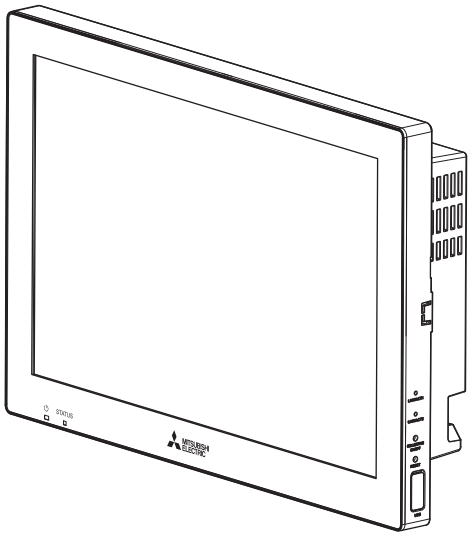
<ORIGINAL>

Air Conditioning Control System
Centralized Controller

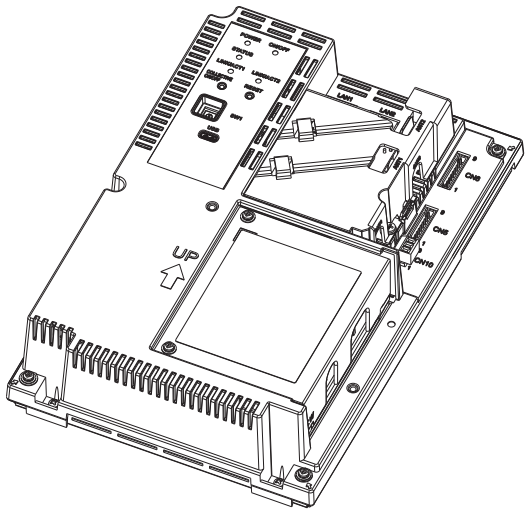
MODEL

AE-C400
EW-C50

Installation Manual



AE-C400



EW-C50

Proper installation is important for your safety and proper functioning of the units. Thoroughly read the following safety precautions prior to installation.
Safety notes are marked with ⚠**WARNING** or ⚠**CAUTION**, depending on the severity of possible consequences that may result when the instructions are not followed exactly as stated.

Before installing the controller, please read this Installation Manual carefully to ensure proper operation. Retain this manual for future reference.

en
WT09937X01

Manual Download

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es Visite el sitio web anterior para descargar manuales, seleccione el nombre del modelo y luego elija el idioma.

it Andare sul sito web indicato sopra per scaricare i manuali, selezionare il nome del modello e scegliere la lingua.

pt Aceda ao site Web acima indicado para descarregar manuais, seleccione o nome do modelo e, em seguida, escolha o idioma.

tr Kılavuzları indirmek için yukarıdaki web sitesine gidin, model adını ve ardından dili seçin.

ru Чтобы загрузить руководства, перейдите на указанный выше веб-сайт; выберите название модели, а затем язык.

中<简> 前往上述网站下载手册，选择产品型号，然后选择语言。

Contents

Safety precautions

- **Thoroughly read the following safety precautions prior to installation.**
- **Observe these precautions carefully to ensure safety.**

⚠ WARNING	**: indicates a hazardous situation which, if not avoided, could result in death or serious injury.**
⚠ CAUTION	**: indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**

- **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. The manual should be made available to those who repair or relocate the product. Make sure that the manual is passed on to any future air conditioning system user.**
- **All electrical work must be performed by qualified personnel.**

■ General precautions

⚠ WARNING

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

To reduce the risk of injury, electric shock, or fire, do not alter or modify the product.

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

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

To reduce the risk of burns or electric shock, do not touch the electrical parts with bare hands during and immediately after operation. Before working on the product, wear protective gear.

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

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

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

Commissioning, inspections, and servicing must be performed by the dealer or qualified personnel according to this manual. Failure to follow the instructions in this manual may result in malfunction, injury, electric shock, or fire.

If you notice any abnormality (e.g. a burning smell), stop the operation, turn off the product, and contact your dealer. Continuing the use of the product without correcting the abnormality may result in electric shock, malfunction, or fire.

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

Take appropriate measures against electrical noise interference when installing the product in hospitals. Noise may adversely affect medical devices and interfere with medical practices.

⚠ CAUTION

To reduce the risk of electric shock, injury, burns, or frostbite, do not store the product in the places where the product may be electrically charged, heated/cooled to a high/low temperature, or fall.

To reduce the risk of injury from broken glass, do not apply excessive force to the glass parts.

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

To reduce the risk of injury, electric shock, or malfunction, do not touch sharp edges of parts.

To reduce the risk of injury, do not touch burrs of knockout holes.

Wear protective gear before working on electrical parts. High-voltage parts pose a risk of electric shock, and high-temperature parts pose a risk of burns.

To reduce the risk of injury, wear protective gear before working on the product.

Consult an authorized agency for proper disposal of the product. Inappropriate disposal can lead to environmental pollution.

■ Precautions for installation

⚠ WARNING

Do not install the product where there is a risk of flammable gas leaks. If flammable gas accumulates around the product, it may ignite and cause fire or explosion.

To reduce the risk of short circuits, current leakage, electric shock, malfunction, smoke, or fire, do not install the product in a place exposed to water or in a condensing environment.

Properly dispose of the packing materials. Plastic bags pose a suffocation hazard to children.

Installation work must be performed by the dealer or qualified personnel according to the instructions in the Installation Manual. Improper installation work or installation work performed by the user may cause trouble.

Use the supplied or specified parts for installation. Use of improper parts may cause trouble.

Take appropriate safety measures against earthquakes to prevent the product from falling and causing injury.

Install the product where the weight of the product can be held. Installation in a place with insufficient strength or improper installation may cause the product to fall, causing injury.

■ Precautions for electrical wiring

⚠ CAUTION

To reduce the risk of malfunction, smoke, fire, or damage to the product, do not connect the power cable to the signal terminal block.

To reduce the risk of malfunction, smoke, fire, or damage to the product, do not apply a power supply voltage in excess of that specified.

Properly secure the cables in place and provide adequate slack in the cables so as not to stress the terminals. Improperly connected cables may break, overheat, and cause smoke or fire.

To reduce the risk of injury or electric shock, turn off the main power before performing electrical work.

Use specified cables and dedicated circuits. Inadequate power source capacity or improper electrical work may result in electric shock, malfunction, smoke, or fire.

Electrical work must be performed by qualified personnel in accordance with local regulations and the instructions in the Installation Manual. Improper electrical work may result in electric shock, malfunction, smoke, or fire.

To reduce the risk of electric shock, smoke, or fire, connect an overcurrent breaker and an earth leakage breaker to the power supply of each product.

Use properly rated breakers (earth leakage breaker, local switch <switch + fuse that meets local electrical codes>, molded case circuit breaker, and overcurrent breaker). Use of improperly rated breakers or substitution of fuses with steel or copper wire may result in electric shock, malfunction, smoke, or fire.

To reduce the risk of current leakage, overheating, smoke, or fire, use properly rated cables with adequate current carrying capacity.

Proper grounding must be provided by qualified personnel. Do not connect the protective ground wire to a gas pipe, water pipe, lightning rod, or telephone wire. Improper grounding may result in electric shock, smoke, fire, or malfunction due to electrical noise interference.

⚠ CAUTION

To reduce the risk of short circuits, electric shock, or malfunction, keep wire pieces and sheath shavings out of the terminal block.

To reduce the risk of short circuits, current leakage, electric shock, or malfunction, route the cables away from the edges of the product.

■ Precautions for relocating or repairing the product

⚠ WARNING

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

To reduce the risk of short circuits, electric shock, malfunction, or fire, do not touch the circuit boards with tools or hands, or do not allow dust to accumulate on the circuit boards.

1. Introduction

The AE-C/EW-C controller is a Web-based system used to monitor and control air-conditioning and refrigeration units via a Web browser. AE-C allows you to monitor and control the units from its LCD screen.

1-1. About this manual

This manual explains how to install the controller. For information on the initial settings, commissioning, and software update, refer to the supplied Instruction Book or the separately available Instruction Book (Detailed Version) for AE-C/EW-C.
Controller models are abbreviated as "AE-C" and "EW-C" in this manual.

1-2. Trademarks and registered trademarks

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Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates in the U.S. and other countries.
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1-3. About Internet connection

This controller cannot be directly connected to telecommunications lines (including public radio LAN) of telecommunications carriers (mobile communications companies, fixed-line communications companies, Internet providers, etc.).
When connecting this controller to the Internet to use the Integrated Centralized Control Web, be sure to connect a security device such as VPN router to the LAN1 port to ensures security..

1-4. For use in the U.S.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

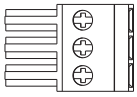
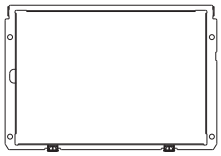
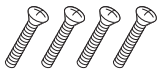
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2. Parts

2-1. Supplied parts

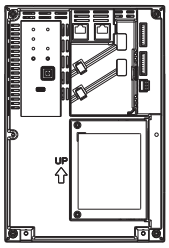
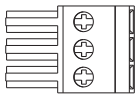
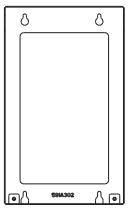
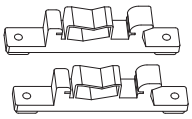
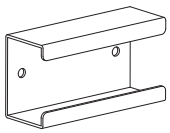
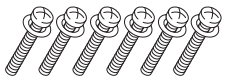
The package contains the following. Check for any missing parts before starting installation.

■ AE-C

No.	Item	Shape	Quantity	Remarks
D-1	AE-C		1	—
D-2	Connector (RS-485)		1	The connector is on the rear of the controller.
D-3	Front frame		1	Used for installation except when using the mounting kit for control panel (optional part P-2).
D-4	Rear frame		1	Used in combination with the front frame to install the controller directly on a wall.
D-5	Flathead screw (M4 x 40)* 1		4	Used to attach the front frame to the rear frame or to the electrical box (optional part P-1).
D-6	Wood screw (M4.1 × 25)		4	Used to install the controller directly on a wall that can hold the weight of the controller, such as a gypsum-board wall.
D-7	Roundhead screw (M3 x 6)		4 (Two spares)	Used to secure the controller.
D-8	Rubber bushing		2	Used to route the AC power cable (commercial part S-1) and the M-NET transmission cable (commercial part S-2) from the bottom of the controller.
D-9	Installation Manual (this manual)	—	1	—
D-10	Instruction Book	—	1	—

*1 If the screws are not long enough for the wall, prepare flathead screws (M4) suitable for the wall thickness.

■ EW-C

No.	Item	Shape	Quantity	Remarks
D-11	EW-C		1	—
D-2	Connector (RS-485)		1	The connector is on the front of the controller.
D-12	Installation frame		1	Used to install the controller.
D-13	Roundhead screw (M3 x 10)		4 (Two spares)	Used to secure the controller.
D-14	DIN rail attachment		2	Used to install the controller on a DIN rail (commercial part S-8). For use with a DIN rail of 35 mm (1-13/32 in) in width.
D-15	DIN rail auxiliary bracket		1	Used to install the controller on a DIN rail.
D-16	Roundhead screw (M3 x 12)		6	Used to attach the DIN rail attachments and the DIN rail auxiliary bracket to the controller.
D-9	Installation Manual (this manual)	—	1	—
D-10	Instruction Book	—	1	—

2-2. Optional parts

Use genuine parts specified by Mitsubishi Electric for the following parts.

■ AE-C

No.	Item		Model	Quantity	Remarks
P-1	Electrical box		PAC-YK94UTB-J	1	Required to install the controller, using a method not explained in this manual.
P-2	Mounting kit for control panel	Mounting bracket	PAC-YK96TK-J	1	
		DIN rail attachment			
P-3	Mounting attachment for wall-surface installation		PAC-YK92TB-J	1	
P-4	Replacement attachment		PAC-YK91RF-J	1	
P-5	External input/output adapter		PAC-YG10HA-E	1 or 2	Required to use the external input/output function. Prepare one adapter when using either of the external input/output connectors (CN5 and CN6), or two adapters when using both.

■ EW-C

No.	Item	Model	Quantity	Remarks
P-5	External input/output adapter	PAC-YG10HA-E	1 or 2	Required to use the external input/output function. Prepare one adapter when using either of the external input/output connectors (CN5 and CN6), or two adapters when using both.

2-3. Commercial parts

Use the following commercial parts as necessary.

■ AE-C

Unsupplied parts	No.	Item	Quantity	Remarks
Wires and cables	S-1	AC power wire (protective ground wire)	As required	See page 15 for the specifications.
	S-2	M-NET transmission cable	As required	
	S-3	Sleeved ring terminal	As required	
	S-4	Watt-hour meter cable	As required	
Parts required for installation on the front of the control panel	S-7	Metal control box	1	—
	S-11	Overcurrent breaker	As required	See page 15 for the specifications.
	S-12	Earth leakage breaker	As required	
	S-13	Power supply terminal block	As required	—
	S-14	M-NET transmission terminal block	As required	—
Parts required for connection of external devices	S-15	External power supply (DC power supply)	As required	For external input/output. See page 15 for the specifications.
	S-16	Extension cable	As required	For external power supply. See page 15 for the specifications.
	S-17	DC power supply (for external input/ output relays)	As required	
	S-18	Relay/Relay with diode	As required	For external input/output. See page 15 for the specifications.
	S-19	Indicator lamp	As required	For external input/output.
Parts required for network communication	S-20	LAN cable	As required	See page 15 for the specifications.
	S-21	Switching HUB	As required	See page 15 for the specifications. Repeater HUB cannot be used.
	S-22	VPN router	As required	—
	S-23	Wireless LAN router	As required	—

■ EW-C

Unsupplied parts	No.	Item	Quantity	Remarks
Wires and cables	S-1	AC power wire (protective ground wire)	As required	See page 15 for the specifications.
	S-2	M-NET transmission cable	As required	
	S-3	Sleeved ring terminal	As required	
	S-4	Watt-hour meter cable	As required	
Parts required for installation on the front of the control panel	S-5	Screw (M4)	4	See page 15 for the specifications.
	S-6	Wood screw (M4.1)	4	
	S-7	Metal control box	1	—
	S-8	DIN rail	As required	For mounting a metal control box. See page 15 for the specifications.
	S-9	DIN rail fixing screw (M4)	As required	—
	S-10	DIN rail stopper	2	—
	S-11	Overcurrent breaker	As required	See page 15 for the specifications.
	S-12	Earth leakage breaker	As required	
	S-13	Power supply terminal block	As required	—
	S-14	M-NET transmission terminal block	As required	—
Parts required for connection of external devices	S-15	External power supply (DC power supply)	As required	For external input/output. See page 15 for the specifications.
	S-16	Extension cable	As required	For external power supply. See page 15 for the specifications.
	S-17	DC power supply (for external input/ output relays)	As required	
	S-18	Relay/Relay with diode	As required	For external input/output. See page 15 for the specifications.
	S-19	Indicator lamp	As required	For external input/output.
Parts required for network communication	S-20	LAN cable	As required	See page 15 for the specifications.
	S-21	Switching HUB	As required	See page 15 for the specifications. Repeater HUB cannot be used.
	S-22	VPN router	As required	—
	S-23	Wireless LAN router	As required	—

Specifications of commercial parts

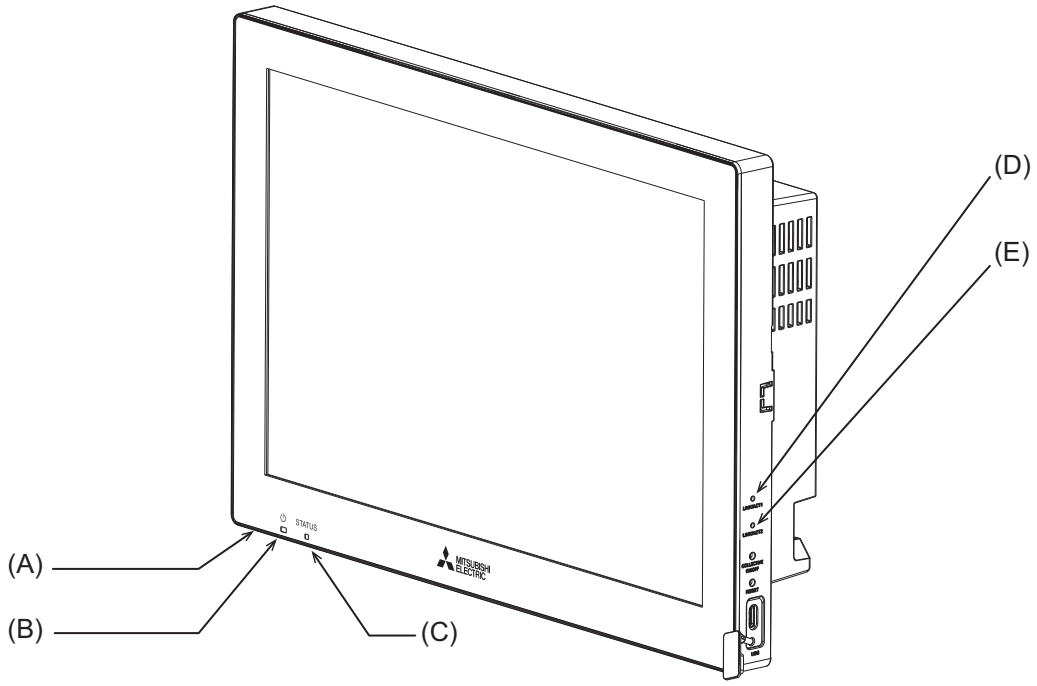
Unsupplied parts		No.	Specifications
AC power wire/ Protective ground wire		S-1	Type: Sheathed cable (designated by 60227 IEC 53) (Do not use sheathed cables lighter than ordinary IEC 60227 sheathed cables.) • Wire type (recommended): VCT, VVF, VVR, or equivalent • Wire size: 0.75 to 2 mm^2 (ø1.0 to ø1.6 mm) (AWG 18 to 14) Cables with outer diameter of 10 mm (13/32 in) (thick enough to be held by cable clamps under the terminal block) are recommended. Protective ground wire color: Green-and-yellow
M-NET transmission cable (Connected to the controller)		S-2	Type: Shielded cable • CPEV-S 1P (pair) ø1.2 mm (AWG 16): PE[*1] insulated PVC[*1] shielded cable for communication • CVV-S, MVV-S (two cores) 1.25 to 2 mm^2 (AWG 16 to 14): PVC[*1] insulated PVC[*1] shielded cable for control Type: Environmentally friendly cable (reference) • EM-CPEE-S 1P (pair) ø1.2 mm (AWG 16): PE[*1] shielded cable for communication • EM-CEE-S, EM-MEE-S (two cores) 1.25 to 2 mm^2 (AWG 16 to 14): PE[*1] shielded cable for control
Sleeved ring terminal		S-3	M3.5 ring terminal (for AC power wires (L/L1, N/L2) and M-NET transmission wires (A, B, S)) M4 ring terminal (for protective ground wire)
Watt-hour meter cable		S-4	Type: Twisted-pair cable 2P (pair) (Shielded cables (1P (pair)) are allowed for use.) Wire size: 0.3 to 1.25 mm^2 (AWG 22 to 16)
Screw (M4)		S-5	ISO metric screw thread
Wood screw (M4.1)		S-6	ISO metric screw thread Used to install the EW-C directly on a wall that can hold the weight of the EW-C, such as a gypsum-board wall.
Overcurrent breaker (Either one of the right)	Fuse	S-11	Rated current: 3 A (A fuse must be used in combination with a switch with a rated current of 3 A.)
	Circuit breaker		Type: 2-pole circuit breaker (2P2E) Rated current: 3 A
Earth leakage breaker		S-12	Type: 2-pole circuit breaker (2P2E) Rated current: 3 A or greater Rated current sensitivity: 30 mA Operating time: 0.1 second or shorter
External power supply (DC power supply)		S-15	Rated voltage: 12 VDC or 24 VDC
Extension cable		S-16	Conductor size: 0.3 mm^2 (AWG 22) or greater
DC power supply (for external input/output relays)		S-17	Rated voltage: 12 VDC or 24 VDC
Relay/ Relay with diode (for external input)		S-18	Contact rating Rated voltage: 12 VDC or 24 VDC Rated current: 10 mA or greater Minimum applied load: 1 mA DC
Relay/ Relay with diode (for external output)			Coil rating Rated voltage: 12VDC or 24 VDC Power consumption: 0.9 W or less
LAN cable		S-20	Category 5 or higher straight cable (100 m (328-1/16 ft) or shorter)
Switching HUB		S-21	Transmission rate: 100 Mbps or higher

*1 PE: Polyethylene; PVC: Polyvinyl chloride

2-4. Parts names

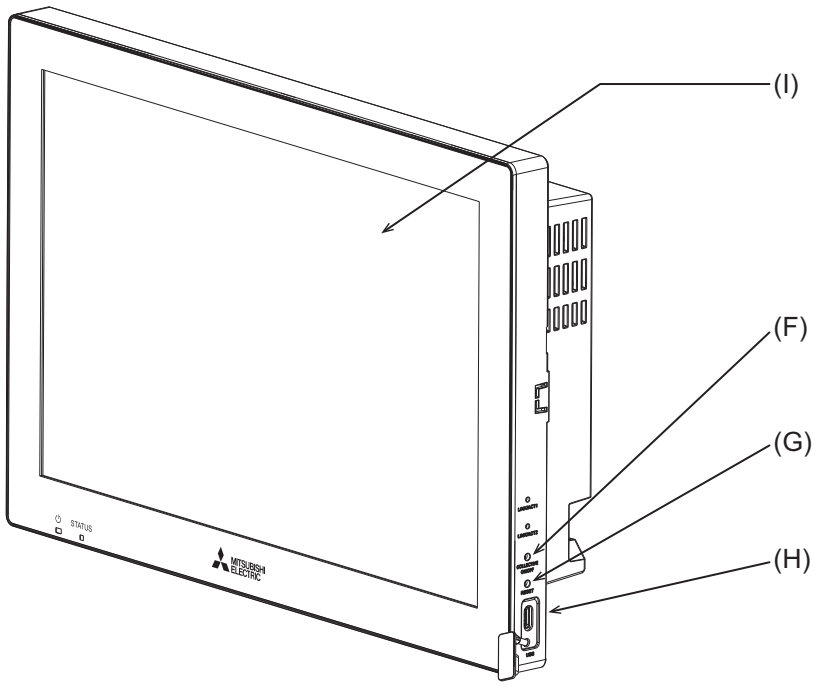
2-4-1. AE-C

■ AE-C (Front)



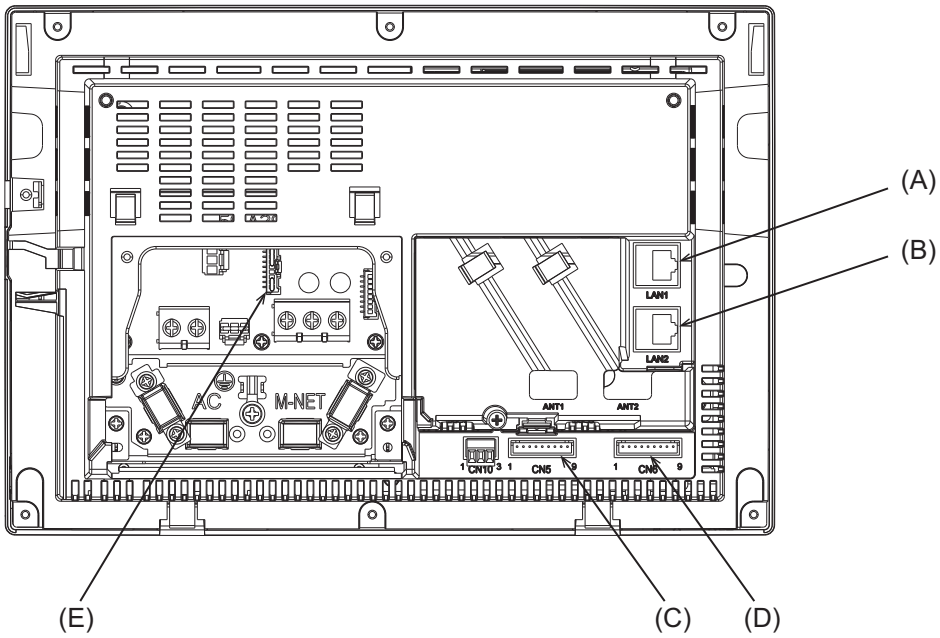
	Item		
			Function and description
	LED		
(A)		⏻ (Bottom)	
			Lit in green: The controller is receiving power. Unlit: The controller is not receiving power.
(B)		⏻ *1	
			Lit in green: On Blinking in green: Error Unlit: Off
(C)		STATUS	
			Indicates the status of the controller. The lamp is lit off, or lit or blinks in green during normal operation of the controller. If the lamp is blinking in orange, yellow, or pink, consult your dealer.
(D)		LINK/ACT1	
			Blinking in white: Data transmission in progress (LAN1) Unlit: No data transmission
(E)		LINK/ACT2	
			Blinking in white: Data transmission in progress (LAN2) Unlit: No data transmission

*1 This LED shows the operation status of the devices controlled directly by the controller or the devices controlled by the entire system.

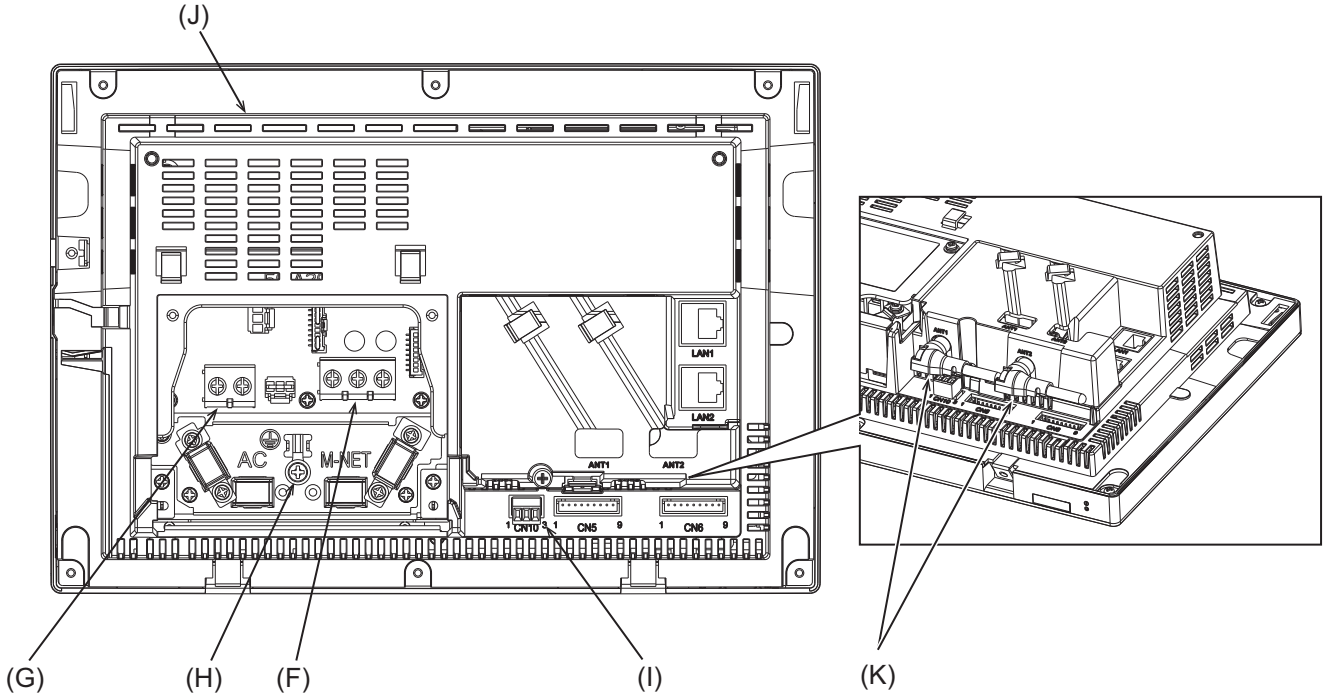


	Item	
		Function and description
(F)	Push switch	
	ON/OFF	
		Pressing the switch turns the backlight on or off.
(G)	RESET	
		Restarts the controller.
(H)	USB port (Type-C) (USB 3.1 Gen1)	
		Remove the cover when connecting a device to the USB port. Leave the cover attached while not using the USB port.
(I)	LCD screen	
		Touch panel

■ AE-C (Rear (without the service cover))

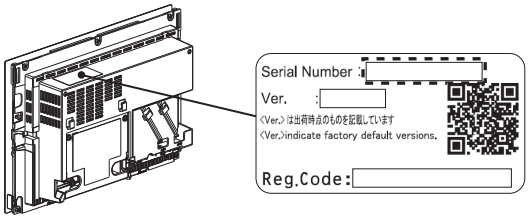


	Item	
		Function and description
(A)	LAN1	
		LAN port for controlling air-conditioning and refrigeration units. Connects to other AE-C or EW-C with a LAN cable via a switching HUB.
(B)	LAN2	
		LAN port for BACnet connection. Connects to a building management system with a LAN cable via a switching HUB.
(C) (D)	CN5 CN6	
		Connector for connecting the external input/output adapter (PAC-YG10HA-E).
(E)	CN21	
		Connector for M-NET power supply. Attaching this connector to the controller supplies power to M-NET from the controller. (The controller is shipped with the connector attached.) To supply power to M-NET from other devices, remove this connector.



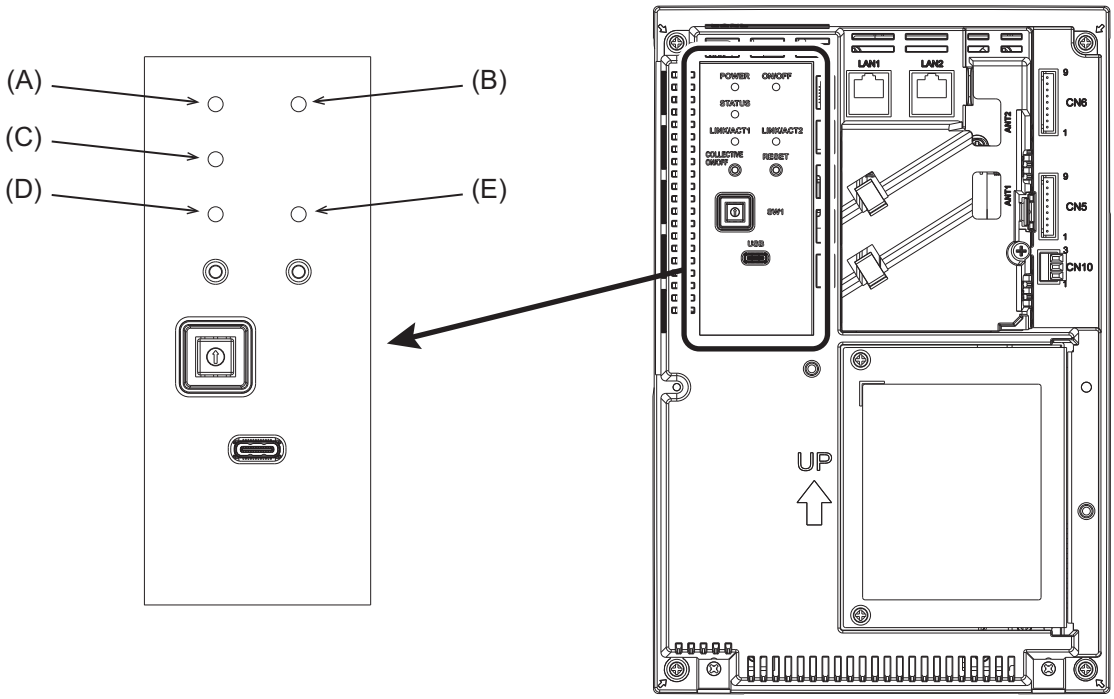
	Item	
		Function and description
(F)	TB3 (M3.5)	
		Terminal block for connecting the M-NET transmission cable.
(G)	TB1 (M3.5)	
		Terminal block for connecting the AC power wires (L/L1, N/L2).
(H)	Ground (M4)	
		Terminal for connecting the protective ground wire.
(I)	CN10	
		RS-485 connector for connecting a watt-hour meter.
(J)	Serial number label	
		The serial label is on the rear of the controller. See the figure below.
(K)	Antenna for cellular communication	
		Do not remove the antennas from the controller if they are already installed on the controller. After installing the controller, place the antennas to the default position as shown in the figure.

Serial number label



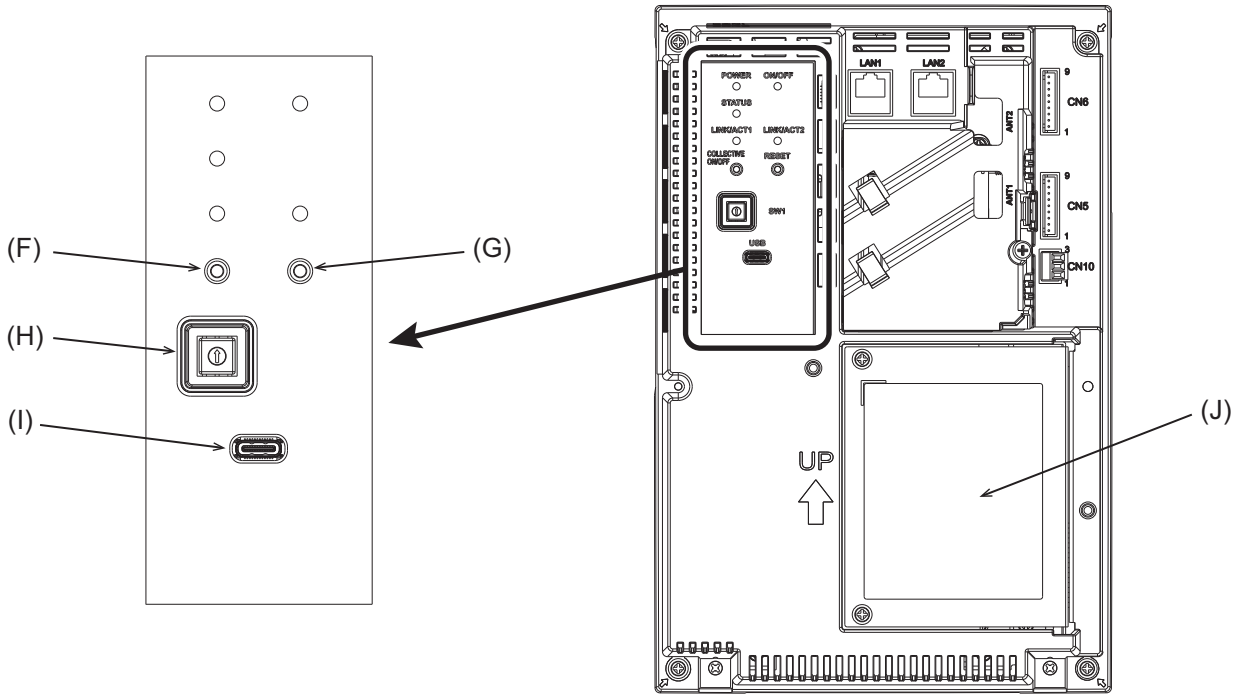
2-4-2. EW-C

■ EW-C (with the service cover)



	Item		
			Function and description
	LED		
(A)		POWER	
			Lit in green: The controller is receiving power. Unlit: The controller is not receiving power.
(B)		ON/OFF *1	
			Lit in green: On Blinking in green: Error Unlit: Off
(C)		STATUS	
			Indicates the status of the controller. The lamp is lit off, or lit or blinks in green during normal operation of the controller. If the lamp is blinking in orange, yellow, or pink, consult your dealer.
(D)		LINK/ACT1	
			Blinking in orange: Data transmission in progress (LAN1) Unlit: No data transmission
(E)		LINK/ACT2	
			Blinking in orange: Data transmission in progress (LAN2) Unlit: No data transmission

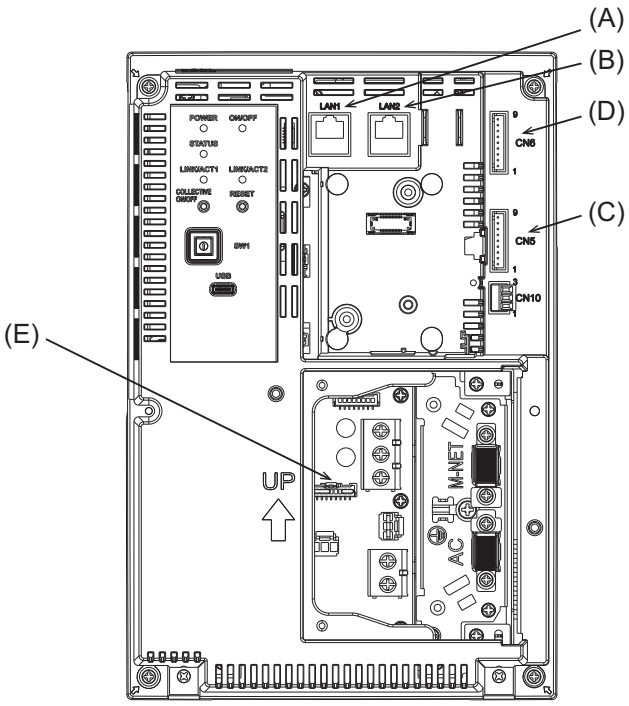
*1 This LED shows the operation status of the devices controlled directly by the controller or the devices controlled by the entire system.



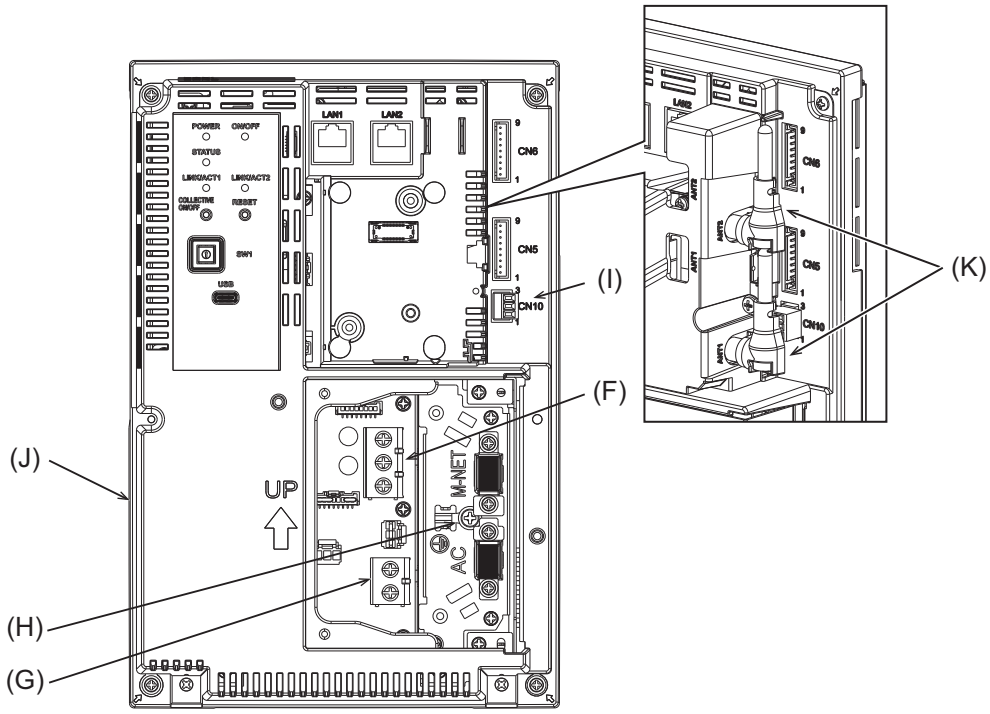
	Item	
		Function and description
(F) (G)	Push switch	
	—	
	RESET	
		Restarts the controller.
(H)	Rotary switch	
	SW1 0 to F	
		Sets the IP address of LAN1*2.
(I)	USB port (Type-C) (USB 3.1 Gen1)	
		—
(J)	Service cover	
		To be removed when the AC power cable or M-NET transmission cable is connected to the controller.

*2 For details, refer to the Instruction Book (Detailed Version) for AE-C/EW-C.

■ EW-C (without the service cover)

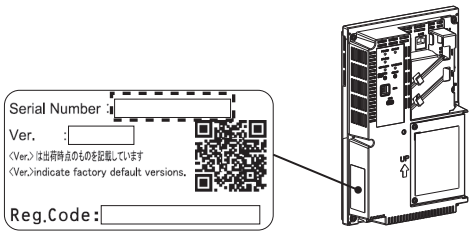


	Item	
		Function and description
(A)	LAN1	
		LAN port for controlling air-conditioning and refrigeration units. Connects to other AE-C or EW-C with a LAN cable via a switching HUB.
(B)	LAN2	
		LAN port for BACnet connection. Connects to a building management system with a LAN cable via a switching HUB.
(C) (D)	CN5 CN6	
		Connector for connecting the external input/output adapter (PAC-YG10HA-E).
(E)	CN21	
		Connector for M-NET power supply. Attaching this connector to the controller supplies power to M-NET from the controller. (The controller is shipped with the connector attached.) To supply power to M-NET from other devices, remove this connector.



	Item	
		Function and description
(F)	TB3 (M3.5)	
		Terminal block for connecting the M-NET transmission cable.
(G)	TB1 (M3.5)	
		Terminal block for connecting the AC power wires (L/L1, N/L2).
(H)	Ground (M4)	
		Terminal for connecting the protective ground wire.
(I)	CN10	
		RS-485 connector for connecting a watt-hour meter.
(J)	Serial number label	
		The serial label is on the rear of the controller. See the figure below.
(K)	Antenna for cellular communication	
		Do not remove the antennas from the controller if they are already installed on the controller. After installing the controller, place the antennas to the default position as shown in the figure.

Serial number label



2-5. Specifications

■ AE-C

Item		Specifications
Power supply	Rating	100-240 VAC ±10%, 50/60 Hz, single phase
Power consumption		22 W
LAN1, LAN2		100BASE-TX
RS-485		For connecting a watt-hour meter (Modbus-RTU)
External input/ output	Input	Photocoupler input (4 inputs x 2)
	Output	Transistor output (2 outputs x 2) (sink type)
Ambient conditions	Operating temperature range	0°C to +40°C (+32°F to +104°F)
	Storage temperature range	-20°C to +60°C (-4°F to +140°F)
	Humidity	30% to 90% RH (non-condensing)
Exterior		PC + ABS – GF10 (Munsell 1.0Y 9.2/0.2)
External dimensions	W x H x D	306 × 211 × 71.8 mm (12-1/16 × 8-5/16 × 2-27/32 in) When embedded, the controller protrudes from the wall or the metal control box by 19.7 mm (25/32 in).
Weight		2.9 kg (7 lbs)
Installation conditions		Indoor only ♦This controller is for use in an indoor or equivalent environment.

■ EW-C

Item		Specifications
Power supply	Rating	100-240 VAC ±10%, 50/60 Hz, single phase
Power consumption		15 W
LAN1, LAN2		100BASE-TX
RS-485		For connecting a watt-hour meter (Modbus-RTU)
External input/ output	Input	Photocoupler input (4 inputs x 2)
	Output	Transistor output (2 outputs x 2) (sink type)
Ambient conditions	Operating temperature range	-10°C to +55°C (+14°F to +131°F)
	Storage temperature range	-20°C to +60°C (-4°F to +140°F)
	Humidity	30% to 90% RH (non-condensing)
Exterior		Body: Electrogalvanized steel sheet Cover: PC + ABS
External dimensions	W x H x D	185 × 278 × 60.3 mm (7-5/16 × 10-31/32 × 2-3/8 in) (185 × 278 × 81.5 mm (7-5/16 × 10-31/32 × 3-7/32 in) when installed on the installation frame)
Weight		1.9 kg (5 lbs)
Installation conditions		In the metal control box installed indoors

2-6. Notes on microSD card

Do not remove the built-in microSD card. The card is exclusively for use with the controller and not for use with other devices.

2-7. Transport and unpacking

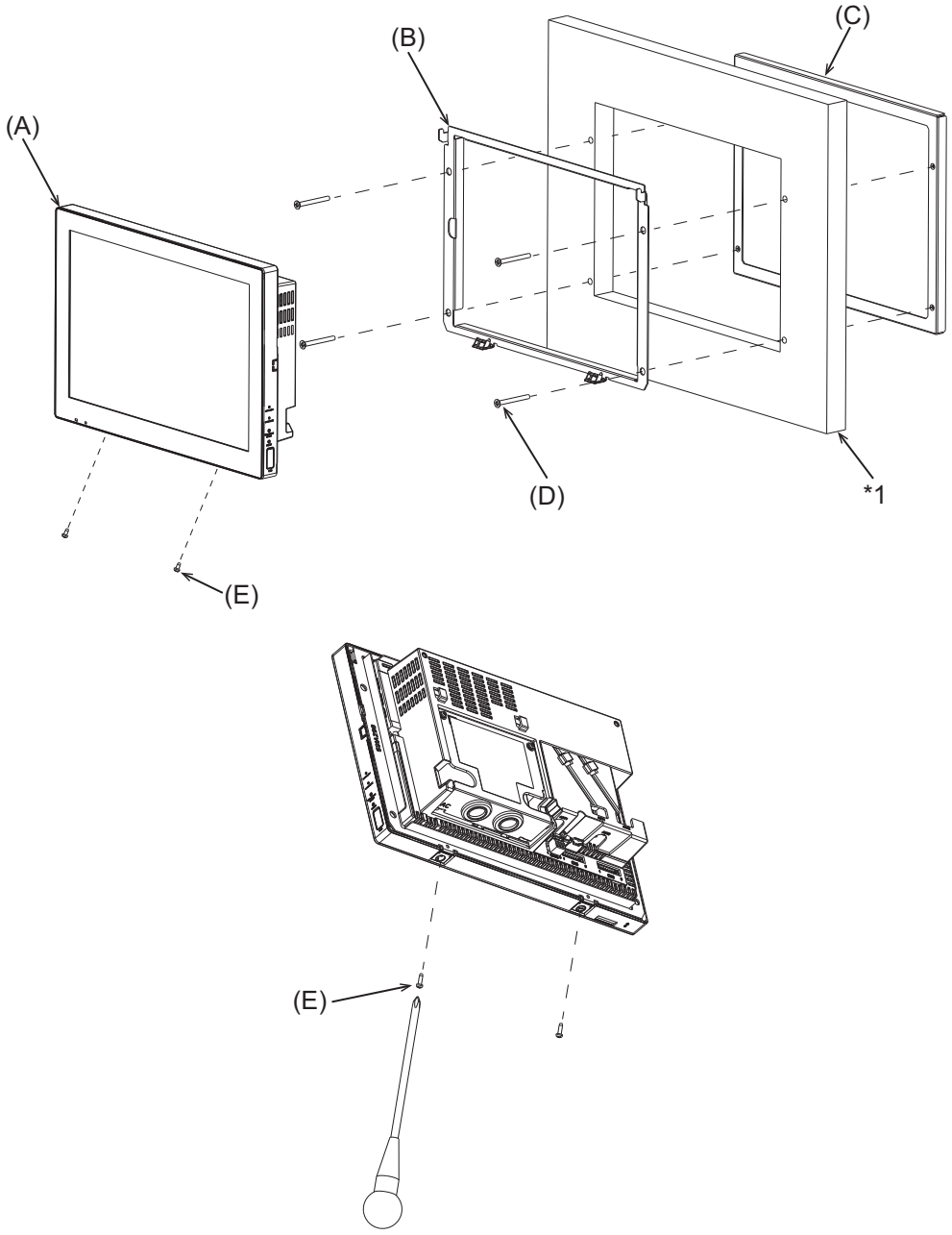
⚠ WARNING

Properly dispose of the packing materials. Plastic bags pose a suffocation hazard to children.

When carrying the controller, hold the controller, not by the terminal block on the rear of the controller or its cables.
Do not apply shock to the controller.
When placing the controller on a working bench or table, put a cushion or soft cloth on the bench or table to prevent damage to the glass surface and protrusions of the controller.

3. Parts location (Overview of installation)

3-1. Controller parts (AE-C)



*1 Wall

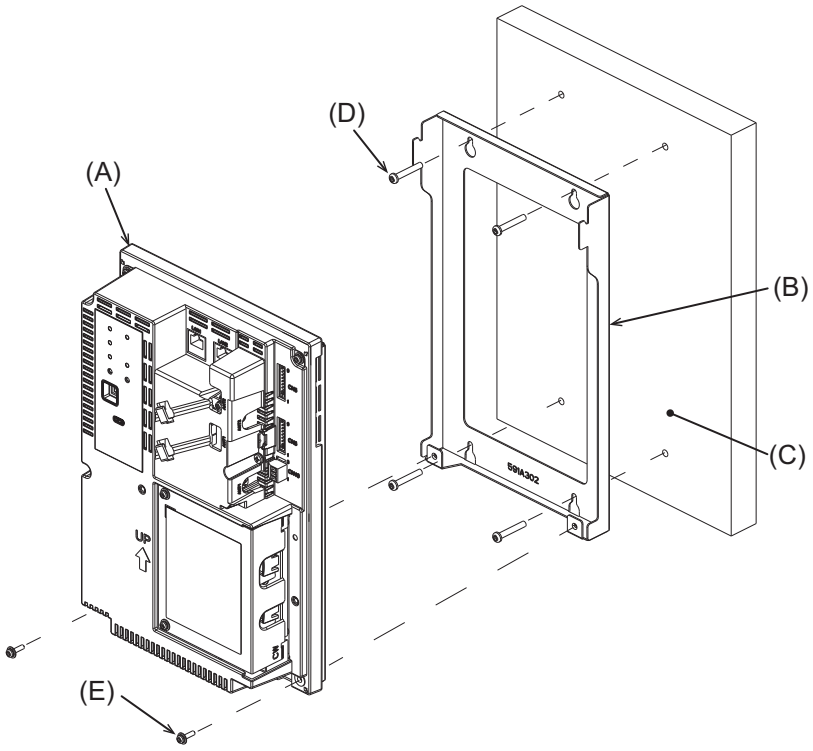
	Item	Description
(A)	AE-C (supplied part D-1)	—
(B)	Front frame (supplied part D-3)	—
(C)	Rear frame (supplied part D-4)	Not used when the controller is installed directly on a wall that can hold the weight of the controller (such as a gypsum-board wall), using wood screws (supplied part D-6).
(D)	Flathead screw (M4 × 40) (supplied part D-5)	
(E)	Roundhead screw (M3 × 6) (supplied part D-7)	Used to secure the controller. Use a Phillips screwdriver (No.2).

Note

- Use proper tools for installation, inspection, and repair.
  Use of improper tools may cause equipment damage.
- Do not make holes or fasten screws in areas not so specified.
- Prior to securing the controller, perform electrical wiring as necessary.
- Do not install the controller in a direct sunlight or where the operating temperature or the humidity exceeds the specified ranges. Otherwise, the controller may become deformed or malfunction. For details, refer to the specified page. "Specifications (page 24)"

3-2. Controller parts (EW-C)

3-2-1. Installation on the installation frame

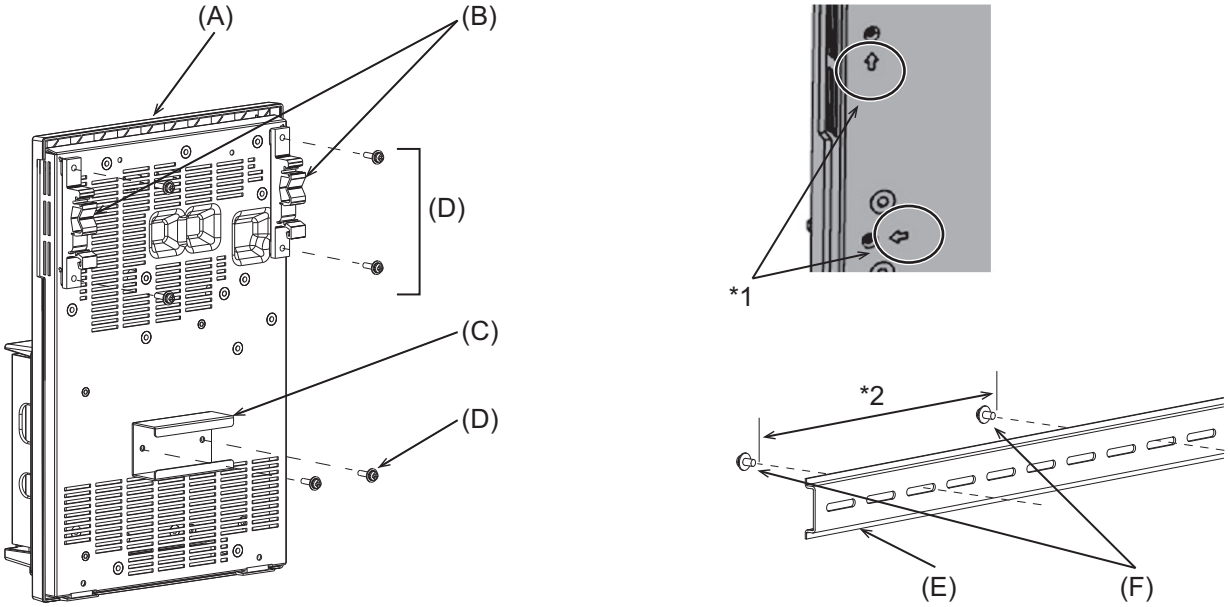


	Item	Description
(A)	EW-C (supplied part D-11)	—
(B)	Installation frame (supplied part D-12)	Used to install the controller.
(C)	Metal control box (commercial part S-7)	—
(D)	Screw (M4) (commercial part S-5)	Used to install the controller in a metal control box.
(E)	Roundhead screw (M3 × 10) (supplied part D-13)	Used to secure the controller.

Note

- Use proper tools for installation, inspection, and repair.
  Use of improper tools may cause equipment damage.
- Do not make holes or fasten screws in areas not so specified.
- Do not install the controller where the operating temperature or the humidity exceeds the specified ranges. Otherwise, the controller may become deformed or malfunction. For details, refer to the specified page. "Specifications (page 24)"

3-2-2. Installation on a DIN rail



*1 The screw holes for fastening the DIN rail attachments are indicated by arrows on the controller.
*2 Screw pitch: 200 mm (7-7/8 in) max.

	Item	Description
(A)	EW-C (supplied part D-11)	—
(B)	DIN rail attachment (supplied part D-14)	Used to mount the controller on a DIN rail.
(C)	DIN rail auxiliary bracket (supplied part D-15)	
(D)	Roundhead screw (M3 × 12) (supplied part D-16)	Used to attach the DIN rail attachments and the DIN rail auxiliary bracket to the controller.
(E)	DIN rail (commercial part S-8)	Used to install the controller in a metal control box. (For use with a DIN rail of 35 mm (1-13/32 in) in width.)
(F)	DIN rail fixing screw (commercial part S-9)	Used to install a DIN rail in a metal control box.

Note

- Use proper tools for installation, inspection, and repair.
  Use of improper tools may cause equipment damage.
- Do not make holes or fasten screws in areas not so specified.
- Do not install the controller where the operating temperature or the humidity exceeds the specified ranges.
  Otherwise, the controller may become deformed or malfunction. For details, refer to the specified page.
  "Specifications (page 24)”

3-3. Differences in the installation from older models

The dimensions and installation methods of the controller differ from those of older models (AE-200, AE-50, and EW-50).
Install the controller properly according to the instructions provided in the section "Installation."
For details, refer to the specified page. "Installation (page 35)"

4. Selecting the installation site

4-1. Compliance with laws and regulations

Select a site that will meet the applicable laws and local regulations.

4-2. Considerations for pollution and environment contamination

Select a site in consideration of minimizing pollution and environmental impact.

4-3. Notes for maximizing the functional performance of the controller

⚠ WARNING

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

Do not install the product where there is a risk of flammable gas leaks. If flammable gas accumulates around the product, it may ignite and cause fire or explosion.

To reduce the risk of short circuits, current leakage, electric shock, malfunction, smoke, or fire, do not install the product in a place exposed to water or in a condensing environment.

Take appropriate measures against electrical noise interference when installing the product in hospitals. Noise may adversely affect medical devices and interfere with medical practices.

Install the product where the weight of the product can be held. Installation in a place with insufficient strength or improper installation may cause the product to fall, causing injury.

Note

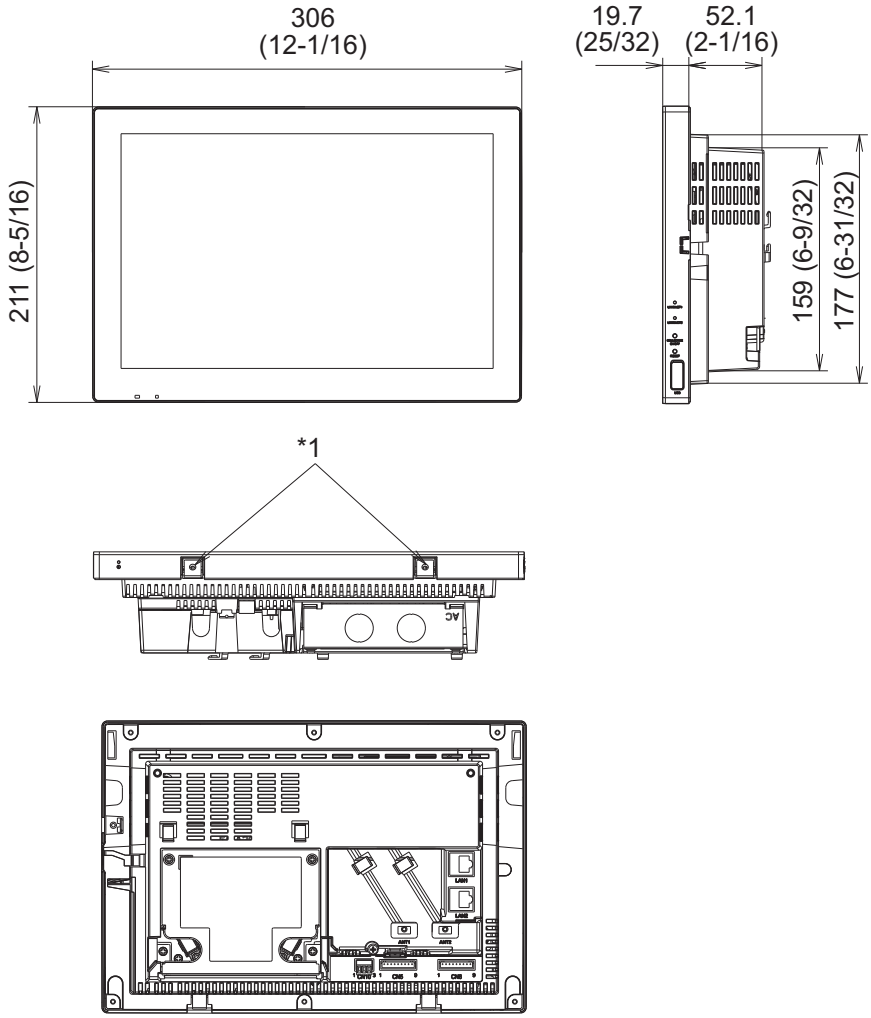
- When installing the controller where communication and broadcasting facilities are located nearby, take measures against electrical interference noise.
  Electrical interference noise may cause image distortion or unpleasant noise in the video broadcasting. Inverter equipment, private power generator, high frequency medical equipment, and radio communication equipment can cause the controller to malfunction or fail.
- Do not install the controller where it is subjected to continuous vibrations, which can cause the connectors to become loose or disconnected.
- Avoid using the controller in the following locations. If the controller is used in the following locations, it is recommended to shorten the maintenance cycle.
  - Location where the temperature or humidity rises high or fluctuates greatly.
  - Location where the voltage or frequency fluctuates greatly or the waveform distorts greatly.
    (It is not allowed to use the controller out of the specifications.)
  - Location where the controller is subjected to frequent vibrations or impacts.
  - Location where the controller is subjected to a large amount of dust or salt.
- The controller is not suitable for use in locations where children are likely to be present.

4-4. Mounting dimensions (AE-C)

4-4-1. External dimensions

[1] Controller

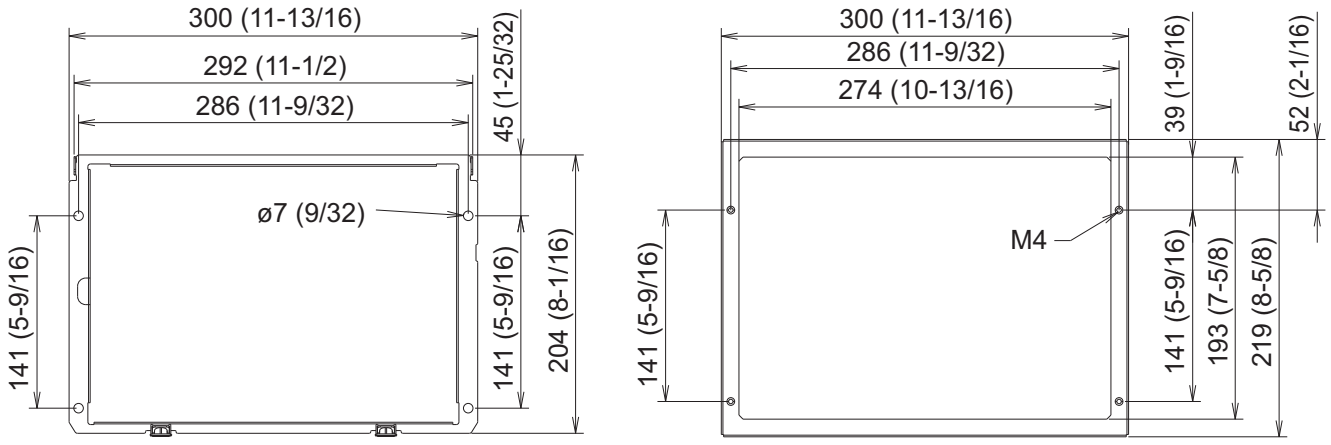
Unit: mm (in)



*1 Roundhead screw (M3 x 6)

[2] Mounting plate

Unit: mm (in)



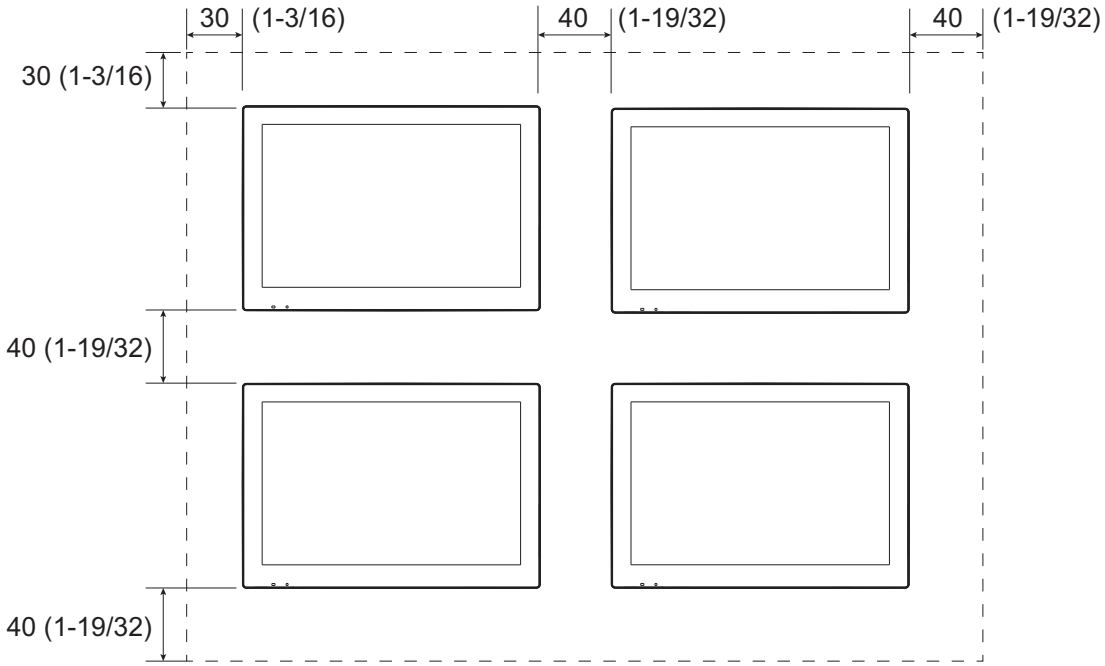
Front frame
(supplied part D-3)

Rear frame
(supplied part D-4)

4-4-2. Installation space

Leave a minimum space around the controller as shown below.
In particular, if the controller is located above an object (e.g., control box) with a greater depth than the controller, provide sufficient space under the controller so that the roundhead screws at the bottom of the controller can be accessed with a Phillips screwdriver. For details, refer to "Step 3. of Wall-embedded installation (page 39)."

Unit: mm (in)



Note

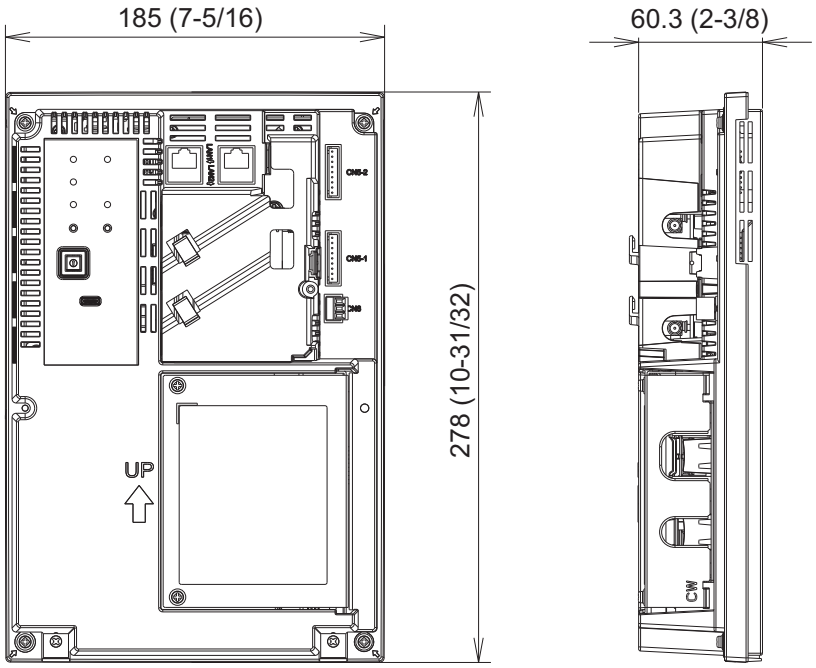
- When installing two or more controllers side-by-side with each other or with other devices, provide space of at least 40 mm (1-19/32 in) on the right side of the controllers and at least 30 mm (1-3/16 in) on the left side. When installing the controllers vertically, provide space of at least 40 mm (1-19/32 in) between the controllers.

4-5. Mounting dimensions (EW-C)

4-5-1. External dimensions

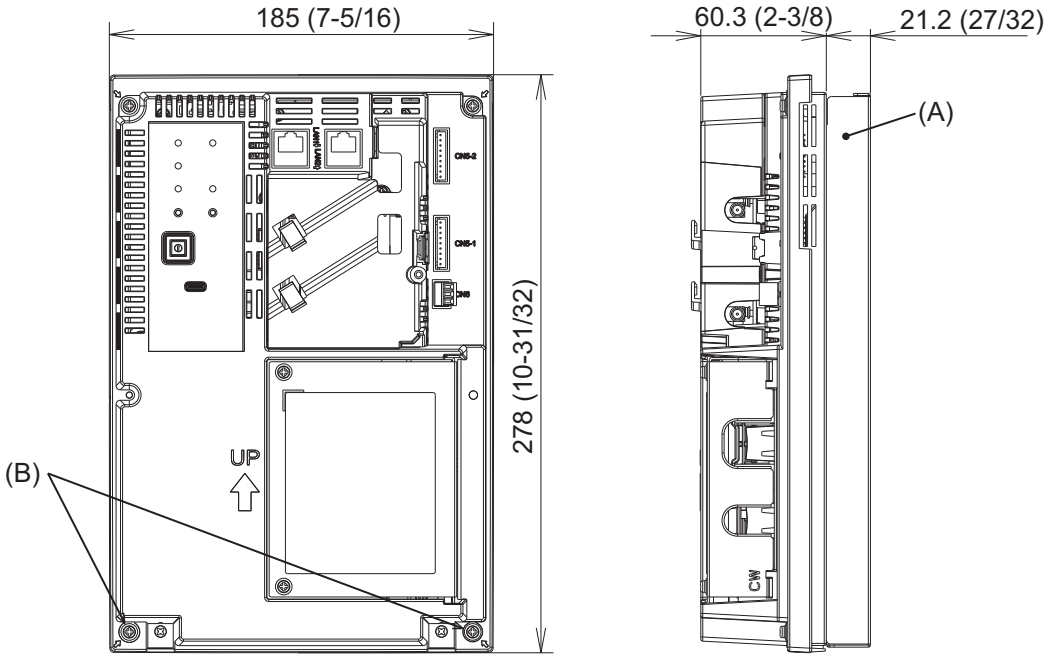
[1] Controller

Unit: mm (in)



[2] Installation on a panel inside a metal control box

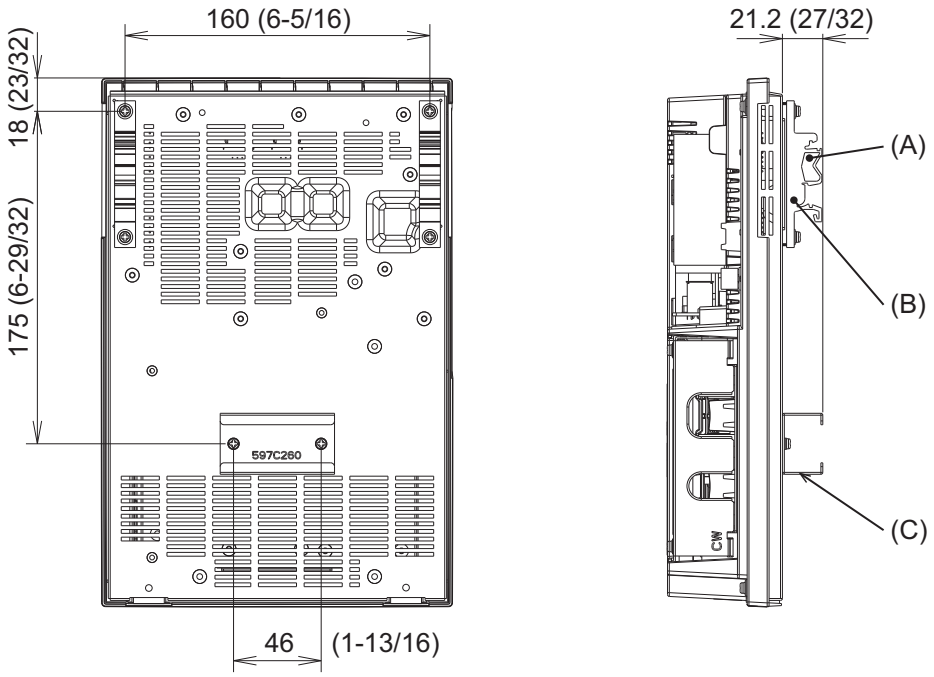
Unit: mm (in)



(A) Installation frame (supplied part D-12)
(B) Controller mounting hole

[3] Installation on a DIN rail

Unit: mm (in)

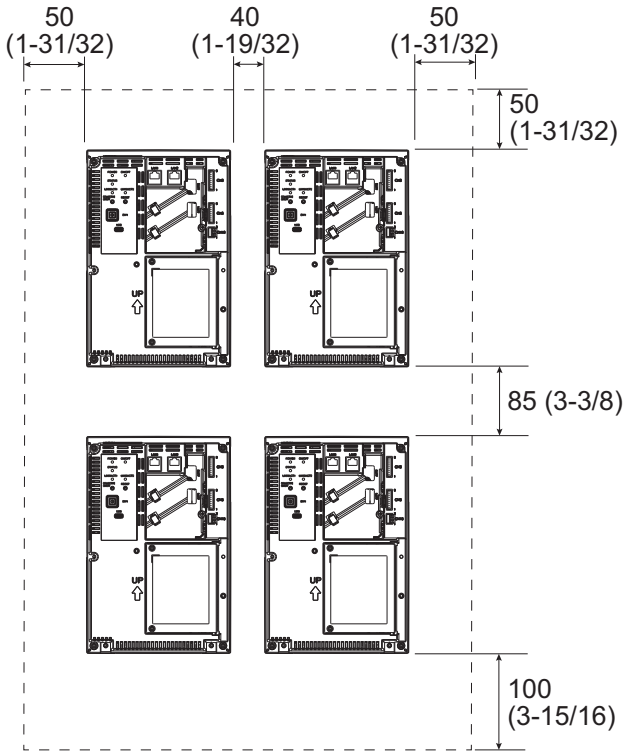


(A) DIN rail (commercial part S-8)
(B) DIN rail attachment (supplied part D-14)
(C) DIN rail auxiliary bracket (supplied part D-15)

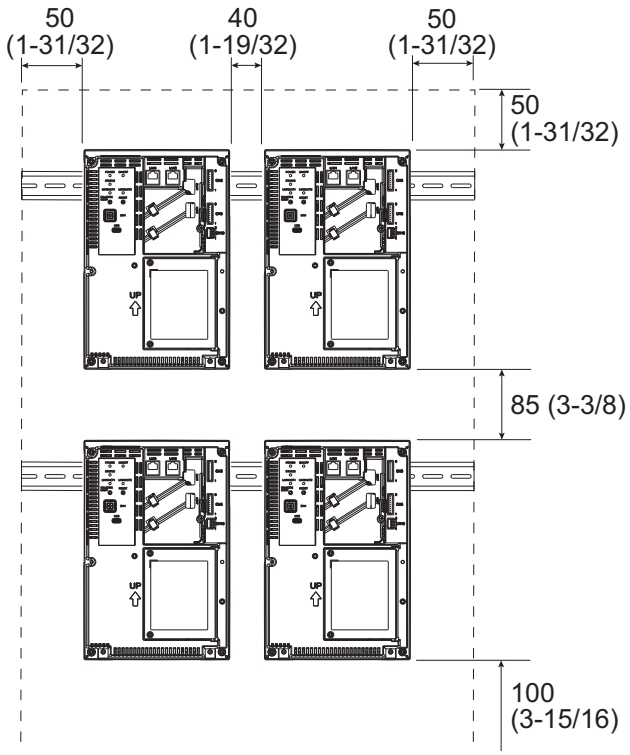
4-5-2. Installation space

Leave a minimum space around the controller as shown below.

Unit: mm (in)



Installation on a panel inside a metal control box



Installation on a DIN rail

4-6. Space for maintenance and inspection

Select an installation site where sufficient space is available for operation, maintenance, and other services.
A maintenance contract should be signed between the installer and the user that includes regular inspection of the air conditioning control system, including the controller, to ensure that they are operating safely and in good condition.

5. Installation

⚠ WARNING

Installation work must be performed by the dealer or qualified personnel according to the instructions in the Installation Manual. Improper installation work or installation work performed by the user may cause trouble.

Use the supplied or specified parts for installation. Use of improper parts may cause trouble.

Take appropriate safety measures against earthquakes to prevent the product from falling and causing injury.

⚠ CAUTION

To reduce the risk of injury, wear protective gear before working on the product.

5-1. Progress of building construction and construction conditions

Make sure the site is ready for installation.
Before installing the controller, prepare necessary cables.

Note

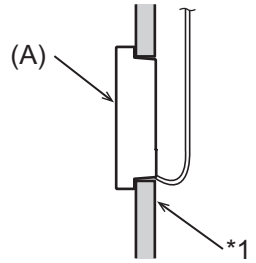
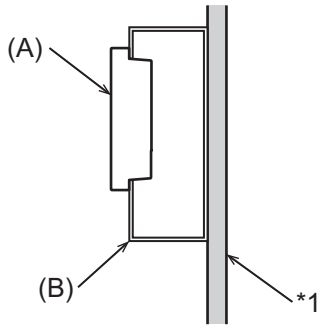
- The controller must be installed within the height of 2 m (6-1/2 ft) from the floor.

5-2. Installation (AE-C)

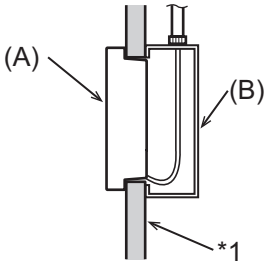
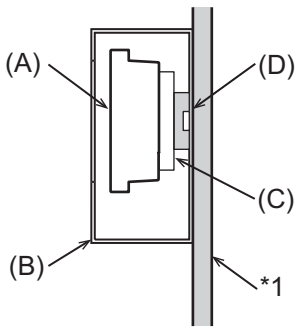
5-2-1. Installation methods

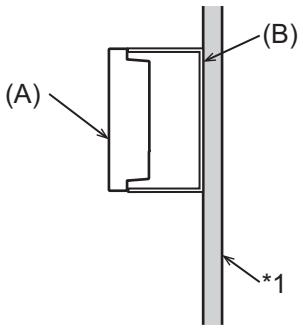
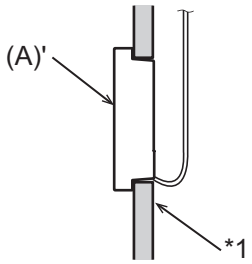
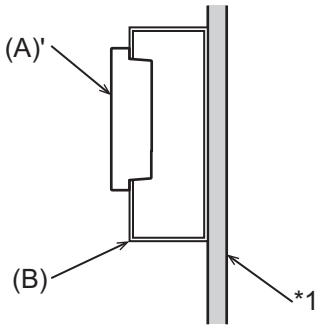
The controller can be installed in one of the following methods.
For the installation methods using optional parts, refer to the Installation Manual of the optional parts.
For details of the parts, refer to the specified page. "Optional parts (page 12)" "Commercial parts (page 13)"

Installation methods explained in this manual

Method 1	Wall-embedded installation • Use the front frame (supplied part D-3) and the rear frame (supplied part D-4). (A) AE-C *1 Wall	
Method 2	Installation on a metal control box (commercial part S-7) (A) AE-C (B) Metal control box *1 Wall	

Installation using optional parts

Method 3	Wall-embedded installation using an electrical box (PAC-YK94UTB) (optional part P-1) (A) AE-C (B) Electrical box *1 Wall	
Method 4	Installation in a metal control box (commercial part S-7), using the mounting bracket and the DIN rail attachments of a mounting kit for control panel (PAC-YK96TK) (optional part P-2) (A) AE-C (B) Metal control box (C) Mounting kit for control panel (D) DIN rail *1 Wall	

Method 5	Installation on a wall that cannot be drilled (e.g., concrete wall), using a mounting attachment for wall-surface installation (PAC-YK92TB) (optional part P-3) (A) AE-C (B) Mounting attachment for wall-surface installation *1 Wall	
Method 6	Wall-embedded installation (Replacement of AE-200) • A replacement attachment (PAC-YK91RF) (optional part P-4) is required. (For the installation procedure, refer to the Installation Manual of the replacement attachment.) (A)' AE-200 → AE-C *1 Wall	
Method 7	Installation on a metal control box (commercial part S-7) (Replacement of AE-200) • A replacement attachment (PAC-YK91RF) (optional part P-4) is required. (For the installation procedure, refer to the Installation Manual of the replacement attachment.) (A)' AE-200 → AE-C (B) Metal control box *1 Wall	

Note

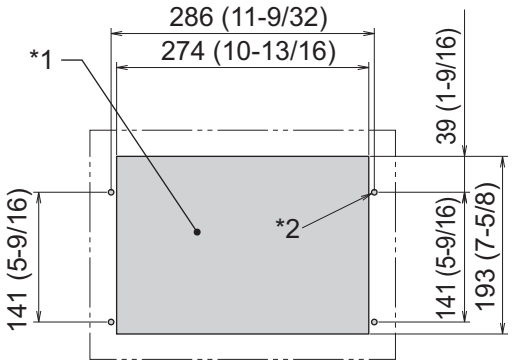
- When routing the cable from above, let the cable hang loose behind the controller as shown in the figure below to prevent water from running down the cable into the connectors.

Good example Bad example

5-2-2. Preparation (for methods 1, 2, and 6)

Make an installation hole (274 × 193 mm (10-13/16 × 7-5/8 in)) and mounting holes (φ6 (1/4 in) × 4) in the wall as shown in the figure below.

Unit: mm (in)



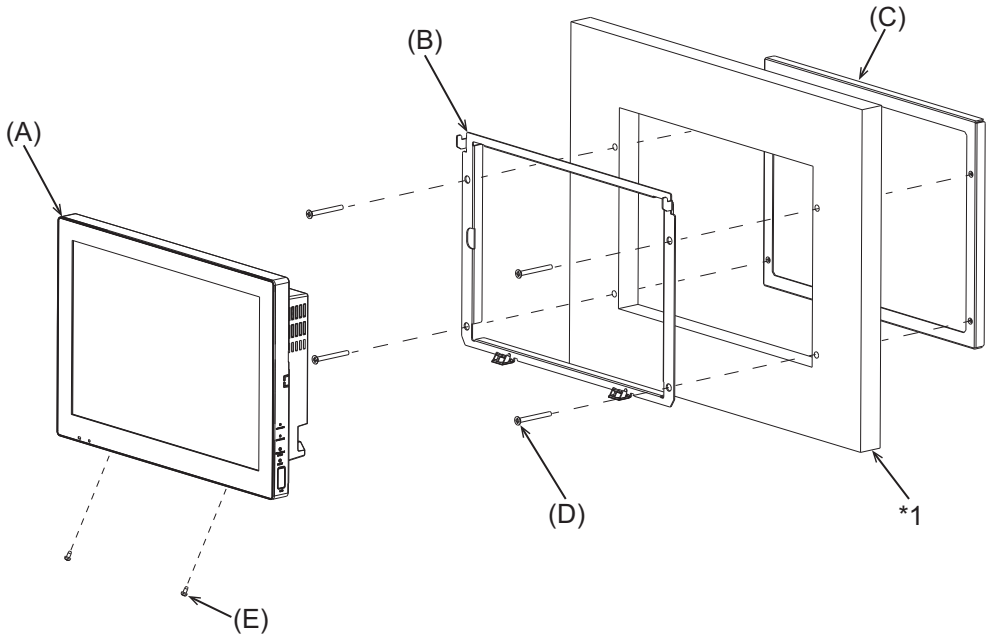
*1 Installation hole
*2 Mounting hole

[1] Wall-embedded installation

Step

1. Sandwich the wall with the front frame (supplied part D-3) and the rear frame (supplied part D-4), and fasten them together, using the flathead screws (M4 × 40) (supplied part D-5).

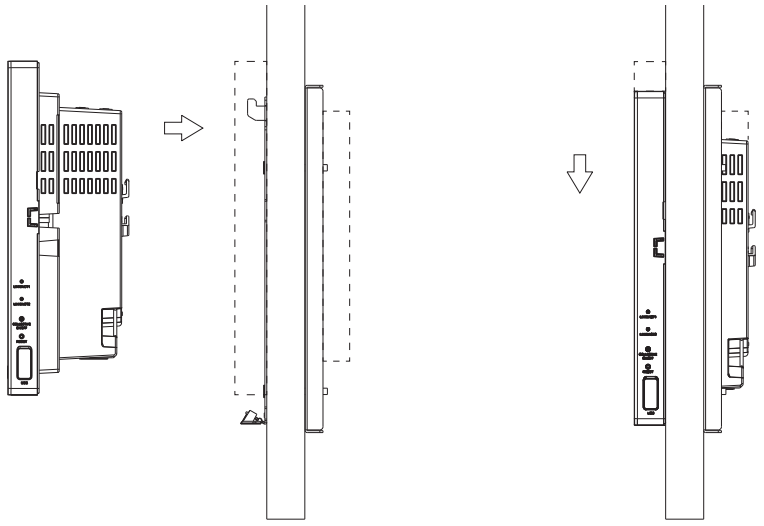
- Do not overtighten the screws. (Specified torque: 0.2 to 0.3 N·m)
  Doing so may distort the frames and render the controller unmountable.
- The controller can be installed directly on a wall that can hold the weight of the controller (such as a gypsum-board wall), using wood screws (supplied part D-6). In this case, the rear frame and flathead screws will not be used.



(A) AE-C
(B) Front frame
(C) Rear frame
(D) Flathead screw
(E) Roundhead screw

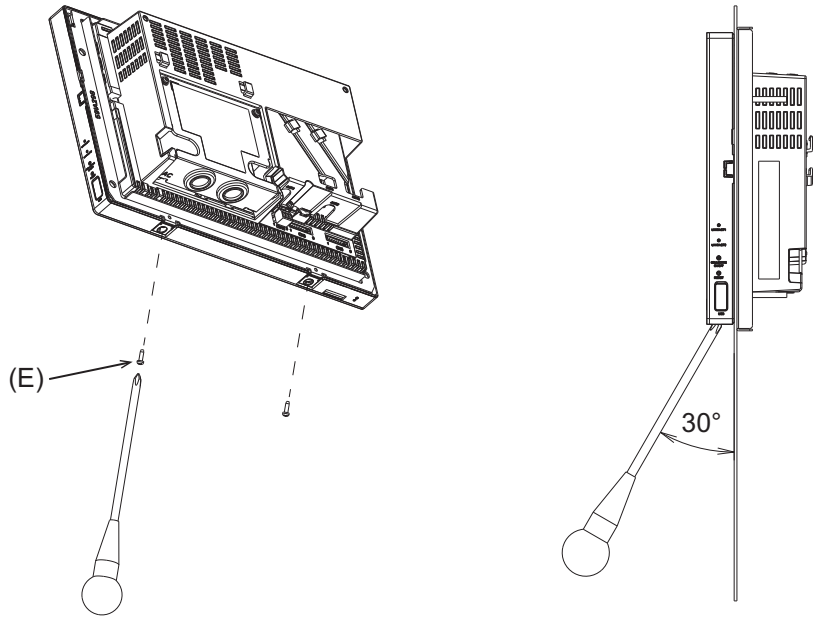
*1 Wall

2. Hook the top of the controller onto the two hooks of the front frame, and slide the controller down to temporarily let it hang.



3. Fasten the controller and the front frame together, using two roundhead screws (M3 × 6) (supplied part D-7).

- Make sure that the controller is firmly hooked on the hooks and is firmly secured on the wall.

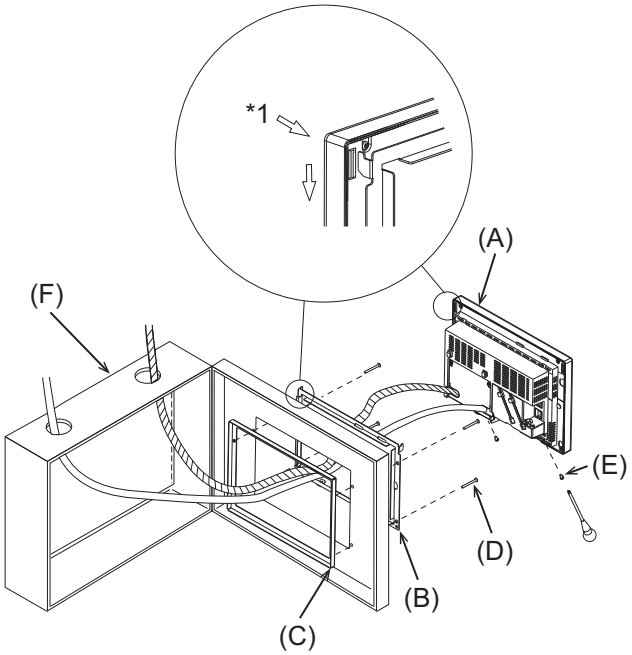


(E) Roundhead screw

[2] Installation on a metal control box

Step

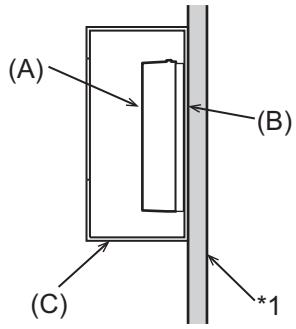
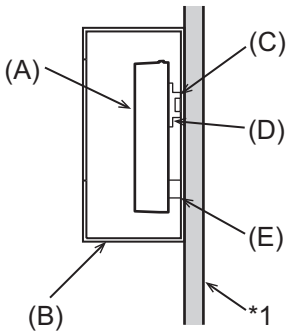
1. Sandwich the metal control box (commercial part S-7) with the front frame (supplied part D-3) and the rear frame (supplied part D-4), and fasten them together, using the flathead screws (M4 × 40) (supplied part D-5).
2. Hook the top of the controller onto the two hooks of the front frame, and slide the controller down to temporarily let it hang. (See *1 in the figure below.)
3. Fasten the controller and the front frame together, using two roundhead screws (M3 × 6) (supplied part D-7).



(A) AE-C
(B) Front frame
(C) Rear frame
(D) Flathead screw
(E) Roundhead screw
(F) Metal control box

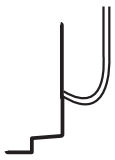
5-3. Installation (EW-C)

The controller can be installed in one of the following methods.

Method 1	Installation on a panel inside a metal control box (commercial part S-7) • Use the installation frame (supplied part D-12). • When replacing the existing EW-50 with the EW-C, the EW-C can be installed, using the existing holes. (A) EW-C (B) Metal control box (C) Installation frame *1 Wall	
Method 2	Installation on a DIN rail (commercial part S-8) inside a metal control box (commercial part S-7) • Use the DIN rail attachments (supplied part D-14) and the DIN rail auxiliary bracket (supplied part D-15). (A) EW-C (B) Metal control box (C) DIN rail (D) DIN rail attachment (E) DIN rail auxiliary bracket *1 Wall	

Note

- Install the controller in the orientation indicated by the arrow on the controller.
- When routing the cable from above, let the cable hang loose behind the controller as shown in the figure below to prevent water from running down the cable into the connectors.



Good example

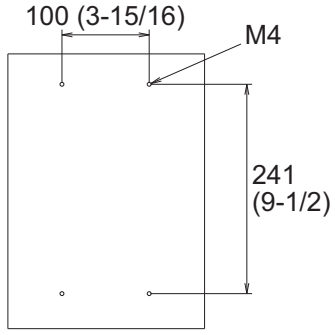
Bad example

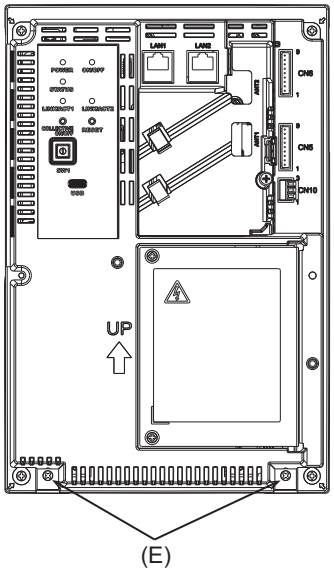
5-3-1. Installation on a panel inside a metal control box

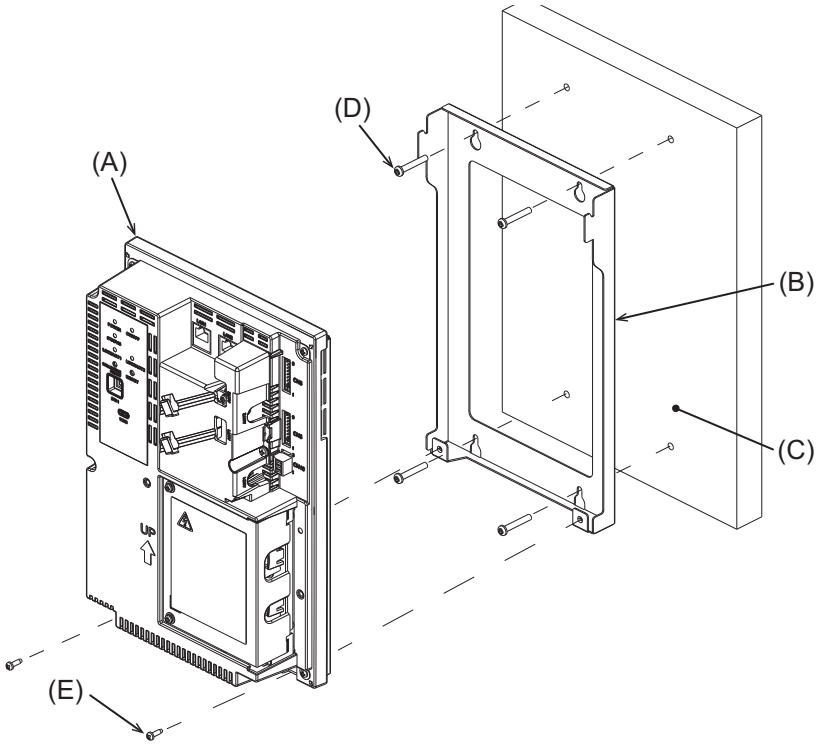
Step

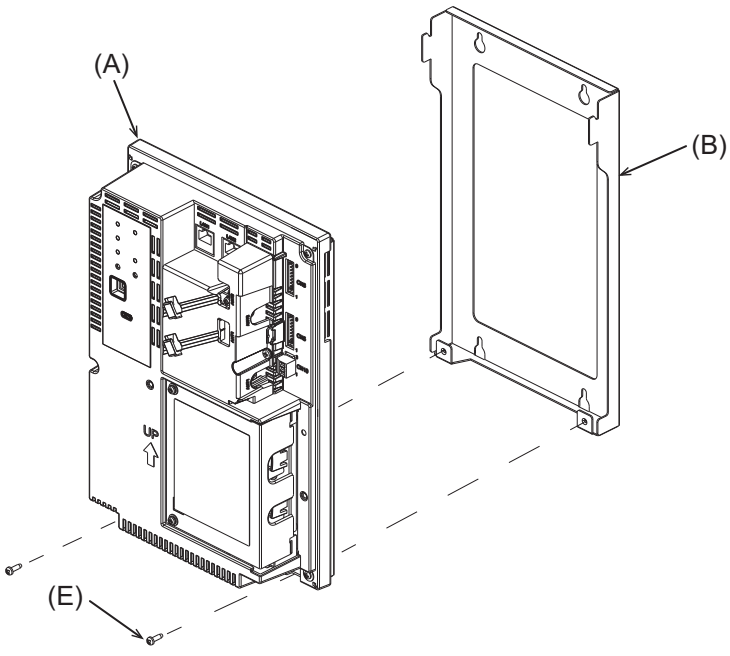
1. Prepare a metal control box (commercial part S-7).
   - The panel on which the controller is installed must be strong enough to hold the weight of the controller (1.9 kg (5 lbs)).
2. Make screw holes for securing the installation frame (supplied part D-12) inside the metal control box. (See the left figure below.)
3. Fasten the installation frame to the metal control box, using four screws (M4) (commercial part S-5).
4. Hook the controller on the installation frame.
5. Fasten the bottom of the controller to the installation frame, using two roundhead screws (M3 x 10) (supplied part D-13).

Unit: mm (in)









(A) EW-C
(B) Installation frame
(C) Metal control box (inside)
(D) Screw (M4)
(E) Roundhead screw (M3 x 10)

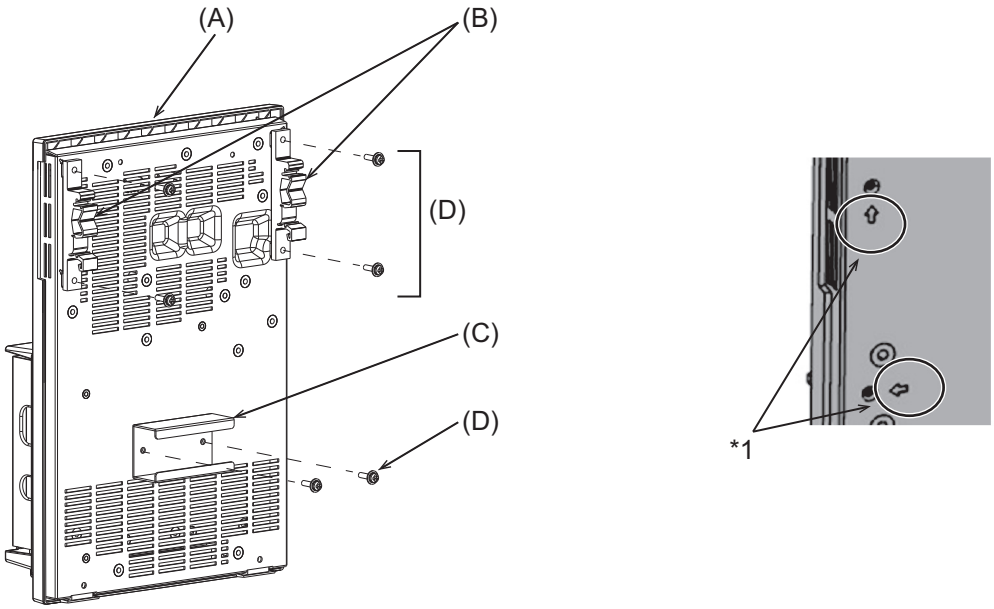
5-3-2. Installation on a DIN rail

Step

1. Prepare a metal control box (commercial part S-7).
- The panel on which the controller is installed must be strong enough to hold the weight of the controller (1.9 kg (5 lbs)).

2. Fasten two DIN rail attachments (supplied part D-14) to the controller, using roundhead screws (M3 x 12) (supplied part D-16).

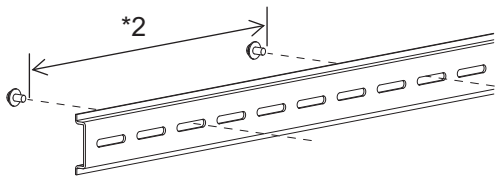
3. Fasten the DIN rail auxiliary bracket (supplied part D-15) to the controller, using roundhead screws (M3 × 12) (supplied part D-16).



*1 The screw holes for fastening the DIN rail attachments are indicated by arrows on the controller.

(A) EW-C
(B) DIN rail attachment
(C) DIN rail auxiliary bracket
(D) Roundhead screw (M3 x 12)

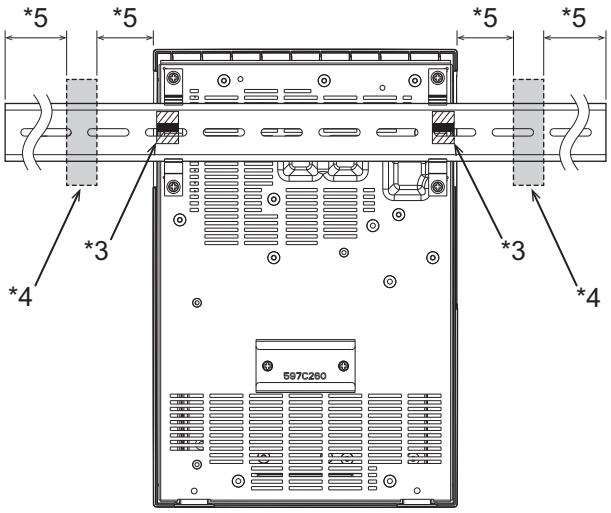
4. Fasten the DIN rail (commercial part S-8) to the metal control box, using the DIN rail fixing screws (M4) (commercial part S-9).
- Use a DIN rail of 35 mm (1-13/32 in) in width.
- For secure mounting, the pitch between the DIN rail fixing screws must be 200 mm (7-7/8 in) or less.



*2 Screw pitch: 200 mm (7-7/8 in) max.

Note

- Do not install the controller where it may be subjected to vibrations.
- To prevent the DIN rail fixing screws and the DIN rail attachments from coming into contact, do not install the DIN rail fixing screws in the areas specified in the figure below.
- Install DIN rail stoppers (commercial part S-10) at both ends of the DIN rail to keep the controller from sliding off the sides.

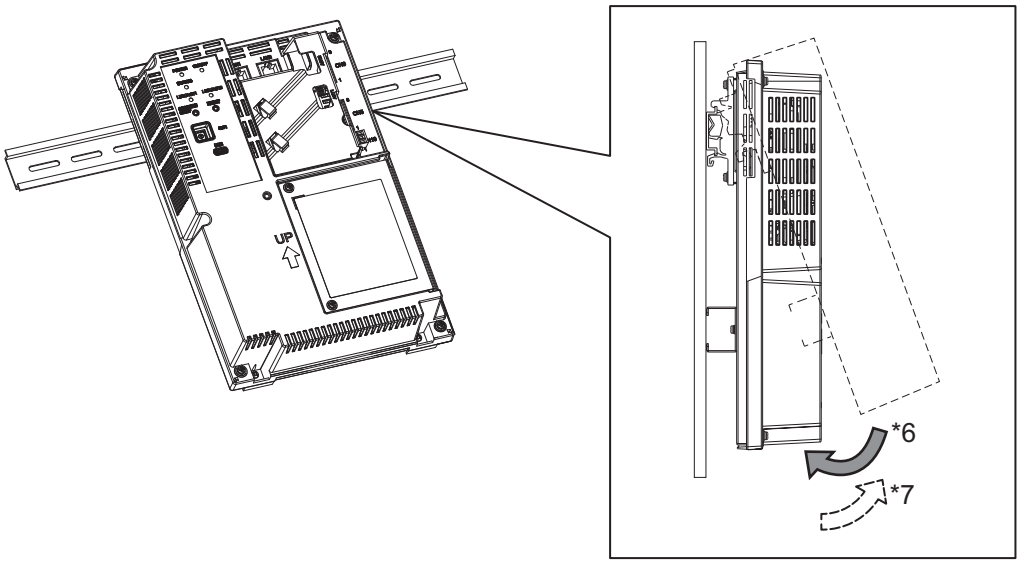


*3 Areas where the DIN rail fixing screws must not be installed
*4 DIN rail stopper
*5 Mount DIN rail stoppers on the DIN rail at a minimum distance of 10 mm (13/32 in) from the end of the DIN rail and the controller.

5. Hook the upper part of the DIN rail attachments to the DIN rail.

6. Push the bottom of the controller until it clicks into place.

- Make sure that the DIN rail attachments are secured to the DIN rail.
- To remove the controller from the DIN rail, pull the bottom of the controller to the front.



*6 Push to install the controller.
*7 Pull to remove the controller.

6. Electrical wiring

WARNING

To reduce the risk of malfunction, smoke, fire, or damage to the product, do not connect the power cable to the signal terminal block.

To reduce the risk of injury or electric shock, turn off the main power before performing electrical work.

Use specified cables and dedicated circuits. Inadequate power source capacity or improper electrical work may result in electric shock, malfunction, smoke, or fire.

Electrical work must be performed by qualified personnel in accordance with local regulations and the instructions in the Installation Manual. Improper electrical work may result in electric shock, malfunction, smoke, or fire.

To reduce the risk of electric shock, smoke, or fire, connect an overcurrent breaker and an earth leakage breaker to the power supply of each product.

Proper grounding must be provided by qualified personnel. Do not connect the protective ground wire to a gas pipe, water pipe, lightning rod, or telephone wire. Improper grounding may result in electric shock, smoke, fire, or malfunction due to electrical noise interference.

Note

- To prevent malfunction of the controller, do not bundle the power cables and the signal cables together or put them in the same metal tube.

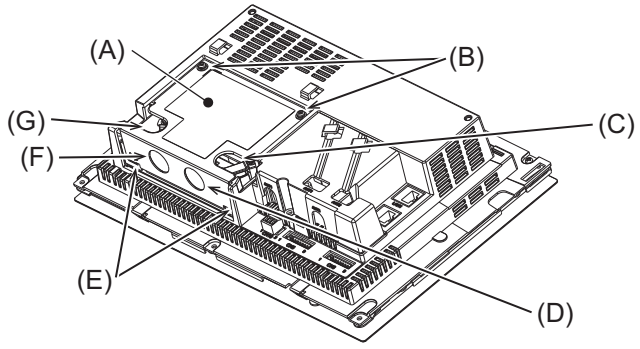
6-1. Cable connection

Cables can be routed from the bottom or side of the AE-C.
Cables can be routed from the side of the EW-C.
To connect cables, remove the service cover.

6-2. Removing/reinstalling the service cover

■ AE-C

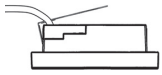
[1] Removing the service cover



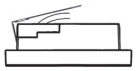
(A) Service cover
(B) Mounting screw
(C) M-NET transmission cable hole
(for routing from the side of the controller)
(D) M-NET transmission cable knockout hole
(for routing from the bottom of the controller)
(E) Bottom hook
(F) Power cable knockout hole
(for routing from the bottom of the controller)
(G) Power cable hole
(for routing from the side of the controller)

Step

1. Remove the two mounting screws, and lift the cover.
(Take this step both when routing cables from the bottom and the side of the controller.)



2. Remove cables from the cable holes.
(Take this step only when routing cables from the side of the controller)



3. Unhook the bottom hooks from the controller.
(Take this step both when routing cables from the bottom and the side of the controller.)

[2] Reinstalling the service cover

Before reinstalling the service cover, connect cables. For details of cable connection, refer to the specified page.
"AC power cable and M-NET transmission cable (page 48)"

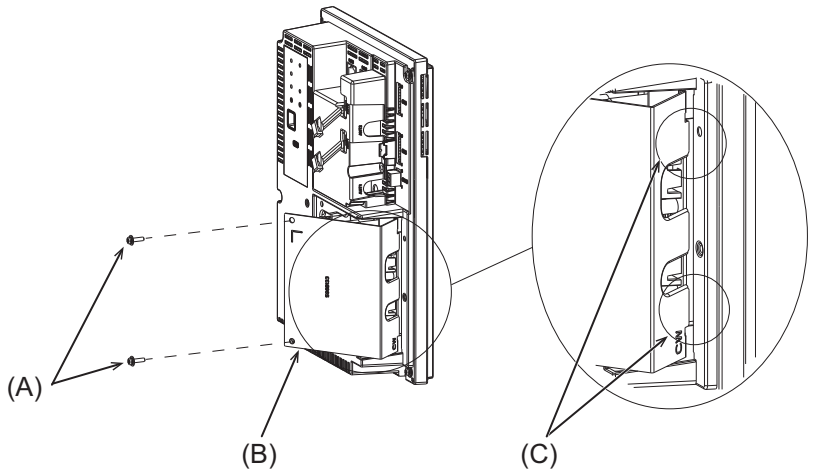
Step

1. Hook the bottom hooks onto the controller.

2. Screw down the service cover, using two mounting screws.

■ EW-C

[1] Removing the service cover



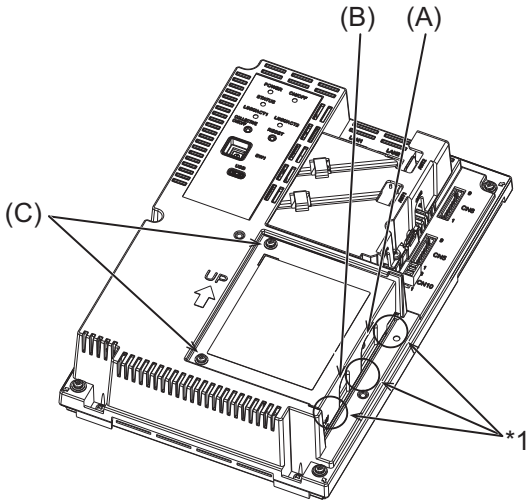
(A) Mounting screw
(B) Service cover
(C) Hook (service cover)

Step

1. Remove the mounting screws.
2. Remove the service cover.

[2] Reinstalling the service cover

Before reinstalling the service cover, connect cables. For details of cable connection, refer to the specified page.
"AC power cable and M-NET transmission cable (page 48)"



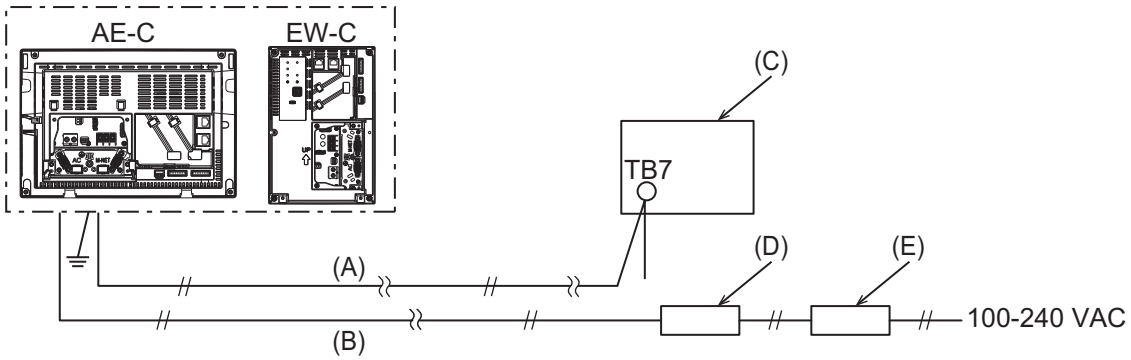
(A) M-NET transmission cable hole
(B) Power cable hole
(C) Mounting screw

Step

1. Thread the AC power cable (commercial part S-1) and M-NET transmission cable (commercial part S-2) through the cable holes, and hook the service cover onto the controller.
2. Screw down the service cover, using two mounting screws.
3. Make sure that the cables are not pinched between the service cover and the controller at the areas marked as *1 in the figure above.

6-3. AC power cable and M-NET transmission cable

Connect the AC power wires (commercial part S-1), protective ground wire (commercial part S-1), and M-NET transmission wires (commercial part S-2) as shown in the figure below. Perform Class D grounding work after connecting the cables.



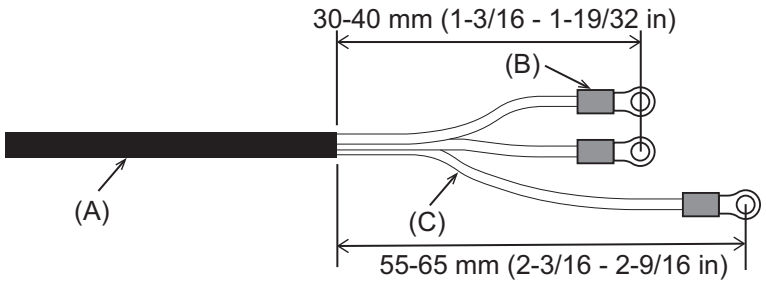
(A) M-NET transmission cable (commercial part S-2)
(B) AC power cable (commercial part S-1)
(C) Outdoor unit
(D) Overcurrent breaker (commercial part S-11)
(E) Earth leakage breaker (commercial part S-12)

Note

- Install an overcurrent breaker and an earth leakage breaker for each controller.
- Use sleeved ring terminals (commercial part S-3) to connect wires to the terminal blocks.
- Route the M-NET transmission cable away from the AC power cable to prevent the M-NET transmission cable from being affected by the electrical noise interference from the AC power cable.

6-3-1. Connecting the AC power wires and the protective ground wire

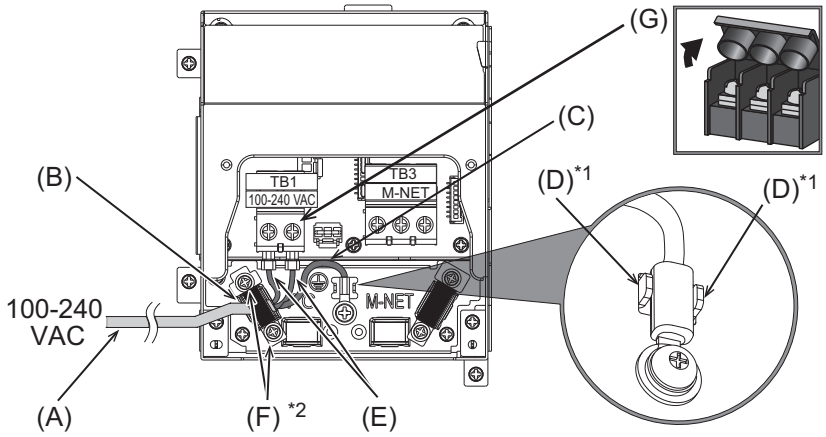
Before connecting the AC power cable, prepare the cable end as shown below.
Attach an M3.5 sleeved ring terminal (commercial part S-3) to the AC power wires (commercial part S-1), and an M4 sleeved ring terminal (commercial part S-3) to the protective ground wire (commercial part S-1).



(A) Sheath
(B) Sleeve
(C) Protective ground wire

■ AE-C

[1] Routing the AC power cable from the side of the controller



(A) Sheath
(B) Cable clamp
(C) Protective ground wire
(commercial part S-1)
(D) Guide
(E) AC power cable
(commercial part S-1)
(F) Cable clamp securing screw
(G) Terminal cover

*1 Route the protective ground wire between the guides to prevent it from being displaced when retightening the ground terminal.

*2 Loosen these screws to lift the cable clamp to route the cable through. You can route the cable from the bottom of the controller by removing the upper screw and rotating the cable clamp. After routing the cable, tighten the screws alternately.

Step

1. Pull up the terminal cover to open.

2. Connect the AC power wires to the power supply terminal block (TB1) and the protective ground wire to the ground terminal block.
- To prevent damage to the controller, do not overtighten the terminal block screws. (Specified torque: 0.8 to 1.1 N·m)

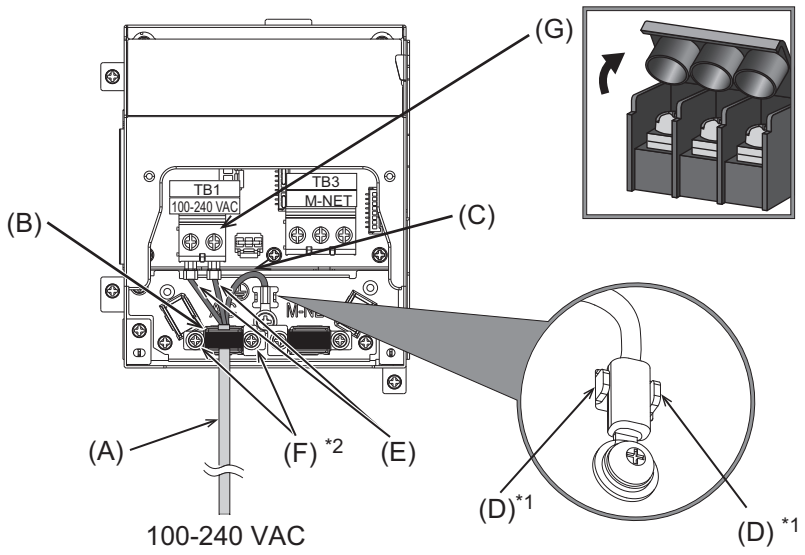
3. Clamp down the cable.
- For details, refer to the specified page. "Securing the cables (page 57)"

4. Close the terminal cover.

5. Install the service cover.
- For details, refer to the specified page. "Reinstalling the service cover (page 46)"

[2] Routing the AC power cable from the bottom of the controller

When routing the cable from the bottom of the controller, attach a rubber bushing (supplied part D-8) to the knockout hole.



(A) Sheath
(B) Cable clamp
(C) Protective ground wire
(commercial part S-1)
(D) Guide
(E) AC power cable
(commercial part S-1)
(F) Cable clamp securing screw
(G) Terminal cover

*1 Route the protective ground wire between the guides to prevent it from being displaced when retightening the ground terminal.

*2 Loosen these screws to lift the cable clamp to route the cable through. You can route the cable from the side of the controller by removing the right screw and rotating the cable clamp. After routing the cable, tighten the screws alternately.

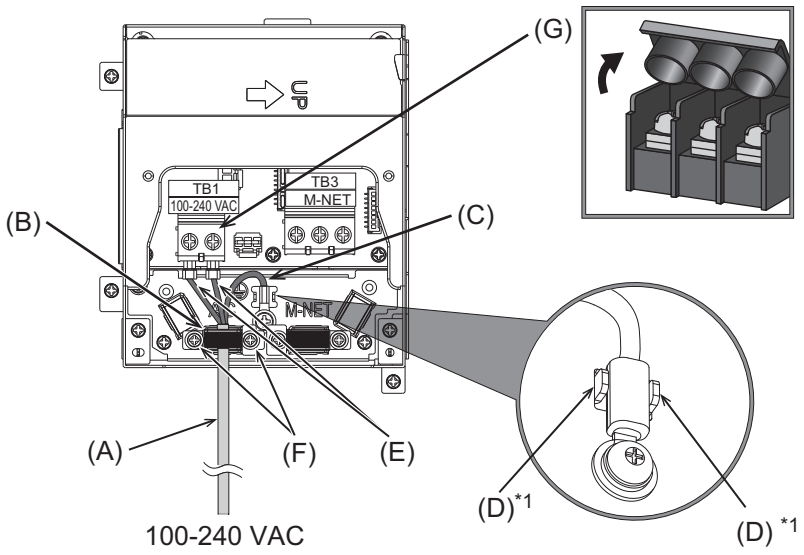
Step

1. Punch out a knockout hole for the cable.
2. Make a cut in the rubber bushing to thread the cable.
3. Fit the rubber bushing in the knockout hole.
4. Thread the cable through the rubber bushing.
5. Pull up the terminal cover to open.
6. Connect the AC power wires to the power supply terminal block (TB1) and the protective ground wire to the ground terminal block.
   - To prevent damage to the controller, do not overtighten the terminal block screws. (Specified torque: 0.8 to 1.1 N·m)
7. Clamp down the cable.
   - For details, refer to the specified page. "Securing the cables (page 57)"
8. Close the terminal cover.
9. Install the service cover.
   - For details, refer to the specified page. "Reinstalling the service cover (page 46)"

Note

- When the wall thickness is 10 mm (13/32 in) or larger, route the cable through the power cable hole, not through a knockout hole. The rubber bushing will come in contact with a wall having a thickness of 10 mm (13/32 in) or larger, preventing the cable from being routed.

■ EW-C



(A) Sheath
(B) Cable clamp
(C) Protective ground wire
(commercial part S-1)
(D) Guide
(E) AC power cable
(commercial part S-1)
(F) Cable clamp securing screw
(G) Terminal cover

*1 Route the protective ground wire between the guides to prevent it from being displaced when retightening the ground terminal.

Step

1. Pull up the terminal cover to open.

2. Connect the AC power wires to the power supply terminal block (TB1) and the protective ground wire to the ground terminal block.
- To prevent damage to the controller, do not overtighten the terminal block screws. (Specified torque: 0.8 to 1.1 N·m)

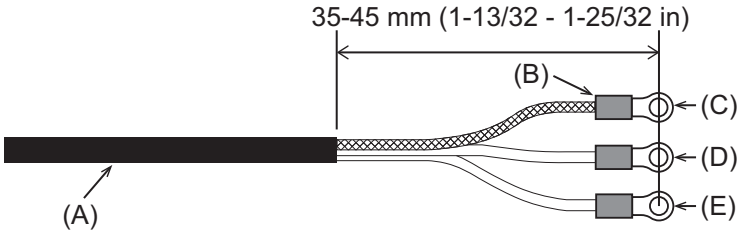
3. Clamp down the cable.
- Loosen the cable clamp securing screws to lift the cable clamp to route the cable through.
- For details, refer to the specified page. "Securing the cables (page 57)"

4. Close the terminal cover.

5. Install the service cover.
- For details, refer to the specified page. "Reinstalling the service cover (page 47)"

6-3-2. Connecting the M-NET transmission wires

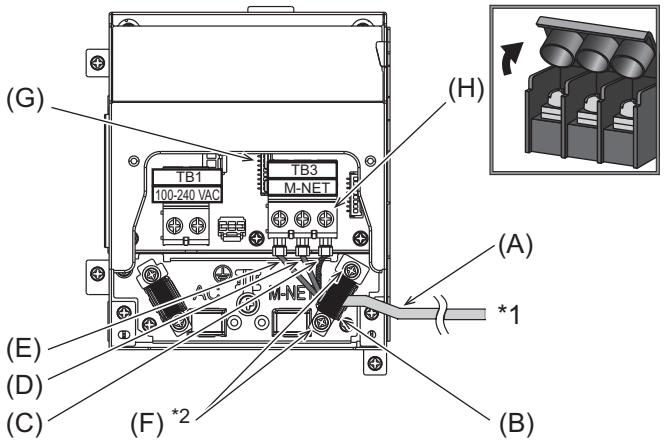
Before connecting the M-NET transmission cable, prepare the cable end as shown below. Attach an M3.5 sleeved ring terminal (commercial part S-3) to the M-NET transmission wires (A, B, shield) (commercial part S-2).



(A) Sheath
(B) Sleeve
(C) M-NET transmission wire S (shield)
(D) M-NET transmission wire B (non-polarized)
(E) M-NET transmission wire A (non-polarized)

■ AE-C

[1] Routing the M-NET transmission cable from the side of the controller



(A) Sheath
(B) Cable clamp
(C) M-NET transmission wire S (shield)
(D) M-NET transmission wire B (non-polarized)
(E) M-NET transmission wire A (non-polarized)
(F) Cable clamp securing screw
(G) M-NET power supply connector (CN21)
(H) Terminal cover

*1 Connect the cable to the outdoor unit.
*2 Loosen these screws to lift the cable clamp to route the cable through. You can route the cable from the bottom of the controller by removing the upper screw and rotating the cable clamp. After routing the cable, tighten the screws alternately.

Step

1. Pull up the terminal cover to open.

2. Connect the M-NET transmission wires to the M-NET terminal block (TB3).
- To prevent damage to the controller, do not overtighten the terminal block screws. (Specified torque: 0.8 to 1.1 N·m)

3. Secure the M-NET transmission cable with the cable clamp.
- For details, refer to the specified page. "Securing the cables (page 57)"

4. To supply power via M-NET from other than the controller, remove the M-NET power supply connector (CN21).
- For the location of the M-NET power supply connector (CN21), refer to the specified page. "AE-C (Rear (without the service cover)) page 18"

5. Close the terminal cover.

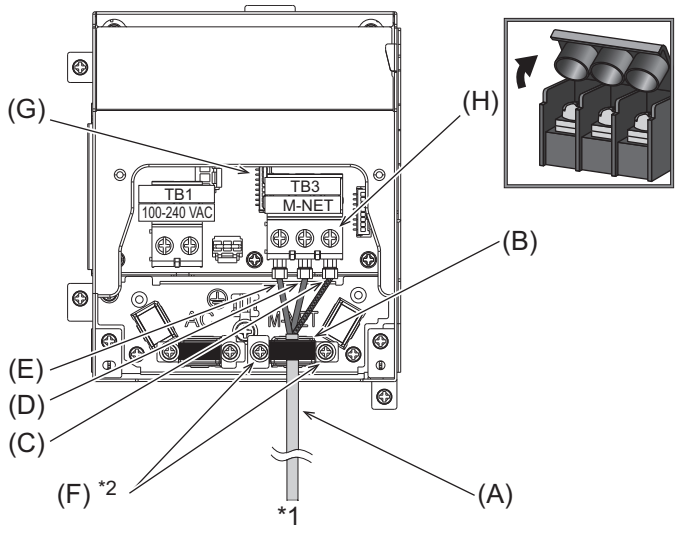
6. Install the service cover.
- For details, refer to the specified page. "Reinstalling the service cover (page 46)"

Note

- The M-NET transmission wire (shield) must be grounded at one point. (Class D grounding)
- When the M-NET power supply connector (CN21) is connected to the controller (the connector is factory-installed), the S (shield) terminal of the M-NET terminal block (TB3) will be connected to the ground terminal block inside the controller and grounded via the protective ground wire.
- When the M-NET power supply connector (CN21) is removed from the controller, no ground is established in the controller. In this case, the S (shield) terminal of the M-NET terminal block (TB3) will be connected to the ground terminal in the power supply unit for the M-NET transmission cable and is grounded via the protective ground.

[2] Routing the M-NET transmission cable from the bottom of the controller

When routing the cable from the bottom of the controller, attach a rubber bushing (supplied part D-8) to the knockout hole.



(A) Sheath
(B) Cable clamp
(C) M-NET transmission wire S (shield)
(D) M-NET transmission wire B (non-polarized)
(E) M-NET transmission wire A (non-polarized)
(F) Cable clamp securing screw
(G) M-NET power supply connector (CN21)
(H) Terminal cover

*1 Connect the cable to the outdoor unit.
*2 Loosen these screws to lift the cable clamp to route the cable through. You can route the cable from the side of the controller by removing the right screw and rotating the cable clamp. After routing the cable, tighten the screws alternately.

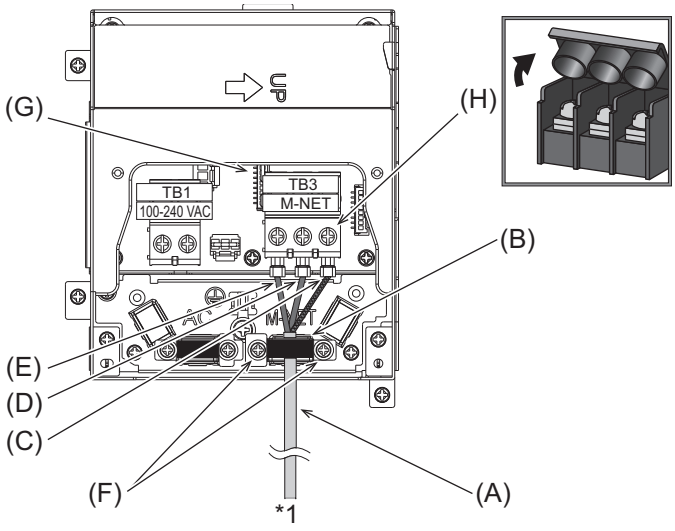
Step

1. Punch out a knockout hole for the cable.
2. Make a cut in the rubber bushing to thread the cable.
3. Fit the rubber bushing in the knockout hole.
4. Thread the cable through the rubber bushing.
5. Pull up the terminal cover to open.
6. Connect the M-NET transmission wires to the M-NET terminal block (TB3).
   - To prevent damage to the controller, do not overtighten the terminal block screws. (Specified torque: 0.8 to 1.1 N·m)
7. Secure the M-NET transmission cable with the cable clamp.
   - For details, refer to the specified page. "Securing the cables (page 57)"
8. To supply power via M-NET from other than the controller, remove the M-NET power supply connector (CN21).
   - For the location of the M-NET power supply connector (CN21), refer to the specified page. "AE-C (Rear (without the service cover)) (page 18)"
9. Close the terminal cover.
10. Install the service cover.
    - For details, refer to the specified page. "Reinstalling the service cover (page 46)"

Note

- When the wall thickness is 10 mm (13/32 in) or larger, route the cable through the M-NET cable hole, not through a knockout hole. The rubber bushing will come in contact with a wall having a thickness of 10 mm (13/32 in) or larger, preventing the cable from being routed.
- The M-NET transmission wire (shield) must be grounded at one point. (Class D grounding)
- When the M-NET power supply connector (CN21) is connected to the controller (the connector is factory-installed), the S (shield) terminal of the M-NET terminal block (TB3) will be connected to the ground terminal block inside the controller and grounded via the protective ground wire.
- When the M-NET power supply connector (CN21) is removed from the controller, no ground is established in the controller. In this case, the S (shield) terminal of the M-NET terminal block (TB3) will be connected to the ground terminal in the power supply unit for the M-NET transmission cable and is grounded via the protective ground.

■ EW-C



(A) Sheath
(B) Cable clamp
(C) M-NET transmission wire S (shield)
(D) M-NET transmission wire B (non-polarized)
(E) M-NET transmission wire A (non-polarized)
(F) Cable clamp securing screw
(G) M-NET power supply connector (CN21)
(H) Terminal cover

*1 Connect the cable to the outdoor unit.

Step

1. Pull up the terminal cover to open.

2. Connect the M-NET transmission wires to the M-NET terminal block (TB3).
- To prevent damage to the controller, do not overtighten the terminal block screws. (Specified torque: 0.8 to 1.1 N·m)

3. Secure the M-NET transmission cable with the cable clamp.
- Loosen the cable clamp securing screws to lift the cable clamp to route the cable through.
- For details, refer to the specified page. "Securing the cables (page 57)"

4. To supply power via M-NET from other than the controller, remove the M-NET power supply connector (CN21).
- For the location of the M-NET power supply connector (CN21), refer to the specified page. "EW-C (without the service cover) (page 22)"

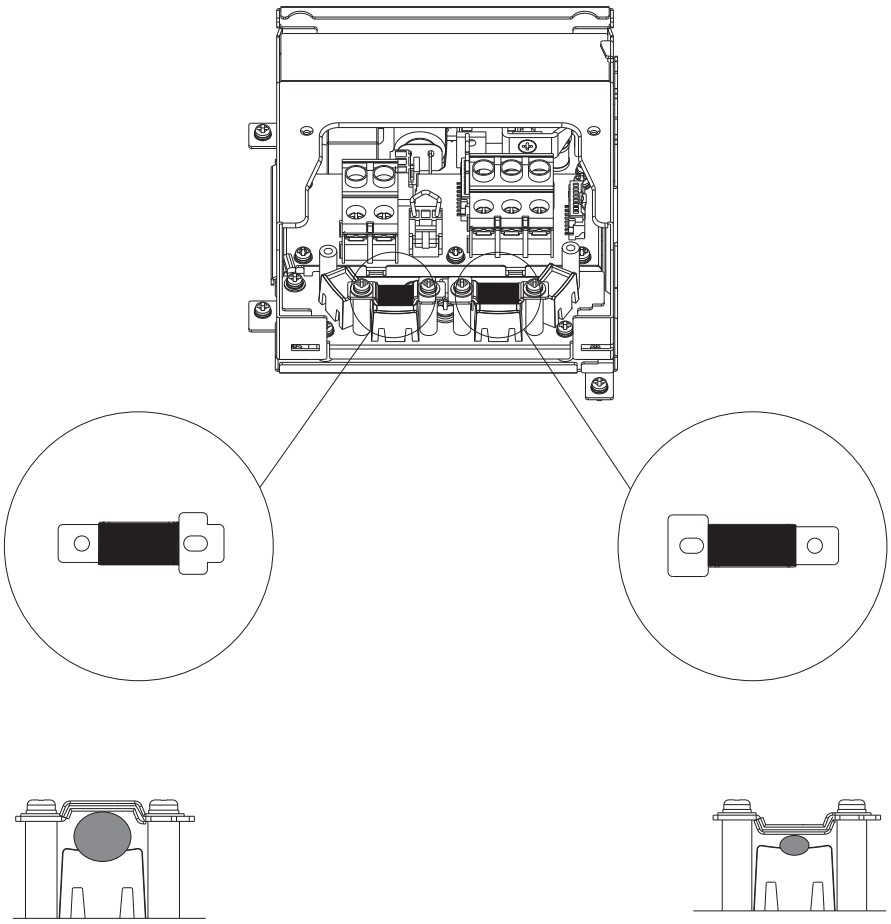
5. Close the terminal cover.

6. Install the service cover.
- For details, refer to the specified page. "Reinstalling the service cover (page 47)"

Note
- The M-NET transmission wire (shield) must be grounded at one point. (Class D grounding)
- When the M-NET power supply connector (CN21) is connected to the controller (the connector is factory-installed), the S (shield) terminal of the M-NET terminal block (TB3) will be connected to the ground terminal block inside the controller and grounded via the protective ground wire.
- When the M-NET power supply connector (CN21) is removed from the controller, no ground is established in the controller. In this case, the S (shield) terminal of the M-NET terminal block (TB3) will be connected to the ground terminal in the power supply unit for the M-NET transmission cable and is grounded via the protective ground.

6-3-3. Securing the cables

To hold the cables securely, flip the cable clamp upside down to fit the thickness of the cables.
On the AE-C, cables can be routed from the side or the bottom of the AE-C by changing the position of the cable clamps.



Holding a thick cable

Holding a thin cable

Note

- Tighten the screws until the cable is secured. Deformation of the cable clamp, if it happens, will not be an issue.

6-4. Connecting network cables

Before installing the controller, complete LAN wiring work so that LAN cables can be connected to the controller.

Note

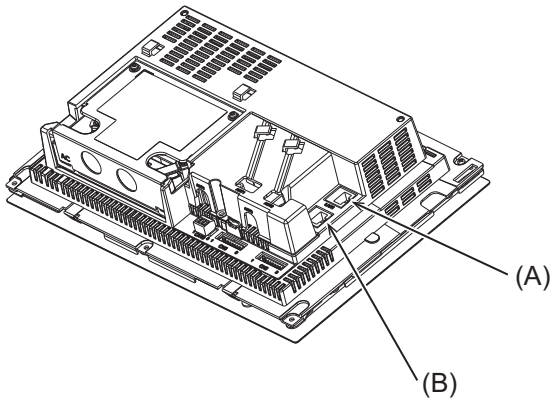
- When monitoring air-conditioning units and other equipment via the Internet, ensure security by using security devices such as VPN router (commercial part S-22) to prevent unauthorized access and tampering.

6-4-1. Connecting LAN cables

Step

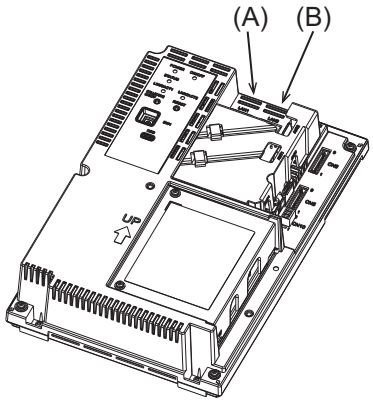
1. Connect a LAN cable (commercial part S-20) to the LAN1 or LAN2 port of the controller.
   - When the LAN cable exceeds 100 m (328-1/16 ft), relay the LAN cables, using a switching HUB (commercial part S-21).

■AE-C



(A) LAN1 port
(B) LAN2 port

■EW-C



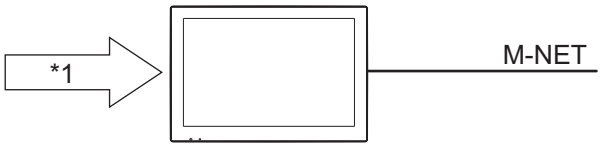
(A) LAN1 port
(B) LAN2 port

6-5. Connecting external devices

To use external inputs, external outputs, and RS-485 input, initial settings are required.
For details, refer to the Instruction Book (Detailed Version) for AE-C/EW-C.

6-5-1. External input

The external input function of the controller controls the connected units according to the external contact signals (12 V or 24 V DC) that are input to the controller.)
An external input/output adapter (optional part P-5) is required for each controller to use the external input function.



*1 External input

[1] Recommended circuit examples (external input)

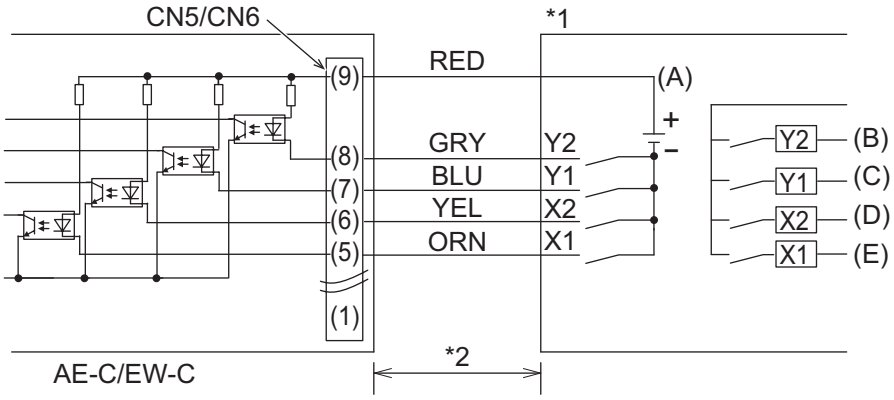
Follow the conditions below when connecting an external input circuit.

- Because the controller uses photocoupler input, an external power supply (12 V or 24 V DC) (commercial part S-14) is required. Because no external power supply is supplied with the controller, procure it locally.
- Procure relays (commercial part S-18) and extension cables (commercial part S-16) locally.
- For details of the locally procured parts, refer to the specified page. "Specifications of commercial parts (page 15)"

Note

- To prevent malfunction, connect the external power supply to the input circuit with the correct polarity.
- Connect terminals (5) to (8) of the connector to the negative side of the external power supply. (See the figure below.)
- Cut unused cables near the connector, and insulate the cut end of the cables with tape.

1) Level signal (relay driving)



RED: Red
GRY: Gray
BLU: Blue
YEL: Yellow
ORN: Orange

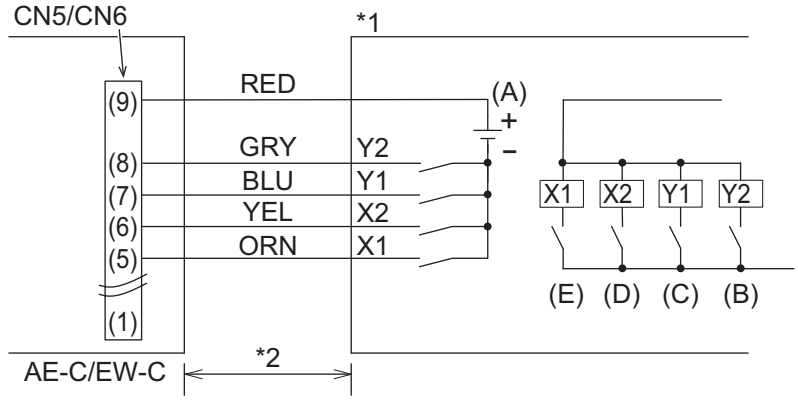
(A) External power supply
(B) Input 4
(C) Input 3
(D) Input 2
(E) Input 1

- The functions of (B) to (E) depend on the settings made on the controller.

*1 Unsupplied parts

*2 External input/output adapter (optional part P-5)
The total wiring length of the external input/output adapter and an extension cable must be 100m (328-1/16 ft) or shorter.
(Use a cable of at least 0.3 mm^2 in diameter (AWG 22).)
As the cable length increases, the cable will be more affected by electrical noise interference.
Take appropriate measures against electrical noise interference depending on the cable length.

2) Pulse signal (relay driving)



RED: Red
GRY: Gray
BLU: Blue
YEL: Yellow
ORN: Orange

(A) External power supply
(B) Input 4
(C) Input 3
(D) Input 2
(E) Input 1

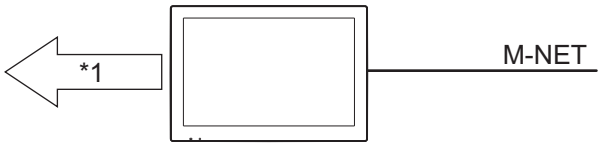
- The functions of (B) to (E) depend on the settings made on the controller.

*1 Unsupplied parts

*2 External input/output adapter (optional part P-5)
The total wiring length of the external input/output adapter and an extension cable must be 100m (328-1/16 ft) or shorter. (Use a cable of at least 0.3 mm^2 in diameter (AWG 22).)
As the cable length increases, the cable will be more affected by electrical noise interference.
Take appropriate measures against electrical noise interference depending on the cable length.

6-5-2. External output

The external output function of the controller outputs the statuses of the units that are controlled by the controller and those controlled by other controllers (AE-C/EW-C).
An external input/output adapter (optional part P-5) is required for each of the controller and other controllers (AE-C/EW-C) to use the external output function.



*1 External output

[1] Recommended circuit examples (external output)

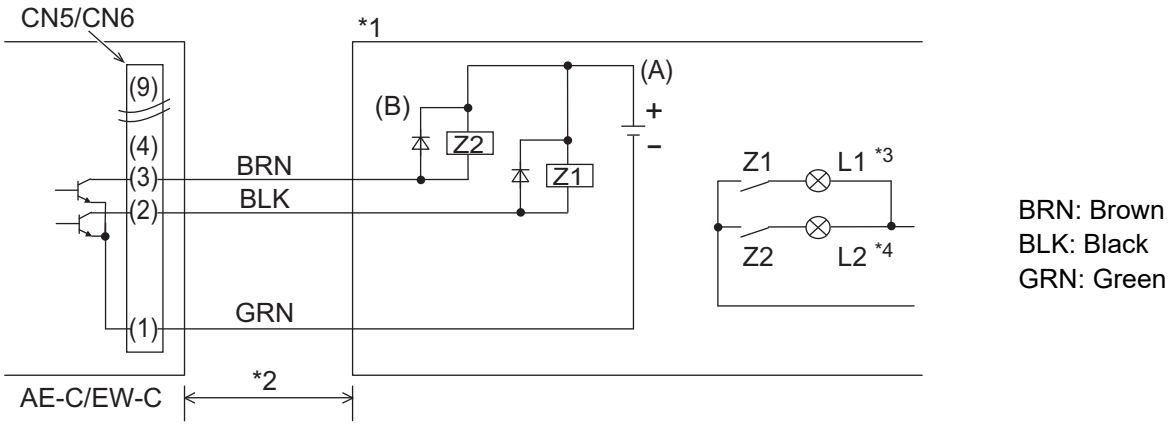
Follow the conditions below when connecting an external output circuit.

- Because the controller uses transistor output (sink type), an external power supply (12 V or 24 V DC) (commercial part S-15) is required. Because no external power supply is supplied with the controller, procure it locally.
- Procure relays (commercial part S-18), indicator lamps (commercial part S-19), diodes (commercial part), and extension cables (commercial part S-16) locally.
- For details of the locally procured parts, refer to the specified page. "Specifications of commercial parts (page 15)"

Note

- To prevent malfunction, connect the external power supply to the output circuit with the correct polarity. Especially when using a relay with a built-in surge-protection diode, be sure to connect the external power supply with the correct polarity.
- Connect terminal (1) of the connector to the negative side of the external power supply. (See the figure below.)
- Do not connect the external power supply with no relays (no load) connected.
- Install a diode at both ends of the relay coil. (Relays with built-in diode are recommended.)
- Cut unused cables near the connector, and insulate the cut end of the cables with tape.

1) Relay driving



(A) External power supply
(B) Diode

*1 Unsupplied parts
*2 External input/output adapter (optional part P-5)
The total wiring length of the external input/output adapter and an extension cable must be 10 m (32-3/4 ft) or shorter.
(Use a cable of at least 0.3 mm^2 in diameter (AWG 22).)
*3 Output 1 (L1: Indicator lamp (Commercial part S-19))
*4 Output 2 (L2: Indicator lamp (Commercial part S-19))

- The functions of *3 to *4 depend on the settings made on the controller.

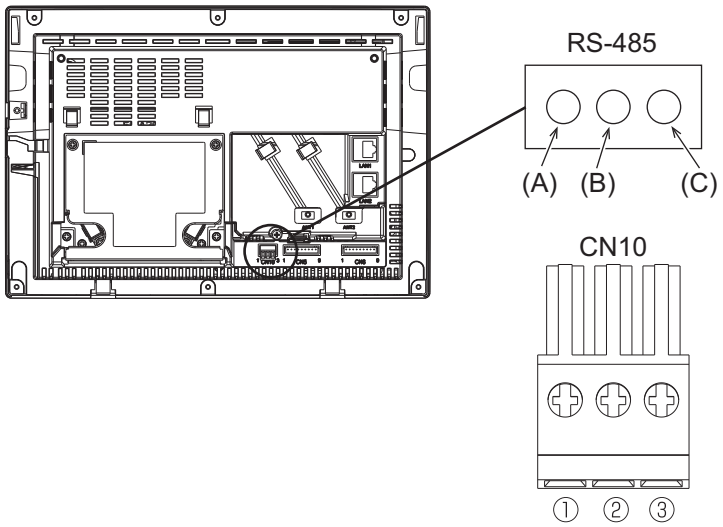
Note

- Each element turns on when a signal is output.

6-5-3. RS-485 input (CN10)

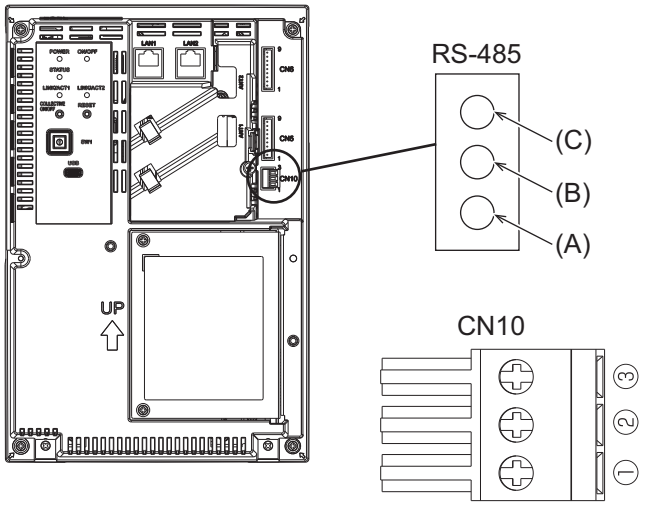
Watt-hour meters that support RS-485 (Modbus RTU) communication can be connected to this connector to capture watt-hour data. For details on watt-hour meter settings, refer to the manual for the watt-hour meter.

■ AE-C



(A) A+, (B) B–, (C) GND

■ EW-C

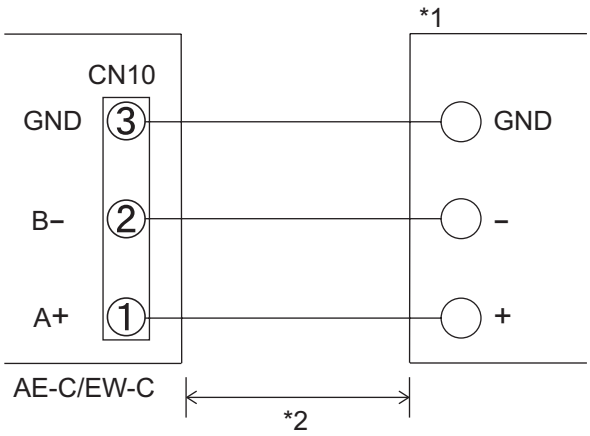


(A) A+, (B) B–, (C) GND

[1] Recommended circuit examples (RS-485 input)

Note

- To connect the watt-hour meter cable (commercial part S-4) to the connector, use a precision Phillips screwdriver (#0). (Specified torque: 0.25 N·m)
- Be sure to check the polarity of the terminals before connecting the cables.



*1 Watt-hour meter

*2 For the maximum wiring length between the controller and the watt-hour meter, see the AE-C/EW-C Technical Manual.
Connect both GND twisted-pair wires to the GND.
When using a shielded cable, connect the shield to the GND.

7. Post-installation inspection

After completing the installation work, perform an inspection according to the checklist below.
If any problems are found, be sure to correct them to make full use of the controller and to ensure safety.
After completing the inspection, make initial settings.

7-1. Installation checklist

Category	Check item	Result
AC power cable	Check that the cable is hanging loose behind the controller to prevent water from running down the cable into the connectors.	
	Check that the AC power cable is securely clamped to the terminal block (TB1).	
	Check that the AC power wires are connected to the L/L1 and N/L2 terminals.	
	Check that the protective ground wire is connected to the ground terminal block.	
	Check that the AC power cable and the M-NET transmission cable are not bundled together.	
	Check that the AC power cable and the M-NET transmission cable are routed separately, not in the same wiring tube.	
M-NET transmission cable	Check that the cable is hanging loose behind the controller to prevent water from running down the cable into the connectors.	
	Check that the M-NET transmission cable is securely clamped to the terminal block (TB3).	
	Check that the M-NET transmission wires are connected to the A and B terminals.	
	Check that the shield wire is connected to the S terminal.	
	Check that the power supply connector (CN21) is connected or removed, depending on whether the power is supplied from the controller or not.	
LAN cable	Check that the LAN cables are correctly connected to the LAN1 and LAN2 ports.	
External input/ output	Check that the polarity of the external power supply is correct.	

7-2. Initial settings

For information on the initial settings, refer to the supplied Instruction Book or the separately available Instruction Book (Detailed Version) for AE-C/EW-C.

8. Commissioning

Commissioning must be performed in the presence of the user.

For information on the initial settings, commissioning, and software update, refer to the supplied Instruction Book or the separately available Instruction Book (Detailed Version) for AE-C/EW-C.

9. Instructions to the user

- Provide the user with instructions for correct usage of the controller, referring to the Instruction Book.
  The section titled "Safety precautions" provides important safety precautions. Instruct the user to follow the precautions and instructions contained therein.
- If the user is not available for contact, provide the instructions for correct usage to the owner, contractor, or manager of the building.
- After completing the installation, hand this Installation Manual and the Instruction Book supplied with the controller to the user.
- If the user changes, this Installation Manual must be handed to the new user.

10. Maintenance

10-1. LCD screen and casing

- Wipe off dirt with a soft cloth soaked in diluted neutral detergent, and then wipe off the detergent with a dry cloth. (Dilute neutral detergent with water according to its usage instructions. Do not use undiluted detergent.)
- Do not use benzene or thinner. Do not touch the controller with a chemical cloth. Doing so may cause discoloration.

10-2. Replacement parts and replacement cycles

<Reference> Replacement cycle of main parts

Main parts	Standard replacement cycle
Controller (body)	10 years

- The table above shows the replacement cycle of the main parts. Check the maintenance contract for details.
- Replacement cycles are not the warranty period.

This product is designed and intended for use in the residential, commercial and light-industrial environment.

The product at hand is based on the following EU regulations:

- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility Directive 2014/30/EU

2011/65/EU; (EU) 2015/863; (EU) 2017/2102:
The restriction of the use of certain hazardous substances in electrical and electronic equipment

Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

MITSUBISHI ELECTRIC CORPORATION

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