PATLITE®

GA0001333_02_EN_GMC

Wireless Data Acquisition System

WD-Z2 Series

Installation Guidelines -WD PRO Receiver Rev.2

Transmitter：WDT-5E-Z2、WDT-6M-Z2
WDT-4LR-Z2、WDT-5LR-Z2、WDT-6LR-Z2
Receiver：WDR-L(E)-Z2-PRO(-L)

NOTE: This Guideline is a translation of the Japanese guidelines. Some parts are not applicable for applications

Table of Contents

1. Introduction

This manual contains the installation guidelines with step-by-step instructions from the start of operation for a smooth installation of the WD-Z2 series. Refer to this manual to check the tasks required for each step, and plan an installation schedule and share the information with relevant departments.

This manual covers the basic functions of the WD-Z2, and summarizes the steps provided in the WD-Z2 installation kit. Check the content of this manual in conjunction with the associated product instruction manual included with the product.

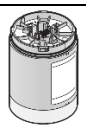
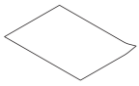
Below is a list of associated instruction manuals:

<table>
<tr><th colspan="2">Item</th><th>Model</th><th>Instruction Manual</th><th>Item Code</th></tr>
<tr><td rowspan="5">WD-Z2 Installation Kit</td><td>-</td><td>-</td><td>This manual</td><td>GA0001333</td></tr>
<tr><td rowspan="3">Startup Kit</td><td>WD-START4LR-Z2-PRO</td><td>Startup Kit Instruction Manual</td><td>-</td></tr>
<tr><td>WD-START5LR-Z2-PRO</td><td rowspan="2">Setup Kit Instruction Manual</td><td rowspan="2">GA0001506</td></tr>
<tr><td>WD-START6LR-Z2-PRO</td></tr>
<tr><td>Setup kit</td><td>WDT-NHBZ2+T0161</td><td>—</td><td>—</td></tr>
<tr><td colspan="2" rowspan="2">Transmitter</td><td>WDT-5E-Z2
WDT-6M-Z2</td><td>Wireless Data Acquisition System Instruction Manual (LME/LE Series)</td><td>T95100193</td></tr>
<tr><td>WDT-4LR-Z2
WDT-5LR-Z2
WDT-6LR-Z2</td><td rowspan="2">Wireless Data Acquisition System Instruction Manual (WDT-□LR-Z2/WDR-L(E)-Z2-PRO(-L))</td><td rowspan="2">GA0001327</td></tr>
<tr><td colspan="2">Receiver</td><td>WDR-L(E)-Z2-PRO(-L)</td></tr>
<tr><td>Software</td><td>For transmitter and receiver settings / CSV data collection</td><td>WDS-WIN01</td><td>WDS-WIN01 Instruction Manual*1</td><td>B95100536</td></tr>
</table>

*1 Download the instruction manuals from our website (For Japan, download after completing the customer registration.)

2. WD-Z2 Installation Kits

Below is a list of the items included in each installation kit, followed by descriptions.

Item			Description	Signal Tower Compatibility	
				LE/LME	LR
Startup Kit	Receiver (WDR-L-Z2-PRO)		Receiver for standard operation use.	Yes	Yes
	Receiver for setup* (WDR-L-Z2-PRO-L)		Used when configuring the initial settings of the transmitter in locations such as the office.	Yes	Yes
	Transmitter for LR		Transmitter for standard operation use.	No	Yes
	Setup Kit: Body unit for setup Body Unit (for LR)		Used when configuring the transmitter settings. For setting up the WDT-4LR-Z2、WDT-5LR-Z2 and WDT-6LR-Z2.	No	Yes
	Setup Kit: Mounting bracket		A fixture used to enable the body unit to stand by itself during setup.	No	Yes
	Setup Kit: Conversion cable		Conversion cable used during setup when connecting the AC adaptor and the body unit.	No	Yes
	USB Cable		Setup cable to connect the receiver to a PC.	Yes	Yes
	Customer Registration Guide		<u>The customer is required to register (for Japan only).</u> When registered, the customer can download manuals and software packages and can request the “Radio Wave Environmental Analysis Service” for use in conjunction with the Startup Kit.	Yes	Yes
Startup Kit	Body unit for setup Body Unit (For LME/LME)		Used when configuring the transmitter settings. Can also be used as a 4-contact transmitter by connecting a push-button switch, or other switches to the back of the connector. For setting up the WDT-5E-Z2 and WDT-6M-Z2. (Refer to Reference 2 for details on the connector.)	Yes	No
	AC adaptor for the body unit AC Adaptor		Supplies power to the body unit when used to setup. (100V AC, for Japan only)	Yes	Yes
	Transmitter (For LME/LE)		Transmitter for standard operation use in combination with the LME or LE bracket. （WDT-6M-Z2）	Yes	No

*with AC adaptor

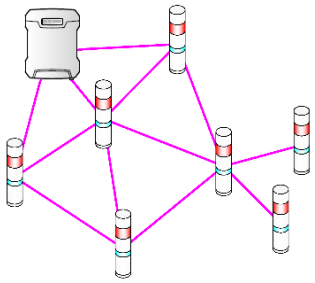
3. WD-Z2 Series Wireless Capability

(1) WD-Z2 Wireless Network System Overview

① Mesh Network Transmission

This is a function that automatically connects the WDT over an optimum communication route to the WDR when transmitting information. A dense mesh network increases communication redundancy.

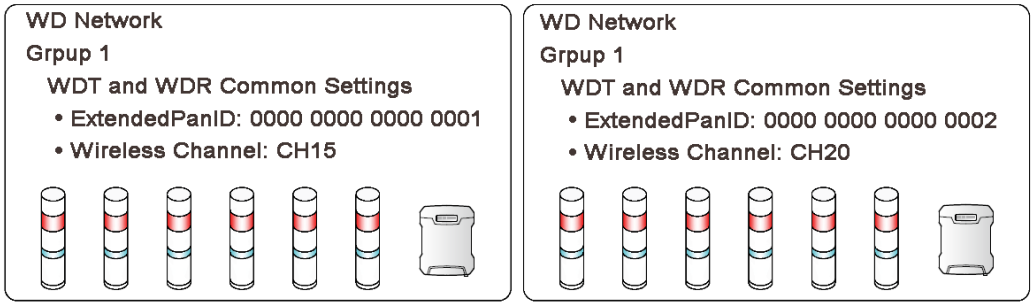
- The network can include a mixture of WDT-5E-Z2, WDT-6M-Z2, WDT-4LR-Z2, WDT-5LR-Z2 and WDT-6LR-Z2 transmitters.
- Use a 20m distance as a guide for estimating the radio wave reach between devices.



② **ExtendedPanID** Setup Example

- The WD-Z2 system requires grouping of each WD wireless network, with one WDR grouped per multiple WDT connections. The group can be defined by setting the **ExtendedPanID** and **Wireless channel** properties of the WDR and WDT to the same values.

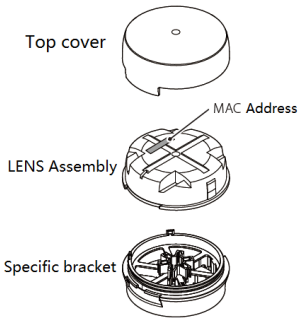
ExtendedPanID consists of 16 single-byte, alphanumeric characters.
Setup range is from hexadecimal 0000 0000 0000 0000 to FFFF FFFF FFFF FFFE.
Wireless channel selection is in a range of 16 channels, from CH11 to CH26. When there are multiple receivers operating on the same channel, always group the receivers and transmitters on the same channel with the same "ExtendedPanID".

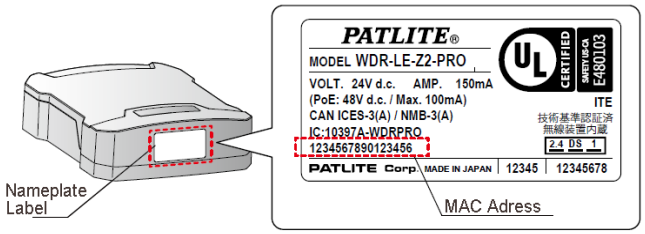


Caution	
Mandatory	If the WDT "ExtendedPanID" is set to "0000 0000 0000 0000" (default), it may be grouped with all WDRs regardless of the "ExtendedPanID" setting. To avoid interference of groupings, change the ExtendedPanID of the WDT to a value other than "0000 0000 0000 0000" during configuration.
Caution	If the WDR "ExtendedPanID" is set to "0000 0000 0000 0000" (default), the WDR MAC address (IEEE address) operates as the "ExtendedPanID". In this case, it will operate as an "ExtendedPanID" that is different from the set value, so it is recommended to set a value other than "0000 0000 0000 0000" (initial value) during configuration.

③ MAC Address for Identification

- For identification, fixed addresses are assigned to the WDT and WDR, which are called a MAC Address (IEEE Address). The MAC address is printed on the WDT and WDR, in the locations indicated below:

WDT-5E-Z2/WDT-6M-Z2	WDT-4LR-Z2/WDT-5LR-Z2/WDT-6LR-Z2
	

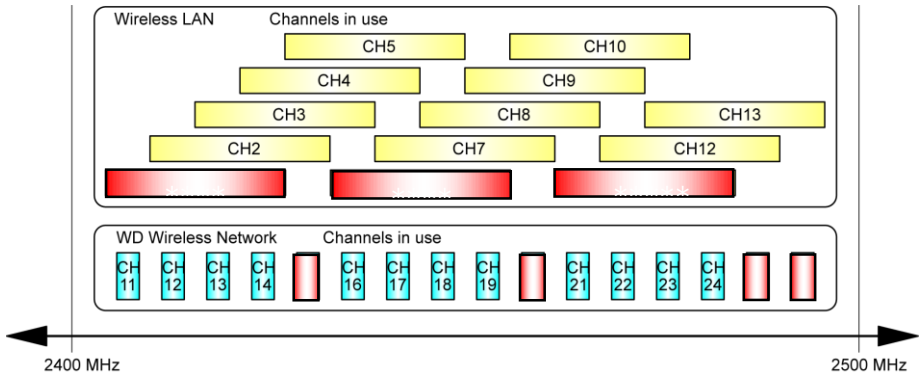
WDR-L(E)-Z2-PRO(-L)


Caution

The MAC address on the WDR label is different from the MAC address used for LAN communication. You can confirm the MAC address used for LAN communication from the WEB browser setup screen.

(2) Using with other Wireless Systems

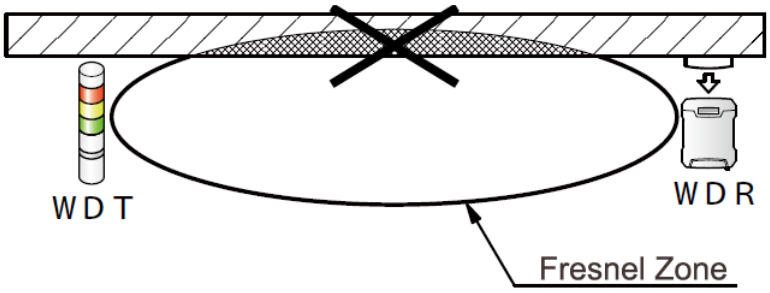
- The WD wireless network operates on the ZigBee (IEEE802.15.4 compliant) 2.4 GHz frequency. Although it runs on the same 2.4 GHz frequency as a wireless LAN (Wi-Fi), the WD wireless network can operate without connecting to a wireless LAN because it conforms to the IEEE802.15.4 standard. This also applies to Bluetooth and other ZigBee wireless networks.
  However, if the frequencies being used happen to overlap, the WD wireless network could experience transmission delays and other communication issues.
- The wireless communication is encrypted. The encryption standard uses AES-CCM (Advanced Encryption Standard-Counter with CBC-MAC), with an encryption key of 128 bits.

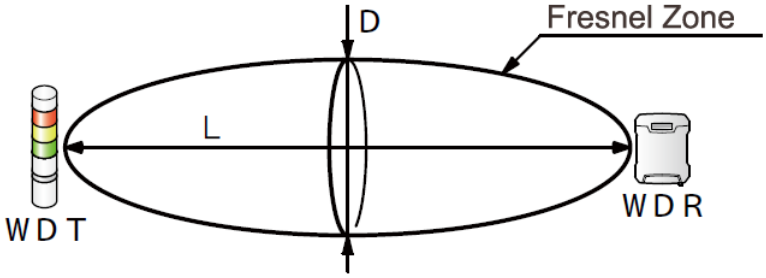


As an example, if the wireless LAN uses Channels 1, 5 and 6 (CH1, CH5, CH6); the WD can use Channels 15, 20, 25 and 26 (CH15, CH20, CH25, CH26). (Refer to the diagram above)

(3) Stable Wireless Communication Zone

- It is required to have a good line of sight for each device (WDR, WDT) free from any obstacles (hereafter referred to as the Fresnel Zone).
- The Fresnel Zone is a three-dimensional space, in which its size is estimated as follows.



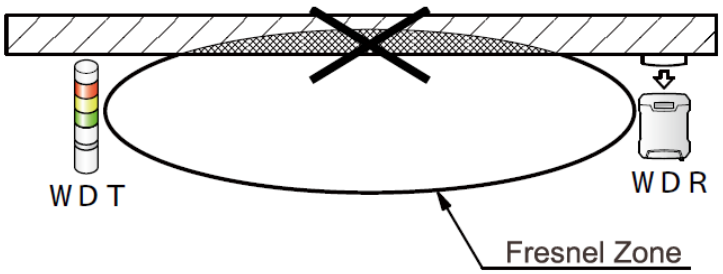


With a line of sight at L: 20m, the Fresnel Zone diameter D is about 1.6m.
With a line of sight at L: 10m, the Fresnel Zone diameter D is about 1.2m.

- If your installation environment does not have a Fresnel Zone, an obstacle may interfere with proper wireless connection regardless of the distance between the Transmitter and Receiver.

CAUTION

- When the transmitter and receiver are mounted on the same wall, as shown in the diagram below, the wall becomes an obstacle in the Fresnel Zone, risking a decrease in communication performance. This applies not only to walls, but also to other obstacles such as ceilings, flooring and large equipment.
  In such cases, devise a way of installing the receiver and transmitter as far from the wall, or other obstacles, as possible.



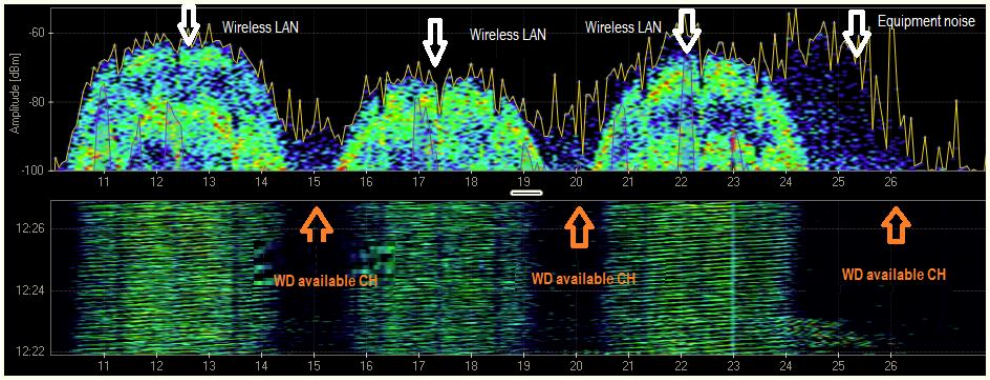
(4) Radio Wave Environmental Analysis Service

Requesting a “Radio Wave Environmental Analysis” in the installation area is essential to ensure a stable operation of the WD system.

The Radio Wave Environmental Analysis Service for one receiver unit is included with the Startup Kit. This service is recommended for customers who feel it is difficult to perform it themselves.
The service can be requested through the link in the Customer Registration Guide, which is included in the Startup Kit.

Shown below is the Radio Wave Environmental Analysis data collected by using a spectrum analyzer. It shows the wireless LAN operation status, as well as any radiation noise from surrounding equipment.

The recommended channels to be used for the WD is based on this analysis.



Note
The link below introduces a tool that can be used when the customer performs the analysis. This is the same tool used during the “Radio Wave Environmental Analysis Service” to check the wireless environment (as shown in the above diagram) and selecting the optimal wireless channels for the WD System. MetaGeek 2.4GHz USB Spectrum Analyzer Wi-Spy 2.4x Analysis Tool Chanalyzer http://www.metageek.net/products/wi-spy/ - WDR-L (E) -Z2-PRO (-L) has a self-diagnosis function that allows you to easily diagnose the wireless environment. For details, refer to "9.2.2. Self-Diagnosis Function" in "WDT- □ LR-Z2 / WDR-L (E) -Z2-PRO (-L) Instruction Manual".

4. WD Installation Startup

Step 1. Determine the equipment for WD installation

●Purpose

Decide from which machinery data will be collected by the WD System. If there is a large number of machines, consider prioritizing the order of each installation area.

Note
In order to verify procedures of data collection and confirm installation steps, set up a testing period and start with one machine and one receiver.

Step 2. Determine how to collect and analyze the operational data

●Purpose

Choose a software that will collect and analyze your data, based on your operational needs.

Option 1: Select software offered by PATLITE or PATLITE partners.

=> You will be able to begin using the software immediately after installation.

=> Consult a PATLITE representative if any customization is required.

Option 2: Use your own software application. There are 4 different methods:

(1) Using the PATLITE WDS-WIN01 software.

(2) Using Socket communication (without using the WDS-WIN01 software).

(3) Using Database communication (without using the WDS-WIN01 software).

(4) Using Modbus/TCP communication to collect data (without using the WDS-WIN01 software).

*If you will be using your own software application for data collection and analysis, refer to "5.3. About Application Software " in "WDT- □ LR-Z2 / WDR-L (E) -Z2-PRO (-L) Instruction Manual" and contact a PATLITE representative for detailed support.

Note
- Refer to "WDS-WIN01 Instruction Manual" for details on the WDS-WIN01.

Step 3. Radio Wave Environmental Analysis

●Purpose

To ensure stable operation of the WD System, perform a radio wave analysis to confirm where the WD receiver will be installed, as well as the wireless channel to be used. The Radio Wave Environmental Analysis Service for one receiver unit is included with the Startup Kit.

(Refer to our website or catalogs to confirm the regions where this service is offered.)

Note
About the “Radio Wave Environmental Analysis System” (1) A 2.4GHz band spectrum analyzer (explained in the previous section) is used to determine the optimal wireless channels to be used for the operation of your WD System. (2) Within the recommended wireless channel, the optimal installation area for the receiver will be determined. Then, the radio wave intensity from that area to each equipment (4 corners) will be tested using radio wave measuring tools. The recommended installation location, position, height, and direction will be considered when installing the receiver.
⚠ CAUTION
- The analysis results are not 100% guaranteed, as they are based on the environmental conditions at the time of testing. - If surrounding equipment causes radio interference, there may be a possibility that a wireless channel other than the one recommended at the time of analysis is more optimal for use. In such cases, an operation test period is recommended. - The on-site analysis work takes approximately 2 hours per area. - The Radio Wave Environmental Analysis Report is submitted at a later date.

Step 4. Equipment Analysis with Signal Tower

●Purpose

To confirm that the Signal Tower on your machinery is compatible with the WD System.

The checklist below can be used to determine the compatibility of your signal tower. If it is not compatible, review the specifications listed below to find a compatible LR/LME/LE Series tower.

- Checklist

Specifications	Details
Equipment Information	Identifiable equipment information such as equipment name and number
Manufacturer	Name of Signal Tower manufacturer labeled on the equipment
Model	Signal Tower model number
Power Supply Voltage	Signal Tower's power supply voltage
Mounting Method	Type of mounting: L-bracket, direct, pole mount, etc.
Display Color	From top: Red, Amber, Green, etc.
Buzzer	Equipped with or without a buzzer
Flashing	A function to turn flashing on or off (if applicable)
Flashing Cycle	Required to determine the transmitter’s input settings. Confirm the length of one ON/OFF cycle. The internal flashing cycle is 1 second (ON: 0.5 seconds, OFF: 0.5 seconds).
Determine WD Compatibility	Go to step 5, “Device Settings List”.
Replacement Model	Go to step 5, “Device Settings List”.

* Refer to "Reference 3: Sample Target Equipment Analysis Sheet" for the analysis checklist.

Step 5. Device Settings List

●Purpose

After you have analyzed your Radio Wave Environment and target equipment, group your equipment based on the work floor layout and verify the WD settings.

① Completing a target equipment survey sheet:

Item	Points to Confirm
Determine WD compatibility	Determine whether or not the signal tower installed on target equipment is compatible with the WD system. If an LR / LME / LE Series Signal Tower is already installed, enter "Y", otherwise enter "N".
Replacement model	For all equipment marked with an "N", confirm its specifications and determine the LR model to replace it with, then note it in the analysis sheet.

* For details on signal tower models, refer to "11. Reference 6: Signal Tower Model CodeCode".

② Completing the transmitter kitting checklist:

Item	Settings
① User Name	Use in " ".
② MAC Address	Confirm in " Step 6. WD Initial Set". *1
③ ExtendedPanID	Note each of the groupings. *2
③ Wireless Channel	Note the wireless channel for each group based on the Radio Wave Analysis results.
⑤ Flashing Cycle	Define the input settings. *3
⑥ Power Supply Wire	Set a display color for the power supply wire. *4

*1 Transmitter MAC address

Used to identify each transmitter.

The MAC address is printed on the wireless module of the WDT-5E-Z2 / WDT-6M-Z2 and on the label of the WDT-4LR-Z2 / WDT-5LR-Z2 / WDT-6LR-Z2. The MAC address can also be registered and confirmed via the WDS-WIN01 software.

*2 Create an equipment list

Create an equipment list based on your work floor layout, with about 20 equipment units (max 30 units) per group. The list should include the equipment and group number. In addition, the ID and group number of the Transmitters and Receivers should be noted in the “ExtendedPanID” column.

Additional Information
ExtendedPanID is an ID for wireless groups when using multiple receivers. The receiver and transmitters that operate in the same group should have the same **ExtendedPanID**. The default value is 0000 0000 0000 0000, which is the value for universal search mode, and will usually link to the closest receiver grouping. Setup range: 0000 0000 0000 0000 to FFFF FFFF FFFF FFFE. [Example settings] The **ExtendedPanID** of the receiver and transmitter in the first group is 0000 0000 0000 0001 The **ExtendedPanID** of the receiver and transmitter in the second group is 0000 0000 0000 0002 The **ExtendedPanID** of the receiver and transmitter in the third group is 0000 0000 0000 0003
Note
*When using only 1 receiver, the **ExtendedPanID** can be kept at the default value of 0000 0000 0000 0000. *For ease of management, we recommend setting the same value for the group number and **ExtendedPanID**.

*3 Flashing cycle settings

Choose from 4 flash patterns (Normal, Flashing (long), Flashing (medium), or Flashing (short)). Select in accordance to the flashing cycle on the target equipment analysis sheet.

 CAUTION
If these settings do not match the Signal Tower’s flashing action, wireless transmission will occur at every flash and crowd data communication, which may result in data loss. If the Signal Tower flashing cycle for the equipment cannot be determined, we recommend using the “Flashing (long)” option.

*4 Power supply wire

Set the display color for the WD power supply wire (a color other than the LED display color).
For the LME / LE Series, the default value is “White”. For the LR series, the default value is “Power Supply Wire”.

Note
This feature can be used to show the ON/OFF status for the equipment’s main power supply.

③Before configuring LAN settings for the receiver

- Prepare IP addresses for every receiver unit that will be connected to the LAN.

Setup Item		Initial value
Network Setup	IP Address Configuration	Set up manually
	IP address	192.168.10.1
	Subnet mask	255.255.255.0
	Default gateway	0.0.0.0
	DNS Server Address	0.0.0.0
	Host Name	wdr-pro
Socket Communication	Setting Port	10000
	WDR-PRO Port 1	10002
	WDR-PRO Port 2*	10003
	WDR Port	10001

*Enter the setting values in the receiver kitting checklist.

⚠ CAUTION

◆ When using the WDS-WIN01, do not change the default values of the "IP Address Configuration" and "DNS Server Address".

◆ Use the default port number value for the "WDR Port".

Note

- Below are additional WDT settings to confirm. The explanation in this manual is based on operation using the default value settings.

Transmitter Settings		Description
LME / LE Series	LR series	
Display firmware version		The version of firmware that your transmitter is using. This information is used when inquiring about the product, etc.
Transmission Mode (Default Value: Immediate transmission)		Sets the timing of when the transmitter sends data. (Either per signal tower status change, or per request from the host.)
Simple counter function (Default Value: Do not use)		Set if the simple counter function is being used.

- Additional WDR settings to confirm.

Receiver Settings	Description
Display firmware version	The version of firmware that your receiver is using. This information is used when inquiring about the product, etc.
MAC Address	Used to identify the receiver units. It is printed on the product label and can also be confirmed via the WDS-WIN01 software. If using a LAN connection, its IP address can also be identified.

*Refer to the "WDS-WIN01 Instruction Manual" for details on each function.

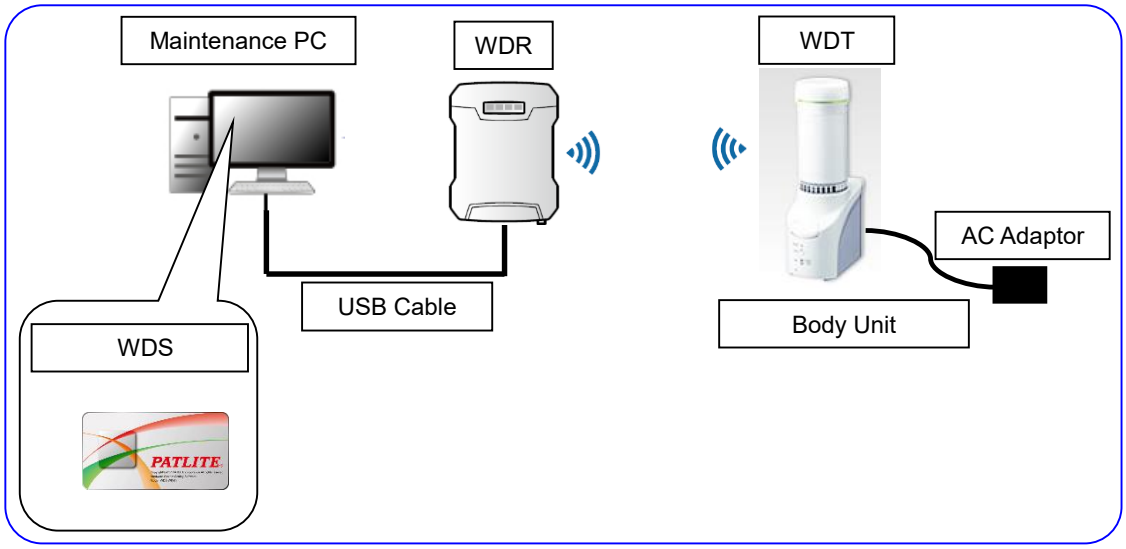
Step 6. WD Initial Setup

(1) Transmitter Initial Setup

- This section explains how to run an initial setup of the transmitter with the use of a USB connection as an example. The USB connection is the most common connection method for initial setups.

① Hardware Configuration

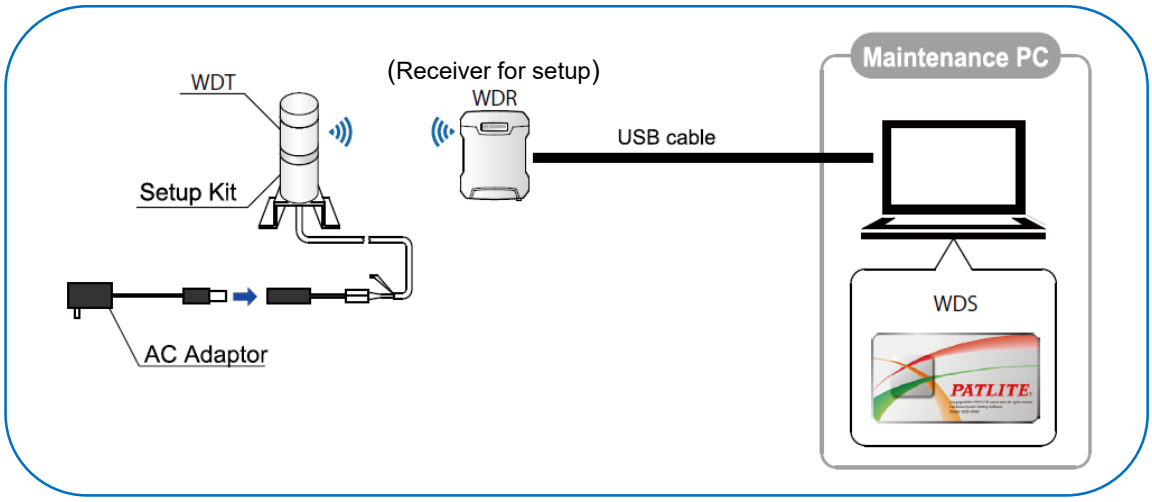
■ LE/LME series Signal Tower



· Configuration Table

Item	Number of units	Models
WDT	As required	WDT-5E-Z2、WDT-6M-Z2
Body Unit	1	Setup Kit
AC Adaptor	1	Setup Kit
WDR	1	WDR-L(E)-Z2-PRO(-L)
WDS	1	WDS-WIN01
Maintenance PC	1	-
USB Cable	1	-

■ LR series Signal Tower



- Configuration Table

Item	Number of units	Models
WDT	As required	WDT-4LR-Z2、WDT-5LR-Z2、WDT-6LR-Z2 One included in the startup kit
Setup Kit	1	WDX-4LRB、WDX-5LRB、WDX-6LRB One included in the Startup Kit
AC Adaptor	1	Included in the Startup Kit Please use the AC adapter included with the startup receiver.
WDR (Receiver for setup)	1	WDR-L-Z2-PRO-L Included in the Startup Kit
WDS	1	WDS-WIN01
Maintenance PC	1	-
USB Cable	1	Included in the Startup Kit

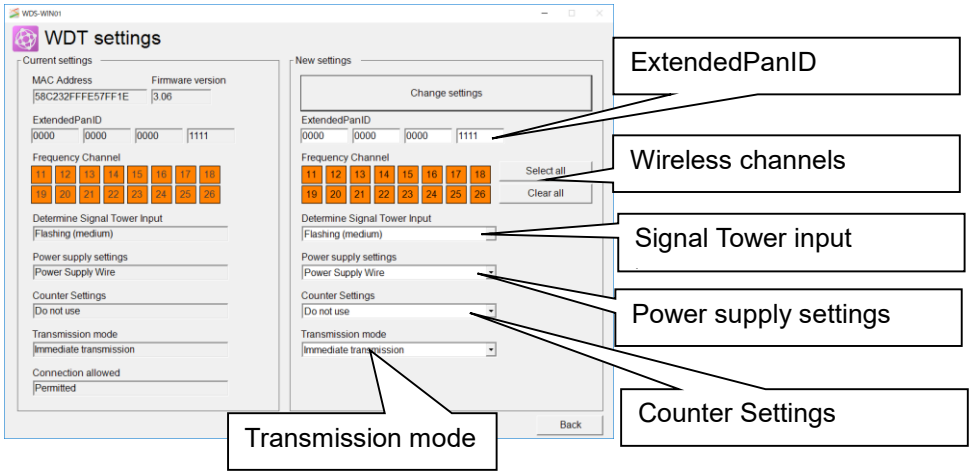
② Setup Items

Information required for setup	Description
Wireless settings	ExtendedPanID
	Wireless channels
Run time settings	Determining Signal Tower Input
	Power supply settings *1
	Counter settings
	Transmission mode

*1 For the LR series, use power supply wire. For more information, refer to the WDS-WIN01 Instruction Manual.

- In the WDS-WIN01 setup browser, input the settings of each unit, referring to the "Transmitter Kitting Checklist".
- Note the transmitter's MAC address onto the checklist.

■ "WDS-WIN01" Setup Browser

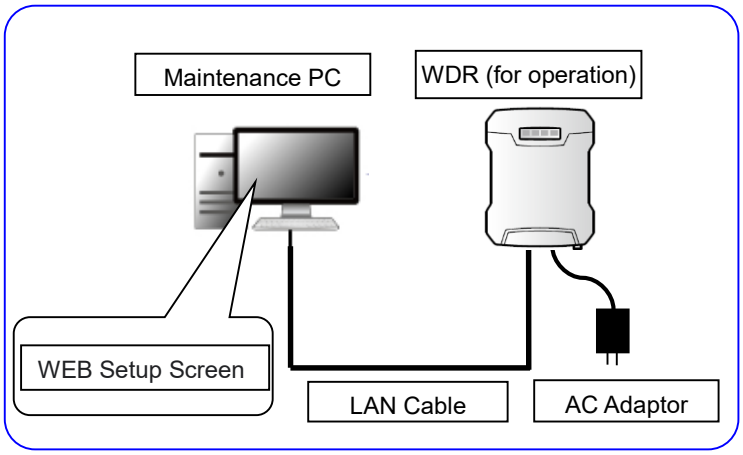


*For details on the setup method, refer to the "WDS-WIN01 Instruction Manual".

(2) Initial receiver setup

· This section describes how to initialize the receiver. When setting up the receiver, connect with a LAN cable.

① Hardware Configuration



- Configuration Table

Item	Number of units	Models
WDR (for operation)	As required	WDR-L-Z2-PRO One included in the startup kit
AC Adaptor	1	Included in the Startup Kit
Maintenance PC	1	-
LAN Cable	1	-

② Setup Items

Setup Item			Default Value
System Settings	Network Setup	IP Address Configuration	Set up manually
		IP Address*1	192.168.10.1
		Subnet Mask	255.255.255.0
		Default Gateway	0.0.0.0
		DNS Server Address	0.0.0.0
		Host Name	wdr-pro
	Clock Settings	NTP Server Address	0.0.0.0
		Correction Interval (minutes)	60
		Time zone	UTC+9
	User Authentication Settings	User Name	patlite
		Password	patlite
	Security Settings	Communication Method	HTTP
Host Communication Settings	Socket Communication*2	Setting Port	10000
		WDR-PRO Port 1*3	10002
		WDR-PRO Port 2*3	10003
		WDR Port	10001
	Database Communication Setting*2	Database Communication Function*3	Do not use
		Database Address*3	(None)
		Database Port Number*3	3306
		Database Name*3	(None)
		User Name*3	(None)
		Password*3	(None)
	Modbus/TCP Communication Setting*2	Port Number*3	502
WD Wireless Settings	Receiver Wireless Settings	ExtendedPanID	0000 0000 0000 0000
		Frequency Channel	Select all
		Network Startup Method*4	Auto Start (Recommended)

*1：Prepare IP addresses for every receiver unit that will be used.

*2：Set up the "Socket Communication Settings", "Database Communication Settings", and "Modbus/TCP Communication Settings" only if they will be used.

*3：Cannot be set on the WDR-L-Z2-PRO-L or WDR-LE-Z2-PRO-L models.

*4：For the network startup method, use "Auto Start (recommended)".
For more information, refer to the "WDT-□LR-Z2/WDR-L(E)-Z2-PRO(-L) Instruction Manual".

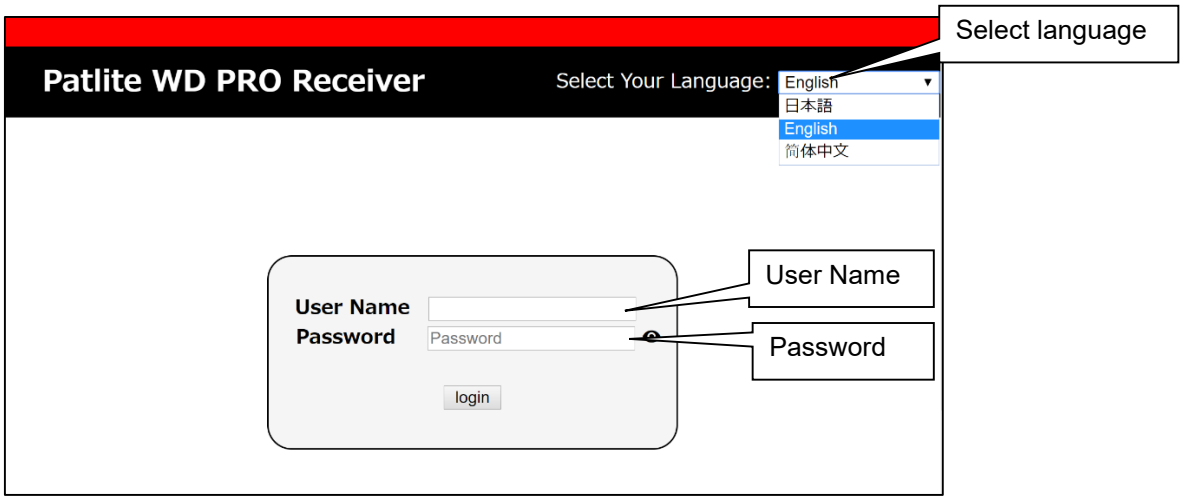
・In the setup browser, input the settings of each unit, referring to the "Kitting Checklist".

■ Login to "WEB Setup Browser"

- Settings of the WDR will be configured by logging into the WEB setup browser.
  Supported browsers are: Google Chrome, Microsoft Edge, and Internet Explorer 11.
  After turning on the power and startup is complete, start the Web browser and in the address bar enter the WDR IP address (Default: 192.168.10.1).

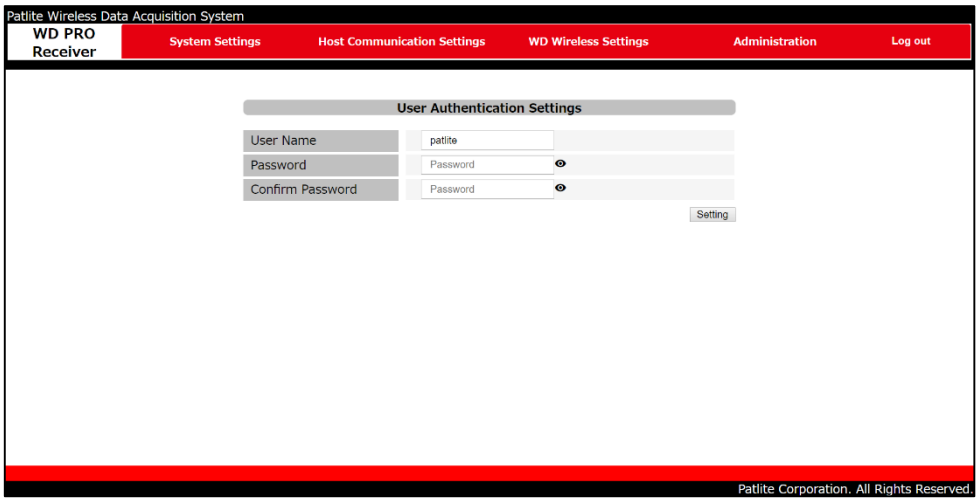
CAUTION	
Mandatory	When connecting to WDR via LAN for the first time, set the IP address of the maintenance PC to 192.168.10. * (Other than *: 1). For details on how to set the IP address of the maintenance PC, refer to "6.1.1 WDR Network Settings" in the "WDS-WIN01 Instruction Manual".

- Select the language on the login screen and enter the user name (Default: patlite) and password (Default: patlite) to log in.



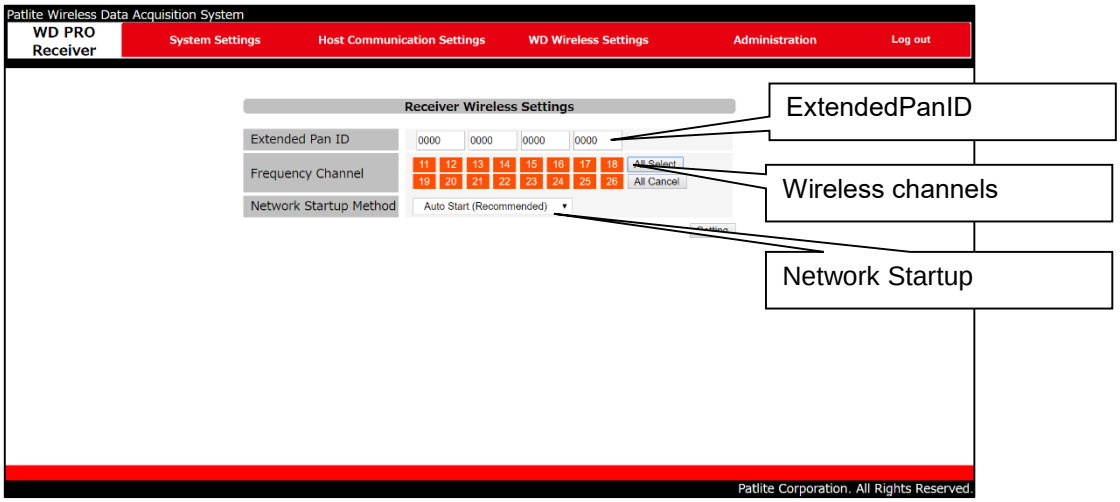
■ Using "WEB Setup Browser"

・User Authentication Settings



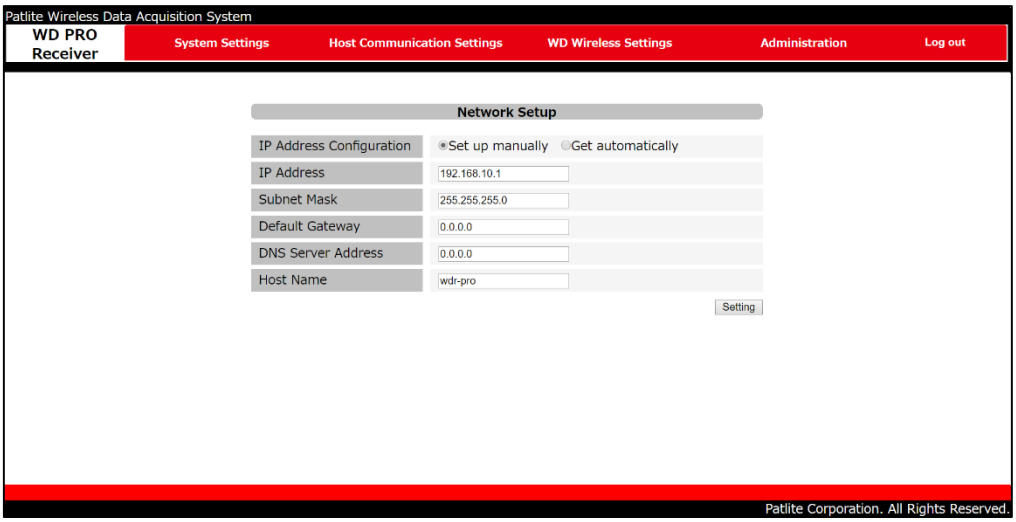
CAUTION	
Mandatory	Change the user name and password to prevent unauthorized operation.

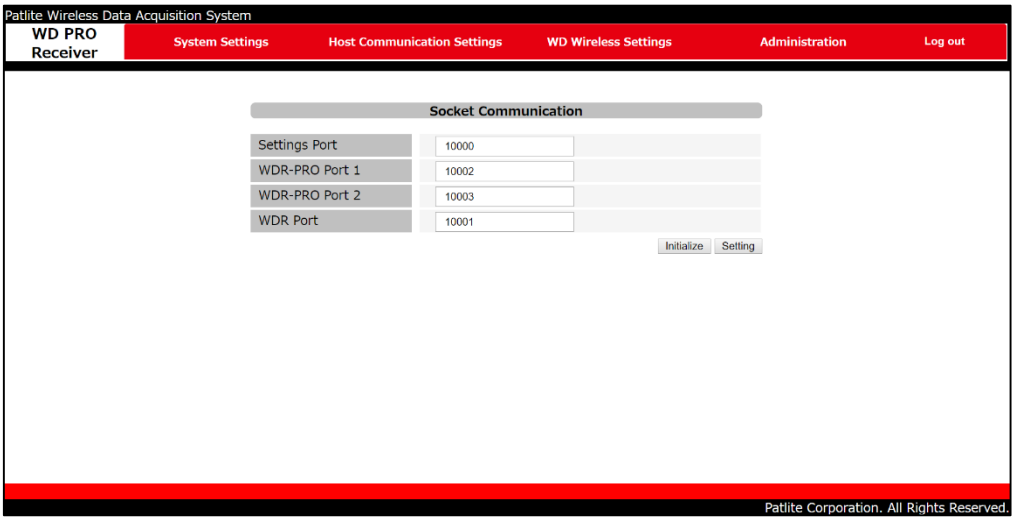
- Receiver Wireless Settings



※Receiver wireless setting for WDR-L (E) -Z2-PRO-L model cannot be set using the web setup browser. Instead, use the WDS-WIN01 software to configure settings, referring to the "WDS-WIN01 Instruction Manual" for details.

・LAN communication related settings





CAUTION	
Prohibited	◆ When operating the WDS-WIN01, do not change the initial values of "IP Address Configuration" and "DNS Server Address". ◆ Use the port number of the "WDR Port".

*For details on the setting method, refer to WDT- □ LR-Z2 / WDR-L (E) -Z2-PRO (-L) Instruction Manual.

Step 7. Installation

(1) Transmitter Installation

■ LE/LME series Signal Tower

(1-1) Mounting the transmitter onto the Signal Tower

For equipment that requires a replacement signal tower model, mount the WDT transmitter after its settings have been configured.

CAUTION	
Prohibited	◆ Do not overtighten the center screw. **(Tightening Torque: 0.2 to 0.3Nm)** Overtightening the screw may result in operational defects such as internal damage or light flickers. ◆ Before use, wipe any oil or other substances clean from the center screw. Failure to follow this instruction could result in product failure.

(1-2) Wiring the Signal Tower to equipment

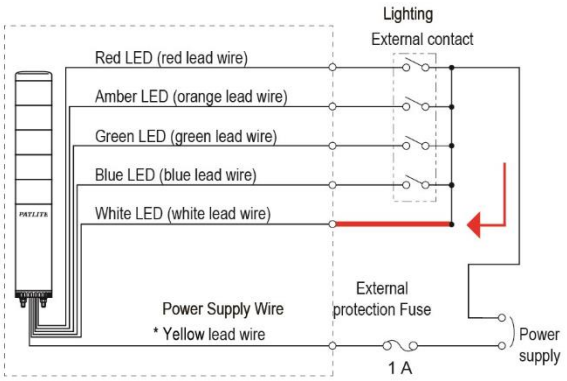
- Wiring is necessary to constantly supply power to the transmitter.
- Wiring is necessary even if the Signal Tower is not being replaced.

CAUTION	
Mandatory	◆ Constant WDT power supply To operate the WDT, you need to constantly supply power to the LME/LE series signal tower's power line. Use a signal wire color that is not being used for the LED display (default color is white) as the power supply wire. - Wiring is necessary even if the Signal Tower is not being replaced. ◆ For 24V DC models, do not connect the white wire to the same polarity as the power supply's yellow wire. ◆ When using transistor control for 24V DC models, be cautious of the polarity of the white wire. For LE series 24V DC models, the power supply wire color is black.

■ AC/DC 24 V Type (LME)

Apply voltage to the signal line (white in figure below) and power line (yellow) which are connected to the power supply.

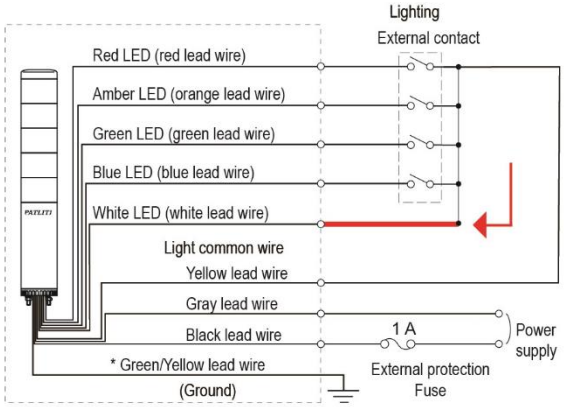
Relay



* The Power Supply Wire of "LE" is a black lead wire.

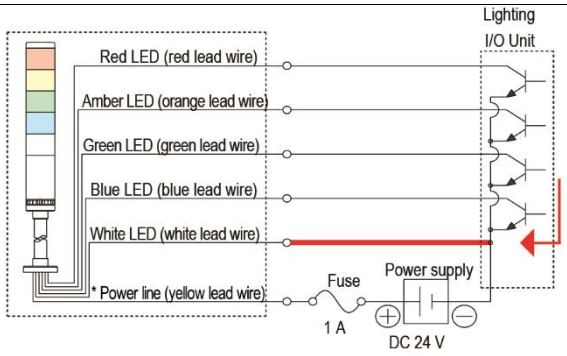
■ AC 100/120/220/230 V Type

Connect the signal line (white in figure below) and common line for lighting (yellow) which are connected to the power supply.

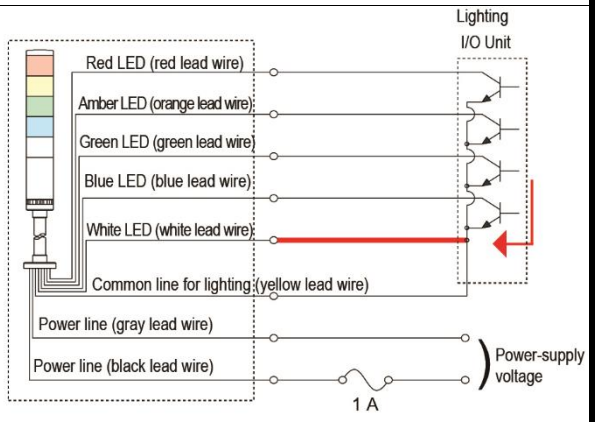


* AC 120 V, AC 230 V specifications

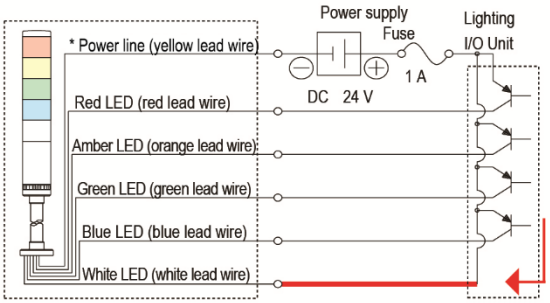
NPN Transistor



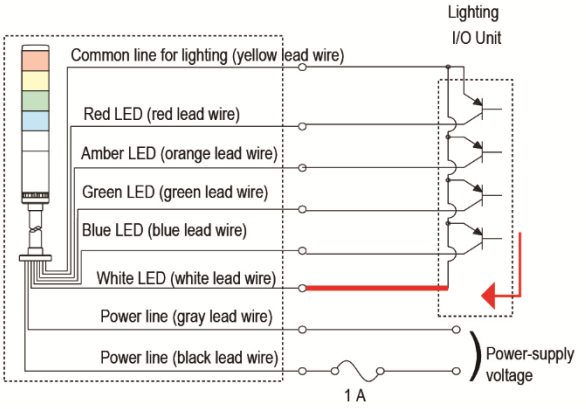
* The Power line of "LE" is a black lead wire.



PNP Transistor

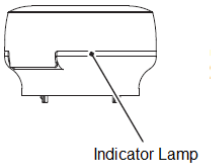


* The Power line of "LE" is a black lead wire.



(1-3) Verify Operation

- The product's status **indicator lamp** can be used to determine the wireless communication status.
- After installation is complete, turn on the main power supply to the equipment and with **all the signal tower lamps off**, check the transmitter **indicator lamp**, verifying that **it is not in the off state**. If the **indicator lamp** does not turn on, the power supply wiring to the transmitter is not correct.
- The **indicator lamp** operates as follows:

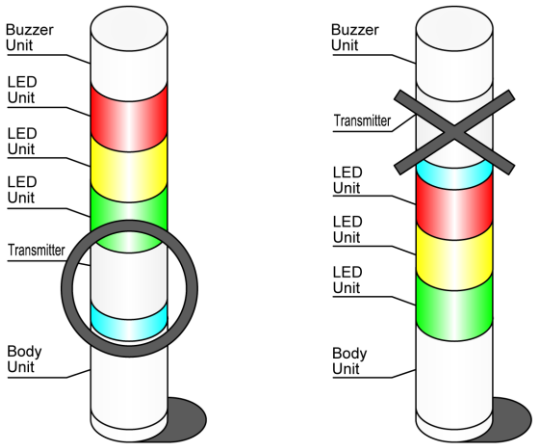
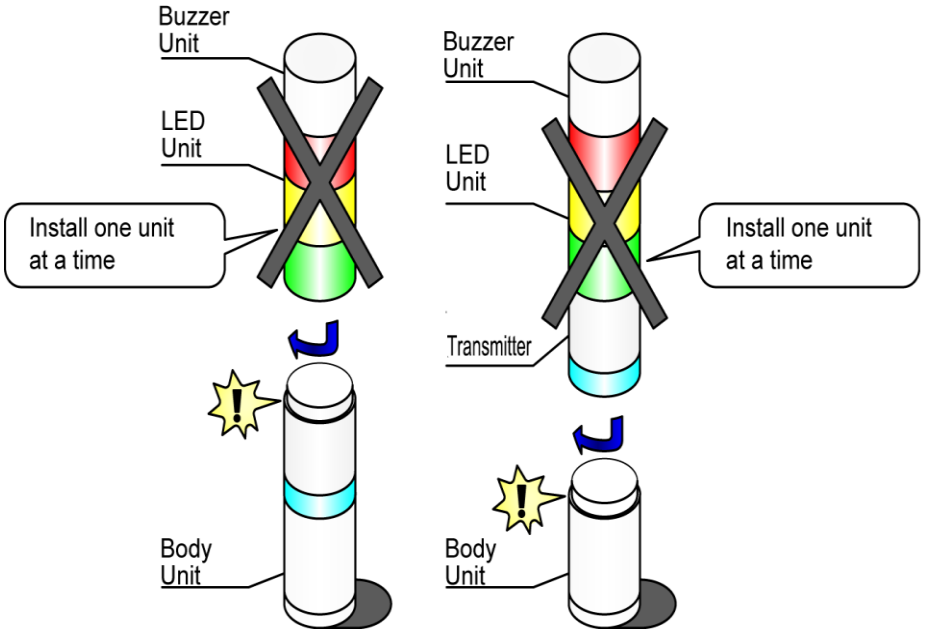


Indicator Lamp	Wireless Connection Status
Green pulse	Indicates a good status.
Amber pulse	The connection is not good; however, it can still be used.
Red pulse	The wireless connection is not good.
Red light	Product is waiting to join a WD Network.

■ LR series Signal Tower

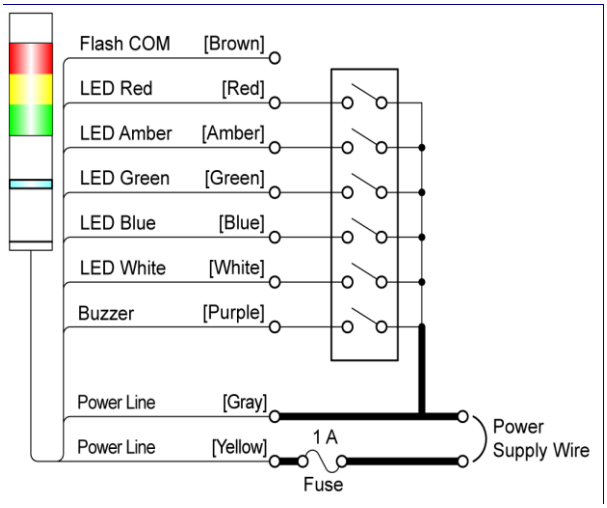
(1-1) Mounting the transmitter on the signal tower

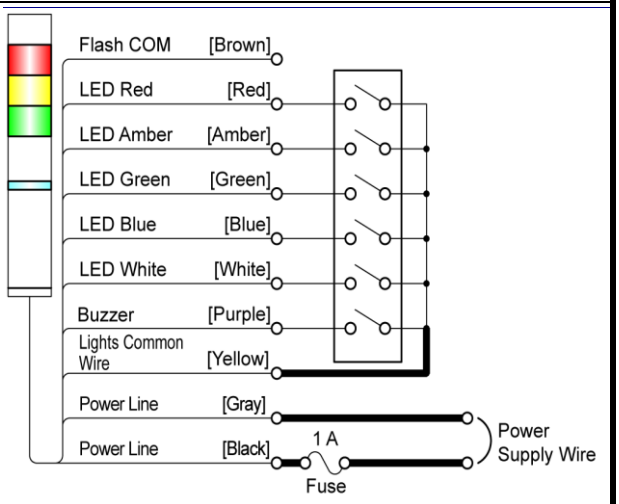
- For equipment that requires a replacement signal tower model, mount the WDT transmitter after its settings have been configured.

CAUTION	
Prohibited	◆Attach the transmitter unit directly above the body unit. If it is attached above the LED units, it will be difficult to see the status of the indicator lamp. 
	◆Do not detach multiple connected units (excluding the head cover) from the transmitter or the body unit.
	◆Be sure to detach and attach the units (transmitter unit, LED units, and buzzer unit) one unit at a time. Failure to follow these instructions could result in equipment damage. 

(1-2) Wiring the Signal Tower to equipment

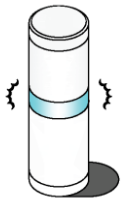
CAUTION	
Mandatory	◆Constant WDT power supply - To operate the WDT, the power needs to be constantly supplied to the LR series Signal Tower power line.
◆Signal Tower Rated Voltage: 12 / 24 VDC - Applicable Models: LR☐-□01/LR☐-□02	◆Signal Tower Rated Voltage: 100 to 240 VAC - Applicable Models: LR☐-□M2





(1-3) Verify Operation

- The product's status **indicator lamp** can be used to determine the wireless communication status.
- After installation is complete, turn on the main power supply for the equipment and with **all of the signal tower lamps off**, check the transmitter **indicator lamp**, verifying that **it is not in off state**. If the **indicator lamp** does not turn on, the power supply wiring to the transmitter is not correct.
- The **indicator lamp** operates as follows:



Indicator Light	Wireless Connection Status
Green pulse	This status indicates a good status, in which the product can communicate directly with the WDR without relying on other WDT units. (If the WDT and WDR are close together, within tenths of centimeters, the WDT may display a red pulse.)
Amber pulse	Direct wireless connection with the WDR is not good, but the connection with nearby WDT units are good. If a nearby WDT has a green pulse, the WDT will be used as a repeater for communication.
Red pulse	Connection is not good with any WDR or WDT in the WD Network.
Red light	The product is waiting to join a WD Network.

(2) Receiver Installation

Because the receiver will be installed in an elevated location, be sure to complete the initial settings (wireless settings, LAN settings, etc.) before installation.

Install the receiver in the location (position, height, direction) described in the “Radio Wave Environment Analysis Report”.

The installation location requires LAN wiring and a 100V AC outlet for the AC adaptor (Not required for PoE power supply).

When storing the receiver in a box, use a plastic box, etc., with radio wave permeability.

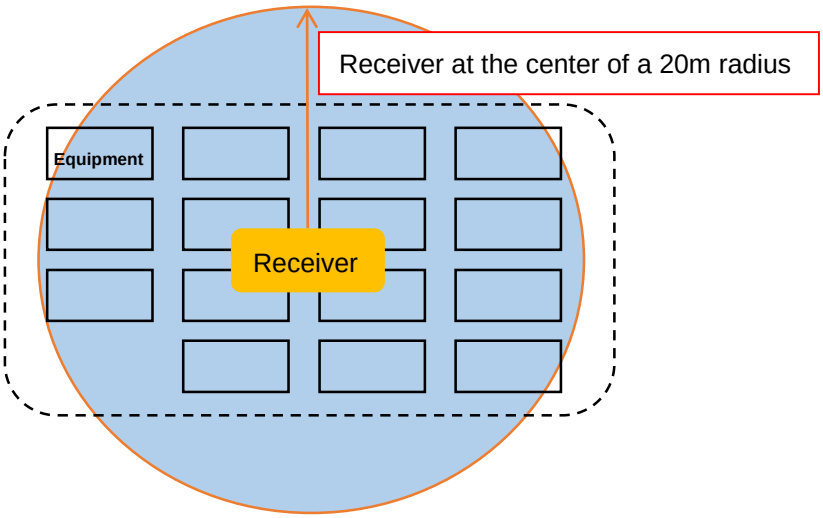
Important
When determining the installation location, carefully review the "About the receiver installation location" below. Because the WD system uses wireless communication, a poor installation location could cause problems such as unstable operation or communication failure.

(2-1) Receiver installation location

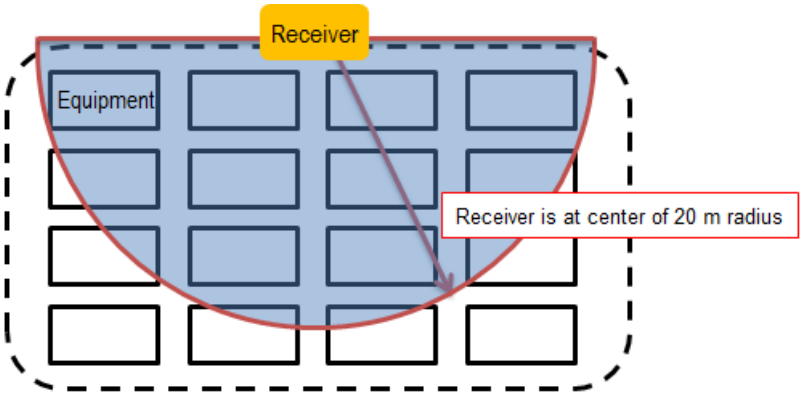
(2-1-1) Receiver position

① Radio reception with the receiver at the center of the area [◎ Very good]

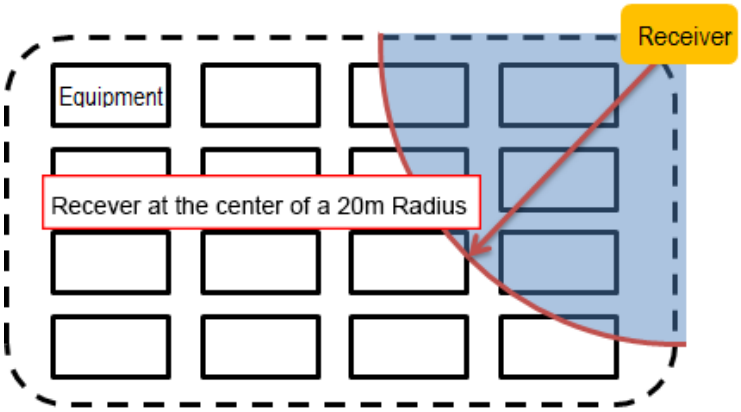
- The receiver seeks out equipment in all directions, so an optimal mesh network can be configured.



② Radio reception with the receiver installed on a wall within the center of the area [○ Good]

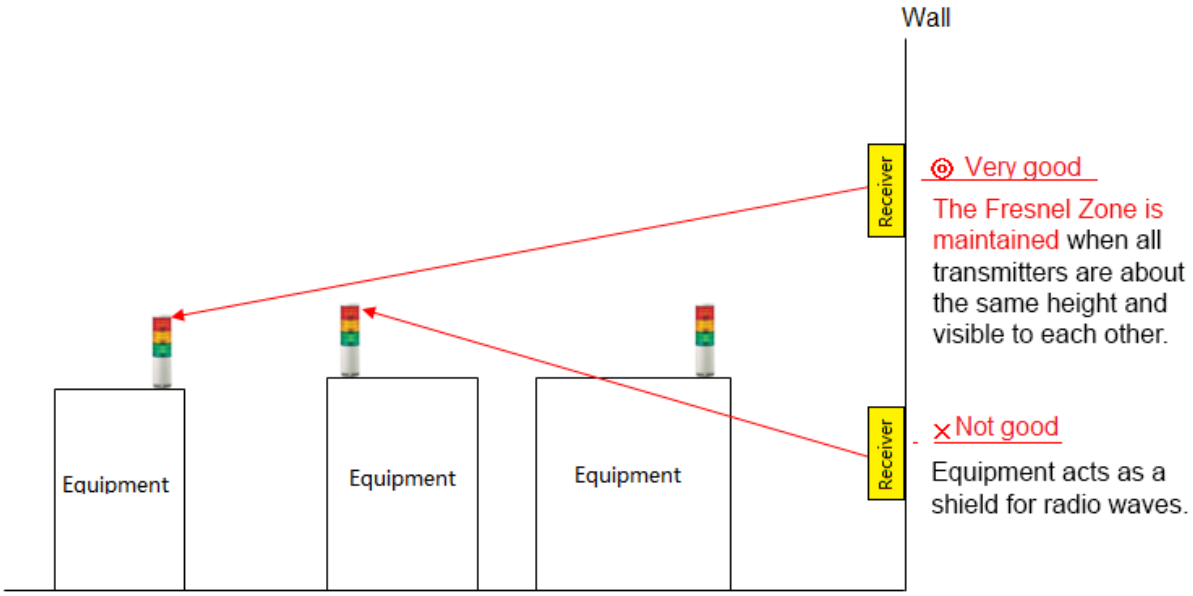


③ Radio reception with the receiver installed in a corner of the area [× Not good]
The relay load tends to be biased toward some of the transmitters, so the wireless path is not distributed well.



(2-1-2) Receiver Height

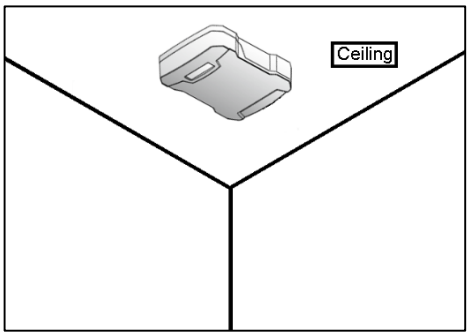
It is recommended to install the transmitter for all equipment at a height where there is minimal obstruction, and the receiver should be installed at about the same height as the transmitter.



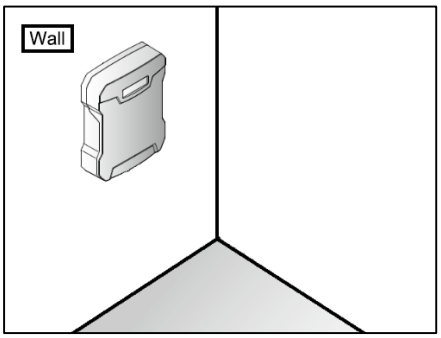
Important
When selecting the receiver installation location, give sufficient consideration and refer to "(3) Stable wireless communication Zone". Also, it is recommended to temporarily install the receiver at a location where the “Radio Wave Environment Analysis” recommends, establish a test period for about one week, and proceed with the final installation if there are no issues.

(2-1-3) Receiver Direction

◎ Horizontal, with the cover facing downward (Ceiling-mounting)



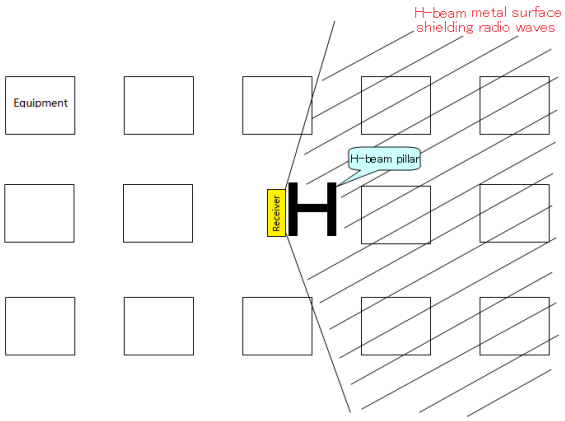
○ Wall-mounting



(2-1-4) Adverse effect of the material used in the receiver installation location

If the receiver is mounted on an H-beam pillar, the metal construction will cause reception to be unstable, even if the receiver is placed in the center of the area.

Select an installation location where the targeted equipment aligns with the front side of the receiver (the side that is not in contact with the metal face).



As an alternative, select a location as shown in (2) Receiver Installation, "② Radio reception with the receiver installed on a wall in the center of the area [○ Good]".

(2-1-5) Example of an optimal receiver installation location

Ceiling-mounted in the center of the area.

The targeted equipment is in line-of-sight of the receiver, and it makes mounting the receiver and extending the LAN wiring easy.

View looking up at receiver installation location from the shop floor.

(Image)

※For mounting method, refer to "8.2.1. WDR mounting method" in "WDT-□LR-Z2/ WDR-L(E)-Z2-PRO(-L) Instruction Manual".

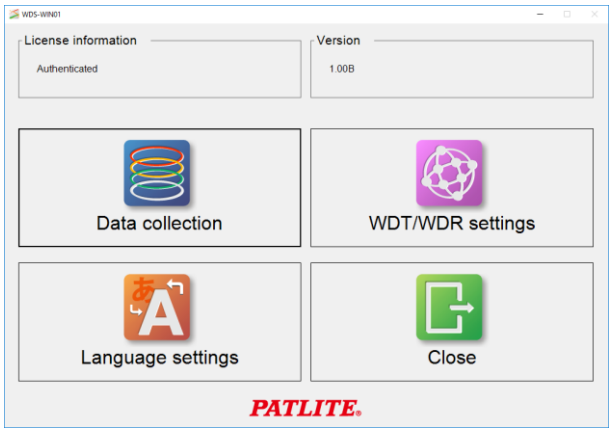
CAUTION
When wireless LAN and in-house PHS access points are installed, receivers should be installed so they are at least 5 to 10 m away from PHS access points.

Step 8. System Operation Check

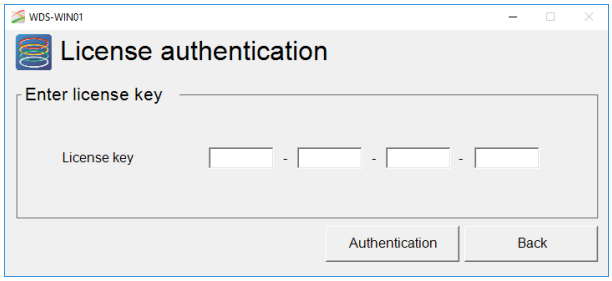
■ Checking using WDS-WIN01

(1) WDS-WIN01 Default Settings

(1-1) Start-up the WDS-WIN01 application.



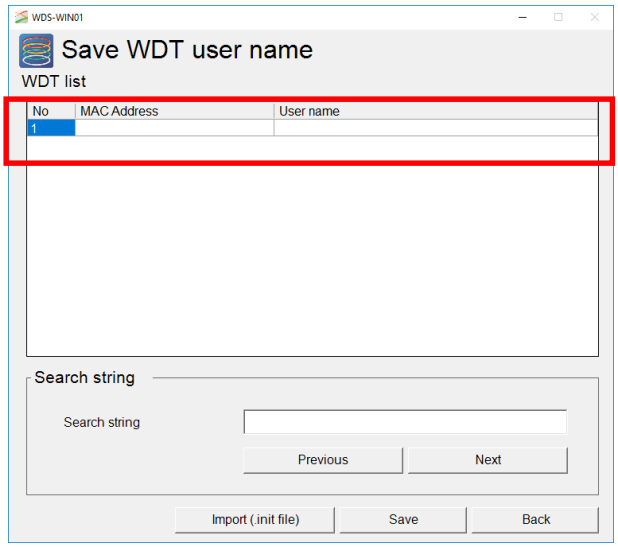
(1-2) Enter the license key.



CAUTION
WDS-WIN01 requires administrator privileges prior to use.

(2) Register the WDT “username”

- The following explains the settings in WDS-WIN01 to associate the equipment name with the transmitter’s MAC address for each equipment.

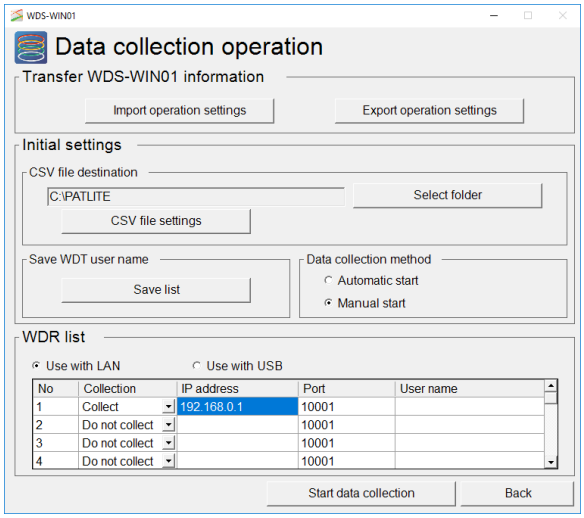


Important
The transmitter user name can be registered to receiver via the WEB setup browser, but is different from the WDT user name registered on the WDS-WIN01 software. Register the WDT user name of the CSV file output from WDS-WIN01 through the WDS-WIN01 software.

Note
In the **MAC address** field marked in red, enter the transmitter MAC address for each equipment noted in the “Kitting Sheet”. In the **User name** field, register the equipment name from the “Target Equipment Analysis Sheet”.

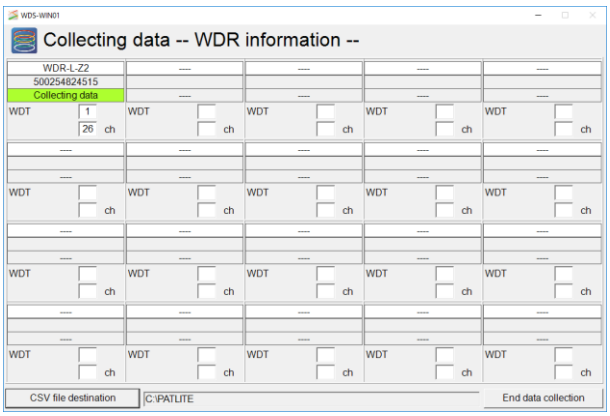
(2-2) Set the receiver’s connection destination.

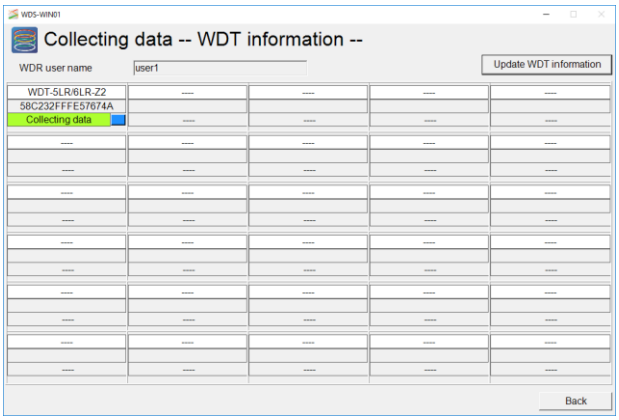
Set up the receiver based on the LAN network settings in the “Receiver Kitting Sheet”.



(3) Check transmitter/receiver connections and .csv log file

The WDR Information tab will appear listing all the transmitters paired with it along with the WDT Information tab that has more detailed information. Verify that all of the transmitter and receiver units are properly connected, and that each transmitter is properly connected with its respective receiver.





When clicking “CSV file destination”, the CSV file can be opened as read-only files.

This completes the initial system operation check.

Establish a test operation period of at least one week and check the operation log data to ensure proper setup.

5. Maintenance

(1) New Equipment Installation

Inform the equipment manufacturer regarding WD system installation. Upon receiving the new equipment, remove the transmitter and use the Startup Kit to re-configure the various settings.
(See Step 6) If using the LME or LE series, specify the color of the power supply wire. This will help reduce work required after the equipment is delivered.

The following instructions are included with the LME / LE series WDT-6M-Z2 / WDT-5E-Z2 transmitter.

PATLITE

Please read prior to installation.

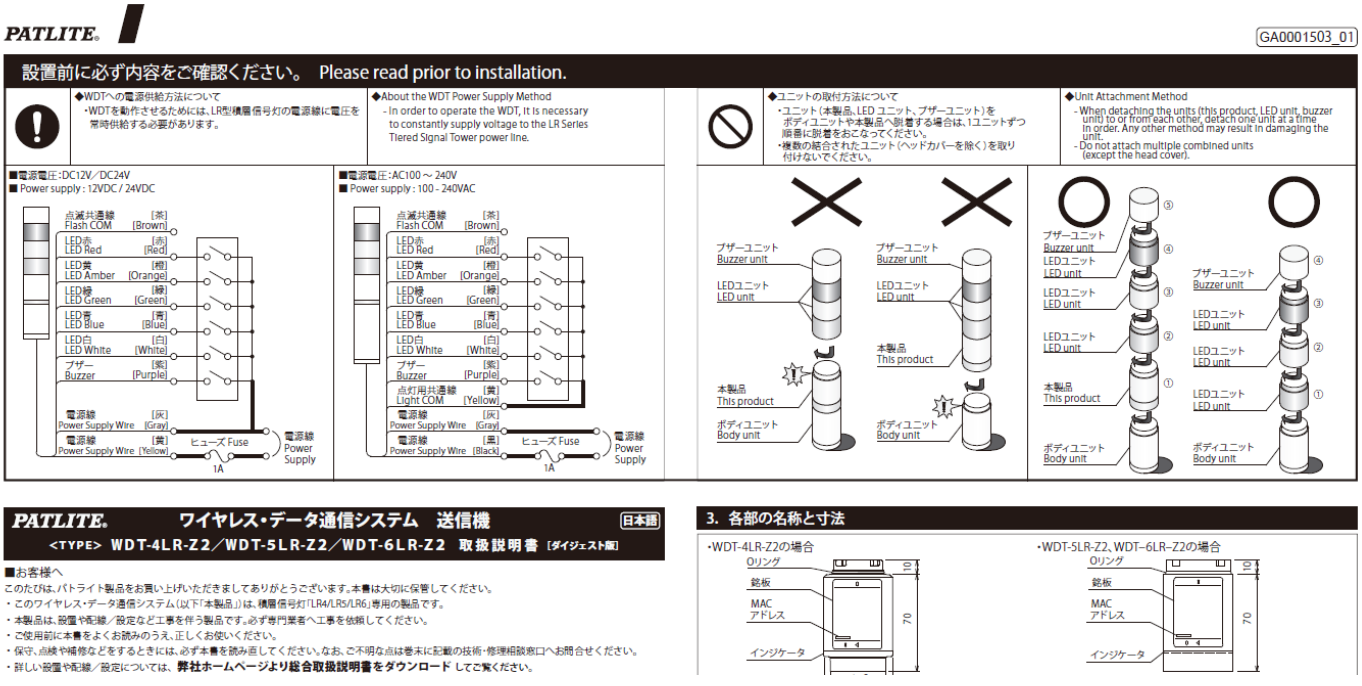
Connecting the power supply to the transmitter

1) A voltage has to be connected to the transmitter by connecting it to the signal line of a Tiered Signal Tower.

2) Select an unused Signal Line as the power source for the AirGRID Transmitter. The default value is set for the White Wire as the power source for the AirGRID Transmitter.

3) The following is a wiring example for the LE and LME Models.

The following instructions are included with the LR series WDT-4LR-Z2 / WDT-5LR-Z2 / WDT-6LR-Z2 transmitter.



(2) Equipment Relocation

- Remove the transmitter from the equipment you will relocate, and use the Startup Kit to change the wireless channel and ExtendedPanID settings to match the area where the equipment will be relocated. (Refer to Step 6. WD Initial Settings.)
- The operation log data is the same no matter which receiver the data passes through.
- Change the user name of the transmitter if the equipment name will change.
  (Refer to "Step 8. Check system operation" in "4. WD Installation Steps until starting operations")

(3) WD Failure

When there is a receiver failure, use the spare receiver (WDR-L-Z2-PRO-L) from the Startup Kit as a temporary replacement unit while the main receiver is being repaired. During this time, you will not be able to collect operational data, so we recommend that you have a backup unit.

CAUTION
The software specifications of the receiver used for standard operations (WDR-L-Z2-PRO) and the receiver used for startup (WDR-L-Z2-PRO-L) are different. For details, refer to "5.4.2. WDR (Receiver)" in "WDT-□LR-Z2 / WDR-L(E)-Z2-PRO(-L) Instruction Manual"

6. Reference 1: Frequency Table

Wireless LAN IEEE802.11b/g Frequency Table

Wireless LAN	Mid-range Frequency (MHz)	Bandwidth (MHz)	Occupied Bandwidth
Ch1	2,412	22	2,401-2,423
Ch2	2,417	22	2,406-2,428
Ch3	2,422	22	2,411-2,433
Ch4	2,427	22	2,416-2,438
Ch5	2,432	22	2,421-2,443
Ch6	2,437	22	2,426-2,448
Ch7	2,442	22	2,431-2,453
Ch8	2,447	22	2,436-2,458
Ch9	2,452	22	2,441-2,463
Ch10	2,457	22	2,446-2,468
Ch11	2,462	22	2,451-2,473
Ch12	2,467	22	2,456-2,478
Ch13	2,472	22	2,461-2,483
Ch14	2,484	22	2,473-2,495

Channels that don't interfere with each other are displayed in the same color.

ZigBee Frequency Channels

ZigBee	Mid-range Frequency (MHz)	Bandwidth (MHz)	Occupied Bandwidth
Ch11	2,405	2	2,404 - 2,406
Ch12	2,410	2	2,409 - 2,411
Ch13	2,415	2	2,414 - 2,416
Ch14	2,420	2	2,419 - 2,421
Ch15	2,425	2	2,424 - 2,426
Ch16	2,430	2	2,429 -,2,431
Ch17	2,435	2	2,434 - 2,436
Ch18	2,440	2	2,439 - 2,441
Ch19	2,445	2	2,444 - 2,446
Ch20	2,450	2	2,449 - 2,451
Ch21	2,455	2	2,454 - 2,456
Ch22	2,460	2	2,459 - 2,461
Ch23	2,465	2	2,464 - 2,466
Ch24	2,470	2	2,469 - 2,471
Ch25	2,475	2	2,474 - 2,476
Ch26	2,480	2	2,479 - 2,481

ZigBee Channels compatible with Wireless LAN

Wireless LAN	ZigBee	Mid-range Frequency (MHz)	Bandwidth (MHz)	Occupied Bandwidth
Ch1		2,412	22	2,401-2,423
	Ch15	2,425	2	2,424 - 2,426
Ch6		2,437	22	2,426-2,448
	Ch20	2,450	2	2,449 - 2,451
Ch11		2,462	22	2,451-2,473
	Ch25	2,475	2	2,474 - 2,476
	Ch26	2,480	2	2,479 - 2,481

7. Reference 2: Body Unit Pin Assignments

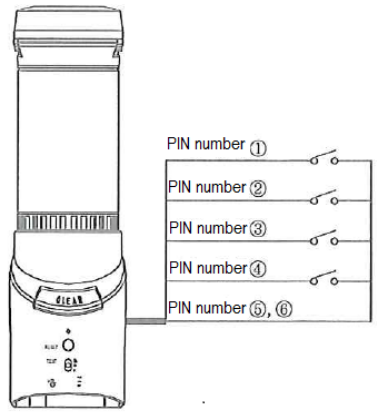
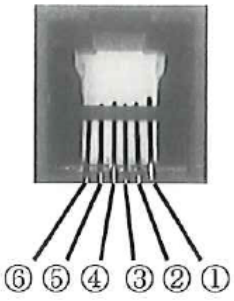


Table 1

PIN number	Recognition signal
①	Signal tower red state
②	Signal tower amber state
③	Signal tower green state
④	Signal tower blue state
⑤	Tower light COM
⑥	Tower light COM



CAUTION

Connect a non-voltage contact such as a switch to the MJ (Modular jack) connector.

8. Reference 3: Sample Target Equipment Analysis Sheet

AirGRID WD series installation facility check sheet

	Equipment information		Information of existing signal light									Replacement model
	Control number	Name (user name)	Manufacturer	Model	Power supply voltage	Mounting Method	Display color (from the top)	Buzzer function	Flashing operation	Flashing cycle	Model is WD compatible	
Example	30-115	OX Seiki	PATLITE	LHE-_02	DC24V	Attach directly	RYG	No	Yes	1 second	X	LME-302W-RYG
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												

9. Reference 4: Sample Kit Check Sheet

Transmitters

AirGRID WD-Z2 Transmitter Kitting Check Sheet

No.	Equipment information		Transmitter settings												Group No.
	Control number	① User name (WDS file settings)	Model	Counter mode DIP SW 2	version	② MAC Address	③ ExtendedPanID	Connection allowed	④ Wireless channel	Transmission mode	⑤ Flashing cycle	⑥ Power supply wire	Simple counter function	Counter upper limit value	Check	
Example	30-115	#3 spindle process machine	WDT-6M-Z2	OFF	2.02	001697FFFE979E64	0000 0000 0000 0001	Permitted	21	Send	Standard	White	Do not use	0	☑	1
1															☐	
2															☐	
3															☐	
4															☐	
5															☐	
6															☐	
7															☐	
8															☐	
9															☐	
10															☐	
11															☐	
12															☐	
13															☐	
14															☐	
15															☐	
16															☐	
17															☐	
18															☐	
19															☐	

Create the “Transmitter Kitting Check Sheet” along with the “Installation Equipment Check Sheet”.

Receivers

AirGRID WD-Z2 Receiver Kitting Check Sheet

				Wireless Settings		LAN Settings			
	Group No.	Version	Ethernet mac	ExtendedPanID	Channel	IP address	Subnet mask	Default GW	Port number
Example	1	1.00	00-20-4A-BC-BD-C4	0000 0000 0000 0001	21	192.168.0.12	255.255.255.0	192.168.0.254	1001
1									
2									
3									
4									
5									

The items highlighted in yellow above are required settings to operate the WD system.

10. Reference 5: Installation Steps and Task Allocation

AirGRID WD-Z2 series installation and task assignment table

Step		Task Description / Check Item	Primary Contact
1.	Decide on target equipment	Determine the equipment to collect operational data from	
2.	Determine how to collect and analyze operational data	Use WD partner software, or use an in-house software	
3.	Radio Wave Environmental Analysis	Wireless 2.4 GHz band radio environment survey (Noise from manufacturing equipment, wireless LAN, etc.) Determine optimum receiver installation location Confirm radio waves received by target equipment	
4.	Equipment Analysis with Signal Tower	Verify compatibility of each Signal Tower	
5.	Device Settings List	Determine WDT compatibility and set groupings of equipment Create Kitting Sheet for transmitter and receiver units, and obtain IP address for receiver units	
6.	WD Initial Setup	Transmitter/Receiver wireless Ch, Pan ID settings, etc. Various transmitter settings Receiver IP address settings	
7.	Installation	Receiver Installation - LAN cable, power supply wiring Transmitter Installation - WD compatible equipment: additional wiring construction for WDT power supply signal line - non-WD compatible equipment: replace signal tower, new wiring construction	
8.	System Operation Check	Create definition file Check WDS-AUTO2 log data	

11. Reference 6: Signal Tower Model Code

■ LME Model Code:

Model Code

LME-502FBW-RYGBC-Z

Model

Tiers

Rated Voltage

02	AC/DC24V
10	AC100V
20	AC220V

Specifications

None	Light on
FB	Light on/Flashing/Buzzer

Color

R	Red	B	Blue
Y	Amber	C	White
G	Green		

Top tier, from the left

For clear lens type only

Mounting Specifications

None	Pole mounting (round base)
W	Direct mounting
L	Pole mounting (L-type fittings)
K *	Pole mounting (detachable)

* FB specifications only

*Other than the L-type, because the pole is aluminum the length cannot be changed.

■ LE Model Code:

Model Code

LE-502FBP-RYGBC

Model

Tiers

Rated Voltage

01	AC/DC12V
02	AC/DC24V
10	AC100V
20	AC220V

Specifications

None	Light on
FB	Light on/Flashing/Buzzer

Mounting Specifications

P	Pole mounting
W	Direct mounting

Color

R	Red
Y	Amber
G	Green
B	Blue
C	White

Top tier, from the left

■ LR Series Model Code:

Model Code Example) **LR6-502WJBW-RYGBC-Z**

Model ① ② ③ ④ ⑤ ⑥ ⑦

LED Colors include: R (Red), Y (Yellow), G (Green), B (Blue), C (White). Position is the top tier, starting from the left

① Size
4 = Φ40
5 = Φ50
6 = Φ60
7 = Φ70

② Tiers
1 = Tier 1
2 = Tier 2
3 = Tier 3
4 = Tier 4
5 = Tier 5

③ Rated Voltage
01 = DC12V *1
02 = DC24V
M2 = AC100 to 240V *2

④ Mounting and Wiring Specifications
WJ = Direct / Cable
LJ = Pole Mount / L-angle Bracket /Cable *3
PJ = Pole Mount / Circular Bracket / Cable *3
QJ = Pole Mount / Hinged Bracket / Cable *4

⑤ Flashing/Buzzer
B = Flashing/Buzzer
N = None

⑥ Body color
W = Off-white (Material: Polycarbonate Resin)
A = Off-white *5 (Material: ABS and AS resin

⑦ Globe color
None = Globe Color
Z = Clear Globe *6

*1 LR5 only / *2 WJ, PJ, or LJ for LR4 or LR6 only / *3 LR4, LR5, or LR6 only / *4 LR4 or LR6 DC 24 V only / *5 WJ or PJ for LR4 or LR6, or LJ in DC 24 V for LR4 or LR6 / *6 LR4 or LR6 only

12. Reference 7: WDS Selection

Depending on your system configurations, you may need to select the WDS application.
Refer to the table below to select either WDS-AUTO2 or WDS-WIN01 based on the model number of your receiver and transmitter units.

(1) Model Number vs. WDS Application Table

Yes: Using No: Not Using

Receiver	WDR-L(E)-Z2/WDR-L(E)-Z2-PRO			WDR-L(E)	WDS System to select for the application
Transmitter	WDT-4LR-Z2/WDT-5LR-Z2/ WDT-6LR-Z2		WDT-5E-Z2/ WDT-6M-Z2	WDT-5E/ WDT-6M	
	Extension Format	Standard Format			
Settings	Yes	Yes	Yes	No	**WDS-WIN01**
	Yes	Yes	No	No	
	Yes	No	Yes	No	
	Yes	No	No	No	
	No	Yes	Yes	No	**WDS-WIN01** or **WDS-AUTO2**
	No	Yes	No	No	
	No	No	Yes	No	
	No	Yes	Yes	Yes	**WDS-AUTO2**
	No	Yes	No	Yes	
	No	No	Yes	Yes	
	No	No	No	Yes	
	Yes	Yes	Yes	Yes	This combination of settings cannot be used
	Yes	Yes	No	Yes	
	Yes	No	Yes	Yes	
	Yes	No	No	Yes	

*For WDS-AUTO2, use Version 2.00 or later.

(2) Function Compatibility Table

Yes: Function available No: Function not available

Function		WDS-AUTO2	WDS-WIN01
Data collection			
Maximum number of transmitters (WDT units)		400 units*1	600 units*1
CSV file specifications			
File creation method	Common	Yes	Yes
	Common (file name)	Yes	Yes
	Per WDR	No	Yes
	Per WDT	No	Yes
File division method	Divide by date	Yes*2	Yes
	Divide by time	No	Yes
	Divide by file size	No	Yes
	Do not divide	Yes*3	Yes
CSV file information	Date/Time	Yes	Yes
	MAC address (WDT)	Yes	Yes
	User name (WDT)	Yes	Yes
	Red information	Yes	Yes
	Amber information	Yes	Yes
	Green information	Yes	Yes
	Blue information	Yes	Yes
	White information	Yes	Yes
	Buzzer information	No	Yes
	WDT monitoring information	Yes	Yes
	Counter value	Yes	Yes
CSV file format	Character code	shift JIS	Unicode (UTF-8)
	Line-break code	CR+LF	CR+LF
Other functions			
Confirm display of WDT ping		No	Yes
Settings data	Import	No	Yes
	Export	No	Yes
Import .init file	CSV file destination	Yes	No
	Schedule settings	Yes	No
	CSV file information	Yes	No
	Transmitter User name	Yes	Yes

*1: Maximum number when the maximum of 20 receivers are connected.

*2: Fixed value when selecting "Common" for the file creation method.

*3: Fixed value when selecting "Common (file name)" for the file creation method.

13. Reference 8: WDS-AUTO2 to WDS-WIN01 Migration

WDS-AUTO2 is an application provided by PATLITE before the WDS-WIN01 software. This section describes how to switch over from WDS-AUTO2 to WDS-WIN01.

(1) Vocabulary Comparison Table

The verbiage used in the WDS-AUTO2/WD-Z2 system settings are partially different from the WDS-WIN01 software verbiage. The table below shows the vocabulary used in each application.

a. WDS-AUTO2 and WDS-WIN01 comparison table

No	WDS-AUTO2	WDS-WIN01
1	Transmitter	WDT
2	Receiver	WDR
3	CSV output destination settings log format	CSV file format
4	automatic CSV file name	Common
5	fixed CSV file	Common (file name)
6	Transmitter removed/no reply notification	WDT monitoring information

b. Comparison table of WD-Z2-specific system settings and WDS-WIN01

No	WD-Z2-specific system settings	WDS-WIN01
1	Transmitter	WDT
2	Receiver	WDR
3	(Transmission mode) Transmit	Immediate transmission
4	(Transmission mode) Stop transmission	Request transmission
5	Cycle data	Determine Signal Tower Input
6	No flashing	Normal
7	Standard flashing	Flashing (short)
8	Medium-speed flashing	Flashing (medium)
9	Low-speed flashing	Flashing (long)
10	Power supply	Power supply settings
11	Start setting	Network startup method

(2) Notes when migrating to WDS-WIN01

If you are switching from the WDS-AUTO2 to WDS-WIN01, and will not change settings on the “visualization application”, note the following.

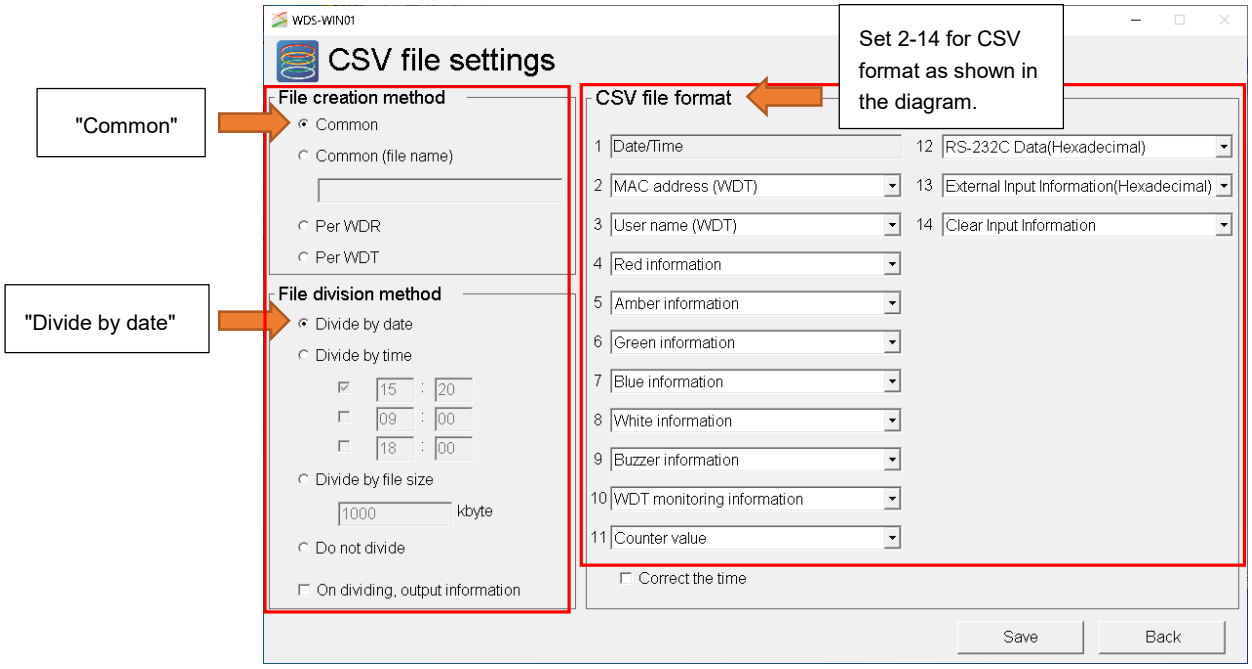
a. (2-1) CSV file output method

b. (2-2) WDT-4LR-Z2/ WDT-5LR-Z2/ WDT-6LR-Z2 power settings and signal tower data format

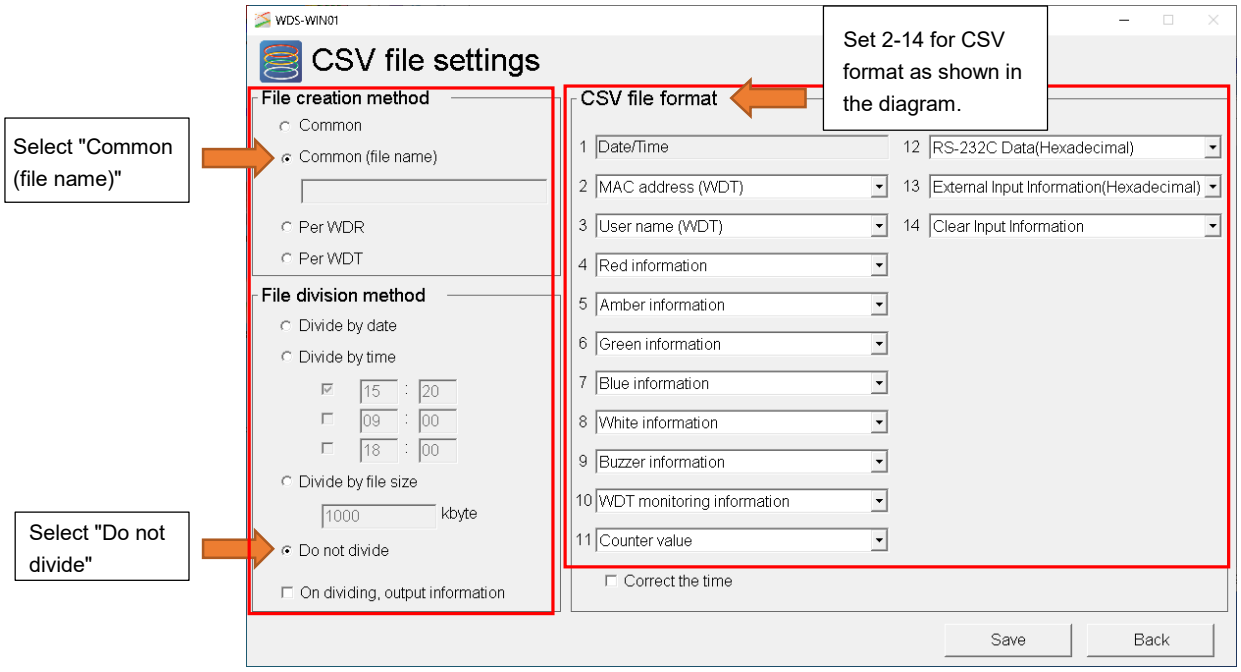
(2-1) CSV file output method

See the diagram below and configure the settings in conjunction with the "CSV output" settings for the WDS-AUTO2.

① If you choose to auto-generate the CSV file name for CSV output:



② If you choose a fixed CSV file name for CSV output:



(2-2) WDT-4LR-Z2/ WDT-5LR-Z2/ WDT-6LR-Z2 power settings and signal tower data format

In WDS-AUTO2, the WDT monitoring status ("0", "9") output is exported as CSV data to the signal wire information string specified in the transmitter's power settings.
Therefore, when the CSV output is set in (2-1), it is necessary to set one of the signal wires as the transmitter's power settings in WDS-WIN01.
For the WDT-4LR-Z2/ WDT-5LR-Z2/ WDT-6LR-Z2, refer to "14.　Reference 9: Using WDT-□LR-Z2 in WDS-AUTO2" to set the appropriate power settings.

14. Reference 9: Using WDT-□LR-Z2 in WDS-AUTO2

In WDS-AUTO2, the WDT monitoring status ("0", "9") output is exported as CSV data to the signal wire information string specified in the transmitter's power settings.
Therefore, when using WDT-4LR-Z2 / WDT-5LR-Z2 / WDT-6LR-Z2 with WDS-AUTO2, it is necessary to set the "power setting" of the transmitter to one of the signal lines.
In order for the data to be collected correctly by WDS-AUTO2, set the following for WDT-4LR-Z2/ WDT-5LR-Z2/ WDT-6LR-Z2:

(1) WDT-4LR-Z2/ WDT-5LR-Z2/ WDT-6LR-Z2 (power settings)

Specify "Signal wire color" in the power settings.

Operation settings	Setup value
Power supply settings	Select a signal wire color that will not be used for data collection, other than the power supply wire.

*Signal wire colors: Red, yellow, green, blue, white

⚠ CAUTION
If the "Power supply wire" is specified for the power settings, the WDT monitoring status (“0”, “9”) output will not be generated as CSV data. The WDS-AUTO2 will determine that the transmitter is invalid, so be sure to select an option other than "Power supply wire".

(2) Select Signal Tower data format

Select the “Standard Format”.

DIP Switch	Setting
No3	OFF (Standard Format)

⚠ CAUTION
The WDT-5LR-Z2/WDT-6LR-Z2 does not support the extended format, so always select the standard format. By default, the WDT-5LR-Z2/WDT-6LR-Z2 is set to standard format.