

INSTALLATION MANUAL

Q.HOME CORE
H4/A4/H5/A5



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1 Information in this Manual




1.1 About This Manual

This is the installation manual for Q.HOME CORE H4 / A4 / H5 / A5. Please read this installation and user manual carefully before installing and operating Q.HOME CORE H4 / A4 / H5 / A5. It contains important safety instructions. The warranty will be void if you fail to follow the instructions in this manual.

1.2 Target Group

Electricians and qualified technicians who are allowed to install and to connect electrical systems.

1.3 Symbols Used in This Manual

| | |
|---|---|
|  WARNING | This symbol indicates a hazardous situation which could result in death or serious injury, if not avoided. |
|  CAUTION | This symbol indicates a hazardous situation which could result in minor or moderate injury, if not avoided. |
|  | Prohibited. |
| Note | This indicates valuable tips for installation of the product. |

2 Safety

The safety section may not include all regulations for your locale; personnel working with Q.HOME CORE H4 / A4 / H5 / A5 must review applicable federal, state and local regulations as well as the industry standards regarding this product.

2.1 Intended Use

Q.HOME CORE H4 / A4 / H5 / A5 is designed for residential use only. It should not be used for commercial or building. It is a single-phase, Grid-connected system of solar energy sources and Li-Ion Battery energy storage.

Q.HOME CORE H4 / A4 / H5 / A5 uses solar energy power connected to the input/output terminal installed on the side of the device in order to:

- charge the Li-Ion Battery energy storage,
- provide a supply to the household load, and
- convert direct current (DC) electricity of the Battery to alternating current (AC) to discharge as household single-phase load or electric system.

Inverters should not be installed in multiple phase combinations. This device should not be used for any purpose other than the purpose described in this installation manual. Any substitute use of this device, random change in any of its parts, and use of components other than sold or recommended by Q CELLS will nullify the product's guarantee.

For example, Q CELLS Li-Ion Battery energy storage should not be replaced by other manufacturer's Battery storages. For further information on proper use of this device, contact the Q CELLS Service-Hotline.

2.2 Safety Precaution

The following safety precautions and the warning messages described in this section must be observed. If any of the following precautions are not fully understood, or if you have any questions, contact the customer support for guidance.



- All work on the ESS and electrical connections must be carried out by qualified personnel only.
- High voltages in power conditioning circuits. Lethal hazard of electric shock or serious burns. Wear rubber gloves and protective clothing (protective glasses and boots) when working on high voltage/high current systems such as the inverter and battery systems.
- This product provides a safe source of electrical energy when operated as intended and as designed. But a potentially hazardous circumstance such as excessive heat or electrolyte mist may occur due to improper operating conditions, damage, misuse and/or abuse.
- Do not connect or disconnect PVs, batteries, and grid connectors with the power on. Otherwise, it may generate electric arcs or sparks, causing fire or injury.
- Do not open the enclosure while the inverter is operating. Touching live inner components may lead to electric shock, causing death or serious injury.
- Before maintenance, turn off the equipment and strictly comply with the safety precautions stated in this manual.



- This product is intended to be used for PV source inputs and residential home grids (AC 230V). If not used as intended, the protection provided by the equipment may be impaired.
- This product is designed appropriate for two-PV string structure. Therefore, the PV string 1 and PV string 2 must be connected to PV input 1 and PV input 2, respectively. Do not split one PV string output for connecting it into the PV input terminal 1 and input terminal 2.
- After disconnecting the inverter from the battery pack or PV, wait 5 minutes to discharge the inverter.
- Do not touch the PV cable when the product is connected to the PV arrays. When the photovoltaic array is exposed to light, it supplies DC voltage to the product.
- In case of short circuit, high-voltage components inside the inverter may influence the product or other properties. Cover the product or take other precautions to prevent metal objects from entering inside during installation and wiring.

2.3 Earth Fault Alarm

When an earth fault occurs, the inverter stops operation and the buzzer operates for 2 minutes.

Note: This feature is only supported on models released in Australia.

2.4 Neutral Continuity (only for Australia)

Regardless of the protection situation, the neutral line relay of Q.HOME CORE is always closed.

2.5 Product Safety Labels



Wear eye protection at all times (installation, maintenance, etc.)



Follow the instruction in this manual for service and replacement.



Caution: Risk of Electric Shock

Alternating current (AC) and direct current (DC) sources are connected to this device. To prevent risk of electric shock during installation or maintenance, ensure that all AC and DC connections are disconnected.



Caution: Hot Surface

Metallic parts of enclosure may be hot during operation.



Caution: Risk of Electric Shock

Hazardous voltage is still present 5 minutes after all power sources have been disconnected. Wait for at least 5 minutes before maintenance to prevent electric shock.



Warning: Explosion

Do not expose to heat or flame. Keep away from flammable substances.



Warning: Corrosive Substances Leaking

Do not disassemble or modify the battery. Otherwise, corrosive substances may leak.

2.6 Disposal

Disposal of Q.VOLT



- When this crossed-out wheeled bin symbol is attached to a product, it means the product is covered by the European Directive 2002/96/EC.
- All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
- The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
- For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

Disposal of Q.SAVE



- When this crossed-out wheeled bin symbol is attached to batteries/accumulators of your product, it means they are covered by European Directive 2006/66/CE.
- This symbol may be combined with chemical symbols for mercury(Hg), cadmium(Cd) or lead(Pb) if the battery contains more than 0.0005% of mercury, 0.002% of cadmium or 0.004% of lead.
- All batteries/accumulators should be disposed separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
- The correct disposal of your old batteries/accumulators will help to prevent potential negative consequences for the environment, animal and human health.
- For more detailed information about disposal of your old batteries/accumulators, please contact your city office, waste disposal service or the shop where you purchased the product.

3 Product Overview

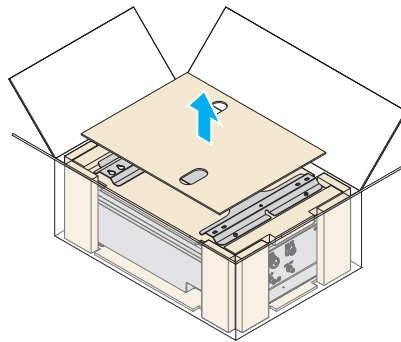
Q.HOME CORE H4/A4/H5/A5 includes the inverter, battery charger/discharger, li-ion battery, and EMS. The basic operating modes consist of stand-alone (back-up) mode, PV generation mode, PV generation and charge/discharge mode. The operation mode of this product is automatically determined by the EMS algorithm.

3.1 Unpacking

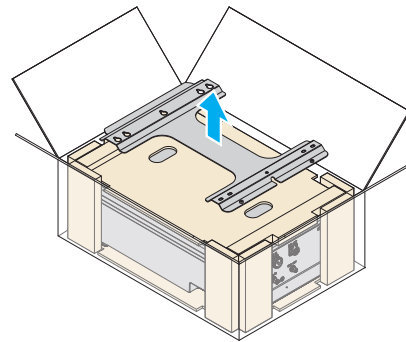


The Q.VOLT weighs about 37.5 kg (H4/H5) or 33.9 kg (A4/A5), and Q.SAVE weighs about 61.1 kg. Therefore, special care is required when handling. At least two people have to carry and take it out.

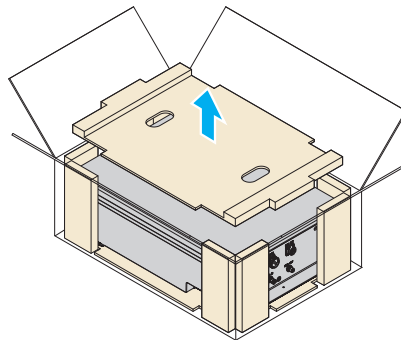
1 Open the box and remove the top pad.



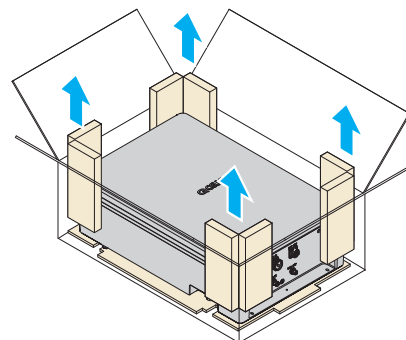
2 Take the mounting bracket out of the box.



3 Remove the middle pad.

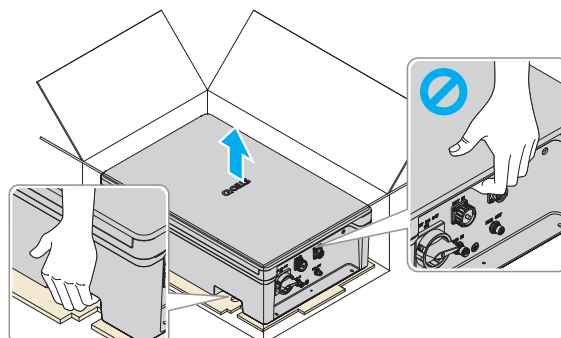


4 Remove the side pads.



5 Take the product out of the box.

- When lifting the product, do NOT hold the cover. Hold the slots on both sides of the product to lift it.



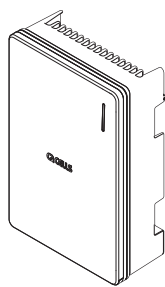
3.2 Package Contents

Check for any damages that may have occurred during transportation. If there is any damage to the product or packaging, please contact your supplier immediately.

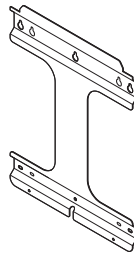


Do not operate with other components not approved by Q CELLS. (Connecting other products to Q CELLS products may result in abnormal operation.)

Q.VOLT Package Contents



Q.VOLT (Inverter): 1EA



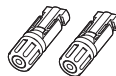
Mounting bracket 1EA



Quick guide: 1EA



PV stick (+): 2EA



PV stick (-): 2EA



Wall mount bolt & anchor:
6EA



Bracket mount bolt (M6):
2EA

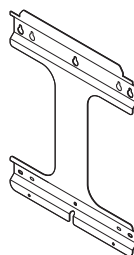
Note

PV stick is included only in H4 / H5 models.

Q.SAVE Package Contents



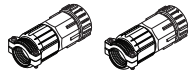
Q.SAVE (Battery): 1EA



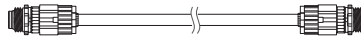
Mounting bracket: 1EA



Quick guide: 1EA



Battery power connector:
2 EA



BMS (Battery Management System)
communication cable: 1 EA

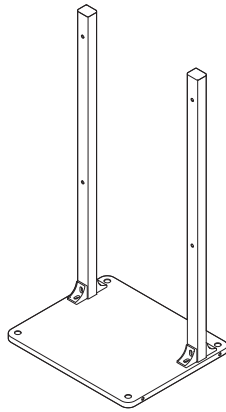


Wall mount bolt & anchor:
6 EA



Bracket mount bolt (M6):
2 EA

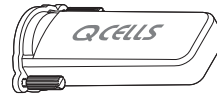
Options



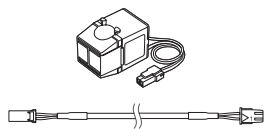
Stand for floor mount



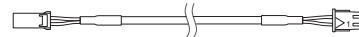
Wi-Fi dongle



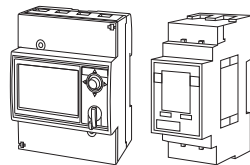
Wi-Fi/LTE waterproof cover



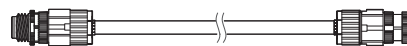
CT (Current Transformer)
& CT cable (3m)



CT cable (20m)

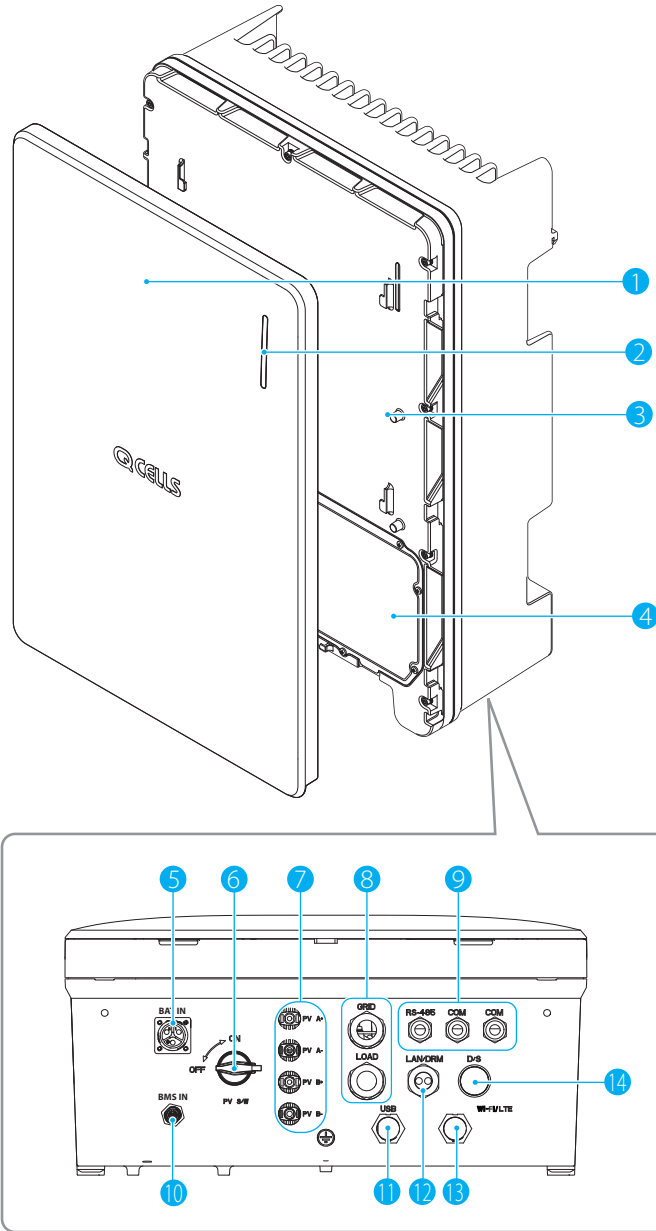


Energy Meter (EM24, EM112)



BMS comm. extension cable (1m)

3.3 Q.VOLT Overview

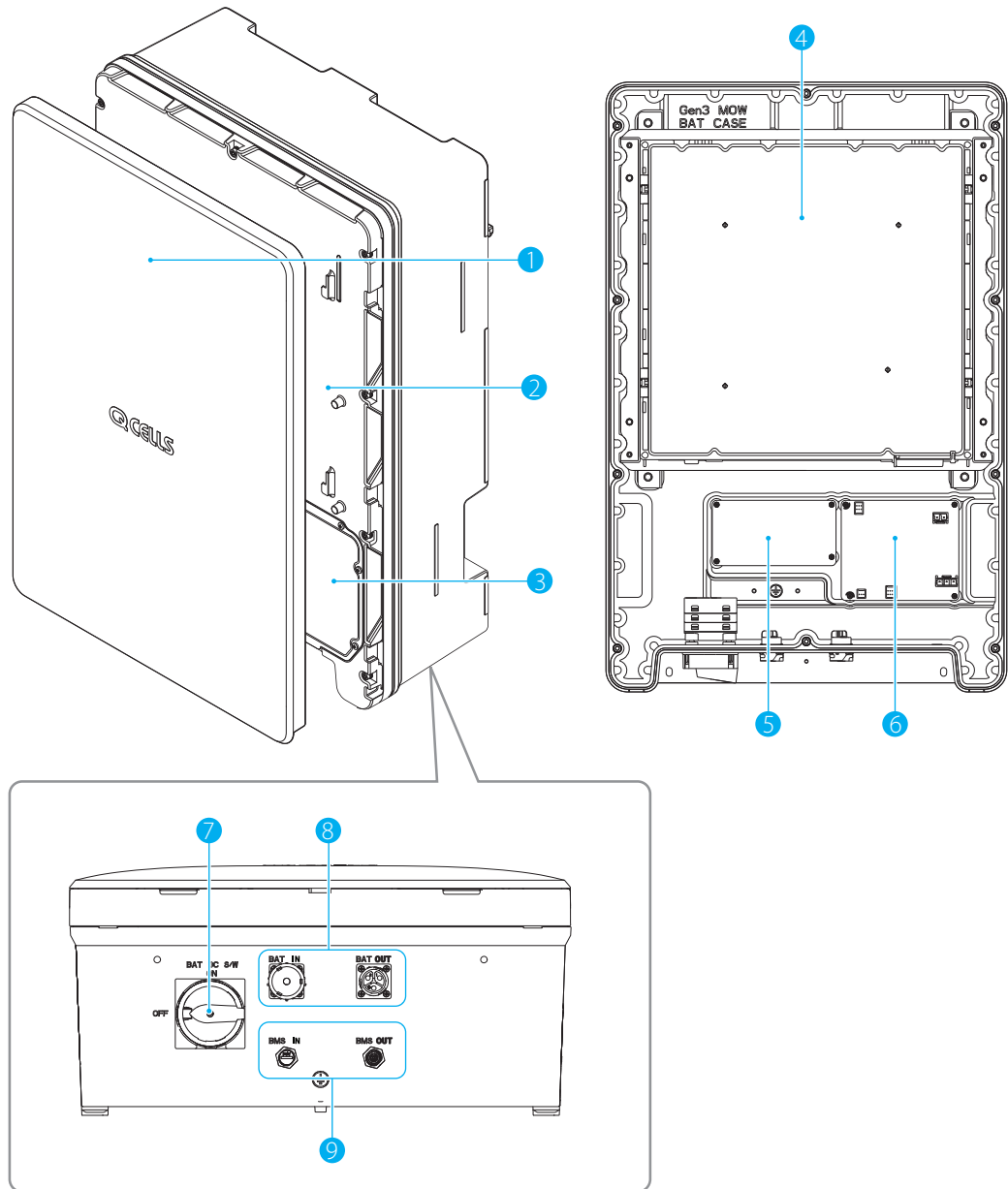


- | | |
|-------------------------------|----------------------------|
| 1 Front cover | 8 Grid and Load port |
| 2 LED indicator | 9 Communication port |
| 3 Inner cover | 10 BMS Connector |
| 4 Wiring cover | 11 USB Port |
| 5 Battery power connector | 12 LAN / DRM port |
| 6 PV switch | 13 Wi-Fi / LTE Dongle port |
| 7 PV connector (H4 / H5 only) | 14 Dark Start switch |

Note

For information about how to open the covers, see "7 Opening the Covers" on page 29.

3.4 Q.SAVE Overview



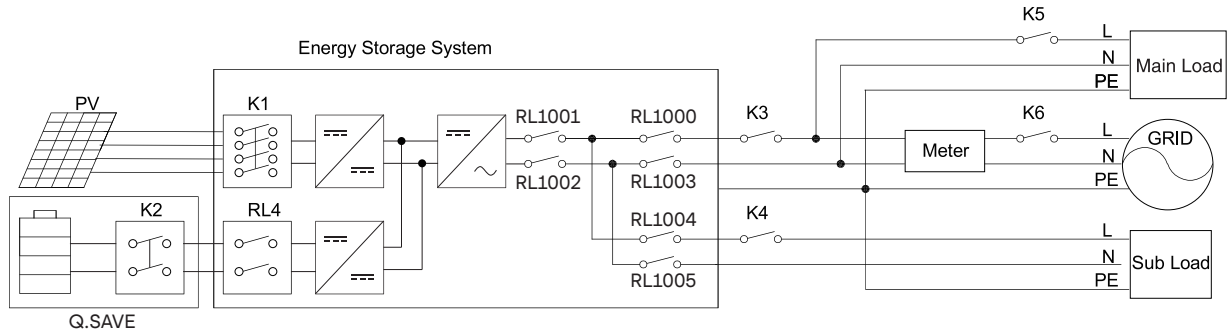
- 1 Front cover
- 2 Inner cover
- 3 Wiring cover
- 4 Battery module
- 5 Relay board
- 6 BMS board
- 7 Battery DC Switch
- 8 Battery Power Connector
- 9 BMS Connector

3.5 Specifications

| | H4 | A4 | H5 | A5 |
|---|---|-------------|----------------------------|-------------|
| GENERAL PRODUCT INFORMATION | | | | |
| Dimensions Inverter Module / Battery Module (W × H × D) [mm] | 460 × 700 × 221, 238 (From Wall) | | | |
| Weight Inverter Module / Battery Module [kg] | 37.5 / 61.1 | 33.9 / 61.1 | 37.5 / 61.1 | 33.9 / 61.1 |
| Operating Temperature Range [°C] | Q.VOLT: -20 to +60 / Q.SAVE: -10 to +45 | | | |
| Relative Humidity [%] | 4 to 100 (Condensing) | | | |
| Protection Degree / Class | IP65 | | | |
| Mounting | Wall-Mounted or Floor-Mounted Options | | | |
| Max. Operating Height without Power Loss [m] | 2,000 | | | |
| Cooling Method | Natural air cooling | | | |
| Product Warranty / Performance Warranty | 15 / 15 years | | | |
| Noise Emissions | ≤40 dB (A) @ 1m | | | |
| Over Voltage Category | OVC II (DC) / OVC III (AC) | | | |
| Communications | LAN, RS485, CAN, Wi-Fi(optional), LTE(optional) | | | |
| Remote Monitoring | Web, Mobile & App | | | |
| Software Update | Online update | | | |
| Energy Management System | Integrated | | | |
| Country of Manufacturer | Republic of Korea | | | |
| PV DATA (DC) | | | | |
| Max. Input Usable Power [kWp] | 8.0 (4.0 per MPPT) | N/A | 8.0 (4.0 per MPPT) | N/A |
| Max. Input Voltage [V _{DC}] | 600 | | 600 | |
| Start Input Voltage / MPP Voltage Range [V] | 120 / 90 to 550 | | 120 / 90 to 550 | |
| Number of Independent MPPTs | 2 | | 2 | |
| Number of DC Input Pairs per MPPT | 1 | | 1 | |
| Max. Input Current per MPPT / Max. Short Circuit Current per MPPT [A] | 15 / 20 | | 15 / 20 | |
| DC Connection Type | MC4 | | MC4 | |
| GRID DATA (AC) | | | | |
| Max. Apparent Power / Rated Output Power [kVA / kW] | 5 (4.6 for DE) / 5 (4.6 for DE) | | 5 / 5 | |
| Nominal Voltage / Range [V] | 230 / 184 to 264 | | 230 / 180 to 260 | |
| Nominal Grid Frequency / Range [Hz] | 50, 60 / -5Hz to +5Hz | | | |
| Feed-in Phases / Connection Phases | Single / Single | | | |
| Nominal Current / Max. Current / Max. Over-Current Protection [A] | 21.7 / 25 / 30 (20 / 25 / 30 for DE) | | 21.7 / 25 / 30 | |
| Power Factor Range | 0.95 lagging to 0.95 leading | | 0.8 lagging to 0.8 leading | |
| Total Harmonic Distortion [%] | ≤5 | | | |
| BACKUP POWER OUTPUT (ALTERNATING CURRENT) | | | | |
| Connection Phases | Single | | | |

| | H4 | A4 | H5 | A5 |
|--|---|--|---|------------|
| Rated Apparent Power / Rated Power(Only Battery) [kVA / kW] | 3.3 to 4.5/ 3.3 to 4.5 @ 1 Battery Pack 5/5 (DE: 4.6) @ 2 Battery Pack | 3.3 to 4.5/ 3.3 to 4.5 @ 1 Battery Pack 5 (DE: 4.6)/ 5 (DE: 4.6) @ 2 Battery Pack | 3.3 to 4.5/3.3 to 4.5 @ 1 Battery Pack 5/5 @ 2 Battery Pack | |
| Rated Apparent Power / Rated Power (With PV) [kVA / kW] | 5 (4.6 for DE) / 5 (4.6 for DE) (max) | | 5/5 (max) | |
| Rated Voltage [V] | 230 | | | |
| Rated Frequency [Hz] | 50, 60 | | | |
| Switch over Time to Backup Power | less than 0.1 seconds | | | |
| Support by PV during Backup Power Operation | YES | | | |
| EFFICIENCY | | | | |
| MPPT Efficiency [%] | 99.9 | N/A | 99.9 | N/A |
| Max. Efficiency (PV to Grid) [%] | 97 | | 97 | |
| Max. Efficiency (PV to Battery) [%] | 97.8 | | 97.8 | |
| Max. Efficiency (Battery to Grid) [%] | 96.3 | | | |
| BATTERY UNIT (DC) | | | | |
| Battery Technology | Lithium-ion | | | |
| Battery Energy [kWh] | 6.8 / 13.7 / 20.5 (6.86 kWh / pack) | | | |
| Battery Usable Energy [kWh] | 6.51 / 13.03 / 19.55 | | | |
| Max. Charge Power [kW] | 2.8 to 3.8 @ 1 Battery Pack 5 @ 2 Battery Pack | 2.8 to 3.8 @ 1 Battery Pack 5 (DE: 4.6) @ 2 Battery Pack | 2.8 to 3.8 @ 1 Battery Pack 5 @ 2 Battery Pack | |
| Max. Discharge Power [kW] | 3.3 to 4.5 @ 1 Battery Pack 5 (DE: 4.6) @ 2 Battery Pack | | 3.3 to 4.5 @ 1 Battery Pack 5 @ 2 Battery Pack | |
| Converter Technology | Non-isolated | | | |
| Rated Battery Voltage / Battery Voltage Range [V _{DC}] | 202.8 / 168.0 to 228.2 | | | |
| Maximum Charge / Discharge Current [A] | 16.9 / 20 | | | |
| Depth of Discharge (DoD) [%] | 95 | | | |
| CERTIFICATES AND APPROVALS | | | | |
| Inverter Model Name | Q.VOLT H4.6S | Q.VOLT A4.6S | Q.VOLT H5S | Q.VOLT A5S |
| Battery Model Name | Q.SAVE B6.8S | | | |
| Certificates and Approvals | VDE-AR-N 4105:2018, CE, IEC 62109-1, IEC 62109-2, IEC 62040-1, IEC 62619, IEC 62477-1, EN 61000-6-2, EN 61000-6-3, IEC 60068.2- 52, EN 60730-1 ANNEX.H | | AS/NZS 4777.2:2020, CE, IEC 62109-1, IEC 62109-2, IEC 62040-1, IEC 62619, IEC 62477-1, EN 61000-6-2, EN 61000-6-3, IEC 60068.2- 52, EN 60730-1 ANNEX.H | |

3.6 MEN Link (only for Australia)

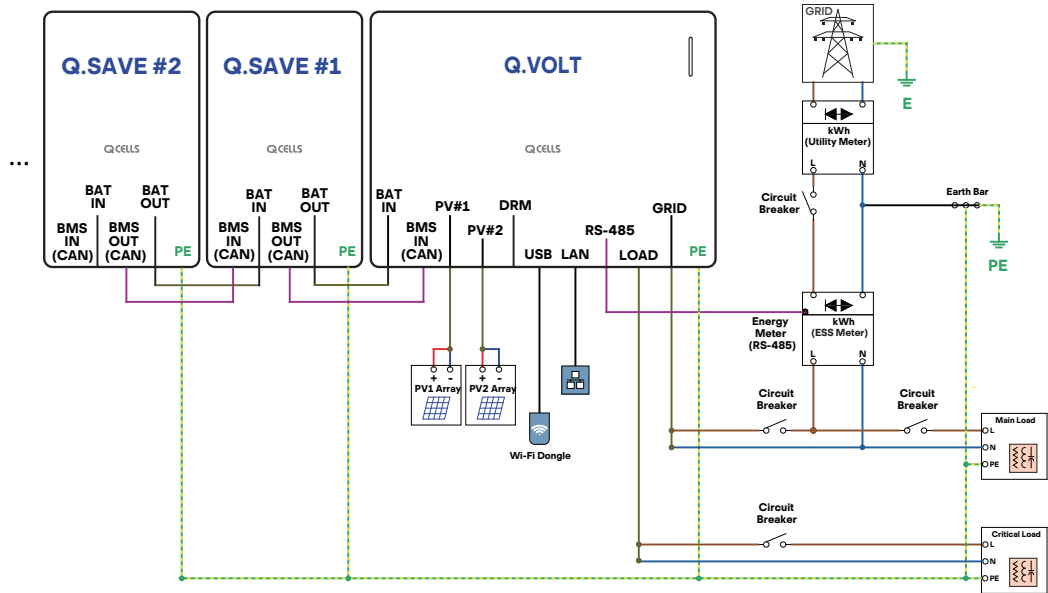


| | |
|--------------------------------|------------------------|
| K1: PV input DC switch | K4: Sub load breaker |
| K2: Battery DC switch and fuse | K5: Main load breaker |
| K3: Grid breaker | K6: Total grid breaker |

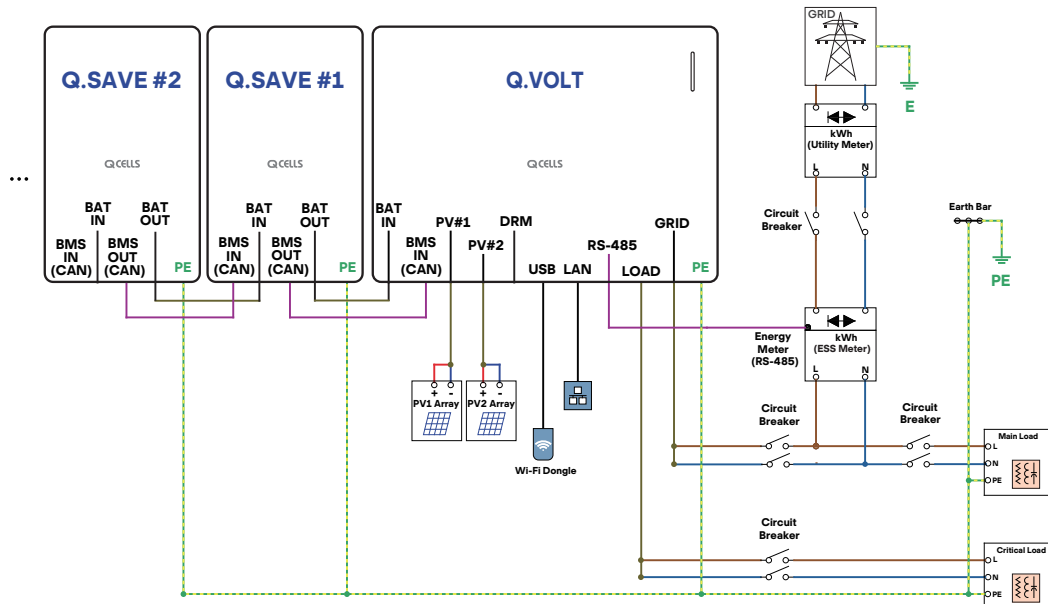
MEN Link: The inverter maintains connection for the internal relay (RL1002, RL1003, RL1005) on neutral wire when entering the off-grid mode.

3.7 Network System Diagram for H4 / H5

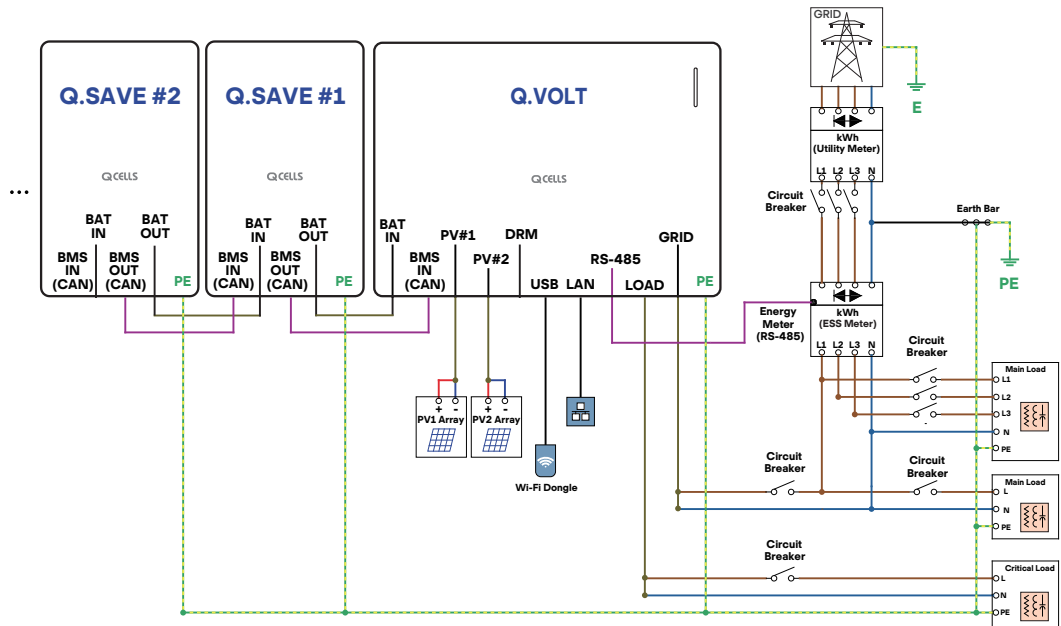
TN-S Network System (Single-Phase)



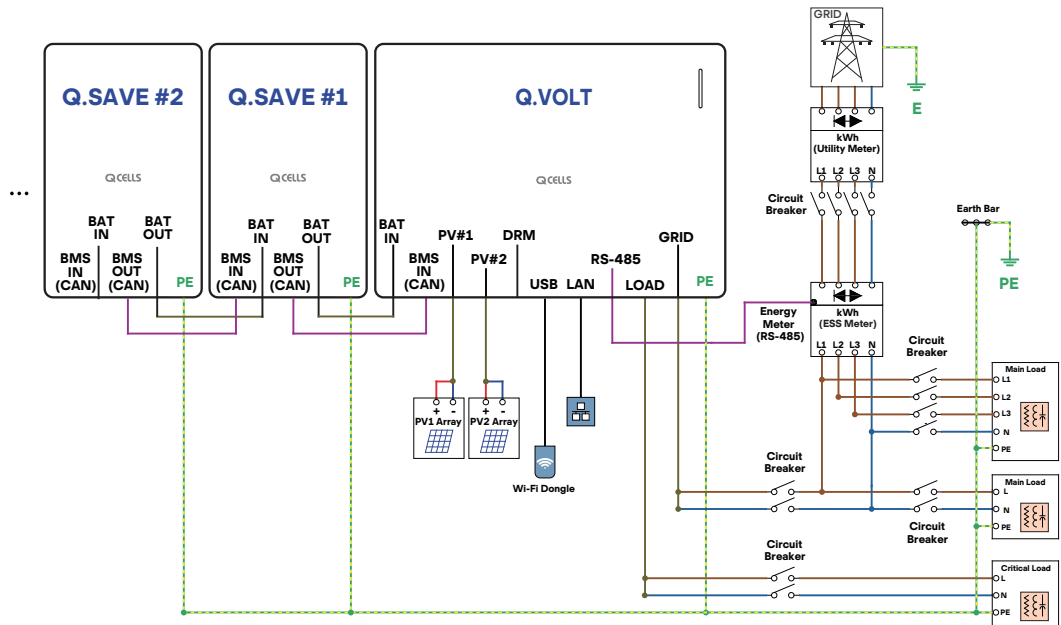
TT Network System (Single-Phase)



TN-S Network System (Three-Phase)

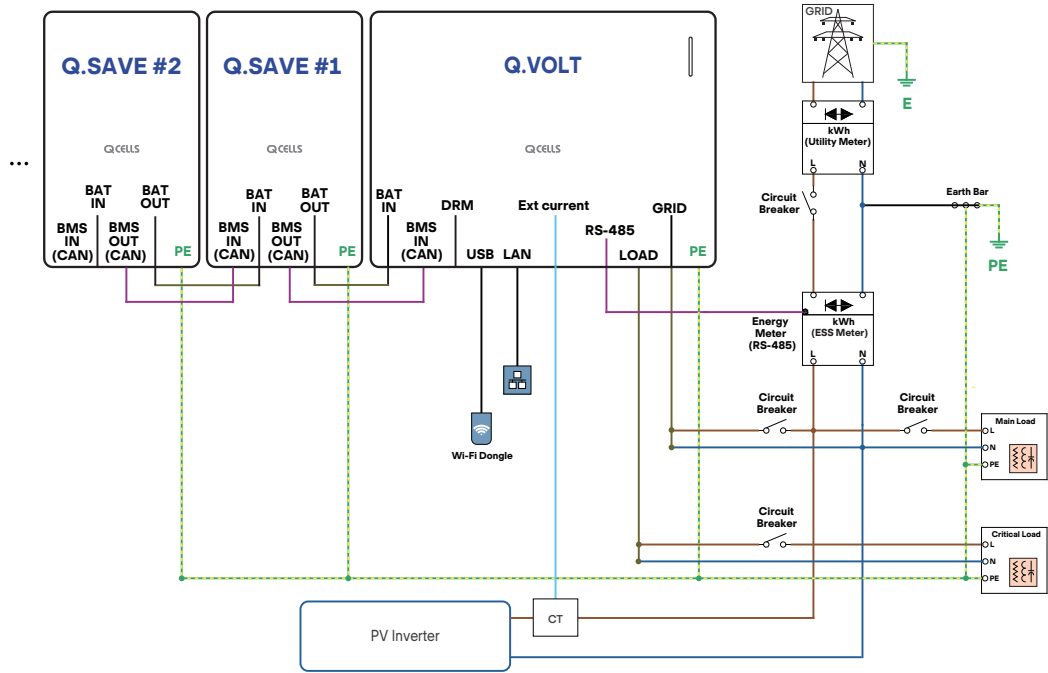


TT Network System (Three-Phase)

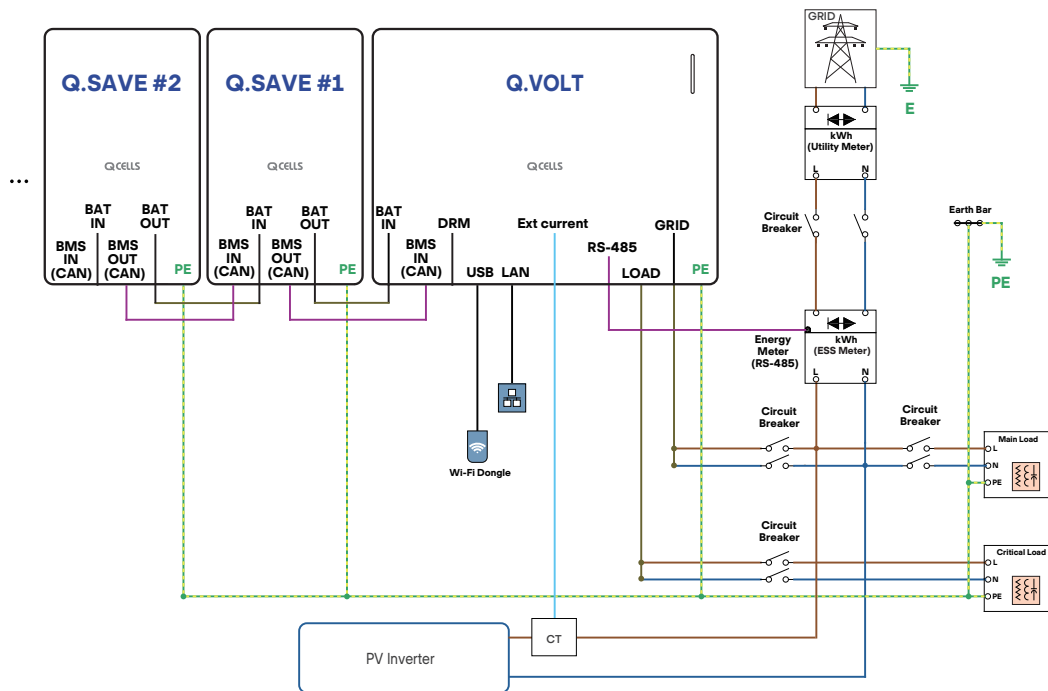


3.8 Network System Diagram for A4 / A5

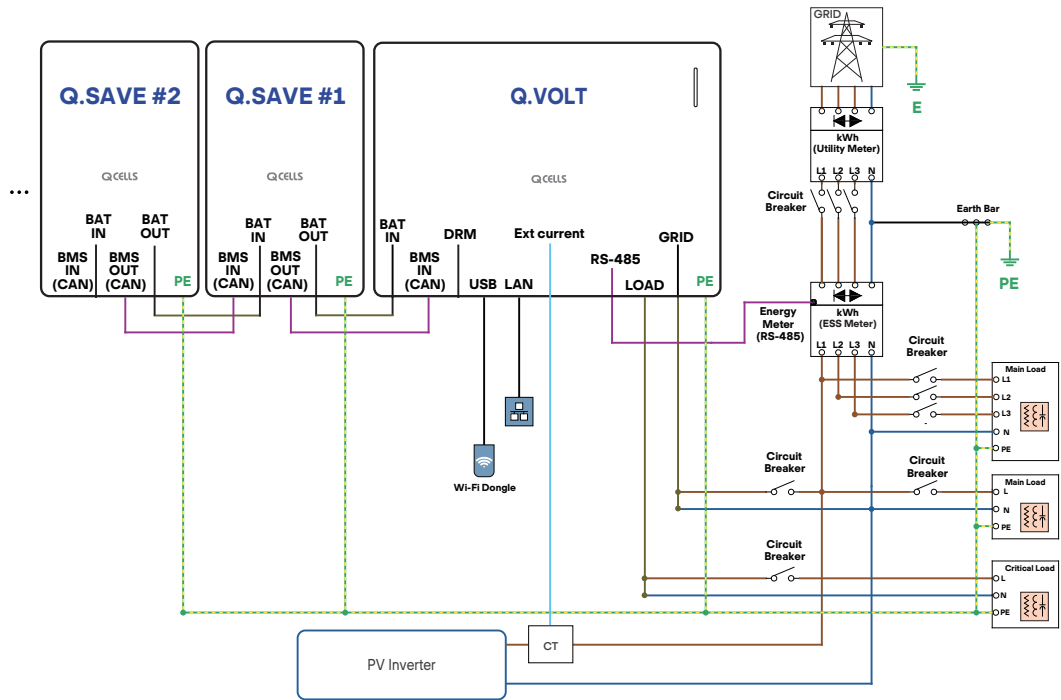
TN-S Network System (Single-Phase)



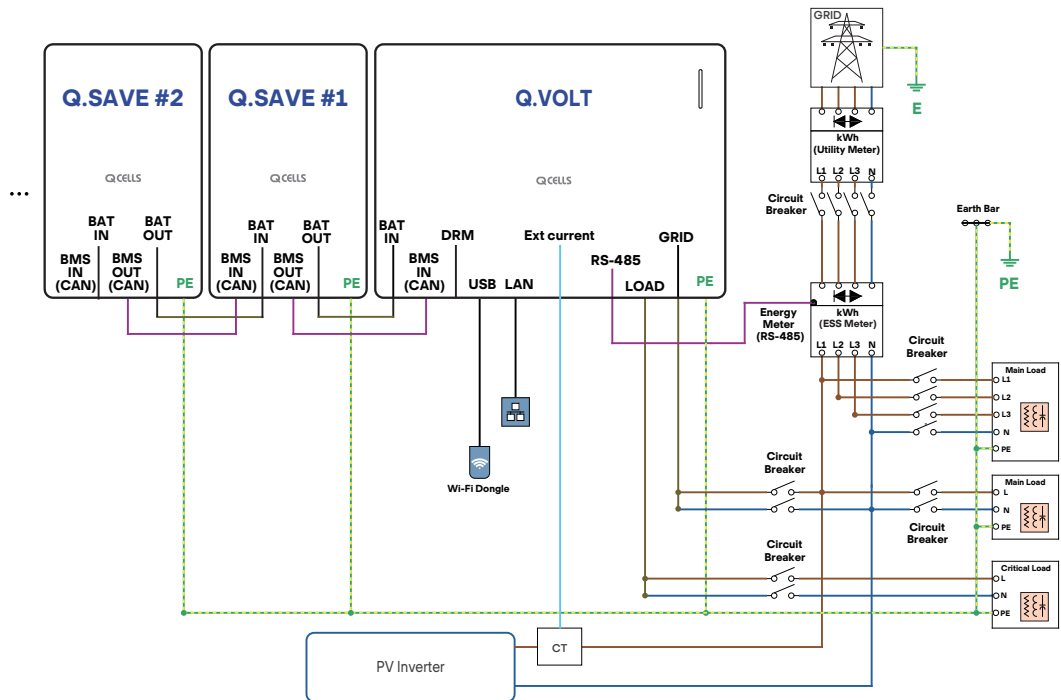
TT Network System (Single-Phase)



TN-S Network System (Three-Phase)



TT Network System (Three-Phase)



4 Installation requirements

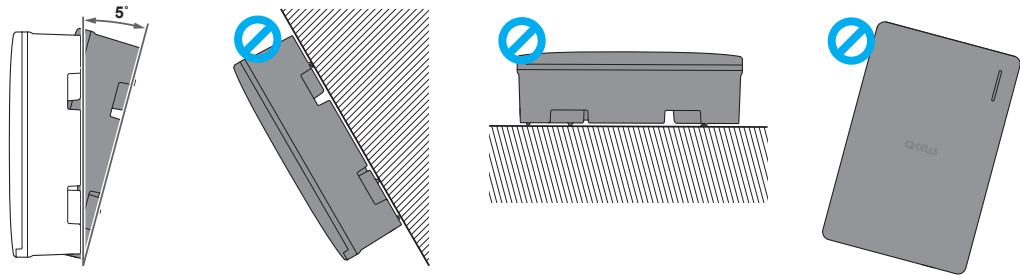
4.1 Installation Environment



Although it supports the waterproof performance equivalent to the IP65 rating, install in a place not directly exposed to direct sunlight, rain, and snow.

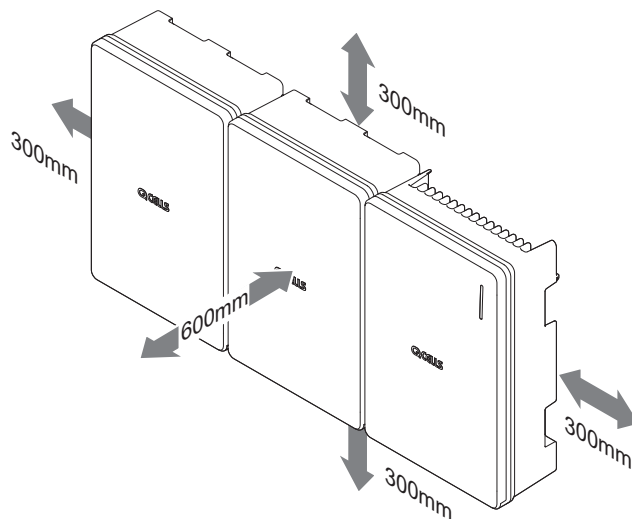
Make sure the installation site meets the following conditions:

- Not in areas where highly flammable materials are stored.
- Not in potential explosive areas.
- Not near the television antenna or antenna cable.
- Not higher than an altitude of about 2000 m above sea level.
- Under good ventilation conditions.
- The ambient temperature in the range of -10 °C to 45 °C
- While it can be installed by slanting it backward up to 5 degrees or lower, do not install it tilted on the side. The wiring area should point downward.

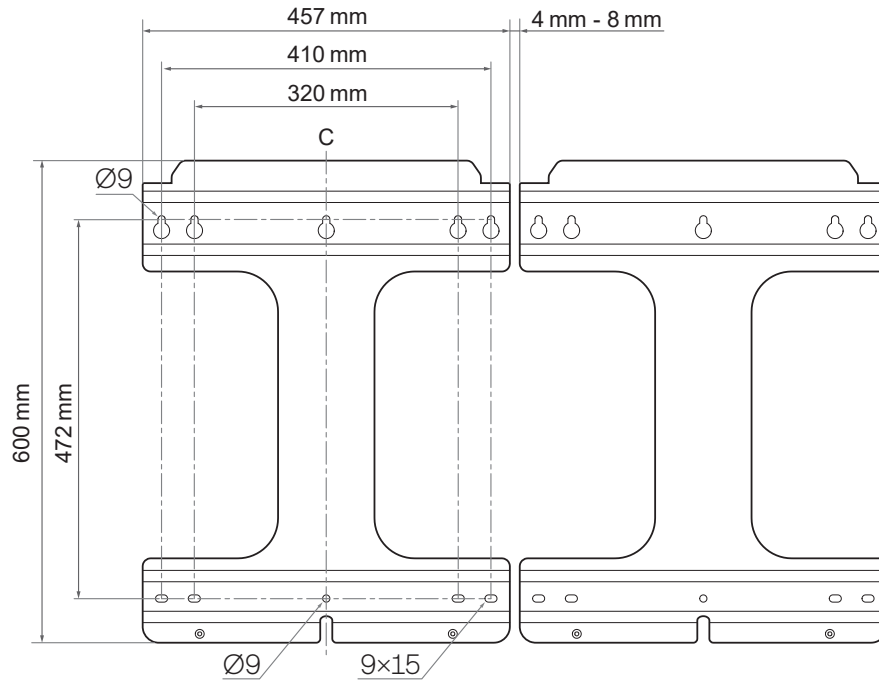


4.2 Installation Space

For effective heat dissipation, there must be sufficient distance from surrounding objects and sufficient space for cabling work is required.



4.3 Mounting Bracket Dimensions



4.4 Safety Gear



All tasks regarding the PV module, inverter, and battery system must be performed by certified personnel. Wear rubber gloves and protective clothing while working.

Wear the following safety gear when installing the product. Installers must meet the relevant requirements of international standards, such as IEC 60364 or the domestic legislation.



Insulated Gloves



Safety Goggles



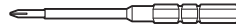
Safety Shoes

4.5 Tools

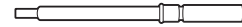
These tools are required to install the Q.HOME CORE H4 / A4 / H5 / A5 system.



Torque screwdriver



Phillips-screwdriver bit



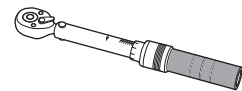
Hex-key bit



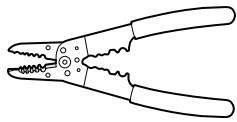
Phillips-head screwdriver



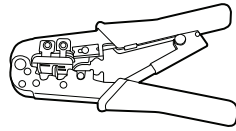
Flat-head screwdriver



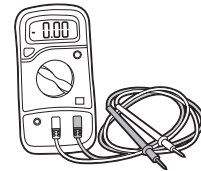
Torque wrench



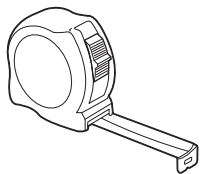
Wire stripper



Cable crimper



Voltmeter



Tape measure



Drill

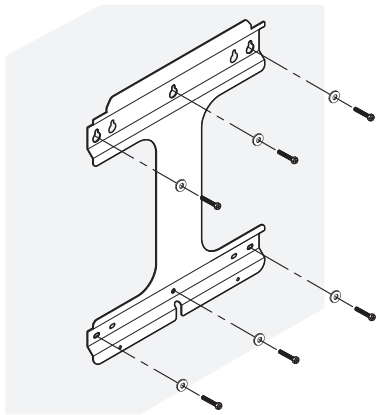


Sealant gun

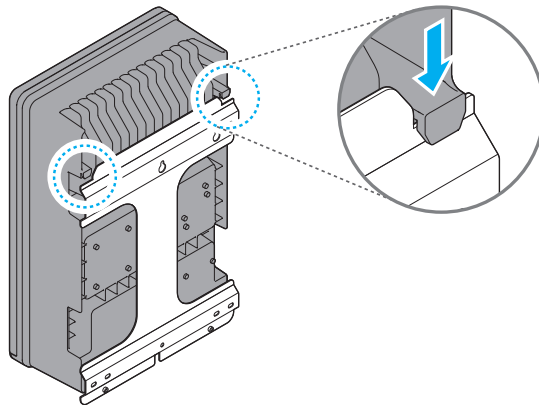
5 Mounting Q.HOME CORE

5.1 Wall Mount

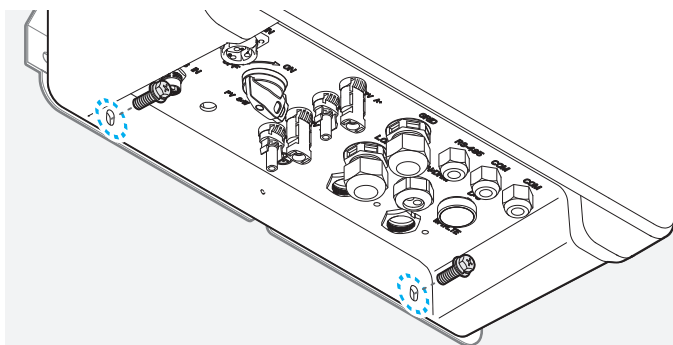
- 1** Check the location of a hole of the bracket and drill a hole on the wall.
 - Mounting hole: $\varnothing 9$
- 2** Insert an anchor into the hole and fix the bracket with a bolt.
 - Use the wall mount bolts included in the package.
 - At least 4 bolts are required to secure the bracket.
 - Anchor bolt: 10N·m (100kgf·cm)
 - M6 bolt: 5N·m (50kgf·cm)



- 3** Place the product on the bracket.



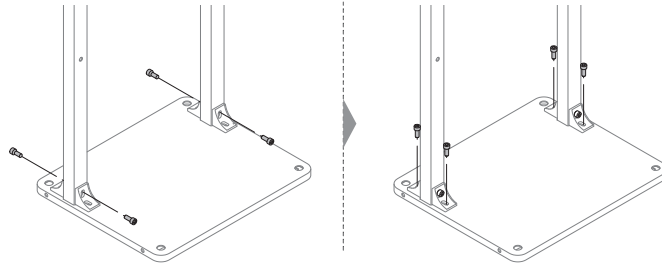
- 4** Secure the bottom of the product to the bracket using the M6 bolts.



5.2 Floor Mount (Option)

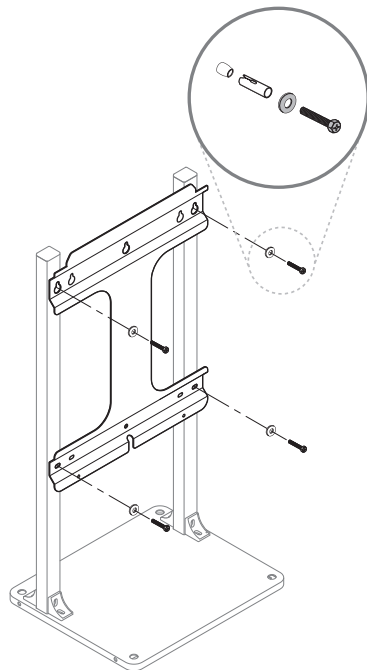
1 Assemble the stand legs.

- Bolt: M8 × 16 (included in the package.)



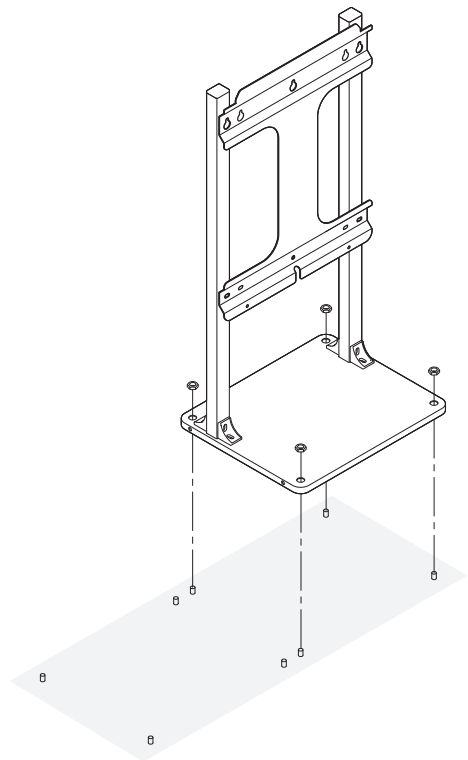
2 Fix the bracket to the stand legs.

- Use the wall mount bolts included in the package.
- The anchor is not needed. Remove the anchor from the wall mount bolt.



3 Fix the stand on the floor.

- Nut: M12-16 (not included in the package)



4 Place the product on the bracket and secure the product to the bracket using the M6 bolt.

- See steps 3 and 4 in the "5.1 Wall Mount".

6 Electrical Connection Overview

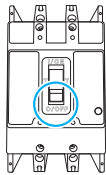


CAUTION

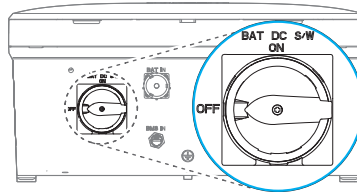
- Make sure to match the polarity of the cables properly when installing. Otherwise, it may cause electric shock or the product may permanently be damaged. The damage from this is not covered by the warranty.
- Before batteries are connected, all other connections should be done and the battery interrupter must be off.

Before connecting electrical cables, make sure the AC circuit breaker, PV switch, and DC switch are OFF.

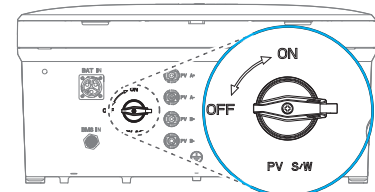
Circuit breaker



Q.SAVE

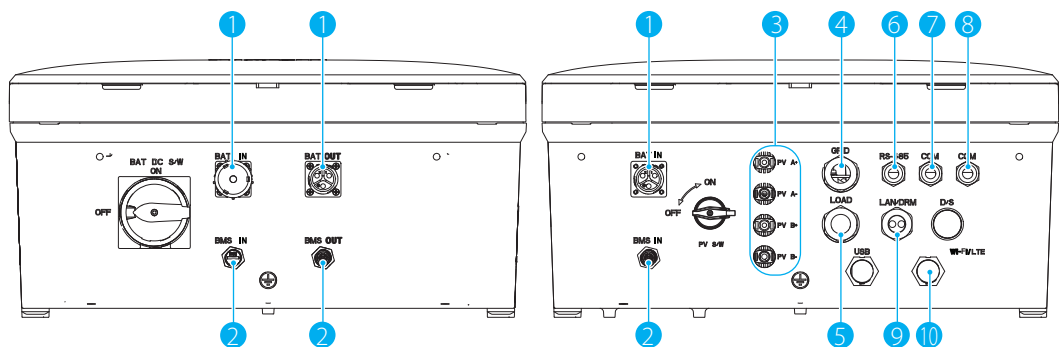


Q.VOLT



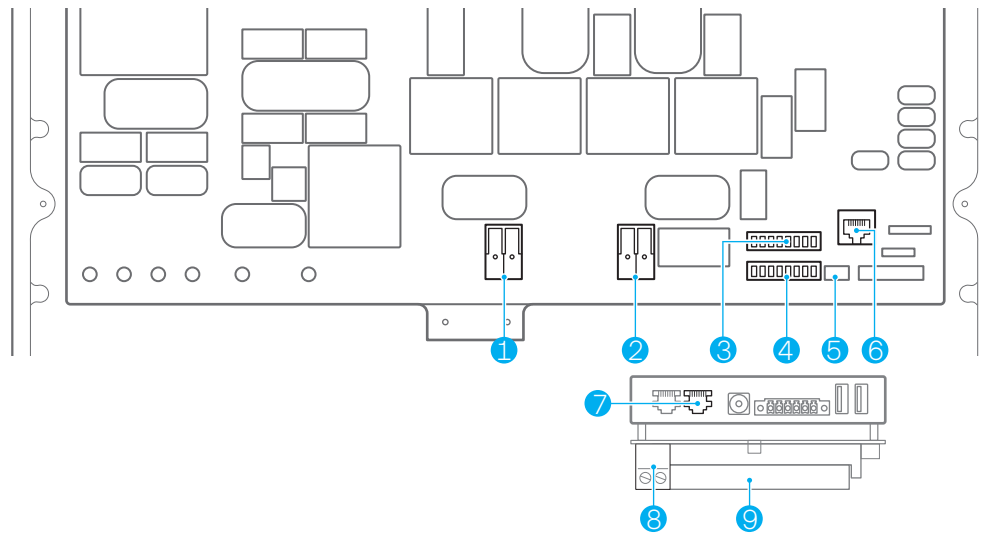
6.1 Connectors and Ports Layout

External Connectors and Ports



- | | |
|--------------------------------|--------------------|
| 1 Battery | 6 RS-485 |
| 2 BMS communication | 7 COM |
| 3 PV A+ / PV A-, PV B+ / PV B- | 8 COM (Spare) |
| 4 Grid | 9 LAN / DRM (RJ45) |
| 5 Load | 10 Wi-Fi/LTE |

Internal Connectors and Ports



- 1 Load
- 2 Grid
- 3 Ext. comm. 2
- 4 Ext. comm. 1
- 5 Ext. CT
- 6 DRM
- 7 LAN
- 8 RS-485
- 9 Battery for Dark Start

Note

For information about how to open the covers, see "7 Opening the Covers" on page 29.

6.2 Power Cable Specification

The power cables must correspond to the AC/DC input and output specifications for this product. Cables are not included in the product package.

| Cable | Diameter | Nominal Voltage | Color | |
|-----------------|------------------------|-----------------|---|---|
| | | | EU (DE, FR) and GB | AU |
| Grid (L, N, PE) | 6 mm ² | 600 V or more | L: Brown or Black N: Blue PE: Green / Yellow | L: Brown or Red N: Blue or Black PE: Green / Yellow or Green |
| Load (L, N, PE) | 6 mm ² | 600 V or more | | |
| PV+, PV- | 4 to 6 mm ² | 600 V or more | | - |
| Battery DC | 6 mm ² | 400 V or more | Recommend DC+ : RED, DC- : Black, PE: Green / Yellow or Green | |

6.3 Circuit Breaker

AC Circuit Breaker and DC Disconnection Switch

The circuit breaker on the distribution board varies depending on the insaller.

Follow the installation standards to install a circuit breaker satisfying the voltage and current specification of the Grid and PV cable.

| | Standard | Short Circuit Current Rating |
|--------------------|-----------------------------------|------------------------------|
| AC Circuit Breaker | 230 V _{AC} /32 A | minimum 10kA |
| DC Disconnect | 650 V _{DC} /27 A or more | |

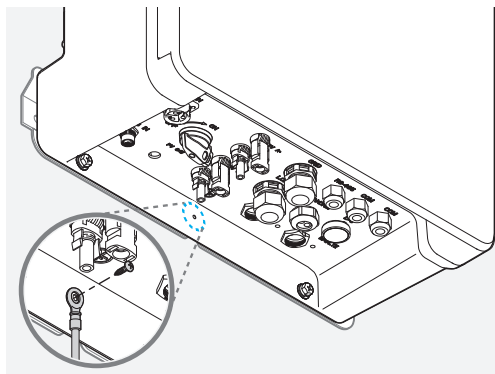
RCD (Residual Current Device)

The product can cause a residual-current in the external protective earthing conductor. Q.HOME CORE has a built-in RCMU(Residual Current Monitoring Unit), which protects residual-current under continuous and sudden conditions. If the RCD must be applied in a particular area, 30mA or higher Type B RCD must be applied.

6.4 Grounding Q.HOME CORE

Q.SAVE and Q.VOLT must be connected to an additional ground on the enclosure.

- PE bolt: M4
- Torque for PE bolts: 1.2 to 1.9N·m



Note

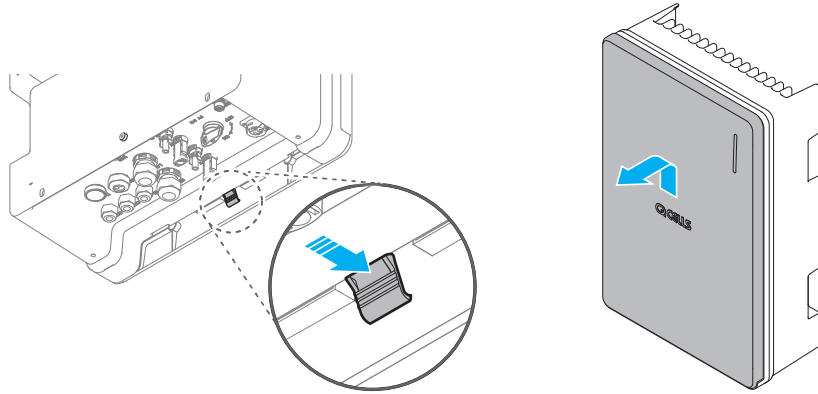
For details about crimping the ring terminal, see "Crimping the PE Wire" on page 30

7 Opening the Covers

7.1 Opening the Front Cover

To remove the front covers from the inverter and battery packs:

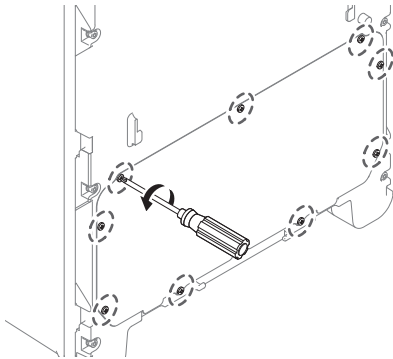
After pressing the latch at the bottom of the cover, raise the cover upward to open it.



7.2 Opening the Wiring Cover

Remove the 9 bolts and open the wiring cover.

- Bolt: M4



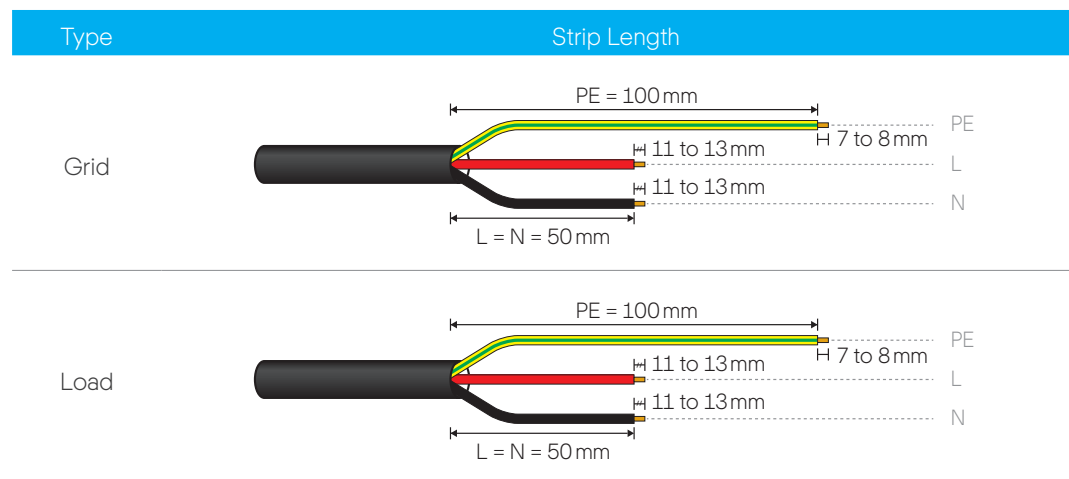
8 Grid and Load Connection

8.1 Grid and Load Cables Description

For information about the Grid and Load cables specification, see "6.2 Power Cable Specification" on page 27.

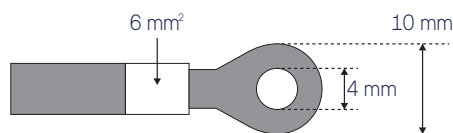
Stripping the Load and Grid Cables

The Grid and Load wire need to be stripped as follows:

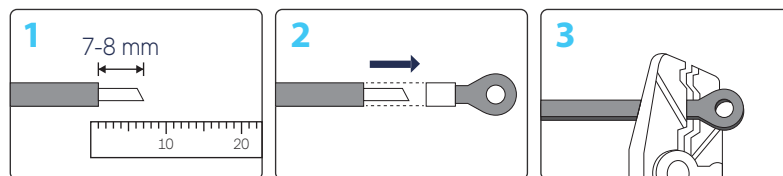


Crimping the PE Wire

The ground wire (PE) must be grounded by crimping the ring terminal.



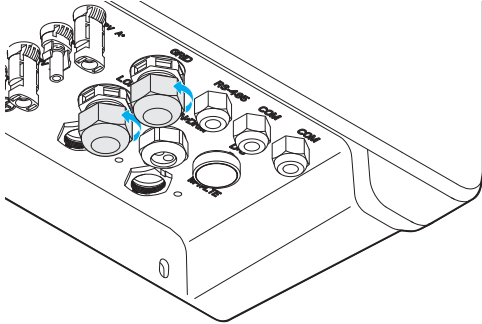
To crimp the ring terminal:



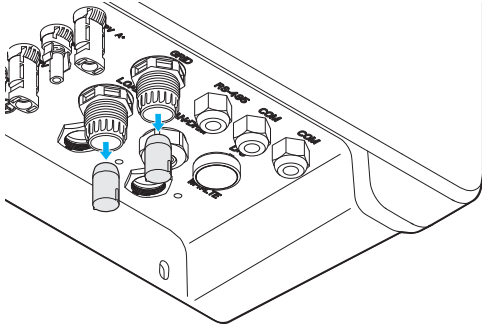
8.2 Connecting the Load and Grid Cables

To connect the load and grid cables:

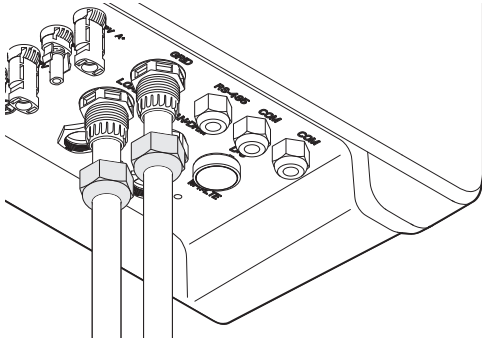
- 1 Remove the sealing nuts from the load and grid glands.



- 2 Remove the blind plugs from the load and grid glands.
 - Dispose of the blind plugs.

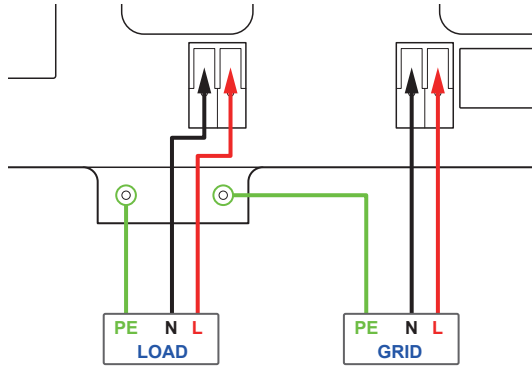


- 3 Strip the cables and insert them into the sealing nut and the cable gland.

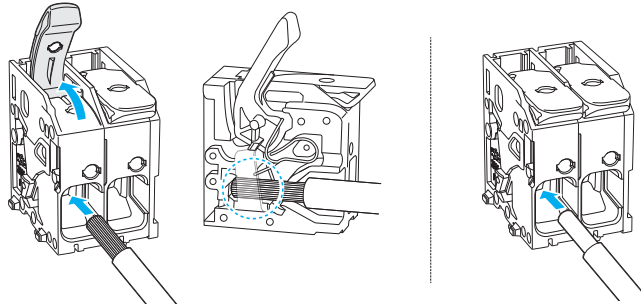


4 Connect the L, N, and PE wires for the load and grid cables.

 If you don't strip the ends of wire properly or don't engage connectors properly, it may lead to fire.

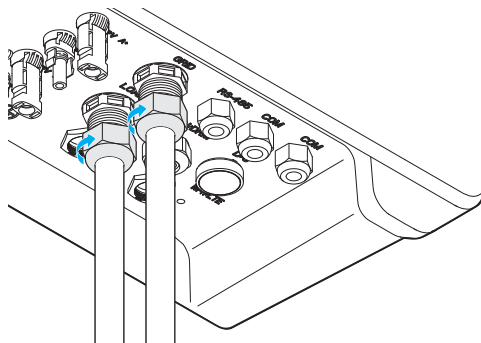


- PE bolt: M4
- Torque for PE bolts: 1.2 to 1.9N·m
- If the L and N wires are a fine-stranded conductor type, raise the lever and insert the wire, and then lower the lever to secure the wire.
- If the L and N wires are a single solid conductor type, the wire can be inserted without raising the lever.



- After connect the wires, make sure the wires are correctly connected. When the wires are pulled, they should not come out of the connectors.

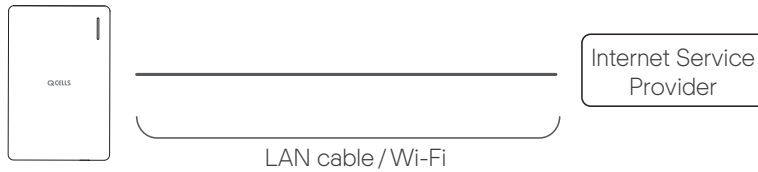
5 Assemble the sealing nut to secure the cables.



9 Communication Connection

9.1 Internet & DRM Connection

The product can be connected to the internet via Wi-Fi or ethernet cable (Category 5e).



Note

- For details about system settings after connecting to the internet, see "15.2 Setting with the Q.COMMAND GO App" on page 49.
- DRM connection is only for Australia.
- When using the ethernet cable, use category 5e or higher cable.
- The LAN and DRM cable is not included in the package.

DRM Specification

The inverter supports the DRM (Demand Response Mode) function as specified in AS/NZS 4777.2.

| Mode | Description |
|-------|--|
| DRM 0 | The inverter is in the state of "Key-stop." |
| DRM 1 | The import power from the grid is 0. |
| DRM 2 | The import power from the grid is no more than 50 % of the rated power. |
| DRM 3 | The import power from the grid is no more than 75 % of the rated power. |
| DRM 4 | The import power from the grid is no more than 100 % of the rated power, but subject to the constrains from other active DRMs. |
| DRM 5 | The export power from the grid is 0. |
| DRM 6 | The export power from the grid is no more than 50 % of the rated power. |
| DRM 7 | The export power from the grid is no more than 75 % of the rated power. |
| DRM 8 | The export power from the grid is no more than 100 % of the rated power, but subject to the constrains from other active DRMs. |

Corresponding relationship between cables and pins (568B) is as follows:

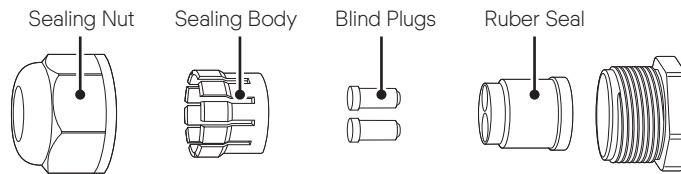
| T568B | Corresponding DRM |
|---------------------|-------------------|
| Pin 1: White-orange | DRM 1/5 |
| Pin 2: Orange | DRM 2/6 |
| Pin 3: White-green | DRM 3/7 |
| Pin 4: Blue | DRM 4/8 |
| Pin 5: White-blue | RefGen |
| Pin 6: Green | Com. DRM 0 |
| Pin 7: White-brown | - |
| Pin 8: Brown | - |



Connecting the LAN or DRM cable

To connect the LAN or DRM cable:

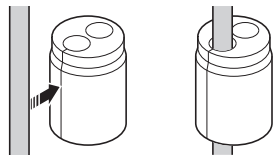
- 1 Disassemble the LAN/DRM gland.



- 2 Pass the cable through the sealing nut and sealing body.

- LAN cable outer diameter: 4 to 6 mm

- 3 Push the cable through the side of the ruber seal.

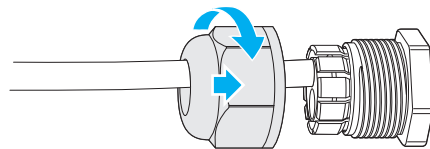


- 4 Insert the cable into the LAN/DRM gland.

- 5 Connect the RJ45 plug to the appropriate connector.

- For information about LAN and DRM connector, see "6.1 Connectors and Ports Layout" on page 26

- 6 Assemble the LAN/DRM gland.



Note

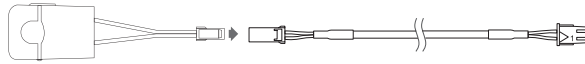
If only one cable is used, close the remaining hole in the rubber seal with the blind plug.

9.2 CT Connection (A4 and A5 only)

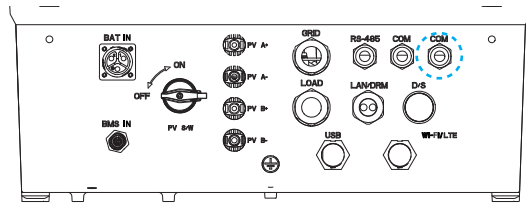
CT is needed in A4 and A5 only. H4 and H5 do not require CT installation.

To connect CT:

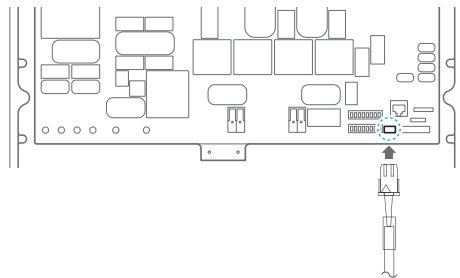
- 1 Connect CT(AKW4802B) to the CT cable.
 - Default: 3m
 - Option: 20m



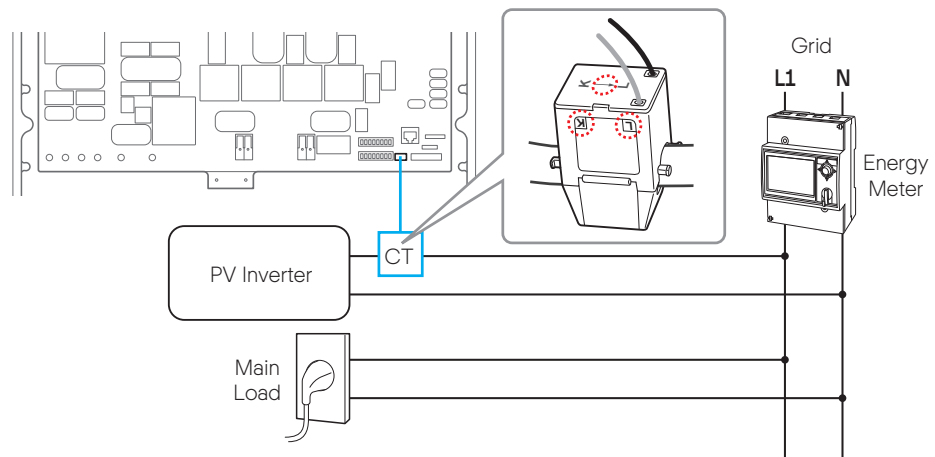
- 2 Insert the CT cable into the COM (spare) gland.
 - Dispose of the blind plug in the COM gland after opening the gland nut.



- 3 Connect the CT cable to the Ext. CT connector.



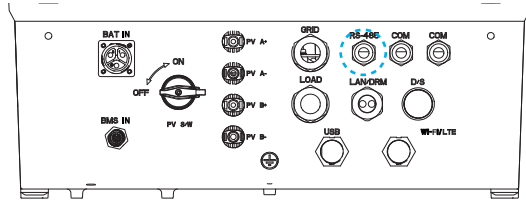
- 4 Attach the CT to the wire from the PV inverter to the grid (K → L).
 - **Note:** The arrow direction on the CT must point to the grid.



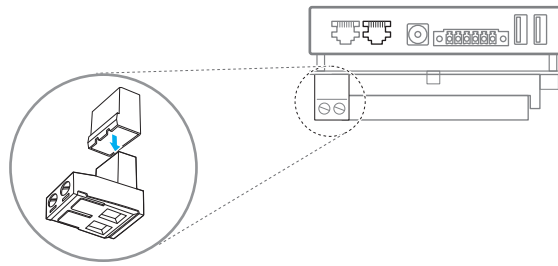
9.3 Energy Meter Connection

To connect an energy meter:

- 1 Insert two wires into the RS-485 gland.
 - Dispose of the blind plug in the RS-485 gland after opening the gland nut.
 - Required Wire: 1 to 2.5 mm², 28 to 12AWG



- 2 Strip the wires.
 - Strip length: 7 to 8 mm
- 3 Remove the terminal block from the RS-485 connector.



- 4 Insert the wires to the terminal block.
 - Port 1: RS485_POS
 - Port 2: RS485_NEG
- 5 Secure the wires to the terminal block using a flat-head screw driver.
 - Screw: M3
 - Torque: 0.5N·m



- 6 Insert the terminal block to the RS-485 connector.

Note

For details about connecting and setting an energy meter, see "13 Energy Meter Installation" on page 43.

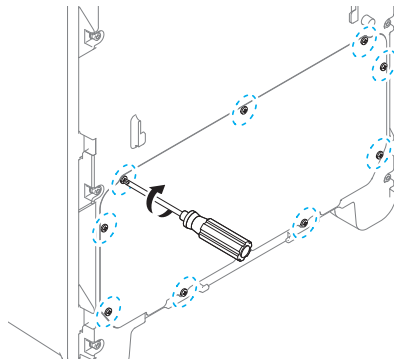
10 Closing the Covers



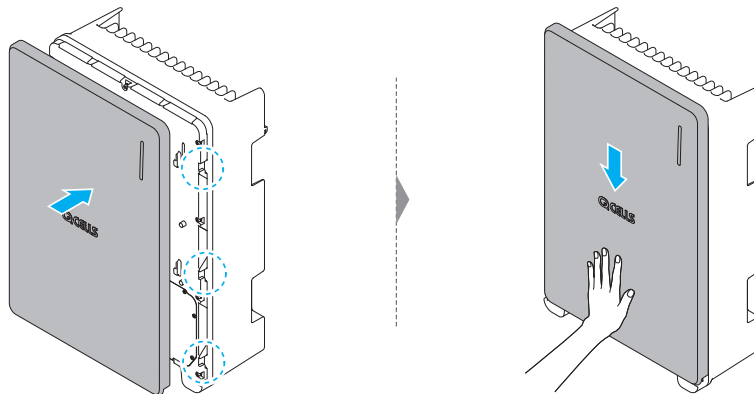
Before turning on the product, the covers must be closed.

To close the covers:

- 1** Close the wiring cover and tighten the 9 bolts.
 - Bolt: M4
 - Torque: 18 kgf·cm / 15.6 lbf·in



- 2** Close the front cover.
 - a. Insert the cover to fit into the grooves on the main body.
 - b. Slide it down while pressing the front side against the latch at the bottom.



11 Battery Connection

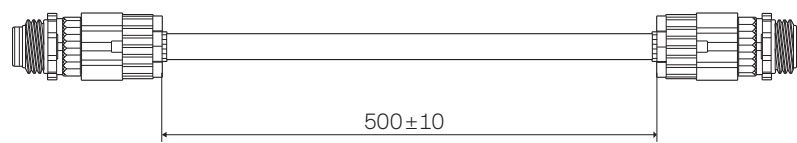


CAUTION

- Batteries can be replaced only by qualified personnel. If the battery needs to be replaced, you must use a battery that meets the manufacturer's specifications.
- You can install up to three batteries. The SOH (state of health) among battery packs should be less than xx %. (Failing to comply with this provision may void the warranty.)

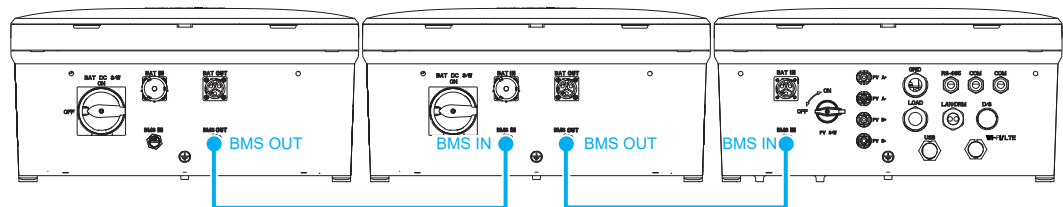
11.1 BMS Communication Cable Connection

Use the BMS communication cable included in the product package.

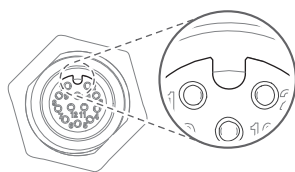


Connecting the BMS Communication Cables

Connect the BMS communication cables to communicate with or control the battery packs as follows:



When connecting the BMS communication cable, check the protruding part of the cable terminal.



Make sure the cable aligns with the terminal and slots in without resistance. Turn the sealing nut to tighten the connection.

11.2 Battery Power Connection

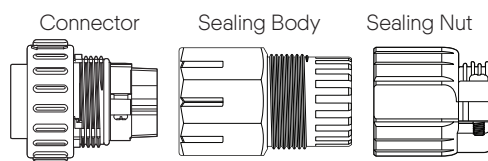
Amphenol PWL-03BFMA-TL7001 is used to connect the battery DC cable.

Note

- The battery DC cable is not included in the package.
- For information about the battery DC cable specification, see "6.2 Power Cable Specification" on page 27.

Assembling the Battery DC Cable

Disassemble the connector housing as follows:

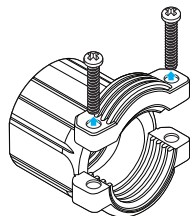


To assemble the battery DC cable:

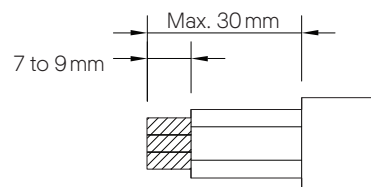


Steps from 2 to 5 must be observed.
If you don't follow the process properly, it may lead to fire.

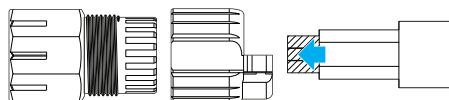
1 Remove the screw from the sealing nut.



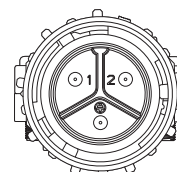
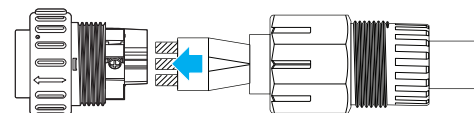
2 Strip the cable.



3 Insert the stripped cable into the sealing nut and sealing body.



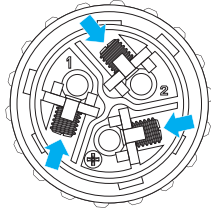
4 Insert wires to the connector.



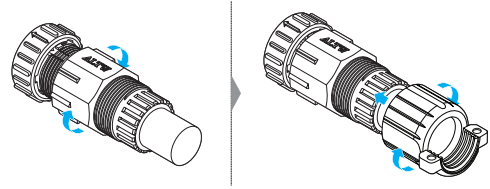
| Pin # | Wire |
|-------|------|
| 1 | BAT+ |
| 2 | BAT- |
| 3 | PE |

5 Secure the wires by using screws.

- Torque: 4.5kgf-cm

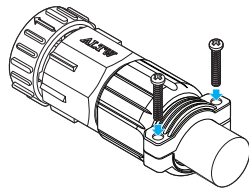


6 Connect the sealing body to the connector and then connect the sealing nut to the sealing body.



7 Secure the cable by using screws.

- Torque: 10 to 12kgf-cm

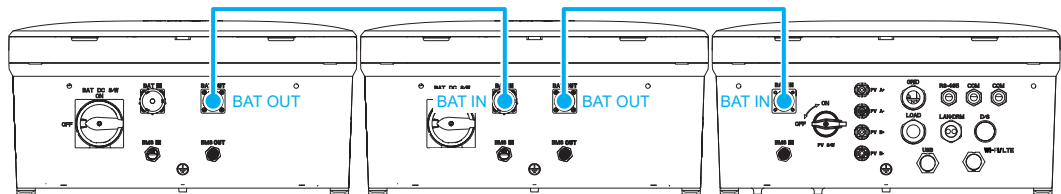


Note

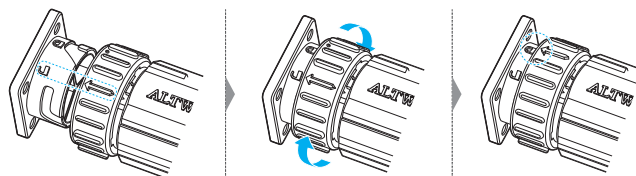
For more details about assembling the battery DC connector, refer to the connector manufacturer's manual.

Connecting the Battery DC Cables

Connect the Battery DC Cables as follows:



Align the arrow with the unlock mark when connecting the battery power cable.



12 PV connection (H4 and H5 only)



CAUTION

- Before connecting or disconnecting the PV cables, make sure the PV switch is turned off.
- Make sure the PV cables are connected with the correct polarity.
- Make sure the open circuit voltage does not exceed the inverter input limit 600 V. Otherwise, the status of inverter is fault.

The lead wires from the PV modules are directly connected to Q.HOME CORE. For the connectors (PV1+, PV1-, PV2+, and PV2-) between the distribution box and the Q.HOME CORE input, MC4 type connectors are used.

12.1 Assembling the PV Connector

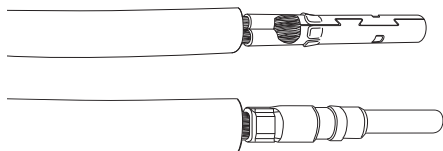
Stäubli PV-KBT4/6II-UR, PV-KST4/6II-UR is used for the PV connector.

Note

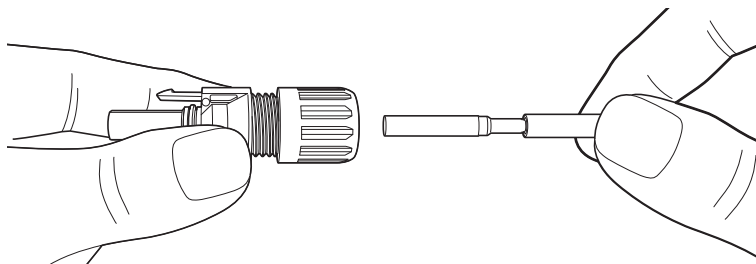
For information about the PV cable specification, see "6.2 Power Cable Specification" on page 27.

To assemble the PV Connector:

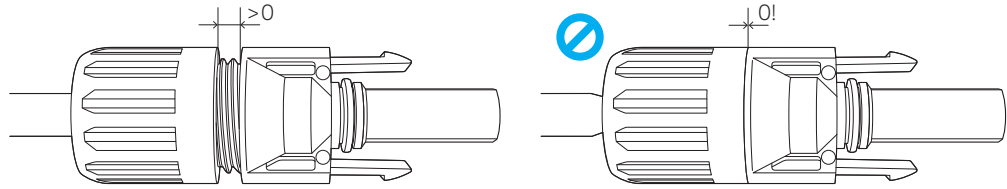
- 1** Strip the cables.
 - Strip length: 6 to 7.5 mm
- 2** Crimp the stripped cables using a crimping plier.



- 3** Check the crimped cables to make sure that:
 - All of the strands are captured in the crimp sleeve,
 - The crimp sleeve is not deformed or missing any portion of the crimp flaps,
 - The crimp is symmetrical in form.
- 4** Insert the crimped-on contact into the insulator of the male or female coupler until engaged.
 - Usually a "click" sound will be heard once fully inserted.
 - Pull gently on the lead to check that the metal part is correctly engaged.



- 5 Tighten the gland nut.
 - Torque: 3.4 to 3.5N·m



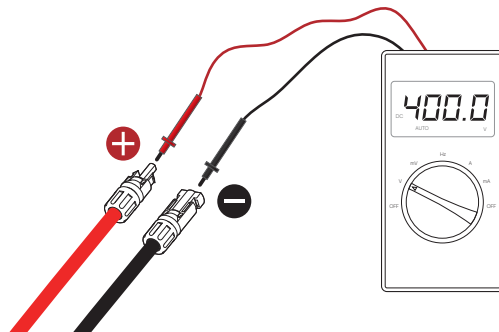
Note

For more details about assembling the PV connector, refer to the connector manufacturer's manual.

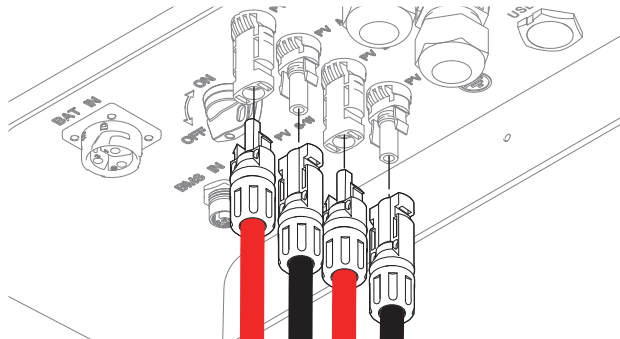
12.2 Connecting the DC cables from PV

To connect the DC cables from PV to Q.HOME CORE:

- 1 Check the cable connection of PV strings for the correct polarity and make sure the open circuit voltage does NOT exceed the inverter input limit 600V.
 - If the open circuit voltage is higher than 600V, the inverter will be fault.



- 2 Connect the cables from the distribution box to the PV terminals (PV1+, PV1-, PV2+, and PV2-) of Q.HOME CORE respectively.



13 Energy Meter Installation

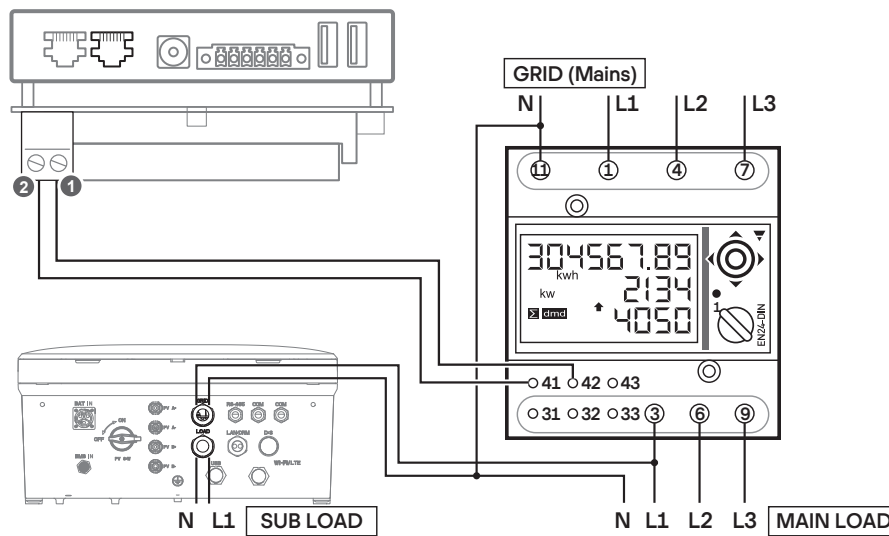
The installation of the digital energy meter must comply with the instruction provided by the energy meter manufacturer.

Note

For information about how to connect the wires to the RS-485 connector in the inverter, see "9.3 Energy Meter Connection" on page 36.

13.1 EM24, Carlo Gavazzi (Three-Phase)

Energy Meter Diagram



| Q.VOLT(EMS port) | Energy Meter |
|------------------|--------------|
| 1: RS485_POS | 42: B+ |
| 2: RS485_NEG | 41: A- |

Energy Meter Settings

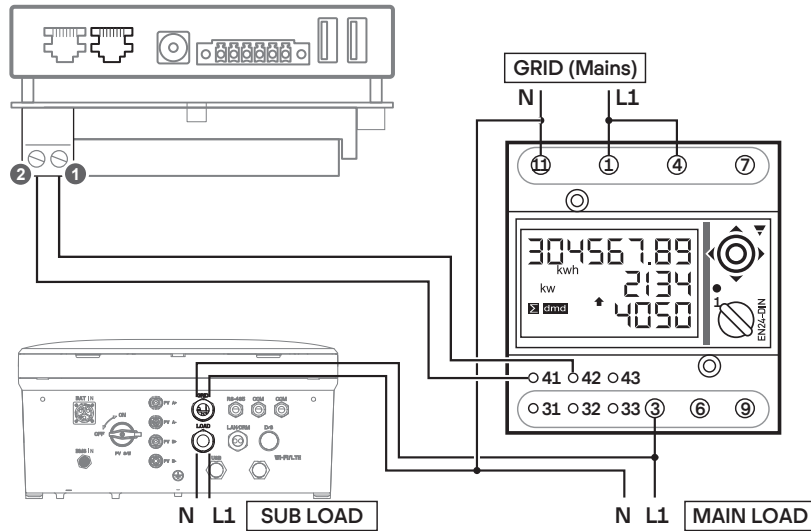
- Application: F
- SYS: 3P.n
- P int.ti: 1
- ModBus Address: 1 (default value)
- Baudrate: 9600 (default value)

Note

Put the energy meter on position '1' for setting then back to the 'lock' position on normal operation mode.

13.2 EM24, Carlo Gavazzi (Single-Phase)

Energy Meter Diagram



| Q.VOLT(EMS port) | Energy Meter |
|------------------|--------------|
| 1: RS485_POS | 42: B+ |
| 2: RS485_NEG | 41: A- |

Energy Meter Settings

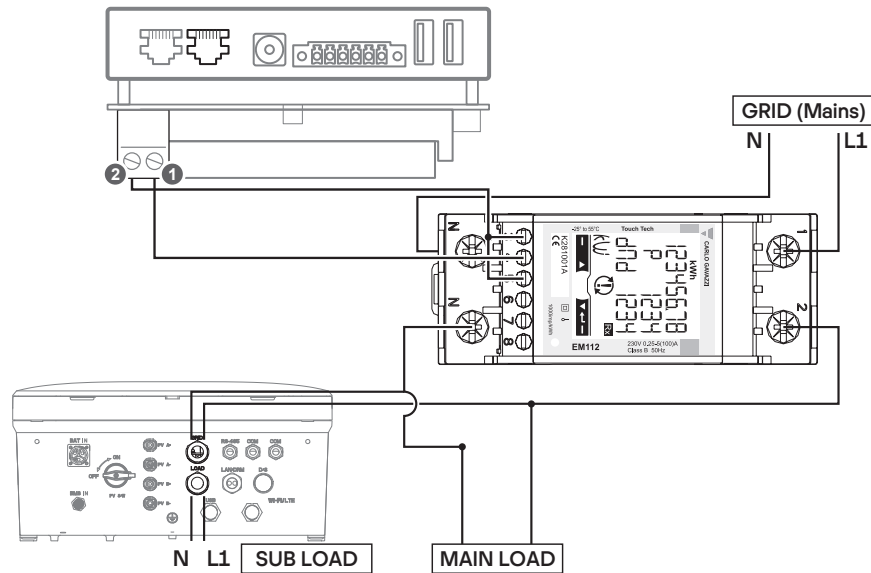
- Application: F
- SYS: 1P
- P int.ti: 1
- ModBus Address: 1 (default value)
- Baudrate: 9600 (default value)

Note

Put the energy meter on position '1' for setting then back to the 'lock' position on normal operation mode.

13.3 EM112, Carlo Gavazzi (Single-Phase)

Energy Meter Diagram



| Q.VOLT(EMS port) | Energy Meter |
|------------------|--------------|
| 1: RS485_POS | 4 |
| 2: RS485_NEG | 3, 5 |

Energy Meter Settings

- Measure: b
- Tariff: Yes
- Address: 1
- Baud: 9.6

Note

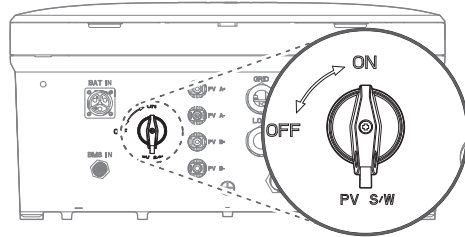
Recommended to use EM24 over EM112 due to accuracy of reactive power.

14 Power On

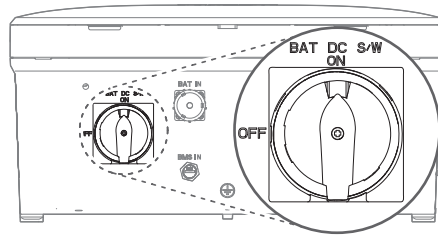
14.1 Turnig On Q.HOME CORE

To turn on the Q.HOME CORE:

- 1 Turning on the AC circuit breaker.
- 2 Turning on the PV switch.



- 3 Turning on the battery DC switch.



14.2 Checking the LED indicator

After turning on the Q.HOME CORE, check the status of the LED indicator on the front.

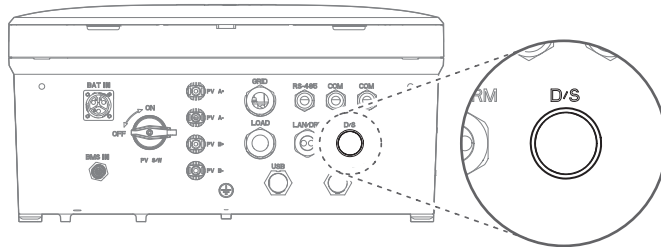
The meanings of the LEDs by color and behavior are as follows:

| LED Color | LED Behavior | Description |
|-----------|--------------|--|
| Sky Blue | Solid | Charging or discharging in online mode |
| | Flashing | Standby in online mode |
| Magenta | Solid | Charging or discharging in offline mode |
| | Flashing | Standby in offline mode |
| Green | Solid | Charging or discharging in off-grid mode |
| | Flashing | Standby in off-grid mode |
| Blue | Solid | All operations are paused |
| Red | Solid | Major and minor error status |
| | Flashing | Critical error status |
| Yellow | Solid | Setup in progress |
| | Flashing | Connecting to the network |
| White | Solid | Upgrading firmware |

14.3 Using the Dark Start button

To turn on Q.HOME CORE when there are no PV and Grid:

Press the **Dark Start** button for about 10 seconds.



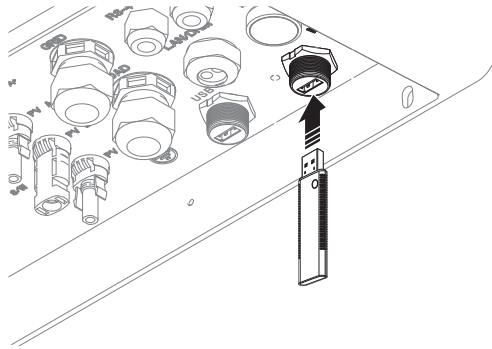
- Once the power is supplied and the LED turns blue, release the Dark Start button.
- Once the inverter enters the Off-grid mode and starts operation, the LED turns green.

15 System Settings

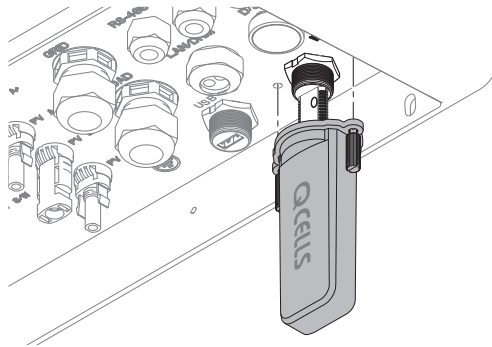
15.1 Connecting to the System

Using the Wi-Fi Dongle

- 1 Connect the Wi-Fi dongle to the inverter.

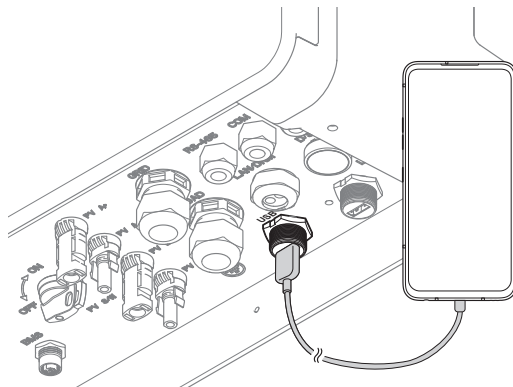


- 2 Assemble the Wi-Fi/LTE waterproof cover to protect the Wi-Fi dongle from dust and water.



Using the USB Tethering

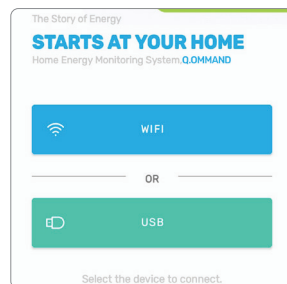
- 1 Connect the mobile device to the inverter with a USB cable.



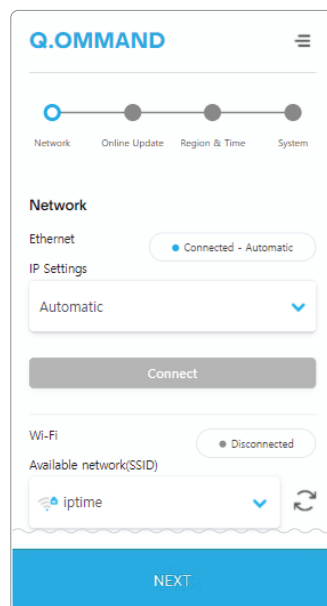
- 2 Turn on the USB tethering function on the mobile device.
 - For details about turning on the tethering function, see the user manual for your mobile device.

15.2 Setting with the Q.OMMAND GO App

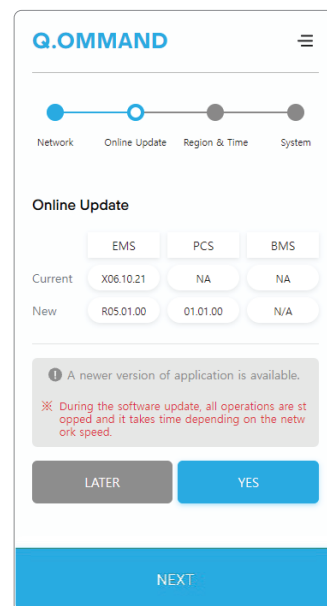
- 1 Search and install Q.OMMAND GO on the Apple AppStore or Google Play Store.
- 2 Open the Q.OMMAND GO app.
- 3 Select **WIFI** or **USB**.



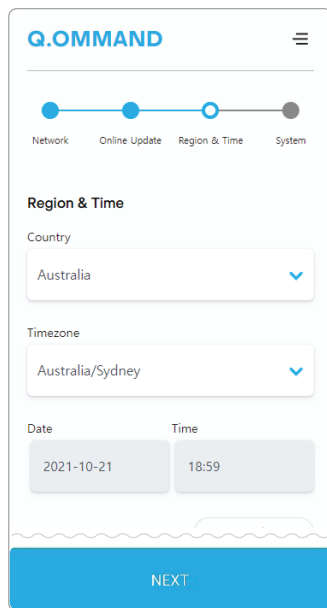
- 4 Select your language and enter the password.
 - Password is the last 4 digits of the serial number of your product.
- 5 Set network.



- 6 Check firmware update.

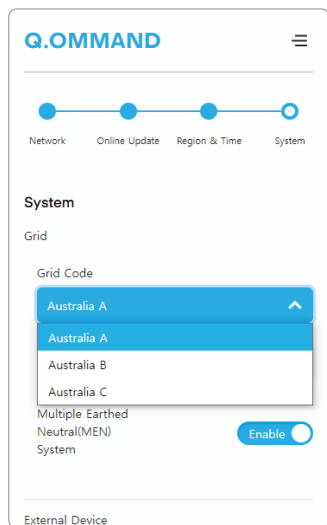


7 Check region and time.



8 Set system parameters.

- Make sure that the appropriate **Grid Code** is selected.
- For details about the Energy Policy option, see "15.3 Energy Policy Mode".



Note

For Australia, select the appropriate grid code from Australia A/B/C for compliance with AS/NZS 4777.2:2020. Please contact your electricity grid operator for which region to use.

- Australia A: Australia Region A
- Australia B: Australia Region B
- Australia C: Australia Region C

15.3 Energy Policy Mode

Standby: Stops the operation.

Self consumption:

- Controls the power autonomously.
- The electricity generated with PVs is first supplied to in-house loads. If there is any remaining electricity, it is used to charge the battery. If there is any electricity remaining after that, it is sold to the power company.

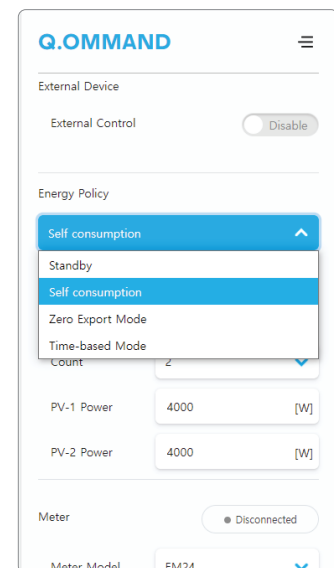
Zero Export Mode:

- The electricity generated in-house is not sold to the power company.
- The electricity generated with PVs is first supplied to in-house loads. If there is any remaining electricity, it is used to charge the battery. If there is any electricity remaining after that, it reduces the electricity generation through PVs.

Time-based Mode:


- Controls the electricity in accordance with the preset schedule.
- Controls the charging and discharging of batteries on an hourly basis.

External Generation Mode: In the Off-grid mode, it prevents electricity from flowing to the in-house generator.

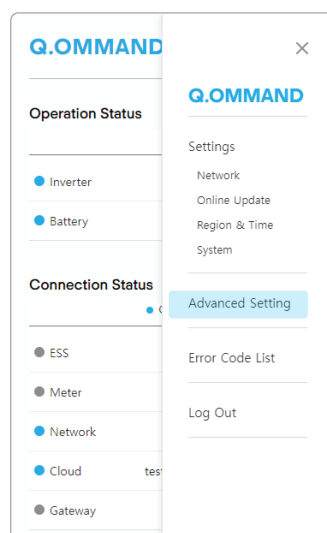


15.4 Advanced Settings

After finishing the initial settings, set the advanced settings:

1 Tap  on the top left corner.

2 Tap **Advanced Setting**.



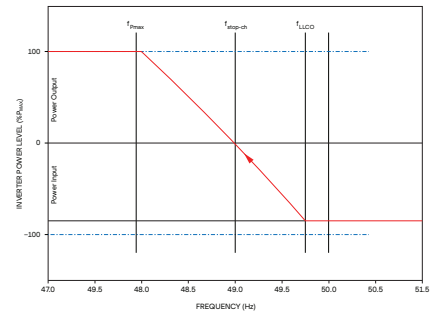
10Min Avg Protection AU

If the average system voltage for 10 minutes exceeds the detection level, the inverter is blocked from the system within 3 seconds.

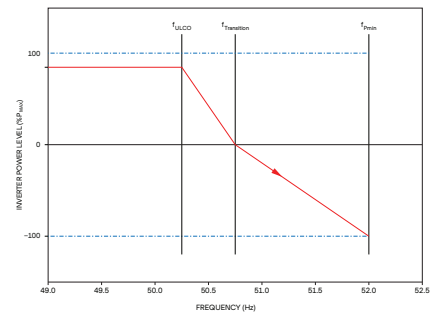
| Parameter | Default Values | | | | Range |
|-----------------|----------------|-------------|-------------|-------------|----------------|
| | Australia A | Australia B | Australia C | New Zealand | |
| Detection Level | 258 V | 258 V | 258 V | 249 V | 244 V to 258 V |

Freq-Watt P(Freq) AU

- When frequency decreases:** When frequency decreases below f_{LLCO} during ESS charging operation, the inverter responds in 2 levels depending on frequency.
 - **Level 1:** It decreases charging active power of ESS until frequency reaches f_{Stop_CH} .
 - **Level 2:** If frequency decreases more than f_{Stop_CH} , it increases active power output until it reaches f_{Pmax} .



- When frequency increases:** When frequency decreases below f_{LLCO} during ESS charging operation, the inverter responds in 2 levels depending on frequency.
 - **Level 1:** If frequency exceeds f_{ULCO} , ESS linearly decreases electric power output until it reaches $f_{Transition}$.
 - **Level 2:** If frequency exceeds $f_{Transition}$, it increases charging active power according to the increase in frequency until it reaches f_{Pmin} .



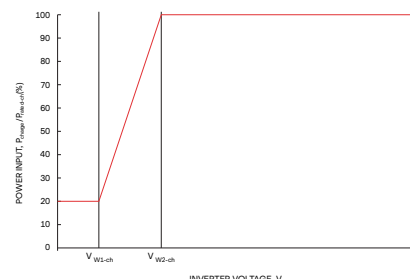
| Parameter | Default Values of Frequency Response Limits | | | | Range |
|-----------------------|---|-------------|-------------|-------------|--------------|
| | Australia A | Australia B | Australia C | New Zealand | |
| f_{Pmax} [Hz] | 48 | 48 | 47 | 48 | 47 to 49 |
| f_{Stop_CH} [Hz] | 49 | 49 | 48.25 | 49 | 48 to 49.5 |
| f_{LLCO} [Hz] | 49.75 | 49.85 | 49.5 | 49.8 | 49.5 to 49.9 |
| f_{ULCO} [Hz] | 50.25 | 50.15 | 50.5 | 50.2 | 50.1 to 50.5 |
| $f_{Transition}$ [Hz] | 50.75 | 50.75 | 51.75 | 51 | 50.5 to 52 |
| f_{Pmin} [Hz] | 52 | 52 | 53 | 52 | 51 to 53 |

- **f_{Pmax} [Hz]:** Frequency where power output level is maximum
- **f_{Stop_CH} [Hz]:** Frequency where power output level is zero
- **f_{LLCO} [Hz]:** Lower limit of continuous operation range
- **f_{ULCO} [Hz]:** Upper limit of the continuous operation range
- **$f_{Transition}$ [Hz]:** Frequency where power output level is zero
- **f_{Pmin} [Hz]:** Frequency where power input level is minimum

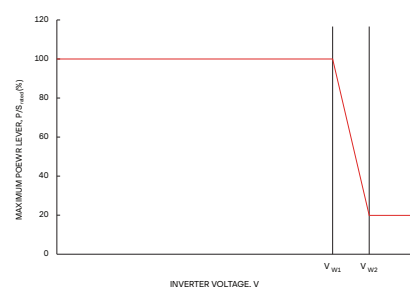
Volt-Watt P(V) AU

The inverter changes the maximum input-output active power depending on system voltage. The inverter responds in two ways depending on charging or discharging operation.

- **During charging operation:** If frequency decreases below V_{W2_CH} , it decreases input active power, and it does not exceed the designated active power input constraint $W1$ below V_{W1_CH} .



- **Discharging mode:** It decreases input active power from the frequency of V_{W1} , and it does not exceed the designated active power output constraint $W4$ above V_{W2} .



| Parameter | Default Values of Volt-Watt Response | | | | Range |
|------------------|--------------------------------------|-------------|-------------|-------------|------------|
| | Australia A | Australia B | Australia C | New Zealand | |
| W1 [%] | 20 | 0 | 20 | 20 | 0 to 20 |
| V_{W1_CH} [V] | 207 | 195 | 207 | 216 | 180 to 230 |
| V_{W2_CH} [V] | 215 | 215 | 215 | 224 | 180 to 230 |
| V_{W1} [V] | 253 | 250 | 253 | 242 | 235 to 255 |
| V_{W2} [V] | 260 | 260 | 260 | 250 | 240 to 265 |
| W4 [V] | 20 | 20 | 20 | 20 | 0 to 20 |

- **W1 [%]:** Inverter maximum active power Input level below V_{W1_CH}
- **V_{W1_CH} [V]:** Voltage where power input level is $W1$
- **V_{W2_CH} [V]:** Lower limit of continuous operation range
- **V_{W1} [V]:** Upper limit of the continuous operation range
- **V_{W2} [V]:** Voltage where power output level is $W4$
- **W4 [V]:** Inverter maximum active power output level above V_{W2}

Fixed Power factor AU

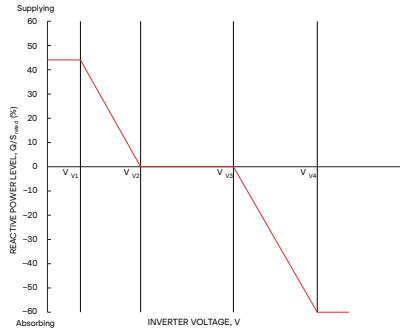
The setting range for the fixed power factor mode is 0.8 to 1.0 and supplying and absorbing can be set for reactive power. The default power factor is set to 1.0.

Fixed Q (Reactive power mode) AU

The reactive power mode outputs reactive power in the fixed rate for apparent power. The minimum setting range for the reactive power (vars) rate for apparent power is 60% or higher from 60% absorption to 60% supply, and the default reactive power is set to 0%.

Volt-Var Q (Volt-var response mode) AU

A volt-var response mode changes reactive power absorbed or supplied by an inverter depending on system voltage. The response curve needed for the volt-var response is operated according to the four default values of volt response and the corresponding reactive power standard.



| Parameter | Default Values of Volt-Var Response | | | | Range |
|-----------|-------------------------------------|-------------|-------------|-------------|------------|
| | Australia A | Australia B | Australia C | New Zealand | |
| Vv1 [V] | 207 | 205 | 215 | 207 | 180 to 230 |
| Vv2 [V] | 220 | 220 | 230 | 220 | 180 to 230 |
| Vv3 [V] | 240 | 235 | 240 | 235 | 230 to 265 |
| Vv4 [V] | 258 | 255 | 255 | 244 | 230 to 265 |

Gradient of P Limit AU

Power speed limit (WGra) is the ramp speed of active power output, and is defined as a percentage of the rated power per minute. Nominal ramp time (Tn) is the nominal time for 100% change of the power output.

Limit Control AU



If at least one limit control function is enabled when an energy meter is not connected, an error occurs and an inverter is not operated.

- **Export Hard Limit:** If the inverter output active power exceeds the Export Hard Limit for 15 seconds, the inverter is blocked from the Export Hard Limit Time system.
- **Export Soft Limit:** If the inverter output active power exceeds the Export Soft Limit, the inverter decreases the output apparent power below the Export Soft Limit Level.
- **Generation Hard Limit:** If the inverter output active power exceeds the Generation Hard Limit for 15 seconds, the inverter is blocked from the Generation Hard Limit Time system.
- **Generation Soft Limit:** If the inverter output apparent power exceeds the Generation Soft Limit, the inverter decreases the output apparent power below the Generation Soft Limit Level within the Generation Soft Limit Level.

| Parameter | Default Values | Range |
|---------------------------------|----------------|----------|
| Export Hard Limit Level [%] | 100 | 0 to 100 |
| Export Hard Limit Time [s] | 5 | 0 to 100 |
| Export Soft Limit Level [%] | 100 | 0 to 100 |
| Export Soft Limit Time [s] | 15 | 0 to 100 |
| Generation Hard Limit Level [%] | 100 | 0 to 100 |
| Generation Hard Limit Time [s] | 5 | 0 to 100 |
| Generation Soft Limit Level [%] | 100 | 0 to 100 |
| Generation Soft Limit Time [s] | 15 | 0 to 100 |

Fixed Power DE

It limits the inverter output power below fixed power with Active Power SetPoint Gradient (= Pmax per s)

| Parameter | Default Values | Range |
|------------------------------------|----------------|--------------|
| SetPoint Value [%] | 100 | 0 to 100 |
| Active Power SetPoint Gradient [%] | 0.5 | 0.33 to 0.66 |

Freq-Watt P (Freq) DE

The inverter changes the inverter output active power according to the system frequency in order to support the system. Ramp rate of power and start frequency can be set as in the table below

| Parameter | Default Values | Range |
|----------------------|----------------|--------------|
| Ramp rate [%] | 1 | 2 to 12 |
| Start frequency [Hz] | 50.2 | 50.2 to 50.5 |

Fixed cos Φ DE

You can set the inverter output power factor as well as leading (over) and lagging (under) of reactive power.

| Parameter | Default Values | Range |
|--------------------|----------------|---------------|
| Cos Φ Value | 1 | 0.95 to 100 |
| Response time [ms] | 10000 | 6000 to 60000 |

Cos Φ (P) curve DE

If inverter output power is generated more than 50%, it outputs lagging reactive power and is operated in the power factor of 0.95 in the maximum output. At this time, the response time can be set and the default time is 6000ms

15.5 Checking the Settings Informaton

Once settings are selected at commissioning, they are locked to view only.


To check the firmware version:

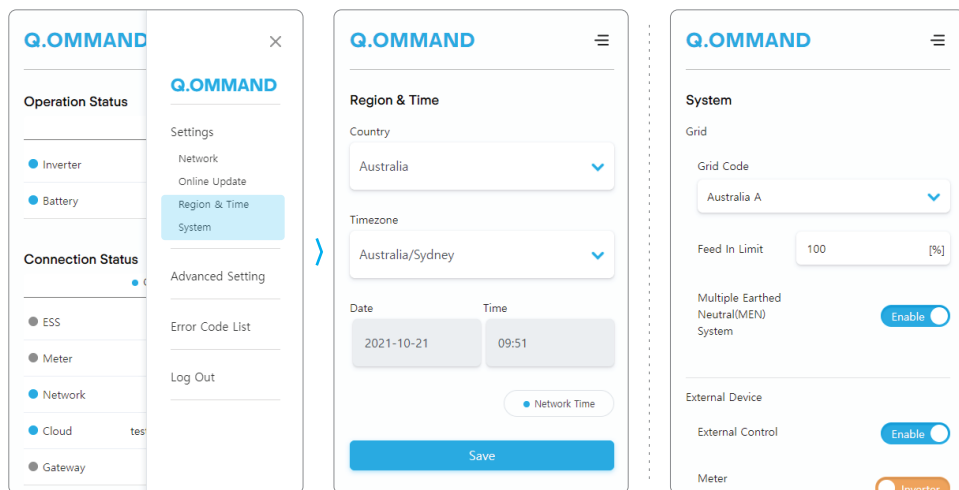
The firmware version can be found in the Information section on the initial page of Q.OMMAND.

| Information | |
|---------------|--|
| EMS | |
| Model Name | HCORE5001H |
| Serial Number | 111131250011901143 |
| H/W Version | 1.10 |
| S/W Version | X06.10.17 (2021/10/17_09:47:51) |
| Mac Address | eth0 : 00:01:c0:2b:97:61 eth1 : 00:01:c0:2c:3f:68 |

The appropriate region and grid code must be selected because grid protection settings and power quality response modes may vary by region.

To check the region or grid code setting:

- 1 Tap  on the top left corner.
- 2 Tap **Region & Time** in the **Settings** menu to check the region setting.
Tap **System** in the **Settings** menu to check the grid code setting.



Note

After commissioning, resetting all the settings can be performed only by an authorized installer.

16 Power Off

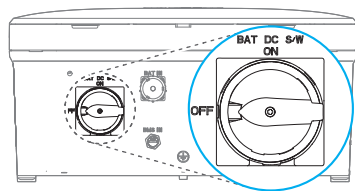


If the AC circuit breaker cannot remain switched on after commissioning (e.g. because the new meter has not yet been installed), the DC switch on the hybrid inverter must remain switched on to avoid deep discharge of the battery. Alternatively, the device can also be switched off completely.

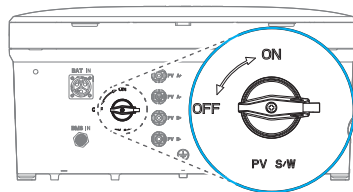
16.1 Turning Off Q.HOME CORE

To turn off Q.HOME CORE:

- 1 Turning off the battery DC switch.



- 2 Turning off the PV switch.



- 3 Turn off the AC circuit breaker in the junction box.

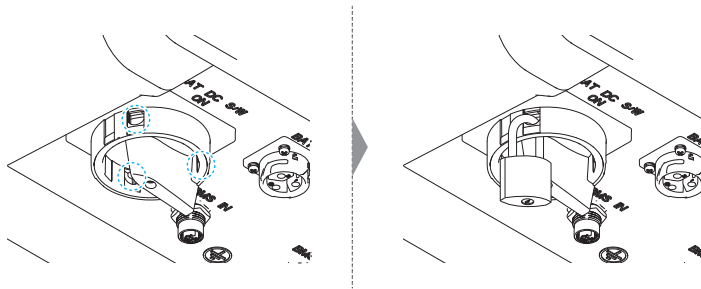


16.2 Locking the DC and PV Switches

After turning off the DC and PV switches, you can lock the switches with a padlock for safety if needed.

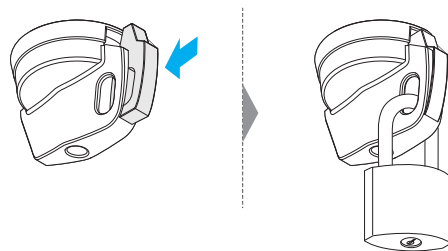
Locking the DC Switch

When the battery DC switch is off, the switch can be locked with a padlock.



Locking the PV Switch

To lock the PV switch, press the yellow knob when the PV switch is off and lock with a padlock.



17 Maintenance

17.1 Battery Maintenance



- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- A battery can present a risk of electrical shock and high short-circuit current.
- Take off watches, rings, or other metallic objects before handling batteries.
- Use tools with insulated handles and wear rubber gloves, eye protection glasses and boots when working with the battery systems.
- Do not lay tools or metal parts on top of batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- The battery power line should be disconnected from the ground. If not, electrical shock may occur.

All maintenance work or service on the ESS must be performed by qualified personnel of the authorized service center. For inquiries on related matters, please contact the number on the last page of the installation manual.

18 Registering the Product

18.1 Web



To register the product on the server,
visit the web site: qommand.qcells.com

Note: If you don't have an account, please register as an installer account.

18.2 App

It is also possible to register the product on the server by using the "Q.OMMAND Pro" app.

Search and install Q.OMMAND Pro on the Apple AppStore or Google Play Store, or use the QR code below.



Android



iOS

19 Troubleshooting with Error Code



- The measures in case of a system failure should be conducted by a qualified technician.
- When a system failure occurs, do not arbitrarily repair the product or replace a component. Hanwha Solutions is not responsible for any problems caused by arbitrary repair.

If there is an error after installing the product, please refer to the error code screen in the Q.OMMAND app and get support from the service center.

| Severity | Code | Description |
|----------|------|--|
| M | S01M | PV1 Over_Voltage Protection |
| M | S02M | PV2 Over_Voltage Protection |
| M | S03M | PV3 Over_Voltage Protection |
| N | S04N | PV1 Over_Current Protection |
| N | S05N | PV2 Over_Current Protection |
| N | S06N | PV3 Over_Current Protection |
| M | S07M | PV1 String Reverse_Conexion Protection |
| M | S08M | PV2 String Reverse_Conexion Protection |
| M | S09M | PV3 String Reverse_Conexion Protection |
| N | S10N | PV1 INSULATION Protection |
| N | S11N | PV2 INSULATION Protection |
| N | S12N | PV3 INSULATION Protection |
| W | S13W | PV1 INSULATION Protection |
| W | S14W | PV2 INSULATION Protection |
| W | S15W | PV3 INSULATION Protection |

Q.HOME ESS Service for Europe, Germany

E-Service Haberkorn GmbH, Augustenhöhe 7, 06493 Harzgerode

TEL +49 (0)39484 9763 85

EMAIL q.home@e-service48.de

Hanwha Q CELLS Australia Pty Ltd

Suite 1, Level 1, 15 Blue Street, North Sydney NSW 2060 Australia

TEL +61 (0)2 9016 3033

EMAIL qhome.au@q-cells.com

Hanwha Solutions Corp.

Q CELLS 86 Cheonggyecheon-ro Jung-gu
Seoul Korea 04541