IDEC

INSTRUCTION SHEET

MICROSmart pentra

FC5A Series

This sheet provides brief operating instructions of the MicroSmart Expansion Interface Module.
For details, see the FC5A User's Manual.
Expansion Interface Module expands I/O point of FC5A. FC5A type CPU can normally connect a maximum of seven I/O modules, Using the expanion interface module make it possible to connect additional eight I/O modules to expand another 256 I/O points . The maximum number of I/O points are 512, including the I/Os in the CPU module. Expansion Interface Modules are available in two mounting styles : for integrated mounting and separate mounging.
For integrated mounting, expansion interface module FC5A-EXM2 is mounted next to the seventh I/O module and more I/O modules are mounted next to the expansion interface module.
For separate mounting, expanion interface master modue FC5A-EXM1M and expansion interface slave module FC5A-EXM1S are used. The expanion interface master module is mounted at the end of I/O moudles, the expansion interface slave module is used at the beginning of the other I/O modules, and master and slave modules are connected with expansion interface cable FC5A-KX1C.
Expansion module can be used with FC5A Slim CPU Module (FC5A-D32K3, FC5A-D32S3, FC5A-D16RK1, FC5A-D16RS1) only.
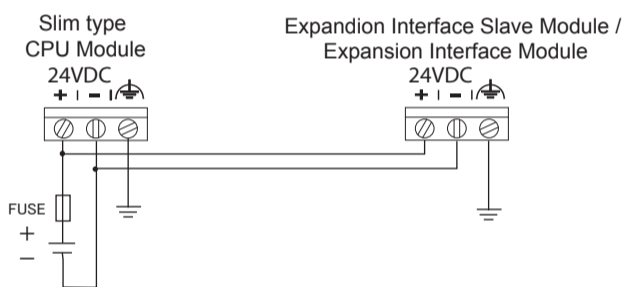Verify the type number of the CPU module before using.
(Note that the Expansion Interface module cannot be used with FC5A all-in-one type CPU modules, FC4A slim-type CPU modules and FC4A all-in-one type CPU Modules.)
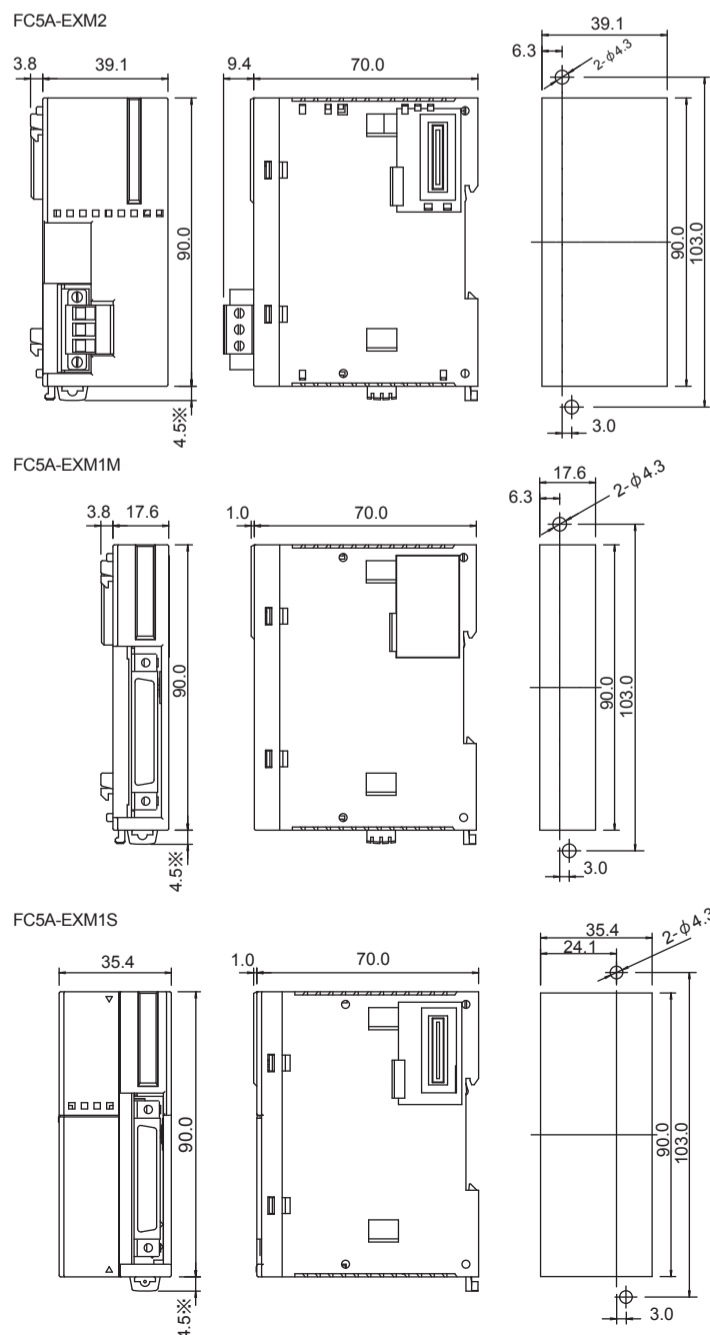
1 Type

Module Name	Type No.	Remarks
Expansion Interface Module	FC5A-EXM2	For integrated mounting
Expansion Interface Master Module	FC5A-EXM1M	For Separate mounting
Expansion Interface Slave Module	FC5A-EXM1S	
Expansion Interface Cable (1.0m)	FC5A-KX1C	

2 Wiring

Use one power supply to power the CPU module and the expansion interface module or expansion interface slave module.
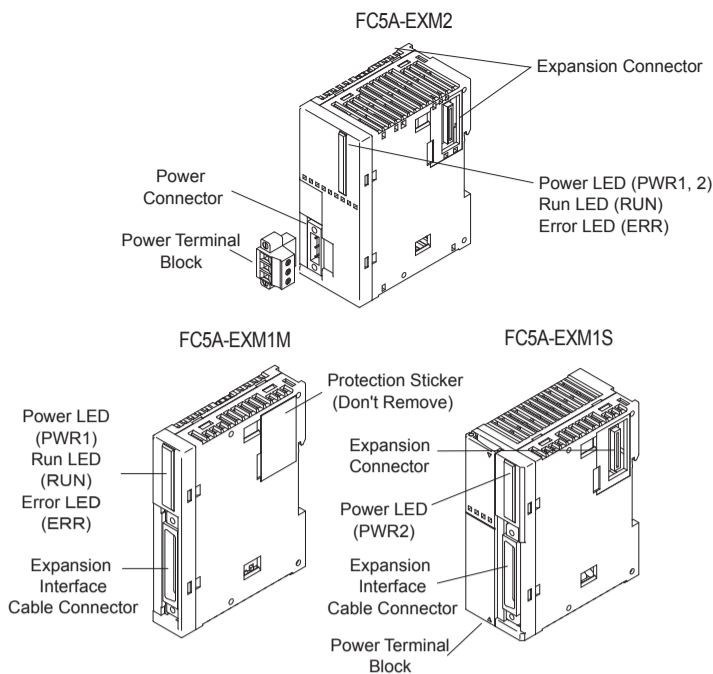

3 Dimensions

FC5A-EXM2

FC5A-EXM1M

FC5A-EXM1S

※ 8.5mm when the clamp is pulled out. Dimensions in mm.

4 Parts Description

FC5A-EXM2

Expansion Connector
Power Connector
Power Terminal Block
Power LED (PWR1, 2)
Run LED (RUN)
Error LED (ERR)

FC5A-EXM1M

Power LED (PWR1)
Run LED (RUN)
Error LED (ERR)
Expansion Interface Cable Connector

FC5A-EXM1S

Protection Sticker (Don't Remove)
Expansion Connector
Power LED (PWR2)
Expansion Interface Cable Connector
Power Terminal Block

5 Assembling Modules

The maximum numbers of digital I/O module is 8 after the expansion interface module.
DC input modules, digital output modules, mixed I/O modules can be connected to the right of expansion interface module.

> ⚠ CAUTION
> ・ AC input module, analog I/O modules, and AS-Interface master module cannot be connected to the right of the expanion interface moudle.
> ・ Only one expansion module can be used with the CPU module.
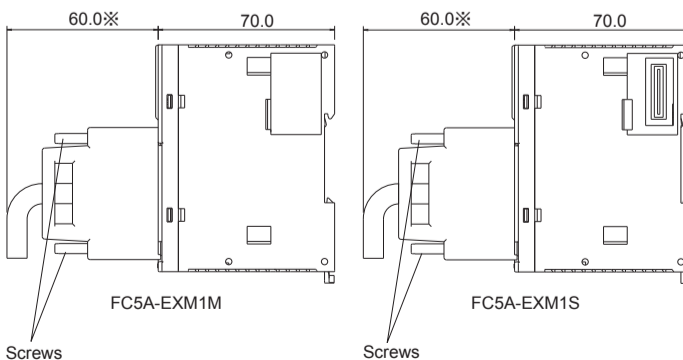
Expansion Interface Module (FC5A-EXM2)

Max 8 modules
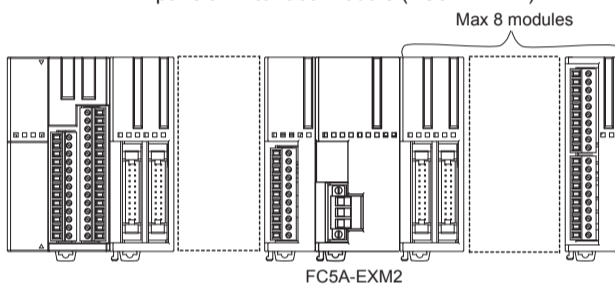
FC5A-EXM2

Expansion Interface Master and Slave Module (FC5A-EXM1M, FC5A-EXM1S)

FC5A-EXM1M

FC5A-KX1C (Expansion interface cable)

Max 8 modules
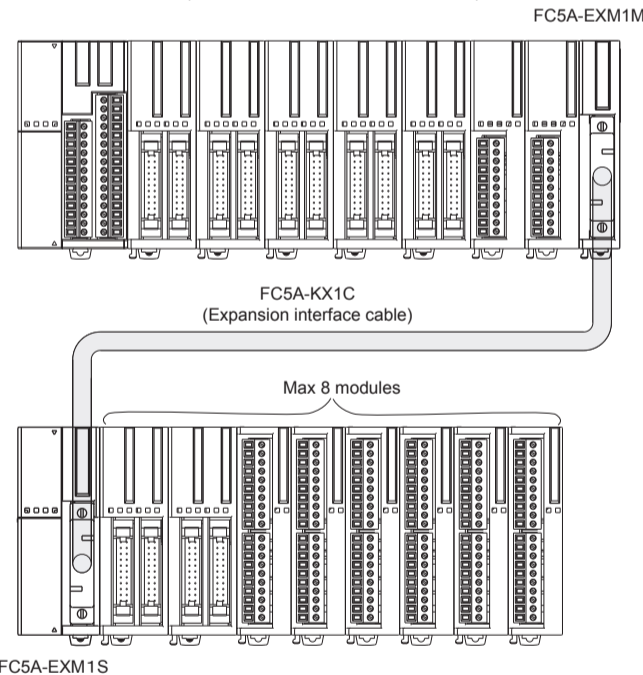
FC5A-EXM1S

6 Connecting of expansion interface cable

You can use cable type Expansion Interface Module connecting Master (FC5A-EXM1M) and Slave (FC5A-EXM1S) with expansion interface cable (FC5A-KX1C).
After making sure power supplies are turn off, connect expansion interface cable to expansion interface cable connector and secure it using screws.
Use the optional expansion interface cable FC5A-KX1C for connection between the expanion interface master and slave modules.
(Tightening Torque : 0.25 to 0.31 N・m)

FC5A-EXM1M
FC5A-EXM1S
Screws

※A standard size installed expansion interface cable. Dimensions in mm.

> ⚠ CAUTION
> ・ Before installing or removing the expansion interface cable, turn off the power to the CPU module and the expansion interface module.
>   Otherwise, the Expansion Interface module or CPU module may be dameged, or the Microsmart may not operate correctly.

7 Connecting of power supply

FC5A-EXM2
Perform wiring with terminal block removed from the Expansion Interface module.
After connecting the terminal block to the connector, secure it using the screws.
(Tightening Torque : 0.5 N・m)

FC5A-EXM1S
Turn off the power to the expansion interface slave module before wiring.
(Tightening Torque : 0.5 N・m)

FC5A-EXM2
FC5A-EXM1M
FC5A-EXM1S

24VDC
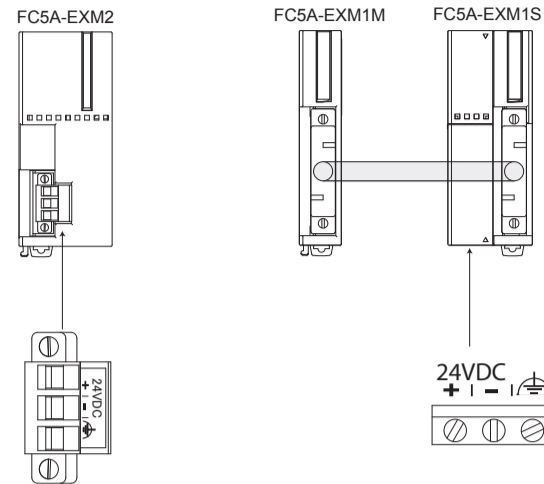
8 Applicable Ferrule Dimensions

To crimp the ferrules show below, use a special crimping tool (CRIMPFOX ZA 3).

For 1-cable connection
6.0mm   8.0mm
(Al 1-8 RD , Al 1.5-8 BK)
(Al 0.5-8 WH)

For 2-cable connection
7.0mm   8.0mm
(Al TWIN 2 × 0.75-8 GY)
(Al TWIN 2 × 0.5-8 WH)

( )indicates the Type No. of Phoenix Contact

9 Recommended Screwdriver

When wiring the Phoenix Contact terminal block, use the recommended screwdriver.
(Phoenix Contact Type No. : SZS 0.6 × 3.5, SZS 0.4 × 2.5)

10 Safety Precautions

Special expertise is required to use the MicroSmart.
・ Read this instruction sheet and the user's manual to make sure of correct operation before starting installation, wiring, operation, maintenance, and inspection of the MicroSmart. Keep this instruction sheet at the end user.
・ All MicroSmart modules are manufactured under IDEC's rigorous quality control system, but users must add a backup or failsafe provision to the control system using the MicroSmart in applications where heavy damage or personal injury may be caused in case the MicroSmart should fail.
・ Install the MicroSmart according to instructions described in this instruction sheet and the user's manual. Improper installation will result in falling, failure, or malfunction of the MicroSmart.
・ Make sure that the operating conditions are as described in the user's manual. If you are uncertain about the specifications, contact IDEC in advance.
・ In this instruction sheet, safety precautions are categorized in order of importance to Warning and Caution:

> ⚠ WARNING

(Warning notices are used to emphasize that improper operation may cause severe personal injury or death.)
・ Turn off the power to the MicroSmart before starting installation, removal, wiring, maintenance, and inspection on the MicroSmart. Failure to turn power off may cause electrical shocks or fire hazard.
・ Emergency stop and interlocking circuits must be configured outside the MicroSmart. If such a circuit is configured inside the MicroSmart, failure of the MicroSmart may cause disorder of the control system, damage, or accidents.
・ This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only.
・ Warning - Explosion Hazard - Substitution of components may impair suitability for Class I, Division 2.
・ Warning - Explosion Hazard - Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

> ⚠ CAUTION

(Caution notices are used where inattention might cause personal injury or damage to equipment.)
・ The MicroSmart is designed for installation in equipment. Do not install the MicroSmart outside equipment.
・ Install the MicroSmart in environments described in the user's manual. If the MicroSmart is used in places where the MicroSmart is subjected to high-temperature, high-humidity, condensation, corrosive gases, excessive vibrations, and excessive shocks, then electrical shocks, fire hazard, or malfunction will result.
・ The environment for using the MicroSmart is "Pollution degree 2."
・ Prevent metal fragments and pieces of wire from dropping inside the MicroSmart 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 a proper tightening torque of 0.5 N·m (power supply terminals) or 0.25 to 0.31 N·m (expansion interface cable screws).
・ Use an IEC60127-approved fuse on the power line and output circuit to meet voltage and current requirements. (Recommended fuse: Littelfuse 5x20mm slow-blow type 218000 series/Type T) This is required when exporting equipment containing MicroSmart to Europe.
・ Use an EU-approved circuit breaker. This is required when exporting equipment containing MicroSmart to Europe.
・ If relays or transistors in the MicroSmart output modules should fail, outputs may remain on or off. For output signals which may cause heavy accidents, provide a monitor circuit outside of the MicroSmart.
・ Do not disassemble, repair, or modify the MicroSmart modules.

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