PowerPack 150S

Manual for Installation and Operation

LORENTZ

The Solar Water Pumping Company

1 Introduction

Thank you for purchasing a LORENTZ product.

Before you begin – Please check the product label to verify that this is the item you ordered. To ensure the product is appropriate for your application please check the product specifications.

In addition to this manual, manuals for the pump end, controller, charger (optional) and all other components used in your system should also be read.

2 Safety Instructions

Safe operation of this product depends on its correct transportation, operation and maintenance. Failure to follow these instructions can be dangerous to life or health and/or void the warranty.

READ AND FOLLOW ALL INSTRUCTIONS!

Explanation of warning symbols

WARNING – Disregard can lead to injury, death or damage the system.

CAUTION – Recommended to avoid damage, premature aging of the pump or similar negative consequences

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

WARNING – To reduce the risk of injury, do not permit children to use this product.

WARNING – The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless otherwise instructed and closely supervised.

WARNING – It must be assured that all grounding connections are properly made and that the resistances meet local codes and requirements.

WARNING – To reduce the risk of electric shock, replace damaged cords and cabling immediately.

This manual contains basic instructions which must be observed during installation, operation and maintenance. The manual should be carefully read before installation and start-up by the person in charge of the installation. The manual should also be read by all other technical personnel/operators and should be available at the installation site at all times.

Personnel qualification and training - All personnel for the operation, maintenance, inspection and installation must be fully qualified and trained. Responsibility, competence and the supervision of such personnel must be strictly regulated by the user. Should the available personnel be lacking the necessary qualification, they must be trained and instructed accordingly. If necessary, the operator may require the manufacturer/supplier to provide such training. Furthermore, the operator/user must make sure that the personnel fully understand the content of the manual.

Safe operation – The safety directions in this manual, existing national regulations for the prevention of accidents as well as internal guidelines and safety regutions for the operator and user must be observed at all times.

General safety directions for the operator/user – Protective covers for moving parts (e.g. couplings) must not be removed when the equipment is running. Leaks (e.g. at the shaft seal) of hazardous pumping media (e.g. explosive, toxic, hot liquids) must be disposed of in such a way that any danger to personnel and the environment is removed. All government and local regulations must always be observed. Any danger to persons from electrical energy must be eliminated by using good installation practices and working in accordance to local regulations (e.g. VDE in Germany).

Safety directions for maintenance, inspection and assembly work – It is the user's responsibility to make sure that all maintenance, inspection and assembly work is performed exclusively by authorized and qualified experts sufficiently informed through careful perusal of the operating instructions.

The accident prevention regulations must be observed. All work on the equipment should be done when it is not being operated and ideally electrically isolated. The sequence for shutting the equipment down is described in the manual and must be strictly observed. Immediately upon completion of the work, all safety and protective equipment must be restored and activated.

Unauthorized changes and manufacturing of spare parts – Any conversion or changes of the equipment may only be undertaken after consulting the manufacturer. Original spare parts and accessories authorized by the manufacturer guarantee operational safety.

Using non-authorized parts may void any liability on the part of the manufacturer. Configuring the schemes in this way ensures flexibility in the future if management of a community changes.

Unauthorized operation – The operational safety of the equipment delivered is only guaranteed if the equipment is used in accordance with the directions contained in this manual. Limits stated in the datasheets may not be exceeded under any circumstances.

Cited standards and other documenta-tions – DIN 4844 Part 1 Safety marking; Safety symbols W 8, Supplement 13; DIN 4844 Part 1 Safety marking; Safety sym-bols W 9, Supplement 14

RETAIN THESE INSTRUCTIONS FOR FUTURE USE!

3 Specifications

Table 1: Specifications

Product Name	**PowerPack 150S**	
Item No.	19-005290	19-005295
Grid connection	CEE 7/7	NEMA 5-15P
Pump system	PS2-100 / PS2-150	
AC In	100-260 V AC / 50-60 Hz	
DC Out	26 V / 13.4 A	
PV In	max. 50 V DC	
Working Temp	-30 ≈ + 50°C (start derating ≈+40°C)	
IP Class	IP23	

3.1 Application

Some solar pumps may not provide sufficient flow under all conditions. The LORENTZ PowerPack PP150S allows the pump to be powered by an AC mains supply such as a grid or generator.* As soon as backup power is required, the PowerPack can be switched on and supply the pump from the auxiliary power source. The changeover from solar is done automatically when the PowerPack is switched on. For a scheduled use of the PowerPack (e.g. to extend pumping time) a separate (timer) switch can be used to control the power supply to the PowerPack. If the auxiliary power source is switched off the PowerPack automatically returns to solar-direct operation.

* Running the pump with a PowerPack will reduce the maximum speed of the pump in some applications.

3.2 Which Powerpack should be used?

The PP150S should be used for the PS-150/PS2-150 controller.

Use COMPASS/partnerNET to check which PowerPack is suitable for the application.

4 DC Disconnect Switch

Every solar pump system must be equipped with a properly sized DC disconnect switch. The switch must be installed between the PV generator and the PowerPack. The DC disconnect must meet the following requirements:

- minimum DC disconnect rating according to “Table 2”
- continuous current rating according to maximum current of the connected PV generator or higher
- the switch must be rated for DC current, not AC

A PV disconnect switch matching all requirements above can be purchased from LORENTZ.

CAUTION - The use of a properly sized disconnect is an important safety measure and obligatory for a professional installation of a solar pump system.

Table 2: Minimum DC disconnect rating

Controller	Min. DC disconnect switch rating
PS-150	50 V DC
PS2-150	50 V DC

5 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.

WARNING – The PowerPack must be protected from solar heat, especially direct midday sun. If there is no location protected from the sun, this can be created with sheet metal (for example). Allow free air circulation around the ventilation openings on the side and bottom of enclosure.

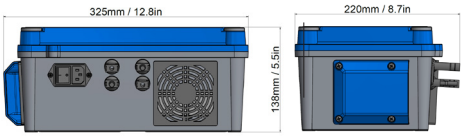
WARNING – Mount the PowerPack close to the pump controller, in a vertical position. Protect the unit from direct rainfall.

5.1 Mounting

Ensure the PowerPack is mounted close to the pump controller, in a vertical position while protecting the unit from direct rainfall.

Fixation pattern for holes: 230 x 150 mm / 10.63 x 5.9 in

5.2 Product dimensions



6 Wiring

WARNING – Beware of high voltage! Hazardous electricity may be present and can shock, burn or cause death! Authorized, qualified personnel only!

CAUTION – The PowerPack should only be connected to power after correct wiring or the controller might get damaged.

CAUTION – Do not connect any electrical load to the PV generator other than the LORENTZ pump controller and PowerPack. Connection of battery charger, active solar tracker controller, electric fence charger or other load simultaneously with LORENTZ PS2 systems may interfere with the controller and prevent proper operation.

CAUTION – Measure the voltage before connecting power to the Powerpack. Follow the guidelines included in this manual regarding maximum PV input voltages.

CAUTION – Do not connect the PV modules to the DC output as it may damage the PV modules.

Connect the PV modules to PV IN then connect DC out of the PowerPack to the controller, paying attention to the polarity. Check the voltage from the PV generator. The voltage must not exceed the open circuit values listed in “Table 3” below.

Table 3: Max. PV input voltage

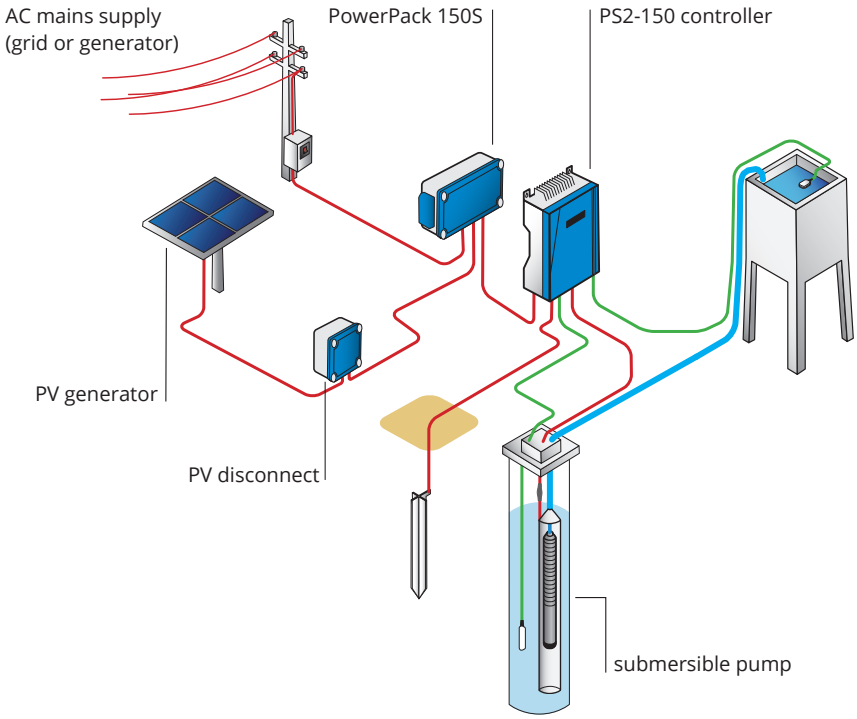
	PP150S
PS150	50 V DC
PS2-150	50 V DC

Select the wire that will fit to your grid connection socket and connect it to the PowerPack. Before connecting to grid, ensure that the grid connection is properly protected with a fuse and if required with an ELCB, all according the national electrical guidelines.

7 Operation

Connect the AC power source and switch on the PowerPack AFTER it has been connected to the pump controller. When the controller and the PowerPack are switched on, the system ON light should flash on the controller and the pump should start.

Figure 1: System layout (example)



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