

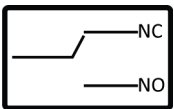


User's Manual

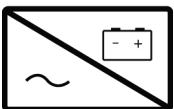
SR250HL Power Supply/ Float Charger for Lead Acid Batteries 250W



STANDARD FEATURES



3 Relay Alarms-Form C



Float Charger –Lead Acid Batteries

OPTIONAL FEATURES

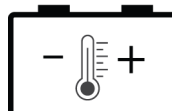


Comms:

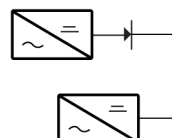
- RS232
- RS485
- Modbus RTU
- SNMP V1 & Webpages



Customizable Digital I/O



Temperature Sensor on 1.7m lead with adhesive pad: -4mV / °C /cell ±10%



N+1 Redundancy

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1. SAFETY

The user is responsible for ensuring that input and output wiring segregation complies with local standards and that in the use of the equipment, access is confined to operators and service personnel. A low resistance earth connection is essential to ensure safety and additionally, satisfactory EMI suppression (see below).

HAZARDOUS VOLTAGES EXIST WITHIN A POWER SUPPLY ENCLOSURE AND ANY REPAIRS MUST BE CARRIED OUT BY A QUALIFIED SERVICEPERSON.

Electrical Strength Tests

Components within the power supply responsible for providing the safety barrier between input and output are constructed to provide electrical isolation as required by the relevant standard. However EMI filtering components could be damaged as result of excessively long high voltage tests between input, output and ground. Please contact our technicians for advice regarding electric strength tests.

Earth Leakage

Where fitted, EMC suppression circuits cause earth leakage currents which may be to a maximum of 3.5mA.

Ventilation

High operating temperature is a major cause of power supply failures, for example, a 10°C rise in the operating temperature of a component will halve its expected life. Therefore always ensure that there is adequate ventilation for the equipment. Batteries in particular suffer shortened lifetimes if subjected to high ambient temperatures.

Water / Dust

Every effort must be made in the installation to minimise the risk of ingress of water or dust. Water will almost always cause instant failure. The effects of dust are slower in causing failure of electronic equipment but all electrical equipment should be cleaned free of any dust accumulation at regular intervals.

Electromagnetic Interference (EMI)

Switching power supplies and converters inherently generate electrical noise. All wiring should be as short as practicable and segregated from all equipment wiring which is sensitive to EMI. Residual noise can be reduced by looping DC wiring through ferrite cores (sleeves). These are most effective as close to the power supply as possible and as many turns of the wire taken through the core (+ and - in the same direction) as the core will accommodate.

External fuse protection

Fuses or circuit breakers must be used in all battery circuits to protect against short circuits. External fuses should be used for power supplies/chargers even though they are usually internally protected.

Connection polarity

It is critical to check the polarity carefully when connecting DC devices even with models which have non-destructive reverse polarity protection.

Glossary of terms used in our user manuals

PSU = power supply unit

BCT = battery condition test

ECB = electronic circuit breaker

ELVD = electronic low voltage disconnect

RPP = reverse polarity protection

EMI = electromagnetic interference

SNMP = Simple Network Management Protocol

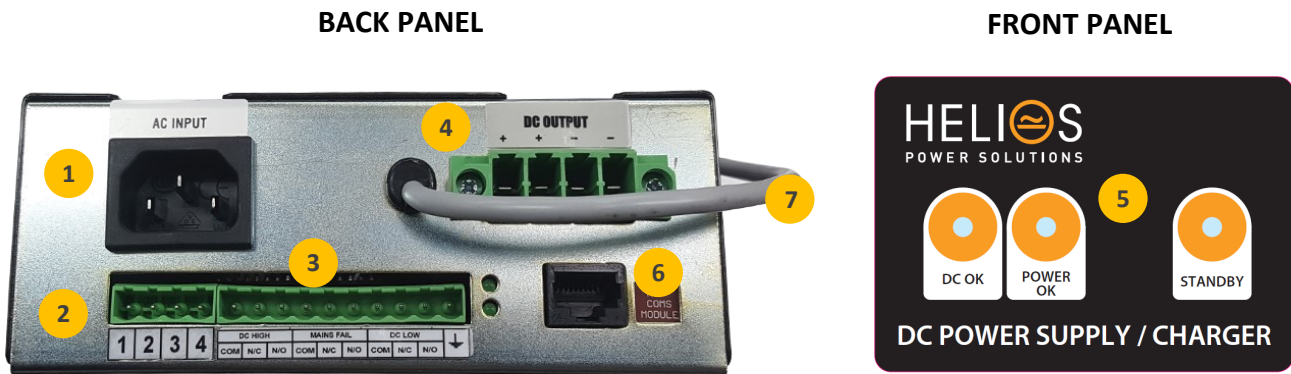
EMC = Electromagnetic compatibility

DOD = depth of discharge

2. INTRODUCTION:

The SR250HL range is designed for use as a reliable and stable AC to DC power supply, or float charger for lead acid batteries. Note that for float charging the output voltage must be set to approximately 15% above the nominal battery voltage models. This is done as the default voltage for the 12V model but must be specified at time of order for all higher voltage models.

3. FRONT & BACK PANEL LAYOUT



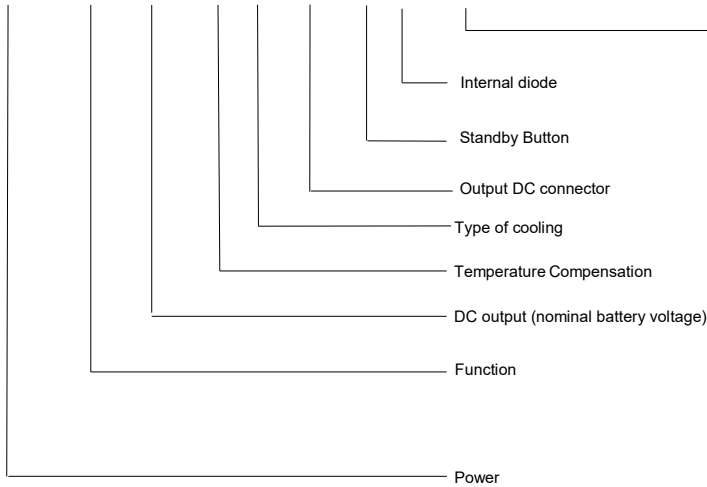
1. **AC INPUT IEC60320 - C13 10A**
2. **Digital Inputs (pins 1,2)/ Input or Output (pin 3)/ Return (pin 4) I/O terminals** are customizable and if used, the product will have a unique code.
3. **ALARMS RELAY FORM C:** Relay contacts shown in de-energised state (ie. When there is a fault condition). Alarm relays are energised when power supply is operating normally, eg. "Power" alarm relay is energised when input voltage present.
 - DC High : DC Output High
 - POWER: Loss of mains input power. This alarm has 30 seconds delay before activation upon mains failure. PSU fails
 - DC Low: DC Output Low or Battery voltage low if used as a charger.
4. **DC CONNECTIONS**
5. **LED indications Code:** DC OK , Power OK and Standby
6. **COMMS PORT**
 - RS232 (ASCII) <https://www.heliosps.com/sr-series-downloads/#rs232-rs485-commands-sr-series>
 - RS485 (ASCII) <https://www.heliosps.com/sr-series-downloads/#rs232-rs485-commands-sr-series>
 - Modbus RTU <https://www.heliosps.com/sr-series-downloads/#serial-modbus-rtu-sr-series>
 - SNMP, Webpages <https://www.heliosps.com/sr-series-downloads/#snmp-sr-series>
7. **TEMPCO SENSOR (OPTIONAL): 1.8m** Temperature sensor for voltage compensation

4. FG - Frame Ground

This terminal provides a connection to the metal case for earthing.

5. MODEL CODING AND OPTIONS

SR250HL 12 T F X L P U 485+



Options:

485 = RS485, **232** = RS232, **LAN+**=SNMP/Webpages, **485+**=Modbus RTU

U = 110VAC Input voltage **DC** = 90-135VDC input (blank = AC input)

P = Internal output diode

Turns output on/off

X = Pluggable connector **S**= Stud

F = Fan (12V model only) **Blank**= No fan

T = Yes **Blank** = No

12, 24, 30, 36, 48, 60VDC

HL = DC PSU/charger - 2 terminal output (except for SR250HL24TXLJ, 3 terminal)

HI = **No-Break™** DC UPS - 3 terminal output (separate battery output (See separate datasheet)

250W

6. N+1 REDUNDANCY

Models with the -P suffix, eg. **SR250HL24TXLP-LAN+** , have an internal output diode for use where N+1 redundancy is required.

7. CONNECTION NOTES

- The models with the screw/unpluggable connectors have two terminals per polarity, each one is rated at 20A and so when the load current exceeds 20A both terminals must be used.
- If used as a battery charger ensure that the battery polarity matches the power supply /charging output.
- Alarms can be tested by using an external variable voltage supply.

8. COMMUNICATIONS

Refer to separate additional user manual for information on the communications options.

Comms Port (if installed) , for models with communications please refer to

- RS232 (ASCII) <https://www.heliosps.com/sr-series-downloads/#rs232-rs485-commands-sr-series>
- RS485 (ASCII) <https://www.heliosps.com/sr-series-downloads/#rs232-rs485-commands-sr-series>
- Modbus RTU <https://www.heliosps.com/sr-series-downloads/#serial-modbus-rtu-sr-series>
- SNMP, Webpages <https://www.heliosps.com/sr-series-downloads/#snmp-sr-series>

8. TECHNICAL SPECIFICATIONS

Output power	250W (0-50°C)
Input Voltage	180V - 264VAC & 88V-132VAC 45-65Hz
Optional DC Input Voltage	90V-135VDC
Output Voltages	7.5V 13.8V, 24V, 30V, 36V, 48V 60V Other voltages by request
Voltage Adj. Range	85% - 120% of Vnominal
Overcurrent protection	Constant current limit under overload and short circuit conditions
Isolation	Input – earth – 2.5KVdc Output – earth - 500Vdc
Efficiency	> 85%
Inrush Current	Soft start circuit
Operating temperature	0 to 50 °C ambient at full load. De-rate linearly > 50°C to no load @ 70 °C
Humidity	0 - 95% relative humidity non - condensing
Cooling	Natural convection , except for 12V
LED Indication	Green: DC OK Green: Power OK Red: Standby
Alarm Relays	Form C contacts changeover, rated 30VDC,2A/110VDC,0.3A/125VAC,0.5A DC High POWER (mains fail, PSU fail) DC Low
Line Regulation	<0.2% over input range
Load Regulation	<0.4% open circuit to 100% load
Noise	<0.1%
Transient response	200mV over/undershoot, Load step 20-100%, 400us settling time
Hold-up time	15-20 ms (nom-max. Vin) without battery

9. PHYSICAL

AC input connector	IEC60320— C13 10A input socket (similar to PCs etc)
DC Connections	Plug-in style socket & mating screw terminal block: (max. wire 2.5mm ² / way) or M6 brass studs
Alarm connections	Plug in screw terminal block
Enclosure	Zinc plated & powder coated steel
Dimensions	150W x 242D x 61H (±1mm)
Weight	1.8 Kg

10. STANDARDS

EMC	To CISPR 22 / EN55022 Class A
Safety	To IEC950 / EN60950 / AS/NZS3260

11. MOUNTING DETAILS

