

For Installation Company Use

For Maintenance and Inspection Use

**TABUCHI
ELECTRIC**

Model

TOD-BCU-PNUS2

Connection Box for EIBS16GU2 or EIBS16GU2+ (Storage Battery System)

Installation Manual

- The content of this Installation Manual is meant for installers.
- After installation/configuration, give this manual to the person responsible for maintenance and inspection and store it in a safe place.
- Also refer to the Inverter Installation Manual.


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- This product must be properly installed in order to perform and function according to specifications, and to ensure safety.
- Read all instructions prior to installing the product. Be sure to read the section titled "Safety Requirements" on page 2.
- To ensure safety, have a qualified person perform installation in accordance with all applicable laws and regulations.

Safety Requirements


Electrical wiring should be handled by a qualified person dispatched from the seller or installation company. Be sure to carry out installation according to the following precautions. Failure to do so may result in electric shock.

**DANGER**

Improper handling may lead to serious injury or death of the installer or user.





**WARNING**


Improper work may lead to serious injury or death of the installer or user.


**CAUTION**

Improper installation may lead to serious injury or death of the installer or user, and may cause physical damage.


The symbols used in this text have the following meanings:





| | | | |
|---|------------------------|---|--------------------------------------|
|  | Risk of electric shock |  | Be sure to connect the earth ground. |
|  | Prohibited |  | Notice |

**DANGER**




- **Turn the both Storage Battery Breakers, Inverter Output Breaker, and the Power Switch to "OFF" when installing the Connection Box.**
Failing to do so may result in electric shock.

**WARNING**



| | | | |
|---|---|--|--|
|  Prohibited | <ul style="list-style-type: none">• Do not operate when your hands or body are wet. Doing so may result in electric shock. | <div> Follow Instructions</div> | <ul style="list-style-type: none">• Wear electrically insulated rubber gloves when working with electrical wiring. Failure to do so may result in electric shock.• Use only the included parts or specified materials when installing and wiring the unit. Failure to do so may result in electric shock or cause a fire.• Leave all the Storage Battery Breakers, the Inverter Output Breaker and Power SW "OFF" when wiring or when the system is not being operated. Failure to do so may result in electric shock due to high voltage.• Use a dedicated crimp tool to crimp power cable terminals, and fasten to the specified torque. Failure to do so could result in electric shock or cause a fire. |
|  Disassembly Prohibited | <ul style="list-style-type: none">• Never install in a location that is not listed in the Installation Manual or Electric Wiring Work Manual. Never disassemble or modify the unit. Doing so may cause the unit to drop, or may result in electric shock or cause a fire. | | |
|  Equipment grounding conduct terminal | <ul style="list-style-type: none">• Make sure the equipment grounding is connected. Not doing so may cause electric shock or cause a fire. | | |

Safety Requirements (Continued)

WARNING

| | |
|---|---|
|  Prohibited | <p>Do not install in the following locations:</p> <ul style="list-style-type: none">• Do not install the Connection Box in locations where it may be exposed to steam. Doing so may damage insulation, resulting in fire or electric shock.• Do not install the Connection Box in regions where it may be exposed to salty conditions. (Locations that are within 500 m of coastlines or that are directly exposed to sea spray.)• Do not install the Connection Box in locations that may flood. Doing so may cause a fire or result in electric shock.• Do not install the Connection Box in locations that are very humid or that are poorly ventilated. Installation in a location with high humidity may damage insulation, resulting in fire or electric shock.• Do not install the Connection Box in locations that may become very hot (40° or higher) or that remain enclosed (such as in attics, closets, storage rooms, or under floors). Doing so may cause the output suppression function to run, reducing performance. It may also degrade parts, resulting in smoke or fire.• Do not install the Connection Box in locations in which oily smoke is emitted, such as in kitchens. Doing so may degrade electric circuits and parts, causing burnout or fire.• Do not install the Connection Box in locations where it may be exposed to corrosive gas or liquids (such as in chicken coops, barns, or places where chemicals are handled). Doing so may degrade parts, causing smoke or burnout.• Do not install the Connection Box in locations where it may be exposed to cold air. Doing so may cause frost to build up on the product, causing a short circuit or burnout.• Do not install the Connection Box upside down, sideways, or horizontally. Do not install it at an angle. Doing so may reduce internal ventilation, degrading parts and causing smoke or fire. |
|---|---|

CAUTION

| | |
|--|--|
|  Follow Instructions | <ul style="list-style-type: none">• Install the Connection Box in a location that adheres to the measurements listed in this manual. Otherwise, the product may be unable to ventilate properly. In addition to reducing performance, this may cause errors. |
|  Prohibited | <ul style="list-style-type: none">• Do not paint the Connection Box. Doing so may cause the temperature inside the enclosure to rise abnormally, resulting in errors.• Do not install the Connection Box between transmission antennas and residential receiver antennas. Depending on the installation location, this may cause reception problems with devices such as radios and television receivers.• Do not install in locations with strict noise restrictions.• Do not install in locations with strict electrical noise restrictions.• Do not install near medical instruments. Doing so may cause medical instruments to malfunction.• Do not install in near amateur radio antennas. |

Safety Requirements (Continued)

<Installer Qualifications>

This Installation Manual assumes knowledge related to handling electrical equipment.

Mounting, operating, servicing, and inspecting this product should be performed by a qualified service person according to regulations. "Qualified person" refers to someone who fulfills the following conditions:

- Has read this Installation Manual thoroughly and understands the content.
- Skilled in mounting, operating, servicing, and inspecting this electrical equipment, and understands its inherent dangers.
- Has received training on operating, servicing, and inspecting this electrical equipment.

<Precautions>

- Before handling, touch a metallic object to discharge static electricity.

Static electricity may cause the product to malfunction.

- Check the model number of each unit before installing:

Inverter : THD-S55P3BB-US or THE-S55P3BB-USW

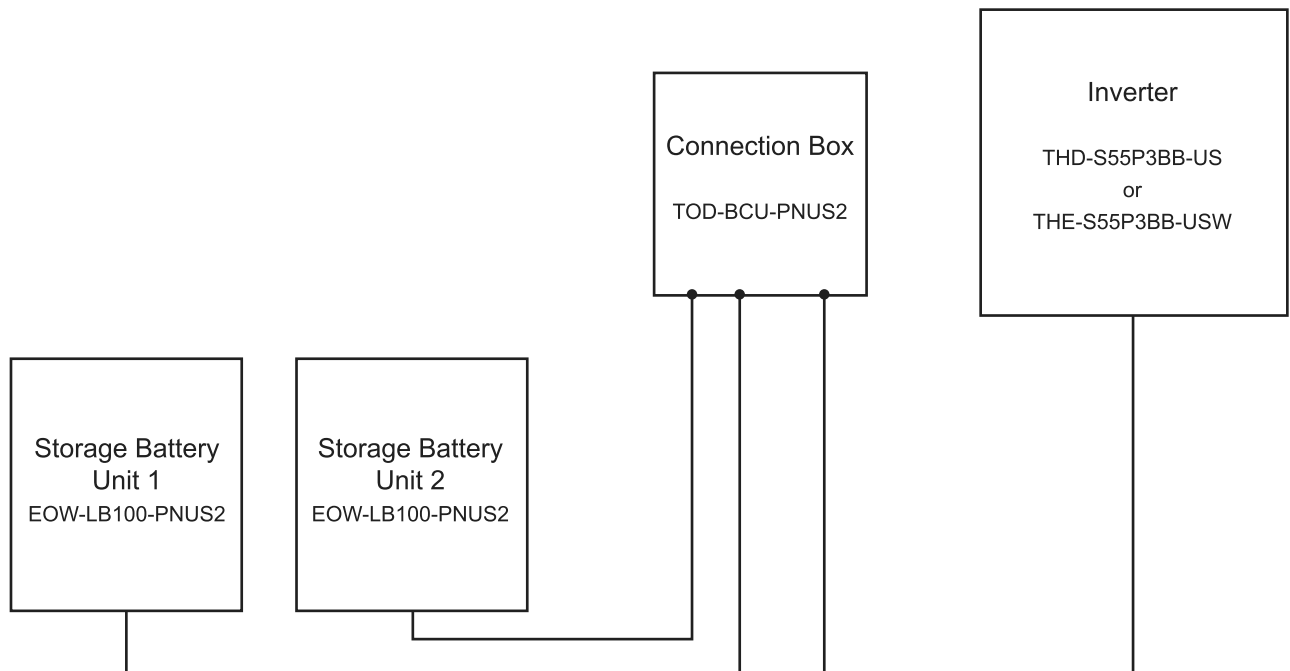
Storage Battery Unit : EOW-LB100-PNUS2

Connection Box : TOD-BCU-PNUS2

Overview

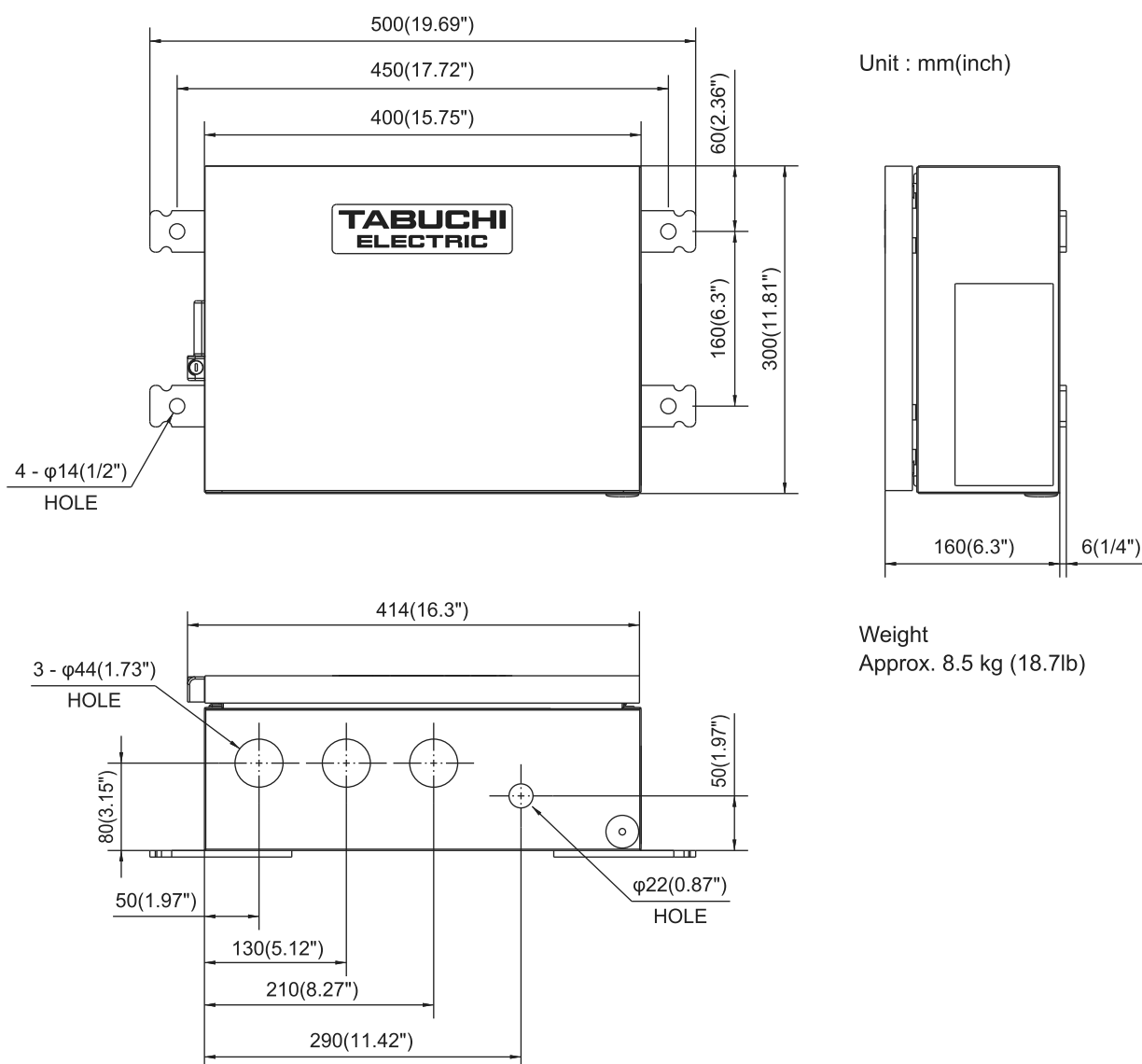
The Connection Box connects to 1 Inverter and 2 Storage Batteries.

<Connection Box Connection Example>



Dimensional Drawings and Parts

<Dimensional Outline Drawing>

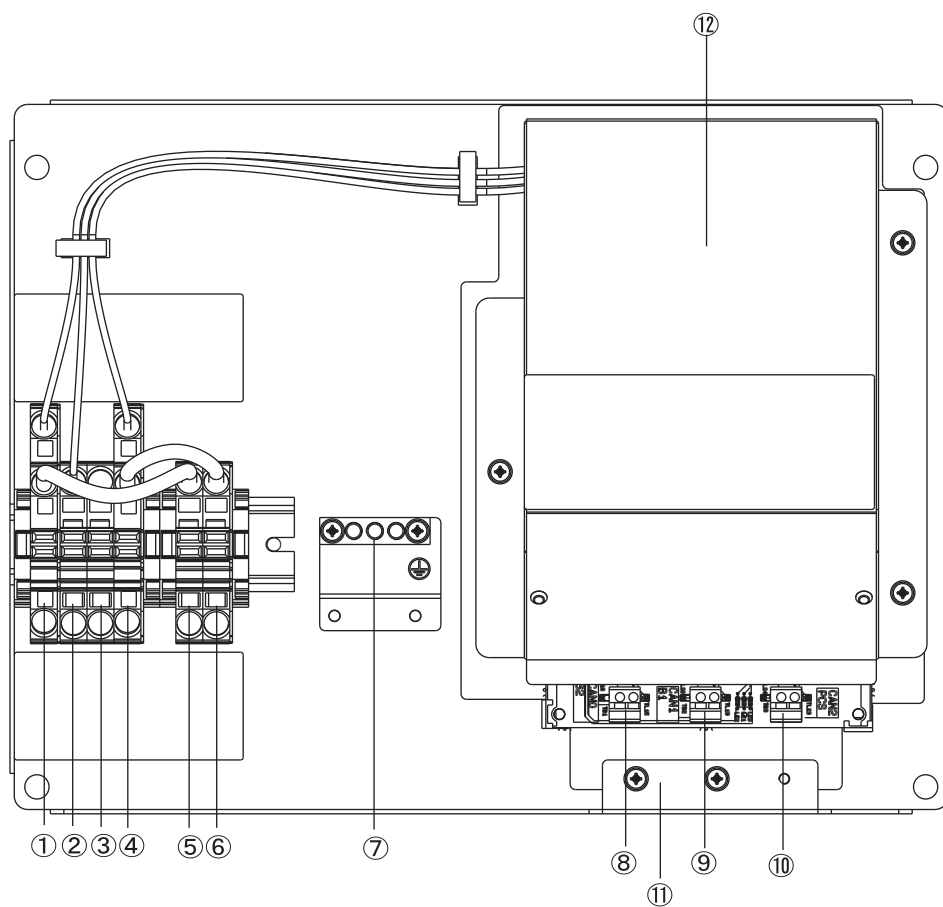


Included

| | |
|-----------------------------|---|
| Connection Box | 1 |
| Manual Download Information | 1 |
| Key | 2 |
| Communication Cable 1 (5 m) | 1 |
| Communication Cable 2 (5 m) | 1 |
| Battery Numbering Label | 1 |

Dimensional Drawings and Parts (Continued)

<Internal View>

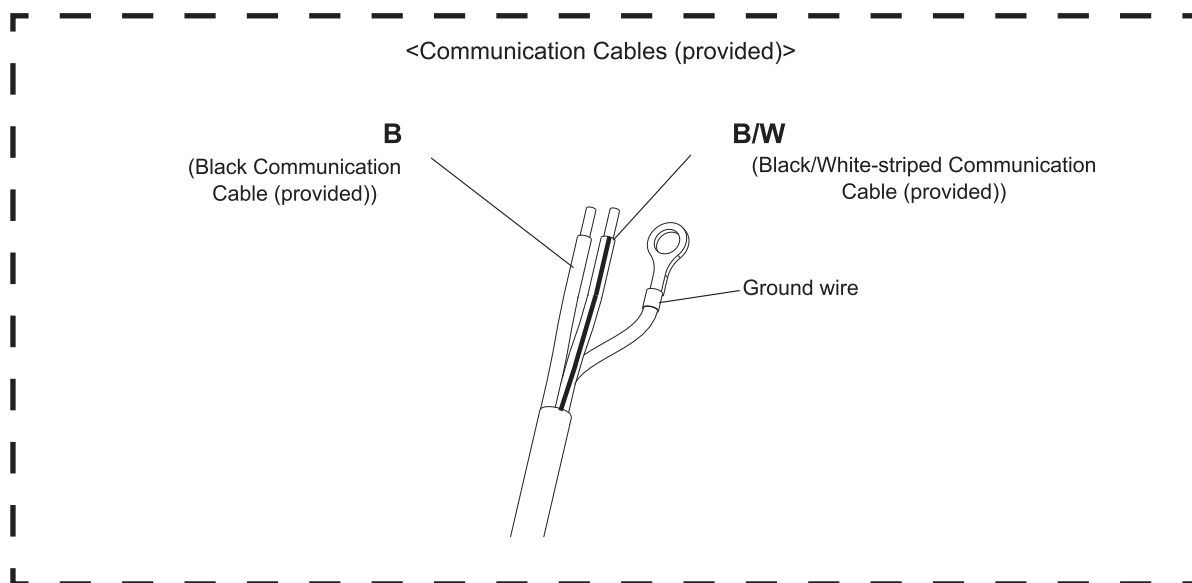
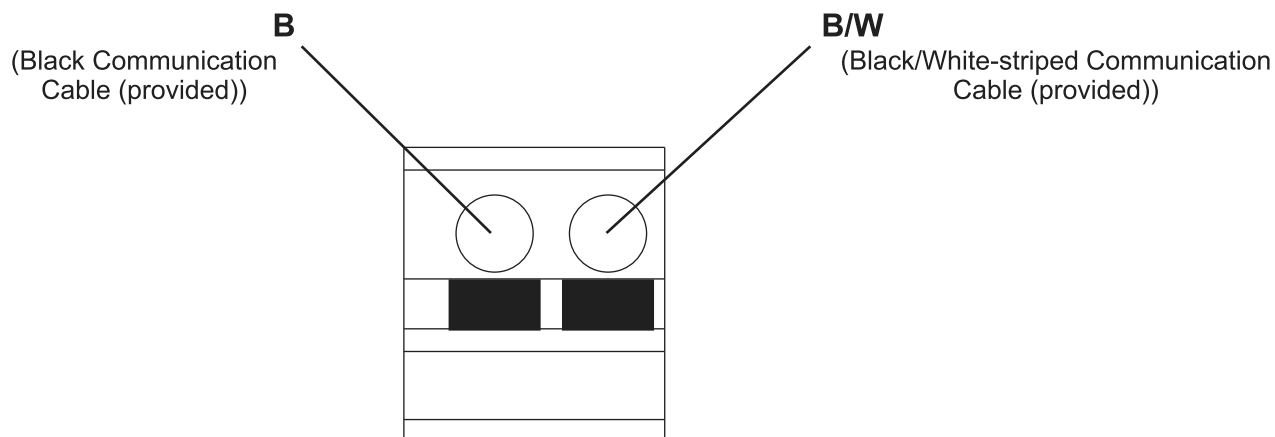


| Ref. No | Name | Description |
|---------|---------------------------------------|---|
| ① | Terminal + (Storage Battery Unit 1) | Connect to the + terminal of Storage Battery Unit 1 |
| ② | Terminal – (Storage Battery Unit 1) | Connect to the – terminal of Storage Battery Unit 1 |
| ③ | Terminal + (Storage Battery Unit 2) | Connect to the + terminal of Storage Battery Unit 2 |
| ④ | Terminal – (Storage Battery Unit 2) | Connect to the – terminal of Storage Battery Unit 2 |
| ⑤ | Terminal + (Inverter) | Connect to the + terminal of Inverter Battery Input |
| ⑥ | Terminal – (Inverter) | Connect to the – terminal of Inverter Battery Input |
| ⑦ | Frame GND | Connect to the ground terminal of Storage Battery Unit 1 & 2, Inverter |
| ⑧ | COM Terminal (Storage Battery Unit 1) | Connect to the COM terminal of Storage Battery Unit 1 |
| ⑨ | COM Terminal (Storage Battery Unit 2) | Connect to the COM terminal of Storage Battery Unit 2 |
| ⑩ | COM Terminal (Inverter) | Connect to the battery COM terminal on the inverter |
| ⑪ | Frame GND | Connect with the GND terminal of COM cable |
| ⑫ | Protective Cover | Only qualified technicians should remove the protective cover before servicing. |

<Terminal Definition>

Details regarding the terminal are shown below.


- ⑧ COM Terminal (Storage Battery Unit 1)
- ⑨ COM Terminal (Storage Battery Unit 2)
- ⑩ COM Terminal (Inverter)



Installation Preparation

Install the Connection Box as noted in the electrical diagram below.

<Note>

- Be sure to follow all warnings and precautions on  pages 2 - 4.

This Connection Box is for indoor use follow the environmental conditions listed below:

<Operating Conditions>

- Temperature:
32 to +104°F
0 to +40°C
- Humidity: 90% or lower
(with no condensation)
- Elevation:
1,000 m or lower
3,281 ft or lower

<Do not install under the following conditions.>

- Locations exposed to direct sunlight.
- Locations exposed to direct heat from devices such as stoves.
- Locations subject to vibrations.
- Near devices that may emit sparks.
- Locations with dust, corrosive gas, salt, or combustible gas.
- Locations with noise restrictions such as places where people are and where sound may reverberate (such as classrooms or libraries).
- Living space (locations regularly occupied by people).
- Locations where there is concern about the effect of high frequency noise from sources such as security cameras and radio.
- Locations that cannot be easily inspected.

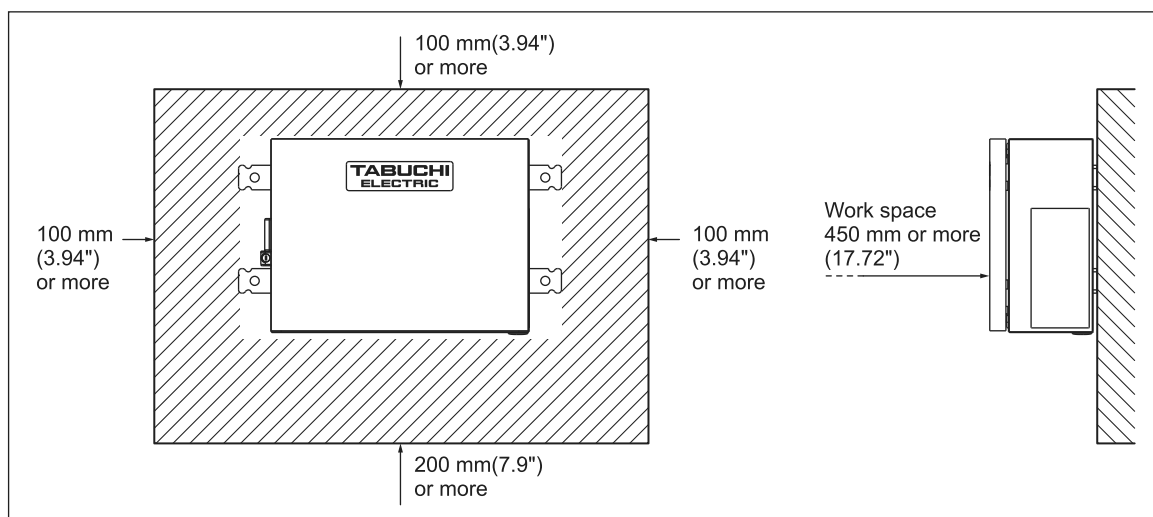
<Precautions>

- Confirm structure used for installation can support the weight of the Connection Box.

| Weight * |
|-------------------------|
| Approx. 8.5 kg (18.7lb) |

* Weight does not include mounting brackets or frames.

- Installer may prepare a reinforced plate for additional support.
- Install the Connection Box in a location with proper space for ventilation, operation, and inspection as shown in the diagram below.

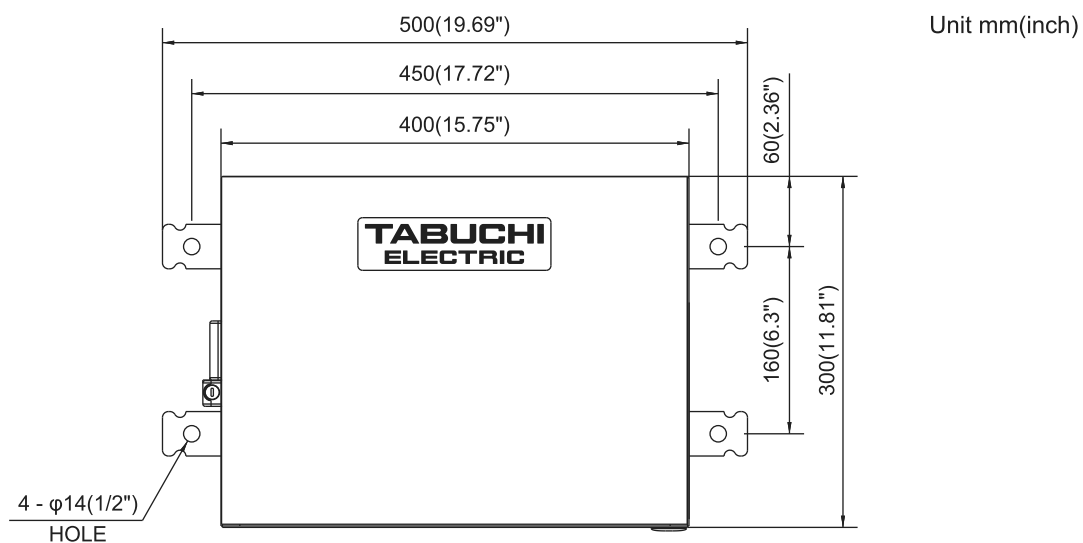


Installation Preparation (Continued)

<Installation hole positions>

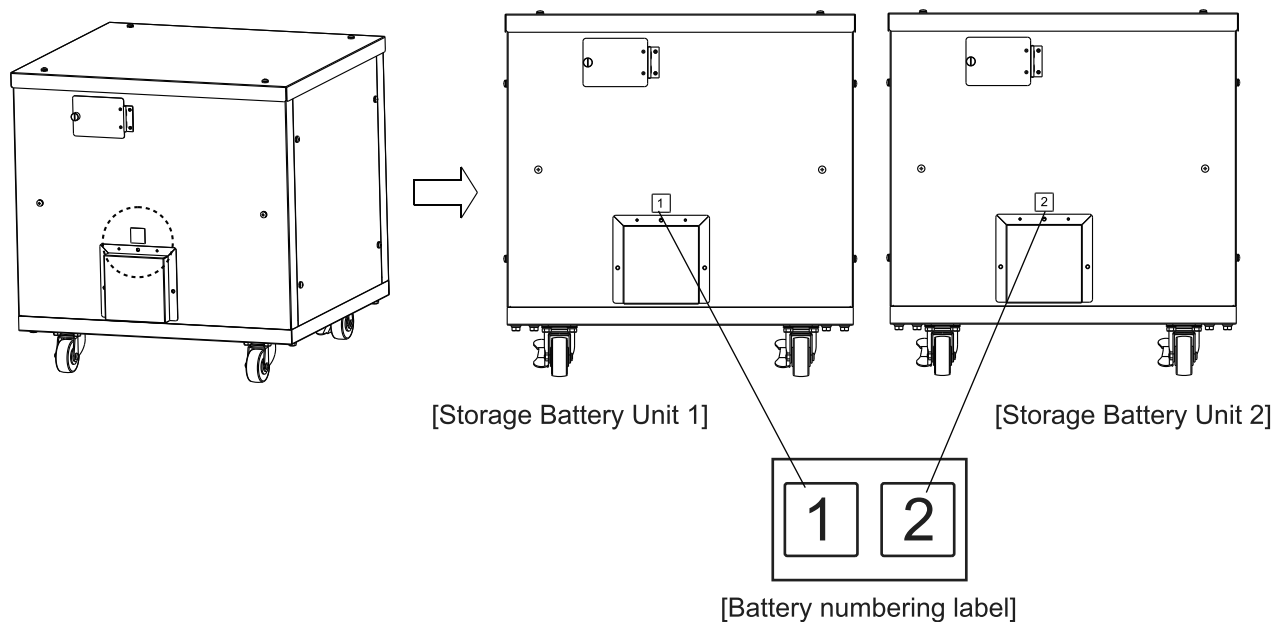
Fixing bolts positions

[When the mounting bracket is fixed in a lateral location]



<Numbering the Storage Battery Units>

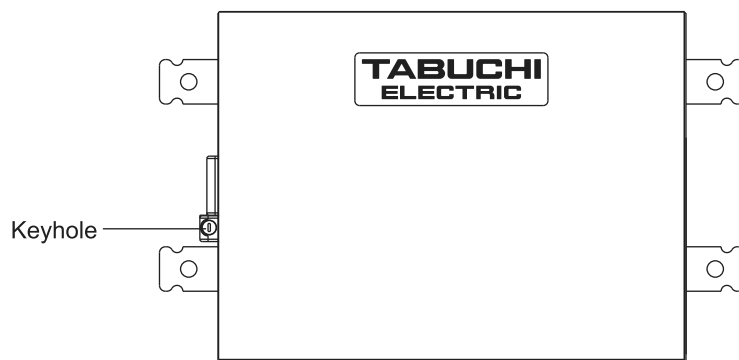
- Adhere numbering label "1" to either of the storage batteries.
- Adhere numbering label "2" to the unlabeled storage battery.
- Place the label in an area that is easily visible to the installer.



Installation

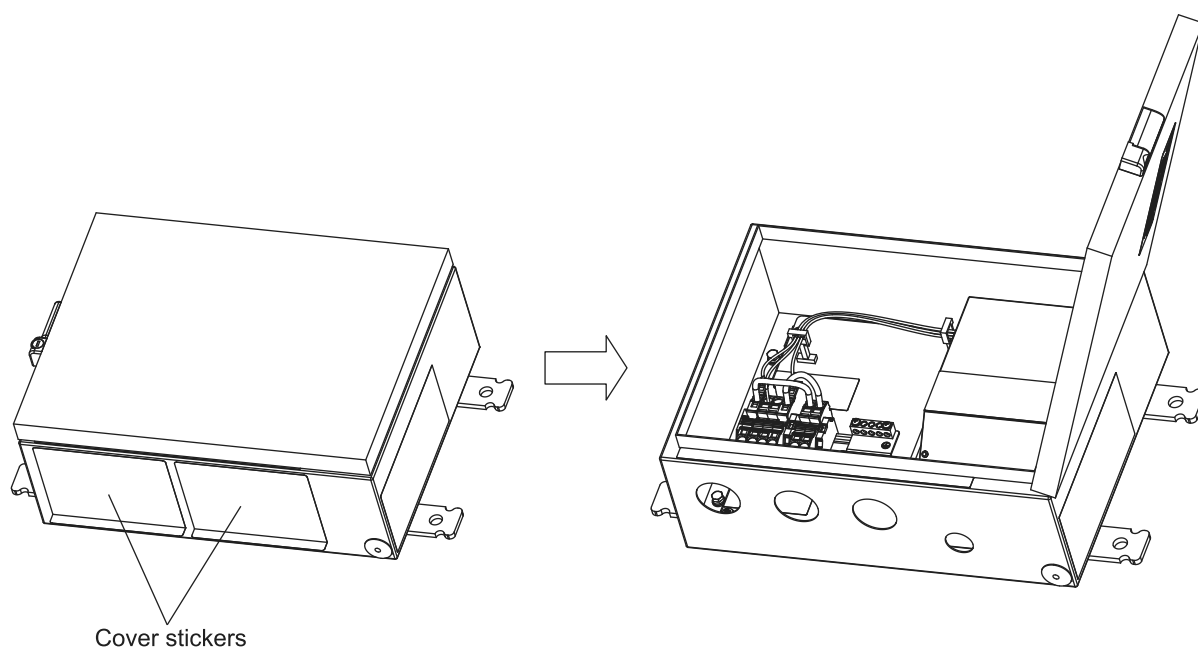
1 Open the front panel.

(1) Unlock and open the front panel.



2 Pull the cables into the Connection Box.

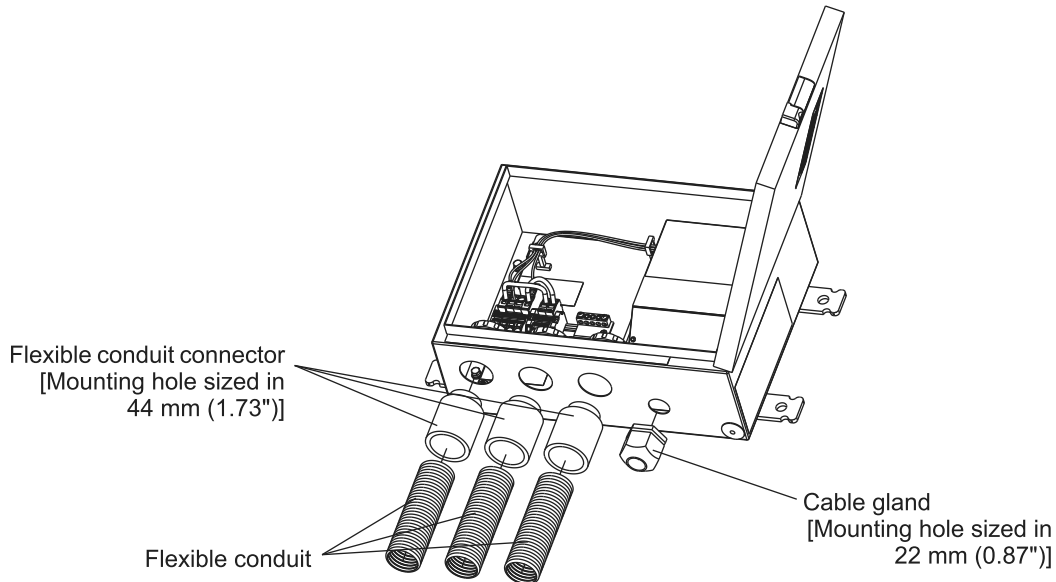
(1) Remove the cover stickers on the bottom panel for holes needed.



Installation (Continued)

(2) Connect 3 flexible plastic conduit connectors and 1 cable gland to the wiring openings.

- Use conduits and cable gland in compliance with applicable local laws and regulations.
- Suggested thread size of conduit connectors and the cable gland:
 - Conduit Connectors: 1 3/4"
 - Cable Gland: 1/2"



(3) Wiring and setting Storage Battery Unit 1 & 2.

- Finish wiring and setting Storage Battery Unit 1 & 2 according to the instruction of Storage Battery Unit Installation Manual.
- Use the Communication Cable 1 (provided) on Storage Battery Unit 1 which has been determined earlier, and use Communication Cable 2 (provided) on Storage Battery Unit 2.
- AWG #8 cables are recommended for power wiring between Storage Batteries and the Connection Box.

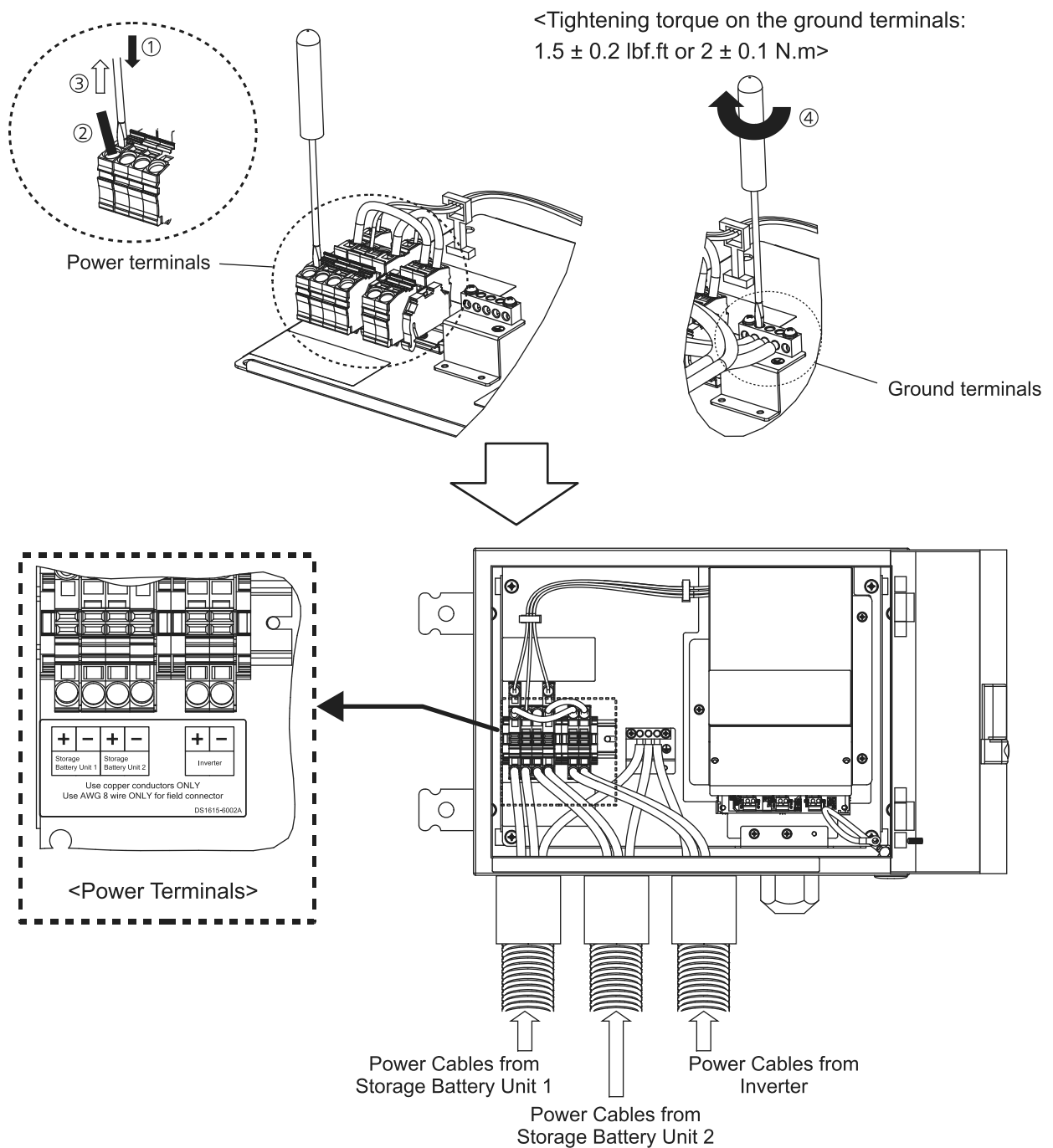
(4) Wiring and setting the Inverter.

- Finish wiring and setting the Inverter according to Inverter Installation Manual.
- AWG #8 cables are recommended for wiring between the Inverter and the Connection Box.

Installation (Continued)

(5) Wiring the power cables.

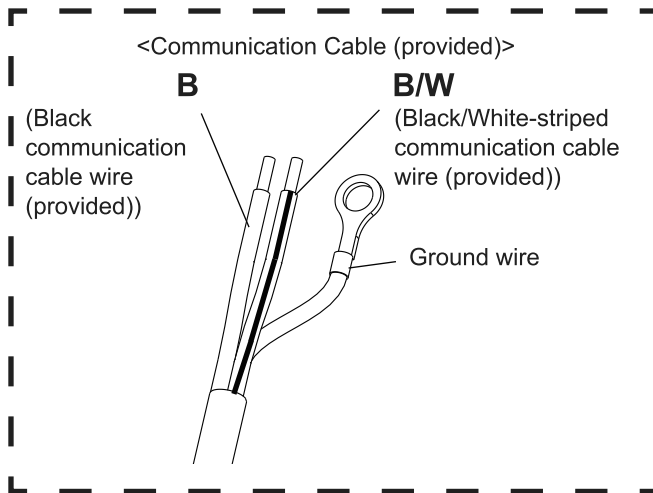
- Make sure that the switches on Storage Battery Unit 1, Storage Battery Unit 2, and the Inverter are in the OFF position before and during wiring.
- Use 5/32" slotted screwdriver to affix the power cables to the terminals.
 - ① Use the screwdriver to open the slot on the power terminal.
 - ② Put the cable into the slot.
 - ③ Remove the screwdriver and make sure the cable is properly fixed in the slot.
 - ④ Loosen the screw on the Ground terminals, put the cable in and then fasten the screws.
- Make sure all the cables are properly affixed to the correct location.
(Check if the "+" "-" "Storage Battery Unit 1" "Storage Battery Unit 2" "Inverter" match)
- Secure the power cables using the flexible conduits.



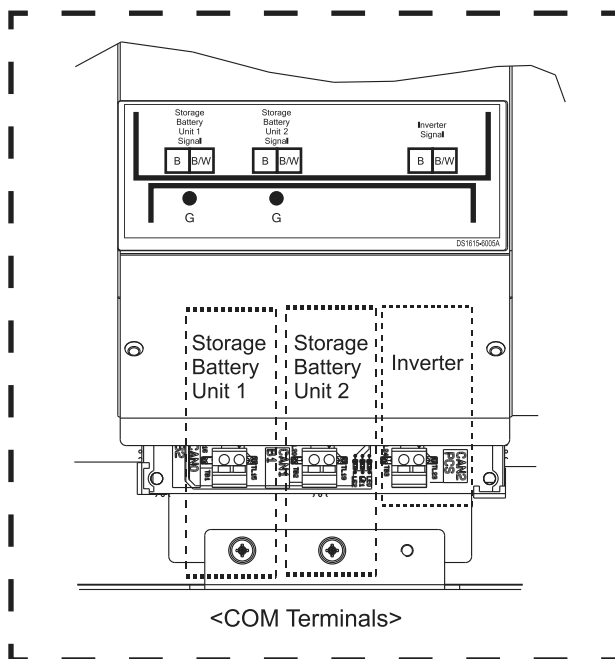
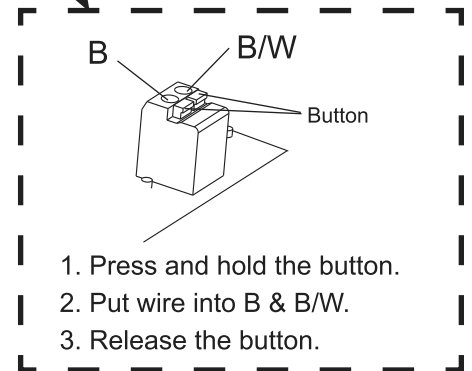
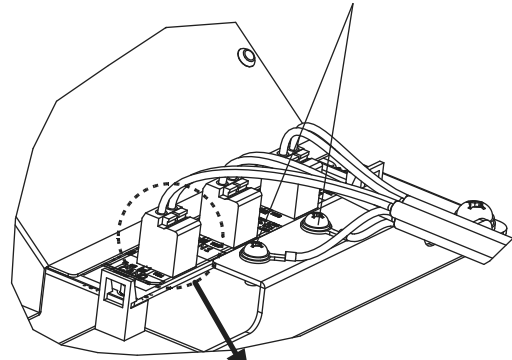
Installation (Continued)

(6) Wiring the communication cables.

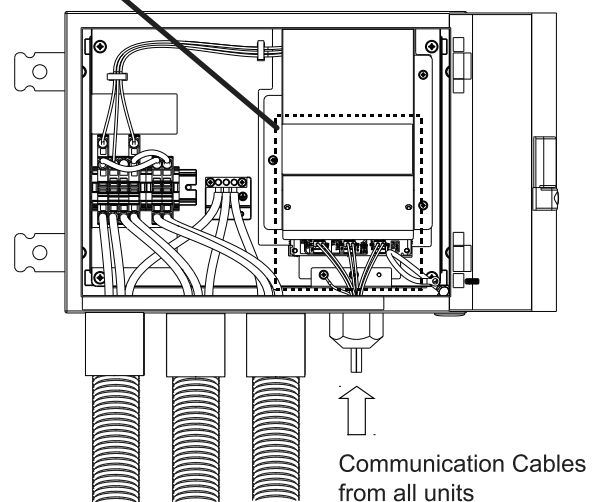
- Make sure that the switches on Storage Battery Unit 1, Storage Battery Unit 2, and the Inverter are in the OFF position before and during wiring.
- Wire and make sure all the cables are properly affixed to the correct location.
(Check to see if "B" "B/W" "Storage Battery Unit 1" "Storage Battery Unit 2" and "Inverter" match)
- Fix the communication cables using the cable gland.



Tightening torque to ground terminals:
 1.5 ± 0.2 lbf.ft or 2 ± 0.1 N.m



1. Wire the "BAT 1" side of Communication Cable 1 to Storage Battery Unit 1, and wire the "BOX 1" side to the Connection Box, COM Terminal "Storage Battery Unit 1".
2. Wire the "BAT 2" side of Communication Cable 2 to Storage Battery Unit 2, and wire the "BOX 2" side to the Connection Box, COM Terminal "Storage Battery Unit 2".
3. Wire the Communication Cable from Inverter to the Connection Box, COM Terminal "Inverter".



3 System commissioning.

- (1) Reconfirm that all connections in the Connection Box match the terminals in Storage Battery Unit 1 & 2, and the Inverter. Make sure that all connections are correct, especially on “+” “-” and the numbers on the Storage Battery Units.
- (2) Setup the Inverter according to the instruction in the Inverter Installation Manual.

4 Close the front panel.

- (1) Close and lock (suggested) the front panel of the Connection Box.

FCC Compliance

Note:

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 when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

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

Specifications

| Item | | Specification |
|---|--|---|
| Product name | | Connection Box |
| Model number | | TOD-BCU-PNUS2 |
| Dimensions | | W 500 mm x H 300 mm x D 166 mm (W 19.69" x H 11.81" x 6.54") |
| Operating Temperature | | 32°F ~ 104°F (0°C ~ 40°C) |
| Weight | | 8.5 kg (18.7 lb) |
| Installation location | | Indoors |
| DC Input rating from inverter | Nominal Range of input operating voltage | 120 V ~ 200 V |
| | Max. Input Voltage | 200 V |
| | Max. Input Current | 26 A |
| DC Input rating from storage battery system | Number of Connections | 2 Units |
| | Charging Output voltage operation range | 60 ~ 100 V (per unit) |
| | Max. Output Current | 26 A |

MEMO

[illegible]

MEMO

[illegible]

