



Quick Charger for Lithium Battery

Operator Manual

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Shanghai Hirano Environmental Technology Co.,Ltd



Safety Precautions

please observe

■ Safety precaution

The instructions of the following safety symbol are important.

Make sure to read and follow them carefully.

Failure to do so may lead to accidents, injury or death.

 DANGER	(DANGER) Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
 WARNING	(WARNING) Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
 CAUTION	(CAUTION) Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury, or property damage.

■ Pictographs

 PROHIBITION	(PROHIBITION) Indicate prohibited acts and operations.
 INSTRUCTION	(INSTRUCTION) Indicate acts and operations you must follow.



WARNING



PROHIBITION

- Do not disassemble, modify or repair the charger.

Incorrect operation may lead to electric shock, fire accident, or other malfunction.



PROHIBITION

- This charger is for indoor use only. Do not use in the outdoors, or places that are easily wetted by water or in environments where humidity exceeds 95%.



PROHIBITION

- Do not touch or operate the charger with wet hands, doing so may cause electric shock or fatal accident.



PROHIBITION

- Do not damage the input wire by extending, cutting, or forcibly pulling it. Also, do not place any objects on the input wire. It may cause a fire or an electric shock.



PROHIBITION

- Please do not unplug the power input plug while charging. Doing so may cause electric shocks or fire accident.



PROHIBITION

- Install the charger kept an enough distance from walls in accordance with the instructions in this manual. There are two air vents on the side of the charger, please make sure they are not be blocked. If they are blocked, it may cause charger overheat, or fire accident.

	<ul style="list-style-type: none"> Do not place the container with liquid or small metal parts on the top of charger to prevent liquid or small metal parts from dropping into charger to avoid short circuit or fire accident.
	<ul style="list-style-type: none"> Please unplug the plug when in need to disconnect the charger. Otherwise, it may cause damage on output wire and electric leakage or fire accident.
	<ul style="list-style-type: none"> If power input/output wire are damaged (like showing internal line exposure or disconnection), please replace them immediately. Otherwise, it may cause fire or electric leakage
	<ul style="list-style-type: none"> Do not remove the ventilation cover while charging. In addition, within 10 minutes after finished charging, please do not remove the air mask.
	<ul style="list-style-type: none"> Follow the instructions in this manual to charge the battery. Improper operation may cause fire, electric shock, accidents or damage and affect the service life. Otherwise, it may cause fire.
	<ul style="list-style-type: none"> If any abnormal condition is shown, like smoke, noise, smell arise in use, please press the stop button to stop charging immediately, and contact dealer.
	<ul style="list-style-type: none"> Keep away from flammable sprays and other combustible materials. There is a risk of fire.

➤ Note for obsolescence

The charger should be disposed as industrial waste. Ask the companies which have appropriate licenses to dispose it when discarding.



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6.Warranty

1. This product is guaranteed a free maintenance for one year.
2. If there are any problems when using the charger, please check the instructions in this manual first. If there is still no solution, please contact dealer.
3. We shall not assume any warranty obligations if any of the following circumstances occur:
 - a) Product damage caused by violation of instructions in this manual.
 - b) Product damage due to unauthorized modification or repair.
 - c) Product damage due to abnormal external forces.
 - d) Product damage due to natural disaster or force majeure.
4. The liability of Shanghai Hirano Environmental Technology Co., Ltd is limited to the product itself. The joint and extended liability are not assumed.

Body Material	Iron	
Operating Conditions	Indoor	
operating environmental conditions	Temperature range: 0~45°C Humidity range: 0~95% (No dew-formation)	
Dimension	610*445*715 mm	
Weight	65Kg	
Type of cooling	Natural cooling	
Waterproof and dustproof	IP21	
Storage temperature	-40~70°C	
AC INPUT		
	48V	80V
Input voltage	340~420V	340~420V
Input Current	20A	30A
Rate	13KVA	20KVA
DC OUTPUT		
	48V	80V
Output Voltage	48V	80V
Output Current	200A (Max)	200A (Max)
Rate	12KVA	18KVA

! WARNING

	INSTRUCTION	<ul style="list-style-type: none"> • Connect the ground wire.
	INSTRUCTION	<ul style="list-style-type: none"> • When checking and cleaning the ventilation cover, please turn off the air switch and unplug the power plug from the AC power socket. Otherwise, it may cause electric shock.

! CAUTION

	PROHIBITION	<ul style="list-style-type: none"> • This charger can be used only for lithium-ion battery on electric forklift only. Do not use the charger in other purpose.
	PROHIBITION	<ul style="list-style-type: none"> • When finding any loose screws or damaged wires, stop using the charger and contact the dealer. It may cause damage on the charger due to poor contact.
	PROHIBITION	<ul style="list-style-type: none"> • Prevent the charger from giving strong shocks like dropping it when carrying. Strong shocks may cause a malfunction.

	<ul style="list-style-type: none"> Please use the specified power voltage when charging (refer to the nameplate). If the input power is undervoltage or over-voltage, it may cause overheat or failure of the charger.
	<ul style="list-style-type: none"> Please do not place things on the power input cable. If the power input cable is damaged, it will cause fire and electric shock. Do not put things in the air vents or the bottom of the charger.
	<ul style="list-style-type: none"> When carrying and setting this product, please wear safety helmet and safety shoes.
	<ul style="list-style-type: none"> Do not touch the metal terminal of the charging plug. Please do not touch the charging plug with wet hands. It may cause electric shock.
	<ul style="list-style-type: none"> If the charging plug is wet or dusty, please wipe it off with a dry cloth before connecting it. It may cause electric shock.
	<ul style="list-style-type: none"> Please do not remove the upper cover. Ask the dealer for inspection and maintenance other than inspection and cleaning of ventilation openings. It may cause electric shock.

5. Regular inspection

Regular inspection of the charger

- ① Check whether the screen is damaged, the buttons are dented or the LCD display not work.
- ② Check whether the plug is damaged, if so, it should be replaced immediately. It may cause short circuit or electric shock.
- ③ Whether the input/output wire is damaged. If so, it should be replaced immediately.
- ④ Whether there is abnormal sound when the charger is working.
- ⑤ Whether the ventilation cover of the charger accumulates too much dust.
- ⑥ Check whether the two air vent on the side of the charger is kept over 30cm from the walls.

Maintenance method of the charger:

Clean the ventilation cover once every 3 months to prevent the ventilation cover from accumulating too much dust. It may affect the heat dissipation of the charger and may cause malfunction (overtemperature of charging module A/B).

* **If the battery is used in dust laden environment, clean the ventilation cover once in a month.**



Note:

Remove the ventilation cover and use air duster or wet cloth when cleaning it!

8	Cell over voltage	Abnormal battery	Stop using, contact the dealers
9	Battery low temperature	Abnormal battery	Check battery
10	The battery failure	Battery have other abnormalities	Check battery
11	Failure of charging module A/B	Power grid fluctuation and other reasons	Recoverable
12	Charging module A/B overtemperature	The air duct of the charger is blocked	Clean up the air duct
13	Charging module A/B overcurrent	Module failure	Stop using, contact the dealers
14	Fan of charging module was fails	Fan failure	Stop using, contact the dealers
15	Charging module output failure	Module failure	Stop using, contact the dealers

INSTRUCTIONS

1. Foreword

➤ Outline

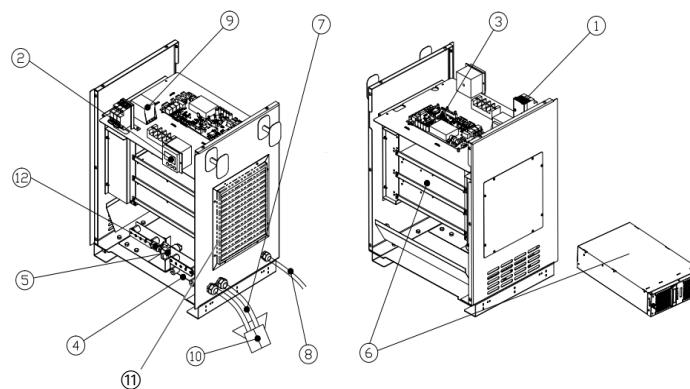
- This charger is an external charger for the lithium-ion battery for electric forklift truck.

➤ Characteristic

- Intelligent control
- Simplicity operation

2. The name and functions of parts

➤ Charger



No.	Parts Name
①	Air switch
②	LCD screen
③	PCB board
④	Shunt
⑤	Contactor
⑥	Charging module
⑦	Power output cable
⑧	Power Input cable
⑨	Transformer
⑩	Charging plug
⑪	Ventilation cover
⑫	Fuse

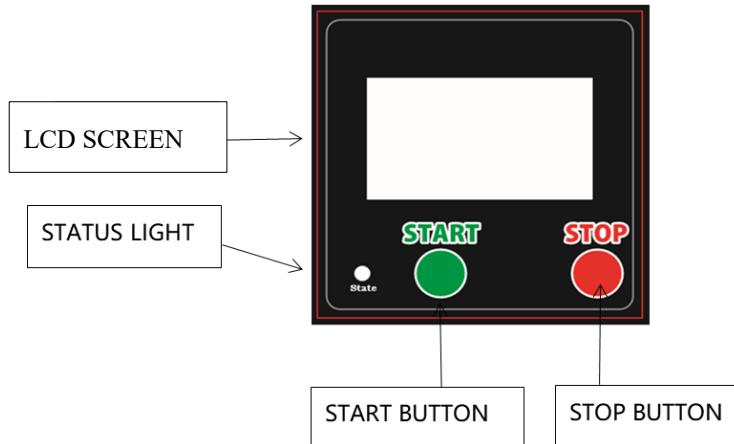
➤ Nameplate



CAUTION:

- Please use the specified power supply voltage.
- Overvoltage or undervoltage of input power may cause charger heating or parts failure (you may not operate the charger in this condition.)

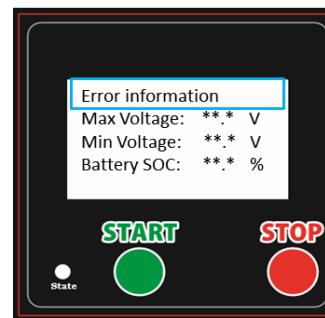
➤ Charger controller interface



4. Trouble shooting methods

● Description:

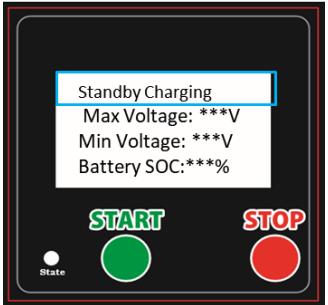
The charger has fault protection function. If the system cannot be started normally or the fault occurs during the charging process, the LCD screen will show the fault cause.



➤ Error information & handing method

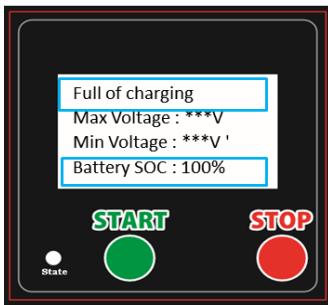
No.	Error information	Cause the reason	Handing method
1	AB/BC/AC overvoltage	Input voltage>465V	Check input voltage
2	AB/BC/AC undervoltage	Input voltage< 320V	Check input voltage
3	Connect the opposite direction of battery	The charging port of the charger is connected backwards	Check the output interface
4	High charging port voltage	Rechargeable battery type does not match	Check battery type
5	Battery not connected	①The battery is not properly connected ②The type of battery to be recharged does not match	Check charging plug
6	Over current flow	PCB board sampling is inaccurate	Stop using, contact the dealers
7	The battery thermal	Battery malfunction	Stop using, contact the dealers

➤ Stop charging



- Press the stop button, until the LCD display shows standby Charging.
- Status light: Stops flashing.
- Charger stops charging.

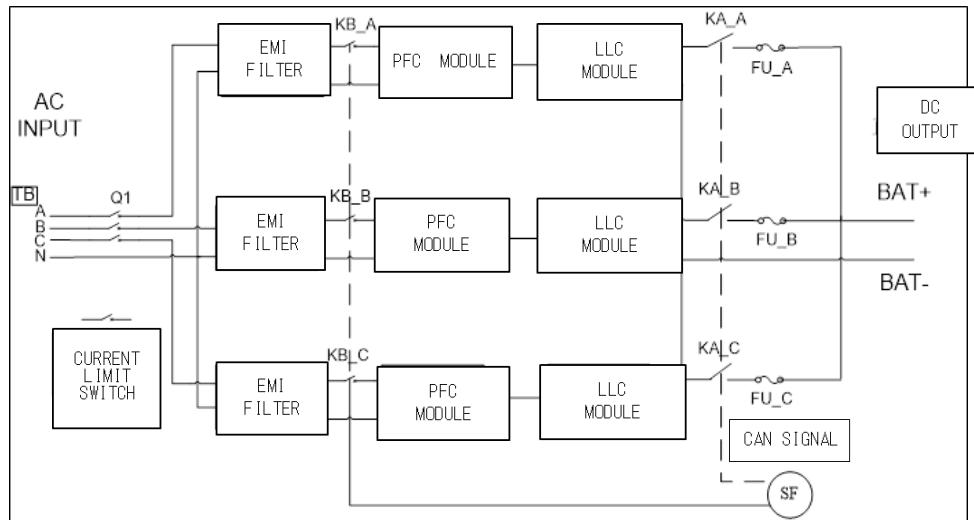
➤ Charging completed



- After charging is completed, the charger stops automatically and the battery SOC shows 100%.
- LCD display: Full of charging, battery SOC 100%.

INSTRUCTIONS

➤ Wiring diagram



FU	Fuse	TB	terminal
Q1	Input circuit breaker	SF	Intelligent controller
KA	Output circuit breaker	CAN_H	CAN signal
KB	relay	CAN_L	CAN signal

- Type of battery: Lithium-ion battery
- Battery voltage: 48V/80V
- Mismatches in voltage and capacity can cause battery failures and shortened life.

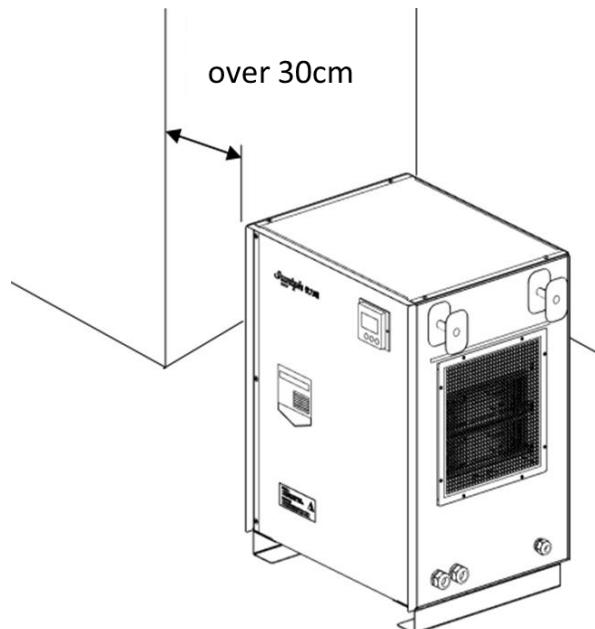


CAUTION

3. Method of operation

➤ Placement of charger

- Set the charger in dry and well-ventilated places.
- When transporting the charger, it is necessary to firmly hold the bottom of the charger for handling.
- Charger will be heated during use. Thus, set the charger kept over 30cm from walls.



➤ Operating environment

Storage temperature range	-40~70°C
Operating temperature range	0~45°C
Humidity range	0~95%
	No dew

➤ Wiring method of charger

- The operation of wiring input wire must be carried out by professional wireman.
- The input wire is made by three live wire [L] and one ground wire [E].
- The black wire is live wire, the yellow-green wire is ground wire.
- **The ground wire must be connected, or else the operator may be an electric shock hazard.**

➤ Operation method of charger

- Drive the forklift truck near the charger.
- Confirm the voltage and capacity of the battery match the charger.
- Connect the output plug of the charger to the battery, the battery in power-on status, plug the input plug of the charger, and open the air-switch.
- The charger automatically starts fast charging mode after 20 seconds.
- When charging the battery, battery power must be turned on.

