www.mpiatek.com

MPIA Co., Ltd.

Battery-free Wireless

Self-Powered Sensors & IoT·Smart Factory Integreted Solution

Battery-free
With Self-Powered sensors Semi-perman -ent use is possible

Wireless
Easy to install without wiring or piping and no construction

Web Monitoring
You can see all the signals from each sensor In PC Monitoring Program

- **Self-Powered** Call Bell



- **Self-Powered** Emergency Bell



- **Self-Powered** Light Switch



- **Self-Powered** Gas Valve Open/Close Detection Sensor



- **Self-Powered** Fire Detection Sensor



- **Self-Powered** Door Open/Close Detection Sensor





MPIA Co., Ltd.

HuMan UtoPIA

Realize Human Utopia with creative and innovative thinking

MPIA has been developing and producing trusted products for a long time with the aim of ideal human life.
We produce **Diesel Particulate Filter(DPF) Actuator box** installed in Hyundai Motor Company and **electronic dehumidifiers and electronic panel coolers** installed in Hyundai Heavy Industries, POSCO, LG, etc.
and We have been continuously exporting **Guest Pager** with excellent technology overseas for many years.
Currently, through continuous research and development, we are developing innovative **Self-Powered products** with **energy harvesting technology** that does not require power, and we have established an **integrated monitoring system** based on self-generation sensors.

We will continue to do our best to become a company that realizes human ideals with creative and innovative thinking. Thank you.

History

2004 · Established Mpia Co., Ltd.
· Industry-Academic Cooperation Enactment (Inha Technical College)

2005 · Development of Technology Innovation for Small and Medium Enterprises Cryopump Controller Foreignization

2006 · Development and mass-production of digital door lock MNR series

2009 · Development of Waterproof Digital Door Lock for U.S. Export and Mini Hand Dryer & Hand Sanitizer

2010 · Enterprise-affiliated technology research institute registration
· Development and mass production of ateral speakers and actuator boxes for Diesel Particulate Filter

2012 · Co-development of KIST, a rehabilitation system for lower extremities
· Development of Wireless Charging System

2014 · Development and mass-production of call system and Guest Pager system

2017 · Purchase conditional new product development project (Wireless Bell Transmission/Reception System Using Self-Powered Module)

2019 · Quality management system certification
· Development and mass-production of self-generated radio call system

2020 · Small and medium enterprise technology innovation development project (development of three types of wireless and wireless sensors for IoT and Smart Factory)

2021 · Headquarters and Factory Expansion Transfer (Bucheon Techno Park)

2022 · Development of Web Monitoring System Based on Self-Powered Production

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01 · Self-Powered Staff Call System

Patent : No.10-2022630 (Wireless Self-Powered Bell) · KC · Japan MIC

I Battery-Free Self-Powered Staff Help·Call Bell System

- ① When the customer rings the Call Bell → ② Displaying the number in 5-Windows (1-Window) → ③ Staff response and service → ④ Delete a number using Eraser
- Ensure product reliability by **Dust and Waterproofing (IP57)** and **100,000 operational tests**



5-Window Monitor (MWSM5-500)

· Display call signals (5 simultaneous)
· Up to 224 bells can be registered
· **Store up to 10 simultaneous signals**



1-Window Monitor (MWSM1-300)

· Display call signal
· Up to 224 bells can be registered
· **Store up to 6 simultaneous signals**



Repeater (MWSRT-800)

· Distance extension +150m (open field)



Self-Powered Call Bell (MWST-100)

· Battery-free, Wireless Product
· **Dustproof and waterproof** IP57
· **100,000** Operational test
· Use unique ID by device, No radio interference



Eraser (MWSE-100)

· Remotely erase the signal on the 5-window monitor

❶ Application Field

- Application to various environments with excellent reliability of dustproof and waterproof IP57
- Not only small stores, but also large stores and floors can be applied by repeater



✓ Restaurant



✓ Hospital



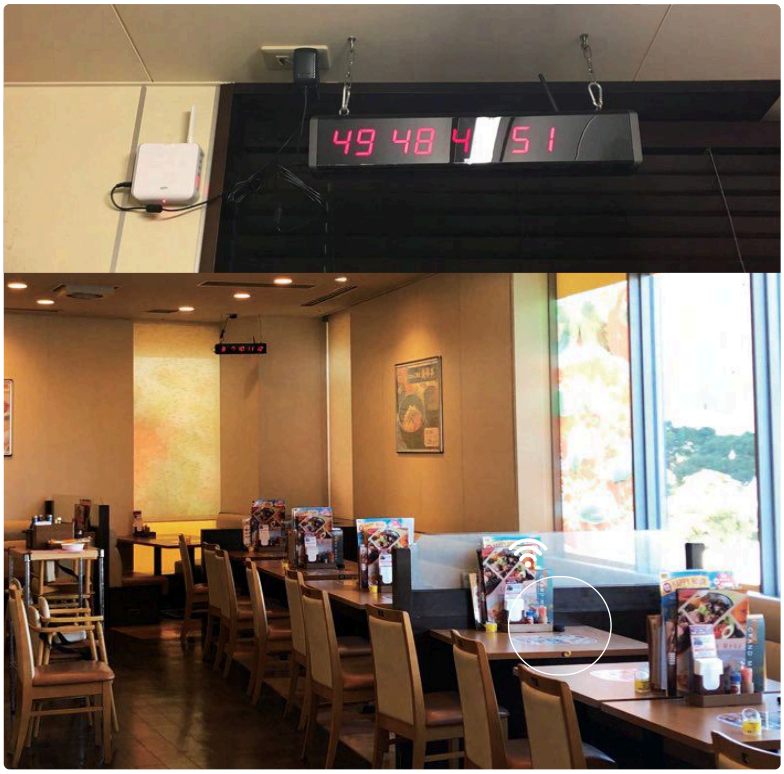
✓ Public Office



✓ Industrial site

❷ Application case

- Applies to famous Japanese franchise family restaurants and Korean chicken restaurants
- Depending on the size of the store, a 1-window monitor or 5-window monitor and repeater were applied



'C' Family Restaurant in Japan



'F' chicken restaurant in Korea

❸ Specification

	Monitor(5-W) (MWSM5-500)	Monitor(1-W) (MWSM1-300)	Repeater (MWSRT-800)
Size	W580 x D108 x H36 mm	W154 x D108 x H33 mm	W115 x D115 x H28 mm
Weight	950g	280g	160g
Frequency	920.700MHz(FSK)	920.700MHz(FSK)	920.700MHz(FSK)
Antenna	External antenna	External Antenna	External Antenna
Power	DC 12V, 1A Adapater	DC 12V, 1A Adapater	DC 12V, 1A Adapater
Distance	about 150m(Open-field)	about 150m(Open-field)	about 150m(Open-field)
Display	FND 2-digit × 5, Signal Storage LED	FND 2-digit, Signal Storage LED	FND 3-digit, Tx·Rx·Power LED
Output	DC Power, Warning-light, Speaker, RS485	DC Power, Warning-light, Speaker, RS485	DC Power

	Self-Powered Call Bell (MWST-100)	Eraser (MWSE-100)
Size	W48 x D78 x H25 mm	W40 x D120 x H22 mm
Weight	35g	70g
Frequency	920.700MHz(FSK)	920.700MHz(FSK)
Antenna	Built-in antenna	Built-in antenna
Power	**Self-Powered**	AAA 1.5V Battery 2ea
Distance	about 100m(Open-field)	about 100m(Open-field)
Display	N/A	Tx LED
Dust/Water Proof	**IP57**	N/A

02 · Self-Powered Emergency Bell System

Patent : No.10-2022630 (Wireless Self-Powered Bell) · KC

Battery-Free Self-Powered Eco-friendly Emergency Bell

- ① Press the Emergency Bell in case of an emergency → ② 1-Window Monitor displays the location number ③ Warning light works → ④ Go to the place of occurrence
- Ensure product reliability by **Dust and Waterproofing (IP57)** and **100,000 operational tests**



Warning light

· 1-Window Monitor Connection (PTL)



Repeater (MWSRT-800)

· Distance extension +150m (open field)

1-Window Monitor (MWSM1-300)

· Display call signal
· Up to 224 bells can be registered
· **Store up to 6 simultaneous signals**
· **RS485 Connectable**



Self-Powered Emergency Bell (MWST-110)

· Battery-free, Wireless Product
· **Dustproof and waterproof** IP57
· **100,000** Operational test
· Use unique ID by device
No radio interference



RF Communication Module (MRRC-500)

· I**nterworking of communication devices of other companies** through MCUs such as emergency call devices

① Application Field

- Dustproof/Waterproof IP57 Excellent reliability for dusty and wet areas
- It does not require wiring, so it can be easily installed in places where construction is difficult



✓ Public toilet



✓ Hospital



✓ Parking lot



✓ Industrial site

❷ Application case

- Easy to install even at a height that's easy for people with disabilities to press
- Application of emergency bell and RF communication module with emergency call devices of other companies



Elementary, middle and high school disabled toilets



Public Toilet
(Emergency Call Device Interworking Case)

❸ Specification

	Monitor(1-W) (MWSM1-300)	Repeater (MWSRT-800)
Size	W154 x D108 x H33 mm	W115 x D115 x H28 mm
Weight	280g	160g
Frequency	920.700MHz(FSK)	920.700MHz(FSK)
Antenna	External antenna	External antenna
Power	DC 12V, 1A Adapter	DC 12V, 1A Adapter
Distance	about 150m(Open-field)	about 150m(Open-field)
Display	FND 2-digit, Signal Storage LED	FND 3-digit, Tx·Rx·Power LED
Connection	DC Power, PTL, RS485/SPK	DC Power

	Self-Powered Emergency Bell (MWST-110)	RF Communication module (MRRC-500)
Size	Ø63 x H25 mm	W40 x D25 x H7.5 mm
Weight	38g	5g
Frequency	920.700MHz(FSK)	920.700MHz(FSK)
Antenna	Built-in antenna	Chip antenna
Power	**Self-Powered**	DC 3.3~6V
Distance	about 100m(Open-field)	about 100m(Open-field)
Display	N/A	On/Off LED
Dust/Water Proof	**IP57**	N/A

03 · Self-Powered Wireless Switch System

Patent : No.10-2118154 (Dust/Water Proof Self-powered Wireless Switch System) · KC
· KC Electrical Safety Certification(AC Receiver)

Battery-Free, Wireless, Self-Powered Eco-friendly Light Switch

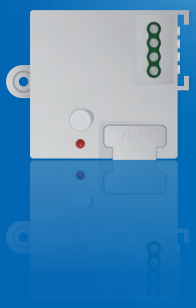
- ① Self-Powered Wireless Switch Press → ② AC receiver or DC receiver receives
  ③ Control the on/off of lights and electronic devices
- Ensure product reliability by conducting **dust and waterproofing (IP57)** and **100,000 operational tests**



LED Light Control

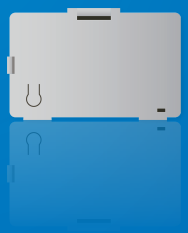


Automatic Door Control



AC Receiver (MRAC-500)

· **On/Off Control** of AC Lights and Electronic Devices
· Up to 10 switches can be registered
· Relay mode function



DC Receiver (MWSRD-500)

· **Converter required**
· On/Off Control of DC Lights and Electronic Devices
· Up to 10 switches can be registered
· Relay mode function



Self-Powered Wireless Switch (MWST-120)

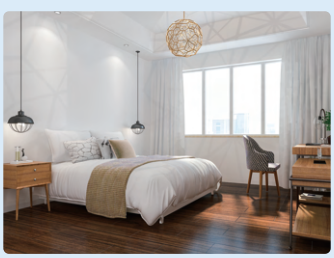
· Battery-free, Wireless Product
· **Dustproof and waterproof** IP57
· **100,000** Operational test
· Use unique ID by device, No radio interference

① Application Field

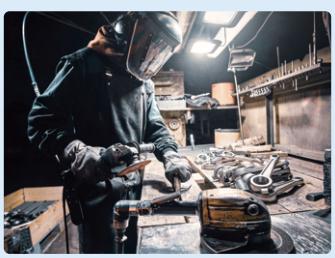
- Application to various environments with excellent reliability of dustproof and waterproof IP57
- Wiring-free switches allow easy installation and control of various electronic devices, including lights



Outdoor LED



Indoor LED



Industrial site LED



Electronic devices

❷ Application case

- Application of electric light switch to elevator in 'H' construction complex, outdoor recycling storage, etc
- Can be used for various electronic device control as well as automatic door control



'Public facilities in H' construction company complex (applies designated switch design by customer)



Interior light switch



Slide automatic door switch

❸ Specification

	Self-Powered Switch (MWST-120)	AC Receiver (MRAC-500)	DC Receiver (MWSRD-500)
Size	W84 x D84 x H15 mm	W59 x D54.5 x H25 mm	W43 x D30 x H7 mm
Weight	35g	25g	5g
Frequency	920.700MHz(FSK)	920.700MHz(FSK)	920.700MHz(FSK)
Antenna	Built-in antenna	Chip antenna	Chip antenna
Power	**Self-Powered**	AC 110~240V	DC 3.3 ~ 6V
Distance	about 100m(Open-field)	about 100m(Open-field)	about 100m(Open-field)
Display	N/A	Operation LED	Operation LED
Connection	N/A	Input 2-pin, Output 2-pin	VCC, GND, PWM Output
Dust/Water Proof	**IP57**	N/A	N/A

04 · Self-Powered Valve Open/Close Detection Sensor

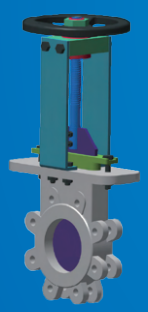
Patent : No.10-2203286 (Self-Powered Gas Valve Remote Opening and Closing Monitoring System)

I Battery-Free, Wireless, Self-Powered Valve Open/Close Detection Sensor

- ① Valve open/close action → ② The kinetic energy of the valve → ③ Electrical energy conversion and sensor operation - RF signal transmission → ④ Monitoring
- Monitor the opening and closing status of valves in industrial sites with **dustproof and waterproof (IP57)** Sensors to **prevent massive damage caused by malfunction**



Gas Valve

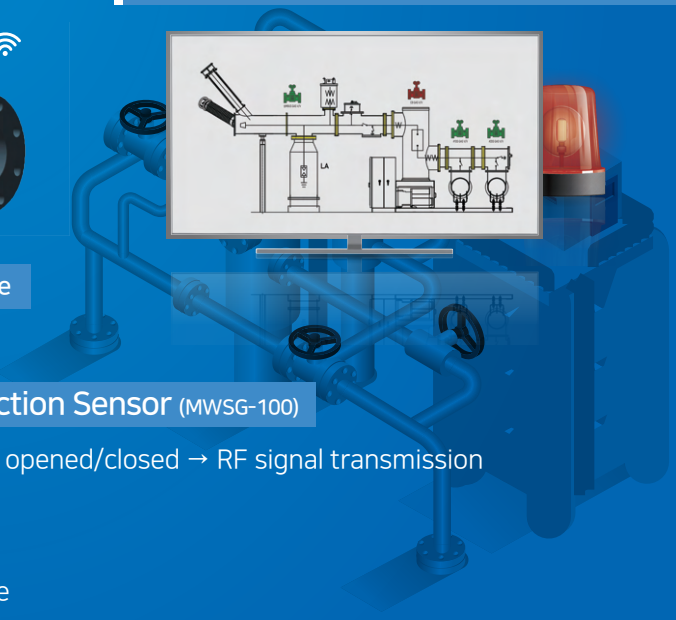


Knife Vavle



Ball Valve

Valve Open/Close Monitoring System



Self-Powered Valve Open/Close Detection Sensor (MWSG-100)

· Electrical energy generated when the valve is opened/closed → RF signal transmission
· Battery-free, Wireless Product
· **Dustproof and waterproof** IP57
· Use unique ID by device, No radio interference

❶ Application Field

- Dustproof and waterproof IP 57 grade can be applied to various industrial sites indoors and outdoors
- Wireless and battery-free sensors make it easy to apply to sites where wiring is difficult



Substation GIS



Petrochemicals



Gas Corporation



Drain valve

❷ Example of application

- Monitor valve opening/closing conditions in the industrial site at a glance to prevent significant damage caused by operator misoperation



1 worker' **Misoperation occurred**

2 Valve open/close action Sensor sense RF signal transmission

3 **The worker receives the Open/Close of the valve by SMS**

4 Go to the scene **to prevent accidents**

❸ Application case

- Application of GIS Gas Valve Open/Close Monitoring System in Korea Electric Power Corporation
- Gas failure caused by operator malfunction occurs twice a year on average

  → Increased need for gas valve open/close monitoring





Korea Electric Power Corporation Busan Ulsan Headquarters Outdoor Substation GIS

❹ Specification

Self-Powered Gas Valve Open/Close Detection Sensor (MWSG-100)

Size	W73 x D47 x H84 mm
Weight	35g
Frequency	920.700MHz(FSK)
Antenna	Built-in antenna
Power	**Self-Powered**
Distance	about 100m(Open-field)
Dust/Water Proof	**IP57**

05 · Self-Powered Fixed Temperature Fire Detection Sensor

Patent : No.10-2152447 (Self-Powered Fixed Temperature Fire Detection Sensor), No.10-2152447(Glass-bulb)·KC

I Battery-Free, Wireless, Self-Powered Fixed Temperature Fire Detection Sensor

- ① a rise in temperature → ② Thermal energy → ③ Electrical energy conversion and sensor operation
  - RF signal transmission → ④ Monitoring
- **Dustproof and waterproof (IP57)** sensors are installed in various environments such as industrial sites, homes, and aging facilities to detect high temperature rise that may lead to fire



SMA Type (MWSF-100)

· Shape Memory Alloy - Return After Sensor Operation (Reusable after returning)



Glass-bulb Type (MWSF-110)

· Glass bulb (disposable) - when sensor is operated Glass bulb is destroyed and sensor operation



SMA Type (Long type)

· Deep area detection

Self-Powered Fixed Temperature Fire Detection Sensor

· When the set temperature is reached (temperature rise ↑)
→ RF signal is transmitted
· Battery-free, Wireless Product
· **Dustproof and waterproof** IP57 / · Use unique ID by device, No radio interference

① Application Field

- Dust/waterproof IP57 sensors allow installation of indoor and outdoor facilities, public areas, and industrial sites
- Rapid initial response by applying to various spaces that can lead to fire when the temperature rises



Decrepit facilities



Distribution board



High-voltage cable tray



ESS incoming panel

❷ Example of application

- Initial quick response and fire prevention by attaching fire detection sensors to various spaces where temperature rises can lead to large fires



1 **Increasing temperature** in cable tubes

2 Temperature rise detection RF signal transmission

3 **Operator - Receive a SMS on the temperature rise position**

4 Go to the scene **to prevent accidents**

❸ Benefit

- Installation without changing the existing building structure is possible due to innovative reduction in installation and management costs compared to other fire detectors

AS-IS (Wire/Battery)

Wiring work

Difficulty in installing in small spaces such as aging facilities and distribution boards

+

Battery replacement

Requires periodic battery replacement personnel
Risk of discharge if not in use for a long time

TO-BE (Wireless/Battery-free → **Self-Powered**)

Wireless

Convenient installation in aging facilities and Small space (distribution panel, cable pipe, etc.) can be installed

+

Battery-free

Semi-permanent use in one installation
Easy management with no battery replacement

❹ Specification

	SMA Type (MWSF-100)	**Glass-bulb Type** (MWSF-110)
Size	W77 x D56 x H47.7 **(Long Type H164)** mm	W77 x D56 x H68 mm
Weight	82g **(Long Type 121g)**	82g
Frequency	920.700MHz(FSK)	920.700MHz(FSK)
Antenna	Built-in antenna	Built-in antenna
Power	**Self-Powered**	**Self-Powered**
Distance	about 100m(Open-field)	about 100m(Open-field)
Operating temperature	**Convection current(1m/s)** : about 75°C-85°C **Conduction** : about 90°C	**Convection current(1m/s)** : about 90°C **Conduction** : about 85°C

06 · Self-Powered Door Open/Close Detection Sensor

Patent : No.10-2152447 (Self-Powered Fixed Temperature Fire Detection Sensor), No.10-2152447(Glass-bulb)·KC

I Battery-Free, Wireless, Self-Powered Door Open/Close Detection Sensor

- ① Door open/close action → ② Kinetic energy of the door → ③ Electrical energy conversion and sensor operation - RF signal transmission → ④ Monitoring
- 3 types of sensors suitable for various door types can be applied with **dustproof and waterproof (IP57)**



Built-In (MWSD-100)

· Embedded - Door Lock Interior Installation



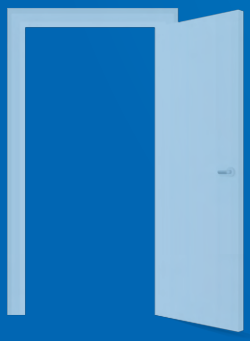
Add-On (MWSD-110)

· Protruding - Door External Installation



Slide (MWSD-120)

· Slide Type - Applies to seat belts, etc



Self-Powered Door Open/Close Detection Sensor

· Electrical energy generated when the door is opened/closed → RF signal transmission
· Battery-free, Wireless Product
· **Dustproof and waterproof** IP57
· Use unique ID by device, No radio interference

❶ Application Field

- Dustproof and waterproof IP 57 grade can be applied to various places indoors and outdoors
- Wireless and battery-free sensors make it easy to apply to sites where wiring is difficult



✓ Smart Factory



✓ Unmanned facility management



✓ Car door



✓ Access control

❷ Example of application

- It can be applied in various forms, such as home security or enterprise access control



1 the door of a house is open/closed

2 Sensor monitoring **Send a SNS**



1 an industrial site Door open/closed

2 in the field **Monitoring Access Management**

❸ Benefit

- Convenient and affordable self-powered door open/close sensor compared to other door sensors

AS-IS (Wire/Battery)

Wiring work

Safety hazards due to exposed lines
aesthetically unfavorable

+

Battery replacement

Requires periodic battery replacement
Concerns about inconvenience and discharge

TO-BE (Wireless/Battery-free → **Self-Powered**)

Wireless

Easy and simple installation
Easy to mount even within an industrial site

+

Battery-free

Semi-permanent use in one installation
Easy management with no battery replacement

❹ Specification

	Built-In (MWSD-100)	**Add-On** (MWSD-110)	**Slide** (MWSD-120)
Size	W32 x D67 x H16 mm	W28 x D72 x H27 mm	W30 x D72 x H29 mm
Weight	35g	37g	36g
Frequency	920.700MHz(FSK)	920.700MHz(FSK)	920.700MHz(FSK)
Antenna	Built-in antenna	Built-in antenna	Built-in antenna
Power	**Self-Powered**	**Self-Powered**	**Self-Powered**
Distance	about 100m(Open-field)	about 100m(Open-field)	about 100m(Open-field)
Dust/Water Proof	**IP57**	**IP57**	**IP57**

Based on self-powered sensors
Web Monitoring System

Battery-free, Wireless
Self-Powered
Real-time monitoring system

It's connected to a PC program to monitor location and time information in real time
Integrated control solution for sending SMS to agents



Critical Disaster Prevention Remote Monitoring System

Unmanned Remote Sensing System for Industrial Facilities Based on IoT



Smart Life Safety Alert

for the elderly/single-person households
Remote Safe Care and Crime Prevention System

Battery-free Wireless Self-Powered Sensor

- **Can be installed in various places:** Easy to install because it is free from wires
- **Eco-friendly:** No waste batteries are generated because batteries are not used
- **Economical:** Wiring work and battery replacement personnel are not required Single installation for semi-permanent use
- **Reliability:** Dustproof/Waterproof (IP57) and Durability (100,000 operation) test pass

Integrity

· Each role records the detection of different sensors Monitor and manage at a glance
· Sensor detection history data sheet management
· Directional distinction such as open/close by sensor
· Per-sensor signal encryption/decryption process

Scalability

· Configure site-specific map UI to display icons
· Interworking with your program via RS485
· Send various SMS phrases by sensor
· by applying Repeater(advanced) Extend transmission and reception distance by more than 1Km (Open-field)
· Battery sensor (447.9 MHz) expansion applicable

I Web Monitoring System Configuration Diagram

Self-Powered Door Open/Close Detection Sensor
Apply without wiring or batteries
Unattended remote access control sensor



Self-Powered Gas Valve Open/Close Detection Sensor
The opening/closing action of the critical valves
Detect and send signals



Self-Powered Fixed Temperature Fire Detection Sensor
The temperature increase
Detect and prevent fire



Self-Powered Emergency Bell
Emergency signal call bell
operated when pressed







Repeater (advanced)
(Communication distance extension)

Signal Receiver



Signal indicator



Sensor Hub



Repeater (advanced)
(Communication distance extension)



Self-Powered Light Switch
Connecting without wires
Unpowered light switch



Battery sensor (temperature, humidity, etc.)
Requiring periodic signals
Battery sensor applicable



Data Base
Store sensor detection history on cloud and PC management server



PC Monitoring Program
Integrated monitoring of each sensor signal
Field-specific map configuration

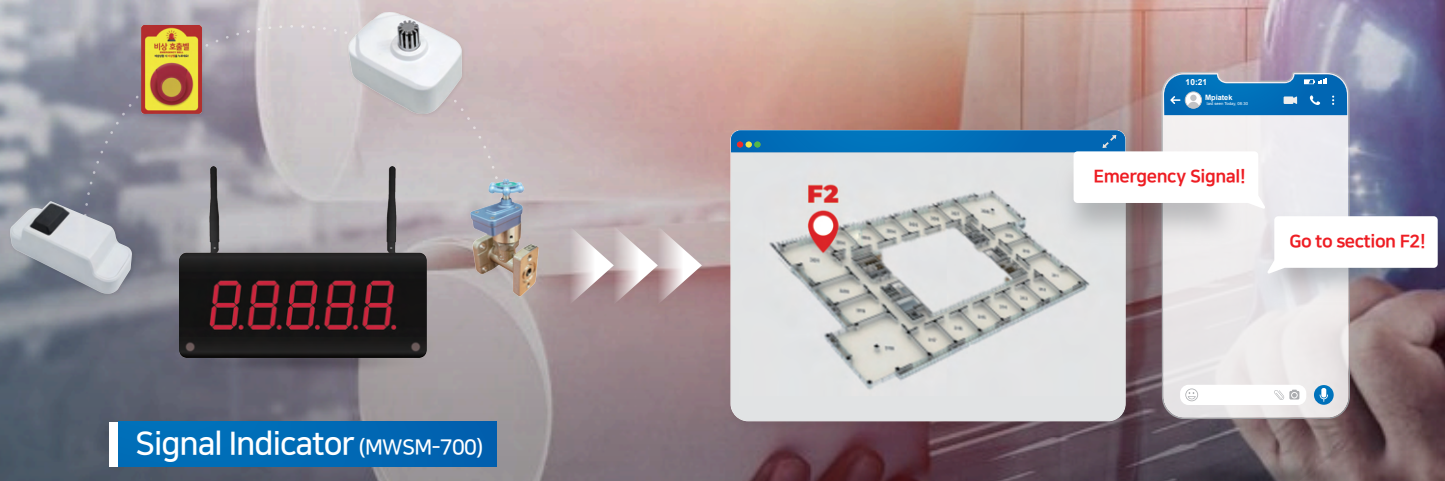


SMS
Set the phrase for each sensor
Send text to registered administrators

07
Critical Disaster Prevention Remote Monitoring System

Smart Factory Solution based on self-powered sensors that do not require wiring and batteries

Interest in building Smart Factories has increased as businesses are increasingly responsible for safety in industrial sites. **The disaster prevention remote monitoring system** is a self-powered sensor-based solution that is easy to install and builds an unmanned remote monitoring system such as safety and unauthorized access and access management in industrial sites.



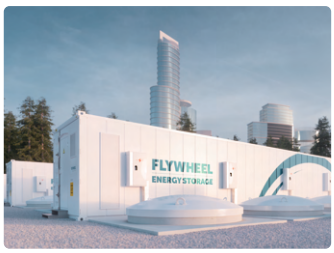
Signal Indicator (MWSM-700)

1 Specification

	Signal Indicator (MWSM-700)	Repeater (advanced) (MWSRT-900)
Size	W250 x D108 x H33 mm	W115 x D115 x H28 mm
Frequency	920.700MHz(FSK), 447MHz(FSK)	920.700MHz(FSK), 447MHz(FSK)
Antenna	External 2EA(920.7MHz, 447MHz)	External 2EA(920.7MHz, 447MHz)
Power	DC 12V, 1A Adapter	DC 12V, 1A Adapter
Distance	about 1Km (Open-field)	(Signal Extension) about 1Km (Open-field)
Display	FND 5-digit, LED	FND 3-digit, Rx·Tx·Power LED
Connection	RS485, DC Power, Warning-light, Speaker	DC Power

❷ Application Field

- Dustproof and waterproof IP 57 grade can be applied to various places indoors and outdoors
- Wiring- and battery-free sensors make it easy to use even in places where wiring is difficult



Energy Storage System



Unmanned substation



Underground facility



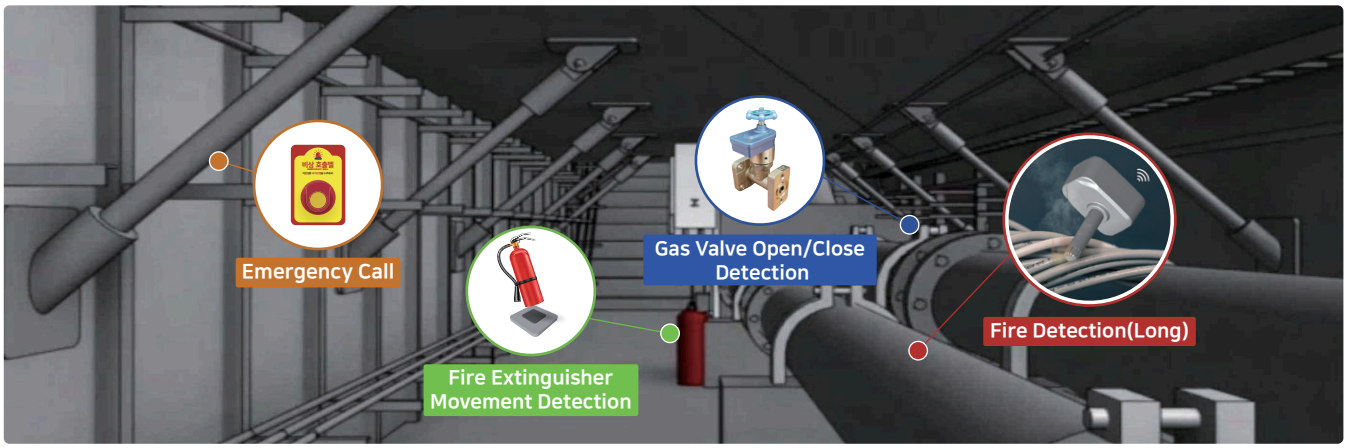
Military warehouse

❸ Example of application



❶ Unmanned substation (distribution board) - Self-Powered wireless sensor placement

It is easily applied to unmanned substations located in subways, industrial sites, etc.
without wiring Integrated monitoring of access control and emergency transmission and
temperature rise detection of switchboards or cable pipes



❷ Underground cavity (extra high pressure cable) - Self-generated radio sensor placement

Prevention of various accidents by applying self-powered sensors
without wiring even in narrow areas where urban infrastructure is located

❹ System Configuration

Critical Disaster Prevention Remote Monitoring System



Self-Powered Sensors

Emergency Bell

Gas Valve Open/Close Detection Sensor

Fixed Temperature Fire Detection Sensor

Door Open/Close Detection Sensor

· Dust/waterproof IP57 / Use unique ID by device

· Frequency 920.7 MHz

Battery Sensors

Temperature, humidity and gas sensors

· Enables real-time communication using batteries

· Frequency 447.9 MHz

Repeater (advanced)

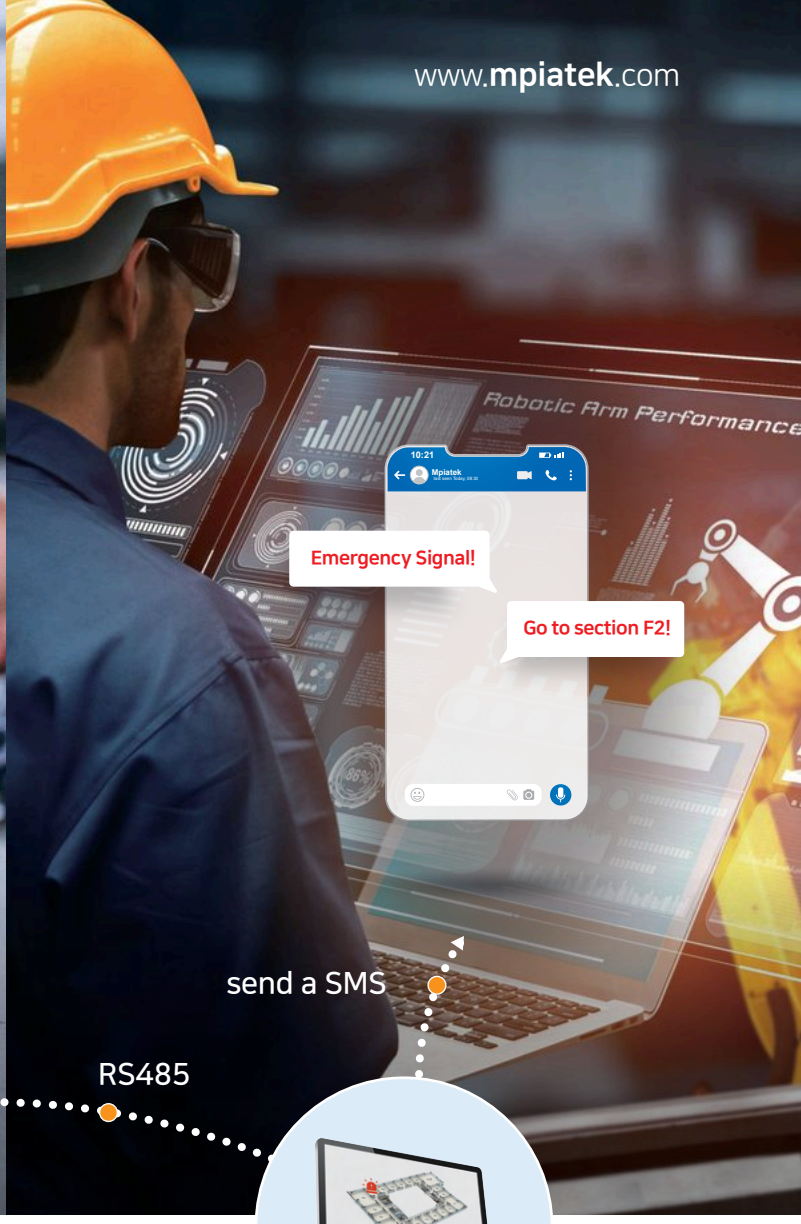
· **Distance extension** +1Km (open field)

· Transmission/reception distance 1Km

· Frequency conversion 920.7 MHz → 447.9 MHz

- Ingress 920.7 MHz / 447.9 MHz
- Transmit 447.9 MHz









Signal Indicator

· **Display: Self-powered sensor signal display**

① Self-generation sensor registration (up to 999)

- Open/Close signals are separated and registered

② **Battery sensor registration (temperature/humidity sensor, etc.)**

- No signal is displayed separately, detection data Forward to Web Monitoring Program

· RS485 (PC/device interworking)

· **Enterprise network (intranet, etc.) can be linked**

· Data backup capability (device replacement available)

· Ingress 920.7 MHz / 447.9 MHz

Web Monitoring Program

· On-site PC/device installation

· Configure Field Map UI

· Display sensor position when detecting signal (icon)

· Signal detection history management (history)

↓ SMS company

SMS

· Send a SMS phrases by sensor

· Sending SMS such as manager and 911

08 Smart Life+ Safety Alert

Home IoT based on self-powered sensors that do not require wiring and batteries

Receives signals from all installed self-powered sensors in the location and sends SMS. Register the number he person (to be helped), Register a total of 5 numbers (helpers) for assistance. When the sensor is operated, it is sent in different phrases for each sensor. Certain sensors (door sensors, switches) can be registered as **inactivity detection notification sensors**. The inactivity detection notification sensor sends a text message for assistance when it is not operating for a long period of time.

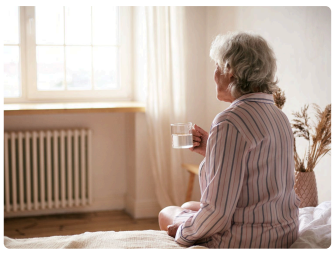


❶ Specification

	Sensor Hub (MWSH-300)	Repeater (advanced) (MWSRT-900)
Size	W100 x D100 x H26 mm	W115 x D115 x H28 mm
Frequency	920.700MHz(FSK), 447MHz(FSK), WiFi	920.700MHz(FSK), 447MHz(FSK)
Antenna	External 2EA(920.7MHz, 447MHz), Built-in (WiFi)	External 2EA(920.7MHz, 447MHz)
Power	DC 9V, 1A Adapter	DC 12V, 1A Adapter
Distance	about 1Km (Open-field)	(Signal Extension) about 1Km (Open-field)
Display	FND 4-digit, LED	FND 3-digit, Rx·Tx·Power LED
Connection	RS485·LAN, DC Power	DC Power

❷ Application Field

- Dustproof and waterproof IP 57 grade can be applied to various places indoors and outdoors
- Wiring- and battery-free sensors make it easy to use even in places where wiring is difficult



✓ Elder who lives alone



✓ a single-person household



✓ Small unmanned facility



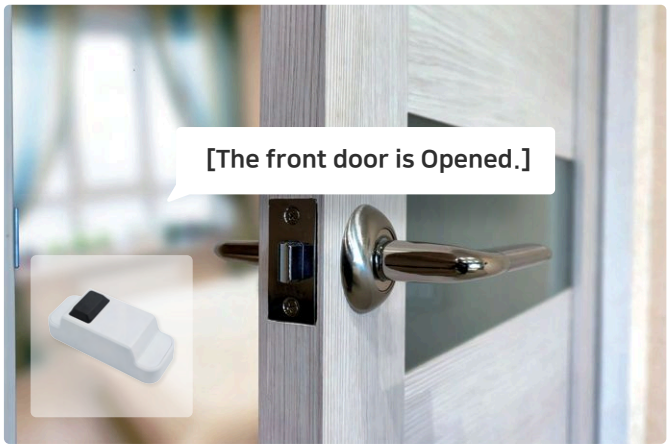
✓ Small store

❸ Example of application



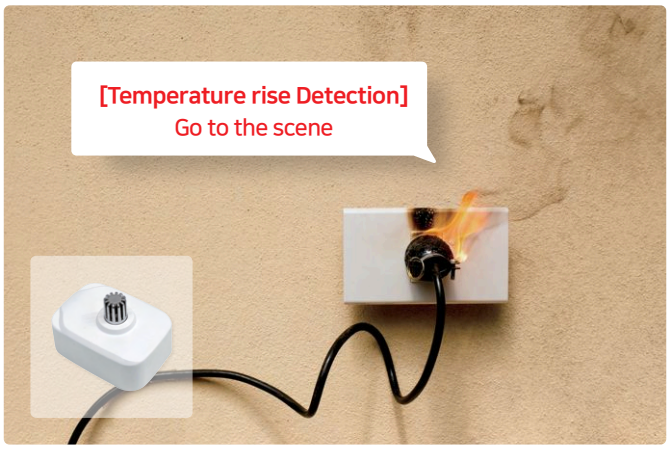
❶ Toilet - Emergency Bell

Immediate action by installing the helper who is unable to move at a height that can be easilypressed even if he falls



❷ Front door - Door Open/Close Detection sensor

Door sensors are attached to important doors such as the front door to detect access control, crime prevention, and activity



❸ Fixed temperature fire detection sensor

Attach it to a place where a fire is feared to occur due to a short circuit, etc., and notify the temperature rise and prompt initial action

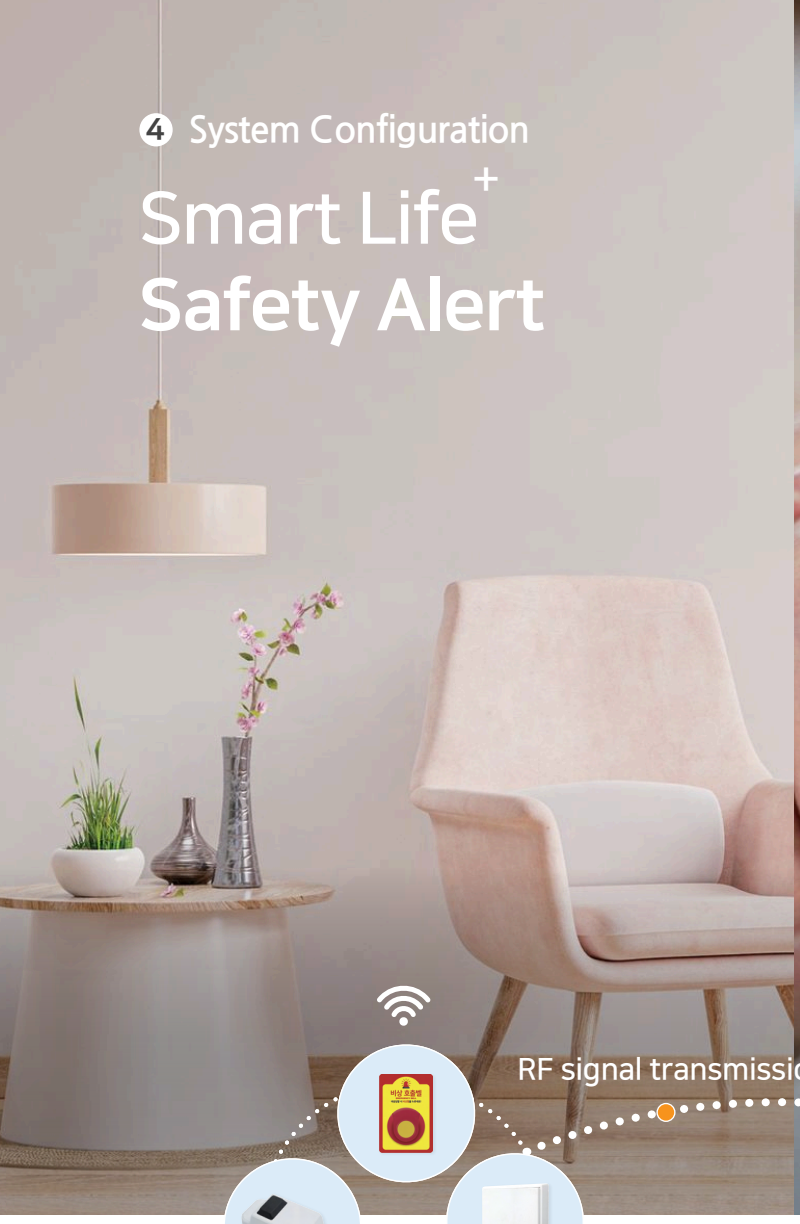


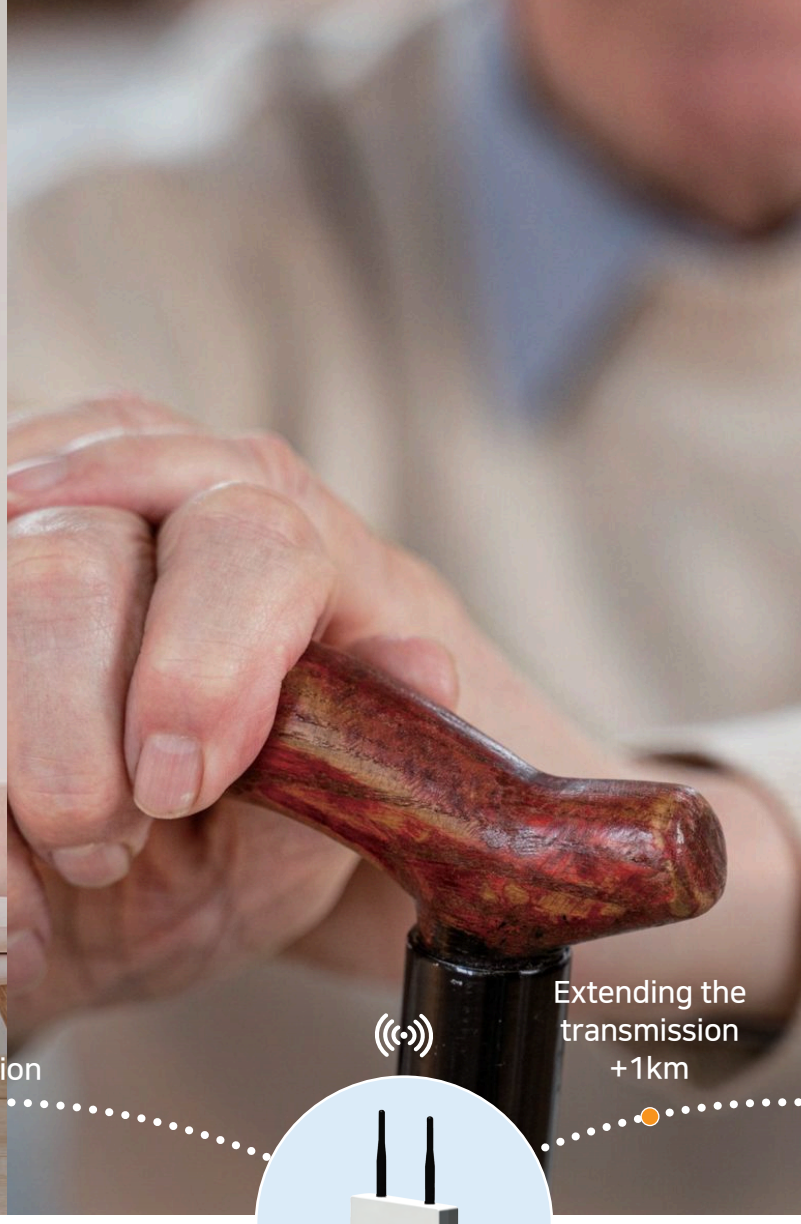
❹ Inactivity Detection - Wireless Light Switch

Register the light switch in critical points, such as the living room,as an inactivity detection notification sensor to check for activity/inactivity

4 System Configuration

Smart Life+ Safety Alert





RF signal transmission

Extending the transmission +1km

Self-Powered Sensors

Emergency Bell

Light Switch

Fixed Temperature Fire Detection Sensor

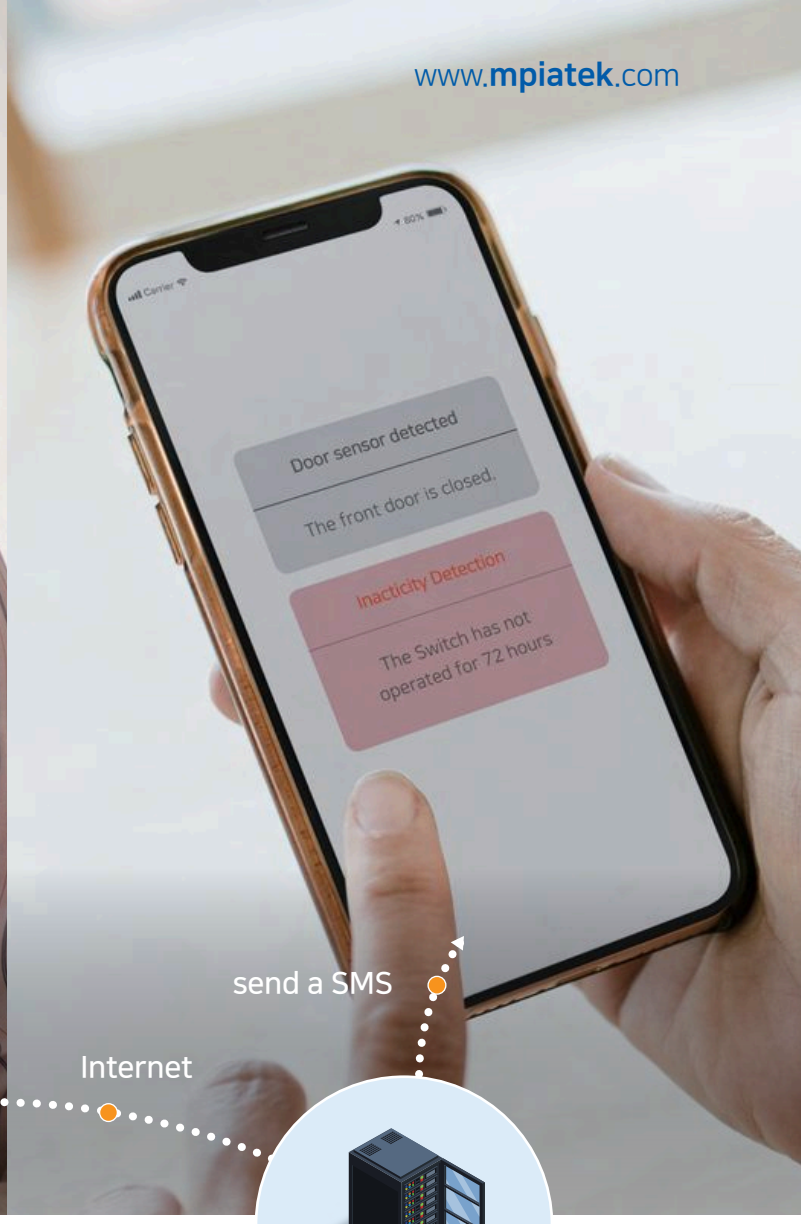
Door Open/Close Detection Sensor

- Dust/waterproof IP57 / Use unique ID by device
- Frequency 920.7 MHz

Repeater (advanced)

- **Distance extension** about +1Km (open field)
- Transmission/reception distance 1Km
- Frequency conversion 920.7 MHz → 447.9 MHz
  - Ingress 920.7 MHz / 447.9 MHz
  - Transmit 447.9 MHz





Sensor Hub

· **Conditions of use:** **Internet connection available**

① Sensor registration

- **Emergency Bell** : Emergency Emergency Call
- **Door sensor :** Access to and from rooms and front door
- **Fire sensor :** Temperature rise detection
- **Light switch :** Inactivity detected (24h/48h/72h)

② Caller (senior living alone, etc.) number registration

③ Register up to 5 recipient
family, welfare worker, etc.) numbers

④ Send a text message when the sensor is operating

· Receiving distance 100m (Open-field)

MPIA Headquarters Server

· IP server signal received (date, IP)
- Sensor signal information
- Caller Information
- Recipient Information
- Text message information

↓ SMS company

SMS

· Sending emergency text to recipients

Certification and Patents



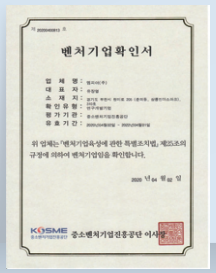
Business license



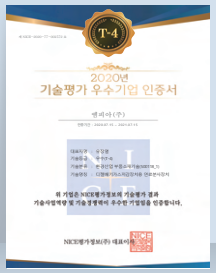
Factory Registration Certificate



Certificate of Accreditation of Corporate Research nstitute



Venture company confirmation



Certificate of Excellence in Technical Evaluation



Quality management system certificate (ISO 9001)



Patent·Dust/waterproof Self-Powered Switch System



Patent·Self-Powered Fixed temperature Fire detection sensor (SMA type)



Patent·Self-Powered Fixed temperature Fire detection sensor (Glass-bulb type)



Patent·Self-Powered Gas Valve Open/Close Detection Sensor



Patent·Self-Powered Movement Detection Sensor



Patent·Self-Powered Call Bell (Circle Type)



Patent·Self-Powered
Call Bell
(Finge Type)



Japan MIC
Self-Powered Bell



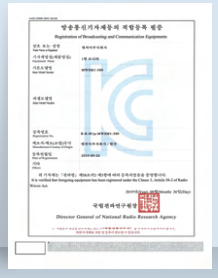
Japan MIC
Eraser



Japan MIC
Repeater



CE
Guest Pager



KC·1-Window
Monitor



KC·DC Receiver



KC·AC Receiver



KC Safety Certification
AC수신기



KC·RF
Communication
Receiver



KC·Self-Powered
Call Bell



KC·Self-Powered
Fixed temperature
Fire detection sensor



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