Before Use

Compact Wireless Base

EXW1-BPNAC1

SMC ®
PROFI NET

Thank you for purchasing an SMC EXW1-BPNAC1 SMC Compact Wireless Base. Please read this manual carefully before operating the product and make sure you understand its capabilities and limitations. Please keep this manual handy for future reference.

> To obtain the operation manual about this product and control unit, please refer to the SMC website (URL https://www.smcworld.com) or contact SMC directly.

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) and other safety regulations.

⚠ **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.

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 product.**
Individual grounding should be provided close to the product with a short cable.

■NOTE

•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.
•If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
•For UL/cUL certification , install in a distribution box or other container (EXW1-A1*).

<Important>
●The product must be used with a wireless adaptor attached.
●The wireless product is 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.
•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, slight interference may occur due to the characteristics of the wireless product.
●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.

## Summary of Product elements

EXW1-BPNAC1
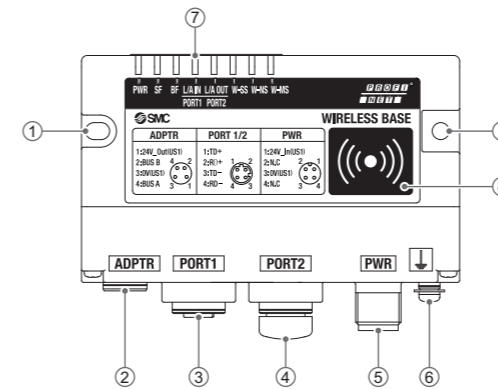
No.	Name	Application
1	Screw hole for mounting (2 x M4)	Mounting the compact wireless Base.
2	Connector for wireless adaptor (ADPTR)	Used to connect the cable for wireless adaptor.
3	Communication connector (PORT1)	Used to connect an Ethernet cable.
4	Communication connector (PORT2)	Used to connect an Ethernet cable.
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.

Mounting and Installation

■Installation

•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).

Mounting hole   Mounting hole
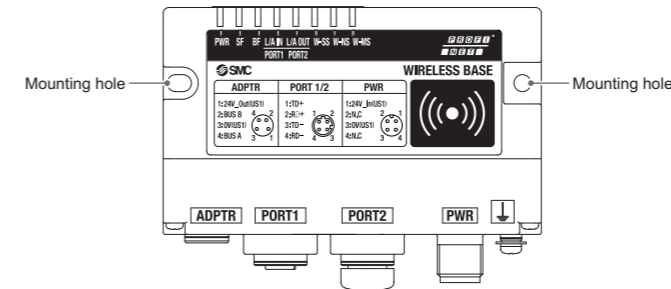
■Connector

•Power supply connector

No.	Signal	M12, 4-pin, plug A-coded
1	24 V_In (US1)	
2	NC	
3	0 V (US1)	
4	NC	

•Communication connector for PROFINET

No.	Signal	M12, 4-pin, socket D-coded
1	TD+	
2	RX+	
3	TD–	
4	RX–	

•Connector for wireless adaptor

| No.	Signal	M8, 4-pin, socket A-coded
1	24 V_Out (US1)	
2	Internal BUS B	
3	0 V (US1)	
4	Internal BUS A	

⚠ Caution

Use the special wireless adaptor cable to connect the compact wireless base to the wireless adaptor.
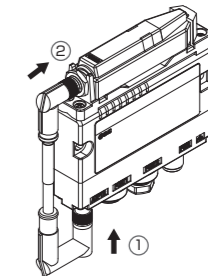
■Wireless adaptor

•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 N•m±10%.
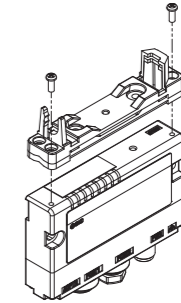
(2) Installation of wireless adaptor
Clip the wireless adaptor onto the installation plate as shown below and secure the adaptor in place using the M10 nut already fitted to the wireless adaptor.
The recommended tightening torque is 0.9 N•m±10%.
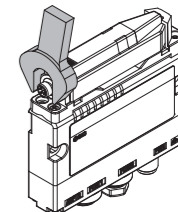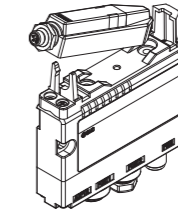
(3) Connecting the cable for the wireless adaptor
Follow the procedure below to connect the cable for the wireless adaptor.
(1) Connect the U-side connector of the cable to the base.
(2) Connect the S-side connector of the cable to the adaptor.
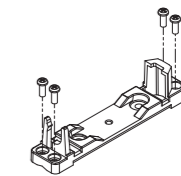

■NOTE

Note the order of installation of the cable for the wireless adaptor.

•Flat surface mounting
(1) Attachment of installation plate
Attach the installation plate to the target object by either of the following two methods.
Installation by M3 x 4 positions
The tightening torque should be 0.4 N•m±10%.

Installation by M4 x 2 positions
The tightening torque should be 0.6 N•m±10%.
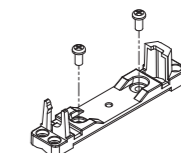
(2) Installation of wireless adaptor
Clip the wireless adaptor onto the installation plate as shown below and secure the adaptor in place using the M10 nut already fitted to the wireless adaptor.
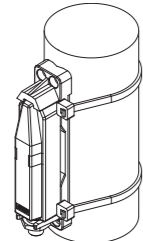The recommended tightening torque is 0.9 N•m±10%.
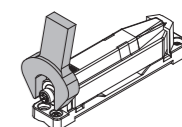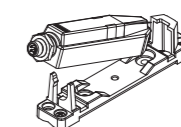
(3) Connection of the cable for wireless adaptor
Connect the cable for wireless adaptor to the base and the wireless adaptor.
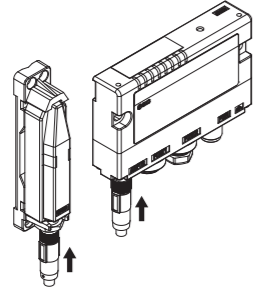
•Curved surface mounting
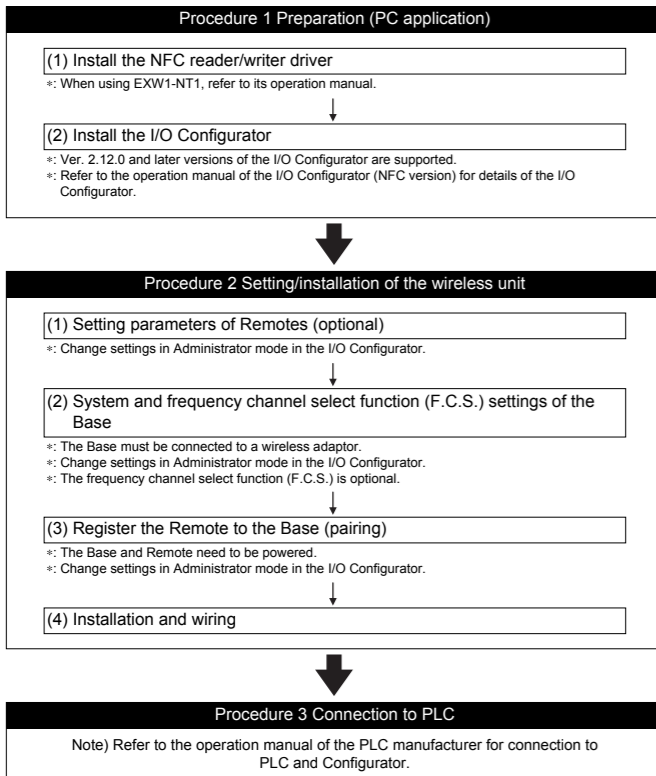(1) Thread the top and bottom cable ties of the installation plate.
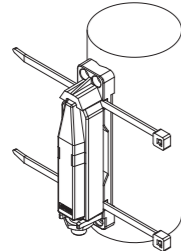
(2) Tighten the wireless adaptor and the object to which it is to be fitted with cable ties.
Cut the base of the cable ties.

Setting and Adjustment

■Flow chart for using the wireless system

Procedure 1 Preparation (PC application)
(1) Install the NFC reader/writer driver
∗: When using EXW1-NT1, refer to its operation manual.
(2) Install the I/O Configurator
∗: Ver. 2.12.0 and later versions of the I/O Configurator are supported. ∗: Refer to the operation manual of the I/O Configurator (NFC version) for details of the I/O Configurator.

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Procedure 2 Setting/installation of the wireless unit
(1) Setting parameters of Remotes (optional)
∗: Change settings in Administrator mode in the I/O Configurator.
(2) System and frequency channel select function (F.C.S.) settings of the Base
∗: The Base must be connected to a wireless adaptor. ∗: Change settings in Administrator mode in the I/O Configurator. ∗: The frequency channel select function (F.C.S.) is optional.
(3) Register the Remote to the Base (pairing)
∗: The Base and Remote need to be powered. ∗: Change settings in Administrator mode in the I/O Configurator.
(4) Installation and wiring

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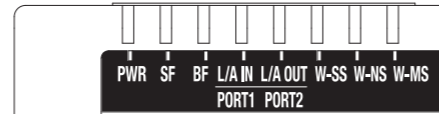| Procedure 3 Connection to PLC |
| --- |
| Note) Refer to the operation manual of the PLC manufacturer for connection to PLC and Configurator. |

With the above settings, it is possible to control the upper level controller.
Refer to the operation manual for each manufacturer for how to set the controller and the PLC.

Refer to the I/O Configurator for NFC operation manual for details of the I/O Configurator.
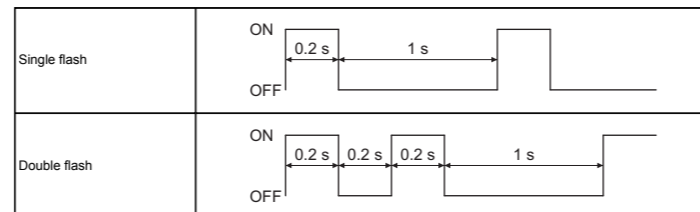
LED Display

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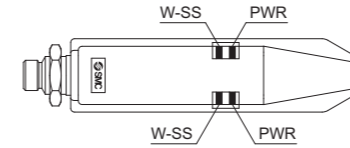

LED name	Function	LED status	Description
PWR	US1 (for control) power supply status indication	Green LED is ON	The US1 (for control) power supply is ON
		OFF	The US1 (for control) power supply is OFF
SF	Base system status indication	OFF	Normal operation
		Green LED flashes	Node flashing test command received
		Red LED is flashes (1 Hz)	Recoverable error is detected (LED flashes when more than one diagnostic information item is detected) •US1 (for control) power supply voltage level is abnormal •Number of system inputs/outputs setting error •Abnormal number of registered Remotes •Internal communication error between wireless adaptors •Memory write/read error
		Red LED is ON	Non-restorable error is detected
BF	PROFINET connection status indication	OFF	PROFINET communication is established
		Green LED is single flash ∗	PROFINET controller is in STOP state while communication with PROFINET controller is established.
		Red LED is single flash ∗	Device Name not set
		Red LED is double flash ∗	IP address not set
		LED is flashes (2 Hz)	PROFINET controller settings and EXW1 configuration data do not match
		Red LED is ON	PROFINET communication is not established. •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 of PROFINET ports 1 and 2	Green LED is flashes	Link, Activity
		Green LED is ON	Link, No Activity
		OFF	No Link, No Activity
W-SS	Radio wave receiving intensity	Green LED is ON	The level of received radio wave strength of all the connected remotes is 3
		Green LED is flashes (1 Hz)	The level of received radio wave strength of some connected remotes is 2
		Green LED is flashes (2 Hz)	The level of received radio wave strength of some connected remotes is 1
		Red LED is flashes	All the Remotes that support protocol V.1.0 are not connected
		Orange LED is flashes	All the Remotes that support protocol V.2.0 are not connected
		OFF	Remote not registered
W-NS	Wireless communication connection status indication	Green LED is ON	All the Remote connections are normal
		Green LED is flashes	Some Remotes are not connected
		Red LED is flashes	No Remotes are connected
		Red LED is ON	No Remotes are connected (Unrecoverable error in wireless communication)
		Red/Green	Wireless communication connection is being configured (Pairing mode)
		Orange LED is ON	Forced output mode
		OFF	Remote not registered
W-MS	Remote system status indication	Green LED is ON	Wireless Remote is normal Protocol V.1.0 (Pairing mode)
		Orange LED is ON	Protocol V.2.0 (Pairing mode)
		Red LED is flashes	Recoverable error is detected (LED flashes when more than one diagnostic information item is detected) •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 LED is ON	Unrecoverable error is detected
		OFF	Remote not registered

∗: Refer to LED status below.

Single flash	ON — 0.2 s / 1 s — OFF
Double flash	ON — 0.2 s / 0.2 s / 0.2 s / 1 s — OFF

Wireless adaptor
EXW1-A11#'s LED indications

LED name	Function	LED status	Description
PWR	Power supply and status indication	Green LED is ON	Power supply voltage is in ON state
		Orange LED is flashes	An internal communication error is detected
		Red LED is ON	Unrecoverable error is detected
		OFF	Power supply voltage is in OFF state
W-SS	Radio wave receiving intensity	Green LED is ON	The level of received radio wave strength of all the connected remotes is 3
		Green LED is flashes (1 HZ)	The level of received radio wave strength of some connected remotes is 2
		Green LED is flashes (2 HZ)	The level of received radio wave strength of some connected remotes is 1
		Red LED is flashes	Protocol V.1.0 all remote is not established
		Orange LED is flashes	Protocol V.2.0 all remote is not established
		OFF	Remote not registered

Environment

Item	Details
Operating temperature	–10 to 50 ℃ (No condensation or freezing)
Ambient humidity	35 to 85%RH
Altitude	Up to 3000 m
US1 power supply voltage range	24V DC +/-10%
Current Consumption	150 mA
Pollution Degree	3
Installation place	Indoor

Maintenance

•Maintenance should be performed according to the Safety Instructions.
•Perform regular maintenance and inspections.
 There is a risk of unexpected malfunction.
•Do not use solvents such as benzene, thinner etc. to clean each unit.
 They could damage the surface of the body and erase the markings on the body.
 Use a soft cloth to remove stains.
 For heavy stains, use a cloth soaked with diluted neutral detergent and fully squeezed, then wipe up the stains again with a dry cloth.

Refer to the SMC website (URL https://www.smcworld.com) to obtain more detailed information about maintenance.

Troubleshooting

Refer to the LED Display. Refer to the SMC website (URL https://www.smcworld.com) to obtain more detailed information about troubleshooting.

Specification

Remote can be used regardless of the communication specification of the Base.

Refer to the product catalog or SMC website (URL https://www.smcworld.com) to obtain more detailed information about product specifications.

Commissioning

•Parameter Setting
•Hardware Configuration
•I/O Map

Refer to the SMC website (URL https://www.smcworld.com) to obtain more detailed information about these setting above.

Diagnostic

Refer to the SMC website (URL https://www.smcworld.com) to obtain more detailed information about diagnostic.

Outline with Dimensions

Refer to the product catalog or SMC website (URL https://www.smcworld.com) to obtain more detailed information about outline dimensions.

Contacts