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› TowerTop 2/15/25 Amp Car Battery Charger User Manual

TowerTop BC-025-CA15

TowerTop Smart Battery Charger User Manual

Model: BC-025-CA15

1. INTRODUCTION

Thank you for choosing the TowerTop 2/15/25 Amp Car Battery Charger. This fully automatic smart battery maintainer is designed to efficiently charge and maintain a wide range of 6V and 12V batteries, including lead-acid (STD, AGM, GEL, Wet, MF, EFB, Deep-Cycle) and LiFePO4 batteries. With advanced features like Engine Start, Auto Desulfation, Battery Repair, and Winter Mode, this charger provides a comprehensive solution for your battery care needs. Please read this manual thoroughly before use to ensure safe and optimal operation.



Figure 1.1: TowerTop Smart Battery Charger (Model BC-025-CA15)

2. SAFETY INFORMATION

Always prioritize safety when operating electrical equipment. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Read All Instructions:** Before using the charger, read all instructions and cautionary markings on the charger, battery, and vehicle.
- **Ventilation:** Ensure the charging area is well-ventilated. Batteries can produce explosive gases.

- **Eye Protection:** Always wear eye protection and protective clothing when working with batteries.
- **Avoid Sparks:** Do not smoke or allow a spark or flame in the vicinity of the battery or engine.
- **Proper Connection:** Connect and disconnect DC output clamps only after setting the charger switch to the off position and removing the AC cord from the electric outlet.
- **Reverse Polarity Protection:** The charger includes reverse polarity protection, but always double-check connections to prevent damage.
- **Overheating:** The charger has an upgraded cooling system. If the unit becomes excessively hot, it will automatically shut off. Ensure proper airflow around the charger.
- **ETL Certified:** This product is ETL certified, ensuring it meets recognized safety standards.



Figure 2.1: Multiple Safety Protections (Spark-proof, Reverse Polarity, Overcharge/Discharge, Overvoltage, Overcurrent, Overload, Overheating, Current Backflow, Short Circuit)

3. PRODUCT OVERVIEW

The TowerTop Smart Battery Charger features a robust design with an intuitive HD LCD screen for easy monitoring of charging status and parameters. It incorporates an 8-stage intelligent charging process to optimize battery life and performance.

Key Features:

- **Adjustable Current Settings:** 2A (Trickle Charge), 15A (Quick Charge), 25A (Rapid Charge), and AUTO modes.
- **Fully Automatic Charging:** Automatically detects battery condition, desulfates, and repairs. Switches to pulse repair mode and turns off the screen when fully charged, maintaining safe voltage.
- **Wide Compatibility:** Supports 6V and 12V lead-acid batteries (STD, AGM, GEL, Wet, MF, EFB, Deep-Cycle) and 12V LiFePO4 batteries.
- **8-Stage Intelligent Charging:** Desulfurization, Soft Start, Bulk Charge, Absorption, Analysis, Repair, Float, and Pulse Maintenance.
- **Battery Repair Function:** Independent desulfurization and repair buttons to restore lost battery performance and revive old/idle batteries.
- **Engine Start:** Delivers 100A current for 100 seconds to assist in starting your vehicle.

- **Winter Mode:** Adds +0.2V to the charging voltage for better performance in low temperatures.
- **Memory Function:** Remembers the last settings for uninterrupted charging.
- **Multi-Safety Protection:** Includes spark-proof, reverse polarity, overcharge/discharge, overvoltage, overcurrent, overload, overheating, current backflow, and short circuit protection.

MAX 25 AMP CHARGER

Save Your Charger Time



Figure 3.1: Charger Display and Controls

AUTOMATIC CHARGING



1. Connect the clamps to your battery



2. Connect the 120V AC power outlet.



3. No action needed; the charger will begin charging automatically after 30 seconds, or press the "START" button for an immediate start.

① Note: The charger has a memory function. If you're using the charger for the first time, it will automatically charge in the "12V&2A&GEL" mode. Therefore, we recommend that you initially set the charging mode (voltage, current, and battery type) based on your battery type. Afterward, no need to repeat the setup; the charger will remember your last charging settings and charge automatically.

Figure 3.2: Compatible Battery Types (6V/12V STD, AGM, GEL, Calcium, Deep Cycle, LiFePO4)

4. SETUP

Before connecting the charger, ensure your vehicle is turned off and in a safe location. Follow these steps for proper setup:

1. Connect Clamps to Battery:

- Connect the RED (+) positive clamp to the positive (+) battery terminal.
- Connect the BLACK (-) negative clamp to the negative (-) battery terminal.
- Ensure a secure connection.

2. Connect to AC Power: Plug the charger's AC power cord into a standard 120V AC power outlet.

3. Initial Setup (First Use): If this is your first time using the charger, it will automatically default to '12V & GEL' mode. We recommend manually setting the correct voltage, current, and battery type based on your battery's specifications. The charger will remember these settings for future use.

WINTER MODE

Adds 0.2v to the base charging voltage, enhancing battery performance and ensuring thorough charging in cold weather

Desulfation Function&Repair Function

Independent pulse desulfation mode and repair mode support separate buttons for manual control



Figure 4.1: Automatic Charging Setup Steps

5. OPERATING INSTRUCTIONS

5.1 Automatic Charging

After connecting the charger as described in Section 4, the charger will automatically begin charging after 30 seconds. Alternatively, you can press the "START" button for an immediate start. The charger will automatically detect the battery condition and apply the appropriate 8-stage charging process.

5.2 Manual Charging

For specific charging requirements, you can manually select settings:

1. Connect the clamps to your battery.
2. Connect the 120V AC power outlet.
3. Press the "Volts" button to select the battery voltage type (6V or 12V).
4. Press the "Battery Type" button to choose your battery type (e.g., STD, AGM, GEL, LiFePO4).
5. Press the "AMPS" button to select your desired charging rate (2A, 15A, 25A). In Auto mode, the current is 2A.
6. Finally, press the "START" button to initiate the charging process.

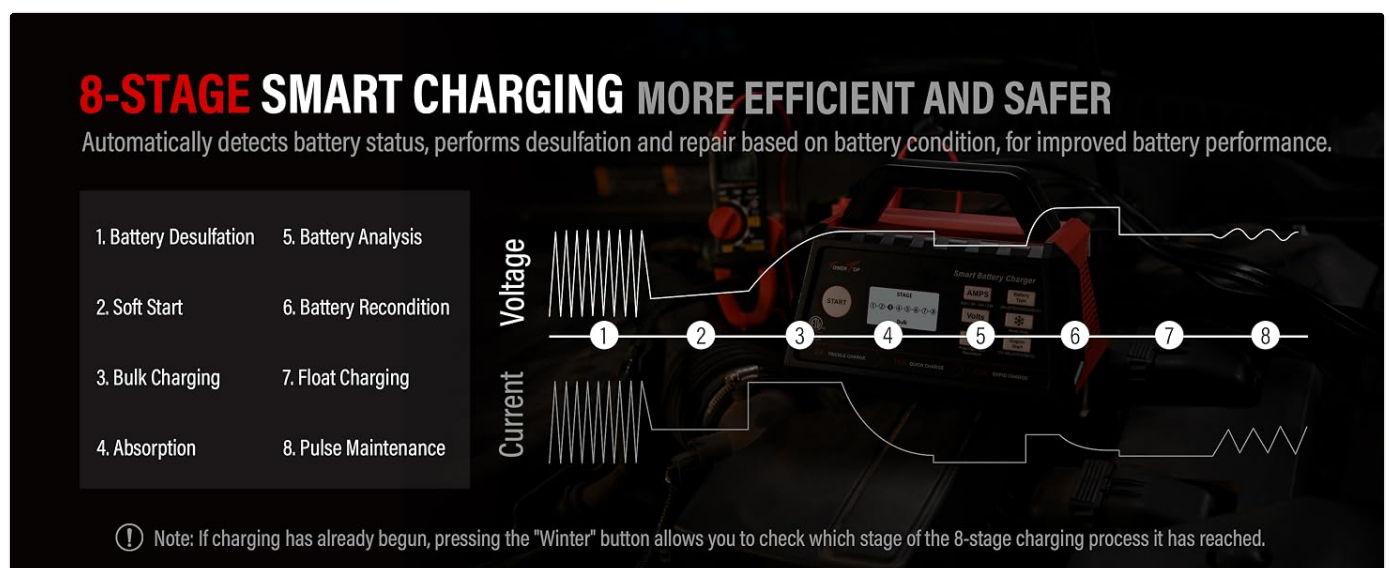


Figure 5.1: Manual Charging Steps

5.3 8-Stage Intelligent Charging Process

The charger employs an advanced 8-stage charging algorithm to ensure optimal battery health and longevity:

1. **Battery Desulfation:** Safely removes sulfate deposits on battery lead plates.
2. **Soft Start:** Gently introduces current to the battery.
3. **Bulk Charging:** Charges the battery to approximately 80% capacity.
4. **Absorption:** Charges the battery to 100% capacity at a decreasing current.
5. **Battery Analysis:** Assesses battery condition.
6. **Battery Recondition:** Restores lost battery performance.
7. **Float Charging:** Maintains the battery at full charge.

8. **Pulse Maintenance:** Keeps the battery optimized for long-term storage.

You can check the current charging stage by pressing the "Winter" button if charging has already begun.

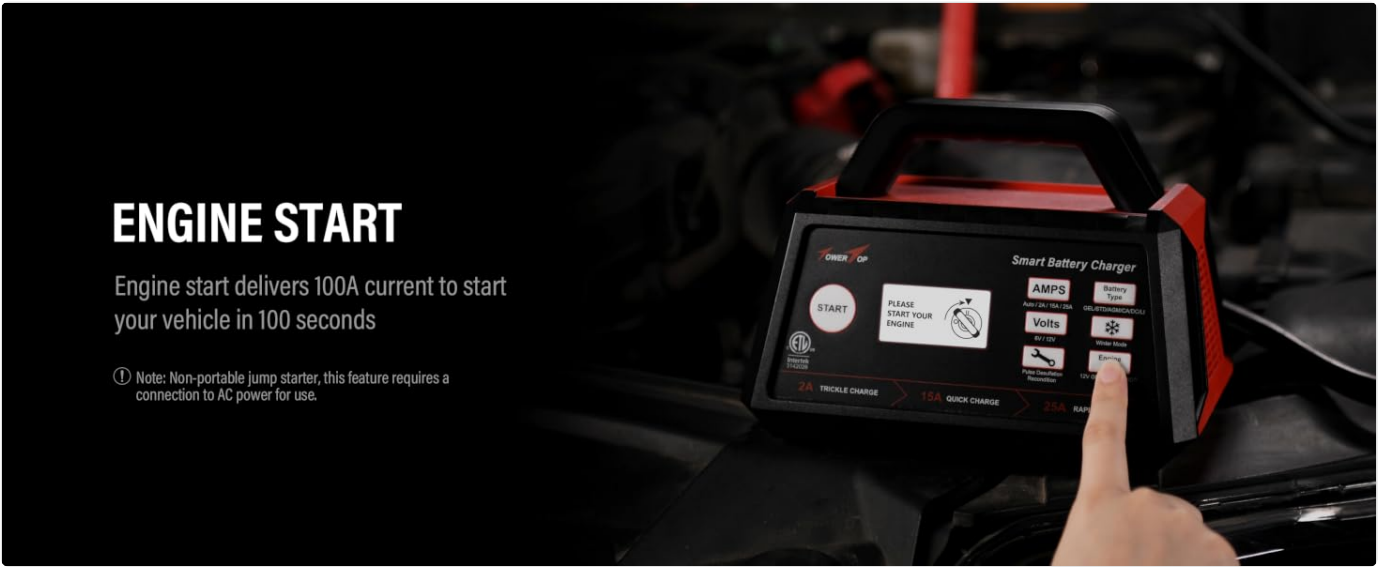


Figure 5.2: 8-Stage Smart Charging Diagram

5.4 Battery Repair Mode

The charger features independent desulfurization and repair buttons. This mode helps to restore lost battery performance and can revive old or idle batteries. If your battery cannot be charged, try the "repair" mode. Note: This mode cannot repair completely drained batteries (zero voltage).

REPAIR DEAD BATTERIES

DOWN TO 1 VOLT



WINTER MODE

Adds 0.2v to the base charging voltage, enhancing battery performance and ensuring thorough charging in cold weather

BATTERY MAINTAINER

Auto shuts off at 100% charge and restarts for trickle maintenance when voltage drops, perfect for long-term charging.

Figure 5.3: Battery Repair Mode

5.5 Engine Start Mode

The Engine Start function provides a powerful 100A current for 100 seconds to help activate your car battery and start your vehicle. This feature requires the charger to be powered on and connected to an AC power source.



Figure 5.4: Engine Start Function

5.6 Winter Mode

Activate Winter Mode in cold conditions. This mode adds +0.2V to the base charging voltage, enhancing battery activity and ensuring a more thorough charge in low-temperature environments.

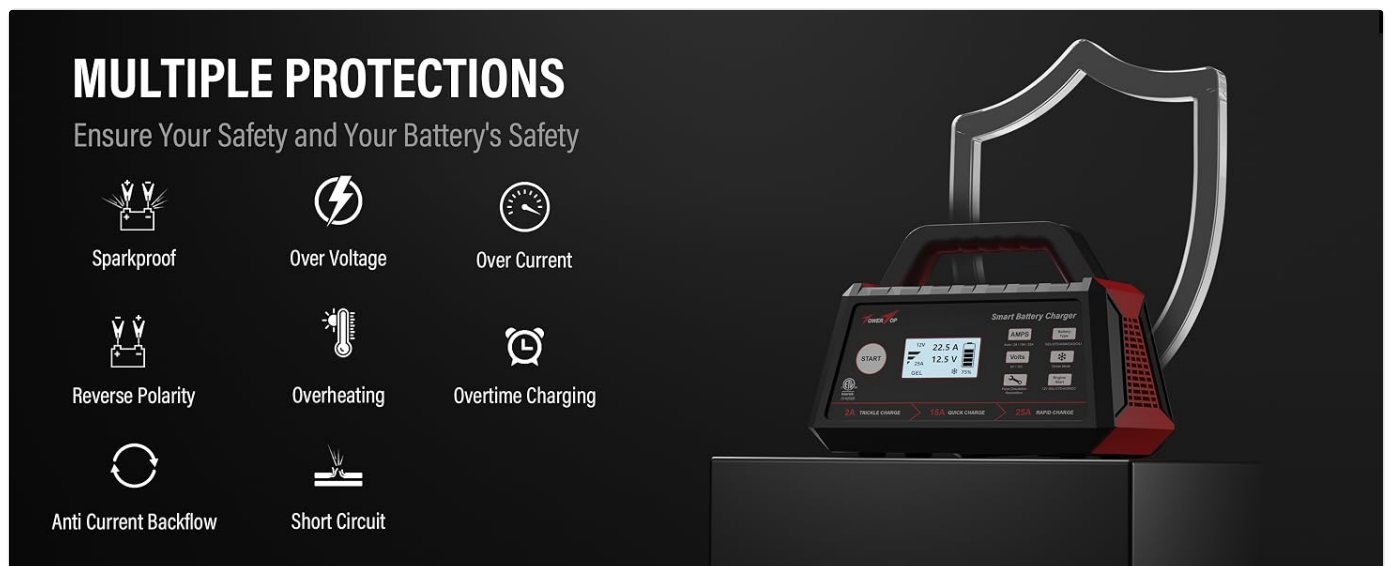


Figure 5.5: Winter Mode Operation

5.7 Official Product Video

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Video 5.1: TowerTop 6V 12V 2A 15A 25A Smart Battery Charger. This video provides a visual overview of the charger's features and functions.

6. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your TowerTop Smart Battery Charger.

- **Cleaning:** Disconnect the charger from power and battery before cleaning. Wipe the exterior with a soft, dry cloth. Do not use harsh chemicals or abrasives.

- **Storage:** Store the charger in a cool, dry place when not in use. Ensure cables are neatly coiled and not kinked.
- **Cooling System:** The charger features an upgraded cooling system with a fan. Keep the fan vents clear of obstructions to ensure efficient heat dissipation. The fan operates when the current is > 2A or the temperature is > 104°F (40°C).



Figure 6.1: Upgraded Cooling System

7. TROUBLESHOOTING

If you encounter issues with your TowerTop Smart Battery Charger, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Charger does not turn on.	No AC power; loose connection.	Check power outlet and connections. Ensure the charger is properly plugged in.
Charger not charging battery.	Incorrect battery type selected; battery is completely drained (0V); poor clamp connection; battery fault.	Verify battery type and voltage settings. Ensure clamps are securely connected. Note: Charger cannot revive completely dead batteries. Try "Repair" mode for low voltage batteries.
"Battery Failure" error on display.	Battery is severely damaged, aged, or has a cell failure.	The battery may need replacement. The charger cannot repair all battery conditions.
Charger shuts off unexpectedly.	Overheating; overcharge protection activated.	Ensure proper ventilation around the charger. Allow the unit to cool down before restarting. This is a safety feature.
Display shows "Reverse Polarity".	Battery clamps are connected incorrectly.	Disconnect the charger immediately. Reconnect the RED (+) clamp to the positive (+) terminal and the BLACK (-) clamp to the negative (-) terminal.

BATTERY MAINTAINER

ZERO OVERCHARGE

Auto shuts off at 100% charge and restarts for trickle maintenance when voltage drops, perfect for long-term charging.

MEMORY FUNCTION

TowerTop battery charger will automatically remember the last charging settings, so there's no need to reconfigure them.

Figure 7.1: HD LCD Display with Error Indicators

8. SPECIFICATIONS

Specification	Detail
Brand	TowerTop
Model Number	BC-025-CA15
Input Voltage	120V AC (US Standard)
Output Voltage	6 Volts, 12 Volts
Charging Current	2A, 15A, 25A, AUTO
Compatible Battery Types	6V/12V Lead-Acid (STD, AGM, GEL, Wet, MF, EFB, Deep-Cycle), 12V LiFePO4
Engine Start Current	100A (for 100 seconds)
Dimensions (L x W x H)	6.1 x 8.46 x 6.89 inches
Item Weight	5.05 pounds
Certifications	ETL Certified
Country of Origin	China

9. WARRANTY AND SUPPORT

TowerTop stands behind the quality of its products. For warranty information, technical support, or any questions regarding your charger, please contact TowerTop customer service. You can often find contact details on the manufacturer's official website or through the retailer where you purchased the product.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question