



Smart LoRa IoT Fire Extinguishers

Safety Pioneer, Intelligent Guard, Proper Fire Prevention



Fire root cause analysis and intelligent fire extinguishers introduction

Innovative technologies to protect life safety in all aspects!



FTB Manufacturing Co., Ltd.

🏠 Date of Establishment: August 1985

🏠 Capital: NT\$20 million

🏠 Business:

Business of measuring instruments and meters used in scientific chemistry.

Manufacturing, assembly and repair of measuring instruments (pressure gauges), aerospace vehicles, components and peripheral equipment.

🏠 Certifications/Awards:

ISO, CE, Taiwan Government CiTD & SBIR innovative R&D subsidies in years 2020 and 2022.



<https://www.ftb.com.tw/chinese.html>



85, Renhuagong 3rd Road, Dali District
Taichung, Taiwan

Patent





中華民國專利證書

新型第 M636451 號

新型名稱：消防用壓力錶結構

專利權人：台灣双葉工業股份有限公司

新型創作人：周世昌

專利權期間：自 2023 年 1 月 11 日至 2032 年 8 月 29 日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告

經濟部智慧財產局 局長 

中華民國  12 年 1 月 11 日 

注意：專利權人未依法繳納年費者，其專利權自應繳費期限屆滿時消滅。

The most common causes of fires:



Electrical Failure



Human Error



Gas Leak



Electrical System Problems



Kitchen Accidents



Vehicle Breakdowns



Common situations that may occur with fire extinguishers:



Being Removed



Abnormal Pressure



Relying on manpower



Expired



Damaged due to moisture and pressure leaking



High labor costs. Manual inspections

are time-consuming. Human errors are prone to occur.

Problems cannot be discovered on regular maintenances.

Also, Comprehensive inspections cannot be performed at the same time.



Smart fire extinguisher definition:

1. Has smart functions:

The device has intelligent sensing and automation capabilities and can notify emergency systems, positioning functions and other high-tech components.

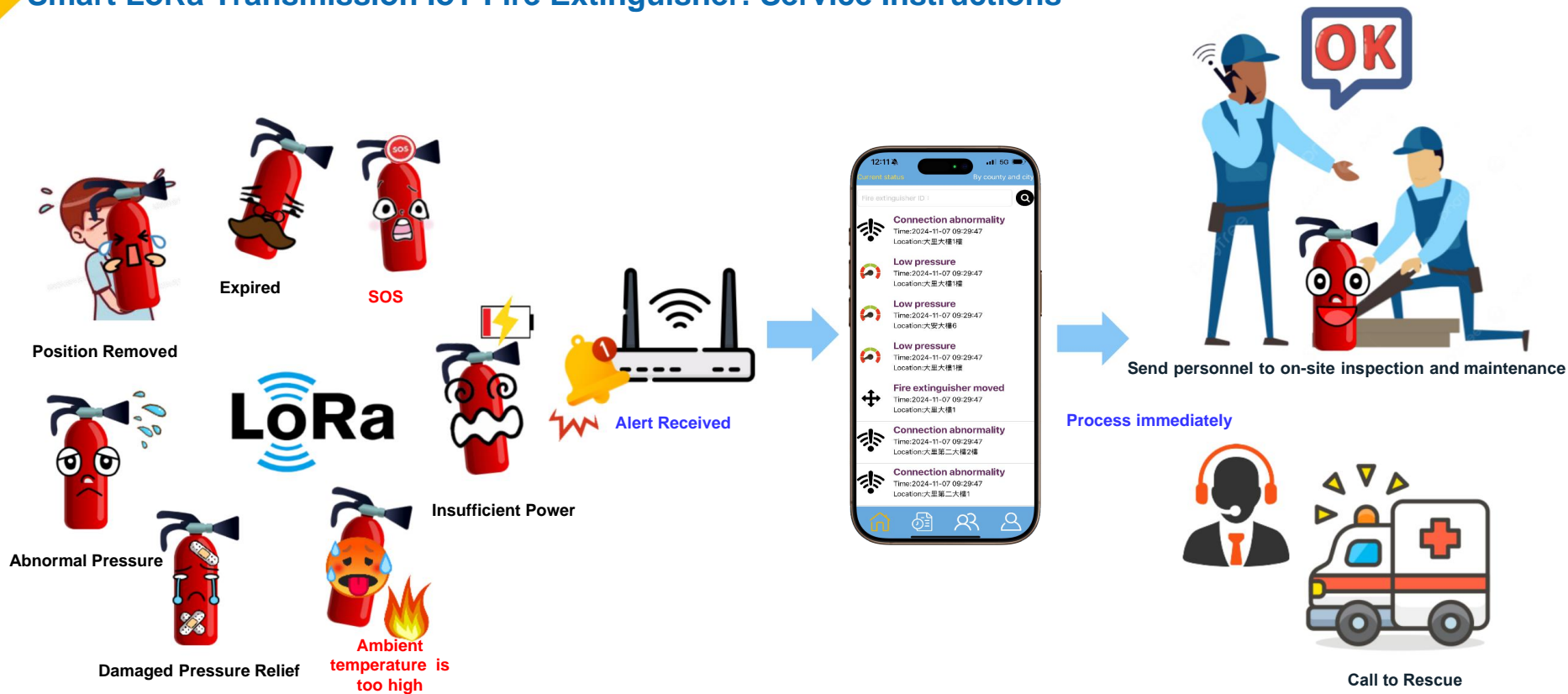
2. Improve security:

Through intelligent technology, fire extinguisher problems can be identified more quickly question, automatically notify the corresponding person, and provide positioning information. Effectively improves the speed and efficiency of emergency response to fire extinguisher problems.

3. Expandable functions:

Various intelligent sensing functions can be expanded, such as: temperature monitoring, Gas detection...etc.

Smart LoRa Transmission IoT Fire Extinguisher: Service Instructions



2

Smart fire extinguishers vs. general fire extinguishers

Security Evolution in the Technology Era



General/smart fire extinguisher function comparison

Fire extinguisher types	Wireless transmission	Mobile device monitoring	group surveillance	Displacement notification	Ambient high temperature notification	Expiration notice	Pressure abnormal notification	Emergency button	Application scenarios
Smart LoRa transmission IoT fire extinguisher 	fire extinguisher can transmit up to 10 kilometers in open areas	Read data and receive notifications via your mobile device anytime, anywhere	Thousands of IoT fire extinguisher meters can be monitored simultaneously	Immediate notification when fire extinguisher is moved	Warning temperature can be set by yourself. If the ambient temperature is too high, a notification will be automatically sent to the background system. The background can also actively request any fire extinguisher to transmit real-time ambient temperature, truly achieving two-way ambient temperature monitoring.	It has a self-detection mechanism and automatically notifies when the device status is found to be expired.	Notify when fire extinguisher pressure drops below safe pressure	It can notify relevant personnel in emergency situations and provide its own real-time positioning to help rescuers find the scene more quickly.	Suitable for special scenarios that require intelligent response, such as large commercial venues, smart homes, etc.
General fire extinguisher 	×	×	×	manpower inspection	×	manpower inspection	manpower inspection	×	General communities, buildings, factories

Comparison of management and functions of various intelligent fire extinguishers



Smart LoRaIoT Fire Extinguishers



Tradition Fire extinguishers









QR Code/RFID Tag



Factory electronic inspection system

Software/Hardware Cost	Pressure gauge head and gateway	have high hardware and software costs. Requires AI recognition system and camera	RFID requires the use of a handheld scanner
GPS	●	●	X
SOS button	●	X	X
powered by	Low power consumption, no need to replace batteries frequently	Requires continuous power supply	X
immediacy	Can diagnose problems immediately (slower)	Can instantly determine the problem (faster) Can	X
video surveillance		visually monitor and confirm the source of fire	X
Privacy & Regulation	XNo privacy concerns	Have privacy concerns and must comply with regulations	No privacy concerns
safety	●	●	can be copied or duplicated
Technical Update	●	●	Technology is outdated and difficult to update
Manpower inspection	X	X	Reliance on human inspection or human error

Comparison of transmission methods

	 Bluetooth	 RFID	 zigbee	 NB-IoT	 Wifi	 LoRa
Use frequency band	2.4G	LF/HF/UHF	2.4G	2.4G/5G	2.4G/5G	433/868/915MHz
Transmission distance	10m	How many centimeters to how many meters?	10~75 m	Depending on the base station service coverage, a monthly fee is required	30~100m indoor 1km outdoor open space 20km	
Number of devices that can be connected	Up to 8	Can support a large number of tags	Can support hundreds of	Can support large-scale IoT devices	Can support a large number but there is an upper limit	Each gateway can reach thousands of devices
Wall penetration	Difference	worst	Difference	powerful	Difference	strongest

LoRa can penetrate metal walls and

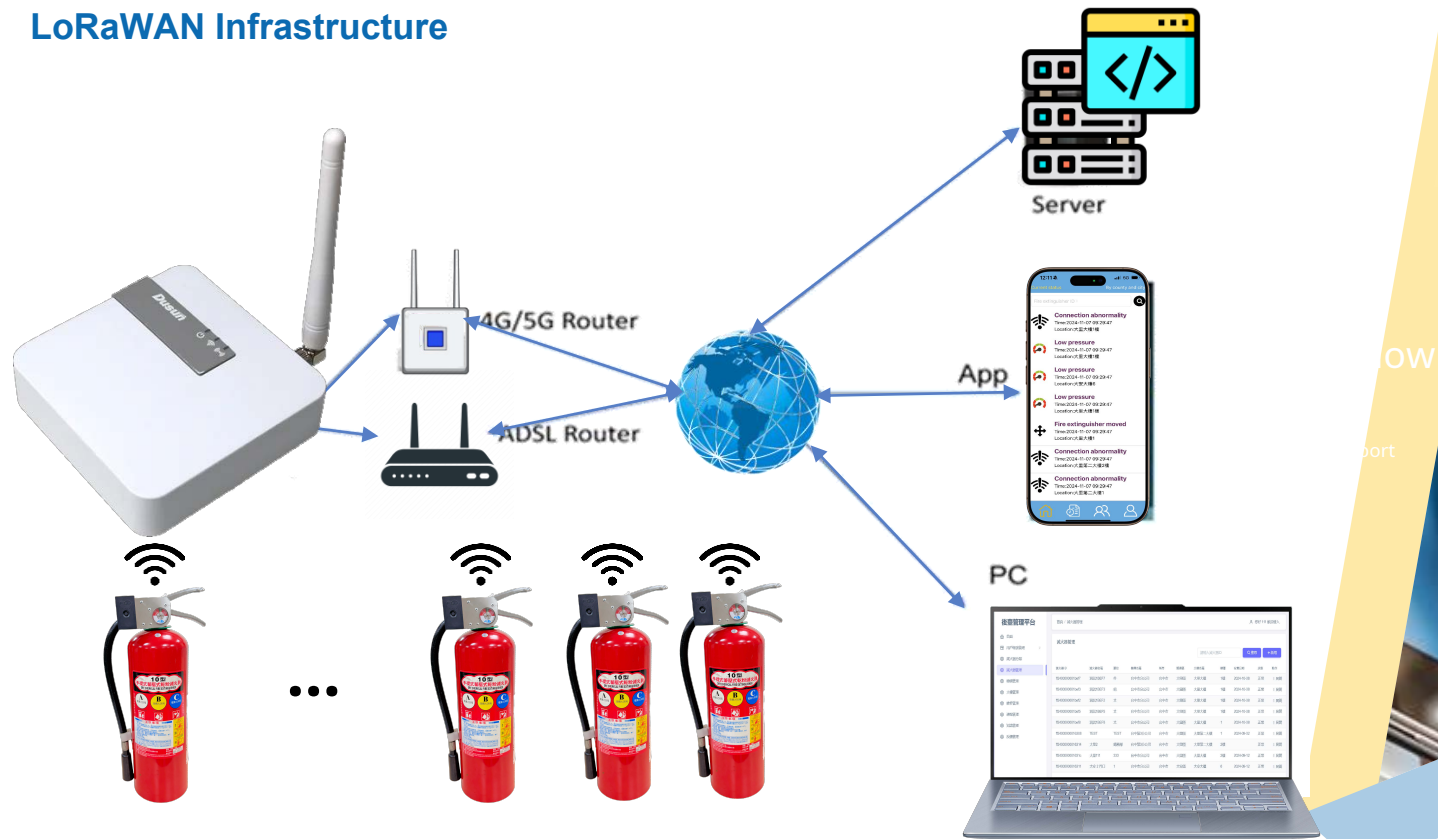
implement jumper and diffraction

functions to enhance communication coverage and st

A large, stylized number '3' in a medium blue color is positioned on the left side of the image. To its right, a large, stylized number '4' is partially visible, composed of a yellow diagonal stroke, a blue horizontal stroke, and a light blue vertical stroke.

Intelligent fire safety group control system
technology protection, safety and security!

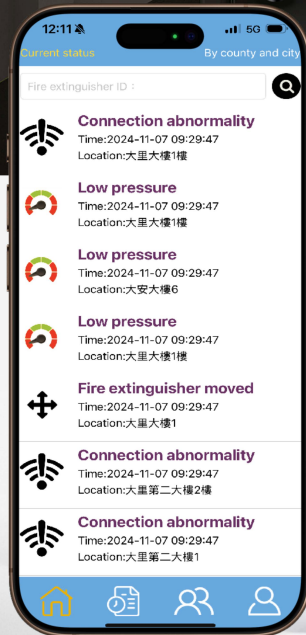
LoRaWAN Infrastructure



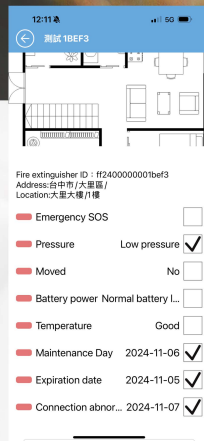
WEB PORTAL MONITORING

PATENTS PENDING WORLDWIDE

List of All Events! Actions taken necessary



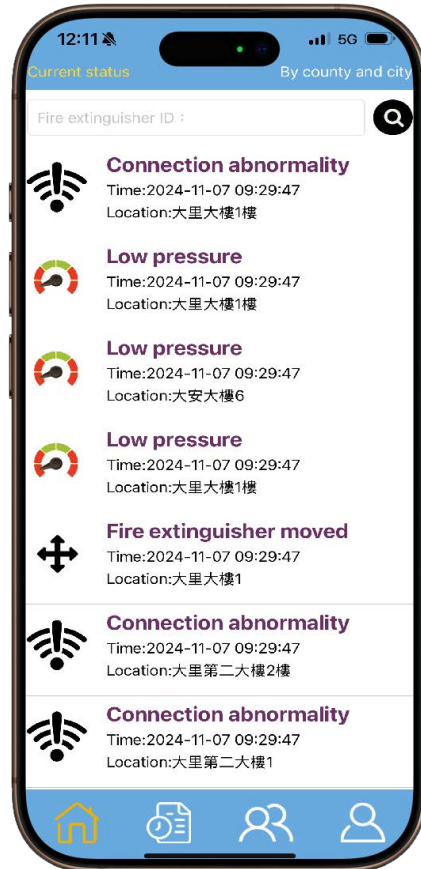
Floor Map and List of Events!



LoRaWAN
SMART GAUGE



Friendly iOS/Android User Interface!!!





4

Smart fire extinguishers evolve further

Technology protection, safe and worry-free



Smart fire extinguishers evolve again

Comprehensive response to fire-related risks and challenges

Temperature sensors can detect areas with abnormal temperatures and provide early warning, helping to prevent fires.

Temperature Monitoring Gas Detection



The function of sensing gas leakage can sound an alarm and take corresponding measures once dangerous gas is detected, further improving the effectiveness of fire prevention.

Smoke Analysis



With advanced smoke sensing technology, it can analyze smoke components, help determine the severity of the fire, and provide smarter response strategies.

Video Surveillance Remote Operation



It can be equipped with a camera, which can provide real-time video of the fire scene and assist remote command and rescue.

With remote operation function, users can remotely control the fire extinguisher through mobile phones or computers, such as turning on fire extinguishing agent spray or checking the status of the device.

The background is a solid dark blue. On the left, a large, semi-transparent blue number '5' is positioned. On the right, there are several abstract geometric shapes: a thick yellow diagonal bar, a blue rectangular block, and a light blue rectangular block, all arranged in a dynamic, overlapping fashion.

Enterprise management advantages

A new revolution in business management

Smart fire extinguishers bring powerful advantages to enterprises

Introduce smart fire extinguishers to usher in a new management revolution for enterprises!

Save labor costs



It has automatic detection and notification functions, eliminating the need for manual inspections or manual inspections, helping to reduce labor costs and make corresponding management and inspection procedures more efficient.

24H real-time monitoring and notification



It can provide instant monitoring and notification, which not only reduces the need for manual guarding, but also increases the speed of fire response and reduces losses.

Remote operation and management



Through the remote operation function, business owners can easily grasp the status of fire extinguishers using their mobile phones or computers, so as to manage them more effectively and implement immediate fire emergency measures no matter where they are.

preventive maintenance



It has a self-detection mechanism that automatically performs regular inspections and reminds business owners to perform preventive maintenance, which helps reduce the risk of fire extinguisher failure and improves overall fire safety.

Data analysis and decision support



A large amount of data can be collected, and business owners can analyze the data to understand information such as fire risks and fire extinguisher usage, and then formulate more scientific safety management strategies.

Improve corporate image



It helps to improve the image of the business owner and shows that the company attaches great importance to security and technology, which helps to build trust and a good image among customers, partners and employees.



Smart fire extinguishers bring powerful advantages to enterprises

Introduce smart fire extinguishers to usher in a new management revolution for enterprises!

- 1. Save labor costs:** Smart fire extinguishers have automatic detection and notification functions, **No manual inspection or manual inspection required**, helps reduce labor costs and makes corresponding management and inspection procedures more efficient.
- 2. Real-time monitoring and notification:** Smart fire extinguishers can provide instant monitoring and notification, not only **It reduces the need for manual guarding, increases the speed of responding to fires, and reduces losses..**
- 3. Remote operation and management:** Business owners can easily control the status of fire extinguishers using their mobile phones or computers through the remote operation function, thus **Manage more effectively and achieve immediate fire response wherever you are.**
- 4. Preventive maintenance:** Smart fire extinguishers usually have a self-detection mechanism that can automatically perform regular inspections, **Remind business owners to perform preventive maintenance. This helps reduce the risk of fire extinguishers malfunctioning**, improve overall fire safety.
- 5. Data analysis and decision support:** Intelligent fire extinguishers usually **Vast amounts of data can be collected, which can be analyzed by business owners to understand fire risk, fire extinguisher usage** and other information to formulate more scientific safety management strategies.
- 6. Image improvement:** Adopting smart fire extinguishers also helps **Improving the image of business owners**, showing that the company attaches great importance to security and technology, which **Helps build trust and good image among customers, partners and employees.**



6

Future innovative applications

will protect security and be ubiquitous



Pressure sensors evolve again

Guard safety everywhere



Water pipe pressure monitoring

Power system voltage monitoring

Pressure related medical equipment

Monitoring the hydraulic system of mechanical equipment

Monitoring air and water pressure in industrial processes

Intelligent building management

Ambient atmospheric pressure monitoring

Aerospace applications

Pressure sensors evolve again

Guard safety everywhere

- Community Buildings
- Community Villas
- Hospitals
- Schools
- Government Agencies
- Department Stores
- Transportation Equipment
- High-tech Industries
- Large Manufacturing Facilities





Thanks!