



# SONEIL INTERNATIONAL LIMITED

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## Specification of Soneil Battery Charger

**MODEL: 1220 SR**

**12V / 10A LEAD ACID BATTERY CHARGER**



## General

The 1220SR charger is a fully automatic high frequency switch mode 4 – stage battery charger with Battery de-sulfating mode, constant current, constant voltage and float voltage. It comes with a 100 - 240Vac input. The charger is double insulated (no AC connection to ground).

The 12V/10A battery charger can charge any gel, glass-matt (AGM), sealed, wet and any other type of lead acid batteries.

### 1. Main product specification

Max. output power	Input voltage	Output voltage	Output current range	Voltage tolerance
162W	100 - 240Vac	+14.20V~ 14.80V	9.0A ~ 11.0A	+/-0.3V

### 2. Environmental condition

No.	Item	Technical specification	Remark
1	Humidity	10~90%	With packing in box
2	Altitude	≤3000m	Works normally
3	Cooling	The battery charger is cooled by a 12VDC ball-bearing fan.	Working under full load

### 3. Electrical characteristics

#### 3.1 Input characteristics

No.	Item	Technical specification	Remark
1	Input voltage range	100-240Vac	
2	AC input voltage frequency	50/60 Hz	
3	Max input current	3.5A	At 240Vac rated load input.

#### 3.2 Output characteristics

No.	Item	Technical specification	Remark
1	Fast charge voltage	+14.20 ~ 14.80Vdc	
2	Floating voltage	+13.20 ~ 13.80Vdc	
3	Constant current	10.0A +/- 10%	
4	Switching current	About 2.5A – 3.5A	
5	Power efficiency	≥80 %	At 240Vac rated input voltage.

3.3 Protection features

- a) Short- circuit protection.
- b) Reverse polarity protection.
- c) Over- voltage protection.
- d) Over-current protection.
- e) Output DC present when AC is plugged and battery not connected (non-trigger charger).
- f) No current drain (when output is connected to battery, there is very minimal current flow from battery if AC is off).

3.4 Charging explanation

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

Stages	Condition	Mode*	Current	Voltage	LED Indication
Stage 1	Charging Pulse mode	Battery de-sulfating mode	10A Pulsing	0.5V to 5.0V	LED: Orange
Stage 2	Constant Current mode	CC mode	10A	5.0V to 14.5V	LED: Orange
Stage 3	Constant Voltage mode	CV mode	Reduces from 10A***	Holds at 14.5V	LED: Orange
Stage 4	Standby Voltage mode	Standby CV mode	Reduces to battery self discharge current	Maintains 13.5V	LED: Green
	Recharging mode	CC mode	10A	13.5V	LED: Orange

\*CC mode: Constant current charge

\*CV mode: Constant voltage charge

\*\*\*See Stage 3 description below

Note: All voltage tolerances are at +/-0.3V and current tolerances at +/- 10%.

Stage 3: 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 14.5V and the current slowly reduces. When the current reaches 0.2CC ~ 0.3CC (CC=Constant Current), this point is called the Switching Point. The Switching Point is one of the greatest features of this battery charger whereby it can adjust current automatically according to battery capacity which other chargers are not able to adjust automatically.

If the battery voltage goes below 13.7V, the charger changes from any mode to Constant Current mode and restarts charging. The charging cycle will go through Stage 2 to Stage 4.

4. Safety & EMC

No.	Item	Standard ( or test condition )	Remark
1	Electric strength test	Input-output 3000Vac /10mA /1 sec.	No breakdown
2	Isolation resistance	Input-ground	≥10Mohm@500Vdc
		Output-ground	≥10Mohm@500Vdc
3	Leakage current	<0.25mA	Vin = 240Vac, 50 Hz.

4	Safety	Certified to cTUVus (UL / CSA 60950-1 latest std.), CE, GS & RoHS standard.	
5	EMC	Tested and certified to required standards.	

## 5. Environmental testing requirements

No.	Item	Technical specification	Remark
1	High temperature ambient operating	+45 °C	Features ok
2	Low temperature ambient operating	0 °C	Features ok
3	High temperature storage	+70 °C	Works normally after recovery under normal temperature.
4	Low temperature storage	-20 °C	Works normally after recovery under normal temperature.
5	Random vibration	5Hz to 55Hz, 1.5m, Acceleration 20m/s, 1 hour per each axis X/Y/Z	Pass functional test without any damages.
6	Thermal shock	-35 °C to 75 °C, < 3min transition, 2.5hours dwell, 200cycle	No abnormality detected
7	Drop test	Charger dropped from 1.0m height to a 10mm pine board repeatedly for 4 times on each side	No damage to the charger with charger functioning properly.
9	Humidity	Can operate at 10% - 90% RH	

## 6. Mechanical characteristics

6.1 Outline dimension: Plastic enclosure: L\*W\*H=178\*82\*57 mm (7.0\*3.2\*2.2 in.)

6.2 Input AC cord: Comes with IEC320-C14 or C8 or direct-wired AC cord options; length 1.5m – 1.8m;

6.3 Output DC wire: White: +ve; Black: -ve; (or as indicated on the charger label)

6.4 Without inhibit function.

DC wire length of 1.5m – 1.8 m. Output cable: SJT 16AWG\*2C

DC connector will be supplied as per customer's requirement.

## 7. Packing, transportation & storage

7.1 Packing:

Well packed and protected in a cardboard carton box.

7.2 Transportation:

Suitable for transportation by truck, ship and plane, the products should be shielded from sunshine and rain, and loaded and unloaded carefully.

7.3 Storage:

Products should be stored in an enclosed package when not in use. Storage temperature should be -20~70 °C and relative humidity 10~90%. In the warehouse, there should not be harmful gas, inflammable, explosive products, and corrosive chemical products, and strong mechanical vibration, shock and strong magnetic field force.

The packed box should be above ground at least 20cm height, and 50cm away from wall, thermal source, and vent. Under this requirement, the product has 2 years of storage period, and should be rechecked when not in use for over 2 years.

## 8. Reliability requirements

8.1 MTBF (standard, environmental temperature, load requirement)  $\geq 50K$  power on hours at tested value; testing condition: 25°C ambient temperature and at 80% of full load.

8.2 All chargers are burnt-in at an average DC load for a minimum of 4 hours with power on continuously.

## 9. Charger wiring

9.1 DC White wire: +ve

9.2 DC Black wire: -ve

9.3 Or wire colors as specified on the charger label

## 10. Inhibit function

Without inhibit function.

## 11. Label

All Soneil chargers come with a label clearly indicating the model name, input, output, LED charging indication, cautions and safety approvals.

## 12. Charging Curve:

See separate attachment.

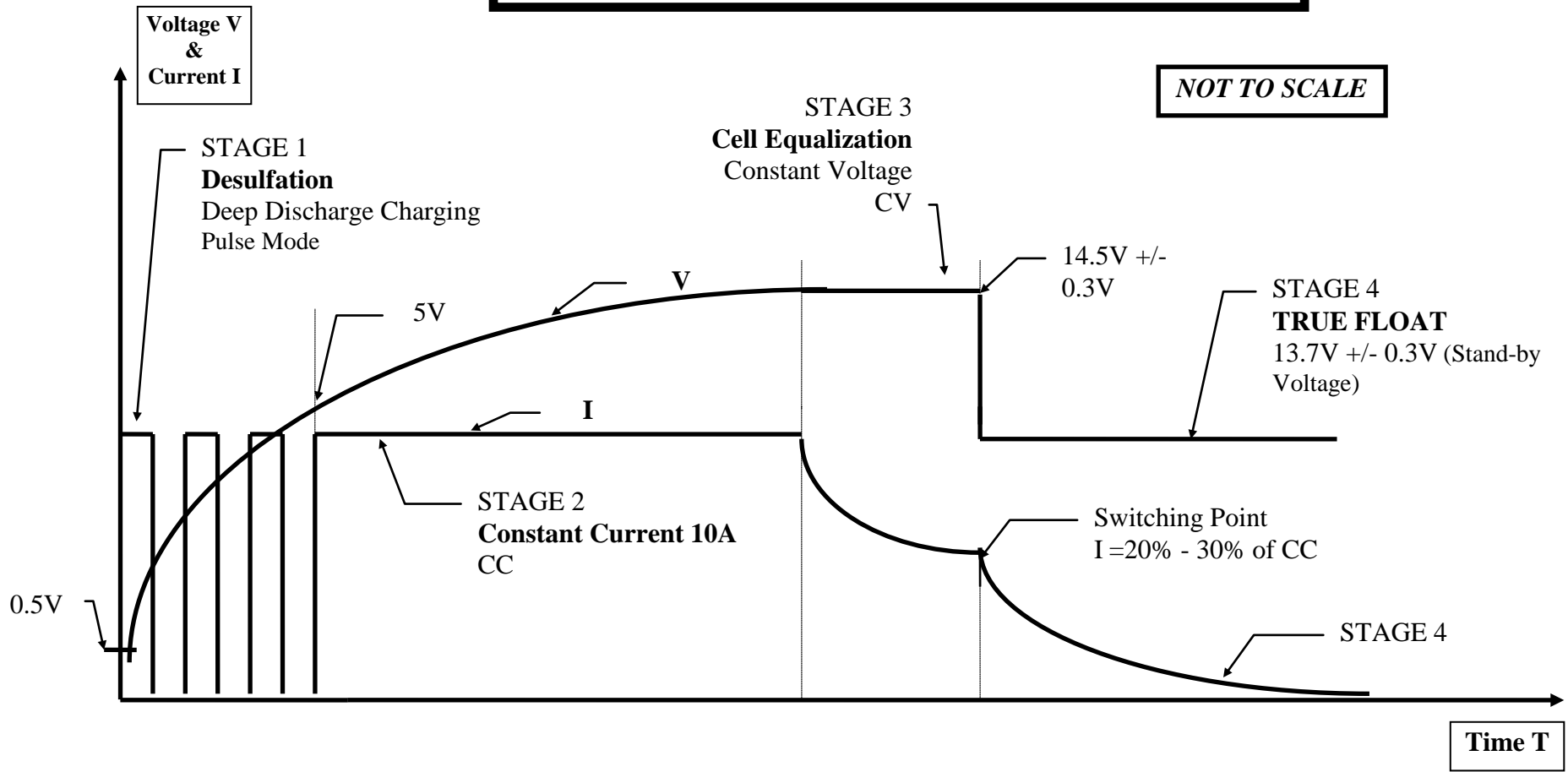
Note: Specification is subject to change without notice.

For more detail and accurate information on the charger contact Soneil by email or call via phone

**Similar chargers are also available from the range of 12V 5A to 12V 10A.**

# CHARGING CURVE MODEL 1220SR

SONEIL 12V/10A CHARGER



Ref: Curve1220SR.24-Apr-10