

# PP2000 AC PowerPack

AC/DC converter to power PS1200 and PS1800 pump systems from a generator or utility power

## Application

### The Problem

Some solar pumps may not provide sufficient flow under all conditions, especially in unusually cloudy weather or when sufficient storage cannot be provided.

### The Solution

LORENTZ AC PowerPack allows the pump to be powered by an AC generator or commercial utility power. The solar array remains connected. If the sun comes out again, less power is drawn from the AC source.

A common application is for a portable genset (gasoline generator) to run a well pump. When the generator is stopped (or runs out of fuel) the pump automatically returns to solar power when the sunshine is sufficient. No manual switching is required.

The PowerPack will power the pump to its full capacity. With some systems, it will produce a greater flow rate than you will see with solar power.

## Specifications

- AC input: 240V ( $\pm 15\%$ ), 47 to 63 Hz
- AC input current: 6.2A
- PV input voltage:  $V_{mp}$ : 110–140 VDC,  $U_{max}$ : 200 VDC
- DC output max.: 180VDC, 1,500 W
- overload protection: internal fuse, 15A
- enclosure: steel, gasket-sealed, indoor-use, hinged front cover with key-lock
- must be protected from direct mid-day sun
- IP22
- ambient temperature: max. 45°C

## Dimensions

- 450 mm  $\times$  300 mm  $\times$  140 mm  
17.7 in  $\times$  11.8 in  $\times$  5.5 in
- weight: 23.5 kg/52 lbs.

## Warranty

Warranted to be free from defects in material and workmanship for TWO YEARS from date of purchase.



## INSTRUCTIONS

### Installation



**WARNING** This device is to be installed, connected and serviced by qualified personnel only. Ensure all power sources are disconnected when making connections to this unit. Follow all appropriate electrical codes. There are no user-serviceable parts inside.



**WARNING** Power Pack must be OFF while it is being wired to the solar pump controller, or controller damage may result. Never connect it while it is "hot".

### Mounting

Mount the AC PowerPack close to the pump controller, in a vertical position. Cover the unit from direct rainfall. You will find four mounting brackets in a plastic bag inside the enclosure.



**WARNING** PowerPack must be protected from solar heat, especially direct mid-day sun. Mount it in the shade. If there is no shady location, make a shade from sheet metal. Allow free air circulation around the cooling fins on the back of the enclosure. For wall mounting, use spacers to stand it out, so the cooling fins do not touch the wall.

### Wire Sizes

All wires must be #14 AWG (2.5 mm<sup>2</sup>) or larger.

### Grounding

Bond the metal enclosure to the ground connections of the AC power source and the solar power system. See your pump's instruction manual.

### AC Power Source

Install a 15A circuit breaker at the power source or distribution box.

### AC Input

Connect AC power to terminals L and N.

## Operation

### Solar Power In

Connect the + and – wires from the solar array disconnect switch to the SOLAR POWER IN terminals. If the solar pump was previously installed without this device, the wires will need to be removed from the POWER IN terminals of the solar pump controller or from the disconnect switch, and diverted to the Power Pack.

### DC Power Out

Connect two wires from the DC POWER OUT + and – terminals to the POWER IN + and – terminals in the solar pump controller.

### Internal Fuse

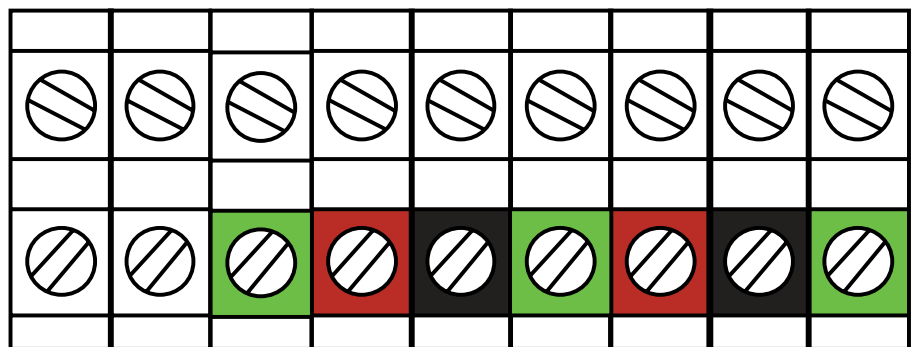
There is a 15A fuse in the upper left. This fuse should blow only if there is an electrical fault in the PowerPack, or the pump controller, or the wiring between them. It will NOT blow if the pump is short-circuited or overloaded. (In that case, the pump controller will stop the pump.)




Spare fuses are included in the parts bag. Additional fuses are available from electronic suppliers (5 × 20 mm, 15A, time-delay). If the fuse continues to blow, the fault must be found and repaired. Substitution of a higher-rated fuse or bypassing the fuse will void the warranties of both the AC PowerPack AND the pump controller.

Connect the AC power source and turn on the Power Pack AFTER it has been connected to the PS1200 or PS1800 series controller. When the controller and the Power Pack are turned on, the System ON light should show on the controller, and the pump should start. When the Power Pack is turned OFF (or its AC source disconnected), the solar array will remain connected. When the pump is running on solar and the Power Pack is switched ON or OFF, the sudden transition may “surprise” the pump controller and cause the pump to stop. This is not a fault. It will restart automatically in about 2 minutes.

If the AC power source is from the utility line (not a generator), it is best to turn OFF the PowerPack or its AC supply when it is not needed. Otherwise, the PowerPack will draw a small amount of power all the time. Switching can be done automatically using a timer switch on the AC line. Timer switches of many kinds are available from suppliers of electrical, swimming pool and irrigation equipment.

Once the PowerPack is turned OFF it will take up to 50 seconds for the POWER ON LED to be OFF. This indicates that there is still voltage stored in the capacity.



L	N		+	-		+	-	
AC POWER IN (240VAC, 50-60Hz)			SOLAR POWER IN (max. 200VDC)			DC POWER OUT (max. 180VDC)		
GROUND			GROUND			GROUND		