

Solar Power System Installation Manual



When working on grid mains, an electrician will be required to wire the inverter into the mains. You can do other steps yourself.

Any questions, welcome to contact us on WA: 86-13006765367 or solar@pvmars.com

Next, please read these instructions carefully before you start.

KIT CONTENTS

PVMars provides a complete full set system that can be installed and used directly after you receive the goods.

15 x FS540W mono solar panel



1 x PV Array Combiner



1 x 96V/100A Mppt Solar Controller



1 x 10KW96VDC IGBT Inverter



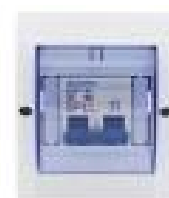
16 x 12V/200AH Gel battery
Or 2 x 5kWh Powerwall lithium battery



14pcs 16mm²*35CM
4pcs 16mm²*2M battery cable
20M 16mm² cable
4mm² PV cable 200M



2P 100A Battery switch and box




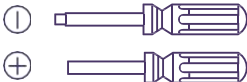

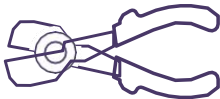


KIT CONTENTS

15pcs 540w solar panels will take about 12m2 area, It is recommended to reserve 15-20 square meters of space to facilitate the installation personnel's walking

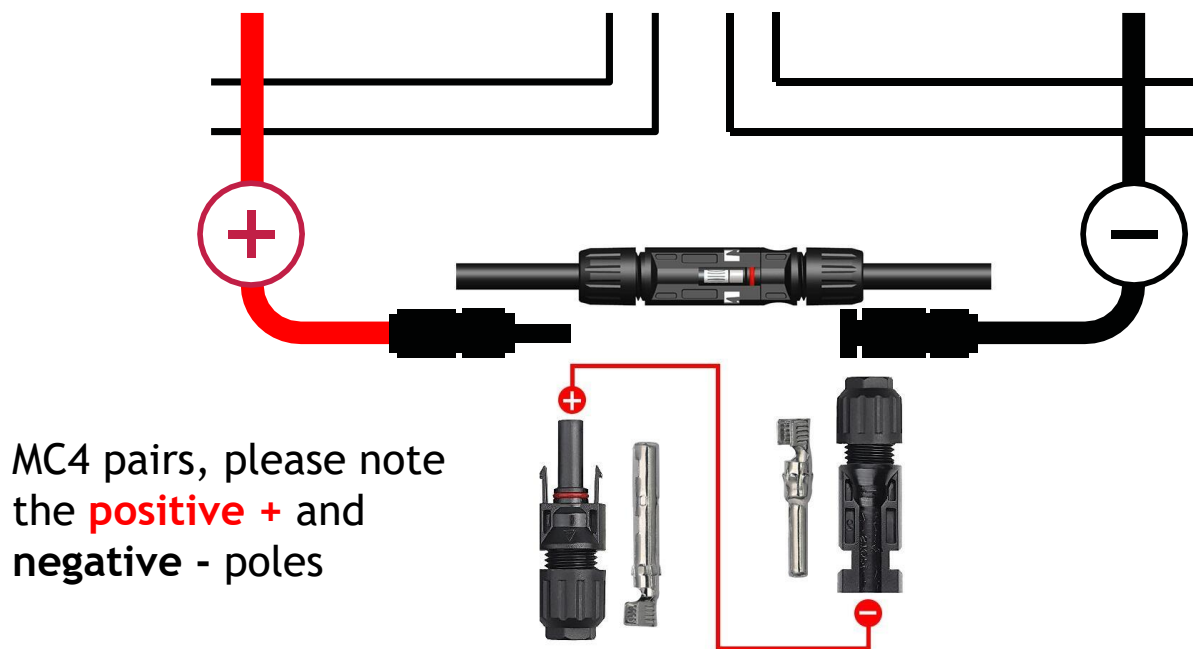


REQUIRED TOOLS

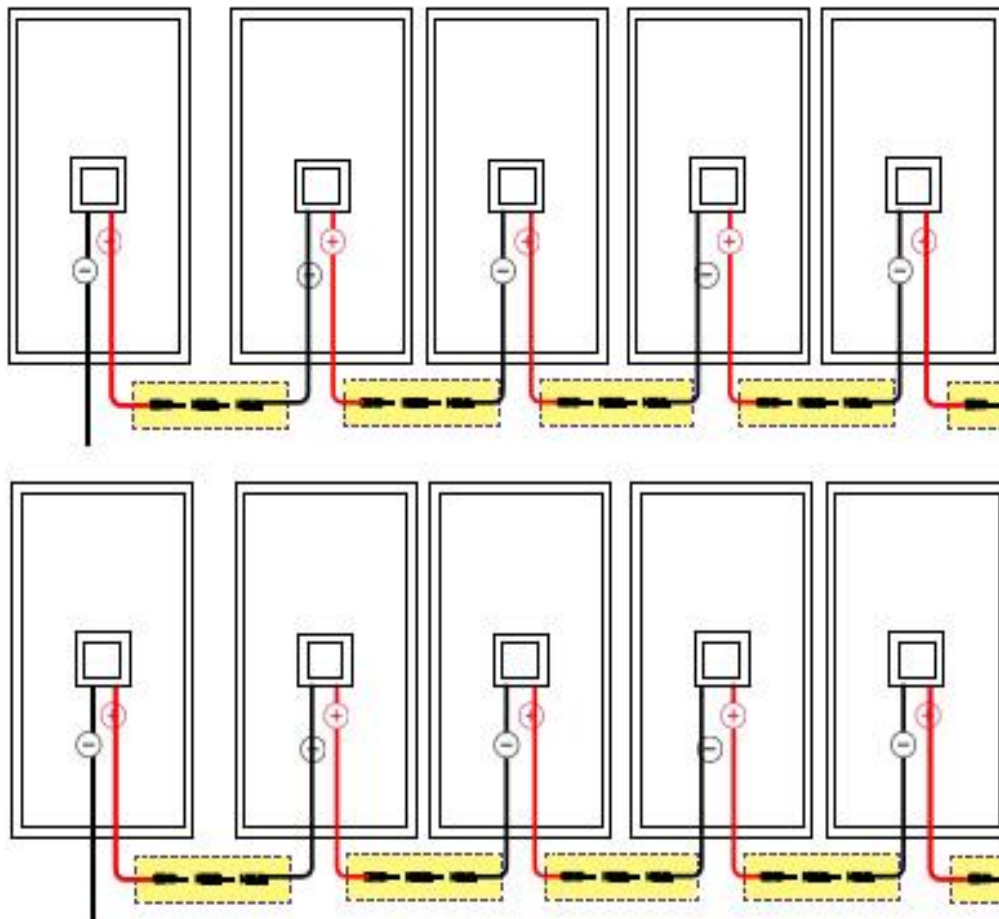
PVMars solar power system includes installation tools (except electric drill)

Drill		Screw Drivers		6mm Allen Key	
Wire Strippers		13mm Spanner		multimeter	

SOLAR PANEL WIRING

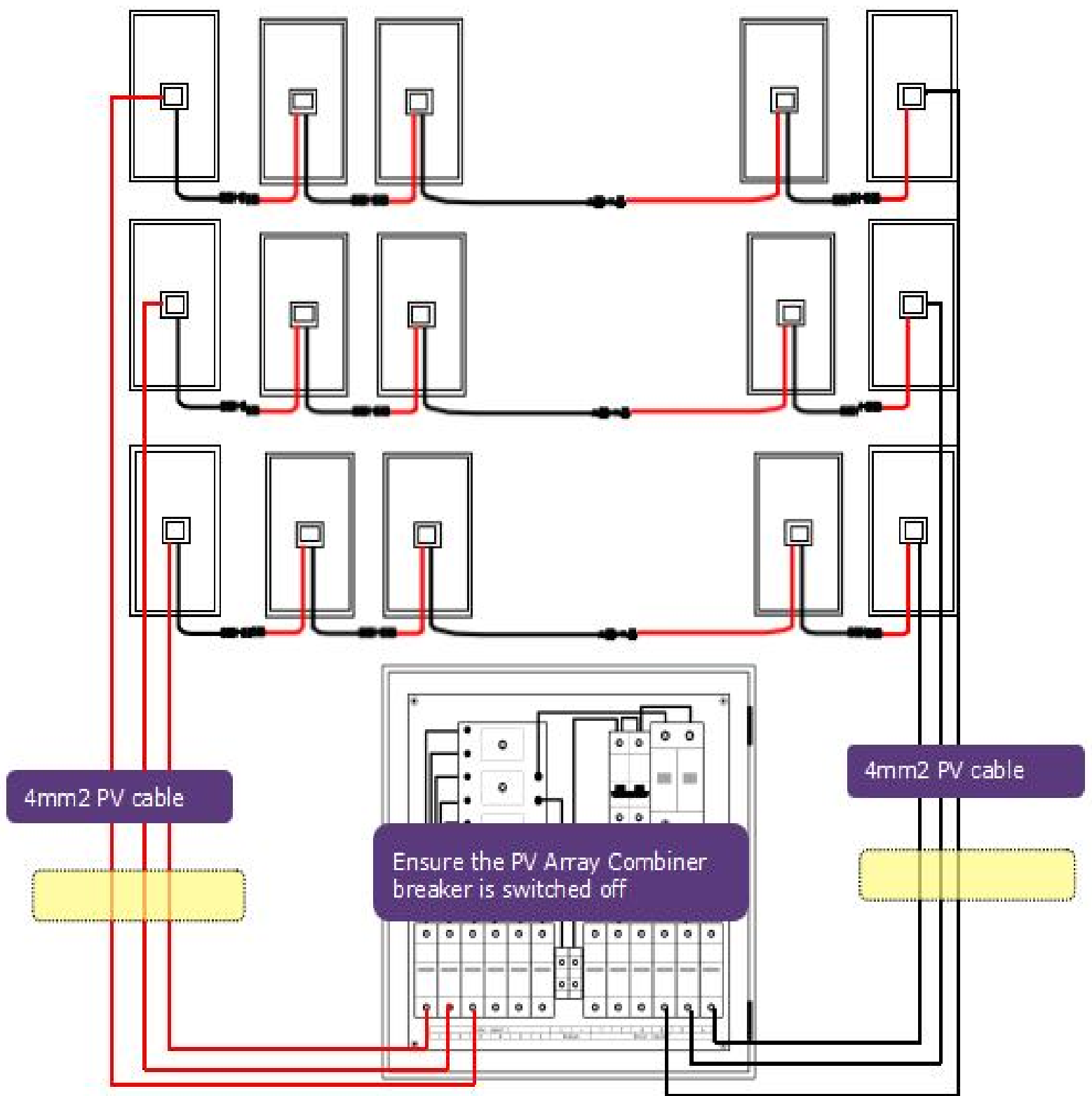


Connect way: each **5** pcs in series, **3** in parallel.



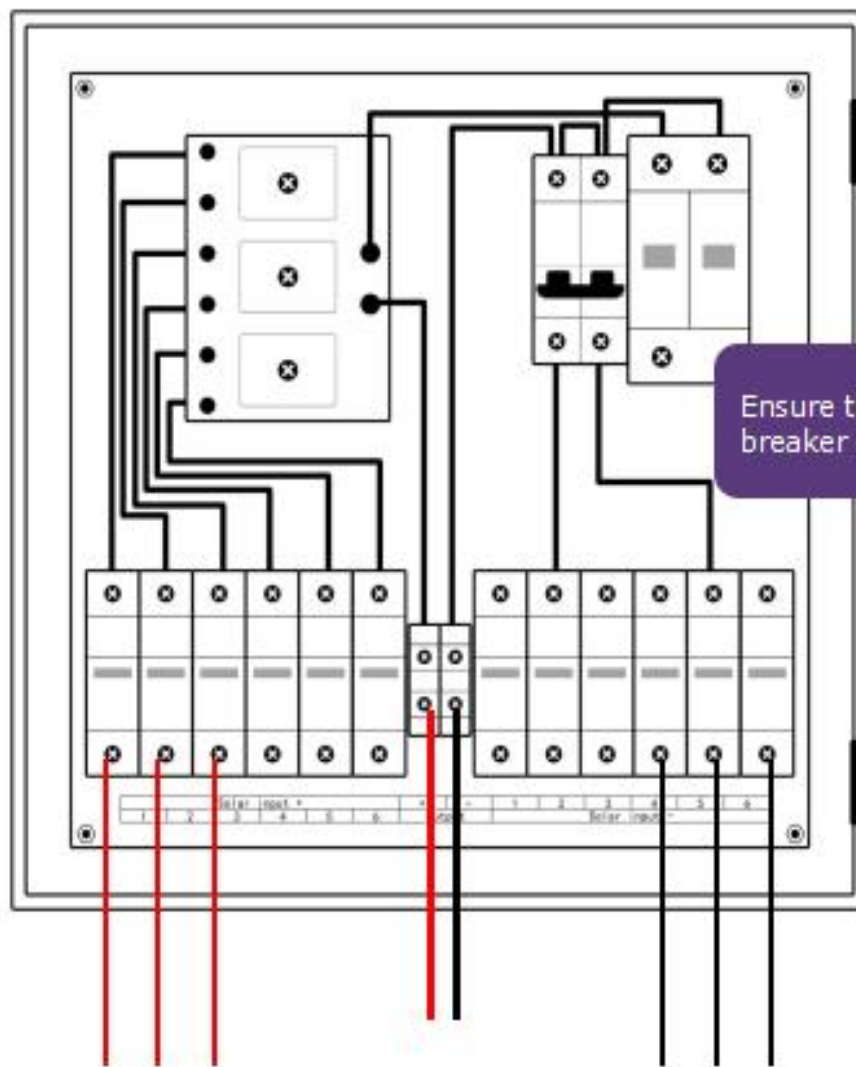
For how to mount solar panels with different rack/bracket video here:
<https://www.pvmars.com/ultimate-guide-videos-for-all-types-of-mounting-brackets-solar-pv/>

WIRING OVERVIEW

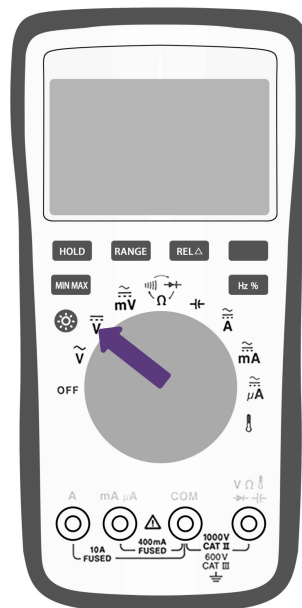


Connect way: **3** in parallel connect to PV combiner

PV ARRAY COMBINER WIRING



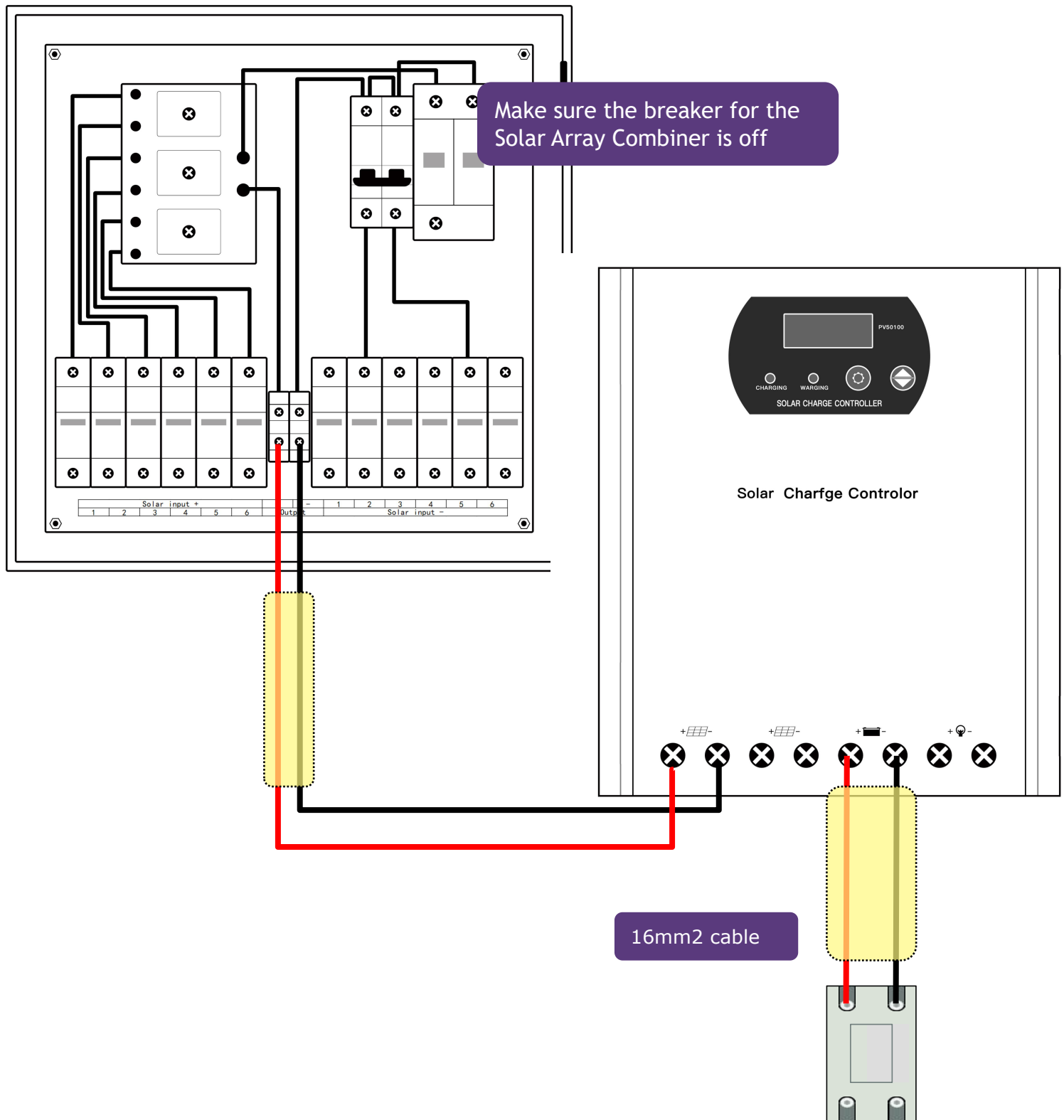
Measure the voltage of each string and the total voltage with a multimeter



Open voltage should be around **245V** during the biggest sun

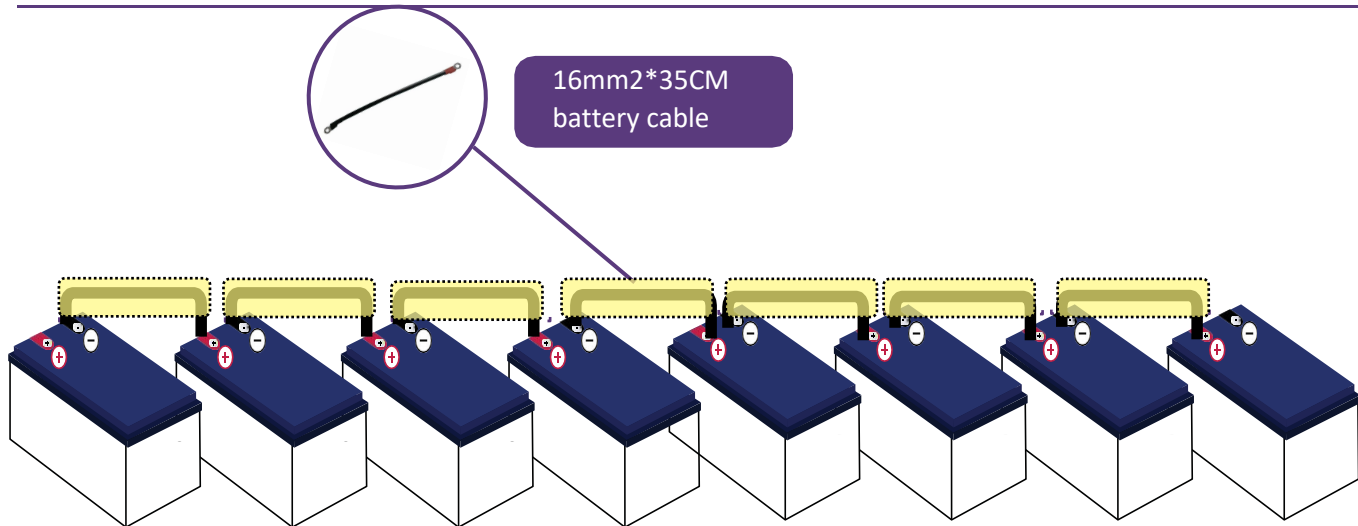
Verify the open voltage of each string and the total output voltage.

CONTROLLER WIRING



The PV Array Combiner needs to be connected to the solar controller

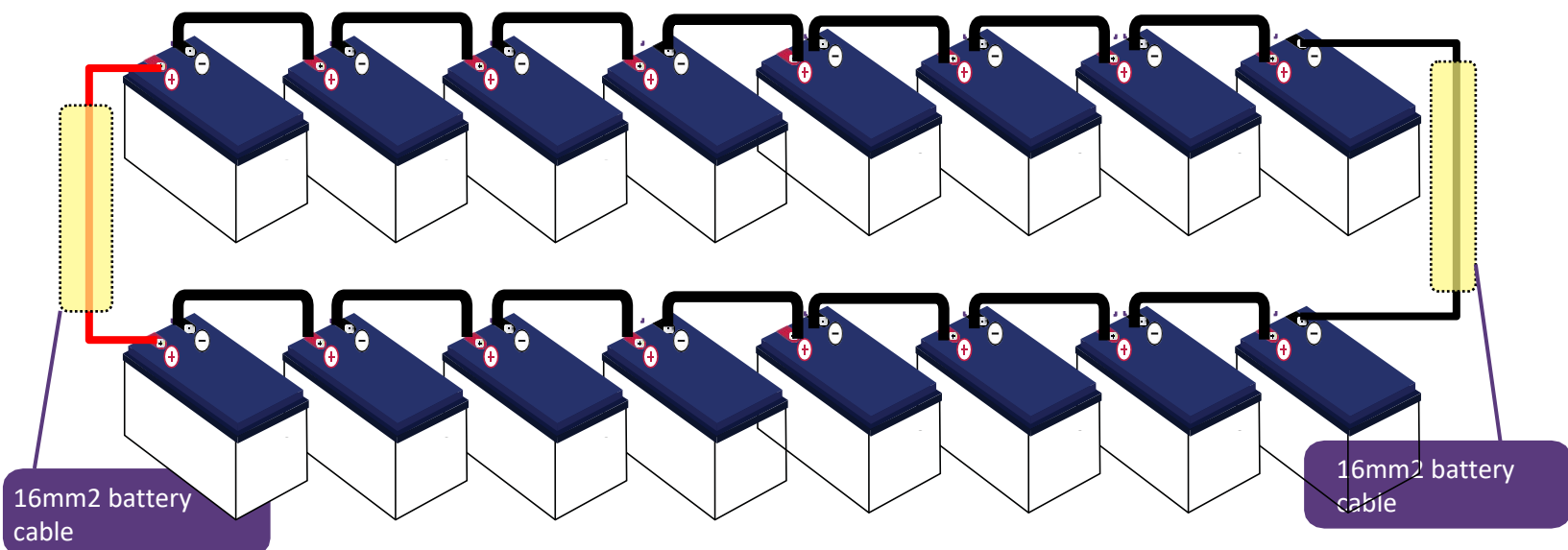
GEL BATTERY BANK SET UP AND WIRING



You'll wire up 8 batteries to make the 96V±10V battery bank.

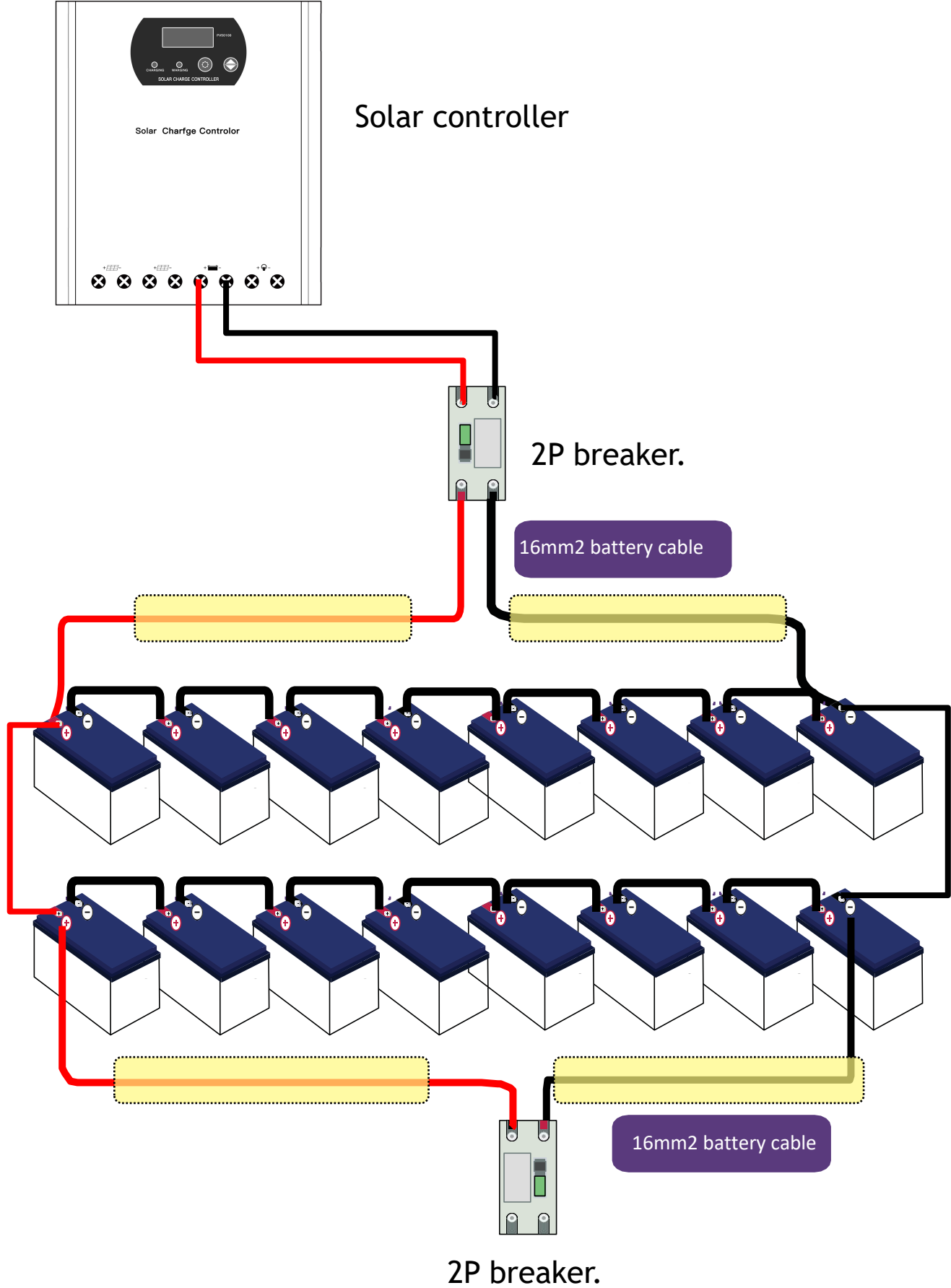


Before moving onto the next cable, ensure that you have fully attached each cable at both ends before moving on

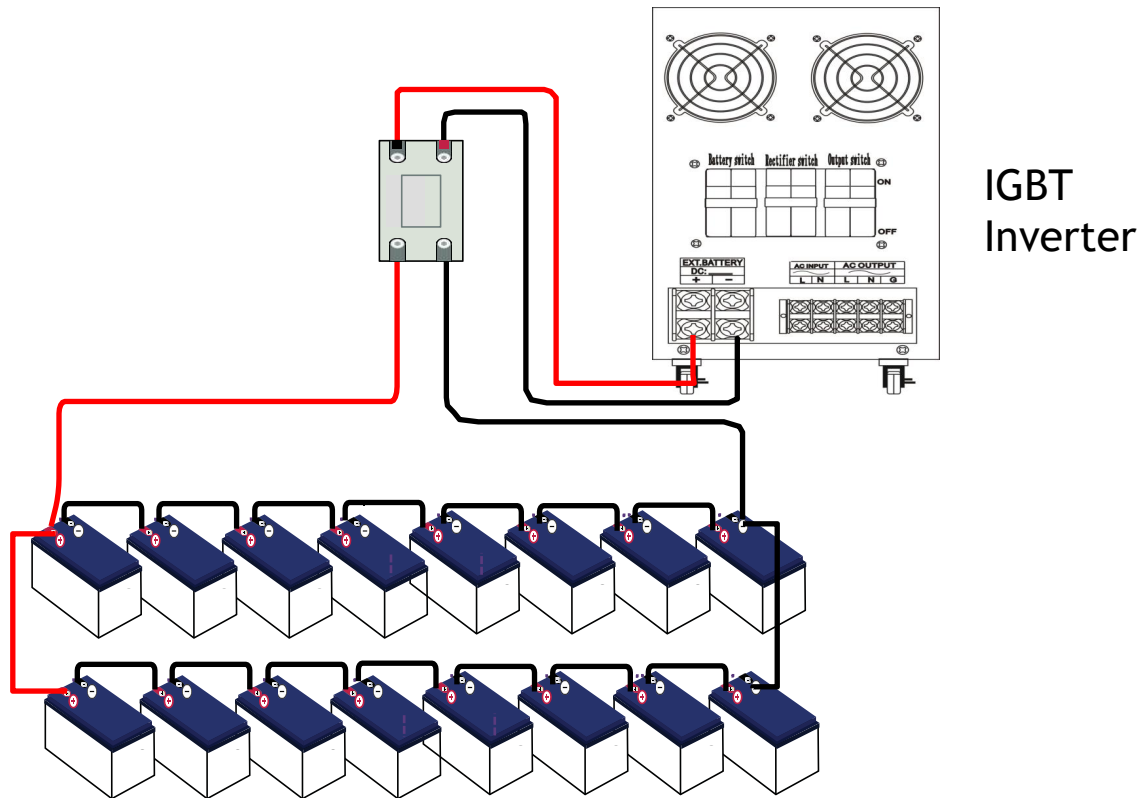


Then cable the batteries to the 2P breaker. If here not clear, you can check the video at <https://www.pvmars.com/off-on-grid-solar-battery-systems-for-home-installation-and-costs/>

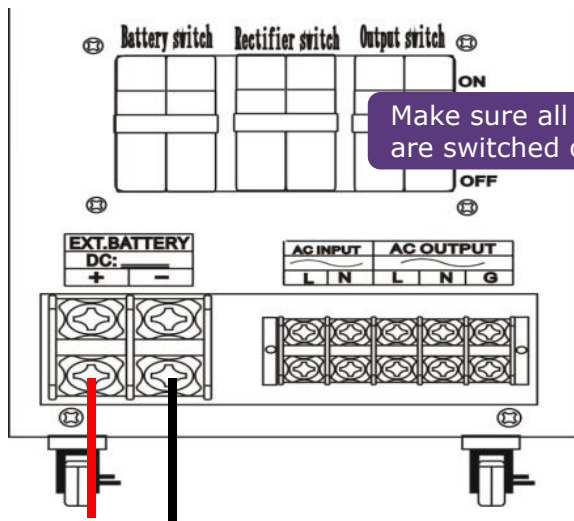
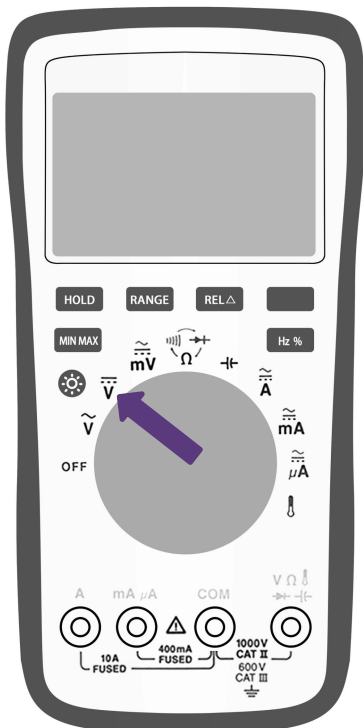
BATTERY BANK SET UP AND WIRING



GEL BATTERY BANK SET UP AND WIRING



Connect the 2P breaker to inverter





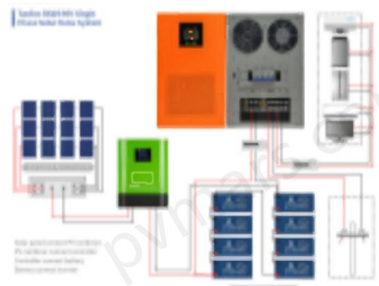



Make sure all the breakers are switched off

Measure the voltage and polarity of the battery input with a multimeter. Battery voltage should be 96V \pm 10V

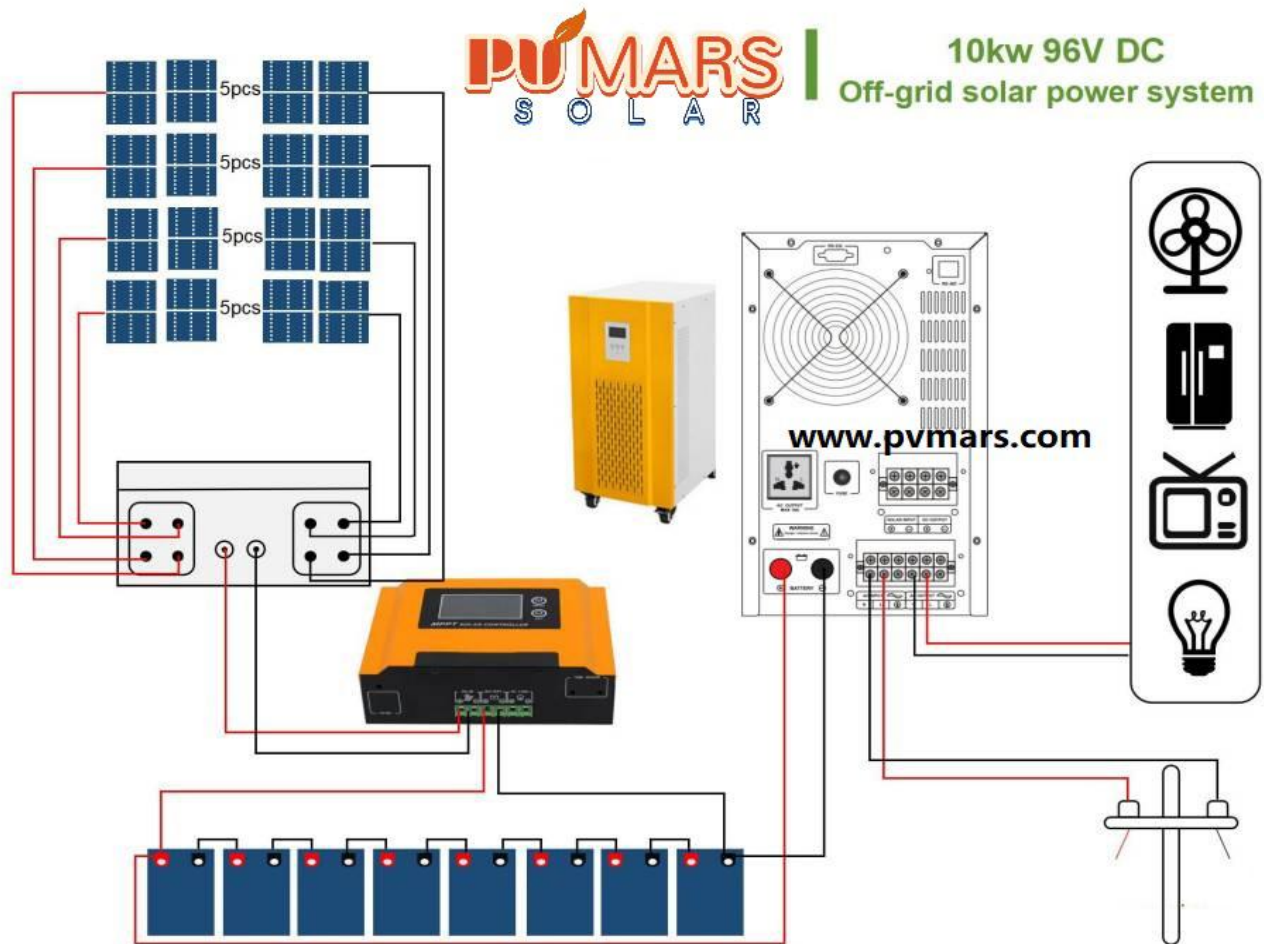


The inverter and batteries will be damaged if the polarity of the battery is reversed.

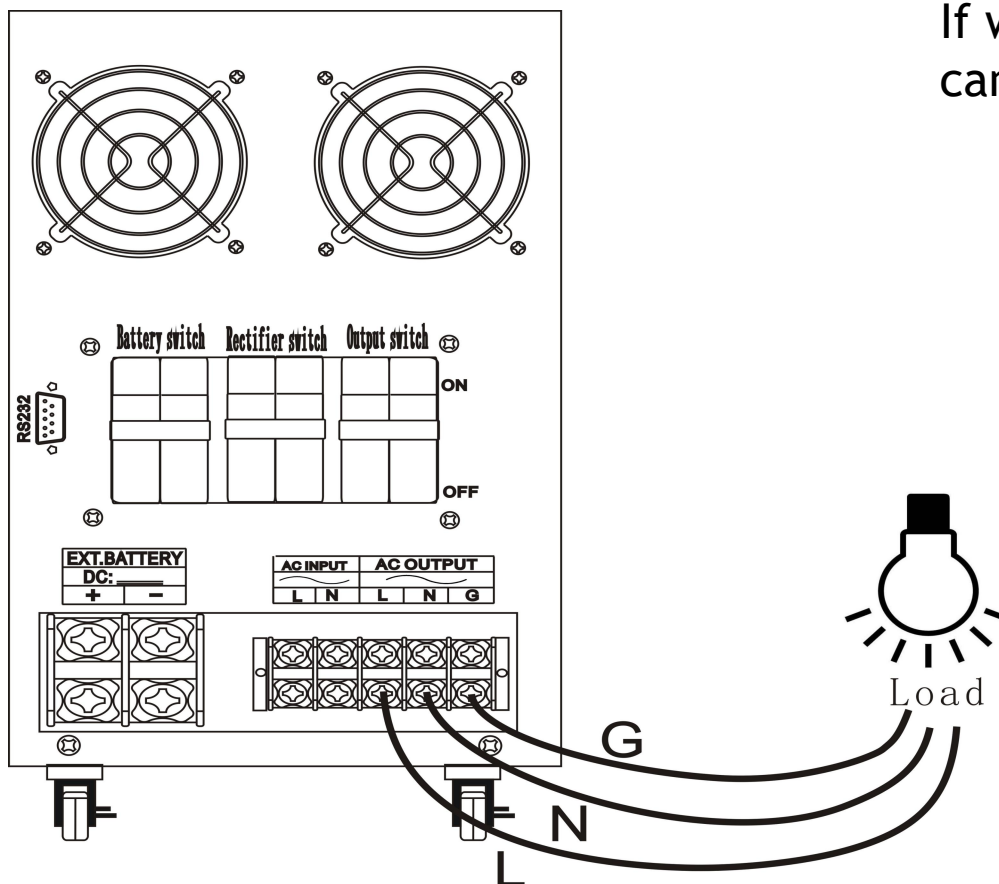
We have gel batteries and lithium batteries for your optional

How to choose battery?		
For energy system,it can install gel battery and lithium battery,what is the difference between the two batteries? How to choose the battery?		
Product	Gel battery	Lithium battery
Picture		
The number of cycles	DOD 70%cycles 1500 times In order to protect battery life, only 70%discharge is allowed	DOD 100%cycles 3000 times Can be 100% deep discharge
Capacity comparison	100AH gel battery =70AH lithium battery capacity	
Service life	6-8years	12-15 years
System installation picture		
Package	Large volume heavy weight high freight	Small volume light weight saving freight costs
Installation	Series and parallel connections are more complicated and require large space	Connect one wire each for the positive and negative poles,easy to install and save space
Actual installation picture(See the battery section)		
Free warranty time	2 years Ship the new for service	3 years Ship the new for service
Price	Low	high
Which one is better?	Decide according to your budget and usage requirements,the one that suits you is the best	

INVERTER WIRING

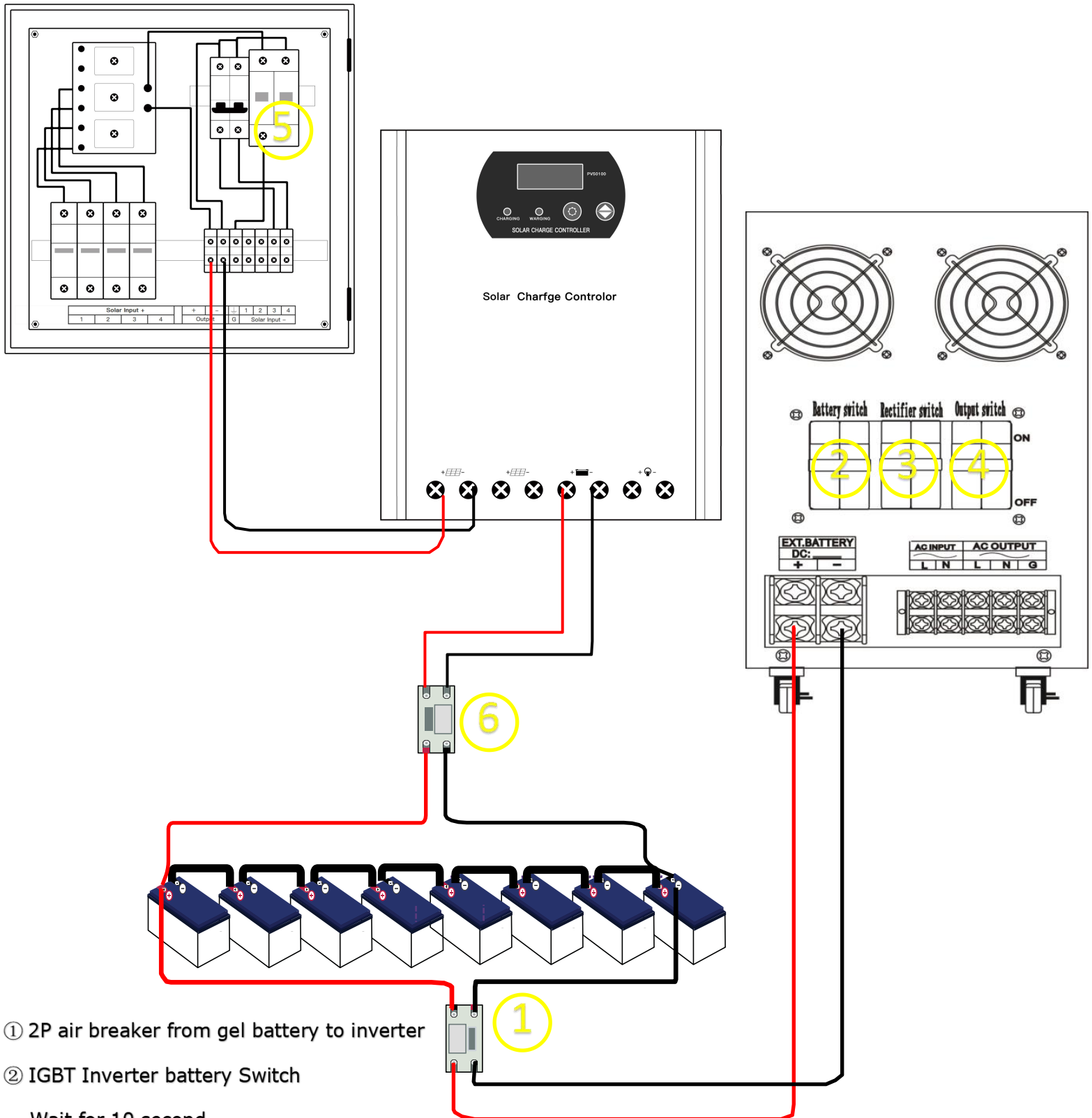


If without city grid,
can choose to disconnect



Your home appliances' total ports should be connected to the AC output ports.

SYSTEM TURN ON STEP



① 2P air breaker from gel battery to inverter

② IGBT Inverter battery Switch

Wait for 10 second

③ IGBT Inverter Rectifier Switch

④ IGBT Inverter Output Switch

Turn on home devices one by one

⑤ PV combiner box breaker

⑥ 2P air breaker from solar controller to battery

In solar power systems, the correct startup and shutdown sequence of the inverter is important very much.

Incorrect operation may cause damage to the inverter.

Important note: It is prohibited to turn on the output switch of the inverter when the electrical appliance has been turned on. We can add a circuit breaker between the inverter and the load for control.

Shutdown sequence:

First, turn off the load.

Secondly, turn off the output switch of the single-phase/three-phase inverter.

Third, turn off the PV combiner switch.

Fourth, turn off the battery switch of the inverter, and finally, turn off the air switch connected to the battery.

After sell service

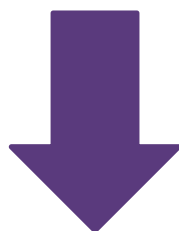
If you encounter a problem that the system cannot work, **please refer to the below after-sales template** and fill in the relevant information.

After we receive it, we will provide a timely solution within 2 hours on working days (in the engineer reply column)



The text filled in yellow in the form needs to be changed by you, and our after-sales team will make changes to the rest.

日期	Date	2020-7-06
号码	After sell No.	ASVT2020706
业务员:	Contact person	Vicky
原订单号码	PI (contract) No.	VT20190725
原订单日期	PI Date	2019/8/15

Solar panel	42pcs 330w mono panel
PV combiner	H10T/192V
Battery	16pcs 200ah 12V
Using time	10 months



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Description					Photo
Inverter	功率	15kw	Power	15kw	
	控制器	内置70A	Controller	70A	
	直流电压	192V	DC voltage	192V	
	交流输入电压	L+N=220v	AC input voltage	L+N=220v	
	交流输出电压	220V	AC output voltage	220V	
	电池	无	Battery	/	
	频率	60HZ	Frequency	60HZ	
	电池/市电优先	电池模式	Working mode	Battery priority mode	
	使用国家	菲律宾	Country	Philippines	
Problem	A total of 16 12V batteries have a voltage of 207v-215v. The batteries are not low, but the inverter has no AC output. Attached picture				
Your Photos (The product)					
Engineer Opinion7-06	The output is not connected to the load, so the output power is 0LCD has show ac voltage, can you use a multimeter measure the output terminal?				
Summarize from PVMars Company	<p>Turn on the ac input switch, and the ac output voltage measured by the inverter is virtual (208v, normal is about 220v)</p> <p>In addition, this is a 15kw machine. If you drive a small load, the machine display will still show that the output power is 0. If you drive a little more load, there will be data.</p> <p>The other thing is how to choose the working mode:</p> <p>993: Set working mode</p> <p>0: V series, pure uninterruptible power supply mode</p> <p>1: G series, enable standard battery priority mode (database standard setting)</p> <p>2: G series, custom mode</p> <p>3: GA series, PV+AC+battery complementary power supply mode, timing (AC+battery) common power supply at night, without separating the power grid. (You need to choose 3 modes)</p> <p>4: GS series, pure grid-connected mode</p> <p>5: Grid-connected hybrid mode, connected to the grid during the day, and regularly powered (AC+battery) at night, without separating the grid.</p> <p>6: Grid-connected hybrid mode, connected to the grid during the day, disconnected from the grid regularly at night, purely battery powered.</p> <p>More details from the inverter user manual (All user manuals ship with goods)</p>				

CONTACT US

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ATTENTION



For ventilation, keep each gel battery 5 cm apart.