

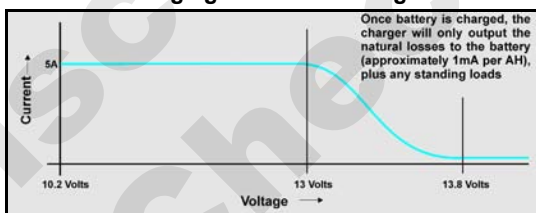
## Enclosed SM Range of Automatic Battery Chargers



### 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 relay de-energised on fault
contact rating	1A @ 30VDC (resistive load)

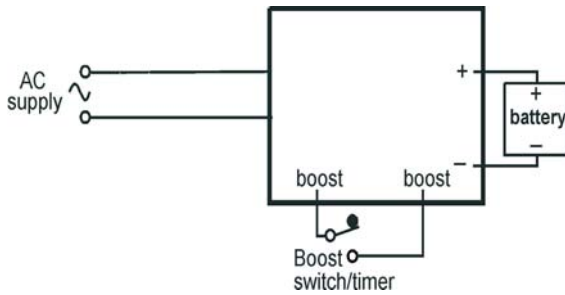
#### General:

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:**

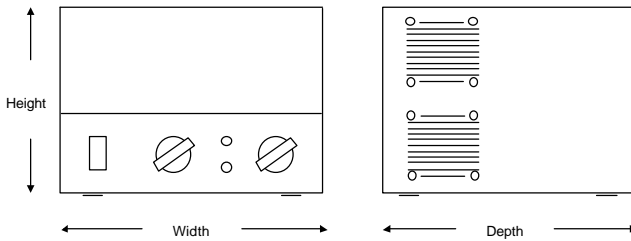
AC in and DC out are via side-entry cable glands to terminal blocks. Boost switch external.

## 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 (Ø=8mm) at 33mm in from side edges of unit, 33mm down from top edge, and 2 holes (Ø=8mm) at 33mm in from side edges of unit, 50mm up from bottom edge.

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

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