



Installation & Maintenance Manual
Fieldbus device (SI unit)
EX150-SDN1-X219



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.

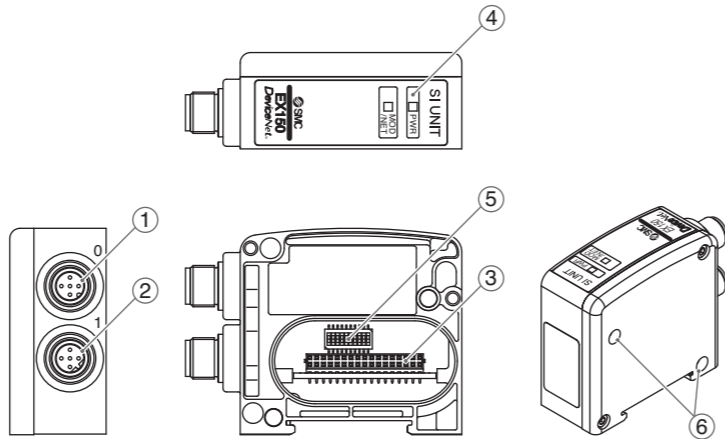
Caution

- 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



No.	Element	Description
1	Fieldbus interface connector	DeviceNet™ connection (M12 5-pin plug, A-coded)
2	Power supply connector	Power supply with load voltage for valves (M12 5-pin plug, B-coded)
3	Output connector	Output signal interface for valve manifold
4	LED indication	Bus status-specific and SI unit-specific LEDs
5	Switch	Switches for setting of node address and operating mode
6	Mounting hole	Mounting hole for connection to the valve manifold

Accessories

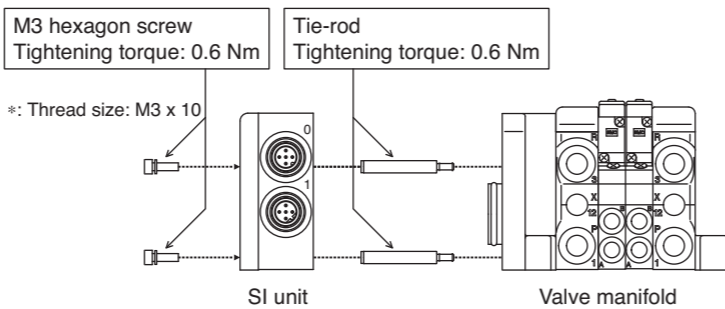
Tie-rod	2 pcs. M3 x 10 screw for connection to the valve manifold
Hexagon socket head cap screw	

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. (There is no need to remove the tie rod.)
 - 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**

The bus connector layout for DeviceNet™ is as follows.

M12 5-pin plug, A-coded

No.	Designation	Contact layout
1	DRAIN	
2	V+	
3	V-	
4	CAN_H	
5	CAN_L	

○ **Power supply connector layout**

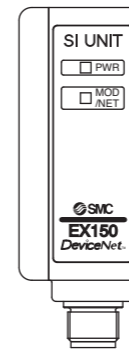
The power supply connector for the solenoid valve voltage is as follows.

M12 5-pin plug, B-coded

No.	Designation	Description
1	+24 VDC for solenoid valve	
2	0 V for solenoid valve	
3	Unused	
4	Unused	
5	FG	

Power-supply line for solenoid valve and power-supply line for SI unit operation are isolated. Be sure to supply power, respectively. Either single-source power or two different power supplies can be used.

LED indication



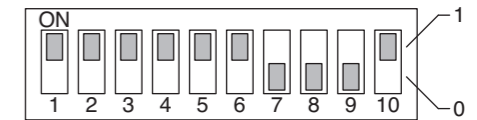
LED	Description
PWR	Turns ON in green when network power is supplied. Turns OFF when network power is not supplied.
MOD/NET	Combined SI unit and network status. (See the table below for details.)

MOD/NET status	Description
Green on	On-line status, The device has connections in the established status.
Off	Off-line status, The device has not completed the Dup_MAC ID test yet. No network power present.
Green flashing	On-line status, The device has no connections in the established status.
Red flashing	I/O connection is in the Timed-Out state. The device has a recoverable fault.
Red	Bus-off status, Duplicate MAC ID. The device has an unrecoverable fault.

Setting

○ **Switch setting**

Set the DeviceNet™ node address (MAC ID), DeviceNet™ communication speed and fail safe mode, i.e. reaction of outputs to the communication error, of the SI unit using the 10-element switch.



- Address setting (switch No.1 to 6)
 The DeviceNet™ address (MAC ID) is binary coded and can be set from 0 to 63.
 *: Factory default setting is 63.

0: OFF 1: ON

Switch No.	No.1	No.2	No.3	No.4	No.5	No.6	
MAC ID	0	1	2	4	8	16	32
	1	1	0	0	0	0	0
	2	0	1	0	0	0	0
	:	:	:	:	:	:	:
	62	0	1	1	1	1	1
	63	1	1	1	1	1	1

- Communication speed setting (switch No.7 to 8)
 The DeviceNet™ communication speed is binary coded and can be set to 125 kbps, 250 kbps and 500 kbps.
 *: Factory default setting is 125 kbps.

0: OFF 1: ON

Switch No.	No.7	No.8	
Communication speed	125 kbps	0	0
	250 kbps	1	0
	500 kbps	0	1
	-	1	1

- HOLD/CLEAR setting (switch No.9)
 Set the reaction of outputs to the communication error. (All outputs will be set under the same conditions)
 *: Factory default setting is CLEAR.

0: OFF 1: ON

Switch No.	No.9	Description
HOLD/CLEAR	CLEAR	0 Clear all outputs.
	HOLD	1 Hold the last state before communication error.

*: Each output can be set individually over the network.

- HW/SW mode setting (switch No.10)
 Modifications to the address and speed can be made locally or over the network.
 Local setting: Hardware mode (referred to as "HW mode")
 Network setting: Software mode (referred to as "SW mode")
 *: Factory default setting is "SW mode".

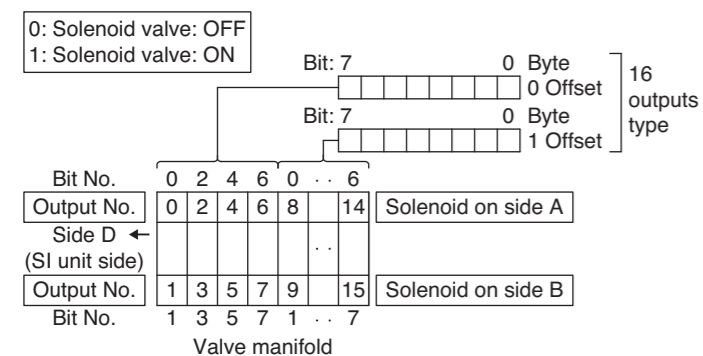
0: OFF 1: ON

Switch No.	No.10	Description
HW/SW	HW	0 Set the address and speed locally using the SI unit switches.
	SW	1 Set the address and speed over the DeviceNet™ network. (Switch setting is invalid)

Setting (Continued)

○ Output number assignment

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



Troubleshooting

Refer to the operation manual for this product.

Specifications / Outline Dimensions / Accessories

Connected load: 24 VDC Solenoid valve with 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 3: (UL508)

Technical documentation giving detailed specifications, outline dimensions and accessories information can be found in the operation manual for this product.

Contacts

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