USER MANUAL
APEX 16K PRO LFP Battery

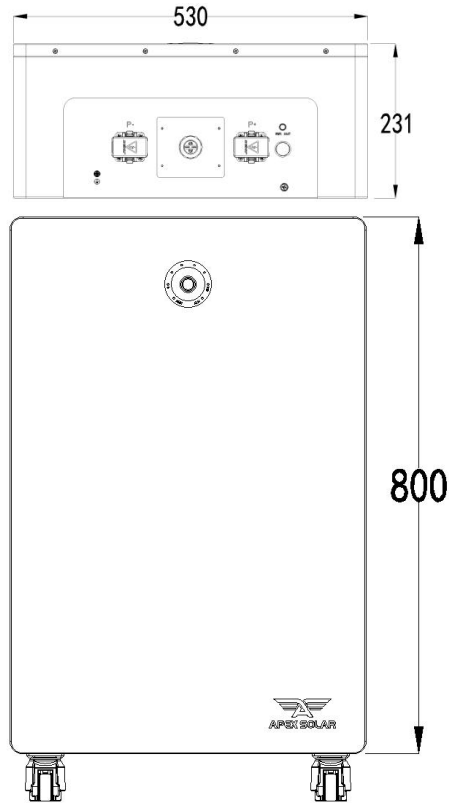
Contents

1 Product Overview

APEX 16K PRO is a 51.2V 314Ah floor stand Lithium Iron Phosphate ($LiFePO_4$) battery.

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

For multiple APEX 16K PRO 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

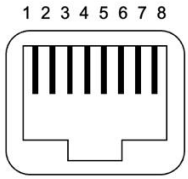
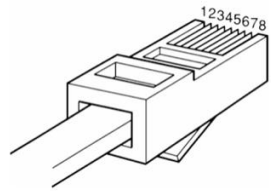
STATUS		DISCHARGE							
		L8 ●	L7 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
SOC (%)	0～17	Flash 3	OFF	OFF	OFF	OFF	OFF	OFF	ON
	18～33			OFF	OFF	OFF	OFF	ON	ON
	34～50			OFF	OFF	OFF	ON	ON	ON
	51～66			OFF	OFF	ON	ON	ON	ON
	67～83			OFF	ON	ON	ON	ON	ON
	84～100			ON	ON	ON	ON	ON	ON

Work Status

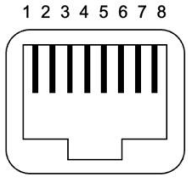
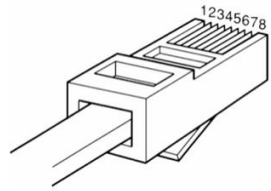
STATUS		RUN	ALM	SOC						DESCRIPTION
		L8 ●	L7 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	
Shutdown		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Standby		Flash 1	OFF	According to SOC						
Charge	Normal	ON	OFF	According to SOC						
	Over volt	ON	OFF	ON	ON	ON	ON	ON	ON	Switch to standby mode
	Protection	OFF	ON	OFF	OFF	OFF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

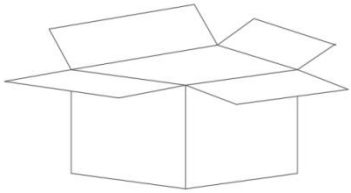
Port definitions	RJ45 Pin	Function
 	1	RS485-B
	2	RS485-A
	3	GND
	4	CAN-H
	5	CAN-L
	6	NC
	7	RS485-A
	8	RS485-B

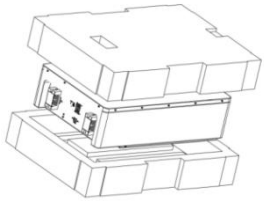
1.2.3.2 RS232 to PC

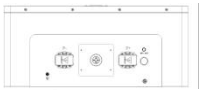
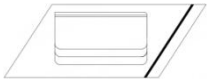
Port definitions	RJ45 Pin	Function
 	1	RS232-TX
	2	GND
	3	RS232-RX
	4	NC
	5	NC
	6	NC
	7	NC
	8	NC

2 Installation Guide

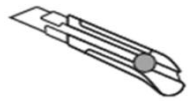
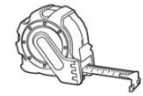
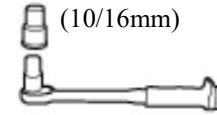
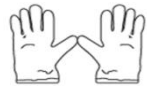
2.1 Checking Deliverables





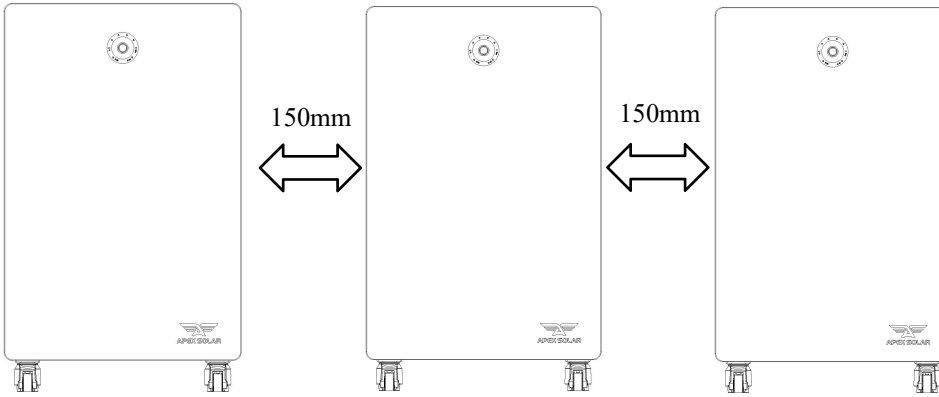
NO.	Pictures	Quantity	Description
1		1 pc	APEX 16K PRO Battery
2		1 pcs	Expansion Bolt
3		1 pc	Wall Connector
4		1 pc	User Manual
5		1 pc	Comm cable
6		1 pc	Lock right Angle pendant

2.2 Tools

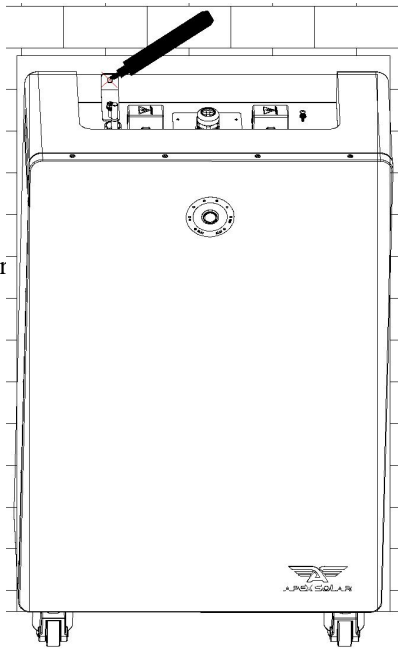
Installation Tools	Knife 	Measuring Tape 	Socket Wrench (10/16mm) 
	Hammer 	Cross Screwdriver 	Hammer Drill 
Protection Tools	ESD Gloves 	Safety Goggles 	Safety Shoes 

2.3 Installation Instructions

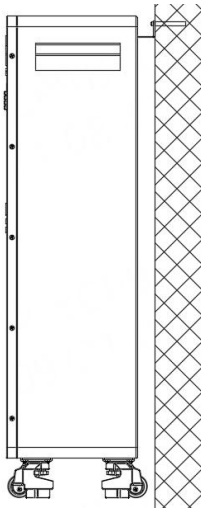
Minimum mounting distance requirement:



2.3.1 Installation Step

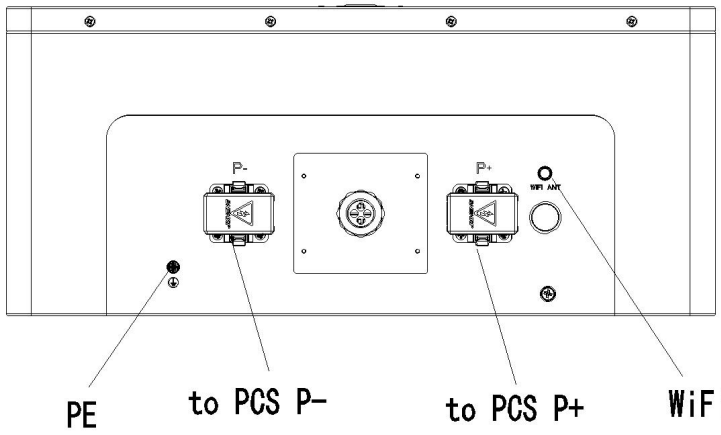


Step 1 place APEX 16K PRO on the floor close to wall.
Determine hole position using marker.

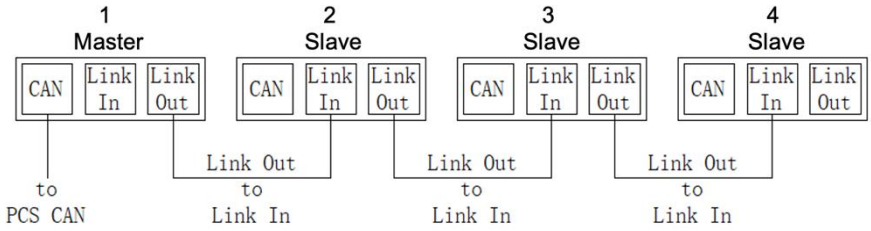


Step 2 drill hole on the wall,
fix wall connector using expansion bolt

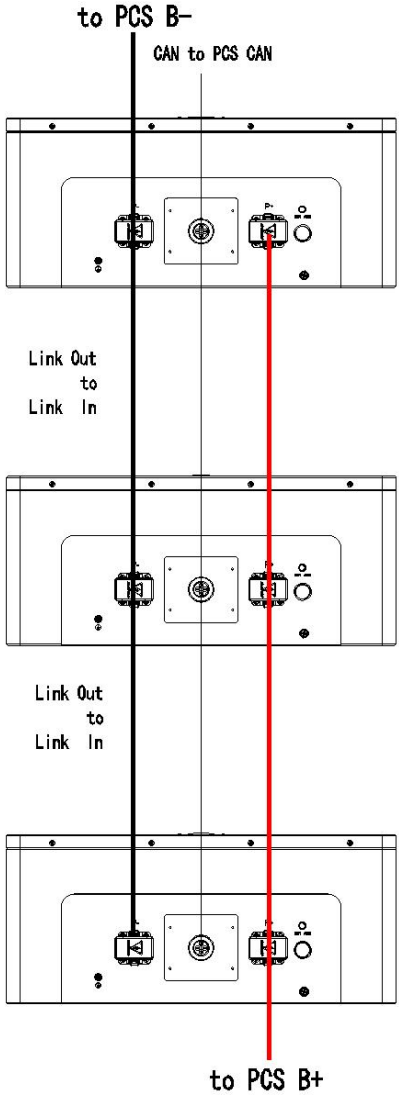
Step3 Connect PE cable & power cable.



Step 4 Connect communication cable.

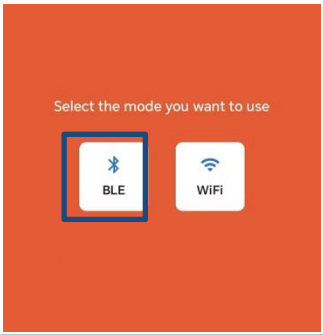
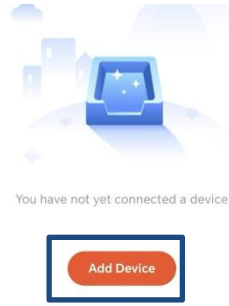
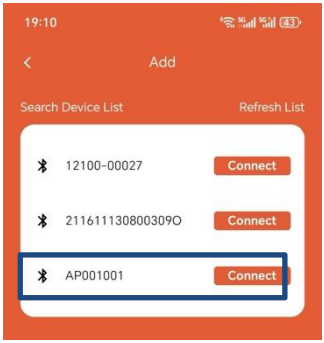
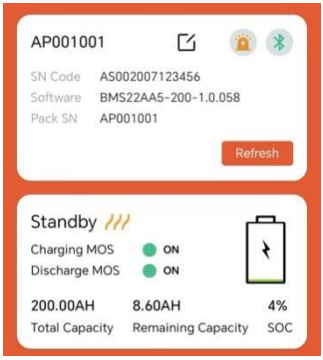


Step 5 Refer to the following diagram when multiple batteries are connected in parallel:



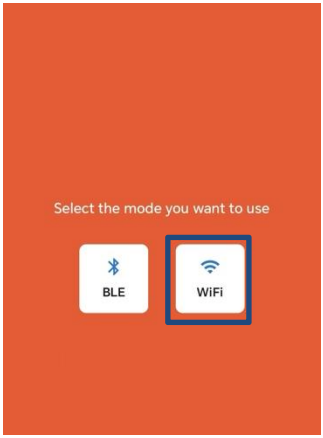
3 Bluetooth and Wi-Fi Function

3.1 Bluetooth

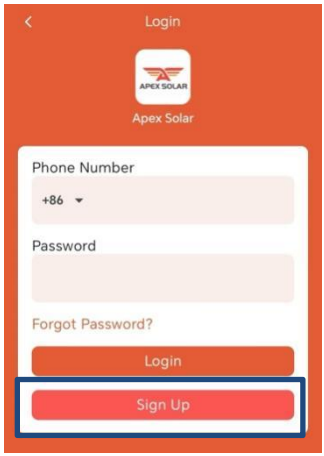
1. Turn on Bluetooth function on your phone, open "APEX SOLAR" APP, tap "BLE" 	2. Tap "Add Device" 
3. Select your APEX SOLAR device and connect 	4. Check APEX SOLAR battery info on your phone 

3.2 Wi-Fi

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

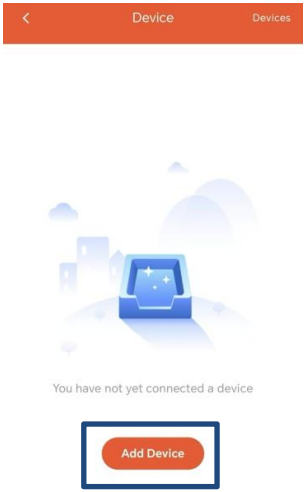


2) Tap “Sign Up”



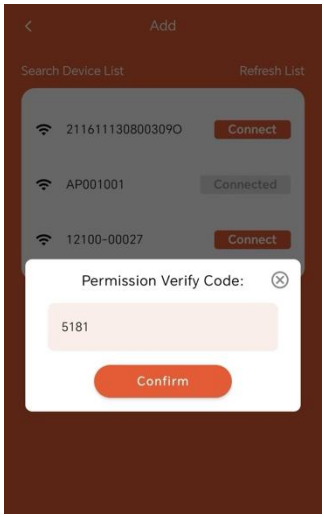
3) Create your account and login

4) Tap “Add Device”



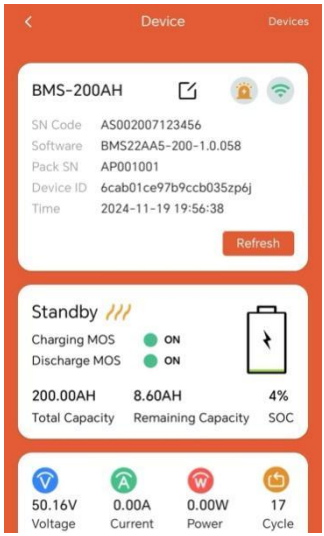
5) select your APEX SOLAR device and connect

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		314Ah
Nominal Energy		16076Wh
Charge Voltage		56.16V
Charge Current		150A
Discharge Voltage Range		45.6V～56.16V
Discharge Current		200A
Communication Mode		CAN/RS485
Working Temperature	Charge	0℃～55℃
	Discharge	-20℃～55℃
Storage Temperature	Short Term (< 1 month)	-10℃～45℃
	Long Term (< 1 year)	0℃～35℃
Storage Humidity		＜95% RH
Cell Type		$LiFePO_4$， Lithium Iron Phosphate
Size		H800*W530*D231(mm)
Weight		120KG
IP Level		IP66

5 Maintenance

5.1 Recharge Requirements During Storage

Batteries should be stored in temperature between -10℃ ～ +45℃, and recharged regularly according to the following table with 0.2C (60A) current to 50% SOC after long time storage.

Recharge requirement during storage

Storage Temperature	Storage Relative Humidity	Storage Time	SOC
Below -10℃	/	Not Allowed	/
-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℃	/	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
-10~25℃	≤15 days	Battery disconnected from PCS
25~45℃	≤7 days	
-10~45℃	< 12 hours	Battery connected to PCS