

## Enclosed SM Range of Automatic Battery Chargers

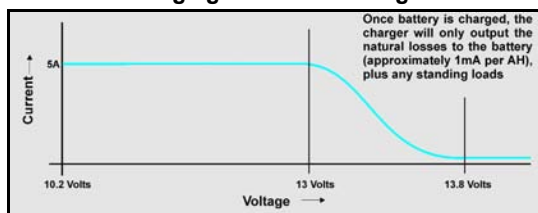


### Description

The enclosed switch mode range are highly efficient high performance chargers. Their very smooth output is configured for accurate fast charging and optimum battery life and reliability. The charger is designed to cater for continuous float charging and standby battery applications. 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 and vented, Plante and VRLA cells. The wide input voltage range, from 95-277VAC allows the charger to be used with all common single phase voltages with no adjustment.

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. Utilising the benefits of switch mode, the charger will give a constant current output up to its knee point (13 Volts on 12 Volt LA) and then ramp down to its float voltage (see graph below). This gives the 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.

Charging current vs voltage



### Output protection

The charger control cards are fitted with self-resetting polyswitch fuses, which prevent short circuit and reverse polarity damage to the chargers, but which will reset once the fault has been remedied thereby preventing the need for the user to replace fuses. The main DC output of the unit is also fuse protected.

### Boost option

A 'boost' mode of operation provides increased voltage output. Selection of boost mode is via front mounted toggle switch. A calibration table overleaf shows details of float and boost voltages.

### Charge fail relay

A self diagnostic 'charge fail' circuit and relay output is provided as standard. The volt free relay emits and LED display in event of a charging fault or loss of AC supply.

- **High rate duty float charging:**  
40, 50, 75 & 85A @ 12V & 20A, 30A, 40A, 50A @ 24V
- **Fully automatic charge regulation**
- **Compact bench or floor standing enclosure**
- **Charge fail / AC fail LED display**
- **Optional boost mode**
- **Reverse polarity / short circuit protection**
- **Ammeter & Voltmeter display**

### Product Specification

#### Power Supply:

|                             |           |
|-----------------------------|-----------|
| nominal operating voltages  | 95-277VAC |
| nominal operating frequency | 47-400Hz  |

#### DC Charge Output:

|                        |                                |
|------------------------|--------------------------------|
| output current ADC     | max 85A                        |
| nominal voltage VDC    | max 24V                        |
| line regulation        | < 1%                           |
| load regulation        | < 1%                           |
| output ripple          | < 1%                           |
| float / boost voltages | float @ 2.3Vpc boost @ 2.35Vpc |

#### Charge Fail Output:

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

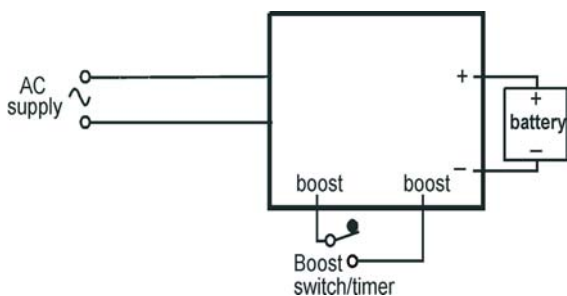
#### General:

|                                |                        |
|--------------------------------|------------------------|
| operating temperature          | -10 to +55°C           |
| overall dimensions (w x h x d) | see overleaf           |
| weight                         | see overleaf           |
| 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.

## Electrical connection



Notes:

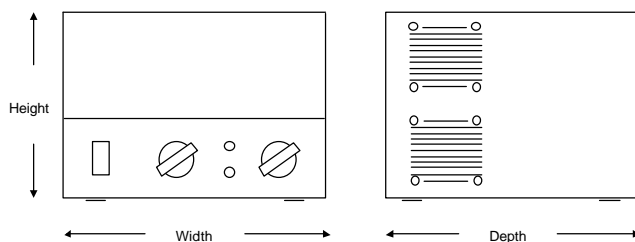
AC in and DC out are via side-entry cable glands to terminal blocks. Boost switch external.

## Calibration

| Battery type |                      | float volts (VDC) | boost volts (VDC) |
|--------------|----------------------|-------------------|-------------------|
| 12V          | Lead Acid (6 cells)  | 13.6              | 14.1              |
|              | Ni-Cd (10 cells)     | 14.1              | 16.0              |
| 24V          | Lead Acid (12 Cells) | 27.2              | 28.2              |
|              | Ni-Cd (18 Cells)     | 25.38             | 28.8              |
|              | Ni-Cd (20 Cells)     | 28.2              | 32.0              |

When ordered with boost facility the boost is activated by a front panel switch.  
**WARNING: Continuous charging of batteries in the boost voltage will result in overcharging and may permanently damage the batteries.**  
 If in doubt, contact our technical department .

## Dimensions



Wall mounting dimensions: 2 holes ( $\varnothing=8\text{mm}$ ) at 33mm in from side edges of unit, 33mm down from top edge, and 2 holes ( $\varnothing=8\text{mm}$ ) at 33mm in from side edges of unit, 50mm up from bottom edge.

|                                     | Depth (mm)     | Width (mm)     | Height (mm)   | Weight                                  |
|-------------------------------------|----------------|----------------|---------------|---|
| ESM500                              | 260<br>(10.2") | 260<br>(10.2") | 220<br>(8.7") | 4Kg<br>(8.8lbs)                         |
| EM750<br>&<br>EM1000<br>&<br>EM1250 | 365<br>(14.2") | 455<br>(18")   | 210<br>(8.3") | 7Kg<br>(15.54lbs)<br>12Kg<br>(26.64lbs) |

## How to order

When ordering, please specify:-

| PRODUCT     | Nominal Output VDC |    | Nominal Output Current |    |    |    |    |    |
|-------------|--------------------|----|------------------------|----|----|----|----|----|
|             | 12                 | 24 | 20                     | 30 | 40 | 50 | 70 | 85 |
| ESM5002420  |                    | •  | •                      |    |    |    |    |    |
| ESM7502430  |                    | •  |                        | •  |    |    |    |    |
| ESM5001240  | •                  |    |                        |    | •  |    |    |    |
| ESM10002440 |                    | •  |                        |    | •  |    |    |    |
| ESM7501250  | •                  |    |                        |    |    | •  |    |    |
| ESM12502450 |                    | •  |                        |    |    | •  |    |    |
| ESM10001270 | •                  |    |                        |    |    |    | •  |    |
| ESM12501285 | •                  |    |                        |    |    |    |    | •  |

| OPTIONS      |   |
|--------------|---|
| Manual Boost |   |
| MB           | • |

| INPUT VOLTAGE |           |
|---------------|-----------|
| CODE          | 95-277VAC |
| CD            | •         |

|    | BATTERY TYPE |                |                |                |
|----|--------------|----------------|----------------|----------------|
|    | Lead Acid    | 10 Cell Ni Cad | 18 Cell Ni Cad | 20 Cell Ni Cad |
| LA | •            |                |                |                |
| 10 |              | •              |                |                |
| 18 |              |                | •              |                |
| 20 |              |                |                | •              |

**Product**      **Input volts**      **Battery type**

**Options**

The above part number codes must be filled in to complete your order

Insert options when required, if no options are required, leave empty

**ESM5001240**

**CD**

**LA**

**MB**

The above example shows the order code for an enclosed 95-277VAC input, 40A @ 24V, DC charger complete with manual boost switch option.

**Computronic Controls Ltd**  
 41 - 46 Railway Terrace  
 Nechells. Birmingham, B7 5NG  
 United Kingdom  
 Tel +44 121 327 8500  
 Fax +44 121 327 8501  
 email: sales@computroniccontrols.com  
 web: www.computroniccontrols.com