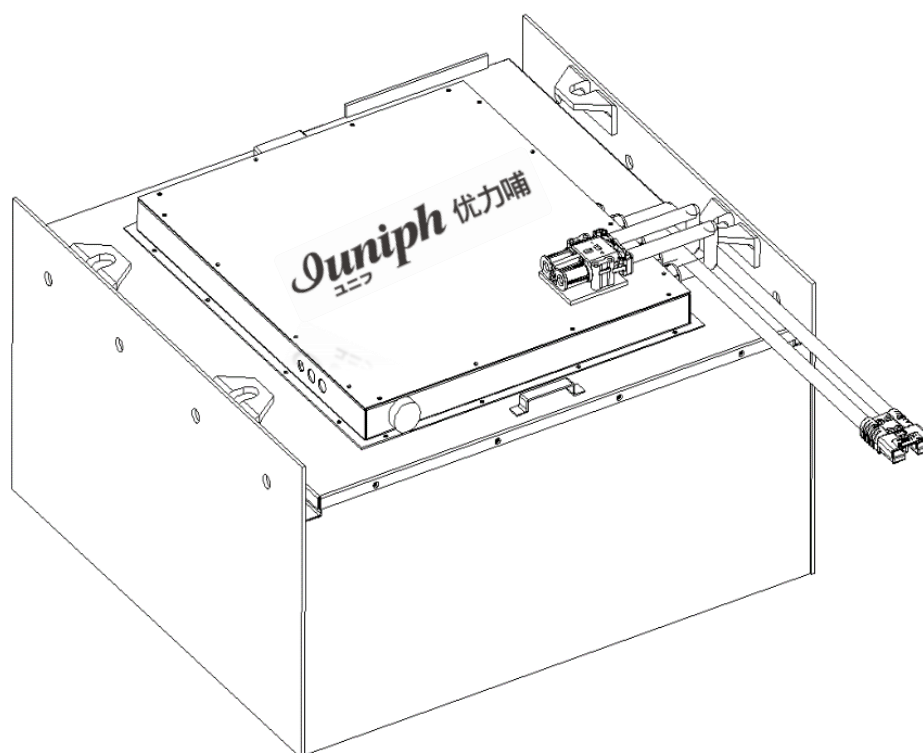


Operating Manual

上海平野锂离子电池组 使用说明手册

----- (本说明书适用于上海平野 B 系列/J 系列/H 系列磷酸铁锂电池组)



目录

➤ 锂电池使用须知·····	1
➤ 锂电池安全注意事项·····	2
➤ 锂电池的维护·····	3
➤ 锂电池的零部件名称及作用·····	4-6
➤ 锂电池的使用方法·····	7-8
➤ 故障代码及处理办法·····	9
➤ 锂电池的质保条款·····	10-11

锂电池使用须知

1. 本产品适用于叉车及工业车辆动力系统, 请勿用于其他用途。
2. 在使用设备前请仔细查阅产品使用说明手册, 以防止不正确使用对操作人员和产品造成不必要的伤害。
3. 对于因设备的安装不当, 可选参数设置不当, 忽略本说明书所述的注意事项违规操作或滥用而导致的任何后果, 本公司均不承担责任。
4. 电池应在允许的工作温度条件之下 (0-45℃) 充电, 否则可能会出现无法充电或电池容量降低的现象。
5. 请勿私自拆解电池组。若由此原因造成的直接或间接损失, 本公司概不负责。
6. 请使用优力哺品牌配套充电机给电池充电, 使用其他充电器可能会给电池带来未知风险。
7. 为了保证产品的不断完善, 本公司保留对产品的规格、性能以及说明书内容进行修改的权利, 不承担对原用户及经销单位的通知义务。
8. 未经本公司书面许可, 任何组织或个人不得对本说明书任何部分以任何方式进行复制或传播。
9. 电池严禁泡水, 禁止用水直接冲洗电池, 避免电池内部进水导致短路, 由此引起故障厂家**不予质保**。
10. 充电或放电时, 请勿将易燃物放在电池上方或附近, 否则可能导致过热、爆炸或起火。
11. 若电池在使用的过程中或充电时散发异味, 冒烟, 过热, 变形等不正常现象, 请勿再次使用, 立即与经销商或制造商联系安排维修处理。
12. 保持锂离子电池适度充电、放电可延长电池使用寿命。建议浅放电后及时充满电, 保持浅放满充的。
13. 运输装卸或使用过程中, 应轻搬轻放, 切勿倒放、侧放, 严禁摔掷、翻滚、重压电池等行为。
14. 锂电池的出厂电量为 40%-60%, 在电池首次放电前, 务必先将电池电量充满 100%, 再进行使用。

锂电池安全注意事项

1. 雨天使用时需做好防水工作，勿将电池直接淋雨，以免电池进水造成损坏。
2. 在电量低于 10%时，需立即给电池进行充电。低电量报警时必须及时充电以免在继续使用过程电池突然断电引起安全事故。
3. 在没有专业技术员的指导下严禁打开维修盖板或自行拆解电池组，可能导致人员触电或损坏电池。
4. 充电开始后，禁止操作正在充电的车辆，电池在充电过程，严禁在带电状态拔出充电插头，以免造成触电风险。
5. 禁止将电池接近高温热源、明火、易燃易爆气体、液体，可能导致电池起火、冒烟、发热及爆炸。
6. 如出现插头损坏，应立即更换，以免造成短路、触电风险。
7. 禁止用身体同时接触电池正负极两端，禁止湿手对电池进行操作，禁止人为短路电池。
8. 锂电池如出现显示故障代码，请参照此手册《故障代码及处理方法》排除故障，如仍无法解决故障，请及时联系经销单位报修。
9. 发生电池线束着火，请用干粉灭火器进行灭火处理，如果锂电池发生意外火灾，出现冒烟,着火等现象出现，不能用二氧化碳进行灭火，首先移除周边可燃物，用大量水对冒烟着火处进行降温处理，防止复燃。
10. 锂电池需要更换时，需注意锂电池放电端正负极确认无误后再进行连接，防止发生短路或反接。
11. 严禁把电池放在高温结露环境中长期保存（1 个月以上），结露环境会导致电池连接条和控制电子元器件受损，影响电池正常使用。
12. 不能擅自在电池的输出端追加灯具加热器等负载设备，由此引起的电池过载损坏无法修复。
13. 低电量状态下继续使用，电池会启动保护切断电源，此时应该就地采取补充电措施，严禁重启电池，继续移动车辆，此行为会造成电池过放而无法修复，甚至发生过热风险。

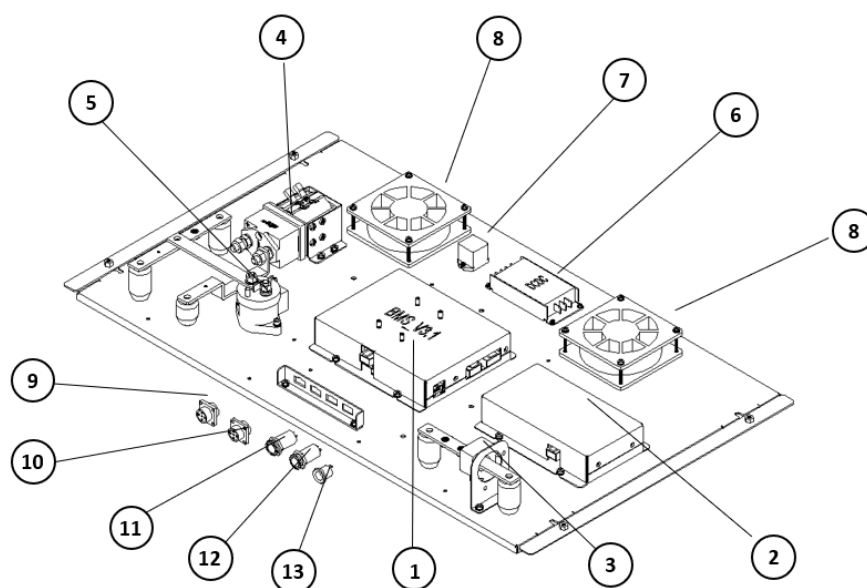
锂电池的维护

1. 若预计将电池存放 30 天以上不使用，请将电池电源关闭，把电池电量充到 50%左右。同时每 3 个月使用充电机的维护充电模式进行一次充电维护。
2. 储存环境温度建议：
0-1 个月：-40℃～+60℃；
1-3 个月：-20℃～60℃；
3 个月以上：0～40℃；
储存环境湿度建议：25%-70%RH。
3. 锂电池电量低于 10%应及时充电。低电量长期放置可能会造成过放现象，影响电池使用寿命。
4. 如果在使用电池时发现任何放电/充电异常，请停止使用，通过使用说明书自检或联系经销单位及时检查和维修，避免进一步损坏。电池必须由专业人员进行维修。
5. 为了人身安全，维护前请务必断开电源。
6. 检查电池的充电插头是否有损坏，如有应及时更换。
7. 检查电池表面是否有灰尘或金属碎屑，如有及时清理干净。
8. 维护期间，未经允许，用户不得打开/拆卸电池。
9. 保持电池表面清洁。请定期用湿抹布擦拭电池表面积存的灰尘、金属碎屑等。

锂电池的零部件名称及作用

1. B 系列 （双按键+指示灯）

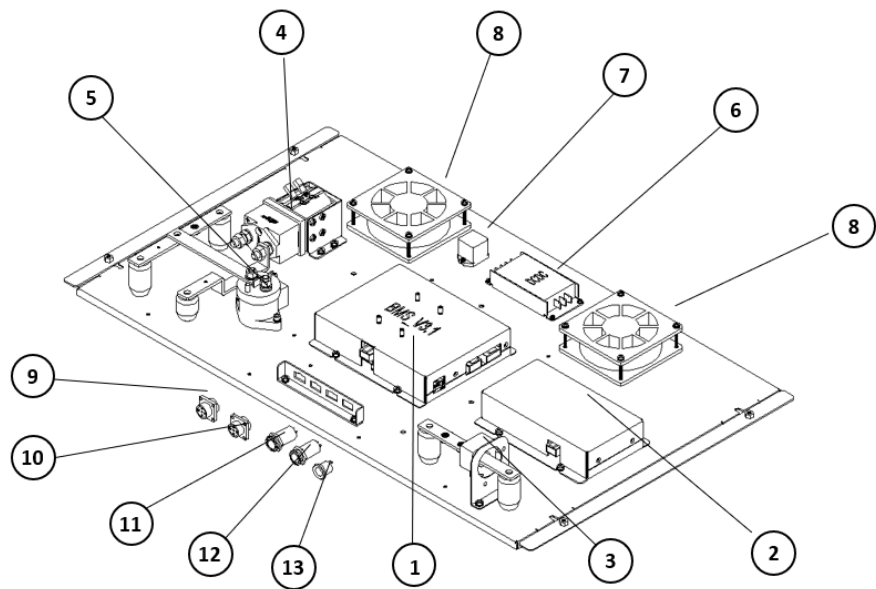
序号	名称	功能
1	BMS 控制板	电压、温度、容量、故障等信息监测控制
2	电源板	BMS 及控制元件供电
3	电流传感器	监测放电及充电电流
4	放电继电器	控制放电口的开闭
5	充电继电器	控制充电口的开闭
6	72/48V→24V DCDC	电压转换器
7	风扇继电器	控制风扇的开闭
8	风扇	给电池内部散热
9	充电通讯插座	充电时的 CAN 通讯
10	电量表插座	电量表的供电及通讯
11	POWER OFF 键	关闭电池
12	POWER ON 键	启动电池



示例

2. H 系列 （单按键+指示灯）

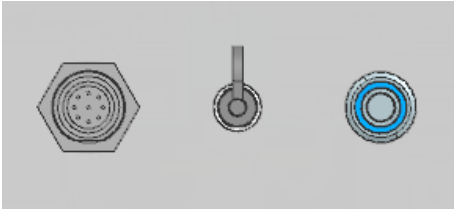
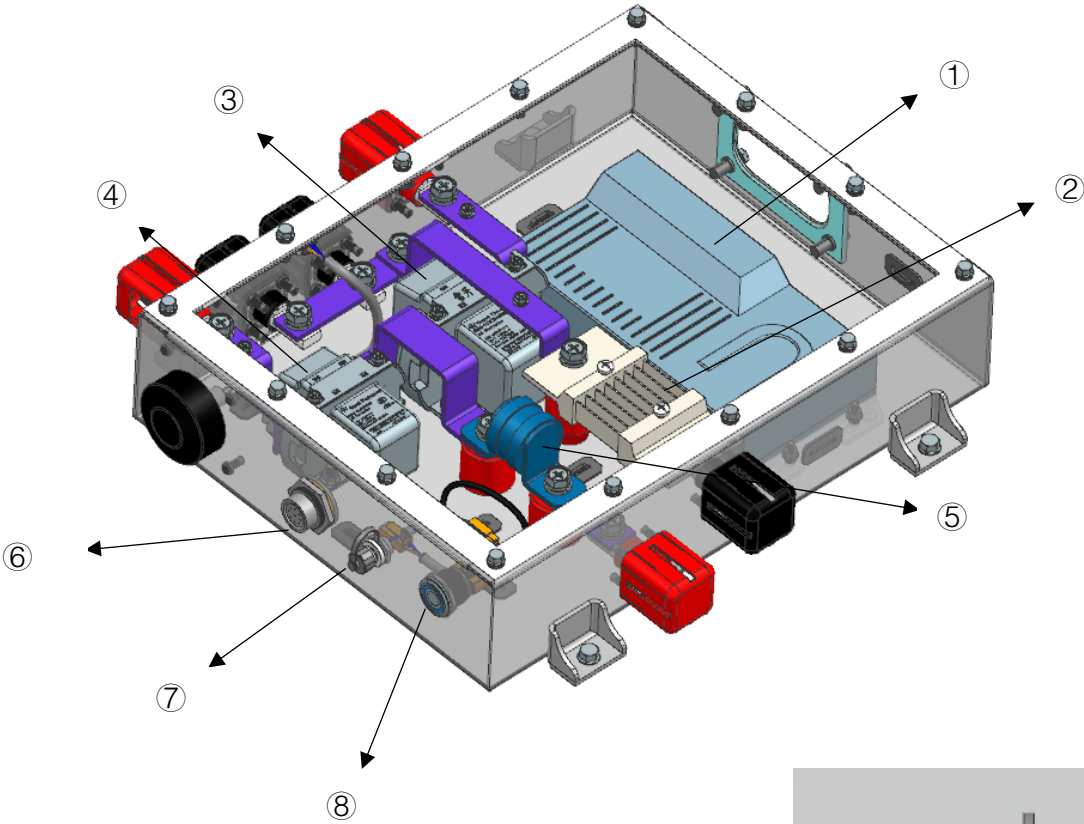
序号	名称	功能
1	BMS 控制板	电压、温度、容量、故障等信息监测控制
2	电源板	BMS 及控制元件供电
3	电流传感器	监测放电及充电电流
4	放电继电器	控制放电口的开闭
5	充电继电器	控制充电口的开闭
6	72/48V→24V DCDC	电压转换器
7	风扇继电器	控制风扇的开闭
8	风扇	给电池内部散热
9	充电通讯插座	充电时的 CAN 通讯
10	电量表插座	电量表的供电及通讯
11	POWER ON/OFF 键	启动电池/关闭电池



示例

3. J 系列 （单按键指示灯）

序号	名称	功能
1	BMS 控制板	电压、温度、容量、故障等信息监测控制
2	电流传感器	监测放电及充电电流
3	放电继电器	控制放电口的开闭
4	充电继电器	控制充电口的开闭
5	保险丝	保护电路安全
6	电量表插座	电量表接口
7	程序烧写口插座	烧写程序，上位机接口
8	POWER ON/OFF 键	启动电池/关闭电池



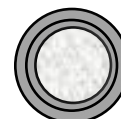
示例

锂电池的使用方法

（B 系列）

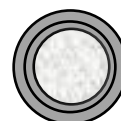
开机方法:

长按 POWER ON 开机键大约 5 秒，直到听到蜂鸣器“嘀”一声响，指示灯显示绿灯，开机成功。

**POWER ON**

关机方法:

长按 POWER OFF 关机键大约 5 秒，直到听到蜂鸣器“嘀”一声响，绿灯熄灭为止，关机成功。

**POWER OFF**

（H 系列）

开机方法

长按 POWER ON/OFF 键大约 5 秒，直到听到蜂鸣器“嘀”一声响，指示灯显示绿灯，开机成功。

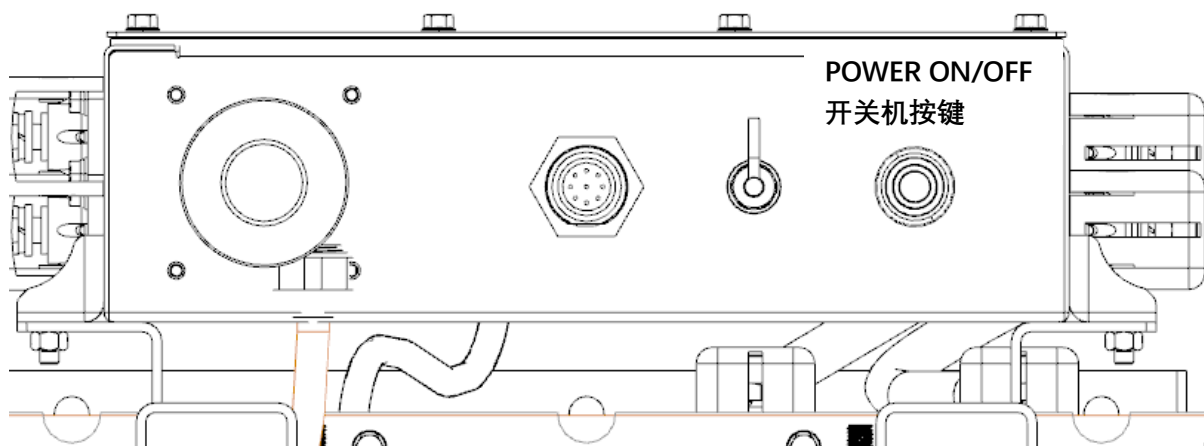
**POWER ON/OFF**

关机方法

长按 POWER ON/OFF 键大约 5 秒，直到听到蜂鸣器“嘀”一声响，绿灯熄灭为止，关机成功。

**POWER ON/OFF**

(J 系列)

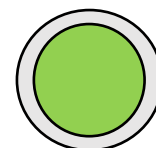


1. 开机方法

- ① 长按 POWER ON/OFF 键大约 2 秒



- ② 直到听到蜂鸣器“嘀”一声响，按键显示绿灯，电量表显示剩余电量，开机成功。



2. 关机方法

- ③ 长按 POWER ON/OFF 键大约 2 秒，蜂鸣器“嘀”一声响，按键绿灯熄灭，电量表熄屏，关机成功。

**注意：**


为了防止电量流失，电池超过 24 小时不使用，系统将会自动关机。重新开机请按照①②步骤启动电池。

故障代码及处理方法

当电池出现异常，故障代码会显示在外接电量显示表，用户可根据故障代码表排除故障，如无法解决，请及时联系经销商或厂商进行维修。详情如下：

编号	故障代码	故障信息	处理方法
1	191	充电温度不均衡阈值	重启电池
2	191	放电温度不均衡阈值	重启电池
3	190	充电电芯电压不均衡阈值	重启电池
4	190	放电电芯电压不均衡阈值	重启电池
5	103	充电温度过高	暂停使用或关闭电池
6	104	充电温度过低	使用叉车提高电池温度
7	115	充电时，电池单体电压高	停止充电，可自动恢复
8	105	充电时，电池单体电压过高	重启电池
9	112	充电时，电池总电压高	停止充电，可自动恢复
10	102	充电时，电池总电压过高	重启电池
11	111	充电电流高	可自动恢复
12	101	充电电流过高	重启电池
13	203	放电温度过高	关闭电池，温度下降后重启
14	204	放电温度过低	重启电池
15	215	放电单体电压低	可自动恢复
16	212	放电电池总电压低	可自动恢复
17	211	放电电流高	可自动恢复
18	201	放电电流过高	停止使用电池，稍后重启
19	106	充电电压故障	重启电池
20	120	浮充电失败	可自动恢复
21	116	充电电流检测出故障	可自动恢复
22	777	电池过放 2 次后保护	严禁行为，联系厂家处理
23	197	放电时单体电压高	重启电池
24	198	放电时有充电电流	重启电池
25	206	放电电压故障	重启电池

电池的质保条款

1. 上海平野环保科技有限公司是“”标志、产品名称的合法使用者，根据法律规定未经许可使用上述商标者，将追究法律责任。
2. 本公司全权负责本保修证明的修订，解释及说明，并保留该保修书印刷后更改产品而不另行通知的权利。
3. 上海平野环保科技有限公司将在质量保修期内根据以下条款、条件和限制提供保修服务。除非国家法律另有规定、上海平野环保科技有限公司的责任范围是修理产品，即产品的任何缺陷将通过修理和更换零部件方式解决。在本保修证明中阐述的书面保修责任是适用于本产品的唯一保证，对附带引起的损失不承担赔偿责任。

保修期限

上海平野环保科技有限公司对产品提供保修条件如下：

- ① 该产品是平野生产或经销的，并且用户是正常使用和正确维护情况下。
- ② 仅对由零部件问题和工厂制造原因引起的故障进行保修。
- ③ 保修期从产品交付日期开始计算；
- ④ 整体电池包质保期为交付起 5 年或累计使用 10000 个小时，（满足其中一个条件，则保修自动失效）。
- ⑤ 插头，保险丝，冷却风扇，显示灯，外接电量显示表等均属于易耗品，质保期为一年；
- ⑥ 超过质保期，本公司负责对产品进行有偿维修。

对由于下列原因引起的故障，不承担保修责任：

- 电池或零部件因为用户规定用途以外滥用或未经批准进行改装加装而导致失效，用户将丧失保修索赔的权利。
- 由于自然灾害等不可抗力因素造成的损害，不包括在质量保修范围内。
- 违反使用说明书要求或使用方式不正确（特别是不及时充电造成过放电的情况）。
- 使用中事故或不适当存储条件引起的。
- 在被告知产品存在潜在问题，用户仍无理由拖延，不配合修理，造成的故障；

用户的职责：

- 如果发生任何与保修有关的运输费用，由用户承担；
- 负担调查故障投诉的费用，除非故障原因是电池本身品质引起的除外；
- 故障发生后及时通知并明确故障现象，对于尚处在保修期内过户给其他用户的，请及时提出书面通知：该产品过户后，仅享受剩余的保修期质保。

保修的限制/拒绝：

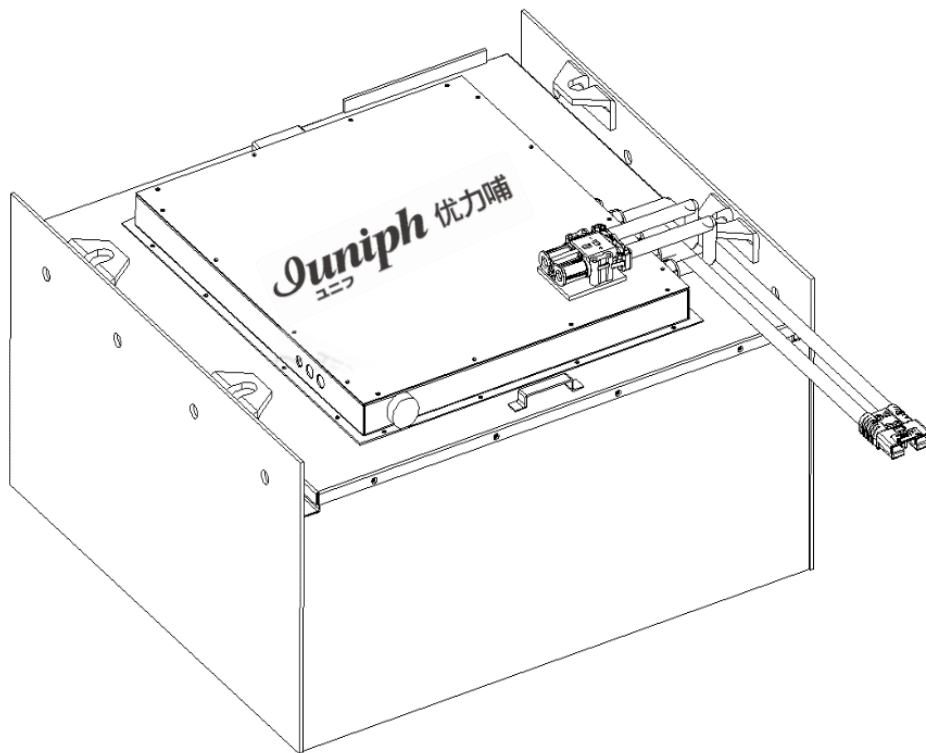
上述保修包括了上海平野对任何用户全部的赔偿与责任。在任何情况下，对于因上海平野原因或非上海平野原因造成的直接、间接，特殊或重要的任何经济损失，本公司都不承担任何扩大责任赔偿。

保修范围不包括正常或加速磨损和撕裂的零件（如外表油漆，保险丝，连接插头，冷却风扇等），也不包括电池周边设备。

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OPERATING MANUAL LI-ION BATTERY PACK



CONTENTS

- Instructions for use of lithium battery(1-2)
- Caution for use of lithium battery (3-4)
- The maintenance of battery (5)
- Name and function of battery parts (6)
- Method of application of lithium battery (7-8)
- Troubles and trouble shooting (9-10)
- Warranty (11)

Instructions for use of lithium battery

1. This product is suitable for forklift truck with power system, please do not use it for other occasions.
2. Before using the device, please refer to the product instructions carefully to prevent unnecessary harm.
3. For any consequences due to improper installation of equipment, optional parameter is set incorrectly, mishandling or abuse with ignoring considerations described in this specification, the company assumes no responsibility.
4. Unauthorized dismantling of battery packs is prohibited. Otherwise, the company is not responsible for the loss caused by this reason.
5. Please use the Yuniph charger to charge the battery, using other's charger may bring unknown risks, the company will not guarantee warranty.
6. In order to ensure continuous improvement of products, the company reserves the right to modify the specifications and performance of the product and the content of specification.
7. Without written permission of the company, no organization or individual should not be allowed to copy any part of this manual or spread.
8. The battery should be charged at the allowable operating temperature (0-45°C), or there may be an unexpected decrease in capacity.
9. Do not soak the battery in water and Do not flush the battery directly with water to avoid short circuit caused by water in the battery.
10. Do not place inflammables on or near the battery when charging or discharging, doing that may cause overheating, explosion or fire.

-
11. If the battery in the use of the process or when charging abnormal odor, smoke, overheating, deformation, do not use again, and promptly contact the manufacturer to arrange maintenance.
 12. Keeping battery properly charged and discharged can prolong the battery life. It is recommended that after the shallow discharge timely full charge, keep the shallow discharge full charge.
 13. In the process of transportation, loading, unloading or use, it should be moved and put gently, do not put it upside down or on the side, it is strictly prohibited to drop, roll, and weigh the battery.
 14. Factory settings battery power is 40-60%, before to use be sure to charge the battery to fully, and then start to use.

Caution for use of lithium battery

14. On rainy days, do not expose the battery to the rain, to prevent the water inflow to damage the battery pack.
15. When the battery power is less than 10%, please charge it immediately to avoid accidents caused by battery exhaustion during use.
16. Do not open the maintenance cover and disassemble the battery pack without the guidance of professional technicians. Doing so can result in electric shock and other problems.
17. Do not pull out the plug while charging. Doing so may result in electric shock or applying a high voltage that produces an excessively large electric current, causing the lithium-ion battery to generate heat, explode or catch fire.
18. Do not place the battery in any place exposed to direct sunlight or high temperatures such as fire, heater, etc. Do not drop, hit, throw the battery or any other action that may damage the battery.
19. If the battery plug is damaged, please replace it immediately to avoid the risk of short circuit and electric shock.
20. Do not touch the positive and negative terminals of the battery with your body or operate the battery device with wet hands. Doing so can result in short circuit and electric shock.
21. In case of lithium battery showing fault code, please refer to the manual troubles and troubles shooting. If still unable to solve the problem, please timely contact the distribution unit for repair.
22. If the wire catches fire, using dry chemical fire extinguishers to extinguish the fire. If battery catches fire, disconnecting the battery from charge, removing the surrounding flammable materials, and using a large amount of water to cool the smoking battery to prevent the re-burning.

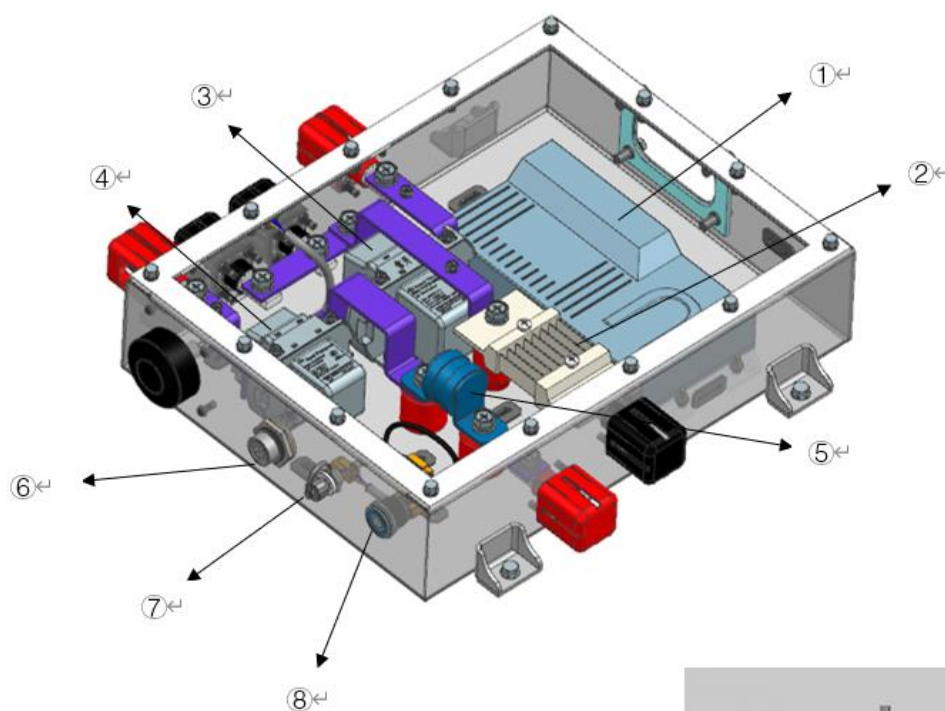
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23. When the lithium battery needs to be replaced, it should be confirmed that the negative electrode and negative electrode of the battery is correct before connection with truck, to prevent short circuit or reverse connection.
 24. It is strictly prohibited to keep the battery in the high-temperature dewing environment for a long time (more than 1 month). The dewing environment will cause damage to the battery connection strips and control electronic components, which will affect the use of the battery.
 25. Do not add lamp heater and other load equipment to the output end of the battery without authorization.
 26. If the battery continues to be used under low power condition, the battery will start protection and cut off the power supply. At this time, measures should be taken to replenish power on the spot. It is forbidden to restart the battery and continue to move the truck.

The maintenance of battery

1. If the battery is expected to be stored for more than 30 days without use, please turn off the battery power and charge the battery to about 50%. At the same time, the charging mode of the charger is used for charging maintenance every 3 months.
2. Recommended storage temperature: 0-1 month: $-40^{\circ}\text{C}\sim+60^{\circ}\text{C}$; 1-3 months: $-20^{\circ}\text{C}\sim60^{\circ}\text{C}$; More than 3 months: $0\sim40^{\circ}\text{C}$; Recommended humidity for storage environment: 25% \sim 70%RH.
3. Lithium battery discharge after less than 10% should be promptly charged. Low voltage long-term use will cause over discharge, over discharge will affect its service life, even unable to repair.
4. If any abnormal conditions be found during the use of the battery(discharging/charging), please stop using it, check by manual or contact the manufacturer to inspection and maintenance on time. Avoid further damage. Batteries must be maintained by a professional staff.
5. For safety, disconnect the power supply before maintenance.
6. Check the charging plug of the battery, if it is damaged, please replace it immediately.
7. Check whether there is dust and metal debris on the battery surface, and clean it in time if any.
8. During maintenance, the user shall not open/remove the battery without permission.
9. Keep the battery surface clean. Please regularly wipe the dust and metal debris accumulated on the battery surface with a wet duster cloth.

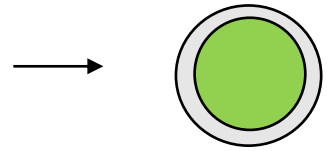
Name and function of battery parts

No.	Designation	Function
1	BMS control panel	Monitor control voltage, temperature, capacity, fault information
2	current sensor	Monitor discharge and charging current
3	Discharge relay	Control the opening and closing of discharge
4	Charge relay	Control opening and closing of charging
5	Fuse	Ensure that electricity safety
6	power display socket	Power supply and communication of power display
7	CAN socket	Updated program
8	POWER ON/OFF button	Start battery / Turn off battery

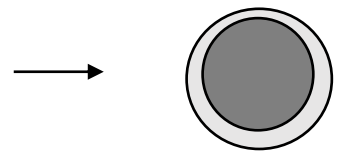


1.The starting method of battery (J Series)

Long press the POWER ON/OFF button about 2 second, until you hear the sound like “bee”, the indicator lamp of button shows green light, start battery successful. →

**2.The shutdown method of battery (J Series)**

Long press the POWER ON/OFF button about 2 second, until you hear the sound like “bee”, the indicator lamp of button shut down, turn off battery successful. →

**Notice:**

In order to conserve electricity power, If the battery is not used for more than 24 hours, it will shut down automatically. If you want to restart the battery, and then according to ①②to operation .

Troubles and trouble shooting

No.	Error code	fault message	Trouble shooting
1	191	Charging/discharging temperature is unbalanced	Restart battery
2	190	cell's Voltage imbalance while charging/discharging	Restart battery
3	103	high temperature while charging	Stop using or turn off power
4	104	low temperature while charging	Using forklift to raise temperature
5	115	high voltage of cells while charging	Stop charging, automatic recovery
6	105	over high voltage of cells while charging	Restart battery
7	112	total voltage of cells is high while charging	Stop charging, automatic recovery
8	102	total voltage of cells is too high while charging	Restart battery
9	111	high current while charging	automatic recovery
10	101	over high current while charging	Restart battery
11	203	high temperature while discharging	Turn off battery, and restart
12	204	low temperature while discharging	Restart battery
13	215	low voltage of cells while discharging	automatic recovery
14	212	low total voltage while discharging	automatic recovery
15	211	high current while discharging	automatic recovery
16	201	over high current while discharging	Stop using battery, restart later
17	106	voltage fault while charging	Restart
18	120	Floating charge failed	Automatic recovery

19	116	Charge current detected fault	Automatic recovery
20	777	Protection after battery over discharge 2 times	Contact with the manufacturer
21	197	high voltage of cells while discharging	Restart later
22	198	charging current detect while discharging	Restart later
23	206	voltage fault while discharging	Restart later

Warranty

Li-ion Battery Pack:

- **Battery cell/ BMS: warranty 5 years or 10,000 hours.**
- **Display/Fuse/Discharge Plug/ Charge Plug: warranty 1 years.**

In the event of failure caused by the following reasons, Hirano do not bear the warranty liability:

- The user will lose the right to claim the warranty if the battery underwent usage outside of the specified usage or unauthorized modification of the installation, resulting in failure.
- Damage caused by force majeure factors is not covered by the quality warranty, such as natural disasters.
- Violation of the instruction manual or incorrect operation (the contents of the internal storage of the battery would be evidence)
- Failure due to accidents or improper storage conditions.
- Failure caused by the user uncooperating with the advice to suspend usage of product and repair in the wake of potential failure.

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