



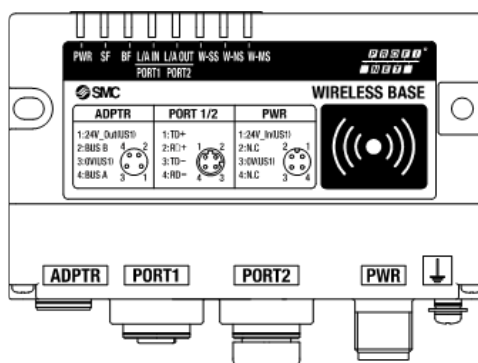
Operation Manual

PRODUCT NAME

Compact Wireless Base
PROFINET

MODEL / Series / Product Number

EXW1-BPNAC1



SMC Corporation

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Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution,**” “**Warning**” or “**Danger.**” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)^{*1)}, and other safety regulations.

*1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery – Electrical equipment of machines – Part 1: General requirements
ISO 10218-1: Robots and robotic devices – Safety requirements for industrial robots – Part 1: Robots
etc.

	Danger	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	Warning	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Caution	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Warning

- 1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
- 2. Only personnel with appropriate training should operate machinery and equipment.**
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.
- 3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
 1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
 2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
 3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- 4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.**
 1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
 2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
 3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.



Safety Instructions

• Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)

Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.

This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***2) Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.

2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

SMC products are not intended for use as instruments for legal metrology.

Products that SMC manufactures or sells are not measurement instruments that are qualified by pattern approval tests relating to the measurement laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the measurement laws of each country.

Operator

- ◆ This operation manual is intended for those who have knowledge of machinery using pneumatic equipment, and have sufficient knowledge of assembly, operation and maintenance of such equipment. Only those persons are allowed to perform assembly, operation and maintenance.
- ◆ Read and understand this operation manual carefully before assembling, operating or providing maintenance to the product.

■ Safety Instructions

Warning

- Do not disassemble, modify (including changing the printed circuit board) or repair.
An injury or failure can result.
- Do not operate or set with wet hands.
This may lead to an electric shock.
- Do not operate the product outside of the specifications.
Do not use for flammable or harmful fluids.
Fire, malfunction, or damage to the product can result.
Verify the specifications before use.
- Do not operate in an atmosphere containing flammable or explosive gases.
Fire or an explosion can result.
This product is not designed to be explosion proof.
- If using the product in an interlocking circuit:
 - Provide a double interlocking system, for example a mechanical system.
 - Check the product regularly for proper operation.Otherwise malfunction can result, causing an accident.
- The following instructions must be followed during maintenance:
 - Turn off the power supply.
 - Stop the air supply, exhaust the residual pressure and verify that the air is released before performing maintenance.Otherwise an injury can result.

Caution

- When handling the unit or assembling/replacing units:
 - Do not touch the sharp metal parts of the connector or plug for connecting units.
 - Take care not to hit your hand when disassembling the unit.
The connecting portions of the unit are firmly joined with seals.
 - When joining units, take care not to get fingers caught between units.
An injury can result.
- After maintenance is complete, perform appropriate functional inspections.
Stop operation if the equipment does not function properly.
Safety cannot be assured in the case of unexpected malfunction.
- Provide grounding to assure noise resistance of the Fieldbus system.
Individual grounding should be provided close to the product with a short cable.

Fieldbus system/Industrial IoT Security Measures

With the introduction of Industrial IoT, various devices in a factory are connected to the network, and it is necessary to respond to new threats such as cyber-attacks. To protect Industrial IoT, it is important to take multilayered countermeasures (multilayer defense) that include IoT devices, networks, and cloud computing. SMC recommends that the following countermeasures be considered. For details on the measures listed, please refer to the security measures documents and other documents issued by each country and organization.

(1) Do not connect devices to public networks such as the Internet.

If it is necessary to access equipment or the cloud through a public network, use a secure line such as a VPN or leased line.

Do not connect information networks such as offices to industrial IoT networks in factories.

(2) Install firewalls to prevent external threats from entering devices and systems.

Install routers and firewalls at network boundaries and set them to allow only the minimum necessary communication.

If a permanent connection is not required, disconnect the line by turning off communication devices when not in use.

(3) Make unused communication ports physically inaccessible or disable them in the configuration.

Check each port regularly to see if there are any unnecessary devices connected to the network equipment.

For various services (SSH, FTP, SFTP, etc.) of network devices, configure them to run only the necessary services.

Wireless LAN and other devices that use radio waves should be configured to have an appropriate propagation range and use appropriate devices that have been certified by the radio wave laws of the country in which they are installed.

Install equipment that outputs radio waves in a location where there is no interference from outside or inside the building.

(4) Set up a communication method with security measures such as data encryption.

Implement security measures with cryptographic functions in each environment, such as IoT networks and connections via secure gateways.

(5) Grant access privileges to each account and limit the number of users who can use the account.

Periodically review accounts and delete unused accounts and privileges.

If the number of login errors exceeds a certain threshold, set up an account lock mechanism, such as prohibiting the use of the account for a certain period of time.

(6) Protect passwords.

The initial passwords should be changed at the time of installation.

Change passwords on a regular basis.

The password should be a combination of characters that is difficult to guess and highly secure (e.g., 8 or more characters, including letters and special characters).

(7) Use the latest security software.

Install antivirus software on all PCs to detect and eliminate virus infection.

Anti-virus software should always be kept up-to-date.

(8) Keep the latest versions of equipment and system software.

Apply patches to keep OS and applications up-to-date.

(9) Monitor and detect abnormalities in the network.

In the event of an abnormality, monitor communications within the network and notify an alert when an abnormality is detected in order to promptly respond to the problem. Install devices such as intrusion detection/protection systems (IDS/IPS).

(10) Delete data when disposing of or relinquishing equipment.

When disposing of IoT devices, data deletion or physical destruction should be performed to prevent unauthorized use of data left on the devices.

Precautions regarding the Radio Law

EXW1-A11#

Caution

Notice:

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference received, including interference that may cause undesired operation.

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

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device is authorized under Title 47 CFR 15.519 (the FCC Rules and Regulations).

The operation of this device is subject to the following restriction:

The changes or substitutions of the antennas which are furnished with the device is prohibited.

FCC ID : 2AJE7SMC-WEX08

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

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

Caution

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

"Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device."

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

"This Class B digital apparatus complies with Canadian ICES-003."

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

"This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter."

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.

"This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body"

Cet équipement doit être installé et utilisé à une distance minimale de 20cm entre le radiateur et votre corps.

NCC 警語

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

"Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados"

"Para maiores informações, consulte o site da ANATEL – www.anatel.gov.br"

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Precautions for Handling

○ Follow the instructions given below for selecting and handling.

● The instructions on design and selection

* Product specifications

- Use within the specified voltage.
Otherwise, failure or malfunction can result.
- The power is supplied from the circuit reinforced or double-insulated from MAINS.
- The direct current power supply used should be UL approved as follows.
UL1310 Class 2 power supply unit or UL61010-1 LIM (Limited Energy Circuit).
- All external circuits should also be connected to a circuit that is reinforced or double-insulated from the MAINS and free from risk of electric shock and fire hazard.
- Reserve a space for maintenance.
Design the system to allow the required space for maintenance.
- Do not remove the label.
This can lead to incorrect maintenance, or misreading of the operation manual, which can cause damage or malfunction to the product.
It may also result in nonconformity to safety standards.
- Beware of inrush current when the power supply is turned on.
An initial charge current may activate the over current protection function depending on the connected load, resulting in the unit malfunctioning.
- For UL/cUL certification, install in a distribution box or other container.
(EXW1-A1*).

● Product Handling

* Mounting

- Do not drop, hit or apply excessive shock to the product.
Otherwise damage to the internal parts can result, causing malfunction.
- Tighten to the specified tightening torque.
If the tightening torque is exceeded, the mounting screws can be broken.
If the screws are tightened to a different torque, IP67 will not be achieved.
- Never mount the product in a location that will be used as a foothold.
The product may be damaged if excessive force is applied by stepping or climbing onto it.

* Wiring (Including connecting/disconnecting of the connectors)

- Avoid bending or stretching the cables repeatedly, or placing a heavy load or apply force to the product.
Applying repeated bending and tensile stress to the cable may cause broken wires.
- Wire correctly.
Incorrect wiring may cause malfunction of or damage to the wireless system.
- Do not perform wiring while the power is on.
Otherwise the wireless system may be damaged or malfunction.
- Do not route wires and cables together with power or high voltage cables.
The product can malfunction due to interference of noise and surge voltage from power and high voltage cables close to the signal line.
Route the wires of the wireless system separately from power or high voltage cables.
- Confirm correct insulation of wiring.
Poor insulation (interference with other circuits, poor insulation between terminals, etc.) can apply excessive voltage or current to the wireless system causing damage to it.
- When a wireless system is installed in machinery/equipment, provide adequate protection against noise by using noise filters, etc.
Noise in signal lines may cause malfunction.

* Operating environment

- Select the correct type of enclosure according to the operating environment.
 - IP67 protection class is achieved when the following conditions are met.
 - (1) The units are connected correctly using power supply cables and communication cables with M12 (or M8) connectors.
 - (2) Suitable mounting of each unit and manifold valve.
 - (3) Be sure to fit a water resistant cap on any unused connectors.
 - If using in an environment that is exposed to water splashes, please take protective measures, such as using a cover.
 - Do not use in an atmosphere having water, water steam, or where there is direct contact with any of these. These may cause failure or malfunction.
- Do not use the product in a place where the product could be splashed by oil or chemicals.
 - Operating in environments with coolants, cleaning solvents, various oils or chemicals may cause adverse effects (failure, malfunction) to the unit even in a short period of time.
- Do not use the product in an environment where corrosive gases or fluids can be splashed.
 - Otherwise damage to the unit can result, causing malfunction.
- Do not use in an area where surges are generated.
 - If there is equipment generating large surge near the unit (magnetic type lifter, high frequency inductive furnace, welding machine, motor, etc.), this can cause deterioration of the internal circuitry element of the unit or result in damage. Take measures against the surge sources, and prevent the lines from coming into close contact.
- When a surge-generating load such as a relay, valve, or lamp is directly driven, use the product with built in surge protection.
 - Direct drive of a load generating surge voltage can damage the unit.
- The product is CE marked, but is not immune to lightning strikes. Take measures against lightning strikes in the system.
- Prevent foreign matter such as dust or wire debris from entering inside the product.
 - Otherwise it can cause damage or malfunction.
- Mount the product in a place that is not exposed to vibration or impact.
 - Otherwise it can cause damage or malfunction.
- Do not use the product in an environment that is exposed to temperature cycles.
 - Heat cycles other than ordinary changes in temperature can adversely affect the inside of the product.
- Do not expose the product to direct sunlight.
 - If using in a location directly exposed to sunlight, shade the product from the sunlight.
 - Otherwise it can cause damage or malfunction.
- Keep within the specified ambient temperature range.
 - Otherwise malfunction can result.

- Do not operate close to a heat source, or in a location exposed to radiant heat.
 - Otherwise malfunction can result.

* Adjustment and Operation

- Perform settings suitable for the operating conditions.
 - Incorrect setting can cause operation failure.
 - (Refer to "Setting and Adjustment".)
- Please refer to the PLC manufacturer's manual, etc. for details of PLC-side programming and addresses.
 - For the PLC protocol and programming, refer to the relevant manufacturer's documentation.

* Maintenance

- Turn off the power supply, stop the supplied air, exhaust the residual pressure and verify the release of air, before performing maintenance.
Otherwise safety is not assured due to an unexpected malfunction or incorrect operation.
- Perform regular maintenance and inspections.
There is a risk of unexpected operation due to malfunction of the equipment.
- After maintenance is complete, perform appropriate functional inspections.
Stop operation if the equipment does not function correctly.
Otherwise safety cannot be assured due to an unexpected malfunction or incorrect operation.
- Do not use solvents such as benzene, thinner, etc. to clean each unit.
These can damage the surface of the body and erase the markings on the product.
Use a soft cloth to remove stains.
For heavy stains, use a damp cloth that has been soaked with diluted neutral detergent and fully squeezed, then wipe up the stains again with a dry cloth.

Important Instructions concerning the Wireless System

- This product should be used with a separately sold wireless adapter (EXW1-A11*) and cable (EXW1-AC*).
- The wireless adapter (EXW1-A11*) and the wireless remote (EXW1-RD*) are certified as wireless equipment in accordance with the Radio Act and the certification of construction type has been obtained. Customers do not need to apply for a license to use this equipment.
Be sure to comply with the following precautions.
 - Do not disassemble or modify the product. Disassembly and modification are prohibited by law.
 - Attach and use the supplied antenna set (EXW1-EA1) as an external antenna of the wireless remote (EXW1-RD*).
The law forbids the use of antennas and coaxial cables that are not sold by SMC.
 - This product is compliant with the Radio Act in Japan, European countries and the US. For use in other countries, please consult SMC. For the latest information, refer to the catalog on the website below.
URL <https://www.smcworld.com>
- This product communicates using radio waves, and the communication may be temporarily interrupted due to the ambient environments and operating methods. SMC will not be responsible for any secondary failure which may cause an accident or cause damage to other devices or equipment.
- When several units are installed close to each other, the wireless products may interfere with each other, resulting in communication error and response delays.
- Radio waves emitted by this product may adversely affect implantable medical devices such as implantable cardiac pacemakers and brillators.
For precautions regarding the use of equipment or devices that may adversely affect performance, refer to the catalog or instruction manuals for the equipment or devices, or contact the manufacturers directly.
- The communication performance is affected by the ambient environment, so please perform communication testing before use.

SMC Wireless System

Features and Summary

SMC Wireless Products, EX600-W and EXW1 series products, are modular devices consisting of a gateway (hereafter referred to as a Base) and wireless devices (hereafter referred to as Remotes).

From the host (PLC) control device, one base including paired remote groups appears as one system, and the maximum number of input/output points per system is 11464/11464 points (1308 byte/1308 byte).

Bases and Remotes are designed to be identifiable by registering their uniquely assigned PIDs (Product IDs) with each other and operate therefore function without conflicts even when several Bases and Remotes operate in the same area.

The packet of the wireless transmits and receive data is encrypted. It is therefore difficult to manipulate the data.

The SMC wireless system has the following features:

- High-speed start up. The minimum connection time to the system after supplying power to the remote is 0.25 seconds. *1
- Parameter setting by Near Field Communication (NFC) using a PC (no HW setting).
- The number of input/output points of the system can be from a minimum of 16/16 points to a maximum of 10464/10464 points *2, 3
- Up to 63 remotes can be registered to one base. *4

*1: The base should be in the start up state. The connection time varies depending on the timing of the power supply to the remote, the number of connected EX600 I/O units and other external influences.

*2: The maximum number of I/O point is 10464 for input and output. When exceeding 10464 points, the unit I/O is not recognized. There might be a communication delay depending on the communication load status.

*3: The total number of I/O points of the base and the registered I/O points of the remote.

*4: The maximum number of units that can be connected is 61. If 61 units is exceeded, the unit I/O will not be recognized. There might be a communication delay depending on the communication load status.

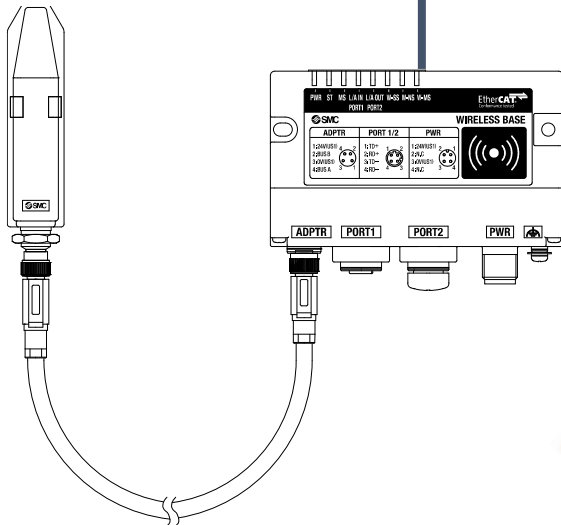
System Configuration



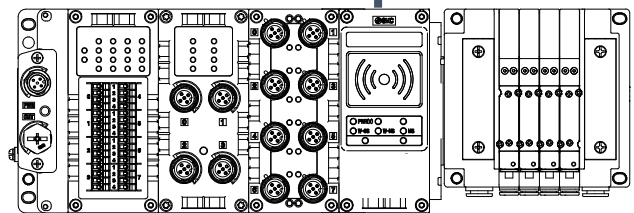
PLC compatible with EX600-W and EXW1 series communication protocols.

<Base>

EXW1 series



EX600-W Series

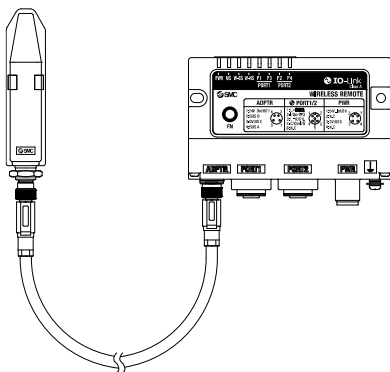


For settings and other information, refer to the operation manual for EX600-WEN/WPN*.

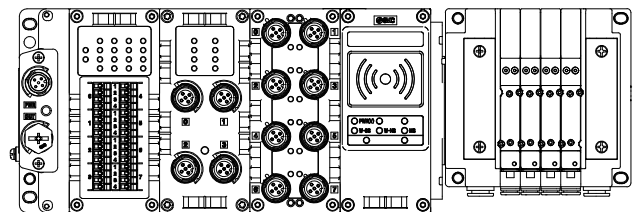


<Remote>

EXW1 series



EX600-W Series



For settings and other information, refer to the operation manuals for EX600-WSV* and the connected digital and analog units.



Connected input/output/IO-Link devices.

System compatibility

Mixed use with EX600-W Series

Although it is possible to use with EX600-W series, the operating conditions must comply with the specifications of the existing wireless system. Note that the following functions may be restricted:

- Communication distance

The maximum communication distance will vary depending upon the system configuration. Please see the details in the table on the next page. The Power Transmission Level function allows the communication distance to be shortened in three steps. (Refer to page 39)

- Protocol

This refers to the wireless communication version. For more details, check the system settings of the Base.

- Frequency channel select function (F.C.S.) (Refer to page 80)

The frequency channel to use can be selected using this function.

* The number of selectable frequency channels varies depending on the country of use.

For more details, check the product number.

* If this function is changed, pairing must be set again.

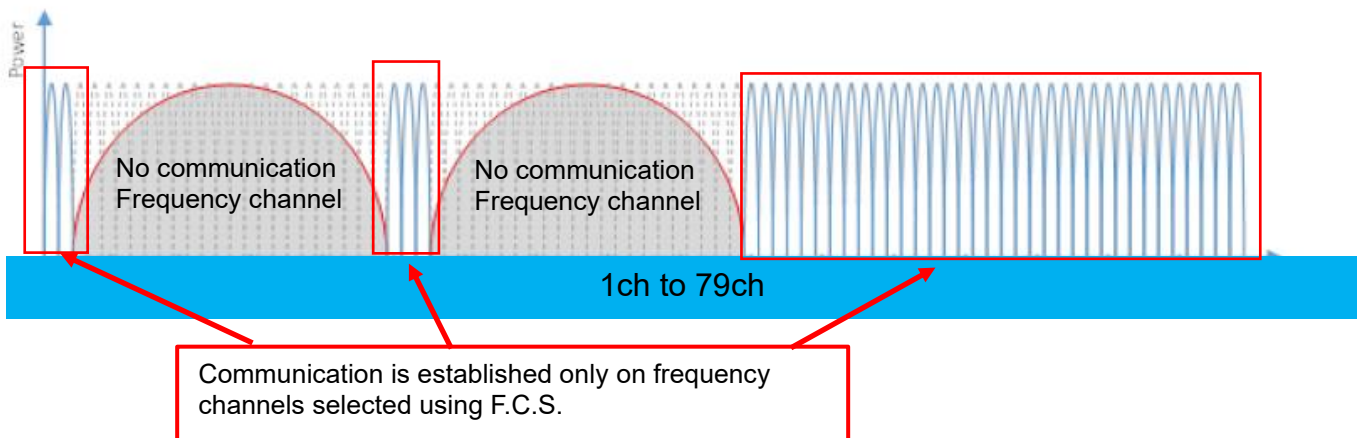
Number of selectable frequency channels	Applicable country
Min. 5 channels, Max. 79 channels	Certified countries except for the U.S., Canada, South Korea, Brazil, Taiwan, Argentina, and Mexico.
Min. 15 channels, Max. 79 channels	Certified countries including the U.S., Canada, South Korea, Brazil, Taiwan, Argentina, and Mexico.

* If no channel is selected, communication is established on 79 channels by default.

* For the latest information, refer to the catalog on the website below.

URL <https://www.smcworld.com>

The figure below shows an example where only the frequency channels that do not clash with two wireless LAN channels are used for wireless communication.



- WEB function (supported only by EX600-WEN/WPN)

Various product settings and communication statuses can be checked by accessing EX600-WEN/WPN from a PC.

- Radio output level setting function

This function reduces the radio output level to reduce the impact of SMC radio equipment on other radio equipment.

This setting is reflected in the base and in the remote of the paired wireless adapter connection.

See the base system settings for details.

- Wireless communication timeout period

When wireless communication (including retries) is not successful due to obstacles or other factors, this function (setting) determines that communication has failed and disconnects and reconnects wireless

communication after a set period of time.

Refer to the system configuration example below.
For details, please refer to the instruction manual of each product.

System configuration example			Communication distance	Applicable function			
No.	Wireless Base	Wireless Remote		Protocol	F.C.S.	Radio output level setting	WEB
1	EXW1	EXW1+EXA1	Up to 100 m	V.2.0*1	○*2	○*2	○
2	EXW1	EXW1	Up to 100 m	V.1.0/V.2.0*1	○*2	○*2	○
3	EXW1	EXW1+EX600	*3	V.1.0	×	×	○
4	EXW1	EX600	Up to 10 m	V.1.0	×	×	○
5	EX600	EXW1	Up to 10 m	V.1.0	×	×	○*4
6	EX600	EXW1+EX600	Up to 10 m	V.1.0	×	×	○*4
7*5	EX600	EX600	Up to 10 m	V.1.0	×	×	○

*1: For more details, check the system settings of the Base.

*2: Only available in Protocol V.2.0.

*3: Up to 100 m between an EXW1 series Base and Remote, and up to 10 m between an EXW1 series Base and an EX600-W series Remote.

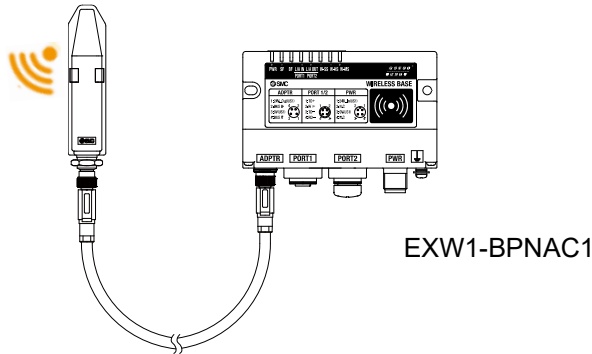
4: EXW1-R has limited setting/monitoring capabilities.

*5: This configuration consists solely of EX600-W series units; refer to the operation manual of the product in use for the further details.

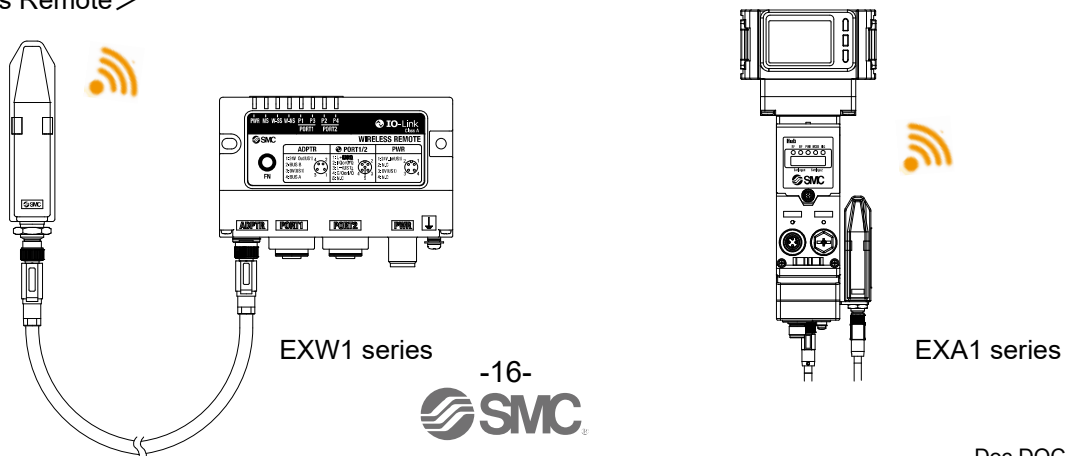
○ System configuration example 1

Wireless Base: EXW1-BPNAC1
Wireless Remote: EXW1 series

<Wireless Base>



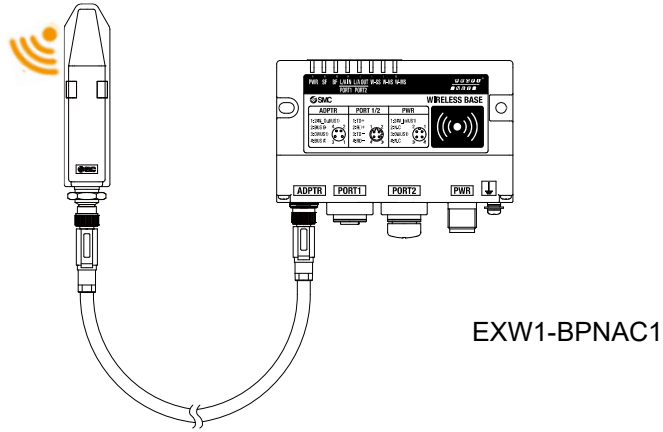
<Wireless Remote>



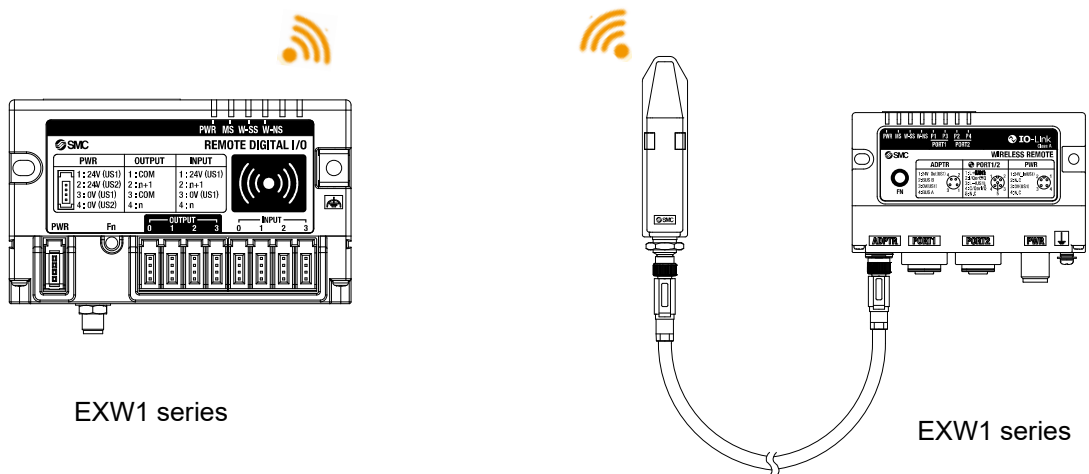
○System configuration 2

Wireless Base: EXW1-BPNAC1
 Wireless Remote: EXW1 series,

<Wireless Base>



<Wireless Remote>

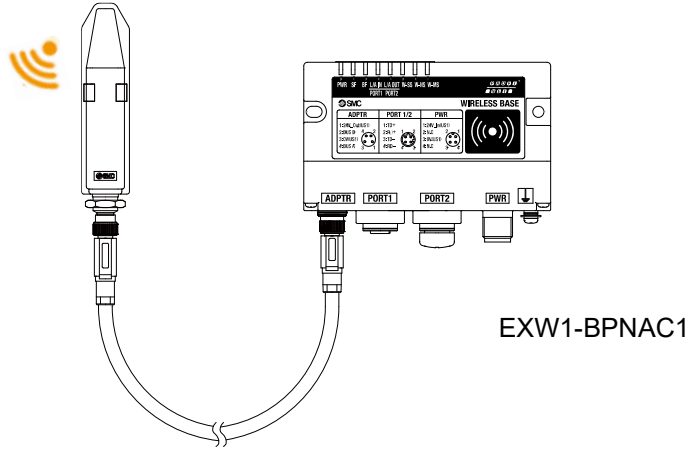


○System configuration 3

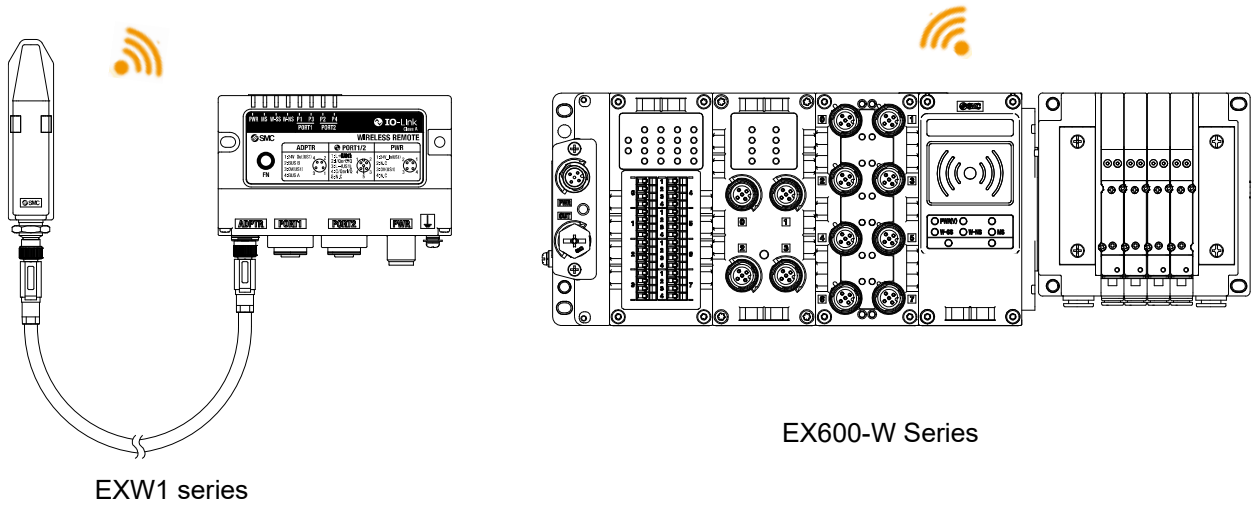
Wireless Base: EXW1-BPNAC1

Wireless Remote: EXW1 series, EX600-W series

<Wireless Base>



<Wireless Remote>

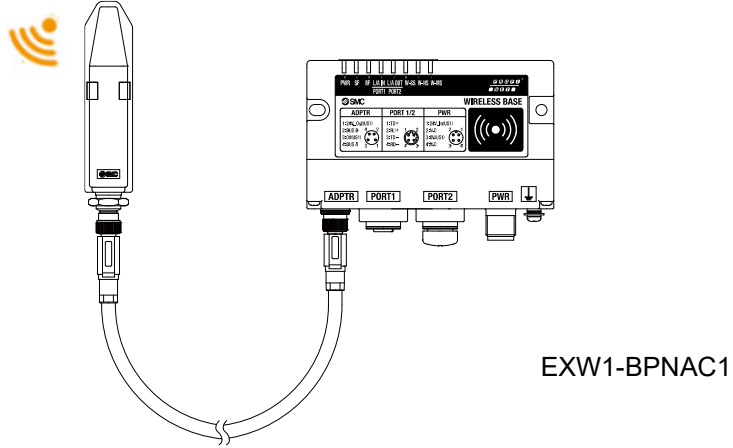


○System configuration 4

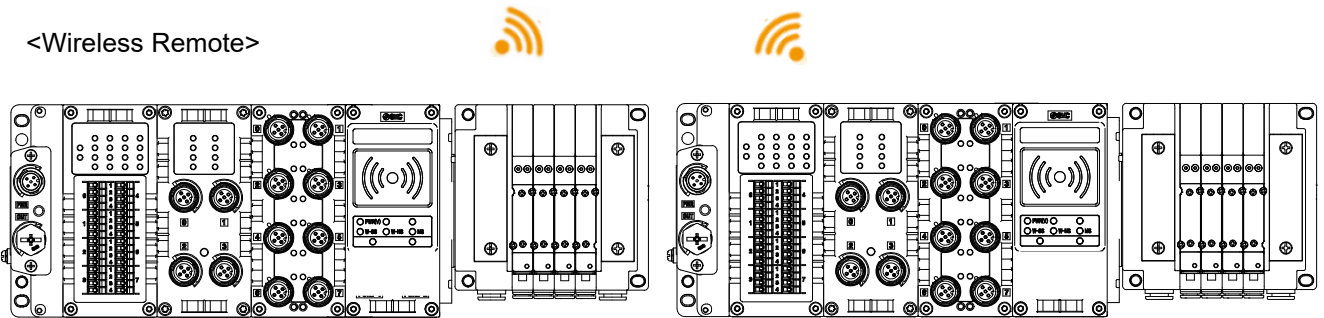
Wireless Base: EXW1-BPNAC1

Wireless Remote: EX600-W

<Wireless Base>



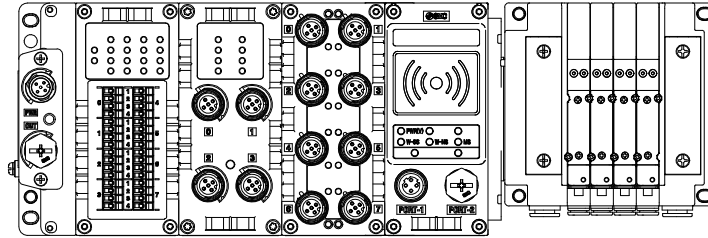
<Wireless Remote>



○ System configuration 5

Wireless Base: EX600-W series
Wireless Remote: EXW1 series

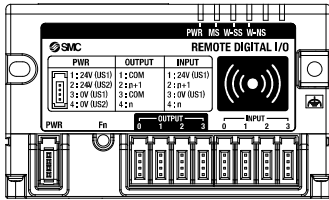
<Wireless Base>



EX600-W Series



<Wireless Remote>



EXW1-RD*

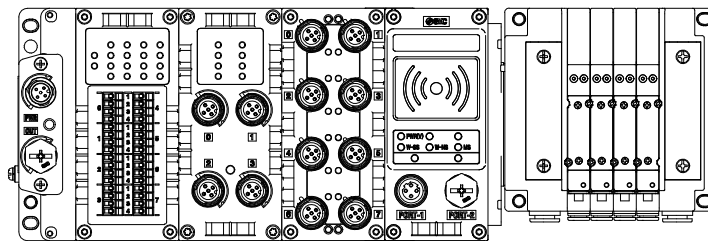


EXW1-RL*

○ System configuration 5

Wireless Base: EX600-W series
Wireless Remote: EXW1 series, EX600-W series

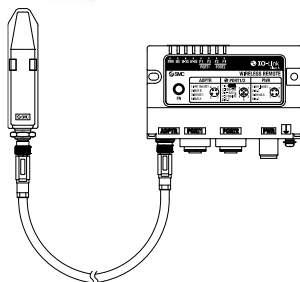
<Wireless Base>



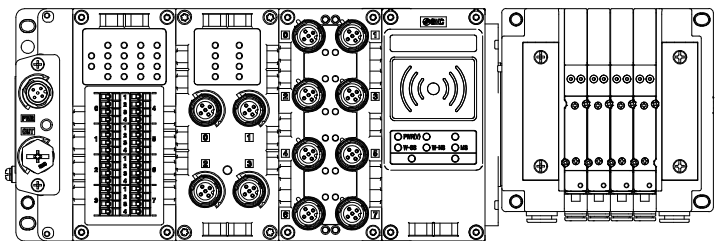
EX600-W Series



<Wireless Remote>



EXW1 series



EX600-W Series

○ System configuration 6

Wireless Base: EX600-W series

Wireless Remote: EX600-W series

For system configurations of EX600-W series, refer to the operation manual of the product in use for the further details.

How to Order

The product system, model names and part numbering system of SMC wireless systems are as follows.

<Compact wireless Base>

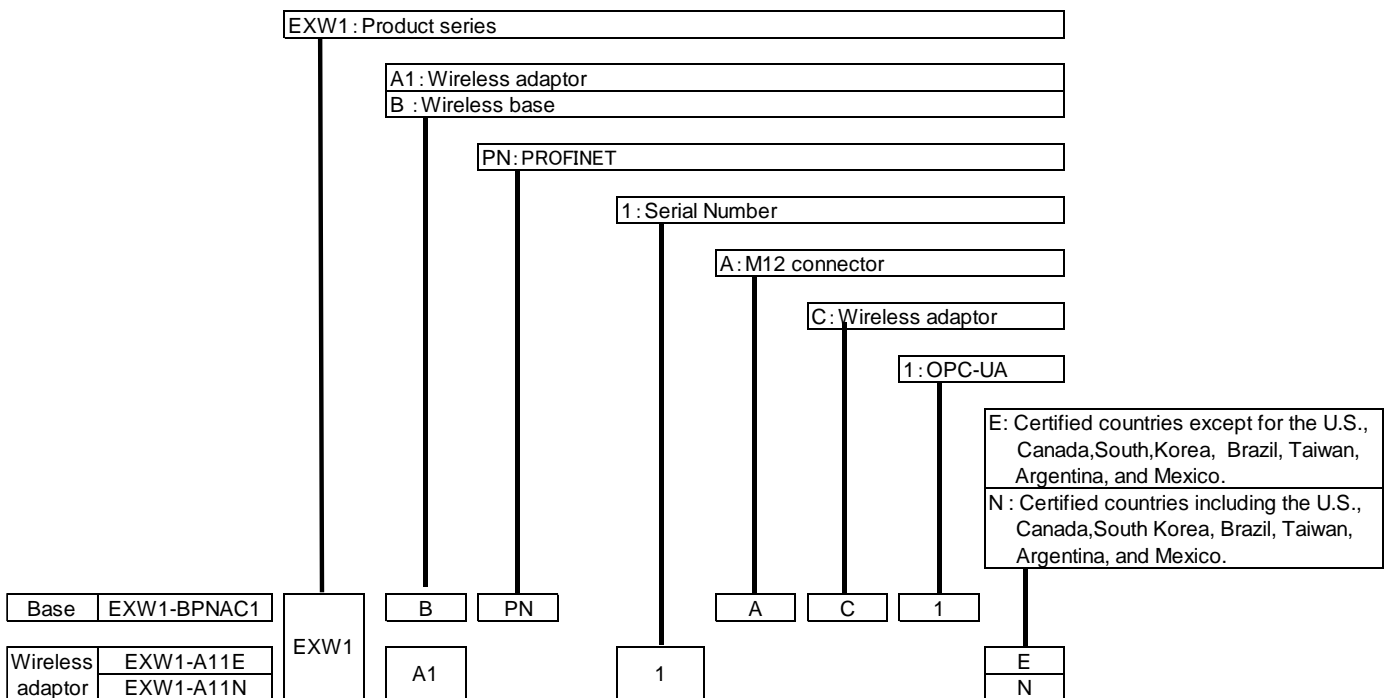
The lineup consists of one model, EXW1-BPNAC1.

The compact wireless base is a wireless system base used in combination with a wireless adaptor that has wireless communication capabilities.

When using this product, it is necessary to order the wireless adaptor and wireless adaptor cable separately.

<Wireless Adaptor>

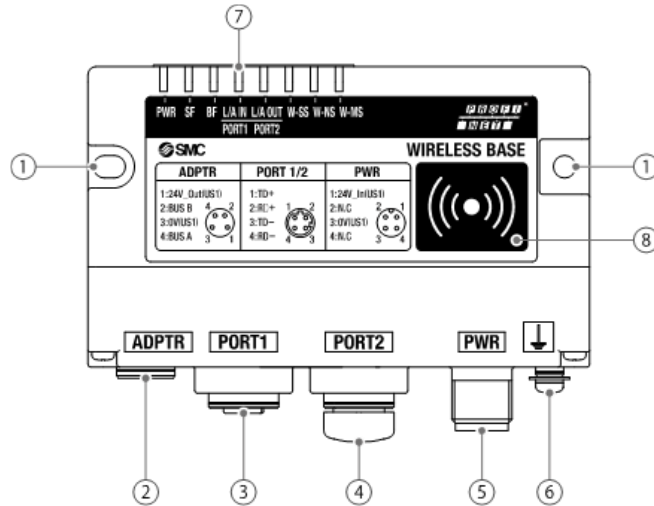
This product line-up consists of two models, namely EXW1-A11E and EXW1-A11N.



Summary of Product parts

EXW1-BPNAC1

- Appearance

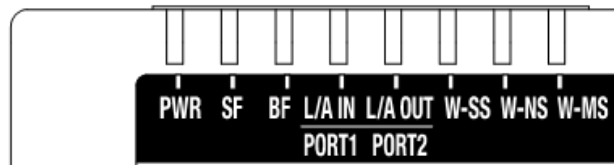


No.	Name	Application
1	Screw hole for mounting (2 x M4)	Mounting the compact wireless Base.
2	Connector for wireless adaptor (ADPTR)	Connect the cable for wireless adaptor.
3	Communication connector (PORT1)	Connection for the cable for fieldbus inputs.
4	Communication connector (PORT2)	Connection for the cable for fieldbus outputs.
5	Power supply connector	Supplies power to the compact wireless Base.
6	FE terminal	To be connected to Ground (for improved noise immunity).
7	LED	Indicates the status of the compact wireless Base or Remote.
8	NFC antenna approach area	This area is in close contact with the NFC reader / writer. "o" is the center of the NFC antenna.

* Grounding should be as close as possible to the product and the grounding wire should be as short as possible.

• LED

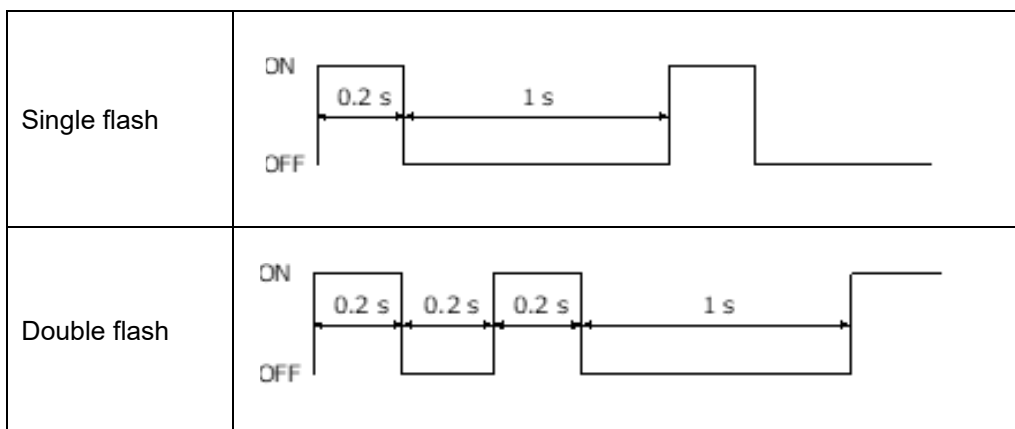
The LED indicators at the top left corner of the compact wireless Base indicate the power supply, communication and diagnostic status.



LED indicators of the compact wireless Base

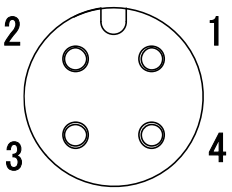
LED name	Function	LED status		Description
		Colour of LED	ON/Flashing	
PWR	US1 (for control) power supply status indicator	Green	ON	The US1 (for control) power supply is ON
		-	OFF	The US1 (for control) power supply is OFF
SF	Base system status indicator	-	OFF	Normal operation.
		Green	Flashing	Node flashing test command received.
		Red	Flashing	Recoverable error is detected. (LED flashes when more than one diagnostic information item is detected). <ul style="list-style-type: none"> US1 power supply (for control) voltage level is abnormal. Number of system inputs / outputs setting error. Abnormal number of registered Remotes. Internal communication error between wireless adaptors. Memory read / write error.
		Red	ON	Unrecoverable error is detected.
BF	PROFINET status indicator	-	OFF	PROFINET communication is established.
		Green	single flashing	PROFINET controller is in STOP state while communication with PROFINET controller is established.
		Red	single flashing	Device Name not set.
		Red	double flashing	IP address not set.
		Red	flashing (2 Hz)	PROFINET controller settings and EXW1 configuration data do not match
		Red	ON	PROFINET communication is not established. <ul style="list-style-type: none"> PROFINET controller power supply is OFF. Cable connection error between PROFINET controller and base. PROFINET controller or the base are faulty. PROFINET controller settings and base device name do not match.
LINK/ACT1 LINK/ACT2	Communication status indicator	Green	flashing	Link, Activity
		Green	ON	Link, No Activity
		-	OFF	No Link, No Activity
W-SS	Radio wave receiving intensity	Green	ON	The level of received radio wave power of all the connected Remotes is 3
		Green	Flashing (1 Hz)	The level of received radio wave power of some connected Remotes is 2
		Green	Flashing (2 Hz)	The level of received radio wave power of some connected Remotes is 1
		Red	Flashing	All the Remotes that support protocol V.1.0 are not connected
		Orange	Flashing	All the Remotes that support protocol V.2.0 are not connected
		-	OFF	Remote not registered

LED name	Function	LED status		Description
		Colour of LED	ON/Flashing	
W-NS	Wireless communication connection status indicator	Green	ON	All the Remote connections are normal
		Green	Flashing	Some Remotes are not connected
		Red	Flashing	No Remotes are connected
		Red	ON	No Remotes are connected (Unrecoverable error in wireless communication)
		Red Green	Alternate Flashing	Wireless communication connection is being configured (Pairing)
		Orange	ON	Force ON mode
		-	OFF	Remote not registered
W-MS	Remote system status indication	Green	ON	Wireless Remote is normal Protocol V.1.0 (Pairing)
		Orange	ON	Protocol V.2.0 (Pairing)
		Red	Flashing	Recoverable error is detected. (LED flashes when more than one diagnostic information item is detected.) <ul style="list-style-type: none"> •US1 (for control / input) power supply voltage level is abnormal •US2 (for output) power supply voltage level is abnormal •Excessive I/O setting inputs/outputs •Analog I/O upper setting limit exceeded •Analog input range upper and lower limits exceeded •Error in communication between units •EX600 I/O unit detects diagnostic information •Valve diagnostic information detected
		Red	ON	Unrecoverable error is detected.
		-	OFF	Remote not registered

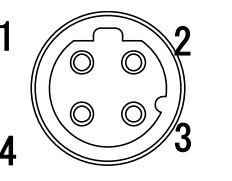


- Connectors

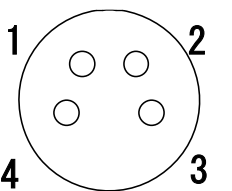
- Power supply connector

No.	Signal	Description	M12, 4-pin, plug
			A code
1	24V (US1)	DC 24V(US1) : Input*1	
2	N.C	N.C	
3	0V (US1)	DC 0V(US1)	
4	N.C	N.C	

- Communication connector For PROFINET PORT1/PORT2

No.	Signal	Description	M12, 4-pin, socket
			D code
1	TD+	For PROFINET communication	
2	RD+		
3	TD-		
4	RD-		

- Connector for wireless adaptor*1

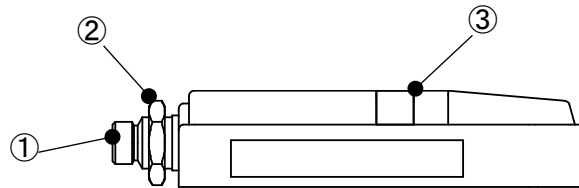
No.	Signal	Description	M8, 4-pin, socket
1	24V(US1)	24V(US1) : Output*2	
2	Internal BUS B	For wireless adapter communication	
3	0V(US1)	0V(US1)	
4	Internal BUS A	For wireless adapter communication	

*1 : Use the wireless adaptor cable specified to connect to the wireless adaptor.

*2 : Do not input power.

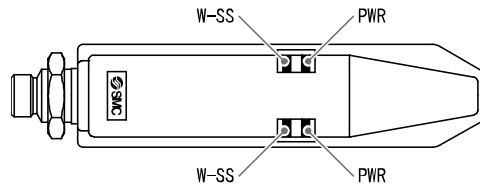
EXW1-A11*(Option)

- Appearance



No.	Name	Application
①	Connector	Connector for Wireless Adaptor cable.
②	Nut	For fixing to Air Management system.
③	LED display	Indicates the status of the adaptor.

- LED



LED name	Function	LED status		Description
		Colour of LED	ON/Flashing	
PWR	Power supply and status indication	Green	ON	Power supply voltage is in ON state
		Orange	Flashing	An internal communication error is detected
		Red	ON	Unrecoverable error is detected
		-	OFF	Power supply voltage is in OFF state
W-SS	Received signal strength indicator	Green	ON	The level of received radio wave strength of all the connected Remotes is 3
		Green	Flashing (1 Hz)	The level of received radio wave strength of some connected Remotes is 2
		Green	Flashing (2 Hz)	The level of received radio wave strength of some connected Remotes is 1
		Red	Flashing	Protocol V.1.0 all remote is not established
		Orange	Flashing	Protocol V.2.0 all remote is not established
		-	OFF	Remote not registered

- Connector

No.	Signal	Description	M8, 4-pin, socket
1	24V(US1)	24V(US1) : Input	
2	Internal BUS B	For wireless adapter communication	
3	0V(US1)	0V(US1)	
4	Internal BUS A	For wireless adapter communication	

*Use the wireless adaptor cable specified to connect to the wireless adaptor. (Refer to page 138)

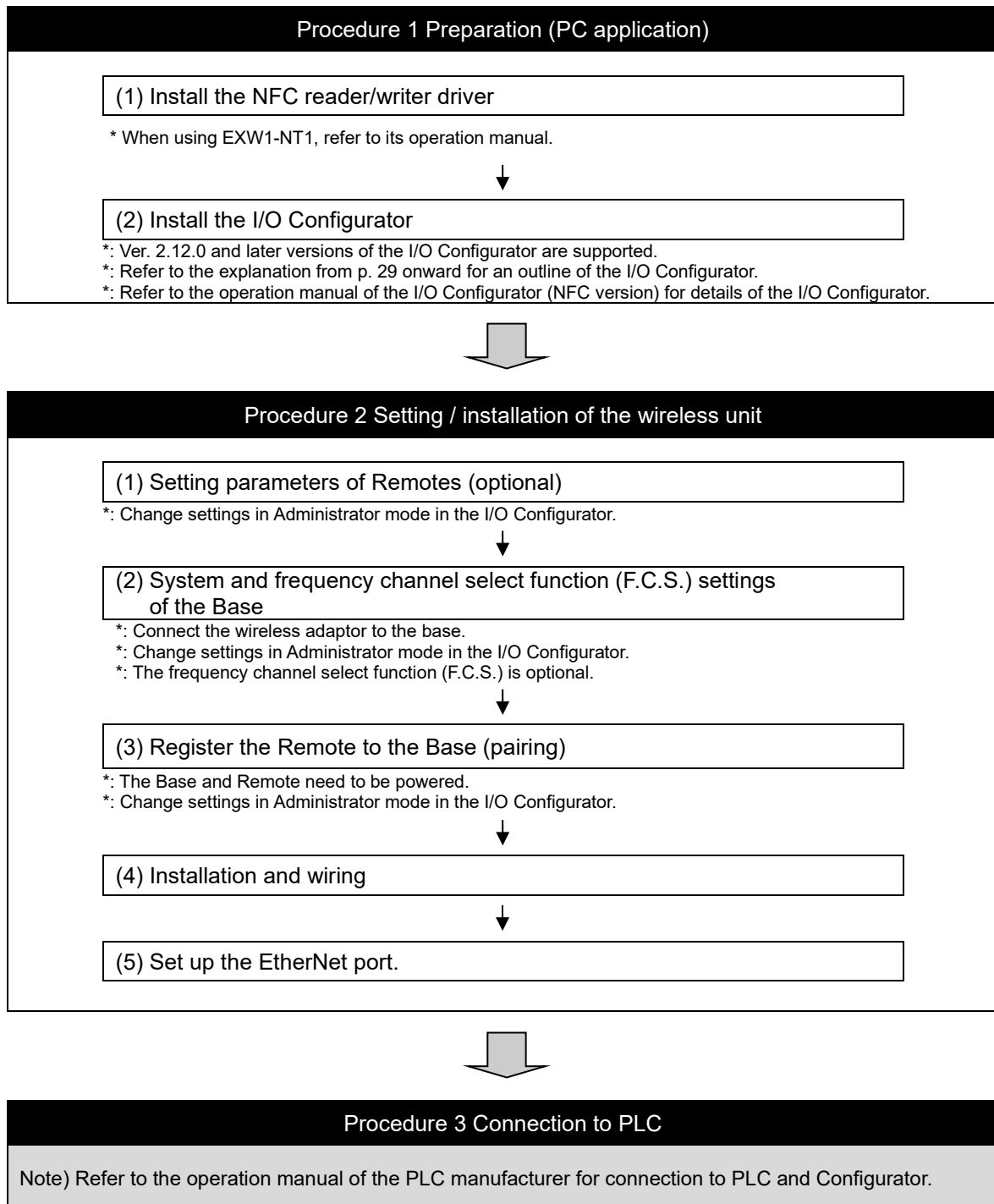
Setting and Adjustment

Flow chart for operating the wireless system

- Flow chart for using the wireless system

To use SMC wireless units (Base and Remotes), they need to be set up using an NFC reader/writer and the I/O Configurator. A setup procedure using NFC is shown below.

Refer to the operation manual for each manufacturer for how to set the controller and the PLC.



I/O Configurator (NFC version)

EXW1 series supports Ver. 2.12.0 and later versions of the I/O Configurator. In order to use the I/O Configurator (NFC version) it is necessary to install a driver etc. in advance and set the NFC reader/writer on the computer.

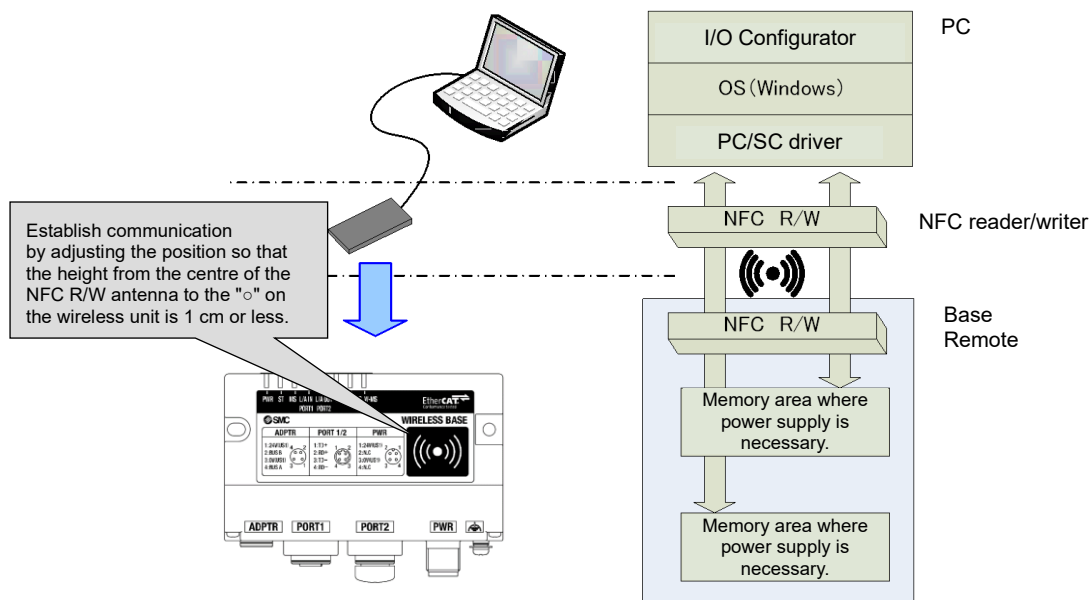
This section describes the installation, screen layouts and operations of the I/O Configurator (NFC version). The I/O Configurator (NFC version) can be used to check the parameter setting of the wireless unit and the contents and status of the constructed wireless system, using an NFC reader/writer and a PC.

Refer to the operation manual for the I/O Configurator (NFC version) for details of the I/O Configurator (NFC version).

- SMC Wireless Communication System I/O Configurator (NFC version)

The I/O Configurator (NFC version) 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 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 power is supplied to the product**.

The figure below shows the image of connected I/O Configurator (NFC version) and wireless unit.



- 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 changed parameters are enabled after the product is powered on or by pressing the reset button on the I/O Configurator screen. As the parameter setting requires time for settlement, do not turn off the power supply for two seconds.

- To change the unit to be set

As the settings between the Base and Remote are different, it is necessary to update the displayed parameter by clicking the "Refresh button" on the screen of the I/O Configurator after changing the unit in which the parameters are to be set.

Preparation

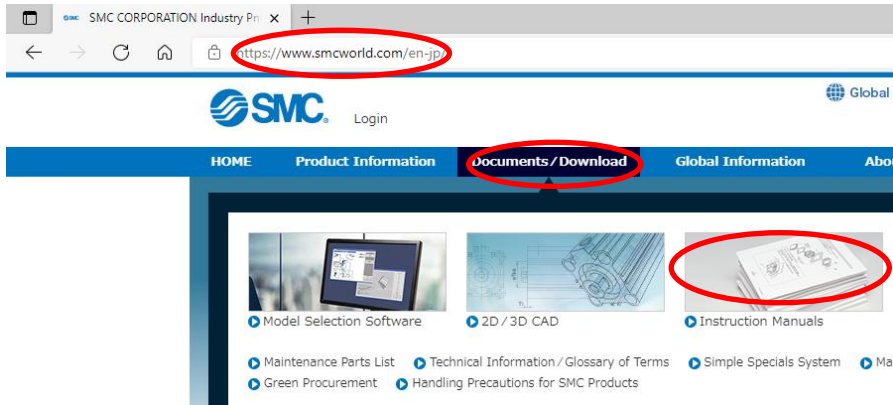
Installation of the software

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

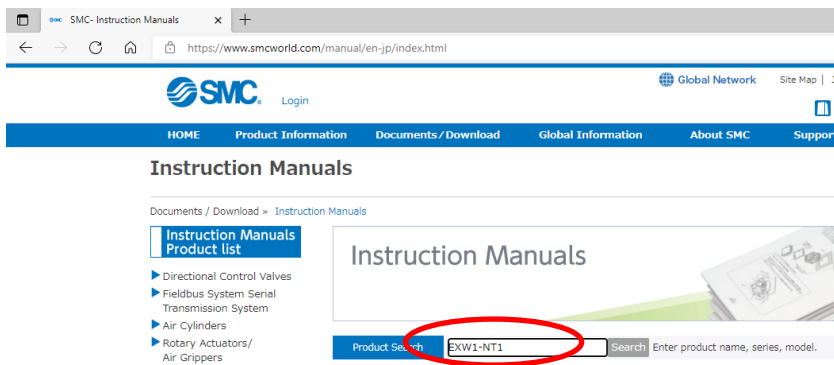
•When EXW1-NT1 (NFC reader/writer) is used

Obtain the driver software for the NFC reader/writer from the SMC website (<https://www.smcworld.com>).

On the SMC website, select [Documents/Download] and click [Instruction Manuals].



On the product search form of [Instruction Manuals], type "EXW1-NT1" to search.



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 (<https://support.microsoft.com/kb/976832/>).

Before starting the software

<When EXW1-NT1 is used>

Follow the steps below to install the driver software. Refer to the operation manual of EXW1-NT1 for details.

●Installation of the driver software

When the PC is connected to the Internet, the driver software is automatically installed.

Install the driver software again following the steps below.

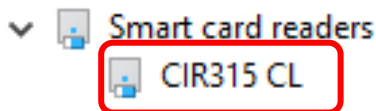
The Windows OS starts installation of the driver by connecting the EXW1-NT1 to the USB port of the PC.

(1) Windows 8.1 / 10 displays the identified devices in the task bar at the bottom of the screen.

The icon in the red circle automatically disappears when the installation of the driver software is complete.



(2) The display below appears in the Device Manager while the EXW1-NT1 is connected to the PC and is operating correctly.



[Display of the Device Manager is incorrect]

When an exclamation mark (!) is attached to the CIR315 CL is displayed in “other device in the Device Manager”, follow the steps below.

•Right-click on the CIR315 CL, and then left-click on “driver update”.

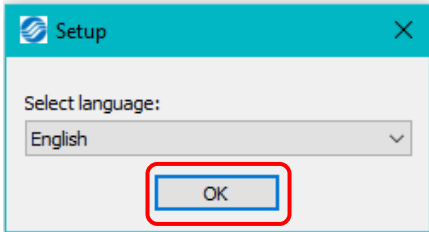
•When the screen “start hardware update wizard ” appears, select “yes, connect only this time”, and then click “Next”.

(3) Click “automatic search for the latest driver software” for “how to search the driver software?”.

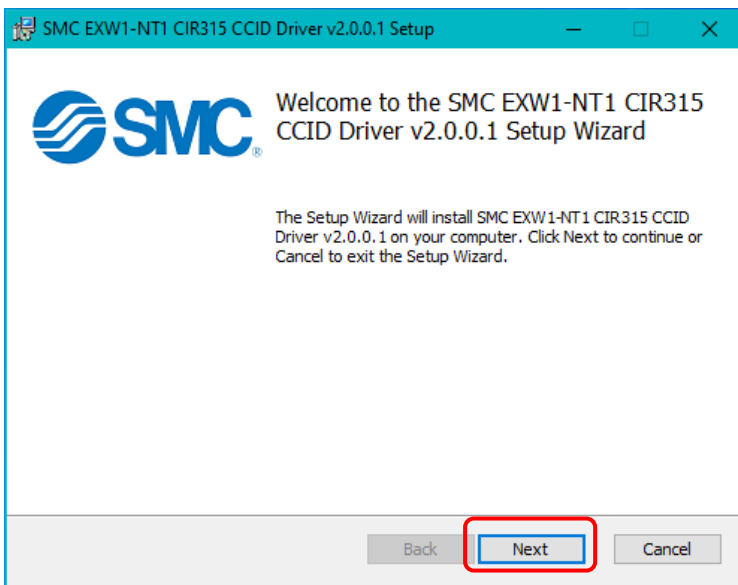
(4) When the installation does not complete successfully, take the following steps.

●Installation does not start automatically.

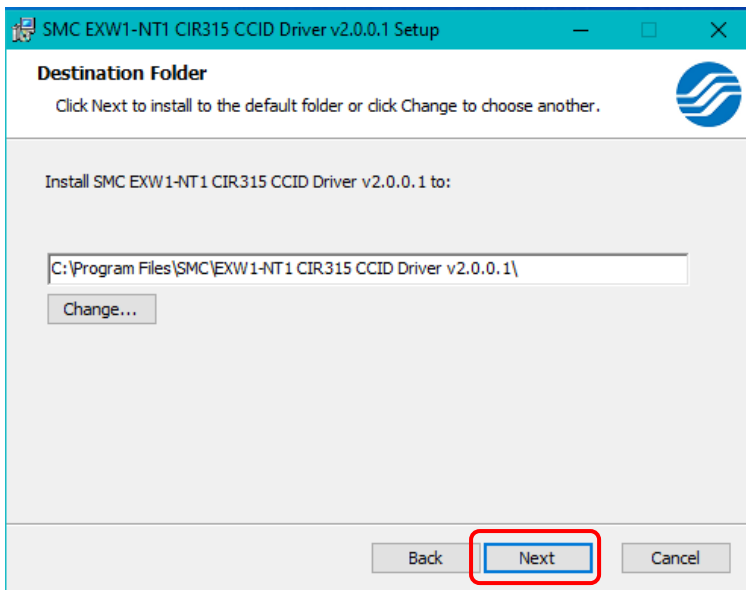
- (1) Download the driver software and manual referring to “Downloading of the driver software”.
- (2) Select language and press the “OK” button.



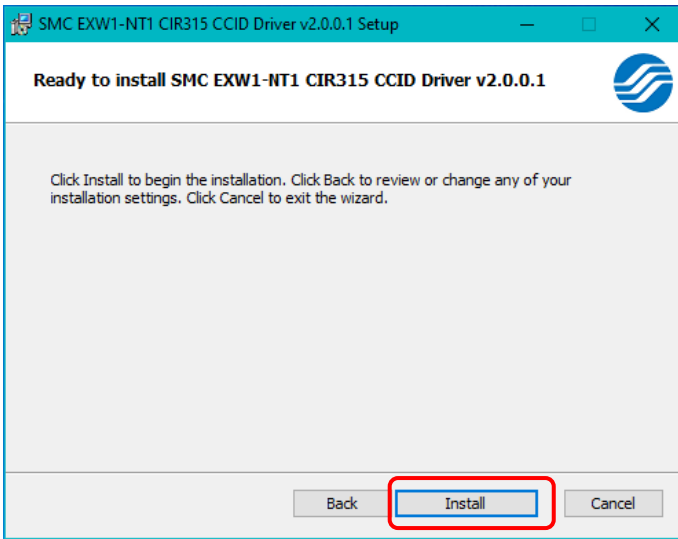
(3) Screen below appears. Press the “Next (N)” button.



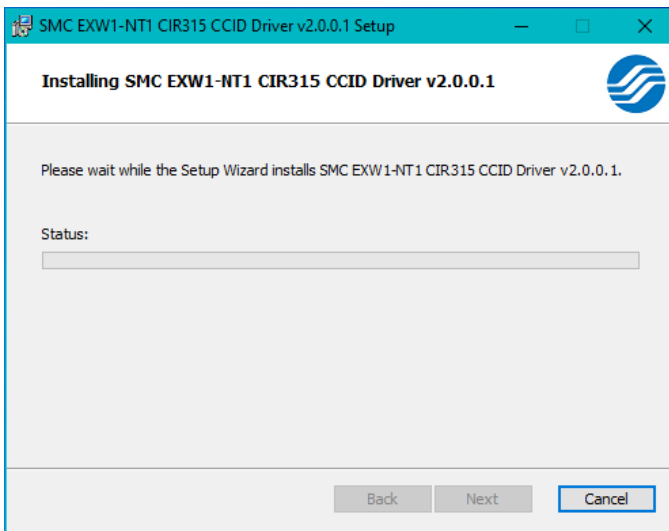
(4) Screen below appears. Press the “Next (N)” button.



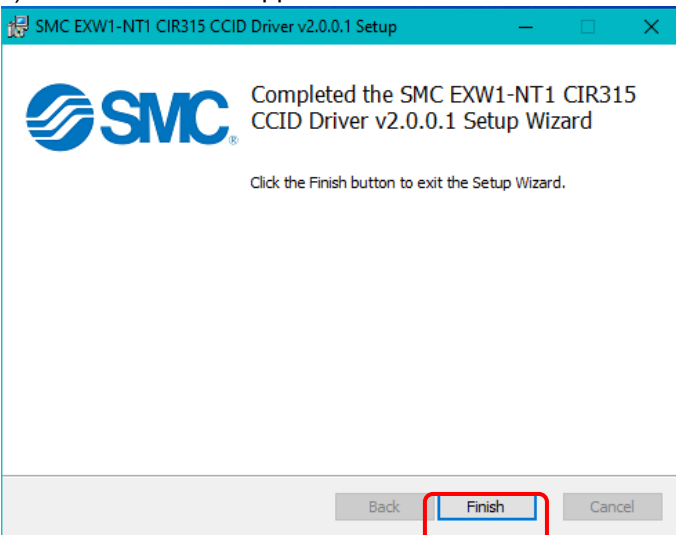
(5) Screen below appears. Press the “Install (I)” button.



(6) The screen below appears and installation starts. Please wait.



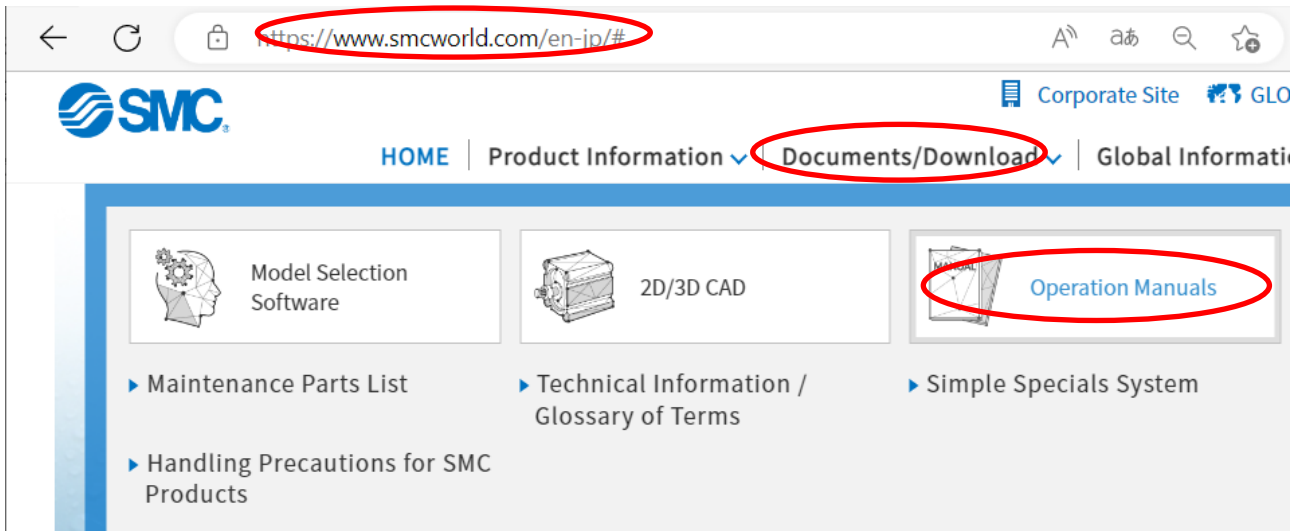
(7) The screen below appears when the installation is complete. Press the 「Finish (F)」 button.



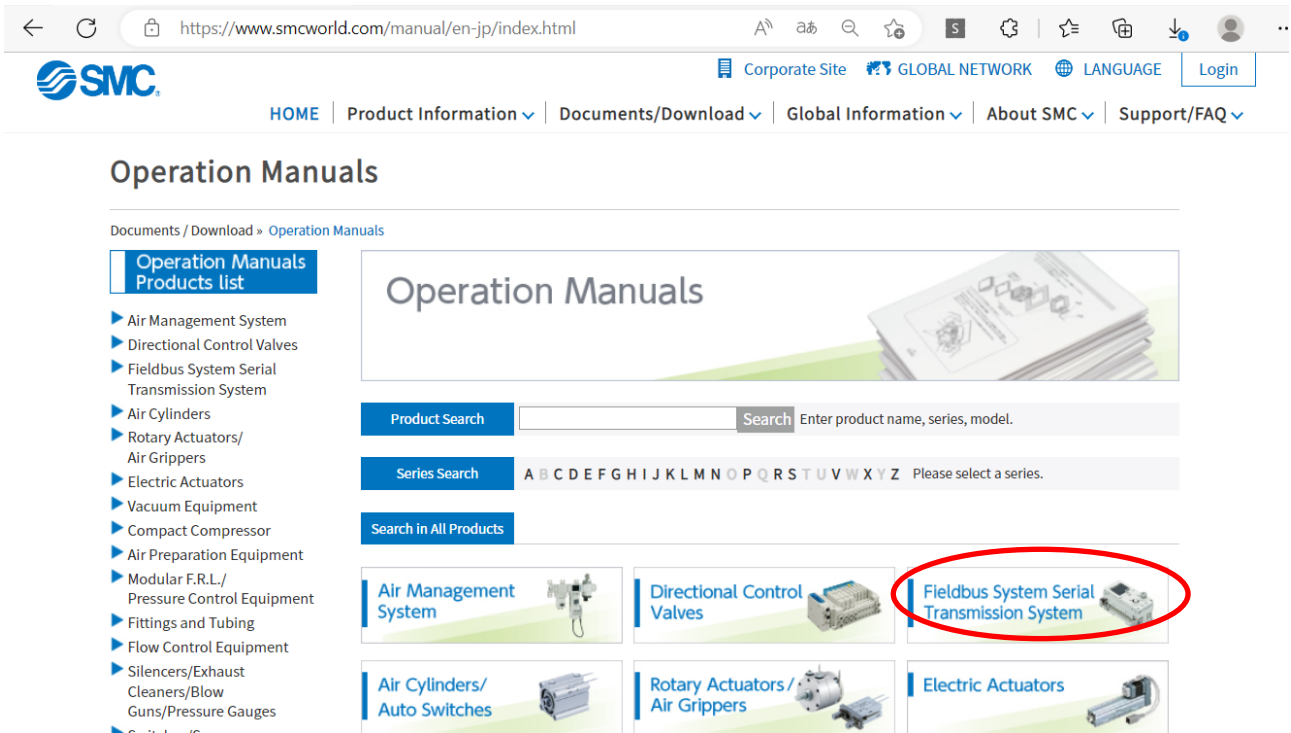
* When the screen requires restarting of the PC, restart the PC.

Download the I/O Configurator (NFC version)

(1) On the SMC website (<https://www.smcworld.com>), select [Documents/Download] and click [Instruction Manuals].



(2) Select [Fieldbus System Serial Transmission System].



(3) Select the protocol that the product supports. (Example: "PROFINET compatible" product)

The screenshot shows the SMC website's 'Operation Manuals' page. The URL is <https://www.smcworld.com/manual/en-jp/?c1=A2>. The page has a navigation bar with links for 'HOME', 'Product Information', 'Documents/Download', 'Global Information', 'About SMC', and 'Support/FAQ'. The main content area is titled 'Operation Manuals' and includes a 'Documents / Download > Operation Manuals' breadcrumb. A left sidebar lists various product categories, with 'PROFINET Compatible' circled in red. The main content area features a search bar for 'Product Search' and 'Series Search'. Below the search bars, the 'Fieldbus System Serial Transmission System' is highlighted, and a table for 'CompoNet™ Compatible' is partially visible.

Product name	Series/Model	Download	Replacement Procedure	Note
--------------	--------------	----------	-----------------------	------

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

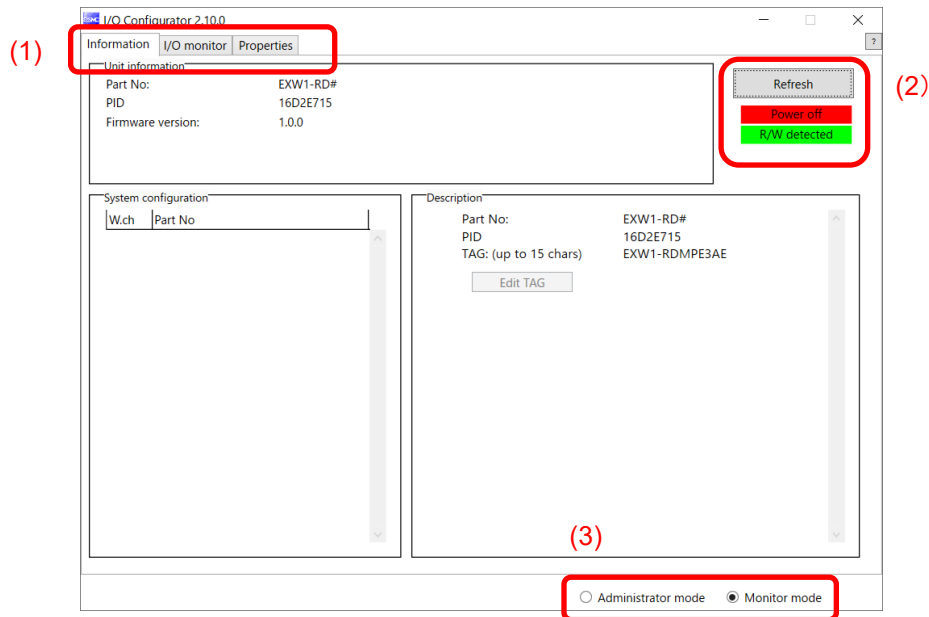
Start the I/O Configurator (NFC version)

The screenshot shows a file explorer window with the following table of files:

Name	Date modified	Type	Size
ini	10/19/2021 8:05 PM	File folder	
IOConfigurator.exe	10/1/2021 8:39 AM	Application	1,216 KB
Sna.NoWire.dll	10/1/2021 8:39 AM	Application exten...	27 KB

Open the downloaded file and double click the IOConfigurator.exe to start the I/O Configurator for NFC. To move IOConfigurator.exe to the desktop or another location, move the folder of the configurator, or create a shortcut of IOConfigurator.exe and invoke and use the program through it.

Screen Layouts of the I/O Configurator (NFC Version)



(1) Function selecting tab

I/O Configurator (NFC version) consists of three function selecting tabs.

[Information]

- Module information: Displays information on the wireless unit
- System configuration: Displays the configuration information of the Base and Remotes (connected units)
Only the system configuration of the Base is shown in tree format.
- Detailed information: Shows detailed information about the unit selected in the system configuration.

[I/O monitor]

- Input tab shows the input map information of the wireless unit.
- Output tab shows the output map information of the wireless unit.

[Properties]

- Set item: Set the parameters required to operate the Base/ Remote.

[Events]

- Displays radio-based or remote event information (e.g., error information)

[Wireless]

- Displays and saves radio log data.

[parameter]

- Set parameters for wireless remotes connected (paired) to the wireless base.

(2) Refresh, status indicators, NFC reader/writer configuration

Use these components to refresh the display of the configurator, display the power status of the module, check the connection status of the NFC reader/writer and configure the NFC reader/writer.

[Refresh]

- Clicking the refresh button while holding the NFC reader/writer to the NFC antenna approach area causes updates set in the wireless unit to be loaded. To load updates, click [Refresh].

Power status indication

- "Power supply ON" is displayed when power is supplied to the Base/Remote, and "Power supply OFF" is displayed when power is not supplied.

Connection status of the NFC reader/writer

- When the PC detects the NFC reader/writer connected to its USB port, "R/W detected" is displayed. Otherwise, "R/W not-detected" or "No driver" is displayed.

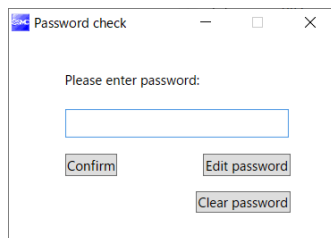
(3) Mode switching button

"I/O Configurator (NFC version)" has Administrator mode and Monitor mode.
To change parameters, operate the configurator in Administrator mode.

Administrator mode: available to change the parameters

Monitor mode: available to only read the parameters (for confirmation)

To enter Administrator mode, type a password while holding the NFC reader/writer near the NFC antenna approach area and click [Confirm].



Default password: admin

Any password can be set for supervisor mode. To prevent unauthorized use, it is advisable to change the default password when you first use the I/O Configurator.



- This password is not a password for the I/O Configurator (NFC version), but a password to access each unit. As such, be sure to perform a password authentication operation with an NFC reader/writer held near the NFC antenna approach area.

•Troubleshooting

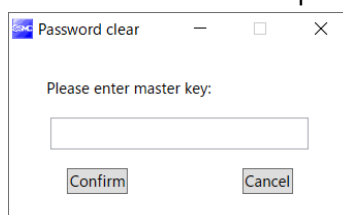
Read error: Confirm that the NFC reader/writer is connected to the PC.

Confirm that the NFC reader/writer is held near the NFC antenna approach area.

When frozen: Remove the NFC reader/writer from the PC and connect it again.

After taking the actions above, click Refresh.

If the password is forgotten, clear the password. The password will be cleared when the master factory key is entered in the [Password clear] dialog box that appears by clicking [Clear password]. Then it is possible to enter administrator mode without inputting the password.]



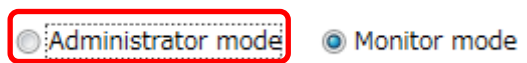
Master key: ADMIN

Setting up

To change settings, switch to Administrator mode to operate the configurator.

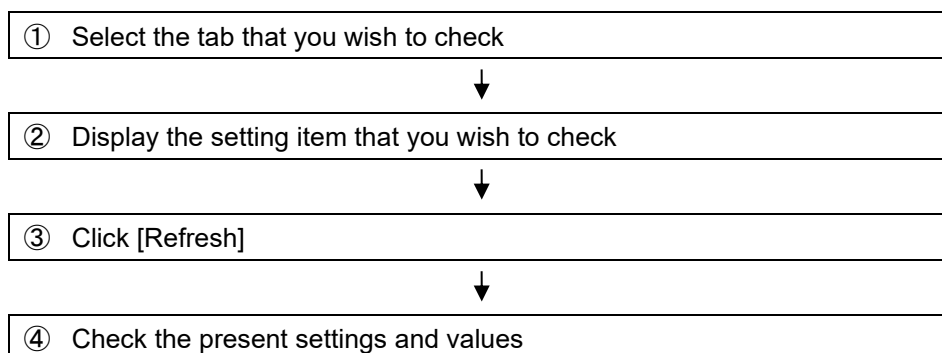
In Administrator mode, a timeout occurs after 300 seconds of inactivity and the application returns to Monitor mode.

In Administrator mode, a timeout countdown is displayed to the right of the "Administrator mode" label.



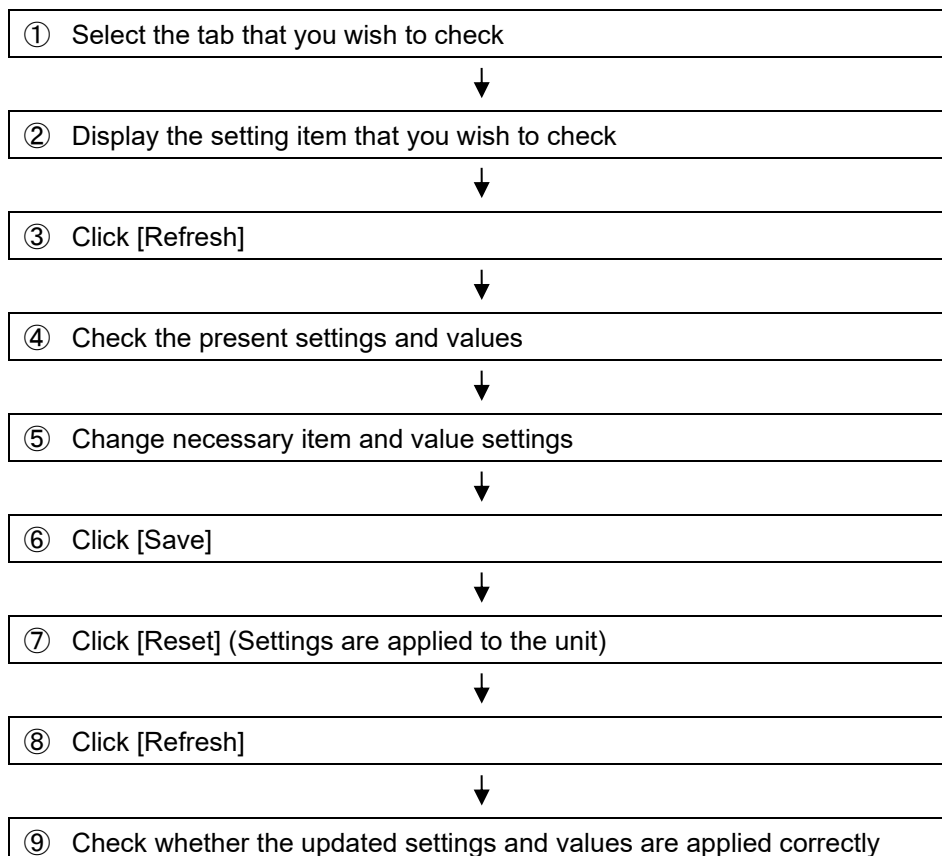
Operational flow during monitoring

A rough operational flow during monitoring is shown below (operations in Monitor mode).



Operational flow when changing settings

A rough operational flow during setting changing operations is shown below (operations performed in Administrator mode).



Setting/Adjustment of the Wireless Unit

Parameter settings of the Base

Change the settings of each parameter as necessary.

System setting

Change the settings of each parameter as necessary.

System setting parameters

Classification	Parameter	Set value	Initial value	Note
System Setting	(1) I/O mapping	Auto	Auto	
	(2) Diagnostic allocation	None/Simple/ Advanced	Advanced	
	(3) Max. Remote units	15 /31/63 Remotes	15 Remotes	
	(4) Time of Wireless communication timeout	100/200/500/1,000 msec /2,000/5,000 msec	500 msec	Activated only when protocol V.2.0 is used
	(5) Power Transmission Level	High/Middle/Low	High	Activated only when protocol V.2.0 is used
	(6) Wireless signal	Active/Idle	Active	
	(7) Protocol	V.1.0/V.2.0	V.2.0	
	(8) Time Information	-	-	Activated only when protocol V.2.0 is used



•The protocol version is set to V.2.0 by default; to use EX600-W series Remote devices, change the protocol version to V.1.0 before pairing them.

1) I/O mapping

Define the I/O mapping of the entire wireless system including the remote registered to the base.

Auto mapping: All I/O points mapped to the base and remote are identified and mapped automatically.
(The total number of connected I/O points is the total number of I/O points connected to the diagnostic information, base and remote.)

2) Diagnostic allocation

Set the diagnostic information allocated to the I/O map. (Refer to the section "Diagnostic allocation" for details.)

None: No diagnostic data

Simple: System diagnosis

Detailed: System diagnosis + Remote connection/diagnosis/registration information

3) Max remote

Set the number of remote which are registered to the base.

Wireless channels for the number of the set units are

4) Time of Wireless communication timeout

Only available in protocol V.2.0.

If wireless communication (including retries) does not succeed due to obstacles or for other reasons, it is judged to have failed after a set amount of time and disconnected. Then, the Base and the Remote are reconnected.

Setting range: 100/200/500/1,000/2,000/5,000 msec

5) Power Transmission Level

Only available in protocol V.2.0.

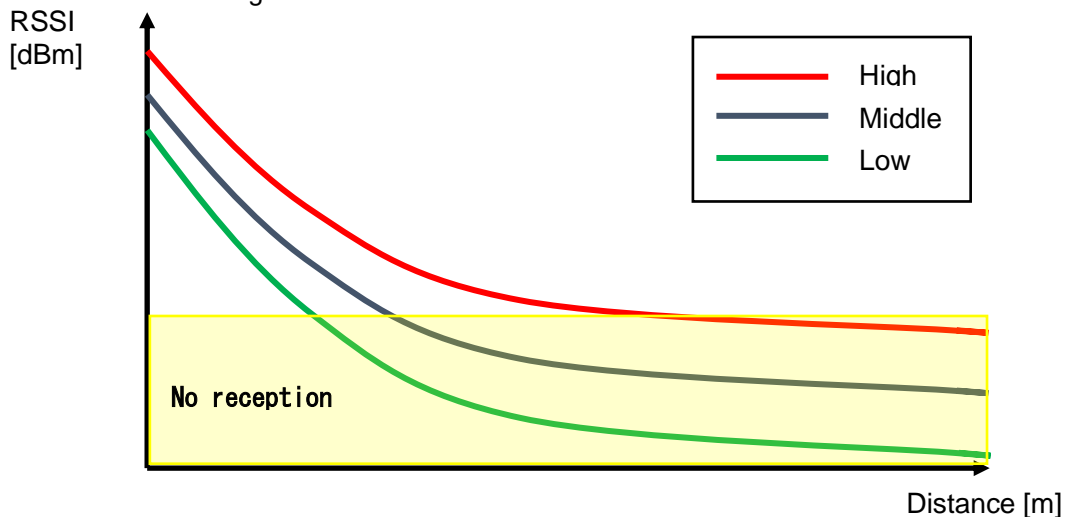
It is possible to decrease interference with other wireless products by reducing the output power level.

This setting is made in the base and will be applied to any paired Remotes with wireless adaptor via wireless communication.

Setting range: High/Middle/Low (Power Transmission : High > Middle > Low)

Lowering the setting by one step reduces the maximum communication distance by approximately one-fourth. However, it varies depending on the communication environment.

Below is an illustration image.



6) Wireless communication

Sets the operation status of wireless communication.

Active: Wireless communication output is active

Idle: Wireless communication output is idle

7) Protocol

Sets the wireless communication protocol.

* To pair with an EX600-W series unit, V.1.0 must be set.

This also applies when building a wireless system consisting of both EXW1 and EX600-W series.

•V.1.0: The same wireless communication method as EX600-W is used. The communication speed is 250 kbps.

•V.2.0: This can be applied to a wireless system consisting solely of EXW1 series units. The communication speed is 1 Mbps.

See the table of combinations provided below.

Combination*4		Communication distance	Applicable function			
Wireless Base	Wireless Remote		Protocol	F.C.S.	Radio output level setting	WEB
EXW1	EXW1+EXA1	Up to 100 m	V.2.0*1	○*1	○*1	○
EXW1	EXW1	Up to 100 m	V.1.0/V.2.0*1	○*1	○*1	○
EXW1	EXW1+EX600	*2	V.1.0	×	×	○
EXW1	EX600	Up to 10 m	V.1.0	×	×	○
EX600	EXW1	Up to 10 m	V.1.0	×	×	○*3
EX600	EXW1+EX600	Up to 10 m	V.1.0	×	×	○*3
EX600	EX600	Up to 10 m	V.1.0	×	×	○

*1: Only available in protocol V.2.0.

*2: Up to 100 m between an EXW1 series Base and Remote, and up to 10 m between an EXW1 series Base and an EX600-W series Remote.

3: The settings and monitor function are restricted when EXW1-R are used.

*4: For combinations involving EX600-W series, refer to the operation manual for the product in use.



•The protocol can be changed only when no Remote is registered in the Base.

Make changes only after unregistering any registered Remotes.

Note that an unregistration pop-up window will appear in the I/O Configurator.

8) Time Information

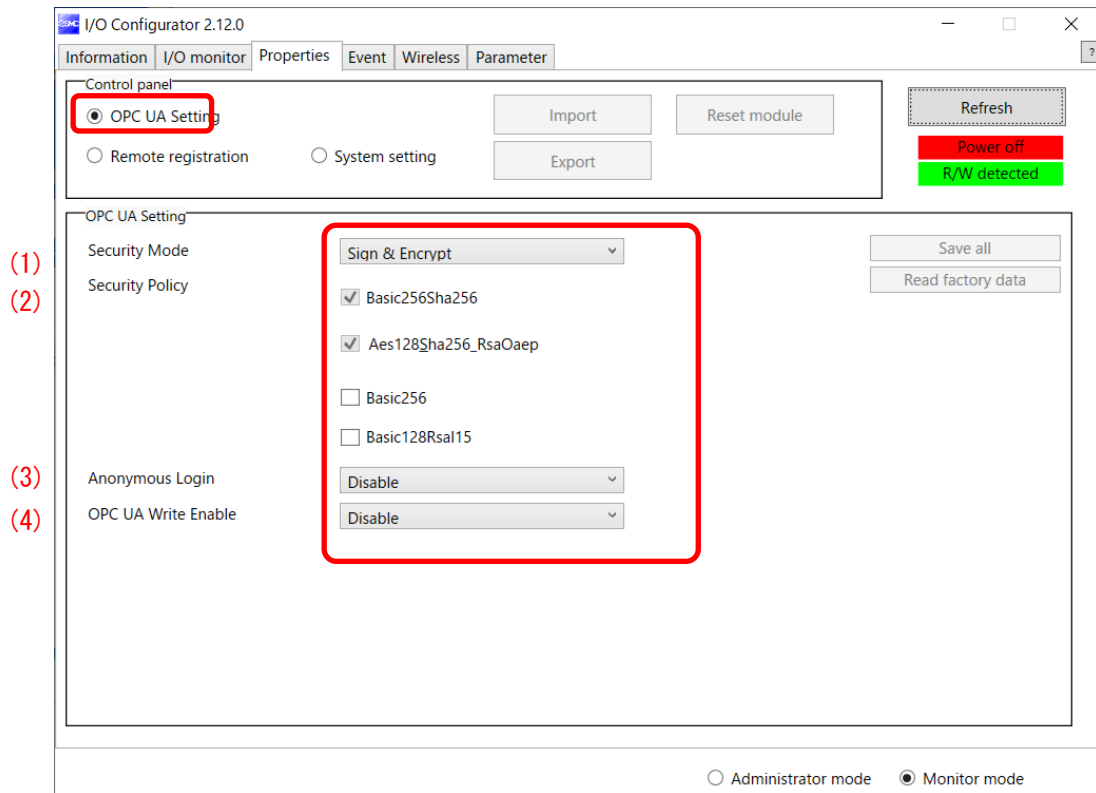
The time information is the time that the product recognizes. It is used for a timestamping event and other logs.

9) Synchronize time

The time information of the PC is sent to the product and is synchronized. If the time information of the PC is required for timestamping event and other logs, perform time synchronization.

OPCUA

Change the settings of each parameter as necessary.



OPC UA setting parameters

Classification	Parameter		Set value	Initial value	Note	
OPC UA Setting	(1)	Security Mode	Sign & Encrypt / Sign /None	Sign & Encrypt		
	(2)	Security Policy	Basic 256Sha256	Checked (Enable)	Enable	Always on
			Aes128_Sha256_RsaOaep	Checked (Enable)	Enable	Always on
			Basic256	Unchecked (Disable) / Checked (Enable)	Disable	Not recommended
			Basic128Rsa15	Unchecked (Disable) / Checked (Enable)	Disable	Not recommended
	(3)	Anonymous Login	Disable/Enable	Disable	Not recommended	
(4)	OPC UA Write Enable	Disable/Enable	Disable	** Output from PLC will be ignored when set to Enable.		

1) Security Mode

Please select mode to connect to OPC UA client. This mode sets whether Sign (authentication) and Encrypt (encryption) are enabled or disabled.
Setting range: Sign & Encrypt / Sign /None

2) Security Policy

Please select encryption type for connection with OPC UA client.

3) Anonymous Login

Please set if you turn on Anonymous login.

4) OPC UA Write Enable

Please set if OPC UA client controls the output via OPC UA connection.
Please refer to OPC UA Configuration to control output for more detail.

Events

This makes it possible to check the event information of the wireless Base or wireless Remotes.
The list is sorted from newest to oldest.

I/O Configurator 2.10.0

Information | I/O monitor | Properties | Event | Wireless

(1) REMOTE Ch1 (7) CLEAR (2) EXPORT Refresh

Power on
R/W detected

TAG : EXW1-RDYNE4AE

(3) Timestamp	(4) Unit	(5) Channel	(6) Error Code
10/18/2021 4:15:47 PM	0	0	17
10/18/2021 4:15:47 PM	0	0	16
0days 00:00:30	0	0	17
0days 00:00:30	0	0	16
0days 00:00:00	0	0	17

Administrator mode Monitor mode

• Event Tab

No.	表示	内容
(1)	Model selection	Select the wireless Base or a Remote registered in the wireless Base.
(2)	Clear Event Data	Clear the event data from the selected unit in "Model selection".
(3)	Event data export	Event data can be exported to text files.
(4)	Time stamp	The time when the event was obtained is displayed. Time-synchronized time is displayed only in the case of protocol V.2.0. If time is not synchronized, the time elapsed since the product is turned on is displayed.
(5)	Unit	The unit No. is displayed.
(6)	Channel	The channel No. of the wireless Remote is displayed.
(7)	Error Code	The error code is displayed.

● Error Code

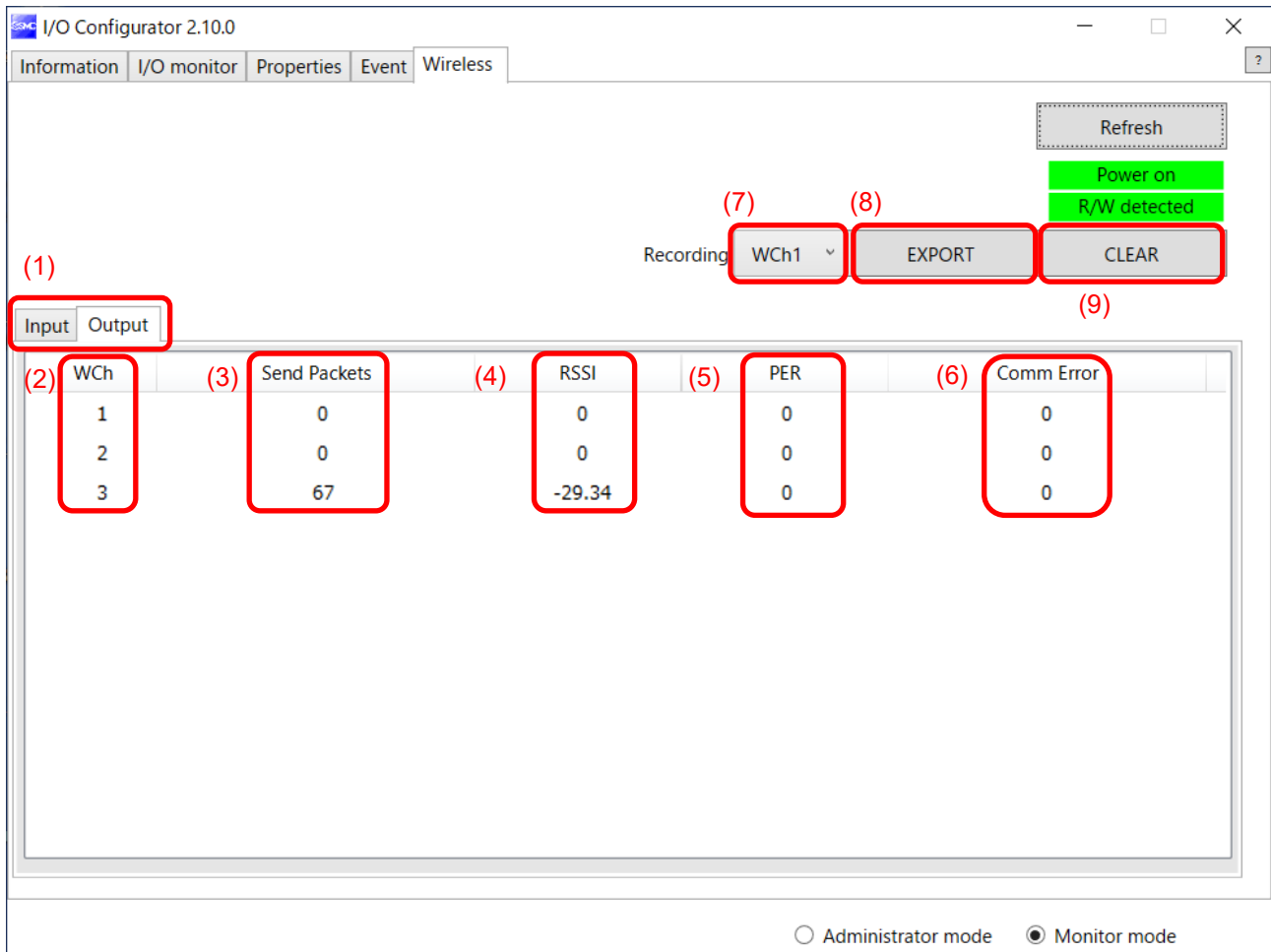
The error code is displayed.

The table below shows error codes and corresponding details and diagnostics maps.

Error Code	Description	Diagnostics map		
		Item	Bit No.	
1	Detection of a short circuit of US1 or US2	System diagnostic 1	6 or 7	
2	Detection of the range upper limit		3	
3	Detection of the range lower limit		2	
6	Detection of unconnected load		5	
7	User setting upper limit detection		1	
8	User setting lower level detection		0	
9	Detection of the upper limit of the ON/OFF cycles		4	
16	Detection of US1 power supply voltage drop		System diagnosis 2	1
17	Detection of US2 power supply voltage drop			0
19	Connection failure between units (during operation)	3		
20	Connection failure between units (when power is supplied)	4		
22	Detection of system error (when power is supplied)	6		
23	Detection of hardware error (during operation)	7		
64	Abnormal number of input / output points setting error	System diagnosis 3	0	
67	Wireless adaptor internal connection error		3	
70	Detection of system error		6	
71	Detection of hardware error		7	
72	Number of system input / output points setting error	System diagnosis 4	0	
73	Number of registered Remotes setting error (Outside of the wireless channel setting range)		1	
78	Wireless registration data corrupted		6	
79	Detection of wireless hardware error		7	
80	IO-Link Device Error	None	None	
81	IO-Link Device Warning	None	None	
82	IO-Link Master port Error	None	None	
83	IO-Link Master port Warning	None	None	

Wireless

This screen displays wireless log data.







• Wireless Tab

No.	Item	内容
(1)	Input/ Output Tabs	Wireless-Based received data is displayed on the Input tab, and transmission data is displayed on the Output tab.
(2)	WCh	The wireless channel is displayed.
(3)	Send Packets (or Received Packets on the Input tab)	The number of transmitted/received packets is displayed.
(4)	RSSI (Received Signal Strength Indicator)	The radio wave receiving intensity is displayed.
(5)	PER (Packets Error Rate)	The packet error rate is displayed.
(6)	Comm Error (Communication Error)	The number of communication disconnections is displayed.
(7)	Selection of wireless channel	Select the wireless channel to obtain wireless log data.
(8)	Export of wireless log data	The wireless log data of the selected wireless channel is exported. Wireless log data is divided into four csv files.
(9)	Clear wireless log	Clear all wireless log data.

● Wireless log data file

Wireless log data is divided into four csv files as below.

Name	Date modified	Type	Size
 AllInfo.csv	2021/10/01 15:53	Microsoft Excel CS...	1 KB
 RcvRSSI.csv	2021/10/01 15:53	Microsoft Excel CS...	6 KB
 Retries.csv	2021/10/01 15:53	Microsoft Excel CS...	1 KB
 SndRSSI.csv	2021/10/01 15:53	Microsoft Excel CS...	7 KB

Pairing and Unpairing Procedures

Pairing Procedure

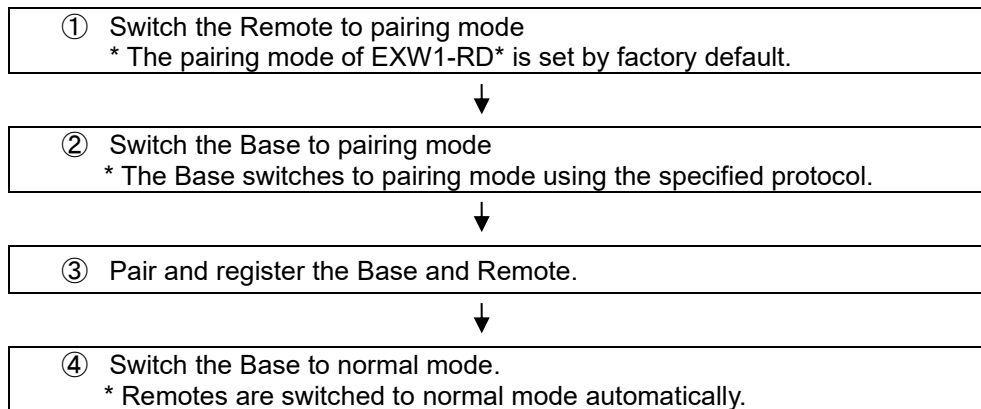
Pairing a Base with a Remote

Pairing is required for communication between a Base and Remote.

A Base is paired with a Remote after they are switched to pairing mode.

Pairing and registration between a Base and Remote enables wireless communication.

○Operational flow during pairing



- After changing the operation mode for pairing, the mode is changed by clicking the [Reset] button or re-supplying power so that the mode will be changed to the Remote registration or listing for connection.
- If the FCS function is to be used, please perform the FCS setting prior to pairing. After pairing the advertising channels are fixed which limits the channels available for FCS setting.



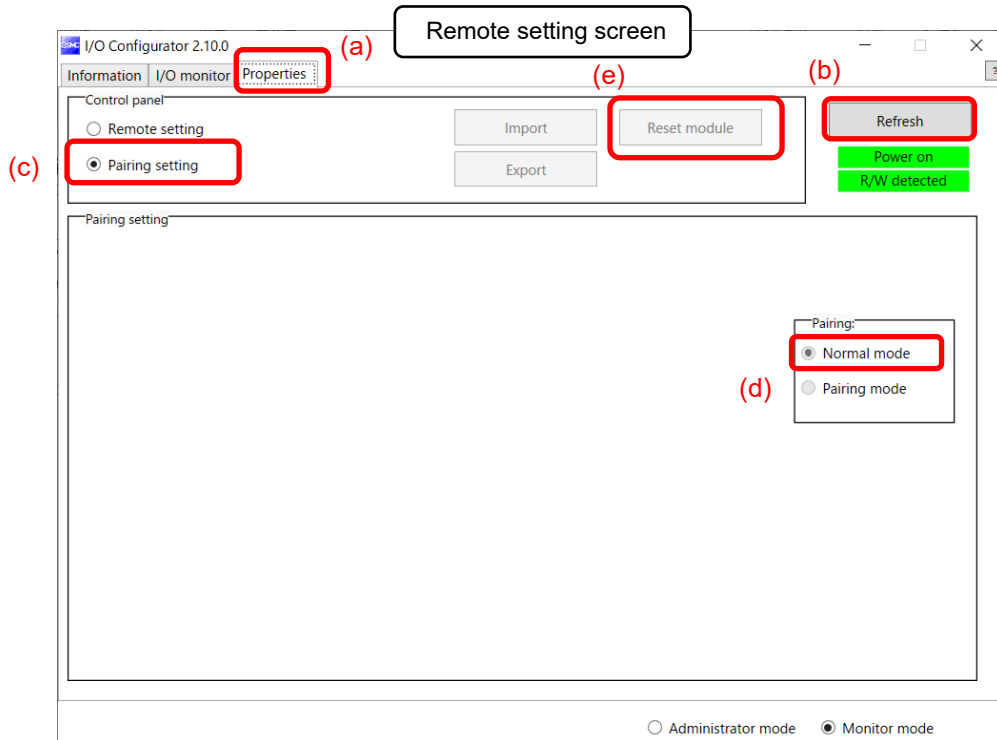
- Ensure the power supply for both the base and remote is on when they are paired
- Exchange of I/O data is not possible during pairing
Do not change the pairing mode during the operation.
- Module unit size of the remote is transferred to the base unit during the pairing procedure.
When this size is changed after the pairing, please re-configure the system.

Any parameter changes are enabled after the product is powered on or by pressing the "Reset module" button.

(1) Switch the Remote to pairing mode

Connect to the Remote using NFC, select the (a) [Properties] tab and then click (b) [Refresh]. Select (d) [Pairing mode] from the [Pairing setting] on the (a) [Properties] tab and then click (e) [Reset module].

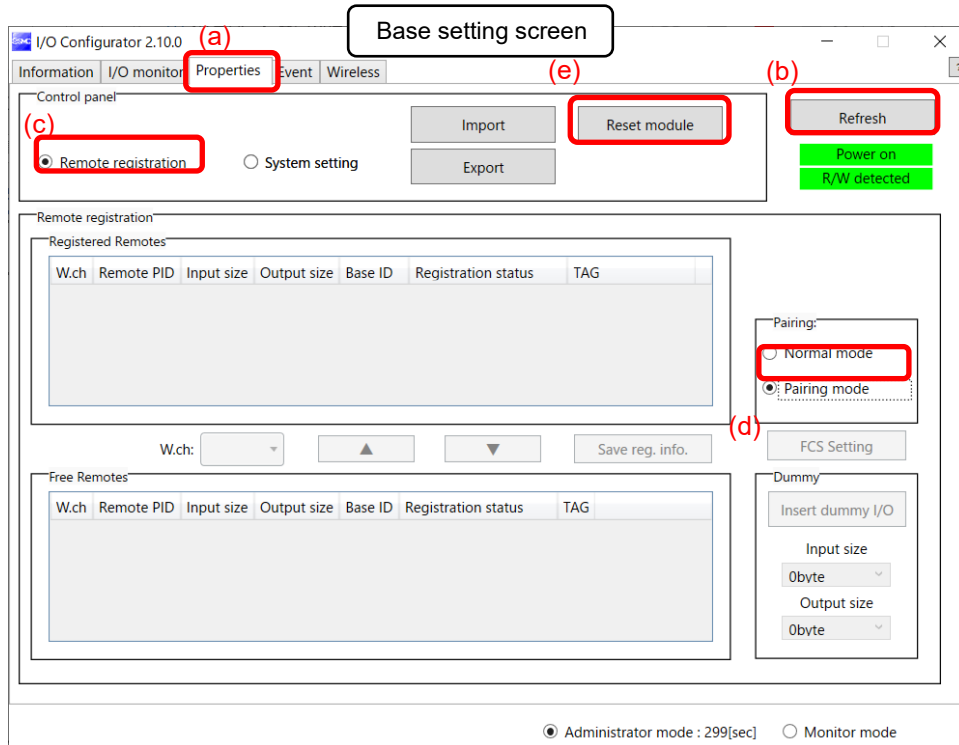
Once in pairing mode, the MS LED on the unit flashes alternately in red and green.



(2) Switch the Base to pairing mode

Connect to the Base using NFC, select the (a) [Properties] tab and then click (b) [Refresh].

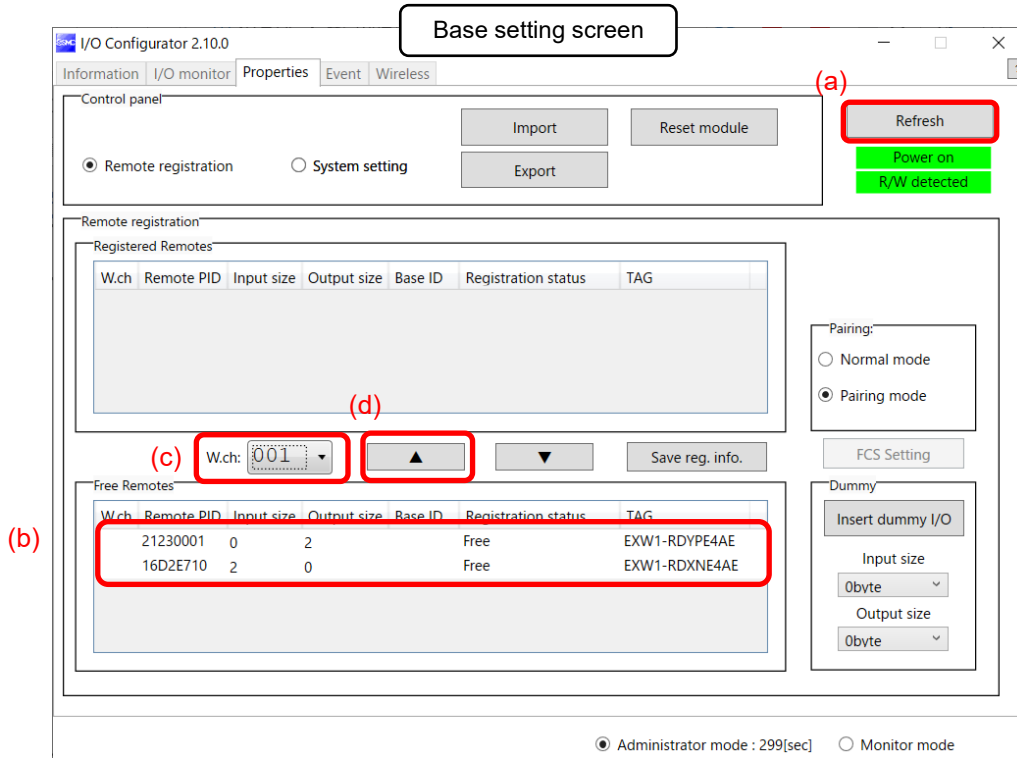
Select (d) [Pairing mode] from (c) [Remote registration] on the (a) [Properties] tab and then click (e) [Reset module].



- A Base unit will change to pairing mode using the protocol set in "System setting". First set the protocol according to the Remote to be paired before switching to pairing mode.
- If the FCS function is to be used, please perform the FCS setting prior to pairing. After pairing the advertising channels are fixed which limits the channels available for FCS setting.

(3) Pair and register the Base and Remote

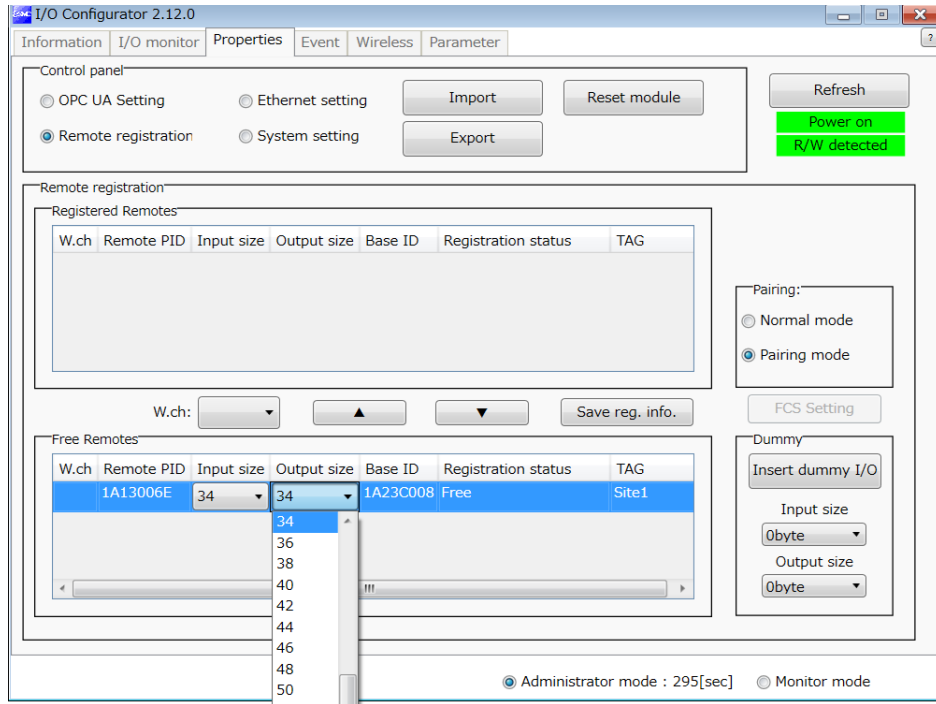
- (a) Clicking [Refresh] causes Remotes in pairing mode to be listed in the Free Remotes area.
- (b) Select the Remote that is to be rstered,
- (c) specify a wireless channel and then
- (d) click ▲.



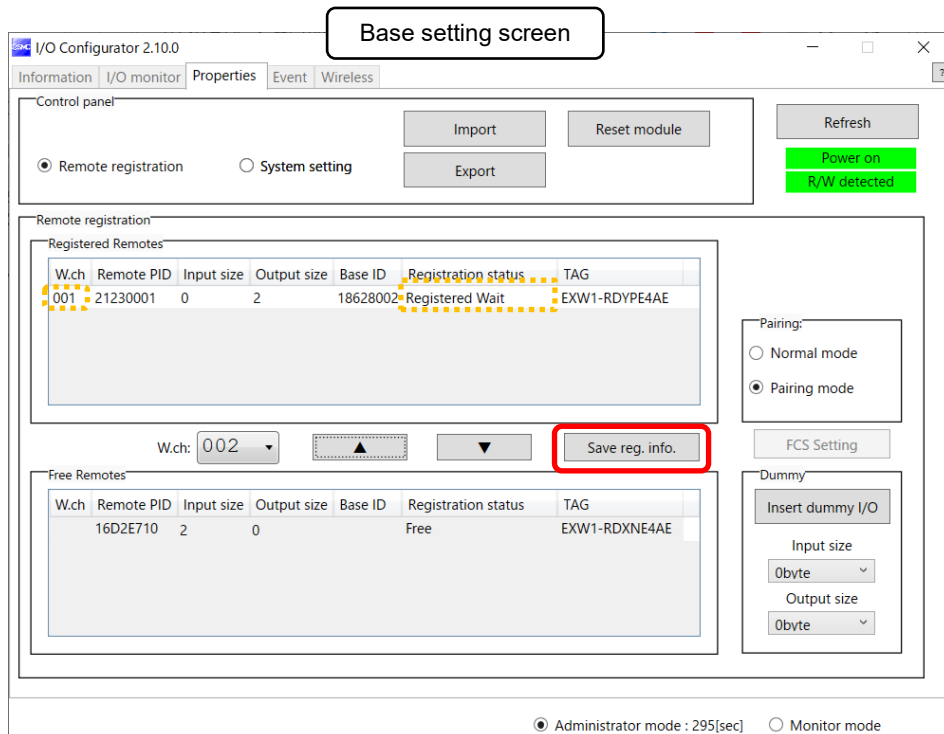
- If the Remote that you wish to pair with does not appear, click (a) [Refresh] again. If it still does not appear, check the following:
 1. The Remote is not switched to pairing mode
 2. The Remote is not turned on
 3. The Remote is registered or waiting to be registered to another Base

Input/Output Size Setting

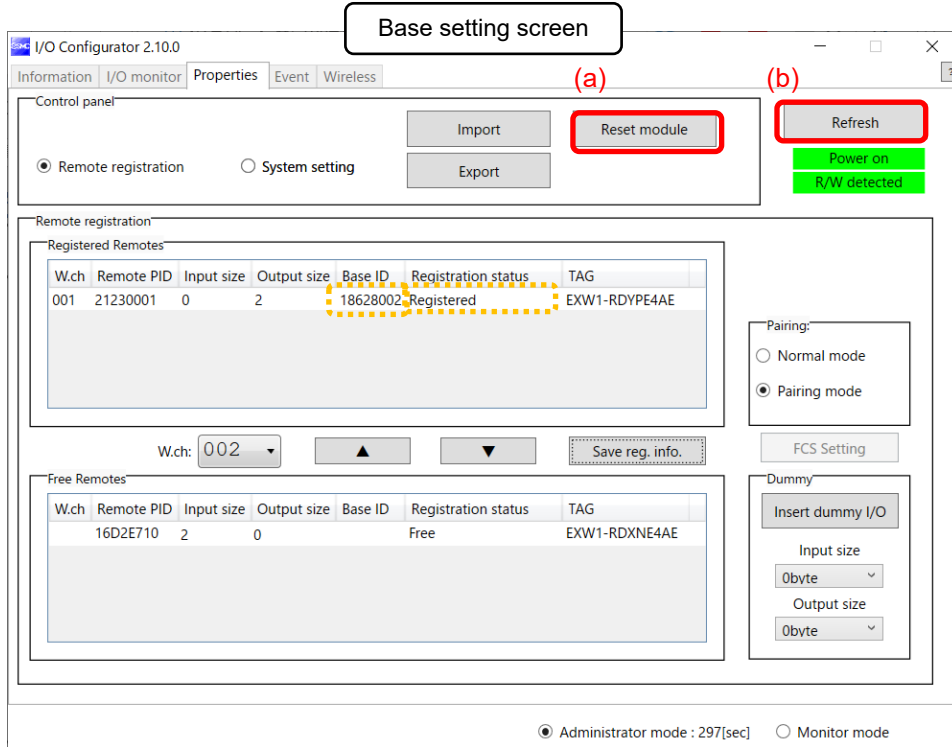
In protocol V.2.0, it is possible to set the remote (EXW1-RL*PA*C, etc.) with variable input/output occupied bytes. Please refer to each product's instruction manual for the input/output size range to be set.



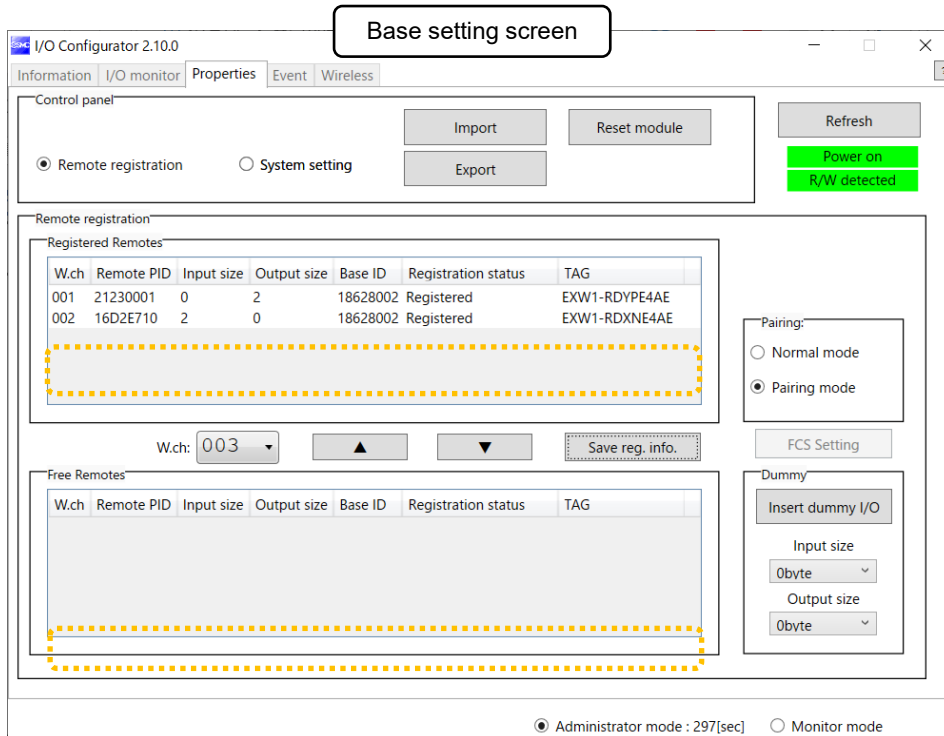
The Remote that is to be registered on the specified wireless channel moves to the Registered Remotes area. Make sure that the registration status is Registered Wait, and click [Save reg. info.].



Click (a) [Reset module] and (b) [Refresh] and check that the registration status changes to Registered.



* The example below shows two Remote modules registered on CH1 and CH2.



Configure the registration of the dummy Remote as necessary. (Refer to page 56).

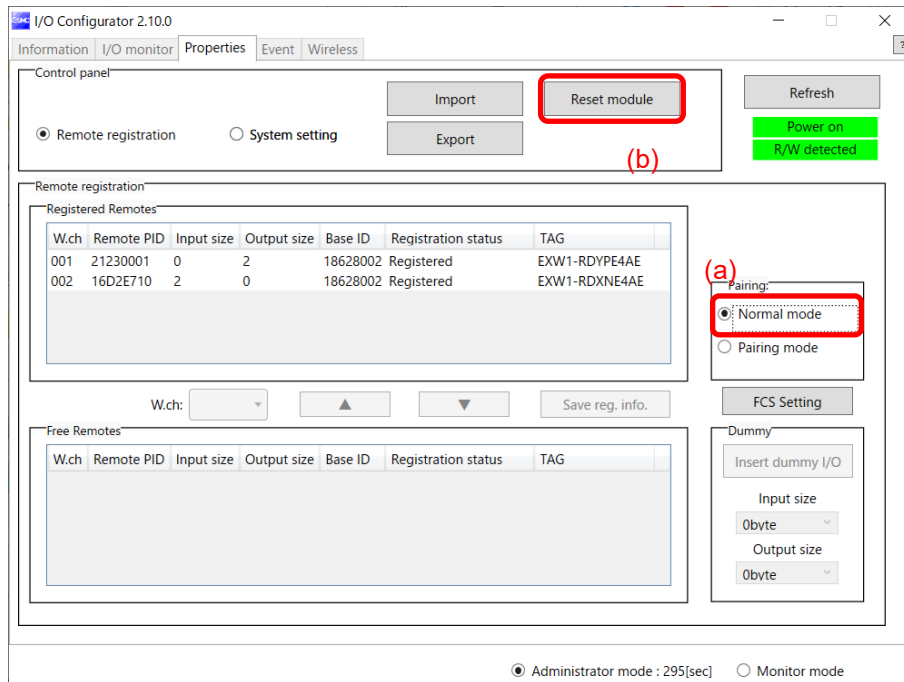
(4) Disable the Pairing mode of the Base (Normal mode)

Connect to the Base using NFC,

(a) Select [Normal mode]

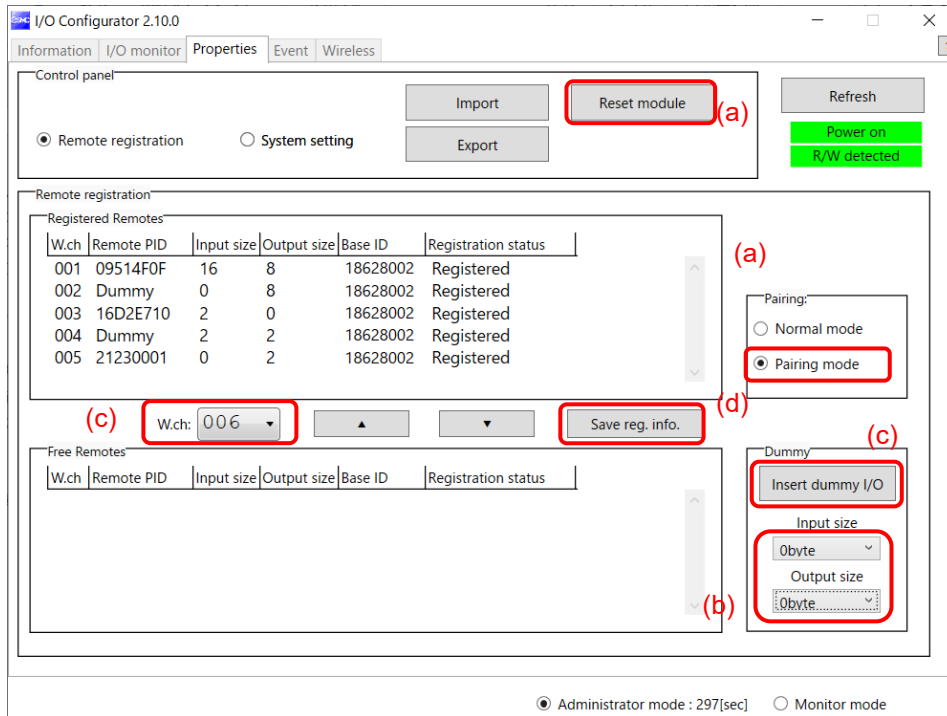
(b) Click [Reset module] to reset the Base.

(c) Check connection with registered Remotes.



•Dummy Remote

Set dummy Remotes to secure reserved area in memory and enable Remotes to be added and registered later, without changes to mapping, even after the system has been configured. Register dummy Remotes using the Base.



(a) **Change the operating mode** of the Wireless Base unit

- (a)-1 Set Remote registration on the Wireless Base unit to "Pairing mode".
- (a)-2 Reflect the change by clicking "Reset module" or by re-supplying power.
- (a)-3 Click the "Refresh" button to update the display.

(b) **Set inputs / outputs** of the dummy Remote

Set the number of inputs and outputs of the dummy Remote.

(c) **Allocate** the dummy Remote to the required **wireless channel**

Select the required wireless channel and click the "Insert dummy I/O" so that the set dummy Remote is displayed in the "Registered Remotes" area.
(Dummy Remote registration is not complete at this point. The status is "Registered Wait".)

(d) **Finalize** dummy Remote **registration information**

Click the "Save reg. info." button to reflect the registered information.
(When registration has been completed successfully, the status of the dummy Remote will change to "Registered".)



- To register a dummy Remote, it is necessary to set the number of inputs / outputs beforehand. If a Remote with inputs / outputs which are different from the set numbers is registered, the I/O map must be changed. Care should be taken.

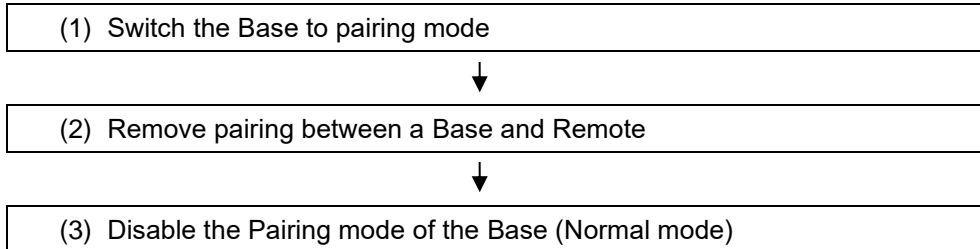
Unpairing Procedure

Removing Pairing between a Base and Remote

Pairing between a Base and Remote will be removed.

When you wish to reconfigure the wireless system, such as changing the I/O sizes of a registered Remote, pairing needs to be removed and registered again.

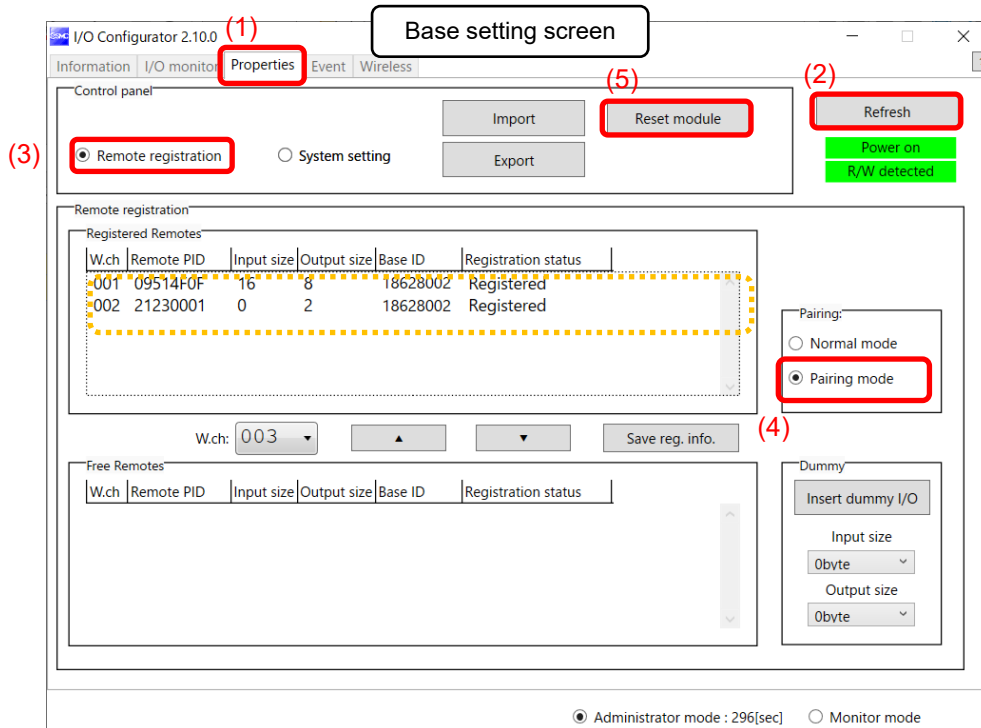
○Operational flow during unpairing



(4) (1) Switch the Base to pairing mode

Switch the Base to pairing mode. Select the [Properties] tab and then click [Refresh]. Select [Pairing mode] from [Remote registration] on the [Properties] tab and then click [Reset]. [setting]

* The example below shows two Remote modules registered on CH1 and CH2.



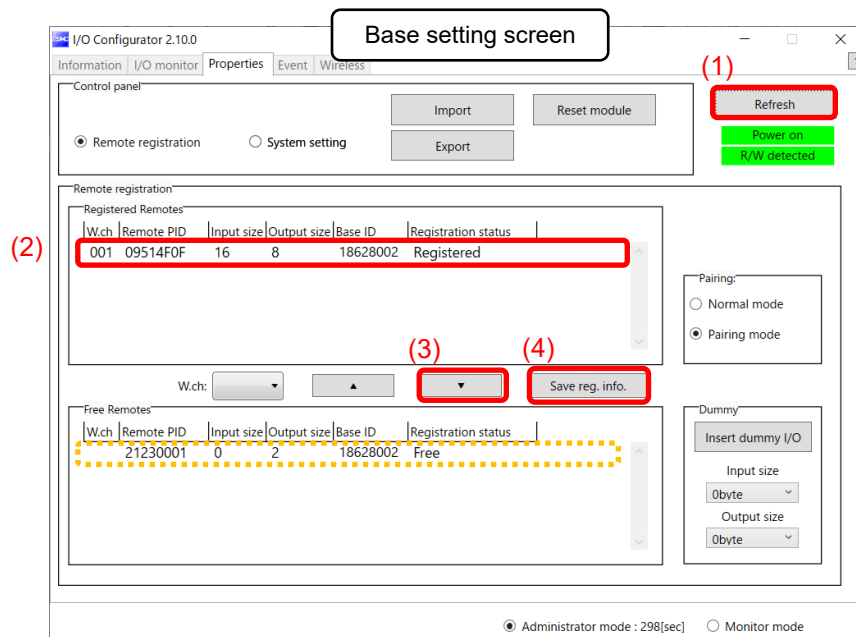
(2) Removing the pairing between the Base and Remote

Pairing between the Base and Remote will be removed.

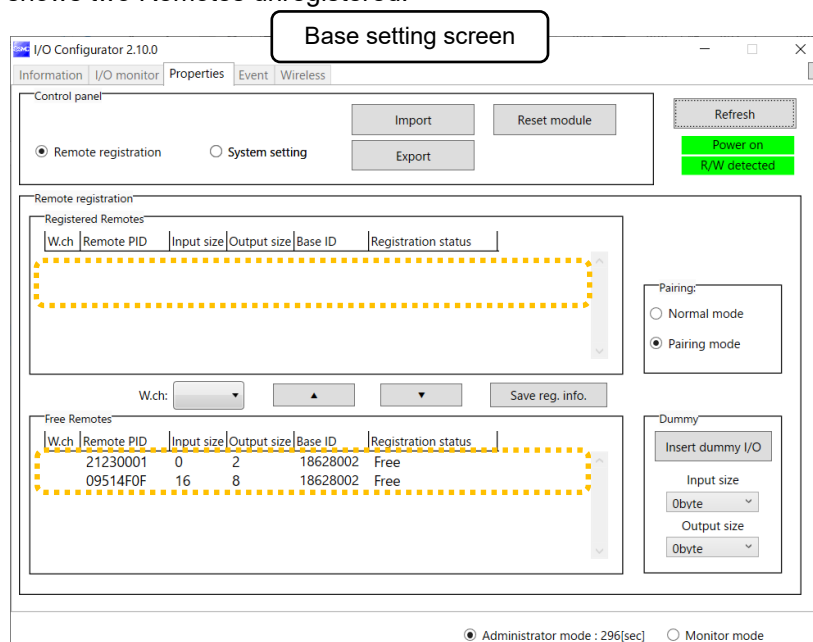
Click [Refresh]. Select the Remote that you wish to unpair from the registered Remotes and click ▼, which in turn causes the selected Remote to move to the Free Remotes area. Clicking [Save reg. info.] finalizes the unregistration of the Remote.



•If a Remote moved to the Free Remotes area is not in Pairing mode, clicking [Refresh] after finalizing the unregistration of the Remote causes the Remote moved to the Free Remotes area to be hidden.



* The example below shows two Remotes unregistered.



(3) Disable the Pairing mode of the Base (Normal mode)

Set the Base to [Normal mode] and click [Reset].

Mounting and Installation of Units

EXW1-BPNAC1

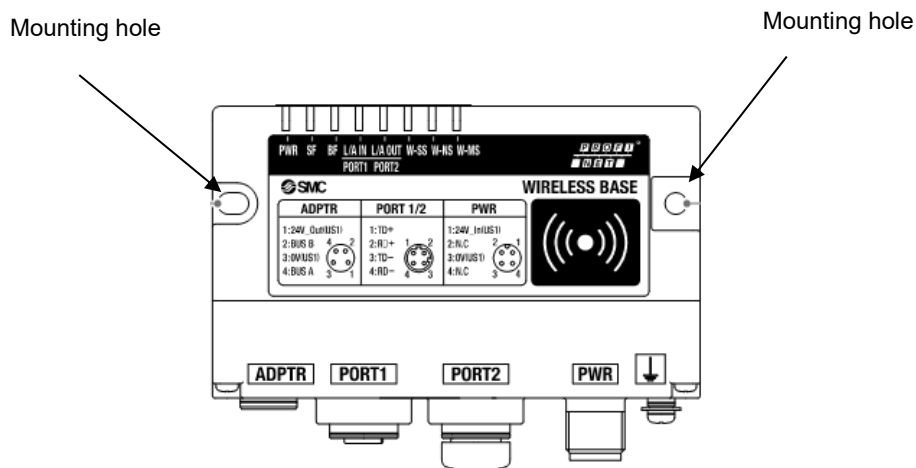
- Installation

Compact wireless Base

Caution

- To avoid damage to parts, apply the recommended tightening torque.
- Mount the product using two screws.

2 x M4 screws are required (Recommended torque = 0.8+/-10% N·m).



■ Handling Precautions

Always attach waterproof caps to unused connectors.

By properly using this waterproof cap, the protective structure IP67 can be achieved.

- Wireless adaptor

Caution

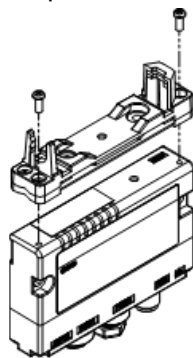
To avoid damage to parts, apply the recommended tightening torque.
Refer to the operation manual of the Wireless Adaptor for details.

This product is sold separately. The installation plate is included with the wireless adaptor.

● Integrated type (installation)

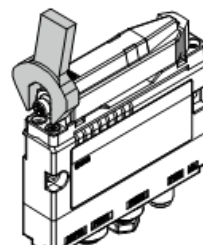
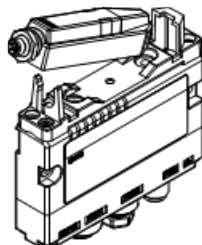
(1) Connection of the base and installation plate.

Secure the installation plate to the base using the two self-tapping screws (M3 x 8) included with the wireless adaptor. The tightening torque should be $0.4 \text{ N}\cdot\text{m} \pm 10\%$.



(2) Installation of wireless adaptor

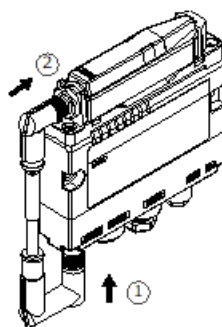
Clip the wireless adaptor onto the installation plate as shown below and secure the adaptor in place using the M10 nut already fitted to the wireless adaptor. The recommended tightening torque is $0.9 \text{ N}\cdot\text{m} \pm 10\%$.



(3) Connecting the cable for the wireless adaptor

Follow the procedure below to connect the cable for the wireless adaptor.

- 1) Connect the U-side connector of the cable to the base.
- 2) Connect the S-side connector of the cable to the adaptor.



■ Handling Instructions

Please pay attention to the installation order of the cable for the wireless adapter.

●Mounting on a flat surface

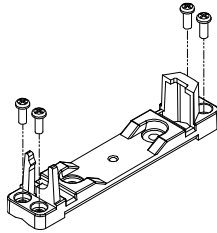
(1) Attachment of installation plate

Attach the installation plate to the target object by either of the following two methods.

Installation with M3 x 4 positions

The tightening torque should be $0.4 \text{ N}\cdot\text{m}\pm 10\%$.

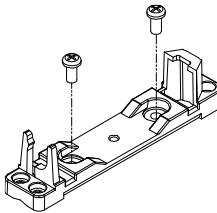
(Mounting screws are not included.)



Installation with M4 x 2 positions

The tightening torque should be $0.6 \text{ N}\cdot\text{m}\pm 10\%$.

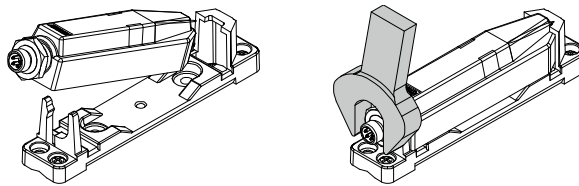
(Mounting screws are not included.)



(2) Installation of wireless adaptor

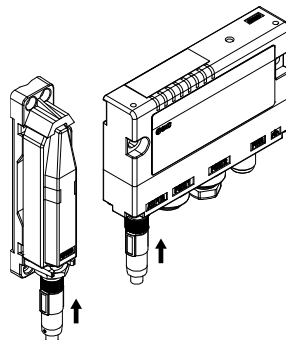
Clip the wireless adaptor onto the installation plate as shown below and secure the adaptor in place using the M10 nut already fitted to the wireless adaptor.

The tightening torque should be $0.9 \text{ N}\cdot\text{m}\pm 10\%$.



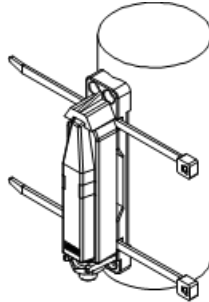
(3) Connection of the cable for wireless adaptor

Connect the cable to the base and the wireless adaptor.

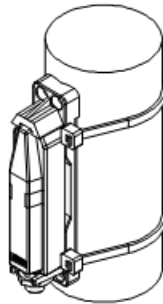


● Mounting on a curved surface

(1) Thread 2 x cable ties through the installation plate at the top and bottom.



(2) Secure the wireless adaptor to the installation plate and then secure in the required position by tightening the cable ties.



Troubleshooting

When problems occur, take appropriate countermeasures while referring to the LED indication, troubleshooting and parameter settings.

If a cause applicable to the failure cannot be identified, this indicates that the equipment itself is broken. The fieldbus system damage can be caused by the operating environment. Contact SMC to obtain countermeasures.

• Base troubleshooting items

LED	Description	LED status		No.
		Colour of LED	ON/Flashing	
-	All LEDs are OFF.	-	-	Problem 1
PWR	PWR is OFF	-	OFF	Problem 2
SF	Red SF LED flashes or is ON.	Red	Flashing	Problem 3
		Red	ON	
		-	OFF	
BF	BF LED does not turn on green.	Red	Flashing	Problem 4
		Red	ON	
		-	OFF	
W-SS	W-SS LED flashes red or orange or is off.	Red	Flashing	Problem 5
		Orange	Flashing	
		-	OFF	
W-NS	W-NS LED does not turn on green	Green	Flashing	Problem 6
		Red	Flashing	
		Red	ON	
		Red	Alternate Flashing	
		-	OFF	
W-MS	W-MS LED does not turn on green.	Red	Flashing	Problem 7
		Red	ON	
		-	OFF	
L/A	L/A IN LED or L/A OUT LED is not flashing.	-	OFF	Problem 8
		Green	ON	
Problems related to the NFC				Problem 9

• Base troubleshooting

Problem No.	LED name	LED status		Possible causes	Investigation and countermeasures
		Colour of LED	ON/Flashing		
1	All	-	OFF	The US1 (for control) power supply is OFF	Supply 24 VDC +/-10% for US1 (for control) power source.
2	PWR	-	OFF	The US1 (for control) power supply is OFF	Supply 24 VDC +/-10% for US1 (for control) power source.
3	SF	Red	Flashing	<p>The following diagnostic information is detected.</p> <p>(1) Short-circuit detection of the US1 power supply (for control / input)</p> <p>(2) US1 (for control / input) power supply voltage level is abnormal (when the setting is enabled)</p> <p>(3) Short-circuit detection of the US2 power supply (for output)</p> <p>(4) Memory read/write error</p>	<p>After checking the error contents while referring to the system diagnostic information and LED indication, refer to the following countermeasures.</p> <p>(1) Re-wire the short-circuited part or check if the cable and input device are normal.</p> <p>(2) The power supply voltage of the US1 (for control / input) power supply is low. Supply 24 VDC +/-10%.</p> <p>(3) Re-wire the short-circuited part or check if the cable and output device are normal</p> <p>(4) Internal memory read/write operations are not performed normally. Initialize the product.</p>
		Red	ON	Base malfunction	<p>Replace the Base</p> <p>If the error persists after replacement, stop using the equipment and contact your SMC sales representative.</p>

Problem No.	LED name	LED status		Possible causes	Investigation and countermeasures
		Colour of LED	ON/Flashing		
4	BF	Red	Flashing	Configuration data does not match	Check the configuration setting of PLC, and ensure it matches the actual configuration.
		Red	ON	Communication error with PLC	Check the points below. (1) Check if the power supply for the PLC is OFF. (2) Check for looseness and broken lines of the connector. (3) Check if the PLC or wireless master unit malfunctions. (4) Check if the PLC setting and the wireless master unit Device Name match.

Problem No.	LED name	LED status		Possible causes	Investigation and countermeasures
		Colour of LED	ON/Flashing		
5	W-SS	Red	Flashing	When Protocol V.1.0 is used (1) Remote power supply is OFF (2) Outside the wireless coverage area	(1) Supply 24 VDC +/-10% to the US1 (for control / input) power source of the Remote. (2) The distance which wireless communication between wireless systems can be established may have been exceeded. Reconsider the operating environment, such as the installation conditions, of the Base and Remote.
		Orange	Flashing	When Protocol V.2.0 is used (1) Remote power supply is OFF (2) Outside the wireless coverage area	(1) Supply 24 VDC +/-10% to the US1 (for control / input) power source of the Remote. (2) The distance which wireless communication between wireless systems can be established may have been exceeded. Reconsider the operating environment, such as the installation conditions, of the Base and Remote.
		-	OFF	Remote not registered	Check the registration status of the Remote and perform pairing correctly.
6	W-NS	Green	Flashing	(1) Some Remotes are not connected (2) Some registered Remotes have no wireless signal	(1) Supply 24 VDC +/-10% to the US1 (for control / input) power source of the Remote. (2) The distance which wireless communication between wireless systems can be established may have been exceeded. Reconsider the operating environment, such as the installation conditions, of the Base and Remote.
		Red	Flashing	(1) Power supply to all registered Remotes is OFF (2) All registered Remotes have no wireless signal	(1) Supply 24 VDC +/-10% to the US1 (for control / input) power source of the Remote. (2) The distance which wireless communication between wireless systems can be established may have been exceeded. Reconsider the operating environment, such as the installation conditions, of the Base and Remote.
		Red	ON	No Remotes are connected due to a failure of the Base	Replace the Base. If the error persists after replacement, stop using the equipment and contact your SMC sales representative.
		Red Green	Alternate Flashing	In pairing mode.	Red
		-	OFF	Remote not registered	Check the registration status of the wireless unit and conduct pairing with the Remote correctly.

Problem No.	LED name	LED status		Possible causes	Investigation and countermeasures
		Colour of LED	ON/Flashing		
7	W-MS	Red	Flashing	<p>The following Remote diagnostic information is detected.</p> <p>(1) US1 (for control) power supply voltage level is abnormal</p> <p>(2) US2 (for output) power supply voltage level is abnormal</p> <p>(3) Excessive I/O setting for inputs/outputs</p> <p>(4) Error in communication between units (4)-1 Abnormal input unit (4)-2 Abnormal output unit (4)-3 Abnormal input / output unit</p> <p>(5) EX600 I/O unit detects diagnostic information (5)-1 Short-circuited US1 (for control / input) power supply voltage (5)-2 Short-circuited US2 (for output) power supply voltage (5)-3 Short-circuited output load (5)-4 User set upper or lower limit of the analog unit exceeded (5)-5 I/O range upper or lower limit of the analog unit exceeded</p> <p>(6) Valve diagnostic information detected (6)-1 Valve short-circuited (6)-2 Valve with broken line</p>	<p>After checking the error contents while referring to the system diagnostic information and LED indication, refer to the following countermeasures.</p> <p>As this LED indicates the system status of the Remote, the following diagnoses can be conducted only when the "Diagnostic allocation" is set to "Advanced".</p> <p>(1) Supply 24 VDC +/-10% to the US1 (for control / input) power source of the Remote.</p> <p>(2) Supply 24 VDC +/-10% to the US2 (for output) power source of the Remote</p> <p>(3) The number of the station's input / output points has exceeded the set value. Check the occupied bytes of the EX600 I/O unit and valve manifold connected to the Remote.</p> <p>(4) Confirm that there is no loose connection between the units and connect them correctly.</p> <p>(5) Check the part where the error occurs by checking the LED indication and information of the system diagnostics, and refer to the operation manual for the digital and analog units.</p> <p>(6) Replace the valve and check the operation.</p>
	W-MS	Red	ON	Remote malfunction	Replace the Remote If the error persists after replacement, stop using the equipment and contact your SMC sales representative.

Problem No.	LED name	LED status		Possible causes	Investigation and countermeasures
		Colour of LED	ON/Flashing		
8	L/A IN or L/A OUT	-	OFF	LINK has not yet been established.	<p>Check the following and restart.</p> <p>(1) Check if the power is supplied to the PROFINET device one level above.(When L/A port1 LED is OFF.)</p> <p>(2) Check that the connectors of L/A port1 and L/A port2 communication cables are connected and there are no broken wires.</p> <p>(3) Keep noise sources away from the communication cable.</p>
		Green	ON	LINK is established but data has not been received.	<p>Check the following and restart.</p> <p>(1) Check the master condition and run the PLC.</p> <p>(2) Check that the communication connector is not loose and there are no broken wires.</p> <p>(3) Keep noise sources away from the communication cable.</p>

Problem No.	Phenomenon	Possible causes	Investigation and countermeasures
9	NFC communication error	NFC communication is not established (communication failure)	<p>Check the following items and check the operation again.</p> <ul style="list-style-type: none"> •Confirm that the settings of the NFC port and PaSoRi of the PC are correct. •Check that the specifications of the NFC reader / writer to be used are appropriate. •Confirm that the NFC reader / writer are connected correctly. •The communication distance is outside of the NFC range. Place the body (NFC antenna approach area) close to the NFC reader / writer.
		NFC reader/writer broken	<p>Replace the NFC reader / writer and check the operation. If the error persists after replacement, stop using the equipment and contact your SMC sales representative.</p>

Technical Information

I/O Map

The table below shows the effective number of occupied bits for each input/output unit (including EX600 series) which can be connected to the Base and Remotes.

The allocated input/output sizes can be changed depending on the occupied bytes of the diagnostic mapping and the I/O unit connected to the wireless unit.

Refer to the table below for the number of input/output bits for each unit.

EXW1-BPNAC1

Unit name	Diagnostic allocation	Max. Remote units	Allocated bytes	
			Input	Input
Compact wireless Base PROFINET	None	15/31/63	0	0
	Simple	15/31/63	4	0
	Advanced	15	10	0
		31	16	0
		63	28	0

EXW1-series

Unit name	Model	Unit product no.	Allocated bytes	
			Input	Output
Compact wireless Remote e-CON Type	RDX	EXW1-RDX*E4** (16 points)	2	0
	RDY	EXW1-RDY*E4** (16 points)	0	2
	RDM	EXW1-RDM*E3** (8 points)	2* ¹	2* ¹
Compact wireless Remote IO-Link Master	RLA	EXW1-RLAPA8C Protocol V.1.0	16* ²	16* ²
	RLA	EXW1-RLAPA8C Protocol V.2.0	2~130* ²	2~130* ²
	RLB	EXW1-RLBPA7C Protocol V.1.0	16* ³	16* ³
	RLB	EXW1-RLBPA7C protocol V.2.0	2~66* ³	2~66* ³

*1: The number of inputs/outputs is fixed at 16 (16 bits), and only the lower 8 bits are valid.

*2: The number of bytes occupied by EXW1-RLAPA8C is as follows. For details, please refer to the product instruction manual.

Protocol V.1.0 : 16byte(fixture 2byte + IO-LinkProcess data 14byte)

Protocol V.2.0 : fixture 2byte + IO-LinkProcess data 128byte(1Port 32byte MAX)

*3: The number of bytes occupied by EXW1-RLBPA7C is as follows. For details, please refer to the product instruction manual.

Protocol V.1.0 : 16byte(fixture 2byte + IO-LinkProcess data 14byte)

Protocol V.2.0 : fixture 2byte + IO-LinkProcess data 64byte(1Port 32byte MAX)

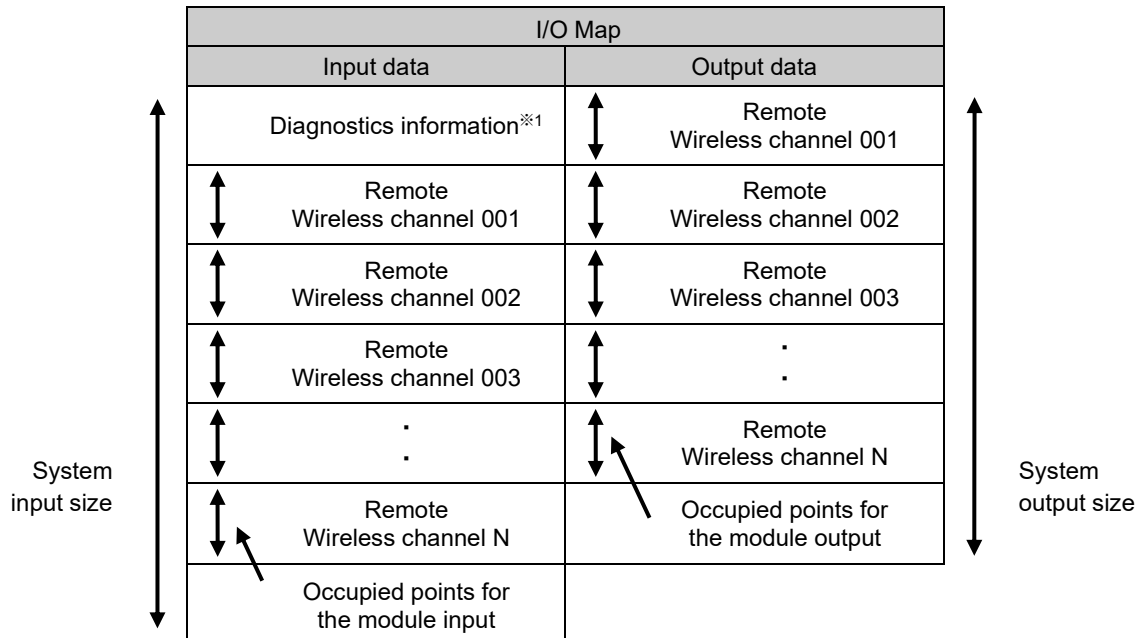
EX600-W Series

Unit name	Model	Unit product no.	Allocated bytes	
			Input	Output
Wireless Remote	WSV	EX600-WSV* (32 points)	0	4
		EX600-WSV* (24 points)	0	3
		EX600-WSV* (16 points)	0	2
		EX600-WSV* (8 points)	0	1
		EX600-WSV* (0 points)	0	0
Digital input unit (EX600 Series)	DX	EX600-DX*B (8 points)	1	0
		EX600-DX*C (8 points)	1	0
		EX600-DX *C1 (8 points) (with broken line detection)	1	0
		EX600-DX*D (16 points)	2	0
		EX600-DX*E (16 points)	2	0
		EX600-DX*F (16 points)	2	0
Digital output unit (EX600 Series)	DY	EX600-DY*B (8 points)	0	1
		EX600-DY*E (16 points)	0	2
		EX600-DY*F (16 points)	0	2
Digital I/O unit (EX600 Series)	DM	EX600-DM*E (8/8 points)	1	1
		EX600-DM*F (8/8 points)	1	1
Analog input unit	AX	EX600-AXA**1 (2 points)	4 (2 bytes per channel)	0
Analog output unit	AY	EX600-AYA**1 (2 points)	0	4 (2 bytes per channel)
Analog I/O unit	AM	EX600-AMB**1 (2/2 points)	4 (2 bytes per channel)	4 (2 bytes per channel)

*1: User set minus ranges are not supported.

I/O Mapping

The I/O map is assigned in order of diagnostic information and remote. The remote allocation order to the I/O map is decided by the wireless channel at the remote registration. As they are allocated from the smallest registered channel number, the channel in which no remote is registered will be ignored. (Refer to the figure below.)



*1: This is selected according to the diagnostic allocation parameter setting of the base.
Refer to the section "Diagnostics Mapping" for details.

I/O mapping order of base/remote

Below is an example of I/O map and diagnostic map assignment.

<Example 1>

- Compact wireless base
 - System configuration
 - IO allocation: Fixed
 - (256 system input/output points/32byte)Diagnostic allocation: detailed,
 - number of remotely registered units: 15

	Unit 3	Unit 2	Unit 1	Unit 0	
	DY□B	AXA	DX□D	EX600-WSV※	
End plate	Digital output	Analog input	Digital input	Remote	Valve manifold
	1 byte output	4 bytes input	2 bytes input	4 bytes output	(32 points)

Remote setting parameters values
(Wireless channel 001)

Module input size : 64 points /8 byte
Module output size : 48 points /6 byte
Manifold output size : 32 points /4 byte
I/O unit layout mode: Mode 2

Remote configuration (Wireless channel "001")

Input data : [Unit 1] Digital input unit (EX600-DX*D): 2 bytes occupied
[Unit 2] Analog input unit (EX600-AXA): 4 bytes occupied
Output data : [Unit 0] Remote (EX600-WSV*): 4 bytes occupied
[Unit 3] Digital output unit (EX600-DY*B): 1 byte occupied

	Unit 3	Unit 2	Unit 1	Unit 0	
	DY□B	DX□D	DX□B	EX600-WSV※	
End plate	Digital output	Digital input	Digital input	Remote	End plate
	1 byte output	2 byte input	1 bytes input	0 byte output	(U Side)

Remote setting parameters values
(Wireless channel 002)

Module input size : 32 points /4 byte
Module output size : 16 points /2 byte
Manifold output size : 0 points /0 byte
I/O unit layout mode: Mode 2

Remote configuration (Wireless channel "002")

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

EXW1-RDM※	
Remote	
Digital input 2 byte	Digital output 2 byte

Remote configuration (Wireless channel "003")

Input data: EXW1-RDM* 2 bytes occupied
Output data: EXW1-RDM* 2 bytes occupied

When EX600-WSV are paired, the mapping order of the EX600 I/O unit and the valve manifold connected to the Remote is different depending on the I/O unit layout mode in the Remote parameter setting. Refer to the operation manual of EX600-W Series for details on the I/O unit mapping order when an EX600-W Series unit is paired.

	Input data		Output data		
	Module name	Unit name	Module name	Unit name	
Byte0	System diagnosis 1		Remote Wireless channel "001"	EX600-WSV* (Unit 0) 32 valve outputs	
Byte1	System diagnosis 2				
Byte2	System diagnosis 3				
Byte3	System diagnosis 4				
Byte4	Remote connection information (Wireless channels 1-7; bit0 is fixed at "0".)				
Byte5	Remote connection information (Wireless channels 8-15)			Reserved	
Byte6	Remote diagnostic information *1 (Wireless channels 1-7)		Remote Wireless channel "002"	DY*B (Unit 3)	
Byte7	Remote diagnostic information (Wireless channels 8-15)			Reserved	
Byte8	Remote registration information (Wireless channels 1-7; bit0 is fixed at "0".)		Remote Wireless channel "003"	EXW1-RDM*	
Byte9	Remote registration information (Wireless channels 8-15)			Reserved	
Byte10	Remote Wireless channel "001"	DX*D (Unit 1)	Reserved		
Byte11			Reserved		
Byte12		AXA (Unit 2)	Reserved		
Byte13			Reserved		
Byte14			Reserved		
Byte15			Reserved		
Byte16		Reserved		Reserved	
Byte17		Reserved		Reserved	
Byte18	Remote Wireless channel "002"	DX*B (Unit 1)	Reserved		
Byte19		DX*D (Unit 2)	Reserved		
Byte20			Reserved		
Byte21		Reserved		Reserved	
Byte22	Remote Wireless channel "003"	EXW1-RDM*	Reserved		
Byte23	Reserved		Reserved		
Byte24	Reserved		Reserved		
Byte25	Reserved		Reserved		
Byte25	Reserved		Reserved		
Byte26	Reserved		Reserved		
Byte27	Reserved		Reserved		
Byte28	Reserved		Reserved		
Byte29	Reserved		Reserved		
Byte30	Reserved		Reserved		
Byte31	Reserved		Reserved		
Total	32 byte		32 byte		

Note) When "Diagnostic allocation" is set to "Advanced", a portion of the area is occupied for the number of Remotes specified using the number of registered Remote setting.

(The occupied area also occupies the area for Remotes which has not been registered.)

*1: The bit0 of Remote diagnostic information indicates the diagnostic information of the Base.

Diagnostics map details

When an error occurs in the Base or Remote, a flag will be set in a Bit corresponding to each item of diagnostic information.

The errors for the system diagnostics 1 to 4 are for the entire system. Therefore, even if there is only one unit which has an error in the constructed system, a flag will be set in a Bit corresponding to the error content.

It is possible to identify the abnormal Remote using the Remote diagnostic information.

(It is necessary to set the "Diagnostic allocation" to "Advanced".)

Regardless of the setting of the "Diagnostic allocation", the abnormal module and unit can be identified using the I/O Configurator provided by SMC.

Item	Byte	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis			
System diagnosis 1	0	0	User setting lower level detection	Detected that the analog setting has exceeded the lower limit of the user set value.	Unit	Continue	Automatic reset	Select an appropriate range so that they are within the user set value range. Or disable the diagnostics.	Base W-MS: Flashes red ¹ Remote MS: Flashes red
		1	User setting upper limit detection	Detected that the analog setting has exceeded the upper limit of the user set value.	Unit	Continue	Automatic reset	Select an appropriate range so that they are within the user set value range. Or disable the diagnostics.	
		2	Detection of the range lower limit	Detected that the analog setting has exceeded the lower limit of the setting range.	Unit	Continue	Automatic reset	Select an appropriate range so that the input value is within the set range.	
		3	Detection of the range upper limit	Detected that the analog setting has exceeded the upper limit of the setting range.	Unit	Continue	Automatic reset	Select an appropriate range so that the input value is within the set range.	
		4	Detection of upper limit of ON/OFF operation cycle	The number of ON/OFF operating cycles has exceeded the upper limit of the setting value.	Unit	Continue	Automatic reset	Reset the ON/OFF cycles to zero. Or disable the diagnostics.	
		5	Detection of unconnected load	Detects the broken wire.	Unit	Continue	Manual/automatic reset	(1) Replace the valve or the input/output equipment, and check the operation. (2) Replace the valve or the output equipment, and check the operation.	

Item	Byte	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis			
System diagnosis 1	0	6	Short-circuit detection of output load	A short-circuit of the valve or the output equipment has been detected.	Unit	Continue	Manual/automatic reset	(1) Replace the valve or the output equipment, and check the operation. (2) Replace the valve or the output equipment, and check the operation.	W-MS: Flashes red*1 Remote MS: Flashes red
		7	Short-circuit detection of power supply for control / input	A short-circuit of the input equipment power supply has been detected.	Unit	Continue	Automatic reset	Check the part which has been causing the error and review the wiring or check if the input equipment is normal.	

Item	Byte	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)	
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis				
System diagnosis 2		0	Detection of a reduction in the US2 (for output) power voltage	A voltage drop of the US2 (for output) power supply voltage has been detected.	Unit	Continue	Automatic reset	Supply 24 VDC +/-10% for the US2 (for output) power supply voltage.	Base W-MS: Flashes red Remote (EXW1) PWR: Flashes red Remote (EX600-W) PWR(V): Flashes red	
		1	Detection of a reduction in the US1 (for control / input) power voltage	A voltage drop of the US1 (for control / input) power supply voltage has been detected.	Unit	Continue	Automatic reset	Supply 24 VDC +/-10% for the US1 (for control / input) power supply voltage.	Base MS: Flashes red or W-MS: Flashes red Remote MS: Flashes red	
		2	Reserved	-	-	-	-	-	-	-
		3	Connection failure between units (during operation)	An error has occurred in the communication between the wireless unit and EX600 I/O units.	Unit	Stop (HOLD)	Turn the power on again.	Confirm that there is no loose connection between the EX600 I/O units, and connect them correctly.	Base W-MS: Flashes red Remote (EX600-W) MS: Flashes red	
		4	Connection failure between units (when power is supplied)	An error has occurred in the communication between the wireless unit and EX600 I/O units.	Unit	Stop (HOLD)	Turn the power on again.	Confirm that there is no loose connection between the EX600 I/O units, and connect them correctly.	Base W-MS: Flashes red Remote (EX600-W) MS: Flashes red	
		5	Reserved	-	-	-	-	-	-	-
		6	Detection of system error (when power is supplied)	An unrecoverable error has occurred in the system.	Unit	Stop (HOLD)	Manual reset	Supply power again. If the error persists after resupplying power, contact your SMC sales representative.	Base MS: Lights up red Remote MS: Lights up red	
		7	Detection of hardware error (during operation)	An unrecoverable error has occurred in the hardware.	Unit	Stop (HOLD)	Manual reset	Supply power again. If the error is not restored after resupplying power, contact your SMC sales representative.	Base MS: Lights up red or W-MS: Lights up red Remote MS: Lights up red	

Item	Byte	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis			
System diagnosis 3	2	0	Number of inputs/outputs setting error	The number of occupied inputs/outputs of the Remote has exceeded the set value.	System	Continue	Manual reset	Change the user set value. Or, adjust the unit configuration so that the number of occupied points is within the set value.	Base W-MS: Flashes red Remote MS: Flashes red
		1	Reserved	-	-	-	-	-	-
		2	Reserved	-	-	-	-	-	-
		3	Wireless adaptor internal connection error	Internal communication with the wireless adaptor is not performed normally.	System	Continue	Automatic reset	Check for loose connectors and broken wires.	Base MS: Flashes red or Wireless adaptor PWR: Flashes orange
		4	Reserved	-	-	-	-	-	-
		5	Reserved	-	-	-	-	-	-
		6	System Error detected	Memory read/write error	System	Continue	Manual reset	Initialize the product. If the error persists after resupplying power, contact your SMC sales representative.	Base, Remote MS: Flashes red
		7	Detection of hardware error	Memory write error	System	Continue	Manual reset	Initialize the product. If the error persists after resupplying power, contact your SMC sales representative.	Base, Remote MS: Flashes red

Item	Byte	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis			
System diagnosis 4	3	0	Number of system inputs/outputs setting error	The number of occupied system inputs/outputs has exceeded the set value.	System	Continue	Manual reset	Change the user set value. Or, adjust the unit configuration so that the number of occupied points is within the set value.	Base MS: Flashes red
		1	Number of registered Remotes setting error (Outside of the wireless channel setting range)	More wireless channels than specified in the number of registered Remotes setting are registered.	System	Continue	Manual reset	Change the set value of the number of registered Remotes. Or, delete the registered Remotes (wireless channels) outside of the set range.	Base MS: Flashes red
		2	Enforce mode	Active the enforce mode	System	Continue	Manual reset	Exit from enforce mode.	Base, Remote W-NS: Lights up orange
		3	Reserved	-	-	-	-	-	-
		4	Reserved	-	-	-	-	-	-
		5	Reserved	-	-	-	-	-	-
		6	Wireless registration data corrupted	An error has occurred in the wireless registration information.	System	Stop (HOLD)	Manual reset	Supply power again. If the error persists after resupplying power, contact your SMC sales representative.	Base MS: Lights up red or W-NS: Lights up red
7	Detection of wireless hardware error	An unrecoverable error has occurred in the hardware of the wireless units.	System	Stop (HOLD)	Manual reset	Supply power again. If the error persists after resupplying power, contact your SMC sales representative.	Base MS: Lights up red or W-NS: Lights up red		

Item	Byte	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis			
Remote connection information Wireless channels 1-7 (Bit 0 is fixed at "0".)	4	0	-	-	-	-	-	When the connection data is "0", the wireless communication with the Remote is not connected. When the connection data is "1", the wireless communication with the Remote is connected normally.	
		1	Connection condition of the Remote communication (Wireless channel 1)	-	-	-	-		
		2	Connection condition of the Remote communication (Wireless channel 2)	-	-	-	-		
		3	Connection condition of the Remote communication (Wireless channel 3)	-	-	-	-		
		4	Connection condition of the Remote communication (Wireless channel 4)	-	-	-	-		
		5	Connection condition of the Remote communication (Wireless channel 5)	-	-	-	-		
		6	Connection condition of the Remote communication (Wireless channel 6)	-	-	-	-		
		7	Connection condition of the Remote communication (Wireless channel 7)	-	-	-	-		
Remote connection information Wireless channels 8-15	5	0	Connection condition of the Remote communication (Wireless channel 8)	-	-	-	-		
		1	Connection condition of the Remote communication (Wireless channel 9)	-	-	-	-		
		2	Connection condition of the Remote communication (Wireless channel 10)	-	-	-	-		
		3	Connection condition of the Remote communication (Wireless channel 11)	-	-	-	-		
		4	Connection condition of the Remote communication (Wireless channel 12)	-	-	-	-		
		5	Connection condition of the Remote communication (Wireless channel 13)	-	-	-	-		
		6	Connection condition of the Remote communication (Wireless channel 14)	-	-	-	-		
		7	Connection condition of the Remote communication (Wireless channel 15)	-	-	-	-		

Item	Resister area	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis			
Remote diagnostic information Wireless channels 1-7 (Bit 0 is for Base)	6	0	Presence / absence of system information error of Base		-	-	-	-	No error in the Base / Remote when the diagnostic data is "0". Error in the Base / Remote when the diagnostic data is "1".
		1	Presence / absence of system information error of Remote (Wireless channel 1)		-	-	-	-	
		2	Presence / absence of system information error of Remote (Wireless channel 2)		-	-	-	-	
		3	Presence / absence of system information error of Remote (Wireless channel 3)		-	-	-	-	
		4	Presence / absence of system information error of Remote (Wireless channel 4)		-	-	-	-	
		5	Presence / absence of system information error of Remote (Wireless channel 5)		-	-	-	-	
		6	Presence / absence of system information error of Remote (Wireless channel 6)		-	-	-	-	
		7	Presence / absence of system information error of Remote (Wireless channel 7)		-	-	-	-	
Remote diagnostic information Wireless channels 8-15	7	0	Presence / absence of system information error of Remote (Wireless channel 8)		-	-	-	-	
		1	Presence / absence of system information error of Remote (Wireless channel 9)		-	-	-	-	
		2	Presence / absence of system information error of Remote (Wireless channel 10)		-	-	-	-	
		3	Presence / absence of system information error of Remote (Wireless channel 11)		-	-	-	-	
		4	Presence / absence of system information error of Remote (Wireless channel 12)		-	-	-	-	
		5	Presence / absence of system information error of Remote (Wireless channel 13)		-	-	-	-	
		6	Presence / absence of system information error of Remote (Wireless channel 14)		-	-	-	-	
		7	Presence / absence of system information error of Remote (Wireless channel 15)		-	-	-	-	

Item	Byte	Bit No.	Content of diagnostics		Diagnosed area and processing upon error		How to reset	Reset conditions	Remarks (LED indications, etc.)
			Item	Details	Effective diagnostic coverage	I/O processing upon diagnosis			
Remote registration information Wireless channels 1-7 (Bit 0 is fixed at "0".)	8	0	-		-	-	-	-	When the registration data is "0", no Remote has been registered.
		1	Registration of Remote (Wireless channel 1)		-	-	-	-	
		2	Registration of Remote (Wireless channel 2)		-	-	-	-	
		3	Registration of Remote (Wireless channel 3)		-	-	-	-	
		4	Registration of Remote (Wireless channel 4)		-	-	-	-	
		5	Registration of Remote (Wireless channel 5)		-	-	-	-	
		6	Registration of Remote (Wireless channel 6)		-	-	-	-	
		7	Registration of Remote (Wireless channel 7)		-	-	-	-	
Remote registration information Wireless channels 8-15	9	0	Registration of Remote (Wireless channel 8)		-	-	-	-	When the registration data is "1", a Remote has been registered.
		1	Registration of Remote (Wireless channel 9)		-	-	-	-	
		2	Registration of Remote (Wireless channel 10)		-	-	-	-	
		3	Registration of Remote (Wireless channel 11)		-	-	-	-	
		4	Registration of Remote (Wireless channel 12)		-	-	-	-	
		5	Registration of Remote (Wireless channel 13)		-	-	-	-	
		6	Registration of Remote (Wireless channel 14)		-	-	-	-	
		7	Registration of Remote (Wireless channel 15)		-	-	-	-	

*1: The LED indicator W-MS indicates the system status of the Remote.

If it is ON or flashes, errors have occurred in the registered Remote.

*: When the diagnostic data of the system diagnostics 1-4 is "0", no error has occurred. When it is "1", errors have occurred.

*: This table is for when the number of registered Remotes is set to 15 in the Base settings.

The diagnostic sizes of Remote connection information, diagnostic information and registration information vary depending on the setting for the number of registered wireless units.

*: The bit0 of connection/registration information is fixed at "0".

*: The bit0 of diagnostic information indicates the diagnostic information of the Base.

Frequency channel select function (F. C. S.)

The frequency channel can be selected using this function. Since only protocol V.2.0 supports it, specify protocol V.2.0 in the system settings when using it.

* The number of selectable frequency channels varies depending on the country in use. For more details, check the product number.

Number of selectable frequency channels	Applicable country
Min. 5 channels, Max. 79 channels	Certified countries except for the U.S., Canada, South Korea, Brazil, Taiwan, Argentina, and Mexico.
Min. 15 channels, Max. 79 channels	Certified countries including the U.S., Canada, South Korea, Brazil, Taiwan, Argentina, and Mexico.

* If no channel is selected, communication is established on 79 channels by default.

* For the latest information, refer to the catalog on the website below.

URL <https://www.smcworld.com>

Follow the steps below to configure the function on the Remote registration screen on the Properties tab.

(1) Set [Pairing] to [Normal mode].

For details on pairing settings, refer to Pairing and Unpairing Procedures.

* If this setting is changed, all wireless remotes must be paired again for the setting to take effect. If this setting is changed, all wireless remotes will need to be re-paired to reflect the new settings.

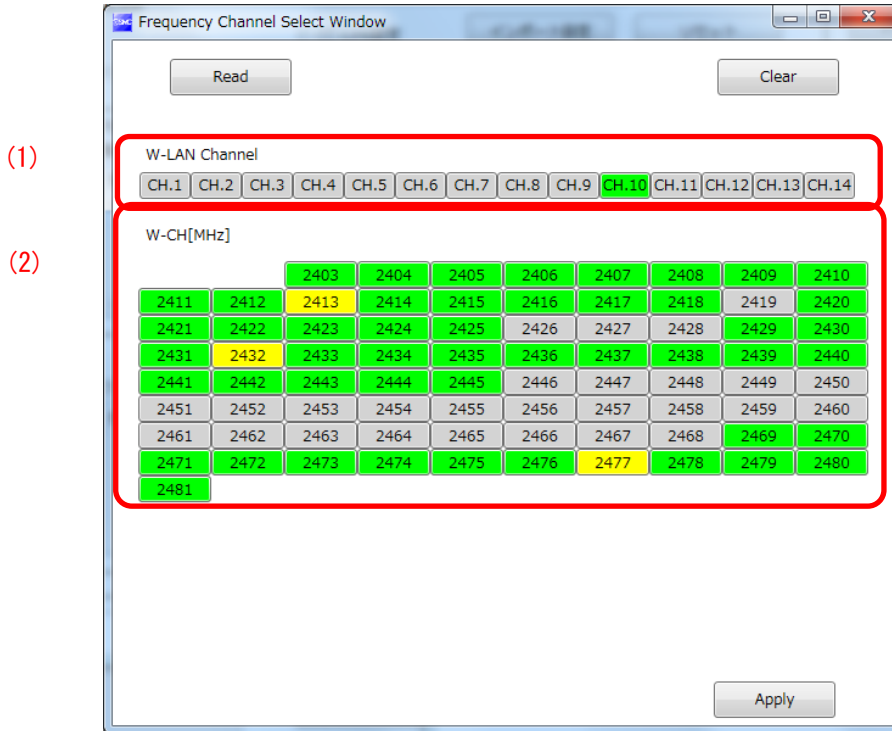
(2) Click FCS Setting.

The screenshot shows the I/O Configurator 2.10.0 interface. The 'Properties' tab is selected. In the 'Control panel', 'Remote registration' is selected. The 'Remote registration' section contains a table of registered remotes and a 'Pairing' mode selector. The 'Pairing' mode is set to 'Normal mode'. The 'FCS Setting' button is highlighted with a red box and labeled (2). The 'Free Remotes' section is empty. The 'Dummy' section has 'Input size' and 'Output size' set to '0byte'. The status bar at the bottom shows 'Administrator mode : 296[sec]' and 'Monitor mode'.

W.ch	Remote PID	Input size	Output size	Base ID	Registration status	TAG
001	16D2E710	2	0	18628002	Registered	EXW1-RDXNE4AE

Click FCS Settings to display the following screen.

- (3) Select the frequency channel to be used for communication from W-LAN channel or W-CH and click "Apply."
The setting is applied by resetting the unit or turning the power back on by pressing the "Reset" button.



(1) W-LAN Channel indicators

The W-LAN indicators make it possible to select frequency channels corresponding to W-LAN channel at one time.
* In the example above, W-LAN Channel: CH.10 is selected.

(2) W-CH indicators

The W-CH indicators make it possible to select frequencies for each CH.
* In the example above, frequencies 2419, 2426-2428, and 2446-2468 [MHz] are unused Channels.
Note that frequencies 2446-2468 [MHz] correspond to (1) W-LAN Channel: CH.10 above.

• Indicator colours

Colour	Description	Remarks
Green	Selected frequency channel (W-CH area) W-LAN channel that does not conflict with Active frequency channels (W-LAN Channel area)	
Yellow	Advertise channel	Cannot be set for inactive frequency channels
Grey	Inactive frequency channel	



- If advertise channels are included in the CH at the time of selecting a W-LAN Channel, they cannot be selected. To select them, initialize the product or remove all the registered Remotes and then configure F.C.S. before performing pairing.
- To use 5-7 frequency channels, neighboring frequencies need to be separated by 3 MHz.
- To use 8-14 frequency channels, neighboring frequencies need to be separated by 2 MHz.
- To use 15 frequency channels or more, neighboring frequencies can be selected.

Number of pairing remotes

Up to 63 remotes can be registered to one base. However, number of remotes will be limited based on the following conditions.

Condition1: Setting of Max Remote 15/31/63

Condition2: The total IO size is as follows, and the maximum value varies depending on the settings.

I/O mapping setting : Auto Max.11464points (1308bytes)

Input: Diagnosis of Base (default: 10bytes) + total of all remotes input size.

Output: Total of all remotes output size.

Please refer to IO size section for size of each remote.

When you use Protocol V.2.0, there is Condition 3.

Condition3: Total of number of all remote's subslot is under or equal 124.

Unit name	Model	Unit product no.	Number of subslot
Compact wireless Remote e-CON Type	RDX	EXW1-RDX*E4** (16 points)	1
	RDY	EXW1-RDY*E4** (16 points)	1
	RDM	EXW1-RDM*E3** (8points)	2
Compact wireless Remote IO-Link Master	RLA	EXW1-RLAPA8C Protocol V.2.0	7
	RLB	EXW1-RLBPA7C protocol V.2.0	5
Air Management system Stand alone	EXA1-* -SA	EXA1-** -SA	2

Please check total number of subslot is under or equal 124.

(Example) When using EXW1-RDX:25 remotes and EXW1-RLA:14 remotes.

$(1 * 25) + (7 * 14) = 123 < 124$ can be paired (to limit with condition1 or condition2).

Detail of Parameters

The parameter of paired Remotes can be configurable by configurations tools.

Base	Remote		Protocol	Configuration tool		
	Name	Type		I/O Configurator (NFC)	Record Data	IO-Link Device tool
EXW1-BPNAC1	e-CON Type	EXW1-RD#	V.2.0	○	○	-
		EXW1-RD#	V.1.0	○	-	-
	IO-Link Master	EXW1-RL#	V.2.0	○	○	×
		EXW1-RL#	V.1.0	○	×	×
	IO-Link device which is connected to IO-Link Master Remote		V.2.0	×	○	○
			V.1.0	×	×	×

Compact Wireless Base Parameter
- Setting Parameter

No	Target	Parameter	Definition	Item	Default setting	Content
1	Base	Brown-out Detection for US1	Generated error when power supply voltage goes under approx. 19 V	Enable	○	
				Disable		
2		Output State Fieldbus Faultidle	Output while upper communication is not established	Clear	○	
				Hold		
				Individual		
3		Input State for RF Timeout	Input information while wireless communication is not established.	Clear		
	Hold			○		

- Diagnostic Parameter
None.

Compact Wireless Remote IO-Link Master Parameter EXW1-RLAPA8C(ClassA)

- Setting Parameter

No	Target	Parameter	Definition	Item	Default setting	Content	
1	Remote	Brown-out Detection for US1	Generated error when US1 power supply voltage goes under approx. 19 V.	Disable			
				Enable	○		
2		Output State Fieldbus FaultIdle	Sets output status when Fieldbus Communication Fault/Idle is occurred.	Clear	○	This function is valid only when "Unit: Output State Fieldbus FaultIdle" for the Wireless Base is set to "Individual"	
				Hold			
				Individual			
3		Short circuit Monitor for IOL (L+, C/Q)	Either of the following detects the short-circuit, diagnostics is generated. •L+ power supply •C/Q signal •P24 power supply	Disable			
				Enable	○		
4		AD Update time	Update Time of IO-Link input Process data.	0.1/0.2/0.5/1/2/5/10/30/60 [s]	500ms		
5		Output State for RF Timeout	Sets output status when Wireless Communication Timeout is occurred.	Clear			
				Hold	○		
				Individual			
6		Unit(SIO)	Hold State for Fieldbus Fault	Hold State for Fieldbus Fault	Hold(0)		
					Individual(1)	○	
7			Output State for Fieldbus Fault	Sets output status when Fieldbus Communication error is occurred.	OFF(0)	○	Enable when Hold State for Fieldbus Fault is set Individual.
					ON(1)		
8			Hold State for Fieldbus Idle	Sets hold status when Fieldbus Communication idle is occurred.	Hold(0)		
	Individual(1)				○		
9	Output state for Fieldbus Idle		Sets output status when Fieldbus Communication idle is occurred.	OFF(0)	○	Enable when Hold State for Fieldbus Idle is set Individual.	
				ON(1)			
10	Hold State for RF Timeout		Sets hold status when Wireless Communication timeout is occurred.	Hold(0)			
				Individual(1)	○		
11	Output state for RF Timeout		Sets output status when Wireless Communication timeout is occurred s	OFF(0)	○	Enable when Hold state for RF Timeout is set Individual	
				ON(1)			
12	Pd Byte Swap	Swap the byte order of the process data, which is exchanged between fieldbus communication and IO-Link master.	Direct	○			
			Swap 16 bit				
			Swap 16 bit				
			Swap All				
13	L+ Power ON	Control L+.	Power ON	○	Only for IO-Link P1/P2		
			Power OFF				
14	Port Input IO-Link Size	Setting the IO-Link input Process data size.	0~32byte	P1,P2:16byte P3,P4: 0byte	Wireless protocol V2.0		
			0~14byte	P1:8byte P2:6byte P3,P4: 0byte	Wireless protocol V1.0		
15	Port Output IO-Link Size	Setting the IO-Link output Process data size.	0~32byte	P1,P2:16byte P3,P4: 0byte	Wireless protocol V2.0		
			0~14byte	P1:8byte P2:6byte P3,P4:0byte	Wireless protocol V1.0		
16	Port Mode	Setting the IO-Link Port mode.	Deactivated				
			IOL_Manual				
			IOL_Autostart	○			
			DI_C/Q	○			
			DO_C/Q				

Compact Wireless Remote IO-Link Master Parameter EXW1-RLAPA8C(ClassA)

- Setting Parameter (continued)

No	Target	Parameter	Definition	Item	Default setting	Content
17	IO-LINKP1 to P4	Validation & Backup	Set the function of the comparison function (comparison of vendor ID and device ID) of the connected device and data storage (DS).	No Device Check	○	Comparison function: invalid DS function: invalid
				Type compatible Device V1.0		Connected device: V1.0 Comparison function: valid DS function: invalid
				Type compatible Device V1.1		Connected device: V1.1 Comparison function: valid DS function: invalid
				Type compatible Device V1.1, Backup+Restore		Connected device: V1.1 Comparison function: valid DS function: Valid (Backup & restore)
				Type Compatible Device V1.1, Restore		Connected device: V1.1 Comparison function: valid DS function: valid (for restore only)
18	IO-LINKP1 to P4	PortCycleTime	Setting for communication cycle time with IO-Link device. Ranges (with time increments) in brackets are shown below 0.4-6.3 ms (by 0.1 ms) 6.4-31.6 ms (by 0.4 ms) 32-132.8 ms (by 1.6 ms)	As fast as possible	○	Automatically set as a minimum cycle time of IO-Link device.
				0.6ms to 132.8ms		
19	IO-LINKP1 to P4	VendorID	Setting for vendor ID which is compared when the IO-Link device comparison function is valid.	0 to 65535	0	
20	IO-LINKP1 to P4	DeviceID	Setting for device ID which is compared when the IO-Link device comparison function is valid.	0 to 16777215	0	
21	IO-LINKP1 to P4	IO-Link State For FieldbusFault	Sets Process data status when Fieldbus Communication error is occurred.	Clear/PD Out valid		All outputs are turned OFF and process data outputs remain valid.
				Hold		Process data outputs remain valid. IO-link master holds the last process data it received.
				Clear/PD Outinvalid	○	All outputs are turned OFF and Process data outputs become invalid.
22	IO-LINKP1 to P4	IO-Link State for Fieldbus Idle	Sets Process data status when Fieldbus Communication Idle is occurred	Clear/PD Out valid		All outputs are turned OFF and process data outputs remain valid.
				Hold		Process data outputs remain valid. IO-link master holds the last process data it received.
				Clear/PD Outinvalid	○	All outputs are turned OFF and Process data outputs become invalid.
23	IO-LINKP1 to P4	IO-Link State for RF Timeout	Sets Process data status when Wireless Communication timeout is occurred.	Clear/PD Outvalid		All outputs are turned OFF and process data outputs remain valid.
				Hold		Process data outputs remain valid. IO-link master holds the last

No	Target	Parameter	Definition	Item	Default setting	Content
						process data it received.
				Clear/PD Outinvalid	○	All outputs are turned OFF and Process data outputs become invalid.

- Diagnostic Parameter

No	Target	Parameter	Definition	Item	Remarks
1	IO-LINKP1~P4	PortStatusInfo	PortStatusInfo	NO_DEVICE, DEACTIVATED, PORT_DIAG PREOPERATE, OPERATE, DI_C/Q, DO C/Q	
2		PortQualityInfo	PortQualityInfo	0x00-0xFF	0: Process data valid 1: Process data invalid Bit0 : input Bit1 : output Bit2-7 : Reserved
3		RevisionID	IO-Link version of Connected IO-Link device	0x00-0xFF	
4		TransmissionRate	Transmission Rate	NOT_DETECTED, COM1,COM2,COM3	
5		MasterCycleTime	Auctual cycle time	0-255	0 : As fast as possible 1~3 : 0.4ms 4~63 : 0.4~6.3 ms(by 0.1ms) 64~127 : 6.4~31.6 ms(by 0.4ms) 128~191 : 32~132.8ms (by 1.6ms) 192~255 : 132.8 ms
6		InputDataLength	Input Data Length	0-32	
7		OutputDataLength	Output Data Length	0-32	
8		VendorID	Vendor ID of Connected IO-Link device	0~65535	
9		DeviceID	Deveice ID of Connected IO-Link device	0~16777215	

Compact Wireless Remote IO-Link Master Parameter EXW1-RLBPA7C(ClassB)

- Setting Parameter

No	Target	Parameter	Definition	Item	Default setting	Content
1	Remote	Brown-out Detection for US1	Generated error when US1 power supply voltage goes under approx. 19 V.	Enable	○	
				Disable		
2		Output State Fieldbus FaultIdle※1	Sets output status when Fieldbus Communication Fault/Idle is occurred.	Clear	○	This function is valid only when "Unit: Output State Fieldbus FaultIdle" for the Wireless Base is set to "Individual"
				Hold		
				Individual		
3		Short circuit Monitor for IOL (L+, C/Q)	Either of the following detects the short-circuit, diagnostics is generated. •L+ power supply •C/Q signal •P24 power supply	Enable	○	
				Disable		
4		AD Update time	Update Time of IO-Link input Process data.	0.1/0.2/0.5/1/2/5/10/30/60[s]	500ms	
5		Output State for RF Timeout	Sets output status when Wireless Communication Timeout is occurred.	Clear		
				Hold	○	
				Individual		
6		Brown-out Detection for US2	Generated error when US2 power supply voltage goes under approx. 19 V.	Enable		
	Disable			○		
7	Unit(SIO)	Hold State for Fieldbus Fault	Hold State for Fieldbus Fault	Hold(0)		
				Individual(1)	○	
8		Output State for Fieldbus Fault	Sets output status when Fieldbus Communication error is occurred.	OFF(0)	○	Enable when Hold State for Fieldbus Fault is set Individual.
				ON(1)		
9		Hold State for Fieldbus Idle	Sets hold status when Fieldbus Communication idle is occurred.	Hold(0)		
				Individual(1)	○	
10		Output State for Fieldbus Idle	Sets output status when Fieldbus Communication idle is occurred.	OFF(0)	○	Enable when Hold State for Fieldbus Idle is set Individual.
				ON(1)		
11		Hold State for RF Timeout	Sets hold status when Wireless Communication timeout is occurred.	Hold(0)		
				Individual(1)	○	
12		Output State for RF Timeout	Sets output status when Wireless Communication timeout is occurred s	OFF(0)	○	Enable when Hold state for RF Timeout is set Individual
				ON(1)		

Compact Wireless Remote IO-Link Master Parameter EXW1-RLBPA7C(ClassB)

- Setting Parameter (continued)

No	Target	Parameter	Definition	Item	Default setting	Content
13	IO-LINKP1-P4	Pd Byte Swap	Swap the byte order of the process data, which is exchanged between fieldbus communication and IO-Link master.	Direct	○	
				Swap 16 bit		
				Swap 16 bit		
				Swap All		
14		L+ Power ON	Control L+.	Power ON	○	Only for IO-Link P1/P2
				Power OFF		
15		Port Input IO-Link Size	Setting the IO-Link input Process data size.	0~32byte	P1,P2: 16byte	Wireless protocol V2.0
				0~14byte	P1:8byte P2:6byte	Wireless protocol V1.0
16		Port Output IO-Link Size	Setting the IO-Link output Process data size.	0~32byte	P1,P2 : 16byte	Wireless protocol V2.0
				0~14byte	P1:8byte P2:6byte	Wireless protocol V1.0
17		Port Mode	Setting the IO-Link Port mode.	Deactivated		4 th pin of PORT1/2
				IOL_Manual		
				IOL_Autostart	○	
				DI_C/Q		
				DO_C/Q		
18		Validation & Backup※	Set the function of the comparison function (comparison of vendor ID and device ID) of the connected device and data storage (DS).	No Device Check	○	Comparison function: invalid DS function:invalid
				Type compatible Device V1.0		Connected device: V1.0 Comparison function: valid DS function: invalid
				Type compatible Device V1.1		Connected device : V1.1 Comparison function: valid DS function: invalid
				Type compatible Device V1.1, Backup + Restore		Connected device: V1.1 Comparison function: valid DS function: Valid (Backup & restore)
	Type compatible Device V1.1, Restore				Connected device: V1.1 Comparison function: valid DS function: valid (for restore only)	
19	PortCycleTime	Setting for communication cycle time with IOLink device. Ranges (with time increments) in brackets are shown below 0.4-6.3 ms (by 0.1 ms) 6.4-31.6 ms (by 0.4 ms) 32-132.8 ms (by 1.6 ms)	As fast as possible	○	Automatically set as a minimum cycle time of IOLink device.	

Compact Wireless Remote IO-Link Master Parameter EXW1-RLBPA7C(ClassB)

- Setting Parameter (continued)

No	Target	Parameter	Definition	Item	Default setting	Content	
20	IO-LINKP1-P4	VendorID	Setting for vendor ID which is compared when the IO-Link device comparison function is valid.	0 to 65535	0		
21		DeviceID	Setting for device ID which is compared when the IO-Link device comparison function is valid.	0 to 16777215	0		
22		IO-Link State For FieldbusFault	Sets Process data status when Fieldbus Communication error is occurred.	Clear/PD Out valid			All outputs are turned OFF and process data outputs remain valid.
				Hold			Process data outputs remain valid. IO-link master holds the last process data it received.
				Clear/PD Outinvalid	○		All outputs are turned OFF and Process data outputs become invalid.
23		IO-Link State for Fieldbus Idle	Sets Process data status when Fieldbus Communication Idle is occurred	Clear/PD Out valid			All outputs are turned OFF and process data outputs remain valid.
				Hold			Process data outputs remain valid. IO-link master holds the last process data it received.
				Clear/PD Outinvalid	○		All outputs are turned OFF and Process data outputs become invalid.
24		IO-Link State for RF Timeout	Sets Process data status when Wireless Communication timeout is occurred.	Clear/PD Outvalid			All outputs are turned OFF and process data outputs remain valid.
				Hold			Process data outputs remain valid. IO-link master holds the last process data it received.
				Clear/PD Outinvalid	○		All outputs are turned OFF and Process data outputs become invalid.

Compact Wireless Remote IO-Link Master Parameter EXW1-RLBPA7C(ClassB)

- Diagnostic Parameter

No	Target	Parameter	Definition	Item	Remarks
1	IO-LINKP1~P4	PortStatusInfo	PortStatusInfo	NO_DEVICE、 DEACTIVATED、 PORT_DIAG PREOPERATE、 OPERATE、 DI_C/Q、 DO_C/Q	
2		PortQualityInfo	PortQualityInfo	0x00-0xFF	0: Process data valid 1: Process data invalid Bit0 : input Bit1 : output Bit2-7 : Reserved
3		RevisionID	IO-Link version of Connected IO-Link device	0x00-0xFF	
4		TransmissionRate	Transmission Rate	NOT_DETECTED, COM1,COM2,COM3	
5		MasterCycleTime	Actual cycle time	0-255	0 : As fast as possible 1~3 : 0.4ms 4~63 : 0.4~6.3 ms(by 0.1ms) 64~127 : 6.4~31.6 ms(by 0.4ms) 128~191 : 32~132.8 ms (by 1.6ms) 192~255 : 132.8 ms
6		InputDataLength	Input Data Length	0-32	
7		OutputDataLength	Output Data Length	0-32	
8		VendorID	Vendor ID of Connected IO-Link device	0~65535	
9		DeviceID	Deveice ID of Connected IO-Link device	0~16777215	

● Compact Wireless Remote e-CON Type Parameter EXW1-RDX#E4##

- Setting Parameter

No.	Target	Parameter	Definition	Item	Default setting	Content
1	Remote	Power supply for Control and Input Voltage monitor	Generated error when power supply voltage goes under approx. 19 V.	Enable	○	
				Disable		
2	DIGITAL INPUT	Short Circuit Detection(Power)	Generates error when the short circuit of the power supply for the input device is detected.	Enable	○	
				Disable		
3	DIGITAL INPUT	Inrush Current Filter	Selects the over current detection for 100 msec after supplying power.	Enable	○	Inrush Current Filter setting
				Disable		
4	DIGITAL INPUT	Input Filtering Time	Sets the time to ignore the input signal change.	0.1/1.0/10/20ms	1.0	Selects the time for filtering.
5	DIGITAL INPUT	Input Hold Time	Sets the time to hold the input signal.	1.0/15/100/200ms	15	
6	DIGITAL INPUT	ON/OFF Counter Limit Detection	Generates error when the operation count exceeds the set value.	Enable	-	ON/OFF operation count for each bit Ch0-15.
				Disable	-	
7	DIGITAL INPUT	Counter Limit Value(1k-65000k)	Counter Limit Value	1k-65000k	65000	Times for setting is set value x1000 times

- Diagnostic Parameter

No.	Target	Parameter	Definition	Item	Content
1	DIGITAL INPUT	Ch #:ON/OFF Counter Value	ON/OFF count value. Clears the Input ON/OFF counter to 0.	0 - 4294967295 (0 to 0xFFFFFFFF)	ON/OFF times for each channel.
				Clr (Clear)	Set ON/OFF operation count of input devices to 0.
2	DIGITAL INPUT	Ch7-0:Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value. Channel diagnosis Ch0 to Ch7.	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
3	DIGITAL INPUT	Ch15-8: Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value. Channel diagnosis Ch8 to Ch15.	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
4	DIGITAL INPUT	Ch 7-0: Short Circuit Detection(Input)	The short circuit of the power supply for the input device has been detected. Channel diagnosis Ch0 to Ch7.	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
5	DIGITAL INPUT	Ch 15-8: Short Circuit Detection(Input)	The short circuit of the power supply for the input device has been detected. Channel diagnosis Ch8 to Ch15.	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.

●Compact Wireless Remote e-CON Type Parameter

EXW1-RDY#E4## / EXW1-RDM#E3##

- Setting Parameter

No	Target	Parameter	Definition	Item	Default setting	Content		
1	Remote	Brown-out Detection for US1	Generated error when power supply voltage(US1) goes under approx. 19 V.	Enable	○			
				Disable				
2		Brown-out Detection for US2	Generated error when power supply voltage(US2) goes under approx. 19 V.	Enable		○		
				Disable				
3		Output State Fieldbus Fault/Idle	Sets output status when Fieldbus Communication Fault/Idle is occurred.	Clear	○		In protocol V.1.0, the "Settings" tab > "Remote Settings" frame > "Output operation when upper communication is disconnected" setting takes precedence.	
				Hold				
				Individual				
4		Output State for RF Timeout	Sets output status when Wireless Communication Timeout is occurred.	Clear		○	In protocol V.1.0, the "Settings" tab > "Remote Settings" frame > "Output operation when wireless communication is disconnected" setting takes precedence.	
				Hold				
				Individual				
5		DIGITAL OUTPUT	Short Circuit Detection(Output)	Generates error when the short circuit of the output device is detected.	Disable			
					Enable	○		
6			Restart After Short Circuit	Restore the setting of short circuit detection error after the output device short circuit is cleared.	Auto	○		Automatic recovery by short circuit release.
					Manual			After the short circuit is cleared, the error is cleared by turning the power back on.
7	ON/OFF Counter Limit Detection		Generates error when the operation count exceeds the set value.	Disable	○		ON/OFF operation count for each bit Ch0-15.	
				Enable				
8	Open Circuit Detection		Generates error when the disconnection of the output device is detected.	Disable	○		Disconnection detection for each bit Ch0-15.	
				Enable				
9	Hold State for Fieldbus Fault		Sets hold status when Fieldbus Communication error is occurred.	Hold				
				Individual				
10	Output State for Fieldbus Fault		Sets output status when Fieldbus Communication error is occurred.	Clear			Enabled when the Hold State for Fieldbus Fault setting is set to "Individual".	
				ForceON				
11	Hold State for Fieldbus Idle		Sets hold status when Fieldbus Communication idle is occurred.	Hold				
				Individual				
12	Output State for Fieldbus Idle	Sets output status when Fieldbus Communication idle is occurred.	Clear			Enabled when the Hold State for Fieldbus Idle setting is set to "Individual".		
			ForceON					
13	Hold State for RF Timeout	Sets hold status when Wireless Communication timeout is occurred.	Hold					
			Individual					
14	DIGITAL OUTPUT	Output State for RF Timeout	Sets output status when Wireless Communication timeout is occurred.	Clear		Enabled when the Hold State for Fieldbus Fault setting is set to "Individual" and wireless protocol V2.0.		
				ForceON				
15		Counter Limit Value (1-65000k)	ON/OFF Counter Limit Value.	1k-65000k	65000	The times to be set is the set value x 1000.		

- Diagnostic Parameter

No	Target	Parameter	Definition	Item	Content
1	DIGITAL OUTPUT	Ch #:ON/OFF Counter Value	ON/OFF count value. Clears the Input ON/OFF counter to 0.	0 - 4294967295 (0 to 0xFFFFFFFF)	ON/OFF times for each channel.
				Clr (Clear)	Set ON/OFF operation count of input devices to 0.
2		Ch 7-0: Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value. Channel diagnosis Ch0 to Ch7	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
3		Ch 15-8: Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value. Channel diagnosis Ch8 to Ch15	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
4		Ch 7-0: Open Circuit Detection	The output device wiring is disconnected. Channel diagnosis Ch0 to Ch7	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
5		Ch 15-8: Open Circuit Detection	The output device wiring is disconnected. Channel diagnosis Ch8 to Ch15	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
6		Ch 7-0:Short Circuit Detection(Output)	The short circuit of the power supply for the output device has been detected. Channel diagnosis Ch0 to Ch7	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
7		Ch 15-8: Short Circuit Detection(Output)	The short circuit of the power supply for the output device has been detected. Channel diagnosis Ch8 to Ch15	0x00-0xFF	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.

●Wireless Remote (AMS Remote) Parameter EXA1-##-SA

- Setting Parameter

No	Target	Parameter	Definition	Item	Default setting	Content
1	Remote	Brown-out Detection for US1	Generated error when power supply voltage(US1) goes under approx. 19 V.	Enable	○	
				Disable		
2		Output State Fieldbus Fault/Idle Communication failure	Sets output status when Fieldbus Communication Fault/Idle is occurred.	Clear		
				Hold	○	
3		Short Circuit Detection(L+,C/Q)	Either of the following detects the short-circuit, diagnostics is generated. •L+ power supply •C/Q signal •P24 power supply	Enable	○	
				Disable		
4		AD Update time	date Time of IOLink input Process data.	0.1/0.2/0.5/1/2/5/10/30/60[s]	500ms	

- Setting Parameter

No	Target	Parameter	Definition	Item	Default setting	Content
1	HUB	ParameterEnable/Disable	Priority is given to settings held by wireless base.	Disable		
				Enable	○	
2		OperationPressure	Sets the pressure in the operation mode.	0-1050	400	
3		StandbyPressure	Sets the pressure in the standby mode.	0-1050	200	
4		SoftStartTime	Sets the pressure in the standby mode	0-1500	0	
5		StandbyFlowRate(Threshold)(20)	Sets the standby flow rate(threshold value).	5-525	25	
		StandbyFlowRate(Threshold)(30)		10-1050	50	
		StandbyFlowRate(Threshold)(40)		20-2100	100	
		StandbyFlowRate(Threshold)(60)		40-4200	200	
6		StandbyFlowRate(Hysteresis)(20)	Sets the standby flow rate (hysteresis).	0-520	50	
		StandbyFlowRate(Hysteresis)(30)		0-1040	100	
		StandbyFlowRate(Hysteresis)(40)		0-2080	200	
		StandbyFlowRate(Hysteresis)(60)		0-4100	400	
7		StandbyOnDelay	Sets the standby ON delay.	0-9999	600	
8		StandbyOffDelay	Sets the standby OFF delay.	0-9999	0	
9		IsolationEnable/Disable	Sets enabling/disabling of automatic isolation.	Disable	○	
				Enable		
10	IsolationDelay	Sets isolation delay.	0-9999	3600		
11	EnergySavingMode	Forces the operating mode to be set.	AMS	○		
			Operation			
			Standby			
			Isolation			
12	Pin(SecurityCodeUsed/NotUsed)	Sets whether it is necessary to input the security code or not.	Unused	○		
			Used			
13	Pin(SecurityCodeUsed/NotUsed)	Allows you to change the security code setting.	0-999	0		
14	DeviceAccessLockForPF3A	Sets enabling/disabling of button operation and enabling/disabling of data storage for PF3A.	Key lock release, DS unlock	○		
			Key lock, DS unlock			
15	L+ Power ON AMS ITV	Turns ON/OFF the power supply for ITV.	Power ON	○		
			Power Off			
16	L+ Power ON AMS Standby/VP	Turns ON/OFF the power supply for input signal.	Power ON	○		
			Power Off			
17	DeviceAccessLockForITV	Sets enabling/disabling of button operation and enabling/disabling of data storage for ITV.	Key lock release, DS unlock	○		
			Key lock, DS unlock			

- Diagnostic Parameter

No	Target	Parameter	Definition	Item	Content
1	HUB	Accumulated Flow Reset	Accumulated Flow Reset.	-	Reset by 190 writes.
2		AR/ITV Active Mode	AR/ITV Active Mode.	0-1	0 : AR 1 : ITV

• IO-Link Unit (EXA1-20-SA / EXA1-30-SA / EXA1-40-SA / EXA1-60-SA)
 - Setting Parameter

No	Target	Parameter	Definition	Item	Default setting	Content
1		Pd Byte Swap	Swaps the byte order of the process data, which is sent and received in the fieldbus communication and IO-Link communication.	Direct	○	
				Swap 16 bit		
				Swap 16 bit		
				Swap All		
2		L+ Power ON	L+ power control	Power ON	○	Possible to be set only for IO-Link P1/P2.
				Power OFF		
3		Port Mode	Configures IO-Link port operation mode setting.	Deactivated		
				IOL_Manual		
				IOL_Autostart	○	
				DI_C/Q		
4	IO-LINKP1	Validation & Backup※	Sets the function of the collation function (collation between vendor ID and device ID) of the connected device and the data storage (DS) function.	No Device Check	○	Collation function: Disabled DS function: Disabled
				Type compatible Device V1.0		Connected device: V1.0 Collation function: Enabled DS function: Disabled
				Type compatible Device V1.1		Connected device: V1.1 Collation function: Enabled DS function: disabled
				Type compatible Device V1.1, Backup+Restore		Connected device: V1.1 Collation function: Enabled DS function: Enabled (Backup & Restore)
				Type compatible Device V1.1, Restore		Connected device: V1.1 Collation function: Enabled DS function: Enabled (Restore only)
5		PortCycleTime	Setting for communication cycle time with IOLink device. Ranges (with time increments) in brackets are shown below 0.4-6.3 ms (by 0.1 ms) 6.4-31.6 ms (by 0.4 ms) 32-132.8 ms (by 1.6 ms)	As fast as possible	○	Based min cycle time on device.
				0.6ms to 132.8ms		
6	IO-LINKP1	VendorID	Sets the vendor ID which is collated when the IO-Link device collation function is enabled.	0 to 65535	0	
7	IO-LINKP1	DeviceID	Sets the device ID which is collated when the IO-Link device collation function is enabled.	0 to 16777215	0	

- Diagnostic Parameter
 Nothing Parameter

Hardware configuration

■ GSDML file and icon

A GSDML file is required to configure the EXW1-BPNAC1 with the PLC. Furthermore, icons are necessary for the display icon of the EXW1-BPNAC1 on the PLC software.

URL : <https://www.smcworld.com/>

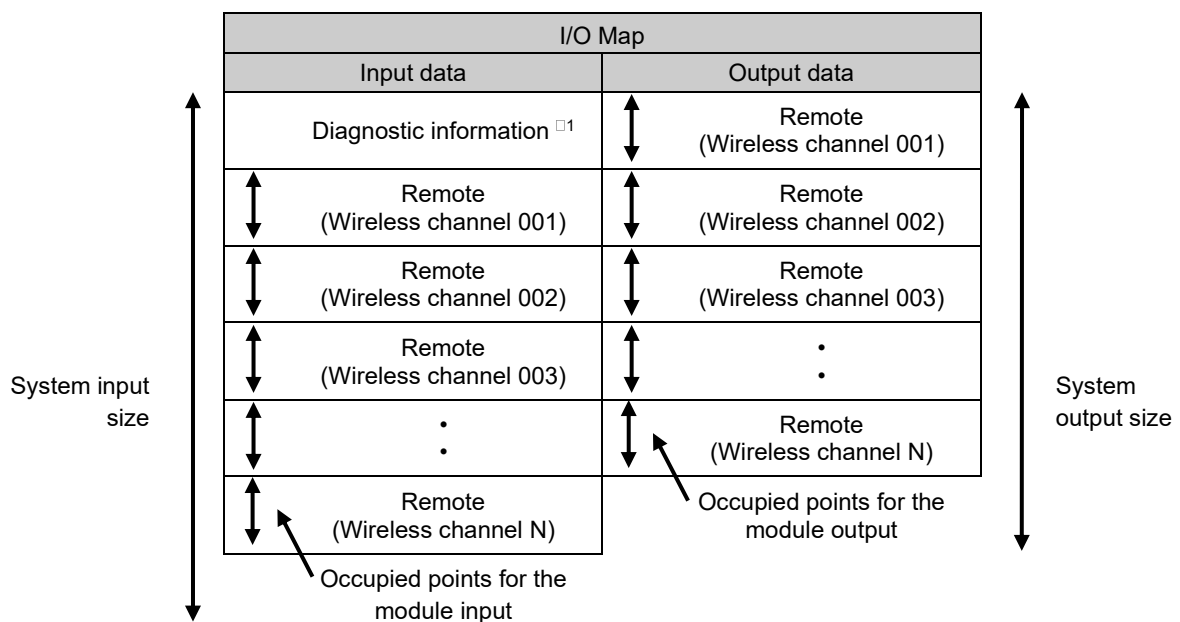
•GSDML file: GSDML-V2. 43-SMC-EXW1-BPN-***. xml

•Icon file: GSDML-0083-001E-EXW1. bmp

■ Configuration Layout

The EXW1-BPNAC1 I/O map is assigned in order of **diagnostic information**, **base** and **remote**. The remote allocation order to the I/O map is decided by the **wireless channel** at the remote registration. As they are allocated from the smallest registered channel number, the channel in which no remote is registered will be ignored. (Refer to the figure below.)

For correct establishment of the information with the PLC, setting must be performed in the correct order of the **wireless channel** in the configuration program.



□1: This is selected according to the diagnostic allocation parameter setting of the base. Refer to the section "Diagnostic allocation" for details.

■ Connection to SIEMENS PLC

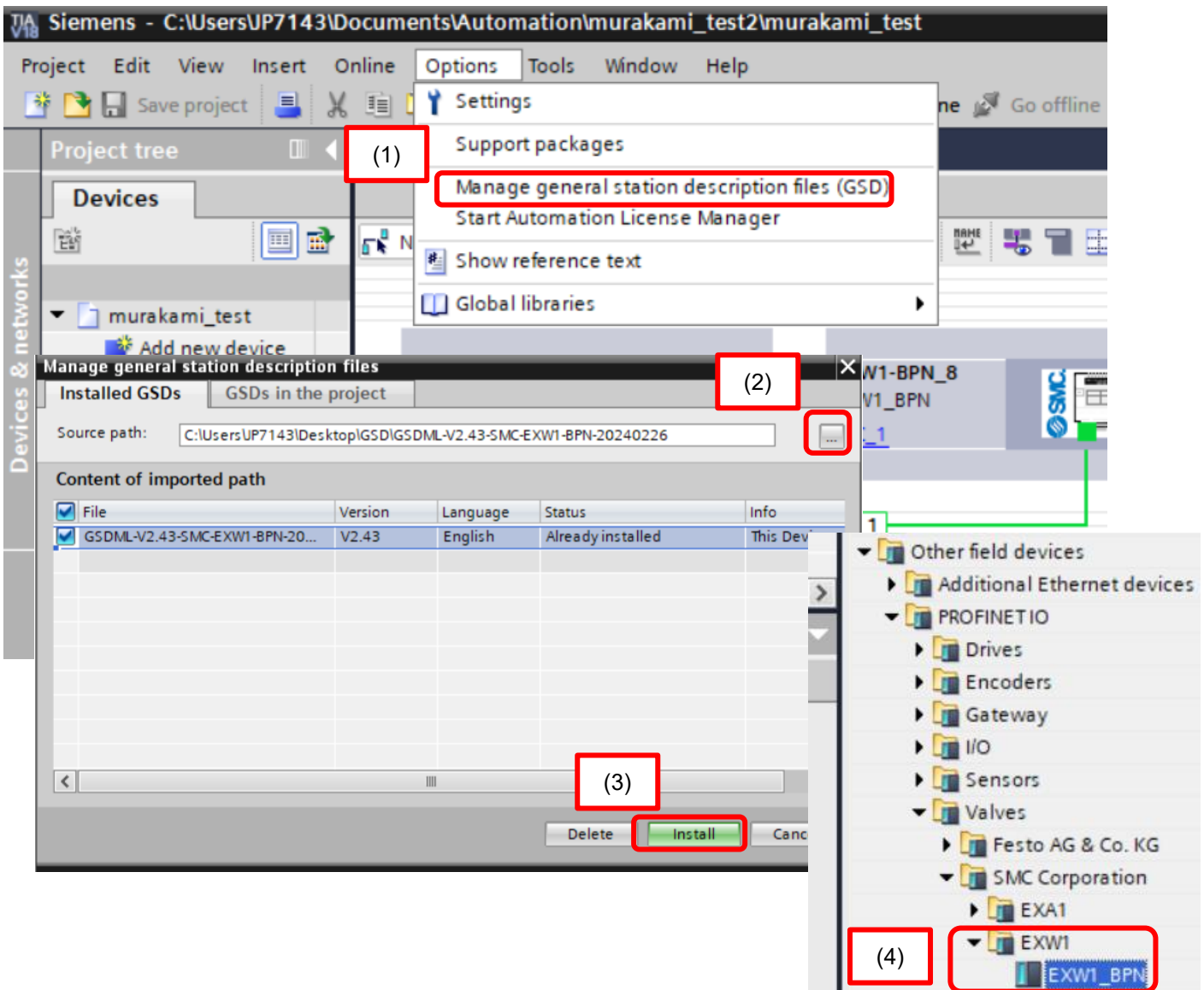
How to connect the EXW1-BPNAC1 to SIEMENS PLC is explained below.

Refer to the Operation Manual of the SIEMENS PLC for the detailed operation.

□: The drawing below shows the SIEMENS software, TIA PORTAL V18

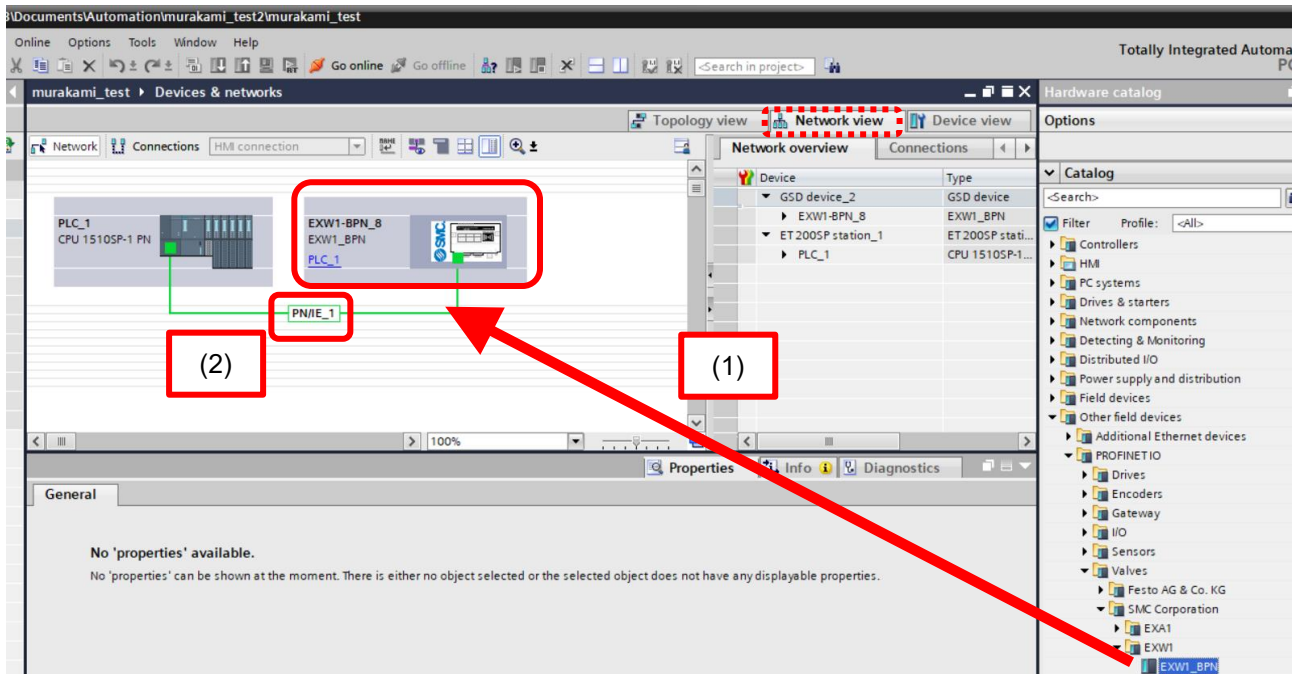
1. GSDML file installation

- (1) Select "Options" → "Manage general station description files (GSD)" from menu bar.
- (2) "Manage general station description file" window will be displayed. Select the folder in which the GSDML file is stored.
- (3) A list of stored GSDML files will be displayed. Select the file to install, and press "Install".
- (4) EXW1-BPN hardware component will be added to "Hardware Catalog" window folder.
(PROFINET IO \ Additional Field Devices \ Valves \ SMC Corporation \ EXW1 \ EXW1_BPN)



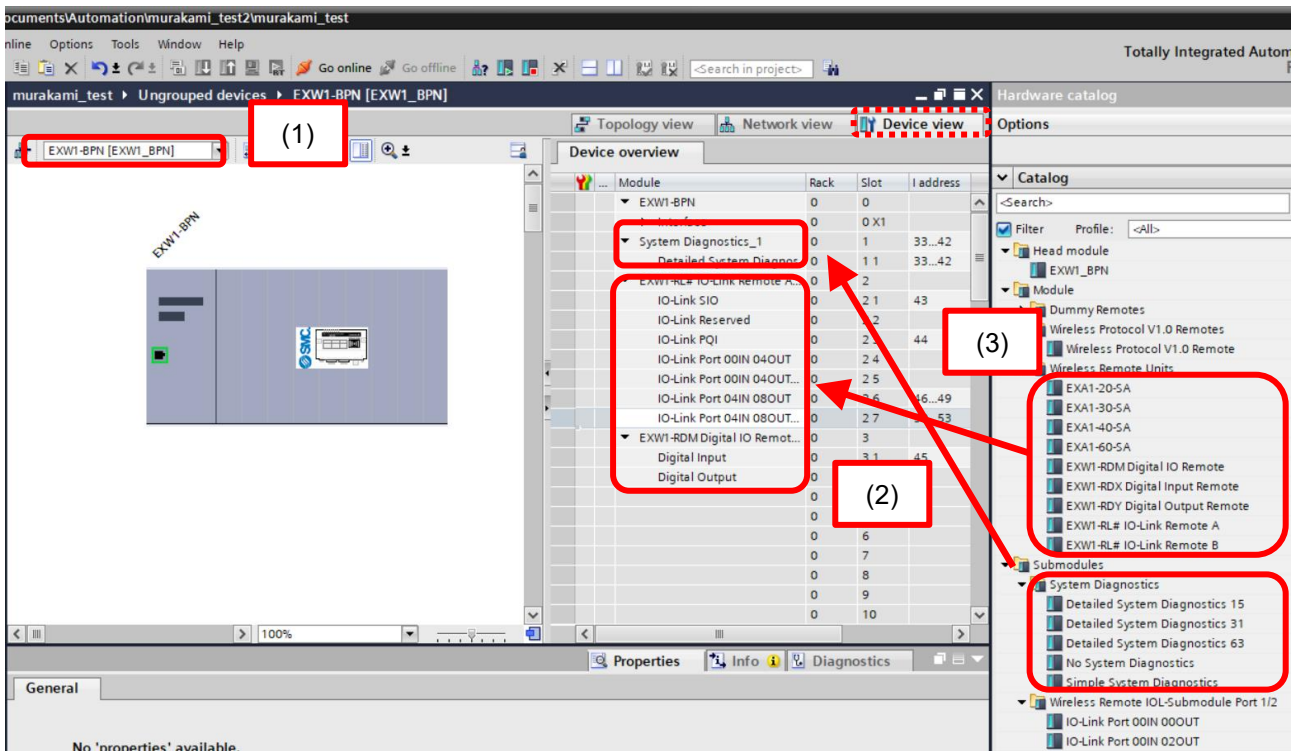
2. Addition of EXW1-BPN

- (1) Select "EXW1_BPN" from "Hardware catalog" and drag and drop it on the "Devices & networks" screen.
- (2) Connect the PLC and EXW1_BPN.



3. Addition of the IO unit

- (1) Select " EXW1_BPN " from "Hardware catalog" and drag and drop it on the "Devices & networks" screen.
- (2) From the "Hardware catalog" window, drag and drop the wireless remote registration number or diagnostic allocation that to be set in the I/O configurator to Slot1 1 in [Device overview].
- (3) Drag and drop the paired wireless remotes to each Slot according to the wireless channel.
 - Wireless channel 1 = Slot2
 - Wireless channel 2 = Slot3
 - Wireless channel 3 = Slot4



- (4) The initial (default) port setting of the EXW1-RL* (IO-Link) is not configured.
 Select the function to be set from Wireless Remote IOL-Submodule Port1/2 (EXW1-RLA* and EXW1-RLB*) and Wireless Remote IOL-Submodule Port3/4 (EXW1-RLA* only) in the [Hardware catalog] window.

Note)

The total input/output size including SIO and PQI of each port and the total input/output size of the wireless remote at the time of pairing should be matched.

Refer to the manual of I/O configurator and EXW1-RL* how to be pairing and input/output size.

Ex) When paired with Input: 32 bytes, Output: 28 bytes.

Paired with Input: 32 bytes and Output: 28 bytes. Each 2 bytes of input and output are fixed value, so input: 30 bytes and output: 26 bytes are allocated to each port.

Port1/2 is configured via Wireless Remote IOL-Submodule Port1/2.

Module	Rack	...
EXW1-BPN	0	0
Interface	0	...
System Diagnostics_1	0	1
Detailed System Diagnostics.	0	...
EXW1-RL# IO-Link Remote A_1	0	2
IO-Link SIO	0	...
IO-Link Reserved	0	...
IO-Link PQI	0	...
IO-Link Port 16IN 02OUT	0	...
IO-Link Port 08IN 04OUT	0	...
IO-Link Port 04IN 16OUT	0	...
IO-Link Port 02IN 04OUT	0	...
EXW1-RDM Digital IO Remote_1	0	3
Digital Input	0	...
Digital Output	0	...

Port1

Port2

IO-Link Port 16IN 02OUT

IO-Link Port 08IN 04OUT

IO-Link Port 04IN 16OUT

IO-Link Port 02IN 04OUT

Wireless Remote IOL-Submodule Port 1/2

IO-Link Port 00IN 00OUT

IO-Link Port 00IN 02OUT

IO-Link Port 00IN 04OUT

IO-Link Port 00IN 08OUT

IO-Link Port 00IN 16OUT

IO-Link Port 00IN 32OUT

IO-Link Port 02IN 00OUT

IO-Link Port 02IN 02OUT

IO-Link Port 02IN 04OUT

IO-Link Port 02IN 08OUT

IO-Link Port 02IN 16OUT

IO-Link Port 02IN 32OUT

IO-Link Port 04IN 00OUT

IO-Link Port 04IN 02OUT

IO-Link Port 04IN 04OUT

IO-Link Port 04IN 08OUT

IO-Link Port 04IN 16OUT

IO-Link Port 04IN 32OUT

IO-Link Port 08IN 00OUT

IO-Link Port 08IN 02OUT

IO-Link Port 08IN 04OUT

IO-Link Port 08IN 08OUT

IO-Link Port 08IN 16OUT

IO-Link Port 08IN 32OUT

IO-Link Port 16IN 00OUT

IO-Link Port 16IN 02OUT

Max.32IN, Max.32OUT

Port3/4 is configured via Wireless Remote IOL-Submodule Port3/4.

The screenshot displays a software interface for configuring a device. The main window is titled 'Device overview' and shows a tree view of the device's components. The 'Device overview' table is as follows:

Module	Rack	...
EXW1-BPN	0	0
Interface	0	...
System Diagnostics_1	0	1
Detailed System Diagnostics.	0	...
EXW1-RL# IO-Link Remote A_1	0	2
IO-Link SIO	0	...
IO-Link Reserved	0	...
IO-Link PQI	0	...
IO-Link Port 16IN 02OUT	0	...
IO-Link Port 08IN 04OUT	0	...
IO-Link Port 04IN 16OUT	0	...
IO-Link Port 02IN 04OUT	0	...
EXW1-RDM Digital IO Remote_1	0	3
Digital Input	0	...
Digital Output	0	...

Below the table, there are two blue boxes labeled 'Port3' and 'Port4'. 'Port3' is positioned above 'IO-Link Port 04IN 16OUT' and 'Port4' is positioned above 'IO-Link Port 02IN 04OUT'. A blue arrow points from the 'IO-Link Port 04IN 16OUT' entry in the table to the 'IO-Link Port 04IN 16OUT' entry in the 'Catalog' list on the right.

The 'Catalog' list on the right is titled 'Wireless Remote IOL-Submodule Port 3/4' and contains the following entries:

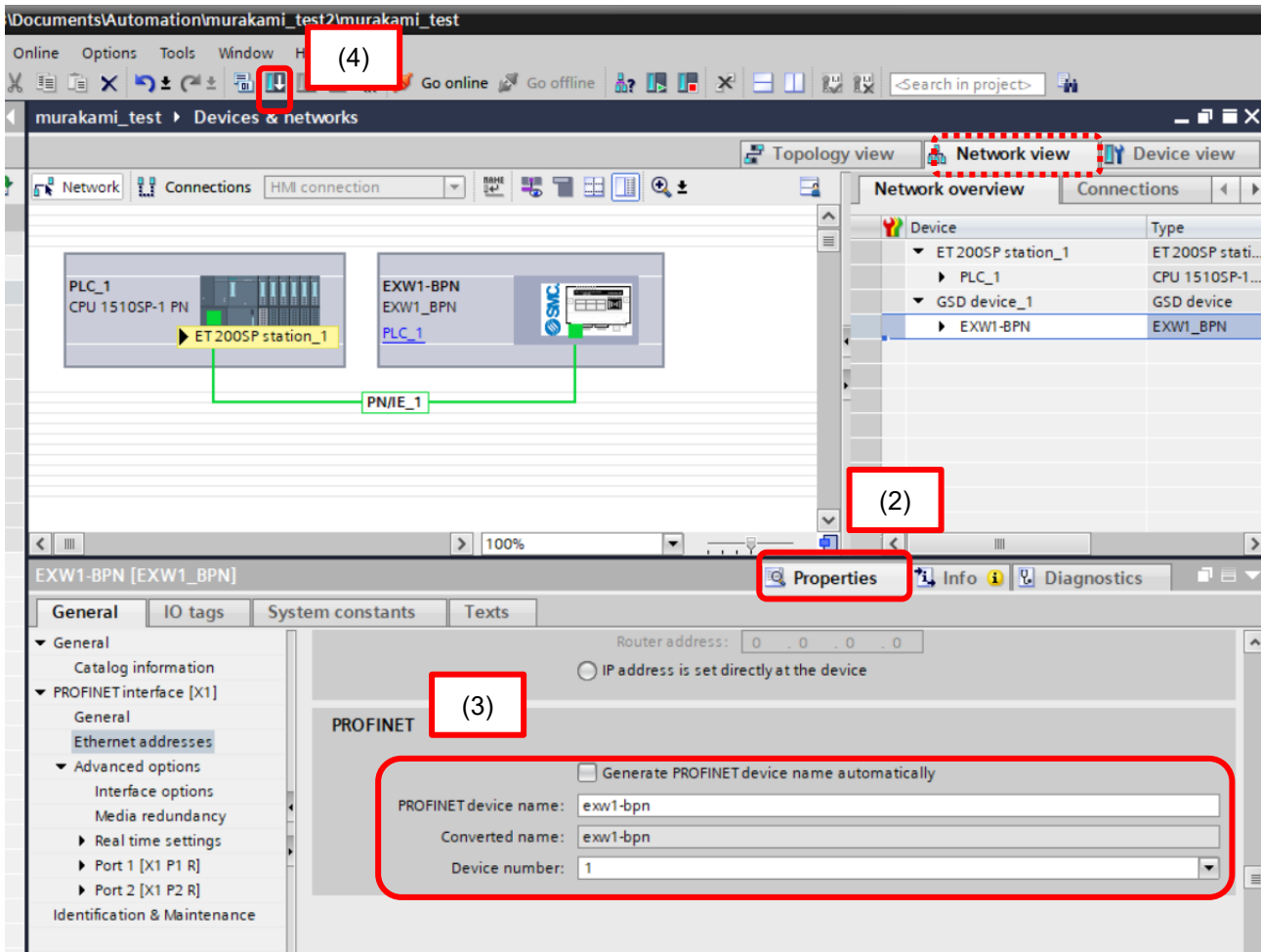
- IO-Link Port 00IN 00OUT
- IO-Link Port 00IN 02OUT
- IO-Link Port 00IN 04OUT
- IO-Link Port 00IN 08OUT
- IO-Link Port 00IN 16OUT
- IO-Link Port 00IN 32OUT
- IO-Link Port 02IN 00OUT
- IO-Link Port 02IN 02OUT
- IO-Link Port 02IN 04OUT
- IO-Link Port 02IN 08OUT
- IO-Link Port 02IN 16OUT
- IO-Link Port 02IN 32OUT
- IO-Link Port 04IN 00OUT
- IO-Link Port 04IN 02OUT
- IO-Link Port 04IN 04OUT
- IO-Link Port 04IN 08OUT
- IO-Link Port 04IN 16OUT
- IO-Link Port 04IN 32OUT
- IO-Link Port 08IN 00OUT
- IO-Link Port 08IN 02OUT
- IO-Link Port 08IN 04OUT
- IO-Link Port 08IN 08OUT
- IO-Link Port 08IN 16OUT
- IO-Link Port 08IN 32OUT
- IO-Link Port 16IN 00OUT
- IO-Link Port 16IN 02OUT
- IO-Link Port 16IN 04OUT

Two entries in the catalog are highlighted with blue boxes: 'IO-Link Port 02IN 04OUT' and 'IO-Link Port 04IN 16OUT'. The entire catalog list is enclosed in a large blue box with the text 'Max.32IN, Max.32OUT' at the bottom.

The 'Properties' section at the bottom of the interface shows several dropdown menus and a text field, including options like 'ect (No Swap)', 'ver On', 'ostart', 'Device check', and 'fast as possible'.

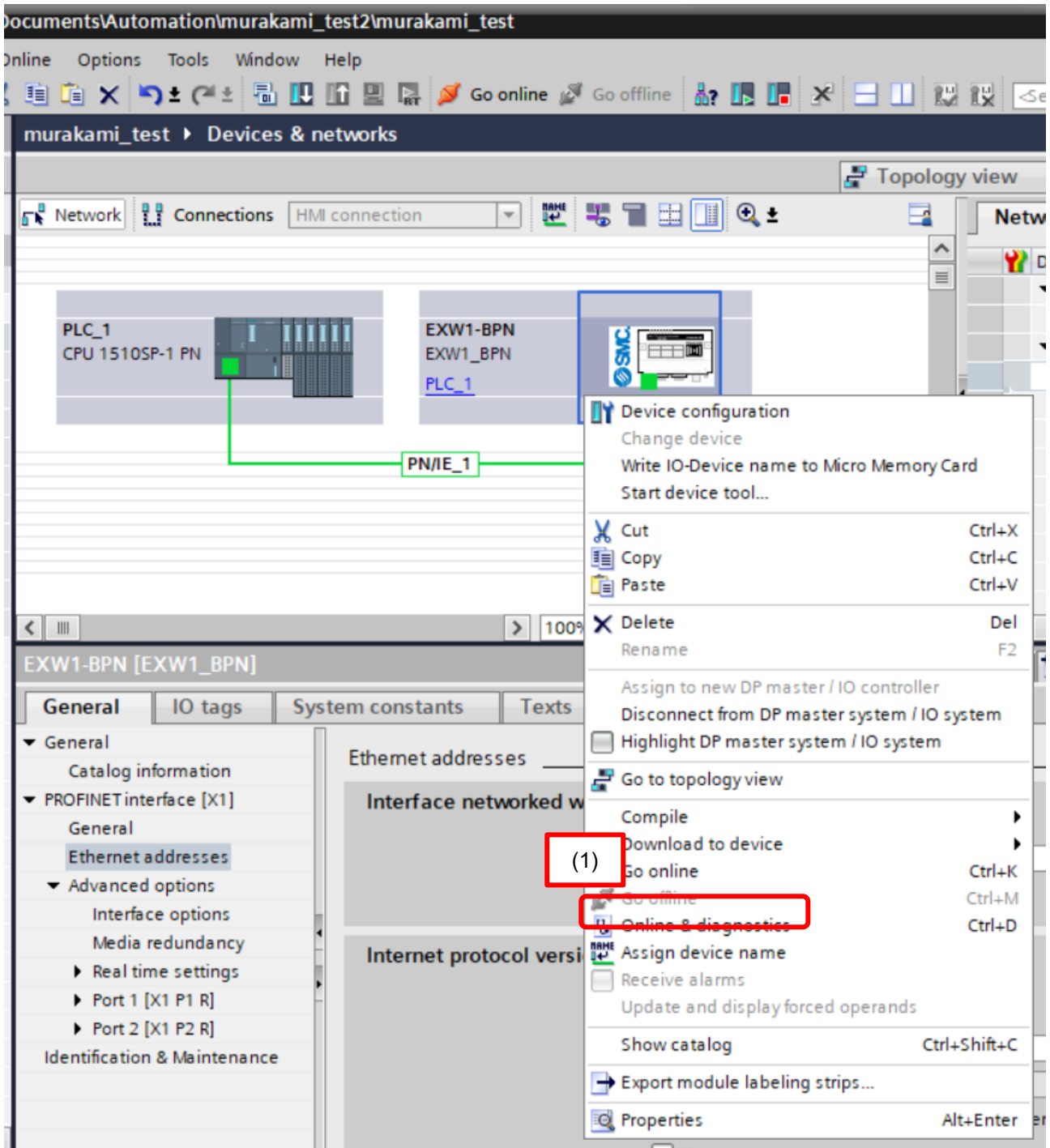
4. Write Device Name to EX600

- (1) Connect the EXW1-BPNAC1 and PLC with a PROFINET communication cable.
- (2) Select “Network view” tab → “Properties” tab of EXW1_BPN.
- (3) Write the PROFINET device name.
- (4) Press the “Download to device” icon.



5. Device Name assignment

- (1) Select EXW1-BPNAC1 on the “Network view” tab, right-click the mouse and select “Assign device name”.



- (2) Press "Update list" to update "Assign PROFINET device name" window.
- (3) Connected the wireless base on the network will be displayed in "Accessible devices in the network".
- (4) Press "Assign name" to complete the configuration.

Assign PROFINET device name.

Configured PROFINET device

PROFINET device name:

Converted name:

Device type:

Online access

Type of the PG/PC interface:

PG/PC interface:

Device filter

Only show devices of the same type

Only show devices with bad parameter settings

Only show devices without names

Accessible devices in the network:

IP address	MAC address	Device	PROFINET device name	Status
0.0.0.0	00-23-C6-93-0...	EXW1_BPN		No device name assigned

(2) (3) (4)

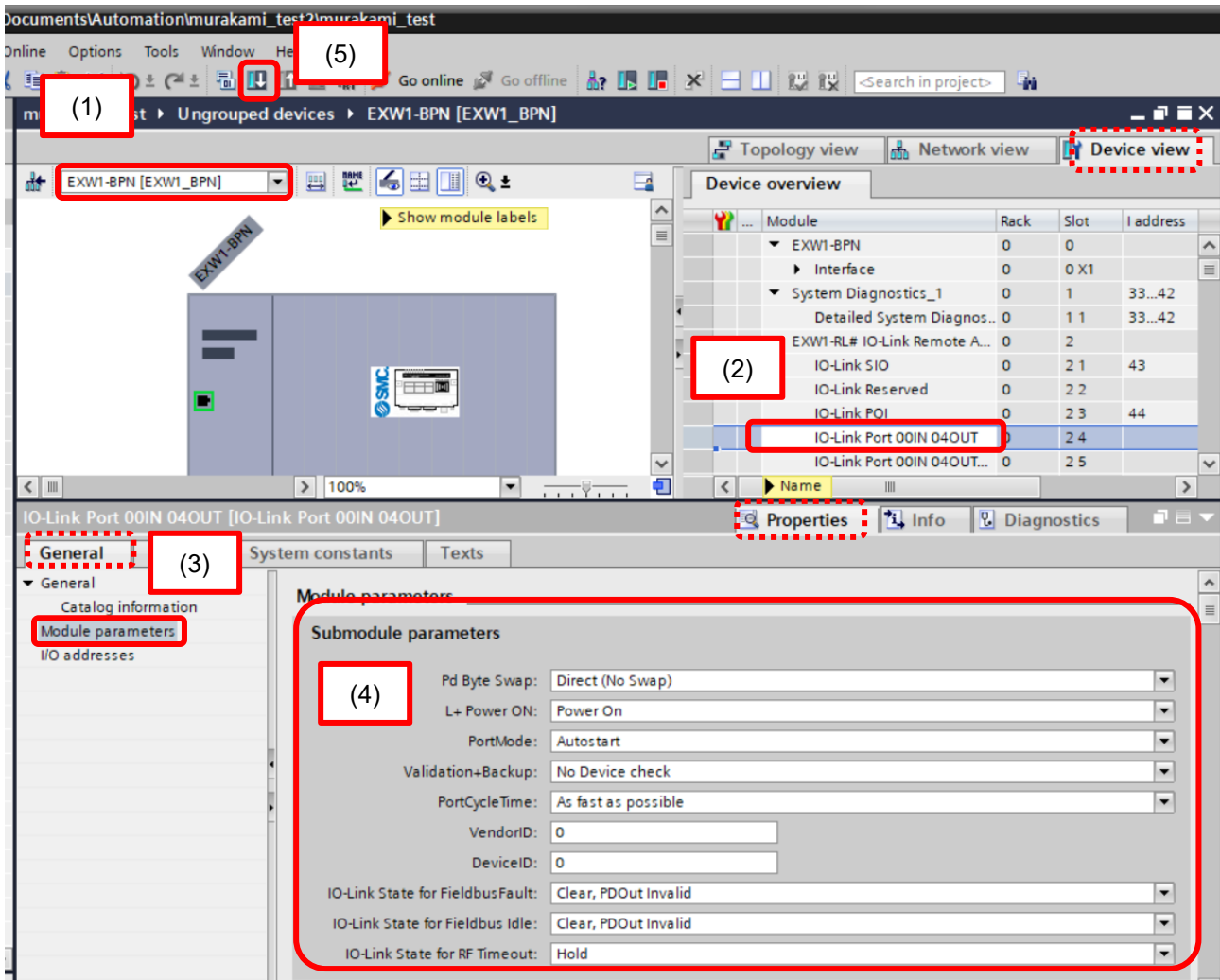
Flash LED

Online status information:

i Search completed. 1 of 2 devices were found.

6. Setting of EXW1-BPNAC1 Module parameters

- (1) Select EXW1_BPN on the „Device view“ tab.
- (2) Select the Module or Submodule that requires parameter changes in the “Device overview”.
- (3) Select “Properties” tab “General” tab and select “Module parameters” to display a list of parameters that can be set.
- (4) Select the parameter and change the value.
- (5) Press the “Download to device” icon.



Acyclic communication

Acyclic communication can be used to check diagnostic data and read and write various parameters. and read and write various parameters.

The data format is shown below.

• Diagnostic information

Slot	SubSlot	Index	Type	Name	Len	Value
00h/01h	any	4000h	R	Advanced Diagnostic	→	Max. Remote units 15: 10byte, 31:16byte, 63: 28byte Remote information is expanded according to the number of registered units setting. System diagnosis (4byte) Remote connection information (2byte,4byte,8byte) Remote diagnostic information (2byte,4byte,8byte) Remote registration information (2byte,4byte,8byte) (each 15 units, 31 units ,63 units) See diagnostic map details P.72

Slot	SubSlot	Index	Type	Name	Len	Value
Remote	any	3FFFh	R	Remote diagnosis	4byte	See diagnostic map details P.72

■ Unit Parameters

Each item is abbreviated as follows.

Slot: Slot, Sub:Sub Slot, InH:Index Hi byte, InL:Index Low byte

● Compact Wireless Base Parameter

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	01h	01h	00h	01h	RW	Brown-out Detection for US1	Detection of a drop in the US1 (for control) power	BYTE	(1)Enable (0)Disable
2			00h	02h	RW	Output State Fieldbus FaultIdle	Output while upper communication is not established	BYTE	(0)Clear (1)Hold (2)Individual
3			00h	03h	RW	Input State for RF Timeout	Input information while wireless communication is not established	BYTE	(0)Clear (1)Hold

● Compact Wireless Remote IO-Link Master Parameter EXW1-RLAPA8C(ClassA)

• Remote parameter

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	00h	01h	RW	Brown-out Detection for US1	Detection of a drop in the US1 (for control)power voltage	BYTE	(1)Enable (0)Disable
2			00h	02h	RW	Output State Fieldbus FaultIdle	Output while upper communication is not established	BYTE	(0)Clear (1)Hold (2)Individual
3			00h	03h	RW	Short circuit Monitor for IOL (L+, C/Q)	Short Circuit Detection · L+ power supply(US1) · C/Q Signal(US1)	BYTE	(1)Enable (0)Disable
4			00h	04h	RW	AD Update time	Update Time of IO-Link Process data	USHO RT	20-60000
5			00h	05h	RW	Output State for RF Timeout	Sets output status when Wireless Communication Timeout is occurred	BYTE	(0)Clear (1)Hold (2)Individual

· Unit parameter SIO (SubSlot01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	01h	00h	RW	Hold State for Fieldbus Fault	Hold State for Fieldbus Fault	BYTE	0: Hold 1: Depend on output state Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
2			02h	00h	RW	Output State for Fieldbus Fault	Sets output status when Fieldbus Communication error is occurred Setting (Setting Individual)	BYTE	0: Off 1: Turn on output forcefully Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
3			03h	00h	RW	Hold State for Fieldbus Idle	Sets hold status when Fieldbus Communication idle is occurred SIO Setting	BYTE	0: Hold 1: Depend on output state Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
4			04h	00h	RW	Output state for Fieldbus Idle	Sets digital output value when Fieldbus Communication idle is occurred (Setting Individual)	BYTE	0: Off 1: Turn on output forcefully Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
5			05h	00h	RW	Hold State for RF Timeout	Sets digital output value when Wireless Communication timeout is occurred (Setting Individual)	BYTE	0: Hold 1: Depend on output state Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
6			06h	00h	RW	Output state for RF Timeout	Sets digital output value when Wireless Communication timeout is occurred	BYTE	0: Off 1: Turn on output forcefully Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved

· Unit parameter IO-Link P1/P2 SubSlot : 04h/05h) ,P3/P4 SubSlot : 06h/07h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	P1:04h P2:05h P3:06h P4:07h	01h	00h	RW	Pd Byte Swap	Swap the byte order of the process data, which is exchanged between fieldbus communication and IO-Link master	BYTE	(0) direct (1) 16 bit (2) 32 bit (3) all
2			02h		RW	L+ Power ON	Control L+	BYTE	(0) Power ON (1) Power OFF
3			05h		RW	Port Mode	Setting the IO-Link Port mode	BYTE	(0)Deactivated (1)IOL_Manual (2)IOL_Autostart (3)DI_C/Q (4)DQ_C/Q
4			06h		RW	Validation & Backup※	Set the function of the comparison function (comparison of vendor ID and device ID) of the connected device and data storage (DS).	BYTE	(0)No Device Check (1)Type compatible Device V1.0 (2)Type compatible Device V1.1 (3)Type compatible Device V1.1, Backup+Restore (4)Type compatible Device V1.1,Restore
5			07h		RW	PortCycleTime	Setting for Communication cycle time with IO-Link device. Ranges (with time increments) in brackets are shown below 0.4-6.3 ms (by 0.1 ms) 6.4-31.6 ms (by 0.4 ms) 32-132.8 ms (by 1.6 ms)	BYTE	0-191
6			08h		RW	VendorID	Setting for vendor ID which is compared when the IO-Link device comparison function is valid.	USHORT	0~65535
7			09h		RW	DeviceID	Setting for device ID which is compared when the IO-Link device comparison function is valid.	6bytes	0~16777215
8			0Ah		RW	IO-Link State For FieldbusFault	Sets Process data status when Fieldbus Communication error is occurred	BYTE	0: Clear/PD Out valid 1: Clear/PD Out invalid 2: Hold
9			0Bh		RW	IO-Link State for Fieldbus Idle	Sets Process data status when Fieldbus Communication Idle is occurred.	BYTE	0: Clear/PD Out valid 1: Clear/PD Out invalid 2: Hold
10			0Ch		RW	IO-Link State for RF Timeout	Sets Process data status when Wireless Communication timeout is occurred	BYTE	0: Clear/PD Out valid 1: Clear/PD Out invalid 2: Hold

· Diagnostic parameter

No.	Slot	Sub	InH	InL	R	Name	Define	Size	Value
1	Remote	P1:04h P2:05h P3:06h P4:07h	0D h	00 h	R	PortStatusInfo	Port status	BYTE	(0)NO_DEVICE (1)DEACTIVATED (2)PORT_DIAG (3)PREOPERATE (4)OPERATE (5)DI_C/Q (6)DO_C/Q
2			0E h	00 h	R	PortQualityInfo	Sets Process data status	BYTE	0: Process Data valid 1: Process Data invalid Bit0 : input Bit1 : output Bit2-7 : Reserved
3			0F h	00 h	R	RevisionID	IO-Link devices IO-Link version	BYTE	00h-FFh
4			10 h	00 h	R	TransmissionRate	Communication speed	BYTE	(0)NOD_DETECTED (1)COM1 (2)COM2 (3)COM3
5			11 h	00 h	R	MasterCycleTime	Actual cycle time value	BYTE	0 : As fast as possible 1~3 : 0.4ms 4~63 : 0.4~6.3 ms (by 0.1 ms) 64~127 : 6.4~31.6ms (by 0.4 ms) 128~191 : 32~132.8 ms (by 1.6 ms) 192~255 : 132.8 ms
6			12 h	00 h	R	InputDataLength	InputDataLength	BYTE	0-32
7			13 h	00 h	R	OutputDataLength	OutputDataLength	BYTE	0-32
8			14 h	00 h	R	VendorID	Set the vendor ID of the device to be connected.	USHORT	0~65535
9			15 h	00 h	R	DeviceID	Set device ID of the device to be connected.	6bytes	0~16777215

●Compact Wireless Remote IO-Link Master Parameter EXW1-RLBPA7C(ClassB)

• Remote parameter (SubSlot : 01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	01h	01h	00h	01h	RW	Brown-out Detection for US1	Detection of a drop in the US1 (for control) power voltage	BYTE	(1)Enable (0)Disable
2			00h	02h	RW	Output State Fieldbus FaultIdle	Output while upper communication is not established	BYTE	(0)Clear (1)Hold (2)Individual
3			00h	03h	RW	Short circuit Monitor for IOL (L+, C/Q)	Short Circuit Detection • L+ power supply (US1) • C/Q Signal(US1)	BYTE	(1)Enable (0)Disable
4			00h	04h	RW	AD Update time	Update Time of IO-Link Process data	USHO RT	20-60000
5			00h	05h	RW	Output State for RF Timeout	Sets output status when Wireless Communication Timeout is occurred	BYTE	(0)Clear (1)Hold (2)Individual
6			00h	06h	RW	Brown-out Detection for US2	Detection of a drop in the US2 (for output) power voltage	BYTE	(1)Enable (0)Disable

• Unit parameter SIO (SubSlot : 01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	01h	00h	RW	Hold State for Fieldbus Fault	Hold State for Fieldbus Fault	BYTE	0: Hold 1: Depend on output state Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
2			02h	00h	RW	Output State for Fieldbus Fault	Sets output status when Fieldbus Communication error is occurred Setting (Setting Individual)	BYTE	0: Off 1: Turn on output forcefully Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
3			03h	00h	RW	Hold State for Fieldbus Idle	Sets hold status when Fieldbus Communication idle is occurred SIO Setting	BYTE	0: Hold 1: Depend on output state Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
4			04h	00h	RW	Output state for Fieldbus Idle	Sets digital output value when Fieldbus Communication idle is occurred (Setting Individual)	BYTE	0: Off 1: Turn on output forcefully Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
5			05h	00h	RW	Hold State for RF Timeout	Sets digital output value when Wireless Communication timeout is occurred (Setting Individual)	BYTE	0: Hold 1: Depend on output state Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved
6			06h	00h	RW	Output state for RF Timeout	Sets digital output value when Wireless Communication timeout is occurred	BYTE	0: Off 1: Turn on output forcefully Bit0 : P1 Bit1 : P2 Bit2 : P3 Bit3 : P4 Bit4-7 : Reserved

• Unit parameter IO-Link P1/P2 SubSlot : 04h/05h)

No.	Slot	Sub	InH	InL	R	Name	Define	Size	Value
1	Remote	P1:04h P2:05h	01 h	00 h	R W	Pd Byte Swap	Swap the byte order of the process data, which is exchanged between fieldbus communication and IO-Link master.	BYTE	(0) direct (1) 16 bit (2) 32 bit (3) all
2			02 h	00 h	R W	L+ Power ON	Control L+.	BYTE	(0) Power ON (1) Power OFF
3			05 h	00 h	R W	Port Mode	Setting the IO-Link Port	BYTE	(0)Deactivated (1)IOL_Manual (2)IOL_Autostart (3)DI_C/Q (4)DQ_C/Q
4			06 h	00 h	R W	Validation & Backup※	Set the function of the comparison function (comparison of vendor ID and device ID) of the connected device and data storage (DS).	BYTE	(0)No Device Check (1)Type compatible Device V1.0 (2)Type compatible Device V1.1 (3)Type compatible Device V1.1, Backup+Restore (4)Type compatible Device V1.1,Restore
5			07 h	00 h	R W	PortCycleTime	Setting for Communication cycle time with IO-Link device. Ranges (with time increments) in brackets are shown below 0.4-6.3 ms (by 0.1 ms) 6.4-31.6 ms (by 0.4 ms) 32-132.8 ms (by 1.6 ms)	USHORT	0-191
6			08 h	00 h	R W	VendorID	Setting for vendor ID which is compared when the IO-Link device comparison function is valid	USHORT	0~65535
7			09 h	00 h	R W	DeviceID	Setting for device ID which is compared when the IO-Link device comparison function is valid.	6bytes	0~16777215
8			0A h	00 h	R W	IO-Link State For FieldbusFault	Sets Process data status when Fieldbus Communication error is occurred	BYTE	0: Clear/PD Out valid 1: Clear/PD Out invalid 2: Hold
9			0B h	00 h	R W	IO-Link State for Fieldbus Idle	Sets Process data status when Fieldbus Communication Idle is occurred.	BYTE	0: Clear/PD Out valid 1: Clear/PD Out invalid 2: Hold
10			0C h	00 h	R W	IO-Link State for RF Timeout	Sets Process data status when Wireless Communication timeout is occurred	BYTE	0: Clear/PD Out valid 1: Clear/PD Out invalid 2: Hold

· Diagnostic parameter

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	P1:04h P2:05h	0D h	00h	R	PortStatusInfo	Port status	BYTE	(0)NO_DEVICE (1)DEACTIVATED (2)PORT_DIAG (3)PREOPERATE (4)OPERATE (5)DI_C/Q (6)DO_C/Q
2			0E h	00h	R	PortQualityInfo	Sets Process data status	BYTE	0: Process data valid 1: Process data invalid Bit0 : input Bit1 : output Bit2-7 : Reserved
3			0F h	00h	R	RevisionID	IO-Link devices IO-Link version	BYTE	00h-FFh
4			10 h	00h	R	TransmissionRate	Communication speed	BYTE	(0)NOD_DETECTED (1)COM1 (2)COM2 (3)COM3
5			11h	00h	R	MasterCycleTime	Actual cycle time value	BYTE	0 : As fast as possible 1~3 : 0.4ms 4~63 : 0.4~6.3 ms (by 0.1 ms) 64~127 : 6.4~31.6ms (by 0.4 ms) 128~191 : 32~132.8 ms (by 1.6 ms) 192~255 : 132.8 ms
6			12 h	00h	R	InputDataLength	InputDataLength	BYTE	0-32
7			13 h	00h	R	OutputDataLength	OutputDataLength	BYTE	0-32
8			14 h	00h	R	VendorID	Set the vendor ID of the device to be connected.	USHORT	0~65535
9			15 h	00h	R	DeviceID	Set device ID of the device to be connected.	6bytes	0~16777215

● Compact Wireless Remote e-CON type parameter EXW1-RDX#E4##

• Remote parameter (Sub Slot : 01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	00h	01h	RW	Brown-out Detection for US1	Detection of a drop in the US1 (for control) power voltage	BYTE	(1)Enable (0)Disable

• DIGITAL INPUT Unit parameter (Sub Slot : 01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	01h	00h-10h	RW	Short Circuit Detection(Power)	Generates error when the short circuit of the power supply for the input device is detected.	BYTE	(1)Enable (0)Disable
2			02h	00h-10h	RW	Inrush Current Filter	Selects the over current detection for 100 msec after supplying power.	BYTE	(1)Enable (0)Disable
3			03h	00h-10h	RW	Input Filtering Time	Sets the time to ignore the input signal change.	BYTE	(0) 0.1 ms (1) 1 ms (2) 10 ms (3) 20 ms
4			04h	00h-10h	RW	Input Hold Time	Sets the time to hold the input signal.	BYTE	(0) 1 ms (1) 15 ms (2) 100 ms (3) 200 ms
5			06h	00h	RW	Ch 7-0: ON/OFF Counter Limit Detection	The output device wiring is disconnected. Channel diagnosis Ch0 to Ch7	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
6									
7				07h	00h-10h	RW	Counter Limit Value(1k-65000k)	ON/OFF Counter Limit Value.	4Bytes

InL: Specify channel number.

• Diagnosis Parameter (Sub Slot : 01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	01h	01h-7Fh (Wireless channel)	08h	00h-10h	R	ON/OFF Counter Value	ON/OFF times for each channel.	BYTE	0-4294967295
2			09h	00h-10h	W	ON/OFF Counter Value Reset	Set ON/OFF operation count of input devices to 0.	BYTE	Clr by written any (Clear)
3			0Ah	00h	R	Ch 7-0:Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value.	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
				08h	R	Ch 15-8:Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value.	BYTE	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
5			0Bh	00h	R	Ch 7-0:Short Circuit Detection(Input)	Short-circuit detection	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
				08h	R	Ch 15-8: Short Circuit Detection(Input)	Short-circuit detection	BYTE	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.

InL: Specify channel number.

●Compact Wireless Remote e-CON type parameter EXW1-RDY#E4## / EXW1-RDM#E3##

Please refer to the EXW1-RDX parameter table for the parameters of DIGITAL INPUT

• Remote parameter (Sub Slot : 01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	00h	01h	RW	Brown-out Detection for US1	Detection of a drop in the US1 (for control) power voltage	BYTE	(1)Enable (0)Disable
2			00h	02h	RW	Brown-out Detection for US2	Detection of a drop in the US2 (for output) power voltage	BYTE	(1)Enable (0)Disable
3			00h	03h	RW	Output State Fieldbus FaultIdle	Output while upper communication is not established	BYTE	(0)Clear (1)Hold (2)Individual
4			00h	04h	RW	Output State for RF Timeout	Output while RF Timeout	BYTE	(0)Clear (1)Hold (2)Individual

• DIGITAL OUTPUT Unit parameter (Sub Slot : RDY:01h,RDM:02h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	RDY: 01h RDM: 02h	01h	00h-10h	RW	Short Circuit Detection(Output)	Generates error when the short circuit of the output device is detected.	BYTE	(1)Enable (0)Disable
2			02h	00h-10h	RW	Restart After Short Circuit	Restore the setting of short circuit detection error after the output device short circuit is cleared.	BYTE	(1) Auto (0) Manual
3			0Ah	00h	RW	Ch 7-0: ON/OFF Counter Limit Detection	Generates error when the operation count exceeds the set value.	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
4				08h	RW	*Only RDY Ch 15-8: ON/OFF Counter Limit Detection	Generates error when the operation count exceeds the set value.	BYTE	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
5			09h	00h	RW	Ch 7-0: Open Circuit Detection	Generates error when the disconnection of the output device is detected.	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
6				08h	RW	*Only RDY Ch 15-8: Open Circuit Limit Detection	Generates error when the disconnection of the output device is detected.	BYTE	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
7			03h	00h	RW	Ch 7-0: Hold State for Fieldbus Fault	Sets hold status when Fieldbus Communication error is occurred.	BYTE	0: Hold 1: Individual Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
8				08h	RW	*Only RDY Ch 15-8: Hold State for Fieldbus Fault	Sets hold status when Fieldbus Communication error is occurred.	BYTE	0: Hold 1: Individual Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
9				00h	RW	Ch 7-0: Output State for Fieldbus Fault	Sets output status when Fieldbus Communication error is occurred.	BYT E	0: Clear 1: Force On Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
10			04h	08h	RW	*Only RDY Ch 15-8: Output State for Fieldbus Fault	Sets output status when Fieldbus Communication error is occurred.	BYT E	0: Clear 1: Force On Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.

• DIGITAL OUTPUT Unit parameter (Sub Slot : RDY:01h,RDM:02h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value		
11	Remote	RDY: 01h RDM: 02h	05h	00h	RW	Ch 7-0: Hold State for Fieldbus Idle	Sets hold status when Fieldbus Communication idle is occurred.	BYTE	0: Holds output. 1: Depends on output setting. Bit0 : Channel 0 : Bit7 : Channel 7		
12				08h	RW	*Only RDY Ch 15-8: Hold State for Fieldbus Idle	Sets hold status when Fieldbus Communication idle is occurred.	BYTE	0: Holds output. 1: Depends on output setting. Bit0 : Channel 8 : Bit7 : Channel 15		
13			06h	00h	RW	Ch 7-0: Output State for Fieldbus Idle	Sets output status when Fieldbus Communication idle is occurred.	BYTE	0: Turns the output OFF. 1: The output is forced ON. Bit0 : Channel 0 : Bit7 : Channel 7		
				08h	RW	*Only RDY Ch 15-8: Output State for Fieldbus Idle	Sets output status when Fieldbus Communication idle is occurred.	BYTE	0: Turns the output OFF. 1: The output is forced ON. Bit0 : Channel 8 : Bit7 : Channel 15		
15			07h	00h	RW	Ch 7-0: Hold State for Fieldbus RF TimeOut	Sets hold status when Wireless Communication timeout is occurred.	BYTE	0: Holds output. 1: Depends on output setting. Bit0 : Channel 0 : Bit7 : Channel 7		
				08h	RW	*Only RDY Ch 15-8: Hold State for Fieldbus RF TimeOut	Sets hold status when Wireless Communication timeout is occurred.	BYTE	0: Holds output. 1: Depends on output setting. Bit0 : Channel 8 : Bit7 : Channel 15		
17			08h	00h	RW	Ch 7-0: Output State for Fieldbus RF TimeOut	Sets output status when Wireless Communication timeout is occurred.	BYTE	0: Turns the output OFF. 1: The output is forced ON.Bit0 : Channel 0 : Bit7 : Channel 7		
				08h	RW	*Only RDY Ch 15-8: Output State for Fieldbus RF TimeOut	Sets output status when Wireless Communication timeout is occurred.	BYTE	0: Turns the output OFF. 1: The output is forced ON. Bit0 : Channel 8 : Bit7 : Channel 15		
19					0Bh	00h- 10h	RW	Counter Limit Value(1k-65000k)	ON/OFF Counter Limit Value.	4Bytes	1-65000

• Diagnostics Parameter(Sub Slot : RDY:01h,RDM:02h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	RDY: 01h RDM: 02h	0Ch	00h-10h	R	ON/OFF Counter Value	ON/OFF count value for each channel.	BYTE	0-4294967295
2			0Dh	00h-10h	W	ON/OFF Counter Value Reset	Clear ON/OFF count for each channel.	BYTE	Reset by write (any value).
3			0Eh	00h	R	Ch 7-0:Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value. Channel diagnosis Ch0 to Ch7.	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
									0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
4			08h	R	Ch 15-8:Exceeded ON/OFF Counter Limit	ON/OFF count of the valve has exceeded the set value. Channel diagnosis Ch8 to Ch15.	BYTE	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.	
5			0Fh	00h	R	Ch 7-0:Open Circuit Detection(Input)	The output device wiring is disconnected. Channel diagnosis Ch0 to Ch7	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.
									0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.
6			08h	R	Ch 15-8: Open Circuit Detection(Input)	The output device wiring is disconnected. Channel diagnosis Ch8 to Ch15	BYTE	0: No error 1: Error Bit0: There is an error in channel 8. : Bit7: There is an error in channel 15.	
7	10h	00h	R	Ch 7-0:Short Circuit Detection(Input)	The short circuit of the power supply for the input device has been detected. Channel diagnosis Ch0 to Ch7.	BYTE	0: No error 1: Error Bit0: There is an error in channel 0. : Bit7: There is an error in channel 7.		
							0: No error 1: Error Bit0: There is an error in channel 8.		
8	08h	R	Ch 15-8: Short Circuit Detection(Input)	The short circuit of the power supply for the input device has been detected. Channel diagnosis Ch8	BYTE	0: No error 1: Error Bit0: There is an error in channel 8.			

								to Ch15.		:	Bit7: There is an error in channel 15.
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●Wireless Remote AMS Remote Parameter EXA1-##-SA

• Remote Parameter (SubSlot : 01h)

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	00h	01h	RW	Brown-out Detection for US1	Generated error when power supply voltage(US1) goes under approx. 19 V.	BYTE	(1)Enable (0)Disable
2			00h	02h	RW	Output State Fieldbus Fault/Idle Communication failure	Sets output status when Fieldbus Communication Fault/Idle is occurred.	BYTE	(0)Clear (1)Hold
3			00h	03h	RW	Short circuit Monitor for IOL (L+, C/Q)	Either of the following detects the short-circuit, diagnostics is generated. •L+ power supply •C/Q signal •P24 power supply	BYTE	(1)Enable (0)Disable
4			00h	04h	RW	AD Update time	date Time of IOLink input Process data.	USHO RT	20-60000

- • HUB Unit (EXA1-20-SA / EXA1-30-SA / EXA1-40-SA / EXA1-60-SA) Setting Parameter

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	02h	00h	RW	OperationPressure	Sets the pressure in the operation mode.	USHO RT	0-1050
2			03h	00h	RW	StandbyPressure	Sets the pressure in the standby mode.	USHO RT	0-1050
3			04h	00h	RW	SoftStartTime	Sets the pressure in the standby mode.	USHO RT	0-1500
4			05h	00h	RW	StandbyFlowRate(Threshold)(20)	Sets the standby flow rate (threshold value).	USHO RT	5-525
5				00h	RW	StandbyFlowRate(Threshold)(30)		USHO RT	10-1050
6				00h	RW	StandbyFlowRate(Threshold)(40)		USHO RT	20-2100
7				00h	RW	StandbyFlowRate(Threshold)(60)		USHO RT	40-4200
8			06h	00h	RW	StandbyFlowRate(Hysteresis)(20)	Sets the standby flow rate (hysteresis).	USHO RT	0-520
9				00h	RW	StandbyFlowRate(Hysteresis)(30)		USHO RT	0-1040
10				00h	RW	StandbyFlowRate(Hysteresis)(40)		USHO RT	0-2080
11				00h	RW	StandbyFlowRate(Hysteresis)(60)		USHO RT	0-4100
12			07h	00h	RW	StandbyOnDelay	Sets the standby ON delay.	USHO RT	0-9999
13			08h	00h	RW	StandbyOffDelay	Sets the standby OFF delay.	USHO RT	0-9999
14			09h	00h	RW	IsolationEnable/Disable	Sets enabling/disabling of automatic isolation.	BYTE	(1)Enable (0)Disable
15			0Ah	00h	RW	IsolationDelay	Sets isolation delay.	USHO RT	0-9999
16			11h	00h	RW	L+ Power ON AMS ITV	Turns ON/OFF the power supply for ITV.	BYTE	(0) Power ON (1) Power OFF

17			12h	00h	RW	L+ Power ON AMS Standby/VP	Turns ON/OFF the power supply for input signal.	BYTE	(0) Power ON (1) Power OFF
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- • HUB Unit (EXA1-20-SA / EXA1-30-SA / EXA1-40-SA / EXA1-60-SA) Diagnostic Parameter

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Remote	01h	0Fh	00h	W	Accumulated Flow Reset	Accumulated Flow Reset.	BYTE	Reset by 190 writes.
2			10h	00h	R	AR/ITV Active Mode	AR/ITV Active Mode.	BYTE	(0)AR (1)ITV

- IO-Link Unit (EXA1-20-SA / EXA1-30-SA / EXA1-40-SA / EXA1-60-SA) Setting Parameter

No.	Slot	Sub	InH	InL	RW	Name	Define	Size	Value
1	Rem ote	02h	01 h	00h	RW	Pd Byte Swap	Swaps the byte order of the process data, which is sent and received in the fieldbus communication and IO-Link communication.	BYT E	(0) direct (1) 16 bit (2) 32 bit (3) all
2			02 h	00h	RW	L+ Power ON	L+ power control	BYT E	(0) Power ON (1) Power OFF
3			05 h	00h	RW	Port Mode	Configures IO-Link port operation mode setting.	BYT E	(0)Deactivated (1)IOL_Manual (2)IOL_Autostart (3)DI_C/Q (4)DQ_C/Q
4			06 h	00h	RW	Validation & Backup※	Sets the function of the collation function (collation between vendor ID and device ID) of the connected device and the data storage (DS) function.	BYT E	(0)No Device Check (1)Type compatible Device V1.0 (2)Type compatible Device V1.1 (3)Type compatible Device V1.1, Backup+Restore (4)Type compatible Device V1.1,Restore
5			08 h	00h	RW	PortCycleTime	Setting for communication cycle time with IOLink device. Ranges (with time increments) in brackets are shown below 0.4-6.3 ms (by 0.1 ms) 6.4-31.6 ms (by 0.4 ms) 32-132.8 ms (by 1.6 ms)	USH ORT	0-191
6			09 h	00h	RW	VendorID	Sets the vendor ID which is collated when the IO-Link device collation function is enabled.	USH ORT	0~65535
7			0A h	00h	RW	DeviceID	Sets the device ID which is collated when the IO-Link device collation function is enabled.	6byte s	0~16777215

●IO-Link SMI service

Reading and writing of the IO-Link master and device parameter using Acyclic communication.
The service code of the Explicit Message varies in reading and writing.

Index : 0x3C00

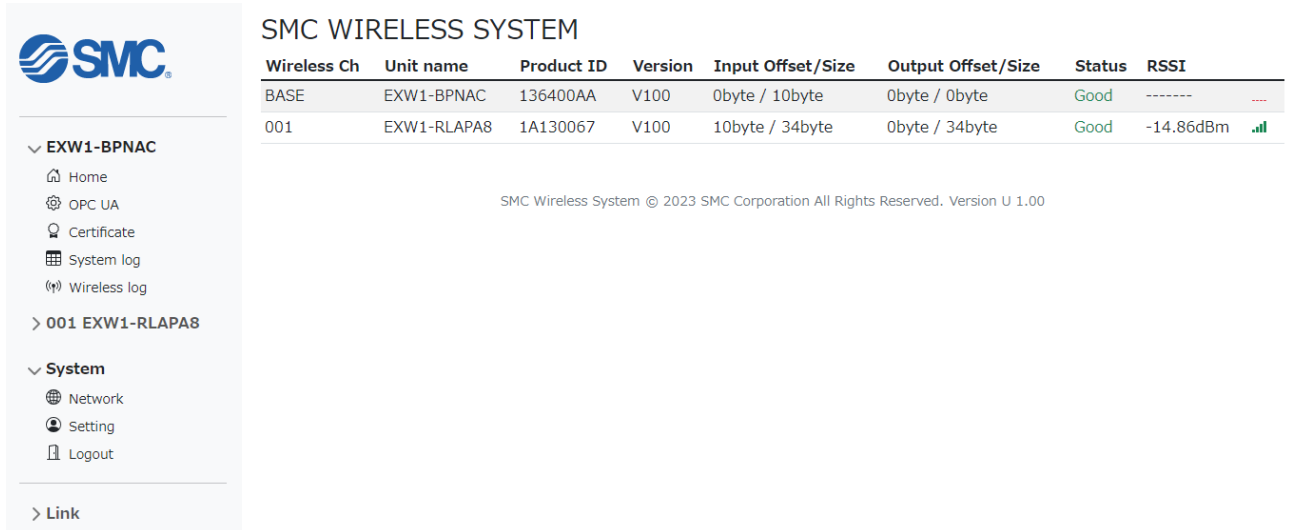
The following 5 types of data can be read or written in the SMI service.

No	Description	Data type	Read	Write
1	SMI_MasterIdentification	IO-Link master information	○	-
2	SMI_PortConfiguration	IO-Link master port parameter setting	○	-
3	SMI_PortStatus	Acquires IO-Link master port status	○	-
4	SMI_DeviceRead	Receives ISDU from IO-Link device	○	-
5	SMI_DeviceWrite	Sends ISDU to IO-Link device	-	○

Web server

Web Server connection

The EXW1 base has a web server which is used for maintenance. To access the web server, connect a PC to the network and enter the EXW1 IP address into a web browser. Ensure that the EXW1 and PC are on the same IP subnet. For IP address setting, download the IP Address Setting Tool (EX9-ZSW-IPC1) from our website (URL <https://www.smcworld.com>) and configure settings.



Wireless Ch	Unit name	Product ID	Version	Input Offset/Size	Output Offset/Size	Status	RSSI
BASE	EXW1-BPNAC	136400AA	V100	0byte / 10byte	0byte / 0byte	Good	-----
001	EXW1-RLAPA8	1A130067	V100	10byte / 34byte	0byte / 34byte	Good	-14.86dBm

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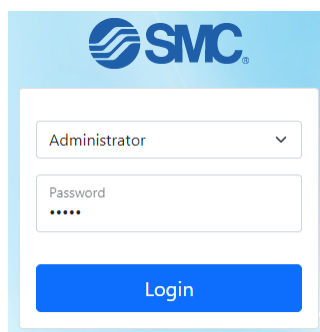
Security Server (Security)

When you use OPC UA setting, log clear and pairing, device certificate is needed. Please use SMC Certificate Generator to set up the certificate.

Username = "Administrator"

Password = "admin"

*: Password is same as IO Configurator NFC type



OPC UA Setting

OPC UA

The Wireless base provides the data from connected remotes via OPC UA. The security policy of this product supports [Signature + Encryption], [Signature] and [No Security]. Depending on the OPC UA client used, the EXW1 Base may require a certificate to be installed.

Please use SMC Certificate Generator to set up the certificate.

Communication Specifications

Refer to the following table for the AMS OPC UA communication limits.

Parameter	Value
MaxMonitoredItemsPerCall	100
MaxNodesPerBrowse	20
MaxNodesPerMethodCall	5
MaxNodesPerNodeManagement	0
MaxNodesPerRead	100
MaxNodesPerRegisterNodes	1
MaxNodesPerTranslateBrowsePathsToNodeIds	20
MaxNodesPerWrite	30
MinPublishingInterval	1000 ms
MinSamplingInterval	10ms
Max OPC UA Clients	2

OPC UA Configuration

The OPC UA parameters can be changed in the webserver by selecting the "OPC UA" section. An OPC UA discovery server address can be provided. The EXW1 Base will connect to the discovery server to obtain the correct timestamp.

OPC UA

Configuration Tag Account

Configuration

Items	Status	Value
OPC UA TCP port No.	4840	<input type="text"/>
OPC UA discovery server URL	opc.tcp://	opc.tcp:// <input type="text"/>
Minimum Monitoring data buffer sampling cycle	1000ms	<input type="text"/> ms
Maximum Number of data buffer blocks	10	<input type="text"/>

[Write value](#)

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OPC UA nodes are user configurable and can be imported and exported via a csv file. Refer to the Process data map to configure user nodes. If you Press "Write tag", OPC UA nodes will be written.

The "Write Enable" check box enables outputs to be written to by OPC UA.

The "Buffer Enable" check box enables buffering of the selected node.



- When update construction by Pairing after written OPC UA tag. OPC UA tag will not be updated. If you would like to get auto generate OPC UA tag with construction info, Please reset OPC UA tag with "Reset Tag" button.

OPC UA

Configuration **Tag** Account

Monitoring tag item

Import OPC UA tag file : No file chosen

Tag count (Up to 255): 11

Total size of buffer data blocks (Up to 1264bytes): 0byte

WCh	Tag name	I/O type	Offset [byte]	Size [bit]	Position [bit]	Data type	Endian	Write enable	Buffer enable	
↓↑ -	000_EXW1-BPNAC_SystemDiag	In ▾	0	32	0	UINT32 ▾	Little ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>
↓↑ -	000_EXW1-BPNAC_WirelessConnect	In ▾	4	16	0	UINT16 ▾	Little ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>
↓↑ -	000_EXW1-BPNAC_WirelessDiag	In ▾	6	16	0	UINT16 ▾	Little ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>
↓↑ -	000_EXW1-BPNAC_WirelessRegist	In ▾	8	16	0	UINT16 ▾	Little ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>
↓↑ 1	001_EXW1-RLAPAS_UNIT1_IO-Link	In ▾	10	8	0	UINT8 ▾	Little ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>
↓↑ 1	001_EXW1-RLAPAS_UNIT1_IO-Link	Out ▾	0	8	0	UINT8 ▾	Little ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>

An adjustable data buffer is available via OPC UA for up to 1308 minus (diagnosis bytes + paired input process bytes) bytes of data and a sampling rate of 10ms or longer.

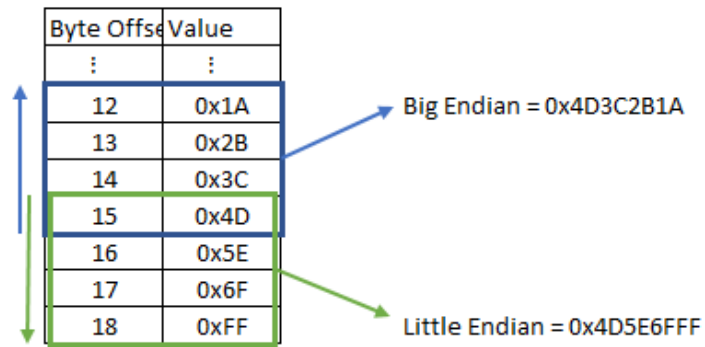
Parameters	Description
Data buffer Enable or Disable	The data buffer array can be enabled or disabled for each OPC UA node.
Historical Data Buffer Sampling Cycle	Sampling cycle time for the buffer. The parameter is applicable for all nodes which enabled the data buffer.
Number of data blocks	The number of points stored in the buffer. The parameter is applicable for all nodes with the data buffer enabled.

The endian can be changed between big and little. The figure below shows an example of how the process data is mapped for big and little endian.

Example

Byte Offset = 15

Size = 4 Bytes



Comparison of big endian and little endian

Account Tab

You can set the Accounts to use connection of OPC UA.

OPC UA

[Configuration](#) [Tag](#) [Account](#)

Account list

Account

Add account

Enter user name

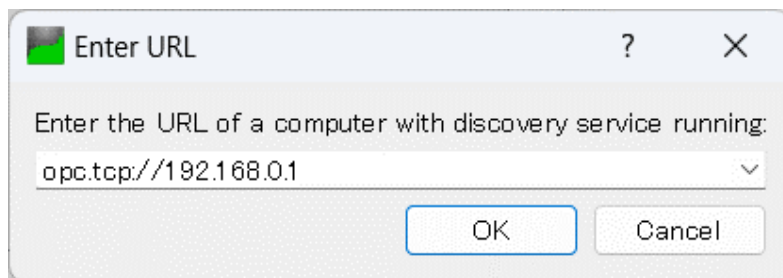
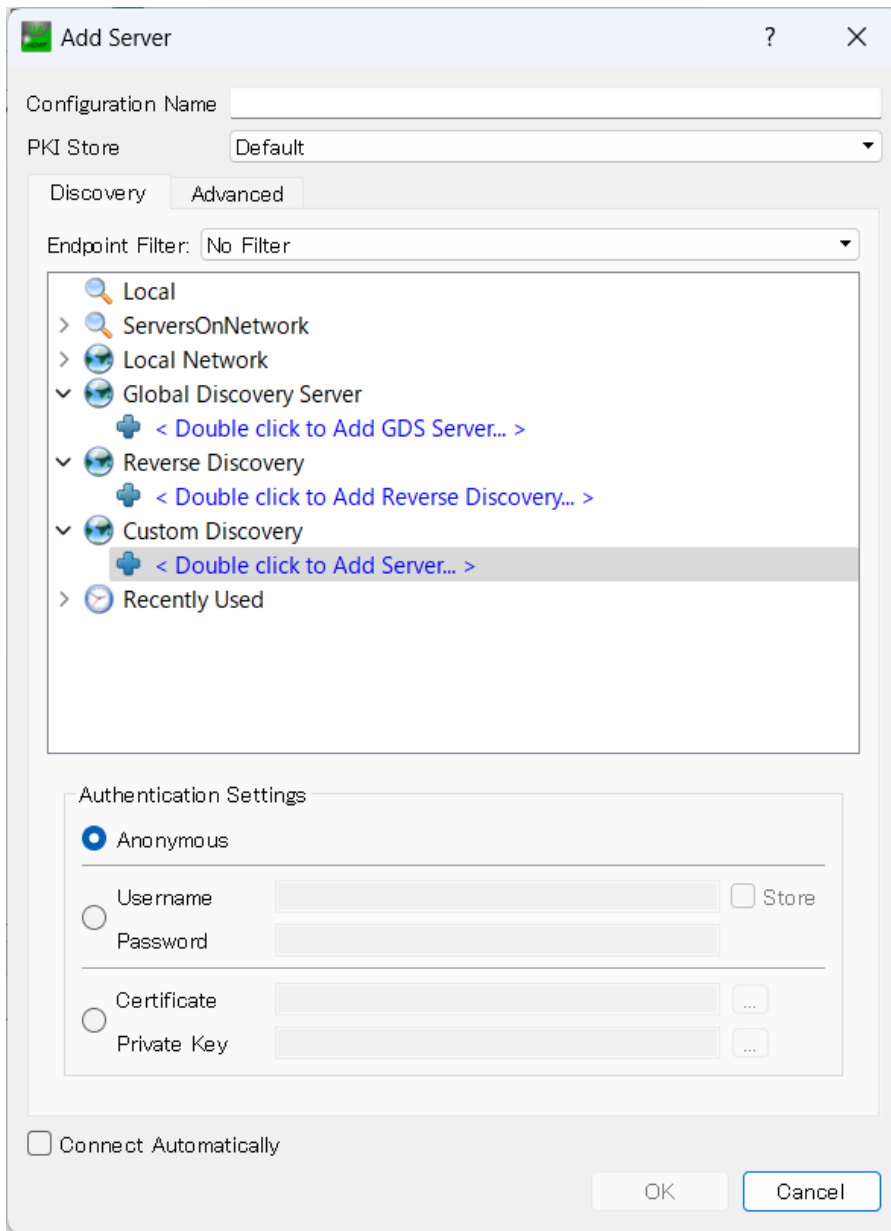
Enter password

Repeat password

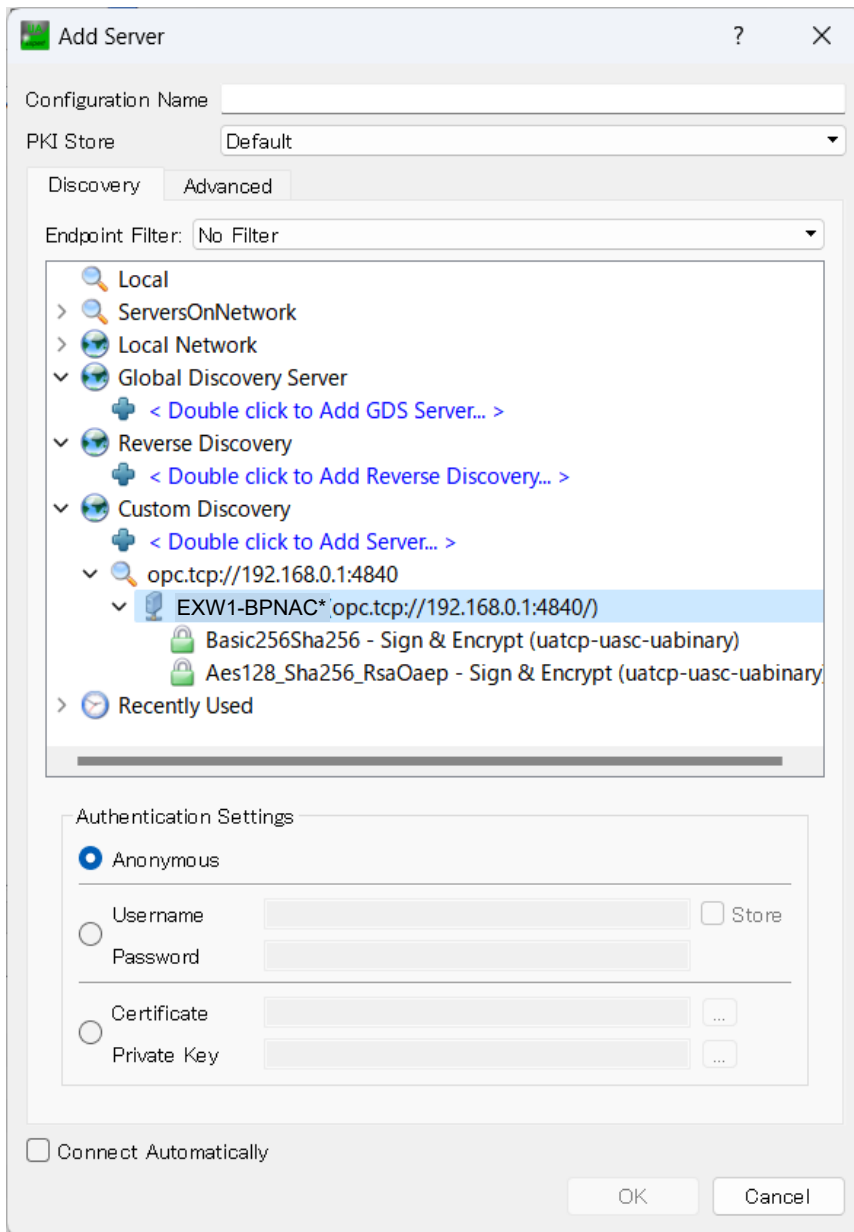
[Create account](#)

OPC UA Client Connection

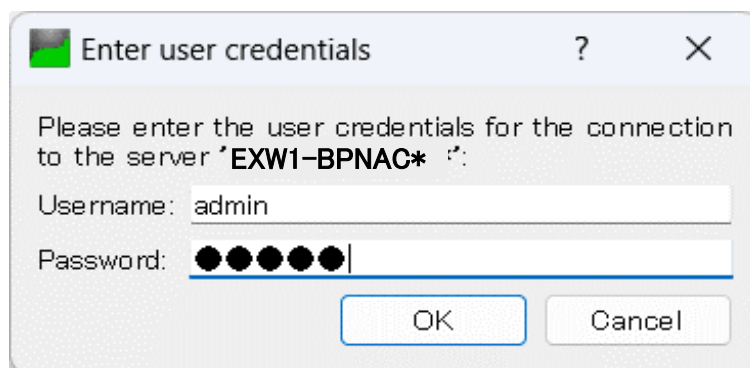
The example below uses the OPC UA client UaExpert to connect the wireless base OPC UA server. Click the plus symbol and then add a "custom discovery" server. Enter the IP address of the EXW1 base.



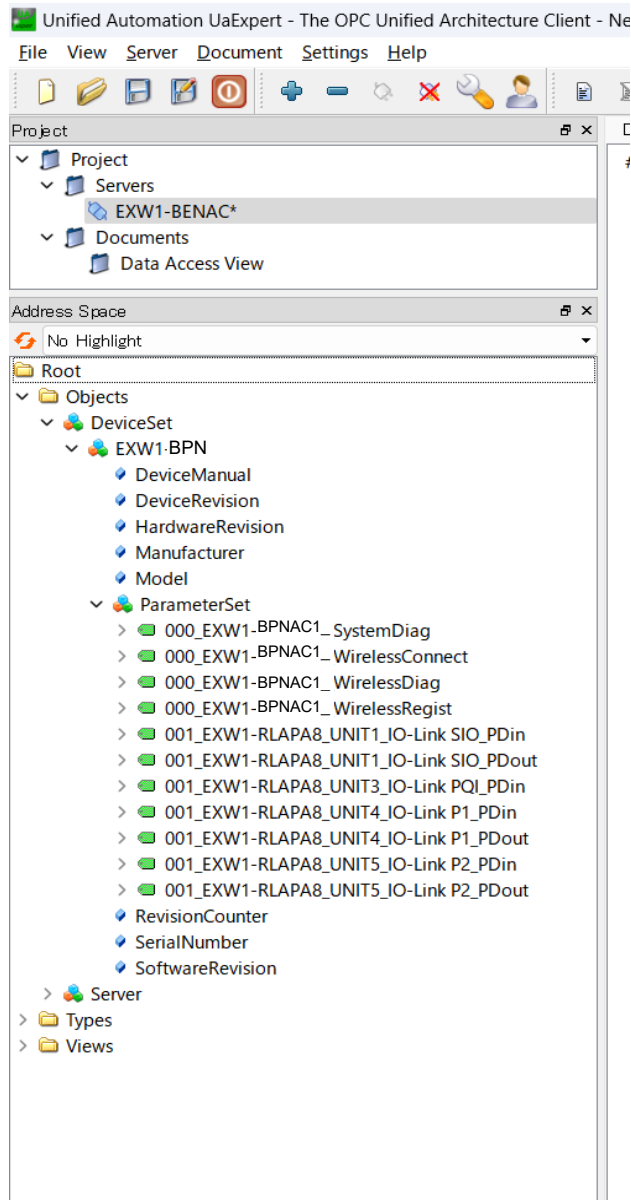
Please choose security option.



Click the "Connect" button and enter the username and password which is set on the Account tab at Web server. Default is admin for username and password.



Navigate in the Address Space to the "ParameterSet" and expand it to see all the configured nodes available on the EXW1.



OPC UA Configuration to control output

The following setting is needed to control output by OPC UA.

Configuration tool	Item	Value
IO Configurator NFC OPC UA tab	OPCUA Write Enable Mode	Enable *When setting is Enable, Output process data from PLC will be ignored.
	OPCUA Security Mode	Sign & Encrypt
OPC UA Client and Web server (Certificate)	Setting of CA Certificate. *CA certificate will be provided by OPCUA client. The CA Certificate can write into EXW1 with Web server.	CA Certificates were set.
Web Server OPC UA Tag	"Write Enable" for each OPC UA tag	Check Write Enable for Target tag.
OPC UA Client	User Tolken Mode	Use UserName and Password.

*When during Enforce mode is turned on by IO Configurator, OUTPUT cannot be controlled by OPC UA.

* Please use SMC Certificate Generator to set up the certificate.

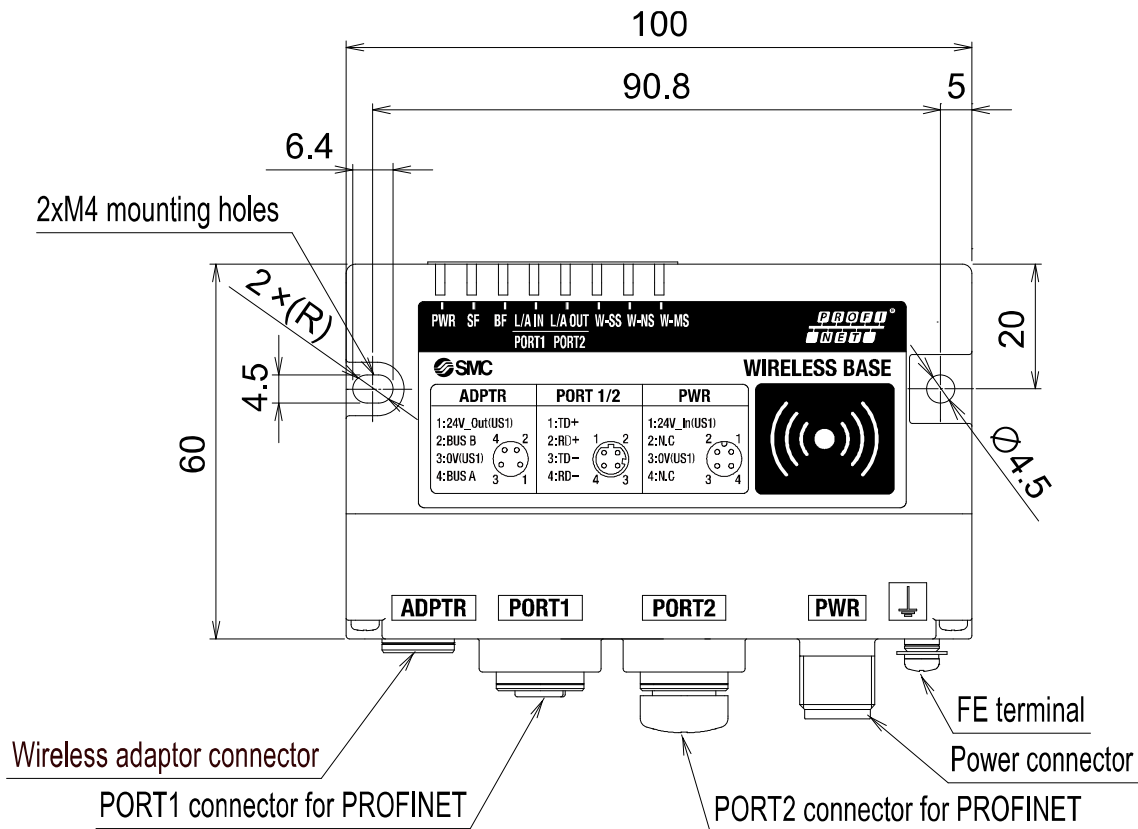


- When "OPCUA Write Enable Mode" is set to Enable, Output process data from PLC will be ignored in EXW1.

Specifications

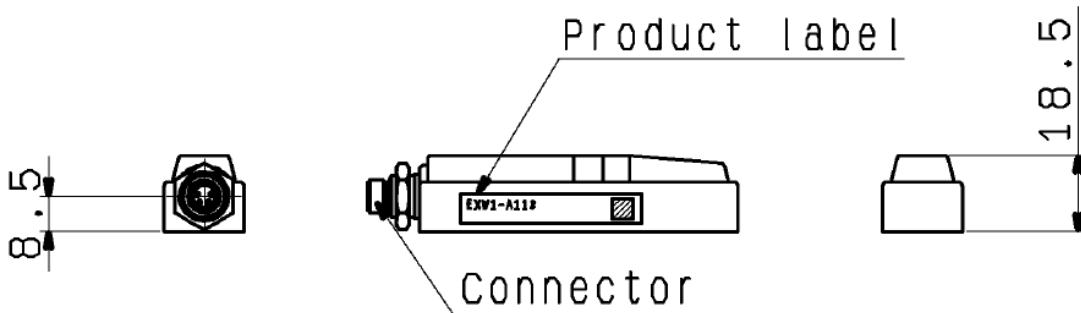
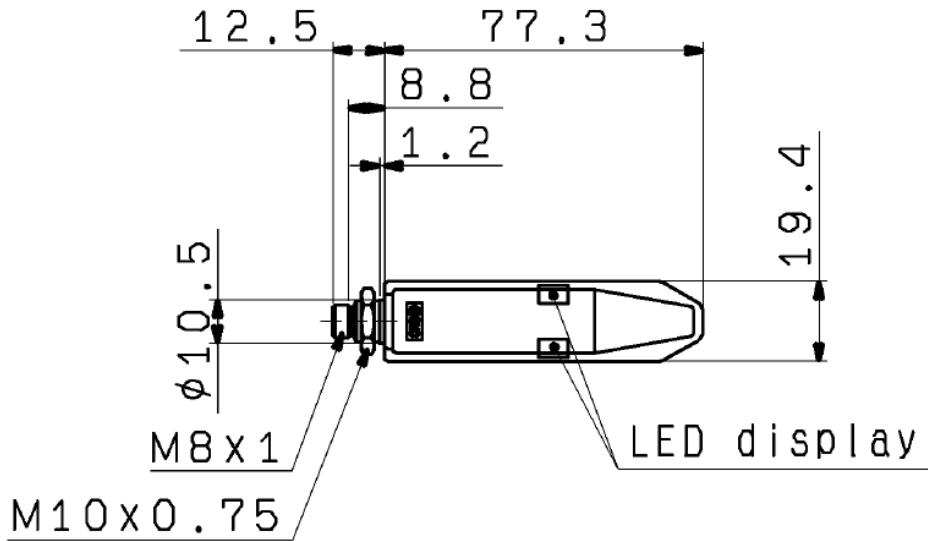
Dimensions

OEXW1-BPNAC1

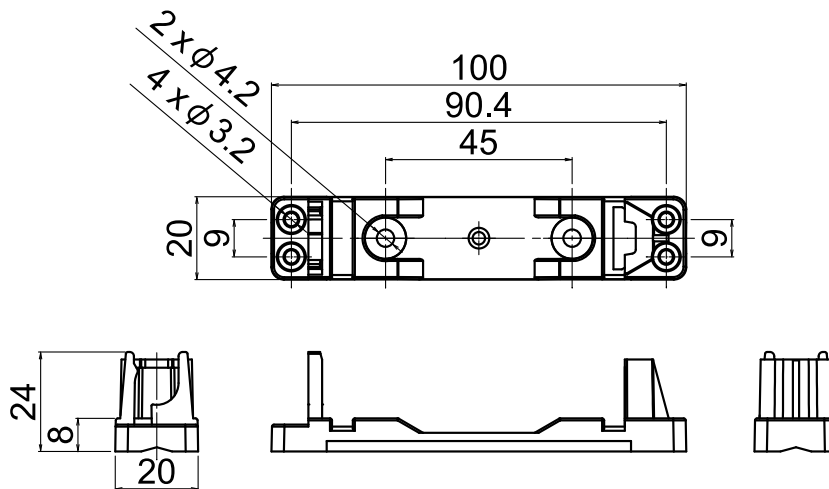


oEXW1-A11*

- Wireless Adaptor (Option)



- Installation Plate (Wireless adaptor included)



specification

OEXW1-BPNAC1

PROFINET Communication Specifications

item	specification
Communication protocol	PROFINET IO (Conformance Class B)
Transmission medium (cable)	Standard Ethernet cable (CAT5 or higher, 100BASE-TX)
Transmission speed	100 Mbps
Configuration file	GSDML file*1
Input/Output specifications	Max. 10464 points/10464 points*2 (1308 byte/1308 byte)
MRP (Media Redundancy Protocol)	Applicable
System redundancy s.2	Applicable
Web server	Applicable
OPC UA	Applicable

*1: The configuration file can be downloaded from the SMC website: <https://www.smcworld.com>

*2: Variable by setting

Electrical Specifications

item	specification
For control and input(US1)	DC 24 V \pm 10 %
Current consumption	150 mA or less

General Specifications

item	specification
Ambient temperature (Operating temperature)	-10 to +50°C
Ambient temperature (storage temperature)	-20 to +60°C
Ambient humidity	35 to 85% RH (no condensation)
Withstand voltage	500 VAC-1 minute between external terminals and metallic parts
Insulation resistance	10 M Ω or more (500 VDC between external terminals and metallic parts)
Vibration resistance	Conforms to EN61131-2 5 \leq f < 8.4 Hz 3.5 mm 8.4 \leq f < 150 Hz 9.8 m/s ²
Impact resistance	Conforms to EN61131-2 147 m/s ² , 11 ms
Standard	CE/UKCA marked
Weight	160g

○EXW1-A11*

Electrical specifications

Item	Specification
US1 (for control) power supply voltage range	24 VDC+/-10 %
Current consumption	50 mA or less

General specifications

Item	Specification
Enclosure	IP67
Ambient operating temperature	-10 to +50°C
Ambient storage temperature	-20 to +60°C
Ambient humidity	35 to 85% RH (no condensation)
Vibration resistance	EN61131-2 compliant $5 \leq f < 8.4$ Hz 3.5 mm $8.4 \leq f < 150$ Hz 9.8 m/s ²
Impact resistance	EN61131-2 compliant, 147 m/s ² , 11 ms
Standards	CE/UKCA marked
Weight	40 g (body), 20 g (installation plate)

Wireless communication specifications

Item	Specification
Protocol	SMC original protocol (SMC encryption)
Radio wave type (spread)	Frequency Hopping Spread Spectrum (FHSS)
Frequency band	2.4 GHz (2403~2481 MHz)
Frequency channel select function (F.C.S.)	Supported *1
Frequency channel	Max. 79 ch (Bandwidth: 1.0 MHz)
Communication speed	250 kbps(V.1.0) / 1 Mbps(V.2.0) *2
Frequency hopping cycle	5ms(V.1.0) / 2ms(V.2.0)
Communication distance	Up to 100 m line of sight (depending on the environment)
Radio Law certificate	Refer to the official SMC website for the latest information as to which countries the product is certified.

*1: The number of selectable frequency channels varies depending on the product number.

*2: Select a protocol before performing pairing (V.2.0: 1 Mbps, V.1.0: 250 kbps). Different communication speeds are mutually incompatible.

Accessories

Accessory List

For the selection of accessories, refer to the catalog.

(1) Power supply cables

- EX500-AP010-S: Cable with M12 connector, A code, Socket, Straight 1 m
- EX500-AP050-S: Cable with M12 connector, A code, Socket, Straight 5 m
- EX500-AP010-A: Cable with M12 connector, A code, Socket, Angle 1 m
- EX500-AP050-A: Cable with M12 connector, A code, Socket, Angle 5 m
- PCA-1401804: Cable with M12 connector, A code, Socket, Straight 1.5 m, SPEEDCON compatible
- PCA-1401805: Cable with M12 connector, A code, Socket, Straight 3 m, SPEEDCON compatible
- PCA-1401806: Cable with M12 connector, A code, Socket, Straight 5 m, SPEEDCON compatible
- PCA-1557769: Cable with M12 connector, A code, Socket, Plug, Straight 3 m, SPEEDCON compatible

(2) PROFINET communication cable

- PCA-1446566: Cable with M12 connector, D code, Plug, Straight 5 m, SPEEDCON compatible
- EX9-AC010EN-PSRJ: Cable with M12 connector, D code-RJ45, Plug, Straight 1 m
- EX9-AC020EN-PSRJ: Cable with M12 connector, D code-RJ45, Plug, Straight 2 m
- EX9-AC030EN-PSRJ: Cable with M12 connector, D code-RJ45, Plug, Straight 3 m
- EX9-AC050EN-PSRJ: Cable with M12 connector, D code-RJ45, Plug, Straight 5 m
- EX9-AC100EN-PSRJ: Cable with M12 connector, D code-RJ45, Plug, Straight 10 m
- EX9-AC005EN-PSPS: Cable with M12 connector, dual-side D code Plug, Straight 0.5 m
- EX9-AC010EN-PSPS: Cable with M12 connector, dual-side D code Plug, Straight 1 m
- EX9-AC020EN-PSPS: Cable with M12 connector, dual-side D code Plug, Straight 2 m
- EX9-AC030EN-PSPS: Cable with M12 connector, dual-side D code Plug, Straight 3 m
- EX9-AC050EN-PSPS: Cable with M12 connector, dual-side D code Plug, Straight 5 m
- EX9-AC100EN-PSPS: Cable with M12 connector, dual-side D code Plug, Straight 10 m
- EX9-AC005EN-PAPA: Cable with M12 connector, dual-side D code Plug, Angle 0.5 m
- EX9-AC010EN-PAPA: Cable with M12 connector, dual-side D code Plug, Angle 1 m
- EX9-AC020EN-PAPA: Cable with M12 connector, dual-side D code Plug, Angle 2 m
- EX9-AC030EN-PAPA: Cable with M12 connector, dual-side D code Plug, Angle 3 m
- EX9-AC050EN-PAPA: Cable with M12 connector, dual-side D code Plug, Angle 5 m
- EX9-AC100EN-PAPA: Cable with M12 connector, dual-side D code Plug, Angle 10 m

(3) Assembled type connector

- PCA-1446553: For PROFINET communication, M12 (4 pin) Plug, D code

(4) Seal cap (M12)

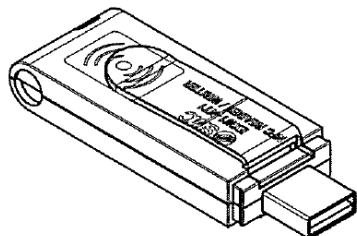
- EX9-AWTS

(5) Wireless adaptor cable

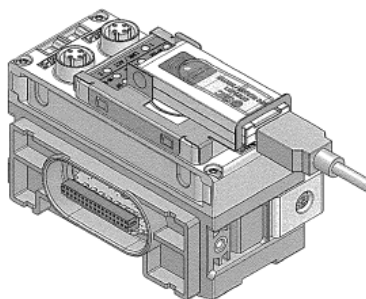
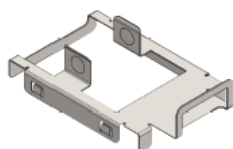
- EXW1-AC001-SAPU: 100mm U-shaped, Angle cable with M8 connector on both sides
- EXW1-AC030-SSPS: 300mm straight cable with M8 connector on both sides
- EXW1-AC1-X1: 300mm straight cable with M8 connector on both sides

(8) NFC reader/writer
EXW1-NT1

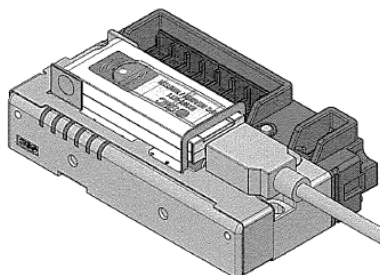
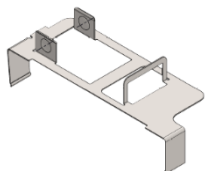
This set includes an NFC reader/writer and a USB extension cable (2.95 m).



(9) NFC reader/writer holder
EXW1-AB1 (for EX600-W)



EXW1-AB2 (for EXW1)



Revision history

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URL <https://www.smcworld.com>

Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

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