SONEIL INTERNATIONAL LIMITED

6033 Shawson Dr., Unit 29, Mississauga, Ontario, Canada L5T 1H8
Ph.: (905) 565-0360 Fax: (905) 565-0352 http://www.soneil.com

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Specification of Soneil Battery Charger

MODEL: 3606 SR

36V / 3A LEAD ACID BATTERY CHARGER

General:

The 3606SR 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 36V/3A 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
143W	100 - 240Vac	+42.9V ~ 43.5V	2.7A ~ 3.3A	+/-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	+42.9 ~ 43.5Vdc	
2	Floating voltage	+40.8 ~ 41.4Vdc	
3	Constant current	3.0A +/- 10%	
4	Switching current	About 0.8A – 1.2A	
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	3A Pulsing	0.5V to 5.0V	LED: Red
Stage 2	Constant Current mode	CC mode	3A	5.0V to 43.2V	LED: Red
Stage 3	Constant Voltage mode	CV mode	Reduces from 3A***	Holds at 43.2V	LED: Red
Stage 4	Standby Voltage mode	Standby CV mode	Reduces to battery self discharge current	Maintains 41.1V	LED: Green
	Recharging mode	CC mode	3A	41.1V	LED: Red

*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 Red

In this stage the voltage of each cell in the battery is equalized. The charger holds the battery at 43.2V 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 41.1V, 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℃	Features ok
2	Low temperature ambient operating	0℃	Features ok
3	High temperature storage	+70℃	Works normally after recovery under normal temperature.
4	Low temperature storage	-20℃	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℃ to 75℃, ＜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 Low / High Inhibit wire: Green (optional).
DC wire length of 1.5m – 1.8 m. Output cable: SVT 18AWG*3C
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℃ 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) ≥50K power on hours at tested value; testing condition: 25℃ 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 Green wire: Low inhibit / high inhibit (optional).
9.4 Or wire colors as specified on the charger label

10. Inhibit function:

10.1 The Inhibit function is optional and can be incorporated into the charger upon customer's request. The inhibit function can be low or high inhibit as required by the customer. In this case the charger will come with a third green inhibit wire. The inhibit function stops the mobility equipment (scooter, wheelchairs, patient lift etc.) from moving when the batteries are being charged. For this the equipment controller needs to have inhibit feature and the charger provides inhibit signal to the controller

10.2 For high inhibit, the charger comes with a third Green High Inhibit wire which provides a voltage of around 36V and 10mA – 25mA current. Inhibit is needed so that when the batteries are being charged (charger is being used with AC on), the electrical vehicle motor cannot be used and hence prevents the vehicle from moving when charging the battery.

10.3 For low inhibit the charger also comes with a third Green Low Inhibit wire The low inhibit is output of a transistor which floats when AC is not connected and goes ground when AC is connected. The inhibit signal is an open circuit output, leakage less than 5 microAmp, when the charger is not connected to an AC source. This signal will be less than 50 mV DC while sinking 10 mA when the charger is connected to an AC source. This will prohibit the operation of the vehicle's motor controller whenever the charger is plugged to an AC source

11. Label:

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

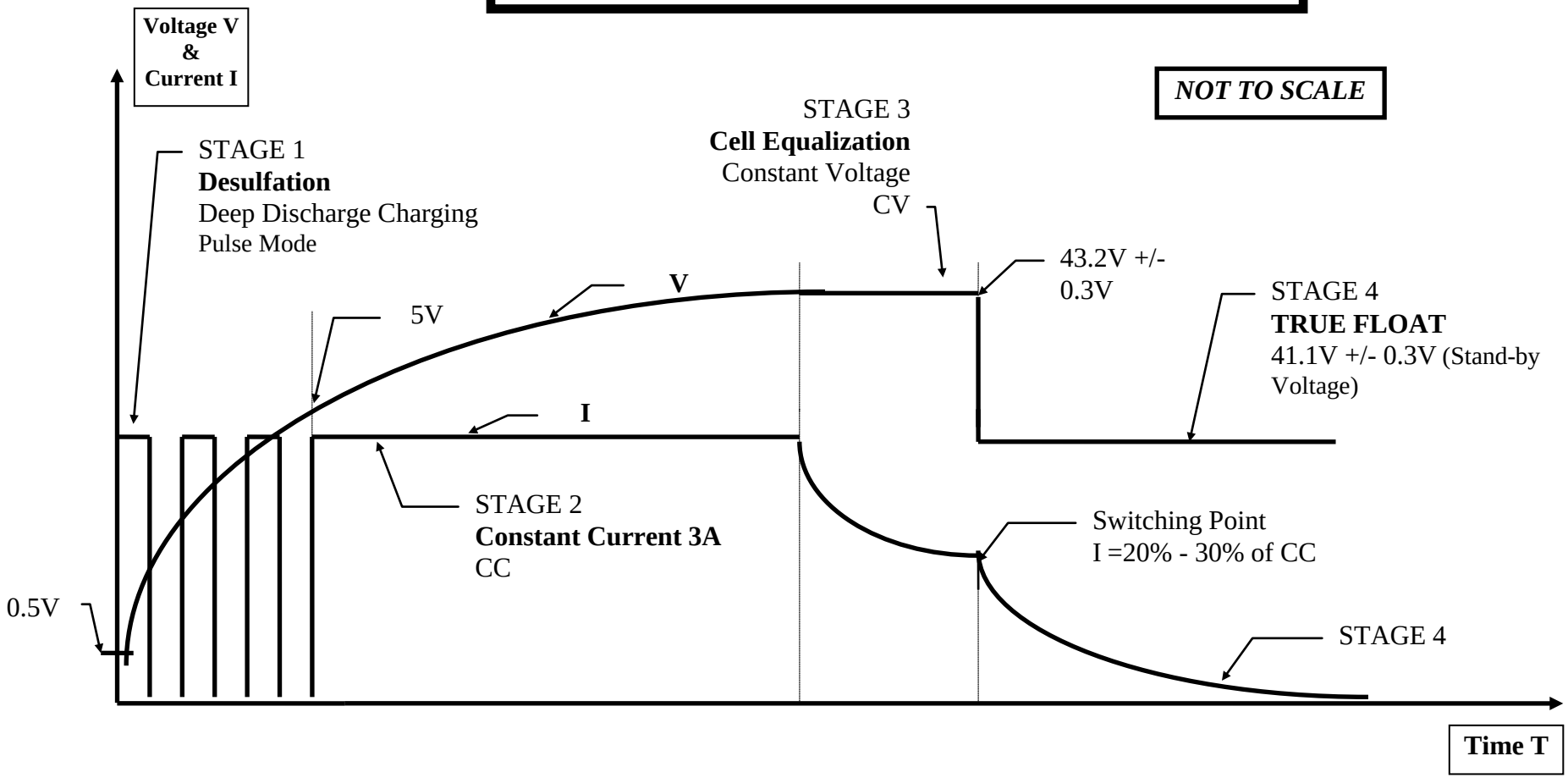
12. Charging Curve:

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

CHARGING CURVE
MODEL 3606SR

SONEIL 36V/3A CHARGER



Ref: Curve3606SR.24-Apr-10