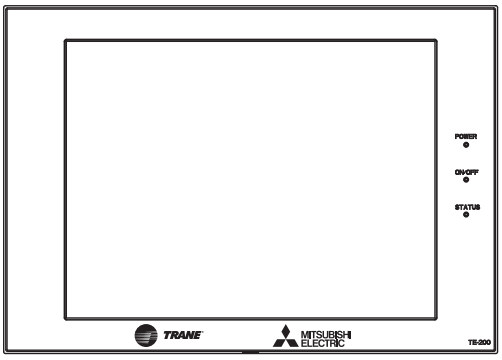
<ORIGINAL>

Air Conditioning Control System
Centralized Controller
TE-200A/TE-50A

Installation Manual



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.
Proper installation is important for your safety and proper functioning of the units. Thoroughly read the following safety precautions prior to installation.

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

1. Safety precautions

- ► Thoroughly read the following safety precautions prior to installation.
- ► 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.
- ► All electrical work must be performed by qualified personnel.

⚠ 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.
CAUTION	: 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 injury, electric shock, or fire, do not alter or modify the controller.

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 clean the touch panel, wipe with a soft cloth soaked in mild detergent that is diluted with an appropriate amount of water. Do not use the detergent straight.

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 burns, do not touch the electrical parts with bare hands during and immediately after operation.

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

Test runs, inspection, and service must be performed by qualified personnel in accordance with this manual. Incorrect use may result in injury, electric shock, malfunction, or fire.

If you notice any abnormality, stop the operation and turn off the controller. 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.

To reduce the risk of frostbite, burns, injury, or electric shock, keep the equipment out of the reach of children.

⚠ 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.

To reduce the risk of injury, wear protective gear when working on the controller.

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

1-2. Precautions for unit installation

⚠ WARNING

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

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

Take appropriate safety measures against earthquakes to prevent the controller from causing injury.

To prevent injury, install the controller on a flat surface strong enough to support its weight.

⚠ CAUTION

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

The controller must be installed by qualified personnel according to the instructions detailed in this manual. Improper installation may result in electric shock or fire.

1-3. Precautions for electrical wiring

⚠ WARNING

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

To reduce the risk of malfunction, smoke, fire, or damage to the controller, 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, switch off the main power before performing electrical work.

Electrical work must be performed by qualified personnel in accordance with local regulations and the instructions provided in this manual. Only use specified cables and dedicated circuits. Inadequate power source capacity or improper electrical work will result in electric shock, malfunction, or fire.

To reduce the risk of electric shock, install an overcurrent breaker and an earth leakage breaker on the power supply. To reduce the risk of electric shock, smoke, or fire, install an overcurrent breaker for each controller.

Only use properly rated breakers (earth leakage breaker, local switch <switch + fuse that meets local electrical codes>, moulded case circuit breaker, or overcurrent breaker). The use of improperly rated breakers or the 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, keep the cables out of contact with controller edges.

To reduce the risk of electric shock, malfunction, or fire, seal the gap between the cable and the end of the conduit tube with putty.

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

1-4. Precautions for relocating or repairing the unit

⚠ WARNING

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.

⚠ CAUTION

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

1-5. Additional precautions

CAUTION

To avoid damage to the controller, use appropriate tools to install, inspect, or repair the controller.

To prevent unauthorized access, always use a security device such as a VPN router when connecting to the Internet.

Take appropriate measures against electrical noise interference when installing the controller in hospitals or radio communication facilities. Inverter, high-frequency medical, or wireless communication equipment as well as power generators may cause the air conditioning system to malfunction. The air conditioning system may also adversely affect the operation of these types of equipment by creating electrical noise.

To avoid malfunction, do not bundle power cables and signal cables together or place them in the same metallic conduit.

To avoid damage to the controller, do not overtighten the screws.

To avoid deformation and malfunction, do not install the controller in direct sunlight or where the ambient temperature may exceed 40°C (104°F) or drop below 0°C (32°F).

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.

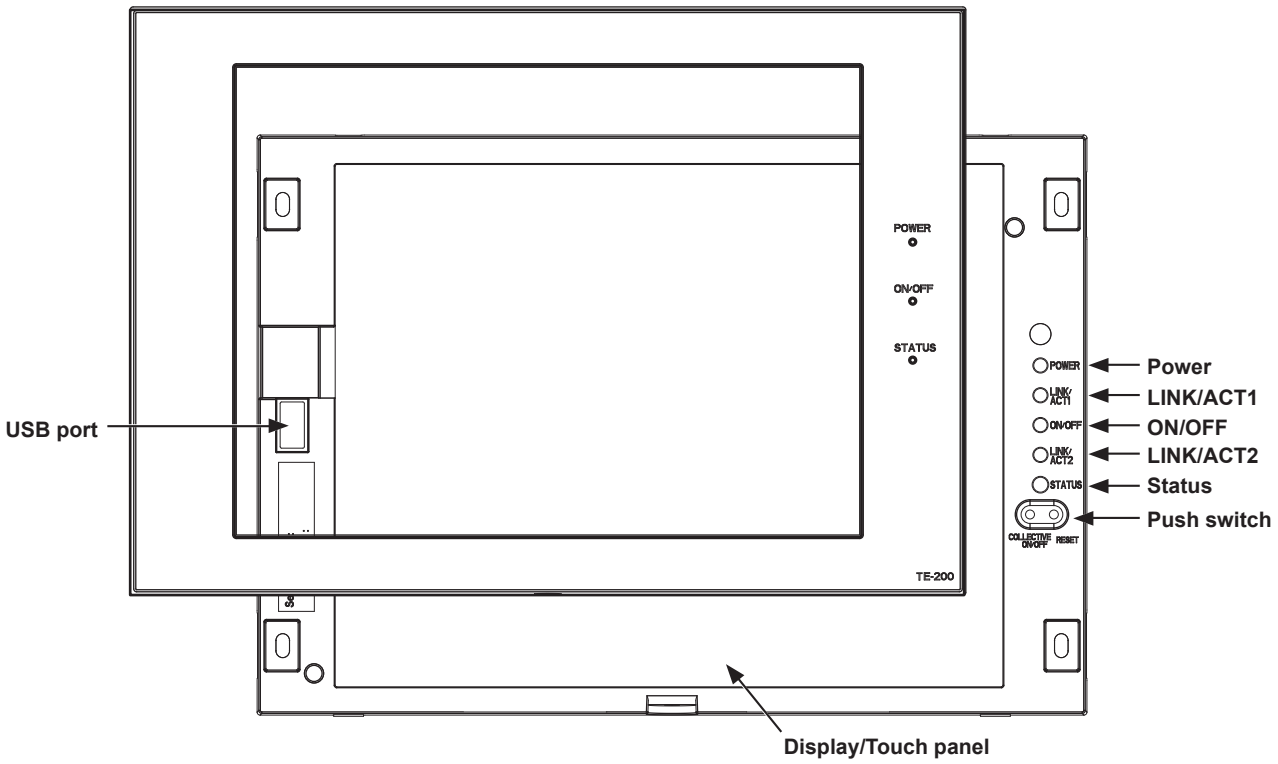
2. Introduction

TE-200A/TE-50A is a centralized controller.
TW-50A is an LCD-less total management system.
Any connected air conditioning systems can be operated or monitored on the TE-200A/TE-50A's LCD or the Web browser.
By using a PI controller that is built-in on the TE-200A/TE-50A/TW-50A, the energy-control-related status can be displayed and Peak Cut control can be performed without a use of a PI controller (PAC-YG60MCA).
Each TE-200A/TE-50A can control up to a total of 50 indoor units and other equipment. By connecting TE-200A (main controller) and TE-50A/TW-50A (expansion controllers), up to 200 indoor units and other equipment can be controlled.
TE-50A is not designed to be used alone.
TE-200A/TE-50A/TW-50A and Mitsubishi Electric's AE-200A/AE-50A/EW-50A have the same functions.
"AE-200," "AE-50," or "EW-50" is displayed instead of "TE-200A," "TE-50A," or "TW-50A" on the TE-200A/TE-50A/TW-50A's LCD or the Integrated Centralized Control Web.

Hereafter, TE-200A, unless otherwise specified, will be called "TE-200."
Hereafter, TE-50A, unless otherwise specified, will be called "TE-50."
Hereafter, TW-50A, unless otherwise specified, will be called "TW-50."

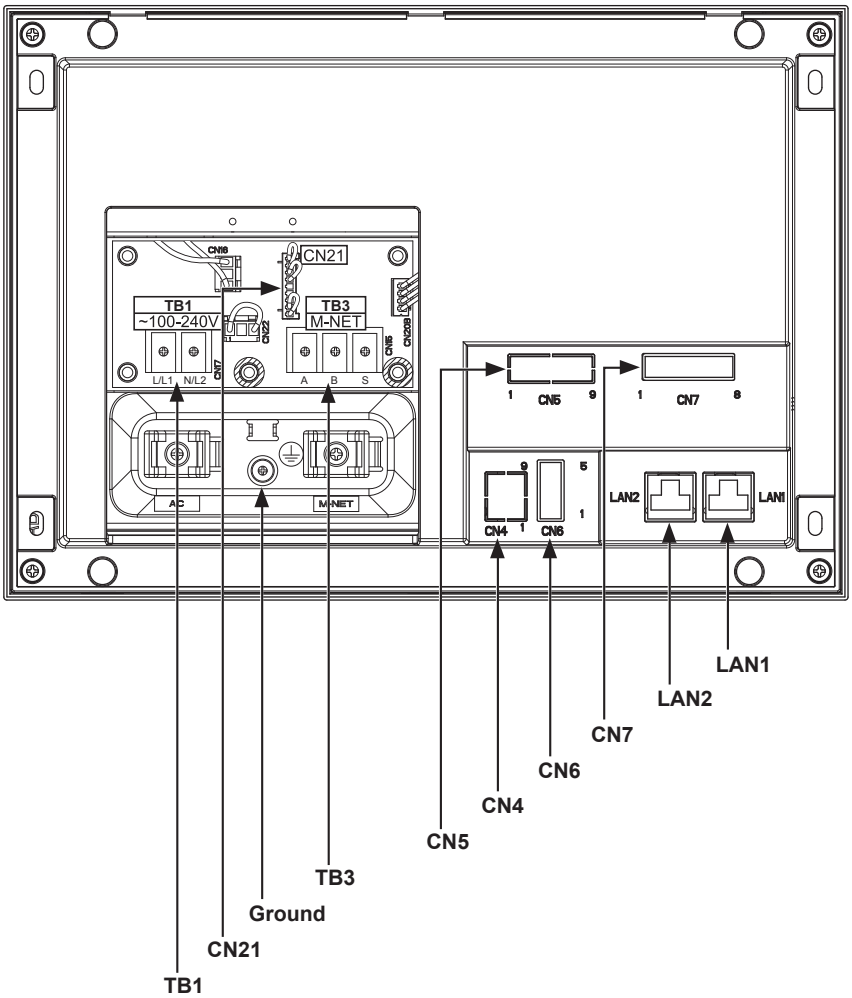
Note: Instead of TE-50A, LCD-less TW-50A can be used as an expansion controller.

2-1. Part names



Item			Description
LED	Power	Lit in green	Power ON
		Unlit	Power OFF
	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	Startup failed
		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		Blink in orange	BACnet® data transmission in progress (LAN2)
Push switch	ON/OFF		Used to turn the connected air conditioning units ON and OFF all at once.
	Reset		Used to reboot the TE-200/TE-50. (This will not affect the operation status of the air conditioning units.)
USB port			Used when the settings data is backed up to or imported from a USB memory device, when the energy management data is output in a CSV format to a USB memory device, and when the software needs to be updated.

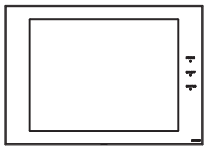
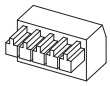
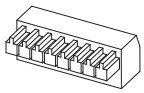
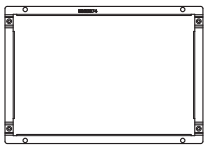
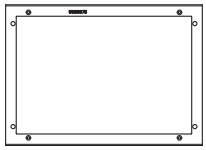
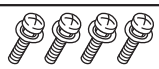
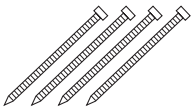
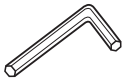
* Back side with the service cover removed



Item	Description
LAN1	Connects to other units of equipment over the LAN via a HUB.
LAN2	Connects to the Building Management System over the LAN (BACnet®) via a HUB.
CN7 (External I/O - Pulse signal input)	Connects to metering devices using the supplied connector.
CN6	Unused
CN4	Unused
CN5 (External I/O - External signal input/ output)	Connects to an external input/output adapter PAC-YG10HA-E. (When connecting an external input/output adapter PAC-YG10HA-E, cut 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 power consumption coefficient is 0.75 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 cables from the outdoor unit. (A, B: Non-polarized, S: Shield)
TB1 (Power source AC L/L1, N/L2) (M3.5)	Connects to the power cable.
Ground (M4)	Connects to the protective ground wire.

3. Package contents

The following items are included in the package.

	Package contents		Qty.
(1)	Centralized controller (TE-200 or TE-50) * A screw is attached at the bottom.		1
(2)	Connector (CN6) (Unused)		1
(3)	Connector (CN7) (Used for pulse input)		1
(4)	Plate A		1
(5)	Plate B		1
(6)	Countersunk screw (M4 × 40)*1, 2		4
(7)	Roundhead screw (M4 × 10)*1		4
(8)	Wood screw (M4.1 × 25)*1 (used only when installing the TE-200/TE-50 on a wall that is strong enough to be fixed with the wood screws)		4
(9)	Cable tie		4 (Two are spare.)
(10)	Rubber bushing		2
(11)	L-shaped driver (width across flat: 2.5)*1		1
(12)	Installation Manual (this manual)		1
(13)	Instruction Book		1
(14)	About Installation Manual and Instruction Book		1
(15)	CD-ROM ├Installation Manual ├Instruction Book └License Classification List **Note** ● The CD-ROM can only be played on a CD-drive or a DVD-drive. Do not attempt to play the CD-ROM on an audio CD player as this may damage your ears and/or speakers. ● Each document is in PDF format. Viewing documents requires a computer with Adobe® Reader® or Adobe® Acrobat® installed. “Adobe® Reader®” and “Adobe® Acrobat®” are registered trademarks of Adobe Systems Incorporated.		1

*1 ISO metric screw thread

*2 If the screws cannot be used because the wall is too thick, obtain longer M4 countersunk screws.

Notes on the SD card installed on the TE-200/TE-50

● Do not use the SD card installed on the TE-200/TE-50 for any other equipment.

4. Specifications

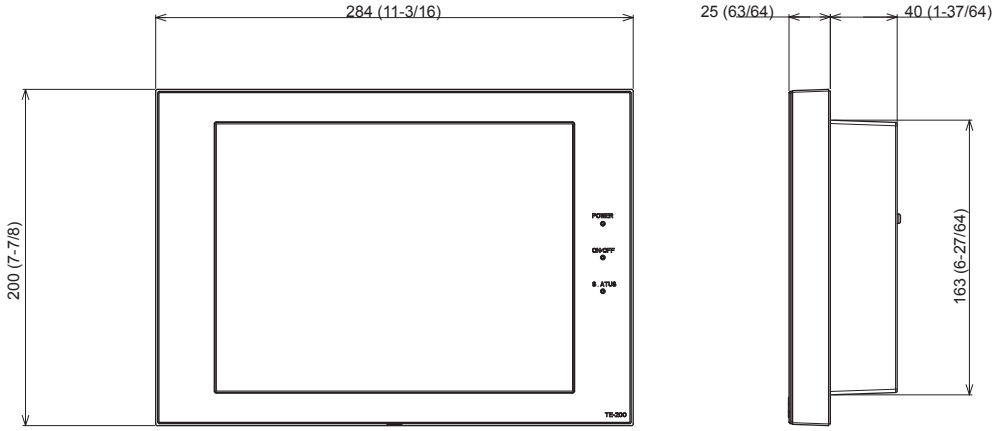
4-1. Product specifications

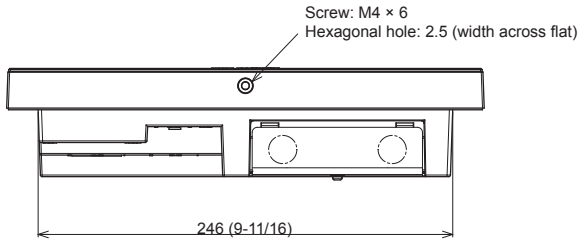
Item			Specifications
Power supply	Rated input		100–240 VAC ± 10%; 0.3–0.2 A 50/60 Hz Single-phase
M-NET power feeding coefficient			0.75
Network interface			100BASE-TX
Ambient conditions	Temperature	Operating temperature range	0°C – +40°C (+32°F – +104°F)
		Storage temperature range	-20°C – +60°C (-4°F – +140°F)
	Humidity		30%–90% RH (Non-condensing)
Dimensions (W × H × D)			284 × 200 × 65 mm (11-3/16 × 7-7/8 × 2-9/16 in) * When installed, TE-200/TE-50 will protrude 25.0 mm (63/64 in) from the wall or the metal control box.
Weight			2.3 kg (5-5/64 lbs)
Installation conditions			Indoor only * To be used in a business office or similar environment

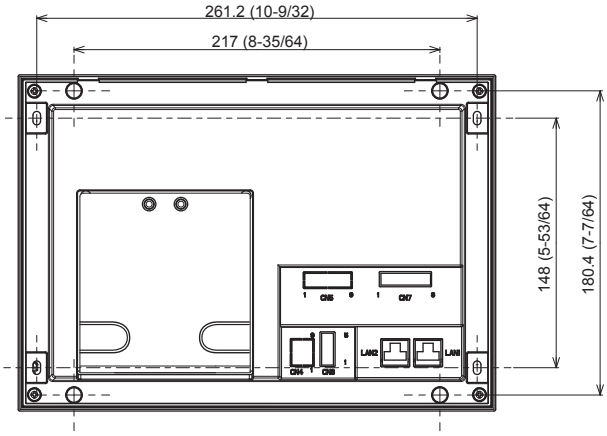
4-2. External dimensions

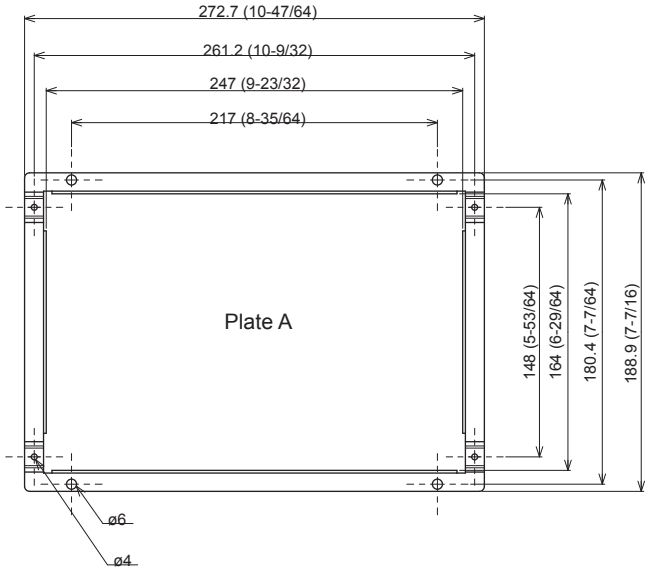
* The dimensions of TE-200 and TE-50 are the same.

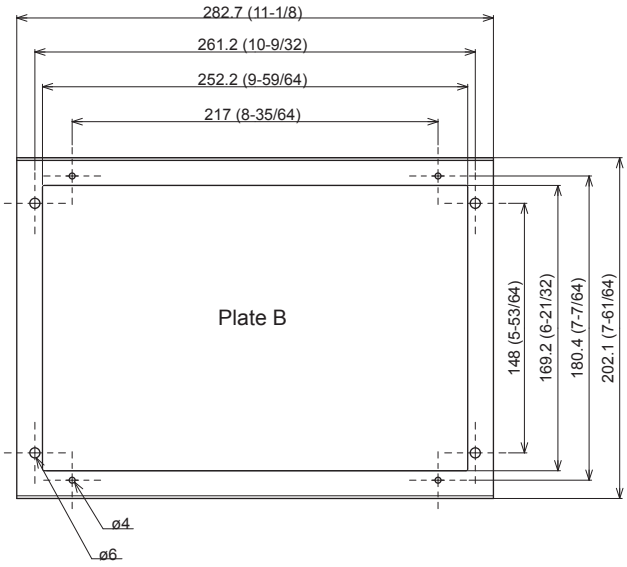
Unit: mm (in)











5. Installation

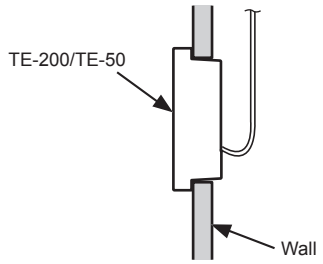
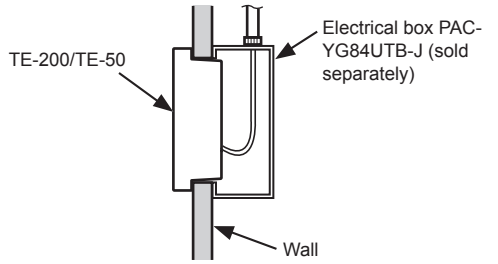
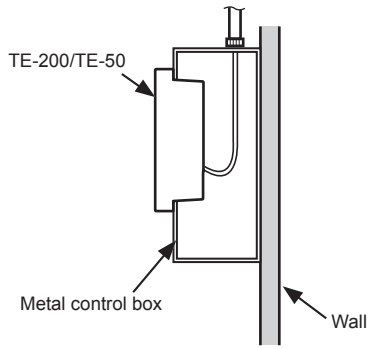
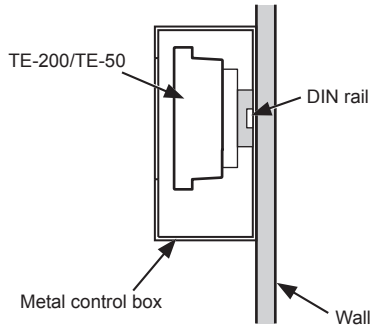
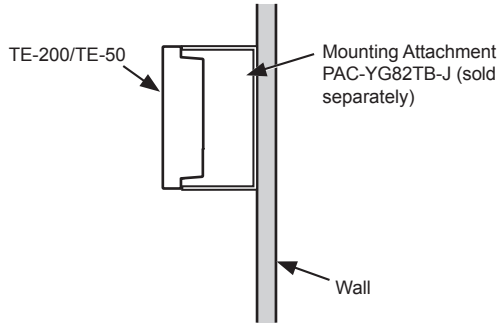
⚠ WARNING

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

To avoid malfunction, do not bundle power cables and signal cables together or place them in the same metallic conduit.

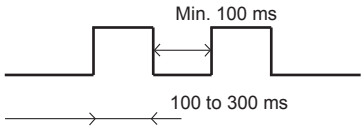
5-1. Installation methods

The TE-200/TE-50 can be installed by any of the following installation methods.

Method 1	Wall-embedded installation (Refer to section 5-5-1 and 5-5-2 for installation procedures.)	
Method 2	Wall-embedded installation with an electrical box (Refer to section 5-5-1 and 5-5-3 for installation procedures.)	
Method 3	Installation on a metal control box (Refer to section 5-5-4 for installation procedures.)	
Method 4	Installation inside a metal control box * Separately-sold mounting kit (PAC-YG86TK-J) is required. (The kit includes DIN rail attachments and L-fittings). Refer to the kit's Installation Manual for installation procedures.	
Method 5	Installation on the wall * Separately-sold Mounting Attachment (PAC-YG82TB-J) is required. Refer to the attachment's Installation Manual for installation procedures.	

5-2. Items not included

The following items are required to install the TE-200/TE-50.

Items not included		Specifications
Electrical box (required only for installation method 2)		Model: PAC-YG84UTB-J
Metal control box (required only for installation methods 3 and 4)		Must be suitable for the TE-200/TE-50 installation. Minimum metal thickness when using installation method 4: 200 mm (7-7/8 in)
Locknuts and bushing		Must be suitable for the conduit tube to be used.
Sleeved ring terminal		M3.5 ring terminal (for AC power cables (L/L1, N/L2) and M-NET transmission cables (A, B, S)) M4 ring terminal (for protective ground wire)
AC power cable/Protective ground wire		Type: Sheathed vinyl wire (should not be lighter than ordinary PVC sheathed flexible cord IEC 60227.) (designation 60227 IEC 53)*1 Size: 0.75 to 2 mm² (ø1.0 to ø1.6 mm), AWG 18 to 14 Protective ground wire color: green/yellow * Use a wire with an appropriate diameter so that the wire can be fixed with the cable tie below the terminal block. A diameter of 10 mm (25/64 in) is recommended.
Transmission cable		Type: Sheathed vinyl cable ● CPEVS ø1.2 mm ● CVVS Min. 1.25 to 2 mm² * CPEVS: PE*2 insulated PVC*2 jacketed shielded communication cable * CVVS: PVC*2 insulated PVC*2 jacketed shielded control cable
Relay (for external input)		Contact rating Rated voltage: 12 or 24 VDC Rated current: 10 mA or above Minimum applied load: DC 1 mA
Relay (for external output)		Operation coil Rated voltage: 12 or 24 VDC Power consumption: Max. 0.9 W
Electrical wire for pulse input		Type: Copper wire that is suitable for the terminal block Size ● Single wire: ø0.65 to ø1.2 mm, AWG 21 to 16 ● Twisted wire: 0.75 to 1.25 mm², AWG 18 to 16
Watt-hour meter		Must output dry voltage contact pulse for each unit pulse. Output pulse type: Semiconductor relay Pulse width: 100 to 300 ms (Resting interval: Min. 100 ms)  Output pulse unit: 0.1/1.0/10/100 kWh/pulse * An output pulse unit of 1 kWh/pulse or below is recommended.
LAN cable		Category 5 or above straight cable (Max. 100 m (328 ft))
Switching HUB		A communication speed of 100 Mbps or faster is recommended.
Overcurrent breaker (fuse or circuit breaker)	Fuse	Rated current: 3 A * When using a fuse, use it in combination with a switch (rated current: 3 A).
	Circuit breaker	Type: Bipolar (2P2E) Rated current: 3 A
Earth leakage breaker		Type: Bipolar (2P2E) Rated current: 3 A or above Rated current sensitivity: 30 mA Operation time: Max. 0.1 s

*1 For the U.S. and Canada: designation NEC (NEPA70) or CEC

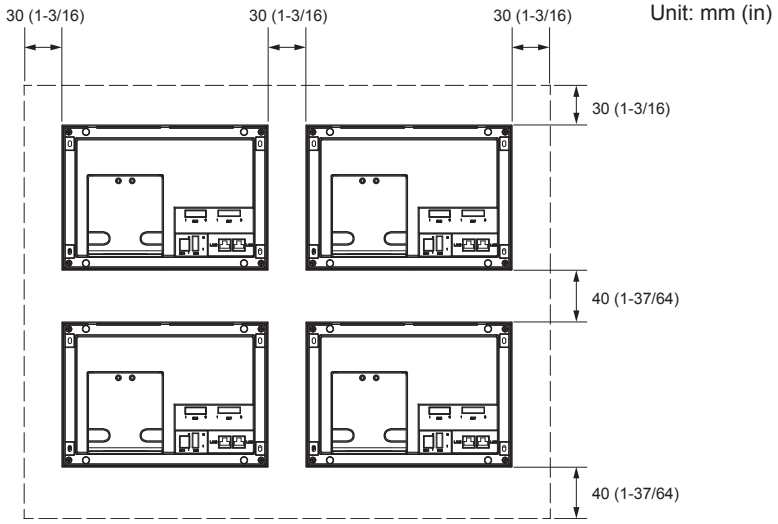
*2 PE: Polyethylene, PVC: Polyvinyl chloride

5-3. Items sold separately

Items sold separately		Model name	Remarks
Electrical box		PAC-YG84UTB-J	Required only for installation method 2
Mounting kit	L-fittings	PAC-YG86TK-J	Required only for installation method 4
	DIN rail attachments		
Mounting Attachment		PAC-YG82TB-J	Required only for installation method 5
Surface cover with USB port		PAC-YG72CWL-J	Required when using a cover with USB port
External input/output adapter		PAC-YG10HA-E	Required when using the external input/output function

5-4. Installation space

Leave a space around the TE-200/TE-50 as shown in the figure below.



Note

- When installing two or more TE-200/TE-50 controllers side-by-side, leave a space of at least 30 mm (1-3/16 in) between them.
- When installing two or more TE-200/TE-50 controllers vertically, leave a space of at least 40 mm (1-37/64 in) between them.
- For the installation space for installation method 4, refer to the separately-sold mounting kit's Installation Manual .

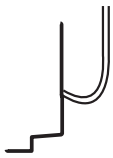
5-5. Installation procedures

Note

- Connect the necessary cables and wires before installing TE-200/TE-50, referring to chapters 6 and 9.
- Do not install the unit where the unit may continuously receive vibration. The continuous vibration may cause the connector pins to disconnect.

Important

- 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.

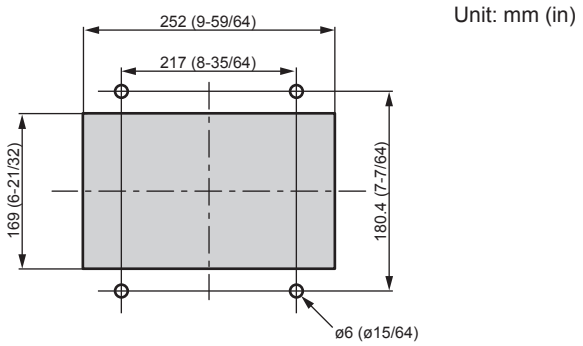


Good example

Bad example

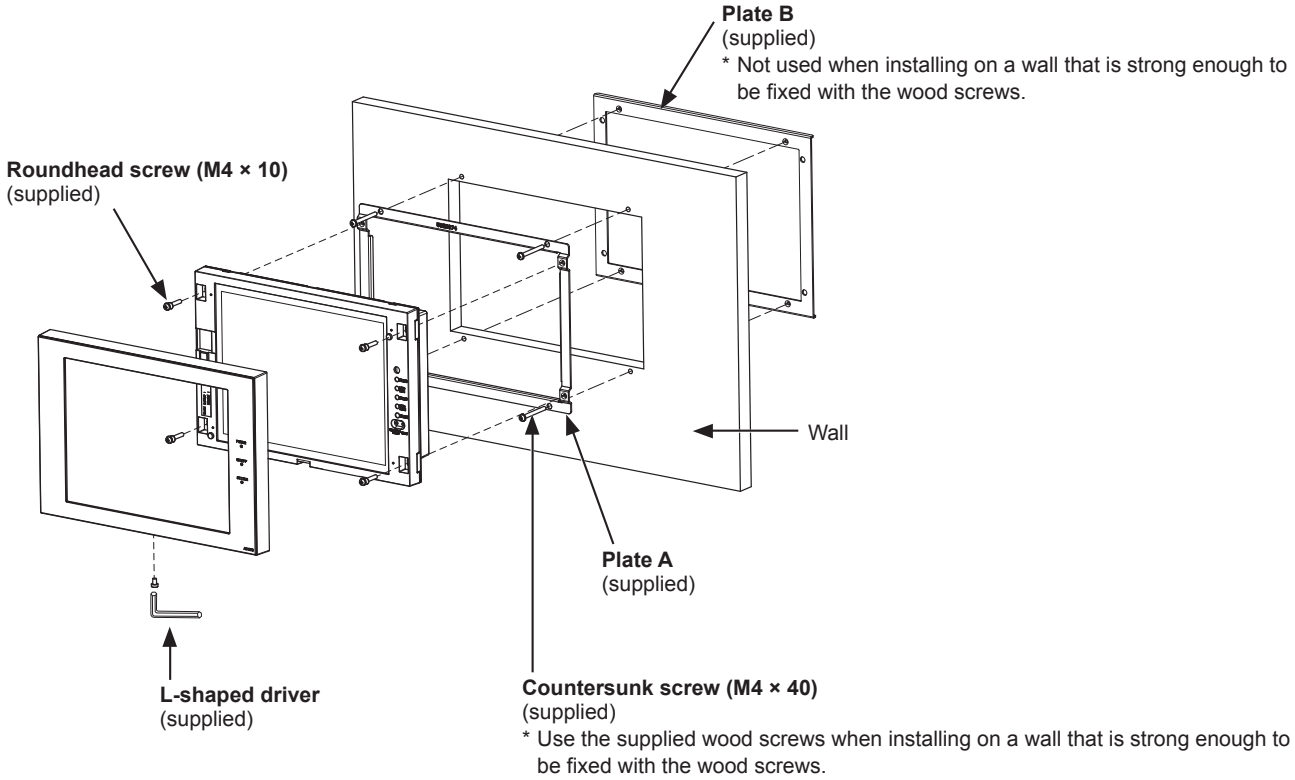
5-5-1. Cutting an installation hole and mounting holes in the wall (Methods 1 and 2)

Cut an installation hole (169 × 252 mm (6-21/32 × 9-59/64 in)) and mounting holes in the wall as shown in the figure below.

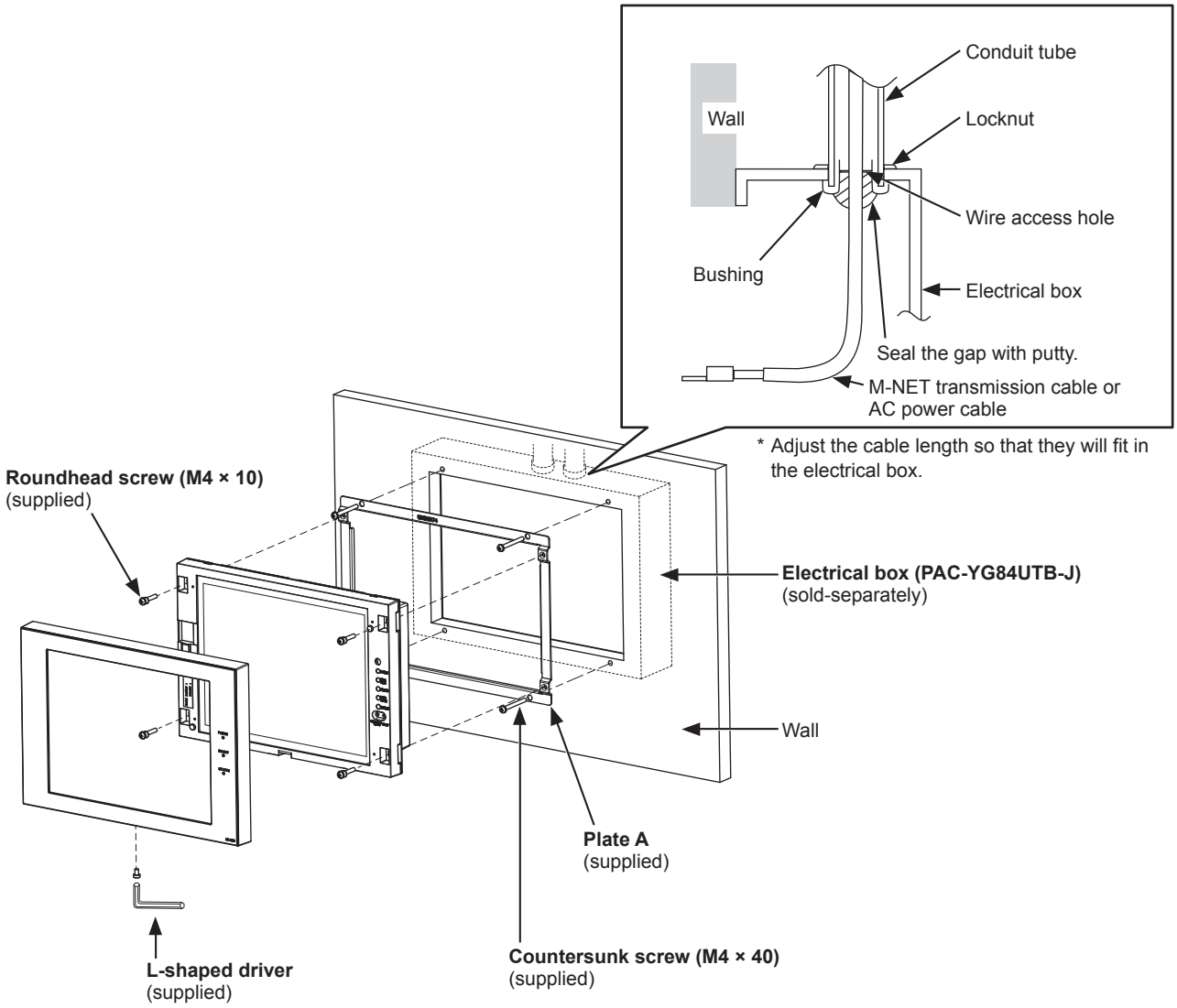


Unit: mm (in)

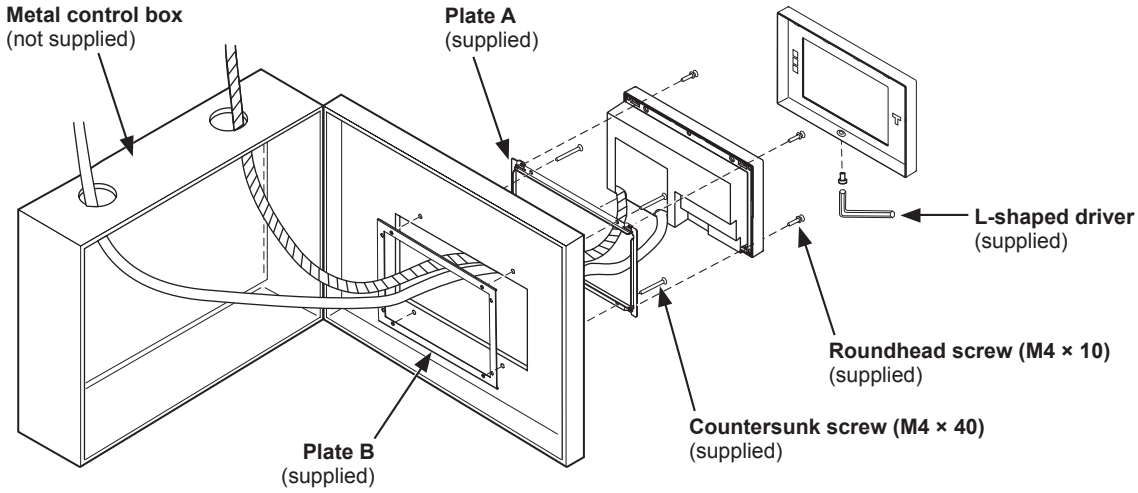
5-5-2. Wall-embedded installation (Method 1)



5-5-3. Wall-embedded installation with an electrical box (Method 2)



5-5-4. Installation on a metal control box (Method 3)



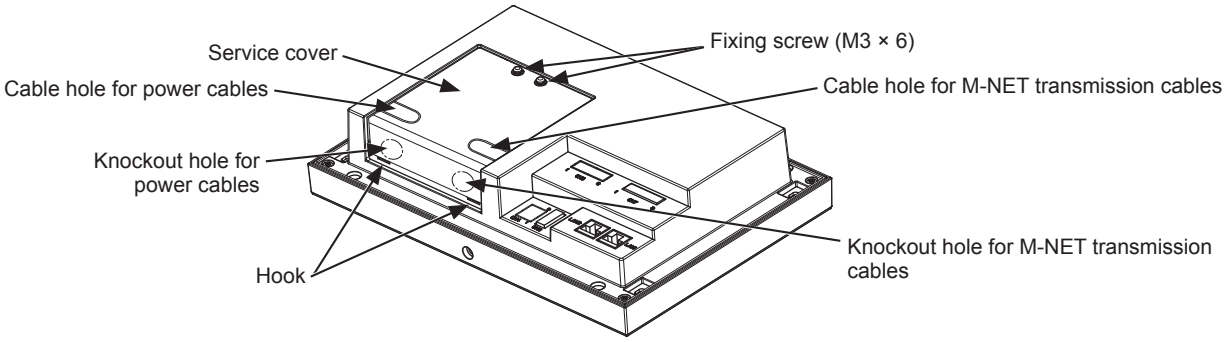
6. Wiring connections

6-1. Removing/reinstalling the service cover

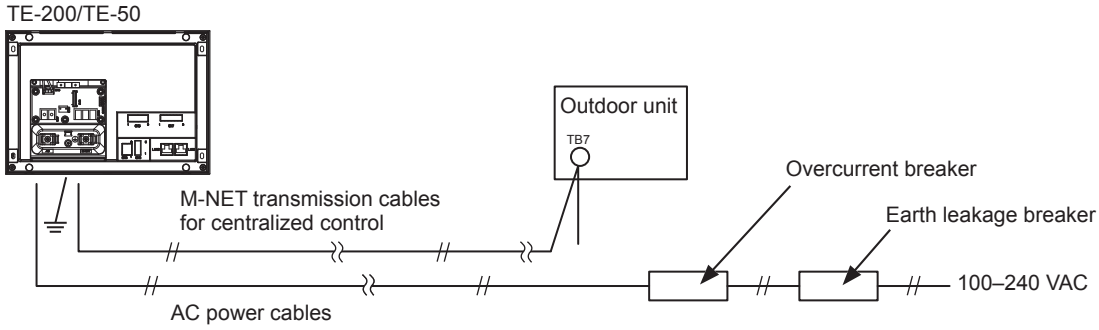
Unscrew the fixing screw on the service cover and unhook the hooks to remove it as shown in the figure below.
To replace the service cover, hook the hooks and screw the fixing screw back in.

Note

- When routing the cables from the bottom, cut out the knockout holes, cut a slit in the supplied rubber bushings to insert the cables without the gap, and attach the bushings to the knockout holes.
- If the wall is 10 mm (25/64 in) or thicker, route the cables from the cable holes on the back.

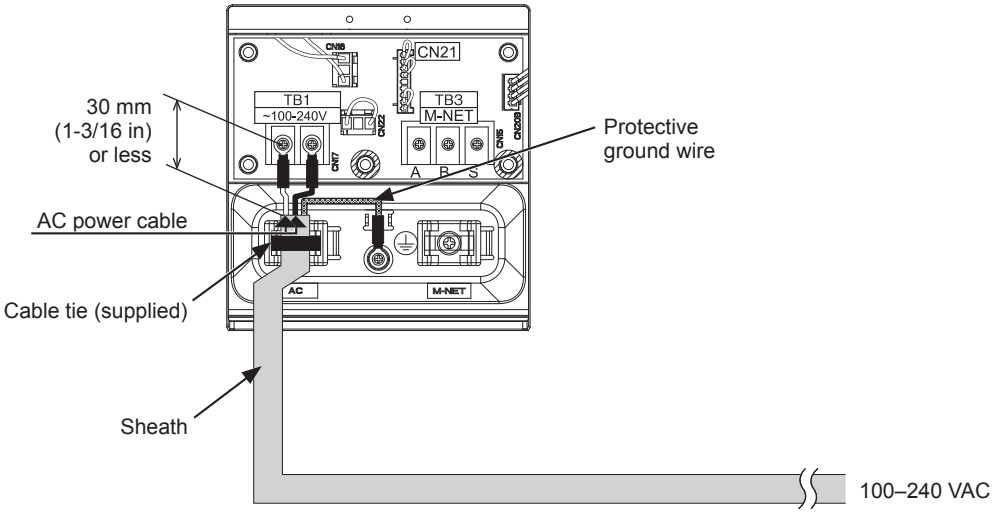


6-2. Connecting AC power cables and M-NET transmission cables



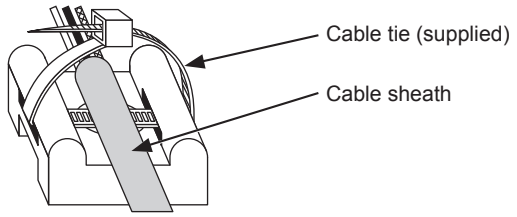
6-2-1. AC power cables and protective ground wire

1. Attach M3.5 sleeved ring terminals to the AC power cables, and attach an M4.0 sleeved ring terminal to the protective ground wire.
2. Connect the AC power cables to the power supply terminal block, and connect the protective ground wire to the ground terminal.
   Note: Thread the protective ground wire through the guides to prevent the wire from moving when it is retightened to the ground terminal.
3. Fix the cables in place with the supplied cable tie.



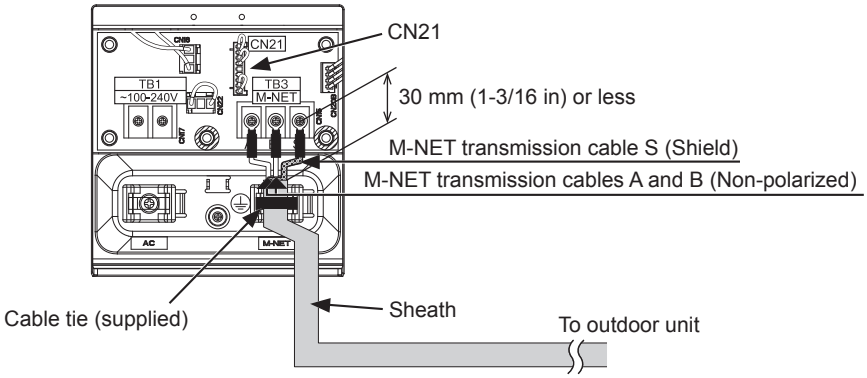
Note

- Make the protective ground wire 25 mm (1 in) longer than the AC power cables (L/L1, N/L2).
- Tighten the terminal screws to a torque of 1.0 to 1.3 N•m.
- Properly fix the cable sheaths in place with the supplied cable ties. The distance between the sheath end and the ring terminal must be 30 mm (1-3/16 in) or less.



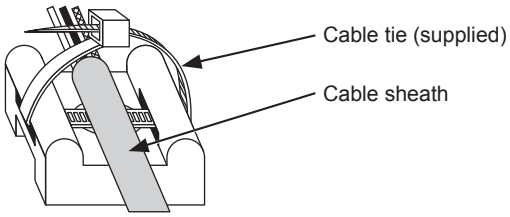
6-2-2. M-NET transmission cables (Centralized control transmission cables)

1. Attach M3.5 sleeved ring terminals to the M-NET transmission cables (A, B, Shield).
2. Connect the M-NET transmission cables to the M-NET terminal block.
3. Fix the cables in place with the supplied cable tie.
4. When the power is supplied from the unit other than the TE-200 and TE-50, disconnect the M-NET power jumper from CN21.



Note

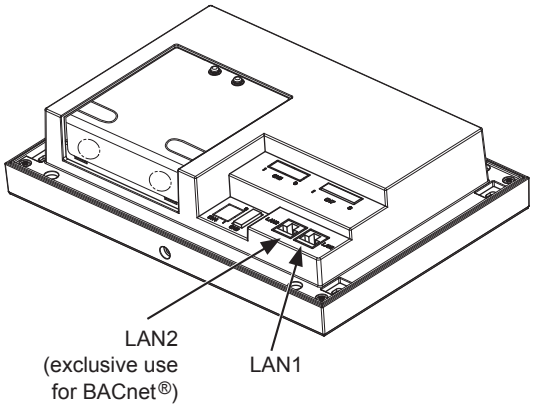
- Provide a single point ground for the shield of the centralized control transmission cable. (Provide the appropriate grounding according to local standards.)
- When leaving the M-NET power jumper connected to CN21 on the TE-200/TE-50/TW-50, the M-NET S (shield) terminal of TB3 is connected to the ground terminal block on the unit, and the ground is supplied via the protective ground wire.
- When disconnecting the M-NET power jumper from CN21 on the TE-200/TE-50/TW-50, provide a ground point at a power supply unit (PAC-SC51KUA).
- Tighten the terminal screws to a torque of 1.0 to 1.3 N•m.
- Properly fix the cable sheaths in place with the supplied cable ties. The distance between the sheath end and the ring terminal must be 30 mm (1-3/16 in) or less.



6-3. Connecting the LAN cable

Connect the LAN cable to the LAN1 port on the TE-200/TE-50. (The LAN2 port is exclusively used for BACnet® function.)

- The LAN cable is not supplied. Use a category 5 or above straight LAN cable.
- Use a switching HUB compatible with 100 BASE.
- The maximum distance between the switching HUB and TE-200/TE-50/TW-50 is 100 m (328 ft).
- The recommended number of connected devices such as gateway, router, layer 3 switch, or HUB between the TE-200/TE-50/TW-50 is four or less. (Transmission round-trip delay time must not exceed one second. If the transmission delay time is long, a communication error may be detected. Check the transmission delay time, referring to section 6-4.)



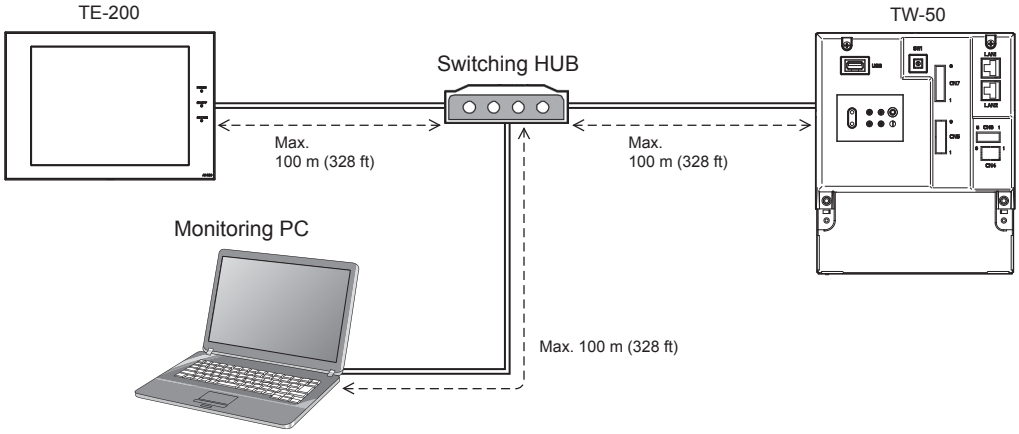
Note

- LAN must be installed before the unit installation. Route the LAN cable to the TE-200/TE-50 in the same way as the M-NET transmission cables.
- When connecting the TE-200/TE-50 to an existing LAN, consult the system administrator to decide the IP address. Change the IP address setting before connecting the LAN cable to the LAN1 port.
- To prevent unauthorized access, always use a security device such as a VPN router when connecting the TE-200/TE-50 to the Internet.

6-4. Confirming the LAN transmission delay time

Connect a monitoring PC to a device such as HUB that is connected to the TE-200. Send a command from the PC to the TE-50, and receive the response from the TE-50. Check the time between sending and receiving on the PC display.

[1] Sample system connection



[2] Checking the transmission delay time

① Click [Start]>[Program]>[Accessories]>[Command Prompt] on the monitoring PC.

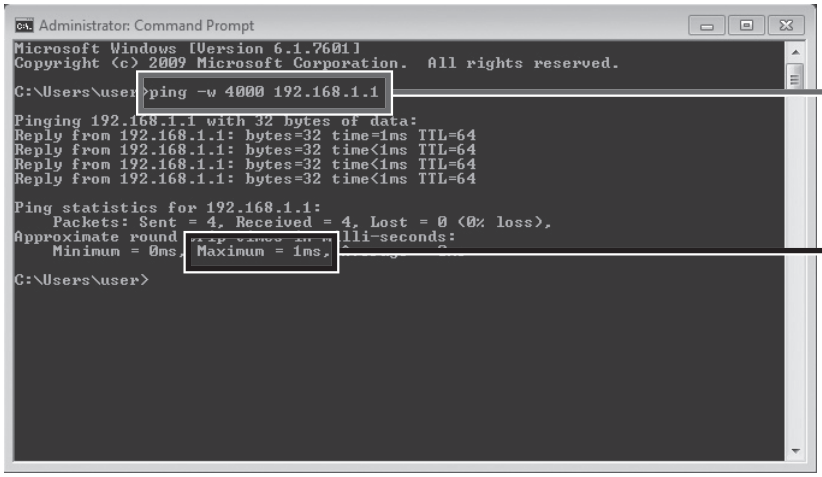
* The procedure may vary depending on the OS.

② Enter [ping (IP address of TE-200/TE-50/TW-50)], and press the Enter key.
([ping -w 4000 192.168.1.1] is entered on the sample screen below.)

③ Check that the transmission delay time that appears on the screen is 4000 ms or below.
(The transmission delay time is “Maximum = 1 ms” on the sample screen below, which is normal.)
If [Request timed out] appears or the displayed transmission delay time exceeds 4000 ms, consult the network administrator for how to decrease the number of gateway, router, layer 3 switch, or HUB or how to change the network.

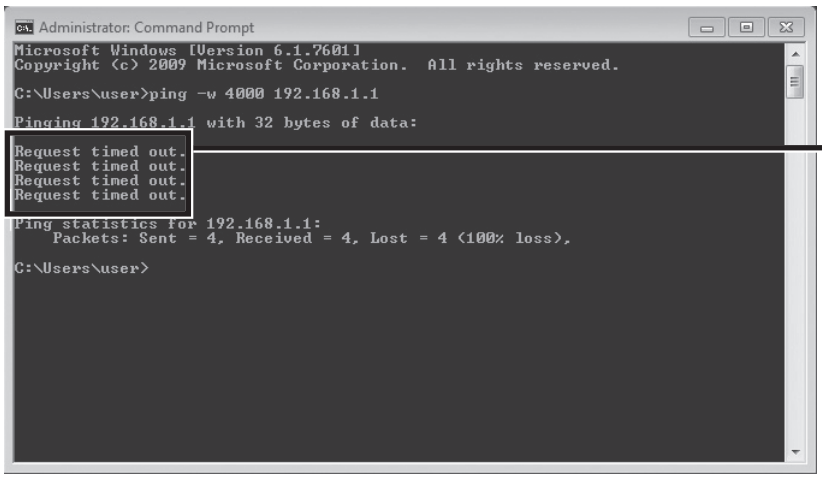
Note

- The IP address of the monitoring PC should not overlap any of the addresses that are assigned to the TE-200/TE-50/TW-50. (Refer to the Instruction Book (Initial Settings) for how to set the IP address of the PC.)
- When connecting to an existing LAN system, which does not use a dedicated LAN, consult the network administrator to obtain the permission to connect the monitoring PC and the temporary IP address for the PC.



Enter [ping -w 4000 192.168.1.1], and press the Enter key.

Check the transmission delay time.
The time should be 4000 ms or below.



If [Request timed out] appears, check the LAN connection status and IP address.

7. Initial settings

Initial settings need to be made for each TE-200 on the TE-200's LCD, Initial Setting Tool, or the Integrated Centralized Control Web.
The table below explains how to make initial settings on the TE-200's LCD. Details about the initial settings are covered in the TE-200 Instruction Book (Initial Settings).

Note

- To monitor and operate the air conditioning units with the centralized controllers in two or more systems via the Integrated Centralized Control Web, the "Integrated Centralized Control Web" license is required, and the settings need to be configured on the Initial Setting Tool.

Note

The software versions of all TE-200/TE-50/TW-50 in the same system need to be the same. It is recommended to have all of them at the latest version.

Note

When using an Advanced Touch Controller AT-50A/AT-50B/TT-24B as a sub controller, set the "Clock setting signal" setting to "OFF" on the AT-50A/AT-50B/TT-24B. (Only one controller will be used as the primary clock source.)

The startup and initial setting procedures vary with the system configuration.

System configuration 1: System without connection to TE-50 controller (controlling 50 or fewer units of equipment)

System configuration 2: System with connection to one or more TE-50 controllers (controlling more than 50 units of equipment)

Procedure	System configuration		Details
	1	2	
Start-up		①	Turn on the power to the TE-50 controllers.
		②	Make initial settings for the TE-50 controllers on the [Unit Info.] and [Network] screens. * The TE-50 will restart.
	①	③	Turn on the power to the TE-200.
	②	④	The language selection window will appear. Select the desired language.
	③	⑤	The [Initial Settings] screen will appear. (Once the initial settings have been made, the [Monitor/Operation] screen will appear when the unit is turned on. Touch the icon to bring up the [Initial Settings] screen if necessary.)
Date and time settings	①	①	Set the current date and time.
	②	②	Make other settings as necessary, and touch [Save Settings].
Unit information settings	①	①	Touch the [Unit info.] tab in the [Initial Settings] menu.
	②		Set the [System Exp] setting to [Do not expand].
		②	Set the [System Exp] setting to [Expand].
	③	③	When using a TE-200 apportioned electricity billing function or not using a TE-200 M-NET, set the [AE-200 M-NET] setting to [Do not use].*1
	④	④	When using a TE-200 apportioned electricity billing function, set the [AE-200 Apportion] setting to [Use].
	⑤	⑤	Make other settings as necessary, and touch [Save Settings].

Procedure	System configuration		Details
	1	2	
Network settings	①	①	Touch the [Network] tab in the [Initial Settings] menu.
	②		Set the TE-200's IP address and other necessary settings, and touch [Save Settings]. * The TE-200 will restart.
		②	Make sure that [AE200] is selected as [Controller], set the TE-200's IP address and other necessary settings, and touch [Save Settings]. * The TE-200 will restart.
		③	Touch the [AE200] button to change it to [Exp(1–3)]*2, set the TE-50's destination IP addresses and other necessary settings, and touch [Save Settings].
Group settings *3	①	①	Touch the [Groups] tab in the [Initial Settings] menu.
	②		Make group settings for TE-200, and touch [Save Settings].
		②	Make sure that [AE200] is selected as [Controller], make group settings for TE-200, and touch [Save Settings].
		③	Touch the [AE200] button to change it to [Exp(1–3)]*2, make group settings for TE-50 controllers, and touch [Save Settings].
Other initial settings	①	①	Make the following settings as necessary. ● Interlock settings (interlocked operation between LOSSNAY and indoor units) ● Block settings ● Floor Layout settings ● User Information settings
Exiting the [Initial Settings] screen	①	①	Touch the icon to return to the [Monitor/Operation] screen.

*1 When the [AE-200 Apportion] setting is set to [Use], the [AE-200 M-NET] setting is fixed to [Do not use].
*2 [Exp(1-4)] when the [AE-200 M-NET] setting on the [Unit info.] screen is set to [Do not use].
*3 When using an apportioned electricity billing function, refer to the Instruction Book that comes with the "Charge" license for details.

8. Test run

8-1. Collective operation ON/OFF

Confirm that the group settings and interlock settings are complete before performing a test run.
It may take approximately five minutes from power on until the local remote controllers become operable.
Refer to the indoor unit Installation Manual for details about a test run.

Test run procedure

(1) Turn on the power to the TE-200 and all units.
(2) After the message [Please wait...] disappears, touch the [Unit info. 2] tab in the [Initial Settings] menu. Set the [Test run] setting to [Use] to show the [Test Run] button on the operation settings screen under the [Monitor/Operation] menu. Touch the [Test Run] button on the operation settings window. The group of units will start an operation.
(3) Check for the proper operation of each unit during the test run (e.g., check to see if cold (or warm) air comes out of the supply air outlet on each indoor unit).
(4) After confirming that all units are operating properly, stop the units either from TE-200 or from the local remote controllers.

9. External input/output

9-1. External signal input/output function

⚠ CAUTION

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

To use external input/output, a separately-sold external input/output adapter (PAC-YG10HA-E) is required.
When connecting an external input/output adapter (PAC-YG10HA-E), cut out the CN5 knockout hole. (Refer to section 2-1 “Part names” for the location of CN5.)

Note

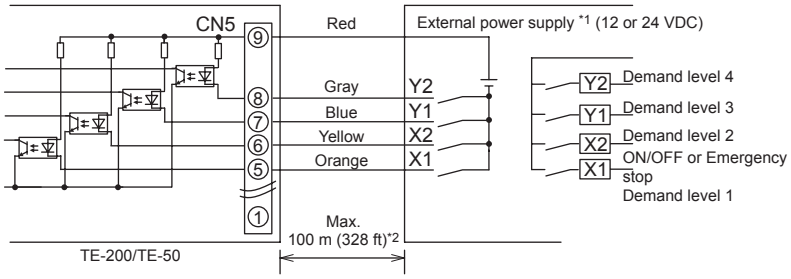
- When using TE-50, connect the external input/output adapter to each TE-200/TE-50. (External input signal to TE-200 cannot perform the collective operations (e.g., emergency stop) for TE-50 systems.)
- Use caution not to damage the circuit board with tools when cutting out the knockout hole.
- Set the [External Input Setting] setting for each TE-200/TE-50 on the [Network] screen.

9-1-1. External signal input function

Using external contact signals (12 or 24 VDC), demand level signals can be input, and the following collective operations for all connected air conditioning units can be controlled: Emergency stop, ON/OFF operation, and Prohibit/Permit local remote controller operation.

(1) Recommended circuit

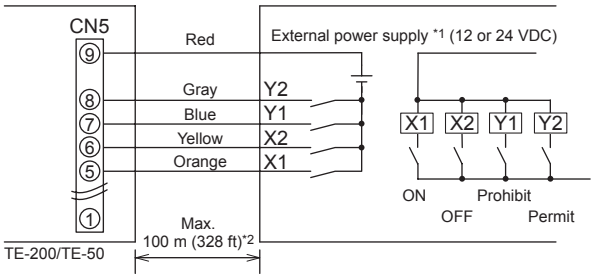
(A) Level signal



Use relays X1, X2, Y1, and Y2 that meet the following specifications.

Contact rating
Rated voltage: 12 or 24 VDC
Rated current: 10 mA or above
Minimum applied load: DC 1 mA

(B) Pulse signal



*1 Select an external power supply suitable for the relays used. (12 or 24 VDC)
Connect the external power supply in the correct polarity to input and output the signals.
Connect ⑤–⑧ (see the figure at left) to the negative side.

*2 Take sufficient precautions against noise when the cable length is long.

Important

- **Be sure to use an external power supply (12 or 24 VDC) to avoid malfunctions.**
- **Connect the external power supply in the correct polarity to avoid malfunctions.**

Note

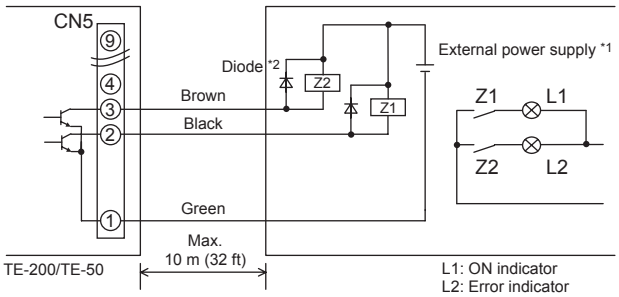
- The relays, DC power supply, and extension cables are not supplied.
- The total length of the lead wire and extension cable should not exceed 100 m (328 ft). (Use an extension cable of 0.3 mm^2 or thicker.)
- Cut the excess cable near the connector, and insulate the end of the unused cable with tape.

9-1-2. External signal output function

An ON signal is output when one or more units are in operation, and an Error signal is output when one or more units are in error.

(1) Recommended circuit

Relay-driven circuit



Use relays Z1 and Z2 that meet the following specifications.

Operation coil
Rated voltage: 12 or 24 VDC
Power consumption: Max. 0.9 W

*1 The external output of TE-200/TE-50 is no-voltage contact. Use an external power supply that is suitable for the relays used. (12 or 24 VDC)
Connect the external power supply in the correct polarity to input and output the signals.
Connect ① (shown in the figure at left) to the negative side.

*2 Use a diode at both ends of the relay coils.

Important

- **Be sure to use an external power supply (12 or 24 VDC) to avoid malfunctions.**
- **Connect the external power supply in the correct polarity to avoid malfunctions.**
- **Do not connect the external power supply without relays being connected to the controller (no load).**

Note

- The relays, lamps, DC power supply, diodes, and extension cables are not supplied.
- The total length of the lead wire and extension cable should not exceed 10 m (32 ft). (Use an extension cable of 0.3 mm^2 or thicker.)
- Each element will turn on during operation and when an error occurs.

9-2. Pulse signal input function

Using pulse signals directly input from metering device such as watt-hour meter, billing data and energy management data will be obtained based on the cumulative number of pulse signal input.

Note

- To input pulse signals directly from the metering device to the TE-200, use the connector connected to the TE-200. (A precision screwdriver for M1 screws is required.)

Usability of a built-in PI controller for each function

Function	TE-200	TE-50	TW-50
Apportioned electricity billing function (option)	x*1	V*2	V*2
Energy management	V	V	V
Demand function (option)	V	V	V

(V): Usable, (x): Not usable

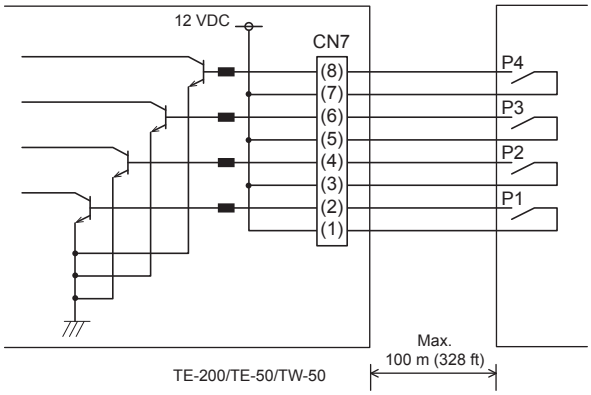
*1 A built-in PI controller on the TE-200 cannot be used for an apportioned electricity billing function. Use a built-in PI controller on the TE-50 or TW-50.

*2 Using a PI controller (PAC-YG60MCA) is recommended instead of a built-in PI controller on the TE-50/TW-50 when using an apportioned electricity billing function. (Discrepancies may occur between the built-in PI controller reading and the actual electric energy because the pulse input cannot be obtained during the TE-50/TW-50 power failure, shutoff process, and software update.)

(1) Pulse signal input specifications

CN7	Signal
No. 1, 2	Metering device 1 (count input)
No. 3, 4	Metering device 2 (count input)
No. 5, 6	Metering device 3 (count input)
No. 7, 8	Metering device 4 (count input)

(2) Recommended circuit



A voltage of 12 VDC is applied to CN7. Do not apply a power voltage from any other power source.

Contact rating
Rated voltage: 12 VDC
Rated current: 0.1 A or above
Minimum applied load: DC 1 mA

Note

- The total length of the lead wire and extension cable should not exceed 100 m (328 ft). (Use an extension cable of 0.3 mm^2 or thicker.)
- Cut the excess cable near the connector, and insulate the end of the unused cable with tape.
- Do not run the signal input cable adjacent to the M-NET transmission and power cables. Do not let the cable form a loop.
- Peel off the sheath to 6 ±1 mm (15/64 ±3/64 in) from the end, and securely insert the cable into the terminal.
- Leave adequate slack in the cables so that the weight of them will not strain the terminal connectors. Use cable clamps or trunk terminals as necessary.

10. Maintenance

10-1. Inspection and maintenance

Air conditioning units including TE-200/TE-50 controllers may be damaged after long use, resulting in a performance drop or the units becoming a safety hazard. To use them safely and maximize their lives, it is recommended that a maintenance contract with a dealer or qualified personnel be signed. If the contract is signed, service technicians will periodically inspect the units to identify any damage at an early stage, and take appropriate measures.

<Reference> Maintenance/replacement cycle of components

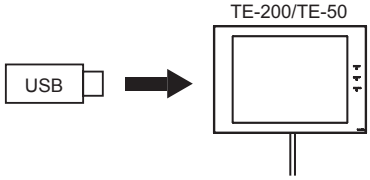
Component	Maintenance/replacement cycle
Centralized controller	10 years

* “Maintenance/replacement cycle” is not a warranty period.
* “Maintenance/replacement cycle” indicates the estimated cycle period in which each component should be replaced or repaired.

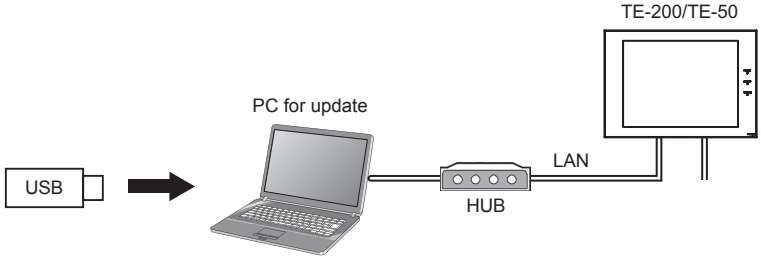
10-2. Software update

Update TE-200/TE-50 software. Prepare the update file so that all versions are standardized, without needing to load a previous software version.
The TE-200/TE-50 software can be updated by either directly reading the update file in a USB memory device or by using a Web browser.

① Directly reading the update file in a USB memory device



② Using a Web browser



Update the TE-200/TE-50 software by either “Directly reading the update file in a USB memory device (①)” or “Using a Web browser (②).

Caution:
Obtain an approval from the client for the following precautions as necessary.

1. The communication between TE-200/TE-50/TW-50 and the air conditioning units will stop while the software is being updated. Although the unit in operation may detect a communication error and an error sign may appear on the local remote controllers, the unit will continue its operation and be operable from the local remote controllers.
   * Note that Mr. Slim indoor units or systems with no local remote controllers may detect a communication error and come to an abnormal stop.
2. Be sure to match the versions of TE-200 and expansion controllers TE-50/TW-50. If they do not match, a “7905” error will be detected and the controllers cannot be used. In this case, update the software to the latest version.
3. Record the operation status of the air conditioning units immediately before updating the software. After the software update completes, check the operation status of the units, and manually operate the units as necessary.
4. Some operations and functions, such as scheduled operations, billing function, Peak Cut control, energy management function, will be disabled while the software is being updated. Check the setting details of these functions beforehand, and update the software when it does not affect these functions.
5. If the functions in the table below are used on the TG-2000A, avoid updating the software during the time period indicated in the right column.

Function in use	Time period in which the update is prohibited
Electricity charge apportioning function (with Charge Calculation Tool)	AM 5:00 – 5:10
Electricity charge apportioning function (with TG-2000A)	AM 4:05 – 4:35
Malfunction log backup (with TG-2000A)	AM 0:05 – 0:15
Peak Cut data backup (with TG-2000A)	AM 2:00 – 2:10
Pulse Input (PI) function (using a PI controller)	AM 0:00 – 0:05
Measurement trend data backup (with TG-2000A)	AM 1:05 – 1:15

6. While the software is being updated, up to 60-minute worth of energy management data and billing function data will not be recorded.
7. When a TE-50/TW-50’s Pulse Input (PI) function is used, the pulse that is input while the software is being updated will not be counted.
8. A “6920” error may be detected when the TE-50/TW-50 is updated. When the error is detected, referring to section “Network” in the Instruction Book, change the communication error detection setting for the IP address of the TE-200 that is currently not connected from “Detect” to “Do not detect.”

10-2-1. Directly reading the update file in a USB memory device

[1] Preparation

Store the update file (AExx_FW####_****.dat)*1 in the root folder of a USB memory device.

*1 “xx”: “200” (TE-200) or “50” (TE-50); “####”: software version

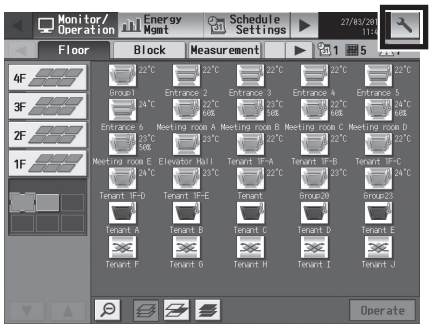
[2] Update procedures

Note:The software cannot be downgraded to an earlier version.

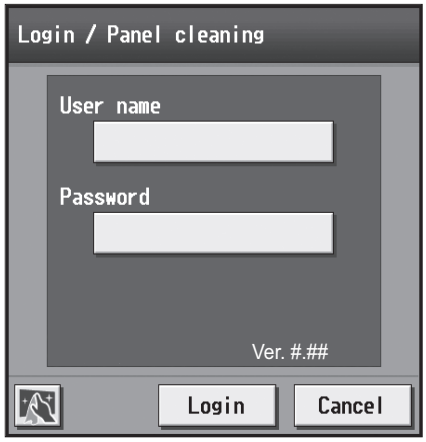
(1) Remove the controller cover, and insert a USB memory device in which the update file is stored to the USB port.

Note:Do not remove the USB memory device while the software is being updated.
Note:The USB memory device may not be recognized if you insert and remove it within a short time. If this happens, reset the TE-200/TE-50.

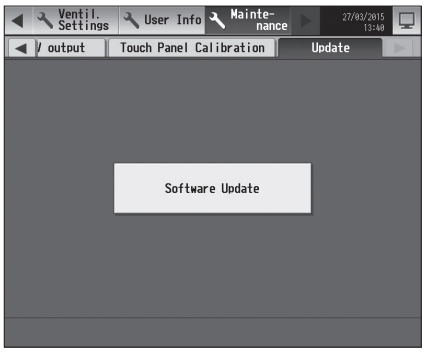
(2) Touch [ ] to display the login window.



(3) Enter the maintenance user name and the password in the login window, and touch [Login]. (Default user name: initial, Default password: init)

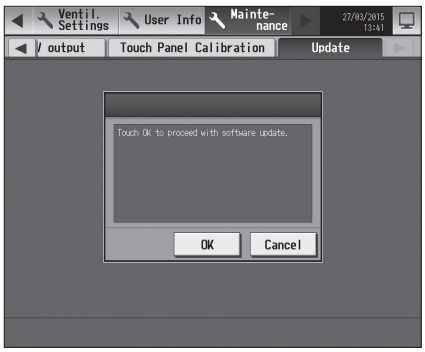


(4) Touch [Maintenance] in the menu bar, and then touch [Update]. Touch [Software Update] to read the update file.



(5) Touch [OK]. A software update process starts.

Note:It takes about four minutes to complete the update.
Note:The Status LED will blink in blue while the software is being updated. (Refer to section 2-1 “Part names” for details about the LEDs.)
Note:Do not turn off the power to the TE-200/TE-50 while the software is being updated.



(6) The TE-200/TE-50 will reboot after the update is complete. Disconnect the USB memory device.

(7) Touch [ ] to display the login window.
Check that the version on the login window is the same as the version of the update file (AExx_FW####_****.dat).

* If the name of the update file contains ####, “Ver. #.##” should be displayed on the login window as shown at right.

(8) When using the Integrated Centralized Control Web or Web Browser for Initial Settings, clear the history data of the browser and delete Java temporary files. Refer to the Instruction Book (Initial Settings) for the procedures.

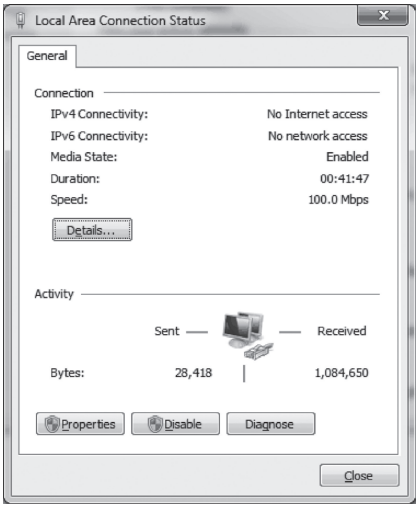
10-2-2. Using a Web browser

[1] Preparation

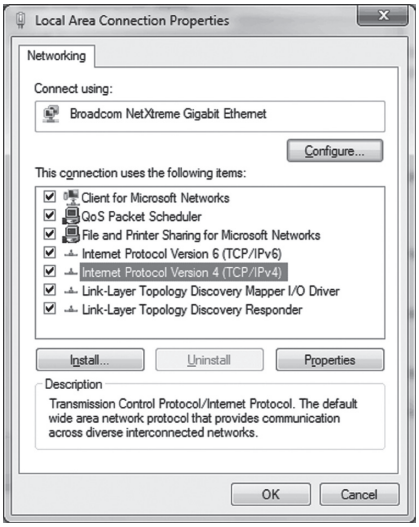
Follow the instructions below to change the IP address of the PC that is used for software update.

Note: When the system is connected to the existing LAN, ask the system administrator for permission before changing the IP address settings and updating the software.

(1) Click [Control Panel] in the Start menu, and click [Network and Sharing Center]>[Local Area Connection].
In the [Local Area Connection Status] window, click [Properties].

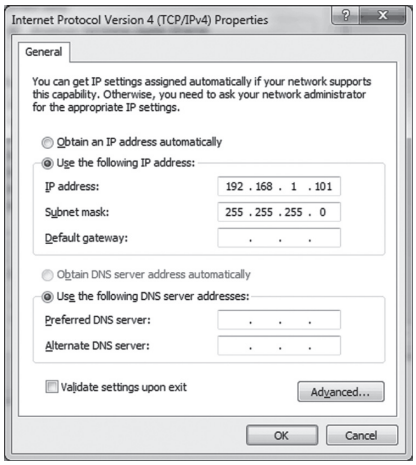


(2) Click [Internet Protocol Version 4 (TCP/IPv4)] to select it, and click [Properties].



(3) In the [Internet Protocol Version 4 (TCP/IPv4) Properties] window, check the radio button next to [Use the following IP address].
Enter [192.168.1.*] in the [IP address] field. (The number indicated with an asterisk must be different from the IP address of the TE-200/TE-50 to be updated.)
Leave [255.255.255.0] in the [Subnet mask] field as it is.

Note: If the IP address of the TE-200/TE-50 is [192.168.1.1], set the same 1st, 2nd, and 3rd numbers and different 4th number, such as [192.168.1.2].
Note: Default IP address of TE-200/TE-50 is [192.168.1.1].
Note: When performing an update on a PC that is already connected to the existing LAN, [255.255.255.0] may not appear in the [Subnet mask] field. When [255.255.0.0] appears, enter the same 1st and 2nd numbers (192.168) and different 3rd or 4th number of the IP address of the TE-200/TE-50 in the [IP address] field.



[2] Update procedures

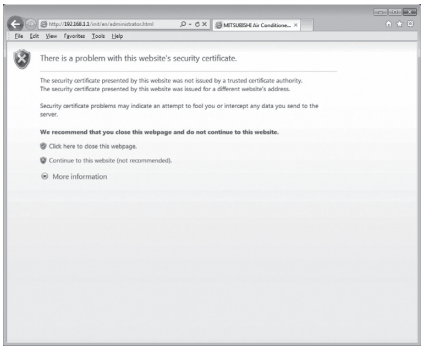
(1) Make sure that the PC that has been set in section [1] above and the TE-200/TE-50 to be updated are connected with a LAN cable.

(2) Turn on the power to the TE-200/TE-50, and insert a USB memory device in which the update file is stored to the PC.

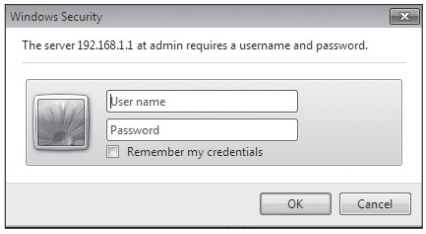
(3) Enter the web page address in the address field of the Web browser as follows:
https://[IP address of each TE-200/TE-50]/swupdate/Update.html
Press the [Enter] key.

Note: If the IP address of the TE-200/TE-50 is [192.168.1.1], the web page address is [https://192.168.1.1/swupdate/Update.html].

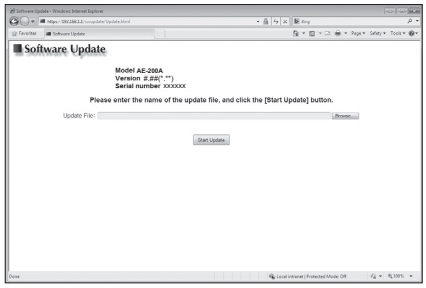
(4) If the security certificate is invalid, a security certificate error page (as shown at right) will appear.
Click [Continue to this website (not recommended)].



(5) Enter the maintenance user name and the password in the login screen, and click [OK]. (Default user name: initial, Default password: init)

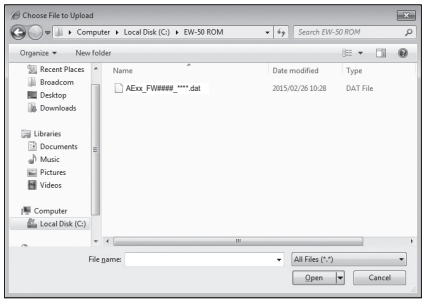


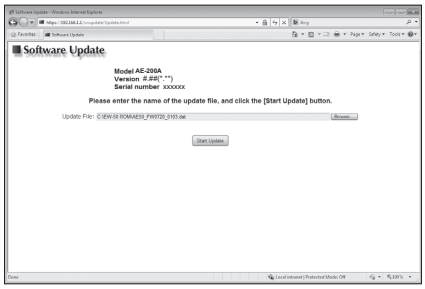
(6) A software update screen will appear.



(7) Click the [Browse...] button and select the update file (AExx_FW####_****.dat) stored in the USB memory device, and click [Start Update].

Note: The software cannot be downgraded to an earlier version.
Note: “####” indicates the software version.

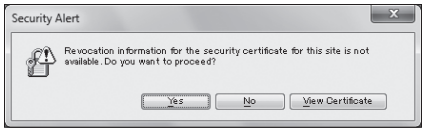




(8) A software update process starts.

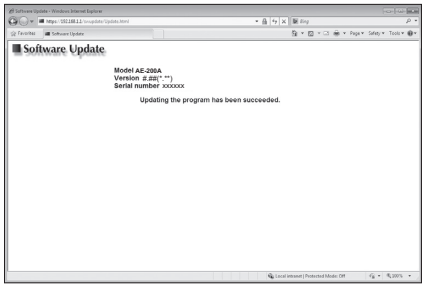
Note: It takes about ten minutes to complete the update.
Note: Do not disconnect the LAN cable or turn off the power to the TE-200/TE-50 while the software is being updated.

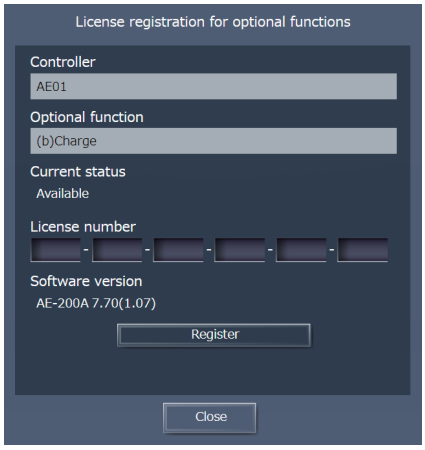
A Security Alert window may appear. When it appears, click [Yes] to proceed.



(9) The TE-200/TE-50 will reboot after the update is complete. Check that the version that will appear on the screen is the same as the version of the update file. Also check that the version displayed on the “License registration for optional functions” screen on the Integrated Centralized Control Web is also the same.

Note: “#.##” indicates the software version.





(10) When using the Integrated Centralized Control Web or Web Browser for Initial Settings, clear the history data of the browser. Refer to the Instruction Book (Initial Settings) for the procedures.

If the software update did not properly complete, update the software again. If the problem persists, the TE-200/TE-50 may be damaged. Consult your dealer.

10-3. Software information

Detailed information about the open source software of the TE-200/TE-50/TW-50 can be checked by accessing the following address:

https://[IP address of each TE-200, TE-50, or TW-50]/license/

* Accessible only if logged in as a maintenance user.

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Java is a registered trademark of Oracle and/or its affiliates.

BACnet® is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, INC.).

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.

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

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

MITSUBISHI ELECTRIC TRANE HVAC US LLC

HEAD OFFICE: 1340 SATELLITE BLVD, SUWANEE GA 30024 USA

WT09302X01