



Installation and Maintenance Manual
SI unit-CANopen compatible
Type EX260-SCA1-X176



Safety Instructions

This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.

- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- These instructions indicate the level of potential hazard by label of "Caution", "Warning" or "Danger", followed by important safety information which must be carefully followed.
- 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	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

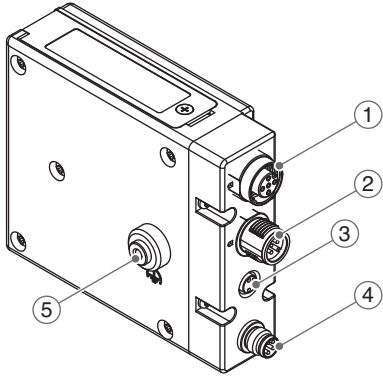
- When conformity to UL is required, the SI unit should be used with a UL1310 Class 2 power supply.

How to Order

EX260-SCA1-X176

Output connector type	
176	34-pin connector

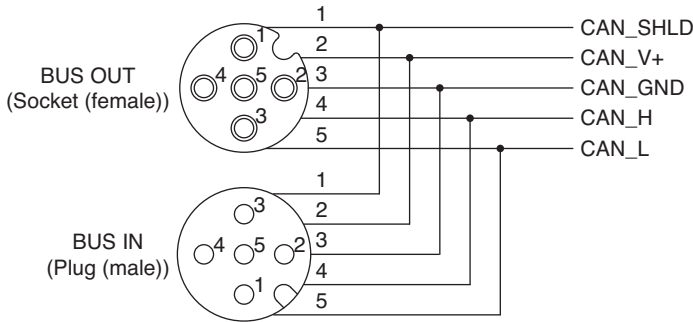
Summary of Product elements



No.	Element	Description
1	Communication connector BUS OUT	Connect to CANopen communication line and power supply for communication (OUT).
2	Communication connector BUS IN	Connect to CANopen communication line and power supply for communication (IN).
3	Power supply connector PWR OUT	Connect to the power supply for solenoid valve (OUT).
4	Power supply connector PWR IN	Connect to the power supply for solenoid valve (IN).
5	FG terminal	Used for functional ground.

Wiring

- Internal wiring of communication connectors
Communication connector (M12 plug (male)/socket (female) 5 pins)

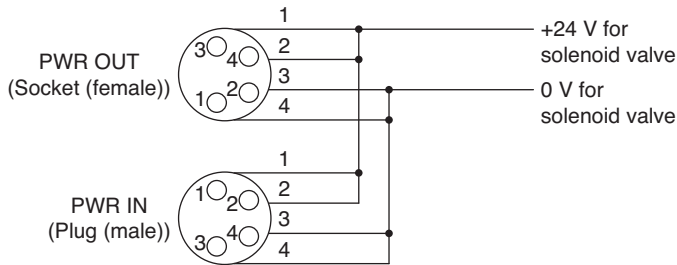


Pin No.	Description	Function
1	CAN_SHLD	Shield
2	CAN_V+	Power supply + for CANopen
3	CAN_GND	Power supply - for CANopen
4	CAN_H	CAN_H bus line (dominant high)
5	CAN_L	CAN_L bus line (dominant low)

BUS connector cable: M12 5 pins cable with shield (according to ISO11898)
The permissible current of the internal wiring (CAN_V + and CAN_GND) between communication connectors is 2 Amps maximum.

Wiring (continued)

- Internal wiring of communication connectors
Power supply connector (M8 plug (male)/socket (female) 4 pins)

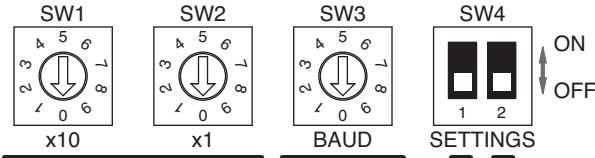


Pin No.	Description	Function
1	SV 24 V	+24 V for solenoid valve
2	SV 24 V	+24 V for solenoid valve
3	SV 0 V	0 V for solenoid valve
4	SV 0 V	0 V for solenoid valve

(Connector caable: M8 4 pins cable)
The permissible current of the internal wiring (SV24 V-SV0 V) between power supply connectors is 4 Amps maximum.

Setting

- Internal wiring of communication connectors
Communication connector (M12 plug (male)/socket (female) 5 pins)



Setting of Node-ID
The setting range is 1-99. (0 is invalid)

SW3	Baud Rate [kbps]	SW3	Baud Rate [kbps]
0	1000	5	Reserved
1	800	6	50
2	500	7	20
3	250	8	10
4	125	9	Reserved

Setting of output when communication stops

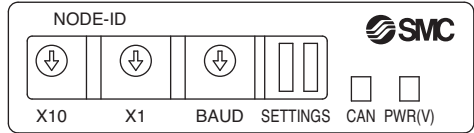
SW4-1	State of solenoid valve output when error (Error Control, Emergency Object) occurs or fault message is received.
0	The output shall use the pre-defined condition specified in the Error Value Output Object (6207h, 6307h, 6327h). Default: All outputs are cleared (OFF).
1	All outputs are held in the state immediately before the communication stopped.

Setting of mode

SW4-2	Mode
0	HW mode. Setting of Node-ID is achieved using SW1 and SW2. Setting of Baud Rate is achieved using SW3.
1	SW mode. Setting of Node-ID is achieved via network. SW1 and SW2 become unavailable. Node-ID can be set up to 127. Default is 127 (7Fh).

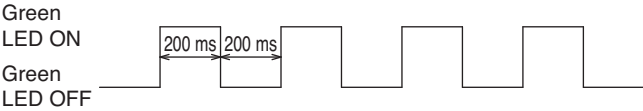
Setting (continued)

- LED indication

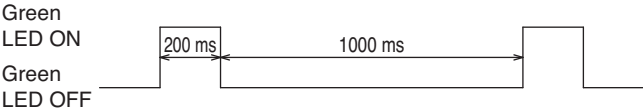


Indication	Content	
PWR(V)	Green Light	Power for solenoid valves is supplied
CAN	Green Light	SI unit is in the Operational state
	Green Light (flashing)	SI unit is in the Pre-Operational state
	Green Light (single flash)	SI unit is in Stopped state
	Red Light (single flash)	CAN controller error occurred
	Red Light (double flash)	Error Control Event occurred
	Green/Red Light (flashing)	SI unit is in Configuration mode (LSS services)
	Red Light	SI unit is in "Bus OFF" state

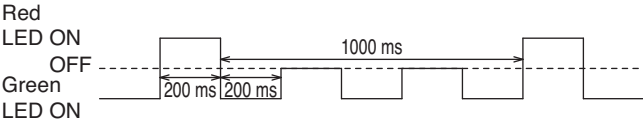
Green (flashing): Pre-Operational State



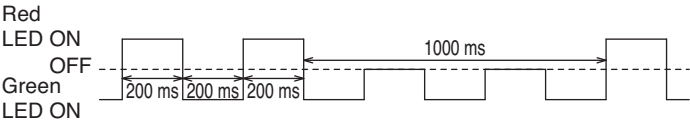
Green (Single Flash): Stopped State



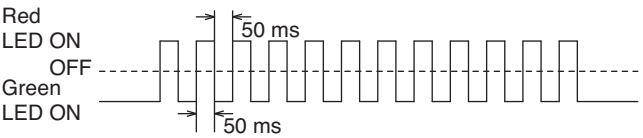
Red (Single Flash): CAN controller error



Red (Double Flash): Error Control Event



Green/Red (flashing): LSS Configuration Mode



*: LED Indication of SI unit is based on CANopen specification (CANopen spec. DR-303-3).
Refer to DR-303-3 indicator specification for details.

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.

Maintenance

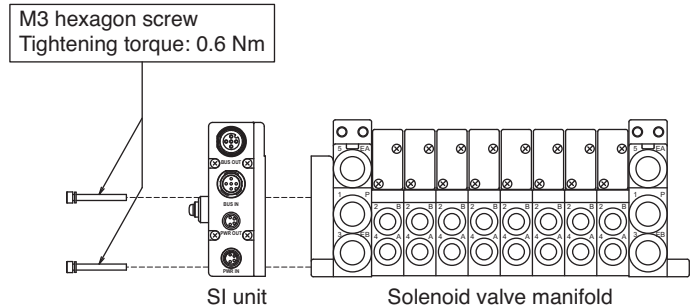
- Exchange of SI unit
 - (1) Remove hexagonal M3 screw and release the connection to the valve manifold.
 - (2) Replace the SI unit.
 - (3) Tighten the screw using the specified tightening torque. (0.6 Nm)

⚠ CAUTION FOR MAINTENANCE

- (1) Be sure to turn-off all power supplies.
- (2) Be sure that there are no foreign objects in any of the units.
- (3) Be sure that the gasket is positioned correctly.
- (4) Be sure that the tightening torque is according to specification.

If these precautions are not taken, it may lead to damage to the unit, or intrusion of liquid or dust into the unit.

Assembly and disconnection of unit



⚠ Caution

It is the responsibility of the machine builder to make sure that the machine operates correctly.

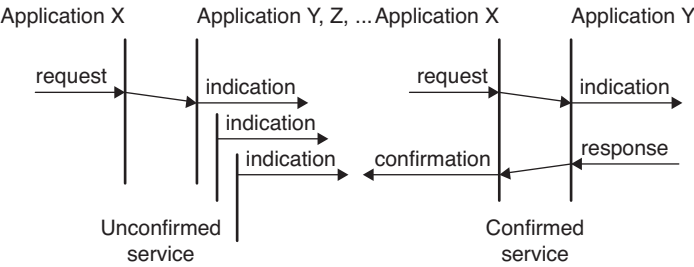
CANopen units from different manufacturers have different ability (minimum message interval) respectively.

The machine builder should consider the differences in the ability. The method (confirmed service) of sending the following request, after receiving the response to the request, is recommended, to ensure correct communication.

When using the method (unconfirmed service) of sending the following request, without receiving a response to the request, if the request exceeding the processing performance of the unit is sent, it cannot be received.

Please confirm the normal operation beforehand when an SMC CANopen unit is used in your machine.

Please consult with SMC when there is a problem.



Specifications

Refer to the operation manual for this product.

Outline with Dimensions (in mim)

Refer to the operation manual for this product.

Contacts

AUSTRIA	(43) 2262 62280-0	LATVIA	(371) 781 77 00
BELGIUM	(32) 3 355 1464	LITHUANIA	(370) 5 264 8126
BULGARIA	(359) 2 974 4492	NETHERLANDS	(31) 20 531 8888
CZECH REP.	(420) 541 424 611	NORWAY	(47) 67 12 90 20
DENMARK	(45) 7025 2900	POLAND	(48) 22 211 9600
ESTONIA	(372) 651 0370	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	ROMANIA	(40) 21 320 5111
FRANCE	(33) 1 6476 1000	SLOVAKIA	(421) 2 444 56725
GERMANY	(49) 6103 4020	SLOVENIA	(386) 73 885 412
GREECE	(30) 210 271 7265	SPAIN	(34) 945 184 100
HUNGARY	(36) 23 511 390	SWEDEN	(46) 8 603 1200
IRELAND	(353) 1 403 9000	SWITZERLAND	(41) 52 396 3131
ITALY	(39) 02 92711	UNITED KINGDOM	(44) 1908 563888

SMC Corporation

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

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