CB6012A Battery Charger

Input: Single-phase 100 - 240 - 277 Vac.
Output: 12 Vdc 5A max
It can run as Battery Charger or Battery Charger and Power supply Function
Suited for many 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.
5 Charging stages: Recovery, Bulk, Absorption, Float, Refresh.
Short circuit, reversed polarity and overload protection.
Signal output (Volt-Free Contact): Battery Fault, AC Fail.
Protection degree IP20.
DIN rail or Wall Mount.

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 and Power Supply function if enabled, are suitable to meet the most advanced requirements of the 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. The sturdy housing is developed for DIN rail and wall mounting applications.

Input Data

Nominal Input Voltage	**100 – 240 – 277 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)** **0.6 A (277 Vac)**
Internal Fuse	**2.5 A**
External Fuse (recommended)	**10 A (MCB curve C)**

Battery Charger Output

Fast/Boost Charging	**14.1 V (Lead) 2.35 V/cel** **14.5 V (Ni-Cd) 1.45 V/cel**
Float Charging	**13.38 (Open Lead) 2.23 V/cel** **13.50 (AGM) 2.25 V/cel** **13.80 (Gel) 2.30 V/cel** **14.00 (Ni-Cd) 1.40 V/cel; 20 cell.**
Recovery Charging	**2 – 10.5 V**
Battery types	**Lead, Open Lead, AGM, Gel, Ni-Cd**
Charging curve	**5 stages: Recovery, Bulk, Absorption, Float, Refresh**
Charging Current In (Ta ≤ 40°C)	**5 A max - 4.5 A (UL rating)**
Min. time Bulk Charging (typ. At In)	**2 minutes**
Max. time Bulk-Absorption Charging (typ. At In)	**16 hours**
End of charging current (Absorption to Float)	**300 mA**
Refresh Battery duration	**85 minutes** **(Fast Charge only)**
Refresh Battery period	**12 days (Fast Charge only)**

Battery Tester

Battery with shorted cells	**Yes**
Reverse polarity protection	**Yes**
Battery Disconnection (Protection No Spark)	**Yes**
Wrong Battery Voltage	**Yes**
End of charging control	**Yes**

Power Supply (If enabled by programming function)

Output voltage (at In)	**11 – 14.1 Vdc**
Nominal current In = Iload	**5 A ± 5% In**

Generic Output Data

Quiescent Current (Input main Voltage ON)	**≤ 5 mA**
Quiescent Current (Input main Voltage OFF)	**0mA (Vbat < 13 V)**
Power Supply function	**Yes**
Efficiency (50% of In)	**84%**
Dissipation Power load max	**9.6 W**
Ripple and Noise (20 MHz Bandwidth)	**80 mV_{pp} (max) Load >1A**
Ripple and Noise (20 MHz Bandwidth)	**400 mV_{pp} (max) Load <1A**
Short-circuit protection	**Yes**
Overload protection	**Yes**
Overheating Thermal Protection	**Yes**
Over Voltage Output protection	**(Typ. 35 Vdc)**

Signal Output

AC Fail	**Yes**
Low Battery	**Yes**
Battery Fault	**Yes**
Type of Signal Output Contact	**Volt-Free**
Contact rating	**1A 125Vac / 24Vdc**

Signal Input

Fast charge	**ON/OFF Terminal Block**

General Data

Insulation voltage (In / Out)	**4000 Vac**
Protection Class (IEC/EN 60529)	**IP20**
Protection class	**II**
Reliability: MTBF (IEC 61709)	**> 300.000 h**
Pollution Degree Environment	**2**
Connection Terminal Blocks screw Type	**2.5 mm^2 (24–14AWG)**
Housing material	**Polycarbonate**
Dimensions (w-h-d) according to DIN 43880	**72x90x55 mm**
Weight	**0.30 Kg approx.**

Climatic Data

Ambient temperature Operation	**-25 ÷ +70 °C**
De-rating Tamb>40°C	**-1.6 % (In) / °C**
Ambient temperature Storage	**-40 ÷ +85°C**
Humidity at 25 °C no condensation	**95% to 25°C**
Cooling	**Auto Convection**
Vibration IEC 60068-2-6	**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 Recognized – BBGQ2 Battery chargers (UL file: E353241)

Charging

The charging type is IUoU stabilized voltage and current according to DIN41773. The battery charging status and self-diagnosis of the systems are identified by the flashing code and color of the diagnosis LED:

	State	LED Green Charging State	LED Orange Battery Fault
Charging Stages	Recovery	5 Blink/sec	
	Bulk	2 Blink/sec	
	Absorption	1 Blink/sec	
	Float	1 Blink/2 sec	
Auto Diagnosis	Reverse polarity		1Blink
	Battery not connected		2Blink
	Battery with shorted cells		3Blink