Battery Charger

SM82A

Switchmode range of chargers

Note: The SM82A is supplied without LED indication on the front of the protective cover. See Pg 2 and supplementary page for information on connecting LED's to Terminal Connections.

This battery charger is designed for Use with Lead Acid or VRLA battery packs.

Safety

Batteries can be dangerous, do not place metallic objects across the terminals of a battery or battery pack. When handling batteries remove all loose jewellery, watches and rings. Take care not to place tools across the terminals. Only specified types of batteries should be used with this unit as charging others may cause damage and result in serious injury.

Before using this unit, ensure the following: -

Unit is physically checked, in event of any damage to unit please return to supplier.

AC Voltage is correctly selected where appropriate.

Read and follow the "How To Use" guidelines in this instruction document.

It is recommended that when using the SM82 battery charger, the battery packs should be at ambient temperature (20deg C) before starting charge.

Consult Table (A) to determine whether to use float mode (with manual boost option) or Auto-3 Stage mode.

Table (A) - Charging mode selection guide

Nominal VDC	Standing Load (Continous Current) ADC	Mode Of Operation Best Suited
6/12	<350mA	Auto-3 Stage
	>350mA	Float
24	<200mA	Auto-3 Stage
	>200mA	Float
48	<100mA	Auto-3 Stage
	>100mA	Float

Note: Auto-3 Stage Operation is controlled by output current of the charger, this determines whether charger goes into an increased 'boost' voltage mode, continous charging at this voltage causes gassing of batteries and shortens both AH capacity and life, having a continous (standing load) above this level whilst in the Auto-3 Stage Mode will cause the charger to be in a continous 'boost' mode.

FEATURES:

- **High Rate Float Charging**
  5A @ 6/12 - 3A @ 24V - 1.5A @ 48V
- **VRLA and Vented Lead Acid**
- **Low Ripple (<1%)**
- **Auto 3 Stage Operation**
  Or Optional Manual Boost Mode
- **Full LED Output Indication**
  Float, bulk and charge fail outputs
- **Current Limited**
- **Charge Fail / Loss of AC Relay**

Product Specification

Power Supply:

Nominal operating voltages	95-135 and 195-277VAC (switchable)
Nominal operating frequency	50/60Hz

DC Charge Output:

Output current ADC		5	5	3	1.5
Nominal voltage VDC		6	12	24	48
Line regulation		< 1%			
Load regulation		< 1%			
Output ripple		< 1%			
Charging settings	Float VDC	6.9	13.8	27.6	55.4
	Boost VDC	7.2	14.5	29.0	58.0

Charge Fail Relay Output:

Relay type	Volt free SPDT contacts relay de-energises on fault
Contact rating	1A @ 30VDC

General:

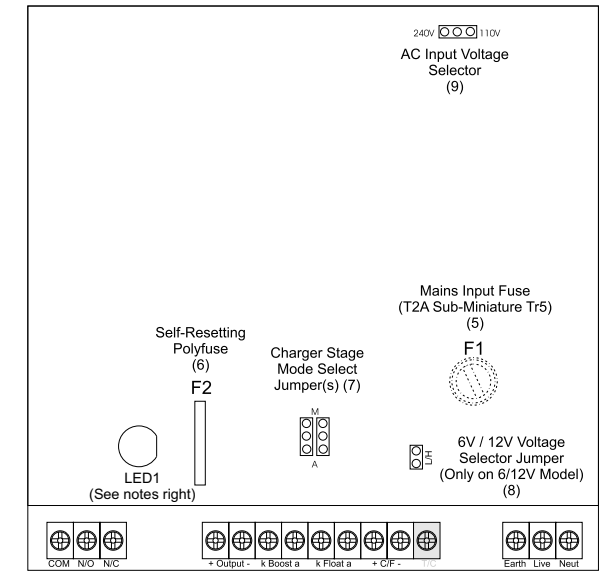
operating temperature	-20°C to +60°C
overall dimensions (w x h x d)	134mm x 140mm x 85mm (5.3" x 5.5" x 3.6")
weight	0.56Kg (1.24lbs)
EMC emmision / immunity	EN61000-6-2 / EN61000-6-4

Warranty

A two year limited warranty on materials and workmanship is given with this product. Details are available upon request.

For more information on this product, please contact:
PC&S, Inc. at +1 (800) 523-9194 or +1 (973) 448-9400
www.pc-s.com

Connections & Controls



FRONT VIEW

Notes on Charging mode selector and boost operation:
With both the charging stage mode selector jumpers fitted uppermost (M) on (7), the unit will function in the float mode, providing a constant voltage output (at specified level as shown on page 1), an increased 'boost' voltage can be manually triggered by linking the Boost Terminals (4). Fitting both jumpers towards (A) on (7) will put the charger in Auto-3 Stage mode.
Note: Care should be taken when using the manual boost mode so overcharge does not take place, the boost link should be timed or monitored until battery voltage reaches required level.
WARNING! Continuous boost charging will damage the batteries

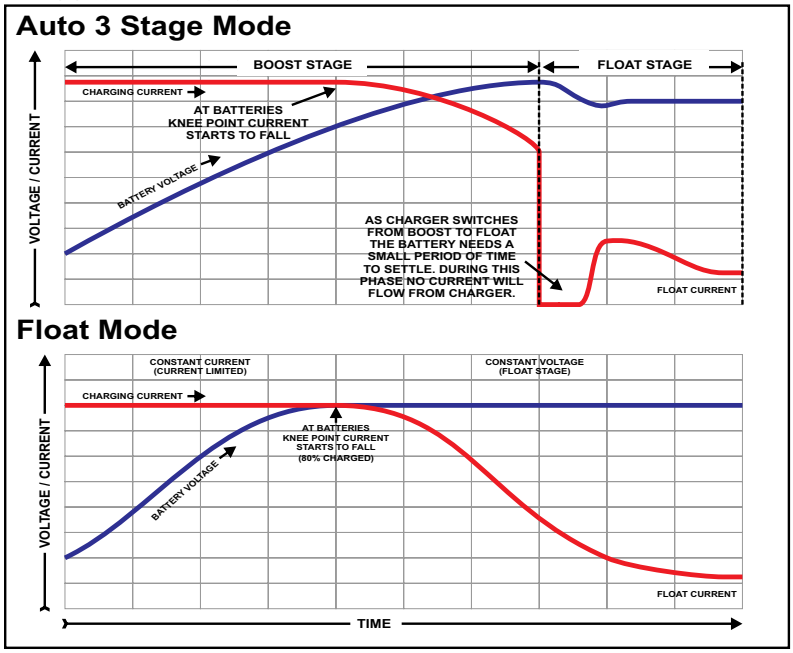
Factory default units are shipped with Jumper (7) fitted in M position for Float mode, Jumper (8) fitted for 12V setting (on 6/12V units) and Jumper (9) selected for 240VAC.

Note: The SM82A may be fitted with an on-board LED (marked LED1), this is an internal LED to indicate charger control circuit is operational and used for internal test purposes only. Not all units have this device fitted.

How to Use

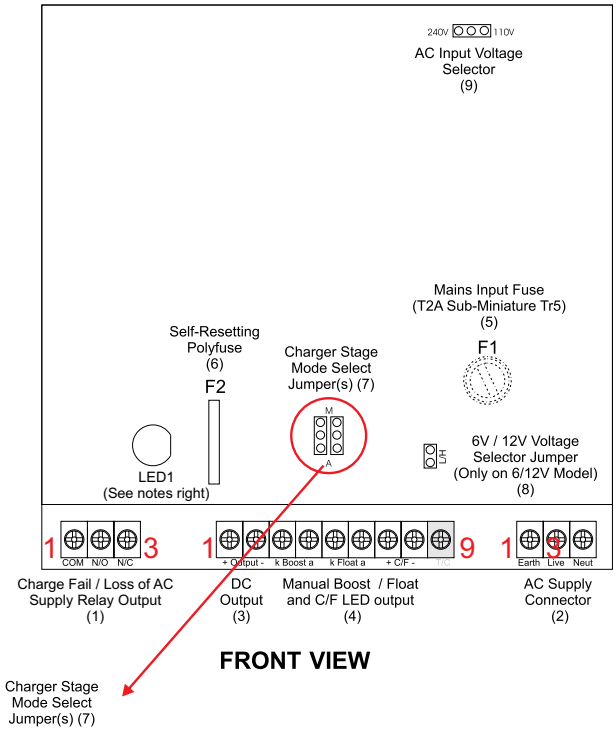
Ensure correct AC Input Voltage input is selected on the charger (9)
If using the 6/12V switchable model, ensure the 6/12V Voltage Selector (8) is configured correctly, (ON for 12V, OFF for 6V)
Connect AC supply to terminals (2) observing connection details, and plug into the mains, switch the mains on and check the battery charged (float) LED (4) illuminates (if connected), then switch off at mains.
Ensure that the battery pack is either Vented or VRLA (sealed) rechargeable lead acid only. Confirm the correct charging stage to be used from Table (A) on page 1 and connect mode selector jumper (7) to suit as described above.

Table (B) -Typical charging characteristics



Connect the +Ve and -Ve terminals (4) to battery/battery pack
IMPORTANT: CHECK POLARITY OF BATTERY CONNECTIONS REVERSE POLARITY WILL DAMAGE BATTERIES
In Auto-3 Stage Mode of Operation (with LED's Connected):
Switch on at mains, 'Boost' LED (4) should now be illuminated. When the battery pack is fully charged the 'Float' LED (4) should be illuminated and the 'Boost' LED (4) should switch off. Once fully charged the battery packs will receive a float charge at specified voltage on Page 1, keeping batteries in prime condition ready for use.
Before disconnecting the battery pack from charger, switch of at mains, disconnect battery pack and then disconnect charging leads from charger.
In Float Mode of Operation:
As above, only the Float LED (4) will be permanently illuminated.
Notes: If no AC is present and the unit is connected to a battery, then the C/F LED (2) will be illuminated. The SM82A charger draws 20mA from battery(s) when connected with no AC present. With AC present and no battery/load connected the Float LED (2) will also be illuminated. All the LED outputs are configured for 2.5VDC LED's, no voltage drop down resistor is required.
When using the charger in the Auto 3 Stage mode, either neither of LED's should be connected or both the Float and Boost LED's must be connected for them to function correctly, if only 1 of the LED's are connected they will not function correctly.
ENSURE CONNECTION OF LED'S IS CORRECT BEFORE SWITCHING ON UNIT - INCORRECT CONNECTION MAY DAMAGE THE CHARGERS LED OUTPUT CONTROLLER

Supplementary Information - Fitting External LED Indication & Boost Link



Notes on Charging mode selector and boost operation:
With both the charging stage mode selector jumpers fitted uppermost (M) on (7), the unit will function in the float mode, providing a constant voltage output (at specified level as shown on page 1), an increased 'boost' voltage can be manually triggered by linking the Boost Terminals (4). Fitting both jumpers towards (A) on (7) will put the charger in Auto-3 Stage mode.

Factory default units are shipped with Jumper (7) fitted in M position for Float mode, Jumper (8) fitted for 12V setting (on 6/12V units) and Jumper (9) selected for 240VAC.

Notes: If no AC is present and the unit is connected to a battery, then the C/F LED (2) will be illuminated. With AC present and no battery/load connected the Float LED (2) will also be illuminated.

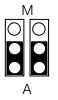
All the LED outputs are configured for 2.5VDC LED's, no voltage drop down resistor is required.

When using the charger in the Auto 3 Stage mode, either neither of LED's should be connected or both the Float and Boost LED's must be connected for them to function correctly, if only 1 of the LED's are connected they will not function correctly.

ENSURE CONNECTION OF LED'S IS CORRECT BEFORE SWITCHING ON UNIT - INCORRECT CONNECTION MAY DAMAGE THE CHARGERS LED OUTPUT CONTROLLER

Manual Mode

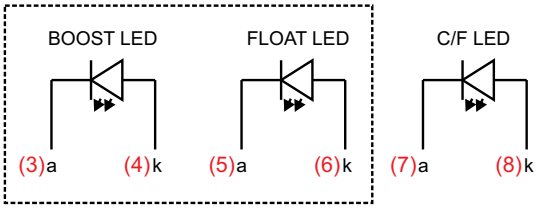
Boost LED Terminals (3 & 4) will be used for manual boost mode.
Float LED output will be active under all healthy charging conditions, i.e. AC mains OK and Charger Healthy
Charge Fail LED output will be active under AC mains failure or Charger Failure Conditions.



Auto Mode

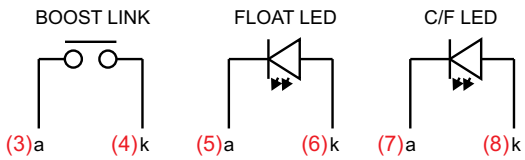
Boost LED Terminals (3 & 4) will be used for charging mode.
Boost LED output will be active when in boost mode charging
Float LED output will be active when in float mode charging
Charge Fail LED output will be active under AC mains failure or Charger Failure Conditions.

Auto Mode - Optional External LED Connection



Must both be connected if using external LED's

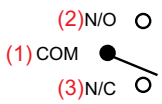
Float Mode - Optional External LED Connection



Open Link - Float Mode
Closed Link - Boost Mode

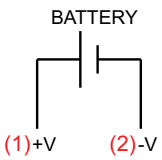
Supplementary Information - General Connection

Charge Fail Relay Alarm



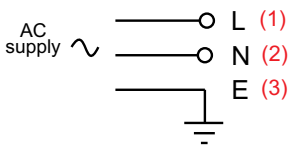
De-energised state shown
Relay de-energises on fault

DC Output Connections



IMPORTANT: CHECK POLARITY OF BATTERY CONNECTIONS. REVERSE POLARITY WILL DAMAGE BATTERIES

AC Input Connections



Ensure jumper 9 setting is set correctly to AC supply voltage, see above.

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