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SPECIFICATIONS

Product Name : Wireless Control Unit
Transmitter／Receiver／Andon Kit
Model : WIO-B1T／WIO-B1R(-RYG)
WIO-B1S-001

PATLITE Corporation

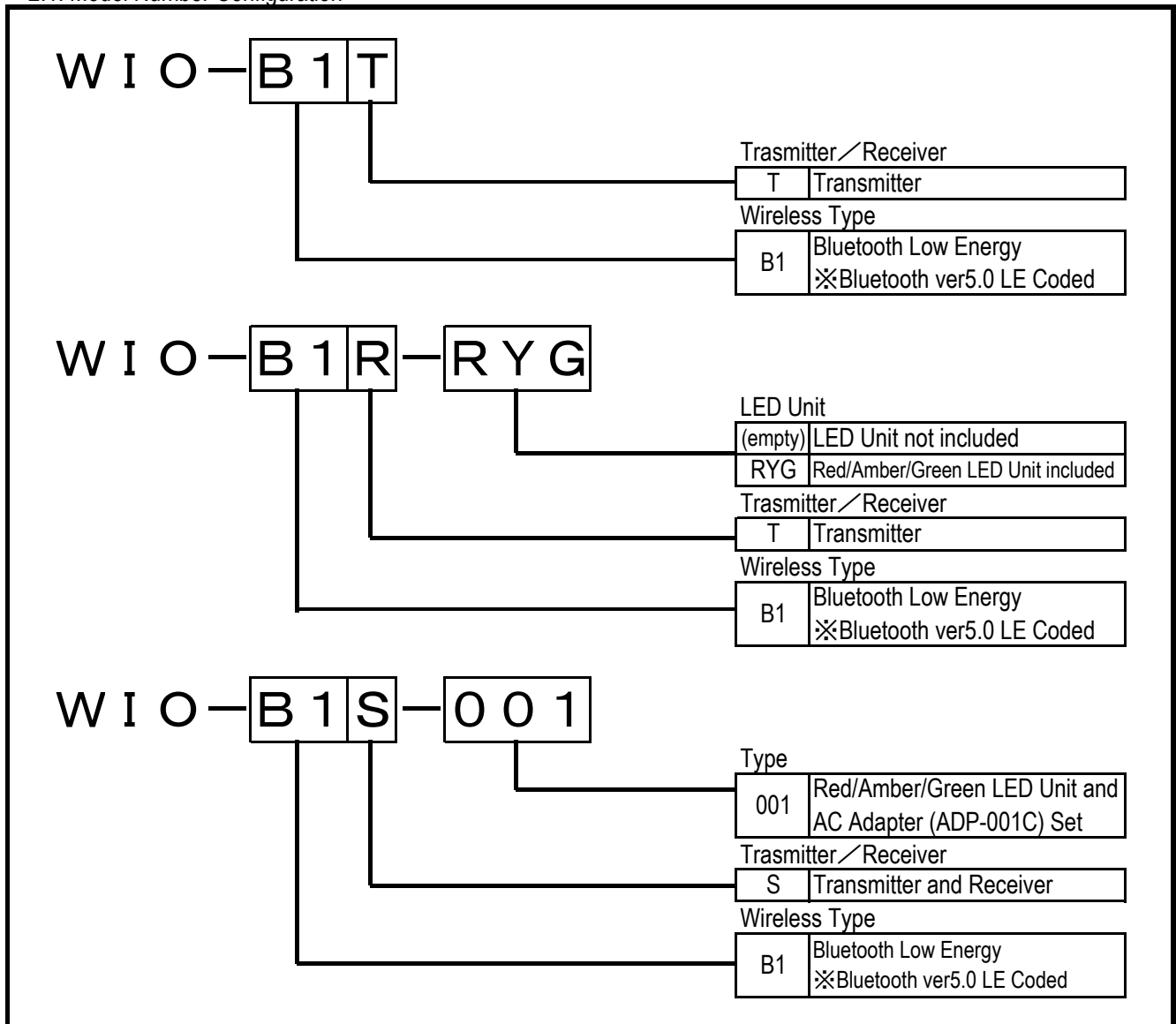
1. Product Overview

The signal input to the transmitter is sent to the receiver via wireless communication using Bluetooth Low Energy (BLE), and can operate the LED unit and buzzer unit connected to the receiver, and can operate externally connected Beacon and Audible Alarm.

This document describes the general specifications of the transmitter/receiver and the functional specifications of their combination.

2. Model

2.1. Model Number Configuration



2.2. Model Number List

Transmitter : WIO-B1T
 Receiver : WIO-B1R/WIO-B1R-RYG
 Andon Kit (Transmitter and Receiver) : WIO-B1S-001

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3. General Specifications

3.1. Transmitter(WIO-B1T)

Rated Voltage		12 to 24 VDC (24 VDC when LED unit or buzzer unit is installed)	
Operating Voltage Range		10.8 to 26.4 VDC (21.6 to 26.4 VDC when LED unit or buzzer unit is installed)	
Rated Current Consumption	24V DC input	Main Unit	Maximum: 63mA or less
		LED Unit	Maximum: 42mA or less (per tier)
		Buzzer Unit	Maximum: 42mA or less
	12V DC input	Main Unit	Maximum: 53mA or less
Operating Ambient Temperature		-10°C to +50°C	
Operating Ambient Humidity		85% RH or less, no freezing, no condensation	
Storage Ambient Temperature		-20°C to +60°C	
Storage Ambient Humidity		85% RH or less, no freezing, no condensation	
Mounting Location		Indoors	
Mounting Direction		Upright	
Protection Rating		IP 65 (IEC 60529) 、TYPE 4X,13(NEMA, UL50E) ^{*1}	
Environmental Conditions		Upright	
Insulation Resistance		More than 5M Ω at 500 VDC between the live part and non-current carrying metallic part	
Withstand Voltage		500 VAC applied for 1 min between live part and non-current carrying metallic part without breaking insulation	
Mass (Tolerance: $\pm 10\%$)		220g *Hexagon nut with flange (Accessory) not included	
Outer Dimensions		Refer to the Outer Dimension Drawing	
Interfaces	Terminal Block	Screwless Terminal Block (14 contacts)	
	Connector	Supported Wire Diameter	Single wire: ϕ 0.5 - 1.2 mm, Stranded wire: 0.2 - 1.5 mm ² (AWG24-16)
	Power supply	12 to 24 VDC input (12 to 24 VDC, GND)	
	Input	Number of Contacts	7 contacts
		Output ON current	10 mA or less (per contact)
		Input Reaction Time	100 ms or longer
	Output	None	
	USB connector	USB 2.0 (Type-C connector) *For maintenance purposes only, do not use.	
Display Unit		Status Display Indicator	
Lever		Group ID DIP Switch, Function DIP Switch, Reset Button	
Accessories		Hexagon nut with flange (M4) x 3	
Supported Unit (Rated Voltage : DC24V only)	LED Unit	LR6-E-□、LR6-E-□Z、LR6-E-MZ *Maximum number of 5 tiers for LED Units	
	Buzzer Unit	LR6-BW	
Supported Option	Wallmount Bracket	SZK-003W、SZK-001U ^{*5}	
	Pole ^{*2}	POLE22-□00AT、POLE22-□00AN	
	Circular bracket	SZP-001W ^{*4} 、SZP-002U ^{*4} 、SZP-003W ^{*4} 、SZW-001W	
	Folding Bracket	SZQ-001W ^{*4}	
	L-bracket	SZL-001 ^{*3}	
	Mounting Bracket	SZW-002W、SZW-003W	
	AC Adapter	ADP-001C	
Remark		*1 IP54 when SZP-003W is mounted on the product body *2 Available only when SZP-003W is mounted *3 Available only when POLE22-□00AT is mounted *4 Available only when POLE22-□00AN is mounted *5 Available only when POLE22-□00AT or POLE22-□00AN is mounted	

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3.2 Receiver(WIO-B1R)

Rated Voltage		12 to 24 VDC (24 VDC when LED unit or buzzer unit is installed)		
Operating Voltage Range		10.8 to 26.4 VDC (21.6 to 26.4 VDC when LED unit or buzzer unit is installed)		
Rated Current Consumption	24V DC input	Main Unit	Maximum: 52mA or less	
		LED Unit	Maximum: 42mA or less (per tier)	
		Buzzer Unit	Maximum: 42mA or less	
	12V DC input	Main Unit	Maximum: 79mA or less	
Operating Ambient Temperature		-10°C to +50°C		
Operating Ambient Humidity		85% RH or less, no freezing, no condensation		
Storage Ambient Temperature		-20°C to +60°C		
Storage Ambient Humidity		85% RH or less, no freezing, no condensation		
Mounting Location		Indoors		
Mounting Direction		Upright		
Protection Rating		IP 65 (IEC 60529) 、 TYPE 4X,13(NEMA, UL50E) ^{*1}		
Environmental Conditions		Upright		
Insulation Resistance		More than 5M Ω at 500 VDC between the live part and non-current carrying metallic part		
Withstand Voltage		500 VAC applied for 1 min between live part and non-current carrying metallic part without breaking insulation		
Mass (Tolerance:±10%)		220g *Hexagon nut with flange (Accessory) not included		
Outer Dimensions		Refer to the Outer Dimension Drawing		
Interfaces	Terminal Block	Screwless Terminal Block (14 contacts)		
	Connector	SupportedWire Diameter	Single wire: φ 0.5 - 1.2 mm, Stranded wire: 0.2 - 1.5 mm ² (AWG24-16)	
	Power supply	12 to 24 VDC input (12 to 24 VDC, GND)		
	Input	1 contact (Clear Input)		
		Non-Voltage Contact Output	5 contacts (COM terminal 1 contact) Maximum load voltage: 35 VDC, Maximum load current: 250 mA	
		Output	Relay output (Arbeit Contact)	1 contact Contact rating: 30 VDC 3.0 A ^{*1} , minimum applicable load: 10.8 VDC 10 mA Open/close life: 100,000 times or more ^{*3} 30 VDC 3.0 A resistive load
	USB connector		USB 2.0 (Type-C connector) ^{*For maintenance purposes only, do not use.}	
	Display Unit		Status Display Indicator	
	Lever		Group ID DIP Switch, Function DIP Switch, Reset Button, Repeater Setting Switch	
Accessories		Hexagon nut with flange (M4) x 3		
Supported Unit (Rated Voltage : DC24V only)		LED Unit	LR6-E-□、LR6-E-□Z、LR6-E-MZ ^{*Maximum number of 5 tiers for LED Units}	
		Buzzer Unit	LR6-BW	
Supported Option		Wallmount Bracket	SZK-003W、SZK-001U ^{*5}	
		Pole ^{*2}	POLE22-□00AT、POLE22-□00AN	
		Circular bracket	SZP-001W ^{*4} 、SZP-002U ^{*4} 、SZP-003W ^{*4} 、SZW-001W	
		Folding Bracket	SZQ-001W ^{*4}	
		L-bracket	SZL-001 ^{*3}	
		Mounting Bracket	SZW-002W、SZW-003W	
		AC Adapter	ADP-001C	
Remark		^{*1} IP54 when SZP-003W is mounted on the product body ^{*2} Available only when SZP-003W is mounted ^{*3} Available only when POLE22-□00AT is mounted ^{*4} Available only when POLE22-□00AN is mounted ^{*5} Available only when POLE22-□00AT or POLE22-□00AN is mounted		

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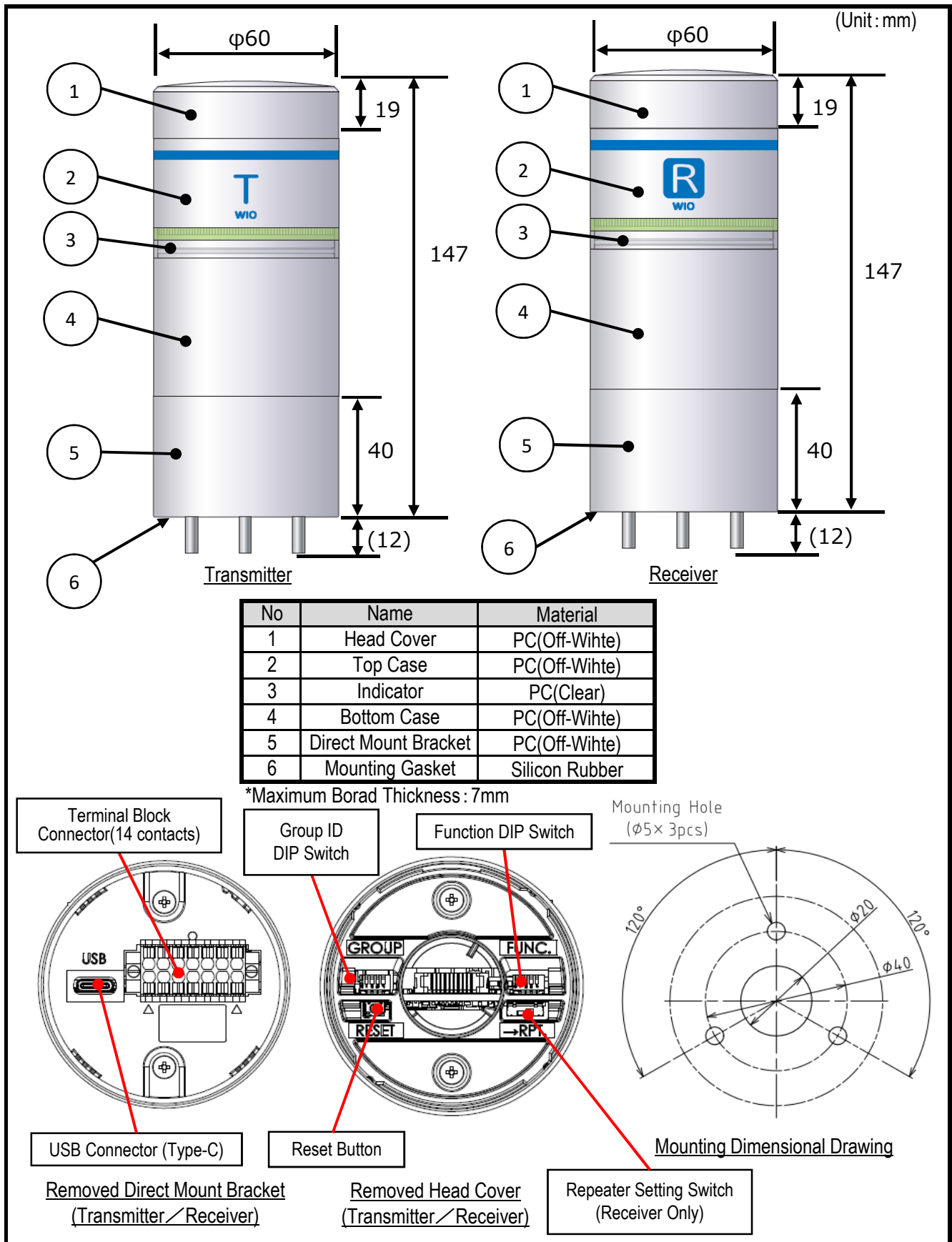
4. Wireless Communication Specifications

Wireless Standard	Bluetooth 5.0 (Bluetooth Low Energy)
Communication Frequency	2402MHz to 2480MHz
Communication Speed	125kbps (LE Coded) (Theoretical value)
Transmit Power	+8dBm
Communication Range	Line of sight, Approximately 100m (reference value) ^{*6}
Communication Configuration	Transmitter : Receiver = 1 : 1
Group ID Setting	Up to 8 groups can be set
Repeater Function	Possible(Only receivers can be set, maximum of 3 units/1 group)
Supported Countries and Regions ^{*7}	Japan, U.S.A, Europe, United Kingdom, China, Canada, Singapore ^{*8} , Vietnam
Remark	^{*6} It depends on the installation location and communication environment depending on the characteristics of the radio wave. ^{*7} Do not use outsides of supported countries and regions. Failure to do so may come into conflict with the law. ^{*8} WIO-B1S-001 cannot be used.

5. Conformity Standards(Transmitter/Receiver)

Conformity Standards	Bluetooth SIG certification Japan Radio Law (ARIB STD-T66 Conformity) ^{*9} UL 508 , CAN/CSA C22.2 No.14-18 FCC Part 15 Subpart B Class A, FCC Part15 Subpart C ^{*9} EN 62368-1, EN55032(Class A), EN 55035, EN 300328, EN 301 489-1 EN IEC 63000 MIIT (2021) No.129 RSS-247 Issue 2 ^{*9}, ICES-003 Class A
Remark	^{*9} Built-in certified wireless module • Conforms to the CE Requirements • Conforms to the UKCA Requirements • UL Recognized Component(File No.E215660)

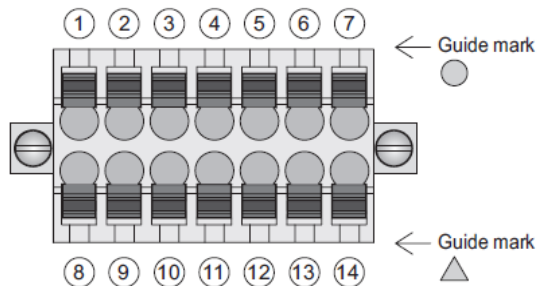
6. Outer Dimension Drawing



7. Wiring

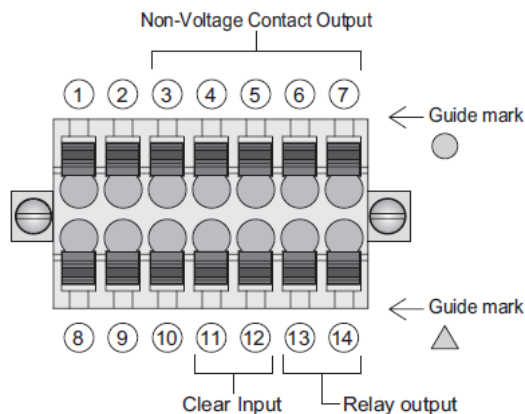
7.1 Terminal Block Connector Pin Arrangement

① Transmitter



No	Item
1	Power supply *Connected internally with No.8
2	Power supply (COM) *Connected internally with No.9 and 12
3	Input CH1 / LED Red
4	Input CH2 / LED Amber
5	Input CH3 / LED Green
6	Input CH4 / LED Blue
7	Input CH5 / LED White
8	Power supply *Connected internally with No.1
9	Power supply (COM) *Connected internally with No.2 and 12
10	Input: CH6
11	Input: Buzzer
12	COM Connected internally with No.2 and 9
13	NC
14	Flashing COM *Operates only when the buzzer unit is installed

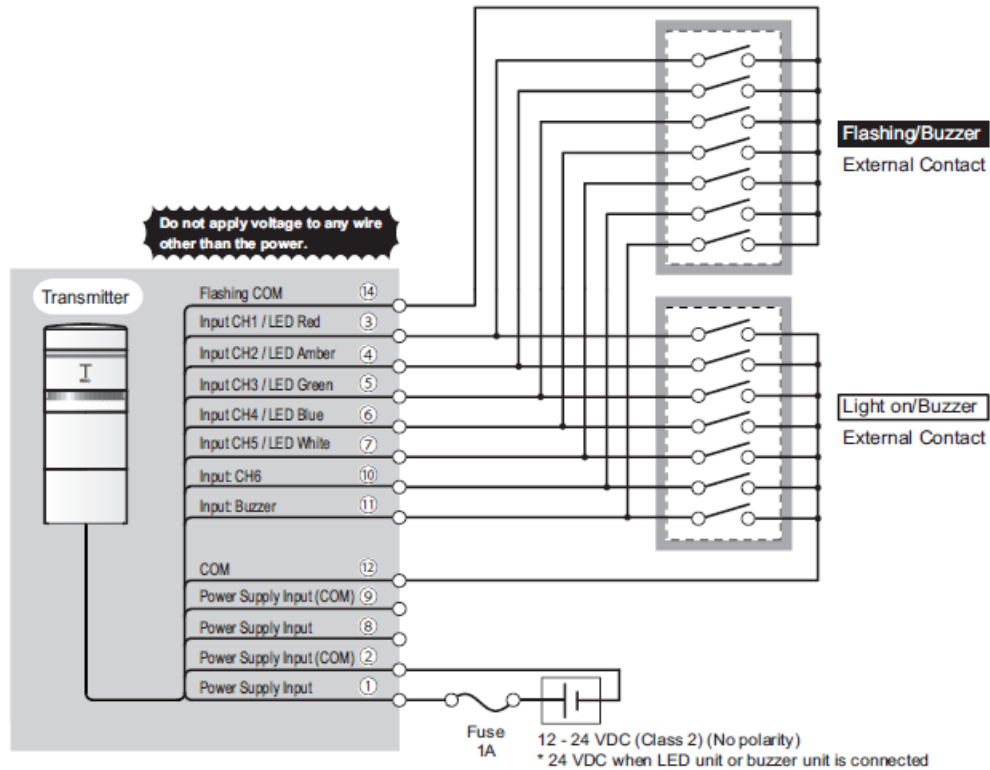
② Receiver



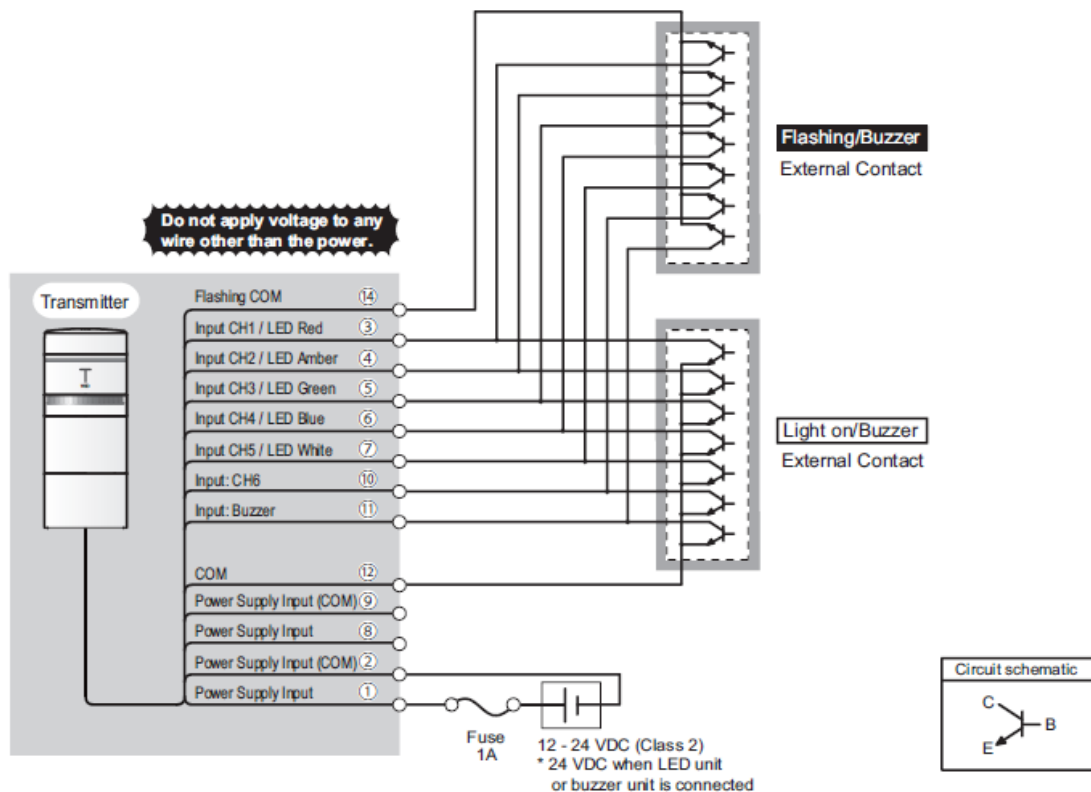
No	Item	
1	Power supply 1	*Connected internally with No.8
2	Power supply 2	*Connected internally with No.9
3	Output: CH1	Non-Voltage Contact Output
4	Output: CH2	
5	Output: CH3	
6	Output: CH4	
7	Output: CH5	
8	Power supply 1	*Connected internally with No.1
9	Power supply 2	*Connected internally with No.2
10	COM (Output for CH1-5)	-
11	Clear Input +	Clear Input
12	Clear Input -	
13	Output: CH6 +	Relay output
14	Output: CH6 -	

7.2 Wiring for Transmitter

① Contact relay

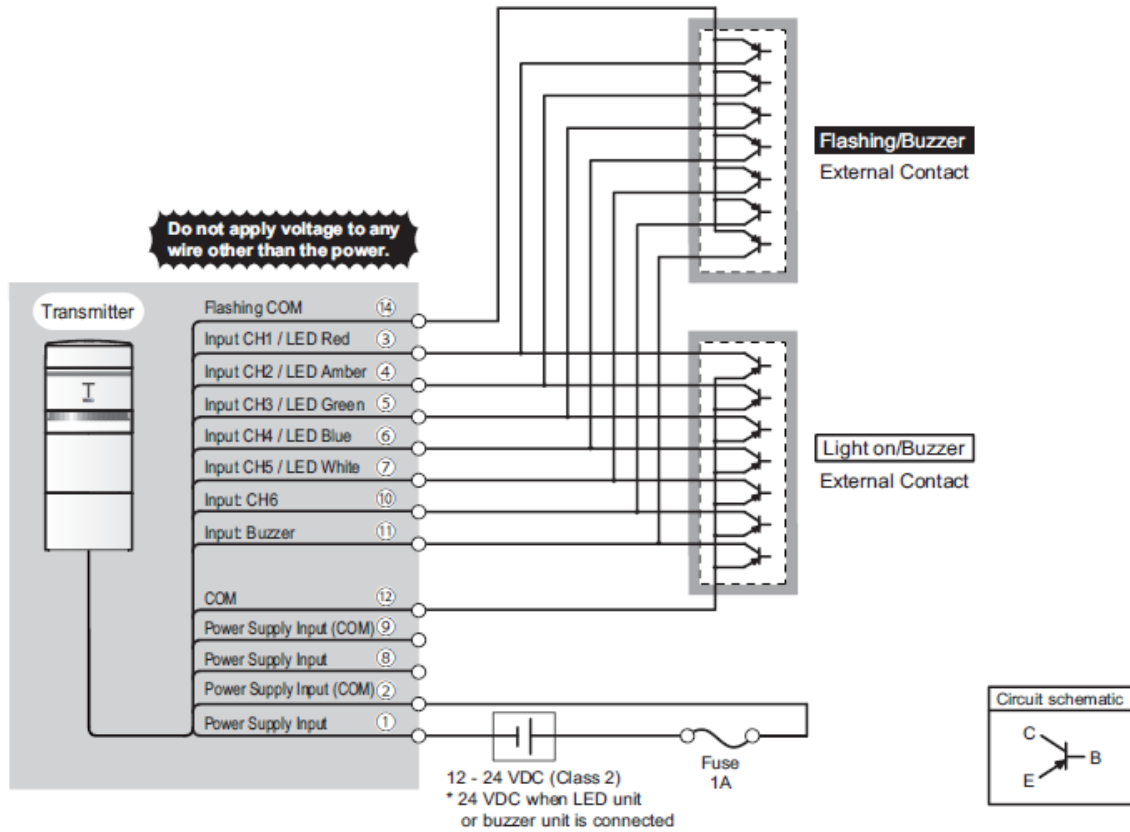


② NPN transistor



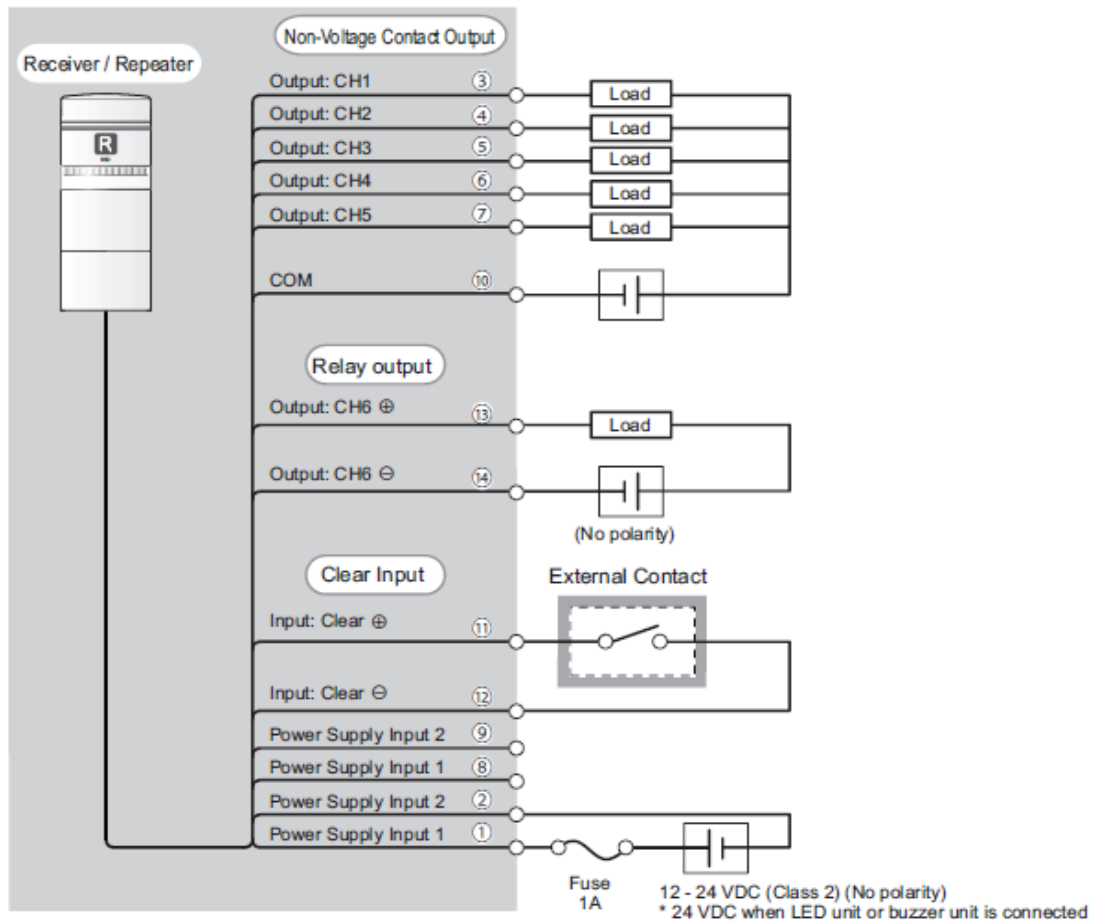
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③PNP transistor



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7.3 Wiring for Receiver



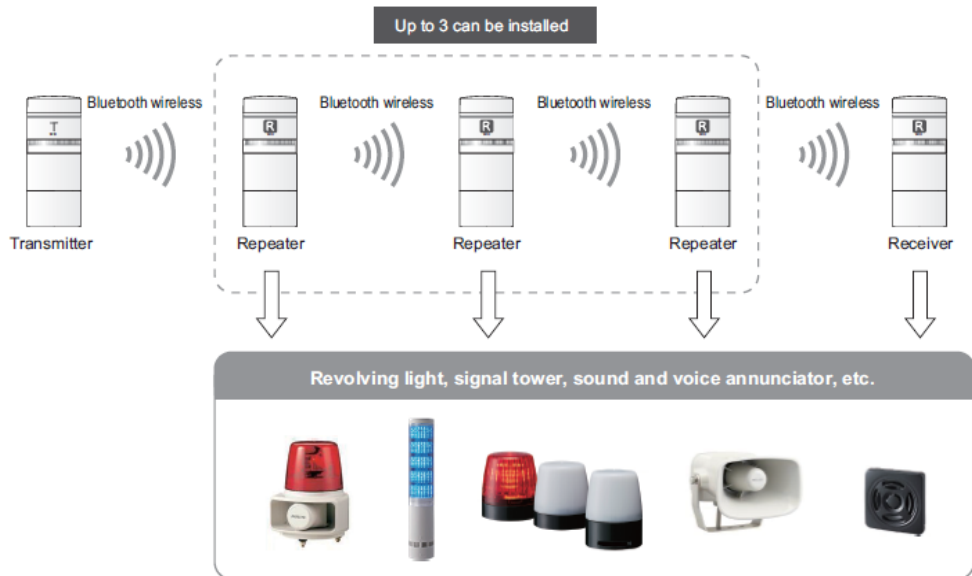
8. Functional Specification

8.1 Product Configuration

This product consists of a transmitter and a receiver.

Send signals from the transmitter to the receiver/repeater via Bluetooth to operate Beacon, Signal Tower, Audible Alarm, and so on connected to the receiver/repeater.

If wireless quality is poor due to the installation location and signal conditions, the receiver can be used as a repeater for various conditions.

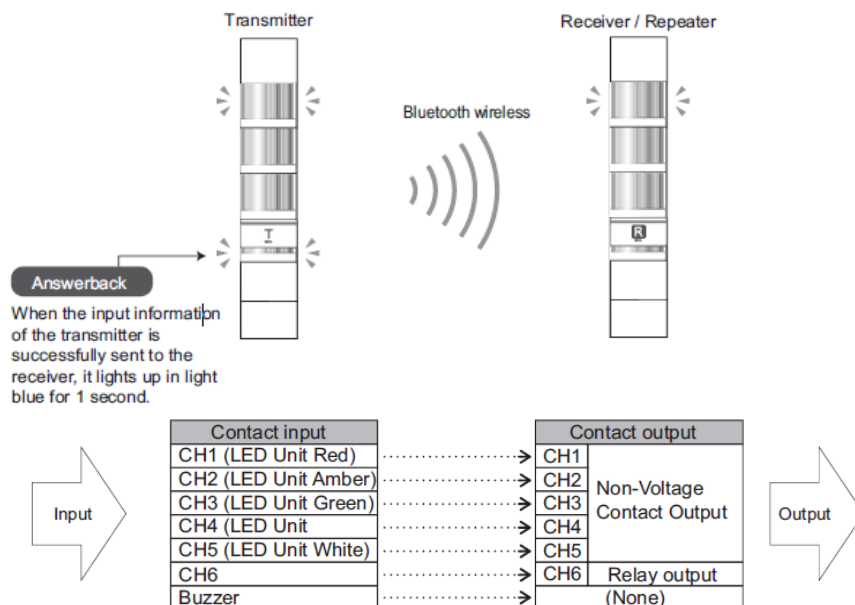


8.2 Basic Operation

The transmitter has 7 inputs and the receiver/repeater has 5 transistor outputs and 1 relay output.

You can attach additional units (LED units and buzzer unit) to this product.

This product works in conjunction with the following.



*Communication delays may occur depending on the distance between products, the number of repeaters, and the usage environment.

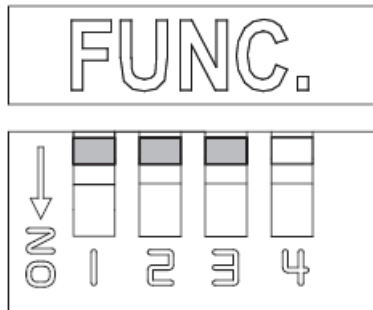
8.3 Functional Specification List

Operating Mode	Select the operation mode from level mode/one shot mode.
Input Logic Switching	Select the logic of the transmitter contact input.
Group ID	Select the group ID for wireless communication.
Wireless Repeater	Select enable/disable of the receiver's repeat function.
Status Display	Check the status by checking the luminescent color and luminous pattern of the indicator on the main unit.

8.4 Set Functions

Functions can be selected depending on usage and installation environment.

Function DIP Switch



• Transmitter

★ : factory default

Swith No.	Function Name	Operation	
1	Unpairing	OFF	★ Disabled
		ON	Execute unpairing
2	Operating Mode	OFF	★ Level Mode
		ON	One-shot Mode
3	Input logic switching	OFF	★ Input logic A
		ON	Input logic B

• Receiver

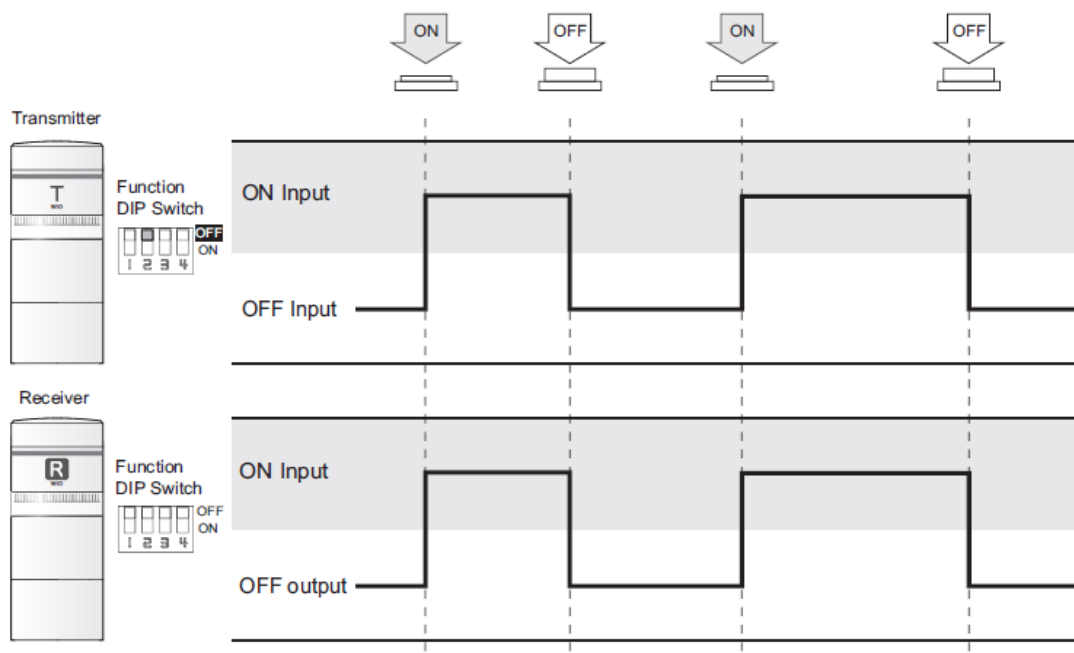
★ : factory default

Swith No.	Function Name	Operation	
1	Unpairing	OFF	★ Disabled
		ON	Execute unpairing
2	One-shot Mode output time *	OFF	★ Output for 12 seconds
		ON	Hold output
3	Not used	OFF	★ -
		ON	-

*This is valid only when the transmitting product is set to one-shot mode.

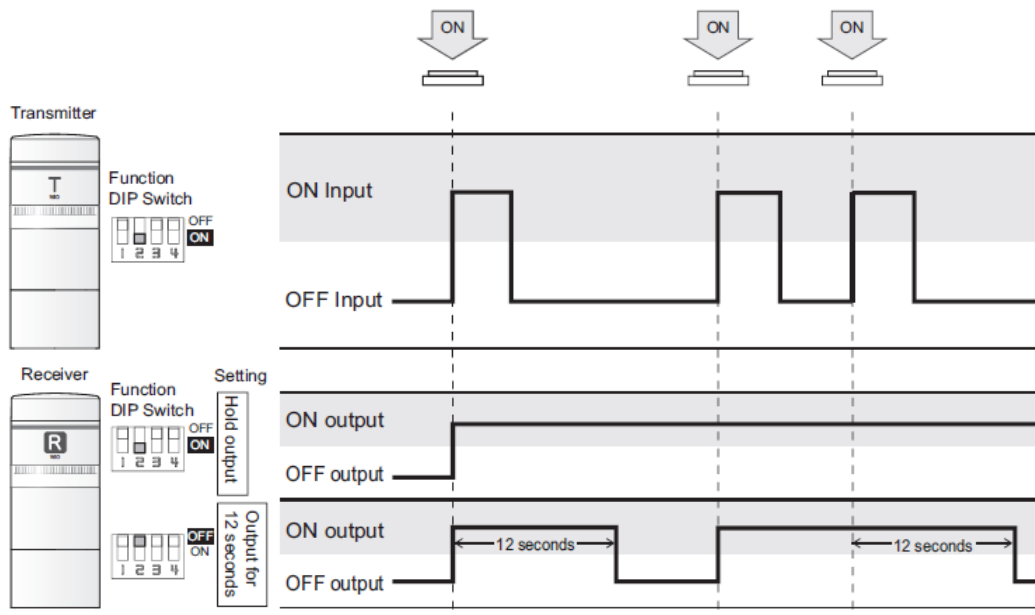
(1) Level Mode

The ON/OFF output of the receiver or repeater can be linked to the ON/OFF input of the transmitter.



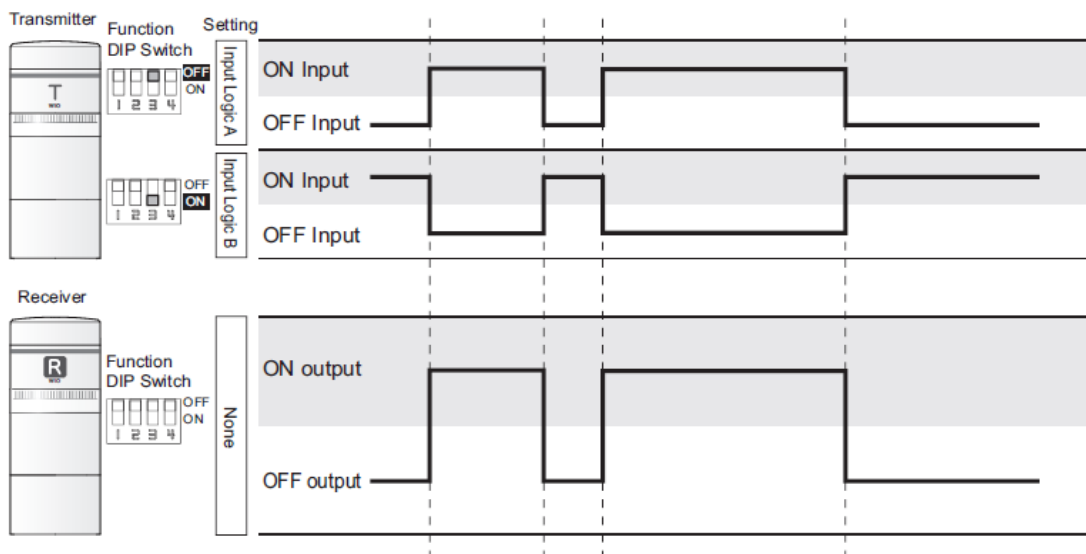
(2) One Shot Mode

This product can hold the output of the receiving product (hold output/output for 12 seconds) by pressing the ON input when the transmitting product is emitting the OFF input. The output continuous state can be canceled by the receiving product.



(3) Input Logic A/B Switching Setting

Select for this product the logical sum of the transmitter product's ON/OFF input and the receiver product's ON/OFF output [Input Logic A (NO Contact)], and the inverse logic of the transmitter product's ON/OFF input and the receiver product's ON/OFF output [Input Logic B (NC Contact)].

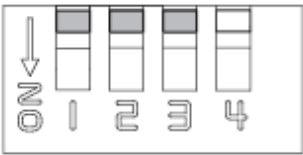


8.5 Group ID DIP Switch

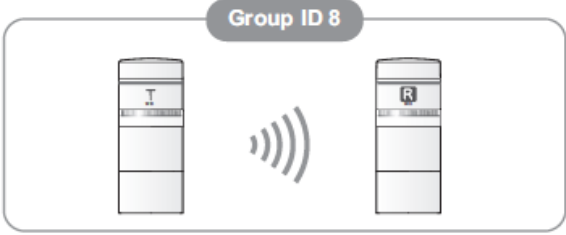
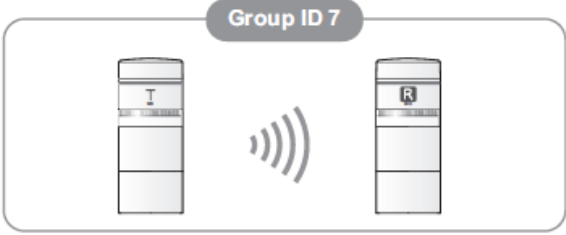
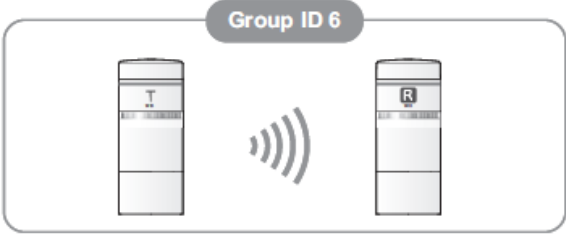
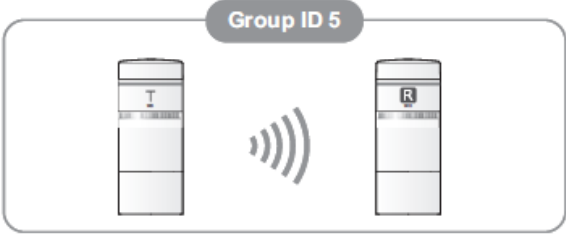
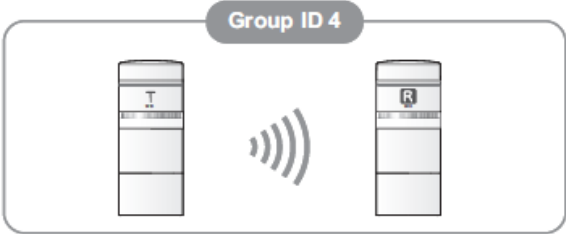
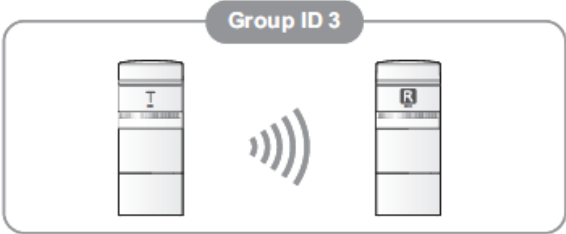
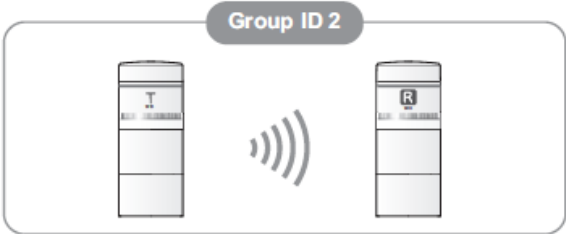
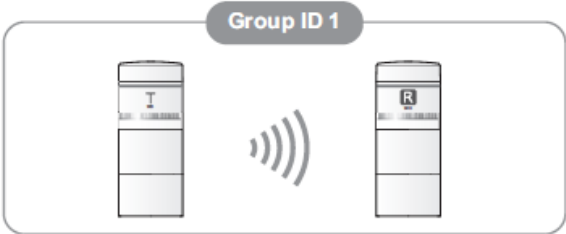
Set when operating this product with multiple group IDs.
This product can operate up to 8 groups in the same area.

Group ID DIP Switch

GROUP



Group ID name	Switch Number		
	1	2	3
Group ID 1	OFF	OFF	OFF
Group ID 2	ON	OFF	OFF
Group ID 3	OFF	ON	OFF
Group ID 4	ON	ON	OFF
Group ID 5	OFF	OFF	ON
Group ID 6	ON	OFF	ON
Group ID 7	OFF	ON	ON
Group ID 8	ON	ON	ON



8.6 Repeater Setting Switch

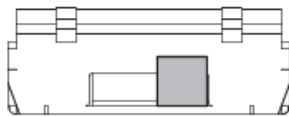
If the wireless quality is poor due to distance or obstacles between products, the wireless quality may be improved by installing a repeater.

This product can be used as a repeater by changing the receiver settings.

Up to three repeaters can be installed in one group.

The output of the repeater and the output of the receiver are linked.

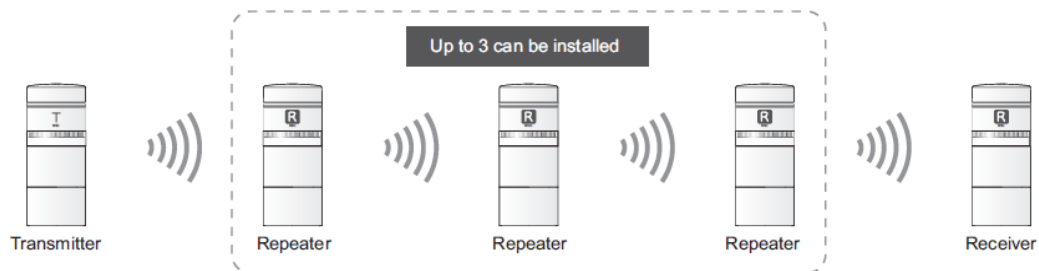
OFF ← → ON



Set	Repeater
OFF	Disable
ON	Enable



Repeater Setting Switch



8.7 Status Display

Check the indicator status with its lighting.



(1) Wireless Quality

Displays the communication quality of the wireless connection status with the connected device using its own indicator.

Indicator light status	Contents
Green	Wireless quality is good.
Amber	Wireless quality is poor. Reconsider the installation location or install a repeater.
Red	Waiting for wireless connection.
Pink	Wireless connection to the destination is established, but wireless connections between other products in the system are not established.

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(2) Answerback

A light blue indicator light for 1 second confirms that input information from the transmitter has successfully transmitted to the receiver and that the output device has been operated on.

