IDEC

INSTRUCTION SHEET

MICROSmart

FC6A Series
Communication module

This sheet provides brief operating instructions of the MICROSmart programmable controller.
For details, see the FC6A Series MICROSmart User's Manual.

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 where it can be accessed by the end user.
- All MICROSmart modules are manufactured under IDEC's rigorous quality control system, but users must add backup or failsafe provisions to control systems use the MICROSmart in applications where heavy damage or personal injury may be caused if the MICROSmart should fail.
- Install the MICROSmart 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 MICROSmart.
- Make sure that the operating conditions are as described in the user's manual. If you are uncertain about the specifications, contact IDEC before using the MICROSmart.
- 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 MICROSmart before starting installation, removal, wiring, maintenance, or inspection on the MICROSmart.
- Failure to turn off the power 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.

⚠ CAUTION

- The MICROSmart is designed for installation in equipment. Do not install the MICROSmart outside of equipment.
- Install the MICROSmart in environments as described in the user's manual.
  If the MICROSmart is used in places where it is subjected to high-temperature, high-humidity, condensation, corrosive gases, excessive vibrations, or excessive shocks it will result in electrical shocks, fire hazard, or malfunction.
- The environment rating 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 the proper tightening torque of 0.28 N·m.
- Use an IEC60127-approved fuse on the power line and output circuit to meet voltage and current requirements.(Recommended fuse: Littelfuse 5×20mm 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 MICROSmart modules.

1 TYPE

FC6A-SIF52

Applicable model
　FC6A Series MICROSmart CPU module

2 Specification

Operating Temperature: -10 to +55℃, Storage Temperature: -25 to +70℃ (no freezing)
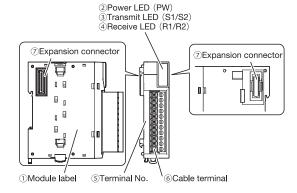Relative/Storage Humidity: 10 to 95%RH(no condensation),
Altitude: 1013 to 795hPa (0 to 2,000 m) during operation 1013 to 701hPa (0 to 3,000 m) during transport,
Vibration Resistance: 5 to 8.4 Hz half amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s² (1 G), X, Y, Z directions, 2 hours,
Shock Resistance: 147 m/s² (15 G), 11 ms, X, Y, Z directions, 3 times
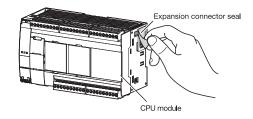*See the user's manual for more details on the product specifications.

3 Parts Description

②Power LED（PW）
③Transmit LED（S1/S2）
④Receive LED（R1/R2）
⑦Expansion connector
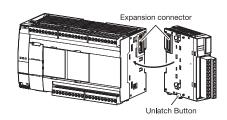⑦Expansion connector
①Module label　⑤Terminal No.　⑥Cable terminal

(1) Module Label
　Indicates the module type number and specifications.
(2) Power LED (PW)
　This LED turns on when power is supplied to the Communication module.
(3) Transmit LEDs (S1/S2)
　These LEDs turn on when data is being transmitted from the Communication module.
(4) Receive LEDs (R1/R2)
　These LEDs turn on when the Communication module is receiving data.
(5) Terminal No.
　Indicates the terminal names.
(6) Cable Terminals
　These terminals are used to connect the power supply, input devices, and output devices.
(7) Expansion Connector
　This connector is used to connect the Communication module to an expansion module or CPU module.

4 Connecting Modules

1. When connecting an Communication module, remove the expansion connector seal from the CPU module.

Expansion connector seal
CPU module

2. Place the CPU module and Communication module side by side. Put the expansion connectors together for easy alignment.

3. With the expansion connectors aligned correctly and the unlatch button in the down position, press the CPU module and Communication module together until the latches click to attach the modules together firmly. If the unlatch button is in the up position, push down the button to engage the latches.
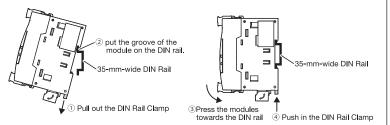

Expansion connector
Unlatch Button

5 Mounting Modules

For details about mounting and removing modules, see the user's manual.

[Mounting on DIN Rail]
　Use a 35-mm-wide DIN rail and BNL6 mounting clips to secure the modules.
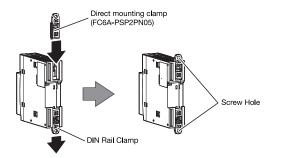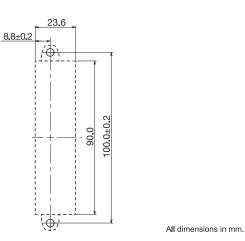

② put the groove of the module on the DIN rail.
35-mm-wide DIN Rail
35-mm-wide DIN Rail
① Pull out the DIN Rail Clamp
③Press the modules towards the DIN rail
④ Push in the DIN Rail Clamp

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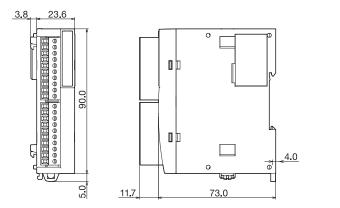　Attach the module to the mounting plate using the screw holes.
　Attach the module to the mounting plate using M4 tapping screws, as shown below, or make 5 to 6mm mounting holes and secure the module using M4 pan head screws. Always give sufficient consideration to operability, ease-of-maintenance, and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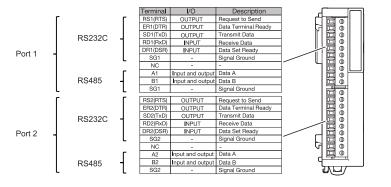

Direct mounting clamp (FC6A-PSP2PN05)
Screw Hole
DIN Rail Clamp

23.6
8.8±0.2
90.0
100.0±0.2

All dimensions in mm.

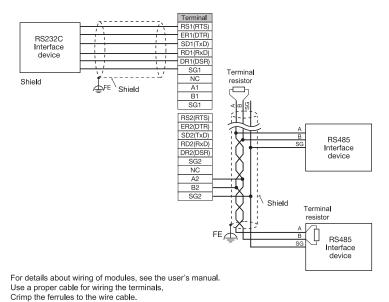## 6 Dimensions

3.8　23.6
90.0
4.0
11.7　73.0
5.0

All dimensions in mm.

7 Wiring

The Serial Communication module is equipped with two serial ports, and serial communications are possible using both serial ports simultaneously. RS-232C or RS-485 can be selected and used for each port. (A single port cannot use both RS-232C and RS-485 simultaneously.)

Terminal	I/O	Description
RS1(RTS)	OUTPUT	Request to Send
ER1(DTR)	OUTPUT	Data Terminal Ready
SD1(TxD)	OUTPUT	Transmit Data
RD1(RxD)	INPUT	Receive Data
DR1(DSR)	INPUT	Data Set Ready
SG1	-	Signal Ground
NC	-	-
A1	Input and output	Data A
B1	Input and output	Data B
SG1	-	Signal Ground
RS2(RTS)	OUTPUT	Request to Send
ER2(DTR)	OUTPUT	Data Terminal Ready
SD2(TxD)	OUTPUT	Transmit Data
RD2(RxD)	INPUT	Receive Data
DR2(DSR)	INPUT	Data Set Ready
SG2	-	Signal Ground
NC	-	-
A2	Input and output	Data A
B2	Input and output	Data B
SG2	-	Signal Ground

Port 1: RS232C, RS485
Port 2: RS232C, RS485

RS232C Interface device
Shield
FE
Shield
Terminal
RS1(RTS), ER1(DTR), SD1(TxD), RD1(RxD), DR1(DSR), SG1, NC, A1, B1, SG1, RS2(RTS), ER2(DTR), SD2(TxD), RD2(RxD), DR2(DSR), SG2, NC, A2, B2, SG2
Terminal resistor
RS485 Interface device
Shield
Terminal resistor
FE
RS485 Interface device

For details about wiring of modules, see the user's manual.
Use a proper cable for wiring the terminals.
Crimp the ferrules to the wire cable.
Before wiring, read the user's manual for the remote device connected to the modules.
Use the shielded cable and connect the shields of the cable to ground to suppress the influence of noises.
If the communication quality is unstable, insert appropriate termination resistors matched to the characteristic impedance of the cabole.
Over 1/2W resistors are recommended for the terminal resistor.

8 Applicable Ferrule

The recommended ferrule is made by Phoenix Contact.
To crimp the ferrules shown below, use a special crimping tool (CRIMPFOX 6 (1212034))

　AI 0,25-8 (3203037), AI 0,25-10 (3241128), AI 0,34-8 (3203066),
　AI 0,34-10 (3241129), AI 0,5-8 (3200014), AI 0,5-8 GB (1208966),
　AI 0,5-10 (3201275), AI 0,5-10 GB (3203150), AI-TWIN 2×0,5-10 (3203309)

　( ) indicates the Type No. of PHOENIX CONTACT GmbH & Co. KG

9 Recommended Screwdriver / Tighting torque

To wire the terminal block, use the recommended screwdriver made by Phoenix Contact and tighten terminal screws to the proper tightening torque.

　Screwdriver : SZS 0,4×2,5 (1205037) / Tighten torque : 0.28 N·m

　( ) indicates the Type No. of PHOENIX CONTACT GmbH & Co. KG

MICROSmart User's manual can be downloaded from http://www.idec.com/download.

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