

# SPECIFICATION

## Product picture: 4820SR model

### Front:



### Back:



|                            |        |
|----------------------------|--------|
| Model NO                   | 4820SR |
| Customer                   |        |
| Engineer                   |        |
| ENG'S sample shipping date |        |
| Confirm date               |        |

|    |      |          |          |          |
|----|------|----------|----------|----------|
| PE | Sale | Engineer | Approval | Revision |
|    |      |          |          | 07       |

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## 1. General

Power supply 4820SR is cooled by 80\*80\*25mm 12VDC ball-bearing fans Forced air, can work normally under 59Vdc/10A, Reverse Protection.



## 2. Main product specification

| Max. output power | Input voltage | Output voltage  | Output current range | Combined regulation |
|-------------------|---------------|-----------------|----------------------|---------------------|
| 600W              | 115Vac/230Vac | +58.6+/- 0.2Vdc | 9.9-10A              | ±0.2                |

## 3. Environmental condition

| No. | Item     | Technical specification   | Unit | Remark                  |
|-----|----------|---|------|-------------------------|
| 1   | Humidity | 5%-95%  |      | With package            |
| 2   | Altitude | ≤3000   | m    | Work normally           |
| 3   | Cooling  | The power supply is cooled by 80*80*25mm 12VDC ball-bearing fans Foreed air |      | Working under full load |

## 4. Electrical characteristics

| 1 Input characteristics |                            |                         |      |  |
|-------------------------|----------------------------|-------------------------|------|--|
| No.                     | Item                       | Technical specification | Unit | Remark   |
| 1.1                     | Rated input voltage        | 115/230                 | Vac  | 115Vac/230Vac select switch  |
| 1.2                     | Input voltage range        | 90-132/180-264          | Vac  |  |
| 1.3                     | AC input voltage frequency | 47—63                   | Hz   |  |
| 1.4                     | Max input current          | 8                       | A    | Vin=115Vac, rated load Fitted with 10A/250V slow burn ceramic fuse |

| <b>2 Output characteristics</b>     |                                       |   |             |                         |
|-------------------------------------|---------------------------------------|---|-------------|-------------------------|
| <b>No.</b>                          | <b>Item</b>                           | <b>Technical requirements</b>   | <b>Unit</b> | <b>Remark</b>           |
| 2.1                                 | Fast charge voltage                   | 58.6+/- 0.2   | Vdc         |                         |
| 2.2                                 | Floating voltage                      | 55.2-55.4   | Vdc         |                         |
| 2.3                                 | Constant current                      | 10  | A           |                         |
| 2.4                                 | Switch current                        | 2.8   | A           |                         |
| 2.5                                 | Power efficiency                      | ≥80%  |             | Vin =220Vac, rated load |
| <b>3 Protection characteristics</b> |                                       |   |             |                         |
| <b>No.</b>                          | <b>Item</b>                           | <b>Technical requirements</b>   |             | <b>Remark</b>           |
| 3.1                                 | Output over voltage protection        |   | V           |                         |
| 3.2                                 | Software over voltage protection      | The charger software limits the maximum output voltage to a level suitable for the connected battery system       |             |                         |
| 3.3                                 | Thermal cutback                       | An internal temperature monitor reduces charger output power in extreme operational temperature to prevent damage |             |                         |
| 3.4                                 | Output current limiting protection    | 11A   | A           | @CC MODE                |
| 3.5                                 | Output short circuit protection       | Short circuit protection should automatically recover after removing the fault.                                   |             |                         |
| 3.6                                 | Electronic reverse battery protection | The charger is electronically protected against permanent reverse battery connection                              |             |                         |
| 3.7                                 | Cell short circuit timer              | Internal software protection  |             |                         |
| <b>4 Charger (LED) indicator</b>    |                                       |   |             |                         |
| <b>No.</b>                          | <b>Item</b>                           | <b>Status LED</b>   |             | <b>Remark</b>           |

|   |                   |                                       |  |
|---|-------------------|---------------------------------------|--|
| 1 | Deep charge       | LED fast flash twice                  |  |
| 2 | Fast charging     | LED Fast flash, once every 0.5 second |  |
| 3 | Floating charge   | LED ON ALWAYS                         |  |
| 4 | Completely Charge | LED ON ALWAYS                         |  |

## 5. Safety & EMC

| No. | Item                   |                      | Standard (or testing condition) | Remark   |
|-----|------------------------|----------------------|---------------------------------|--|
| 1   | Electric strength test | Input—output         | 1500Vac/10mA/1min               | No breakdown   |
| 2   | Isolation resistance   | Input—ground         | $\geq 10M\Omega @ 500Vdc$       |  |
|     |                        | Output—ground        | $\geq 10M\Omega @ 500Vdc$       |  |
| 3   | Leakage current        |                      | $< 3.5mA$                       | $Vin=264Vac, 50—60Hz$  |
| 4   | SAFETY                 |                      | UL / c UL/ CE compliant         |  |
| 5   | EMC                    | RE                   | CLASS B                         | EN55014  |
|     |                        | CE                   | CLASS B                         | EN55014  |
|     |                        | Air discharge        | LEVEL 3                         | EN61000-4-2(discrimination B)  |
|     |                        | Contact discharge    | LEVEL 3                         | EN61000-4-2(discrimination B)  |
|     |                        | RS                   | LEVEL 3                         | EN61000-4-6(discrimination A)  |
|     |                        | CS                   | LEVEL 3                         | EN61000-4-3 (discrimination A)   |
|     |                        | EFT                  | LEVEL 3                         | EN61000-4-4 (discrimination B)   |
|     |                        | Surge                | LEVEL 3                         | EN61000-4-5, differential module 1 KV, common module 2KV(discrimination B) |
|     |                        | Power line harmonics |                                 | EN61000-3-2 all load configurations  |

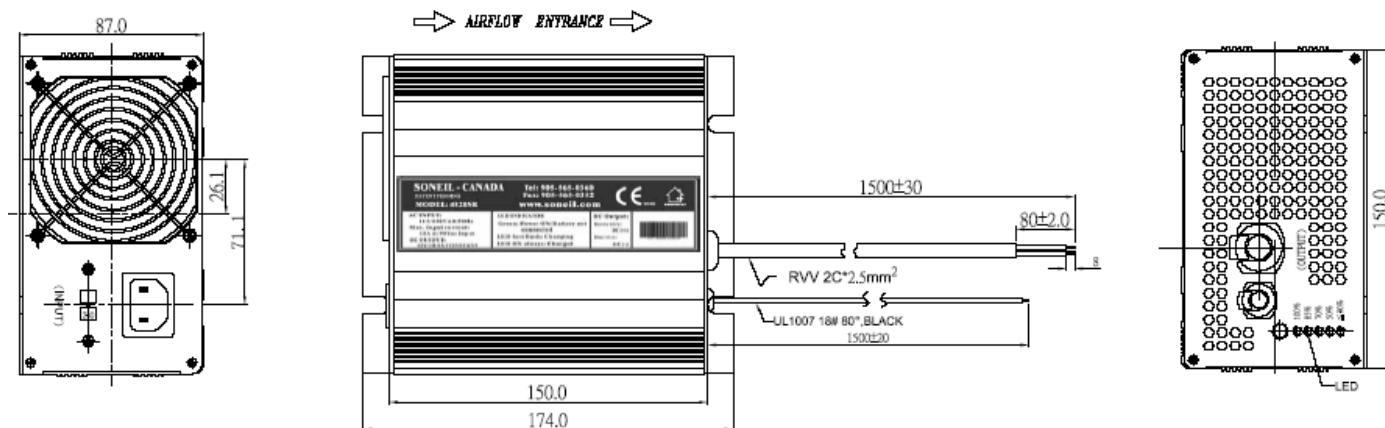
Remark: Discrimination A— function OK under technical requirement range; discrimination B--function temporarily debased without reposition and halt is allowed; discrimination R— physical damage or failure of equipment are not allowed, but damage of protection device (fuse) caused by interference signal of outside is allowed, and the whole equipment can work normally after replacement of protection device and reset of running parameter.

### 6. Environmental testing requirements

| No. | Item                               | Technical specification   | Remark  |
|-----|------------------------------------|---|---|
| 1   | High temperature ambient operating | +40 deg.C   | Features ok   |
| 2   | Low temperature ambient operating  | -10 deg.C   | Features ok   |
| 3   | High temperature storage           | +70 deg.C   | Work normally after recovery under normal temperature for two hours |
| 4   | Low temperature storage            | -40 deg.C   | Work normally after recovery under normal temperature for two hours |
| 5   | Random Vibration                   | 20Hz to 2000Hz 3Grms 20hours per axis                               |   |
| 6   | Repetitive Shock                   | 40g peak 3 orthogonal axes,3+ and 3- in each axis ,11ms Pulse width |   |
| 7   | Thermal shock:                     | -35 deg.C to +75 deg.C,<3minute transition,2.5hour dwell,200cycle   |   |
| 8   | Drop test:                         | BS EN60068-2-32:1993 Test Ed:Free fall,appendix B                   |   |

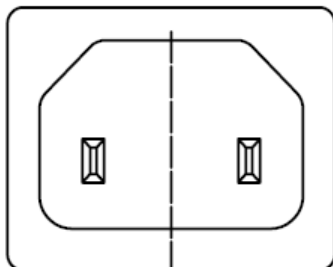
### 7. Mechanical characteristics

Outline dimension (Unit: mm) length×width×height=150×150×87 mm

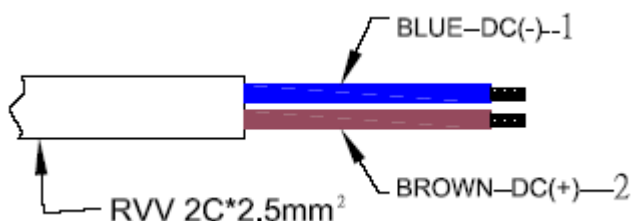


Tolerance of outline dimension is ±0.5mm, others are ±0.2mm in the diagram;

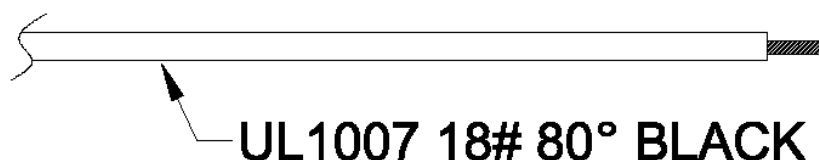
### 1)、 Input terminator diagram & definition (AC input wire)



### 2)、 Output terminator diagram & definition (charger output wire)



### 2)、 Output terminator diagram & definition (Inhibit wire)



### 3)、 WEIGHT: (ABOUT 2.5 Kg)

## 8. Package, transportation & storage

### 1)、 Package

There are product name, model, name of manufacturer, safety approval, serial number on the label and User/Operation Manual in the packing box.

### 2)、 Transportation

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

### 3)、 Storage

Products should be stored in packing box when not used. And warehouse temperature should be  $-40 \text{ deg.C}—+70 \text{ deg.C}$ , and relative humidity is  $5\%—95\%$ . 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 affection. The package box should be above ground at least 20cm height, and 50cm away from wall, thermal source, and vent. Under this requirement, product has 2 years of storage period, and should be rechecked when over 2 years.

## 9. Reliability requirements

### Reliability

MTBF (standard, environmental temperature, load requirement)  $\geq 15$ Khour ; testing condition: 25 deg.C, full load, testing proved value. (1year full warranty)

## 10. Charger wiring

The basic power wiring for the charger is shown in figure 2

1)、 A spark is often seen on first connection of the charger to the battery terminals due to charging of the internal output capacitors ,This is Normal and should not lead to undue concern ,care should be taken to ensure the battery vent caps are closed and there are no flammable object in the vicinity of where the connection will be made

2)、 The charger has been calibrated to take account of the voltage drop in the DC output cables during operation, To prevent the possibility of over or under charging of the battery it is recommended the DC output cables are connected directly to the battery without modification. Soneil is able to customize cable lengths and connections for volume customers with specific requirements.

## 11 Inhibit function

The charge has two third fourth output wire which provides inhibit signal to the vehicle`s controller ,so that the controller stops the equipment from moving when the charger is plugged to an AC source

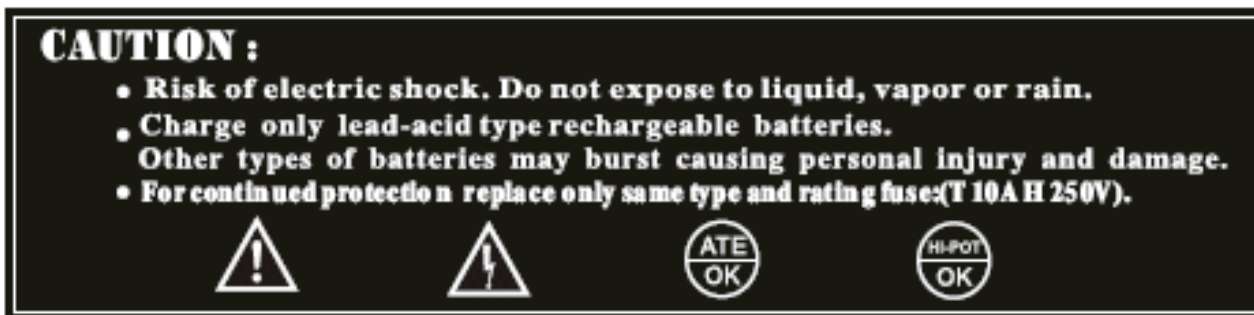
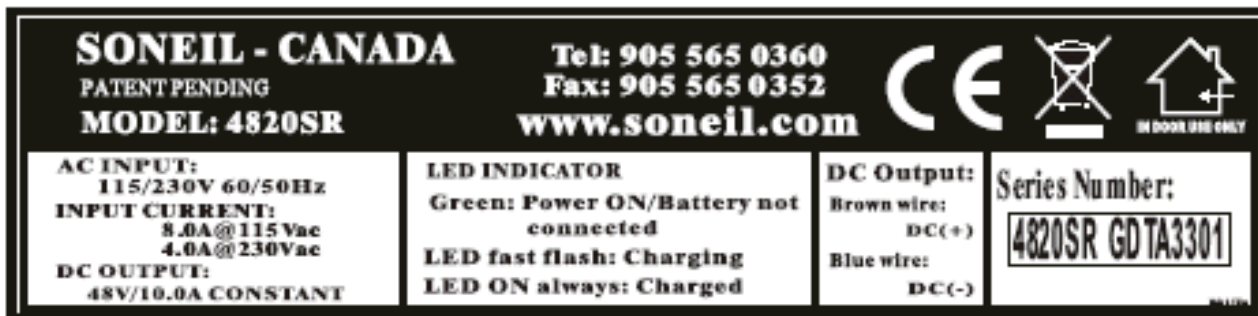
The inhibit signal is an open circuit output , leakage less than 5 microAmp or less, when the charger is not connected to an AC source ,the signal will be less than 50mV DC while sinking 100mA when the charger is connected to an AC.

The inhibit function stops the mobility equipment , 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.

For on-board applications(internal charger), the inhibit signal is needed only when the AC power is ON,so when the charger is plugged to an AC source, the

equipment is inhibited from moving ( the signal becomes “ground” ) and when the charger is not connected to the AC power ,the inhibit signal is “not ground (floats)”, so the equipment can move.

### 12. Label

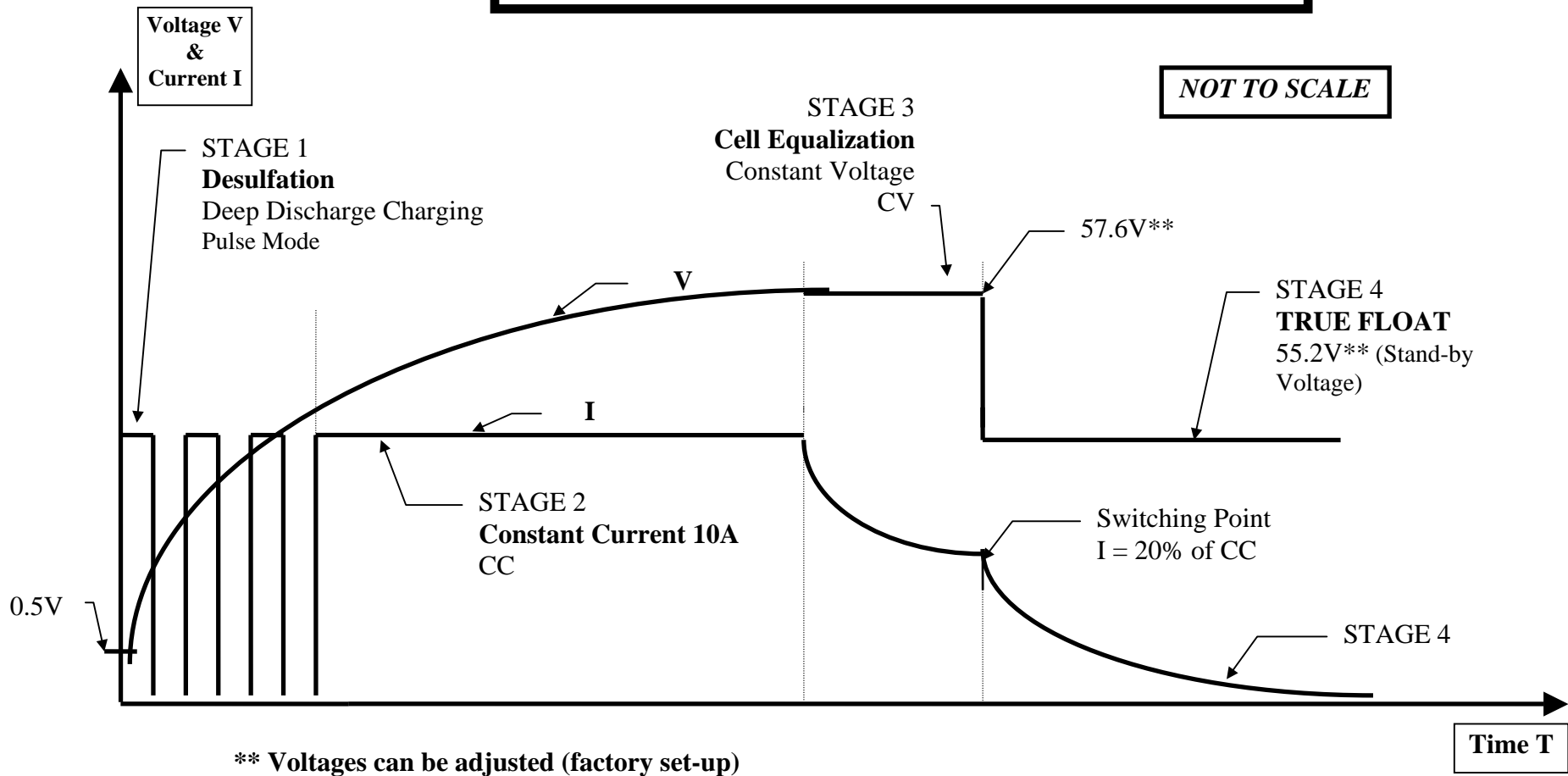


### 13. Charging Curve

Refer to Attachment

# CHARGING CURVE MODEL 4820SR

SONEIL 48V/10A CHARGER



Ref: Curve4820SR.03July-06