



Installation & Maintenance Manual

Fieldbus device (SI unit)

EX260 Series for EtherCAT



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.

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.

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.

Fire or an explosion can result.

This product is not designed to be explosion proof.

- 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.

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.

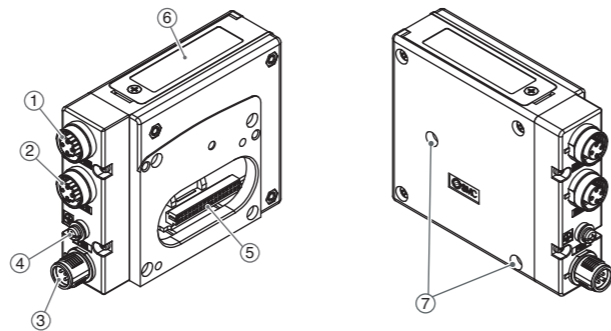
Individual grounding should be provided close to the product with a short cable.

NOTE

- When conformity to UL is necessary the SI unit must be used with a UL 1310 Class2 power supply.

Summary of Product element

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



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. M3x30 screw for connection to the valve manifold
Seal cap	1 pc. seal cap for unused fieldbus interface connector (BUS OUT)

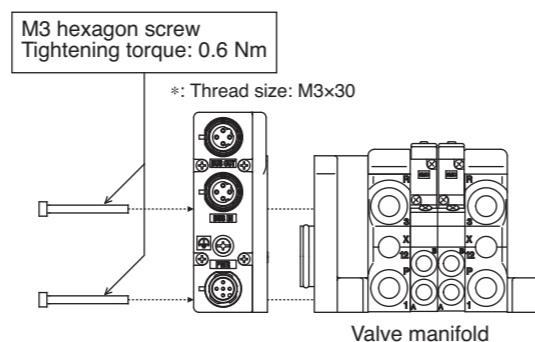
Installation

General instructions on installation and maintenance

Connect valve manifold to the SI unit.

Connectable valve manifolds are the same as for EX250 series SI unit. Refer to the EX250 series valve manifold section in the valve catalogue for valve manifold dimensions.

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.

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.

Setting

Configuration

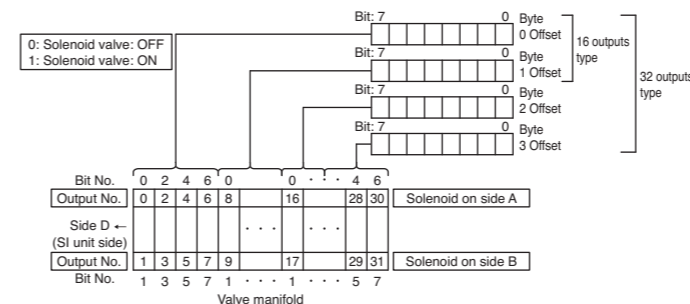
Auto-increment addressing can be used to address each slave device according to its physical position in the communication ring, and does not require local address setting.

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 (<http://www.smcworld.com>).

Output number assignment

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

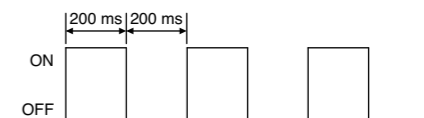


LED indication

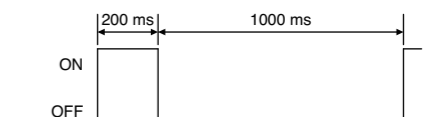


LED	Status	Description
RUN	<input type="checkbox"/> OFF	INIT
	<input checked="" type="checkbox"/> Green blinking *1	PRE-OPERATIONAL
	<input checked="" type="checkbox"/> Green single flash *2	SAFE-OPERATIONAL
	<input checked="" type="checkbox"/> Green flickering *3	BOOTSTRAP
L/A IN	<input type="checkbox"/>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

*1: Blinking pattern



*2: Single flash pattern



*3: Flickering pattern



Troubleshooting

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

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
 Pollution degree 2: (UL508)

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

Outline Dimensions

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

Accessories

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

Contacts

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SMC Corporation

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

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