

Windmill Lightning Storm Protection

The simplest way of all:

Purchase some of those large 220 Volt three prong plugs (used for welders-dryers-stoves) and a matching receptacle. Put one in the circuit on the way from the windmill to the controller circuitry-battery. When lightening is coming your way one simply unplugs this from the electronics (rectifiers-battery) and plugs it into a receptacle that is say 3 to 5 ft away. This receptacle has one lead grounded and short spark gaps on the rest. The windmill is then freewheeling. Planned for when only light winds during a lightning storm.

Another way would be to put this into a receptacle that all terminals are short out. This would hopefully bring the windmill to a near stop in rotation. If it doesn't then one risks the possibly of burning out the winding or some wiring in-between.

A preferable way would be to put this into a receptacle where all terminals are short out using a given length and diameter gauge steel wire to act as a resistor. This would be matched to the windmill so as to burn out just before the windings burn out.

In extremely high winds I am not sure whether to plan on keeping it from moving or letting it run without power. If you let it run without power it may over rev and toss a blade. If this happens the vibration may tear up the unit. If you have no replacement parts then this may not be a good option.

An off the shelf lightning arresters could then be used to protect the electronics and be on the battery side of the plug-receptacle. This would provide some protection while still hooked up in case it is not unplugged from the charge controller in time for somewhat distant lightning. The only down side is when does one decide to make the plug shift and who volunteers to do it? There is a risk (even if it is small) of being hit with lightening during the switching process. I have found no reasonably priced switches that have their contacts a long ways apart that I consider would work.