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Serving the Automation & Control Industry since 1984

Quality System

Quality Endorsed Company

c UL us

DIN RAIL
DC-UPS Solutions & Battery Chargers

CBI Series DC-UPS Solutions

(pages 4-11)

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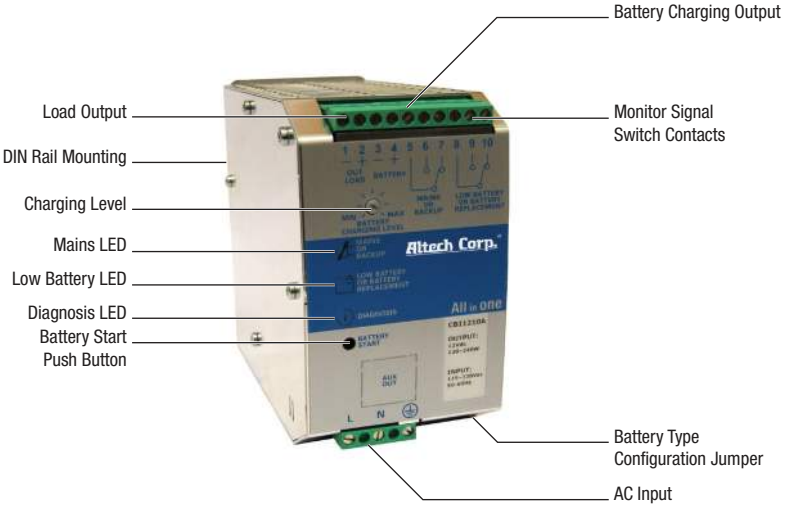
CBI All In One UPS Power Solutions combine the requirements for several applications in just one device which can be used as power supply unit, battery charger, battery care module or backup module. The available power is automatically distributed among load and battery, while supplying power to the load always is the first priority. The maximum available current of the load output is two times the value of the device's rated current.

If the device is disconnected from the main power source, the battery will supply the load until the battery voltage reaches 1.5 V per cell. This prevents the battery from deep discharge. CBI devices provide microprocessor controlled battery charging. Using algorithms, the battery's condition will be detected and based on that, an appropriate charging mode is chosen. The real-time diagnostics system will continuously monitor the charging progress and indicate possibly occurring faults such as elements in short circuit, accidental reverse polarity connection or disconnection of the battery by the battery fault LED and a flashing code of the diagnosis LED.

CBI All In One UPS Power Solutions are suitable for open/sealed lead acid-, lead gel- and optionally Ni-Cd batteries. By using the battery-select-jumper, it is possible to set predefined charging curves for those battery types. 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.

Features:

- Power supply, battery charger, battery care module and backup module in one device
- Three charging modes
- Compact, rugged metal case
- Available in 12VDC, 24VDC and 48VDC
- Suitable for most common battery types
- Adjustable charging current
- Easy battery diagnosis and fault identification either by LED or external devices connected to fault
- Status contacts
- High efficiency up to 91% through switching technology
- Several output protection features such as short circuit, overload, deep battery discharge etc.
- DIN rail mounting
- Small size
- 3 year warranty



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CB Series Battery Chargers

(pages 12-15)

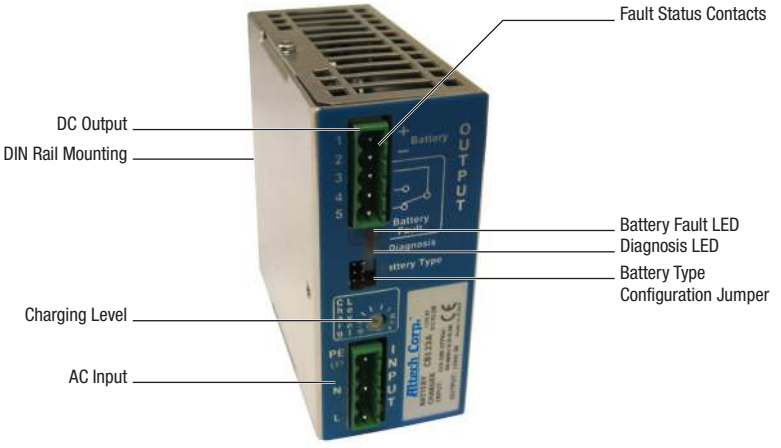
With the CB Battery Charger Line, Altech offers a highly reliable battery management solution. Operating at single phase Input Voltages of 115-230-277 VAC, the devices supply an Output of 12VDC and up to 35A or 24VDC and up to 20A.

Equipped with microcontrollers, the CB line offers fully automated multi-stage charging that will expand the battery's life significantly. Several diagnostic and monitoring features ensure easy handling and a high amount of transparency during daily operation.

Altech's CB line battery chargers are based on the switching technology which allows much higher efficiency as well as smaller and lighter devices. Additionally, several standard safety and protection features ensure safe installation and operation.

Features:

- Fully automated charging
- Three charging modes
- Compact, rugged metal case
- Available in 12VDC and 24VDC
- Suitable for most common battery types
- Adjustable charging current
- Easy battery diagnosis and fault identification either by LED or external devices connected to fault status contacts
- High efficiency up to 91% through switching technology
- Several output protection features such as short circuit, overload, deep battery discharge etc.
- DIN rail mounting
- Small size
- 3 year warranty



Applications for CBI & CB Series:

Acoustic Evacuations
As Mini DC-UPS in industrial applications
Power Supply + Back Up Module
Audio Backup, Lighting Backup, Greenhouse Control, etc.
Automatic Revolving Doors, Access Control, CCTV, Alarms, etc.
Automotive Service Centers, Cars, Motorbikes, etc.
E-Car, Off-Highway Equipment/Machinery, E-Scooter,
Electric Vehicles (on-board chargers)
Emergency Backup
Fire Protection Systems, etc.
Firing System
Forklifts, Scissors Lifts, Pallet Trucks,
Generator Sets (Gen set, Engine Starting, etc.)
Golf Carts, Wheel Chairs, etc.
Industrial Water Pumping
Light Security
Marine Applications
Motorway Light Message Boards
Portable Equipment
Power Supply Continuity
Remote Measurement Station, etc.
Remote measurement stations
Security Doors For Banks
Security Systems
Security Vision Control
Telecommunications
Waterworks Control
Wireless Control

CBI Series DC-UPS Solutions

Everything and more!

- More efficiency of the battery thanks to continuous control over time.
- More monitoring in main connection nodes: input, output load, battery.
- Event logging: number of battery charging cycles, charge cycles completed, aborted charge cycles, Ah charged, charging time, total number of transitions stand-by /back-up etc...
- Event Management: checking the load output, shutdown management of PCs (UPS function), RESET management of a generic equipment.
- Flexibility of use: customization of the entire charging curve of the battery, battery type setting, setting of the various time-out algorithms of charge, setting boost voltage, absorption, float, etc... configuration as DC-UPS or batteries charger, enabling power supply function .

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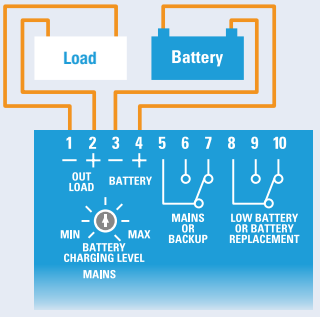
Power continuity

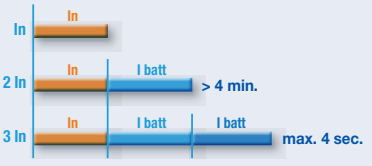
DC-UPS = Power Supply + Battery Charger + Back Up module

Double Output, Optimized Power Man agement. Thanks to the DC-UPS units, it will be possible to smart-manage available power. It will be automatically allocated between load and battery. Supplying power to the load is the first priority of the unit; thus it is not neces sary to double the power, and also the power available for the battery will go to the load if the load requires so.

Output Load: 12, 24, 48
Power Boost: In x 2 Continuous
In x 3 max 4 sec.

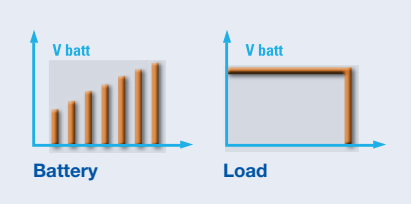


In Power Boost mode the maximum current on the load output is the 2 times the rated current (2 x In) in continuous operation and 3 times the rated current (3 x In) for max. 4 seconds.



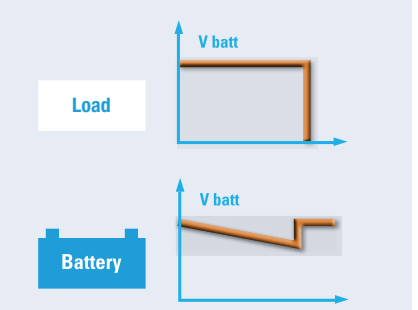
Smart battery management

Load output will not be affected by battery conditions. The DC-UPS insures continuous power supply to the load even in conditions of completely discharged batteries. The automatic multi-stage operation optimizes and adapts to the battery status. DC-UPS can recharge deeply discharged batteries even when their voltage is close to zero, thus allowing recharge and complete recovery of flat batteries.



Avoid deep battery discharge

In case of mains failure, the battery will supply the load until battery voltage reaches 1.5 Vpc (Volt per cell).
Below this level the device automatically switches off to prevent deep discharge and battery damage.

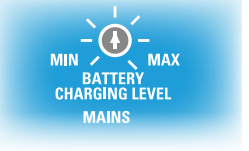


Time buffering

Time buffering is enabled when in back-up mode. Buffering time setting is possible by operating the rotary switch on the front panel.

Adjustable maximum battery charging current

The maximum battery charging current can be set from 10% to 100% of the device rated value.



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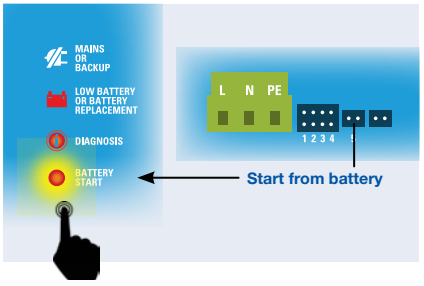
CBI Series DC-UPS Solutions

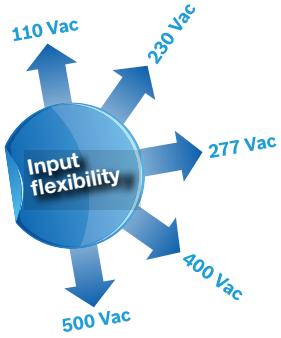
Start from battery without main

If you want to restart the system while the mains is off, a battery restart function is available, via RTCONN cable connections, or via pushbutton in the front panel.



Wide input voltage range

Flexibility is given also by the wide range input voltage. The range of the devices accept input voltage 120 - 230 - 277 - 400 - 500 VAC.



One device for output 12 or 24 VDC

You can select the voltage between 12 or 24 VDC just before installing the device in your panel (available on selected products in the new Altech DC-UPS units).

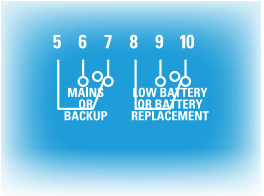
Connection & monitoring

Monitor signals

Clear definition of each system operation, via LED indications and Relay contact:

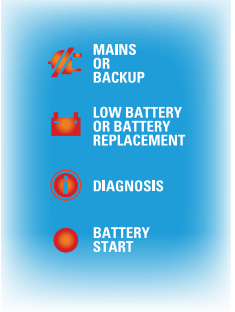
Contact Port signals, galvanic insulation

- Main or back-up signaling relay with voltage-free. NO-NC output terminals.
- Battery faulty signaling relay, relay with voltage-free. NO-NC output terminals.
- Flat battery signaling relay, relay with voltage-free. NO-NC output terminals.



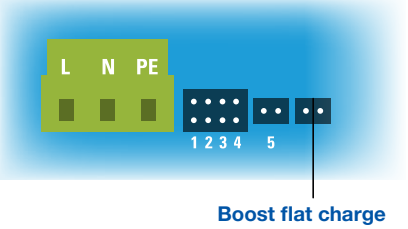
Display Signals by LED

- Input Main On Off
- Battery Fault
- Low battery (capacity less than 30%)
- Type of Battery charge mode
- Help through “blinking code” the diagnosis of the system



Driver Contact

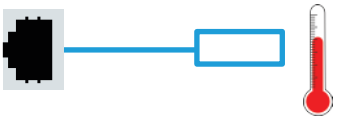
Remote link for selection of trickle/ boost charging Via RTCONN remote connections cable it is possible to drive the devices from Boost - Bulk to Trickle - Float charge. It is also possible to permanently install a jumper for Boost - Bulk Charging.



Accessories

All DC-UPS units can be made available with the following options by RJ45 or RJ11 connector:

Temperature sensor Probe, for ambient temperature compensation charging.



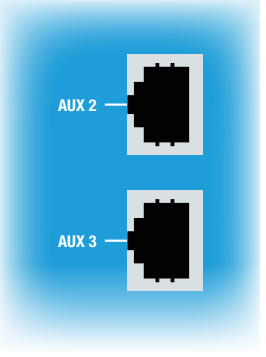
Voltage drop cable compensation.

Battery Start UP cable.

Auxiliary output “Aux 2 and "Aux 3”

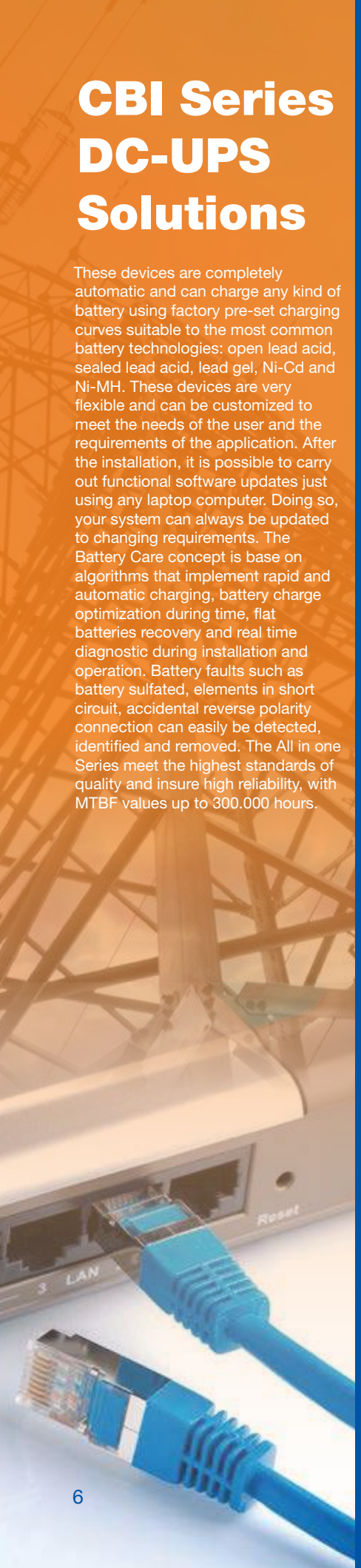
MODBUS and CANBUS connection for Multimedia management, for connection to external displays and perform customized data monitoring. Connection to:

- Power View App
- Power View System
- Power Bus
- Power View Graphic
- Power View Bar Graph
- Power View Config



CBI Series DC-UPS Solutions

These devices are completely automatic and can charge any kind of battery using factory pre-set charging curves suitable to the most common battery technologies: open lead acid, sealed lead acid, lead gel, Ni-Cd and Ni-MH. These devices are very flexible and can be customized to meet the needs of the user and the requirements of the application. After the installation, it is possible to carry out functional software updates just using any laptop computer. Doing so, your system can always be updated to changing requirements. The Battery Care concept is base on algorithms that implement rapid and automatic charging, battery charge optimization during time, flat batteries recovery and real time diagnostic during installation and operation. Battery faults such as battery sulfated, elements in short circuit, accidental reverse polarity connection can easily be detected, identified and removed. The All in one Series meet the highest standards of quality and insure high reliability, with MTBF values up to 300.000 hours.



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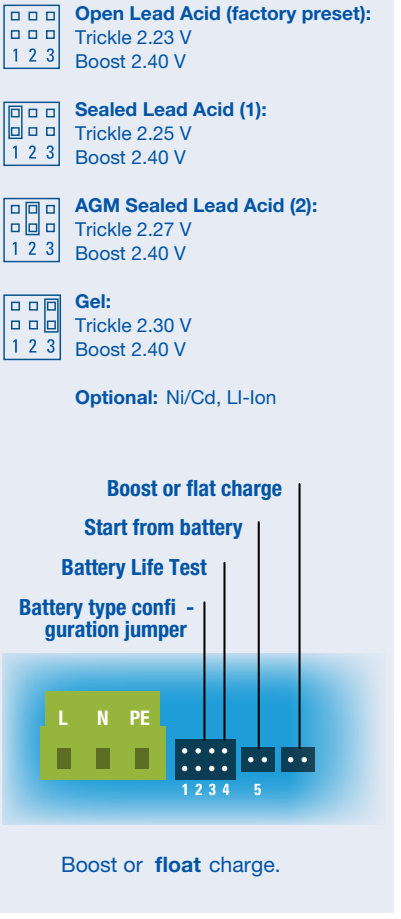
Battery care

One device for all battery types

All devices are suitable to charge most batteries types thank to user selectable charging curves. They can charge open lead acid, sealed lead acid, Gel, Ni-Cd, Ni-MH, Li Ion batteries. It is possible to change or add other charging curves connecting the device to a portable PC. Charging mode is then completely automatic.

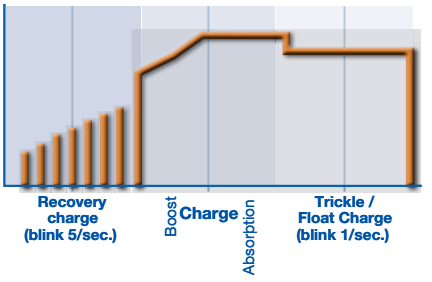


Boost or **float** charge.

Multi-Stage charging - Four charging modes

Automatic multi-stage operation and real time diagnostic allows fast recharge and recovery of deeply discharged batteries, adding value and reliability to the system hosting the DC-UPS device. The type of charging is Voltages stabilized and Current stabilized IUoU. CBI battery chargers feature four charging modes, identified by a flashing code on a LED.

- Recovery (5 Blinks / sec) able to recharge batteries even when their voltage is close to zero.
- Boost - Bulk (2 Blinks / sec).
- Absorption (1 Blinks / sec).
- Trickle - Float (1 Blink / 2 sec).



Diagnosis of battery and device

All CBI devices support the user during installation and operation. A LED flashing sequence code allows to discriminate among various possible faults.

Error conditions, LED Fault ON and LED Diagnosis flashing with sequence of:

- 1 flash = Reverse polarity, wrong battery voltage
- 2 flashes= Disconnected battery
- 3 flashes = Battery element in short circuit
- 4 flashes = Overload
- 5 flashes = Battery to be replaced (Internal impedance Bad or Bad battery wire connection)

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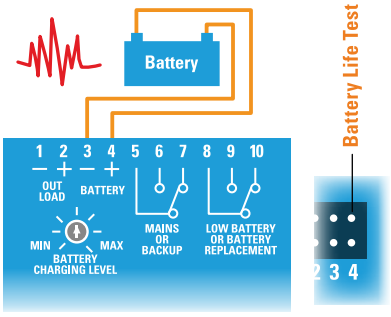
CBI Series DC-UPS Solutions

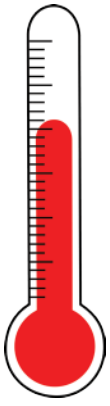
Battery Life Test

It guarantees battery reliability in time by continuously testing the internal impedance status. It avoids any possible risk of damages and grants also a permanent, reliable and safe connection of the battery to the power supply. The system, through a battery stimulation circuit with algorithms of evaluation of the detected parameter, is able to recognize sulfated batteries or batteries with a short-circuited cell.



Temperature Compensation

In special application like fire fighting equipment, you can recharge the battery also with the temperature compensation charging function, for the best condition of your battery in the temperature fluctuation.



Battery care

Diagnostic checks

Check for accidental disconnection of the battery cables.
DC-UPS detects accidental disconnection and immediately switches off output power.

Battery not connected
If the battery is not connected the battery output is disabled.

Test of wire connection impedance
During trickle charge the resistance on the battery connection is checked every 20 sec. This to detect if the cable connection has been properly made.

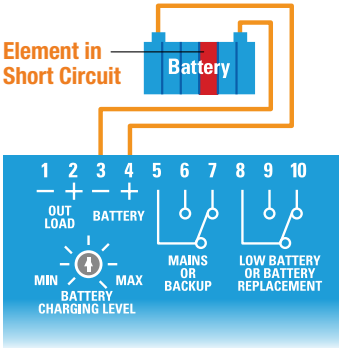
Battery in open circuit or sulfated
Every four hours DC-UPS tests of internal impedance, while in trickle charging mode.

Reverse polarity check
If the battery it is connected with inverted polarity, DC-UPS is automatically protected.

Test of battery voltage connections
Appropriate voltage check, to prevent connection of wrong battery types.

End of charge check
When the battery it is completely full, the device automatically switches to trickle charging mode.

Check for battery cells in short circuit
Thanks to specific testing algorithms, the DC-UPS recognize batteries with cells in internal short circuit.



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Max. safety and protection

The DC-UPS series is designed to provide safe operation and long power supply and battery life. The following protections are standard features:

- Outputs protected against short circuit and overload
- Outputs in conformity to SELV and PELV conditions
- High insulation between primary and secondary
- Protection against deep battery discharge
- Protection against reverse polarity connection
- Detection of batteries with wrong rated voltage

All protections have automatic reset.
No thermal fuse to be replaced.

Robust construction and easy installation
All the units in the range have aluminum casing, DIN rail fastening clip and are light and compact. IP20 protection degree.

Technology
The new DC-UPS range is based on two strategic know-how elements. Switching technology, we have 25 years of experience in design of advanced stabilized switching technology power supplies. A power supply/battery charger unit based on this technology is much more efficient.

Back UP Module and Battery Care units, unlike most other state-of-the-art battery chargers, the DC-UPS series is equipped with complex algorithms which controls the charging process and enable several monitoring functions. The firmware implements the extended battery care know-how, result of many years of experience in this field.

Norms In Conformity to:
- IEC/EN 60335-2-29 Battery chargers;
- EN60950 / UL60950;
- Electrical safety EN54-4 Fire Detection and fire alarm systems;
- EMC Directive;
- DIN 41773 (Charging cycle)

C US
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CBI Series
DC-UPS

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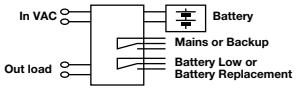

12 VDC


E353188

CBI123A
12VDC - 3A - 36W


E353188

CBI126A
12VDC - 6A - 72W


E353188

CBI1210A
12VDC - 10A - 120W

CBI1235A
12VDC - 35A - 420W

	Model / Output	CBI123A 12VDC - 3A - 36W	CBI126A 12VDC - 6A - 72W	CBI1210A 12VDC - 10A - 120W	CBI1235A 12VDC - 35A - 420W
INPUT DATA	Input voltage range	90 - 305 VAC	90 - 305 VAC	90 - 305 VAC	90 - 135 VAC 180 - 305 VAC
	Frequency	47 - 63 Hz ±6%	47 - 63 Hz ±6%	47 - 63 Hz ±6%	47 - 63 Hz ±6%
OUTPUT DATA	Output VDC / IN	12VDC - 3A	12VDC - 6A	12VDC - 10A	12VDC - 35A
	Efficiency (50% of In)	90%	90%	90%	> 91%
	Over load and short-circuit protection	■	■	■	■
	Overheating thermal protection	■	■	■	■
	Reverse battery protection	■	■	■	■
LOAD OUTPUT	Output voltage (at at IN) VDC	10 - 14.4VDC	10 - 14.4VDC	10 - 14.4VDC	10 - 14.4VDC
	Nominal current IN = Iload	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%
	Continuous current (without battery) Iload = In	3A	6A	10A	35A
	Max current (with battery) Out: Iload = In + Ibatt	6A	12A	20A	70A
	Max current (main input) Out: Iload (4sec.)	9A max	18A max	30A max	105A max
	Max current output load: (Back Up) Iload (4sec.)	6A max	12A max	20A max	70A max
	Push button or remote input control	■	■	■	■
	Time Buffering	-	-	-	■
BATTERY CHARGER OUTPUT	Boost-Bulk charge (Typ. at IN)	14.4VDC	14.4VDC	14.4VDC	14.4VDC
	Max. time boost-bulk charge (Typ. at IN)	15h	15h	15h	15h
	Min. time boost-bulk charge (Typ. at IN)	1min.	1min.	1min.	1min.
	Trickle-Float charge (Typ. at IN)	13.8VDC	13.8VDC	13.8VDC	13.8VDC
	Charging current Limiting IN (Iadj)	20 ÷ 100 % / Ibatt	20 ÷ 100 % / Ibatt	20 ÷ 100 % / Ibatt	10 ÷ 100 % / Ibatt
	Jumper config. type battery (NiCd optional)	2.23 V/cell Open Lead, 2.25 V/cell Sealed Lead, 2.27 V/cell Sealed Lead, 2.3 V/cell gel; NiCd 1.5V/cell (10 elem.) trickle (Imax 10%)			
	Remote input control (AMP Type connector)	Boost / Trickle	Boost / Trickle	Boost / Trickle	Boost / Trickle
	Characteristic Curve	IUoU, Automatic, 4 stage			
SIGNAL OUTPUT (RELAY)	Main or backup power	■	■	■	■
	Low battery and fault battery	■	■	■	■
AUXILIARY OUTPUT* FOR:	Temp. charging probe	by ext. Probe	by ext. Probe	by ext. Probe	by ext. Probe
	UPS active	-	-	-	-
	Modbus - CAN Bus	-	-	-	■
CLIMATIC DATA	Ambient temperature operation	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C
	De rating Tª > (In) / De rating Tª > (In)	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C
	Ambient temperature storage	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C
	Humidity at 25 °C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C
	Cooling	Auto Convection	Auto Convection	Auto Convection	Auto Convection
GENERAL DATA	Isolation voltage (IN / OUT)	3000VAC	3000VAC	3000VAC	3000VAC
	Isolation voltage (IN / PE)	1605VAC	1605VAC	1605VAC	1605VAC
	Isolation voltage (OUT / PE)	500VAC	500VAC	500VAC	500VAC
	Protection class (EN/IEC 60529)	IP 20	IP 20	IP 20	IP 20
	Reliability (MTBF IEC 61709)	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h
	Dimension (w-h-d)	65x115x135	65x115x135	65x115x135	150x115x135
	Safety standard approval	CE /C-UL Recognized 60950	CE /C-UL Recognized 60950	CE /C-UL Recognized 60950	CE
OPTIONAL	Bar graph control panel				■
	Graphic multifunction control panel				■
	System monitoring software				■
	System configuration software				■
	Interface module modbus 485 - Ethernet				■
	Interface module cloud all in one - Ethernet				■
	Battery temp. compensation Probe RJTemp	■	■	■	■

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CBI Series
DC-UPS

Altech Corp.®

24 VDC


E353188

CBI243A
24VDC - 3A - 72W


E353188

CBI245A
24VDC - 5A - 120W

CBI2410A
24VDC - 10A - 240W

CBI2420A
24VDC - 20A - 500W

48 VDC

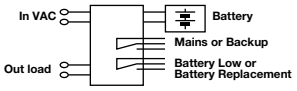
CBI485A
48VDC - 5A - 240W

CBI4810A
48VDC - 10A - 500W

CBI243A	CBI245A	CBI2410A	CBI2420A	CBI485A	CBI4810A
24VDC - 3A - 72W	24VDC - 5A - 120W	24VDC - 10A - 240W	24VDC - 20A - 500W	48VDC - 5A - 240W	48VDC - 10A - 500W
90 - 305 VAC	90 - 305 VAC	90 - 135 VAC 180 - 305 VAC	90 - 135 VAC 180 - 305 VAC	90 - 135 VAC 180 - 305 VAC	90 - 135 VAC 180 - 305 VAC
47 - 63 Hz ±6%	47 - 63 Hz ±6%	47 - 63 Hz ±6%	47 - 63 Hz ±6%	47 - 63 Hz ±6%	47 - 63 Hz ±6%
24VDC - 3A	24VDC - 5A	24VDC - 10A	24VDC - 20A	48VDC - 5A	48VDC - 10A
90%	90%	83%	> 91%	83%	> 91%
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
22 - 28.8VDC	22 - 28.8VDC	22 - 28.8VDC	22 - 28.8VDC	44 - 57.6VDC	44 - 57.6VDC
1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%
3A	5A	10A	20A	5A	10A
6A	10A	20A	40A	10A	20A
9A max	15A max	30A max	60A max	15A max	30A max
6A max	10A max	20A max	40A max	10A max	20A max
■	■	■ CBI2410A/S	■	■ CBI485A/S	■
-	-	-	■	-	■
28.8VDC	28.8VDC	28.8VDC	28.8VDC	57.6	57.6
15h	15h	15h	15h	15h	15h
1min.	1min.	1min.	1min.	1min.	1min.
27.6VDC	27.6VDC	27.6VDC	27.6VDC	55.2VDC	55.2VDC
20 ÷ 100 % / Ibatt	20 ÷ 100 % / Ibatt	20 ÷ 100 % / Ibatt	10 ÷ 100 % / Ibatt	20 ÷ 100 % / Ibatt	10 ÷ 100 % / Ibatt
2.23 V/cell Open Lead, 2.25 V/cell Sealed Lead, 2.27 V/cell Sealed Lead, 2.3 V/cell gel; NiCd 1.5V/cell trickle (Imax 10%)					
Boost / Trickle	Boost / Trickle	Boost / Trickle	Boost / Trickle	Boost / Trickle	Boost / Trickle
IUoU, Automatic, 4 stage					
■	■	■	■	■	■
■	■	■	■	■	■
by ext. Probe	by ext. Probe	by ext. Probe	by ext. Probe	by ext. Probe	by ext. Probe
-	-	-	-	-	-
-	-	-	■	-	■
-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C
> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C
-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C
95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C
Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection
3000VAC	3000VAC	3000VAC	3000VAC	3000VAC	3000VAC
1605VAC	1605VAC	1605VAC	1605VAC	1605VAC	1605VAC
500VAC	500VAC	500Vac	500VAC	500VAC	500VAC
IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h
65x115x135	65x115x135	100x115x135	150x115x135	100x115x135	150x115x135
CE /C-UL Recognized 60950	CE /C-UL Recognized 60950	CE	CE	CE	CE
			■		■
			■		■
			■		■
			■		■
			■		■
			■		■
■	■	■	■	■	■

CBI Series
DC-UPS

Altech Corp.®



		36/48 VDC	12/24 VDC	12/24 VDCdc
				
	Model	**CBI2803648A**	**CBI2801224A**	**CBI2801224B**
	Output	36/48VDC - 270W	12/24VDC - 270W	12/24VDC - 270W
INPUT DATA	Input voltage range	90 - 135 VAC 180 - 305 VAC	90 - 135 VAC 180 - 305 VAC	180 - 264 VAC 330 - 550 VAC
	Frequency	47 - 63 Hz ±6%	47 - 63 Hz ±6%	47 - 63 Hz ±6%
OUTPUT DATA	Output VDC / IN	36 / 48VDC - 270 W	12 / 24VDC - 270 W	12 / 24VDC - 270 W
	Efficiency (50% of In)	> 91%	> 91%	> 91%
	Over load and short-circuit protection	■	■	■
	Overheating thermal protection	■	■	■
	Reverse battery protection	■	■	■
LOAD OUTPUT	Output voltage (at IN) VDC	33 - 43,2VDC / 44 - 57.6VDC	11 - 14.4VDC / 22 - 28.8VDC	11 - 14.4VDC / 22 - 28.8VDC
	Nominal current IN = Iload	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%
	Continuous current (without battery) Iload = In	7A (36V) / 5A (48V)	15A (12V) / 10A (24V)	15A (12V) / 10A (24V)
	Max current (with battery) Out: Iload = In + Ibatt	14A (36V) / 10A (48V)	30A (12V) / 20A (24V)	30A (12V) / 20A (24V)
	Max current: (main input) Out: Iload (4sec.)	21A (36V) / 15A (48V)	45A (12V) / 30A (24V)	45A (12V) / 30A (24V)
	Max current output load: (Back Up) Iload (4sec.)	14A (36V) / 10A (48V)	30A (12V) / 20A (24V)	30A (12V) / 20A (24V)
	Push button or remote input control	■	■	■
	Time Buffering	■	■	■
BATTERY CHARGER OUTPUT	Boost-Bulk charge (Typ. at IN)	43.2VDC (36V) / 57.6VDC (48V)	14.4 VDC (12V) / 28.8VDC (24V)	14.4 VDC (12V) / 28.8VDC (24V)
	Max. time boost-bulk charge (Typ. at IN)	15h	15h	15h
	Min. time boost-bulk charge (Typ. at IN)	1min.	1min.	1min.
	Trickle-Float charge (Typ. at IN)	41.4VDC (36V) / 55.2VDC (48V)	13.8 VDC (12V) / 27.6VDC (24V)	13.8 VDC (12V) / 27.6VDC (24V)
	Charging current Limiting IN (Iadj)	10 ÷ 100 % / Ibatt	10 ÷ 100 % / Ibatt	10 ÷ 100 % / Ibatt
	Jumper config. type battery (NiCd optional)	2.23 V/cell Open Lead, 2.25 V/cell Sealed Lead, 2.27 V/cell Sealed Lead, 2.3 V/cell gel; NiCd 1.5V/cell (20 elem.) trickle (Imax 10%)		
	Remote input control (AMP Type connector)	Boost / Trickle	Boost / Trickle	Boost / Trickle
	Characteristic Curve	IUoU, Automatic, 4 stage		
SIGNAL OUTPUT (RELAY)	Main or backup power	■	■	■
	Low battery and fault battery	■	■	■
AUXILIARY OUTPUT* FOR:	Temp. charging probe	by ext. Probe	by ext. Probe	by ext. Probe
	UPS active	-	-	-
	Modbus - CAN Bus	■	■	■
CLIMATIC DATA	Ambient temperature operation	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C
	De rating Tª > (In) / De rating Tª > (In)	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C
	Ambient temperature storage	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C
	Humidity at 25 °C	95% to 25°C	95% to 25°C	95% to 25°C
	Cooling	Auto Convection	Auto Convection	Auto Convection
GENERAL DATA	Isolation voltage (IN / OUT)	3000Vac	3000Vac	3000Vac
	Isolation voltage (IN / PE)	1605Vac	1605VAC	1605VAC
	Isolation voltage (OUT / PE)	500VAC	500VAC	500VAC
	Protection class (EN/IEC 60529)	IP 20	IP 20	IP 20
	Reliability (MTBF IEC 61709)	> 300 000 h	> 300 000 h	> 300 000 h
	Dimension (w-h-d)	115x115x135	115x115x135	115x115x135
	Safety standard approval	CE	CE	CE
OPTIONAL	Bar graph control panel	■	■	■
	Graphic multifunction control panel	■	■	■
	System monitoring software	■	■	■
	System configuration software	■	■	■
	Interface module modbus 485 - Ethernet	■	■	■
	Interface module cloud all in one - Ethernet	■	■	■
	Battery temp. compensation Probe RJTemp	■	■	■

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Battery Enclosures

Altech Corp.®

Small VRLA

Compact and fully enclosed improve safety and maintenance, transmit information on the temperature and type of batteries. They save space and improve the efficiency of the DC UPS “All In One”.. Size for 24 VDC: 1.2 Ah, 3 Ah, 7.2 Ah and 12 Ah.

24 VDC




	Model	BAT1.2 VRLA	BAT3.4 VRLA	BAT7.2 VRLA	BAT12 VRLA
	Output	24V - 1.2Ah	24V - 3.2Ah	24V - 7.2Ah	24V - 12Ah
INPUT DATA	End-of-charge voltage (trickle charge)	27.5 VDC (20°C) ; 27 VDC (30°C); 26.5 VDC (40°C)			
	Max. permissible charging current	0.30 A	0.80 A	1.70 A	3 A
OUTPUT DATA	Short-circuit protection	■	■	■	■
	Protection fuse	25 A	25 A	25 A	25 A
	Output current	max. 25 A	max. 25 A	max. 25 A	max. 25 A
GENERIC DATA	Mounting position	DIN Rail / Wall Mount			
	Assembly using 4 holes	for hanging onto M4 screws			
	Ambient temperature (operation)	0 ÷ +40 °C	0 ÷ +40 °C	0 ÷ +40 °C	0 ÷ +40 °C
	Ambient temperature (storage)	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C	-20 ÷ +50 °C
	Self-discharge rate	20 °C 15% per month			
	Dimension (w-h-d)	62 x 175 x 120	82 x 200 x 160	145 x 210 x130	210 x 210x210
	Weight	1.5Kg approx	3 Kg approx	5.5 Kg approx.	9 Kg
	Protection class	IP20	IP20	IP20	IP20

Battery Selection Chart

BUFFERING (MINUTE) TIME

Battery type	1.2 Ah	3.2 Ah	7.2 Ah	12 Ah
Load 1.5 A	20	60	200	400
Load 3 A	8	30	120	240
Load 5 A	3	15	55	100
Load 7.5 A	2	10	30	60
Load 10 A	-	7	20	45
Load 12 A	-	3	12	30
Load 15 A	-	-	9	20
Load 20 A	-	-	7	13

CB Series Battery Chargers

One device for all battery types

Completely automatic, the battery chargers of the CB series are microprocessor controlled devices suited to charging most batteries types thank to factory pre-set and selectable charging curves. They can charge open lead acid, sealed lead acid, Gel and Ni-Cd, Ni-MH batteries. It is possible to change or add other charging curves connecting the device to a portable PC.

Jumper positions / VpC:

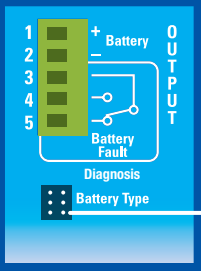
- **Open Lead Acid:**
  Trickle 2.23V
  Boost 2.40V

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

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

- **Gel:**
  Trickle 2.30V
  Boost 2.40V

- **Optional:**
  Ni/Cd



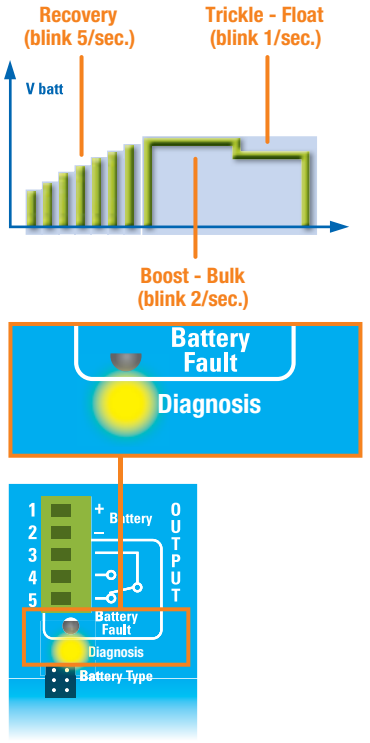
Jumper for Battery Type Selection

C US

Multi-Stage charging - Three charging modes

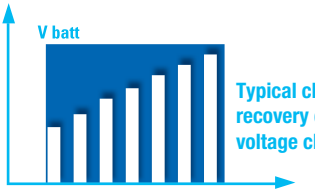
Automatic multi-stage operation and real time diagnostic allow fast recharge and recovery of deep discharged batteries, adding value and reliability to the system hosting the CB device. The type of charging it is Voltages stabilized and current stabilized IUoUo. CB battery chargers feature three charging modes, identified by a flashing code on a LED.

- **Boost** (Boost - Bulk) (Blink 2/sec)
- **Trickle** (also known as fl oat or maintenance charging) (Trickle - Float) (Blink 1/Sec.)
- **Recovery** (Recovery) (Blink 5/sec.)



Recovery charging

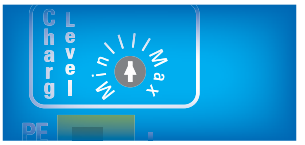
Automatic multi-stage operation optimizes and adapt to battery status, even when the battery voltage is very low. CB can recharge batteries even when their voltage is close to zero. It allows recharge and complete recovery of flat batteries.



Typical charging curve for recovery of batteries with voltage close to zero.

Setting of battery maximum charging current

The maximum battery charging current can be set from 20% to 100% of the device rated value. Not available on LC models.

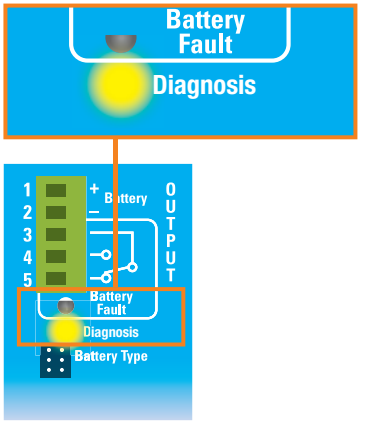


Diagnostic of battery and device

All CB devices support the user during installation and operation. An LED flashing sequence code allows to discriminate among various possible faults.

LED Diagnosis:

- **1 flash**
  Reverse polarity, wrong battery voltage.
- **2 flashes**
  Disconnected battery.
- **3 flashes**
  Battery element in short circuit.
- **5 flashes**
  Battery to be replaced (Internal impedance Bad or Bad battery wire connection).



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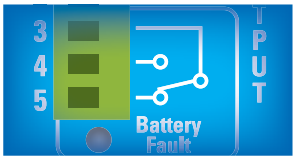
CB Series Battery Chargers

Monitor signals

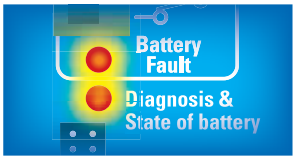
Signal contacts

- CB chargers indicate battery status and faults also via a change-over contact with galvanic isolation.
- Battery common fault.
- Unit disconnected from mains.

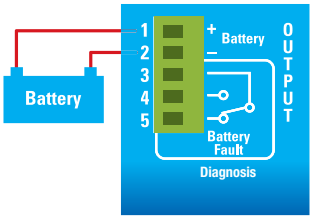


Visual indication

- Battery common fault
- Unit disconnected from mains
- Charging mode
- CB device self-diagnostic

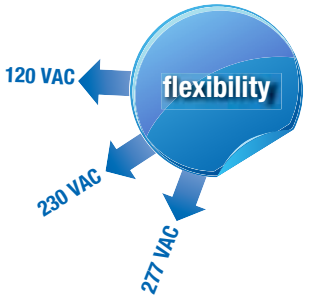


Single output devices

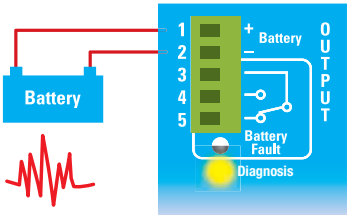


Wide range input voltage

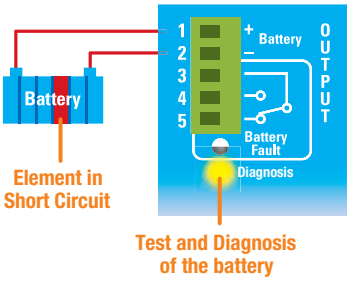
Flexibility is given also by the wide range input voltage. All the devices of the CB range accept input voltage in the range of 120 - 230 - 277 VAC. Only one device to stock!



Diagnostic checks



- **Check for accidental disconnection of the battery cables.** If happen the devices switch off immediately the output power.
- **Battery not connected.** If the battery it is not connected no output power.
- **Test of quality wire connections.** During trickle charge the quality (resistance) on the battery connection is checked every 20 sec. This to detect if the cable connection has been properly made.
- **Test of battery voltage connections.** Appropriate voltage check, to prevent connection of wrong battery types.
- **End of charging check.** When the battery it is completely full, the device automatically switch in trickle charging mode.
- **Reverse polarity check.** If the battery it is connected with inverted polarity, the devices are automatically protected.



- **Check for elements in short circuit.** Thanks to specific algorithms of evaluation, the CBs recognize batteries with element in short circuit.

Technology

The CB series is a new range of battery chargers based on two strategic know-how elements.

Switching technology
We have over 25 year experience in design of advanced stabilized switching technology power supplies. A battery charger based on this technology is much more efficient and much smaller and lighter than traditional linear technology battery chargers.

Micro-processor and Battery Care
Unlike most other state-of-the-art battery chargers, the CB series is equipped with a micro-processor which controls the charging process and enables several monitoring functions. The firmware implements the extended battery care know-how, result of many years of experience in this field.

Maximum safety and protection

The CB series is designed to provide safe operation and long battery life. The following protections are standard features:

- Output protected against short circuit and overload
- Protection against deep battery discharge
- Protection against reverse polarity connection
- High insulation between primary and secondary
- Detection of batteries with wrong rated voltage
- Protection against the effect of parallel connection with other power sources, e.g. gensets.

All protections have automatic reset. No thermal fuse to be replaced.

CB Series Battery Chargers

Altech Corp.®

12 VDC




c UL us E353188


		CB123A	CB126A	CB1210A	CB1235 A
	Input (Volt) VAC	115-230-277	115-230-277	115-230-277	115-230-277
	Output (VDC - A - W)	**12 - 3 - 36**	**12 - 6 - 72**	**12 - 10 - 120**	**12 - 35 - 420**
	Model	**CB123A**	**CB126A**	**CB1210A**	**CB1235A**
INPUT DATA 2xVAC	Input Voltage Range VAC	90 - 264	90 - 264	90 - 264	90 - 135 / 180 - 264
	Inrush Current (Vn and In Load) I2t (msec)	≤ 11 A ≤ 5	≤ 11 A ≤ 5	≤ 16 A ≤ 5	≤ 35 A ≤ 5
	Frequency	47 - 63 Hz ± 6%	47 - 63 Hz ± 6%	47 - 63 Hz ± 6%	47 - 63 Hz ± 6%
	Input Current (115 - 230 VAC)	0,5 - 0.3 A	1 - 0.7 A	2.4 - 1.2 A	8 - 4.2 A
	Internal Fuse	4 A	4 A	4 A	10 A
	External Fuse (recommended)	10 A	10 A	10 A	16 A
OUTPUTS DATA	Output VDC / IN	12 VDC 3 A	12 VDC 6 A	12 VDC 10 A	12 VDC 35 A
	Minimum load				
	Efficiency (50% of IN)	> 81%	> 81%	> 89%	> 91%
	Short-circuit protection	✔	✔	✔	✔
	Over Load protection	✔	✔	✔	✔
	Over Voltage Out protection	✔	✔	✔	✔
	Reverse battery protection	✔	✔	✔	✔
BATTERY CHARGER OUTPUT	Boost - Bulk charge (Typ. at IN)	14.4 VDC	14.4 VDC	14.4 VDC	14.4 VDC
	Max.Time Boost-Bulk charge (Typ. at IN)	15 h	15 h	15 h	15 h
	Min.Time Boost-Bulk charge (Typ. at IN)	70 min.	70 min.	1 min.	1 min.
	Trickle-Float charge (Typ. at IN)	13.75 VDC	13.75 VDC	13.75 VDC	13.75 VDC
	Recovery Charge	2 - 7 VDC	2 - 7 VDC	2 - 9 VDC	2 - 9 VDC
	Charging max Ibatt	3 A ± 5%	6 A ± 5%	10 A ± 5%	35 A ± 5%
	Charging current Limiting IN (Iadj)	✔	✔	✔	✔
	Jumper Config. Type Battery	2.23 V/cell Open Lead, 2.25 V/cell Sealed Lead, 2.27 V/cell Sealed Lead, 2.3 V/cell gel			
	Quiescent Current	≤ 5 mA	≤ 5 mA	≤ 5 mA	≤ 5 mA
	Characteristic Curve	IUoUo, Automatic 3 stage			
SIGNAL OUTPUT (RELAY)	Main or Backup Power	✖	✖	✔	✔
	Low Battery and Fault Battery	✖	✖	✔	✔
	Main or Backup - Fault Battery	✔	✔	✖	✖
AUXILIARY RJ45 OUTPUT FOR:	Temp. Charging probe	✖	✖	✔	✔
	Voltage drop compensation	✖	✖	✔	✔
	Remote monitoring display	✖	✖	✔	✔
CLIMATIC DATA	Ambient Temperature (operation)	-25 - +70 °C	-25 - +70 °C	-25 - +70 °C	-25 - +70 °C
	De rating Tª > . (In)	> 50° 2.5%	> 40° 2.5%	> 50° 2.5%	> 50° 2.5%
	Automatic De rating	✖	✔ > 40 °C	✖	✖
	Ambient Temperature Storage	-40 - +85 °C	-40 - +85 °C	-40 - +85 °C	-40 - +85 °C
	Humidity at 25 °C, no condensation	95% to 25 °C	95% to 25 °C	95% to 25 °C	95% to 25 °C
	Cooling	Auto Convection	Auto Convection	Auto Convection	Auto Convection
GENERAL DATA	Insulation Voltage (IN/OUT)	3000 VAC	3000 VAC	3000 VAC	3000 VAC
	Insulation Voltage (IN/PE)	1605 VAC	1605 VAC	1605 VAC	1605 VAC
	Insulation Voltage (OUT/PE)	500 VAC	500 VAC	500 VAC	500 VAC
	Protection Class (EN/IEC 60529)	IP 20	IP 20	IP 20	IP 20
	Reliability: MTBF IEC 61709	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h
	Pollution Degree Environment	2	2	2	2
	Connection Terminal Blocks Screw Type	2,5 mm	2,5 mm	2,5 mm	4 mm
	Protection class (with PE connected)	I	I	I	I
	Dimension (w-h-d)	45x100x100	45x100x100	65x115x135	150x115x135
	Weight	0.30 kg approx	0.30 kg approx	0.65 kg approx	1.5 kg approx

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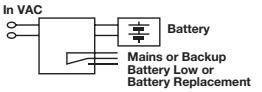
CB Series Battery Chargers

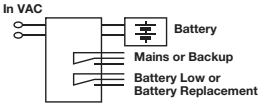
Altech Corp.®

24 VDC				12/24 VDC
	 E353188			 E353241
CB243A	**CB245A**	**CB2410A**	**CB2420A**	**CB12245A**
115-230-277	115-230-277	115-230-277	115-230-277	115-230-277
24 - 3 - 72	**24 - 5 - 120**	**24 - 10 - 240**	**24 - 20 - 500**	12/24 – 6/5 – 120
CB243A	**CB245A**	**CB2410AC**	**CB2420A**	CB12245A
90 - 264	90 - 264	90 - 135 / 180 - 264	90 - 135 / 180 - 264	90-305
≤ 7 A ≤ 5	≤ 16 A ≤ 5	≤ 16 A ≤ 5	≤ 35 A ≤ 5	<-16A; 5ms
47 - 63 Hz ± 6%	47 - 63 Hz ± 6%	47 - 63 Hz ± 6%	47 - 63 Hz ± 6%	47-63 Hz +-6%
1 - 0.7 A	2.4 - 1.2 A	3.3 - 2.2 A	8 - 4.2 A	2.4-1.2-1.0 A
4 A	4 A	6.3 A	10 A	4A
10 A	10 A	16 A	16 A	10A (MCB – curve B)
24 VDC 3 A	24 VDC 5 A	24 VDC 10 A	24 VDC 20 A	12VDC -6A / 24VDC-5A
> 81%	> 89%			90%
✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
28.8 VDC	28.8 VDC	28.8 VDC	28.8 VDC	14.4VDC / 28.8VDC
15 h	15 h	15 h	15 h	15 h
70 min.	1 min.	1 min.	1 min.	4 min.
27.5 VDC	27.5 VDC	27.5 VDC	27.5 VDC	13.75 VDC / 27.5 VDC
2 - 16 VDC	2 - 18 VDC	2 - 18 VDC	2 - 18 VDC	2-7 / 2-16 VDC
3 A ± 5%	5 A ± 5%	10 A ± 5%	20 A ± 5%	6A / 5A ± 5%
✔	✔	✔	✔	✔
	2.23 V/cell Open Lead, 2.25 V/cell Sealed Lead, 2.27 V/cell Sealed Lead, 2.3 V/cell gel			
≤ 5 mA	≤ 5 mA	≤ 5 mA	≤ 5 mA	≤ 5 mA
		IUoUo, Automatic, 3 stage		
✖	✔	✔	✔	✖
✖	✔	✔	✔	✖
✔	✖	✖	✖	✔
✖	✔	✔	✔	✖
✖	✔	✔	✔	✖
✖	✔	✔	✔	✖
-25 - +70 °C	-25 - +70 °C	-25 - +70 °C	-25 - +70 °C	-25 - +70 °C
> 50° 2.5%	> 50° 2.5%	> 50° 2.5%	> 50° 2.5%	> 40° 2.5%
✖	✖	✖	✖	✔ > 40 °C
-40 - +85 °C	-40 - +85 °C	-40 - +85 °C	-40 - +85 °C	-40 - +85 °C
95% to 25 °C	95% to 25 °C	95% to 25 °C	95% to 25 °C	95% to 25 °C
Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection
3000 VAC	3000 VAC	3000 VAC	3000 VAC	3000 VAC
1605 VAC	1605 VAC	1605 VAC	1605 VAC	1605 VAC
500 VAC	500 VAC	500 VAC	500 VAC	500 VAC
IP 20	IP 20	IP 20	IP 20	IP 20
> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h
2	2	2	2	2
2,5 mm	2,5 mm	2,5 mm	4 mm	2,5 mm
I	I	I	I	I
45x100x100	65x115x135	100x115x135	150x115x135	45x105x100
0.30 kg approx	0.65 kg approx	0.85 kg approx	1.55 kg approx	0.35 kg approx

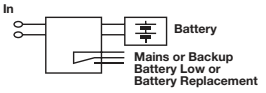
Connection Diagram



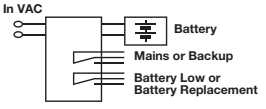
CB123A, CB1210A



CB1235A



CB243A,



CB245A, CB2410A, CB2420A

Optional for Auxiliary Output (RJ 45 connection) Temp. Charging probe: Temperature Sensor for battery 2 m length; Safety Standard Approval: CE.

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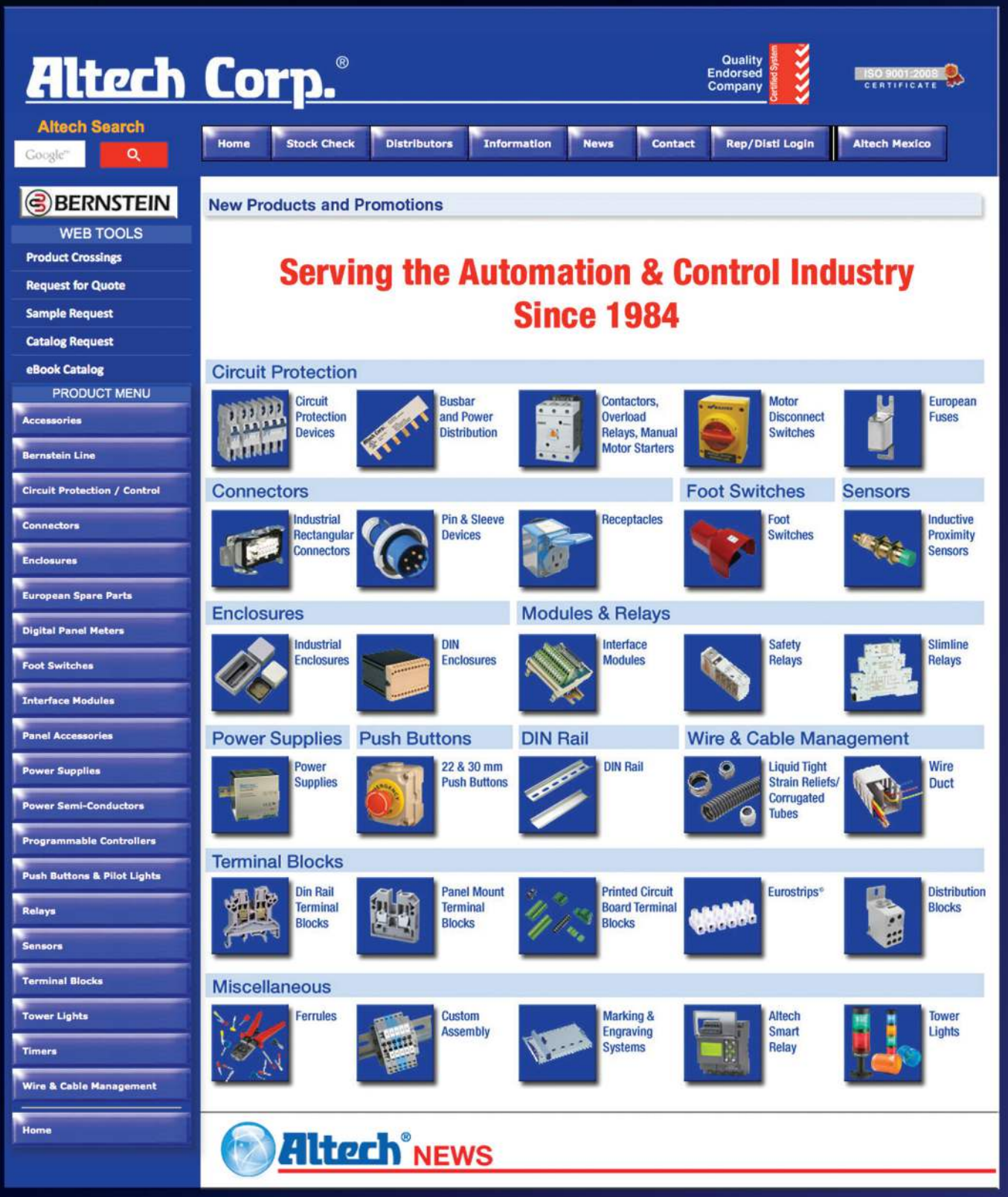

Altech Corporation
35 Royal Road
Flemington, NJ 08822-6000
P 908.806.9400 • F 908.806.9490
www.altechcorp.com

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