



Installation & Maintenance Manual

Fieldbus system - SI unit

Type EX180 Series for CC-Link

EX180-SMJ3□/SMJ5□



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) 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.

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

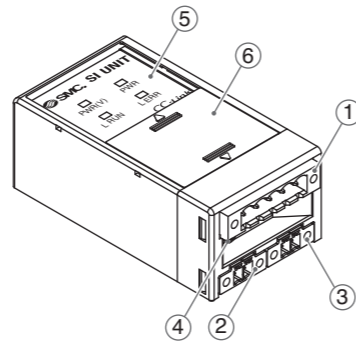
- **After maintenance is complete, perform appropriate functional inspections.**
Stop operation if the equipment does not function properly.
Safety cannot be assured in the case of unexpected malfunction.
- **Provide grounding to assure the safety and noise resistance of the Fieldbus system.**
Individual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

NOTE

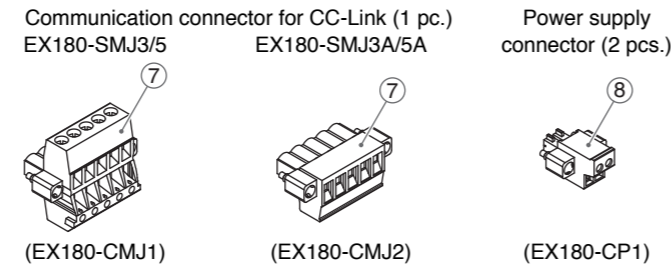
- When conformity to UL is necessary the SI unit must be used with a UL 1310 Class2 power supply.

Summary of Product Parts

<EX180-SMJ3□/SMJ5□>



<Accessories>



No.	Item	Description
1	Fieldbus interface connector (BUS)	The connector for the CC-Link bus line (⑦).
2	Power supply connector (PWR(V))	The connector for the power supply (⑧) used to supply the power for the solenoid valves.
3	Power supply connector (PWR)	The connector for the power supply (⑧) used to supply the power for the SI unit.
4	FG terminal	Functional Earth.
5	Display	LED diagnostic display.
6	Setting switches	Switches to set the host stations and communication speed (inside the cover).

Installation

General Instructions on Installation

Applicable valve series

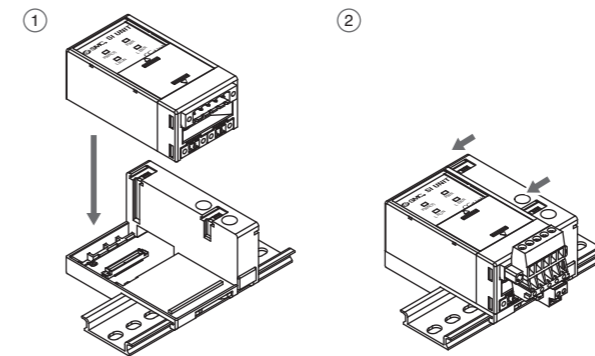
The EX180 series SI unit can be mounted on the following valve manifolds.

SJ2000/3000, S0700 series

*: Refer to the catalogues and operation manuals for details of the solenoid valves and manifolds.

How to mount the manifold

1. Mount the SI unit to the manifold so that the mounting guide of the SI unit case mates with the manifold groove.
2. Secure the SI unit using the two sliding locks.



Wiring

1. Wiring for communication

Wiring of the CC-Link communication cable and connector is shown below.

- (1) Connect the signal wires to the assigned pins. (Figure 1)
The required tightening torque is 0.5 to 0.6 Nm.

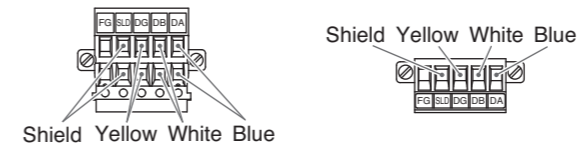


Figure 1

- (2) A bus termination is required at both ends of the CC-Link bus segment as shown in Figure 2.

The cable used should be the CC-Link-dedicated cable.

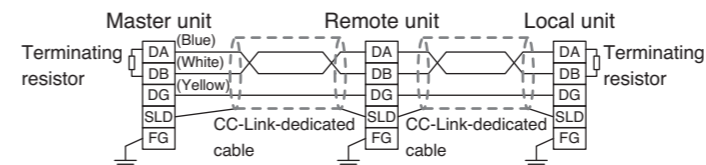


Figure 2

Installation (Continued)

- (3) The terminating resistance to be connected to the CC-Link network depends on the type of cables used. (Refer to the table below. Figure 3)

Type of cable	Terminating resistor	
CC-Link-dedicated cable	110 Ω	Internal terminating resistor 110 Ω (DIP SW2-No.2) ON
CC-Link-dedicated cable compatible to Ver.1.10	0.5 W	
CC-Link-dedicated high-performance cable	130 Ω	0.5 W

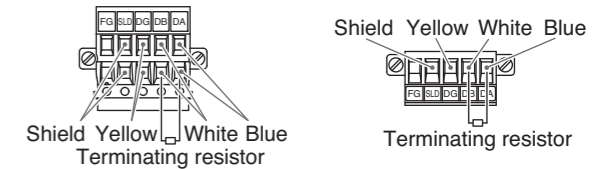


Figure 3

An internal terminating resistor is provided inside each CC-Link module.

Do not connect an external terminating resistor when the setting switch for the internal terminating resistor is ON.

- (4) How to connect.

- **Note**
Connect the shield wire for the CC-Link cable to the "SLD" terminal of each unit.

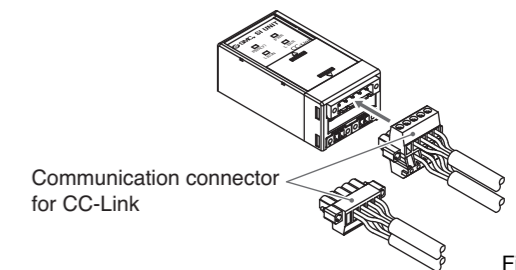


Figure 4

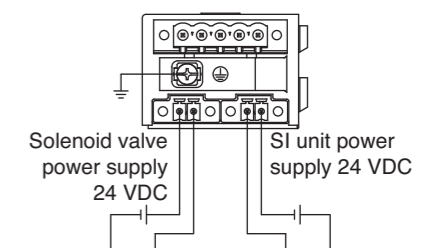
2. Wiring of the power supply

Connect the power supply to the power supply connector (2 pcs.). The EX180 power supply structure consists of two supplies. These supplies can be operated using a single or dual power supply system.

Connect the wires to the assigned pins. (Figure 5, Figure 6)
The required tightening torque is 0.22 to 0.25 Nm.

- **Note**
Connect the FG terminal to ground with a ground resistance of 100 Ω or less.

A. Dual power supplies



Installation (Continued)

B. Single power supply

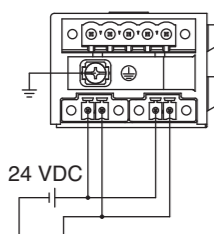


Figure 5

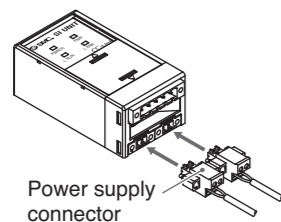
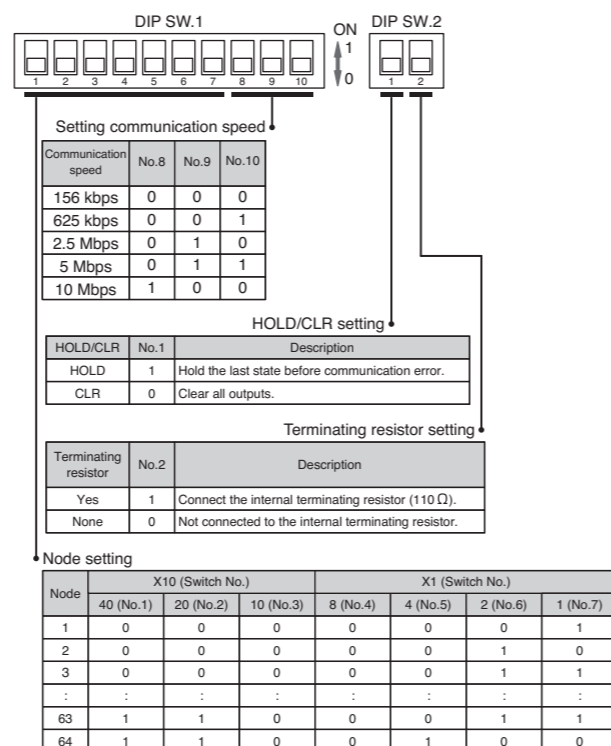


Figure 6

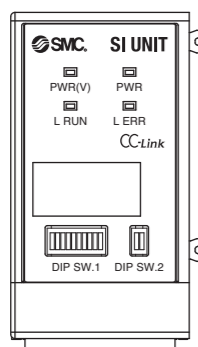
Setting

Setting of the DIP switches should only be carried out with the power supply turned off.

Open the cover and set the DIP switches with a small flat blade screwdriver.



LED Display



LED	Description	LED status
PWR(V)	Solenoid valve power supply is supplied at the specified voltage	ON
	Solenoid valve power supply is not supplied at the specified voltage	OFF
PWR	SI unit power supply is supplied within the specified range	ON
	SI unit power supply is not connected or is outside the specified range	OFF
L RUN	Normal communication	ON
	Communication terminated (time out error)	OFF
L ERR	Communication error	ON
	Address or communication speed changed during operation	Flashing
	Normal communication	OFF

Troubleshooting

Refer to the SMC website (URL <http://www.smcworld.com>) for more information about troubleshooting.

Specification

Connected load: 24 VDC Solenoid valve with light and surge voltage suppressor of 1 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)

Refer to the SMC website (URL <http://www.smcworld.com>) for more information about the product specifications.

Outline Dimensions

Refer to the SMC website (URL <http://www.smcworld.com>) for more information about outline dimensions.

Contacts

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SMC Corporation

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

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