

Alive Monitoring Timer

Rev.2.2_00

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Thank you very much for purchasing the Alive Monitoring Timer.

Please carefully read this User's Manual in order to use the unit safely.

Read "1. **Safety Precautions**" prior to first use to ensure appropriate product use.

The alive monitoring timer is an optional product developed for the purpose of monitoring the battery-less water leak sensor equipped with the CLEAN-Boost and the receiver system. The alive monitoring timer should be connected to the separately-sold battery-less water leak sensor. Use this product for alive monitoring, including checking initial operation at the time of installation, and for detecting failures after installation as well as problems with wireless communications.

In addition to the User's Manual pertaining to the alive monitoring timer, also read the User's Manual for the battery-less water leak sensor.

Remark 1. The accumulating and boosting circuit technologies, on which the CLEAN-Boost is mainly based, were developed through collaborative studies with Ritsumeikan University.

2. "CLEAN-Boost" is a registered trademark of ABLIC Inc.

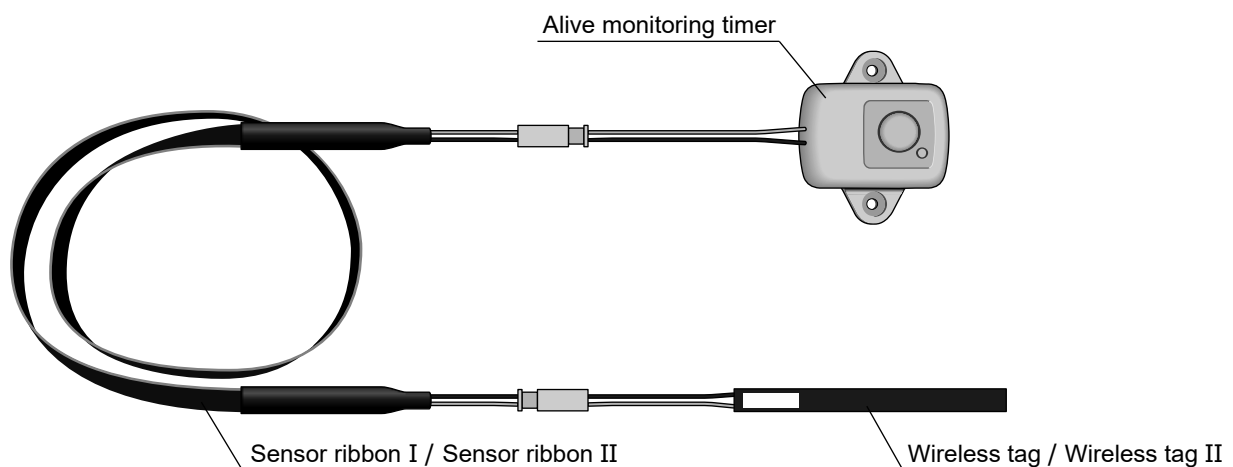
The product package does not contain the battery (CR2032) to be used for the alive monitoring timer.

Obtain a new battery.

- Alive Monitoring Timer: S-CBAMAAAC

Product configuration for the battery-less water leak sensor, to which the alive monitoring timer is to be connected, is as follows:

- Battery-less water leak sensor
 - Wireless tag: S-CBTGAAAC
 - Wireless tag II: S-CBTGAABI
 - Sensor ribbon I: S-CBSSAAAC-001/002/003
 - Sensor ribbon II: S-CBSSAABI-201/202/203



All of the information described in this User's Manual (product data, specifications, figures, tables, programs, algorithms, application circuits, etc.) is current as of the issue date and subject to change without prior notice. For details, please contact our sales representatives.

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1. Safety Precautions

In order to use the alive monitoring timer in a safe manner, be sure to observe the descriptions under "**Warnings**" and "**Cautions**."

The alive monitoring timer is intended for use under the supervision of persons knowledgeable in the field of electricity.

After reading, store the User's Manual such that it can be referred to at any time.



Warnings

Observe the following to avoid injury and potential issues with fire and heat generation with this product:

- To avoid injury and/or product failure, never disassemble or modify the unit.
- To avoid excessive heat generation and/or product failure, never connect other electronic devices or electric wires to the alive monitoring timer.
- Store and install this product out of reach of children.
- No explosion-proof specifications are noted for this product. Do not use where explosion-proof specifications are specified.
- Keep this product away from anything that may cause ignition and/or explosion.



Cautions

Observe the following to avoid inappropriate product handling and injury or damage that may result.

- Do not hit, step on, or apply excessive load on this product, as it may cause product failure.
- Though the alive monitoring timer has an ordinary-use waterproof design, do not soak or leave wet for long periods, as the water may penetrate the product, potentially causing failure.

2. Precautions for Use

The alive monitoring timer is an electronic device. Inappropriate use may cause failure and/or malfunction. Observe the descriptions under "**Handling Precautions**," and correctly use the product to ensure maximum performance.



Handling Precautions

- The battery (CR2032) is not included in the product package. Use a commercially available battery.
- Use a CR2032 battery only. Use of a battery of any other type may result in poor contact and potential failure.
- Do not remove any other screw but the battery cover screws. Use of other screws may impede the product's water-proofing capacity.
- The product package contains two screws used to fix the battery cover in place. Do not lose these screws.
- Be sure to use a new battery. Use of a battery with low power may cause the battery voltage to diminish in a short time, requiring replacement.
- Insert the battery in the battery holder, with the positive (+) side facing upward. Inserting the battery upside down may cause failure.
- Always remove the battery to store the alive monitoring timer. Inserting a battery launches electric conduction, which consumes the battery.
- After inserting the battery, press the switch to start operation. Otherwise, the alive monitoring timer may not operate correctly.
- The alive monitoring timer stops at some point when run continuously on low power. This may happen at several weeks or several months. Replace the battery when it becomes depleted.
- When disposing of a used battery, insulate the electrodes using adhesive tape, etc., and observe any instructions issued by your local municipality.
- If the device is damaged by impact such as dropping, its ordinary-use waterproof feature may be impaired. If the machine body is damaged, do not use it. Instead, replace it with a new one.
- Do not pull hard on the lead wires and the connectors, as this may cause failure including disconnection.
- The alive monitoring timer may not function if, during installation for example, excessive mechanical stress is applied to the sensor ribbon I / sensor ribbon II, causing partial disconnection or partial short circuit between the electrodes. If this happens, either perform a water dropping test to check initial operations, or replace the sensor ribbon I / sensor ribbon II with a new one.
- If the sensor ribbon I / sensor ribbon II of the battery-less water leak sensor absorbs water, it can cause electrical corrosion in the internal electrodes, causing a feeble electric power to be generated so that the water leakage can be detected. The electrical corrosion causes consumption of the sensor ribbon electrodes. Therefore, if the sensor ribbon I detects water leakage, be sure to replace it with a new sensor ribbon I. The sensor ribbon II can be used repeatedly. When a failure is detected by the alive monitoring timer, or when the cumulative power generation time becomes 500 hours, replace it with a new sensor ribbon II.

3. Product Configuration

Product configuration for the alive monitoring timer is as follows.
In addition, the names of parts and the outer dimensions of the timer are as indicated.

- Alive monitoring timer: S-CBAMAAAC

3.1 Names of parts

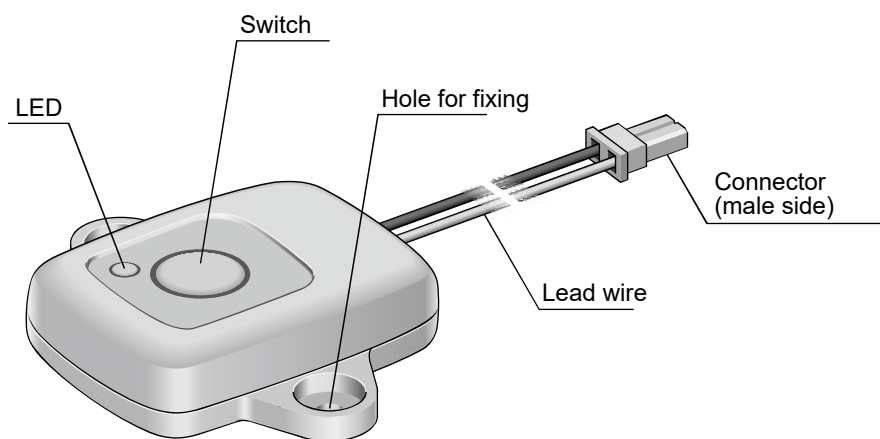


Figure 1 Appearance and Part Names of Alive Monitoring Timer (Top)

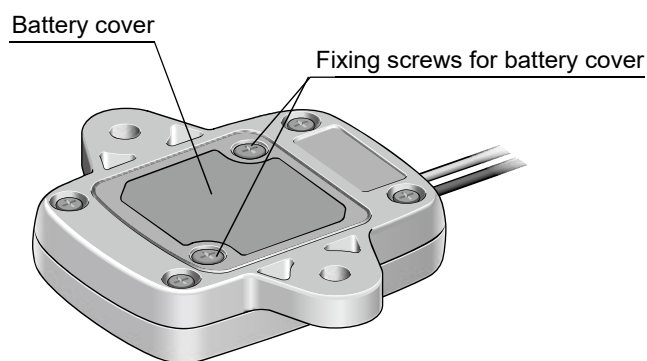


Figure 2 Appearance and Part Names of Alive Monitoring Timer (Bottom)

3.2 Outer dimensions

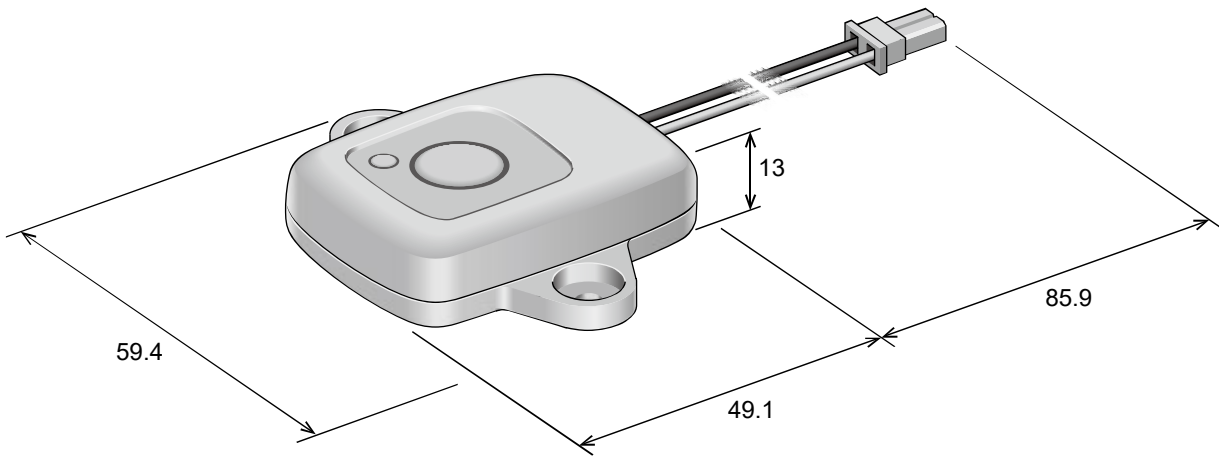


Figure 3

[Unit: mm]

3.3 Certifications

3.3.1 FCC / ISED



FCC Compliance Statement

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.

FCC Class B Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canada ICES-003 Compliance CAN ICES-003 (B) / NMB-003 (B)

3.3.2 CE Marking



This product complies with the essential requirements of EMC Directive 2014/30/EU.

- Test Report No. : TMHY2110000419YE
- Product Name : Alive Monitor Timer
- Manufacturer : ABLIC Inc.
- Applicable standards : EN IEC 61000-6-1:2019, EN IEC 61000-6-3:2021, IEC 61000-4-2:2008, IEC 61000-4-3:2006+A1:2007+A2:2010, IEC 61000-4-8:2009

3.3.3 UKCA



This product complies with the essential requirements of the Electromagnetic Compatibility Regulations 2016 (S.I. 2016 No. 1091).

- Test Report No. : TMHY2110000419YE
- Product Name : Alive Monitor Timer
- Manufacturer : ABLIC Inc.
- Applicable standards : BS EN IEC 61000-6-1:2019, BS EN IEC 61000-6-3:2021, BS IEC 61000-4-2:2008, BS IEC 61000-4-3:2006+A1:2007+A2:2010, BS IEC 61000-4-8:2009

4. Product Overview of Alive Monitoring Timer

4.1 Overview

The battery-less water leak sensor is a system that generates electric power when absorbing water, by which a wireless signal is transmitted to generate a water leakage alarm. Since this system runs only when absorbing water, it cannot be determined whether the system is in normal status or abnormal status when waiting for water leakage. This alive monitoring timer is an optional product developed to facilitate alive monitoring of the battery-less water leak sensor and the receiver system.

The battery-less water leak sensor connected with this alive monitoring timer is activated by periodically supplying feeble electric power to engender alive monitoring of the entire system.

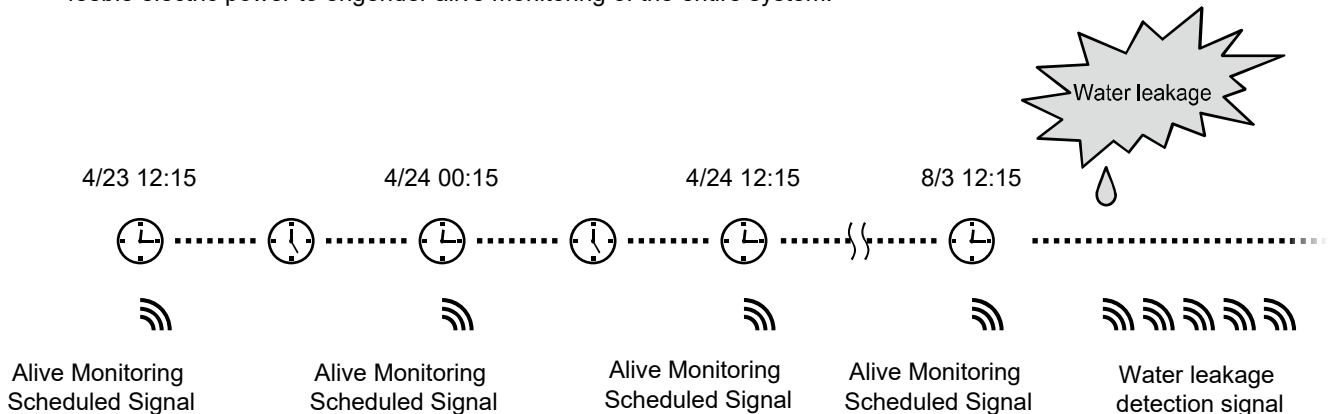


Figure 4 Concept

4.2 Features

- Performs alive monitoring of both the wireless tag / wireless tag II and the sensor ribbon I / sensor ribbon II to detect failures.
- Connects to the connector at the terminal of the sensor ribbon I / sensor ribbon II.
- The unit requires no special layout since it requires no external power supply.
- The unit runs for ten years with a CR2032 battery, powered by low current consumption technologies.*1
- Low battery notification*2
- Ordinary-use waterproof design (water-resistant under normal conditions)

*1. Ten years is a value obtained by estimates. The battery life is the guaranteed performance indicated by the battery manufacturer; therefore, in general, the recommended period of use is approximately five years subsequent to the date of manufacture.

*2. When the battery is running low, the interval switches from twelve hours to six hours, which is an indication of low battery.

4.3 Intended use

The alive monitoring timer should be used to check initial operations at the time the battery-less water leak sensor is installed, and to detect faults subsequent installation, problems in wireless communications, etc. as shown below:

- Failure of the wireless tag / wireless tag II
- Disconnection and short circuit of the sensor ribbon I / sensor ribbon II
- Failure of transmission and reception between the wireless tag / wireless tag II and the receiver
- Connector disconnection and contact failures
- Disconnection and short circuit due to connector corrosion, etc.
- Disconnection and short circuit of lead wires

5. Product Specifications

5.1 Basic specifications

Table 1

Item	Specification	Remark
Dimensions (mm)	135 × 59.4 × 13 (Main body: 49.1 × 59.4 × 13)	–
Battery type	CR2032	Battery life not guaranteed. Confirm warranty information from the battery manufacturer.
Operating temperature	–10°C to +50°C	–
Operating humidity	95%RH max.	–
Storage temperature	–25°C to +70°C	In product package, with no battery set.
Water proofing specifications	Ordinary-use waterproof	Water-resistant under normal conditions

5.2 DC Electrical Characteristics

Table 2

(Ta = –10°C to +50°C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Standby current consumption	I _{SB}	Before switched on, waiting for alive monitoring scheduled signal.	–	720	–	nA
Low battery detection voltage	V _{LBDET}	–	–	2.7	–	V

5.3 AC Electrical Characteristics

Table 3

(Ta = –10°C to +50°C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
LED lighting time	t _{LEDLU}	V _{BAT} > V _{LBDET}	–	1	–	s
LED blinking time	t _{LEDFL}	V _{BAT} ≤ V _{LBDET}	–	10	–	s
Output time	t _{OUT}	V _{BAT} > V _{LBDET}	175	180	185	s
Transmission wait time 1	t _{1STSGWT}	V _{BAT} > V _{LBDET}	–	–	185	s
Transmission wait time 2 ^{*1}	t _{2NDSGWT}	V _{BAT} > V _{LBDET}	–	–	185	s
Transmission wait time 3 ^{*1}	t _{3RDSGWT}	V _{BAT} > V _{LBDET}	–	–	185	s
Alive monitoring interval time	t _{INTAM}	V _{BAT} > V _{LBDET}	718	720	722	min
Low battery notification interval time	t _{INTLB}	V _{BAT} ≤ V _{LBDET}	358	360	362	min

*1. May not be output depending on the length of the sensor ribbon I / sensor ribbon II and changes in resistance values.

6. Using the Product

Before using this alive monitoring timer, be sure to read "1. Safety Precautions" and "2. Precautions for Use" to ensure proper use of the unit.

6.1 Descriptions of operations

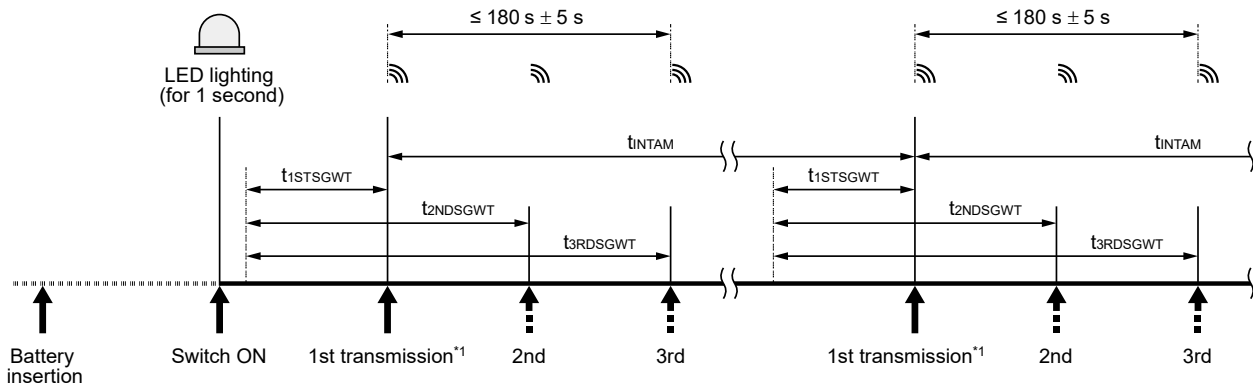
6.1.1 Startup

Insert a battery (CR2032) into the alive monitoring timer, close the battery cover, and then press the switch to start the device. When the switch is pressed, the LED goes on to indicate that the device has been started.

Once the power is switched on, the alive monitoring circuit begins to operate, applying current to the wireless tag / wireless tag II via the connected sensor ribbon I / sensor ribbon II. This application of the current continues during output time ($t_{OUT} = 180 \pm 5$ sec). The wireless tag / wireless tag II is started up by this applied current, and when transmission wait time 1 ($t_{1STSGWT}$) has elapsed, the initial BLE beacon signal is transmitted. Up to three BLE beacon signal transmissions are generated, depending on the length of the sensor ribbon I / sensor ribbon II, resistance value, operating temperature, etc.

The BLE beacon signal—periodically transmitted to engender alive monitoring—is referred to as the alive monitoring scheduled signal. Once the power is switched on, counting starts when the first alive monitoring scheduled signal is transmitted. Thereafter, the alive monitoring scheduled signals are transmitted at an interval referred to as the alive monitoring interval time ($t_{INTAM} = 12$ hours \pm 2 minutes).

The alive monitoring scheduled signals are transmitted at least one time and up to three times. Note that the number of the alive monitoring scheduled signals transmitted and the intervals between $t_{1STSGWT}$, $t_{2NDSGWT}$, and $t_{3RDSGWT}$ change depending on the length of the sensor ribbon I / sensor ribbon II, resistance value, operating environment (temperature, humidity), etc.



*1. Alive monitoring scheduled signal

Figure 5 Startup Timing Chart

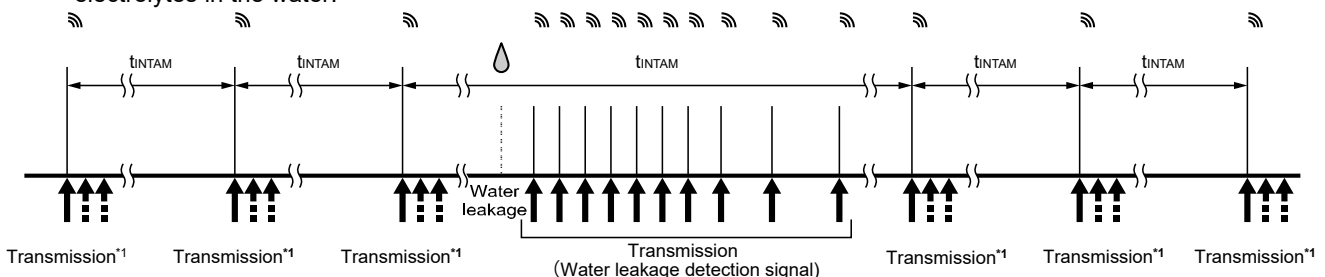
6.1.2 Alive monitoring scheduled signal and water leakage detection signal

When water leakage occurs and the sensor ribbon I / sensor ribbon II absorbs the water, the sensor ribbon I / sensor ribbon II generates electricity, which is then accumulated and boosted in the wireless tag / wireless tag II, engendering a BLE beacon signal. This is referred to as a water leakage detection signal. Because the alive monitoring scheduled signal transmitted by the device is also the same BLE beacon signal, it is important to distinguish between these two signals.

Water leakage occurs irrespective of the alive monitoring interval time (t_{INTAM}). Adjust the receiver system settings so that the device measures the interval between the BLE beacon signals and ascertains any signal that does not meet the criteria of t_{INTAM} as a water leakage detection signal.

Adjust the receiver system settings so that if an alive monitoring scheduled signal is transmitted at the same time as a water leakage, the device is able to determine water leakage detection status where the duration of the continuously transmitted BLE beacon signals is 180 seconds \pm 5 seconds or more.

Note that the duration of transmission of a BLE beacon signal in a water leakage case changes depending on the quantity of water absorbed by the sensor ribbon I / sensor ribbon II, time it takes to dry, and the concentration of electrolytes in the water.



*1. Alive monitoring scheduled signal

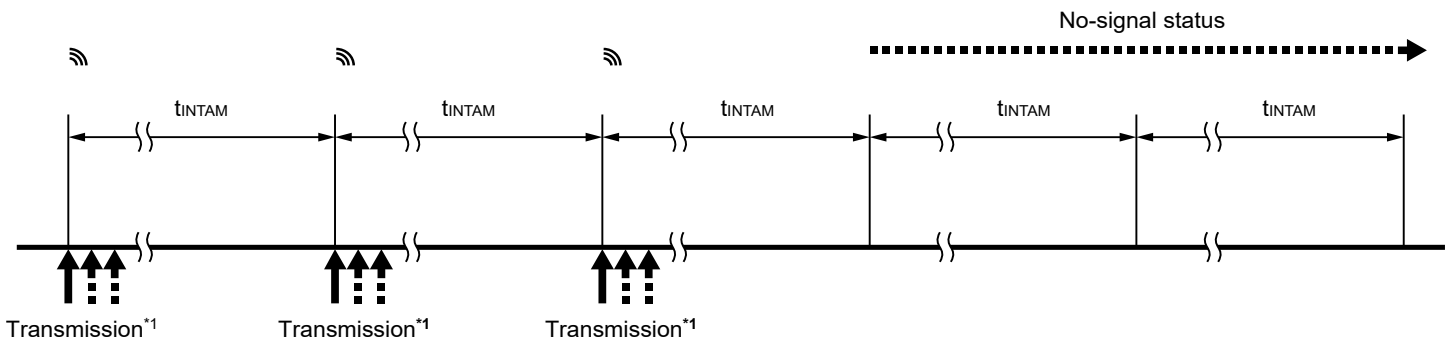
Figure 6

6. 1. 3 Ascertaining product failure

If either the wireless tag / wireless tag II or the sensor ribbon I / sensor ribbon II of the battery-less water leak sensor malfunctions, the current supplied from the device to the wireless tag / wireless tag II via the sensor ribbon I / sensor ribbon II is interrupted, disabling the wireless tag / wireless tag II and preventing it from transmitting signals. Therefore, even after lapse of the alive monitoring interval time (t_{INTAM}), the wireless tag / wireless tag II reverts to no-signal status.

Consider this a failure of the battery-less water leak sensor.

Where a failure has been identified, possible causes include a failure of either the wireless tag / wireless tag II or the sensor ribbon I / sensor ribbon II, a communication failure, a failure of the receiver, and an abnormal condition of the receiver system. Immediately take appropriate measure(s) to address any issues.



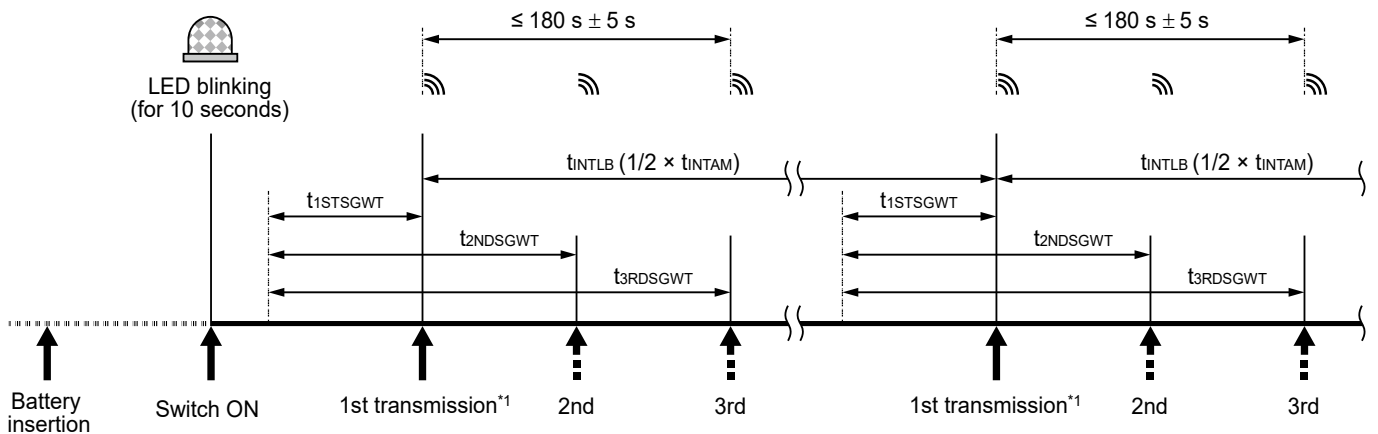
*1. Alive monitoring scheduled signal

Figure 7 Failure of Battery-less Water Leak Sensor

6. 1. 4 Low battery at startup

If the battery is low when the power is switched on, the LED blinks for approximately ten seconds to indicate low battery. If this happens, replace the battery.

If the device is started up with the LED blinking, then the alive monitoring interval time (t_{INTAM}) is shortened by 1/2 from the normal interval time, and a signal is transmitted at every low battery notification interval time (t_{INTLB}).



*1. Alive monitoring scheduled signal

Figure 8

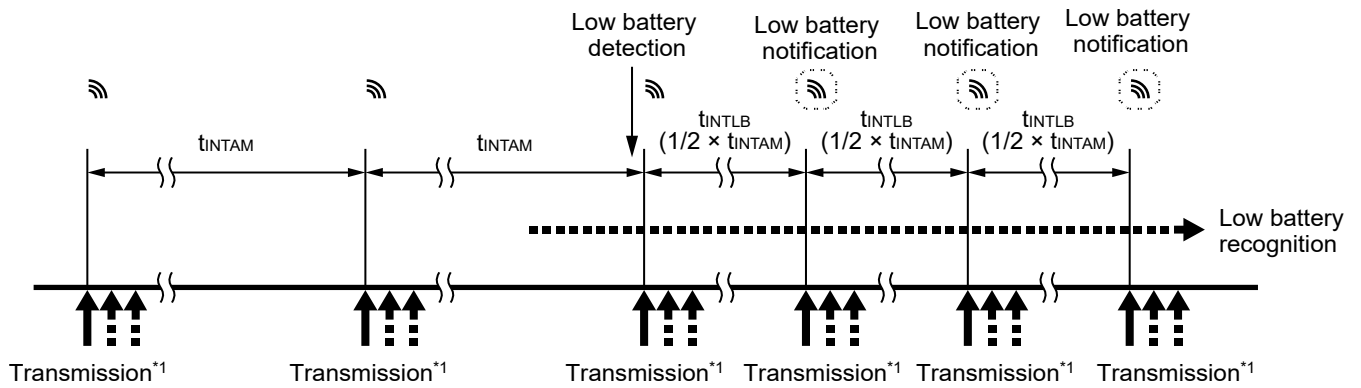
Alive Monitoring Timer

6. 1. 5 Low battery during use

This timer detects the battery voltage immediately before transmitting an alive monitoring scheduled signal. If the battery is running low during use, this timer shortens the alive monitoring interval time (t_{INTAM}) to $1/2$ and transmits a BLE beacon signal at every low battery notification interval time (t_{INTLB}).

Adjust settings so that the receiver system can ascertain a change in t_{INTAM} as an indication of low battery.

Replace the battery if it runs low.



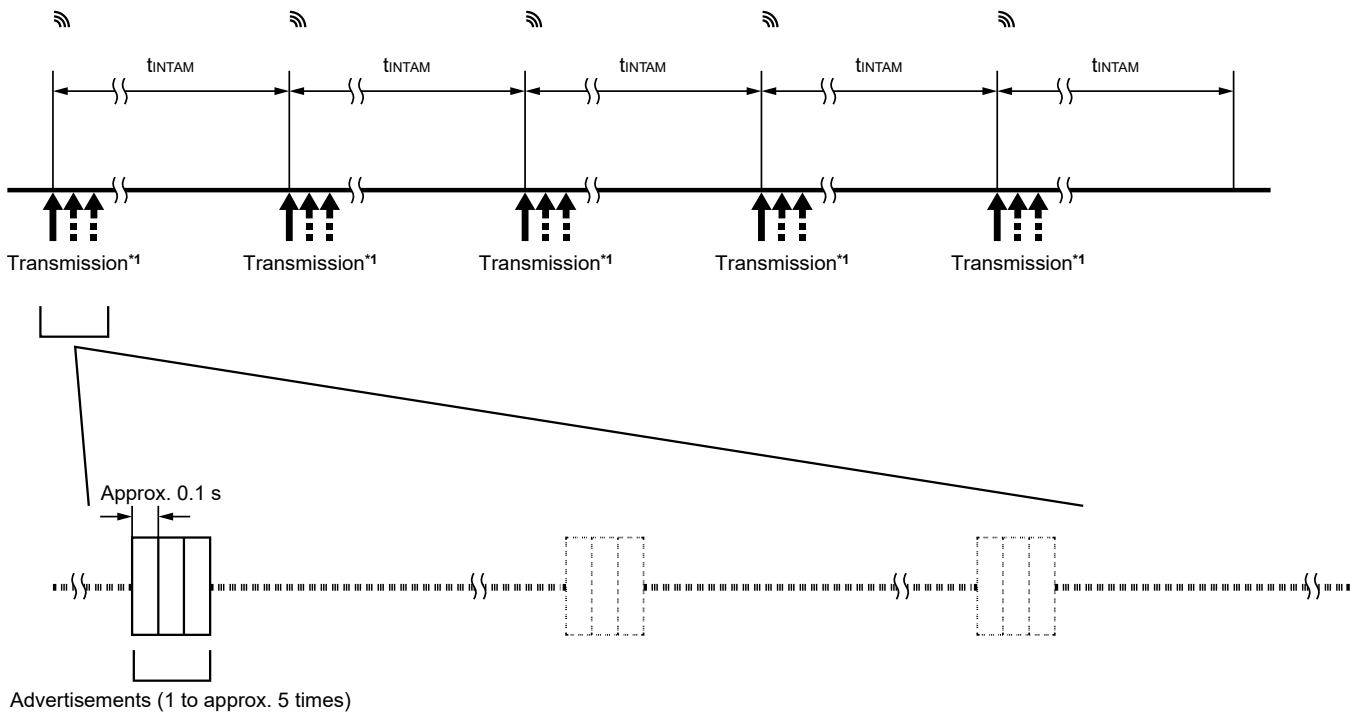
*1. Alive monitoring scheduled signal

Figure 9

6. 1. 6 Advertisements in BLE beacon signal

The BLE beacon signal transmitted from the wireless tag / wireless tag II continuously transmits eight to ten-odd advertisements for wireless tag and one to approximately five times for wireless tag II at one time at an interval of approximately 0.1 seconds. The number of advertisements may be reduced depending on the sensitivity of the receiver.

Note that the alive monitoring scheduled signal and the water leakage detection signal transmit the same advertisements.



*1. Alive monitoring scheduled signal

Figure 10

6.2 Setting the Battery

Install the battery as follows:

1. Obtain a new battery*¹ (type: CR2032*²).
2. Remove the two battery cover screws from the rear side of the product body to remove the battery cover.
3. Remove any batteries in the unit.
4. Insert the battery under the claw with the + electrode side facing upward, as indicated by the arrow in **Figure 11**.
5. Place the battery cover in the correct position and install the two battery cover screws.
6. Write down the date of battery replacement on the front side of the battery cover.
7. After setting the battery in place, press the switch to confirm that the LED lights up for one to two seconds*³.

- *1. Be sure to use a new battery. Running time may be shorter with an older battery.
- *2. Use a CR2032 battery only. The other kinds of batteries may cause failures and/or malfunctions.
- *3. If the LED blinks, the battery is running low. Be sure to replace the battery. If the LED does not light up or blink, it may be inserted incorrectly, e.g. the polarities may be wrong. Confirm that the battery is inserted correctly. If the battery is correctly inserted, either the battery may be low or the device is malfunctioning. Replace the battery and/or the alive monitoring timer itself.

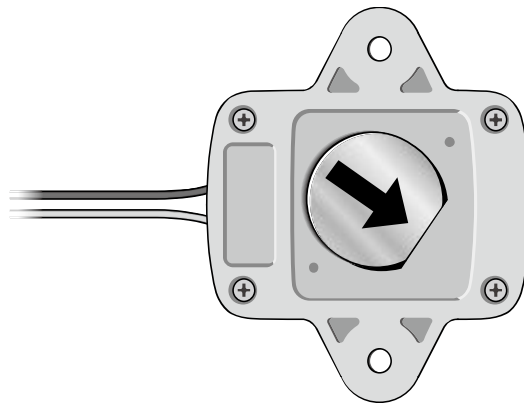


Figure 11 Insertion Direction

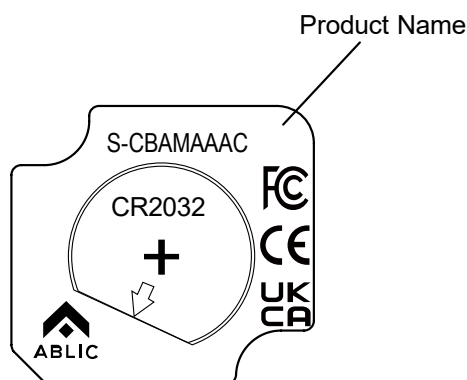


Figure 12 Battery Cover Label

6.3 Connection

Connect the connector (male) of the alive monitoring timer to the connector (female) at the terminal of the sensor ribbon I / sensor ribbon II, which configures the water leak sensor in conjunction with the connected wireless tag / wireless tag II.

Fully insert the connector. When removing and inserting the connector, hold both the male side and the female side. Be careful not to damage the system by pulling the lead wires and the sensor ribbon I / sensor ribbon II.

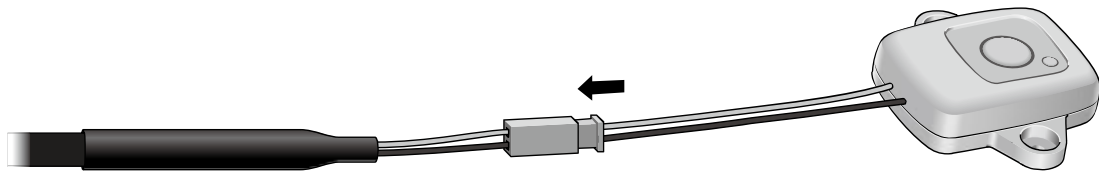


Figure 13 Connecting Alive Monitoring Timer and Sensor Ribbon I / Sensor Ribbon II

6.4 Installation

Connect the alive monitoring timer to the terminal of the sensor ribbon I / sensor ribbon II, to which the battery-less water leak sensor has been installed. Fix the alive monitoring timer main unit in place with the screws, binding bands, etc.

6.4.1 Example: fixing water leak sensor and alive monitoring timer in place with binding bands



Figure 14

6.4.2 Example: fixing alive monitoring timer in place with binding bands

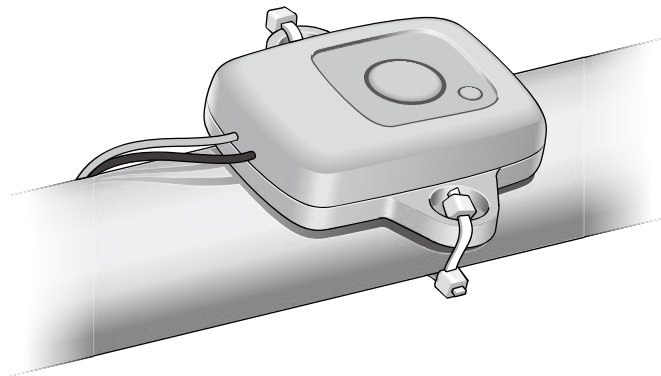


Figure 15

6.5 Check startup

Check that your new unit is functioning correctly (initial operation), as follows:

1. Connect the battery-less water leak sensor with the alive monitoring timer and install in the desired position.
2. Adjust the settings of the receiver system for standby.
3. Press the switch to start the alive monitoring timer, and confirm that the LED turns on.
4. Confirm the BLE beacon signal on the receiver system within three minutes after the unit starts.

Repeat steps 3 and 4 if required.

6.6 Battery-less water leak sensor failure

Connecting this alive monitoring timer to the battery-less water leak sensor enables the receiver system to specify any issues from amongst the failures and types of interference noted below.

Unless the receiver system receives the alive monitoring scheduled signal transmitted every twelve hours, the battery-less water leak sensor and/or the receiver system are impacted by failure or interference. Take appropriate steps to address the problem, such as replacing malfunctioning product(s).

- Failure of the wireless tag / wireless tag II
- Failure due to disconnect and short circuit of the sensor ribbon I / sensor ribbon II
- Failure of transmission and reception and communication interference between the wireless tag / wireless tag II and the receiver
- Failure of the receiver system and communication failure
- Connector disconnection and contact failures
- Disconnection and short circuit due to connector corrosion, etc.
- Disconnection and short circuit of the lead wires
- Failure of the alive monitoring timer or empty battery

Caution 1. If the sensor ribbon I / sensor ribbon II of the battery-less water leak sensor absorbs water, it can cause electrical corrosion in the internal electrodes, causing a feeble electric power to be generated so that the water leakage can be detected. The electrical corrosion causes the consumption of the sensor ribbon electrodes.

Therefore, if the sensor ribbon I detects water leakage, be sure to replace it with a new sensor ribbon I.

The sensor ribbon II can be used repeatedly. When a failure is detected by the alive monitoring timer, or when the cumulative power generation time becomes 500 hours, replace it with a new sensor ribbon

2. The alive monitoring timer may not function if, during installation for example, excessive mechanical stress is applied to the sensor ribbon I / sensor ribbon II, causing partial disconnection or partial short circuit between the electrodes. If this happens, either perform a water dropping test to check initial operations, or replace the sensor ribbon I / sensor ribbon II with a new one.

7. Instructions for Configuration of Receiver System

The battery-less water leak sensor to which the alive monitoring timer is connected has the following five statuses.

The signals transmitted from the wireless tag / wireless tag II of the battery-less water leak sensor are BLE beacon signals regardless of status, and the same advertisements are sent from either. These five statuses are determined by the receiving intervals between BLE beacon signals sent from the wireless tag / wireless tag II and the receiving durations.

The five statuses, the receiving intervals of the BLE beacon signals, and the receiving durations, are as described below. Use this information when considering receiver system algorithms.

- Standby status
- Alive monitoring scheduled signal output status
- Water leakage detection status
- Low battery notification status
- Abnormal status or empty battery status

7.1 Standby status

The status where the receiver system is waiting for the BLE beacon signals from the wireless tag / wireless tag II is referred to as standby status. The receiver system receives a BLE beacon signal as an alive monitoring scheduled signal once the alive monitoring interval time (t_{INTAM}) (12 hours \pm 2 minutes from when alive monitoring scheduled signals begin) lapses.

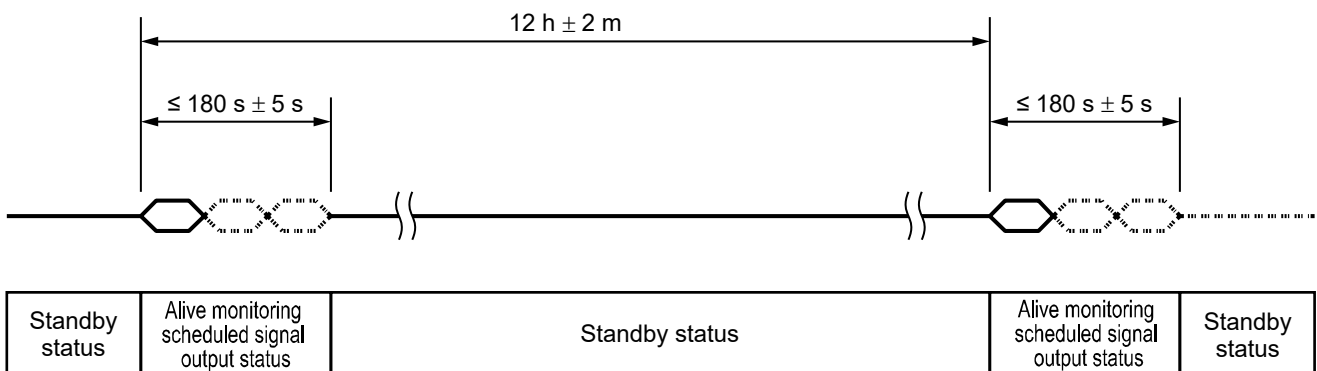


Figure 16

7.2 Water leakage detection status

The receiver system determines that a water leakage detection status occurs if, after receiving an alive monitoring scheduled signal, the system receives a BLE beacon signal regardless of the alive monitoring interval time (t_{INTAM}), which is 12 hours \pm 2 minutes, and additionally if the receiving duration of the BLE beacon signal is > 180 seconds \pm 5 seconds.

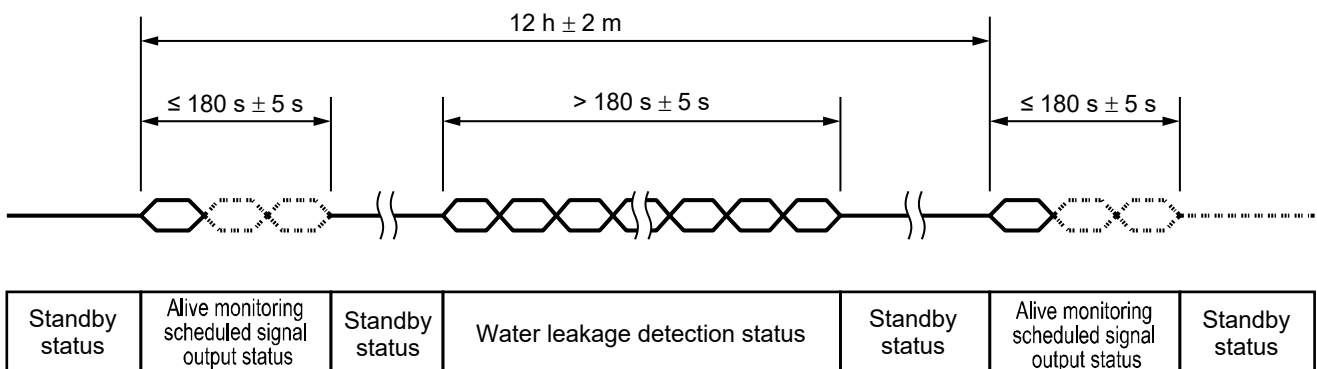


Figure 17

7.3 Alive monitoring scheduled signal output occurs at the same time as water leakage detection status

If the receiver system receives an alive monitoring scheduled signal at the time of a water leakage, it determines that a water leakage detection status occurs if the receiving duration is $> 180 \text{ s} \pm 5 \text{ s}$.

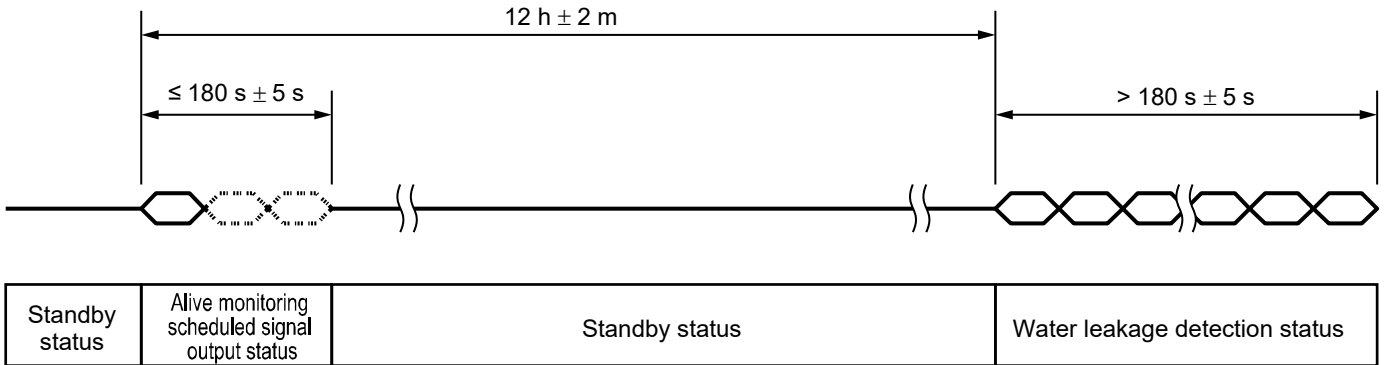


Figure 18

7.4 Abnormal status

The receiver system determines that an abnormal status occurs if it receives no signal even after lapse of the alive monitoring interval time (t_{INTAM}), which is $12 \text{ h} \pm 2 \text{ m}$ from the last alive monitoring scheduled signal.

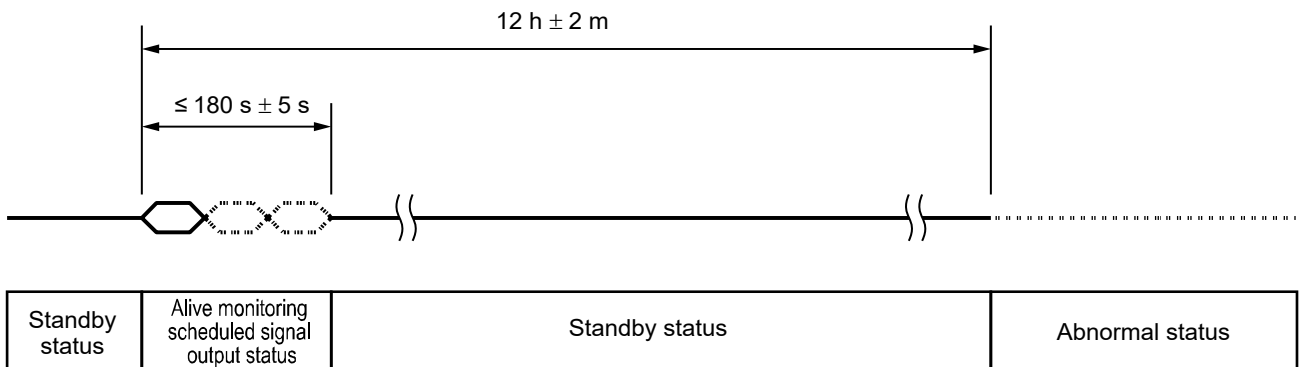


Figure 19

7.5 Low battery notification status

The receiver system identifies low battery notification status where it receives a signal during the period after $6 \text{ h} \pm 2 \text{ m}$ from the last alive monitoring scheduled signal and the signal duration is $\leq 180 \text{ s} \pm 5 \text{ s}$.

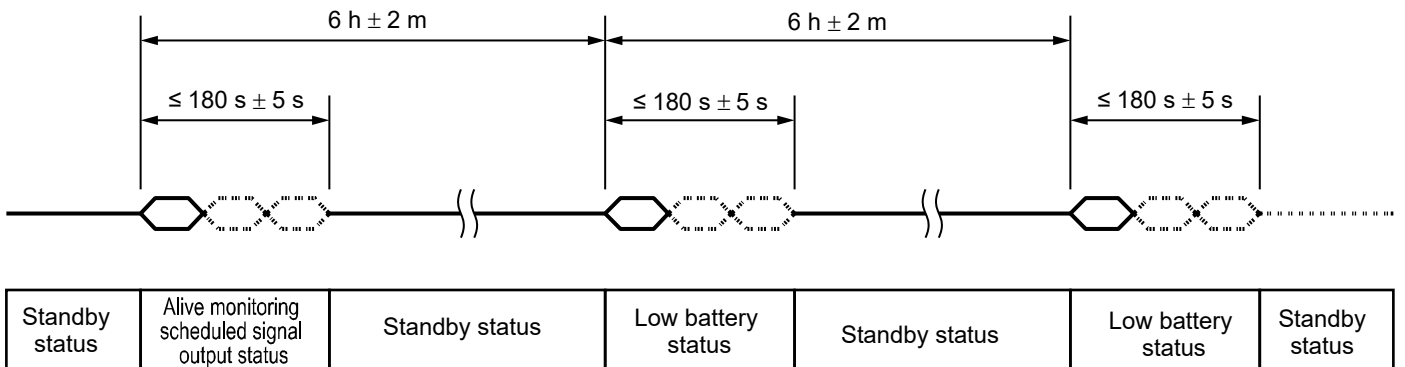


Figure 20

8. Product Warranty

8.1 Product warranty overview

- The product described in this User's Manual (hereinafter referred to as the Alive Monitoring Timer) is covered by the warranty only if no wireless transmission can be confirmed at the time the initial operation is checked during installation, even after the Alive Monitoring Timer has been installed correctly, in accordance with the descriptions in the User's Manual (referred to as an initial defect or an initially defective product). The warranty does not cover malfunction not caused by ABLIC Inc., e.g. damage caused by the user or malfunction caused by inappropriate use.
- Never disassemble or modify the Alive Monitoring Timer, as this will invalidate the warranty.

8.2 Period of exchange of initially defective product

- The period during which any initially defective product may be exchanged shall be one (1) year after shipment of the product from ABLIC Inc. The exchange period shall be calculated from the date of shipment.

8.3 Warranty information and warrantied article

- The warranty for ABLIC Inc.'s Alive Monitoring Timer provides for a free replacement if ABLIC Inc. identifies an initial defect.
- To get a replacement, the customer must include the statement of delivery with the defective Alive Monitoring Timer. Please note a number of days may be required for us to determine whether the failure has been caused by an initial defect.

8.4 Returns, exchanges, and repairs

- Please note that we do not accept returns.
- Please contact us in advance if you wish to return a product.
- ABLIC Inc. will cover costs for return of products found to be initially defective.
- If the returned product is not found initially defective, the customer may be asked to pay the return postage as well as the price of the replacement.

8.5 Disclaimers

Please note the following items when using the product.

- When using this Alive Monitoring Timer, please pay attention to the information noted under "Safety Precautions," "Precautions for Use," "Basic specifications," and "Using the Product." ABLIC Inc. shall not be liable for any damages related to any malfunction, accident, etc., incurred due to use of this Alive Monitoring Timer under any other conditions than those described in the User's Manual.
- ABLIC Inc. shall not be liable for any damage, etc., resulting from use of the Alive Monitoring Timer.
- ABLIC Inc. shall not be liable for any damages not resulting from the Alive Monitoring Timer.
- The Alive Monitoring Timer contains semiconductor products, which carry the possibility of malfunction or defect. In order to prevent injury, fire, or damage to the public in instances where the Alive Monitoring Timer is defective or malfunctions, the Customer shall be responsible for ensuring safety, such as addressing redundant design issues, as well as taking steps to contain fire and prevent malfunction. In addition, please fully evaluate your entire system and determine the applicability of the Alive Monitoring Timer on your own responsibility.
- ABLIC Inc. shall not be liable for any infection of computer viruses or other technical harmful programs, or unauthorized access to this Alive Monitoring Timer or systems, software, networks, databases, etc. using this product.
- The circuit examples and the methods of use described in this User's Manual are for reference purposes only, and therefore are not a guarantee of mass-production designs.
- If the descriptions of this User's Manual contain any incorrect information and damage occurs as a result, ABLIC Inc. shall not be liable for any damages incurred.
- When using the Alive Monitoring Timer, observe the laws and regulations pertaining to the intended product use and the region or country where it is used, suitability of intended use, safety, etc.
- The alive monitoring timer was not designed as any equipment or a part of a device that may damage the human body or pose a threat to human life and/or assets (such as medical equipment, crime prevention equipment, combustion inhibition equipment, vehicle equipment, traffic equipment, onboard equipment, aviation equipment, space equipment, and nuclear power equipment). Never use the Alive Monitoring Timer in the aforementioned devices or equipment without ABLIC Inc.'s prior written consent. In particular, the Alive Monitoring Timer is not for use as a device that directly impacts human life, such as in life-support systems or as an instrument imbedded in the human body.
- ABLIC Inc. strictly prohibits use and provision of the Alive Monitoring Timer for the development of weapons of mass destruction and for military use. Where the Product is provided to any party that intends to develop, produce, use, or store nuclear weapons, biological weapons, chemical weapons, missiles, or that has any other military objective, ABLIC Inc. shall not be responsible or liable.
- When exporting the alive monitoring timer, comply with the Foreign Exchange and Foreign Trade Act and all other export-related laws, and follow the required procedures.
- The Alive Monitoring Timer is not of a radiation-proof design. In accordance with your own intended use, take steps against radiation via your own product design.
- Normal use of the Alive Monitoring Timer does not affect human health. Regardless, the unit should never be placed in your mouth because it contains chemicals and heavy metals.
- To properly dispose of the Alive Monitoring Timer, observe the laws and regulations of the region or country and handle accordingly. Note that PVC (polyvinyl chloride) is used in part of this product.
- When disposing of a used battery, insulate the electrodes using adhesive tape, etc., and follow any instructions from the local government.

Alive Monitoring Timer

- This User's Manual includes contents related to ABLIC Inc.'s know-how, and the copyright thereof belongs to ABLIC Inc. Reproducing, copying, or disclosure to any third party of this User's Manual, in whole or in part, is strictly prohibited without ABLIC Inc.'s approval.
ABLIC Inc.'s supply of the Alive Monitoring Timer to the Customer shall neither grant nor guarantee the Customer any rights to execute or use ABLIC Inc.'s or any other third party's intellectual property or other rights pertaining to the Alive Monitoring Timer.
- Where the Customer uses the Alive Monitoring Timer to manufacture a product, ABLIC Inc. shall not be liable for cases where the use of this Alive Monitoring Timer in said product, specifications of said product, and/or said product incorporating the Alive Monitoring Timer infringes upon any other third party's patent(s).
- ABLIC Inc. does not provide parameter sheets, etc.
- This Disclaimers have been delivered in a text using the Japanese language, which text, despite any translations into the English language and the French language, shall be controlling.

