



# Installation & Maintenance Manual Fieldbus device (SI unit) 56-EX260 Series for EtherCAT

II 3G Ex nA IIC T5 Gc X -10°C≤Ta≤50°C  
II 3D Ex tc IIIC T58°C Dc X IP67

## 1 Safety Instructions

This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.

- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- These instructions indicate the level of potential hazard with the labels of "Caution", "Warning" or "Danger", followed by important safety information which must be carefully followed.
- To ensure safety of personnel and equipment the safety instructions in this manual and the product catalogue must be observed, along with other relevant safety practices.

	<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.

This product is class A equipment that is intended for use in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbances.

### Warning

- Do not disassemble, modify (including changing the printed circuit board) or repair.  
An injury or failure can result.
- Do not operate the product outside of the specifications.  
Do not use for flammable or harmful fluids.  
Fire, malfunction, or damage to the product can result.  
Verify the specifications before use.
- Do not operate in an atmosphere containing flammable or explosive gases for long periods.  
Fire or an explosion can result.  
This product is suitable for ATEX category 3 only.
- If using the product in an interlocking circuit:
  - Provide a double interlocking system, for example a mechanical system.
  - Check the product regularly for proper operation.  
Otherwise malfunction can result, causing an accident.
- The following instructions must be followed during maintenance:
  - Turn off the power supply.
  - Stop the air supply, exhaust the residual pressure and verify that the air is released before performing maintenance.  
Otherwise an injury can result.

## 1 Safety Instructions (Continued)

### Caution

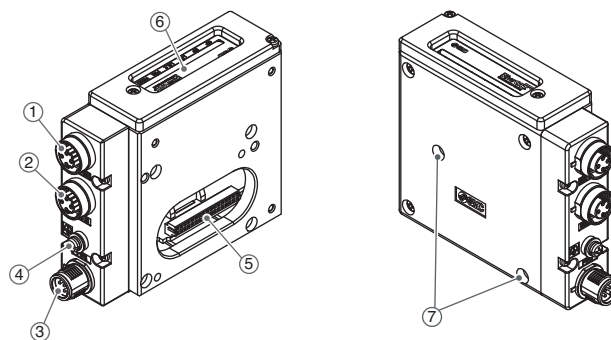
- After maintenance is complete, perform appropriate functional inspections.  
Stop operation if the equipment does not function properly.  
Safety cannot be assured in the case of unexpected malfunction.
- Provide grounding to assure the safety and noise resistance of the Fieldbus system.  
Individual grounding should be provided close to the product with a short cable.

### NOTE

- When conformity to UL is necessary the SI unit must be used with a UL1310 Class 2 power supply.

## 2 Summary of Product element

<56-EX260-SEC1/-SEC2/-SEC3/-SEC4-X42>



No.	Element	Description
1	Fieldbus interface connector (BUS OUT)	EtherCAT connection (M12 4-pole socket, D-coded)
2	Fieldbus interface connector (BUS IN)	EtherCAT connection (M12 4-pole socket, D-coded)
3	Power supply connector	Power supply with load voltage for valves and operating voltage for SI unit (M12 5-pole plug, A-coded)
4	Ground terminal	Functional earth (M3 screw)
5	Output connector	Output signal interface for valve manifold
6	LED	Bus status-specific and SI unit-specific LEDs
7	Mounting hole	Mounting hole for connection to the valve manifold

### Accessories

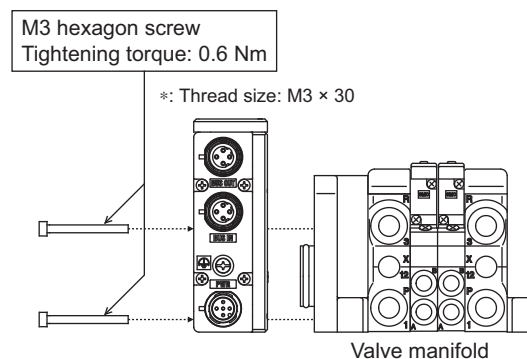
Hexagon socket head cap screw	2 pcs. M3 x 30 screw for connection to the valve manifold
Seal cap	1 pc. seal cap for unused fieldbus interface connector (BUS OUT)

## 3 Installation

### General instructions on installation and maintenance

Connect valve manifold to the SI unit.

### Assembly and disassembly of the SI unit



### 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 Nm)

### Precautions for maintenance

- 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 being stuck to the gasket.
- Be sure to tighten the screws with the specified torque.  
If the SI unit is not assembled properly, inside PCBs may be damaged or liquid and/or dust may enter into the unit.

## 4 Installation (Continued)

### Connecting cables

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

### Fieldbus interface connector layout

#### BUS OUT: M12 4-pole socket D-coded

No.	Designation	Description
1	TD+	Transmit Data +
2	RD+	Receive Data +
3	TD-	Transmit Data -
4	RD-	Receive Data -

#### BUS IN: M12 4-pole socket D-coded

No.	Designation	Description
1	TD+	Transmit Data +
2	RD+	Receive Data +
3	TD-	Transmit Data -
4	RD-	Receive Data -

### Power supply connector layout

#### PWR: M12 5-pole plug A-coded

No.	Designation	Description
1	SV24 V	+24 V for solenoid valve
2	SV0 V	0 V for solenoid valve
3	SI24 V	+24 V for SI unit operation
4	SI0 V	0 V for SI unit operation
5	-	Unused

### Ground terminal

Connect the ground terminal to ground.  
Resistance to ground should be 100 ohms or less.

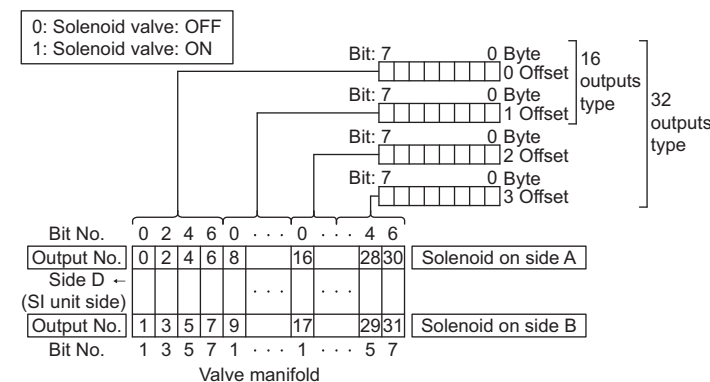
## 5 Setting

### Configuration

Auto-increment addressing can be used to address each slave device according to its physical position in the communication ring, and does not require local address setting. To configure the EX260 SI unit with the EtherCAT master, an XML Device Description File is required. The technical document giving detailed configuration information and the XML file can be found on the SMC website (URL <http://www.smcworld.com>).

### Output number assignment

The output number refers to the solenoid position on the manifold and starts at zero.



**6 LED indication**

LED	Status	Description
RUN	<input type="checkbox"/> OFF	INIT
	<input checked="" type="checkbox"/> Green blinking *1	PRE-OPERATIONAL
	<input checked="" type="checkbox"/> Green single flash *2	SAFE-OPERATIONAL
	<input checked="" type="checkbox"/> Green flickering *3	BOOTSTRAP
	<input type="checkbox"/> Green ON	OPERATIONAL
L/A IN	<input type="checkbox"/> OFF	BUS IN side: No Link, No Activity
	<input type="checkbox"/> Green ON	BUS IN side: Link, No Activity
	<input checked="" type="checkbox"/> Green flickering *3	BUS IN side: Link, Activity
L/A OUT	<input type="checkbox"/> OFF	BUS OUT side: No Link, No Activity
	<input type="checkbox"/> Green ON	BUS OUT side: Link, No Activity
	<input checked="" type="checkbox"/> Green flickering *3	BUS OUT side: Link, Activity
PWR	<input type="checkbox"/> Green ON	SI unit operating voltage is supplied
	<input type="checkbox"/> OFF	SI unit operating voltage is not supplied
PWR(V)	<input type="checkbox"/> Green ON	Load voltage for the valve is supplied
	<input type="checkbox"/> OFF	Load voltage for the valve is not supplied or outside tolerance range (19 V or less)

**7 Troubleshooting**

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

**8 Specifications**

Connected load: 24 VDC Solenoid valve with light and surge voltage suppressor of 1.5 W or less (manufactured by SMC)  
 Current consumption of power supply for SI unit operation: 0.1 A max.  
 Ambient temperature for operation: -10 to 50 °C  
 Ambient temperature for storage: -20 to 60 °C

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

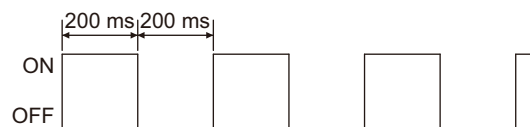
**9 Outline Dimensions**

Technical documentation giving detailed outline dimensions can be found on the SMC website (URL <http://www.smcworld.com>).

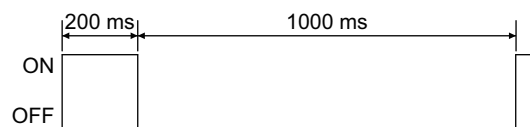
**10 Accessories**

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

\*1: Blinking pattern



\*2: Single flash pattern



\*3: Flickering pattern

**11 Contacts**

AUSTRIA	(43) 2262 62280-0	LATVIA	(371) 781 77 00
BELGIUM	(32) 3 355 1464	LITHUANIA	(370) 5 264 8126
BULGARIA	(359) 2 974 4492	NETHERLANDS	(31) 20 531 8888
CZECH REP.	(420) 541 424 611	NORWAY	(47) 67 12 90 20
DENMARK	(45) 7025 2900	POLAND	(48) 22 211 9600
ESTONIA	(372) 651 0370	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	ROMANIA	(40) 21 320 5111
FRANCE	(33) 1 6476 1000	SLOVAKIA	(421) 2 444 56725
GERMANY	(49) 6103 4020	SLOVENIA	(386) 73 885 412
GREECE	(30) 210 271 7265	SPAIN	(34) 945 184 100
HUNGARY	(36) 23 511 390	SWEDEN	(46) 8 603 1200
IRELAND	(353) 1 403 9000	SWITZERLAND	(41) 52 396 3131
ITALY	(39) 02 92711	UNITED KINGDOM	(44) 1908 563888

**SMC Corporation**

URL <http://www.smcworld.com> (Global) <http://www.smceu.com> (Europe)

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