

DC (...WDCxx...) –WINDMILL POWER CONTROLLER FOR HEATING USE

FinnProp® DC – heater controllers utilize pulse-width modulation technology for direct current. The controller accurately measures the generators true *rms* voltage and current, and shows their values, along with power and frequency, on a built-in display screen. The power value (calculated from voltage and current) serves as the feedback parameter for the control circuit. The load can be any resistive appliance, e.g. floor-heating cables, heating units in heat storage tanks, electric radiators, etc. The load resistance may vary within fixed limits. Because direct current is used, the load should not be engaged at high power, as the contacts would quickly wear out. With WDCxx controllers, the appliance thermostat is connected directly to the controller. When power to the appliance needs to be cut, the controller immediately reduces the power *before* opening the contacts, which prevents them from wearing out prematurely.

MODELS

Both PRE and EC versions of this product are available, and either can be delivered as a standalone device (receiving the power it needs from the generator and batteries) or run off a grid. Three CURRENT-IN options to choose from (16, 32, or 48A) and each controller can be fitted with either one or two outputs. Powerful, factory installed algorithms ensure optimum performance over a wide range of operating conditions.

SPECIFICATIONS

- Auxiliary power:.....single-phase 230VAC *or* none (standalone)
- Max output voltage:.....700VDC
- Max output current20 / 40 / 60A *dc rms*
- Max input voltage L-L (3~gen.):.....495 VAC *rms*
- Max input current (3~gen.):.....16 / 32 / 48 A *ac rms*
- Input frequency range.....1...100hz
- Minimum load resistance (at 700VDC)..... $R_{nom}/2$ (see example) / however not less than 17,5 ohm.
- Maximum load resistance:.....500 ohm

OTHER GENERATOR REQUIREMENTS

- Y or Δ configuration, N-lead NOT required

LOAD REQUIREMENTS

- Resistive single-phase load.
- It is strongly recommended to increase appliance power (nominal resistance load) by 10% when calculating compatibility.
- Sample calculation:
 - Appliance specifications: $U_{DC} = 540VDC$, $P = 5kW$
 - Calculate nominal resistance: $R_{nom} = \frac{U^2}{P} = \left(\frac{540^2}{5000 \cdot 1,1} \right) \Omega = 53,0\Omega > 17,5\Omega$ OK!
 - Calculate current: $I = \frac{P}{U} = \frac{5000W}{540V} = 9,26A < 20A$ OK!
 - As is the case with all resistive devices, heat dissipation and load duration should be considered!

Circuit diagram

