

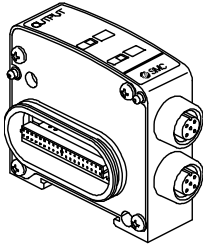


ORIGINAL INSTRUCTIONS

Instruction Manual

Fieldbus device - Output & Power block

EX9-OET1/2 / EX9-OEP1/2 / EX9-PE1



The intended use of this product is to control pneumatic valves and I/O, providing power and outputs while connected to a valve manifold.

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) ^{*1)}, and other safety regulations.

^{*1)} 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 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	-10 to +50 °C
Ambient humidity	35 to 85%RH (No condensate)
Storage temperature	-20 to +60 °C
Withstand voltage	1500 VAC applied for 1 minute
Insulation resistance	500 VDC, 10 MΩ or more
Operating atmosphere	No corrosive gas
Enclosure	IP67
Weight	120 g

2.2 EX9-OET1/2 (Output block for Low Power load)
EX9-OEP1/2 (Output block for High Power load)

Item	Specifications	
	EX9-OET1 / -OET2	EX9-OEP1 / -OEP2
Number of outputs	2 outputs	
Rated voltage	24 VDC	
Rated Load current	62 mA (1.5 W) max. per point (when EX126, EX250 or EX260 is used).	0.5 A (12 W) max. per point ^{*1}
	42 mA (1.0 W) max. per point (when EX500-Q#02 or EX500-S103 is used)	
Power supply	Internal power source (supplied from SI unit)	External power source (supplied from Power block)
Internal current consumption	20 mA / point	
Output type	EX9-OET1 EX9-OEP1	PNP (negative common) / Source
	EX9-OET2 EX9-OEP2	NPN (positive common) / Sink
Insulation type	Optocoupler insulation (SI unit)	Optocoupler insulation (this unit)

^{*1}: Maximum supply current to the Power block is limited to 3.1 A.

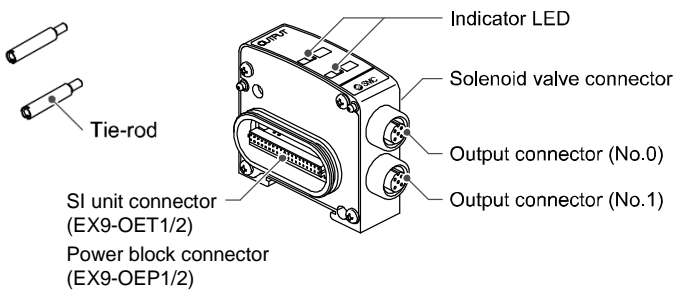
2.3 EX9-PE1 (Power block)

Item	Specifications
Rated voltage	24 VDC
Supply current	3.1 max. ^{*2}
Internal current consumption	20 mA / point
Applicable Output block	EX9-OEP1, EX9-OEP2

^{*2}: When the maximum supply current is 3.0 to 3.1 A, the ambient temperature must be 40 °C or less and do not bundle the cables.

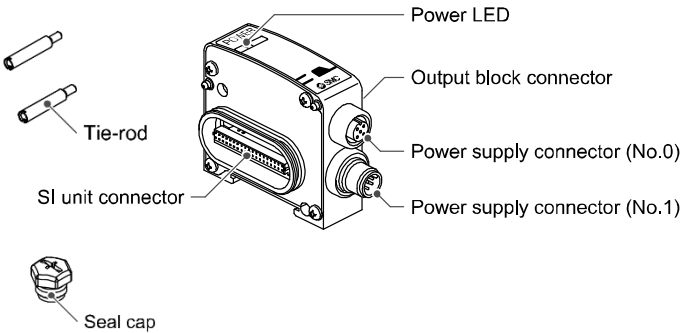
3 Name and function of parts

3.1 EX9-OET1/2, EX9-OEP1/2 (Output block)



Part	Description
Indicator LED	LED's to indicate the output status.
Solenoid valve connector	Connector for solenoid valve.
Output connector (No.0)	Connector for output device.
Output connector (No.1)	Connector for output device.
SI unit connector	Connector for SI unit (EX9-OET1/2).
Power block connector	Connector for Power block (EX9-OEP1/2).

3.2 EX9-PE1 (Power block)



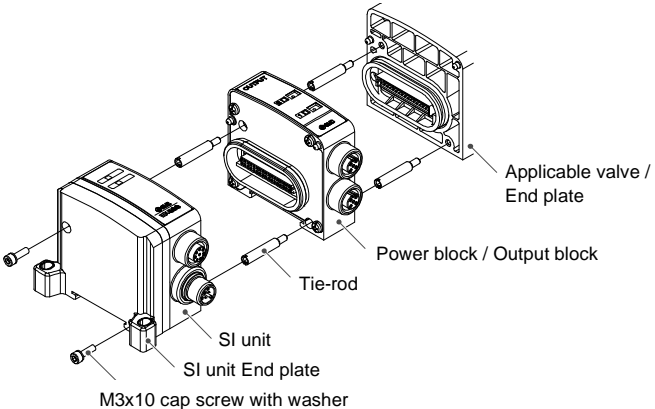
Part	Description
Power LED	LED to indicate the power supply status.
Output block connector	Connector for Output block for high wattage load.
Power supply connector (No.0)	Connector to supply power to the SI unit, only when the SI unit (EX250 or EX500 series) is on the left side of the EX9-PE1 (Power block).
Power supply connector (No.1)	Connector to supply power to the Output block for high wattage load.
SI unit connector	Connected to SI unit.

4 Installation

4.1 Installation

Warning

- Do not install the product unless the safety instructions have been read and understood.
- The mounting and removal methods of each product are as shown below.



4 Installation (continued)

4.2 Assembly Precautions

- Be sure to turn OFF the power.
- Check there is no foreign matter inside the units.
- Check there is no damage and no foreign matter stuck to the gasket.
- Hold together the units so that there is no gap between products.
- Tighten the screws to the specified tightening torque: 0.6 N•m.
- If the units are not assembled properly, the internal PCBs may be damaged or liquid and/or dust may enter into the unit.
- Follow the installation method for each SI unit and valve manifold.

4.3 Environment

Warning

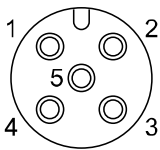
- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact in excess of the product's specifications.
- 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 Output Connector - PNP (EX9-OET1, EX9-OEP1)

- Select a suitable mating cable (SMC Part No. EX9-AC###-7).

M12 5-pin socket

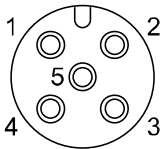


No.	PNP output	
	Output connector (No.0)	Output connector (No.1)
1	N.C.	N.C.
2	Output (OUT1)	N.C.
3	Power supply (GND)	Power supply (GND)
4	Output (OUT0)	Output (OUT1)
5	N.C.	N.C.

5.2 Output Connector - NPN (EX9-OET2, EX9-OEP2)

- Select a suitable mating cable (SMC Part No. EX9-AC###-7).

M12 5-pin socket

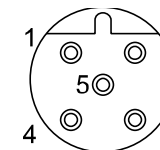


No.	NPN output	
	Output connector (No.0)	Output connector (No.1)
1	Power supply (24 VDC)	Power supply (24 VDC)
2	Output (OUT1)	N.C.
3	N.C.	N.C.
4	Output (OUT0)	Output (OUT1)
5	N.C.	N.C.

5.3 EX9-PE1 Power supply connector (No.0)

- Connect the power supply from the Power block (EX9-PE1) to the SI unit using suitable mating cable (SMC Part No. EX9-AC###-1).

M12 5-pin B-coded (reverse key). Socket



No.	Signal
1	24 VDC for output devices
2	0 V for output devices
3	24 VDC for sensor ^{*1}
4	0 V for sensor ^{*1}
5	Functional Earth

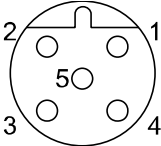
^{*}: Each signal of output connector No.0 is connected to the corresponding pin of connector No.1.

^{*1}: Pins No.3 and 4 are used when power is supplied to the SI Unit, using a dedicated cable from the power supply connector. When power is not supplied to the SI Unit from the Power Block, it is not necessary to connect power to pins No.3 and 4 of the power input connector.

5 Wiring (continued)

5.4 EX9-PE1 Power supply connector (No.1)

- Select a suitable mating cable (SMC Part No. EX9-AC###-2,-3,-4,-6).
M12 5-pin B-coded (reverse key), Plug



No.	Signal
1	24 VDC for output devices
2	0 V for output devices
3	24 VDC for sensor *1
4	0 V for sensor *1
5	Functional Earth

- *: Each signal of output connector No.1 is connected to the corresponding pin of connector No.0.
- *1: Pins No.3 and 4 are used when power is supplied to the SI Unit, using a dedicated cable from the power supply connector.
When power is not supplied to the SI Unit from the Power Block, it is not necessary to connect power to pins No.3 and 4 of the power input connector.

The M12 connector cable for fieldbus and power supply connections has two types, Standard M12 and SPEEDCON compatible. If both plug and socket have SPEEDCON connectors, the cable can be inserted and connected by turning it a 1/2 of a rotation, leading to a reduction in man hours.
A standard connector can be connected to a SPEEDCON connector.

Warning

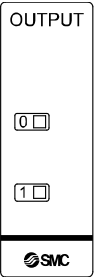
- Be sure to fit a seal cap (EX9-AWTS) on any unused connectors.
Proper use of the seal cap enables the enclosure to maintain IP67 specification. Tightening torque: 0.1 N•m.

5.5 Ground Terminal

- Connect the ground terminal to ground.
- Resistance to ground should be 100 ohms or less.
- Individual grounding should be provided close using a short cable.

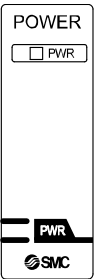
6 LED Display

- EX9-OET1/2 / EX9-OEP1/2 (Output block)



LED		Description
0	ON	Output (OUT0) is ON.
	OFF	Output (OUT0) is OFF.
1	ON	Output (OUT1) is ON.
	OFF	Output (OUT1) is OFF.

- EX9-PE1 (Power block)



LED		Description
PWR	ON	Power is supplied from the external power supply.
	OFF	Power is not supplied from the external power supply.

7 How to Order

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

8 Outline Dimensions (mm)

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

9 Maintenance

9.1 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.

10 Limitations of Use

10.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products.

11 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.

12 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