



POWER**SWITCH**



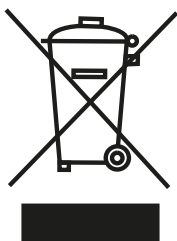
User Manual

ENGLISH

VALID FOR THE FOLLOWING MODELS

PS 12-100

INSTRUCTIONS FOR THE PROPER DISPOSAL



This electronic product is subject to the European Directive 2012/19 / EU. Comply with local waste disposal regulations, do not dispose of old products with normal household waste. The proper disposal of products that can no longer be used prevents potential negative consequences for the environment and for the population.



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1. SAFETY INSTRUCTIONS

- Child Safety: Keep the device Out of Reach.
- Carefully check the integrity of the device and connectors.
- To avoid overheating and possible fires do not install the device in a sealed environment, Always choose a well ventilated area.
- Do not place the device on highly flammable surfaces or environments (eg: paper, cloth, etc.).
- Do not cover the cooling slits on the side and the fan on the top.
- Do not install the device near flooded batteries: they produce flammable, corrosive and explosive gas while working, and it can damage the product.
- protect the device from sunlight or direct sources of heat.
- To avoid malfunctions, DO NOT install and use the device in very humid environments, in contact with water splashes, various liquids, or exposed to rain.
- To avoid risk of electric shock and/or fire, the vehicle's fuel system must be in good condition.
- In case of damaged connecting cables or inadequate section, immediately replace them with suitable cables as specified by this manual or by a qualified electrician.
- In case of anomalies in the conformity of the product do not use it! it is strictly forbidden to open the device. Repairs may only be carried out by qualified technical personnel using original spare parts.
- Keep the instruction manual near the device for easy access to the essential safety, use and maintenance information.
- The information contained in this manual may be changed without notice. NDS Energy s.r.l. reserves the right to make changes and improvements to the product at any time without notice and without obligation to apply these changes to the devices previously distributed.

- The images of the products are purely indicative and may therefore not be fully representative of the characteristics of the product, differing in color, size or accessories.

2. DESCRIPTION

Energy needs in recreational vehicles often lead to secondary service battery adoption to achieve greater autonomy. The parallel between two batteries has some constraints, in fact you can connect only identical batteries: technology, amperage, voltage, brand and production serial number, must be the same.

POWERSWITCH was created to solve this problem, the Device can manage two different batteries, improving efficiency and long lasting life. With a microcontroller, **POWERSWITCH** continuously detects the battery status checking input and output voltage and amperage. Based on the obtained data, an algorithm engineered to optimize batteries usage, select and activate two latching relais that distributes the workload to one or both batteries depending of the load.

POWERSWITCH is also equipped with a battery disconnection function, which avoids the battery discharge under the warning limit, a frequent situation both in the case of normal use and due to small continuous absorption over time during the RV storage.

3. OPERATION

POWERSWITCH has 2 functions: “switch” for the two batteries management, both during discharge and charging and “battery disconnect switch”. Both functions can be managed in automatic mode, or manual mode using the remote device supplied.

BATTERY SWITCH

Automatic mode

- Discharging phase: **POWERSWITCH** choose the highest voltage battery, and if the voltage goes under limit the microcontroller switches to the second battery, always saving the voltage data. The voltage check will continue to establish if a battery switch is necessary, or is better to use both. This way **POWERSWITCH** leaves the two batteries always at the same charging level.
- Charging phase: on the first phase batteries are charged at the same time until they arrive to the 90% of the capacity, the last charging phase is done separately changing from one battery to the other depending on the needs.

Manual mode

In manual mode user can choose his own to use one or the other battery, or both of them, using the included remote control (page.7).

BATTERY DISCONNECTOR SWITCH

The battery disconnect switch function works differently for the two modes (automatic or manual).

Automatic mode

On discharging phase, if the voltage level of both batteries goes under 11 Volts, the device disconnect batteries alerting with an acoustic buzzer.

Manual mode

Pushing the selection button on the remote control for more than 5 seconds the battery will be completely disconnected from the system.

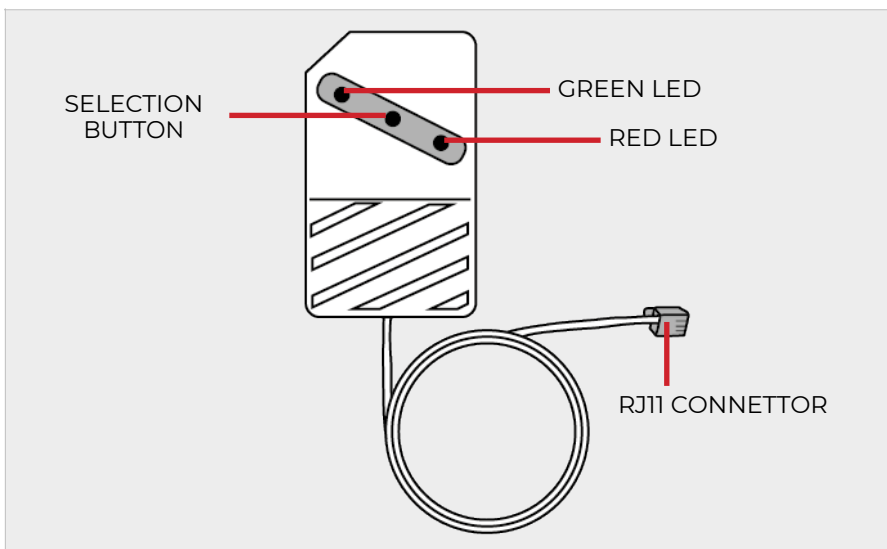
4. REMOTE CONTROL

The remote control allow to: select between two different modes, show the selected mode and alert in case of low battery voltage.

Pushing the selection button (orange color) placed between the two status led is possible to change::

1. Mode selection: automatic or manual - selection button press for at least one second.
2. Battery disconnect switch - selection button press for at least 5 seconds.

The battery connection Will be replaced automatically if a power source is detected (es. alternator) or manually pushing the selection button for at least two seconds. N.B.: **POWERSWITCH** Will back automatically on battery 1 (red led flashing).

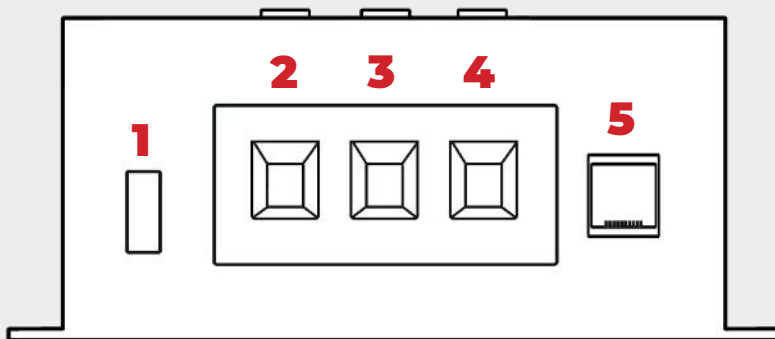


LED	SIGNAL	MEANING
Red	Continuous	Man. Sel. batt.1
Red	Flashing	auto sel. batt.1
Red	Rapid flash	Voltage batt.1 < 11V
Green	Continuous	Man. Sel. batt.2
Green	Flashing	auto sel. batt.2
Green	Rapid flash	Voltage batt.2 < 11V
Red and green	Continuous	Man. Sel parallel

CAUTION

- The Device default mode is "automatic".
- If the powerswitch does not switch between the two service batteries connected, check the connection on the battery that is not used by the device, then check the battery efficiency.
- Do not Connect appliances for more than 100A to the powerswitch, in this case Connect the appliances directly to one of the batteries. This way the battery disconnecter switch for this appliance is not possible.

5. CONNECTIONS



CONNECTION	FUNCTION
1	Negative cable connection (section 1,5 mm ²)
2	Positive leisure battery 1
3	Wiring Positive pole
4	Positive leisure battery 2
5	Remote control

NOTE

Solar regulator, inverter, original RV control unit, auxiliary power unit, battery charger, all this devices must be connected to PIN.3.

CAUTION

- The negative pole cable (pin. 1) must be connected in the end as last connection.
- Inverter and/or heavy appliances connections (pin.3) are allowed up to 2000W. For more than 2000W, connect the appliance directly to the battery.

6. TECHNICAL FEATURES

POWER SWITCH - BLACKBOX	
Nominal voltage	12V
Relay maximum current	100A
automatic mode minimum working voltage	11V
Manual mode minimum working voltage	10,5V
Connection size	Cable section 6 to 35 mm ²
Self-consumption	15mA
Working temperature	-15/+60°C
Technology	Microcontroller with latching relay
Size	110x120x50mm
Weight	550g

REMOTE CONTROL	
Components	2 leds + 1 selection button
Cable lenght	3 m
Connection type	Rj11 controller

DECLARATION OF EU CONFORMITY - POWER SWITCH

Company: NDS ENERGY S.R.L.
Address: Via giovanni pascoli
65010 - cappelle sul tavo (PE)
Italy

Declares under its own responsibility that the product:

Commercial Name: POWER SWITCH

Models: PS 12-100

to which this declaration refers, is in compliance with the provisions of the Directive of the Council of the European Union concerning the electromagnetic compatibility (EMC) **Direttiva 2014/30/EU**, demonstrated to the observance of the following norms:

✓ EN55014-1:2006+A1:2009+A2:2011
✓ EN55014-2:2015
✓ EN61000-6-1:2007
✓ EN61000-6-3:2007+A1:2011+AC:2012

Compliance for the restriction of the use of hazardous substances is demonstrated in compliance with **Direttiva 2011/65/EU (RoHS 2)**, , according to the law:

✓ EN 50581:2012



CAPPELLE SUL TAVO, 26/03/2018

AMMINISTRATORE E LEGALE RAPPRESENTANTE

NDS ENERGY s.r.l.
Mattia Di Sisto

7. WARRANTY



WARRANTY COUPON

FIRST NAME_____

SURNAME_____

POSTCODE_____

E-MAIL_____

MODEL_____

SERIAL NUMBER_____

PURCHASE DATE_____

STAMP AND SIGNATURE OF THE
SELLER

I CONSENT TO THE ACTIVITY DESCRIBED IN POINT 3.C OF THE INFORMATION NOTICE ON WWW.NDSENERGY.IT/PRIVACY-POLICY/

NDS ENERGY S.R.L.

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