

## SONEIL

6033 Shawson Dr., Unit 29, Mississauga  
Ontario, Canada L5T 1H8, Email: info@soneil.com  
Ph.: 905 565 0360 Fax: 905 565 0352  
**Visit us on the web at [www.soneil.com](http://www.soneil.com)**



---

# SPECIFICATIONS – Li4604S CHARGER

## Totally Automatic Switch-Mode Battery Chargers

**"Suitable for Li Ion and Li Polymer Batteries"**

**Summary:** 46.2V, 2A Constant Current (For 5 LiIon or LiPo cells)  
(Equivalent to 4A tapered charger in charging time)

- Automatic Cut-off and then true Float. Can be left connected indefinitely without harming the battery.
- **Input Voltage = 115VAC**
- Many advance features described in this spec.
- **Very small size and very lightweight**

## Explanation of the Features:

The advance technology of the OEM Battery Chargers supplied by Soneil is fundamentally different from other battery chargers. The conventional linear battery charger is an electrical device whereas the Li4604S is a lightweight sophisticated electronic device.

### 1. Switch-Mode Technology:

Soneil's Battery Charger transforms the input into charger output using high Most of the battery chargers use linear technology, which convert the 115 VAC to 24 VDC at 60 Hz. This requires a large transformer, which has the disadvantage of lower efficiency resulting in higher heat generation, larger size and weight.

Soneil's Battery Charger transforms the 115VAC into 24 VDC at 100,000 Hz (1667 times faster than conventional charger) which requires a much smaller transformer and this results in a unit of smaller size, low weight and improved efficiency.

The Li4604S uses sophisticated electronic circuitry with microchips. All present day computers use switch-mode technology.

2. **International Safety Approvals & Listing:**

CE

3. **Input Requirements:**

- a) **115VAC.** No switch to change AC voltage.
- b) 47 - 63 Hz

Input AC tolerance +/- 20%. This means Li4604S will operate satisfactorily in areas where the input voltage is low.

4. **Output:**

6 Amps Constant Current @ 21 Volts DC  
(Equivalent to 10-12 Amps tapered in charging time)

- a) Line Regulation @ Full Load 2%
- b) Load Regulation 3%

c) **Ripple Voltage:** Very low

The peak-to-peak ripple voltage into a resistive load is less than 200mV for the output voltage above 21 VDC.

## 5. **Charging Cycle:**

If the LED is ON (Orange or Green), it shows that input power is ON.

The charging curve is attached. The explanation of the charging cycle is as following.

| Stages  | Condition             | Mode*   | Current            | Voltage        | LED Indication |
|---------|-----------------------|---------|--------------------|----------------|----------------|
| Stage 1 | Constant Current mode | CC mode | 2A                 | to 46.2V       | Orange         |
| Stage 2 | Constant Voltage mode | CV mode | Reduces from 2A*** | Holds at 46.2V | Green          |

\* CC mode = Constant current charge

\* CV mode = Constant voltage charge

\*\*\* See Stage 3 description below

### **Stage 1: Constant Current Mode (CC): LED Orange**

The charger changes to constant current 2A. When the battery voltage reaches up to 46.2V, the charging stage changes from CC (Constant Current) to CV (Constant Voltage) mode.

### **Stage 2: Constant Voltage Mode (CV): LED Orange**

*In this stage the voltage of each cell in the battery is equalized.* The charger holds the battery at 46.2V and the current slowly reduces.

## 6. **Two colors in one LED:**

LED shows the charging status. The LED ON shows presence of input power. The bicolour LED shows Orange when charging and changes to Green when the battery is fully charged. The charger will continue to provide very small current to cover internal losses and will maintain the battery at full charge.

## 7. **Reliability:**

### a) **Mean Time between failures (MTBF):**

30,000 power-on-hours (POH) or greater. This translates into 10 years of everyday operation of 8 hours.

- b) **Burn-in**: All chargers are burned in at an average DC load of 6 Amps.
8. **Size**: **Very Small** Length - 6.9" (174 mm)  
Width - 3.4" ( 86 mm)  
Height - 2.3" ( 57 mm)
- Very Light Weight** 1.10 lbs (500 grams)

Very nice looking **plastic case with black finish**.

Ref: Spec Li4604S Charger .112206