Powerful Energy Storage system

ESS Power*ON* User Manual

(for DEP Series)

PROVIDING GREEN ENERGY SOLUTION

DCNCA CO LTD

주식회사 디씨앤씨에이

Contents

This manual is changeable without any notice and other note when the product performance and Specifications are updated.

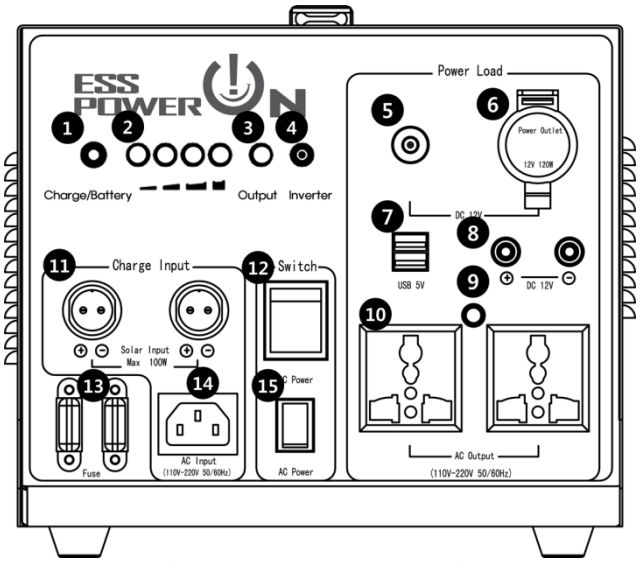
1. Main Information

This product is high performance, family used portable solar power system, which can be charged by solar energy on sunny day, and supplies electric power for varies appliances such as electric fan, lighting lamps, television, portable computer etc. It is very helpful and useful for home electric supply.

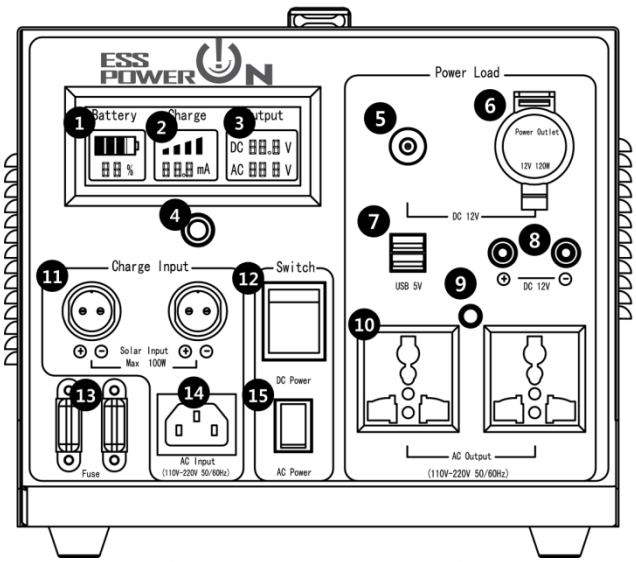
1.1 Packing List

Parts & Accessories	Number	Note
Solar Energy Storage system (ESS PowerON)	1	
Solar Panel(According to Item No)	1	
Solar module Connection Cable/Wire	1	
Power Cable	1	
LED Bar Lamp (Optional)		Choice able
User Manual	1	
Guarantee Sheet / Warranty Sheet	1	
Qualified Sheet (Issued by Manufacturer)	1	

1.2 Panel and Parts



[DEP-300, DEP-500 LED]



[DEP-300, DEP-500 LCD]

*** But, the Specifications are changeable without a Notice during update. ***

☐ DEP-300W/500W /LED /LCD Series

NO	Name		Functions & Guide
	LED Type	LCD Type	
1	Battery/Charging	Battery	Key to Switch the LED Indicator of Battery or Charging
2	LED Indicator	Charge Indicator	To show the capacity of Battery of the condition of charging
3	Output Indicator (DC)	Out Indicator (DC/AC)	To show the allowance of DC output (LCD Model; DC, AC indicator)
4	Inverter	LCD Backlight	To show the working condition of inverter (LCD Model; LCD Backlight working button)
5	DC 12V Φ5.5		DC 12V Φ5.5 L2.1 Socket x1 for DC Lamps or Devices
6	DC 12V Cigar Socket		DC 12V Cigar Jack Power out Connector
7	5V USB Output		USB 5V/2A X 2, for Mobile and USB Device Charger
8	DC 12V Banana Jack		Multifunctional DC 12V output Banana Jack
9	AC Power out Indicator		AC Power out ready Indicator
10	AC Power out		International Standard AC Power outlet Socket
11	Solar Charge Port		Max Connection 100W x 1 / or 50W x 2
12	DC ON/OFF Switch		Main System Turn ON/OFF Switch
13	FUSE		FUSE to protect the battery and system from over current
14	AC Charge Connector		Main Power AC input socket to charge the Battery
15	AC Power ON/OFF Switch		The Switch to Turn on/off the inverter

1.3 System Configuration and Specifications

Specification DEP Series		Value/Material			
Item No. KDF		DEP-100	DEP-200	DEP-300	DEP-500
Solar	Specification	Poly or MONO silicon Solar Module			
	Working Voltage/Power	18V10W~30W	18V30W~60W	18V50W~100W	18V100W
Battery	Materiel	Lead Acid			
	Rated Voltage/Capacity	12V8AH/17AH	12V17AH/26AH	12V26AH/40AH	12V40AH
	Cycle Number	80% Deep Cycle Number : 500 times/ 70% Cycle Number : 800 times			
	Working Temperature	Short Period(one Month) : -20～50℃ Long Period (Six Months) : -10～45℃			
Charging Controller	Operating Voltage	12/24V			
	Input Voltage	17.3V~21V			
	Input current	5A		10A	
	Power Consumption	5 mA		6mA	
	Low Voltage Disconnect (LVD)	10.8V			
	Low Voltage Reconnect(LVR)	12.3V			
	High Voltage Discharge(HVC)	14.6V			
	High Voltage Recharge(HVR)	13.8V			
AC charging Adaptor	AC Input	110V/220V 50Hz			
	DC Output	15.5V/3A		15.5V/5A	
DC Output	DC output & Application	USB 5V/2A			
	DC output & Application	DC 12V/5A		DC 12V/10A	
AC Output	Output Wave	Modified-Wave			
	Input Voltage	11V~15V			
	Output Voltage	110V±10%/220V±10%			
	Output Frequency	60Hz±2Hz/50Hz±2Hz			
	Rated Output Power	100W	200W	300W	500W
	Maximum VA	200VA	400VA	600VA	1000VA
	Maximum Efficiency	88%			
	Temperature	0-40℃ (32˚F ~ 104˚F)			
	Over Temperature	60℃~70℃ (140˚F ~ 158˚F)			
	Low Voltage Alarm	11V			
	Low Voltage Shut off	10.5V			
	High Voltage Shut off	16V			
Weight	Not include Battery	4.7Kg (Max Weight with Battery : 18.5kg)			
Dimension	Dimension for system	237(W)x395(L)x200(H)mm / 9.33(W)x15.5(L)x7.89(H)inch			
Option	Battery Life Control	Smart optimizer (Battery Cell Control System)			

1.4 Function for Protection

Input Protection Function	Output Protection Function	Battery Protection Funtion
Output Short-circuit Protection	Output 「+」 「-」 anti-access protection	Over Charged Protection
Solar 「+」 「-」 anti-access protection	Over-Temperature Protection	Over Charged Protection
Solar Feedback Circuit Protection		Over Charged Protection

11. Install and Operation

2.1 Charging and Operation

There are 'Solar' and 'AC Input' ways to charge battery optionally，please turn the "Power Switch" on and then ：

- Solar Energy Charging： Connect solar to SPK by plugging solar cable into (11) Solar charge input socket firmly, keep the solar panel under enough sunshine and be better to face directly to sun. for DEP-200, DEP-300 and DEP-500, if you press "Battery/Charging" key quickly, the LEDs will light running house to show it's charging .

- Mains Supply Charging：You can charge this system using AC main power supply when needed，plug AC input line jack into (14) AC charge input socket，for DEP-200 and DEP-300, if you press "Battery/Charging" key quickly, the LEDs will light running house to show it's charging.

※ NOTE

Be sure that Fuse is installed and the battery is connected before connecting solar charging line.

2.2 Appliance Output Operations

- DC Appliance： Turn on 'Power Switch '，plug the appliance power input jack into the suitable socket. (DC Power Swich have a function for Switch and DC Switch Control)
- AC Appliance：turn on AC Switch, plug the appliance power input jack into (10) AC Output socket. The fan is automatically working when inverter is on.

※ NOTE

Do Shut off system main Switch when you don't need DC appliance and charging.
Do Shut off AC Switch when you don't need AC appliance.
Because AC appliance will cost larger current, so when battery is going low, AC Output will be permitted ahead of DC output, it doesn't mean error,
If it's charging when AC appliance is working, Inverter may be stopped due to high voltage protection, it doesn't mean error.
If the AC/or DC lamp does blink during charge from PV module under the low voltage protect system which in the low voltage battery conditions, it does not mean error.

□ 사용 가능한 전기 기구

Model	Appliance Max. Power Allowed (W)	 Lamp	 Lap Top	 Monitor	 Fan	 LED TV	 Iron	 W/M	 E/R
DEP-100	100W	○	○	×	○	×	×	×	×
DEP-200	200W	○	○	×	○	○	×	×	×
DEP-300	300W	○	○	○	○	○	×	×	×
DEP-500	500W	○	○	○	○	○	×	×	×

2.3 Display Indicator

<table>
<tr><th>Indicator/Item No.</th><th colspan="2">DEP -100</th><th>DEP-200</th><th colspan="2">DEP-300</th><th>DEP-500</th></tr>
<tr><td rowspan="2">Battery
Capacity Display</td><td colspan="3">One LED ①
Red : Under 11V
Yellow : 11V~13.8V
Green : Over 13.8V</td><td colspan="3">Press ① Key
Four LEDs : ② Battery capacity
● ● ● ● : Full Charge
● ● ● ○ : 3/4
● ● ○ ○ : 1/2
● ○ ○ ○ : 1/4</td></tr>
<tr><td colspan="3">Battery : 0~99%
Charge : Charge Rate
Output : DC/AC Voltage</td><td colspan="3"> 
</td></tr>
<tr><td>Charging
Condition</td><td colspan="3">One LED:
Flash : charging</td><td colspan="3">Press ① Key
Four LEDs ②: Running house when charging</td></tr>
<tr><td>DC output</td><td colspan="6">One LED ③ : lighting to show DC output allowed</td></tr>
<tr><td>Inverter working</td><td colspan="6">One LED ④ :
Red : Battery Low /Over warning
Red Flashing : AC Over load alarm
Green : AC output allowed</td></tr>
</table>

※ NOTICE

If connecting charging input with solar or AC main power when system is on, charging indicator will work after 30 seconds.

III. Error and Alarm

3.1 Alarm Indicator

Indicator	Alarm	Actions
LED ③ flashing	DC output over load or short circuit	Check DC appliance
LED①/LED②	Flash slowly	Battery Low Alarming
LED ④ flashing	AC output over load	Check AC appliance, or stop solar charging.
LED ③ off	Battery Low voltage protection for DC output	charging
LED ④ Red	Battery Low voltage/High Voltage protection for AC output	If battery is low, charging immediately; if battery is quite full, stop solar charging.

3.2 Error Handle

Error	Error/Description	Reason/Action
No power	None battery indicator and DC output indicator lighting when turn on Power Switch	Check the connection of Battery and the controller, or check battery Check the Fuse
No Inverter Indicator	Inverter indicator not lighting when turn on AC Power Switch	Check the connection of Battery and the inverter
No Solar charging	Charging Indicator not lighting when it's sunshine	Check the connection of solar panel to DEP Series

3.3 Storage & Environment

Equipment Storage	Operation Environment
Notes for storage of this equipment: 1) Store in place where is ventilation and clean 。 2) Environment Temperature : Battery : -10℃~ 50℃ (14˚F ~ 122˚F) Solar Panel : -40℃~ 90℃ (-40˚F ~ 194˚F) 3) Humidity : 0 ~ 90% 4) Avoiding any corrosive(acid and alkaline) material 5) Do charging and discharging once per month if store for long time without operation	1) Operation Temperature : Battery : -10℃~ 50℃ (14˚F ~ 122˚F) Solar Panel : -40℃~ 90℃ (-40˚F ~ 194˚F) 2) Humidity : 0 ~ 90% 3) Altitude : ≦ 5000m

※ NOTICE

Do shut off system main Switch and AC Switch when translating or storing for long time.

Do take off the Fuse from ESS panel while translating or storing for long time.

if you do not use it, you should charge the battery in the periodic cause by the lead acid battery characteristic (less one time each three month).

It cannot guarantee of the over discharge because the user carelessness.

Ⅳ. Warranty

Part / Name	Rule for Warranty
Circuit and system	One(1) Year After Service guaranty
Solar Module	One(1) Year After Service, 5 Years Efficacy Guarantee
Lead Acid Battery(Pb)	Six(6) Months Warranty (But, three(3) years Efficiency Guaranty by use the Smart Optimizer)
Battery Life Time (Smart Optimizer)	5years Warranty, Maximum 10 Years Efficiency Guarantee.

※ NOTICE

The accident/or broken /or not working is not include the product warranty, that was due to the negligence and carelessness, user's mishandling of the user when does not flow this manual.

Warranty Card

Product Name		Model		S/N	
Purchasing date		Period of Warranty	After one(1) year from purchasing date		
Place of Purchasing	Company name		Contact		
	Seller				
Customer	Name		Contact		
	Address				

If there are unspecified clauses exist, will following our company's internal standard of compensation (6 month warranty in case of battery)
This product has passed our company's quality test. In case of failure in the system, we will warranty the product according to the warranty card

① Guide for free repair

In case of failure of system under normal condition within warranty period, will repair the product free of charge.

② Guide of Pay for the repair

In case of bellowing conditions, will charge for repair (parts cost, repair cost)

1. Warranty expired
2. Within warranty period
   ⓐ Disorder from nature disaster(fire, gas damage, earthquake, damage from wind, strunk by lightning, abnormal power supply, etc.).
   ⓑ Disorder from user's mishandling failure (breakage by dropping hitting, immoderate operation etc.).
   ⓒ Disorder from repair by an unauthorized repairman.
   ⓓ In case of disassembling or removal of attached product label.
   ⓔ Using out of predetermined condition.
   ⓕ Disorder from internal remodeling by user
   ⓖ Declared disorder by natural using up consumables.
   ⓗ Disorder from using the other company components instead of ours.
   ⓘ Disorder from ignore using of product guide book/or manual directions.

Consumer compensation rule (within warranty period)

Failure Mode	Compensations		
	Repair	Exchange	
Malfunction due to manufacturing		One-to-one Exchange	Contact Point for Warranty : Tel : +82-2-2051-1855 Address : (Sangdaewon-dong,Seongnam Woolim Lions Valley 2Cha) A-806, 14, Sagimakgol-ro 45beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-807, Korea
Failure from normal conditions	Free of charge		
Disorder from user's mishandling failure	Charge of repair		