

Warranty

1. Quality assurance should be carried out according to the following rules:
 - The product is guaranteed of replacement and repairing within 30 days after sale.
 - The product is guaranteed of repairing within 12 months after sale.
2. If it is not possible to identify the using date of the product, we would refer to the ex-work date, and prescribe 12 months as the warranty period. The product can be repaired for the whole life beyond warranty period at customers' own expense.
3. If the product is damaged by the following conditions, we need to charge even if it is in the guarantee period:
 - Do not operate according to the user's manual.
 - Use the product under conditions which is beyond using standard and technical requirements.
 - Repaired by yourself or reformed by yourself.
 - The inappropriate environmental condition which can cause breakdown and aging of the apparatus.
 - Improper carrying or storage.
 - Regarding to the service of replacement, returning and repairing, you need to return the product to our company, and we decide whether to replace or to repair after making it clear who should be responsible.

All the stipulations are subject to our final explanation

Spartan Power TS4500 User Manual

I. Application

The Spartan Power TS4500 allows for trouble-free operation of inverters and AC mains in the same circuit. The power transfer controller switches automatically between inverter and AC mains while protecting the inverter against external voltage. In addition, it offers the possibility to choose the battery power prior between the two power sources.

II. Safety Instructions

The following safety notes and hazard warnings serve not only for the protection of the power transfer controller but also for the protection of your health.

In case of property damage or personal injuries caused by improper handling or non-observance of these operating instructions or the safety notes stated herein, the warranty will expire. We assume no liability for any consequential damages.

1. For safety and technical approval reasons, the unauthorized conversion and/or modification of the product is not permitted.
2. This power transfer controller is not a toy and must not be used by children! Please ensure childproof operation and storage of the power transfer controller at any time. Don't leave packaging material heedlessly. It could become a hazardous toy for children!
3. Check the power transfer controller and connection cables before starting operation. If you detect any damages (e. g. transport damages) on the power transfer controller, do not start operation. Damaged connection cables must be replaced immediately.
4. The power transfer controller may only be operated in a dry environment to avoid getting humid or wet, otherwise there is a risk of life-threatening electrical shocks.
5. The use of the product under unfavorable environmental conditions must be avoided under all circumstances. Unfavorable environmental conditions include: ambient temperatures above 122F, flammable gases, solvents, vapours, dust, relative humidity in excess of 80%, and moisture.
6. Do not use the switching station near ignition sources, open fire or other heat sources (heating, gas stoves or strong solar radiation).
7. Service and repairs may only be carried out by authorized and qualified personnel. Use only original spare parts for repair work. The use of any other spare parts may lead to serious damage to property and personal injury!

III. Product Introduction:

This dual power transfer controller is used between an off-grid system and public power. The controller is separately connected with public power, inverter, battery and load, as the picture shows. In the middle of the controller, there is an on/off switch, please turn on the controller after ensuring all cables are well connected. There are 5 indicators at the upside of the controller, which are public power indicator (1), inverter indicator (2) and 3 battery state indicators. The battery indicators shows the power state in battery as 75%, 50% and 25%.

IV. Product Display:



IV. Installation:

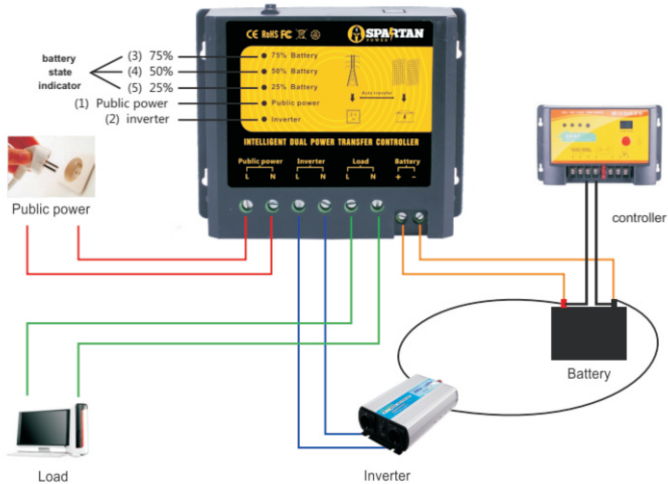
- 1. The installation should only be carried out by persons having relevant professional skills. If there is any doubt, always contact an authorized expert.
- 2. Before installation ensure that the inverter output as well as AC mains supply are voltage free and equipped with a safety lock system to prevent unintentional start of the power transfer controller.
- 3. The cross sections of the used cables must be selected and secured in compliance with applicable law.
- 4. Ensure that the connection cables are connected properly and have good contact, as loose contacts may cause smoldering fire.
- 5. Use the supplied cage clamps to connect the protective earth conductor on the inverter.
- 6. If the inverter has no earth connection, the negative battery terminal must be connected to the earth.
- 7. Do not connect the neutral conductor on the consumer side to earth or protective earth conductor; as the consumer sockets in particular have no protective multiple earthing (i.e. connection of PE-grounding wire with the neutral connector).
- 8. It is not permissible to use the power transfer controller for three-phase current.
- 9. After ensuring all the steps above, connect the controller separately with public power, inverter, load and battery.
- 10. Turn on the switch after all the cables are well connected.

Attention:

- 1. The dual power transfer controller is simply a switch between off-grid power system and public power, it can't replace the charge controller in the off-grid system.
- 2. Please choose the suitable battery capacity for your loads, if you use too small of a battery VS too large a load, the power in battery will soon be less than 25%, then the dual power controller may switch frequently, and this may damage your inverter.

Connection Version:

This device can work with both a solar system or a wind system.



V. System Working Specifications:

- Process 1:** when the battery is fully charged by solar panel, or battery power is over 75%, inverter indicator (2) and battery state indicator (3) is lit green. In this process, power is provided by the off-grid system.
- Process 2:** when the power in battery is consumed to 50%, the inverter indicator (2) and battery state indicator (4) is lit green. In this process, power is provided by the off-grid system.
- Process 3:** when the power in battery is consumed to 25 %, public power indicator (1) is lit green, and battery state indicator (5) is lit red. At this time the battery voltage is lower than 10.5V or 21V, the controller will automatically change the power supplier to public power in 10ms. In this process, power is provided by the grid.
- Process 4:** when the battery is charged by the solar panel again, power is stored in the battery until 50%, battery state indicator (4) and public power (1) is lit green. In this process, power is still provided by the grid, because the battery voltage does not reach the over discharge return voltage point.
- Process 5:** when the power in battery is over 75%, inverter indicator (2) and battery state indicator (3) is lit green. At this time the battery voltage return to 13.5V or 27V, the controller will automatically change the power supplier to battery in 10ms. In this process, power is provided by the off-grid system.

VI. Technical Specifications

Model	SP-TS4500W
Rated Power	4500W
Input Voltage	AC110V or AC220-240V
Output Voltage	AC110V or AC220-240V
Transfer Time	≤10ms
LED Indicator	Working Status of Public Power, Inverter and Battery
System Voltage	12V or 24V or 48V
BAT. Low Cut-down	10.5V/21V/42V
BAT. Low Recovery	13.5V/27V/54V
Application	Off-grid Solar or Wind System
Product Size	6.5”×5.3”×2.5” in

VII. Environmental Protection Note

At the end of its useful life, this product must not be disposed of together with normal household waste, but has to be dropped off at a collection center for the recycling of electrical and devices. The materials of this product are recyclable. With the reuse, the recycling of the materials or other forms of scrap usage, you are making an important contribution to the protection of the environment.