

V1.0 2026-07-09

Static Transfer Switch

STS

- GW30K-ST5-G10
- GW60K-ST5-G10

User Manual

GOODWE

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NOTICE

Due to product version upgrades or other reasons, the document content will be updated periodically. Unless otherwise agreed, the document content cannot replace the safety precautions on the product labels. All descriptions in the document are for guidance only.

About This Manual

Overview

This document mainly introduces the product information, installation and wiring, configuration and commissioning, troubleshooting, and maintenance of the GW30K-STS-G10 and GW60K-STS-G10 Static Transfer Switch cabinets (hereinafter referred to as STS). Please read this manual carefully before installing and using this product to understand the product safety information and familiarize yourself with the product's functions and features. The document may be updated periodically. Please obtain the latest version and more product information from the official website: <https://www.goodwe.com>.

Applicable Model

This document applies to devices of the following models:

model	Rated Power	Nominal Voltage
GW30K-STS-G10	30kW (grid-side)	220/380, 230/400, 240/415V, 3L/N/PE
GW60K-STS-G10	60kW (grid-side)	

Symbol Definition

DANGER

Indicates a situation with high potential DANGER, which if not avoided, will result in death or serious injury.

WARNING

Indicates a moderate potential hazard, which if not avoided, could result in death or serious injury.

 CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Emphasis and supplementation of the content, may also provide tips or tricks for optimizing product use, helping you solve a problem or save your time.

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1 Safety Precautions

The safety precautions information contained in this document must always be followed when operating the device.

WARNING

The device has been strictly designed and tested in compliance with safety regulations. However, as an electrical device, relevant safety instructions must be followed before performing any operations. Improper handling may lead to serious injury or property damage.

1.1 General Safety

NOTICE

- Due to reasons such as product version upgrades, the document content is updated periodically. Unless otherwise agreed, the content of this document does not supersede the safety precautions on the product label. All descriptions herein are for guidance only.
- Please read this document carefully before installing the device to understand the product and the precautions.
- All operations on the device must be performed by professional and qualified electrical technicians who are familiar with the relevant standards and safety regulations of the project location.
- When operating the device, use insulated tools and wear personal protective equipment to ensure personal safety. Wear electrostatic gloves, an electrostatic wrist strap, anti-static clothing, etc., when touching electronic components to protect the device from electrostatic damage.
- Unauthorized disassembly or modification may cause device damage, which is not covered by the warranty.
- Device damage or personal injury caused by failure to install, use, or configure the device in accordance with the requirements of this document or the corresponding user manual is beyond the manufacturer's liability. For more product warranty information, please visit the official website:
<https://en.goodwe.com/warrantyrelated.html>.

1.2 personnel requirements

NOTICE

To ensure safety, compliance, and efficiency throughout the entire process of equipment transportation, installation, wiring, operation, and maintenance, all tasks must be performed by professional or qualified personnel.

1. Professional or qualified personnel include:

- Personnel who have mastered knowledge of equipment working principles, system structure, risks and hazards, and have received professional operation training or possess extensive practical experience.
- Personnel who have received relevant technical and safety training, possess certain operational experience, are aware of the potential dangers specific tasks may pose to themselves, and can take protective measures to minimize risks to themselves and others.
- Qualified electrical technicians who meet the regulatory requirements of the country/region where they are located.
- Personnel holding a degree in electrical engineering/an advanced diploma in electrical discipline or equivalent/professional qualifications in the electrical field, and possessing at least 2/3/4 years of experience in testing and regulatory work using electrical equipment safety standards.

2. Personnel involved in special tasks such as electrical work, work at heights, and operation of special equipment must hold valid qualification certificates as required by the location of the equipment.

3. Operation of medium-voltage equipment must be performed by certified high-voltage electricians.

4. Replacement of equipment and components is only permitted to be performed by authorized personnel.

1.3 EU Declaration of Conformity

1.3.1 Equipment with Wireless Communication Modules

Equipment with Wireless Communication Modules marketed in Europe must comply with the following directives:

- Radio Equipment Directive 2014/53/EU (RED)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)

- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

1.3.2 Devices without wireless communication functionality

Devices without wireless communication functionality that can be sold in the European market meet the following directive requirements:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

1.4 Safety Symbols and Certification Marks

DANGER

- After device installation, the labels and warning signs on the enclosure must remain clearly visible. Do not cover, alter, or damage them.
- The following enclosure warning label descriptions are for reference only. Please refer to the actual labels used on the device.

No.	Symbol	Description
1		Potential hazard exists during equipment operation. Take protective measures when operating the equipment.
2		High voltage danger. High voltage is present during equipment operation. Ensure the equipment is powered off before performing any operations.
3		Equipment surface is hot. Do not touch during operation to avoid burns.

No.	Symbol	Description
4		Do not disconnect under operation!
5		Delayed discharge. After powering off the equipment, please wait 5 minutes for it to fully discharge.
6		Please read the product manual carefully before operating the equipment.
7		This equipment must not be disposed of as household waste. Please dispose of it according to local laws and regulations, or return it to the equipment manufacturer.
8		Grounding point.
9		CE Mark.
10		RCM Mark.

2 Product Introduction

2.1 Product Overview

The STS supports the connection of PV inverters, energy storage systems, Diesel Generators, loads, and the grid, assisting the entire system in achieving seamless grid-tied/off-grid switching to meet the power backup needs of areas with unstable electricity supply.

When the STS operates in the whole-house backup power scenario, its built-in control logic enables system output power control without external electricity meters or CTs. Whole-house backup power scenario: Upon grid failure, the STS automatically disconnects the mains circuit and seamlessly switches to power supply by the energy storage system. The energy storage system takes over all household loads without interruption to deliver continuous and stable power for the whole house, protecting all electrical appliances from grid fluctuation impacts.

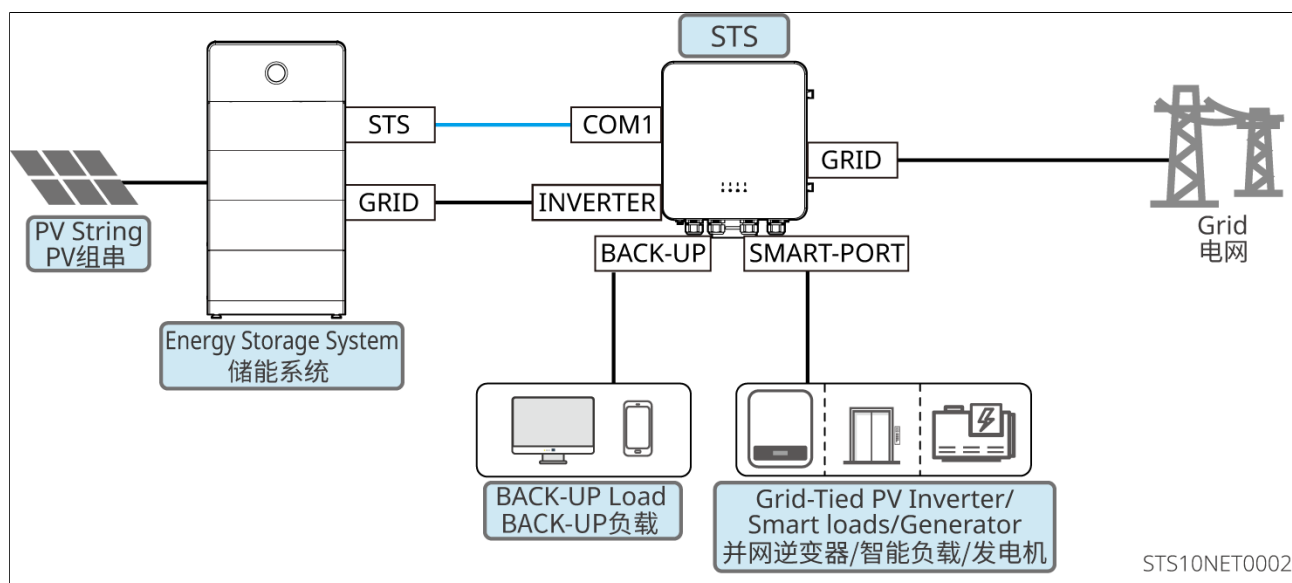


Figure1 Networking Application

port	Description
INVERTER	Energy storage system connection port.
BACK-UP	Critical load connection port.

port	Description
SMART-PORT	Diesel Generator/PV Inverter/Non-critical Loads connection port.
GRID	Grid connection port.

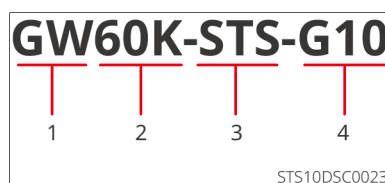
Product Features

- Supports connection of energy storage systems, diesel generators, loads, grid-tied inverters, and the grid, offering flexible configuration
- Supports seamless grid-tied/off-grid switching within 4ms
- Reduces the required length of long-distance, high-current cables, lowering energy storage system costs

Off-grid Load Capacity

1. When the SMART-PORT is connected to non-critical loads, the total load capacity for SMART-PORT and BACK-UP ports is as follows:
 - GW30K-STG-G10 ≤ 30kVA
 - GW60K-STG-G10 ≤ 60kVA
 - To ensure continuous power supply to the BACK-UP Loads during a grid outage, it is recommended that the total power of SMART-PORT loads + BACK-UP Loads does not exceed the rated output power of the energy storage system.

Model Number Meaning



No.	Meaning	Description
1	Brand code	• 30K: Grid-side rated power is 30kW • 60K: Grid-side rated power is 60kW

No.	Meaning	Description
2	Rated Power	30K: Grid-side rated power is 30kW 60K: Grid-side rated power is 60kW
3	Series code	STS: STS series
4	Version code	G10: First generation product

2.3 Circuit Block Diagram

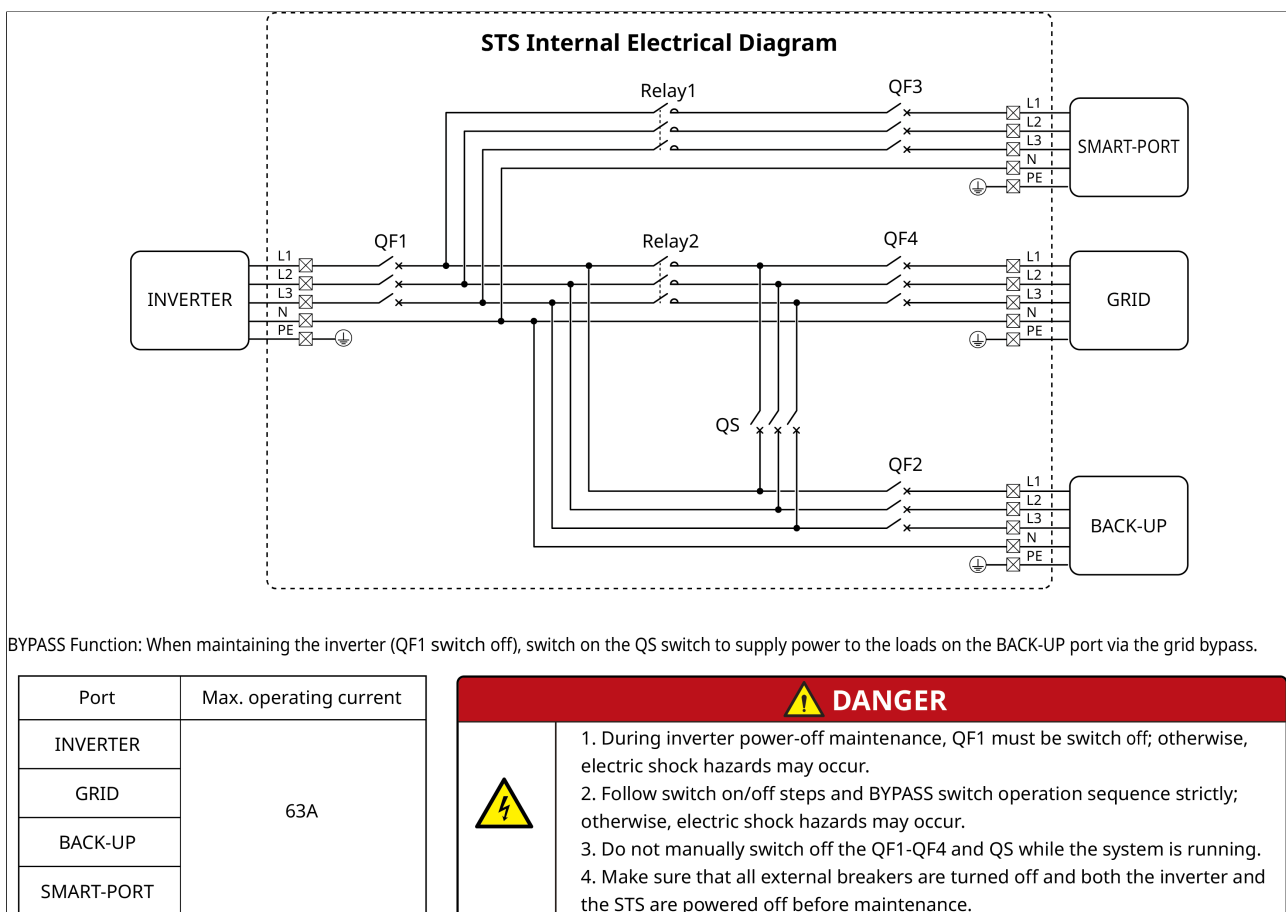


Figure2 GW30K-STG-G10 - Australia Region

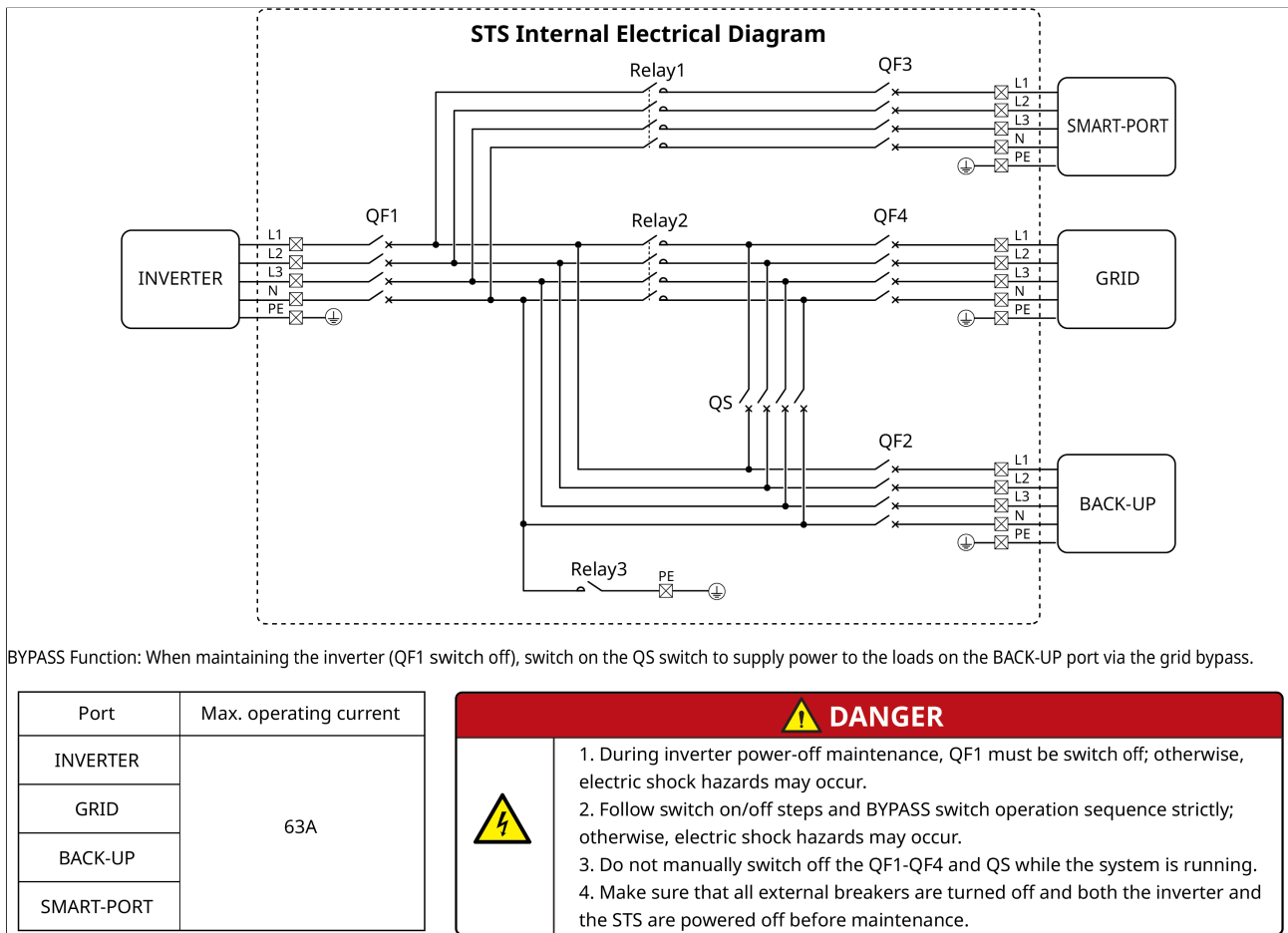


Figure3 GW30K-STG-G10 - Other Regions

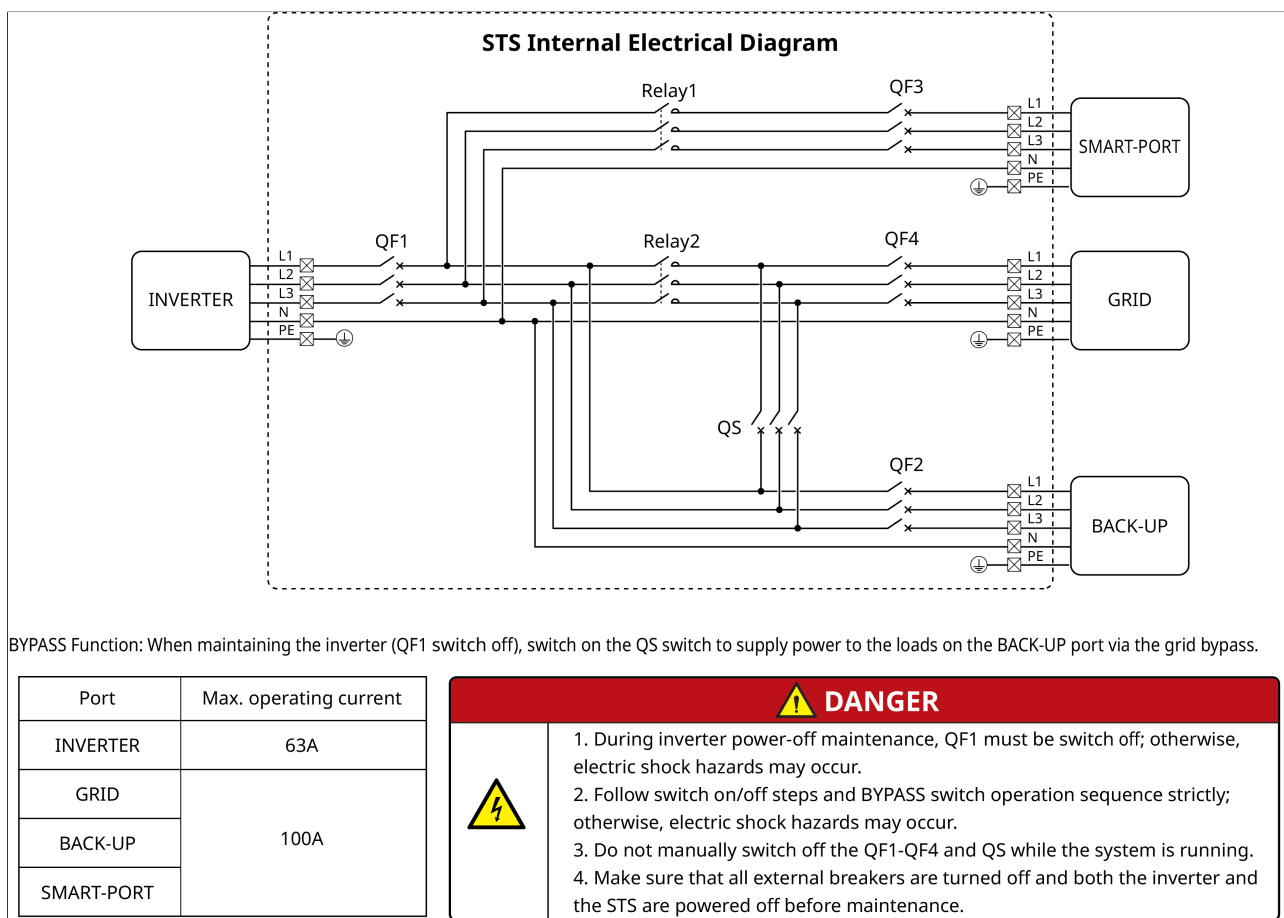


Figure4 GW60K-ST5-G10 - Australia Region

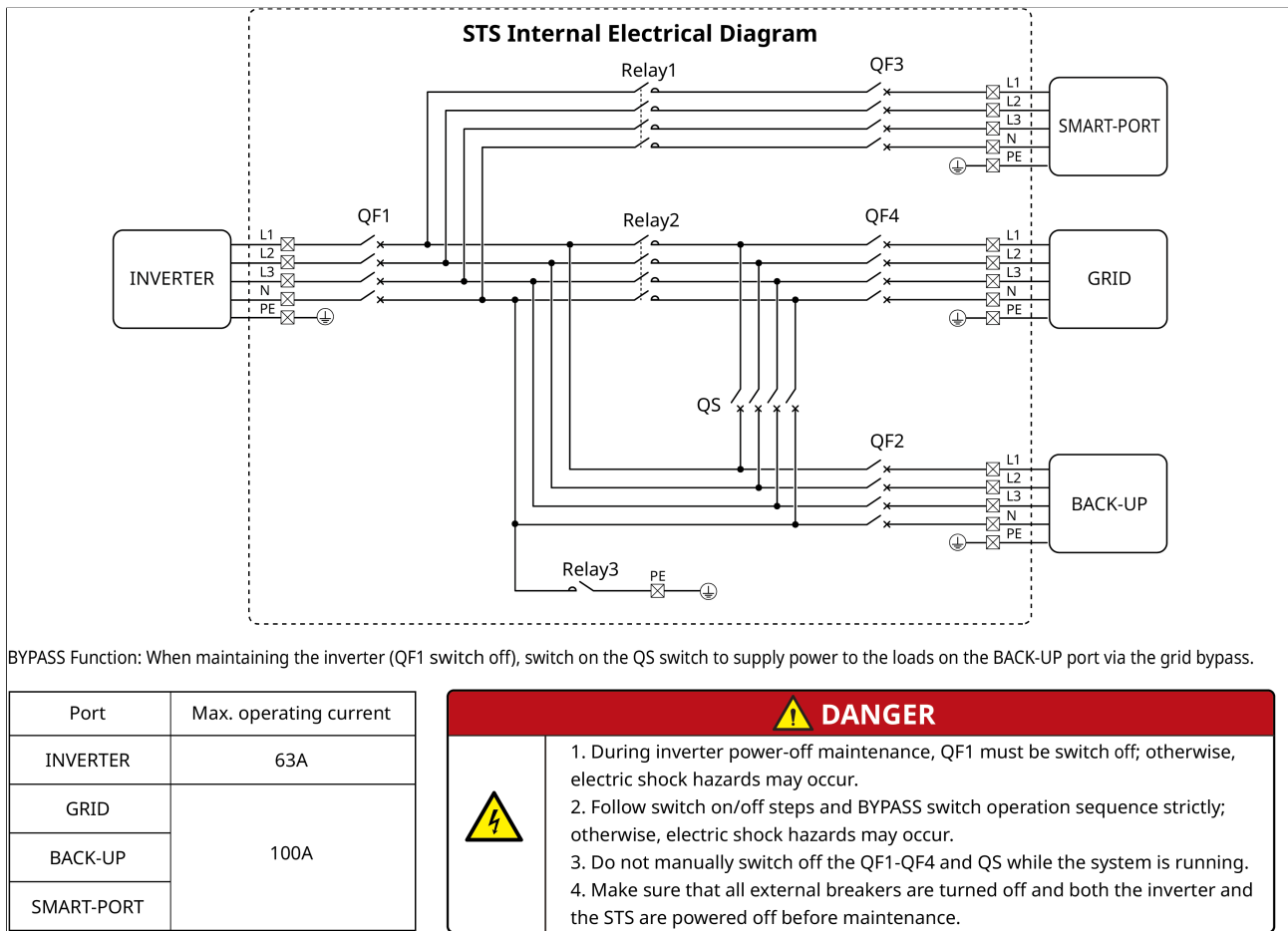
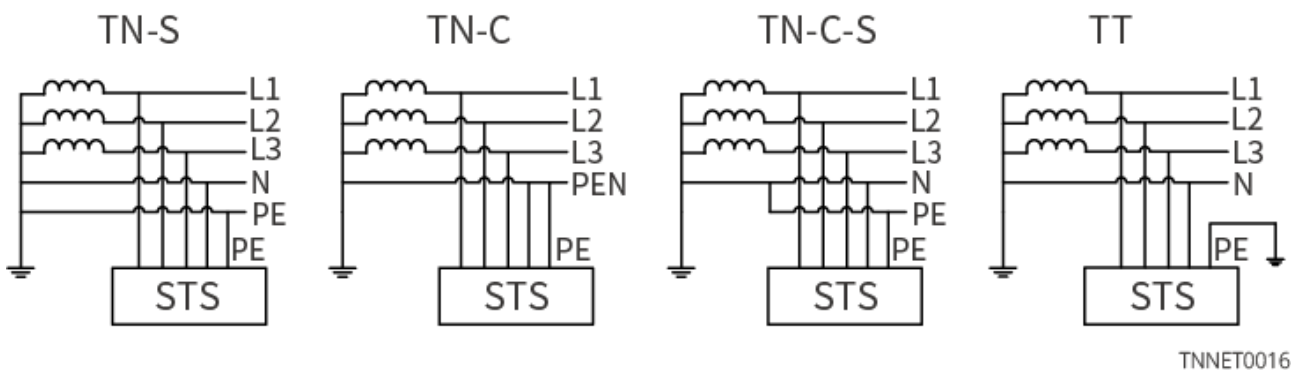
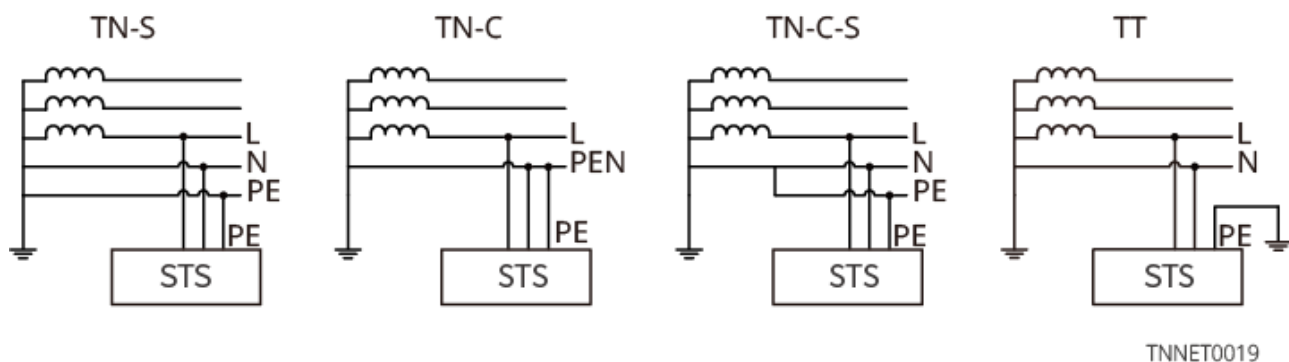


Figure5 GW60K-ST5-G10 - Other Regions

2.4 Supported Grid Types





2.5 STS Indicator Light

indicator	Status	Description
		Grid port voltage normal
		No voltage at Grid port
		Backup port voltage normal
		No voltage at Backup port
		SMART-PORT port voltage normal
		No voltage at SMART-PORT port
		Device fault
		No device fault

3 Check and Storage

3.1 Check Before Receiving

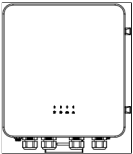
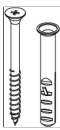
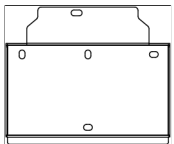
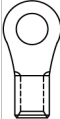
Before receiving the product, please carefully check the following:

1. Check if the outer packaging is damaged, such as deformation, holes, cracks, or other signs that might cause damage to the equipment inside the packaging box. If damaged, do not open the packaging and contact your dealer.
2. Check if the inverter model is correct. If it does not match, do not open the packaging and contact your dealer.
3. Check if the type and quantity of delivered items are correct, and if there is any damage to the appearance. If damaged, contact your dealer.

3.2 STS Deliverables

NOTICE

Delivery components may vary for different device models shipped to different markets. Please refer to the actual items received.

Component	Description	Component	Description
	Static transfer switch cabinet ×1		Expansion screw ×6
	Mounting plate ×1		N line terminal ×4
	63A AC terminal ×16		N line locking screw ×4

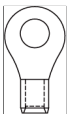
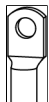
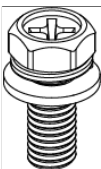
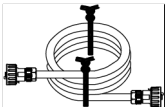
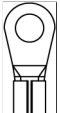
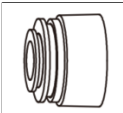
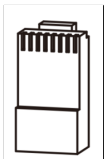
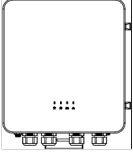
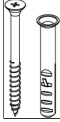
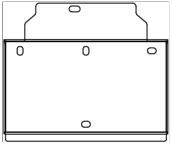
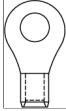
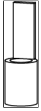
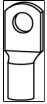
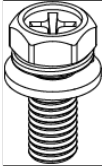
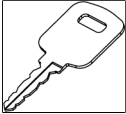
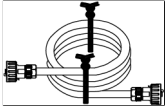
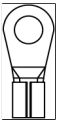
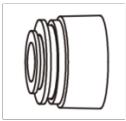
Component	Description	Component	Description
	63A grounding terminal ×4		Grounding terminal screw ×4
	M8 Enclosure grounding OT terminal × 1		Enclosure grounding screw ×1
	Communication waterproof ring ×1		Cabinet door key × 2
	ESA three-phase integrated unit communication adapter cable × 1		Inverter communication cable × 1
	100A grounding terminal ×4		Cable gland gasket ×4
	Communication RJ45 connector ×2		User manual ×1

Table15 GW30K-ST5-G10-Australia Region

Part	Description	Part	Description
	Static transfer switch cabinet ×1		Expansion screw ×6
	Mounting plate ×1		63A ground terminal ×4
	63A AC terminal ×16		Ground terminal screw ×4
	M8 Enclosure ground OT terminal × 1		Enclosure ground screw ×1
	Communication waterproof ring ×1		Cabinet door key × 2
	ESA three-in-one unit communication adapter cable × 1		Inverter communication cable × 1
	100A ground terminal ×4		Gland rubber ring ×4

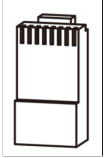
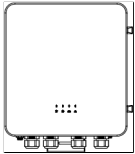
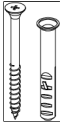
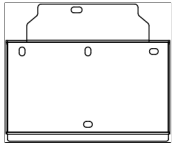
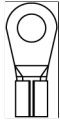
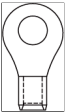
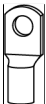
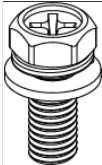
Part	Description	Part	Description
	Communication RJ45 connector ×2		User manual ×1

Table16 GW30K-ST5-G10-Other Regions

Component	Description	Component	Description
	Static switching cabinet ×1		Expansion screw ×6
	Mounting plate ×1		100A AC terminal ×12
	63A AC terminal ×4		100A grounding terminal ×4
	63A grounding terminal ×4		Grounding terminal screw ×4
	M8 Enclosure grounding OT terminal × 1		Enclosure grounding screw ×1

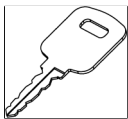
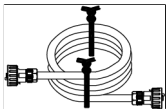
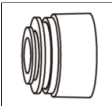
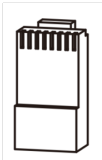
Component	Description	Component	Description
	Communication waterproof gland ×1		Cabinet door key × 2
	ESA three-in-one unit communication adapter cable × 1		Inverter communication cable × 1
	Cable gland gasket ×4		Communication RJ45 connector ×2
	User manual ×1	-	-

Table17 GW60K-ST5-G10-Other Regions

3.3 Storage

If the device is not put into use immediately, please store it according to the following requirements:

1. Ensure that the outer packaging box is not removed, and the desiccant inside the box is not lost.
2. Ensure that the storage environment is clean, with appropriate temperature and humidity ranges, and no condensation.
3. Ensure that the stacking height and direction of the devices are arranged according to the instructions on the packaging box label.
4. Ensure that there is no risk of tipping after the devices are stacked.
5. If the storage time of the device exceeds two years or the time after installation without operation exceeds 6 months, it is recommended to undergo inspection and testing by professionals before putting it into use.
6. To ensure the good electrical performance of the internal electronic components

of the device, it is recommended to power it on every 6 months during storage. If it has not been powered on for more than 6 months, it is recommended to undergo inspection and testing by professionals before putting it into use.

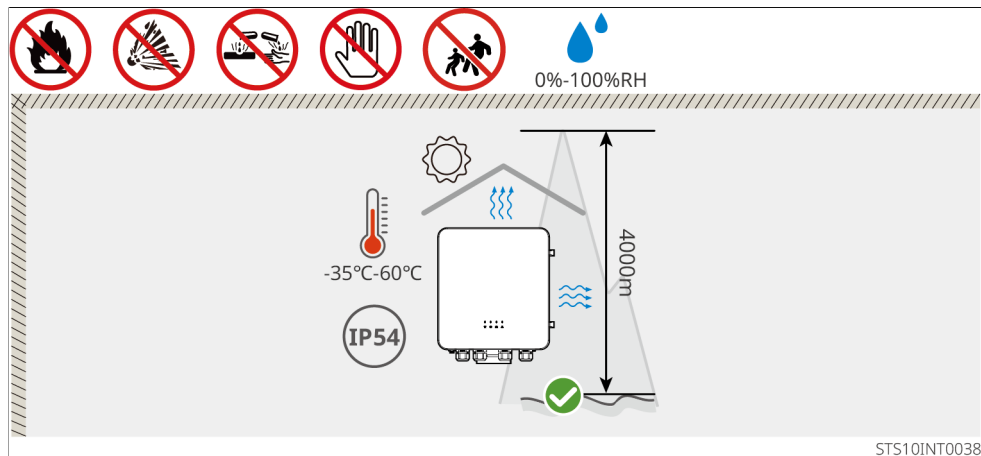
4 Installation

4.1 Installation Requirements

Installation Environment Requirements

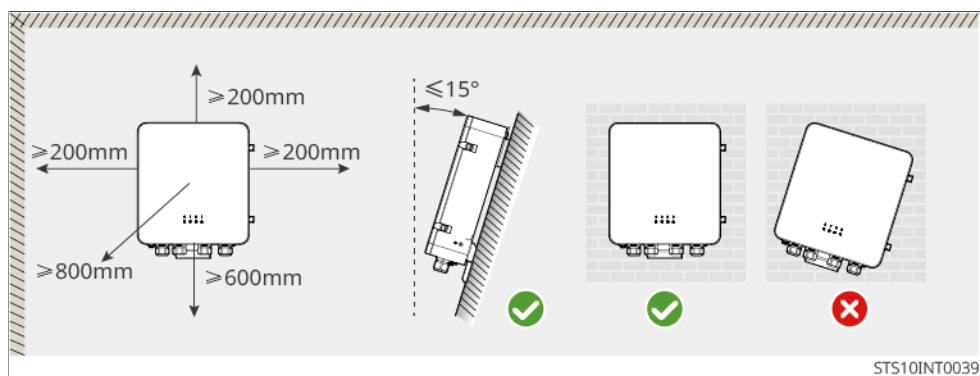
1. The device must not be installed in flammable, explosive, corrosive, or similar environments.
2. The installation location must be out of reach of children and avoid easily accessible positions.
3. The device's protection rating must meet outdoor installation standards, and the ambient temperature and humidity must be within a suitable range.
4. The device should be protected from direct sunlight, rain, snow accumulation, and similar conditions. It is recommended to install it in a sheltered location; a sunshade canopy can be constructed if necessary.
5. The installation space must meet the device's ventilation, heat dissipation, and operational space requirements.
6. The device installation height should facilitate operation and maintenance, ensuring the indicator lights, all labels are easily visible, and the wiring terminals are easy to access.
7. The installation altitude of the device must be lower than the maximum operating altitude.
8. The device may be subject to corrosion if installed in a salt damage area. A salt damage area is defined as within 500 meters of the coast or an area affected by sea breezes. Areas affected by sea breezes vary depending on weather conditions (e.g., typhoons, seasonal winds) or topography (e.g., presence of embankments, hills).
9. If the device is installed in a public area other than work or living spaces (such as parking lots, stations, factory buildings, etc.), please install a protective guard around the device and erect safety warning signs for isolation. Unauthorized personnel must be kept away to prevent personal injury or property damage caused by accidental contact or other reasons by non-professionals during device operation.
10. Keep away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication equipment operating below 30MHz near the installation location, please install the device according to the following requirements:

- Add a ferrite core with multiple windings to the device's AC line, or add a low-pass EMI filter.
- Maintain a distance of over 30 meters between the device and the wireless electromagnetic interference source.



Installation Angle Requirements

- Recommended device installation angles: vertical or tilted backward $<15^\circ$.
- Do not install the device upside down, tilted forward, tilted backward beyond the specified angle, or horizontally.

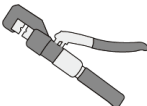
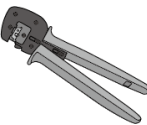
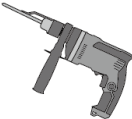
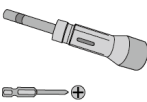
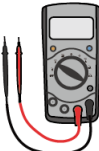
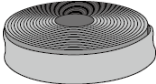


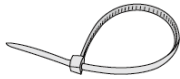
4.2 Tool Requirements

NOTICE

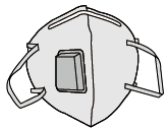
During installation, it is recommended to use the following installation tools. If necessary, other auxiliary tools can be used on-site.

Installation Tools

Tool Type	Description	Tool Type	Description
	diagonal plier		RJ45 Connector Crimping Tool
	wire stripper		YQK-70 Hydraulic Crimping Tool
	open-end wrench		Terminal Crimping Tool PV-CZM-61100
	hammer drill (Bit Φ8mm)		torque wrench M4、M5、M6、M7
	rubber hammer		socket wrench
	Marker Pen		multimeter Range ≤1100V
	Heat Shrink Tubing		Heat Gun

Tool Type	Description	Tool Type	Description
	cable tie		Vacuum Cleaner

Personal Protective Equipment

Tool Type	Description	Tool Type	Description
	Insulated gloves, protective gloves		Dust mask
	goggle		Safety shoes

4.3 Equipment Handling

 CAUTION

- During operations such as transportation, handling, and installation, all applicable laws, regulations, and standard requirements of the country/region must be met.
- Before installation, the equipment must be moved to the installation site. To avoid personal injury or equipment damage during the moving process, please note the following:
 1. Based on the equipment weight, ensure an adequate number of personnel are assigned to avoid the weight exceeding the human lifting capacity, which could cause injury from dropping.
 2. Wear safety gloves to prevent injury.
 3. Ensure the equipment remains balanced during movement to prevent it from falling.

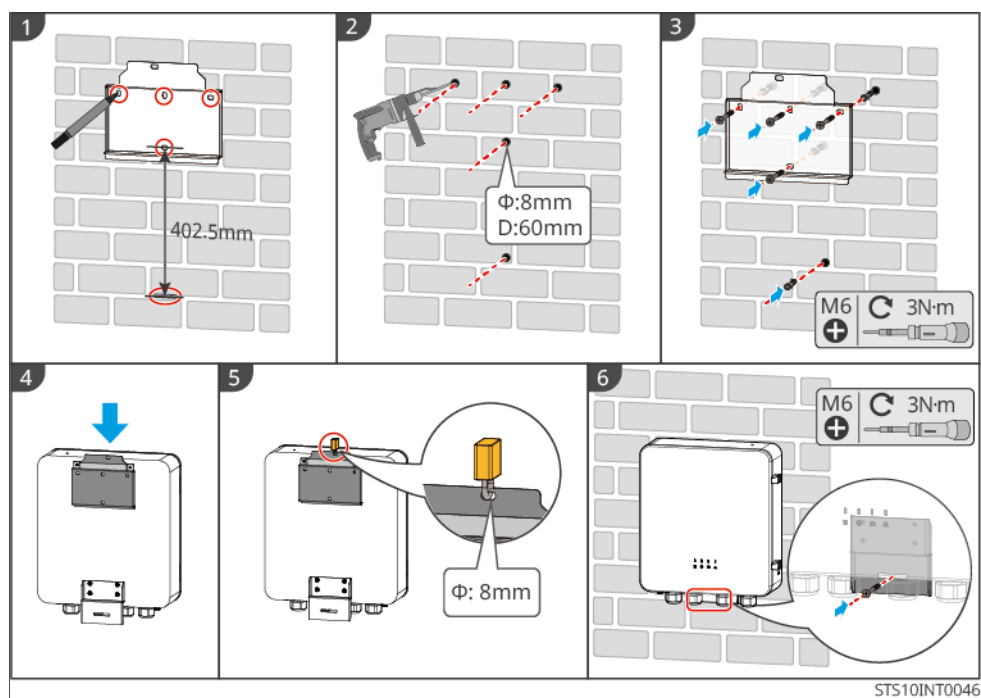
4.4 Installing the STS

 CAUTION

- When drilling holes, ensure the drilling location avoids water pipes, cables, etc., inside the wall to prevent danger.
- When drilling, please wear safety goggles and a dust mask to avoid inhaling dust into the respiratory tract or getting it into the eyes.
- When installing on the wall, to ensure the safety of your life and property, please assess the wall's load-bearing capacity.
- Ensure the device is installed securely to prevent it from falling and injuring people.

1. Place the backplate horizontally against the wall and use a marker to mark the drilling positions.
2. Use an impact drill to create the holes.
3. Secure the backplate to the wall using expansion bolts.
4. Mount the STS onto the backplate.
5. Install the anti-theft lock.

6. Secure the fixed support bracket to the wall using M6 screws.



5 Electrical Connections

DANGER

- All operations, cables, and component specifications used during electrical connections must comply with local laws and regulations.
- Before connecting electrical cables, ensure all upstream switches of the equipment are turned off.
- Before performing electrical connections, disconnect all switches of the equipment to ensure it is powered off. Live operation is strictly prohibited, otherwise risks such as electric shock may occur.
- Cables of the same type should be bundled together and routed separately from different types of cables. Intertwining or cross-routing is prohibited.
- If the cable is subjected to excessive tension, poor connections may result. When wiring, leave a certain length of cable slack before connecting it to the equipment's terminal port.
- When crimping wire terminals, ensure the conductor part of the cable makes full contact with the terminal. Do not crimp the cable insulation together with the terminal, as this may cause equipment malfunction, or after operation, lead to conditions such as terminal block damage due to unreliable connections and overheating.
- Using cables in high-temperature environments may cause insulation aging and damage. Maintain a distance of at least 30mm between cables and heat-generating components or the periphery of heat source areas.

NOTICE

- Before electrical connection, wear personal protective equipment such as safety shoes, protective gloves, and insulating gloves as required.
- Only trained professionals are permitted to perform electrical connection and related operations.
- Please keep the cabinet door key in a safe place.
- The cable colors in the figures are for reference only. Specific cable specifications must comply with local regulatory requirements.

5.1 System Wiring Electrical Block Diagram

NOTICE

- Depending on regional regulatory requirements, the wiring methods for the N and PE lines of the STS's GRID and BACK-UP ports differ. Please follow local regulations.
- After the energy storage system is powered on, the STS's BACK-UP AC port becomes live. If maintenance on the BACK-UP Loads is required, power down the system first to avoid electric shock.
- The STS can be adapted for single-phase or three-phase grid and inverter connections. For single-phase systems, only connect L1, N, and PE. The following descriptions and diagrams use a three-phase system as an example.

N and PE lines are connected together in the distribution box

NOTICE

- To maintain neutral integrity, the neutral wires on the grid-connected side and the off-grid side must be connected together; otherwise, the off-grid function cannot operate normally.
- The diagram below illustrates the grid system for regions such as Australia, New Zealand, and others:

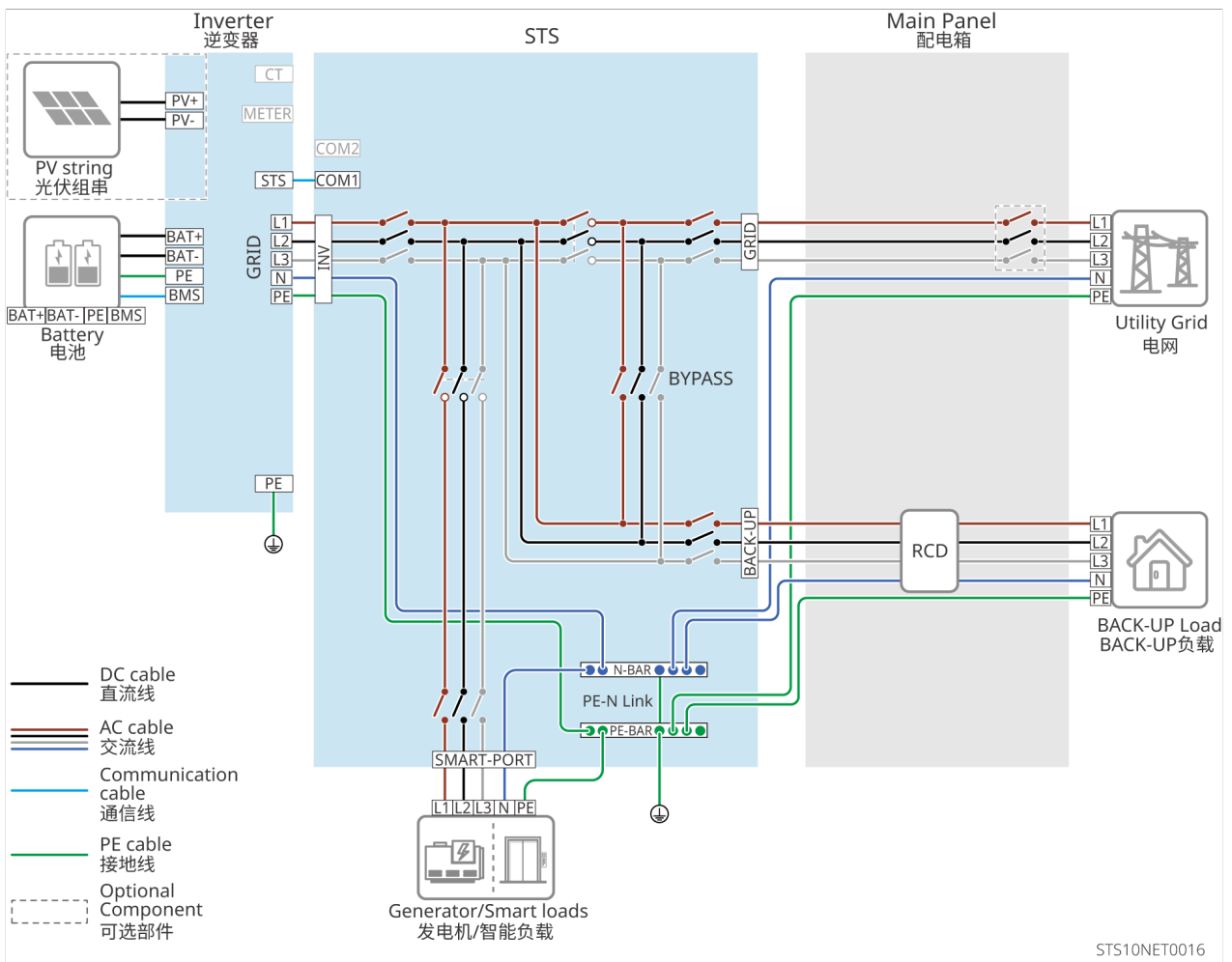


Figure6 Whole House Backup Power

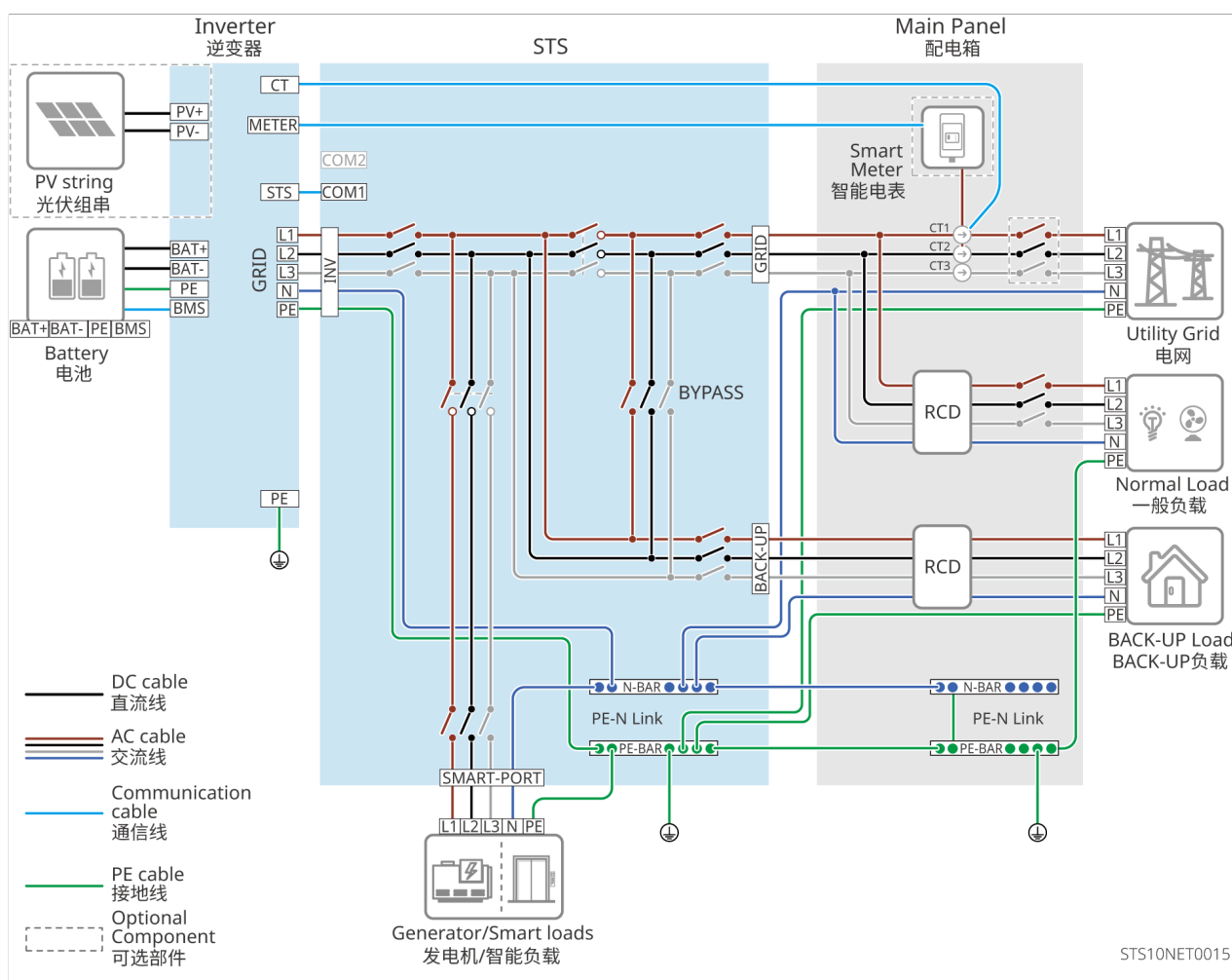


Figure7 Partial Backup Power

N and PE lines are wired separately in the distribution box

NOTICE

When the inverter is switched to off-grid mode and connection of N and PE lines is not required, this function can be set through the 'Advanced Settings' interface in the App under 'Backup Power N and PE Relay Switch'. This applies to regions other than Australia, New Zealand, etc., with the following wiring methods:

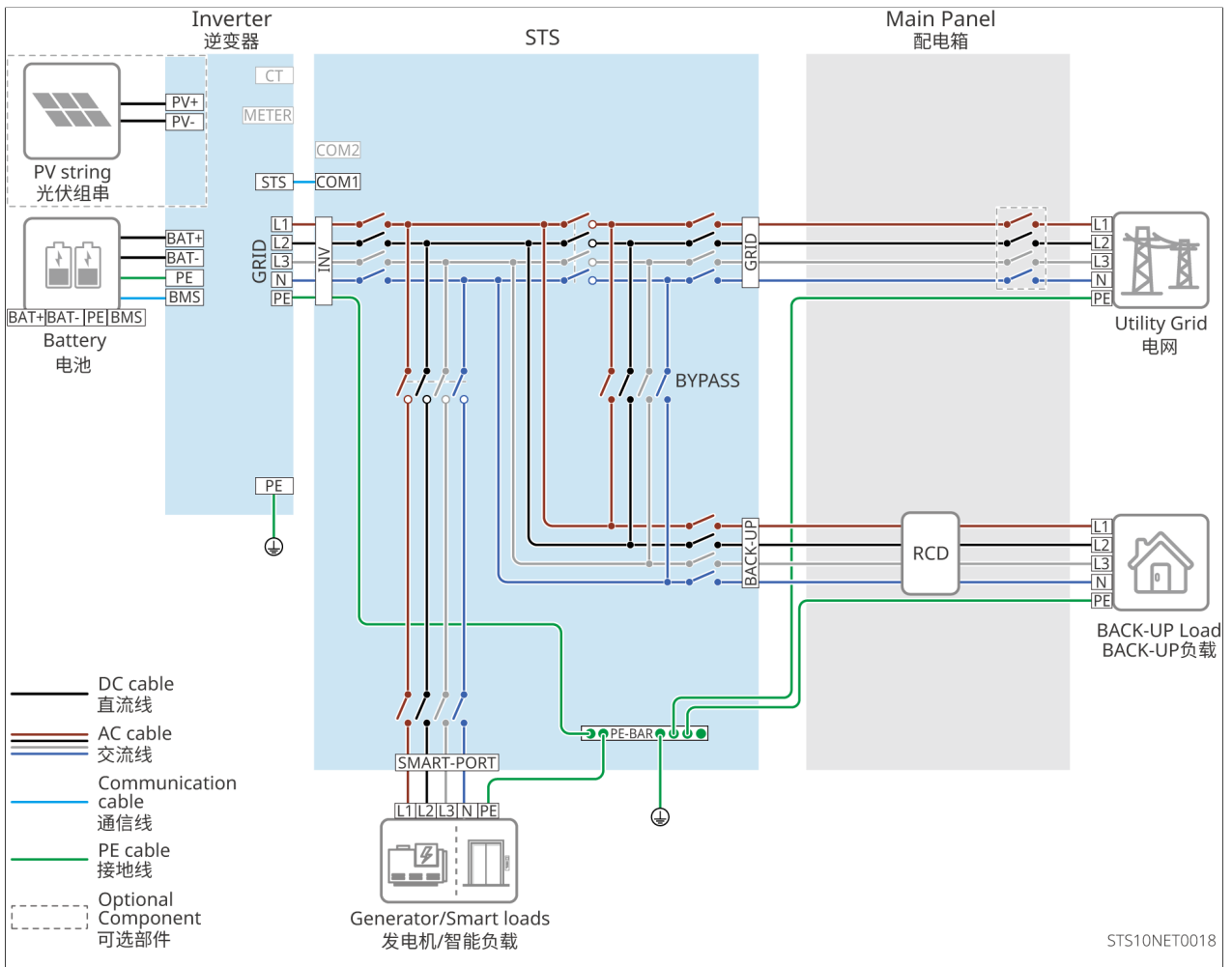


Figure8 Whole House Backup Power

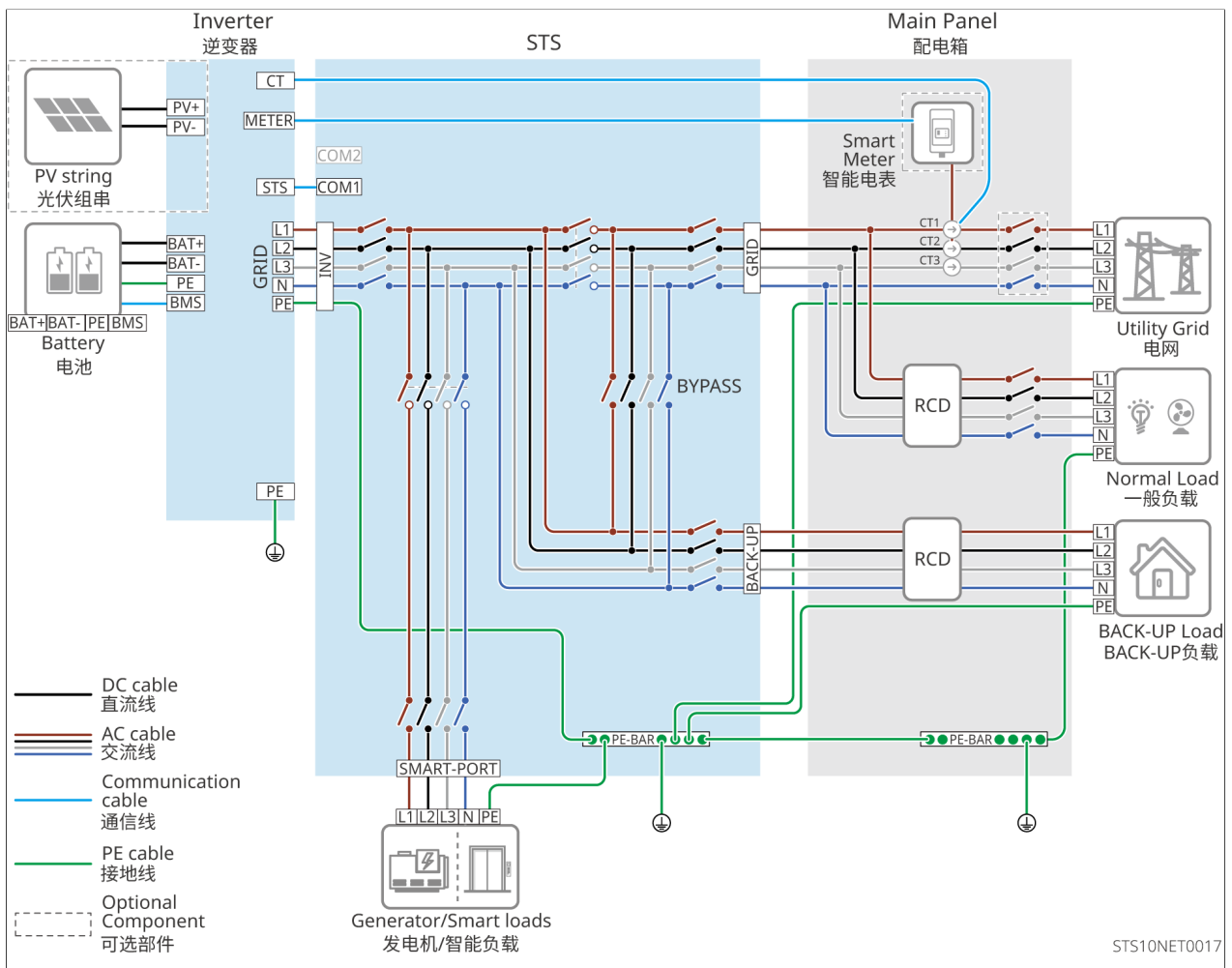


Figure9 Partial Backup Power

5.2 Pre-connection Preparation

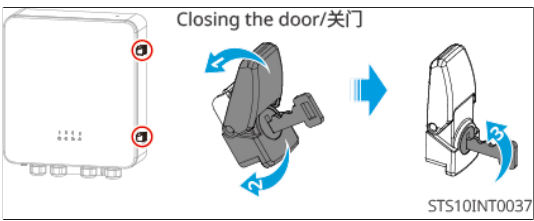
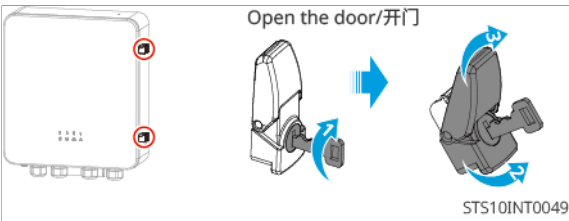
- Preparing Cables

No.	Cable	Type	Recommended Specification	Note
1	Cabinet Protective Grounding Cable	single core outdoor copper cable	Conductor cross-sectional area: • 30kW: 10-16mm² • 60kW: 16-25mm²	User-provided
2	power cable	multi-core outdoor copper cable	Inverter AC Cable • Conductor cross-sectional area: 4-25mm² • Cable outer diameter: 10-32mm SMART-PORT AC Cable, BACK-UP AC Cable, GRID AC Cable • Conductor cross-sectional area: ◦ 30kW: 14-25mm² ◦ 60kW: 16-25mm² • Cable outer diameter: 10-32mm	User-provided
3	Communication cable	Standard Network Cable	CAT 5E or above standard network cable	Shipped with the cabinet

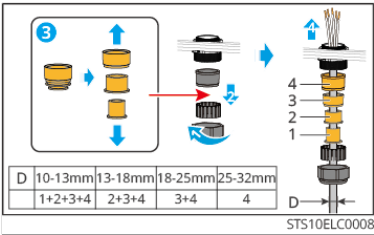
No.	Cable	Type	Recommended Specification	Note
-----	-------	------	---------------------------	------

Note:
 The cable specifications recommended in this table are for reference only. When selecting actual cables, users must comprehensively consider factors such as installation ambient temperature, laying method, number of parallel runs, voltage deviation, and thermal stability, and correct the current-carrying capacity using appropriate correction coefficients. The selected cable must meet the following requirement: Cable current-carrying capacity ≥ Rated current of the overcurrent protection device ≥ Maximum rated current.

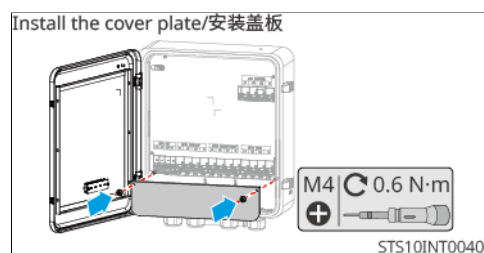
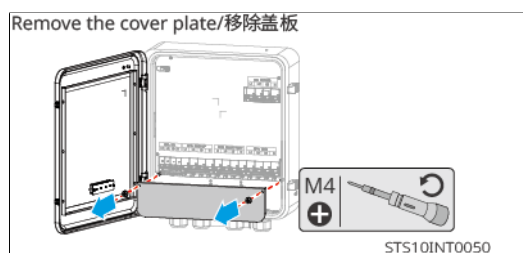
• **Cabinet Door**



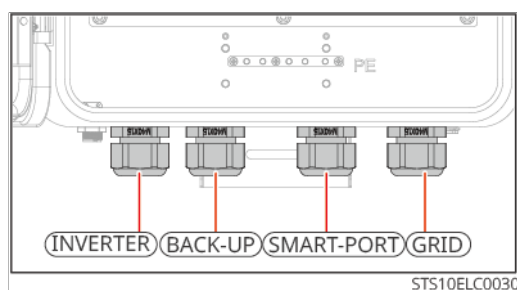
• **Cable Gland Operation**



• **Cover Plate Operation**



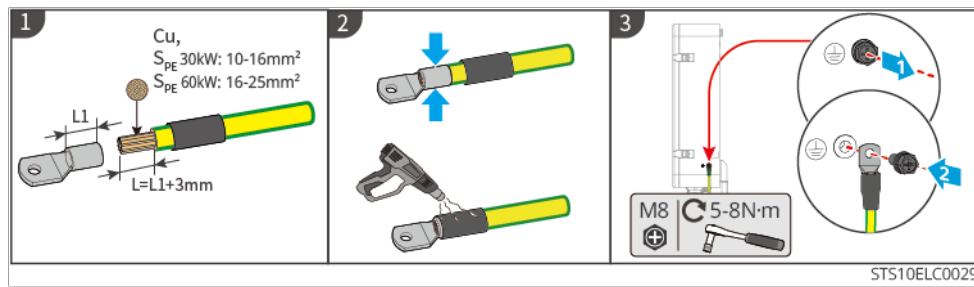
• Wiring Diagram



5.3 Connecting the STS Enclosure Ground Wire

! WARNING

- The protective grounding of the chassis cannot replace the protective ground wire of the AC output port. When wiring, ensure the protective ground wires at both locations are reliably connected.
- To improve the corrosion resistance of the terminal, it is recommended to apply silicone sealant or paint on the external part of the grounding terminal for protection after the protective ground wire connection is installed.
- When installing the equipment, the protective ground wire must be installed first; when removing the equipment, the protective ground wire must be removed last.



5.4 Connecting STS Power Cables

⚠ WARNING

- To ensure the STS can safely disconnect from the utility grid in case of an abnormality, please install an AC switch between the STS and the utility grid. Select a suitable AC switch according to local regulations.
- Please ensure the STS is correctly connected to devices such as the inverter, utility grid, BACK-UP Loads, or generator. Incorrect connections may cause equipment damage.
- During wiring, ensure the AC wires fully match the "L1", "L2", "L3", "N", and "PE" ports on the AC terminal block. Incorrect cable connections may lead to power failure.
- Ensure the wire cores are fully inserted into the terminal connection holes with no exposed parts.
- Ensure the insulation plate at the AC terminal block is securely fastened and not loose.
- Ensure the cable connections are tight. Loose connections may cause the terminals to overheat during operation, resulting in equipment damage.

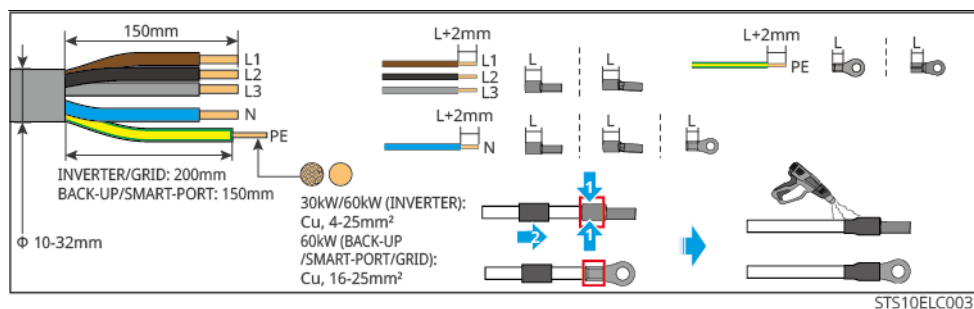


Figure10 Cable Preparation

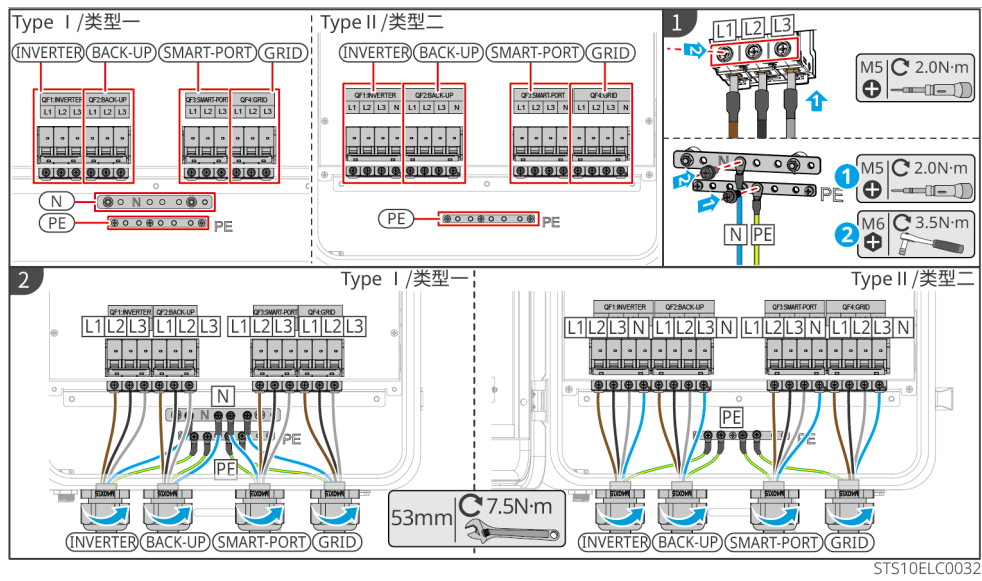


Figure11 30kW Model Cable Connection

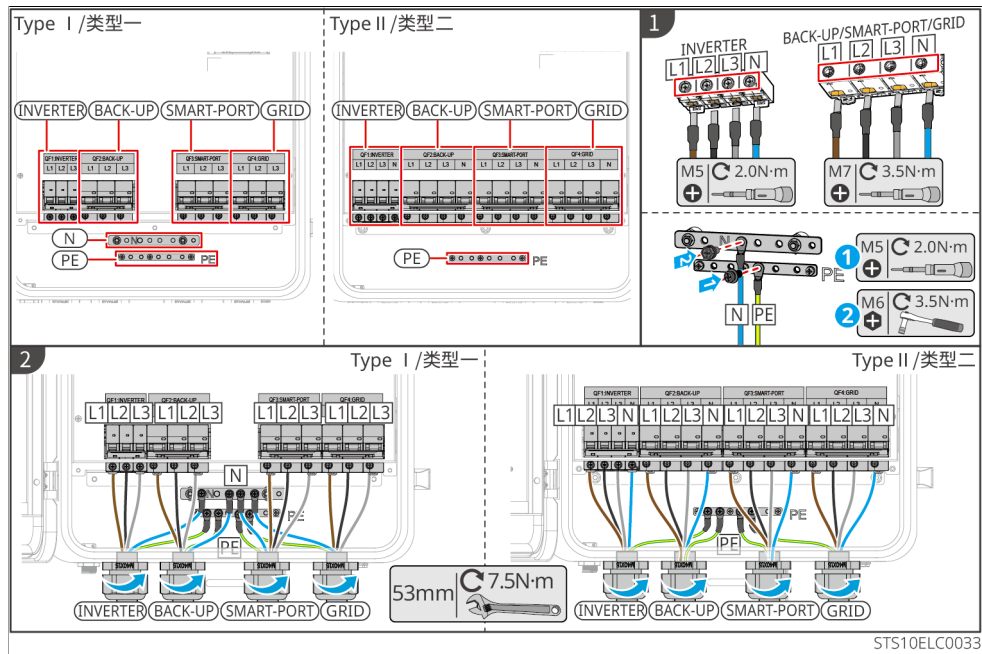


Figure12 60kW Model Cable Connection

5.5 Connect the STS Communication Cable

NOTICE

- When connecting the communication cable to the inverter, please use the communication cable shipped with the unit.
- The length of the communication cable shipped with the unit is: 10m; if this length is insufficient, please prepare your own CAT 5E or higher specification standard network cable and use the RJ45 connector shipped with the unit to crimp the cable.
- The length of a self-made communication cable must not exceed 100m, otherwise it may cause communication abnormalities.
- When making a self-made communication cable, please cut the communication cable shipped with the unit and take its waterproof seal to install on the self-made cable.
- Please ensure proper waterproof protection after completing the communication cable connection.
- The COM2 port function is reserved; please do not remove the waterproof cover.

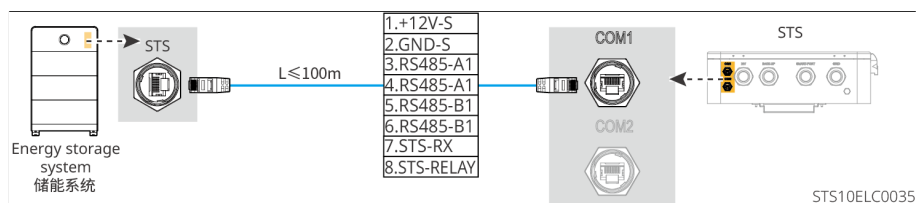


Figure13 Wiring Overview

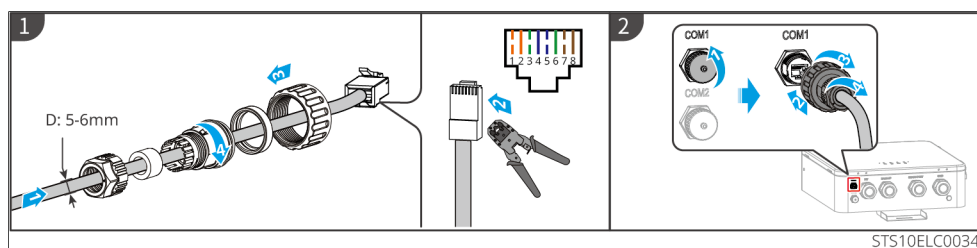
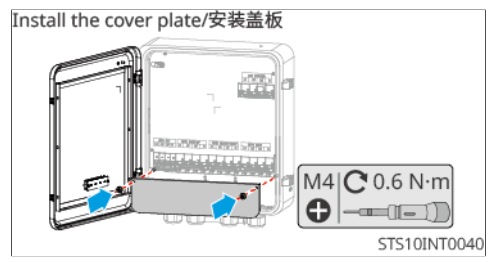


Figure14 Wiring Steps

5.6 Install STS Cover Plate



6 Equipment Trial Run

6.1 Check Before Power ON

No.	Inspection Item
1	The equipment is securely installed, the installation location facilitates operation and maintenance, the installation space allows for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	The PE cable, DC cable, AC cable, Communication cable, and terminal resistor are connected correctly and securely.
3	Cable bundling meets cabling requirements, is reasonably distributed, and shows no damage.
4	For unused cable entry holes and ports, ensure they are reliably connected using the terminals provided with the accessories and have been sealed.
5	Ensure that used cable entry holes have been sealed.
6	The voltage and frequency at the inverter grid connection point meet grid connection requirements.

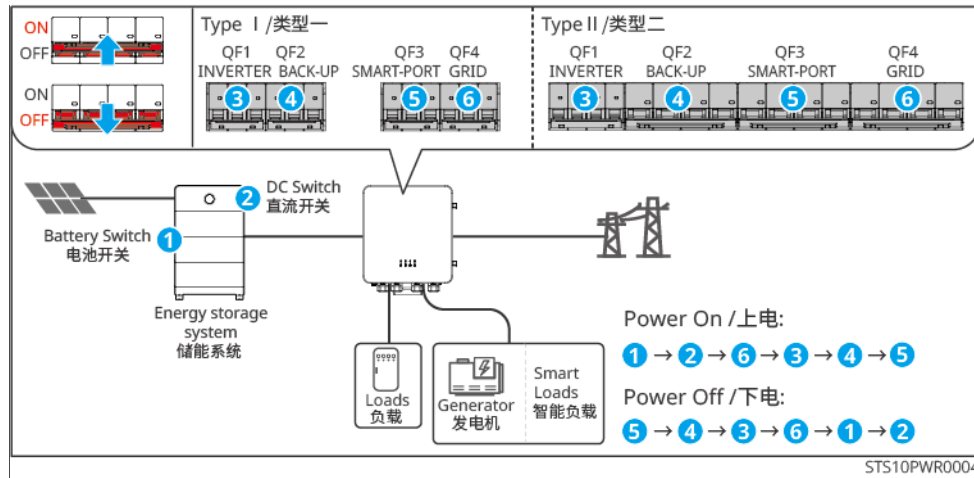
6.2 Device Power On

DANGER

- Before powering on, please close the cover first.
- After powering on is completed, please close the cabinet door.
- Before powering on, be sure to disconnect the BYPASS switch.

1. Power on the inverter
2. Close QF4 GIRD
3. Close QF1 INVERTER
4. Close QF2 BACK-UP

5. Close QF3 SMART-PORT

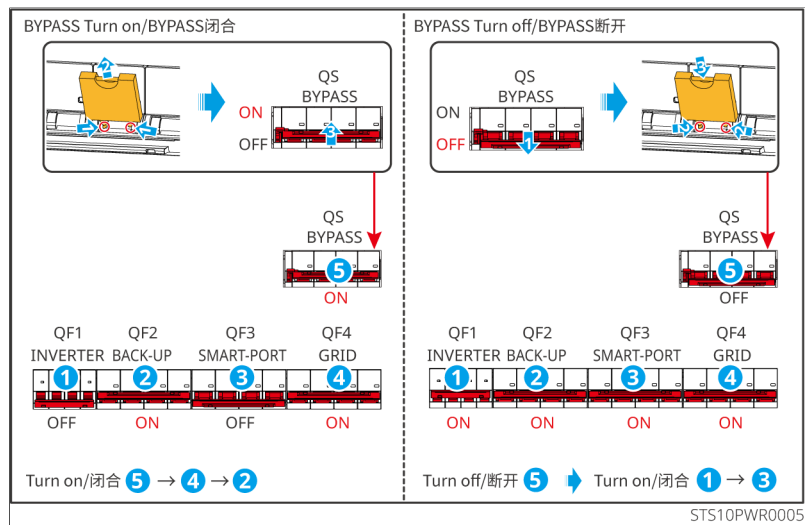


6.3 Bypass Switch Toggle

During inverter shutdown for maintenance, if it is necessary to maintain power to the STS BACK-UP port load, close the BYPASS switch to supply power directly from the utility grid. After the inverter is powered on and resumes operation, open the BYPASS switch to switch the load back to inverter power supply.

! DANGER

- Always operate the BYPASS switch in the correct sequence (close/open). Failure to do so may pose a risk of electric shock.
- When the BYPASS switch is closed, QF1 must be open. Otherwise, there is a risk of electric shock.
- After completing the switch operation, please close the cabinet door.
- Do not discard the retaining clip.



Closing the BYPASS Switch

1. Open all circuit breakers: QF1–QF4 open, QS open and locked.
2. Power down the inverter and wait for 5 minutes.
3. Remove the retaining clip → Close QS.
4. Operate QS to the retaining clip lock position to keep it engaged and locked.
5. Close the GRID circuit breaker QF4.
6. Close the BACK-UP circuit breaker QF2.

Opening the BYPASS Switch

1. Current state: GRID supplies power via bypass to BACK-UP; QF3, QF1 open; QF4, QF2, QS closed.
2. Open QS → Use the retaining clip to place QS in a locked state (to prevent accidental operation).
3. Open QF4, QF2: At this point, QF1–QF4 and QS1 are all open.
4. Power on the inverter.
5. Refer to the power-on sequence to close QF4 → QF1 → QF2 → QF3 in order.

7 System Debugging and Power Station Monitoring

7.2 Device Commissioning and Plant Monitoring via SEMS+ WEB

SEMS+ WEB is a monitoring platform that communicates via WiFi or LAN. The following are the common functions of SEMS+ WEB:

1. Manage organization or user information, etc.
2. Add and monitor plant information, etc.
3. Maintain devices.

For detailed functions, please refer to the [SEMS+ WEB User Manual](#).



SEMS+ WEB User Manual

8 Maintenance

8.1 Device Power-off

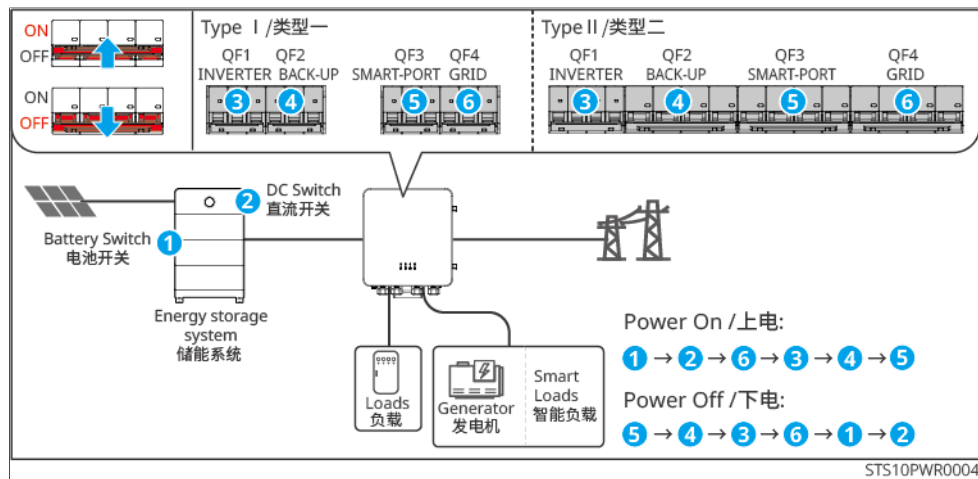
DANGER

- When performing operation and maintenance on equipment in the system, please power off the system. Operating equipment with power on may cause equipment damage or electric shock DANGER.
- After the equipment is powered off, internal components require some time to discharge. Please wait until the equipment is completely discharged according to the label time requirements.
- When performing maintenance on the inverter with power off, QF1 must be disconnected; otherwise, there may be a risk of electric shock.
- Please be sure to operate according to the power-on and power-off procedures; otherwise, there may be a risk of electric shock.

NOTICE

After powering down, please close the upper cover plate.

1. Disconnect QF3 SMART-PORT
2. Disconnect QF2 BACK-UP
3. Disconnect QF1 INVERTER
4. Disconnect QF4 GRID
5. Power off the inverter



8.2 Troubleshooting

Please perform troubleshooting according to the following methods. If the troubleshooting methods cannot help you, please contact the after-sales service center.

When contacting the after-sales service center, please collect the following information to facilitate a quick resolution.

1. Device information, such as: serial number, software version, device installation time, fault occurrence time, fault occurrence frequency, etc.
2. Device installation environment, such as: weather conditions, installation location, etc. It is recommended to provide photos, videos, and other files of the installation environment to assist in problem analysis.
3. Grid conditions.

Fault Prompt	Troubleshooting
STS Over Temperature	Check if the ventilation at the equipment installation location is adequate and if the ambient temperature exceeds the maximum allowable range. • If ventilation is poor or the ambient temperature is too high, please improve the ventilation and heat dissipation conditions. • If both ventilation and ambient temperature are normal, please contact your distributor or after-sales service center.
Bypass Over Load	Turn off some off-grid loads to reduce the inverter's off-grid output power.
Back-up Output Overload	
Generator Port Overload	
Relay Failure ²	Power down the entire system, wait for 5 minutes, then power it back on. If the fault persists, please contact the distributor/GoodWe after-sales service center.
External Communication Disconnection	Check if the STS and inverter are working normally and if the cable connections are correct.
STS Communication Loss	

8.3 Routine Maintenance

 DANGER

- Before maintenance, ensure the STS is completely powered off. Operating with power on may cause equipment damage or risk of electric shock.
- If you discover any issues that may affect the system, contact after-sales personnel. Disassembly by untrained personnel is prohibited.
- If exposed copper wires are found inside the conductive wire, do not touch them. High voltage hazard. Contact after-sales personnel. Disassembly by untrained personnel is prohibited.
- In case of any other unexpected situations, contact after-sales personnel immediately. Operate only under their guidance or wait for them to perform on-site operations.

Maintenance Content	Maintenance Method	Maintenance Cycle
System Cleaning	• Check if there are any foreign objects or dust on the heat sink and inlet/outlet vents. • Check if the installation space meets the requirements, and check if there is any debris accumulation around the device.	Once every six months
System Installation	Check if the device installation is secure and if the fastening screws are loose Check if the device appearance is damaged or deformed.	Once every six months to once a year
Electrical Connection	Check if the electrical connections are loose, if the cable appearance is damaged, or if there is exposed copper.	Once every six months to once a year
Sealing	Check if the sealing of the device's cable entry holes meets the requirements. If there are gaps that are too large or unsealed, reseal them.	Once a year

8.4 Removing the Equipment

CAUTION

- Before removing the STS, ensure that the device is completely powered off.
- During operation, wear personal protective equipment.

1. Open the cabinet door.
2. Disconnect all electrical connections of the STS, including: power cable, Communication cable, and protective ground wire.
3. Remove the STS.
4. Store the equipment properly. If it will be put into use later, ensure the storage conditions meet the requirements.

8.5 Disposing of the Equipment

When the equipment can no longer be used and needs to be disposed of, please dispose of the equipment according to the electrical waste disposal requirements of the country/region where the equipment is located. Do not treat the equipment as household waste.

9 STS Technical Data

Technical Data	GW30K-STG-G10	GW60K-STG-G10
Grid side		
Nominal Voltage (V)	220/380,230/400,240/415 , 3L/N/PE	220/380,230/400,240/415 , 3L/N/PE
Voltage Range (V)	114~280 (according to local standard)	114~280 (according to local standard)
Nominal Frequency (Hz)	50/60	50/60
Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65
Rated. Current (A)	45.5@380V 43.5@400V 41.6@415V	91.0@380V 87.0@400V 83.4@415V
Max. Current (A)	63.0	100.0
Rated Power (kW)	30	60
Rated Conditional Short-circuit Current (kA)	1	1
Back-up side		
Nominal Voltage (V)	220/380,230/400,240/415 , 3L/N/PE	220/380,230/400,240/415 , 3L/N/PE
Voltage Range (V)	114~280 (according to local standard)	114~280 (according to local standard)
Nominal Frequency (Hz)	50/60	50/60
Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65

Technical Data	GW30K-STS-G10	GW60K-STS-G10
Rated. Current (A)	45.5@380V 43.5@400V 41.6@415V	91.0@380V 87.0@400V 83.4@415V
Max. Current (A)	63.0	100.0
Rated Output Power (kW)	30	60
Max. Bypass Current (A)*1	63.0	100.0
Rated Conditional Short-circuit Current (kA)	1	1
Smart Port side		
Nominal Voltage (V)	220/380,230/400,240/415 , 3L/N/PE	220/380,230/400,240/415 , 3L/N/PE
Voltage Range (V)	114~280 (according to local standard)	114~280 (according to local standard)
Nominal Frequency (Hz)	50/60	50/60
Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65
Rated. Current (A)	45.5@380V 43.5@400V 41.6@415V	91.0@380V 87.0@400V 83.4@415V
Max. Current (A)	63.0	100.0
Rated Power (kW)	30	60
Rated Conditional Short-circuit Current (kA)	1	1
Inverter side		

Technical Data	GW30K-STS-G10	GW60K-STS-G10
Nominal Voltage (V)	220/380,230/400,240/415 , 3L/N/PE	220/380,230/400,240/415 , 3L/N/PE
Voltage Range (V)	114~280 (according to local standard)	114~280 (according to local standard)
Nominal Frequency (Hz)	50/60	50/60
Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65
Rated. Current (A)	45.5@380V 43.5@400V 41.6@415V	45.5@380V 43.5@400V 41.6@415V
Max. Current (A)	63.0	100.0
Rated Power (kW)	30	30
Rated Conditional Short-circuit Current (kA)	1	1
General Data		
On/Off Grid Transfer Time (ms)	≤4	≤4
Operating Temperature Range (°C)	-35~+60	-35~+60
Storage Temperature (°C)	-40~+70	-40~+70
Relative Humidity	0 ~ 100%	0 ~ 100%
Pollution Degree	III	III
Max. Operating Altitude (m)	4000	4000
Cooling Method	Natural Convection	Natural Convection
Communication	RS485	RS485

Technical Data	GW30K-STS-G10	GW60K-STS-G10
Weight (kg)	12.5	15
Dimension (W×H×D mm)	506*590*180	506*590*180
Mounting Method	Wall Mounted	Wall Mounted
Noise Emission (dB)	35	35
Ingress Protection Rating	IP54	IP54
Anti-corrosion Class	C4L	C4L
Overvoltage Category	III	III
Protective Class	I	I
Certification		
Safety Regulation	IEC 61439-1、IEC 61439-2 EN 61439-1、EN 61439-1	IEC 61439-1、IEC 61439-2 EN 61439-1、EN 61439-1

10 Appendix

10.1 Explanation of Terms

- **Overvoltage Category Explanation**

- **Overvoltage Category I:** Equipment connected to circuits with measures to limit instantaneous overvoltage to a relatively low level.
- **Overvoltage Category II:** Energy-consuming equipment supplied by fixed distribution installations. Such equipment includes appliances, portable tools, and other household and similar loads. If special requirements for reliability and suitability are imposed on such equipment, then Overvoltage Category III is adopted.
- **Overvoltage Category III:** Equipment in fixed distribution installations, where the reliability and suitability of the equipment must meet special requirements. Includes switching devices in fixed distribution installations and industrial equipment permanently connected to fixed distribution installations.
- **Overvoltage Category IV:** Equipment used in the power supply of distribution installations, including measuring instruments and preceding overcurrent protection devices, etc.

- **Damp Location Category Explanation**

Environmental Parameters	Levels		
	3K3	4K2	4K4H
Temperature Range	0~+40°C	-33~+40°C	-33~+40°C
Humidity Range	5% to 85%	15% to 100%	4% to 100%

- **Environmental Category Explanation:**

- **Outdoor Inverter:** Ambient air temperature range is -25 to +60°C, suitable for environments with pollution degree 3;
- **Indoor Type II Inverter:** Ambient air temperature range is -25 to +40°C, suitable for environments with pollution degree 3;
- **Indoor Type I Inverter:** Ambient air temperature range is 0 to +40°C, suitable for environments with pollution degree 2;

- **Pollution Degree Category Explanation**

- **Pollution Degree 1:** No pollution or only dry non-conductive pollution;

- **Pollution Degree 2:** Generally only non-conductive pollution, but occasional transient conductive pollution due to condensation must be considered;
- **Pollution Degree 3:** Conductive pollution exists, or non-conductive pollution becomes conductive due to condensation;
- **Pollution Degree 4:** Persistent conductive pollution, such as pollution caused by conductive dust or rain/snow.

11 Contact Details

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