No.EX※※-OMV0017-B

Operation Manual

PRODUCT NAME

I/O Configurator (NFC version)

MODEL / Series / Product Number

EX600-WEN# (Wireless master)
EX600-WPN# (Wireless master)
EX600-WSV# (Wireless slave)

SMC Corporation

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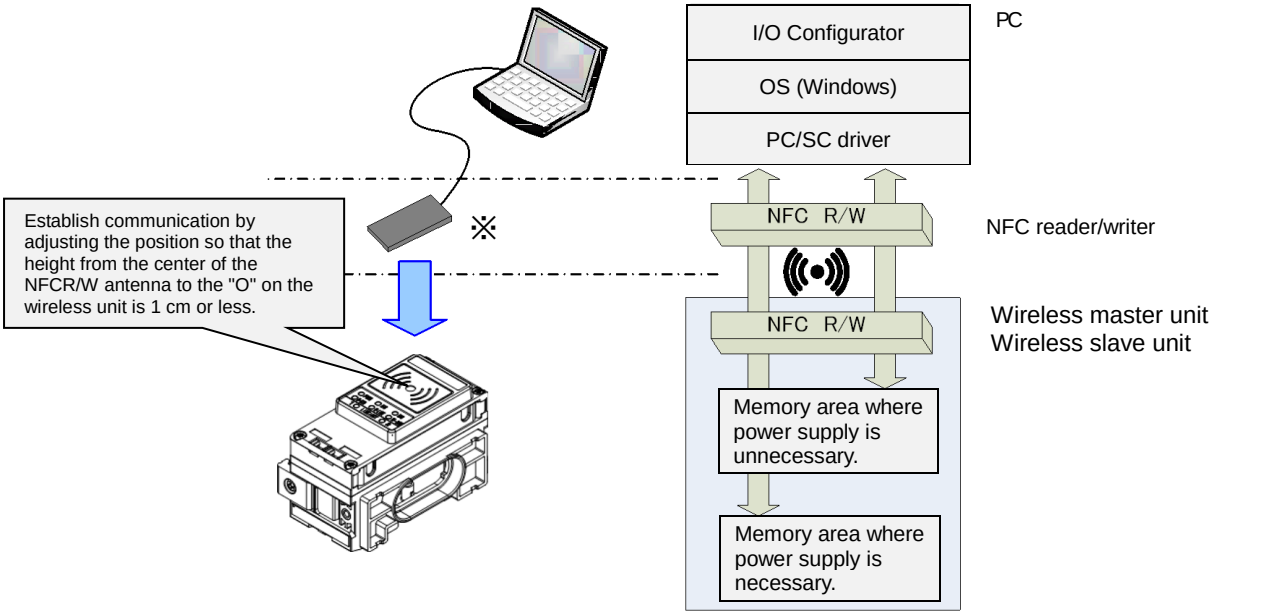
1. Introduction

This operation manual describes the installation, construction of screens and operation method of the I/O configurator for NFC. The SMC wireless system I/O Configurator for NFC can be used to check the parameter setting of the wireless unit and the contents and status of the constructed wireless system, using an NFC reader/writer and a PC.
There are two types of settable parameters with the I/O Configurator: the parameters which can be read or written **when no power is supplied to the product** and the parameters which can be read or written **only when the power is supplied to the product.**
The connection details of the I/O Configurator for NFC and the wireless unit is shown in the below figure.



※One PC will recognize one NFC reader / writer per application setting.
Do not connect multiple NFC readers / writers to a PC.

Connection details of the I/O Configurator for NFC and the wireless unit

Before the wireless system can be used, it is necessary to pair each slave with its master using the I/O configurator for NFC.

The following sections of this document should be read before using the I/O configurator for NFC;

2. Preparation before use (page 7), which describes installation of drivers and the I/O configurator software
3.1.1. Login as administrator (page 13)
5. Pairing of wireless unit (page 69)
6. Wireless system configuration example (page 75)

∗: About the communication timing
The NFC communication is not accessed all the time. Therefore, it is necessary to update the contents displayed on the screen by clicking the "Refresh button" when reading the parameters. The parameters changed are valid after re-supplying the power supply or by pressing the reset button in the I/O Configurator screen. As the parameter setting requires time for settlement, do not turn off the power supply for 2 seconds.

∗: Establishing communication after changing units
As the settings between the wireless master unit and the wireless slave unit are different, it is necessary to update the displayed parameter by clicking the "Refresh button" on the screen of the I/O Configurator for NFC after changing the unit in which the parameter is set.

∗: Operation already checked. NFC reader/writer

SONY Corporation	RC-S380/S
Advanced Card Systems Ltd.	ACR1251U (FW212 or later), ACR1252U (FW104.6 or later)

∗: I/O Configurator (Web version)
This operation manual explains the outline of the setting using the I/O Configurator (NFC). I/O Configurator (Web) is used to set the module I/O occupied points and parameters for the "wireless master" and parameters for the "I/O devices". Refer to the operation manual for the I/O Configurator (Web version).

∗: The product is available in Japanese, English, and Chinese by setting the language in the Windows OS.

1.1. Definition and terminology

	Term	Definition
A	Administrator mode	Administrator mode allows the user to configure the wireless units.
B	Broken line detection	A broken wire to the input or output equipment has been detected by the diagnostic function.
D	DHCP	A protocol that automatically allocates information, necessary to be registered to use the network, such as an IP address, to individual devices connected to the TCP/IP network.
	Dummy slave	A Dummy slave can be used to reserve a dummy area within the I/O map. A wireless slave can then be registered to the dummy area at a later time, without having to change the I/O map
E	Export	Function to save the configured values of a wireless unit by exporting them to a PC.
F	Fieldbus	Network protocol to establish digital communication between an automated industrial system such as a measurement tool or manipulation tool and a PLC.
	Full duplex	Communication system that can send and receive data at the same time bi-directionally.
H	Half-duplex	Communication method that can send and receive data reciprocally in bi-directional communication.
I	Import	Function to reconfigure a wireless unit by importing values stored on a PC.
	I/O Configurator (NFC version)	Application used to directly set and monitor the wireless unit parameters via an NFC reader/writer.
	I/O Map	Memory area reserved for the I/O data and diagnostic information of the wireless system
	IP address	A 32 bit digit sequence which is assigned to identify devices which are connected to the network.
M	MAC address	A unique number inherent to all devices connected to an Ethernet network.
	Manifold	Aggregate.
	Module	A Module consists of a wireless master or a wireless slave combined with I/O units and a valve manifold.
	Monitor mode	Monitor mode allows the user to monitor the configuration of the wireless units but not make setting changes.
N	NFC	Abbreviation of Near Field Communication. A Non-contact short distance wireless communication used for configuration of the Wireless units
	Number of outputs	Number of points which can operate output equipment such as a valve, lamp or motor starter.

	Term	Definition
O	Occupied points for the module input/output	Number of I/O points that can be controlled by a module.
P	Paring	Registration of the PID (Product ID) of the wireless slave unit to be connected to the wireless master unit. Registration occurs at the initial setting, then wireless system will activate.
	PID	Abbreviation of Product ID. A 32 bit digit sequence which is assigned to identify the wireless unit (master/slave unit).
	PLC	Abbreviation of Programmable Logic Controller. A digital computer used for automation of electromechanical processes.
S	Short circuit detection	Diagnostic function which detects generation of over current due to a short circuit between the output and the positive power supply line or the ground line.
	Short circuit protection	Function which avoids damage to the internal circuit when over current is generated due to short circuit between the output and the positive power supply line or the ground line.
R	Refresh button	Button to display the latest configuration of the wireless units, as set by the I/O configurator for NFC.
	Reset button	Button to update the wireless units with the latest configuration set by the I/O configurator for NFC. Note: Restarting the wireless unit will also activate the latest configuration.
W	Wireless channel	Identification number of the wireless slave unit connected to the wireless master unit.
	Wireless master	A unit which establishes wireless communication of input or output data to the wireless slave. It is connected to a PLC to establish communication of input or output data.
	Wireless slave	A unit which establishes wireless communication of input or output data to the wireless master.
	Wireless unit	A unit which establishes wireless communication. This is a generic name of the wireless master and slave units.

2. Preparation before use

2.1. Software Installation

Driver: The following drivers should be installed before using this software.

When the SONY Corporation RC-S380/S NFC reader is used

(1): Microsoft. Net Framework 4.0 or higher
http://www.microsoft.com/en-US/download/details.aspx?id=17718

(2): NFC reader, writer connection driver NFC port software
(Ver 5.5.0.6 / Approx.39 MB / Apr.24.2017)
https://www.sony.net/Products/felica/business/products/RC-S380.html

When the Advanced Card Systems Ltd. ACR1251U/ACR1252U NFC reader is used.

(1): PC/SC Driver
(Ver 4.2.8.0 / 2018.3.20)
https://www.acs.com.hk/en/products/342/acr1252u-usb-nfc-reader-iii-nfc-forum-certified-reader/

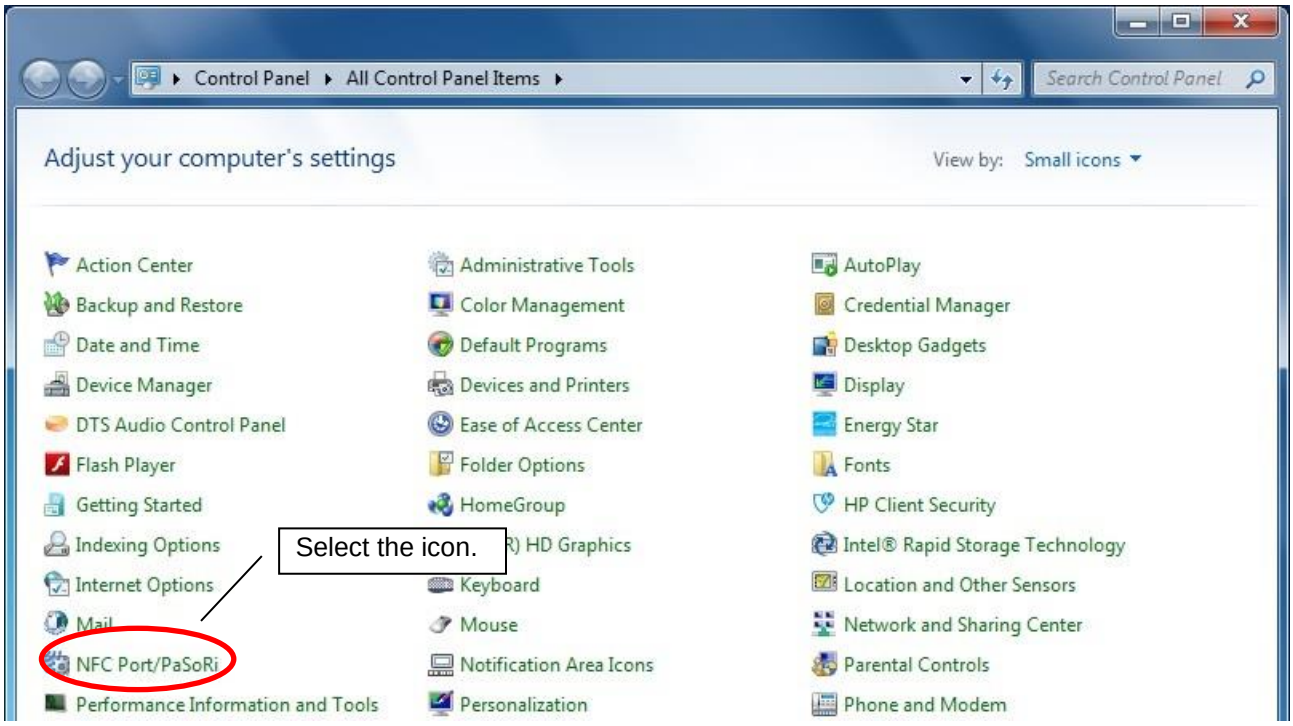
When the NFC reader / writer is held over the product, an error message may appear, such as “Device driver software was not successfully installed” or “Smart card was not identified” depending on the version of Windows OS. The reader / writer can be continuously used.
Refer to the Microsoft website (http://support.microsoft.com/kb/976832/).

2.2. Before starting the software

When the SONY Corporation RC-S380 NFC reader is used, set up the NFC port following the procedure below. When the Advanced Card Systems Ltd. ACR1251U/ACR1252U NFC reader is used, the following setting procedure is not necessary.

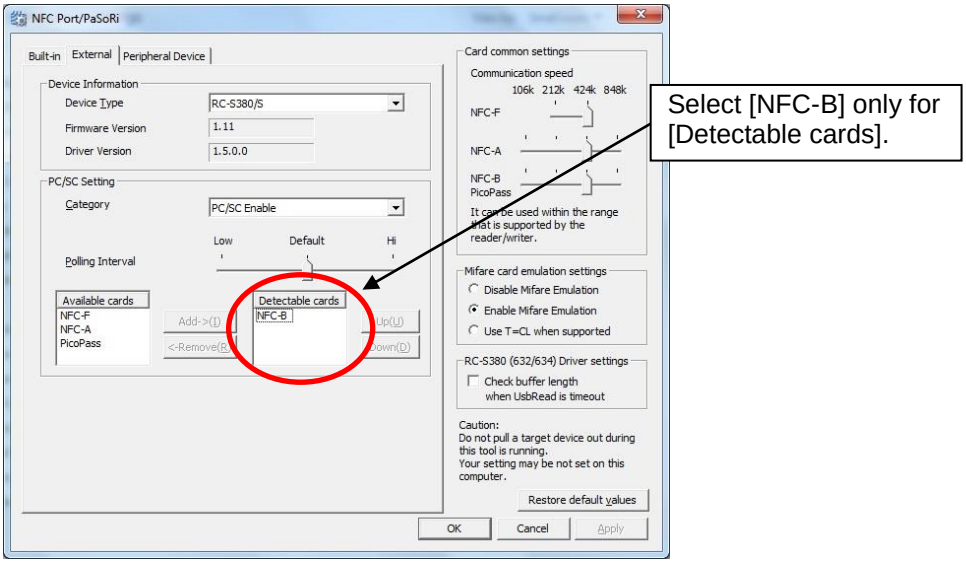
(1) The NFC setting on the control panel of your PC must be changed as follows.

Setting: Operate the NFC-B preferentially using the protocol used.



(Windows7 is used in this Operation Manual)

(2) Double-click the [NFC port/PaSoRi] icon on the control panel to display the setting window.

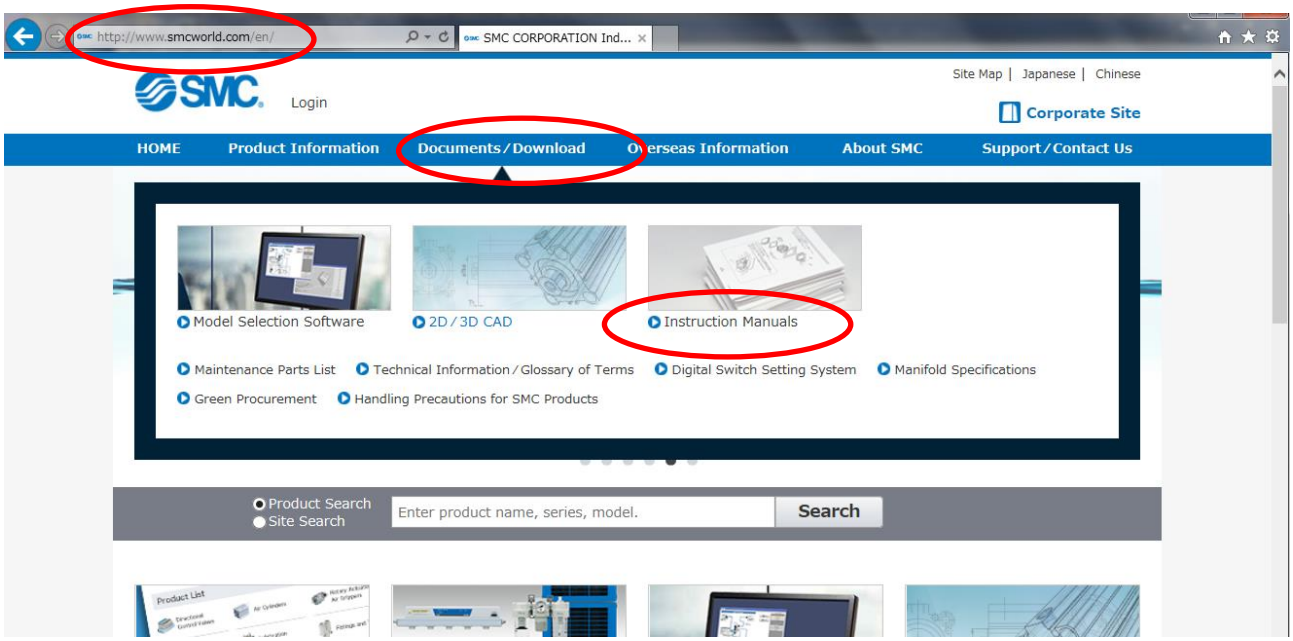


(Windows7 is used in this Operation Manual)

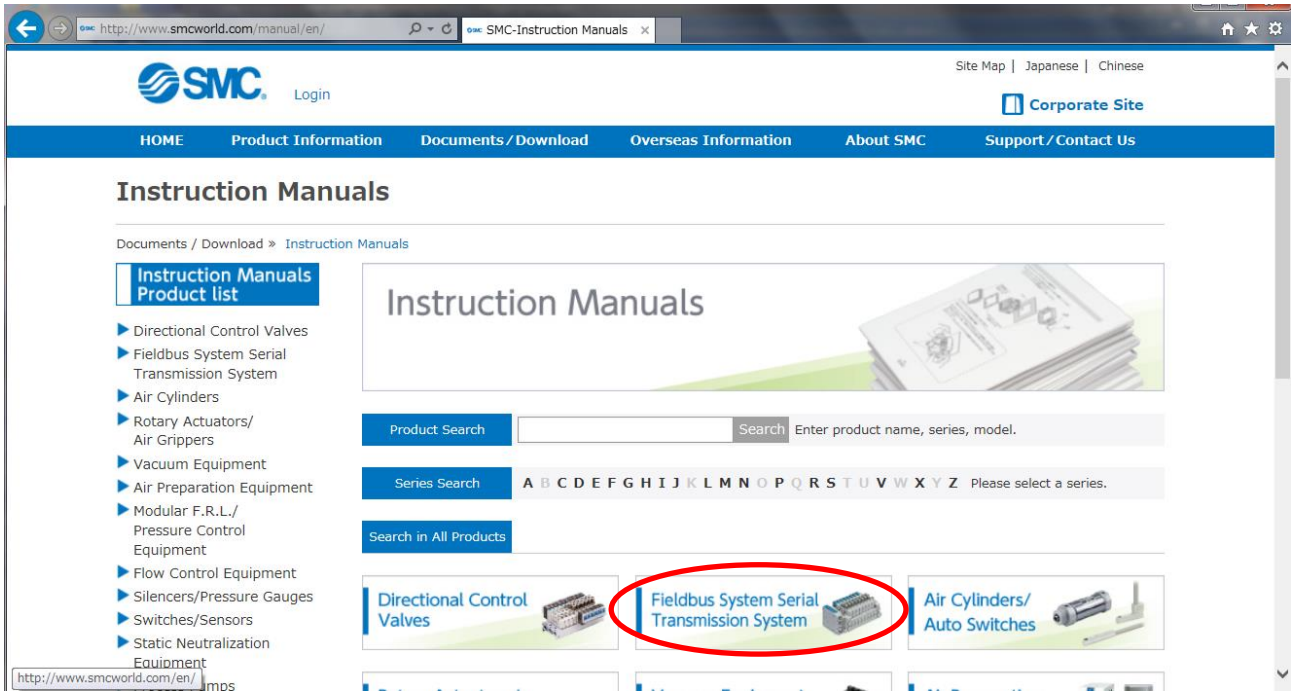
(3) When the setting window is displayed, move [NFC-F], [NFC-A] and [PicoPass] from the card information indicated on the [Detectable cards] to the [Available cards] selection box using the "Delete" button.

2.3. Download the I/O Configurator (NFC version)

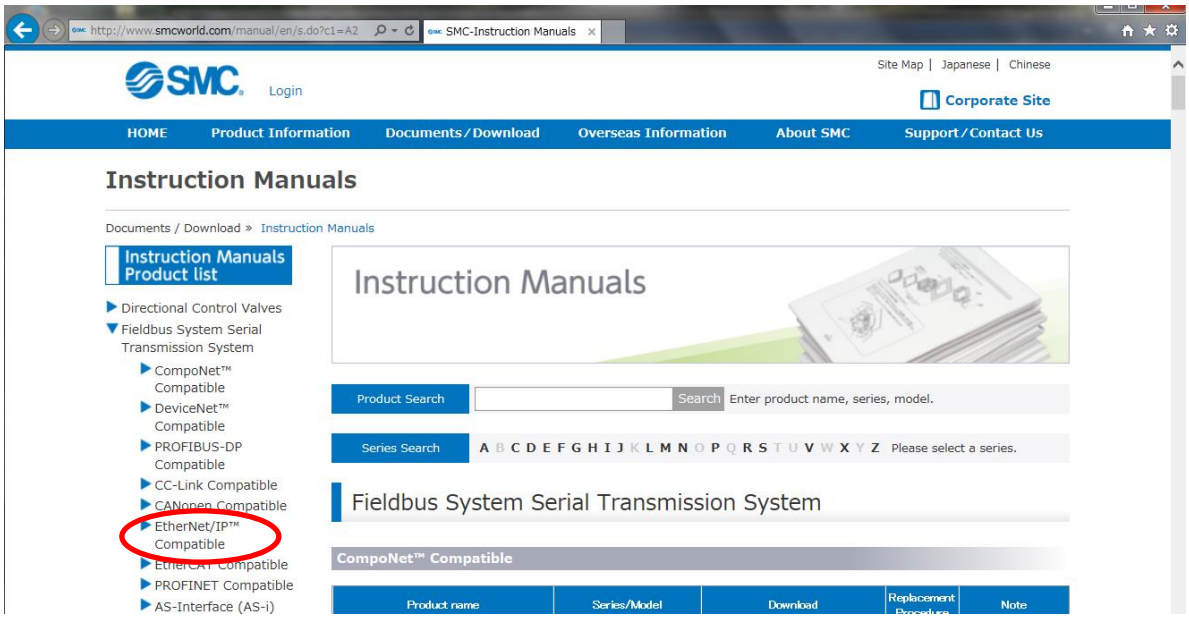
(1) On the SMC website (http://www.smcworld.com), select the Documents/Download and select the Instruction Manuals.



(2) Select the Fieldbus System Serial Transmission System.

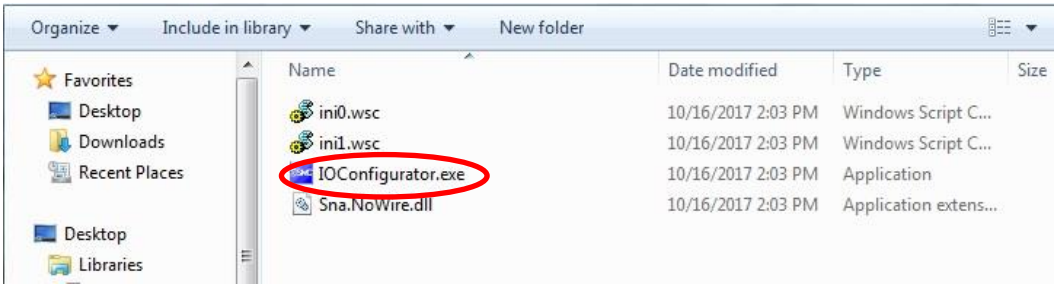


(3) Select the protocol that the product supports. (Example: EtherNet/IP™ compatible)



(4) Scroll down the page of the Fieldbus System Serial Transmission System and select the Configuration File of I/O configurator for NFC. Downloading will begin.

2.4. Start the I/O Configurator (NFC version)



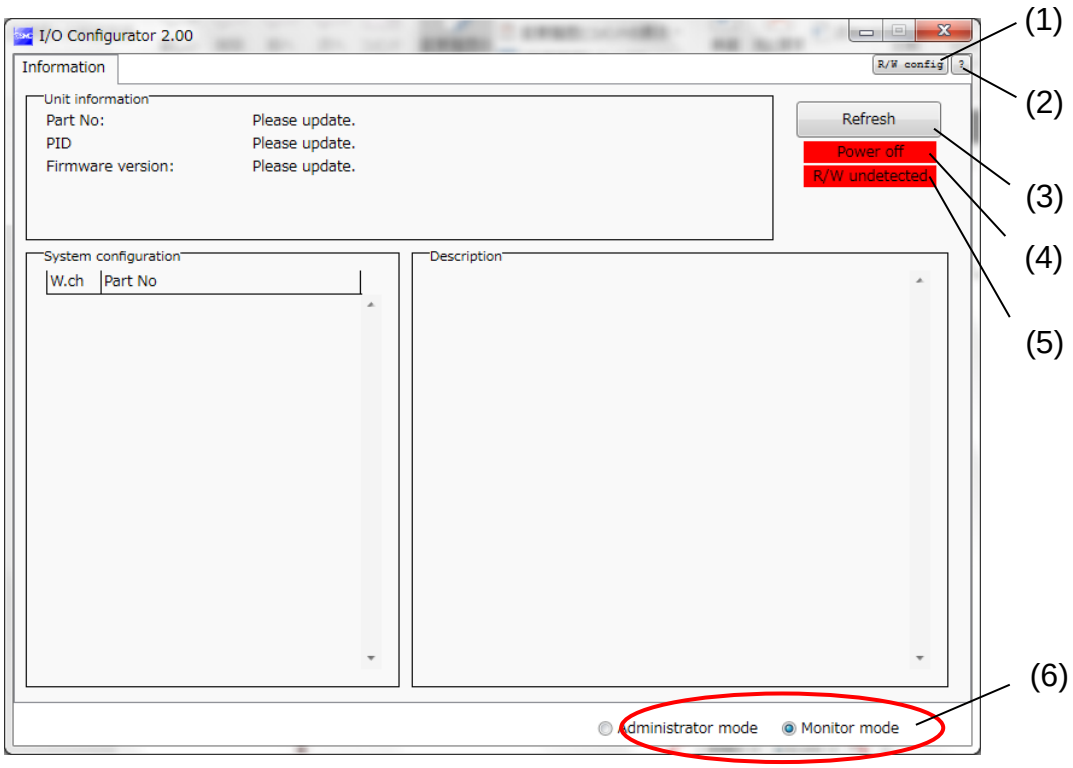
Open the downloaded file and double click the IO Configurator.exe to start the I/O configurator for NFC. If the IOConfigurator.exe is moved to the desk top, move the folder of the configurator or create the short cut of the I/O configurator.exe for further use.

3. Window of I/O Configurator (NFC version)

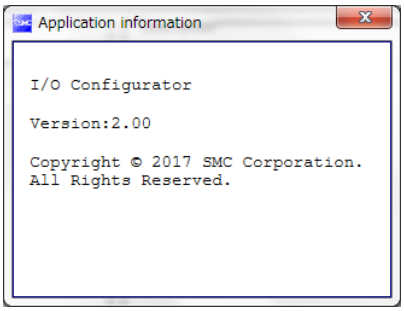
In this chapter, the screen display in I/O Configurator (NFC version) in Wireless Master/Slave will be explained.

3.1. Basic characteristics

The window below is displayed when the I/O configurator for NFC starts. Place the NFC reader/writer within 1 cm of the centre of the wireless symbol on the wireless unit to display the wireless master/slave information and change the parameter setting.
Here, basic functions of the I/O configurator for NFC are given.

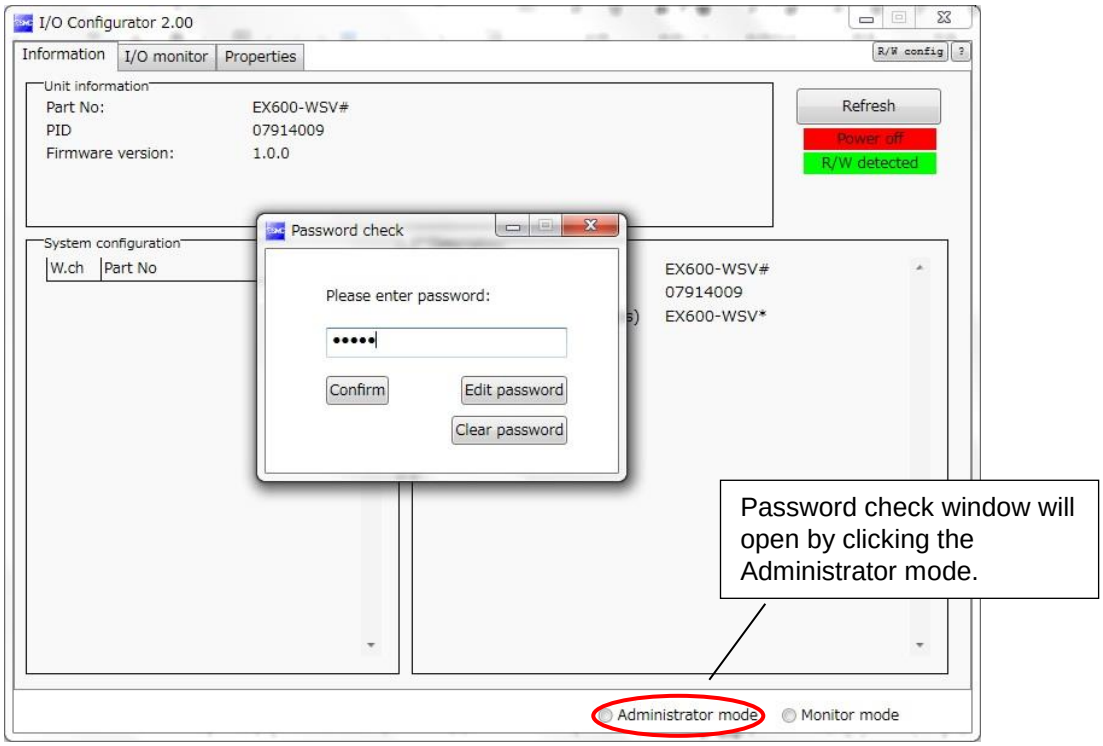


•Basic characteristics

No.	Item	Explanation
1	NFC setting button	When the SONY Corporation RC-S380/S NFC reader is used. When the NFC setting button is clicked, "NFC port/PaSoRi" is displayed on the setting screen. (Refer to 2.2 Before starting the software. (page 8))
2	Question mark	The I/O configurator for NFC software version appears by clicking the question mark. 
3	Refresh button	The Refresh button updates the information displayed on the application window. The information on the window is not updated unless the button is clicked. Always click this button when moving the tab or after parameter setting. The Refresh button is displayed on all screens.
4	Power supply ON/OFF button	LED display to indicate the wireless unit power supply status. Power ON is displayed when power for the wireless master/slave is supplied. Power OFF is displayed when power is not supplied.
5	R/W detection/ R/W no-detection button	Indicates the connection status of the PC-NFC reader/writer. When the SONY Corporation RC-S380/S NFC reader is used. No driver: NFC reader/writer driver is not installed. ∗: Refer to Preparation before use (2. Preparation before use (page 7)). R/W undetected: NFC reader/writer driver is installed. NFC reader/ writer is not identified or USB is not connected. R/W detected: NFC communication with the wireless unit is available. When the Advanced Card Systems Ltd. ACR1251U/ACR1252U is used. No driver: NFC reader/writer is not identified or USB is not connected. ※ This is displayed when the Advanced Card Systems Ltd. driver software is installed. R/W detected: NFC communication with the wireless unit is available.
6	Monitor mode/ Administrator mode	These radio buttons switch the mode between Monitor mode and Administrator mode (button on the lower right of the I/O configurator for NFC window). Monitor mode: Wireless unit information or I/O map and parameter setting can be read. Parameters cannot be set. Forced output function cannot be used. Administrator mode: All functions are available after confirming the password is valid. ∗: The mode is automatically changed to monitor mode unless a mouse operation is performed within 300 seconds in Administrator mode.

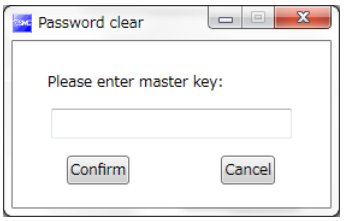
3.1.1. Login to administrator mode

Password is necessary to login to the Administrator mode. The Initial password is "admin". In administrator mode It is possible to change the password using "Edit password".
For security, change the password for the first time of access.



Default password: admin

If the password is forgotten, the previously set password can be deleted using "Clear password". When the [Clear password] button is clicked, the password clear window will appear. By entering the master key (ADMIN) in the password box, the password is cleared and the next step can be accessed without password.



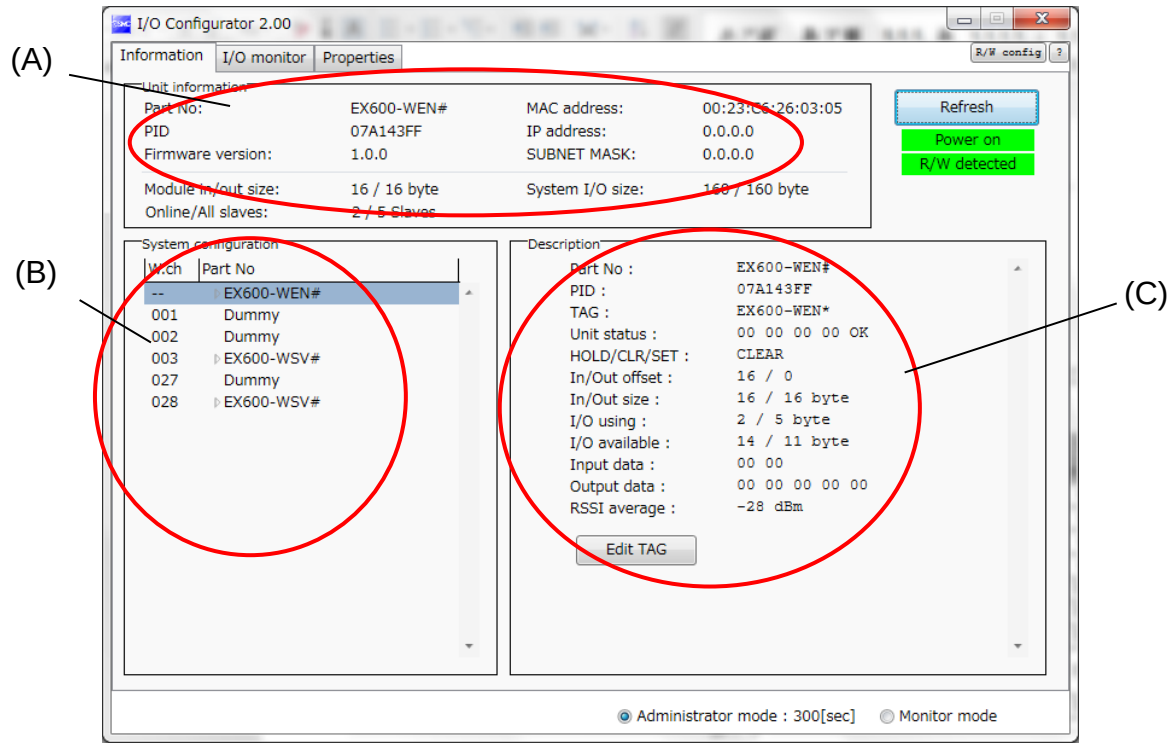
Master key: ADMIN

3.2. Display for wireless master

The tabs available on the upper left of the I/O configurator for NFC consists of the Information (page 14), I/O monitor (page 16) and Properties (page 20).

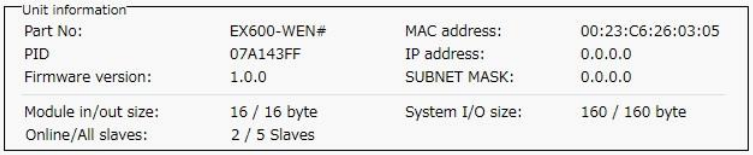
3.2.1. Information tab

The Information tab consists of (A) Unit information, (B) System Configuration and (C) Description.



(A) Unit information

The Unit information area indicates the unit information.

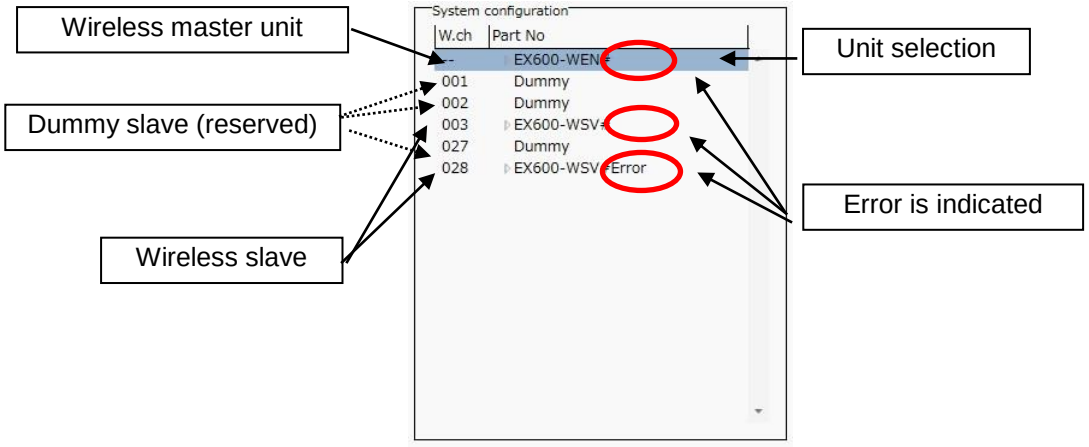


•Module information

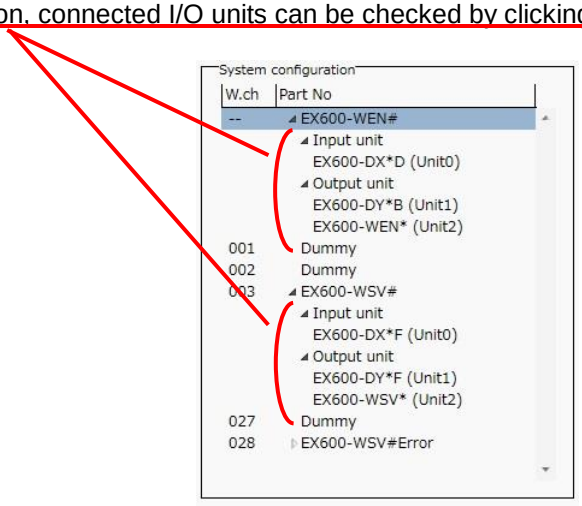
Description	Content	NFC access	
		Energized	Not energized
Part No.	Wireless unit product number	Available	Available
PID	Wireless master unit PID	Available	Available
Firmware version	Displays software version of the wireless master unit.	Available	Available
MAC address	MAC address of the wireless master unit	Available	Available
IP address	IP address of the wireless master unit	Available	Not available
Subnet mask	Subnet mask of wireless master unit	Available	Not available
Module input/output size	Number of occupied points for the control input and output of the wireless master unit.	Available	Not available
Online/All slaves	Indicates the number of online slaves/registered slaves.	Available	Not available
System I/O size	Number of Input and output points in the wireless system	Available	Not available

(B)System Configuration

System configuration shows the configuration information of the wireless master/slave module.

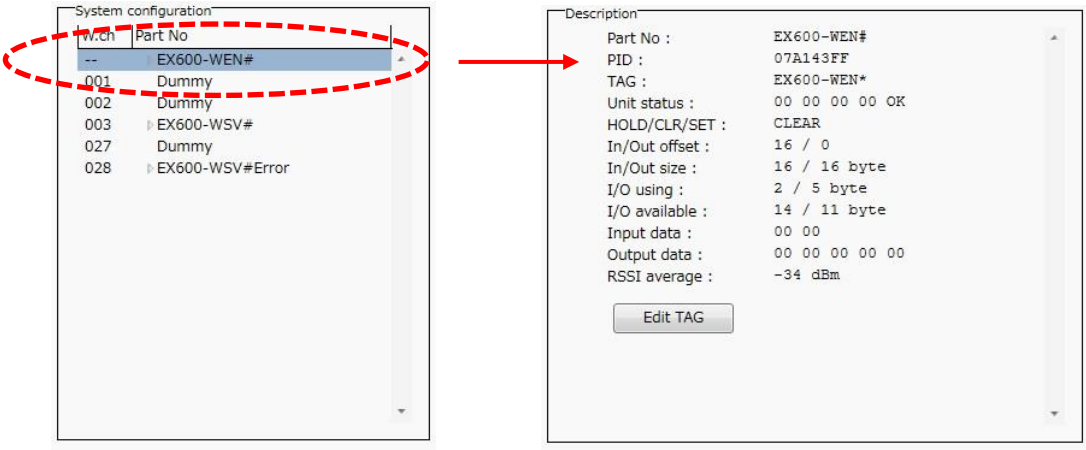


In System configuration, connected I/O units can be checked by clicking on the displayed wireless unit.



(C) Description

Description about the unit selected in the System configuration. The Description is displayed by clicking on the wireless unit or I/O unit in the System configuration.



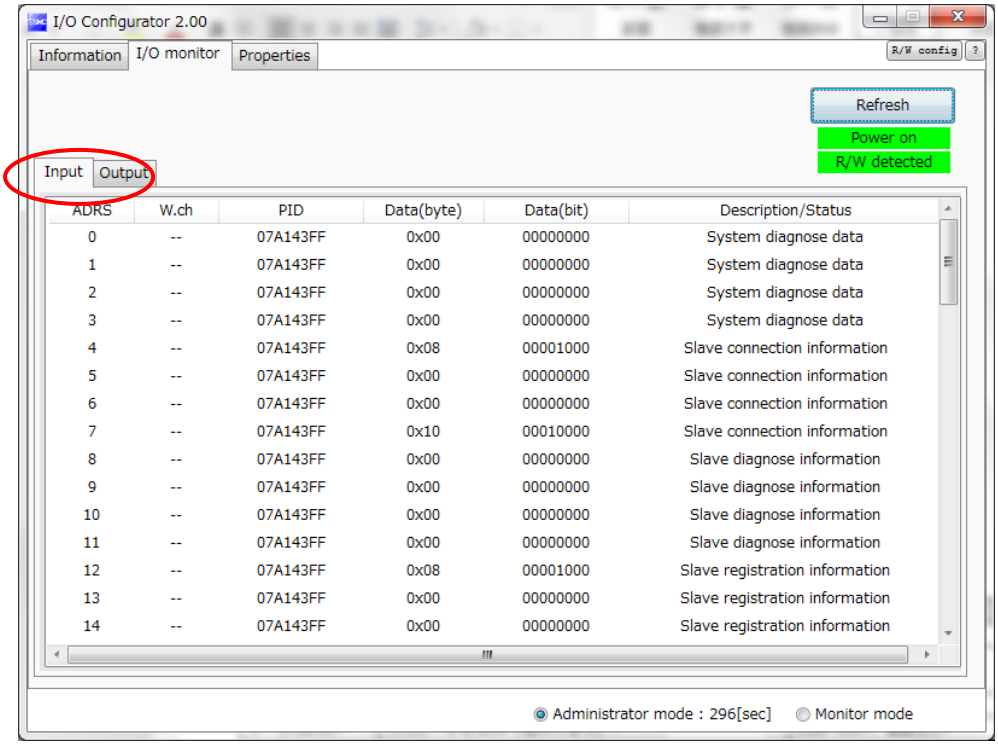
∗: Description varies depending on the unit type. Refer to 3.4 Detailed information of units (page 40) for details.

3.2.2. Input/Output monitor tab

In the I/O monitor tab, the wireless unit I/O map data can be monitored. Diagnosis information or details of input/output can be checked by double clicking each line in the display.
Forced output mode (4.3 Forced output (page 58)) can be selected within the Output tab.

3.2.2.1. Input tab

Input tab shows the input map information of the wireless unit.

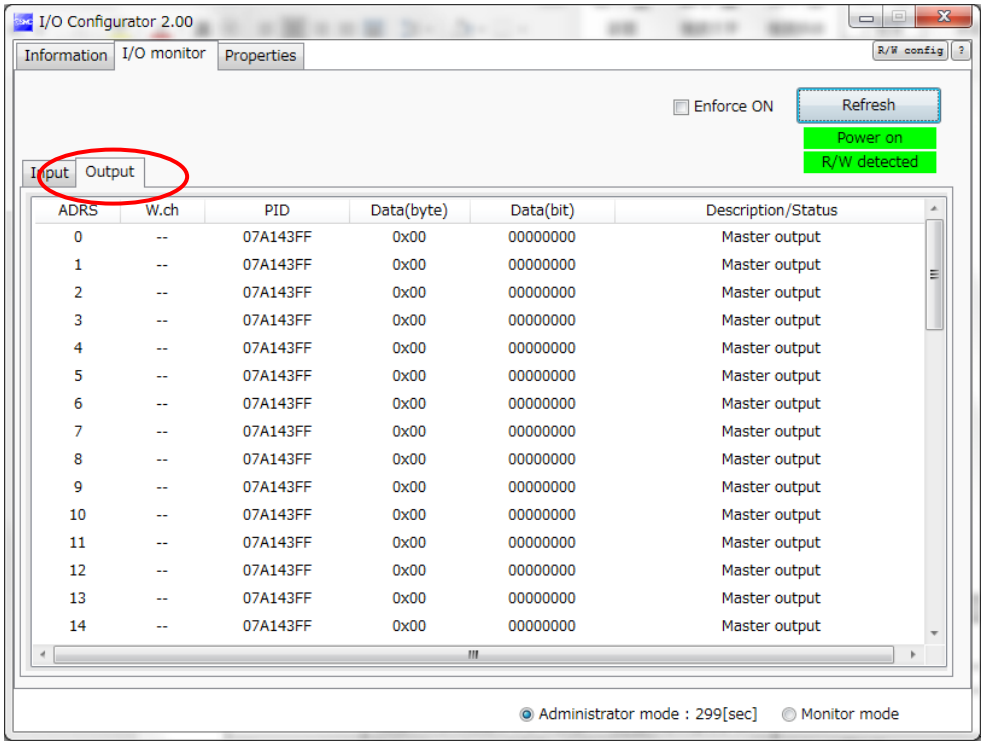


•Input display

Display	Content	Displayed items
Address	Displays the input map address.	0 to 159
Wireless CH	Wireless unit channel. (Wireless channel of the wireless master is displayed as [- -].)	--, ch001 to 127
PID	Wireless unit PID	Individual per unit.
Data (byte)	Input data is displayed in byte.	0x00 to 0xFF, no information
Data (bit)	Input data is displayed in bit.	00000000 to 11111111, no information
Details	Details of inpu data.	•System diagnosis data •Slave connection information •Slave diagnostic information •Slave registration information •Master input •Slave input •Reserve input •Connection error

3.2.2.2. Output tab

Output tab shows the output map information of the wireless unit.

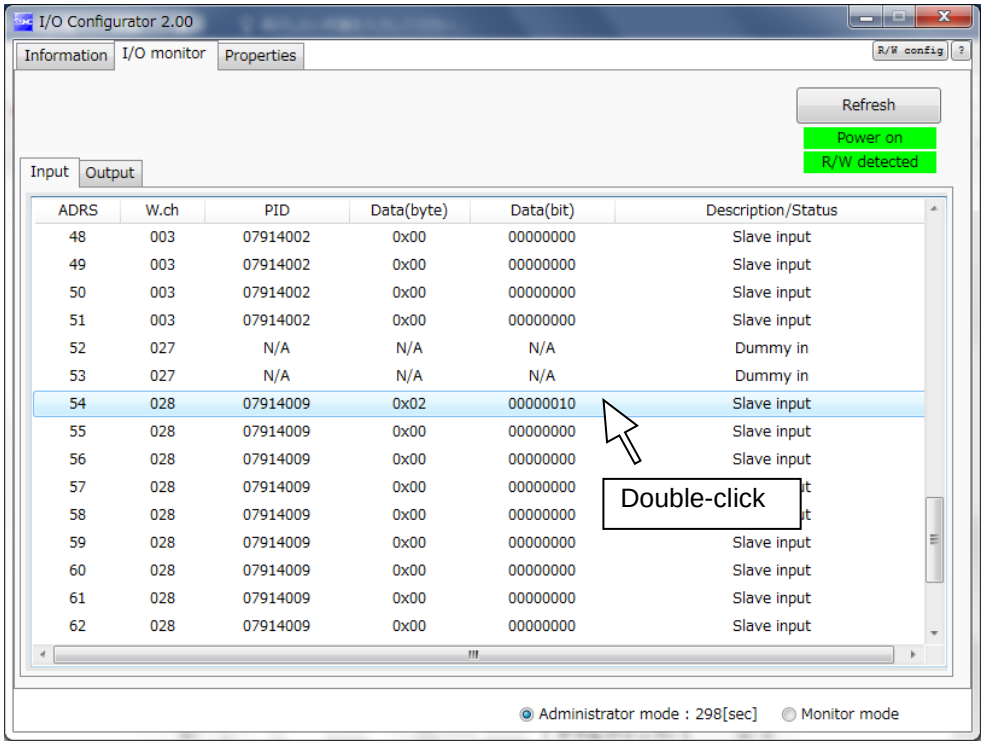


•Output display

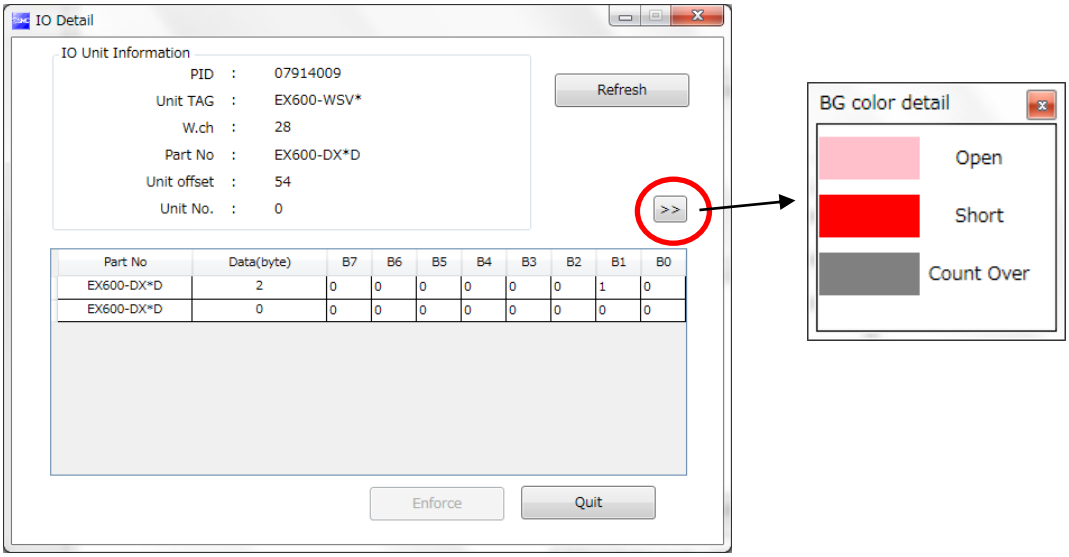
Description	Content	Displayed items
Enforce ON	Forced output mode can be selected by clicking Enforce ON. ∗: Refer to 4.3 Forced output (page 58) for the operation.	Checked : Enforce ON Unchecked : Enforce OFF
Address	Displays the input map address.	0 to 159
Wireless CH	Wireless unit channel. (Wireless channel of the wireless master is displayed as [- -].)	--, ch001 to 127
PID	Wireless unit PID	Individual per unit.
Data (byte)	Output data is displayed in byte.	0x00 to 0xFF, no information
Data (bit)	Output data is displayed in bit.	00000000 to 11111111, no information
Details	Details of output data.	•Master output •Slave output •Reserve output •Connection error

3.2.2.3. I/O Detail

I/O Detail will open by double clicking the line of the desired address of I/O unit which is connected to the wireless unit.



IO unit information, IO data & diagnostics can all be checked in the IO Detail window. Diagnostic error type is represented by different background colours. The meaning of background colour can be checked by clicking [>>].



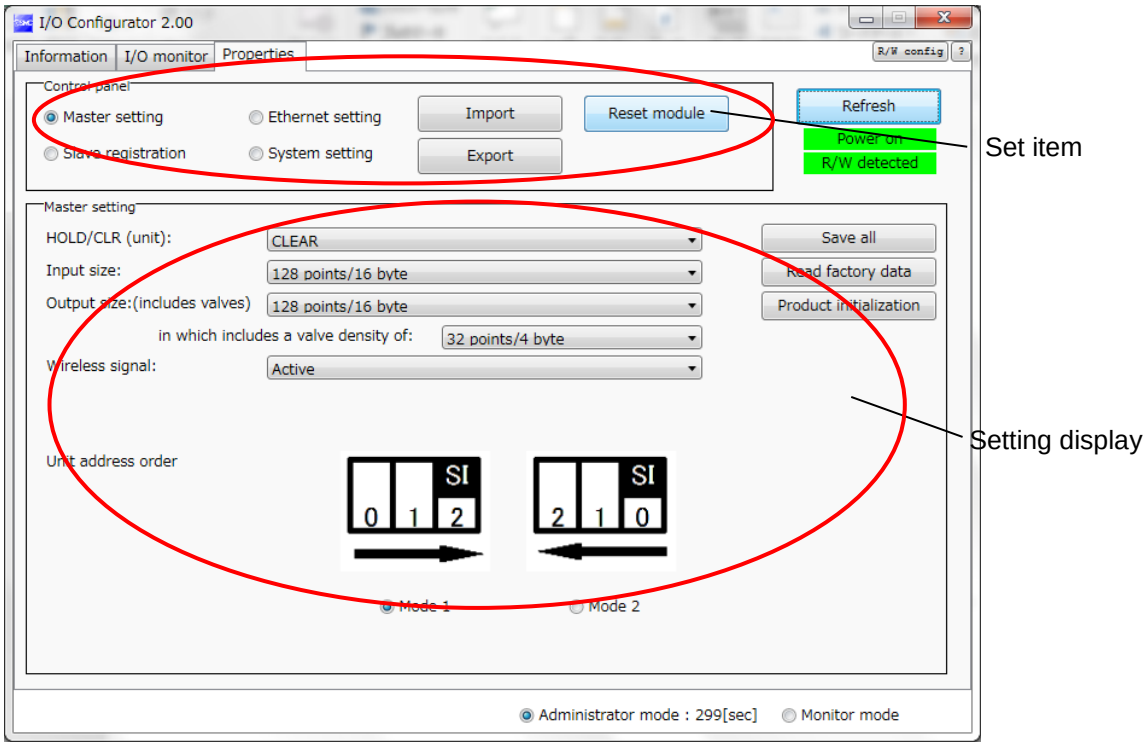
•Background colour

Background colour	Error	Description
	Open	Detection of unconnected load ∗: Invalid in initial state. Enable the function from the I/O configurator (WEB version).
	Short	Short circuit detection
	Count Over	Contact frequency upper limit detection ∗: Invalid in initial state. Enable the function from the I/O configurator (WEB version).

∗: Description varies depending on the unit type. Refer to 3.4 Detailed information of units (page 40) for details.

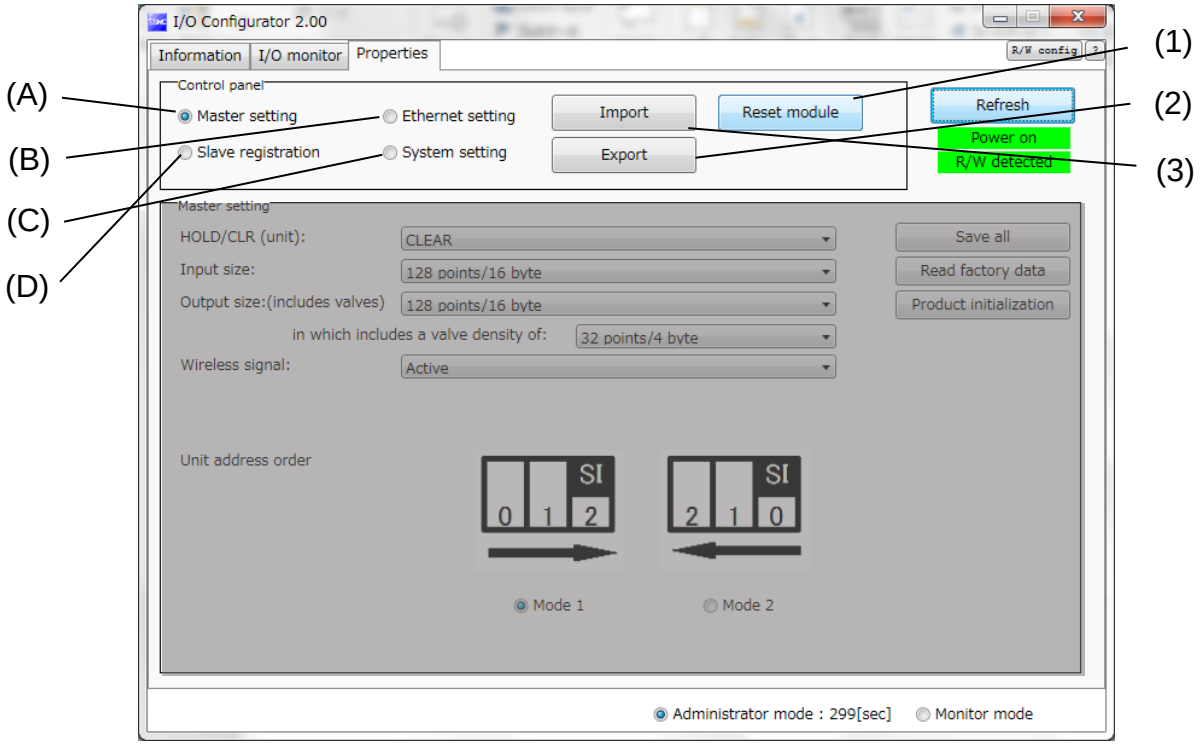
3.2.3. Setting tab

The configuration of the connected unit can be changed using the setting tab. It consists of setting items (page 21) and the setting display (page 22) (Master setting, Ethernet setting, Slave registration and System setting).



3.2.3.1. Setting items

Control panel for setting consists of 4 radio buttons and 3 buttons.



•Radio buttons for selecting the required setting window.

No.	Description	Function
A	Master setting	Switch to the master unit setting window. Occupied points for the module input/output can be set.
B	Ethernet setting	Switch to Ethernet setting window. Performing the IP address setting.
C	Slave registration	Switch to the slave unit registration window. Wireless slave or dummy slave can be registered in the wireless master.
D	System setting	Switch to system setting display. The number of system input/output points can be set.

•Buttons for Setting

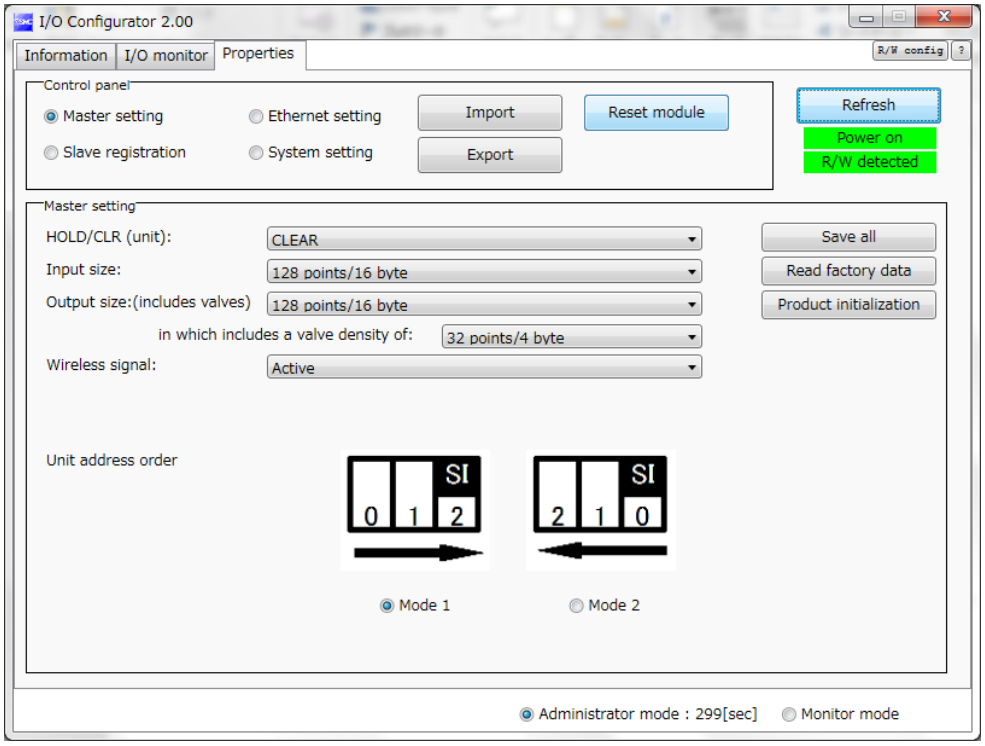
No.	Description	Functions
1	Reset module	Set parameters are returned to the time of power supply to the wireless unit. Click Reset module in order to reflect the parameter setting while power is supplied.
2	Export	Button to export the configuration of the wireless unit to a PC (saved as file type ".smc"). Refer to 4.4. Export Settings (page 63).
3	Import	Button to import the saved configuration of the wireless unit from a PC (imported from file type ".smc"). Refer to 4.5. Import Settings (page 65).

∗: When the Reset module button is used, the wireless unit restarts and Ethernet communication or wireless communication is temporarily interrupted.

3.2.3.2. Setting display

(A) Master unit setting

The Master unit setting window.



•Master unit setting items

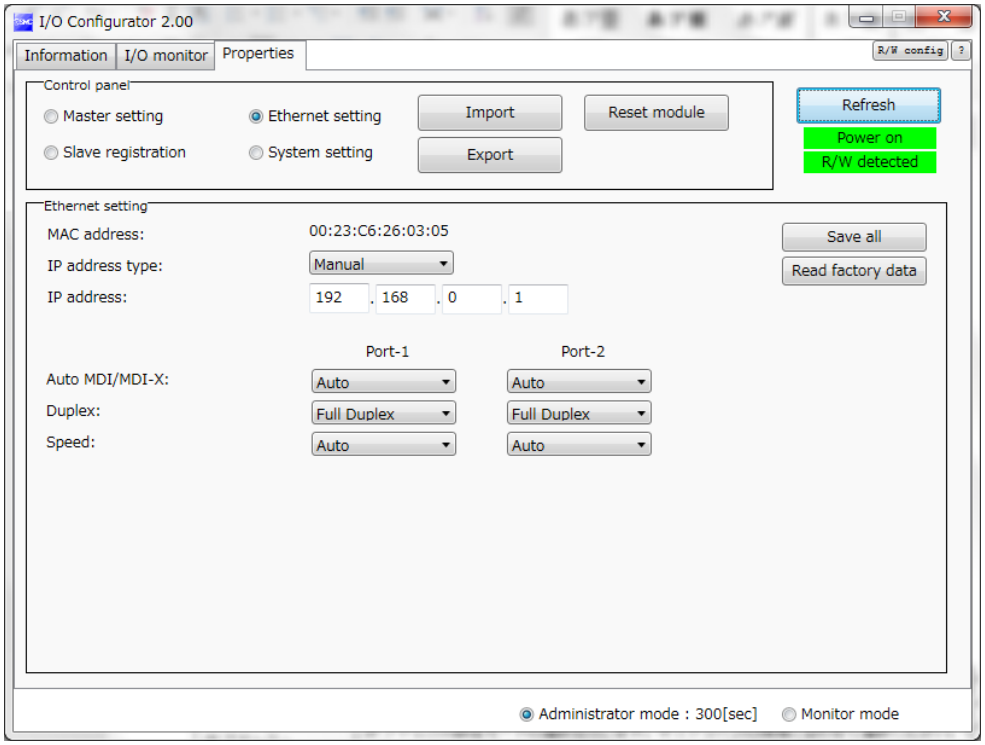
Description	Explanation
Hold/Clear (unit)	Define all settings in the output operation status when the Fieldbus communication is disconnected. CLEAR: Clear the output. HOLD: Fix the output at the current value. Software control: Clear, Hold or Set for individual points can be set by software bit. ∗: For details of the Software Control. (Refer to 4.2 Software Control (page 56) for setting in I/O configurator for NFC)
Occupied points for the module input	Set the number of inputs which can be controlled by the wireless master unit. Setting range: 0 to 128 points (0 to 16 bytes). Increase or decrease by 16 points.
Occupied points for the module output	Set the number of outputs which can be controlled by the wireless master unit. Setting range: 0 to 128 points (0 to 16 bytes). Increase or decrease by 16 points. The module output point includes the number of points of the valve manifold output.
Occupied points for the valve manifold output	Set the number of outputs to be allocated to the valve manifold output from the number of points set in the module output size. As the valve manifold output point is included in the module output point, the number of effective points are limited within the setting range of the module output point. Setting range: 0 to 32 points (0 to 4 bytes). Increase or decrease by 8 points.
Wireless communication	Define the operation status of wireless communication. ∗: Wireless communication is updated in real time. Turning off and on again of the power supply or reset is not necessary. Active: Wireless communication is available. Idle: Disconnect the wireless communication.
I/O unit assignment direction	Define the address assignment direction of the EX600 I/O units connected to the wireless master unit. The address assignment direction is changed by mode 1/mode 2. Be careful about the I/O map. (Refer to the I/O Mapping Order of Wireless Master/Slave Module of the Operation Manual (page 50) for details) Mode 1: Assignment to the right from the end plate. Mode 2: Assignment to the left from the wireless unit.

•Master unit setting button

No.	Description	Functions
1	Save	Changed setting is stored in the equipment. Perform reset to reflect the setting.
2	Reading of the initial value	Button to read the default value of the window being displayed. Refer to 4.6. Reading of the initial value (page 66) for use.
3	Initialize	Initialize the unit to the default condition. Refer to 4.7. Initialize (page 67) for use.

(B) Ethernet setting

Ethernet setting display.

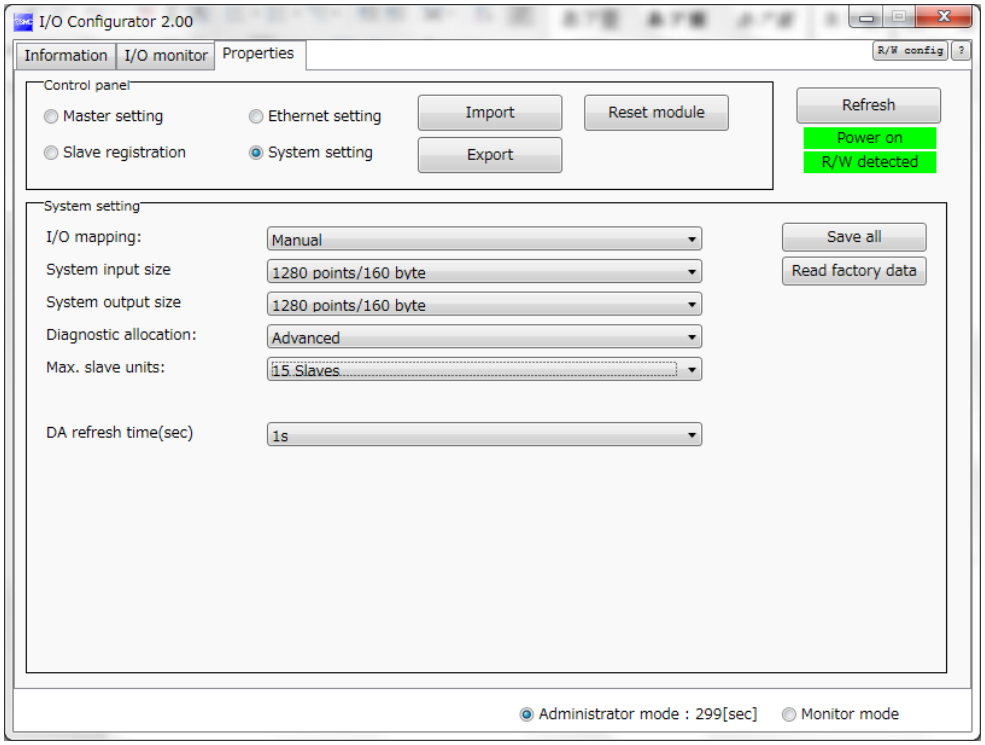


•Ethernet setting items.

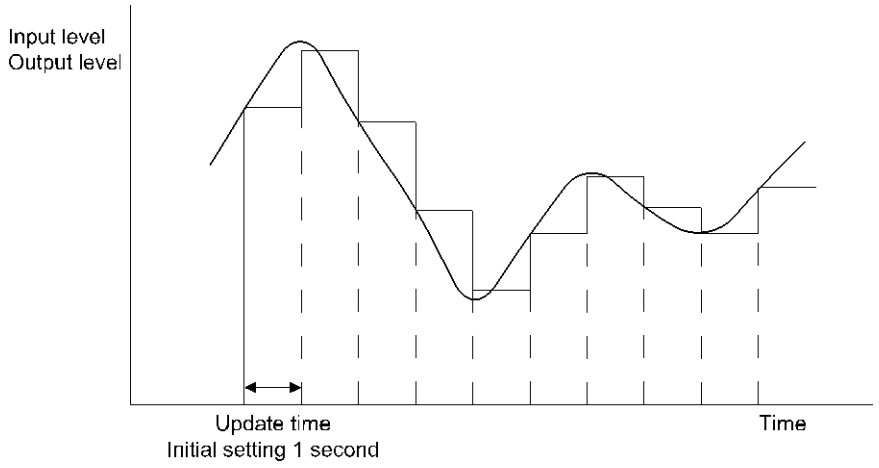
Description	Explanation
MAC address	MAC address of the product is displayed.
IP address setting mode	Select the IP address setting mode. Select the mode suitable for your network environment. Manual: The IP address is set by inputing it directly. BOOTP/DHCP: The IP address is set automatically via the DHCP server.
IP address	Sets the IP address. (The IP address is valid only when "Manual" mode is selected.)
Auto MDI/MDI-X	Select settings for straight cable or crossed cable. Select the settings suitable for your environment. Setting range: Auto/MDIX/MDI
Duplex	Set Duplex. Select the communication speed suitable for your environment. When the communication speed is set to automatic mode, it is set automatically regardless of the Duplex setting. Setting range: Full Duplex/Half Duplex
Speed	Set the communication speed. Select the communication speed suitable for your environment. Setting range: Auto/100 Mbps/10 Mbps

(C) System setting

System setting display.



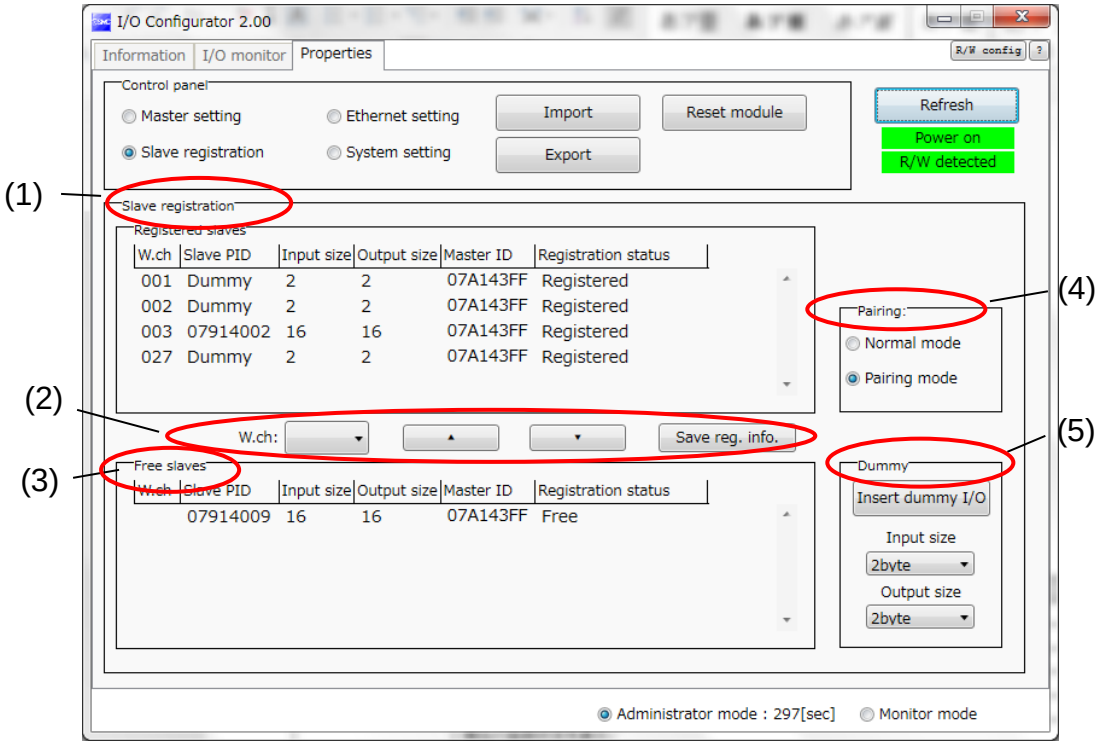
•System setting items

Description	Explanation
I/O layout	Define the I/O assignment of the entire wireless system including the wireless slave unit registered to the wireless master unit. Auto assignment: All I/O points mapped to the wireless master unit and wireless slave unit are identified and mapped automatically. (The total number of connected I/O points is the total number of I/O points set by the diagnostic information, wireless master and registered slave unit.) Fixed assignment: Fixed at the number of I/O points set in the System input size and System output size. ※"Auto assignment" is fixed for EX600-WPN※
System input size	Set the number of inputs which can be controlled by the entire wireless system. Setting range: 16, 128 to 1280 points (2 to 160 bytes). Increase or decrease by 128 points. ∗: Number can only be set when Fixed mapping is used for IO mapping.
System output size	Set the number of outputs which can be controlled by the entire wireless system. Setting range: 16, 128 to 1280 points (2 to 160 bytes). Increase or decrease by 128 points. ∗: Number can only be set when Fixed mapping is used for IO mapping.
Diagnostic allocation	Set the diagnostic information allocated to the I/O map. Refer to the "Diagnostic allocation" section in the Operation Manual (page 56) for details. None: No diagnostic data Simple: System diagnosis Detailed: System diagnosis + Wireless slave connection/diagnosis/registration information
Number of registered slave	Set the number of wireless slave units which are registered to the wireless master unit. Wireless channels for the number of the set units are valid. Setting range EX600-WEN# : 0/15/31/63/127 pcs. EX600-WPN# : 0/15/31 pcs.
Analogue output update time	Set the data update time of the analogue output unit connected to the wireless slave. Setting range: 0.1/0.2/0.5/1/2/5/10/30/60 s (Initial value 1 s) ∗: The analogue input update time can also be set for every wireless slave unit. Refer to "(A) Slave unit setting" (page 38). 

(D) Slave unit registration

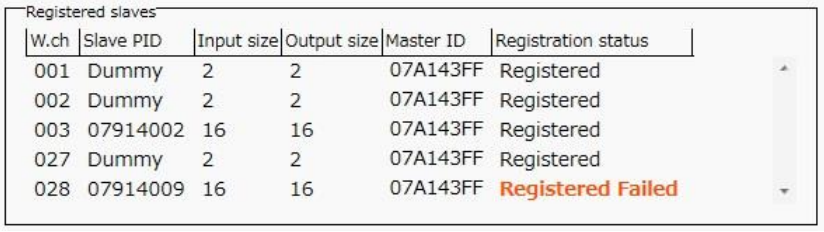
Registration for wireless communication between the wireless master unit and the wireless slave unit. For this wireless system, it is necessary to register the PID for each product to establish communication without interference from another network. The window for Slave registration consists of Registered slaves, Save reg. info., Free slaves, Pairing and Dummy.

∗: Registration of slaves needs to be performed with the power supplied. Refer to 5. Pairing of wireless unit (Page 69) for the registration procedure.



(1) Registered slave

Details of the registered slave.



•Details of the registered slave

Description	Content
Wireless channel	Wireless master channel used when the wireless slave was registered.
Slave PID	Wireless slave PID
Input size	Wireless slave input size
Output size	Wireless slave output size
Master PID	PID of the registered wireless master
Registration status	Current registration status (Registered information is saved ⇒ "Registered", registered information is not saved ⇒ Registered Wait, registration is not successful ⇒ Registered Failed) ∗: When the registration is not successful, "Registered Failed" is displayed. Start the registration again.

(2) Save registration buttons

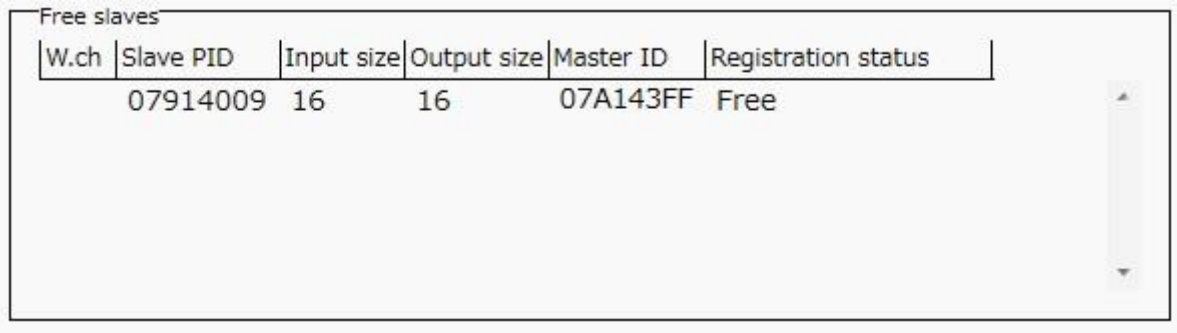
Buttons used for slave registration. Slave registration buttons are only displayed when wireless units are in pairing mode.

•Slave registration buttons

Description	Content
Wireless channel	Select the channel used to register the slave to the wireless master. (Only channels available for registration will be displayed)
[▲]	Button to move the wireless slave from Free slaves to Registered slaves. (Specify the wireless channel before moving)
[▼]	Button to move the wireless slave from Registered slaves to Free slaves (The wireless slave will now be displayed in the Free slaves area)
Save the registered information "Save reg. info".	Button to register the slaves shown in “Registered slaves” with the status “Registered Wait” ("Registered" will be displayed when the slave is successfully registered to the wireless master)

(3) Free slaves

Details of the Free slaves.

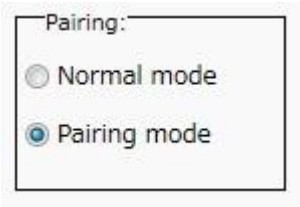


•Details of Free slave

Description	Content
Wireless channel	No information to display
Slave PID	Wireless slave PID
Input size	Wireless slave input size
Output size	Wireless slave output size
Master PID	Previously registered master PID.
Registration status	Display the status "free".

(4) Pairing

Details of Pairing. The radio buttons used for pairing are only displayed in Administrator mode. They are grayed out in Monitor mode. They can only be set when power is not supplied.



•Details of pairing radio button

Description	Explanation
Pairing disabled	Button to change to Normal (non-pairing) mode. Indicates that the current status is Normal (pairing disabled) mode.
Pairing enabled	Button to change to Pairing mode. Indicates that the current status is Pairing mode.

(5) Dummy slave

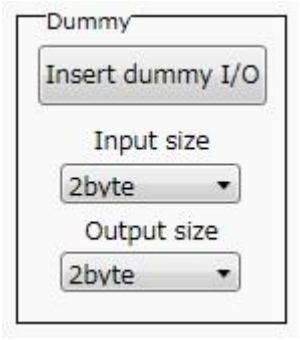
The dummy slave can register a "Dummy area" in the I/O map. A wireless slave unit can be added without changing the I/O map by registering the wireless slave unit to the "Dummy area" even after system construction.

The wireless slave unit allocation order to the I/O map is from smallest channel to largest channel registered by the wireless channel which has been set during slave unit registration.

At the time, the wireless channel in which no wireless slave unit is registered will be ignored.

When adding new wireless slave unit, it may be required to change the I/O map depending on the wireless channel number.

The dummy slave can be registered only with the wireless master unit.



•Details of dummy slave radio button

Description	Explanation
Insert	Button to move the dummy slave to Registered slaves.
Input size	Set the input size for the dummy slave (0 to 16 byte).
Output size	Set the output size for the dummy slave (0 to 16 byte).

∗: Refer to 5.2 Registration of dummy slave (page 74) for details and registration of dummy slaves.

•To reserve the dummy slave registration, it is necessary to set the number of inputs/outputs.

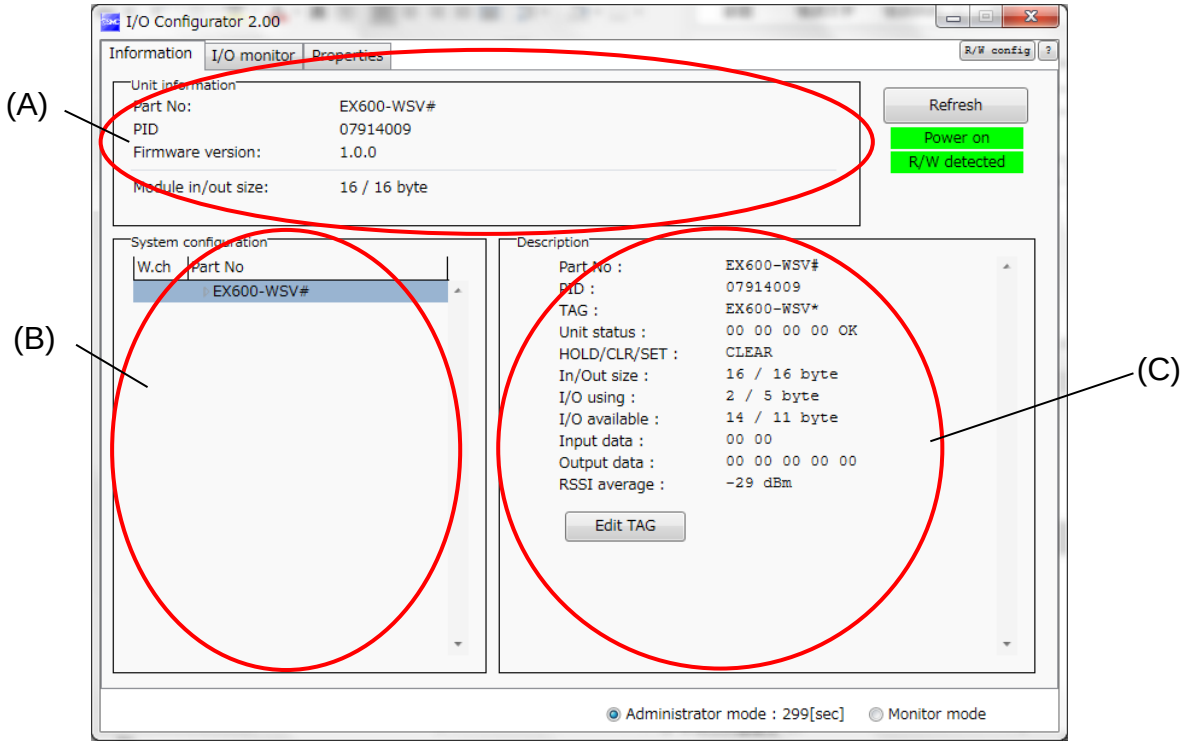
If a slave unit with inputs/outputs which are different from the set numbers is registered, the I/O map should be changed.

3.3. Display for wireless slave

The tabs available at the upper left of the I/O configurator for NFC window consists of the Information (page 30), Input/Output monitor (page 32) and setting (page 36).

3.3.1. Information tab

The tab for Information consists of (A) Unit information, (B) System configuration and (C) Description.



(A) Unit information

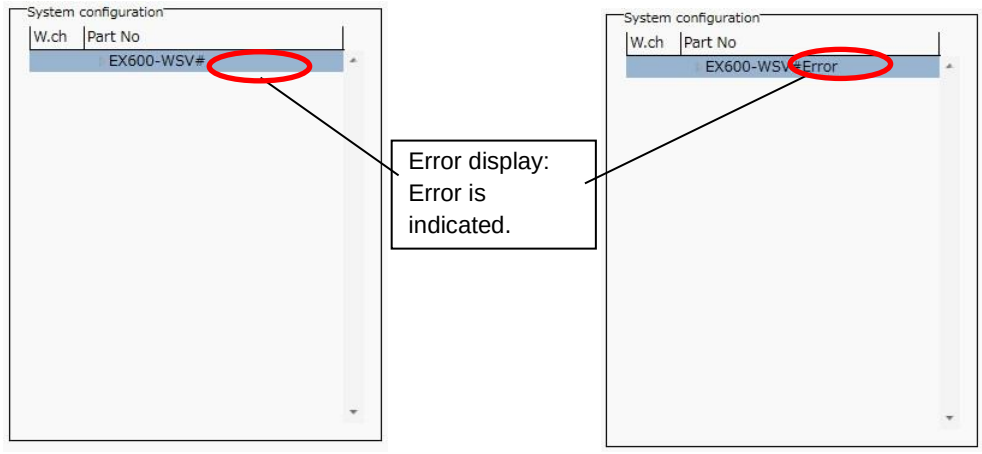
The unit information area indicates the unit information.

•Wireless slave unit information

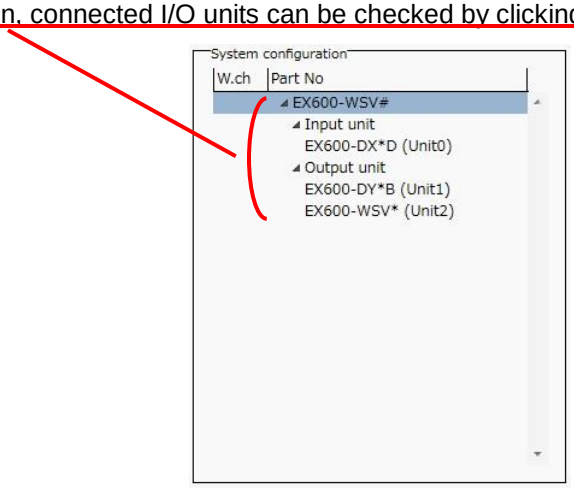
Description	Content	NFC access	
		Energized	Not energized
Part No.	Product number of the wireless slave unit	Available	Available
PID	Wireless slave unit PID	Available	Available
Firmware version	Displays software version of the wireless slave unit.	Available	Available
Occupied points for the module input/output	Input and output size of the wireless slave unit.	Available	Not available

(B)System Construction

System configuration shows the configuration information of the wireless slave module.

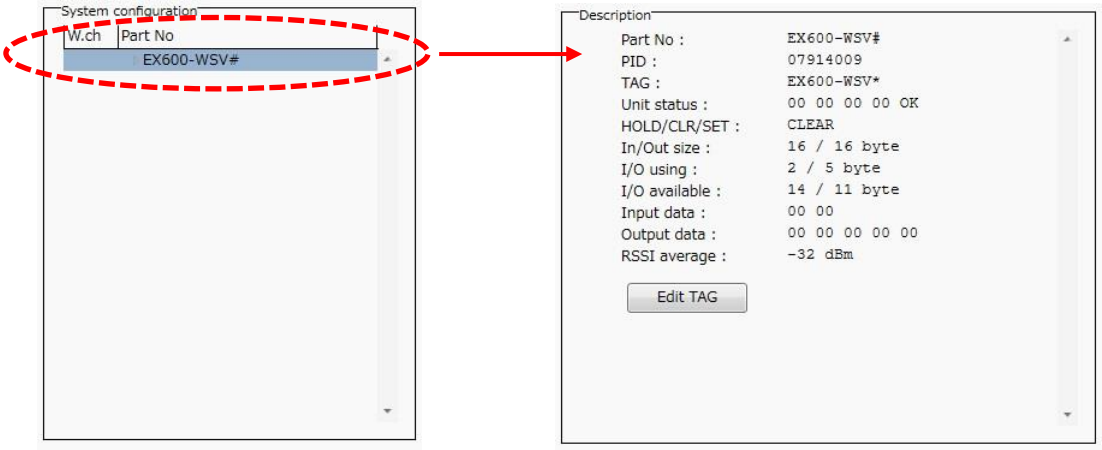


In System configuration, connected I/O units can be checked by clicking the wireless slave unit.



(C) Description

Description of the unit selected in the System configuration. The Description is displayed by clicking on the wireless unit or I/O unit in the System configuration.



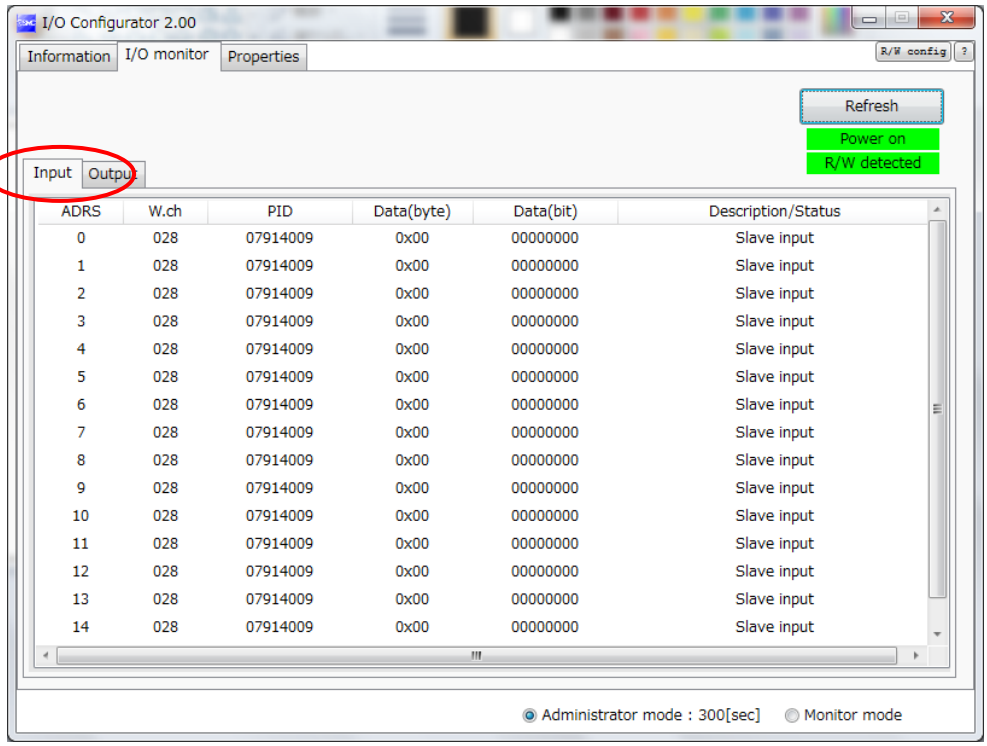
∗: Description varies depending on the unit type. Refer to 3.4 Detailed information of units (page 40) for details.

3.3.2. Input/Output monitor tab

In the I/O monitor tab, the wireless unit I/O map data can be monitored. Diagnostic information or details of input/output can be checked by double clicking the line in the display. It is possible to switch between input map and ouput map using the tabs shown. Forced output mode (4.3 Forced output) (page 58) can be selected in the Output tab.

3.3.2.1. Input tab

Input tab shows the input map information of the wireless slave unit.

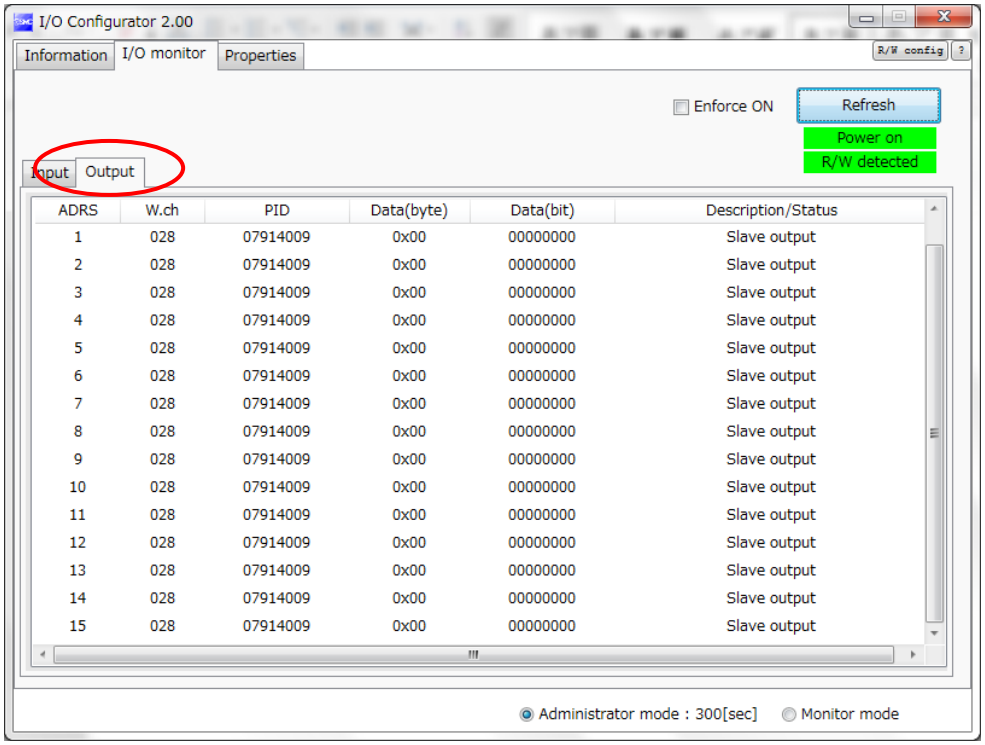


•Input display

Display	Content	Displayed items
Address	Displays the input map address of the wireless slave.	0 to 15
Wireless CH	Wireless unit channel.	--, ch001 to 127
PID	Wireless unit PID	Individual per unit.
Data (byte)	Input data is displayed in byte.	0x00 to 0xFF, no information
Data (bit)	Input data is displayed in bit.	00000000 to 11111111, no information
Details	Details of input data.	Slave input

3.3.2.2. Output tab

Output tab shows the output map information of the wireless unit.

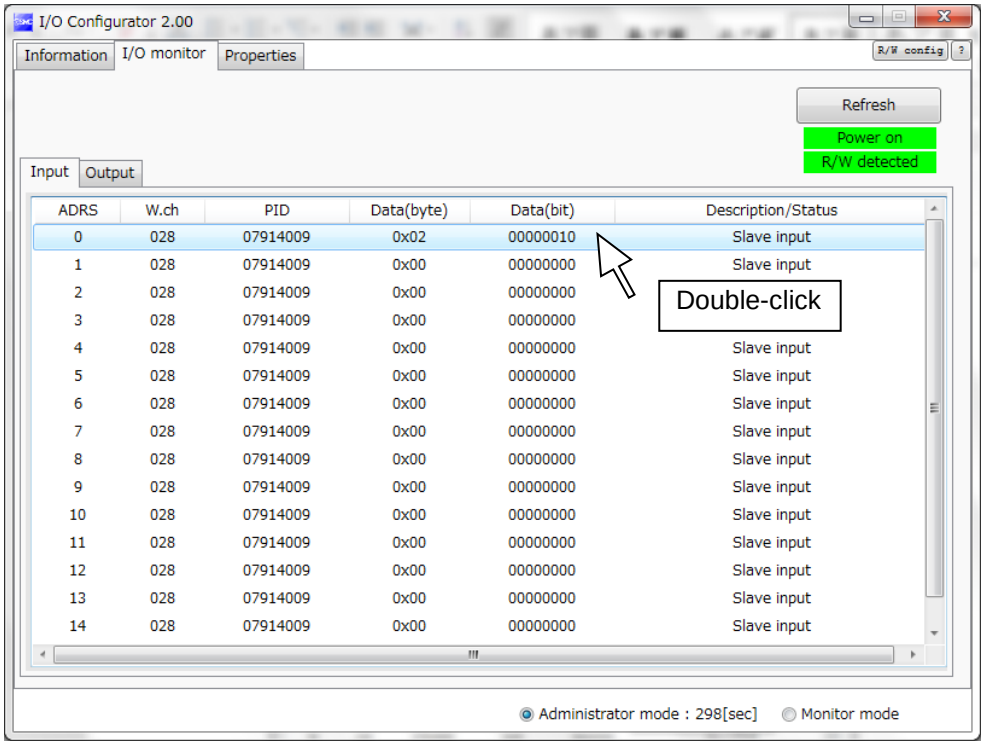


•Output display

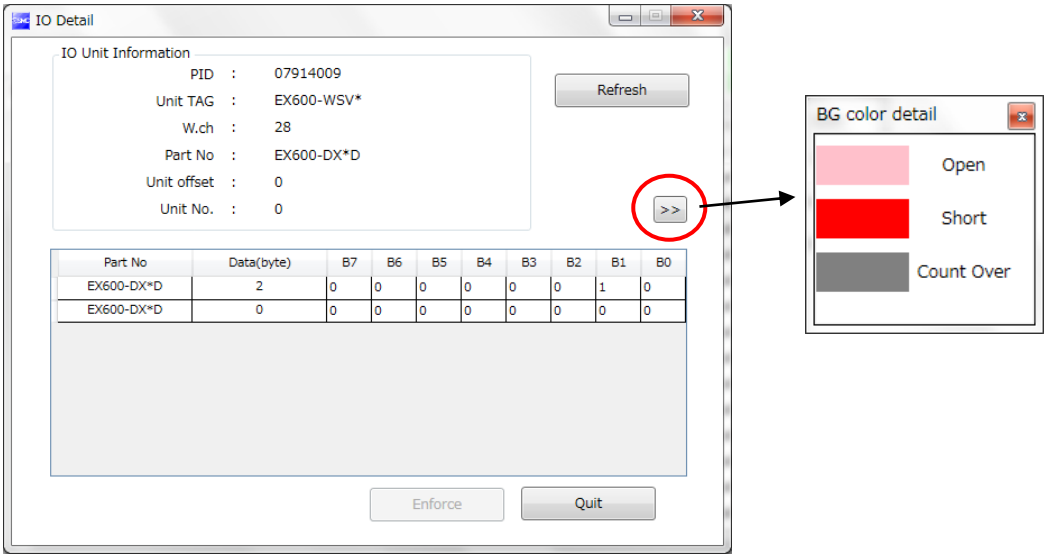
Description	Content	Displayed items
Address	Displays the output map address of the wireless slave.	0 to 15
Wireless CH	Wireless unit channel.	--, ch001 to 127
PID	Wireless unit PID	Individual per unit.
Data (byte)	Output data is displayed in byte.	0x00 to 0xFF, no information
Data (bit)	Output data is displayed in bit.	00000000 to 11111111, no information
Details	Details of output data.	Slave output

3.3.2.3. IO Detail

IO Detail will open by double clicking the line of the required address of the IO unit which is connected to the wireless unit.



IO unit information or IO data & diagnostics can be checked in the IO Detail window. The Diagnostic error type is represented by different background colours. The meaning of background colour can be checked by clicking [>>].



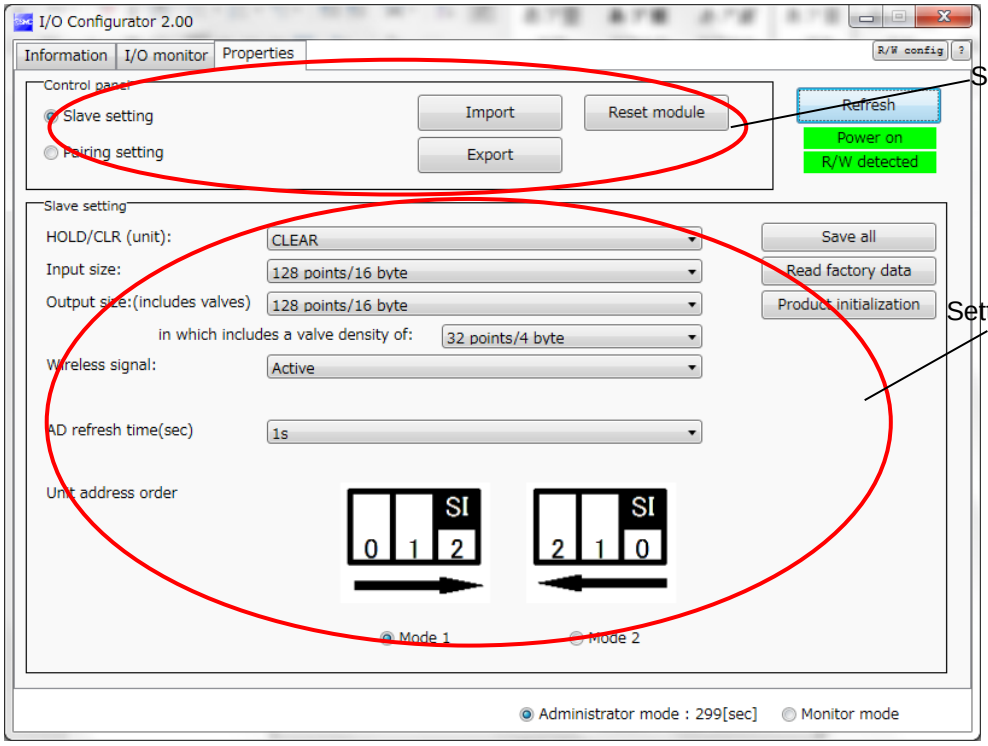
•Background colour

Background colour	Description	Description
	Open	Detection of unconnected load ∗: Invalid in initial state. Enable the function from the I/O configurator (WEB version).
	Short	Short circuit detection
	Count Over	Contact frequency upper limit detection ∗: Invalid in initial state. Enable the function from the I/O configurator (WEB version).

∗: Description varies depending on the unit type Refer to 3.4 Detailed information of units (page 40) for details.

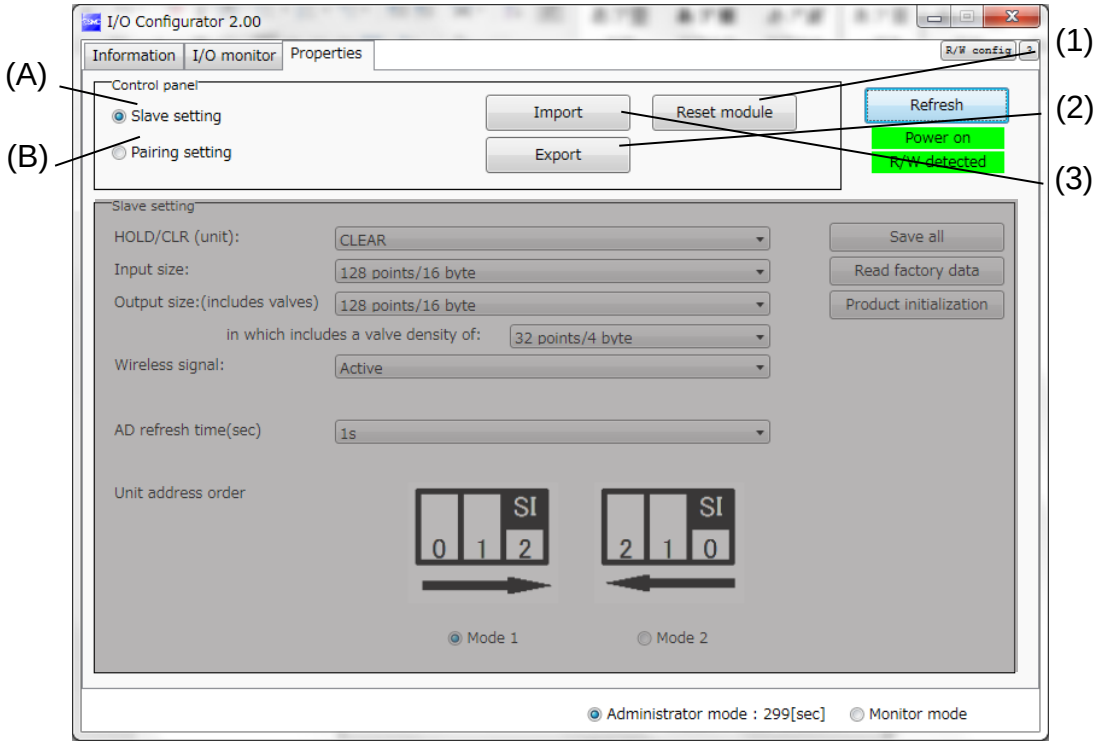
3.3.3. Setting tab

The configuration of the connected unit can be changed using the setting tab. It consists of setting items (page 37) and setting window (page 38) (Slave setting and Pairing setting).



3.3.3.1. Setting items

Control panel for setting consists of 2 radio buttons and 3 buttons.



•Radio buttons for selecting the setting window.

No.	Description	Function
A	Slave unit setting	Switch to the slave unit setting display. Occupied points for the module input/output can be set.
B	Pairing setting	Switch to the pairing setting display. Switch to Pairing mode.

•Buttons for setting

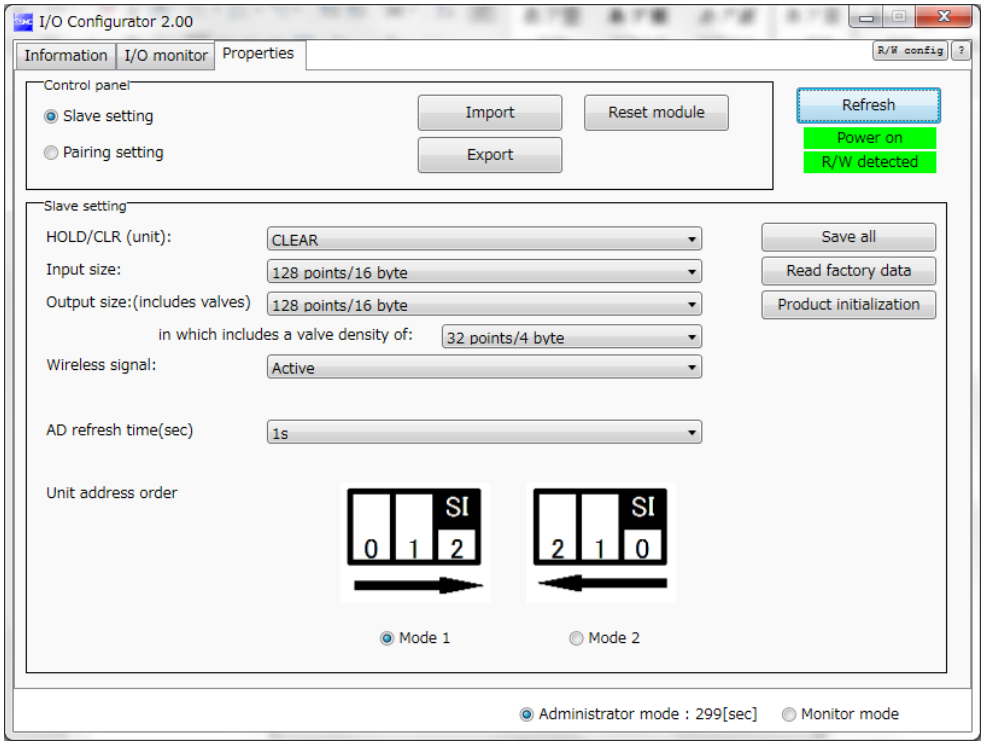
No.	Description	Functions
1	Reset module	Set parameters are returned to the time of power supplied to the wireless unit. Click Reset module in order to reflect the parameter setting while power is supplied.
2	Export	Button to export the configuration of the wireless unit to a PC (saved as file type ".smc"). Refer to 4.4. Export settings for use (page 63).
3	Import	Button to import the saved configuration of the wireless unit from a PC (imported from file type ".smc"). Refer to 4.5. Import settings for use (Page 65).

∗: When the Reset module button is used, the wireless unit restarts and Ethernet communication or wireless communication is temporarily interrupted.

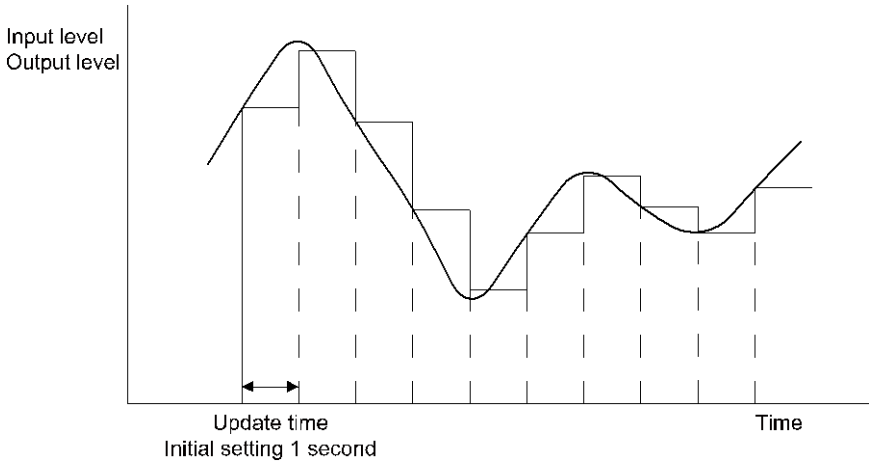
3.3.3.2. Setting window

(A) Slave unit setting

Window for setting slave

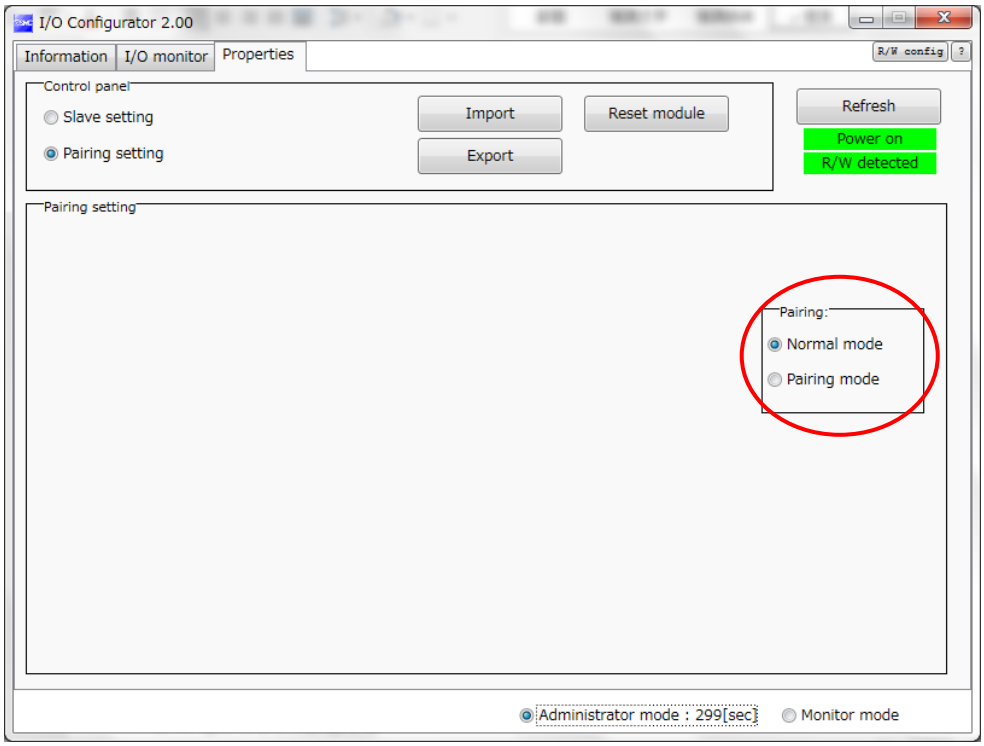


•Slave setting items

Item	Explanation
Hold/Clear (unit)	Define all settings in the output operation status when the Fieldbus communication is disconnected. CLEAR: Clear the output. HOLD: Fix the output at the current value. Software control: Clear, Hold or Set for individual points can be set by software bit. ∗: For details of the Software Control refer to 4.2 Software Control (page 56) for setting in I/O Configurator for NFC)
Occupied points for the module input	Set the number of inputs which can be controlled by the wireless slave unit. Setting range: 0 to 128 points (0 to 16 bytes). Increase or decrease by 16 points.
Occupied points for the module output	Set the number of inputs which can be controlled by the wireless slave unit. Setting range: 0 to 128 points (0 to 16 bytes). Increase or decrease by 16 points. The module output point includes the number of points of the valve manifold output.
Occupied points for the valve manifold output	Set the number of outputs to be allocated to the valve manifold output from the number of points set in the module output size. As the valve manifold output point is included in the module output point, the number of effective points are limited within the setting range of the module output point. Setting range: 0 to 32 points (0 to 4 bytes). Increase or decrease by 8 points.
Wireless communication	Define the operation status of wireless communication. Active: Wireless communication is available. Idle: Disconnect the wireless communication.
Analogue input update time	Set the data update time of the analogue input unit connected to the wireless slave. Setting range: 0.1/0.2/0.5/1/2/5/10/30/60 s (Initial value 1 s) The analogue input update time is set for every wireless slave unit. 
I/O unit assignment direction	Define the address assignment direction of the EX600 I/O units connected to the wireless master unit. The address assignment direction is changed by mode 1/mode 2. Be careful about the I/O map. I/O assignment Order of Wireless Master/Slave Module (Refer to page 50) Mode 1: Assignment to the right from the end plate. Mode 2: Assignment to the left from the wireless unit.

(B) Pairing setting

Setting for wireless communication between the wireless master unit and wireless slave unit. It is necessary to set the operation mode to Pairing setting when registering the wireless slave to wireless master. Pairing setting display.



•Radio button for selecting Pairing mode.

Description	Explanation
Pairing disabled	Button to change to Normal (non-pairing) mode. Indicates that the current status is Normal (pairing disabled) mode.
Pairing enabled	Button to move to Pairing mode. Indicates that the current status is Pairing mode.

3.4. Detailed information of units

3.4.1. Information tab

Each EX600 unit stores its specific information. The information of the unit connected to the wireless master/slave module can be monitored usig the I/O configurator for NFC.
The EX600 unit is accessed using the information tab.

♦Procedure for detailed information

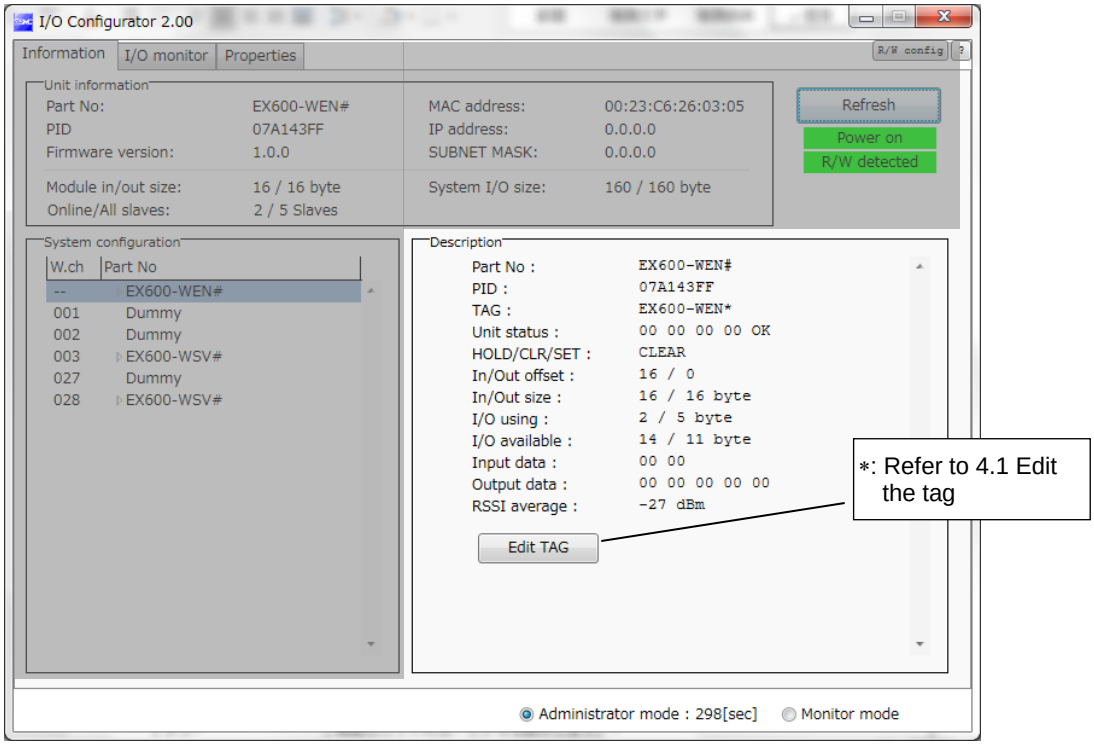
Information tab ⇒ the number of units in System configuration ⇒ Description is displayed.

∗: Refer to the operation manual for EX600-W□□ # for I/O units which can be connected to the wireless unit.

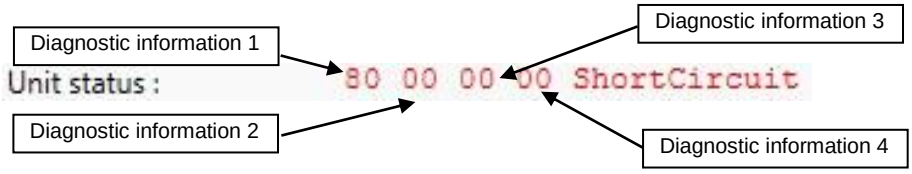
(a) Wireless unit

Detailed information of the main body and valve can be checked in the wireless unit.

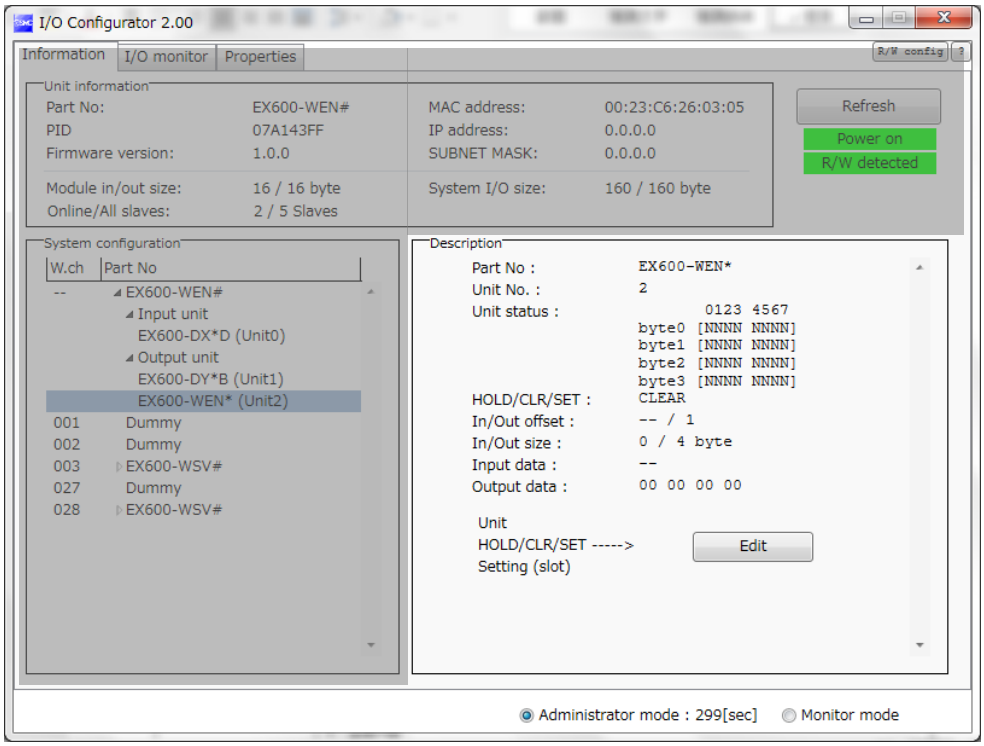
a-1). Main body



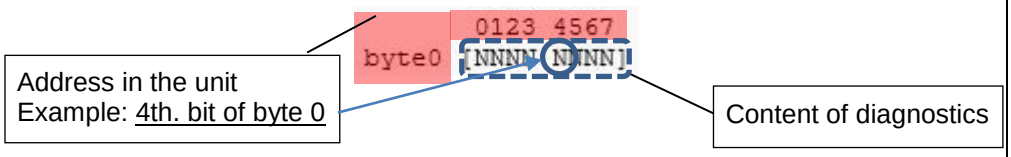
•Detailed Information (main body)

Description	Content
Part No.	Wireless unit product number
PID	Wireless unit PID
Tag	Wireless unit user memo
Diagnostic information	The wireless unit status is displayed in 4 bytes of hexadecimal number. ♦**Display of diagnostic information error**  ∗ Refer to the Operation Manual for details of diagnostic information.
Hold/Clear (unit)	Displays the output operation when communication of the wireless unit is disconnected.
Input/output offset	Displays the start position of the address to which the selected unit is mapped in the I/O mapping.
Input/output size	Control input and output size of the wireless unit.
I/O using	The number of allocatted Input and output bytes actually used by the wireless unit.
I/O available	The number of allocatted input and output bytes which are available for use by the wireless unit.
Input data	Displays Input data value which issent to the wireless unit.
Output data	Displays output data value sent from the wireless unit.
RSSI Average	The average signal strength received by the wireless unit.

a-2) Valve

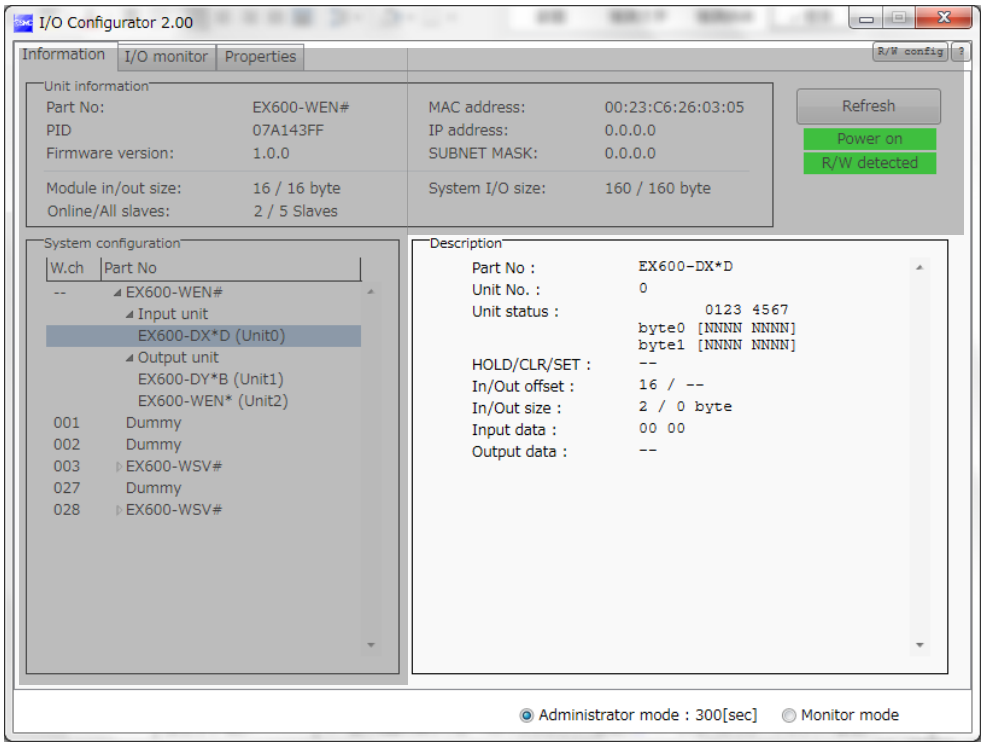


•Detailed information (valve)

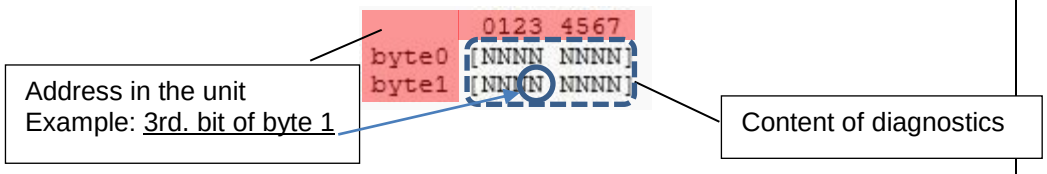
Description	Content
Part No.	Wireless master/slave product number
Unit No.	Mapped position for the valve. Displays the mapped position of the selected valve. ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for mapping position.
Diagnostic information	Displays the mapped diagnostic data bits for the selected valve.  ∗: Content of diagnostics N: Normal Error is not detected O: Bit Open Load is not connected (disabled at initial status) S: Bit Short Short circuit of the load output is detected L: Limit Over Contact operation exceeded the limit (disabled at initial status) P: Power Short Short circuit of the load power supply is detected
Hold/Clear (unit)	Output operation when communication of the valve is disconnected
Input/output offset	Displays the start position of the address to which the selected unit is mapped on the I/O map.
Input/output size	Valve input/output size (Input size for valves is always 0 byte)
Input data	"--" is displayed for the valve (setting is only applicable to units with inputs).
Output data	Displays the output data valve which is sent to the selected valve.

(b). Digital input unit

Digital input unit (product number: EX600-DX∗D)

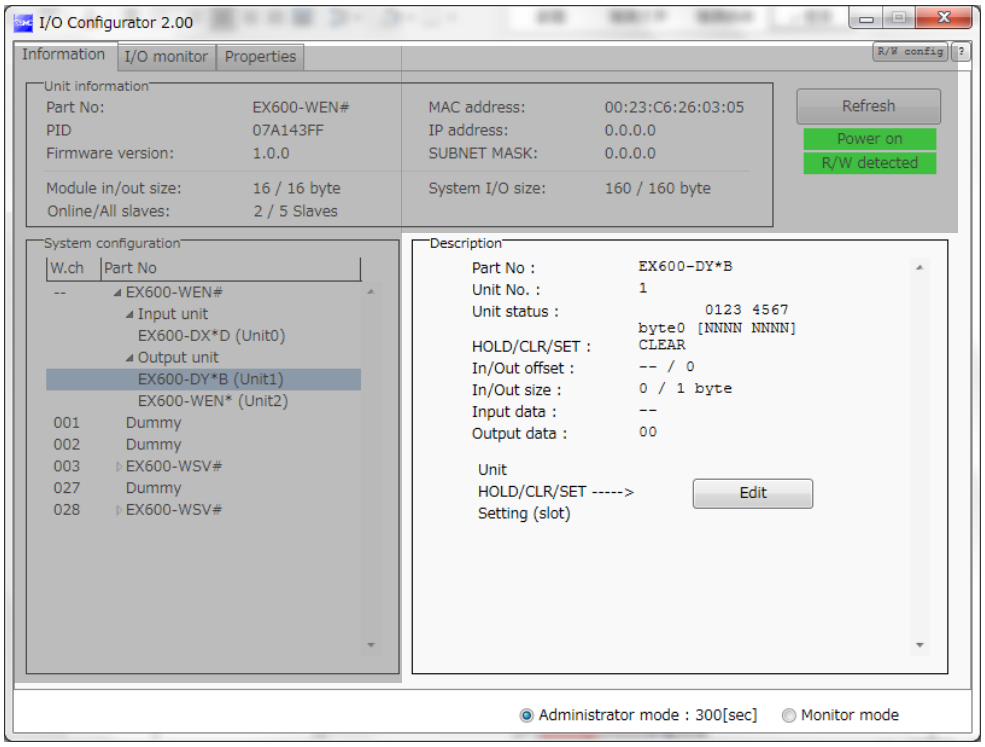


•Detailed information (digital input unit)

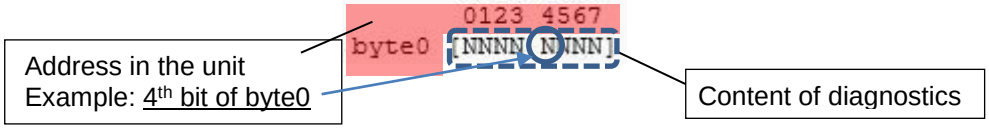
Description	Content
Part No.	Displays the product number of the digital input unit which is selected.
Unit No.	Displays the mapped position of the selected digital input unit. ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for mapping position.
Diagnostic information	Displays the mapped diagnostic data bits for the selected digital input unit.  ∗: Content of diagnostics N: Normal Error is not detected O: Bit Open Load is not connected (disabled at initial status) S: Bit Short Short circuit of the load output is detected L: Limit Over Contact operation exceeded the limit (disabled at initial status) P: Power Short Short circuit of the load power supply is detected
Hold/Clear (unit)	"--" is displayed for the input unit (setting is only applicable to units with outputs).
Input/output offset	Displays the start position of the address to which the selected unit is mapped on the I/O map.
Input/output size	Displays the IO size of the selected digital input unit. Output size is 0 byte.
Input data	Displays the input data value which is sent from the selected digital input unit.
Output data	"--" is displayed for the input unit (setting is only applicable to units with outputs).

(c). Digital output unit

Digital output unit (product number: EX600-DY∗B)

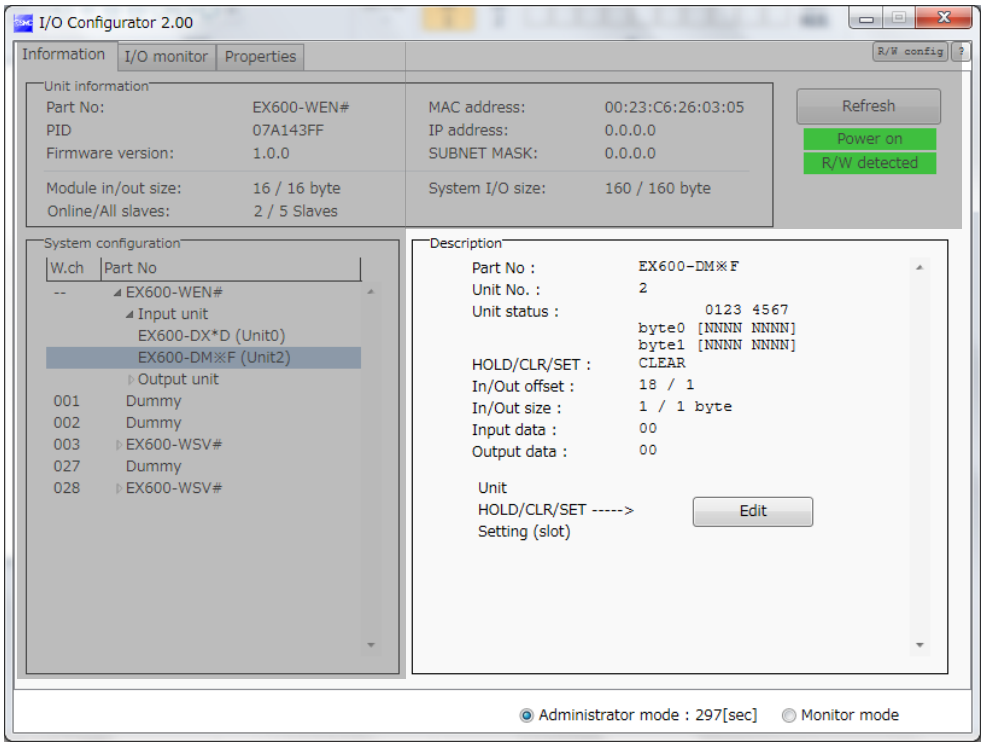


•Detailed information (digital output unit)

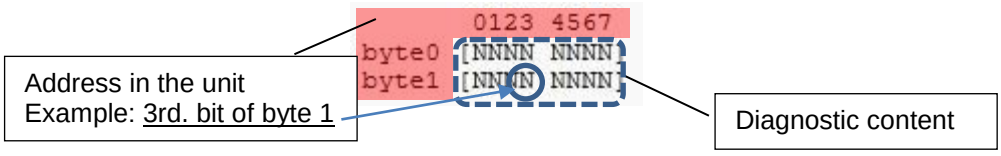
Description	Content
Part No.	Displays the product number of the selected digital output unit.
Unit No.	Displays the mapped position of the selected digital output unit. ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.
Diagnostic information	Displays the mapped diagnostic data bits for the selected digital output unit.  ∗: Content of diagnostics N: Normal Error is not detected O: Bit Open Load is not connected (disabled at initial status) S: Bit Short Short circuit of the load output is detected L: Limit Over Contact operation exceeded the limit (disabled at initial status) P: Power Short Short circuit of the load power supply is detected
Hold/Clear (unit)	Displays the output operation when the communication of the digital output unit which is selected is disconnected.
Input/output offset	Displays the start position of the address to which the selected unit is mapped on the I/O map.
Input/output size	Displays the input/output size of the selected digital output unit. Input size is 0 byte.
Input data	"--" is displayed for the output unit (setting is only applicable to units with inputs).
Output data	Displays the output data value which is sent to the selected digital output unit.

(d). Digital I/O unit

Digital output unit (product number: EX600-DM∗F)

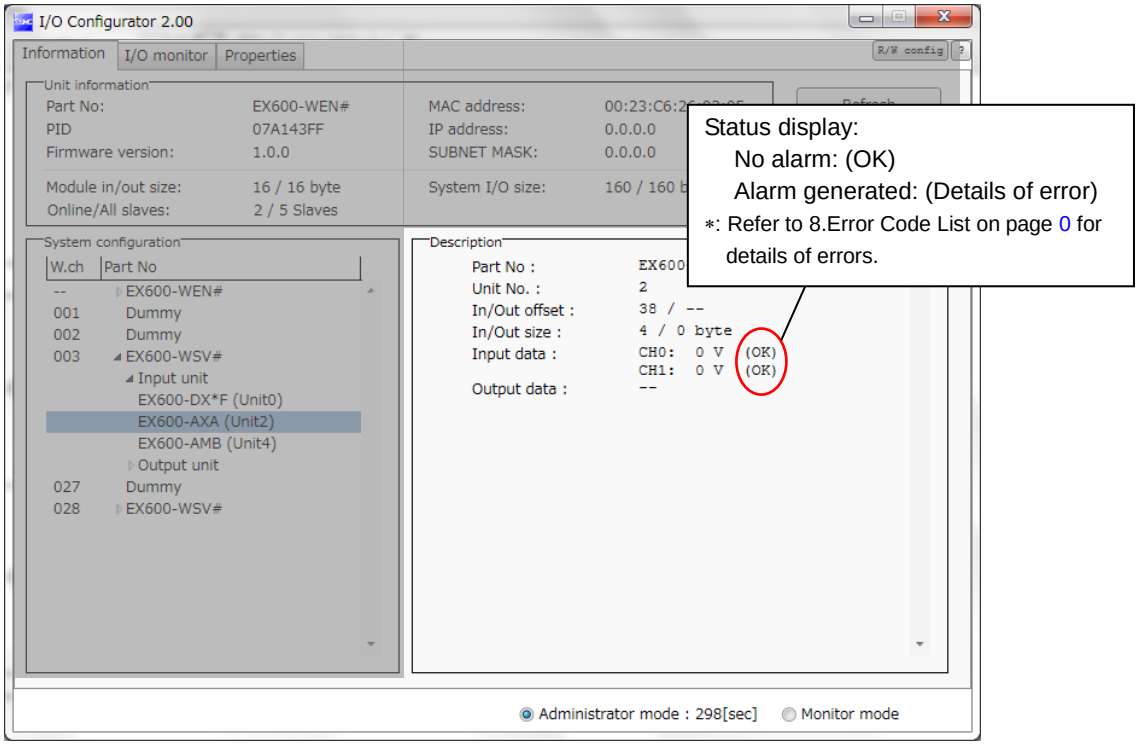


•Detailed information (digital input/output unit)

Description	Content
Part No.	Displays the product number of the selected digital input/output unit.
Unit No.	Displays the mapped position of the selected digital input/output unit. ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.
Diagnostic information	Displays the mapped diagnostic bits for the selecteddigital input/output unit.  ∗: Content of diagnostics N: Normal Error is not detected O: Bit Open Load is not connected (disabled at initial status) S: Bit Short Short circuit of the load output is detected L: Limit Over Contact operation exceeded the limit (disabled at initial status) P: Power Short Short circuit of the load power supply is detected
Hold/Clear (unit)	Displays the output operation when the communication of the digital input/output unit which is selected is disconnected.
Input/output offset	Displays the start position of the address to which the selected unit is mapped on the I/O map.
Input/output size	Displays the I/O size of the selected digital input/output unit.
Input data	Displays the input data value which is sent from the selected digital input/output unit.
Output data	Displays the output data value which is sent to the selected digital input/output unit.

(e). Analogue input unit

Analogue input (product number: EX600-AXA)

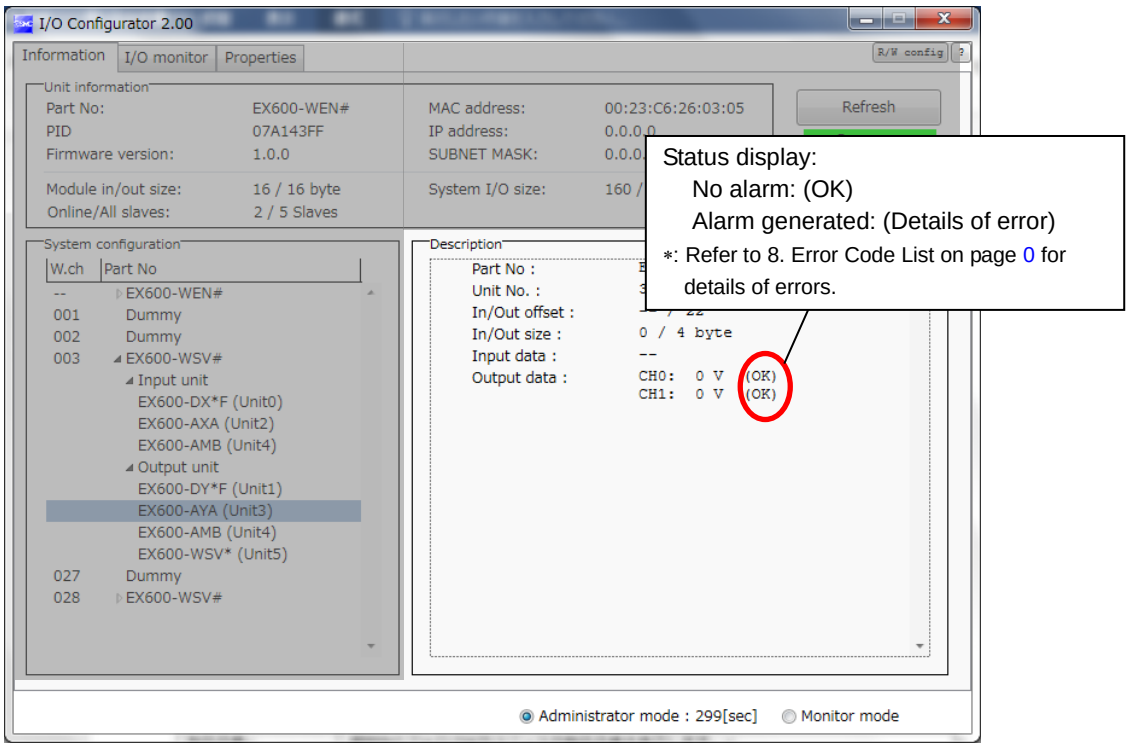


•Detailed information (analogue Input unit)

Description	Content
Part No.	Displays the product number of the selected analogue input unit.
Unit No.	Displays the mapped position of the selected analogue input unit. ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.
Input/output offset	Displays the start position of the address to which the selected unit is mapped on the I/O map.
Input/output size	Displays the input/output size of the analogue input unit which is selected. Output size is 0 byte.
Input data	Displays the input data value which is sent from the selected analogue input unit.
Output data	"--" is displayed for the input unit (setting is only applicable to units with outputs).

(f). Analogue output unit

Analogue output (product number: EX600-AYA)

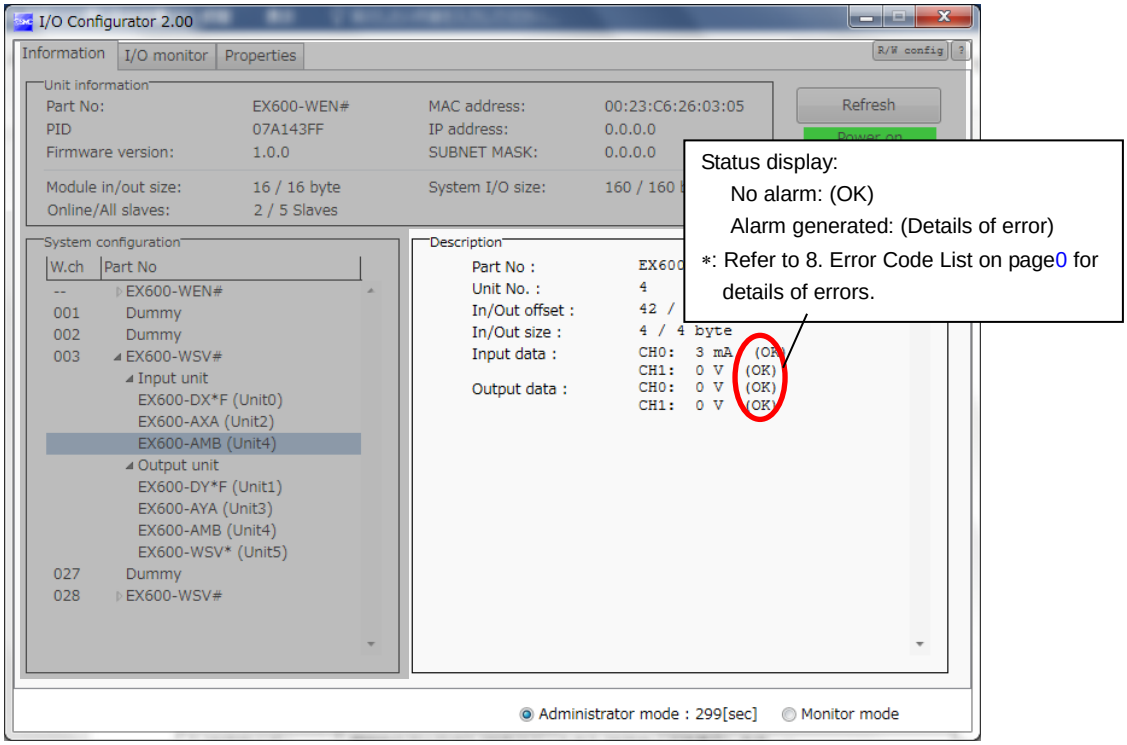


•Detailed information (analogue output unit)

Description	Content
Part No.	Displays the product number of the selected analogue output unit
Unit No.	Displays the mapped position of the selected analogue output. ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.
Input/output offset	Displays the start position of the address to which the selected unit is mapped on the I/O map.
Input/output size	Displays the input/output size of the selected analogue output unit. Input size is 0 byte.
Input data	"--" is displayed for the output unit (setting is only applicable to units with inputs).
Output data	Displays the output data value which is sent to the selected analogue output unit.

(g). Analogue I/O unit

Analogue input/output unit (product number: EX600-AMB)



•Detailed information (analogue I/O unit)

Description	Content
Product No.	Displays the product number of the selected analogue input/output unit.
Unit No.	Displays the mapped position of the selected analogue input/output unit. *: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.
Input/output offset	Displays the start position of the address to which the selected unit is mapped on the I/O map.
Input/output size	Displays the input/output size of the analogue input/output unit which is selected.
Input data	Displays the input data value which is sent from the selected analogue input/output unit.
Output data	Displays the output data value which is sent to the selected analogue input/output unit.

3.4.2. Details of I/O monitor tab

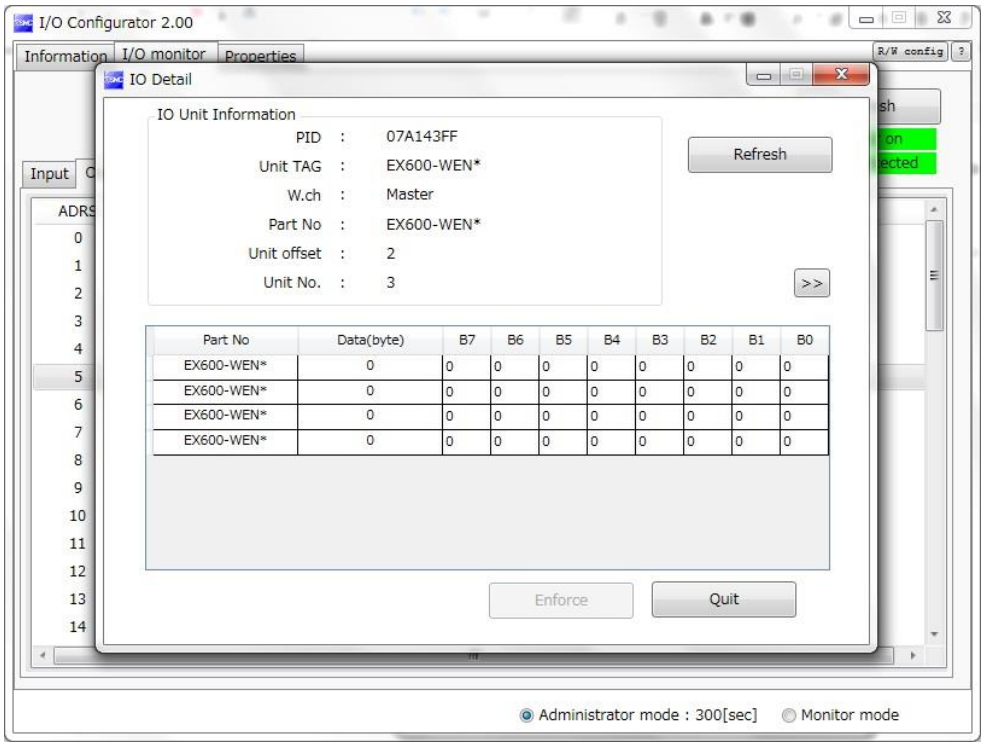
By clicking the IO Detail tab, the information of the selected unit, diagnostic status, Byte or Bit value , or analogue input/output can be checked.

♦Procedure to display the details of IO unit information

I/O monitor tab ⇒ double click the line in which the unit to be checked is mapped ⇒ IO Detail is displayed

∗: Refer to the operation manual for EX600-W□□ # for the I/O unit which can be connected with the wireless unit.

(a). Wireless unit (valve)

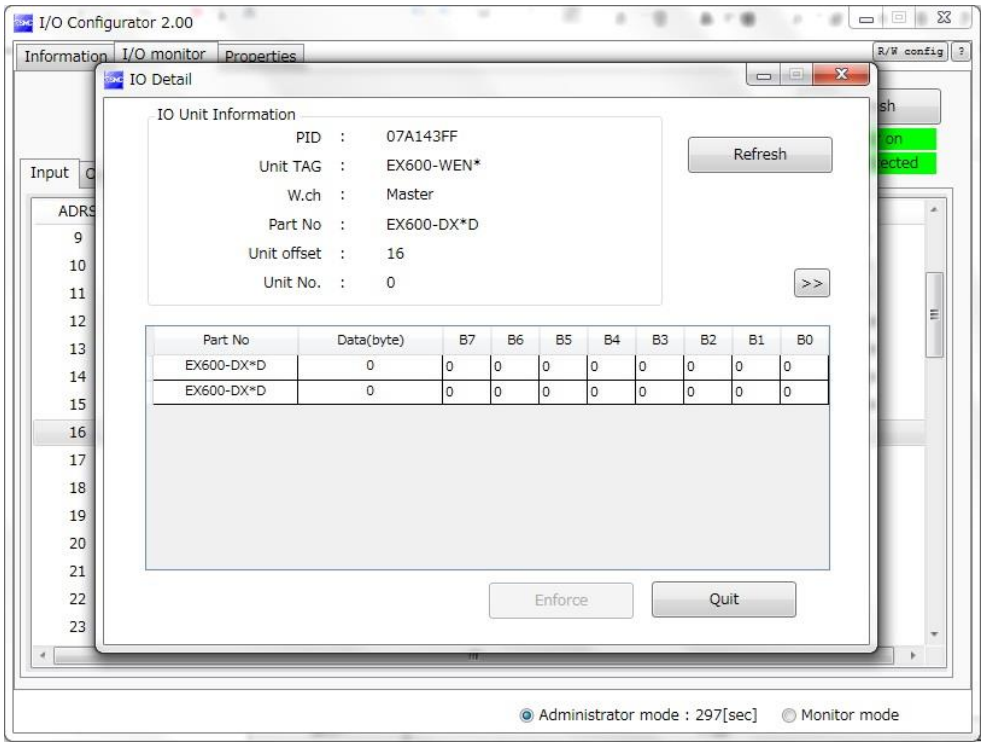


•IO Detail (wireless master/slave unit (valve))

Description	Content
PID	Displays the PID of wireless master/slave to which the selected valve is connected.
Tag	Displays the tag of wireless master/slave to which the selected valve is connected.
Wireless channel	Displays the channel name of wireless master/slave to which the selected valve is connected. Master is displayed for the master. 1 to 127 is displayed for the slave.
Part No.	Displays the product number of the wireless master/slave to which the selected valve is connected.
Unit offset	Displays the start position of the address to which the selected unit is mapped on the IO map.
Unit No.	Displays the mapped position of the selected valve. (relates to position of the unit within the manifold). ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.

(b). Digital input unit

Digital input unit (product number: EX600-DX∗D)

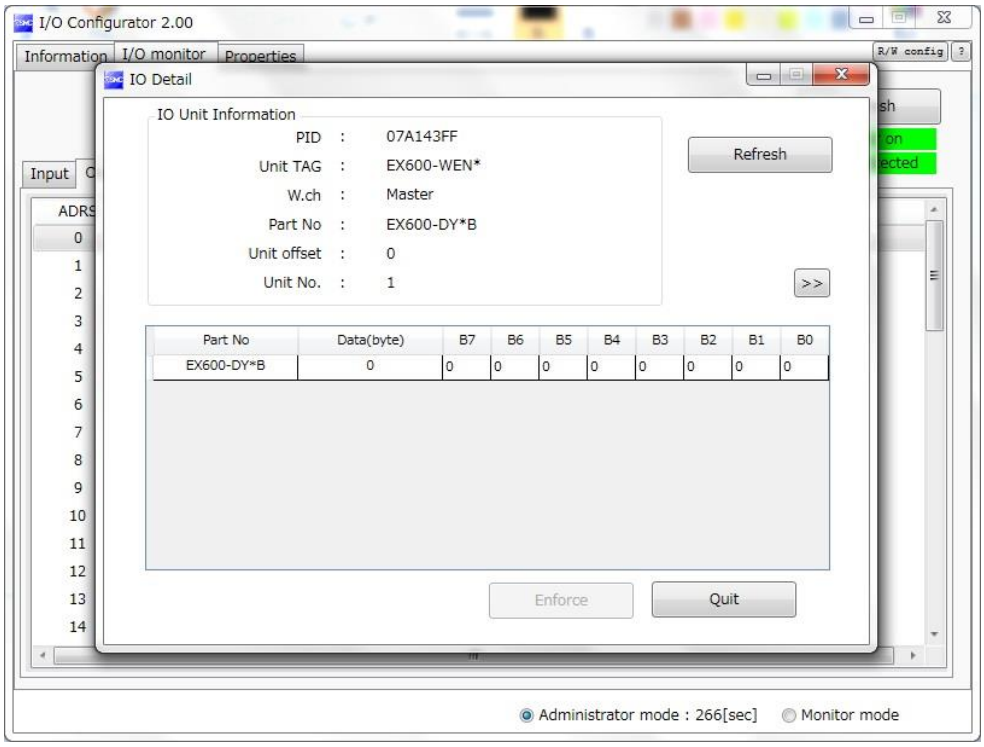


•IO unit information (digital input unit)

Description	Content
PID	Displays the PID of wireless master/slave to which the digital input unit is connected.
Tag	Displays the tag of wireless master/slave to which the selected digital input unit is connected.
Wireless channel	Displays the channel name of wireless master/slave to which the selected digital input unit is connected. Master is displayed for the master. 1 to 125 is displayed for the slave.
Part No.	Displays the product number of the selected digital input unit.
Unit offset	Displays the start position of the address to which the selected unit is mapped on the IO map.
Unit No.	Displays the mapped position of the selected digital input unit (relates to position of unit within manifold). ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.

(c). Digital output unit

Digital output unit (product number: EX600-DY∗B)

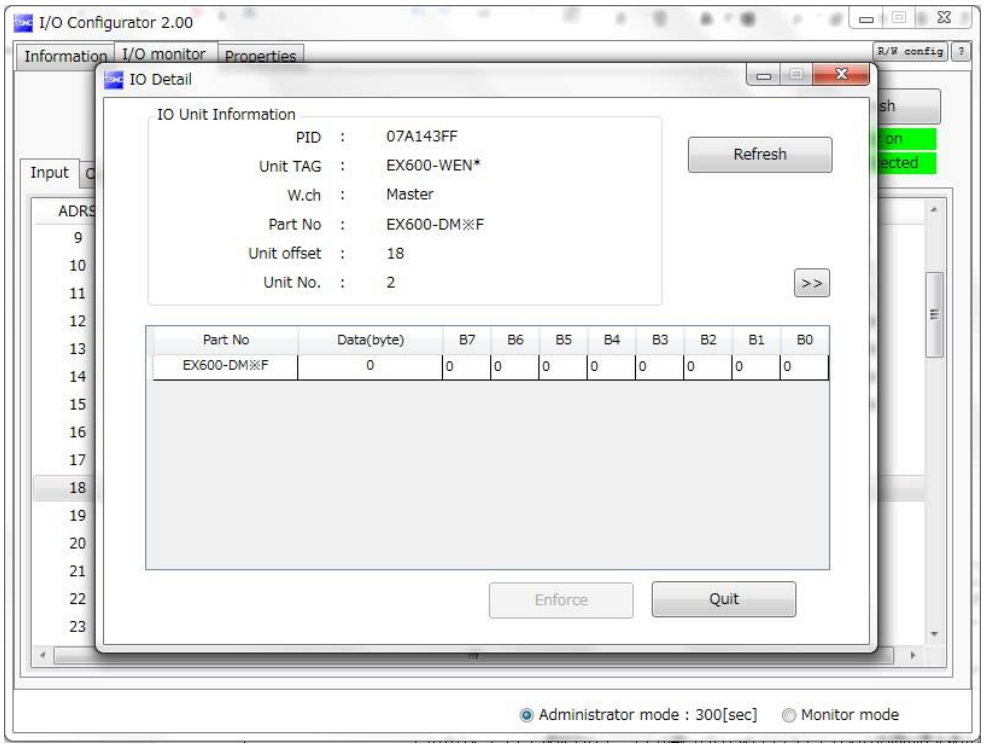


•IO unit information (digital output unit)

Description	Content
PID	Displays the PID of wireless master/slave to which the selected digital output unit is connected.
Tag	Displays the tag of wireless master/slave to which the selected digital output unit is connected.
Wireless channel	Displays the channel name of wireless master/slave to which the selected digital output unit is connected. Master is displayed for the master. 1 to 127 is displayed for the slave.
Part No.	Displays the product number of the selected digital output unit.
Unit offset	Displays the start position of the address to which the selected unit is mapped on the IO map.
Unit No.	Displays the mapped position of the selected digital output unit (relates to position of unit within manifold). ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.

(d). Digital I/O unit

Digital output unit (product number: EX600-DM∗F)

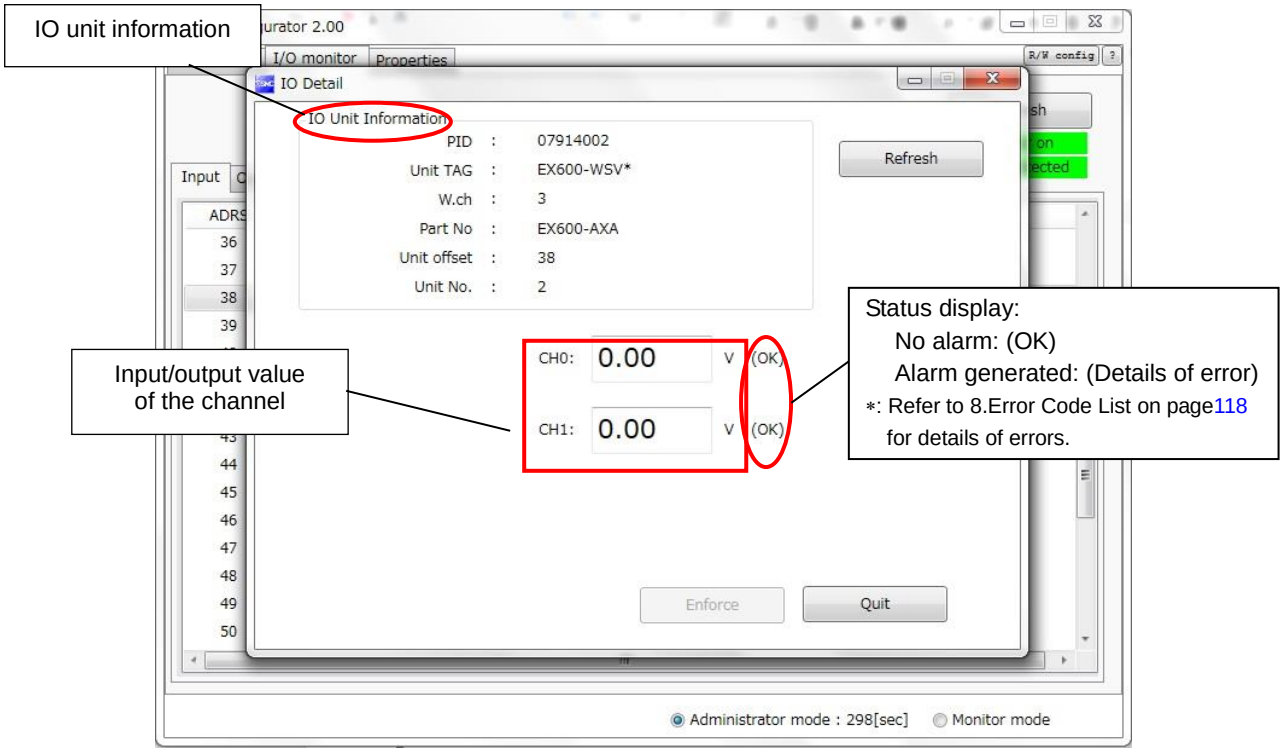


•IO unit information (digital input/output unit)

Description	Content
PID	Displays the PID of wireless master/slave to which the selected digital input/output unit is connected.
Tag	Displays the tag of wireless master/slave to which the selected digital input/output unit is connected.
Wireless channel	Displays the channel name of wireless master/slave to which the selected digital input/output unit is connected. Master is displayed for the master. 1 to 127 is displayed for the slave.
Part No.	Displays the product number of the selected digital input/output unit.
Unit offset	Displays the start position of the address to which the selected unit is mapped on the IO map.
Unit No.	Displays the mapped position of the selected digital input/output unit (relates to position of unit within manifold). ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.

(e). Analogue input unit

Example of analogue input unit (product number: EX600-AXA)



•IO unit information (analogue input unit)

Description	Content
PID	Displays the PID of wireless master/slave to which the analogue input unit is connected.
Tag	Displays the tag of wireless master/slave to which the selected analogue input unit is connected.
Wireless channel	Displays the channel name of wireless master/slave to which the selected analogue input unit is connected. Master is displayed for the master. 1 to 127 is displayed for the slave.
Part No.	Displays the product number of the selected analogue input unit.
Unit offset	Displays the start position of the address to which the selected unit is mapped on the IO map.
Unit No.	Displays the mapped position of the selected analogue input unit (relates to position of unit within manifold). *: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.

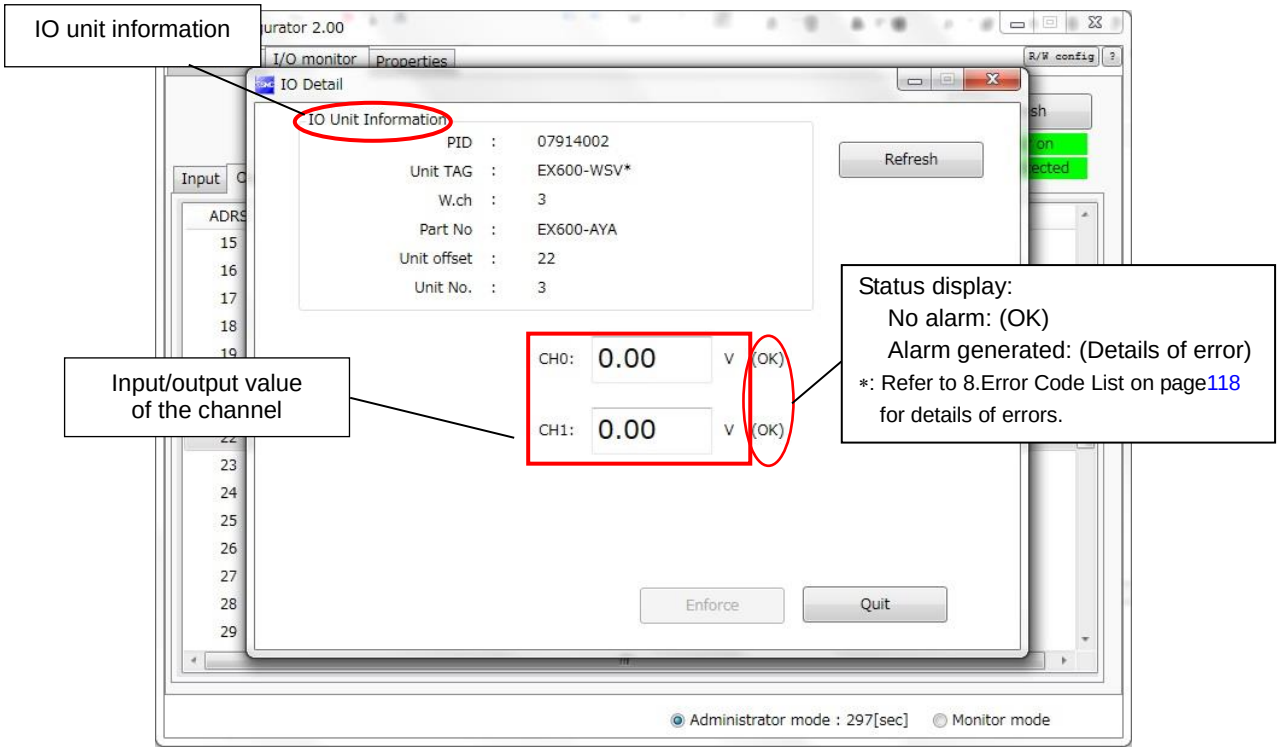
•Channel status (analogue input unit))

Data format	Displayed analogue value
Offset binary、Sign and Magnitude、2's Complement	±□□□ mA (current range)
	±□□□ V (voltage range)
Scaled	±□□…□

*:Refer to I/O Configurator on the website for data format.

(f). Analogue output unit

Example of analogue output unit (product number: EX600-AYA)



•IO unit information (analogue output unit)

Description	Content
PID	Displays the PID of wireless master/slave to which the analogue output unit is connected.
Tag	Displays the tag of wireless master/slave to which the selected analogue output unit is connected.
Wireless channel	Displays the channel name of wireless master/slave to which the selected analogue output unit is connected. Master is displayed for the master. 1 to 127 is displayed for the slave.
Part No.	Displays the product number of the selected analogue output unit.
Unit offset	Displays the start position of the address to which the selected unit is mapped on the IO map.
Unit No.	Displays the mapped position of the selected analogue output unit (relates to position of unit within manifold). ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.

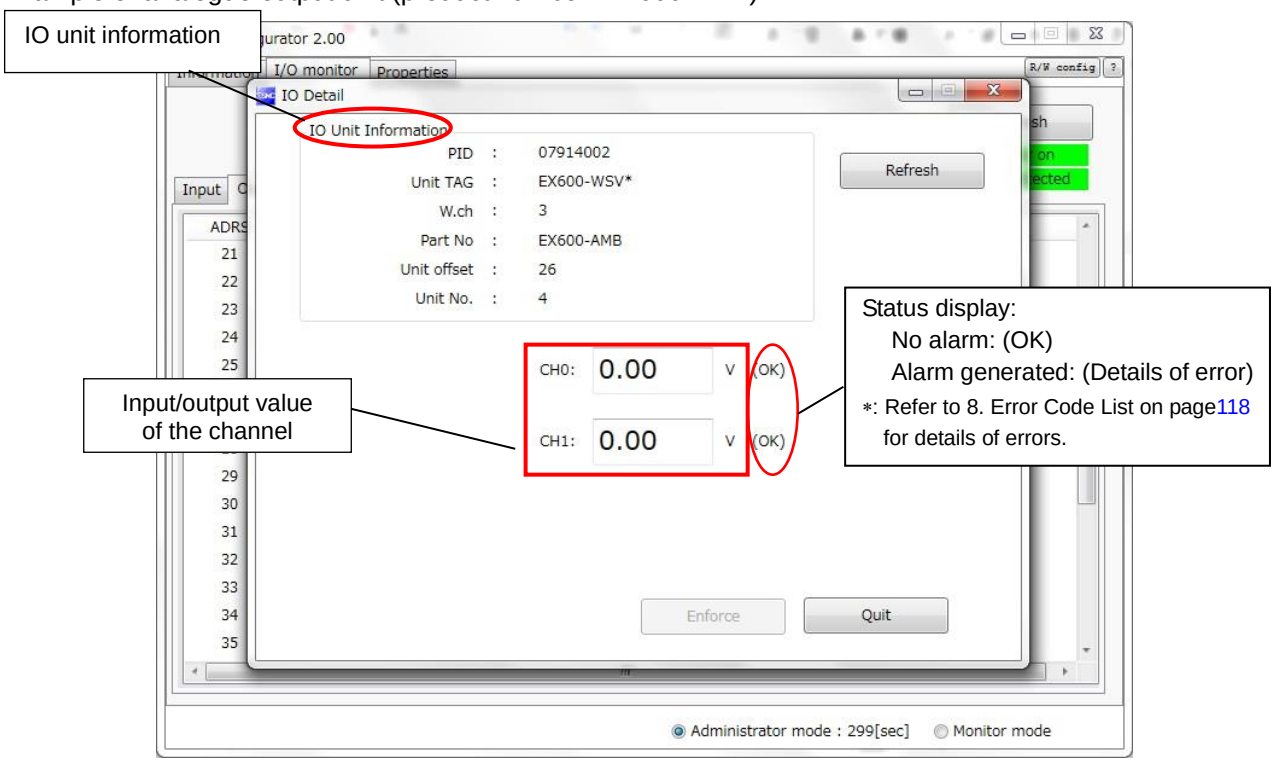
•Channel status (analogue output unit)

Data format	Displayed analogue value
12-Bit-Resolution, 11-Bit-Resolution	±□□□ mA (current range)
	±□□□ V (voltage range)
Scaled	±□□…□

∗:Refer to I/O Configurator on the website for data format.

(g). Analogue I/O unit

Example of analogue output unit (product number: EX600-AMB)



•IO unit information (analogue input/output unit)

Description	Content
PID	Displays the PID of wireless master/slave to which the analogue input/output unit is connected.
Tag	Displays the tag of wireless master/slave to which the selected analogue input/output unit is connected.
Wireless channel	Displays the channel name of master/slave to which the selected analogue input/output unit is connected. Master is displayed for the master. 1 to 127 is displayed for the slave.
Part No.	Displays the product number of the selected analogue input/output unit.
Unit offset	Displays the start position of the address to which the selected unit is mapped on the IO map.
Unit No.	Displays the mapped position of the selected analogue input/output unit (relates to position of unit within manifold). ∗: Refer to the "Unit address order" of (A) Master unit setting (page 22) or (A) Slave unit setting (page 38) for IO mapping position.

•Channel status

Data format	Displayed analogue value
12-Bit-Resolution, 11-Bit-Resolution	±□□□ mA (current range): Input or output value
	±□□□ V (voltage range): Input or output value
Scaled	±□□---□: Input or output value

∗:Refer to I/O Configurator on the website for data format.

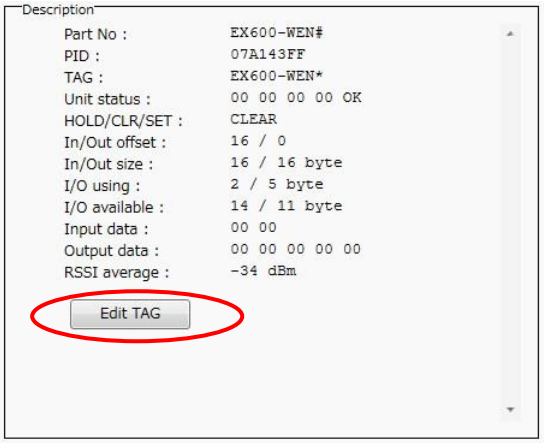
4. Setting Function

There are functions which can be set more easily by using the I/O configurator for NFC for setting.

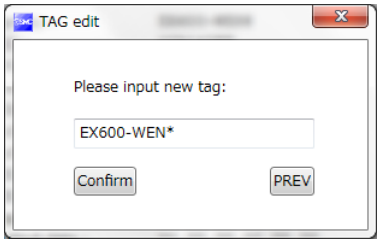
•Edit TAG (page 56)
•Software Control(page 56)
•Forced output (page 58)
•Export of setting (page 63)
•Import of setting (page 65)
•Reading of the initial value (page 66)
•Initialize the product (page 67)

4.1. Edit TAG

(1) Only the SI unit can be set using the TAG edit. Up to 15 alphanumeric characters can be entered. Click the Edit TAG button at the bottom of the window.



(2) The TAG edit window will open by clicking the "Edit TAG" button. Enter a new tag name and click the Confirm button. The name can be returned to the previous status by clicking PREV during editing.



4.2. Software Control

With the "Clear/Hold/Software control" of Master/slave unit setting, the output operation for when the Ethernet communication is disconnected can be selected for valve output or output unit independently using CLEAR, HOLD or SET. The values for the Hold/Clear for each valve output or output unit are stored in the unit with output.

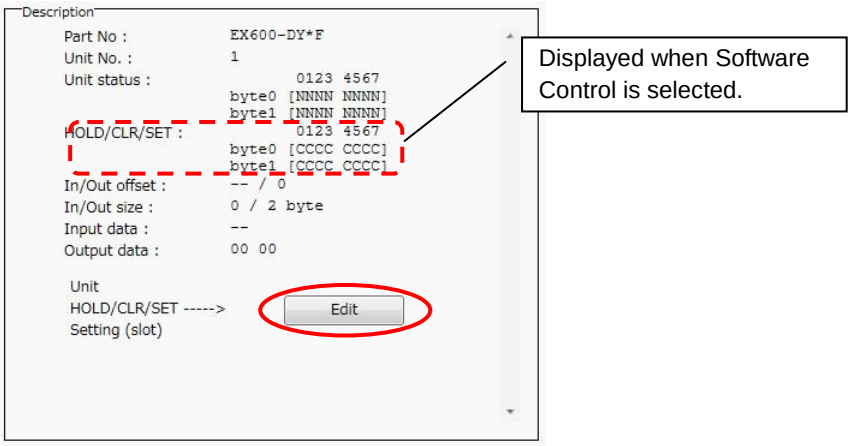
Value	Content
HOLD	Maintain the value before Hold/Clear.
Clear	0 for Hold/Clear
SET	1 for Hold/Clear

∗: Editing is possible from the Description of the Information tab when Hold/Clear is set to Software Control. In order to set the Software Control of Hold/Clear, change the setting using the Master unit setting or Slave unit setting in the Set tab.

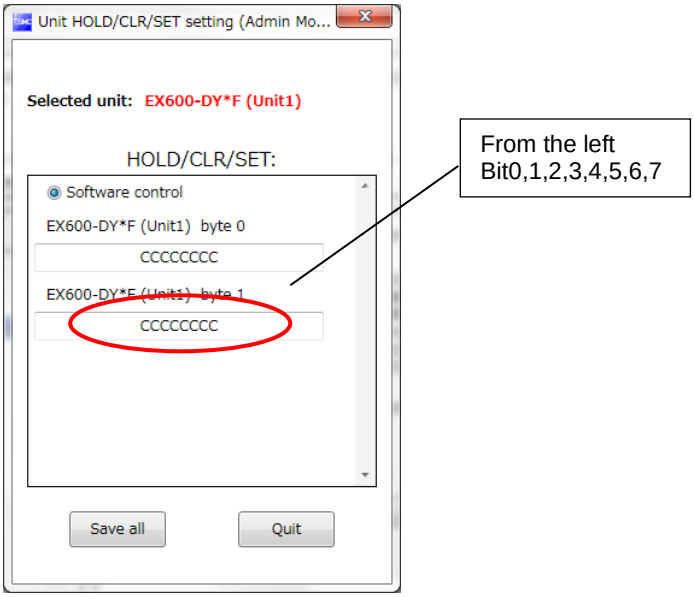
∗: The output operation when wireless communication is disconnected, the status is HOLD regardless of the setting of the Software Control.

♦Hold/Clear setting procedure

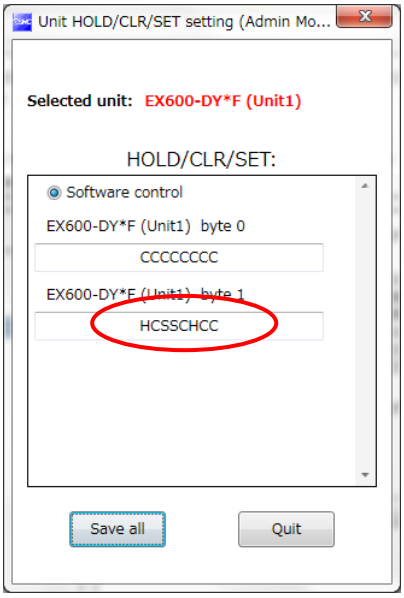
(1) Details of the output unit information.
(Refer to (C) Description (pate 15, 31) to show the detailed information.)



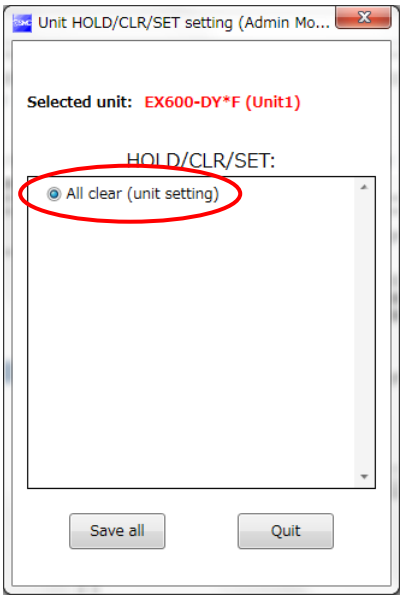
(2) The window for Unit HOLD/CLR/SET setting appears by clicking the Edit button.



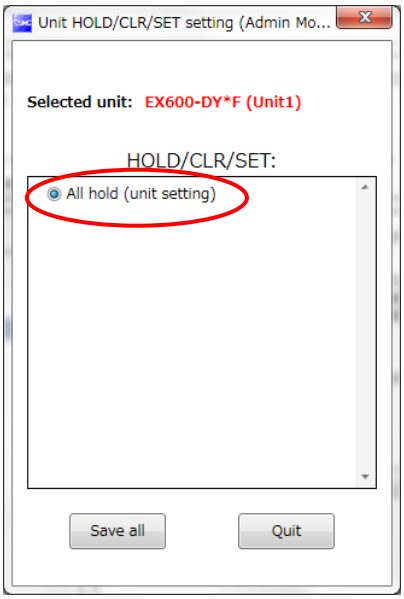
(3) Upper case letters are used to express the current status of Clear/Hold. The Settable values are C (CLEAR), H (HOLD) or S (SET). Enter 8 characters. When the required values have been entered, click the "Save all" button to store the data.



∗: When CLEAR and HOLD is set for HOLD/CLR/SET, the window below will be displayed.



Hold/Clear: CLEAR



Hold/Clear: HOLD

4.3. Forced output

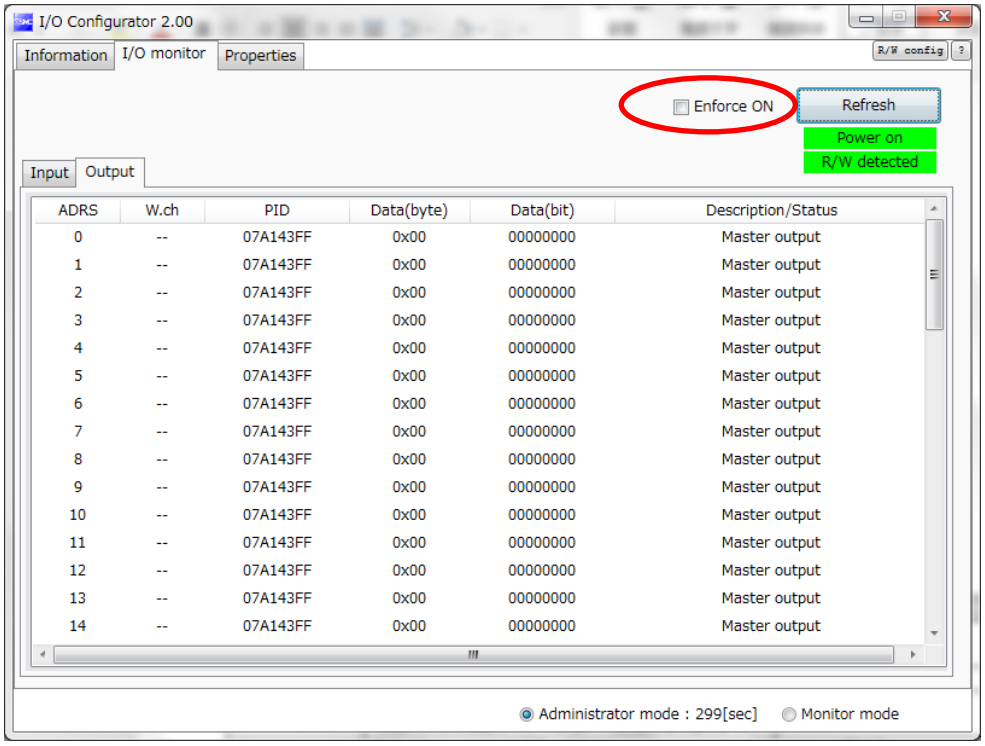
4.3.1. Forced output conditions

The I/O configurator for NFC can directly command the wireless master/slave.
Operating conditions for Forced output.

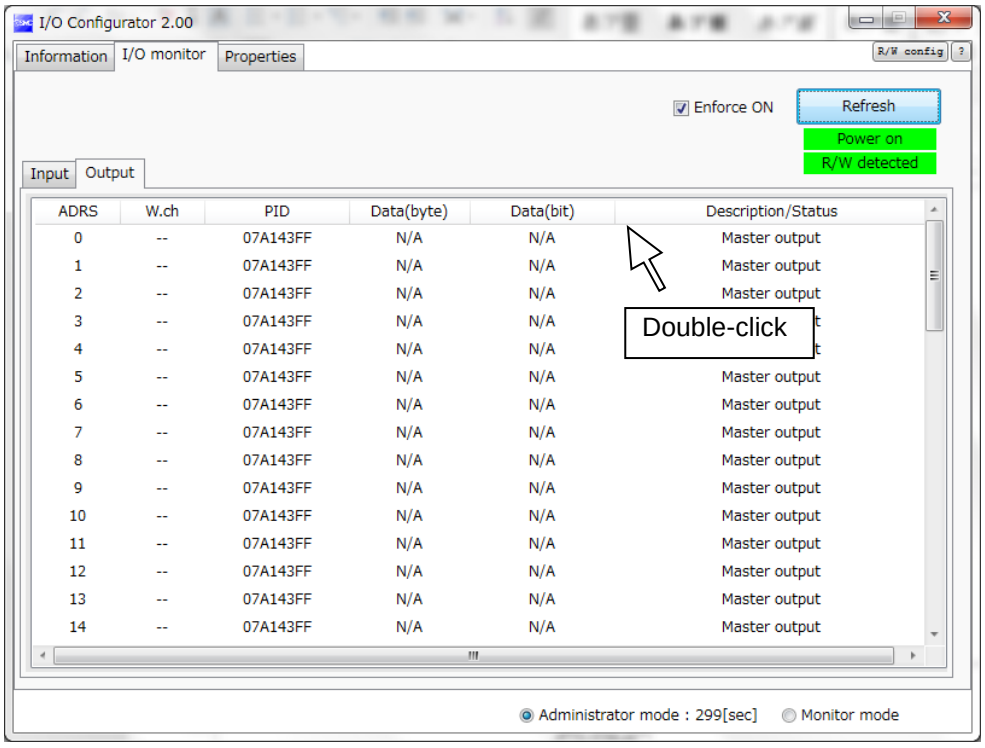
	[Forced output from the wireless master]	[Forced output from the wireless slave]
Forced output conditions	Login from the Administrator mode. Not connected with the higher PLC by Ethernet.	Login from the Administrator mode. Not wirelessly connected with wireless master.
Applicable item for forced output	Wireless master/unit	Wireless slave

4.3.2. Forced output procedure

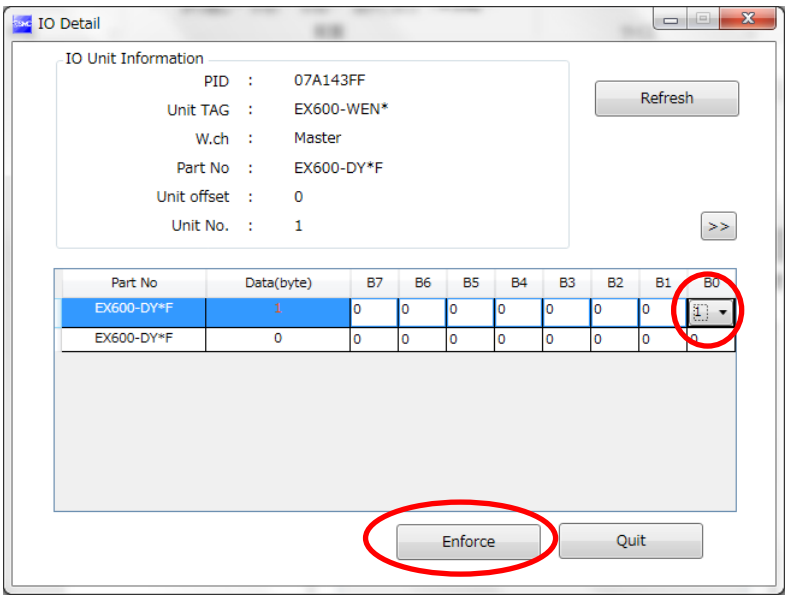
This is the forced output procedure using individual bits. Change the tab to I/O monitor to move to forced output mode. Then, click "Enforce ON" on the upper right of the window. Then Click Yes.



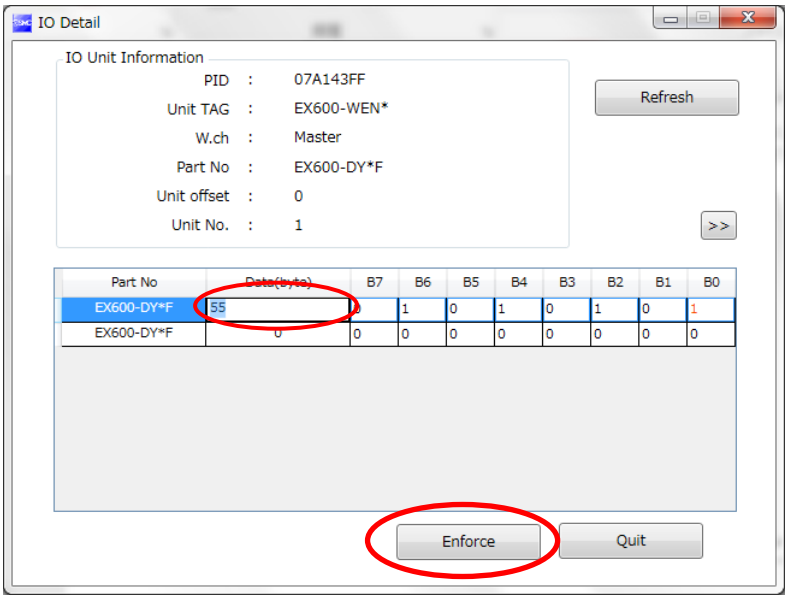
The window below appears when the mode is changed to forced output mode. Select the output unit to be forced output and double click it.



The IO Detail window is displayed. Then, select the Bit (B0 to B7) to be forced output and set to 1. The set value is output by clicking the Enforce button at the bottom of the window. The power supply for output is necessary to activate the output equipment for forced output mode. Refer to the Operation Manual for the SMC Wireless System for details of the power supply for output.

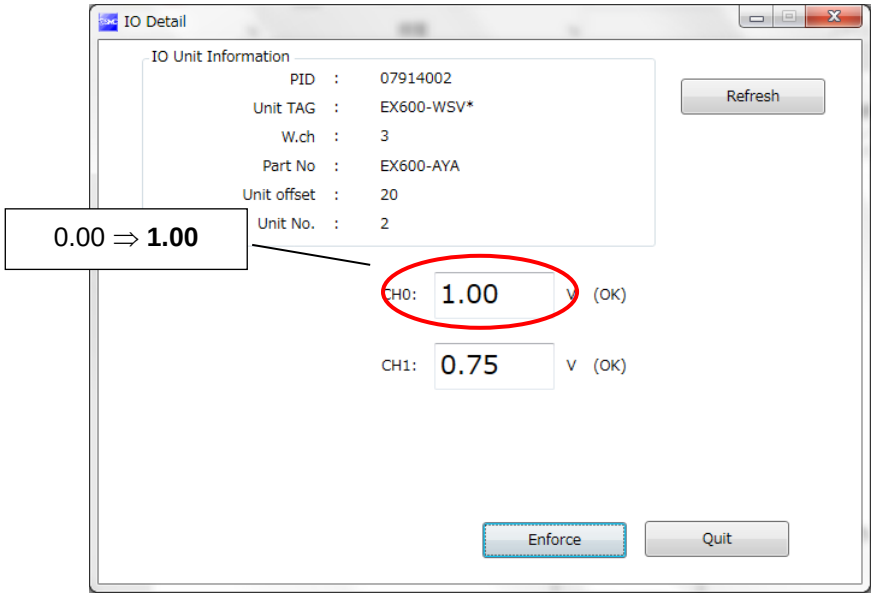


Forced output is possible also using bytes. Enter the value between 0x00 and 0xFF to the data (byte). The value in bytes is output by clicking the Enforce button. This is the forced output procedure for the digital unit.

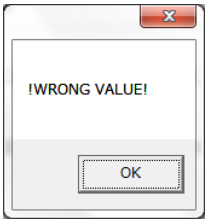


•Forced output (analogue unit)

The window for the forced output for analogue unit is displayed. For forced output for the analogue unit, enter the values according to the analogue range (analogue range can be selected by the I/O configurator for WEB). Enter the values. The analogue value will be output by clicking the Enforce button. The power supply for output is necessary to activate the output equipment for forced output mode. Refer to the Operation Manual for the SMC Wireless System for details of the power supply for output.

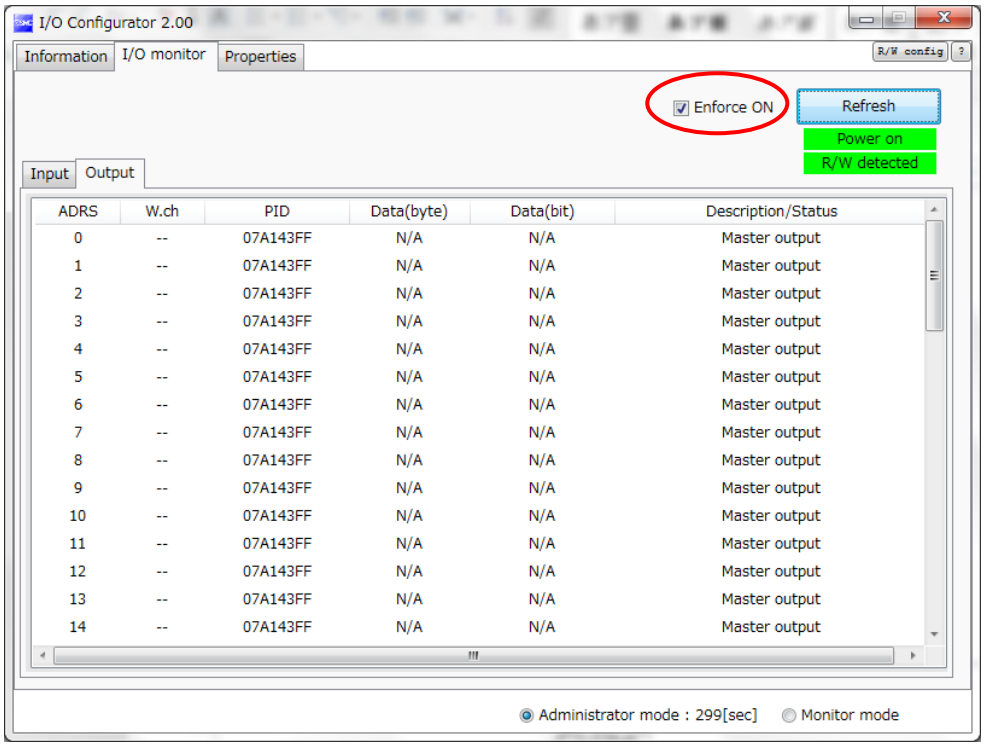


When the window below appears, the input value was outside the setting range. Enter a value within the range.



4.3.3. Forced output release procedure

First, check the box for Enforce ON. Then Click Yes. Click Yes on the following window. Forced output mode is released. Finally. click the Refresh button to update the information in the window. Forced output can also be released by turning off the power supply.



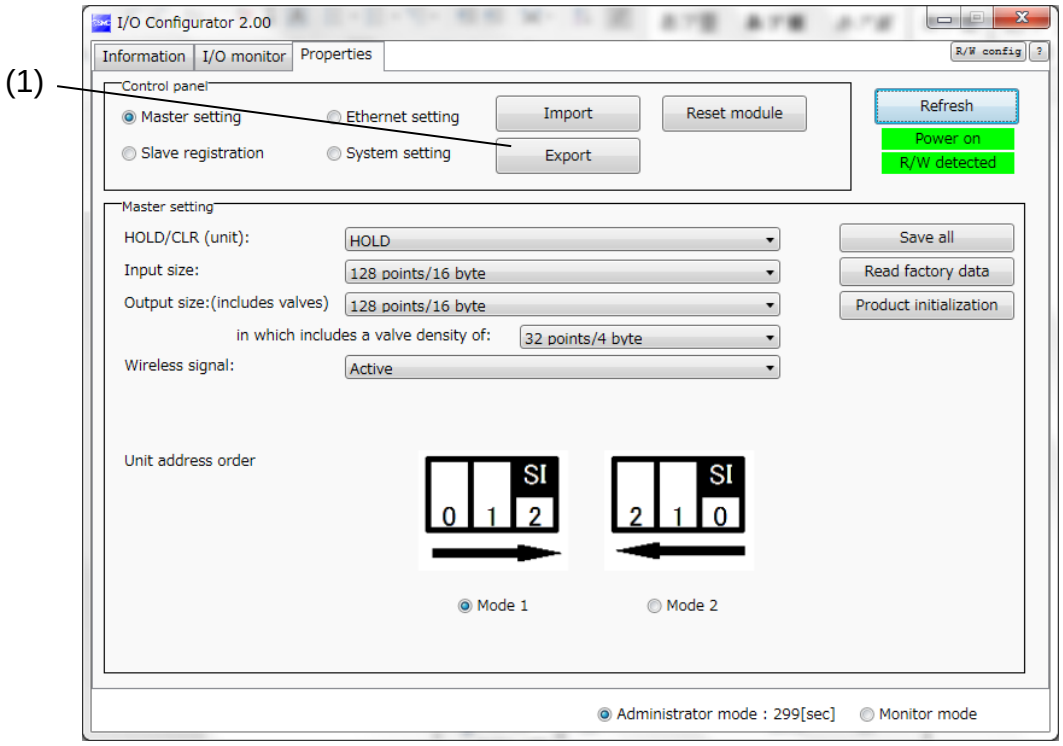
∗: Caution for releasing forced output mode: The operation after releasing the forced output is different for wireless master and slave. Set values are maintained for the wireless master, but they are not maintained for the wireless slave.

4.4. Export Settings

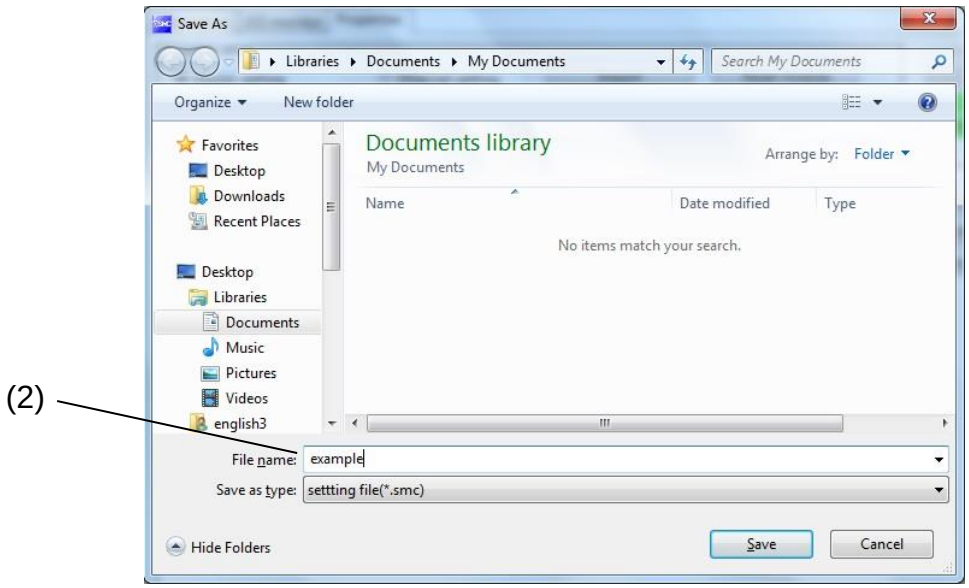
The Export settings tab enables the setting of the unit connected with current NFC reader/writer to be saved to a PC in the format of ".smc". The Import enables the unit setting to be reflected in the other unit. Refer to the table below for settings which can be exported.

♦Procedure for exporting the settings

(1) Open the window to save the file by clicking the "Export" button.



(2) Input the file name and store the file.



•Export/import setting

Item		Master		Slave (EX600-WSV#)
		(EX600-WEN#)	(EX600-WPN#)	
Master setting/ slave setting	Hold/Clear (unit)	○	○	○
	Occupied points for the module input	○	○	○
	Occupied points for the module output	○	○	○
	Occupied points for the valve manifold output	○	○	○
	Wireless communication	○	○	○
	Analogue input update time	—	—	○
	I/O unit assignment direction	○	○	○
Slave registration/ pairing setting	Pairing disabled/enabled	○	○	○
Ethernet setting	IP address setting mode	○	—	—
	IP address	○	—	—
	Auto MDI/MDI-X	○	—	—
	Duplex	○	—	—
	Speed	○	—	—
System setting	I/O assignment	○	—	—
	System input size	○	—	—
	System output size	○	—	—
	Diagnostic assignment	○	○	—
	Number of registered slave	○	○	—
	Analogue output update time	○	○	—

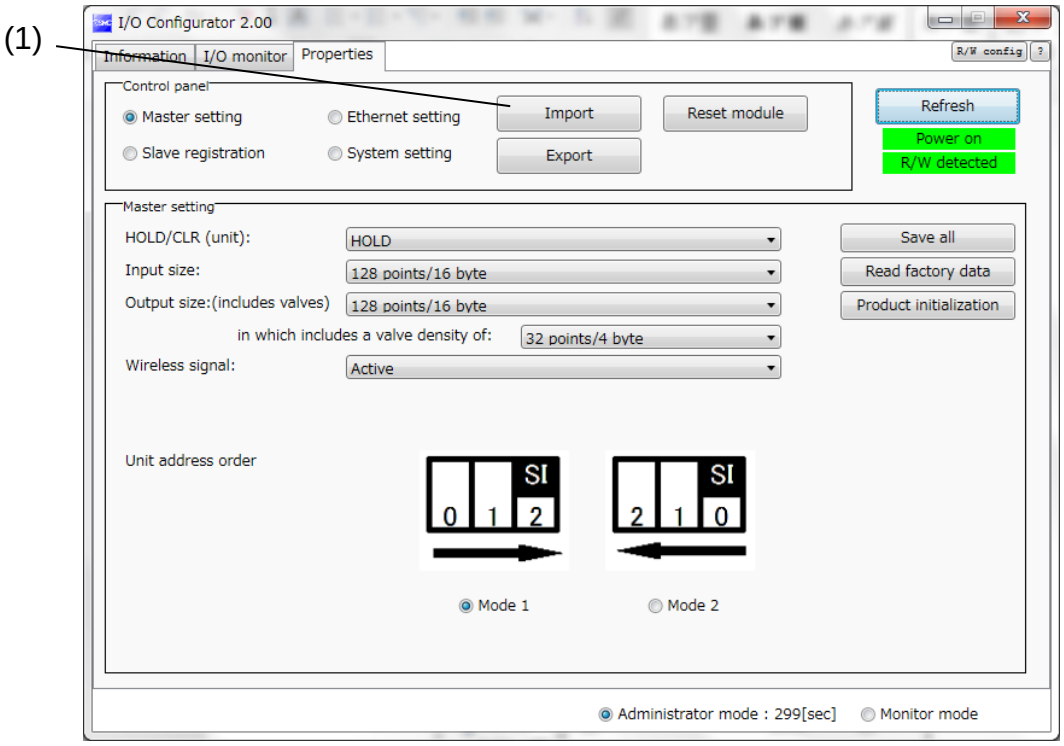
4.5. Import Settings

The Import settings tab enables the set file in the format of ".smc" which is save in the PC to be read, and the content of the unit connected with the NFC reader/writer can be changed to the content of the set file. This function is applicable only between the same type of unit (between masters, or between slaves)

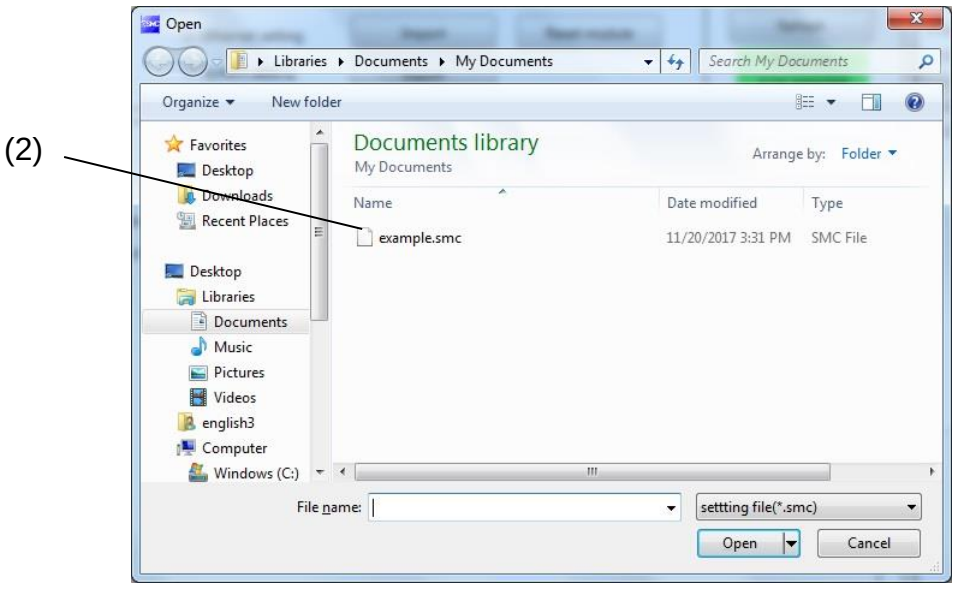
∗: Settings to be imported are the same as those to be exported. Refer to 4.4. Export Setting (page 63).

♦Procedure for importing the settings

(1) Click the "Import" button.

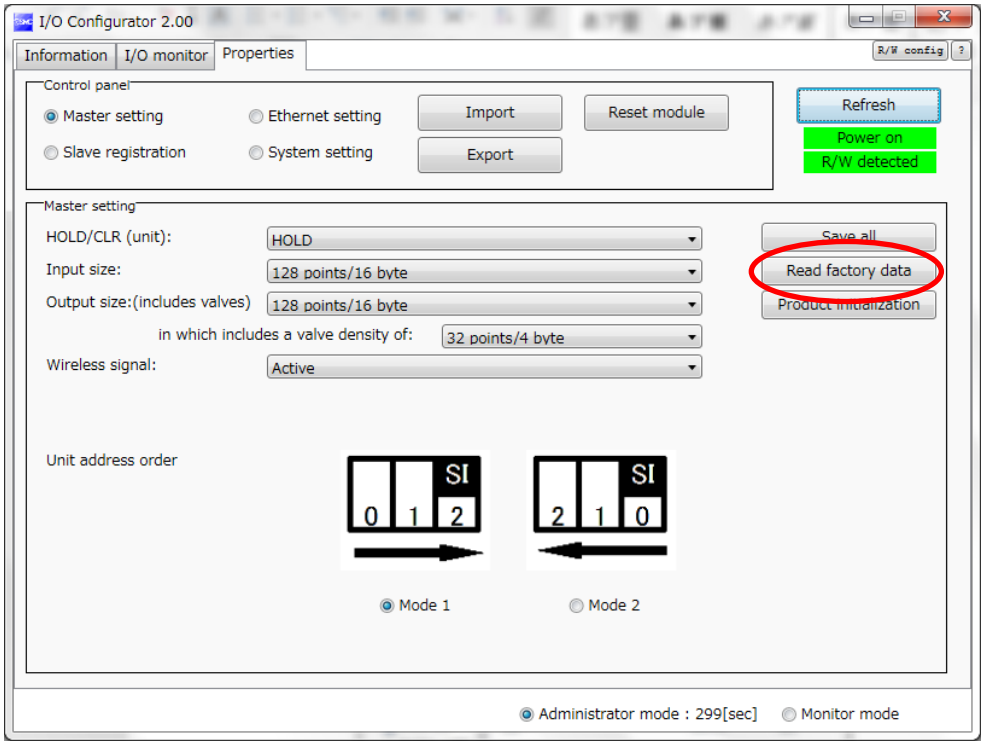


(2) Select the required file and click the Open. Select Yes to execute the import of settings.



4.6. Reading of the initial value

Click the "Read factory data" button to initialize or check the parameters in the window currently opened by the setting tab (excluding slave unit registration and pairing setting). In order to reflect the setting, turn off the power and on again or reset when the power is on. Turn on the power supply when the power is off.



♦Settings for which initial values are read:

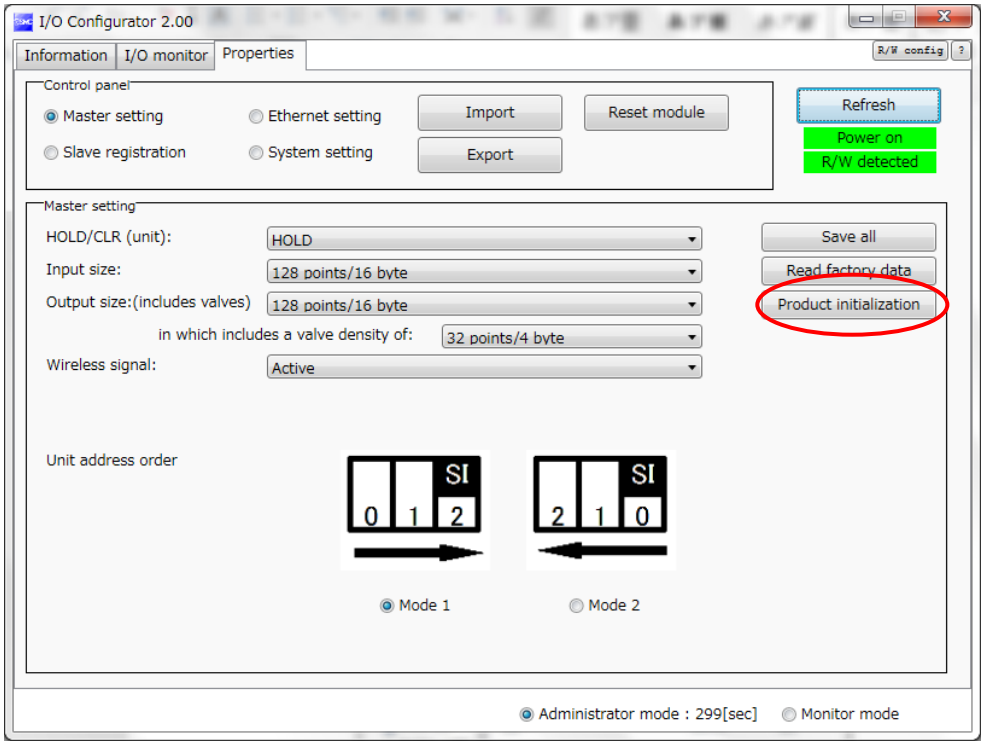
•Wireless master: Master unit setting, Ethernet setting, system setting

•Wireless slave: Slave unit setting

4.7. Initialize

Perform Product initialization of the master unit setting or slave unit setting to initialize the product.

∗: After executing the function, this function saves and reflects the setting, and updates the information in the window. The operation is not irreversible.



Some values set by the I/O configurator (WEB) are included in the initialized items. Refer to the table below for the set items to be initialized.

•Initialized items (I/O Configurator (NFC version))

Initialized items			Master (EX600-WEN#)	Master (EX600-WPN#)	Slave (EX600-WSV#)
Set tab	Master/slave unit setting	Hold/Clear	○	○	○
		Input size	○	○	○
		Output size	○	○	○
		Valve manifold output size	○	○	○
		Wireless communication	○	○	○
		Analogue input update time	-	-	○
		I/O unit assignment direction	○	○	○
	Slave unit registration	Pairing mode	○	○	○
		Info. registered in master	-	-	○
	Pairing setting	Pairing mode	○	○	○
		Info. registered in slave	○	○	-
	Ethernet setting	IP address setting mode	○	-	-
		IP address	○	-	-
		Auto MDI/MDI-X	○	-	-
		Duplex	○	-	-
		Speed	○	-	-
	System setting	I/O layout	○	-	-
		System input size	○	-	-
		System output size	○	-	-
		Diagnostic allocation	○	○	-
		Number of connected slave	○	○	-
		Analogue output update time	○	○	-
Information tab	Detailed information	Tag	○	○	○

- N/A

•Initialized items (I/O Configurator (WEB version))

Initialized items		Master (EX600-WEN#) (EX600-WPN#)	Slave (EX600-WSV#)
Module Setting	Power Supply Voltage Monitor (Output)	○	○
	Byte Order of Analogue Values	○	○
Channel Setting	OpenDiag	○	○
	HOLD/CLEAR	○	○
	MAXCount	○	○
	CountOverDiag	○	○
	CountReset	○	○

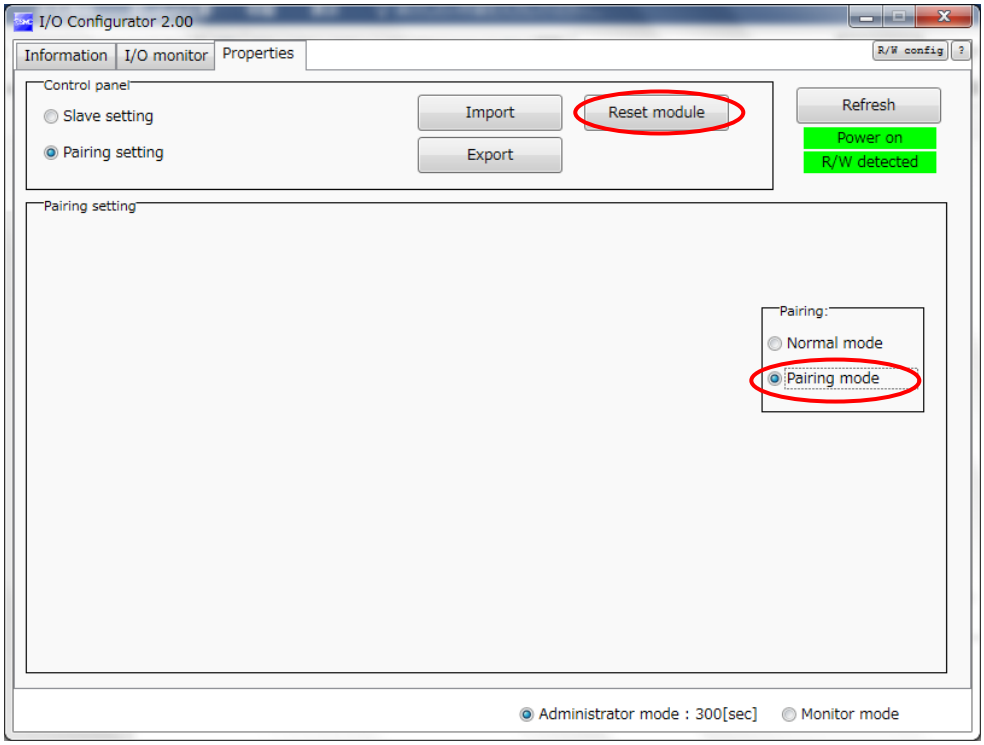
∗: Refer to the I/O Configurator (Web version) for item details.

5. Pairing of wireless unit

5.1. Pairing procedure of wireless unit

∗: Login to the Administrator mode to change to pairing mode.
Refer to 3.1.1 Login to administrator mode (page 13).

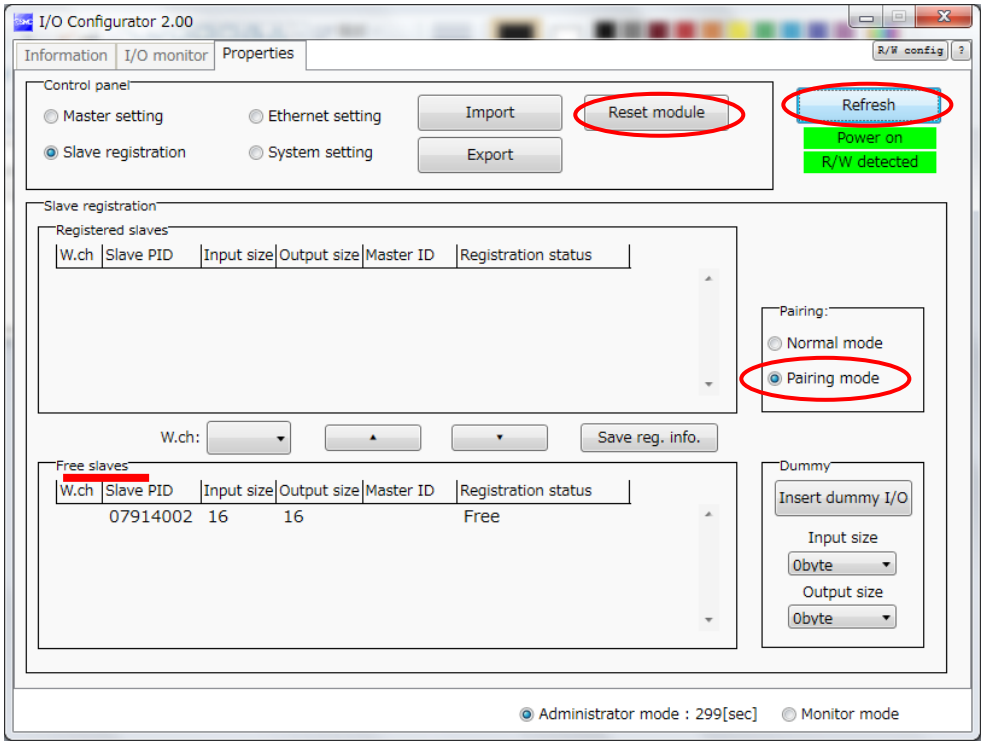
(1) Change the mode of the wireless slave unit to **Pairing mode**.
Change the pairing setting of the wireless slave unit to "Pairing enable" and reflect the change by clicking Reset module or by re-supplying power.



∗: After switching the operation mode to Pairing mode, check that the W-NS LED on the wireless unit flashes in green and red alternately.
Refer to the Operation Manual for details of LEDs.

(2) Change the mode of the wireless master unit to **Pairing mode.**
Change the pairing setting of the slave unit registration of the wireless master unit to "Pairing enable" and reflect the change by clicking **Reset module** or by re-supplying power. Then, update the contents on the screen by clicking **Refresh.** (Registered wireless slave unit information will be displayed in the box of free slave.)

∗: The Power supply for the wireless master/slave has to be on for registration of the slave unit.

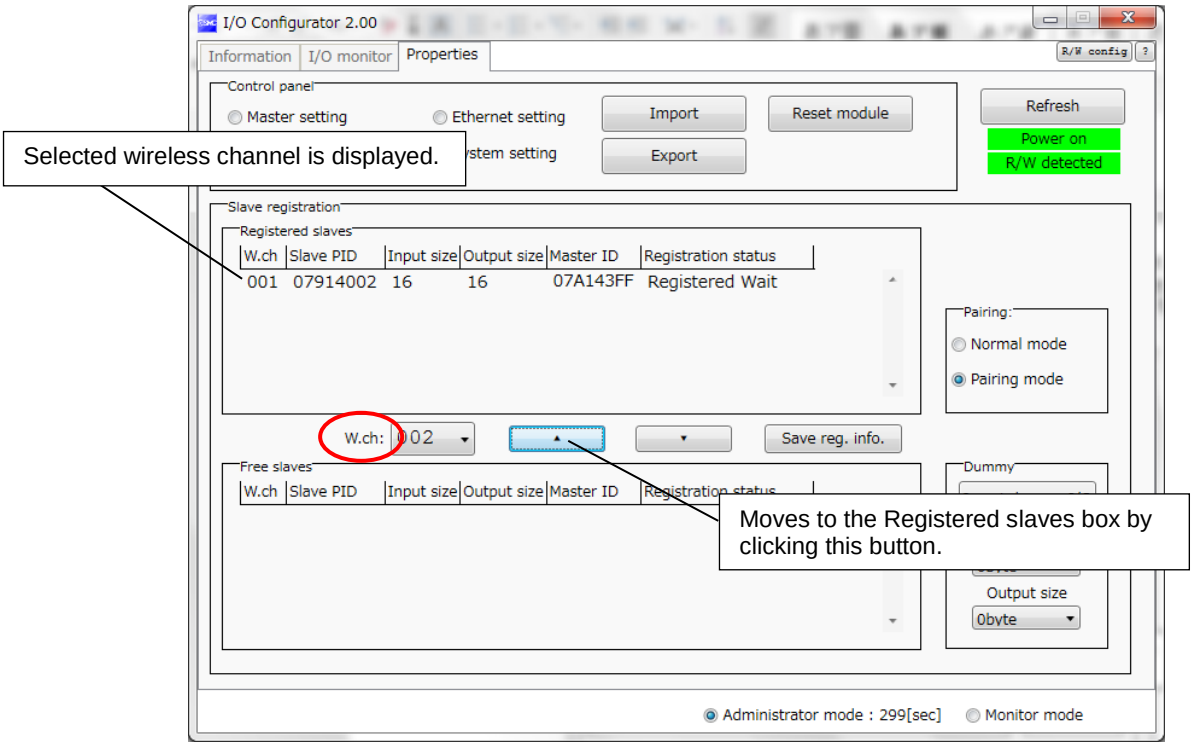


∗: After switching the operation mode to Pairing mode, check that the W-NS LED on the wireless unit flashes in green and red alternately. Refer to the Operation Manual for details of LEDs.

(3) Select the wireless channel

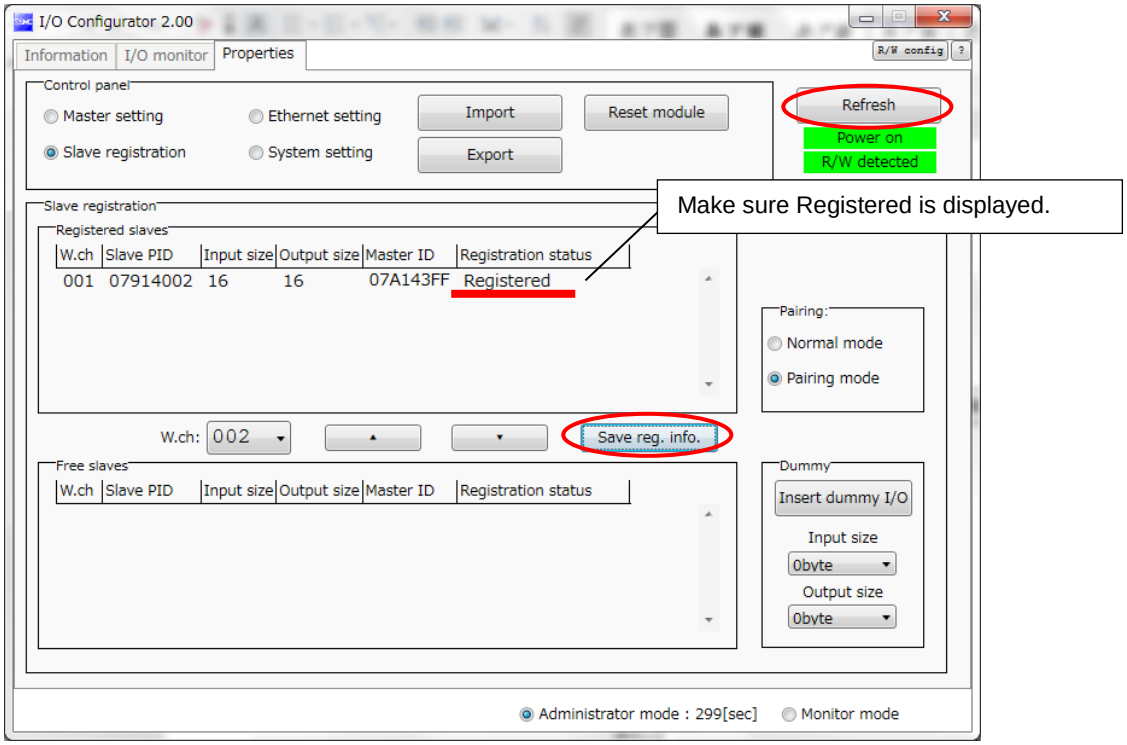
Register the required wireless channel by registering the slave unit to the wireless master unit. Select the wireless channel and move it from the Free slaves box to Registered slaves box.

(Registration is not complete at this point. The status of the wireless slave unit will be shown as "Waiting for registration".)



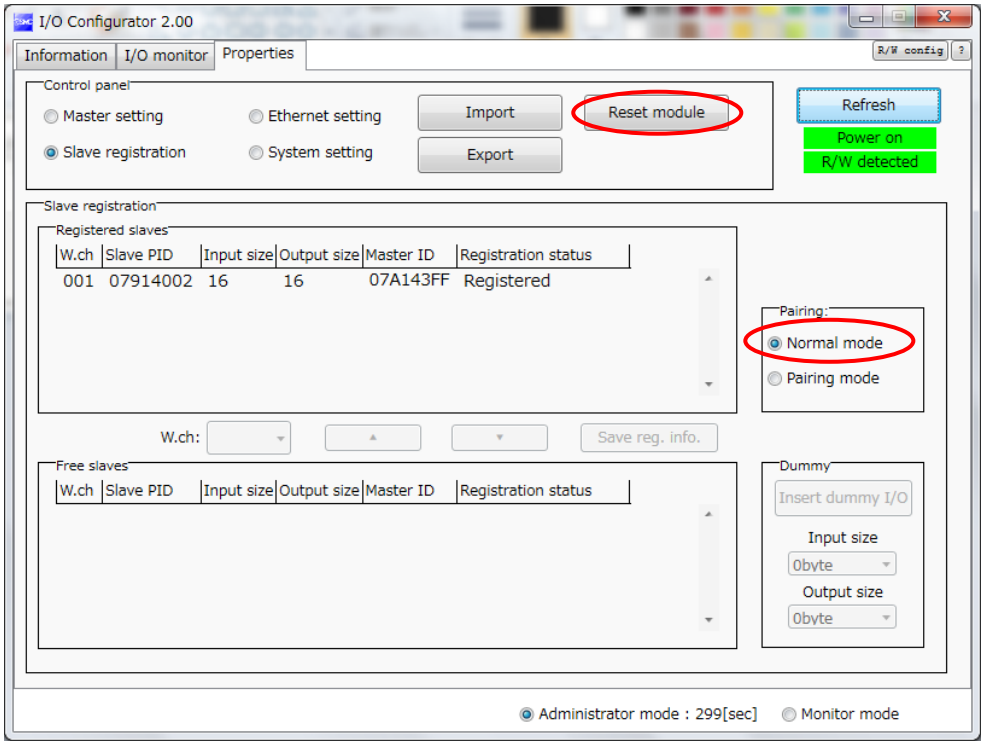
(4) **Determination of the registered information**

Press Save reg-info to register the wireless slave unit to the wireless master.
Then, click **Refresh** to confirm that the setting has been reflected.
(When registration has been completed correctly, the status of the selected wireless slave unit will change from "Waiting for registration" to "registered".
(When the wireless slave unit is registered correctly, the mode will change automatically.)



(5) **Change of operation mode** of the wireless master unit

Change the pairing setting on the slave unit registration screen of the wireless master unit to "Pairing disable" and reflect the change by clicking Reset module or by re-supplying power.



Now, the registration procedure for the wireless master unit and the wireless slave unit are complete.
When registering more than one wireless slave is required, repeat procedures (3) and (4).
It is also possible to register more than one wireless slave unit simultaneously to the wireless master unit.

•Registration should be performed with power supplied to both wireless master and wireless slave units.

•**For the Input and Output size of the wireless slave unit module, the setting of wireless registration will be reflected to the wireless master unit.**
When changing the number of Input and Output points of the wireless slave unit, wireless registration should be performed again.

•The setting of the Input and Output points of the wireless master unit are valid all the time. Be careful that the I/O map will be different if the setting is changed after constructing the I/O map. (After changing, the setting is reflected by pressing the [Reset] button or by supplying the power again.)

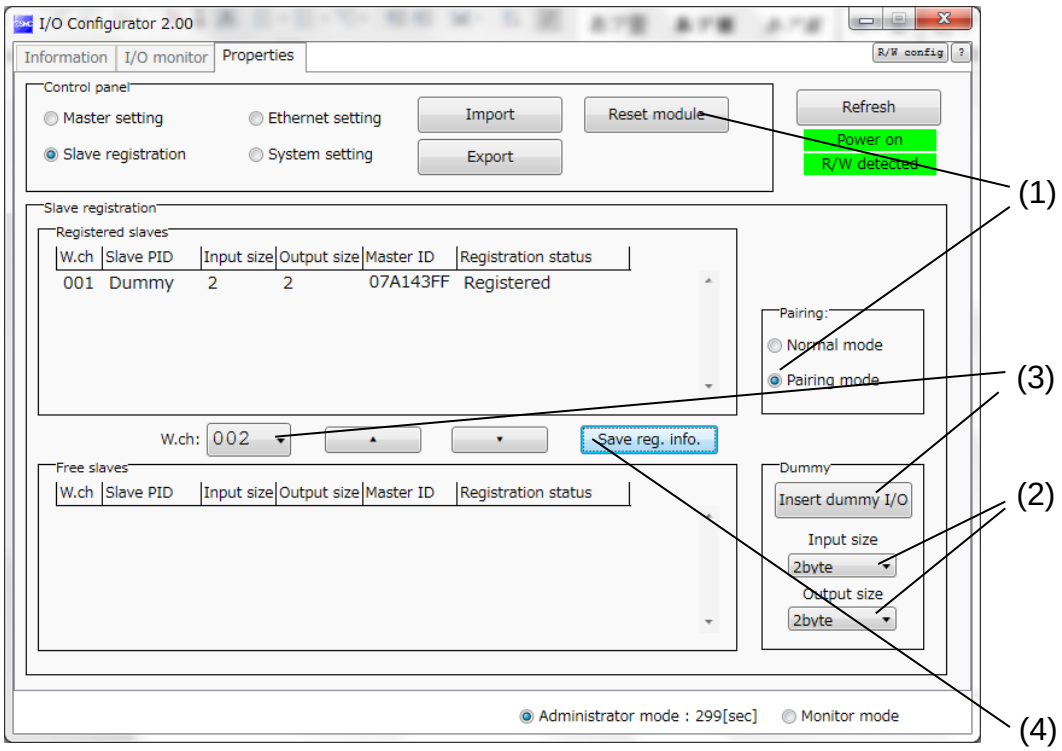
5.2. Registration of dummy slave

(1) **Change of operation mode** of the wireless master unit
Change the pairing setting of the slave unit registration of the wireless master unit to "Pairing enable" and reflect the change by clicking **Reset module** or by re-supplying power. Then, update the contents on the screen by clicking **Refresh**.

(2) **Inputs/outputs setting** of dummy slave
Set the number of inputs and outputs of the dummy slave.

(3) **Insert** the dummy slave **to the required wireless channel**
Select the required wireless channel and click **Insert** so that the set dummy slave is displayed in the box for "Registered slaves".
(Dummy slave registration is not complete at this point. The status is "Waiting for registration".)

(4) Save the dummy slave **registration information.**
Click **Save reg. info** to reflect the registered information.
(When registration has been completed correctly, the status of the dummy slave will change to "registered".)



6. Wireless system configuration example

The Wireless system configuration method is shown below. Perform the preparation according to section 2. Preparation before use (page 7) before configuring the wireless system. The example below is based on the Step 2 Setting/installation of the wireless unit of 6.1 Flow chart for using the wireless system (page 75) to explaining the Example 1 of 6.2 System Configuration example (page 76).

6.1. Flow chart for using the wireless system (Refer to Step 2)

Step 1 Preparation before use (PC, Application)

(1) Install the NFC reader, writer and driver.
(2.2. Before starting the software)

↓

(2) Install the I/O Configurator for NFC.
(2.3. Download the I/O Configurator (NFC version)

⇩

Step 2 Setting/installation of the wireless unit

(1) Set the number of occupied I/O points for the module and each parameter of the "wireless slave".
(6.4. (1) Input and output size of the wireless slave)

↓

(2) Set the number of occupied I/O points for the module and each parameter of the "wireless master".
∗: Different from the I/O points of the whole system.
(6.5 Set the number of occupied I/O points for the module and each parameter of the (2) "wireless master".)

↓

(3) Set the "wireless master" system.
(6.6 (3) Set the "wireless master" system)

↓

(4) Registration of wireless slave to the wireless master (pairing)
∗: Turn on the power supply to the master and slave unit.
(6.8 (4) Registration of wireless slave to the wireless master (pairing))

↓

(5) I/O unit assembly.

↓

(6) Installation and wiring.

↓

(7) Set the Ethernet.port

⇩

Step 3 Connection to PLC

Note) Refer to the operation manual of the PLC manufacturer for connection to PLC and Configurator.

6.2. System Construction Example

An example of the set parameters and memory map of the wire master and slave (2 pcs.) used for wireless system configuration are shown below.

Based on the example of Diagnostic allocation of the Operation Manual (page 50).

	Unit 0	Unit 1	Unit 2	
End plate	DY∗B Digital output 1-byte output	DX∗D Digital input 2-byte output	EX600-WEN# Wireless master unit 2-byte output	Valve manifold (16 points)

Wireless master unit setting parameter

Diagnostic allocation: Detailed
I/O mapping: Auto
Input size: 32 points/4 bytes
Output size: 32 points/4 bytes
Valve manifold output size: 16 points/2 bytes
I/O unit layout mode: Mode 1
Number of slave connection: 15 pcs.

Wireless master module construction

Input data: [Unit 1] Digital input unit (EX600-DX∗D): 2 bytes occupied
Output data: [Unit 0] Digital output unit (EX600-DY∗B): 1 byte occupied
[Unit 2] Wireless master unit (EX600-WEN#): 2 bytes occupied

	Unit 0	Unit 1	Unit 2	Unit 3	
End plate	DY∗B Digital output 1-byte output	AXA Analogue input 4-byte input	DX∗D Digital input 2-byte input	EX600-WSV# Wireless slave unit 4-byte output	Valve manifold (32 points)

Wireless slave unit setting parameter
(Wireless channel 001)

Input size: 64 points/8 bytes
Output size: 48 points/6 bytes
Valve manifold output size: 32 points/4 bytes
I/O unit layout mode: Mode 1

Wireless slave module construction (Wireless channel 001)

Input data: [Unit 1] Digital input unit (EX600-DX∗D): 2 bytes occupied
[Unit 2] Analogue input unit (EX600-AXA): 4 bytes occupied
Output data: [Unit 0] Digital output unit (EX600-DY∗B): 1 byte occupied
[Unit 3] Wireless slave unit (EX600-WSV#): 4 bytes occupied

	Unit 0	Unit 1	Unit 2	Unit 3	
End plate	DY∗B Digital output 1-byte output	DX∗D Digital input 2-byte input	DX∗B Digital input 1-byte input	EX600-WSV# Wireless slave unit 0-byte output	End plate (Output side)

Wireless slave unit setting parameter
(Wireless channel 002)

Input size: 32 points/4 bytes
Output size: 16 point/2 bytes
Valve manifold output size: 0 point/0 byte
I/O unit layout mode: Mode 1

Wireless slave module construction (Wireless channel 002)

Input data: [Unit 1] Digital input unit (EX600-DX∗D): 2 bytes occupied
[Unit 2] Digital input unit (EX600-DX∗B): 1 byte occupied
Output data: [Unit 0] Digital output unit (EX600-DY∗B): 1 byte occupied
[Unit 3] Wireless slave unit (EX600-WSV#): 0 byte occupied

•Memory map

<table>
<tr><th rowspan="2"></th><th colspan="2">Input data</th><th colspan="2">Output data</th></tr>
<tr><th>Module name</th><th>Unit name</th><th>Module name</th><th>Unit name</th></tr>
<tr><td>byte0</td><td colspan="2">System diagnosis 1</td><td rowspan="4">Wireless master module</td><td>DX∗B (Unit 0)</td></tr>
<tr><td>byte1</td><td colspan="2">System diagnosis 2</td><td rowspan="3">EX600-WEN# (Unit 2)
Valve output: 16 points</td></tr>
<tr><td>byte2</td><td colspan="2">System diagnosis 3</td></tr>
<tr><td>byte3</td><td colspan="2">System diagnosis 4</td></tr>
<tr><td>byte4</td><td colspan="2">Wireless slave connection information
(Wireless channel 1-7; bit 0 are fixed at "0".)</td><td rowspan="6">Wireless slave module
(Wireless channel 001)</td><td>DY∗B (Unit 0)</td></tr>
<tr><td>byte5</td><td colspan="2">Wireless slave connection information
(Wireless channel 8-15)</td><td rowspan="5">EX600-WSV# (Unit 3)
Valve output: 32 points</td></tr>
<tr><td>byte6</td><td colspan="2">Wireless slave diagnostic information *1
(Wireless channel 1-7)</td></tr>
<tr><td>byte7</td><td colspan="2">Wireless slave diagnostic information
(Wireless channel 8-15)</td></tr>
<tr><td>byte8</td><td colspan="2">Wireless slave registration information
(Wireless channel 1-7; bit 0 are fixed at "0".)</td></tr>
<tr><td>byte9</td><td colspan="2">Wireless slave registration information
(Wireless channel 8-15)</td><td>Reserved</td></tr>
<tr><td>byte10</td><td rowspan="4">Wireless master module</td><td rowspan="2">DX∗D (Unit 1)</td><td rowspan="2">Wireless slave module
(Wireless channel 002)</td><td>DY∗B (Unit 0)</td></tr>
<tr><td>byte11</td><td>Reserved</td></tr>
<tr><td>byte12</td><td>Reserved</td><td rowspan="14"></td></tr>
<tr><td>byte13</td><td>Reserved</td></tr>
<tr><td>byte14</td><td rowspan="8">Wireless slave module
(Wireless channel 001)</td><td rowspan="4">AXA (Unit 1)</td></tr>
<tr><td>byte15</td></tr>
<tr><td>byte16</td></tr>
<tr><td>byte17</td></tr>
<tr><td>byte18</td><td rowspan="2">DX∗D (Unit 2)</td></tr>
<tr><td>byte19</td></tr>
<tr><td>byte20</td><td>Reserved</td></tr>
<tr><td>byte21</td><td>Reserved</td></tr>
<tr><td>byte22</td><td rowspan="4">Wireless slave module
(Wireless channel 002)</td><td rowspan="2">DX∗D (Unit 1)</td></tr>
<tr><td>byte23</td></tr>
<tr><td>byte24</td><td>DX∗B (Unit 2)</td></tr>
<tr><td>byte25</td><td>Reserved</td></tr>
<tr><td>Total</td><td colspan="2">26 byte</td><td colspan="2">12 byte</td></tr>
</table>

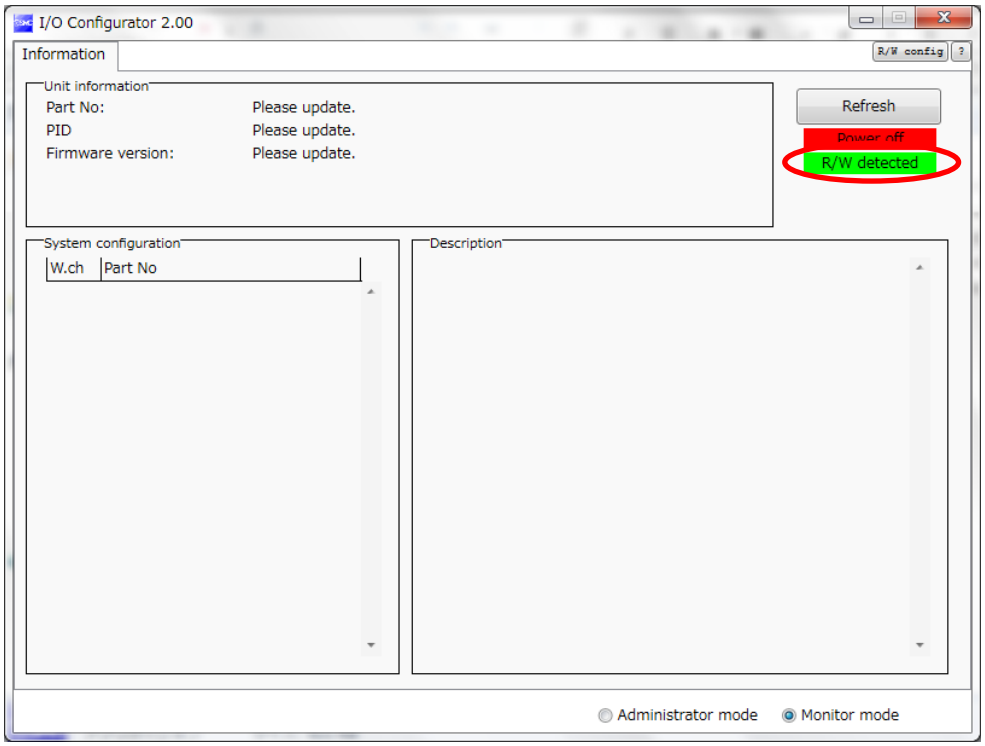
6.3. Preparation

STEP 1 **Start the I/O Configurator (NFC version)**
STEP 2 **Login to Administrator mode**

STEP 1 Start the I/O Configurator (NFC version)

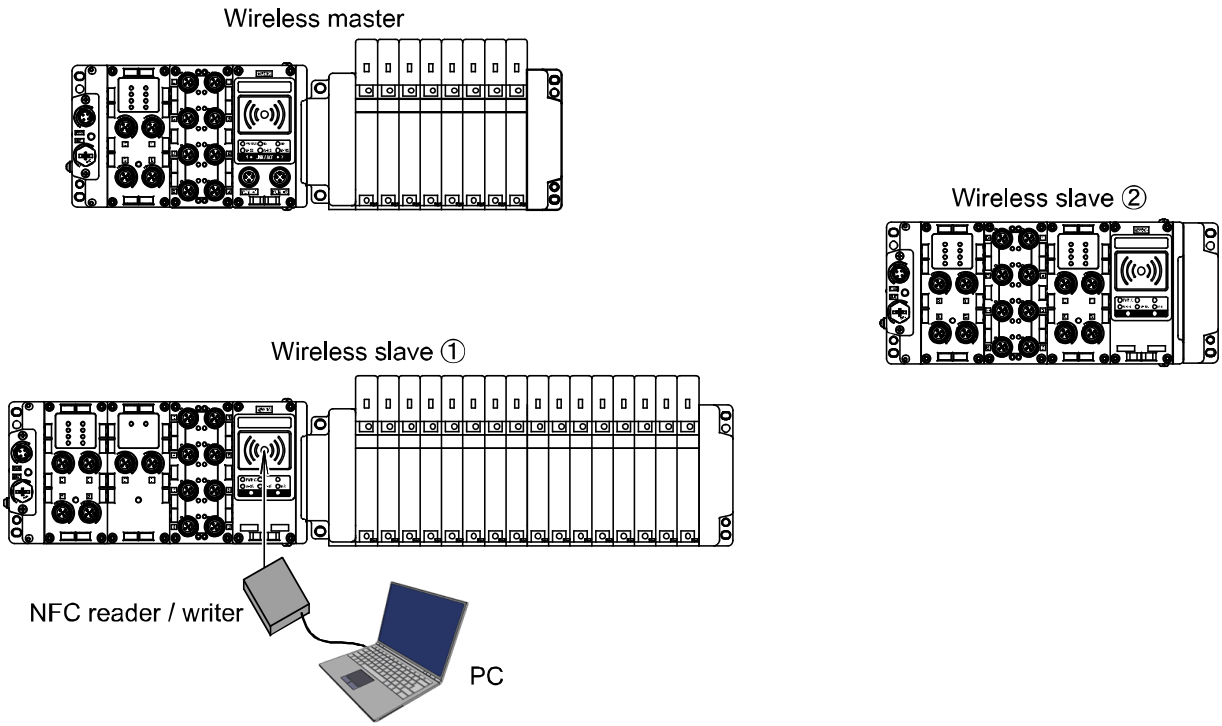
(1) Start up the I/O Configurator (NFC) and connect the NFC reader/writer to the PC. "R/W detected" will turn on in green when the PC detects the NFC reader/writer.

∗: Refer to 2. Preparation before use (page 7) for details of the connection of the NFC reader/writer.

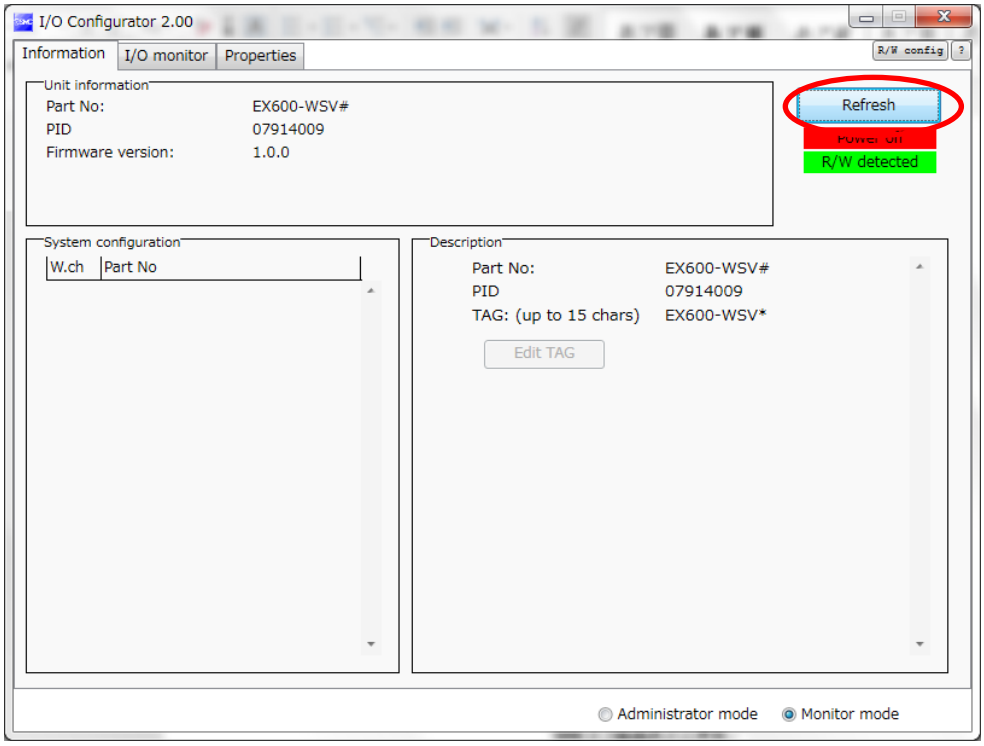


Window when the NFC reader/writer is detected

(2) Hold the NFC reader/writer over the wireless slave (1).



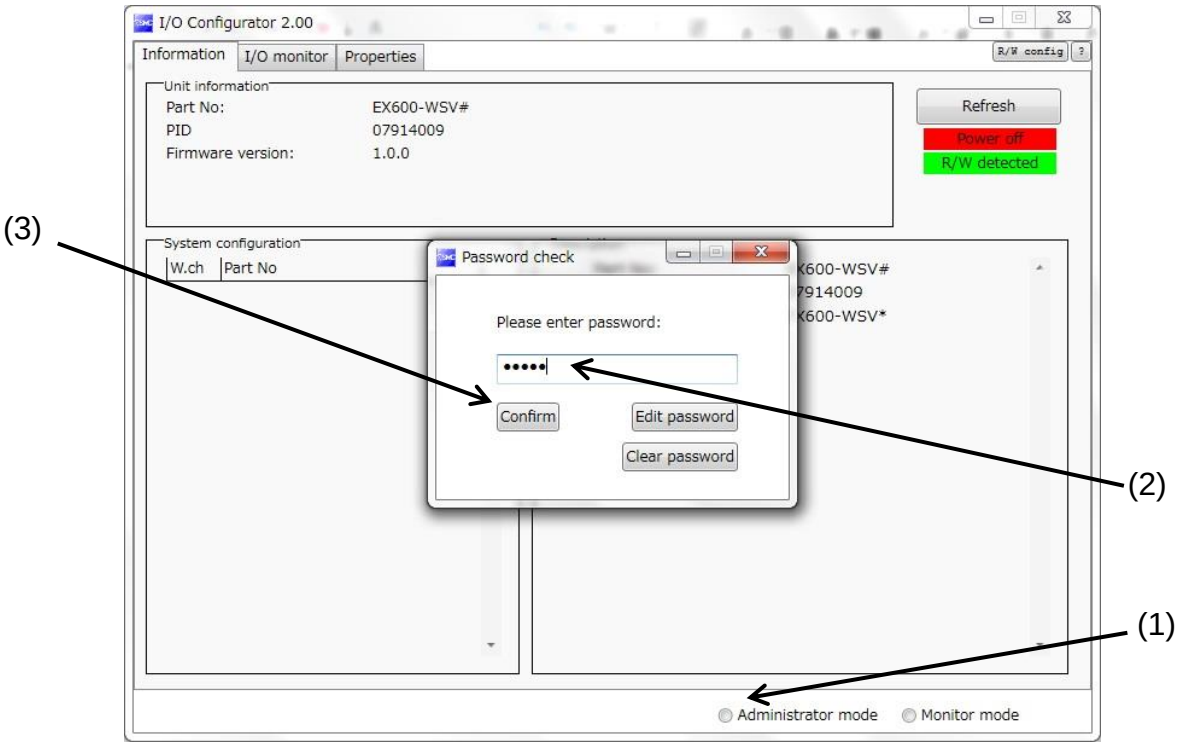
(3) Click the "Refresh" button to update the information in the Information tab window of the wireless slave (1).



Update of the Information tab window

STEP 2 Login from the Administrator mode.

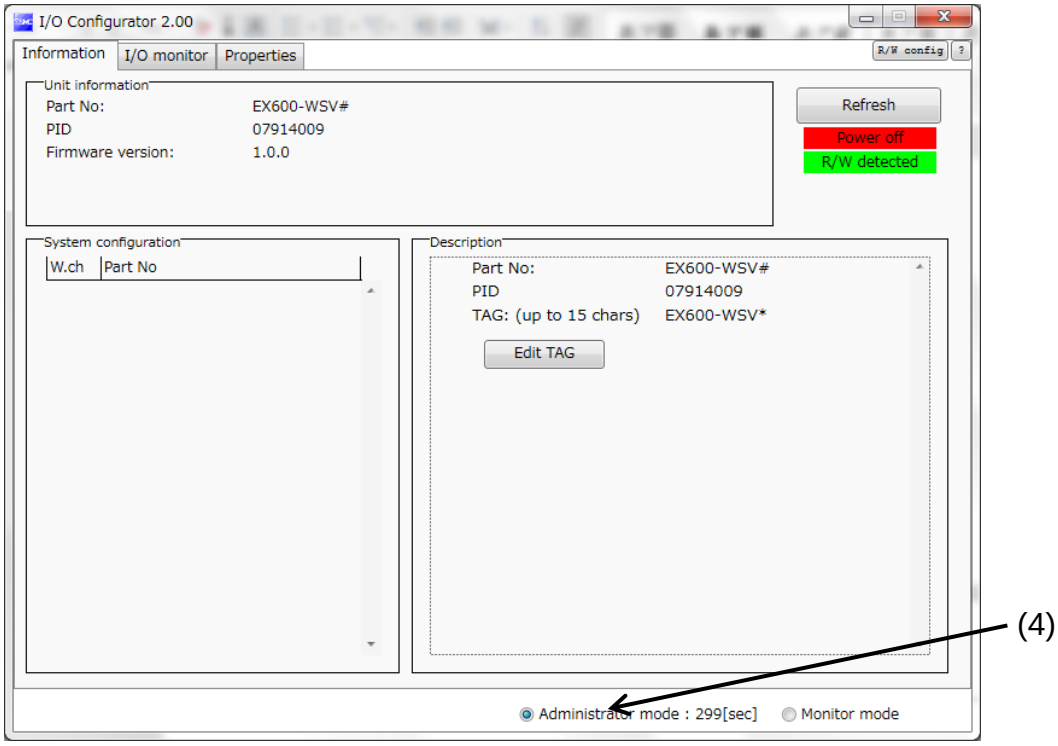
(1) Click the radio button for Administrator mode.
(2) Enter the password in the Password check window.
∗: The default password at the time of shipment from the factory is **admin**.
(3) When the following password input window is displayed, click **Confirm**.
"Password checking passed." is displayed when login is successful.
∗: When login is not successful, refer to 9. Troubleshooting (page 120).



Password check window

(4) Confirm that the radio button "Administrator mode" is checked during the login state.

∗: The mode is automatically changed to the monitor mode unless a mouse operation is made within 300 seconds in Administrator mode.



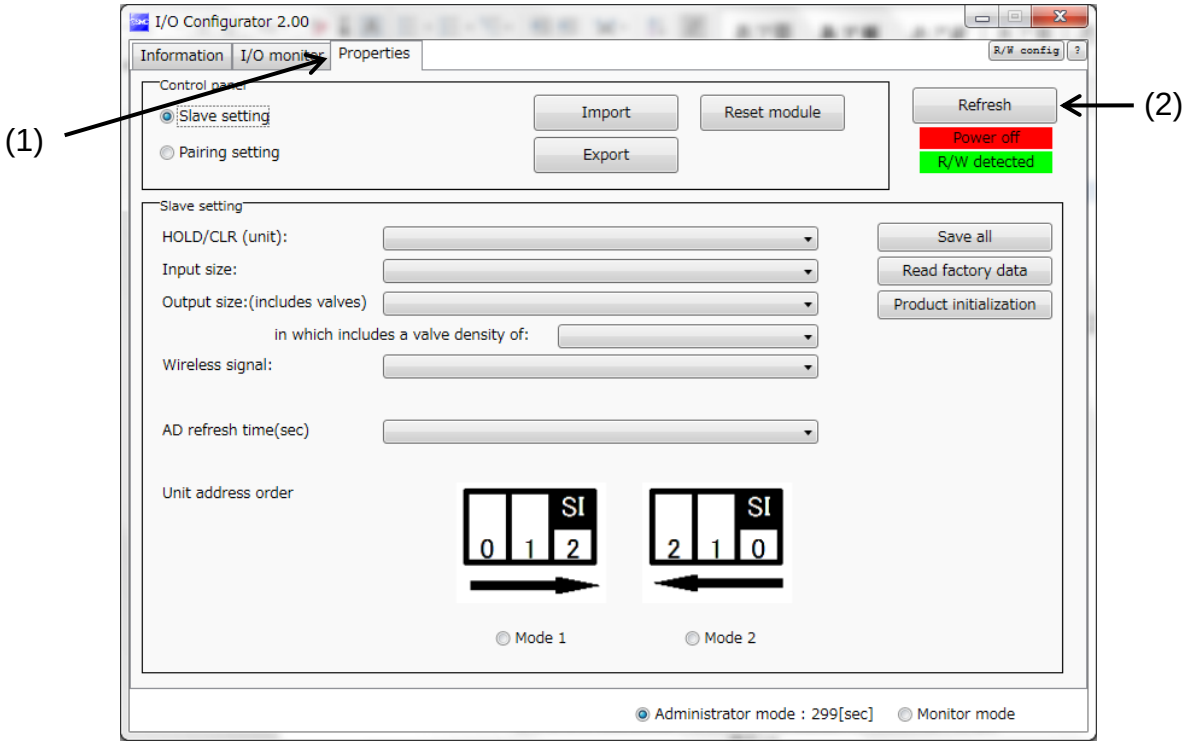
Window to complete login

6.4. (1) Input and output size of the wireless slave

STEP 3	**Change of parameter setting (wireless slave (1))**
STEP 4	**Change to pairing mode (wireless slave (1))**
STEP 5	**Change of parameter setting (wireless slave (2))**
STEP 6	**Change to pairing mode (wireless slave (2))**

STEP 3 Change of parameter setting (wireless slave (1))

(1) Click the Properties tab to move to the Slave setting window.
(2) Click the "Refresh" button to update the information in the Slave setting window for the slave unit.

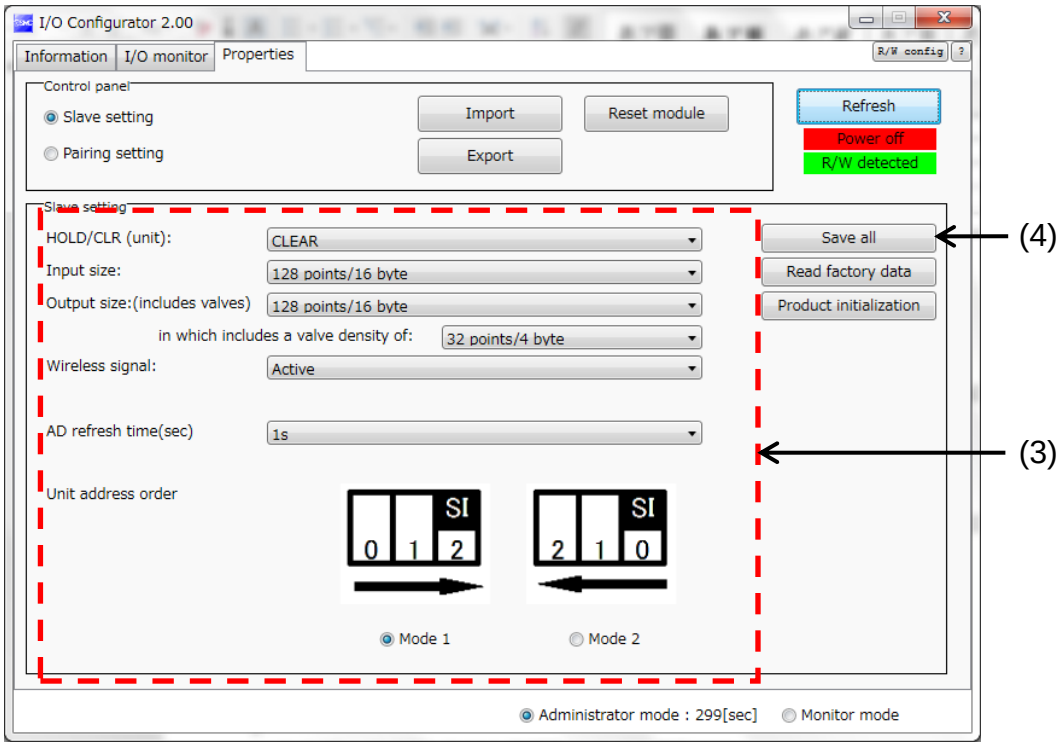


Slave unit setting window before updating (Wireless slave(1))

(3) Change the parameter setting of the wireless slave(1) to the values in the table for parameter setting.
(4) Click the "Save all" button to save the set values in the wireless slave (1).

Table for the change of parameter setting (wireless slave (1))

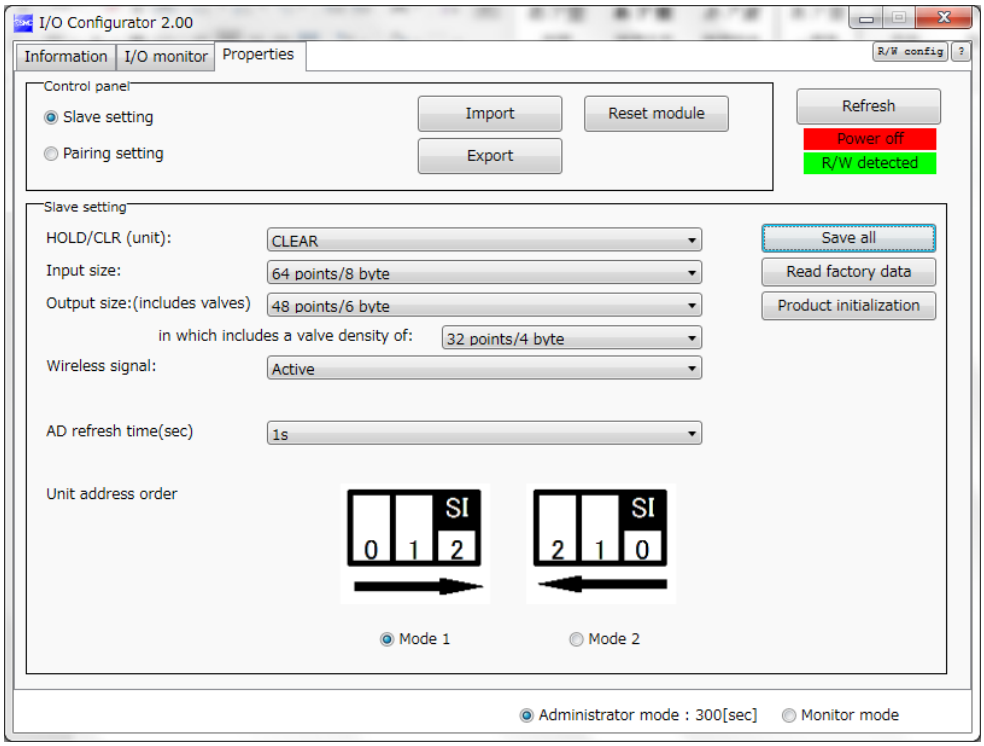
Setting items	Set value
Hold/Clear (unit)	Clear
Occupied points for the module input	64 point/8 byte
Occupied points for the module output	48 points/6 bytes
Occupied points for the valve manifold output	32 point/4 byte
Wireless communication	Active
Analogue input update time	1 s
I/O unit assignment direction	Mode 1



Default condition of the window for setting the slave unit (Wireless slave (1))

∗: Refer to 3.3.3.2. Setting window (page 38) for details of parameters.

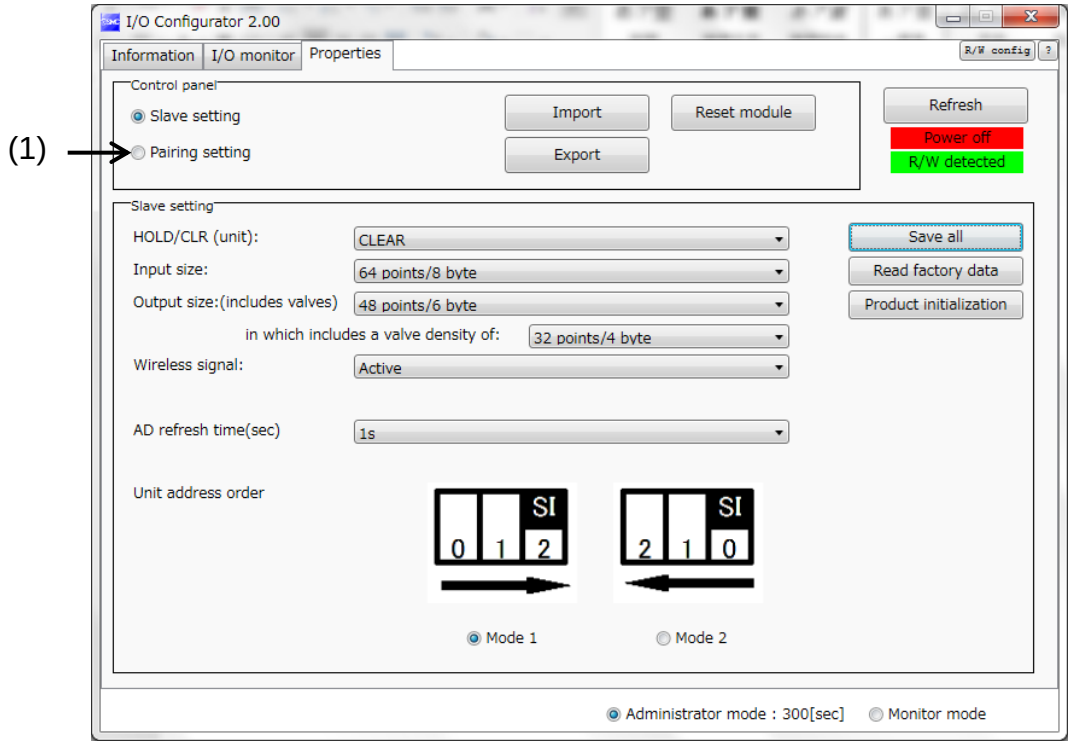
(5) The parameter setting of the wireless slave(1) is complete.



Slave unit setting window after setting (Wireless slave (1))

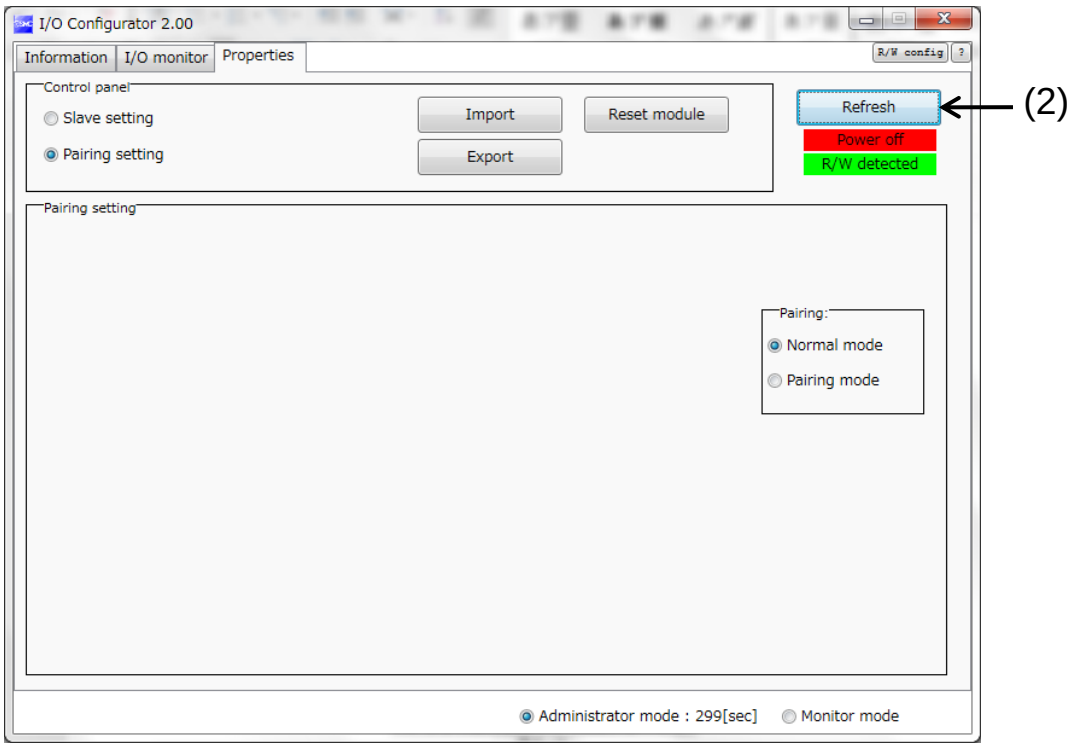
STEP 4 Change to pairing mode (wireless slave (1))

(1) Click the radio button for Pairing setting to move to the pairing setting window.



From the slave unit setting window to Pairing setting (wireless slave (1))

(2) Click the "Refresh" button to update the information in the Pairing setting window.

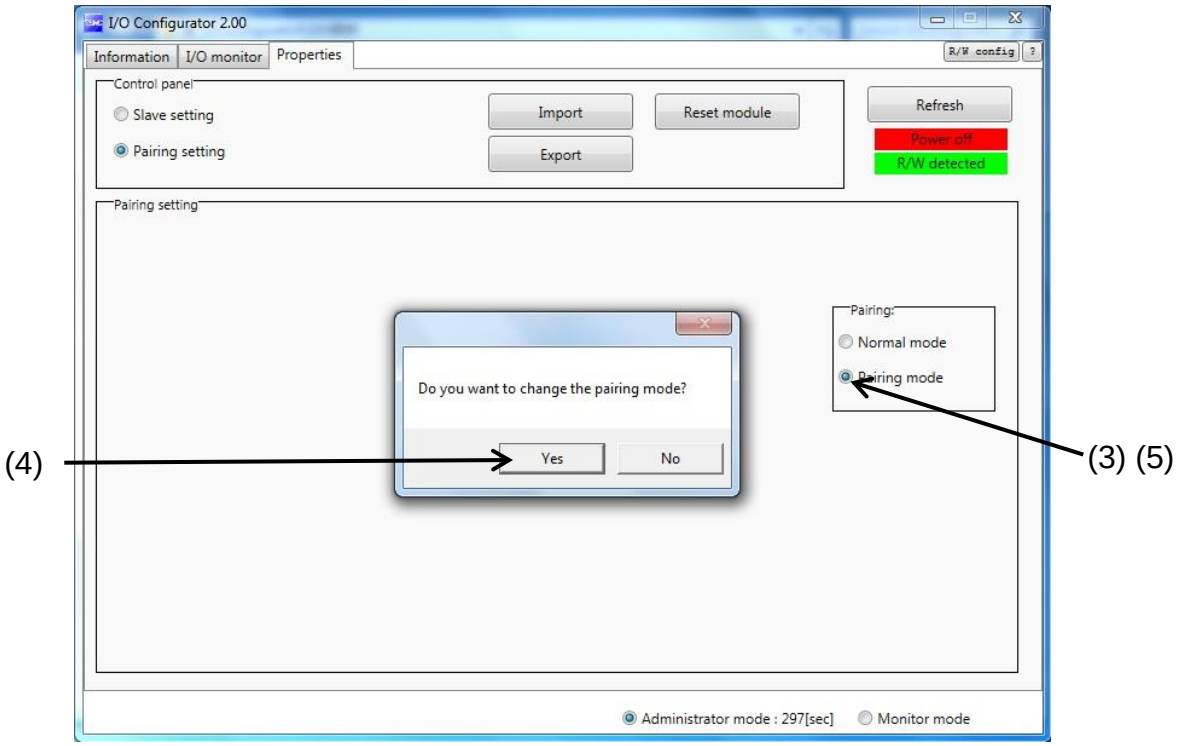


Pairing setting window (Wireless slave (1))

(3) Click the radio button for Pairing mode.
(4) Click Yes to change to the pairing mode.

∗: Slave reset is requested when the mode is changed to pairing mode. The slave cannot be reset when the power supply is not connected.

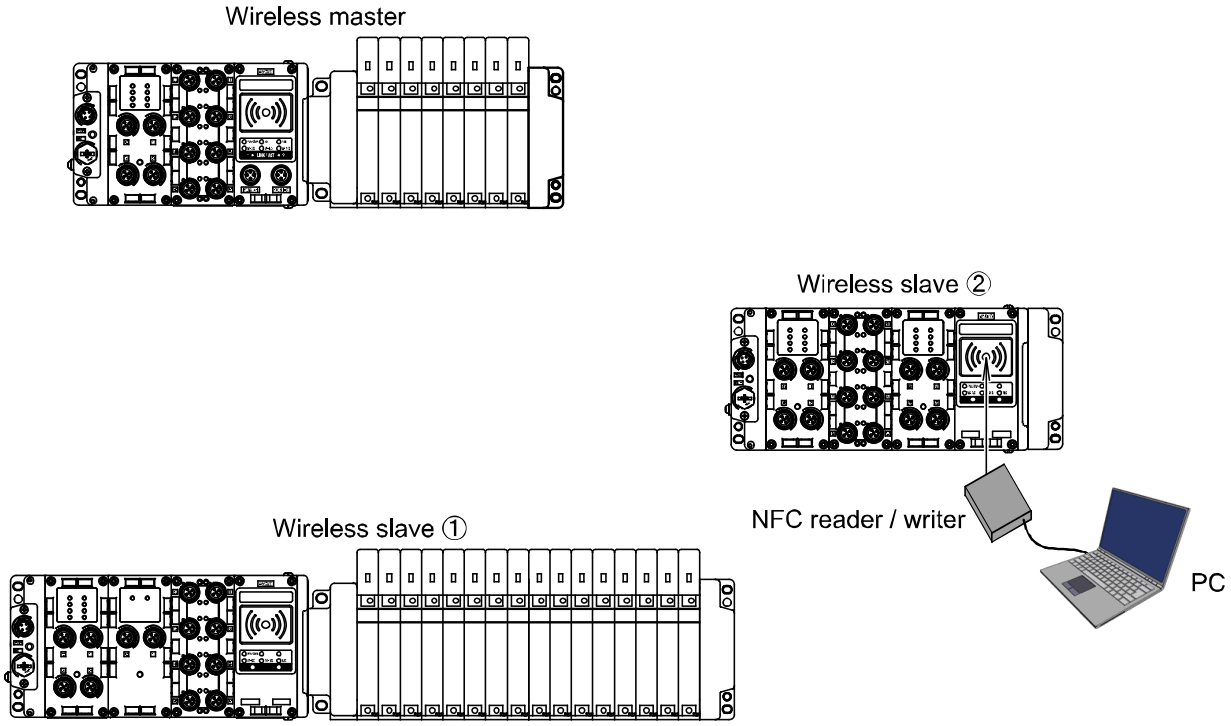
(5) Confirm that the radio button "Pairing mode" is checked.



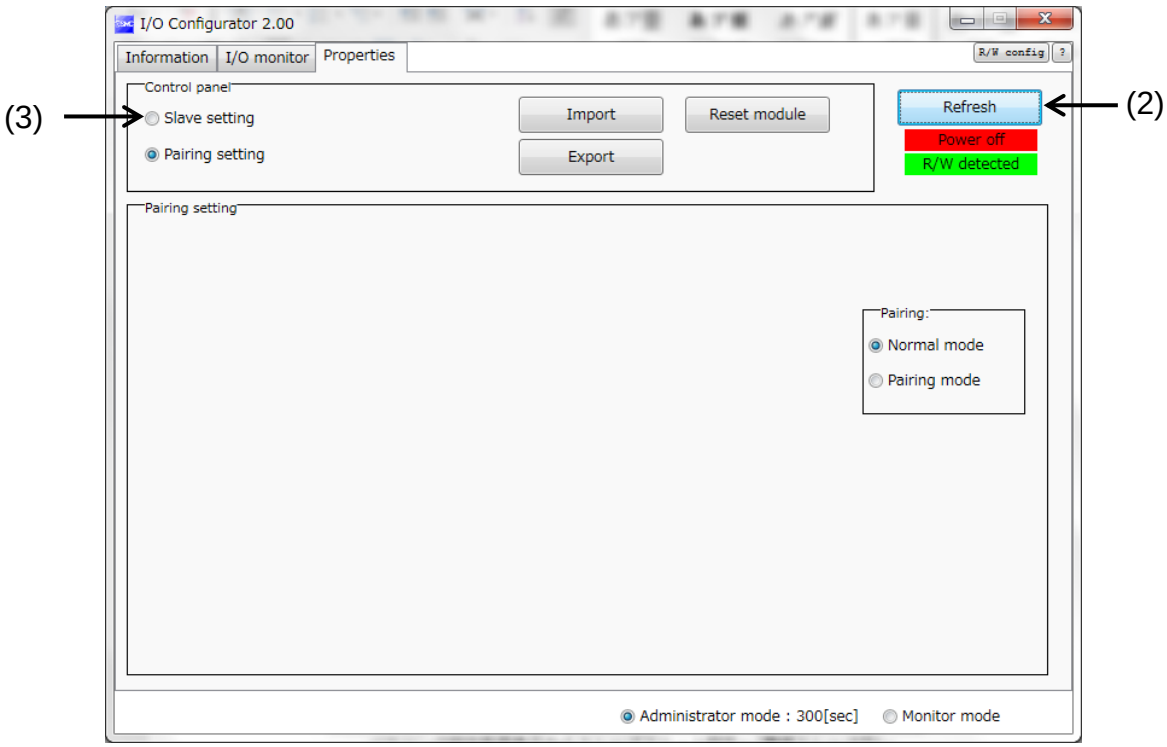
Pairing check window (Wireless slave (1))

STEP 5 Change of parameter setting (wireless slave (2))

(1) Hold the NFC reader/writer over the wireless slave (2).



(2) Click the "Refresh" button to update the window of the wireless slave (2).
(3) Click the radio button for Slave setting to move to the Slave unit setting window.

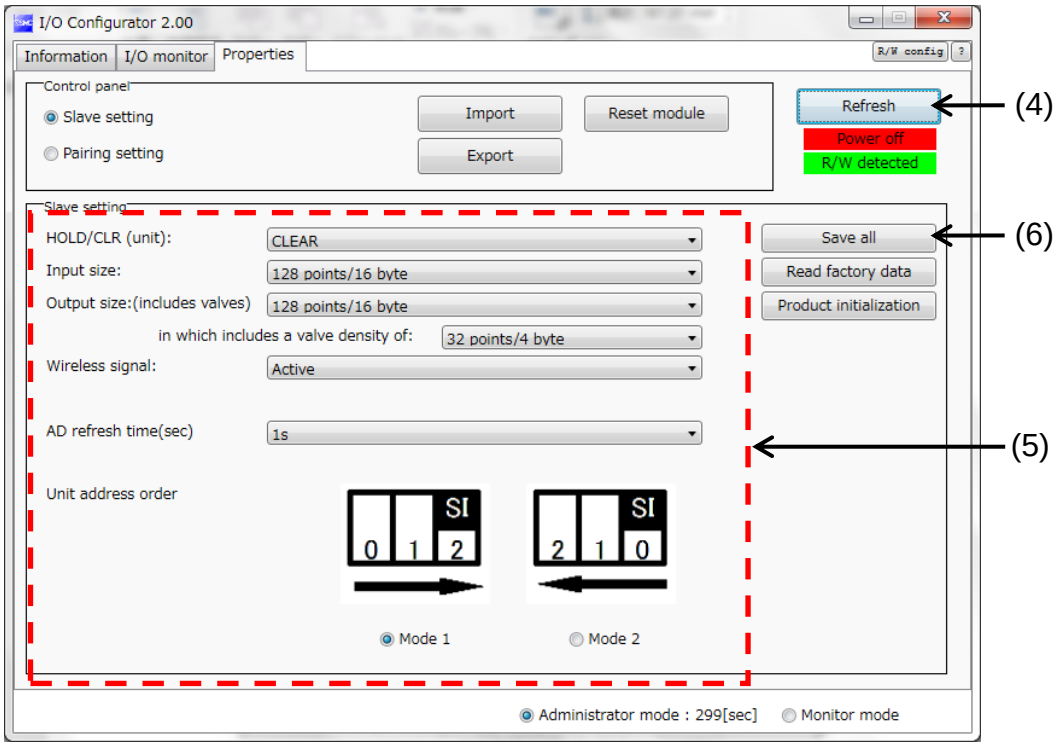


From the Pairing setting window to slave unit setting (wireless slave (2))

(4) Click the "Refresh" button to update the information in the Slave setting window for the slave unit.
(5) Change the parameter setting of the wireless slave(2) to the values in the table for parameter setting.
(6) Click the "Save all" button to save the set values in the wireless slave (2).

Table for the change of parameter setting (wireless slave (2))

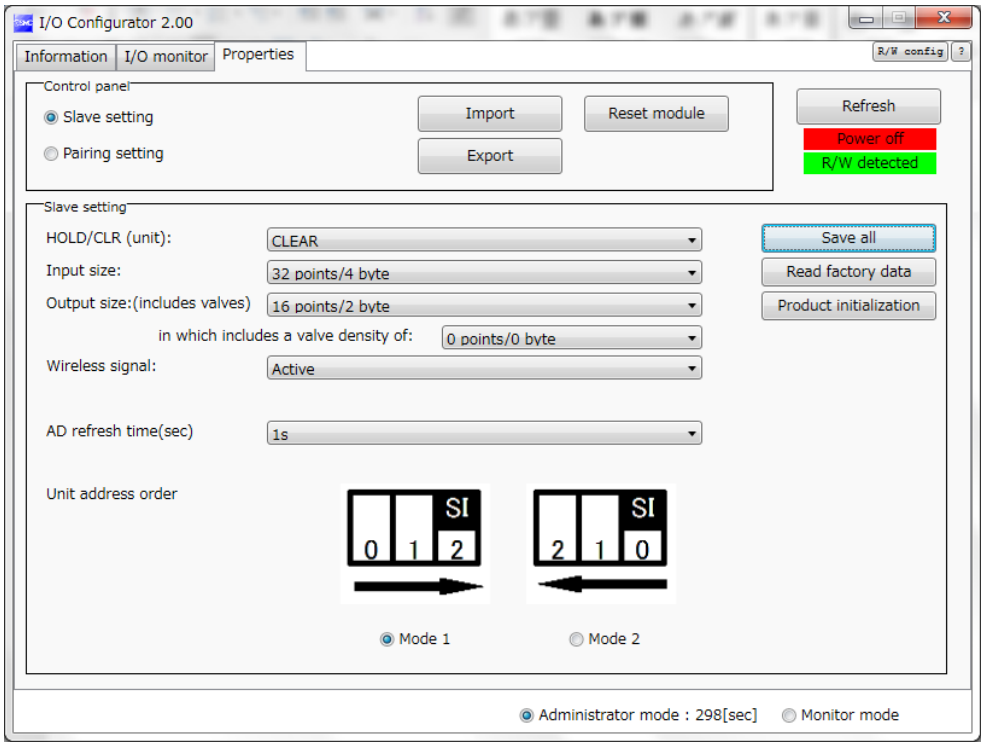
Setting items	Set value
Hold/Clear (unit)	CLEAR
Occupied points for the module input	32 point/4 byte
Occupied points for the module output	16 point/2 byte
Occupied points for the valve manifold output	0 point/0 byte
Wireless communication	Active
Analogue input update time	1 s
I/O unit assignment direction	Mode 1



Default condition of the window for setting the slave unit (Wireless slave(2))

∗: Refer to 3.3.3.2. Setting window (page 38) for details of parameters.

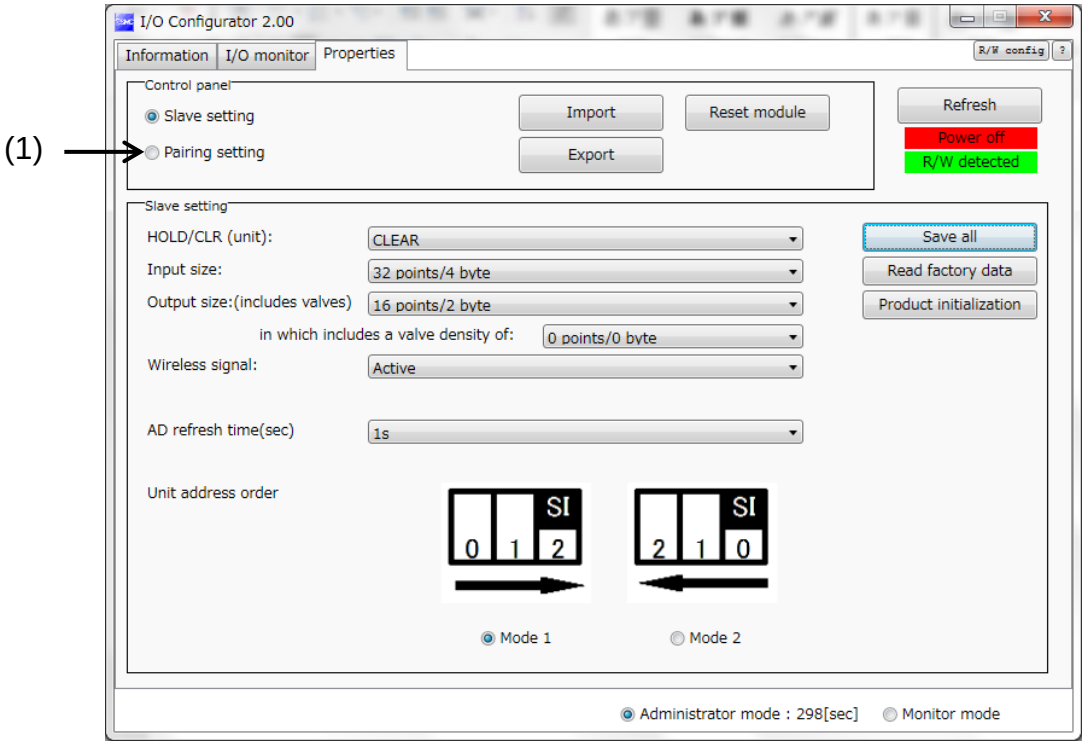
(6) The parameter setting of the wireless slave (2) is complete.



Slave unit setting window after setting (Wireless slave (2))

STEP 6 Change to pairing mode (wireless slave (2))

(1) Click the radio button for Pairing setting to move to the pairing setting window.

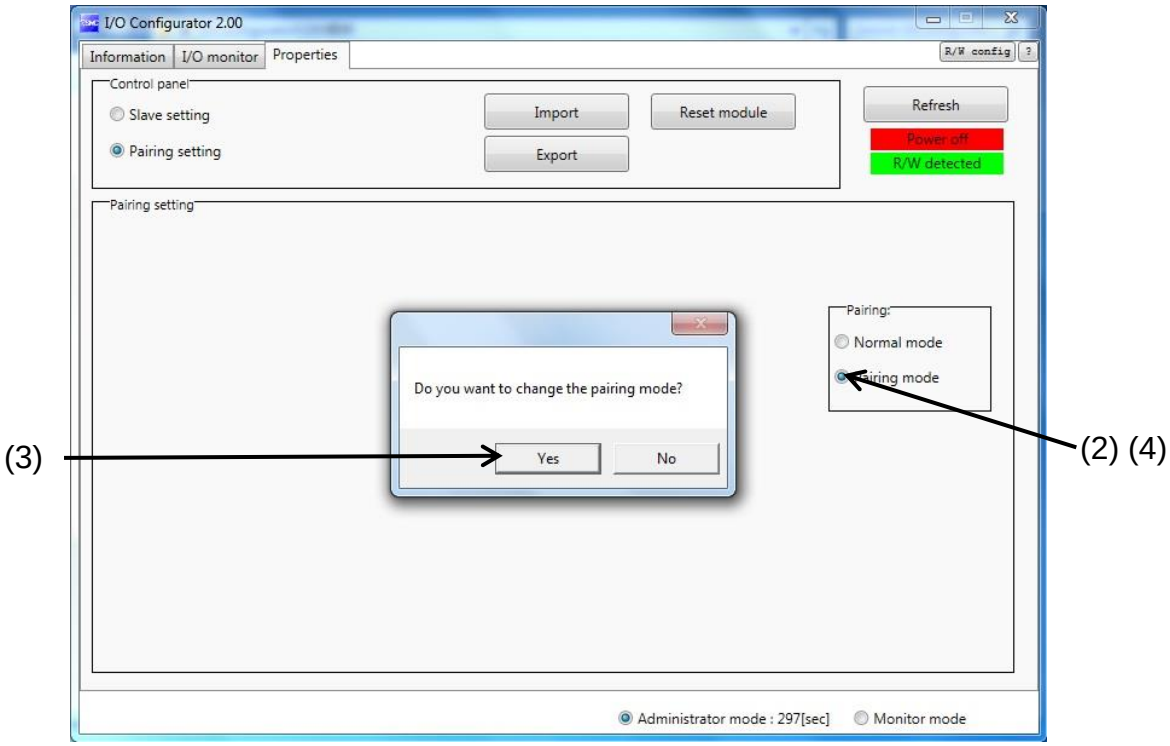


From the slave unit setting window to Pairing setting (wireless slave (2))

(2) Click the radio button for Pairing mode.
(3) Click Yes to change to pairing mode.

*: Slave reset is requested when the mode is changed to pairing mode. The slave cannot be reset when the power supply is not connected.

(4) Confirm that the radio button "Pairing mode" is checked.



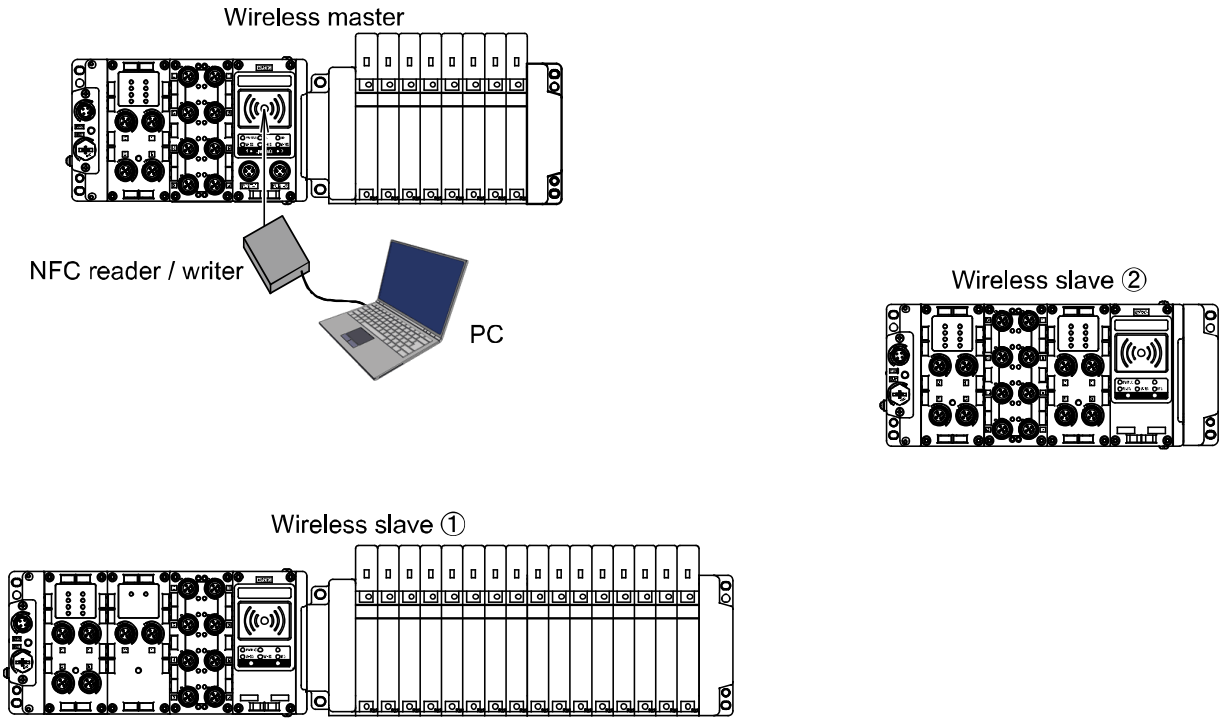
Pairing check window (Wireless slave (2))

6.5. Set the number of occupied I/O points for the module and each parameter of the (2) "wireless master"

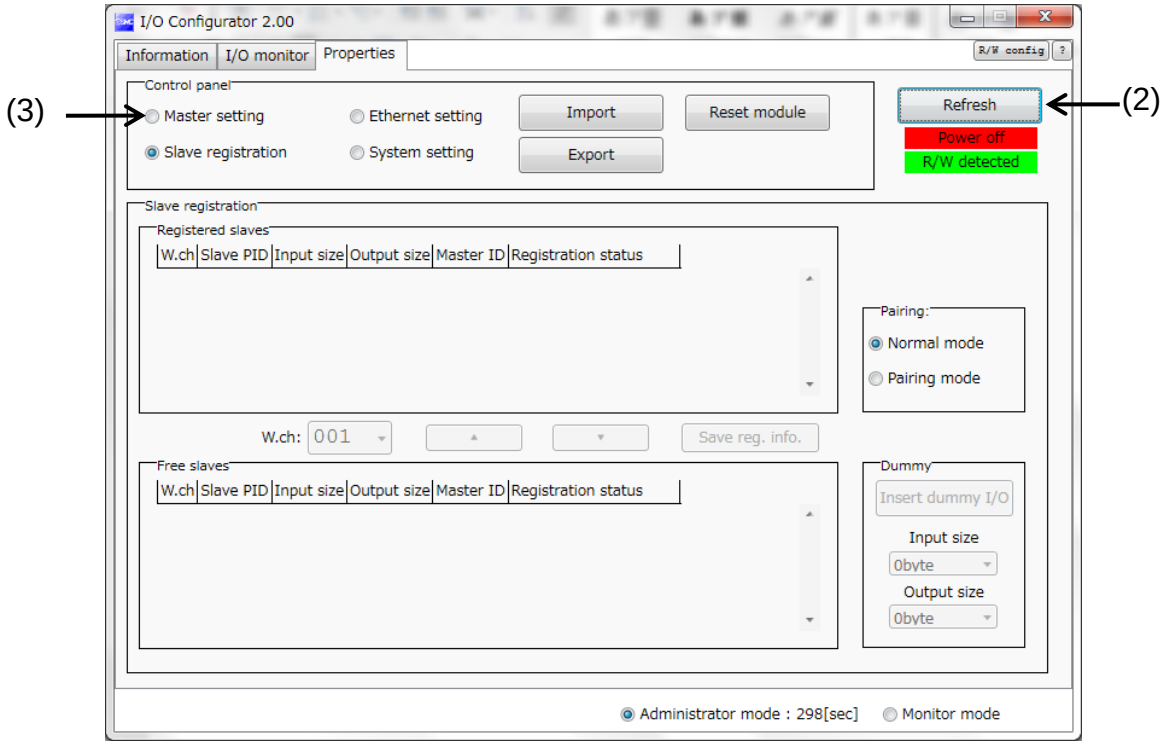
STEP 7 **Change of parameter setting**

STEP7 Change of parameter setting

(1) Hold the NFC reader/writer over the wireless master.

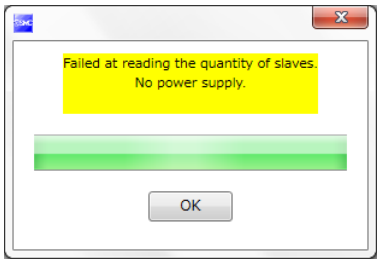


(2) Click the "Refresh" button to update the window of the wireless master.
(3) Click the radio button for the Master setting to move to the master unit setting window.



Moves to master unit setting

∗ Caution: The Power supply check window appears when power is not supplied to the wireless master.
Master unit setting can be changed when power is not supplied. Click the OK button to proceed.

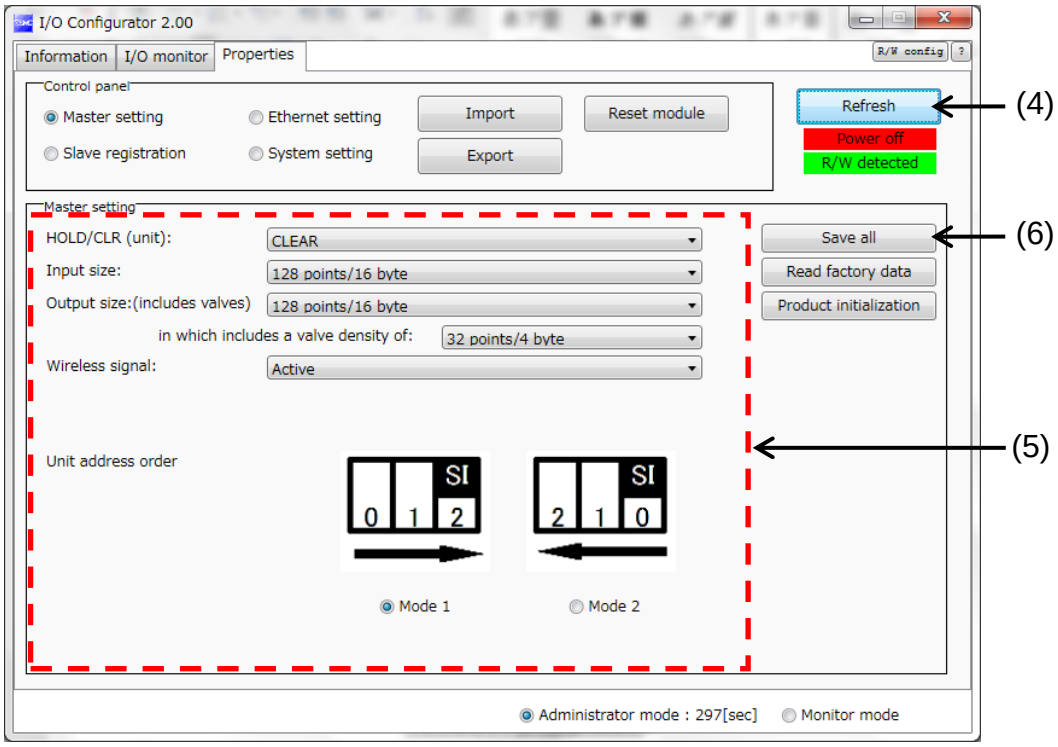


Power supply check window

(4) Click the "Refresh" button to update the information in the Master unit setting window.
(5) Change the parameter setting of the wireless master to the values in the table for parameter setting.
(6) Click the "Save all" button to save the set values in the wireless master.

Values for parameter setting

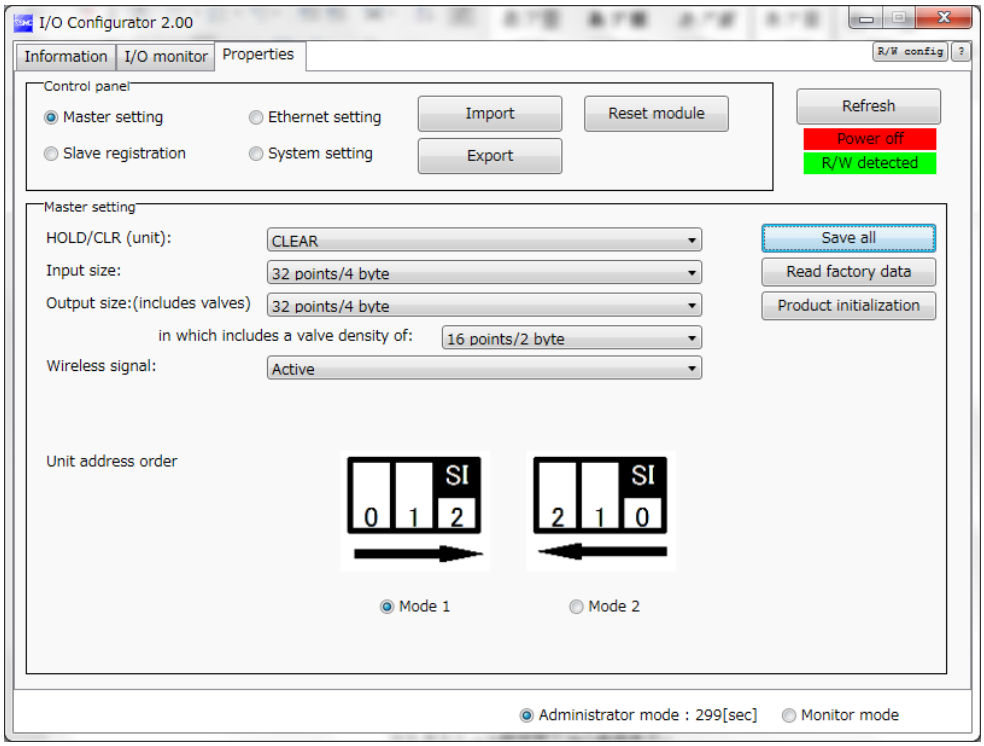
Setting items:	Set value
Hold/Clear (unit)	CLEAR
Occupied points for the module input	32 point/4 byte
Occupied points for the module output	32 point/4 byte
Occupied points for the valve manifold output	16 point/2 byte
Wireless communication	Active
I/O unit assignment direction	Mode 1



Default image of the Master unit setting window

*: Refer to 3.3.3.2. Setting window (page 38) for details of parameters.

(7) The parameter setting of the wireless master is complete.



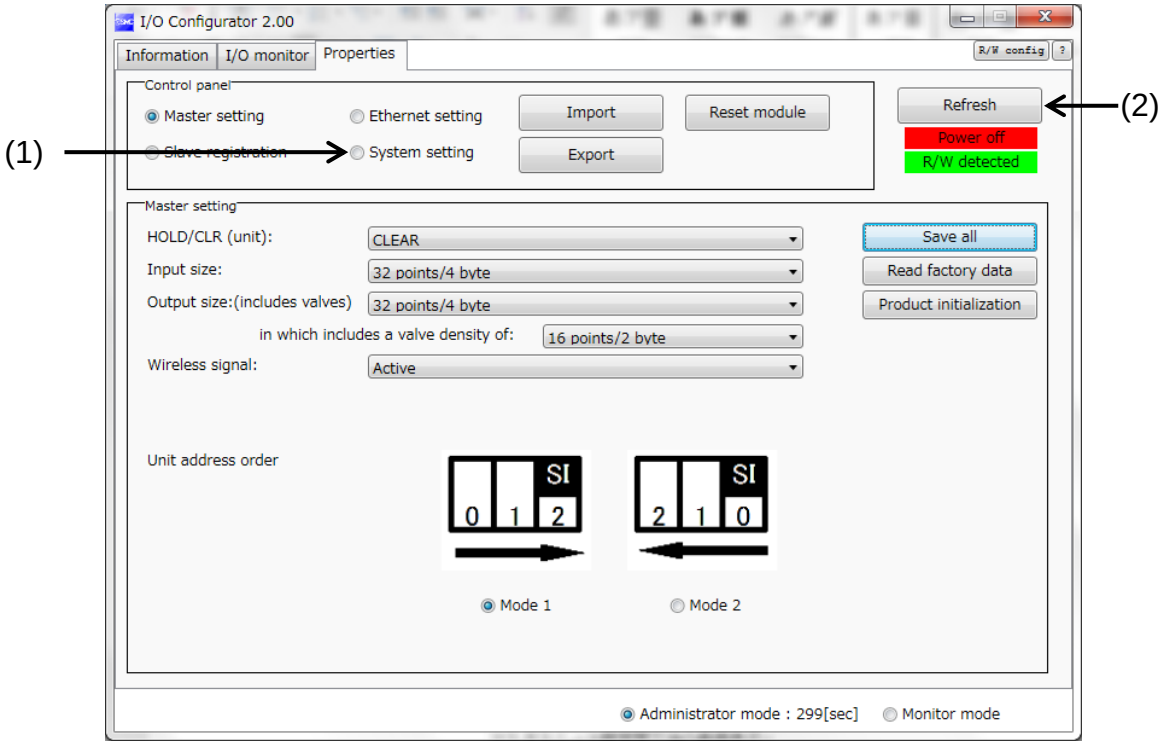
Master unit setting window after setting

6.6. (3) Set the "wireless master" system

STEP 8 **Change of system setting**

STEP8 Change of system setting

(1) Click the radio button for System setting to move to the system setting window.
(2) Click the Refresh button to update the information in the System setting window.

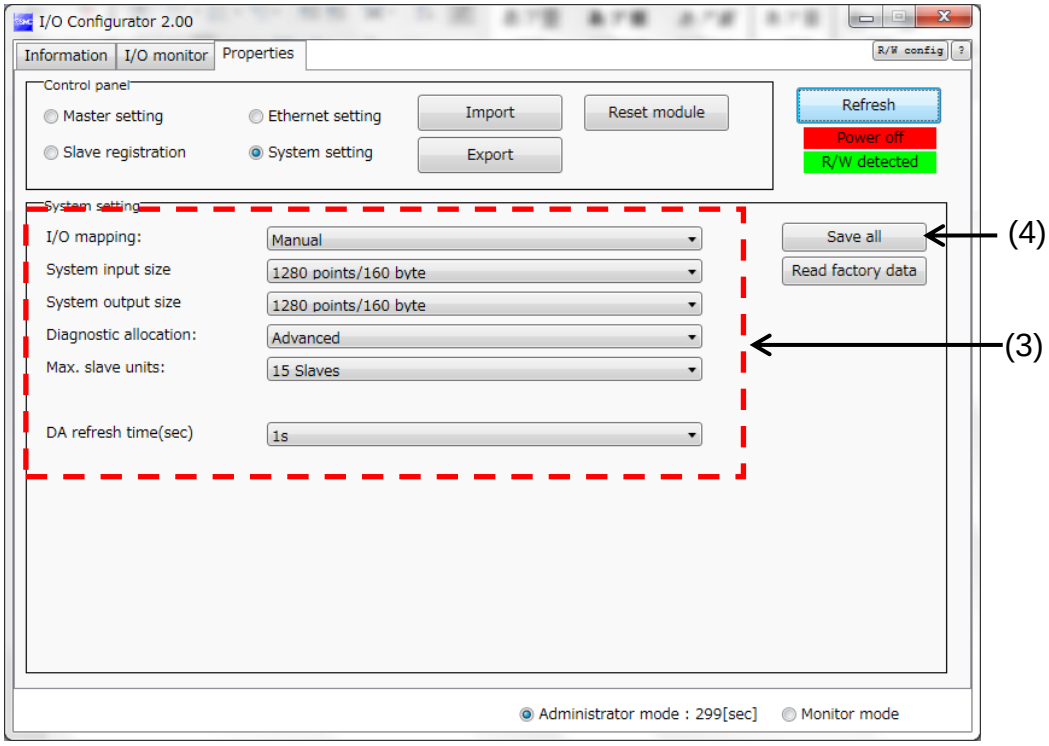


Master unit setting window to System setting

(3) Change the system settings of the wireless master to the values in the table for system setting.
(4) Click the "Save all" button to save the set values in the wireless master.

Values for system setting

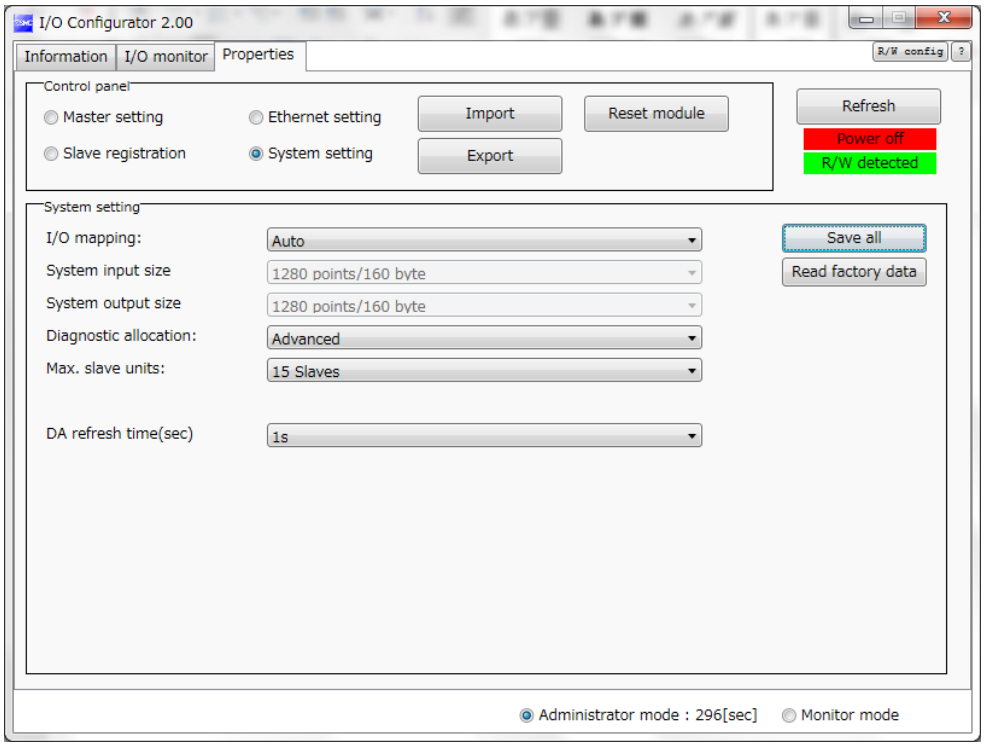
Setting items	Set value
I/O assignment	Automatic assignment
System input size	-
System output size	-
Diagnostic allocation	Details
Number of registered slave	15 pcs.
Analogue output update time	1 s



Default image of the System setting window

∗: Refer to 3.3.3.2. Setting window (page 38) for details of parameters.
∗: System input and output size cannot be set when automatic I/O mapping is set.

(5) The system setting of the wireless master is complete.



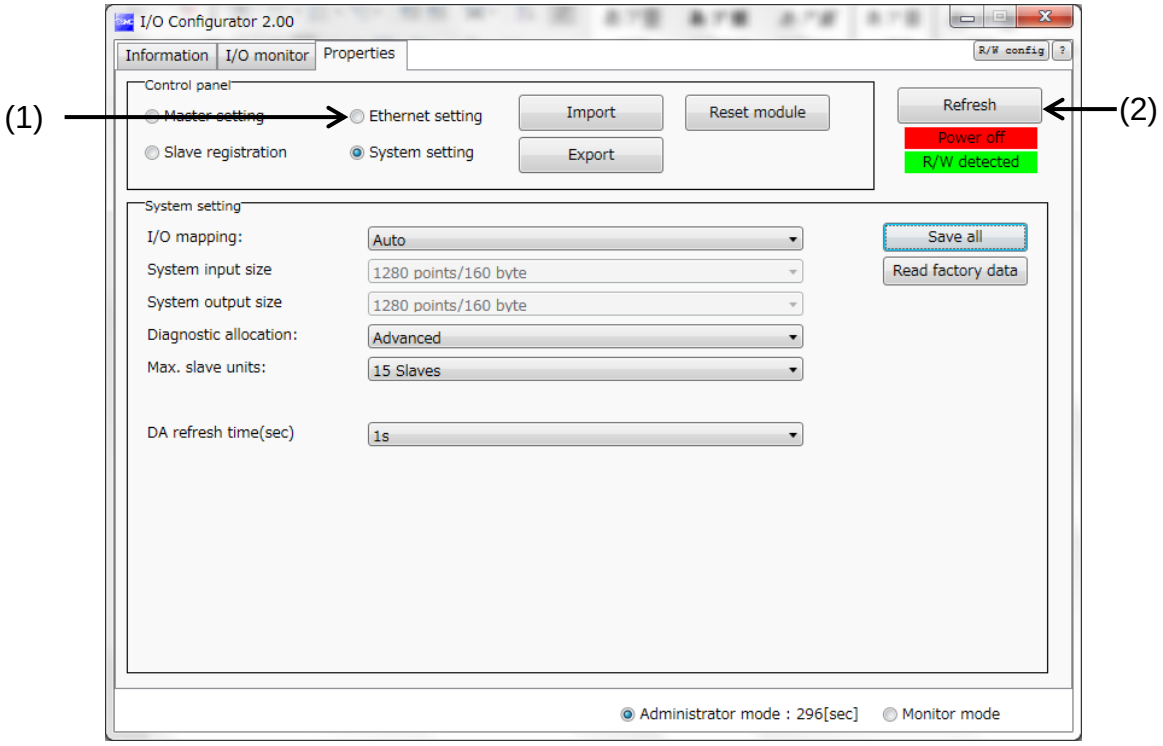
System unit setting window after setting

6.7. (7) Ethernet setting for the wireless master

STEP 9 **Change of Ethernet setting**

STEP9 Change of Ethernet setting

(1) Click the radio button for Ethernet setting to move to the Ethernet setting window.
(2) Click the Refresh button to update the information in the Ethernet setting window.



System setting window to Ethernet setting

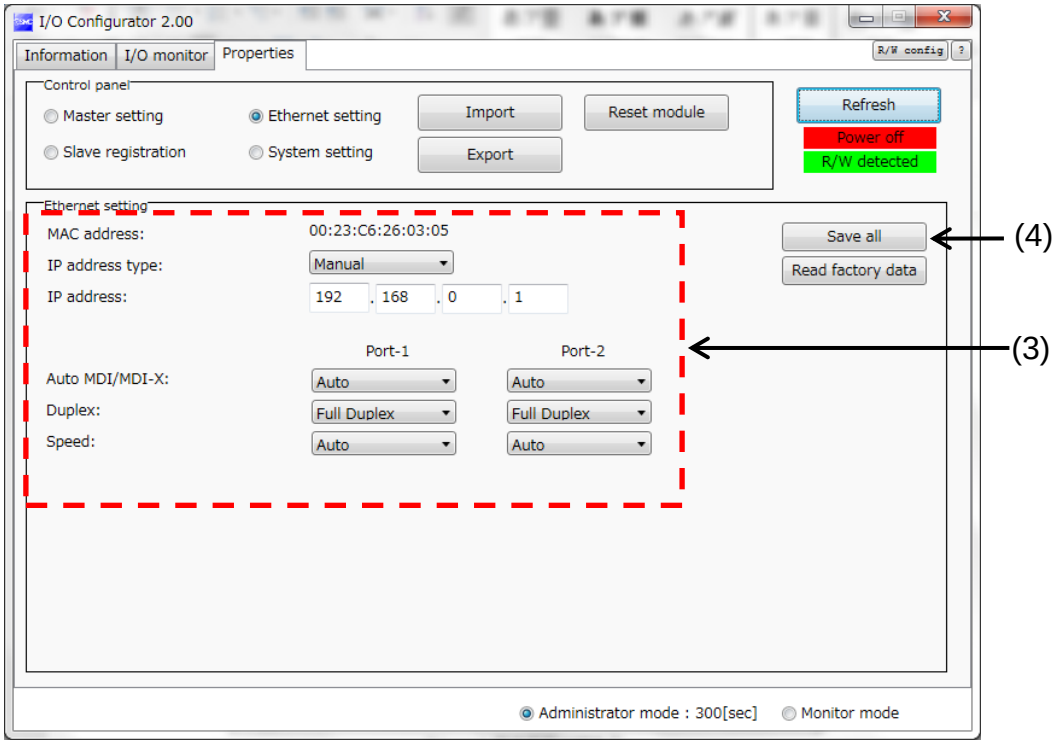
(3) Change the Ethernet setting of the wireless master to the Ethernet setting table.

∗: Set the IP address based on the operating network environment. Set the IP address so that the address is not duplicated with other Ehternet equipment.

(4) Click the "Save all" button to save the set values in the wireless master.

Ethernet setting table

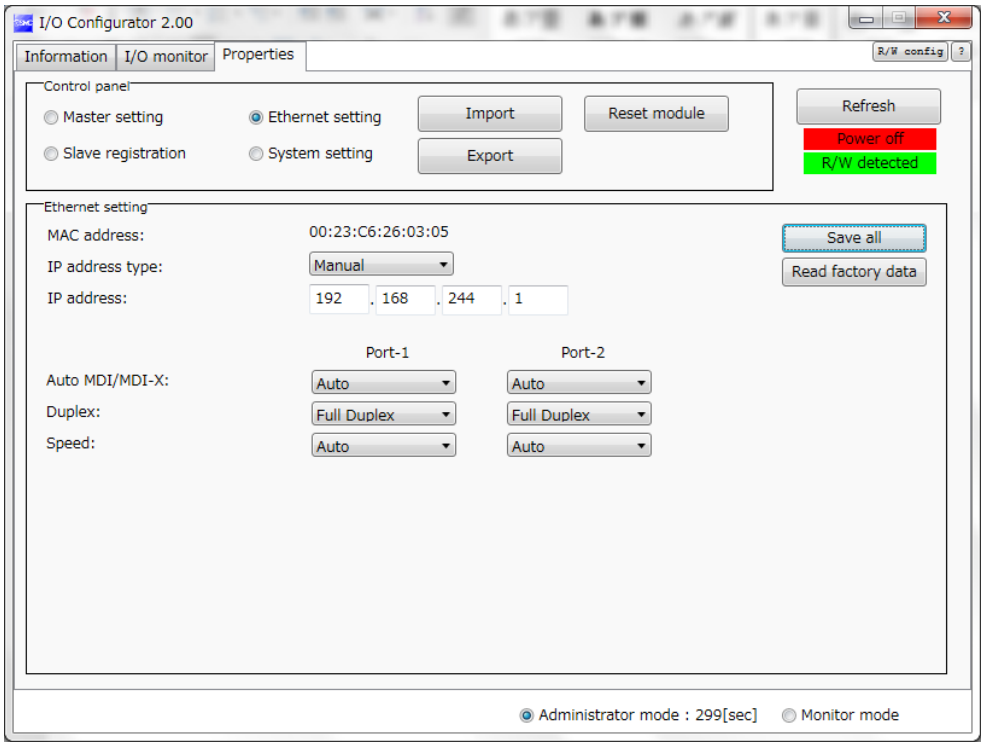
Setting items	Set value
IP address setting mode	Manual
IP address	(192.168.244.1)
Auto MDI/MDI-X	Port-1: Auto Port-2: Auto
Duplex	Port-1:Full Duplex Port-2:Full Duplex
Speed	Port-1: Auto Port-2: Auto



Default image of the Ethernet setting window

∗: Refer to 3.3.3.2. Setting window (page 38) for details of parameters.

(5) The Ethernet setting of the wireless master is complete.



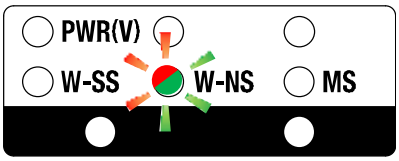
Ethernet setting window after setting

6.8. (4) Registration of wireless slave to the wireless master (pairing)

STEP 10	**Move the wireless master and slave to Pairing mode**
STEP 11	**Select the wireless slave to be registered**
STEP 12	**The Wireless master gives a command to register the wireless slave**
STEP 13	**Check the wireless connection**

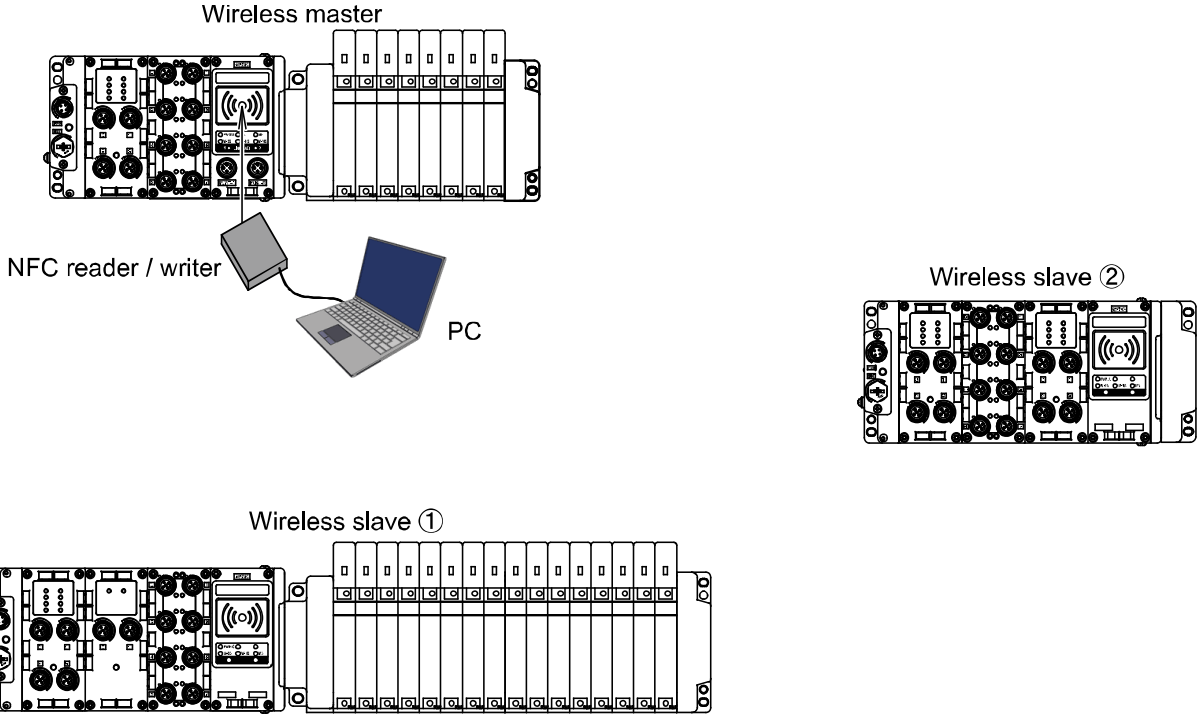
STEP 10 Move the wireless master and slave to Pairing mode

(1) Supply power to the wireless master and wireless slave ((1) and (2)).
(2) The Pairing status of the wireless slave (1) and (2) can be checked by the status indication LED: W-NS. When they are in pairing mode, the status indication LED: W-NS flashes red and green in turn. When they are not in pairing mode, refer to STEP 4 or STEP 6 of 6.4. (1) Input and output size of the wireless slave.

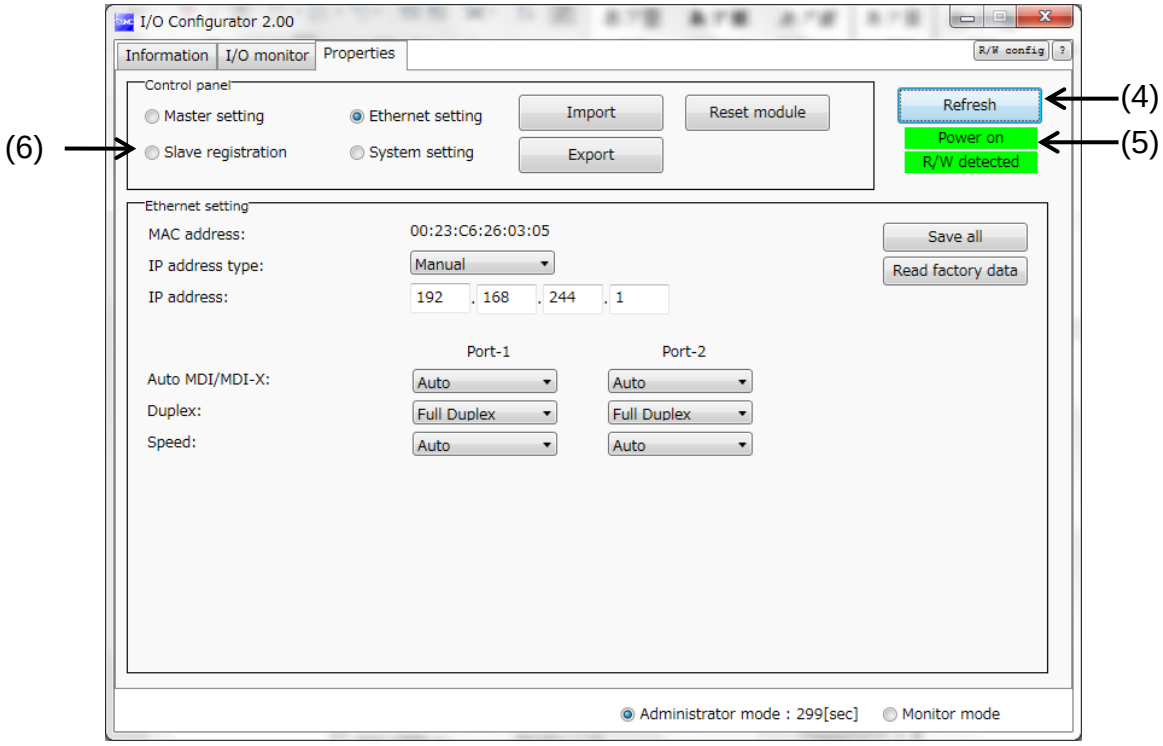


LED in pairing mode (wireless slave))

(3) Hold the NFC reader/writer over the wireless master.

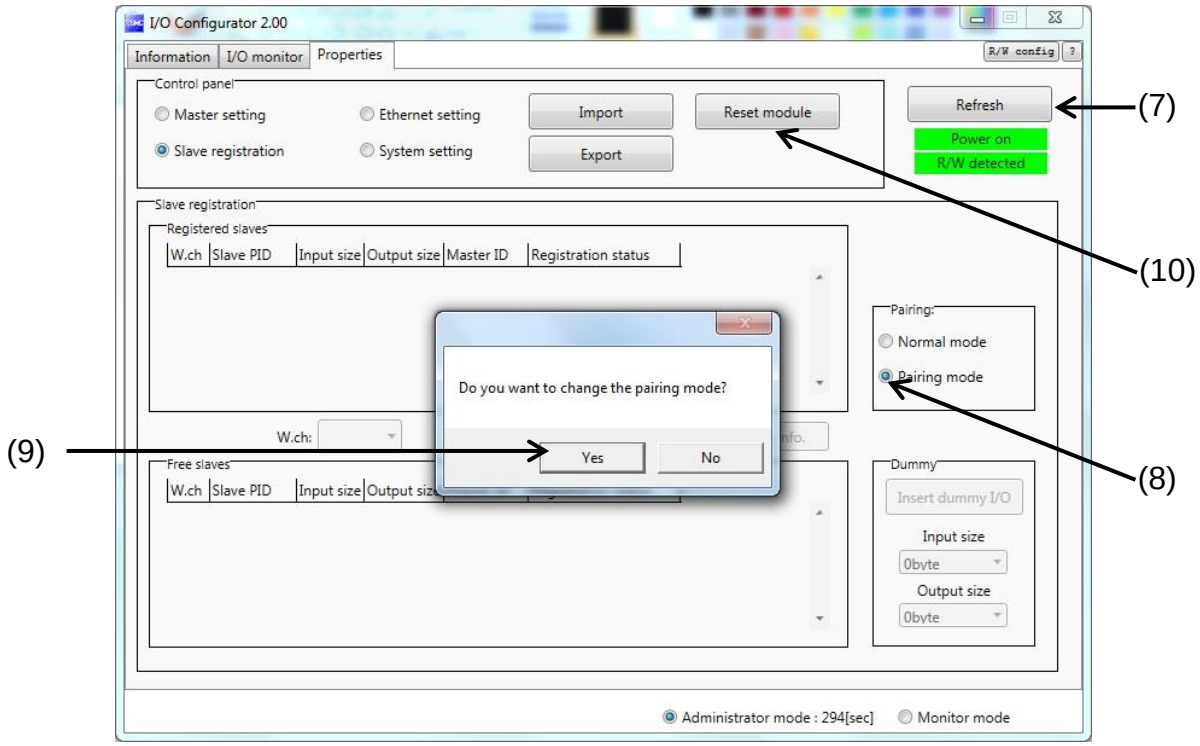


(4) Click the Refresh button to update the information in the setting tab window.
(5) Check that the Power on button in the power supply monitor is green.
(6) Click the radio button for Slave registration to move to the Slave unit registration window.



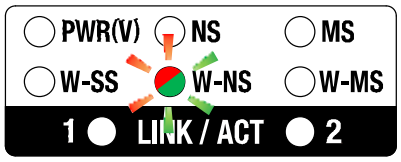
From the Ethernet setting window to slave unit registration

(7) Click the "Refresh" button to update the information in the Slave registration window.
(8) Click the radio button for Pairing mode.
(9) Click Yes to change to pairing mode.
(10) Click the "Refresh" button to move to Pairing mode.



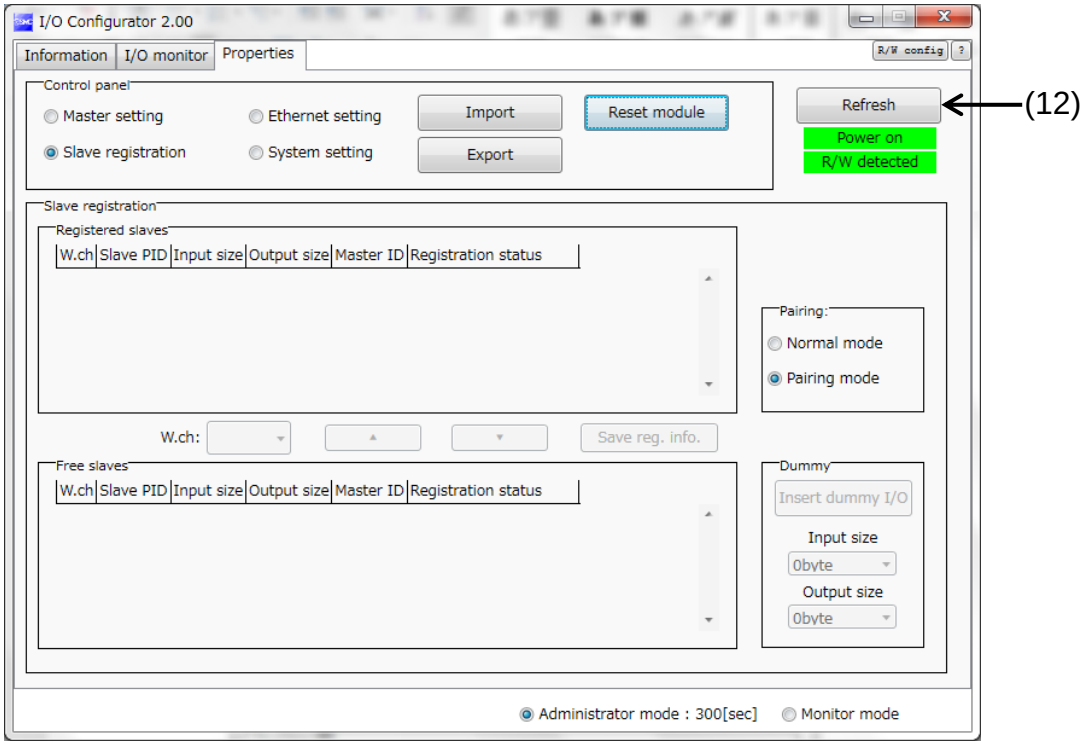
Slave unit registration window (move the wireless master to the Pairing mode)

(11) The Pairing status of the wireless master can be checked by the status indication LED: W-NS. When they are in pairing mode, the status indication LED: W-NS flashes red and green in turn. When the mode is not changed to Pairing mode, perform the step (7) to (10) again.



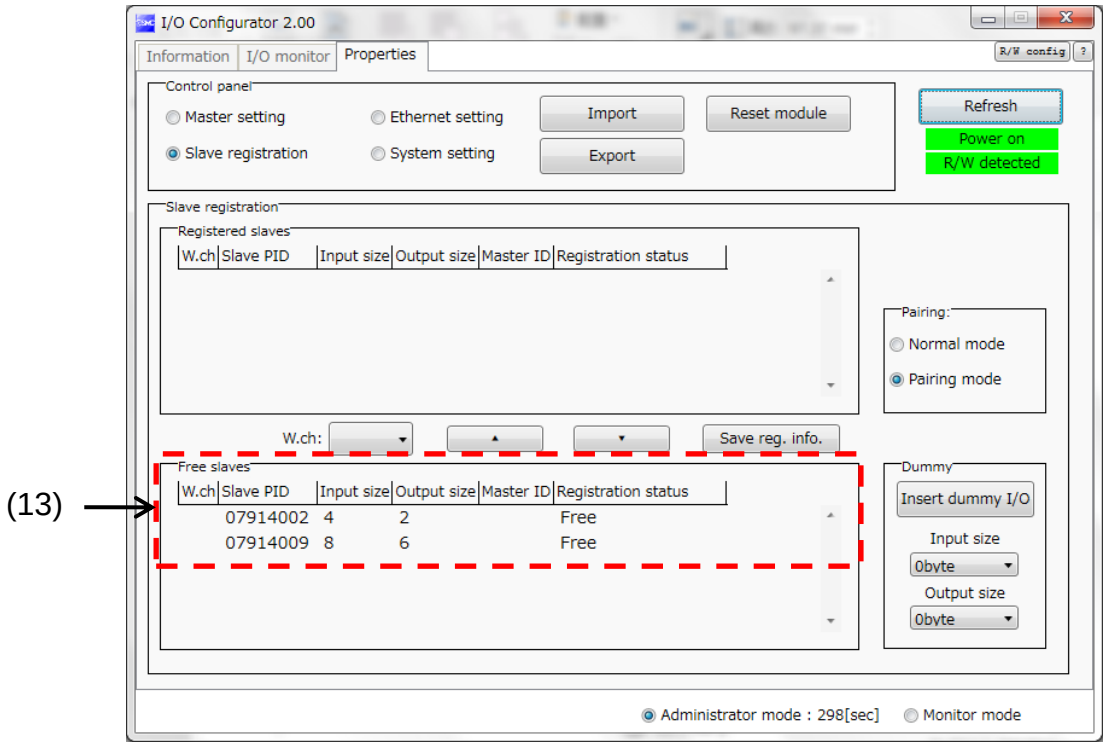
LED in pairing mode (wireless master)

(12) Click the Refresh button to update the information in the setting tab window.
Click OK in the Pairing mode check window.



Update the slave unit registration window

(13) Confirm that the wireless slave is displayed in the Free slaves area.



Slave unit registration window (check Free slaves)

< Caution >

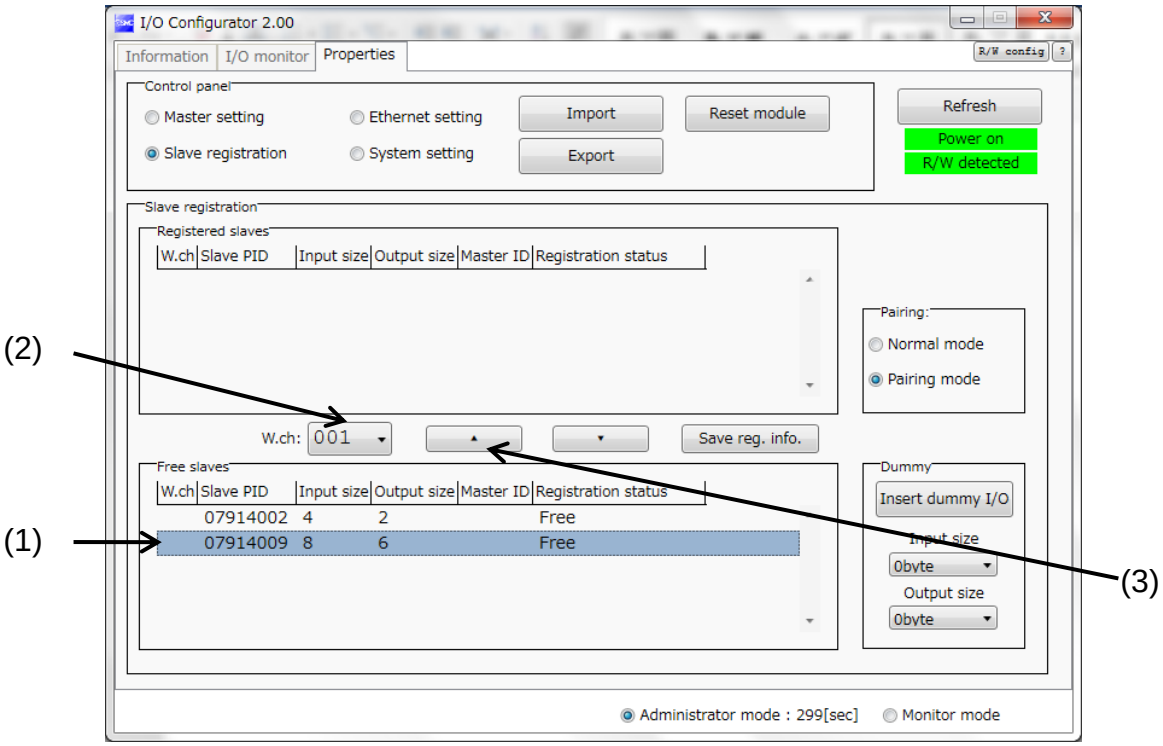
•When the wireless master/slave is moved to pairing mode, the W-SS LED flashes red and green in turn. W-SS indicates the received power level of the connected wireless slave. When the wireless slave and master are connected, the LED turns on and flashes (1Hz/2Hz). Red flashing LED indicates the wireless master is not identified.

•When the wireless slave is not displayed in the Free slaves area, perform Refresh a few times or check the W-SS LED on the wireless slave. A Red flashing LED indicates that the distance is too close or too far. Adjust the distance between the wireless master and slave until the LED turns on or flashes green.

•When the wireless slave is not displayed in the Free slaves area, check that the communication status is Active.

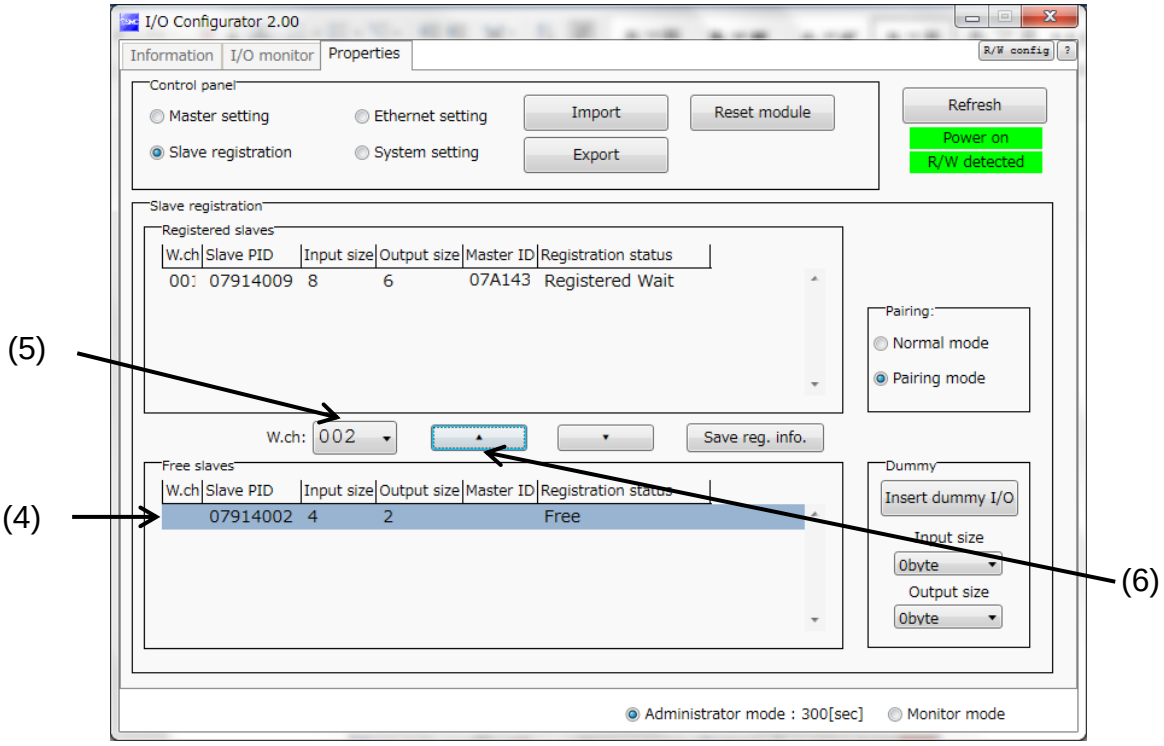
STEP 11 Select the wireless slave to be registered

(1) Select the wireless slave to be registered (1) (PID:07914009)
(2) Select the wireless channel (001) of the wireless slave(1) to be registered.
(3) Click the "▲".



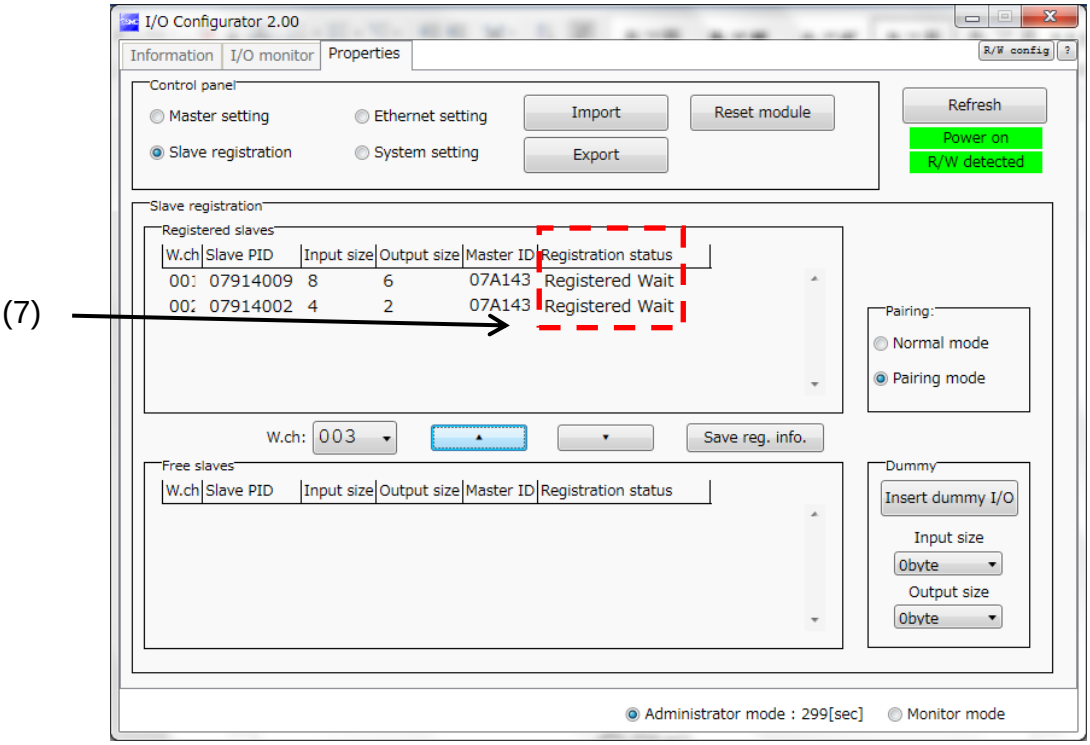
Slave unit registration window (wireless channel: 001 is selected)

(4) Select the wireless slave to be registered (2) (PID: 07914002)
(5) Select the wireless channel (002) of the wireless slave(2) to be registered.
(6) Click the "▲".



Slave unit registration window (wireless channel: 002 is selected)

(7) Make sure that the registration status is Registered Wait.

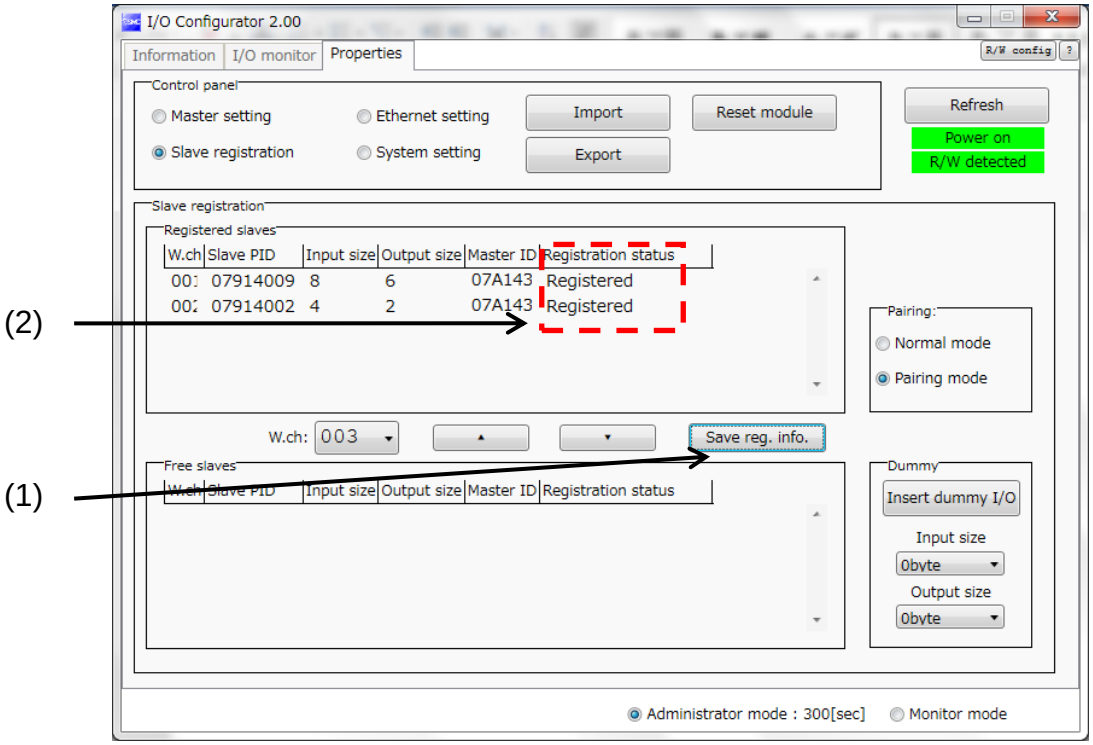


Slave unit registration window (check the registration status)

STEP 12 Wireless master gives a command for registration

(1) Click the "Save reg. info". button for the wireless master to send a command for registration.
(2) Make sure that the registration status of the wireless slave is Registered.

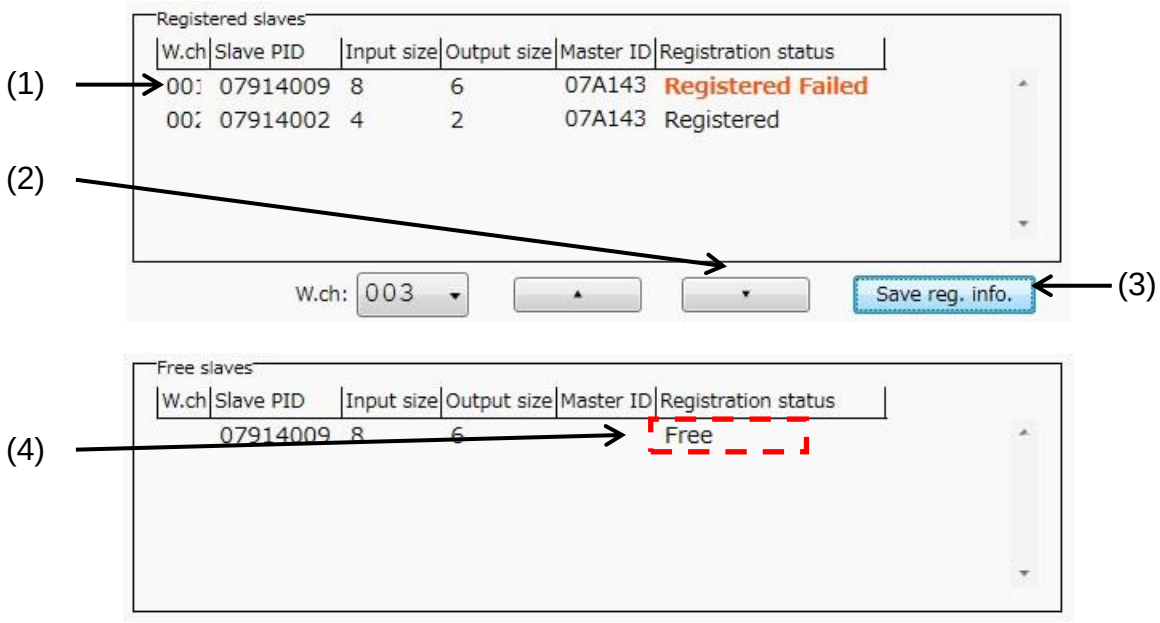
∗: The pairing mode of the registered wireless slave is automatically released and the wireless slave is reset. Pairing setting becomes unavailable.



Slave unit registration window (registration command from the wireless master)

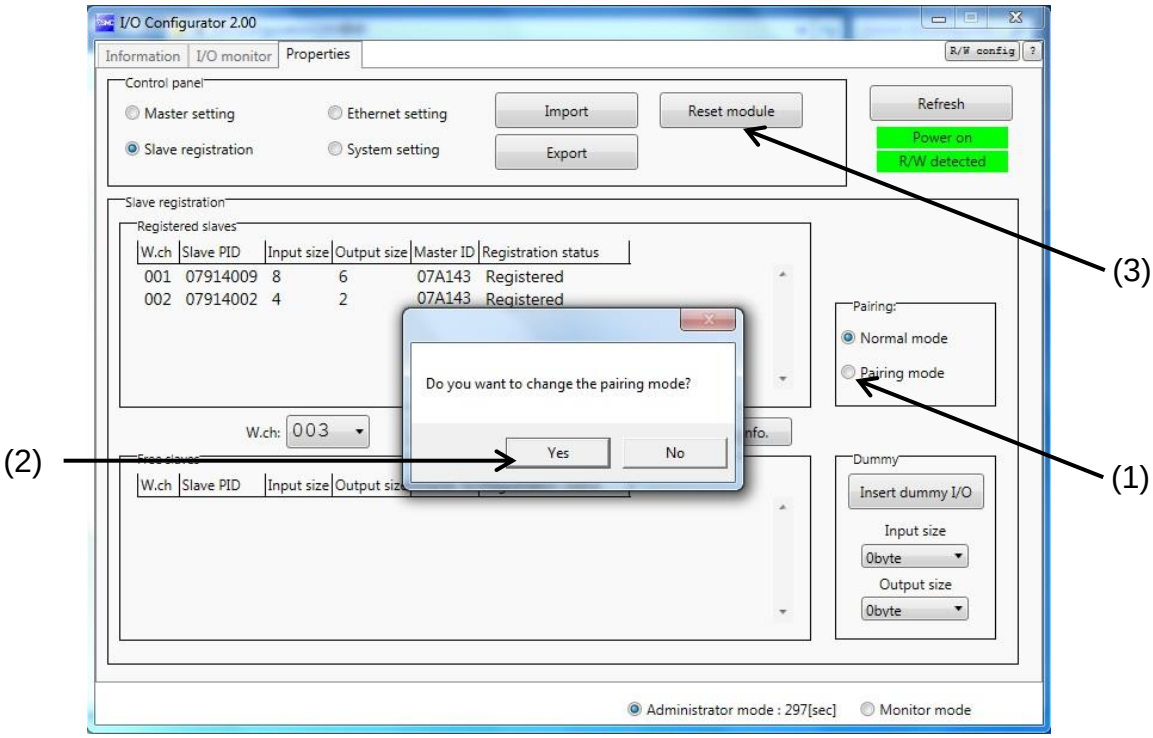
< How to delete the wireless slave for which registration failed >
Perform pairing for the wireless slave which failed registration.
In order to register the wireless slave again, it is necessary to delete the wireless slave which failed registration. The procedure to delete is as follows:.

(1) Select the wireless slave for which registration failed.
(2) Click the ▼ button. The window to check the selected slave to be deleted appears. Click Yes.
(3) Click the "Save reg. info". button.
(4) Confirm that Free is displayed for the Registration status of the Free slaves.



STEP 13 Check the wireless connection

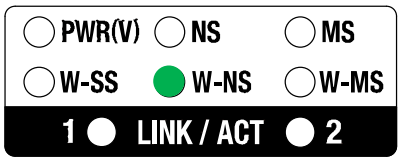
(1) Click the Normal mode button for Pairing:.
(2) Click Yes to change to pairing mode.
(3) Click the "Reset" button to release the pairing mode.



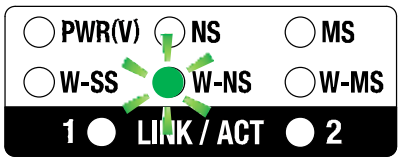
Slave unit registration window (release the pairing mode of the wireless master)

(4) Confirm that wireless communication is established on the status indication LED of the wireless master.

•LED: W-NS turns on green when all wireless slaves are connected.

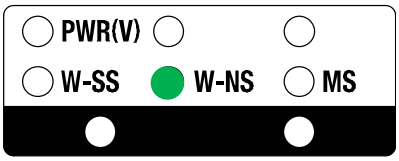


•LED: W-NS flashes green when some wireless slaves are connected.

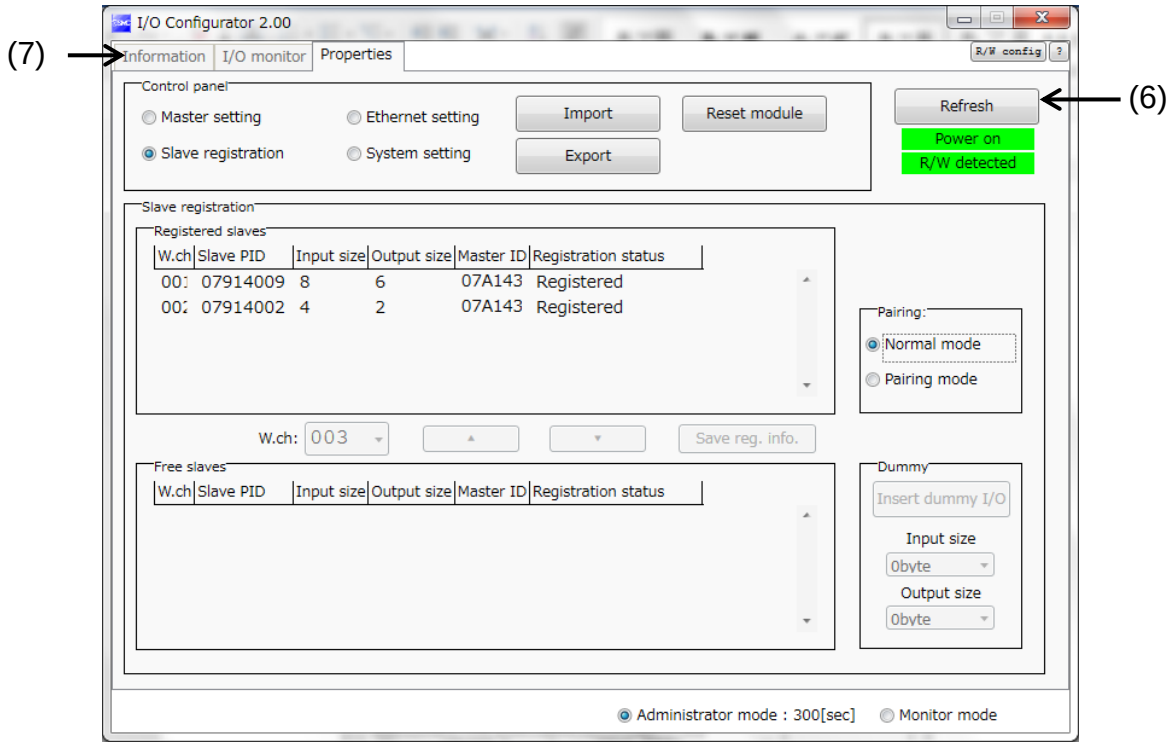


(5) Confirm that wireless communication is established on the status indication LED of the wireless slave.

•LED: W-NS turns on green when all wireless masters are connected.

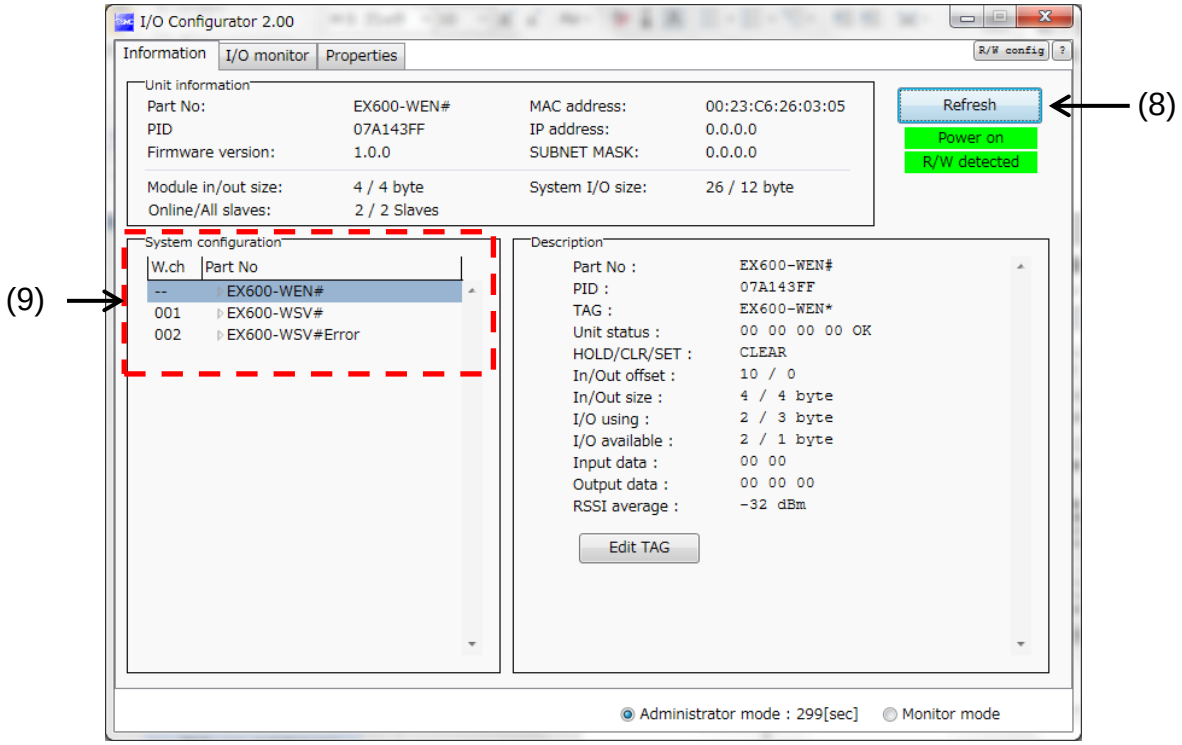


(6) Click the "Refresh" button to update the information in the Slave registration window.
(7) Select the information tab to check that the wireless slaves are connected.



Moves from the slave unit registration window to information tab window

(8) Click the Refresh button to update the information tab window.
(9) Confirm that the registered wireless slave is displayed in the System configuration.



Information tab window (to check the connection of the wireless slave)

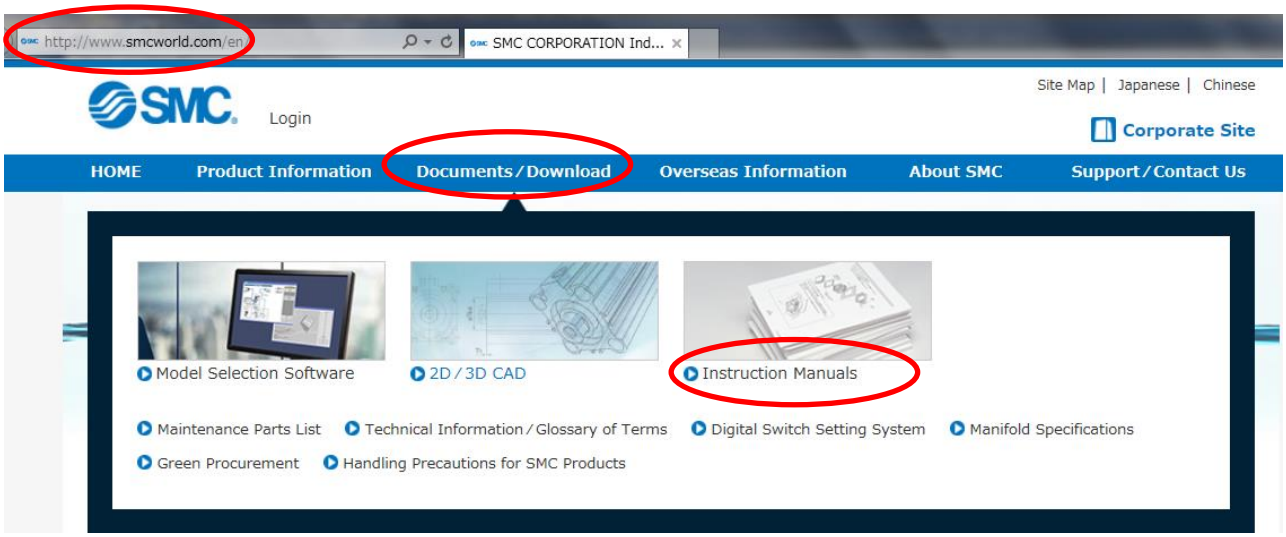
Configuration of the wireless system is complete.

6.9. Download the configuration file

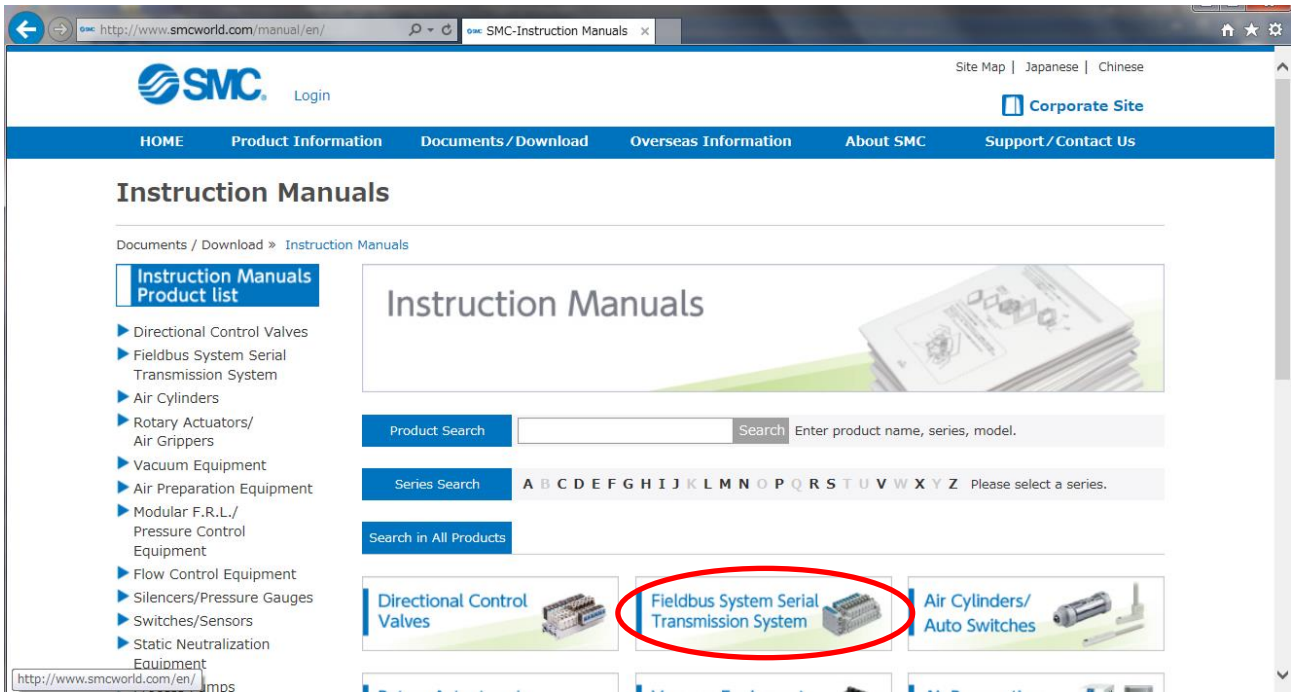
For connecting to the PLC and Ethernet, download the configuration file for the wireless system from the SMC website

< Download procedure >

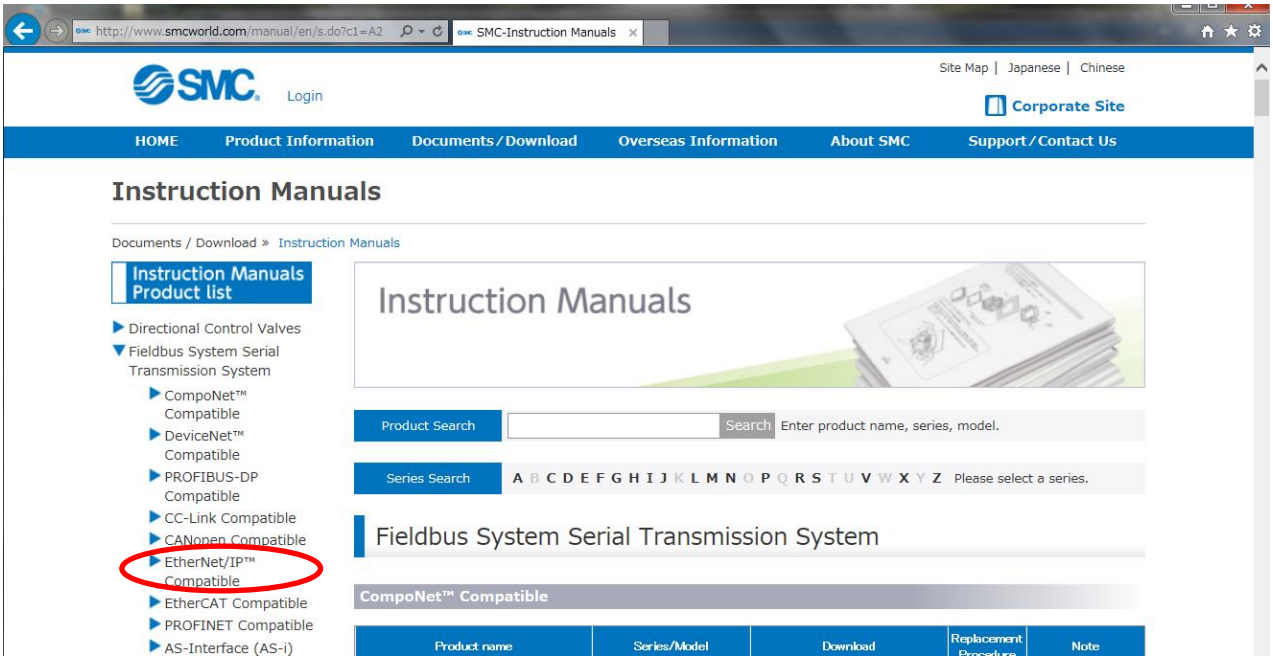
On the SMC website (http://www.smcworld.com), select the Documents/Download and select the Instruction Manuals.



Select the Fieldbus System Serial Transmission System.



Select the Fieldbus protocol. (Example: EtherNet/IP™ compatible)



Scroll down the page of the Fieldbus System Serial Transmission System and select the Configuration File for SMC Wireless System EtherNet/IP™ Compatible. Downloading of the configuration file will begin.

7. Wireless system parameter list

•Wireless master unit (EX600-WEN#) setting parameters

Classification	Parameter name		Set value	Default	Setting when not energized	Note
Master unit setting	a)	Hold/Clear (unit)	Clear/Hold/Software control	CLEAR	Available	Setting of output operation status when the Fieldbus communication is disconnected.
	b)	Input size	0 to 128 points (0 to 16 bytes) Increase and decrease by 16 points (2 bytes).	128 points/ 16 byte	Available	
	c)	Output size	0 to 128 points (0 to 16 bytes) Increase and decrease by 16 points (2 bytes).	128 points/ 16 bytes	Available	
	d)	Valve manifold output size	0 to 32 points (0 to 4 bytes) Increase and decrease by 8 points (1 byte).	32 points/ 4 bytes	Available	The valve output size is included in the output size of each station. The number of effective points is limited within the set range of the output size.
	e)	Wireless communication	Active/Idle	Active	Available	If it is set to "Idle", the wireless communication is disconnected.
	f)	Unit address order	Mode 1/Mode 2	Mode 1	Available	Mode 1: Allocation to the right from the end plate. Mode 2: Allocation to the left from the wireless unit.
Ethernet setting	a)	IP address type	Manual/BOOTP, DHCP	Manual	Available	The IP address can be input manually only when "Manual" is selected.
	b)	Auto MDI/ MDI-X	Auto MDI/MDI-X	Auto	Available	
	c)	Duplex	Full duplex/Half duplex	Full duplex	Available	
	d)	Speed	Auto/100 Mbps/10 Mbps	Auto	Available	
System setting	a)	I/O mapping	Auto mapping/fixed mapping	Fixed mapping	Available	When the total size (byte) of the I/O mapping is an odd number, 1 byte will be added automatically so that an even number will be allocated.
	b)	System input size	16, 128 to 1280 points (2, 16 to 160 bytes) Increase and decrease by 128 points (16 bytes).	1280 points/ 160 byte	Available	This is not settable when the I/O mapping is set to "Auto".
	c)	System output size	16, 128 to 1280 points (2, 16 to 160 bytes) Increase and decrease by 128 points (16 bytes).	1280 points/ 160 byte	Available	This is not settable when the I/O mapping is set to "Auto".
	d)	Diagnostic allocation	None/Simple/Detailed	Detailed	Available	Diagnostic information is allocated to the head of the input data of the I/O map.
	e)	Max slave units	0/15/31/63/127 pcs.	15 pcs.	Available	The wireless channel equivalent to the number of set units is valid.
	f)	DA refresh time	0.1/0.2/0.5/1/2/5/10/30/60 s	1 s	Available	Set the sampling frequency of the analogue output equipment.

•Wireless master unit (EX600-WPN#) setting parameters

Classification	Parameter name		Set value	Default	Setting when not energized	Note
Master unit setting	a)	Hold/Clear (unit)	Clear/Hold/Software control	CLEAR	Available	Setting of output operation status when the Fieldbus communication is disconnected.
	b)	Input size	0 to 128 points (0 to 16 bytes) Increase and decrease by 16 points (2 bytes).	128 points/ 16 byte	Available	
	c)	Output size	0 to 128 points (0 to 16 bytes) Increase and decrease by 16 points (2 bytes).	128 points/ 16 bytes	Available	
	d)	Valve manifold output size	0 to 32 points (0 to 4 bytes) Increase and decrease by 8 points (1 byte).	32 points/ 4 bytes	Available	The valve output size is included in the output size of each station. The number of effective points is limited within the set range of the output size.
	e)	Wireless communication	Active/Idle	Active	Available	If it is set to "Idle", the wireless communication is disconnected.
	f)	Unit address order	Mode 1/Mode 2	Mode 1	Available	Mode 1: Allocation to the right from the end plate. Mode 2: Allocation to the left from the wireless unit.
System setting	a)	I/O mapping	Auto mapping/fixed mapping	Auto mapping	Available	When the total size (byte) of the I/O mapping is an odd number, 1 byte will be added automatically so that an even number will be allocated.
	b)	System input size	-	-	-	This is not settable when the I/O mapping is set to "Auto".
	c)	System output size	-	-	-	This is not settable when the I/O mapping is set to "Auto".
	d)	Diagnostic allocation	None/Simple/Detailed	Detailed	Available	Diagnostic information is allocated to the head of the input data of the I/O map.
	e)	Max slave units	0/15/31 pcs.	15 pcs.	Available	The wireless channel equivalent to the number of set units is valid.
	f)	DA refresh time	0.1/0.2/0.5/1/2/5/10/30/60 s	1 s	Available	Set the sampling frequency of the analogue output equipment.

•Wireless slave unit setting parameters

Classification	Parameter name		Set value	Default	Setting when not energized	Note
Slave unit setting	a)	Hold/Clear (unit)	Clear/Hold/Software control	Clear	Available	Setting of output operation status when the Fieldbus communication is disconnected.
	b)	Input size	0 to 128 points (0 to 16 bytes) Increase and decrease by 16 points (2 bytes).	128 points/ 16 bytes	Available	
	c)	Output size	0 to 128 points (0 to 16 bytes) Increase and decrease by 16 points (2 bytes).	128 points/ 16 bytes	Available	
	d)	Valve manifold output size	0 to 32 points (0 to 4 bytes) Increase and decrease by 8 points (1 byte).	32 points/ 4 bytes	Available	The valve output size is included in the output size of each station. The number of effective points is limited within the set range of the output size.
	e)	Wireless communication	Active/Idle	Active	Available	If it is set to "Idle", the wireless communication is disconnected.
	f)	AD refresh time	0.1/0.2/0.5/1/2/5/10/30/60 s	1 s	Available	Set the sampling frequency of the analogue input equipment.
	g)	Unit address order	Mode 1/Mode 2	Mode 1	Available	Mode 1: Allocation to the right from the end plate. Mode 2: Allocation to the left from the wireless unit.
Pairing setting	a)	Pairing	Pairing disable/ Pairing enable	Pairing disable	Unavailable	Pairing disable: Wireless slave cannot be registered (wireless communication to the registered wireless slave will be established). Pairing enable: Wireless slave can be registered.

•Common parameter of wireless master unit and the wireless slave unit

Classification	Parameter name	Set value	Default	Setting when not energized	Note
Information	TAG	Max. 15 letters	Product No. (EX600-WEN#) (EX600-WPN#) (EX600-WSV#)	Available	Letters which can be input are half-width characters (alphabets, numbers, symbols) that correspond to ASCII code.

8. Error Codes

Error Message	Content
Short-circuit detection of load	Short circuit of the power supply or load is detected.
Detection of unconnected load	The valve manifold/output unit load is not connected.
Contact operation exceeded the upper limit	The upper limit of the unit operation cycle has been exceeded.
Exceed the upper limit of the range	The upper limit of analogue input range has been exceeded.
Exceed the lower limit of the range	The lower limit of analogue input range has been exceeded.
Exceed the user set upper limit	The analogue input/output value has exceeded the user set upper limit.
Exceed the user set lower limit	The analogue input/output value has exceeded the user set lower limit.
System initial error	Reading of NFC from the micro computer (PC) has failed.
Connection error	Connection problem has occurred between the wireless master/slave and connected units.
Abnormal power supply for control/input	The power supply level for control or input is not correct.
Abnormal power supply for output	Power supply voltage for output is not correct.
Other error	An undefined error has occurred.
Input/output size error	Module size has been exceeded.
Abnormal number of system input/ output points setting error	The number of system input/output points has exceeded the set value for the system.
Abnormal setting for the connected wireless slave	An invalid channel for setting the number of registered slaves has been used.
Number of system input/output points has exceeded the upper limit	The number of system input/output points has exceeded the set value for the system.
Wireless registration data failed	An error occurred in reading the wireless registered data.
Detection of wireless hardware error	A hardware error for wireless communication has been detected,

9. Troubleshooting

Problem No.	Problem	Possible causes	Investigation and countermeasures
1	The wireless master/ slave unit information cannot be read even when the Refresh button is clicked.	1. The NFC reader/writer has moved away from the antenna of the wireless master/slave unit. 2. The PC does not identify the NFC reader/writer.	1: Adjust the NFC reader/writer so that it is positioned at the centre of the NFC antenna (circled part). 2-1: Remove the NFC reader/writer from the USB terminal of the PC once and connect it again. 2-2: Uninstall the driver for the NFC Port/PaSoRi and then install it again. 2-3: Install the NFC port software for the driver connected to the NFC reader/ writer again.
2	Logged in from Administrator mode, but the I/O setting or pairing setting cannot be performed.	The mode has been switched to Monitor mode. Mode automatically changes to Monitor mode when there is no movement of the mouse for 300 seconds on the I/O Configurator.	Log in again from Administrator mode.
3	Forgot the password.	-	Delete the password by entering the master key. Refer to 3.1.1 Login to administrator mode (page 13) for details.
4	The wireless slave unit is registered to the wireless master unit, but a communication error was confirmed in the information tab.	1. The radio wave does not reach between the wireless master and slave. 2. The wireless slave settings might have been changed after registration.	1. Check the LED. 2. Release pairing once, and perform pairing again.
5	The set parameters were changed by the wireless master (slave) or System settings, but the changes are not reflected.	Reset was not performed after saving the set parameters.	Turn off the power supply and on again or click the "Reset" button.
6	The analogue output unit voltage (current) was specified numerically in forced output mode, but the correct value is not output.	1. The set value is outside of the range. 2. Scaled data format has been selected for analogue format.	1. Enter a value within the range or change the unit using the I/O Configurator (WEB). 2. The value must be a hexadecimal number. Refer to the Operation Manual for details.

Problem No.	Problem	Possible causes	Investigation and countermeasures
7	Not possible to change to forced output mode.	1. Connected with a higher unit. 2. Mode is Monitor mode.	1. Disconnect the unit from the higher unit. 2. Login from the Administrator mode.
8	The wireless slave unit does not operate with the set input/output size.	The wireless slave operates with the input/output size set when the wireless slave was registered.	The wireless slave follows the input/output size when it was registered to the wireless master. Check the wireless slave input/output size from the wireless master. If the size is not consistent, register the size again.
9	The location and the type of error being generated is unknown.	-	Check the system configuration on the Information tab of the wireless master to identify the unit with an error. Check the diagnostic information from the Description to identify the error. For diagnostic information of each unit and details, refer to section 3.4.1 Information tab (page 40).
10	Free slaves is not displayed when registering the slave.	1. The wireless slave is not in pairing mode. 2. The wireless slave is already registered. 3. Another wireless master is in pairing mode.	1. Check that the wireless slave is in registration mode. 2. When the wireless slave is already registered, it needs to be deleted to register it again. 3. When another wireless master is in pairing mode, the wireless slave will be displayed for the master. Keep one wireless master in pairing mode.

10. Release Notes

Revision No.	Compatible Unit	Notes
2.00	EX600-WEN※ EX600-WSV※	First edition
2.10	EX600-WPN※ EX600-WSV※	Version for EX600-WPN※
2.20	EX600-WEN※ EX600-WPN※ EX600-WSV※	Common version for EX600-WEN※ and EX600-WPN※ Advanced Card Systems Ltd. reader / writer has been added to verified NFC reader / writer.

Revision history
A: Contents revised in several places. [August 2018] B: Contents are added. [August 2018]

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