

Simple Pokayoke Counter TW-800R-SCL

Mobile Pokayoke Counter TW-800R-MCL

Transmitter TW-800T

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.

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■1.Outline

TW-800R-SCL and TW-800R-MCL (hereinafter called “the receiver”) is a receiver with wireless function and a simple counting function.

The receiver is used one-to-one with various tools equipped with TW-800T (hereinafter called “the transmitter”). 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. This instruction manual explains about TW-800T as a transmitter. It also covers the functions of the firmware version V2.00 of the receiver. To check the firmware version of your receiver, see “6. Startup of the receiver”.

With the receiver, you can select one of three operating modes: “stand-alone mode”, “application interlock mode” or “simple count mode”. When using the receiver by itself, select “stand-alone mode” or “simple count mode”. When using the receiver in combination with Production Process Support Software for Pokayoke Tools “POKAYOKE plus”^{*1}, select “application interlock mode”.

In the “stand-alone mode”, the receiver counts up or down when receiving a signal from the transmitter. When Auto judge is ON, as soon as the predetermined specified count value is reached, the receiver notifies you with “sound” and “display” as well as generating a PASS output to external devices. When Auto judge is OFF, the receiver judges that the specified count value is reached when a Judge input is received.

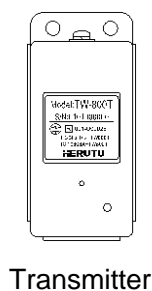
Select and use the following functions: Function to Output Task Results Data to LAN, Judge by work timer, Sensor Input Function to Enable Counting, Work number display, RESET-key disabled, and continuous output of PASS/FAIL.

In the “simple count mode” the receiver only counts up when receiving a signal from the transmitter and does not judge. The maximum count is 999.

In the “application interlock mode”, you can log and save task results for each work by linking with POKAYOKE plus via LAN. This also facilitates building a Pokayoke system that covers multiple processes.

Activate TW-800R-SCL by connecting it to the included AC adapter, and TW-800R-MCL by connecting the included DC jack cable to the USB power supply.

^{*1}: POKAYOKE plus is a Windows-compatible application that can be used in conjunction with a Pokayoke receiver capable of a LAN connection.



Transmitter

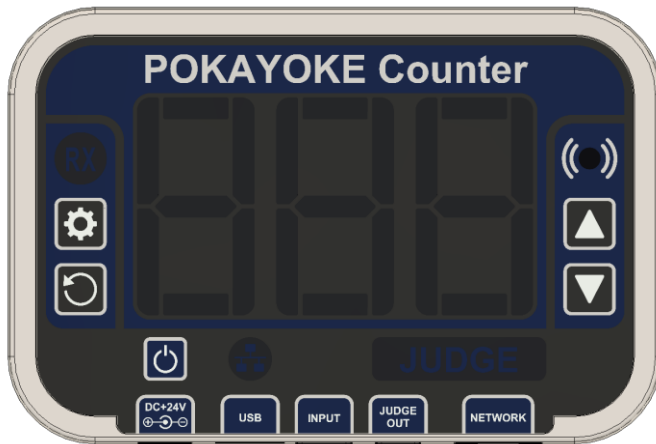


Receiver

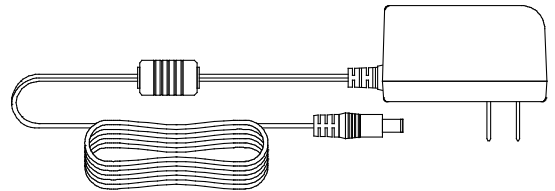
■2.Body and Accessories

Receiver

●TW-800R-SCL

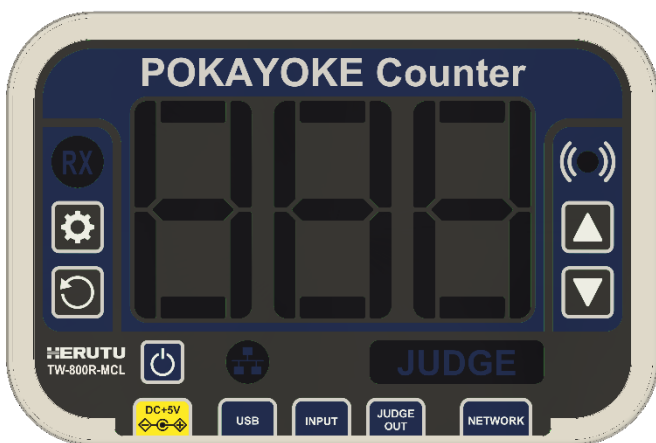


TW-800R-SCL body x1

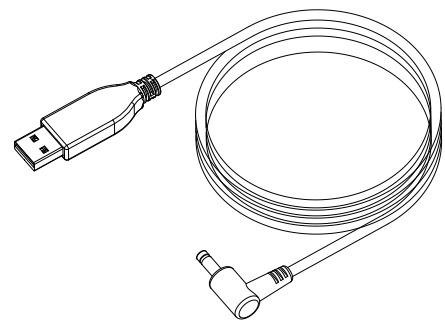


AC Adapter ADB24050 (Cable 1.5m (4.9ft))

●TW-800R-MCL



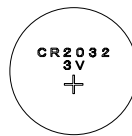
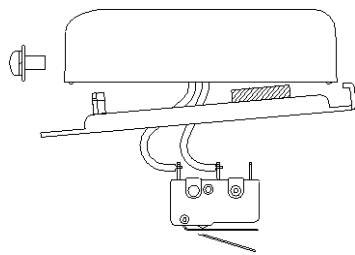
TW-800R-MCL body x1



USB(A)/DC Adapter Cable DC-4017A
(Cable 1.2m (3.9ft))

Transmitter

•TW-800T

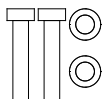


Coin battery: CR2032 x1

TW-800T body x1

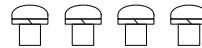
(Body mounting screw M3 x L7 x1pc, Harness connector with limit switch TW-800T-HCL x1pc)

Mounting bracket x1



For limit switch

Hexagon socket head bolt M2 x L10 x2pcs
Flat washer M2 (φ2.2) x2pcs



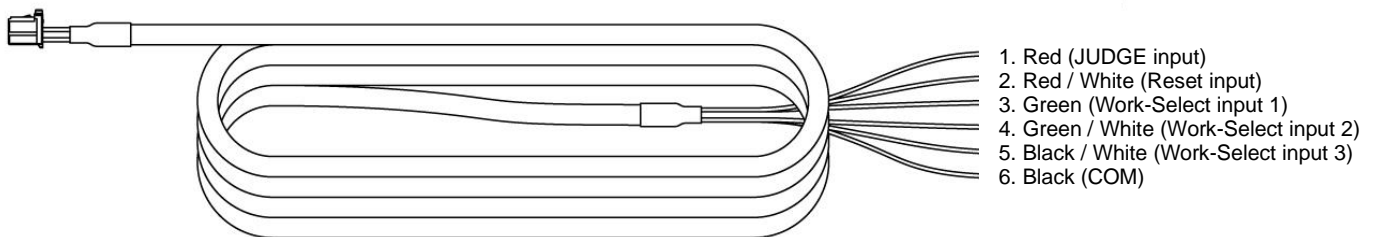
Mounting screw M4 x L5 x4pcs

Extra cost option

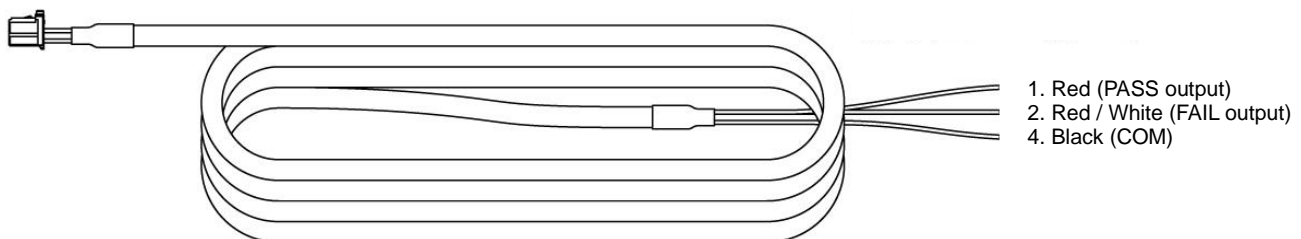
The options for the receiver can commonly be used on the TW-800R-SCL and TW-800R-MCL.

•TW-800R-SCL Input Cable TW-SCLI-6 (Cable 1.8m (5.9ft))

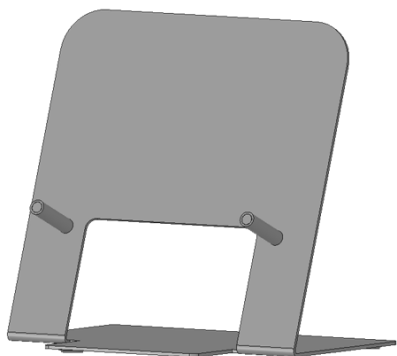
Cable to input the Work-Select/Judge/Reset signal from external devices.



•TW-800R-SCL Output Cable for JUDGE TW-SCLO-4 (Cable 1.8m (5.9ft))



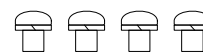
•Desktop Stand TW-SCDS01



•TW-800R-SCL Wall mounting bracket TW-SCLF01



TW-SCLF01 x2



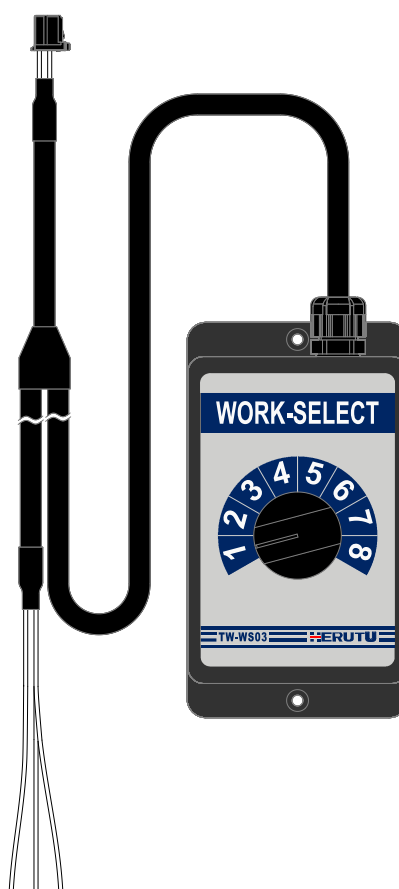
Mounting screw M3 x L5 x4pcs

•Mobile Stand TW-MCLDS01

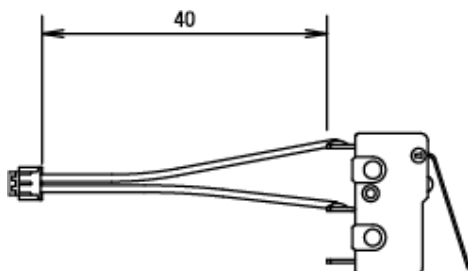
The receiver can be fixed on the stand. TW-800R-MCL can be connected to Makita's USB adapter and lithium-ion battery. The stand comes with a handle that makes it easy to carry.



•Work-Select Box TW-WS03(Cable 1.7m (5.6ft))



•Harness connector with limit switch TW-800T-HCL
(Please purchase 10pcs/ lot.)



■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

○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.

○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.

○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.

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

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

○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.

○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.

○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.

○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-SCL is equipped with the built-in wireless module HRF-2402.

HRF-2402 Certified Countries : Japan, Canada, USA, China, Thailand, Vietnam, Philippines and India.

■FCC/IC Warning

Information about FCC Standard. (TW-800T, TW-800R-SCL, TW-800R-MCL Common)

FCC CAUTION

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

(TW-800T)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interface, and (2) This device must accept any interface received, including interface that may cause undesired operation:

(TW-800R-SCL, TW-800R-MCL)

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

(TW-800R-SCL, TW-800R-MCL)

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).

(TW-800R-SCL, TW-800R-MCL)

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. (TW-800T, TW-800R-SCL, TW-800R-MCL Common)

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.

(TW-800R-SCL, TW-800R-MCL)

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).

(TW-800R-SCL, TW-800R-MCL)

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).

(TW-800R-SCL, TW-800R-MCL)

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

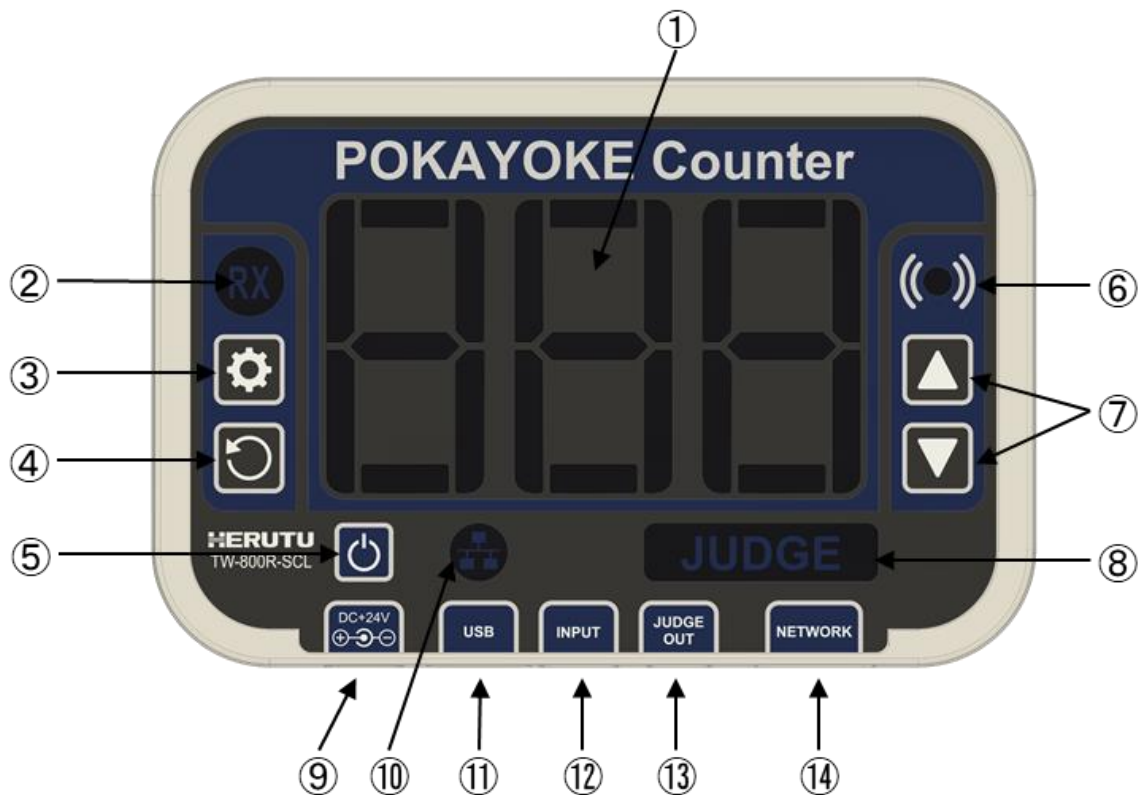
■ Thailand Radio Law (SDoC)

This telecommunication equipment is in compliance with NBTC requirements.

■4.Name of Each Part

4-1.Receiver

The explanation of TW-800R-SCL is as follows. Please note that the power supply jack (⑨ in the figure below) of TW-800R-SCL and TW-800R-MCL are different in specifications.

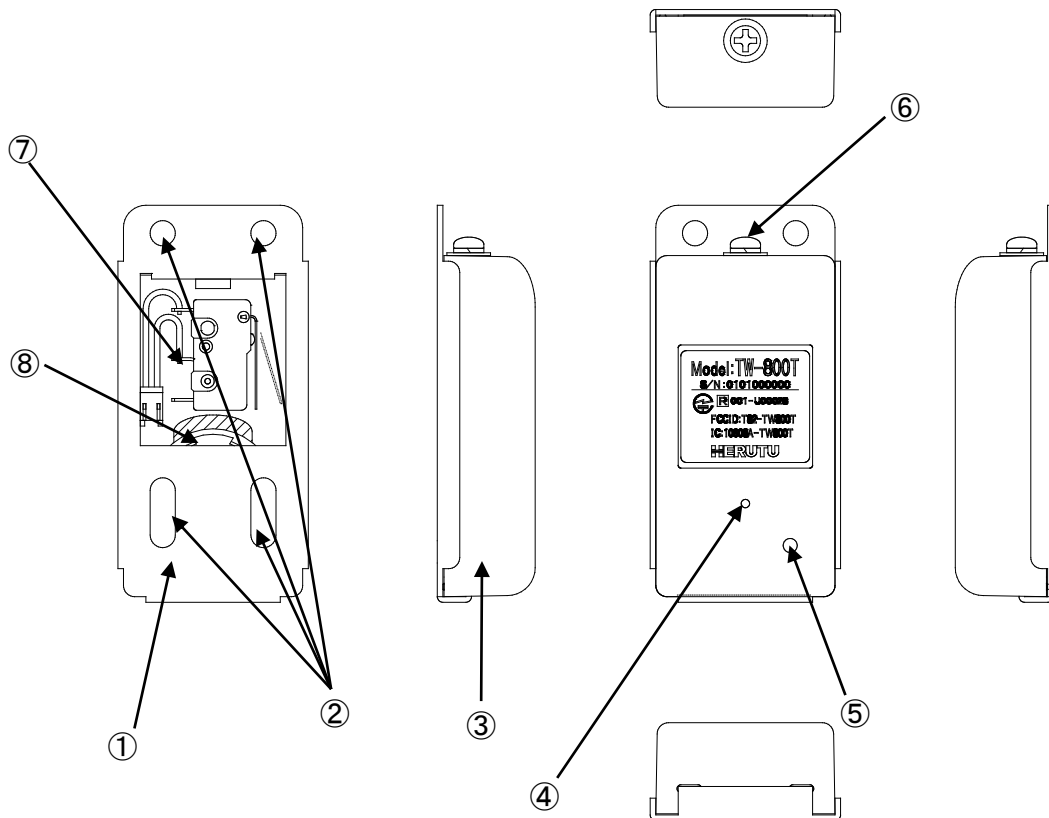


①7SEG-LED display (3-digit)	7SEG-LED displays the count value and various setting values.
②Receiver (RX) LED	<p>The LED lights green when the receiver receives the signal from the transmitter.</p> <p>The display varies depending on each mode.</p> <ul style="list-style-type: none"> •Lit in green: pairing mode •Lit in red: when setting the count value. •Lit in blue: when setting the reset time. •Lit in yellow: when setting over-count to Valid/Invalid. •Lit in light blue: when setting the work timer in seconds. •Blinking in red: when setting count-down or count-up. •Lit in white: when setting the buzzer volume. •Blinking in white: when setting the operating mode. •Blinking in white: In Backup or Restore mode.(JUDGE LED also blinking in white.)
③Setting (REG) key	The key is used to set Count value, Reset time, Over-count value, Work timer, Countdown/Count-up, and Buzzer volume.
④RESET key	The key resets the count value, count setting and status such as FAIL judgment.
⑤POWER key	<p>Power ON → Press the POWER key for 0.1 seconds or more.</p> <p>Power OFF → Press the POWER key for 2 seconds or more.</p>

⑥ Buzzer	<p>The buzzer sounds according to each state.</p> <ul style="list-style-type: none"> • When receiving a signal from the transmitter: “ping” (1 time 100ms) • PASS: Sounds Pi pi pi (3 step melody sound) • FAIL occurs: Sounds Pi-Pi-Pi-... • (Applicable Only to the “application interlock mode”) When receiving a signal from the transmitter while not being in communication with POKAYOKE plus: Same tone as when FAIL occurs. • When the network setups are changed: Same tone as when FAIL occurs.
⑦ Setting (UP/DOWN) keys	<p>Used in the setting change mode. The key cannot be operated in the count mode.</p> <p>Used to set Count value, Reset time, Over-count value, Work timer, Countdown/Count-up, Buzzer volume and Operating mode.</p>
⑧ JUDGE LED	<p>The LED color changes according to the type of Judge.</p> <ul style="list-style-type: none"> • Lit in white: Task in progress • Lit in blue: Task is completed (when judged as PASS) • Lit in red: FAIL occurred. • Lit in green: (Applicable Only to the “application interlock mode”) Work is completed using POKAYOKE plus. (when judged as PASS) • Lit in yellow: In “simple count mode”. • Blinking in white: In Backup or Restore mode.
⑨ Power jack	<p>Supplies operating power.</p> <ul style="list-style-type: none"> • TW-800R-SCL : Connect the included AC adapter. • TW-800R-MCL : Connect the included power cable.
⑩ Network monitor	<p>Indicates the connection status with POKAYOKE plus by lighting or blinking when the receiver is set to the “application interlock mode”.</p> <ul style="list-style-type: none"> • Blue (lit): Communicating with POKAYOKE plus • Blue (blinking): Communication with POKAYOKE plus is disconnected <p>Set in “stand-alone mode” and to “simple count mode”, and indicates the connection status between the devices when the LAN output setting (Transmitter data ethernet output or Receiver data ethernet output) is enabled.</p> <ul style="list-style-type: none"> • Blue (lit): Communicating with the connected devices. • Blue (blinking): Communication is disconnected.
⑪ USB connector	<ul style="list-style-type: none"> • Used to update the software with a USB memory stick. • Used to back up or restore the parameters of the devices with a USB memory.
⑫ External input	<p>Connector for Work-select input, Judge input and Reset input.</p> <p>Work-select input: Selects a registered work.</p> <p>Judge input: Judges the task.</p> <p>Sensor input: Enables the count only when it is “ON”.</p> <p>Reset input: Returns to the count before the task started.</p> <p>Use the optional input cable.</p>
⑬ Judge output	<p>Connector for Judge output.</p> <p>Use the optional output cable for Judge output.</p>
⑭ LAN cable connector	<p>For LAN output, setting on the Web server, using with POKAYOKE plus, or linking with an external device, connect the LAN cable.</p>

4-2.Transmitter

•TW-800T



①Mounting bracket	Mounting bracket for mounting on the torque wrench.
②Mounting brackets/ Mounting holes	The hole is for mounting the base of torque wrench of LS type and seat.
③Body case	The case is constructed from a durable material: polypropylene.
④LED (Red/ Green)	LED is for confirmation of communication and battery checking. Depend on the situation, LED is lighting and flashing.
⑤Test switch (Pairing switch)	For Test switch and pairing switch.
⑥Body mounting screw	The screw is for mounting main body and mounting bracket.
⑦Limit switch	Limit switch is for input the signal from torque wrench. It is fixed the mount base of torque wrench by hexagon screw.
⑧Battery	Battery is coin battery. Type is CR2032

■5.Installation

5-1.Transmitter

Transmitter is used by attaching to various kinds of tools such as torque wrench, plier wrench, check pen, battery tool etc. As plier wrench and check pen are original products of Herutu Electronics, basically it is shipped with transmitter attached.

The torque wrench can be attached to the following manufacturer's products.

TOHNICHI Mfg. Co., Ltd.: LS type (QLLS, QSPLS, etc.)

Nakamura Mfg. Co., Ltd.: MBtype (N-SPK-MB, N-QSPK-MB, etc.)

For other tools installation please contact sales department.

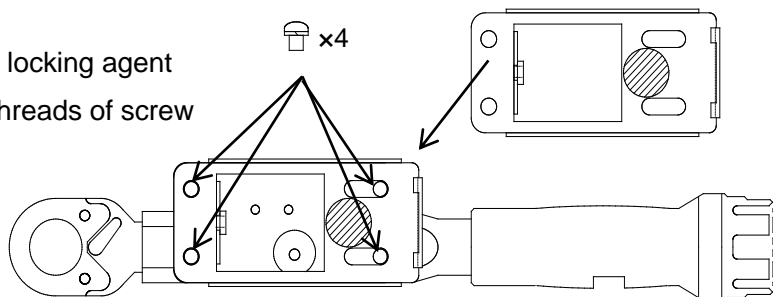
<Installation the transmitter to torque wrench>

①To install the seat

Fix the Seat with four fixing screws.

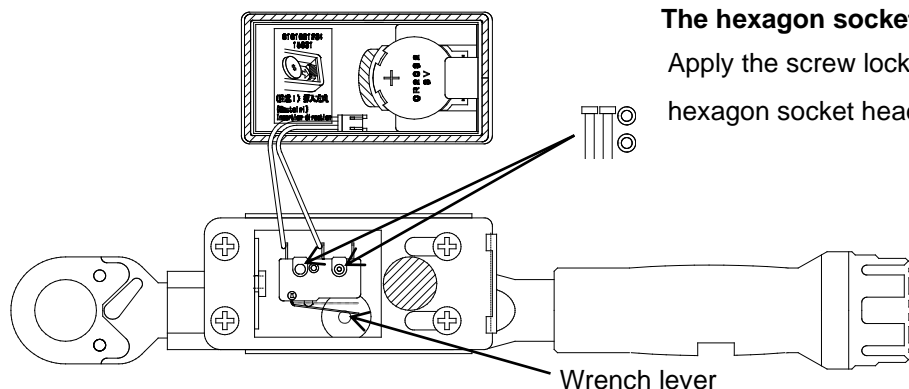
For the application with heavy oil mist, fill up the caulking agent between Wrench seat and Seat and also between Wrench shaft and Wrench seat to protect the internal board.

Apply the screw locking agent onto the 2 to 3 threads of screw edge.

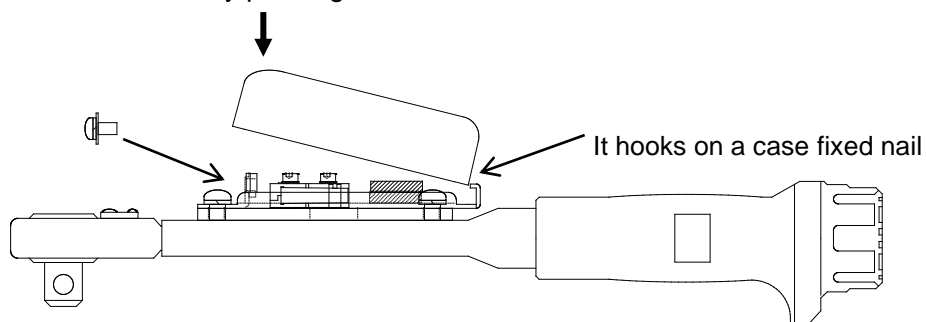


②Fix the Transmitter Limit SW with two hexagon socket head bolts(which was removed).

Verify that the moving range of wrench lever is well suited for the movement range of switch during the wrench in movement.



Hook the Transmitter on the Case holder of Seat, set it with an attention being paid not to bite the cord, and fix it with the set screw as firmly pushing the case.



<The attention and the check method on limit switch attachment>

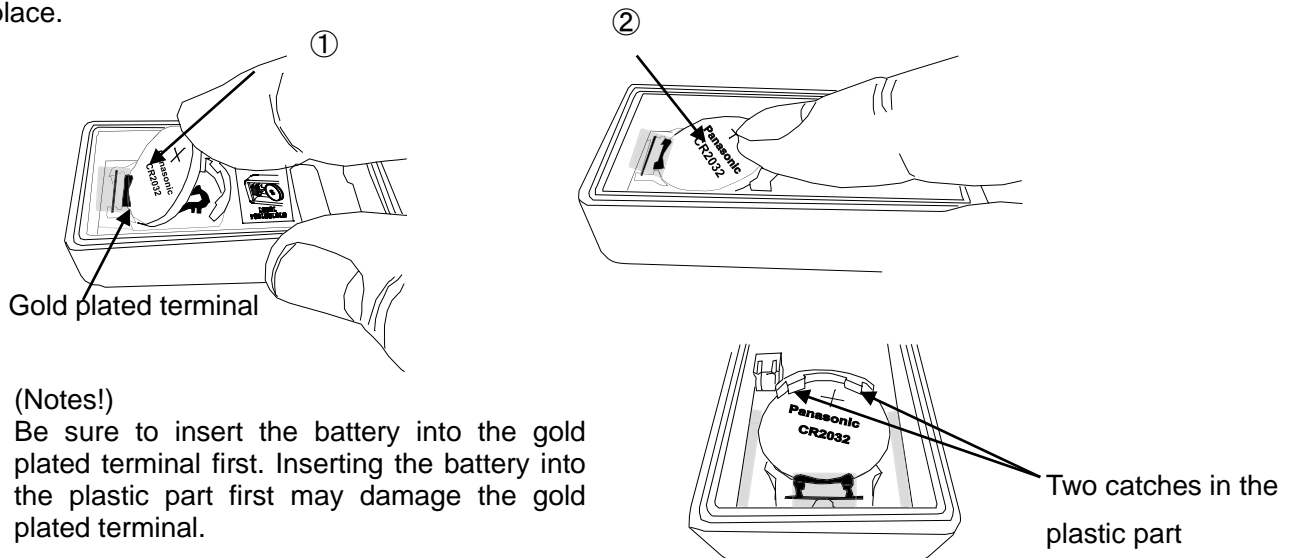
When the lever working range of a torque wrench is small, a limit switch cannot be struck and a transmitter may not send. In limit switch attachment, be careful enough and carry out.

<Installing and removing the battery>

●Installing the battery

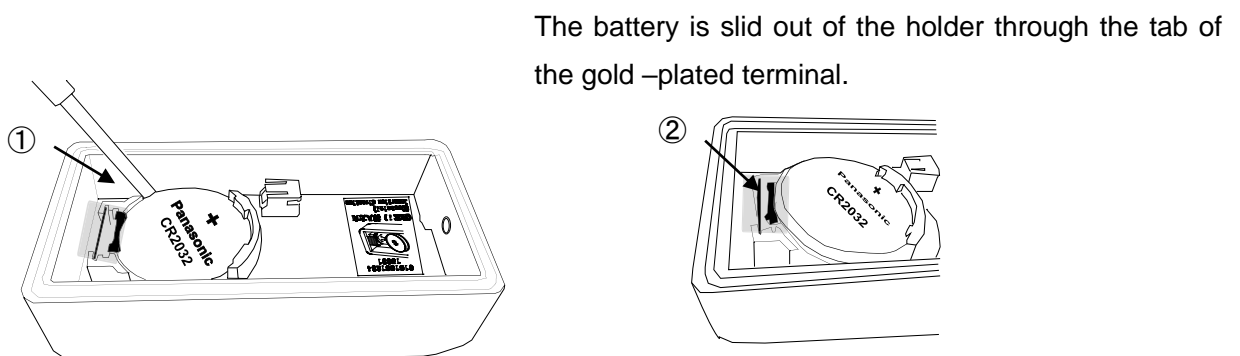
First, with the “positive (+) terminal” of the coin battery (CR2032) facing up, insert the battery into the gold plated terminal of the battery holder, as shown in Fig. 1 below.

Push the battery so that it is secured by two catches in the plastic part of the battery holder until the battery snaps into place.



●Removing the battery

When removing the coin battery for replacement or other reasons, slide a not sharp-edged object between the battery and battery holder and gently lift the bottom of the battery, as shown in Fig. 1 below. As shown in Fig. 2 below, the battery can be slid out of the battery holder through the tab of the gold –plated terminal.



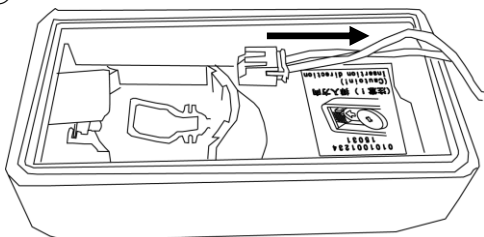
(Notes!)

Care should be taken not to disconnect the limit switch cable of TW-800T while installing or removing the battery. It is advised to remove the limit switch cable from the connector before installing or removing the battery.

< Replacing the harness connector with limit switch (TW-800T-HCL) >

When replacing the harness connector with limit switch, remove the coin battery and perform the replacement procedure, as shown below.

①

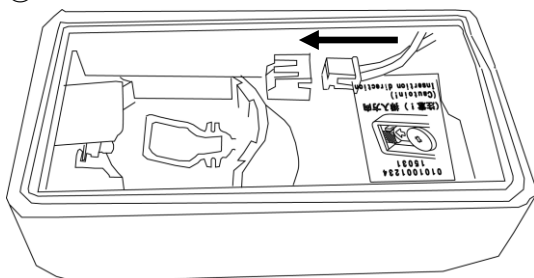


Pull the cable portion near the connector horizontally to let the connector mating portion come off from the connector.

(Notes)

Remove the cable from the connector carefully. Pulling the cable up may distort the connector mounted on the substrate and result in damage to the connector.

②



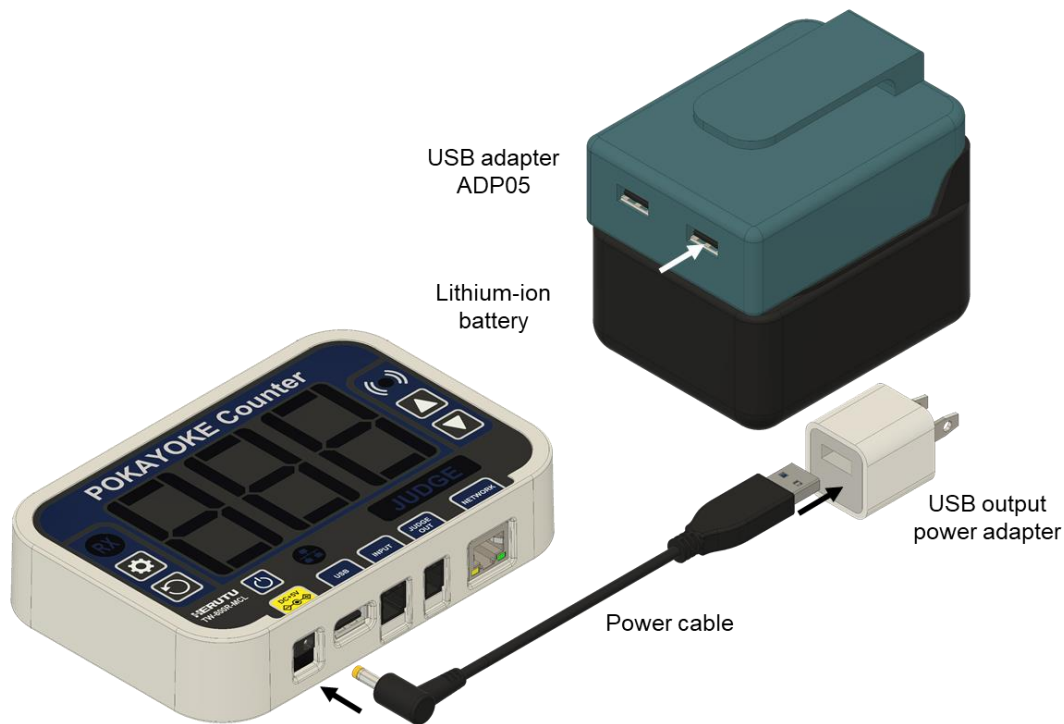
Push the white connector portion of a new harness connector with limit switch using the tip of the fingernail and insert it into the TW-800T connector. Push in the connector firmly until it snaps into place. Make sure the direction of the connector is correct before inserting the connector.

(Notes)

Do not attempt to apply excessive force to the cable when connecting the connector.

5-2.Receiver

1. Install the receiver in a location where it can be seen well from the transmitter and can receive radio waves stably.
2. Operating power supply is supplied from the power supply jack.
 - For TW-800R-SCL, connect it to the included AC adapter.
 - For TW-800R-MCL, use the included power cable to connect the receiver to the USB output power adapter. As a USB power adapter, Makita Corporation's USB adapter "ADP05" can be used in combination with an adaptive lithium- ion battery.



Power supply for TW-800R-MCL

3. Connect the signal to the external input (Work-Select, Judge or Reset) and external output (Judge output), as necessary.
4. For LAN output, setting on the Web server, using with POKAYOKE plus, or linking with an external device, connect the LAN cable.

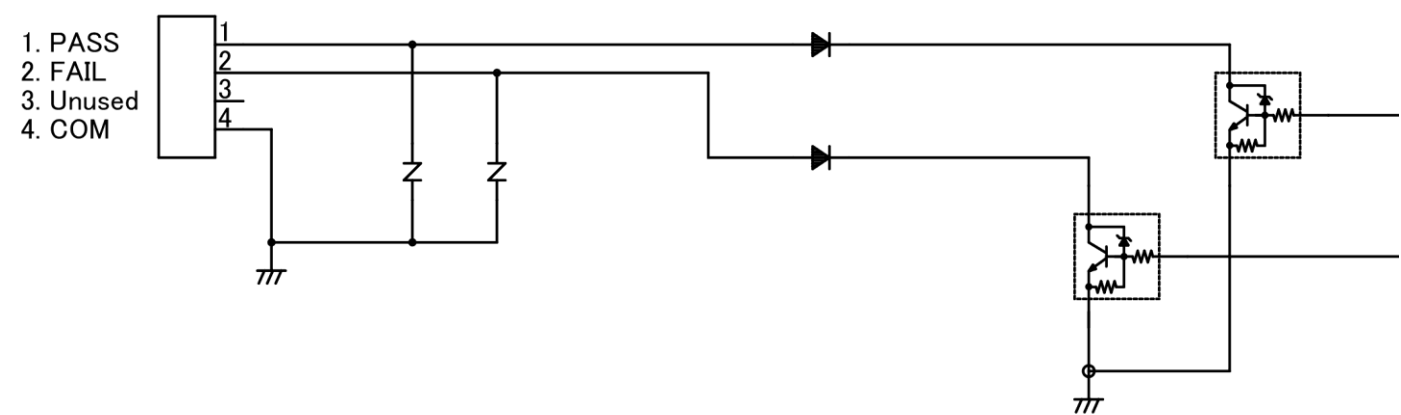
【Notes】

- Please prepare a USB power adapter, Makita's USB adapter and an adaptive lithium- ion battery. Please refer to the instruction manuals included in the devices for how to use each device.
- All cables and USB power adapter must be connected or disconnected when the main unit is in the power OFF state.
- Makita's USB adapter must be connected or disconnected when the adapter's power switch is turned OFF.
- Use a USB power adapter with output current of 0.5A or more. If the output current is less than that, the main unit may not work properly.
- To update the software, use a USB power adapter.
- Do not forcibly pull the power cable connected to the power supply. Doing so may damage the power jack of the main unit.

5-2-1.External output - Judge output (PASS /FAIL)

The external output is an open collector output. When the output turns 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 use of the Judge output, use the optional output cable for Judge, TW-SCLO-4.

Rated load voltage:	DC24V
Rated load current:	0.1A
Contact structure/configuration:	Open collector
Connector:	Square connector 2.5mm pitch, 2x2 pins, 4 poles(1 pole unused)



No.	Contents	Cable
1	PASS	Red
2	FAIL	Two colors of red and white
3	Unused	—
4	COM	Black

5-2-2.External input - Work-Select input / Judge/Sensor input / Reset input

<Work-Select input>

Up to 8 types of works can be registered by using the Work-Select input. Selects a work according to the type of task.

<Judge/Sensor input>

Judge input or Sensor input can be set with the Web server function.

• Judge input setting

When the number of tasks equal to the specified count are completed at the timing of the signal input, the task is judged as PASS and a PASS output is generated. When the remaining counts are found, the task is judged as FAIL and a FAIL output is generated.

• Sensor input setting

The counter counts only when the signal input is ON. When the signal input is OFF, the counter value blinks.

The receiver does not count nor generate LAN output even after receiving a fastening signal.

set input>

Resets the work at the timing of the signal input. The counter returns to the value before the task started.

The input type is a non-voltage contact input. Connect the input signal to the low chattering switch for turning ON/OFF DC5V/10mA stably or PLC.

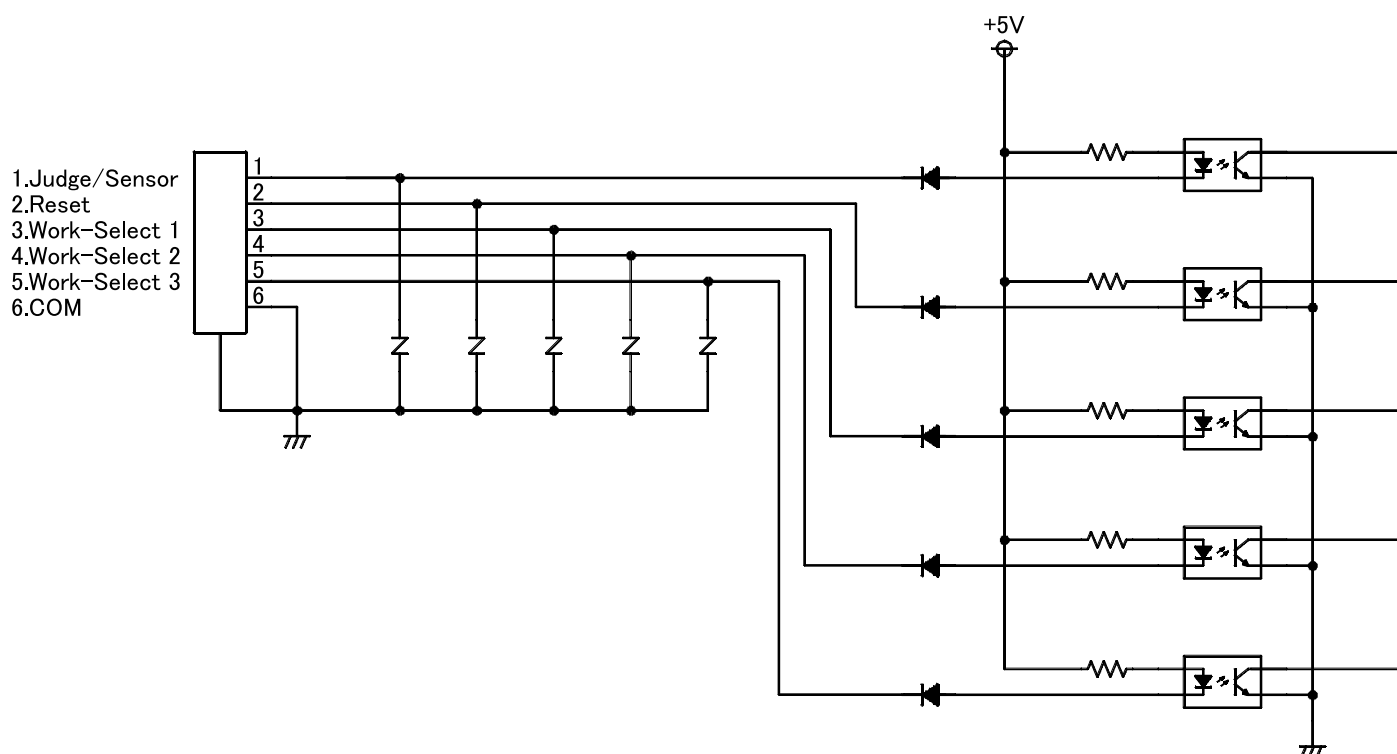
When using the external input, use the optional input cable for Work-Select, Judge and Reset, TW-SCLI-6.

Non-voltage Contact-inputs: Judge/Sensor 1Bit / Reset 1Bit / Work-Select 3Bit / COM

(Photo coupler input)

Contact rating: DC5V/10mA or more

Connector: Square connector 2.5mm pitch, 3x2 pins, 6 poles



No.	Contents	Cable
1	Judge/Sensor	Red
2	Reset	Two colors of red and white
3	Work-Select 1	Green
4	Work-Select 2	Two colors of green and white
5	Work-Select 3	Two colors of black and white
6	COM	Black

Work-Select

Selected work	Input Cable TW-SCLI-6		
	Work-Select 1	Work-Select 2	Work-Select 3
Work1	OFF	OFF	OFF
Work2	ON	OFF	OFF
Work3	OFF	ON	OFF
Work4	ON	ON	OFF
Work5	OFF	OFF	ON
Work6	ON	OFF	ON
Work7	OFF	ON	ON
Work8	ON	ON	ON

■6.Startup of the receiver

Power ON → Press the POWER key for 0.1 seconds or more.

Power OFF → Press the POWER key for 2 seconds or more.



When the power is turned ON, the firmware version is displayed on the 7 segment LED, and then the main screen for each running mode is displayed. When pairing of the receiver and the transmitter is not completed in “stand-alone mode”, “E01” is displayed after display of the firmware version.

Example: When the firmware is Ver.1.00, the firmware version displayed on the 7 SEG-LED is “100”.

■7.Setting

The transmitter and the receiver need to be paired before use.

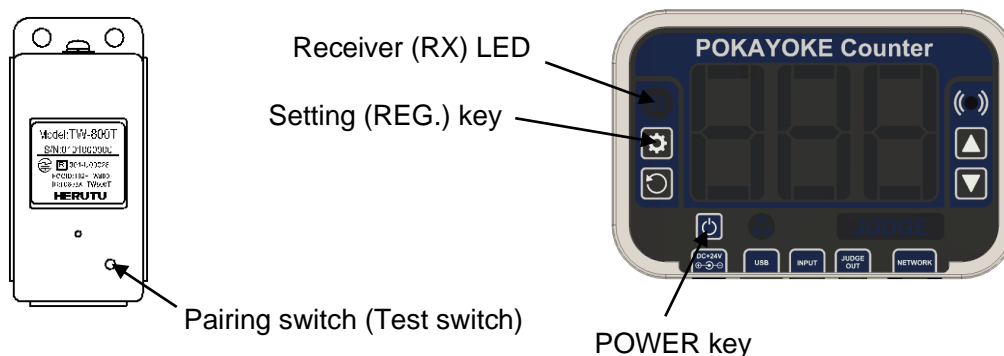
By pairing them, they recognize an identification signal from each other and communicate with each other.

7-1.Pairing (Registration)

[Setting procedure]

- ① With the power of the receiver turned OFF, press the [POWER] key while pressing and holding the [setting (REG.)] key.

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.
- ③ When the Receiver (RX) LED turns off blinking (green) and the receiver enters the count mode, the pairing is completed.

<Error display related to pairing>

- At power ON, when the Receiver (RX) LED lights up (green) and “E01” is displayed on the 7 SEG-LED, this indicates that the pairing is not completed. Perform pairing with the transmitter.
- After the receiver enters the pairing mode, when the Receiver (RX) LED turns from blinking (green) to lighting (green) and “E02” is displayed on the 7 SEG-LED, this indicates that the pairing failed. Turn OFF the power once and repeat from the beginning.



●Reset pairing

- ① With the receiver turned off, press the [POWER] key while pressing and holding the [setting (REG.)] key of the receiver.
- ② When long pressing the [setting (REG.)] key for 2 seconds or more, the Receiver LED stops blinking (green) and lights up (green) and the transmitter registered for pairing is deleted from the receiver.

***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.

7-2.Selection of operating mode

With the TW-800R-SCL, you can select one of three operating modes: “stand-alone mode”, “application interlock mode.” or “simple count mode”.

(1) Stand-alone mode

Select this mode when using TW-800R-SCL by itself. Works need to be registered to the receiver.

A mode that counts down or counts up when a fastening signal is received and that judges a task.

(2) Application interlock mode

When using the TW-800R-SCL in combination with “Production Process Support Software for Pokayoke Tools POKAYOKE plus”, select “application interlock mode.”

Connect a Windows PC with POKAYOKE plus installed to TW-800R-SCL via LAN and use them together.

Register Works to POKAYOKE plus. TW-800R-SCL runs according to the work execution instructions from POKAYOKE plus. For details, refer to "POKAYOKE plus Instruction Manual".

(3) Simple count mode

Select this mode when using TW-800R-SCL by itself. A mode that only counts up each time a signal is received and that does not judge a task.

[Setting procedure]

- ① With the power of the receiver turned OFF, press the [POWER] key while pressing and holding the [RESET] key. The Receiver (RX) LED blinks in white and the receiver enters the running setting mode.



- ② Select a operating mode by using the [setting (UP/DOWN)] keys.
Stand-alone mode→0 / Application interlock mode→1 / Simple count mode→2
- ③ Press the [setting (REG.)] key, and the setting is completed. (The Receiver (RX) LED goes out.)

7-3.Settings With Web Server

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

***Note:** Be sure to pair the receiver and transmitter before using the web server functions.

Item	Contents
System Information	Viewing the model number, firmware version, serial number and MAC address.
Device Setup	<ul style="list-style-type: none">• Viewing of the transmitter ID being paired• Judge output time (PASS/FAIL) setting• Double count prevention time setting• Sensor input(Judge/Sensor) setting• Auto JUDGE setting• Work timer setting• Work number display setting• Setting RESET-key disabled• Setting to Output Task Results Data to LAN (transmitter data)• Setting to Output Task Results Data to LAN (receiver data)• Data length type(short/long) setting of task results data (transmitter data) <p>*1: Output of data equivalent to the output data of TW-800R-EXL, including transmitter ID.</p> <p>*2: Output of current number of counts, specified count value, judge status and other data. For more details, refer to “13-2. Communication specifications”.</p>
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.

7-3-1.Connecting to Web server

--- Factory default setting ---

IP address	192.168.3.101
Port No.	50001

*The port No. cannot be changed.

① Change your PC's network settings so that your PC and the have the same network settings.

To connect your PC to the receiver in the default state,
set the IP address of the PC to 192.168.3.*** (***) is other than 101) and the subnet mask of the PC to 255.255.255.0.

② Turn ON the power of the receiver, and connect the PC and the receiver with a LAN cable.

③ 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.

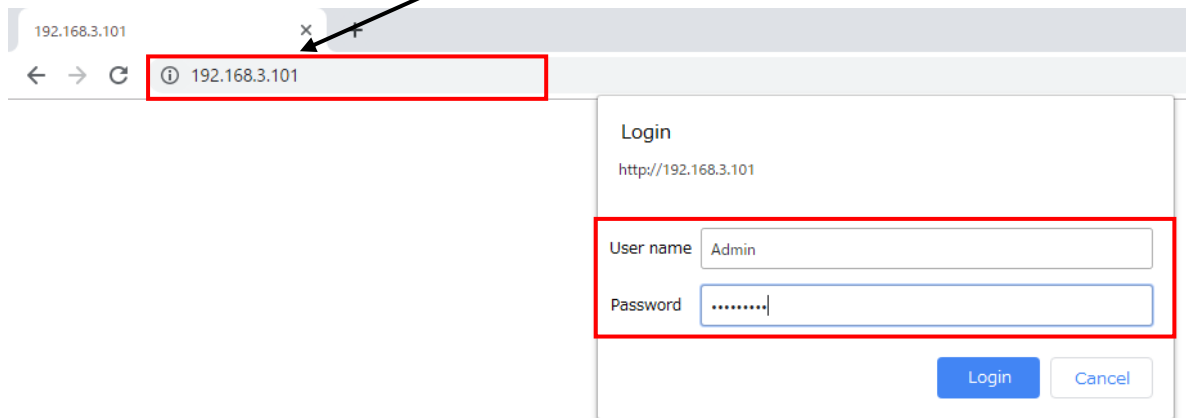
④ When accessing the receiver, entry of a username and password is requested.

When logging in for the first time, enter the default username and password.

--- Default password ---

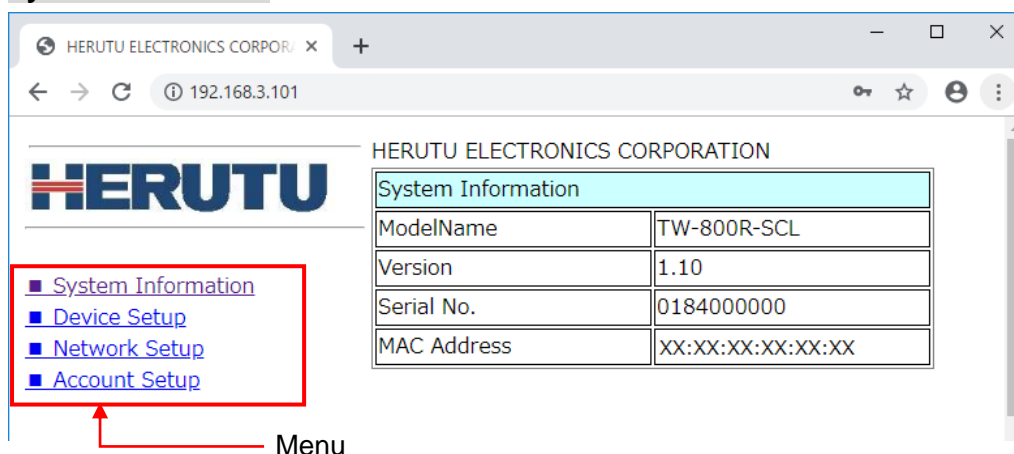
User name	Admin
Password	Herutu001

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-SCL
Version (Firmware version)	1.10
Serial No.	0184000000
MAC Address:	70:B3:D5:E3:21:AC


7-3-2.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



- [System Information](#)
- [Device Setup](#)
- [Network Setup](#)
- [Account Setup](#)

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User Setup

User Name	Admin
New User Name	
Submit	

Password Setup

New password	
New password(check)	
Submit	

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.

7-3-3.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



- [System Information](#)
- [Device Setup](#)
- [Network Setup](#)
- [Account Setup](#)

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Network Setup

IPAddress	192.168.3.102
SubnetMask	255.255.255.0
Default Gateway	0.0.0.0
Duplex	full ▼
Submit	

Item	Entry example
IP Address	192.168.3.101 (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 setup is changed, the receiver displays “E03” and the buzzer sounds. Turn off and turn on the power of the receiver, and the network setup changes are reflected to the receiver.

♪(Pi-Pi-Pi- Pi-Pi-...)



7-3-4. Advanced settings

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

Device Setup



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Reg-ID List	
No.	Registered transmitter ID
1	0101001844

■ [System Information](#)

■ [Device Setup](#)

■ [Network Setup](#)

■ [Account Setup](#)

Device Setup	
Judge output time(PASS/FAIL) (Stand-alone/-/-)	100ms ▼
Double count protect time (Stand-alone/Simple count/Application interlock)	100ms ▼
Judge/Sensor input (Stand-alone/Simple count/-)	Judge ▼
Auto judge (Stand-alone/-/-)	Enable ▼
Work timer (Stand-alone/-/-)	Disable ▼
Work number display (Stand-alone/-/-)	Disable ▼
Reset key (Stand-alone/Simple Count/-)	Enable ▼
Transmitter data ethernet output (Stand-alone/Simple count/-)	Disable ▼
Receiver data ethernet output (Stand-alone/-/-)	Disable ▼
Data length type (Stand-alone/Simple count/Application interlock)	Short ▼
<input type="button" value="Submit"/>	

*Each item of Device Setup shows available modes.

(Stand-alone/Simple count/Application interlock) •• Available in all modes.

(Stand-alone/Simple count/-) Available in both “stand-alone mode” and “simple count mode”.

(Stand-alone/-/-) Available only in “stand-alone mode”.

Reg-ID List (Registered transmitter ID)

The paired transmitter ID is displayed.

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

Device Setup

① [Judge output time (PASS/FAIL)] Judge output time (PASS/FAIL) setting

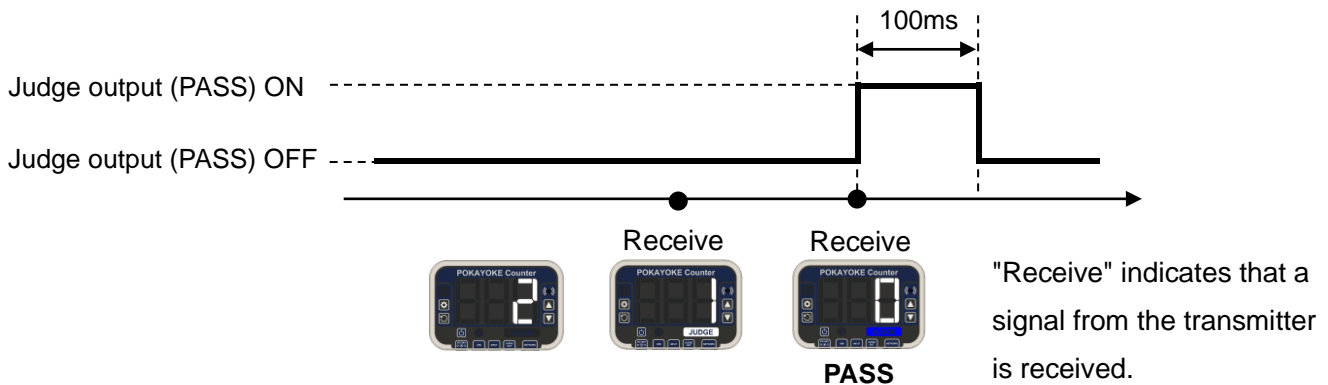
Applies to output cable for Judge PASS output(red) and FAIL output (red/white).

An external output (open collector output) is generated for the set time from when the work is judged as PASS or FAIL. Available from the following 13 different time settings.

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

Continuously **<Default: 100ms>**

Example) Action performed when specified count value of the work is set to 2 and the Judge output time is set to 100ms and the work is judged as PASS after the work completion.



If the receiver is reset by pressing the reset button or by an external (Reset) input during Judge output, the external output will stop.

When Judge output time is set to Continuously, external output is continuously generated until a Reset input is received.

* Judge output (PASS/FAIL) time setting is enabled in “stand-alone mode” only.

② [Double count protect time] Double count prevention time setting

Available from the following 19 different time settings.

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

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

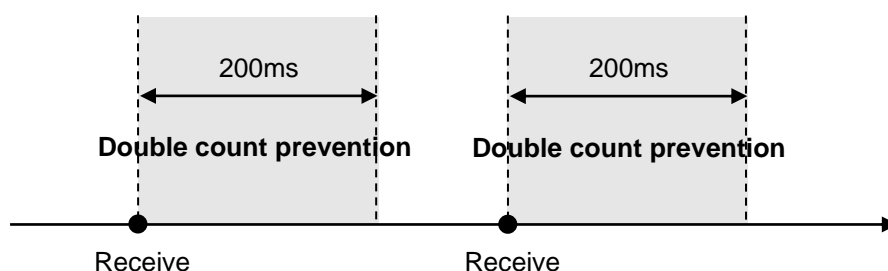
<Default: 100ms>

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.

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.

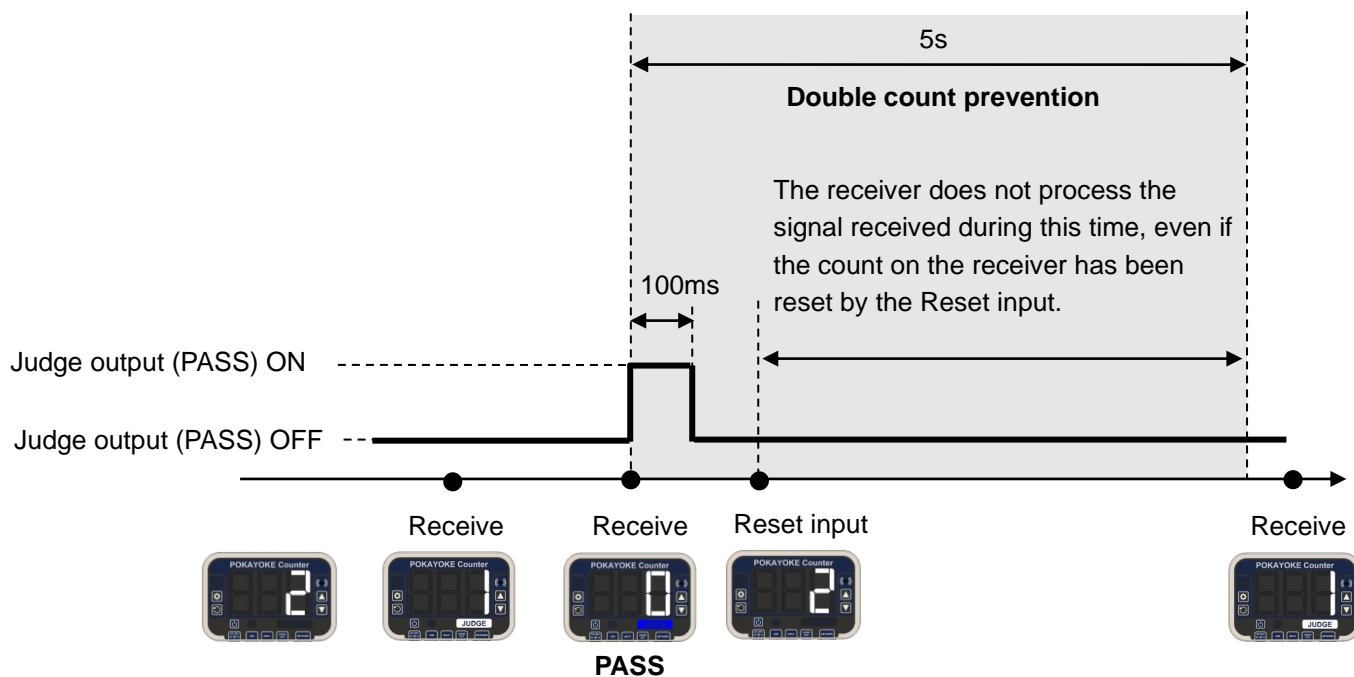


If double count prevention time continues even after the work is judged as PASS, the next work can not be started until double count prevention time is over.

*Double count protect time setting is enabled in “stand-alone mode”, “application interlock mode” and “simple count mode”.

Example) Action performed when specified count value of the work is set to 2 and the same work is repeated.

Set double count prevention time is set to 5s.



③ [Judge/Sensor input] Sensor input (Judge/Sensor) setting

Select sensor input setting from “Judge”/ “Sensor”. **<Default: Judge>**

External input can be used as Judge input by setting the Sensor input setting to “Judge”.

When Judge input turns ON, the Judge is determined.

External input can be used as Sensor input by setting the Sensor input setting to “Sensor”.

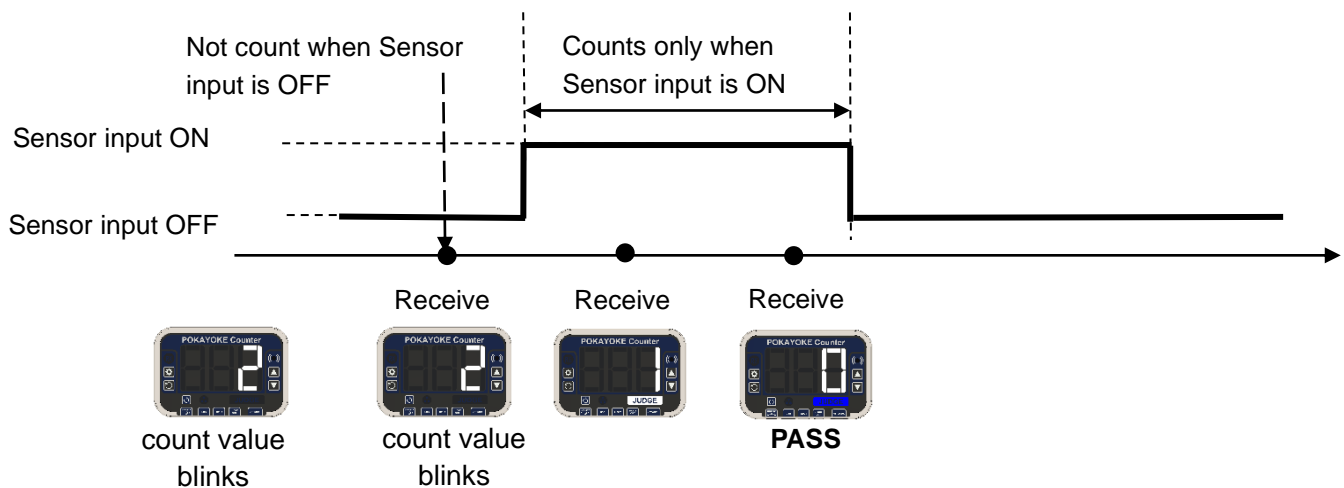
The counter counts only when Sensor input is ON. When sensor input is OFF, the count value blinks.

Neither counting nor LAN output is performed after receiving a fastening signal. (However, the receiver (RX)LED lights up)

*The Sensor input setting is enabled only in “stand-alone mode” and “simple count mode”. Only “Sensor” can be used in “simple count mode”.

*When the Sensor input setting is set to “Sensor”, the Auto judge setting is automatically set to “Enable” and that cannot be changed.

Example) Action performed when the number of work count is set to “2” and the Sensor input setting is set to “Sensor”.



④ [Auto judge] Auto JUDGE setting

Auto judge can be switched between Enabled “Enable”/Disabled “Disable”. **<Default: Enable>**

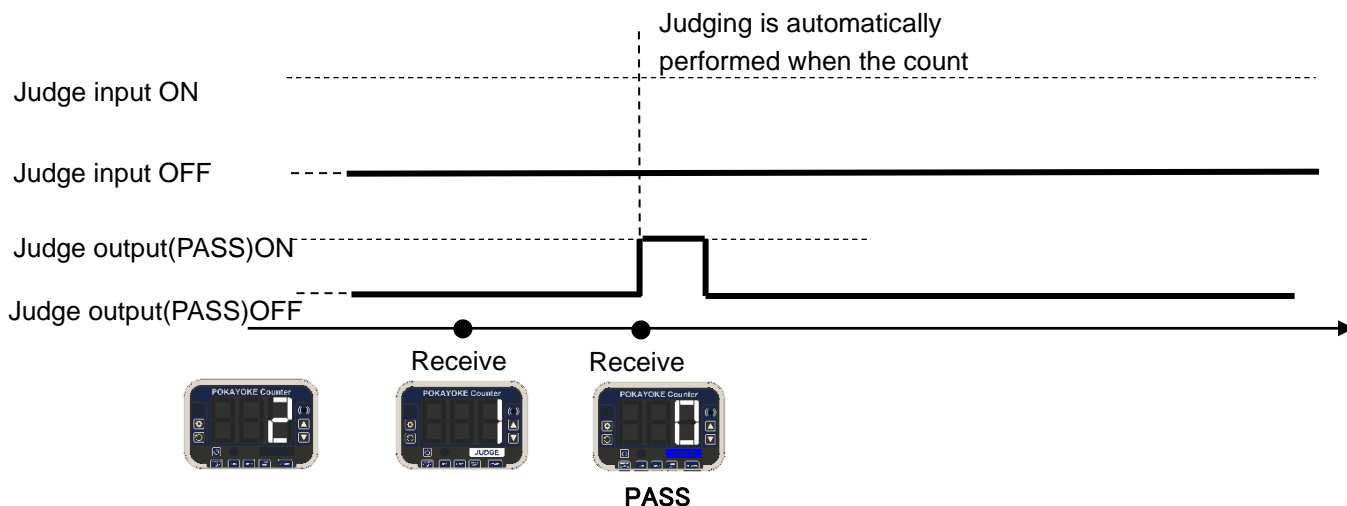
Set it to “Enable” to automatically judge PASS/FAIL. Set it to “Disable”, and the judge is determined by Judge input.

*The Auto JUDGE setting is enabled in “stand-alone mode” only.

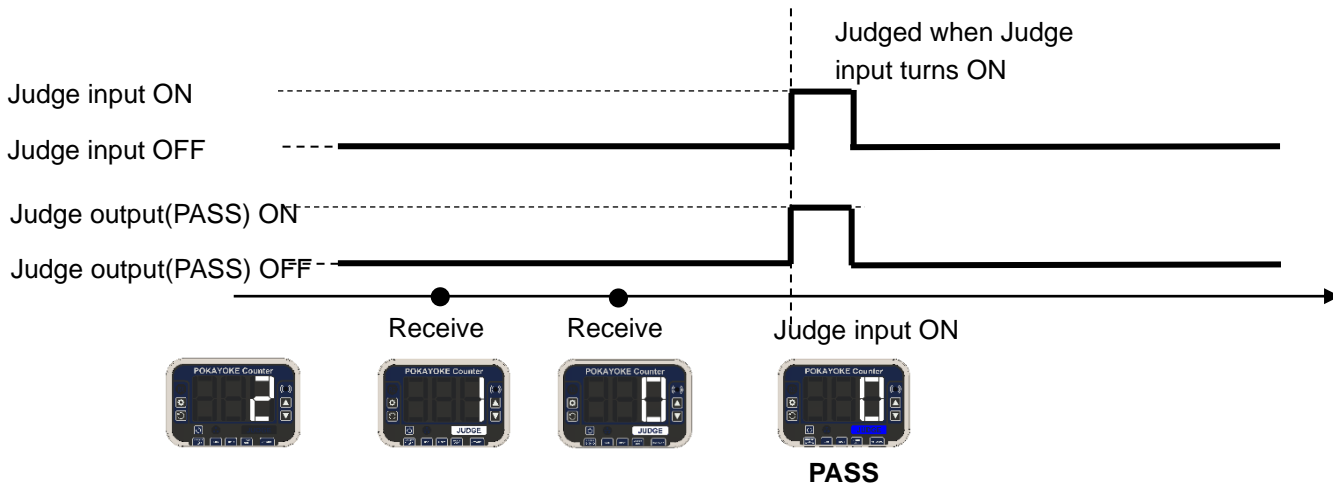
*When the Auto JUDGE setting is set to “Disable”, the Sensor input setting is automatically set to “Judge”, and that cannot be changed.

Setting value	Judge input	Action performed when the specified count value is reached
Enable	OFF	Judged as PASS regardless of Judge input
	ON	Judged as PASS regardless of Judge input
Disable	OFF	Not judged
	ON	Judged as PASS when Judge input turns ON

Example) Action performed when the number of work count is set to “2”, the Sensor input setting is set to “Judge”, and the Auto judge setting is set to” Enable”.



Example) Action performed when the number of work count is set to “2”, the Sensor input setting is set to “Judge”, and the Auto judge setting is set to” Disable”.



⑤ [Work timer] Work timer setting

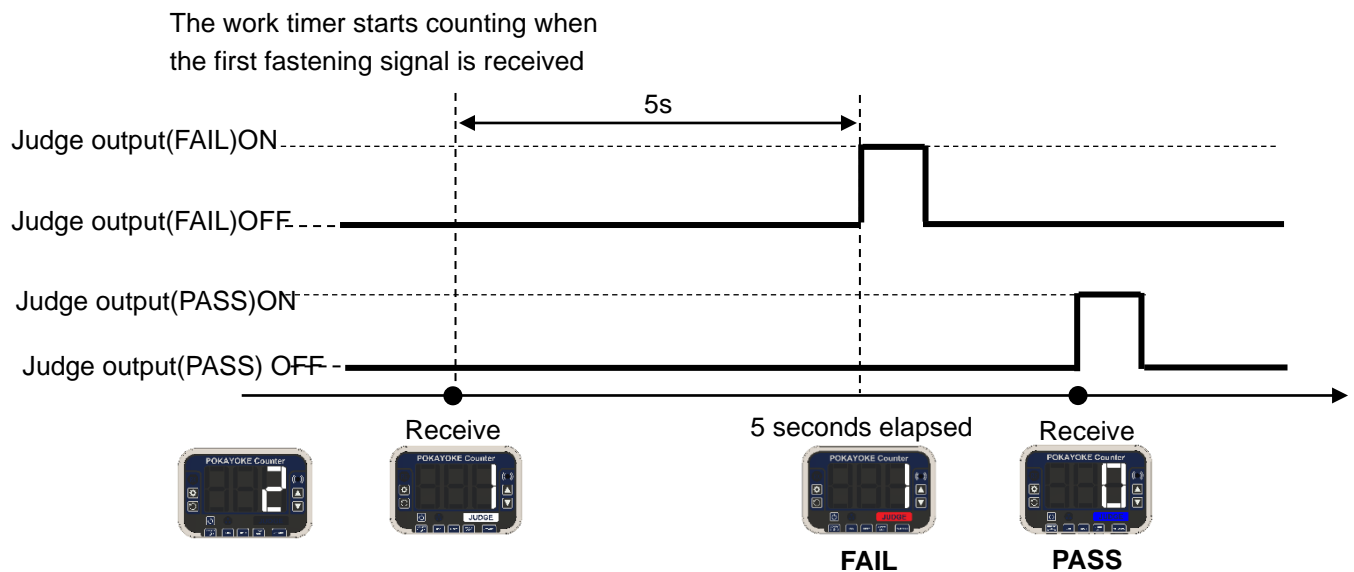
The work timer can be switched between Enabled "Enable"/Disabled "Disable". **<Default: Disable>**

The work timer is a function to set time limit for each work.

If the timer does not reach 0(zero) (or the timer counts up to the specified count value) within the set time of the work timer, the work will be judged as "FAIL". When the Auto judge setting is set to "Enable", after receiving the fastening signals corresponding to the remaining counts, "FAIL" will be reset and "PASS" will be given. When the Auto judge setting is set to Disable, judgement "PASS" is not given even after receiving the remaining fastening signals. The work timer starts counting when the first fastening signal is received.

*The work timer setting is enabled in "stand-alone mode" only.

Example) Action performed when the number of work count is set to "2", the work timer setting is set to "Enable", and the work timer setting in sec. is set to "5".

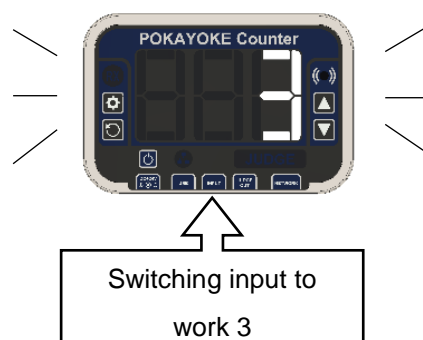


⑥ [Work number display] Work number display setting

The work timer can be switched between Enabled "Enable"/Disabled "Disable". **<Default: Disable>**

When work number display is set to "Enable", at the moment of switching works and entering the setting change mode, the work number is displayed for 1 second (blinks at 0.1 sec. intervals). When the work number is displayed, the Fastening signal reception and Key input are both disabled. When the Sensor input setting is set to "Sensor", and Sensor input turns ON during work number display after a work is selected, work number display is prioritized. After the work number is displayed, the number display changes from blinking to lighting, and both fastening signal reception and key input return to "Enable".

*The work number display setting is enabled in "stand-alone mode" only.



Blinks for about 1 sec. at 0.1 sec. intervals.

⑦ **[Reset key] Setting RESET-key disabled**

The reset key can be switched between Enabled "Enable"/Disabled "Disable". **<Default: Enable>**

When Setting RESET-key disabled is set to "Disable", the counter is not reset even by pressing the Reset key of the TW-800R-SCL main unit. When the setting is set to "Enable", reset the counter by the reset button.

*The reset by Reset input or Reset time is not restricted.

*The completion action of the setting change mode by pressing the Reset key in the setting change mode is not restricted.

*Setting RESET-key disabled is enabled in "stand-alone mode" and "simple count mode" only.

⑧ **[Transmitter data ethernet output] Setting to Output Task Results Data to LAN (transmitter data)**

Output task results data (transmitter data) to LAN can be switched between Enabled "Enable"/Disabled "Disable". **<Default: Disable>**

The transmitter data output is generated each time a fastening signal is received.

For data format, refer to "13-2. Communication specifications" described later.

*Output task results data (transmitter data) to LAN is enabled in "stand-alone mode" and "simple count mode" only.

⑨ **[Receiver data ethernet output] Setting to Output Task Results Data to LAN (receiver data)**

Output task results data (receiver data) to LAN can be switched between Enabled "Enable"/Disabled "Disable". **<Default: Disable>**

When fastening, JUDGE status (No judgment/PASS/FAIL) is changed, or external input is provided, the following data output is generated.

- Transmitter ID
- Work number of the work being executed (1~8)
- Tool number for the task being executed (SCL is fixed to 1)
- JUDGE status (0: Not judged / 1:PASS / 2:FAIL)
 - *The status change timing is synchronized with the JUDGE LED status.
- Current number of counts
- Specified count value
- Switch types (1: Limit switch/ 2: Test switch/ -(Hyphen): Not available)
- Transmitter battery level(0: Battery level OK / 1: Battery level low / -(Hyphen): Not available)

For data format, refer to "13-2. Communication specifications" described later.

*The LAN output setting for task results data (receiver data) is enabled only in "stand-alone mode".

⑩ [Data length type] Data length type setting for task results data (transmitter data)

The data size varies depending on the set values.

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

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

<Default: Short>

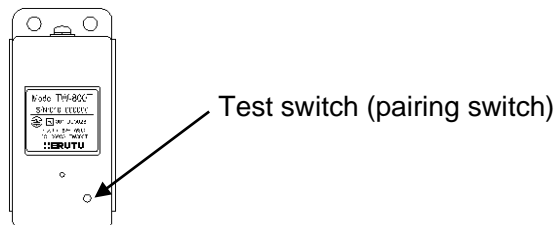
* Note

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.

■8.Test switch

The transmitter is equipped with a test switch for communication and battery voltage checks. The Receiver (RX) LED is triggered by a signal from the test switch, but countdown and output is not executed. When the test switch is pressed, the transmitter checks the battery remaining capacity. The result is indicated by the Transmitter LED or the Receiver LED.

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.



	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 times

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

■9.Battery level notification function

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

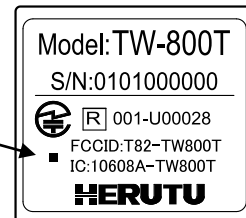
- ① Notification of low battery level with test switch: It is possible to check the battery level with the test switch. When the battery is low, the red LED will light for 1 second.
- ② Battery replacement notice: If the battery level is lower than in ① and the battery needs to be replaced, the green 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.



■10.Stand-alone mode

10-1.Registering Work in the receiver

Register Count/ Reset time/ Over count as a “Work” in advance. Up to 8 types of Work can be pre-registered.

Count: A signal received from the transmitter is counted as 1 count.

Reset time: Indicates the time when the count returns from “0 (zero)” to the original value after counting is completed.

Over count: Selection to judge FAIL for the signal received from the transmitter when the count is “0”.

Work timer: Time limit for each work. Activated when the work timer settings using the Web server functions is enabled.

Work registration details

Count	1 – 999 counts
Reset time	0 – 99 seconds
Over count	Invalid: 0 / Valid: 1
Work timer	1–999 seconds
Counting direction	Countdown:0 / Count-up: 1
Buzzer volume	Level 0-4

To register multiple works, switch the work using the TW-800R-SCL input cable (TW-SCLI-6) and follow the steps below.

- ① Long press the setting (REG) key in the count mode for 3 seconds or longer. (The receiver cannot enter the setting change mode during a task.)

Pressing the [RESET] key while in the setting change mode will return to the count mode.

- ② The Receiver (RX) LED lights up in red. Set the counter to any count by using the [setting (UP/DOWN)] keys. Long pressing the [setting (UP/DOWN)] keys will also increase/ decrease the count.

Count : 1-999

Count→Lit in red



- ③ When the [setting (REG.)] key is pressed, the Receiver (RX) LED lights up in blue. Set the counter to the desired reset time by using the [setting (UP/DOWN)] keys.

Reset time : 0-99

*When the reset time is 0 sec., the counter does not automatically return to the original count.

Press the reset button or input an external (Reset) input to return the counter to the original count.

Reset time→Lit in blue



- ④ When the [setting (REG.)] key is pressed, the Receiver (RX) LED lights up in yellow. Set the counter to the over count value using the [setting (UP/DOWN)] keys.

Over count : Invalid→0 / Valid→1

Over count→Lit in yellow



- ⑤ When the [setting (REG.)] key is pressed, the Receiver (RX) LED lights up in light blue. Set the counter to the desired work timer by using the [setting (UP/DOWN)] keys.

Work timer : 1-999

Work timer→Lit in light blue



- ⑥ When the [setting (REG.)] key is pressed, the Receiver (RX) LED blinking in red. Set the counter to the desired counting direction by using the [setting (UP/DOWN)] keys.

Counting direction : Countdown→0 / Count-up→1

Counting direction→Blinking in red



- ⑦ When the [setting (REG.)] key is pressed, the Receiver (RX) LED lights up in white. Set the counter to the desired buzzer volume level by using the [setting (UP/DOWN)] keys.

Buzzer volume: 0-4 (Volume 0 indicates no sound.)

Buzzer volume →Lit in white

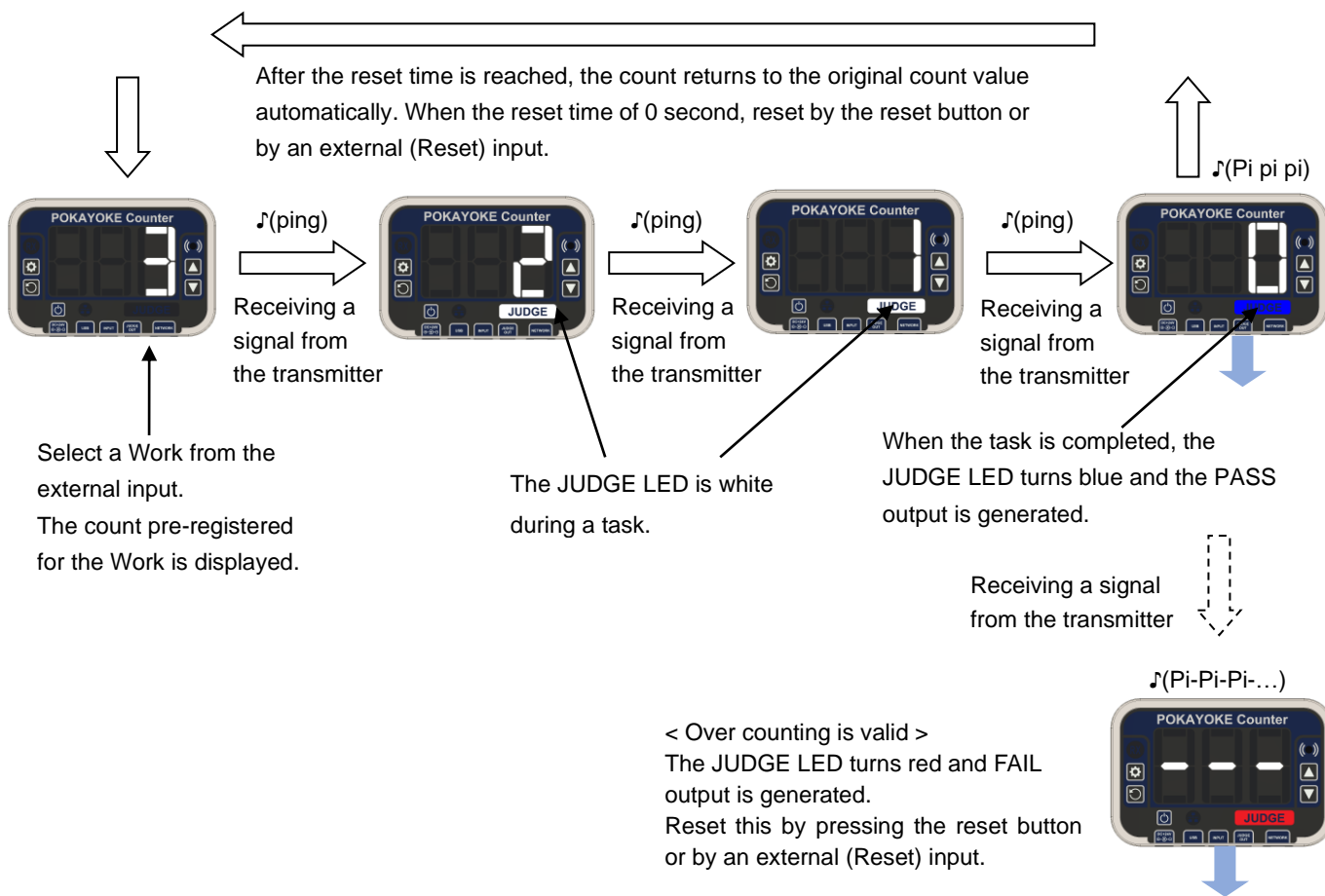


- ⑧ Finally, press the [setting (REG.)] key, and the registration is completed.

*After initial set up, it is recommended to backup it. For the use of backup function, refer to “14. Setting backup/restore to USB memory” described later.

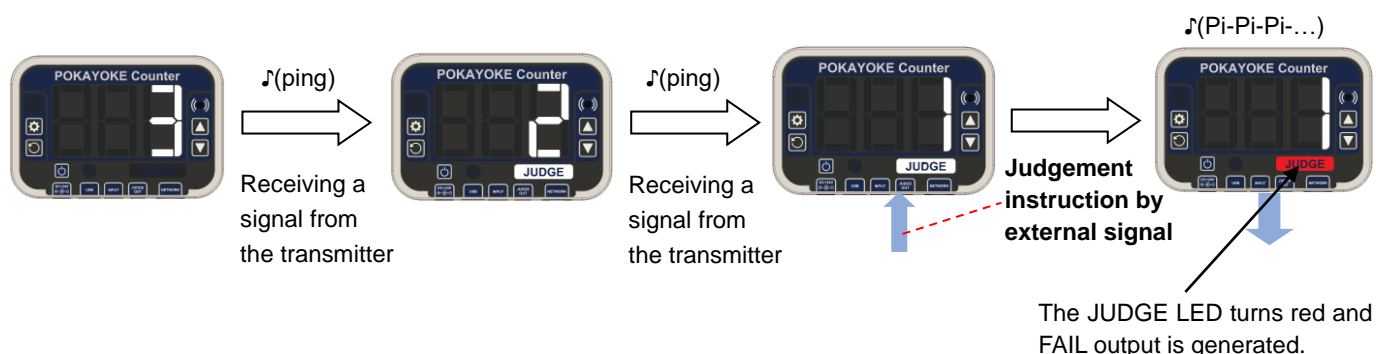
10-2.Operation

Work flow (count mode)



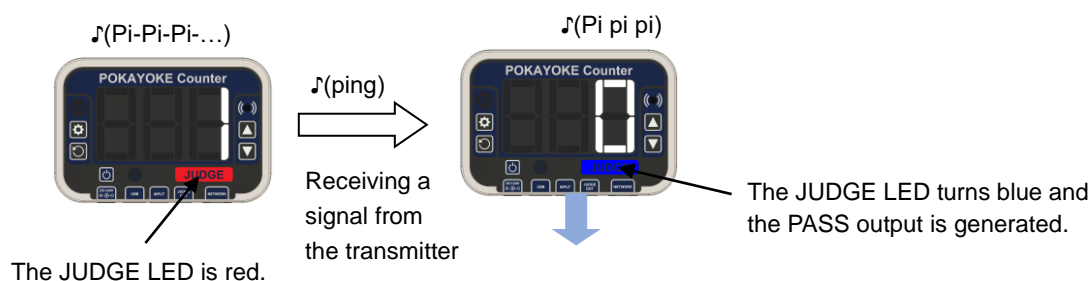
Judge input

When a judge input is received from an external device during countdown, a remaining count error occurs and a FAIL output is generated. Reset this by pressing the reset button or by an external (Reset) input. The counter returns to the state before starting the task.



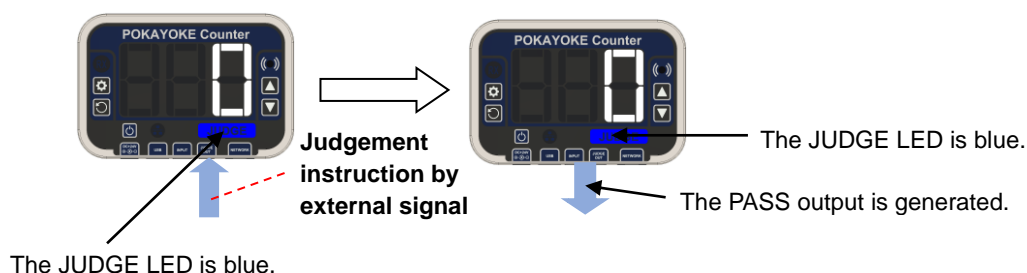
When the task is completed without resetting, the JUDGE LED turns blue and the PASS output is generated.

*When the Auto judge setting is "Disable", a Judge input is required again.



When receiving a judge input from an external device after the task is completed, the receiver generates a PASS output.

*When the Auto judge setting is "Enable" and the task is completed, PASS is output is generated without a Judge input.



State	JUDGE LED	Buzzer	PASS output	FAIL output
Before the task	OFF	-	-	-
Task in progress	White	Each time a signal is received, the sound "ping" is generated.	-	-
PASS	Blue	Pi pi pi	50ms-1s output(*2)	-
FAIL	Red	Pi-Pi-Pi-... Synchronize with JUDGE LED	-	50ms-1s output(*2)

(*2) Judge output time(PASS/FAIL) can be changed using Web server functions. For details, refer to "7-3-4. Advanced settings".

■11.Application interlock mode

A operating mode to be selected when using the receiver with POKAYOKE plus. When using the receiver in the application interlock mode, configure the network settings of the receiver. For details on network settings, see "7-3-3. Setting network information".

11-1.Buzzer volume adjustment

When the receiver is not connected to POKAYOKE plus, the buzzer volume can be changed.

- ① Long press the [setting (REG.)] key in the count mode for 3 seconds or longer. (The receiver cannot enter the setting change mode during a task.)
- ② The Receiver (RX) LED lights up in white. Set the counter to the desired buzzer volume level by using the [setting (UP/DOWN)] keys.

Buzzer volume: 0–4 (Volume 0 indicates no sound.)

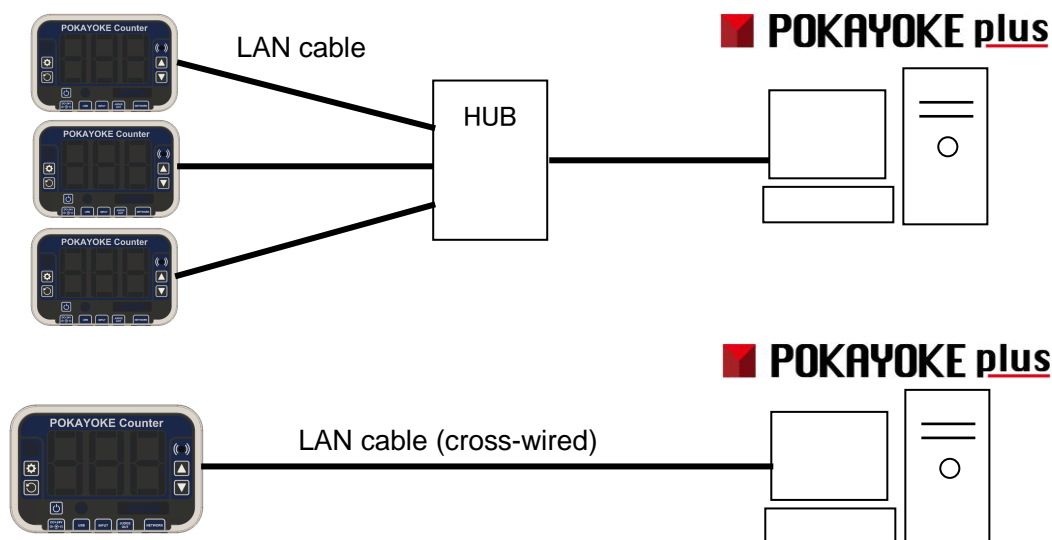
Buzzer volume → Lit in white



- ③ Press the [setting (REG.)] key, and the registration is completed.

11-2.Installation Methods

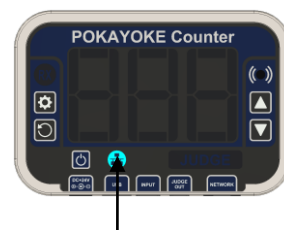
- Connect the LAN connector of the receiver to the switching hub or the PC's LAN connector with the LAN cable.
- The receiver is not equipped with AutoMDI/MDI-X function to determine the LAN port. To connect the receiver to the PC's LAN port directly, use a cross-wired LAN cable.



11-3. Confirmation of the connection status with the application

When the receiver is set to the application interlock mode, the connection status with POKAYOKE plus is indicated by lighting or blinking of the network monitor (blue) and 7 SEG-LED.

- Lit: Communicating with POKAYOKE plus
- Blink: Communication with POKAYOKE plus is disconnected



Network monitor

When the receiver receives a signal from the transmitter in the communication disconnected state, the buzzer sounds.

The buzzer is stopped by pressing the [RESET] key or by an external input.

When the network monitor is blinking, the possible cause is as follows.

- The LAN cable is disconnected.
- POKAYOKE plus does not start up.
- The IP address/Port No. was not correctly set for receiver registration on POKAYOKE plus.

11-4. Operation

When using the receiver with POKAYOKE plus, perform various settings, such as work registration, on POKAYOKE plus.

Task instructions (control of the count display, buzzer, external output, etc.) are provided by POKAYOKE plus.

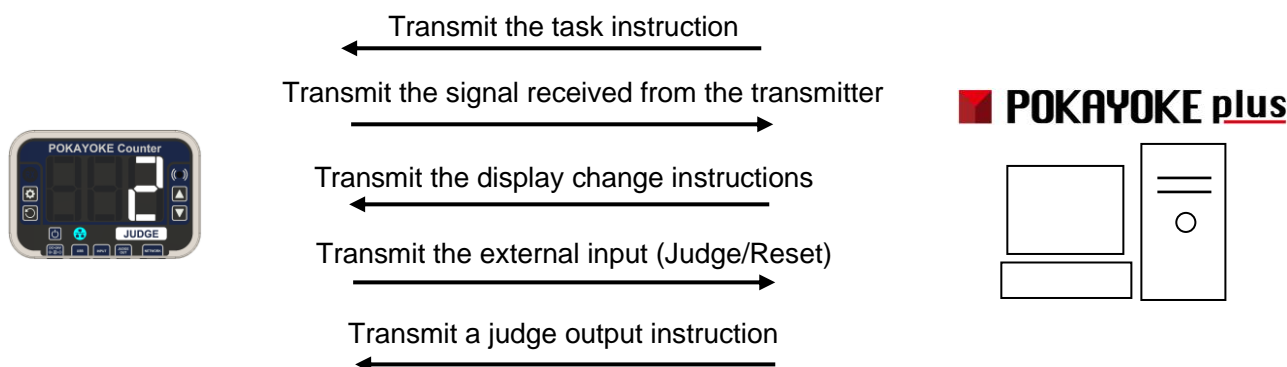
The receiver runs according to the instructions.

When the receiver receives a signal from the transmitter, the signal is transmitted to POKAYOKE plus.

POKAYOKE plus changes the count value and transmits the display change instructions to the receiver.

When a judge or reset instruction is provided from an external input to the receiver, the receiver informs POKAYOKE plus of the instruction.

For details, refer to "POKAYOKE plus Instruction Manual".



■12.Simple count mode

A mode that does not judge and counts up each time a fastening signal is received.

12-1.Setting

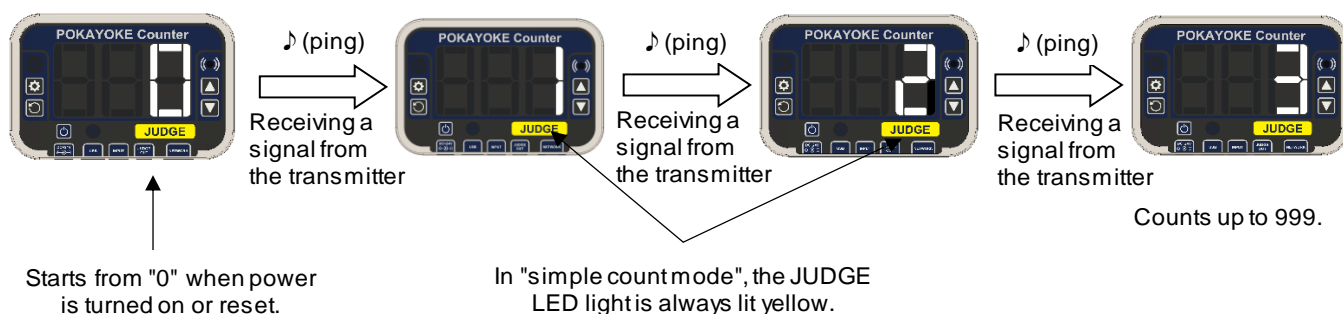
- The receiver RX LED blinks in white by turning the power supply ON while pressing and holding the reset key, and the receiver enters the operation setting mode.
- Press the UP key to select the "simple count mode" (Display"2" on the 7 SEG) and press the Set key to confirm. (Receiver RX lights out)
- Press the reset button or reset the count to 0 by reset input, and the number of counts will be reset.

*The number of counts is up to 999. The count will not change even if receiving more signals.

*There is no backup function for the number of counts. Turn ON the power again to reset the count to 0(zero).

*Once the mode is confirmed before turning OFF the power supply, the receiver starts up in the same mode as when it was turned OFF

12-2. Operation



12-3.Buzzer volume adjustment

When the receiver is not connected to POKAYOKE plus, the buzzer volume can be changed.

- ① Long press the [setting (REG.)] key in the count mode for 3 seconds or longer. (The receiver cannot enter the setting change mode during a task.)
- ② The Receiver (RX) LED lights up in white. Set the counter to the desired buzzer volume level by using the [setting (UP/DOWN)] keys.

Buzzer volume: 0–4 (Volume 0 indicates no sound.)

Buzzer volume → Lit in white



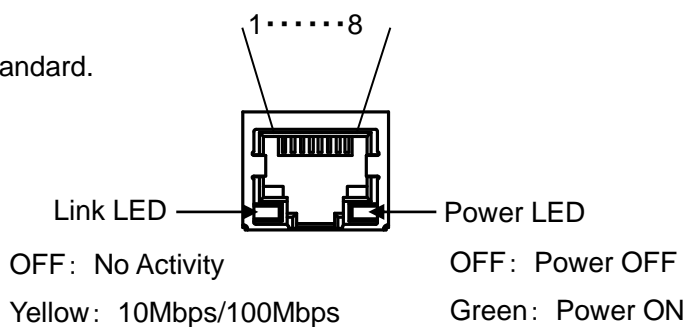
- ③ Press the [setting (REG)] key, and the registration is completed.

■13.Ethernet Communication

13-1.LAN cable connector

For the connector use RJ45 type.

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



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

13-2.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

“Transmitter data” and “Receiver data” are available as task results data.

“Transmitter data” is divided into two types: “Short data” and “Long data”.

Set a data type with a Web server function. (7-3-4.Advanced settings [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”.

●Task result data (transmitter data) format

◆ 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.

●Task result data (Receiver data) format(46byte)

@!ReceiverData<Space>	Receiver data (comma delimiter)	<CR><LF>
-----------------------	---------------------------------	----------

Data name	Description	Byte
@!ReceiverData<Space>	ASCII data	15
Receiver data (Transmitter ID)	ASCII data Transmitter ID number	10 (11 including comma)
Receiver data (Work number)	ASCII data Work number of the work being executed (1~8)	2 (3 including comma)
Receiver data (Tool number)	ASCII data Tool number for the task being executed (SCL is fixed to 1)	1 (2 including comma)
Receiver data (Judge status)	ASCII data 0: Not judged / 1:PASS / 2:FAIL (Synchronized with LED status)	1 (2 including comma)
Receiver data (Count)	ASCII data Current number of counts *From beginning of the work, the counter counts up each time a fastening signal is received. *When an over count error occurs, counting is stopped at the specified count value plus one.	3 (4 including comma)
Receiver data (Specified count)	ASCII data Specified count value	3 (4 including comma)
Receiver data (Switch types)	ASCII data 1: Limit switch/ 2: Test switch/ -(Hyphen): Not available	1 (2 including comma)
Receiver data (Transmitter battery level)	ASCII data 0: Battery level OK / 1: Battery level low / -(Hyphen): Not available	1
<CR><LF>	Termination code	2

Example) Counting by receiving fastening signals

Transmitter ID[010100004A],Work number[01],Tool number[1],Judge status[0:Not judged],Count[001],
Specified Count[005],Switch types[1: Limit switch], Transmitter battery level[0: Battery level OK]

```
@!ReceiverData 010100004A,01,1,0,001,005,1,0
```

Example) PASS by receiving fastening signals

Transmitter ID[010100004A],Work number[01],Tool number[1],Judge status[1:PASS],Count[005],
Specified Count[005],Switch types[1: Limit switch], Transmitter battery level[0: Battery level OK]

@!ReceiverData 010100004A,01,1,1,005,005,1,0

Example) FAIL by Judge input before completion of the work

Transmitter ID[010100004A],Work number[01],Tool number[1],Judge status[2:FAIL],Count[002],
Specified Count[005],Switch types[-: Not available], Transmitter battery level[-: Not available]

@!ReceiverData 010100004A,01,1,2,002,005,-,-

Example) At Reset

Transmitter ID[010100004A],Work number[01],Tool number[1],Judge status[0:Not judged],Count[000],
Specified Count[005],Switch types[-: Not available], Transmitter battery level[-: Not available]

@!ReceiverData 010100004A,01,1,0,000,005,-,-

Example) At work select

Transmitter ID[010100004A],Work number[02],Tool number[1],Judge status[0:Not judged],Count[000],
Specified Count[001],Switch types[-: Not available], Transmitter battery level[-: Not available]

@!ReceiverData 010100004A,02,1,0,000,001,-,-

Example) FAIL by work timer

Transmitter ID[010100004A],Work number[01],Tool number[1],Judge status[2:FAIL],Count[002],
Specified Count[005],Switch types[-: Not available], Transmitter battery level[-: Not available]

@!ReceiverData 010100004A,01,1,2,002,005,-,-

Example) FAIL by over count

Transmitter ID[010100004A],Work number[01],Tool number[1],Judge status[2:FAIL],Count[006],
Specified Count[005], Switch types[1: Limit switch], Transmitter battery level[0: Battery level OK]

@!ReceiverData 010100004A,01,1,2,006,005,1,0

■14. Setting backup/restore to USB memory

14-1. Backup

The settings of TW-800R-SCL can be backed up on the USB memory.

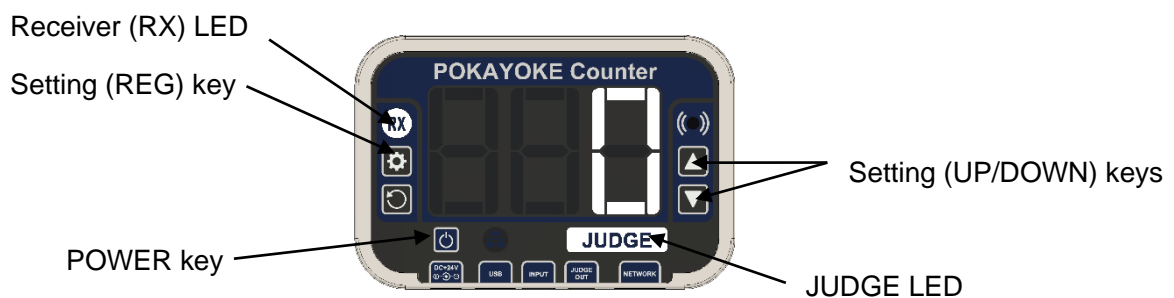
The data to be backed up becomes the parameters changed in the settings by the Web server and by operating the main unit.

*The pairing information is not included in the backup.

[Backup procedure]

- ① When the power supply of the receiver is OFF, **press the [Power] key while holding down the [DOWN] key.**

The receiver (RX) LED and JUDGE LED blink in white and the backup/restore select mode is entered.



- ② Select the backup mode "0" by using the [setting (UP/DOWN)] keys.
Backup→0 / Restore→1
- ③ Insert a USB memory into TW-800R-SCL. The requirements for the USB memory available are as follows.

Item	Specification
Connector	USB Type-A
Format	FAT32, FAT16, FAT12
Security lock support	Not supported
Interface	USB2.0

- ④ Press the [SET(REG)] key to execute backup. (When the receive (RX) LED is lit in blue, the USB memory is being recognized.)
- ⑤ When the receiver (RX) LED lights up in green, the backup is completed.
When the receiver (RX) LED lights up in red, an error occurred. Refer to "17. Troubleshooting".

14-2.Restore

The data backed up on the USB memory can be restored to TW-800R-SCL.

[Restore procedure]

- ① When the power supply of the receiver is OFF, **press the [Power] key while holding down the [DOWN] key.**

The receiver (RX) LED and JUDGE LED blink in white and the backup/restore select mode is entered.



- ② Select the backup mode "1" by using the [setting (UP/DOWN)] keys.
Backup→0 / Restore→1
- ③ Insert a USB memory into TW-800R-SCL. The requirements for the USB memory available are as follows.

Item	Specification
Connector	USB Type-A
Format	FAT32, FAT16, FAT12
Security lock support	Not supported
Interface	USB2.0

- ④ Press the [SET(REG)] key to execute restore. (When the receive (RX) LED is lit in blue, the USB memory is being recognized.)
- ⑤ When the receiver (RX) LED lights up in green, the restoration is completed.
When the receiver (RX) LED lights up in red, an error occurred. Refer to "17. Troubleshooting".

15.Specifications

Common specification

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

Transmitter

Item	Specifications
Input(s)	1 Limit Switch 1 Test Switch
Display	1 LED (Red/Green)
Power Source	1 Coin Battery (CR2032)
Operating Environment	Temperature: 0-50°C (32-122°F) Humidity: 80% or less (without condensation)
External Dimensions (W x H x D)	34 x 71 x 17.5 mm (1.3 x 2.8 x 0.7") (excluding protrusions)
Weight	Approx. 40 g (1.4 oz)
Antenna	PCB Antenna
Battery Life	Approx. 300,000 uses (depending on usage conditions)

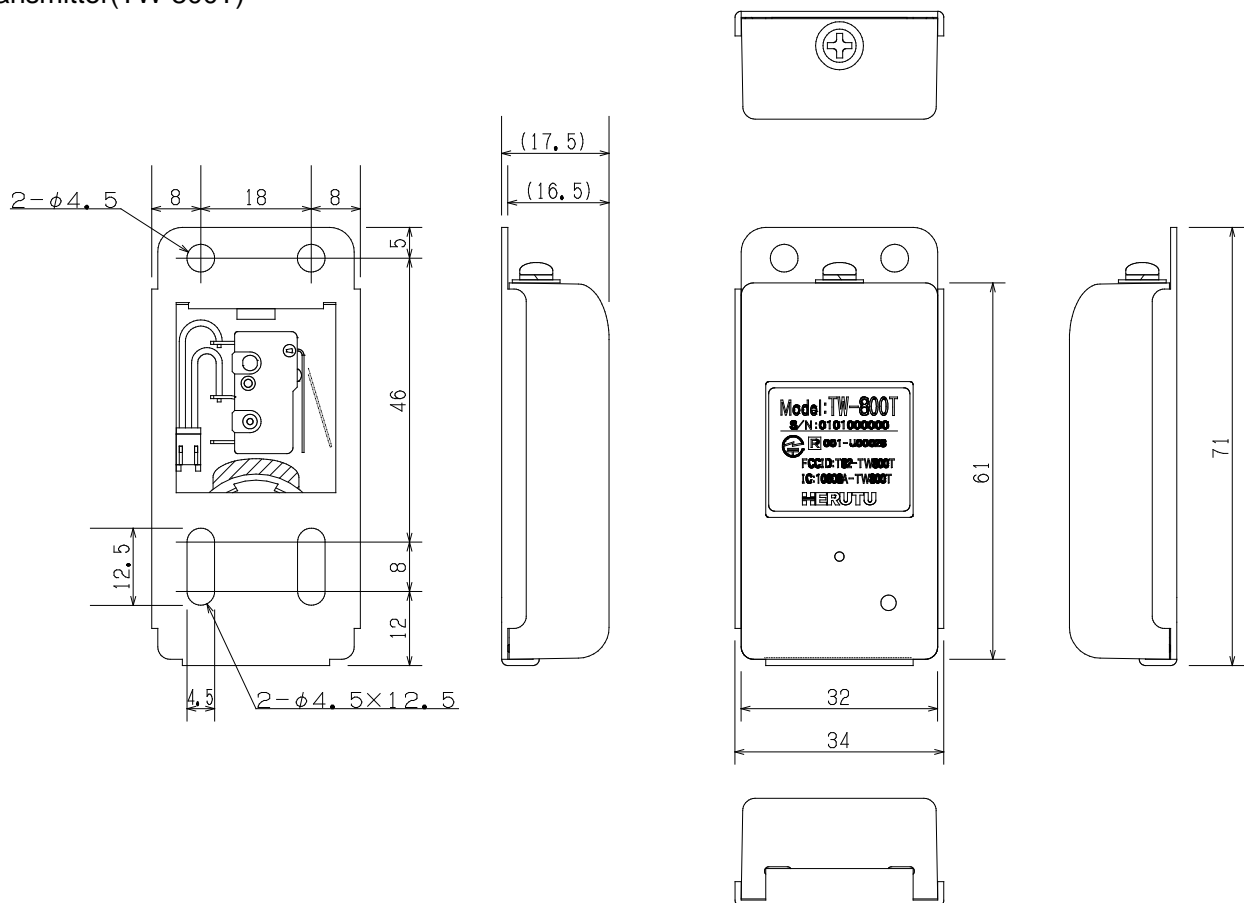
Receiver

Item	Specifications
Output(s)	Judge PASS 1Bit / Judge FAIL 1Bit / COM Square connector 2.5mm pitch, 2x2 pins, 4 poles(1 pole unused) 2 Power Transistor Outputs (1 PASS / 1 FAIL)
Input(s)	Judge 1Bit / Reset 1Bit / Work-Select 3Bit / COM Square connector 2.5mm pitch, 3x2 pins, 6 poles (Work-Select input / Judge input / Reset input)
Switches	5 Touch Keys; Power / REG. / RESET / ▲(UP) / ▼(DOWN)
Buzzer	Piezo Buzzer 90dB (at 10cm (0.33"))
Display	7-Segment LED 3-Digit ((W x H) 27 x 50 mm (1.1 x 2.0") per digit) JUDGE LED : Red/Blue/Green/White Receiver (RX) LED : Red/Blue/Green/Yellow/White Network monitor LED: Blue

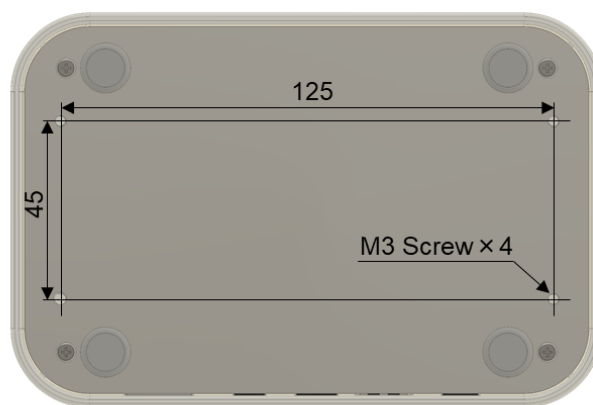
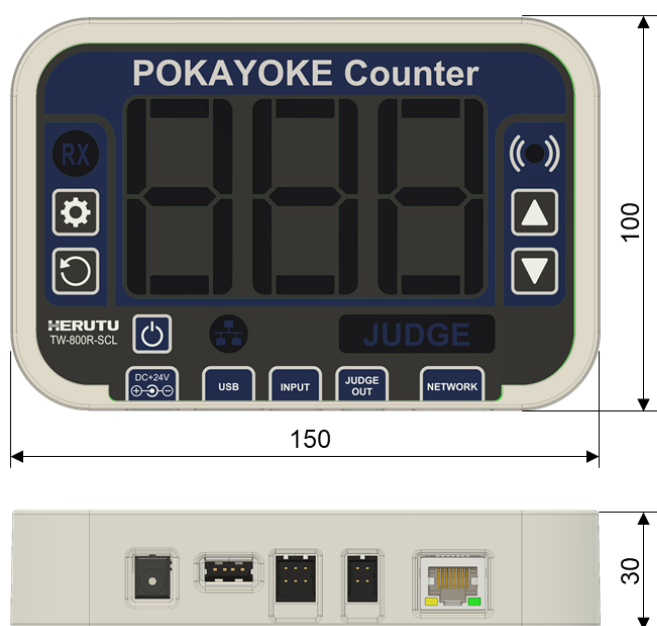
Power Source	TW-800R-SCL: AC 100-240 V (using included AC Adapter) Body DC12-24V TW-800R-MCL: DC5V±5%
Current Consumption	TW-800R-SCL: 200mA or less (DC24V input) TW-800R-MCL: 500mA or less (DC5V input)
Operating Environment	Temperature: 0-50°C (32-122°F) Humidity: 85% or less (without condensation)
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

■16.Dimensions Drawing

●Transmitter(TW-800T)



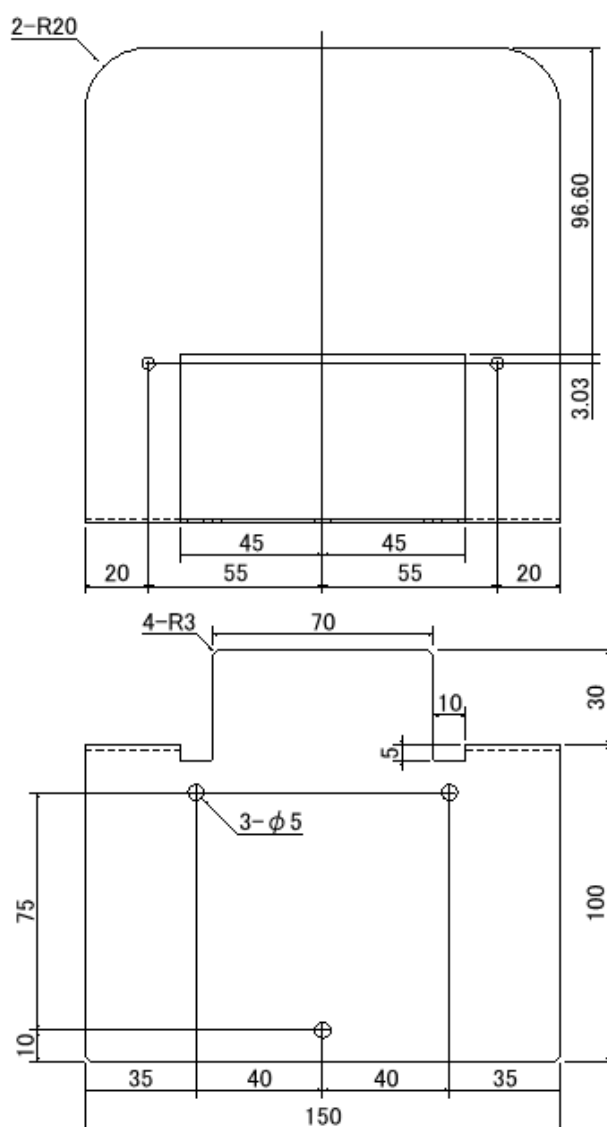
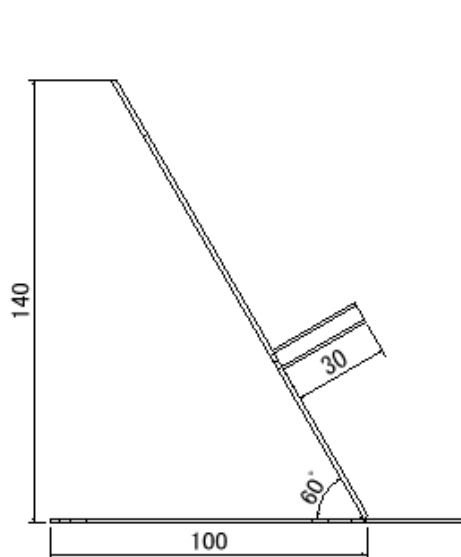
●Receiver(TW-800R-SCL/TW-800R-MCL)



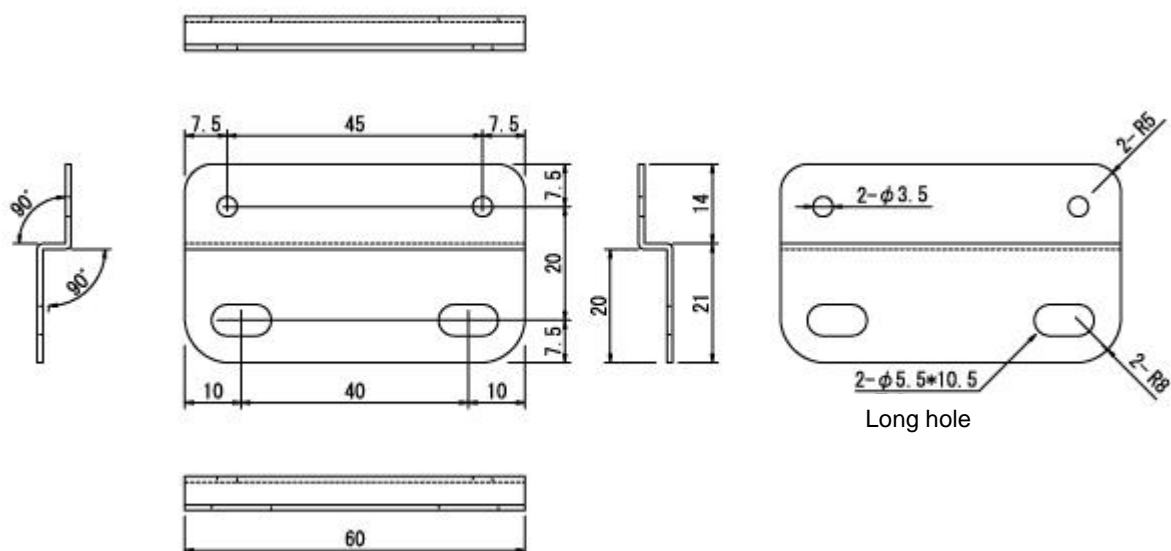
Do not insert mounting screws more than 5mm into the main body.

<Options>

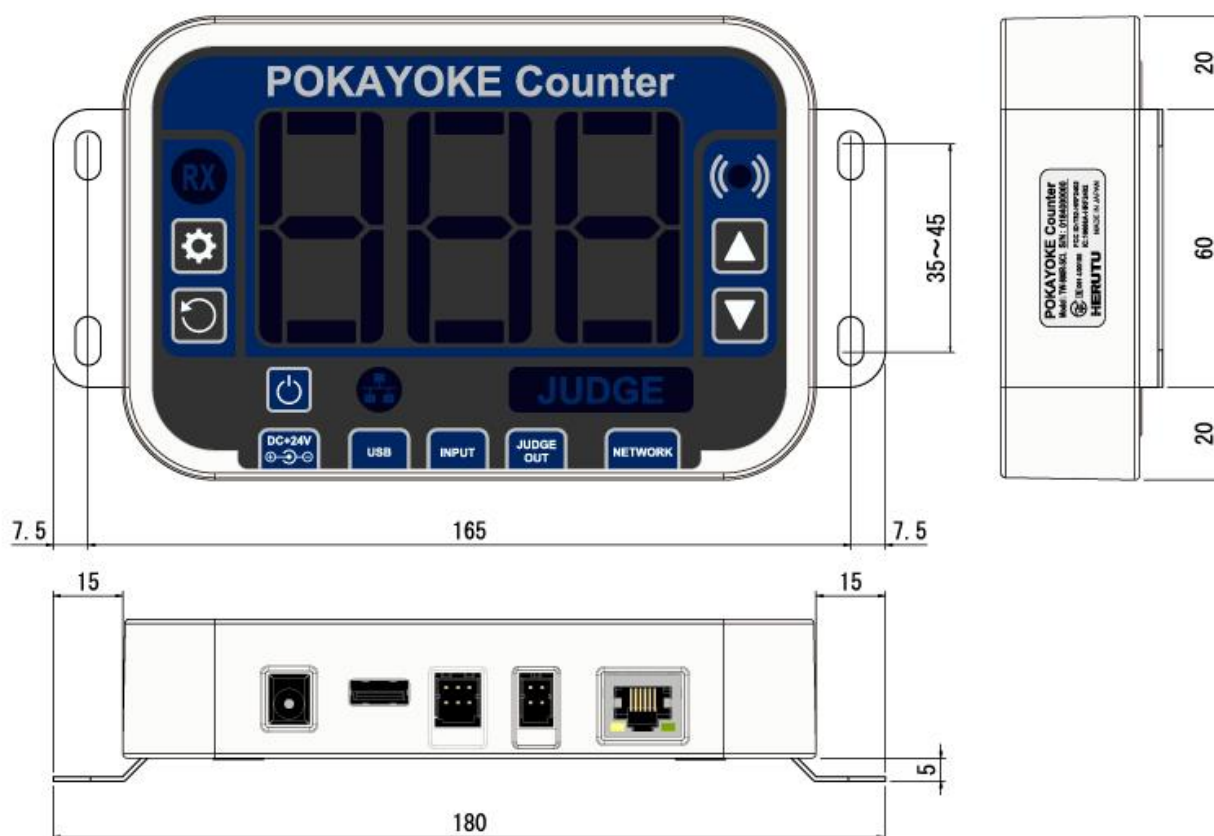
●Desktop Stand TW-SCDS01



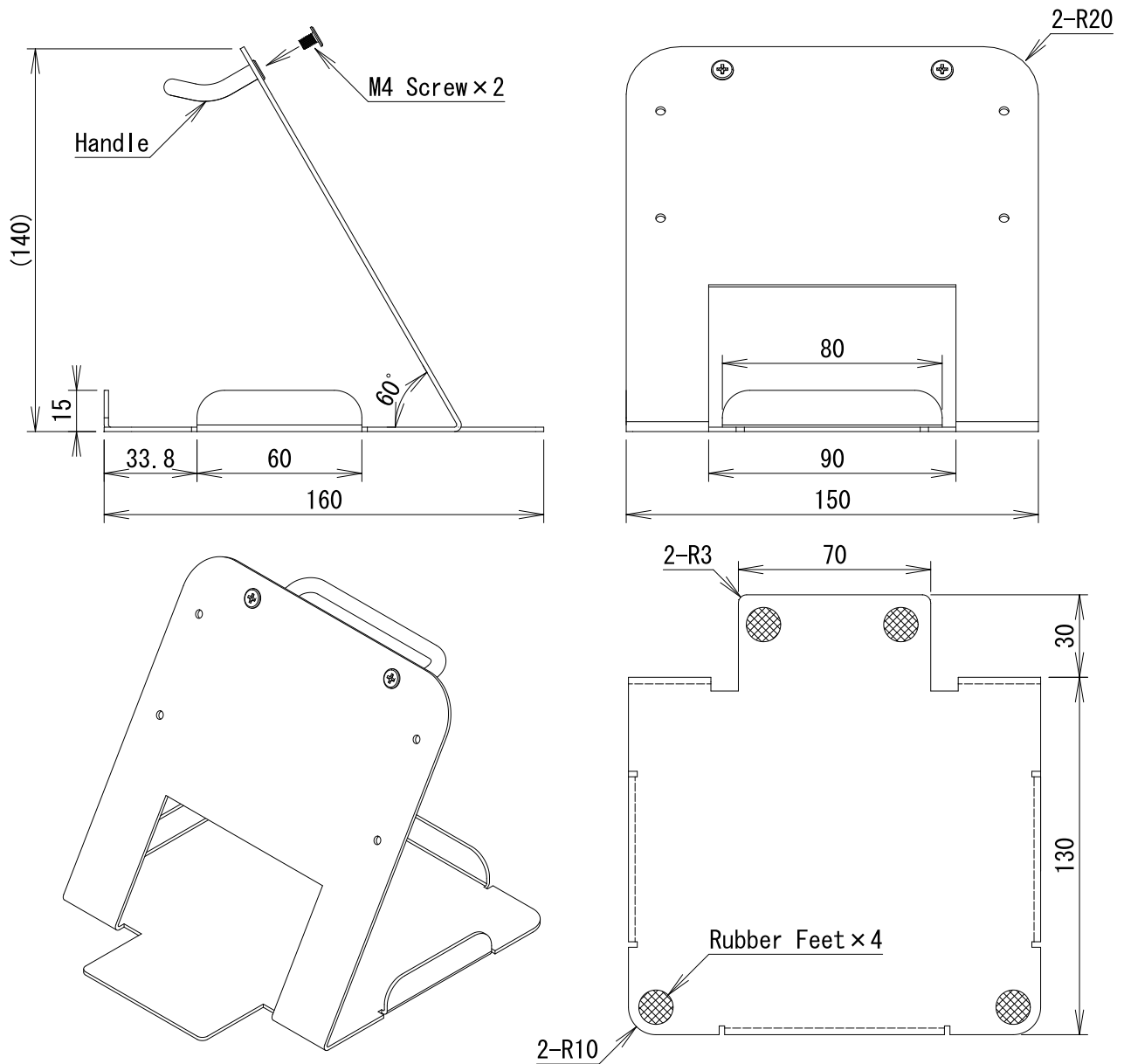
●TW-800R-SCL Wall mounting bracket TW-SCLF01



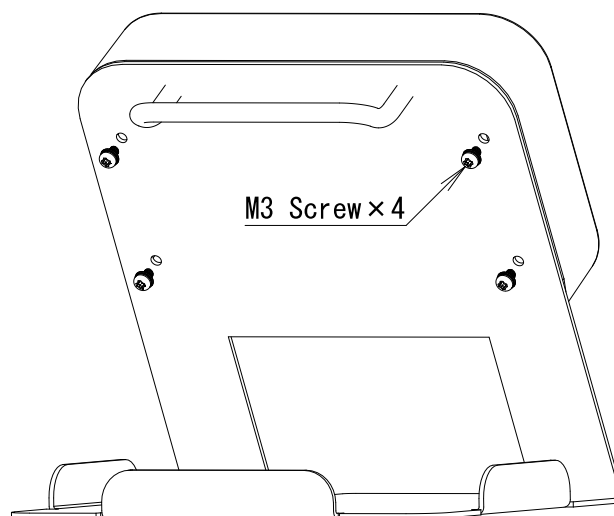
●Drawing with TW-SCLF01 installed



●Mobile Stand TW-MCLDS01



Attach the included handle and rubber feet on the stand before use. Fix the receiver to the stand with four M3 screws included.



■17.Troubleshooting

Troubleshooting of the transmitter

Phenomenon	Cause and remedy
The transmitter does not transmit LED (red or green) does not light up	Battery capacity is low. →Please replace the battery (CR2032).
	The limit switch signal is not connected. →Make sure the connector of the transmitter board and the limit switch connector are securely connected.
	The limit switch is not hit. →Adjust the installation position of the limit switch on the torque wrench body and check if the limit switch is hit.
	Pairing is not done. (not registered) →Perform pairing with the receiver to communicate with the transmitter.
	The power of the receiver is not ON. →Make sure the power of the receiver to communicate with the transmitter is ON.
The red LED blinks 3 times after transmitting.	The communication distance is too far. →The distance is beyond the maximum communication distance of the machine. Install the transmitter in a location where it can communicate with a receiver.
	Communication cannot be done due to external factors. →Use of a product using the same frequency band (2.4GHz band) as this product may prevent communication. Please contact our Sales Department with your product information.
The red LED blinks 10 times after transmitting.	
The red LED lights up after sending test	Battery capacity is decreasing. →Please replace the battery (CR2032).
Pairing cannot be done	The receiver is not in the pairing mode. →Set the receiver to the pairing mode and press the pairing switch of the transmitter for 3 seconds or more.

Troubleshooting of the receiver

Phenomenon	Cause and remedy
When backing up the settings to the USB memory, an error (the receiver (RX) LED is lit in red) occurred.	The USB memory format is not supported.
	→Confirm that the supported USB memory formats are FAT32/FAT16/FAT12.
	A security compatible USB memory is used.
	→Use a security incompatible USB memory.
	Insufficient capacity of the USB memory.
	→Check the available capacity of the USB memory.
	The USB memory is write-protected.
	→Release the write-protected state of the USB memory.
When the settings are restored to TW-800R-SCL, an error (the receiver (RX) LED is lit in red) occurred.	The USB memory format is not supported.
	→Confirm that the supported USB memory formats are FAT32/FAT16/FAT12.
	A security compatible USB memory is used.
	→Use a security incompatible USB memory.
	The backup file does not exist.
	→Locate the backup file in the top folder of the USB memory.
	The problem is not solved even after the above troubleshooting.
	→Please contact our sales department of HERUTU.
No LED lights up	The power of the receiver is not ON.
	→Check the AC adapter connection. →When using a lithium-ion battery as an operating power supply, check the remaining capacity. If the remaining capacity is not sufficient, charge the battery.
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.
The buzzer does not sound	The buzzer volume is turned down.
	→Adjust the buzzer volume.
The network monitor and 7 segment LED are blinking	<ul style="list-style-type: none"> •The LAN cable is disconnected. •POKAYOKE plus does not start up. •The IP address/Port No. was not correctly set for receiver registration on POKAYOKE plus.
	→•Connect the LAN cable to the receiver.
	→•Start up POKAYOKE plus.
	→•Set the IP address/Port No. correctly for receiver registration on POKAYOKE plus.
Connecting to web server cannot be done	Pairing is not done. (not registered)

	→Perform pairing with the receiver to communicate with the transmitter.
<ul style="list-style-type: none"> •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”.)

【Reference】

- Operating time of the receiver when a lithium-ion battery is used.

When using TW-800R-MCL in combination with Makita’s USB adapter ADP05 and a lithium-ion battery BL1460B(14.4V/6Ah), the receiver can operates 55 hours continuously under the following operating conditions.

(As the operating time varies depending on the operating conditions and battery conditions, use the following conditions as a guideline.)

Operating conditions: “Stand-alone mode”, Work select input 2, Number of counts 25, Reset time 1 sec., Over count disabled, Buzzer volume 0, Reception of the count signals from the transmitter every 5 sec.

- The model No. of the lithium -ion batteries compatible with Makita’s USB adapter “ADP05” are as follows.

(As of January, 2023)

14.4V : BL1460B, BL1450, BL1440, BL1430B, BL1415N

18V : BL1860B, BL1850B, BL1840B, BL1830B, BL1830, BL1820B, BL1815N

■18.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 ELECTRONICS CORPORATION

422-1 Higashimikata-cho, Kita-ku, Hamamatsu, Shizuoka, 433-8104 Japan

(Sales dept) TEL.+81-53-438-3555 FAX. +81-53-438-3411

Website URL <https://www.herutu.co.jp/en/> E-mail info@herutu.co.jp