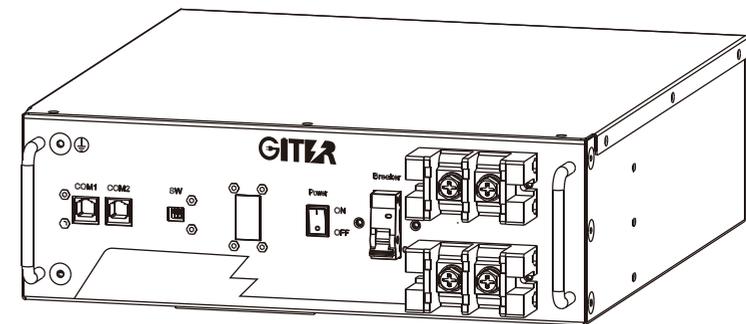


INSTALLATION MANUAL BATTERY MODULE

G2500-48
G2500-24



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Version Information

Version	Date	Content
V1.0	20201110	New

CONTENT

1. Introduction	01
1.1 General precaution	01
2. Installation	02
2.1 Scope of delivery	02
2.2 GTE battery	02
2.3 Limitation of liability	06
2.4 Installation of the battery	06
2.4.1 Installation site and environment	06
2.4.2 Unpacking the box	06
2.4.3 Installation and wiring	07
3. System operation	11
3.1 Switch on/off	11
4. Maintenance and fault handling	11
4.1 Routine maintenance	11
4.2 Handling of other faults and abnormal phenomena	11
4.2.1 Unable to turn on	11
4.2.2 Shut down immediately after turn on	11
4.2.3 Unable to charge	12
4.2.4 Unable to discharge	12
4.2.5 No communication between battery and upper controller (if any)	12
4.2.6 Unable to turn off	13
4.2.7 Outer light is always on	13
5. Appendix	13
5.1 Specification	13

1. Introduction

1.1 General precaution

CAUTION

CAUTION:

1. It is strictly prohibited to put the battery in water or fire, so as to avoid explosion or other dangers and endanger personal safety;
2. Please connect the wires correctly during installation. Do not connect the positive and negative poles back. Do not connect lithium batteries in series;
3. Do not puncture the battery by needling, hammering, trampling or other means;
4. Before installing or removing the equipment, ensure that the power system is not live and that the battery equipment is turned off.
5. In case of fire, please inform the fire department immediately and use lithium battery fire extinguishers that meet the national requirements to put out the fire.
6. If the battery is improperly lifted or dropped while being removed during transportation, it can cause personal injury.
7. Under any circumstance, non-our company or technicians authorized by this company should not disassemble any part of the system without authorization to prevent danger or injury to your personal safety, and the resulting equipment failure is not covered by the warranty.

WARNING

- ★ During standard operation, no electrolyte shall leak from the battery pack and no toxic gases shall form. Despite careful construction, if the Battery Pack is damaged or a fault occurs, it is possible that electrolyte may be leaked or toxic gases formed.
- ★ Do not install the system in any environment of temperature below -10°C or over 50°C and in which humidity is over 85%.
- ★ Do not touch the system with wet hands.
- ★ Do not put any heavy objects on top of the system.
- ★ Do not damage the system with sharp objects.
- ★ Do not install or operate the system in potentially explosive atmospheres or areas of high humidity.
- ★ Do not mount the inverter and the battery pack in areas containing highly flammable materials or gases.
- ★ If moisture has penetrated the system (e.g. due to a damaged enclosure), do not install or operate the system.
- ★ Do not move the system when it is already connected with battery modules.
- ★ Secure the system to prevent tipping with restraining straps in your vehicle.
- ★ The transportation of GTE battery must be carried out by professionals, These instructions shall be recorded and repeated.

- ★ Don't smoke when close to the vehicle.
- ★ In case of contact with the electrolyte, flush the affected area with clean water immediately and consult your doctor immediately.

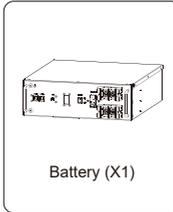
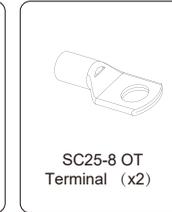
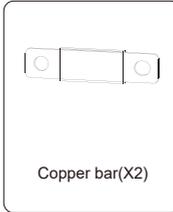
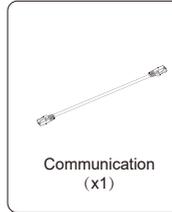
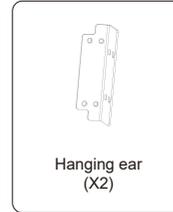
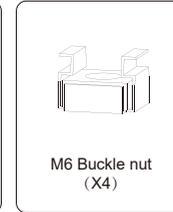
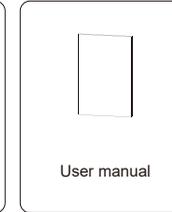
2. Installation

2.1 Scope of delivery

Check the following parts list to ensure it is complete.

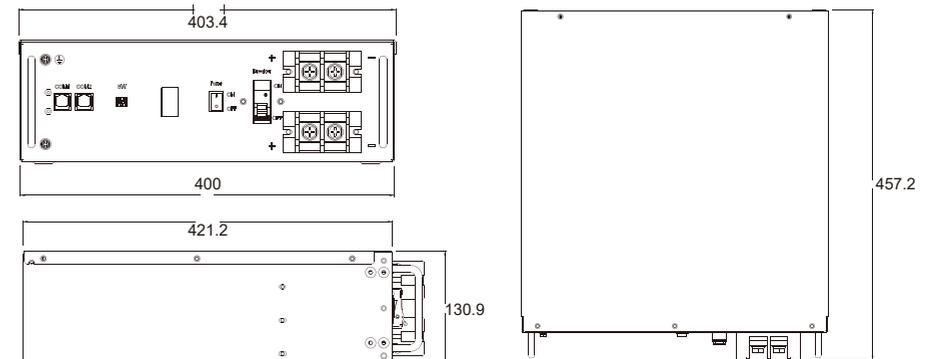
GITER delivers a total system separately on site to client, this consists of:

GTE battery

2.2 GTE battery

2.2.1 Dimensions and specifications



2.2.2 Interface

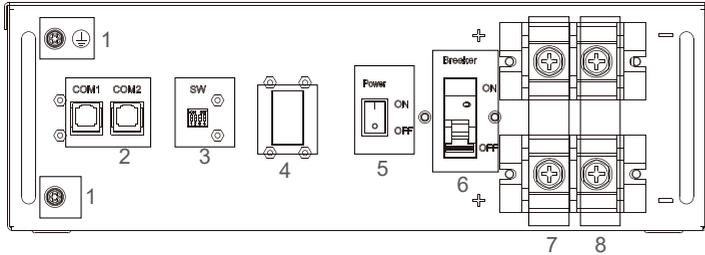
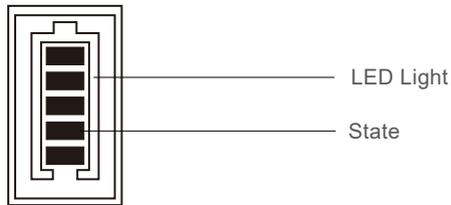


Figure 1 G2500-48 Interface

Item	Description	Item	Description
1	Ground(with screws) (x2)	5	Power Switch
2	Communication Port	6	Battery Circuit Breaker
3	DIP Switch	7	Battery Positive port
4	LED SOC Display	8	Battery Negative port

2.2.2.1 LED SOC display



In normal condition, LED display indicates the SOC as the figure below:

LED outer light	SOC	Description
		SOC<5%
Standby:		5%≤SOC<25%
Green light flickers every 1s		25%≤SOC<50%
Work:		50%≤SOC<75%
Green light flickers every 10s		75%≤SOC<95%
		SOC≥95%

2.2.2.2 Error and protection code

LED Outer light	Protection code	LED display	Description
	1		Temperature difference
	3		High temperature
	4		Discharging in low-temperature environment
Green light flickers every 3 seconds.	5		Over-current charge
	6		Over-current discharge
	8		Cell over voltage
	9		Cell under voltage
	11		Charging in low-temperature environment

It's actually in normal working mode, when the alarm code appears. And the battery will automatically resume working, once given the all-clear.

In the working mode, if the alarm code 09 appears, turn on the Power switch 5 times within 10 seconds to let BMS force close the MOS so that the inverter can detect and charge the battery.

Error code:

LED outer light	Error code	LED display	Description	Troubleshooting
Red light flickers every 3 seconds.	Error 01		Temperature sen-sor failure	Please restart the battery. If the problem is not resolved, please contact GITER after sales team.
	Error 05		MOSFET error	
	Error 07		DIP switch mode difference	Please keep consistence of DIP switches then restart the system.
	Error 08		BMS disconnect (slave)	Please reconnect the communication cable.
	Error 09		SN missing	Please contact GITER after sales team.
	Error 10		BMS disconnect (master)	Please reconnect the communication cable.
	Error 11		Software version inconsistent	Please contact Giter after sales team.
	Error 12		Multi master	After shutting down the battery system, please restart all batteries within 30s.
	Error 13		MOSFET over temperature	Please turn off the battery and turn on the battery after about 2 hours.

2.3 Limitation of liability

Any product damage or property loss caused by the following conditions Giter does not assume any direct or indirect liability.

- ★ Product modified, design changed or parts replaced without Giter authorization;
- ★ Changes, or attempted repairs and erasing of series number by non Giter technician;
- ★ System design and installation are not in compliance with local standards and regulations;
- ★ The product has been improperly stored in dealer's or end user's premises;
- ★ Transport damage (including painting scratch caused by movement inside packaging during the shipping). A claim should be made directly to shipping or insurance company as soon as the container/packaging is unloaded and such damage is identified;
- ★ Failure to follow any/all of the user manual, the installation guide and the maintenance regulations;
- ★ Improper use or misuse of the device;
- ★ Insufficient ventilation of the device;
- ★ The maintenance procedures relating to the product have not been followed to an acceptable standard;
- ★ Force majeure (violent or stormy weather, lightning, overvoltage, fire etc.).
- ★ Damages caused by any external factors.

2.4 Installation of the battery

This manual describes the basic steps of how to install and set up.

2.4.1 Installation site and environment

The following location are not allowed for installation:

- sites with high humidity, or where there is condensation;
- sites which are salty and where humid air can penetrate;
- flooded areas.
- earthquake areas –additional security measures are required here;
- sites with explosive atmosphere;
- sites with direct sunlight;
- sites with extreme change of ambient temperature;
- sites with highly flammable materials or gases;
- sites with a potentially explosive atmosphere.

2.4.2 Unpacking the box

Take out the battery from the packing box and check whether the accessories are complete, as shown in Figure 2.

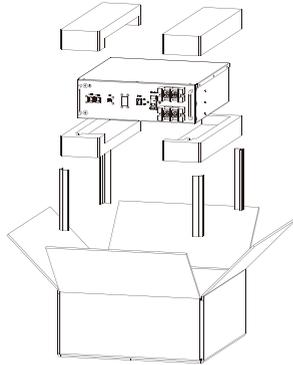


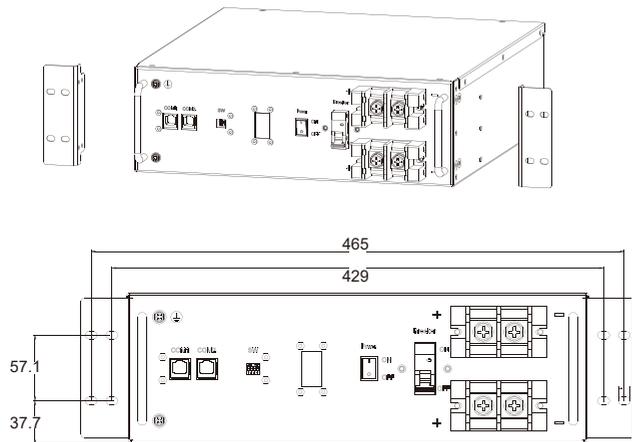
Figure 2 Unpacking the Battery

2.4.3 Installation and wiring

The following actions should be carried out before wiring:

1. Ensure that the Power switch of all batteries is OFF;
2. Switch off all relevant power supply.

2.4.3.1 Installation with cabinet



Step 1: As shown in Figure 3, fix the hanging ear on both sides of the battery with 4 screws. (Torque: 1.6 N.m; Tools: T20 screwdriver)..

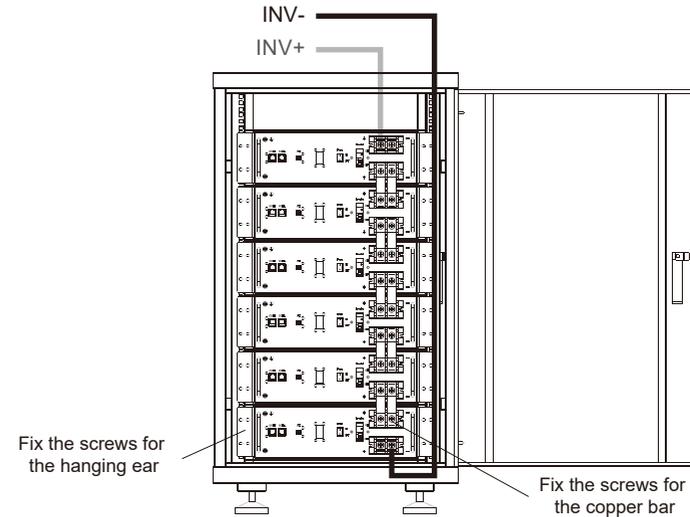


Figure 4 Install battery module & connect copper bar
(Take G2500-48 as an example)

Step 2: As shown in Figure 4, put the battery into the cabinet, tighten the four-angle screws (M6*12 screw, torque: 5 N.m); and fix the copper bar between the battery modules with 3#cross screwdriver (M8; torque: 12 N.m).

Note

1. Serial connection between batteries is not allowed;
2. The power cable of the cross-sectional area connected to the inverter should be at least 35 mm² (About AWG 2), and temperature resistance $\geq 90^\circ$, rated voltage $\geq 500V$.

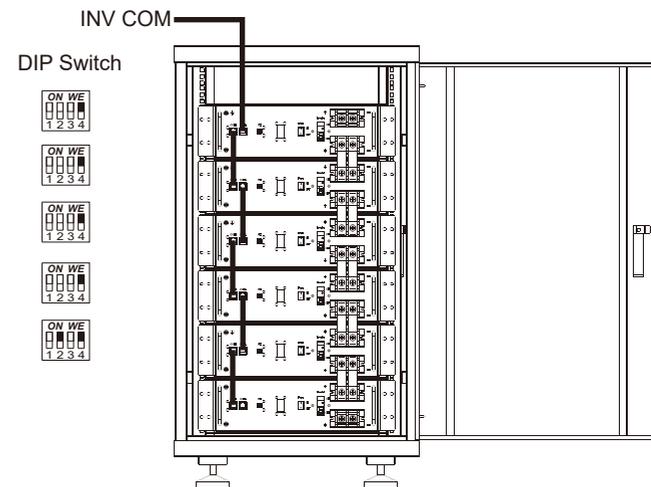


Figure 5 Communication cable connection & DIP Switch
(Take G2500-48 as an example)

Step 3: As shown in Figure 5, connect the communication cable, and dial code after the connection. Switch "2" for the bottom battery, and "4" for all other batteries.

Note

The communication wiring between the battery and the inverter has a special sequence. The requirements of communication wiring connection are shown in Figure 6.

The sequence is specific to the Voltronic Apxert King series inverters only.

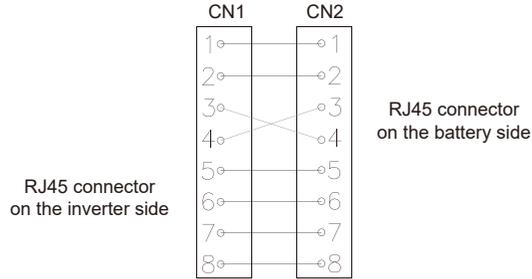


Figure 6 Communication wiring

2.4.3.2 Installation with base
(Accessories need to be purchased separately)

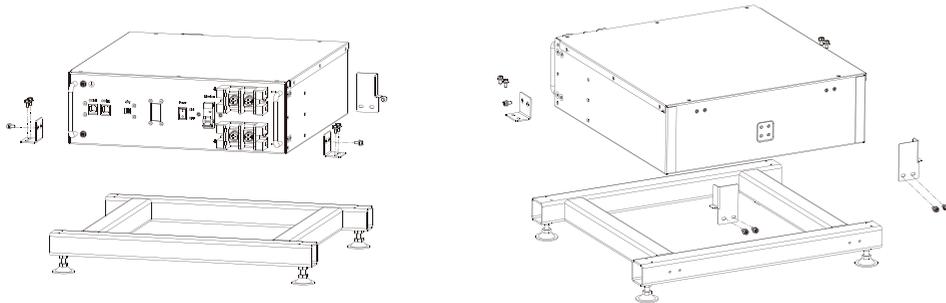


Figure 7 Install the first battery

Step 1: As shown in Figure 7, place the battery on the base and tighten limit brackets located at the four corners (screw: M4*10 outer hexagonal and internal torx combination screw; torque: 1.6 N.m; 10pcs in total)

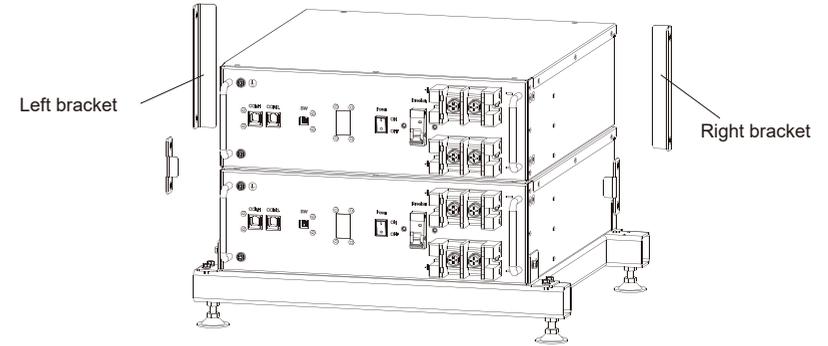


Figure 8 Install the second battery

Step 2: As shown in Figure 7, stack the second battery neatly on the first one and tighten the limit brackets with a T20 screwdriver(screw: M4*10 external hexagonal box Combination screw ; torque requirement: 1.6 N.m; 10pcs).

Note

A bracket (including a left bracket and a right bracket) is used for each 2 batteries

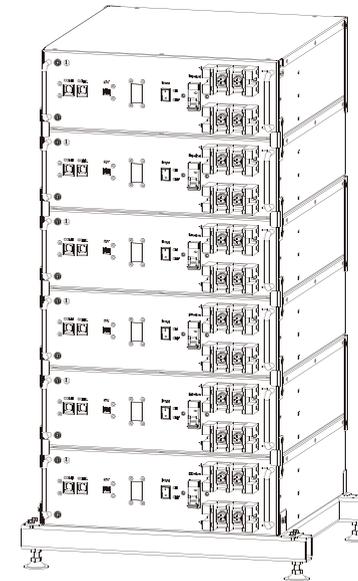


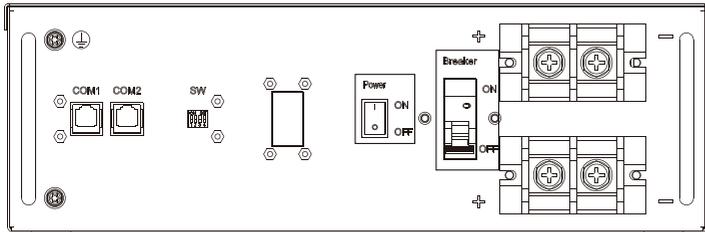
Figure 9 Stack and install 6 batteries
(Take G2500-48 as an example)

Step3: Refer to Step 2 and stack the battery in turn, as shown in Figure 9.

3. System operation

Check all power cables and communication cables carefully.

3.1 Switch on/off



Batteries should be turned on in the correct order to avoid damage

POWER ON: Switch on the Battery Breaker, turn the Power Switch (Rebound button) "ON" and hold for 1-2 seconds. Then the battery module will activate and the LED display will light up.

POWER OFF: Turn the Power Switch (Rebound button) "OFF" and hold for 5 seconds, and the battery will be turned off.

4. Maintenance and fault handling

4.1 Routine maintenance

- Check if the environment situation the requirements of the battery.
- Check whether the charging and discharging function of the battery is normal. When one of the following situations happen, it is necessary to charge the battery in time: the battery alarm code 09 appears, the battery is often under charged, and the battery is stored for more than 3 months.
- Check the battery and its appearance, terminals, cables, LED lights, etc.

4.2 Other faults and abnormal phenomena

Common faults and corresponding troubleshooting are listed below.

4.2.1 Unable to turn on

Fault	Troubleshooting	Description
Turn on the Power switch and hold for 2 seconds, while the LED light isn't on in 3 seconds.	Check if there resistance when you turn on the switch.	If the switch has no resistance, please contact customer service.

4.2.2 Shut down immediately after turning on

Fault	Troubleshooting	Description
Turn on the Power switch and hold for 2 seconds, while the LED light goes off again after 8 seconds.	Check if the switch can bounce back.	If the switch cannot bounce back, please contact customer service.

4.2.3 Unable to charge

Fault	Troubleshooting	Description
The battery cannot be charged normally while it is not fully charged with no LED alarm code nor error code.	<ol style="list-style-type: none"> 1. Check if the battery has been turned on. 2. Check if the power cables are connected correctly; 3. Check if the battery breaker is ON; 4. Check if the ambient temperature is within the operating range. 	If the battery still cannot be charged normally after these steps, please contact customer service.

4.2.4 Unable to discharge

Fault	Troubleshooting	Description
The battery cannot be discharged as it should while it is still alive with no LED alarm code nor error code.	<ol style="list-style-type: none"> 1. Check if the battery has been turned on; 2. Check if power cables are connected correctly; 3. Check if the battery breaker is on; 4. Check if the ambient temperature is within the operating range; 5. Disconnect the power cables and test the battery output voltage. If the voltage is too low, please charge immediately. If there is no voltage, please contact customer service. If the voltage is normal, you can restart the battery. 	If the battery still cannot be discharged normally after these steps, please contact customer service.

4.2.5 No communication between battery and upper controller (if any)

Fault	Troubleshooting	Description
The upper controller failed to detect the batteries	<ol style="list-style-type: none"> 1. Confirm if the battery has been turned on; 2. Check if the power cables are connected correctly; 3. Check if the communication cables are connected correctly and whether they are damaged; 4. Check if the DIP Switch 2 is set "ON", which is on the farthest battery away from the upper controller. 5. Restart the batteries. 	If the battery still cannot be used normally after following the steps, please contact customer service.

4.2.6 Unable to turn off

Fault	Troubleshooting	Description
Turn on the Power switch and hold for 5 seconds, while the LED light is still on.	<ol style="list-style-type: none"> 1. Confirm whether there is resistance when the switch is pressed; 2. Confirm whether the outer light is always on. 	If the switch has no resistance or the outer light is always on, please contact customer service.

4.2.7 Outer light is always on

Fault	Troubleshooting	Description
The LED outer light is always on and the status light is off.	Turn on the Power switch and hold for 5 seconds. Observe the status of the LED outer light.	If the LED light keeps on after the troubleshooting, please contact customer service

5. Appendix

5.1 Specification

Items	G2500-48	G2500-24
Nominal voltage	51.2V	25.6V
Nominal charge/discharge current	25A (0.5C)	50 A (0.5C)
Charging voltage limit	57.6V	28.8V
Discharge voltage limit	48V	24V
Nominal capacity	2.56KWh	
Usable capacity	2.43KWh	
DoD	95%	
Max. Number in parallel per cabinet	6pcs	
Communication interface	RS485/CAN	
IP protection	IP21	
Weight	27kg	
Operating temperature range	0°C ~ 50°C* (Charge) -10°C ~ 50°C* (Discharge)	
Certification	UN38.3	

*When the temperature is below 0°C or above 40°C, the performance will be limited.