

INSTRUCTION SHEET

SX8R Series Bus Coupler module

This sheet provides brief operating instructions of the SX8R Series Bus Coupler module. For details, see the SX8R Series Bus Coupler module User's manual.

Safety Precautions

Special expertise is required to use the SX8R Series.

- Be sure to read this instruction sheet and the user's manual carefully before performing installation, wiring, or maintenance work. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- This product has been manufactured under strict quality control. However, if you intend to use this product in applications where failure of this equipment may result in damage to property or injury, ensure that it is used in conjunction with appropriate fail-safe backup equipment.
- Care should be taken such that unauthorized access to the SX8R Series does not come from outside network connections. Please note that the Company shall not be liable for any loss, damage or other expenses incurred directly or indirectly by unauthorized access, etc.
- Install the SX8R Series according to the instructions described in this instruction sheet and the user's manual. Improper installation will result in falling, failure, or malfunction of the SX8R Series.
- Make sure that the operating conditions are as described in the instruction sheet or user's manual. If you are uncertain about the specifications, contact IDEC before using the SX8R Series.
- In this instruction sheet, safety precautions are categorized in order of importance from Warning and Caution:

WARNING

Warning notices are used to emphasize that improper operation may cause severe personal injury or death.

CAUTION

Caution notices are used where inattention might cause personal injury or damage to equipment.

WARNING

- Turn off the power to the SX8R Series before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn off the power may cause damage, electrical shocks or fire hazard.
- Emergency stop and interlocking circuits must be configured outside the SX8R Series. If such a circuit is configured inside the SX8R Series, failure of the SX8R Series may cause disorder of the control system, damage, or accidents.
- SUITABLE FOR USE IN CLASS 1, DIVISION 2, GROUPS A,B,C AND D HAZARDOUS LOCATIONS, OR NONHAZARDOUS LOCATIONS ONLY.
- Cet appareil convient uniquement à l'emploi dans des zones dangereuses de classe 1, groupes A,B,C et D; ou dans des zones non dangereuses.
- WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.
- Avertissement: risque d'explosion. Ne pas débrancher l'appareil tant que le circuit est sous tension, ou à moins d'être certain que lieu d'utilisation soit exempt de concentrations inflammables.
- THIS EQUIPMENT IS AN OPEN -TYPE DEVICE MEANT TO BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE ENVIRONMENT THAT IS ONLY ACCESSIBLE WITH THE USE OF A TOOL OR KEY.
- Cet appareil doit être installé dans un boîtier qui est adapté à l'environnement d'utilisation et uniquement accessible avec un outil d'ouverture ou une clé.

CAUTION

- The SX8R Series is designed for installation in equipment. Do not install the SX8R Series outside of equipment.
- Use the product within the environmental limits given in the catalog and user's manual.
- Use of the SX8R Series in high-temperature or high-humidity environments, or in locations where it is exposed to condensation, corrosive gas or large shock loads, can create the risk of electrical shock, fire hazard or malfunction.
- The environment rating for using the SX8R Series is "Pollution degree 2."
- Prevent metal fragments and pieces of wire from dropping inside the SX8R Series housing. Ingress of such fragments and chips may cause fire hazard, damage, or malfunction.
- Use wires of a proper size to meet voltage and current requirements. Tighten terminal screws to the proper tightening torque of 0.49 N-m.
- Use an IEC60127-approved fuse on the power line and output circuit to meet voltage and current requirements. This is required when exporting equipment containing SX8R Series to Europe.
- When exporting the SX8R Series to Europe, use an EU-approved circuit protector.
- Do not disassemble, repair, or modify SX8R Series modules.

1 TYPE

Bus Coupler module: SX8R-ECB1, SX8R-ECB4

2 Specification

- Normal operating conditions

Applicable Standards	UL61010-2-201, CSA C22.2 No.61010-2-201, ANSI/ISA 12.12.01-2007, CSA C22.2 No.213
Ambient operating temperature	-25 to +65°C (no freezing)
Ambient storage temperature	-25 to +70°C (no freezing)
Relative humidity	10 to 95%RH (no condensation)
Storage humidity	10 to 95%RH (no condensation)
Pollution degree	2 (IEC60664-1)
Degree of protection	IP20 (IEC60529)
Atmosphere	No corrosive gas
Altitude or air pressure	1,013 to 795hPa (0 to 2,000m) during operation, 1,013 to 701hPa (0 to 3,000m) during transport
Installation location	Inside cabinet
Device class	Open equipment
Vibration resistance	DIN rail mounted: 5 to 8.4Hz half amplitude 3.5mm, 8.4 to 150Hz, acceleration 9.8m/s ² (1G), X, Y, Z directions, 2 hours (IEC/EN61131-2) Panel mounted: 147m/s ² (15G), 11ms, X, Y, Z directions, 3 times (IEC61131-2)
Shock resistance	147m/s ² (15G), 11ms, X, Y, Z directions, 3 times (IEC61131-2)
EMC immunity	IEC/EN61131-2, Zone B compatibility

Installation Location: Inside cabinet (indoor use)

Temperature Code: T4

* Please refer to the user's manual when using the FC6A expansion module at temperatures above 55°C.

* See the user's manual for more details on the product specifications.

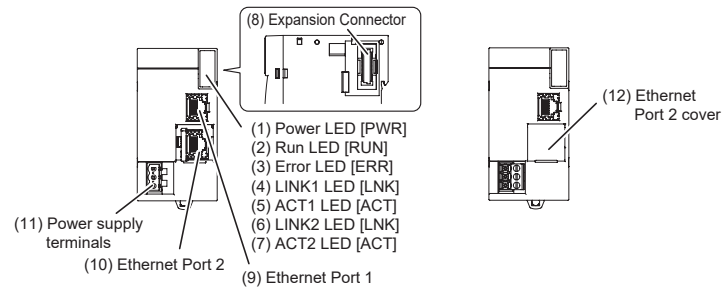
CAUTION

IP20 is not part of UL/cUL certification

- Communication port specifications

Communication type	IEEE 802.3-compliant 10BASE-T, 100BASE-TX (Auto MDI/MDI-X supported)
Communication protocol	Ethernet Port 1: ModbusTCP Communication (server), EtherNet/IP Communication (adapter), CC-Link Field Basic Communication (slave), Maintenance Communication (server) Ethernet Port 2: Maintenance Communication (server)
Connector	RJ45
Cable	CAT 5 or higher, STP
Maximum cable length	100m
Isolation between Internal circuit	Pulse transformer isolated

3 Parts Description

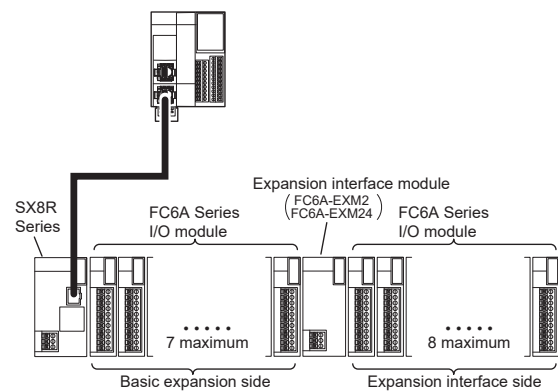


- (9) Ethernet Port 1
This port is used to connect the host controller to the module using an ethernet cable.
- (10) Ethernet Port 2
This port is used to communicate with SX8R configurator using an ethernet cable.

- I/O modules that can be connected to SX8R Series
The maximum number of IDEC FC6A Series I/O modules that can be connected to the SX8R Series is 15 modules.

Module type	See page
Digital I/O modules	FC6A Series MICROSmart User's manual Chapter 2 Digital I/O modules
Analog I/O modules	FC6A Series MICROSmart User's manual Chapter 2 Analog I/O modules

A maximum of seven modules can be connected on the basic expansion side. Additional eight expansion modules can be connected by installing the expansion interface module.

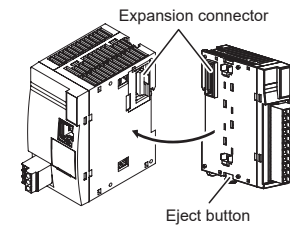


- Maximum I/O points when using Expansion interface modules
The following table gives the number of digital I/O points and analog I/O points when the maximum number of each I/O module is connected.

Module type	Maximum number of I/O points	
	Input	Output
Digital I/O	480	480
Analog I/O	Input	120
	Output	60

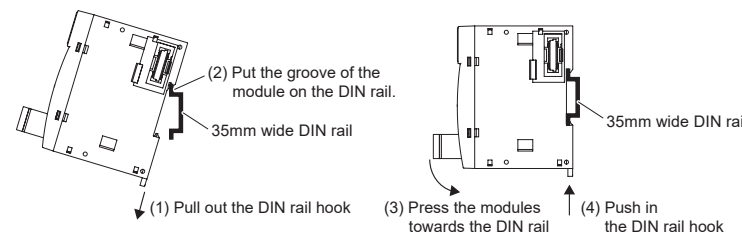
4 Connecting Modules

1. Place the I/O module and SX8R Series side by side. Put the expansion connectors together for easy alignment.
2. With the expansion connectors aligned correctly and the eject button in the up position, press the I/O module and SX8R Series together until the latches click to attach the modules together firmly. If the eject button is in the up position, push down the button to engage the latches.

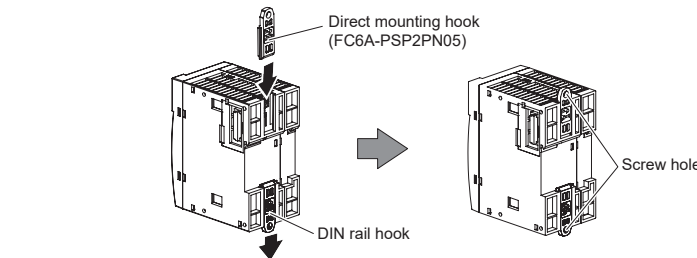


5 Mounting Modules

Refer to the user's manual for details about mounting and removing modules. [Mounting on DIN rail]
Use a 35mm wide DIN rail and BNL6 mounting clips to secure the modules.

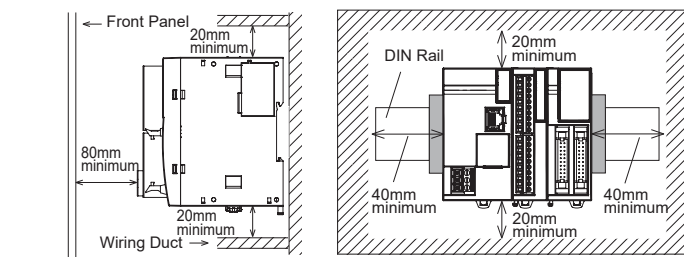


[Direct mounting on panel surface]
Pull out the DIN rail hook on the back of the module and insert the direct mounting hook (FC6A-PSP2PN05) into the slot. Attach the module to the mounting plate using the screw holes. Attach the module to the mounting plate using M4 tapping screws, as shown below, or make 5 to 6mm mounting holes and secure the module using M4 pan head screws. Always give sufficient consideration to operability, ease-of-maintenance, and environmental resistance when deciding on the mounting position.



6 Mounting Space

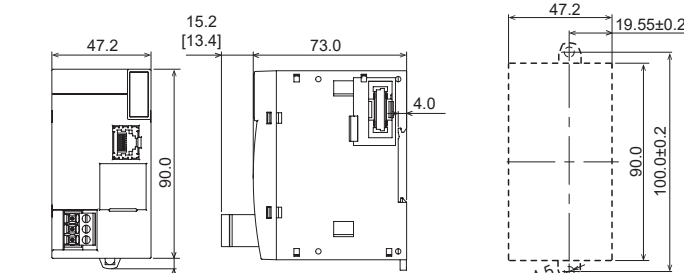
To allow for heat dissipation and facilitate replacement, ensure that there are at least 20 to 40mm between the SX8R and surrounding equipment and ducts.



7 Dimensions

SX8R-ECB1, SX8R-ECB4

All dimensions in mm.

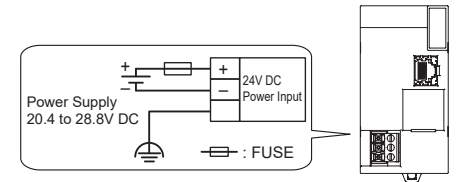


*Dimensions in bracket [] is for type numbers ending in "4".

CAUTION

For UL/cUL, Horizontal mounting only.

8 Wiring



CAUTION

- Use an isolated type or SELV power supply source.
- Use only the SELV and LIM circuits to connect all the interfaces.
- Use copper conductor only.

9 Applicable Cable / Recommended Ferrule / Recommended Screwdriver

Use applicable cables for wiring and recommended ferrules (made by IDEC, Weidmüller or Phoenix Contact) as follows. To crimp the ferrules shown below, use a special crimping tool. To the screw terminal block, use the recommended screwdriver made by IDEC, Weidmüller or Phoenix CONTACT and tighten terminal screws tightening torque (0.49 N-m). To the push in terminal block, insert the wire until it stops.

Applicable Cable	Recommended Ferrule (Order Number)
AWG24	AI 0,25-10 (3241128)
AWG22	AI 0,34-10 (3241129)
AWG20	S3TL-H05-16WA (S3TL-H05-16WA), S3TL-J05-16WA (S3TL-J05-16WA), H0,5/16D W (9019020000), H0,5/16 OR (9025870000), H0,5/16D ZH W (9037390000), H0,5/16 ZH OR (9037210000), AI 0,5-10 (3201275), AI TWIN 2x0,5-10 (3203309)
AWG18	S3TL-H075-16WW (S3TL-H075-16WW), S3TL-J075-16WW (S3TL-J075-16WW), H0,75/16D GR (9019050000), H0,75/16 W (9025860000), H0,75/16D ZH GR (9037420000), H0,75/16 ZH W (9037240000), AI 0,75-10 GB (3201288), AI TWIN 2x0,75-10 (3200975)
AWG16	S3TL-H15-16WR (S3TL-H15-16WR), H1,5/16D SW (9019130000), H1,5/16 R (0635100000), AI 1,5-10 (3200195)
AWG20	H0,5/16DS W (9202910000), AI 0,5-10 GB (3203150)
AWG18	S3TL-H10-16WY (S3TL-H10-16WY), H1,0/16D R (9019100000), H1,0/16 GE (9025950000), AI 1-10 (3200182)
AWG16	S3TL-H15-16WR (S3TL-H15-16WR), H1,5/16D SW (9019130000), H1,5/16 R (0635100000), AI 1,5-10 (3200195)

Tool Name	Part Number (Order Number)	Product
Insulated Screwdriver	S3TL-D06-35-100 (S3TL-D06-35-100)	IDEC
	SDIS 0,6x3,5x100 (2749810000)	Weidmüller
	SZS 0,6x3,5 (1205053)	Phoenix Contact
Crimping tool	S3TL-CR06D (S3TL-CR06D)	IDEC
	S3TL-CR04T (S3TL-CR04T)	IDEC
	PZ 6 Roto L (1444050000)	Weidmüller
Stripping tool	CRIMPFOX6 (1212034)	Phoenix Contact
	STRIPAX (900500000)	Weidmüller

CAUTION

When connecting stranded wire or multiple solid wires to a screw or push in terminal block, use appropriate ferrule for the terminal block. Single wire assumes the use of one wire. Do not attach two or more wires to the one connector hole. When using single wires, you do not need to use ferrules. (Stripping length: 10mm)
To the push in terminal, do not pull out the wire without pressing pusher. When pulling out the wire, use a flat blade screwdriver, etc., and pull the wire straight out while pressing the pusher with about 20N of force. Be careful not to damage the push-in terminals. When pressing the pusher, do not apply more than 40N of force.

10 Precaution for Disposal

- Dispose of the SX8R Series as an industrial waste.

IDEC CORPORATION

<https://www.idec.com>

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