TAIHE太和

西安太和机电科技有限公司

XI`AN TAIHE ELECTROMECHANICAL TECHNOLOGY CO., LTD

安全用能 / 高效用能 / 经济用能 / 智慧用能

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CORPORATE PROFILE

企业简介

Xi'an Taihe Electromechanical Technology Co., Ltd. is located in the ancient capital Xi'an and was founded in February 2016. It is a high-tech energy service provider integrating power engineering, fire protection, and software research and development. Since its establishment, the company has adhered to the "3431" strategy as its guiding principle: continuously improving professional capabilities in intelligent manufacturing, installation and integration, and software information; arranging business layout around "safe energy use, efficient energy use, economical energy use, and smart energy use"; serving user scenarios including power generation, power grid, and demand sides; and building itself into a one-stop energy service provider driven by services.

The company now holds general contracting qualifications for power engineering, construction engineering, mechanical and electrical engineering, urban and road lighting engineering, steel structure engineering, among others; professional contracting qualification for fire protection facilities engineering; a license for the installation, repair and test of power facilities, as well as a safety production license. It has passed ISO9001 Quality Management System Certification, ISO14001 Environmental Management System Certification, and ISO45001 Occupational Health and Safety Management System Certification.

Adhering to the concept of industrialized development, the company has continuously improved and progressed amid development. It now boasts a complete industrial chain covering R&D and design, product manufacturing, testing and inspection, marketing, engineering construction, consulting services, and more. For power generation equipment, power transmission and transformation equipment, and integrated energy systems in the energy sector, the company develops service solutions including equipment early warning, intelligent diagnosis, maintenance decision-making, on-site operation and maintenance, technical transformation and optimization, as well as spare parts supply and repair.
The company has in-depth cooperation with major power groups, local state-owned enterprises, private investors, and complete equipment manufacturers. It has established a complete engineering construction management system, business management system, and after-sales service management system. Upholding the spirit of craftsmanship, Taihe Electromechanical follows the principles of standardized operation, scientific decision-making, and informatized management in corporate governance, providing customers with high-quality products and services while creating sound economic and social benefits for society.

Safe Energy Use
Economic Energy Use
Efficient Energy Use
Smart Energy Use

Scan to learn more about our products.

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泵组式锂电池专用水基灭火装置

PUMP-ASSEMBLED WATER-BASED FIRE SUPPRESSION SYSTEM FOR LITHIUM BATTERIES

Device Introduction:

This device is a pump-based fire extinguishing system specifically designed for combating lithium battery fires. It is powered by external electricity, enabling the release of large volumes of fire extinguishing agents for extended periods. It can effectively extinguish the flames and continuously suppress the thermal runaway of the batteries, and is particularly suitable for protecting large-capacity lithium battery areas such as energy storage cabinets and battery compartments.

Working principle:

The device is composed of controller, detection system, pump group, fire extinguisher container, electric ball valve, lithium battery water-based special nozzle and other components and pipelines. It can be activated automatically or manually, balancing safety and reliability.
The design of closed-loop control logic based on "probe - linkage - start - spray - feedback", the core principle is as follows:
(1) Fire detection stage: Smoke detectors and temperature detectors (or lithium battery-specific thermal runaway detectors) in the protected area monitor the environmental conditions in real time. When the lithium battery undergoes thermal runaway (such as a sudden temperature rise or release of smoke), the detectors send an alarm signal to the gas fire extinguishing controller;
(2) Linkage control stage: after receiving the alarm signal, the controller immediately starts the sound and light alarm, and sends out linkage instructions to linkage the fan, fire valve and other equipment in the protection area to prevent the spread of fire;
(3) Start-up and discharge stage: The controller activates the water pump according to the preset mode (automatic or manual) and opens the electric ball valve. Under the pressure of the water pump, the fire extinguishing agent is transported through the connecting pipe and high-pressure hose to the lithium battery water-based nozzle;
(4) Fire extinguishing and fire control stage: The nozzle atomizes the fire extinguishing agent and releases it, immersing the surface and interior of the battery PACK box, achieving efficient fire extinguishing and deep cooling;
(5) Fire prevention and re-ignition prevention stage: The fire extinguishing agent continues to act for more than 30 minutes, through the dual effects of physical cooling and chemical inhibition, ensuring that the temperature inside the battery box remains below 150℃ and preventing re-ignition.

Fire extinguishing principle:

This device uses lithium battery-specific water-based fire extinguishing agent (identified by the model "AF"). Its fire extinguishing mechanism combines both physical cooling and chemical suppression effects:

- Physical effect: After the extinguishing agent is sprayed, it forms a fine mist that quickly covers the surface and interior of the battery PACK box. Through evaporation, it absorbs heat and lowers the battery temperature, preventing the spread of thermal runaway.
- Chemical effect: The active components in the extinguishing agent can disrupt the combustion chain reaction of lithium batteries, block the combustion of combustible gases produced by the decomposition of electrolyte, and at the same time form a protective film on the battery surface to prevent re-ignition.

Technical parameters:

Dimensions	550×550×1800（mm）
Operating environment	-40 ~ 70℃
Type of fire extinguishing agent	Special water - based fire - extinguishing agent for lithium batteries
Agent tank volume	200L/400L
Power supply voltage	AC220 V/50Hz/10A
Outlet pressure	> 0.6MPa
System flow	60L/min
Motor power	1.1kW
Touch - screen size	7 inches
One - key start	Supported
auto-start	Supported
Manual/Auto Inspection	Supported
communication interface	CAN、RS485
detector	Smoke, temperature, composite, and combustible gas detectors

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储压式锂电池专用水基灭火装置

PRESSURE STORAGE LITHIUM BATTERY-SPECIFIC WATER-BASED FIRE EXTINGUISHING DEVICE

Device Introduction:

This device is a pressure-stored fire extinguishing system specifically designed for combating lithium battery fires. The device stores pressurized nitrogen and the extinguishing agent together in advance. When a fire occurs, the electromagnetic valve automatically opens, and the extinguishing agent is released instantly under the drive of the pressurized gas. This device can be directly placed in the protected area, featuring flexible and convenient installation, neat and beautiful appearance, high fire-extinguishing efficiency, and strong targeting.

Working principle:

This device consists of a cabinet, fire extinguishing agent containers, container valves, solenoid valves, lithium battery-specific spray heads, and a signal feedback device. It can realize automatic and manual double start, taking into account safety and reliability.

Based on the closed-loop control logic design of "probing - linkage - activation - discharge - feedback", the core principle is as follows:

(1) Fire detection stage: the smoke detector and temperature detector (or lithium battery special thermal runaway detector) in the protection area monitor the environmental status in real time. When the lithium battery thermal runaway occurs (such as temperature surge and smoke release), the detector sends an alarm signal to the gas fire extinguision controller;

(2) Linkage control stage: After receiving the alarm signal, the controller immediately activates the sound and light alarm and issues a linkage command, activating the fans, fire dampers and other equipment in the protected area to prevent the spread of the fire;

(3) Activation and discharge stage: The controller triggers the electromagnetic valve to act according to the preset mode (automatic or manual), opening the container valve. Under the pressure of the stored gas, the extinguishing agent is transported through the connecting pipe and high-pressure hose to the lithium battery-specific water-based spray head;

(4) Fire extinguishing and control stage: After atomizing the extinguishing agent, the sprinkler covers the inside and surface of the battery PACK box in a completely submerged way to quickly extinguish the open flame and reduce the temperature of the battery. At the same time, the signal feedback device will feedback the discharge state to the controller;

(5) Fire prevention and re-ignition prevention stage: The extinguishing agent continues to act for more than 30 minutes, through both physical cooling and chemical inhibition, ensuring that the temperature inside the battery box remains below 150℃ to prevent re-ignition.

Fire extinguishing principle:

This device uses lithium battery-specific water-based fire extinguishing agent (identified by the model "AF"). Its fire extinguishing mechanism combines both physical cooling and chemical suppression effects:

- Physical effect: After the extinguishing agent is sprayed, it forms a fine mist that quickly covers the surface and interior of the battery PACK box. Through evaporation, it absorbs heat and lowers the battery temperature, preventing the spread of thermal runaway.
- Chemical effect: The active components in the extinguishing agent can disrupt the combustion chain reaction of lithium batteries, block the combustion of combustible gases produced by the decomposition of electrolyte, and at the same time form a protective film on the battery surface to prevent re-ignition.

Technical parameters:

Cylinder volume （L）	Work pressure （MPa）	Cylinder height（mm）	Cylinder outer diameter （mm）
40	2.5/4.2	610	365
70	2.5/4.2	922	365
90	2.5/4.2	1130	365
120	2.5/4.2	1442	365
150	2.5/4.2	1388	400
180	2.5/4.2	1610	400

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PACK级储能柜灭火装置

PACK - LEVEL ENERGY STORAGE CABINET FIRE - EXTINGUISHING DEVICE

Device Introduction:

This device is a small pump-type fire extinguishing system specifically designed for extinguishing lithium battery fires. It is driven by external power and can effectively extinguish the flames and continuously suppress the battery thermal runaway. It is particularly suitable for small battery storage systems such as independent commercial and industrial energy storage systems. It can provide targeted fire protection for individual or multiple battery packs within the energy storage cabinets.

Working principle:

This device consists of four major parts: the housing, the water tank, the pump, and the control system. It can be started either automatically or manually, balancing safety and reliability.

Based on the closed-loop control logic design of "probing - linkage - start - spraying - feedback", the core principle is as follows:

(1) Fire detection stage: Smoke detectors and temperature detectors (or lithium battery-specific thermal runaway detectors) in the protected area monitor the environmental conditions in real time. When lithium batteries experience thermal runaway (such as a sudden temperature rise or the release of smoke), the detectors send an alarm signal to the gas fire extinguishing controller;

(2) Linkage control stage: After receiving the alarm signal, the controller immediately activates the sound and light alarm, and issues a linkage command, activating the fans, fire dampers and other equipment in the protected area to prevent the spread of the fire;

(3) Start-up spraying stage: The controller starts the water pump and opens the electric ball valve according to the preset mode (automatic or manual). Under the pressure of the water pump, the fire extinguishing agent is transported through the connecting pipe and high-pressure hose to the lithium battery-specific water-based spray heads;

(4) Fire extinguishing and fire suppression stage: The spray heads atomize the fire extinguishing agent, covering the interior and surface of the battery PACK box in a full-immersion manner, quickly extinguishing the fire and reducing the battery temperature. At the same time, the signal feedback device feeds the spraying status back to the controller;

(5) Fire prevention and re-ignition prevention stage: The fire extinguishing agent continues to act for more than 30 minutes, through both physical cooling and chemical suppression, ensuring that the temperature inside the battery box remains below 150℃, preventing re-ignition.

Fire extinguishing principle:

This device uses lithium battery-specific water-based fire extinguishing agent (identified by the model "AF"). Its fire extinguishing mechanism combines both physical cooling and chemical suppression effects:

- Physical effect: After the extinguishing agent is sprayed, it forms a fine mist that quickly covers the surface and interior of the battery PACK box. Through evaporation, it absorbs heat and lowers the battery temperature, preventing the spread of thermal runaway.
- Chemical effect: The active components in the extinguishing agent can disrupt the combustion chain reaction of lithium batteries, block the combustion of combustible gases produced by the decomposition of electrolyte, and at the same time form a protective film on the battery surface to prevent re-ignition.

Technical parameters:

Model specification	TH-BZAF-30
Dimensions	650×500×220（mm）
Rated voltage（VDC）	24
Rated current（A）	10
Power（W）	240
Flow（L/min）	7
Maximum pressure（MPa）	1.1
Fire extinguishing agent	30L
communication interface	CAN、RS485
Detector	Smoke, heat, composite, and combustible gas detectors

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感温磁发电启动装置

THERMO-SENSITIVE MAGNETIC POWER STARTER

Device Introduction:

Temperature-sensitive magnetic power generation starter (also known as "temperature-sensitive magnetic power generation components". This device senses changes in ambient temperature, and when a fire occurs, it utilizes the principle of electromagnetic induction to generate a pulse current, which activates the fire extinguishing device and at the same time transmits a feedback signal to the fire alarm system.

product feature:

- Easy to install and maintenance free;
- Mechanical trigger, stable and reliable;
- Easy to install, maintenance-free;
- With feedback function.

Technical parameters:

Model	Static operating temperature (°C)	Peak value of generating current (A)	Time of operation (ms)	Feedback signal mode	protective temperature range (°C)
GWC-70-XYW	70	> 1.6	> 2	normally open/normally closed contact	-40 ~ 80°C
GWC-93-XYW	93	> 1.6	> 2	normally open/normally closed contact	-40 ~ 80°C
GWC-110-XYW	110	> 1.6	> 2	normally open/normally closed contact	-40 ~ 80°C

微型热气溶胶灭火装置

MINIATURE AEROSOL FIRE EXTINGUISHING DEVICE

Device Introduction:

The micro aerosol fire extinguishing device is a new and environmentally friendly green fire-fighting product. It can be used to extinguish fires in small enclosed spaces. When a fire breaks out, it can be extinguished through thermal sensitive wires and electrically activated fire extinguishing devices. It can be connected with the temperature-sensitive magnetic component and the fire extinguishing alarm controller. When a fire happens, the temperature-sensitive magnetic and the fire alarm controller can activate the aerosol fire extinguishing device, or the aerosol fire extinguishing device can be activated by its own heat-sensitive wire to achieve the purpose of automatic fire extinguishing.

Product Features:

- Environmentally friendly, with excellent cleanliness;
- High fire-extinguishing efficiency, fast fire-extinguishing speed;
- Small in size, light in weight;
- Easy to install, wide range of application.

Technical parameters:

Starting current	≥ 380mA/100ms
Extinguishing concentration	100g/m3
Time of fire extinguishing	≤ 40s
Nozzle temperature (at 5 mm)	≤ 200°C
Shell temperature	≤ 200°C
Feedback signal mode	passive normally open/normally closed
Thermistor start temperature	170±10°C
Applicable temperature range	-40 ~ 80°C
Device validity period	10 years
Specifications and models	60g、100g、150g、250g

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锂离子电池水系灭火剂

LITHIUM-ION BATTERY WATER-BASED FIRE EXTINGUISHING AGENT

Product Introduction:

The core of this series of products is a new type of water-based extinguishing agent designed specifically for the thermal runaway characteristics of lithium batteries, with independent intellectual property rights. The program is designed to be scientific, economical and practical, and through technological innovation, it realizes the perfect balance between efficient fire extinguishing and anti-reignition. With high cost-effectiveness and flexible and convenient installation and deployment methods, this series of products can be widely used in various complex scenarios, providing an extremely reliable and promising strategic solution to the increasingly severe challenges of lithium battery safety.

Working principle:

The water-based extinguishing agent specially designed for lithium batteries is used in this product to realize efficient fire extinguishing and deep temperature reduction through multiple synergistic mechanisms. Its working principle mainly includes the following three levels: firstly, the fire extinguishing agent is based on water, and by optimizing the fluidity performance, it maximizes the heat-absorbing and cooling effect of water, and rapidly reduces the internal temperature of the battery pack. Secondly, the extinguishing agent can quickly form a dense water film or foam layer on the surface of the burning material, effectively isolating oxygen and constructing a thermal barrier; at the same time, the large amount of water vapor generated by the vaporization of water can dilute the concentration of oxygen in the surrounding environment, thus realizing physical asphyxiation. Finally, the specific chemical additives added in the extinguishing agent can react with the combustion material to generate polymers that inhibit free radicals, interrupting the combustion chain reaction through chemical inhibition, thus completely extinguishing the flame and effectively preventing re-ignition.

Technical parameters:

Freezing point	0°C or -40°C
Anti-freezing and melting properties	No visible stratification or heterogeneity
pH value	7.2
Surface tension	20.2 mN/m
Rate of corrosion	Q235 钢片 3.1 mg/d • dm^2，LF21 铝片 0.8 mg/d • dm^2
Toxicity	Fish mortality rate:0%
Density	0.9993 g/cm^3
Viscosity	∠ 10 mPa • s
Specific heat capacity	4.00 J/g • K (at 25°C)
Latent heat of vaporization	2160 kJ/kg

检验检测报告

No. (2023)GJCXF-WT00336

样品名称 水系灭火剂

受检单位 --

生产单位

委托单位

检验检测类别 委托检验

江苏省产品质量监督检验研究院
国家消防产品质量检验检测中心（江苏）

检验检测报告

No. (2023)GJCXF-WT00535

样品名称 水系灭火剂

受检单位 --

生产单位

委托单位

检验检测类别 委托检验

江苏省产品质量监督检验研究院
国家消防产品质量检验检测中心（江苏）

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声智探测 · 精准灭火 —— 储能消防新标杆

SOUND INTELLIGENCE DETECTION & PRECISE FIRE EXTINGUISHING : THE NEW BENCHMARK IN ENERGY STORAGE FIRE PROTECTION

Solution Overview

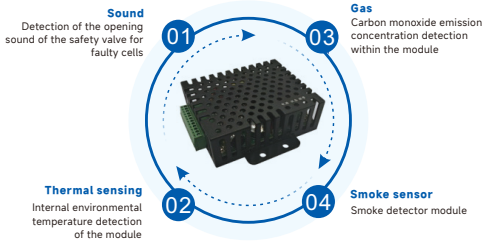
This solution integrates advanced technologies such as sound detection and gas detection to monitor in real - time abnormal information such as characteristic sounds emitted and characteristic gases released during the early stage of lithium - battery thermal runaway. It can detect fire hazards and issue early warnings more than 20 minutes earlier than traditional fire - fighting systems (or detectors).

Special sound detector for lithium batteries

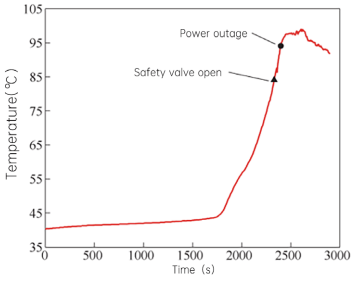
The lithium battery-specific sound detector is used to collect the sound signals when the safety valve of the battery cell is opened, capture the sound characteristics of the valve opening, determine the intensity of the characteristics, and transmit them via RS485 or switch quantity signals to the BMS or EMS.

Lithium battery multi-parameter early warning detector

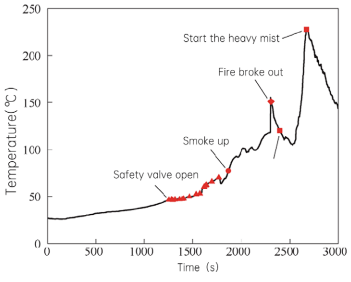
The multi-parameter early warning detector is an intelligent device that combines the early warning of thermal runaway in electrochemical energy storage stations and the fire detection function in the later stage. It can achieve PACK-level detection and can be applied in various scenarios as a warning device.



For the pod energy storage scenario, it adopts Pack-class detection and Pack-class precision jet protection. Multiple-parameter warning detectors are installed in each battery box. During the alarm response process, PACK-level precise spraying of lithium battery-specific water-based fire extinguishing agent is carried out to ensure no over-spray and no expansion of damage.



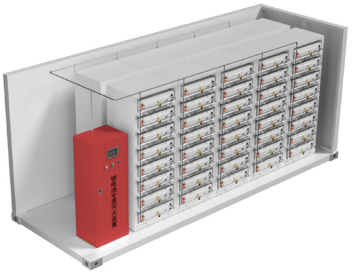
Power-off protection strategy

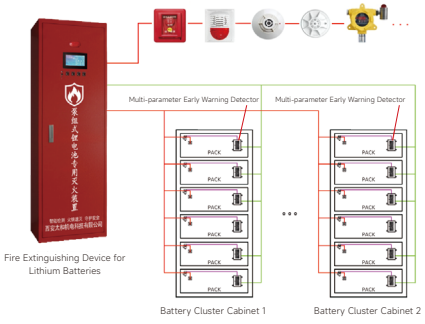


Fire extinguishing strategy

Product Features

Advanced Warning: Combined perception of sound and gas, providing an early warning 20 minutes ahead of traditional methods;
Precise Control: PACK-level detection + PACK-level spraying, no misting errors, no expansion of damage;
Intelligent Linkage: Deeply integrated with BMS, multi-level alarms, intelligent judgment, automatic handling;
Safe and Long-Term Effectiveness: Special fire extinguishing agent for lithium batteries, complete fire suppression, effectively preventing re-ignition;
Universal Adaptability for All Scenarios: Suitable for both air-cooled and liquid-cooled container-based energy storage systems;
High Reliability and Maintenance-Free: Industrial-grade stability, long-term stable operation.





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