VEVOR

Upgrade · The Home Creator Way

Lithium Lead Acid Charger

Model: XFH-SS01, XFH-SS02, XFH-SS03, XFH-SS04, XFH-SS05, XFH-SS07, XFH-SS08, XFH-SS09

VEVOR Support Center

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This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

	**Warning**-To reduce the risk of injury, user must read instructions manual carefully.
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)This device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.
	This product is subject to the provision of European Directive 2012/19/EC. The symbol showing a wheelie bin crossed through indicates that the product requires separate refuse collection in the European Union. This applies to the product and all accessories marked with this symbol. Products marked as such may not be discarded with normal domestic waste, but must be taken to a collection point for recycling electrical and electronic devices
	**Electrical Shock.** Product is an electrical device that can shock and cause serious injury. Do not cut power cords. Do not submerge in water or get wet.
	**Explosion.** Unmonitored, incompatible, or damaged batteries can explode if used with product. Do not leave product unattended while in use. Do not attempt to jump start a damaged or frozen battery. Use product only with batteries of recommended voltage. Operate product in well ventilated areas.
	**Fire.** Product is an electrical device that emits heat and is capable of causing burns. Do not cover product. Do not smoke or use any source of electrical spark or fire when operating product. Keep product away from combustible materials.

	**Eye Injury.** Wear eye protection when operating product. Batteries can explode and cause flying debris. Battery acid can cause eye and skin irritation. In the case of contamination of eyes or skin, flush affected area with running clean water and contact poison control immediately.
	**Explosive Gases.** Working in the vicinity of lead-acid is dangerous. Batteries generate explosive gases during normal battery operation. To reduce risk of battery explosion, follow all safety information instructions and those published by the battery manufacturer and manufacturer of any equipment intended to be used in the vicinity of battery. Review cautionary markings on these products and on engine.

This VEVOR battery charger represents some of the most innovative and advanced technology on the market, making each charge simple and easy. It is quite possibly the safest and most efficient charger you will ever use.

This product is designed for charging all types of lead-acid batteries, including Lithium, LiFePO4, Wet (Flooded), Gel, MF (Maintenance-Free), CA (Calcium), EFB (Enhanced Flooded Battery), and AGM (Absorption Glass Mat) batteries. It is suitable for charging battery capacities up to 400 Amp-Hours and maintaining all battery sizes.

Getting Started

Before using the charger, carefully read the battery manufacturer's specific precautions and recommended rates of charge. Determine the voltage and chemistry of your battery by referring to your battery owner's manual prior to charging.

Mounting

Consider the distance to the battery. The DC cable length from the charger, with either the battery clamp or eyelet terminal connectors, is approximately 47. 2 inches (1200 mm).

Proposition 65 Warning

Battery posts, terminals, and related accessories contain chemicals, including lead. These materials are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Personal Precaution

Use the product only as intended.

Ensure someone is within voice range to aid you in case of an emergency.

Keep a supply of clean water and soap nearby in case of battery acid contact.

Wear complete eye protection and protective clothing when working near a battery.

Always wash hands after handling batteries and related materials.

Do not handle or wear any metal objects (e. g. , tools, watches, or jewelry) when working with batteries. If metal is dropped onto a battery, it may spark or create a short circuit, resulting in electrical shock, fire, or explosion, which could cause injury, death, or property damage.

Minors

If the product is intended for use by a minor, the purchasing adult agrees to provide detailed instructions and warnings to the minor prior to use. Failure to do so is the sole responsibility of the purchaser, who agrees to indemnify the manufacturer for any unintended use or misuse by a minor.

Choking Hazard

Accessories may present a choking hazard to children. Do not leave children unattended with the product or any accessory. The product is not a toy.

Handling

Handle the product with care. It can be damaged if impacted.

Do not use a damaged product, including one with cracks in the casing or damaged cables.

Do not use the product with a damaged power cord.

Humidity and liquids may damage the product. Do not handle the product or any electrical components near any liquid.

Store and operate the product in dry locations.

Do not operate the product if it becomes wet. If the product becomes wet during operation, disconnect it from the battery and discontinue use immediately.

Do not disconnect the product by pulling on the cables.

Modifications

Do not attempt to alter, modify, or repair any part of the product.

Disassembling the product may cause injury, death, or property damage.

If the product becomes damaged, malfunctions, or contacts any liquid, discontinue use and contact the manufacturer.

Any modifications will void your warranty.

Accessories

This product is only approved for use with manufacturer-approved accessories. The manufacturer is not responsible for user safety or damage when using unapproved accessories.

Location

Prevent battery acid from contacting the product.

Do not operate the product in a closed-in area or an area with restricted ventilation.

Do not place a battery on top of the product.

Position cable leads to avoid accidental damage by moving vehicle parts (e. g. , hoods, doors), moving engine parts (e. g. , fan blades, belts, pulleys), or other potential hazards that may cause injury or death.

Operating Temperature

This product is designed to work in ambient temperatures between -4°F and 104°F (-20°C and 40°C). Do not operate outside of these temperature ranges. Do not charge a frozen battery.

Discontinue use immediately if the battery becomes excessively warm.

Storage

Do not use or store the product in areas with high concentrations of dust or airborne materials.

Store the product on a flat, secure surface where it is not prone to falling.

Store the product in a dry location.

The storage temperature range is -4°F to 77°F (-20°C to 25°C) average temperature. Never exceed 158°F (70°C) under any condition.

Compatibility

This product is only compatible with Lead-Acid, AGM, and LiFePO4 batteries. Do not attempt to use the product with any other type of battery. Charging other battery chemistries may result in injury, death, or property damage. Contact the battery manufacturer prior to attempting to charge the battery. Do not charge a battery if you are unsure of its specific chemistry or voltage.

Medical Devices

This product may emit electromagnetic fields. It contains magnetic components that interfere with pacemakers, defibrillators, or other medical devices. Consult with your physician prior to use if you have any medical devices, including a pacemaker. If you suspect the product is interfering with a medical device, stop using it immediately and consult your physician.

Cleaning

Power off the product before attempting any maintenance or cleaning. Clean and dry the product immediately if it comes into contact with liquid or any contaminant. Use a soft, lint-free (microfiber) cloth. Avoid getting moisture into openings.

Explosive Atmospheres

Obey all signs and instructions. 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.

High-Consequence Activities

This product is not intended for use where the failure of the product could lead to injury, death, or severe environmental damage.

Radio Frequency Interference

This product is designed, tested, and manufactured to comply with regulations governing radio frequency emissions. Such emissions can negatively affect the operation of other electronic equipment, causing it to malfunction.

FCC Compliance Note

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

HOW TO USE

Charging Modes

When supply mode is selected, you can charge by selecting different currents with different voltages. Please select the battery type after turning on the switch. These modes are advanced charging modes that require your full attention before selection. It is important to understand the differences and purposes of each charging mode. Do not operate the charger until you confirm the appropriate charging mode for your battery. Below is a brief description:

Model	Explanation (peak voltage measured at 25°c, amperage rating is bulk amperage when above 0°c)	
Standby	In standby mode, the charger is not charging or providing any power to the battery. Energy Save is activated during this mode, drawing microscopic power from the electrical outlet. Can bus is enabled in Standby mode. When in Standby, the LCD will illuminate.	
Charge	6V Lead	For charging 6-volt lead-acid batteries. When selected, the 6V will be lined by blue. **7. 3V | Up To 200AH Batteries**
	12V Lead	For charging 12-volt lead-acid batteries. When selected, the 12V will be lined in blue. **14. 6V | Up To 600AH Batteries**
	24V Lead	For charging 24-volt lead-acid batteries. When selected, the 24V will be lined in blue. **29. 2V | Up To 300AH Batteries**
	36V Lead	For charging 36-volt lead-acid batteries. When selected, the 36V will be lined in blue. **43. 8V | Up To 100AH Batteries**
	48V Lead	For charging 48-volt lead-acid batteries. When selected, the 48V will be lined in blue. **58. 4V | Up To 100AH Batteries**
	60V Lead	For charging 60-volt lead-acid batteries. When selected, the 60V will be lined in blue. **73V | Up To 60AH Batteries**
	72V Lead	For charging 72-volt lead-acid batteries. When selected, the 72V will be lined in blue. **87. 6V | Up To 60AH Batteries**
	12V LiFePo4	For 12-volt LiFePo4 batteries. When selected, the 12V will be lined in blue. **14. 6V | Up To 600AH Batteries**
	24V LiFePo4	For 24-volt LiFePo4 batteries. When selected, the 24V will be lined in blue. **29. 2V | Up To 200AH Batteries**
	36V LiFePo4	For 36-volt LiFePo4 batteries. When selected, the 36V will be lined in blue. **43. 8V | Up To 100AH Batteries**
	48V LiFePo4	For 48-volt LiFePo4 batteries. When selected, the 48V will be lined in blue. **58. 4V | Up To 100AH Batteries**
	60V LiFePo4	For 60-volt LiFePo4 batteries. When selected, the 60V will be lined in blue. **73V | Up To 60AH Batteries**
	72V LiFePo4	For 72-volt LiFePo4 batteries. When selected, the 72V will be lined in blue. **87. 6V | Up To 60AH Batteries**

Maintain	6V Lead	For charging 6-volt lead-acid batteries. When selected, the 6V will be lined in blue. **7. 3V | Up To 200AH Batteries**
	12V Lead	For charging 12-volt lead-acid batteries. When selected, the 12V will be lined in blue. **14. 6V | Up To 600AH Batteries**
	24V Lead	For charging 24-volt lead-acid batteries. When selected, the 24V will be lined in blue. **29. 2V | Up To 300AH Batteries**
	36V Lead	For charging 36-volt lead-acid batteries. When selected, the 36V will be lined in blue. **43. 8V | Up To 100AH Batteries**
	48V Lead	For charging 48-volt lead-acid batteries. When selected, the 48V will be lined in blue. **58. 4V | Up To 100AH Batteries**
	60V Lead	For charging 60-volt lead-acid batteries. When selected, the 60V will be lined in blue. **73V | Up To 60AH Batteries**
	72V Lead	For charging 72-volt lead-acid batteries. When selected, the 72V will be lined in blue. **87. 6V | Up To 60AH Batteries**
Desulfation	6V Lead	For charging 6-volt lead-acid batteries. When selected, the 6V will be lined in blue. **7. 3V | Up To 200AH Batteries**
	12V Lead	For charging 12-volt lead-acid batteries. When selected, the 12V will be lined in blue. **14. 6V | Up To 600AH Batteries**
	24V Lead	For charging 24-volt lead-acid batteries. When selected, the 24V will be lined in blue. **29. 2V | Up To 300AH Batteries**
Supply Mode	6V Lead	For charging 6-volt lead-acid batteries. When selected, the 6V will be lined in blue. **7. 3V | Up To 200AH Batteries**
	12V Lead	For charging 12-volt lead-acid batteries. When selected, the 12V will be lined in blue. **14. 6V | Up To 600AH Batteries**
	24V Lead	For charging 24-volt lead-acid batteries. When selected, the 24V will be lined in blue. **29. 2V | Up To 300AH Batteries**
	36V Lead	For charging 36-volt lead-acid batteries. When selected, the 36V will be lined in blue. **43. 8V | Up To 100AH Batteries**
	48V Lead	For charging 48-volt lead-acid batteries. When selected, the 48V will be lined in blue. **58. 4V | Up To 100AH Batteries**
	60V Lead	For charging 60-volt lead-acid batteries. When selected, the 60V will be lined in blue. **73V | Up To 60AH Batteries**
	72V Lead	For charging 72-volt lead-acid batteries. When selected, the 72V will be lined in blue. **87. 6V | Up To 60AH Batteries**

Lead-Acid Battery Charging

1. Firstly, press the "Battery Type" button to select "Lead". Secondly, press the "Voltage" button, then press the "Start" button to begin charging.
2. Firstly, press the "Battery Type" button to select "Lead". Secondly, press the "Voltage" button, then press the "Current" button, and finally press the "Start" button to begin charging.

Caution: When this mode is selected, please ensure your battery is a lead-acid battery. Please make sure your battery voltage matches the selected voltage; otherwise, charging will fail.

LiFePO4 Battery Charging

1. Firstly, press the "Battery Type" button to select "LiFePO4", then press the "Voltage" button, and finally press the "Start" button to begin charging.
2. Firstly, press the "Battery Type" button to select "LiFePO4". Secondly, press the "Voltage" button, then press the "Current" button, and finally press the "Start" button to begin charging.

Caution: When this mode is selected, please ensure your battery is a LiFePO4 battery. Please make sure your battery voltage matches the selected voltage; otherwise, charging will fail.

Maintain Mode

Firstly, press the "Battery Type" button to select "Lead". Secondly, press the "Maintain" button, then press the "Voltage" button to select the appropriate voltage, and finally press the "Start" button to begin charging. The charger will charge the battery with a low current to maintain a fully charged state, and this mode will not damage your battery.

Desulfation Mode

Firstly, press the "Battery Type" button to select "Lead". Secondly, press the "Desulfation" button, then press the "Voltage" button, and finally press the "Start" button to begin charging.

Caution: When the battery is seriously aged and has insufficient capacity, you can select this mode to repair it. Please note that batteries can only be repaired one at a time.

Supply Mode

Firstly, press the "Battery Type" button to select "Lead". Secondly, press the "Voltage" button, thirdly press the "Current" button, and finally press the "Start" button.

Caution: This mode can be selected when used as a power supply or when the battery voltage cannot be detected.

Professional Mode

Firstly, press the "Battery Type" button, then turn on the power to enter professional mode. When entering professional mode, please select different batteries using different steps:

Press the "Battery Type" button to select "LiFePO4", secondly press the "Voltage" button to select the voltage and battery cells, and the current selection method is the same as in non-professional mode.

Caution: In LiFePO4 mode, hidden battery cells will be displayed. Please note that non-professionals should not select this mode. If selected, please contact the battery supplier; otherwise, there will be risks. This mode cannot be memorized. After turning off the power, the charger will return to non-professional mode.

Connecting to the Battery

Do not connect the AC power plug until all other connections are made. Identify the correct polarity of the battery terminals on the battery. Do not make any connections to the carburetor, fuel lines, or thin sheet metal parts. The instructions below are for a negative ground system (most common). If your vehicle is a positive ground system (very uncommon), follow the instructions below in reverse order.

1. Connect the positive (red) eyelet terminal connector to the positive (POS, P, +) battery terminal.
2. Connect the negative (black) eyelet terminal connector to the negative (NEG, N, -) battery terminal.
3. Connect the battery charger to a suitable electrical outlet. Do not face the battery when making this connection.
4. When disconnecting, disconnect in the reverse sequence: remove the negative terminal first (or the positive terminal first for positive ground systems).

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 that the AC power plug is plugged into an electrical outlet.
3. [First time use] The charger will begin in Standby mode, and "Pause" will be circled in blue. In Standby mode, the charger is not providing any power.
4. Press the "Battery Type" button to select the battery type, secondly press the "Voltage" button, and thirdly press the "Current" button.
5. Press the "Start" button, and it will be highlighted in blue; secondly, the battery will be detected. If the battery is normal, no battery indicator will turn off, and the charger will work normally; otherwise, it will not.
6. The charger can now be left 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 charge mode when connected. Select the appropriate mode and press the "Start" button, and the charger will save the new working mode.

Caution: Professional Mode cannot be auto-memorized.

CHARGING TIMES

The estimated charging time for a battery is calculated as follows: Charging Time (hours) = Battery Capacity (Ah) / Charging Current (A). The battery capacity (Ah) and its depth of discharge (DoD) significantly affect charging duration. The calculated time is based on an average depth of discharge to a fully charged state and is for reference only. Actual results may vary depending on battery conditions. The charging time for a normally discharged battery is based on a 50% DoD. Temperature also impacts charging efficiency.

VEVOR Battery Chargers feature thermal compensation technology, which automatically adjusts charging parameters to optimize performance. Below is a charging time reference for model :

XFH-SS01：

Battery size Ah(Amp hour)	Approximate time to charge in hours				
	6V	12V	24V	36V	48V
40	3	3	6	10	13
60	5	5	10	15	20
80	6	6	12	20	26
120	10	10	20		
200	17	17			

XFH-SS02:

Battery size Ah(Amp hour)	Approximate time to charge in hours						
	6V	12V	24V	36V	48V	60V	72V
40	3	3	5	8	10	13	15
60	4	4	8	11	15	19	23
80	5	5	10	15	20	25	31
120	8	8	15	23	30		
200	13	13	25				

XFH-SS03/XFH-SS07:

Battery size Ah(Am phour)	Approximate time to charge in hours		
	6V	12V	24V
40	3	2	4
60	4	3	6
80	5	4	8
120	8	6	12
200	13	10	20
400	25	20	

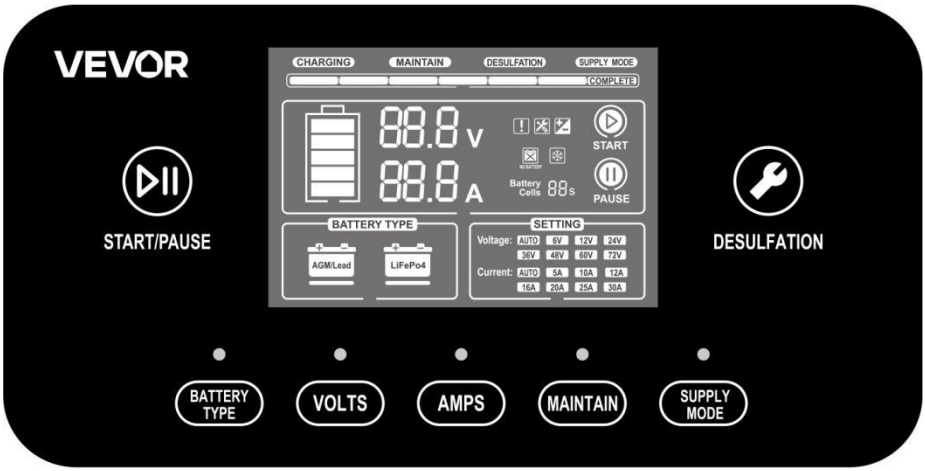
XFH-SS04/XFH-SS08

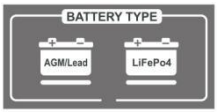
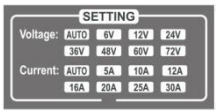
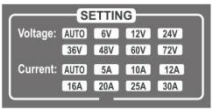
Battery size Ah(Amp hour)	Approximate time to charge in hours		
	6V	12V	24V
40	3	2	3
60	4	3	5
80	5	3. 5	7
120	8	5	10
200	13	8	16
400	25	16	

XFH-SS05/XFH-SS09:

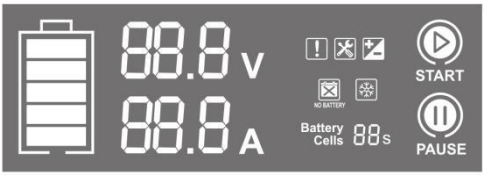
Battery size Ah(Amp hour)	Approximate time to charge in hours		
	6V	12V	24V
40	3	1. 5	3
60	4	2	4
80	5	3	5. 5
120	8	4	8
200	13	7	14
400	25	14	

UNDERSTANDING CHARGE INDICATION



Button Illustration		
Button BATTERY TYPE	**Battery Button:** Push the button to select the battery type; the "Battery Type" indicator will turn on.	
Button VOLTS	Voltage Button: Push the button to select the voltage; the "Voltage" indicator will turn on.	
Button AMPS	**Current Button:** Push the button to select the current; the "Current" indicator will turn on.	
Button MAINTAIN	**Charging and Maintain Mode:**The "Charging" indicator will turn on. When the battery and power supply are connected properly, the progress bar indicator will turn on according to the selected charging mode.	
	If the battery has not been used for a long time, push the button to select Maintain mode. The battery will be charged with a small current to maintain its charge; the "Maintain" indicator will turn on, and the progress bar will flash cyclically. (Maintain mode is only for lead-acid batteries.)	
Button SUPPLY MODE	**Supply Mode:** When the battery is connected properly but cannot be detected, push the button to use "Supply" mode for charging. The "Supply" indicator will turn on, and the progress bar will flash cyclically.	
Button	**Desulfation Mode (Lead-Acid Battery Only):**If the battery has been used for a long time and its capacity decreases rapidly, push the button to use "Desulfation" mode for charging to repair the battery. The"Desulfation" indicator will turn on, and the progress bar will flash cyclically.	
Button	**START and PAUSE Button:** When settings are correct, push the button; the "Start" indicator will turn on, and the charger will start working. Press the button while the charger is operating; the "PAUSE" indicator will turn on, and the charger will stop working.	

GraphicIndication



S/N	Graphic	Indicator	Explanation
1		Show Battery Cell Number	In professional mode, display battery cell number; In normal mode, no display
2		Flash	Warning: Over Current, Short circuit
3		ON	Charging in “Desulfation”
4		Flash	Battery reverse connect
5		ON	Not connect battery
6		Flash	Ambient temperature for charging
7		ON	Show battery capacity
8		-	Show charging voltage
9		-	Show charging current
10		Display number	For a description of the fault codes

Progress Bar Indication

1. Desulfation Stage (only for lead-acid battery)
2. Small current charging mode
3. CC charging mode
4. CV charging mode
5. Battery self-check
6. Floating Charging Mode
7. Full Charged

Charger Specifications by Model								
Product Model	**XFH-SS01**	**XFH-SS02**	**XFH-SS03**	**XFH-SS07**	**XFH-SS04**	**XFH-SS08**	**XFH-SS05**	**XFH-SS09**
Input Voltage AC	120VAC 60Hz Max250W	120VAC 60Hz Max300W	120VAC 60Hz Max400W	230VAC 50Hz Max400W	120VAC 60Hz Max480W	230VAC 50Hz Max480W	120VAC 60Hz Max550W	230VAC 50Hz Max550W
Output Power	175. 2W(Max)	234W(Max)	292W(Max)		365W(Max)		438W(Max)	
Charging Voltage	Various							
Charging Current	5A (6V), 10A (6V), 12A (6V), 5A (12V), 10A(12V), 12A (12V), 5A(24V), 6A(24V), 4A/(36V), 3A(48V)	5A (6V), 10A (6V), 16A (6V), 5A (12V), 10A(12V), 16A (12V), 5A(24V), 8A(24V), 5. 3A/(36V), 4A(48V), 3. 2A(60V), 2. 7A(72V)	5A (6V), 10A (6V), 16A (6V), 5A (12V), 10A(12V), 20A (12V), 5A(24V), 10A(24V)		5A (6V), 10A (6V), 16A (6V), 5A (12V), 16A(12V), 25A (12V), 5A(24V), 10A(24V), 12. 5A(24V)		5A (6V), 10A (6V), 16A (6V), 5A (12V), 16A(12V), 30A (12V), 5A(24V), 10A(24V), 15A(24V)	
Low-Voltage Detection	2V(6V), 10V(12V), 20V(24V), 30V(36V), 40V(48V)	2V(6V), 10V(12V), 20V(24V), 30V(36V), 40V(48V), 50V(60V), 60V(72V)	2V(6V), 10V(12V), 20V(24V)					
Back Current Drain	<0. 5mA							
Ambient Temperature	-20°C to 40°C							
Type of Batteries	6V, 12V, 24V, 36V, 48V	6V, 12V, 24V, 36V, 48V, 60V, 72V	6V, 12V, 24V					
Battery Chemistries	Wet, Gel, MF, CA, EFB, AGM, Calcium , LiFePO4							
Battery Capacity	Up to 200Ah, Maintains All Battery Sizes	Up to 300Ah, Maintains All Battery Sizes	Up to 400Ah, Maintains All Battery Sizes		Up to 500Ah, Maintains All Battery Sizes		Up to 600Ah, Maintains All Battery Sizes	
Cooling Input Voltage AC	Fan Convection							

Manual Battery Voltage Selection (Professional Mode)					
Battery Types	**Voltage Range**	**Series Cell Count**	**Battery Nominal Voltage(V)**	**Charging Voltage(V)**	**Voltage Threshold Range(V)**
LiFePo4 battery	12V	3	9. 6	10. 95	7. 5-10. 95
		4	12. 8	14. 6	10-14. 6
	24V	6	19. 2	21. 9	15-21. 9
		8	25. 6	29. 2	20-29. 2
	36V	11	35. 2	40. 15	27. 5-40. 15
		12	38. 4	43. 8	30-43. 8
	48V	14	44. 8	51. 1	35-51. 1
		15	48	54. 75	37. 5-54. 75
		16	51. 2	58. 4	40-58. 4
	60V	18	57. 6	65. 7	45-65. 7
		19	60. 8	69. 35	47. 5-69. 35
		20	64	73	50-73
	72V	22	70. 4	80. 3	55-80. 3
		23	73. 6	83. 95	57. 5-83. 95
		24	76. 8	87. 6	60-87. 6
Lead acid battery	12V	4	13. 8	14. 6	10-14. 6
	24V	8	27. 6	29. 2	20-29. 2
	36V	12	41. 4	43. 8	30-43. 8
	48V	16	55. 2	58. 4	40-58. 4
	60V	20	69	73	50-73
	72V	24	82. 8	87. 6	60-87. 6

FAILURE CODE

When the machine cannot be charged in use, the product display will show the fault code.
Please refer to the following fault code number description table and resolve the non-charging issue caused by misoperation according to the corresponding fault number.

Fault code	Description of the fault
03E	The temperature inside the machine is too high
04E	The output charging mode is selected incorrectly
05E	Output voltage over voltage
06E	Output over power
42E	Output current over current
43E	Voltage or current no change for a long time

04E: Press the start button to clear.
Other: Disconnect the power plug.

QUICK USER MANUAL FOR CHARGER

I. Pre-charging Preparation

1. Power on the charger and ensure the screen lights up normally.
2. Check the battery parameters (on the label) against the parameter table on the back of the charger. Confirm the battery type (lead-acid/lithium iron phosphate), nominal voltage and charging current to avoid malfunction caused by mismatch.
3. Additional verification for lithium iron phosphate batteries: the default charging voltage of the charger must be consistent with the nominal voltage of the battery; adjust it through the professional mode if inconsistent. Lead-acid batteries can be charged at the default voltage directly.

II. Operating Steps for the Four Charging Modes

Mode Activation	Charging Mode	Applicable Batteries	Key Operating Steps	Special Notes
Default mode: Normal chargin. Other modes: Manual selection required.	Normal Charging (Default)	Lead-acid / Lithium Iron Phosphate	1. Short press [BATTERY TYPE] to select the battery type; 2. Short press [VOLTS] to select the corresponding voltage; 3. Short press [AMPS] to select the charging current (0.1-0.2C is recommended); 4. Connect the battery clamps to the battery (the screen displays the current battery voltage); 5. Short press [START/PAUSE] to start (the power icon flashes); 6. Stop automatically when completed (the screen displays COMPLETE + full power icon)	Short press [START/PAUSE] to pause during charging; excessive current will cause battery heating and damage. Battery Full Detection: The current changes from high to 0A, or from 0A to high and then decreases to 0A.
For batteries not in use for a long time, perform trickle charging every 1 to 2 months.	Trickle Charging (MAINTAIN)	Lead-acid / Lithium Iron Phosphate	1. Short press [BATTERY TYPE] to select the battery type; 2. Short press [VOLTS] to select the corresponding voltage; 3. Short press [MAINTAIN] to enable trickle mode (fixed current, not selectable); 4. Connect the battery → Short press [START/PAUSE] to start; 5. Stop automatically when completed	Used for battery activation with small current and dissolving mild sulfation layers; activation is successful if the voltage rises steadily
A stable voltage supply is required for specific applications such as ECU upgrading.	Forced Power Supply Charging (SUPPLY MODE)	Lead-acid / Lithium Iron Phosphate	1. Short press [BATTERY TYPE] to select the battery type; 2. Short press [VOLTS] to select the corresponding voltage; 3. Short press [AMPS] to select the charging current; 4. Short press [SUPPLY MODE] to enable forced mode; 5. Connect the battery → Short press [START/PAUSE] to start; 6. Manually press [START/PAUSE] to stop when completed (the charger outputs voltage continuously)	Suitable for scenarios requiring continuous power supply; do not leave the battery charging idle for a long time

Sulfation may occur in lead-acid batteries, such as rapid voltage rise during charging (full charge achieved in tens of seconds or minutes) or increased internal resistance of the battery.	Desulfation Charging (DESULFATION)	Lead-acid batteries only	1. Short press [BATTERY TYPE] to select AGM/Lead; 2. Short press [VOLTS] to select the corresponding voltage; 3. Short press [DESULFATION] to enable desulfation mode (fixed current, not selectable); 4. Connect the battery → Short press [START/PAUSE] to start; 5. Stop automatically after 24 hours or pause manually	Only extends battery life and cannot repair physical damage; batteries with severe sulfation (open-circuit voltage ＜ 10V) cannot be repaired

III. Key Function Chart (Clear Operation Logic)

Charging Mode	Core Function	Chart Mark	Operation Method	Applicable Scenario
BATTERY TYPE BATTERY TYPE	Battery type selection		Short press to switch (cycle between AGM/ Lead → Lithium Iron Phosphate)	First step of all charging modes
VOLTS VOLTS	Charging voltage selection		Short press to switch (6V/12V/24V, etc., matching the nominal battery voltage)	Second step of all charging modes
AMPS AMPS	Charging current selection		Short press to switch (AUTO/10A/20A, etc., 0.1-0.2C is recommended)	Normal charging, forced power supply charging
START/ PAUSE ▷II	Start / Pause charging		Short press to start, short press to pause during charging	Start / stop of all charging modes
MAINTAIN MAINTAIN	Enable trickle charging mode		Short press to activate (only for trickle charging mode)	Small current activation, daily maintenance
SUPPLY MODE	Enable forced power supply mode		Short press to activate (only for forced power supply charging mode)	Continuous power supply demand

Charging Mode	Core Function	Chart Mark	Operation Method	Applicable Scenario
DESULFATION	Enable desulfation charging mode		Short press to activate (only for lead-acid battery desulfation)	Desulfation of mildly sulfated batteries
SETTING BATTERY TYPE	Professional mode setting	-	Press and hold the[BATTERY TYPE] button and then plug in the power supply to enter. (adjust when the lithium iron phosphate battery voltage does not match)	Voltage calibration, parameter fine-tuning

IV. Critical Notes

1. Voltage matching is the core of safety: Charging with an incorrect voltage can easily cause fire and explosion; always check the voltage of lithium iron phosphate batteries in advance.
2. Desulfation mode restrictions: Only applicable to lead-acid batteries, which will stop automatically after 24 hours and cannot be interrupted during this period (unless paused manually).
3. Charging environment requirements: Well-ventilated and dry, temperature ≤40℃, avoid charging in sealed containers.
4. Battery status judgment:
   - Slight undercharge (11.7V-12.3V): Normal charging + trickle maintenance;
   - Moderate undercharge (10V-11.7V): Desulfation charging + trickle activation;
   - Severe power loss (<10V): Apply repair mode for 24–48 hours. Replace the battery if recovery fails.

V. Lead-Acid Battery Maintenance Tips (Key to Extending Service Life)

1. Daily maintenance:
   - Monthly charging: Perform normal charging once a month when the battery is idle for a long time;
   - Avoid undercharge: Charge in time when the power is below 50%, do not discharge deeply;
   - Environmental control: Charging temperature ≤40℃, keep away from high temperature and humidity.
2. Post-desulfation operation: After successful desulfation, complete a full charge-discharge cycle (charge for 12 hours → discharge to depletion) to restore battery capacity.
3. Charging current standard: Set to 0.1-0.2C of the battery capacity (e.g., select 4-8A for a 40Ah battery) to avoid heating and damage caused by excessive current.

VI. Distinguishing Between Overcharge Heating and Excessive Charging Current Heating

Comparison Item	Overcharge Heating	Over-Current Heating
Core Definition	The battery is already fully charged but continues to be charged (voltage exceeds the upper limit)	The charging current exceeds the rated value throughout the charging process (regardless of the state of charge)
Heating Mechanism	Side reactions after full charge, electrolyte decomposition, lithium plating → dominated by chemical reaction heat	Excessive current × internal resistance → dominated by Joule heat (I^2Rt)
Occurrence Timing	Significant temperature rise occurs mainly in the late stage / after full charge	The battery gets hot from the start, with high temperature throughout the entire charging process
Voltage Characteristics	Voltage exceeds the cut-off voltage (for Li-ion: > 4.2V/cell); may drop suddenly in the later stage	Voltage is normal or slightly high, does not exceed the upper limit, but current is very high
Temperature Curve	Temperature is stable initially, then rises continuously after full charge, with a sharp spike in the later stage	Temperature rises rapidly from the start and remains high throughout
Appearance / Odor	Prone to swelling/gassing; may emit a pungent electrolyte odor	Usually uniformly hot; swelling/ odor are rare in the early stage
Charger Behavior	Does not switch to trickle charge; maintains constant high current/ voltage output	Current far exceeds the rated value; may trigger over-current protection
Hazard Progression	High risk of thermal runaway, fire, and explosion	Long-term high current → accelerated aging, increased internal resistance, and thermal runaway in later stages
Typical Causes	Charger failure, BMS failure, no disconnection after full charge	Over-rated charger current, undersized wiring, poor heat dissipation
Handling Points	Disconnect power immediately! Stop all charging/discharging and observe the battery at rest	Replace with a matching low-current charger, improve heat dissipation, and reduce power
※**Quick Identification**	Hot in the late stage, over-voltage, prone to swelling, pungent odor	Hot throughout, excessive current, no early swelling, shortened lifespan

VII. Frequently Asked Questions (FAQ)

Q1: My $LiFePO_4$ battery cannot be charged, fails to reach full charge, or triggers an abnormal alarm during charging. What could bethe reason?

Answer: Hello, 90% of such issues are caused by incorrect battery type selection or uncalibrated default charging voltage for $LiFePO_4$ batteries.

1.First, manually switch the charger's battery mode to $LiFePO_4$ (do not select Lead-Acid mode);

2.Verify if the battery's rated voltage matches the charger's default voltage. If not, enter Professional Mode to adjust the charging voltage;

3.Lead-Acid batteries can use the default voltage directly, while $LiFePO_4$ batteries require voltage matching for normal charging.

Q2: Charging speed is extremely slow, the charger never switches to green light, or even causes overcharge heating. How to resolve this?

Answer:Hello, this situation is usually caused by accidentally activating a non-default charging mode (e.g., Trickle Charge Mode, Forced Charge Mode, or Repair Mode).

1.Default Mode Explanation: The charger leaves the factory in Universal Fast Charge/Normal Charge Mode. Other modes (Trickle/Repair/Forced) must be manually activated and will not start automatically.

2.Trickle Mode: Features extremely low charging current, suitable only for initial pre-charging of deeply discharged batteries. Enabling it during normal use will significantly slow down charging.

3.Repair/Forced Mode: Designed to activate or repair abnormal batteries, not for daily charging. It may disrupt normal charging logic, leading to failure to switch to green light and overheating risks.

4.Solution: Manually switch back to Normal Charge Mode to restore standard charging speed and correct green light switching logic.

5.Supplementary Recommendation: For small-capacity or different-spec batteries, higher current is not always better. For standard Lead-Acid or Lithium batteries, the recommended charging current is 0.1~0.2 times the battery capacity (i.e., 0.1C~0.2C).

- ◦Example: 100Ah battery → Recommended charging current: 10A~20A.
  - ▪10A: Slower charging, but most friendly to battery lifespan with minimal heating.
  - ▪20A: Balanced charging speed and maintenance effect (standard range).
  - ▪Exceeding 30A (0.3C+): May cause significant heating; long-term use accelerates aging, especially for small-capacity batteries.
- ◦If the battery capacity is small (e.g., ≤20Ah), actively adjust the charger's output current to 2~4A to avoid overcharge heating.

Q3: I don't know which voltage/current gear to select, and the charger fails to start charging. How to match the parameters?

Answer: Hello, you must strictly verify battery and charger parameters before charging. The matching method is as follows:

1.Check the battery label: Confirm the rated voltage (6V/12V/24V/36V/48V/60V/72V) and battery type (Lead-Acid / $LiFePO_4$);

2.Select the corresponding charger gear: Choose the voltage consistent with the battery, and match the current according to the charger's specifications (12A/16A/20A/25A/30A);

3.Mismatched voltage/current will trigger automatic charger protection, preventing charging from starting. Ensure parameters match before use.

Q4: The charger screen does not light up and has no response after being plugged in. Is it broken?

Answer: Hello, this is most likely due to mismatched mains voltage/plug specifications (distinction between US-standard and EU-standard models), not a product defect:

1.US-standard model: Compatible with 110V mains (USA, Canada, etc.); EU-standard model: Compatible with 230V mains (most European countries);

2.Plugging a US-standard model into 230V or an EU-standard model into 110V will result in no power and a dark screen;

3.Verify the mains voltage in your country and select the corresponding model for normal use.

Q5: Lead-Acid batteries charge normally, but $LiFePO_4$ batteries cannot be used, showing a "voltage mismatch" prompt. How to adjust?

Answer: Hello, the setting logic differs between the two battery types. The adjustment method is as follows:

1.Lead-Acid batteries: No voltage adjustment is needed; use the charger's default voltage directly for charging;$LiFePO_4$ batteries: Ensure the charger's default charging voltage = the battery's rated voltage. If inconsistent, enter Professional Mode to manually adjust the voltage;

2.After adjustment, switch to $LiFePO_4$ mode for normal charging. Do not charge $LiFePO_4$ batteries directly with the default Lead-Acid voltage.

3.After adjustment, switch to $LiFePO_4$ mode for normal charging. Do not charge $LiFePO_4$ batteries directly with the default Lead-Acid voltage.