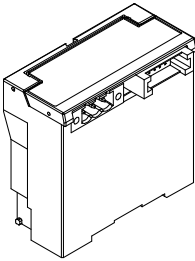




ORIGINAL INSTRUCTIONS

Instruction Manual  
Fieldbus device - SI unit for CompoNet®  
EX120-SCM# / EX121-SCM# / EX122-SCM#



The intended use of this product is to control pneumatic valves and I/O while connected to the CompoNet® 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) <sup>(1)</sup>, and other safety regulations.

<sup>(1)</sup> 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.

	<b>Caution</b>	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
	<b>Warning</b>	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	<b>Danger</b>	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 noise resistance of the Fieldbus system. Individual grounding should be provided close to the product using a short cable.
- Refer to the operation manual on the SMC website (URL: <https://www.smcworld.com>) for further Safety Instructions.
- Special products (-X) might have specifications different from those shown in the specifications section. Contact SMC for specific drawings.

2 Specifications

2.1 General specifications

Item	Specifications
Ambient temperature	0 to +55 °C (8 valves ON) 0 to +50 °C (16 valves ON)
Ambient humidity	35 to 85% RH (no condensation)
Storage temperature	-20 to +60 °C
Withstand voltage	1000 VAC applied for 1 minute (between FG and external terminal)
Insulation resistance	2 MΩ or more (500 VDC, between FG and external terminal)
Operating atmosphere	No corrosive gas, no dust
Enclosure	IP20
Weight (including accessories)	EX120-SCM#: 110 g or less EX121-SCM#: 120 g or less EX122-SCM#: 110 g or less

2.2 Electrical specifications

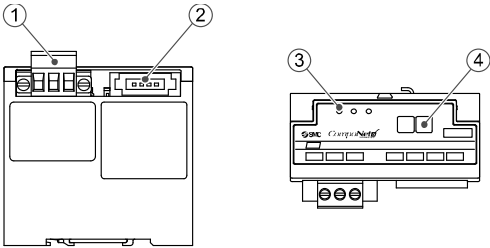
Item	Specifications	
	EX12#-SCM1	EX12#-SCM3
Rated voltage	24 VDC	
Power supply voltage range	Power supply for communication: 14 to 26.4 VDC	
	Power supply for solenoid valves: 24 VDC +10/-5%	
Current consumption	0.1 A or less (for SI unit)	
Output specification	Output type	NPN / sink (positive common)      PNP / source (negative common)
	Number of outputs	16 outputs
	Connection load	Solenoid valve with surge voltage suppressor of 24 VDC and 1 W or less (manufactured by SMC)
	Output setting at communication error.	Hold / Clear (network setting)

2.3 Communication specifications

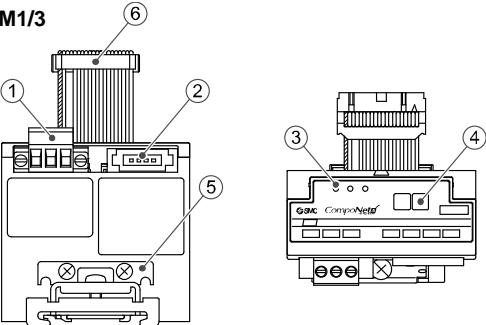
Item	Specifications
Protocol	CompoNet®
Communication speed	93.75 kbps / 1.5 Mbps / 3 Mbps / 4 Mbps
Occupied area (No. of inputs / outputs)	0 inputs / 16 outputs
Configuration file	EDS file

3 Name and function of parts

EX120-SCM1/3

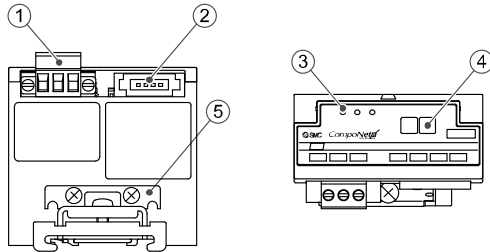


EX121-SCM1/3



3 Name and function of parts (continued)

EX122-SCM1/3



No.	Name	Purpose
1	Power supply connector	Connector for power supply for solenoid valves. The mating power supply connector (EX9-CP2) is supplied with the product.
2	Communication connector	Connector for CompoNet® network. The communication connector for CompoNet® is not supplied.
3	LED display	LED display to indicate the status of the SI unit.
4	Switch setting area	Switches for setting the node number.
5	Mounting bracket	For mounting to a DIN rail.
6	Solenoid valve connector	Connector for solenoid valves.

4 Installation

4.1 Mounting

**Warning**

- Do not install the product unless the safety instructions have been read and understood.
- Applicable valve series: SV, SY, VQ series.

**Caution**

- Be sure to turn OFF the power.
- Check there is no foreign matter inside the SI unit.
- If the SI unit is not assembled properly, the internal PCBs may be damaged or liquid and/or dust may enter into the unit.
- Refer to the catalogue or operation manual for the applicable valve manifold on the SMC website (URL: <https://www.smcworld.com>) for further assembly details.

4.2 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

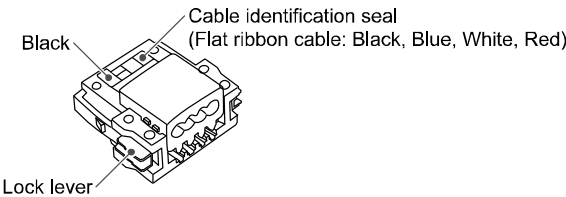
5.1 Communication Connector

The connection between the CompoNet® network cable and the SI unit communication terminals is shown below. The communication connector for the SI unit should be selected as shown below:

Connector type	Communication connector		
	SMC	Omron	Honda
For flat ribbon cable: IDC connector	EX9-CCM1	DCN4-BR4	-
For round cable: Terminal block connector	EX9-CCM2	-	HCN-TB4LMZG+
Branch connector	EX9-CCM3	-	HCN-MD4SAG+

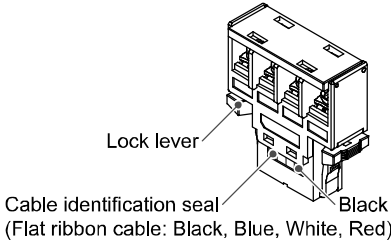
5.1.1 IDC connector (EX9-CCM1)

Suitable for use with a dedicated flat ribbon cable for CompoNet® (Omron DCA4-4F10). This connector must be ordered separately (not supplied).



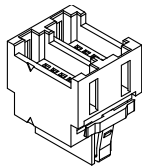
5.1.2 Terminal block connector for round cable (EX9-CCM2)

Suitable for use with a VCTF cable. This connector must be ordered separately (not supplied).



5.1.3 Communication Branch connector (EX9-CCM3)

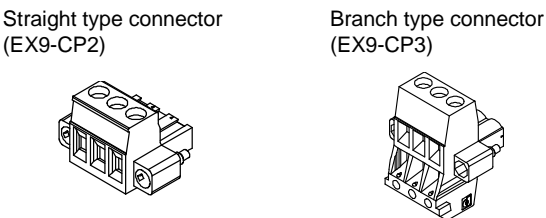
Suitable for use with 2 x communication connectors in T branch type connection. This connector must be ordered separately (not supplied).



Refer to the operation manual available on the SMC website (URL: <https://www.smcworld.com>) for more information about the communication connector wiring.

5.2 Power supply connector

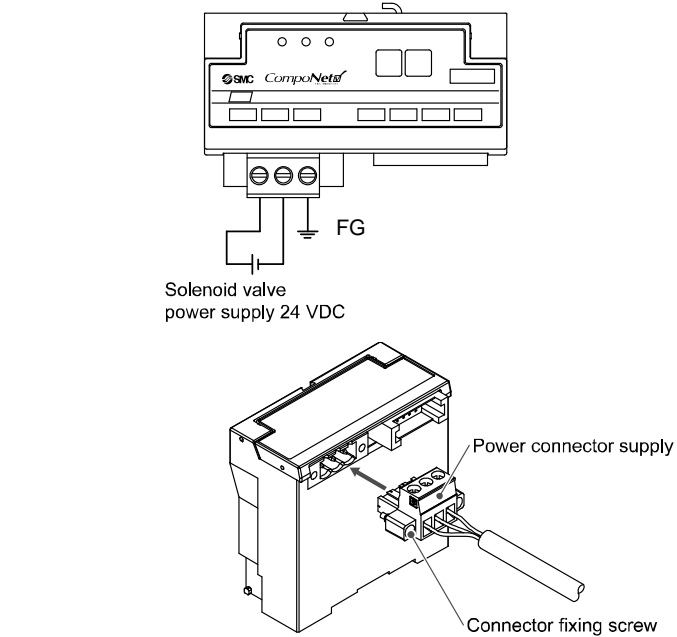
The straight type power supply connector (EX9-CP2) is supplied with the product. A branch type connector (EX9-CP3) is also available (not supplied with the product).



- Connect the wiring for the solenoid valve power supply to the power supply connector.
- The power supply connector is suitable for use with wire sizes from AWG28 to 16 (0.14 mm² to 1.5 mm²).
- Tighten the screw with 0.5 to 0.6 N•m of tightening torque.

5 Wiring (continued)

5.2.1 Power supply wiring



- Tighten the connector fixing screws (M2.5 screws) firmly with a tightening torque of 0.2 to 0.3 N•m.

5.3 Ground Connection

- Connect the ground (FG) terminal to ground. Individual grounding should be provided close to the product. Resistance to ground should be 100 ohms or less.

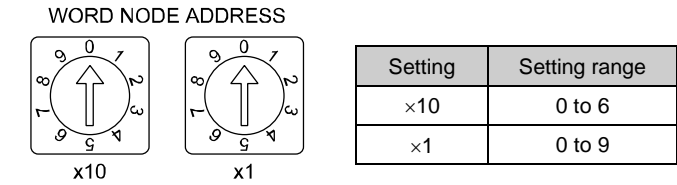
6 Setting

6.1 Switch Settings

- 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. Close the cover after setting.
- Set the switches before use.

6.1.1 Node Address setting

- \*1: The node address should be any number from 00 to 63. If it is set to a number greater than 63, the "NS" LED will turn ON.
- \*2: The address number must not be duplicated.



6.1.2 Communication speed setting

- An automatic communication speed setup function allows slaves to automatically comply with the transmission speeds set by the master. Therefore, there are no switches to set.

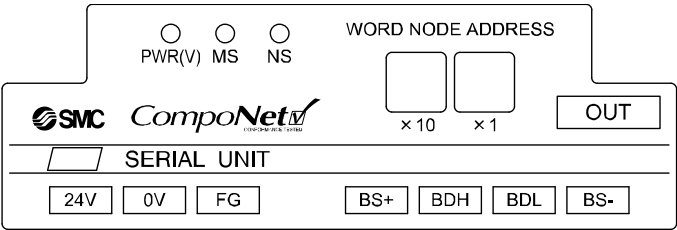
7 How to Order

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

8 Outline Dimensions (mm)

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

9 LED display



LED		Description
PWR(V)	ON	Power supply for solenoid valve ON.
	OFF	Power supply for solenoid valve OFF.
MS	Green ON	Normal operation.
	Red ON	Fatal error.
	Red flashing	Minor error.
	OFF	Power supply is OFF.
NS	Green ON	Connection completed, On line.
	Green flashing	Connection not completed, On line.
	Red ON	Fatal communication error.
	Red flashing	Minor communication error.
	OFF	Power supply is OFF.

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](https://www.smcworld.com) or [www.smc.eu](https://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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Template DKP50047-F-085M