

Livoltek 电池扩容与绝缘故障操作声明

Livoltek Statement on Battery Expansion and Insulation Fault

为保障高压电池系统在扩容及故障处理过程中的安全运行,并明确用户操作责任与质保边界,杭州利沃得电源有限公司(下称“Livoltek”)特制定本强制性操作规范。所有使用 **Livoltek** 高压电池产品的用户,在进行电池扩容、绝缘故障处置或系统组装前,必须严格遵守本声明条款。未完全遵守将导致质保失效,并可能引发严重安全风险,用户需自行承担后果及维修费用。

To ensure the safe operation of high-voltage battery systems during expansion and fault handling, and to clarify user responsibilities and warranty boundaries, Hangzhou Livoltek Power Co., Ltd. (hereinafter "Livoltek") issues this mandatory operating protocol. All users of Livoltek high-voltage battery products **MUST** strictly comply with these terms before battery expansion, insulation fault handling, or system assembly. Full non-compliance voids warranties and may cause critical safety hazards. Users shall bear the consequences and repair costs on their own.

一、电池扩容操作规范

1. 新旧电池生产日期要求

高压电池扩容时,新增电池与原电池的生产日期应尽量接近,间隔不得超过1年。生产日期差异过大会导致电池容量偏差,显著降低整体可用容量(可用容量 \leq 最小单体电池容量)。

High-voltage battery expansion requires the production dates of new and original batteries to be as close as possible, with a maximum interval of 1 year. Excessive date differences cause significant capacity deviation, reducing total available capacity (Available capacity \leq Min(single battery capacity)).

2. 扩容前充电流程

必须将原电池组充电至 SOC 100%并保持该状态,新增电池必须单独充电至 SOC 100%。完成后组装扩容。

原电池充电方式:逆变器充电 (Inverter charging)

新增电池充电方式：专用补电机独立充电（Dedicated battery charger ONLY）

Before expansion, original batteries must be charged to SOC 100% and maintained, while new batteries must be charged separately to SOC 100%. Assemble only after both reach full charge.

Original batteries: Use inverter for charging.

New batteries: Must use a dedicated battery charger.

二、安全与质保条款

3. 专业操作强制要求

扩容前必须咨询 Livoltek 认证技术人员。因未咨询或操作失误导致的故障（包括电池损坏、系统宕机、安全事故），Livoltek 将免除一切质保责任，用户自行承担后果及维修费用。

Mandatory consultation with Livoltek-certified technicians is required before expansion. Failures caused by unguided operations (e.g., battery damage, system failure, safety incidents) void all warranties, and users bear full liability and repair costs.

4. 铅酸模式禁用警告

严禁将 Livoltek 锂电池用于铅酸模式。此操作会触发 BMS 保护锁定，导致电池永久损坏。因此产生的故障，质保自动失效。

Strictly prohibit using Livoltek lithium batteries in Lead-acid Mode. This triggers BMS protection lock and causes permanent damage. Warranty is void for all resulting failures.

5. 接地保护义务

高压系统首次组装时必须有效接地（接地电阻 $\leq 4\Omega$ ）。未接地导致的绝缘故障、电击风险或设备损坏，不在质保范围内。

Effective grounding (ground resistance $\leq 4\Omega$) is mandatory during initial assembly. Insulation faults, electric shock risks, or device damage due to improper grounding are excluded from warranty.

6. 绝缘故障 (ISO) 应急响应

系统报绝缘故障 (ISO) 时:

- a. 立即切断电源并关机;
- b. 24 小时内向 Livoltek 技术支持提交故障代码;
- c. 禁止重启系统直至收到官方书面修复确认。

违反此流程导致人身伤害或设备损毁, 用户承担全部责任。

If insulation fault (ISO) occurs:

- a. Immediately power off the system;
- b. Submit fault codes to Livoltek technical support within 24 hours;
- c. Do NOT restart until official written confirmation is received.

Violations leading to personal injury or equipment damage incur full user liability.

三、法律效力与责任声明

7. 责任限制

Livoltek 对以下情况不承担责任:

- 未按本声明操作导致的直接或间接损失;
- 使用非 Livoltek 认证配件引发的故障;
- 不可抗力 (如地震、洪水、战争) 造成的损坏。

Livoltek shall not be liable for:

- Direct/indirect losses from non-compliance with this statement;
- Failures caused by non-certified accessories;
- Damages due to force majeure (e.g., earthquakes, floods, wars).

8. 最终解释权

本声明所有条款的最终解释权归 Livoltek 所有。Livoltek 有权根据技术发展或法律要求修订条款, 恕不另行通知。

All terms herein shall be **solely interpreted by Livoltek**. Livoltek reserves the right to amend terms per technical or legal requirements without prior notice.

9. 适用法律

本声明受中华人民共和国法律管辖，任何争议应提交至 Livoltek 总部所在地（浙江省杭州市上城区）有管辖权的人民法院诉讼解决。

This statement is governed by laws of the People's Republic of China. Disputes shall be submitted to the competent court in Shangcheng District, Hangzhou, Zhejiang Province, where Livoltek headquarters is located.

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HANGZHOU LIVOLTEK POWER CO., LTD.
Hangzhou Livoltek Power Co., Ltd

限公司
CO., LTD.