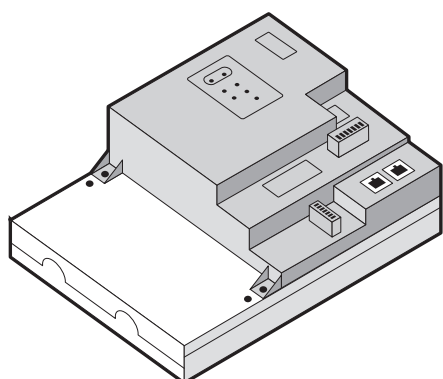


# MITSUBISHI ELECTRIC TRANE HVAC US LLC

## Air Conditioning Control System Centralized Controller TW-50A



### Installation and Instructions Manual



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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.

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.

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

## 1-1. General precautions

### **WARNING**

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

---

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

---

To reduce the risk of electric shock, malfunction, smoke, or fire, do not touch the electrical parts or USB memory 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 switches or buttons with a sharp object.

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.

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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.

---

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**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 55°C (131°F) or drop below -10°C (14°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

TW-50A is a total management system.

Any connected air conditioning systems can be operated or monitored on the Web browser. TW-50A can also be used as an expansion controller of TE-200A.

By connecting TE-200A, up to 200 indoor units and other equipment can be controlled.

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."

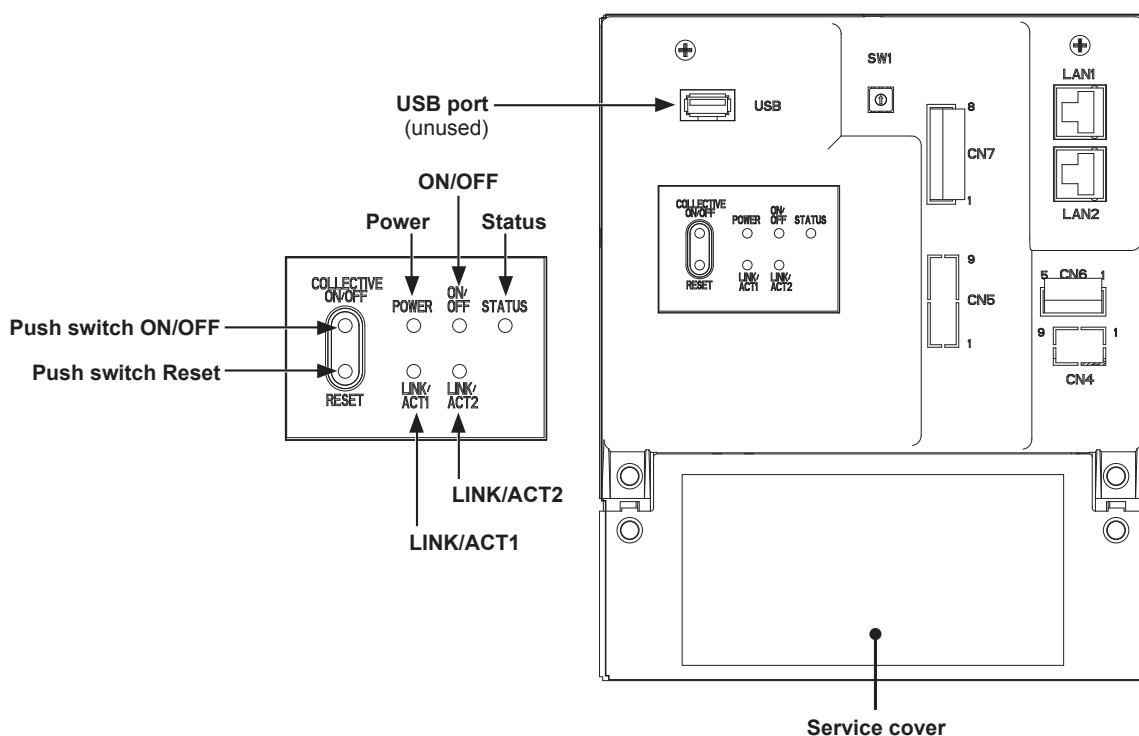
Note: A PC is required to monitor and operate the air conditioning units.

Note: The required licenses vary, depending on the functions to be used. Consult your dealer.

Note: For how to use the Web browser, refer to the Instruction Book (Integrated Centralized Control Web).

Note: TE-200A/TE-50A/TW-50A and Mitsubishi Electric's AE-200A/AE-50A/EW-50A have the same functions.

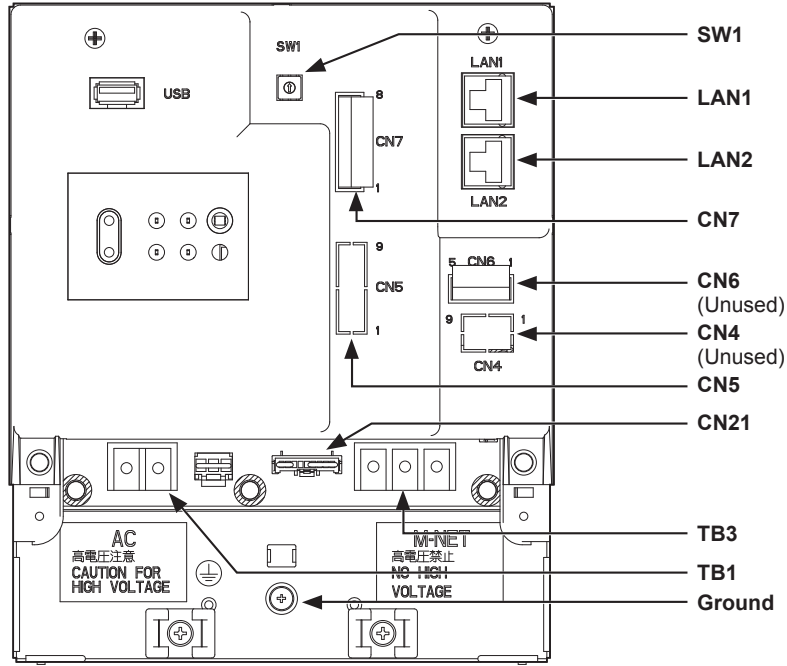
### 2-1. Part names



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. *1
		Blink in green	One or more air conditioning units or other related equipment are in error.
		Unlit	All air conditioning units are OFF. *1
	Status	Blink in orange	Startup error
		Blink in blue	Software update in progress
Blink in pink		Software update failed	
LINK/ACT1		Blink in orange	Data transmission in progress (LAN1)
LINK/ACT2		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 TW-50. (This will not affect the operation status of the air conditioning units.)	
USB port		Unused	

\*1 The operation status of the other equipment are excluded.

\* Back side with the service cover removed

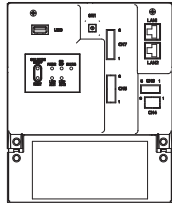
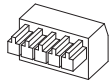
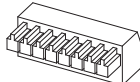
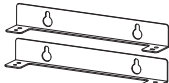
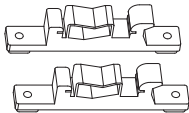
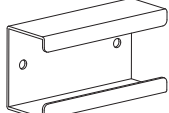


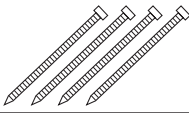


Item	Description
SW1	IP addresses can be easily set with SW1. Refer to section 7-2 "Quick IP address (LAN1) setting" for details.
LAN1	Connects to other units of equipment over the LAN via a HUB.
LAN2	Connects to the Building Management System over the LAN (BACnet®) via a HUB.
CN7 (Pulse Input) *1	Connects to metering devices using the supplied connector.
CN6	Unused
CN4	Unused
CN5 (External I/O) *1	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 1.5 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.

\*1 Refer to chapter 9 "External input/output" for details.

### 3. Package contents

The following items are included in the package.

	Package contents	Qty.
(1)	TW-50 	1
(2)	Connector (CN6) (Unused) 	1
(3)	Connector (CN7) (Used for pulse input) 	1
(4)	L-fitting 	2
(5)	DIN rail attachment (for attaching DIN rail of 35 mm (1-7/16 in) width) 	2
(6)	DIN rail auxiliary bracket 	1
(7)	Roundhead screw (M3 × 12) *1 (for fixing DIN rail attachment) 	4
(8)	Roundhead screw (M3 × 6) *1 (for fixing DIN rail auxiliary bracket or L-fitting) 	4
(9)	Cable tie 	4 (Two are spare.)
(10)	Installation and Instructions Manual (this manual) *2	1
(11)	CD-ROM *2 └ Installation and Instructions Manual (this manual) └ License Classification List  <div style="border: 1px solid black; padding: 5px;"> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul> </div>	1

\*1 ISO metric screw thread

\*2 For details about the apportioned electricity billing function, refer to the Instruction Book that comes with the “Charge” license.

#### Notes on the SD card installed on the TW-50

- Do not use the SD card installed on the TW-50 for any other equipment.



# 4. Specifications

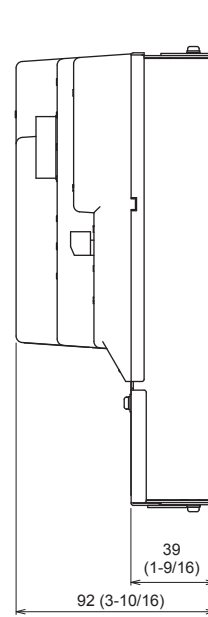
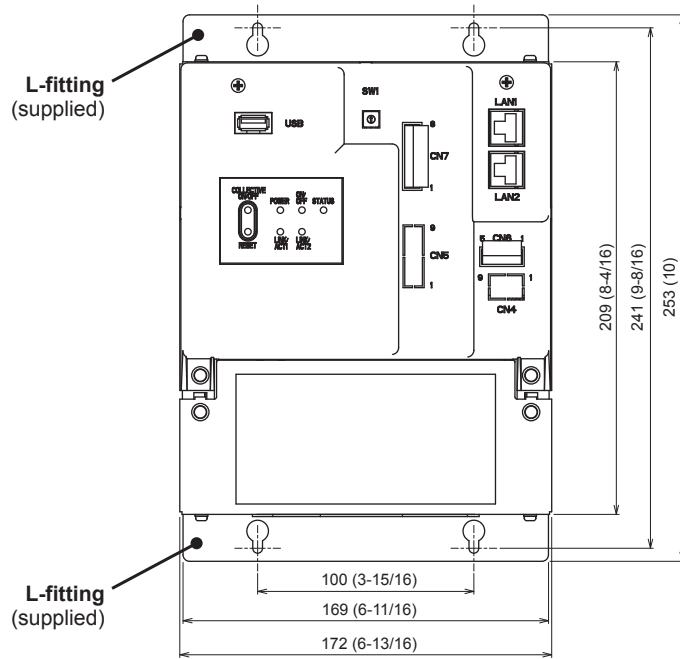
## 4-1. Product specifications

Item		Specifications	
Power supply		100–240 VAC ± 10%; 50/60 Hz Single-phase	
M-NET power feeding coefficient		1.5	
Network interface		100BASE-TX	
Ambient conditions	Temperature	Operating temperature range	-10°C – +55°C (+14°F – +131°F)
		Storage temperature range	-20°C – +60°C (-4°F – +140°F)
	Humidity		30%–90% RH (Non-condensing)
Dimensions (W × H × D)		172 × 209 × 92 mm (6-13/16 × 8-4/16 × 3-10/16 in) * 172 × 253 × 92 mm (6-13/16 × 10 × 3-10/16 in) when using L-fittings	
Weight		1.7 kg (4 lbs)	
Installation conditions		Only in a metal control box indoors	

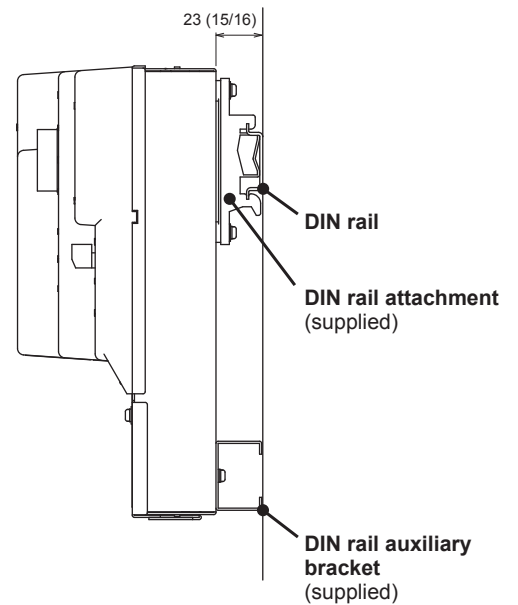
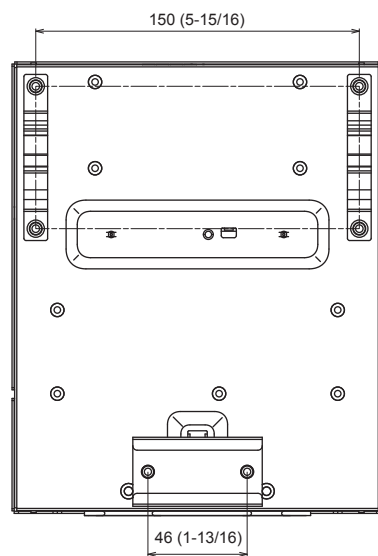
## 4-2. External dimensions

### (1) When using L-fittings

Unit: mm (in)



### (2) When using DIN rail



## 5. Installation

### **WARNING**

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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.

---

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.

---

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

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

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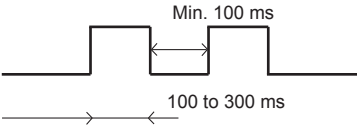
### **CAUTION**

---

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.

## 5-1. Items not included

The following items are required to install the TW-50.

Items not included	Specifications	
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 cable (should not be lighter than ordinary sheathed cable IEC 60227.) (designation 60227 IEC 53)* <sup>1</sup> Recommended type: VCT, VVF, VVR, or its equivalent Size: 0.75 to 2 mm <sup>2</sup> (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: Shielded cable ● CPEVS ø1.2 mm ● CVVS 1.25 to 2 mm <sup>2</sup> * CPEVS: PE* <sup>2</sup> insulated PVC* <sup>2</sup> jacketed shielded communication cable * CVVS: PVC* <sup>2</sup> insulated PVC* <sup>2</sup> 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 of the TW-50 Size ● Single wire: ø0.65 to ø1.2 mm, AWG 21 to 16 ● Twisted wire: 0.75 to 1.25 mm <sup>2</sup> , 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 sec	
PC	Refer to the Instruction Book (Integrated Centralized Control Web) for PC requirements.	

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

\*2 PE: Polyethylene, PVC: Polyvinyl chloride

## 5-2. Items sold separately

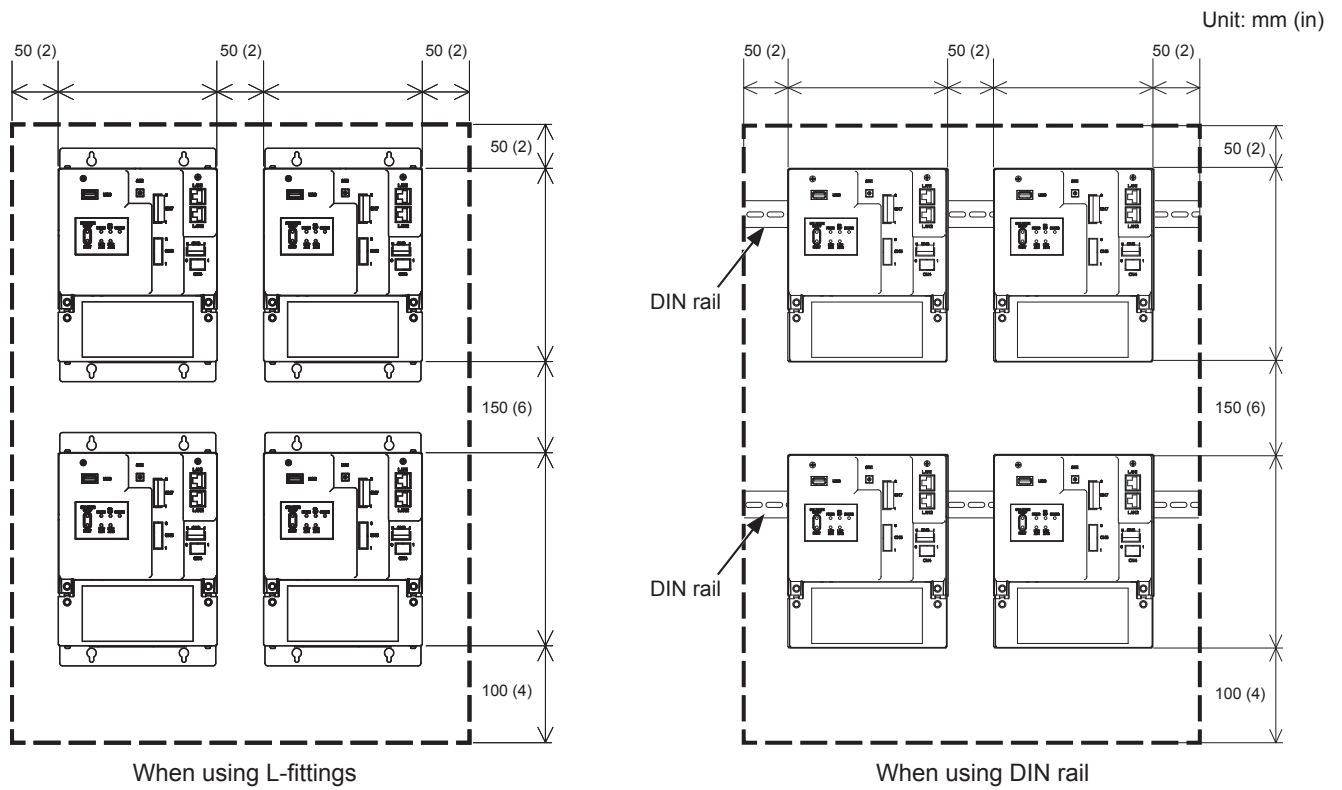
Items sold separately	Model name	Remarks
External input/output adapter	PAC-YG10HA-E	Required when using the external input/output function

### 5-3. Installation space

The TW-50 must be installed inside the metal control box.

Either the supplied L-fittings or DIN rail attachments can be used for the installation.

Leave a space around the TW-50 as shown in the figure below.



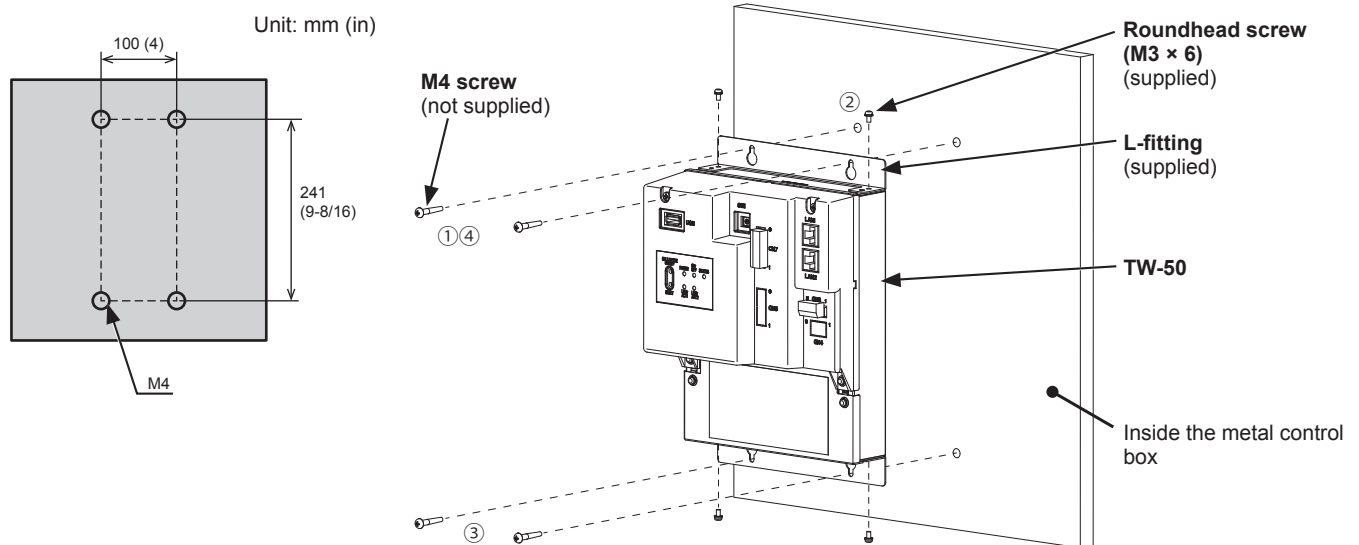
## 5-4. Installation procedures

### Note

- Connect the necessary cables and wires before installing TW-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 connectors to disconnect.

### 5-4-1. Method 1: Installation using L-fittings

1. Have a metal control box ready.
2. Cut screw holes on the surface on which the TW-50 will be installed as shown in the figure below, taking into consideration the installation space.
3. Attach the supplied two L-fittings to the TW-50 with the supplied roundhead screws (M3 × 6).
4. Properly install the TW-50 with the M4 screws (not supplied) inside the metal control box as shown in the figure below.
  - ① Temporarily tighten the top M4 screws.
  - ② Temporarily place the M4 screws through the screw holes at the top of the L-fitting.
  - ③ Tighten the bottom M4 screws.
  - ④ Tighten the top M4 screws.

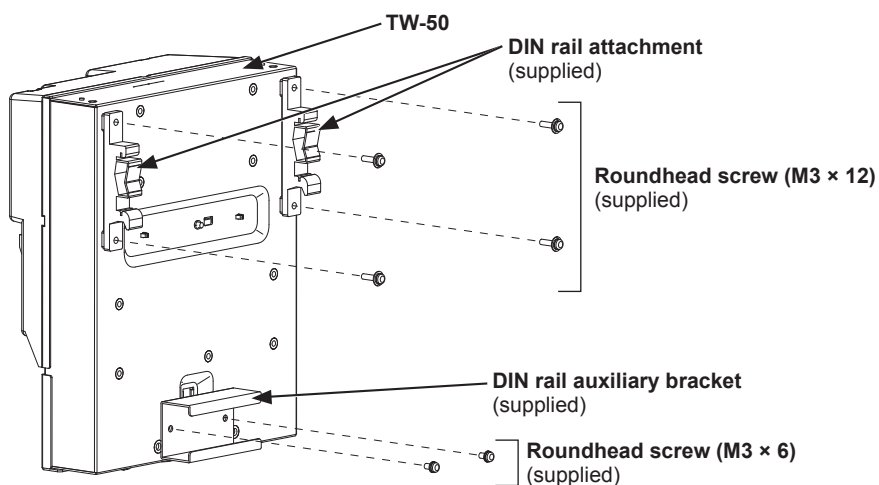


### Note

- The TW-50 to which the L-fittings are attached must be fixed to the metal control box with total of four M4 screws to prevent it from falling.
- The surface on which the TW-50 will be installed needs to be strong enough to support its weight (1.7 kg (4 lbs) each).

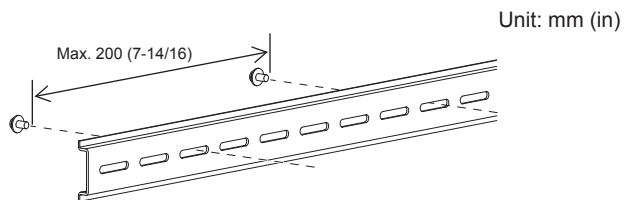
## 5-4-2. Method 2: Installation using DIN rail

1. Have a metal control box ready.
2. Attach the supplied two DIN rail attachments to the TW-50 with the supplied roundhead screws (M3 × 12).
3. Attach the supplied DIN rail auxiliary bracket to the TW-50 with the supplied roundhead screws (M3 × 6).



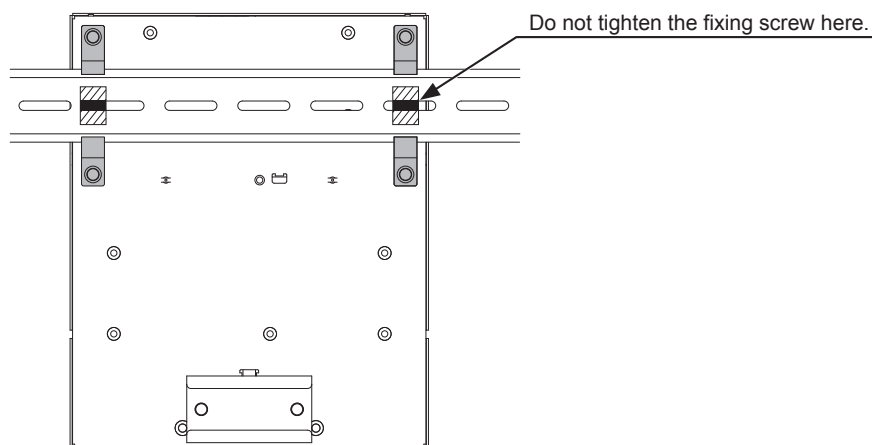
4. Mount the DIN rail (not supplied) to the metal control box.

\* Use a DIN rail of 35 mm (1-7/16 in) width.

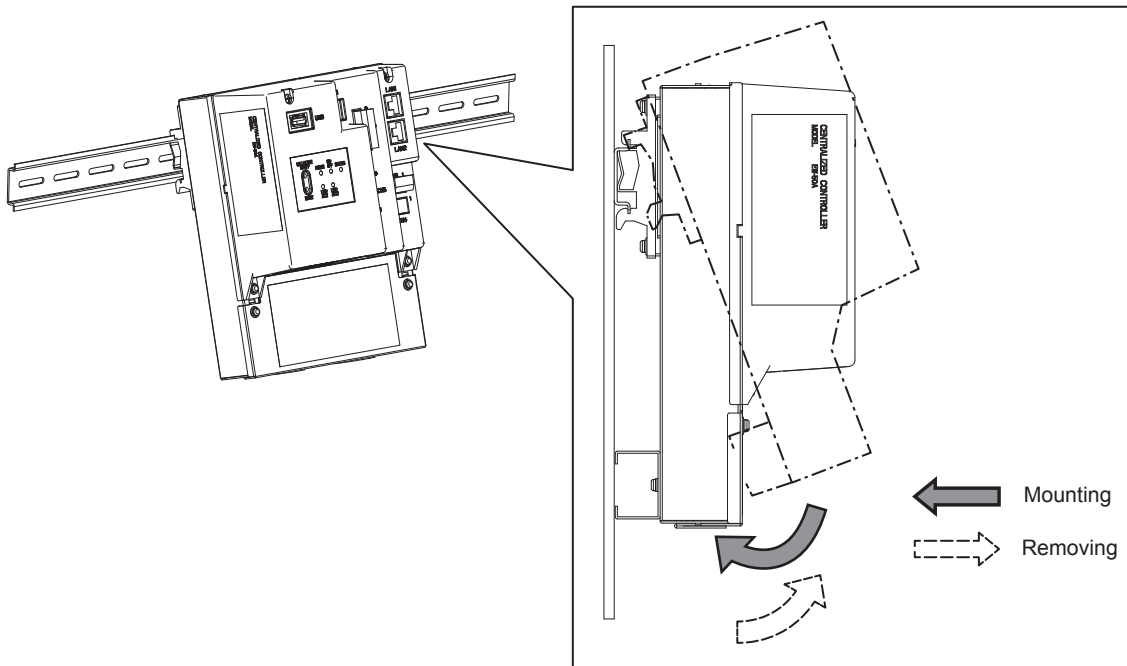


### Note

- To secure the strength, the screw pitch must be 200 mm (7-7/8 in) or less when DIN rail is mounted to the metal control box.
- The surface on which the TW-50 will be installed needs to be strong enough to support its weight (1.7 kg (4 lbs) each).
- Do not install the TW-50 where it may receive vibration.
- To avoid the contact of the DIN rail fixing screws with the DIN rail attachment, do not tighten the fixing screws at the shaded areas in the figure below.



## [Mounting/removing the TW-50 on/from the DIN rail]



### (1) Mounting

1. Hook the upper side of the attachments to the DIN rail.
2. Push the lower part of the TW-50 until it snaps into place.

#### Note

- Ensure that the DIN rail attachments are fixed securely in place to the DIN rail.

### (2) Removing

1. Pull the lower part of the TW-50 toward you.
2. Remove the TW-50 from the DIN rail.



## 6. Wiring connections

### **! 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 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.

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.

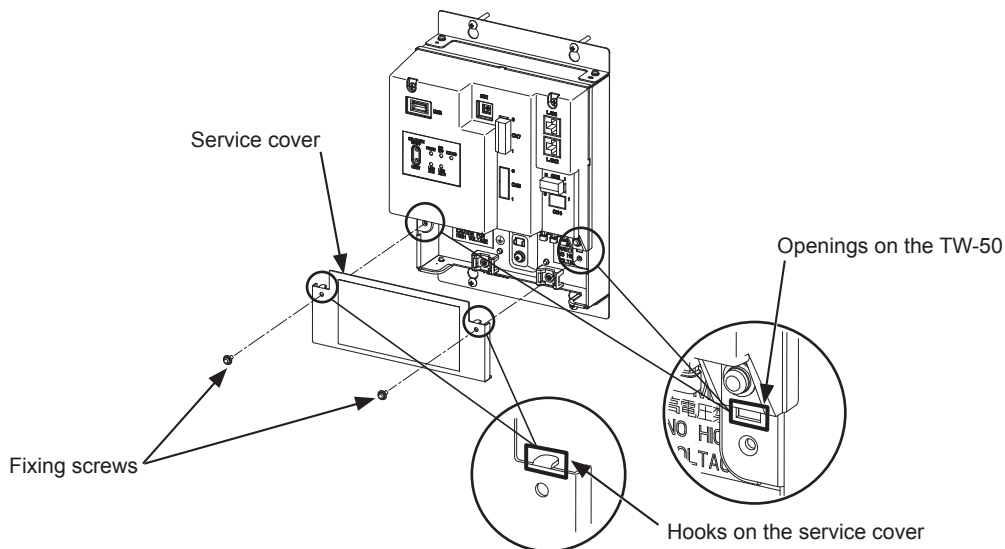
### **CAUTION**

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

### 6-1. Removing/reinstalling the service cover

#### (1) Removing

1. Unscrew the two fixing screws on the service cover.
2. Remove the service cover.



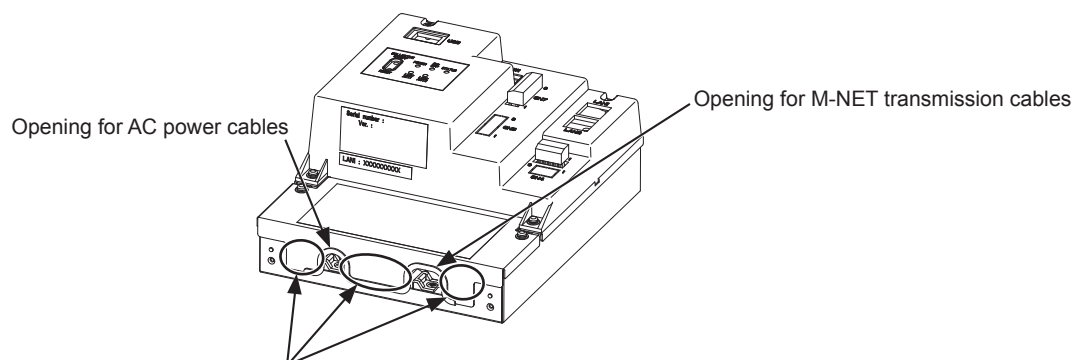
## (2) Reinstalling

1. Insert the AC power cables and M-NET transmission cables into the openings, and then insert the hooks to the openings.

Note: Do not pinch the cables between the TW-50 body and the service cover.

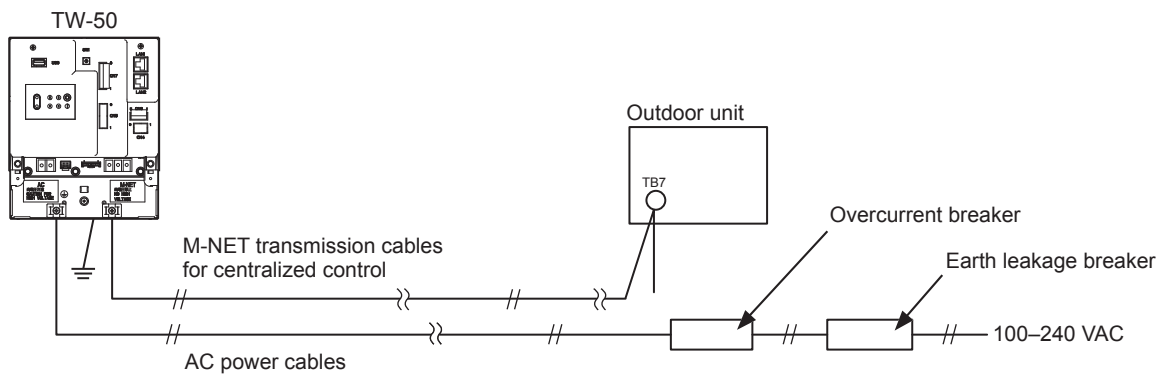
2. Screw down the service panel with the two fixing screws.

3. Check that there are no pinched cables between the TW-50 body and the service cover.



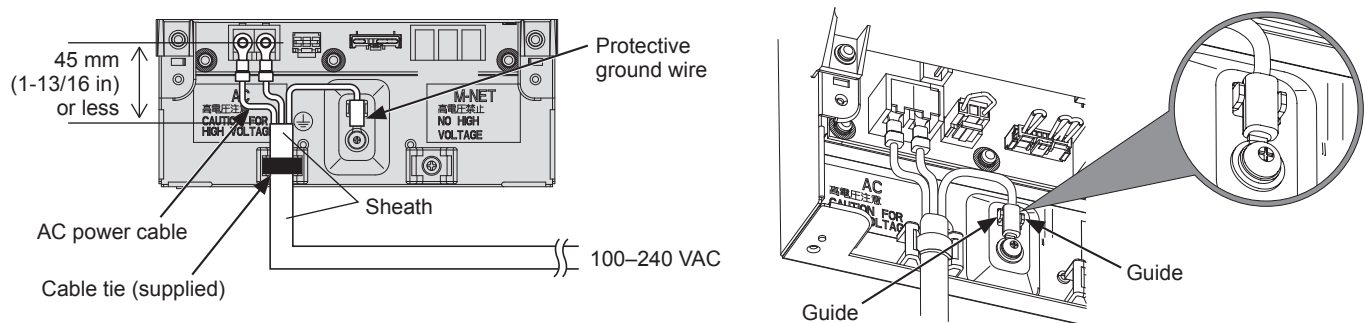
Do not pinch the cables between the TW-50 body and the service cover.

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



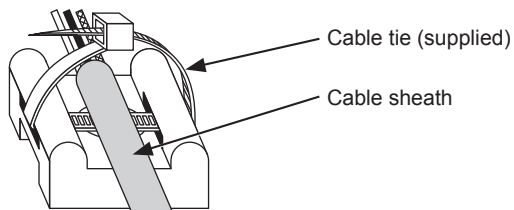
### 6-2-1. AC power cables and protective ground wire

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.



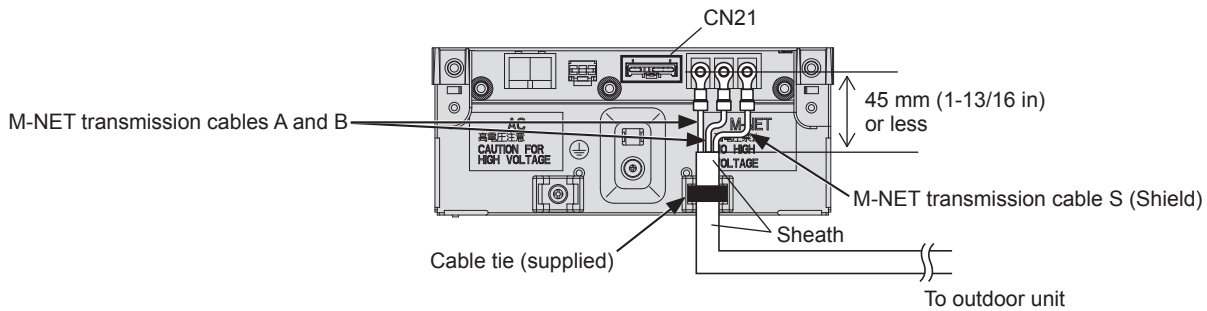
#### Note

- 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 45 mm (1-13/16 in) or less.



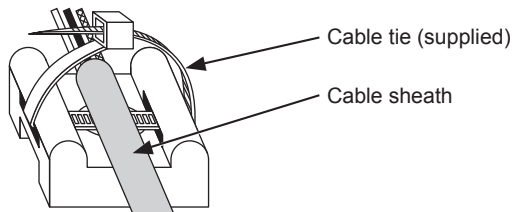
## 6-2-2. M-NET transmission cables (Centralized control transmission cables)

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 TW-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 45 mm (1-13/16 in) or less.



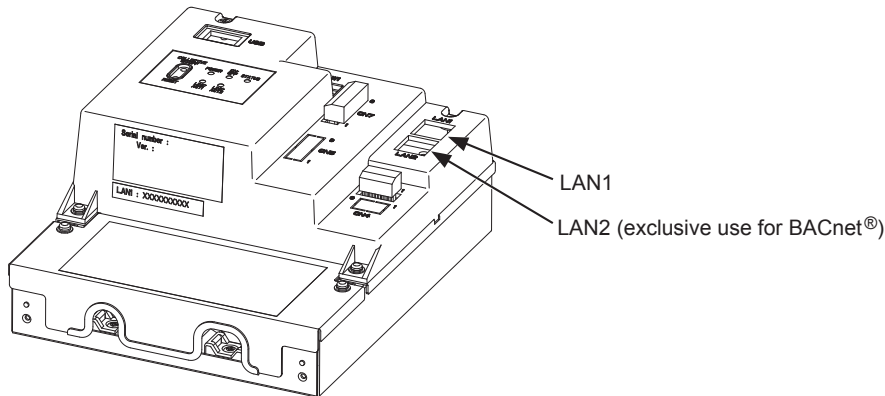
## 6-3. Connecting the LAN cable

### CAUTION

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

Connect the LAN cable to the LAN1 port on the TW-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.)



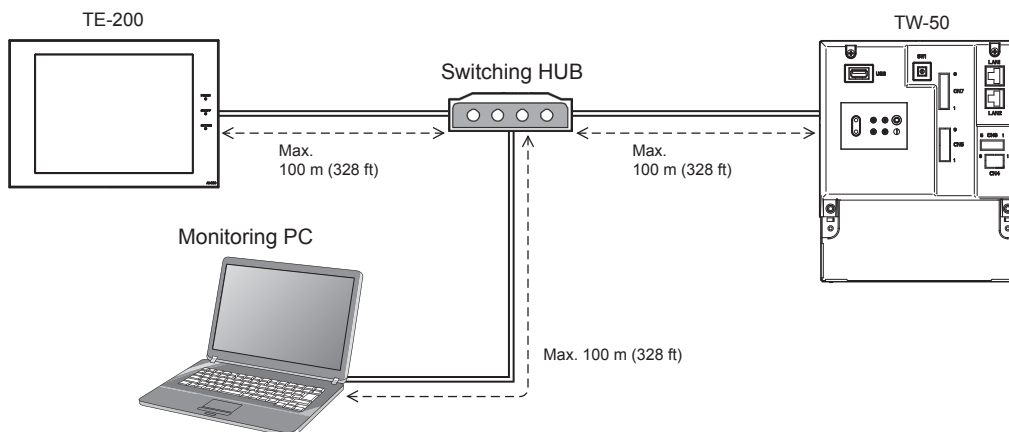
### Note

- LAN must be installed before the unit installation. Route the LAN cable to the TW-50 in the same way as the M-NET transmission cables.
- When connecting the TW-50 to an existing LAN, consult the system administrator to decide the IP address.

## 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/TE-50/TW-50. Send a command from the PC to the TE-50/TW-50, and receive the response from the TE-50/TW-50. Check the time between sending and receiving on the PC display.

### (1) Sample system connection

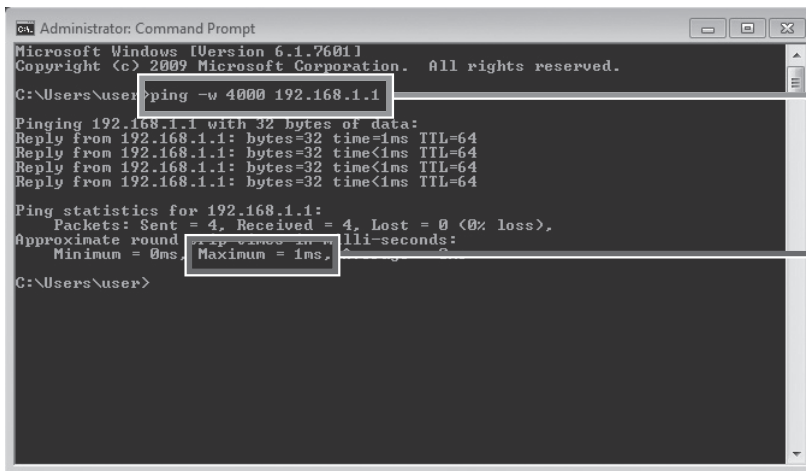


## (2) Checking the transmission delay time

- 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.



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\user>ping -w 4000 192.168.1.1

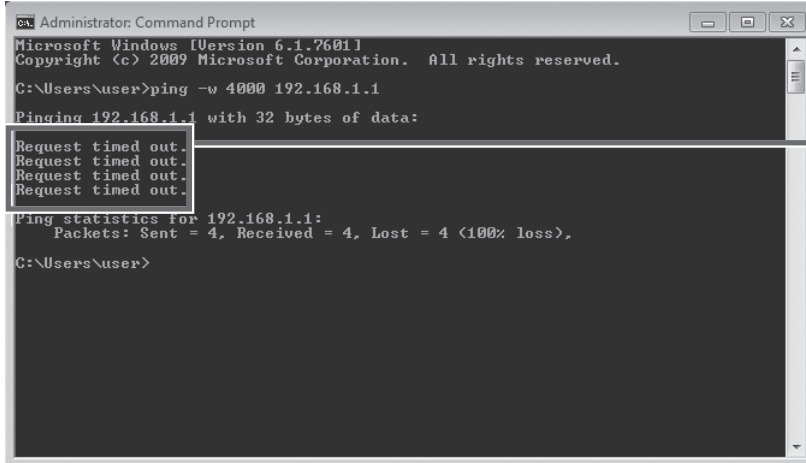
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\user>
```

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.



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\user>ping -w 4000 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Users\user>
```

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

## 7. Initial settings

Initial settings need to be made for each TW-50 on the Initial Setting Tool or Integrated Centralized Control Web. Details about the initial settings and other settings and operations are covered in the Instruction Book (Initial Settings).

Note: To monitor and operate the air conditioning units on the Web browser (Integrated Centralized Control Web), settings need to be configured on the Initial Setting Tool.

### 7-1. Initial settings

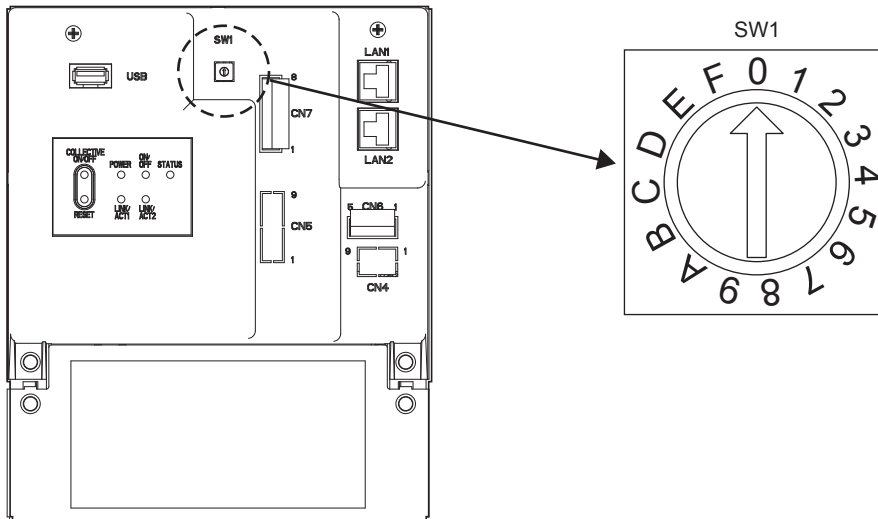
Note: Initial settings can be configured either using the Initial Setting Tool or Integrated Centralized Control Web (Date and time, Functions (partially), User Settings, Utility) via a LAN. Refer to the TE-200/TE-50/TW-50 Instruction Book (Initial Settings) for details.

## 7-2. Quick IP address (LAN1) setting

When connecting a TW-50 to a dedicated LAN system, IP address (LAN1) of the TW-50 can be easily set to an address between 192.168.1.1 and 192.168.1.15 with rotary switch SW1.

When the IP address cannot be set with rotary switch SW1 (e.g., when connecting a TW-50 to an existing LAN, when the TW-50 is used as an expansion controller of TE-200), set the IP address on the Initial Setting Tool or the Web Browser for Initial Settings.

Set SW1 before turning on the power.



\* The arrow on the rotary switch indicates the current setting of the switch. Point the arrow at the desired number.

\* To set the address, turn the rotary switch with a precision slotted screwdriver [2.0 mm (2/16 in) (width)] to a torque of less than 19.6 mN•m.

SW1	IP address (LAN1)	Subnet mask	Gateway
0	Default 192.168.1.1	Default 255.255.255.0	Default 0.0.0.0
1	192.168.1.1	255.255.255.0	0.0.0.0
2	192.168.1.2		
3	192.168.1.3		
4	192.168.1.4		
5	192.168.1.5		
6	192.168.1.6		
7	192.168.1.7		
8	192.168.1.8		
9	192.168.1.9		
A	192.168.1.10		
B	192.168.1.11		
C	192.168.1.12		
D	192.168.1.13		
E	192.168.1.14		
F	192.168.1.15		

### Note

- If you forget the TW-50 IP address, check the IP address that has been entered on the monitoring PC (Web browser or TG-2000A).
- If you forget the TW-50 IP address, you can start TW-50 by changing the SW1 setting and temporarily using a certain IP address (between 192.168.1.1 and 192.168.1.15). The IP address can be changed to an arbitrary IP address by setting the IP address on the Initial Setting Tool or the Web Browser for Initial Settings, setting the SW1 back to "0", and rebooting the TW-50. (It is recommended to paste a label with the IP address on the TW-50, so that the IP address is available at all times.)



### **7-3. Network settings**

IP, subnet mask, and gateway addresses can be set on the Initial Setting Tool or the Web Browser for Initial Settings. Rotary switch SW1 must be set to "0" (default setting) to make these settings.

When connecting the TW-50 to an existing LAN, consult the system administrator to decide the IP, subnet mask, and gateway addresses.

Refer to the Instruction Book (Initial Settings) for how to make these settings.

# 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.

Note: Perform a test run in the presence of a customer.

### Test run procedure

- (1) Turn on the power to the TW-50 and all units.
- (2) Make sure that the Power LED on the TW-50 is lit.
- (3) Enter the web page address in the address field of the Web browser as follows:

**http://[IP address of the login destination TW-50]/control/index.html**

Note: The web page will be displayed in the same language as the operating system on the PC.

The web page can be displayed in other languages by entering the web page address as follows:

Chinese	http://[IP address of the login destination TW-50]/control/index.html?zh
English	http://[IP address of the login destination TW-50]/control/index.html?en
French	http://[IP address of the login destination TW-50]/control/index.html?fr
German	http://[IP address of the login destination TW-50]/control/index.html?de
Italian	http://[IP address of the login destination TW-50]/control/index.html?it
Japanese	http://[IP address of the login destination TW-50]/control/index.html?ja
Portuguese	http://[IP address of the login destination TW-50]/control/index.html?pt
Russian	http://[IP address of the login destination TW-50]/control/index.html?ru
Spanish	http://[IP address of the login destination TW-50]/control/index.html?es
Turkish	http://[IP address of the login destination TW-50]/control/index.html?tr

Note: For details, refer to section "Logging in from the PC/tablet" in the Instruction Book (Integrated Centralized Control Web).

- (4) Log in to the Integrated Centralized Control Web, and then open the [Monitor/Operation] screen.
- (5) On the [Monitor/Operation] screen, click [Select all], click [ON], and then click [OK]. The group of units will start an operation.
- (6) On the [Monitor/Operation] screen, check the unit icons to see if the units are in operation.
- (7) 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).
- (8) After confirming that all units are operating properly, click [Select all] on the [Monitor/Operation] screen, click [OFF], and then click [OK] to stop the units.

# 9. External input/output

## 9-1. External signal input/output function



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.)

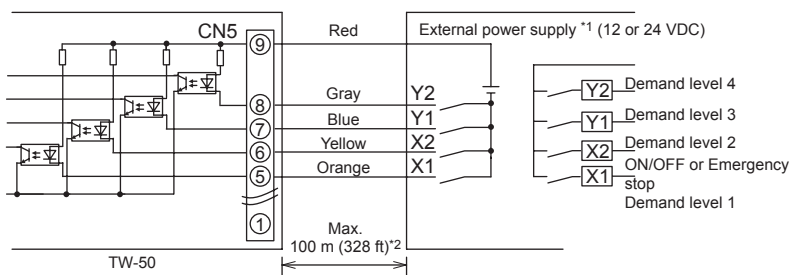
- Note**
- Connect the external input/output adapter to each TE-200/TE-50/TW-50. (External input signal to TE-200 cannot perform the collective operations (e.g., emergency stop) for TE-50/TW-50 systems.)
  - Use caution not to damage the circuit board with tools when cutting out the knockout hole.
  - Set the [External Input Setting] setting for each TW-50 on the [Basic System] screen on the Web Browser for Initial Settings.

### 9-1-1. External signal input function

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

(1) Recommended circuit

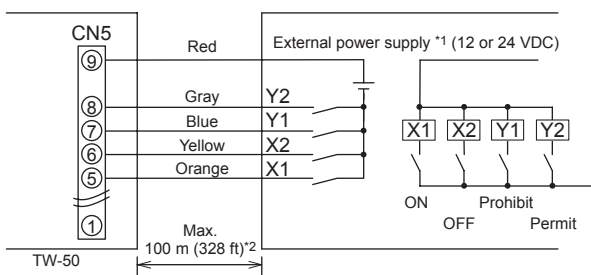
(A) Level signal



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.

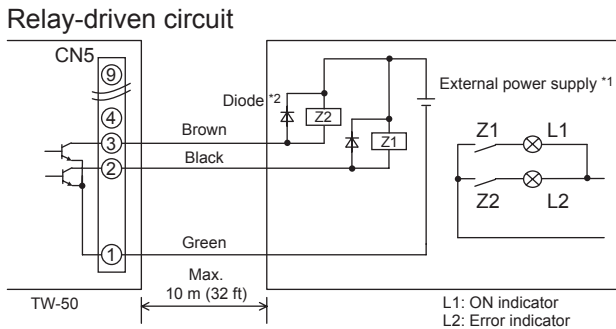
- Important**
- Be sure to use an external power supply (12 or 24 VDC) to avoid malfunctions.
  - Connect the external power supply in the correct polarity to avoid malfunctions.

- 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<sup>2</sup> 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. (Operation status (On/Error) of the units that are connected to each TW-50 will be output.)

### (1) Recommended 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 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 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<sup>2</sup> 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 TW-50, use the connector connected to the TW-50. (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

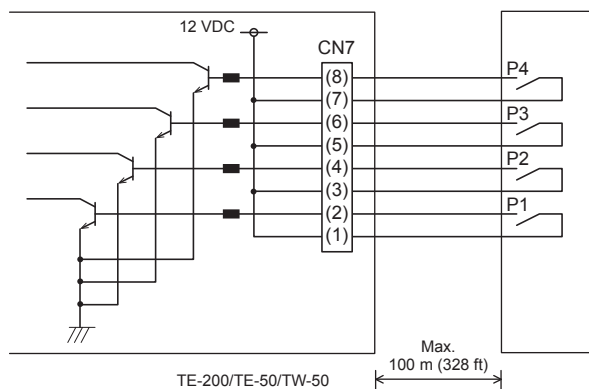
\*1 A built-in PI controller on the TE-200 cannot be used for an apportioned electricity billing function. Use a built-in PI controller on the TE-50 or TW-50.

\*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. 7, 8	Metering device 4 (count input)
No. 5, 6	Metering device 3 (count input)
No. 3, 4	Metering device 2 (count input)
No. 1, 2	Metering device 1 (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<sup>2</sup> 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 (4/16 ±1/16 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 TW-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
Controller (TW-50)	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. Back up/import settings data

The settings data that have been made from the Initial Setting Tool, Integrated Centralized Control Web, or Web Browser for Initial Settings can be exported to an HDD as a backup.

The exported data can be imported back to the TE-200/TE-50/TW-50 to restore the previous settings after TE-200/TE-50/TW-50 replacement. The settings data can be backed up or imported from the Integrated Centralized Control Web or Web Browser for Initial Settings.

### 10-2-1. Integrated Centralized Control Web

- (1) Enter the web page address in the address field of the Web browser as follows:

**http://[IP address of the login destination TW-50]/control/index.html**

Note: The web page will be displayed in the same language as the operating system on the PC.

The web page can be displayed in other languages by entering the web page address as follows:

Chinese	http://[IP address of TW-50]/control/index.html?zh
English	http://[IP address of TW-50]/control/index.html?en
French	http://[IP address of TW-50]/control/index.html?fr
German	http://[IP address of TW-50]/control/index.html?de
Italian	http://[IP address of TW-50]/control/index.html?it
Japanese	http://[IP address of TW-50]/control/index.html?ja
Portuguese	http://[IP address of TW-50]/control/index.html?pt
Russian	http://[IP address of TW-50]/control/index.html?ru
Spanish	http://[IP address of TW-50]/control/index.html?es
Turkish	http://[IP address of TW-50]/control/index.html?tr

- (2) Click [Maintenance] > [Utility] > [Back up/import settings data] to access the Back up/import settings data screen.

Note: This function is accessible only if logged in as a building manager. Tenant managers and general users cannot use this function.

**Reference**  
Click to browse for a file that contains the data to be imported.

**Data import source**  
The path to the file to be imported will appear.

**Back up settings data**  
Click to back up the TW-50 settings data.

**Import settings data**  
Click to import the file specified in the "Data import source" field to the TW-50.

The screenshot shows the Mitsubishi Electric logo at the top left. The sidebar menu includes Home, Monitor/Operation, Energy Management, Schedule, Notice, Settings, and Maintenance (highlighted). The main content area has a title bar 'Back up/import settings data' and a sub-section 'Back up settings data' with a 'Back up settings data' button. Below that is the 'Import settings data' section, which includes a 'Reference' field with a left-pointing arrow and a 'Data import source: SettingData.dat' field. An 'Import settings data' button is also present. At the bottom left, the time is 11:09 AM on 08/08 (Wed) 2018. At the bottom right, the copyright notice reads: Copyright(C) 2015(2018) MITSUBISHI ELECTRIC CORPORATION All Rights Reserved.

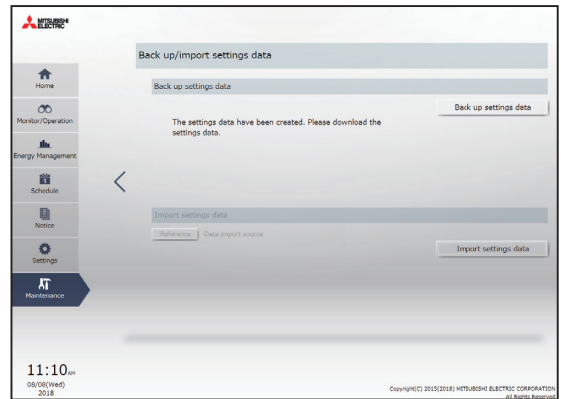
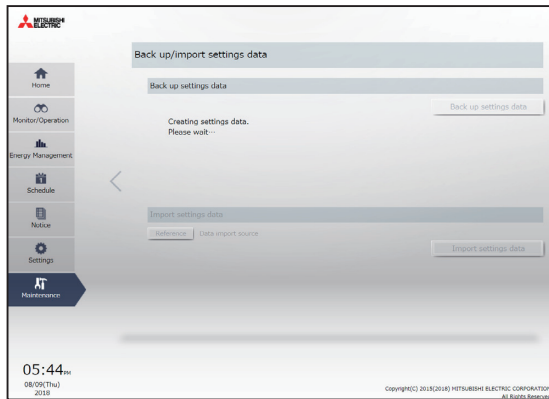
## [1] Backing up settings data

### Procedure

- (1) To back up the data, click [Back up settings data]. The settings data will be created and the Window's standard file download dialog will appear.

Note: It will take a few minutes to create the settings data.

Note: The name of the settings data will be "SettingData.dat".

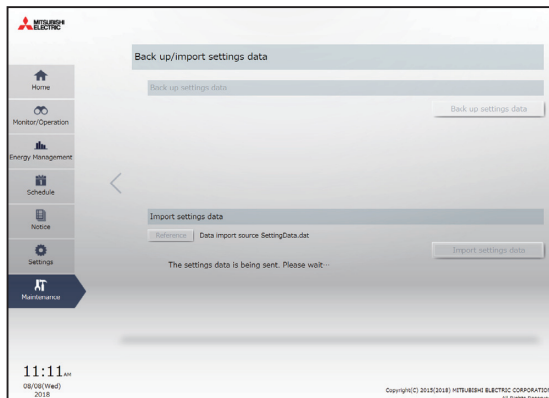


## [2] Importing settings data

### Procedure

- (1) Click the [Reference] button on the Back up/import settings data screen.
- (2) Select the file to be imported, and click [Open].
- (3) Click [Import settings data] to import the settings data to the TW-50.

Note: It will take a few minutes to import the settings data.



- (4) When the settings data has been successfully imported, the TW-50 will restart.

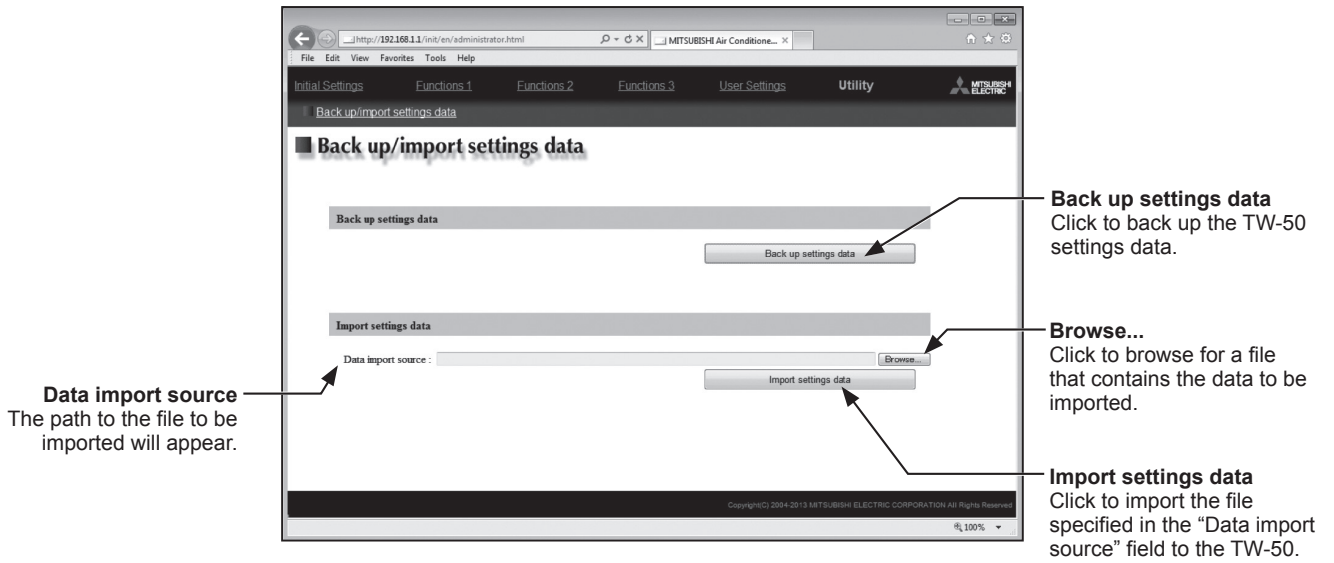




## 10-2-2. Web Browser for Initial Settings

Click [Utility] in the menu bar, and then click [Back up/import settings data] to access the Back up/import settings data screen.

Note: Back up/import settings data function is accessible only if logged in as a maintenance user.

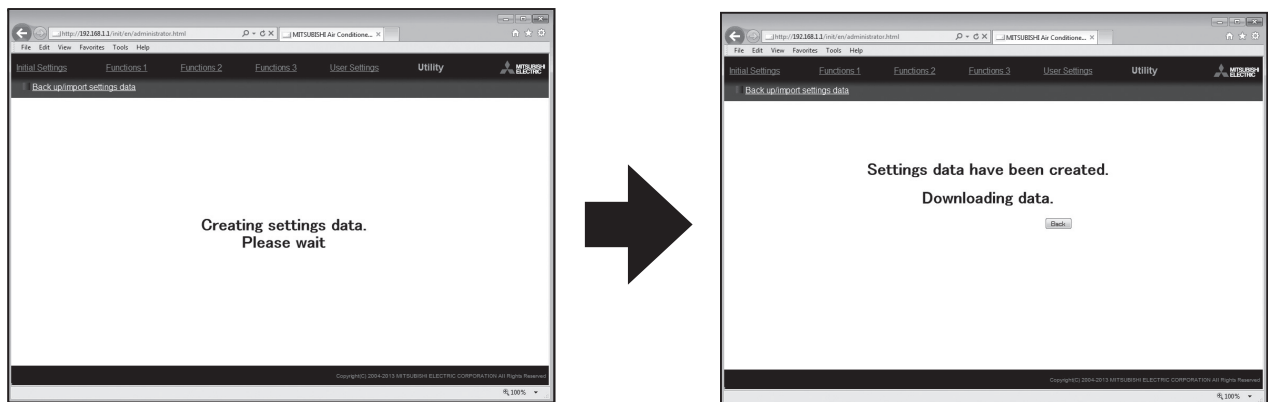


### [1] Backing up settings data

- (1) To back up the data, click [Back up settings data]. The settings data will be created and the Window's standard file download dialog will appear.

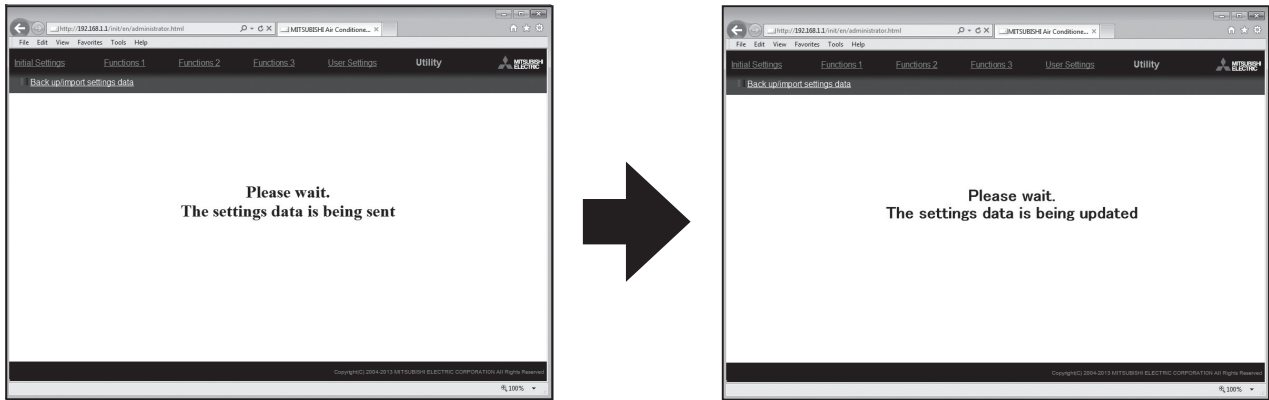
Note: It will take a few minutes to create the settings data.

Note: The name of the settings data will be "SettingData.dat".

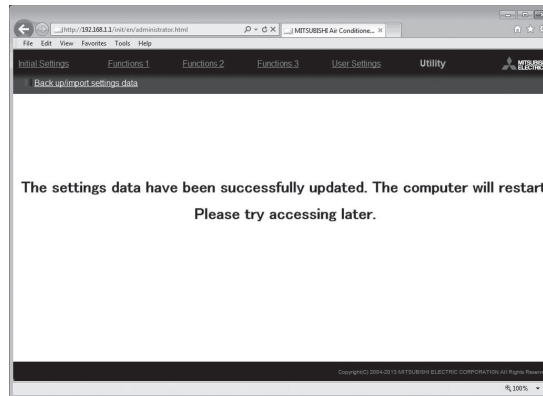


## [2] Importing settings data

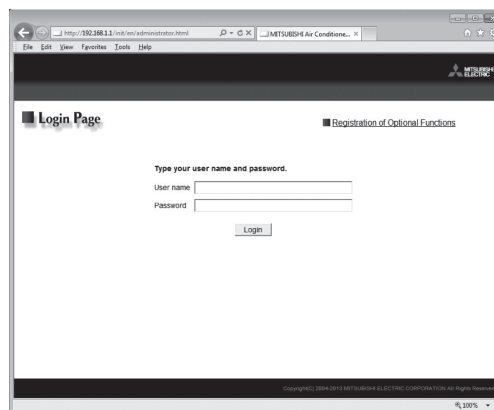
- (1) Click the [Browse...] button to launch the explorer and browse for a file that contains the data to be imported. Select the desired file, and click [Open]. The path to the file to be imported on an HDD will appear in the [Data import source] field.
- (2) Click [Import settings data] to import the data from an HDD to the TW-50.  
Note: It will take a few minutes to import the settings data.



- (3) When the settings data has been successfully imported, the TW-50 will restart.



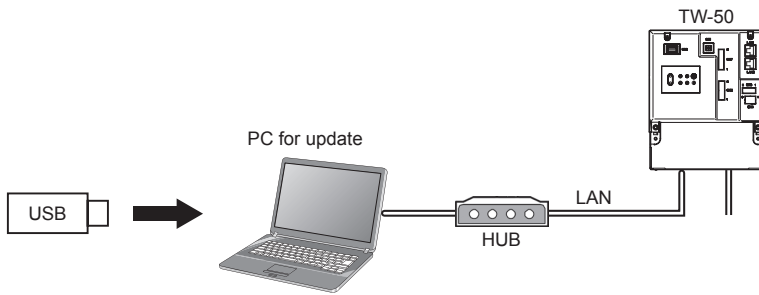
- (4) Go back to the login screen and login again.



### 10-3. Software update

Update TW-50 software. Prepare the update file so that all versions are standardized, without needing to load a previous software version.

The TW-50 software can be updated by using a Web browser.



Update the TW-50 software by using a Web browser.

**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

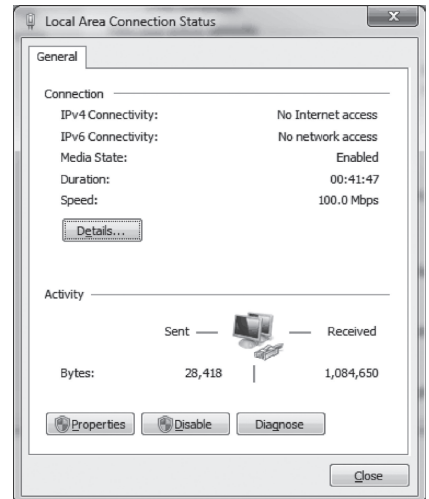
6. While the software is being updated, up to 60-minute worth of energy management data and billing function data will not be recorded.
7. When a TE-50/TW-50’s Pulse Input (PI) function is used, the pulse that is input while the software is being updated will not be counted.
8. A “6920” error may be 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.”

### 10-3-1. Preparation

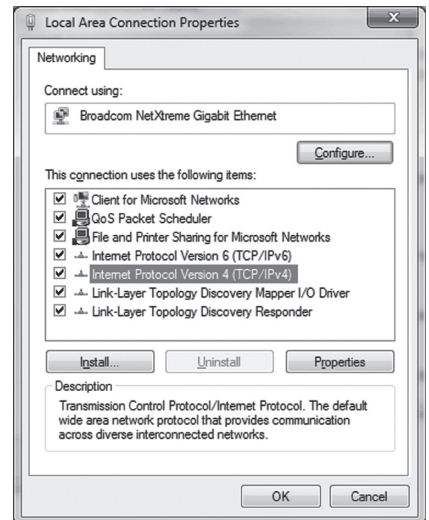
Follow the instructions below to change the IP address of the PC that is used for software update.

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].

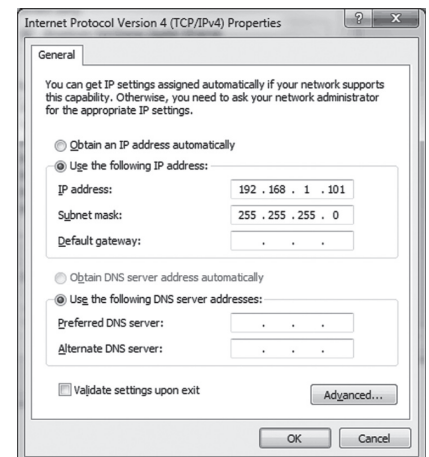


- (3) In the [Internet Protocol Version 4 (TCP/IPv4) Properties] window, check the radio button next to [Use the following IP address]. Enter [192.168.1.\*] in the [IP address] field. (The number indicated with an asterisk must be different from the IP address of the TW-50 to be updated.)  
Leave [255.255.255.0]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

Note: If the IP address of the TW-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 TW-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 TW-50 in the [IP address] field.

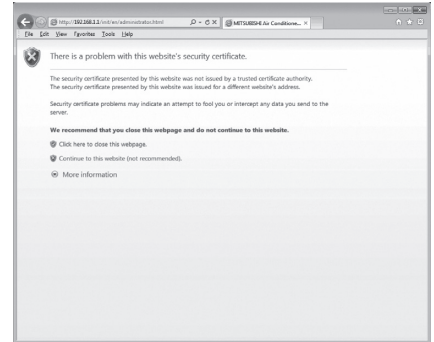


## 10-3-2. Update procedures

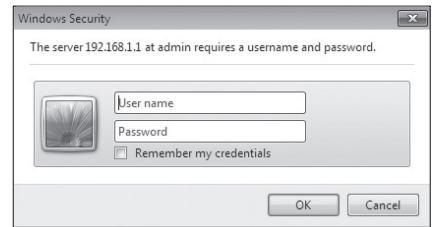
- (1) Make sure that the PC that has been set in section 10-3-1 above and the TW-50 to be updated are connected with a LAN cable.
- (2) Turn on the power to the TW-50, and insert a CD or USB memory device in which the update file is stored to the PC.
- (3) Enter the web page address in the address field of the Web browser as follows:  
**https://[IP address of each TW-50]/swupdate/Update.html**  
 Press the [Enter] key.

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

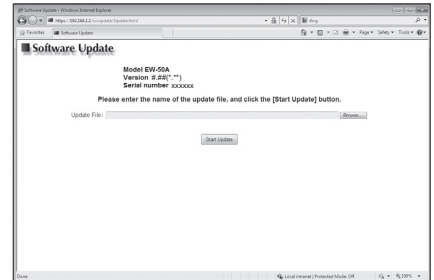
- (4) If the security certificate is invalid, a security certificate error page (as shown at right) will appear.  
 Click [Continue to this website (not recommended)].



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

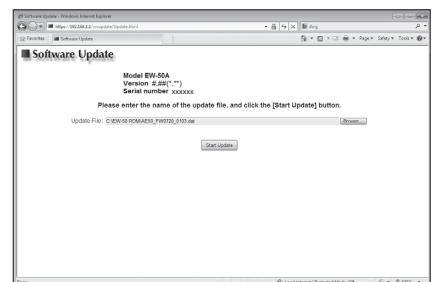
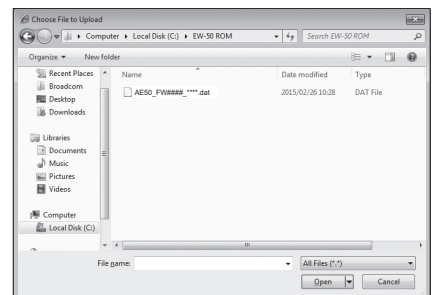


- (6) A software update screen will appear.



- (7) Click the [Browse...] button and select the update file (AE50\_#\_FW#####\_\*\*\*\*.dat) stored in the CD or USB memory device, and click [Start Update].

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

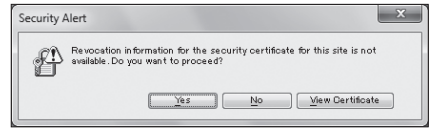


- (8) A software update process starts.

Note: It takes about ten minutes to complete the update.

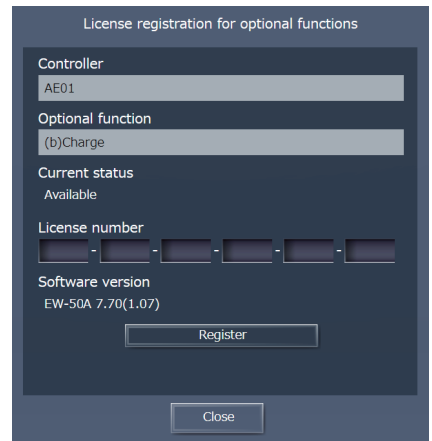
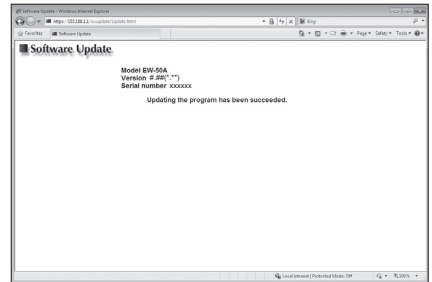
Note: Do not disconnect the LAN cable or turn off the power to the TW-50 while the software is being updated.

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



- (9) The TW-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 Web browser ([Settings]-[Initial Settings]-[Licence Registration]) 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 and Java cache. 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 TW-50 may be damaged. Consult your dealer.

### 10-4. 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/**

\* Enter the following default user name and password in the login screen.

Default user name	Default password
initial	init



SD and SDHC Logos are trademarks of SD-3C, LLC.



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.

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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**

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