

The background is a solid teal color with various white technical diagrams. These include circular gauges with numerical scales (e.g., 160, 170, 180, 210, 220, 230, 240, 250, 260), circular arrows indicating rotation, and dashed lines representing paths or connections. The overall aesthetic is clean and professional, typical of a technical or engineering presentation.

Live Maintenance of Network Communication & Electronic Equipment

Fujian Tengdajie Environmental Protection Engineering Co., Ltd.

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Analysis of Contamination Accidents



Analysis of Contamination Accidents

Network Equipment Contamination Accidents

Category	Analysis
Abnormal alarm	A Dawning Disk Array fan of an earthquake bureau in the province was abnormally alarmed. The maintenance personnel in the equipment room found that the inside of the device and the fan were dirty. The internal dust could not be completely removed. An alarm still appeared one week after the replacement of the new fan.
The fan does not rotate properly	In a normal college, the floor switch fan is used for a long time and lacks maintenance. After the dust has accumulated, the fan stops running, causing high temperature of the equipment.
Temperature is too high	Due to the small space of the equipment and the poor heat dissipation conditions, the equipment of an administrative unit caused the equipment temperature to be too high. The detection reached 38 to 50 degrees, and two units were burned down one after another, which affected the normal operation of the network.
Equipment restarts without cause	The office network of the administrative building of a certain city often has a disconnection situation. After inspection, it is found that it is an inconspicuous dust caused by the automatic restart of the switch.
	A school's Dell Tower server restarted frequently and without any reason. After the equipment supplier's personnel checked, the hardware and software were no problem. The reason was attributed to the equipment being dirty.
Fire	A substation transmission cabinet in Anhui Province caught fire, burned two transmission cabinets, and caused pollution to surrounding equipment.
	A power supply room of a bank in Liuzhou suddenly caught fire and some equipment was burned down.

Analysis of Contamination Accidents

Communication Equipment Contamination Accidents

Category	Analysis
Temperature is too high	<p>The temperature of base station equipment of a mobile company is measured at 65 degrees after it is attached to pollutants (generally, when the temperature of electronic equipment exceeds 75 degrees, the equipment has basically been completely damaged). If the equipment works at high temperature for a long time, the service life of the equipment will be seriously reduced, and many other faults will be caused.</p>
Equipment faults	<p>Ericsson Voice Exchange Equipment of Hebei Mobile Branch often has single board failure in winter. After testing by the manufacturer, it was informed that the equipment was caused by high static voltage and serious dust pollution.</p>
Fire	<p>A fixed-line switch and UPS power supply in a telecommunication room of a county in Yulin City were destroyed by fire, which caused some users to be unable to make telephone calls.</p>
	<p>Fire broke out in the main computer room of a mobile company in Henan province, which resulted in the phenomenon that mobile phones of mobile users in a large area of the city had no signal and could not make telephone calls.</p>

Analysis of Contamination Accidents

Dust Contamination and Hazards

■ Dust Short Circuit



Short circuit of conductive objects: Excessive accumulation of carbon powder and metal particles directly leads to short circuit.

Electrolytic conductivity: Acidic substances, alkaline substances and salts conduct electricity and short-circuit when exposed to moisture.

Moisture conductivity: Water film forms on equipment surface, causing a conductive short circuit.

■ Dust Corrosion:



The salt, acid, alkali and moisture or moisture in the dust combine to form an electrolyte solution. Together with the presence of carbon stains and inactive metals, they act as the cathode and anode of the primary battery reaction, causing the primary battery reaction to occur on the surface of the circuit, causing electrochemical corrosion, leakage, short circuit, electromigration, signal confusion.

■ Affecting heat dissipation

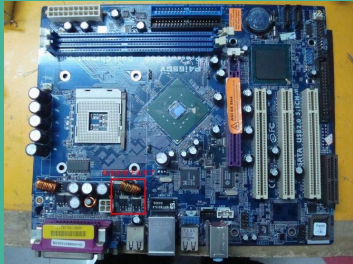


Pollution will cause the dust filter to be clogged and the heat dissipation performance of the radiator to deteriorate, resulting in a reduction in the air intake of the equipment, causing temperature alarms, continuous restarting of the equipment, and even burning out.

Every time the temperature of the equipment increases by 10 degrees, the service life will decrease by 10%-50%.

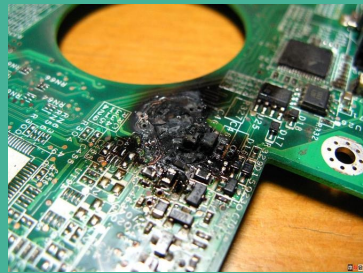
Analysis of Contamination Accidents

Electrostatic Pollution and Hazards



■ Soft breakdown

Resulting in component performance degradation or parameter index decline..



■ Hard Breakdown

It will cause dielectric breakdown, burning or permanent failure of components once for all.



■ Adsorption of dust

Electrostatic attraction can absorb dust, making the equipment more susceptible to various pollutants such as dust, carbon stains, and salt, and more likely to cause various malfunctions.

Analysis of Contamination Accidents

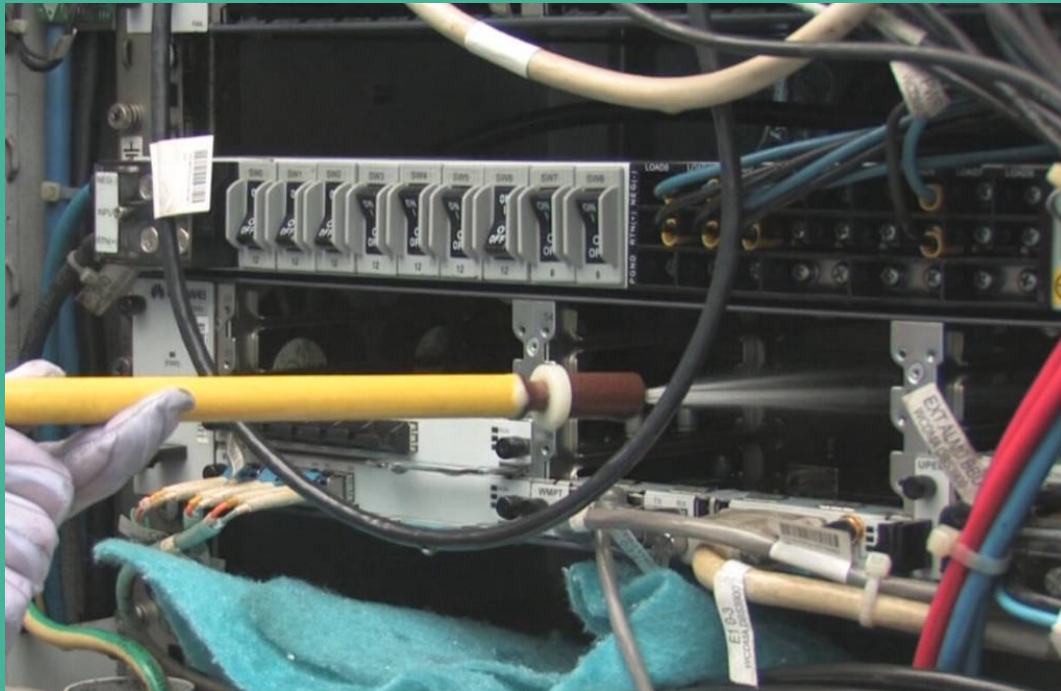
Deficiencies of traditional maintenance methods

Method	Timing	Safety	Effect	Efficiency
Air Blower	Need to power off	<p>1. Some equipment have been running continuously for three or five years. After power failure, it is very easy to start up. The cause is usually dust and static electricity.</p> <p>2. The wind power of the hair dryer is too large, and the collision of the vacuum cleaner on the circuit board is likely to cause equipment failure.</p> <p>3. A certain amount of conductive material remains after the alcohol evaporates, causing continuous damage to the integrated circuit.</p>	It can only remove the floating ash on the surface of the equipment, but the dead angle can not be removed, so the effect is poor.	Power-off operation , difficult and inefficient.
Vacuum Cleaner				
Small Brush				
Bellows				
Alcohol cotton ball				

Two

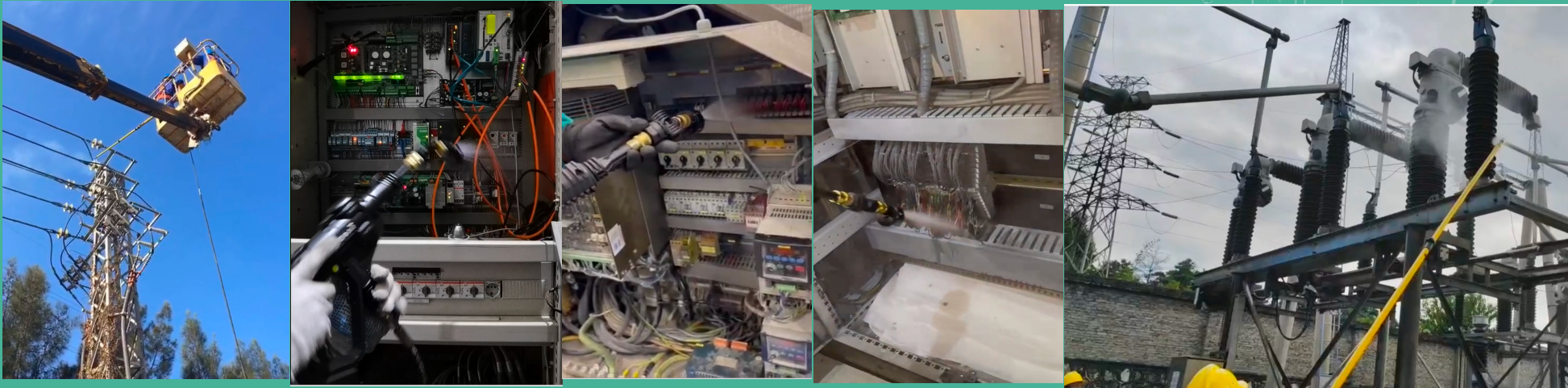
02

Live Maintenance Service



Live Maintenance Service

Live Maintenance Service Introduction



Live maintenance high-tech services are in the field of maintenance of network communications and power electric equipment that are not suitable or even cannot be operated without power off. Professionally trained live maintenance service engineers select live maintenance agents and tools in a highly targeted manner, and follow the live maintenance safety guarantee system, Implement options based on the actual conditions of the equipment: live detection, elimination of static electricity, physical cleaning, dissolution and decontamination, nano material protection (anti-corrosion, anti-oxidation, anti-sulfurization, anti-leakage, anti-static), live re-testing and other related processes for working equipment maintenance. This can achieve the effect of ensuring the safe operation of the equipment, and at the same time, it can improve the operating efficiency of the equipment, reduce additional losses caused by dust and electrostatic pollution, save energy and reduce consumption, extend the service life of the equipment, restore and maintain the optimal operating condition of the equipment, and make the equipment working with ease!

Live Maintenance Service

Live Maintenance Service Background

The service is mainly for the network communication, electric power and other equipment that are in operation for a long time, unsuitable or even unable to run out of power. Due to the lack of effective products and technologies in the market, the actual pain point can not be cured. And realize products and services with independent invention patents and completely independent intellectual property rights.



Live Maintenance Service

Product Features

EC-04 Network communication equipment live cleaning detergent

OLC-10-B Electric equipment live cleaning detergent

OLC-35-B Electric equipment live cleaning detergent

OLC-110-B Electric equipment live cleaning detergent

OLC-220-B Electric equipment live cleaning detergent

OLC-500-B Electric equipment live cleaning detergent

Cleaning Detergent

CP-01 Soft film protective agent

CP-98 Hard film protective agent

Protective Agent

High Safety

Anti Static

**Dynamic
insulation**

**Controllable
volatility**

Non-corrosive

**Colorless
odorless**

**Non-toxic
harmless**

**Good
detergency**

The above curing agent samples are tested and qualified by the following units, and underwritten by Pacific Insurance Company.

Institute of Applied Toxicology, Nanjing Medical University, Fifth Institute of Electronics, Ministry of Industry and Information Technology (Saibao Laboratory)

Live Maintenance Service

Certificates

ISO9001
ISO14001
OHSAS18001



Report on non-hazardous experiment of products
Product liability insurance underwritten by Pacific Insurance
Invention Patent Certificates
Utility Model Patent Certificates

Performance Test Report from Saibao Laboratory
Qualification of Live Maintenance Personnel for Advanced Communication Equipment
Safety Officer Certificate



Live Maintenance Service

Effect of Live Maintenance of Network Communication Equipment

Remove dust

Completely removal of contaminants on the surface and in-depth of equipment

Remove static

Eliminate the static electricity accumulated by equipment, and the static voltage $<100V$ after maintenance.

Reduce Temperature

Reduce mainboard temperature *13%-20%* and inside average temperature *10%-15%*

Increase wind speed

Increase air inlet and outlet wind speed *10%-30%*

Reduce noise

Reduce fan running noise

Restore impendence

Restoring the surface impedance of equipment and eliminating soft faults

Live Maintenance Service

Live Maintenance Service Process

Live Test

Remove static

Physical collection

Live cleaning

Nano protection

Live Retest

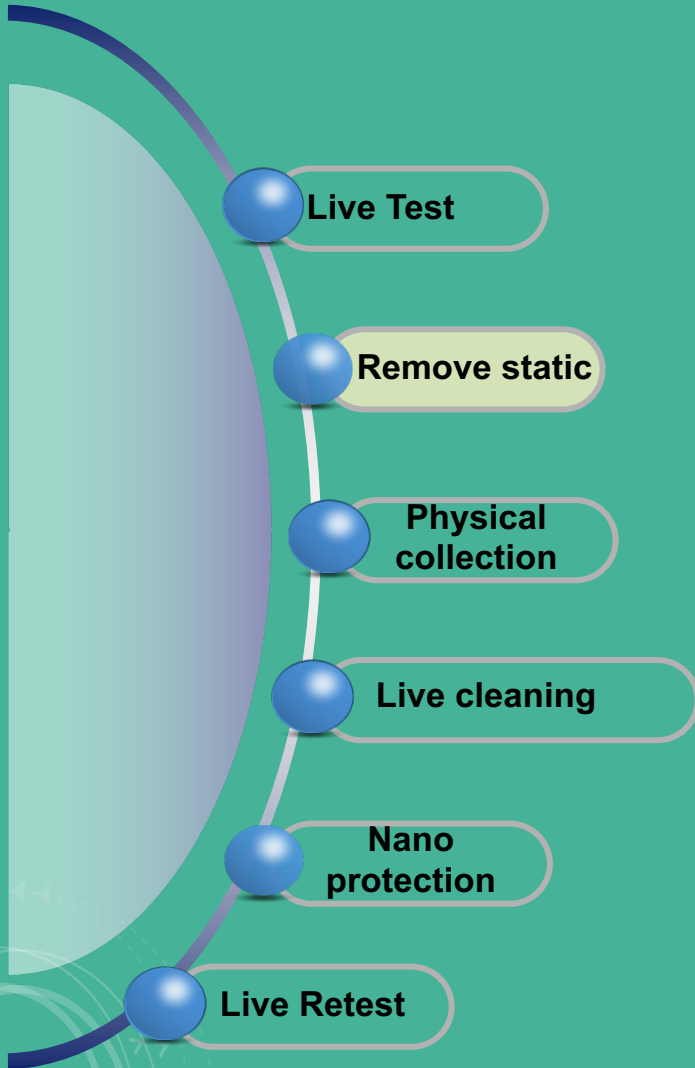


Live Test

Conductive detection of indicators such as pollution of network communication equipment, equipment temperature, static electricity, and fan wind speed before maintenance.

Live Maintenance Service

Live Maintenance Service Process

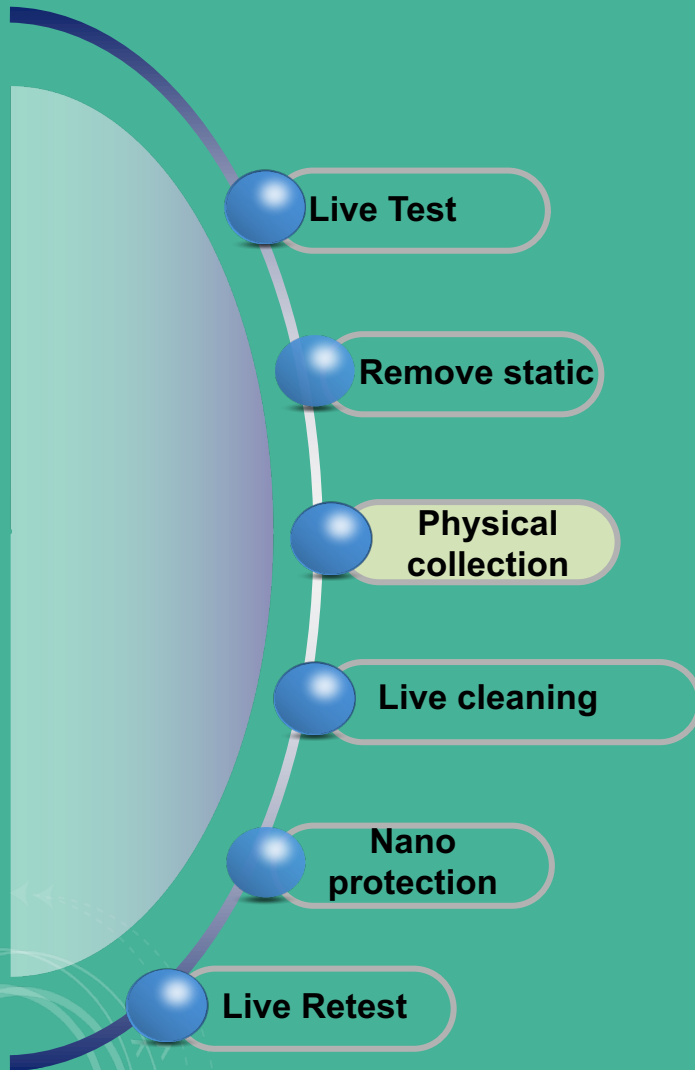


Remove static

The electrostatic balance maintainer developed by our company uses ion neutralization method to eliminate static electricity inside and on the surface of precision electronic equipment such as network communication equipment and automation control equipment.

Live Maintenance Service

Live Maintenance Service Process

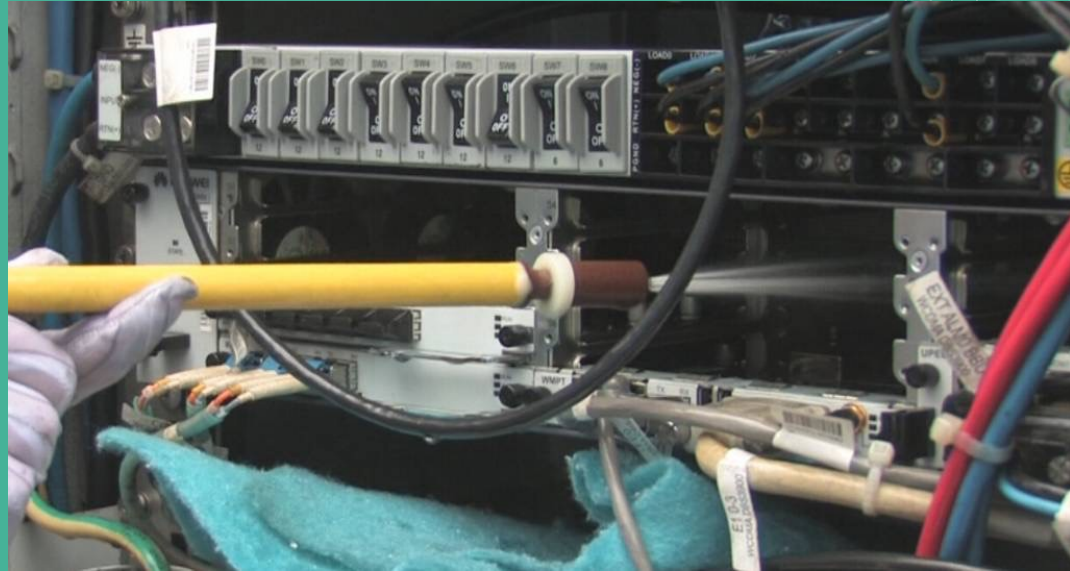
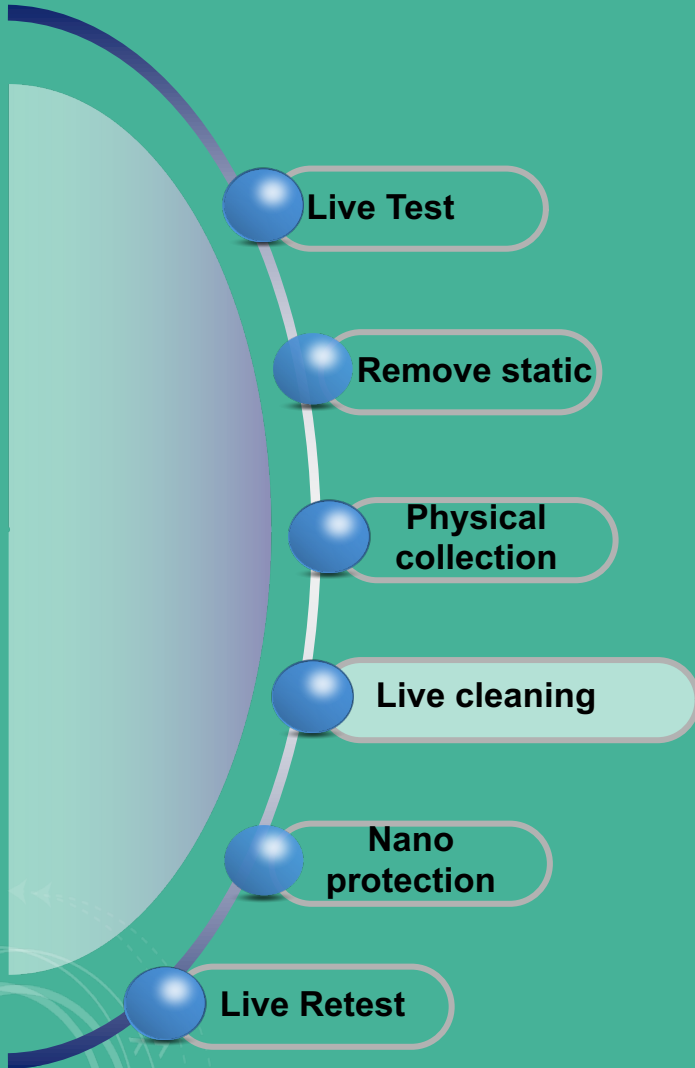


Physical collection

Physical collection of large particulate pollutants such as ribbon, copper wire, screw and wool flocculent in cabinet is carried out by utilizing physical recovery tools developed by our company independently.

Live Maintenance Service

Live Maintenance Service Process



Live Cleaning

According to the different maintained equipment and pollutants, the special detergent for network communication equipment developed and produced by our company is used to dissolve and decontaminate.

Live Maintenance Service

Live Maintenance Service Process

Live Test

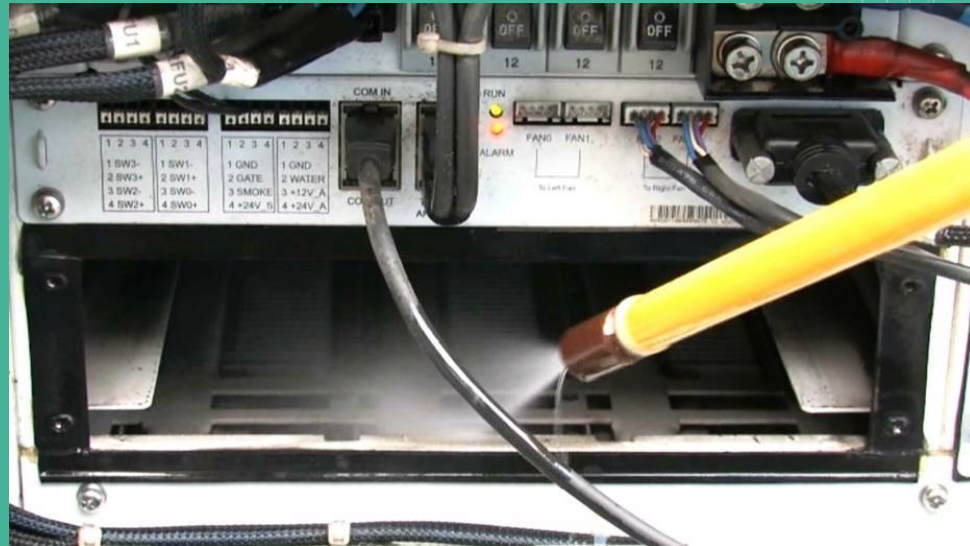
Remove static

Physical collection

Live cleaning

Nano protection

Live Retest



Nano protection

After dissolving and decontaminating, antistatic protector is used to protect the precise electronic equipment such as network communication equipment.

Live Maintenance Service

Live Maintenance Service Process

Live Test

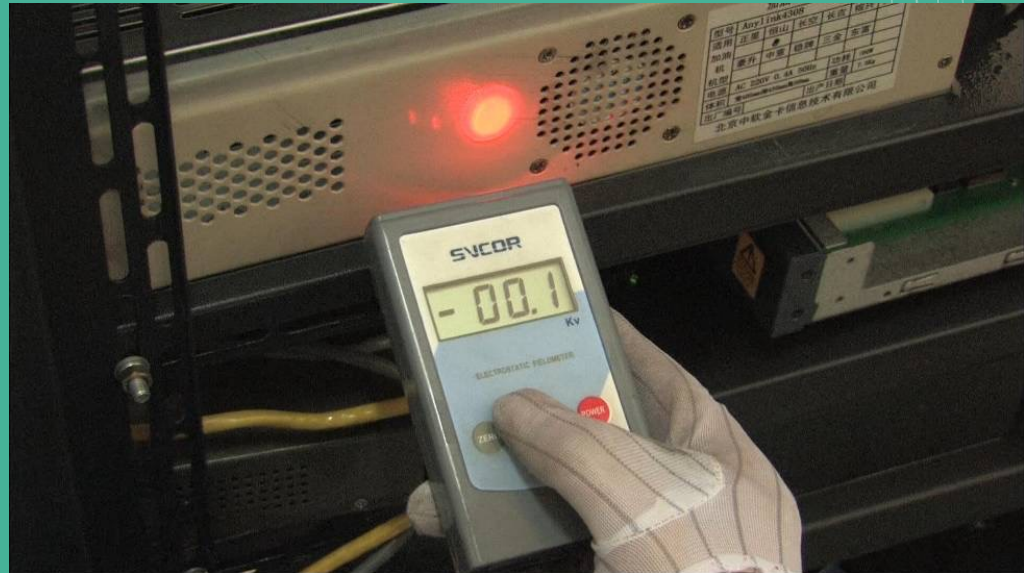
Remove static

Physical collection

Live cleaning

Nano protection

Live Retest



Live Retest

After maintenance, the pollution situation of network communication equipment, equipment temperature, static electricity, fan speed and other indicators are detected on-line to compare with the previous data.

Three

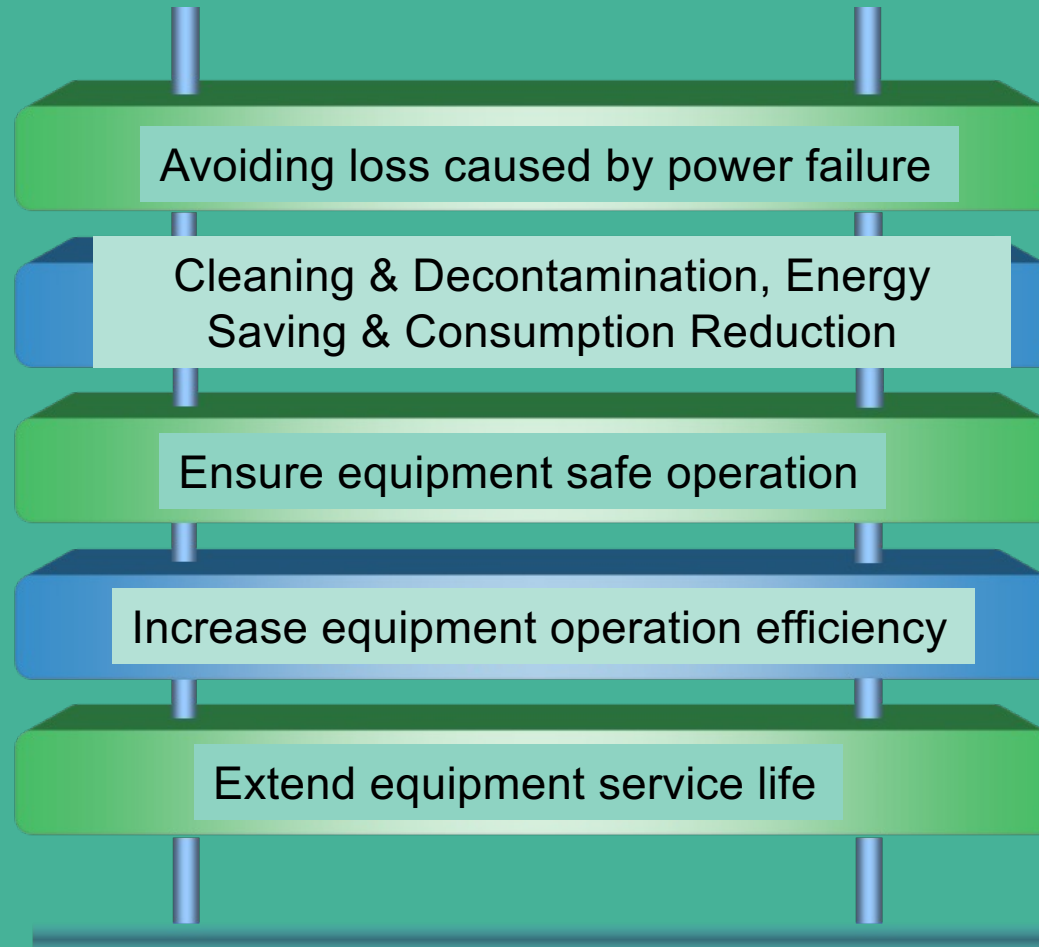
Economic Benefit Analysis

03



Economic Benefit Analysis

Live maintenance Economic Benefit



Economic Benefit Analysis

Live maintenance Economic Benefit

Avoiding loss caused by power failure

Live maintenance can be performed while the network communication device is operating normally.

- Avoiding economic loss caused by power off maintenance
- Avoid equipment damage caused by traditional maintenance methods

Economic Benefit Analysis

Live maintenance Economic Benefit

Cleaning & decontamination, energy saving & consumption reduction

Live maintenance eliminates dust and static electricity by completely eliminating dead corners, thereby reducing the extra loss of equipment operation.

- Reduce the extra loss of equipment due to pollution
- Restore the normal heat dissipation of the device and reduce the extra loss caused by the air conditioner in the computer room.

Economic Benefit Analysis

Live maintenance Economic Benefit

Ensure equipment safe operation

Live maintenance can completely remove pollutants without dead corner, and can eliminate safety accidents caused by dust and static electricity pollution.

- Avoid economic losses caused by power outage maintenance
- Avoid casualties caused by accidents
- Avoid economic losses caused by business interruptions caused by accidents
- Avoid economic losses caused by accidental equipment damage
- Avoid economic losses caused by other aspects of the accident

Economic Benefit Analysis

Live maintenance Economic Benefit

Increase equipment operation efficiency

Live maintenance can completely remove pollutants without dead angle, prevent the change of resistance, voltage and current due to dust and electrostatic pollution, thus restoring the optimal operation state of the equipment.

- Restoring the Best Operation State of Equipment to Restore the Best Operation Efficiency of Equipment.

Economic Benefit Analysis

Live maintenance Economic Benefit

Extend equipment service life

Live maintenance can restore the best operating state of the equipment, and regular maintenance can prolong the service life of the equipment.

- Avoid shortening the life of equipment caused by high temperature
- Avoiding pollution affecting the life shortening caused by voltage and current instability caused by resistance
- Avoiding Life Shortening Caused by Pollution and Corrosion
- Avoiding the Shortening of Life Caused by Static Electricity

Four

Completed Projects

04

Completed projects

Communication equipment maintenance result



Cabinet Fans
Communication Base
Station
A Branch of China
Unicom



Cabinet Fans
Communication Base
Station
A Branch of China
Unicom

Completed projects

Communication equipment maintenance result



Switching Equipment
Motherboard
A Data Center in Shanghai



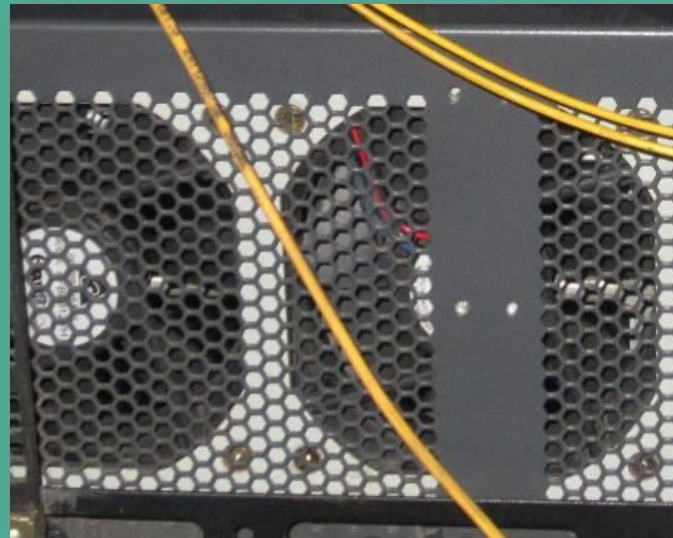
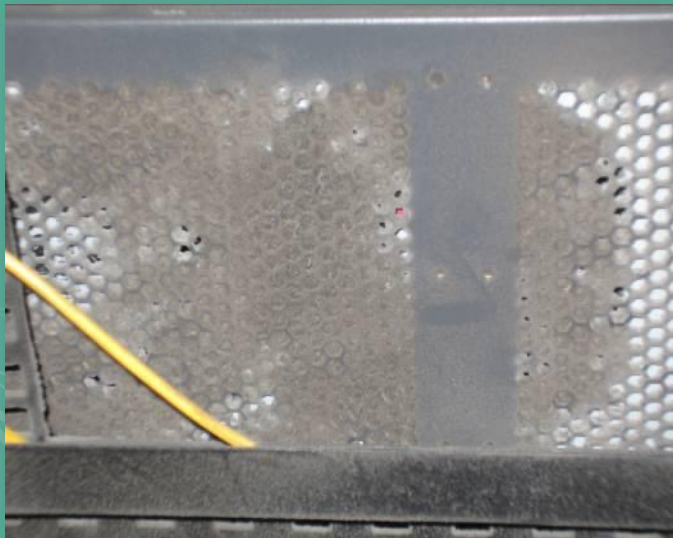
Monitoring Equipment
A Data Center in Shanghai

Completed projects

Communication equipment maintenance result



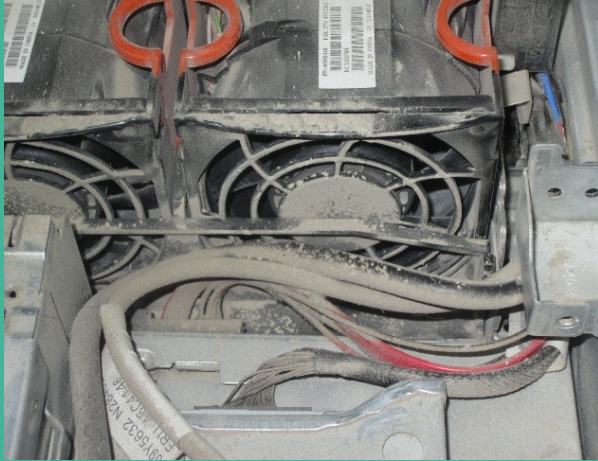
Monitoring system
PetroChina Gas Station



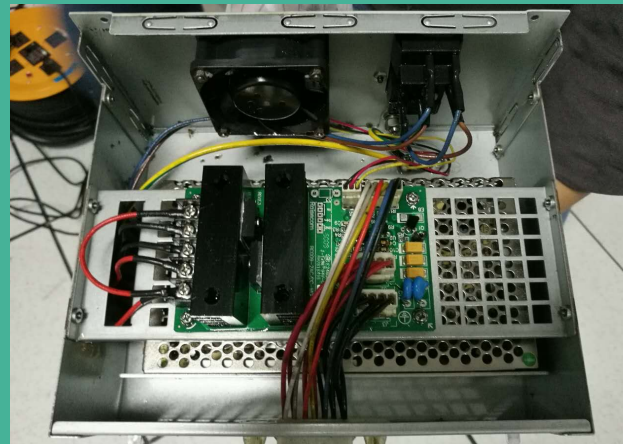
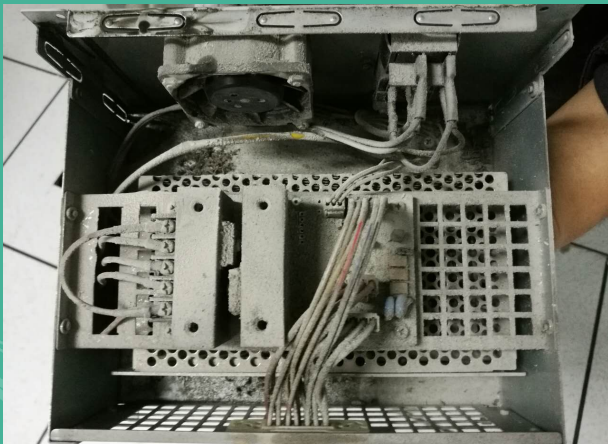
Air Intake of Core Router
Information Center
of State Grid

Completed projects

Communication equipment maintenance result













An IT company in
China



An IT company in
China

Project example

Customer Name	Live curing application scenario
Super High Voltage Maintenance Company of State Grid Shanghai Electric Power Company	500KV Yanggao Substation  China unicom 中国联通
State Grid Shanghai Electric Power Company Urban Branch	Home switch station, power supply control cabinet
Qingpu Branch of State Grid Shanghai Electric Power Company	Power supply control cabinet
Chongming Branch of State Grid Shanghai Electric Power Company	Communication control cabinet
Street Lamp Center of State Grid Shanghai Electric Power Company	Street light control cabinet  国家电网公司 STATE GRID CORPORATION OF CHINA
East China Power Grid Dispatching Center	Provincial Information Center
Huadian Waigaoqiao Power Plant  中国神华 CHINA SHENHUA	Switch cabinet, MCC cabinet, control cabinet
Baosteel Maintenance Company	Stainless steel production line distribution system and 110KV substation
State Grid Jiangsu Electric Power Company Wuxi Branch	110KV substation  中国石油
State Grid Jiangsu Electric Power Company Yixing Branch	110KV substation
Jiangyin Power Supply Company, Jiangsu Electric Power Company of State Grid	10KV substation  中国石化 
State Grid Jiangsu Electric Power Company Yangzhou Branch	information Center  中国石化 
State Grid Jiangsu Electric Power Company Overhaul Company	220KV substation
Nanjing Jinling Power Plant	cooling system
Huadian Suzhou Wangting Power Plant  铜化集团 TONGHUA GROUP	Switch cabinet, MCC cabinet, control cabinet
Zhangjiagang Shazhou Electric Power Co., Ltd.	Switch cabinet, MCC cabinet, control cabinet
Shenwan Anqing Wanjiang Power Generation Co., Ltd.	Coal handling system electrical / thermal control electrical cabinet
Foshan Hengyi Power Generation Co., Ltd.	Switch cabinet, MCC cabinet, control cabinet
Huaneng Haikou Macun Power Plant  安徽省能源集团有限公司 ANHUI PROVINCE ENERGY GROUP CO.,LTD	Switchgear, MCC cabinet, control cabinet, DCS system
Inner Mongolia Hohhot Power Supply Company	10KV substation
Inner Mongolia Jingneng Shengle Thermal Power Co., Ltd.	Switch cabinet, MCC cabinet, control cabinet
Inner Mongolia Power Plant of Northern United Electric Power Co., Ltd.	Switch cabinet, MCC cabinet, control cabinet

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The background is a solid teal color. It features several faint, white technical diagrams. In the top right, there is a circular diagram with concentric circles and radial lines, resembling a scale or a gauge, with numbers ranging from 120 to 210. In the bottom right, there is a circular diagram with dashed lines and arrows, suggesting a process flow or a cycle. In the bottom left, there are curved dashed lines with arrows pointing outwards. In the top left, there are some faint circular lines.

Thank you!

Fujian Tengdajie Environmental Protection Engineering Co., Ltd.