Pytes

Quick Installation and Operation Guide

LFP Battery
(Low Voltage)

V16 Lite

Information Version: 1.0
Release Date: 2025-01-06

Support Contact Information

In case of any technical issues with Pytes products,

please contact us at:

ess_support@pytesgroup.com

Version: 1.0.

Date:2025-01-05

Subject to change without notice.

For the Pytes V16 Lite-Complete User Manual,

scan the QR code:

Note: This quick guide briefly describes required installation steps. Please refer to the User Manual for more detailed information.

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. Battery needs to be re-charged within 12 hours after fully discharged.
10. Do not connect the Product with PV solar wiring directly.
11. The product should be installed in a restricted area clear of children and pets.
12. 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.
8. Before operating inverter, make sure that all batteries have been started up.

This symbol on the product means: Do not dispose of this product with general household waste. Consult your local regulations for proper disposal instructions.

Safety and Handling Instructions

Read this entire document before installing or operating the Pytes V16 Lite Battery (referred to as the “Battery”). 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 may damage the Battery and other property.

Optimize Battery Performance

1. Battery life is the amount of time your battery runs before it needs to be recharged.
2. Battery lifespan is the amount of time your battery lasts until it needs to be replaced.
3. Maximize both and you'll get the most out of your battery.

Avoid Extreme Ambient Temperatures

1. V16 Lite is designed to perform well in a wide range of temperatures, with Charge: 0°C~55°C(32°F~131°F).
2. Discharge:-20°C~55°C(-4°F~131°F) as the ideal comfort operation zone.
3.It’s important to avoid exposing your battery to ambient temperatures higher than 55°C(131°F).

Avoid Over-Discharging

1. Over discharge will permanently damage battery capacity and is not covered by warranty.
2. Under certain circumstance, battery will be over-discharged.
3. When it's an open loop, it is essential to set 49V as the value of low battery cut out voltage.
4. When it's a closed loop, it is essential to set low battery SOC and shutdown SOC on inverter, of which 20% and 10% are the recommended values.
5. Inverter will alarm when battery is below the low battery SOC value and will shut down when battery is below shutdown SOC value.

What's in the Package

V16 Lite

V16 Lite battery

Cover Plate

Battery side
wall-mounted bracket

Battery bottom
wall-mounted Bracket

Handle

Connector dust cover

Footmaster casters

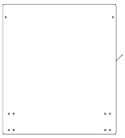
Antenna

Power Cable

Communication
Cable

Grounding
Cable

Spare RJ45
Connector



Drill template

Cross recessed
oval head screws

Cross recessed
hexagon
bolt with indentation

Cross recessed
hexagon bolt
with indentation

Hexagon head bolt

Expansion anchors
for use in concrete

Expansion anchors
for use in concrete

Required Personnel and Tools


Qualified Installer


Pliers


Drill


Wrench


Insulating Tape


Screw Driver


Multimeter


Ammeter


Wire Stripper


Temperature Gun

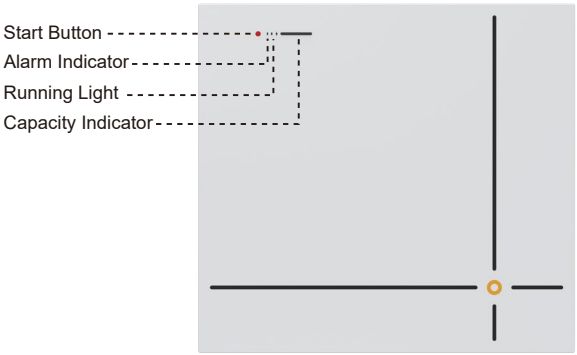
Only trained professionals in the power system with a good knowledge of the power system is allowed to install the device.

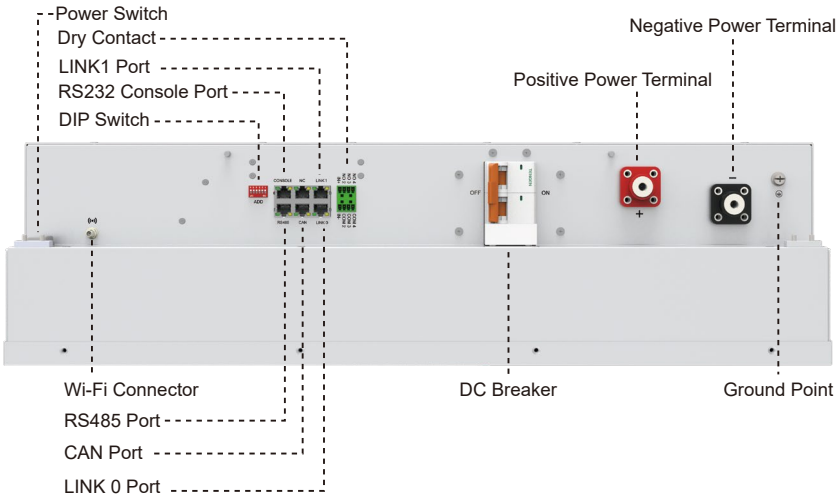
Installation Prerequisites

1. Keep the product away from heat sources, flammable materials, and explosive substances.
2. Avoid direct sunlight to prevent overheating or damage.
3. Install in a restricted area where children and pets cannot access it.
4. Place the product on a flat, level surface to ensure stability.
5. Do not install in areas with standing water or excessive moisture.
6. Minimize dust and dirt in the installation area for optimal performance.
7. Maintain a minimum distance of 0.5 meters from power conversion system (PCS)
8. Ensure fire extinguishers or other fire-fighting equipment are available nearby.
9. Always power off the battery before performing any maintenance or adjustments.

Before installing or removing the battery, make sure that the system is disconnected from any power source and that the battery device is turned off.

V16 Lite

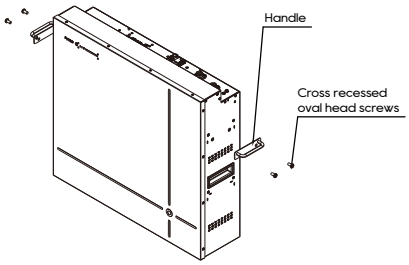




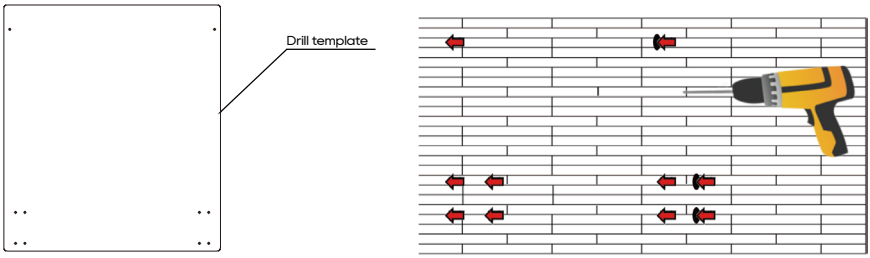
Installation

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 Lite LFP battery 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 Lite LFP battery 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:
Wall-mounted installation(taking a brick wall as an example):
Step 1: Install the battery handle onto the battery using cross recessed oval head screws.



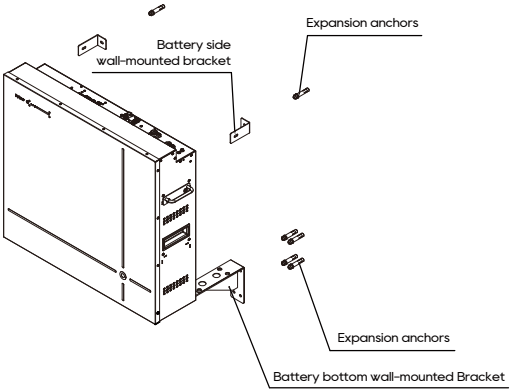
Step 2: Step 1. Mark the drilling position with the drill template, and then drill 10 holes of appropriate size. The Among them, the aperture of the top 2 holes is Ø8mm, and the aperture of the bottom 8 holes is Ø10mm.



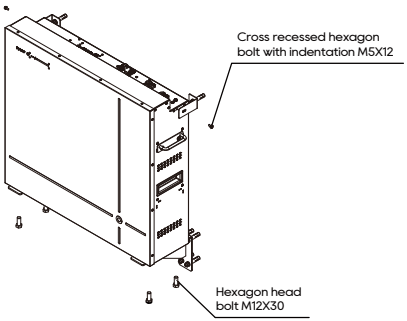
⚠ **Ensure the wall is structurally sound and can support the full weight of the battery when mounted.**

⚠ **Use a stud finder or wire detector to avoid pipes, electrical wires, or reinforcements inside the wall.**

Step 3: Install and tighten the expansion anchors into the hole (Step 2). Then install and fix the battery side wall-mounted bracket and battery bottom wall-mounted Bracket to the wall using the corresponding nut.

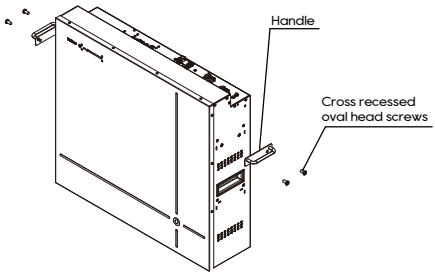


Step 4: Lift the battery onto the battery bottom wall-mounted bracket, adjust its position, fix the battery to the battery bottom wall-mounted bracket with Hexagon head bolt M12X30, and then connect the battery to the battery side wall-mounted bracket with cross recessed hexagon bolt with indentation M5X12.

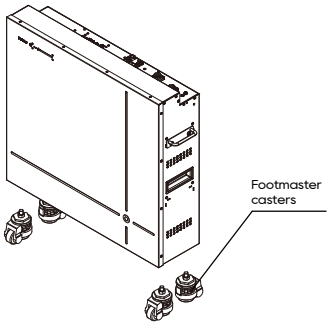


Floor-mounted installation:

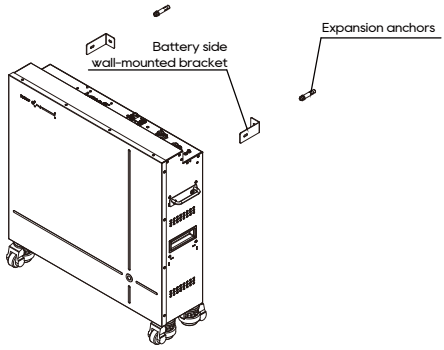
Step 1: Install the battery handle onto the battery using cross recessed oval head screws.



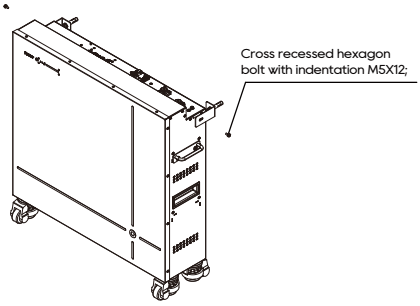
Step 2: Install the Footmaster casters at the bottom of the battery.



Step 3: Connect the battery to the battery side wall-mounted bracket with cross recessed hexagon bolt with indentation M5X12.Then place the battery against the wall and mark the drilling position of the battery side wall-mounted bracket. Then drill two holes of appropriate size (diameter Ø 8mm). Then remove the battery side wall-mounted bracket from the battery. Install and tighten the expansion anchors into the hole. Then install and fix the battery side wall-mounted bracket to the wall using the corresponding nut.



Step 4: Finally connect the battery to the battery side wall-mounted bracket with cross recessed hexagon bolt with indentation M5X12 again.



2. Connect Ground Cable

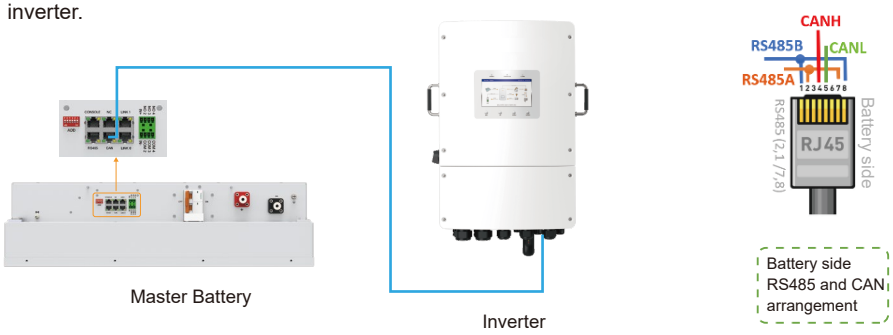
Connect one end of ground cable to ground point on V16 Lite battery and tighten the screw with screw driver. Connect the other end of the ground cable to a reliable ground point.
The minimum diameter of ground cable must be≥10mm2.

Note: The grounding resistance should be less than 0.1Ω.

3. Connect Communication Cable

Please refer to Chapter 6.2 for information of communication ports.
For communication between batteries, the communication cable is connected from Link 1 of the master battery to Link 0 of the slave battery.

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



Single battery: Choose port to be inserted according to the communication protocol (RS485/ CAN) between the battery and ESS inverter, then insert the communication cables to the port;

Multiple batteries: The master and the slave communicate in cascade mode: one is the Master and the rest are the slaves. Please refer to the following picture for the cascade connection.

Note: 1. Make sure pin configuration of communication cable (battery &inverter) is correct (refer to manual).
2. From Battery CAN or RS485 Port depends on inverter communication type to Inverter BMS port.
3. The Communication between batteries require basic RJ45 cable.
4. Use communication cables provided with accessories to connect batteries in parallel.
5. The system may not be able to communicate if not followed the instruction.

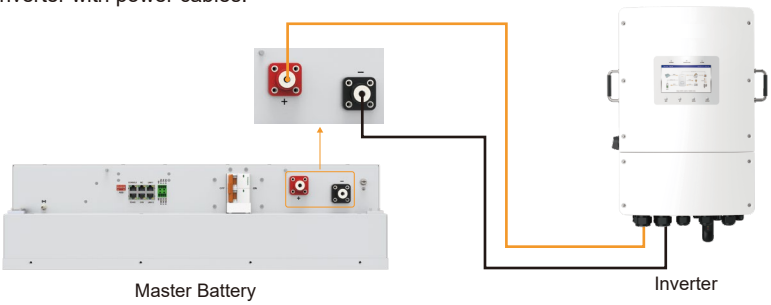
4. Connect Power Cable

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.

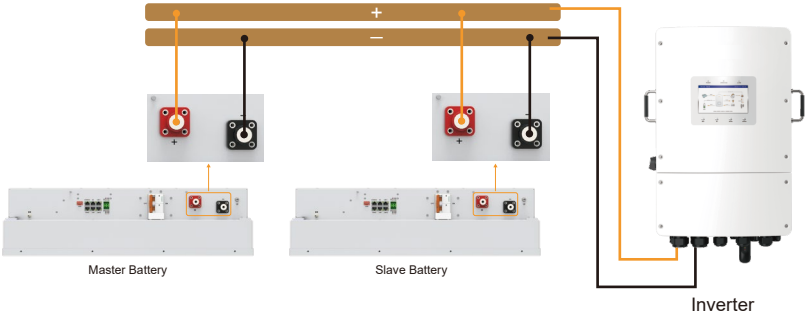
Select correct cable based on load by referring to table below.

AWG	Area		Standard Current (A)	Max Current (A)
	(kcmil)	(mm²)		
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

Single Battery: Connect the positive and negative terminals of V16 Lite battery to energy storage inverter with power cables.



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



Note:

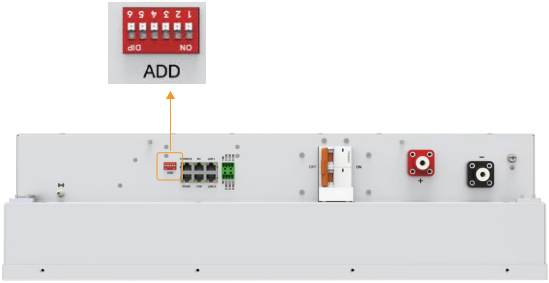
1. Use Power cable provided with accessories to connect batteries.

2. Batteries connected in series are forbidden, high voltage would lead to hazard shock.

When wiring, the lines are led out from specific holes. Please refer to the following image.

5.Set DIP Address

Please confirm the brand and model of the inverter, and then set the inverter communication address on battery DIP according to the table below



Please note that due to assembly issues, the side of the DIP switch with numbers is considered UP.

DIP Address:

Afore		Aiswei (Solplante)		Anern		AP System	
Deye		Epever		Goodwe		Growatt	
Hoymiles		Livoltek		Ingeteam		INHENERGY	
ISUNA (Sinexcel)		Luxpower		Megarevo		MUST	
Phocos		Pytes		SAJ		Senergy	
Seletronic		SMA		Sol-Ark		SOLAX	
Solis		SRNE		Studer		SUNGROW	
SUNSYNK		TBB		Victron		Voltronic	

Note:

1. White column indicates the DIP bar position, select relevant DIP switch address according to your inverter.

2. Pytes may update due to new inverter integration without further notice. Please contact us for latest version.

Single Battery: Set the DIP switch based on the inverter installed.

Multiple Batteries: Set the DIP switch on Master Battery only, based on the inverter installed.

Note: If you change battery DIP switch while battery is running you need to restart otherwise it won't communicate.

6.Procedure of Starting/Shut Down

Start Procedure

Note: Before starting the system, strictly check the connection terminals to ensure that the terminals are firmly connected. Make sure V16 Lite battery 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 Lite battery.

Note: If V16 Lite battery 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.

Note: Make sure that all batteries have been started, then running the inverter.

Shut down Procedure

Step 1. Press SW button for 3 seconds.

Note: If V16 Lite battery 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:

1. Wait for all the battery lights to go out before turning off the power button.

2. If press SW button when battery is charging, V16 Lite battery 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.

7.WIFI Setting

During use, if you want to view battery data through Phone app, Scan the QR codes below with your smart phone to install the APP, The detailed installation steps can be queried in section 5.3.7 of the complete user manual

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