

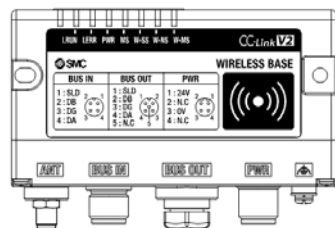


Instruction Manual

SMC Wireless System - Compact Base

CC-Link compatible

Series EXW1-BMJA#



The intended use of this product is to provide a connection from the CC-Link communication network to a pneumatic valve manifold or I/O system via wireless communication.

1 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.

^{*)} ISO 4414: Pneumatic fluid power - General rules relating to systems.

ISO 4413: Hydraulic fluid power - General rules relating to systems.

IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)

ISO 10218-1: Manipulating industrial robots - Safety. etc.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

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

Warning

- Always ensure compliance with relevant safety laws and standards.**
All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

2 Specifications

2.1 General specifications

Item	Specification
Enclosure rating	IP67
Ambient operating temperature	-10 to +50°C
Ambient storage temperature	-20 to +60°C
Ambient humidity	35 to 85% RH (no condensation)
Withstand voltage	500 VAC for 1 minute between external terminals (including the FE terminal) and enclosure screws
Insulation resistance	10 MΩ or more (500 VDC between external terminals (including the FE terminal) and enclosure screws)
Vibration resistance	EN61131-2 compliant: 5 ≤ f < 8.4 Hz 3.5 mm 8.4 ≤ f < 150 Hz 9.8 m/s ²
Impact resistance	EN61131-2 compliant: 147 m/s ² , 11 ms
Weight	150 g

2 Specifications (continued)

2.2 CC-Link Communication specifications

Item	Specification
Protocol	CC-Link (Ver.1.10, Ver.2.00)
Station type	Remote device
Device type	Wireless equipment (code 0x4B)
Station number	1 to 64 stations
Communication speed	156 / 625 kbps, 2.5 / 5 / 10 Mbps
Setting file	CSP+ file ^{*)}
Communication method	Broadcast polling
Occupied area (Inputs/ outputs)	Max. (896 / 896) ^{*)}
Maximum number of occupied stations	4
Supported functions	Cyclic transmission Extended cyclic transmission (only when Ver.2.00 is specified) Longer cable between stations

^{*)}1: The setting file can be downloaded from the SMC Web site (URL: <https://www.smcworld.com>).

^{*)}2: Varies depending on the operation mode setting.

2.3 Electrical specifications

Item	Specification
Power supply voltage for control (US1)	24 VDC ±10%
Current consumption	100 mA or less

2.4 Wireless Communication specifications

Item	Specifications
Protocol	SMC original protocol (SMC encryption)
Radio wave type (spread)	Frequency Hopping Spread Spectrum (FHSS)
Frequency band	2.4 GHz (2403 to 2481 MHz)
Frequency channel select function (F.C.S.)	Supported ^{*)}
Frequency channels	79 ch max. (Bandwidth: 1.0 MHz)
Communication speed	1 Mbps / 250 kbps ^{*)}
Communication distance	Up to 100 m line of sight (depending on the environment)
Radio Law certificates	Refer to the operation manual on the SMC website

^{*)}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.

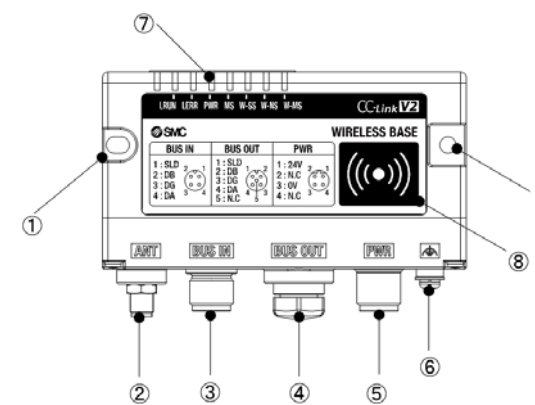
2.5 NFC Communication specifications

Item	Specifications
Communication standard	ISO / IEC14443B (Type-B)
Frequency	13.56 MHz
Communication speed	20 to 100 kHz (I2C)
Communication distance	Up to 1 cm

* NFC component is a 13.56 MHz passive-type RFID tag.

3 Name and Function of parts

• Compact Base (EXW1-BMJA#)



No.	Item	Description
1	Mounting holes	Mounting holes for compact wireless base (2 x M4).
2	RF connector	SMA coaxial connector for external antenna (external antenna versions only).
3	BUS IN connector	Connector for a CC-Link communication device.
4	BUS OUT connector	Connector for an additional CC-Link communication device (or a terminating resistor).
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 display	Indicates the status of the compact wireless Base or Remote.
8	NFC antenna area	Area in close contact with the NFC reader / writer ("o" marks the centre).

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

4 Installation

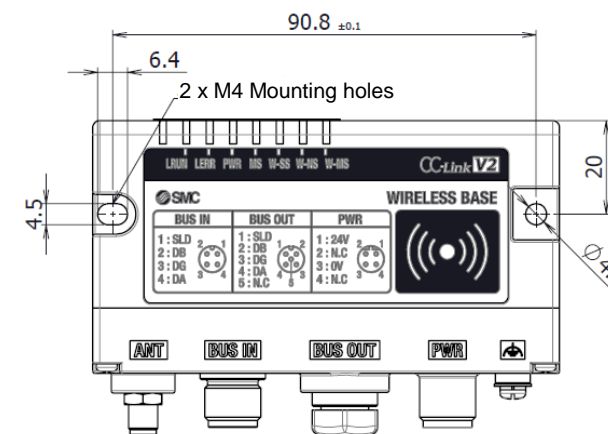
4.1 Installation

Warning

- Do not install the product unless the safety instructions have been read and understood.

4.2 Mounting

Mount the unit with M4 screws (not supplied) using the 2 mounting holes in the unit (Recommended torque: 0.8 ±10% N•m).



4 Installation (continued)

4.3 Environment

Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact in excess of the product's specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures in excess of the product's specifications.

5 Wiring

5.1 Wiring Connections

• Power supply connector

No.	Signal	M12, 4-pin, plug	
		B code	
1	24V (US1)	2	1
2	N.C.	3	4
3	0V (US1)		
4	N.C.		

• BUS IN connector

No.	Signal	M12, 4-pin, plug	
		A code	
1	SLD	2	1
2	DB	3	4
3	DG		
4	DA		

• BUS OUT connector

No.	Signal	M12, 5-pin, socket	
		A code	
1	SLD	1	2
2	DB	5	3
3	DG		
4	DA		
5	N.C.		

Caution

- Connecting the power supply cable to BUS IN or BUS OUT connector will damage the product.
- The communication line of the base is T-branched inside the product. When expanding the system, an additional CC-Link remote device can be connected to BUS OUT.

• Terminating Resistor

Be sure to connect a terminating resistor to both ends of the CC-Link main line.

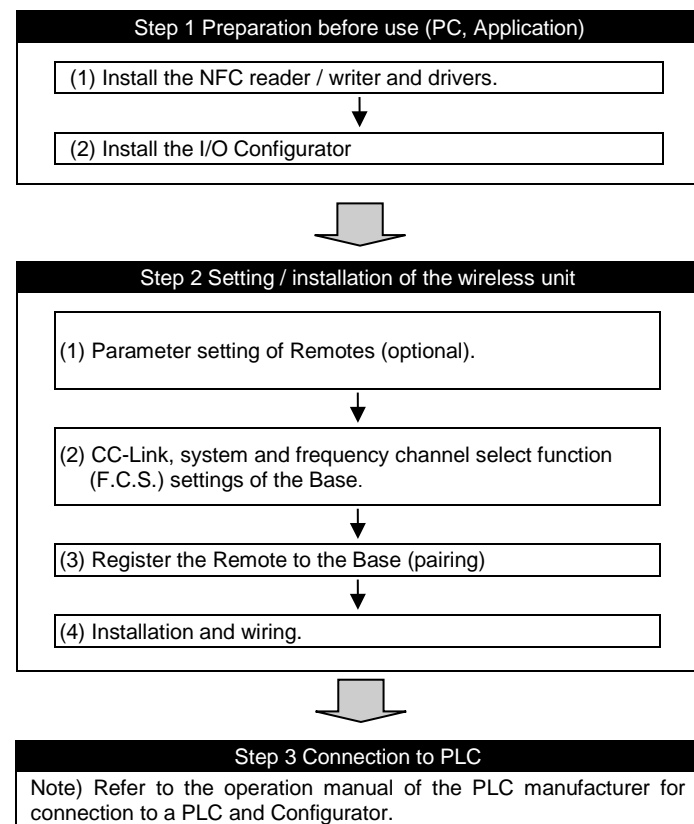
Type of cable	Resistance value	Terminating resistor part number (manufacturer)
Communication cable for CC-Link: PCA-1567720 (socket) PCA-1567717 (plug)	110 Ω 1/2 W	• VA-4DCC-110 (Correns) • CC100 (Woodhead Japan)
CC-Link dedicated high-performance cable	130 Ω 1/2 W	• VA-4DCC-130 (Correns)

6 Settings

• Flow chart for using the wireless system.

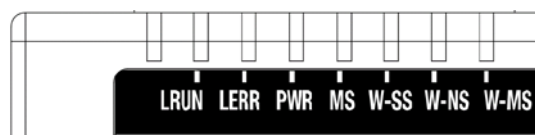
To use SMC wireless units (Base and Remotes), they need to be set up using an NFC reader/writer and the I/O Configurator. A setup procedure using NFC is shown below.

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



7 LED Display

- The LED indicators on the compact wireless Base indicate the power supply, communication and diagnostic status.



LED	LED Colour	Operation
LRUN	Green LED ON	Communication is normal
	OFF	Communication is not established or US1 (for control) power supply is OFF
LERR	Red LED ON	A communication error has occurred
	OFF	No communication error
PWR	Green LED ON	US1 (for control) power supply is ON
	OFF	US1 (for control) power supply is OFF
MS	Green LED ON	Compact wireless Base is operating normally
	Red LED 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) power supply voltage level is abnormal. Number of system inputs / outputs setting error. Network setting error. Abnormal number of registered Remotes.
	Red LED ON	Unrecoverable error is detected.
	OFF	US1 (for control) power supply is OFF.

7 LED Display (continued)

LED	LED Colour	Operation	
W-SS	Green LED ON	The level of received radio wave power of all the connected Remotes is 3.	
	Green LED flashing (1 Hz)	The level of received radio wave power of some connected Remotes is 2.	
	Green LED flashing (2 Hz)	The level of received radio wave power of some connected Remotes is 1.	
	Red LED flashing	All the Remotes that support protocol V.1.0 are not connected.	
	Orange LED flashing	All the Remotes that support protocol V.2.0 are not connected.	
	OFF	Wireless Remote is not registered.	
W-NS	Green LED ON	All the Remote connections are normal.	
	Green LED flashing	Some Remotes are not connected.	
	Red LED flashing	No Remotes are connected.	
	Red LED ON	No Remotes are connected (Unrecoverable error in wireless communication).	
	Red / Green LED flashing	Wireless communication connection is being configured (Pairing).	
	OFF	Remote not registered.	
W-MS	Green LED ON	Wireless Remote is normal.	
	Red LED 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 LED ON	Unrecoverable error is detected.	
	OFF	Remote not registered.	

Refer to the Operation manual on the SMC website (URL: <https://www.smcworld.com>) for further LED Display details.

8 How to Order

Refer to the Operation manual or catalogue on the SMC website (URL: <https://www.smcworld.com>) for How to Order information.

9 Outline Dimensions (mm)

Refer to the Operation manual or catalogue on the SMC website (URL: <https://www.smcworld.com>) for Outline dimensions.

10 Maintenance

10.1 General Maintenance

⚠ Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous.
- Maintenance of pneumatic systems should be performed only by qualified personnel.
- Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to atmosphere.
- After installation and maintenance, apply operating pressure and power to the equipment and perform appropriate functional and leakage tests to make sure the equipment is installed correctly.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.

11 Limitations of Use

11.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products.

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

• Influence of radio frequency on implantable medical devices:

The radio frequency generated by this product may give an adverse effect on implantable medical devices, such as implantable cardiac pacemakers and implantable cardioverter defibrillators. Please read catalogues or instruction manuals of the equipment and device which may be affected by radio frequencies for any instructions for use or contact their manufacturers.

12 Product Disposal

This product shall not be disposed of as municipal waste. Check your local regulations and guidelines to dispose of this product correctly, in order to reduce the impact on human health and the environment.

13 Contacts

Refer to www.smcworld.com or www.smc.eu for your local distributor / importer.

SMC Corporation

URL: <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)
 SMC Corporation, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, Japan
 Specifications are subject to change without prior notice from the manufacturer.
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