ML200-51.2-W01-IP65

User Manual

ML200-51.2-W01-IP65
Operation Manual

CONTENTS

marvel® Tech

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TECHNICAL DATA

NOTE

Operating current derating according to cell voltage and battery temperature.

Performance	
Nominal Voltage	51.2 Vdc
Nominal Capacity	200Ah
Battery Energy [1]	10240 Wh
Charge Voltage	55.68~56.16Vdc
Discharge Voltage	45.6-56.16 Vdc
Nominal Charge/Discharge Current	100A
Nominal Charge/Discharge Power	5000W
Max Charge /Discharge Current @10sec	200A
Max Charge /Discharge Power	10000W
Short Circuit Current	540A

Communication	
Display	SOC status indicator, LED indicator
Communication	RS232、RS485、CAN

General Specification	
Dimension(W×D×H mm)	800×590×142mm
Weight (Kg)	96.5kg
Installation	Floor stand or Wall mounted
Working Temperature [2]	0℃ ~ 55℃
Storage Temperature	-20℃ ~ 60℃
Operating /Storage /humidity	≤95%RH
Max Operating Altitude	≤2000m
IP Rating	IP65
Cell Technology	$LiFePO_4$, Lithium Iron Phosphate
Cycle life [3]	6000 Cycles @ 80% DOD /25℃ /0.5C，60% EOL
Scalability	Max 15 batteries in parallel

Standard Compliance	
Certification	CB IEC62619; GPSD EN62619 CE EMC, EN61000-6-1/2/3/4;UN38.3;MSDS;RoHS

1. Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25℃.

2. Charge/discharge derating occurs when the operating temperature from -10℃ to 5℃.& 45 ℃to 55 ℃.

3. Conditions apply. Refer to LV-BAT-W 10.24A warranty Letter.

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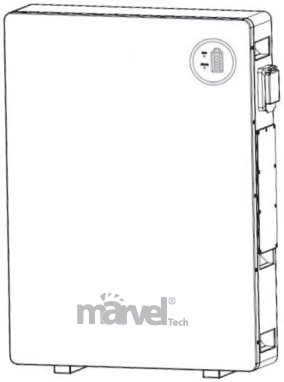
PRODUCT OVERVIEW

2.1 Brief Introduction



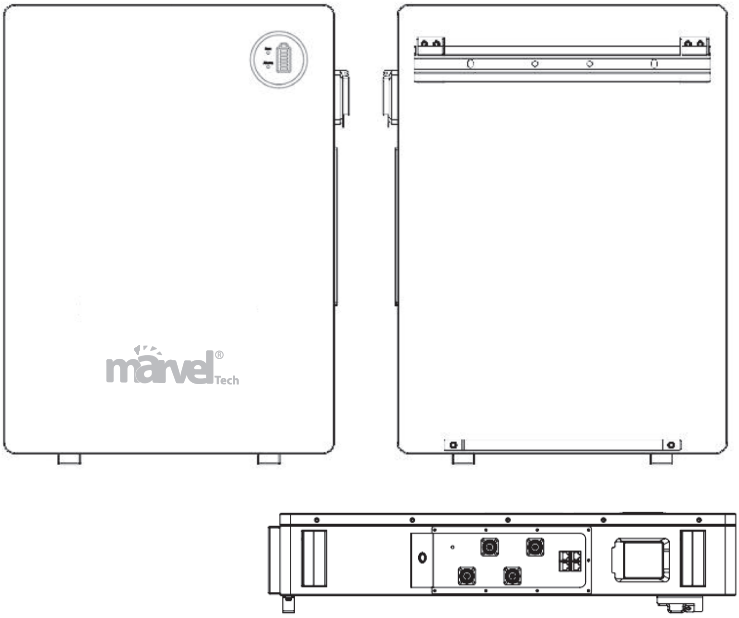
PRODUCT OVERVIEW

ML200-51.2 W01 IP65 is a lithium battery with an operating voltage range between 45.6~56.16V. It is designed for residential energy storage applications and works together with a 48v battery hybrid inverter. **ML200-51.2-W01-IP65 is not suitable for supporting life-sustaining medical devices.**

ML200-51.2 W01 IP65 has built-in BMS (Battery Management System), which can manage and monitor cells information including voltage, current, and temperature. Besides that, BMS can balance cells charging to extend cycle life. BMS has protection functions including over-discharge, over-charge, over-current, and high/low temperature; the system can automatically manage charge state, discharge state, and balanced state.

Multiple ML200-51.2-W01-IP65 can be connected in parallel to expand capacity and power, 8 ML200-51.2-W01-IP65 can be connected in parallel at most.

2 Interface Introduction



2.1 Switch ON/OFF

1. Switch ON

Turn on a single ML200-51.2 W01 IP65 , turn on the air switch, then press the circular button (more than 3 seconds) on / off button, the LED flashes and the battery works normally. L1 to L6 display the battery SOC,L7/L8 to indicate the battery status.

For multiple ML200-51.2 W01 IP65 in parallel, press and hold the circular button of the host battery for more than 3 seconds, then release the button. After the host battery turns off, all slave battery packs turn off. For a single ML200-51.2 W01 IP65, press the switch for 3 seconds to turn off the battery.

2. Switch OFF

Press the circular button of the master battery for more than 3 seconds, and then release the button. When all slave battery are closed, the master battery will be closed (sleep mode). For a single battery, turn off the circular button. For multiple battery in parallel, turn off the circular button on the master battery first. Then turn off the circular button on all slave batteries.

2.2.2 LED Indicator Definition

Note:

flash 1 - 0.25s light / 3.75s off

flash 2 - 0.5s light / 0.5s off

flash 3 - 0.5s light / 1.5s off

LED Indicators Instructions

		RUN	ALM	Battery Level Indicator						
Status		L8	L7	L6	L5	L4	L3	L2	L1	Descriptions
Shut down		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby		Flash 1	OFF	According to the battery level						Indicates Standby
Charging	Normal	Light	OFF	According to the battery level						The highest capacity indicator LED flashes(flash 2),others lighting
	Full Charged	Light	OFF	Light	Light	Light	Light	Light	Light	Turn to standby status when charger off
	Protection	OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	Flash 3	OFF	According to the battery level						
	UVP	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
	Protection	OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge
Fault		OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging and Discharge

Charging Battery Level Indicators Instructions

Status		Charging							
Battery Level Indicator		L8	L7	L6	L5	L4	L3	L2	L1
Battery Level (%)	0～17%	Light	OFF	OFF	OFF	OFF	OFF	OFF	Flash 2
	18～33%			OFF	OFF	OFF	OFF	Flash 2	Light
	34～50%			OFF	OFF	OFF	Flash 2	Light	Light
	51～66%			OFF	OFF	Flash 2	Light	Light	Light
	67～83%			OFF	FLASH 2	Light	Light	Light	Light
	84～100%			Flash 2	Light	Light	Light	Light	Light
	Full Charged			Light	Light	Light	Light	Light	Light

Discharging Battery Level Indicators Instructions

Status		Discharge							
Battery Level Indicator		L8	L7	L6	L5	L4	L3	L2	L1
Battery Level (%)	0～17%	Flash 3	OFF	OFF	OFF	OFF	OFF	OFF	Light
	18～33%			OFF	OFF	OFF	OFF	Light	Light
	34～50%			OFF	OFF	OFF	Light	Light	Light
	51～66%			OFF	OFF	Light	Light	Light	Light
	67～83%			OFF	Light	Light	Light	Light	Light
	84～100%			Light	Light	Light	Light	Light	Light

2.2.3 CAN / RS485 Port

CAN / RS485 Communication Terminal (RJ45 port), connect to inverter, follow CAN / RS485 protocol.

PIN	Definition
Pin 1、Pin 8	RS485-B（to PCS, reserved）
Pin 2、Pin 7	RS485-A（to PCS, reserved）
Pin 3	NC
Pin 4	CANH（to PCS）
Pin 5	CANL（to PCS）
Pin 6	GND

2.2.4 RS232 Port

RS232 Communication Terminal (RJ45 port) follow RS232 protocol, for manufacturer or professional engineer to debug or service.

PIN	Definition
Pin 1、Pin 8	GND
Pin 2、Pin 7	RS232_TX
Pin 3、Pin 6	RS232_RX
Pin 4、Pin 5	NC

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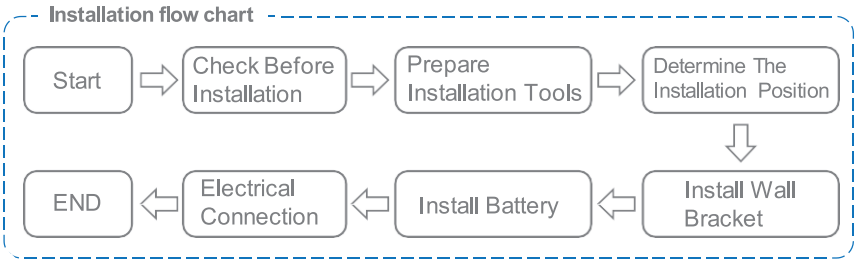
INSTALLATION GUIDE



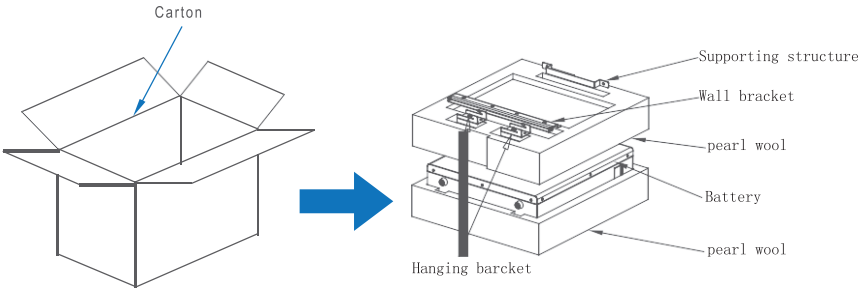
3.1 Checking Before Installation

3.1.1 Checking Outer Packing Materials

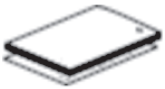
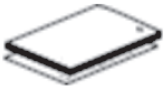
Packing materials and components may get damaged during transportation. Therefore, it is recommended to check the condition of outer packing materials before installing the battery. Check the surface of packing materials for any damage such as holes or cracks. If any damage is found, do not unpack the battery and contact the dealer immediately. It is advised to remove the packing materials within 24 hours before installing the battery.

3.1.2 Checking Deliverables

After unpacking the battery, check if all the deliverables are intact and complete. If any damage is found or any component is missing, please contact the dealer. The table below shows the components and mechanical parts that should be delivered



ON	Picture	Quantit	Description
1		1	Battery
2		1	Wall mounting fixture
3		2	Battery wall mount fastener
4		1	Bottom support
5		1	Parallel terminal +
6		1	Parallel terminal -
7		1	Output terminal line +

ON	Picture	Quantit	Description
8		1	Output terminal line -
9		4	Wall mount fastener screw
10		10	Battery wall pendant and bottom support screw
11		1	Shipment inspection report
12		1	Ex-factory inspection report
13		1	Network port communication line
14		2	Transport moistureproof agent

3.2 Tools

Tools			
Installation	Knife 	Measuring tape 	Socket wrench （10/16mm） 
	Rubber mallet 	Cross Screwdriver 	Hammer drill（10mm） 
Protection	ESD gloves 	Safety goggles 	Anti-dust respirator 
	Safety shoes 		

3.3 Installation requirements

3.3.1 Installation environment requirements

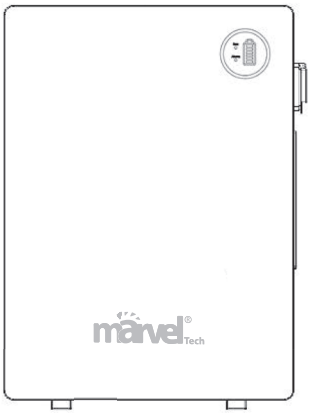
- Install the battery in the indoor environment.
- Place battery in secure location away from children and animals.
- Do not place the battery near any heat sources and avoid sparks.
- Do not expose the battery to moisture or liquids.
- Do not expose the battery to direct sunlight.

3.3.2 Installation carrier requirements

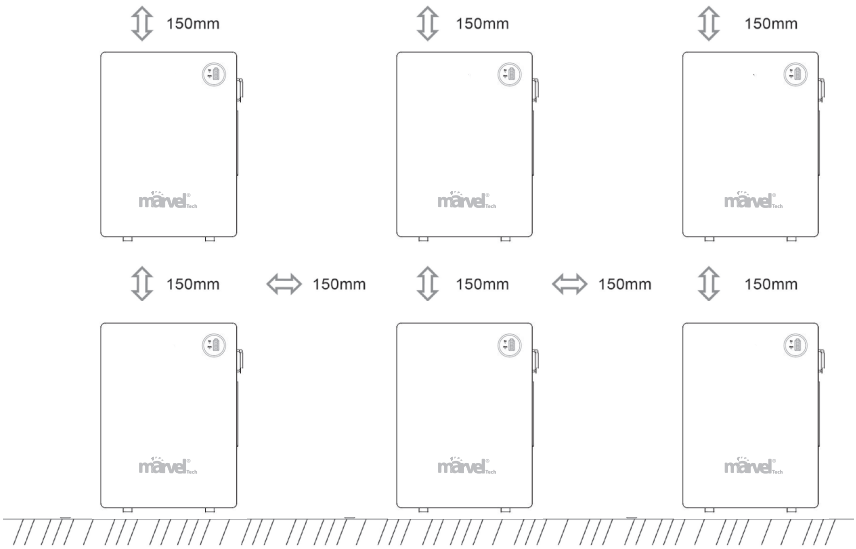
- Only mount battery on fire resistant building. Do not install batteries on flammable buildings.
- Battery is quite heavy, make sure the wall/ground can meet the load bearing requirements.

3.4 Installation Instructions

3.4.1 Dimensions



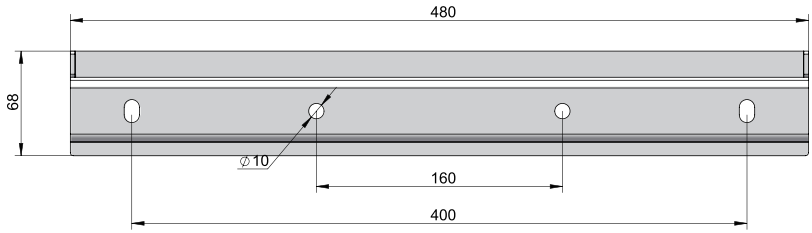
Minimum mounting distance between battery pack and equipment:



3.4.2 Installation Procedure

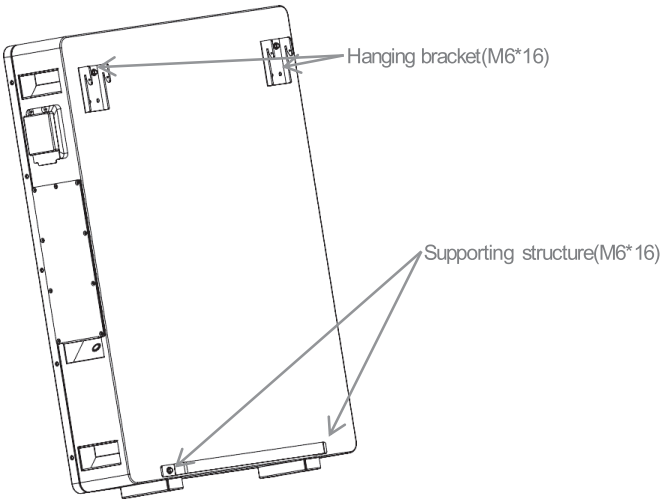
STEP 1

Drill a hole using a 10mm drill bit as shown below, and fix the wall bracket to the wall.



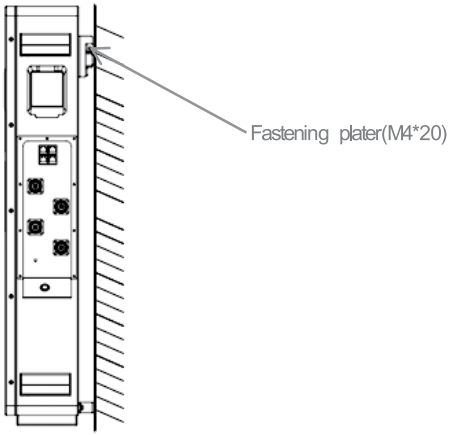
STEP 2

Install the hanging bracket.



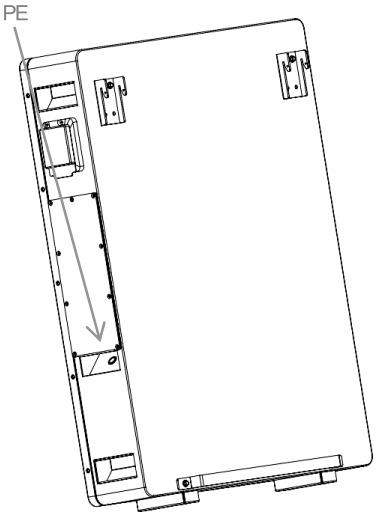
STEP 3

Hang ML200-51.2 W01 IP65 on the wall bracket and tighten it.



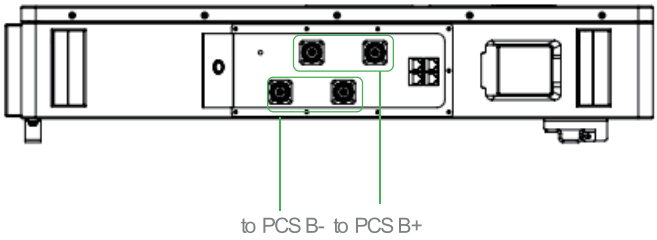
STEP 4

Connect to ground.



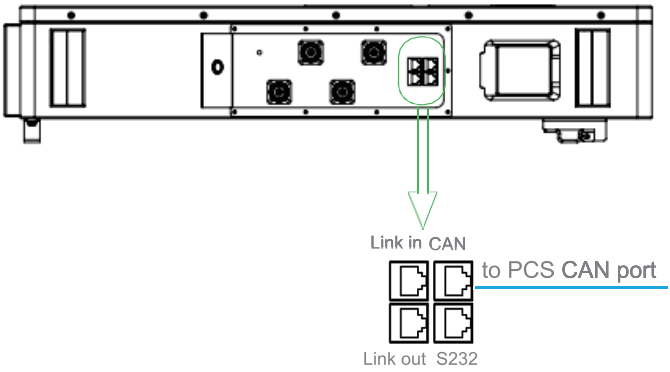
STEP 5

Connect power cable.



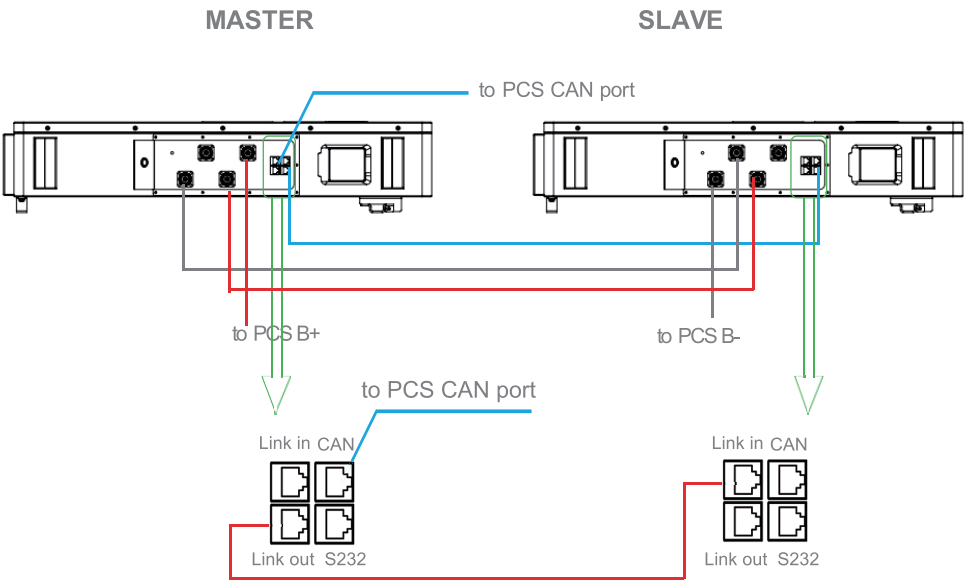
STEP 6

Connect communication cable.



STEP 7

When multiple batteries are connected in parallel, follow the following wiring mode.



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MAINTENANCE

4.1 Recharge Requirements During Normal Storage

The battery should be stored in an environment with a temperature range between -10°C to +45°C, and it should be regularly maintained according to the table below using a 0.5C (25A) current until it reaches 40% SOC after long storage time.

Recharge Conditions When In Storage

Storage Environment Temperature	Relative Humidity of Storage Environment	Storage Time	SOC
Below -10℃	/	prohibit	/
-10~25℃	5%~70%	≤12 months	30%≤SOC≤60%
25~35℃	5%~70%	≤6 months	30%≤SOC≤60%
35~45℃	5%~70%	≤3 months	30%≤SOC≤60%
Above 45℃	/	prohibit	/

4.2 Recharge Requirements When Over Discharged

If the battery has been over discharged (90% DOD), it should be recharged as per the following table; otherwise, the over discharged battery may get damaged.

Recharge conditions when battery is over discharged

Storage Environment Temperature	Storage Time	Note
-10~25℃	≤15 days	Battery Pack disconnected from PCS
25~35℃	≤7 days	
-10~45℃	<12 hours	Battery Pack connected to PCS