

BYGD S5000

BYGD 5A Smart Car Battery Charger S5000 User Manual

Model: S5000

1. INTRODUCTION AND PRODUCT OVERVIEW

The BYGD 5A Smart Car Battery Charger S5000 is an advanced, fully automatic battery charger and maintainer designed for a wide range of 6V and 12V lead-acid batteries, including flooded, gel, AGM, SLA, VRLA, maintenance-free, and lithium-ion (LiFePO4) batteries. It features intelligent charging, battery repair, and maintenance functions to optimize battery performance and extend lifespan.

Key features include:

- **Versatile Compatibility:** Supports 6V and 12V batteries, including various lead-acid types and LiFePO4.
- **Automatic Operation:** Fully automatic charging with zero overcharge risk.
- **Force Mode:** Allows manual charging of deeply discharged batteries (down to zero volts).
- **Integrated Thermal Sensor:** Detects ambient temperature and adjusts charging to prevent over-charging in hot climates and under-charging in cold climates.
- **Advanced Memory Function:** Remembers the last used charging mode and automatically resumes.
- **Battery Repair Mode:** Uses slow pulse reconditioner technology to address battery sulfation and acid stratification.
- **Multi-Protection:** Includes over-current, over-charge, over-temperature, short-circuit, over-voltage, and reverse connection protection.

2. IMPORTANT SAFETY INFORMATION

Always read and understand all safety instructions before using the charger. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Use the charger only for the specified voltage and battery types.
- Ensure proper ventilation during charging to prevent gas buildup.

- Avoid sparks or flames near the battery during charging.
- Connect the charger to the battery terminals correctly (positive to positive, negative to negative).
- Disconnect the AC power before disconnecting the battery clamps.
- Do not immerse the charger in water.
- Keep out of reach of children.

3. WHAT'S INCLUDED

The BYGD 5A Smart Car Battery Charger S5000 package includes:

- BYGD 5A Smart Car Battery Charger Unit
- Battery Clamps (Red for Positive, Black for Negative)
- AC Power Cord
- User Manual



Image: The BYGD 5A Smart Car Battery Charger with its power cord and battery clamps.

The charger unit is compact and lightweight, designed for easy portability and storage. The cables provide approximately 150cm (59.06 inches) of reach.

4. SETUP AND CONNECTION

Follow these steps to safely connect the charger to your battery:

1. Ensure the charger is unplugged from the AC power outlet.
2. Connect the red positive (+) battery clamp to the positive (+) terminal of the battery.
3. Connect the black negative (-) battery clamp to the negative (-) terminal of the battery.
4. Plug the charger's AC power cord into a suitable wall outlet.
5. The charger will automatically detect the battery voltage and begin the charging process.



Image: The BYGD charger connected to a car battery, showing the clamps attached to the terminals.

5. OPERATING MODES

The charger features multiple operating modes to suit different battery types and conditions. Use the

'MODE' button to cycle through the available options:

- **12V Mode:** For 12V lead-acid batteries (wet, gel, enhanced flooded, maintenance-free, calcium).
- **12V AGM/SLA Mode:** Specifically for 12V AGM and SLA batteries.
- **12V Lithium Mode:** For 12V Li-ion batteries with BMS, including LiFePO4.
- **12V Repair Mode:** Extends the life of old, idle, or slightly damaged batteries by removing sulfation and repairing them with pulse repair technology.
- **6V Mode:** For 6V lead-acid batteries (wet, gel, enhanced flooded, maintenance-free, calcium).
- **12V Supply Mode:** Converts to DC power to supply any 12VDC device with a maximum supply current of 2A. Use in excess of 2A is strictly prohibited.



Image: The charger's display panel illustrating the various charging modes and indicators.

Force Mode for Dead Batteries

If your battery is deeply discharged (down to zero volts) and the charger does not detect it automatically, you can activate Force Mode. To do this, press and hold the 'MODE' button for 7 seconds. This will initiate a forced charge for a short period, after which the charger should revert to normal operation if enough voltage is detected.

6. LED INDICATORS AND CHARGING PROGRESS

The charger features LED indicators to communicate the charging status and any potential issues:

- **Pulsing Red LED:** Indicates the battery is less than 75% charged and is actively charging.
- **Pulsing Green LED:** Indicates the bulk charge is complete, and the battery is being optimized for extended life.
- **Solid Green LED:** The battery is 100% charged and the charger is in maintenance mode, providing ongoing optimization.
- **Pulsing 100% Charge LED (Maintenance):** After the battery is fully charged, the charger will continue to monitor and provide maintenance. The 100% charge LED will pulse slowly during this

cycle.

- **Error Indicators:** The charger also has indicators for error conditions such as a bad battery, reversed positive/negative connections, or voltage over 15V. Refer to the included user manual for specific error code explanations.

5-Step, 4-Stage Smart Charging Process

The charger utilizes an intelligent 5-step, 4-stage charging process:

1. **Step 1: Pre-charge**
2. **Step 2: Charge Detection and Diagnosis**
3. **Step 3: Constant Current Charging**
4. **Step 4: Constant Voltage Charging**
5. **Step 5: Trickle Maintenance Charging**

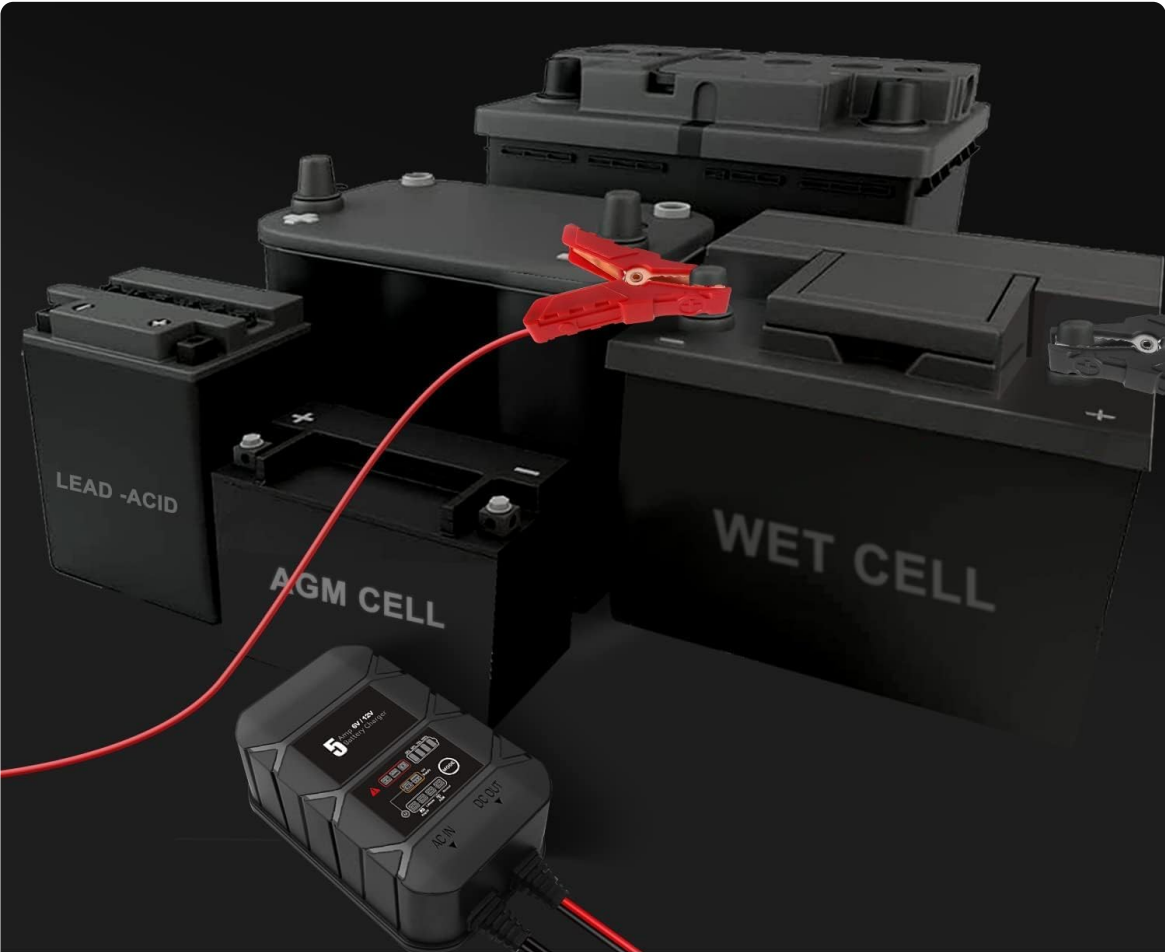


Image: Visual representation of the charger's 5-step, 4-stage smart charging sequence.

Estimated Charging Times

The following table provides approximate charging times for different battery capacities (for reference only):

Battery Type	Battery Capacity	Charging Time (Approx.)
Lead-Acid, AGM, Wet Cell, Gel Cell, LiPo (with BMS)	2-10Ah	0.5-3h
Lead-Acid, AGM, Wet Cell, Gel Cell, LiPo (with BMS)	10-20Ah	3-6h
Lead-Acid, AGM, Wet Cell, Gel Cell, LiPo (with BMS)	20-40Ah	6-12h
Lead-Acid, AGM, Wet Cell, Gel Cell, LiPo (with BMS)	40-80Ah	12-18h
Lead-Acid, AGM, Wet Cell, Gel Cell, LiPo (with BMS)	80-120Ah	18-30h



BATTERY CAPACITY & CHARGING TIME

For 6/12V batteries up to 120Ah

For reference

BATTERY TYPE	2-10Ah	10-20Ah	20-40Ah	40-80Ah	80-120Ah
CHARGING TIME	0.5-3h	3-6h	6-12h	12-18h	18-30h

BATTERY CAPACITY & CHARGING TIME

- LIPO (with BMS) ● AGM ● WET CELL ● GEL CELL ,etc.
● CARS ● MOTOCYCLES ● LAWNMOWERS ● OFF-ROADERS ,etc.

Image: The charger displaying battery capacity and charging time information.

7. MULTI-PROTECTION FEATURES

The BYGD S5000 charger is equipped with comprehensive protection features to ensure safe operation and protect both the charger and the battery:

- **Over-current Protection:** Prevents damage from excessive current flow.
- **Over-charge Protection:** Automatically stops charging when the battery is full to prevent overcharging.
- **Over-temperature Protection:** Integrated thermal sensor adjusts charging or shuts down if temperatures become unsafe.
- **Short-circuit Protection:** Protects against damage from short-circuited connections.
- **Over-voltage Protection:** Safeguards against damage from excessive voltage.
- **Reverse Connection Protection:** Prevents damage if battery clamps are connected incorrectly.



Image: Diagram illustrating the various multi-protection features of the charger.

Temperature Compensation

The integrated digital thermal sensor detects the ambient temperature and alters the charge to eliminate over-charging in hot climates (e.g., 45°C / 113°F) and under-charging in cold climates (e.g., -20°C / -4°F). This ensures stable performance, low heat generation, and high efficiency across different environmental conditions.

MULTI-PROTECTION



Over-current
Protection



Over-charge
Protection



Over-temperature
Protection



Short-circuit
Protection



Over-voltage
Protection



Low-voltage
Protection



Reverse connection
Protection



Image: The charger demonstrating its temperature compensation feature for varying climates.

8. SPECIFICATIONS

- **Product Dimensions:** 5 x 3 x 2 inches (12.7 x 7.62 x 5.08 cm)
- **Item Weight:** 10.6 ounces (300 grams)
- **Output Voltage:** 12 Volts
- **Manufacturer:** BYGD
- **Color:** BLACK

9. TROUBLESHOOTING

If the charger is not operating as expected, consider the following:

- **No Power/No Indication:** Ensure the AC power cord is securely plugged into a live outlet. Check

for tripped circuit breakers.

- **Error LED (Red):** If a red error LED illuminates, check the battery connections for correct polarity (positive to positive, negative to negative). Ensure the battery is not severely damaged or has a voltage exceeding 15V.
- **Deeply Discharged Battery:** If the charger does not detect a very low voltage battery, try activating the 'Force Mode' as described in Section 5.
- **Slow Charging:** Verify the selected charging mode matches your battery type. Ensure the battery capacity is within the charger's recommended range.

For detailed error codes and solutions, please refer to the comprehensive user manual included with your product.



10. WARRANTY AND SUPPORT



For warranty information, technical support, or service inquiries, please refer to the warranty card included in your product packaging or visit the official BYGD website. Keep your purchase receipt as proof of purchase for any warranty claims.

11. OFFICIAL PRODUCT VIDEOS

No official product videos from the seller were found that directly demonstrate the BYGD 5A Smart Car Battery Charger S5000. Please refer to the written instructions and images provided in this manual for guidance.

Related Documents - S5000

 <p>Solar Charge Controller User Manual • Uživatelský manuál • Ustawczyli manual • Benutzerhandbuch</p>	<p>BYGD Solar Charge Controller User Manual</p> <p>User manual for the BYGD Solar Charge Controller, covering features, installation, operation, safety, and technical specifications for solar energy systems.</p>
 <p>Solar Charge Controller PVSC30A PVSC50A PVSC70A User Manual • Uživatelský manuál • Ustawczyli manual • Benutzerhandbuch</p>	<p>BYGD Solar Charge Controller PVSC30A, PVSC50A, PVSC70A User Manual</p> <p>Comprehensive user manual for BYGD Solar Charge Controllers (PVSC30A, PVSC50A, PVSC70A). Covers installation, operation, safety, features, and troubleshooting for solar energy systems.</p>

	<p>BYGD P Series DC to AC Power Inverter User Manual and Specifications</p> <p>This document provides a comprehensive overview of the BYGD P Series DC to AC Power Inverters, including safety instructions, protection functions, specifications, dimensions, and installation guidelines. It covers models P800U, P1000U, P1200U, and P1500U.</p>
	<p>BYGD DC to AC Power Inverter User Manual (800W-1500W)</p> <p>User manual for BYGD DC to AC power inverters, covering models from 800W to 1500W. Includes specifications, features like USB ports, and important disposal guidelines.</p>