

Battery Charger Is Explosion Proof

[Applied Power Systems'](#) BC-6494 battery charger is designed for use in hazardous locations where explosion proof operation is required with Class 1 Div 1 and 2 ratings. The charger is housed in an aluminum explosion-proof enclosure and implements an advanced charging algorithm to provide extended battery life (see the figure).

The BC-6964 accepts three-phase 60-Hz ac input and generates 24-Vdc 50-A nominal output. The charger provides seamless transition from a voltage source to current limit operation for optimum battery charging. In voltage mode, the charger regulates to a factory set dc voltage. It can be factory programmed to support multiple battery stack configurations, ranging from 12 V at 100 A up to 72 V at 20 A charging power.

While operating as a voltage source, the charger regulates its output voltage to provide optimum charging of the battery. If the output current demand exceeds a maximum setpoint, the charger seamlessly transitions from voltage source to current limit, where the charger folds back the output voltage to limit the current to the maximum charge current (A_{limit}). As the battery load decreases to less than A_{limit} , the BC-6964 will seamlessly return to voltage-mode operation.

The charger's ac input voltage is EMI filtered and rectified to approximately 650 Vdc, then filtered and stored in a dc link capacitor bank. A high-frequency IGBT full-bridge output inverter is pulse width modulated into the primary of a high-frequency stepdown transformer. The transformer secondary is rectified, filtered and regulated to produce the battery charger's precision output voltage.

Input power is provided by three-phase ac input connections to an internal fuse block. Output charging power connections consist of two-wire 24-Vdc connection terminals. Two ¾-in. NPT conduit openings are provided to accommodate customer wiring. Optional USB and RS-485 communication ports are available to provide remote monitoring of the battery charger operation.

For more information, contact sales@appliedps.com.



Figure. Housed in an aluminum explosion-proof enclosure, the BC-6494 battery charger can be factory programmed to support multiple battery stack configurations, ranging from 12 V at 100 A up to 72 V at 20 A charging power.