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SPECIFICATIONS - 2440SR CHARGER

Totally Automatic Switch-Mode Battery Chargers

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

Summary: 24 V, 20A Constant Current
(Equivalent to 40A 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 2440SR 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 24VDC 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 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 2440SR 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 2440SR 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:**

20Amps Constant Current @ 24 Volts DC
(Equivalent to 40Amps 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 24 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	20A	To 28.8V	Yellow
Stage 2	Constant Voltage mode	CV mode	Reduces from 20A***	Holds at 28.8V**	Yellow
Stage 3	Standby Voltage mode	Standby CV mode	Reduces to zero	Maintain 27.8V* *	Green
	Recharging mode	CC mode	20A	27.0V	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 20A. When the battery voltage reaches up to 28.8V, 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 28.8V and the current slowly reduces. When the current reaches at 6A, 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 27.8V 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 27.0V, 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.