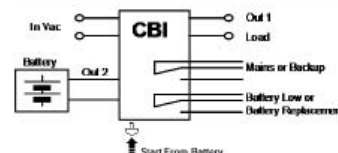


- Single Phase Input 90-305VAC, 47-63 Hz
- Output 1: Load power supply 24 VDC, 3 A
- Output 2: Battery charging 24 VDC, 3 A
- Suited for the following battery types: Open Lead Acid, Sealed Lead Acid, lead Gel and Ni-Cd (option)
- Automatic diagnostic of battery status. Charging curve IUoUo, constant voltage and constant current Battery Life Test function
- Switching technology, output voltage 22,0-28,8 VDC  
Three charging levels: Boost, Trickle and Recovery
- Protected against short circuit and inverted polarity
- Signal output (contact free) for discharged or damaged battery
- Signal output (contact free) for mains or Back-up
- Protection degree IP20 - DIN rail; Space saving



### Technical features

Thanks to the All-In-One units (DC-UPS), it will be possible to optimize power management. The available power is automatically allocated between load and battery, supplying power to the load is the first priority of the unit thus it is not necessary to double the power, because also the power going to the battery will go to the load if the load so requires. The maximum available current on the load output is 2 times the value of the device rated current  $I_n$ .

We call "Battery Care" the concept 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. The Real Time Auto-diagnostic system, monitoring battery faults such as, battery Sulfated, elements in short circuit, accidental reverse polarity connection, disconnection of the battery, they can easily be detected and removed by help of Blink Code of Diagnosis Led; during the installation and after sell. The continuous monitoring of battery efficiency, reduces battery damage risk and allows a safe operation in permanent connection.

Each device is suited for all battery types, by means of jumpers it is possible setting predefined curves for Open Lead Acid, Sealed Lead Acid, Gel, Ni-Cd (option). They are programmed for two charging levels, boost and charge, but they can be changed to single charging level by the user.

A rugged casing with bracket for DIN rail mounting provide IP20 protection degree. They are extremely compact and cost-effective.

### Electrical specifications

| Model No.                |                           | CBI243A                                |
|--------------------------|---------------------------|----------------------------------------|
| Input                    | Voltage                   | 90 ~ 305 VAC                           |
|                          | Frequency                 | 47-63 Hz                               |
|                          | Current                   | 1,91 A (115 VAC) / 0,96 A (230 VAC)    |
|                          | Inrush Current            | $\leq 11$ A $\leq 5$ ms                |
|                          | Internal fuse             | 4 A (not replaceable)                  |
|                          | External Fuse             | 10 A (recommended) MCB curve B         |
| Output<br>(Power Supply) | Voltage (nominal)         | 24 VDC                                 |
|                          | Current (nominal)         | 3 A                                    |
|                          | Efficiency                | $\geq 90\%$ (at 50% of rated current)  |
|                          | Turn-On delay             | 1,0 s max after applying mains voltage |
|                          | Start up with strong load | Yes, unlimited (Capacitive load)       |
|                          | Dissipation power load    | 13 W max                               |
|                          | Short-circuit protection  | Yes                                    |
|                          | Over Load protection      | Yes                                    |
|                          | Over Voltage protection   | Yes (typ. 35 VDC)                      |
|                          | Overheating protection    | Yes                                    |

|                             |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Output<br>(Battery)         | Boost charge                                                                                                                                                                                                                                                                                                                                                                          | 28,8 VDC (25 °C) (at In)                                                         |
|                             | Max. time Boost Charge                                                                                                                                                                                                                                                                                                                                                                | 15 h                                                                             |
|                             | Min. time Boost Charge                                                                                                                                                                                                                                                                                                                                                                | 1 min                                                                            |
|                             | Trickle charge                                                                                                                                                                                                                                                                                                                                                                        | 27,5 VDC (25 °C) (at In)                                                         |
|                             | Jumper Configuration<br>battery type                                                                                                                                                                                                                                                                                                                                                  | Lead Acid: 2.23; 2.25; 2.27; 2.30 V/cell<br>Optional NiCd: 1.5 V/cell (20 elem.) |
|                             | Recovery Charge                                                                                                                                                                                                                                                                                                                                                                       | 2 – 16 VDC                                                                       |
|                             | Charging current                                                                                                                                                                                                                                                                                                                                                                      | 3 A $\pm$ 5% max                                                                 |
|                             | Charging current limiting                                                                                                                                                                                                                                                                                                                                                             | 20 - 100 % / Ibat (adjustable)                                                   |
|                             | Reverse battery protection                                                                                                                                                                                                                                                                                                                                                            | Yes                                                                              |
|                             | Sulfated battery check                                                                                                                                                                                                                                                                                                                                                                | Yes by Jumper                                                                    |
|                             | Detection of element in<br>short circuit                                                                                                                                                                                                                                                                                                                                              | Yes                                                                              |
|                             | Quiescent Current                                                                                                                                                                                                                                                                                                                                                                     | $\leq$ 100 mA max                                                                |
|                             | Charging Curve                                                                                                                                                                                                                                                                                                                                                                        | 3 stage automatic: IUoUo                                                         |
|                             | Remote Input Control                                                                                                                                                                                                                                                                                                                                                                  | Boost /Trickle via RTCONN cable                                                  |
| Output<br>(Load)            | Output voltage                                                                                                                                                                                                                                                                                                                                                                        | 22,0 – 28,8 VDC (31 VDC for NiCd)                                                |
|                             | Nominal current                                                                                                                                                                                                                                                                                                                                                                       | 1.1 x In A $\pm$ 5%                                                              |
|                             | Continuous current                                                                                                                                                                                                                                                                                                                                                                    | Without battery 3 A                                                              |
|                             |                                                                                                                                                                                                                                                                                                                                                                                       | With battery 6 A                                                                 |
|                             | Max current output                                                                                                                                                                                                                                                                                                                                                                    | Main 9 A max Iload (4 sec.)                                                      |
|                             |                                                                                                                                                                                                                                                                                                                                                                                       | Backup 6 A max Iload (4 sec.)                                                    |
|                             | Remote Input Control                                                                                                                                                                                                                                                                                                                                                                  | Start from battery without main via RTCONN cable                                 |
|                             | Time Buffering                                                                                                                                                                                                                                                                                                                                                                        | $\infty$ : standard, 5 min.: Require SW (switch output off without main input)   |
|                             | Protections                                                                                                                                                                                                                                                                                                                                                                           | 19 – 20 Vdc batt Against total discharge                                         |
| Signals                     | Signal Output                                                                                                                                                                                                                                                                                                                                                                         | Free switch contacts: Main or Backup Power, Low Battery, Fault Battery           |
|                             | Type of Signal Output                                                                                                                                                                                                                                                                                                                                                                 | Max. Current can be switched (EN60947.4.1): Resistive load                       |
|                             |                                                                                                                                                                                                                                                                                                                                                                                       | Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A, Min.1mA at 5 Vdc Min permissive load       |
|                             | Signal Input / Output                                                                                                                                                                                                                                                                                                                                                                 | (RJ45) Temp. Comp. Battery (with external probe), Remote monitoring display      |
| Environment                 | Operating Temperature                                                                                                                                                                                                                                                                                                                                                                 | -25°C...+70°C (with derating T>50°C -2.5%(In) / °C)                              |
|                             | Storage Temperature                                                                                                                                                                                                                                                                                                                                                                   | -40°C...+85°C                                                                    |
|                             | Humidity                                                                                                                                                                                                                                                                                                                                                                              | 20 - 95% RH to 25°C                                                              |
|                             | Cooling                                                                                                                                                                                                                                                                                                                                                                               | Auto convention                                                                  |
| General data                | Insulation voltage                                                                                                                                                                                                                                                                                                                                                                    | 3000 VAC (I/O), 1605 VAC (I/Gr), 500 VAC (O/Gr)                                  |
|                             | Protection Class                                                                                                                                                                                                                                                                                                                                                                      | IP20, (EN/IEC 60529)                                                             |
|                             | Reliability: MTBF                                                                                                                                                                                                                                                                                                                                                                     | >300 000 h (IEC 61709)                                                           |
|                             | Pollution Degree                                                                                                                                                                                                                                                                                                                                                                      | 2                                                                                |
|                             | Connections                                                                                                                                                                                                                                                                                                                                                                           | Terminal Blocks screw Type; 2,5mm (24–14AWG)                                     |
|                             | Protection class                                                                                                                                                                                                                                                                                                                                                                      | I, with PE connected                                                             |
|                             | Dimension (W x H x D)                                                                                                                                                                                                                                                                                                                                                                 | 65 x 115 x 135 mm                                                                |
|                             | Weight                                                                                                                                                                                                                                                                                                                                                                                | 600 g                                                                            |
| Norms and<br>Certifications | In Conformity to: IEC/EN 60335-2-29 Battery chargers; EN60950 / UL60950-1 and CSA C22.2 No. 60950-1-07 (Information Technology Equipment) – Safety – Part1:General Requirement. Electrical safety; EN54-4 Fire Detection and fire alarm systems; 89/336/EEC EMC Directive; 2014/35/UE (Low Voltage); DIN41773 (Charging cycle); Emission: IEC 61000-6-3; Immunity: IEC 61000-6-2. CE. |                                                                                  |

### Battery Modules (without batteries)

Battery Bank for DC-UPS "All In One". Lead AGM, VRLA technology, maintenance-free lead-acid batteries with serial fuse. Simple connection with screws for Wall mount or DIN rail.

| Model                                   | CBI-BTH1.2                                        | CBI-BTH3.4                           | CBI-BTH7.2                           | CBI-BTH12                            |
|-----------------------------------------|---------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Technical Data                          |                                                   |                                      |                                      |                                      |
| Nominal Input Voltage                   | 24 V – 1,2 Ah                                     | 24 V – 3,4 Ah                        | 24 V – 7,2 Ah                        | 24 V – 12 Ah                         |
| Battery Type for Lead AGM               | No Battery                                        | No Battery                           | No Battery                           | No Battery                           |
| Battery Dimension (WxHxD)               | 42x52x97 mm                                       | 67x60x134 mm                         | 65x94x151 mm                         | 98x95x151 mm                         |
| Protection Fuse                         | 25 A                                              | 25 A                                 | 25 A                                 | 25 A                                 |
| Recovery Fuse                           | 25 A                                              | 25 A                                 | 25 A                                 | 25 A                                 |
| Charging Data                           |                                                   |                                      |                                      |                                      |
| End-of-charge Vdc (trickle)             | 27,5 (20°C); 26,8 (30°C); 26,1 (40°C)             |                                      |                                      |                                      |
| Max. charging current                   | 0,36 A                                            | 0,90 A                               | 2,16 A                               | 3,6 A                                |
| Discharging Data                        |                                                   |                                      |                                      |                                      |
| Battery disconnection from CBI          | <19 V                                             | <19 V                                | <19 V                                | <19 V                                |
| Max. permissible discharging            | 25 A                                              | 25 A                                 | 25 A                                 | 25 A                                 |
| Self-discharge rate at 20 °C            | 15% / month                                       | 15% / month                          | 15% / month                          | 15% / month                          |
| General Data                            |                                                   |                                      |                                      |                                      |
| Protection degree                       | IP20                                              | IP20                                 | IP20                                 | IP20                                 |
| Protection class                        | III                                               | III                                  | III                                  | III                                  |
| Connection Terminal Block<br>Screw Type | 0,5-16 mm <sup>2</sup> (20-6<br>AWG)              | 0,5-16 mm <sup>2</sup> (20-6<br>AWG) | 0,5-16 mm <sup>2</sup> (20-6<br>AWG) | 0,5-16 mm <sup>2</sup> (20-6<br>AWG) |
| Dimension (WxHxD)                       | 67x176x122 mm                                     | 75x193x164 mm                        | 139x203x129 mm                       | 205x201x107 mm                       |
| Weight (approx)                         | 1,1 kg                                            | 1,3 kg                               | 1,5 kg                               | 1,5 kg                               |
| Assembly                                | DIN rail or Wall Mount for hanging onto M4 screws |                                      |                                      | Wall mount                           |
| Generic Data                            |                                                   |                                      |                                      |                                      |
| Operation Temperature                   | 0...+40°C                                         | 0...+40°C                            | 0...+40°C                            | 0...+40°C                            |
| Storage Temperature                     | 0...+40°C                                         | 0...+40°C                            | 0...+40°C                            | 0...+40°C                            |
| Humidity                                | 95% at 25 °C, no condensation                     |                                      |                                      |                                      |
|                                         |                                                   |                                      |                                      |                                      |
| Buffering Time (min)                    |                                                   |                                      |                                      |                                      |
| Load : 1,5 A                            | 20                                                | 60                                   | 200                                  | 400                                  |
| Load : 3,0 A                            | 8                                                 | 30                                   | 120                                  | 240                                  |
| Load : 5,0 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                                   |