

User Manual

SR500/750A-D-L

AC/DC POWER SUPPLY & FLOAT CHARGER (for lead acid batteries)



Optional V/I meter shown in photo



Z367

Model Codes: SR500A/SR750A
SR500D/SR750D
SR500L/SR750L

= Basic model, no alarms
= with mains fail and dc low alarms
= with mains fail, dc low/high alarms

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, EMI 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

LAN = local area network

DOD = depth of discharge

1. INTRODUCTION

The **SR500 and SR750..** models are designed for use as a precision AC to DC power supply, or a 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. The **SRxxxL** versions can have an optional ethernet, RS485 or RS232 communications port fitted.

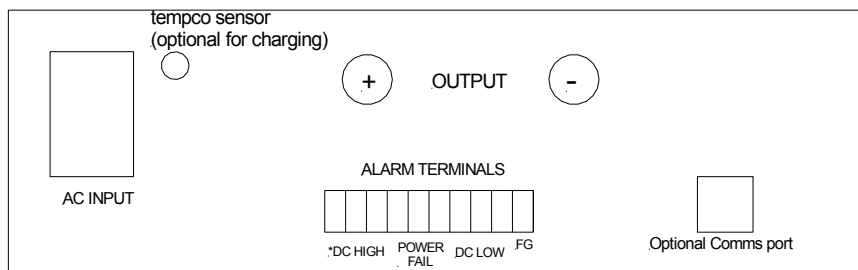
2. CONNECTIONS

If used as a float charger always connect the positive output of the power supply to the positive terminal of the battery. Where screw/plug in terminals are fitted both terminals must be used if the power supply current exceeds 20A. This is to ensure that the current rating of the terminal block is not exceeded.

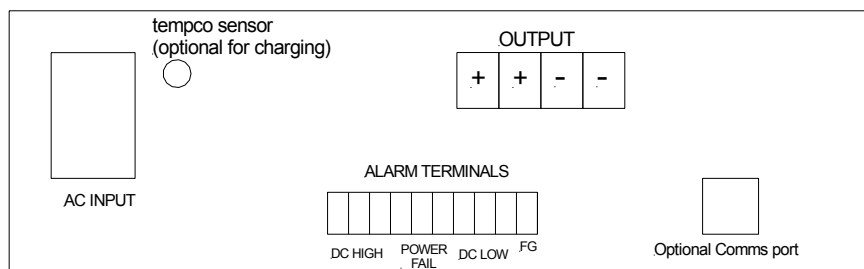
Connection Layouts

* **ALARM TERMINALS: HV (>72V)** versions do not have separate contacts for DC high and low, the left hand (DC HIGH) contacts are not used and the 'DC LOW' contacts indicate either DC low or high. indicate either DC high or low.

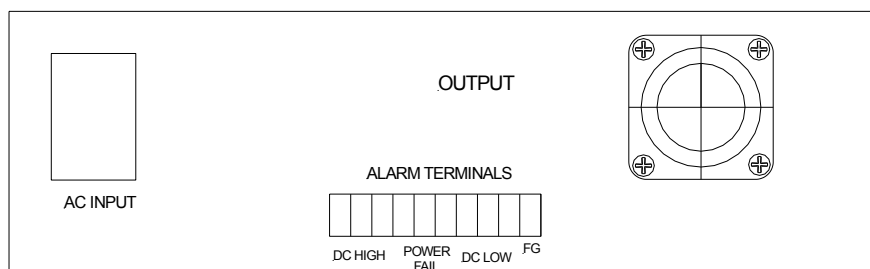
1 Standard stud



2 Plug-in/screw terminals



3 MIL SPEC



3. LED INDICATION CODES

-A version

MODE	LED INDICATION	
	POWER OK*1	STANDBY
MAINS OK	ON	OFF
MAINS FAIL	OFF	OFF
STANDBY	As above	ON

-D version

MODE	LED INDICATION		
	DC OK	POWER OK*1	STANDBY
NORMAL	ON*2	ON	OFF
DC LOW	OFF	ON	OFF
STANDBY	As above	OFF	ON

-L version

MODE	LED INDICATION		
	DC OK	POWER OK*1	STANDBY
NORMAL	ON*2	ON	OFF
DC LOW	Slow flash	ON	OFF
DC HIGH	Fast flash	ON	OFF
STANDBY	As above	OFF	ON

*1 **POWER OK:** Mains fail and/or internal PSU fail, mains **on** condition only shown for -D and -L versions

*2 **DC OK:** DC output is present, either from PSU or battery

4. ALARM TERMINAL LAYOUT (for -D & -L versions):

DC HIGH *3			MAINS FAIL*4			DC OK*3			FG
COM	NC	NO	COM	NC	NO	COM	NC	NO	

Relay contacts shown in **de-energised** state (ie when there is a fault condition).
Alarm relays are **energised** when power supply is operating normally.

*3 On high voltage versions, eg. **SR500L92, SR750L92** there is no **DC HIGH** alarm relay. The **DC OK** alarm indicates either DC low or DC high, the LED flash code indicates which one (see "-L" version table above)

*4 Also indicates internal PSU/charger fail or in standby mode

5. INPUT CONNECTIONS FOR DC INPUT MODELS (when IEC socket is used)

BROWN :	POSITIVE +
BLUE:	NEGATIVE -
GREEN/YELLOW:	EARTH

6. FG (Frame Ground)

Where provided, this terminal provides a connection to the metal case for an earthing point.

7. STANDBY FUNCTION

Pushing the **STANDBY** button turns the output of the power supply off. If there is a battery connected, the **DC OK** LED remains on even though the power supply is turned off (except for -P versions with output diode)

8. SR500/750 units can be connected in parallel for increased power or redundancy. They can also be fitted into a 2U rack with or without output diodes.

9. COMMUNICATIONS OPTION

Please refer to separate user manual if the communications option is fitted on the -L models. Note that a battery is required on the output for the communications to continue working in the event of an input power / internal converter failure.



Optional internal V/I meter shown

Ideal as a Standby Float Charger for lead acid batteries

◆ 24 Month Warranty

- Industrial quality AC/DC power supply
- Standalone - bench top or fixed mounting
- Front panel controls & indication
- Suitable for float charging of lead acid batteries
- Suitable for parallel operation
- Conservative design for long life
- Precise voltage and current control
- Optional temperature compensation for charging
- Optional relay alarm outputs
- Optional DC input
- Optional communications port: RS232, RS485 or ethernet
- Optional protocols available: Modbus, SNMP or ASCII code

SPECIFICATIONS All specifications are typical at nominal input, full load and at 20°C unless otherwise stated.

ELECTRICAL	
Input - standard	180V - 264V, 45-65Hz
- option	88V - 132VAC 45-65Hz
Fusing	Internal input fuse
Overload protection	Constant current limit under overload and short circuit conditions (except DC input versions which have primary current limit)
Isolation	1KV DC input - output / earth
Over voltage protection	130% of nominal output voltage
Efficiency	≥ 85%
Inrush current	Soft start circuit
Output power	500W
Output voltage	Refer to model table
Line regulation	<0.2% over AC input range
Load regulation	<0.4% open circuit to 100% load
Noise	<1%
Drift	0.03% / °C
Hold-up time	15 - 20 ms without battery
Thermal protection	Yes, self resetting
Parallel operation	Yes
- higher power	Addition of external output diodes optional
- N+1 redundancy	Use SR500D... with external output diodes

PHYSICAL	
AC input connector	IEC320 inlet socket
DC connections	M8 brass stud or plug in/screw terminal block
Alarm connections	Plug-in screw terminal block
Enclosure	Powder coated steel
Dimensions	225W x 70H x 304D mm (excl. terminals)
Weight	4.3 Kg
Indication LEDs	Standard: Power OK, Standby With alarms: DC OK, Power OK, Standby
Standby switch	Turns off DC output of PSU

ENVIRONMENTAL	
Operating temperature	0 to + 50 °C ambient at full load De-rate linearly >50 °C to no load @ 70 °C
Storage temperature	-10 to 85 °C ambient
Humidity	0 - 95% relative humidity non-condensing
Cooling	Fan cooled

STANDARDS	
EMI Safety	To CISPR 22 / EN55022 class A To IEC950 / EN60950 / AS/NZS3260

ACCESSORIES SUPPLIED	
Mounting feet together with screws	
AC power cord 1.5m with IEC320 socket and NZ/Aust plug	
Mating screw-terminal plug for alarm outputs	
Crimp lugs for stud terminal versions	
DC screw terminal plug-in connector for 'X' version	

500 Watt AC/DC Stand Alone Power Supply/Float Charger

SR500L

incl. SR500D, SR500L

STANDARD MODEL TABLE

MODELS	Power Supply		Battery Charger		Adjustable range (V)
	Output Volts (factory default)	Output Current (A)	Output Volts* (Charging)	Output Current (A) (Charging)	
SR500L12	13.8	36.2 (41.6 @ 12V)	13.8	36.2	11-14
SR500L24	24	20.8	27.6	18.2	22- 29
SR500L30	30	16.6	34.5	14.5	28-36
SR500L36	36	13.8	41.4	12.0	34-43
SR500L48	48	10.4	55.2	9.1	45-57
SR500L60	60	8.3	69.0	7.2	56-71
SR500L91	96	5.2	110	4.5	90-115
SR500L92	108	4.6	124	4.0	111-130
SR500L93	120	4.1	138	3.6	110-145

* Please specify on ordering that unit is to be used for float charging (except for 12V model which is set at 13.8V by default).



Rear view of SR500D....or SR500L... with alarm contacts and no communication port option

OPTIONS

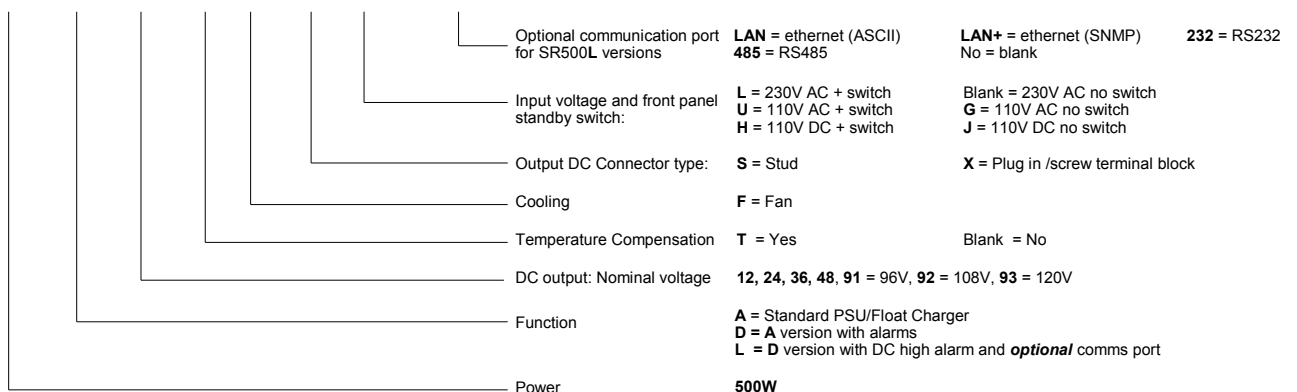
Temperature compensation for charging	Temperature sensor on 1.7m lead with adhesive pad: -4mV / °C / cell ±10% Order Code: +TEMPCO
Alarms - SR500D..	<ul style="list-style-type: none"> • Mains fail (or PSU in standby mode) • DC low (Battery low or PSU low) <ul style="list-style-type: none"> - Charger: set at 1.83V/cell - PSU: set at 83% V out
- SR500L..	<ul style="list-style-type: none"> • As SR500D.. + DC high alarm (NB: DC OK alarm on this model indicates either DC low or DC high)
Alarm contacts	C - NO - NC changeover rated 1A /50V DC, 32VAC
DC Input	110VDC (99-150) or 220VDC (180-270) Please note that an external fuse or MCB must be fitted on the output for short circuit protection.
Earth fault alarm (external to PSU))	Detects leakage to earth of DC output and provides relay output Code: +ALARM/EFDM (20-60V) +ALARM/EFDH (61-150V)

OPTIONS

Communications Port	Choice of RS485, RS232, ethernet (SNMP or ASCII) Available on SR500L... models
Internal V/I meter	Add code: +INT-METER
Mounting options:	
19"rack mount	2U sub rack available, Code: SR-RM2U Optional V/I meter, Code: SR-METER
Wall mount enclosure	PSU may be fitted into enclosure with MCBs and terminals. Code: SEC-SR

MODEL IDENTIFICATION CODES

SR500L 12 T F S L-LAN





Z367



Optional internal V/I meter shown

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- Optional temperature compensation for charging
- Optional relay alarm outputs
- Optional DC input
- Optional communications port: RS232, RS485 or ethernet
- Optional protocols available: Modbus, SNMP or ASCII code

SPECIFICATIONS All specifications are typical at nominal input, full load and at 20°C unless otherwise stated.

ELECTRICAL	
Input - standard	230VAC (180 - 264), 45-65Hz
- option	110VAC (88 - 132), 45-65Hz
Fusing	Internal input fuse
Overload protection	Constant current limit under overload and short circuit conditions (except DC input versions which have primary current limit)
Isolation	1KV DC input - output / earth
Over voltage protection	130% of nominal output voltage
Efficiency	≥ 85%
Inrush current	Soft start circuit
Output power	750W
Output voltage	Refer to model table
Line regulation	<0.2% over AC input range
Load regulation	<0.4% open circuit to 100% load
Noise	<1%
Drift	0.03% / °C
Hold-up time	15 - 20 ms without battery
Thermal protection	Yes, self resetting
Parallel operation	Yes
- higher power	Addition of external output diodes optional
- N+1 redundancy	Use SR750D... with external output diodes

PHYSICAL	
AC input connector	IEC320 inlet socket
DC connections	M8 brass stud or plug in/screw terminal block
Alarm connections	Plug-in screw terminal block
Enclosure	Powder coated steel
Dimensions	225W x 70H x 304D mm (excl. terminals)
Weight	4.3 Kg
Indication LEDs	Standard: Power OK, Standby With alarms: DC OK, Power OK, Standby
Standby switch	Turns off DC output of PSU

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Operating temperature	0 to + 50 °C ambient at full load De-rate linearly >50 °C to no load @ 70 °C
Storage temperature	-10 to 85 °C ambient
Humidity	0 - 95% relative humidity non-condensing
Cooling	Fan cooled

STANDARDS	
EMI Safety	To CISPR 22 / EN55022 class A To IEC950 / EN60950 / AS/NZS3260a

ACCESSORIES SUPPLIED	
Mounting feet together with screws	
AC power cord 1.5m with IEC320 socket and NZ/Aust plug	
Mating screw-terminal plug for alarm outputs	
Crimp lugs for stud terminal versions	
DC screw terminal plug-in connector for 'X' version	

750 Watt AC/DC Stand Alone Power Supply/Float Charger

SR750L

incl. SR750D, SR750L

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MODELS	Power Supply		Battery Charger		Adjustable range (V)
	Output Volts (factory default)	Output Current (A) (continuous)	Output Volts* (Charging)	Output Current (A) (Charging)	
SR750L12	13.8	54 (54 @ 11-14V)	13.8	54	11-14
SR750L24	24	31.2	27.6	27	22- 29
SR750L30	30	25	34.5	21.7	28-36
SR750L36	36	20.8	41.4	18	34-43
SR750L48	48	15.6	55.2	13.6	45-57
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SR750L92	108	6.9	124	6.0	111-130
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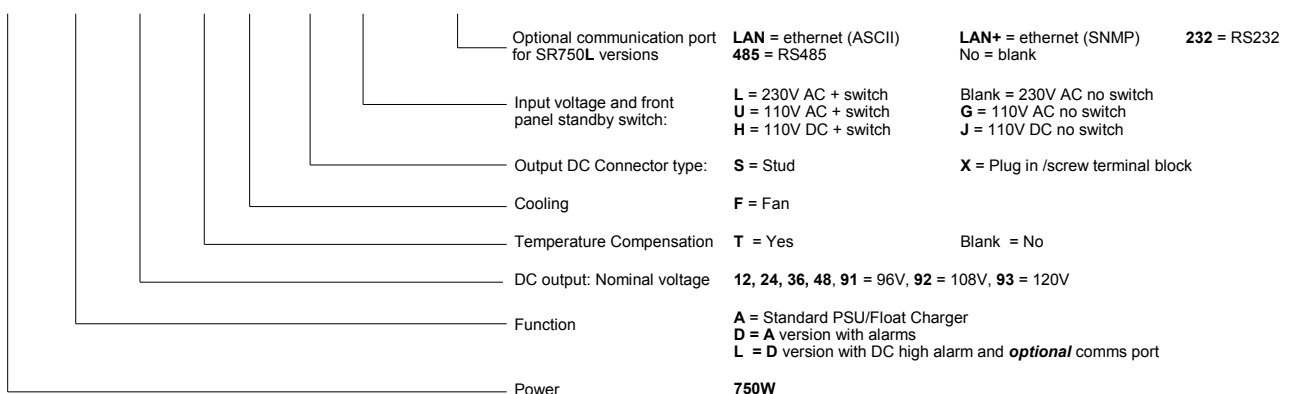
Rear view of SR750D...or SR750L... with alarm contacts and no com-

OPTIONS	
Temperature compensation for charging	Temperature sensor on 1.7m lead with adhesive pad: -4mV / °C / cell ±10% Order Code: +TEMPCO
Alarms - SR750D..	<ul style="list-style-type: none"> Mains fail (or PSU in standby mode) DC low (Battery low or PSU low) <ul style="list-style-type: none"> - Charger: set at 1.83V/cell - PSU: set at 83% V out
- SR750L..	<ul style="list-style-type: none"> As SR750D.. + DC high alarm (NB: DC OK alarm on this model indicates either DC low or DC high)
Alarm contacts	C - NO - NC changeover rated 1A /50V DC, 32VAC
DC Input	110VDC (99-150) or 220VDC (180-270) Please note that an external fuse or MCB must be fitted on the output for short circuit protection.
Earth fault alarm (external to PSU))	Detects leakage to earth of DC output and provides relay output Code: +ALARM/EFDM (20-60V) +ALARM/EFDH (61-150V)

OPTIONS (continued)	
Communications port	Choice of RS485, RS232, ethernet (SNMP or ASCII) Available on SR750L... models
Internal V/I meter	Add code: +INT-METER
Mounting options:	
19"rack mount	2U sub rack available, Code: SR-RM2U Optional V/I meter, Code: SR-METER
Wall mount enclosure	PSU may be fitted into enclosure with MCBs and terminals. Code: SEC-SR

MODEL IDENTIFICATION CODES

SR750L 12 T F S L-LAN



Notes

Notes

CUSTOMISED VERSIONS

Model code	BASE MODEL	SPECIAL FEATURES
CSR106	SR750L24TFSL-LAN+	5m long tempco
SR750L30TFSL-01	(used in CSB260)	34.13V @25degC, 4m tempco with inline connector
CSR143	SR500A48FXL	Front voltage adj. pot.
CSR147	SR750L48FX	60V 750W,no front switch panel, alarms 58V/62V

TERMS OF WARRANTY

Helios Power Solutions warrants this product for 24 months from date of shipment against material and workmanship defects. Liability under this warranty is limited to the replacement or repair of the defective product as long as the product has not been damaged through misapplication, negligence, or unauthorized modification or repair.