CB6024A Battery Charger

Input: Single-phase 100 – 240 – 277 Vac
Output: 24 Vdc 3A (5A max)
Power Supply Function
Suited for the following battery types: Open Lead Acid, Sealed Lead Acid, Lead Gel, Ni-Cd
Battery Care: automatic diagnosis and battery status
Charging curve IUoU: constant current and constant voltage
High efficiency with quasi-resonant switching technology
Charging type: Boost, Absorption, Float, Recovery.
Protected against short circuit, inverted polarity, over Load.
Signal output (Free Switch Contact): Fault battery state, Mains/Back-Up.
Protection degree IP20
DIN rail or Wall Mount

CE cᴙᴜʟus pending

Technical features

The CB series is a "Switching Technology" and "Battery Care Philosophy" that has been part of ADEL's core system know-how for years, leading to the development of this advanced, multi-stage, fully automatic battery charging method suitable for meeting the most advanced requirements of battery manufacturers. The Battery Care concept is based on algorithms that implement rapid and automatic charging, optimization of battery charging over time, recovery of discharged batteries, and real-time diagnostics during installation and operation. The real-time self-diagnosis system, which monitors battery faults such as shorted elements, accidental reverse polarity connections, and battery disconnections, can be easily detected and removed with the help of the flashing code of the diagnosis LED; during installation and after sale. Each device is suitable for all types of batteries. Preset curves can be set for open lead acid, sealed lead acid, gel, Ni-Cd. A sturdy housing with bracket for DIN rail and wall mounting.

Input Data

Nominal Input Voltage	**100 – 240 – 277 Vac**
UL ratings	**100 – 240 Vac**
Input Voltage range	**90 – 305 Vac**
Inrush Current	**≤ 50 A**
Frequency	**47 – 63 Hz**
Input Current	**1.3 A (100 Vac)**
	0.7 A (240 Vac)
	0.65 A (277 Vac)
Internal Fuse	**2.5 A**
External Fuse (recommended)	**10 A (MCB curve C)**

Battery Charger Output

Fast/Boost Charge	**28.2 V (Lead)**
	29 V (Ni-Cd)
Recovery Charge	**2 – 20 V**
Charging Current In (Tᵃ ≤ 40°C)	**3 A ± 5% (5 A max)**

Battery Tester

Battery Detection of element in short circuit	**Yes**
Reverse polarity protection	**Yes**
Battery Disconnected (Protection No Spark)	**Yes**
Battery Voltage Wrong	**Yes**
End of charge control	**Yes**

Generic Output Data

Max. time Bulk-Absorption Charge (typ. At In)	**16 h**
Min. time Bulk Charge (typ. At In)	**2 min.**
Float Charge: Battery type can be configured pushing the button at switch-on. (V/cell)	**2.23 V (Open Lead)**
	2.25 V (AGM)
	2.30 V (Gel)
	1.4V (Ni-Cd)"20 cell"
End of charging current to Float (Bulk & Absorption charge)	**300 mA**
Charging current limiting Iₐdⱼ	**No**
Quiescent Current (Input main Voltage ON)	**≤ 5mA**
Quiescent Current (Input main Voltage OFF)	**0mA (Vbat < 26.3V)**
Remote Charge Input Control Fast/Boost charge	**Terminal Block Contact**
Power Supply function can be configured pushing the button at switch-on	**Yes**
Efficiency (50% of In)	**89%**
Dissipation Power load max (W)	**9**
Residual Ripple	**≤ 50 mVpp**
Charging Curve automatic: IUoU	**4 stage**
Short-circuit protection)	**Yes**
Over Load protection	**Yes**
Overheating Thermal Protection	**Yes**
Over Voltage Output protection	**(Typ. 35Vdc)**

Connection and Monitoring

Signal Output (free switch contact)

Main or Backup Input Power	**Yes**
Low Battery	**Yes**
Fault Battery	**Yes**
Type of Signal Output Contact (free switch contact)	
Max. current can be switched (EN60947.4.1): Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A Min.1mA at 5 Vdc	

General Data

Insulation voltage (In / Out)	**4000 Vac**
Protection Class (EN/IEC 60529)	**IP20**
Protection class	**II**
Reliability: MTBF IEC 61709	**> 300000 h**
Pollution Degree Environment	**2**
Connection Terminal Blocks screw Type	**2.5mm (24–14AWG)**
Housing material	**Polycarbonate**
Dimensions (w-h-d)	**72x90x61 mm**
Weight	**0.30 Kg approx.**

Climatic Data

Ambient temperature (operation)	**-25 ÷ +70°C**
Ambient temperature Storage	**-40 ÷ +85°C**
Humidity at 25 °C no condensation	**95% to 25°C**
Cooling	**Auto Convection**
Vibration IEC60068-2-6	**15-150 Hz: 1g**
	1 oct/min X,Y,Z axes
Shock IEC 60068-2-27	**10g 6ms**
	3 bumps / direction

Norms and Certifications

Conforming to Low Voltage Directive (LVD) 2014/35/UE
- Electrical safety: IEC/EN 62368-1

Conforming to Electromagnetic Compatibility (EMC) Directive 2014/30/UE
- Emission: IEC/EN 61000-6-3
- Immunity: IEC/EN 61000-6-2

UL 1236 Recognition Pending

Charging

The charging type is IUoU stabilized voltage and current in accordance with DIN41773. The battery charging status and self-diagnosis of the systems are identified by a flashing code on the diagnosis LED and the battery fault LED:

	State	LED Green Charging State	LED Orange Battery Fault
Charging Type	Recovery	5 Blink/sec	
	Boost – Bulk	2 Blink/sec	
	Absorption	1 Blink/sec	
	Float	1 Blink/2 sec	
Auto Diagnosis	Reverse polarity		1Blink
	Battery No connect		2Blink
	Element in Short C.		3Blink
	Replace Battery		5Blink

CB Charging Diagram