Operator's Manual
Manual del Usuario

SMARTECH® PRODUCTS

SMARTER PRODUCTS THROUGH SMARTER TECHNOLOGIES

Battery Charger
Cargador de batería

Model/Modelo BC-15000

AC Input: 100-120VAC, 50-60Hz, 350W Max
DC Output: 6VDC, 5A; 12VDC, 15A;
12VDC, 20A (5 minutes)
Temperature Controlled

Smartech Inc. • 8700 Larkin Rd. Suite B • Savage, MD 20763

IMPORTANT SAFETY INSTRUCTIONS

WARNING! Read and understand all Important Safety and Operating instructions before using this charger. In addition, read and follow all battery and vehicle manufacturer's instructions and cautionary markings.

SAFETY PRECAUTIONS FOR WORKING IN THE VICINITY OF A BATTERY

1. Batteries generate explosive gases during normal operation. Use in well-ventilated area.
2. Consider having someone close enough or within the range of your voice to come to your aid when you work near a battery.
3. Do NOT smoke, strike a match, or cause a spark in vicinity of battery or engine. Avoid explosive gas, flames and sparks.
4. Remove all personal jewelry, such as rings, bracelets, necklaces, and watches while working with a vehicle battery. These items may produce a short circuit that could cause severe burns.
5. Be extra cautious to reduce risk of dropping a metal tool onto the battery. It might spark or short-circuit a battery or other electrical hardware which may cause explosion or fire.
6. Wear complete eye protection, hand and clothing protection. Avoid touching eyes while working near a battery.
7. Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
8. Clean battery terminals before connected with the charger. Be careful to keep corrosion from coming in contact with eyes.
9. When it is necessary to remove a battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off in order to prevent an arc.
10. This product is NOT intended to supply power to an extra-low-voltage electrical system or to charge dry-cell batteries. Charging dry-cell batteries may burst and cause injury to persons and property.

11. NEVER charge a frozen, damaged, leaking or non-rechargeable battery.
12. If battery electrolyte contacts skin or clothing, wash immediately with soap and water. If electrolyte enters eye, immediately flood eye with running clean cold water for at least 15 minutes and get medical attention immediately.

SAFETY PRECAUTIONS FOR USING THE CHARGER

1. Do NOT place the charger in the engine compartment or near moving parts or near the battery; place as far away from them as DC cable permits. NEVER place a charger directly above a battery being charged; gases or fluids from battery will corrode and damage charger.
2. Do NOT cover the charger while charging.
3. Do NOT expose to rain or wet conditions.
4. Connect and disconnect DC output only after setting AC cord from electric outlet.
5. Use of an attachment not recommended or sold by the manufacturer may result in a risk of fire, electric shock or injury to persons.
6. Do not overcharge batteries by selecting the wrong charge mode.
7. To reduce the risk of damage to electric plug and cord, pull by the plug rather than the cord when disconnecting charger.
8. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.
9. Operate with caution if the charger has received direct hit of force or been dropped. Have it checked and repaired if damaged.
10. Any repair must be carried out by the manufacturer or an authorized repair agent in order to avoid danger.
11. Pursuant to California Proposition 65, this product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

CHARGER FEATURES

- This charger is designed for all types of 12V Lead-acid and 12V Lithium-ion batteries, including WET (Flooded), GEL, MF (Maintenance-Free), EFB (Enhanced Flooded Battery), AGM (Absorbed Glass Mat) and Li-ION (Lithium Ion) batteries.
- Built-in intelligent microprocessor makes charging faster, easier and safer.
- This charger has safety features, including spark proof, protection for reverse polarity, short circuit, overcurrent, overcharge and overheat.
- The charger has auto-memory, which returns to last selected charging mode when restarted (except Li-ION, SUPPLY and BOOST CHARGE modes).
- When battery level indicator turns to 100% solid Green LED, it will automatically switch from full charge to maintenance status to maintain batteries during prolonged periods of storage without overcharging or damaging the battery.
- The charger has four external holes for mounting. Mount the charger in a desired location with the supplied self-threading screws. It is important to keep in mind the distance to the battery.

CHARGER TECHNICAL SPECIFICATIONS

AC Input	100-120VAC, 50-60Hz, 3.5A, 350W Max
DC Output	6VDC, 5A 12VDC, 15A 12VDC, 20A (5 minutes) Temperature Controlled
Charger Type	8 step, Fully automatic charging cycle
Start Voltage	> 1V
Housing Protection	IP33

Battery Type	All Types of 6V and 12V Lead-acid Batteries, and 12V Lithium Ion Batteries
Battery Capacity	14-150Ah (6V), 50-400Ah (12V), Maintains all battery sizes
Accessories Included	Clamp Connectors, 12V Power Port Adapter, 12V SUPPLY Power Port Adapter, Screws
Ambient Temperature	32˚F – 104˚F (0˚C – 40˚C)

CONNECTING TO THE BATTERY

1. Plug the charger into a 120V AC outlet. Connect the charger outlet cord plug to the cord plug of the clamp connectors or power port adapter.
2. Identify polarity of battery posts. The positive battery terminal is typically marked by these letters or symbol (POS,P,+). The negative battery terminal is typically marked by these letters or symbol (NEG,N,-).
3. Do not make any connections to the carburetor, fuel lines, or thin metal parts.
4. Identify if you have a negative or positive grounded vehicle. This can be done by identifying which battery post (NEG or POS) is connected to the chassis.
5. For a negative grounded vehicle (most common): connect the RED POSITIVE clamp first to the positive battery terminal, then connect the BLACK NEGATIVE clamp to the negative battery terminal or vehicle chassis.
6. For a positive grounded vehicle (very uncommon): connect the BLACK NEGATIVE clamp first to the negative battery terminal, then connect the RED POSITIVE clamp to the positive battery terminal or vehicle chassis.
7. When disconnecting, disconnect in the reverse sequence, removing the negative first (or positive first for positive ground systems).
8. Follow these steps when using the 12V adapter: Keep the vehicle hood open. Connect the end of the 12V adapter plug to the charger; insert

the 12V adapter plug into the vehicle's 12V outlet. If the vehicle's ignition key has to be on in order for the 12V outlet to supply/receive power, turn the key without starting the engine.

9. A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

CHARGER MODES

The charger has nine modes: Standby, 12V NORM, 12V COLD/AGM, 6V NORM, 12V AGM+, 12V LITHIUM, REPAIR, 13.6V SUPPLY and 12V BOOST CHARGE. Press the CHARGE MODE button to sequence to desired mode. Press the BOOST CHARGE button to enter 20A charging mode.

Press and hold the CHARGE MODE button for 3 seconds to enter the control panel section containing the modes for 12V AGM+, 12V Li-ION, + REPAIR and 13.6V SUPPLY. Do not operate the charger until you confirm that charger is set to the appropriate charge mode for your battery.

Mode	Battery Capacity Ah	Explanation
Standby	_____	Not charging or providing any power
12V NORM 15A	50 – 400	Charging 12V WET/GEL/MF/EFB/ batteries (Green 12V LED)
12V COLD/ AGM 15A	50 – 400	Charging 12V batteries below 50˚ F (10˚ C) or 12 AGM battery (Green 12V LED)
6V NORM 5A	14 – 150	Charging 6V WET/GEL/MF/EFB batteries (Blue 6V LED)
12V AGM+ 15A	50 – 400	Charging 12V advanced AGM batteries that require a higher than normal charging voltage (Blue 12V LED)

Mode	Battery Capacity Ah	Explanation
12V Li-ION 15A	50 – 400	Charging 12V Lithium-ion batteries only, including LiFePO4 (White 12V LED)
+ REPAIR 1.5A	50 – 400	Advanced battery recovery mode for repairing old, idle, stratified or sulfated batteries. "(Yellow Repair LED and 12V corresponding charging mode LED)
13.6V SUPPLY 10A	_____	Converts charger to a DC power supply for a 12V DC device or as a memory retainer when replacing a battery (Yellow SUPPLY LED)
12V BOOST CHARGE 20A (lead-acid only)	50 – 400	Delivers 20A for 5 minutes to boost charge a lead-acid battery (solid Red 20A LED); it has mandatory 5-minute rest for cooling down (flashing Red 20A LED)

12V AGM+ (Hold) - This mode is designed for 12V advanced AGM batteries only. Advanced AGM batteries are typically found in micro-hybrid vehicles. These batteries accept a higher than normal charging voltage. 12V AGM+ charge is NOT suitable for traditional AGM batteries. Consult the battery manufacturer before using this mode.

12V Li-ION – Once at 12V AGM+ tap CHARGE MODE to access

This mode is designed for 12V lithium-ion batteries only, including LiFePO4. Some lithium-ion batteries may be unstable and unsuitable for charging. Consult the lithium battery manufacturer instructions before charging for recommended charging voltage and current.

12V REPAIR – Once at 12V Li-ION tap CHARGE MODE to access

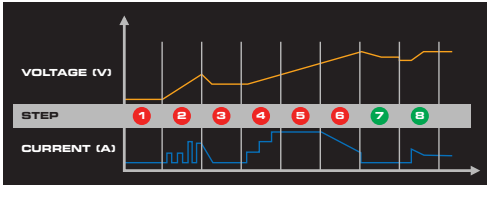
This mode is for LEAD-ACID batteries only. It is an advanced battery recovery mode for repairing old, idle, stratified or sulfated batteries. NOT all batteries can be recovered. For optimal results, take the battery through a full charge cycle, bringing the battery to full charge, before using this mode. One REPAIR cycle can take up to eight (8) hours to complete the recovery process. This mode uses a high charging voltage and may cause some water loss in WET cell batteries. Also, some batteries and electronics may be sensitive to high charging voltages. To

minimize risks, disconnect the battery from the vehicle before using this mode.

13.6V SUPPLY – Once at + REPAIR tap CHARGE MODE to access
This mode converts the charger to a constant voltage, constant current DC power supply. When the charger is not connected with battery, it can be used to power 12VDC devices. Prior to use, read your 12VDC device manual to determine if it is suitable for use with this mode. As a power supply, it can also be used to retain a vehicle's on-board computer settings during battery repair or replacement. 13.6V Supply Mode provides 13.6V at 9.5A with overload protection at 10A (Max). Both spark proof and reverse polarity protection are disabled in this mode. Do NOT allow the positive and negative battery clamp to touch or connect to each other as the charger could generate sparks.

BOOST CHARGE – Press BOOST CHARGE button to access
USE THIS MODE WITH FULL ATTENTION AS THE CHARGING CURRENT IS 20A. This mode is for 12-volt LEAD-ACID batteries only. To operate BOOST CHARGE, the charger must be connected to a 12V battery with the battery clamps connected. Press the BOOST Charge button to begin jumpstarting. For optimal results, allow BOOST CHARGE to complete its 5-minute charge. After 5-minute boost charge, the charger will automatically enter mandatory 5-minute rest for cooling down, and it does NOT work when any button is pressed. After mandatory cooling down, the charger will automatically enter Standby Mode, whether 100% battery level indicator is illuminated or not, and you are ready to start your vehicle. If unsuccessful when starting your vehicle, let the battery rest for 15 minutes and try BOOST CHARGE again. Most vehicles will start with one (1) BOOST CHARGE, but larger vehicles with dual battery systems, may require an additional BOOST CHARGE. Do not use BOOST charge more than two (2) times within a 24-hour period. If two (2) BOOST charges cannot successfully start your vehicle, have your battery replaced or evaluated by a battery service dealer.

CHARGING STEPS
During the charging process, the charger performs the following operations.



STEP 1 – **DIAGNOSIS** Checks if battery is connected with the charger; also checks battery voltage.

STEP 2 – **DESULFATION** (if needed) If battery voltage is too low, automatically generates pulsing current for up to 5 hours to remove sulfate.

STEP 3 – **ANALYZE** (if needed) Checks if the battery voltage reaches minimum charging threshold after desulfation; charging begins if the battery voltage is sufficient.

STEP 4 – **SOFT START** Charges with step-ups of constant current.

STEP 5 – **BULK CHARGE** Charges with constant maximum current until battery voltage reaches charging threshold.

STEP 6 – **ABSORPTION** Continues to charge with gradually declining current until battery is at 100% charge.

STEP 7 – **VALIDATION** Tests if the battery can hold charge.

STEP 8 – **MAINTENANCE** Continuously monitors the battery; charging current will adapt to the variable battery voltage.

BATTERY LEVEL INDICATORS

LED	Explanation
25% 50% 75% 100% ●○○○	The 25% Charge Red LED will slowly flash when the battery level is less than 25%. At 25% the LED will be solid.
25% 50% 75% 100% ●●○○	The 50% Charge Red LED will slowly flash when the battery level is less than 50%. At 50% the LED will be solid.
25% 50% 75% 100% ●●●○	The 75% Charge Red LED will slowly flash when the battery level is less than 75%. At 75% the LED will be solid.
25% 50% 75% 100% ○○○●	The 100% Charge Green LED will slowly flash when the battery level is less than 100%. At 100% the LED will be solid. The 25%, 50% and 75% Charge LEDs will turn off.

LED COMMUNICATION OF ABNORMAL RESULTS

LIGHT CONDITION	CAUSE	SOLUTION
Solid Red Warning ⚠ LED	Reverse Polarity	Change red and black clamps to the correct battery posts
Flashing Red Warning ⚠ LED + Flashing corresponding charging mode LED	1. Open-circuit 2. Dirty Battery Posts 3. Dead Battery (voltage below 1V) 4. Output Short Circuit	1. Connect the red and black clamps to battery posts 2. Clean the battery posts 3. Replace the battery with a new one immediately 4. Disconnect red and black output terminals
Slow flashing Red Warning ⚠ LED + Corresponding charging mode LED	Charging in 6V Mode for 12V battery	Manually press Mode button to choose correct charge mode. **CAUTION:** If you choose 12V Mode for 6V battery, the 6V battery will be damaged!
Charging mode LED is on + All four battery level indicator LEDs flash	Overheat protection	Current reduces when temperature in charger is too high. After cooling down, charging will begin.
Solid yellow REPAIR LED + 12V corresponding charging mode LED	In 12V REPAIR mode (NOTE: no REPAIR mode for 6V type)	——

LIGHT CONDITION	CAUSE	SOLUTION
Solid Red Warning ⚠ LED + Solid yellow SUPPLY LED	Overload in SUPPLY Mode (will automatically shut down for 30 seconds as protection)	Disconnect the external device
Quick Flashing Red Warning ⚠ LED + Corresponding charging mode LED	Battery cannot store electric charge during charging process.	Replace the battery with a new one immediately.
Only corresponding charging mode LED + All four battery level indicator LEDs off.	In Desulfation Process	——
Red Warning ⚠ LED flashes 2 times, stops for 3 seconds, repeats	Battery cannot be recovered through Desulfation process, or battery cannot be recovered through REPAIR mode.	If battery cannot be recovered through Desulfation process, try REPAIR mode. If battery cannot be recovered through REPAIR mode, replace battery.
Flashing Yellow Warning ⚠ LED "(**NOTE:** only for 12V lead-acid battery, and 6V battery is not applicable)	Heavily corroded battery (voltage is less than 3V); requires recovery process	Select REPAIR mode. If battery cannot be recovered through REPAIR mode (up to 8 hours), replace battery.

NOTICE: The following situation indicates the need for battery replacement, although there is no abnormal LED communication: After a full charging cycle and with 100% battery level indication, if engine cannot be started (excluding problem with vehicle itself), the battery may no longer have electrical storage capacity. Take battery for evaluation to a battery service dealer.

SMARTECH LIMITED WARRANTY

FOR ONE YEAR from the date of sale this product is warranted against defects in material or workmanship when it is operated and maintained according to all supplied instructions.

WITH PROOF OF SALE return a defective product to the retailer from which it was purchased for free replacement.

This warranty is void if this product is ever used while providing commercial services or if rented to another person.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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For customer assistance or replacement parts, call
1-888-288-5148