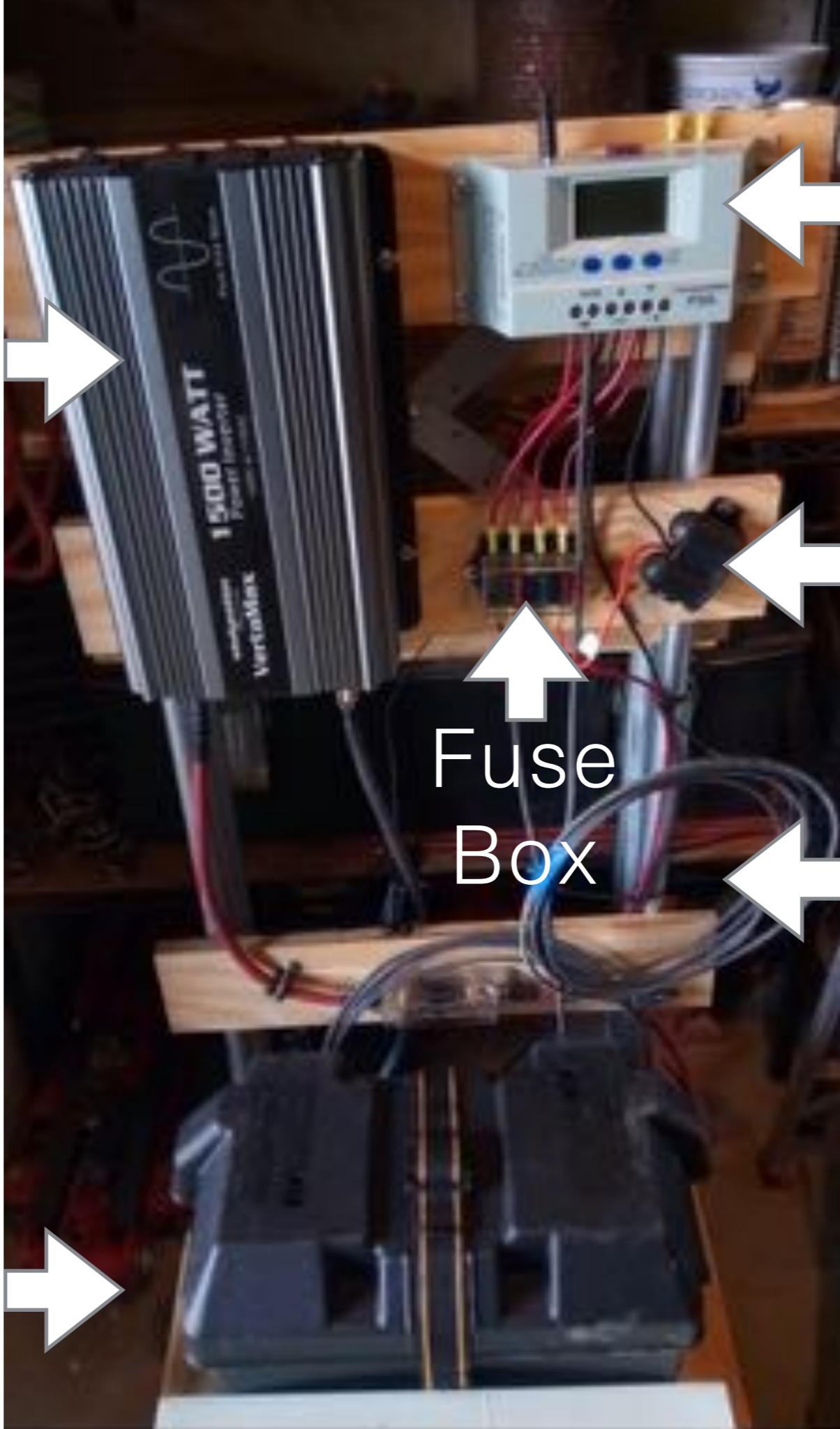


Solar Team Refresher Course

Examples are from ST3 & ST4
but are applicable to all Teams, 1 - 4

Inverter



Controller



Charging
Station



Fuse
Box



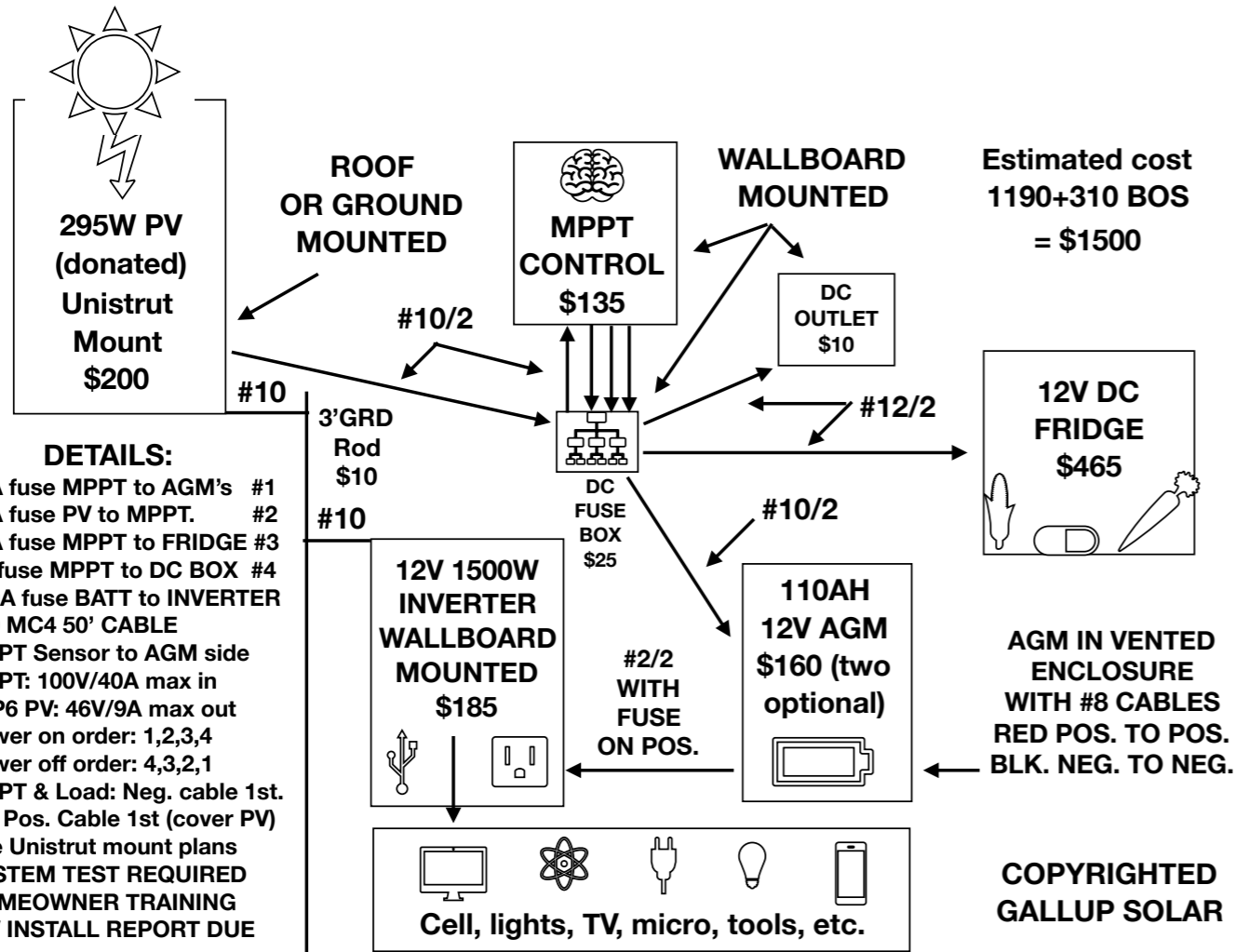
Wires to
Panels



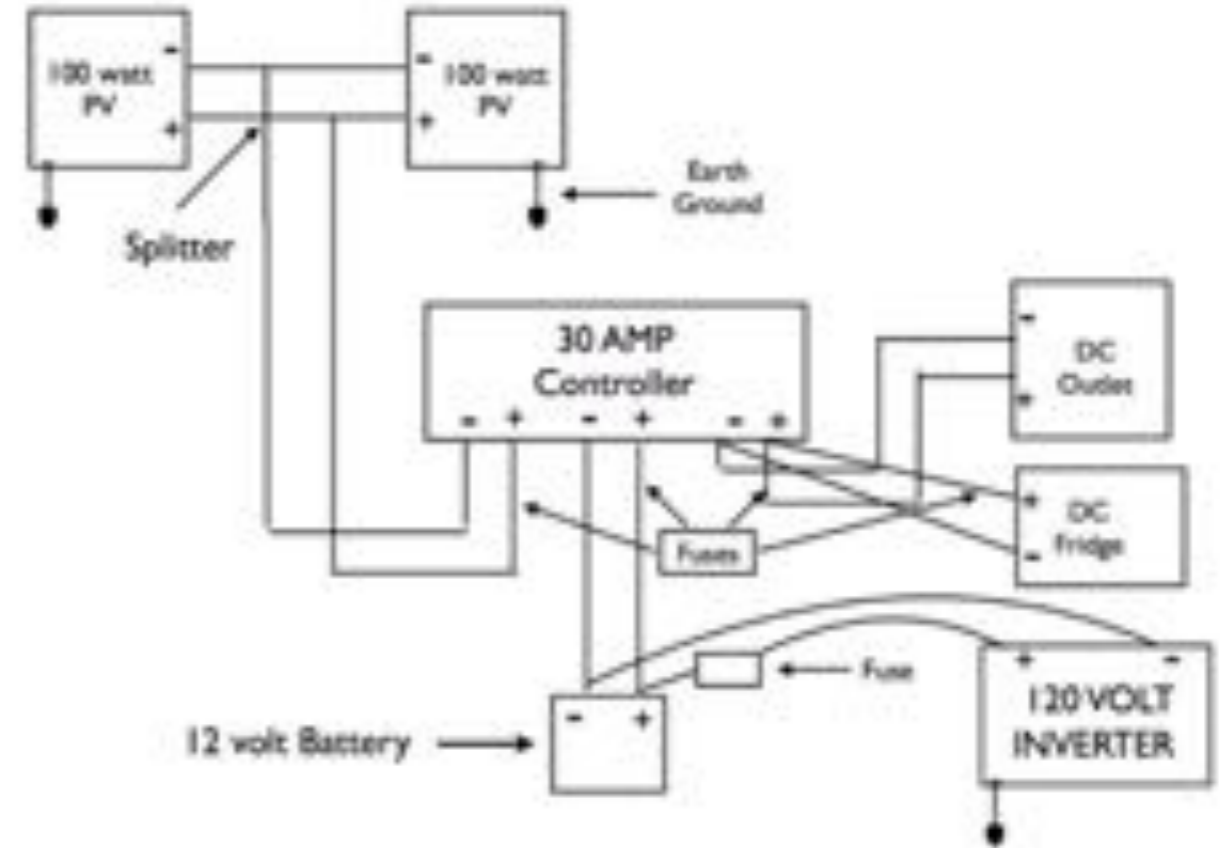
Battery



ST3



ST4



ST3 295 watts



ST4 100 watts x 2



ST3 36 volts

ST4 18 volts

JASOLAR Crystalline Silicon Photovoltaic Modules

TYPE	JAP6-72-295/3BB	
Peak power (Pmax)	295 W	       
Open circuit voltage (Voc)	45.90 V	
Max power voltage (Vmp)	36.60 V	
Short circuit current (Isc)	8.48 A	
Max power current (Imp)	8.06 A	
Power Selection	0~+5 W	
IEC 61215/IEC 61730	Application Class A	
Maximum System Voltage	1000V	
Power production tolerance	±3%	
UL 1703	Fire Rating Class C	
Maximum System Voltage	1000 V	
Maximum Design Load	50lb/ft ² 1125lb/ft ²	
Positive	50lb/ft ²	
Negative	50lb/ft ²	

Field Wiring: Copper only 12AWG min insulated for 90°C min
 All technical data at standard test condition: AM1.5 G, E=1000W/m², T=25°C

WARNING Electrical Hazard
Avertissement Risque électrique
 This unit produces electricity if exposed to light.
 Cette unité produit de l'électricité si elle est exposée à la lumière.
 Do not disconnect under load.
 Ne débrancher pas en charge.

E6, E8 Plot, Minhang Export Processing Zone,
 Feng Xian District Shanghai, China P. C. 201401

windynation
 clean | power to the people

www.windynation.com

100W Polycrystalline Photovoltaic Solar Panel

Part #: SOL-100P-01

Maximum Power (Pmax): 100 Watts
 Open Circuit Voltage (Voc): 21.90 Volts
 Short Circuit Current (Isc): 6.13 Amps
 Max Power Voltage (Vpm): 18.00 Volts
 Max Power Current (Imp): 5.56 Amps
 Max System Voltage: 1000 VDC (600 VDC UL)

Dimensions: 40.1" x 26.4" x 1.4"
 [1020mm x 670mm x 35mm]

Weight: 19.6 lbs [8.9kg]

Max Series Fuse Rating: 10 Amps
 Nom Operating Cell Temp: 45 C [+/-2]







ST3
roof mount



ST4
ground mount



ST3 MC4 Connectors
one positive
one negative
for one panel

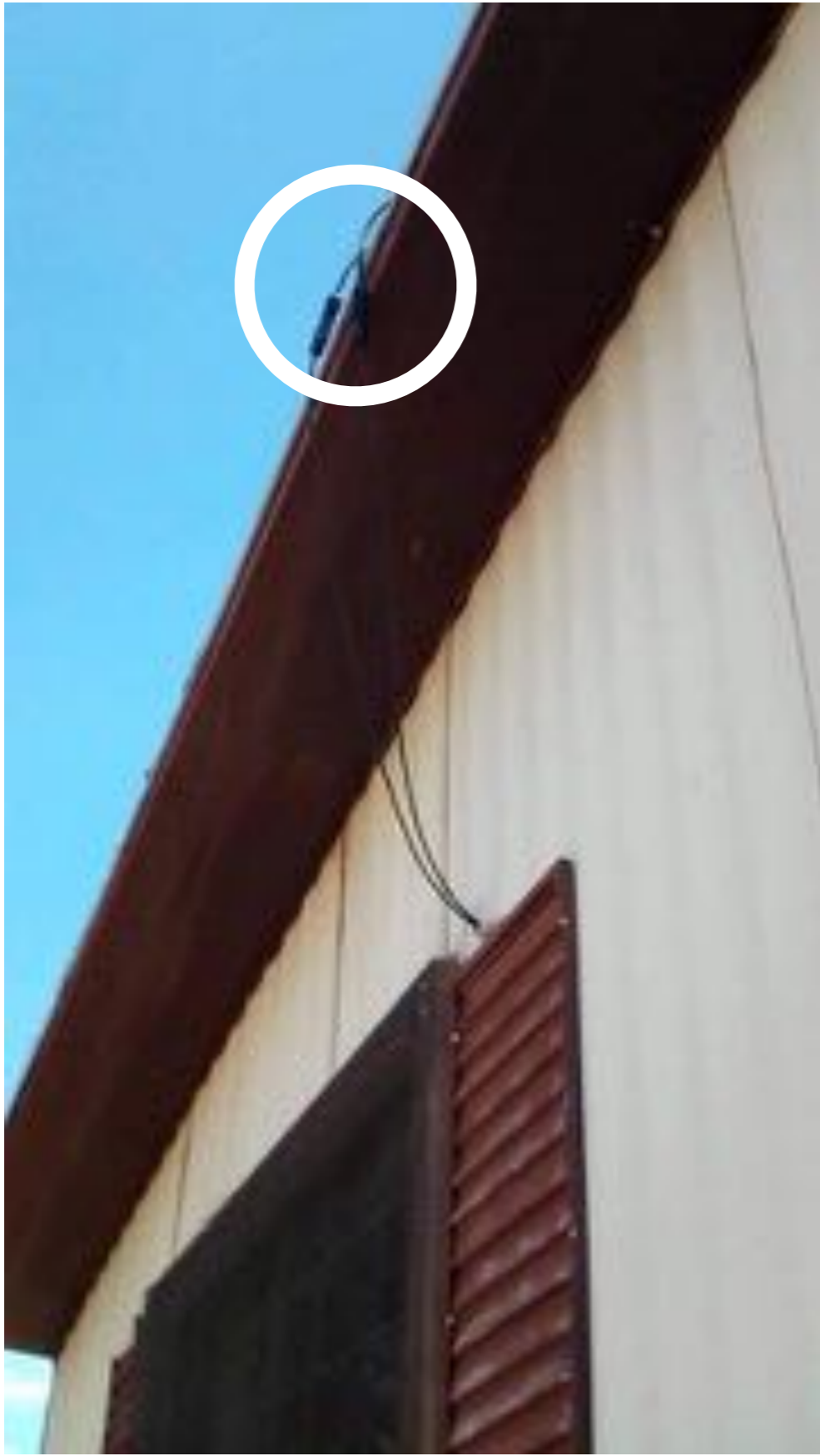


ST3 MC4 Splitters
two positive
two negative
for two panels in parallel



ST3

1 positive
1 negative



ST4

2 positives to one splitter,
2 negatives to other splitter



ST3 40 amp controller



ST4 30 amp controller

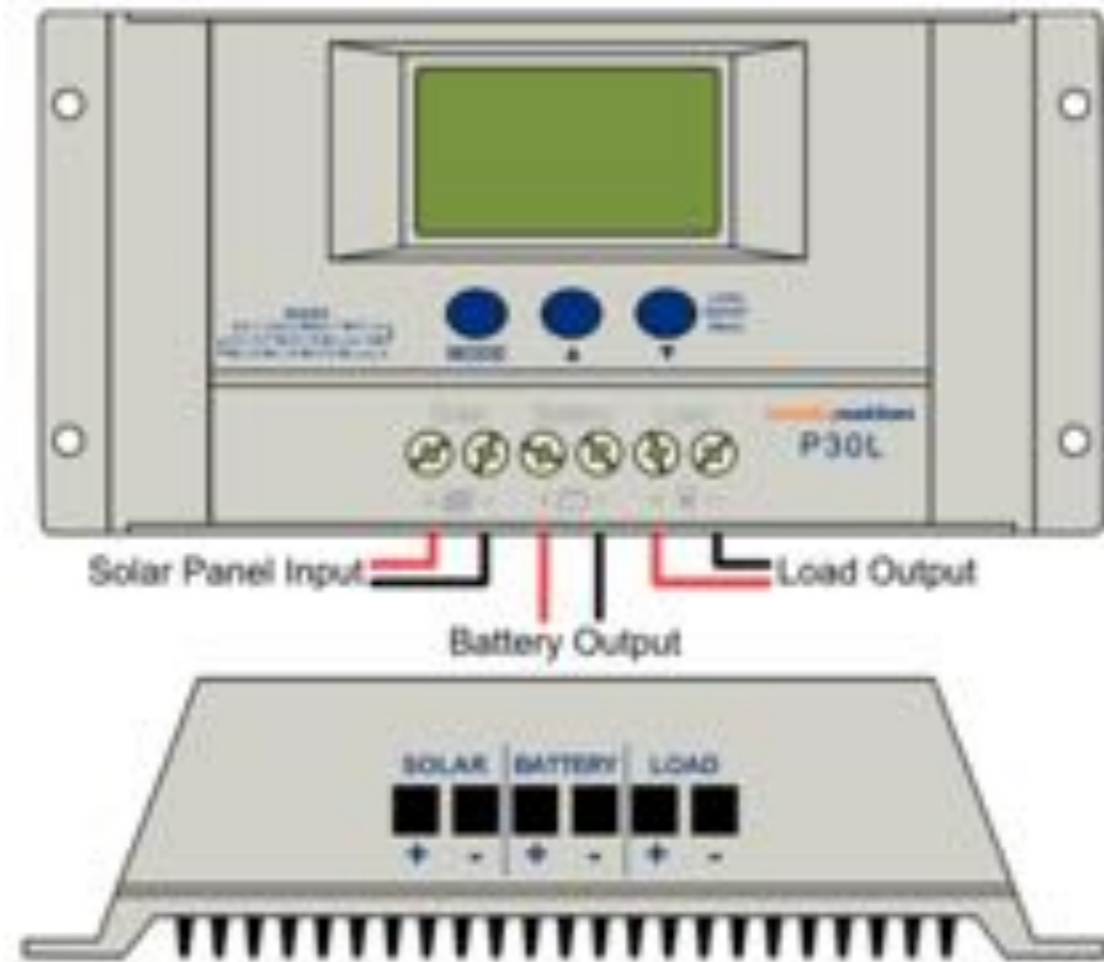


Your solar charge controller:

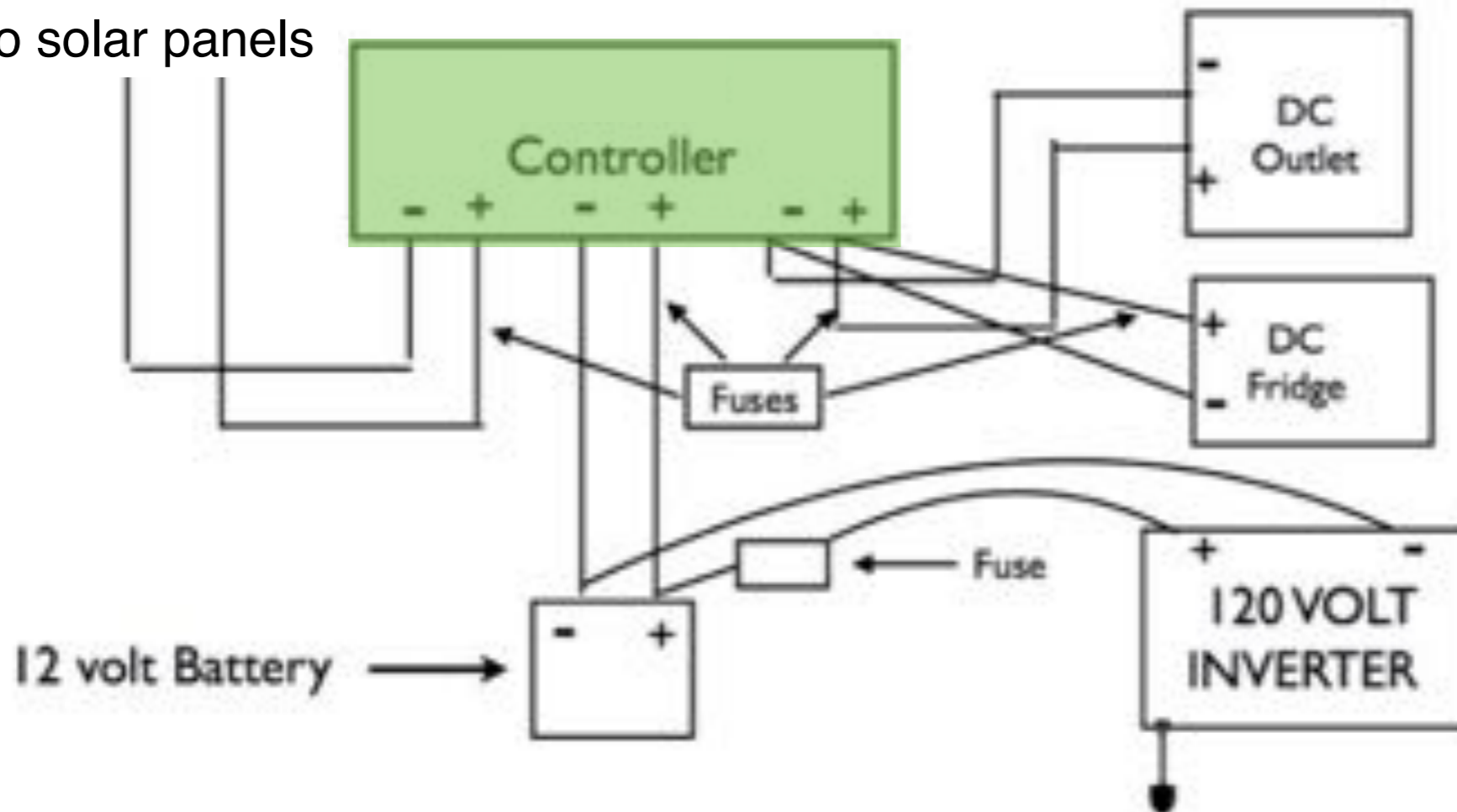
keeps your deep cycle batteries properly fed and safe,
blocks reverse current, prevents battery overcharge.
protects from over discharge, electrical overload,
displays battery status and flow of power.

Wiring up your solar controller

1. Connect the Battery
2. Connect the Solar Panels
3. Connect the DC Load
4. Connect the Battery Temperature Sensor
an optional feature



to solar panels

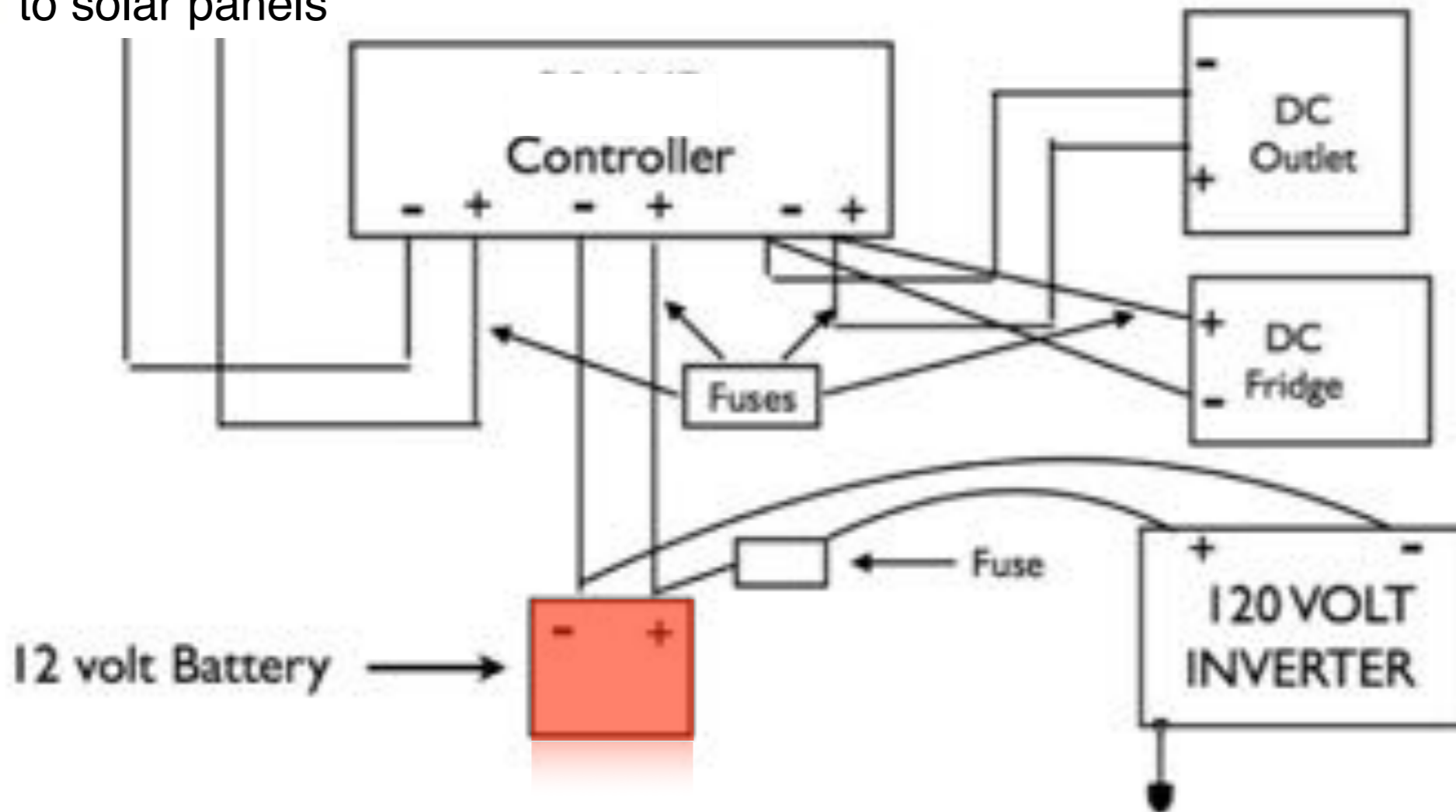


Battery

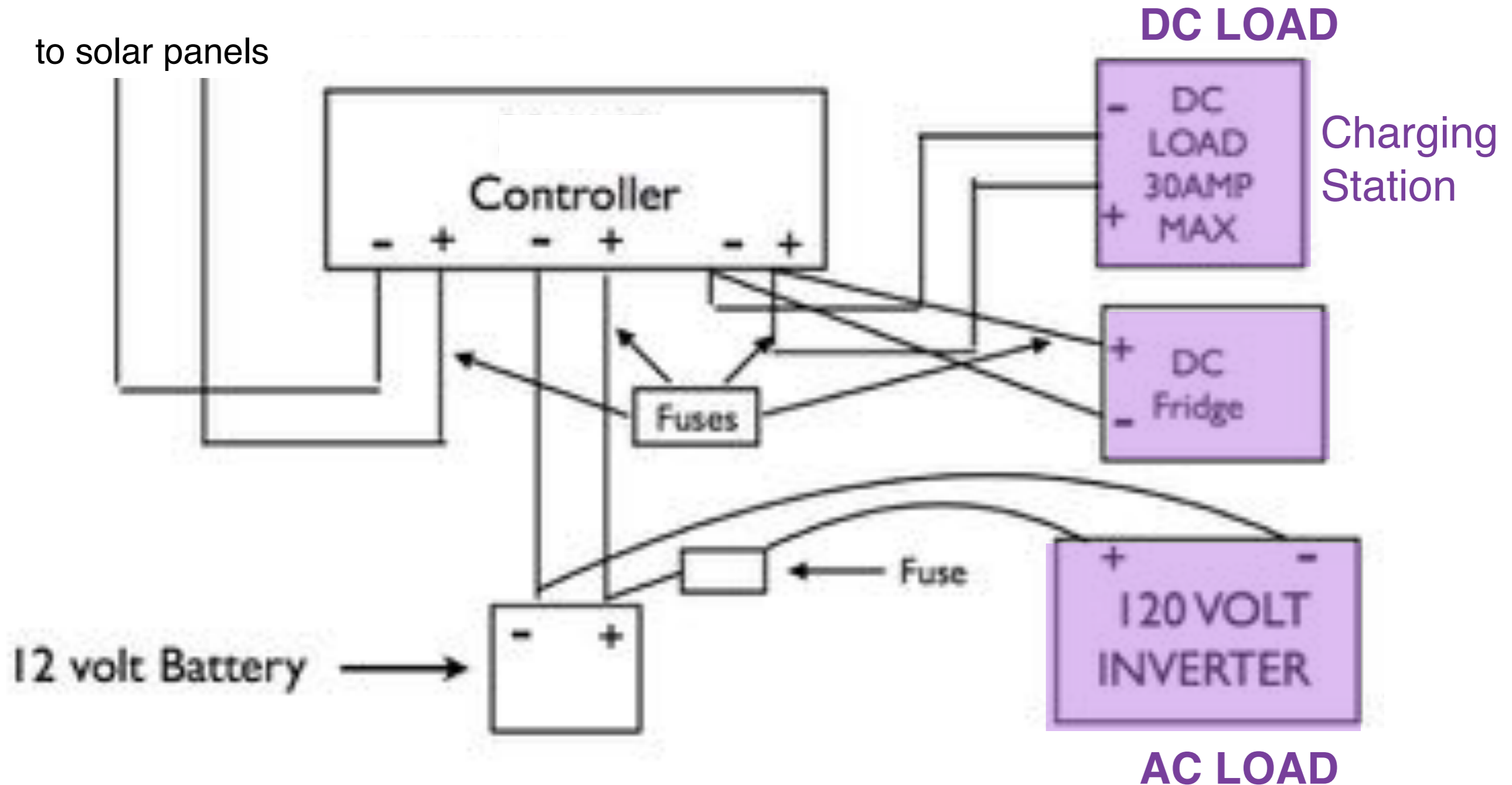


12 Volt Battery
110 Amp/ Hour
Absorbent Glass Mat (AGM)

to solar panels



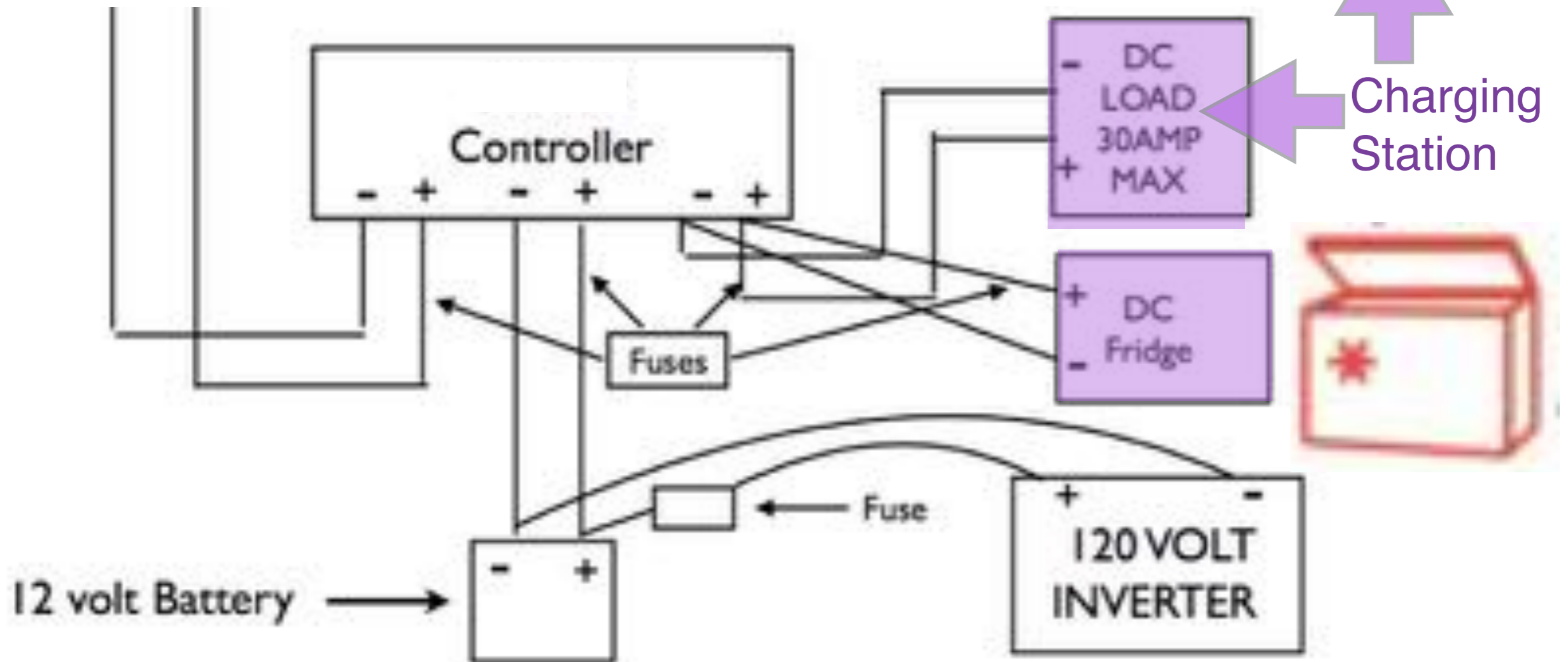
Your solar system has DC and AC



Direct Current DC circuits



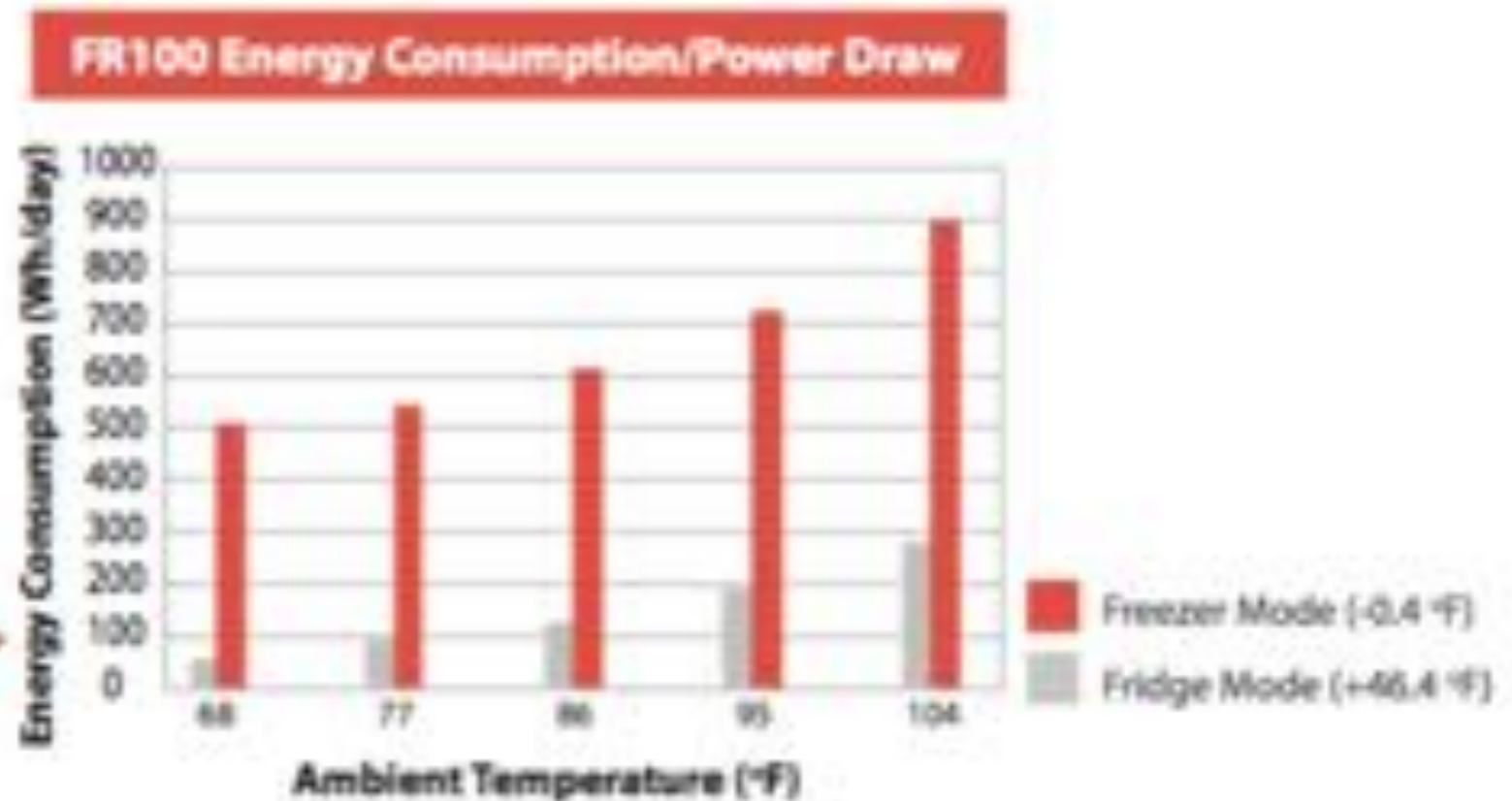
to solar panels



Your DC Fridge



in our area
the *phocos*
refrigerator uses
about 108wh
per day
in fridge mode

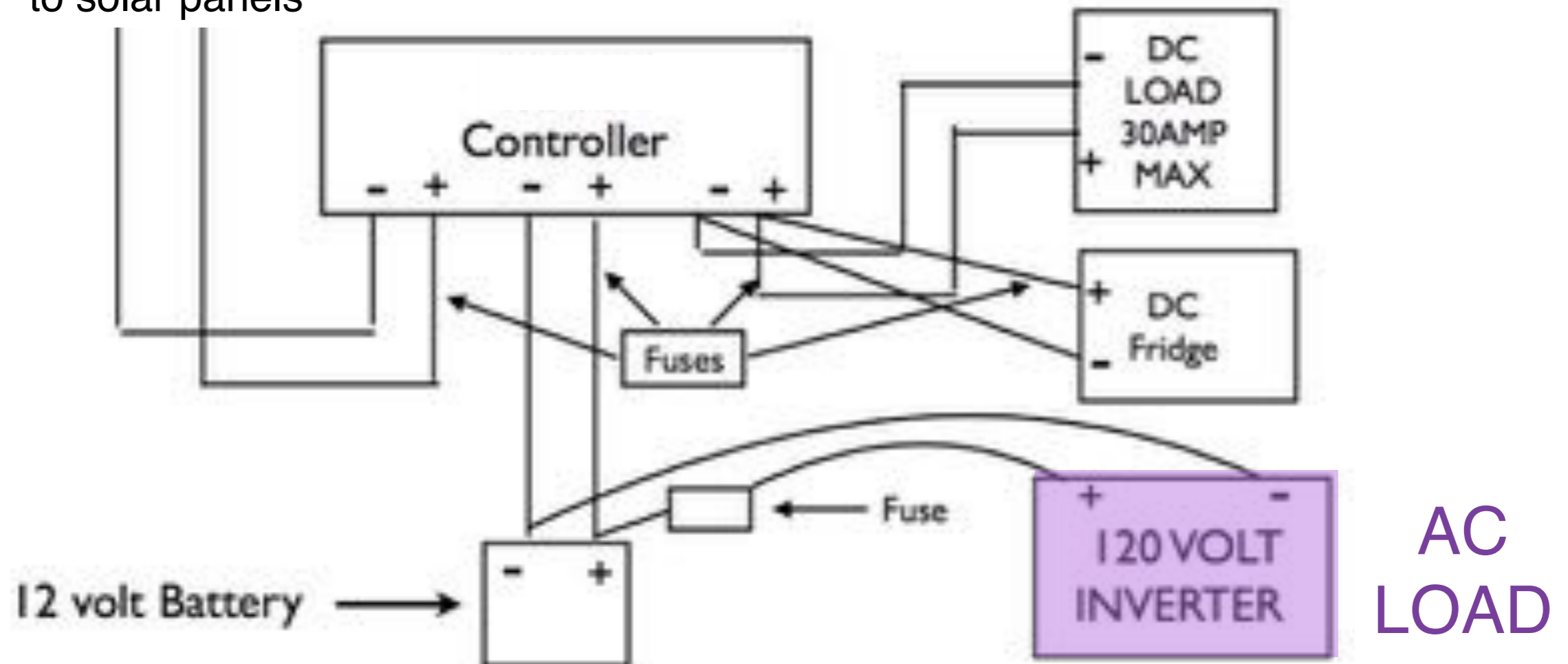


Your Solar Panels produce Direct Current.

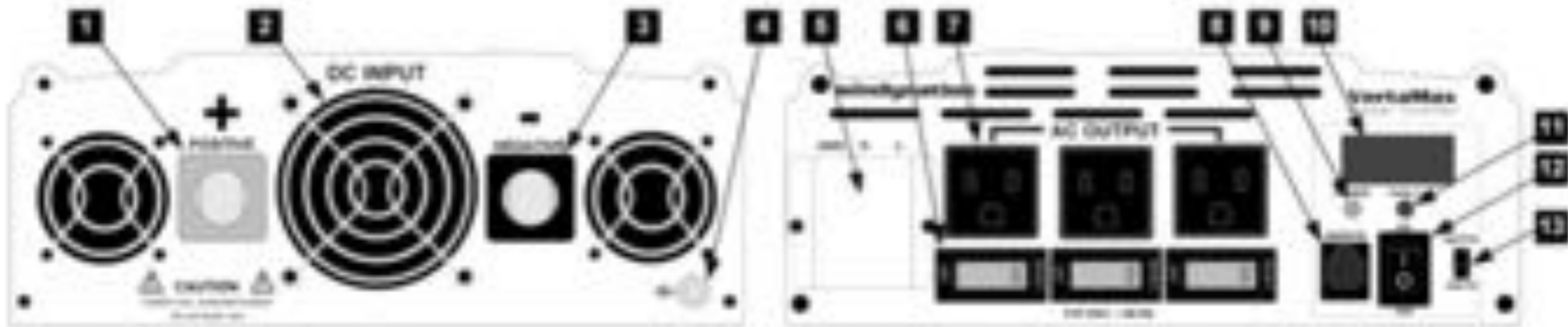
You need an inverter to turn Direct Current into Alternating Current to run most appliances.



to solar panels



your solar inverter



1 DC Positive (+) Input

2 Cooling Fan¹

3 DC Negative (-) Input

4 Grounding Terminal

5 Permanent AC Connection²

6 Circuit Breaker Protector [x3]

7 AC Outlets [x3]

8 Remote Switch Port³

9 Power LED

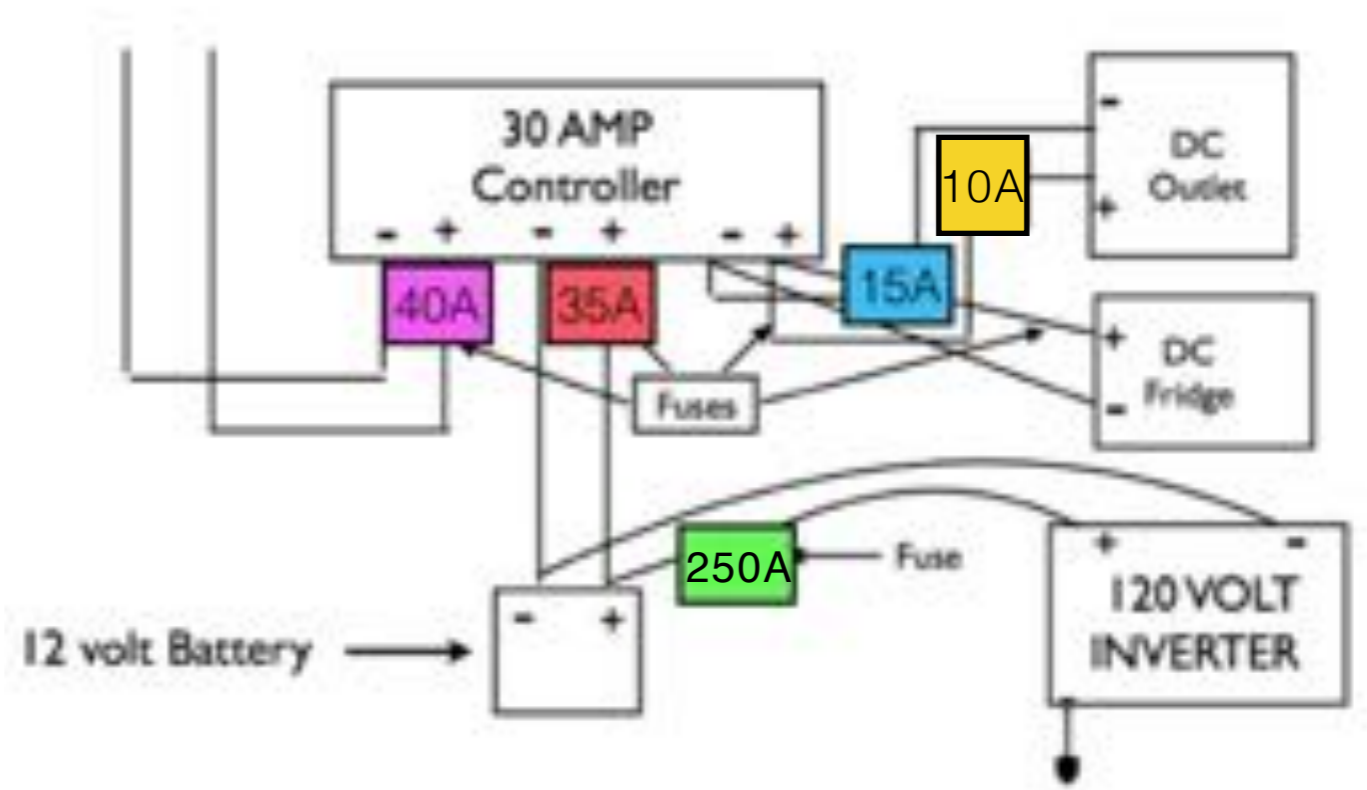
10 Digital Display Meter

11 Fault LED

12 ON/OFF Switch

13 Digital Display Select Switch

Fused Circuits



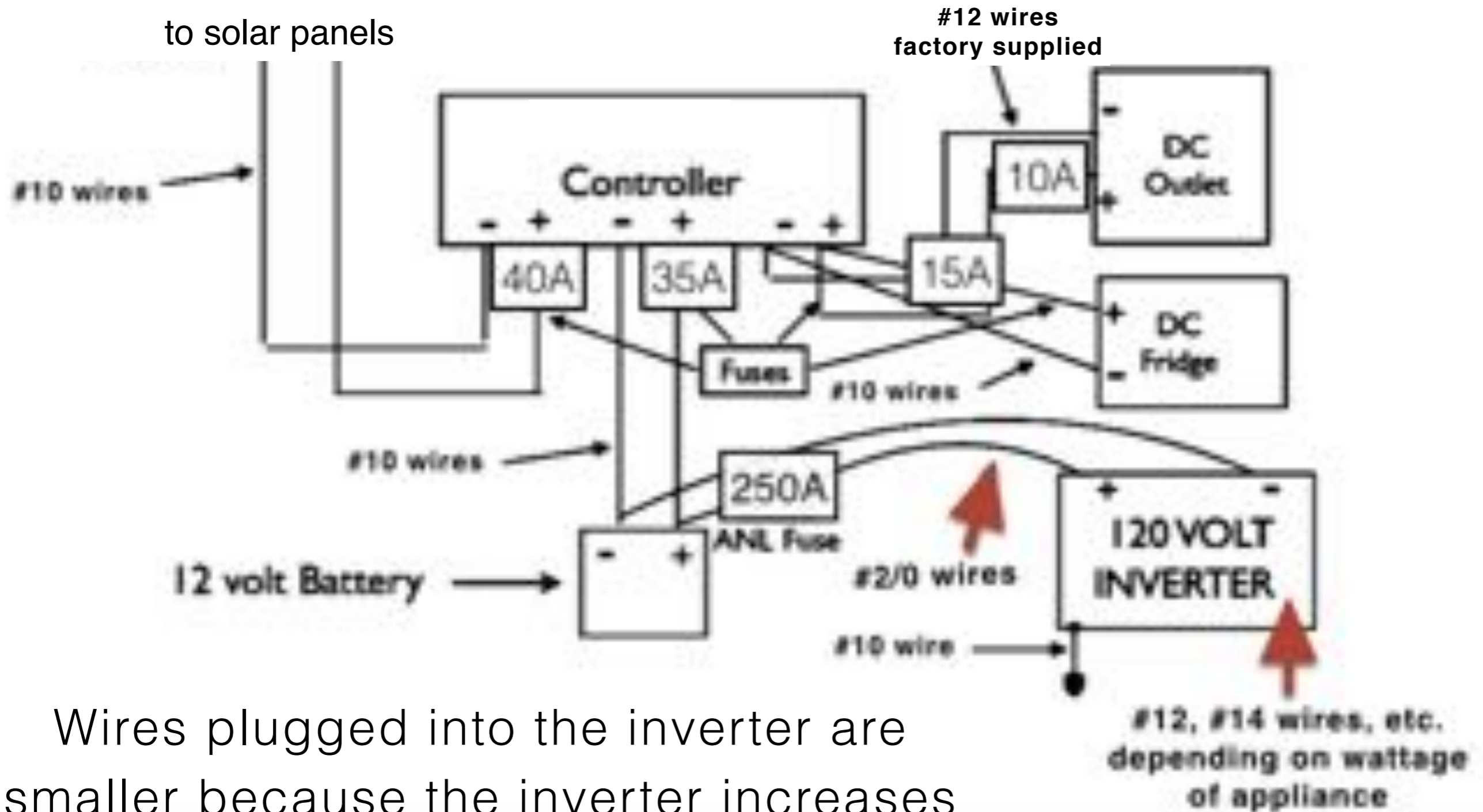
For reliable connectivity the plastic holder needs to be crimped with a crimping tool.



Incorrect tools on the left. See indent applied by the correct tool on the right.

Wiring

The biggest wire, **#2/0**, is from the battery to the inverter because the inverter is drawing $1500W \div 12V = 125A$ from the battery.

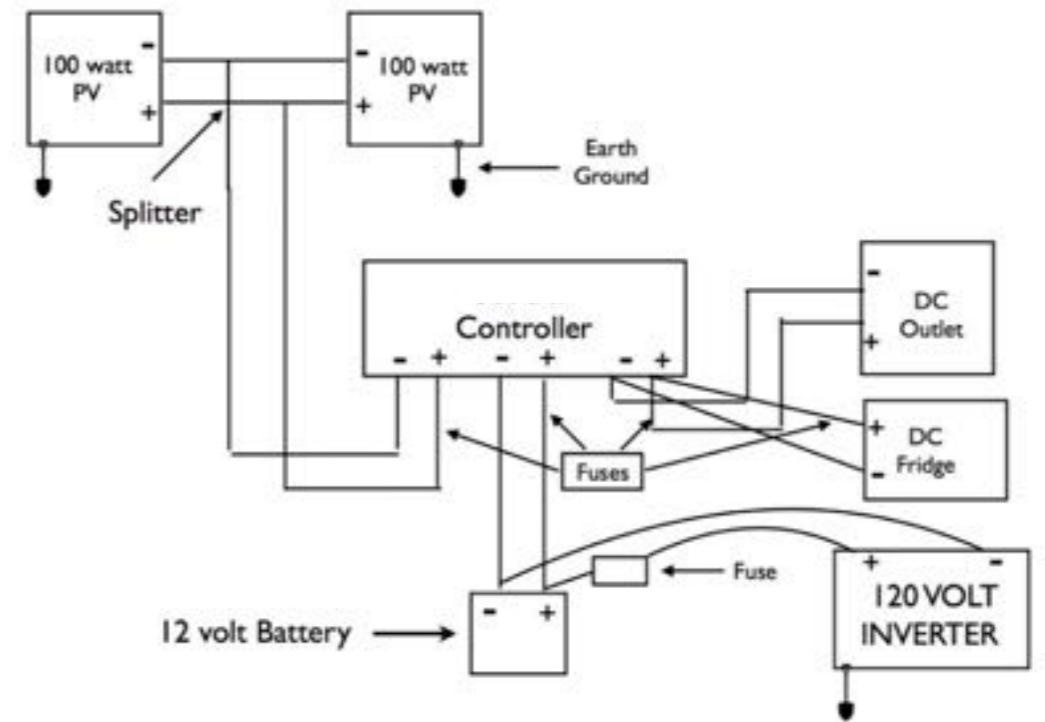


Wires plugged into the inverter are smaller because the inverter increases 12V to 120V. $1500W \div 120V = 12.5A$

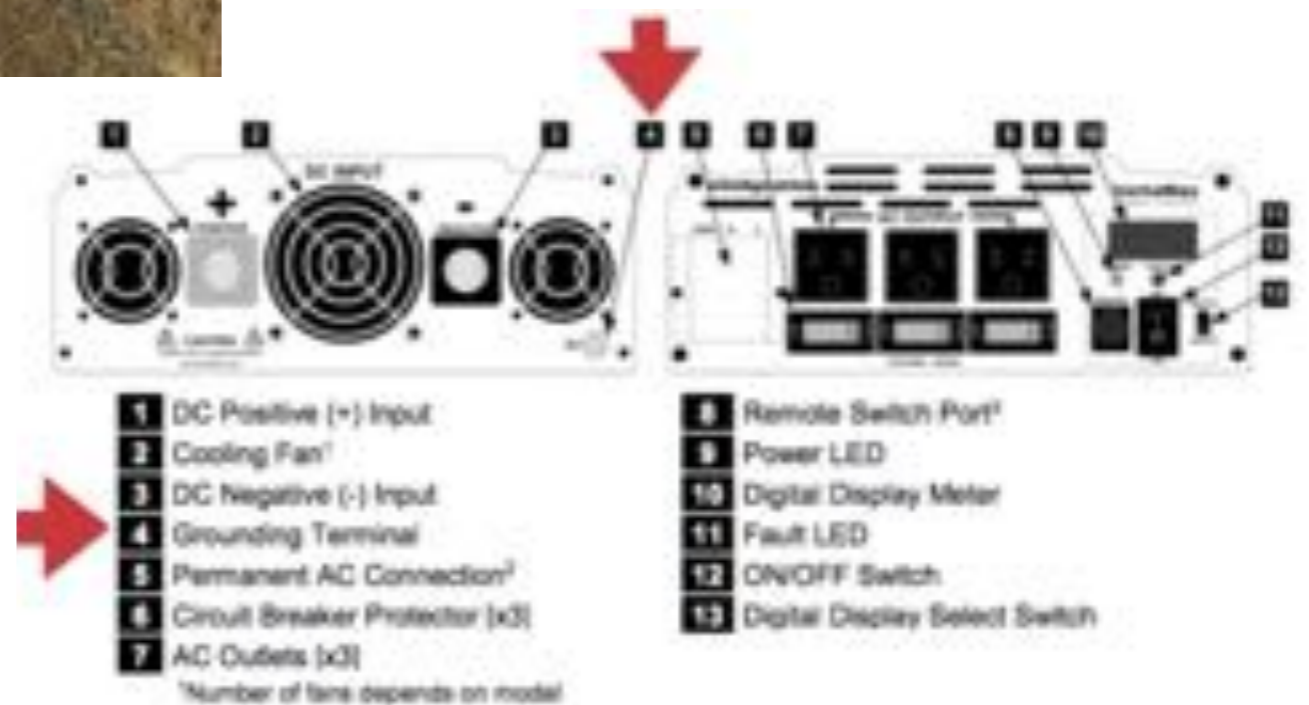
Grounding

Solar Panels and Inverter need to be grounded

This 4' copper rod attached to the frame of the solar panels will send any lightning strikes to ground. Should go in further than shown.



A copper wire will go from the grounding terminal on your inverter to earth ground either to the grounding rod on the solar panels or to its own grounding rod.





Try for this

Solar Team Classes
with much more information
will be posted on the
Gallup Solar Website
gallupsolar.org

Teams! You can add to your systems!

Call Bill: 505-728-9246