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## HTRC 20Amp

# HTRC 20-Amp Smart Battery Charger User Manual

MODEL: 20AMP | BRAND: HTRC

## 1. Introduction

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Thank you for choosing the HTRC 20-Amp Smart Battery Charger. This intelligent automatic charger is designed for wide use across various battery types and vehicles, offering quick and safe charging with multiple protection features. It supports 12V/24V batteries and is compatible with Lithium, LiFePO4, and Lead-Acid (AGM/GEL/EFB, MF, Flooded, VRLA, SLA, wet) batteries.

The package includes the Smart Charger unit, a 3M power cord, cable clips, a user manual, and 2 junction boxes.



Figure 1: HTRC 20-Amp Smart Battery Charger and included accessories.

## 2. Safety Information

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

- Use the charger only for the specified battery types and voltages.
- Ensure proper ventilation during charging to prevent overheating.
- Avoid short-circuiting the output terminals.
- Keep the charger dry and away from moisture. It is not waterproof.
- Do not attempt to activate a depleted battery (voltage < 1V).
- Always connect the battery clips correctly (positive to positive, negative to negative).
- Disconnect the power supply before making or breaking the connections to the battery.

## 3. Product Overview

The HTRC Smart Battery Charger features an intelligent CPU that monitors the charging process, automatically detecting 12V/24V batteries and adjusting current. It includes a large LCD display for real-time status updates.



Figure 2: Wide range of vehicle applications including cars, trucks, motorcycles, and golf carts.

# ALL-IN-ONE CHARGER



Figure 3: Supports Lithium, LiFePO4, and Lead-Acid (AGM, GEL, MF, Flooded, VRLA, SLA, Wet) batteries.

# 4 MODES SELECTABLE

Button One-Click Switching: LITHIUM,AGM/Lead-acid, LiFeP04 Charging Mode And REPAIR Mode



LITHIUM



AGM/Lead



LiFeP04



REPAIR



**⚠ Note: Please choose the correct battery type!**

Figure 4: Selectable modes for Lithium, AGM/Lead-acid, LiFePO4, and Repair.

# TEMPERATURE ADAPTIVE

Automatically adjust the charging voltage according to the ambient temperature to prevent overcharge and undercharge.



104°F/40°C

**HOT WEATHER**

Avoids over-charging in hot weather.



14°F/-10°C

**COLD WEATHER**

Avoids under-charging in cold weather.



Figure 5: Automatically adjusts charging voltage based on ambient temperature to prevent overcharge and undercharge.

# 12V / 20A, 24V/ 10A HIGH POWER FAST CHARGING

Suitable for charging Lead-acid(AGM, GEL, SLA, VRLA, EFB...)/LITHIUM/LIFEPO4

12V

5A,10A,20A

24V

3A,5A,10A

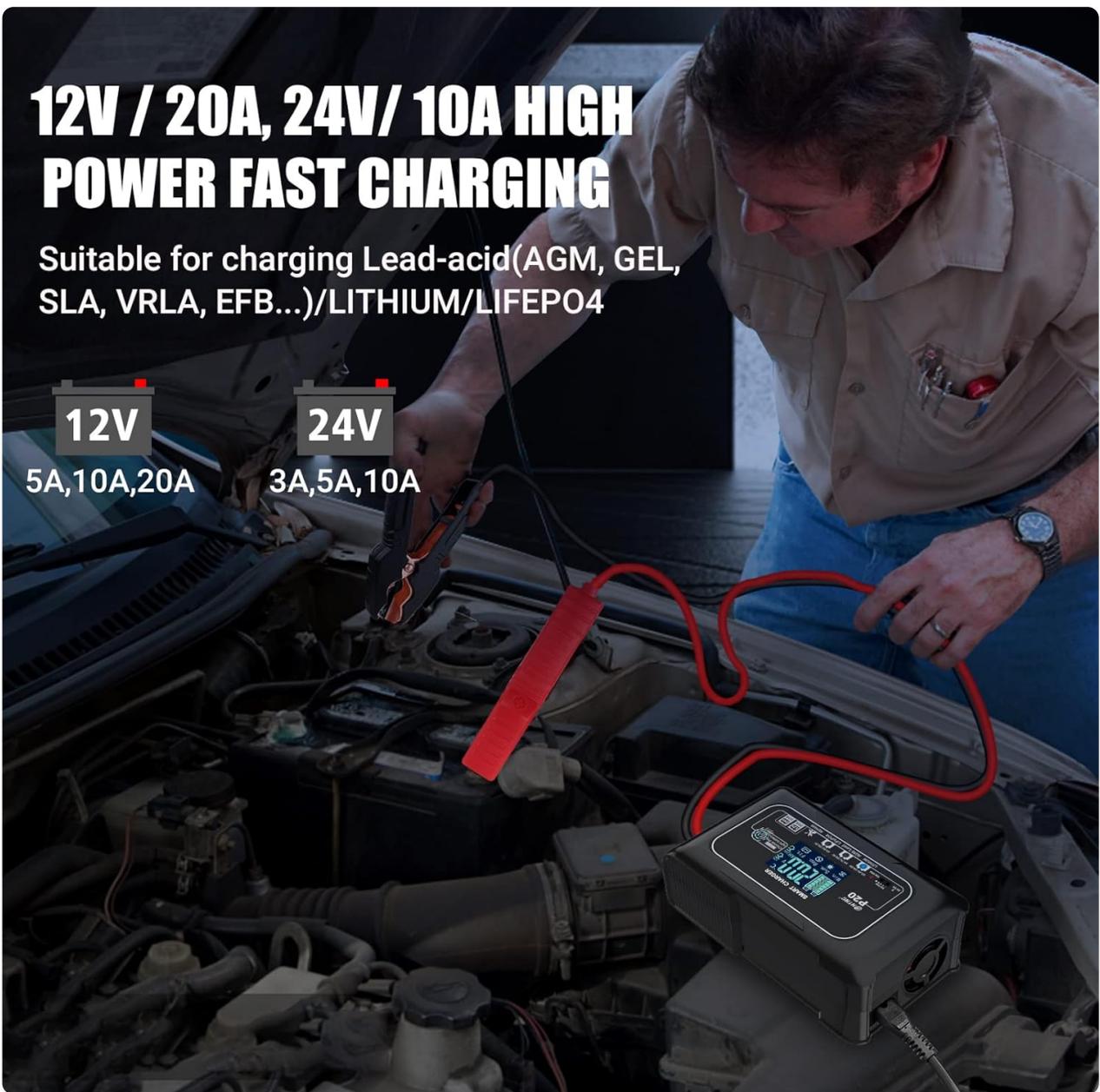


Figure 6: Offers 12V/20A and 24V/10A high power fast charging.



Figure 7: Equipped with an intelligent chip for 9-stage charging, pulse repair, battery testing, and protections against overcharge, short circuit, overcurrent, low voltage, reverse connection, and overheating.

## 4. Setup

Follow these steps to set up your HTRC Smart Battery Charger:

1. Connect the charger to a standard AC (100-240V) socket.
2. Press the 'MODE' button to select the appropriate charging program for your battery type (Lithium, AGM/Lead, LiFePO4, or Repair).
3. Select the desired charging current using the current selection switch (e.g., 5A/10A, 10A/20A).
4. Connect the charger clips to the battery terminals: Red clip to positive (+), Black clip to negative (-).

# EASY TO USE

1. Connect the charger to the socket (AC 100-240V)
2. Press the Mode button to select charging program
3. 3 Gear selection charging current  

4. Connect the charger clip to the battery

Battery Capacity(Ah)	Charging Time(H)					
	12V 5A	12V 10A	12V 20A	24V 3A	24V 5A	24V 10A
50(Ah)	6H	3H	1.5H	7.5H	6H	3H
100(Ah)	9H	6H	3H	10.5H	9H	6H
120(Ah)	10.2H	7.5H	3.9H	11.5H	10.5H	7.5H
150(Ah)	11H	9H	4.5H	13.5H	12.5H	9H
300(Ah)	22H	18H	9H	27H	25H	18H
800(Ah)	/	/	24H	/	/	40H

Theoretical value, for reference only!

Figure 8: Visual guide for connecting the charger.

## 5. Operating Instructions

The charger automatically detects 12V or 24V batteries. The LCD display will show charging status, voltage, current, internal temperature, and charge percentage. The 9-stage charging process optimizes battery power precisely and gently, including stages like battery desulfation, soft start, bulk charging, absorption, trickle charge, battery test, recondition, float & maintenance, and small current maintenance.

# DESULPHURIZATION AND REPAIR

REPAIR mode is used to repair and activate old and weak batteries. Extend battery life.





Low voltage



Old batteries



Idle for a long time

**Tip:** If the battery voltage is lower than 7V, it is a badly damaged battery and cannot be repaired.

Figure 9: The 9-stage charging process ensures optimal battery health and longevity.

## Charging Time Reference

The following table provides theoretical charging times based on battery capacity and selected current. Actual times may vary.

Battery Capacity (Ah)	12V 5A	12V 10A	12V 20A	24V 3A	24V 5A	24V 10A
50 (Ah)	6H	3H	1.5H	7.5H	6H	3H
100 (Ah)	9H	6H	3H	10.5H	9H	6H
120 (Ah)	10.2H	7.5H	3.9H	11.5H	10.5H	7.5H
150 (Ah)	11H	9H	4.5H	13.5H	12.5H	9H
300 (Ah)	22H	18H	9H	27H	25H	18H
800 (Ah)	/	/	24H	/	/	40H

*Theoretical value, for reference only!*

## 6. Maintenance

To ensure the longevity and optimal performance of your charger:

- Keep the charger clean and free from dust and debris.
- Regularly check the cables and connections for any signs of damage.
- Store the charger in a dry, cool place when not in use.
- Utilize the pulse repair function periodically to restore lost battery performance and extend battery life, especially for older or weak batteries.

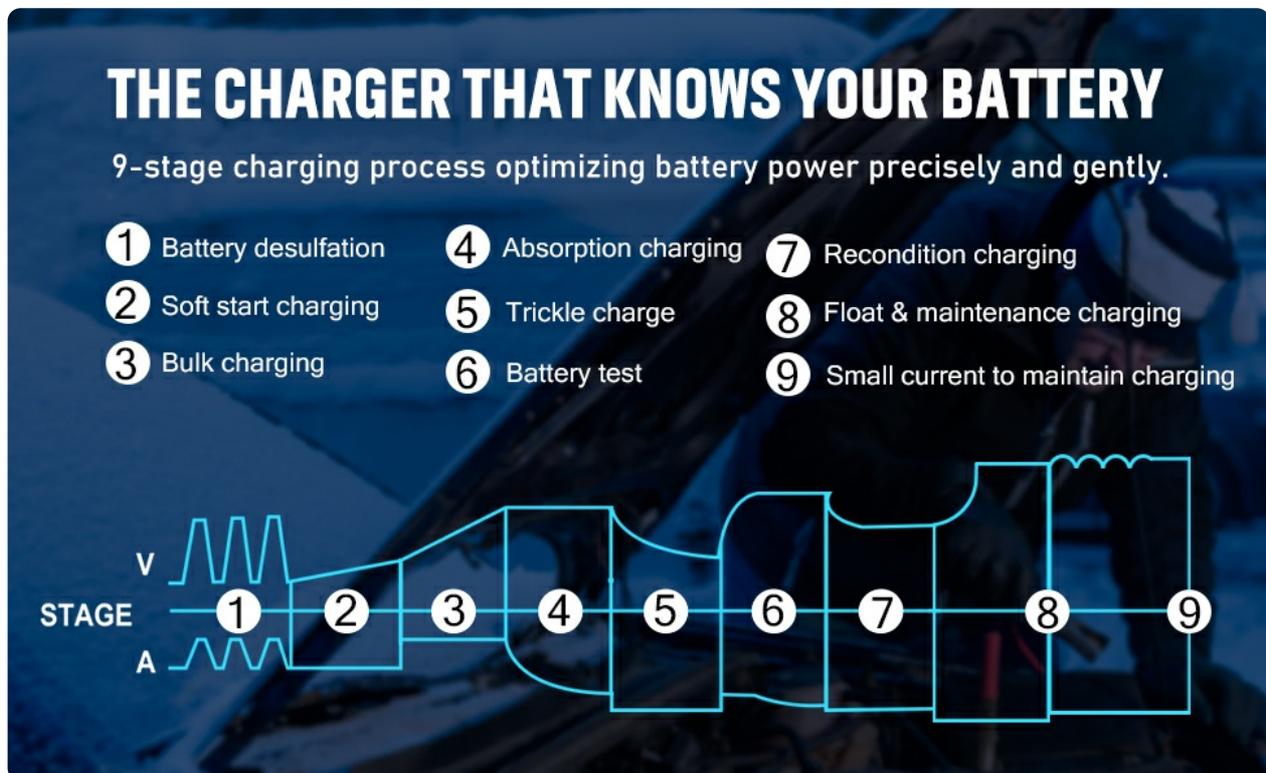


Figure 10: The REPAIR mode can activate and repair old and weak batteries. Note: If battery voltage is lower than 7V, it may be too damaged to repair.

## 7. Troubleshooting

Here are some common issues and their potential solutions:

- **Problem: Charger display shows "OFF" or no activity.**  
*Solution:* Ensure the charger is properly plugged into the AC outlet and the battery clips are securely connected to the correct terminals.
- **Problem: Cannot reach the maximum charging current.**  
*Solution:* The system automatically identifies the battery voltage and selects the most appropriate current to protect the battery. When the battery voltage is low (e.g., 12V battery < 11V), the system automatically charges at maximum current. If the battery is already partially charged, it may not draw the maximum current.
- **Problem: LiFePO4 battery is not fully charged.**  
*Solution:* When the battery is fully charged, it has a callback function, reducing the charge by about 1V, which is normal. The charger adds a small current after full charge for uninterrupted charging.
- **Problem: Fan is loud.**  
*Solution:* It is normal for the fan to operate with audible noise, especially during high current charging, as it is part of the cooling system to prevent overheating.
- **Problem: Charger displays "Incorrect Polarity".**  
*Solution:* Disconnect the battery clips immediately and re-connect them ensuring the red clip is on the positive (+) terminal and the black clip is on the negative (-) terminal.
- **Problem: Charger displays "Low Voltage".**  
*Solution:* The minimum starting voltage for this charger is 1V. If the battery voltage is below 1V, the charger may not be able to activate or charge it.

## 8. Specifications

Feature	Value
Product Dimensions	3.54 x 6.14 x 1.97 inches
Item Weight	1.15 pounds
Item Model Number	20Amp
Brand	HTRC
Color	Red, Black
Input Voltage	100-240V 50/60Hz
Output Voltage/Current	12V/20A, 24V/10A
Maximum Voltage (Lithium)	12.4V / 24.8V
Maximum Voltage (Lead Acid)	14.7V / 29.4V
Maximum Voltage (LiFePO4)	14.6V / 29.2V
Support Ah	2AH-300AH
Minimum Starting Voltage	1V
Power and Load (MAX)	280 W

## 9. Warranty and Support

HTRC is a professional charger brand committed to quality products and after-sales service. We offer permanent after-sale service for this product. If you have any questions or require support, please feel free to contact us through the vendor's contact information provided at the point of purchase.