CBI All In One DC UPS Power Solutions

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

Battery Selection Chart

<table>
<thead>
<tr>
<th>Battery type</th>
<th>1.2 Ah</th>
<th>3.2 Ah</th>
<th>7.2 Ah</th>
<th>12 Ah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load 1.5 A</td>
<td>20</td>
<td>60</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Load 3 A</td>
<td>8</td>
<td>30</td>
<td>120</td>
<td>240</td>
</tr>
<tr>
<td>Load 5 A</td>
<td>3</td>
<td>15</td>
<td>55</td>
<td>100</td>
</tr>
<tr>
<td>Load 7.5 A</td>
<td>2</td>
<td>10</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Load 10 A</td>
<td>-</td>
<td>7</td>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td>Load 12 A</td>
<td>-</td>
<td>3</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>Load 15 A</td>
<td>-</td>
<td>-</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Load 20 A</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>13</td>
</tr>
</tbody>
</table>

For the latest on Altech Power Supply specifications please visit www.altechcorp.com/power.
Output Load (Main Input Ohm)

The Input Load is composed of a main input circuit with a three-phase load, whose voltage is present, before the charging battery as an output voltage. The charging battery has an additional circuit with a three-phase connection. The voltage of the charging battery is a combination of the two phases of the three-phase connection. The voltage of the charging battery is the main input circuit with a three-phase connection. The voltage of the charging battery is the main input circuit with a three-phase connection.

Output Load (Battery Input Ohm)

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Open Circuit Voltage

Open Circuit Voltage is defined as the voltage of the open circuit, which is the difference between the voltage of the open circuit and the voltage of the closed circuit. Open Circuit Voltage is calculated as the difference between the voltage of the open circuit and the voltage of the closed circuit. Open Circuit Voltage is calculated as the difference between the voltage of the open circuit and the voltage of the closed circuit.

Closed Circuit Voltage

Closed Circuit Voltage is defined as the voltage of the closed circuit, which is the difference between the voltage of the open circuit and the voltage of the closed circuit. Closed Circuit Voltage is calculated as the difference between the voltage of the open circuit and the voltage of the closed circuit. Closed Circuit Voltage is calculated as the difference between the voltage of the open circuit and the voltage of the closed circuit.

Main Characteristics

2. Input voltage: 35 V, 10 A, 20 A, 12 A, 16 A, 24 A, 30 A, 40 A
8. Input voltage: 35 V, 10 A, 20 A, 12 A, 16 A, 24 A, 30 A, 40 A
10. Input voltage: 35 V, 10 A, 20 A, 12 A, 16 A, 24 A, 30 A, 40 A

Q&A

1. What is the significance of the minimum and maximum input voltage levels?
2. What is the difference between the input current and input voltage?
3. How do these values affect the performance of the device?

Voltage and temperature are key factors in determining the performance of any battery. The voltage represents the energy stored in the battery, while the temperature affects the rate at which this energy can be delivered. Understanding these factors can help optimize the use of a battery in various applications.

Temperature of the housing can become very high!

Depending on the ambient temperature and load of the device, the battery may become hot. This can lead to a decrease in performance and a potential risk of overheating. To prevent this, it is important to ensure adequate ventilation and to monitor the temperature of the battery during operation. The Battery Management System (BMS) is designed to monitor and control the temperature of the battery, and it will warn if the temperature exceeds a certain threshold.

Guarantee sufficient auto convection. Depending on the ambient temperature and load of the device, the battery may become hot. This can lead to a decrease in performance and a potential risk of overheating. To prevent this, it is important to ensure adequate ventilation and to monitor the temperature of the battery during operation. The Battery Management System (BMS) is designed to monitor and control the temperature of the battery, and it will warn if the temperature exceeds a certain threshold.
Temperature of the housing can become very high!

Guarantee sufficient auto convection. Depending on the ambient temperature and load of the device, the equipment may require a fan. In this case, please contact our technical support.

In accordance with UL 1236 and CSA C22.2 N°107.2, EN 61000-6-4, EN 61000-6-3, EN 61000-3-2 (see data sheet for each device).

Battery Test: Automatic. Every 60 sec. check battery connection. Every 220 minute in trickle charge, make the test of operation use power supplies of the same type. d) Earthling of battery.

2 Be careful, in Lithium (option to be defined by Order), the VRLA (AGM) High charging curve is deleted. The charging curve starts at the specified charging current and varies with 

\[ \text{Current} = \frac{\text{Voltage} \times \text{Capacity}}{1000} \]  

from -8°C to +60°C.

Selection

We are certain that it will give the utmost satisfaction and be a notable help on the job.

Charging Curves

Automatic, multistage operation, and fast lift design allows fast recharge and recovery of deep discharged battery in minutes or hours. A high boost charger can be used during operation. The parallel selection switches are not subject to the battery voltage. If in the case no load charge but only fast charge.

Compensation Recharge in temperature

For IHI and Logic IHI models, renewable energy (see data sheet for each device). Charging voltage is kept at 14.8V Dc at +25°C. However, the charging process is not influenced by the temperature.

Thermal behaviour

Screening temperature 10°C. For ambient temperature over 40°C, the output current must be reduced by 5% per °C. The output current must be reduced by 5% per °C. The equipment may require a fan. In this case, please contact our technical support.

Standards and Certification

Electrical: According to ANSI C43.3-1995 (USA) and EN 61010-0101 (the EU).

IEC Standards: IEC 61000-6-3(Europe) EN 61000-6-3 (Europe). IEC 61000-6-4 (Europe).

Name and Certifications


Rail Mounting

All models must have a minimum vertical and horizontal distance of 10 cm on this power supply in order to allow for the heat dissipation and for the ambient temperature and load of the device, the temperature of the housing can become very high.
**Output Load (Marine Input Ohm)**

- The marine input Ohm should be set to 0 Ω when the battery voltage is very low. The negative battery voltage is lower than +6V. If this doesn't work, a bypass filter should be added. The bypass filter should be set to 0 Ω when the battery voltage is lower than +6V.

**Output Load (Marine Input OHM)**

- The load current in the marine circuit must be at least 0.1A. If this doesn't work, the bypass filter must be added. The bypass filter must be set to 0 Ω when the battery voltage is lower than +6V.

**Output Load (Marine Input QF)**

- The marine input QF should be set to 0 Ω when the battery voltage is very low. The negative battery voltage is lower than +6V. If this doesn't work, a bypass filter should be added. The bypass filter should be set to 0 Ω when the battery voltage is lower than +6V.

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- The load current in the marine circuit must be at least 0.1A. If this doesn't work, the bypass filter must be added. The bypass filter must be set to 0 Ω when the battery voltage is lower than +6V.
Output Load (Main input OH)

The device is designed to have an input voltage between 12.8 V to 16.2 V. If the voltage is below 12.8 V, the battery is not charged. If the voltage is above 16.2 V, battery charging is disabled.

Output Load in Buffer Mode (Main input OGF)

The output load in buffer mode is designed to be used in combination with the output load. The maximum output load is limited to the buffer mode and cannot be exceeded.

No. 5: Charging Level Current:
The minimum and maximum range stabilized are the following:

<table>
<thead>
<tr>
<th>Charging Level Current</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Phase L N PE</td>
<td>0.8 – 1.0 Nm</td>
<td>7 mm</td>
</tr>
<tr>
<td>3 Phase L N PE</td>
<td>0.8 – 1.0 Nm</td>
<td>7 mm</td>
</tr>
<tr>
<td>Neutral</td>
<td>0.8 – 1.0 Nm</td>
<td>7 mm</td>
</tr>
</tbody>
</table>

No. 12: Battery Management Configurations

To prevent damage to the batteries, the device is equipped with advanced battery protection. This ensures that the battery is always protected and that the charging process is optimized.

Charging Curve

The charging curve shows the relationship between the battery voltage and the charging current. This is critical in order to ensure that the battery is charged efficiently and safely.

Compensation Recharge in temperature

The device is equipped with a compensation recharge feature. This allows the battery to be charged even in extreme temperatures. The device is equipped with a compensating feature that automatically adjusts the charging current to ensure that the battery is charged optimally.

Protection Features

The device is equipped with a variety of protection features to ensure that the battery is protected from damage. These features include: overcharge protection, over-discharge protection, reverse polarity protection, and short circuit protection.

Thermal behaviour

The device is designed to operate in temperatures ranging from -20°C to 55°C. This ensures that the device is suitable for a wide range of environments.

Standards and Certification

The device is certified to the following standards:

- IEC 61131-2
- UL 60950-1
- EN 61010-1

Name and Certifications

The device is certified to the following standards: IEC 61131-2, UL 60950-1, EN 61010-1, and CE Marking.

Rail Mounting

All models must have a minimum vertical and horizontal distance of 15 cm to this power supply in order to ensure proper cooling and ventilation.

Notes on Operation

- The device is designed to be used in combination with the buffer mode.
- The device is equipped with a compensation recharge feature.
- The device is equipped with a variety of protection features to ensure the safety of the battery.
Output Load (Main Input QH)

The battery inverter is designed to supply the output power to the load and maintain a constant output voltage level in the case of sudden power outages. The battery inverter can be connected to a variety of loads, including but not limited to, residential and commercial applications. The battery inverter can be configured to supply power to one or more loads simultaneously.

Main Characteristics

- Input voltage: 24 Vdc
- Output voltage: 24 Vdc
- Output current: 30 A
- Efficiency: 90%
- Weight: 30 kg
- Dimensions: 300 x 200 x 100 mm

Quiescent and Display Status

- Battery status: Battery connected, Battery not connected
- Voltage display: 24 Vdc
- Current display: 30 A
- Power display: 720 W

No. 12: Battery Management Configurations

- Charging: Boost, Float, Equilibrium, Charge
- Battery monitoring: Voltage, Current, Power

Charging Curve

- Battery charging curve: Boost, Float, Equalize
- Charging time: 8 hours

Standards and Certification

- UL 508
- IEC/EN 60950 (VDE 0805)
- EN 50178 (VDE 0160)
- EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5

Protection Features

- Short-circuit protection
- Overload protection
- Over-voltage protection
- Under-voltage protection
- Over-temperature protection

Thermal behaviour

- Operating temperature: 0°C to 40°C
- Storage temperature: -20°C to 60°C
- Humidity: 95% RH non-condensing

Safety and warnings

- Always read the user manual before installing the device.
- Keep the device away from moisture and direct sunlight.
- Use the device only in the specified operating conditions.
- Regularly check the device's condition and replace any damaged parts.

Power Supply Connections

- Main power supply: 24 Vdc
- Backup power supply: Battery

No. 10: Input AC Port (24 Vdc)

- Input voltage: 24 Vdc
- Input current: 5 A
- Input power: 120 W

No. 11: Auxiliary Output

- Output voltage: 24 Vdc
- Output current: 10 A
- Output power: 240 W

Battery

- Battery type: Gel Battery
- Battery capacity: 120 Ah
- Battery voltage: 24 Vdc

Battery Charging

- Charging method: Float, Boost, Charge
- Charging time: 8 hours

Routing and Display Status

- Battery status: Battery connected, Battery not connected
- Voltage display: 24 Vdc
- Current display: 10 A
- Power display: 240 W

No. 12: Starting and Stopping

- Start: Press and hold the Start button for 3 seconds
- Stop: Press and hold the Stop button for 3 seconds

Diagnosis of battery and device

- LED diagnosis: OK, Warning, Fault
- LCD diagnosis: OK, Warning, Fault
Temperature of the housing can become very high!

Depending on the ambient temperature and load of the device, the system limits the output current (see the technical data).

For Battery Type Selection always refer to the data of the Battery or system connected in Series for CBI4xx; only the battery connected. (Not present in CBI2410XX and CBI485XX)

No. 15: Auxiliary Output "Aux 3"

No. 16: Auxiliary Output "Aux 4"

Battery Care

Diagnostic Type Checks:  Check for accidental disconnection of the battery cables:

1. Switch off the system before connecting the module. Never work on the machine when it is connected to the power supply. Always wear protective clothing.

2. Copper cables that are designed for operating temperatures of > 75 °C. Wiring terminal shall be marked to indicate the proper connection for the power supply.

3. Switch off the system before connecting the module. Never work on the machine when it is connected to the power supply. Always wear protective clothing.

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12. Switch off the system before connecting the module. Never work on the machine when it is connected to the power supply. Always wear protective clothing.
Output Load (Main input OH):

- Output Load is connected to the output power supply of the UPS. The output load must be within the specified range to ensure proper functioning.
- The output load is voltage and current limited to protect the battery and prevent overloads. The output load is designed to operate at a constant voltage and constant current.
- The output load is protected against overcurrent and overvoltage to ensure safe operation.
- The output load is designed to operate at a constant voltage and constant current to maintain a consistent output power.
- The output load is designed to operate at a constant voltage and constant current to maintain a consistent output power.

Output Load in Buffer Mode (Main input OBF):

- The output load is connected to the battery through a buffer circuit to provide a smooth transition from the battery to the load during power outages.
- The output load is designed to operate at a constant voltage and constant current to maintain a consistent output power.
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Output Load in Power Failure Mode (Main input OFG):

- The output load is connected to the battery through a power failure circuit to provide a backup power source during power outages.
- The output load is designed to operate at a constant voltage and constant current to maintain a consistent output power.
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Quadrant and Display Units:

- The quadrant and display units are designed to provide real-time monitoring of the battery status.
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Battery Power Supply:

- The battery power supply is designed to provide backup power to the device in case of a power failure.
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Connection between Device and Battery:

- The connection between the device and the battery is designed to ensure a secure and reliable connection.
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Thermal Behaviour:

- The thermal behaviour of the device is designed to ensure safe operation under normal and abnormal conditions.
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Standards and Certification:

- The device complies with all relevant international and national standards and regulations.
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### CBI - All in ONE

<table>
<thead>
<tr>
<th>Model</th>
<th>12Vdc</th>
<th>24Vdc</th>
<th>48Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Input Voltage</td>
<td>18 – 20 Vdc</td>
<td>20 – 21 Vdc</td>
<td>20 – 21 Vdc</td>
</tr>
<tr>
<td>Input Voltage Range</td>
<td>18 – 20 Vdc</td>
<td>20 – 21 Vdc</td>
<td>20 – 21 Vdc</td>
</tr>
<tr>
<td>Output Voltage Range</td>
<td>5Vdc – 32Vdc</td>
<td>5Vdc – 32Vdc</td>
<td>5Vdc – 32Vdc</td>
</tr>
<tr>
<td>Output Current Limit</td>
<td>≤100mA</td>
<td>≤100mA</td>
<td>≤100mA</td>
</tr>
<tr>
<td>Efficiency</td>
<td>95% to 25°C</td>
<td>95% to 25°C</td>
<td>95% to 25°C</td>
</tr>
<tr>
<td>Sulfated battery check</td>
<td>Yes (Typ. 35Vdc)</td>
<td>Yes (Typ. 35Vdc)</td>
<td>Yes (Typ. 35Vdc)</td>
</tr>
<tr>
<td>Reverse battery protection</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Over Load protection</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Short-circuit protection</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Over Voltage Protection</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Specifications

#### General
- **Nominal Input Voltage:** 12Vdc, 24Vdc, 48Vdc
- **Input Voltage Range:** 18 – 20 Vdc, 20 – 21 Vdc, 20 – 21 Vdc
- **Output Voltage Range:** 5Vdc – 32Vdc, 5Vdc – 32Vdc, 5Vdc – 32Vdc
- **Output Current Limit:** ≤100mA, ≤100mA, ≤100mA
- **Efficiency:** 95% to 25°C, 95% to 25°C, 95% to 25°C
- **Sulfated battery check:** Yes (Typ. 35Vdc), Yes (Typ. 35Vdc), Yes (Typ. 35Vdc)
- **Reverse battery protection:** Yes, Yes, Yes
- **Over Load protection:** Yes, Yes, Yes
- **Short-circuit protection:** Yes, Yes, Yes
- **Over Voltage Protection:** Yes, Yes, Yes

#### Additional Features
- **Remote Monitoring:** YES
- **Remote Display:** YES
- **Remote Control:** YES
- **Remote Setting:** YES
- **Remote Configuration:** YES
- **Remote Upgrade:** YES

#### Protection Class
- **Protection Class (EN/IEC 60529):** CE

#### Weight
- **Weight:** 1.55 kg approx, 1.55 kg approx, 1.55 kg approx

#### Compliance
- **Safety Standard Approval / Conformità ed Approvazioni:** Yes, Yes, Yes

### Optional Features
- **Optional for auxiliary Output (RJ45 connection):** Boost / Trickle

### All specification are subject to change without notice

**Note:** Options to be defined by Order, Push Button not available

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