



Installation & Maintenance Manual
SI unit-CompoBus/S compatible
Type EX12□-SCS□



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) and other safety regulations. 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	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

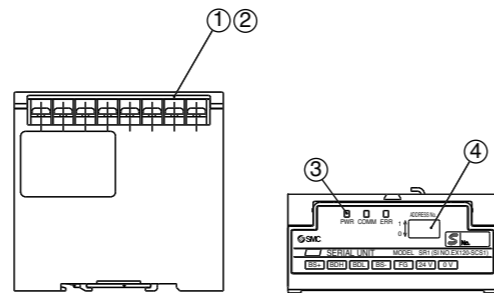
- Do not disassemble, modify (including changing of printed circuit board) or repair. An injury or failure can result.
- Do not operate the product outside of the specifications. Do not use for flammable or harmful fluids. Fire, malfunction, or damage to the product can result. Verify the specifications 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 work. Otherwise an injury can be caused.

Caution

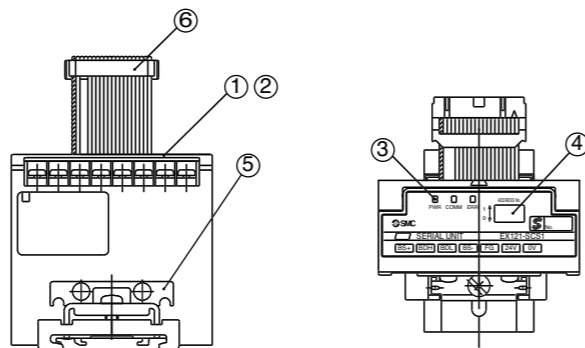
- After maintenance is complete, perform appropriate functional inspections. Stop operation if the equipment does not function properly. Safety cannot be assured in the case of unexpected malfunction.
- Provide grounding to assure the safety and noise resistance of the SI unit. Individual grounding should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

Names and Functions of Individual Parts

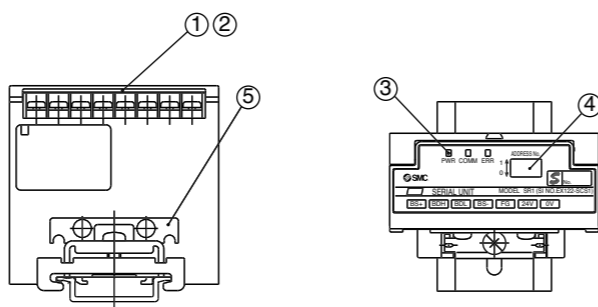
•EX120 series



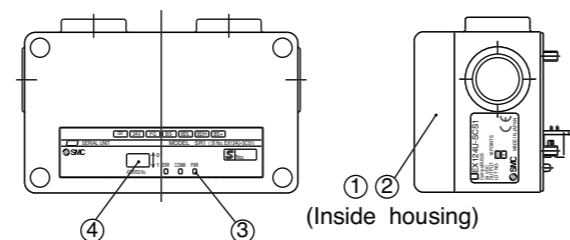
•EX121 series



•EX122 series



•EX124U/D series



(Inside housing)

Names and Functions of Individual Parts (continued)

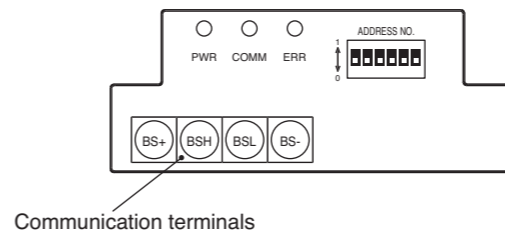
No.	Description	Application
1	Communication terminals (BS+, BDH, BDL, BS-)	To connect the CompoBus/S line and power supply for communication.
2	Power supply terminals (24 V, 0 V) and FG terminal	To supply power to the solenoid valves. For connection to Functional Ground.
3	Display	The status of the unit is indicated by LEDs.
4	Setting switch area	For node address and Hold/Clear setting.
5	Mounting bracket	For mounting to a DIN rail.
6	MIL connector	To connect to the solenoid valve.

Installation

- Installation size
 The SI unit can not be installed as a stand-alone unit, and therefore does not have mounting holes. It must be installed as part of a valve manifold assembly.
 Refer to the operation manual for applicable valve manifolds .
 SV1000/2000/3000/4000
 SY3000/5000
 VQ1000/2000/4000

Wiring

•Communication wiring



Terminal	Connected to
BS+	BS+ communication power line
BDH	BDH communication line
BDL	BDL communication line
BS-	BS- communication power line

•Cable for communication line

Type	Specification
VCTF cable	Vinyl code VCTF JIS C3306 2 cores, Nominal section 0.75 mm ² (Signal line x2) Conductor resistance(at 20°C) : 25.1 Ω /Km
CompoBus flat cable SCA-4F10 (100m)	Nominal section 0.75 mm ² x4 (Signal line x2, Power line x2) Ambient temp. : 60°C or less.

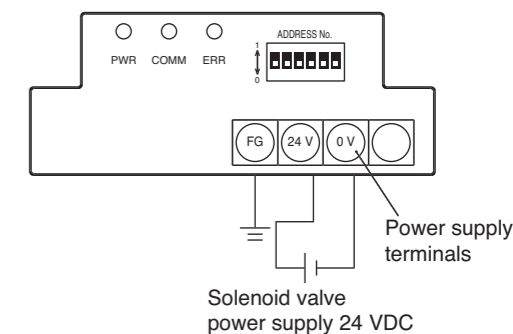
Wiring (continued)

•Termination resistance
 For stable communication, a termination resistance must be mounted to the trunk end located at the opposite end to the master. (i.e. the furthest point from the master). The termination resistance is supplied by OMRON Corporation, with reference below.

SRS1-T	Terminal base with termination resistance.	Available for both VCTF and flat cable.
SCN-TH4T	Crimp connector with termination resistance.	Available only for flat cable.

When the communication cable is connected to the terminal base with termination resistance, it is necessary to connect both BDH and BDL to an appropriate terminal. If the network is connected in T branch style, it is necessary to connect a termination resistance to the end of the longest branch cable, so that the termination resistance is positioned at the furthest point from the master.

•Power supply wiring



Terminal	Connected to
FG	Functional Ground
24 V	24 V for solenoid valves power
0 V	0 V for solenoid valves power

This SI unit is a multi power supply type slave and requires two separate power supplies for communication and solenoid valves.
 (1) Power supply for communication
 • If VCTF cable is used for the communication, the power must be supplied for the SI unit by a separate cable.
 • If CompoBus flat cable is used for the communication, the power is supplied for the SI unit by the flat cable.
 (2) Power supply for solenoid valves
 Power supply 24 VDC, +10%-5% is required
 The power supply and cables used should be selected with consideration to the current consumption of the solenoid valves and of the SI unit.

<Note>
 The separate power supply should have margin in its capacity enough for in-rush current at start up.

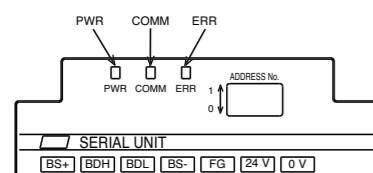
Caution

When using the CompoBus flat cable for communication, any unused power supply cables must be isolated at both ends.

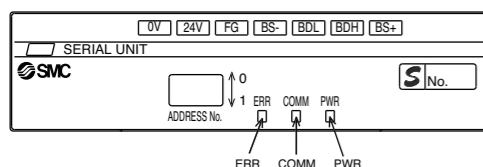
Setting

•LED indication

•EX120/121/122 series



•EX124U/D series



LED	Content
PWR	Light is on or off as the power supply for communication is on or off respectively.
COMM	Light is on during normal communication and off in error or stand-by mode.
ERR	Light is on when communication error occurs and off in normal condition or stand-by mode.

•Address setting

(1) ADDRESS NO. (Node address)

The node address setting range depends on the type or setting of the master as follows:-

•For master unit C200HX/HG/HE or C200HS

If max. number of connected slaves is 16 (IN8/OUT8), the node address setting range is 0 to 7.

If max. number of connected slaves is 32 (IN16/OUT16), the node address setting range is 0 to 15.

•For master unit CQM1:

The number of channels occupied by the PLC or master unit and the number of points occupied by one node address, are related as follows:-

Number of CH occupied by PLC	Number of points occupied by one node address	Setting range	Max. number of connected slaves
IN1/OUT1	8	IN : 0 to 1 OUT : 0 to 1	IN2 OUT2
IN2/OUT2	8	IN : 0 to 3 OUT : 0 to 3	IN4 OUT4
IN4/OUT4	8	IN : 0 to 7 OUT : 0 to 7	IN8 OUT8
IN1/OUT1	4	IN : 0 to 3 OUT : 0 to 3	IN4 OUT4
IN2/OUT2	4	IN : 0 to 7 OUT : 0 to 7	IN8 OUT8
IN4/OUT4	4	IN : 0 to 15 OUT : 0 to 15	IN16 OUT16

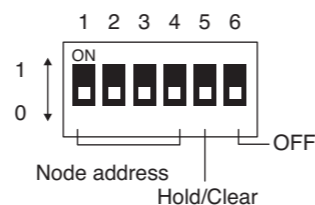
Setting (continued)

<Note>

- The duplication of a node address in different slaves will cause communication error.
- For 16 point slaves which are assigned to one channel, although it occupies 2 slaves with 8 points, the node address which is not used must be as follows:-
If the node address used is odd: Node address with no. just before must also be used.
If the node address used is even: Node address with no. just after must also be used.
For example, if the node address 5 is set to a 16 points SI unit (a kind of slave), the address 4 must also be used for the SI unit.
- For master unit CQM1, if 8 points slave is connected in 4 points mode the slave is considered to occupy points for 2 slaves, and the node address just after the set node address to the slave must also be used.
If the node address is duplicated with another slave, communication error occurs and makes it impossible to start communication with CompoBus/S.
- During 4 points mode, 16 points slave is not available.

(2) Switch setting

Open the terminal board cover on the upper section of SI unit and set the DIP switch.



•Setting of node address

In SW1 to 4, setting of node address is required as follows.

0: OFF 1: ON

Node address	SW1	SW2	SW3	SW4	Node address	SW1	SW2	SW3	SW4
0	0	0	0	0	8	0	0	0	1
1	1	0	0	0	9	1	0	0	1
2	0	1	0	0	10	0	1	0	1
3	1	1	0	0	11	1	1	0	1
4	0	0	1	0	12	0	0	1	1
5	1	0	1	0	13	1	0	1	1
6	0	1	1	0	14	0	1	1	1
7	1	1	1	0	15	1	1	1	1

•Setting of Hold/Clear

This setting is intended to determine whether output of SI unit should be held or cleared totally when communication error occurs.

In SW5, setting is available as follows. 0: OFF 1: ON

Hold/Clear	SW5
Clear	0
Hold	1

<Note>

Switch SW6 must remain off in use.

Maintenance

How to reset the product after the power has been disconnected

The output condition of the SI unit will not be stored by the product if the power supply is disconnected.

Be sure to confirm safety before operating the product, after the power has been restored.

Specifications

Refer to the operation manual for this product.

Outline with Dimensions (in mm)

Refer to the operation manual for this product.

Contact

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BELGIUM	(32) 3 355 1464	NORWAY	(47) 67 12 90 20
CZECH REP.	(420) 541 424 611	POLAND	(48) 22 211 9600
DENMARK	(45) 7025 2900	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	SLOVAKIA	(421) 2 444 56725
FRANCE	(33) 1 6476 1000	SLOVENIA	(386) 73 885 412
GERMANY	(49) 6103 4020	SPAIN	(34) 945 184 100
GREECE	(30) 210 271 7265	SWEDEN	(46) 8 603 1200
HUNGARY	(36) 23 511 390	SWITZERLAND	(41) 52 396 3131
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SMC Corporation

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

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