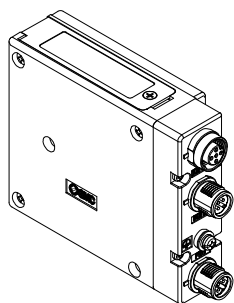




ORIGINAL INSTRUCTIONS

Instruction Manual

**Fieldbus device - SI unit for CC-Link
EX260-SMJ1 / SMJ2 / SMJ3 / SMJ4**


The intended use of this product is to control pneumatic valves and I/O while connected to the CC-Link protocol.

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.

Caution

- Provide grounding to assure the safety and noise resistance of the Fieldbus system.
Individual grounding should be provided close to the product using a short cable.
- When conformity to UL is required the SI unit must be used with a UL1310 Class 2 power supply.

2 Specifications
2.1 General specifications

Item	Specifications
Ambient temperature	-10 to +50 °C
Ambient humidity	35 to 85% RH (no condensate)
Ambient storage temperature	-20 to +60 °C
Withstand voltage	500 VAC applied for 1 minute
Insulation resistance	500 VDC, 10 MΩ or more
Operating atmosphere	No corrosive gas
Enclosure rating	IP67
Weight	200 g or less

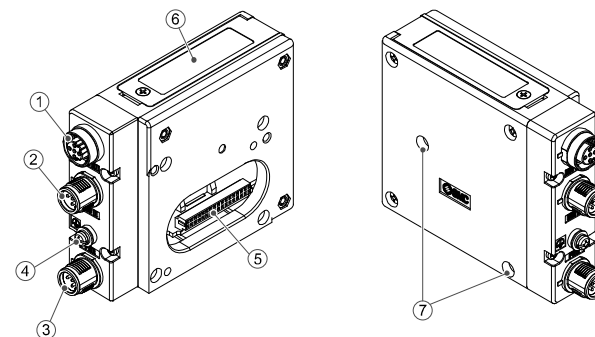
2.2 Electrical specifications

Item	Specifications		
Power supply voltage range / current consumption	Controller power supply	21.6 to 26.4 VDC 0.1 A max.	
	Solenoid valve power supply	22.8 to 26.4 VDC 2.0 A max., according to solenoid valve stations / specification.	
Solenoid valve specification	Output type	EX260-SMJ1 EX260-SMJ3	PNP (negative common) / source
		EX260-SMJ2 EX260-SMJ4	NPN (positive common) / sink
		EX260-SMJ1 EX260-SMJ2	32 outputs
	Number of outputs	EX260-SMJ3 EX260-SMJ4	16 outputs
		Output condition at the time of communication error	Output HOLD / CLEAR
	Connected load	Solenoid valve with surge voltage suppressor of 24 VDC and 1.5 W or less (manufactured by SMC)	
Insulation type	Photo coupler		
Residual voltage	0.4 VDC or less		

2.3 Communication specifications

Item	Specifications
Protocol	CC-Link Ver.1.10 *
Occupied number of stations	1 station
Allowable station number setting	1 to 64
Station Type	Remote I/O
Transmission speed	156 kbps / 625 kbps / 2.5 Mbps / 5 Mbps / 10 Mbps

*: It is possible to connect the "Ver.1.10" SI unit (slave) to the "Ver.2.00" compliant master unit (master).

3 Name and function of parts


No	Part	Description
1	Fieldbus connector (BUS OUT)	CC-Link connection PORT 2. (M12 5-pin socket, A-code)
2	Fieldbus connector (BUS IN)	CC-Link connection PORT 1. (M12 4-pin plug, A-code)
3	Power supply connector	Power supply with load voltage for valves and operating voltage for SI unit. (M12 5-pin plug, B-code)
4	Ground terminal	Functional Earth (M3)
5	Output connector	Output signal interface for valve manifold
6	LED and switches	Bus status specific and SI unit status LED's. Switches for setting node address and operating mode
7	Mounting hole	Mounting hole for connection to the valve manifold

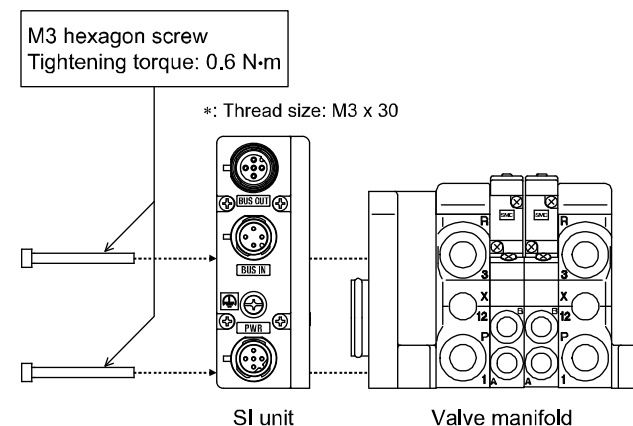
Accessories

Hexagon socket head cap screw	M3 x 30 screw for connection to the valve manifold (2 pcs.).
Seal cap	Seal cap for unused fieldbus interface connector (BUS OUT) (1 pc.).

4 Installation
4.1 Installation
Warning

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

- General instructions on installation and maintenance**
Connect the valve manifold to the SI unit.
- Assembly and disassembly of the SI unit**


4.2 Replacement of the SI unit

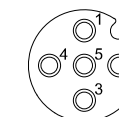
- Remove the M3 hexagon screws from the SI unit and release the SI unit from the valve manifold.
- Replace the SI unit.
- Tighten the screws with the specified tightening torque. (0.6 N•m)

5 Installation (continued)
5.1 Assembly Precautions

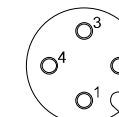
- Be sure to switch off the power.
- Check there is no foreign matter inside the SI unit.
- Check there is no damage and no foreign matter stuck to the gasket.
- Be sure to tighten the screws with the specified torque.
- If the SI unit is not assembled properly, the internal PCBs may be damaged or liquid and/or dust may enter into the unit.

5.2 Fieldbus Interface connector

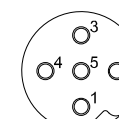
Select appropriate cables to mate with the connectors on the SI unit.

EX260-SMJ1 / -SMJ2 / -SMJ3 / -SMJ4
BUS OUT: M12 5-pin socket, A-code (SPEEDCON)


No.	Designation	Description
1	SLD	Shield
2	DB	Communication wire DB
3	DG	Communication wire DG
4	DA	Communication wire DA
5	-	Unused

BUS IN: M12 4-pin plug, A-code (SPEEDCON)


No.	Designation	Description
1	SLD	Shield
2	DB	Communication wire DB
3	DG	Communication wire DG
4	DA	Communication wire DA

5.3 Power supply connector
PWR: M12 5-pin plug, B-code (SPEEDCON)


No.	Designation	Description
1	SV 24 V	+24 V for solenoid valve
2	SV 0 V	0 V for solenoid valve
3	SI 24 V	+24 V for SI unit operation
4	SI 0 V	0 V for SI unit operation
5	-	Not used

- The power supply for the solenoid valve and SI unit operation are isolated. Be sure to supply power respectively.
Either single source power or two different power supplies can be used.

The M12 connector cable has two types, SPEEDCON compatible and standard. If both plug and sockets have connectors for SPEEDCON, the cable can be inserted and connected by turning it a 1/2 of a rotation.
A standard connector can be connected to a SPEEDCON connector as well as a standard M12.

Warning

- Be sure to fit a seal cap (EX9-AWTS) on any unused M12 connectors. Proper use of the seal cap enables the enclosure to maintain IP67 specification.

5.4 Ground Terminal

- Connect the ground terminal to ground.
- Individual grounding should be provided close to the product with a short cable to assure the safety and noise resistance of the Fieldbus system.
- Resistance to ground should be 100 ohms or less.

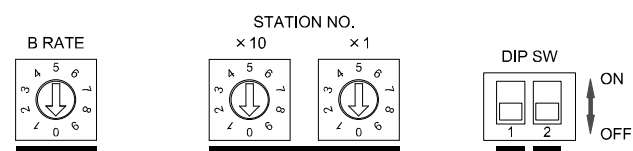
5.5 Environment
Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not install in a location subject to vibration or impact in excess of the product's specifications.

6 Setting

6.1 Switch Setting

- The switches should only be set with the power supply turned off.
- Open the cover and set the switches with a small flat blade screwdriver.
- Set the switches before use.



Baud rate setting

Baud rate	Setting
156 kbps	0
625 kbps	1
2.5 Mbps	2
5 Mbps	3
10 Mbps	4

*: If the baud rate is set to a number above 4, the "L ERR" LED will turn on.

Setting the Number of occupied stations

Setting		Station No.
x10	x1	Error (Default setting)
0	0	1
0	1	2
0	2	3
:	:	:
6	3	63
6	4	64

*: If the number of occupied stations is set to 00 or a number above 64, the "L ERR" LED will turn on.

HOLD/CLEAR setting

HOLD/CLEAR	No.1	Description
HOLD	ON	Hold the last state before communication error.
CLEAR	OFF	Clear all outputs.

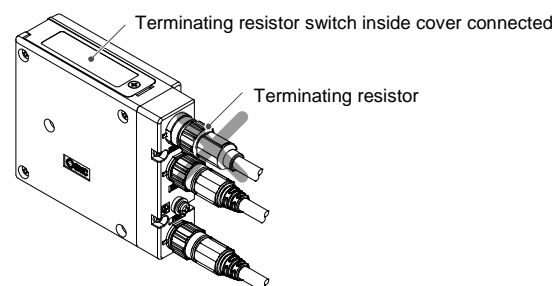
Setting terminating resistor

Terminating resistor	No.2	Description
Enable	ON	Connect the internal terminating resistor (110 Ω).
Disable	OFF	Disconnect the internal terminating resistor.

6.2 Terminating resistor

- The terminating resistor to be connected to the CC-Link network depends on the type of cables used (refer to the table below).

Cable type	Terminating resistor	
Communication cable for CC-Link	110 Ω 1/2 W	Built-in terminating resistor 110 Ω Set the SI unit DIP Switch No.2 to ON
<ul style="list-style-type: none"> With socket for BUS IN PCA-1567720 With plug for BUS OUT PCA-1567717 		
CC-Link Ver.1.00 dedicated High-performance cable	130 Ω 1/2 W	N/A



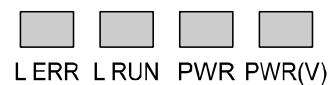
- Use the internal terminating resistor only when the SI unit is placed at the end of the CC-Link main line.
- An external terminating resistor should not be used when the internal resistor is used.
The terminating resistor value will be outside the specified range. A network communication error may occur.
- When the CC-Link Ver.1.00 dedicated High-performance cable is used, disable the internal terminating resistor switch and connect a 130 Ω terminating resistor to the BUS OUT connector.

6 Setting (continued)

6.3 Configuration

Technical documentation giving detailed configuration information can be found on the SMC website (URL: <https://www.smcworld.com>).

7 LED Display



LED	LED Status	Description
L ERR	Red ON	Communication error
	Red flashing	The station number and baud rate settings have been changed during communication
	OFF	Communication is normal
L RUN	Green ON	Communication is normal
	OFF	Communication has terminated (time out error)
PWR	Green ON	Power supply for SI unit is ON
	OFF	Power supply for SI unit is OFF
PWR(V)	Green ON	Power supply for solenoid valves is ON
	OFF	Power supply for solenoid valves is OFF

8 How to Order

Refer to the operation manual on the SMC website (URL: <https://www.smcworld.com>) for How to order information.

9 Outline Dimensions (mm)

Refer to the operation manual 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
- Stop operation if the product does not function correctly.

11 Limitations of Use

11.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products.

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.
© 2021 SMC Corporation All Rights Reserved.
Template DKP50047-F-085M