

# Datasheet

# SM82 Switch mode Range of Automatic Battery Chargers

RS Stock No: 4822056

## GENERAL INFORMATION

Please read the following information before installing. Connection and Operating instructions are given on Page 2 of this datasheet. A visual inspection of this product for damage during shipping is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product. If in doubt, please contact your local Computronic representative.



### Description

The SM82 is a highly efficient high performance charger. The very smooth output is configured for accurate fast charging, optimum battery life and reliability. Due to its very smooth output (< 1% ripple) the charger is suitable for sealed or vented batteries. e.g. Nickel Cadmium (NiCd), Lead Acid sealed (VRLA), vented and plate cells.

Switch mode technology is a major advance in power supply and battery charger design. Giving low heat dissipation compact low weight design and ease of panel installation via din rail.

### Auto 3 Stage Operation

The output current of the charger is limited to a low value until the battery reaches a specific voltage, preventing high charge current if a cell is shorted. Above this level the bulk charge phase starts supplying maximum current to the battery. This continues until the bulk voltage is reached when the current will start to fall. When it has fallen to 10% of the maximum bulk current the float phase will begin.

### Manual Boost Operation

The charger will give a constant current output up to its knee point (13V on a 12V LA) at which point the current will ramp down as the battery reaches it's float voltage. This gives an optimum charge time to ensure that the battery voltage is maintained at the pre-calibrated float level, whilst supplying any additional standing load current up to a specified maximum. The battery charger is designed so that it can be permanently connected to the battery.

The 'boost' mode of operation provides increased voltage output. Selection of boost mode is by connecting the two Boost Terminals (as shown on Page 2).

### Charge fail option

A self diagnostic 'charge fail' circuit and relay output is provided. The volt free relay de-energises in the event of a charging fault.

Electrical connection of the AC supply, DC output and charge fail relay are via shrouded screw terminals.

- **High rate duty float charging:**  
5A @ 6V & 12VDC - 5A @ 24VDC output
- **Fully automatic charge regulation**
- **Light compact DIN rail mount design**
- **Auto 3 stage operation**
- **Charge fail relay output**

## Product Specification

### Power Supply:

nominal operating voltages	95-130VAC 195-277VAC
nominal operating frequency	47-400Hz

### DC Charge Output:

output current ADC	5	5
nominal voltage VDC	24	6/12
line regulation	< 1%	
load regulation	< 1%	
output ripple	< 1%	
float / boost voltages	configured for lead acid cells	

### Charge Fail Output:

relay type	volt free SPDT contacts relay de-energised on fault
contact rating	1A @ 30VDC (resistive load)

### General:

operating temperature	-10 to +55°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 emission / immunity	EN 58801-2 / EN50082-2

## Warranty

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

## 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 battery 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.

Correct Voltage AC input is selected where appropriate.

Read and following "How to use" guidelines covered in this instruction document.


It is recommended that the batteries/battery packs are at ambient temperature before starting charge (20°C)


## Connections & Settings

The SM82 has internal jumper settings for input voltage (VAC), charging mode and output voltage (6/12VDC model only) follow the guidelines below to configure charger correctly before connecting to mains and operating, these jumpers are accessed by removing the four rivets located on the lid.

### Input Voltage Settings

Located towards the rear right hand side of the PCB is a 3-pin header with a jumper on, labelled 110/240 on PCB. Move jumper to desired voltage (see below). **Applying 230VAC to unit when set in 95-130VAC position will damage unit and could result in injury.**

 No Jumper On - 195-277VAC is default setting

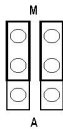
 Jumper to 230 - 195-277VAC is set

 Jumper to 110 - 95-130VAC is set

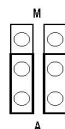
### Charging Mode of operation

Selection of charging mode, as outlined on Page 1 of this datasheet, is made via 2 off 2-Pin Black Jumpers located above terminal connections marked at M and A. With both the Jumpers set to the **A** position the charger will operate as a Auto-3 stage unit (see page 1 and note below), whilst in the **M** position the charger will operate in the manual boost mode.

Note: Auto-3 stage operation should only be selected when no standing loads are present on battery, a standing load is a continuous drain on the battery even whilst charger is connected and running. *If in doubt always use the manual boost mode.*



Jumpers set to M position,  
Charger is in manual boost mode of operation.



Jumpers set to A position,  
Charger is in auto-3 stage mode of operation.

### Output voltage setting (6/12V model only)

The unit can be configured to charge either 6V or 12VDC batteries/battery packs by the fitting of a 2-Pin Black Jumper to L/H **IMPORTANT: INCORRECTLY SETTING UP CHARGER TO BATTERY VOLTAGE CAN CAUSE DAMAGE TO CHARGER AND BATTERIES AND CAUSE SERIOUS PERSONAL INJURY**

With the Jumper on the charger is set to nominal 12VDC output, with the Jumper off the charger is set to nominal 6VDC output.

### AC, DC, ALARM and LED screw terminal connections

Charge Fail Contacts		
COM	N/O	N/C

DC Output		Boost Link	Float LED		C/F LED		
+V	-V	k	a	k	a	k	a

MAINS INPUT		
Earth	Live	Neutral

## How to Use

Ensure that the battery pack is as specified on charger and all internal jumpers are set as outlined above, all units are shipped as 195-277VAC input set to operate in manual boost mode of operation. (6/12VDC units are set to 6V position)

Connect the +Ve and -Ve terminals to the battery/battery pack.

**IMPORTANT: CHECK POLARITY OF BATTERY CONNECTIONS REVERSE POLARITY CONNECTION WILL DAMAGE BATTERIES**

Connect Charge fail contacts and Boost link if required as outlined in their description.

Ensure mains supply is isolated and connect AC supply terminals as shown.

Switch on at mains, the Battery Charging LED (Green) should be illuminated. In the event of a charging fault the charging LED will go off and the charge fail LED (Red) will illuminate. Before disconnecting the battery pack from charger, switch off at mains, disconnect battery pack and then disconnect charging leads from charger.

### Notes on manual boost operation

If using the charger in the manual boost mode and the boost link is active (*Boost link connected*), care should be taken so over-charge does not take place, the boost link should be timed or monitored until battery voltage reaches required level. **continuous boost charging will damage the batteries.**



**WARNING: DANGER OF INJURY OR DEATH.** Before connection, disconnection or handling of battery charger, ensure that all AC power supplies are isolated. Connection to or disconnection from live wiring can also cause damage to internal components.