for centralized control has been performed as follows. a) When not grounded <ul style="list-style-type: none"> <li>▪ Group operation between units with different refrigerant Grounded at one outdoor unit (power supply unit)</li> <li>▪ Using system controller Grounded at a power supply unit (including a system controller with a built-in power supply)</li> </ul> b) When an error occurs even though grounded at one point Ground the shield at all outdoor units and power supply units (including system controllers with a built in power supply)

If the peak value is low, if a 66xx error occurs, or if the remote controller remains in the initial screen display state

Error description	Action
1. The distance to the farthest end of transmission line exceeds 200 m (656 ft).	Check that the distance from the outdoor unit or power supply unit to the indoor unit and to the remote controller at the farthest end is 200 m (656 ft) or less.
2. The types of transmission lines differ.	Use the specified transmission line. Transmission line type: CVVS/CPEVS/MVVS shielded cable Transmission line diameter: At least 1.25 mm <sup>2</sup> (remote controller wire: 0.5 to 1.25 mm <sup>2</sup> )
3. Outdoor unit board failure	Replace the outdoor unit control board or transmission power supply board.
4. Indoor unit or remote controller failure	Replace the indoor unit control board or remote controller.
5. The MA remote controller is connected to the M-NET transmission line.	Connect the MA remote controller to the MA remote controller terminal block (TB15) on the indoor unit control board.

**NOTE:** For details on the restrictions on wiring length, refer to "III [4] Restrictions and notes on transmission wiring."

## [5] LAN communication error check procedure

This section describes how to check and resolve trouble when the equipment does not operate normally and there are symptoms related to a LAN communication error such as when an error code for a LAN communication error is displayed and Web browser display is not possible.

[About the required equipment]

The following lists the equipment required for the check when there are symptoms related to a LAN communication error.

PC

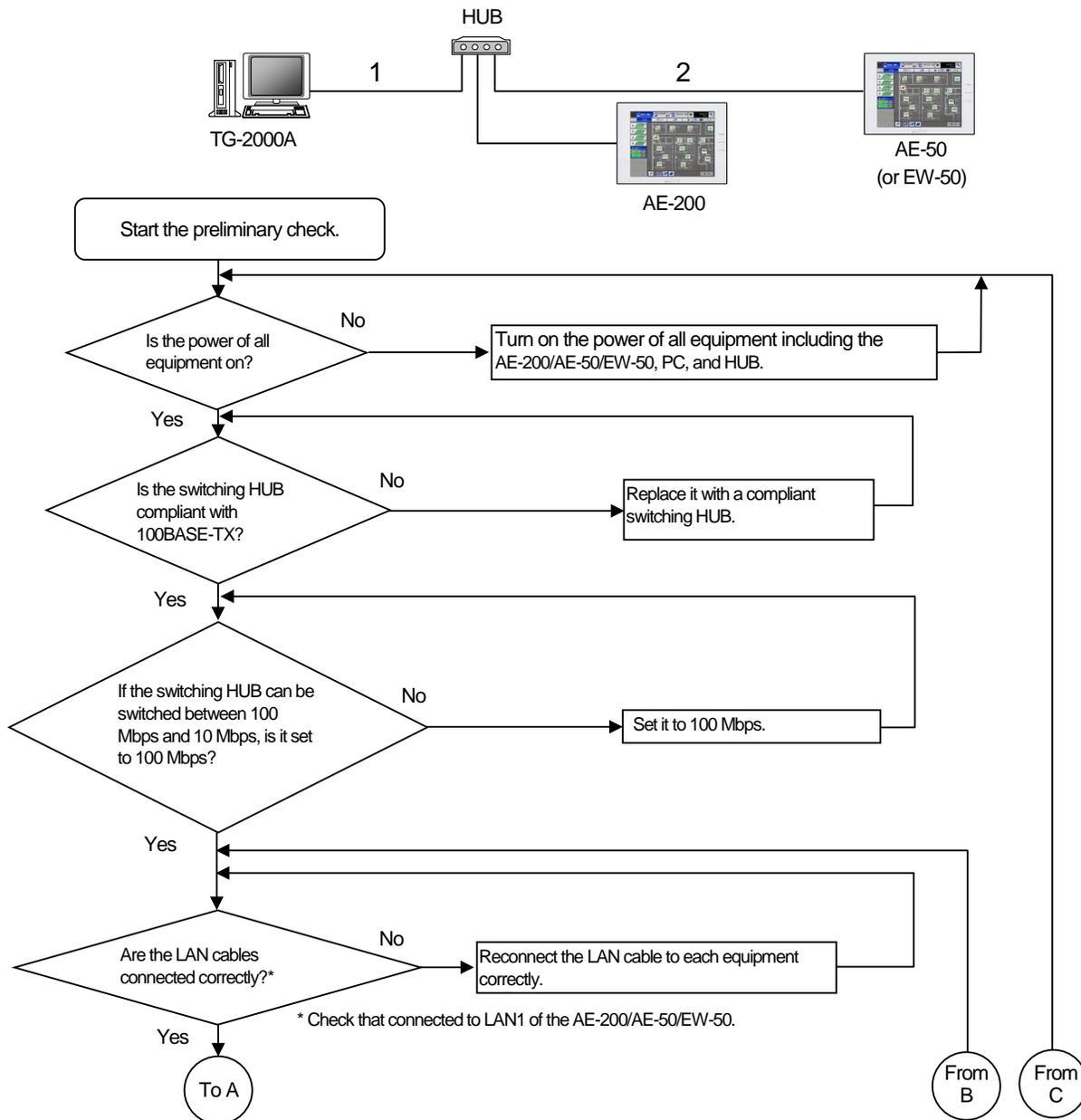
LAN cable...Several straight cables (category 5 to 6e)

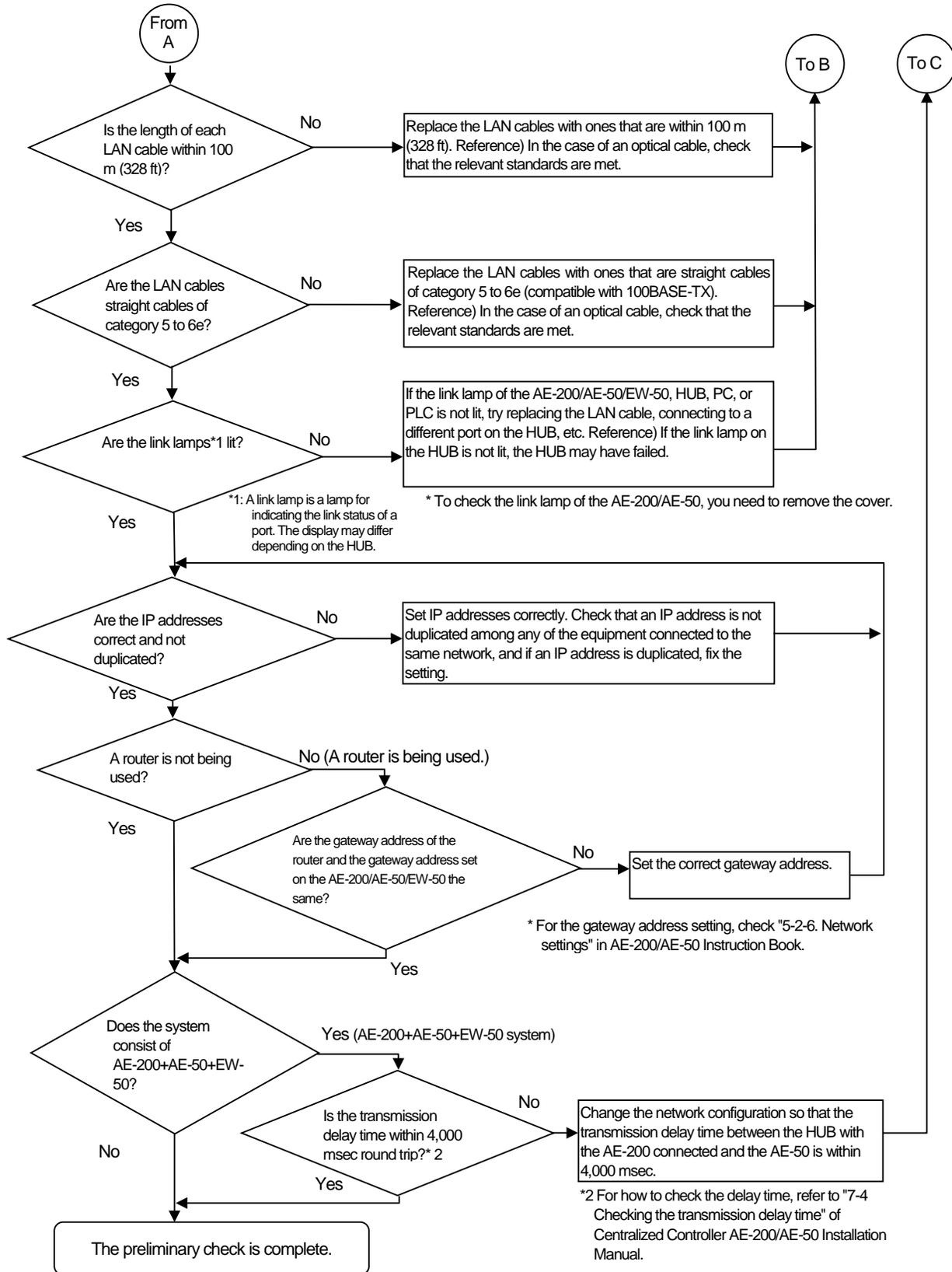
Switching HUB...100BASE-TX

### 1. About the preliminary check items

If the equipment is not operating normally and there are symptoms related to LAN communication, first recheck the following items.

1. TG-2000A 0003 or 6920 is displayed \* When TG-2000A is connected
2. AE-200/AE-50/EW-50 6920 or 0097 (when using billing function) is displayed





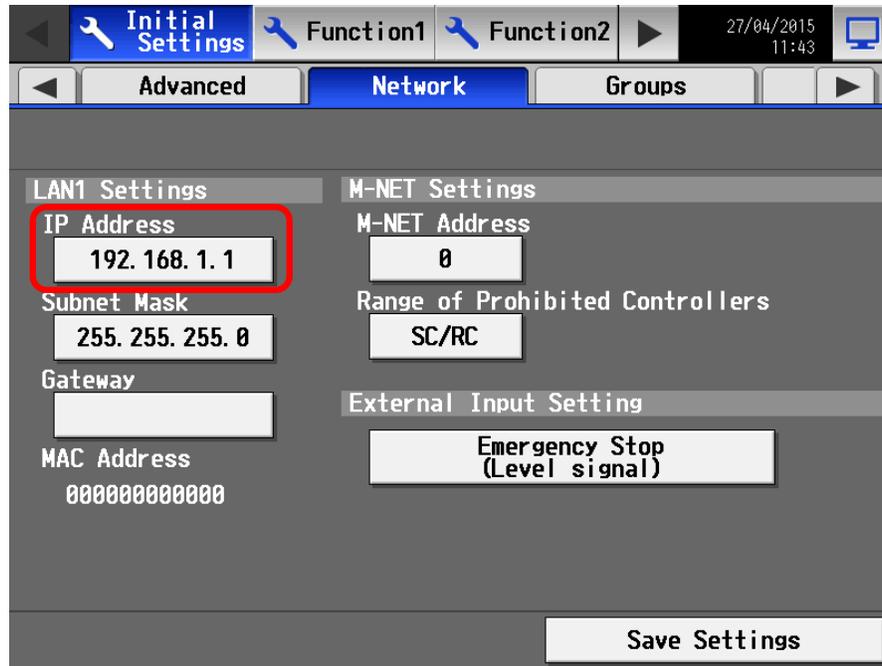
**If you answered "No" for any of the above items, first remove the cause of that item and then check if the symptoms persist.** However, try your best to not turn on and off the power of the target devices (AE-200/AE-50/EW-50, PC of TG-2000A, and PLC) many times. If the symptoms still persist, refer to "V [1] Before performing failure diagnosis" and then perform the checks.

**[How to check the IP address of the AE-200/AE-50/EW-50]**

Check the IP address setting of each equipment to confirm that there is not a duplicate IP address set for equipment connected to the same network.

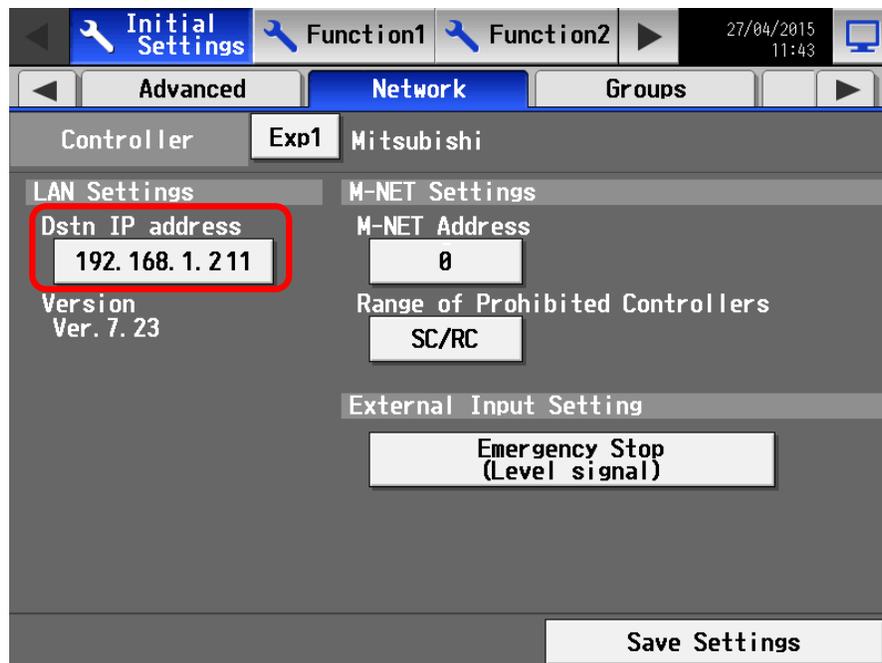
- (1) How to check IP address of the AE-200/AE-50 unit

The IP address of the AE-200/AE-50 can be checked in [Initial Settings] - [Network] screen.



- (2) How to check the IP address of the AE-50/EW-50 on the LCD screen of the AE-200

The IP address of the AE-50/EW-50 can be checked by selecting the equipment to display ("Controller") in [Initial Settings] - [Network] screen.



\* If the IP address of an individual EW-50 is unknown, set the IP address again with SW1 on the EW-50 main unit.

## 2. About the check method using ping

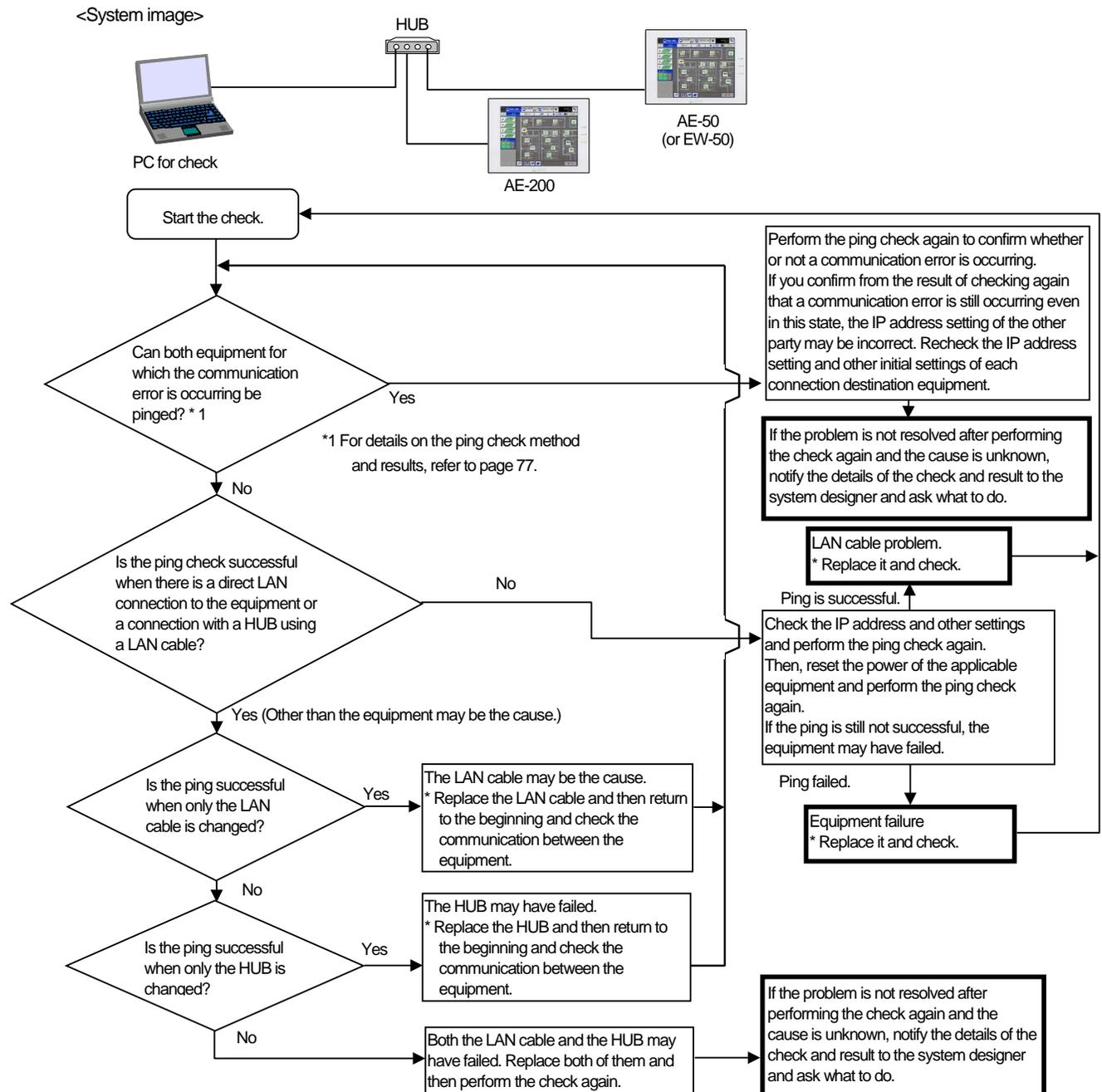
### (1) Notes

**This section contains notes on performing a check. Read them before you perform a check.**

- 1) Be sure to obtain the permission of the network administrator to connect a PC to the network for the check and also check that the IP address is one that it is alright to use.
- 2) Set the IP address of the PC for the check to one that is suitable for the network. (When a router or other equipment is used, also set the gateway address.)  
Set an IP address that will not duplicate the IP address of any of the other equipment on the network.
- 3) If you cannot use the PC that you brought with you, ask the network administrator if there is a PC that you can borrow.  
\* In the case of a system that uses TG-2000A, the PC of the TG-2000A can be used.

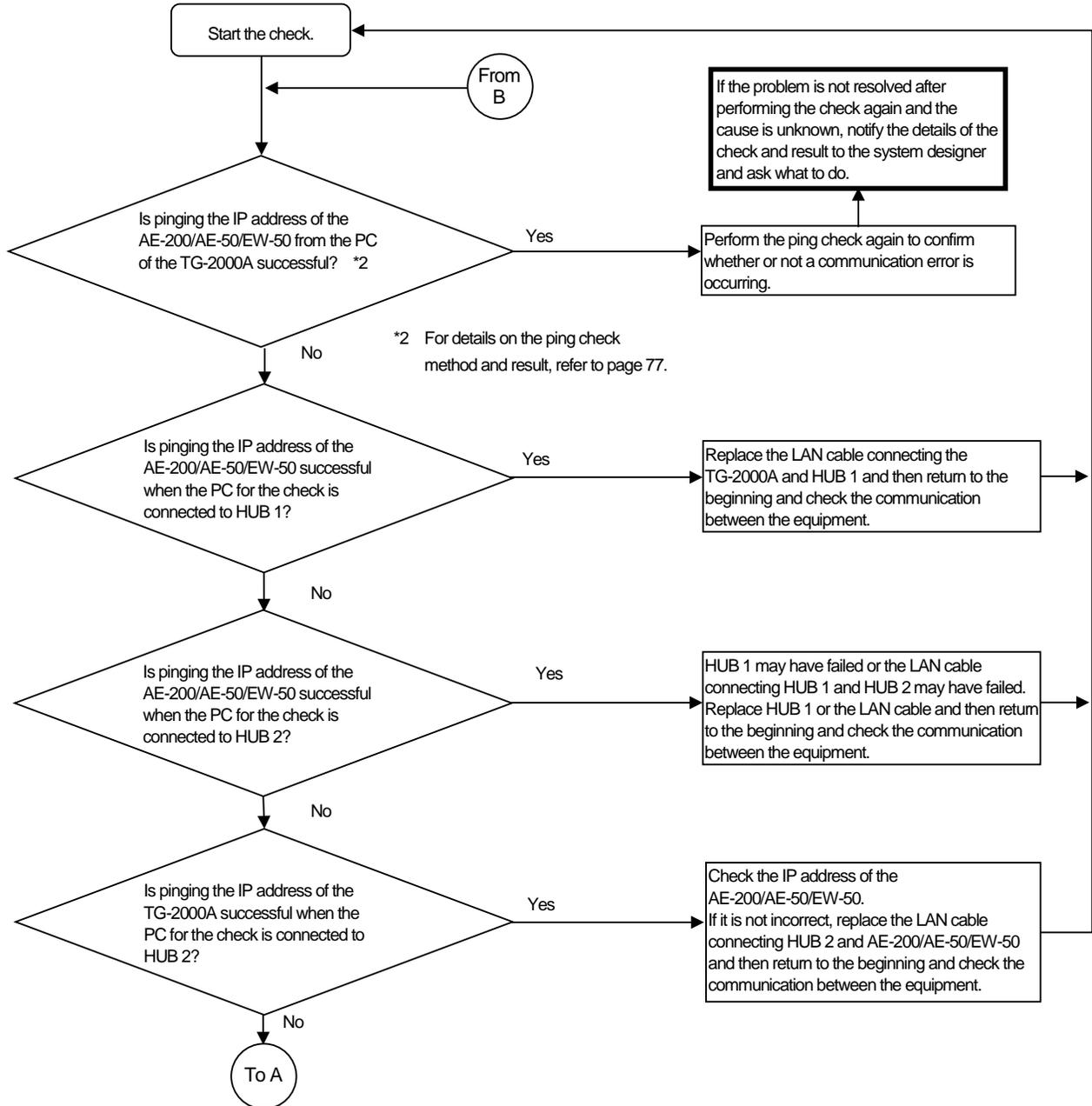
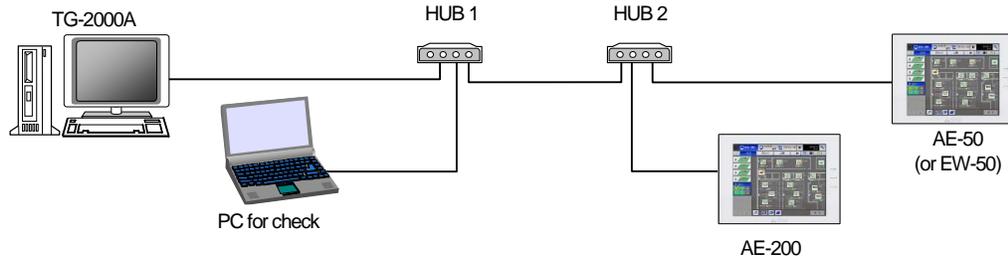
### (2) About the check item using ping

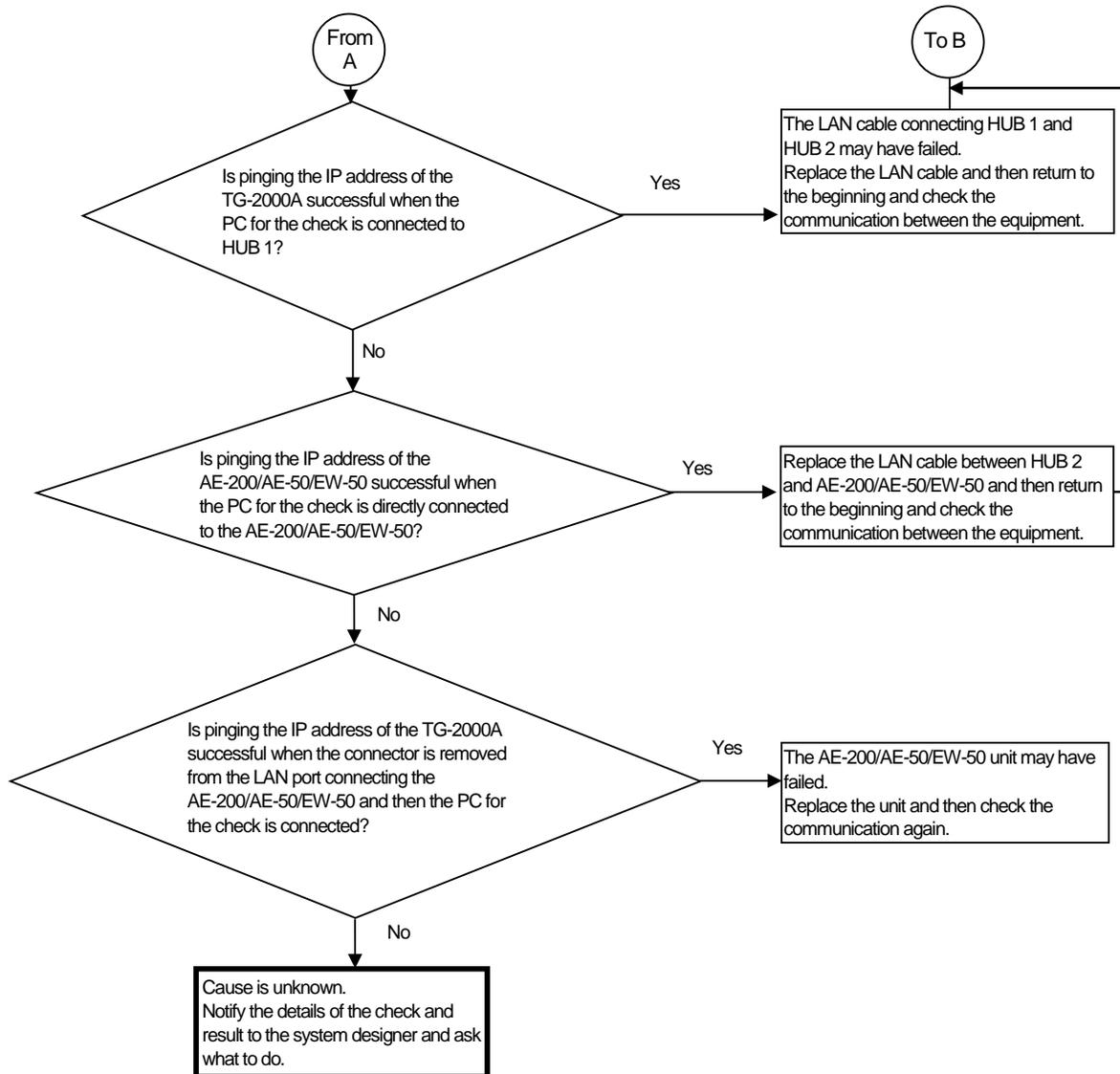
Use a PC to check the communication status of equipment for which a communication error is occurring between equipment.



(3) When 0003 or 6920 error on the TG-2000A in the check item using ping

Use a PC to check the communication status of equipment for which a communication error is occurring between equipment.





**[Ping check method]**

Ping the AE-200, AE-50, EW-50, etc. from the command prompt of a PC.

How to display the command prompt

In Windows 7

Display the Start menu of Windows.

Select [Command Prompt].

Run the following in the command prompt.

ping   -t   [IP address of AE-200, AE-50, etc.]

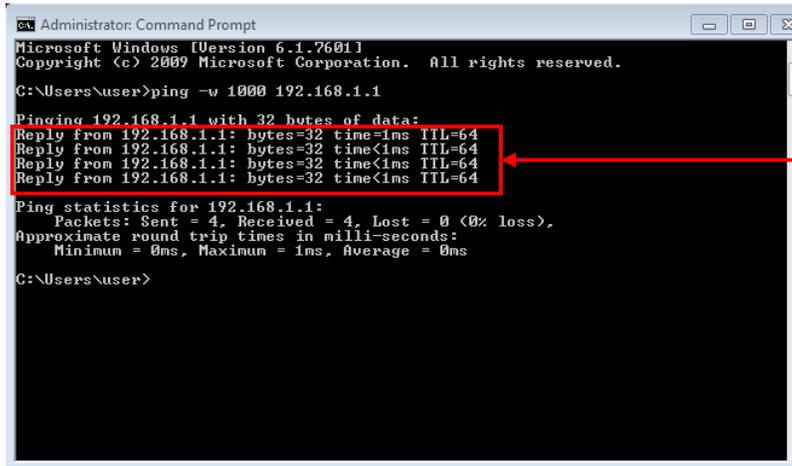
↑↑ Single-byte space (1 character)

[Example] ping -t 192.168.1.1

Check that the connection was successful from the message displayed when the command was run.

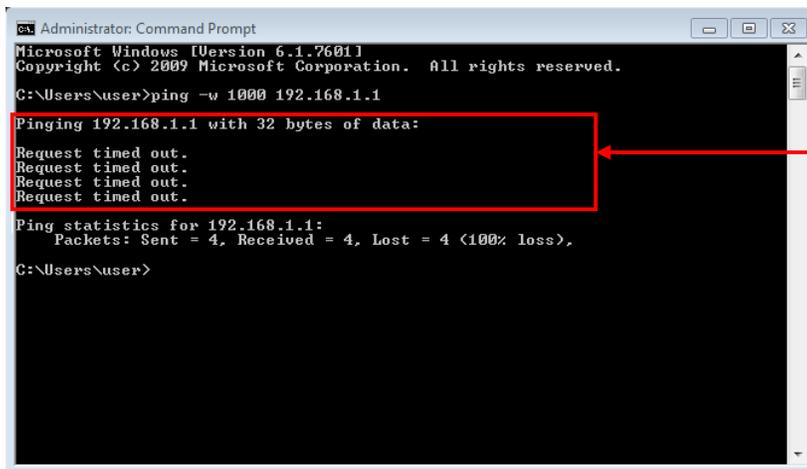
To quit ping, press the Ctrl and C keys on the keyboard at the same time.

<Result when could be pinged (example when successful)>



Successful example

<Result when could not be pinged (example when failed)>



If "Request timed out." is displayed, recheck the LAN connection status, IP address, etc. (Supplement)

The response to pings may be irregular depending on the equipment. If there is no response after continuing pinging for a certain time, quit ping by pressing the Ctrl and C keys.

**[How to check when a LAN communication error occurs in a system connected via a router (how to isolate the cause)]**

When LAN communication is not performed properly (pinging is not successful\*1) in a system connected using a router, you can isolate the cause as follows.

\*1 Check whether pinging the AE-200/AE-50/EW-50 from a PC is successful when there is a connection via a router in advance.

Step	Method	Supplement
1	Prepare a PC that is connected to the same network. Use a PC in the same network with no connection via the router.	If there is no PC connected to the network, identify an IP address that it is alright to use and then connect a PC with that IP address set.
2	<p>Ping the AE-200/AE-50/EW-50 or other target equipment from the PC. Run the following in the command prompt. ping_ _-t_ _[IP address of target equipment]</p> <p style="text-align: center;">   Single-byte space (1 character)                 </p> <p>[Example] ping -t 192.168.1.1</p> <p>⇒When pinging is successful: There may be a problem with the gateway setting of the target equipment or the router settings. Consult with the equipment administrator. For the gateway address setting, check "8-2-6. Network settings" in AE-200/AE-50 Instruction Book. For the router settings, check the Instruction Book of the router.</p> <p>⇒When pinging failed: There may be a problem with the IP address setting of the target equipment. Check the setting. If the problem still cannot be resolved, there is likely to be a problem with the network of the router. Consult with the system administrator.</p>	* For the operating procedure, refer to [Ping check method] on the previous page.

**[How to check that an IP address is not duplicated]**

If it is not possible to check the IP addresses of all equipment, there is the following method using a PC to check with the command prompt. (Supplement) If all connected equipment in a system in an existing network cannot be checked, you can compare the MAC addresses of the equipment of only the air conditioning control system to check if an IP address is duplicated.

Step	Method	Supplement
1	Prepare a PC that is connected to the network.	If there is no PC connected to the network, identify an IP address that it is alright to use and then connect a PC with that IP address set.
2	<p>Ping the IP address of the AE-200/AE-50/EW-50 from the PC while the AE-200/AE-50/EW-50 is disconnected from the LAN. If there is a response, there is equipment with the same IP address as the AE-200/AE-50/EW-50. Consult with the network administrator.</p>	

## [6] Peak cut troubleshooting

The following shows troubleshooting for the peak cut function.

\* Before carrying out troubleshooting, check whether or not the peak cut settings have been configured.

	Item	Yes	No
1	Are the block settings configured?		
2	Are the peak cut settings configured?		
3	Is the license registered to each AE-200/AE-50/EW-50?		

→ If "No" was answered for any of the above, the cause is likely to be that item. First remove that cause.

### (1) Troubleshooting based on trouble examples

Symptom		Cause	Check procedure and remedy
1	The peak cut control status does not match on the actual equipment and the AE-200/AE-50/EW-50 (Web browser) or TG-2000A screen. (Display timing offset)	There is a difference in the monitor timing.	- (Normal) → An offset occurs due to the monitor timing.
2	It is hot as cooling has no effect due to peak cut.	1) Control is always at the highest level because the set peak cut power value is low.	Check how low the peak cut level is set (*1) and if it is low, do the following. Cause 1) Consider whether the peak cut level can be changed. *1 The level can be checked in the [Energy Mgmt] - [Peakcut] screen on the AE-200 LCD.
3	Peak cut control is not being performed normally.	1) The license is not registered to the AE-200/AE-50/EW-50. 2) The power of the AE-200/AE-50/EW-50, PI controller, PLC is shut down. 3) The M-NET transmission line or a LAN cable is broken or disconnected. 4) The operation block is not set. 5) The control settings of peak cut control are not set or the settings are incorrect. 6) There is a pulse setting mistake (in the case of a PI controller). The pulse unit is set on the PI controller even though it is connected with the AE-200/AE-50/EW-50 or TG-2000A.	Check causes 1) to 7). Take the measure corresponding to the cause. Cause 1) Register the energy management license pack to the AE-200/AE-50/EW-50. Cause 2) Check the power supply system. Cause 3) Check the connections of the M-NET transmission line and LAN cables. Cause 4) Set the operation block and configure the peak cut control settings. Cause 5) Check and fix the settings. Cause 6) Check that the [kWh/pulse] setting on the electricity meter and PI controller is correct. When the PI controller is connected with the AE-200/AE-50/EW-50 or TG-2000A, dip switch SW02 of the PI controller needs to be set to the SC setting (factory default setting). If there is setting mistake, fix it.

## [7] Energy management troubleshooting

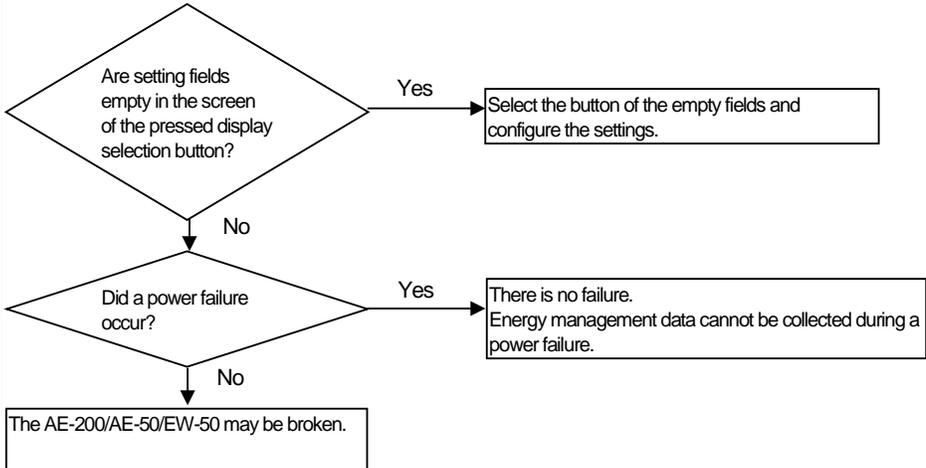
The following shows troubleshooting for energy management

\* Before carrying out troubleshooting, check whether or not the energy management settings have been configured.

	Item	Yes	No
1	Are the external temperature sensor settings configured?		
2	Is apportioning mode of the indoor unit set?		
3	Are the settings of the apportioning source electricity meter of the indoor unit configured?		

\* For the setting procedures, refer to the Instruction Book (Web Browser for Initial Settings).

→ If "No" was answered for any of the above, the cause is likely to be that item. First remove that cause.

Symptom	Cause	Check procedure and remedy
1 Bar graphs and line graphs are not displayed.	1) There are required items for display that is not set. 2) There was a power failure so management data does not exist for that period. 3) The data is damaged.	Check method and process 
2 The target values are not displayed.	1) The display unit is other than "Block." 2) The target values are not set. 3) The settings of the apportioning source electricity meter of the indoor unit are not configured.	Check causes 1) to 3). Take the measure corresponding to the cause. Cause 1) Touch [Display switching] to change the display unit to [Block]. Cause 2) Go to the [Energy Mgmt] - [Target value] screen and set the target values. For details, refer to Instruction Book. Cause 3) Select the electricity meter in [Indoor unit electricity meter] of the Energy Management Settings screen of Web Browser for Initial Settings.
3 [OK] cannot be pressed after setting the target values.	The total of the percentages is not 100%.	Adjust the percentages based on the red indication at the bottom of the setting screen.

## VI Q & A

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**[1] About the entire system**

No.	Question	Answer
1	Is the centralized control of another company's air-conditioning units possible?	The ON/OFF operation and error status of another company's air-conditioning units can be managed from AE-200/AE-50/EW-50 by using a DIDO controller to connect to contact points.
2	What methods are available to perform remote monitoring?	<p>There is the method of using an Internet connection<sup>2</sup> to connect with a VPN router<sup>*1</sup>. When an Internet connection will be used, it is necessary to subscribe to a separate Internet provider, and obtain a global IP (or use dynamic DNS) for identifying the VPN router from the Internet.</p> <p>With regard to error mail notification, subscribing to a separate provider enables mail to be sent to a mobile phone, PC, or other device capable of receiving e-mail<sup>*3</sup>.</p> <p>*1 Be sure to install a VPN router and other equipment in order to ensure security.</p> <p>*2 Use is not possible if there is a router or proxy server that does not support VPN pass-through in the communication path (please note that connecting from an internal LAN to a VPN router in a remote location is often not possible).</p> <p>*3 SMS is not supported.</p>

**[2] About Web browsers**

No.	Question	Answer
1	Is Microsoft VM not supported for the Web browser?	<p>Microsoft VM is not supported.</p> <ul style="list-style-type: none"> <li>* Java® Runtime Environment (Oracle® Java Plug-in) is required. Operation has been verified with Oracle® Java Plug-in Ver.1.7.0_51 and Ver.1.8.0_05.</li> <li>* The version of the Oracle® Java Plug-in can be checked from [Java] in Control Panel.</li> <li>* Install the Oracle® Java Plug-in that is suitable for the operating system being used. If the 64-bit version of Internet Explorer will be used, install the 64-bit version of the Java Plug-in.</li> </ul>
2	With Internet Explorer 8 and 9, the "A malfunctioning or malicious add-on has caused Internet Explorer to close this webpage." error message appears in the Web browser and the webpage closes.	<p>Start Internet Explorer and then select [Tools] → [Internet options] from the toolbar. Select the [Advanced] tab in Internet Options to open the Advanced screen. Clear the [Enable memory protection to help mitigate online attacks] check box of the Security items and then click [OK].</p> <p>Close all open Internet Explorer windows and then open Internet Explorer again and check that the Web browser function of the AE-200/AE-50/EW-50 can be used (the webpage is displayed).</p>

No.	Question	Answer
3	The login screen is displayed when moving to another page in the Web browser.	<p>The problem can be resolved by performing either procedure [1] or [2].</p> <p>[1] Use the 32-bit version of Internet Explorer, even in the 64-bit version of Windows 7.</p> <ol style="list-style-type: none"> <li>1) Open [Computer] → [Local Disk (C)] → [Program Files (x86)*1] → [Java] → [jre6] → [bin] folder.                      (*1 There are two versions of Program Files on a PC running a 64-bit version of Windows: [Program Files] and [Program Files (x86)]. Select [Program Files (x86)].)</li> <li>2) Right-click the javacpl.exe file in the [bin] folder and then click [Run as administrator].                      * If you are logged in as a user without administrator privileges, the administrator password will need to be entered.</li> <li>3) Java Control Panel opens. Click the [Advanced] tab.</li> <li>4) The Advanced screen opens. Click [Java Plug-in], select the [Enable the next-generation Java Plug-in] check box, and click [OK].</li> <li>5) Click [Internet Explorer] from [All Programs] of the [Start] menu to start the 32-bit version of Internet Explorer.</li> <li>6) Log in to the webpage of the AE-200/AE-50/EW-50 and check that the login screen is not redisplayed when going to the pages for monitoring operations and changing the settings of air-conditioning units.</li> </ol> <p>[2] Update the Java version.</p> <ol style="list-style-type: none"> <li>1) Connect the PC to the Internet.</li> <li>2) Start the browser and then access [http://www.java.com].</li> <li>3) When the Java website opens, click [Free Java Download].</li> <li>4) Check that the file to be downloaded is the latest version and then click [Agree and Start Free Download].                      The [File Download] dialog box opens. Click [Run] to install the software.</li> </ol>
4	Can Internet Explorer (IE) of the Start screen of Windows 8.1 be used?	<p>No, it cannot be used.                      Use Internet Explorer (IE) of the desktop screen.                      If IE has been started from the Start screen, first close IE and then switch to the desktop screen and start IE again. For how to switch screens, refer to the Instruction Book for Windows 8.1.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Start screen</p> </div> <div style="text-align: center;">  <p>Desktop screen</p> </div> </div>

**[3] About the AE-200/AE-50/EW-50 Centralized Controller**

No.	Question	Answer
1	Can two AE-200 be connected to the same M-NET line?	Yes, but there are restrictions.
2	When does the unit LCD backlight turn off?	The backlight turns off when three minutes elapse without any operation input. However, the backlight will remain lit if an error is occurring.
3	Is it possible to connect with the PLC of Electric Amount Count Software or Demand Input PLC Software?	Yes. However, only peak cut control can be used. With regard to the AE-200 apportioned electricity billing function, only a PI controller connection is possible.
4	Is it possible to select the error codes I wish to be notified of by error mail?	You can select the notification target error codes in the error code notification settings.
5	Is the maximum number of units that can be controlled 50?	The maximum number of units that can be controlled in the case of M-NET of the AE-200/AE-50/EW-50 is 50. A maximum of 200 units can be controlled when AE-200 and AE-50/EW-50 are used together.
6	Can the status of an AI controller and PI controller be displayed on the unit? (Is display on the LCD supported?)	Only the AE-200/AE-50 can display the status. However, graphs cannot be displayed. A centralized control PC (Web browser) is required to display graphs.
7	Can the operation of the AE-200/AE-50 itself be locked?	Enabling the screen lock function in [Initial Settings] → [Unit Information] screen locks the screen with a login screen. Furthermore, when the screen lock function is enabled, the lock is automatically activated if no operation is performed for a set time (three minutes). * However, the screen lock is not activated automatically while an error is occurring.
8	Up to how many floors can be set?	A maximum of up to 10 floors can be set.
9	How many groups can be placed on one floor?	30 group can be placed on one area of a floor. A maximum of 180 groups can be placed on a floor with the floor layout split into six.
10	If a schedule setting day of week 1 to week 5 is duplicated, which schedule operates?	The schedule of week 1 has priority and is executed. The priority order for schedules is as follows (the priority order is from left to right). Today's schedule > Annual schedule > Week 1 > Week 2 > Week 3 > Week 4 > Week 5
11	Is group registration required for an ME remote controller?	Yes, group registration is required. (Group registration is required for an ME remote controller and a system remote controller. However, group registration is not required for an MA remote controller.)
12	Is it possible to select whether to show or hide the indoor (inlet) temperature.	You can select any of [Show], [Hide], and [Show during operation]. The indoor (inlet) temperature is displayed at the top right of the group icon always if [Show] is selected and only during operation if [Show during operation] is selected.
13	About how long is required to start up after the power of the AE-200/AE-50/EW-50 is turned on?	The time required differs depending on the system configuration, communication interruptions, and other conditions. As a guide, you can expect it to take approximately 5 minutes.
14	What is the initial license status of the AE-200/AE-50/EW-50?	All items of the licenses are in a disabled state at the time of shipment. Purchase the required licenses from the dealer and then perform license registration on the AE-200/AE-50/EW-50. (The schedule function does not require a license.)
15	Where can I find the serial number of the AE-200/AE-50/EW-50?	It is on a sticker affixed to the left side of the packaging box. Example: "Serial Number: 12664-067." Furthermore, you can also check the serial number on the login screen of the LCD screen of the AE-200/AE-50 unit or on the Web browser license registration screen. 
16	Is there a way to check whether the unit is powered on or the air-conditioning unit status when the backlight of the AE-200/AE-50 is off?	Yes, there is. The POWER LED turns on when power is supplied to the AE-200/AE-50 and the ON/OFF LED turns on (when one or more air-conditioning units are operating), blinks (when an error is occurring with one more air-conditioning units), or turns off (when all air-conditioning units are stopped) to indicate the air-conditioning unit status.

No.	Question	Answer
17	Is there a way to erase all group registrations in one go?	No, there is not. (This function is not provided as we wish to prevent all registrations being erased by accident.)
18	Can a floor plan of the AE-200/AE-50 be used as a floor plan of the TG-2000A?	No, it cannot be used. Prepare them separately because the floor plans of the AE-200/AE-50 and TG-2000A differ in size and format.
19	Is there anything I can do if I have forgotten the building manager login password?	Contact the dealer or distributor and inform them of the serial number of the AE-200/AE-50/EW-50. You will be given a password that allows you to log in. Log in and then change the password.
20	Is it possible to set the set temperature range limit on a Mr. Slim model from the AE-200/AE-50/EW-50 via an M-NET adapter?	The set temperature range limit cannot be set via an M-NET adapter. For the settings of an MA remote controller, set them on the actual MA remote controller. For the settings of a ME remote controller, there is no connection via an M-NET adapter.
21	Are the USB memory devices that can be used only those specified?	For AE-200/AE-50, select a USB memory device that meets the following conditions and verify operation several times before use. * Reading and writing with a memory device for which operation has not been verified may cause an unexpected operation. Therefore, verify operation of the memory device (during trial operation) before use. Do not use a USB memory device for which a data writing error has occurred. 1. USB standard: Must be USB 2.0 compliant 2. Format: Must be formatted in FAT32 or FAT (FAT16). 3. Must have no security function or be able to be used without the security function. (Depending on the security function, there may also be some USB devices for which use is possible.)  In cases such as when data writing can still not be performed normally when a USB memory device has been replaced with another one after a data error occurs, restart the AE-200/AE-50 (turn the power off and then back on) and then perform the check again with a USB memory device other than the one with which the error first occurred.
22	Can the set temperature range limit be set on the system remote controller from the AE-200/AE-50/EW-50?	No, it cannot be set on the system remote controller. It can be set only on local remote controllers (ME and MA). (Depending on the model of ME remote controller, setting may not be possible.)
23	Is an apportioned electricity billing license required to output the billing parameters in CSV format?	Yes, it is required. Data output is not possible if the license is not registered. Output to each centralized controller from the AE-200.
24	Can a Mr. Slim air conditioner and LOSSNAY be interlock controlled with the settings of the AE-200/AE-50/EW-50?	Yes, they can be interlock controlled. Furthermore, there is also the method of interlocking by directly connecting the Mr. Slim (an MA remote controller is required) to the LOSSNAY with a LOSSNAY interlock cable.
25	The error codes of Mr. Slim are two digits. How will they be displayed when the Mr. Slim is connected to the AE-200/AE-50/EW-50?	The models (Mr. Slim and RAC/HAC) that can be connected to the AE-200/AE-50/EW-50 are those for which errors can be indicated by the error codes (four digits) of the AE-200/AE-50/EW-50.
26	Is there a way to hide the inlet temperature display of the AE-200/AE-50 when operation is stopped?	Set room temperature display to [Show during operation] in the [Unit Information] of [Initial Settings] on the AE-200/AE-50 unit. If [Show during operation] is selected, the indoor (inlet) temperature is not displayed when operation is stopped.
27	Can the power supply expansion unit (PAC-SF46EPA) also be used without the power supply unit (PAC-SC51KUA)?	Yes, it can.
28	If the AE-200/AE-50/EW-50 fails after setting the prohibit local remote controller operation setting from the AE-200/AE-50/EW-50, can the prohibit local remote controller operation setting be disabled?	When communication from the AE-200/AE-50/EW-50 stops, the prohibit setting is disabled after approximately 15 minutes.
29	If the power of the AE-200/AE-50/EW-50 is shut off due to, for example, a power failure, do the air-conditioning units also stop?	If there is a local remote controller, operation continues. If there is not, operation stops after a maximum of 13 minutes.
30	I have forgotten the IP address of the AE-200/AE-50/EW-50. How can I find out what it is?	AE-200/AE-50 It can be checked in [Initial Settings] - [Network] screen on the LCD screen. EW-50 (Expansion controller) It can be checked by specifying the equipment to display in [Initial Settings] - [Network] screen on the LCD screen. (Standalone) There is no way to check. It can be set again by using the rotary switch (SW1) of the unit. For the setting procedure, refer to "8-3. Quick IP address setting" in the EW-50 Installation and Instructions Manual.

**[4] About optional functions**

No.	Question	Answer
1	What is the concept of peak cut control?	<p>The concept of peak cut control is to control the operation of the air-conditioning units to save energy by switching to each group in the operation block in order. (There are also some functions that cannot be implemented depending on the target air-conditioning units.)</p> <ul style="list-style-type: none"> <li>• Change the set temperature</li> <li>• Switch to fan operation (or forced thermo-OFF operation)</li> <li>• Stop</li> <li>• Outdoor unit capacity save</li> </ul> <p>Peak cut control (level 0) always performs control regardless of the electric energy consumption.</p> <p>Whereas peak cut control (levels 1 to 4) always monitors electric energy consumption and performs control when the predicted value of average electric energy in a 30-minute period has exceeded a preset level.</p>
2	Does control always begin from the same group in peak cut control rotation?	<p>Peak cut control is implemented in both the 30-minute units of 0 to 29 minutes and 30 to 59 minutes so control does not always begin from the same indoor unit group and same outdoor unit (address that is lowest).</p> <p>However, since the electric energy reduction request from the power company becomes a peak cut power level signal of a 30-minute unit and 60-minute unit, control always begins from the same indoor unit group and same outdoor unit (address that is lowest).</p>
3	Is peak cut also possible for another company's air-conditioning units, lighting, and other equipment?	<p>No, it is not.</p> <p>The target for peak cut control performed by a AE-200/AE-50/EW-50 system is only Mitsubishi Electric's air-conditioning units (products incorporating M-NET).</p>
4	Is peak cut control possible for a DIDO controller?	A DIDO controller is not supported for peak cut control.
5	What is the control unit for peak cut control?	The control of indoor units is performed for the unit of a group in the operation block. The control of outdoor units is performed for the unit of an outdoor unit.
6	If the capacity save amount of an outdoor unit is set to 80%, will electric energy consumption be reduced to 80%?	<p>The 80% figure for saving is with regard to the maximum frequency of the compressor.</p> <p>This does not mean a reduction of the electric energy amount to 80%.</p>
7	Is capacity save of outdoor units supported for all room air-conditioners, A control Mr. Slim, and MULTI air conditioners?	<p>It is not supported for room air conditioners.</p> <p>Support is possible for the inverter outdoor unit of a MULTI air conditioner.</p> <p>For the inverter outdoor unit of a Mr. Slim, support for outdoor unit capacity save can be provided by using peak cut.</p> <p>It is not supported for PUMY.</p>
8	Is it possible to implement only peak cut control even though a PI controller is not connected?	If a license is registered, it is possible to use only level 0.
9	Is it possible to connect an electricity meter to the PI controller and then perform control according to the peak cut level within the range of multiple AE-200/AE-50/EW-50 units?	<p>Yes, it is.</p> <p>Peak cut control using a PI controller can control within the range or up to four AE-200/AE-50/EW-50 units.</p>
10	Can the set temperature be changed with the ME remote controller or MA remote controller during set temperature $\pm 2^{\circ}\text{C}$ ( $\pm 4^{\circ}\text{F}$ ) control with peak cut control?	<p>Yes, the set temperature can be changed.</p> <p>However, if the set temperature is changed during peak cut control, <math>\pm 2^{\circ}\text{C}</math> (<math>\pm 4^{\circ}\text{F}</math>) control is performed again for the new temperature.</p> <p>Also, the set temperature will be the new set temperature after peak cut ends.</p> <p>Example: 1. Peak cut control (<math>+2^{\circ}\text{C}</math> (<math>\pm 4^{\circ}\text{F}</math>)) starts with cooling at <math>26^{\circ}\text{C}</math> (<math>79^{\circ}\text{F}</math>).  <math>\Rightarrow</math> Set temperature is <math>28^{\circ}\text{C}</math> (<math>82^{\circ}\text{F}</math>).  2. Changed to <math>24^{\circ}\text{C}</math> (<math>75^{\circ}\text{F}</math>) with the remote controller.  <math>\Rightarrow</math> Set temperature is <math>26^{\circ}\text{C}</math> (<math>79^{\circ}\text{F}</math>).  3. Peak cut ends.  <math>\Rightarrow</math> Set temperature is <math>24^{\circ}\text{C}</math> (<math>75^{\circ}\text{F}</math>).</p>
11	Why is capacity save with PUMY using peak cut control not possible?	This is because even though PUMY is an inverter model, the unit does not support the capacity save settings.
12	Is it possible to connect a demand controller to an external input of the AE-200 and then perform peak cut control for an AE-50 system?	<p>Yes, it is. Yes. Set the settings as described in the following procedure.</p> <ol style="list-style-type: none"> <li>1. Select [Other AE] in [System Settings] of [Function1] - [Peak Cut Settings] on the AE-50 Web Browser for Initial Settings.</li> <li>2. The IP address input field appears. Enter the IP address of the AE-200 with the external input connected.</li> </ol> <p>Note: For the AE-200/AE-50 with [Other AE] selected, a delay of up to 1 minute occurs when starting peak cut control.</p>

## [5] About models other than air-conditioning units

No.		Question	Answer
1	LOSSNAY	Can OA Processing unit and LOSSNAY be set to the same group?	Yes they can be set to the same group but their functions differ so set them to different groups.
2	OA Processing unit	Is the humidification operation possible when the operation mode is cooling?	No, it is not. It is only possible in the heating mode.
3	LOSSNAY, OA Processing unit	Can the night purge setting also be set for LOSSNAY and OA Processing units without the night purge function?	No, it cannot. It can only be set for equipment with the night purge function.
4	LOSSNAY, OA Processing unit	There is a 24-hour ventilation setting menu. Can it be set?	No, it cannot.
5	CAHV	Can a CAHV air source heat pump be connected?	Yes.
6	CRHV	Can a CRHV water source heat pump be connected?	Yes.

## [6] Other

No.	Question	Answer
1	Is the controller to use different for managing 50 units or less and 200 units or less?	50 units or less: AE-200 or EW-50 From 51 to 200 units: AE-200 (with M-NET connection) + AE-50/EW-50 (1 to 3 units) From 51 to 200 units: AE-200 (without M-NET connection) + AE-50/EW-50 (2 to 4 units) In the case of 51 to 200 units, it is necessary to add a HUB, change the wiring connections, etc.
2	Can the TG-2000A be connected with a mixture of AE-200/AE-50/EW-50 and G-150AD or G(B)-50?	Yes, it can. The TG-2000A that supports AE-200/AE-50/EW-50 is Ver.6.60 or later. When the TG-2000A is connected with a mixture of AE-200/AE-50/EW-50, the maximum number of indoor units that can be targets for operation and monitoring is 2,000.
3	If the power of the AE-200/AE-50/EW-50 is cut because of, for example, a power failure, how long will the backup data be retained?	The current time is backed up for about one week and is then reset (2014/04/01). The settings are retained but there are data retention periods. For example, the period is 62 days in the case of billing data and 24 months in the case of energy usage status data. When a retention period elapses, the data is overwritten.

## **VII Test run check lists for initial work and expansion work**

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## [1] Setting check list

Configure the settings for the functions you wish to operate and then perform the following checks.  
For the setting procedures, refer to "Instruction Book" for the unit or "Instruction Book (Web Browser for Initial Settings)."

○: Settable

Setting items		Unit	Web browser	Initial Setting Tool	Charge Calculation Tool	Check	
User settings		○	○				
Initial settings	Date and time settings	○	○				
	Network settings	○	○				
	Group settings	○	○	○			
	Interlock LOSSNAY settings	○	○	○			
	Block settings	○	○	○			
	Advanced settings	○	○	○			
Monitor display settings	Floor plan creation						
	Floor layout settings	○					
Schedule settings (yearly/weekly/today)		○	○				
Function settings	External temperature interlock control settings	○	○				
	Night setback function settings screen	○	○				
	System changeover settings		○				
	PI controller and AI controller settings	○	○	○			
	Measurement settings	○	○	○			
	Mail settings		○				
	Energy management settings		○				
	Set temperature range limit		○				
	Night mode schedule settings		○				
Options *1	General control PLC settings	○	○				
	Peak cut settings		○				
	Interlock control settings		○				
	Billing settings	Refrigerant system settings			○		
		Energy management block settings			○		
		Indoor unit settings			○		
		Outdoor unit settings			○		
		Measurement settings			○		
		Charge settings			○		
		Metering device connected/not connected				○	
		Calculation of standby electric energy charge				○	
		Currency unit				○	
		Display order of charge calculation result				○	
		Merger of energy management blocks with same name				○	
		Decimal point character and separator character settings for CSV file				○	
		Unit price settings				○	
		Print settings				○	
CSV output settings				○			
Closing data calculation				○			
Charge calculation IP address setting				○			

\*1 Registration of the license is required for each AE-200/AE-50/EW-50.  
For the required licenses, refer to "IV [4] 2. Functions and licenses."

## [2] Test run check list

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### Before performing a test run

Be sure to complete the test run on the air-conditioning units before performing the test run check of the AE-200/AE-50/EW-50.

### 1. Test run check sheet

#### About the test run check sheet

After configuring the settings in "Setting check list" on the previous page, check the items in (1) to (3) below in accordance with the test procedure of the test run check list on the next page.

- (1) Startup check
  - After the settings of the initial screen are finished, switch to the management screen.
  - Check that the screen displayed during startup is displayed.
  - The startup time differs depending on the number of air-conditioning units connected but the startup should complete after about 5 minutes.
  - Check the display of each floor and confirm that an error is not occurring.
  - If an error has occurred, check the error history in the history screen and remove the cause of the error.
- (2) ON/OFF operation from the AE-200/AE-50/EW-50
  - Operate the air-conditioning units from the AE-200/AE-50/EW-50.
  - Confirm that the air-conditioning units are operating by checking the display on the local remote controllers.
  - Perform operation of the air-conditioning units in the order of group, block, floor, and entire building.
  - If different air-conditioning units and general equipment were operated by performing operation from the AE-200/AE-50/EW-50, check the following settings.
    - Group settings (Refer to "8-2-7. Group settings" in AE-200/AE-50 Instruction Book or AE-200/AE-50/EW-50 Instruction Book (Web Browser for Initial Settings).)
    - Block settings (Refer to "8-2-9. Block settings" in AE-200/AE-50 Instruction Book or AE-200/AE-50/EW-50 Instruction Book (Web Browser for Initial Settings).)
    - Floor layout settings (Refer to "8-2-10. Floor layout" in AE-200/AE-50 Instruction Book.)
- (3) Local remote controller ON/OFF
  - \* Do not perform this check when there are no local remote controllers connected.
  - Operate the air-conditioning units from the local remote controllers.
  - Check that the air-conditioning units operate on the AE-200/AE-50 unit. Perform the check with the Web browser in the case of the EW-50.
  - Check with the display of the AE-200/AE-50 set to the floor screen, block screen, and entire building screen. Perform the check with the Web browser in the case of the EW-50.

To make the check sheets easy to read, fill in the information for just one installation floor or one AE-200/AE-50/EW-50 unit on each check sheet.

<p><b>NOTE:</b> ○ Save a backup of the setting data of the AE-200/AE-50 after the test run. For the backup procedure, refer to "9-1. Backing up the data to a USB memory device" in "AE-200/AE-50 Instruction Book." For the backup procedure for the EW-50, refer to "Instruction Book (Web Browser for Initial Settings)."</p>
--







## 2. About the peak cut operation check

Perform peak cut control and check whether or not the air-conditioning units are operating or set as specified below for each control level.

Change the target electricity values in [Function1] - [Peak cut control] in Administrator Web and then perform control at each peak cut level.

[Example] When checking the operation at peak cut level 2

	Normal settings					Operation check at peak cut level 2					
Control levels	4	<input type="text" value="200"/>	kW	-		4	<input type="text" value="200"/>	kW	-		
	3	<input type="text" value="180"/>	kW	-	200	kW				200	kW
	2	<input type="text" value="160"/>	kW	-	180	kW				180	kW
	1	<input type="text" value="140"/>	kW	-	160	kW				160	kW
	0	0	kW	-	140	kW				140	kW

➔

To check the capacity save amount of outdoor units, use Maintenance Tool.

Note: After performing the operation check, return the settings to the original settings.

#### **[4] Apportioned electricity billing test run check list**

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When using the apportioned electricity billing function, be sure to perform the billing test run.

To perform the billing test run using the AE-200, output the test run check sheet with Initial Setting Tool and then perform the check. For details, refer to "7. Billing function trial run" in AE-200/AE-50/EW-50 Instruction Book (Apportioned Electricity Billing Function).

When using the apportioned electricity billing function with the TG-2000A, refer to Operation Manual (Site adjustment).

#### **[5] Work procedure and check for system expansion work**

---

This section describes the work procedure for adding air-conditioning units, general equipment, etc.

##### **1. Preparation**

- (1) When air-conditioning units are added, the power needs to be shut off, so peak cut control will not be performed during that time.  
Furthermore, billing using the AE-200 and TG-2000A is also not possible.  
Make sure that the owner understands the above.
- (2) When adding equipment with the equivalent power consumption such as an indoor unit, PI controller, or ME remote controller, check that the equivalent power supply is sufficient.

##### **2. Notes about expansion**

When expanding the air-conditioning system, please observe the following.

- (1) Make sure that the owner understands that peak cut control will not be performed while the power of the PI controller, PLC, and E-Energy is shut off.
- (2) Before performing the expansion work and after performing the expansion work, save a backup of the data of the AE-200/AE-50/EW-50.

### 3. Work procedure

When expanding the air-conditioning system, carry out the work as described in the following procedure.

The steps distinguish between the "monitor/operation" and "general equipment monitor/operation" functions. Carry out all steps corresponding to the functions being used. Some steps include adding a PLC. Carry out these steps according to the actual expansion requirements at the site.

[Legend] ○: Applicable / —: Not applicable

Step	Description	Check
1	Stop all air-conditioning units (and general equipment). Note: Check "Preparation" on the previous page beforehand.	
2	Back up the data of the AE-200/AE-50/EW-50.	
3	When adding a PLC, carry out the setup work, wiring connection work, and other work.	
	When adding a DIDO controller, PI controller, or AI controller, carry out the setup work, wiring connection work, and other work.	
4	Start up the PLC by turning on the power.	
	Start up the PI controller or DIDO controller by turning on the power.	
5	Start up the AE-200/AE-50/EW-50 and then configure the settings as necessary for the added air-conditioning units using "VII [1] Initial settings check list." Note: The time setting needs to be set for AE-200/AE-50/EW-50. Note: When adding AE-50/EW-50/EW-50 and using optional functions, register the licenses. For the required licenses, refer to "IV [4] 2. Functions and licenses."	
6	Be sure to set the time in [Time setting].	
7	Switch to the Monitor /Operation screen from the Initial Settings screen with the button at the top right of the screen.	
8	Turn on the power of the air-conditioning units.	
9	After startup of the air-conditioning units finishes, restart the AE-200/AE-50/EW-50.	
10	Operate all air conditioners and check that the operation can be monitored. When using general equipment, check that the equipment can be correctly monitored and operated.	
11	When a PI controller and AI controller have been added, check that the values of the thermometer, hygrometer, and electricity meter match the values in [Monitor/Operation] - [Measurement]. Note: The electricity meter value on the Measurement screen is the integrated value. Check whether the values match for each additional equipment for a set time in accordance with the following table.	
12	When performing peak cut control, check whether control is performed for each peak cut level. Refer to "VII [3] 2. About the peak cut operation check."	

**NOTE:** ○ We recommend also checking the settings other than those added or changed.

Form for recording meter values

Meter	PI controller No.	Name	Installation location	Pre-operation value	Post-operation value	Difference	Judgment
Meter 1 (Reading) (Monitor value)							
Meter 2 (Reading) (Monitor value)							
Meter 3 (Reading) (Monitor value)							
Meter 4 (Reading) (Monitor value)							
Meter 5 (Reading) (Monitor value)							
Meter 6 (Reading) (Monitor value)							

## VIII Maintenance

[1] AE-200/AE-50/EW-50 update procedure.....	98
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## [1] AE-200/AE-50/EW-50 update procedure

There are two procedures for the AE-200/AE-50/EW-50 software: "1. Procedure using a USB memory device" (cannot be used for EW-50) and "2. Procedure using a Web browser."  
Perform the update for all AE-200/AE-50/EW-50 and ensure that the software version matches.

### [Required equipment]

#### 1. Procedure using a USB memory device

- AE-200/AE-50
- Use a USB memory device containing the update data file\*1.

#### 2. Procedure using a Web browser

- AE-200/AE-50/EW-50
- PC containing the update data file\*1. (For the PC operating environment, refer to "IV [3] PC operating environment.")
- LAN cable (100BASE-TX straight cable of category 5 or better)
- Switching HUB (for 100BASE-TX)

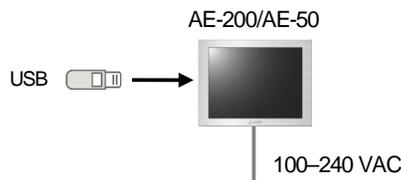
\*1 Update file (AExx\_FW####.dat)

xx: "200" in the case of the AE-200 and "50" in the case of the AE-50/EW-50

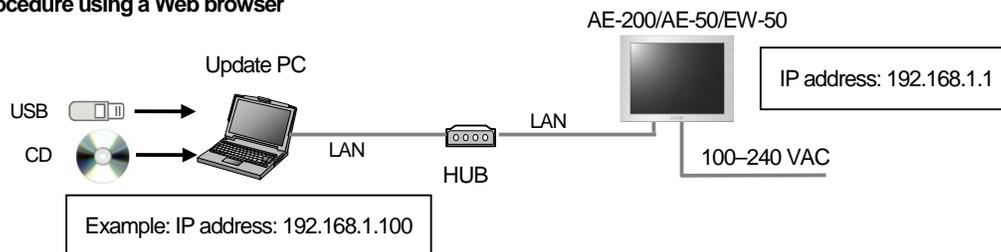
####: Software version Example: When Ver.7.23: 0723

### [System Connection Examples]

#### 1. Procedure using a USB memory device



#### 2. Procedure using a Web browser



**[Notes]**

- (1) When newly preparing a update PC, ensure that the IP address that is used does not duplicate the IP address used by the AE-200/AE-50/EW-50 or other equipment.
- (2) When the equipment is connected to an existing LAN (when a dedicated LAN is not used for the AE-200/AE-50/EW-50), we recommend separating the AE-200/AE-50/EW-50 to be updated from the existing LAN and then performing the update.  
 \* If the equipment will not be separated from the existing (on-premises) LAN, contact the network administrator, and get permission to connect the update PC and obtain an IP address to use temporarily.
- (3) When the apportioned electricity billing function is used by the PI of the AE-50/EW-50, it will not be able to obtain a pulse input during the update so a difference from the actual electricity consumption will occur.
- (4) Communication with the air-conditioning units is not possible during the update of the AE-200/AE-50/EW-50 so the air-conditioning units that are operating may detect a communication error and display the error on the local remote controllers\*1. The air-conditioning units will continue operation even if that happens, so operation with the local remote controllers will be possible (permitted).  
 However, please note that systems without local remote controllers or Mr. Slim models\*2 may detect a communication error and come to an abnormal stop.  
 \*1 If the update takes longer than approximately three minutes, an error may be displayed on the local remote controllers. The update may take about 10 minutes depending on the software version and communication conditions so please inform the administrator and other persons as necessary that an error may be displayed.  
 \*2 Whether the air-conditioning units will come to an abnormal stop or display an error differs depending on the model.
- (5) Write down the operation status of the air-conditioning units immediately before updating the software. After the software update completes, check the operation status of the air-conditioning units, and if air-conditioning units that were operating are stopped, manually operate them as necessary.
- (6) Various control functions, such as schedule control, billing data processing, peak cut control, and energy management function, will not be able to operate during the update. Check the settings of these functions beforehand, and perform the update when stopping the functions will have the least effect.
- (7) If the TG-2000A is connected and the functions in the table below are used, avoid updating the AE-200/AE-50/EW-50 during the time periods indicated in the right column.

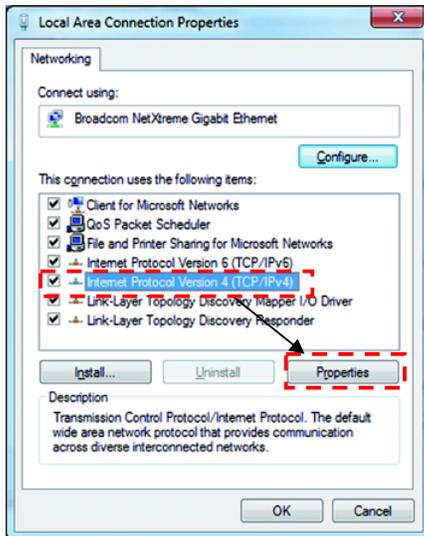
Functions in use	Time periods in which the update is prohibited
Apportioned electricity billing function	4:05 AM to 4:35 AM
Error history automatic output (every day)	12:05 AM to 12:15 AM
Energy saving daily report (peak cut control)	2:00 AM to 2:10 AM
Measurement trend monitoring (uses a PI controller and AI controller)	1:05 AM to 1:15 AM

- (8) Do not perform the update via a VPN router connected to the Internet.

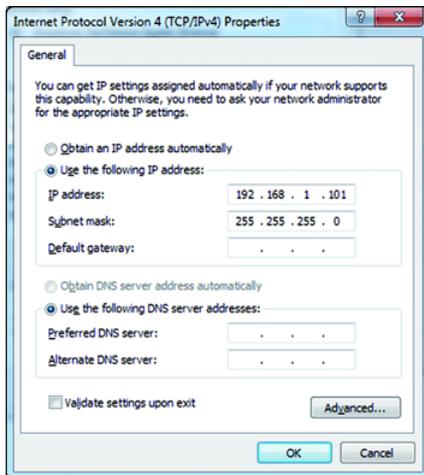
**[Work procedure 1: Update PC settings] (Procedure using a Web browser)**

(1) Change the IP address of the PC.

Click [Start] → [Control Panel] → [Network Connections], right-click [Local Area Connection], and select [Properties] to display the following dialog box.



Select [Internet Protocol Version4 (TCP/IPv4)] and click [Properties].



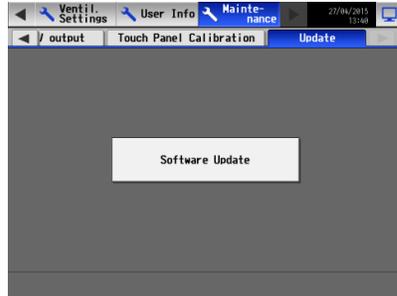
The dialog box on the left appears next. Select [Use the following IP address] and then enter [192.168.1.\*] for the IP address. (For the \* part, enter a number that is different from that of the IP address of the AE-200/AE-50 to be updated.

- \* When updating an AE-200/AE-50/EW-50 that is already operating, check the IP address of the AE-200/AE-50/EW-50 and then configure the setting.  
If the IP address of the AE-200/AE-50/EW-50 is [192.168.1.1], enter the same values for the first three numbers and enter a different number for the fourth number to set an IP address such as [192.168.1.2].  
Note: If the update will be performed with a PC that is already connected to the on-premises LAN, the subnet mask may differ from the above.  
If the subnet mask is [255.255.0.0], enter the same values for the first two numbers (192.168) of the IP address and set the third and fourth numbers so that they differ.
- \* When the PC is connected to the on-premises LAN, obtain the permission of the network administrator before configuring the network settings and performing the update.
- \* The factory default setting for the IP address of the AE-200/AE-50/EW-50 is [192.168.1.1].

**[Work procedure 2: Updating the AE-200/AE-50]**

1. Procedure using a USB memory device

- (1) Check that the update file is correct and then copy it directly below the root folder of a USB memory device.
  
- (2) Log in to the Initial Settings screen and touch [Maintenance] - [Update] in the menu to open the update screen.



- (3) Use a hex key to remove the cover and then insert the USB memory device.  
For the procedure to remove the cover, refer to "IV [1] 4. How to remove and attach the cover."
  
- (4) Touch [Software Update].
  - The STATUS LED for indicating the status blinks blue during the software update.
  - When the update finishes, the unit restarts.
  - A USB memory device may not be recognized if it is removed and inserted within a short period of time. If that happens, the unit needs to be reset.
  - If there is a problem with the USB memory device or update file, "The USB memory cannot be recognized normally." or "A data reading/writing error occurred" appears.  
Check the update file and then perform the update again.  
If the problem cannot be resolved, replace the USB memory device.
  
- (5) When the AE-200/AE-50 restarts, disconnect the USB memory device and then attach the cover.
  
- (6) Check that the version is the same as the version of the update file.  
For how to check the version, refer to "IV [5] How to check the version of AE-200/AE-50/EW-50."

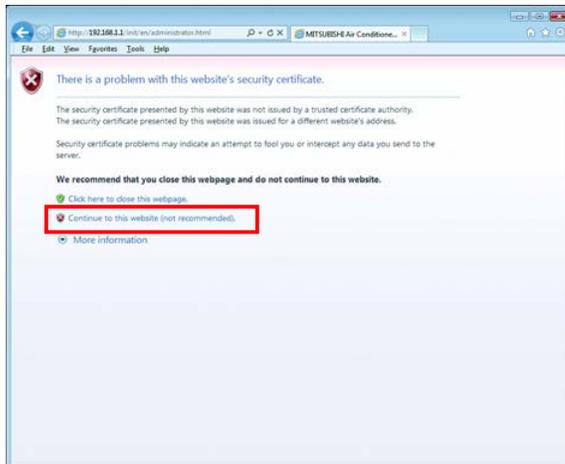
**NOTE:** ○ Do not disconnect the USB memory device during the update.

2. Procedure using a Web browser
  - (1) Check that the PC set in [Work procedure 1] and the AE-200/AE-50/EW-50 for updating are connected with a LAN cable.
  - (2) Turn on the power of the AE-200/AE-50/EW-50 and insert the CD (or USB memory device) containing the update file into the PC.
  - (3) Enter the following webpage address into the address bar of the Web browser and then press the [Enter] key.

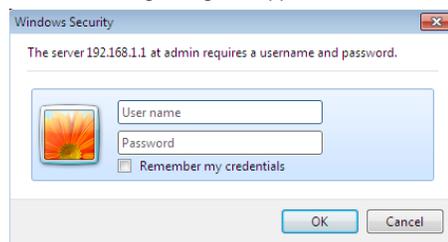
**https://[IP address of the AE-200/AE-50/EW-50]/swupdate/Update.html**

- \* If the IP address of the AE-200/AE-50/EW-50 is [192.168.1.1], the webpage address is **https://192.168.1.1/swupdate/Update.html**.
- \* Enter the uppercase letters and lowercase letters of the webpage address correctly.

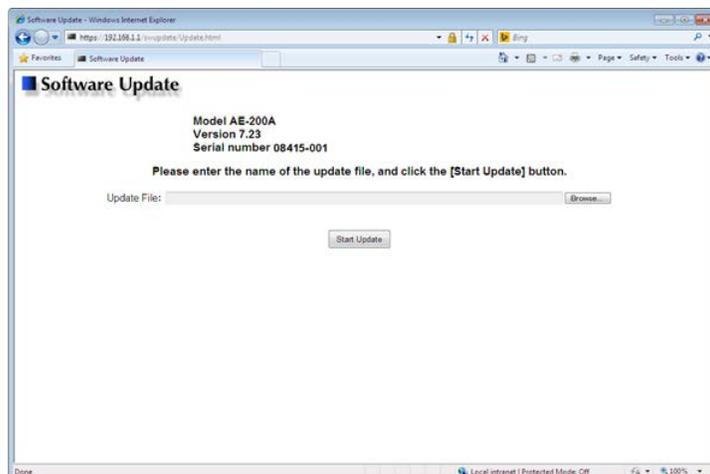
If the security certificate is invalid, the following page appears.  
Click [Continue to this website (not recommended)].



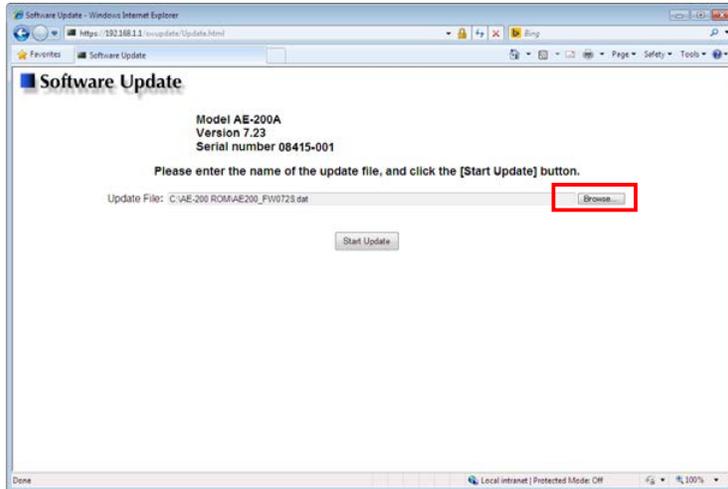
- (4) You need to log in as the maintenance user (default user name: initial, initial password: init) in order to display the software update screen. When the following dialog box appears, enter the user name and password.



- (5) The Software Update screen appears.

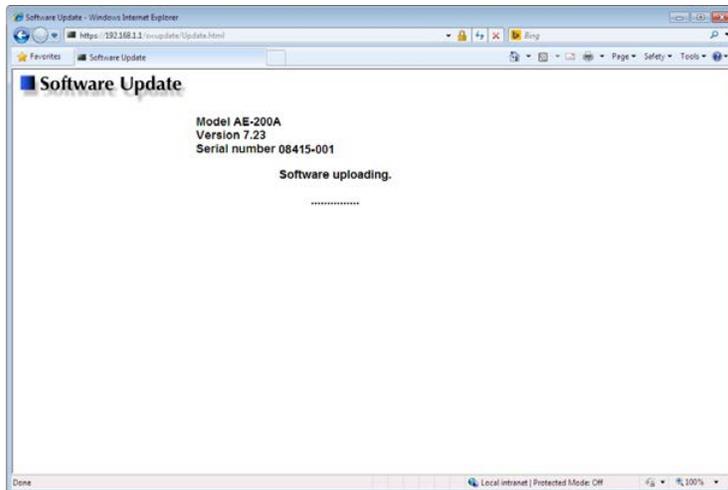


(6) Click the [Browse...] button and select the update file (AExx\_FW####.dat) on the update CD or USB memory device.

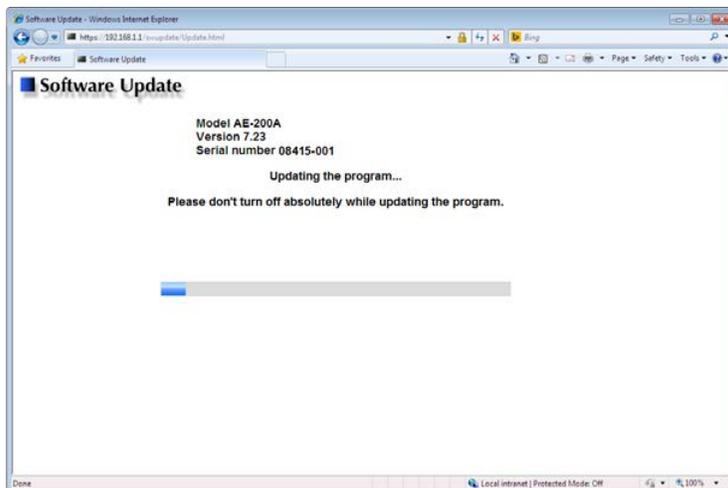


(7) Click [Start Update] to begin the AE-200/AE-50/EW-50 update process.

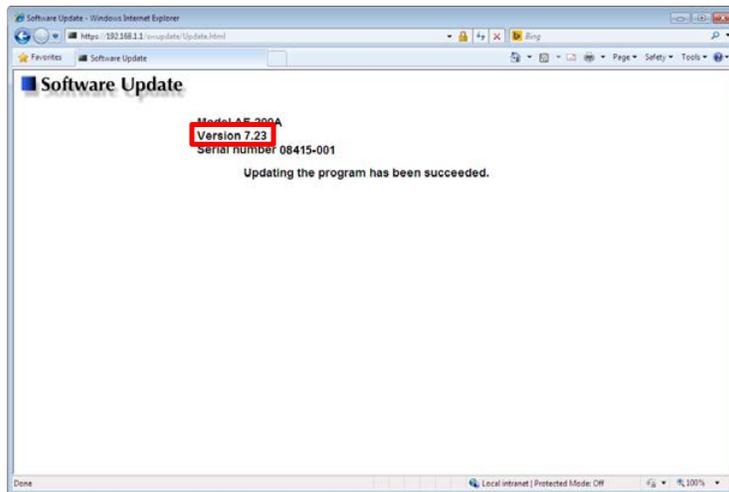
- \* The update will take approximately 10 minutes.
- \* Do not disconnect the LAN cable or turn off the power of the AE-200/AE-50/EW-50 during the update.



1) The update program data begins to be transmitted to the connected AE-200/AE-50/EW-50.



2) After transmission of the program data is complete, updating of the AE-200/AE-50/EW-50 software begins. After the software update completes, the AE-200/AE-50/EW-50 restarts automatically.



- 3) When restarting of the AE-200/AE-50/EW-50 is complete, the update is finished. Check that the displayed version is the same as version of the update file. Also check that the version displayed on the LCD screen is the same. For how to check the version, refer to "IV [5] How to check the version of AE-200/AE-50/EW-50."

\*If the software update did not complete properly, perform the update again. If the problem persists, the AE-200/AE-50/EW-50 may have malfunctioned. Contact your dealer.