12V/24V

Intelligent Pulse Repair Charger

User Manual

(Read the manual carefully before use)

RJ-E122001A/RJ-E122001B





VER: 2.0

Product Parameters

Brand:
Size: 21518580mm
Output cable length: 90cm
Input voltage: AC110-230V (50-60Hz)
Output current: DC12V20A/24V10A (Max)
Applicable range: 12V 2Ah-300Ah
24V 2Ah-150Ah

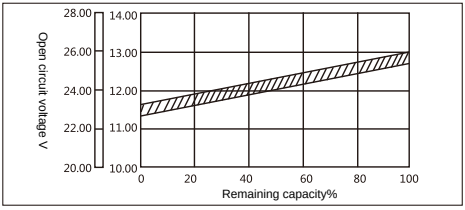
Model: RJ-E122001A/RJ-E122001B
Net weight: 1080g
Input cable length: 150cm
Output voltage: 12V-15.5V/24V-31V
(-15~45°C voltage automatic compensation)
lead-acid batteries & $LiFePO_4$ batteries

Warning: It is forbidden to charge $LiFePO_4$ (14.6V±0.2V) batteries without “BMS” system.

Charger Usage Method

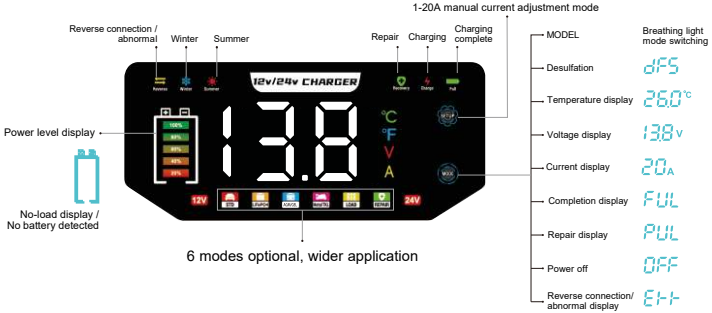
1. Check whether the battery parameters match the charger;
2. Connect the red clip to positive terminal (+) of the battery, and the black clip to negative terminal (-);
3. After connecting the positive and negative terminals, the screen lights up. At this time, it will cyclically detect the ambient temperature, voltage, and remaining capacity (see figure below).

Note: After the battery has been used, it needs to be left idle for 1 hour before detecting remaining capacity as shown below.

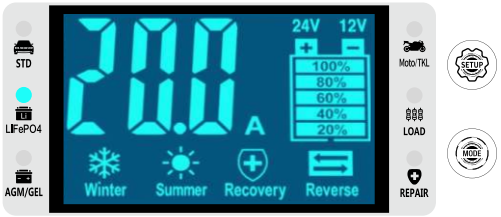


4. After connecting the household power supply, the screen displays “dFS” to enter the desulfation stage. After about 5 minutes, it will automatically switch to charging state (start/stop or hanging charge mode has no desulfation stage). During charging, the screen will cyclically display the battery voltage, current, ambient working temperature, and current charging progress.
5. If the positive and negative connections are wrong or abnormal, the screen “reverse connection ⇆ ” flashes, displaying EI-I-, and a buzzer alarm sounds.
6. Select the charging mode matching the battery (see mode selection).
7. After charging is complete, the battery bar on the screen is full (100%) and displays FUL. It is recommended to continue float charging for about 1 to 2 hours for better results, until the screen displays OFF and shuts down.
8. First unplug the AC plug, then remove the positive and negative clips to complete charging.

Screen Illustration Model: RJ-E122001B



Model: RJ-E122001A



Safety Precautions

1. Before charging, check whether the charger has any abnormality, whether the plug and power cord are damaged or cracked. If abnormal, stop using this product. To avoid danger, please contact the seller to return to the manufacturer or have it repaired or replaced by professional personnel before use.
2. Before charging, check whether the battery is damaged and whether there is liquid leakage around the battery. If abnormal, charge with caution.
3. It is strictly prohibited to charge LiFePO4 batteries without a BMS system.
4. Do not charge scrapped batteries, non-rechargeable batteries or batteries with no voltage.

Winter & Summer Charging

1. Winter (❄): <10°C Summer (☀): >28°C Normal temperature: 10-27°C (no icon displayed)
2. During charging, the microcomputer automatically detects the ambient and working temperature, no manual setting required. It automatically adjusts the suitable charging state according to the detected temperature, extending battery life and ensuring safe charging.
3. The ambient temperature is detected every 3-5 seconds. There may be a slight error range during detection, but it does not affect normal charging.

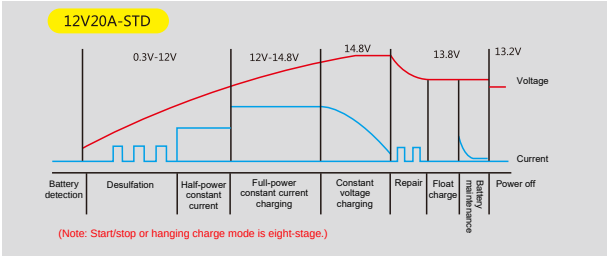
Repair Function

1. Connect the battery and plug in the power, press the "Mode" button six times to enter repair mode. The screen displays “PUL”, (⛨) flashing.
2. Car batteries are recommended to be repaired for about 4 hours, motorcycle batteries and water batteries for about 2 hours. (If the battery does not heat up, repair time can be extended.)
3. Repair mode also has current. Long repair can also fully charge the battery. After repair, the battery bar on the screen is full (100%) and displays “FUL”. At this time, the charger will automatically enter the float charge stage, and when the screen displays “OFF”, it powers off and the repair is complete.
4. If you need to stop the repair or charging process early, directly remove the charger crocodile clips and disconnect the power.

Note: If the battery heats seriously during repair, stop repair and charging immediately to avoid danger. (The main reason for overheating is severe sulfation or lack of water, requiring a new battery.)

Nine-Stage Charging

The product has a nine-stage charging function: (Battery detection, desulfation, half-power constant current, full-power constant current, constant voltage charging, repair, float charge, battery maintenance, power off.) Charging curve diagram as follows:



Mode Selection

Each time the “Mode” button is pressed, it switches in sequence “Standard - $LiFePO_4$ - Start/Stop-GEL - Motorcycle/Hanging Charge - Load - Repair”

1. “ ” Suitable for ordinary cars, various agricultural vehicles, trucks and various 12V/24V lead-acid batteries.Default current: 15A
2. “ ” $LiFePO_4$ batteries with “BMS” system (14.6V/29.2V±0.2V).Default current: 20A
3. “ ” Suitable for start-stop function car batteries and GEL batteries.Default current: 10A
4. “ ” Suitable for various motorcycles and 12V lead-acid batteries, suitable for long-term use of batteries,default current: 5A,charged at constant current of 1.75A, suitable for charging while in use, maintaining battery voltage at 13.8V full state.
5. “ ” Intelligent charging, suitable for long-term use of batteries, charged at 15A,suitable for charging while in use, suitable for large-capacity batteries to maintain battery voltage at 13.8V full state.Default current: 15A
6. “ ” For long-idle, old, or unchargeable batteries, select “Repair” mode to attempt activation.Default current: 15A

⚠ 1.Forced 24V mode: If the charger mistakenly identifies a 24V battery as 12V (e.g., when the 24V battery power is lower than 12V), press " MODE+SETUP " keys simultaneously for 3-5 seconds to force switch to 24V charging mode.

⚠ 2.Long press “MODE” key for 5 seconds to turn buzzer on or off.

⚠ 3.The charger will automatically enter sleep mode after charging for 30 minutes, and the screen will turn off. (1. Reduce battery power consumption 2. Extend the service life of the charger LED beads) Lightly touch MODE or SETUP key to exit sleep mode (RJ-E122001A has no sleep function).

⚠ 4.Do not charge with a current exceeding the battery's rated charging current, as it may damage the battery, causing swelling or leakagage!

Mode Misoperation Prevention

To prevent accidental triggering of mode switching, about 25 seconds after the product enters charging state, the touch key locks automatically and cannot be triggered. To switch modes, remove any clip or disconnect AC power to unlock.

Intelligent Memory

The product mode has a memory function. After charging, it defaults to the last state mode used before power-off, intelligent memory, convenient to use.
(Repair mode has no memory function.)

Manual mode allows 1-20A current to be freely adjusted, automatically shuts off when fully charged.

1. Compatibility and Adaptability:
   Multi-scenario application: Compatible with batteries of cars, motorcycles, boats, agricultural machinery and other equipment (capacity from 2Ah to 300Ah+).
   Battery type compatibility: Precisely matches charging characteristics of lead-acid (flooded/AGM/EFB/GEL), avoiding damage caused by current mismatch (such as AGM battery overcharge bulging).
   Old battery friendly: When internal resistance of old batteries increases, current can be manually reduced to avoid misjudgment of “fully charged” by charger leading to premature termination.

2. Battery Life Protection
   Overcharge protection: Small capacity batteries (such as motorcycle 12Ah)charged with high current (6A) may cause water loss, but adjustable current can be reduced to 1-2A.
   Deep discharge repair: Supports “step charging” strategy (e.g., 2A wake-up→ 5A supplement → 10A fast charge) to improve recovery success rate of discharged batteries.
   Trickle mode: For long-term maintenance, use current below 0. 1C (e.g.,100Ah battery with 5A) to reduce polarization effect and extend battery life.

3. Charging Efficiency Optimization
   High-current fast charging: Charging a 100Ah truck battery with 15A saves hours compared to a fixed 6A charger.
   Flexible adjustment: Increase current for emergency use, decrease current for non-emergency use to balance battery health.

Recommended Charging Current vs. Battery Capacity Reference Table			
Battery capacity (Ah)	Recommended charging current (A)	Maximum fast charging current (A)	Standard charging time (H)
≤10	1.0 - 2.0	≤ 3	8 - 12
20	2.0 - 3.0	≤ 6	8 - 12
30	3.0 - 5.0	≤ 9	8 - 12
40	4.0 - 6.0	≤ 12	8 - 12
50	5.0 - 8.0	≤ 15	8 - 12
60	6.0 - 9.0	≤ 18	8 - 12
70	7.0 - 10.0	≤ 21	8 - 12
80	8.0 - 12.0	≤ 24	8 - 12
100	10.0 - 15.0	≤ 30	8 - 12
120	12.0 - 18.0	≤ 36	8 - 12
150	15.0 - 22.0	≤ 45	8 - 12
≥200	20.0 - 30.0	≤ 60	10 - 20

Key Instructions and Safety Recommendations

1. Recommended current formula
   Standard charging current = Battery capacity × 0.1 ~ 0.15 (Example: 60Ah × 0.1 = 6A)
   Fast charging current limit = Battery capacity × 0.3 (Exceeding this value may damage the battery!)

2. Charging time estimation
   Charging time (hours) ぢ Battery capacity (Ah) ÷ charging current (A) × 1.2 (efficiency compensation factor)
   Example: 60Ah battery charged with 6A ゆ 60 / 6 × 1.2 = 12 hours

3. Safety precautions
⚠ Overcharging prohibited: Lead-acid battery voltage exceeding 14.8V (12V system) may release gas, causing swelling or explosion!
Temperature monitoring: Stop charging immediately if battery temperature exceeds 50ひ.
Voltage matching: 12V batteries must be charged in 12V charger mode, 24V batteries in 24V charger mode.
⊘ Avoid deep discharge: After discharge, recharge within 24 hours to prevent sulfation.

4. Lithium battery differences
   For LiFePO4 batteries, please use the charger's lithium battery charging mode. Charging current is generally 0.2C-0.5C (e.g., 100Ah battery with 20A-50A). It is strictly forbidden to use other charging modes!

Remarks: Actual charging must follow the battery manufacturer's manual. This table applies to conventional lead-acid batteries (AGM/wet type). Old batteries should be charged with 20%~30% lower current.This table can serve as a quick reference, but adjustment is required based on the actual condition of the battery. It is recommended to check the battery voltage with a multimeter before first charging (fully charged about 12.6V-12.8V, undercharged <11.8V requires recovery charging).