No.EX##-OMF0006-B

Operation Manual

Fieldbus system
(SI unit - CC-Link compatible)

PRODUCT NAME

EX250-SMJ2

MODEL/ Series

SMC Corporation

Table of Contents

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)[*1)] and other safety regulations[*2)].

*1) ISO 4414: Pneumatic fluid power - - General rules relating to systems.
ISO 4413: Hydraulic fluid power - - General rules relating to systems.
IEC 60204-1: Safety of machinery - -Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1992: Manipulating industrial robots -Safety.
JIS B 8370: General rules for pneumatic equipment.
JIS B 8361: General rules for hydraulic equipment.
JIS B 9960-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)
JIS B 8433-1993: Manipulating industrial robots - Safety.
etc.

*2) Labor Safety and Sanitation Law, etc.

⚠ **Caution** : Operator error could result in injury or equipment damage.

⚠ **Warning** : Operator error could result in serious injury or loss of life.

⚠ **Danger** : In extreme conditions, there is a possibility of serious injury or loss of life.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.[*3)]
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*3) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

When the product is exported, strictly follow the laws required by the Ministry of Economy, Trade and Industry (Foreign Exchange and Foreign Trade Control Law).

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.

⚠ 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 SI unit.
Individual grounding should be provided close to the product with a short cable.

NOTE

●Follow the instructions given below when designing, selecting and handling the product.

■The instructions on design and selection (installation, wiring, environment, adjustment, operation, maintenance, etc.) described below must also be followed.

♦Product specifications

•The direct current power supply to combine should be UL approved as follows.

(1)Limited voltage current circuit in accordance with UL508

A circuit which power is supplied by 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)Circuit (of class 2) which is of maximum 30Vrms (42.4V peak) or less, with UL 1310 class 2 power supply unit or UL 1585 class 2 transformer.

•Use the specified voltage.

Otherwise failure or malfunction can result.

•Reserve a space for maintenance.

Allow sufficient space for maintenance when designing the system.

•Do not remove any nameplates or labels.

This can lead to incorrect maintenance, or misreading of the operation manual, which could cause damage or malfunction to the product.

It may also result in non-conformity to safety standards.

■Product handling

♦Installation

•Do not drop, hit or apply excessive shock to the SI unit.

Otherwise damage to the product can result, causing malfunction.

•Tighten to the specified tightening torque.

If the tightening torque is exceeded the mounting screws may be broken.

IP67 protection cannot be guaranteed if the screws are not tightened to the specified torque.

•Never mount a product in a location that will be used as a foothold.

The product may be damaged if excessive force is applied by stepping or climbing onto it.

♦Wiring

•Avoid repeatedly bending or stretching the cables, or placing heavy load on them.

Repetitive bending stress or tensile stress can cause breakage of the cable.

•Wire correctly.

Incorrect wiring can break the product.

•Do not perform wiring while the power is on.

Otherwise damage to the SI unit and/or I/O device can result, causing malfunction.

• Do not route wires and cables together with power or high voltage cables.

Otherwise the SI unit and/or I/O device can malfunction due to interference of noise and surge voltage from power and high voltage cables to the signal line.

Route the wires (piping) of the SI unit and/or I/O device separately from power or high voltage cables.

•Confirm proper insulation of wiring.

Poor insulation (interference from another circuit, poor insulation between terminals, etc.) can lead to excess voltage or current being applied to the product, causing damage.

•Take appropriate measures against noise, such as using a noise filter, when the SI unit is incorporated into equipment.

Otherwise noise can cause malfunction.

♦Environment

•Select the proper type of protection according to the environment of operation.

IP67 protection is achieved when the following conditions are met.

(1) The units are connected properly with fieldbus cable with M12 connector and power cable with M12/M8 connector.

(2) Suitable mounting of each unit and manifold valve.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.

•Do not use in a place where the product could be splashed by oil or chemicals.

If the product is to be used in an environment containing oils or chemicals such as coolant or cleaning solvent, even for a short time, it may be adversely affected (damage, malfunction etc.).

•Do not use the product in an environment where corrosive gases or fluids could be splashed.

Otherwise damage to the product and malfunction can result.

•Do not use in an area where surges are generated.

If there is equipment which generates a large amount of surge (solenoid type lifter, high frequency induction furnace, motor, etc.) close to the SI unit, this may cause deterioration or breakage of the internal circuit of the SI unit. Avoid sources of surge generation and crossed lines.

•When a surge-generating load such as a relay or solenoid is driven directly, use an SI unit with a built-in surge absorbing element.

Direct drive of a load generating surge voltage can damage the SI unit.

•The product is CE marked, but not immune to lightning strikes. Take measures against lightning strikes in the system.

•Prevent foreign matter such as remnant of wires from entering the SI unit to avoid failure and malfunction.

Otherwise failure or malfunction can result.

•Mount the product in a place that is not exposed to vibration or impact.

Otherwise failure or malfunction can result.

•Do not use the product in an environment that is exposed to temperature cycle.

Heat cycles other than ordinary changes in temperature can adversely affect the inside of the product.

•Do not expose the product to direct sunlight.

If using in a location directly exposed to sunlight, shade the product from the sunlight.

Otherwise failure or malfunction can result.

•Keep within the specified ambient temperature range.

Otherwise malfunction can result.

•Do not operate close to a heat source, or in a location exposed to radiant heat.

Otherwise malfunction can result.

♦Adjustment and Operation

•Set the switches by using a sharp-pointed screwdriver etc.

It may damage set switches.

•Perform settings suitable for the operating conditions.

Incorrect setting can cause operation failure.

For details of each setting, refer to page 13 of this manual.

•Please refer to the PLC manufacturer's manual etc. for details of programming and addresses.

For the PLC protocol and programming refer to the relevant manufacturer's documentation.

♦Maintenance

•Turn off the power supply, stop the supplied air, exhaust the residual pressure and verify the release of air before performing maintenance.

There is a risk of unexpected malfunction.

•Perform regular maintenance and inspections.

There is a risk of unexpected malfunction.

•After maintenance is complete, perform appropriate functional inspections.

Stop operation if the equipment does not function properly.

Otherwise safety is not assured due to an unexpected malfunction or incorrect operation.

• Do not use solvents such as benzene, thinner etc. to clean the SI unit.

They could damage the surface of the body and erase the markings on the body.

Use a soft cloth to remove stains.

For heavy stains, use a cloth soaked with diluted neutral detergent and fully squeezed, then wipe up the stains again with a dry cloth.

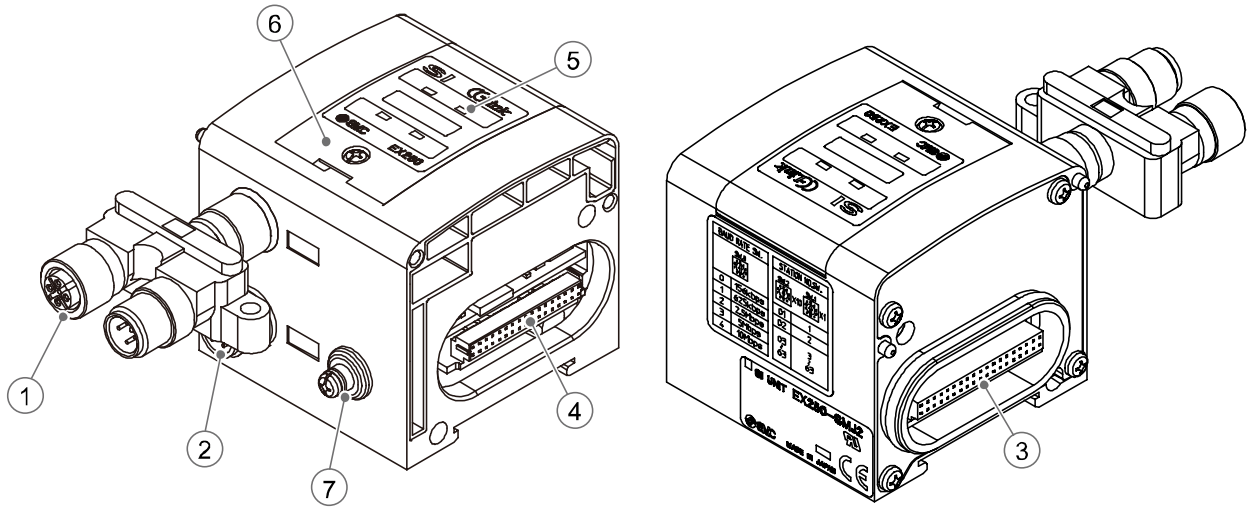
Model Indication and how to order

EX250-SMJ2

Communication protocol

MJ2	CC-Link

Names and Functions of products



No.	Description	Application
1	Communication connector	Connect with CC-Link communication line.*1
2	Power supply connector	Supplies power to the solenoid valve, the Output block, SI unit and the Input block. *1
3	Input block connector	Connects the Input block.
4	Output block connector	Connects the solenoid valve, Output block and etc.
5	Display	LED display shows the SI unit status.*2
6	Switch protective cover	Set Station no. and Baud rate by using the switches under the cover. *2
7	Ground terminal	Used for grounding.

*1: For wiring method, refer to subsection "Wiring" (page 9) in this operation manual.

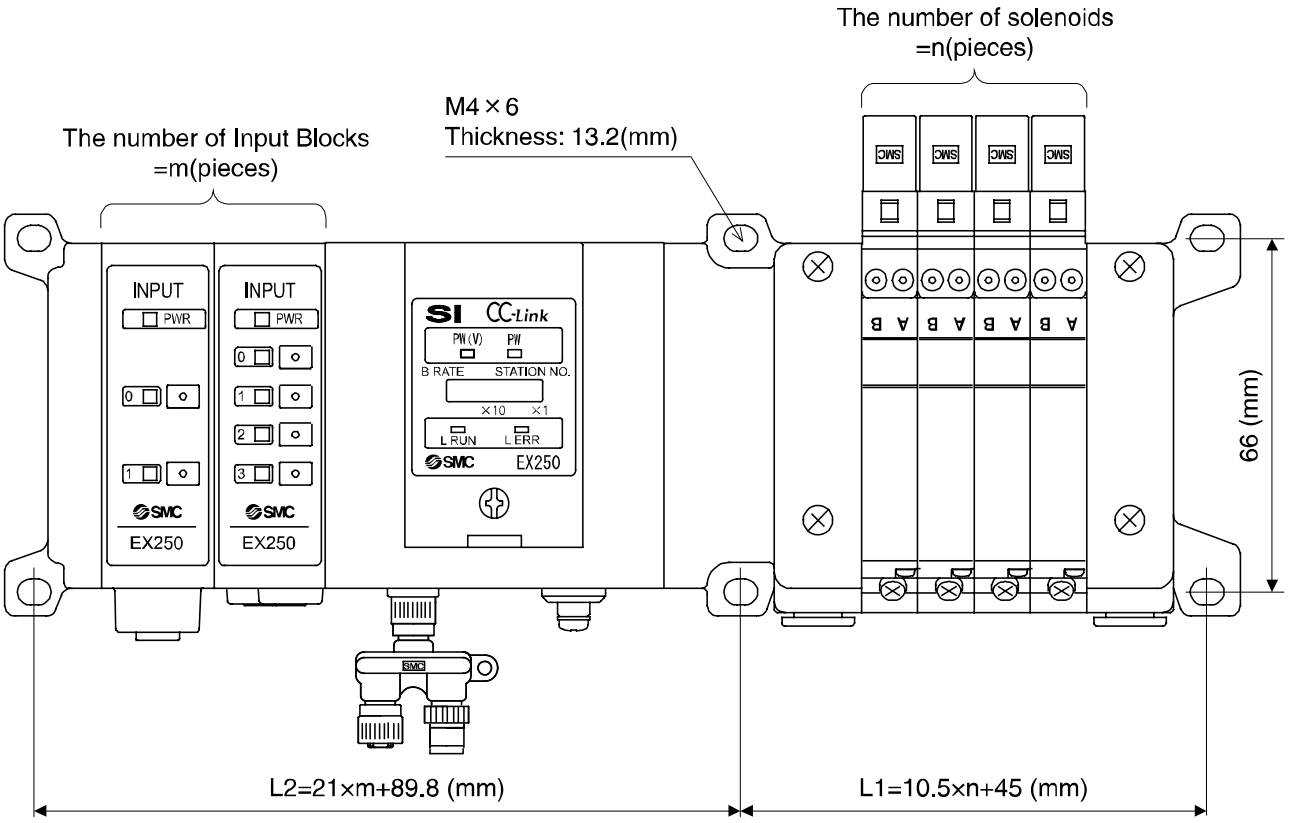
*2: For display and setting method, refer to subsection "Setting" (page 13) in this Technical Specification.

Mounting and Installation

■Installation

Not having mounting hole, it can't be set to BUS independently. Be sure to connect manifold to SI unit for setting.

And if Input block is unnecessary, connect End plate directly to SI unit.



For example, the table below shows the size when manifold of VQC1000 series connected.

Please refer to an individual catalog for the size when other manifolds are connected.

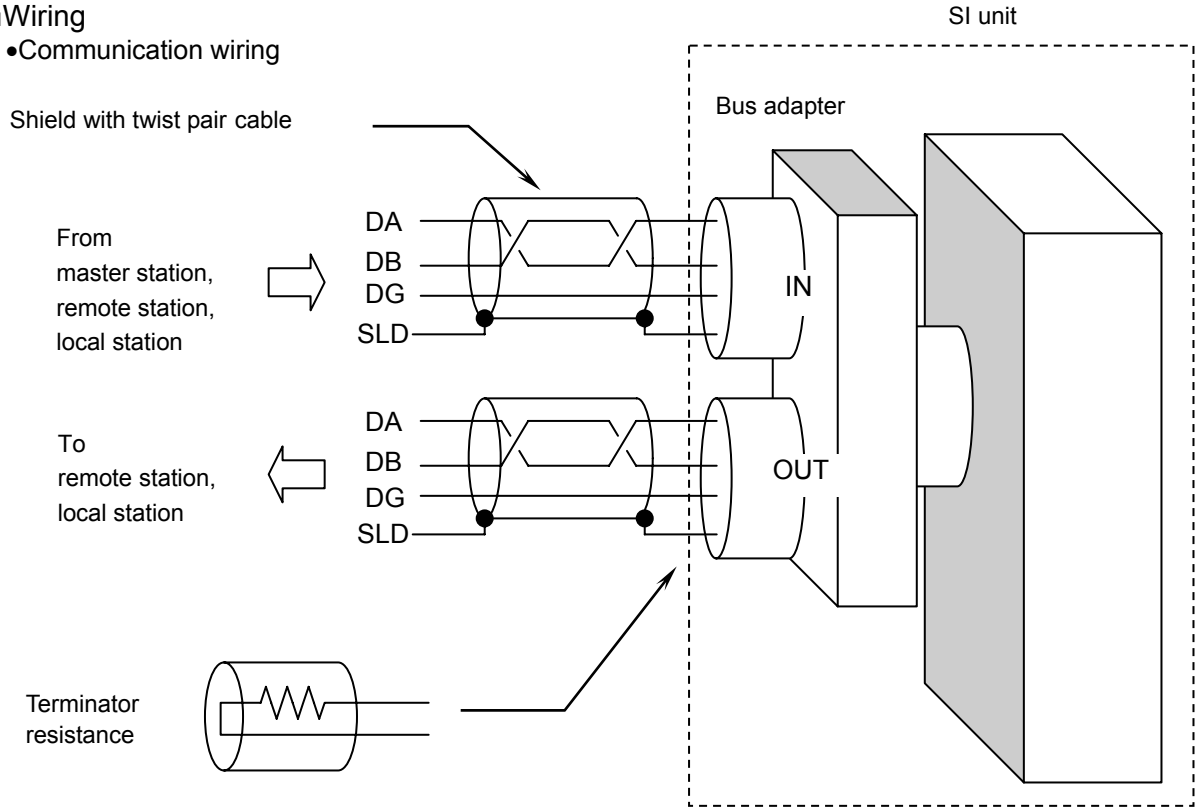
L \ nm	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213
L2	89.8	110.8	131.8	152.8	173.8	194.8	215.8	236.8	257.8	278.8	299.8						

Wiring (for power supply, communication and input) and piping are done on only one side.

On the side, make a space for wiring and piping.

■Wiring

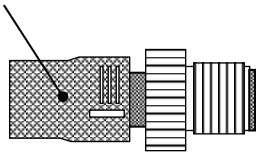
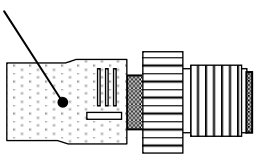
•Communication wiring



Connect the terminal resistance to the end of connection on the network.
Select correct type of terminating resistance which depends on the cable type.

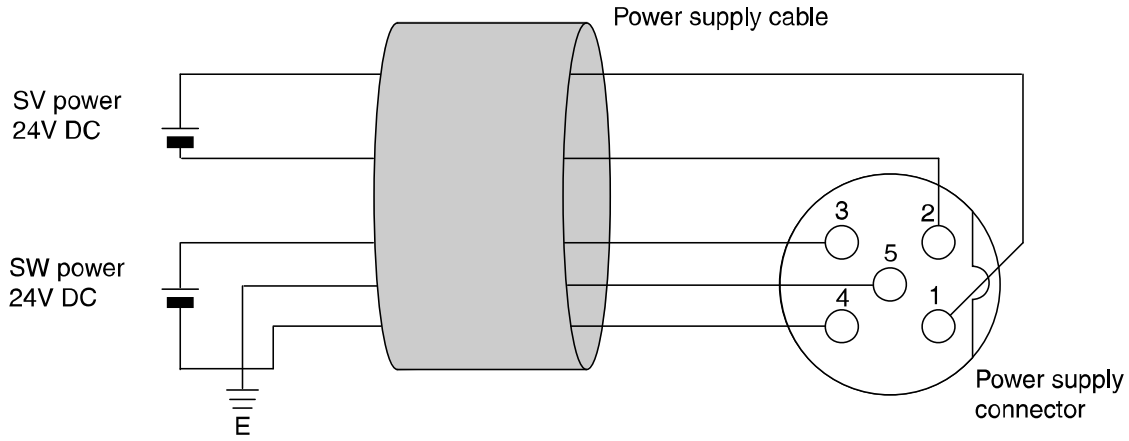
Shield (SLD) is connected to the earth (E) inside of the SI unit.

Terminator resistance and cable

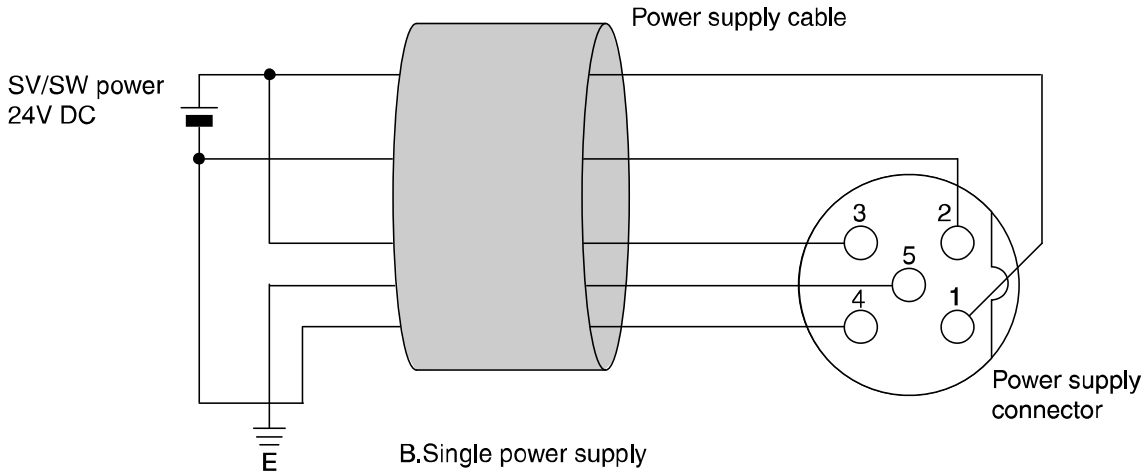
Cable	FANC-SB		FANC-SBH	
Cable with connector	PCA-1567720 (Socket) PCA-1567717(Plug) etc.		Contact each manufacture or CLPA about the communication cable.	
Fieldwirable Connector for communication	PCA-1557620 (Socket) PCA-1557617 (Plug) etc.			
Terminating resistance	110 ohm,1/2 W Black 		130 ohm,1/2 W Gray 	
	Manufacture's model no.	VA-4DCC-110 (CORRENS)	Manufacture's model no.	VA-4DCC-130 (CORRENS)

•Power supply wiring

Power supply line inside the SI unit has individual power supplies for solenoid valve actuation (SV power supply) and for Control parts and Input (SW power supply). Supply 24 VDC for each of them.



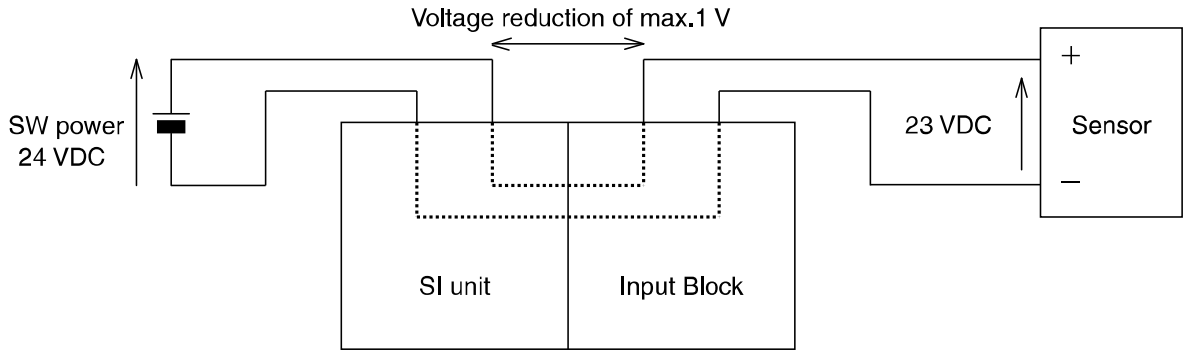
A.Dual power supply



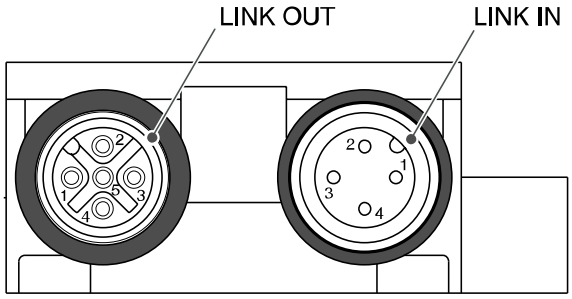
B.Single power supply

*: In case of single power supply, pay attention to the range of each supply voltage.

Power for sensor is supplied to sensor connected with Input block. Select sensor concerning voltage drop up to maximum 1 V inside the unit at this moment.
If sensor requires 24 V, it is necessary to lower power supply voltage for sensor slightly or secure power supply for sensor separately without going through SI unit so that sensor input voltage can be 24 V with actual loading (allowable voltage of power supply: 19.2 V to 28.8 V).



○Communication connector (Bus adapter:EX9-ACY00-MJ)



LINK IN: M12 4pins (male)

Pin No.	Description	Function
1	SLD	Shield
2	DB	Communication wire DB
3	DG	Communication wire DG
4	DA	Communication wire DA

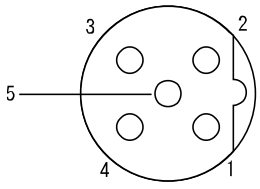
Example of the cable with connector: PCA-1567720(SMC)
VA-4DSB*CCG(CORRENS)
Example of the connector: PCA-1557620(SMC)

LINK OUT: M12 5pins (female)

Pin No.	Description	Function
1	SLD	Shield
2	DB	Communication wire DB
3	DG	Communication wire DG
4	DA	Communication wire DA
5	-	Unused

Example of the cable with connector: PCA-1567717(SMC)
VA-4DSB*CCG(CORRENS)
Example of the connector: PCA-1557617(SMC)

○Power supply connector



M12 5 pins reverse(male)

Pin No.	Description	Function
1	SV24 V	+24 V for solenoid valve
2	SV0 V	+0 V for solenoid valve
3	SW24 V	+24 V for SI unit and Input Block
4	SW0 V	0 V for SI unit and Input Block
5	E	Earth

Example of the cable with connector: EX9-AC010-1(1m)
EX9-AC030-1(3m)
EX9-AC050-1(5m)etc.(SMC)

○**Maintenance**

Addition of Input block

1. Remove screws from the End plate.
2. Mount attached tie rod.
3. Connect additional Input block.
4. Connect End plate and tighten removed screws by specified tightening torque. (0.6 Nm)

Exchange of SI unit

1. Remove screws from End plate and release connection of each unit.
2. Replace old SI unit with new one. (Tie rod does not need to be removed.)
3. Connect End plate and tighten removed screws by specified tightening torque. (0.6 Nm)

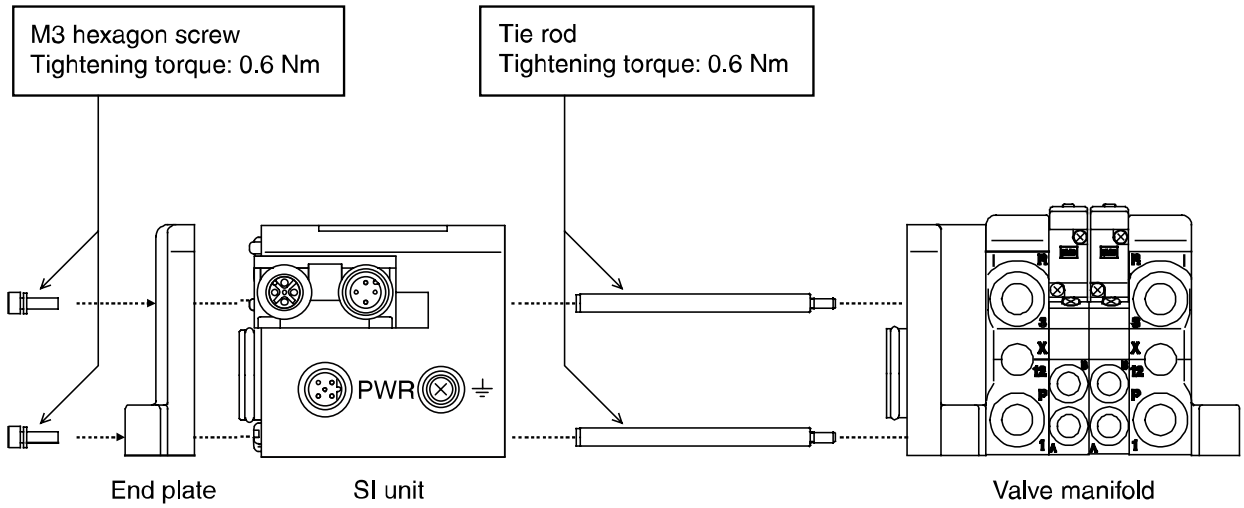
⚠CAUTION

For maintenance

(1) Be sure to turn-off all power supplies.
(2) Be sure that there is no foreign object in any of units.
(3) Be sure that gasket is lined properly.
(4) Be sure that tightening torque is according to specification.

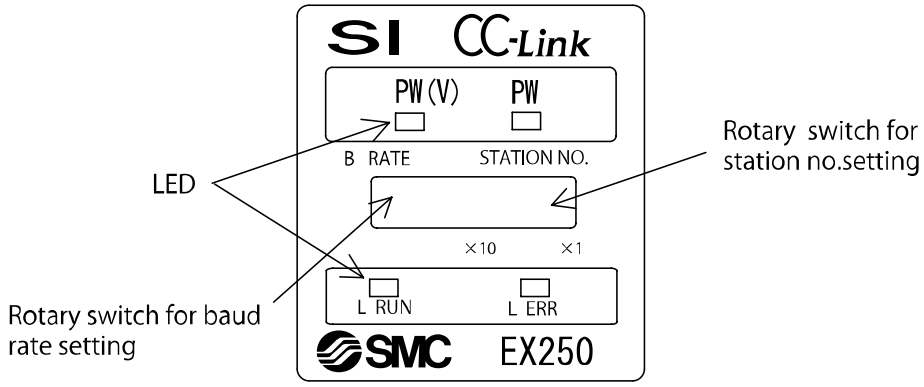
If these items are not kept, it may lead to the breakage of substrate or intrusion of liquid or dust into the units.

○**Assembly and disconnection of unit**



Setting

•LED indication



LED indication	Contents
PW	Lights up: Input and control power is ON. Lights off: Input and control power is OFF.
PW (V)	Lights up: When power supply for solenoid valves is turned ON. Lights off: When supply voltage decreases below 19 V.
L RUN	Lights up: Communication is normal. Lights off: Communication terminated. (Time over error)
L ERR	Lights up: Communication error. Flashing: Assignment of station no. and baud rate are made during communication. (Flicker every 0.4 s) Lights off: Communication is normal.

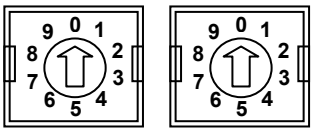
"PW", "PW(V) ", "L RUN" light while data link is normal.

•Rotary switch setting

Station No. and Baud rate are set by the rotary switch inside of the SI unit cover.
Set parameters while the power of SI unit is OFF.
The setting of each switches can be fixed after power is ON.

•Station no. setting

STATION NO.

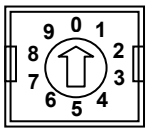


×10 ×1

Setting	Setting range
×10	0 to 6
× 1	0 to 9

Set stations within 01 to 63
"L ERR" display lights if 00 and station 64 or larger is selected.
Turn off the power and select correct station.
"L ERR" display blinks if the switch is operated which the power is ON.

•Baud rate setting

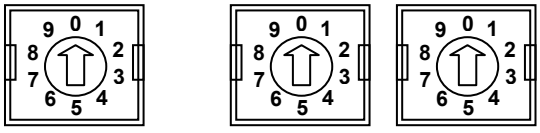


Setting	Baud rate
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps

Set baud rate within 0 to 4
"L ERR" display lights if the setting is out of 0 to 4.
Set correct value after cutting the power supply.
"L ERR" display blinks if the switch is operated which the power is ON.
Select baud rate same as master station.

•Adjusted when shipped

B RATE STATION NO.



×10 ×1

Please refer to the table below for setting at the time of shipment from the factory.

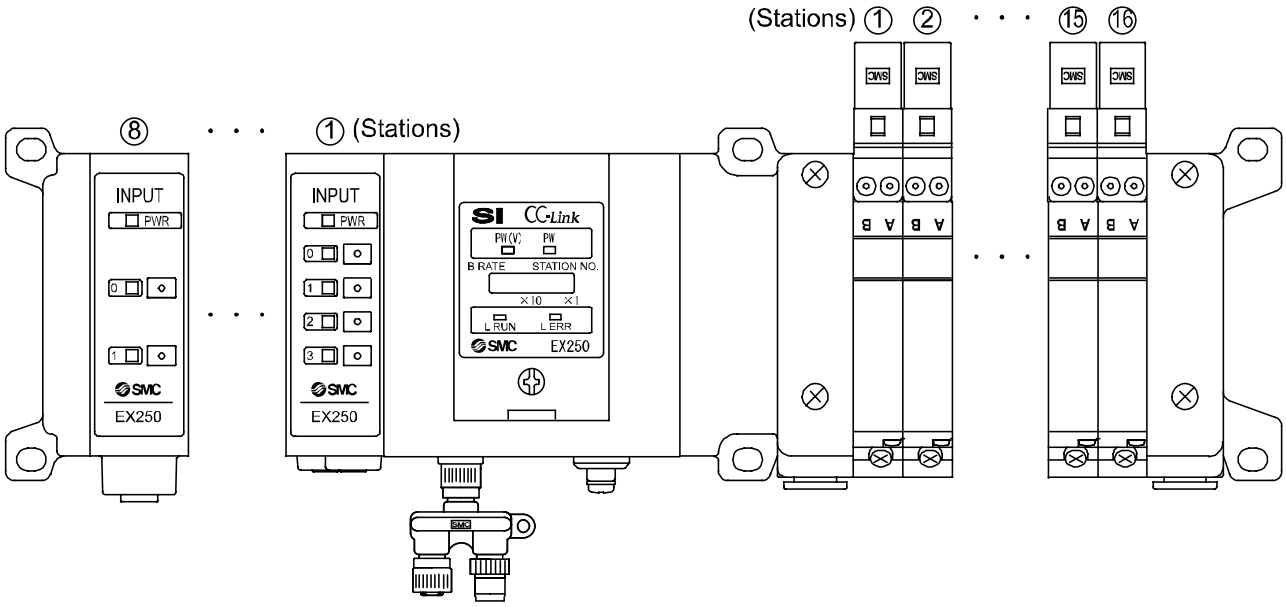
Set parameters		Setting of rotary switch	Contents
B RATE (Baud rate)		0	156 kbps
STATION NO.	×10	0	-
	× 1	0	

•Assigment of I/O No.

•Standard wiring

The outputs of the SI unit are assigned from the D side solenoid valve in the order 0,1,2...maximum of 31. Refer to each solenoid valves catalogue for details.

The inputs of the Input block are assigned from the SI unit side Input block in the order 0,1,2…maximum of 31.



•Semi‐standard wiring for valve output (Mixed wiring)

As semi-standard wiring, mixed wiring inside the manifold is available. The wiring type is specified by description of single or double solenoid valve mounted on the manifold .In order to specify the mixed wiring, completion of Manifold type solenoid valve Specifications Sheet is required

•Parameters setting

There are necessary parameters to be set for data link in CC-Link. Followings are parameters to set information.

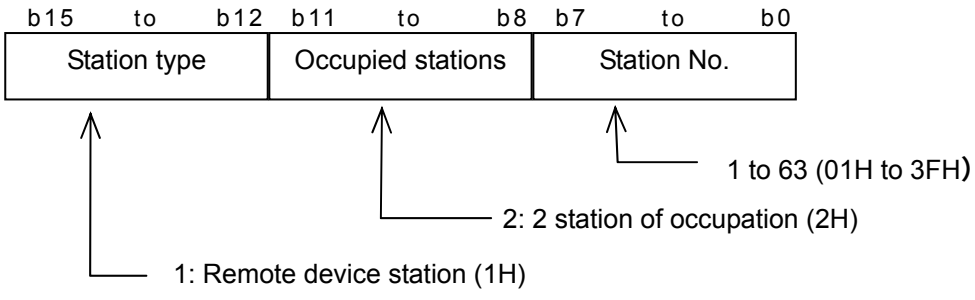
To set parameters, data is written to the buffer memory "parameter information (address 00H to 5FH)" of master station.

•Station information

Assign the type of connected remote/local station (or equivalent) and the remote/local station (equivalent) which are assigned to reserved station.

Match with parameters assigned by SI unit display switch.

Please refer below for the structure of assigned data.



That is "12[ ][ ]H" ([ ][ ]: 01 to 3F)

•I/O information and error information.

(1) Buffer memory of master station correspondence table.

Example when SI unit station is assigned to "01".

Buffer area of master station.
(QJ61BT11N)

	Address	Remote Input (RX)
For station 1	E0	RX0F to RX00
	E1	RX1F to RX10
For station 2	E2	RX2F to RX20
	E3	RX3F to RX30
For station 3	E4	RX4F to RX40
	E5	RX5F to RX50
For station 4	E6	RX6F to RX60
	E7	RX7F to RX70
For station 5	E8	RX8F to RX80
	E9	RX9F to RX90
For station 6	EA	RXAF to RXA0
	EB	RXBF to RXB0
	:	:
	:	:

SI unit input correspondence.

RX00	Sensor 0 value	RX10	Sensor 16 value
RX01	Sensor 1 value	RX11	Sensor 17 value
RX02	Sensor 2 value	RX12	Sensor 18 value
RX03	Sensor 3 value	RX13	Sensor 19 value
RX04	Sensor 4 value	RX14	Sensor 20 value
RX05	Sensor 5 value	RX15	Sensor 21 value
RX06	Sensor 6 value	RX16	Sensor 22 value
RX07	Sensor 7 value	RX17	Sensor 23 value
RX08	Sensor 8 value	RX18	Sensor 24 value
RX09	Sensor 9 value	RX19	Sensor 25 value
RX0A	Sensor 10 value	RX1A	Sensor 26 value
RX0B	Sensor 11 value	RX1B	Sensor 27 value
RX0C	Sensor 12 value	RX1C	Sensor 28 value
RX0D	Sensor 13 value	RX1D	Sensor 29 value
RX0E	Sensor 14 value	RX1E	Sensor 30 value
RX0F	Sensor 15 value	RX1F	Sensor 31 value

0: Sensor OFF
1: Sensor ON

SI unit profile correspondence.

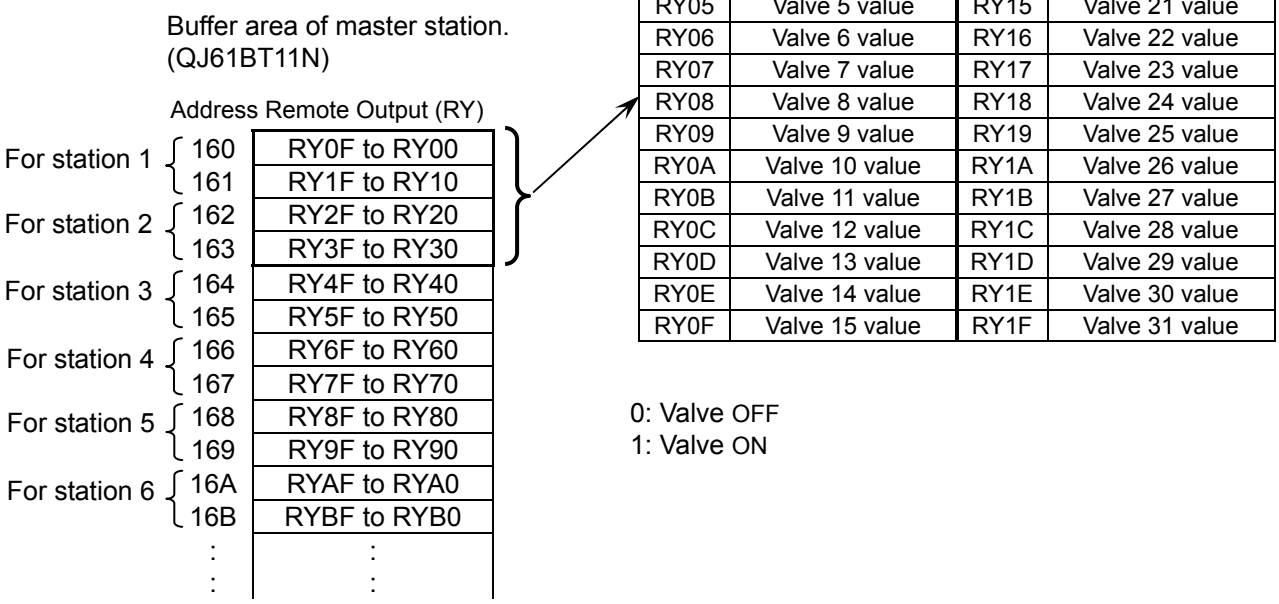
RX20	Input excess current detection	RX30	-
RX21	-	RX31	-
RX22	Valve supply voltage lowered	RX32	-
RX23	-	RX33	-
RX24	-	RX34	-
RX25	-	RX35	-
RX26	-	RX36	-
RX27	-	RX37	-
RX28	-	RX38	-
RX29	-	RX39	-
RX2A	-	RX3A	Error status flag
RX2B	-	RX3B	Remote READY
RX2C	-	RX3C	-
RX2D	-	RX3D	-
RX2E	-	RX3E	-
RX2F	-	RX3F	-

(a) Input excess current detection 0: Normal
1: One of input block/fuse disconnected

(b) Valve supply voltage lowered 0: Normal
1: Valve supply voltage is lowered

(c) Error status flag 0: Normal
1: SI unit operation stopping
(Not turn on “1” when detecting (a) to (b))

(d) Remote READY 0: SI unit operating
(Not turn off “0” when detecting (a) to (b))



(2) Fuse disconnection information

SI unit solenoid valve power fuse disconnection can be recognized by the link special register at master station.

0: Normal
1: Fuse disconnected

	b15	b14	b13	b12	…	b3	b2	b1	b0
(688_H) SW0088	16	15	14	13	…	4	3	2	1
(689_H) SW0089	32	31	30	29	…	20	19	18	17
($68A_H$) SW008A	48	47	46	45	…	36	35	34	33
($68B_H$) SW008B	64	63	62	61	…	52	51	50	49

1 to 64 shows station number. Bits of occupied station turn on.

Maintenance

•Mounting and wiring

Item to inspect	Criteria	Countermeasure
Confirm the connectors (communication, power supply) of SI unit securely connected.	No looseness.	Tighten the resistance.
Confirm the terminating resistance securely connected to the both ends of the CC-Link system. (in case this system is at the end of the network)	No looseness.	Tighten the resistance.
Confirm the connecting cable broken.	No appearance error	If any error is found on the appearance, replace the cable.

•Replacement parts

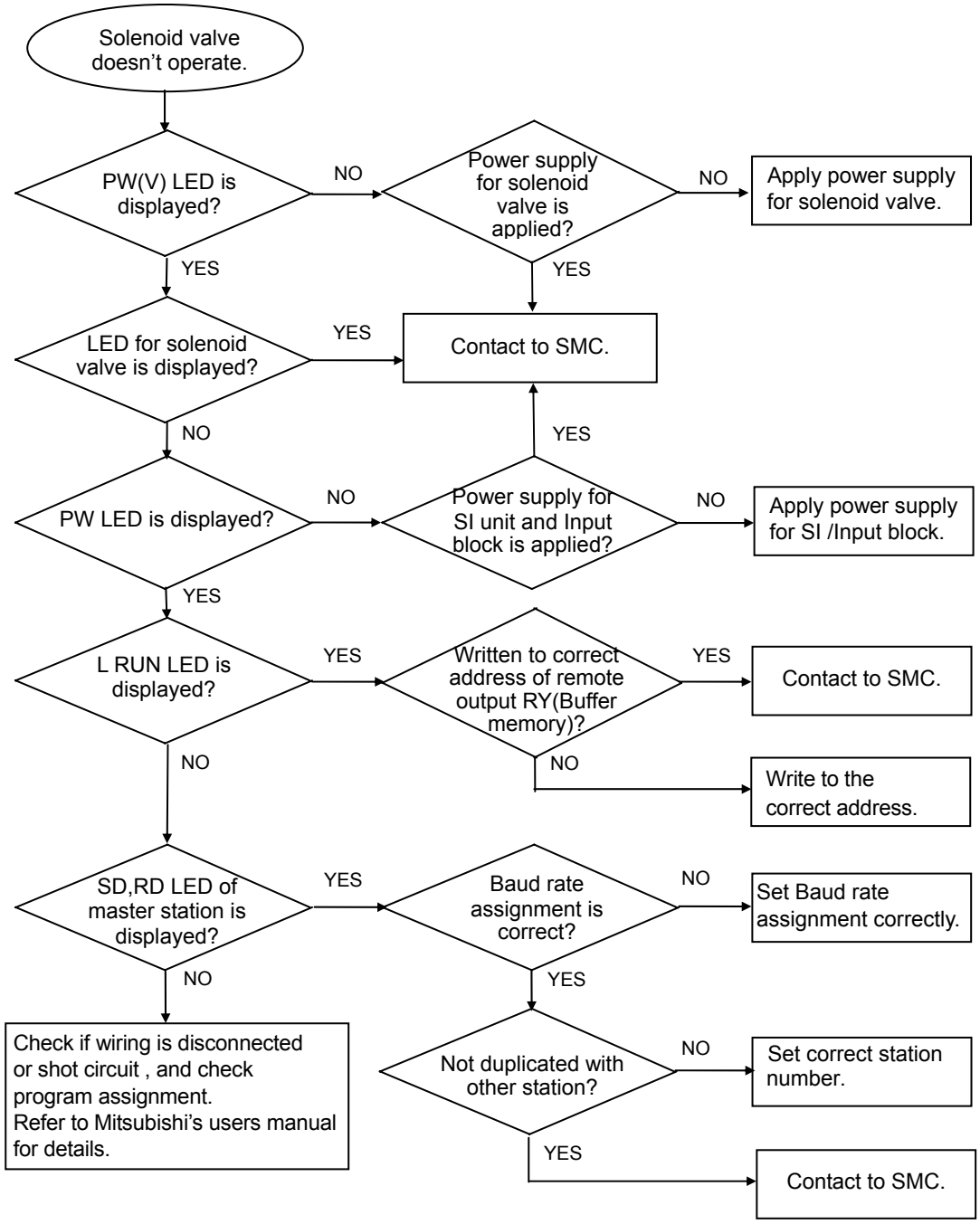
Item to inspect	Criteria	Countermeasure
CC-Link applicable cable for moving part (when used)	No error on the appearance and conductive resistance value	If any error is found on the appearance or the conductive resistance, replace the cable. See the specification of a cable to be used for the conductive resistance.
SI unit	No error in operation and display	If any error is found in the operation or on the display, replace the unit.

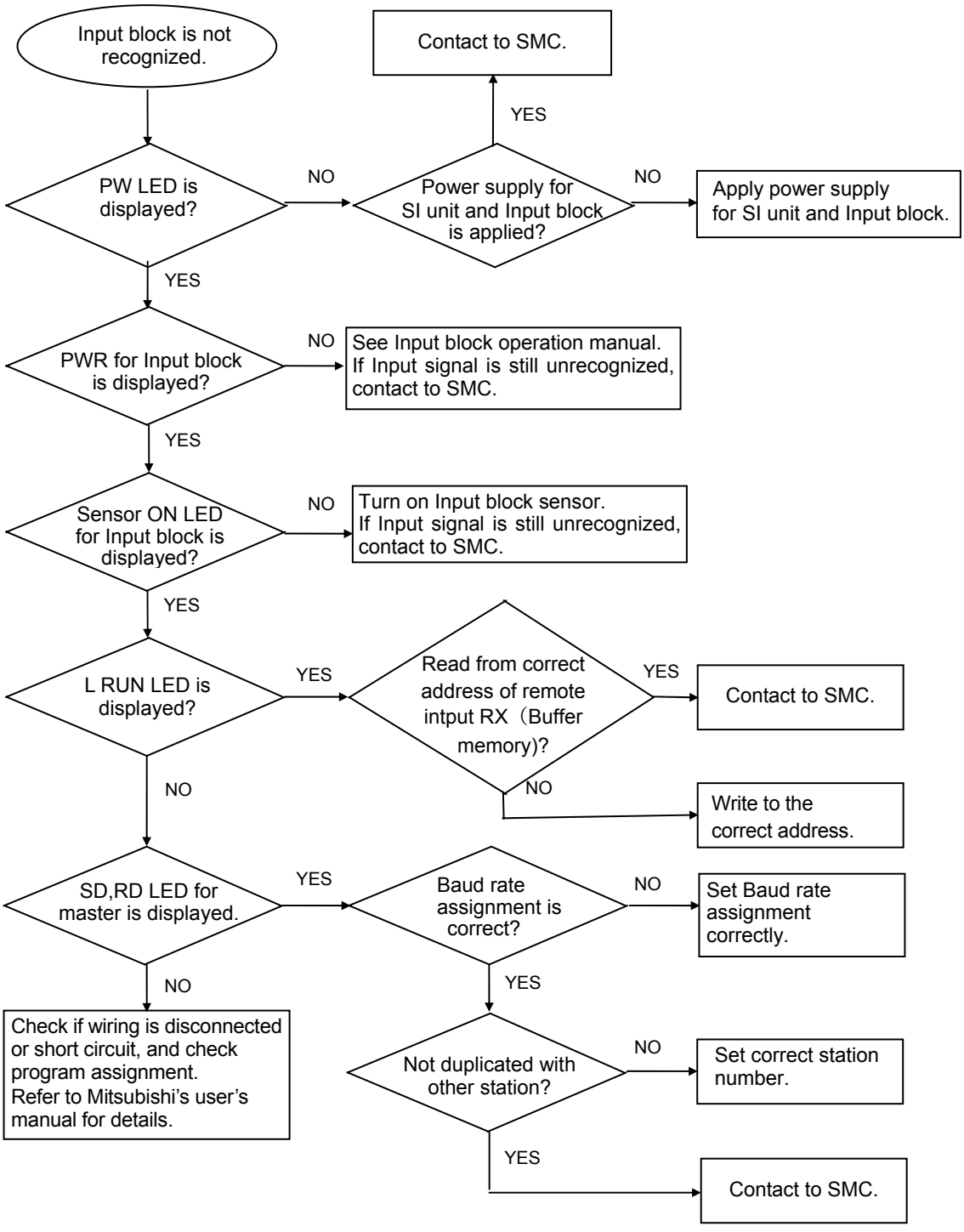
•Power supply

Item to inspect	Criteria	Countermeasure
Confirm the voltage satisfy the specified range. Measure the voltages at the both sides of SI unit controlling part's power supply.	24 VDC ±20%	Investigate into the cause of voltage fluctuation, and take a countermeasure against it.
Confirm the voltage satisfy the specified range. Measure the voltages at the both sides of the power supply for solenoid valves.	24 VDC +10%/-5% (Refer to “Electrical and communication specifications” on page 21.)	Investigate into the cause of voltage fluctuation, and take a countermeasure against it.

Troubleshooting

When SI unit doesn't operate properly, follow the flow chart below and resolve it.




Input block is not recognized.
PW LED is displayed?
NO
Power supply for SI unit and Input block is applied?
NO
Apply power supply for SI unit and Input block.
YES
Contact to SMC.
YES
PWR for Input block is displayed?
NO
See Input block operation manual. If Input signal is still unrecognized, contact to SMC.
YES
Sensor ON LED for Input block is displayed?
NO
Turn on Input block sensor. If Input signal is still unrecognized, contact to SMC.
YES
L RUN LED is displayed?
YES
Read from correct address of remote intput RX（Buffer memory)?
YES
Contact to SMC.
NO
Write to the correct address.
NO
SD,RD LED for master is displayed.
YES
Baud rate assignment is correct?
NO
Set Baud rate assignment correctly.
YES
NO
Check if wiring is disconnected or short circuit, and check program assignment. Refer to Mitsubishi's user's manual for details.
Not duplicated with other station?
NO
Set correct station number.
YES
Contact to SMC.

Specification

Specifications

General specifications

Item	Specification
Operating ambient temp.	5 to 45 °C
Operating ambient humidity	35 to 85% RH (No dew condensation)
Storage ambient temp.	-20 to 60 °C
Vibration proof	10 to 57 Hz 0.35 mm (Constant amplitude) 57 to 150 Hz 50 m/s^2 (Constant acceleration) X,Y and Z directions for 2 hours each
Impact proof	150 m/s^2 (peak), 11 ms X,Y and Z directions for 3 times each
Noise immunity	Normal mode: ±1500 V Pulse duration 1 us Common mode: ±1500 V Pulse duration 1 us Radiation: ±1000 V Pulse duration 1 us
Withstand voltage	500 VAC for 1 min.
Insulation resistance	500 VDC min10 M ohm
Operating environment	No corrosive gas and no dust

Electrical and communication specifications

Item		Specification
Power voltage range, current consumption	Power for SI/unit and Input block and current consumption	DC24 V ±20% Maximum 1.1 A or less Depending on the number of Input block stations and sensor specifications.
	Power for solenoid valve and current consumption	DC24 V ±10%/-5% * Maximum 2.0 A or less Depending on number of solenoid valve station and specifications.
Solenoid valve connection specification	Output type	N-ch MOS-FET Open drain type
	Connection load	Solenoid valve with protection circuit for 24 VDC and 1.5 W or less surge voltage. (made by SMC)
	Residual Voltage	0.3 VDC or less
	Insulation type	Opto coupler type
Communication specification	Station No. assignment range	1 to 63 (Assigned by the rotary switch)
	Baud rate setting range	156 kbps, 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps (Assigned by the rotary switch)
	Applicable system	CC-Link Ver.1.10
	Occupied station	2 stations
	Station type	Remote device station
	I/O points	Input/32 points, Output/32 points

* The condition for allowable voltage fluctuation to solenoid valve that is 24 VDC±10%.

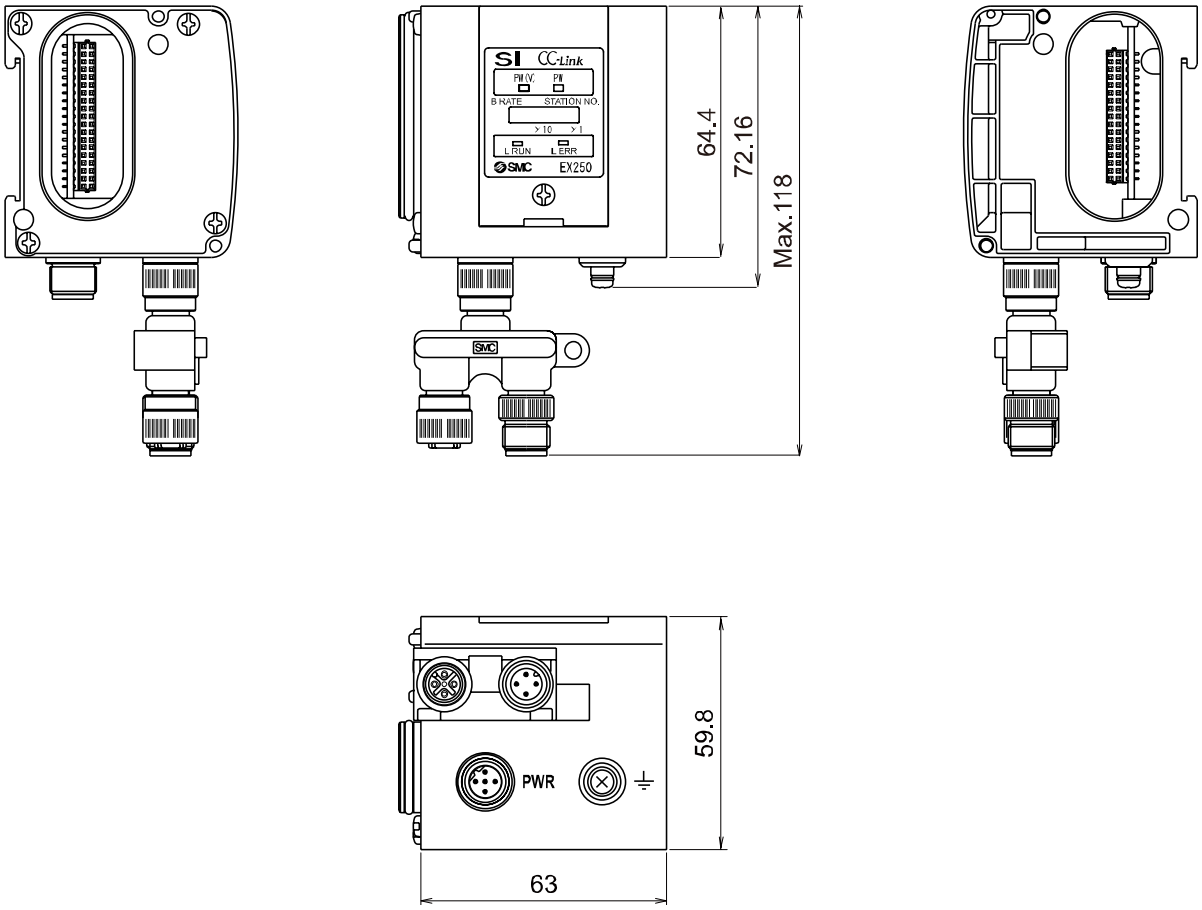
Please confirm the allowable voltage fluctuation range of solenoid valve that is installed in SI unit and set the power supply voltage in consideration of Max.5% voltage drop across SI unit.

Applicable solenoid valves

Representative series	Applicable series
VQC series	VQC1000, VQC2000, VQC4000
SV series	SV1000, SV2000, SV3000 (Tie rod base manifold)
S0700 series	S0700

Dimensions

- EX250-SMJ2



Revision history
A:Correct an error in writing. B:Make an overall revision.

SMC Corporation

URL http://www.smcworld.com

4-14-1, Sotokanda, Chiyoda-ku, Tokyo 102-0021 Japan

Tel:+81 3 5207 8249 Fax:+81 3 5298 5362