



WIRELESS CALL SYSTEMS

# AN920

Instruction Manual V1.20

Please use this Instruction manual correctly on reading well.  
Please keep it carefully to be able to read immediately, when required.



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# 1. OVERVIEW

## 1-1. Introduction

This instruction manual describes the information required for using this product including overview, installation, and operation of this product. Read this manual carefully before using this product. Keep this manual handy so that you can take it out immediately.

A wireless module "RN2903" built in this product obtained the transmitter approval of Federal Communication Commission (FCC), CFR 47 Telecommunication, Part 15.212 Modular Transmitters, and the module approval of Part 15, Subpart C "International Radiators" based on the above approval.

The "RN2903" module is also approved for use in Canada according to the Radio Standards Specification (RSS) RSS-210 and RSS-GEN of Industry Canada (IC).

### ■FCC Warning

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 annunciator.
- Connect the equipment into an outlet on a circuit different from that to which the annunciator is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### ■IC Warning

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

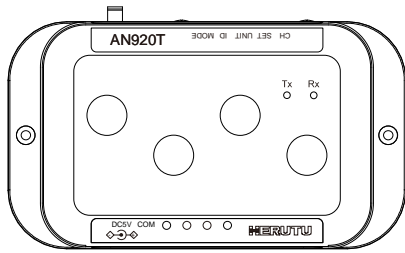
#### ■ External Antenna Types

Type	Gain(dBi)	Impedance
Sleeve Dipole	Under 6dBi	50Ω

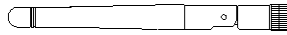
1. Do not use this product for the application that may cause harm to human body or damage to other devices and equipment.  
Do not use this product near the devices that may malfunction due to radio waves emitted from this product.
2. Disassembly or modification of the device having an approval is prohibited by the law.
3. This product is available only in Canada and USA.
4. Because the communication performance is changed depending on the surrounding environment, be sure to confirm the communication is established before installation of this product and then use it.

## 1-2. Main Unit and Accessories

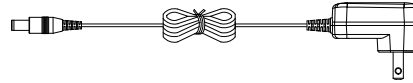
### ■AN920T



Transmitter main unit  
“AN920T” ×1



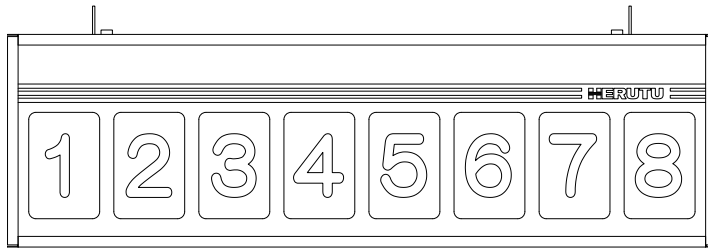
Antenna ×1



Cable Approx. 1.5 m

AC adapter ×1

### ■AN920R (Large-sized 8-indicator type)

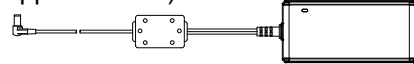


Receiver main unit AN920R



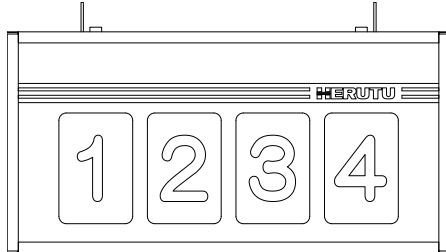
Antenna × 1

(Cable: DC-code approx. 1.5 m + AC-cord approx. 1.8 m)



AC adapter ×1

### ■AN920RH (Large-sized 4-indicator type)

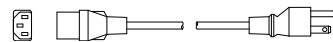
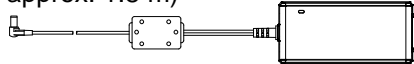


Receiver main unit AN920RH



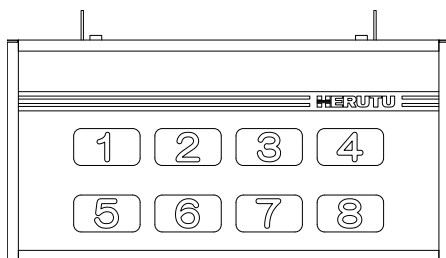
Antenna × 1

(Cable: DC-code approx. 1.5 m + AC-cord approx. 1.8 m)



AC adapter ×1

### ■AN920RM (Medium-sized 8-indicator type)

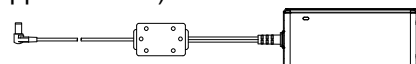


Receiver main unit AN920RM



Antenna × 1

(Cable: DC-code approx. 1.5 m + AC-cord approx. 1.8 m)



AC adapter ×1

### 1-3. Safety Precautions (Be Sure to Read This)

This section describes the matters to be observed in order to prevent harm to the users and other persons and damages to the property.

- The following marks and displays classify and describe the extent of harm and damage caused by failing to observe the display content and using this product wrongly.



#### Warning

This display column shows "a failure to do observe it could result in death or serious personal injury".



#### Caution

This display column shows "a failure to do observe it could result in only the personal injury or property damage".



#### Caution

- Common matters in handling

- Avoid using this product in the humid or dusty place. Dusts or water enters the product, which may cause the fault, fire, or electric shock.



- Handling this product

- This product is the wireless communication equipment made of precision parts. Do not disassemble or modify it. Or the accident or fault may occur.



#### Warning

- Handling this product

- Do not use this product for application that requires the extremely high reliability affecting the human life.



- Do not use this product in the area which the radio wave reaches or not.



- Handling the power supply

Be sure to observe the followings in order to prevent the accidents such as heat generation, damage, or ignition of AC adapter and power cord.

- Do not place the AC adapter and power cord close to fire or insert them into fire. Or they may be burst and ignited, resulting in the accident.










- Use the AC adapter and main body only at the specified power supply voltage in order to prevent burst and ignition accidents.



- Do not use the AC adapter and main body at the location where they easily get wet. Or the accidents including heat generation, ignition, or electric shock and faults may occur.







<ul style="list-style-type: none"> <li>Do not touch the AC adapter, main body, power cord, and outlet with wet hands. Or the accident such as an electric shock may occur.</li> </ul>	
<ul style="list-style-type: none"> <li>Do not damage the power cord. Short-circuit or heat generation may cause fire or electric shock.</li> </ul>	
<ul style="list-style-type: none"> <li>Do not use the power plug with dusts attached. Short-circuit or heat generation may cause fire or electric shock.</li> </ul>	
<ul style="list-style-type: none"> <li>Do not give a strong shock to the AC adapter. Or the accident or fault may occur.</li> </ul>	
<ul style="list-style-type: none"> <li>If you find a deformation in the AC adapter, do not use it. Or the accident or fault may occur.</li> </ul>	
<ul style="list-style-type: none"> <li>Do not charge the main body at the location where the flammable gas is generated. Or the ignition accident may occur.</li> </ul>	
<ul style="list-style-type: none"> <li>Never disassemble the AC adapter. Or the accident or fault may occur.</li> </ul>	

■ Never disassemble the AC adapter.

Remove the power plug from the outlet because it may cause fire and electric shock. Request the dealer or our company to repair it.

<ul style="list-style-type: none"> <li>When smoke comes or there is a strange smell, immediately stop usage and remove the power plug from the outlet because it may cause fire and electric shock. Request the dealer or our company to repair it.</li> </ul>	
<ul style="list-style-type: none"> <li>If the cord is damaged, do not use it. Using the cord damaged continuously may cause fire or electric shock.</li> </ul>	

■ Reliability of wireless communication

As wireless communication has properties that are different from those of wired communication, communication errors may occur due to the following.

- Exceeds the communication distance.
- Enters a dead zone.
- Interfered by strong jamming

If signals are often jammed, or being jammed leads to operational problems, stop using the systems and restart using the systems after removal of the cause.

Radio waves may not be received due to various reasons other than the above. Please understand this before using the systems.

\*A dead zone is an area where the radio wave transmitted from the transmitter becomes extremely weak due to radio waves reflected from walls or other objects.

## 1-4. General

AN920 series are wireless call systems using “LoRa Technology” for wireless communication.

The wireless call systems comprise one or transmitters and a receiver. The transmitter transmits a code in response to a pushbutton input or a terminal block input. The receiver receives signals from each transmitter, and a particular color LED illuminates each indicator on the receiver, according to the corresponding input from the transmitter.

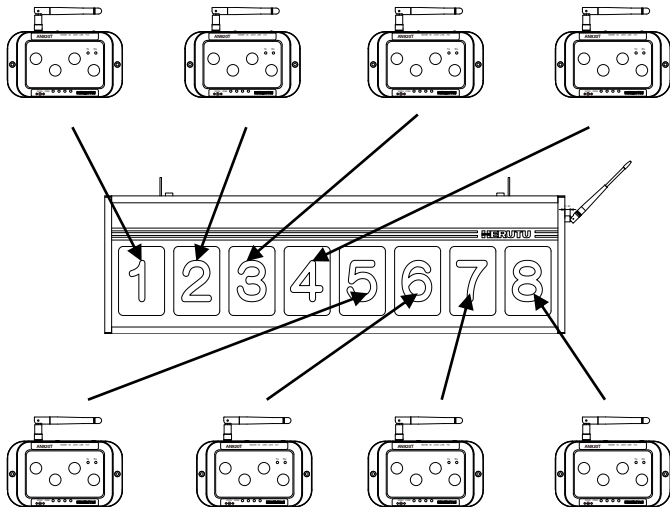
AN920 can be used for calling distant people and objects. Examples include operators notifying a shortage of parts or an abnormal event in the assembly process.

Several types of receivers are available with different number and size of indicators. They can be used in combination with AN920T transmitters.

Receiver	Without speaker	With speaker	The number of corresponding transmitters
Large-sized 8-indicator type	AN920R	AN920R-MRD	8
Large-sized 4-indicator type	AN920RH	AN920RH-MRD	4
Medium-sized 8-indicator type	AN920RM	AN920RM-MRD	8

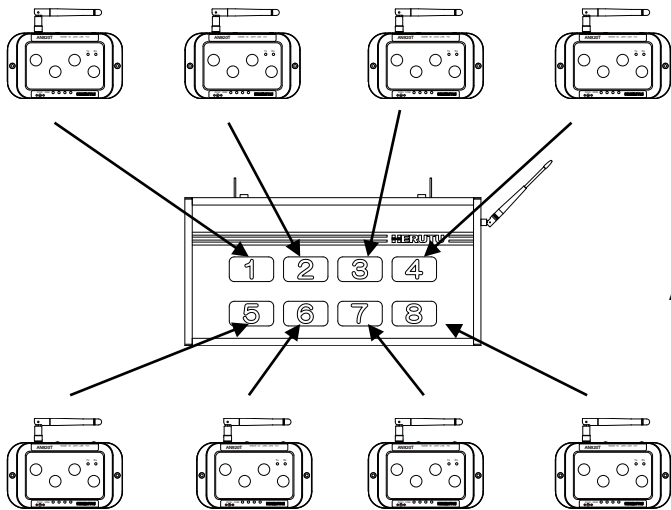
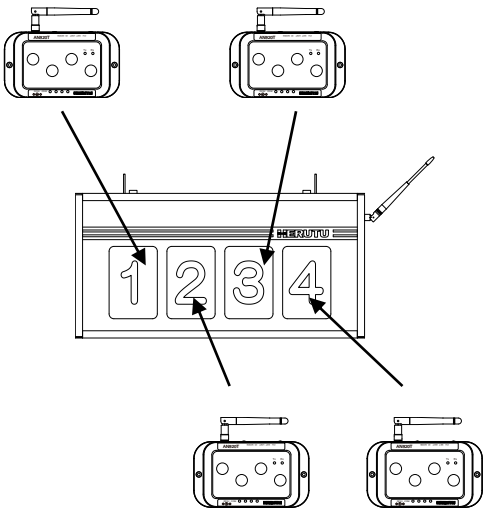
1. The communication distance is approx.500m indoors and approx. 1km outdoors.  
It can be extended further by setting the wireless output settings to “Long Range”.
2. Set a desired communication method. (With/Without answerback)
3. Wireless channels can be selected from 16 types, and code settings can be selected from 100 types.  
Totally, a maximum of 1600 configurations can be set.
4. The transmitter is equipped with 4 push buttons (Orange/Red/Green/White) and 4 external inputs (Orange/Red/Green/White).
5. The included AC adapter is used for the power source for the transmitter and the receiver. (100 – 240 VAC)
6. Double-sided indicator.
7. An optional speaker enabling sound notifications can be installed on the receiver.

1-5. System Configuration



AN920T 8 units: AN920R 1 unit

AN920T 4 units: AN920RH 1 unit



AN920T 8 units: AN920RM 1 unit

## 2. Specification

### 2-1. General Specification

Item	Specification
A destination country	U.S.A., Canada
Standard	FCC CRF47 Part15 Subpart C IC RSS-210/RSS-Gen
Frequency Band	903MHz~927MHz
Modulation Band	LoRa Technology
Antenna Power	Standard 3dBm(2.0mW) / Long Range 18.5dBm(70.79mW)
Modulation Speed	Approx.1170bps
Channel Step	1.6MHz
Antenna	External Dipole Antenna
Communication Method	Half Duplex

### 2-2. Transmitter AN920T

Item	Specification
Indicator Element	1 Red LED (Rx) 1 Green LED (Tx)
Input(s)	4 Push-Button (Orange/Red/Green/White(Off)) 4 External-Input (Orange/Red/Green/White(Off)) *1
Power Source	AC 100-240V (Using included AC Adapter)
Wattage.	7W
External Dimensions	(W × H × D)150 × 85 × 25 mm (5.9 × 3.3 × 1.0")
Weight	Approx. 0.2kg (0.4lb)
Operating Environment	Temperature:0~+50°C(32-124°F) Humidity:20-85% (without condensation)
Switches	1 Switches (2-Position DIP each) 1 Switches (16-Position Rotary each) for Channel Setting 3 Switches (10P-Position Rotary each) for Set, Unit, ID
Included	1 AC adapter, 1 Antenna

\*1 : Available Wire Range Single Line:  $\phi$ 0.4mm(AWG26)~ $\phi$ 1.0mm(AWG18)

Twisted Line:  $\phi$ 0.3mm<sup>2</sup>(AWG22)~ $\phi$ 0.75mm<sup>2</sup>(AWG20)

Wire Diameter:  $\phi$ 0.18 more

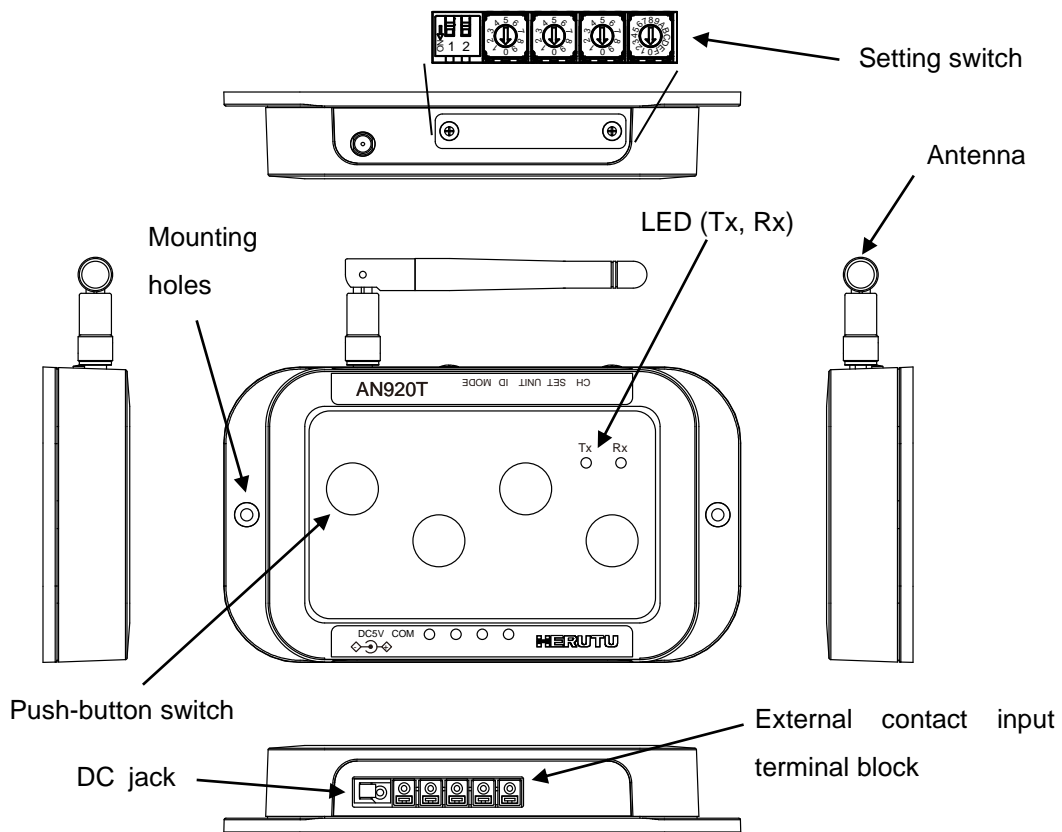
## 2-3. Receiver AN920R/AN920RH/AN920RM

Item	Specification		
Product type	AN920R	AN920RH	AN920RM
Indicator Element	8 Indicator Lamps Indicator Dimensions (H×W)150×100mm(5.9×3.9") Double-Sided Indicator 3-Color LED (Orange, Red, Green)	4 Indicator Lamps Indicator Dimensions (H×W)150×100mm(5.9×3.9") Double-Sided Indicator 3-Color LED (Orange, Red, Green)	8 Indicator Lamps Indicator Dimensions (H×W)50×90mm(2.0×3.5") Double-Sided Indicator 3-Color LED (Orange, Red, Green)
Output(s)	4 Open Collector Outputs (Max. Rated Load AC/DC 35V 50mA) 1 Relay Output (Max. Related Load AC/DC 30V 0.5A)		
Input(s)	2 Non-voltage Contact-Input 1 Reset ALL / 1 Reset Output		
Power Source	AC100-240V(Using included AC Adapter)		
Wattage	Max.90W	Max.44W	Max.33W
External Dimensions	(W×H×D)1000 × 300 × 80mm (39.4×11.8×3.1") (except any protruding object such as an antenna)	(W×H×D)600 × 300 × 80mm (23.6×11.8×3.1") (except any protruding object such as an antenna)	(W×H×D)600 × 300 × 80mm (23.6×11.8×3.1") (except any protruding object such as an antenna)
Weight	Approx.8kg (17.6lb)	Approx.5.3kg (11.7lb)	Approx.5.8kg (12.8lb)
Operating Environment	Temperature: 0~+40°C(32-104° F) Humidity: 85% or less (without condensation)		
Setting Switch	1 Switches (8-Position Rotary each) 1 Switches (16-Position Rotary each) for Channel Setting 2 Switches (10P-Position Rotary each) for Set, Unit, ID		
Included	1 AC adapter, 1 Antenna		

• The weight of the receiver with a speaker is approx.1.7kg heavier than that of a receiver without a speaker.

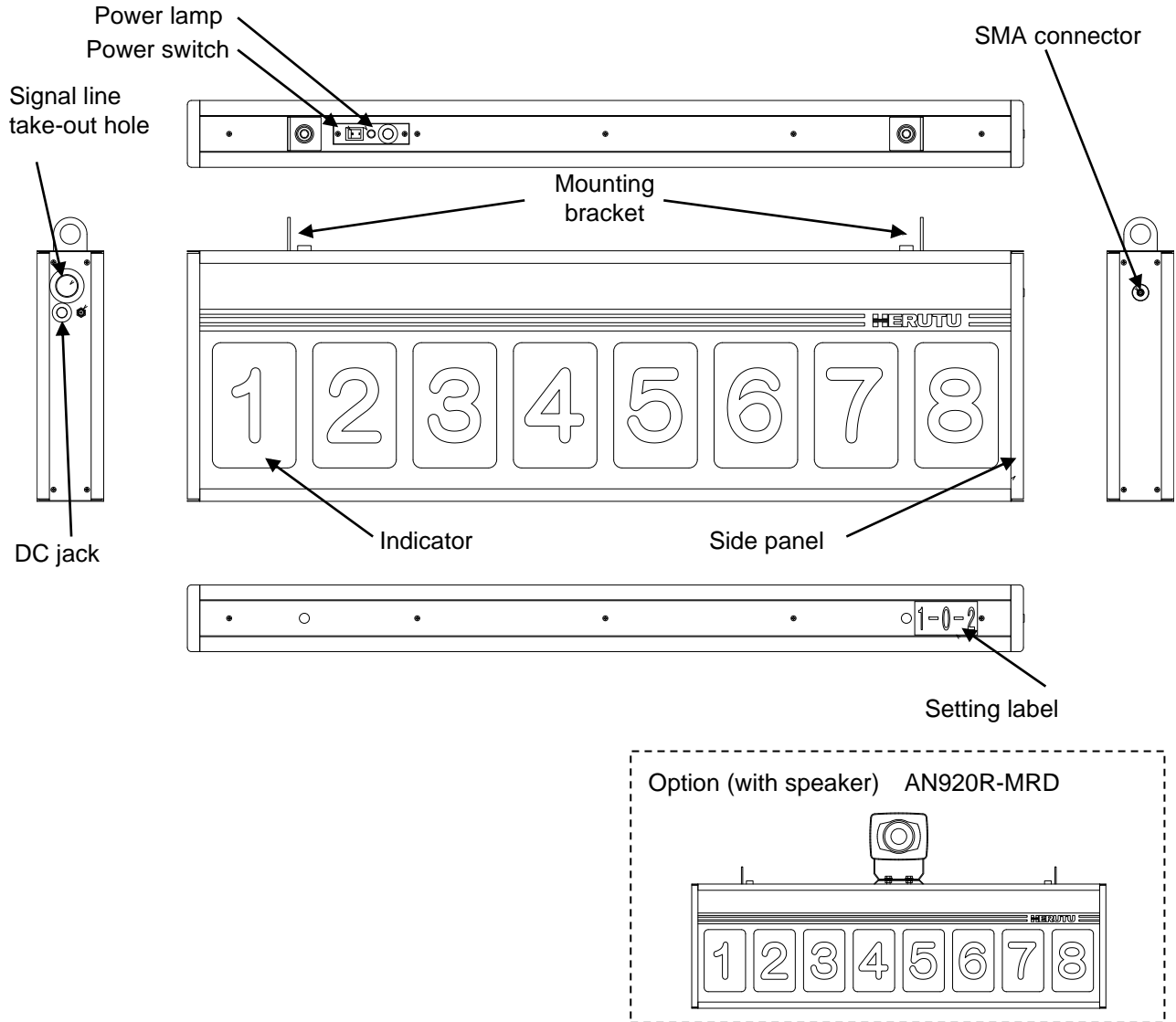
### 3. PART NAMES AND DESCRIPTIONS

#### 3-1. AN920T



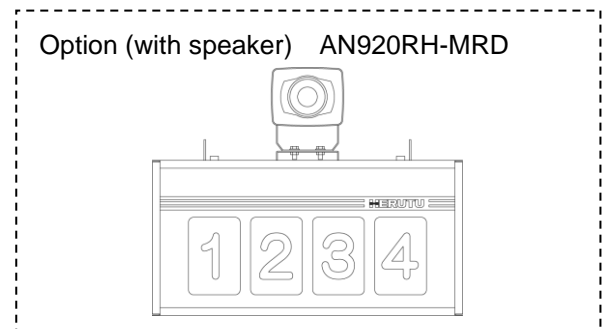
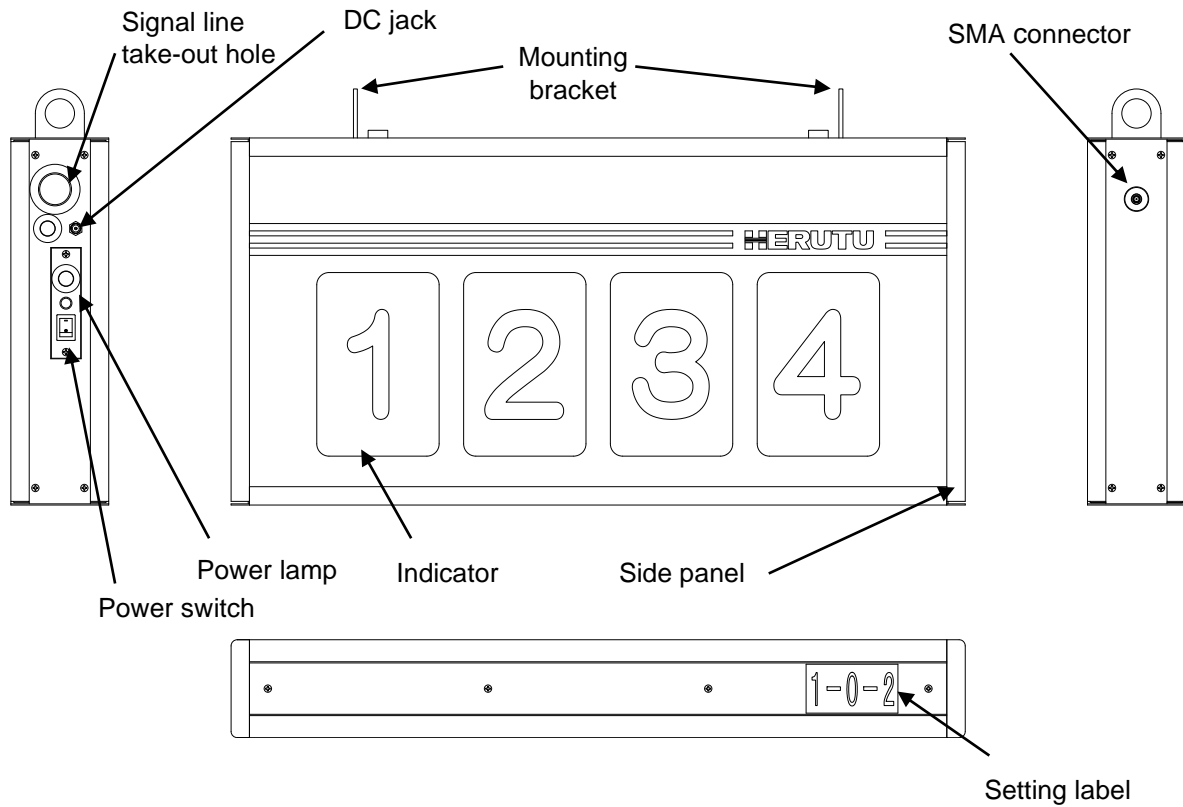
Item	Description
Setting switch	Configures the settings for the channels, sets, units and IDs. and communication settings.
Antenna	Connects the included antenna.
Mounting holes	Mounting hole of $\phi 3.5 \times 2$
LED	Green LED (Tx) for transmitting and red LED (Rx) for receiving.
Push-button switch	Pushbutton switches in Orange/Red/Green/White. Do not press more than one switch at the same time.
Input terminal block for external contact	External inputs in Orange/Red/Green/White. The white pushbutton switch is for clearing LEDs (Off). Input a no-voltage contact signal. Do not press more than one switch at the same time.
DC jack	DC jack for connection of the included AC adapter

### 3-2. AN920R



Item	Description
Mounting bracket	Use the mounting metal fittings for fixing the receiver.
SMA connector	Connects the included antenna.
Signal line take-out hole	Connect the signal lines to the internal input/output terminal block by drawing them through this takeout hole.
DC jack	DC jack for connection of the included AC adapter
Power lamp	Lamp for the power source. Lights up when the power source is switched on.
Power switch	Power switch of the main unit
Indicator	3 color LED (Green/ Orange/Red) The indicator lamp corresponding to the ID of the transmitter received illuminates (or flashes).
Side panel	Remove the side panel to connect signal lines to the input/output terminal block or configure channels/ indication mode/ unit/ set.
Setting label	Label showing factory default channel/ set/ unit. e.g. "1-0-2": Channel 1/ Set 1/ Unit 2
Speaker	An optional speaker can be installed on AN920RH-MRD.

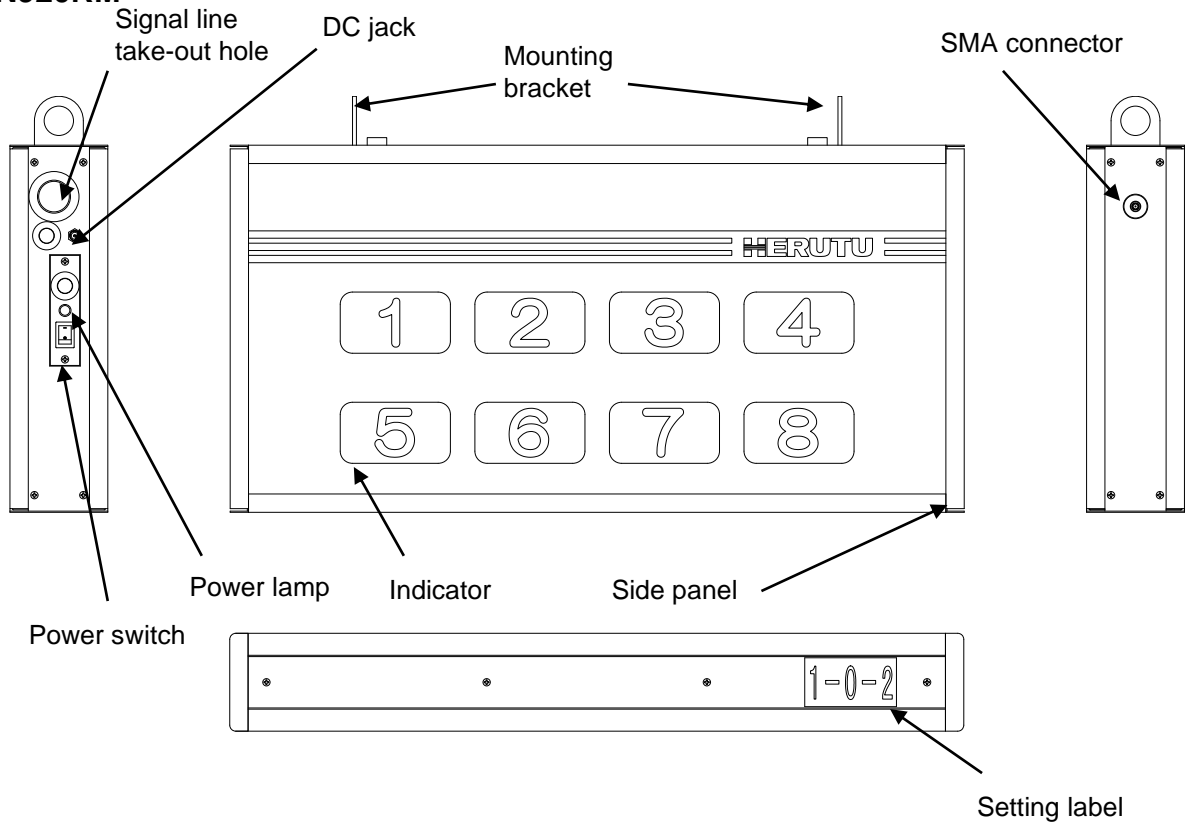
### 3-3. AN920RH



Item	Description
Mounting bracket	Use the mounting metal fittings for fixing the receiver.
SMA connector	Connects the included antenna.
Signal line take-out hole	Connect the signal lines to the internal input/output terminal block by drawing them through this takeout hole.
DC jack	DC jack for connection of the included AC adapter
Power lamp	Lamp for the power source. Lights up when the power source is switched on.
Power switch	Power switch of the main unit
Indicator	3 color LED (Green/ Orange/Red) The indicator lamp corresponding to the ID of the transmitter received illuminates (or flashes).
Side panel	Remove the side panel to connect signal lines to the input/output terminal block or configure channels/ indication mode/ unit/ set.
Setting label	Label showing factory default channel/ set/ unit. e.g. "1-0-2": Channel 1/ Set 1/ Unit 2
Speaker	An optional speaker can be installed on AN920R-MRD.



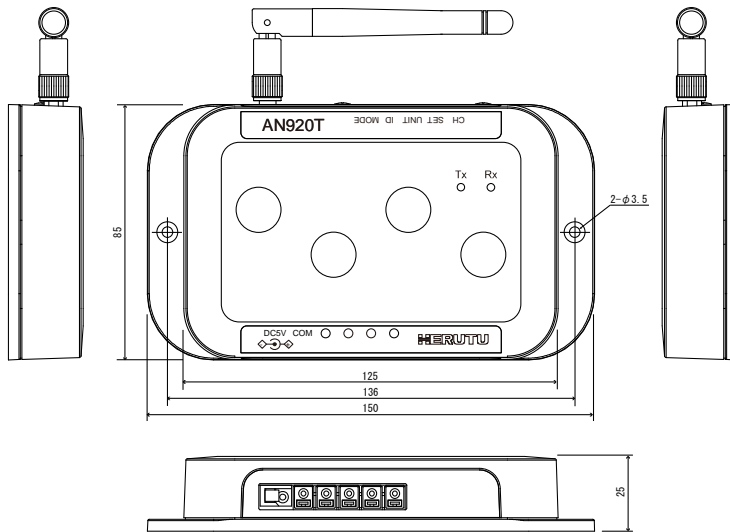
### 3-4. AN920RM



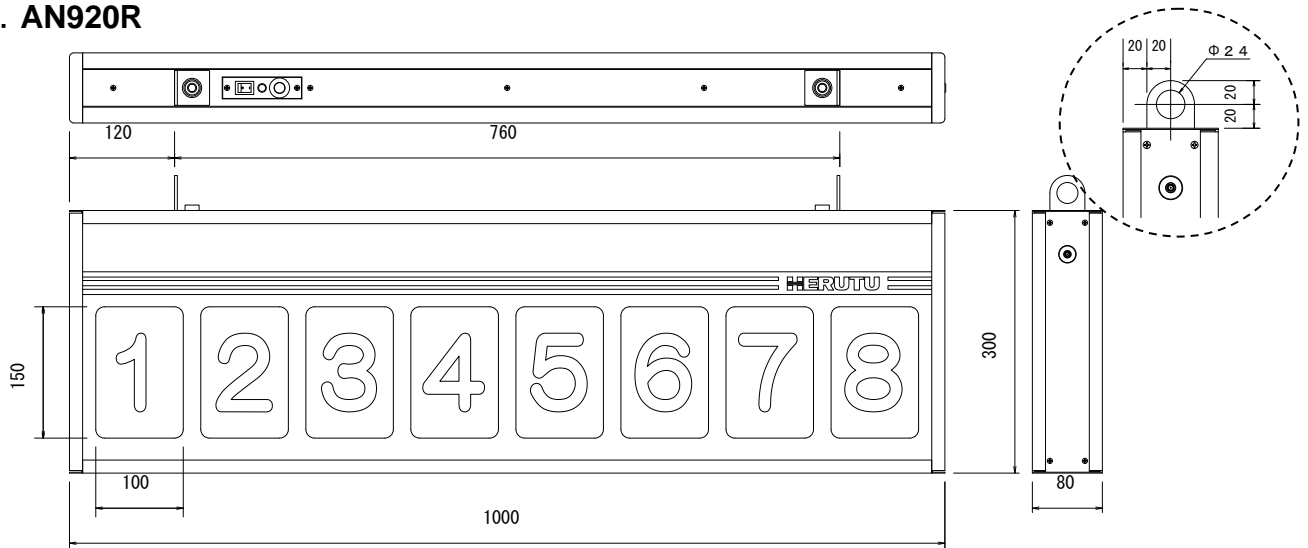
Item	Description
Mounting bracket	Use the mounting metal fittings for fixing the receiver.
SMA connector	Connects the included antenna.
Signal line take-out hole	Connect the signal lines to the internal input/output terminal block by drawing them through this takeout hole.
DC jack	DC jack for connection of the included AC adapter
Power lamp	Lamp for the power source. Lights up when the power source is switched on.
Power switch	Power switch of the main unit
Indicator	3 color LED (Green/ Orange/Red) The indicator lamp corresponding to the ID of the transmitter received illuminates (or flashes).
Side panel	Remove the side panel to connect signal lines to the input/output terminal block or configure channels/ indication mode/ unit/ set.
Setting label	Label showing factory default channel/ set/ unit. e.g. "1-0-2": Channel 1/ Set 1/ Unit 2
Speaker	An optional speaker can be installed on AN920RM-MRD.

## 4. Drawing

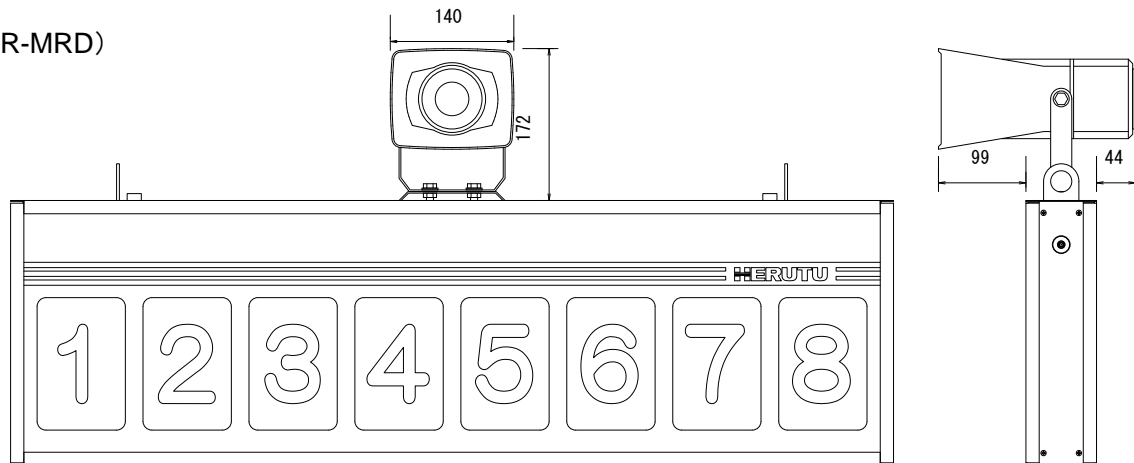
### 4-1. AN920T



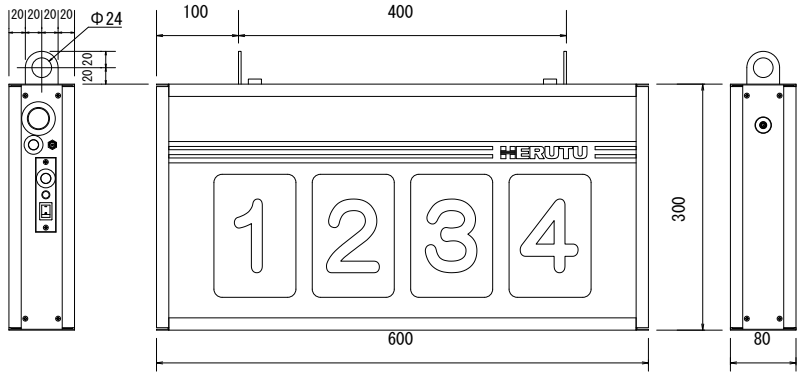
### 4-2. AN920R



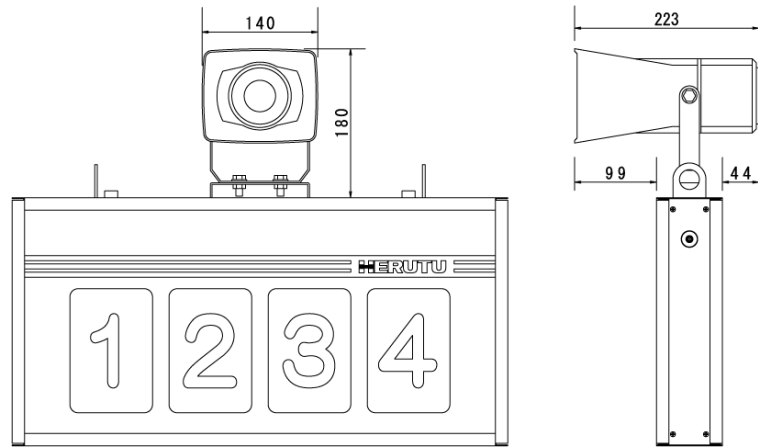
(AN920R-MRD)



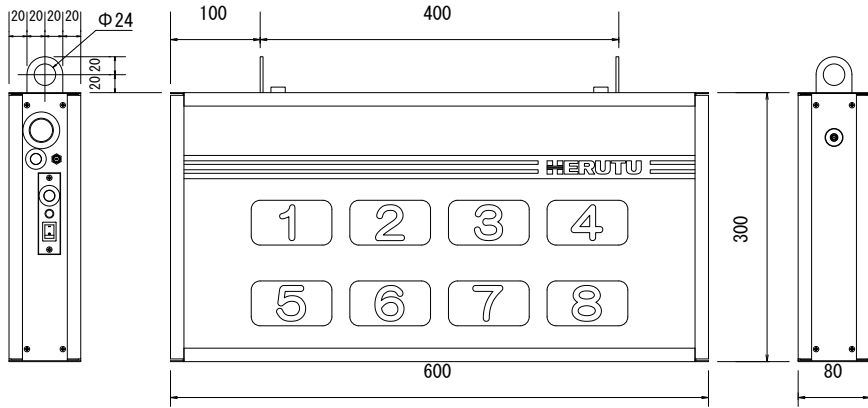
4-3. AN920RH



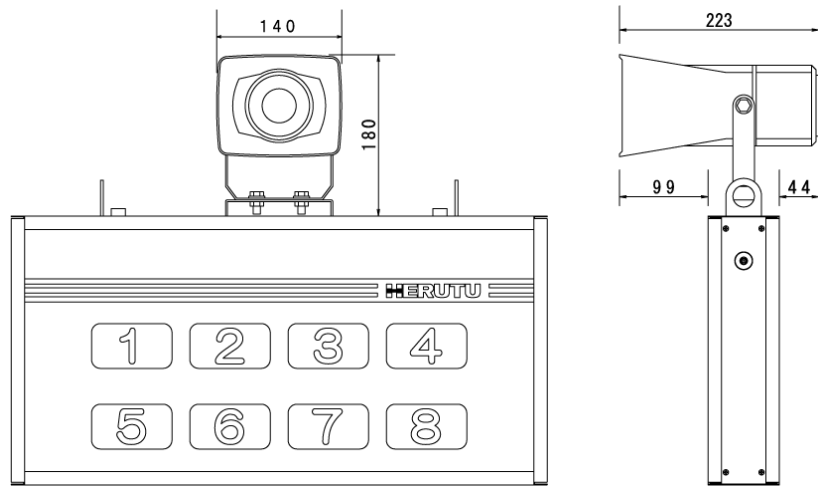
(AN920RH-MRD)



4-4. AN920RM



(AN920RM-MRD)



## 5. SETTINGS

Receiver can be set Channel(1-16)/Set(1-10)/Unit(1-10).

Transmitter can be set Channel(1-16)/Set(1-10)/Unit(1-10) and ID(1-8).

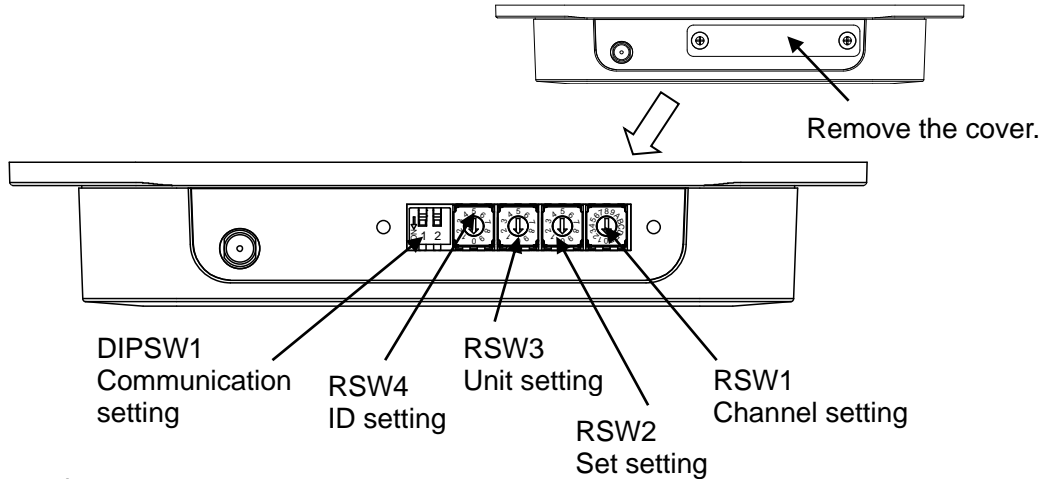
Receive and Transmitter can communicate at same setting of channel/Set/Unit.

Also ID decide number for indicator. In the case of buy a set, setting is already done before shipment.

You don't need set.

### 5-1. Transmitter Setting

For settings of the transmitter, remove the cover shown below and use the DIP switch and rotary switches.



#### ■ Communication settings

Set the communication method and antenna power.

##### < Communication method >

When setting the transmitter to "With answerback", the receiver sends an answerback to the transmitter in response to a signal from the transmitter. It is possible to confirm whether or not communication has been performed when the receiver is placed where it cannot be seen from the transmitter.

When installing several receivers indicating the same status for the signal from one transmitter, set the transmitter to "Without answerback".

DIPSW1-1	Settings
OFF	With answerback
ON	Without answerback

##### < Wireless output setting >

The transmission output can be set to either standard or long range.

Standard 3dBm (2.0 mW):      Communication distance    Indoor    Approx. 500 m    Outdoor    Approx. 1 km  
 Long range 18.5dBm (70.79 mW):    Communication distance    Indoor    Approx. 1 km    Outdoor    Approx. 2 km

DIPSW1-2	Settings
OFF	Standard
ON	Long range

## ■ Channel / Set / Unit / ID

Match the settings for Channel/Set/Unit with those of the receiver to communicate with. For the settings of the receiver, see the configuration label affixed to the lower part of the receiver. The indicator to be illuminated is determined by ID setting.

### < Channel >

RSW1	Channel	Frequency (MHz)	RSW1	Channel	Frequency (MHz)
1	1	903.0	9	9	915.8
2	2	904.6	A	10	917.4
3	3	906.2	B	11	919.0
4	4	907.8	C	12	920.6
5	5	909.4	D	13	922.2
6	6	911.0	E	14	923.8
7	7	912.6	F	15	925.4
8	8	914.2	0	16	927.0

### < Set>

RSW2	Set
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	10

### <Unit>

RSW3	Unit
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	10

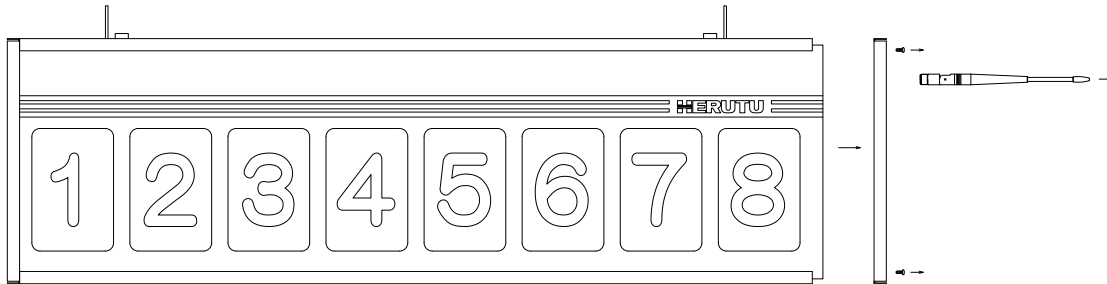
### <ID>

RSW4	ID	Indicator number
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	-	-
0	-	-

For settings of AN920RH, IDs 1-4 are assigned to AN920RH.

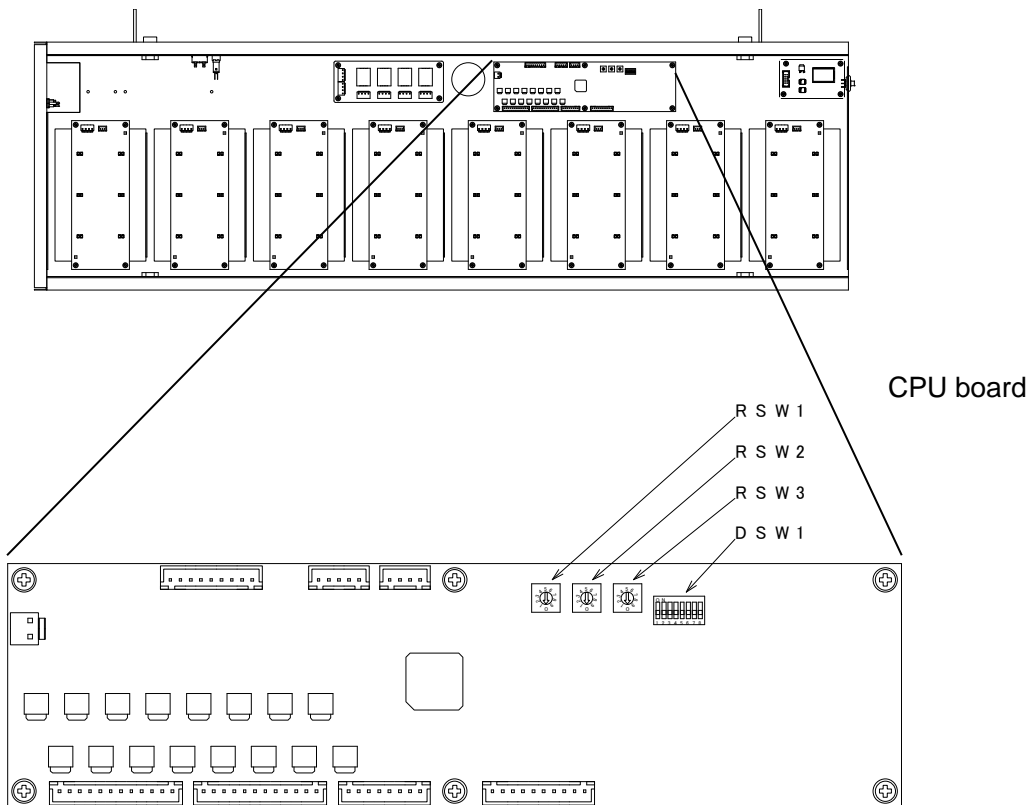
## 5-2. Display Setting

Set the receiver using the RSW1-3 (rotary switches 1-3) and the DIPSW1 (DIP switch 1) on the CPU board inside the receiver. Set the antenna vertical to the side panel and remove the screws (4) securing the side panel. Move the side panel so that it does not get caught in the antenna and remove the side panel.



As the CPU board is in the front, remove the front acrylic sheet by sliding it out.

Inside of the receiver (Surface)



## ■ Channel / Set / Unit

Configure the settings of Channel/Set/Unit to match those of the transmitter to communicate with.

### < Channel >

RSW1	Channel	Frequency (MHz)	RSW1	Channel	Frequency (MHz)
1	1	903.0	9	9	915.8
2	2	904.6	A	10	917.4
3	3	906.2	B	11	919.0
4	4	907.8	C	12	920.6
5	5	909.4	D	13	922.2
6	6	911.0	E	14	923.8
7	7	912.6	F	15	925.4
8	8	914.2	0	16	927.0

### < Set >

RSW2	Set
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	10

### < Unit >

RSW3	Unit
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	10

The setting contents is indicated binary way at turning on.

It is indicated in the order of channel->Green LED / Set->Orange LED / Unit->Red LED.

In the case of Channel16/Set 10/Unit 10, all indicators blink.

Ex) In the case of Channel 12 / Set 4 / Unit 10

Channel: Indicator 3 and 4-Green is indicated

↓

Set: Indicator 3 – Orange is indicated

↓

Unit: All Indicator – All indicator of Red is blinked (2 times)

### ■ Display mode

Set the display mode using the DIPSW1-1 and DIPSW1-2. Four display modes are available.

Display mode	DIPSW1-1	DIPSW1-2	Button input	Terminal input
1	OFF	OFF	Illumination	Illumination
2	ON	OFF	Blinking	Illumination
3	OFF	ON	Illumination	Blinking
4	ON	ON	Blinking	Blinking

### ■ Setting the output time

Set the open collector output and relay output time with the DIPSW1-3.

①Continuous output: Generates a continuous output in synchronization with illumination (or blinking) of the indicator.

②Output for 5 seconds: Generates an output in synchronization with illumination (or blinking) of the indicator for 5 sec.

Status of the DSW1-3	OFF	ON
Output time	Continuous	5 seconds



## 6. INSTALLATION

### 6-1. Installation of Transmitter

When installing the product, pay attention to the following

- ① Install the transmitter in a location where the antenna is not surrounded by metal or shielding and stable communication is possible.
- ② Mount the antenna away from metal objects to prevent them from becoming parallel to each other.

Do not install the transmitter in the following locations:

- Locations exposed to direct sunlight.
- Locations with high humidity.
- Near a television or radio.
- Near machines that spark, such as a welding machine.
- Locations where strong magnetic field is generated.
- Locations surrounded by steel frames or metal walls.
- Near any devices that could malfunction due to radio waves from the systems.

- ③ When fixing the transmitter to a panel, etc., use mounting holes.

#### 6-1-1. External Input

When using external inputs (Orange/ Red/ Green/ White), connect no-voltage contact inputs to the external contact input terminal block. Connect no-voltage contact inputs to the external contact input terminal block, which allows “DC3.3/5mA” to be turned ON/OFF stably.

Set the input signal to 50ms or more.

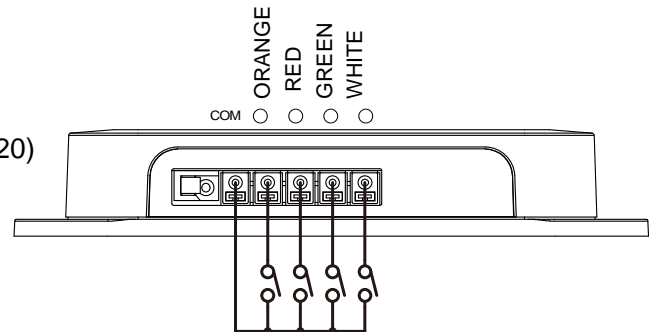
(Screwless terminal block)

Applicable wire range:

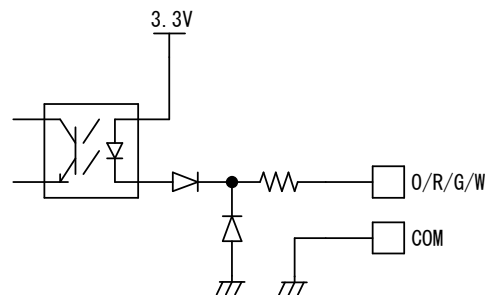
Single wire:  $\phi 0.4$  mm (AWG26) –  $\phi 1.0$  mm (AWG18)

Stranded wire:  $\phi 0.3$  mm<sup>2</sup> (AWG22) –  $\phi 0.75$  mm<sup>2</sup> (AWG20)

Strand diameter of  $\phi 0.18$  or more



#### 6-1-2. Input Circuit



When installation and connection to the external input are completed, connect the included AC adapter to the transmitter main unit. Supply voltage input range: 100 – 240 VAC

## 6-2. Installation of Receiver

Install the receiver following the precautions below. Installation of the receiver is described by using the illustrations of the large-sized 8-indicator type receiver AN920R. For installation of AN920RH (Large-sized 4-indicator type) and AN920RM (Medium-sized 8-indicator type), also refer to the description below.

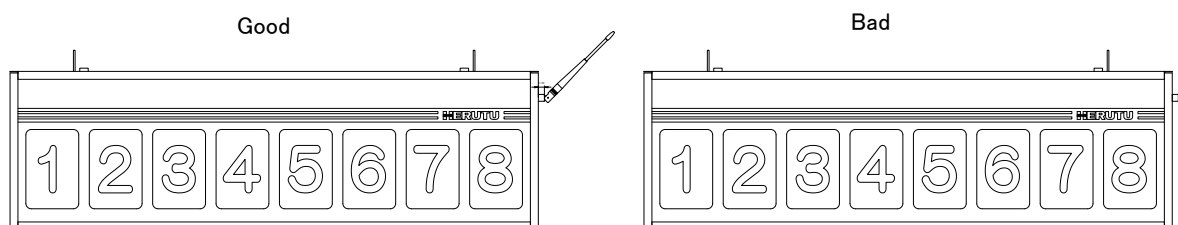
- ① Keep the antenna away from metal sheets or wires, and prevent the antenna from becoming parallel to them.
- ② Keep the antenna away from noise sources.
- ③ Select a location where there are no shielding objects between the antennas of the transmitter and the receiver.
- ④ The communication performance varies depending on the installation environment. Make sure communication is possible before installation.
- ⑤ The receiver is neither dust-proof nor drip-proof.

\*Do not install the receiver in the following locations:

- Locations exposed to direct sunlight.
- Locations with high humidity.
- Near a television or radio.
- Near machines that spark, such as a welding machine.
- Locations where strong magnetic field is generated.
- Locations surrounded by steel frames or metal walls.
- Near any devices that could malfunction due to radio waves from the systems.

- ⑥ Place the receiver where it can be seen easily and clearly from the transmitter. When using the mounting fittings, secure the receiver to a location stable enough to support the weight (approx. 8kg).

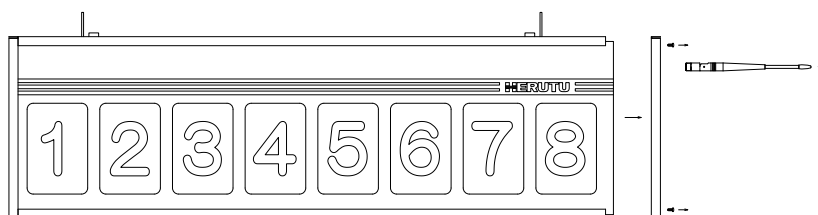
Direct the antenna diagonally upward. Do not direct it downward in parallel with the side of the receiver.



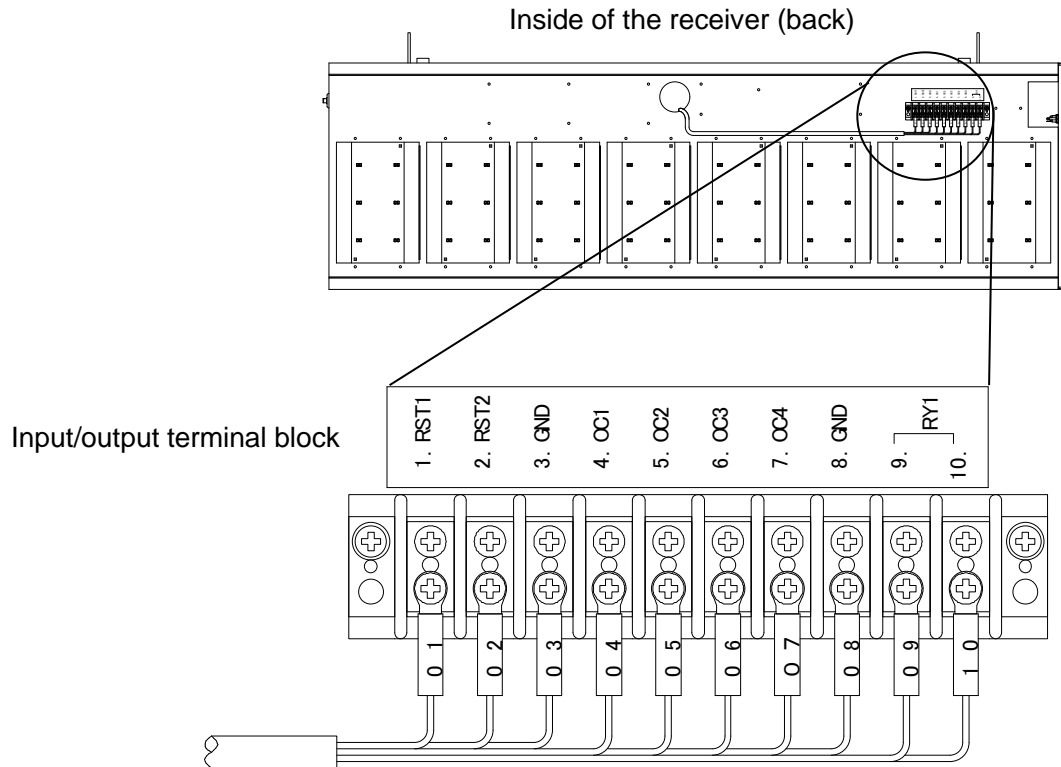
### 6-2-1. Input / Output Terminal Block

External output in synchronization with LED illumination is generated at the input/output terminal block inside. Remove the antenna and remove the screws (4) securing the side panel.

Move the side panel and remove the side panel.



As the input/output terminal block is on the back side, remove the acrylic sheet on the back by sliding it out.



Terminal block	Contents
1.RST1	All reset input (Returns the settings to default.)
2.RST2	Output reset input (Stop external output. )
3.GND	GND
4.OC1	Open collector output (Synchronized with orange LED illumination.)
5.OC2	Open collector output (Synchronized with red LED illumination.)
6.OC3	Open collector output (Synchronized with green LED illumination.)
7.OC4	Open collector output (Synchronized with orange/red/green LED illumination.)
8.GND	GND
9/10.RY1	Relay output (Synchronized with orange/red/green LED illumination.)

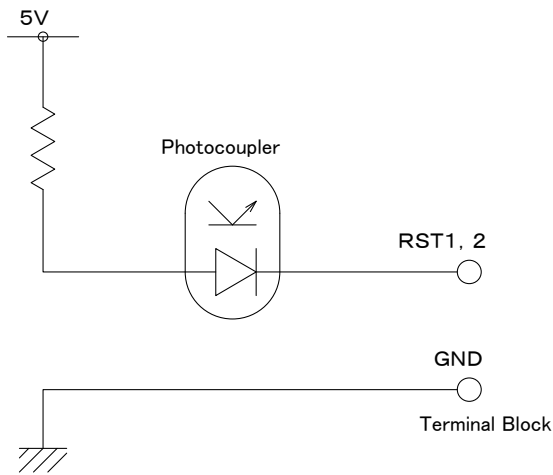
Pass the signal line through the signal line takeout hole before connecting it to the terminal block.

\*Input/output terminal block: M3 screw

### 6-2-2. Input circuit

For the Non-voltage contact input to be connected to the “All Reset” Input and “Output Reset” Input , use the circuit with less chattering which can steadily turn on/off the voltage/current of DC5V/15mA.

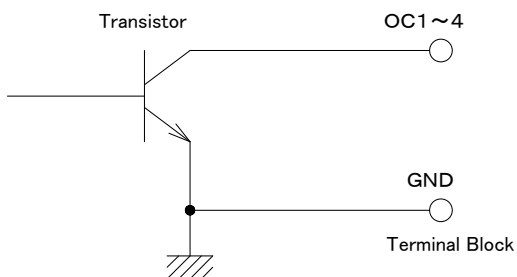
“Reset” Input Circuit



### 6-2-3. Output circuit

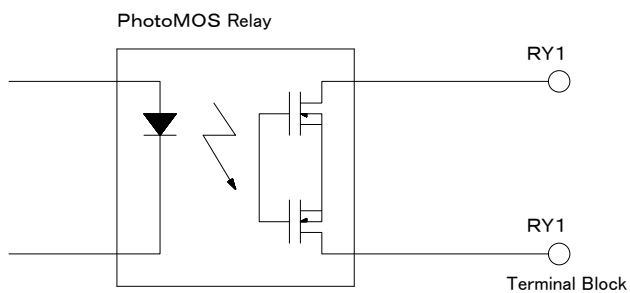
Max. Rated Load of open collector is AC/DC35V 50mA.

Open Collector Output circuit



Max. Rated Load of relay output is AC/DC30V 0.5A.

Relay Output Circuit



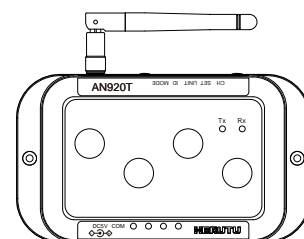
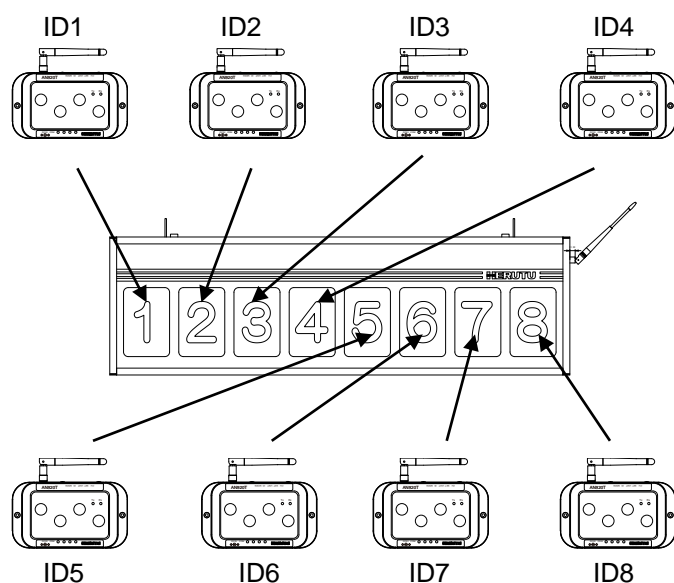
When installation and connection to the external input and output are completed, connect the included AC adapter to the receiver main unit. Supply voltage input range: 100 – 240 VAC

## 7. DESCRIPTION OF OPERATION

### 7-1. Basic Operation

When the receiver receives a signal sent from the transmitter, a LED illuminates the corresponding indicator according to the set ID, and the receiver produces a relay output and an open collector output.

According to the color of the transmitter pushbutton and external input, the corresponding LED color illuminates and the corresponding open collector output OC1-OC3 is activated.



< Monitoring of communication status >  
 Transmitting: Tx (Green) LED illuminates  
 Receiving: Rx (Red) LED illuminates  
 (In the "With answerback" setting)  
 1 second illumination : Normal  
 1 second blinking : Invalidity  
 No lighting : Communication Error

#### ■ Action of the receiver when the transmitter ID1 is operated

Transmitter ID1	Receiver		
	Indicator	Relay output Terminal block:RY1	Open collector output Terminal block:OC1-OC4
Orange Button	Indicator Number 1 Orange: illuminates or blinks	ON (Output continuation or 5 seconds)	OC1/OC4 ON (Output continuation or 5 seconds)
Green Button	Indicator Number 1 Green: illuminates or blinks	ON (Output continuation or 5 seconds)	OC2/OC4 ON (Output continuation or 5 seconds)
Red Button	Indicator Number 1 Red: illuminates or blinks	ON (Output continuation or 5 seconds)	OC3/OC4 ON (Output continuation or 5 seconds)
White Button	Indicator Number 1 Off	OFF	OFF
Orange external input	Indicator Number 1 Orange: illuminates or blinks	ON (Output continuation or 5 seconds)	OC1/OC4 ON (Output continuation or 5 seconds)
Green external input (Hold the ON state)	Indicator Number 1 Green: illuminates or blinks	ON (Output continuation or 5 seconds)	OC2/OC4 ON (Output continuation or 5 seconds)
Red external input (Hold the ON state)	Indicator Number 1 Red: illuminates or blinks	ON (Output continuation or 5 seconds)	OC3/OC4 ON (Output continuation or 5 seconds)
White external input (Hold the ON state)	-	-	-

The operation of the indicator when operating the transmitter ID 2 is the operation of the window number 2. Similarly, when the transmitter ID 3 - 8 is operated, the operation of the indicator is the operation of window number 3 - 8.

- The pushbuttons are not prioritized. The signal received later takes priority.
- While the external input signals are ON, the receiver stays active.  
When the external input signals turn OFF, the transmitter automatically sends an OFF signal to the receiver.
- Pressing several pushbuttons on a single transmitter simultaneously becomes invalid.
- When several external inputs on a single transmitter turn ON simultaneously, it becomes invalid.

## 7-2. Receiver Test Operation

After receiving test codes, the receiver performs the following as shown in the table below. During test execution, receiving signals becomes invalid.

Test codes are valid only when they are test codes combined by button inputs on the transmitter. Test codes combined by an external terminal input and a button input are ignored.

Receive test code	Name	Operation
Button Orange + Red + White (Button: Press orange, red and white simultaneously.)	Indication test	Red LED1-8 ON(every 0.5SEC) Green LED1-8 ON(every 0.5SEC)
Button Orange + Green +White (Button: Press orange, green and white simultaneously.)	Output test	Relay output RY1 ON(every 0.5SEC) Open collector output OC1-OC4 ON(every 0.5SEC)

Depending on the timing of pressing the buttons simultaneously, the button code pressed a little earlier than the others is transmitted, but not as a test code. The receiver may not execute a test action.

## 8. SPEAKER (OPTIONAL)

### 8-1. Speaker Operation

A speaker can be installed on the receiver (top) and it produces sound in synchronization with illumination (or blinking) of the LED indicators.

The speaker generates sounds corresponding to 3-color LED indication.

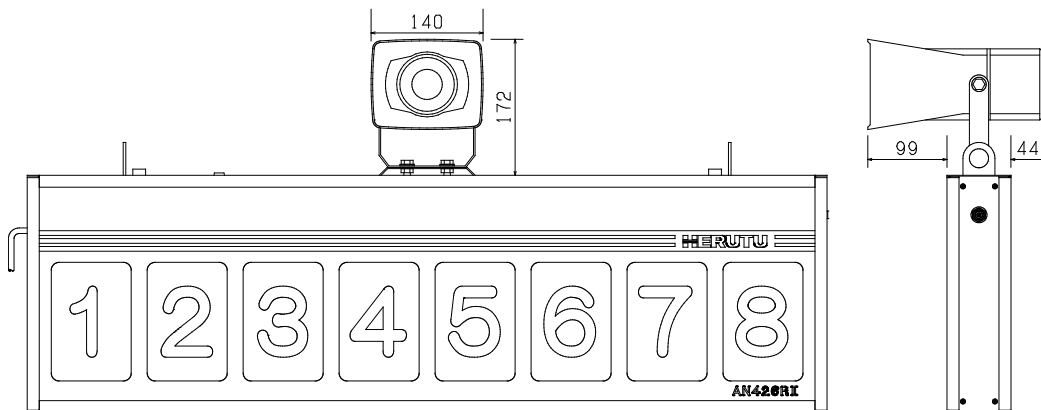
\*The speaker sounds are prioritized.

\*As the sounds are generated by using the open collector outputs “OC1-OC3”, the open collector outputs cannot be used for connection of other devices.

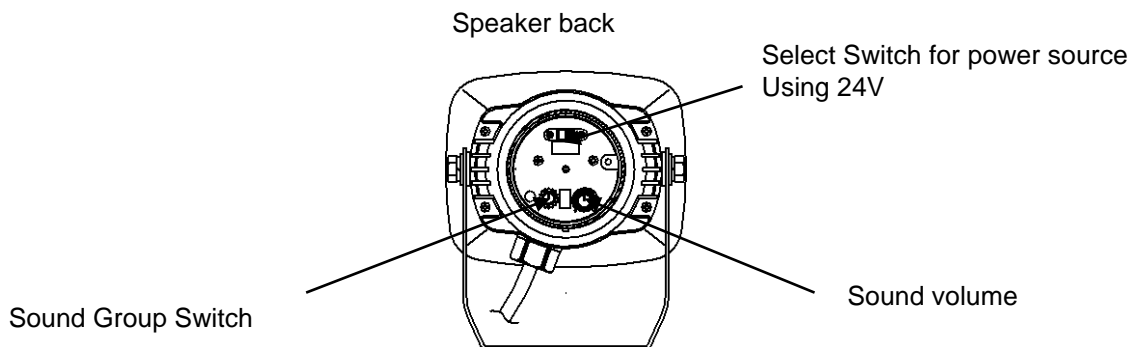
The models with a speaker are as follows.

Receiver	With speaker	The number of corresponding transmitters
Large-sized 8-indicator type	AN920R-MRD	8
Large-sized 4-indicator type	AN920RH-MRD	4
Medium-sized 8-indicator type	AN920RM-MRD	8

### 8-2. Dimensions of Receiver with Speaker



\*The weight of the receiver with a speaker is approx.1.7kg heavier than that of a receiver without a speaker. Be careful when installing these models.



### 8-3. Sound Selection

The speaker sounds can be selected from 15 groups.

The receiver is shipped with a Shneider's speaker "ST-25MM" (or "ST-25MM2") connected as follows.

Output OC1: In synchronization with orange LED indication(button orange) ⇒ Connected to CH1 of the speaker

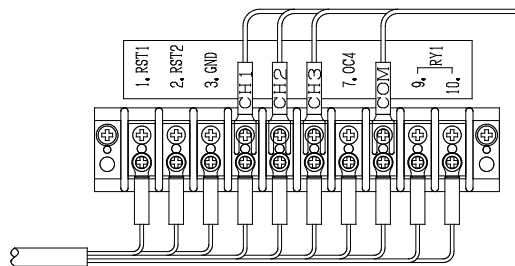
Output OC2: In synchronization with red LED indication (button red) ⇒ Connected to CH2 of the speaker

Output OC3: In synchronization with green LED indication (button green) ⇒ Connected to CH3 of the speaker

The speaker is prioritized. When signals are input simultaneously, the speaker sounds in the following priority order.

CH1>CH2>CH3

To change the LED indicator color (Orange, Red, Green) and sound (and priority order), change the connection of the terminal block inside the receiver.



The speaker sound can be selected from 15 sound groups A-O. Select your desired sound group and set the sound using the sound changeover switch of the speaker.

#### ■ Settings of the speaker sounding time

The speaker playing time can be selected from continuous/ 5 sec. by the internal settings..

(For the setting method, refer to "5-2. Setting of indicator".)

\*The speaker is set to continuous output setting at factory default.

\*The speaker volume can be adjusted between 0 and 102dB without steps using the volume control.



## Speaker(ST-25MM) sounds list

Group	Color of line from speaker			
	1CH(Green)	2CH(Yellow)	3CH(Brown)	4CH(Blue)
A	ASHITA GA ARUSA	ELECTRICAL PARADE	SAZAE-SAN	TOUTCH
B	CHIME	PiPiPiPi	KINJIRARETA ASOBI	KATSUSHYA
C	KINJIRARETA ASOBI	KATSUSHYA	SHEEP OF MERY	KUSAKEIBA
D	CHIME	PiPiPiPi	SHEEP OF MERY	KUSAKEIBA
E	CHIME	PiPiPiPi	FLICKER	PiLaLa
F	CHIME	PiPiPiPi	AMARYLLIS	MOZART'S 40TH
G	AMARYLLIS	MOZART'S 40TH	ASHITA GA ARUSA	ELECTRICAL PARADE
H	CHIME	PiPiPiPi	ASHITA GA ARUSA	ELECTRICAL PARADE
I	PiLaLa	DOWN	EMERGENCY	FLICKER
J	CHIME	PiPiPiPi	SAZAE-SAN	TOUTCH
K	SHEEP OF MERY	KUSAKEIBA	AMARYLLIS	MOZART'S 40TH
L	EMERGENCY	FLICKER	CHIME	PiPiPiPi
M	DOWN	EMERGENCY	CHIME	PiPiPiPi
N	PiLaLa	FLICKER	SHEEP OF MERY	KUSAKEIBA
O	DOWN	EMERGENCY	SAZAE-SAN	TOUTCH

4CH is no connected at shipment.

## 9. After Service and Warranty

If something is wrong. If you should find anything wrong with the machine when using it under normal conditions, check the warranty and repair regulations and contact the outlet store through which you purchased the product or our Sales Office. The latest warranty and repair regulations can be found on our website.

The user is prohibited by law from disassembling or making modification to the unit or otherwise may be subject to punishment.

### [Warranty Regulation]

This regulation (hereinafter referred to as the "Regulation") is for post-shipment warranty provided by HERUTU ELECTRONICS CORPORATION (hereinafter referred to as the "Company") so that you can use the Company's product you have purchased with confidence. The Regulation does not apply to special order products (custom products). In addition, purchased products shall be subject to the relevant manufacturer's warranty regulations, and the Regulation shall not apply.

Please note that in the event that the product you purchased comes with an instruction manual that describes the Company's old repair regulation, the latest Regulation will still apply.

#### 1. Warranty period

Unless otherwise specified, the warranty period shall be "up to thirteen months from the date of shipment of the product by the Company". During the warranty period, the Company will replace the product with a new one or repair it free of charge in accordance with the provisions of the Regulation.

In addition, if a failure occurs during the warranty period due to the Company's responsibility and the product with the failure (hereinafter referred to as the "Product") is replaced with a new one or repaired free of charge, the warranty period of the Product will be "thirteen months from the date of initial shipment of the Product, or six months from the date of shipment of the Product that has been replaced or repaired, whichever comes later".

The warranty period for paid repairs shall be in accordance with the provisions of the Company's repair regulation.

#### 2. Warranty scope

If a failure occurs during the warranty period due to the Company's responsibility, the Company will replace the product with a new one or repair it free of charge.

Even within the warranty period, the warranty does not apply in the following cases:

- A) In the event of failure or damage caused by improper handling by the customer, such as dropping or impact during transportation or movement by the customer
- B) In case of failure due to disassembly or modification of the main unit by the customer
- C) In case of natural disasters such as fires, earthquakes, floods, and in case of failure or damage due to abnormal voltage
- D) In case of failure caused by failure of equipment other than the Company's designated equipment connected to the Product

- E) In case of failure of the Product's accessories (AC adapter, antenna, connection cable, etc.)
- F) If damage is caused by the failure of consumables or limited-life parts included in the Product:
  - 1. Consumables: Batteries (rechargeable, batteries, dry batteries, button batteries, etc.), recording media (SD cards, etc.)
  - 2. Limited-life parts: Various switches (limit switches, push button switches, etc.) and various sensors
  - 3. Other items that are worn out or have a service life due to use

If consumables or limited-life parts fail, we will replace or repair the parts for a fee.
- G) In case of failure caused by handling contrary to the usage and precautions described in the instruction manual of the Product
- H) If repaired, adjusted, or improved by elsewhere other than the Company
- I) If the Company is unable to reproduce the failure

### 3. About repair of the Product

Please note that repairing the Product requires equipment such as measuring instruments and tools, so the Company will handle it as a pick-up repair service at the Company.

### 4. About the shipping cost for replacement or repair of the Product

Shipping charges for sending the Product to the Company or a distributor, as well as shipping charges for sending the Product that has been replaced or repaired by the Company or the distributor to the customer, will be borne by the Company or the distributor.

### 5. Disclaimer

The Company is not responsible for any direct or indirect damages or monetary loss caused by failure of the Product or its use.

### 6. Additional notes

Please note in advance that the information of the Product described on the Company's website and in the catalogs, instruction manuals, technical materials, and other materials provided by the Company are subject to change without notice to customers.

### [Repair Regulation]

This regulation (hereinafter referred to as the "Regulation") shall be applied to paid repair service (hereinafter referred to as the "Service") provided by HERUTU ELECTRONICS CORPORATION (hereinafter referred to as the "Company"). The Regulation does not apply to special order products (custom products). In addition, purchased products shall be subject to relevant manufacturer's repair regulations, and the Regulation shall not apply.

Please note that in the event that the product you purchased comes with an instruction manual that describes the Company's old repair regulation, the latest Regulation will still apply.

#### 1. Subject of the Regulation

The Service is provided for the Company's products that are "beyond the scope of the warranty specified in the warranty regulation" and "from the sales start date to the end date of the repair period (seven years from

the production end date)". However, please note that the end date of the repair implementation period may be earlier depending on the availability and procurement status of repair parts.

## 2. Establishment of contract

The contract shall be established when the customer approves the quotation presented by the Company and issues an order form before the end of the repair implementation period.

## 3. Purpose of the Service

The Company will provide the Service for the purpose of repairing the function and performance of the Company's product used by the customer if it fails beyond the scope of the warranty specified in the warranty regulation. Please note that the Service requires equipment such as measuring instruments and tools, so the Company will handle it as a pick-up repair service at the Company.

## 4. Usage fee for the Service

The usage fee for the Service shall be the total of the following fees:

### A) Repair service fee

The repair service fee is the total amount of technical fees, parts costs, other expenses incurred, and applicable taxes associated with repairing the Company's product (hereinafter referred to as the "Product for repair") that the customer wishes to repair.

### B) Shipping fee (including the cost of packaging boxes)

The Company kindly asks that customers bear the shipping costs for sending the Product for repair to the Company and for returning it from the Company. However, in the event that the Product for repair is sent by payment on delivery by the customer, the shipping cost will be included in the Service charge.

## 5. Warranty period and scope of the Product for repair

The warranty period for the Product for repair is "up to six months from the date of repair completion". However, please note that failures other than the repaired parts (repaired places or replaced parts) are not covered by the warranty of the Product for repair. In addition, if a failure occurs due to the Company's responsibility within the warranty period, the Company will again repair the product free of charge.

## 6. Handling of repair parts

A) In order to provide the Service stably for a long time and to promote environmental protection, etc., the Company may use recycled parts or alternative parts at the time of repair at its discretion.

B) The Company may, at its own discretion, collect the removed parts for the purpose of recycling or analysis at the time of parts replacement through the regulation of the Service. Please note that the collected parts are the property of the Company and will be recycled, used or discarded at its discretion.

## 7. Estimate for the Service

The estimate for the Service is basically free of charge. However, if the Company is unable to reproduce the failure, it will not be able to carry out repairs and will not provide an estimate. If a technical investigation is required to reproduce the failure, the Company will estimate the cost of reproducing the failure.

## 8. Return of unrepaired product

If the Company does not estimate the cost of the Service due to reasons such as being unable to reproduce the failure, it will return the Product for repair to the customer.

In addition, if the customer does not place an order within three months from the date of creation of the quotation, or if the customer does not accept the quotation and the customer expresses an intention not to carry out the repair, the Company will assume that the customer has canceled the request for the Service, and the Company will return the Product for repair to the customer without carrying out the repair.

In addition, if a shipping fee is incurred for returning the product, it will be borne by the customer.

## 9. Handling of personal information

The Company will properly handle personal information such as names and addresses being provided in accordance with the privacy policy posted on the Company's website.

## 10. Compensation for damages

- A) The responsibility of the Company for providing the Service shall be limited to the matters and contents specified in the repair regulation, and shall not include any damages incurred by the customer due to special circumstances (including loss of profits of the customer and damages based on claims for compensation made by third parties against the customer) and damages caused by the customer being unable to use the product due to a failure or defect of the Product for repair. However, this does not apply if the damage was caused by the Company's willful misconduct or gross negligence.
- B) Even if the Company is liable to the customer for damages in connection with the regulation of the Service, the Company's liability shall not exceed the amount equivalent to the value of the Product for repair, except in cases of willful misconduct or gross negligence on the part of the Company. The value of the Product for repair shall be calculated based on the residual value after depreciation or the price of products with equivalent performance sold in the market at the time of damage.

## 11. Additional notes

- A) The Company cannot restore stickers, LCD protective sheets, and coloring applied to the outer casing parts that you have attached yourself. In addition, if advertisement stickers were affixed at the time of sale, they cannot be newly prepared as repair parts when replacing the outer casing parts. After replacing the outer casing parts, the advertisement stickers will be returned without being affixed.
- B) Please note in advance that the information of the Product on the Company's website and in the catalogs, instruction manuals, technical materials, and other materials provided by the Company are subject to change without notice to customers.







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