

Fieldbus device Operation Manual



EX260 Series for EtherCAT

Thank you for purchasing an SMC EX260 Series Fieldbus device (Hereinafter referred to as "SI unit"). Please read this manual carefully before operating the product and make sure you understand its capabilities and limitations. Please keep this manual handy for future reference.

To obtain more detailed information about operating this product, please refer to the SMC website (URL <http://www.smcworld.com>) or contact SMC directly.

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), Japan Industrial Standards (JIS) and other safety regulations.

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.

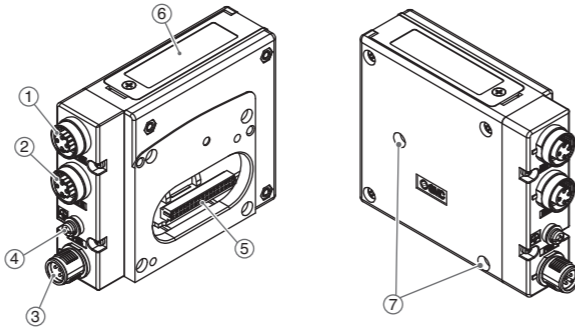
Danger: DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

Operator

- This operation manual is intended for those who have knowledge of machinery using pneumatic equipment, and have sufficient knowledge of assembly, operation and maintenance of such equipment. Only those persons are allowed to perform assembly, operation and maintenance.
- Read and understand this operation manual carefully before assembling, operating or providing maintenance to the product.

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

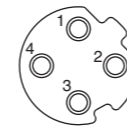
Accessories

Hexagon socket head cap screw	2pcs. M3x30 screw for connection to the valve manifold
Seal cap	1pc. seal cap for unused fieldbus interface connector (BUS OUT)

Connecting cables

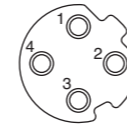
Select the appropriate cables to fit with the connectors mounted on the SI unit.

Fieldbus interface connector layout



BUS OUT: M12 4-pole Socket D-coded

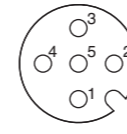
No.	Designation	Description
1	TD+	Transmission Data +
2	RD+	Receiving Data +
3	TD-	Transmission Data -
4	RD-	Receiving Data -



BUS IN: M12 4-pole Socket D-coded

No.	Designation	Description
1	TD+	Transmission Data +
2	RD+	Receiving Data +
3	TD-	Transmission Data -
4	RD-	Receiving 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

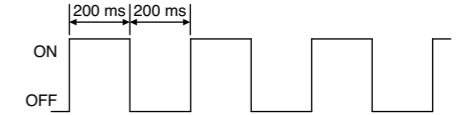
Connect the ground terminal to the ground. Resistance to ground should be 100 ohms or less.

LED indication

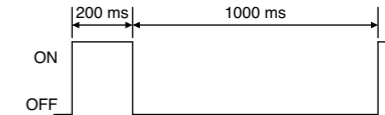


LED	Status	Description
RUN	<input type="checkbox"/> OFF	INIT
	<input checked="" type="checkbox"/> Green blinking *1	PRE-OPERATIONAL
	<input checked="" type="checkbox"/> Green single flash **	SAFE-OPERATIONAL
	<input checked="" type="checkbox"/> Green flickering **	BOOTSTRAP
L/A IN	<input checked="" type="checkbox"/>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

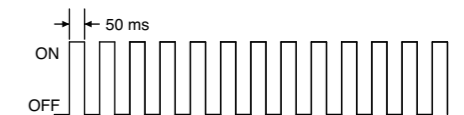
*1: Blinking pattern



*2: Single flash pattern



*3: Flickering pattern



Safety Instructions

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

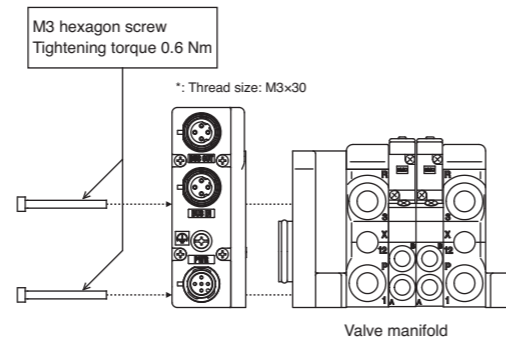
- When conformity to UL is necessary the SI unit must be used with a UL 1310 Class2 power supply.

Installation

General instructions on installation and maintenance

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

Assembly and disassembly of the SI unit



Replacement of the SI unit

- Remove the M3 hexagon screw 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 screw 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.

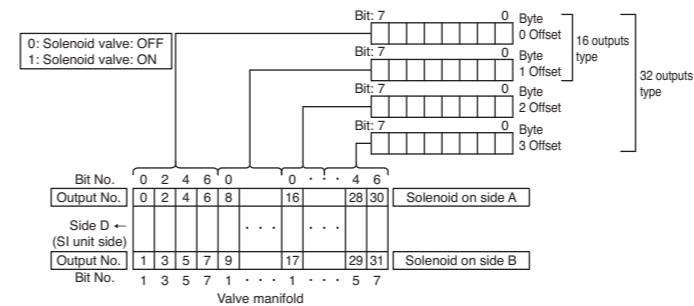
Setting

Configuration

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

Output number assignment

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



Troubleshooting

The technical document states detail 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)

The technical document states detail specification information can be found on the SMC website (URL <http://www.smcworld.com>)

Outline Dimensions

The technical document states detail outline dimensions information can be found on the SMC website (URL <http://www.smcworld.com>)

Accessories

The technical document states detail accessories information can be found on the SMC website (URL <http://www.smcworld.com>)

SMC Corporation URL <http://www.smcworld.com>

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