



Power Lite-U L051100-B Lithium Battery System User Manual

Ver 1.2



For the latest power lite-U installation documents in all supported languages, visit:
www.uzenergy.com/

Warning: Read this entire document before installing or using power lite-U. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage power lite-U, potentially rendering it inoperable.


PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at UZ ENERGY, we reserve the right to make product modifications at any time.

The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

ERRORS OR OMISSIONS

To communicate any inaccuracies or omissions in this manual, send an email to wangyx@uzenergy.com



ELECTRONIC DEVICE: DO NOT THROW AWAY

Proper Disposal of batteries is required. Refer to your local codes for disposal requirements

MADE IN CHINA

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

This manual contains important instructions for the power lite-U that must be followed during installation and maintenance of the system.

power lite-U installation and service require knowledge of high voltage electricity and should only be performed by UZ ENERGY Certified Installers. UZ ENERGY assumes no liability for injury or property damage due to repairs attempted by unqualified individuals or a failure to properly follow these instructions. These warning and cautions must be followed when using power lite-U.

Symbols Used

These symbols indicate important safety information in this guide or on the equipment:



WARNING: indicates a hazardous situation which, if not avoided, could result in injury or death.



CAUTION: indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.

NOTE: indicate an important step or tip that leads to best results, but is not safety or damage related.



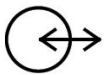
REFER TO OPERATING INSTRUCTIONS: indicates that user should refer to operating or installation instructions before proceeding.



RISK OF ELECTRIC SHOCK: indicates components that present risk of electrical shock.



CAUTION, RISK OF ELECTRIC SHOCK, ENERGY STORAGE TIMED DISCHARGE, Discharge time is 5 minutes from de-energization.



BIDIRECTIONAL TERMINIAL: indicates location of combined input/output connector on the equipment.



PROTECTIVE CONDUCTOR TERMINAL: indicates location of grounding connection on the equipment.

General Information

⚠ WARNING: Reading this entire document before installing or using power lite-U. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death or can damage power lite-U, potentially rendering it inoperable.

⚠ WARNING: A battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions.

⚠ WARNING: power lite-U installation must be carried out only by UZ ENERGY Certified Installers who have been trained properly.

⚠ WARNING: power lite-U is heavy. Use of Lift equipment is recommended.

⚠ WARNING: Use power lite-U only as directed.

⚠ WARNING: Do not use power lite-U if it is defective, appears cracked, broken, or otherwise damaged, or fails to operate.

⚠ WARNING: Before beginning the wiring portion of the installation, ensure that power lite-U is switched off, and open any associated circuit breakers and disconnect switches (if applicable for the installation).

⚠ WARNING: Do not attempt to open, disassemble, repair, tamper with, or modify power lite-U. power lite-U and its components are not user serviceable. Batteries in power lite-U are replaceable. Contact the UZ ENERGY Certified Installer who installed the system for any repairs.

⚠ WARNING: To protect power lite-U and its components from damage when transporting, handle with care. Do not impact, Pull, drag, or step on power lite-U. Do not subject power lite-U to any strong force. To help Prevent damage, leave power lite-U in its shipping packaging until it is ready to be installed.

⚠ WARNING: Do not insert foreign objects into any part of power lite-U.

⚠ WARNING: Do not expose power lite-U or its components to direct flame.

⚠ WARNING: Do not install power lite-U near heating equipment.

⚠ WARNING: Do not immerse power lite-U or its components in water or other fluids.




⚠ CAUTION: Do not use solvents to clean power lite-U, or expose power lite-U to flammable or harsh chemicals or vapors.

⚠ CAUTION: Do not use fluids, parts or accessories other than those specified in this manual including use of non-genuine UZ ENERGY parts or accessories, or parts or accessories not purchased directly from UZ ENERGY or a UZ ENERGY-certified party.






⚠ CAUTION: Do not place power lite-U in a storage condition for more than one (1) month, or permit the electrical feed on the power lite-U to be served for more than one (1) month,



without placing power lite-U into a storage condition in accordance with UZ ENERGY’s storage specifications.

-  **CAUTION:** Do not paint any part of power lite-U, including any internal or external components such as the exterior shell or casing.
-  **CAUTION:** Do not connect power lite-U directly to photo voltaic (PV) solar wiring.
-  **CAUTION:** When installing power lite-U in a garage or near vehicles, keep it out of the driving path. If possible, install power lite-U on a side wall and/or above the height of vehicle bumpers.

Environmental Conditions

-  **WARNING:** Install power lite-U in a location that prevents damage from flooding.
-  **WARNING:** Operating or storing power lite-U in temperatures outside its specified range might cause damage to power lite-U.
-  **WARNING:** Do not expose power lite-U to ambient temperature above 40 °C or below - 20 °C.
-  **CAUTION:** Ensure that no water sources are above or near power lite-U, including downspouts, sprinklers, or faucets.
-  **CAUTION:** Ensure that snow does not accumulate around power lite-U.

Revision History:

Date	Revision	Description	Owner
2021-09-25	V1.0	Initial Release	TangXX
2022-02-16	V1.1	Update storage note.	TangXX
2022-06-21	V1.2	Update storage note. Defined ΔV requirement when battery in Parallel.	TangXX



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1. Introduction

Thank you for choosing UZ Energy energy storage system.

The energy storage module comprises of lithium ion rechargeable batteries with 5.12 kWh capacity, and the controller enables a central of multiple modules.

This manual provides information regarding safety precautions to prevent possible accidents and how to use the product.

Please read this manual carefully before use for safety and keep this manual handy for reference.

1.1. Main Features

Some main features of this product are:

■ Long Life Span

The battery can be expected to remain serviceable for more than 10 years, considering that it is charged and discharged once in a day at room temperature (25 °C).

■ Long Life Span

Olivine-type lithium iron phosphate batteries with excellent thermal stability and storage characteristics are used in this product. The module also incorporates a self-monitoring function for the detection of any abnormalities in energy storage.

■ Compact Design

The height is nicely designed in 3U, in favor of standard industrial applications.

■ High Scalability

Multiple energy storage modules can be connected in parallel, and the capacity can be customized according to the intended use.


1.2. Safety Precautions


UZ Energy products are designed with full consideration of safety. However, all electrical appliances can be dangerous if used inappropriately; it can cause a fire or electric shock that leads to severe injury or death. For your protection, please read these safety precautions thoroughly.


Definitions of Symbols:

Below are symbols used in this manual and the unit.

Please read through the following definitions before reading the manual.

	Warning	If you ignore these instructions, it can lead to a fire or electric shock causing serious injury or death.
---	----------------	--

	Caution	If you ignore these instructions, it can lead to electric shock or other accidents causing injury or harm to nearby products.
---	----------------	---

	Warning If you do not follow the instructions below, it can lead to a fire or electric shock causing serious injury or death.
---	--

Instruction

Use designated cable. A non-designated cable use can cause electric shock. Be sure to use the cable designated in this manual.

Prohibited

Do not damage cables. If you damage a cable, it can cause a fire or electric shock.

1. Do not work over or damage a cable.
2. Do not place heavy objects on a cable or pull the cable.
3. Do not place a heater near the cable, which may result in the cable overheating.
4. Do not tuck down a cable when installing in a rack.
5. When you unplug a communication cable, be sure to hold the plug and pull it.

Instruction

Connect a power cable and communication cable properly.

1. If you connect a power cable improperly, contact resistance will increase and it may damage the parts or cause a fire.
2. Insert the connector of the communication cable all the way in. If it is connected improperly, the system may be deactivated.

Prohibited

Do not install in a closed area. If the module/controller is installed in a closed area with no air-conditioning, heat may build up inside the set and cause a fire.

Prohibited

Do not place the set in direct sunlight or near a heater. Doing so can cause deformation, a breakdown, or a fire. Pay extra attention when you place the set near windows.

Prohibited

Do not install the set where excessive oil smoke, steam, moisture or dust is contained in the air. If the set is installed in such a place, it may cause a fire or electric shock.

Instruction

1. Wear insulating gloves and protection glasses during installation and connection
2. Wear insulating gloves and protection glasses during installation and connection of the set to prevent electric shock or other injuries.

No Wet

1. Do not allow water and/or foreign objects inside the module
2. Water or foreign objects inside the module can cause a fire or electric shock.
3. Should this occur, however, turn off the “POWER ON/OFF” switch on the controller to shut down, and remove the power connector from the POWER CONNECTOR terminal of the module.

Do not disassemble

Do not open the set unnecessarily. Opening and modifying the set can cause a fire or electric shock.



Caution

If you ignore any of the following instructions, it can cause injury or damage to nearby products.

Prohibited

Do not cover the vent. If the vent is covered, heat may build up inside the set and cause a fire.

1. Do not put the set in a poorly ventilated and narrow space.
2. Remove any dust buildup in the vent.
3. Do not place the set upside down or sideways.
4. Do not place on a shag carpet or bed.
5. Do not cover the vent with a cloth, etc.

Instruction

Install in a stable place.

1. If you install the set in an unstable place, such as an unstable rack, it may fall and cause injury.
2. Do not install upside down or sideways. The set may drop and cause injury.

■ Instruction

Use the designated packaging materials for transportation. If you do not use the designated packaging materials, the packaging material may be damaged by vibration during transportation and it may cause injury.

■ **Instruction**

Install based on the designated way of installation. If you do not follow the designated way of installation, the set may drop due to the strength poverty and can cause injury.

■ **Instruction**

Fix a rack to the floor. If a rack falls by the weight of the set, it may cause serious injury or death.

No Wet

Do not touch with wet hands If you touch the set with wet hands, it may cause electric shock.

■ **Instruction**

Install other equipment or accessories properly. If you inadequately install other equipment or accessories sold separately, they may fall and cause injury. When you install any of the following accessories, install it properly based on this manual.

■ **Instruction**

Set up cables properly If your foot is caught by a cable, the set may fall and cause injury. Connect and install cables carefully.

■ **Instruction**

Power off at a malfunction In case any malfunction happens, please turn off the POWER ON/OFF switch in order to shut down, and remove the power connector from the POWER CONNECTOR terminal of the module.

Prohibited

Do not put anything, stand or sit on the set If you put anything on the set, it may fall and cause injury. Also, if it is used as a stool, for example, it may topple and cause injury.

■ **Instruction**

Follow related laws or ordinances for disposal. When you dispose of this product, do not dispose as general or household waste.

■ **Instruction**

Disposal with specified method Contact technical vendor when you discard. Do not disassemble, destroy, or disposal in the fire.



Danger

If liquid is leaking from the module, observe the following measures.

Do not allow the liquid to come in contact with skin or clothing.

- If the liquid comes in contact with skin or clothing, wash thoroughly with plenty of water.
- If the liquid gets into the eyes or mouth, flush immediately with clean water, and immediately seek medical treatment.
- Contact customer service.

1.3. Precautions for Use

In the case of a failure, or any of the abnormalities shown below, turn off the set and contact UZ Energy customer services.

1. Abnormal sound, smell or smoke.
 2. Water or particles inside the product.
 3. The product is dropped, or the cabinet is damaged.
- Charge and discharge the product according to the control signals of the controller. Do not hammer a nail or punch a hole in the product.
 - Replace the module with a new one if discharge time at room temperature is noticeably short, even from fully charged.

DO NOT:

- Disassemble.
- Modify the product (Modification may destroy the protection function inside, or cause abnormal charge/ discharge, heat generation, gas eruption, or fire.).
- Touch the rear output terminal except for installation.
- Throw the product into fire or heat, or otherwise expose the set to heat or naked flame.
- Submerge the product in liquid or allow it to become wet.
- Apply strong shock, crush, or drop.
- Use for medical purposes.
- Place any foreign objects inside.
- Connect any devices that exceed the operating voltage and current range.
- Do not unplug the power connector from the POWER CONNECTOR terminal while power is turned on.

2. Specification and Functions

2.1. System Introduction

L051100-B Energy Storage System is consisted of 16 pcs of 100 Ah LFP cell originated from CATL. The overall system also provides standard communication port, i.e. CAN and RS485, to monitor the working status and communicate with upper machine as well as the Power Conversion System (PCS) in front. The system schematic drawing is presented in Figure 1.

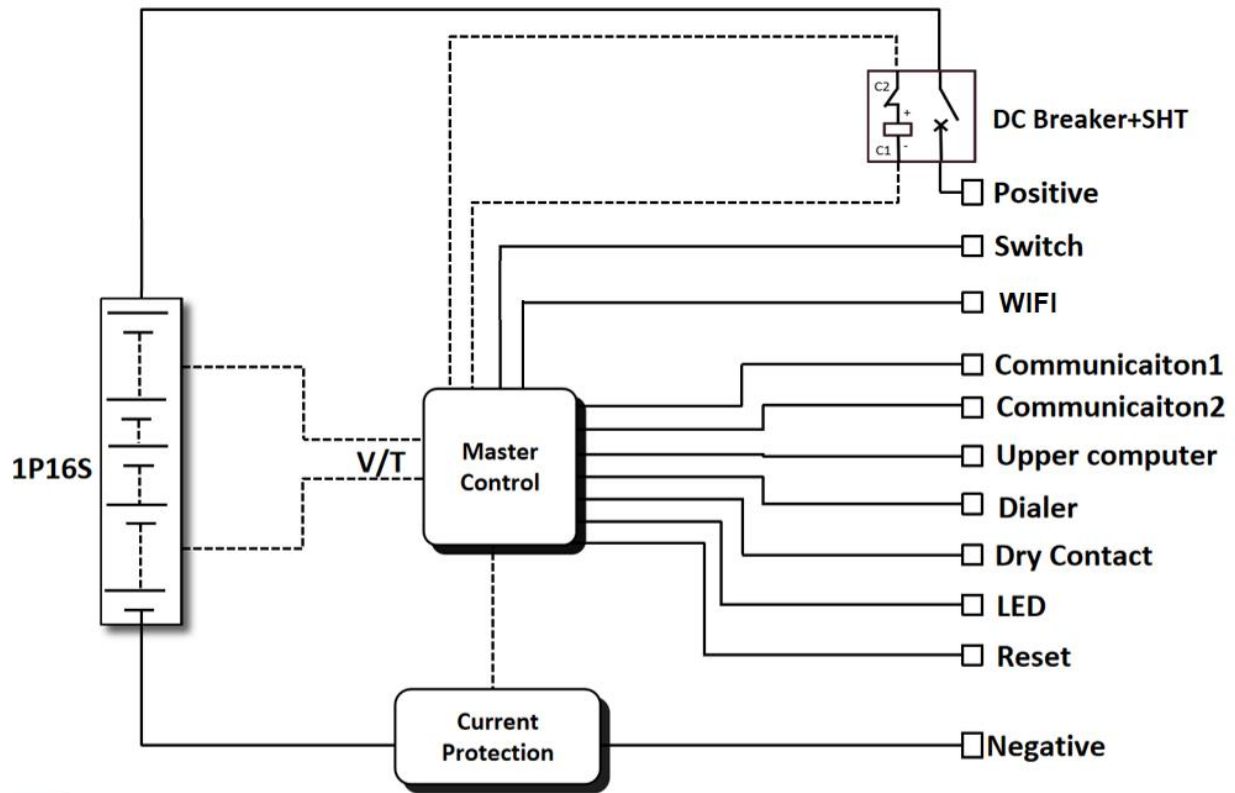


Figure 1 -System schematics

2.2. Dimensions

L051100-B dimensions are presented in Figure 2. It is well designed for 19 inch cabinet.

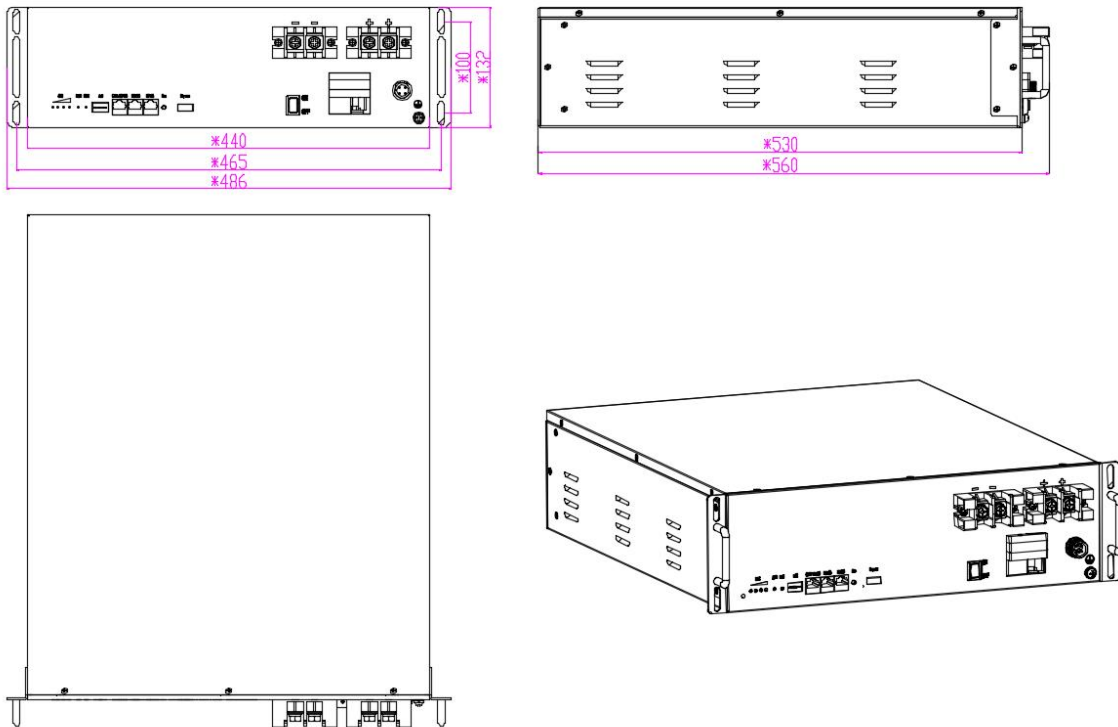


Figure 2 - L051100-B Dimension

2.3. Specifications

Specifications of L051100-B	
Cell Type	LiFePO4 (LFP)
Rated Voltage (V)	51.2
Rated Capacity (Ah)	100
Rated Energy (kWh)	5.12
Usable Battery Capacity (Ah)	100
Usable Battery Energy(kWh)	5.12
Battery Depth of Discharge	100%
Battery Max Charge/Discharge Power(kw)	2.56/5.12
Connection	1P16S
Working Voltage Range (V)	44.8~57.6
Standard Charge Current (A)	50
Max. Continuous Charge Current (A)	50



Standard Discharge Current (A)	50
Max Continuous Discharge Current(A)	100 Only boost version Supports(>60% SOC). (For details, please consult our engineers) Normal version only supports 0.5C (50A)
Peak Current	100A
Rated DC Power(kw)	2.56
Standard Charging Method	0.5C CC to 57.6V; CV at 57.6V till current is 0.05C
Working Temp. (°C)	Charging: 0 ~50; Discharging: -20~55
Working ROH	20%~80%
Storage Temp. (°C)	-20~50
Self-discharging rate	≤5% (25 °C, 50% SoC) Per Month
SOC Transportation Range	50%
Insulation Resistance (MΩ)	>100
Voltage Difference in each module (mV)	≤20
Inner Resistance of single Cell (mΩ)	0.34±0.05 (fresh cell 30~40% SoC)
IP Rating	IP20
Recommended Indoor/Outdoor Usage	Indoor
Net Weight (kg)	Approx. 45
Dimension (mm)	440*530*132 (not include connector, MSD and other parts)
*Note: 1. Battery ΔV should be less than 3V at first Parallel installation,or BMS has a potential failure risk if ΔV>3V , please Dis/Charge the batteries to meet ΔV≤3V, or consult our engineers;	

2.4. Installing Instructions

Some instructions for installing the equipment must be followed. (Refer to our Energineer)

2.4.1. Definition of Sampling Connector -CON1

PIN	Wire No.	Signal	Wire size (mm ²)	Remarks
CON1-1	T1+	Signal	0.3	Temp. #1+
CON1-2	T1-	Signal	0.3	Temp. #1-
CON1-3	B0	Signal	0.3	Cell #1-
CON1-4	B1+	Signal	0.3	Cell #1+
CON1-5	B2+	Signal	0.3	Cell #2+

CON1-6	B3+	Signal	0.3	Cell #3+
CON1-7	B4+	Signal	0.3	Cell #4+

2.4.2. Definition of Sampling Connector -CON2

PIN	Wire No.	Signal	Wire size (mm ²)	Remarks
CON2-1	T2+	Signal	0.3	Temp. #2+
CON2-2	T2-	Signal	0.3	Temp. #2-
CON2-3	B5+	Signal	0.3	Cell #5+
CON2-4	B6+	Signal	0.3	Cell #6+
CON2-5	B7+	Signal	0.3	Cell #7+
CON2-6	B8+	Signal	0.3	Cell #8+

2.4.3. Definition of Sampling Connector -CON3

PIN	Wire No.	Signal	Wire size (mm ²)	Remarks
CON3-1	T3-	Signal	0.3	Temp. #3-
CON3-2	T3+	Signal	0.3	Temp. #3+
CON3-3	NC	NC	NC	NC
CON3-4	B9+	Signal	0.3	Cell #9+
CON3-5	B10+	Signal	0.3	Cell #10+
CON3-6	B11+	Signal	0.3	Cell #11+
CON3-7	B12+	Signal	0.3	Cell #12+

2.4.4. Definition of Sampling Connector -CON4

PIN	Wire No.	Signal	Wire size (mm ²)	Remarks
CON4-1	T4-	Signal	0.3	Temp. #4-
CON4-2	T4+	Signal	0.3	Temp. #4+
CON4-3	B13+	Signal	0.3	Cell #13+
CON4-4	B14+	Signal	0.3	Cell #14+
CON4-5	B15+	Signal	0.3	Cell #15+
CON4-6	B16+	Signal	0.3	Cell #16+

2.4.5. Front View

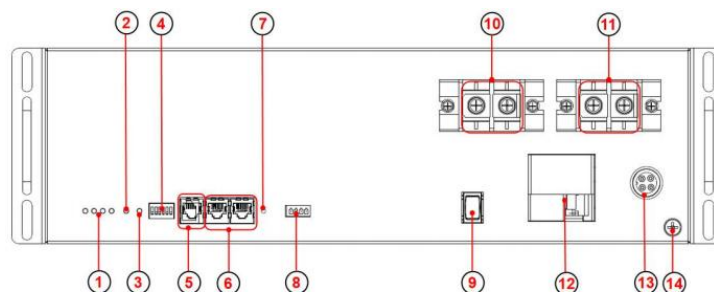


Figure 3 - Front View of L051100-B

Item	Name	Model	Remarks
1	SOC LED x4		
2	Alarm LED		
3	RUN LED		
4	Dialer		
5	Communication port	RJ45	CAN To PCS, RS485 Internal Connection
6	Communication port *2	RJ45	RS485 Internal Connection and communication to BMS upper computer
7	Reset		Wake up the system from malfunction status
8	Dry Contact		
9	Power On/Off Switch		
10	Port Negative x2		Black, 2xM6
11	Port Positive x2		Orange 2xM6
12	DC Breaker+SHT		Nader 125A 48V, Model:MX+OF
13	Wi-Fi Socket		E-LINKER Magpie Wi-Fi Stick 4Pin, Model:V190603-R
14	GND	M6	Yellow-Green, 10 AWG

2.4.6 Port RS485

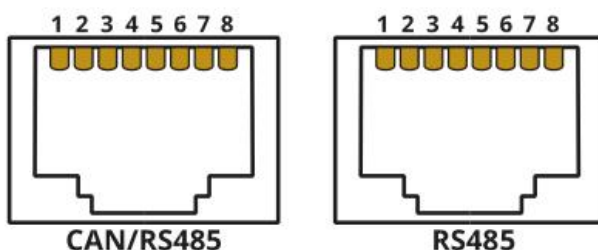


Figure 4 - CAN/RS485 connections

	Description
CAN	Pin 1: CAN-H Pin 5: CAN-L Pin 2, 3, 4, 6, 7: NC Pin 8: GND




RS485	Pin 1, 4, 5: NC Pin 2, 7: RS485-A Pin 3, 6: RS485-B Pin 8: GND
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3. Installation

3.1. Unpacking inspection

- When the equipment arrives at the installation site, loading and unloading should be carried out according to the rules and regulations, to prevent from being exposed to sun and rain.
- Before unpacking, the total number of packages shall be indicated according to the shipping list attached to each package, and the case shall be checked for good condition.
- In the process of unpacking, handle with care and protect the surface coating of the object.
- Open the package, the installation personnel should read the technical documents, verify the list, according to the configuration table and packing list, ensure objects are complete and intact, if the internal packing is damaged, should be examined and recorded in detail.

Packing list is as follows:

Item	Specification	Quantity	Figure	Note
Battery	L051100-B 440x530x132mm	1		Standard
Output Cable (CA11)	Power Cable Positive: Red Cable,4AWG /L1.5m Negative: Black Cable, 4AWG /L1.5m	2		Option
	Communication cable to Inverter Black/L1.5m/Double RJ45 Plug	1		

	Ground Cable Yellow,Green/L1m/Double OT M6	1		
Parallel Cable (CA12)	Parallel Power Cable Positive: Red Cable,4AWG /L0.185m Negative: Black Cable, 4AWG /L0.185m	2		Option (For H100 Fittings or standard RACK)
	Communication Parallel Cable Black/L0.185m/Double RJ45 Plug	1		
Parallel Cable (CA15)	Parallel Power Cable Positive: Red Cable,4AWG /L0.6m Negative: Black Cable, 4AWG /L0.6m	2		Option (For C100 /C300 Fittings)
	Communication Parallel Cable Black/L0.8m/Double RJ45 Plug	1		

3.2. DC Cable Requirements

Size	Outer Diameter	Max. Voltage	Max. Current
21-33 mm ²	10-12 mm	1000 V	120 A



Caution

DC cable must be a multicore wire.

3.3. DC Cable



Danger

- Turn off system before doing electrical connection
- Ensure all the cables are in electrical safe condition

3.3.1 Material List



SC35-6/35-8 Terminal



Heat-shrinkable Tubing (Red/Black)



25mm² DC cable

3.3.2 Steps

1. Swipe outer isolation layer of DC cable.



2. Put wire Tail-Hood:



3. The red is used for the positive, and the black is for negative; The end of the cable is bunched at the terminal using a wire clamp.



4. Use isolation cap for unused DC plug.



5. Power cable ready for using.

3.4. DC Cable Connection

3.4.1 Single Unit (Output 50A base on standard Software)

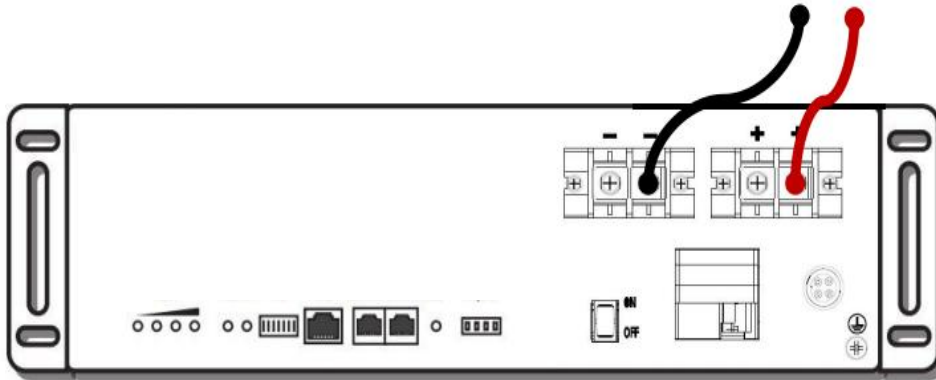


Figure 5 - Single Unit Connection

3.4.2 Multi-Units in Parallel (4 sets as an example)

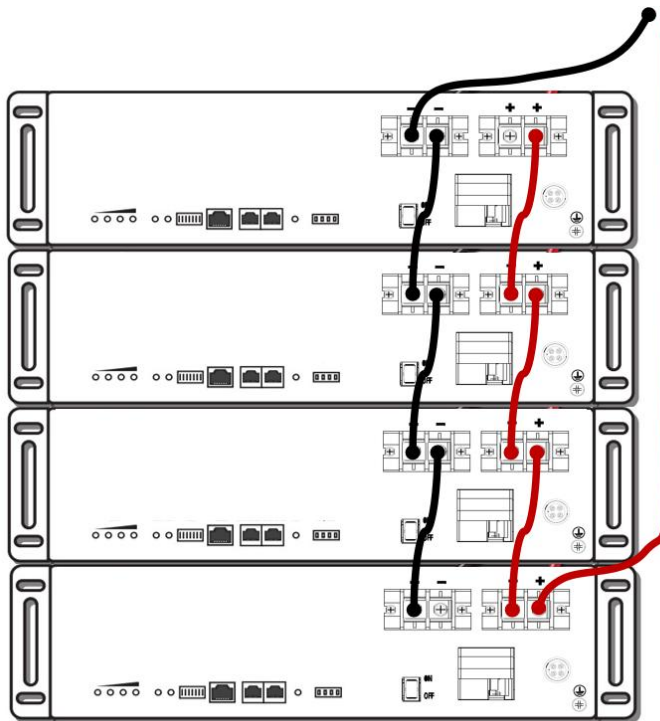


Figure 6 - Multi-Units Connection-1

(Battery ΔV should be less than 3V at first Parallel installation)

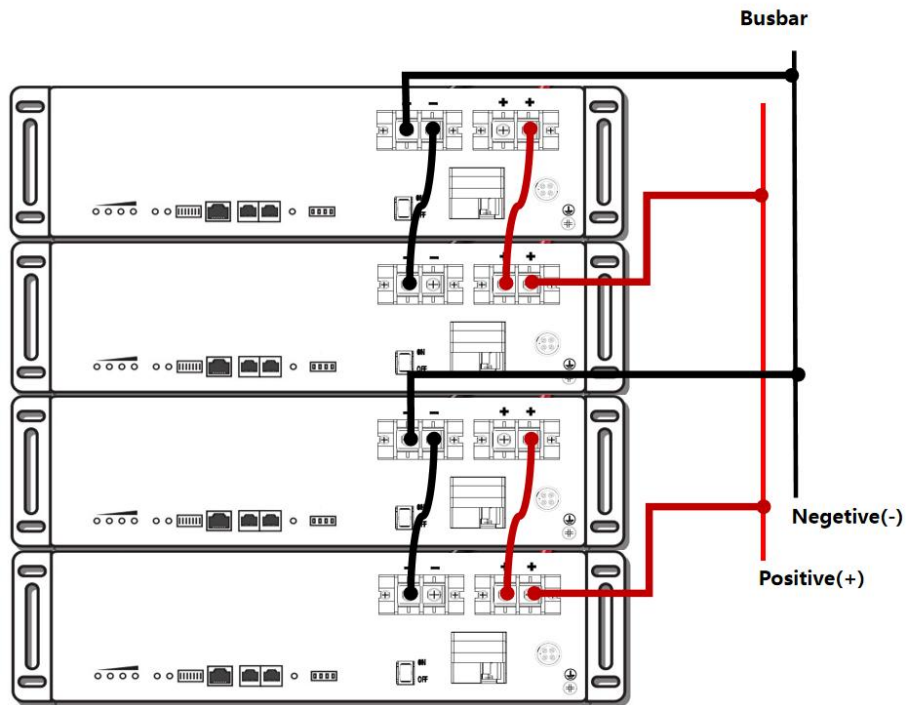


Figure 7 - Multi-Units Connection-2

(Battery ΔV should be less than 3V at first Parallel installation)

Master Pack and Slave Pack L051100-B can be used as single unit as well as multi-units (in parallel) mode. The customer must inform supplier if multi-units mode is required. The Master Pack can be used individually, but Slave Pack cannot be used individually.

3.4.3. Method to set up Master Pack and Slave Pack

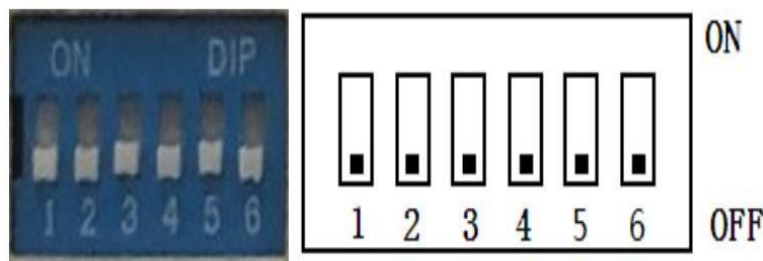
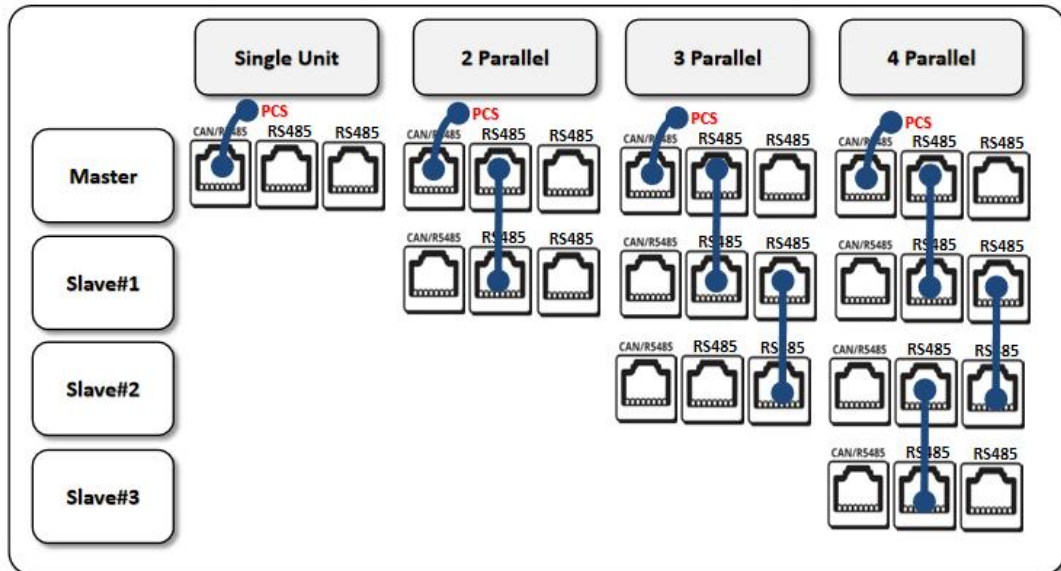
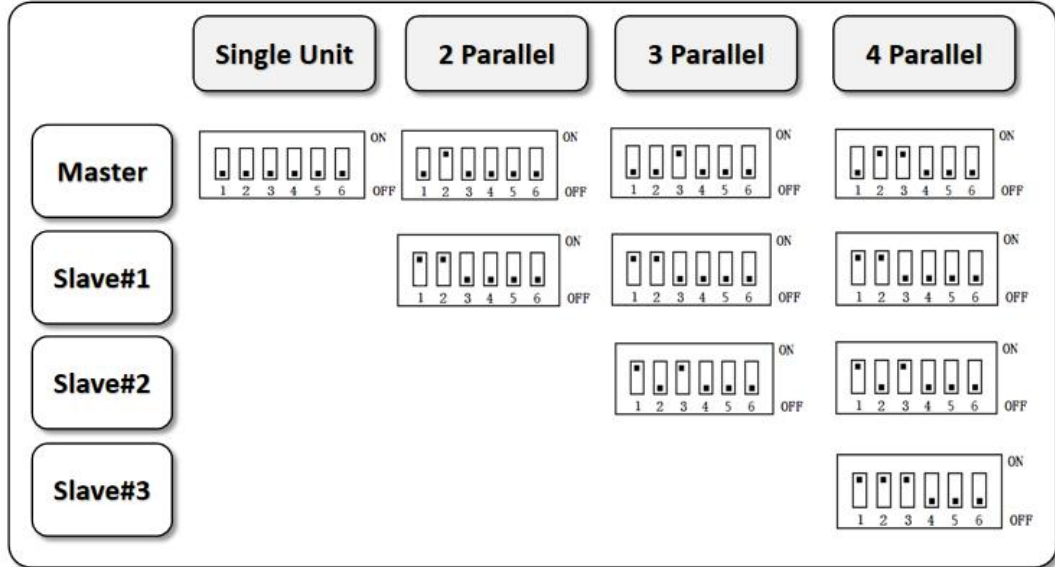


Figure 7 - Dial Diagram

Master/Slave machine dial code diagram:



4. Power ON and OFF

4.1. Instruction

Please double check the Precautions for use in section 1.3.

4.1.1 System Power ON

- Installation (including DC cable, communication wire connection and dialer switch) is properly down.
- Turn on breaker.
- Press Power Switch button, green LED should be twinkling and then turn into function mode. (system status can be red from LED signal, as shown below)

4.1.2. System Power OFF

Attention: It must be confirmed that the system is off before taking off DC cables.

Press Power Switch button , Green LED should be twinkling and then turn into stop mode;
Turn off breaker.

4.1.3. Sleep and Wake-up Function

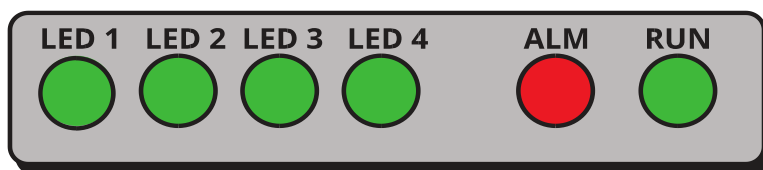
Number	Sleep Condition	Wake-up Condition	Mark
1	Forced sleep by upper computer	Reset button	
2	Forced sleep by soft switch	Soft switch	Only those equipped with soft switch can pass the call Wake up
3	Total Voltage is lower than 48V or monomer is lower than 2.8V, and continuous No charge and discharge current for 4 hours, no communication goes to sleep	Reset button Soft switch Communication Charging	Only those equipped with soft switch can pass the call Wake up

4.1.4. Buzzer Function

- 0.25s per 1s in case of fault
- 0.25s per 2s during protection

4.1.5. System Status Instruction

There are 6 LED indicator, 4 green LED gives status of SoC, 1 red Alarm LED and 1 green Running Status LED (indicating charging, discharging etc.)







Status	Normal/Warning/Protection	RUN	ALM	SoC				Remarks
		●	●	●	●	●	●	
Power Off	Hibernate	no	no	no	no	no	no	
Standby	Normal	Twinkle 1	no	Real SoC				Temp. Warning ALM Twinkle 3
	Warning	Twinkle 1	no					
Charging	Normal	Twinkle 2	no	Real SoC				/ Temp. Warning ALM Twinkle 3 Overcharging, ALM no
	Warning	Twinkle 2	no					
	Overcharging	Twinkle 1	no					
	Overheat, Low Temp., Over-current	Twinkle 1	Twinkle 2					
Discharging	Normal	Continuous	no	Real SoC				Overcharging, ALM no
	Warning	Continuous	Twinkle 3					
	Over-discharging	Twinkle 1	no					
	Overheat, Low Temp., Over-current, Shortcut	Twinkle 1	Twinkle 2					
Malfunction	Warning	no	Continuous	no	no	no	no	BMS Damage, MOS Damage, Temp. sampling malfunction

4.1.6. LED Twinkle Status

Status	On	Off
Twinkle 1	0.25s	3.75s
Twinkle 2	0.5s	0.5s
Twinkle 3	0.5s	1.5s

4.1.7. SoC Indicator

SoC	LED			
				
	LED1	LED2	LED3	LED4
0~25%	On	OFF	OFF	OFF
25%~50%	On	On	OFF	OFF
50%~75%	On	On	On	OFF
75%~100%	On	On	On	On

4.2. Maintenance

- The inspection, maintenance, repair and connection of the battery system shall be completed by professionals or qualified trainers..
- During the assembly of the Battery system, attention shall be paid not to touch the positive and negative terminals of the Battery system by hand or other metal objects at the same time, so as to avoid electric shock or short circuit.
- The Battery system shall be fixed firmly and reliably, and the Battery system shall not work in an inverted state.
- The product layout of the system must consider the convenient disassembly and easy wiring of the power system. In particular, rainwater, ponding or moisture shall be prevented from entering the battery compartment.
- The positive and negative output terminals of the Battery system are respectively marked with positive and negative signs, which shall be distinguished during connection.
- The direction of DC cable shall be reasonable, the connection shall be firm and in place, and attention shall be paid to safety during wiring.
- The red positive harness is connected to the red positive connector, and the black negative harness is connected to the black negative connector. The positive and negative cannot be reversed. The communication harness is connected to the left communication socket. Pay attention to the correspondence of communication pins.
- After the installation is correct, press the button switch. After a few seconds, the green light should be on and flash, and the system is normal. The green light is always on during normal operation.
- Check the Battery system before use, as shown in the table below:

Content	Description	Standard	Operation method
Cell voltage	Measure cell voltage	The measured voltage shall be greater than 2.5V	When the voltage of single battery is less than 2.5V, please contact the manufacturer
Battery system voltage	Measure the battery system voltage	The measured voltage shall be greater than 40V	When the voltage of the Battery system is less than 40V, please recharge or replace the battery
Battery connection	Check whether the single cells are correctly connected together	Each single cell must be correctly connected together	Before using the battery, ensure that each single cell is connected correctly. If the connection is found to be incorrect, please



			contact the manufacturer
Battery appearance	Check whether the single battery is broken, deformed or leaked	Avoid exceptions	In case of liquid leakage, replace the leaking battery if it is serious
	Check every possible damaged part	Avoid exceptions	Replace the damaged part
	Check the battery connections for rust	Avoid rust on jumper, connecting wire and end	Cleaning, rust prevention and repair
	Check whether the connectors are tight	Avoid loosening of nuts or screws	If loose, tighten

- The insulation resistance of the Battery system shall be checked before each use to prevent battery leakage.
- When the Battery system leaves the factory, its SOC is 50%.
- The charging method of the Battery system is recommended as follows:
 - At the ambient temperature of 23 ± 2 °C, discharge to the Battery system voltage N1 at 0.5c (50a) × 2.8V (44.8v) or any single battery voltage to 2.7V, leave it for 0.5h, and then charge it to the Battery system voltage N1 at 0.5c (50a) × When the voltage of 3.6V (57.6v) or any single battery reaches 3.65v, stop charging, leave it for 0.5h, and discharge to the Battery system voltage N1 at 0.5c (50a) × 2.8V (44.8v) or any single battery voltage to 2.7V. Then charge it and use it normally. Voltage and temperature control shall be carried out during charging. When the charging voltage of the Battery system is greater than N1 × Stop charging when the voltage of 3.6V or any single battery is greater than 3.7V or the surface temperature of the battery is greater than 60 °C. Other charging methods shall be negotiated by both parties.
 - During the maintenance of battery pack and power management system, in order to ensure safety, it shall be carried out under the condition of external open circuit as far as possible; If it is necessary to require the maintenance operation of the Battery system under the condition of external access, it must be operated according to the relevant insulation requirements to avoid electric shock.

5. Transportation and Storage

5.1. Transportation

It is forbidden to encounter serious vibration and shock during transportation.

5.2. Storage

If the system is not placed to use, the system must be properly stored. Otherwise, if any issues, UZ Energy shall not be liable.

- It should be stored in 60% SoC status.



- It should be stored at ventilation environment, Temp. < 35 °C, ROH <65%.
- It should be stored avoiding humid condition.
- It should be stored in place where they can be monitored by professionals.

NOTE:

A proper inspection shall be conducted every 3 months, to ensure no over-discharge of the battery (SoC is long time less than 0%) occurs. At over-discharge status, the battery would behavior as:

1. The battery could not start-up when turning the power switch to the ON position;
2. The battery output voltage is less than 40V when turned on;
3. Indicators are off and battery can not communicate to the upper computer via RS485/USB converter.

Please contact the technical person where you purchase the battery from immediately once the above abnormal issues occur. And actions in terms of re-charging the battery (to the SoC 50%) is required before the field installation.

6. Disclaimer

It should be noted that UZ Energy shall not be liable if any necessary materials are added to this user's manual without further inform of customers.



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