HERUTU

Pokayoke Receiver

TW-800R-SLNX

INSTRUCTION MANUAL V1.30

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

Table of Contents

1.Outline

The LAN connection type POKAYOKE receiver TW-800R-SLNX(hereinafter called “receiver”) is a receiver equipped with a LAN connection function and two-point external output. The receiver is used by pairing it with various tools equipped with POKAYOKE transmitter (hereinafter called “transmitter”) TW-800T or HRF-2402. The transmitter can be mounted on the torque wrench with a limit switch, the check pen, the pliers wrench, the cordless power tool, etc., and a completion signal such as tightening can be wirelessly transmitted to the receiver.

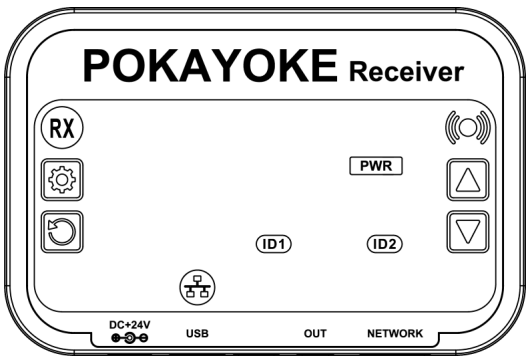
Within this manual, only the contents necessary for use with the receiver are described for the transmitter. For details, please see the transmitter section of "TW-800 Manual".

<Features>.

- When the receiver receives the signal from the transmitter, it sounds a buzzer and can output the received data to an external device (PLC, PC, etc.) via LAN. By linking the receiver to an external device (e.g. computer), traceability of the tasks can be ensured.
- The receiver also outputs externally (open collector output) when it receives the signal from the transmitter. Output conditions, output time, double count prevention time, etc. can be set in detail using the Web server function.
- Can be paired with up to 2 transmitters. The current number of pairings is displayed by LED.
- Communication distance is about 30m indoors.

Transmitter

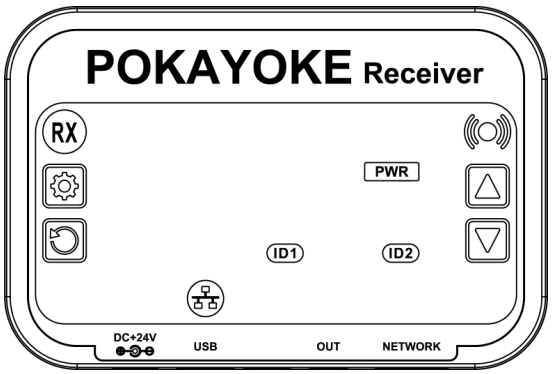
Transmitter



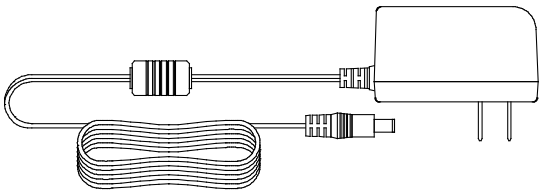
Receiver TW-800R-SLNX

2.Body and Accessories

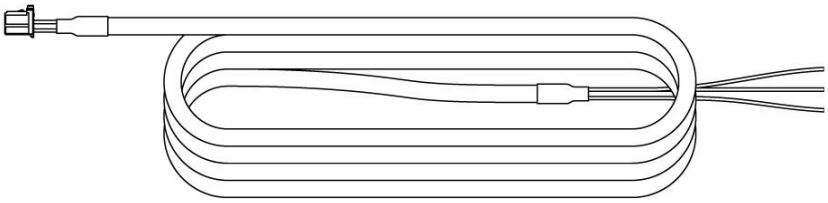
Receiver TW-800R-SLNX



TW-800R-SLNX body x1



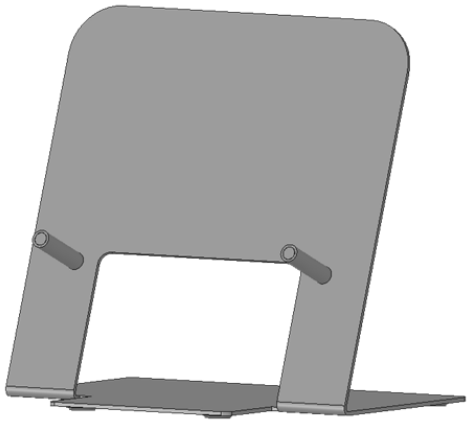
AC Adapter ADB24050 (Cable 1.5m (4.9ft))



Output Cable TW-SCLO-4 (1.8m (5.9ft)) x1

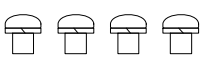
Options

・Desktop Stand TW-SCDS01



・Wall mounting bracket TW-SCLF01

TW-SCLF01×2



Mounting screw M3 x L5 x 4pcs

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.

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

■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.

■Use and storage environment

●DO NOT USE OR STORE the product in the following places to prevent defects, malfunction, deterioration, fire, and electric shock:

・Do not use and store it in places exposed to direct sunlight,

・Do not use and store it in places where liquids, foreign substances, corrosive gases or combustible gases can enter the product,

・Do not use and store it in places with high humidity or where there is abundant oil smoke, dust, sand, etc. ,

・Do not use it in an unstable place such as a wobbling table or an inclined plane,

・Do not use it in a place with vibration.

■Specific handling of this product

This product is a radio equipment with certification of construction design.

●It is prohibited by law to disassemble or modify certified devices.

●Do not remove the certification label affixed to the case. It is prohibited to use any product without the label.

●This product is only available in the countries where the certification is acquired.

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

■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 AC adapter

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

●Do not place the AC adapter 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 main body at the location where they easily get wet. Or the accidents including heat generation, ignition, or electric shock and faults may occur.
●Do not touch main body, power cord, and power supply terminal base with wet hands. Or the accident such as an electric shock may occur.
●Do not damage the power cord of the AC adapter. Short-circuit or heat generation may cause fire or electric shock.
●Do not use the power supply terminal base with dusts attached. Short-circuit or heat generation may cause fire or electric shock.
●Do not give a strong shock to the AC adapter. Or the accident or fault may occur.
●If you find a deformation in the AC adapter, do not use it. Or the accident or fault may occur.
●Do not charge the main body at the location where the flammable gas is generated. Or the ignition accident may occur.
●Never disassemble main body. Or the accident or fault may occur.

■If a problem occurs during use

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

●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.
●Do not use this product when its AC adapter cable or the power switch of the main unit is damaged. Using the cord damaged continuously may cause fire or electric shock.

■Notes on the Radio Law

〇The wireless device used for this product is certified as a specific radio device for a radio equipment of a low power data communication system based on the Radio Law. Therefore, a radio station license is not required to use this product.

〇This product can be used only in Japan or countries where required certification is acquired. In the case that it is used in other countries, this product may be damaged or it may damage other equipment. It also may conflict with the laws of that country. Please contact our sales department for the countries that the product is certified other than Japan.

〇Do not use this product near any person using cardiac pacemaker. The cardiac pacemaker may be disturbed by electromagnetic wave, which may cause risk of life.

〇Do not use this product near any medical equipment. The medical equipment may be disturbed by electromagnetic wave, which may cause risk of life.

〇Do not use this product near any microwave oven. Electromagnetic wave from microwave oven may disturb radio communication.

〇The wireless device of this product is certified under the Radio Law, so that DO NOT disassemble or remodel this product.

■Notes on radio interference of 2.4 GHz radio

When communicating with 2.4 GHz band wireless products, pay attention to the following points.

In this product's frequency band not only industrial, scientific and medical equipment such as microwave ovens but also local radio stations for mobile objects identification (which require the license), specified low-power radio stations (license not required), and amateur radio stations (license required) can be in operation.

〇Before using this product, make sure that there are no local radio stations for mobile objects identification, specified low-power radio stations and amateur radio stations operating nearby.

〇In event that harmful interference occurs to any radio station by the radio wave from this product, stop using it immediately and consult with us about avoiding interference.

〇Also contact us in case of any trouble such as harmful radio interference to specified low-power radio stations for mobile objects identification or amateur radio stations.

TW-800R-SLNX is equipped with the built-in wireless module HRF-2402.
HRF-2402 Certified Countries: Japan, Canada, USA, China, Thailand, Vietnam, Philippines and India.
Available countries: Japan, Canada, USA, China and Thailand.

■FCC/IC Warning

Information about FCC Standard.

FCC CAUTION
Change or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment has very low levels of RF energy that is deemed to comply without maximum permissive exposure evaluation (MPE).

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment has very low levels of RF energy that is deemed to comply without testing of specific absorption rate(SAR).

I Information about ISED Standard.

This device complies with Industry Canada's applicable license-exempt RSSs. 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;
2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that is deemed to comply without maximum permissive exposure evaluation (MPE).

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement émet une énergie RF très faible qui est considérée comme conforme sans évaluation de l'exposition maximale autorisée (MPE).

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that is deemed to comply without testing of specific absorption rate (SAR).

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement émet une énergie RF très faible qui est considérée comme conforme sans évaluation du débit d'absorption spécifique (DAS).

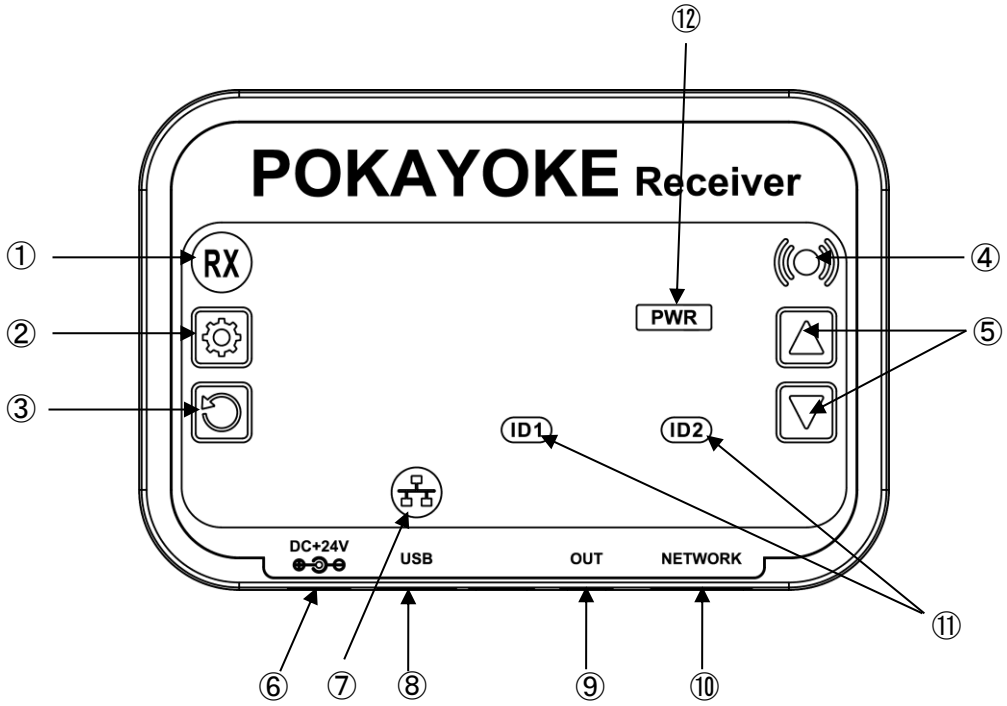
This radio transmitter (10608A-HRF2402) identify the device by certification number or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.
Antenna type:1/4λ Dipole antenna (chip antenna) Gain: 3dBi
Antenna type:1/2λ Dipole antenna Gain: 2dBi
Antenna type:1/2λ Dipole antenna Magnet Base Gain: 2dBi

Le présent émetteur radio (10608A-HRF2402) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.
Type d'antenne:1/4λ Dipole antenna (chip antenna) Gain: 3dBi
Type d'antenne:1/2λ Dipole antenna Gain: 2dBi
Type d'antenne:1/2λ Dipole antenna Magnet Base Gain: 2dBi

■Thailand Radio Law (SDoC)

This telecommunication equipment is in compliance with NBTC requirements.

4.Name of Each Part



①Receiver (RX) LED	The LED lights green when the receiver receives the signal from the transmitter. The display varies depending on each mode. ・Blink in green: Pairing mode (blinks every 50ms) ・Lit in green: Received a signal from the transmitter (lit for 50ms) ・Lit in blue: Software version update mode ・Lit in yellow: Initialization mode ・Blinking/Lit in light blue: License key update mode ・Blink in red: Memory corruption error (Press the reset key to initialize and start the receiver.) ・Lit in red: A fatal error has occurred/ After the network settings are changed.
②Setting key	Used for pairing the receiver with the transmitter.
③Reset key	Used to cancel the selected pairing ID.
④Buzzer	The buzzer sounds according to each state. ・When receiving a signal from the transmitter: “Pi” (1 time 50ms) ・At power OFF: “Pi” (1 time 100ms) ・During initialization: “Pii” (Sounds for 3seconds each time) ・When an error has occurred or the network settings were changed: “Piii Piii…” (Repeats every 400ms)
⑤Setting (▲/▼) keys	Used to change the buzzer volume or select a pairing ID.
⑥Power jack	Connect the included AC adapter.

⑦Network monitor	The network monitor displays the connection status with the external device. ・Lit in light blue: Communicating with external device ・OFF: Communication with external device is disconnected
⑧USB connector	Used to update the software version or renew the license key with a USB memory.
⑨External output connector	Connector for external outputs. Use the supplied “External output cable TW-SCLO-4”.
⑩LAN cable connector	To connect the receiver to Ethernet, connect the LAN cable to the receiver.
⑪Pairing ID indicator LEDs	The pairing status of ID1, ID2 is displayed. ・Lit: Pairing is completed. ・OFF: Pairing is not completed. ・Blink: Selecting an ID to be paired with the receiver.
⑫Power LED	Lights when the power is on.

5.Installation

① Install the receiver in a location where it can be seen well from the transmitter and can receive radio waves stably. Install the receiver so that the side with various setting keys is facing the operator.

② Connect the AC adapter plug to the power jack.

③ Connect the external output cable to the external output connector as required.

External output

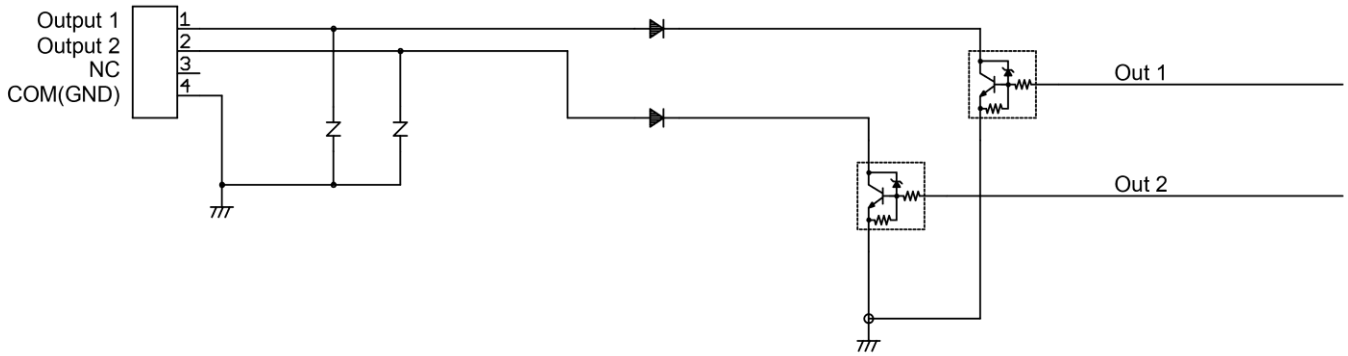
An open collector output is used for external outputs. When output is turned ON, a short circuit occurs between each terminal.

Be aware that the internal circuit may be damaged when the contact rated load is exceeded.

For external outputs, use the supplied “External output cable TW-SCLO-4”.

Rated load voltage:	**DC24V**
Rated load current:	**0.1A**
Contact structure/configuration:	**NPN Transistor Open collector output**
Connector:	**Square connector 2.5mm pitch, 2×2 pins, 4 poles(1 pole unused)**

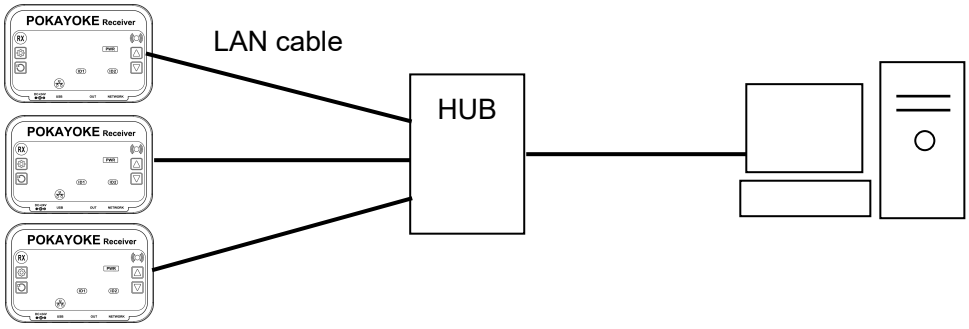
[Output circuit]



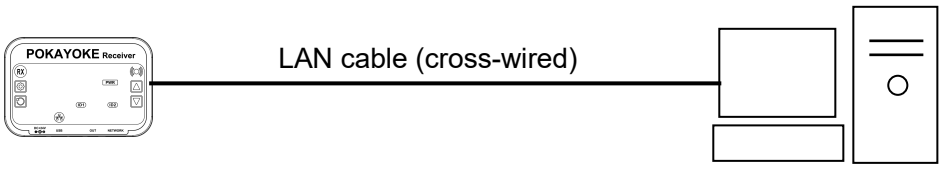
Pin No.	Contents	Cable
1	Output 1	Red
2	Output 2	Two colors of red and white
3	Unused	Unused
4	COM	Black

④ To link the receiver to an external device, connect the LAN cable between them.

- Connect the LAN connector of the receiver to the switching hub or the PC's LAN connector with the LAN cable.



- The receiver is not equipped with Auto MDI / MDI-X function to determine the LAN port. To connect the receiver to the PC's LAN port directly, use a cross-wired LAN cable.
  A straight cable can be used for the PC with Auto MDI / MDI-X.



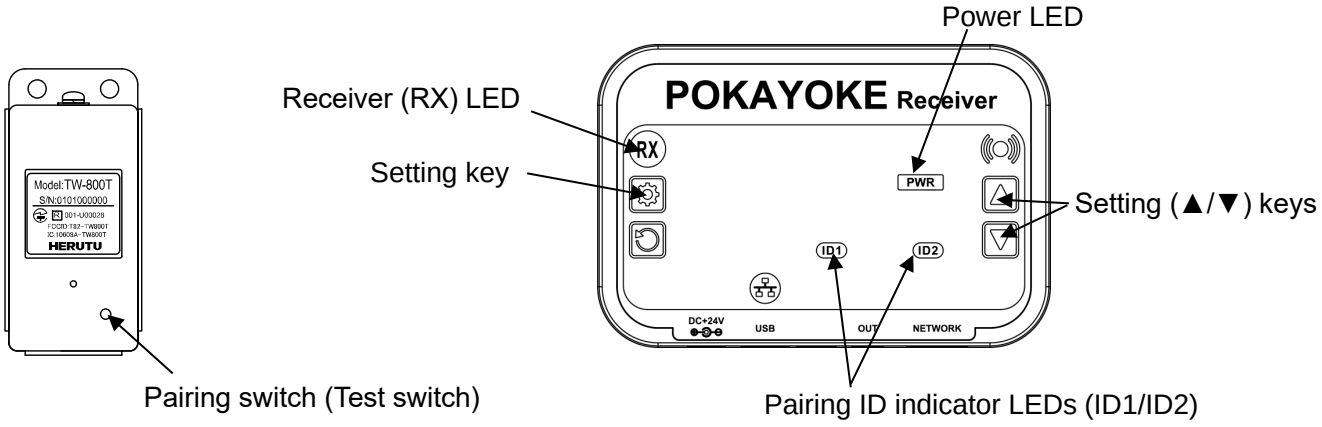
6.Setting Method

6-1.Pairing (Registration)

The transmitter and the receiver need to be paired before use. By pairing the receiver and transmitter, they recognize an identification signal from each other and communicate with each other.
The receiver can be paired with up to two transmitters.

6-1-1. Pairing procedure

① While the power is on, press and hold the [Setting key] for 3 seconds or longer.
The Receiver (RX) LED blinks in green and the receiver enters the pairing mode for 10 seconds.



② Long press the pairing switch of the transmitter for 3 seconds or more.
When Receiver (RX) LED turns from blinking (green) to OFF and then ID1 of the pairing ID indicator LEDs lights up, the pairing is completed.

* If pairing is not performed during pairing mode, pairing mode will end.
When the receive (RX) indicator light is not blinking (green), it indicates that the pairing mode has ended.

To pair the receiver with the second transmitter, repeat ① and ②.
When Receiver (RX) LED turns from blinking (green) to OFF and then ID2 of the pairing ID indicator LEDs lights up, the pairing is completed.

To pair the receiver with a different transmitter when ID1 and ID2 are already paired with transmitters, select which you want to perform pairing to, ID1 or ID2.
After execution of ① and ②, Receiver (RX) LED turns from blinking (green) to OFF and ID1 blinks.
Press the [Setting(▲) key] in this state, and ID1 turns OFF and ID2 blinks. Press the [Setting(▼) key] while ID2 is blinking, and ID2 turns OFF and ID1 blinks. Press the [Setting key] while the ID to be paired is blinking, and the pairing is completed.

6-1-2. Error indication on pairing

When the receive (RX) indicator is lit (green), it means that no transmitter has been paired. Please perform pairing.

6-1-3. Reset pairing

Unpair ID1 and ID2 from the receiver.

① Press the [Power key] while pressing and holding the [Setting key] of the receiver. The Receiver (RX) LED blinks in green and the receiver enters the pairing mode for 10 seconds.

② When long pressing the [Setting key] for 2 seconds or more, the Receiver (RX) LED stops blinking (green) and lights up (green) and the transmitter registered for pairing is deleted from the receiver.
When ID1 and ID2 indicator turn off, pairing cancellation is complete.

***Notes**

A long press on the pairing switch of transmitter (3 seconds or more) when the receiver is not in the pairing mode resets the pairing with the receiver and prevents communication with the registered receiver. When pairing is reset by mistake, perform the pairing procedure again.

6-2. Buzzer Volume Adjustment

The buzzer volume can be set to five levels (0 – 4). (The volume level “0” is mute.)
Press the [Setting (▲) key] to increase the volume level and press the [Setting (▼) key] to decrease the volume level.

6-3. Settings With Web Server

The following items can be viewed or changed by using the Web server functions of the receiver.

Item	Contents
System Information	Viewing the model number, firmware version, serial number and MAC address.
Device Setup	Output condition setting, output time setting, double count prevention time setting, Ethernet output data type setting, output settings when the test switch is pressed, and viewing of the transmitter ID being paired.
Network Setup	Setting the IP address, subnet mask, default gateway and communication method.
Account Setup	Setting the username and password for logging in to the Web server.

*Pair the receiver and transmitter before executing Device Setup.

6-3-1. Connecting to Web server

--- Factory default setting ---

IP address	**192.168.3.102**
Port No.	50001

*The port No. cannot be changed.

① Change your PC's network settings to make the PC use the same network as the receiver.
Example) IP address 192.168.3.100 / Subnet Mask 255.255.255.0

② Start up the web browser on the PC and enter the receiver's IP address in the address bar.
Use a web browser of Google Chrome, IE (Internet Explorer) 11 or higher, Microsoft Edge, etc.
*The terminal with iOS cannot connect to the Web server.

③ When accessing the receiver, entry of a username and password is requested.
When logging in for the first time, enter the default username and password.

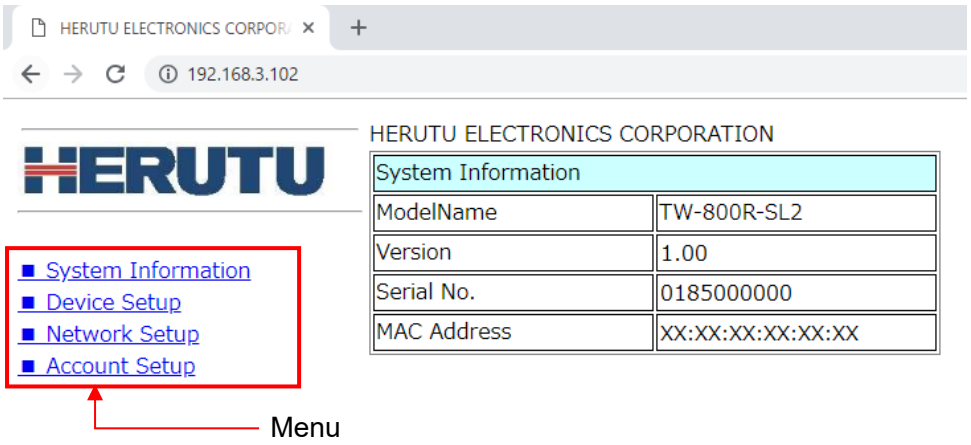
--- Default password ---

User name	Admin
Password	Herutu001

Enter the receiver's IP address in the address bar of the Web browser.

After log in, the system information screen is displayed. The screen is divided into two parts, left and right. The menu is displayed on the left.

System Information

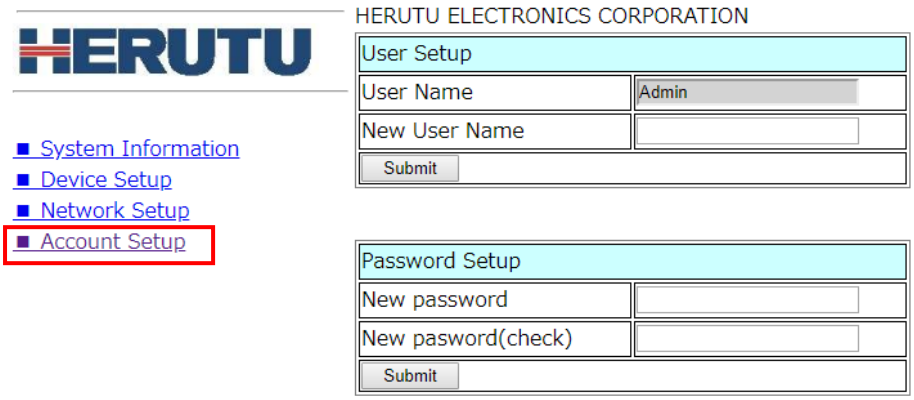


Item	Example
Model Name	TW-800R-SL2
Version (Firmware version)	1.00
Serial No.	0185000000
MAC Address:	70:B3:D5:E3:24:00

6-3-2. Setting account

After the initial log in, change the account information to prevent unauthorized access.
Click “Account Setup” in the menu. After entry, click the [Submit] button.
The account information after change is not reflected until turning ON the power of the receiver again. After changes are made, restart the receiver.

Account Setup



Item	Description	Entry example
User Name	Username entered at log in	Admin (Default)
New User Name	New user name	Herutu
New password	New password (Length range: 8-20 characters)	Herutu0003
New password(check)	Password for confirmation (Length range: 8-20 characters)	Herutu0003

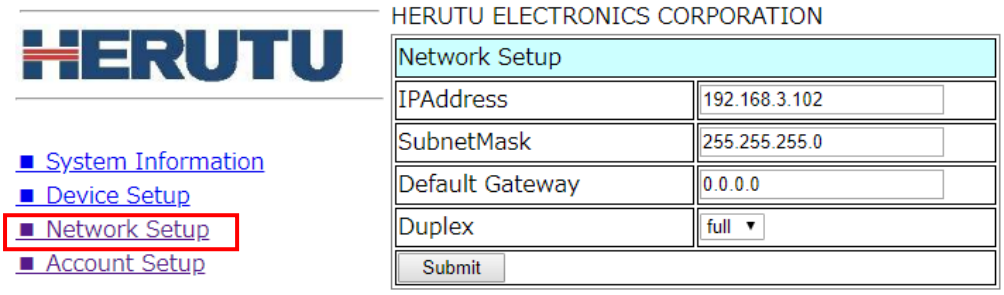
*Only use half width alphanumeric characters for User Name and New password.

6-3-3. Setting network information

Click “Network Setup” in the Menu. Change the necessary items and click the [Submit] button.

*For details of the settings, contact the network administrator.

Network Setup



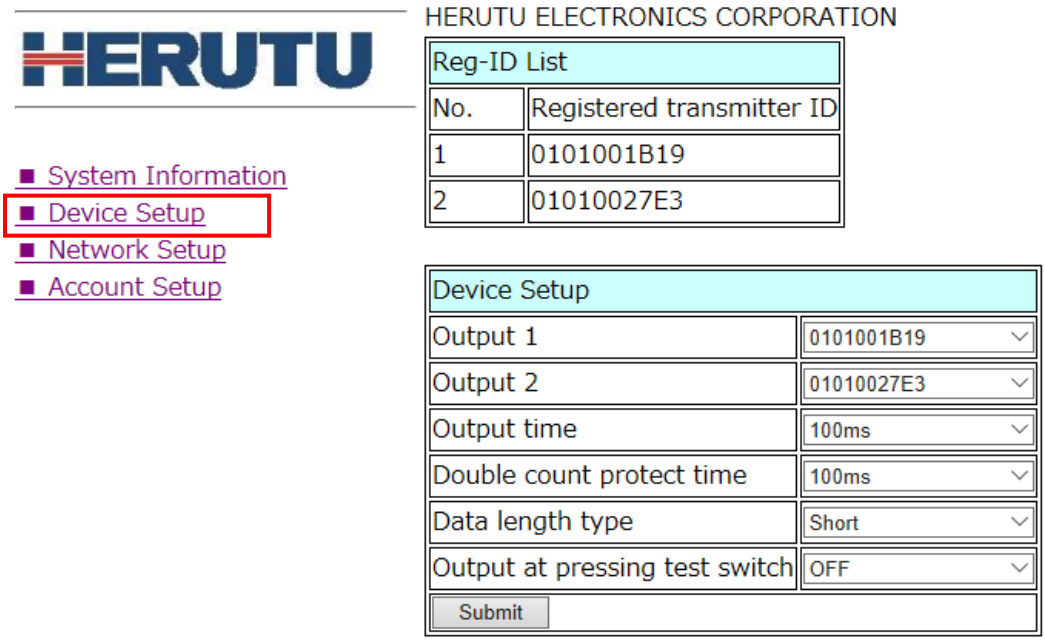
Item	Entry example
IP Address	192.168.3.102 (Default)
Subnet Mask	255.255.255.0 (Default)
Default Gateway	0.0.0.0 (Default)
Duplex (Communication method)	full (Default) or half

When the network settings are changed, Receiver (RX) LED lights up (red) and the buzzer sounds. The changed settings are not reflected until the receiver is restarted. After the network settings are changed, Please turn the power off and then on again.

6-3-4. Setting external output

Click “Device Setup” in the Menu. Change the necessary items and click the [Submit] button.

Device Setup



Reg-ID List (Registered transmitter ID)

The paired transmitter IDs are displayed.

*Transmitter ID is a 10-digit serial number shown on the label attached to the transmitter.

When pairing is not done, “0000000000” is displayed.

Device Setup

- **[Output 1/ Output 2] Output condition setting**

  For external outputs, use the supplied “External output cable TW-SCLO-4”.

  Set the output condition for Output 1(red) and Output 2(red/white) for the external output cable.

  The output condition can be set individually for Output 1(red) and Output 2(red/white).

Setting value	Contents
Disable	No output is generated at all.
All ID	Output is generated when a signal is received from the transmitter. All of the paired transmitters are the target.
Transmitter ID (10 digits)	Output is generated when a signal is received from the transmitter.

  Default: The output condition is set to “Disable” before pairing is performed.

  After pairing, the settings change automatically as follows.

  Output 1 (red) is set to ID1 with the pairing transmitter ID, and Output 2 (red / white 2 colors) is set to ID2 with the pairing transmitter ID. Output 2 remains "Disable" if not paired with ID2.

  When the pairing with the transmitter of the selected transmitter ID is canceled, it switches to "Disable".

- **[Output time] Output time setting**

  Available from the following 12 different time settings.

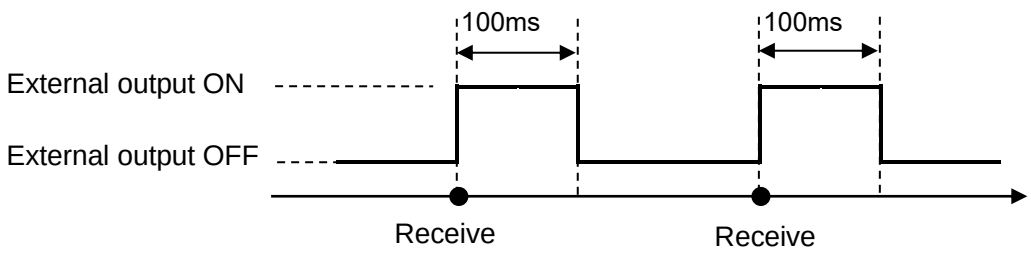
  Applies to external output cable Output 1(red) and Output 2(red/white).

  50ms / 100ms / 150ms / 200ms / 300ms / 400ms / 500ms / 600ms / 700ms / 800ms / 900ms / 1s

  Default: 100ms

Example) Action performed when output time is set to 100ms

An external output (open collector output) is generated for 100ms from when a signal is received from the transmitter.



- **[Double count protect time] Double count prevention time setting**

  The receiver can disable the signal from the same transmitter for a period of time after receiving the signal from the transmitter. This time is called the double count prevention time.

  When the receiver receives a signal from the same transmitter during double count prevention time, the receiver does not process the signal and transmits a “BUSY” signal to the transmitter.When the transmitter receives the “BUSY” signal, the green LED blinks 4 times.

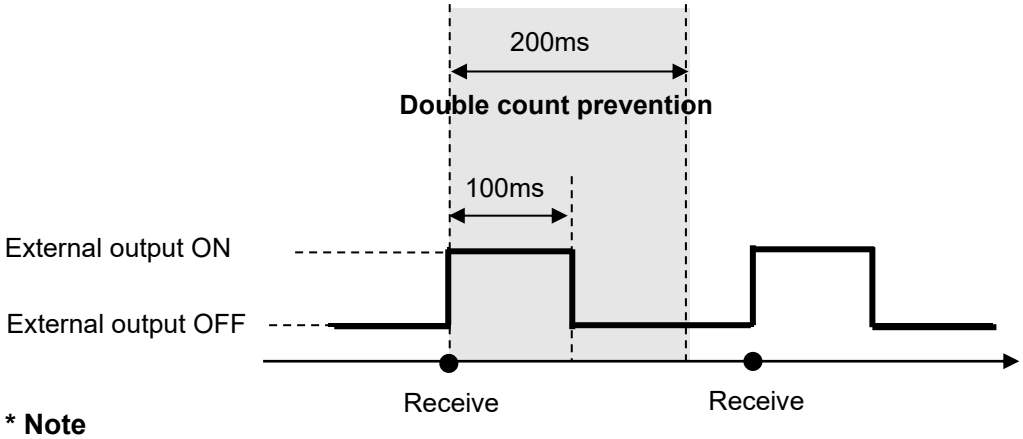
  Available from the following 19 different time settings.

  10ms / 100ms / 200ms / 500ms / 1s / 2s / 3s / 4s / 5s / 6s / 7s / 8s / 9s / 10s / 11s / 12s / 13s / 14s / 15s

  Default: 100ms

Example) Action performed when double count prevention time is set to 200ms

Double counting is prevented for 200ms from when a signal is received from the transmitter.



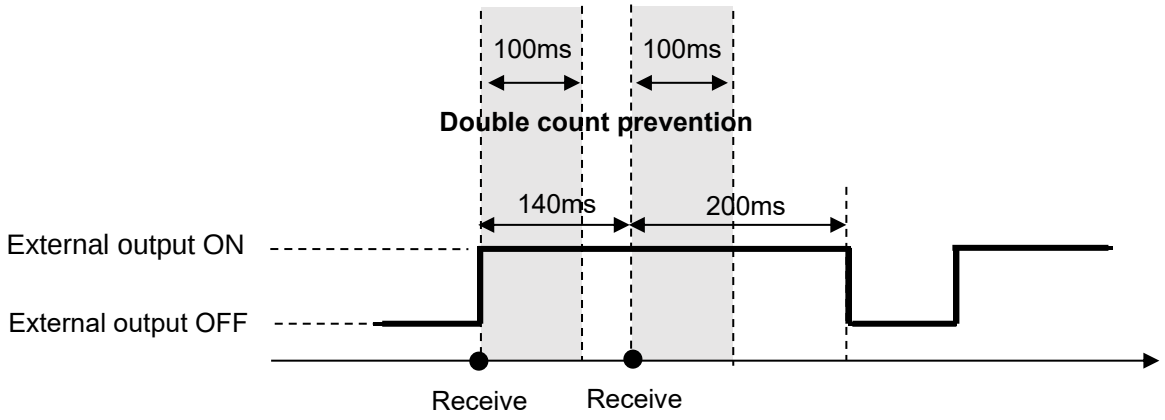
*** Note**

Do not set the double count prevention time shorter than the external output time.

Even when the receiver receives a signal from the transmitter two times, two external outputs may be generated without interruption, depending on the setting or receiving timing. LAN output is performed respectively.

Example) Action performed when output time is set to 200ms and double count prevention time is set to 100ms.

When receiving a signal from the transmitter, the receiver starts to generate an external output. When the receiver receives a signal from the same transmitter during external output (140ms after starting the external output), an external output is continuously generated for 200ms from that point, without the external output turning OFF.



- **[Data length type] Ethernet output data type setting**

  The data size varies depending on the set values.

  For details of each data format, refer to “7-2.Communication specifications” described later.

Setting value	Contents
Short	Generates short data. (Data size: 19byte)
Long	Generates long data. (Data size: 43byte)

  Default: Short

- **[Output at pressing test switch] Output setting for when the test switch is pressed**

  Set whether or not to generate signals from the external output cable Output 1(red) or Output 2(red/white) when the test switch of the transmitter is pressed.

  Applies to external output cable Output 1(red) and Output 2(red/white).

Setting value	Contents
OFF	Does not generate an external output.
ON	Generates an external output.

  Default: OFF

*** Note**

・When the signal from another transmitter is received while buzzer of receiver sounds, the buzzer sounds for transmitters received later is not performed. LAN output is performed respectively.

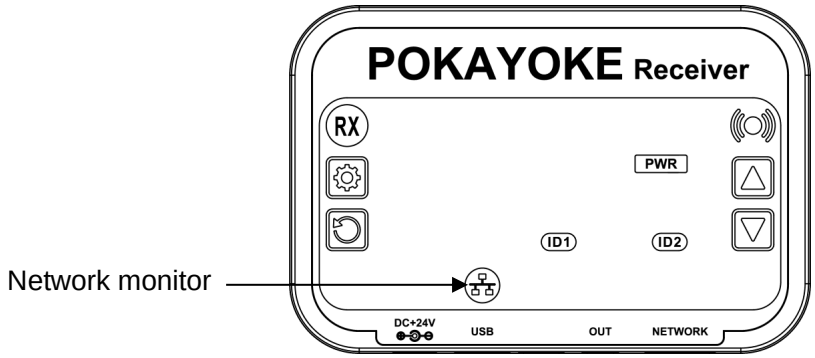
・When the receiver cannot generate an output through LAN (e.g. not connected to an external device), it holds 100 items of data from the transmitters. When more than 100 items of data are received, any data received after that will be discarded. The moment connection is made to an external device, the receiver generates outputs of all stored data.

7.Ethernet Communication

The receiver acts as a socket server and communicate with up to 10 clients.

When connections with clients are established, the network monitor lights up (light blue). The unlit state of the network monitor indicates the receiver is not connected with clients.

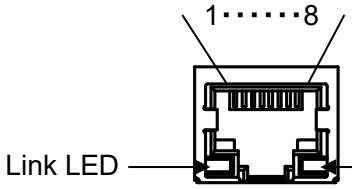
*When connections with clients are established, a message indicating a connection was established is transmitted.



7-1. LAN cable connector

For the connector use RJ45 type.

Please use the cable of the category 5 or higher standard.



OFF：No Activity

Yellow：10Mbps/100Mbps

OFF：Power OFF

Green：Power ON

The pin specifications are shown in the following table.

Pin number	Signal name
1	TX+［Transmission data(+)］
2	TX-［Transmission data(-)］
3	RX+［Receiving data(+)］
4	Unused
5	Unused
6	RX-［Receiving data(-)］
7	Unused
8	Unused

7-2.Communication Specification

Ethernet Interface

Interface	RJ-45 Ethernet 10BASE-T or 100BASE-T, Duplex full or half
Compatibility	Ethernet Version 2.0 / IEEE802.3
Protocol	TCP/IP, UDP/IP

Ethernet output data types are classified into two types: “Short data” and “Long data”.

Set a data type with a Web server function. ([Device Setup] – “Data length Type”)

Long Data is short data added by extension region of 24bytes (Transmitter-specific data, etc.). When using the extended region, please set to “long data”.

When not using the extended region, it is recommended set to “short data”.

◆ **Formatting short data (19byte)**

Preamble	STX	Transmitter ID number	Fastening information, test switch battery information	ETX	Checksum

Data name	Description	Byte
Preamble	FFH,FFH,FFH	3
STX	02H	1
Transmitter ID number	ID number 10 digit is converted to ASCII data(Hexadecimal). Example) ”010100004A” (30H,31H,30H,31H,30H,30H30H,30H,34H,41H)	10
Fastening information, test switch battery information	2 byte ASCII data Transmission Limit switch signal “01” (30H,31H) Transmission test switch (Battery voltage OK) “02” (30H,32H) Transmission test switch (Battery voltage low) “12” (31H,32H)	2
ETX	03H	1
Checksum	Calculated XOR from “Transmitter ID” to “ETX”. And it is converted to ASCII data for 2byte.	2

*Sample of Checksum calculated

Transmitter ID number : 010100004A

Tightening information : Transmission Limit switch signal “01” (30H,31H)

Checksum→(37H,37H)

◆ **Formatting long data (43byte)**

Preamble	STX	Transmitter ID number	Fastening information , test switch battery information	Data varied according to the type of transmitter used	Maintenance Data	Transmitter Data	ETX	Checksum

Data name	Description	Byte
Preamble	FFH,FFH,FFH	3
STX	02H	1
Transmitter ID number	ID number 10 digit is converted to ASCII data(Hexadecimal). Example) ”010100004A” (30H,31H,30H,31H,30H,30H30H,30H,34H,41H)	10
Fastening information, test switch battery information	2 byte ASCII data Transmission Limit switch signal “01” (30H,31H) Transmission test switch (Battery voltage OK) “02” (30H,32H) Transmission test switch (Battery voltage low) “12” (31H,32H)	2
Data varied according to the type of transmitter used	Different depending on the transmitter type. TW-800T: ”00000000000000000000” is displayed. (30H,30H,30H,30H,･･･,30H,30H,30H)	20
Maintenance Data※	2byte ASCII data “00”(30H,30H) -“FF”(46H,46H)	2
Transmitter Data	2byte ASCII data Normal “00”(30H,30H) Batteries need to be replaced “01”(30H,31H)	2
ETX	03H	1
Checksum	Calculated XOR from “Transmitter ID” to “ETX”. And it is converted to ASCII data for 2byte.	2

※This information is exclusive to the manufacturer. Details will not be disclosed.

Regarding the output data from receiver about battery level, "Test switch transmission (battery voltage low)" is notified first, and then "Batteries need to be replaced" is notified when the battery level further drops.

8.How to Use

8-1. Starting a Task with a Tool

① Make sure Receiver (RX) LED is not lit. When Receiver (RX) LED lights up(green), this indicates the receiver is not paired with a transmitter. Perform pairing.
For the pairing procedure, refer to "6-1-1. Pairing procedure".

② Start work with the tool equipped with the transmitter. As you work, the transmitter will send a wireless signal.
When the receiver receives a signal from the transmitter, it generates a data output via LAN. According to the settings, an external output (open collector output) is generated and the buzzer sounds at the same time. The green LED of transmitter turns on 1 time.

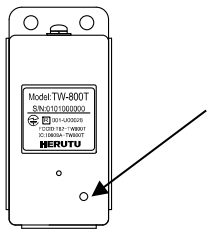
When the communication is not done normally, receiver doesn't move. The red LED of transmitter blinks 10 times. During double count prevention time or when the maximum number of data items to be stored is exceeded, the receiver returns a "BUSY" signal to the transmitter. When the transmitter receives the "BUSY" signal, the green LED of transmitter blinks 4 times.

	Transmitter	Receiver
Communication OK	Green LED blinks 1 time	Receiver (RX) LED blinks 1 time
Communication NG	Red LED blinks 10 times	―
BUSY	Green LED blinks 4 times	―

*When the transmitter is not done "Pairing" transmits, the red LED blinks 3 times.

8-2. Checking the Remaining Battery Capacity and Communication

The transmitter is equipped with a test switch for communication and battery voltage checks. Receiver (RX) LED is triggered by a signal from the test switch, but the receiver determines whether or not to generate an external output (open collector output), according to the settings. When the test switch is pressed, the transmitter checks the battery remaining capacity. The result is indicated by the LED of transmitter.
The test switch also can be used as a pairing switch. A long press on the test switch (3 seconds or more) resets the pairing with the receiver and prevents communication with the registered receiver. When pairing is reset by mistake, perform the pairing procedure again.



Test switch (pairing switch)

	Transmitter	Receiver
Communication check	OK：Green LED blinks 1 time NG：Red LED blinks 10 times	Receiver (RX) LED blinks 1 time
Battery level low	Red LED: Lighting for 1 second	Receiver (RX) LED blinks 1 time

*After display of the communication check result (Communication OK/ NG), the transmitter indicates battery level low.

8-3. Battery replacement notification function

The battery level notification function notifies the battery level status in two stages.

①Notification of low battery level with test switch: It is possible to check the battery level with the test switch.When the battery is low, the red LED will light for 1 second.

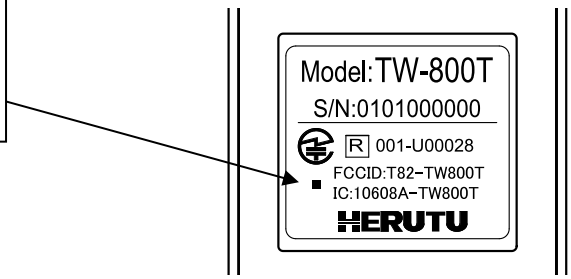
②Battery replacement notice: If the battery level is lower than in ① and the battery needs to be replaced, the green LED flashing after transmission will change to an orange LED flashing.

When the orange LED blinks, please replace it with a new battery immediately.

When you replace the battery with a new one, the LED on the transmitter will return to green from the second and subsequent transmissions.

Regarding the output data from receiver about battery level, "Test switch transmission (battery voltage low)" is notified first, and then "Batteries need to be replaced" is notified when the battery level further drops.

For transmitters that support the battery level notification function(battery replacement notice), ■ is printed on the sticker.

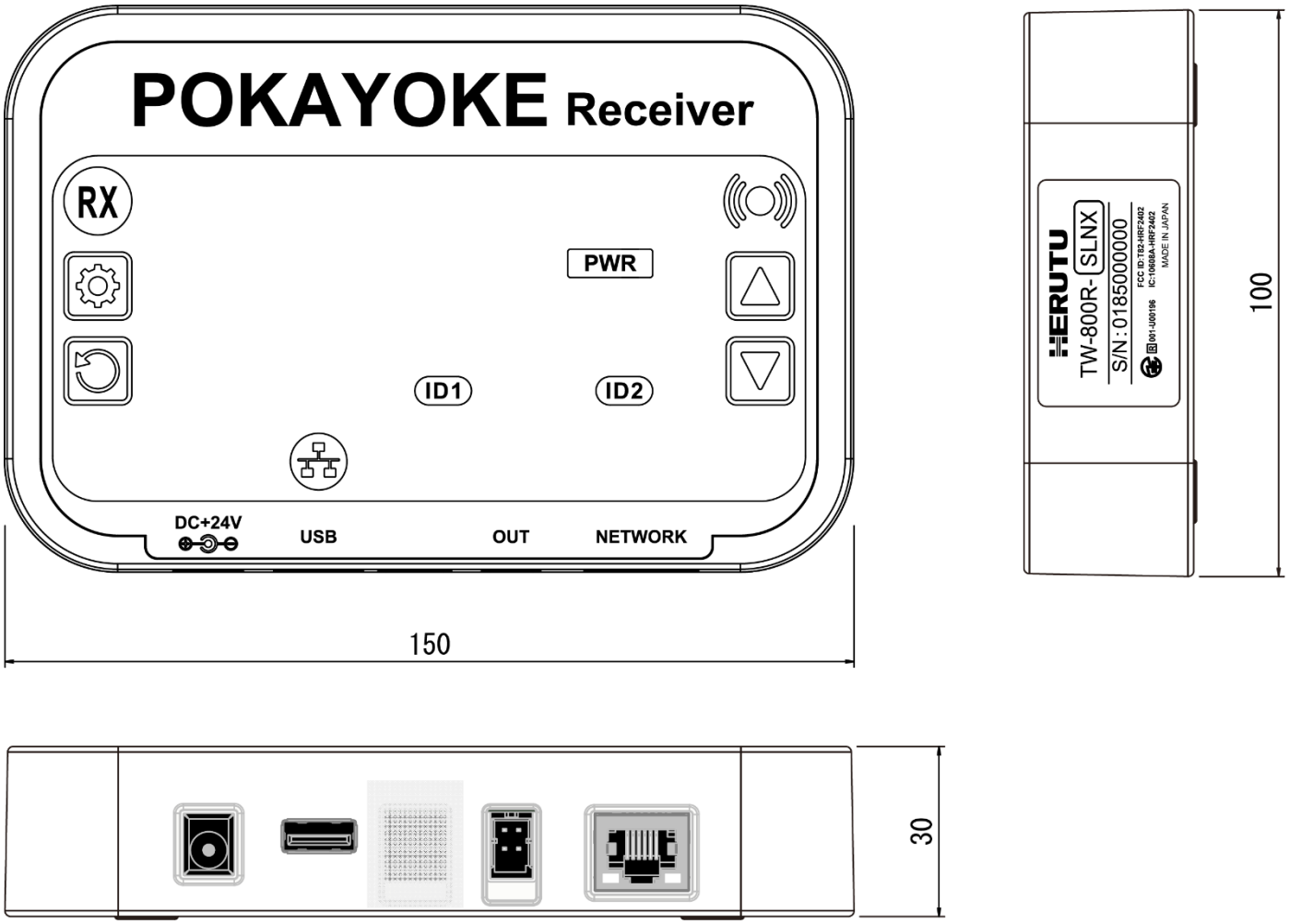


9.Specifications

Item	Specifications
Compliance Standards	2.4GHz Low Power Data Communication System Radio Equipment of Certification Regulation Article 2, Paragraph 1 Item 19 Radio Equipment Regulations Article 20 of 49 Paragraph 1
Radio format	F1D
Frequency Band	2,403MHz-2,478MHz
Number of Channels	76CH
Modulation Method	GFSK
Communication Method	Simplex
Antenna Power	2.1mW
Output(s)	Output 1 1Bit / Output 2 1Bit / COM Square connector 2.5mm pitch, 2×2 pins, 4 poles(1 pole unused) NPN transistor Open collector output
Switches	4 Touch Keys; REG. / RESET / ▲(UP) / ▼(DOWN)
Buzzer	Piezo Buzzer 90dB (at 10cm (0.33"))
Display	Receiver (RX) LEDs : Multicolor LED (Red/Blue/Green/Yellow) Network monitor LEDs : Multicolor LED (Light blue) Power LED : Chip LED(Orange) Pairing ID indicator LEDs (ID1/ID2) :Chip LED (Orange)
Power Source	AC 100-240 V (using included AC Adapter) (Body DC12-24V)
Current Consumption	60mA or less
Operating Environment	Temperature: 0-50℃ (32-122℉) Humidity: 85% or less (without condensation)
External Dimensions (W x H x D)	150 x 100 x 30 mm (5.9 x 3.9 x 1.2") (excluding protrusions)
Weight	Approx. 290 g (10.2 oz)
Antenna	Chip Antenna

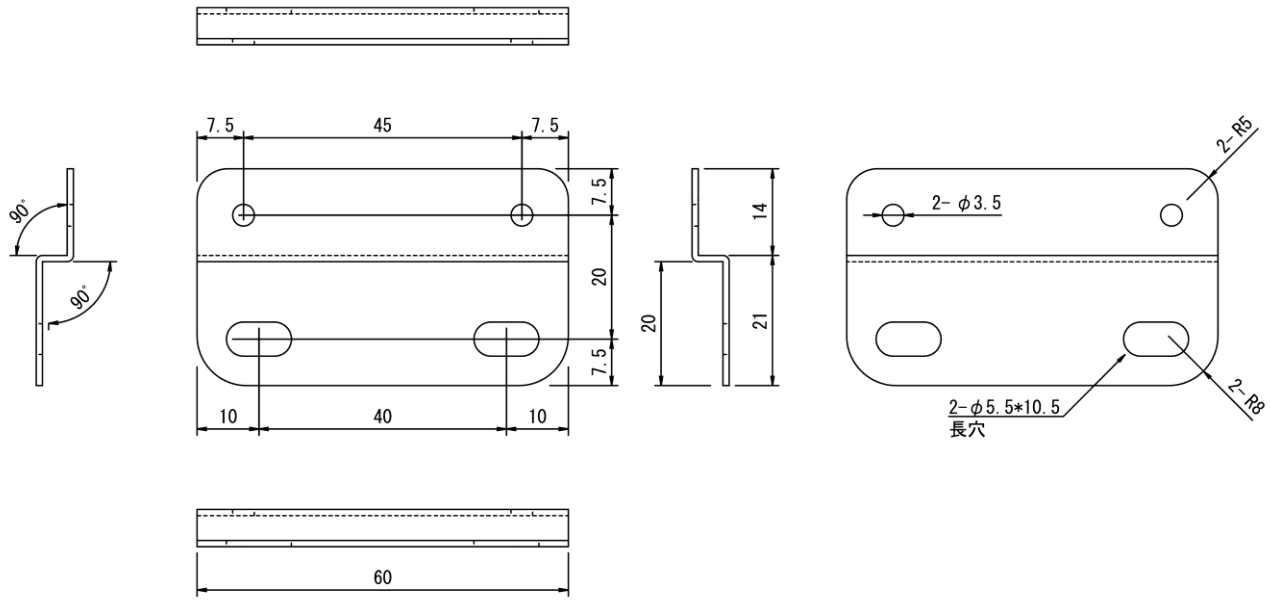
10.Dimensions Drawing

Receiver TW-800R-SLNX

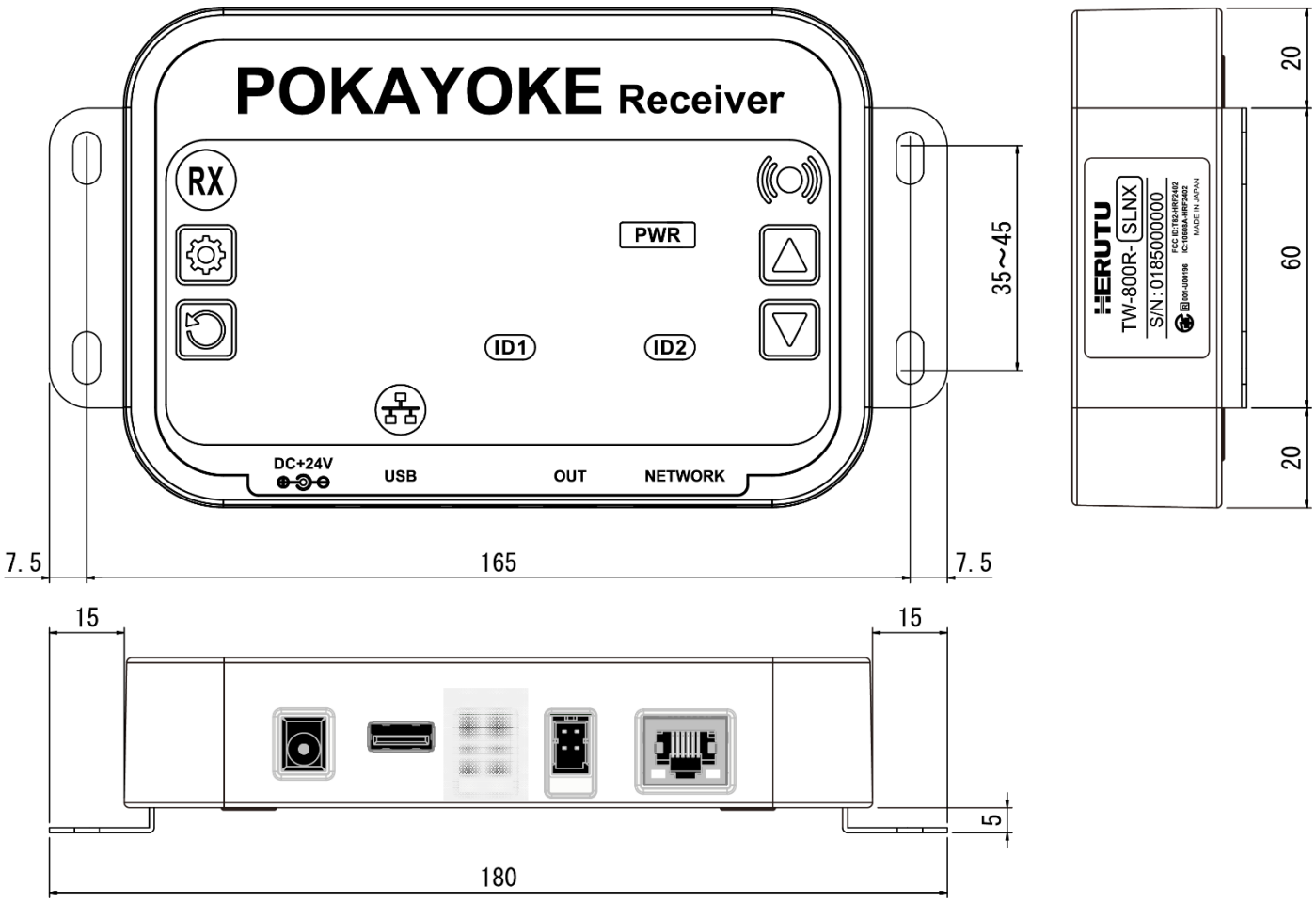


Options

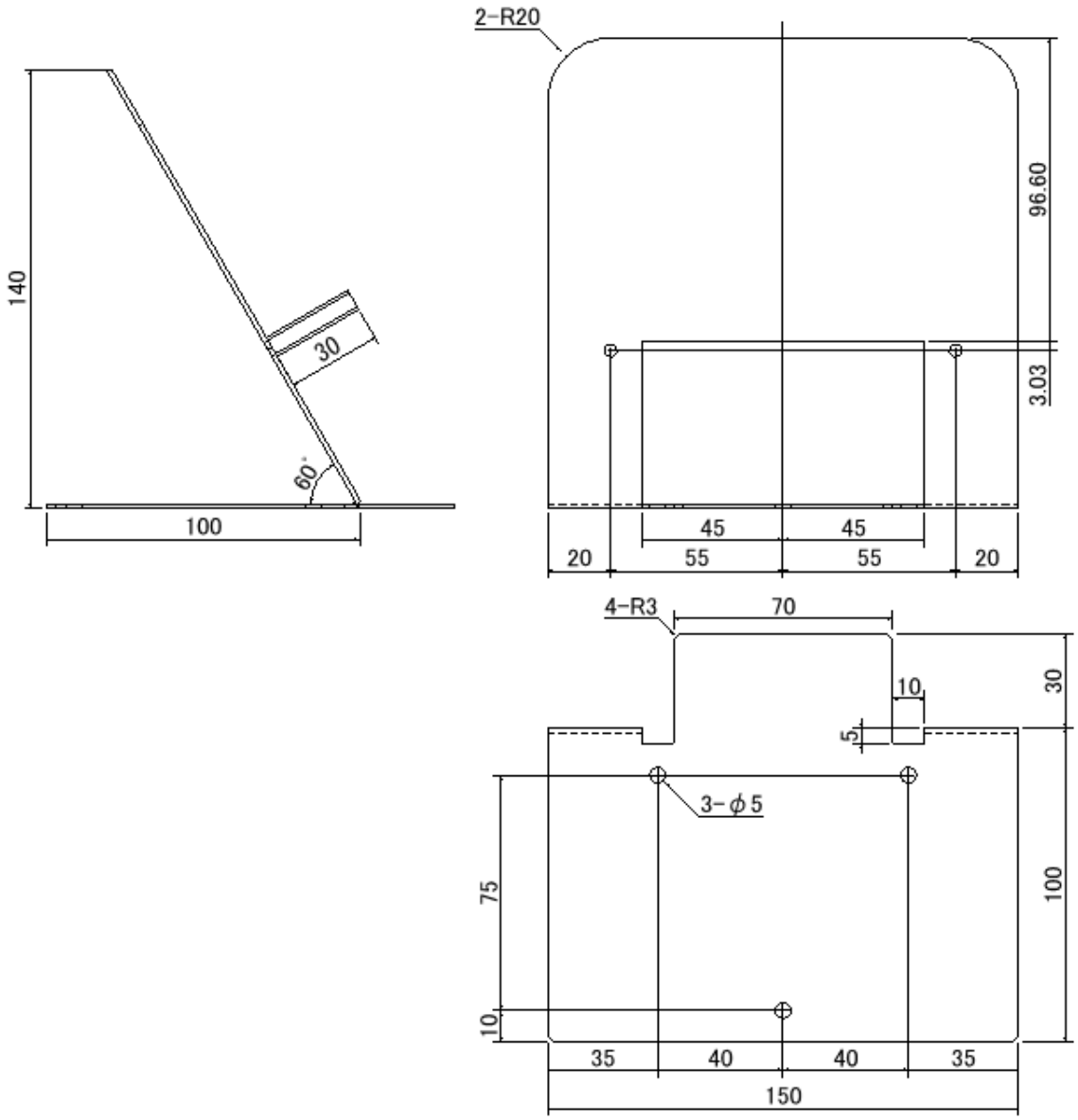
- **Wall mounting bracket TW-SCLF01**



- **TW-800R-SLNX Drawing with TW-SCLF01 installed**



- **Desktop Stand TW-SCDS01**



11.Troubleshooting

Phenomenon	Cause and remedy
No LED lights up	The power of the receiver is not ON. →Make sure the power of the receiver to communicate with the transmitter is ON.
The receiver does not receive a signal from the transmitter	Pairing is not done. (not registered) →Perform pairing with the receiver to communicate with the transmitter.
Receiver (RX) LED is lit in green	Pairing is not done. (not registered) →Perform pairing with the receiver to communicate with the transmitter.
The buzzer does not sound	The buzzer volume is turned down. →Adjust the buzzer volume.
The network monitor does not light even when connected to an external device (PLC, PC, etc.)	The receiver and external device are not properly connected. →When the receiver succeeds in connecting to an external device, the network monitor lights up (light blue). If the network monitor is not lit, check that the LAN cable is not disconnected, and then check that the network information of the receiver and external device is set correctly.
Receiver (RX) LED is lit in red	Changed the network settings using the Web browser function. Or a fatal error has occurred. →Turn OFF the power and turn it ON again. If the symptom is not solved, contact your sales agent.
・I forgot the IP address of the receiver. ・I forgot the receiver login information (username or password) to access the web server.	Initialize the receiver, and the set values return to the factory default values. (See the annexed “Initialization guide”.)

12.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.

HERUTU

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