

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 <http://www.soneil.com>



SPECIFICATIONS - 4820SR CHARGER

Totally Automatic Switch-Mode Battery Chargers

"Suitable for Gel, Sealed & Wet Lead Acid Batteries"

Summary: 48 V, 10A Constant Current
(Equivalent to 20A tapered charger in charging time)

- Automatic Cut-off and then true Float. Can be left connected indefinitely without harming the battery.
- CE listed.
- **Input 110 & 220VAC (Selector switch)** - Suitable for everywhere in the world.
- Suitable for off-board application. Optional on-board inhibit can be provided.
- Increases battery life by de-sulfating the battery.
- Many advance features described in this spec.
- **Compact size and high-frequency charger.**

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 4820SR is a lightweight sophisticated electronic device.

1. **Switch-Mode Technology:**

Most of the battery chargers use linear technology, which convert the 110VAC or 220VAC to 48VDC at 50/60 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 90VAC~264VAC into 48 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 4820SR uses sophisticated electronic circuitry with microchips. All present day computers use switch-mode technology.

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

CE listed.

3. **Input Requirements:**

- a) Input 110 & 220VAC - Suitable for everywhere in the world.
- b) 47 - 63 Hz

Input AC tolerance +/- 10%. This means 4820SR will operate satisfactorily in areas where the input voltage is low.

This charger is **suitable for every part of world** where the AC is 100VAC (Japan), 115VAC (USA), 230VAC (Europe) or 240VAC (UK).

4. **Output:**

10Amps Constant Current @ 48 Volts DC
(Equivalent to 20Amps 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 48 VDC.

5. Charging Cycle:

If the LED is ON (Yellow or Green), it shows that AC 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 | 10A | To 57.6V | Yellow |
| Stage 2 | Constant Voltage mode | CV mode | Reduces from 10A*** | Holds at 57.6V** | Yellow |
| Stage 3 | Standby Voltage mode | Standby CV mode | Reduces to zero | Maintain 55.2V* * | Green |
| | Recharging mode | CC mode | 10A | 54.0V | Yellow |

* CC & CV mode = Constant Current and Constant Voltage charge

** It is possible to adjust the voltages (factory set-up)

*** See Stage 3 description below

Stage 1: Constant Current Mode (CC): LED Yellow

The charger changes to constant current 10A. When the battery voltage reaches up to 57.6V, the charging stage changes from CC (Constant Current) to CV (Constant Voltage) mode.

Stage 2: Constant Voltage Mode (CV): LED Yellow

The charger holds the battery at 57.6V and the current slowly reduces. When the current reaches at 2A, this point called the Switching Point. The Switching Point is one of the great feature of this battery charger that it can adjust the current automatically according to battery capacity. Other chargers are not capable to adjust the current automatically.

Stage 3: Standby Voltage Mode: LED Green

The charger maintains the battery voltage at 55.2V and current slowly reduces to zero. Charger can be left connected indefinitely without harming the battery.

Recharging: LED Yellow

If the battery voltage drops down to 54.0V, the charger changes from any mode to Constant Current mode and restart charging. The charging cycle will go through Stage 1 to Stage 3.

Soneil charger can charge gel or sealed lead acid batteries without use of any switch.

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

LED shows the charging status. The LED ON shows presence of AC power. The bicolour LED shows Yellow 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. **Protection:**

- a) **Reverse polarity protection**
- provided
- b) **Short circuit protection**
- provided
- c) **Over-Voltage Protection**
- provided
- d) **Over current protection**
- provided
- e) **AC Surge Protection**
- provided
- f) **Soft start and stop:** Starts and stops gradually.

No sudden in-rush of current. This protects both the batteries and any other circuits connected to the charger.