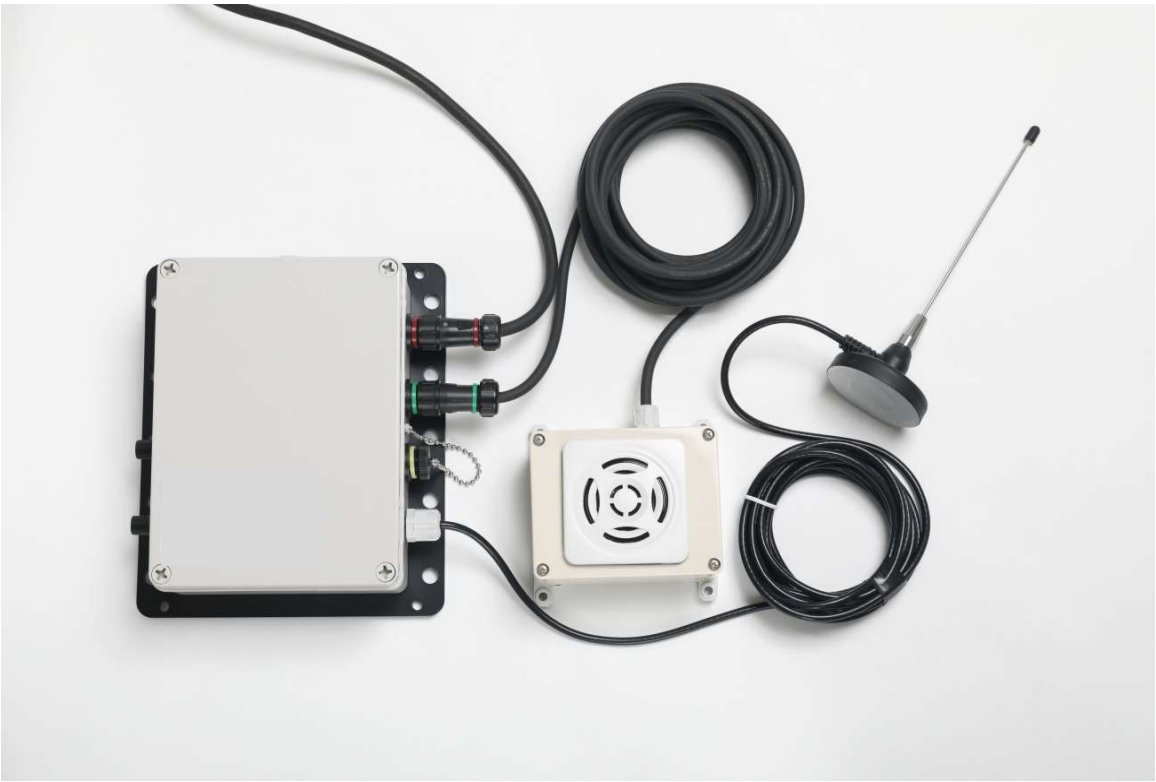
Workers Approach Warning System

User's Manual



Yoshikawa Kogyo Co., Ltd.

1. About this system

～ Be sure to read this section before use.～

・This system can provide only warnings to drivers and workers,
and the braking operations such as braking of vehicles must be performed by the driver.

・ It is impossible for this system only to prevent all accident. You must confirm the safety by sight as before.

・ Consult with us if you have a heart pacemaker or a medical device such as a life support device installed.

・ Radio wave interference in the surrounding area may cause the range of radio waves to change.
We recommend measuring the radio wave environment in advance in the vicinity of electronic devices, power supply panels, cranes, and other heavy equipment.

・The detection range varies depending on the installation environment and surrounding conditions.

・After installation, confirm that the unit is operating correctly by following the operation check procedure.

・Confirm proper operation according to the daily inspection procedure in the User's Manual.

・Use in extremely high or low temperatures may cause malfunction or failure.
Use within the operating temperature.

・Due to legal restrictions, this product is prohibited from being used for applications other than those related to Safety operation of the vehicle.

・It is illegal to disassemble or modify TAGs.

・Specifications and appearance are subject to change without notice for improvement.

Line-up

No.	Model Name	Model number	Power supply voltage	Detection range	Note
1	DETECTOR	YS-F-R023A	DC 48V	3～8m	Power supply cable 5m included (stripped on one side)
3	Speaker	YS-F-S003A			Up to 87dB, IP54
4	Indicator lamp	YS-F-V027A-R			

No.	Model Name	Model number	Alarm function	Batteries	Note
5	ALERT-TAG	YS-F-T003A	Vib & Buzzer	AAA 2pcs	In the pocket or waistbelts
6	STANDARD-TAG	YS-F-T008A	None	CR2032	Attached on the helmet.

2. Glossary

№	Term	Meaning
1	Detector	It has a transmit function by a magnetic field, and an alarm function by receiving a radio signal from a TAG.
2	TAG	It has a function to receive the magnetic field from the detector and a function to transmit radio waves. ALERT-TAG has a function to alert you.
3	Magnetic field	The magnetic field transmitted by the detector uses the 125kHz band. Stable sensing distance is achieved by using a magnetic field.
4	Radio waves	The radio waves transmitted by the TAG use the 315MHz band. Transmitting radio waves from the TAG to the detector enables the detector to alert.
7	IP65	They are used to define levels of sealing effectiveness of electrical enclosures against intrusion from foreign bodies (tools, dirt etc.) and moisture. As defined by International Standard EN 60529. IP6 * [0 to 6] Dust-proof 6: Dust does not enter the inside. IP*5 [0 to 8] Waterproof 5: low-pressure jets (6.3 mm) of directed water from any angle
10	Radio wave noise	Noise that affects the radio waves received by the detector. In places where radio noise is present, the sensing distance that the detector alarms may be shortened.
11	Magnetic field noise	Noise affecting the magnetic field received by the TAG. In places where magnetic field noise is present, the detection distance of the TAG may be shortened. Ex. the power distribution boards, factory equipment and large motors.
12	dB	Indicates the unit of sound volume. Ex. ・ 90dB: Bulldozer, etc. in a noisy plant ・ 110dB: Automobile horn, etc.

3. What is Worker Approach Warning System?

This is a system that alerts people and vehicles to "dangerous situations" ,
when they are in close proximity with the technology of magnetic fields and electromagnetic waves.

1. A magnetic field (125KHz) is being transmitted from the detector.

The direction of the magnetic field is transmitted in all directions by 360°,
and the transmission range is an oval shape with the largest longitudinal direction.

2. Radio waves (315MHz) including "Detection signal" and "Magnetic field strength" are transmitted from the TAG in the area where the magnetic field from the detector reaches (max. 8m).

3. The detector sounds an alarm by determining the distance based on the magnetic field strength from the TAG.

If you use ALERT-TAG, you can also alert from a TAG.

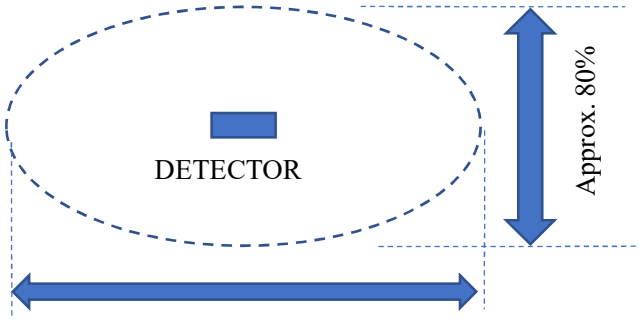
Notes

■ Detection range

The detection area is 360 degrees in an oval.
The oval shape depends on the orientation of the detector.
※ Depending on the vehicle shape and environment, the detection area may not be an oval.

■ Maximum detection range (e.g., 8m version outside detection range)

Long side direction of the detector case:
Set distance
Short side direction of the detector case:
Approx. 80% of the set distance

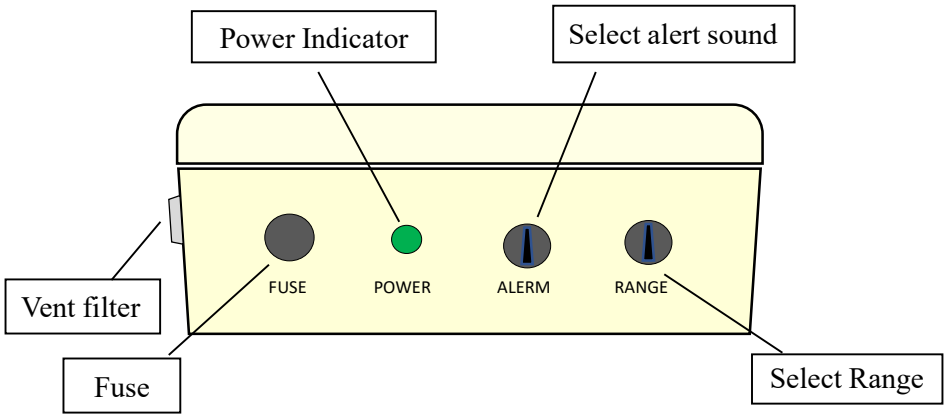


Detection Range

■ Distance Attenuation in the Environmental conditions

The sensing distance may be slightly reduced depending on the environmental conditions (effects of magnetic field noise or radio wave noise, structure of the building including reinforcement, etc.).
e.g. 8m → may be reduced to 6m.
In this case, the setting of the detection distance by dialing decreases proportionally.

■ DETECTOR (YS-F-R023A)



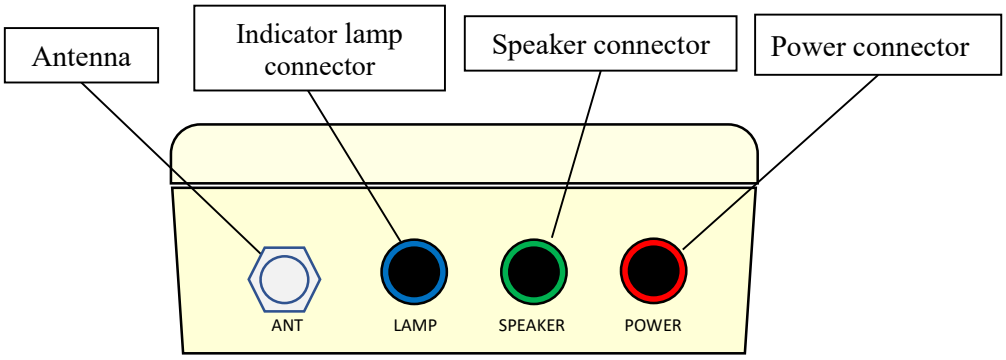
Vent filter
Do not touch it , because it is necessary to maintain the waterproof property.

Fuse Use a mini glass tube fuse φ5mm 2A.

Power Indicator Green lights up when the detector is turned on.

Select RANGE switch The maximum detection range can be set.

Select ALERM switch Change the alert sound .



Antenna
The radio signal receiving antenna is connected.

Power connector (red)
Connect the power cable (red).

Speaker connector (green)
Connects the speaker (green).

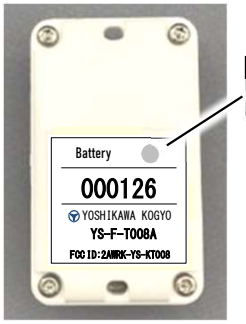
Indicator Lamp connector (Blue)
Connect the Indicator lamp (yellow)

If the indicator lamp is not used,
be sure to attach a protective cap to prevent dust into the unit.

■ STANDARD-TAG (YS-F-T008A)

The operator carries it.

- **Alert function: None (The TAG itself does not alert)**
- **Wearing the watch: Mounting the helmet or storing it in a pocket**
- **Dust-proof/waterproof type : IP65**



Low Battery LED

Lights up (red)
when the battery level is low.

Mounting plate

■ ALERT-TAG (YS-F-T003A)

The operator carries it.

- **Alarm Function: Required (Vibration, Sound, Light)**
- **Mobile method: Pocket and waistbelts**

Low Battery LED
Lights up (red) when the battery level is low.

Detection LED
Flashes (red) when the detector enters the magnetic field detection range.

Buzzer
An alarm sounds when the TAG enters the magnetic field detection area of the Detector.

Vibration
It vibrates when it enters the magnetic field detection range of the detector.

ALARM OFF BUTTON
Used to stop the alarm. And check the battery.

AREA	Action	
Near the vehicle	Stop the alert	
Far from vehcle	Low Battery LED	
	Blink	OFF
	Enough	Empty

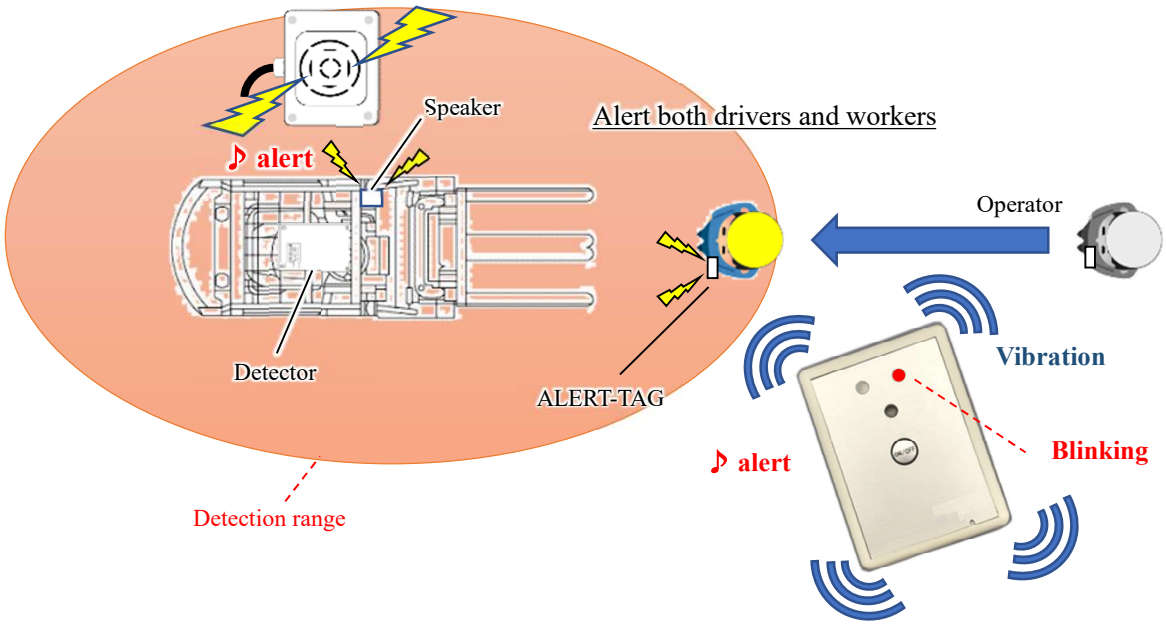
4. Alarm action

～ Alarm function ～

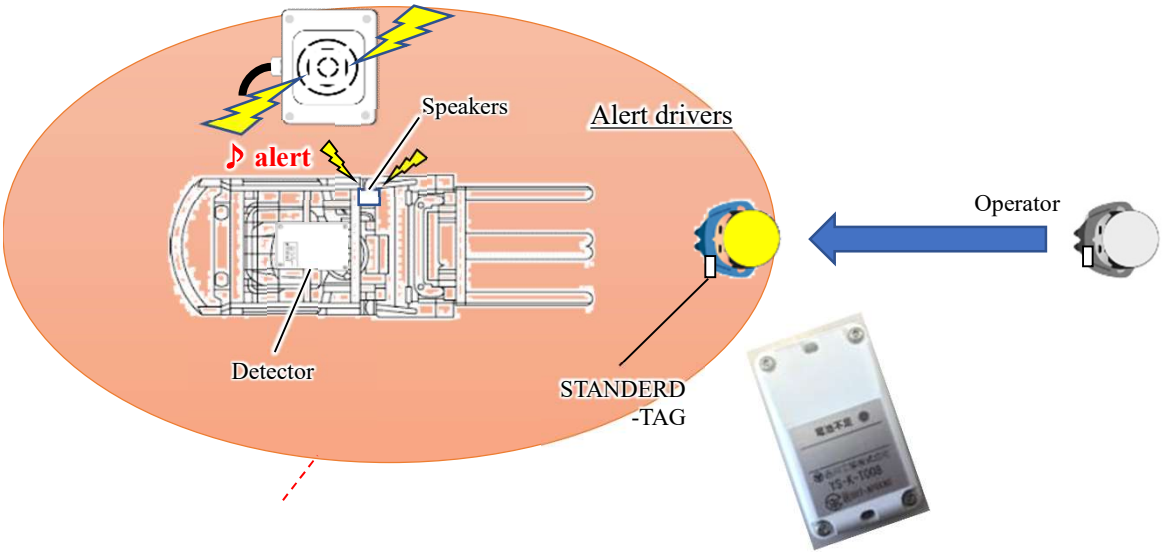
■ **When the operator enters the detection range of the vehicle, the speaker (or indicator lamp) connected to the detector alarms. If a tag with an alarm function is used, an alarm will be sent from the tag at the same time.**

■ **The alarm goes out of the detection range and stops after about 2 seconds.**

～ For Tags with Alarm Function ～



～ For Tags without Alarm Function ～



5. Specification

■DETECTOR

Model number	YS-F-R023A
Supply Voltage	DC48V
power consumption	48W
Operating Temperature	-10～+60℃
Detection Range	8m
Transmission frequency	125KHz
Receive frequency	315MHz
Dustproof and water resistant	IP65
Dimension	W150×D200×H76（mm）

■ Speaker

Model number	YS-F-S003A
Supply Voltage	DC12-24V
power consumption	3.5W
Maximum Volume	87dB
Dustproof and water resistant	IP54
Weight	300g
Dimension	W11×D605×H90(mm)

■ Indicator lamp

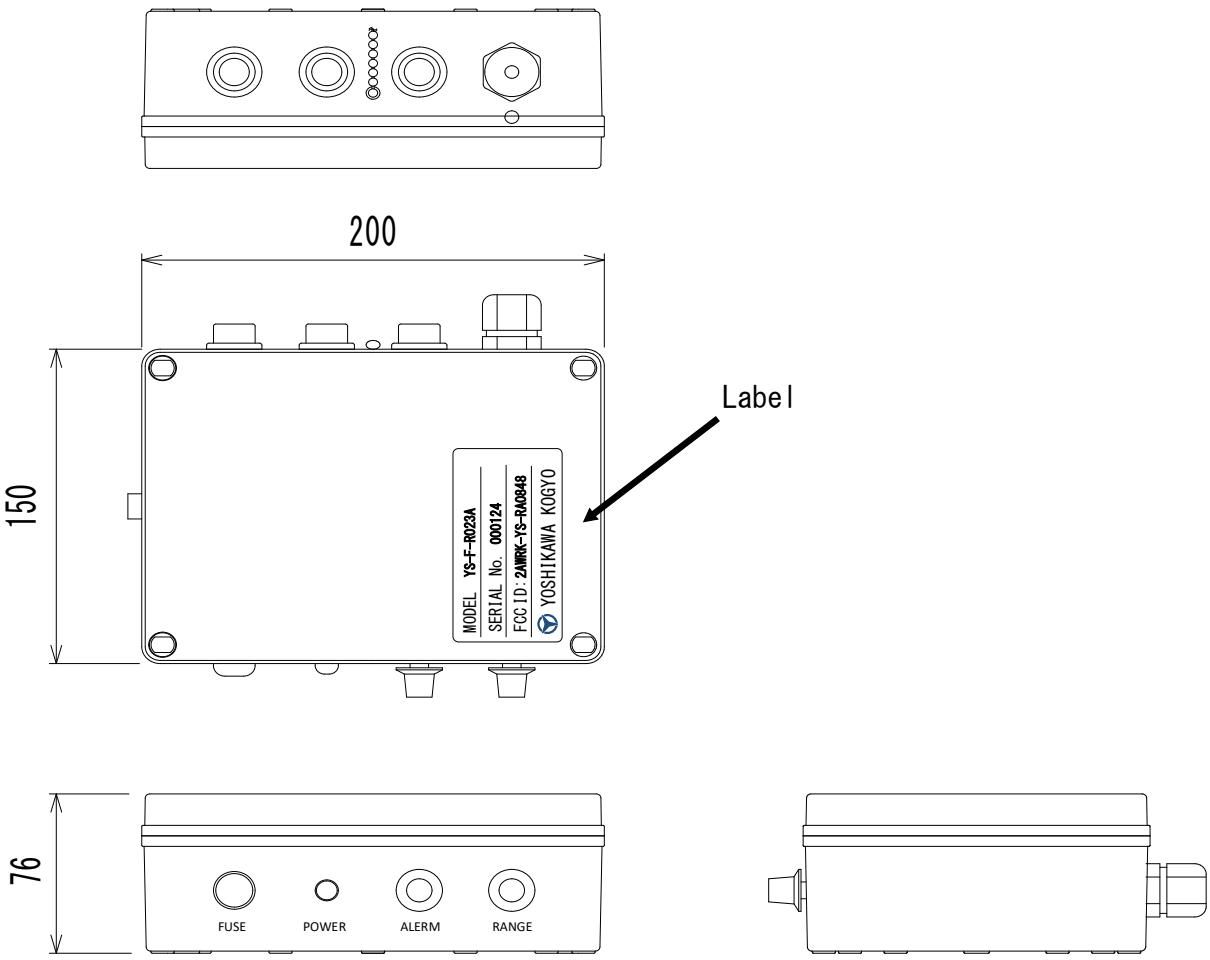
Model number	YS-F-V027A-R
Supply Voltage	DC9V
power consumption	2.8W
Lighting Mode	Rotation 3type, Blinking 2type, Flashing 5type
Dustproof and water resistant	IP65
Dimension	φ100×H 139(mm) （Lighting area：φ100×91.9mm）
Operating Temperature	-10°～+60℃

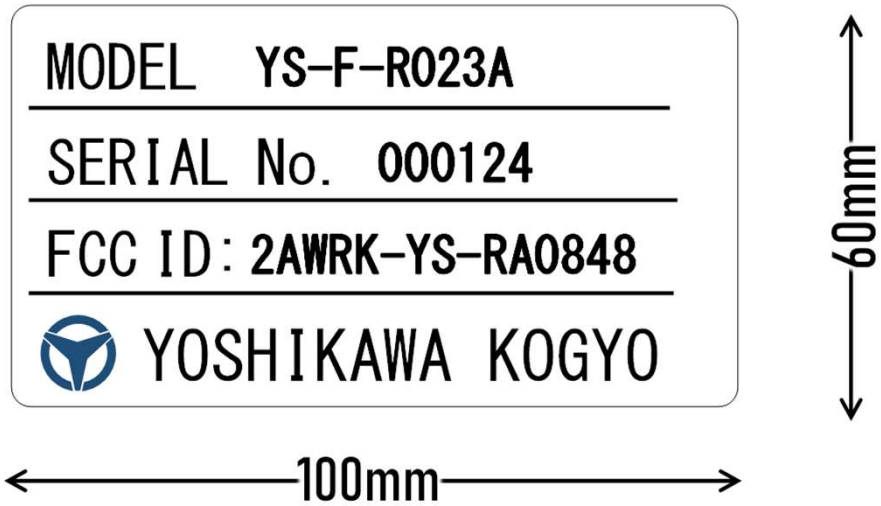
5. Specification

■ TAGs

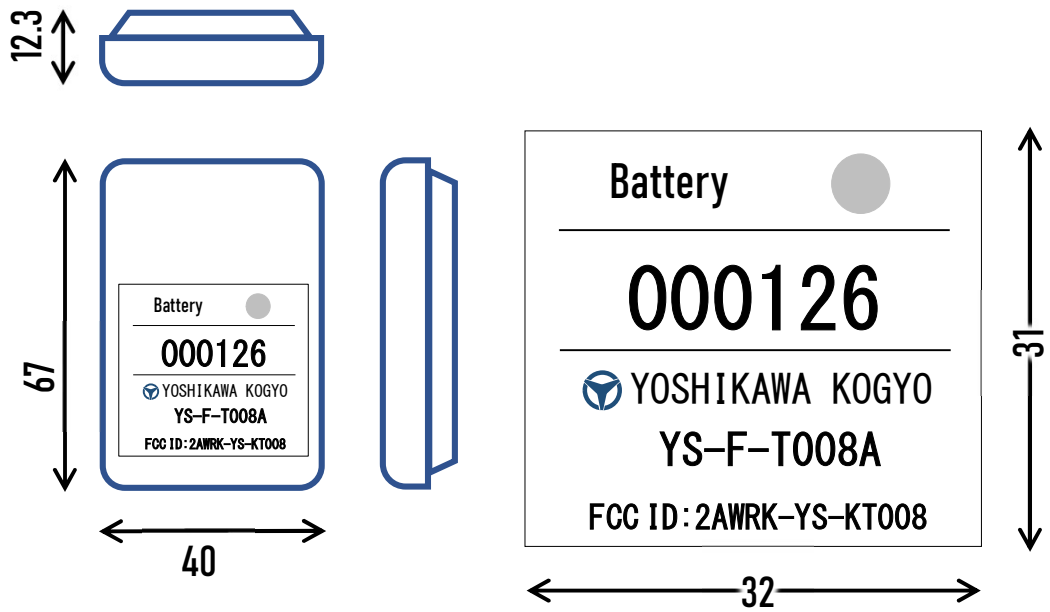
Model number	STANDARD YS-F-T008A	ALERT YS-F-T003A
Battery	Coin Battery (CR2032)	AAA Battery ×2
Battery life (Operating time)	About a year	About a year
Operating Temperature	-10～+50℃	-10～+50℃
Transmission frequency	315MHz	315MHz
Alarm mode	No	Buzzer & Vibration
Low battery LED	yes	yes
Dustproof and water resistant	IP65 equivalent	-
Weight	25g	100g
Dimension W, D, H	40×67×12.3	66.5×92×21

■ DETECTOR (YS-F-R023A)

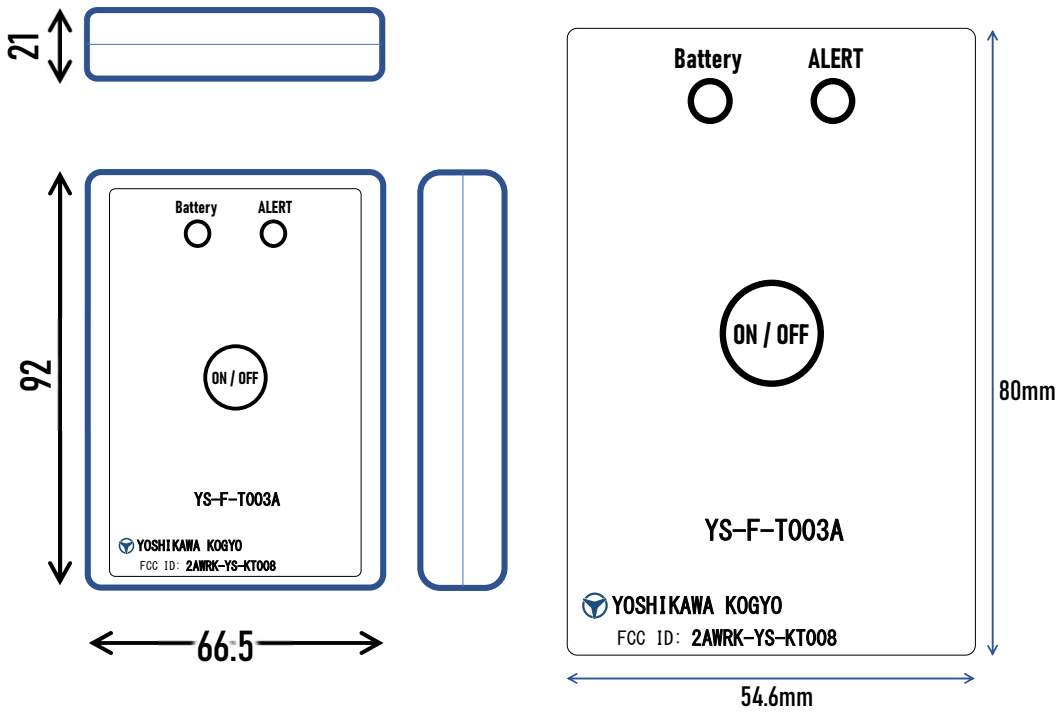




■ STANDARD-TAG (YS-F-T008A)



■ ALERT-TAG (YS-F-T003A)



FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

No.	Model Name	Model number	FCC ID
1	DETECTOR	YS-F-R023A	2AWRK-YS-RA0848
2	Speaker	YS-F-S003A	Out of scope
3	Indicator lamp	YS-F-V027A-R	Out of scope
4	STANDARD-TAG	YS-F-T008A	2AWRK-YS-KT008 (Original)
5	ALERT-TAG	YS-F-T003A	2AWRK-YS-KT008 (Variant)
6	Thin-ALERT-TAG	YS-K-T010	Out of scope