

Before Use

Fieldbus device

EX250-SMJ2



Thank you for purchasing an SMC EX250-SMJ2 Fieldbus device. Please read this manual carefully before operating the product and make sure you understand its capabilities and limitations. Please keep this manual handy for future reference.

To obtain the operation manual about this product and control unit, please refer to the SMC website (URL <http://www.smcworld.com>) or contact SMC directly.

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.
- ⚠

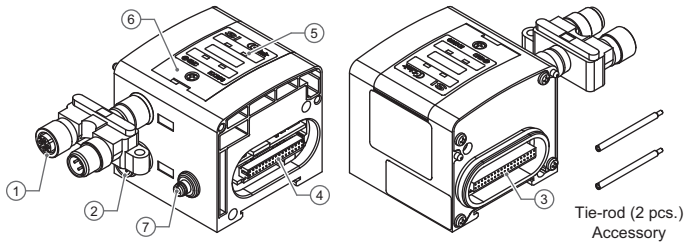
Danger:

DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

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.

Summary of Product element



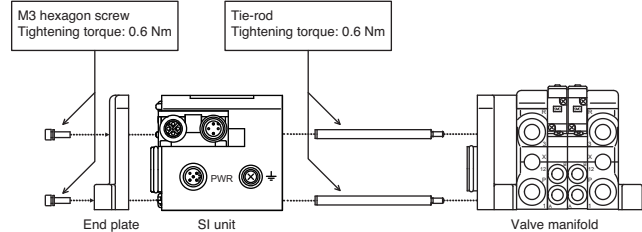
No.	Description	Function
1	Communication connector	Connect with CC-Link communication line. (Accessory)
2	Power supply connector	Supplies power to the solenoid valve, the Output block, SI unit and the Input block.
3	Input block connector	Connects the Input block.
4	Output block connector	Connects the solenoid valve, Output block and etc.
5	Display window	LED display shows the SI unit status.
6	Switch protective cover	Sets the station no. and baud rate etc. with the switch inside.
7	Grounding terminal (FE)	Used for grounding.

Mounting and Installation

Installation

The SI unit does not have mounting holes, so it cannot be installed alone. Make sure to connect the valve manifold. When an input block is not required, connect the end plate directly to the SI unit.

Assembly and disconnection of unit



Exchange of SI unit

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

Assembly and disconnection of unit

Addition of Input Block

- Remove screws from End Plate.
- Mount attached tie-rod.
- Connect additional Input Block.
- 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.

Wiring

Communication wiring

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

LINK IN: M12 4-pin plug A-code

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 etc.

Example of the connector: PCA-1557620 etc.

LINK OUT: M12 5-pin socket A-code

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 etc.

Example of the connector: PCA-1557617 etc.

Note 1: Center hole is not connected and the total number of pins is 4-pin.

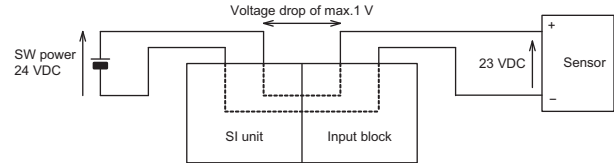
Power supply connector

M12 5-pin plug B-code (reverse)

Pin No.	Description	Function
1	SV24 V	+24 V for valve
2	SV0 V	0 V for valve
3	SW24 V	+24 V for SI unit and input
4	SW0 V	0 V for SI unit and input
5	FE	Ground

Example of the cable with connector: EX9-AC□-1 etc.

SW power is supplied to the sensor connected to the input block. There is a voltage drop up to maximum 1 V inside the SI unit when SW power is supplied. Select a sensor taking this voltage drop into consideration. If 24 V must be supplied to the sensor, it is necessary to increase the SW power supply voltage so that the input voltage of the sensor will be 24 V with the actual load. (Allowable SW power supply range: 19.2 V to 28.8 V)



Terminating resistors

When the SI unit is located at the end of the network, a terminating resistor must be connected.

Shield (SLD) is connected to the ground terminal (FE) inside of the SI unit.

Terminating resistance and cable

If this SI unit is the terminal of CC-Link connection, connect the terminal resistor to "OUT" side of the bus adapter.

Manufacturer	Model
Correns Co.	VA-4DCC-110
Phoenix Contact Co.	SAC-4P-M12MS CCL TR

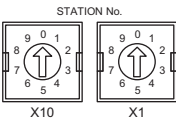
Setting

Switch setting

Station No., Baud rate and HOLD/CLEAR are set by the 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



Setting	Setting range
x10	0 to 6
x1	0 to 9

※: The station number should be set within the range of 01 to 64. If the number is set to 00, or to 65 or above, the "L ERR" LED will turn on.

Turn the power off, and correct the setting.

※: "L ERR" display blinks if the switch is operated which the power is ON.

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

※: The baud rate should be set within the range of 0 to 4. If the setting is out of range, the "L ERR" LED will turn on.

Turn the power off, and correct the setting.

※: "L ERR" display blinks if the switch is operated which the power is ON.

※: Set the same baud rate as the master station.

Baud rate setting



Setting	Contents	Function
H (ON)	HOLD	Hold the last state before communication error.
C (OFF)	CLEAR	Clear all outputs.

Adjusted when shipped

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

Set parameters	Switch setting	Contents
B RATE (Baud rate)	0	156 kbps
STATION NO.	x10	0
	x1	0
HOLD/CLEAR	C(OFF)	CLEAR

Assignment of I/O number

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.

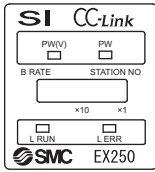
Refer to each solenoid valves catalogue for details.

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.

LED indication



LED	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 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.

Troubleshooting

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

Specifications

Power for SI unit/input: 24 VDC ±20%, 1.1 A or less
(Inside of SI unit: 0.1 A or less
Input block: 1 A or less (Depending on number of connecting sensors and specifications))

Power for valve: 24 VDC +10%/-5%, 2 A or less
(Depending on number of solenoid valve station and specifications)

Connection load: Solenoid valve with protection circuit for 24 VDC and 1.5 W or less surge voltage. (made by SMC)

Operating ambient temp: +5 to +45 °C

Storage ambient temp: -20 to +60 °C

※1: Input terminal are not isolated from Power source.

※2: Do not connect outside Power source to Input and Output terminals.

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

Outline Dimensions

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

Accessories

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

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

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
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