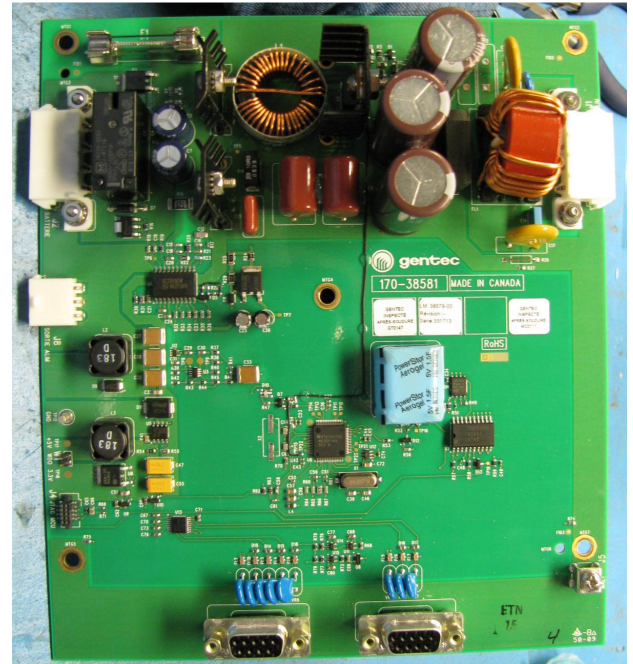




gentec

Embedded Switchmode Lead-Acid Battery Charger 12V, 4AMP. EMB Series

Developing an embedded battery charger for today's products and using the latest battery technology requires careful consideration of how the system elements, including battery, charger, system controller and system load, work together. The new *EMB SERIES* has been designed especially to fulfill the needs of the 12V valve-regulated (sealed) lead-acid battery (VRLA) with a modern design. Combined with the renown "Gentec" quality and customers support, the *EMB SERIES* is the logical choice to be integrated into your product.



*Battery charger
12Vdc, 4A*

This switchmode lead-acid battery chargers accurately controls lead acid battery charging with a highly efficient average current mode control loop. It combines charge state logic with PWM (Pulse Width Modulation) control circuitry. Charge state logic commands current or voltage control depending on the charge state. Moreover, the charger includes a temperature compensation of $-18 \text{ mV}/^\circ\text{C}$ and a load shedding relay to avoid the fatal complete battery discharge.

BENIFITS

- ✓ Robustness
- ✓ Automatic operation
- ✓ Large operating temperature range (-40 to 55°C / -40 to 131°F)
- ✓ Easy of Use
- ✓ No maintenance

CHARACTERISTICS

- ✓ Vdc / Vac input voltage
- ✓ Charge in 4 different states
- ✓ Temperature compensation
- ✓ Battery protected against deep discharge

EMB Series

Description

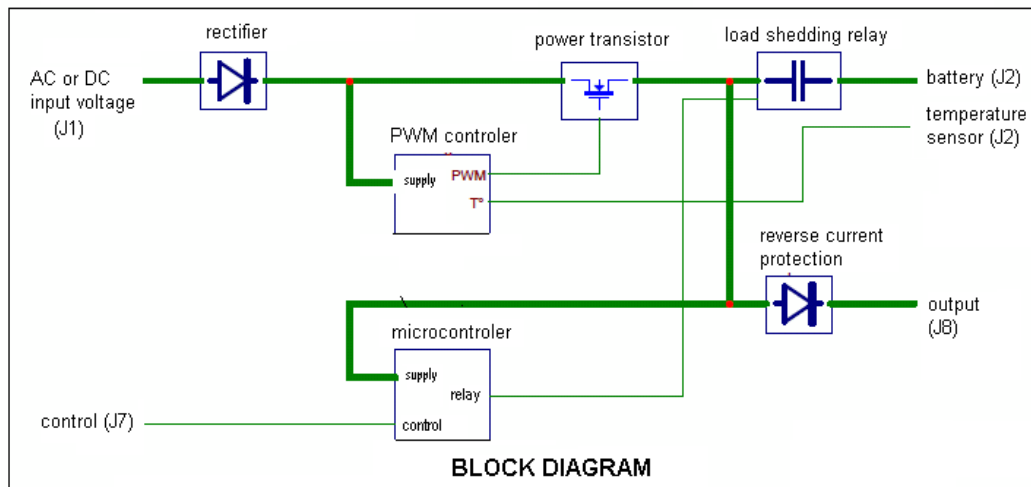
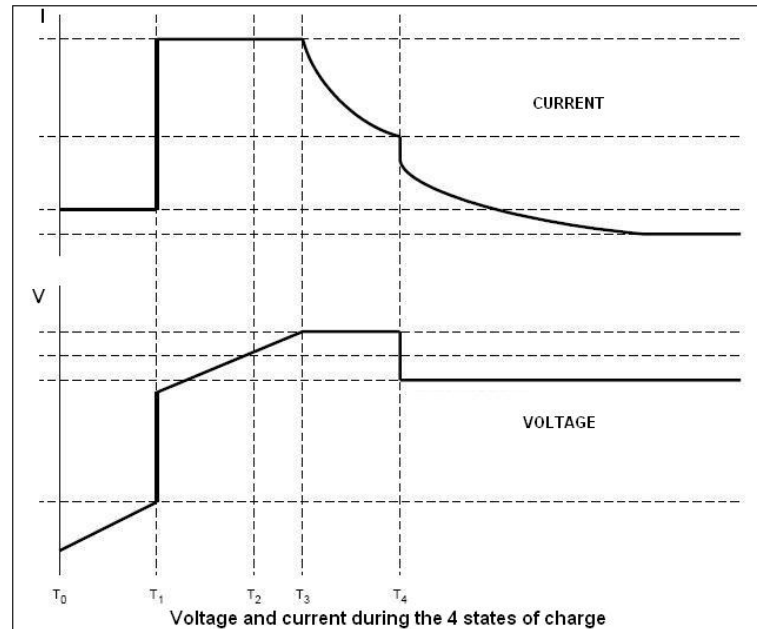
This automatic battery charger has been designed to charge 16Ah to 40Ah 12V valve-regulated (sealed) lead-acid battery (VRLA) with a current limiting and a protection against short circuits. Here is a description of the 4 states of charge:

State 1: "Trickle Charge" limits the charge current to 330mA when the battery voltage is lower than 10.5V. Under these conditions, the charger can resist indefinitely to a short circuit or a defective battery.

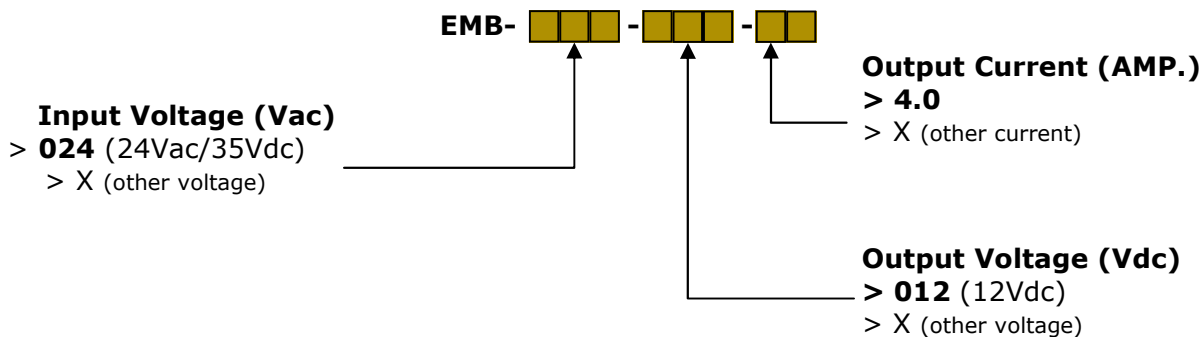
State 2: "Bulk Charge" makes a quick charge to the battery by limiting the charge current to 4.0A. This current is compatible with batteries capacities of 16 to 40Ah.

State 3: "Equalize Voltage" limits the charging voltage to 14.16V to maximize the lifetime of the battery.

State 4: "Float Voltage" maintains the voltage at 13.5V at 25°C. A temperature compensation circuit adjusts the float voltage to avoid deterioration of the battery.



Model Number



| TECHNICAL SPÉCIFICATIONS | |
|-----------------------------------|---|
| STATES OF CHARGE | |
| State 1 (trickle charge) | If $V_{\text{battery}} < 10.5\text{V}$, then I_{charge} is limited to 330mA |
| State 2 (bulk charge) | If $10.5\text{V} < V_{\text{battery}} < 14.16\text{V}$, then I_{charge} is limited to 4.0A |
| State 3 (equalize voltage) | V_{battery} is limited to 14.16V, then I_{charge} decreases |
| State 4 (float voltage) | If $I_{\text{charge}} < 1.65\text{A}$, then V_{battery} is limited to 13.5V at 25°C (temperature compensation: -18 mV/°C) |
| Protection against deep discharge | If $V_{\text{battery}} < 10.0\text{V}$, then a load shedding relay opens to avoid the fatal complete battery discharge |
| Short circuit current | 330 mA (unlimited duration) |
| Compatible battery capacity | 16 Ah to 40Ah |
| INPUT SPECIFICATION (J1) | |
| Nominal input voltage | 24Vac / 35Vdc |
| Input voltage range | 15Vac to 28Vac / 20Vdc to 40Vdc |
| Power consumption | 70 Watts max. |
| OUTPUT (J8) | |
| Output current | 5.0A max. |
| Output voltage | $V_{\text{battery}} - 0.7\text{V}$ |
| DIMENSIONS | 173.5mm (L) x 200.0mm (H) |
| ENVIRONNEMENTAL SPECIFICATIONS | |
| Operating Temperature | -40°C to +55°C (-40°F to 131°F) |
| Storage Temperature | -40°C to +70°C (-40°F to 158°F) |
| Relative Humidity | 0% to 95% without condensation |
| CONNECTORS | |
| Input Connector | |
| J1 – 1,2 | Vac Line / Vdc (+) |
| J1 – 3,4 | Vac Neutral / Vdc (-) |
| Battery Connector | |
| J2 – 1 | Battery temperature sensor (-) |
| J2 – 2 | Battery temperature sensor (+) |
| J2 – 3 | Battery (-) |
| J2 – 4 | Battery (+) |
| Output connector | |
| J8 – 1 | N/C (no connexion) |
| J8 – 2 | Positive output (+) |
| J8 – 3 | Negative output (-) |
| Control connector | |
| J7 (DB9-F) | Control Port CTRL |

Note: Gentec product ref.: 100-38579-00

Since 1959, Gentec designs, manufactures and sells solutions for the electrical field: energy management, power systems (battery chargers, batteries, inverters & UPS), data acquisition and processing. Gentec, a certified ISO9001-2008 manufacturer, maintains its leadership within the electrical field by paying special attention to good customer relationship and technical support, combined with the reliability and the ruggedness of its products.

