

# Charger Manual

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24V100A

24V150A-220

48V200A-220

48V100A

48V150A

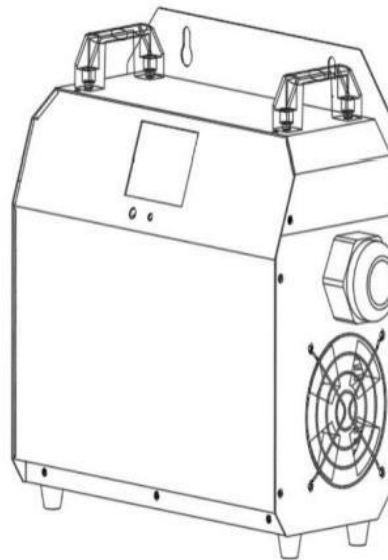
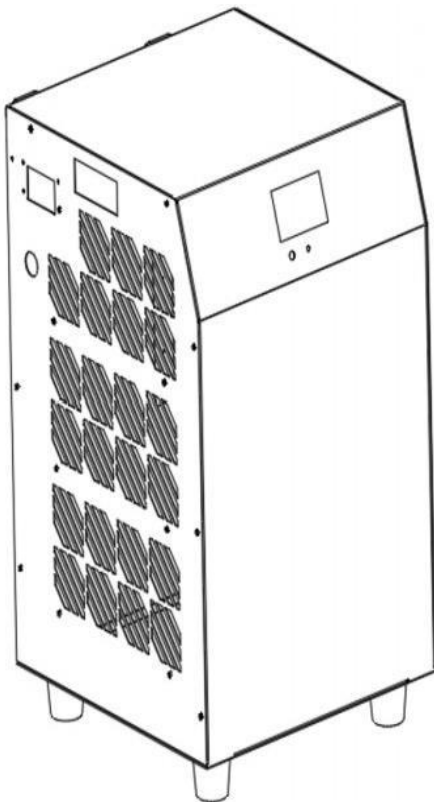
48V200A

80V100A

80V150A

80V200A

48V65A



Note: Thank you for purchasing and using our electric forklift charger. Please read this manual carefully to ensure proper use and maintenance of the charger to avoid unnecessary losses and risks.

## Safety Precautions (must be followed)



### Prohibit

- This charger is for indoor use. Outdoor use is strictly prohibited.
- It is strictly prohibited to use the charger to charge the forklift in an environment with high humidity. · Charge in strict accordance with the method indicated in the user manual.
- Improper use of the environment or not according to the instructions of the operation, may damage the charger and battery pack. · Please do not disassemble or change the charger without authorization, which may cause casualties or fire.
- This charger is for forklift truck charger, do not use for other purposes, the wrong use may cause machine failure or other damage.
- Do not weigh heavily on the wire, twist or pull the wire. If the cable is damaged, it may cause a safety accident.
- Do not cut the cable tie on the power cord.
- Please do not connect the power cord or cut off the power cord casually, which may cause the failure of the charger. · Do not pull out the battery socket (output charging plug) during the charging process, which may cause leakage, fire and other safety accidents of the charger.
- Please note that the vents on both sides of the charger shell are not blocked by obstacles, otherwise the charger will overheat or fail during the working process.
- It is forbidden to insert metal and other foreign objects in the charger shell, which will cause the risk of failure or electric shock of the charger. · The charger must be placed in a waterproof and moisture-proof place. Working in a humid environment may cause damage to the charger motor or risk of electric shock.
- The top of the charger should not be placed in liquid containers or small metal objects, otherwise the liquid spilled into, metal objects fall into will cause short circuit, failure and other faults.
- Do not use the charger if the screws are loose, and the screws must be fixed again before it can be used.
- The charger should not be impacted during handling, and should be handled gently. If the charger shell is damaged, it may cause the charger failure.
- Non-professional technicians, do not disassemble, even if the input power is disconnected, within a certain period of time, there is still high pressure, there will be electric shock and personal injury risk.

## Safety Precautions (must be followed)



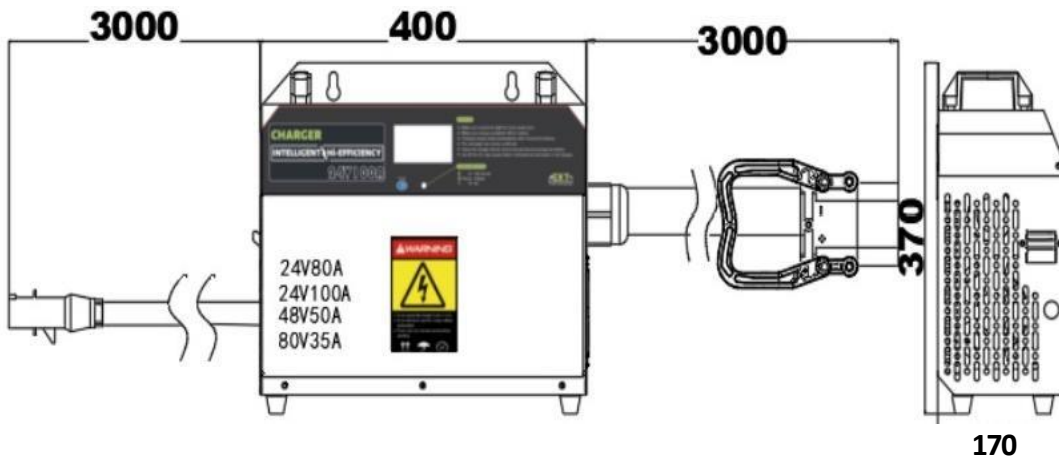
### Mandatory

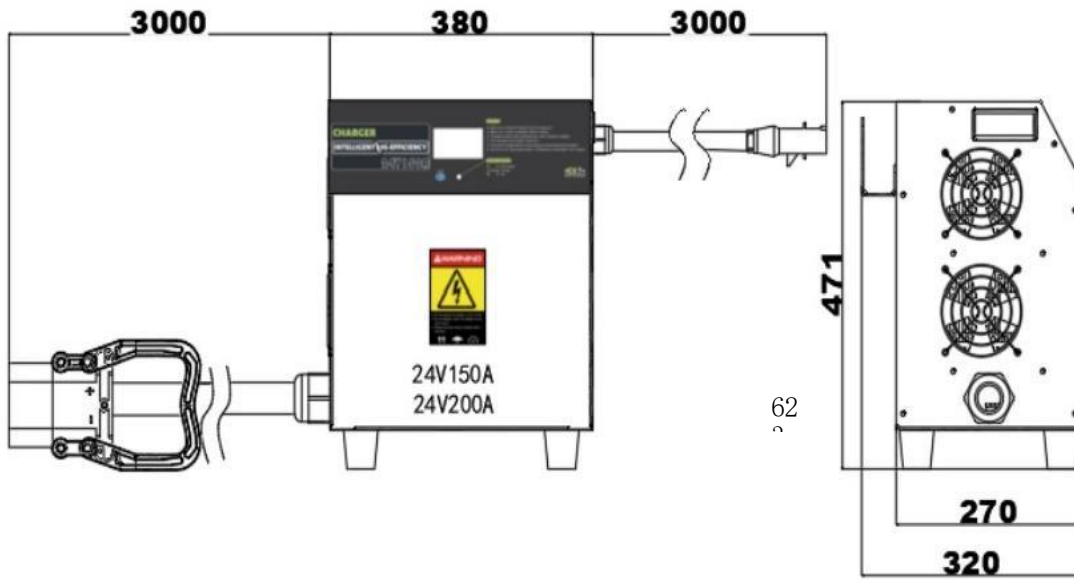
- When checking and servicing the charger, be sure to cut off the input power. After the input power is disconnected, there is still high voltage in the charger for a certain period of time, and non-professionals are forbidden to disassemble and maintain the charger. · If there is any abnormal situation such as smoke or odor, please cut off the power supply immediately. Continuing to use the charger under the above circumstances may cause a fire.
- Operate under specified conditions and environments.
- Please use the specified power supply voltage. Overvoltage or undervoltage of the input power may cause heat, damage to components, or failure to start.
- Check whether the battery is a match based on the nameplate. If the voltage and capacity do not match, it may cause battery damage and shorten the battery life.
- When wiring the battery and operating the charger, ensure that the hand is dry, otherwise it will cause the risk of electric shock and personal injury.
- Please use safety helmet and safety shoes when handling and installing the charger. Otherwise, accidents and injuries may occur.
- Ground wire must be reliably grounded, otherwise it will lead to the risk of leakage or electric shock. The AC input of the charger requires a circuit breaker with leakage protection.
- Please use the specified specifications for insurance. Otherwise, the work will overheat or lose the protection function, which is easy to cause accidents.
- Be sure to hold the plug firmly when removing it. If the cable is damaged, it may cause a safety accident.
- When the power cable is aging (for example, the inner core leaks or the cable is broken). Replace the power cable in time. In this case, continued use may cause fire and leakage and other safety accidents.
- The protective cover must be restored to its original state after inspection and cleaning. Exposing the body could result in electric shock or burns

# 1. Appearance structure

Product dimensions and weight are shown in the table below

Model number	Weight (kg)	Length x Width x Height (mm)	Cooling method	Installation position
24V100A	11	400x170x370	Forced air cooling	Indoor
24V150A-220	26	320X380X470	Forced air cooling	Indoor
48V65A	17	378X432X623	Forced air cooling	Indoor
48V100A	17	525x455x260	Forced air cooling	Indoor
48V200A-220	46	378X432X623	Forced air cooling	Indoor
48V150A	40	378X432X623	Forced air cooling	Indoor
48V200A	40	378X432X623	Forced air cooling	Indoor
80V100A	40	378X432X623	Forced air cooling	Indoor
80V150A	46	378X432X623	Forced air cooling	Indoor
80V200A	46	378X432X623	Forced air cooling	Indoor





## 2. Electrical parameter

Model number	24V100A	24V150A	48V200A-220
Rated input voltage	AC100-240V Single-phase 220V	AC100-240V Single-phase 220V	AC220V±15% Three-phase four-wire system
Input frequency	50/60Hz	50/60Hz	50/60Hz
Power factor	≥0.99	≥0.99	≥0.99
Input power	≤2.6KW	≤3.9KW	≤10.5KW
efficiency	≥0.92	≥0.92	≥0.92
Rated output voltage	24V	24V	48V
Rated output current	100A	150A	200A
Rated output power	2.4KW	3.6KW	9.6KW
Dc output range	10VDC~32VDC	10VDC~32VDC	18VDC~65VDC
Output connector	GB125A or Rema160A, plug and socket optional	GB250A or Rema320A, plug and socket optional	GB250A or Rema320A, plug and socket optional
Cooling mode	Forced air cooling	Forced air cooling	Forced air cooling
Operating temperature	-20°C~50°C	-20°C~50°C	-20°C~50°C
Working humidity	0%~95%	0%~95%	0%~95%
Class of protection	IP20	IP20	IP20
Noise	<65dE	<65dB	<65dB
Altitude	<2000m	<2000m	<2000m

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Model number	48V100A	48V150A	48V200A	48V65A
Rated input voltage	AC380V±15% Three-phase four-wire system	AC380V±15% Three-phase four-wire system	AC380V±15% Three-phase four-wire system	AC380V±15% Three-phase four-wire system
Input frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Power factor	≥0.99	≥0.99	≥0.99	≥0.99
Input power	≤5.2KW	≤8KW	≤10.5KW	≤5.2KW
efficiency	≥0.92	≥0.92	≥0.92	≥0.92
Rated output voltage	48V	48V	48V	48V
Rated output current	100A	150A	200A	65A
Rated output power	4.8KW	7.2KW	9.6KW	4.8KW
Dc output range	18VDC~65VDC	18VDC~65VDC	18VDC~65VDC	18VDC~65VDC
Output connector	GB125A or Rema160A, plug and socket optional	GB250A or Rema320A, plug and socket optional	GB250A or Rema320A, plug and socket optional	GB125A or Rema160A, plug and socket optional
Cooling mode	Forced air cooling	Forced air cooling	Forced air cooling	Forced air cooling
Operating temperature	-20°C~50°C	-20°C~50°C	-20°C~50°C	-20°C~50°C
Working humidity	0%~95%	0%~95%	0%~95%	0%~95%
Class of protection	IP20	IP20	IP20	IP20
Noise	<65dB	<65dB	<65dB	<65dB
Altitude	<2000m	<2000m	<2000m	<2000m

Model number	80V100A	80V150A	80V200A
Rated input voltage	AC380V±15% Three-phase four-wire system	AC380V±15% Three-phase four-wire system	AC380V±15% Three-phase four-wire system
Input frequency	50/60Hz	50/60Hz	50/60Hz
Power factor	≥0.99	≥0.99	≥0.99
Input power	≤8.7KW	≤13KW	≤17.5KW
efficiency	≥0.92	≥0.92	≥0.92
Rated output voltage	80V	80V	80V
Rated output current	100A	150A	200A
Rated output power	8KW	12KW	16KW
Dc output range	30VDC~100VDC	30VDC~100VDC	30VDC~100VDC
Output connector	GB125A or Rema160A, plug and socket optional	GB250A or Rema320A, plug and socket optional	GB250A or Rema320A, plug and socket optional
Cooling mode	Air cooling	Air cooling	Air cooling
Operating temperature	-20°C~50°C	-20°C~50°C	-20°C~50°C
Working humidity	0%~95%	0%~95%	0%~95%



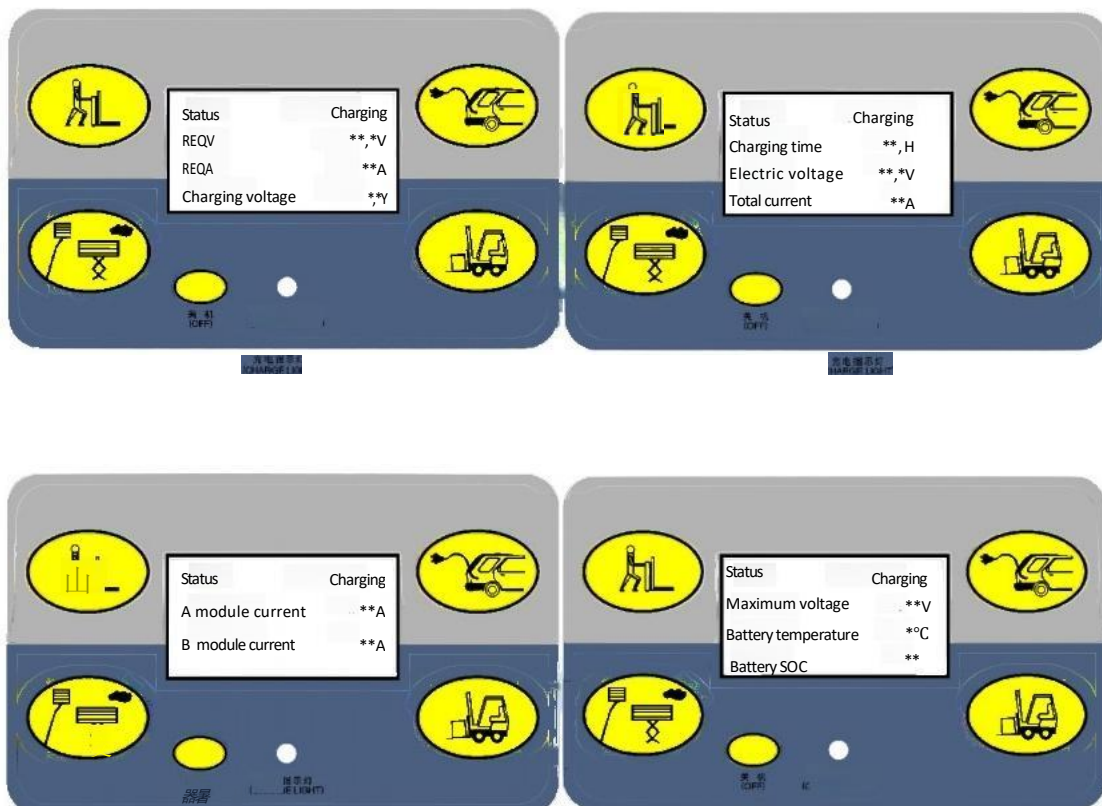
### 3. Minimum requirements for charger installation wiring and AC input power

Model number	Section area of the input line(mm)	Air switch type
24V100A	2x2.5mm <sup>2</sup> +1x2.5mm <sup>2</sup> L+N +PE	32A-2P
24V150A-220	2x4mm <sup>2</sup> +1x4mm <sup>2</sup> L+N +PE	32A-2P
48V200A-220	3x6mm <sup>2</sup> +1x6mm <sup>2</sup> 3P+PE	63A-3P
48V65A	3x2.5mm <sup>2</sup> +1x2.5mm <sup>2</sup> 3P+PE	32A-3P
48V100A	3x2.5mm <sup>2</sup> +1x2.5mm <sup>2</sup> 3P+PE	32A-3P
48V150A	3x4mm <sup>2</sup> +1x4mm <sup>2</sup> 3P+PE	32A-3P
48V200A	3x6mm <sup>2</sup> +1x6mm <sup>2</sup> 3P+PE	32A-3P
80V100A	3x4mm <sup>2</sup> +1x4mm <sup>2</sup> 3P+PE	32A-3P
80V150A	3x6mm <sup>2</sup> +1x6mm <sup>2</sup> 3P+PE	63A-3P
80V200A	3x6mm <sup>2</sup> +1x6mm <sup>2</sup> 3P+PE	63A-3P

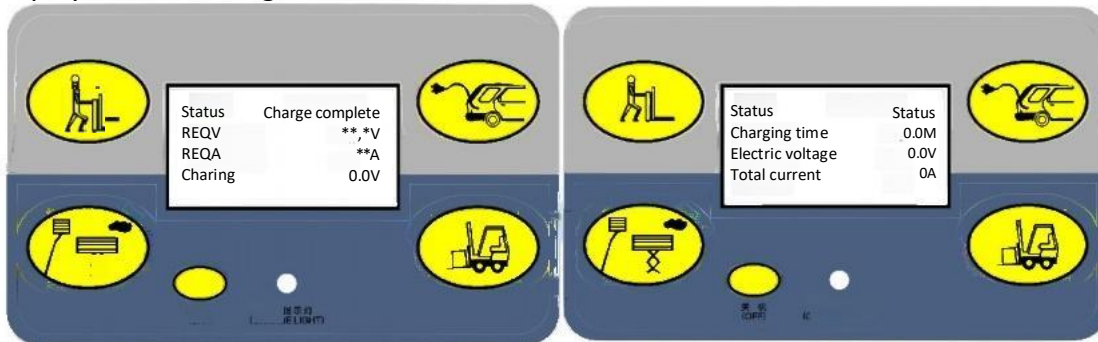
## 4. Charging procedure

The input and output power wiring of the charger can only be operated by qualified professionals. Connect after the input socket is unplugged or the circuit breaker is disconnected

- 1) Move the forklift near the charger and make sure the plug and hands are dry before operation
- 2) Check the charger before charging to ensure that the charger is connected correctly and there is no fault or abnormal phenomenon.
- 3) It is necessary to confirm whether the voltage and capacity of the battery to be charged match the charger. (Please refer to the charger specifications and battery specifications to be recharged).
- 4) Before charging, connect the output plug of the charger to the socket of the forklift battery, and then connect the power plug of the charger to the power socket.
- 5) In the case of no fault, the charger receives the charging command issued by the BMS of the forklift battery (including charging voltage, charging current and startup instruction, etc.), and automatically starts charging the battery, and the charging indicator flashes.
- 6) If there is an error in the charging process, press the "Pause" button to stop charging until the fault is solved.
- 7) After the battery is full, the charger automatically stops charging, and the charger indicator lights up.
- 8) If you need to use the forklift when charging, please press the "pause" button to stop charging, and then disconnect the plug.
- 9) When charging, the charging indicator flashes during charging, and the following four screen information appears on the display in turn:



10) After the charging is completed, the indicator light is always on, and the display screen shows that the charging is completed. After charging is complete, the display displays the following in turn:



11) After charging, disconnect the AC circuit breaker of the charger first, pull out the AC input plug, and finally pull out the battery connection plug.

Note: Improper operation can cause damage to the battery or charger, or other accidental risks

## 5. Periodic inspection instructions

- Whether the input and output wires are damaged (detection before charging);
- Whether the charger output plug is damaged (test before charging);
- If the above situation occurs, please replace the relevant parts in time. (Test before charging);
- Clean dust and other foreign matter from the inlet and outlet of the charger. (Once a month);
- Confirm that the charger input circuit breaker works properly. If you find any bad situation, please contact the sales shop or factory in time;
- Cut off the input power before the cause is not clear, and then pull out the charging input AC plug to avoid electric shock.

## 6. Exception handling

- Note: The charger has a fault protection function. If the system cannot be turned on normally or a fault occurs during charging, the LCD display will indicate the cause of the fault.

- Fault code and information:

Fault code	Fault information	Possible cause	Confirmation and countermeasure
1	Fan fault	The fan is stuck, damaged, or the fan connector is loose	Check whether the fan cover is deformed or damaged, whether the fan connector is loose, and whether dust or foreign objects accumulate inside the fan.
2	Phase loss	One of the three input phases is powered off	Check whether the AC input voltage is normal and the input plug is loose
3	Input undervoltage	The input voltage is lower than 310V	Check whether the AC input voltage is normal and the input plug is loose
4	Overtemperature	The internal temperature of the charger exceeds 75 degrees	Check that the charger fan is rotating and that the charger is placed in a well-ventilated environment
5	BMS communication is faulty	The CAN signal cable is abnormal or the BMS does not send data	Check that the communication cable between the BMS and the charger is properly connected

## 7. Warranty

1. This product warranty for one year (the company does not bear the logistics, transportation, customs and other costs caused by maintenance). Beyond the warranty period, the user should negotiate with the manufacturer to take a paid way to replace or repair.
2. The company's products in the process of use, if there is a problem, please check according to this manual. If there is still no solution, please contact us.
3. The user in the process of using the company's products, if the following circumstances, the company does not assume the warranty obligations.
  - Product damage caused by use in violation of product manuals or specifications.
  - Product damage caused by unauthorized modification or self-maintenance.
  - Product damage due to abnormal external force.
  - Product damage due to natural disasters or other force majeure.
4. For the quality problems caused by the warranty scope, the company's responsibility is limited to the product itself, and does not bear joint and extended responsibility.
5. Precautions for abandonment
  - The waste disposal of the charger is industrial waste. Please hand it over to qualified professionals or companies for disposal. The company is not responsible for recycling.

This manual is subject to modification or change without prior notice.  
If the contents of this manual do not conform to the actual, the actual shall prevail.