

# 叉车用智能充电机

(锂电池专用)

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使  
用  
说  
明  
书

非常感谢您使用本公司的叉车用充电机。

请在使用前认真阅读使用说明书，确保正确使用。

阅读完毕后，请保存该手册，以便下次使用。

<http://www.hirano.com.cn>

上海平野环保科技有限公司 倾力智造

## 安全注意事项

请务必遵守

为确保使用者的安全，防止对他人造成危害，请认真阅读使用说明书，正确使用产品。

请认真阅读本使用说明书，严格遵守其中的注意事项。

### · 标志说明

标 志	表 示 内 容 及 其 说 明
 警告	<ul style="list-style-type: none"><li>未按说明书操作充电机可能会造成充电机损坏或人身伤亡，请注意。</li></ul>
 注意	<ul style="list-style-type: none"><li>必须在充电停止工作后再拔连接插头。</li><li>充电时严禁打开充电机盖板，以防触电。</li></ul>

### · 警示标识图

#### 使用注意：

- 在充电器停止工作后再拔插头！
- 充电时严禁打开盖板，以防触电！



### · 图标说明

图标	图标解释	
 注意	△表示注意（危险·警告）等内容。	例  注意有电
 禁止	ⓧ 表示在使用充电机时禁止的操作行为	例  禁止分解
 強制	●表示在使用充电机时必须遵守的操作行为。	例  拔出插头

## 安全注意事项

请务必遵守



### 警 告 WARNING



禁止

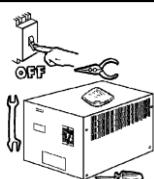
- <重要>此款充电机为室内使用的产品，严禁在室外使用。
- <重要>严禁在湿度过高的环境情况下，使用该充电机对叉车充电。
- <重要>严格按照说明书指示的方法进行充电操作。



### 警 告 WARNING



強制



- 在点检和清扫变压器装置的时候，请务必切断电源。



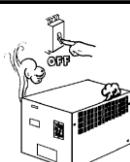
禁止



- 请不要擅自拆卸或者改动机体，可能会造成人员伤亡或者火灾。



強制



- 若出现冒烟或者异味的情况，请立即切断电源。
- 出现上述情况继续使用充电机有可能导致起火。



### 注 意 CAUTION



禁止



- 此充电机为叉车用充电机，请勿用于其他用途。
- 使用错误可能造成机器故障。



強制



- 请在式样书规定的输入输出范围及环境内操作。
- 在过热环境下使用有可能造成机器故障。



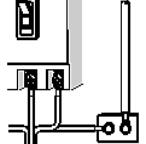
強制



- 在搬运和安装充电机时请使用安全帽和安全鞋，否则可能会造成事故及人员受伤。



接地



- 输入电源请务必接地线。
- 若不接地线，万一漏电，可能导致火灾或者触电。

# 安全注意事项

请务必遵守

## ⚠ 注意 CAUTION



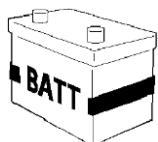
禁止



- 请使用规定的电源电压（详见铭牌）。
- 输入电源过压、欠压会造成机体发热或元器件损坏、无法启动等现象。



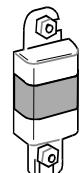
強制



- 通过铭板内容确认是否是匹配的电池。
- 如果电压和容量不匹配，有可能造成电池毁坏及缩短电池使用寿命。



強制



- 保险丝请使用指定的规格型号。
- 规格型号不对的保险丝在工作中会过热或者冒烟容易造成事故。



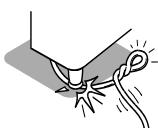
強制



- 在拔除插头的时候，请务必要紧握插头。
- 扯拉电线时容易造成电线损坏，容易引起火灾及触电。



禁止



- 不要在电线上压重物，扭曲或者拉扯电线。
- 电线损破，容易造成火灾或者触电



禁止



- 电源线上的绑带不要切断。
- 电线扭曲，拉扯容易造成电线损伤，易发生短路、火灾、漏电等事故。



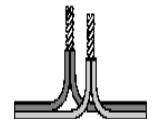
強制



- 电源线如果出现老化（比如内芯外漏，断线等情况）请及时替换电源线。
- 如果出现上述情况还继续使用可能造成火灾及漏电等情况。



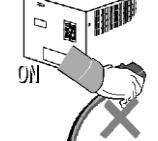
禁止



- 禁止擅自改动电源线长度。
- 可能会造成充电机发热或者起火。



禁止



- 充电机在充电过程中请勿拔出电池插座。
- 可能会造成充电机漏电或者起火。

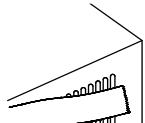
# 安全注意事项

请务必严守

## ⚠ 注意 CAUTION



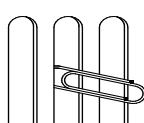
禁止



- 充电机外壳两侧的换气口请注意不要有障碍物挡住。
- 不然充电机工作过程中会造成过热或者冒烟现象，有可能造成充电机起火。



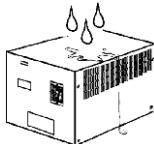
禁止



- 充电机外壳的换气口或者是底部的中间请不要插入金属等异物。
- 可能会造成充电机的故障。



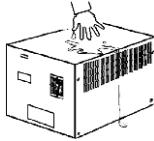
禁止



- 充电机请务必放置在防水、防潮的地方。
- 在潮湿的环境下工作可能会造成充电机损坏。



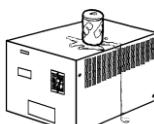
強制



- 在进行电池接线和充电机操作的时候，要保证手部的干燥。
- 可能会造成触电及人身伤亡。



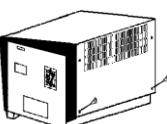
禁止



- 禁止在充电机顶部放置物品。
- 如果液体撒入、金属物件掉入会造成火灾等事故。



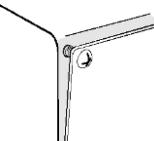
禁止



- 保护盖在点检、清扫后一定要恢复到原来的状态。
- 裸露机体有可能会造成触电或者烫伤。



禁止



- 若出现螺丝松动的情况，充电机请勿使用。
- 务必重新上好螺丝，充电机方可使用。



禁止



- 充电机在搬运过程不能遭受撞击，要轻拿轻放。
- 若充电机外壳出现破损，可能会造成充电机故障。



強制



- 非专业技术人员，请勿拆卸。
- 若碰到易导电的部位可能会触电。

# 使 用 说 明

## 1. 前言

### ➤ 概 要

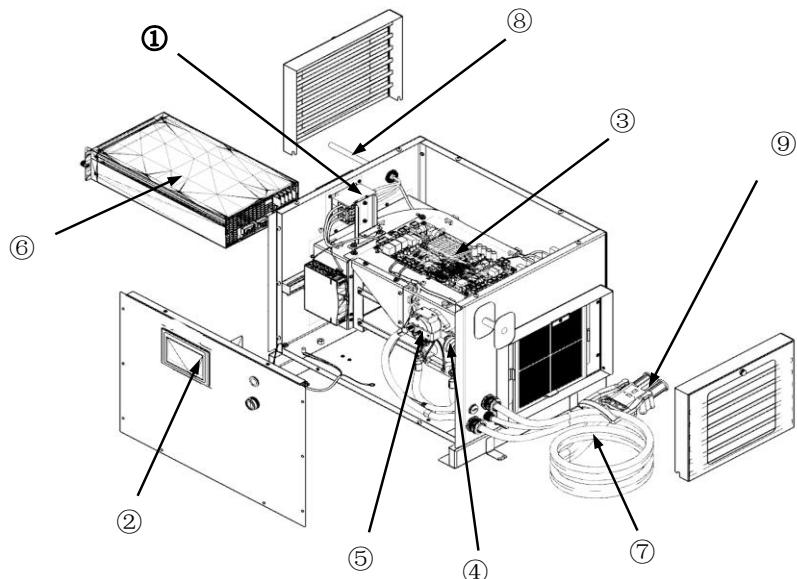
- 此充电机为优力哺高能磷酸铁锂电池专用充电机。

### ➤ 特 征

- 智能控制
- 操作简单
- 安全高效

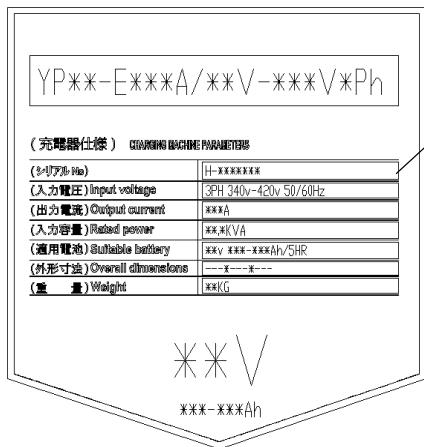
## 2. 各部件的名称及作用

### ➤ 重要组成部件



場所	部品名
①	输入断路器
②	触摸屏
③	控制基板
④	保险丝
⑤	直流接触器
⑥	功率模块
⑦	输出电线
⑧	输入电线
⑨	输出插头

## ➤ 充电机铭牌



例

(输入电压) Input voltage

[3PH 340v-420v 50/60Hz]

- 请使用规定的电源电压。
- 输入电源过压或欠压会造成机体发热或元器件损坏、充电无法启动等现象。

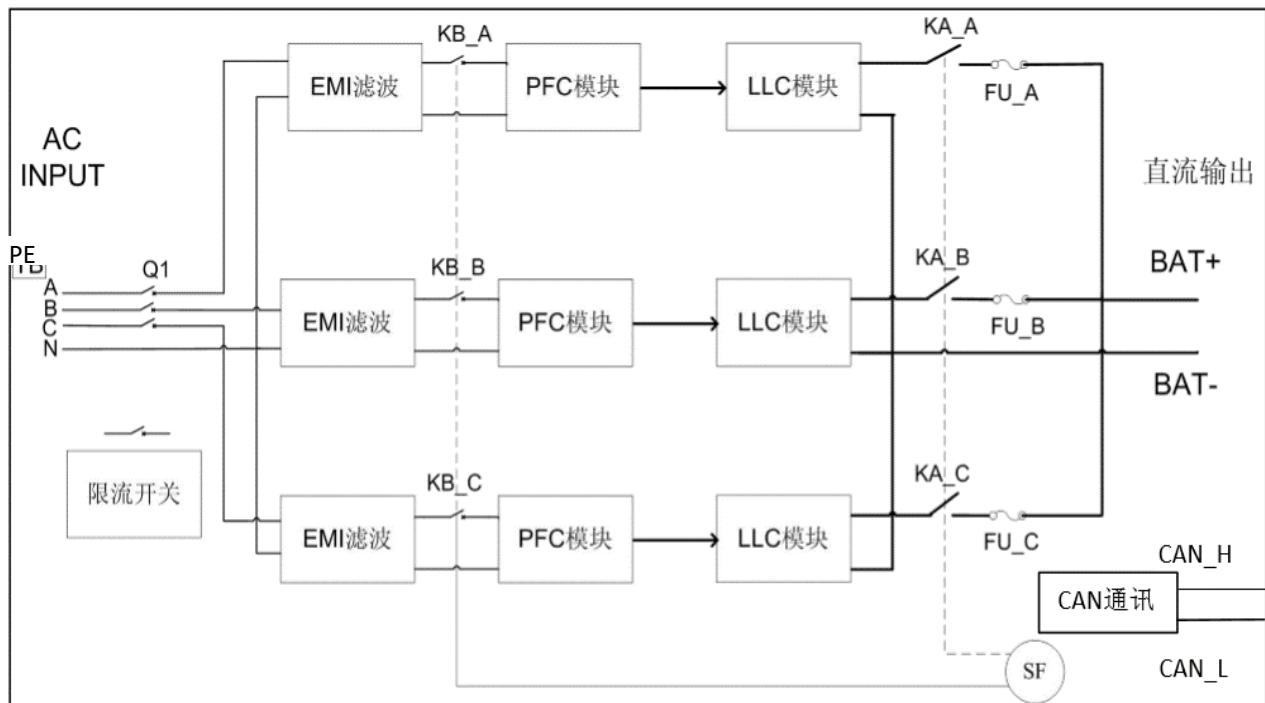
## ● 充电机控制器界面

触摸屏



停止键

## ➤ 线路图



- FU 保险丝
- Q1 输入断路器
- KA 输出继电器
- KB 直流接触器
- TB 接线端子
- SF 智能控制器
- CAN\_H CAN通讯信号
- CAN\_L CAN通讯信号



**注意**

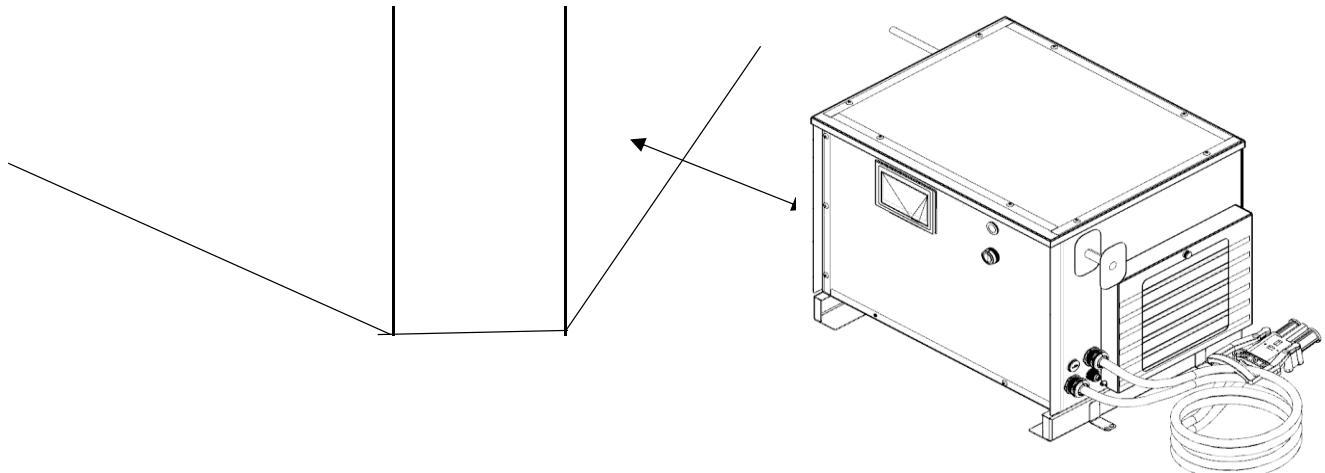
- 电池类型：磷酸铁锂电池
- 电池电压：48V/80V
- 本充电机不能给铅酸电池进行充电。
- 请选择电压规格相同的充电机给电池充电。
- <重要>使用不匹配的电池进行充电，会造成无法充电的现象，严重时可导致电池组和充电机损坏！

### 3. 充电机的使用方法

#### ➤ 充电机放置要求

- 请将充电机放在易通风且干燥的地方。
- 在移动充电机时，需要稳稳托住充电机的最底部搬运。
- 充电机在使用过程中出现发热的情况，要设置侧面与墙面间的间距要在30cm以上。

充电机左侧右侧通风口距离墙面间距在30CM以上



#### ➤ 使用环境

存储温度范围	-40° - 70°
使用温度范围	0° - 45°
湿度范围	0 - 95% (不可有露水)

## ➤ 充电机接线方法

- 输入电源接线，只能持有操作资格证的人才能进行。
- 必须在切断电源的情况下连接输入插头。
- 输入线为三相四线，三根火线必须接火，四根输入电线中黄绿色线为接地线。
- 为了使用安全，地线必须连接。



注意

## ➤ 充电机的操作方法

- 对叉车电池进行充电，需要熟练人员进行操作。
- 将叉车移动到充电机附近。
- 在开始充电前对充电机进行检查。
- 要确认待充电电池电压，容量与充电机是否匹配。（请参照充电机额定功率铭牌）
- 充电前先将充电机的输入电源插头插入电源插座，将空气开关上调至ON的状态，最后将输出插头接入叉车电池的充电插头。
- 在无故障的情况下，充电机自动对电池开始“快速”充电。
- 充电机的输出电流会从1A不断上升，约3分钟后到达最大充电电流200A。

## ➤ 开始充电

充电机控制面板按键操作

- 确保电池处于开机状态中，然后连接充电插头，待充电机屏幕亮起，指示灯开始闪烁，自动开始快速充电模式。屏幕显示：充电进行中



## ➤ 结束充电

充电机控制面板按键操作

- 充电状态下，按下红色按键，充电机停止充电，指示灯停止闪烁，屏幕显示：充电待机中
- 充电待机中，如需重新开始充电，只需拔插充电插头，充机会自动开始充电。

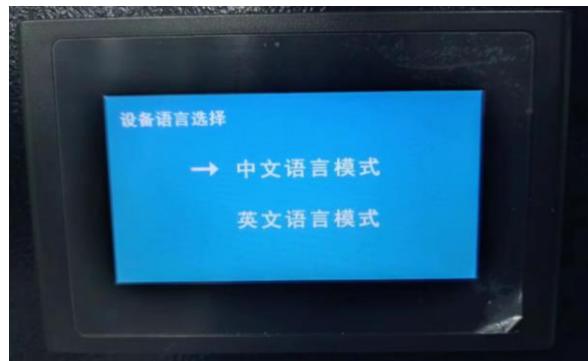


## ➤ 电池高温限流模式

- 当电池温度超过45℃，充电机自动开启高温保护，充电电流下降至约最大电流140A（0.35C），待电池温度下降至45℃以下时恢复自动快充模式 200A（0.5C）。

## ➤ 设备语言选择切换/充电模式设置切换

- 在充电机待机状态时操作。
- 在未连接电池插头的状态时操作。
- 长按红色停止键约5秒，绿色指示灯闪烁，进入设备语言选择、充电模式设置，短按红色停止键一下选择，长按红色停止键确定。



## ➤ 充电完成

- 在充电完成后，SOC显示100%。屏幕显示：充电完成



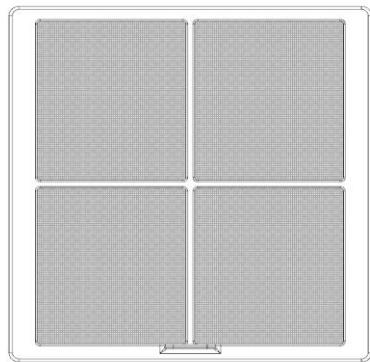
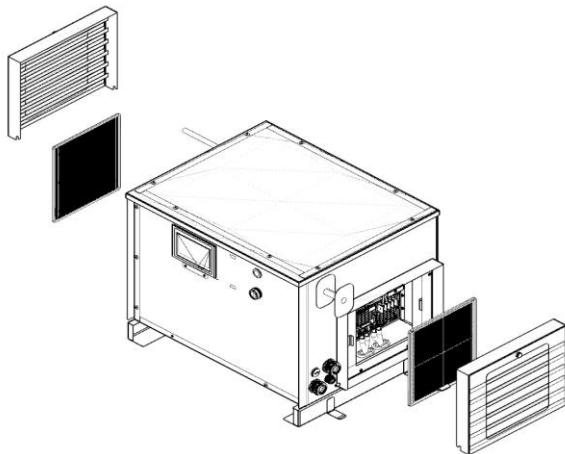
- 充电完成后，可以直接拔出电池连接插头。
- 充电过程中，如需要拔出电池连接插头，须先按下红色停止键，待充电机屏幕显示充电待机中，才能拔出连接插头。
- 禁止在充电过程中，直接拔出电池连接插头。此行为可能会导致人员触电危险



## 4. 点检

### ➤ 定期点检

- 输入、输出电线是否有破损。
- 充电机输出插头是否出现破裂。
- 如发生上述情况请及时更换相关配件。（每月点检）
- 充电机的进风口和出风口要进行打扫。（每一个月一次）
- 确认充电机输入断路器是否正常工作，若发现不良情况请及时与经销商或工厂取得联系。
- 在未清楚不良原因之前要先切断电源，并拔出充电机输入AC插头，以免触电。
- 充电机的两侧进风口和出风口均有过滤网，请至少1个月清理一次，以免灰尘过多造成充电机无法散热，发生故障。



#### 注意：

清理过滤网时，使用吹风机或不滴水的湿布进行清理。

### ➤ 废弃时的注意事项

- 充电机的废弃处理为产业废弃物，请交给有认证资格的专门人员或公司处理。



## 5. 各种异常情况处理

- 说明：充电机具有故障保护功能，若系统不能正常开机或充电过程发生故障，LCD显示屏将提示故障原因。

### 故障代码和信息

序号	故障信息	可能造成原因	确认及对策
1	AB/BC/AC线电压高	输入电压过高	检查输入电压
2	AB/BC/AC线电压低	输入电压过低	检查输入电压
3	电池接反	充电机充电口接反	检查输出接口
4	输出过流	充电机控制板采样插头松动	检查PCB板采样插头
5	电池过压	电池电压异常	检查电池电压
6	电池低温	电池温度过低	尽快使用待温度上升
7	电池过温	电池温度过高	暂停使用
8	单体过压	电池异常	检查电池电压
9	电池故障	电池异常	检查电池，暂停使用
10	模组A故障	模组损坏等原因	更换充电模组
11	模组A过温	模块风道堵塞	清理模块风道
12	模组A过压	模组故障	更换充电模组
13	模组A过流	模组故障	更换充电模组
14	风扇A故障	模组风扇故障	更换充电模组

## 6. 保修事宜

1. 本产品保修一年，终身维护。
2. 本公司产品在使用的过程中，若出现问题请先按《使用说明书》进行检查，如果仍无法解决，请与我公司联系。
3. 用户使用本公司产品过程中，若出现下列情况，本公司不承担保修义务。
  - 违反产品使用说明书操作导致产品损坏。
  - 擅自改动或自行维修而导致产品损坏。
  - 由于非正常外力而导致产品损坏。
  - 因自然灾害或其他不可抗力而导致产品损坏。
4. 对于在保修范围内引起的质量问题，本公司的责任只限于产品本身，并不承担连带的和延伸的责任。
5. 最新修订日期：2023. 06. 07

产品合格

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# 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.

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

### ■ Pictographs

 <b>PROHIBITION</b>	<b>(PROHIBITION)</b>  Indicate prohibited acts and operations.
 <b>INSTRUCTION</b>	<b>(INSTRUCTION)</b>  Indicate acts and operations you must follow.



## WARNING

 <b>PROHIBITION</b>	<ul style="list-style-type: none"><li>Do not disassemble, modify or repair the charger. Incorrect operation may lead to electric shock, fire accident, or others malfunction.</li></ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"><li>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%.</li></ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"><li>Do not touch or operate the charger with wet hands, doing so may cause electric shock or fatal accident.</li></ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"><li>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.</li></ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"><li>Please do not unplug the power input plug while charging. Doing so may cause electric shocks or fire accident.</li></ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"><li>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.</li></ul>

 <b>PROHIBITION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
 <b>INSTRUCTION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
 <b>INSTRUCTION</b>	<ul style="list-style-type: none"> <li>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</li> </ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"> <li>Do not remove the ventilation cover while charging. In addition, within 10 minutes after finished charging, please do not remove the air mask.</li> </ul>
 <b>INSTRUCTION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
 <b>INSTRUCTION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
 <b>INSTRUCTION</b>	<ul style="list-style-type: none"> <li>Keep away from flammable sprays and other combustible materials. There is a risk of fire.</li> </ul>



## WARNING

INSTRUCTION	<ul style="list-style-type: none"><li>• Connect the ground wire.</li></ul>
INSTRUCTION	<ul style="list-style-type: none"><li>• 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.</li></ul>



## CAUTION

PROHIBITION	<ul style="list-style-type: none"><li>• This charger can be used only for lithium-ion battery on electric forklift only. Do not use the charger in other purpose.</li></ul>
PROHIBITION	<ul style="list-style-type: none"><li>• 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.</li></ul>
PROHIBITION	<ul style="list-style-type: none"><li>• Prevent the charger from giving strong shocks like dropping it when carrying. Strong shocks may cause a malfunction.</li></ul>

 <b>PROHIBITION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
 <b>INSTRUCTION</b>	<ul style="list-style-type: none"> <li>When carrying and setting this product, please wear safety helmet and safety shoes.</li> </ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
 <b>INSTRUCTION</b>	<ul style="list-style-type: none"> <li>If the charging plug is wet or dusty, please wipe it off with a dry cloth before connecting it. It may cause electric shock.</li> </ul>
 <b>PROHIBITION</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>

# INSTRUCTIONS

## 1 . Foreword

### ➤ Outline

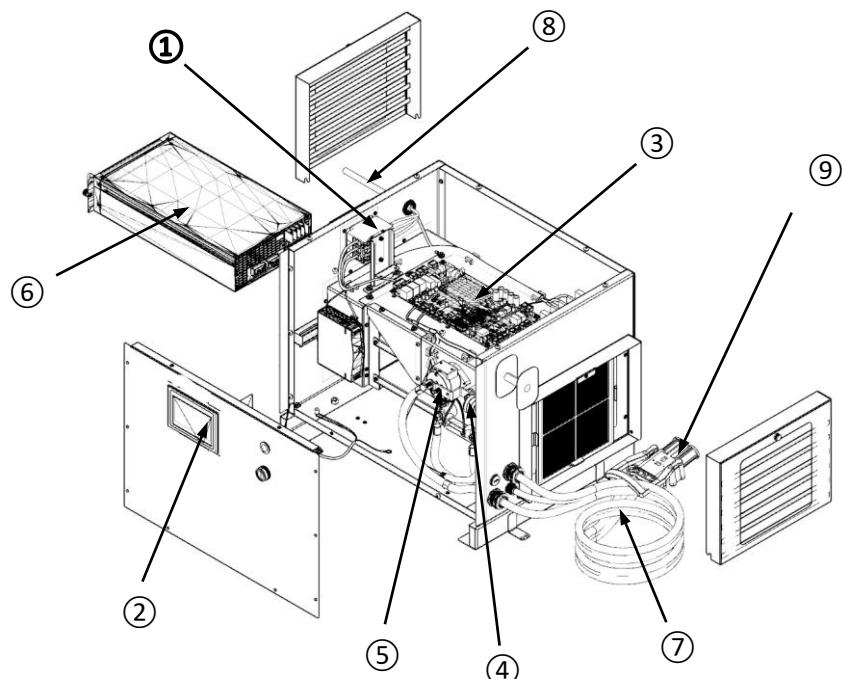
- This charger is an external charger for the lithium-ion battery for electric forklift truck.

### ➤ Characteristic

- Intelligent control
- Simplicity operation

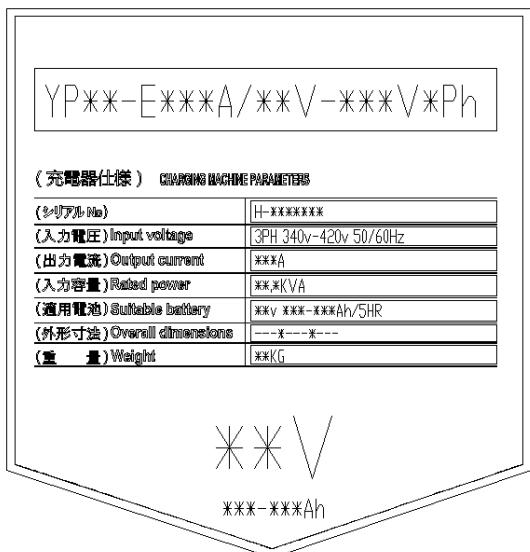
## 2 . The name and functions of parts

### ➤ Charger



No.	Parts Name
①	Air switch
②	Touch Screen
③	PCB board
④	Fuse
⑤	Contactor
⑥	Power module
⑦	Power output cable
⑧	Power Input cable
⑨	Charging plug

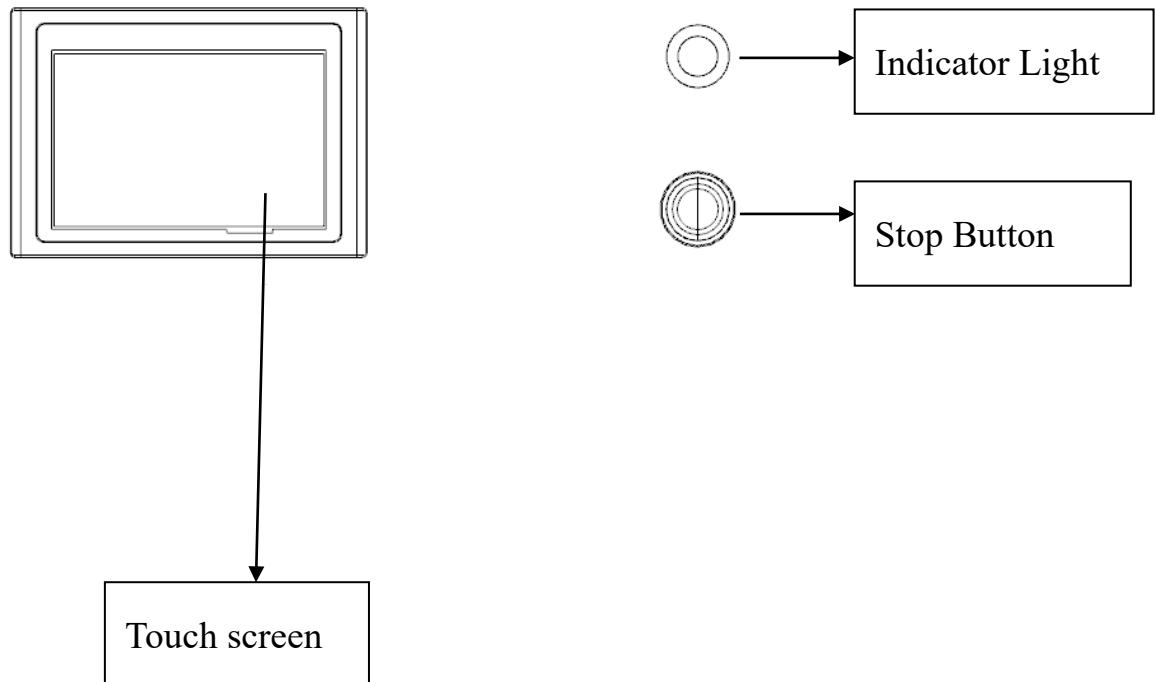
## ➤ Nameplate



### CAUTION:

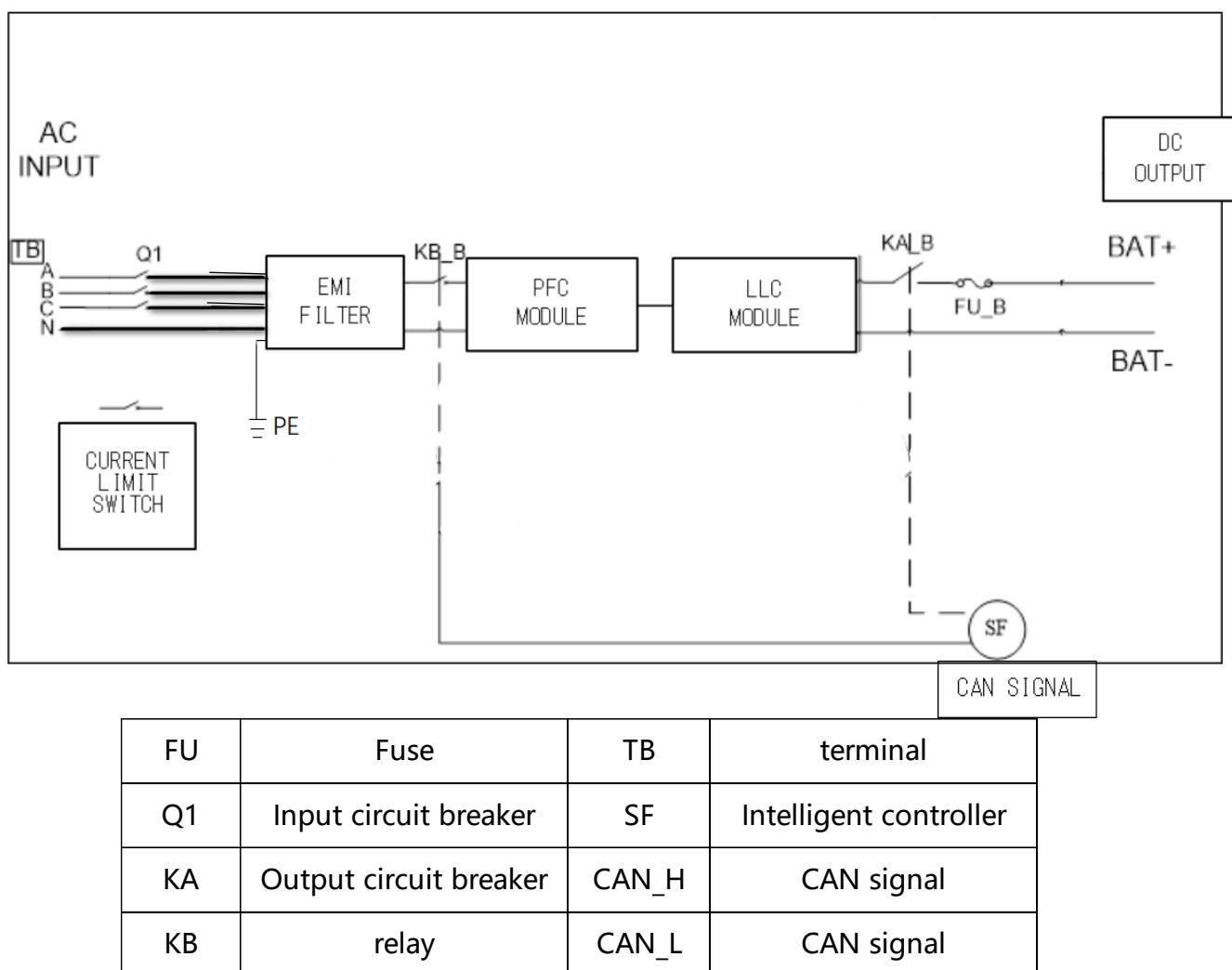
- Please use the specified power supply voltage.
- Overvoltage or undervoltage of input power may cause charger heating or parts failure (forbid operate the charger in this condition.)

## ➤ Charger controller interface



## INSTRUCTIONS

➤ Wiring diagram



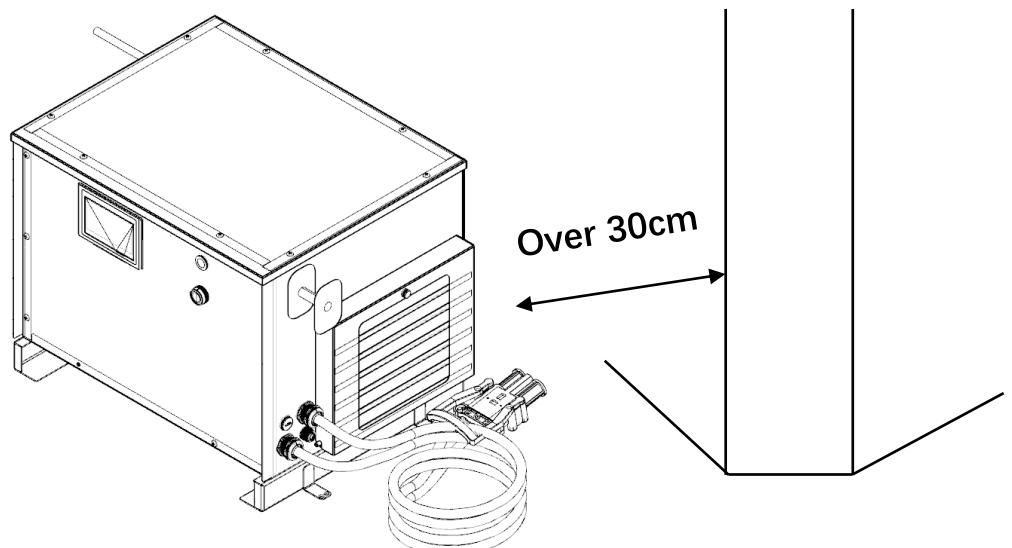
- Type of battery: Lithium-ion battery
- Battery voltage: 48V/80V
- Mismatches in voltage and capacity can cause battery failures and shortened life.



### 3 . Method of operation

#### ➤ Placement of charger

- Please place the charger indoor, with dry and well-ventilated places.
- When transporting the charger, it is necessary to firmly hold the bottom of the charger for handling.
- The air outlet of charger on the right side, hot air will be vent during charging, please set the charger kept over 30cm from walls or other.



#### ➤ Operating environment

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

## ➤ Wiring method of charger

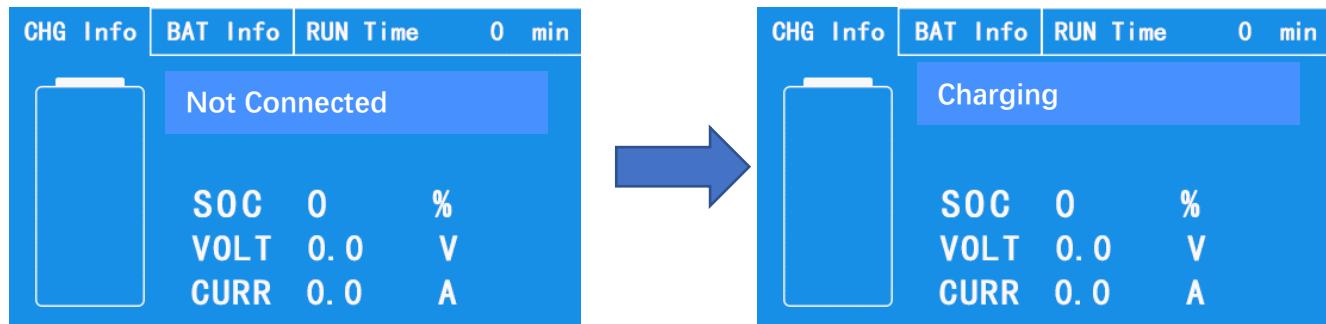
- The operation of wiring input wire must be carried out by professional wireman.
- The input wire is made by three live wire [L] and one ground wire [E].
- The black wire is live wire, the yellow-green wire is ground wire.
- **The ground wire must be connected, or else the operator may be an electric shock hazard.**
- **The rated input current is 19A, max input current is 25A, please check the factory wire whether it meets the demand. [cable large than 4mm<sup>2</sup> or air switch bigger than 25A]**

## ➤ 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 within 20 seconds.
- **When charging the battery, battery power must be turned on.**

## ➤ Start Charging

Connect the charging plug, and the charger will start charging automatically.



**Indicator Light:** Steady green light

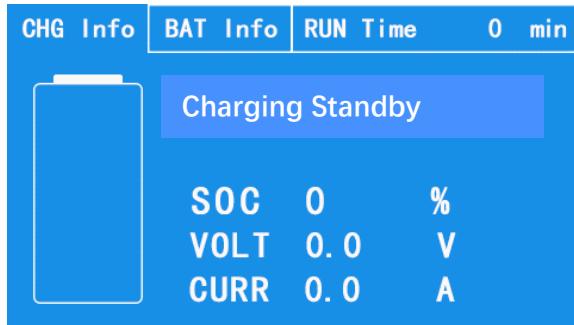
**Touch Screen:** Not Connected

**Indicator Light:** Green light flashing

**Touch Screen:** Charging

## ➤ Stop charging

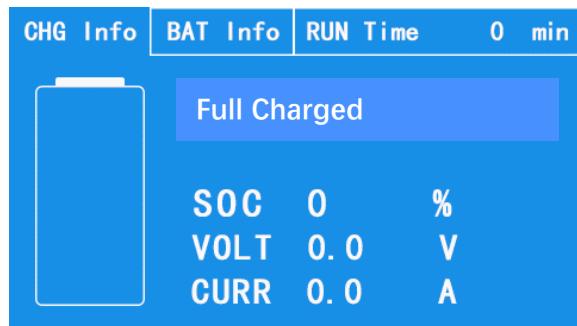
Press Stop button, the charger will stop charging within 20 seconds.



**Indicator Light:** Steady green light  
**Touch Screen:** Charging Standby

## ➤ Charging completed

When SOC 100%, full charged, the charger will stop charging automatically.



**Indicator Light:** Steady green light  
**Touch Screen:** Full Charged

## 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 touch screen will show the fault cause.

### ➤ Error information & handing method

No.	Error information	Cause the reason	Handing method
1	OVER VOLT AB/BC/CA	Input voltage>465V	Check input voltage, the charger will work normally after input voltage less than 465V
2	UNDER VOLT AB/BC/CA	Input voltage< 320V	Check input voltage, the charger will work normally after input voltage over than 320V
3	BAT REVERSED	Use lead-acid batteries to charging	Prohibited Actions
4	DC OVER CURR	The sampling port plug was loose in PCB board	Check PCB board
5	BAT OVER VOLT	Battery error	Check Battery voltage whether normal
6	BAT UNDER TEMP	Battery low temp	Using immediately
7	BAT OVER TEMP	Battery high temp	temporarily closed

8	CELL OVER VOLT	Abnormal battery	Stop using, contact the dealers
9	BAT ERROR	Abnormal battery	Check battery
10	ModuleA ERROR	Module breakdown	Replace Module
11	ModuleA OverTemp	Battery's temperature over 70°C	Stop charging
12	ModuleA OverIOUT	Module breakdown	Replace Module
13	ModuleA OverVOUT	Module breakdown	Replace Module
14	ModuleA FanERROR	Module breakdown	Replace Module

## 5. Regular inspection

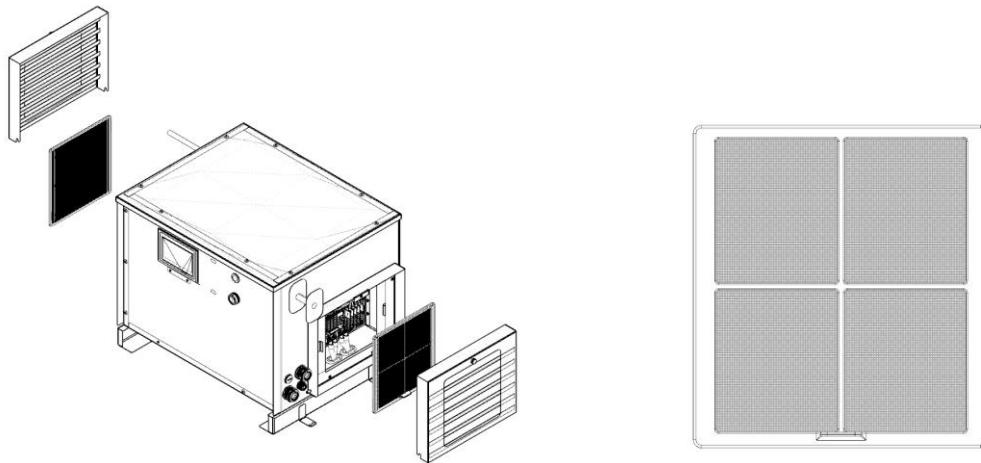
### Regular inspection of the charger

- ① Check whether the touch screen is damaged.
- 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!**

## 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.
5. Latest updated: 2023.06.07

Body Material	Iron
Operating Conditions	Indoor
operating environmental conditions	Temperature range: 0~45°C Humidity range: 0~95% (No dew-formation)
Dimension	652*450*454mm
Weight	58Kg
Type of cooling	Natural cooling
Waterproof and dustproof	IP21
Storage temperature	-40~70°C
AC INPUT	
Input voltage	340~420V
Input Current	19A (Max 25A)
Rate	12.6KVA
DC OUTPUT	
Output Voltage	40~60V
Output Current	200A (Max)
Rate	12KVA

## ➤ 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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