



QUICK START GUIDE

120W Intelligent Battery Charger



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GS120C-4

Introduction

This product is a 120W AC / DC intelligent battery charger, with 100-240Vac wide voltage input. It is designed for charging all types of 6V & 12V lead-acid batteries, including Wet (Flooded), Gel, MF (Maintenance-Free), CA (Calcium) EFB (Enhanced Flooded Battery), and AGM (Absorption Glass Mat). It can charge 12V lithium batteries as well. It is suitable for charging battery capacity up to 40 Amp-hours and maintains all battery sizes, providing short circuit protection, over-current protection and over-voltage protection.

Important Safety Warnings

Before using the charger, please read the Quick Start Guide carefully and obey the battery manufacturer's specific precautions and recommended battery charging rate. Failure to follow rules may result in ELECTRICAL SHOCK, EXPLOSION, FIRE, which may result in SERIOUS INJURY, DEATH, or PROPERTY LOSS.

- Determine the voltage and chemistry of batteries before charging.
- Keep in mind the distance to batteries. The DC cable length of the charger, with either the battery clamp or eyelet terminal connectors, is approximately 1.8m. The extension cord is about 2.0m. No matter what type of connection, please allow for 304mm of slack between connections.
- This product can expose you to chemicals including lead and exhaust fumes. Please always wash your hands after handling batteries and related materials.
- Prepare for clean water and soap nearby in the case of battery acid contamination.
- Do not handle or wear any metal objects when working with batteries including tools, watches, and jewelry.
- Do not leave children unattended with the product or any accessory.
- Do not use the product with a damaged power cable.
- Store and use the product in dry locations. Do not use the product if it becomes wet. If the product becomes wet during use, disconnect it from batteries and stop using it immediately.

- Do not attempt to alter, modify, or repair any part of the product.
- If the product is damaged, malfunctions, or is exposed to liquid, stop using it and contact Wavlink.
- This product is only approved for use with accompanying accessories.
- Prevent battery acid from coming in contact with the product.
- Do not operate the product in an enclosed area or an area with restricted ventilation.
- Do not set a battery on top of the product.
- Place cable in a safe position, which avoids accidental damage including moving vehicle parts, moving engine parts or what could become a hazard that may cause injury or death.
- This product is designed to work in ambient temperatures between -4°F and 104°F (-20°C ~ 40 °C). Do not operate it outside of the temperature range. Stop using if the battery becomes excessively hot. The average storage temperature is between -22° F and 140° F (-30°C ~ 60°C). Never exceed 80°C under any condition.
- Do not charge a battery if you are unsure of the battery's specific chemistry or voltage.
- The product contains magnetic components which may interfere with pacemakers, defibrillators, or other medical devices. Consult your physician before use if you have any medical devices including pacemakers.
- Use a soft, lint-free (microfiber) cloth when you clean the product.
- Do not operate the product in any area with a potentially explosive atmosphere, including fueling areas or areas that contain chemicals or particles such as grain, dust or metal powders.
- The product complies with regulations governing radio frequency emissions when designed, tested, and manufactured, but such emissions from the product can negatively affect the operation of other electronic equipment, causing them to malfunction.

NOTE: After tested, the product complies with the limits for a Class A digital device, according to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. The product can radiate radio frequency energy. If not installed and used following the Quick Start Guide, it may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Specifications

Input Voltage AC: 100-240 VAC, 50-60Hz

Working Voltage AC: 100-240 VAC, 50-60Hz

Output Power: 30x4 W Max

Charging Voltage: Various

Charging Current: 2A (12V), 2A (6V)

Low-Voltage Detection: 1V (12V), 1V (6V)

Back Current Drain: <5mA

Ambient Temperature: -20°C to +40°C

Type of Batteries: 6V & 12V

Battery Chemistries: Wet, Gel, MF, CA, EFB, AGM, Lithium
Banks: 4

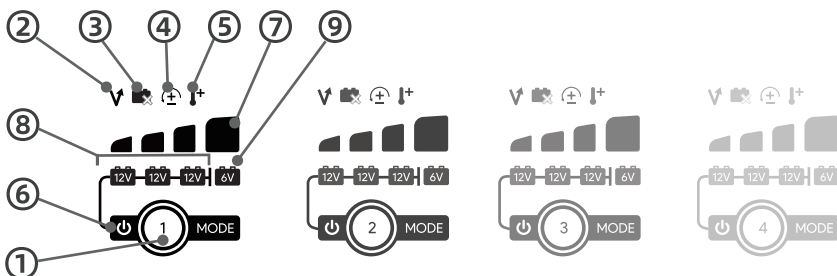
Battery Capacity: Up to 40Ah, Maintains All Battery Sizes

Housing Protection: IP40

Cooling: Natural Convection

Dimensions (L x W x H): 7.09 x 5.83 x 2.68in

Overview



- ① Mode Button: push it to cycle through charging modes.
- ② Over Voltage Error LED: Solid red light shows voltage of the battery is over protected voltage.
- ③ Bad Battery Error LED: Solid red light shows connected battery will not charge.
- ④ Reverse Polarity Error LED: Solid red light shows reverse polarity is detected.

- ⑤ Hot/Cold LED: Solid red light shows internal temperature is too high; flashing red light (along with ②③④ error LEDs) shows internal temperature is too low.
- ⑥ Standby LED: Indicates the charger is in Standby Mode, which means the charger does not provide any power to battery.
- ⑦ Charge LED: Indicates the connected battery is charging.
- ⑧ Mode LED: Indicates it's on Charge Mode.
- ⑨ [Press and Hold] Mode LED: Mode button must be pressed and held for 3 seconds to enter the mode.

How to Use

Charging Modes

The product has 6 modes: Standby, 12V, 12V AGM, 12V Lithium, 6V and Supply. Some charge modes must be pressed and held for 3~5 seconds to enter the mode. These “Press and Hold” modes are advanced charging modes that require your full attention before selecting. It is important to understand the differences and purpose of each charge mode. Always check with battery manufacturer to confirm the right charge mode for your specific battery. Do not operate the charger until you confirm the appropriate charging mode for your battery. Below is a description of 6 modes.

Mode	Explanation	Peak voltage measured at 25°C and rated amperage is bulk amperage when above 0°C.
Standby	In standby mode, the charger does not charge or provide any power to the battery and energy save is activated, drawing microscopic power from the electrical outlet. CAN bus is enabled. When in Standby, the orange Standby LED will light. No Power	
12V	For charging 12-volt Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries, when the 12V mode is selected, the 12V white LED will light. 14.5V 2A Up to 40Ah batteries 【Press the button and select the charging mode】	



12V AGM	For charging 12-volt AGM batteries, when the 12V AGM mode is selected, the 12V AGM white LED will light. 14.8V 2A Up to 40Ah batteries 【Press the button and select the charging mode】
12V LITHIUM	For charging 12-volt lithium-ion batteries, including lithium iron phosphate, when 12V LITHIUM mode is selected, the 12V Lithium blue LED will light. Only for batteries with Battery Management Systems (BMS). 14.6V 2A Up to 40Ah batteries 【Press the button and select the charging mode】
6V	For charging 6-volt Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries, when 6V mode is selected, the 6V white LED will light. 7.25V 2A Up to 40Ah batteries 【Press and hold the button for 3 seconds while connecting batteries】
Supply	For charging batteries with a voltage lower than 1V. The selected charging mode will operate under Supply Mode for 5 minutes before returning to standard charging in the selected mode. 2A Up to 40Ah batteries 【Press and hold the button for 5 seconds while connecting batteries, then switching modes】 CAUTION: 12V LITHIUM Mode does not apply to Supply Mode.

Tips:

- Using 6V

6V Charging Mode is designed for 6-volt lead-acid batteries only, like Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. Press and hold the button for 3 seconds to enter 6V Charging Mode. Consult the battery manufacturer before using this mode.

- Using 12V LITHIUM

12V LITHIUM Charging Mode is designed for 12-volt lithium-ion batteries only, including lithium iron phosphate.

CAUTION: Use the mode with extreme care. This mode should only be used with 12-volt lithium batteries that have a built-in Battery Management System (BMS). Lithium-ion batteries are made and constructed in different ways and some may or may not contain a Battery Management System (BMS). Consult the lithium battery manufacturer before charging and ask for recommended charging rates and voltages. Some lithium-ion batteries may be unstable and unsuitable for charging.

- Supply Mode

If the detected battery voltage is too low for the charger, press and hold the button for 5 seconds to activate Supply Mode. All available modes will flash. Once a charge mode is selected, the Charging Mode LED will flash, indicating Supply Mode is active. After 5 minutes, the charger will return to the normal charging operation and low voltage detection will be reactivated.

CAUTION: Use this mode with extreme care. Supply mode disables safety features and connectors will carry electricity. Ensure all connections are made before entering supply mode, and do not put these connections together. There are risks of SPARKS, FIRE, EXPLOSION, PROPERTY LOSS, INJURY, and DEATH.

- Connecting the battery

Do not connect the AC power plug until all other connections are made.

Identify the correct polarity of terminals on the battery. The positive battery terminal is typically marked by these letters or symbols (POS, P, +).

The negative battery terminal is typically marked by these letters or symbols (NEG, N, -). Do not make any connections to the carburetor, fuel lines, or thin, sheet metal parts.

- Follow these steps when a battery is installed in a vehicle.

Warning: A spark near the battery may cause a BATTERY EXPLOSION. To reduce the risk of a spark near the battery :

1. Place AC and DC cords in a suitable position to reduce the risk of damage by hood, door, or moving engine part.
2. Determine which battery terminal is grounded (connected) to the chassis. If negative battery terminal is grounded to the chassis (as in most vehicles), see Step 3. If positive battery terminal is grounded to the chassis, see Step 4.

3. For negative-grounded vehicles only, connect the POSITIVE (RED) battery clamp or eyelet terminal connector from the battery charger to the POSITIVE (POS, P, +) ungrounded battery terminal. Connect the NEGATIVE (BLACK) battery clamp or eyelet terminal connector to the vehicle chassis or engine block away from the battery. Connect to a heavy gauge metal part of the frame or engine block.
4. For positive-grounded vehicles only, connect the NEGATIVE (BLACK) battery clamp or eyelet terminal connector from the battery charger to the NEGATIVE (NEG, N, -) ungrounded battery terminal. Connect the POSITIVE (RED) battery clamp or eyelet terminal connector to the vehicle chassis or engine block away from the battery. Connect to a heavy gauge metal part of the frame or engine block.
5. Connect the battery charger to a suitable electrical outlet.
6. When disconnecting the battery charger, please disconnect it in a reverse sequence of connecting procedure, removing the negative first (or positive first for positive-ground systems).

- Follow these steps when a battery is outside a vehicle.

Warning: A spark near the battery may cause a BATTERY EXPLOSION. To reduce the risk of a spark near the battery:

1. Check polarity of battery terminals. The POSITIVE (POS, P, +) battery terminal usually has a larger diameter than the NEGATIVE (NEG, N, -) battery terminal.
2. Attach at least a 24-inch-long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery terminal.
3. Connect POSITIVE (RED) battery clamp or eyelet terminal connector from battery charger to POSITIVE (POS, P, +) battery terminal.
4. Position yourself and a free end of the cable as far away from the battery as possible - then connect the NEGATIVE (BLACK) battery clamp or eyelet terminal connector to a free end of the cable.
5. When disconnecting the charger, always do so in a reverse sequence of connecting procedure and disconnect the first connection as far away from the battery as possible.
6. A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

Begin Charging

1. Verify the voltage and chemistry of the battery.
2. Confirm that you have connected the battery clamps or eyelet terminal connectors properly and the AC power plug is plugged into an electrical outlet.
3. [First time use] The charger will begin in Standby Mode, and orange LED lights.
4. Press the mode button to switch the appropriate charging mode (press and hold for 3 seconds to enter an advanced charging mode) according to the voltage and chemistry of your battery.
5. The mode LED will show the selected charge mode and the Charging LEDs will illuminate (depending on the health of the battery), indicating the charging process has started.
6. The charger can be connected to the battery at all times to provide maintenance charging.

AUTO-MEMORY: The charger has built-in auto-memory and will return to the last charging mode when connected. Press the mode button to change modes after the first use.

Charging Time

The estimated time to charge a battery is shown below. The size of the battery (Ah) and its depth of discharge (DOD) greatly affect its charging time. The charging time is based on an average depth of discharge to a fully charged battery. Temperature will also impact charging times. GS120C-4 features thermal compensation that automatically adjusts charging profiles to maximize charging performance. The table below is for reference purposes only. Actual data may vary depending on battery conditions.



Battery capacity	Approx Time to Charge in Hours	
Ah	6V	12V
8	3.0	3.0
12	4.5	4.5
18	6.75	6.75
24	9.0	9.0
40	15.0	15.0

Indication Status of LEDs in Charging

LED	Explanation
25% Red LED	 The 25% Charging LED will slowly flash “on” and “off” when the battery is less than 25% charged. When the battery is 25% charged, the 25% LED will become solid and the next LED will flash.
50% Red LED	 The 50% Charging LED will slowly flash “on” and “off” when the battery is less than 25-50% charged. When the battery is 50% charged, the 50% LED will become solid and the next LED will flash.
75% Red LED	 The 75% Charging LED will slowly flash “on” and “off” when the battery is less than 50-75% charged. When the battery is 75% charged, the 75% LED will become solid and the next LED will flash.
100% Green LED	 The 100% Charging LED will slowly flash “on” and “off” when the battery is less than 100% fully charged. When the battery is fully charged, the Green LED will become solid and 25%, 50% and 75% Charging LEDs will turn “off”.
Optimization Green LED	 During Optimization, the 100% Charging LED will slowly flash “on” and “off”. Once the battery is fully optimized, the 100% Charging LED will turn solid green. The charger can be connected to the battery at all times.

LEDs That Indicate Charging Error Status

LED	Reason/Solution
 Solid	The charger is in Standby Mode or the battery voltage is too low for the charger to detect.
 Solid	The battery voltage is too high for the selected charging mode. Check the battery and charging mode.
 Solid	Battery may be short-circuited/ Battery will not charge. Have battery checked by a professional.
 Solid	Reverse polarity. Correct battery connections.
 Solid	Internal temperature of charger is too high. Charger will resume function once the charger internal temperature drops.
    Flashing	Ambient temperature of charger is too cold. Charger will resume function once the charger ambient temperature rises.

Need help?

We're here for you!



Online support: [wavlink.com](https://www.wavlink.com)

Available Mon-Fri 8:30 am-5:30pm (UTC+8)



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