



Electro Service (India)  
An ISO 9001:2015 Company



## SMPS BASED BATTERY CHARGER

### Description:

- Battery Charging is a complex electro technical process, in which the discharged electrical energy must be replenished from the electrical network.
- Quality of the charging process is critical to the health & longevity of the battery.
- Therefore, battery charger plays a vital role in life & performance of today's industrial batteries.
- In low voltage & low power application SMPS based automatic charger is the most economic, efficient and versatile solution.
- ESI SMPS Chargers are designed to provide a perfect balance between maximum utilization of battery capacity and safe charging.
- Intelligent techniques have been implemented in ESI Battery Chargers with the help of microcontroller for faster charging

### SMPS Basics:

- A typical Switched Mode Power Supply incorporates a front-end AC-DC rectifier to generate an unregulated DC input voltage to switching circuit.
- A high frequency PWM drive then converts this DC output to a pulsating square wave through MOSFET/IGBT switching device.
- After that a high frequency transformer isolates, steps down and converts this square wave DC to square wave AC output.
- It is then rectified & filtered to generate a smooth ripple free regulated DC output.
- Output regulation is maintained by closed loop feed back control. Every SMPS circuit is intrinsically protected by the dedicated PWM IC from overload and short circuit.

*"Quality Endures"*

**Warranty – Unconditional 12 months with life time service support**

**Electro Service (India)**

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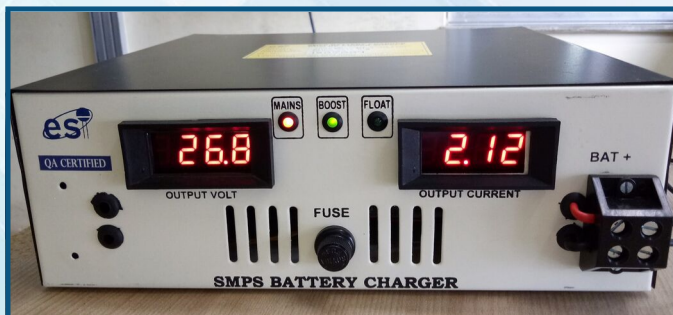
## SMPS Advantage:

- At least 40% lower in cost compared to conventional thyristor/transistor based or even Manual Battery Charger
- Higher efficiency
- Compact and light
- Easy servicing by card/PCB replacement

## ESI SMPS Battery Charger Product range and application:

In ESI we have successfully designed, manufactured and supplied SMPS based Battery Charger for many applications like:

- DG set Battery Charger
- VCB panel Battery Charger
- Battery Charger for firefighting panels
- Panel mounting 12V & 24V Battery Chargers for control panel
- Variable current Battery Chargers for battery service centre
- 48V & 60V E-rickshaw Battery Chargers
- Battery Chargers for traction batteries from 24V to 110V
- Battery Chargers for Trip circuit
- 30V & 48V Battery Chargers for substations
- Battery Chargers for transmitters 110V & 220V DC Power supplies cum Battery chargers



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## Salient features of ESI SMPS Battery Charger:

1. For the life of battery -
  - a. Pre-programmed charging profile
  - b. Charger prevents over-heating & over-charging of battery
  - c. Supersedes standard VOLTAGE sensing (for end of charging process) by TIMER over ride for ill maintained or aging batteries
2. Friendly features for the end-user -
  - a. Charging indication with a blinking LED
  - b. Depth of charge status by multiple LEDs (optional)
  - c. CV mode charging indication
  - d. End of charge notification by blinking LEDs & buzzer
  - e. Easy replacement of mother board ensures quick on the spot servicing
  - f. Wall/table/panel mounting options are available as per customer's requirement
3. For the life and protection of the charger -
  - a. Protection against reverse polarity connection of battery
  - b. Twin fan cooling
  - c. Thermal shutdown
  - d. Standard EMI/EMC compliance
  - e. Protection against over load & short circuit
  - f. Protection against input over voltage & surge
  - g. Inrush current limiting by delay and soft start
  - h. Incorporation of TVS for protection against switching spikes
  - i. Multi stage charging reduces over-heating of charger
  - j. Optimized design for Cost and Quality
  - k. Generous component layout for easy airflow
  - l. Proper heat-sinking for good thermal stability
  - m. Magnetics are vacuum impregnated with class-F varnish

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