

the difference between

THE DIFFERENCE BETWEEN:

Battery Management and Battery Monitoring in Chargers

When it comes to purchasing battery backup systems and chargers, there are several things to consider. Not only do you want your backup system to be able to manage all your loads, you'll want to provide a consistent and ongoing monitoring of the whole system.

POWER SOLUTIONS TODAY

are asked to fulfill the requirements of multiple applications, whether separately or all in the same device. These functions include the power supply unit, battery charger, and battery care, as well as battery backup. Most importantly, available power must be automatically distributed to the load as first priority, with charging the battery second among the load and the battery.

Traditional Power Solutions

A complete power solution should contain your power supply unit, battery charger, battery care module, and/or backup module. Users desperately need to keep their equipment online and operating at all times. This means that automatically distributing power among loads—as well as to the battery—is important. This stabilizes all of your systems for proper operation regardless of power fluctuations or outages.

Once a piece of equipment is

disconnected from the main power source, the battery backup will supply the load until the battery voltage drops below a certain point. To be sure that your battery does not go into a deep discharge, most systems will cut the battery off after 1.5 V per cell is reached. As part of your battery management system, microprocessor-controlled charging uses algorithms to detect the battery's condition in order to choose

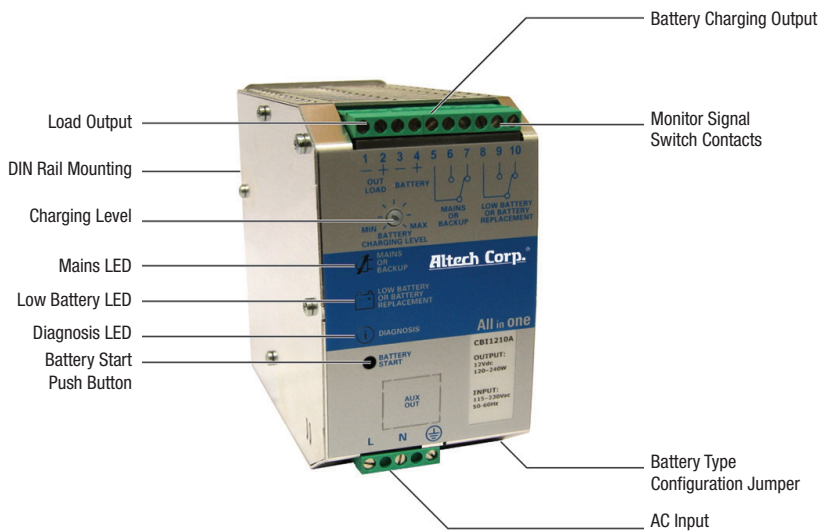
the appropriate charging mode. Voltage detection through real-time diagnostics will monitor charging progress and indicate potential faults, such as elements in short-circuit, accidental reverse polarity connection, or disconnection of the battery.

Modern Power Solutions

When it comes to providing highly reliable battery management, it is important that your system operates using easily accessible power—with suggested input voltages of 115, 230, or 277 V ac—to allow them to output multiple voltages for a variety of applications using 12 V dc with up to 35 A load, or 24 V dc with up to a 20 A load. Be sure to focus your purchasing dollars on the latest microcontroller-equipped product lines using automated multi-stage charging, which will expand your battery's life. Further, select a system that provides diagnostic and monitoring features for easy control



The CBI family of power solutions come in a variety of sizes and capabilities for automation applications.



This photo points out the important operational controls and indicators of a CBI charger.

and handling of outputs.

These capabilities can be found in multiple lines, such as Altech’s CB line of battery chargers, which provide all of the above mentioned functions based on their own switching technology—pushing efficiency higher while providing a compact light-weight device. In addition to fully automated charging capabilities, these devices provide three distinct charging modes: boost, trickle, and recovery. They also supply adjustable charging current and high efficiencies to 91%, and are suitable for most common battery types (see sidebar). Output protection

on short circuit, overload, and deep battery discharge is standard.

With automatic operation, this multi-stage system optimizes and adapts to battery status even when the battery voltage is extremely low—close to zero—to facilitate fast recovery charging, even if the battery is completely flat. Maximum battery charging current on some models can be set to anywhere from 20 to 100% of the device’s rated value.

It’s important to have access to diagnostics of the battery and device, such as a simple LED flashing sequence code that allows you to

discriminate among faults such as reverse polarity or wrong battery voltage; the event of a disconnected battery; an element in short-circuit; or battery replacement notification.

Smart Battery Management

Battery management assures that load outputs will not be affected by battery conditions; provides continuous control over time for high efficiency; provides event logging, including the number of battery charging cycles, charge cycles completed, aborted charge cycles, and the charging time and total number of standby/backup transitions. System flexibility allows for the customization of the entire charging curve of the battery, battery type setting, control of various time-out algorithms of charge, setting boost voltage, absorption and many other features.

Providing maximum safety and protection to your system guarantees long battery life. Make sure your system provides output protection against short circuits and overloads, protection against reverse polarity connection, high insulation between primary and secondary cells, detection of batteries with wrong rated voltage, and protection against parallel connection with other power sources. Conformity to standard

BATTERY SETTING OPTIONS

MANY POWER SOLUTIONS, such as Altech’s CB Series, are suitable for open/sealed lead acid, lead gel, and optionally Ni-Cd and lithium-ion batteries. By using battery-select-jumpers, predefined charging curves for those battery types can be set. The available charging options are recovery, boost, and trickle charge. All CB devices are built in a rugged metal case with a DIN rail mounting bracket.

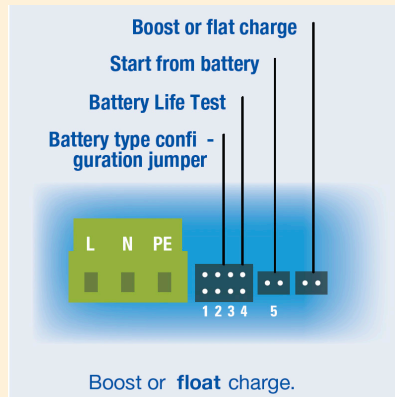
Open Lead Acid (factory preset):
Trickle 2.23 V
Boost 2.40 V

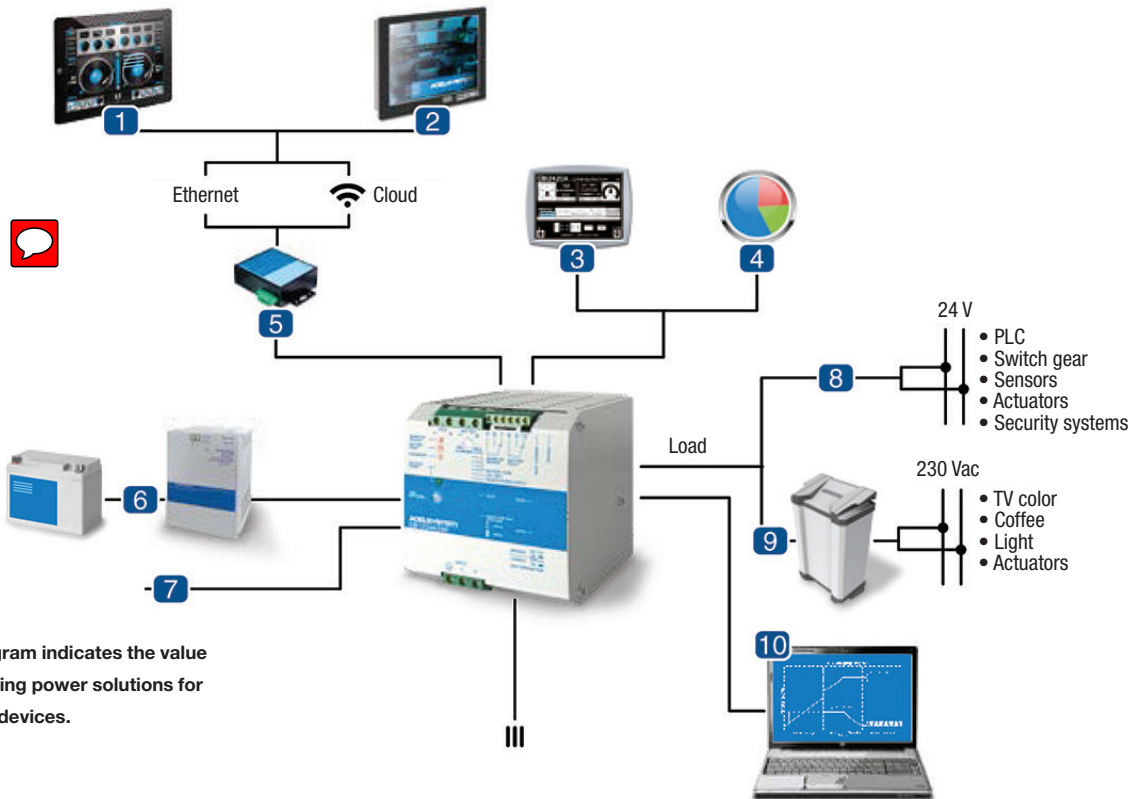
Sealed Lead Acid (1):
Trickle 2.25 V
Boost 2.40 V

AGM Sealed Lead Acid (2):
Trickle 2.27 V
Boost 2.40 V

Gel:
Trickle 2.30 V
Boost 2.40 V

Optional: Ni/Cd, LI-Ion





This diagram indicates the value of providing power solutions for multiple devices.

safety regulations is also a good idea, including such standards as IEC/ EN 60335-2-29 Battery chargers; EN60950 / UL60950; Electrical safety EN54-4 Fire Detection and fire alarm systems; EMC Directive; and DIN 41773 (charging cycle standard).

Battery Monitoring

So far, we've discussed a lot about the management of voltage, temperature, current, charge, and the general state of health of your battery and charging system. Monitoring, on the other hand, often takes into consideration the physical status of your battery such as temperature detection, mitigation of battery failures, and the visual and audible alarm systems available. A typical battery monitoring system can offer battery status with audible and visual alarms.

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