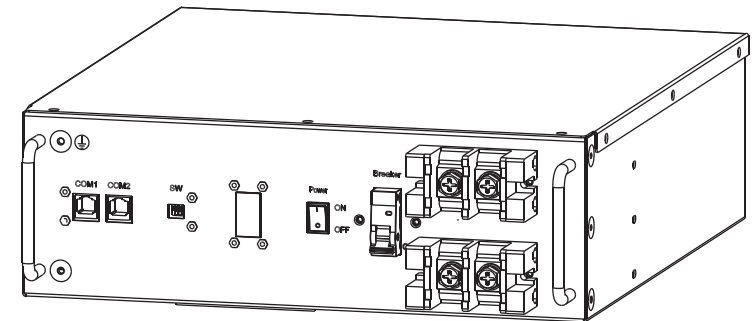


INSTALLATION MANUAL BATTERY MODULE

G2500-48
G2500-24



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Version Information

Version	Date	Content
V1.0	20201110	New
V2.0	20210406	Update line sequence
V3.0	20210623	Modify Dial code
V4.0	20210706	Modify Parts List
V5.0	20220119	update connection diagram

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CAUTION

1. It is strictly prohibited to put the battery into water or in fire, so as to avoid explosion or other danger and to endanger personal safety;
2. Please connect the wires correctly during the installation. Do not connect the positive pole to the negative ones. Do not connect lithium batteries in series;
3. Do not prick the battery with a needle, strike the battery with hammer or harm it in any other means;
4. Before installing or removing the system, ensure that the power is off and that the battery system is turned off.
5. When it encounters a fire, please inform the fire department immediately and use lithium battery fire ex-tinguishers 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 injury.
7. Do not disassemble any part of the system without permission of the company or the technical personnel authorized by the company, in order to prevent danger or injury to your safety. The system the equipment failure caused thereby is not covered in the warranty.

WARNING

- ★ With standard operation, no electrolyte shall leak from the battery pack and no toxic gases shall form. Despite careful construction, it is possible that electrolyte may leak and toxic gases may form if the battery pack is damaged or there is a fault occurs.
- ★ Do not install the system in any environment where 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 made by the manufacturer or by instructed personnel instructed per-sonal. The transportation process shall be recorded..
- ★ Certified novac 1230, FM-200, or carbon dioxide fire extinguisher with a min-imum capacity of 2kg must be carried during transportation.
- ★ Don't smoking Smoking is prohibited in the process of loading and unloading, as well as approaching the vehicle.

- ★ If you want to replace the battery module, please pack it according to new packaging, dan-gerous goods and packaging suppliers to receive it.
- ★ If you have made contact with the electrolyte, flush the affected area with clean water immediately and consult your doctor immediately.

1. Introduction

1.1 General Precaution

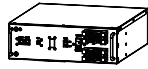
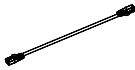
2. Installation

2.1 Parts List

Check the following parts list and make sure there is no part missing.

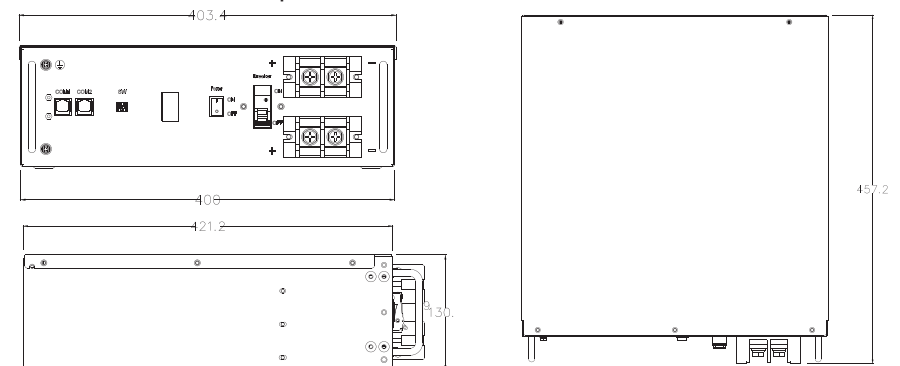
GITER delivers a complete system including:

GTE Battery

				
Battery (X1)	Outer hexagonal and internal torx triad screw M5*10(X2)	Hexagon lobular socket countersunk head screws M4*8 (X10)	M6*12Cross recessed pan head triad screws (x4)	Outer hexagonal and internal torx triad screw M5*10(X2)
				
Communication cable (x1)	Hangers (X2)	M6 Buckle nut (X4)	User manual	

2.2 GTE Battery

2.2.1 Dimensions and Specifications



2.2.2 Interface

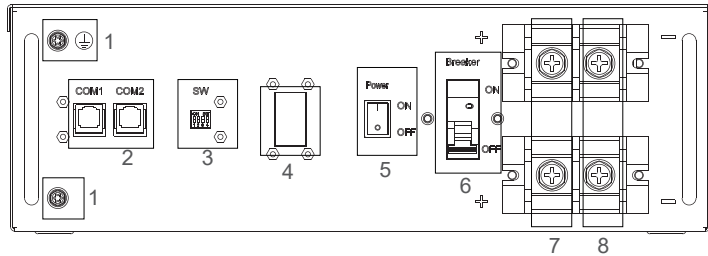


Figure 1 G2500-48 Interface

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

2.2.1 LED SOC Display



In normal condition, LED light indicates the SOC (State of Charge) as the figure below:

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

2.2.2 Error and Protection Code

LED Light	Protection Code	LED Display	Description
Green light flashes every 3 seconds.	1		Temperature difference
	2		High temperature
	3		Discharging in low-temperature environment
	4		Over-current charge
	5		Over-current discharge
	6		Cell over voltage
	7		Cell under voltage
	8		Charging in low-temperature environment

When the alarm code appears, the battery is still in normal working mode. When the elements triggering the alarm are removed, the battery will automatically resume working.

In the working mode, if the alarm code 09 appears, the power button can be pressed 5 times within 10 seconds, and the BMS will force the MOS to close. At this time, the inverter can detect the battery and charge the battery.

Error Code:

LED Light	Error Code	LED Display	Description	Troubleshooting
Red light flashes 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		SN missing	Please reconnect the communi-cation cable.
	Error 09		Multi master	Please contact GITER after sales team.
	Error 10		BMS disconnect (master)	Please Reconnect the commu-nication 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 batter-ies 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.



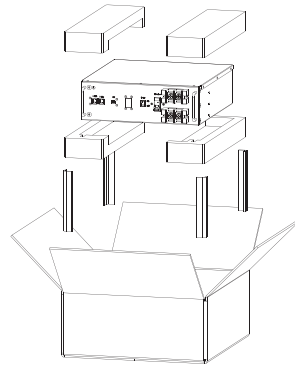
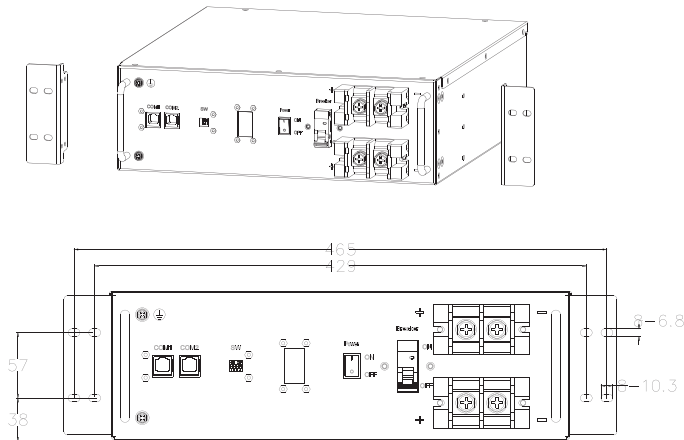


Figure 2 Unpacking the Battery

2.4.3 Installation and Wiring

The following actions should be carried out before wiring:

1. Ensure that the power button of all batteries is OFF;
2. Cut off all relevant power supply.



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

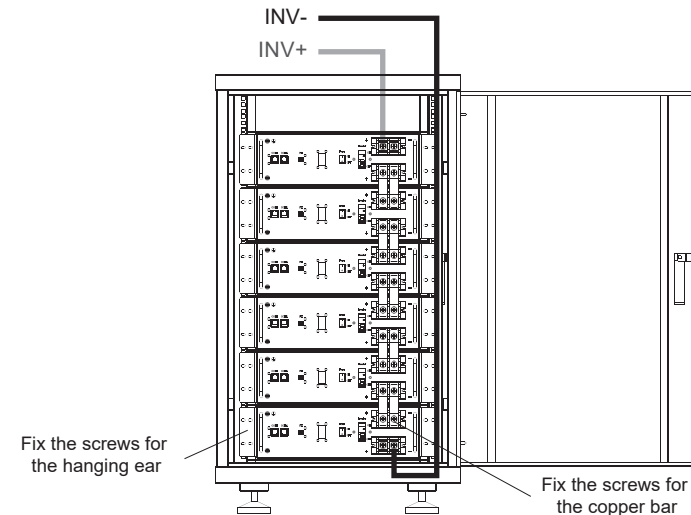


Figure 4 Install battery module & connect copper bar
(Take G2500-48 as an example)

Step 2: As shown in Figure 4, put the battery into the cabinet, tighten the four-angle screws (M6*12 cross head triad screw, torque: 5 N.m); and fix the copper strip 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 line of the cross-sectional area connected to the inverter should be at least 35 mm² (About AWG 2), and temperature resistance $\geq 105^{\circ}$, pressure resistance (DC) $\geq 500V$.

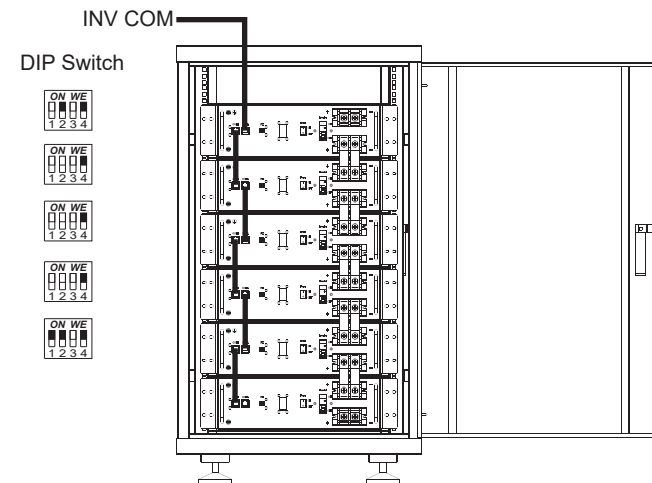


Figure 5 Communication cable connection & DIP Switch
(Take G2500-48 as an example)

As shown in figure 5, connect the communication cable, and dial code after connection. Switch '2' and '4' for the top battery. Switch '1','2' and '4' 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.

DIP Switch of battery should be set as below

Only one Bat:

Battery position	DIP 1	DIP 2	DIP 3	DIP 4	DIP Switch
One BAT	ON	ON	OFF	ON	

More than two Bats:

Battery position	DIP 1	DIP 2	DIP 3	DIP 4	DIP Switch
The TOP	OFF	ON	OFF	ON	
The MID	OFF	OFF	OFF	ON	
The BOTTOM	ON	ON	OFF	ON	

PS: The top battery communicates with the inverter

The sequence is specific to the Voltronic inverters only.

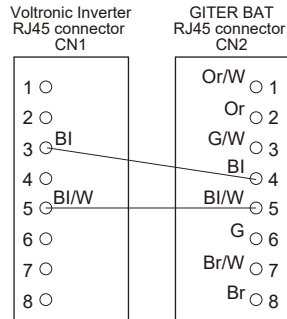


Figure 6 Communication wiring

2.4.3.2 Installation with Base

(Accessories need to be purchased separately)

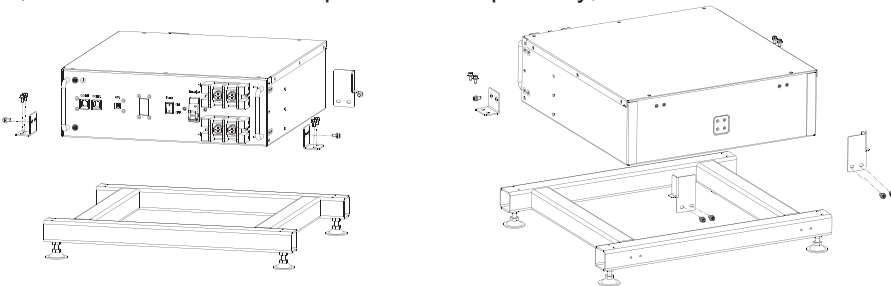


Figure 7 Install the first battery

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)

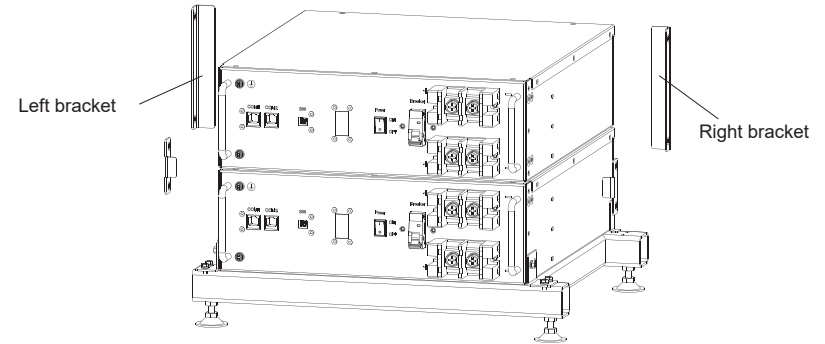


Figure 8 Install the second battery

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

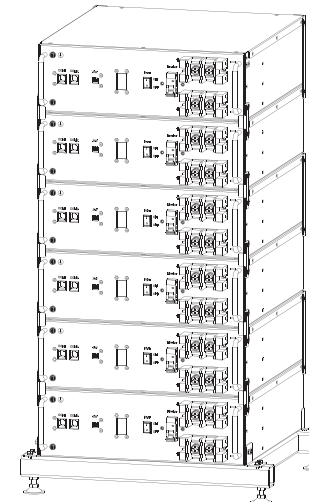
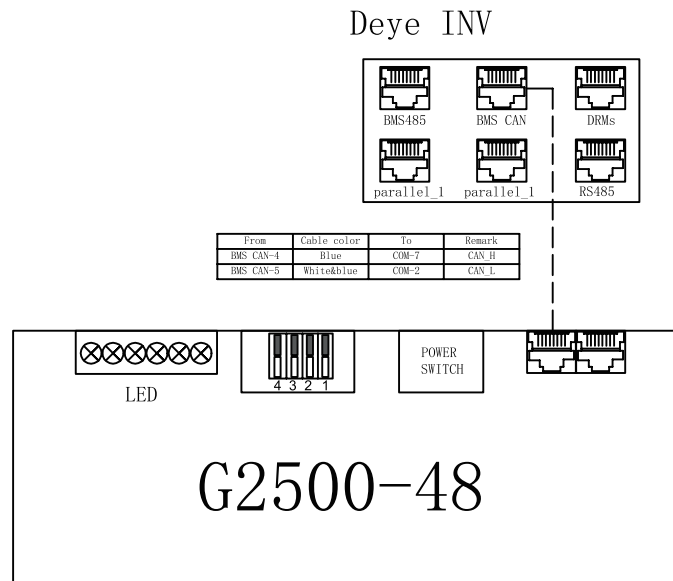


Figure 9 Stack and install 6 batteries
(Take G2500-48 as an example)

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

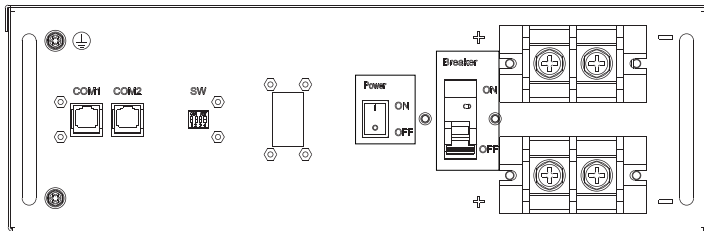
2.4.3.3 Communication Connection Diagrams



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

START: Switch off the Battery Breaker, press the Power Switch (Rebound button) to "ON" for 1-2 seconds. Then the battery module will activate and the LED display will light up.

CLOSE: Press the Power Switch (Rebound button) to "ON" 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
Press the Power switch to "ON" for 2 seconds and then let go. The LED is not light up within 3 seconds.	Check if there is resistance when you press the switch button.	If the button has no resistance, please contact customer service.

4.2.2 Shut Down Immediately After Turning on

Fault	Troubleshooting	Description
Press the Power switch to "ON" state for 2 seconds and then let go. The LED lights up for 8 seconds and goes off.	Confirm whether the switch can bounce back.	If the button cannot bounce back, please contact customer service.

4.2.3 Unable to Charge

Fault	Troubleshooting	Description
The battery is not fully charged, and no alarm code or error code appears in LED display, but the battery cannot be charged normally.	1. Confirm the battery has been turned on. 2. Check if the power cables are connected correctly; 3. Check if the battery Breaker is off; 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 has energy stored and LED has no alarm code or error code, but the battery cannot be discharged normally.	1. Confirm if the battery has been turned on; 2. Check if power cables are connected correctly; 3. Check if the battery Breaker is off; 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
Upper controller failed to detect the batteries	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 whether the DIP switch 2 of the battery which is from the upper controller is set to "ON"; 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
Press the Power switch to "ON" state for 5 seconds and let go. The LED display does not go off.	1. Confirm whether there is resistance when the button is pressed; 2. Confirm whether the outer light is always on.	If the button has no resistance or outer ring 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.	1. Press the "Power" switch for more than 5 seconds to observe the status of the LED outer light.	If the LED still keeps on after the steps, 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)	50A (0.5C)
Charging limit voltage	57.6V	28.8V
Discharge limit voltage	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.

