Pytes

User Manual

V16

LITHIUM ION BATTERIES

Version: 1.0
Date: 2025-9-10
Information Subject to Change without Notice

Pytes V16 LFP Battery
User Manual

Dear Customer,

Thank you for purchasing Pytes V16.V16 is a lithium battery developed and produced by Pytes to provide a safe,reliable and high-performance energy storage solution for residential, small commercial and industrial energy storage systems.

We strongly recommend that you carefully read this manual before installing the Product and follow the instructions carefully during the whole installation process. This manual provides all the necessary information on installation and use of the Product. Please be advised that only qualified personnel (such as an electrician) should install and perform maintenance on the Product.

It is important to keep in mind the boundaries of use, as described in this manual. The Product is not intended for use in medical or aviation-related applications, and should only be used for its intended purpose as described in this manual. Improper use of the Product will void the warranty of the Product, and Pytes cannot be held responsibility for any damage caused by improper or incorrect use of the Product.

For your safety and the safety of others, please follow all user safety instructions during the use of the Product. This manual is intended for the installers and users of the Product.

Please keep this manual in a safe location. For the latest version of all manuals, please visit our website at http://www.pytesgroup.com.

Thank you again for choosing Pytes, and please do not hesitate to contact us if you have any questions or concerns about your Product.

Best regards,

Shanghai PYTES Energy Co., Ltd.

Factory Address： No. 3492 Jinqian Road, Fengxian District, 201406 Shanghai, PEOPLE'S REPUBLIC OF CHINA

Website: http://www.pytesgroup.com

Email: ess_support@pytesgroup.com

Before Using

Read and understand the following instructions:

Warning

1. This equipment must be installed, operated and maintained by qualified personnel (electrician).
2. The local safety regulations and relevant operating procedures must be observed during the installation, operation and maintenance of the Product, otherwise the Product may get damaged. The safety precautions mentioned in the manual are only the supplement to local safety regulations.

Caution

1. Do not dispose of batteries in fire. The batteries may explode.
2. Do not open or mutilate batteries. Released electrolyte can prove harmful to the skin and eyes. It may be toxic.
3. A battery can present a risk of electric shock and burns by high short-circuit current.
4. A malfunctioned battery can reach temperatures that exceed the threshold of contact surface. The following precautions should be observed when working on batteries:
   a) Disconnect the power and loads before connecting or disconnecting battery terminals;
   b) Do not wear any metal objects including watches and rings;
   c) Use tools with insulated handles;
   d) Do not lay tools or metal parts on top of batteries; e) Wear personal protective equipment.
   f) Make sure the battery is well grounded. Contact with any part of a poorly grounded or ungrounded battery can cause electric shock and burns by high short-circuit current.

   The risk of such hazards can be reduced if conductive surroundings are removed by a skilled and qualified personnel.
5. Before moving or reconnecting the running system, the power must be turned off and the system should be shut down, otherwise there will be a risk of electric shock.
6. Do not expose Li-ion battery to heat or fire. In case of fire, please use fire extinguisher.
7. Do not dismantle any part of the Product without contacting Pytes or Pytes authorized technical engineers and receiving permission. System failure caused by such action will not be covered by the warranty.
8. Before operating inverter, make sure that all batteries have been started up.
9. Do not connect the Product with PV solar wiring directly.
10. The product should be installed in a restricted area clear of children and pets.
11. The battery should be charged within 12 hours when it's fully discharged or over-discharging protection mode is activated. Fail to follow this instruction will damage the battery and is not covered by warranty.

Danger

1. Keep the Li-ion battery away from water, dust and contamination, otherwise it may cause explosion or other harmful conditions that may even lead to personal injury.
2. Do not short-circuit the Li-ion battery.
3. Observe the positive (+) and negative (-) marks on the Li-ion battery and equipment and ensure correct polarity. Do not reverse connect the Li-ion batteries.
4. Do not dismantle, crush, puncture, open or shred the Li-ion battery.
5. Before removing or reconnecting with the running system, the power must be off and the system should be shut down, otherwise there will be a risk of electric shock.
6. Do not expose Li-ion battery to heat or fire. In case of fire, please use fire extinguisher.
7. Do not dismantle any part of the system without contacting PYTES or PYTES authorized technical engineers. System failure caused by such action will not be covered by the warranty.

Symbols

	Read the instruction manual before starting installation and operation.
	Caution, do not dispose of batteries in a fire, the battery may explode.
	Caution, a battery can present a risk of electric shock and burns by high short-circuit current. Do not short-circuit the Li-ion battery.
	Caution, do not dispose the product with household wastes.
	Danger, keep the Li-ion battery away from water, dust and contamination, otherwise it may cause explosion or lead to personal injury.
	Danger, do not place near open flame or flammable materials.
	Danger, do not place in an area with children or pets.
	Recyclable.

CONTENTS

1. Safety Precautions

1.1 Transportation

Pytes V16 original packaging complies with regulation of UN3480, Class 9, Packaging Group II. Always check all applicable local, national, and international regulations before transporting a LFP battery.

The battery must be transported in its original or equivalent package and in an upright position. Protect the battery from severe vibration, shock, squeeze, and exposure to rain and direct sunlight during transportation.

Use soft slings during loading and unloading process when battery is in its package to avoid damage. Do not lift the battery at the terminals or communication cable; only lift the battery at handles. Do not stand below a product when it's hoisted.

1.2 Storage

Follow the storage instructions in this manual to optimize the lifespan of the LFP battery during storage. If these instructions are not followed and the LFP battery has no remaining energy when it is checked, consider it to be damaged. Do not attempt to recharge or use it. Replace it with a new LFP battery.

Disconnect the LFP battery from all loads, and the charging device if applicable. Store the battery in a cool and dry place without direct sunlight.

Keep the battery away from corrosive substances, inflammable and explosive material as well as hazardous gases.

The Self-discharge of the LFP battery pack is ≤3% per month.

Charge the LFP battery to more than 90% of its rated capacity for long-term storage (>6months) every 6 months.Check regularly whether the connectors and plug-ins are loose. Check whether the battery is in good condition during the maintenance cycle and there is no safety risk.

1.3 Emergency Situations

1) Leaking Batteries
If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. If one is exposed to the leaked substance, immediately perform the actions described below.
Inhalation: Evacuate the contaminated area, and seek medical attention.
Contact with eyes: Rinse eyes with flowing water for 15minutes, and seek medical attention.
Contact with skin: Wash the affected area thoroughly with soap and water, and seek medical attention.
Ingestion: Induce vomiting, and seek medical attention.

2) Fire
Only dry powder fire extinguisher can be used; if possible, move the battery pack to a safe area before it catches fire.
3) Wet Batteries
If the battery pack is wet or submerged in water, do not use or install, and then contact PYTES or an authorized dealer for technical support.
4) Damaged Batteries
Damaged batteries are dangerous and must be handled with extreme care. They are not suitable for use and may cause danger to persons or property. If the battery pack appears to be damaged, do not use or install, and then contact PYTES or an authorized dealer for support.

NOTE:Damaged batteries may leak electrolyte or produce flammable gas.
In case a damaged battery needs recycling; it shall follow the local recycling regulation to process, and using the best available techniques to achieve a relevant recycling efficiency.

5) Short-Circuit
Only inspected and approved by qualified personnel (such as an electrician or PYTES authorized technical engineers.) when short-circuited, the system can be operated.

1.4 Disposal

Disposal of the batteries should be in accordance with local laws and regulations and should be carried out by an expert with specialized knowledge and experience in electrical and environmental safety, at designated waste disposal facilities using safe and appropriate method.

2. Specifications

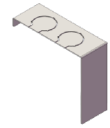
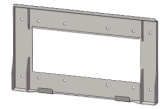
2.1 Parameters

Battery Model	V16
Power Terminal	PHOENIX BPC250 Quick Connector
Chemistry	Lithium Iron Phosphate
Nominal Voltage	51.2V
Voltage Range	46.5V-56.8V
Nominal Capacity	314Ah
Nominal Energy	16.077kWh
Unit Dimension	(700±2.0) mm x(671±2.0)mm x(260.0 ±2.0) mm L27.56±0.08 x W26.42±0.08 x H10.24±0.08 inch
Unit Weight	130±0.5kg / 287.7±1.1lbs
Standard Charge / Discharge Current	125A/150A
Peak Discharge Current	200A (for 180 seconds)
Short Current / Duration	<2200A / 300ms
Communication	RS485 / CAN / Dry Contact / WiFi
Cycle Life	≥8000 Cycles @0.5C/0.5C, 25°C/77°F 90% DoD
Calendar Life	≥10 years
Operating Temperature	Charge: 0°C~ 55°C / 36°F~134°F Discharge: -20°C~ 55°C / -4°F~134°F
WiFi Module	WiFi frequency range: 2412-2472MHz WiFi Max. transmission power<20dBm Bluetooth frequency range: 2402-2480MHz Bluetooth Max. transmission power≤15dBm
Ingress Protection	IP66
Certificates	UL 9540 Ed. 3 (2023), UL 9540A, UL 1973, CEC, IEC62619, CE, UN38.3
Storage Temperature	Within 1 month: -20°C~45°C / -2°F~113°F 1-3 months: 0°C~35°C / 32°F~95°F

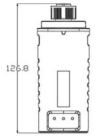
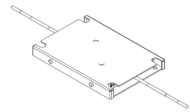
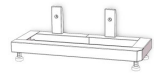
Fuse Parameters	Rated voltage: 500VDC Rated current: 450A
Circuit breaker Parameters	Rated voltage: 250VDC Rated current: 160A
Integrated Thermal Aerosol Fire Suppression Module Parameters *(Fire Suppression Module is Optional)	Activating Temperature: 185±10°C

2.2 Packing List

Item	Qty	Specifications		Picture
V16 LFP Battery	1pc	LFP Battery Pack Voltage: 51.2V Capacity: 314Ah Energy:16.077kWh		
Power Cable	1 Set	16V	2m positive power cable, UL10269, 2/0AWG, 2000 mm, orange, BPC 250 C OG 70 1571165& SC70-10 2m negative power cable, UL10269, 2/0AWG, 2000mm, black, BPC 250 C 70 BK 1571145&SC70-10	
Cascading Cable	1pc	cascading cable, Category 6 shielded twisted pair 8-core soft cable, 1500mm, blue, Category 6 shielded RJ45 connector x 2		
Earthing cable	1pc	1000mm ground wire, UL1015, 10AWG, 1000mm, yellow-green, SC6, 6 x 2		
Hexagon cross slot combination screw	4pcs	Hexagon cross slot combination screw M4 x 8		
Cover plate	1pc	Cover plate, V16, SGCC, 698.5 x 230 x 48mm, plastic spraying, silver		

Wall-Mount Bracket	1pc	Wall-Mount Bracket - SGCC – 139.5 x129.5 x 75mm - Powder Coated - Silver	
Wall-mounted bracket	1pc	Size:60cm x 35.15cm Wall Mount-V16 Wall Mount-SGCC-600 x 351.5 x 30mm -Plastic Spray-Silver	
Expansion screws	8pcs	1408-Screw-GB-T22795(TGQ)-2008-M8--M8 × 50	
Spare RJ45 Connector	2pcs	Backup	

2.3 Optional accessories

Item	Qty	Specifications	Picture
WIFI Module	1pc	LSW-5 Wifi Dongle	
Integrated Thermal Aerosol Fire Suppression Module *Factory pre-configured, not installable afterward	1pc	Size: 135×95×14mm Weight: 350±20g	
Communication Cable	1pc	2m communication cable, Category 6 shielded twisted pair 8-core soft cable, 2000mm, blue, Category 6 shielded RJ45 connector x 2	
Lifting handle	2pcs	Used to install in the slot, lift V16	
Floor mount bracket	1pc	Size WxDxH: 688x265x(Variable from 325-345)	

2.4 BMS Functions

Table 2-1 BMS Functions

Protection and Alarm	Management and Monitor
Charge/Discharge End Cut-off	Cells Balance
Charge over Voltage	Intelligent Charge algorithm
Discharge under Voltage	Charge/Discharge current Limit
Charge/Discharge Over Current	Capacity Retention Calculation
High/Low Temperature	Administrator Monitor
Short Circuit	Log Record
Power Cable Reverse Protection	

2.5 Current Limit Table

SOC-Temperature Discharge Current Limit Table						
Temperature	Recovery*	0%＜SOC≤5%	5%＜SOC≤10%	10%＜SOC≤15%	15%＜SOC≤20%	20%＜SOC≤100%
60°C＜T	55°C	0A	0A	0A	0A	0A
55°C＜T≤60°C	50°C	0A	0A	0A	0A	0A
50°C＜T≤55°C	45°C	28A	28A	56A	56A	56A
45°C＜T≤50°C	40°C	28A	28A	56A	56A	150A
20°C＜T≤45°C	-	28A	28A	84A	84A	150A
15°C＜T≤20°C	25°C	28A	28A	84A	84A	100A
10°C＜T≤15°C	20°C	28A	28A	84A	84A	150A
5°C＜T≤10°C	15°C	28A	28A	84A	84A	150A
0°C＜T≤5°C	10°C	28A	28A	84A	84A	150A
-5°C＜T≤0°C	5°C	28A	28A	56A	56A	84A
-10°C＜T≤-5°C	0	28A	28A	28A	28A	56A
-15°C＜T≤-10°C	-5°C	14A	14A	28A	28A	28A
-20°C＜T≤-15°C	-10°C	14A	14A	28A	28A	28A
≤-20°C	-15°C	0A	0A	0A	0A	0A

SOC-Temperature Charge Current Limit Table					
Temperature	**Recovery***	**0%＜SOC≤90%**	**90%＜SOC≤95%**	**95%＜SOC≤99%**	**99%＜SOC≤100%**
60°C＜T	55°C	0A	0A	0A	0A
55°C＜T≤60°C	50°C	0A	0A	0A	0A
50°C＜T≤55°C	45°C	56A	56A	56A	0A
45°C＜T≤50°C	40°C	125A	125A	125A	0A
20°C＜T≤45°C	-	125A	125A	125A	0A
15°C＜T≤20°C	25°C	84A	84A	84A	0A
10℃＜T≤15°C	20°C	56A	56A	56A	0A
5°C＜T≤10°C	15°C	28A	28A	28A	0A
0°C＜T≤5°C	10°C	14A	14A	14A	0A
-5°C＜T≤0°C	5°C	0A	0A	0A	0A
-10°C＜T≤-5°C	0	0A	0A	0A	0A
-15°C＜T≤-10°C	-5°C	0A	0A	0A	0A
-20°C＜T≤-15°C	-10°C	0A	0A	0A	0A
≤-20°C	-15°C	0A	0A	0A	0A

*** Recovery temperature refers to the temperature point at which the BMS removes current limitations previously applied due to the battery operating outside its optimal temperature range.**

3. Interface and Components

3.1 Interface

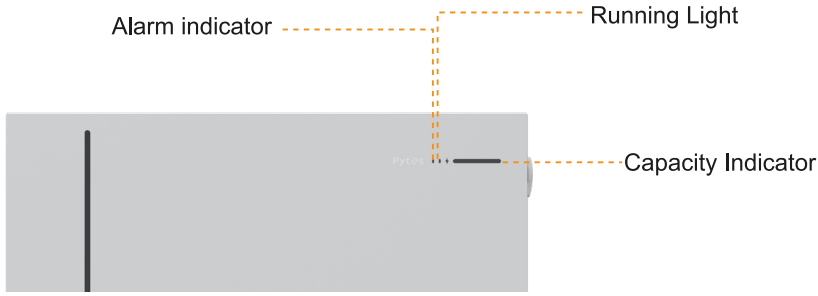


Figure 3-1 Indicator Introduction

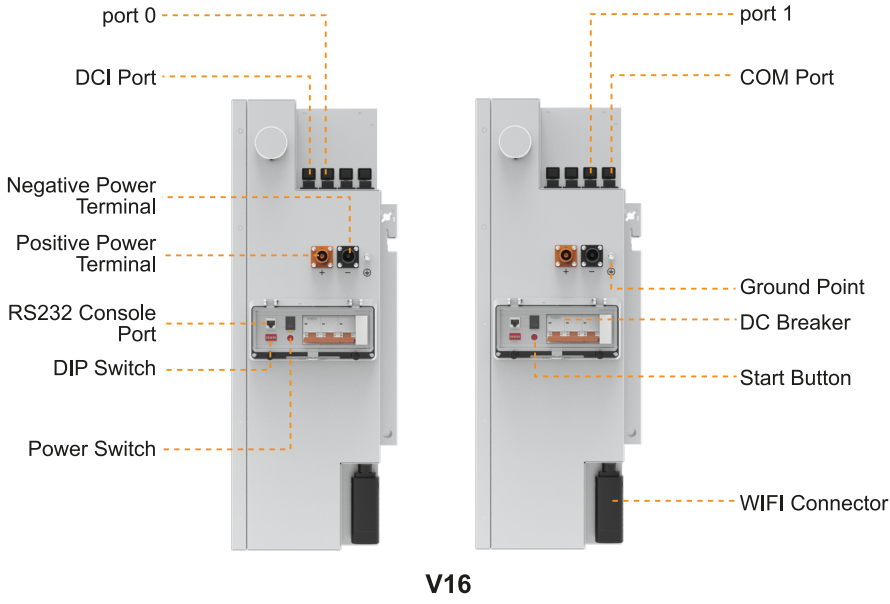


Figure 3-2 Appearance component name

3.2 Components

Table 3-1 components

No.	Name	Label	Function description
1	Power Switch	POWER	When switched to "ON", the system can be activated by "SW" or external power supply; when switched to "OFF", the system is off.
2	Start Button	SW	Long Press for 1s to Power on and 3s to power off V16
3	Alarm indicator	ALM	Red light. The light flashes when Alarm. The light is continuously on when under protection.
4	Running light	RUN	Green light. The light flashes when Standby. The light is constantly on when charging. The light flashes when discharging
5	Capacity indicator	SOC	Green light bar indicates battery present capacity
6	WiFi Connector		WiFi Module for remote system data monitoring and firmware upgrading
7	DCI Port (Dry contact)		5, 6: Emergency stop function, 7, 8: RS485 communication
8	Cascade Communication Ports	Port 1/0	RJ45 ports, connect Port 1 of the battery to Port 0 to the next battery. Port 0 of Master Battery is vacant.
9	External Communication Port	COM (CAN/ RS485 protocol)	RJ45 port, follow CAN & RS485 protocol, to connect to inverter and output system information. Pin Definition: Pin 4 – CAN_H Pin 5 – CAN_L Pin 1 & Pin 8 - RS485_B Pin 2 & Pin 7 - RS485_A
10	RS232 Console Port	Console	RJ45 port with RS232 protocol, used to connect PC/laptop for local battery data monitoring and firmware upgrades.
11	DIP Switch	ADD	Sets protocol address for inverter communication.
12	DC Breaker	ON/OFF	Double Pole Single Throw, DC 250V 120A, reach 250A rating.
13	Negative Power terminal	ON/OFF	Negative power input and output interface

14	Positive Power terminal		Positive power input and output interface
15	Ground Point		Connection for ground cable

4. Operating Environment

Battery Installation, operating, maintenance environment requirements:

Operating Temperature: -20°C~55°C
Relative Humidity: 20%-80%, no condensation
Altitude: ＜4000m
Installation Location Conditions:
1) no heat source, flammable or explosive materials.
2) no direct sunlight.
3) a restricted area that is not accessible by children or pets.
4) flat and level surface if floor mounting.
5) no standing water.
6) minimal dust and dirt.
7) minimum 0.5meters away from inverter.
8) no cover or wrap to the Product.
9) Ventilation requirements to prevent accumulation of hydrogen greater than 25% of hydrogen LFL.

5. Installation and Configuration

5.1 Installation Preparation

5.1.1 Safety Requirements

Only those who have been trained in the power system and have a good knowledge of the power system are allowed to install the Product. Always observe local safety regulations and the safety requirements listed below during the installation process.

Before installing or removing the battery, make sure that the system is disconnected from any power source and that the battery is off state. Distribution cabling needs to be handled carefully with protective measures.

5.1.2 Checking the Operating Environment

The operating environment should meet the requirements described in Chapter 4, “Operating Environment”.

5.1.3 Tools and Safety Gears

The tools that may be used are shown in Table 5-1.

Table 5-1 Tools

Tools		
Z Screwdriver	Electric Drill	Pencil
Cable Clamp	Wire cutter	Ruler

Use properly insulated tools to prevent accidental electric shock or short circuits. If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

Safety Gear		
Insulated Gloves	Safety Goggles	Safety shoes

It is recommended to wear safety gears when dealing with the Product.

5.1.4 Technical Preparation

Electrical interface settings:
If the battery is connected to the DC charger or inverter directly, please ask Pytes or a Pytes approved dealer for voltage and current requirements and other information.

Security check:
Fire-fighting equipment such as portable fire extinguishers should be available near the Product.
Follow the instructions in Chapter 4 for environment requirements.

5.2 Unpacking

- ◇ When the battery arrives at the installation site, it must be unloaded and stored properly and prevented from the direct sunshine and rain. Before installation, check if there is any component missing according to 2.2 Packing List and check whether the box appearance is intact;
- ◇ Carefully handling the unpacking to preserve the insulation coating on the casing's surface;
- ◇ Please contact PYTES if there is any damage or missing components.

5.3 Installation

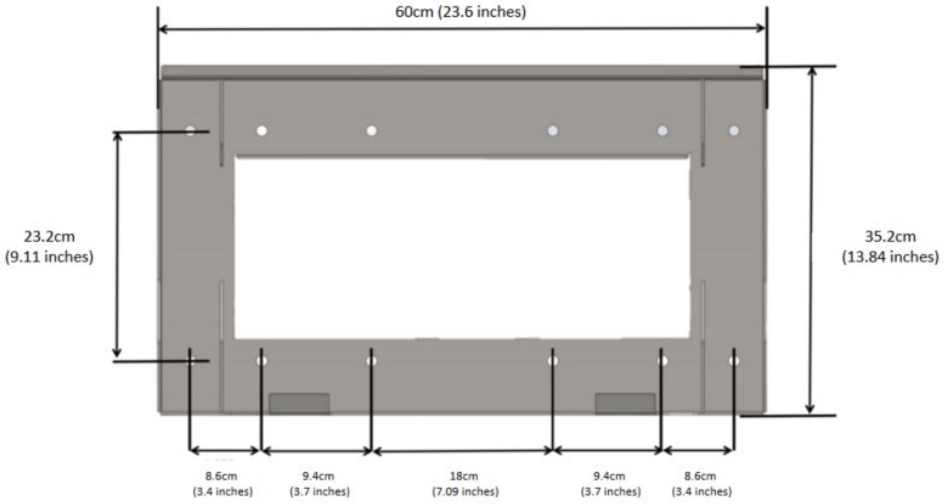
Note: All installation and operation must comply with local electrical standards.
Warning: Connect the batteries in series is forbidden.Do not mix with other batteries.

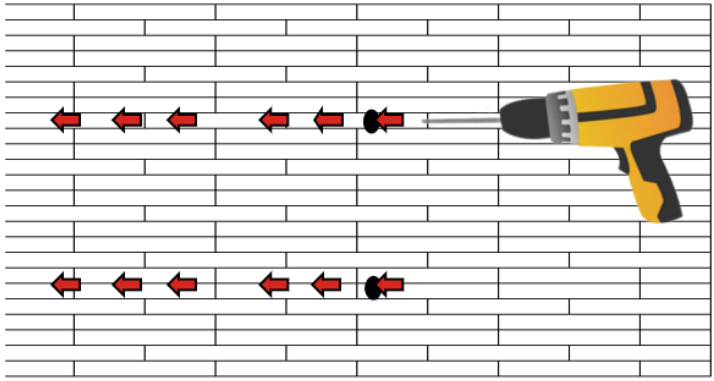
5.3.1 Install the Battery

a. The installation wall should be strong enough to bear the weight of the battery.
b. Please maintain sufficient clearance for adequate heat dissipation.
c. Never place the battery in direct sunlight, rain or snow. Please choose a shady site or shed to protect the battery from direct sunlight, rain and snow, etc.

The V16 should be installed upright on a vertical, solid surface, such as a brick or concrete wall, and the wall must be made of non-combustible materials. Since the V16 is heavy, it is recommended that two or more people install it. The battery is heavy, it is best to have two people assist in lifting, and a lift or other equipment can be used to lift and carry the device.

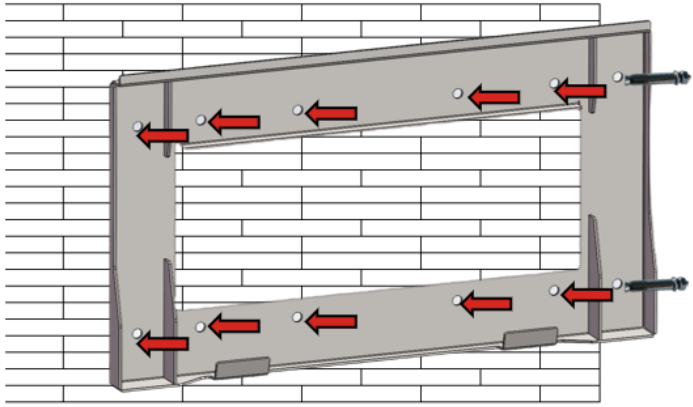
The installation steps are as follows: (taking a brick wall as an example)
Step 1. Mark the drilling position with the mounting bracket, and then drill 8 holes of appropriate size.



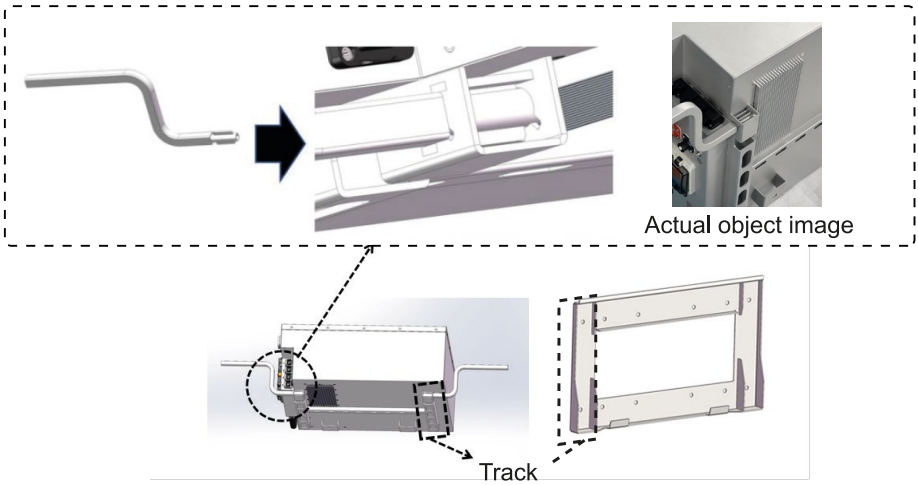


The diameter of the hole must be greater than 14mm

Step 2. Install and tighten the expansion screw (figure1) into the hole. Then install and fix the wall bracket (Figure2) to the wall using the corresponding nut.



Step 3. After ensuring stability, install the left and right handles on the V16 battery. Tilt the handle 45 degrees to lock it. Lift the battery and align the rear track with the track on the wall to complete the installation.



5.3.2 Connect Power Cable

Before connecting the power cable, connect and disconnect the cable to identify the positive and negative terminal. Make a mark respectively. After the cable is connected, measure whether there is short-circuit or reverse connection.
Select correct cable based on load by referring to table below.

5.3.3 Connect Power Cable

Before connecting the power cord, measure the voltage between the terminals, carefully identify the positive and negative poles of the power cord, and identify the positive and negative terminals. After connecting the power cord, avoid short circuits and reverse connection.
Select correct cable based on load by referring to table below.

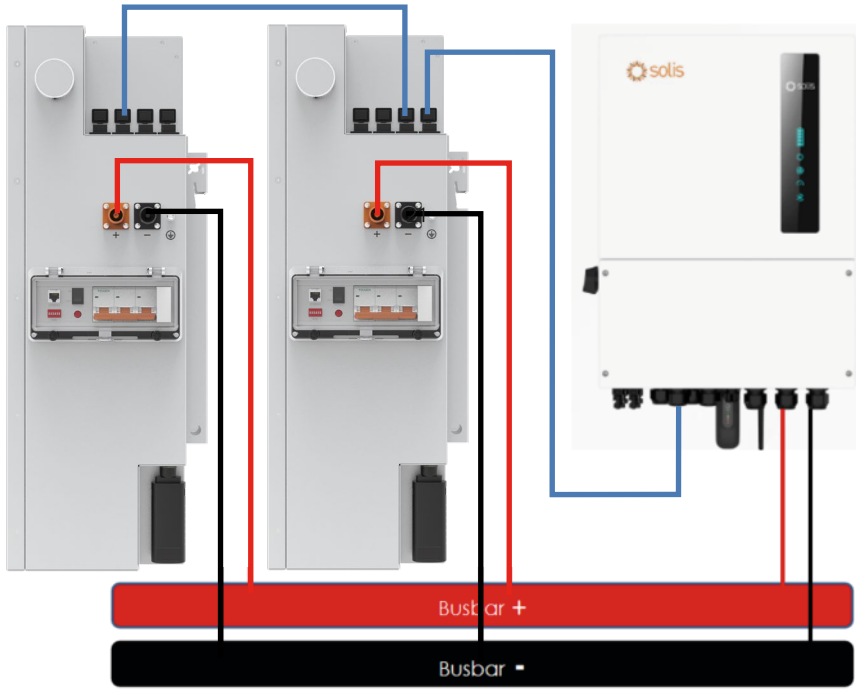
AWG	Area		Standard Current (A)	Max Current (A)
	(kcmil)	(mm^2)		
4/0	211.48	107.22	423.2	482.6
3/0	167.67	85.01	335.5	382.6
2/0	133	67.43	266.2	303.6
1/0	105.5	53.49	211.1	240.7
1	83.65	42.41	167.4	190.9
2	66.31	33.62	132.7	161.3
3	52.6	26.67	105.2	120
4	41.7	21.15	83.5	95.2

5.3.3.1 Single Battery

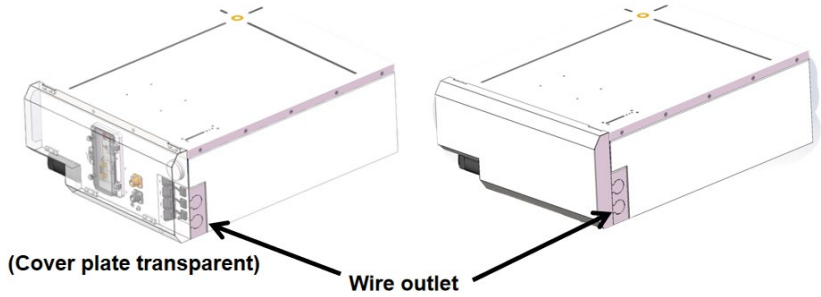
Connect the positive and negative terminals of V16 to energy storage inverter with power cables.

5.3.3.2 Multiple Batteries

Connect the positive and negative terminals from V16 separately to positive and negative busbars. Then connect the positive and negative busbars to inverter. V16 supports up to 16 pcs in parallel connection.



When actually routing, the line is led out from a specific hole. See the figure below.



5.3.4 Connect Communication Cable

Please refer to Chapter 6.2 for information of communication ports.

Based on the communication protocol, connect either RS485 or CAN port of V16/ V16 to inverter.

Set inverter communication address on DIP.

Sol-Ark		Victron		Solis		Deye SUNSYNK	
Luxpower		Goodwe		Growatt		SMA	
Megarevo		Afore		Phocos		Voltronic	
SRNE INHENERGY		MUST		Studer		Hoymiles Apsystem	
Ingeteam		Senergy		Aiswei (Solplante)		Livoltek	
Epever		* White column indicates the DIP bar position.					

Note: Before starting the system, strictly check the connection terminals to ensure that the terminals are firmly connected. Make sure V16 is powered on prior to turn on the inverter. This is to avoid battery shock by the in-rush current of the large capacitors of the inverter.

Step 1. Turn on the DC breaker.
Step 2. Turn on the power switch.
Step 3. Press SW button for 1 second to turn on V16 .
If V16 is parallel connected, only press SW of master battery to power on the system.
Step 4. Battery indicator lights will go on indicating batteries are running.

Shut down Procedure

Step 1. Press SW button for 3 seconds.
If V16 is parallel connected, only press SW of master battery.
Step 2. Wait for the indicator lights to go off.
Step 3. Turn off the power switch.
Step 4. Turn off the DC breaker.

Note: If press SW button when battery is charging, V16 will stop charging, and discharging will be off together. To activate the battery back to normal working status, turn off the power switch and follow the Start Procedure.

5.3.6 WiFi Setting

V16 can be connected with LSW-5 WiFi Dongle. For specific operation instructions, please refer to Pytes Battery Cloud Guide.

WIFI Dongle

6. Communication

There are RS-232, RS485 and CAN communication ports on the Product. The battery status can be obtained and the battery internal parameters can be modified via Pytes monitoring software.

CAN

CAN communication Terminal, RJ45 port, follow CAN protocol, to output batteries information.

RS485

RS485 Communication Terminal, RJ45 port, follow RS485 protocol, to output batteries information.

RS232

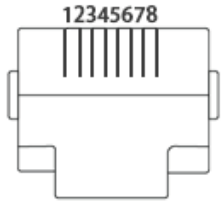
RS232 Communication Terminal, RJ45 port, follow RS232 protocol, to upgrade the software and communicate with PC / laptop.

6.1 RS232 port

Default baud rate of RS-232C ports: 115200bps.

Table 6-1 RS232 Connector Pin Assignments

Pin number	RS-232C port
1	
2	
3	TXD
4	GND
5	
6	RXD
7	
8	



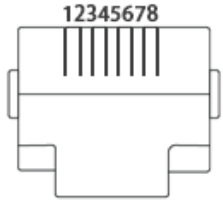
6.2 RS485 port and CAN port

Default baud rate of RS-485 port: 9600bps

Default baud rate of CAN port: 500kbps

Table 6-2 RS485 and CAN Connector Pin Assignments

Pin number	Serial	CAN
1	RS485B	
2	RS485A	
3	GND	
4		CANH
5		CANL
6	GND	
7	RS485A	
8	RS485B	



7. Troubleshooting

Table 7-1 V16 LED Indications

V16	Normal/ Alarm/ Protection	ALM	RUN	Capacity LED	Description
		•	•		
Shut down	/	OFF	OFF	OFF	All off
Power-on	Normal	ON	ON	ON	All lights will be on for 1 second at the same time.
Standby	Normal	OFF	Blink 1	OFF	Standby
	Alarm	Blink 2	OFF	OFF	Low Voltage
Charging	Normal	OFF	Blink 2	Based on Capacity	
	Alarm	Blink 2	Blink 2		
	Protection	ON	OFF	All off	Protection triggered, charging stops
Discharge	Normal	OFF	ON	Based on Capacity	
	Alarm	Blink 2	ON		
	Protection	ON	OFF	All off	Protection triggered, discharging stops

Notes: Blink descriptions: Blink 1"0.3s on/3.7s off"; Blink 2"0.5s on/1.5s off";

Please refer to the troubleshooting methods below. Please read Table 7-1 of this manual before troubleshooting to prevent false operations. For example, it doesn't indicate the battery is faulty if the ALM alarm red light is blinking or constantly on. When there is an "alarm" indication, it usually works well and needs no troubleshooting. When there is "protection" indication, the battery will work normally automatically after "protection" status is released.

7.1 Unable to Start

Problem	Troubleshooting Steps	Solution
Press the POWER button to the "ON" state but the LED indicator doesn't respond or all the LEDs are off after 1second.	1. Confirm that the DC Breaker is in the "ON" state and the POWER button remains in the "ON" state; 2. Charge the battery correctly and observe if the battery can be charged properly.	1. If the battery enters charging mode, the battery can return to normal after charging. 2. If not, please contact the local reseller or Pytes.

7.2 Unable to Charge

Problem	Troubleshooting Steps	Solution
The battery cannot charge properly while in a discharged state.	1. Make sure the battery is powered offand remains in a stable state for 5 minutes. 2. Check the power cable. Confirm the power cables are correctly connected and the charging circuit is correct; 3. Turn on the battery; 4. Check the battery indicator LED to see if the battery is under “Protection' state. If so, find the cause of the protection, and fix the problem, then restart the battery; 5. Check if the charging voltage meetsthe battery charging requirements. Ifnot, adjust the power supply voltage to the proper range; 6. When battery is under voltage confirm if external charging voltage is1 5V or arece.The check period for the voltage condition is 300 seconds.	If the battery still does not charge properly after following the steps, please contact the local reseller or Pytes.

7.3 Unable to Discharge

Problem	Troubleshooting Steps	Solution
The battery can't discharge properly.	1. Make sure the battery is powered off and remains in a stable state for 5 minutes. 2. Check the power cables to ensure that they are properly connected. 3. Turn on the battery; 4. Unplug the battery power cable and measure the battery power output voltage. If the battery voltage is too low,charge it immediately. 5. Check the battery indicator LED to see if the battery is under "Protection" state. If so, find the cause of the protection, and fix the problem, then restart the battery; 6. When temperature of battery charging is 0°c, battery will go to protection. Restartthe battery for discharge and charge function will be back to normal when battery temperature is higher than 0°C.	If the battery still does not discharge properly after following the above steps, please contact the local reseller or Pytes.

Warning: Do NOT repair the battery without authorization from PYTES.

7.4 Alarm Indicator Constantly on

When the ALM indicator is constantly on and the other indicators are off, the battery is in the "Protection" state. When protection condition is released, the battery will automatically return to normal operation. There are a few issues requiring immediate measures.

Problem	Troubleshooting Steps	Solution
The ALM indicator is constantly red and all other indicators are off.	1. Make sure the battery is powered off and remains in a stable state for 5 minutes. 2. Check the power cables to ensure that they are properly connected. 3. Check whether the charging voltage, charging/discharging current, battery/cell voltage and temperature meet the relevant protection conditions, and release the "protection" state to ensure that the voltage, current and temperature are within the normal working range. find the cause of the protection, and fix the problem, then restart the battery;	If the battery protection state can't be released, or the ALM indicator is constantly on when the battery is properly charged after it is restarted, please contact your local reseller or Pytes.

Warning: Do NOT repair the battery without authorization from PYTES.

Warranty Card

Customer Information			
Contact Name			
Phone Number		Email	
Address			
Product Information			
Battery Model		Inverter Brand/Model	
Battery Quantity		Inverter Quantity	
Purchase Date		Inverter Using Time	
Serial Number		on/off Grid	
Installer Information			
Installer Name		Installation Date	
Problem Description			
Photos of Battery Wiring			
Photos of Inverter Wiring and Panels			

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