

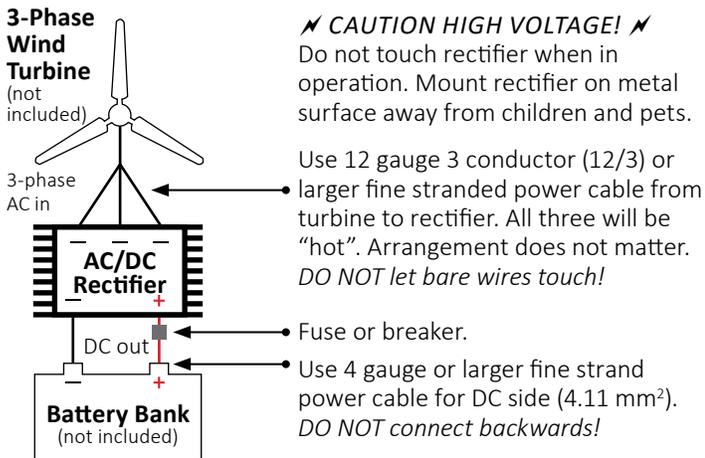
3-Phase Rectifier Wiring Instructions

Model: [SQL90A](#)
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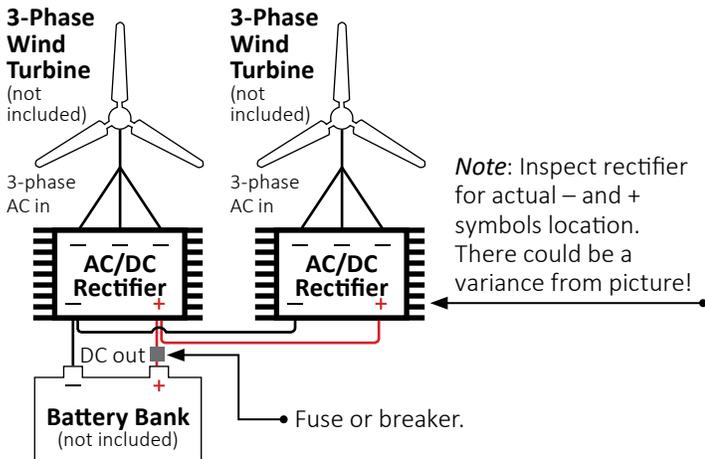
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Single PMA/PMG or Turbine Wiring:



When using a charge controller follow its wiring diagram from turbine(s) to batteries. Mount rectifier near batteries (but out of reach of children) to keep DC wires short as possible. **TIP:** You can use some of your extra 12/3 cord to make a positive and negative DC cord. Twist ends together.

Dual PMA/PMG or Multiple Wind Turbine Parallel Wiring:

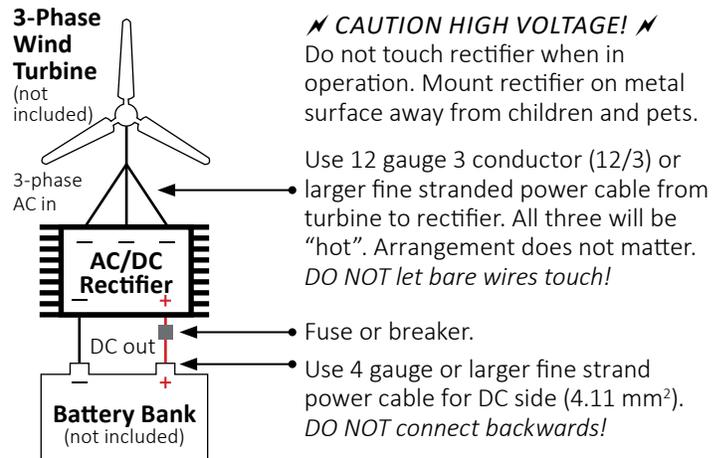


Each dual PMA must have two 12/3 power cords. You cannot combine a dual PMA or multiple wind turbines on the same 12/3 cable or rectifier AC side. You can combine several rectifiers on the DC side. Voltage output stays the same in parallel but with more amps. You need to double up wire or wire size on DC side when in parallel.

A wind turbine can produce much higher voltage than your battery voltage and this is how it charges them. The rectifier does NOT voltage regulate the output. You must use some sort of charge controller.

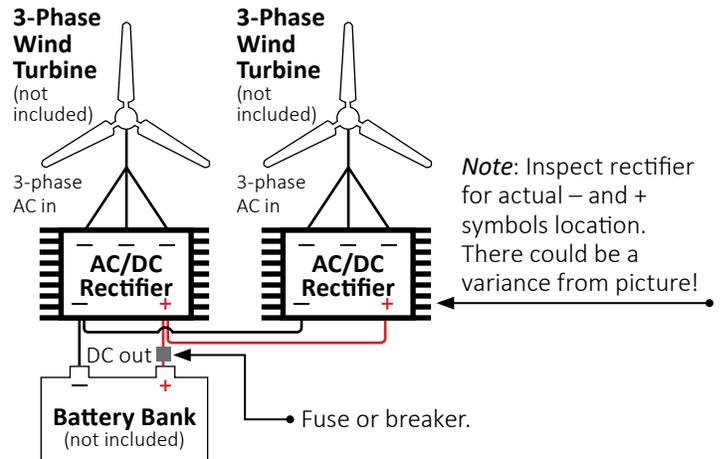
Warning: If you reverse the positive and negative connections from rectifier to controller or batteries the wind turbine will burn up. Double check the + and – marks on your rectifiers before connections are made.

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INSTRUCTIONS: Using a Freedom I or Freedom II 12V PMG only (PMA or PMG) on a direct, pulleyed, or gear driven; electric motor, combustion motor, or hydroelectric system other than on a wind turbine where air is not naturally forced through the PMA.

Belt-driven/hydro fuse sizing:

Battery Voltage	Freedom I	Freedom II
12V	80 amps	100 amps
24V	60 amps	80 amps
48V	30 amps	40 amps

A fan is important to help force air through the PMA to keep it cool. On its first run make sure to adjust your RPMs if your PMA becomes too hot within several minutes.

If you live near salt water or in a very dusty or severe climate, use our Permanent Magnet Alternator Wind Turbine PMA Coating for extra protection on the PMA.

⚠ HEAT WARNINGS: Notched v-belts run cooler and do not slip as much as a traditional belt. A slipping belt can cause bearing stress and heat buildup in the PMA. Proper v-belt installation is very important. Insure that your v-belt pulleys are properly lined up with a straight edge and that they are not worn and cutting into the v-belt.

Proper v-belt tension should be set with a v-belt tension tool and reset again after the first week to 10 days of operation to allow for stretching in the v-belt. Most of the stretching takes place in the first hours of operation so it is very important to recheck belt tension after the belt has had some run time.

You MUST turn the PMA or PMG at these RPMs for proper cooling fan operation (this does not mean that at these RPM's you will get the watts listed):

Watts	RPM+
0 to 300 watts	0 to 300 RPM+
300 to 800 watts	1400 RPM+
800 to 1500 watts	2500 RPM+
1500 to 2500 watts	3700 RPM+

If you are pulling over 500 watts without a cooling fan, your PMA may overheat. Monitor your PMA for excessing heating in all experimental machinery. Max PMA operating temperature is 300°F for 100% duty cycle.

Do not coat the outside of the PMA under any circumstances as this prevents cooling.

No warranties on any burned out PMAs. Keeping your PMAs cooled, fused and under reasonable loads is the operator's full responsibility.

Formulas: volts X amps = watts battery volts X amps = watts
For example: 29.1 volts X 10 amps = 291 watts

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