User Manual of

Universal Smart Charger (18A, 29.6V-58.4V Cut-Off) for 36V-48V SLA , 29.6V-51.8V Li-Ion/LiMnNi (8-14 Cells),38.4V-51.2V LFP(12-16 Cells) -- CE listed

AA Portable Power Corp

AA Portable Power Corp (http://www.batteryspace.com)
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Warning

- **Must select AC input voltage correctly before plug to Wall AC outlet**
- **Must connect to battery with correct polarity**
- **Must use with battery pack capacity >= 18Ah**
- **Must use with SLA (36V-48V, 18-24Cells), Li-Ion/LiMnNi (29.6V-51.8V, 8-14Cells), LifePO4 (38.4V-51.2V, 12-16Cells) Battery**
- **Must select charging voltage correctly based on battery type/battery voltage used**
- **We are not responsible for any damage caused by misuse.**
- **Professional & Indoor use only**
- **Don't remove the case to prevent from electric shock**
- **Unplug the charge from AC outlet after use.**

Features:

• High Quality Intelligent smart charger (Manufacture part#KP4818CL) designed for SLA (36V-48V, 18-24Cells), Li-Ion/LiMnNi (29.6V-51.8V, 8-14Cells), LifePO4 (38.4V-51.2V, 12-16Cells) Battery pack

- **Adjustable Charging voltage from 29.6-58.4VDC**
- **Must select charging voltage correctly based on battery used below**
  - **Li-Ion / LiMnNi = 4.17V / cell**
    - **Ex. Charging voltage for 51.8V (14Cells) Li-Ion/LiMnNi = 4.17V x 14 = 58.38V**
  - **LiFePO4 = 3.55V / cell**
    - **Ex. Charging voltage for 51.2V (16Cells) LiFePO4 = 3.55V x 16 = 56.8V**
  - **SLA = 2.43V / cell**
    - **Ex. Charging voltage for 48V (24Cells) SLA = 2.43 x 24 = 58.32V**

- Charging Stage: CC (Constant Current) --> CV (Constant Voltage) --> Floating
- Switch-Mode Technology
  - Convert from AC input voltage to DC charging voltage 1677 times faster than traditional linear charger
  - Unit will be smaller, lighter and higher efficiency than traditional linear charger
- Built in cooling fan to ensure charger long service life
- Input AC power: World-Wide 90-132VAC / 200-240VAC , 47-63Hz, USA AC plug
  - For international use, please click here to order AC plug adaptor seperately
- Cut-Off Automatically when the battery is fully charge
- Safety protection
  - Over Current & Over Voltage protection
  - Short Circuit protection
  - Reverse polarity protection
- Charging Voltage: **29.6-58.4VDC**
- Charging Current: **18.0A +/- 0.5A**
- Max Power output: 1200W
- Charging time:
  - Li-Ion / LiMnNi Charging time = (1.5 x Ah rate of the pack) / charge current.
  - LiFePO4 Charging time = (1.41 x Ah rate of the pack) / charge current.
  - SLA Charging time = (1.2 x Ah rate of the pack) / charge current.
- Battery pack Capacity: **>= 18Ah**
- Stylish Aluminium Enclosure
- Built in 2 unit of LED indicator
  - Power ON: LED 1 = Red
  - Charging (Constant Current): LED 2 = Red
  - Charging (Constant Voltage): LED 2 = Red
  - Fully charger: LED 2 = Green
- Charging terminal : 4' long 8AWG wire 1.9" x 1.5" x 0.6" Standard Anderson connector

- Dimension (LxWxH): 260mm(10.2") x 175mm(6.9") x 90(3.5")
- Weight: 9.9 lbs (4.5kg)
- High Efficiency: 85-95%
- MTBF (Mean Time between Failure): 30,000 POH (Power on Hour) = 10 years of everyday operation of 8 hours
- CE listed
- Operating Temperature: 14F(-10'C) ~ 113F(45'C)

Charging instruction: (please follow the instruction below to charge a battery pack)

- Connect the AC power to charger (LED1 - Red)
- Adjust the voltage to the max voltage you need for your pack (see above on cell peak charge voltage)
- Connect the battery pack to the charge, the charger will start charging:
  - Note: you cannot measure the output voltage of the charge. The charge will apply the correct voltage once it sense the presence of the battery pack.
  - You must connect the battery pack to the charger within 5 minutes time frame. If not, the charger will not charge your pack
- If the charger still does not charge your pack, disconnect the battery pack from charger, remove AC power and wait a min of 30 minutes to try the above process again! This is necessary to discharge the capacitor inside the charger.

Charging cycle:

If the LED_1 is ON (Red), it shows that input power is ON.

The explanation of the charging cycle is as following.

Stages	Condition	Mode	Current	Voltage	LED Indication
Stage 1	Constant Current mode	CC mode	18A+/-0.5A	To 29.6-58.4V (Based on voltage selection)	Red
Stage 2	Constant Voltage mode	CV mode	Reduces from 18A+/-0.5A	Holds at 29.6-58.4V (Based on voltage selection)	Red

* CC mode = Constant current charge

***** CV mode = Constant voltage charge
*** See Stage 2 description below

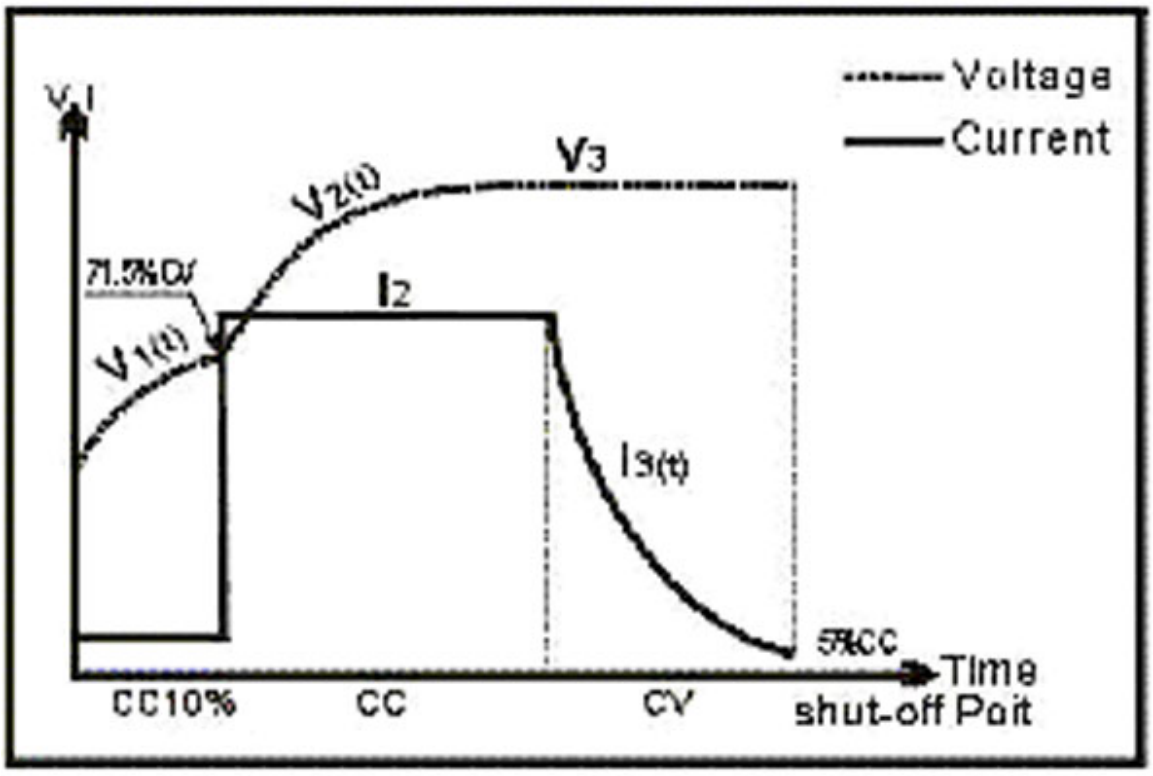
<u>Stage 1</u>: Constant Current Mode (CC):

The charger changes to constant current 18A+/-0.5A. When the battery voltage reaches up to 29.6-58.4V (Based on voltage selection), the charging stage changes from CC (Constant Current) to CV (Constant Voltage) mode.

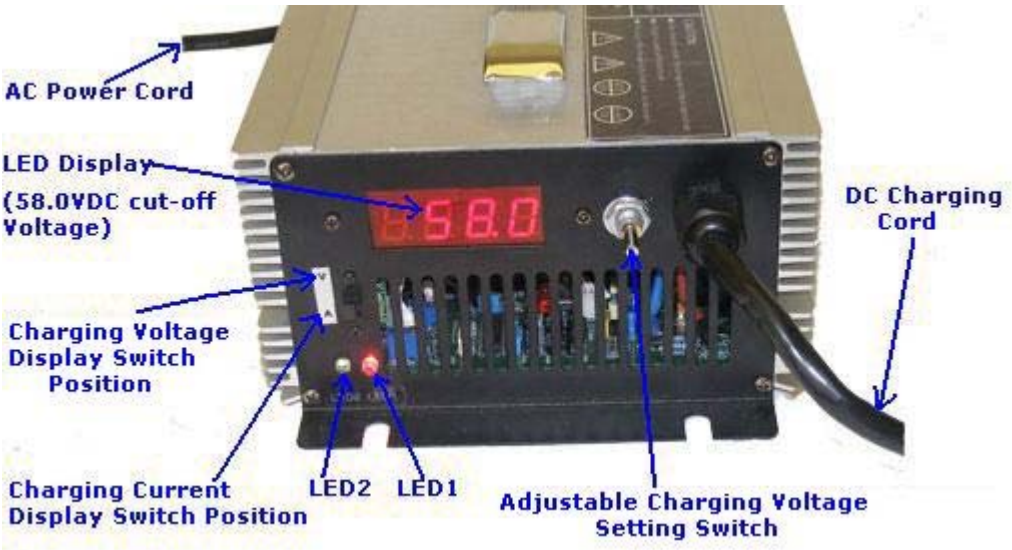
<u>Stage 2</u>: Constant Voltage Mode (CV):

In this stage the voltage of each cell in the battery is equalized. The charger holds the battery at 29.6-58.4V (Based on voltage selection) and the current slowly reduces.

<u>Charging Curve:</u>



Detail Picture



Front View

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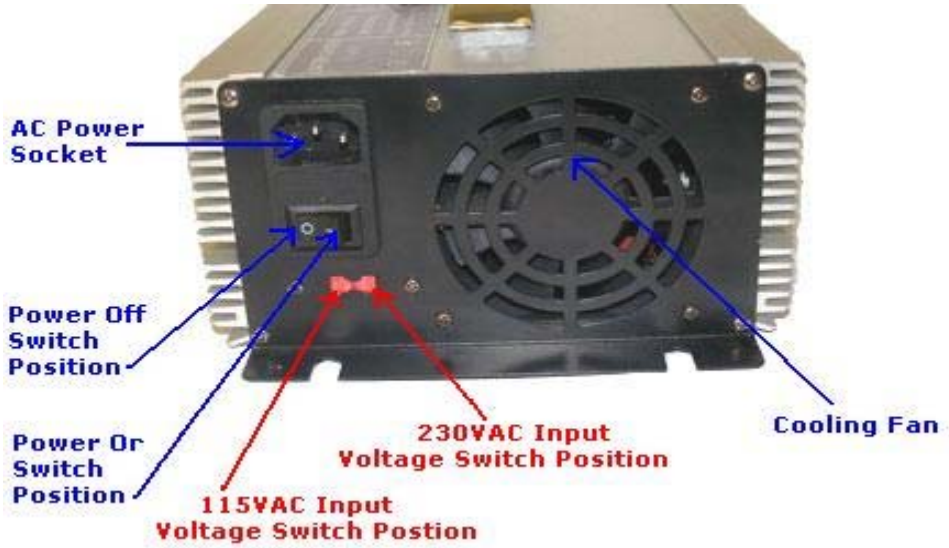


Back View

Note

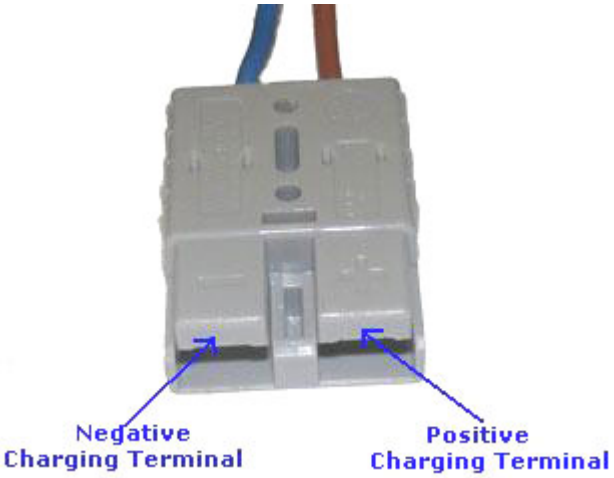
- MUST Select AC INPUT Voltage Correctly Before plug to Wall AC outlet

Included 1 pc of USA AC Power Cord

Note

- For USA customer, MUST SELECT to “115VAC Input Switch Position”

Connector Detail



Charging Terminal: 1.9" x 1.5" x 0.6" Standard Anderson connector

Included 1 pcs 1.9" x 1.5" x 0.6" Standard Anderson connector for DIY use

Polarity assignment & wire soldering location for **Included** Standard Anderson

Note:

-Wrong polarity will damage the charger, and Batteryspace are not responsible for the damage or losses caused by misusing