



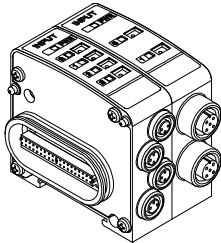
ORIGINAL INSTRUCTIONS

Instruction Manual

Fieldbus device - Input unit

Series 56-EX250-IE2/3-X43

II 3G Ex ec IIC T4 Gc 5°C ≤ Ta ≤ 45°C  
II 3D Ex tc IIIC T77°C Dc IP67



The intended use of this Input unit is for the control of pneumatic valves.

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.

<b>ATEX Marking Description</b>	
II 3G Ex ec IIC T4 Gc 5°C ≤ Ta ≤ 45°C II 3D Ex tc IIIC T77°C Dc IP67	
Equipment Group II Category 3	T4 - Temperature classification tc - protected by enclosure
Gas (G) and Dust (D) environment	IIIC - for all types of Dust
Ex - European standards apply	T77°C - Max. surface temperature
ec – Increased safety	Ta - ambient temperature
IIC - for all types of gas	IP67 - Protection structure

Based on the conformity assessment carried out by SMC Corporation.

Certificate Number: SMC 21.0006 X

If the Certificate number includes an X, special conditions for safe use apply as follows:-

- Protect the product from sources of heat which can generate surface temperatures higher than the temperature classification.
- Protect the product and cable connections against all impact or mechanical damage using a suitable ATEX compliant enclosure.
- Protect the product from direct sunlight or UV light using a suitable protective cover.

1 Safety Instructions (continued)

- Do not disconnect the M12 connectors before first switching off the power supply.
- Use only ATEX approved connectors and use only shielded cable to provide grounding.
- Use only a damp cloth to clean the product to avoid electrostatic discharge.

2 Specifications

General specifications	
Item	Specification
Ambient temperature	+5 °C to +45 °C
Ambient humidity	35 to 85% RH (no condensate)
Ambient storage temperature	-20 to +60 °C
Withstand voltage	500 VAC for 1 minute
Insulation resistance	500 VDC min. 10 MΩ
Operating environment	No corrosive gas and no dust

Electrical specifications

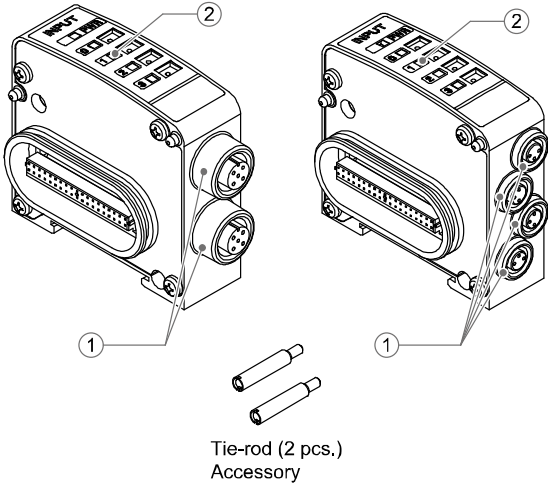
Item	Specification	
Model number	56-EX250-IE2-X43	56-EX250-IE3-X43
Input point	4 points	4 points
Input connector	M12 connector	M8 connector
Corresponding sensors	Current source type (PNP output) Current sink type (NPN output) <sup>*1</sup>	
Rated voltage	19.2 to 28.8 VDC <sup>*2</sup>	
Logic“1” input voltage VH	11 to 30 VDC	
Logic“0” input voltage VL	-3 to +5 VDC	
Logic“1” input current IH	8 mA typical	
Two wire sensor connection	Possible	
Logic“0” allowable current IL	2.5 mA max.	
Input delay time	3 msec. typical	
Sensor supply current	120 mA / input block (30 mA / sensor) <sup>*3</sup>	
Short-circuit protection	500 mA fuse for each input block	

- <sup>\*1</sup>: Change-over by switch (for changing the whole input block).  
<sup>\*2</sup>: Approx. 1 V of voltage drop for power supply voltage (power for SI unit and input block).  
<sup>\*3</sup>: For an extended input block or when 32 sensors are used, the total sensor supply current should not exceed 1 A.

3 Names and function of Individual parts

56-EX250-IE2-X43

56-EX250-IE3-X43



No	Part	Description
1	Input connector	For connecting the input (i.e. sensor).
2	Operation LED's	Displays the power supply and input status

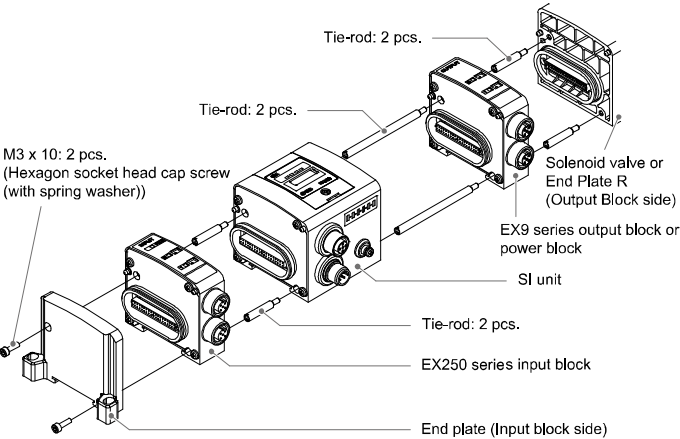
4 Installation

4.1 Installation

Warning

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

• Assembly and disassembly of the units



4.2 Assembly of the units

- Hold the SI unit and the Input block together in order to ensure there is no gap between them, while tightening the screws.
- Tighten the screws with the specified tightening torque (0.6 N•m).

4.3 Assembly Precautions

- Be sure to switch off the power.
- Check there is no foreign matter inside the SI unit or input unit.
- Check there is no damage and no foreign matter stuck to the gasket.
- Be sure to tighten the screws with the specified torque.

4.4 Environment

Warning

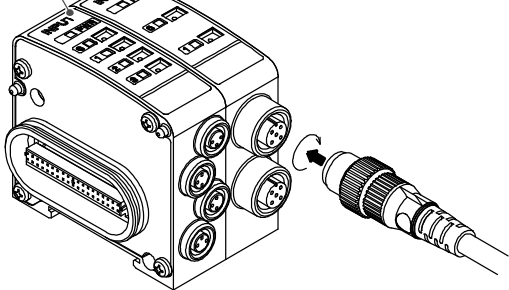
- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not install in a location subject to vibration or impact in excess of the product's specifications.

4.5 Cable Connection

- Select the appropriate cables to mate with the connectors mounted on the SI unit.
- Align the key groove of the cable connector (plug) with the input connector (socket) on the input block.
  - Tighten the locknut on the cable by turning it clockwise by hand.
  - Confirm that the connector does not move.

56-EX250-IE2-X43

56-EX250-IE3-X43

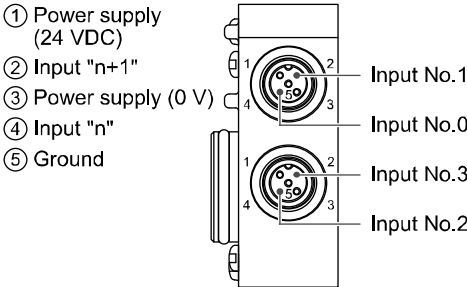


4 Installation (continued)

4.6 Input Connector pin layout

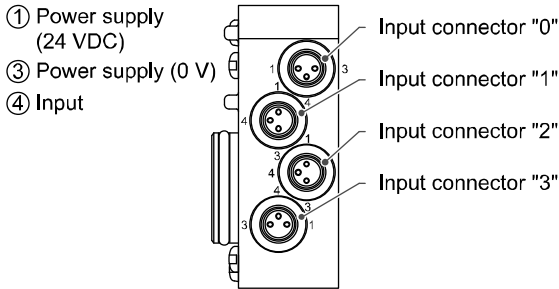
56-EX250-IE2-X43

M12 5 pin socket



56-EX250-IE3-X43

M8 3 pin socket



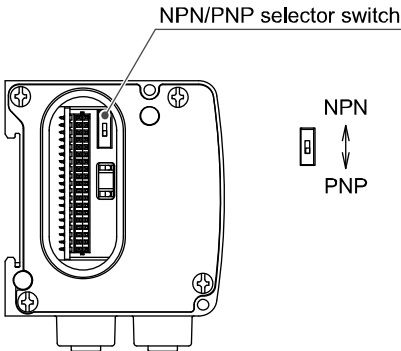
Warning

- A waterproof cap (EX9-AW#) must be used on each unused connector on the input block to maintain the IP67 enclosure rating. (Tightening torque: M12 = 0.1 N•m, M8 = 0.05 N•m).

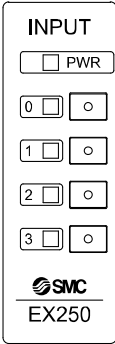
5 Setting

5.1 Switch Setting

- The Input Block can be switched to NPN/PNP for each applicable sensor.
- Remove the input block and set the switch with a small flat blade screwdriver. Power must be removed.
- Install the input block after setting.
- The default switch setting of the product is PNP.



6 Display



LED	Description	
PWR	ON	Power supply for sensor is ON.
	OFF	Power supply for sensor is OFF.
0, 1, 2, 3	ON	Light is ON when input signal is ON.
	OFF	Light is OFF when input signal is OFF.

7 Maintenance

7.1 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.

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 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](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)  
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Specifications are subject to change without prior notice from the manufacturer.  
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