



LAN Connection Type Andon Receiver

WCL-920R

Instruction Manual V1.10

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

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1. OVERVIEW

1-1. Introduction

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

A wireless module "RN2903" built in this product obtained the transmitter approval of Federal Communication Commission (FCC), CFR 47 Telecommunication, Part 15.212 Modular Transmitters, and the module approval of Part15, Subpart C "International Radiators" based on the above approval.

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

■FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

■IC Warning

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

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

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

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

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

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

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

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

■ External Antenna Types

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

1. Do not use this product for the application that may cause harm to human body or damage to other devices and equipment.

Do not use this product near the devices that may malfunction due to radio waves emitted from this product.

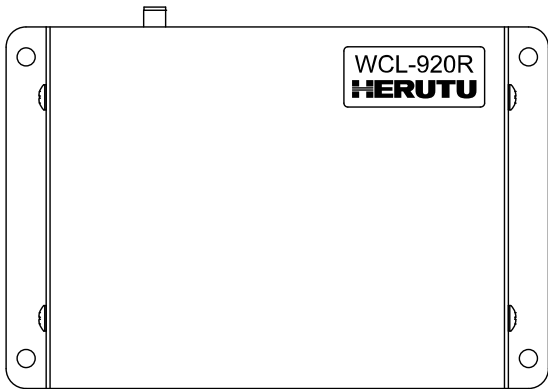
2. Disassembly or modification of the device having an approval is prohibited by the law.

3. This product is available only in Canada and USA.

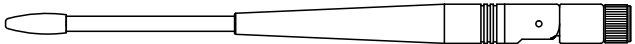
4. Because the communication performance is changed depending on the surrounding environment, be sure to confirm the communication is established before installation of this product and then use it.

1-2. Main Unit and Accessories

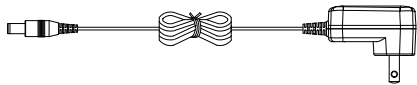
■ Receiver



Receiver main unit "WCL-920R" x1



Antenna "MEGWX-467XSAXX-920" x1



Cable Approx. 1.5 m

AC adapter "ADB24050" x1

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

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

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



Warning

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



Caution

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



Caution

- Common matters in handling

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



- Handling this product

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



Warning

- Handling this product

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



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



- Handling the power supply

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

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










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





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



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

■ Never disassemble the AC adapter.

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

<ul style="list-style-type: none"> 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. 	
<ul style="list-style-type: none"> If the cord is damaged, do not use it. Using the cord damaged continuously may cause fire or electric shock. 	

■ Reliability of wireless communication

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

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

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

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

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

1-4. Outline

WCL-920R is a LAN connection type Andon^{*1} receiver (hereinafter called “receiver”).

The receiver can wirelessly receive in real-time trouble occurrence reports transmitted from the AN920T transmitter installed at the workstations and machines of the production line.

In addition, the receiver can externally output the received reports of trouble occurrence via LAN.

By utilizing and analyzing the information of trouble occurrences on the production line with applications on computers, tablets and in the cloud, the receiver can be useful for visualizing and improving the operation status of the production line.

Using the Windows application “Production Process Support Software for WCL Series WCL plus,” you can save the trouble occurrence history received by up to 10 Andon receivers in the CSV format.

- At the transmitter, there are two selectable input methods for reporting trouble occurrences: one for workers with four push-buttons (orange, red, green, and white) and one for machines with four external inputs (orange, red, green, and white). According to possible trouble occurrences in the production line, you can assign each color a meaning, such as red for an exception occurrence, orange for parts out of stock, green for requesting transportation of finished products, or white for trouble solved.

- When using the receiver linked to a wireless Andon series AN920, one receiver can wirelessly communicate with up to 800 transmitters and a maximum of 16 receivers can be used in a factory. This enables trouble occurrence reports to be collected from up to 12,800 locations in a factory.

When using the receiver with the transmitter without linking to a wireless Andon series AN920, each receiver can wirelessly communicate with up to 1,000 transmitters and a maximum of 16 receivers can be used within a factory. This enables trouble occurrence reports to be collected from up to 16,000 locations in a factory.

^{*1}: A system to notify management, maintenance, and other workers of a quality or process problem.

2. Specification

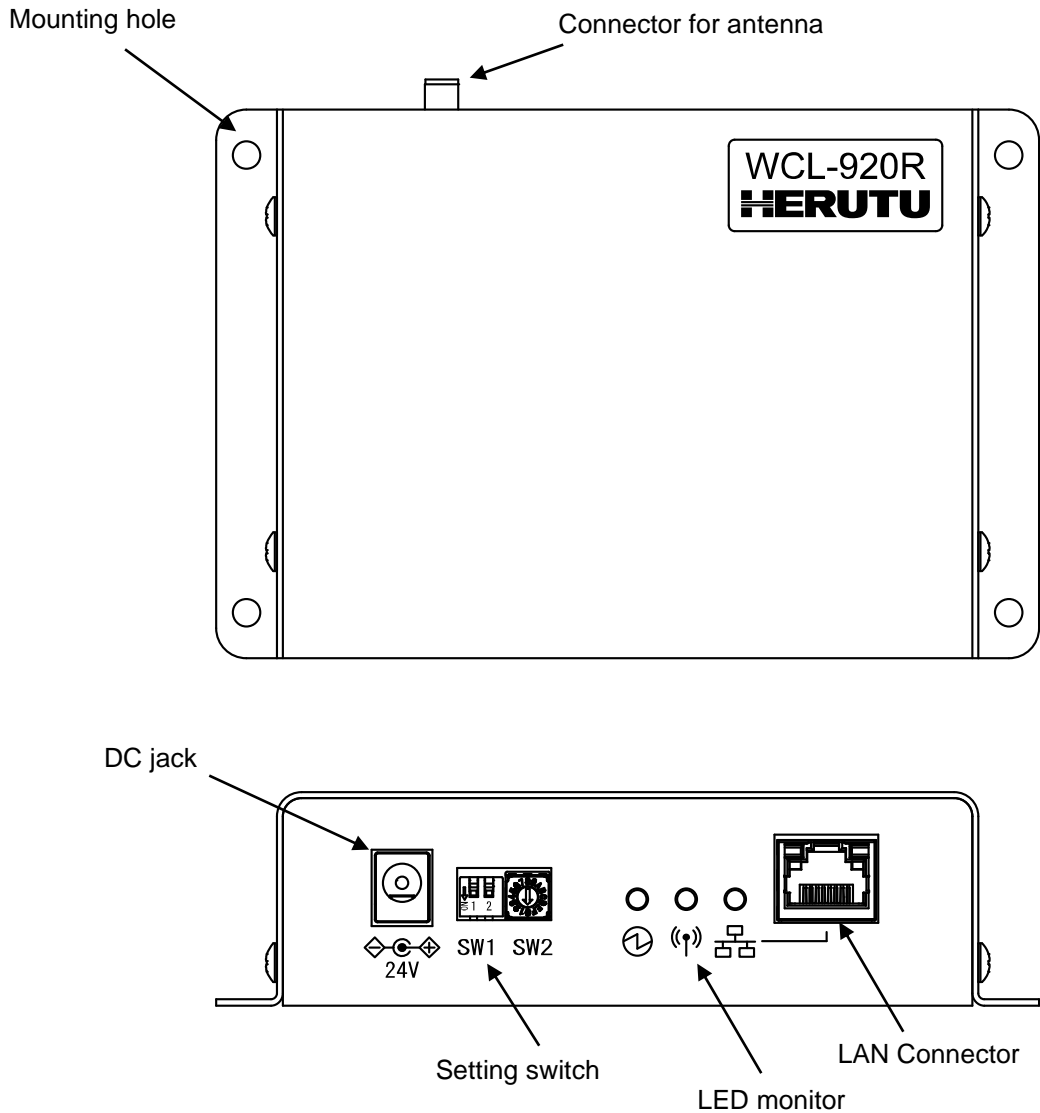
2-1. Radio part specification

Item	Specification
A destination country	U.S.A., Canada
Standard	CFR47(FCC) Part15-247 IC RSS-210 RoHS1
Frequency Band	903MHz~927MHz
Modulation Band	LoRa Technology
Modulation Speed	Approx.1170bps
Channel Step	1.6MHz
Antenna	External Sleeve Antenna
Communication Method	Half Duplex
Antenna Power	2.0mW / 70.79mW

2-2. General Specification

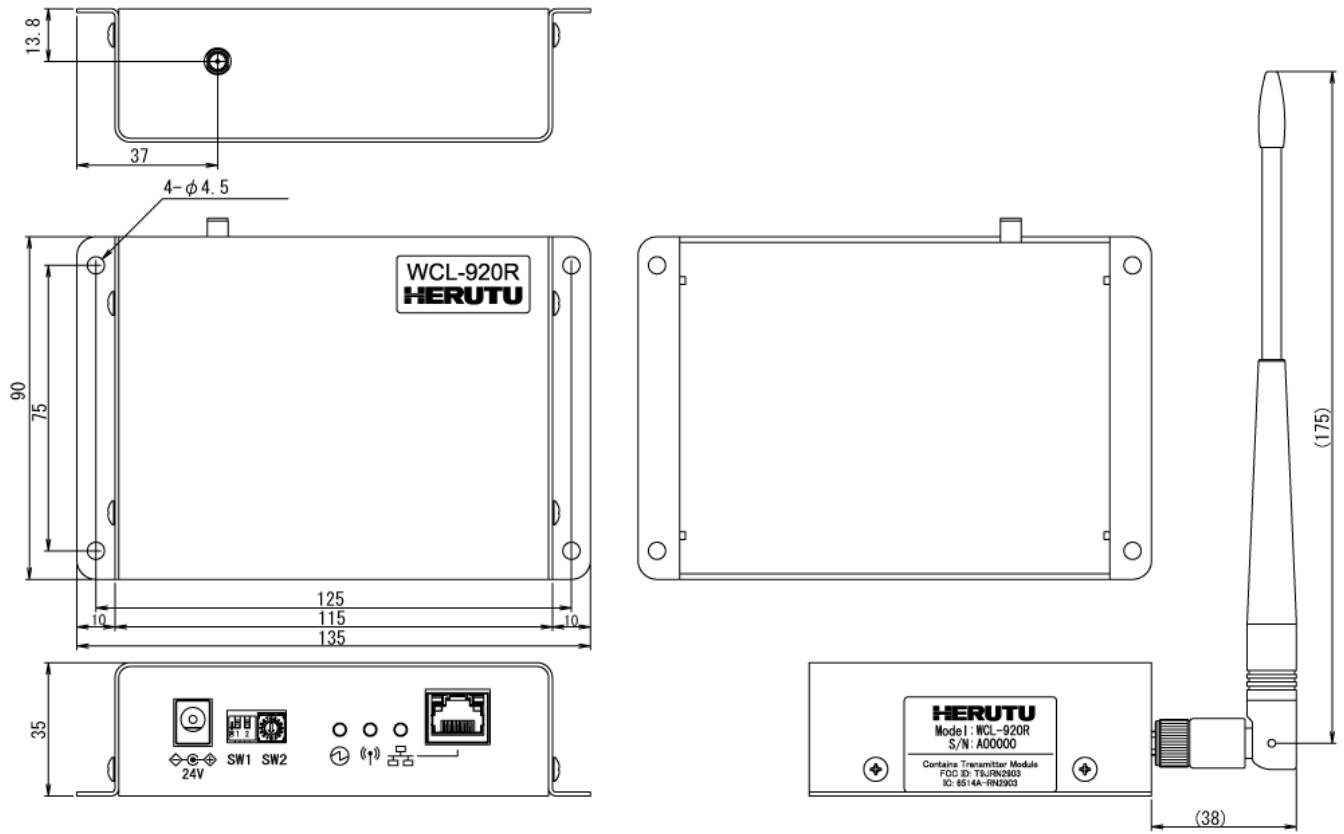
Item	Specification
Interface	Ethernet IEEE802.3 10Base-T/100Base-TX Auto switching Connector: RJ-45 × 1 Indication for network 2-color LED LED × 2
Indication	Red LED × 1 (Power supply monitor) Red/Green 2-color LED × 1 (Monitor for wireless communication) Red/Green 2-color LED × 1 (Monitor for wired communication)
Power supply	DC24V (Available at AC100-240V with supplied AC adapter.)
Current consumption	Approx. 120mA
Operating Environment	Temperature:0-+40°C(32-104°F) Humidity:20-80% (without condensation)
External Dimensions	(W × H × D) 135 × 90 × 35 mm (5.3 × 3.5 × 1.4") (excluding protrusions)
Weight	Approx. 380g (13.4 oz)
Setting switch	2P DIP switch × 1 (For normal operation settings) 16P rotary switch × 1 (For channel settings)
Included	1 AC adapter, 1 Antenna

3. PART NAMES AND DESCRIPTIONS



Name	Function
Connector for antenna	Connector for connection to the antenna. (SMA-J Connector) Attach the supplied antenna.
Mounting holes	Mounting hole of $\phi 4.5 \times 4$
DC jack	DC jack for connection of the included AC adapter.
Setting switch	DIP switch and rotary switch for settings.
LED monitor	LEDs for power supply, wireless communication and wired communication.
LAN Connector	Connector for LAN connection. (RJ-45)

4. Drawing



5. Prepare to Start Communication

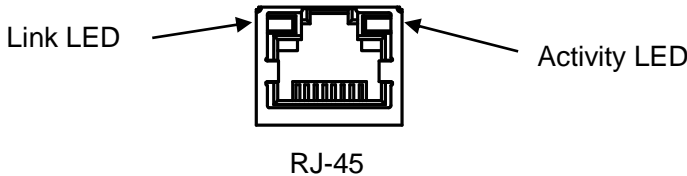
Before use of the receiver, set each receiver according to the use environment.
 Set the IP address and other required items of the receiver by using Lantronix's Windows-based software, "Device Installer".

5-1. Installation of "Device Installer"

Download "Device Installer" from Lantronix's WEB site (<https://www.lantronix.com/products/deviceinstaller/>) to install it on your PC.
 Connect the receiver to the HUB capable of communicating with the PC on which "Device Installer" is installed.

CAUTION

To connect the receiver to the PC with "Device Installer" installed using a LAN cable, be sure to use a cross LAN cable.



Check the left LED on the LAN connector (RJ-45) of the receiver to see if the Link LED is ON.
 When connected to 10Base-T, the Link LED lights up in orange. When connected to 100Base-TX, the Link LED lights up in green.
 If the Link LED is not ON, the receiver cannot communicate with the network. Confirm if the LAN cable and HUB are correctly connected.

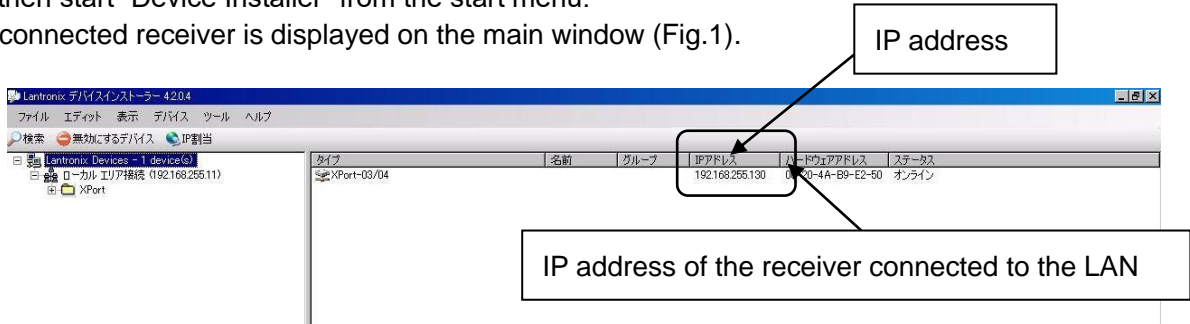
5-2. Factory Default IP Address

The factory default IP address of the receiver is as follows:

IP Address	192.168.3.100
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
Port No.	50001

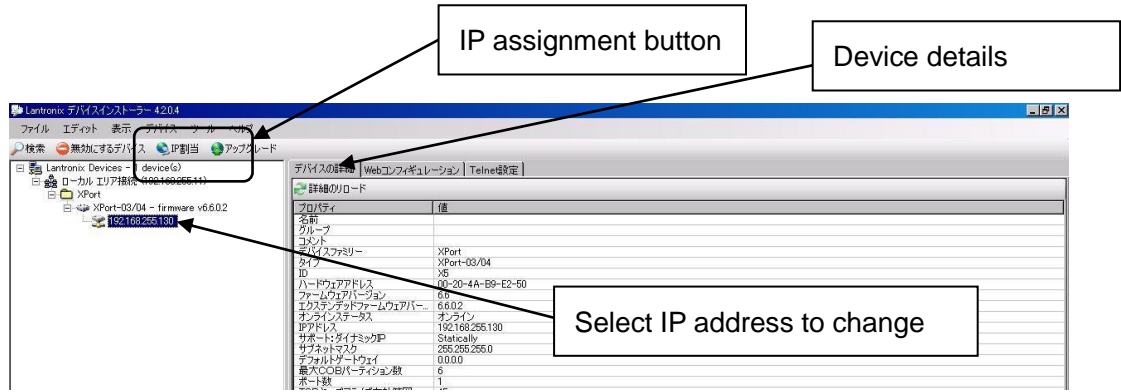
5-3. IP Address Settings and Procedure

Check that the power of the receiver is ON and that the receiver is properly connected to the HUB or PC, and then start "Device Installer" from the start menu.
 The connected receiver is displayed on the main window (Fig.1).



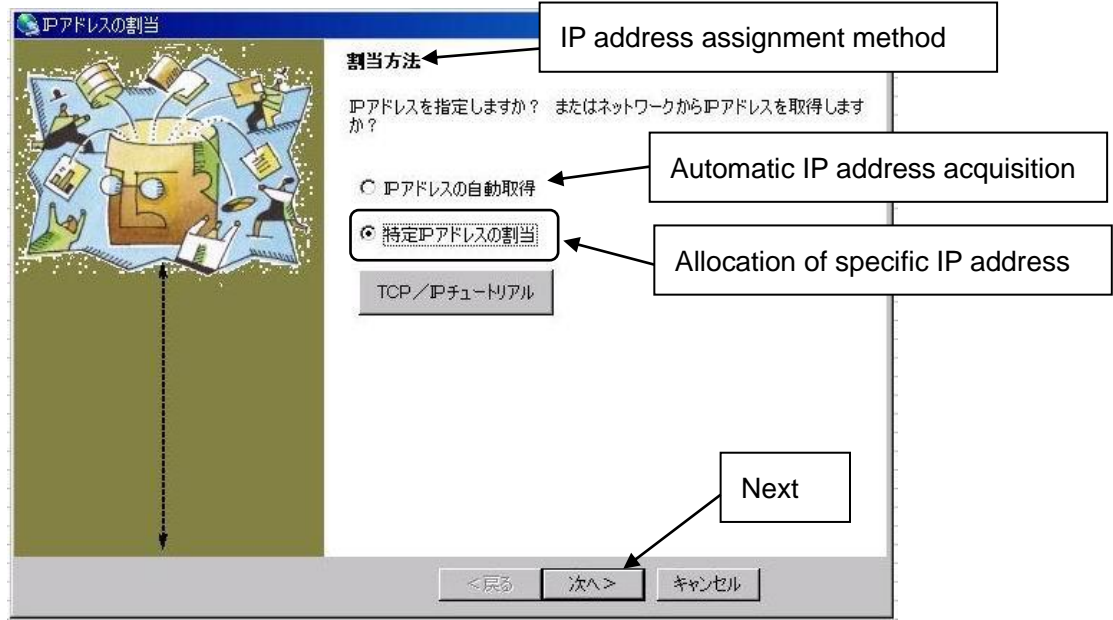
- Fig. 1 Screen to start Device Installer -

To change the IP address, select the address of the X port on the left of the screen.



- Fig. 2 Select IP address of Xport to change -

Click "IP assignment button", and the screen is displayed as shown in Fig.3. Select to assign an IP address automatically or specify an IP address directly. This document explains about specifying an IP address. Check "Assign a specific IP address" and click the "Next" button.

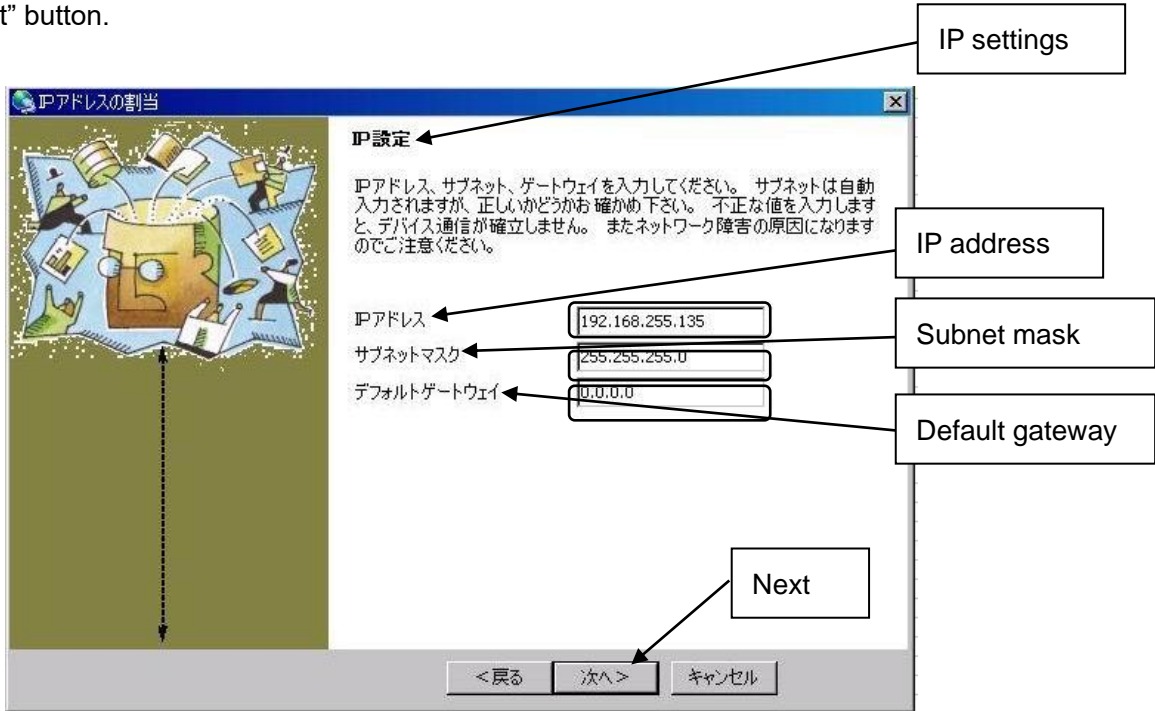


- Fig. 3 IP address assignment -

Enter the IP address, subnet mask and default gateway.

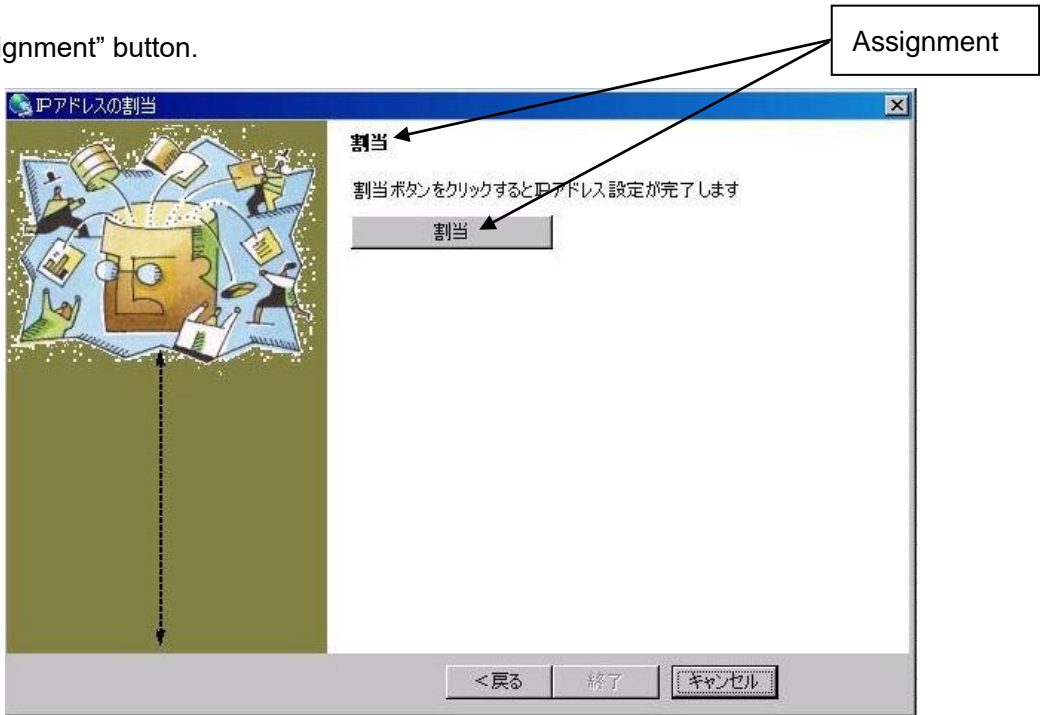
*Before setting an IP address, obtain permission from the network administrator.

Click "Next" button.



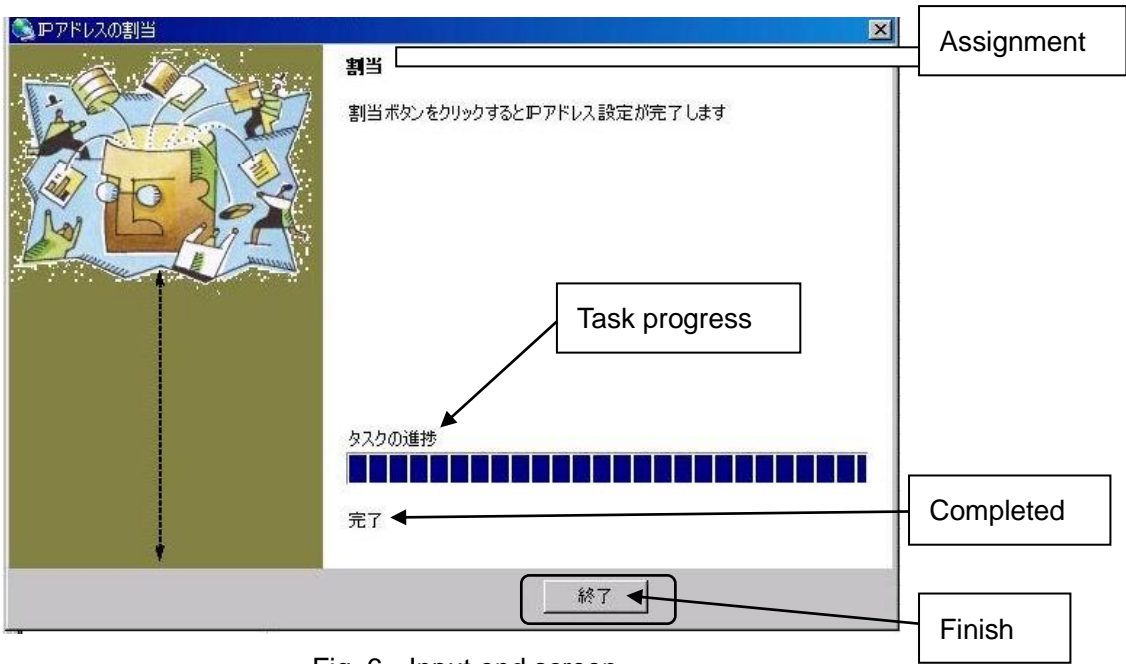
- Fig. 4 IP address input screen -

Click "Assignment" button.



- Fig. 5 Assignment input screen -

When the setting is completed, the “Exit” button becomes active.
 It may take some time before the setting is completed. Please wait until the setting is completed.



- Fig. 6 Input end screen -

Click the “Exit” button, and the screen is displayed as shown in Fig.7. Confirm if the IP address has changed properly.



- Fig. 7 IP address display screen after change -

CAUTION

If the IP address set by the customer is already used on the network, the signals will run into each other. Set another IP address.

CAUTION

This product is intended to be used on a closed network that is not connected to the internet. Do not use this product in an open network environment that is connected to the internet.

■Change Password

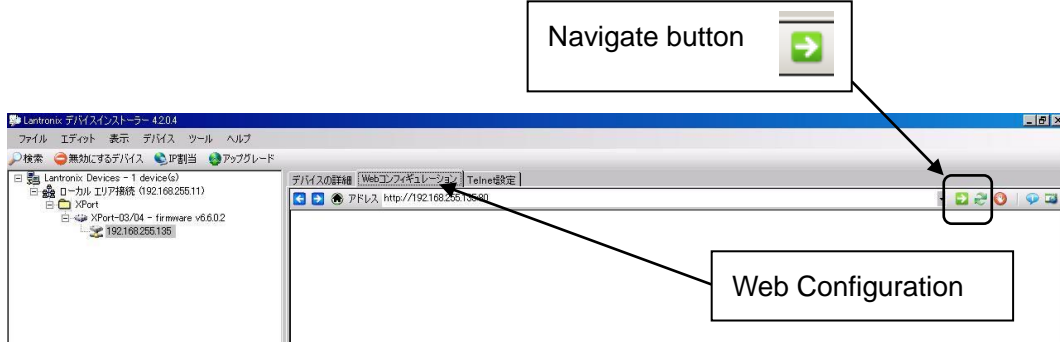
The WEB screen (Web Manager) inside X port requires user authentication by password.

Change the default password in the following procedure.

CAUTION

Leaving the default password can cause a security risk to the product. Be sure to change the default password.

Click the “WEB configuration” tab on the screen in Fig.7, and the screen in Fig.8 is displayed.



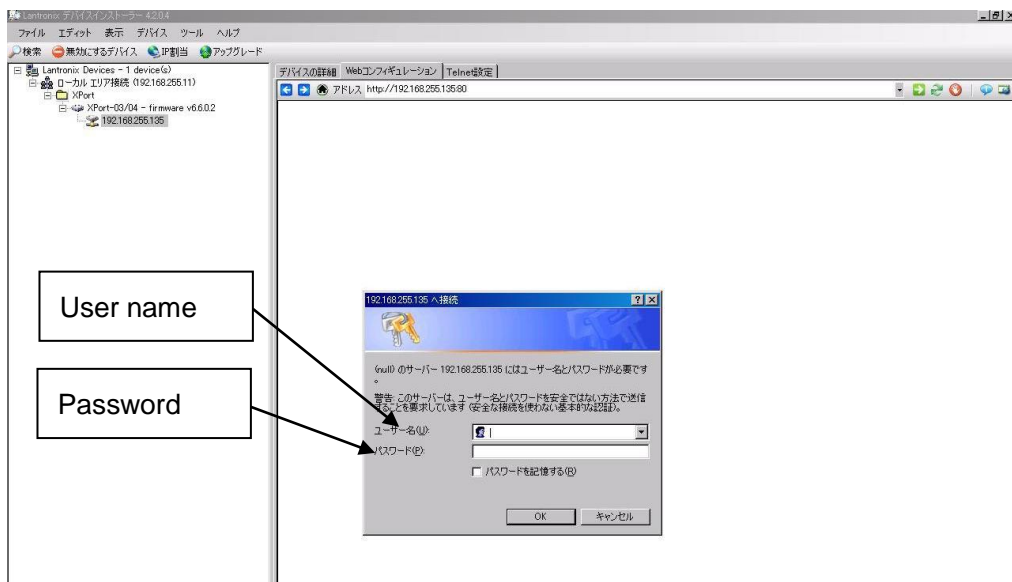
- Fig. 8 WEB configuration setting screen -

Click the “Navigate” button and the password entry screen in Fig.9 is displayed.

Please leave the user name blank.

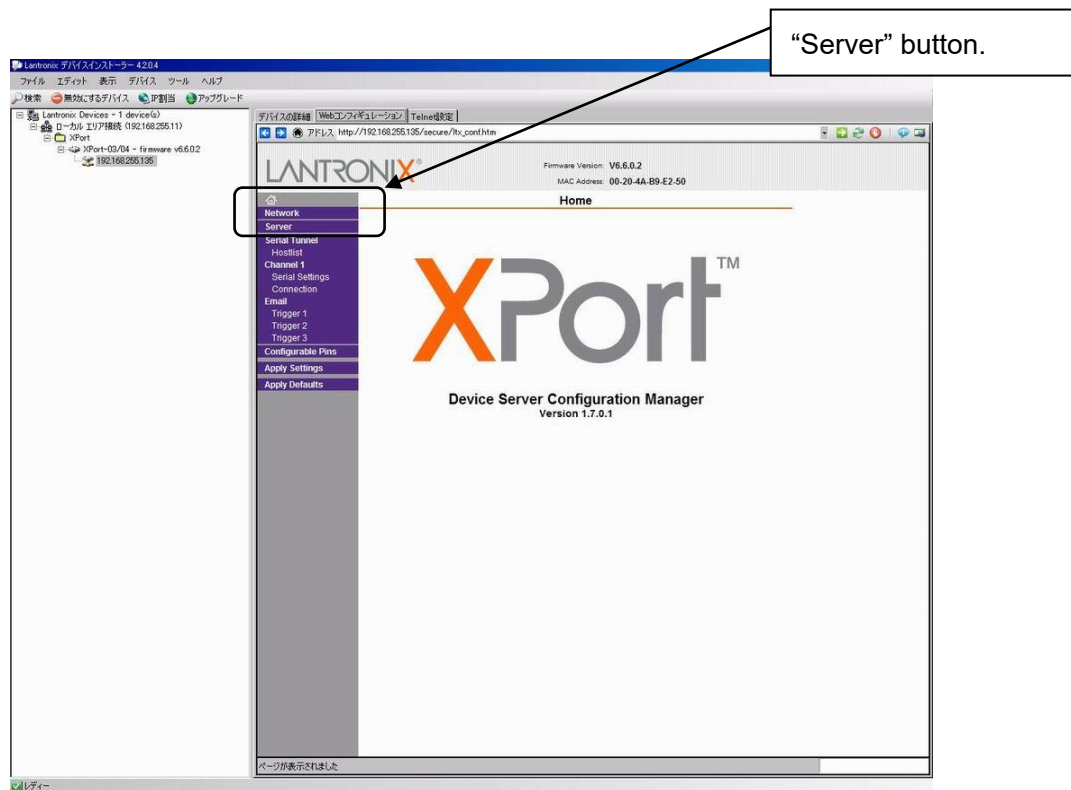
Enter the following password. When the entry is completed, click the “OK” button.

Initial password NuM7?FrC@nVT8Z1Q



- Fig. 9 Password input screen -

On the “Web Manager” screen in Fig.10, click the “Server” button.



- Fig. 10 Web Manager initial screen -

Click the "Server" button, and the "Server Settings" screen in Fig.11 is displayed.

- ① Set the "Enhanced Password" radio button to "Enable".
- ② Enter a new password (up to 16 characters) in the "Telnet/Web Manager Password" field.
- ③ Enter the same password as ② in the "Retype Password" field.
- ④ Click "OK" button. If the passwords entered in ② and ③ match, "Done!" will be displayed to the right of the "OK" button. If the passwords entered in ② and ③ are different, an error message "Passwords do not match. Please retry again." is displayed. Retry ② and ③ again.
- ⑤ Click "Apply Settings" button.

When the process is completed, the password entry screen is displayed. Enter the set password and press the "OK" button. (Please leave the user name blank.) If login is successful, the settings are complete. Press the "x" button on the top right of the screen and the application exits.

- Fig. 11 Server settings initial screen -

CAUTION

When reconfirming the changes made to the settings, the changes may not be reflected in the display. In that case, reboot the software (Device Installer) and check the changes again.

■About settings various parameters

Various parameters can be set on the WEB screen (Web Manager) inside X Port. However, do not change the settings of the parameters. The default values are set to work properly.

6. Settings

Use the rotary switch, DIP switches or Ethernet communication command to set the receiver.

Details of the settings and methods for changing the settings are as follows:

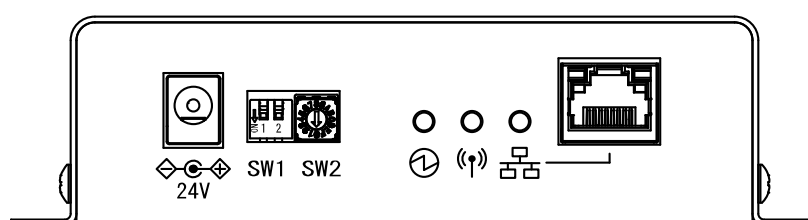
Turn OFF the power of the main unit before changing the settings of the rotary switch or the DIP switch.

Setting contents	Setting by switch	Setting by Ethernet communication command
Channel settings	○*1	○*2
Ethernet communication command settings	○	×
Answer back disabled settings	○*1	○*2
Terminal code settings of Ethernet communication command	×	○*2

*1: This setting is available only when the Ethernet communication command is set to "Invalid".

*2: This setting is available only when the Ethernet communication command is set to "Valid".

For the setting by the Ethernet communication command, refer to "7. Communication Command Function".



■Channel settings

Set the channel settings according to the transmitter that will communicate with the receiver.

< Channel >

SW2	Channel	Frequency (MHz)	SW2	Channel	Frequency (MHz)
1	1	903.0	9	9	915.8
2	2	904.6	A	10	917.4
3	3	906.2	B	11	919.0
4	4	907.8	C	12	920.6
5	5	909.4	D	13	922.2
6	6	911.0	E	14	923.8
7	7	912.6	F	15	925.4
8	8	914.2	0	16	927.0

■Ethernet communication command settings

Select Valid/Invalid for the Ethernet communication command.

When this setting is “Valid”, the devices are set to the setting of the Ethernet communication command. The settings are stored until the power is ON next time.

When this setting is “Invalid”, the devices are set to the setting of the rotary switch or the DIP switch.

When this setting is “Invalid”, the receiver returns an error response after receiving the Ethernet communication command and the command will not be reflected as the setting of the device.

SW1-1	OFF	ON
Ethernet communication command settings	Invalid	Valid

■Answer back disabled settings

When WCL-920R and AN920R are used at the same time, their answerback messages run into each other, and the transmitter may not be able to receive the answerback message. This setting is intended to forcibly disable the answerback of WCL-920R to prevent the answerback messages from running into each other.

This setting works effectively only when the communication settings of the transmitter are set to “Answerback available”. Set the setting as necessary.

SW1-2	OFF	ON
Answerback invalid settings	Return an answerback message	Not return an answerback message

7. Communication Command Function

The Ethernet communication command allows information acquisition and device settings of the receiver to be changed.

To use the Ethernet communication command function, "Ethernet communication command settings" of the DIP switch, SW1-1 must be valid.

7-1. Information Acquisition Command

@?Command<Space>[Param]<Terminal code>

1	First code	"@?" Fixed (40H, 3FH)
2	Command	Command for acquiring each information
3	Space	If an argument exists, separate the argument with spaces (20H).
4	Param (Argument)	If there are multiple arguments, separate them with "," (2CH).
5	Terminal code	Use one of CR/LF/CRLF. (Value set by the command for setting the terminal code. The default value is CRLF.)

7-2. Setting Command

@Command<Space>[Param]< Terminal code >

1	First code	"@?" Fixed (40H)
2	Command	Command for each settings
3	Space	If an argument exists, separate the argument with spaces (20H).
4	Param (Argument)	If there are multiple arguments, separate them with "," (2CH).
5	Terminal code	Use one of CR/LF/CRLF. (Value set by the command for setting the terminal code. The default value is CRLF.)

7-3. Command Execution Result

<At normal termination>

When the setting command terminates normally, the command execution result is as follows:

<First code>Command<Space>OK<Terminal code>

1	First code	"@?" Fixed (40H)
2	Command	Command for each settings
3	Space	Separate Command and OK with a space (20H).
4	OK (Execution result)	"OK" (4FH,4BH) ASCII string
5	Terminal code	Use one of CR/LF/CRLF. (Value set by the command for setting the terminal code. The default value is CRLF.)

When the information acquisition command terminates normally, the command execution result is as follows:

When a response with multiple values is included, a response separated with commas for each data element is returned.

<First code>Command<Space><result1>,...,<result n><Terminal code>

1	First code	"@?" Fixed (40H,3FH)
2	Command	Command for acquiring each information
3	Space	Separate Command and Result with a space (20H).
4	Result (Execution result)	Separate multiple execution results with "," (2CH).
5	Terminal code	Use one of CR/LF/CRLF. (Value set by the command for setting the terminal code. The default value is CRLF.)

<When abnormal termination>

<First code>Command<Space>Error=<X>.<Y><Terminal code>

1	First code	"@?" Fixed (40H,3FH)
2	Command	Command for acquiring each information
3	Space	Separate Command and Error with a space (20H).
4	Error (Error code)	ASCII string in the format "Error=X.Y" X indicates an error group and Y indicates an error number. They are separated with a period.
5	Terminal code	Use one of CR/LF/CRLF. (Value set by the command for setting the terminal code. The default value is CRLF.)

Error code specification

<Error group>

Numeric value	Meaning
0	No error
1	Command analysis error related
2	Input range error related
3	Error group depending on the status of the receiver
4	Memory error related
5	Wireless module error related
F	Other error

<Error code>

Error group (X)	Error number (Y)	Meaning
1	1	No first code (“@”)
1	2	Non-existent command
1	3	Character code is included in the set value
1	4	Command format error
1	5	Excessive command string length
2	1	Out of the set value range
3	1	Ethernet communication command invalid
4	2	Serial number reading error
4	3	Receiver settings reading error
5	1	Wireless module communication error
F	F	Other errors

Command List

■Information acquisition only

Transmission format	Execution result	Meaning
@?Version	@?Version 1.00 *1	Software version acquisition
@?ModelName	@?ModelName WCL-920R	Type acquisition
@?SerialNumber	@?SerialNumber A00001 *2	Serial number acquisition

*1: Example when the soft version is 1.00.

*2: Example when the serial number is A00001.

■Information acquisition/setting command

Transmission format	Execution result	Value range	Meaning
@?Channel	@?Channel X	X=1~16	Channel settings acquisition
@Channel X	@Channel OK / @Channel Error=Code	X=1~16	Channel settings
@?AnswerbackOff	@?AnswerbackOff X/ @?AnswerbackOff Error=Code	X=0~1 0: Invalid 1: Valid	Answer back disabled settings acquisition
@AnswerbackOff X	@AnswerbackOff OK/ @AnswerbackOff Error=Code	X=0~1 0: Invalid 1: Valid	Answer back disabled settings
@?Termination	@?Termination X *Be sure to specify CRLF for the terminal code of this command.	X = 0~2 0:(CRLF) 1:(CR) 2:(LF)	Terminal code settings acquisition
@Termination X	@Termination OK/ @Termination Error=Code *Be sure to specify CRLF for the terminal code of this command.	X = 0~2 0:(CRLF) 1:(CR) 2:(LF)	Terminal code settings

*The commands are case sensitive.

8. Installation Procedure

8-1. Receiver Installation

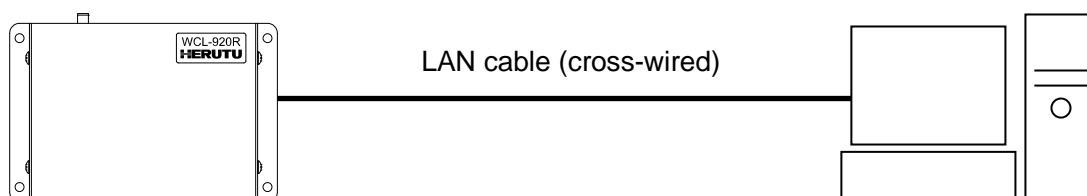
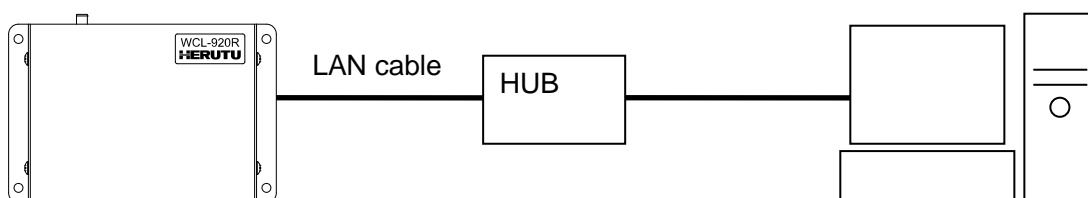
Communication performance highly depends on the installation environment. Install the receiver as follows.

- Keep the antenna away from metal sheets or wires, and prevent the antenna from becoming parallel to them.
- Keep the antenna away from noise sources.
- Select a location where there are no shielding objects between the antennas of the transmitter and the receiver.
- The receiver is neither dust-proof nor drip-proof.

*Do not install the receiver in the following locations:

- Locations exposed to direct sunlight.
- Locations with high humidity.
- Near a television or radio.
- Near machines that spark, such as a welding machine.
- Locations where strong magnetic field is generated.
- Locations surrounded by steel frames or metal walls.
- Near any devices that could malfunction due to radio waves from the systems.
- Place the receiver where it can be seen easily and clearly from the transmitter.
Fix the receiver to a stable surface using the mounting holes.
- Connect the LAN connector of the receiver to the switching hub or the PC's LAN connector with the cable.

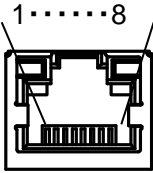
Please use the cable of the category 5 or higher standard.



- 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.

8-2. LAN connector

For the connector use RJ45 type.



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

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

9. Description of Operation

9-1. Basic Operation

9-1-1. Opening

The power LED lights up (Red).

The LEDs for wireless communication and wired communication lit orange, and then go out after 10 seconds. While the LEDs for wireless communication and wired communication are lit orange, the receiver is starting up, and thus does not communicate with connecting devices or receive data from the transmitter until the LEDs go out.

9-1-2. Receive Data from Transmitter

Upon receipt of a message from the transmitter, the receiver generates the output of the information in TCP/IP.

Message data with the same channel as the receiver is generated. After receiving a message, when receiving the same message within 2 seconds, the message will be thrown away after reading and will not be generated. The output data formats are as follows.

The items between Model and Output power settings are separated with commas [.,].

First code	Space	Model	,	Serial number	,	CH	,	SET	,	UNIT	,	ID	,	Orange key FLG	,	Red key FLG	,	Green key FLG	,	White key FLG	,	Orange terminal FLG	,	Red terminal FLG	,	Green terminal FLG	,	White terminal FLG	,	Communication type	,	Transmit and receive settings	,	Output power setting	Terminal code
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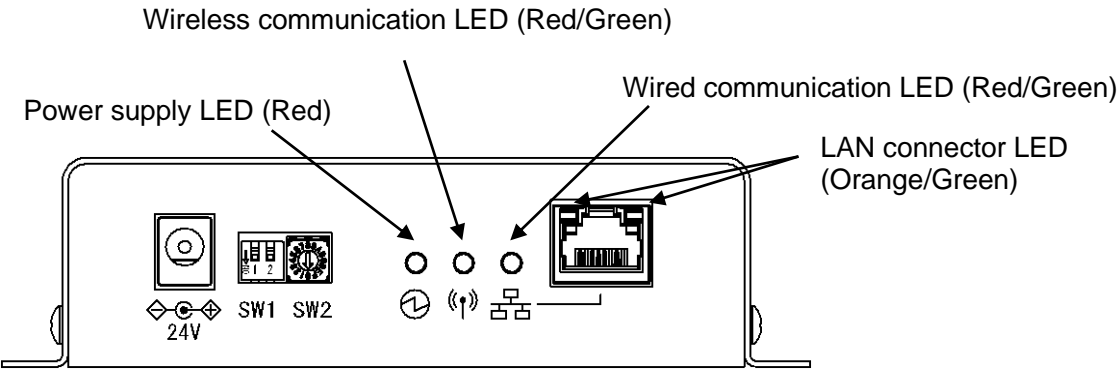
Separate the items between Model and Output power settings with commas “.,”.

Item	Contents	Number of bytes
First code	“@!CallData” ASCII string	10
Space	Space (20H)	1
Model	“WCL-920R” ASCII string	8
Serial number	Serial number in ASCII One alphabet letter + 5-digit serial number identifier, starting with “A00001”.	6
CH	Channel settings ASCII string: “00” – “16”	2
SET	SET No. setting value of the transmitter: '0' (30H) – '9'(39H)	1
UNIT	UNIT No. setting value of the transmitter: '0' (30H) – '9'(39H)	1
ID	ID No. setting value of the transmitter: '0' (30H) – '9'(39H)	1
Orange to White key FLG	Key information input to the transmitter: '0' (30H):OFF/ '1'(31H):ON	1
Orange to White terminal FLG	Terminal information input to the transmitter: '0'(30H): OFF/ '1' (31H):ON	1
Communication type (Unused)	Unused It is set to '0' (30H).	1
Transmit and receive settings	Transmit and receive settings '0' (30H): Transmit and receive settings (Answer back required) '1' (31H): Transmit-only (No answer back required)	1
Output power settings	Wireless output power settings in ASCII string of “02” – “20”	2
Terminal code	One of CRLF / CR/ LF	2 (for CRLF) 1 (for CR/LF)

*Note: The data format may be split into multiple packets.

9-2. LED Monitor

Check the status of the power supply, wireless communication and wired communication on the LED monitor.



■At power ON

The power LED lights up (Red).

The LEDs for wireless communication and wired communication light up in orange, and then go out after 10 seconds.

■Power supply LED

State	Monitor
Power ON	Red LED lights

■LED for wireless communication

State	Monitor
Receiving wireless data	Red LED lights
Transmitting answerback	Green LED lights

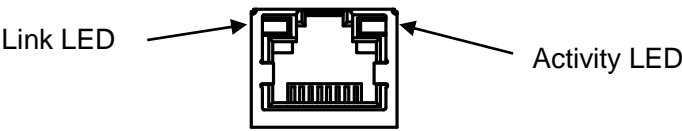
■LED for wired communication (Internal microcomputer <=> LAN communication module)

State	Monitor
Microcomputer -> LAN communication module	Green LED lights
LAN communication module -> microcomputer	Red LED lights

■At error occurrence

Error event	LED for wireless communication	LED for wired communication
Serial No. reading error	Orange LED blinking (Intervals of 100msec.) Continues blinking until the power is OFF.	
Device setting read error	-	Orange LED blinking (For 5 seconds in intervals of 100msec.)
Wireless module initialization error	Orange LED blinking (For 5 seconds in intervals of 100msec.)	-

■LAN connector



Link LED		Activity LED	
LED color	Contents	LED color	Contents
Lights off	Unconnected	Lights off	No communication
Orange LED light	10Mbps	Orange LED light	Communicating in half duplex (Turns ON only during communication)
Green LED light	100Mbps	Green LED light	Communicating in full duplex (Turns ON only during communication)

9-3. Processing at Power ON

At power ON, the receiver reads the settings required to work. If the receiver fails to read them, the LED indication and settings may be forcibly initialized.

■Read serial number

At power on, the receiver reads the serial number stored in the code flash region.

If an error occurs while reading the serial number, the LEDs for wireless communication and wired communication blink in orange (blinking interval of 100msec). Also, error information output is generated in TCP/IP. If an error occurs while reading the serial number, the LED for wireless communication and wired communication continue blinking until the power is OFF. The error information output to be generated is as follows:

```
@!ErrorData Error=4.2
```

■Read the channel settings, the answerback invalid settings, and the terminal code settings for the Ethernet communication command.

When the Ethernet communication command is valid, the receiver reads the channel settings, the answerback invalid settings and the terminal code settings for the Ethernet communication command stored in the data flash region, at power on.

When the Ethernet communication command is invalid, the receiver reads the channel settings and the answerback invalid settings from various switches.

When an error occurs while reading them, the LEDs for wireless communication and wired communication blink in orange for 5 seconds (blinking interval of 100msec). Also, error information output is generated in TCP/IP. The error information output to be generated is as follows:

```
@!ErrorData Error=4.3
```

In the following cases, the set values are forcibly set to default.

- Failed to read the channel settings, the answerback invalid settings and the terminal code settings for the Ethernet communication command.
- Set the Ethernet communication command to valid for the first time.

The default values are as follows:

Device settings	Initial value
Channel settings	1
Answerback invalid settings	OFF
Terminal code settings of Ethernet communication command	CRLF

■Initialization of wireless module

At power ON, the receiver initializes the wireless module.

If the receiver fails to initialize it, the LED for wireless communication blinks in orange for 5 seconds (blinking interval of 100msec). Also, error information output is generated in TCP/IP.

Initialization processing continues until it succeeds. The error information to be output is as follows:

```
@!ErrorData Error=5.1
```

When the above symptom occurs and the error continues, there may be some damage to the module. In that case, please contact the sales distributor you purchased the product from, or contact our sales department.

10. After Service and Warranty

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

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

[Warranty Regulation]

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

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

1. Warranty period

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

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

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

2. Warranty scope

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

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

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

F) If damage is caused by the failure of consumables or limited-life parts included in the Product:

1. Consumables: Batteries (rechargeable, batteries, dry batteries, button batteries, etc.), recording media (SD cards, etc.)
2. Limited-life parts: Various switches (limit switches, push button switches, etc.) and various sensors
3. Other items that are worn out or have a service life due to use

If consumables or limited-life parts fail, we will replace or repair the parts for a fee.

G) In case of failure caused by handling contrary to the usage and precautions described in the instruction manual of the Product

H) If repaired, adjusted, or improved by elsewhere other than the Company

I) If the Company is unable to reproduce the failure

3. About repair of the Product

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

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

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

5. Disclaimer

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

6. Additional notes

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

[Repair Regulation]

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

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

1. Subject of the Regulation

The Service is provided for the Company's products that are "beyond the scope of the warranty specified in the warranty regulation" and "from the sales start date to the end date of the repair period (seven years from the production end date)". However, please note that the end date of the repair implementation period may

be earlier depending on the availability and procurement status of repair parts.

2. Establishment of contract

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

3. Purpose of the Service

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

4. Usage fee for the Service

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

A) Repair service fee

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

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

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

5. Warranty period and scope of the Product for repair

The warranty period for the Product for repair is "up to six months from the date of repair completion".

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

6. Handling of repair parts

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

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

7. Estimate for the Service

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

8. Return of unrepaired product

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

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

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

9. Handling of personal information

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

10. Compensation for damages

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

11. Additional notes

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



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