AUTOMATIC FIRE EXTINGUISHING SYSTEM

FIREKIM

5 TECHNOLOGY
- Smart Capsule
- Eco-Friendly Agent
- Innovative Design

10 PRODUCT
- Stick
- Sensor +
- Red Block

17 APPLICATION
- House & Market
- Industrial facility
- Population density facility

21 COMPANY
- Overview
- History
- Certificate
- Global Network
Unique

The world’s leading unique automatic fire extinguishing system

This is an innovative fire prevention system that comes in various sizes, including forms to fit in the palm of your hand, and is suitable for many different purposes, installed in fire protection blind spots to snuff out major fires in advance. This is a smart automatic fire extinguisher that operates without requiring a separate power source, as the fire-extinguishing capsule inside the product automatically detects temperature changes.
Easy

Simply attach it in any fire protection blind spot.

It can be easily and conveniently installed by anyone, and can be custom-made in different sizes and volumes of protection. It can be applied anywhere including small areas like switchboards that are difficult to detect during a fire, places that you cannot easily reach, and other locations with high risk of fire due to complex electrical wiring.
SMART CAPSULE

The internal temperature sensing feature, not requiring a power supply device, enables the capsule inside the stick to react to the temperature when it reaches 100-110°C before discharging the chemical.

The stick fire extinguisher is a smart automatic product with a stick fire-extinguishing capsule that automatically detects the temperature in a space where the interior temperature rises to 100-110°C, then instantly discharges over 90% of its fire-extinguishing chemical, spreading it throughout the area of protection and capturing the heat in the air to extinguish the fire.
NOVEC 1230 AGENT

The best eco-friendly fire-extinguishing chemical in the world, enabling continuous use without falling under the global greenhouse gas reduction policy.

'Stick' System using 3M™ Novec™ 1230 Fire Protection Fluid
INNOVATIVE DESIGN

The innovative design that won the [Design Award] at the iF Design Award 2019, with an exterior made of stainless steel in consideration for functionality and durability.

There is no design without purpose in an automatic fire extinguishing system that will evolve the paradigm of fire prevention by innovativeness, which helped it to win the [Design Award] at the iF Design Award 2019. It features numerous discharge holes for the fire-extinguishing chemical to be sprayed and propagated quickly to put out a fire, and is designed with a light, compact size that makes it fit perfectly in the palm of your hand for simple installation and convenient management.
EXTINGUISHING SYSTEM PRODUCT
**STICK**
Small-scale switchboards / switchboards
For application in crowded facilities, nursing hospitals, traditional markets, drones, electronic products, and batteries for electric cars

**SENSOR +**
Industrial production facilities
For application with high-pressure and high-temperature equipment in semiconductor manufacturing processes, chambers, chillers, other industrial machines, telecommunication devices, and various electrical panels

**RED BLOCK**
Mid- to large-sized switchboards / panel boards
Large drones, ESS, xEV, ships, automotive charging terminals, electric batteries, power plants, UPS, switches, transformers, etc.
What's STICK

New standard of fire extinguishing system in the world!

The stick fire extinguisher is a smart automatic product whose stick fire-extinguishing capsule automatically detects the temperature in a space where the interior temperature rises to 100-110°C, then instantly discharges over 90% of its fire-extinguishing chemical, spreading it throughout the area of protection and while extinguishing by cooling and smothering, pushing out the air in the space and capturing the heat.

<table>
<thead>
<tr>
<th>Model</th>
<th>Product dimensions (W X H X L)</th>
<th>Volume of protection according to NFPA standard</th>
<th>Maximum installation height</th>
<th>Product weight</th>
<th>Expiration</th>
<th>Types of fire for application</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSC130</td>
<td>25 x 15 x 130</td>
<td>0.018m³</td>
<td>0.7m</td>
<td>43.5g</td>
<td>7 Years</td>
<td>A</td>
</tr>
<tr>
<td>FSC200</td>
<td>25 x 15 x 200</td>
<td>0.031m³</td>
<td>1.2m</td>
<td>68.7g</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>FSC250</td>
<td>25 x 15 x 250</td>
<td>0.041m³</td>
<td>1.2m</td>
<td>84.5g</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>FSC300</td>
<td>25 x 15 x 300</td>
<td>0.050m³</td>
<td>1.2m</td>
<td>100.0g</td>
<td></td>
<td>B</td>
</tr>
</tbody>
</table>

Patent: 10-1857775
Design: 30-0907732
Special features of STICK

The automatic stick fire extinguisher uses Novec 1230, the best eco-friendly fire-extinguishing chemical in the world, which can be used continuously without falling under the global greenhouse gas reduction policy.

**Activation temperature**
100°C – 110°C  
212°F – 230°F

**Capsule reaction speed**
90% discharge in 1 second

**KFI certification completed**
Certified by Korea Fire Institute (KFI)  
For small spaces, the first of its kinds in the gas industry  
Fire extinguishing system (small opening 17-1)

**Uses Novec 1230**
Extinguishes by smothering, with outstanding electrical insulation by shutting off cooling oxygen as it vaporizes and absorbs heat

**Easy to use**
Easy to use regardless of gender or age

**Lightweight**
43.5g of STICK130
What's STICK SENSOR +

New standard of fire extinguishing system in the world!

STICK SENSOR+ gives buzzers, signals at points of contact, and activation of fire-extinguishing capsules for users through the feature that monitors abnormal signals such as changes in smoke concentration, temperatures higher than a certain level, and humidity of the fire-extinguishing chemical in the installed environment.

<table>
<thead>
<tr>
<th>Model</th>
<th>Product Dimensions (W x H x L)</th>
<th>Amount of fire-extinguishing chemical</th>
<th>Volume of protection according to NFPA standard</th>
<th>Max. installation height / weight</th>
<th>Product voltage / Power consumption</th>
<th>Persisting period / Product warranty</th>
<th>Control output</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSS185A</td>
<td>28 x 27 x 232</td>
<td>23.2g</td>
<td>0.027m³</td>
<td>0.8m / 128.6g</td>
<td>DC 24V / 0.3W</td>
<td>7Years / 7Years</td>
<td>• Identical feature, Fire-extinguishing capsule status display, Set smoke concentration / Temperature display, A: Type added feature, Temperature change value display</td>
</tr>
<tr>
<td>FSS185B</td>
<td>28 x 27 x 229</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Automatically activates by detecting the set temperature and occurrence of smoke. Alarm sent to central control in case a specific temperature is reached or the system is activated.
Special features of

STICK SENSOR +

- Operating principle with Firekim’s exclusive know-how of the fire-extinguishing capsule itself responding to temperature and spraying
- “Zero” ozone depletion potential (ODP) thanks to use of eco-friendly fire-extinguishing chemical
- Temperature sensor activated when set temperature is reached (customer selects from among 50, 60, 70 or 80°C)
- Smoke sensor activated when set smoke concentration is reached (customer selects from 1st to 4th stage)
- Simple reset using a switch
- Verify whether the fire-extinguishing capsule works
Special features of RED BLOCK

- Product that can be applied to mid- to large-sized spaces
- Extinguishes fire in the installed volume as it activates within 3 seconds
- Discharges over 90% of the fire-extinguishing chemical within 30 seconds
- Automatic fire-extinguishing chemical discharge system by reacting to heat
- Possible to design activation time tailored to customer requirements
What's RED BLOCK

It is a product that can be applied to mid- to large-sized spaces such as electrical panels, switches, transformers, ESS rooms, ships, large drones, UPS, and power plants.

- The N-Type is a product designed based on the existing "stick" product to suit any mid- to large-sized protection volumes.
- The S-Type is a product designed to give buzzers, signals at points of contact, and activation of fire-extinguishing capsules to users through the feature to monitor abnormal signals such as changes in smoke concentration, temperature higher than a certain level, etc.

### RED BLOCK

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<th>Volume of protection according to NFPA standard</th>
<th>Max. Installation height</th>
<th>Product Voltage / Power consumption</th>
<th>Persisting period / Product warranty</th>
<th>Types of fire for application</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRB250N</td>
<td>103 x 43 x 256</td>
<td>0.15m²</td>
<td>1.0m</td>
<td>-</td>
<td>7 Years / 7 Years</td>
<td>A</td>
</tr>
<tr>
<td>FRB250S</td>
<td>103 x 43 x 259</td>
<td>0.15m²</td>
<td>1.0m</td>
<td>-</td>
<td>DC 24V / 0.3W</td>
<td>B</td>
</tr>
<tr>
<td>FRB300N</td>
<td>103 x 43 x 306</td>
<td>0.23m²</td>
<td>1.0m</td>
<td>-</td>
<td>-</td>
<td>C</td>
</tr>
<tr>
<td>FRB300S</td>
<td>103 x 43 x 309</td>
<td>0.23m²</td>
<td>1.0m</td>
<td>DC 24V / 0.3W</td>
<td>-</td>
<td></td>
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</tbody>
</table>

*S Type: Alerts central control when the set temperature or smoke concentration are reached
What's RED BLOCK

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### RED BLOCK

| Model                     | Product Dimensions (W x H x L) | Volume of protection according to NFPA standard | Max. installation height | Product voltage / power consumption | Persisting period / Product warranty | Types of fire for application |
|---------------------------|--------------------------------|
| Automated gas fire-extinguishing devices | FRB350N 193 x 43 x 356 | 1000°F (300°C) | 1.6m | - | 7 Years / 7 Years | A B C |
|                           | FRB350S 103 x 43 x 359 | 1000°F (300°C) | 1.6m | DC 24V / 0.3W | 7 Years / 7 Years | A B C |

*S Type: Alerts central control when the set temperature or smoke concentration are reached*
PRODUCT APPLICATION
Firekim products are installed in commercial facilities including grocery stores and traditional markets, and we strive to protect the safety of lives and valuable properties.

Examples of installation in traditional markets in 2016 (Cheongju Sachang Market, Jecheon Central Market)

- KULKURI GAMIATANG
- JONGNO RICE CAKE SHOP
- CHEONAN SIDE DISH STORE
- JEcheon CENTRAL MARKET 01
- JEcheon CENTRAL MARKET 02
- JEcheon CENTRAL MARKET 03

Lotte Food, Pasteur, LG Hausys (switchboards, chambers), Samsung Semiconductors (chillers)
Firekim products can be installed in national and public hospitals and nursing facilities, and establish a safe environment to protect customers’ precious lives.

- Municipal Surak Nursing Home

- Jungnang Senior Hospital
Firekim products protect the precious lives of customers in crowded facilities including performing halls and universities where safety is critical.

- **Human Theater, Howon Art Hall**

- **Hansung Art**
WE MAKE PRODUCTS THAT SAVE LIVES.
Overview

Firekim’s creative and progressive technology makes
‘Products that save lives.’

<table>
<thead>
<tr>
<th>Company Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
</tr>
<tr>
<td>CEO</td>
</tr>
<tr>
<td>Founded on</td>
</tr>
<tr>
<td>Headquarters</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Contact</td>
</tr>
<tr>
<td>Homepage</td>
</tr>
</tbody>
</table>
Organization

"We will create value unique to Firekim by solving the worries of fires."

Firekim Co., Ltd. is an R&D company that develops multi-function, high-performance firefighting safety and response systems through convergence of IoT technology and firefighting safety products, and also owns the source technology to enable integration of relevant products.

With innovative and independent source technology, Firekim Co., Ltd. is growing and developing into a new-form, next-generation firefighting safety platform company tailored to the age of the 4th industrial revolution. We will continue to strive to solve "your worries about fire."
History

Since its founding in 2014, Firekim Co., Ltd. has been proposing new possibilities in the firefighting safety industry and achieving innovative growth.

2014 12 Founded FIREKIM

2015 03 Entered 5th class of Korea SMEs and Startups Agency

2015 07 Acquired venture company certification and signed CDA contract with 3M Korea

2015 12 Completed development of “STICK” fire extinguisher

2016 03 Corporate conversion into Firekim Co., Ltd

2016 07 “Stick” recognized as the nation’s first-ever gas-type fire-extinguishing device for small spaces by KFI

2017 01 Seed-stage investment attracted from Korea Venture Consulting Inc.

2017 07 Attracted investment from Small and medium Business Corporation

2017 09 Received “Minister of the Interior and Safety Award” in Outstanding Product category at 16th K-Safety Awards

2017 12 “Stick” certified as gas-type fire-extinguishing device for small spaces by KFI

2018 06 Signed private contracts with Seoul Metropolitan Government and KTL

2018 10 Registered as a product supplier for POSCO / signed NDA with Samsung SDI

2019 01 Certified for EPC performance (designated as item for test purchase)

2019 02 Received Innovative Design Award at iF Design Award

2019 03 Sold products to LG Chem / registered on ServeOne

2019 04 Exported products to India, Saudi Arabia, and South Africa

2019 03 Supplied products registered on ELAND service MRO

2019 04 Acquired CE mark of SENSOR+

2019 07 Registered and supplied parts for Samsung semiconductors

2019 09 Participated in 2019 NFPA Conference and Expo

2019 10 Signed sales contract with iMarketKorea (MRO registration)

2019 11 Supplied to Korea Gas Corporation (Incheon Terminal)

2019 12 Opened Chicago Office Installed product in Sangdang-gu Office, Cheongju

2020 10 Installed product in Heungdeok-gu Office, Cheongju (10.11)

2020 11 2019 DUPEX / 2019 InterBattery

2020 12 Selected as cooperating startup for water business platform by Korea Water Resources Corporation (K-Water)

2021 06 SENSOR+ Selected as Good Design

2021 12 Signed NDA with Kokam Co., Ltd. (R&D)
Certificate

The efforts of Firekim in striving to develop firefighting safety products are protected by quality certifications, performance approvals, and patent registration.
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Certificate

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Global Network

Exported to 7 countries including U.S.
Headquarter 48, Jungsimsangeop 2-ro Ochang-eup, Cheongwon-gu, Cheongju, Chungcheongbuk-do 28119
(Information Technology T-Factory Office #208, Chungbuk Regional SMEs and Startups Office)
Plant 33, Sinpyeongjiungsin-gil Ochang-eup, Cheongwon-gu, Cheongju, Chungcheongbuk-do 28132
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