Régulateur Panneau Solaire

POWER SERVICE®

USER AND MAINTENANCE MANUAL

PLUS

~~PWS Plus 25~~ ~~PWS Plus 30~~ **PWS Plus 40**

NDS GROUP s.r.l.
Via Magellano, 67
65126 Pescara (Pe) Italy
Tel +39 085 95 062 86 Fax +39 085 95 070 49
commer@ndsgroup.it - www.ndsgroup.it

CONTENTS

1 Description ..... pag. 1

2 Warnings ..... " 2

3 Models ..... " 3

4 Technical data ..... " 4
- 4.1 Load curves ..... " 5
- 4.2 Led functioning ..... " 6

5 Instructions for installation ..... " 7
- 5.1 Location ..... " 7
- 5.2 Installation ..... " 7
- 5.3 Installation scheme ..... " 8
- 5.4 Installation scheme ..... " 9
- 5.5 Selection of battery typology ..... " 10
- 5.6 Warning ..... " 10

6 Maintenance ..... " 11
- 6.1 fuse replacement ..... " 11

7 Warranty ..... " 12

8 Notes ..... " 13

9 Validation **slip** ..... " 14
- **9.1 Installed on** ..... " 15

1 DESCRIPTION

Power Service Plus is the latest model of electronic battery charger for 12V lead storage battery. NDS has conceived and planned it for the use on recreational vehicles (like camper and motorhome) in reply to the different energy sources that nowadays the user has available. In fact it can be powered by three different power sources:

- alternator;
- photovoltaic power system.

The new battery charger is capable to manage in a fully automatic way the recharging of any service battery with capacity over 40Ah, providing a charge of real 100% and a reduction of time compared with the traditional recharging systems (alternator, power supply etc..).The Power Service Plus has a microprocessor that is programmed to effect 4 different "load curves":

- three curves specific for each typology of battery: Gel, Agm or traditional battery (flooded);
- a load curve with of voltage limited up to 14.5V.

Each "load curve", in fact, consist of five phases (see paragraph 4.1), among which there is the important phase "impulse current with desulphatising effect" that will optimize the performance and extend the life of the battery. After this phase there is the "maintanance phase" which allow the continuous use of the device without damaging the batteries connected to it.

It is also equipped with 2 leds indicating the source of power supply and also the type of charge that the device is processing in a state moment. Special temperature sensors inside allow to manage the cooling fan giving protection to the Power Service Plus for a good operation. Even if with small dimensions the Power Service Plus offer a complete recharging system: at the forefront as for safety, with very high efficiency and with dedicated load curves, it is the optimal solution to have more and more autonomy on one's vehicle.

2. WARNINGS



Do not install the Power Service in dusty or poorly ventilated places, in order to prevent the fan malfunctioning , with the consequent block of the device operation.



Do not install the Power Service inside the bonnet, because this location is extremely hot and subject to dampness.



Be sure that the “jumper” is set according to the typology of the battery in use (see the assembly istructions).



The terminal no. 3 (see Istructions 5.2) should be always connected, whatever input power supply is used.

3 MODELS

The Power Service "Plus" is available in three 12V models :

PWS Plus 25

PWS Plus 30

PWS Plus 40

4 TECHNICAL DATA

The following tables shows the main technical characteristics of the Power Service Plus:

PWS Plus 25 suitable for 12V batteries

INPUT SUPPLY	ALTERNATOR	MINIMUMPOWER 70A
	SOLAR PANEL	MAX 250W
OUTPUT CURRENT	WITH ALTERNATOR	MAX 25A +/- 5%
	WITH SOLAR PANEL	MAX 20A
PROTECTION	INPUT FUSE	50A FUSE
	OUTPUT FUSE	30A FUSE
	SOLAR PANEL FUSE	25A
ACTIVATION	POSITIVE POWER ON > 13,5 V	
YIELD	95%	
ANOMALY ALARM	ACOUSTIC	
SIZE (mm)	228*135*50h	
WEIGHT	1000 gr.	

NDS ELETTRONICA
www.ndsgroup.it

TECHNICAL DATA

PWS Plus 30 suitable for 12V batteries

INPUT SUPPLY	ALTERNATOR	MINIMUMPOWER 50A
	SOLAR PANEL	MAX 250W
OUTPUT CURRENT	WITH ALTERNATOR	MAX 30A +/- 5%
	WITH SOLAR PANEL	MAX 20A
PROTECTION	INPUT FUSE	50A FUSE
	OUTPUT FUSE	30A FUSE
	SOLAR PANEL FUSE	25A
ACTIVATION	POSITIVE POWER ON > 13,5 V	
YIELD	95%	
ANOMALY ALARMS	ACOUSTIC	
SIZE (mm)	228*135*50h	
WEIGHT	1000 gr.	

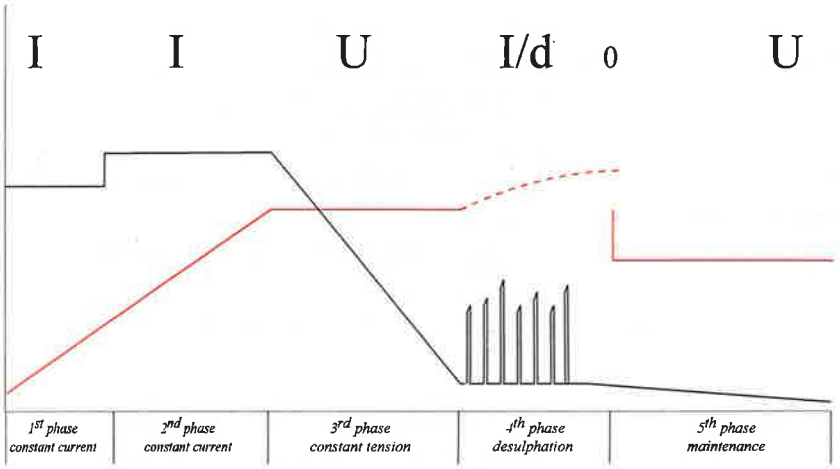
PWS Plus 40 suitable for 12V batteries

INPUT FEED	ALTERNATOR	MINIMUMPOWER 110A
	SOLAR PANEL	MAX 250W
OUTPUT CURRENT	WITH ALTERNATOR	MAX 40A +/- 5%
	WITH SOLAR PANEL	MAX 20A
PROTECTION	INPUT FUSE	60A FUSE
	OUTPUT FUSE	2 OF 25A FUSES
	SOLAR PANEL FUSE	25A
ACTIVATION	POSITIVE POWER ON > 13,5 V	
YIELD	95%	
ANOMALY ALARMS	ACOUSTIC	
SIZE (mm)	228*135*50h	
WEIGHT	1000 gr.	

NDS ELETTRONICA
www.ndsgroup.it

4.1 LOAD CURVES

The following chart shows the 5 charging phases performed by the Power Service Plus:



I ——

U ——

NOTES

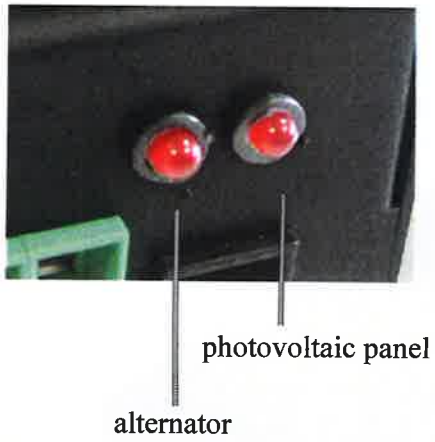
.....

.....

NDS ELETTRONICA
www.ndsgroup.it

4.2 LED FUNCTIONING

- Each led shows the supply source in use (see the photo).



- The modality of the led lighting is related to the charging cycle that the device is performing: the longer is the led "alight", the more is the current supplied.

NOTES

.....

.....

NDS ELETTRONICA
www.ndsgroup.it

5. ISTRUCTIONS FOR INSTALLATION

5.1 LOCATION

Install the Power Service Plus far from heating sources, damp and excessively dusty locations, and anyway in places well ventilated (not in the bonnet!)

5.2 INSTALLATION



⏚ 1) negative

⏚ 2) negative

B+ 3) positive engine battery

+ 4) positive 'power on'

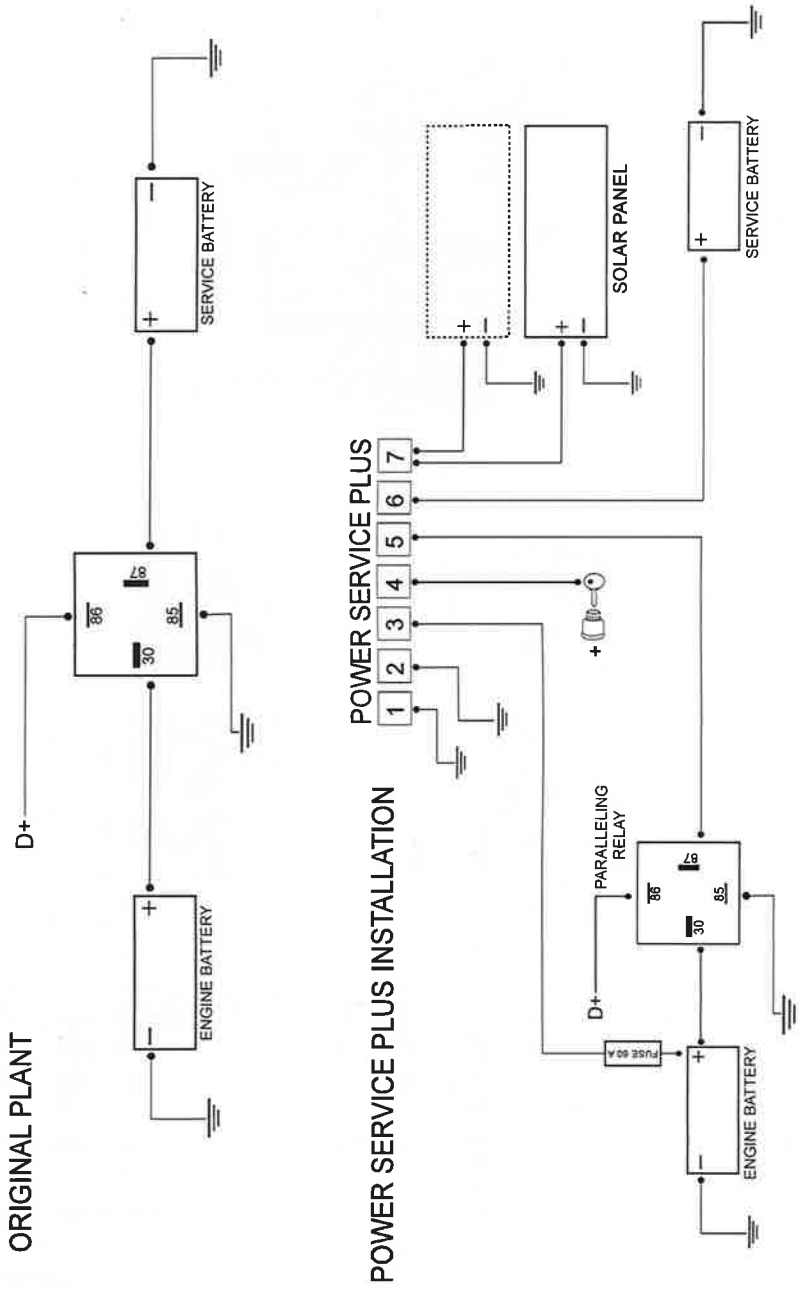
AUX 5) positive from the output of paralleling relay or c[illegible]l unit

OUT 6) service battery positive

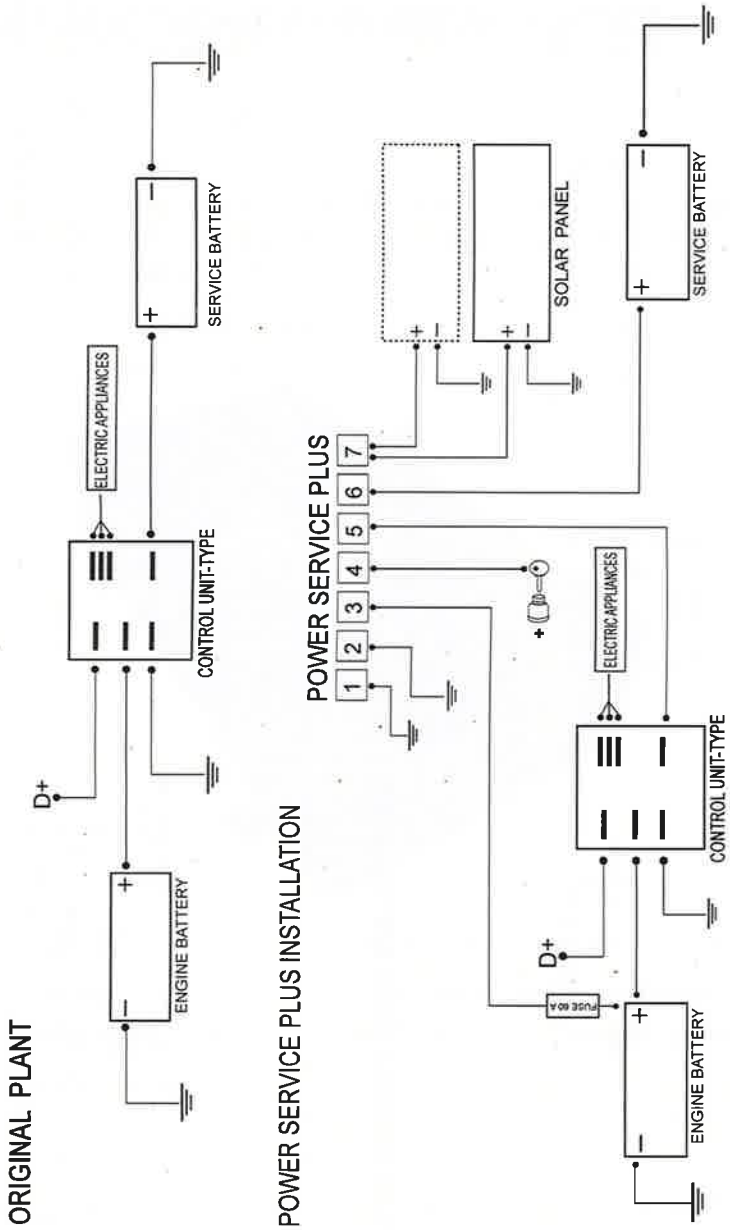
☀ 7) photovoltaic panel positive

****For power connections it is suggested the use of cables having a minimun section of 6 mm²**

5.3 INSTALLATION SCHEME

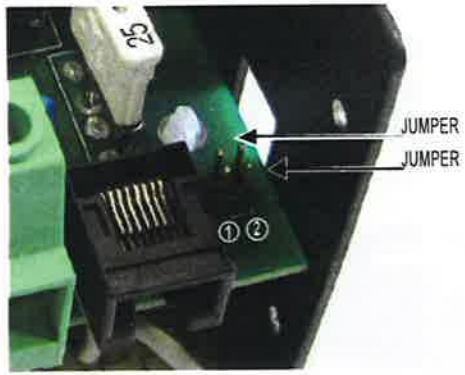


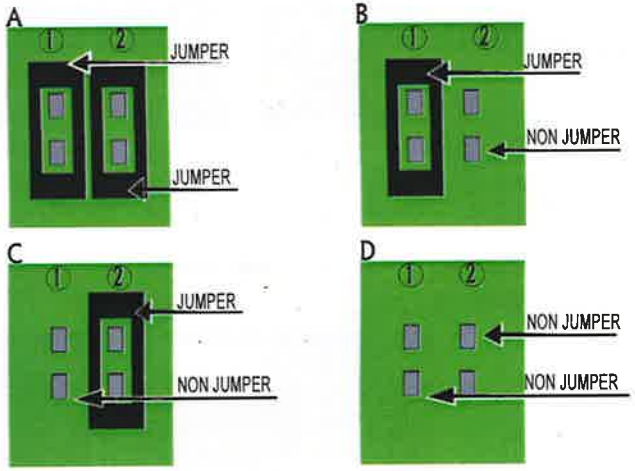
5.4 INSTALLATION SCHEME



NDS ELETTRONICA
www.ndsgroup.it

5.5 SELECTION OF BATTERY TYPOLOGY





A) Load Curve for 'GEL' type battery;
B) Load curve for 'AGM' type battery
C) Load curve for 'FLOODED TYPE' battery
D) Load curve with maximum voltage 14.5V

* The Power Service Plus is pre-programmed for 'Agm type' battery.

5.6 WARNING !

The selection of the jumpers should be effected with the equipment totally disconnected.

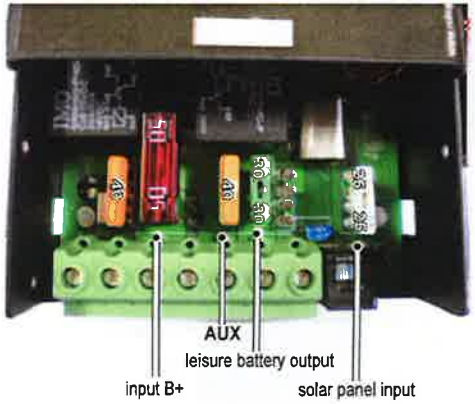
NDS ELETTRONICA
www.ndsgroup.it

6 MAINTENANCE

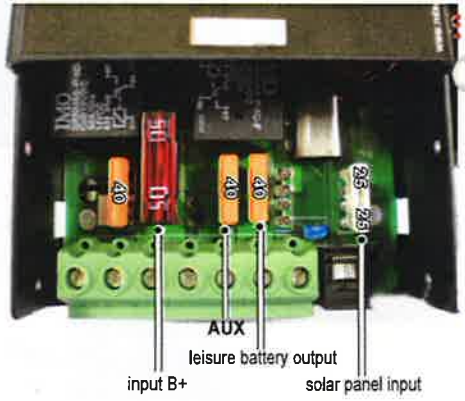
6.1 FUSE REPLACEMENT

Before replacing the fuses of the Power Service make sure that the equipment is switched "off" and then remove away the upper cover in the front part.

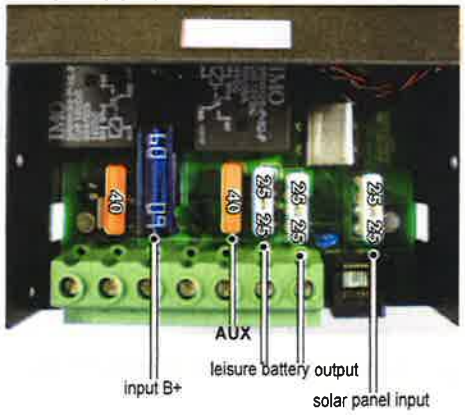
PWS PLUS 25



PWS PLUS30



PWS PLUS 40



Replace the fuses with equivalent like original types.

7 WARRANTY

The manufacturer will answer for correct functioning of the Power Service **Plus** and undertakes to replace completely free of charge any parts twhich may be deteriorated due to construction faults within 24 months from the date of purchase, proved by the relevant validation slip(to be filled in all its part and sent back to the manufaturer).

Any mulfunctioning resulting from wrong installation, inappropriate use, tampering or negligence shall not be covered by this warranty.

Moreover, the manufacturer accepts no responsibility whatsoever for any and all direct and indirect damages.

The Power Service Plus returned - even if returned under guarantee - shall be sent

" Freight paid" and shall be returned on a "freight collect" basis.

The certificate of warranty shall be valid only if accompanied by a receipt or delivery document.

In case of disputes the court of competent jurisdaction will be the court of Pescara.

PWSP40 11_162

Mod.....Registration number .....

Date of purchase .....

Seller stamp and signature

8. NOTES

9. VALIDATION SLIP

PWS PLUS

PWSP40 11_162

Mod..... Registration No .. ..

Date of purchase .....

Surname .....

Name .....

Street ..... No .....

Post Code .....City .....

Phone no .....

I authorize the use of my personal data according to the D.L.of

30th June 2003 no.196.

Customer's signature

Manufacturer stamp and signature

To be sent in a sealed envelope to:

NDS GROUP s.r.l.

Via Magellano, 67 65126 Pescara (Italy)

NDS ELETTRONICA
www.ndsgroup.it

9.1 INSTALLED ON:

CAMPER VAN ☐ CARAVAN ☐

BOAT ☐ OTHER .....

Fitting model .....

Motorization .....

Registration year .....

NOTES .....

.....

.....

.....

.....

.....

.....

.....