

TOSHIBA

R32

Installation & Operation Manual

MODEL NAME

For commercial use

Leak Detector

TCB-LD3UPE



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NO/PL/BG/RO/ET/LV/HR/CS/SK/SL/HU.

English

TOSHIBA R32 refrigerant leakage detector (Hereafter “Leak Detector”)

Thank you for purchasing this TOSHIBA Leak Detector.
Read the installation procedures before proceeding with installation.
In particular, please carefully read the “Safety Precaution”
* This Leak Detector is only for being combined with TOSHIBA Air conditioner.
After reading these instructions, be sure to keep them in a safe place.

CONTENTS

1	Safety precaution	2
2	Specification	5
3	Accessory parts	7
4	Installation precautions	8
5	Mounting	14
6	Self-diagnostics table	17
7	Set up	18
8	Operation	19
9	Periodic inspection (Maintenance)	22

1 Safety precaution

- Before starting to install the air conditioner, read through the Installation Manual carefully, and follow its instructions to install the air conditioner.
- Only a qualified installer or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire.
Please understand the following details (instructions and symbols) before reading the body text, and follow the instructions.

Indication	Meanings of identification
 WARNING	The warnings indicate that if you fail to operate properly and follow the instructions in the warnings, it may cause serious personal injury or death.
 CAUTION	The caution Indicates that if you fail to operate properly and, it may cause serious personal injury or property damage. (*1)

*1: Property damage includes loss of buildings, family property, poultry, and pets.

WARNING

- Before carrying out the installation, maintenance, repair or removal work, set the circuit breaker to the OFF position. Otherwise, electric shocks may result.
- Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
- Wear protective gloves and safety work clothing during installation, servicing and removal.
- This Leak Detector must be installed in accordance with National Wiring Regulations.
- Connect and fix the specified cables for wiring securely.
- Do not allow the connection to be exposed to external force from the cables.
- Select an installation location which is rigid and strong enough to support or hold this Leak Detector, and select a location for easy maintenance.
- Use only the parts specified by Carrier Japan Corporation supplied accessories.
- Disassembly and Modification of this Leak Detector is not permitted under any circumstances.
- This Leak Detector must be installed by the sales dealer or installer.
- Repairs must be carried out only by the method specified by Carrier Japan Corporation.
- Only replace parts specified by Carrier Japan Corporation when replacing parts.
- Torch detectors (or other open flame detectors) should not be used when checking for refrigerant leaks.
- This Leak Detector should be securely installed in accordance with this manual.
- In case of an abnormal condition (such as a burning smell), stop the indoor unit and turn the breaker OFF.
- When devices that use flammable refrigerants are installed in unventilated areas, ensure the refrigerants do not accumulate and present the risk of fire or explosion, even in the unlikely event that refrigerant does happen to leak.
- Do not operate wet hands.
- Do not splash water on the Leak Detector or use it in the bathroom.

CAUTION

- Gases and vapours other than the target refrigerant gas, may cause semi-conductor sensors to react.
Sensors exposed to silicon fumes may be permanently damaged. The accumulation of volatile organic compounds resulting from human occupation in a poorly ventilated room may cause inaccurate operation.
Adequate room ventilation should be maintained at all times.
 - Ground yourself to discharge static electricity before performing any wiring.
 - Do not install the Leak Detector in places with direct sunlight or where the ambient temperature is more than 40°C or is less than 0°C. Follow 2. Specification.
 - The connecting cable must not touch piping directly.
 - Install this Leak Detector horizontally.
 - Do not drop the Leak Detector from an elevated location. It may cause the damage to the Leak Detector.
 - Do not use the Leak Detector at the following locations. Because may lead to severe decrease in functionality and damage to parts.
 - Location where condensation occurs
 - Location where flammable gases, etc. may leak
 - Location where corrosive gases, etc. may leak
 - Location with lots of water or oil droplets (including machine oil)
 - Steamy locations
 - Location where voltage fluctuation frequently occurs
 - Location where there is a machine producing electromagnetic radiation
 - Location where droplets of organic solvents spread
 - Location where acidic or alkaline solutions or special sprays are frequently used
 - Locations where dust easily accumulates or Extremely dusty
 - The semi-conductor sensor may react or malfunction if exposed to gases other than the refrigerant gas or to steam. Accordingly, the following must be avoided when installing.
 - Using in atmospheres where silicone gases (siloxane, etc.) may occur
The Leak Detector may malfunction or operate incorrectly if items such as adhesives, hair products, rubbers, or putties with silicone in them are used in the vicinity of the Leak Detector.
 - Exposing to organic solvents/chloric gases Alcohols, VOCs, Chloric gases, etc., can be the cause of malfunction or incorrect operation. Large amounts of organic solvents are produced by paints, floor waxes, etc., when building or renovating structures, so ensure the area is properly dried and ventilated before installing the Leak Detector.
 - Polluting with alkaline metals (especially salt mist)
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■ Precaution for operation

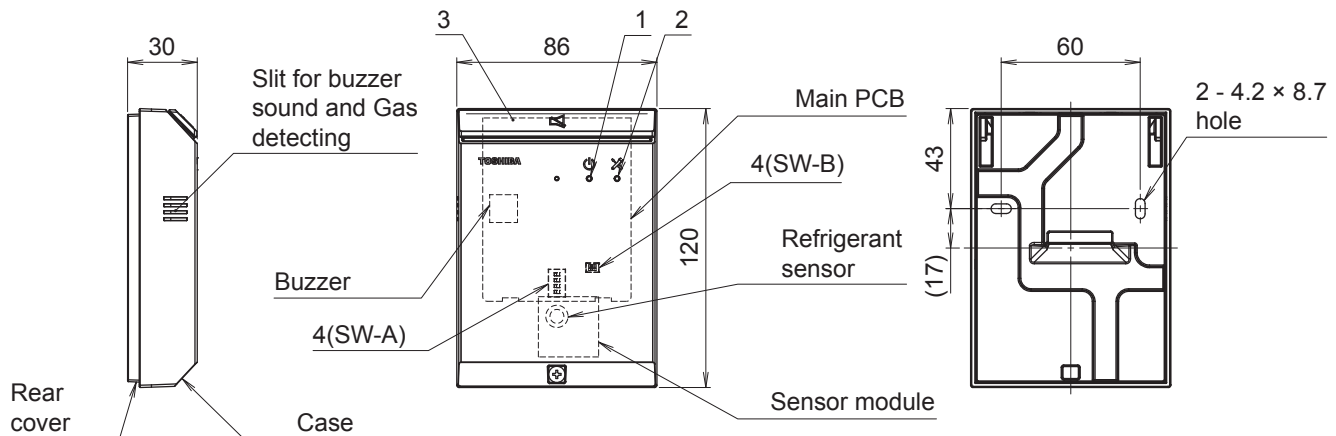
WARNING

- Do not block the slit for gas detecting. (It will be unable to detect refrigerant leaks and may result in a fire.)
 - Do not power off the air conditioner even if it is not used for a long time. The Leak Detector will not operate.
 - The buzzer starting to sound indicates that there has been a refrigerant leak. Ignition or fire may result as the concentration of refrigerant increases, so the area should be ventilated and evacuated as quickly as possible.
 - If a leak is suspected, all naked flames should be removed and extinguished.
 - When someone may touch the air conditioner due to maintenance, etc., do not allow spray to get onto the Leak Detector or use flammable gases near the Leak Detector. Also make sure that the breaker is turned off when performing maintenance on the air conditioner or Leak Detector.
 - Do not use sprays or chemicals when cleaning.
-

2 Specification

Dimension	86W × 120H × 30D mm
Weight	0.11 kg
Power source	DC 13 V to 18 V (Supplied from indoor unit)
Buzzer sound level	65dB(A) at 1 m
Gas detected	R32
Measuring range	0 - 10,000 ppm
Accuracy	±20% of set value
Sensor technology	Semiconductor sensor
Pre-set alarm level	5,000 ppm
Settable alarm level	(5,000 ppm only)
Response time	30 sec @8,000 ppm
Frequency of maintenance	1 time / year
Method of maintenance	According to 9. in this manual
Lifecycle of the sensor	10 years
Operating temperature range	0 - 40°C
Operating humidity range	20 - 90%RH (no condensation) *Indoor use only.
Ingress protection (IP) rating	IPX0
Function of the detector in conditions above the measuring range	After detecting gas, the function will be inaccurate. Need to exchange to new sensor.

■ Parts name



1 Operation LED

A lit green LED indicates that the Leak Detector has power and is operational.

2 Malfunction LED

A lit orange LED indicates that the Leak Detector has a problem. For further details, please refer to section 8. Operation section of this manual.

3 Alarm lamp (Buzzer sound stop button)

If the sensor detects a refrigerant leakage, this lamp blinks and buzzer sounds.

Push this switch to stop buzzer sound, but this buzzer sound can not be turned off until 1 minute has elapsed.

4 Dip switch

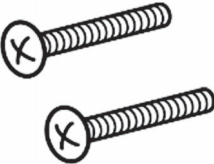
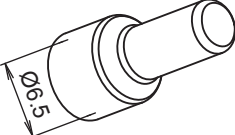
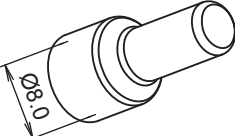
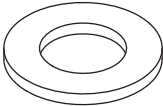
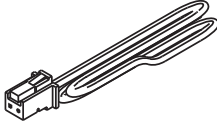
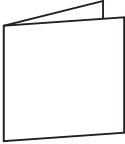
The function setting can be changed by switching these Dip switches.

DIP Switch	bit-	Function	OFF(Default)	ON
SW-A	1	Alarm and Output function	Only when a refrigerant leak is detected	When a refrigerant leak is detected, when the sensor fails, and when the sensor reaches the end of its life
	2	Exchange Normal mode (detecting+alarm) or Announcement mode (only alarm)	Detecting then alarm	Only alarm (not detecting)
	3*	Exchange to buzzer ring or not when detect leakage	Ring (with flash LED)	No ring (only flash LED)
	4	No function (No use)	-	-
SW-B	1	No function (No use)	-	-
	2	Output2 Reverse the logic or not	Normal	Reverse

* This function can only be enabled when using an external alarm.

- Do not touch the top of refrigerant sensor when configuring the Dip Switch settings. It may cause the detecting performance to decrease.
- Do not apply excessive force when setting the Dip Switch, with tools, as this may cause unintended damage to the switch or printed circuit board.

3 Accessory parts

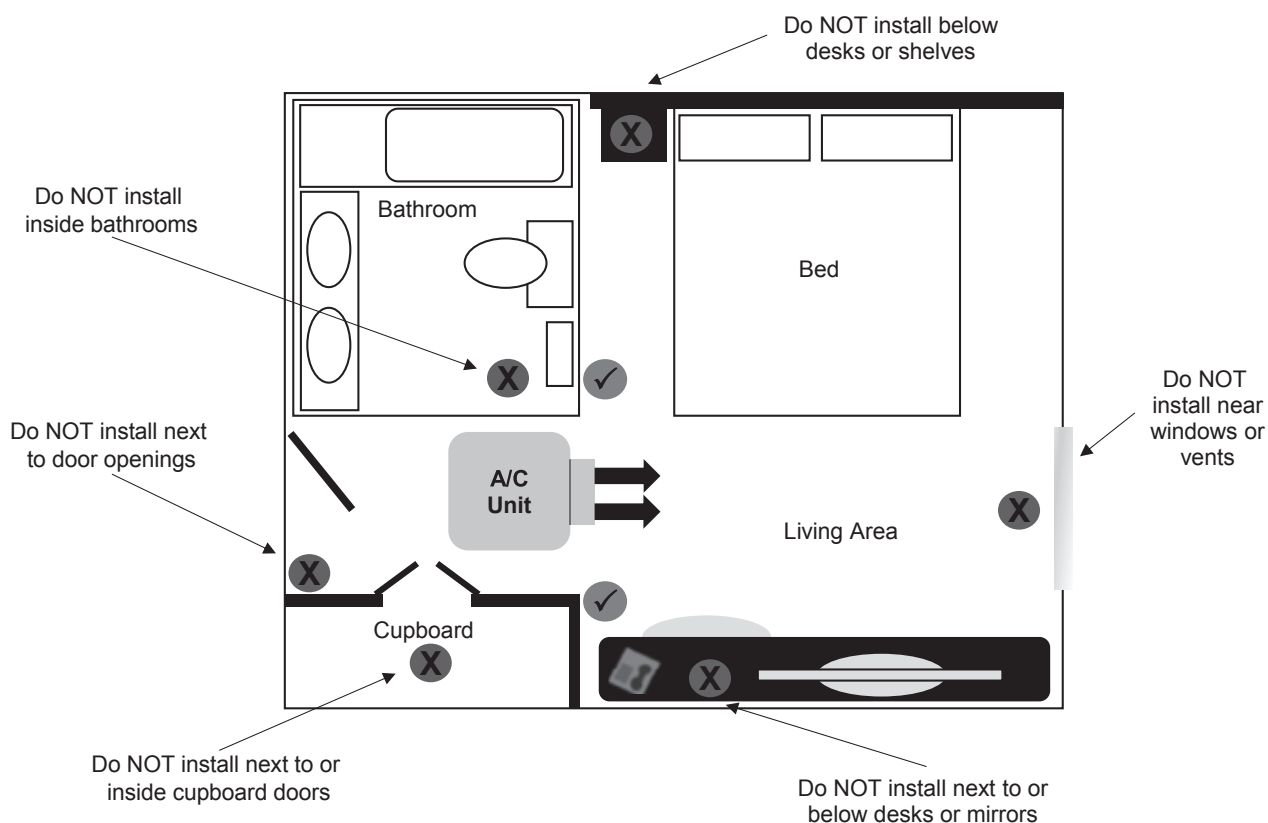
No.	Part name	Image illust	Quantity
1	Screws M4 x 25		2
2	Wood screw M3.8 x 16		2
3	Plastic stud		2
4	Wire terminal 1 (Inner diameter 6.5 mm) for AWG22 ~ AWG16		6
5	Wire terminal 2 (Inner diameter 8.0 mm) for AWG20 ~ AWG14		6
6	M3 washer		2
7	Connecting wire		3
8	Installation & Operation Manual (This manual)		1

4 Installation precautions

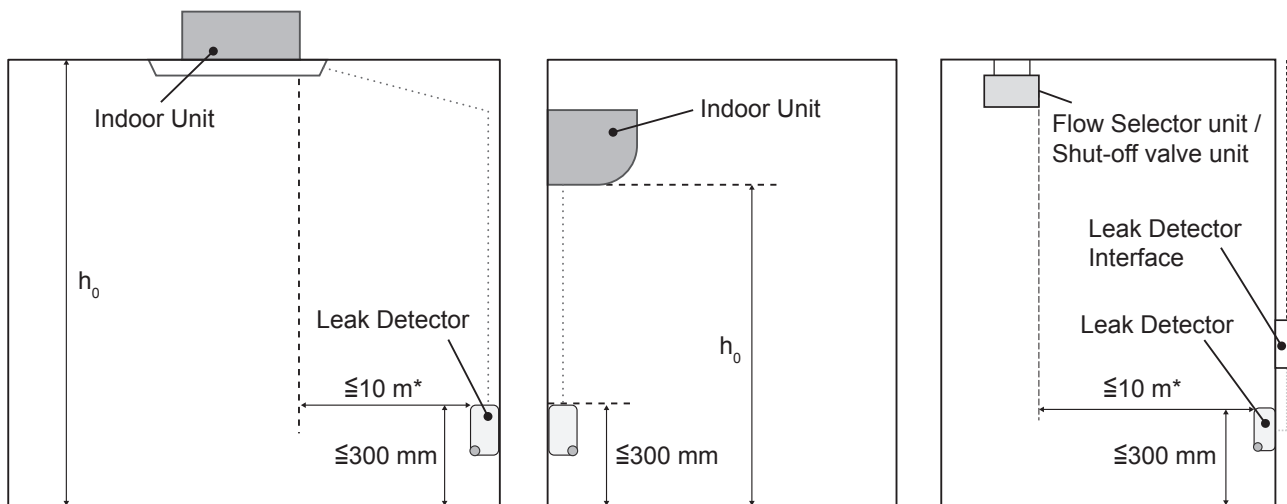
■ Installation locations

Refrigerants are significantly heavier than air. Therefore in order for the sensor to operate as effective as possible the refrigerant detector must be positioned at a low level inside the room, where the indoor air conditioning unit is fitted. See diagram showing recommend installation guidelines.

Typical Hotel Application



- You need to observe the regulations of the local governments, state and country that govern the installation of Leak Detector when installing the Leak Detector. You must ensure that installation complies with all relevant rules and regulations.
- Do not use for special-purpose (Foods, animals, and plants, precision machine, storage of the artwork etc.).

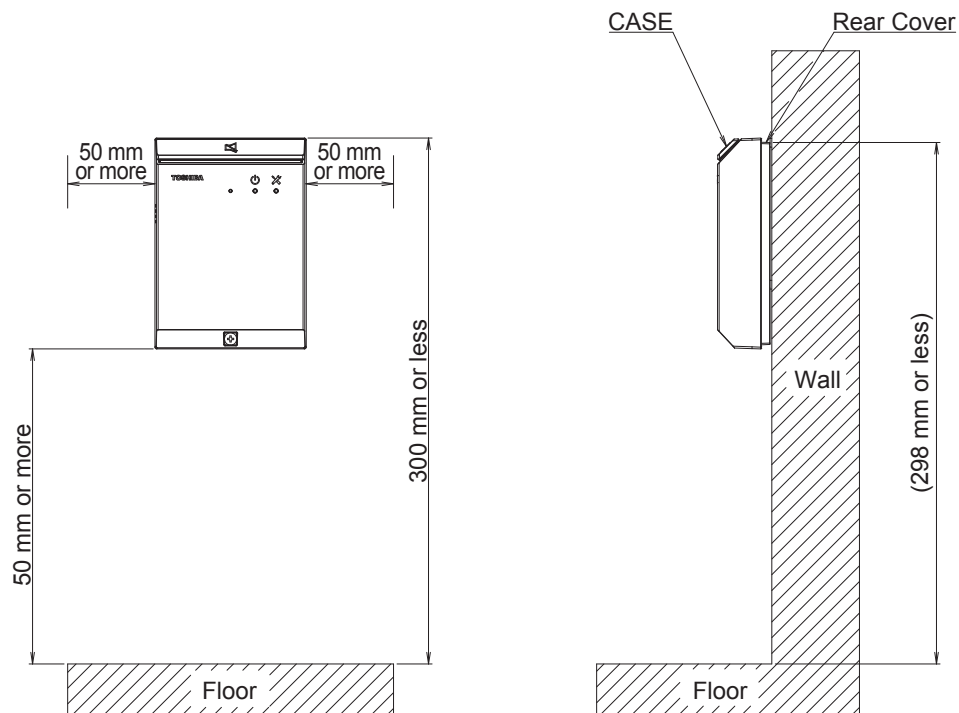


- * It must be placed within a horizontal distance of 10 meters and on the wall in the room where the indoor unit, Flow Selector unit or Shut-off valve unit is installed. However, when it does not enter the field of view on a straight line from the Leak Detector, it is within 7 meters at the shortest horizontal distance without obstacles and installed on the wall in the room where the indoor unit, Flow Selector unit or Shut-off valve unit is installed.
- The alarm shall always be 15 dBA louder than the room background noise.
Leak detector can generate 65 dBA alarm. (Sound pressure level, measured at a distance of 1 m from the alarm.)
If the surrounding environment is noisy in a particular room, we recommend that you use an external alarm (by local power supply) in that room.
- This Leak Detector has output terminals to external ventilation and an external alarm.
When taking safety measures using external ventilation or an external alarm, install according to “■ Basic wiring diagram”.
- In case connect Leak Detector to Flow Selector unit or Shut-off valve unit for detecting leakage from them, it is necessary to connect the Leak Detector to a Leak Detector Interface which is sold separately. Please refer to the Installation Manual which is included in Outdoor unit and Leak Detector Interface for the details.

Connectable Leak Detector Interface** (Sold separately)	TCB-LDA1UPE
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** Hereinafter Leak Detector Interface is referred to “Interface”

- Keep a space around the Leak Detector as detailed on the figure shown below.



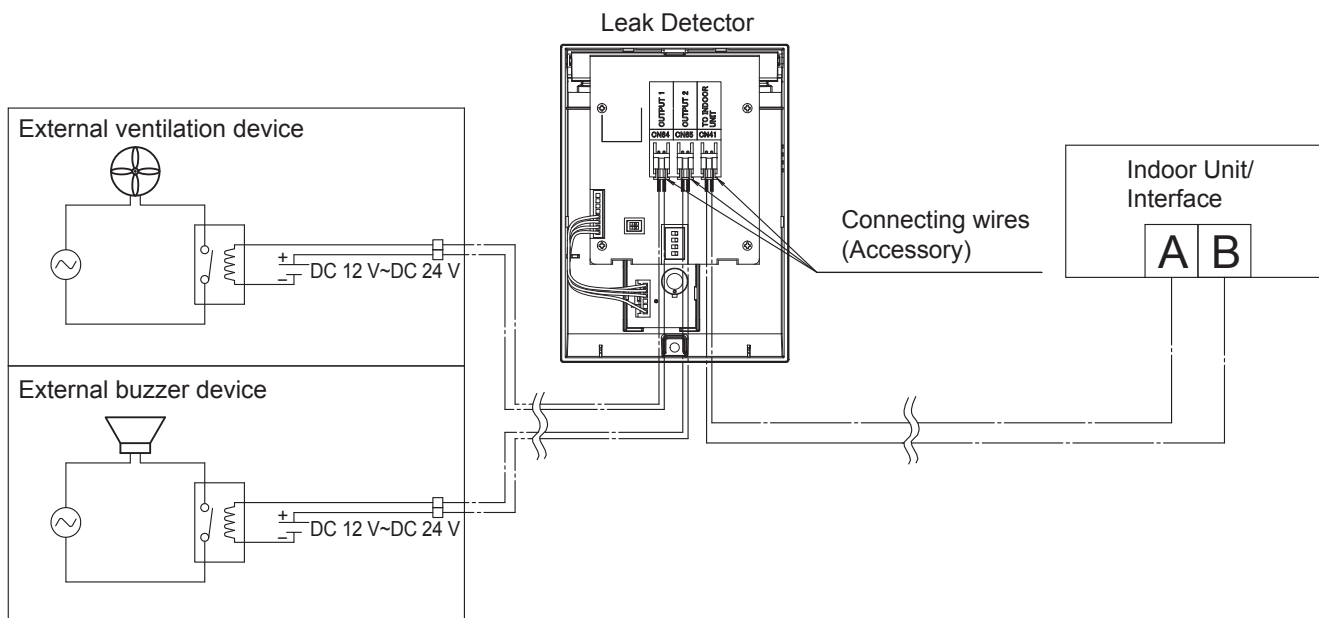
- Install so the Leak Detector is within 300 mm of the floor. This is stipulated in regulations.
- Install this Leak Detector horizontally.
- Do not block the slit for gas detecting or place objects immediately in front of the gas detector as this will mean leaks will not be detected.
- This Leak Detector should be mounted in a position where it can be easily accessed for maintenance and repairs.
- Avoid the following locations for installation.
 - By a window, etc. exposed to direct sunlight or external airflow
 - In the shadow or backside of objects deviated from the room airflow
 - Location where condensation occurs (The Leak Detector is not moisture proof or drip proof)
 - Location near heat source
 - Uneven surface
 - Location where there is a danger of mechanical damage being inflicted on the Leak Detector
 - Location where there is a danger of the generation of contaminants such as silicone gases (siloxane, etc.), organic solvents/chloric gases, etc.
- Do not install the Leak Detector in a place where smoke, chemical agent, or organic solvent is present.

Do not use gas equipment using combustion gas (LPG etc.) such as propane, butane, or methane, an insecticide, or sprays or paints containing siloxane, near the Leak Detector. The refrigerant leak detection sensor operates mistakenly, causing the air conditioner not to operate.

Refer to the installation instructions supplied with the outdoor unit for details about the location for installing the Leak Detector.

■ Basic wiring diagram

- Interconnecting cable wire are produced locally.
- Using the specified wires, ensure to connect the wires and fix wires securely, so that the external tension to the wires does not affect the connecting part of the terminals.
Incomplete connection or fixation may cause malfunction.



Output connector can be connected the external device (Ventilation, external buzzer device and etc.) When the Leak Detector detects leakage, outputs the signal to these device. When the buzzer is stopped, Output 1 (CN64) will keep to output, Output 2 (CN65) will stop the output.

So the external buzzer is recommended to connect the Output 2 (CN65)

■ Output signal table

• Normal mode (SW-A bit-2 OFF)

Status of the leak detector	Leak detector operation							Remote controller status	Indoor unit operation	Outdoor unit operation
	Operation LED (Green)	Malfunction LED (Orange)	Alarm lamp (Red)	Buzzer sound	External output					
					Output 1 (CN64)	Output 2 (CN65)				
						SW-B bit-2 OFF	SW-B bit-2 ON			
Monitoring (Normal)	ON	OFF	OFF	OFF	OFF	OFF	ON	Normal	Normal	Normal
Preparing (Startup)	Blinking*1	OFF	OFF	OFF	OFF	OFF	ON	Normal	Normal	Normal
Advance notice of the life of refrigerant leak detection sensor	ON	Blinking*1	OFF	OFF	OFF	OFF	ON	Notice code	Normal	Normal
Refrigerant leak detection sensor exceeding its life of the product	ON	ON	OFF / Blinking*1*2	OFF / Ringing*3	OFF	OFF	ON	J31	Normal	Normal
Abnormal	ON / Blinking*1	ON	OFF / Blinking*1*2	OFF / Ringing*3	OFF	OFF	ON	J29	Normal / Stop	Normal / Stop (system lock)
Refrigerant leak detection	ON	OFF	Blinking*1	Ringing*3 / OFF	ON	ON	OFF	J30	Stop / Circulate operation	Normal / Stop (system lock)
After canceled alarm sound	ON	OFF	Blinking*1	OFF	ON	OFF	ON	J30	Stop / Circulate operation	Normal / Stop (system lock)

*1 : It is 0.5 seconds interval.

*2 : The alarm operates only when the SW-A bit-1 is turned ON.

*3 : The buzzer sounds only when the SW-A bit-3 is turned OFF. This function can only be enabled when using an external alarm.

• Announcement mode (SW-A bit-2 ON)

Announcement mode is a mode with an alarm function only. Refrigerant leaks cannot be detected. When using the announcement mode, be sure to connect Leak Detector Interface. When other Leak Detector in the same system detects a refrigerant leak, the alarm lamp and buzzer will be activated. SW-A bit1 and bit4 cannot be used in announcement mode.

Status of the leak detector	Leak detector operation							Remote controller status	Indoor unit operation	Outdoor unit operation
	Operation LED (Green)	Malfunction LED (Orange)	Alarm lamp (Red)	Buzzer sound	External output					
					Output 1 (CN64)	Output 2 (CN65)				
						SW-B bit-2 OFF	SW-B bit-2 ON			
Monitoring (Normal)	ON	OFF	OFF	OFF	OFF	OFF	ON	Normal	Normal	Normal
Preparing (Startup)	Blinking*1	OFF	OFF	OFF	OFF	OFF	ON	Normal	Normal	Normal
Abnormal	ON / Blinking*1	ON	OFF	OFF	OFF	OFF	ON	J29	Normal / Stop	Normal / Stop (system lock)
Other Leak Detector detects refrigerant leak	ON	ON	Blinking	ON *4	ON	ON	OFF	J30	Depends on other indoor units / Interface settings	Depends on other indoor units / Interface settings

*1 : It is 0.5 seconds interval.

*4 : The buzzer sounds only when the SW-A bit-3 is turned OFF. Unless using an external alarm, buzzer sound must be enabled.

■ Basic wiring limitation

Remote controller wiring

■ Type of wiring

- Use cables of 0.5 to 2.0 mm² (Min. 0.5 mm²)

■ Total wire length : 300 m or less

- Maximum length between Leak Detector and header indoor unit (DN14=1) : 100 m

Ext output wiring

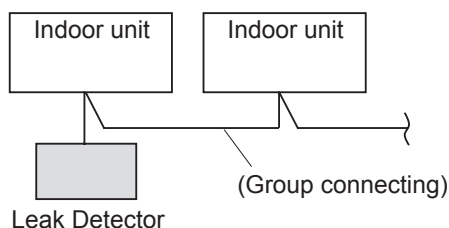
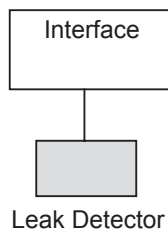
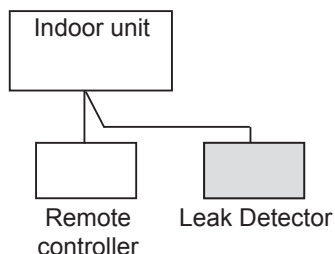
■ Type of wiring

- Use cables of 0.75 to 2.0 mm² (Min. 0.75 mm²)

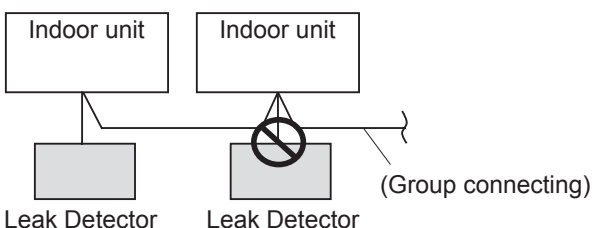
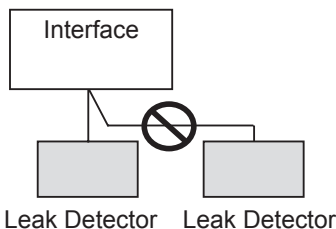
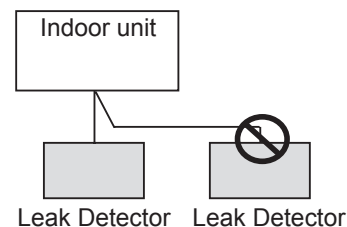
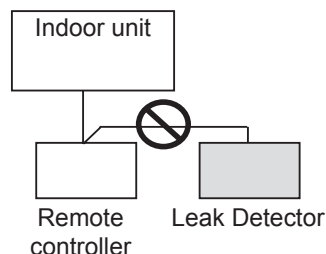
■ Total wire length : 100 m or less

	Leak Detector side		External equipment side		
Status	Rating	Terminal name	Terminal	Circuit example	Condition
	Output1 (CN64) Maximum Voltage: DC 25 V Maximum Current: 0.2 A	Output 1 or 2			
	Output2 (CN65) Maximum Voltage: DC 25 V Maximum Current: 0.2 A	non polarity			
		100 m or less / 0.75 mm ²	DC 12 V ~ DC 24 V	Relay	Rated coil Voltage DC 12 V ~ 24 V

Correct wiring diagrams



Wirings as shown below are prohibited



- Only one Leak Detector can connect to one Indoor unit or one Interface.
- Only one Leak Detector can connect in one group connecting.

⚠ CAUTION

- After refrigerant piping has been connected, do not turn on the power until gas leakage check is finished. If refrigerant gas leaks, then Leak Detector in the system will operate, causing air conditioner not to operate.

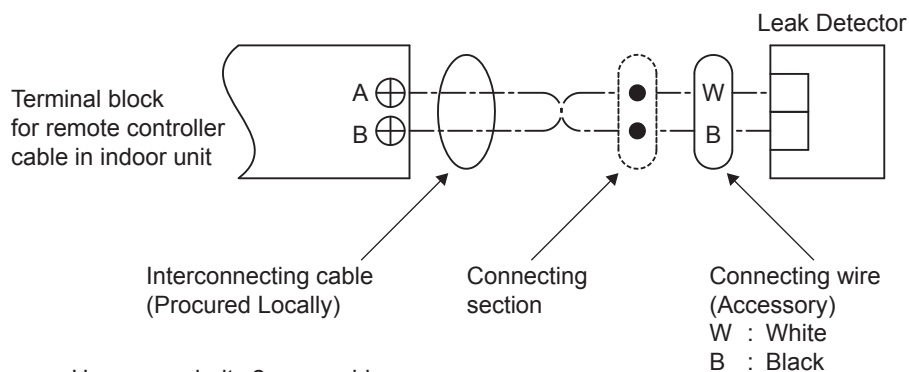
5 Mounting

1 Please use a connecting wire (accessory) and an interconnecting cable (procured locally) to connect to indoor unit terminal board cable.

If crimping tools are not available, please use other reliable methods for connection.

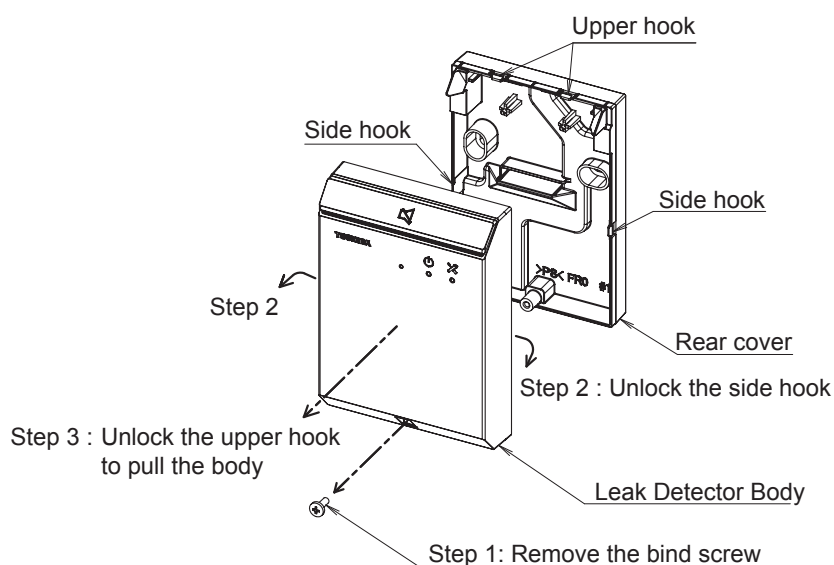
Do not only use the insulating tape to connect; otherwise it can be dangerous.

Since the Leak Detector cable has no polarity that is OK if the indoor unit's terminal A and terminal B are inversely connected.



- Use non-polarity 2-core cable.
- Use 0.5 mm² - 2.0 mm² cable.

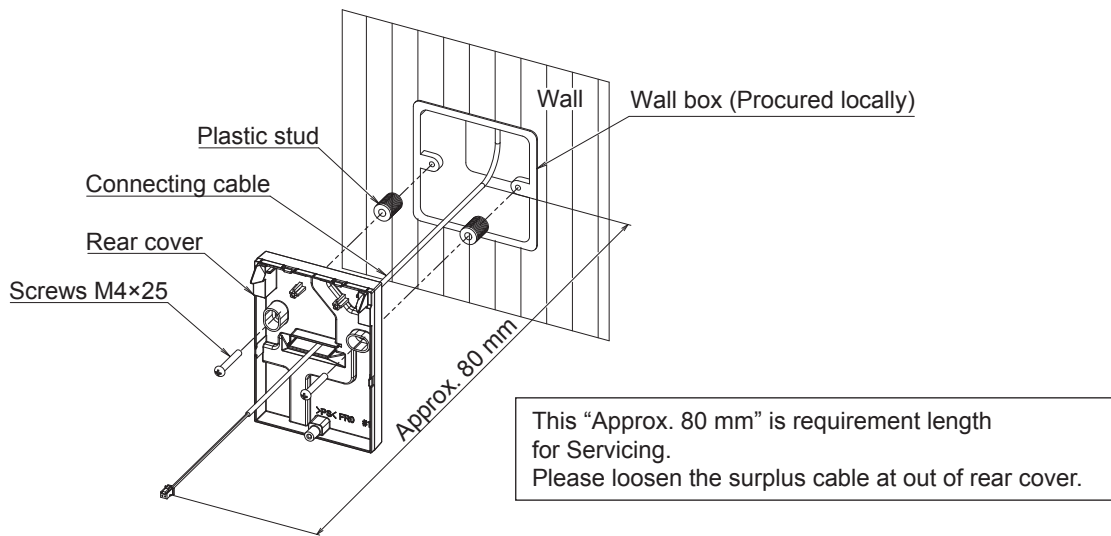
2 Remove rear cover from body to refer to the step 1 to 3 shown as below figure. Keep screw and body until process 5.



3 In case of mounting to wall box

In case of mounting to wall box, cut the plastic stud in the accessory to a suitable length for filling the gap between the rear cover and the wall box.

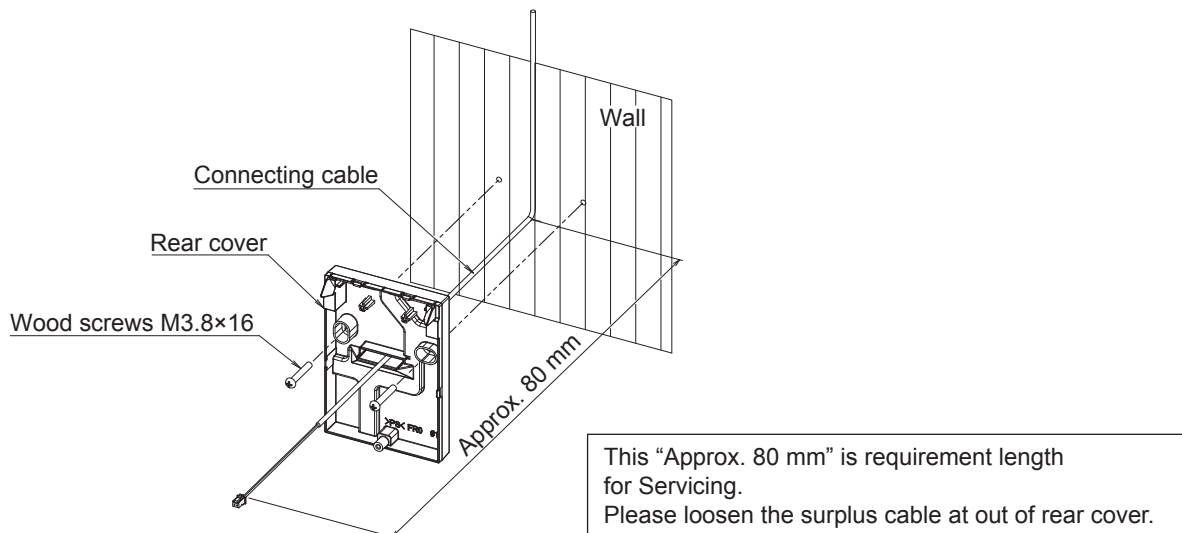
Then use the M4 screws in the accessory to fix the rear cover to the wall box through the plastic stud.



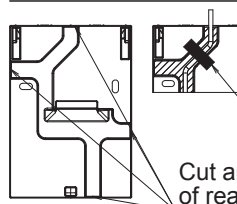
In case of mounting to wall directly

In case of mounting to wall directly, cut and remove the side wall of rear cover which pass the cable wire. Connecting cable wire is passed through this groove on rear cover.

Then use M3.8 wood screw in the accessory to fix the rear cover to the wall so as to take care not to pinch among wall and rear cover.



Rear side of rear cover

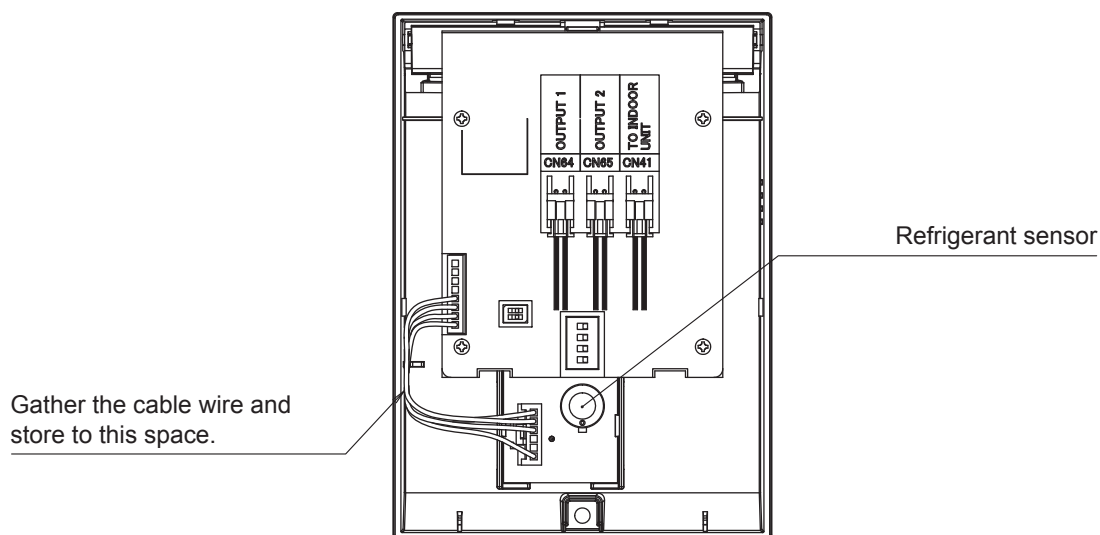


Connecting cable wire is passed through this groove on rear cover so as not to pinch among wall and rear cover. It is recommended that fix cable wire with tape etc..

Cut and remove the side wall of rear cover which pass the wire

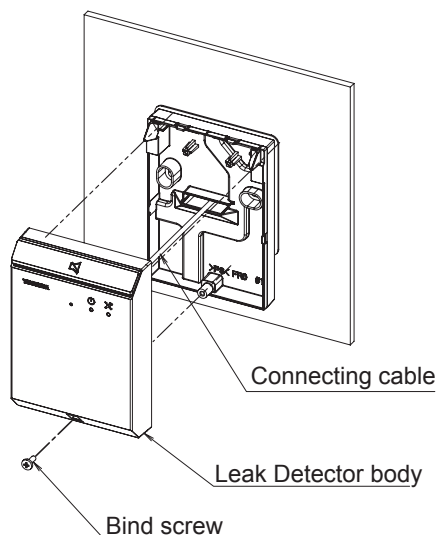
- 4** Insert communication cable of indoor unit to the connector CN41 on PCB of the Leak Detector, Confirm the terminal number of indoor unit and connect the Leak Detector cable correctly. (The Leak Detector may be damaged if connecting the power supply of indoor unit.)

If connect the Leak Detector to external device, communication cable of those is inserted to the connector CN64 or CN65.



- * Do not touch, damage, or dirty the top of sensor. It may cause that detecting performance is decreased.

- 5** Mount the Leak Detector body to rear cover. And be careful not to pinch the cable among the body and rear cover.
Finally, tighten the bind screw to body.



- * When mount Leak Detector body to rear cover, take care not to pinch connecting cable among body and rear cover.

6 Self-diagnostics table

■ Self-diagnostics table

The LEDs and Alarm lamp light as follows according to the status of the Leak Detector.

Please contact the service member and inform the status of the Leak Detector.

Then take appropriate measures for solution.

* Please keep the status of the Leak Detector and do not cancel it until service member take measures.

• Normal mode (SW-A bit-2 OFF)

● : ON ○ : OFF ◐ : Blinking

Operation LED (Green)	Malfunction LED (Orange)	Alarm lamp (Red)	Status	Solution
◐	○		Preparing	The leak detector is preparing to operate. Preparation continues for 30 seconds after powering up.
●	○		Monitoring	The normal status.
●	○		Leaking	Refrigerant is leaking. Start ventilating immediately. You should contact our sales/service team or an authorized dealer.
● or ◐	●	 (SW-A bit-1 ON)	Abnormal	There is an abnormality with the Leak Detector. It may be unable to detect refrigerant leakage so you should contact our sales/service team or an authorized dealer.
●	◐		End of service life is approaching	The refrigerant sensor is about to reach the end of its service life. Contact our sales/service team or an authorised dealer to arrange for replacement of the Leak Detector.
●	●	 (SW-A bit-1 ON)	End of service life	The refrigerant sensor reached the end of its service life. Contact our sales/service team or an authorised dealer to arrange for replacement of the Leak Detector.

• Announcement mode (SW-A bit-2 ON)

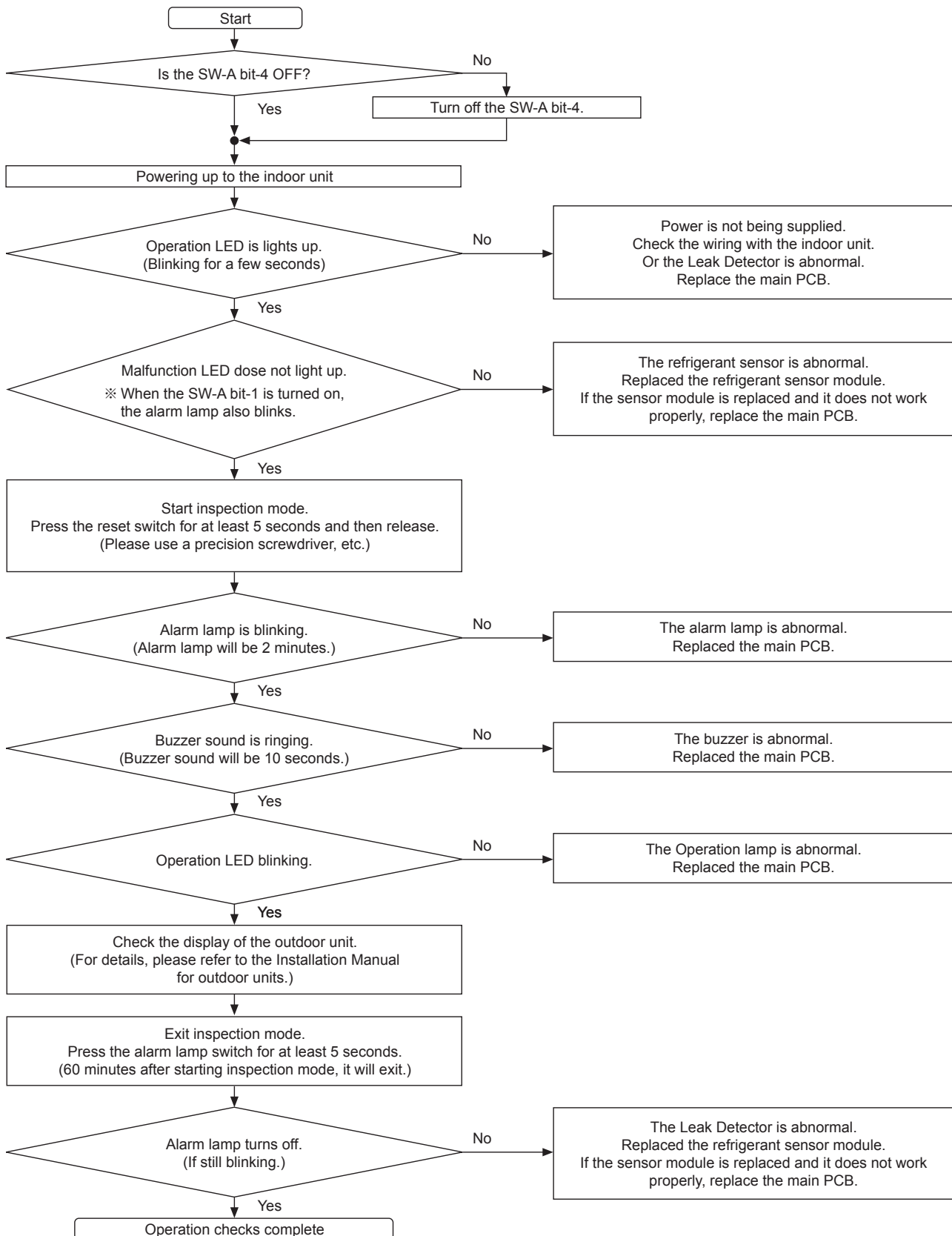
● : ON ○ : OFF ◐ : Blinking

Operation LED (Green)	Malfunction LED (Orange)	Alarm lamp (Red)	Status	Solution
◐	○		Preparing	The leak detector is preparing to operate. Preparation continues for 30 seconds after powering up.
●	○		Monitoring	The normal status.
●	●		Leaking	Refrigerant is leaking. Start ventilating immediately. You should contact our sales/service team or an authorized dealer.
● or ◐	●		Abnormal	There is an abnormality with the Leak Detector. So you should contact our sales/service team or an authorized dealer.

7 Set up

■ Test run (Inspection mode)

After installation is complete, use following procedure to confirm that the Leak Detector is operating properly.



8 Operation

■ Overview

- Read this manual carefully for safe use.
- Read this manual as well as operating manual supplied with indoor units and outdoor units.
- Be sure to read the “Safety Precaution” before use.
- Keep this manual with operating manual supplied with indoor units and outdoor units in a safe place.

Before operating the unit, read these Operating Instructions thoroughly and keep them for future reference.

In case of malfunction of this appliance, do not repair by yourself. Contact the sales or service dealer for repair and disposal.

■ Prohibited matters in Operation

WARNING

- Disassembly and modification of this Leak Detector is not permitted under any circumstances.
 - Do not operate with wet hands.
 - Do not splash water on the Leak Detector or use it in the bathroom.
 - Do not block the slit for the gas detecting. (It will be unable to detect refrigerant leaks and may result in a fire.)
 - Do not power off the air conditioner even if it is not used for a long time. The Leak Detector will not operate.
 - When someone may touch the air conditioner due to maintenance, etc., do not allow spray to get onto the Leak Detector or use flammable gases near the Leak Detector.
Also make sure that the breaker is turned off when performing maintenance on the air conditioner or Leak Detector.
 - Do not use sprays or chemical when cleaning.
-

■ Matters to be observed in Operation

WARNING

- The buzzer starting to sound indicates that there has been a refrigerant leak.
Ignition or fire may result as the concentration of refrigerant increases, so the area should be ventilated and evacuated as quickly as possible. Also contact the manager of the facility and the person responsible for servicing.
 - If a leak is suspected, all naked flames should be removed and extinguished.
-

⚠ CAUTION

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- This appliance can be used by persons aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by persons without supervision.
- This equipment is not suitable for use in locations where children are likely to be present.

■ Leak Detector status and operation

- Normal mode (SW-A bit-2 OFF)

Status of the leak detector	Leak detector operation							Remote controller status	Indoor unit operation	Outdoor unit operation
	Operation LED (Green)	Malfunction LED (Orange)	Alarm lamp (Red)	Buzzer sound	External output					
					Output 1 (CN64)	Output 2 (CN65)				
						SW-B bit-2 OFF	SW-B bit-2 ON			
Monitoring (Normal)	ON	OFF	OFF	OFF	OFF	OFF	ON	Normal	Normal	Normal
Preparing (Startup)	Blinking*1	OFF	OFF	OFF	OFF	OFF	ON	Normal	Normal	Normal
Advance notice of the life of refrigerant leak detection sensor	ON	Blinking*1	OFF	OFF	OFF	OFF	ON	Notice code	Normal	Normal
Refrigerant leak detection sensor exceeding its life of the product	ON	ON	OFF / Blinking*1*2	OFF / Ringing*2*3	OFF	OFF	ON	J31	Normal	Normal
Abnormal	ON / Blinking*1	ON	OFF / Blinking*1*2	OFF / Ringing*2*3	OFF	OFF	ON	J29	Normal / Stop	Normal / Stop (system lock)
Refrigerant leak detection	ON	OFF	Blinking*1	Ringing*3 / OFF	ON	ON	OFF	J30	Stop / Circulate operation	Normal / Stop (system lock)
After canceled alarm sound	ON	OFF	Blinking*1	OFF	ON	OFF	ON	J30	Stop / Circulate operation	Normal / Stop (system lock)

*1 : It is 0.5 seconds interval.

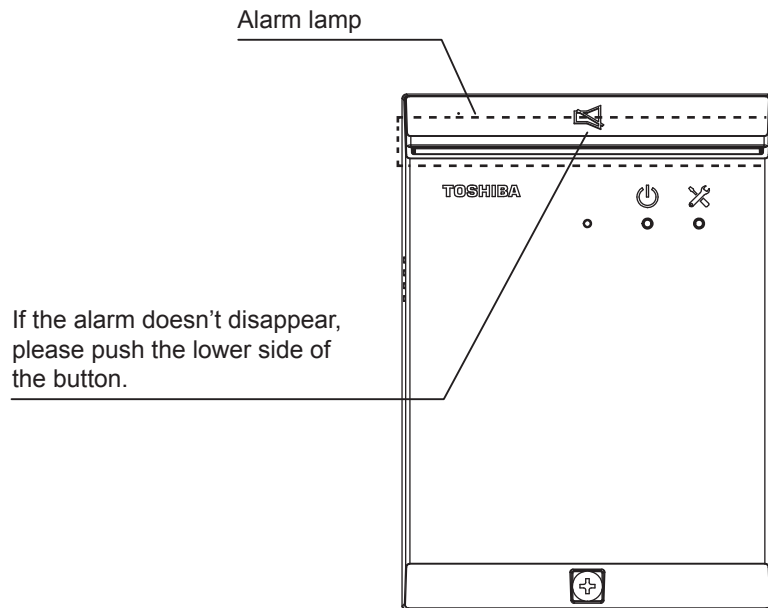
*2 : The alarm and buzzer operates when the SW-A bit-1 is turned ON.

*3 : The buzzer sounds only when the SW-A bit-3 is turned OFF. This function can only be enabled when using an external alarm.

- Once the refrigerant is detected, the alarm lamp will not be released even if the concentration returns to normal.
The above operation is also continued for external output 1, remote control, indoor unit, and outdoor unit.
- Once the refrigerant is detected, be sure to replace the refrigerant sensor module. It cannot be detected correctly.
- The estimated service life of the Leak Detector is 10 years. If use so as not to observe this manual, service life may be shorter than that of estimated.
- If the Leak Detector exceeds the estimated service life and the operation indicates it, contact the managers of both building and system and exchange the sensor module to new one (refer to Service Manual).
- When SW-A bit-2 is turned on, it enters the announcement mode. Only the alarm is activated, and refrigerant leaks are not detected. Be sure to use it in combination with a Leak Detector Interface.

■ Procedure stopping buzzer

After buzzer sounds 1 minute, the buzzer can be stopped by pressing the alarm lamp button for at least 2 seconds and then release it.



■ Warning in Operations

WARNING

- When a gas alarm occurs, immediately ventilate the area and evacuate from the room. Also contact the manager of the facility and the person responsible for servicing.
 - If there is abnormal behaviour, contact the manager of the facility and the person responsible for servicing.
- This Leak Detector may be in a state where it is unable to detect refrigerant.

9 Periodic inspection (Maintenance)

Please inspect periodically what Leak Detector is operating normally by the simple inspection mode.

Please do this inspection at least once a year.

■ Simple inspection mode

Start simple inspection mode by pressing the reset switch for at least 5 seconds.

After start simple inspection mode, the operations which is shown as below is done.

- Buzzer for 10 seconds.
- Blinks the alarm lamp for 2 minutes.
- Turns on the CN65 (External buzzer device) for 2 minutes.
In the case of SW-B bit-2 has been turning on, CN65 turns off.
- Blinks the Operation LED until end of simple inspection mode.
- Turns on the CN64 (External ventilation device) until end of simple inspection mode.

This simple inspection mode is finished by pressing the alarm lamp for at least 5 seconds.

NOTICE

What the sensor is normal operating or not is monitored any times.

If there is any problem, indicates the information which shown as below at the display of Remote controller.

- If a problem is found on the sensor, check code J29 will be displayed on the remote controller.
The malfunction LED on the Leak Detector will illuminate. Depending on setting of SW-A bit-1, the alarm sound may also operate.
 - If the life span of the sensor is nearing its end of life, notice code 204 will be displayed on the remote controller.
The malfunction LED on the Leak Detector will blink.
 - If six months have passed after notice code 204 was initiated, then check code J31 will be displayed on the remote controller.
Depending on setting of SW-A bit-1, the alarm sound may also operate.
-

Carry out periodic inspection also if any of the following apply:

- After service work that may to affect strength.
- When a change in usage.
- Before restart after standstill for longer than two years.
- After repair or significant modification.
- System or component expansion.
- After installing again on another site.
- When serious suspicion of refrigerant leaks is raised.



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