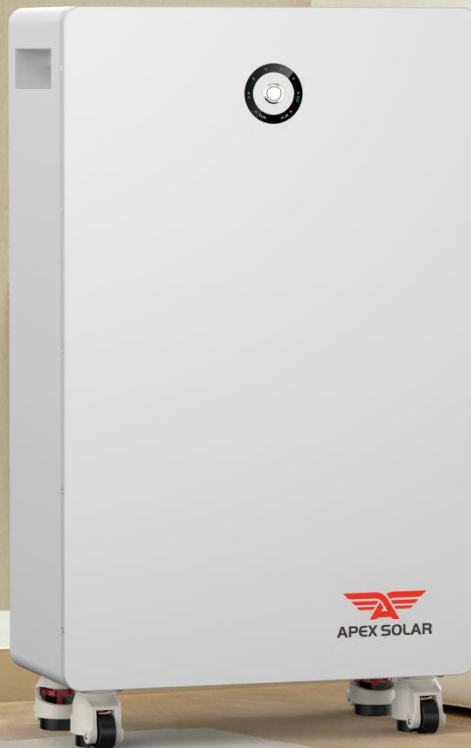


# USER MANUAL

## APEX 16 LFP Battery



## Contents

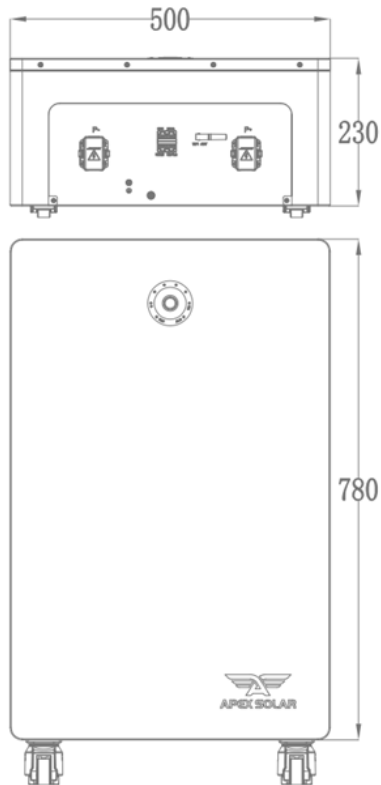
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# 1 Product Overview

APEX 16 is a floor stand Lithium Iron Phosphate (LiFePO<sub>4</sub>) battery.

**Note: APEX 16 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 16, switch ON POWER button, then long press (3 sec) SW button (surrounded by LED lights).

For multiple APEX 16 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

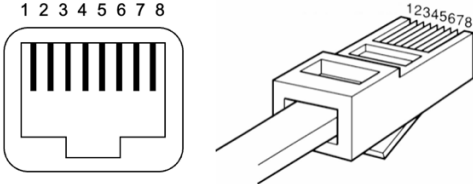
STATUS		DISCHARGE							
		L8 ●	L7 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
SOC (%)	0~17	Flash 3	OFF	OFF	OFF	OFF	OFF	OFF	ON
	18~33			OFF	OFF	OFF	OFF	ON	ON
	34~50			OFF	OFF	OFF	ON	ON	ON
	51~66			OFF	OFF	ON	ON	ON	ON
	67~83			OFF	ON	ON	ON	ON	ON
	84~100			ON	ON	ON	ON	ON	ON

### Work Status

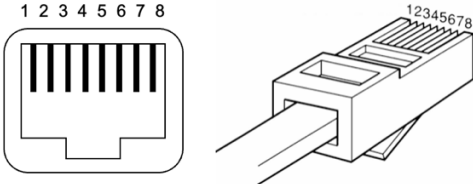
STATUS		RUN	ALM	SOC						DESCRIPTION
		L8 ●	L7 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	
Shutdown		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Standby		Flash 1	OFF	According to SOC						
Charge	Normal	ON	OFF	According to SOC						
	Over volt	ON	OFF	ON	ON	ON	ON	ON	ON	Switch to standby mode
	Protection	OFF	ON	OFF	OFF	OFF	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

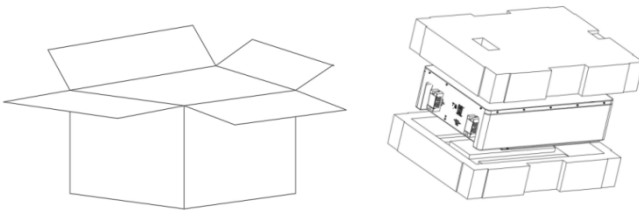
Port definitions	RJ45 Pin	Function
	1	RS485-B
	2	RS485-A
	3	GND
	4	CAN-H
	5	CAN-L
	6	NC
	7	RS485-A
	8	RS485-B






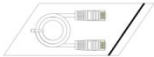
#### 1.2.3.2 RS232 to PC

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

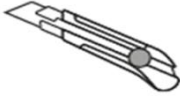
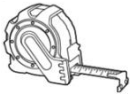
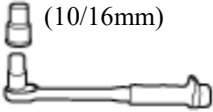






### 2.1 Checking Deliverables



NO.	Pictures	Quantity	Description
1		1 pc	APEX 16 Battery
2		1 pc	Antenna
3		1 pcs	Expansion Bolt
4		1 pc	Wall Connector
5		1 pc	User Manual
6		1 pc	Comm cable

7		1 pc	Lock right Angle pendant
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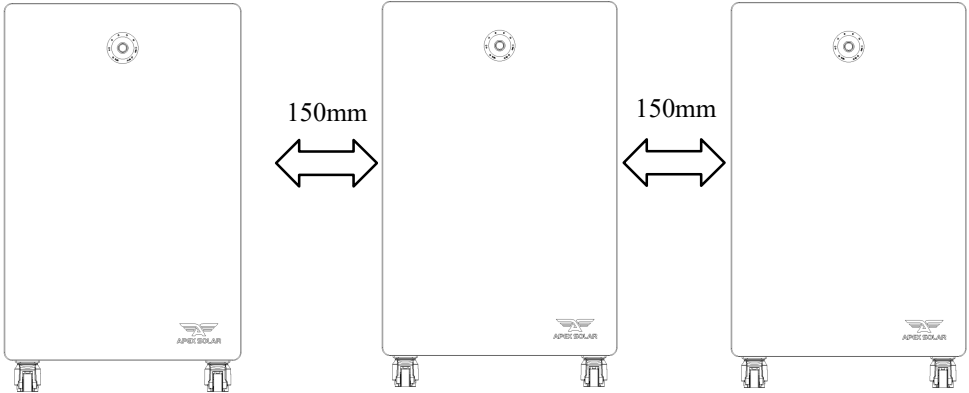
## 2.2 Tools

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



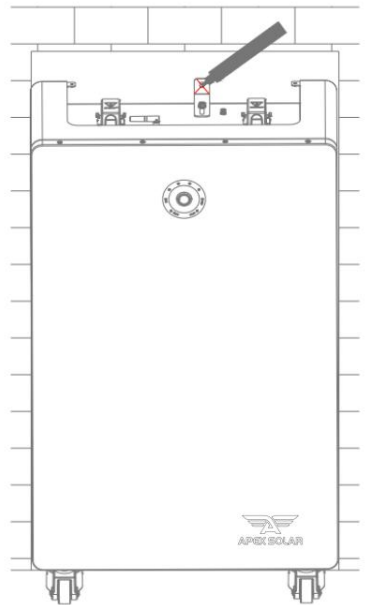
## 2.3 Installation Instructions

### Minimum mounting distance requirement:

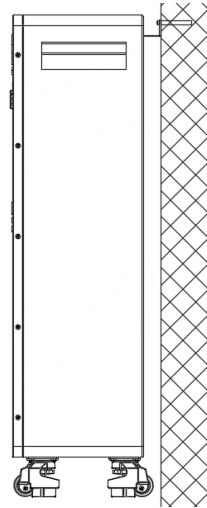


### 2.3.1 Installation Step

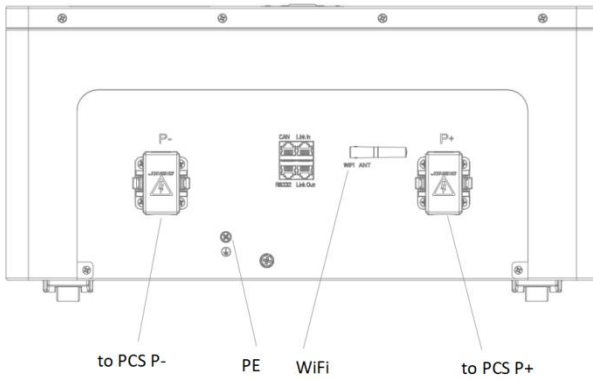
**Step 1** place APEX 16 on the floor, close to wall. Determine hole position using marker.



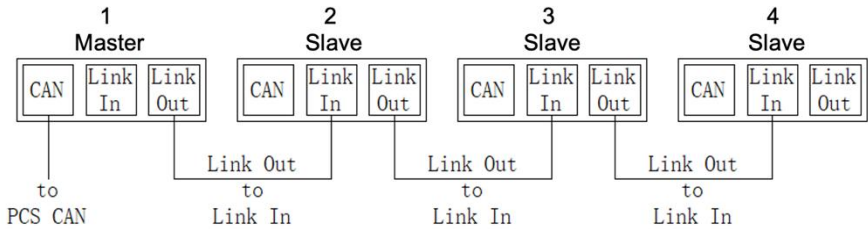
**Step 2** drill hole on the wall,  
fix wall connector using expansion bolt



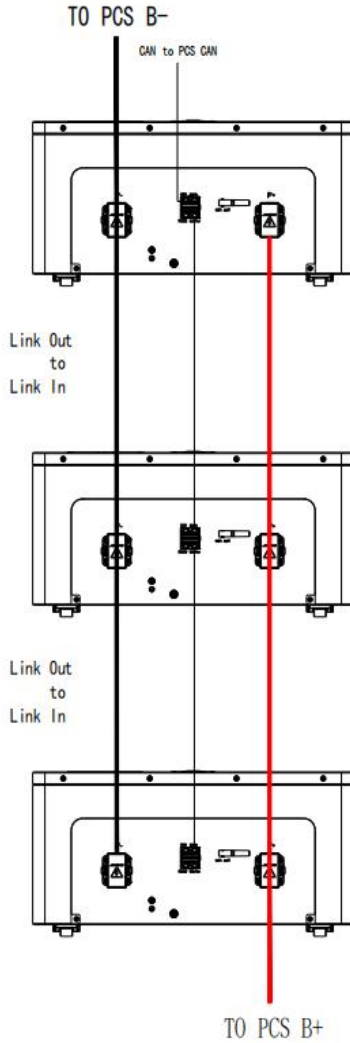
**Step3** Connect PE cable & power cable.



**Step 4** Connect communication cable.


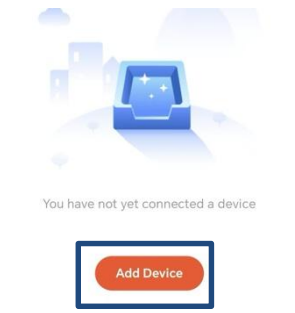

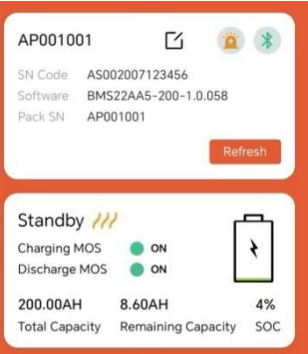


**Step 5** Refer to the following diagram when multiple batteries are connected in parallel:



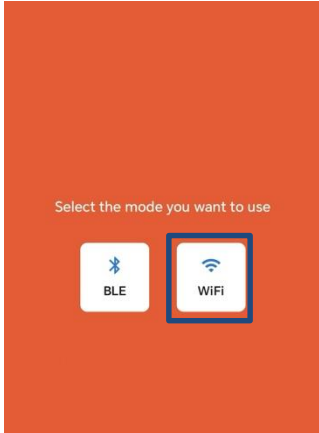
### 3 Bluetooth and Wi-Fi Function

#### 3.1 Bluetooth

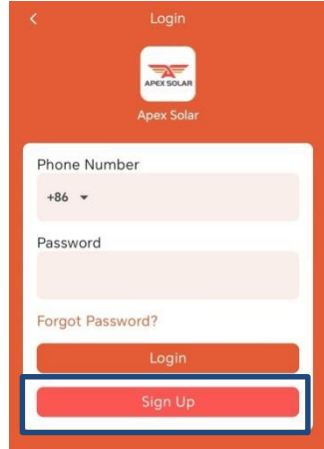
<p>1. Turn on Bluetooth function on your phone, open “APEX SOLAR” APP, tap “BLE”</p> 	<p>2. Tap “Add Device”</p> 
<p>3. Select your APEX SOLAR device and connect</p> 	<p>4. Check APEX SOLAR battery info on your phone</p> 

### 3.2 Wi-Fi

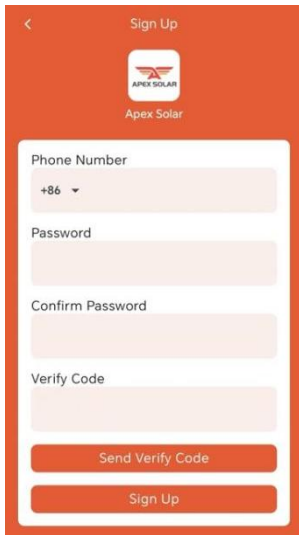
1) Connect your phone to Wi-Fi, open “APEX SOLAR” APP, tap “WiFi”



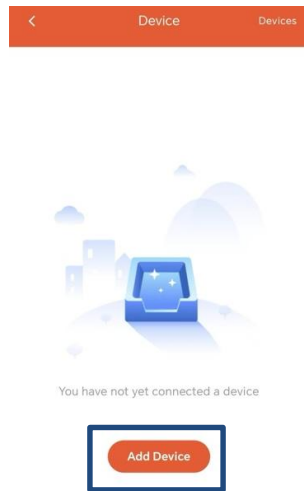
2) Tap “Sign Up”



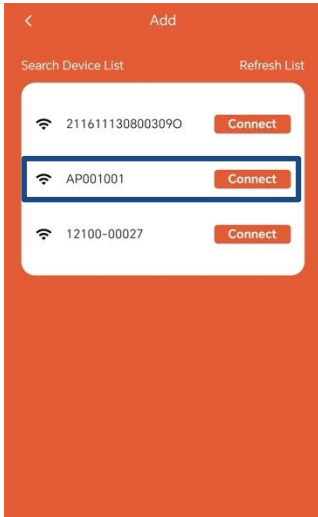
3) Create your account and login



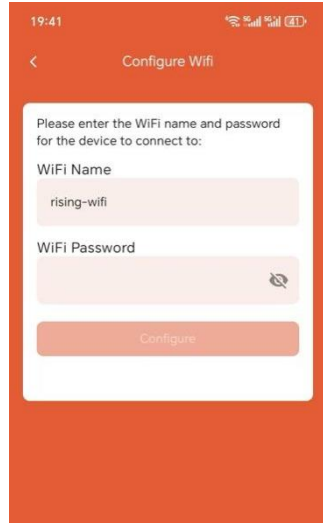
4) Tap “Add Device”



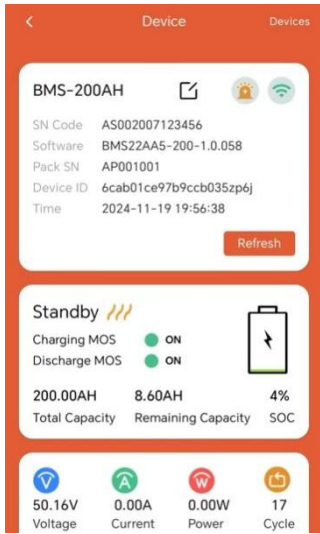
5) select your APEX SOLAR device and connect



6) Confirm your WiFi Name and enter your WiFi password



7) Check APEX SOLAR battery info on your phone



## 4 Maintenance

### 4.1 Recharge Requirements During Storage

Batteries should be stored in temperature between  $-10\text{ }^{\circ}\text{C} \sim +45\text{ }^{\circ}\text{C}$ , and recharged regularly according to the following table with 0.2C (112A) current to 50% SOC after long time storage.

**Recharge requirement during storage**

Storage Temperature	Storage Relative Humidity	Storage Time	SOC
Below $-10\text{ }^{\circ}\text{C}$	/	Not Allowed	/
$-10\sim 0\text{ }^{\circ}\text{C}$	5%~70%	$\leq 1$ months	$30\% \leq \text{SOC} \leq 60\%$
$0\sim 25\text{ }^{\circ}\text{C}$	5%~70%	$\leq 12$ months	$30\% \leq \text{SOC} \leq 60\%$
$25\sim 35\text{ }^{\circ}\text{C}$	5%~70%	$\leq 6$ months	$30\% \leq \text{SOC} \leq 60\%$
$35\sim 45\text{ }^{\circ}\text{C}$	5%~70%	$\leq 1$ months	$30\% \leq \text{SOC} \leq 60\%$
Above $45\text{ }^{\circ}\text{C}$	/	Not Allowed	/

### 4.2 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
$-10\sim 25\text{ }^{\circ}\text{C}$	$\leq 15$ days	Battery disconnected from PCS
$25\sim 45\text{ }^{\circ}\text{C}$	$\leq 7$ days	
$-10\sim 45\text{ }^{\circ}\text{C}$	$< 12$ hours	Battery connected to PCS

**Attention:** Disposal of batteries should follow local regulations.