



Installation & Maintenance Manual

Fieldbus device (SI unit)

EX260 Series for PROFINET



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 by label 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

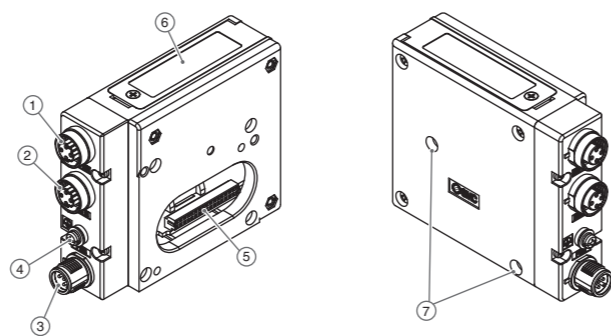
- **After maintenance is complete, perform appropriate functional inspections.**
Stop operation if the equipment does not function properly.
Safety cannot be assured in the case of unexpected malfunction.
- **Provide grounding to assure the safety and noise resistance of the Fieldbus system.**
Individual 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 UL1310 Class2 power supply.

Summary of Product element

<EX260-SPN1/-SPN2/-SPN3/-SPN4>



No.	Element	Description
1	Fieldbus interface connector (BUS OUT)	PROFINET connection PORT 2 (M12 4-pin socket, D-coded)
2	Fieldbus interface connector (BUS IN)	PROFINET connection PORT 1 (M12 4-pin socket, D-coded)
3	Power supply connector	Power supply with load voltage for valves and operating voltage for SI unit (M12 5-pin 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

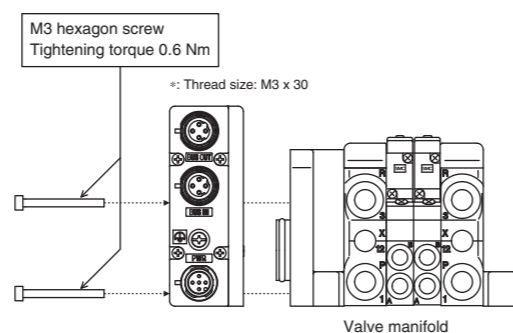
Hexagon socket head cap screw	2 pcs. M3x30 screw for connection to the valve manifold
Seal cap	1 pc. seal cap for unused fieldbus interface connector (BUS OUT)

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 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.

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-pin 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-pin 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-pin 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

In order to configure the SI unit for the PROFINET network, the appropriate device master file (GSD file) for the SI unit will be required.

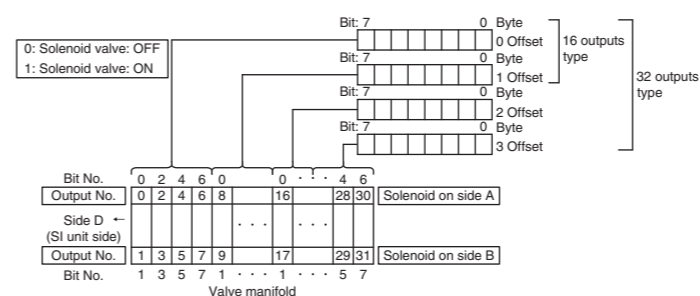
Technical documentation giving detailed configuration information and the GSD file can be found on the SMC website (URL <http://www.smcworld.com>).

GSD file

	Model number	GSD file
1	EX260-SPN1/SPN2	GSDML-V2.2-SMC-EX260-
2	EX260-SPN3/SPN4	20110326.xml

Output number assignment

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



Diagnostic information

When the load voltage for the valve is 19 V or less, the SI unit will send an error message to the master as diagnostic information, and the SF LED will turn ON.

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

LED indication



LED	Status	Description
SF	<input type="checkbox"/> OFF	Operating normally
	<input checked="" type="checkbox"/> Red ON	SI unit-related diagnostic error is detected (load power for the valve is not supplied or outside tolerance range).
BF	<input type="checkbox"/> OFF	Operating normally
	<input checked="" type="checkbox"/> Red ON	<ul style="list-style-type: none"> • SI unit cannot detect a transmission rate and the connection to the PN master has failed. • The configuration data sent from the PN master to the SI unit does not agree with the SI unit configuration. • IP address/device name duplicated
L/A1	<input checked="" type="checkbox"/> Green ON	BUS IN side: Link
	<input type="checkbox"/> Green OFF	BUS IN side: No Link
	<input checked="" type="checkbox"/> Yellow flashing	BUS IN side: Activity
L/A2	<input type="checkbox"/> Yellow OFF	BUS IN side: No Activity
	<input checked="" type="checkbox"/> Green ON	BUS OUT side: Link
	<input type="checkbox"/> Green OFF	BUS OUT side: No Link
PWR	<input checked="" type="checkbox"/> Yellow flashing	BUS OUT side: Activity
	<input type="checkbox"/> Yellow OFF	BUS OUT side: No Activity
	<input checked="" type="checkbox"/> Green ON	SI unit operating voltage is supplied.
PWR(V)	<input type="checkbox"/> OFF	SI unit operating voltage is not supplied.
	<input checked="" 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 is outside the tolerance range (19 V or less)
	<input checked="" type="checkbox"/> Green ON	Load voltage for the valve is supplied.

Troubleshooting

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

Specifications / Outline Dimensions / Accessories

Connected load: 24 VDC Solenoid valve with surge voltage suppressor of 1.0 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 3: (UL508)

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

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SMC Corporation

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

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