

User Manual of
Smart Charger (16A, 76V-109V cut-off) for 72V-84V
SLA , 70.3V-92.5V Li-Ion/LiMnNi (19-25 Cells), 70.4V-
96V LifePO4 (22-30Cells) --- CE listed



AA Portable Power Corp (<http://www.batteryspace.com>)
Address: 860 S, 19th St, Unit A, Richmond, CA, 94804
Tel: 510-525-2328
Fax: 510-439-2808
Email: Sales@batteryspace.com
Prepared & Approved by Max (09/29/10)

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 $\geq 16\text{Ah}$**
- **Must use with SLA (72V-84V, 36Cells-42Cells), Li-Ion/LiMnNi (70.3V-92.5V, 19Cells-25Cells), LifePO4 (70.4V-96V, 22Cells-30Cells) Battery pack**
- **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#KP11020KL) designed for SLA (72V-84V, 36Cells-42Cells), Li-Ion/LiMnNi (70.3V-992.5V, 19Cells-25Cells), LifePO4 (70.4V-96V, 22Cells-30Cells)
Battery pack
 - **Adjustable Charging voltage from 76V-109V**
 - **Must select charging voltage correctly based on battery used below**
 - **Li-Ion / LiMnNi = 4.2V / cell**
 - **Ex. Charging voltage for 92.5V (25Cells) Li-Ion/LiMnNi = 4.2V x 20 = 105V**
 - **LiFePO4 = 3.55V / cell**
 - **Ex. Charging voltage for 76.8V (24Cells) LiFePO4 = 3.55V x 24 = 85.2V**
 - **SLA = 2.45V / cell**
 - **Ex. Charging voltage for 72V (36Cells) LiFePO4 = 2.45 x 36 = 88.2V**
- 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: 0VAC/230VAC, 50~60Hz USA AC plug
 - For international use, [please order AC plug adaptor seperately](#)
- Cut-Off Automatically when the battery is fully charge
 - Li-Ion / LiMnNi battery pack: 4.2V/cell
 - LiFePO4 battery pack: 3.55V/cell
 - SLA battery pack: 2.45V / cell
- Safety protection
 - Over Current & Over Voltage protection
 - Short Circuit protection
 - Reverse polarity protection
- Charging Voltage:
 - **76V-109V (Adjustable)**
- Charging Current
 - **16A +/- 0.5A**
- Line Regulation @ Full Load 2%
- Load Regulation 3%
- Ripple Voltage: Very Low. The peak-to-peak ripple voltage into a resistive load is less than 200mV for the output voltage above 109VDC.
- Max Power output: 2000W
- 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: **> = 16.0Ah**

- Stylish Aluminium Enclosure
- Built in 2 unit of LED indicator
 - o Power ON: LED 1 = Red
 - o Charging (Constant Current): LED 2 = Red
 - o Charging (Constant Voltage): LED 2 = Red
 - o Fully charger: LED 2 = Green
- Charging terminal: 4' long 8AWG wire 1.9" x 1.5" x 0.6" Standard Anderson connector
- Dimension (LxWxH): 345mm(13.6") x 175mm(6.9") x 115mm(4.5")
- Weight: 14.33 lbs (6.5kg)
- 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

Charging cycle:

If the **LED₁** 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	16A +/- 0.5A	To 76-109V (Based on voltage selection)	Red
Stage 2	Constant Voltage mode	CV mode	Reduces from 16A +/- 0.5A	Holds at 76-109V (Based on voltage selection)	Red

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

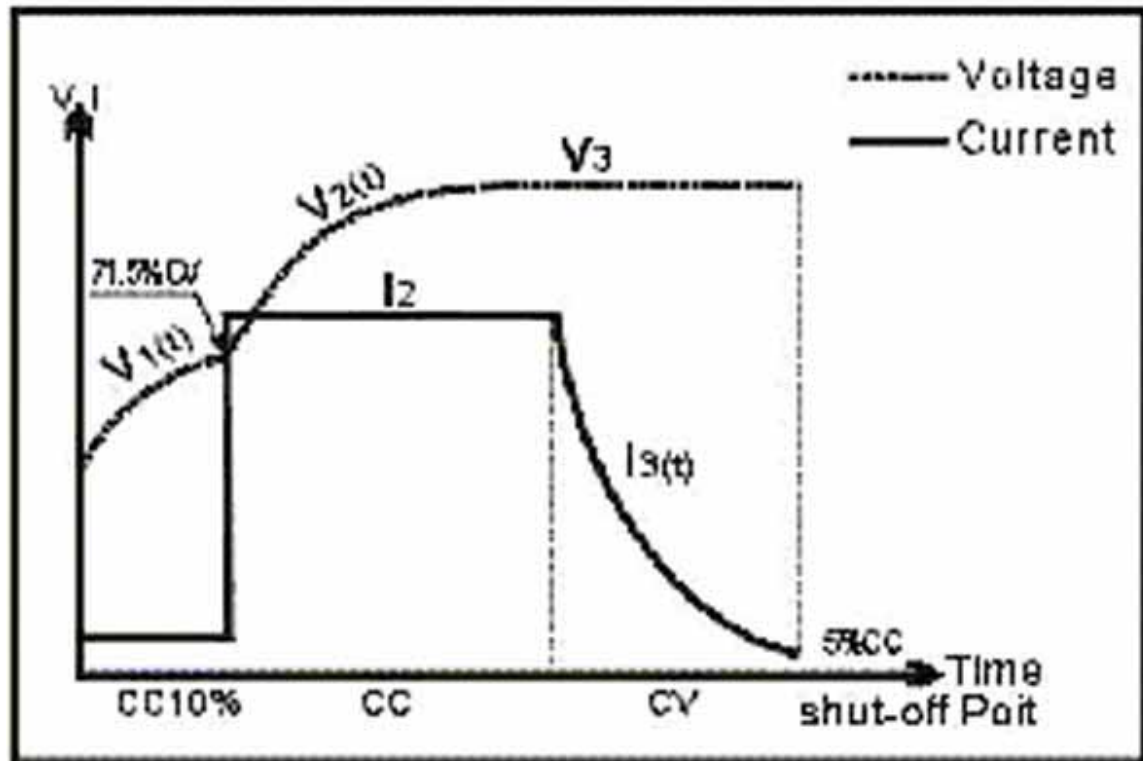
Stage 1: Constant Current Mode (CC):

The charger changes to constant current 16A +/- 0.5A. When the battery voltage reaches up to 76-109V (Based on voltage selection), the charging stage changes from CC (Constant Current) to CV (Constant Voltage) mode.

Stage 2: Constant Voltage Mode (CV):

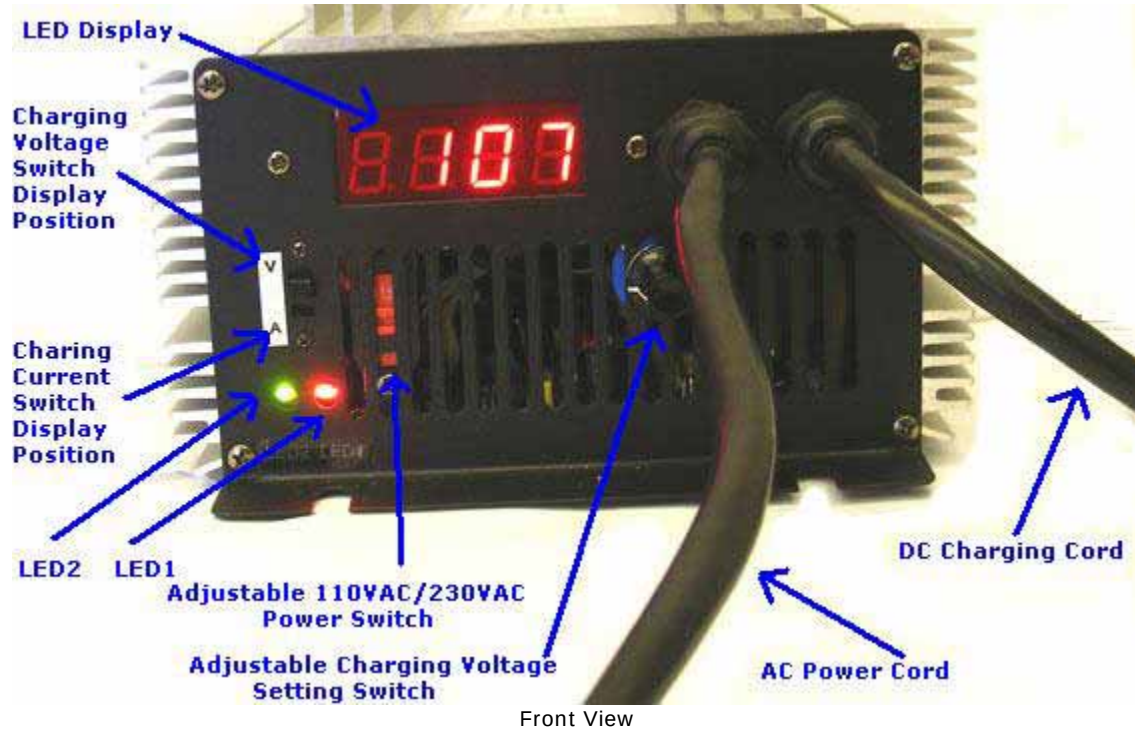
In this stage the voltage of each cell in the battery is equalized. The charger holds the battery at 76-109V (Based on voltage selection) and the current slowly reduces.

Charging Curve:



Status	Mode	Current	Voltage	LED Status
Pre charge 预充	CC mode	10% of Output Current I_1	$V_1(t)$	LED ₁ Red LED ₂ White
Bluk charge 涌充	CC mode	Output Current I_2	$V_2(t)$	LED ₁ Red LED ₂ White
Cell Equalization 平充	CV mode	Descent to 5% of output current $I_{3(t)}$	Cut-off voltage V_3	LED ₁ Red LED ₂ White
Battery full 充满	CV mode	None	V_3	LED ₁ Red LED ₂ Green

Detail Picture



Note

- **MUST Set Charging Voltage CORRECTLY Before connect to battery.**
- **Don't reset charging voltage while charging.**
- **Wrong charging voltage setting may explode battery. BatterySpace don't responsible for any damage from any miss-use**
- **To set charging voltage up to 109V, please connect battery to charger first , then warm up charger about 30 minutes**
- **Charging Current can not be set**
- **Charging current can be viewed via Charging current Display switch Position**
- **MUST Select AC INPUT Voltage Correctly Before plug to Wall AC outlet**
- **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