

UPS存在风险及检查 维保建议

UPS Exists Risks and Suggestions
for Inspection and Maintenance



定义 Definitions

不间断电源（或称**UPS**，即 **Uninterruptible Power Supply**）是在电网异常（如停电、欠压、干扰或浪涌（涌浪电流））的情况下不间断的为[电器负载](#)设备提供后备[交流](#)电源，维持电器正常运作的设备。

An uninterruptible power supply (UPS) or uninterruptible power source is a type of continual power system that provides automated backup electric power to a load when the input power source or mains power fails.



案例一 Case 1



某企业的二台30kVAUPS,电池是12V/65Ah,其中一台发生电池起火冒烟。烟雾非常大,整个配电室全是烟雾,电气工作人员带防毒用具进入配电室进行操作,因未见明火,消防队到现场没有处置,由电气工作人员进行操作,用风机排烟。现场情况是**UPS转旁路工作,有几块电池烧坏**。UPS**经过检查,有过载和变换器故障报警**。经过测试后,**启动UPS运行正常,UPS设备没有损坏**。电池柜分为五层,其中四层放置电池,一层放置电池开关。电池组检查,共有4块电池损坏,发生在电池柜内同一层(第三层)。设备投入生产几个月,**现场分析,电池底部开裂使电解液流出造成电池回路与地短路**。

There are two 30kVA UPS in a certain company, the battery is 12V/65Ah, one of them caught fire and smoked. The smoke was very large, and the entire power distribution room was full of smoke. The electrical workers entered the power distribution room with anti-virus equipment to operate. Because there was no open fire, the fire brigade did not deal with it when they arrived at the scene. The electrical workers operated and used fans to exhaust the smoke. The situation at the scene is that the UPS is switched to bypass work, and several batteries are burned out. After UPS inspection, there are overload and converter failure alarms. After testing, the startup UPS works normally, and the UPS equipment is not damaged. The battery cabinet is divided into five layers, four of which are for batteries and one for battery switches. Battery pack inspection, a total of 4 batteries were damaged, which occurred on the same floor (the third floor) in the battery cabinet. The equipment was put into production for several months, and on-site analysis showed that the bottom of the battery was cracked and the electrolyte flowed out, causing a short circuit between the battery circuit and the ground.

案例二 Case 2

某省通信网络业务系统接入网机房发生火灾事故,烧毁蓄电池组及其附近的电缆、空调等,造成通信中断时间长达17小时35分。原因为蓄电池的漏液导致电气短路,引起高温,长时间的持续高温引燃蓄电池ABS塑料外壳,导致火灾发生。

A fire accident occurred in the access network computer room of a communication network business system in a certain province, burning the battery pack and nearby cables, air conditioners, etc., resulting in a communication interruption of up to 17 hours and 35 minutes. The reason is that the leakage of the battery causes an electrical short circuit, causing high temperature, and the long-term continuous high temperature ignites the ABS plastic case of the battery, resulting in a fire.



月度检查Monthly inspection :

- 1) 检测电池本体、极柱和安全阀**温度**。

Detect the temperature of the battery body, pole and safety valve.

- 2) 电池端子、外壳是否损坏、生锈。

Check the battery terminals and casing for damage and rust.

- 3) 检查电池单体和电池组的浮充电压。

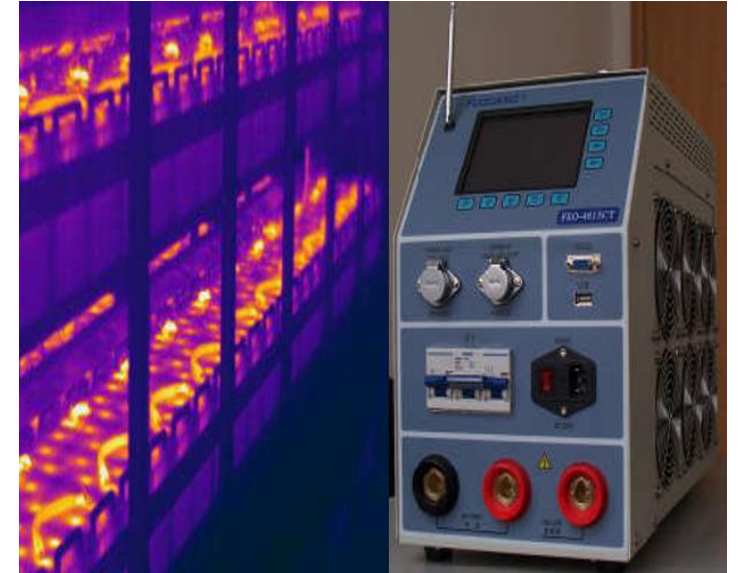
Check the float voltage of battery cells and battery packs.

- 4) 察看极柱、安全阀周围是否有渗液、**漏液**和酸雾溢出。

Check whether there is seepage, leakage and acid mist around the pole and safety valve.

- 5) 察看电池外壳有无变形、**鼓包**。

Check whether the battery casing is deformed or bulged.





年度检查（建议找维保厂家）

Annual inspection (recommended to find a professional company for maintenance) :

1) 定期做核对性放电测试。

Regularly do checking discharge test.

2) 测量和记录各单只电池的内阻。

Measure and record the internal resistance of each single battery.

3) 检查电池连接部件螺母是否**松动**。

Check whether the nuts of the battery connecting parts are loose.

严重故障 Serious failure → 更换电池 Replace the battery

- 1) 电池鼓胀 ; The battery is bulging;
- 2) 电池漏液 ; Battery leakage;
- 3) 电池内部短路、开路, 本体穿孔 ;
Internal short circuit or open circuit of the battery, and perforation of the body;
- 4) 电池容量小于额定容量的80% ; The battery capacity is less than 80% of the rated capacity;
- 5) 壳体材料老化、端子腐蚀穿透 ; Housing material aging, terminal corrosion penetration;





注意事项 Precautions

1) 安装及维护时，电池开关要保持断开状态。

During installation and maintenance, the battery switch should be kept disconnected.

2) 蓄电池搬运时，禁止电池端子倒置，并轻拿轻放。

When transporting the battery, it is forbidden to invert the battery terminals, and handle it with care.

3) 电池维护时，要用绝缘类工具（扳手），或用绝缘包裹处理。

When maintaining the battery, use insulated tools (wrench) or wrap it in an insulated package.

4) 佩戴橡胶手套、防护服、护目镜等，以防止电解液外溢造成伤害。

Wear rubber gloves, protective clothing, goggles, etc. to prevent damage caused by electrolyte spillage.

5) 请勿使用任何有机溶剂清洗电池。 Do not use any organic solvents to clean the battery.

6) 切不可拆卸电池安全阀，或向电池内部灌入相关液体等异物。

Do not disassemble the battery safety valve, or pour foreign objects such as related liquids into the battery.

7) 请勿在电池组附近吸烟或明火。 Do not smoke or open flames near the battery pack.

8) 电池组顶部不可放置任何杂物。 Do not place any sundries on the top of the battery pack.

9) 放电完成后应及时对电池补充电，以免影响电池寿命。

After the discharge is completed, the battery should be replenished in time to avoid affecting the battery life.