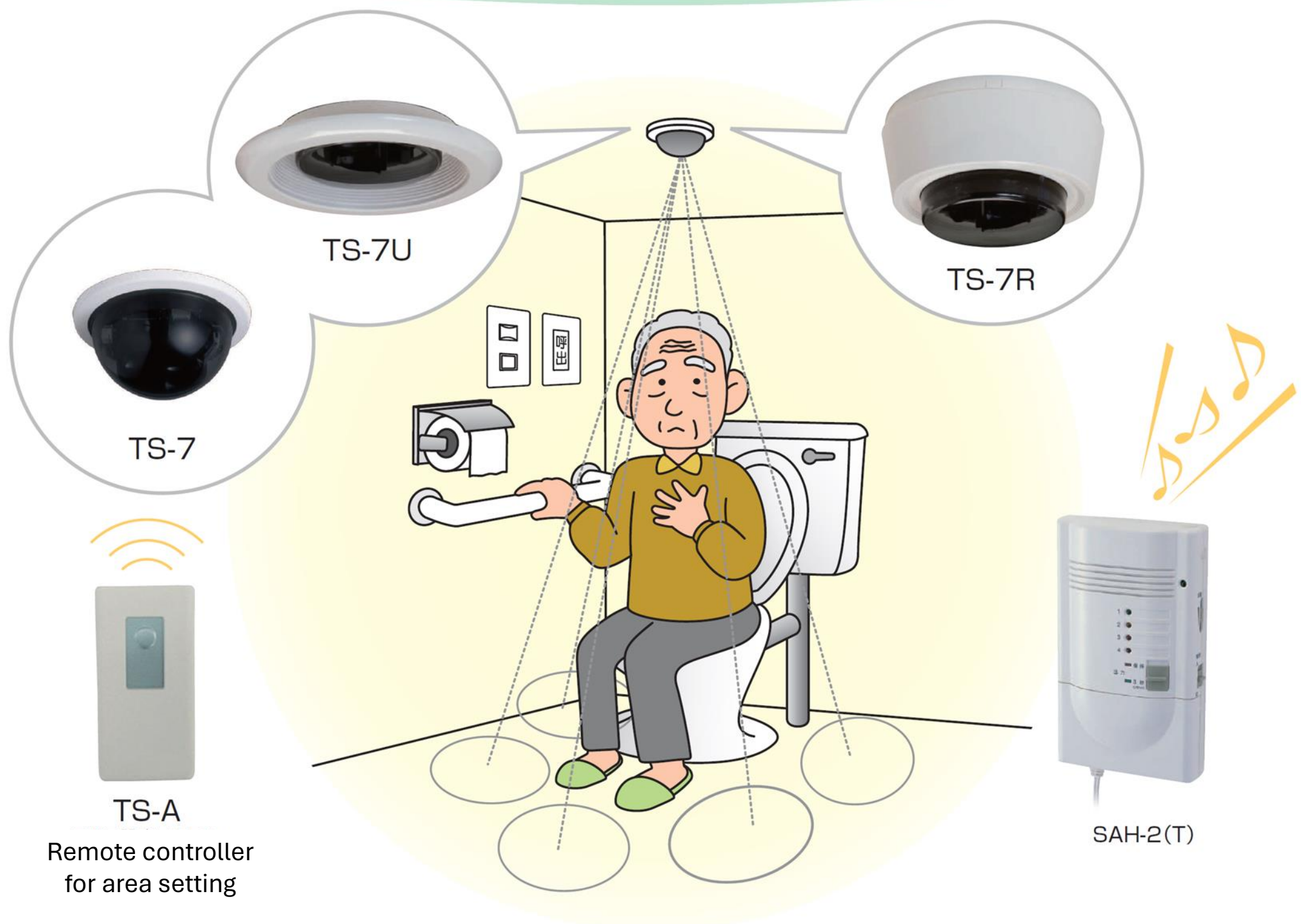


Toilet long-time use notification system

**Toilet sensor TS-7(Round type), TS-7U(Flush mount type), TS-7R(Square type)
Controller SAH-2(T), Remote controller for area setting TS-A, Flat cover TS-7(FK)**



**Just in case! Initiate an alarm by the overstay/unuse the toilet over predetermined timer.
False alarm rate is decreased by IR distance measurement technology.**

Concept

TS-7 is activated by using the toilet regardless the user is moving or stationary. If the staying time is succeeded the predetermined detection timer, pre-alarm is initiated for 5min. The main alarm to notify the staff station or family members is initiated if the user do not leave or push the reset switch.

Measure the distance TS-7 series

7 optical axis each measures and memorizes the distance to the floor or toilet seat. TS-7 catches the height differences and continues output signal during detecting a user.

Adjustable sensing area setting

Detection angle at 4 steps in 0~9 degrees and Area setting at 9 patterns in total available depending on the environment.

Three choices TS-7 series

2 exposed types, 1 embedded type can be selectable.

Multi-functional controller SAH-2(T)

Detection timer setting, Pre-alarm function, Real time output, leaving area output, remote input, power supply and notification tool with chime and indication light.

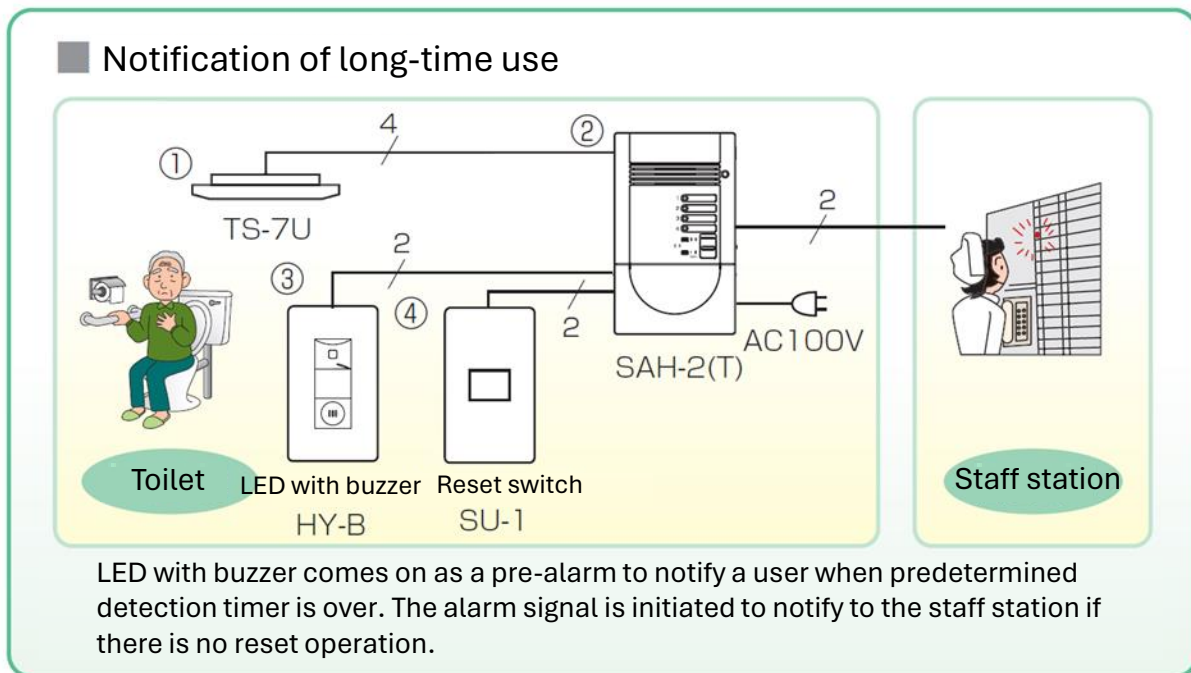
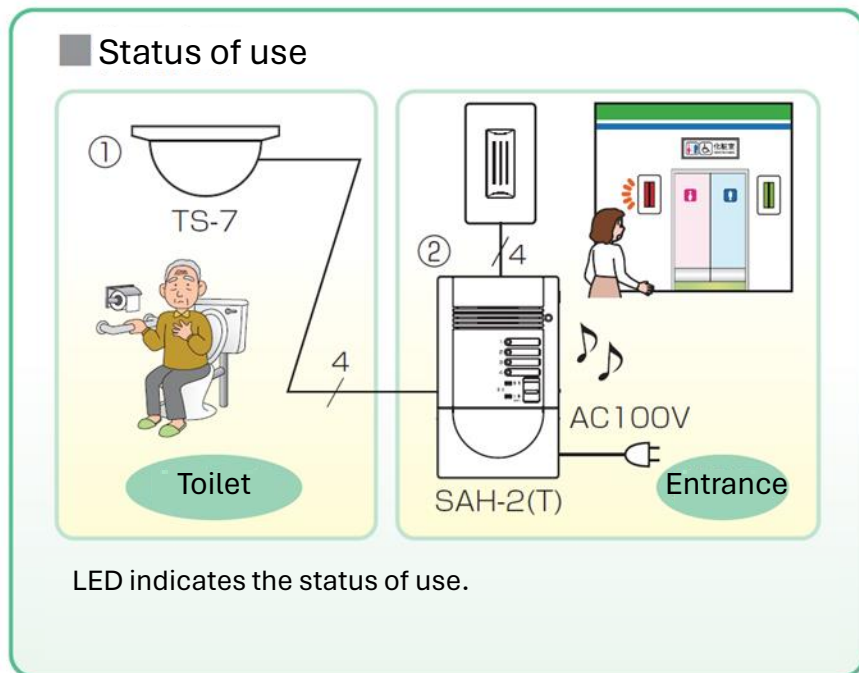
Peripheral equipment

Can be built versatile system configuration with peripheral equipment such as reset switches, LEDs and buzzers.

Option

- Remote controller for area setting TS-A
Area setting available without turning power ON/OFF. It is the only tool to adjust area setting at Power outage support mode.
- Flat cover TS-7(FK)
It protects the sensor unit from vandalism.
(Exclusive for TS-7U)

System example






Toilet sensor TS-7, TS-7U, TS-7R

Operation TS-7 measures the distance to the floor and the toilet seat with near-infrared. 7 optical axis each sets the detection distance automatically.

Feature

- Initial setting can be done by turning on the unit or remote controller TS-A.
- Decrease the sensitivity differed caused by the color (Black or White) of user's cloths.
- Anti-interference design allows up to 8 units installed for a large toilet room.
- Built-in power outage support mode.
- Sensor head angle can be adjusted at 4 steps.
- Area setting selectable at 9 patterns.

Series

	TS-7 (Round)	TS-7U (Flush mount)	TS-7R (Round)
Appearance	Green light on at detection 	Green light on at detection 	Green light on at detection 
Application	Low ceiling/Welfare facilities (private room)	New construction	High ceiling/Welfare facilities
Feature	Dome shape so volume and surface is small. Large black window area.	Embedded type is discreet and less black window area.	Cylindrical shape so volume and surface is large. Less black window area.

Timer controller for Toilet sensor SAH-2(T)



There are two ways to initiate alarm for "Long-time use" or "Unuse".

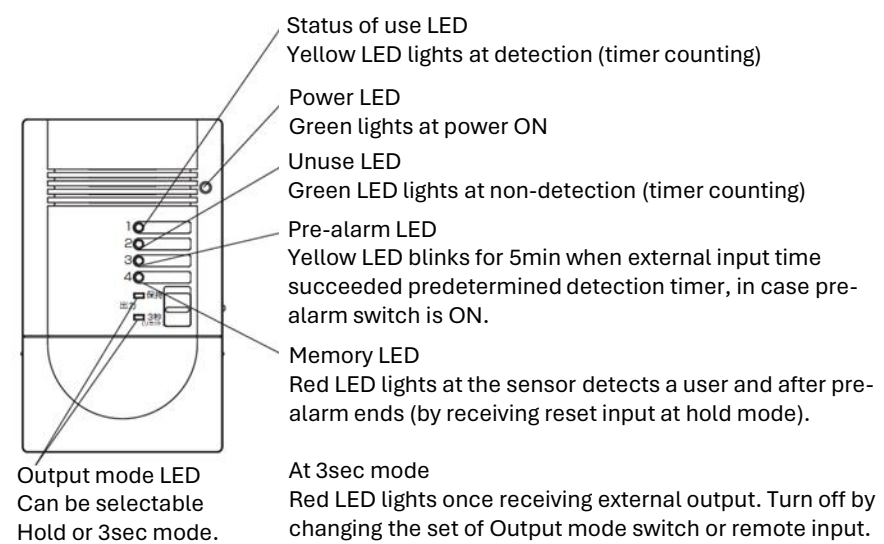
- Designed for toilet use so suitable detection timer available.
- Powered at 12V/24VDC or 100VAC.
- Pre-alarm to a user available before the main alarm generated. (5min ON/OFF selectable, Melody ON/OFF)
- Real time output and Leaving area output built-in.

Detection timer for long-time use

Timer setting		
0: OFF	6: 10min	C: 40min
1: 15sec	7: 12min	D: 50min
2: 2min	8: 15min	E: 60min
3: 3min	9: 20min	F: 90min
4: 5min	A: 25min	
5: 7min	B: 30min	

Detection timer for unuse

Timer setting		
0: OFF	6: 6hour	C: 15hour
1: 15sec	7: 8hour	D: 18hour
2: 5min	8: 9hour	E: 20hour
3: 5hour	9: 10hour	F: (vacant)
4: 3hour	A: 11hour	
5: 5hour	B: 12hour	



Remote controller

Option



For initial area setting for TS-7 series

- Battery CR2025 x 1pc
- Size 74H x 37W x 10D
- Weight 22g

*Mandatory for Power outage only support mode operation, not for Power mode operation.

Flat cover

Option



TS-7(FK)

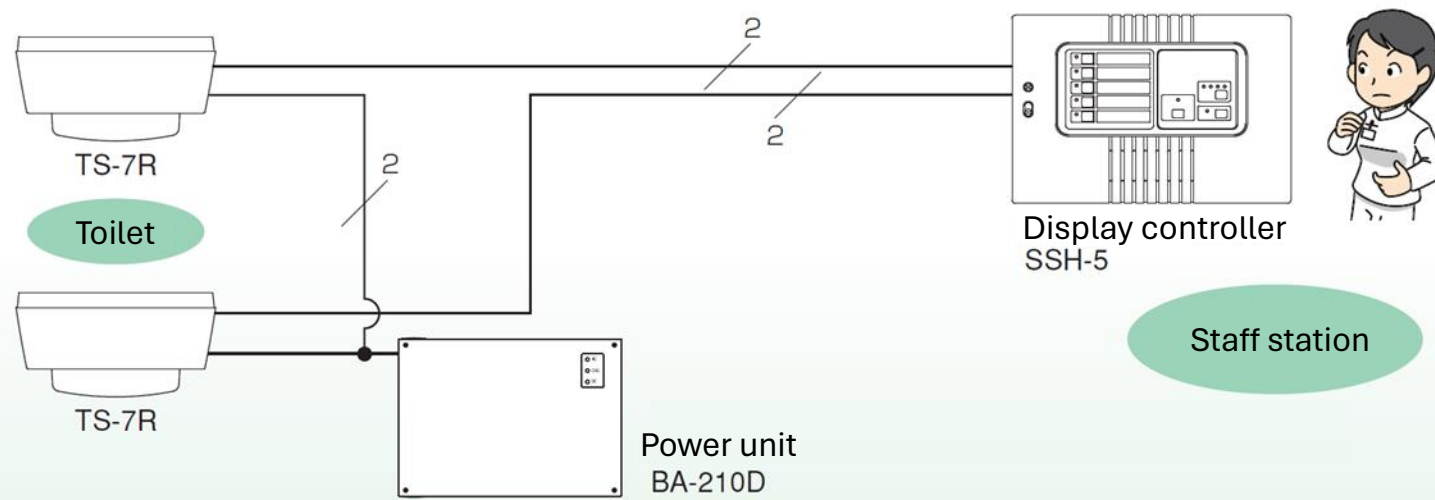
- Install Toilet sensor flat
- For TS-7U only

Peripherals

For status of use indication pre-alarm

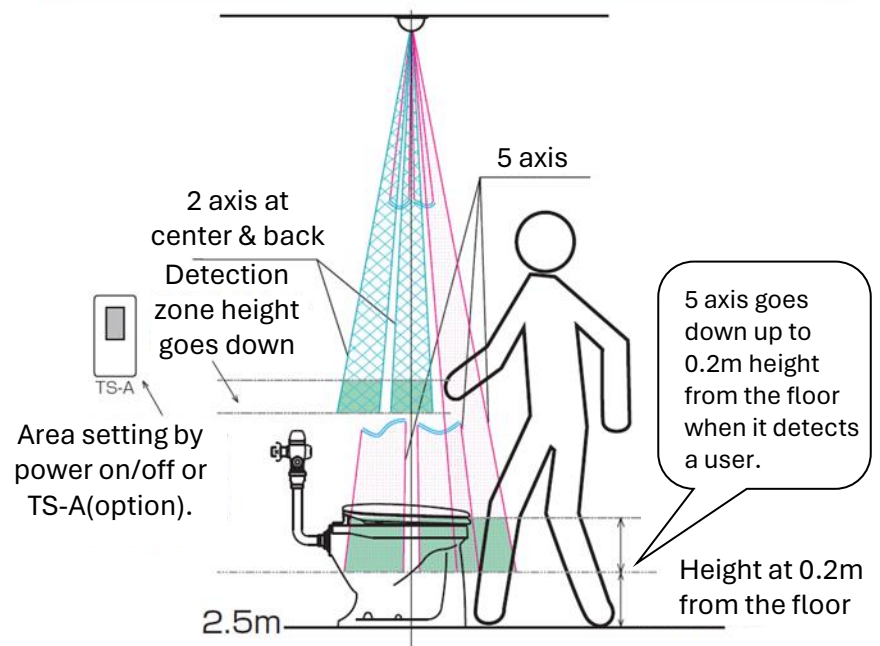


Status of use and long-time use display system



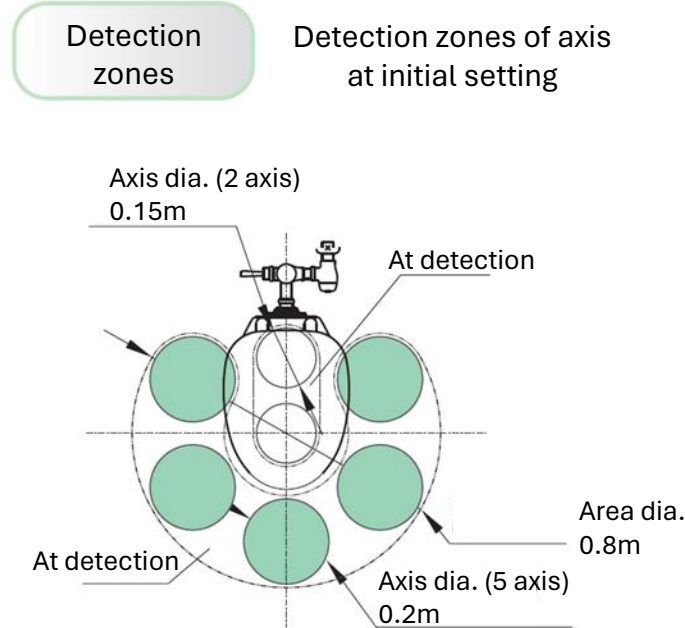
- Channel indicator LED lights in red during the toilet in use. (Light in green at unuse)
- Generate chime sound and indicator LED blinking in red when the toilet in use over the time of predetermined detection timer.

Feature for detection output



Five optical axis go down 0.2m height from the floor, two axis at center and back go down 0.45m height from the toilet seat.

Measure the distance



Sensor head angle adjustable at 4 steps

Built-in head angle can be adjusted at 4 stages each 3° from 0° to 9° . 48cm max. movable at 2.5m height.

Power outage support mode selectable

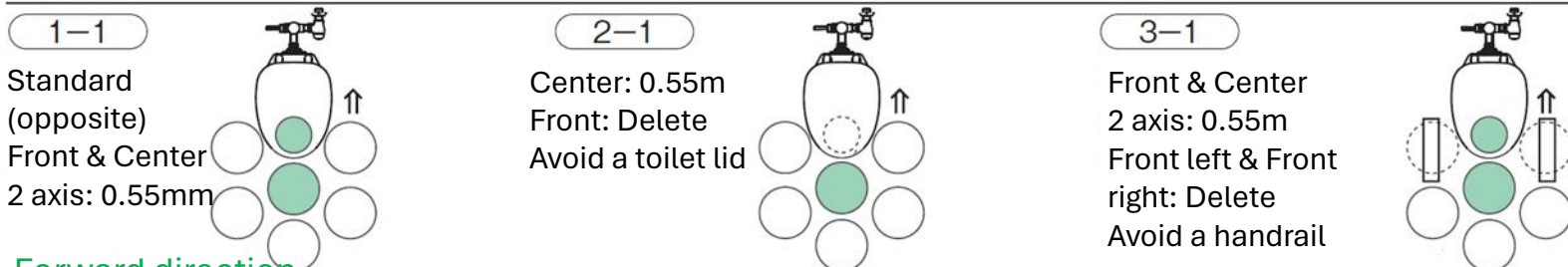
Two modes selectable in case that power outage occurred.

1. Power mode : Area setting readjustment is necessary by turning on the power or by a remote controller.
2. Remote controller mode : Area setting which is set by a remote controller is maintained even if there is power outage.

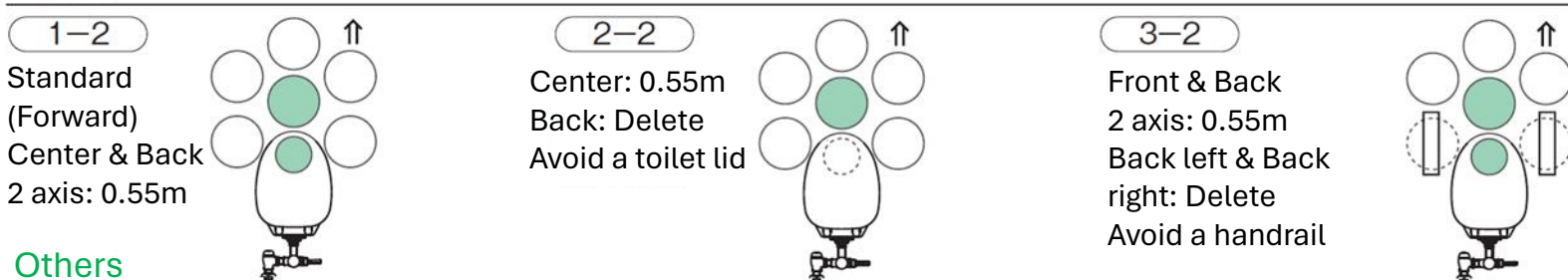
Nine area setting patterns

Flexibly installable by setting area setting pattern if the installation position is disturbed by an embedded light or a fan on the ceiling, and even if there are doors, handrails, toilet lit or baggage in the toilet room.

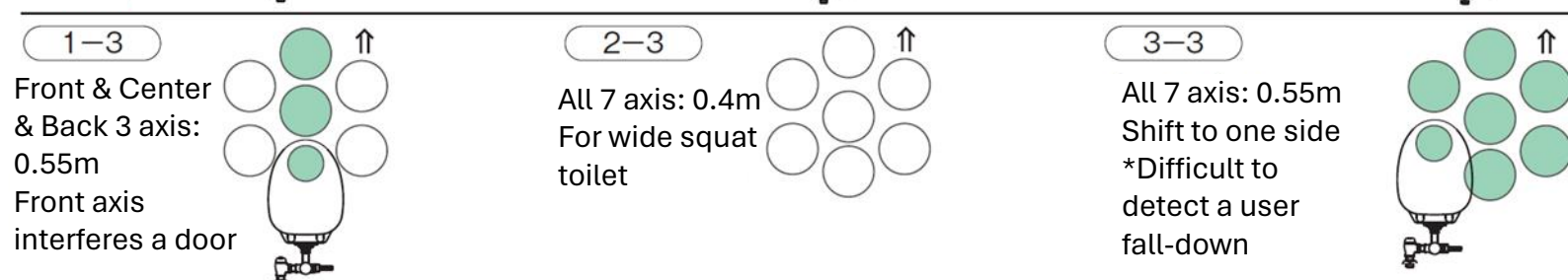
Opposite direction



Forward direction



Others

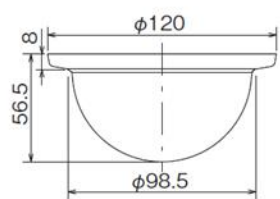


- ※1 ○ 0.4m ● 0.55m ○ Deleted area
- ※2 ⇒ stand for Front direction (Green LED lighting side) Indicate the direction of head angle adjustment

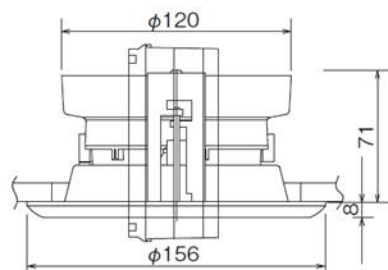
Toilet long-time use notification system

External dimensions

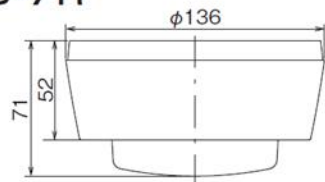
●TS-7



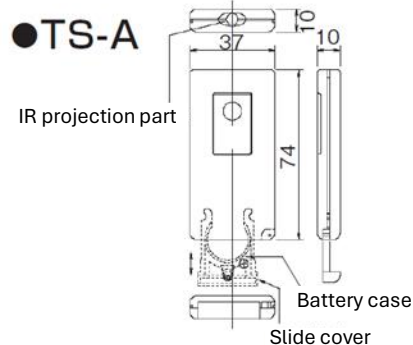
●TS-7U



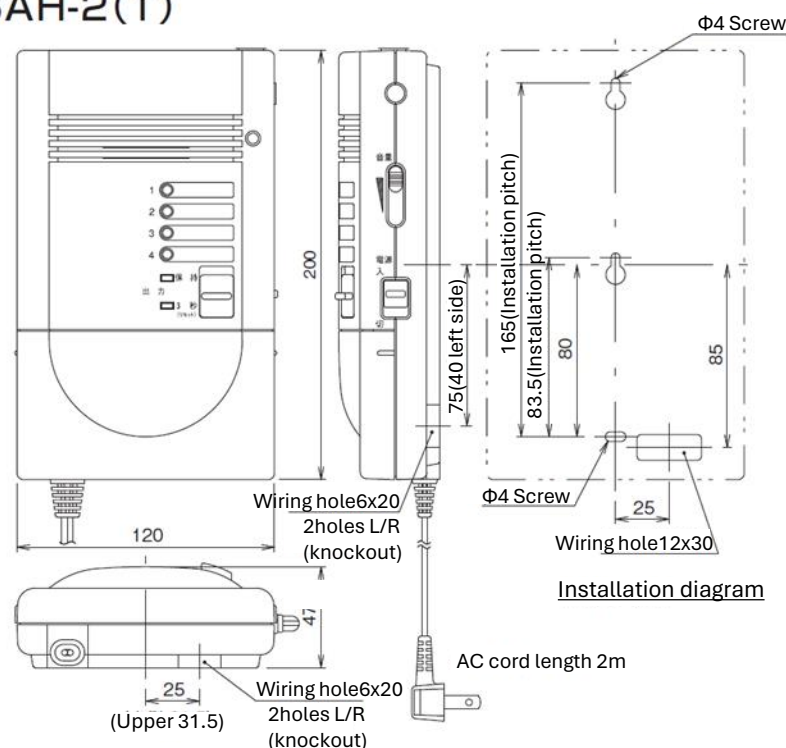
●TS-7R



●TS-A

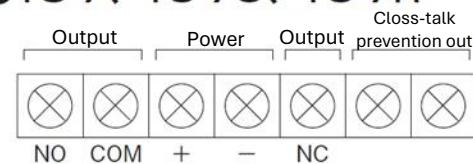


●SAH-2(T)

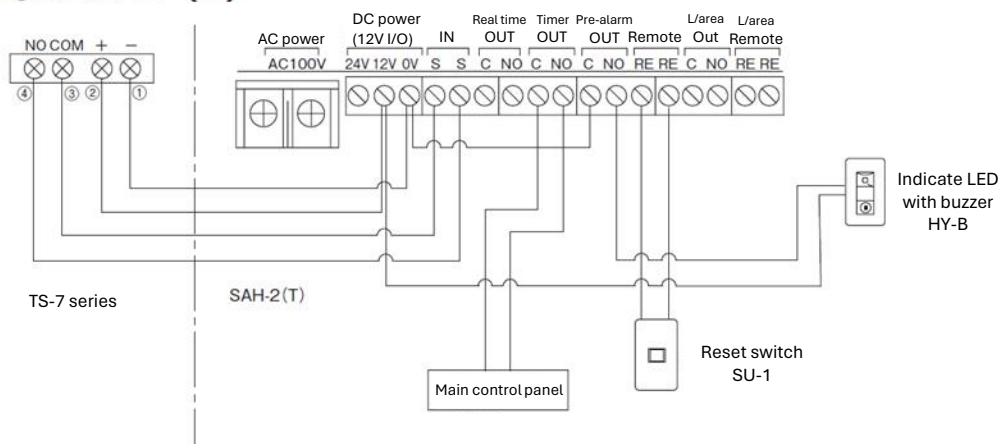


Wiring

●TS-7, TS-7U, TS-7R



●SAH-2 (T)



Specification

Description	Toilet occupancy sensor		
	TS-7 (Round)	TS-7U (Flush mount)	TS-7R (Square)
Model No.	TS-7 (Round)	TS-7U (Flush mount)	TS-7R (Square)
Method	Near-infrared reflection type (measure distance method)		
Power supply	12~24VDC ± 10%		
Current consumption	155mA or less at 12VDC		
External output	Dry contact relay From C, 30VDC 0.5A (resistive load)		
Response time	10 sec or less		
Operation LED	Green LED (Initial setting: blinking, Standby: OFF, Detection: ON)		
Cross talk prevention LED	Orange LED (Initial setting : blinking, Main unit: OFF, Sub unit: ON)		
Mounting height	2.5~3m(*2.5m for black floor, etc. with low reflectance)		
Initial setting area	Optical axis (5 axis) dia.: Φ0.25m Area dia.: Φ0.85m (at mounting height 2.5m)		
Optical axis movement range	0.3m in the FRONT direction at height of 2.5m, (by adjusting the angle in 4 steps (0/3/6/9°))		
Detection output height	9 patterns by combining 3 types of area		
Detection output area	Optical axis (5 axis) dia.: Φ0.2m Area dia.: Φ0.8m (at detection output height 2.3m)		
Detection output height adjustment	Approx. 1sec after detection and 30sec after detection completed		
Switches	1) Initial setting 2) Area exclusion 3) Area invasion		
Initial setting method	Automatic setting by turning the power on or by using TS-A(remote controller: sold separately)		
Initial setting time	Approx. 30sec		
Mounting position	Indoor(ceiling)		
Ambient temperature	-10~+55°C		
Appearance	Cover plate/External cover: ABS resin(white) / Cover: polycarbonate resin		
Weight	Approx. 200g	Approx. 350g	Approx. 250g
External dimensions	Φ120 x 56.5mm	Φ156 x 79mm	Φ136 x 71mm

*The figure of detection area might be changed due to affected by the color or material of the floor or cloths.

Description	Timer controller
Model No.	SAH-2(T)
Power supply	12/24VDC or 100VAC terminal type (either one)
Current consumption	120mA max./60mA at standby / 8W
Power output	12VDC 260mA when 100VAC powered only
Input	Dry contact N.O. (no alarm at approx. 1 sec)
Operation LED	①LED lighting at toilet use detection(during timer counting) ②LED lighting at unuse toilet detection(during timer counting) ③LED on/off repeat every 1 sec at pre-alarm detection ④LED lighting at alarm memory (LED lighting after alarm at 3sec alarm mode)
Timer output	Output after timer setting (and pre-alarm time) passed Presence timer: Measure the continuous input time Unuse timer: Measure the duration time of input signal Dry contact N.O. (30V 1A resistive load)
Real time output	Linked to the sensor input time (30V 1A resistive load) *At either timer mode of Presence or Unuse and Remote OFF
Pre-alarm output	Output at predetermined timer passed, with red LED blinking Dry contact relay N.O. (30V 1A resistive load)
Pre-alarm function	5min: ON/OFF
Pre-alarm sound	Melody sound ON/OFF
Leaving area remote input	External N.O. input make Leaving area output ON
Leaving area remote output	Output starts at the end of Sensor input Reset by L/Remote input, Sensor input or Remote input
Alarm mode	Hold/3sec mode changeable and memory reset by Reset slide SW
Timer switch	Presence timer: OFF,15s,2,3,5,7,10,12,15,20,25,30,40,50,60,90m Unuse timer: OFF,15s,5m,2,3,5,6,8,9,10,11,12,15,18,24h

Limited Warranty :

TAKEX products are warranted to be free from defects in material and workmanship for 12 months from original date of shipment. Our warranty does not cover damage or failure caused by Acts of God (including inductive surge by lightning), abuse, misuse, abnormal usage, faulty installation, improper maintenance or any repairs other than those provided by TAKEX. All implied warranties with respect to TAKEX, including implied warranties for merchantability and implied warranties for fitness, are limited in duration to 12 months from original date of shipment. During the Warranty Period, TAKEX will repair or replace, at its sole option, free of charge, any defective parts returned prepaid. Please provide the model number of the products, original date of shipment and nature of difficulty being experienced. There will be charges rendered for product repairs made after our Warranty period has expired.



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