

USER MANUAL

APEX 5220 LFP Battery



Contents

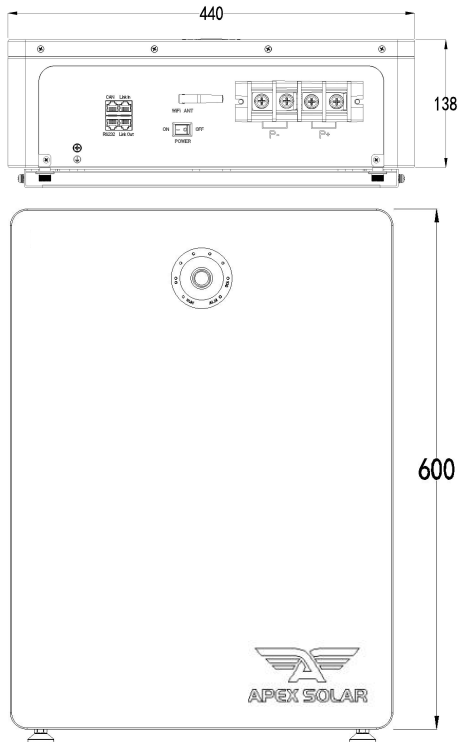
1 Product Overview	1
1.1 Appearance	1
1.2 Button, LED & Communication Port	2
1.2.1 Switch ON/OFF	2
1.2.2 LED Indicator Definition	2
1.2.3 Communication Port Pin Definition	4
2 Installation Guide	5
2.1 Checking Deliverables	5
2.2 Tools	6
2.3 Installation Instructions	7
2.3.1 Installation Step (Floor Mounted)	7
2.3.2 Installation Step (Wall Mounted)	8
3 Bluetooth and Wi-Fi Function	12
3.1 Bluetooth	12
3.2 Wi-Fi	13
4 Technical Specifications	15
5 Maintenance	16
5.1 Recharge Requirements During Storage	16
5.2 Recharge Requirements When Over Discharged	16

1 Product Overview

APEX 5220 is a 51.2V 102Ah LiFePO₄ battery that can be floor mounted, or wall mounted.

APEX 5220 is not suitable for life-sustaining medical devices.

1.1 Appearance



1.2 Button, LED & Communication Port

1.2.1 Switch ON/OFF

1、Switch ON

For single APEX 5220, switch ON POWER button, then long press (3 sec) SW button (surrounded by led lights).

For multiple APEX 5220 connected in parallel, switch ON POWER buttons of all batteries, then long press (3 sec) SW button of master battery.

2、Switch OFF

Switch OFF all POWER button(s).

1.2.2 LED Indicator Definition

Note: Flash 1 - 0.25s ON / 3.75s OFF









Flash 2 - 0.5s ON / 0.5s OFF

Flash 3 - 0.5s ON / 1.5s OFF









SOC Status while charging

STATUS		CHARGE							
		L8 ●	L7 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
SOC (%)	0~17	ON	OFF	OFF	OFF	OFF	OFF	OFF	Flash 2
	18~33			OFF	OFF	OFF	OFF	Flash 2	ON
	34~50			OFF	OFF	OFF	Flash 2	ON	ON
	51~66			OFF	OFF	Flash 2	ON	ON	ON
	67~83			OFF	Flash 2	ON	ON	ON	ON
	84~100			Flash 2	ON	ON	ON	ON	ON

SOC Status while discharging

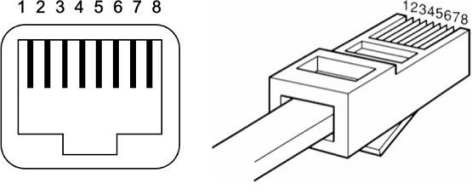
STATUS		DISCHARGE							
		L8 	L7 	L6 	L5 	L4 	L3 	L2 	L1 
SOC (%)	0~17	Flash 3	OFF	OFF	OFF	OFF	OFF	OFF	ON
	18~33			OFF	OFF	OFF	OFF	ON	ON
	34~50			OFF	OFF	OFF	ON	ON	ON
	51~66			OFF	OFF	ON	ON	ON	ON
	67~83			OFF	ON	ON	ON	ON	ON
	84~100			ON	ON	ON	ON	ON	ON

Work Status

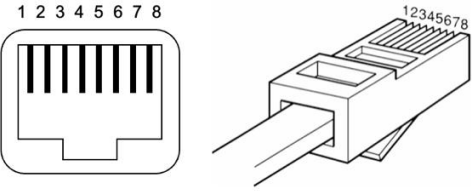
STATUS		RUN	ALM	SOC						DESCRIPTION
		L8 	L7 	L6 	L5 	L4 	L3 	L2 	L1 	
Shutdown		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Standby		Flash 1	OFF	According to SOC						
Charge	Normal	ON	OFF	According to SOC						
	Over volt	ON	OFF	ON	ON	ON	ON	ON	ON	Switch to standby mode
	Protection	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	Flash 3	OFF	According to SOC						
	Under volt	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
	Protection	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
Faulty		OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging and discharging

1.2.3 Communication Port Pin Definition

1.2.3.1 CAN/RS485 to PCS

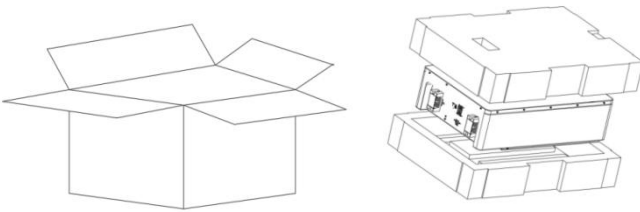
Port definitions	RJ45 Pin	Function
	1	RS485-B
	2	RS485-A
	3	GND
	4	CAN-H
	5	CAN-L
	6	NC
	7	RS485-A
	8	RS485-B







1.2.3.2 RS232 to PC



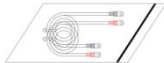
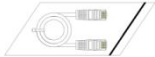

Port definitions	RJ45 Pin	Function
	1	RS232-TX
	2	GND
	3	RS232-RX
	4	NC
	5	NC
	6	NC
	7	NC
	8	NC

2 Installation Guide

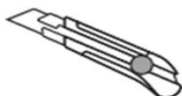

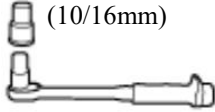






2.1 Checking Deliverables



NO.	Pictures	Quantity	Description
1		1 pc	Battery
2		4 pcs	Battery hanging bolt
3		4 pcs	Battery hanger
4		1 pc	Wall Mount
5		2 pcs	Wall Mount Bottom Bolt
6		4 pcs	Expansion Bolt

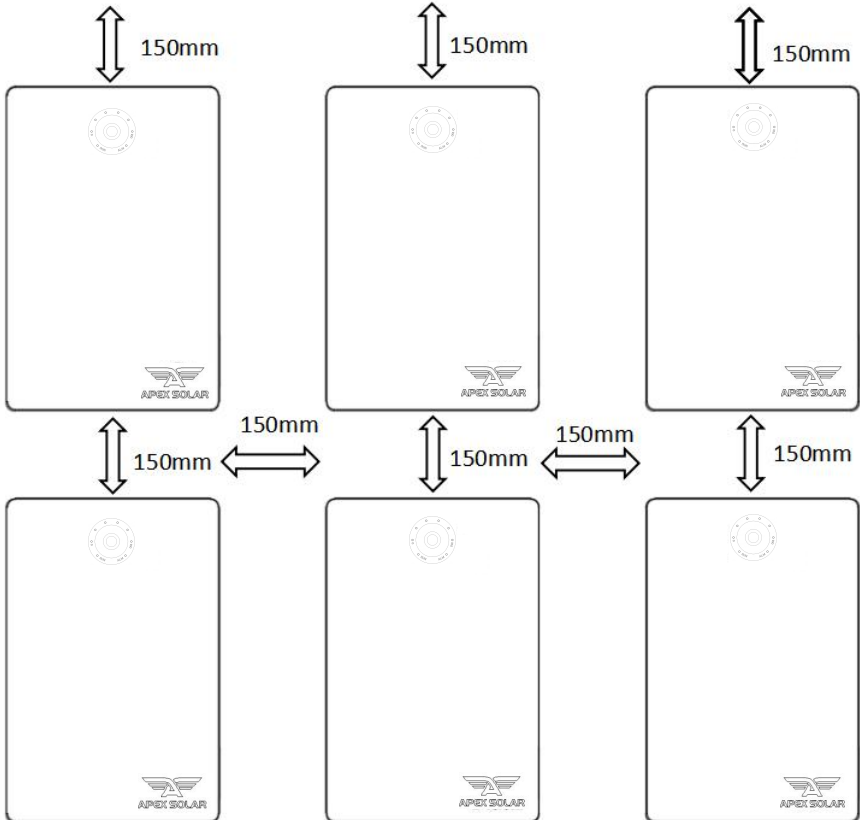
7		1 pc	User Manual
8		1 pc	cover
9		1 pair	Power cable
10		1 pc	Comm cable
11		2 pcs	Cover bolt

2.2 Tools

Installation Tools	Knife 	Measuring Tape 	Socket Wrench (10/16mm) 
	Hammer 	Cross Screwdriver 	Hammer Drill 
Protection Tools	ESD Gloves 	Safety Goggles 	Safety Shoes 

2.3 Installation Instructions

Minimum mounting distance requirement: (Wall Mounted)



2.3.1 Installation Step (Floor Mounted)

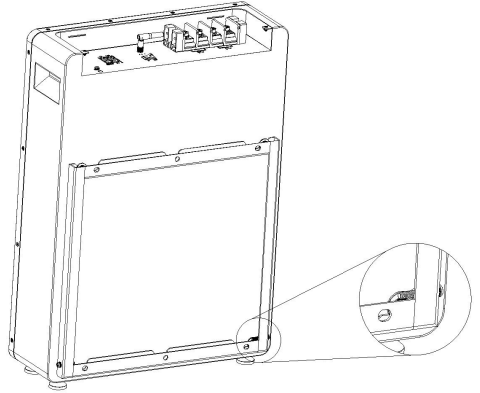
Step 1

put APEX 5220 on floor then start from Step 6

2.3.2 Installation Step (Wall Mounted)

Step 1

Remove 2 pcs wall mount bottom bolts, remove wall mount from battery.



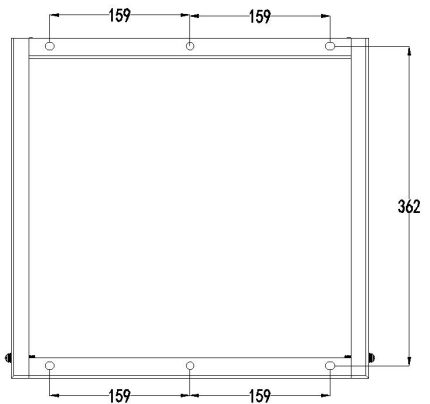
Step 2

Drill holes in the wall according to wall mount.



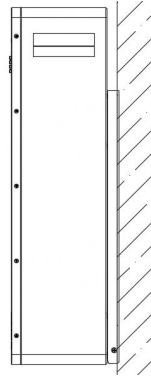
Step 3

Fix wall mount to the wall using expansion bolt.

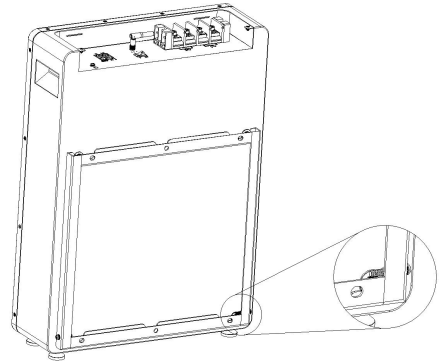


Step 4

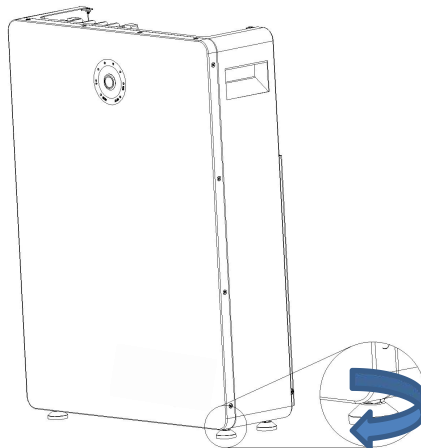
Hang APEX 5220 battery on wall mount.

**Step 5**

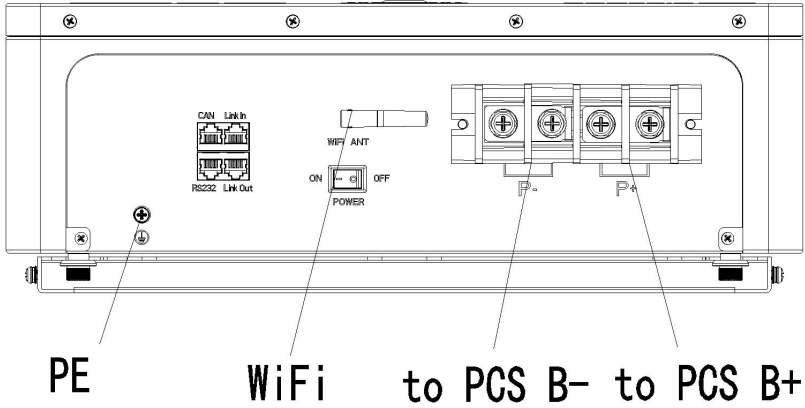
Install 2 pcs wall mount bottom bolts.

**Step 6**

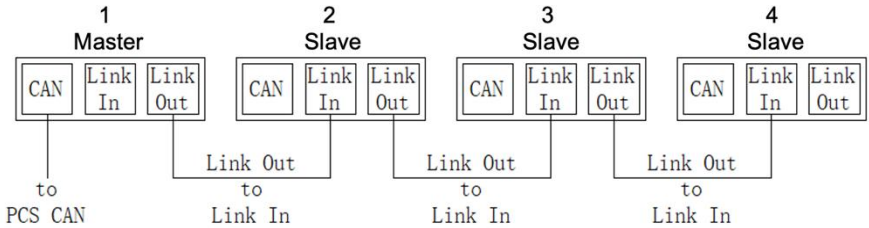
remove levelling feet.



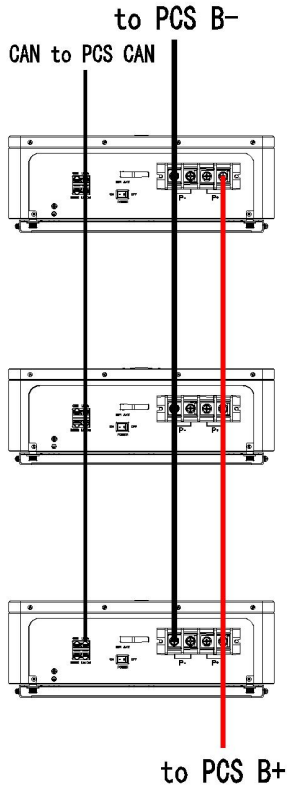
Step 7 Connect PE cable & power cable.



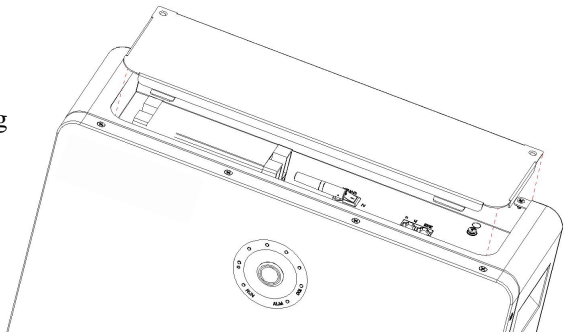
Step 8 Connect communication cable.



Step 9 Refer to the following diagram when multiple batteries are connected in parallel:


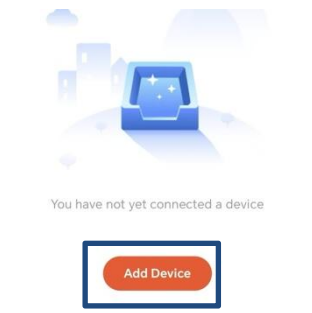




Step 10 Install cover using cover bolts.



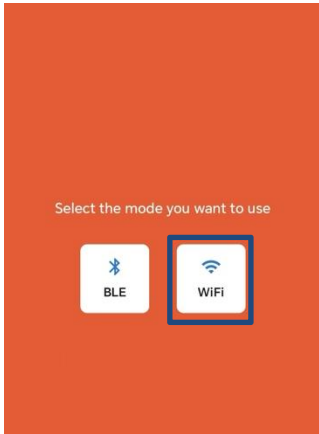
3 Bluetooth and Wi-Fi Function

3.1 Bluetooth

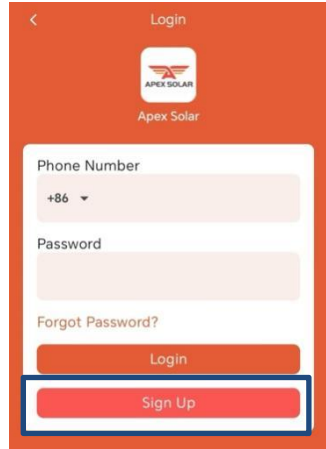
<p>1. Turn on Bluetooth function on your phone, open “APEX SOLAR” APP, tap “BLE”</p> 	<p>2. Tap “Add Device”</p> 
<p>3. Select your APEX SOLAR device and connect</p> 	<p>4. Check APEX SOLAR battery info on your phone</p> 

3.2 Wi-Fi

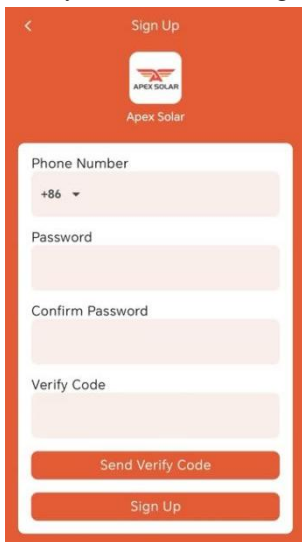
1) Connect your phone to Wi-Fi, open “APEX SOLAR” APP, tap “WiFi”



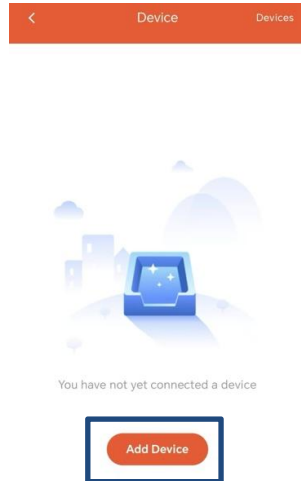
2) Tap “Sign Up”



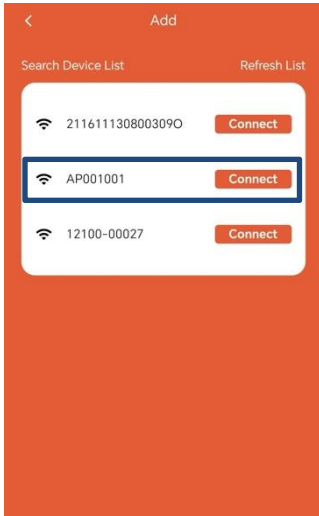
3) Create your account and login



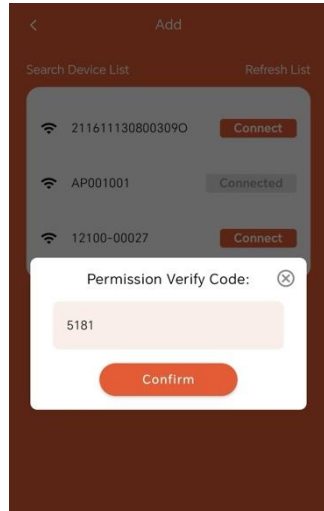
4) Tap “Add Device”



5) select your APEX SOLAR device and connect



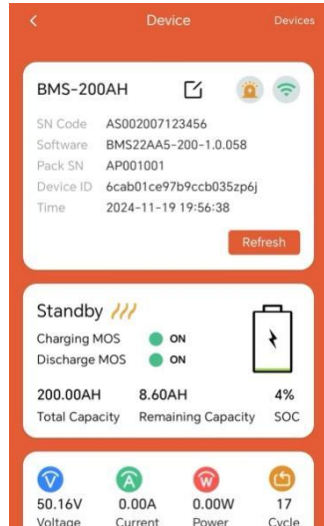
6) Permission code 5181



7) Confirm your WiFi Name and enter your WiFi password



8) Check APEX SOLAR battery info on your phone



4 Technical Specifications

Basic Project		Parameter
Nominal Voltage		51.2V
Nominal Capacity		102Ah
Nominal Energy		5222Wh
Charge Voltage		56.16V
Charge Current		50A
Discharge Voltage Range		45.6V~56.16V
Discharge Current		100A
Communication Mode		CAN/RS485
Working Temperature	Charge	0°C~55°C
	Discharge	-20°C~55°C
Storage Temperature	Short Term (within 1 month)	-10°C~45°C
	Long Term (within 1 year)	0°C~35°C
Storage Humidity		<95% RH
Cell Type		LiFePO ₄ , Lithium Iron Phosphate
Size		H600*440*D138(mm)
Weight		47.2KG (Wall Bracket Included)
IP Level		IP20

5 Maintenance

5.1 Recharge Requirements During Storage

Batteries should be stored in temperature between $-10^{\circ}\text{C} \sim +45^{\circ}\text{C}$, and recharged regularly according to the following table with 0.2C (20A) current to 50% SOC after long time storage.

Recharge requirement during storage

Storage Temperature	Storage Relative Humidity	Storage Time	SOC
Below -10°C	/	Not Allowed	/
$-10\sim 25^{\circ}\text{C}$	5%~70%	≤ 12 months	$30\% \leq \text{SOC} \leq 60\%$
$25\sim 35^{\circ}\text{C}$	5%~70%	≤ 6 months	$30\% \leq \text{SOC} \leq 60\%$
$35\sim 45^{\circ}\text{C}$	5%~70%	≤ 3 months	$30\% \leq \text{SOC} \leq 60\%$
Above 45°C	/	Not Allowed	/

5.2 Recharge Requirements When Over Discharged

Please recharge over discharged ($>90\%$ DOD) batteries according to the following table, otherwise over discharged battery will be damaged.

Recharge requirement when battery is over discharged

Storage Temperature	Storage Time	Note
$-10\sim 25^{\circ}\text{C}$	≤ 15 days	Battery disconnected from PCS
$25\sim 45^{\circ}\text{C}$	≤ 7 days	
$-10\sim 45^{\circ}\text{C}$	< 12 hours	Battery connected to PCS