

BC DUETTO LEAD-ACID/LITHIUM



BC DUETTO is the all-in-one universal smart charger for both lead-acid and lithium batteries, developed to provide a single multi-purpose device for all 12V motorcycle batteries. The charger features **two different charging programs** for lead-acid and lithium batteries. Its maximum charging current (1.5 Amps) makes it ideal not only for the recovery, recharge and maintenance of all ATV, moped and motorcycle batteries, but also for charging and maintaining car batteries. The battery charger is designed to stay always connected to the battery, with no risk and no need to disconnect the battery from the vehicle, keeping it fully charged during long periods of inactivity (even months). The internal microprocessor runs a

fully automatic multi-cycle charging algorithm (8 steps for lead/acid batteries, 7 steps for lithium batteries). The lead/acid charging technology provides a complete solution to recover deeply discharged batteries (from 1.25 volts) and to recharge, desulfate and maintain all types of 12V batteries (traditional, gel, sealed...) from 3 to 100 Ah. The lithium charging program allows the recovery of deeply discharged batteries, a fast and efficient battery charging, a charge balancing between the battery cells and a long term maintenance cycle. Safety is guaranteed during every charging step: **in case of low temperatures, detected by an integrated sensor, the POLAR Mode is automatically activated**, allowing a safe battery

charging at low temperatures. A couple of LEDs indicate the charging cycle executed as well as any functioning error in real time. Other LEDs show the currently active charging program. BC DUETTO does not produce sparks and it is protected against short circuit, reverse polarity, overcharging and overheating. The package includes a waterproof battery cable with eyelets, which can be left always installed on the vehicle, and a battery cable with insulated clamps. A universal 12/18 mm adapter (optional) is available to recharge the battery from the cigarette lighter. The warranty is extended to 3 years.

THE UNIVERSAL SMART CHARGER
FOR ALL 12V LEAD-ACID BATTERIES
AND FOR 12V
LITHIUM-ION &
LIFEPO4 BATTERIES



12 VOLT
1.5 AMP

LEAD/ACID
PROGRAM
(8 CYCLES)

LITHIUM
PROGRAM
(7 CYCLES)



TECHNICAL DATA

Input Voltage
Charging Voltage
Charging Current
Types of Batteries

Charging Algorithm - Lead/Acid

Battery Capacity - Lead/Acid
Charging Algorithm - Lithium

Battery Capacity - Lithium
Operating Temperature
IP Class

BC DUETTO

220÷240 Vac, 50÷60 Hz
13.8 V / 14.4 V - nominal 12 V
1.5 A max
12 V Lead Acid (Traditional/Wet, Gel, MF, VRLA, AGM, Ca/Ca, etc.) & 12V Lithium-Ion / LiFePO4
8 cycles, automatic (Initialization, Recovery, Soft Charge, Bulk Charge, Desulfation, Battery Analysis, Maintenance and Equalization)
From 3 Ah to 100 Ah
7 cycles, automatic (Initialization, Recovery, Soft Charge, Bulk Charge, Equalization, Battery Analysis and Maintenance)
From 1 Ah to 100 Ah
from -20° to +50°C
Weatherproof - Protection against water splash IP44. Suitable for outdoor use



Featuring wall mounting system with fast dismounting

CHARGING PROGRAM SELECTION

- Once you connected the battery charger to the power outlet, a LED will show you the active charging mode (Lead-Acid or Lithium). To change the charging mode, please follow this procedure:
1. With the device disconnected from the battery and from the power outlet, connect the clamps to the device and put the red and the black clamps together (creating a permanent short circuit).
 2. Connect the device to the power outlet. The active charging mode will change and it will be displayed by the correspondent LED (Lead-Acid or Lithium).
 3. Disconnect the device from the power outlet and separate the clamps. The selected charging mode will be kept in memory until you repeat this procedure.

LEAD/ACID BATTERIES - 8 CYCLES CHARGING TECHNOLOGY

BC DUETTO is a battery charger and maintainer managed by a **latest-generation microprocessor**, which is in charge of monitoring the battery parameters in real time and to execute a **new multi-cycle charging algorithm** (lead/acid charging program):

1. **Initialization:** the device checks if one or more cells are shorted, in order to verify that the battery is in a proper condition to be recharged/recovered.
2. **Recovery:** if the battery is deep discharged (battery voltage starting from 1.25 V), the device tries to recover it, taking it back to a higher voltage.
3. **Soft Charge:** if the battery is in a condition of significant undercharge, the device provides a light pulsing current to the battery, to overcome this critical phase.
4. **Bulk Charge:** the device provides full current to the battery, recovering about 85-90% of the battery capacity.
5. **Desulfation / Absorption:** the device provides a "controlled overcharge" to recover the remaining 10-15% of the battery capacity, through the desulfation/recovery the lead-acid cells (for low or medium sulfation).
6. **Battery Analysis - End Cycle Test:** the device stops providing current to the battery for a short time, in order to verify whether the battery is able to retain the charge received. This test is periodically repeated during the Maintenance.
7. **Maintenance:** the device keeps the battery in the best charge conditions for very long periods (even months) during which your vehicle is left unused, without any possible drawback (battery overcharge, battery overheating, water and/or electrolyte loss, etc).
8. **Equalization:** every 30 days during long term maintenance, the device executes an equalization charge in order to balance the battery lead-acid cells, avoiding electrolyte stratification within the cells.

LITHIUM BATTERIES - 7 CYCLES CHARGING TECHNOLOGY

BC DUETTO is managed by a **latest-generation microprocessor**, which is in charge of monitoring the battery parameters in real time and to execute a **new multi-cycle charging algorithm** (Lithium charging program):

1. **Initialization:** the device verifies the battery conditions and an integrated sensor measures the ambient temperature: at low temperatures, the charging current is limited and the POLAR MODE is automatically activated.
2. **Recovery:** if the battery is deep discharged, the device tries to recover it, taking it back to a higher voltage.
3. **Soft Charge:** if the battery is in a condition of significant undercharge, the device provides a light pulsing current to the battery, to overcome this critical phase.
4. **Bulk Charge:** the device provides full current to the battery, recovering about 85-90% of the battery capacity.
5. **Equalization:** during this phase the device recovers the remaining 15-20% of the battery capacity, and the state of charge of the different battery cells is rebalanced.
6. **Battery Analysis:** the device stops providing current to the battery for a short time, in order to verify whether the battery is able to retain the charge received during the previous phases. This test is periodically repeated during the maintenance.
7. **Maintenance:** the device keeps your battery in the best charge conditions for very long periods (even months) during which your vehicle is left unused, without any possible drawback (battery overcharge/overheating...).

SAFETY AND PROTECTIONS

BC DUETTO features a series of **8 protections and active guard mechanisms** that make it easy to install and to use, without any risks even for users without expertise:

- **No interferences the vehicle's on board electronics** (control unit, ABS, GPS...)
- Protection from output lines short circuit, even for an indefinite time: **no sparks!**
- Protection from battery polarity inversion
- Protection from battery overcharge/overheating
- Thermal protection from overtemperature
- No need to disconnect the battery from your vehicle
- Very few gas development during the charge: no need to remove the battery plugs

Laboratory Tests ensure the manufacturing of products in conformity to the regulations in force on safety and electro-magnetic compatibility. Norms and Regulations: IEC-61000-3-2 (ed.3);am1;am2, IEC-61000-3-3(ed.2) CEI-CISPR14-1(ed.5);am1;am2, CEI-CISPR14-2(ed.1);am1;am2, IEC60335-1(ed.5), IEC-60335-2-29(ed.4);am1;am2.

BATTERY TYPES AND CAPACITY

BC DUETTO is specifically designed for charging and maintaining **all 12V lead-acid batteries** (traditional, VRLA, MF, AGM, GEL, Ca/Ca, etc) **and 12V Lithium-Ion & Lithium-Iron-Phosphate (LiFePO4) batteries**. **BC DUETTO** is addressed to **recharge and maintain lead/acid batteries with a capacity from 3 to 100 Ah and LiFePO4 batteries from 1 to 100 Ah**.

EQUIPMENT & ADD-ONS

The package includes:

- the battery charger **BC DUETTO** for long term battery maintenance, provided with a 220V power cable (2 meters long) and a battery output cable;
- A waterproof battery cable with eyelets, which can be left always installed on board;
- A battery cable with insulated clamps;
- according to the selected kit, a universal 12/18mm cigar socket adapter may be included;
- a copy of the User Manual.