How to build
a partial home backup system with
EP500Pro

User Manual

BLUETTI

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a partial home backup system with
EP500Pro

Thank You!

Thank you for making BLUETTI a part of your family.

From the very beginning, BLUETTI has tried to stay true to a sustainable future through green energy storage solutions for both indoor and outdoor use while delivering an exceptional eco-friendly experience for our homes and our world. That's why BLUETTI makes its presence in 70+ countries and is trusted by millions of customers across the globe.

Canada

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Singapore Malaysia

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New Zealand

Contents

Declaration

- The installation should be performed by a licensed electrician. Improper installation may result in death or serious injury and property damage.
- This document is provided for reference purpose ONLY and does not constitute legal advice. Please consult the local licensed electrician for details.

BLUETTI shall not be liable for any damage or injury caused by improper installation of the backup system.
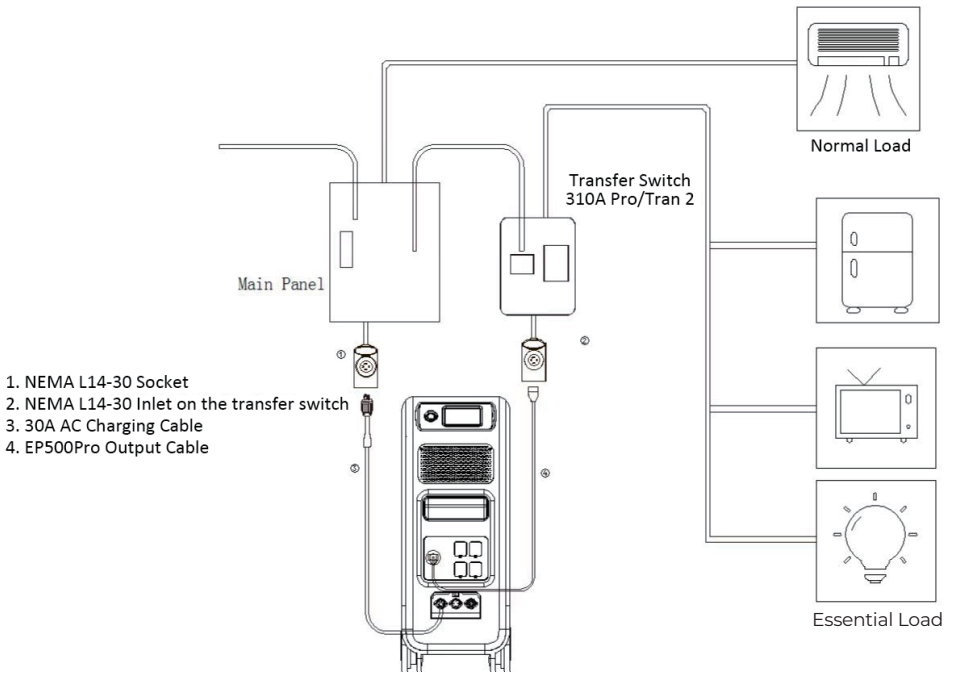
1. 120 Volts EP500Pro Backup System

- EP500Pro's Machine Type is set to "Single Phase" by default. DO NOT change this setting if you are operating a single EP500Pro.
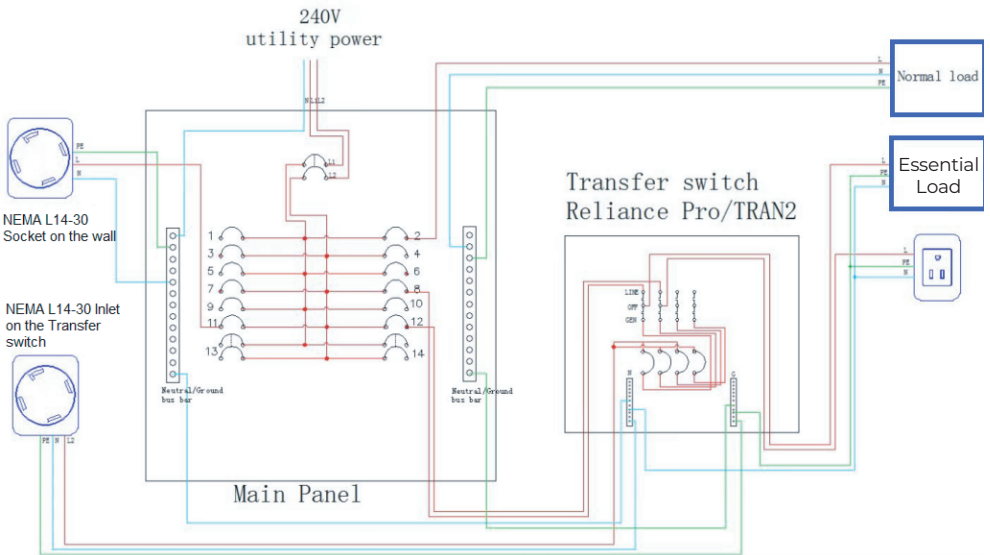- To build the backup system, you need the following:

Accessories	Qty.
Transfer switch: Reliance 310A Pro/Tran 2	1
30A AC Charging cable	1
NEMA L14 extension cord	1

NOTE: Please read the Reliance 310A Pro/Tran2 manual before installation.
http://www.reliancecontrols.com/Documents/PT2%20Loadside%20Installation%20and%20Operating%20Instructions.pdf

Transfer Switch
310A Pro/Tran 2

Normal Load

Main Panel

1. NEMA L14-30 Socket
2. NEMA L14-30 Inlet on the transfer switch
3. 30A AC Charging Cable
4. EP500Pro Output Cable

Essential Load

Refer to the diagram below for proper installation of EP500Pro backup system.

240V
utility power

Normal load

Transfer switch
Reliance Pro/TRAN2

Essential
Load

NEMA L14-30
Socket on the wall

NEMA L14-30 Inlet
on the Transfer
switch

Neutral/Ground
bus bar

Neutral/Ground
bus bar

Main Panel

NOTE:
- The backup system must be properly installed by a licensed electrician.
- Please check the voltage at outlets before plugging in your household appliances.
- It is a electrical schematic. For the actual wiring diagram, please refer to Reliance 310A PRO/TRAN2 installation instructions.

2. 240 Volts EP500Pro Backup System

You can build the 240V Split Phase System by pairing two EP500Pro units together. The system also has double the available output power and capacity. Besides Two EP500Pro units, you also need the following:
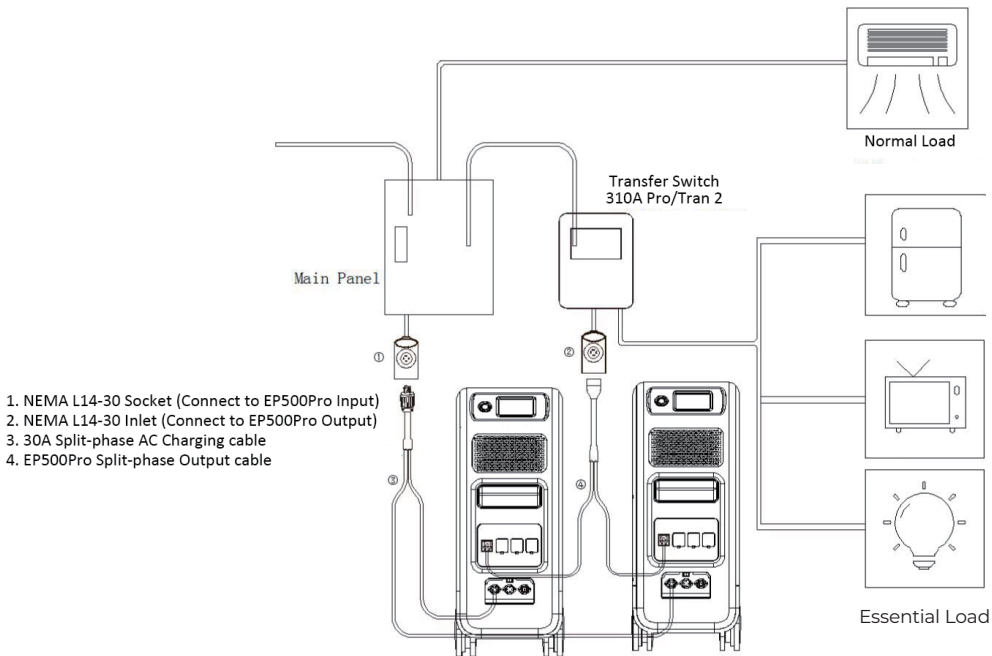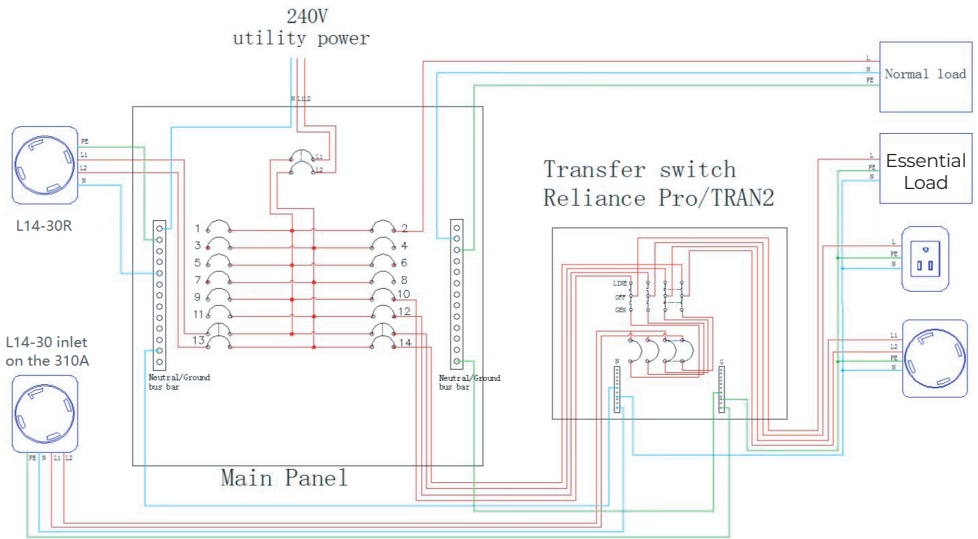
Accessories	Qty.
Transfer switch: Reliance 310A Pro/Tran 2	1
EP500 Pro split-phase output cable(from BLUETTI)	1
NEMA L14-30R outlet	1
BLUETTI 30A-AC-charging-cable	1

Please read the Reliance 310A Pro/Tran 2 manual before installation.
http://www.reliancecontrols.com/Documents/PT2%20Loadside%20Installation%20and%20Operating%20Instructions.pdf
Before installing the Reliance Controls transfer switch system, please make a emergency energy plan that includes which appliances you need during a power outage. It is highly recommended to "balance the load" between the two phases of transfer switch, that's to say, do not connect high-wattage appliances centrally to a single EP500Pro.

Normal Load

Transfer Switch
310A Pro/Tran 2

Main Panel

① ②

1. NEMA L14-30 Socket (Connect to EP500Pro Input)
2. NEMA L14-30 Inlet (Connect to EP500Pro Output)
3. 30A Split-phase AC Charging cable
4. EP500Pro Split-phase Output cable

③ ④

Essential Load

Split-Phase Backup System

⚠️ Caution! The backup split phase system must be properly installed by a licensed electrician.
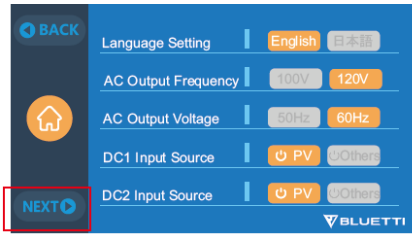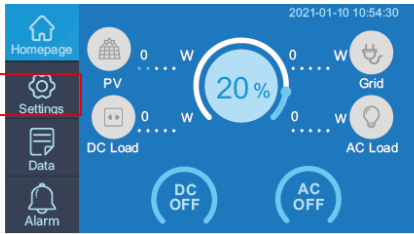
How to configure the EP500Pro units:

Step 1: Turn off both of the EP500Pro units.

Step 2: Connect the EP500Pro units to transfer switch via the EP500Pro split-phase output cable. One L14-30 plug goes to a unit.

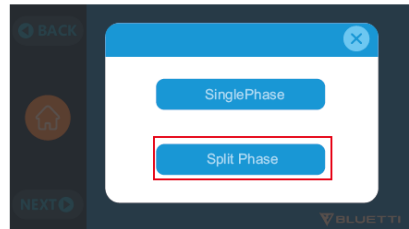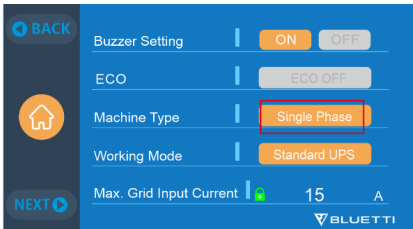**Step 3:** Connect the two EP500Pro units via the communication cable.

Step 4: Turn on either EP500Pro unit.

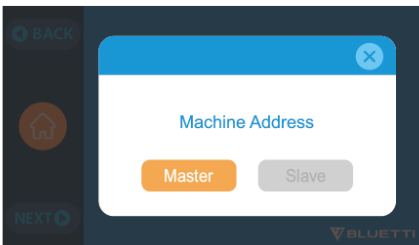**Step 5:** Go to "Settings" and tap "Next".

Step 6: Tap "Single Phase", the machine type option pops up and select "Split phase".
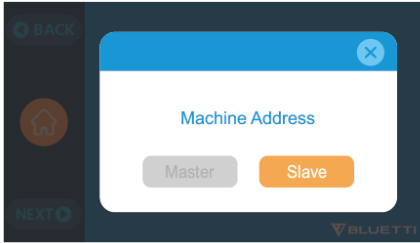
• Machine Type: Select Split Phase

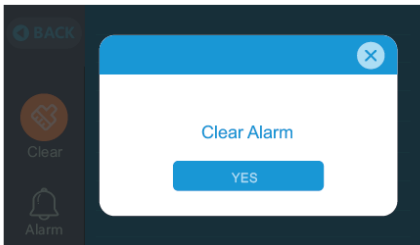**Step 7:** Select the "Master" in the Machine Address pop up.

Step 8: Turn on the other EP500Pro. Repeat step 5 and 6 to set its machine type to "Split phase".

Step 9: Select the "Slave" in the Machine Address pop up.

If the connection fails, clear the alarm history and wait a moment .

Please watch the video from : https://www.youtube.com/watch?v=aDLxv5oM5kg

NOTE:
- Disconnect the AC charging cables from EP500Pro units before connecting to the transfer switch.
- The split phase system can be controlled ONLY on the "Master" set.
- If one of the EP500Pro units is out of power, the split phase system fails automatically.
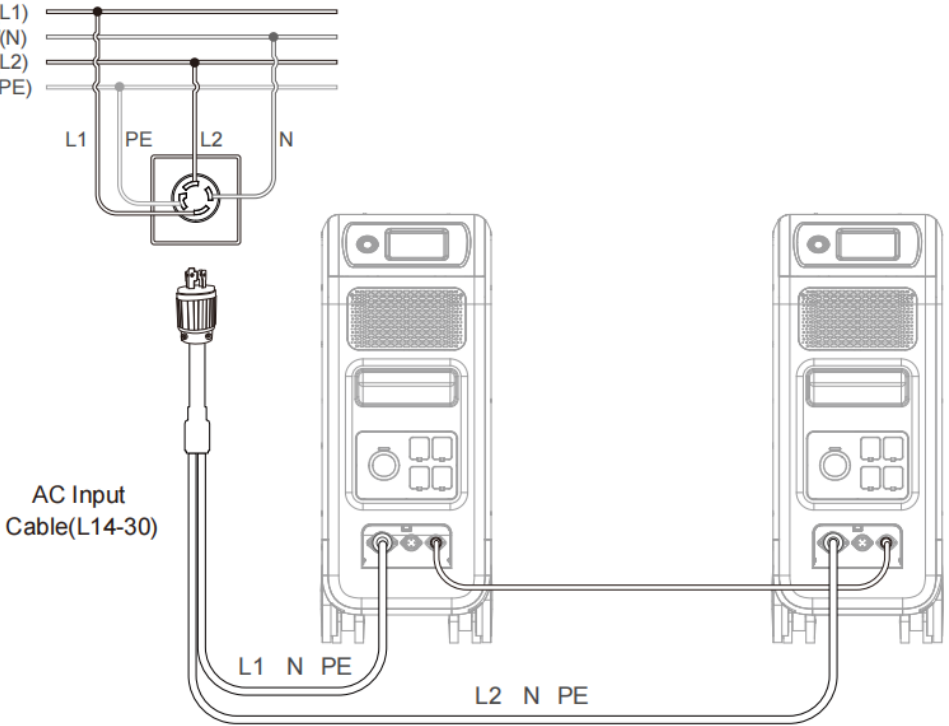
NOTE:
- The backup system must be properly installed by a licensed electrician.
- Please check the voltage at outlets before plugging in your household appliances.
- It is a electrical schematic. For the actual wiring diagram, please refer to Reliance 310A PRO/TRAN2 installation instructions.
- In the main panel, two Neutral/Ground bus bars have been connected together with copper strips.

Connect the EP500Pro units to the main panel

Charge the 240V split phase system with EP500Pro 30A split phase AC charging cable. Plug the cable to a NEMA L14-30 socket (240V)and the other two connectors into the AC input ports of the EP500Pro units.
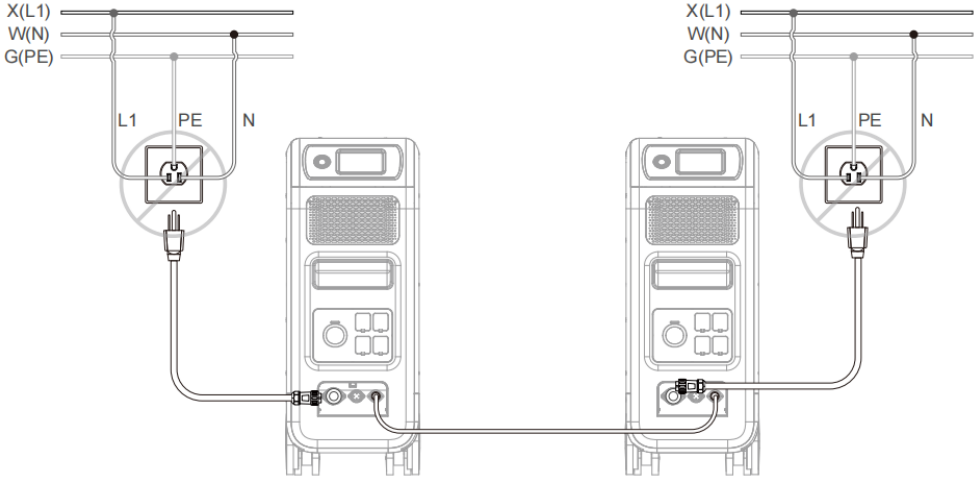
The AC input ports should be connected to L1/N/PE and L2/N/PE, respectively. The current capacity of AC input plug shall be ≥ 30A.

WRONG CONNECTION

Warning! DO NOT charge EP500 Pro with standard AC charging cable in the split phase system, as this may cause damage to the batteries inside and invalidate your warranty.

L: Live wire   N: Neutral wire

NOTE:

The split phase system supports charging via solar panels. You can charge it by PV and the EP500Pro 30A split-phase AC charging cable simultaneously. (AC input only through the EP500Pro 30A split-phase AC charging cable but not the standard AC charging cable).
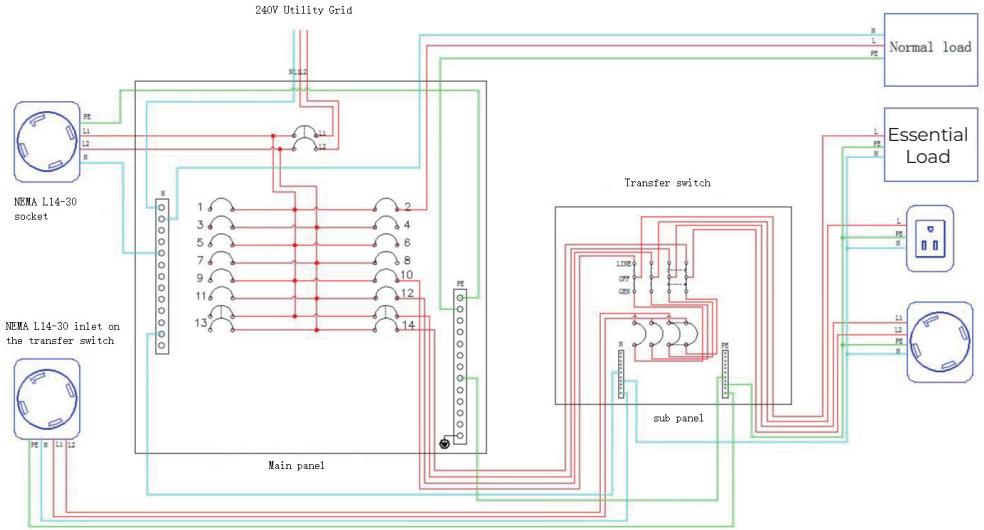
3. Accessories

3.1 Transfer switch

Recommendation: Reliance Controls 310A PRO/TRAN 2 transfer switch.
https://www.bluettipower.com/ or
https://www.amazon.com/30-Amp-10-Circuit-Manual-Transfer-Optional/dp/
B00YHLCMHM/ref=sr_1_1?crid=39Q2LGVYX2BK6&keywords=310A&qid=1666357623&q
u=eyJxc2MiOiIwLjAwIiwicXNhIjoiMC4wMCIsInFzcCI6IjAuMDAifQ%3D%3D&sprefix=31
0a%2Caps%2C299&sr=8-1

3.2 BLUETTI 30A AC charging cable

Please buy it from BLUETTI official store.
https://www.bluettipower.com/products/ac300-30a-ac-charging-
cable?variant=42518515876059

3.3 BLUETTI EP500Pro split-phase output cable(purchase from BLUETTI: https://www.bluettipower.com)
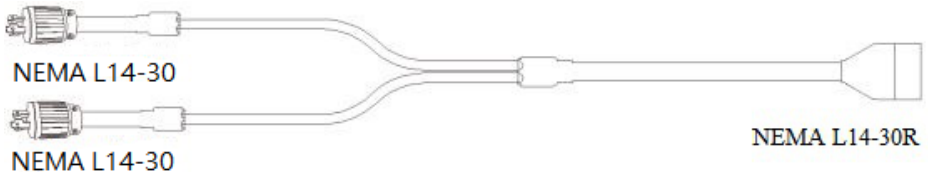
3.4 BLUETTI EP500Pro 30A split-phase AC charging cable

Please buy it from BLUETTI official store.

https://www.bluettipower.com/products/30a-ac-charging-cable-for-split
-phase-function

3.5 Communication cable for split-phase function

Please buy it from BLUETTI official store.

https://www.bluettipower.com/products/communication-cable-for-split-phase-function
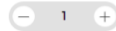
3.6 NEMA L14-30R socket

For charging the 240V EP500Pro split phase system.
Recommendation: Journeyman-Pro HJP 2710 NEMA L14-30R socket.
https://www.amazon.com/Journeyman-Pro-Receptacle-Industrial-Grounding-Generator/dp/B07P8CGH52/ref=sr_1_7?crid=1WRMKA4V397S&keywords=l14-30r+receptacle&qid=1657944329&s=hi&sprefix=%2Ctools%2C405&sr=1-7
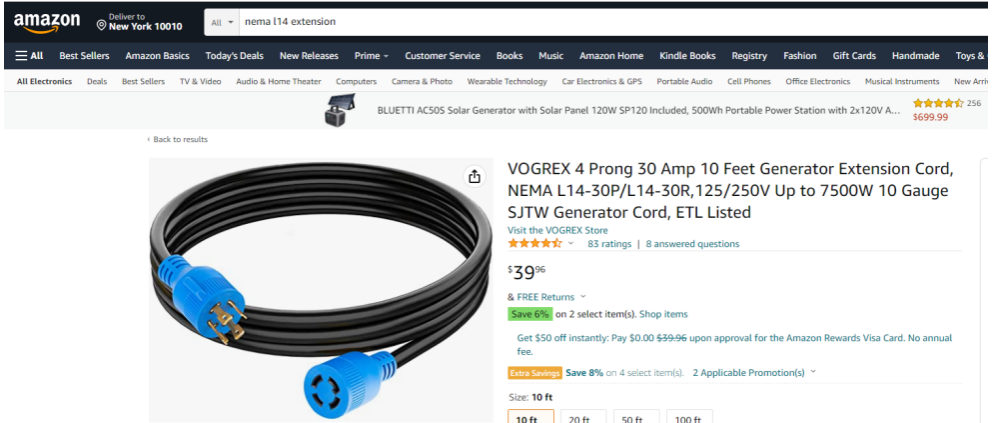
3.7 NEMA L14-30 extension cord

If you want to get 10 FT NEMA L14 extension cord , the referenced purchase address as following

https://www.amazon.com/VOGREX-Generator-Extension-L14-30P-L14-30R/dp/B099R9YWT8/ref=sr_1_2?crid=N3G3QLMF57TD&keywords=nema%2Bl14%2Bextension&qid=1658719628&sprefix=name%2Bl14%2Bextention%2Caps%2C249&sr=8-2&th=1

3.8 Circuit breaker & protection box

If you have a residential solar array with a voltage of 12V-150V, you're strongly recommended to use a DC circuit breaker panel to enable or disable solar charging.

NOTE : If there are two solar panel arrays with a total open circuit voltage of 12-150V, you also need two 2P 16A DC circuit breakers.

Circuit breaker: https://www.amazon.com/gp/product/B07GR32KCT/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&psc=1

Protection box: https://www.amazon.com/gp/product/B07S75TV3V/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&psc=1

Share

16A Low-Voltage Miniature Air Circuit Breaker, Acogedor 250V DC 2P DIN Rail Mount Miniature Circuit Breaker for Solar Panels Grid System, Wind and Solar Hybrid System and Other DC Systems(16A)

Visit the Acogedor Store
★★★★★ ˅ 12 ratings

$15⁰⁰

$27.73 Shipping & Import Fees Deposit to China Details ˅

Extra Savings Promotion Available 1 Applicable Promotion ˅

Brand	Acogedor
Current Rating	16 Amps
Voltage	250 Volts
Circuit Breaker Type	Standard
Mounting Type	DIN Rail Mount

About this item
- This is a great circuit breaker used to protect an electrical circuit from damage caused by excess current resulting from an overload or short circuit
- Fast Closing to ensure reliable operation of the load and prolong the life of electrical circuit breakers
- It is easy and reliable to use, which supports short circuit protection, overload protection
- It can be mounted conveniently on DIN rail, DIN rail is not included
- Widely used for solar panels grid system, wind and solar hybrid system and many other DC systems

Roll over image to zoom in

Share

Awclub Plastic Transparent Cover Power Distribution Protection Box IP65 ABS for Circuit Breaker Indoor on The Wall 5 Way (160mmx120mmx95mm)

Visit the Awclub Store
★★★★½ ˅ 276 ratings

-13% $13⁹⁹

Was: $15.99 ⓘ

$28.64 Shipping & Import Fees Deposit to China Details ˅

Size: 160mmx120mmx95mm

160mmx120mmx95mm $13.99	200mmx155mmx92mm $18.99	365mmx195mmx110mm $34.99

- [GREAT QUALITY]: Made of high quality plastic(ABS), Waterproof Rating: IP65; QualificationEⁿCE¡ROHS
- [Designed]: This distribution box is designed for 5 ways circuit breaker,durable and sturdy.
- [TRANSPARENT COVER]: The blue cover is transparent , you can check the condition easily without open the box.
- [EASY TO INSTALL]: This distribution box can be easily installed and very convenient to use, just need a few steps to mount it on your wall.
- [WIDELY APPLICATION] :Great to mount indoors, widely used for home, hotel shop and many other places.

Roll over image to zoom in

3.9 Solar extension cable

Recommendation: iGreely 12 AWG solar extension cable

https://www.amazon.com/gp/product/B08KZNTYP5/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&th=1

iGreely 10 Feet 12 AWG Solar Extension Cable with Solar Panel Female and Male Connector Solar Panel Adapter 12 Gauge (10FT Red + 10FT Black)

Visit the iGreely Store
★★★★★ 2,223 ratings

Amazon's Choice for "12 awg solar cable"

$16⁹⁹

$23.54 Shipping & Import Fees Deposit to China Details ⌄

Size: **10Ft 12AWG**

3Ft 8AWG	3Ft 10AWG	3Ft 12AWG	6Ft 10AWG	6Ft 12AWG
10Ft 8AWG	10Ft 10AWG	**10Ft 12AWG**	20Ft 8AWG	
20Ft 10AWG	20Ft 12AWG	30Ft 10AWG	50Ft 10AWG	
70Ft 10AWG	100Ft 10AWG			

- One pair (1 piece black + 1 piece red) 10ft 12AWG solar extension cable. Made with copper.
- Two cables with solar panel connecters at one end connecting to solar panel and bare on the other end connecting to solar charge controller.
- The wiring is weatherproof and designed to withstand extreme heat and cold.
- Stable self-locking system which is easy to lock and open.

4. How to install Reliance Controls

Please refer to Reliance Controls website: www.reliancecontrols.com

4.1 How to install Reliance Controls ProTran2 - Part1, Tools and Planning

https://www.youtube.com/watch?v=xTqjwt6WJ7o&list=PLpYCE0n7d22iDNwpVnOF9HULSUYBBRY86

4.2 How to install Reliance Controls ProTran2 - Part2, Mounting

https://www.youtube.com/watch?v=wNbBHVHgw0Y&list=PLpYCE0n7d22iDNwpVnOF9HULSUYBBRY86&index=2

4.3 How to install Reliance Controls ProTran2 - Part3, Wiring

https://www.youtube.com/watch?v=TKruj9BpZM8&list=PLpYCE0n7d22iDNwpVnOF9HULSUYBBRY86&index=3

4.4 How to install Reliance Controls ProTran2 - Part4, Replacing Circuit Breakers

https://www.youtube.com/watch?v=lkOuauT-YP8&list=PLpYCE0n7d22iDNwpVnOF9HULSUYBBRY86&index=4

4.5 How to install Reliance Controls ProTran2 - Part5, Installing The Power Inlet Box

https://www.youtube.com/watch?v=0M8sYRhEVPY&list=PLpYCE0n7d22iDNwpVnOF9HULSUYBBRY86&index=5

4.6 How to install dd Controls ProTran2 - Part6, How To Operate

https://www.youtube.com/watch?v=O4GA9AK8Tmo&list=PLpYCE0n7d22iDNwpVnOF9HULSUYBBRY86&index=6

5. More information:

Website: www.bluettipower.com   Email: service@bluettipower.com