



# Instruction Manual

EX180-SMJ1 □



Thank you for purchasing the SMC reduced wiring system EX180 series.  
Please read this instruction manual carefully and understand the contents before use so that you operate the unit safely and correctly.  
Please keep this manual handy for future reference.

## SMC Corporation

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

### WARNING

Do not disassemble, modify (including change of printed circuit board) or repair.

An injury or failure can result.

Do not operate beyond specification range.

Fire, malfunction or damage can result.

Only use the unit after confirming the specification.

Do not use the product in the environment with possible presence of flammable, explosive or corrosive gas with the product.

Fire, explosion or corrosion can result. This unit does not have an explosion proof construction.

These instructions must be followed when using the product in an interlocking circuit:

• Provide double interlocking by another system such as mechanical protection

• Check the product regularly to ensure proper operation

Otherwise a malfunction can cause an accident.

These instructions must be followed while carrying out maintenance work:

• Turn off the power supply

• Stop the supplied air, exhaust the residual pressure and verify the release of air before performing maintenance

Otherwise it can cause injury.

### CAUTION

Perform a performance inspection after completing the maintenance check.

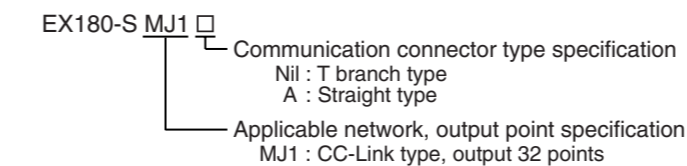
Please do not use if there is any error.

There is a possibility that safety cannot be secured due to the unintentional malfunction.

### Safety Instructions (continue)

- Do not lay wires or cables with power cable or high-voltage cable in the same wiring route.
- Verify the insulation of wiring.
- Take proper measurements against noise such as noise filter when the unit is incorporated in equipment or devices.
- Select the proper type of protection according to the environment of operation.
- Take sufficient shielding measures when installing at a following place.
  - A place where noise due to static electricity is generated
  - A place where electric field strength is high
  - A place where there is radioactive irradiation
  - A place near power line
- Do not use the unit close to a place where electric surges are generated.
- Use surge absorber built-in type unit when a surge-generating load such as a solenoid valve is driven directly.
- Prevent foreign matter such as remnant of wires from entering this product.
- Do not expose the unit to vibration and impact.
- Keep the specified ambient temperature range.
- Do not expose the unit to heat radiation from a heat source located nearby.
- Use a precision screwdriver with small flat blade when setting DIP switch.
- Close the cover to DIP switch side during power being supplied.
- Perform maintenance and check regularly.
- Perform a proper functional check.
- Do not clean the product with chemicals such as benzene and thinner.

### Model Indication Method



### Display/Switch Setting

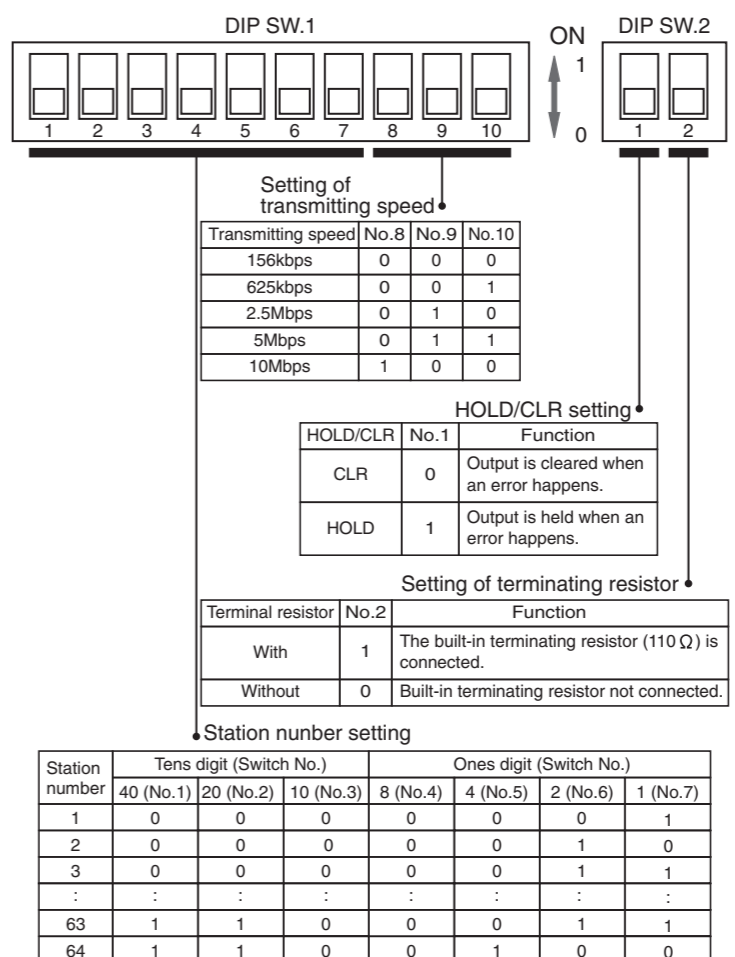
#### Setting for display

Display	Meaning
PWR (V)	The solenoid valve power supply is supplied with specified voltage : Lights up The solenoid valve power supply is not supplied with specified voltage : Goes off
PWR	Power supply for the SI unit is supplied : Lights up Power supply for the SI unit is not supplied : Goes off
L RUN	Normally communicating : Lights up Communicating intercepted : Goes off
L ERR	Communication error : Lights up Setting of station number setting/transmitting speed setting switch is changed during powered : Lights up (Blink with 0.4s interval) Normally communicating : Goes off

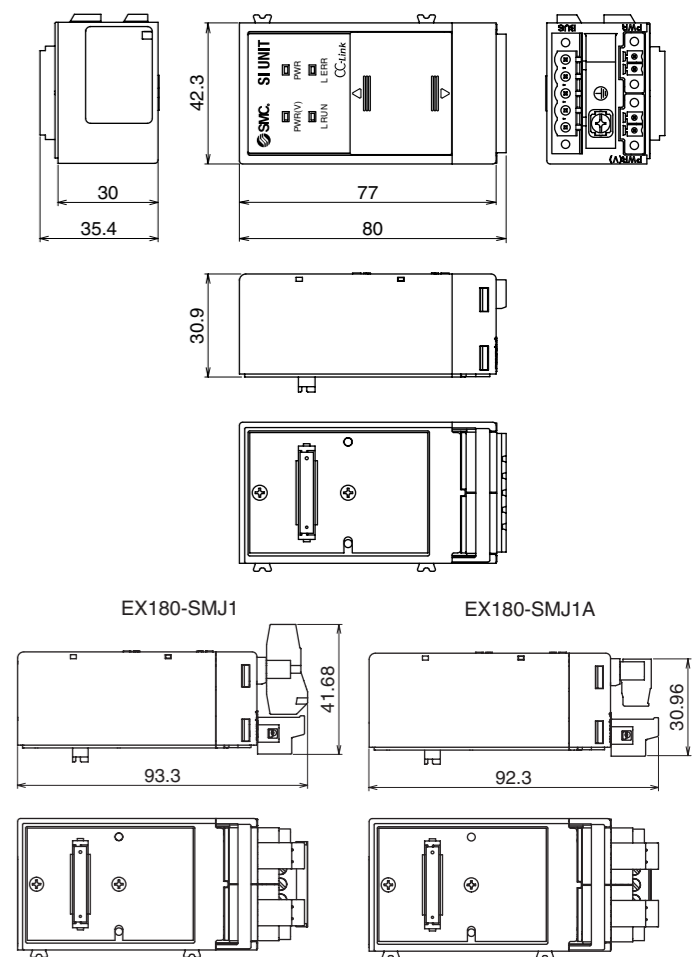
#### Switch setting

- Make sure that switch setting is done with power supply turned off.
- Open the cover, and use a precision screwdriver with small flat blade when setting DIP switch, etc.

### Display/Switch Setting (continue)



### Dimension (in mm)



### Safety Instructions

This manual contains essential information for the protection of users and others from possible injury and property damage. To ensure correct handling, please follow the instructions.  
Please check that you fully understand the meaning of the following messages (signs) before going on to read the text, and always follow the instructions.  
Please read the operation manuals of related apparatus and understand it before operating the unit.

IMPORTANT MESSAGES	
Read this manual and follow its instructions. Titles such as WARNING, CAUTION and NOTE, will be followed by important safety information which must be carefully followed.	
<b>WARNING</b>	Indicates a potentially hazardous situation which could result in death or serious injury if you do not follow instructions.
<b>CAUTION</b>	Indicates a potentially hazardous situation which if not avoided, may result in minor injury or moderate injury.
<b>NOTE</b>	Gives you helpful information.

### Provide grounding for correct operation and improved noise resistance of the unit.

The unit should be individually grounded with a short cable.

#### Note

The direct-current power supply should be a UL approved power supply.

1. Limited voltage current circuit in accordance with UL508.

A circuit which power is supplied by the secondary coil of a transformer that meets the following conditions.

- Maximum voltage (with no load): less than 30Vrms (42.4V peak)
- Maximum current : (1) less than 8A (including when short circuited) (2) limited by circuit protector (such as fuse) with the following ratings.

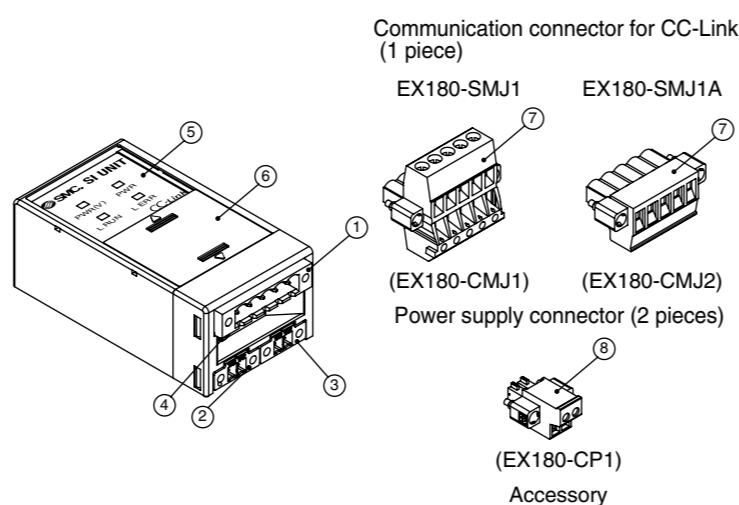
No load voltage (V peak)	Max. current rating (A)
0 to 20 [V]	5.0
Above 20 to 30 [V]	100/peak voltage

2. A circuit using max. 30 Vrms or less (Class-2 circuit), which power is supplied by Class-2 power supply unit in accordance with UL1310 or Class-2 power supply unit in accordance with UL1585.

Follow the instructions given below when handling the unit.

- Failure to follow instructions may damage the unit.
- Operate the unit within the specified voltage range.
- Leave space around the unit for maintenance.
- Do not remove labels.
- Do not drop, hit or apply excessive shock to the unit.
- Follow the specified tightening torque.
- Do not bend or apply tensile force to cables, or apply force by placing heavy load on them.
- Connect wires and cables correctly.
- Do not connect wires while the power is on.

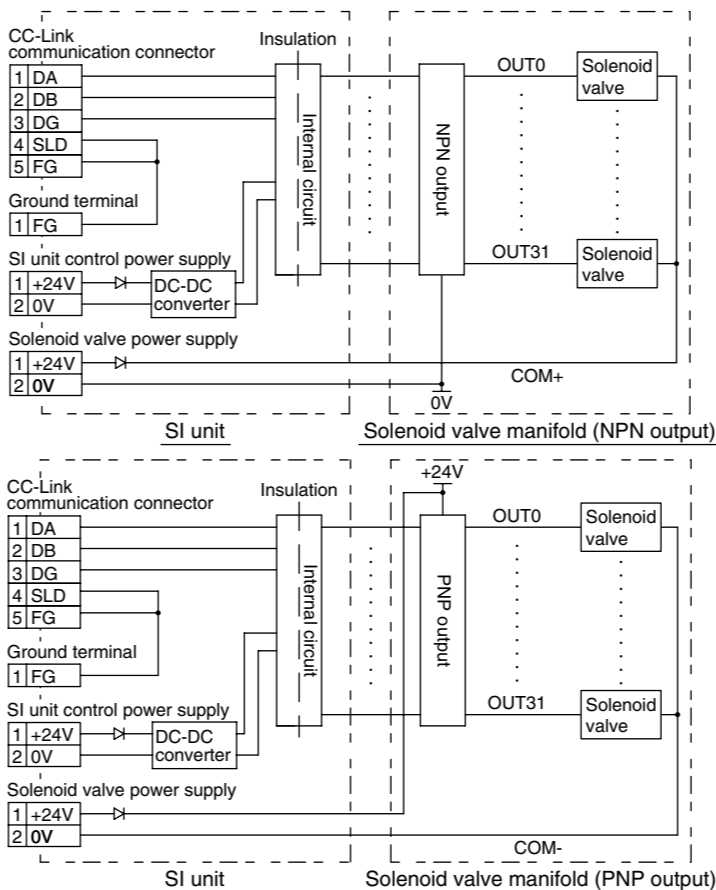
### Name of Parts/Accessory



No.	Parts	Purpose
1	Communication socket (BUS)	Connect to CC-Link line with an accessory socket connector for CC-Link (⑦).
2	Power supply socket (PWR(V))	Supply the power for solenoid valve with an accessory connector (⑧).
3	Power supply socket (PWR)	Supply power for SI unit control with an accessory connector (⑧).
4	FG terminal	Used for functional ground.
5	Display	The status of the unit is indicated with LED.
6	Setting switch area	The station number and transmission speed are set.

### Wiring

#### Internal circuit

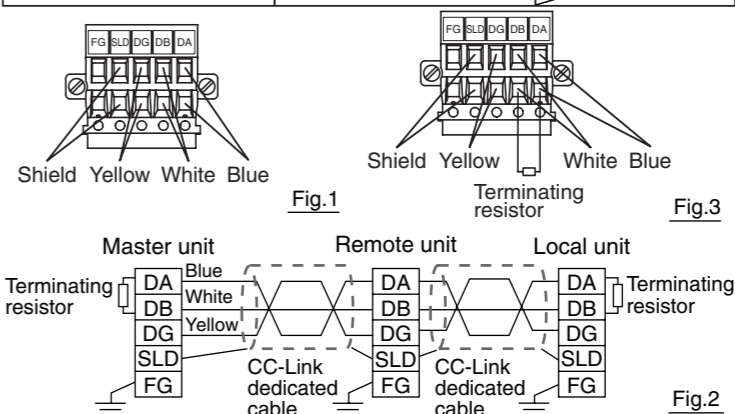


#### Communication wiring

The method to connect CC-Link dedicated cable to the communication connector of SI unit for CC-Link is shown on the following table.

- Make sure to connect the signal cables to designated pins. (Refer to Fig.1) Tighten properly with 0.5 to 0.6[N·m] of tightening torque.
- Make sure to connect a "Terminating resistor" between "DA" and "DB" of the unit at both ends of CC-Link system. (Refer to Fig.2) For CC-Link detected cable, use the cable with same specifications as it. When the cable of another specification mixed, the normal data transmission is not guaranteed.
- The terminating resistor to connect differs depending on a cable to use at CC-Link system. (Refer to the following table and Fig.3)

Cable type	Terminating resistor	
CC-Link detected cable	110Ω 1/2W (Brown, Brown, Brown)	Built-in terminating resistor (SW2-No.2) ON
CC-Link dedicated cable compatible to Ver.1.10		
CC-Link dedicated high performance cable	130Ω 1/2W (Brown, Orange, Brown)	



- Refer to Fig.4 about how to connect to the unit.
- Note
- Connect the shield line of CC-Link dedicated cable to "SLD" of each unit.

#### Power supply wiring

Connect power supply wiring to the power supply connector (2pcs) which are delivered as accessory of the SI unit. Power supply structure consists of 2 systems, but it can be used with both single power supply and dual power supply. Make sure to connect the designated pin. (Refer to Fig.5) Tighten properly with 0.22 to 0.25[N·m] of tightening torque.

Note

D type grounding (Third-type grounding) should be performed for FG terminal. (The connection to SLD and FG terminal is provided inside the unit.)

