Think Automation and beyond...

From FC4A/5A series MICROSmart Programmable Controller to
FC6A Plus CPU module

Replacement Manual

IDEC CORPORATION

Contents

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■ About this document

This document is a manual for replacing the FC4A/5A series MICROSmart Programmable Controller with the FC6A Plus. Refer to this document together with the FC6A Series Catalog (EP1575) and Users' Manual for FC6A Series (FC9Y-B1722).

For customers who mainly use the 10/16/24-I/O type of the FC4A/5A All-in-one CPU module and do not need to expand the number of I/Os, it is recommended to replace it with the FT1A series. For details, refer to the Replacement Manual B-1879.

■ Replacement with FC6A Plus

- Power supply and I/O terminal sizes or connector shapes are different between the FC4A/5A series and the FC6A Plus. Thus, recommended wires and ferrules for wiring are partially different depending on the series. Refer to [Wiring in page 21].
- The FC6A Plus can perform serial communication with a maximum of 33 serial ports (RS232C or RS485) by using a communication cartridge (FC6A-PC1/PC3) and a communication module (FC6A-SIF).
- The basic number of inputs/outputs built in the CPU Module is different between the FC4A/5A series and the FC6A Plus. Inputs/outputs could not be expanded beyond the basic number of I/Os in some types of the FC4A/5A series. However, I/Os can be expanded in all the CPU Modules of the FC6A Plus. The Maximum I/Os depends on the combination of Expansion Modules to be connected. Select the modules in consideration of this point. For the FT1A series, I/Os cannot be expanded beyond the basic number of I/Os. Refer to [CPU Module selection in page 4].
- Expansion Modules may have different detailed specifications even if they are recommended models for replacement. Refer to [Expansion Module selection table in page 8].
- A replacement module for the FC4A series AS-Interface master module is not available.
- The program capacities are different between the FA4A/5A series and the FC6A Plus. Refer to [CPU Module selection in page 4].
- A clock is built in the CPU Module for the FC6A Plus. An external clock cartridge is not required.
- The FC6A Plus uses a primary battery as the backup battery. In the FC6A Plus, if the battery has run down and it needs to be replaced, the "BAT" is indicated by LED when the power is turned on again. (The standard replacement cycle is approximately four years regardless of the backup time while the power is OFF.)
- The FC6A Plus does not support modem communication, Modbus ASCII communication, and Modbus TCP communication via a serial communication port.

CPU Module selection table

Selection table for changing from the FC4A/5A series All-in-One type -> the FC6A Plus

FC4A/5A series No.	Main specifications							Recommended FC6A series No. for replacement	Main specifications						
	Power supply voltage	Program capacity (steps)	I/O specifications	Processing speed basic command (ns)	Number of expandable units	Max. I/Os *1	Width mm		Power supply voltage	Program capacity (steps)	I/O specifications	Processing speed basic command (ns)	Number of expandable units	Max. I/Os	Width mm
FC4A -C10R2C	24 VDC	0.8K	6 pts. input and 4 pts. relay output (2A) 3 pts.:COM0 1 pts.:COM1	1,000	Not possible	10	80	FC6A-D16R1CEE	24 VDC	100K	8 pts. input and 8 pts. relay output (2A) 4 pts.:COM0 4 pts.:COM1	21	7 (15) *2 (63) *3	224 (480) *2 (2016) *3	70
FC5A -C10R2C		2.3K		700											
FC4A -C16R2C		2.5K	9 pts. input and 7 pts. relay output (2A) 4 pts.:COM0 2 pts.:COM1 1 pts.:COM2	1,000		16									
FC5A -C16R2C		4.5K		700											

*1   The number of expansible modules does not include expansion interface modules.

*2   The numbers in parentheses indicate the number of expansible modules and number of I/O points when the FC5A series is combined with the expansion interface module (unibody type) FC6A-EXM2 series.

*3   The numbers in parentheses indicate the number of expansible modules and number of I/O points when the expansion interface module (unibody type) FC6A-EXM2 series and the expansion interface module (separate type master) FC6A-EXM1M series are combined with the expansion interface module (separate type slave) FC6A-EXM1S series.

Selection table for changing from the FC4A/5A series Slim type -> the FC6A Plus

FC4A/5A series No.	Main specifications							Recommended FC6A series No. for replacement	Main specifications						
	Power supply voltage	Program capacity (steps)	I/O specifications	Processing speed basic command (ns)	Number of expandable units	Max. I/Os	Width mm		Power supply voltage	Program capacity (steps)	I/O specifications	Processing speed basic command (ns)	Number of expandable units *1	Max. I/Os	Width mm
FC4A -D20K3	24 VDC	27KB (4.5K)	12 pts. input and 8 pts. output transistor sink (0.3A) 8 pts.:COM	1000	7	128	35.4	FC6A- D16K1CEE	24 VDC	800KB (100K)	8 pts. input and 8 pts. output transistor sink (0.5A) 8 pts.:COM	21	7 (15) *2 (63) *3	224 (480) *2 (2016) *3	70
FC4A -D20S3			12 pts. input and 8 pts. output transistor source (0.3A) 8 pts.:COM					FC6A- D16P1CEE			8 pts. input and 8 pts. output transistor source (0.5A) 8 pts.:COM				
FC4A -D20RK3		31.2KB (5.2K)	12 pts. input and 6 pts. output relay (2A) 3 pts.:COM1 2 pts.:COM2 1 pts.:COM3 2 pts. output transistor sink (0.3A) 2 pts.:COM0			224	47.5	FC6A- D32K3CEE			16 pts. input and 16 pts. output transistor sink (0.1A) 16 pts.:COM				
FC4A -D20RS3			12 pts. input and 6 pts. output relay (2A) 3 pts.:COM1 2 pts.:COM2 1 pts.:COM3 2 pts. output transistor source (0.3A) 2 pts.:COM0					FC6A- D32P3CEE			16 pts. input and 16 pts. output transistor source (0.1A) 16 pts.:COM				
FC4A -D40K3			24 pts. input and 16 pts. output transistor sink (0.3A) 8 pts.:COM0 8 pts.:COM1			224	47.5	FC6A- D32K3CEE			16 pts. input and 16 pts. output transistor sink (0.1A) 10 pts.:COM				
FC4A -D40S3			24 pts. input and 16 pts. output transistor source (0.3A) 8 pts.:COM0 8 pts.:COM11					FC6A- D32P3CEE			16 pts. input and 16 pts. output transistor source (0.1A) 16 pts.:COM				

*1   The number of expansible modules does not include expansion interface modules.

*2   The numbers in parentheses indicate the number of expansible modules and number of I/O points when the FC5A series is combined with the expansion interface module (unibody type) FC6A-EXM2 series.

*3   The numbers in parentheses indicate the number of expansible modules and number of I/O points when the expansion interface module (unibody type) FC6A-EXM2 series and the expansion interface module (separate type master) FC6A-EXM1M series are combined with the expansion interface module (separate type slave) FC6A-EXM1S series.

CPU Module selection table

Selection table for changing from the FC4A/5A series Slim type -> the FC6A Plus (Continued)

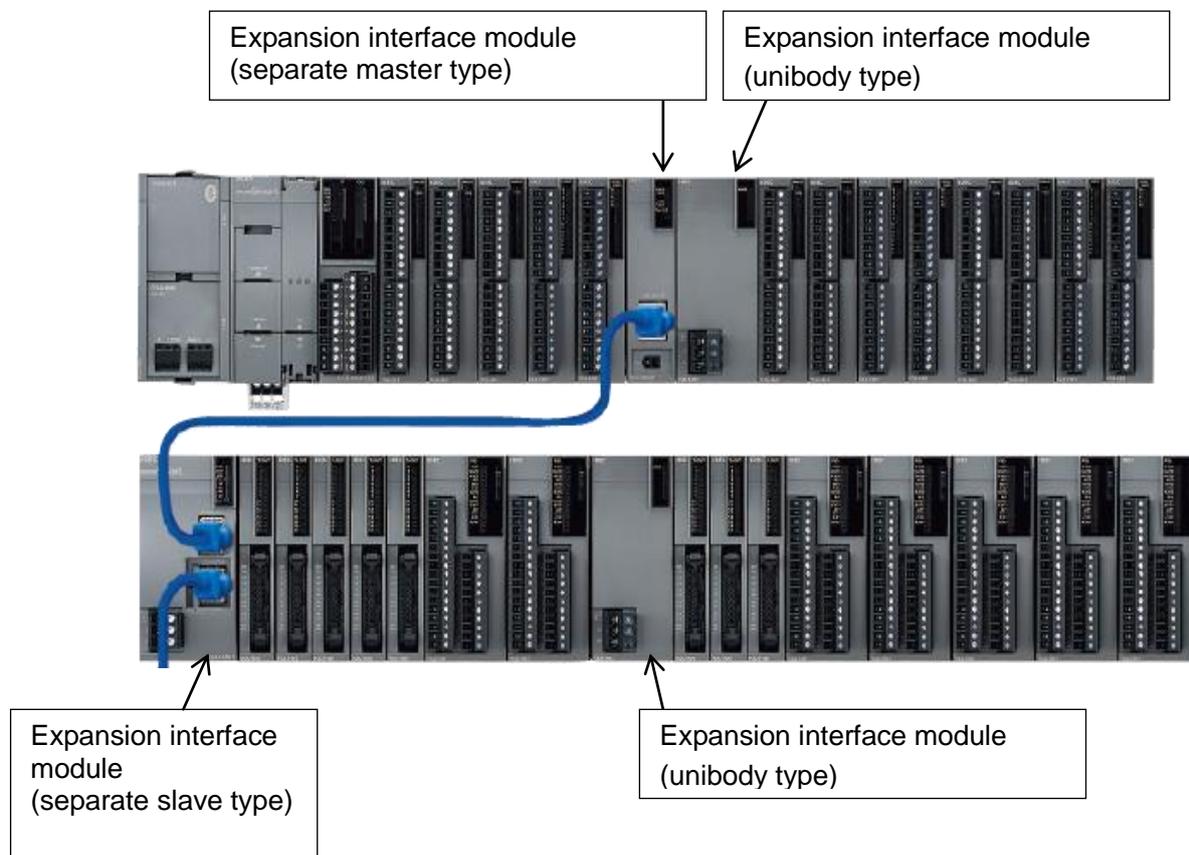| FC4A/5A series No.	Main specifications							Recommended FC6A series No. for replacement	Main specifications						
	Power supply voltage	Program capacity (steps)	I/O specifications	Processing speed basic command (ns)	Number of expandable units	Max. I/Os	Width mm		Power supply voltage	Program capacity (steps)	I/O specifications	Processing speed basic command (ns)	Number of expandable units *1	Max. I/Os	Width mm
FC5A -D12K1E	24 VDC	127.8 KB (21.3K)	8 pts. input and 4 pts. output transistor sink (0.3A) 4 pts.:COM	56	7 (15)	224 (480)	47.5	FC6A- D16K1CEE	24 VDC	800KB (100K)	8 pts. input and 8 pts. output transistor sink (0.5A) 8 pts.:COM	21	7 (15) *2 (63) *3	224 (480) *2 (2016) *3	70
FC5A -D12S1E			8 pts. input and 4 pts. output transistor source (0.3A) 4 pts.:COM					FC6A- D16P1CEE			8 pts. input and 8 pts. output transistor source (0.5A) 8 pts.:COM				
FC5A -D16RK1		62.4 KB (10.4K)	8 pts. input and 6 pts. output relay (2A) 3 pts.:COM1 2 pts.:COM2 1 pts.:COM3 2 pts. output transistor sink (0.3A) 2 pts.:COM0					FC6A- D16K1CEE			8 pts. input and 8 pts. output transistor sink (0.5A) 8 pts.:COM				
			8 pts. input and 6 pts. output relay (2A) 3 pts.:COM1 2 pts.:COM2 1 pts.:COM3 2 pts. output transistor source (0.3A) 2 pts.:COM0					FC6A- D16R1CEE			8 pts. input and 8 pts. output relay (2A) 4 pts.:COM0 4 pts.:COM1				
FC5A -D16RS1								FC6A- D16P1CEE			8 pts. input and 8 pts. output transistor source (0.5A) 8 pts.:COM				
FC5A -D32K3			16 pts. input and 16 pts. output transistor sink (0.3A) 8 pts.:COM0 8 pts.:COM1					FC6A- D32K3CEE			16 pts. input and 16 pts. output transistor sink (0.1A) 10 pts.:COM				
FC5A -D32S3			16 pts. input and 16 pts. output transistor source (0.3A) 8 pts.:COM0 8 pts.:COM1					FC6A- D32P3CEE			16 pts. input and 16 pts. output transistor source (0.1A) 16 pts.:COM				

*1   The number of expansible modules does not include expansion interface modules.

*2   The numbers in parentheses indicate the number of expansible modules and number of I/O points when the FC5A series is combined with the expansion interface module (unibody type) FC6A-EXM2 series.

*3   The numbers in parentheses indicate the number of expansible modules and number of I/O points when the expansion interface module (unibody type) FC6A-EXM2 series and the expansion interface module (separate type master) FC6A-EXM1M series are combined with the expansion interface module (separate type slave) FC6A-EXM1S series.

Limitations when expanding on the right side of the Plus CPU module and expansion interface module

	Digital I/O Module	Analog I/O Module	Communication Module	PID Module	Expansion interface module (separate master type) FC6A-EXM1S
FC6A 形 Plus CPU module FC6A-D****CEE	Available	Available	Available	Available	Available
Expansion interface module (unibody type) FC6A-EXM2	Available	Available	Available	Available	N/A
Expansion interface module (separate slave type) FC6A-EXM1S	Available	Available	N/A	Available	N/A

Connect the expansion interface module (separate type master) to the left side of the expansion interface module (unibody type).

Expansion interface module (separate master type)

Expansion interface module (unibody type)

Expansion interface module (separate slave type)

Expansion interface module (unibody type)

Expansion Module selection table

FC4A/5A series Digital I/O Module -> FC6A series Digital I/O Module

FC4A/5A series No.	Main specifications				Recommended FC6A series No. for replacement	Main specifications				Terminal shape
	Terminal		I/O specifications	Width mm		Terminal		I/O specifications	Width mm	
	Number of pins	Pitch (mm)				Number of pins	Pitch (mm)			
FC4A-N08B1	11	3.81	8 pts. input 8 pts./1 common	23.5	FC6A-N08B1	11	5.08	8 pts. input 8 pts./1 common	23.6	Different
FC4A-N16B1	10x2	3.81	16 pts. input 16 pts./1 common	23.5	FC6A-N16B1	10x2	3.81	16 pts. input 16 pts./1 common	23.6	No change
FC4A-N16B3	20	MIL Connector	16 pts. input 16 pts./1 common	17.6	FC6A-N16B3	20	MIL Connector	16 pts. input 16 pts./1 common	17.6	No change
FC4A-N32B3	20x2	MIL Connector	32 pts. input 16 pts./1 common	29.7	FC6A-N32B3	20x2	MIL Connector	32 pts. input 16 pts./1 common	30.2	No change
FC4A-N08A11	11	3.81	8 pts. input 4 pts./1 common	23.5	FC6A-N08A11	11	5.08	8 pts. input 4 pts./1 common	23.6	Different
FC4A-R081	11	3.81	8 pts. output relay (2A) 4 pts./1 common	23.5	FC6A-R081	11	5.08	8 pts. output relay (2A) 4 pts./1 common	23.6	Different
FC4A-R161	10x2	3.81	16 pts. output relay (2A) 8 pts./1 common	23.5	FC6A-R161	10x2	3.81	16 pts. output relay (2A) 8 pts./1 common	23.6	No change
FC4A-T08K1	11	3.81	8 pts. output transistor sink (0.3A) 8 pts./1 common	23.5	FC6A-T08K1	11	5.08	8 pts. output transistor sink (0.5A) 8 pts./1 common	23.6	Different
FC4A-T08S1	11	3.81	8 pts. output transistor source (0.3A) 8 pts./1 common	23.5	FC6A-T08P1	11	5.08	8 pts. output transistor source (0.5A) 8 pts./1 common	23.6	Different
FC4A-T16K3	20	MIL Connector	16 pts. output transistor sink (0.1A) 16 pts./1 common	17.6	FC6A-T16K3	20	MIL Connector	16 pts. output transistor sink (0.1A) 16 pts./1 common	17.6	No change
FC4A-T16S3	20	MIL Connector	16 pts. output transistor source (0.1A) 16 pts./1 common	17.6	FC6A-T16P3	20	MIL Connector	16 pts. output transistor source (0.1A) 16 pts./1 common	17.6	No change
FC4A-T32K3	20x2	MIL Connector	32 pts. output transistor sink (0.1A) 16 pts./1 common	29.7	FC6A-T32K3	20x2	MIL Connector	32 pts. output transistor sink (0.1A) 16 pts./1 common	30.2	No change
FC4A-T32S3	20x2	MIL Connector	32 pts. output transistor source (0.1A) 16 pts./1 common	29.7	FC6A-T32P3	20x2	MIL Connector	32 pts. output transistor source (0.1A) 16 pts./1 common	30.2	No change
FC4A-M08BR1	11	3.81	4 pts. input 4 pts./1 common 4 pts. output relay (2A) 4 pts./1 common	23.5	FC6A-M08BR1	11	5.08	4 pts. input 4 pts./1 common 4 pts. output relay (2A) 4 pts./1 common	23.6	Different
FC4A-M24BR2	11,17	3.81	16 pts. input 16 pts./1 common 8 pts. output relay (2A) 8 pts./1 common	39.1	FC6A-M24BR1	11,17	3.81	16 pts. input 16 pts./1 common 8 pts. output relay (2A) 8 pts./1 common	39.2	Different

FC4A/5A series Analog Input Module -> FC6A series Analog Input Module

| FC4A/5A series No. | Main specifications | | | | Recommended FC6A series No. for replacement | Main specifications | | | | Terminal shape |
| | Analog input specifications | | | Width mm | | Analog input specifications | | | Width mm | |
	I/O points	Type	Resolution			I/O points	Type	Resolution		
FC4A-J2A1	2	Voltage (0 to 10 V) Current (4 to 20 mA)	4,096	23.5	FC6A-J2C1	2	Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20mA)	65,536	23.6	Different
FC4A-J8C1	8	Voltage (0 to 10 V) Current (4 to 20 mA)	50,000	23.5	FC6A-J8A1	8	Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	4,096 65,536 *1	23.6	No change
FC4A-J4CN1	4	Voltage (0 to 10 V) Current (4 to 20 mA) Temperature measuring resistor (Pt100, Pt1000, Ni100, Ni1000) Thermocouple (K, J, T)	50,000	23.5	FC6A-J4CN1	4	Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	65,536	23.6	No change However, there is a difference in terminal layout
							Temperature measuring resistor (Pt100, Pt1000, Ni100, Ni1000) Thermocouple (K, J, R, S, B, E, T, N, C)	0.1ºC		
					FC6A-J4CH1Y	4	Thermocouple (K, J, R, S, B, E, T, N, C) Isolated to between input ports	0.1ºC	23.6	No change However, there is a difference in terminal layout
FC4A-J8AT1	8	Thermistor (NTC: -50 to 150°C, PTC: 0 to 100 kΩ)	25 Ω	23.5	FC6A-J8CU1	8	Thermocouple (K, J, R, S, B, E, T, N, C)	0.1ºC	23.6	No change
							Thermistor (NTC: -90 to 150°C, PTC 100 to 10 kΩ) Resistance (100 to 32 kΩ)	1 Ω		

*1   Resolution 65,536 is supported by version V200 or later of the main body. The version of the main body is indicated on the individual packing box or the nameplate of the main body.

FC4A/5A series Analog Output Module -> FC6A series Analog Output Module

| FC4A/5A series No. | Main specifications | | | | Recommended FC6A series No. for replacement | Main specifications | | | | Terminal shape |
| | Analog input specifications | | | Width mm | | Analog input specifications | | | Width mm | |
	I/O points	Type	Resolution			I/O points	Type	Resolution		
FC4A-K1A1	1	Voltage (0 to 10 V) Current (4 to 20 mA)	4,096	23.5	FC6A-K2A1	2	Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	4,096 *1	23.6	Different
FC4A-K2C1	2	Voltage (0 to 10 V) Current (4 to 20 mA)	50,000	23.5						
FC4A-K4A1	4	Voltage (0 to 10 V) Current (4 to 20 mA)	4,096	23.5	FC6A-K4A1	4	Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	4,096	23.6	Different

*1   When replaced from FC4A-K2C1, the resolution will be lowered.
       For voltage input: in increments of 0.2 mV (FC4A series) -> 2.44 mV (FC6A series)
       For current input: in increments of 0.32 uA (FC4A series) -> 3.91 uA (FC6A series)

Expansion Module selection table

FC4A/5A series Analog I/O Module -> FC6A series Analog I/O Module

FC4A/5A series No.	Main specifications				Recommended FC6A series No. for replacement	Main specifications				Terminal shape
	Analog I/O specifications			Width mm		Analog I/O specifications			Width mm	
	I/O points	Type	Resolution			I/O points	Type	Resolution		
FC4A-L03A1	3	2 pts. input Voltage (0 to 10 V) Current (4 to 20 mA) 1 pts. output Voltage (0 to 10 V) Current (4 to 20 mA)	4,096	23.5	FC6A-L06A1	6	4 pts. input Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA) 2 pts. output Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	4.096	23.6	No change
					FC6A-L03CN1	3	2 pts. input Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	65,536	23.6	Different
							Temperature measuring resistor (Pt100, Pt1000, Ni100, Ni1000) Thermocouple (K, J, R, S, B, E, T, N, C)*1	0.1°C		
							1 pts. output Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	4,096		
FC4A-L03AP1	3	2 pts. input Temperature measuring resistor (Pt100) Thermocouple (K, J, T)	0.1°C	23.5	FC6A-L03CN1	3	2 pts. input Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	65,536	23.6	Different
							Temperature measuring resistor (Pt100, Pt1000, Ni100, Ni1000) Thermocouple (K, J, R, S, B, E, T, N, C)*1	0.1°C		
		1 pts. output Voltage (0 to 10 V) Current (4 to 20 mA)	4,096				1 pts. output Voltage (0 to 10 V) Voltage (-10 to +10 V) Current (0 to 20 mA) Current (4 to 20 mA)	4,096		

*1   With regard to the input taking system, single end input is used for the FC6A-L03CN1, while differential input is used for FC4A-L03AP1.
Because single end input is susceptible to common mode noise, it is recommended to use insulation type thermocouples.

Expansion Module selection table

FC4A/5A series PID Module -> FC6A series PID Module

| FC4A/5A series No. | Main specifications | | | | Recommended FC6A series No. for replacement | Main specifications | | | | Terminal shape Analog I/O specifications |
| | Analog I/O specifications | | | | | Analog I/O specifications | | | | |
	I/O points	Type	Resolution	Width mm		I/O points	Type	Resolution	Width mm	
FC5A-F2MR2	4	2 pts. input Voltage (0 to 1 V, 0 to 5 V, 1 to 5 V, 0 to 10 V) Current (0 to 20 mA, 4 to 20 mA) Temperature measuring resistorThermocouple 2 pts. relay output (5A) 2 pts. independent common	Input 12,000	23.5	FC6A- F2MR1	4	2 pts. input Voltage (0 to 1 V, 0 to 5 V, 1 to 5 V, 0 to 10 V) Current (0 to 20 mA, 4 to 20 mA) Temperature measuring resistorThermocouple 2 pts. relay output (5A) 2 pts. independent common	Input 12,000	23.6	Different
FC5A-F2M2	4	2 pts. input Voltage (0 to 1 V, 0 to 5 V, 1 to 5 V, 0 to 10 V) Current (0 to 20 mA, 4 to 20 mA) Temperature measuring resistorThermocouple 2 pts. output Voltage output (12 V) Current output (4 to 20 mA)	Input 12,000 Output 1,000	23.5	FC6A-F2M1	2	2 pts. input Voltage (0 to 1 V, 0 to 5 V, 1 to 5 V, 0 to 10 V) Current (0 to 20 mA, 4 to 20 mA) Temperature measuring resistorThermocouple 2 pts. output Voltage output (12 V) Current output (4 to 20 mA)	Input 12,000 Output 1,000	23.6	Different

FC4A series communication option -> FC6A series communication cartridge

| FC4A/5A series No. | Main specifications | | | | | Recommended FC6A series No. for replacement | Main specifications | | | | |
| | Communication specifications | | | | | | Communication specifications | | | | |
	I/O points	Communication specifications	Communication range Communication speed	Isolation from internal circuit	Width mm		I/O points	Communication specifications	Communication range Communication speed	Isolation from internal circuit	Width mm
FC4A-PC1	1	RS232C (Mini DIN)	Max. 5 m Max. 115.2 Kbps	Not isolated	-	FC6A-PC1 *1	1	RS232C (Terminals)	Max. 5 m Max. 115.2 Kbps	Not isolated	42.2 *2
FC4A-PC2		RS485 (Mini DIN)	Max. 200 m Max. 115.2 Kbps			FC6A-PC3 *1		RS485 (Terminals)	Max. 200 m Max. 115.2 Kbps		
FC4A-PC3		RS485 (Terminals)									
FC4A-HPC1	1	RS232C (Mini DIN)	Max. 1,200 m Max. 115.2 Kbps	Not isolated	22.5	FC6A-PC1 *1	1	RS232C (Terminals)	Max. 5 m Max. 115.2 Kbps	Not isolated	42.2 *2
FC4A-HPC2		RS485 (Mini DIN)	Max. 200 m Max. 115.2 Kbps			FC6A-PC3 *1		RS485 (Terminals)	Max. 200 m Max. 115.2 Kbps		
FC4A-HPC3		RS485 (Terminals)									

*1   When using it on the FC6A Plus, connect the communication cartridge to the cartridge slot on the FC6A series cartridge base (FC6A-HPH1, Width: 42.2 mm) or the cartridge slot on the FC6A series HMI Module (FC6A-PH1, Width: 74.5 mm).

*2   Width of FC6A-HPH1 series cartridge base

Expansion Module selection table

FC5A series Communication Module -> FC6A series Communication Module

| FC4A/5A series No. | Main specifications | | | | | Recommended FC6A series No. for replacement | Main specifications | | | | |
| | Communication specifications | | | | | | Communication specifications | | | | |
	I/O points	Communication specifications	Communication range Communication speed	Isolation from internal circuit	Width mm		I/O points	Communication specifications	Communication range Communication speed	Isolation from internal circuit	Width mm
						FC6A-PC1 *1	1	RS232C (Terminals)	Max. 5 m Max. 115.2 Kbps	Not isolated	42.2 *2
FC5A-SIF2	1	RS232C	Max. 10 m Max. 115.2 Kbps	Isolated	23.5	FC6A-SIF52	2	Select RS232C or RS485	RS232C Max. 10 m Max. 115.2 Kbps RS485 Max. 1,200m Max. 115.2 Kbps	Isolated	23.6
FC5A-SIF4		RS485	Max. 1,200 m Max. 115.2 Kbps			FC6A-PC1 *2	1	RS485 (Terminals)	Max. 200 m Max. 115.2 Kbps	Not isolated	42.2 *

*1   When using it on the FC6A Plus, connect the communication cartridge to the cartridge slot on the FC6A series cartridge base (FC6A-HPH1, Width: 42.2 mm) or the cartridge slot on the FC6A series HMI Module (FC6A-PH1, Width: 74.5 mm).

*2   Width of FC6A-HPH1 series cartridge base

FC5A series Expansion Interface Module -> FC6A series Expansion Interface Module

| FC4A/5A series No. | Main specifications | | | | | Recommended FC6A series No. for replacement | Main specifications | | | | |
	Power supply voltage	Type	Communication cable	Communication range	Width mm		Power supply voltage	Type	Communication cable	Communication range	Width mm
FC5A-EXM2	24V DC	Integrated type	-	-	39.1	FC6A-EXM2	24V DC	Unibody type	-		39.2
FC5A-EXM1S		Cable pullout type slave	Dedicated cable (FC5A-KX1C)	1m	35.4	FC6A-EXM1S		Separate type slave	Ethernet cable (CAT.5.STP)	MAX. 100m	47.3
FC5A-EXM1M	-	Cable pullout type master			17.6	FC6A-EXM1M	-	Separate type master			23.6

The ranges of input and output numbers for the FC4A/FC5A series Slim type and the FC6A Plus are listed below.

Model	Input		Output	
	Existing number	Reserved number	Existing number	Reserved number
FC4A-D20RK1/D20RS1	X0～X13	X14～X27	Y0～Y7	Y10～Y27
	X30～X307		Y30～Y307	
FC4A-D20K3/D20S3	X0～X13	X14～X27	Y0～Y7	Y10～Y27
	X30～X187		Y30～Y187	
FC4A-D40K3/D40S3	X0～X27		Y0～Y17	Y20～Y27
	X30～X307		Y30～Y307	
FC5A-D12K1E/D12S1E	X0～X7	X10～X27	Y0～Y3	Y4～Y27
	X30～X627		Y30～Y627	
FC5A-D16RK1/D16RS1	X0～X7	X10～X27	Y0～Y7	Y10～Y27
	X30～X627		Y30～Y627	
FC5A-D32K3/D32S3	X0～X17	X20～X27	Y0～Y17	Y20～Y27
	X30～X627		Y30～Y627	
FC6A-D16R1CEE/D16K1CEE/D16P1CEE	I0～I7	I10～Y27	Q0～Q7	Q10～Q27
	I30～I2547		Q30～Q2547	
FC6A-D32K3CEE/D32P3CEE	I0～ I17	I16～I27	Q0～Q17	Q12～Q27
	I30～I2547		Q30～Q2547	

External dimensions

■ External dimensions of FC4A/5A series MICROSmart

● All-in-One type CPU Modules

FC4A-C10R2*/C16R2*　　　　　　　　　　FC4A-C24R2*
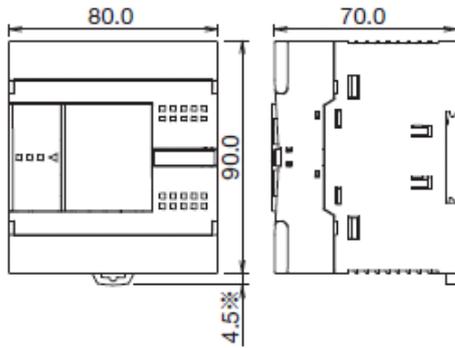
FC5A-C10R2*/C16R2*　　　　　　　　　　FC5A-C24R2*
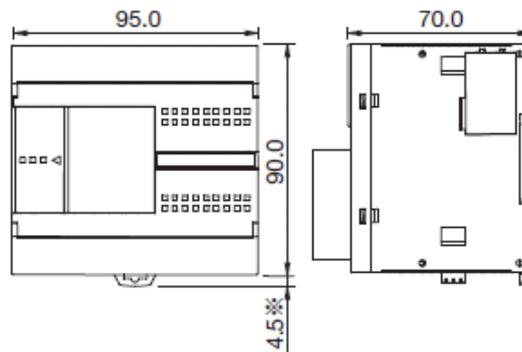
● Slim type CPU Modules

FC4A-D20*1　　　　　　　　　　　　　　FC4A-D40*3
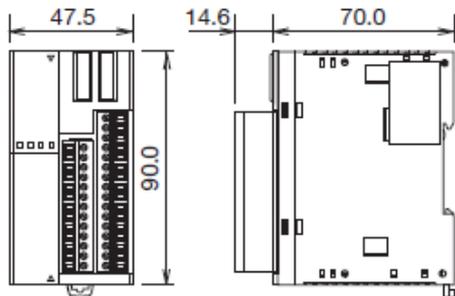
FC5A-D16R*1　　　　　　　　　　　　　FC5A-D32*3
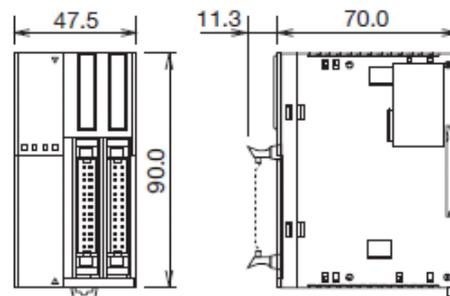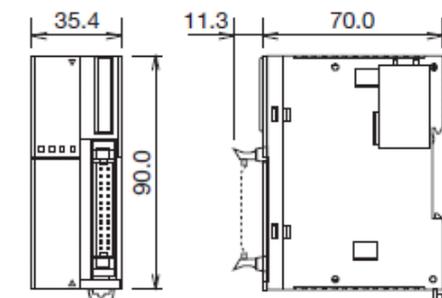
FC4A-D20*3　　　　　　　　　　　　　　FC5A-D12*1E

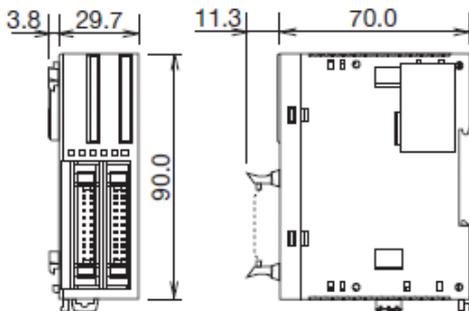*The dimension when the hook is pulled out is 8.5 mm.

● Expansion Modules

FC5A-SIF2	FC4A-K2C1	FC4A-N08B1
FC5A-SIF4	FC4A-L03A1	FC4A-R081
FC4A-AS62M	FC4A-L03AP1	FC4A-T08K1
FC4A-J2A1	FC4A-M08BR1	FC4A-T08S1
FC4A-K1A1	FC4A-N08A11	FC4A-K4A1
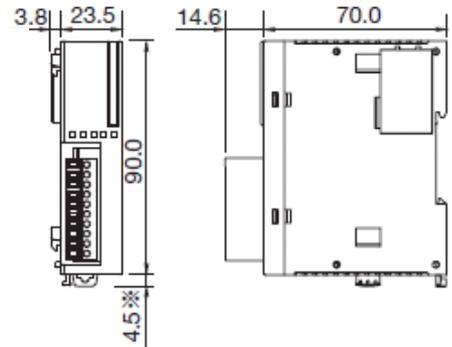
FC4A-N16B1	FC4A-J8AT1
FC4A-R161	FC4A-J4CN1
FC4A-J8C1	

FC4A-N16B3
FC4A-T16K3
FC4A-T16S3
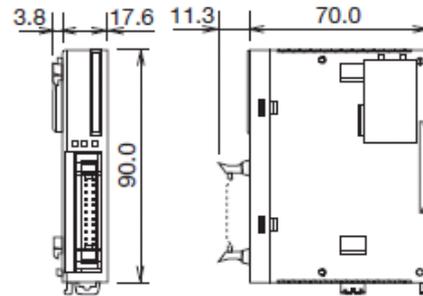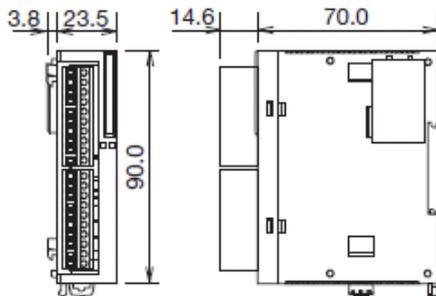
FC4A-N32B3
FC4A-T32K3
FC4A-T32S3

FC4A-F2MR2
FC4A-F2M2
FC4A-M24BR2
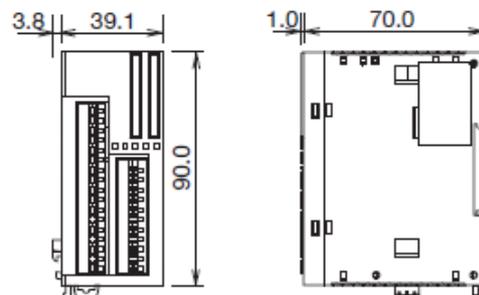
*The dimension when the hook is pulled out is 8.5 mm.

External dimensions

● Optional Modules
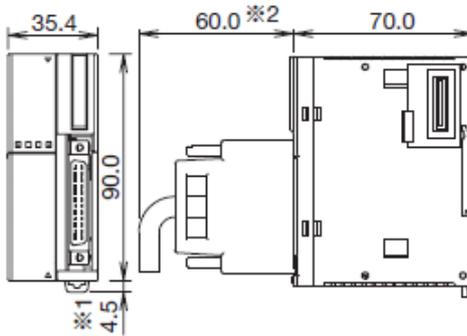
FC4A-HPC1
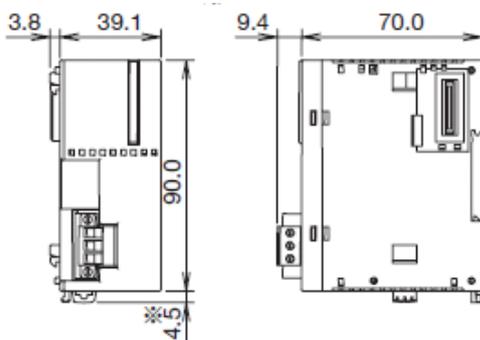FC4A-HPC2
FC4A-HPC3
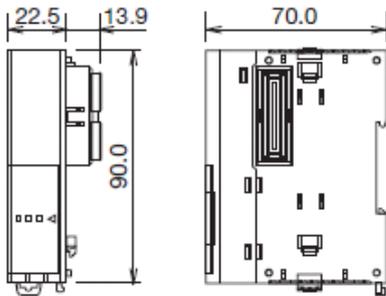
FC4A-HPH1
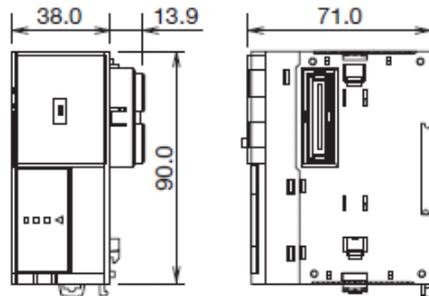
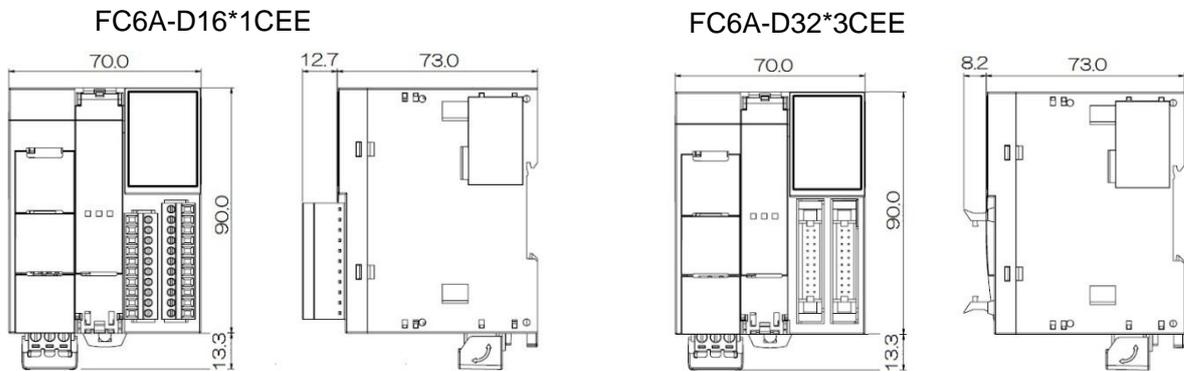● Expansion Interface Modules

FC5A-EXM1M
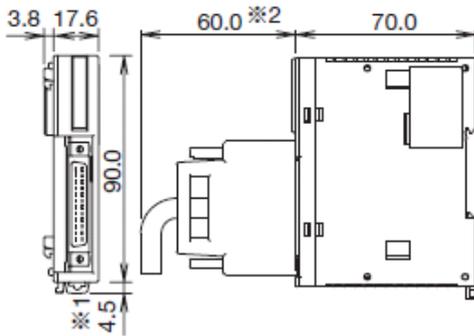
FC5A-EXM1S

FC5A-EXM2

*1 The dimension when the hook is pulled out is 8.5 mm.
*2 It is the standard length when the cable is bent.

■ External dimensions of FC6A series MICROSmart

Unit: mm

● Plus CPU Modules

FC6A-D16*1CEE

FC6A-D32*3CEE

External dimensions

● Expansion Modules

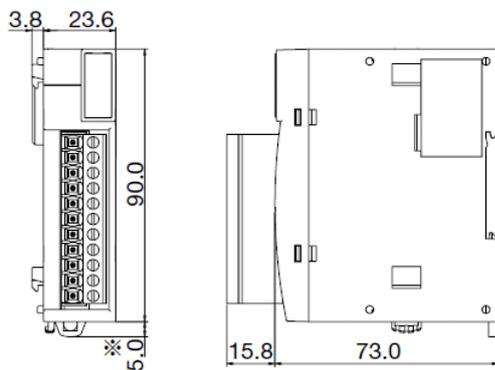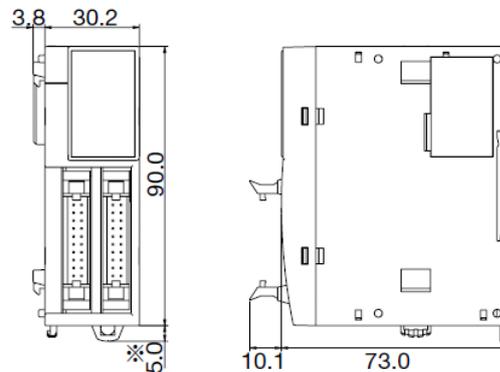|			
FC6A-K2A1	FC6A-N08B1	FC6A-J4A1	FC6A-N16B1
FC6A-K4A1	FC6A-R081	FC6A-J8A1	FC6A-R161
FC6A-L03CN1	FC6A-T08K1	FC6A-J4CN1	FC6A-T16K1
FC6A-J2C1	FC6A-T08P1	FC6A-J8CU1	FC6A-T16P1
FC6A-M08BR1	FC6A-N08A11	FC6A-L06A1	FC6A-SIF52
		FC6A-J4CH1Y	
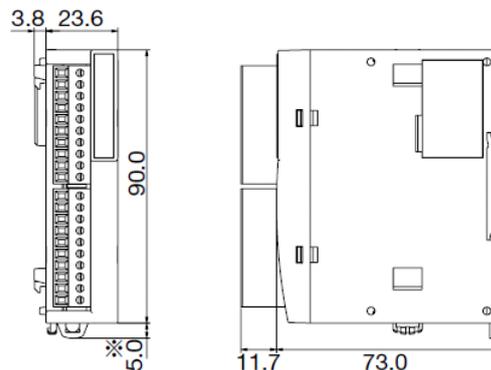
*The dimension when the hook is pulled out is 9.3 mm.

FC6A-N16B3   FC6A-T16K3
FC6A-T16P3

FC6A-N32B3   FC6A-T16K3
FC6A-T16P3
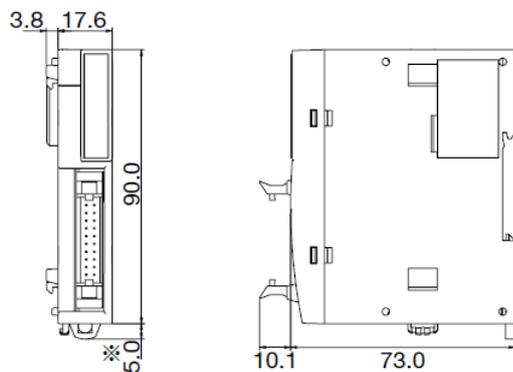
FC6A-F2MR1   FC6A-F2M1
FC6A-M24BR2

*The dimension when the hook is pulled out is 9.3 mm.

● Optional Modules

FC6A-PH1

FC6A-PC1／FC6A-PC3　FC6A-PN4
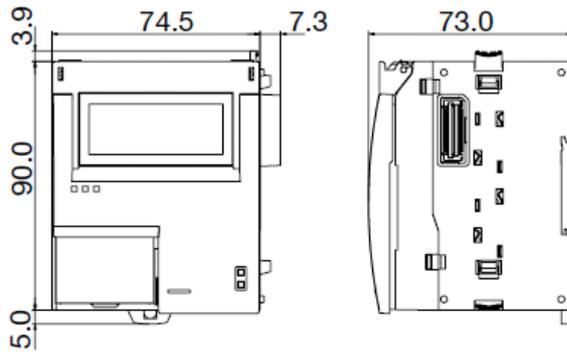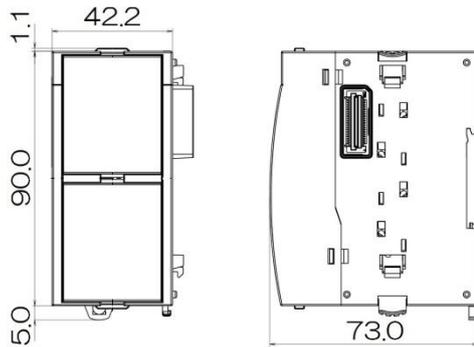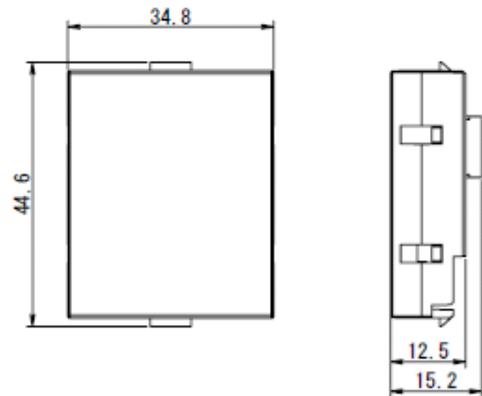FC6A-PJ2A／FC6A-PK2AV　FC6A-PTK4
FC6A-PK2AW／FC6A-PJ2CP FC6A-PTS4

FC6A-HPH1

FC6A-PC4

● Expansion Interface Modules

FC6A-EXM1M
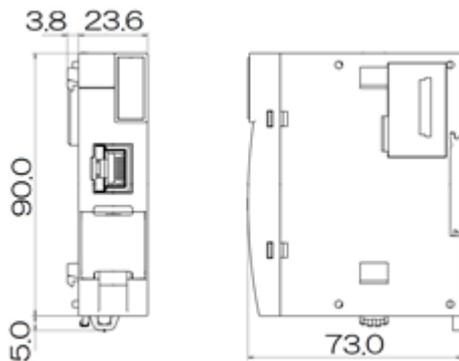
FC6A-EXM1S
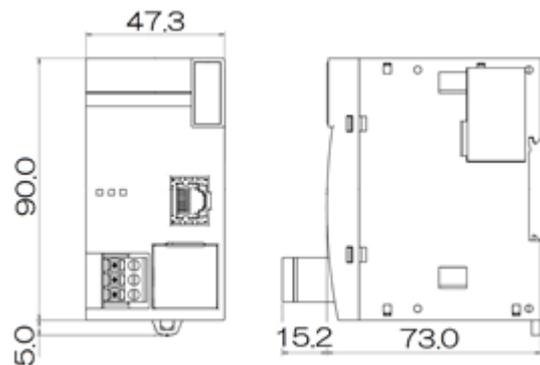
*The dimension when the hook is pulled out is 9.3 mm.

External dimensions

FC6A-EXM2
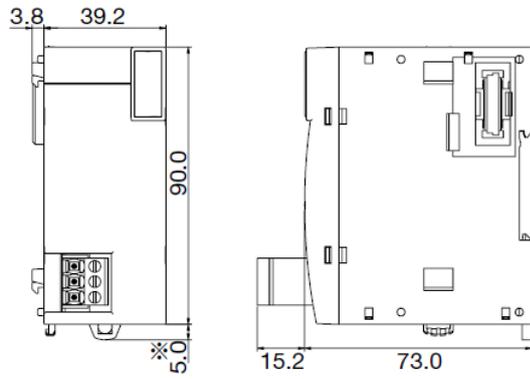
*The dimension when the hook is pulled out is 9.3 mm.

Wiring

■ Wiring terminal

Module configurations and wiring terminals for power supply, input, and output of the FC4A/5A series and the FC6A series are shown below.

FC4A/FC5A series All-in-One type

Input terminal

Power supply terminal
Grounding terminal

Output terminal
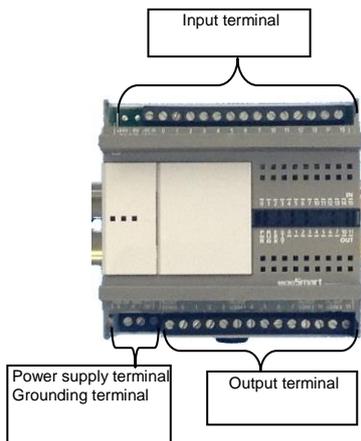
Combination of the FC4A/FC5A series Slim type and expansion modules

I/O terminal

Power supply terminal
Grounding terminal

Input module, output module, I/O module
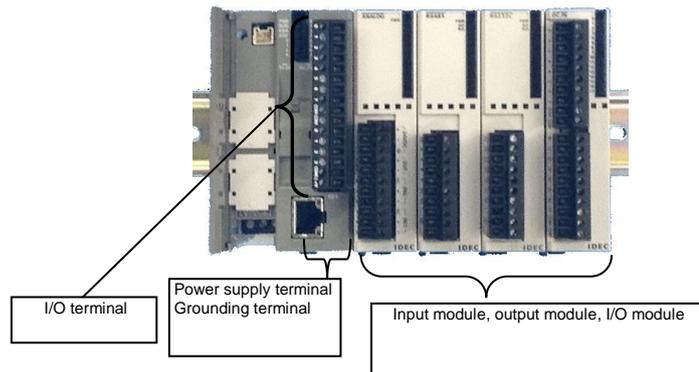
- Fixed terminal blocks are used for all the terminals of the FC4A/5A All-in-One type.
- Removable terminal blocks are used for all the terminals of the FC4A/5A Slim type except the power supply terminal.
- Removable terminal blocks are used for all the FC4A/5A series expansion modules except FC4A-M24BR2 and FC5A-F2M(R)2.

Combination of the FC6A series Slim type and expansion modules

Grounding terminal

I/O terminal

Power supply terminal
Grounding terminal

Input module, output module, I/O module
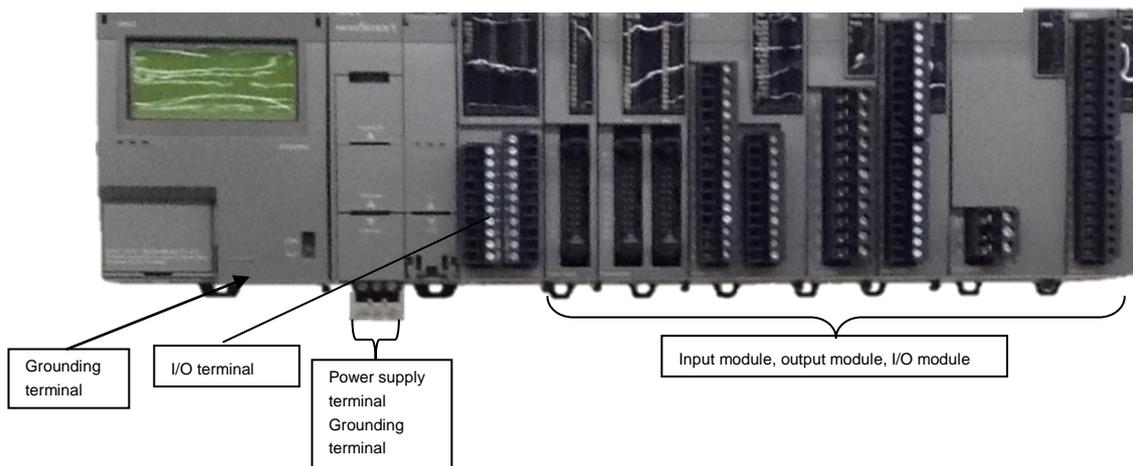
Wiring

■ Recommended wires and terminals

Wires and ferrules recommended for the FC4A/5A series are listed in the following table.

- FC4A/5A series CPU Modules

	Terminal	Recommended wires [recommended ferrules (manufactured by PHOENIX CONTACT)]		Teminal pitch	
		All-in-One type	Slim type	All-in-One type	Slim type
Power supply	Screw fstended type terminal	UL1007AWG22: AI 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection UL1007AWG18: AI 0.75-8 for 1-wire connection AI-TWIN 2 x 0.75-8 for 2-wire connection		5.08 mm	5.08 mm
Grounding		UL1007AWG16: AI1.5-8			
I/O		UL1007AWG22: AI 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection UL1007AWG18: AI 0.75-8 for 1-wire connection AI-TWIN 2 x 0.75-8 for 2-wire connection	UL1007AWG22: AI 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection		3.81 mm

- FC4A/5A series Expansion Modules

	Terminal	Recommended wires [recommended ferrules (manufactured by PHOENIX CONTACT)]	Teminal pitch
Power supply	Screw fstended type terminal	UL1007AWG22: AI 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection	5.08mm
Grounding		UL1007AWG18: AI1-10,AI1-8	
I/O		UL1007AWG22: AI 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection	3.81mm

Recommended wires and ferrules in the following table should be used for connection with the power supply, I/Os built in the CPU Module, or Expansion Module I/Os for the FC6A Plus. For some wire and ferrule types, the currently used ones can be used continuously.

- FC6A Plus

	Terminal	Recommended wires [recommended ferrules (manufactured by PHOENIX CONTACT)]	Teminal pitch
Power supply	Screw fstended type terminal	UL1007AWG22: AI 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection UL1007AWG18: AI 0.75-8 for 1-wire connection AI-TWIN 2 x 0.75-8 for 2-wire connection	5.08mm
Grounding		UL1007AWG16: AI1.5-8	
I/O	Screw fstended type terminal Spring clamp Type terminal	UL1007AWG22: AI 0.34-10, 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-10, 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection	3.81mm

- FC6A series Expansion Modules

	Terminal	Recommended wires [recommended ferrules (manufactured by PHOENIX CONTACT)]	
		5.08 mm pitch terminal block	3.81 mm pitch terminal block
Power supply	Screw fstended type terminal Spring clamp Type terminal	UL1007AWG22: AI 0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-8 for 2-wire connection UL1007AWG18: AI 0.75-8 for 1-wire connection AI-TWIN 2 x 0.75-8 for 2-wire connection	UL1007AWG22: AI 0.34-10/0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-10/0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-10 for 2-wire connection
Grounding		UL1007AWG16: AI1.5-8	UL1007AWG18: AI1-10,AI1-8
I/O		UL1007AWG22: AI 0.34-10 for 1-wire connection UL1007AWG20: AI 0.5-10 for 1-wire connection AI-TWIN 2 x 0.5-10 for 2-wire connection UL1007AWG18: AI 0.75-10 for 1-wire connection AI-TWIN 2 x 0.75-10 for 2-wire connection	UL1007AWG22: AI 0.34-10/0.34-8 for 1-wire connection UL1007AWG20: AI 0.5-10/0.5-8 for 1-wire connection AI-TWIN 2 x 0.5-10 for 2-wire connection

Terminal Pitch	FC6A expansion module
5.08mm	FC6A-K2A1, FC6A-K4A1, FC6A-L03CN1, FC6A-J2C1, FC6A-M08BR1, FC6A-N08A11, FC6A-N08B1, FC6A-R081, FC6A-T08K, FC6A-T08P1
3.81mm	FC6A-J4A1, FC6A-J8A1, FC6A-J4CN1, FC6A-J8CU1, FC6A-L06A1, FC6A-J4CH1Y, FC6A-N16B1, FC6A-R161, FC6A-T16K1, FC6A-T16P1, FC6A-SIF52, FC6A-F2MR1, FC6A-F2M1, FC6A-M24BR2

The following table shows cross section conversion for AWG notation.

AWG conversion table	
AWG	Cross section (mm2)
16	1.309
18	0.8226
20	0.5174
22	0.3256

Program conversion (FC4A/5A series -> FC6A Plus)

■ Programming software

PLC programming software "WindLDR (Ver.8.6.0 or later)" included in our system integration software "Automation Organizer" (series No.: SW1A-W1C) is used for the FC6A Plus as with the FC4A/FC5A series.
The latest update file is published on our website. It is recommended to use the latest version of "Automation Organizer" for program conversion.

   http://us.idec.com/ProductSupport/Software.aspx

■ Program conversion for FC6A Plus

Some of the FC4A/FC5A series programs are incompatible with the FC6A Plus programs. Thus, it is impossible to perform automatic conversion of all programs completely. Program conversion should be performed according to the WindLDR model setting. For details, refer to [Conversion procedure in page 25]. When the model is changed, commands which can be replaced automatically are converted, but those requiring manual replacement and those which cannot be replaced will remain without conversion. The details of unconverted contents are output as a conversion report, which can be checked on the information window. For details of conversion report, refer to [Conversion Report in page 26].
For the function settings, compatible ones are taken over, but those not taken over are lost. Just like user program conversion, the details are output as a conversion report, which can be checked on the information window.
For details about the compatibility with each item of I/O numbers and special devices, refer to [Compatibility table (FC4A/5A series -> FC6A series　in page 29].

Program conversion (FC4A/5A series -> FC6A Plus)

■ Program uploading

If you do not have the ladder program file for the FC4A/5A series, connect the main body of the FC4A/5A series to a PC (RS232 interface) via a PC interface cable (FC2A-KC4C) to upload (read out) the program. The procedure is as follows.
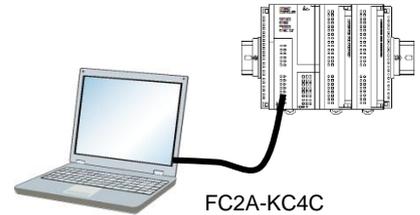
● Click [Upload] in the [Online] tab of WindLDR.

● The upload window will appear. Click [OK].

FC2A-KC4C

Click [Upload].

Upload

Transfer Mode

○ Binary   ● ASCII

Upload Option

☐ Read device data from the PLC after upload   Setting

☑ Upload web page (FC5A-D12X1E/FC6A)

Communication Settings   OK   Cancel
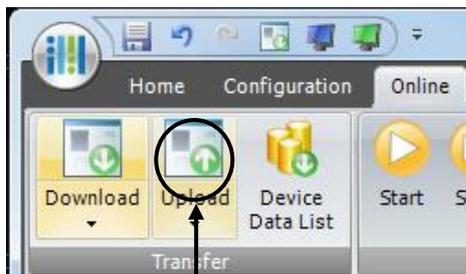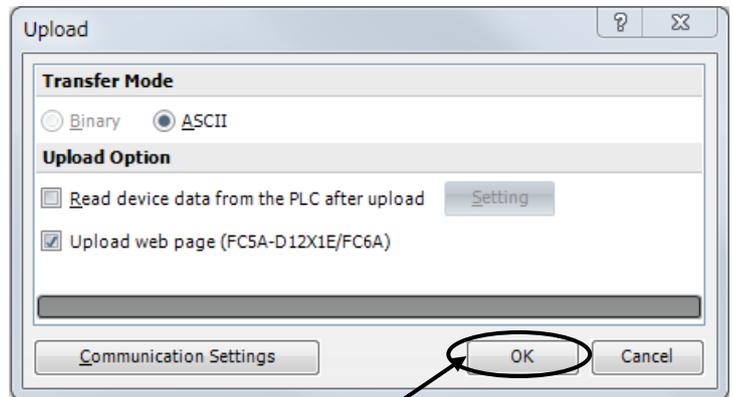
Click [OK].

■ Conversion procedure

● Open the program for the FC4A/5A series using WindLDR.

● Click the [PLC type] icon in the [Configuration] tab.

● In the displayed window, select the CPU Module to be used after conversion and then click [OK].

Click [PLC Type].

PLC Selection

OpenNet
FC4A-C10R2X
FC4A-C16R2X
FC4A-C24R2X
FC4A-D20X3
FC4A-D20RX1
FC4A-D40X3
FC5A-C10R2X
FC5A-C16R2X
FC5A-C24R2X
FC5A-D16RX1
FC5A-D32X3
FC5A-D12X1E
FC6A-C16X1XE
FC6A-C24X1XE
FC6A-C40X1XE
FC6A-C40X1XEJ
FC6A-D16X1CEE
FC6A-D32X3CEE
FT1A-12
FT1A-24
FT1A-40
FT1A-48

OK   Cancel
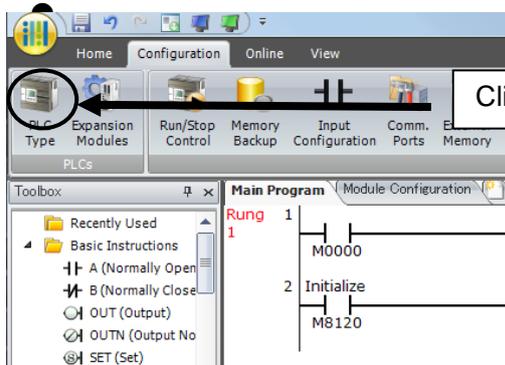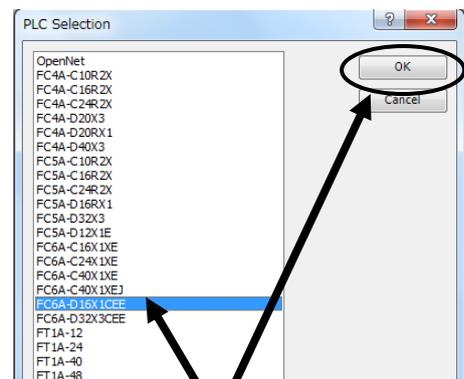
Select a CPU module and then click [OK].

Program conversion (FC4A/5A series -> FC6A Plus)

■ Conversion report

Just like user program conversion, the details are output as a conversion report, which can be checked on the information window.

When the mouse cursor is put on each item of the conversion report in the information window to select the item, the cursor in the ladder program field will also move to the related ladder part in conjunction. Edit the ladder part according to the warning contents.
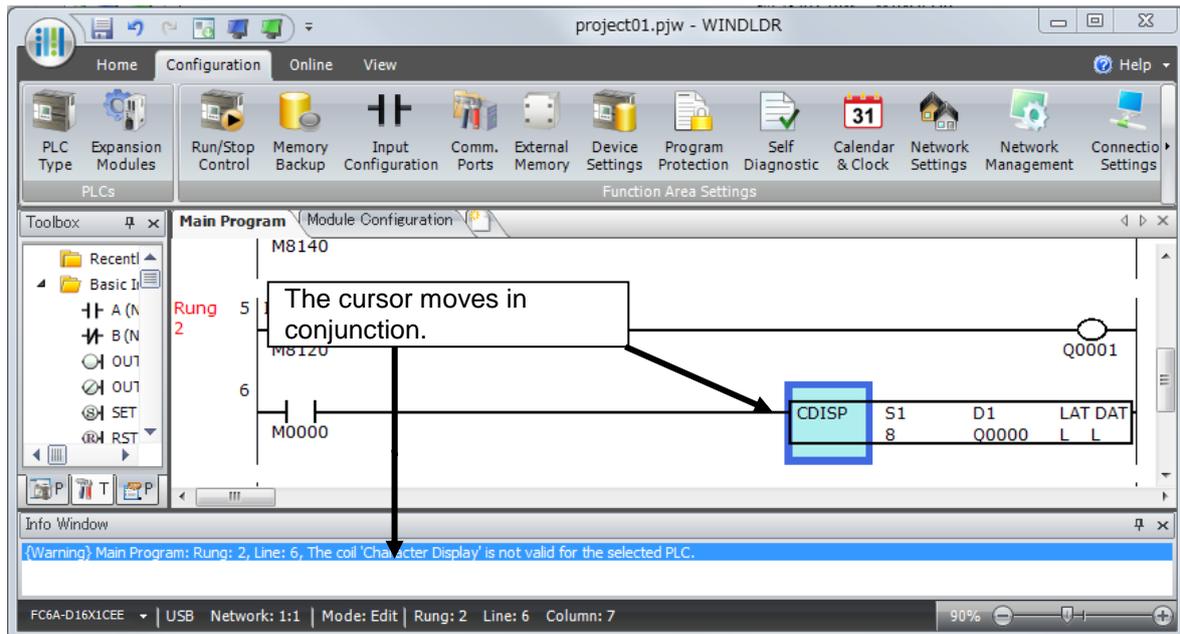
Program conversion (FC4A/5A series -> FC6A Plus)

■ Batch conversion of I/O numbers

Consecutive I/O numbers can be converted at a time. Use this function when I/Os of the FC6A series CPU Module are not used or when reserved numbers should be skipped.

1. Click [Replace] in the [Home] tab, and further, select [Replace].

Click [Replace] and select [Replace] further.
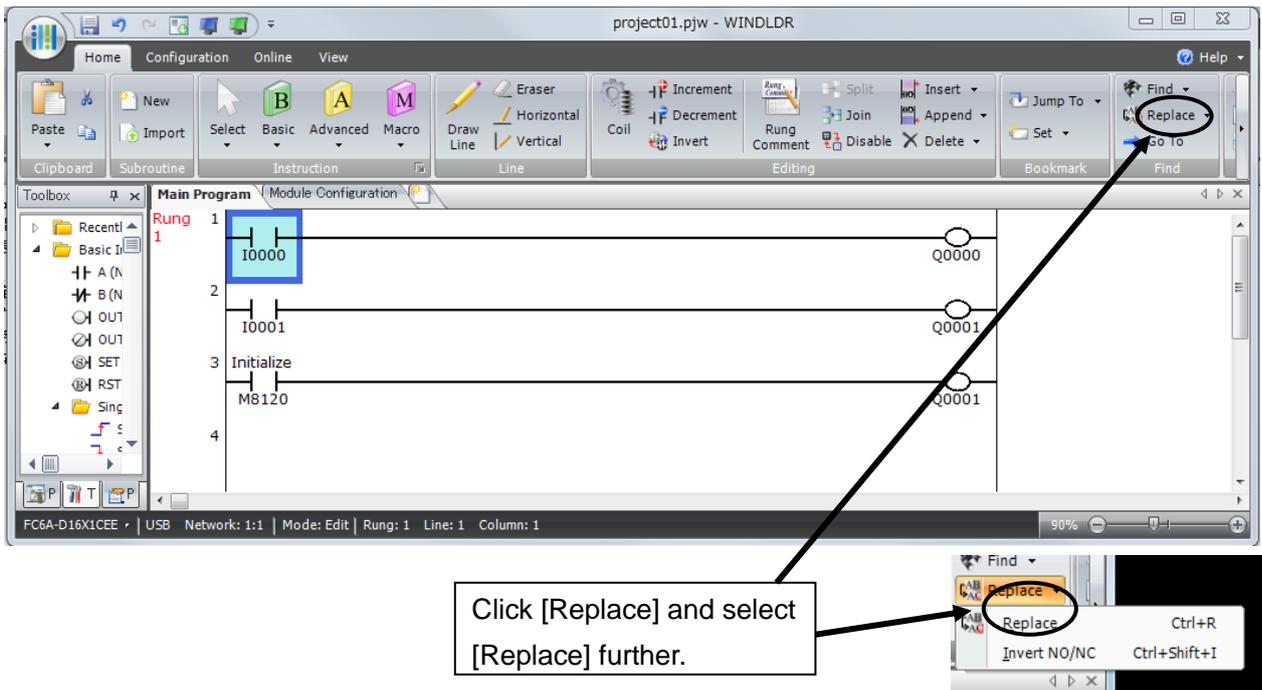
2. In the displayed window, enter the I/O numbers before and after conversion in [Device] and the I/O points to be converted in [Points to Replace]. If comments should also be moved, mark the checkbox for [Replace comment].

3. Click [Replace].

Enter the I/O numbers before and after conversion and the number of points to be converted.

Mark the checkbox for [Replace comment] as necessary.

Click [Replace].
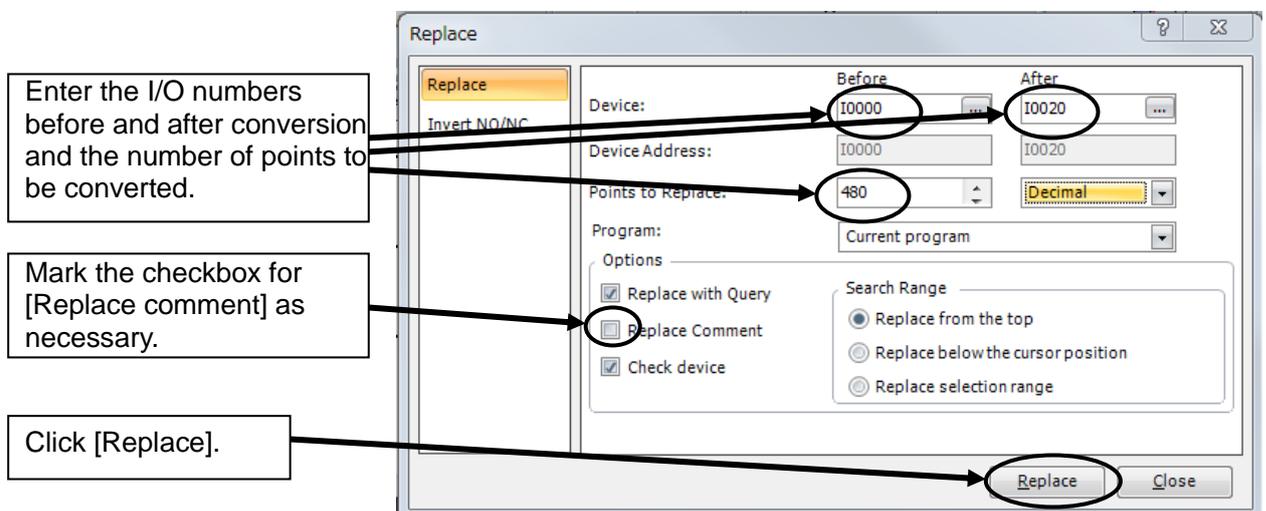
Program conversion (FC4A/5A series -> FC6A Plus)

4. The cursor will move to the I/O to be converted, and the confirmation window will appear. To convert while confirming I/Os one by one, click [Yes]. To convert the remaining I/Os at a time without confirming them, click [Yes to all].
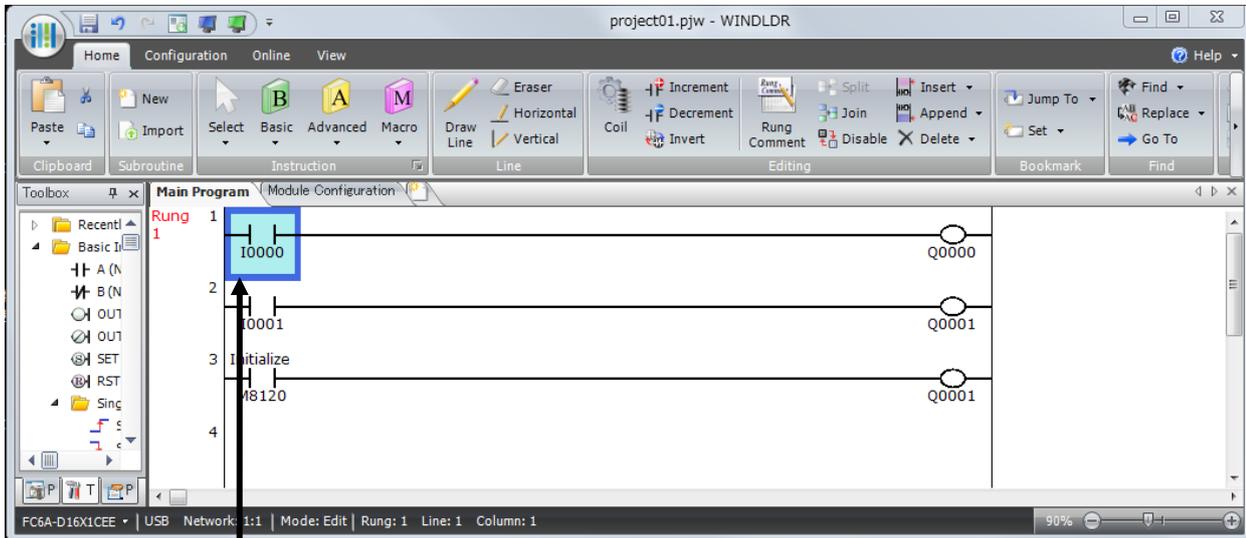
The cursor moves to the I/O to be converted.

Click [Yes] or [Yes to all] in the displayed window.

Compatibility table (FC4A/5A series -> FC6A Plus)

■ Function settings

The available options for replacing of all setting items are shown in the table below.

Yes: Setting that is replaced automatically
Indirectly: Setting that needs to be replaced manually
No: Setting that cannot be replaced

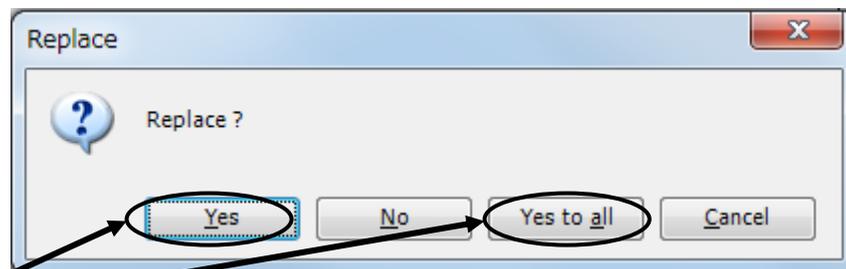| Replaceability	Function setting for FC4A/5A series		FC6A series specifications
Yes	Operation/stop control		A function switch setting is added.
Yes	Memory backup		Same with FC4A/5A series.
Indirectly	Special input	High-speed counter	Select from among six high-speed counter groups.
Yes		Catch input	They are automatically replaced with the same group numbers. However, change wiring because the input terminal numbers are different.
Yes		Interrupt input	
Indirectly		Frequency measurement	Select it using the "Frequency measurement" function.
Yes	Input filter		Same with FC4A/5A series.
Yes	Timer interruption		Same with FC4A/5A series.
Indirectly/No*1	Communication port		Some of the communication modes cannot be replaced. *1
No	Communication refresh for ports 3 to 7		No setting is required because communication refresh is performed regularly.
No	Communication option		It is not supported and cannot be used. Specify a constant as the slave number for each communication mode setting, or specify or select using the data resister.
No	Key matrix		It is not supported and cannot be used. Use Expansion I/O Modules.
No	Clock cartridge		A clock is built in the CPU Module. Because the correction value is written at the time of shipment, it is unnecessary to make the setting.
No	Memory cartridge		It is not supported and cannot be used. User programs can be uploaded/downloaded using an SD memory card. Make the setting from the setting window for the SD memory card.
No	Expansion Modules		An AS-Interface Module is not supported and cannot be used.
Yes	Device setting		Same with FC4A/5A series.
Yes	Program protection		The old password can also be used if the program protection is not changed.
No	Self-diagnosis		The RUN LED blinking setting is not supported and cannot be used.
Yes	Network setting		Same with FC4A/5A series.
Yes	E-mail setting		Same with FC5A series.
Yes	Network administration		The Ping setting will be converted in a millisecond unit.
Indirectly	Connection setting		Make the settings for connection 1 to 8 (commonly used for the server/client).
Yes	Web server		Same with FC5A series.

*1 The following communication modes are not supported in the FC6A series and cannot be replaced.
 Modem communication, Modbus ASCII master/slave,
 Replace with User Communication or Modbus RTU master/slave in manual.

■ PID Module setting

The PID Module set in the dialog for the FC5A series Expansion Module setting will be automatically converted when the model is changed to the FC6A series. The module series numbers before and after conversion are as follows.

FC5A series No.	FC6A series No.
FC5A-F2MR2	FC6A-F2MR1
FC5A-F2M2	FC6A-F2M1

Compatibility table (FC4A/5A series -> FC6A Plus)

■ Basic instructions

The available basic instructions for replacing are shown in the table below.

YES: Instruction that can be replaced automatically

NO :   Instruction that cannot be replaced

Replaceability	Instruction for FC4A/5A series	FC6A series specifications
Yes	Normally open contact	Same with FC4A/5A series.
Yes	Normally closed contact	Same with FC4A/5A series.
Yes	OUT	Same with FC4A/5A series.
Yes	OUTN	Same with FC4A/5A series.
Yes	SET	Same with FC4A/5A series.
Yes	RST	Same with FC4A/5A series.
Yes	AND	Same with FC4A/5A series.
Yes	ANDN	Same with FC4A/5A series.
Yes	OR	Same with FC4A/5A series.
Yes	ORN	Same with FC4A/5A series.
Yes	AND•LOD	Same with FC4A/5A series.
Yes	OR•LOD	Same with FC4A/5A series.
Yes	BPS	Same with FC4A/5A series.
Yes	BRD	Same with FC4A/5A series.
Yes	BPP	Same with FC4A/5A series.
Yes	TML	Same with FC4A/5A series.
Yes	TIM	Same with FC4A/5A series.
Yes	TIMH	Same with FC4A/5A series.
Yes	TMS	Same with FC4A/5A series.
Yes	CNT	Same with FC4A/5A series.
Yes	CDP	Same with FC4A/5A series.
Yes	CUD	Same with FC4A/5A series.
Yes	CC=	Same with FC4A/5A series.
Yes	CC>=	Same with FC4A/5A series.
Yes	DC=	Same with FC4A/5A series.
Yes	DC>=	Same with FC4A/5A series.
Yes	SFR	Same with FC4A/5A series.
Yes	SFRN	Same with FC4A/5A series.
Yes	SOTU	Same with FC4A/5A series.
Yes	SOTD	Same with FC4A/5A series.
Yes	JMP	Same with FC4A/5A series.
Yes	JEND	Same with FC4A/5A series.
Yes	MCS	Same with FC4A/5A series.
Yes	MCR	Same with FC4A/5A series.
Yes	END	Same with FC4A/5A series.

■ Advanced instructions

The available advanced instructions for replacing are shown in the table below.

Yes: Compatible instruction that can be replaced automatically

Indirectly: Instruction that needs to be replaced manually

No: Instruction that cannot be replaced

Replaceability	Instruction for FC4A/5A series	FC6A series specifications
Yes	MOV, MOVN	Same with FC4A/5A series.
Yes	IMOV, IMOVN	Same with FC4A/5A series.
Yes	IBMV, IBMVN	Same with FC4A/5A series.
Yes	BMOV	Same with FC4A/5A series.
Yes	NSET, NRS	Same with FC4A/5A series.
Yes	XCHG	Same with FC4A/5A series.
Yes	TCCST	Same with FC4A/5A series.
Yes	CMP* (*: =, <>, <, <=, >, >=)	Same with FC4A/5A series.
Yes	ICMP >=	Same with FC4A/5A series.
Yes	LC	Same with FC4A/5A series.
Yes	ADD, SUB	Same with FC4A/5A series.
Yes	MUL	Same with FC4A/5A series.
Yes	DIV	Same with FC4A/5A series.
Yes	ROOT	Same with FC4A/5A series.
Yes	INC, DEC	Same with FC4A/5A series.
Yes	SUM	Same with FC4A/5A series.
Yes	RNDM	Same with FC4A/5A series.
Yes	ANDW, ORW, XORW	Same with FC4A/5A series.
Yes	SFTL, SFTR	Same with FC4A/5A series.
Yes	ROTL, ROTR	Same with FC4A/5A series.
Yes	BCDLS	Same with FC4A/5A series.
Yes	WSFT	Same with FC4A/5A series.
Yes	HTOB, ATOB	Same with FC4A/5A series.
Yes	BTOH, ATOH	Same with FC4A/5A series.
Yes	HTOA, BTOA	Same with FC4A/5A series.
Yes	ENCO, DECO	Same with FC4A/5A series.
Yes	BCNT	Same with FC4A/5A series.
Yes	ALT	Same with FC4A/5A series.
Yes	CVDT	Same with FC4A/5A series.
Yes	DTDV	Same with FC4A/5A series.
Yes	DTCB	Same with FC4A/5A series.
Yes	SWAP	Same with FC4A/5A series.
Yes	DISP	Same with FC4A/5A series.
Yes	DGRD	Same with FC4A/5A series.
Yes	WKTBL	Same with FC4A/5A series.
Yes	WKTIM	Same with FC4A/5A series.

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Instruction for FC4A/5A series	FC6A series specifications
Yes	PULS	It will be replaced with the PULS instruction for which the corresponding compatibility mode has been set.
Yes	PWM	It will be replaced with the PWM instruction for which the corresponding compatibility mode has been set. However, there are restrictions on the upper limit/lower limit of frequency that can be output and the unit. Thus, the output frequency will be an approximate value.
Yes	ZRN	It will be replaced with the ZRN instruction for which the corresponding compatibility mode has been set.
Yes	RAMP	It will be replaced with the RAMP instruction for which the corresponding compatibility mode has been set.
Yes	TXD, RXD	Same with FC4A/5A series.
Yes	XYFS, CVXTY, CVYTX	Same with FC4A/5A series.
Yes	AVRG	Same with FC4A/5A series.
Yes	PID	The PID instruction will be replaced.
Yes	DTML, DTIM, DTMH, DTMS	Same with FC4A/5A series.
Yes	TTIM	Same with FC4A/5A series.
Yes	LABEL	Same with FC4A/5A series.
Yes	LJMP	Same with FC4A/5A series.
Yes	LCAL	Same with FC4A/5A series.
Yes	LRET	Same with FC4A/5A series.
Yes	DJNZ	Same with FC4A/5A series.
Yes	DI, EI	Same with FC4A/5A series.
Yes	IOREF	Same with FC4A/5A series.
Yes	HSCRF	Same with FC4A/5A series.
Yes	FRQRF	Same with FC4A/5A series.
Yes	COMRF	Same with FC4A/5A series.
No	RUNA, STPA	It is not supported and cannot be used. Insert an Expansion Module according to the configuration used in the module configuration editor, and set the data reister to be used from the analog parameter setting window.
Yes	RAD	Same with FC4A/5A series.
Yes	DEG	Same with FC4A/5A series.
Yes	SIN, COS, TAN	Same with FC4A/5A series.
Yes	ASIN, ACOS, ATAN	Same with FC4A/5A series.
Yes	LOG10	Same with FC4A/5A series.
Yes	EXP	Same with FC4A/5A series.
Yes	LOGE	Same with FC4A/5A series.
Yes	POW	Same with FC4A/5A series.
Yes	FIFOF, FIEX, FOEX	Same with FC4A/5A series.
Yes	NDSRC	Same with FC4A/5A series.
Yes	TADD, TSUB	Same with FC4A/5A series.
Yes	HTOS, STOH	Same with FC4A/5A series.
Yes	HOUR	Same with FC4A/5A series.
Yes	NOP	Same with FC4A/5A series.

■ Macro instructions

The available macro instructions for replacing are shown in the table below.

Yes: Compatible instruction that can be replaced automatically

Indirectly: Instruction that needs to be replaced manually

No: Instruction that cannot be replaced

Replaceability	Instruction	Remarks
Yes	MACRO	
Yes	CWWT, CWRD	If there is no corresponding communication port, communication port 1 will be set.
No	ANST	The FC6A series does not support ANST instructions. However, the Analog Module setting set by an ANST instruction will be automatically imported to the module configuration editor when the model is changed. Modules before and after conversion are as follows.

FC4A/5A series No.	FC6A series No.
FC4A-J2A1	FC6A-J2C1
FC4A-J8C1	FC6A-J8A1
FC4A-J4CN1	FC6A-J4CN1
FC4A-J8AT1	FC6A-J8CU1
FC4A-K1A1	FC6A-K2A1
FC4A-K2C1	
FC4A-K4A1	FC6A-K4A1
FC4A-L03A1	FC6A-L03CN1
FC4A-L03AP1	

Refer to *1 for precautions on model conversion of Analog Modules. |
Yes	PULSST	Same with FC4A/5A series.
Yes	PWMST	Same with FC4A/5A series.
Yes	RAMPST	Same with FC4A/5A series.
Yes	ZRNST	Same with FC4A/5A series.
Yes	PIDST	Same with FC4A/5A series.

*1   Precautions on model conversion of Analog Modules
The Analog Module set by an ANST instruction will be automatically imported to the module configuration editor. However, there are the following precautions. Check the setting after conversion using the module configuration editor.

- The analog value and status data resister allocation in each channel will change. Allocation in the FC6A series can be checked using the module configuration editor.
- The filter and scale settings for FC4A-J4CN1, FC4A-J8C1, and FC4A-J8AT1 will be lost.
- The analog input error range settings for FC4A-J4CN1 and FC4A-J8C1 will be lost.
- If binary data, centigrade, Fahrenheit, and resistance values are selected as the data type, the analog value range might be changed after conversion.

Compatibility table (FC4A/5A series -> FC6A Plus)

■ Special devices

The available special devices for replacing are shown in the table below..

Yes: Compatible device that can be replaced automatically

Indirectly: Device that needs to be replaced manually

No: Device that cannot be replaced

● Special internal relay

Replaceability	Special internal relay	FC4A/5A series specifications	FC6A series specifications
Yes	M8000	Start Control	Same with FC4A/5A series.
Yes	M8001	1-s Clock Reset	Same with FC4A/5A series.
Yes	M8002	All Outputs OFF	Same with FC4A/5A series.
Yes	M8003	Carry (Cy) or Borrow (Bw)	Same with FC4A/5A series.
Yes	M8004	User Program Execution Error	Same with FC4A/5A series.
Yes	M8005	Communication Error	Same with FC4A/5A series.
Yes	M8006	Data Link Communication Prohibit Flag (Master Station)	Same with FC4A/5A series.
Yes	M8007	Data Link Communication Initialize Flag (Master Station) Data Link Communication Stop Flag (Slave Station)	Same with FC4A/5A series.
Yes	M8010	Status LED	Same with FC4A/5A series.
No	M8011	HMI Write Prohibit Flag	It is not supported and cannot be used. M8011 is defined as reserved.
No	M8012	HMI Operation Prohibit Flag	It is not supported and cannot be used. M8012 is defined as reserved.
Yes	M8013	Calendar/Clock Data Write/Adjust Error Flag	Same with FC4A/5A series.
Yes	M8014	Calendar/Clock Data Read Error Flag	Same with FC4A/5A series.
No	M8015	Calendar/Clock Data Read Stop Flag	The CPU Module uses the built-in clock, which cannot be stopped. M8015 is defined as reserved.
Yes	M8016	Calendar Data Write Flag	Same with FC4A/5A series.
Yes	M8017	Clock Data Write Flag	Same with FC4A/5A series.
Yes	M8020	Calendar/Clock Data Write Flag	Same with FC4A/5A series.
Yes	M8021	Clock Data Adjust Flag	Same with FC4A/5A series.
Yes	M8022	User Communication Receive Instruction Cancel Flag (Port 1)	Same with FC4A/5A series.
Yes	M8023	User Communication Receive Instruction Cancel Flag (Port 2)	Same with FC4A/5A series.
Yes	M8024	BMOV/WSFT Executing Flag	Same with FC4A/5A series.
Yes	M8025	Maintain Outputs While CPU Stopped	Same with FC4A/5A series.
No	M8026	Expansion Data Register Data Writing Flag (Preset Range 1)	Use the recipe function. M8026 is defined as User Communication Receive Instruction Cancel Flag (Port 3), and M8027 as High-speed Counter (Group 1/I0).
No	M8027	Expansion Data Register Data Writing Flag (Preset Range 2)	
Indirectly	M8030	High-speed Counter (X0-X2) Comparison Output Reset	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 1/I0) near device allocation.
Indirectly	M8031	High-speed Counter (X0-X2) Gate Input	
Indirectly	M8032	High-speed Counter (X0-X2) Reset Input/Preset Input	
Indirectly	M8033	User Communication Receive Instruction Cancel Flag (Port 3)	Use M8026.
Indirectly	M8034	High-speed Counter (X3) Comparison Output Reset	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 3/I3) near device allocation.
Indirectly	M8035	High-speed Counter (X3) Gate Input	
Indirectly	M8036	High-speed Counter (X3) Reset Input	

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special internal relay	FC4A/5A series specifications	FC6A series specifications
-	M8037	Reserved	Reserved
Indirectly	M8040	High-speed Counter (X4) Comparison Output Reset	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 4/I4) near device allocation.
Indirectly	M8041	High-speed Counter (X4) Gate Input	
Indirectly	M8042	High-speed Counter (X4) Reset Input	
-	M8043	Reserved	Reserved
Indirectly	M8044	High-speed Counter (X5- X7) Comparison Output Reset	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 5/I6) near device allocation.
Indirectly	M8045	High-speed Counter (X5-X7) Gate Input	
Indirectly	M8046	High-speed Counter (X5-X7) Reset Input	
-	M8047	Reserved	Reserved
No	M8050	Modem Mode (Originate): Initialization String Start	Modem mode is not supported and cannot be used.
No	M8051	Modem Mode (Originate): ATZ Start	
No	M8052	Modem Mode (Originate): Dialing Start	
No	M8053	Modem Mode (Disconnect): Disconnect Line Start	
No	M8054	Modem Mode (General Command): AT Command Start	
No	M8055	Modem Mode (Answer): Initialization String Start	
No	M8056	Modem Mode (Answer): ATZ Start	
No	M8057	Modem Mode AT Command Execution	
No	M8060	Modem Mode (Originate): Initialization String Completion	
No	M8061	Modem Mode (Originate): ATZ Completion	
No	M8062	Modem Mode (Originate): Dialing Completion	
No	M8063	Modem Mode (Disconnect): Disconnect Line Completion	
No	M8064	Modem Mode (General Command): AT Command Completion	
No	M8065	Modem Mode (Answer): Initialization String Completion	
No	M8066	Modem Mode (Answer): ATZ Completion	
No	M8067	Modem Mode Operational State	
No	M8070	Modem Mode (Originate): Initialization String Failure	
No	M8071	Modem Mode (Originate): ATZ Failure	
No	M8072	Modem Mode (Originate): Dialing Failure	
No	M8073	Modem Mode (Disconnect): Disconnect Line Failure	
No	M8074	Modem Mode (General Command): AT Command Failure	
No	M8075	Modem Mode (Answer): Initialization String Failure	
No	M8076	Modem Mode (Answer): ATZ Failure	
No	M8077	Modem Mode Line Connection Status	
Yes	M8080	Data Link Slave Station 1 Communication Completion Relay / Data Link Communication Completion Relay	Same with FC4A/5A series.
Yes	M8081	Data Link Slave Station 2 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8082	Data Link Slave Station 3 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8083	Data Link Slave Station 4 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8084	Data Link Slave Station 5 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8085	Data Link Slave Station 6 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8086	Data Link Slave Station 7 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8087	Data Link Slave Station 8 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8090	Data Link Slave Station 9 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8091	Data Link Slave Station 10 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8092	Data Link Slave Station 11 Communication Completion Relay	Same with FC4A/5A series.

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special internal relay	FC4A/5A series specifications	FC6A series specifications
Yes	M8093	Data Link Slave Station 12 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8094	Data Link Slave Station 13 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8095	Data Link Slave Station 14 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8096	Data Link Slave Station 15 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8097	Data Link Slave Station 16 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8100	Data Link Slave Station 17 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8101	Data Link Slave Station 18 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8102	Data Link Slave Station 19 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8103	Data Link Slave Station 20 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8104	Data Link Slave Station 21 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8105	Data Link Slave Station 22 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8106	Data Link Slave Station 23 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8107	Data Link Slave Station 24 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8110	Data Link Slave Station 25 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8111	Data Link Slave Station 26 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8112	Data Link Slave Station 27 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8113	Data Link Slave Station 28 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8114	Data Link Slave Station 29 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8115	Data Link Slave Station 30 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8116	Data Link Slave Station 31 Communication Completion Relay	Same with FC4A/5A series.
Yes	M8117	Data Link All Slave Station Communication Completion Relay	Same with FC4A/5A series.
Yes	M8120	Initialize Pulse	Same with FC4A/5A series.
Yes	M8121	1-sec Clock	Same with FC4A/5A series.
Yes	M8122	100-ms Clock	Same with FC4A/5A series.
Yes	M8123	10-ms Clock	Same with FC4A/5A series.
Yes	M8124	Timer/Counter Preset Value Changed	Same with FC4A/5A series.
Yes	M8125	In-operation Output	Same with FC4A/5A series.
Yes	M8126	Run-time Program Download Completion	Same with FC4A/5A series.
-	M8127	Reserved	Reserved
Indirectly	M8130	High-speed Counter (X0-X2) Preset/Reset Status	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 1/I0).
Indirectly	M8131	High-speed Counter (X0-X2) Current Value Overflow or High-speed Counter (X0-X2) Comparison ON Status	
Indirectly	M8132	High-speed Counter (X0-X2) Current Value Underflow	
Indirectly	M8133	High-speed Counter (X3) Comparison ON Status	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 3/I3).
Indirectly	M8134	High-speed Counter (X4) Comparison ON Status	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 4/I4).
Indirectly	M8135	High-speed Counter (X5-X7) Preset/Reset Status	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 5/I6).
Indirectly	M8136	High-speed Counter (X5-X7) Current Value Overflow or High-speed Counter (X5-X7) Comparison ON Status	
Indirectly	M8137	High-speed Counter (X5-X7) Current Value Underflow	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 5/I6). "High-speed Counter (Group 5/I6) Underflow" is defined in M8164. M8137 is defined as "Interrupt Input I0 Status (Group 1/I0)."

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special internal relay	FC4A/5A series specifications	FC6A series specifications
Indirectly	M8140	Interrupt Input X2 Status	It is changed to Interrupt Input I1 Status.
Indirectly	M8141	Interrupt Input X3 Status	It is changed to Interrupt Input I3 Status.
Indirectly	M8142	Interrupt Input X4 Status	It is changed to Interrupt Input I4 Status.
Indirectly	M8143	Interrupt Input X5 Status	It is changed to Interrupt Input I6 Status.
Yes	M8144	Timer Interrupt Status	Same with FC4A/5A series.
Yes	M8145	User Communication Receive Instruction Cancel Flag (Port 4)	Same with FC4A/5A series.
Yes	M8146	User Communication Receive Instruction Cancel Flag (Port 5)	Same with FC4A/5A series.
Yes	M8147	User Communication Receive Instruction Cancel Flag (Port 6)	Same with FC4A/5A series.
Yes	M8150	Comparison Result Greater Than	Same with FC4A/5A series.
Yes	M8151	Comparison Result Less Than	Same with FC4A/5A series.
Yes	M8152	Comparison Result Equal To	Same with FC4A/5A series.
-	M8153	Reserved	It is Catch Input ON/OFF Status for Group 1/I0.
Indirectly	M8154	Catch Input I2 ON/OFF Status	Make the setting by replacing it with Group 2/I1.
Indirectly	M8155	Catch Input I3 ON/OFF Status	Make the setting by replacing it with Group 3/I3.
Indirectly	M8156	Catch Input I4 ON/OFF Status	Make the setting by replacing it with Group 4/I4.
Indirectly	M8157	Catch Input I5 ON/OFF Status	Make the setting by replacing it with Group 5/I6.
-	M8160	Reserved	Reserved
Indirectly	M8161	High-speed Counter (X0-X2) Current Value Overflow	There is no compatibility with the high-speed counter.
Indirectly	M8162	High-speed Counter (X0-X2) Current Value Underflow	Set and refer to the high-speed counter (group 1/I0) near device allocation.
Indirectly	M8163	High-speed Counter (X5-X7) Current Value Overflow	There is no compatibility with the high-speed counter.
Indirectly	M8164	High-speed Counter (X5-X7) Current Value Underflow	Set and refer to the high-speed counter (group 5/I6) near device allocation.
-	M8165 to M8167	Reserved	Reserved
Yes	M8170	User Communication Receive Instruction Cancel Flag (Port 7)	Same with FC4A/5A series.
Indirectly	M8171	User Communication Receive Instruction Cancel Flag (Client 1)	There is no compatibility. Make the settings for connection 1 to 8 (commonly used for the server/client) of the CPU Module, and refer to the corresponding User Communication Receive Instruction Cancel Flag (M8200 to M8207, M8334 to M8343)).
Indirectly	M8172	User Communication Receive Instruction Cancel Flag (Client 2)	
Indirectly	M8173	User Communication Receive Instruction Cancel Flag (Client 3)	Special internal relays are defined as follows. M8171: Reserved M8172 to M8175: Transistor Source Output Overcurrent Detection
-	M8174 to M8187	Reserved	Reserved
Yes	M8190	IP Address Change Flag	Same with FC4A/5A series.
Indirectly	M8191	SNTP Calendar/Clock Data Write Flag	M8191 is defined as "SNTP Acquisition Flag," and operation specifications are different from those for the FC5A series. Time setting will be performed only once when the M8191 status is changed from OFF to ON. To perform time setting periodically, set the automatic acquisition cycle in the network setting for the function setting.
Indirectly	M8192	Interrupt Input 1 Edge (ON: Rising, OFF: Falling)	Make the setting by replacing it with Group 1/I0.
Indirectly	M8193	Interrupt Input 2 Edge (ON: Rising, OFF: Falling)	Make the setting by replacing it with Group 3/I3.
Indirectly	M8194	Interrupt Input 3 Edge (ON: Rising, OFF: Falling)	Make the setting by replacing it with Group 4/I4.
Indirectly	M8195	Interrupt Input 4 Edge (ON: Rising, OFF: Falling)	Make the setting by replacing it with Group 5/I6.

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special internal relay	FC4A/5A series specifications	FC6A series specifications
No	M8196	Transmission Mail Server Setting Initialize	Set M8211. M8196 is defined as "Interrupt Input I7 Edge."
-	M8197	Reserved	M8197 is defined as "Interrupt Input I1 Edge."

Indirectly	M8200 to M8207	User Communication Receive Instruction Cancel Flag (Servers 1 to 8)	There is no compatibility. Make the settings for connection 1 to 8 (commonly used for the server/client) of the CPU Module, and refer to the corresponding User Communication Receive Instruction Cancel Flag (M8200 to M8207, M8334 to M8343)).
			
			 Special internal relays are defined as follows.
			
			 M8200 to M8207:
			    User Communication Receive Instruction
			    Cancel Flag
			    (Connection 1 to 8)

-	M8210 to M8211	Reserved	Reserved
Indirectly	M8212 to M8214	Maintenance Communication Server 1 to 3 Status	There is no compatibility. Make the settings for connection 1 to 8 (commonly used for the server/client) of the CPU Module, and refer to the corresponding Connection Status (M8212 to M8221) and User Communication Connection Disconnect Flag (M8222 to M8231).
Indirectly	M8215 to M8217	Client Connection 1 to 3 Status	
Indirectly	M8220 to M8227	Server Connection 1 to 8 Status	

Indirectly	M8230 to M8232	Client Connection 1 to 3 Disconnect Flag	Special internal relays are defined as follows.
			
			 M8212 to M8221:
			    Connection Status (Connection 1 to 8)
			 M8222 to M8231:
			    Disconnect User Communication Connection
			    (Connection 1 to 8)
			 M8232:
			    Refer to HMI module connection information.
			    Connection Status

-	M8333 to M8317	Reserved	Reserved

Compatibility table (FC4A/5A series -> FC6A Plus)

● Special data registers

Replaceability	Special data register	FC4A/5A series specifications	FC6A series specifications
Yes	D8000	CPU Module System (Quantity of Inputs)	Same with FC4A/5A series.
Yes	D8001	CPU Module System (Quantity of Outputs)	Same with FC4A/5A series.
Yes	D8002	CPU Module Type Information	Same with FC4A/5A series.
No	D8003	Memory Cartridge Information	It cannot be used because there is no memory cartridge. Read out a file in an SD memory card using WindLDR.
-	D8004	Reserved	Reserved
Yes	D8005	General Error Code	Same with FC4A/5A series.
Yes	D8006	User Program Execution Error Code	Same with FC4A/5A series.
No	D8007	Communication Mode Switching (Port 1 and 2)	The communication mode switching function cannot be used. To use maintenance communication, use the USB port.
Yes	D8008	Year (Current Data) Read only	Same with FC4A/5A series.
Yes	D8009	Month (Current Data) Read only	Same with FC4A/5A series.
Yes	D8010	Day (Current Data) Read only	Same with FC4A/5A series.
Yes	D8011	Day of Week (Current Data) Read only	Same with FC4A/5A series.
Yes	D8012	Hour (Current Data) Read only	Same with FC4A/5A series.
Yes	D8013	Minute (Current Data) Read only	Same with FC4A/5A series.
Yes	D8014	Second (Current Data) Read only	Same with FC4A/5A series.
Yes	D8015	Year (New Data) Write only	Same with FC4A/5A series.
Yes	D8016	Month (New Data) Write only	Same with FC4A/5A series.
Yes	D8017	Day (New Data) Write only	Same with FC4A/5A series.
Yes	D8018	Day of Week (New Data) Write only	Same with FC4A/5A series.
Yes	D8019	Hour (New Data) Write only	Same with FC4A/5A series.
Yes	D8020	Minute (New Data) Write only	Same with FC4A/5A series.
Yes	D8021	Second (New Data) Write only	Same with FC4A/5A series.
Yes	D8022	Constant Scan Time Preset Value	Same with FC4A/5A series.
Yes	D8023	Scan Time Current Value (ms)	Same with FC4A/5A series.
Yes	D8024	Scan Time Maximum Value (ms)	Same with FC4A/5A series.
Yes	D8025	Scan Time Minimum Value (ms)	Same with FC4A/5A series.
Indirectly	D8026	Communication Mode Information (Port 1 through Port 7)	Communication mode is defined differently. Make corrections according to the definition for the FC6A series.
Indirectly	D8027	Port 1 Communication Network Number	Special data register allocation is different.
Indirectly	D8028	Port 2 Communication Network Number	Only when a data register is specified for the slave number in the communication port setting, the slave number can be changed in D8100, D8102, and D8103.
Yes	D8029	System Program Version	Same with FC4A/5A series.
Indirectly	D8030	Communication Adapter Information	Change the setting according to the option for the FC6A series.
Indirectly	D8031	Optional Cartridge Information	
Indirectly	D8032	Interrupt Input Jump Destination Label No. (X2)	Make the setting by replacing it with Group 2/I1.
Indirectly	D8033	Interrupt Input Jump Destination Label No. (X3)	Make the setting by replacing it with Group 3/I3.
Indirectly	D8034	Interrupt Input Jump Destination Label No. (X4)	Make the setting by replacing it with Group 4/I4.
Indirectly	D8035	Interrupt Input Jump Destination Label No. (X5)	Make the setting by replacing it with Group 5/I6.
Yes	D8036	Timer Interrupt Jump Destination Label No.	Same with FC4A/5A series.
Yes	D8037	Quantity of Expansion I/O Modules	Same with FC4A/5A series.
-	D8038	Reserved	Reserved
-	D8039	Reserved	Reserved

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special data register	FC4A/5A series specifications		FC6A series specifications
Yes	D8040	Data Link Slave Station Number/ Modbus Slave Number	Port 3	Same with FC4A/5A series.
Yes	D8041		Port 4	Same with FC4A/5A series.
Yes	D8042		Port 5	Same with FC4A/5A series.
Yes	D8043		Port 6	Same with FC4A/5A series.
Yes	D8044		Port 7	Same with FC4A/5A series.
Indirectly	D8045	High-speed Counter (X0-X2) Current Value		Make the setting while referring to the current value and the preset value for the high-speed counter (group 1/I0) in D8210 to D8213.
Indirectly	D8046	High-speed Counter (X0-X2) Reset Value or Preset Value		
Indirectly	D8047	High-speed Counter (X3) Current Value		Make the setting while referring to the current value and the preset value for the high-speed counter (group 3/I3) in D8218 to D8221.
Indirectly	D8048	High-speed Counter (X3) Reset Value		
Indirectly	D8049	High-speed Counter (X4) Current Value		Make the setting while referring to the current value and the preset value for the high-speed counter (group 4/I4) in D8222 to D8225.
Indirectly	D8050	High-speed Counter (X4) Reset Value		
Indirectly	D8051	High-speed Counter (X5-X7) Current Value		Make the setting while referring to the current value and the preset value for the high-speed counter (group 5/I6) in D8226 to D8229. D8052 is defined as J1939 Communication Error Code.
Indirectly	D8052	High-speed Counter (X5-X7) Reset Value or Preset Value		
No	D8053	Modbus slave communication error code		Set an arbitrary data register as the error status in the setting window for the Modbus master request table. D8053 to D8055 are defined as reserved.
No	D8054	Modbus slave communication transmission wait time for ASCII		Make the setting in the communication setting for the Modbus master request table.
No	D8055	Current Pulse Frequency of PULS1 or RAMP1 (Y0)		It cannot be used because the frequency band that can be output is different.
No	D8056	Current Pulse Frequency of PULS2 or RAMP1 (Y1)		It cannot be used because the frequency band that can be output is different. D8056 is defined as Battery Voltage.
Yes	D8057	Analog Potentiometer 1 Value		Same with FC4A/5A series.
No	D8058	Analog Potentiometer 2 Value (All-in-One type CPU)/Analog Voltage Input (Slim type CPU Modules)		Analog Potentiometer 2 is not supported and cannot be used. D8058 is defined as Built-in Analog Input (AI1).
No	D8059	Current Pulse Frequency of PULS3 or RAMP2 (Y2)		It cannot be used because the frequency band that can be output is different. D8059 is defined as Analog Input Status AI0.
Indirectly	D8060 D8061	Slim type D8060, D8061: Frequency Measurement ValueX1 All-in-One type D8060: Frequency Measurement Value X1, D8061: Reserved		Refer to the frequency measurement current value for the high-speed counter (group 1/I0) in D8210 to D8211. D8060 is defined as Analog Input Status AI1.
Indirectly	D8062 D8063	Slim type D8062, D8063: Frequency Measurement Value X3 All-in-One type D8062: Frequency Measurement Value X3, D8063: Reserved		Refer to the frequency measurement current value for the high-speed counter (group 3/I3) in D8218 to D8219.
Indirectly	D8064 D8065	Slim type D8064, D8065: Frequency Measurement Value X4 All-in-One type D8064: Frequency Measurement Value X4, D8065: Reserved		Refer to the frequency measurement current value for the high-speed counter (group 4/I4) in D8222 to D8223.
Indirectly	D8066 D8067	Slim type D8066, D8067: Frequency Measurement Value X5 All-in-One type D8066: Frequency Measurement Value X5, D8067: Reserved		Refer to the frequency measurement current value for the high-speed counter (group 5/I6) in D8226 to D8227. D8067 is defined as Backlight ON Time

Compatibility table (FC4A/5A series -> FC6A Plus)

No	D8068	HMI Module Initial Screen Selection	It is not supported and cannot be used. Use the MSG instruction.
Replaceability	Special data register	FC4A/5A series specifications	FC6A series specifications
Indirectly	D8069	Slave Station 1 Communication Error (at Master Station) Slave Station Communication Error (at Slave Station) Error station number and error code (at Modbus Master)	
Indirectly	D8070		
Indirectly	D8071		
Indirectly	D8072		
Indirectly	D8073		
Indirectly	D8074		
Indirectly	D8075		
Indirectly	D8076		
Indirectly	D8077		
Indirectly	D8078		
Indirectly	D8079		When the data link master station and data link slave station are used, they can be used as with the FC5A series All-in-One type.
Indirectly	D8080		
Indirectly	D8081		
Indirectly	D8082		
Indirectly	D8083	Slave Station 2-31 Communication Error (at Master Station) Error station number and error code (at Modbus Master)	
Indirectly	D8084		When Modbus master communication is used, set the error status into an arbitrary data register in the setting screen for the Modbus request table.
Indirectly	D8085		
Indirectly	D8086		
Indirectly	D8087		
Indirectly	D8088		
Indirectly	D8089		
Indirectly	D8090		
Indirectly	D8091		
Indirectly	D8092		
Indirectly	D8093		
Indirectly	D8094		
Indirectly	D8095		
Indirectly	D8096		
Indirectly	D8097		
Indirectly	D8098		
Indirectly	D8099		
Indirectly	D8100	Data Link Slave Station Number (Port 2)/Modbus Slave Number (Port 2)	D8100 is defined as Slave Number (Port 1). When port 1 is maintenance communication, Modbus RTU slave, or data link slave, the slave number can be changed.
No	D8101	Data Link Transmit Wait Time (ms)	It is intended for connection with FA-3S. It is not supported this time and cannot be used. D8101 is defined as reserved.

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special data register	FC4A/5A series specifications		FC6A series specifications
-	D8102	Reserved		D8102 is defined as Slave Number (Port 2). When port 2 is maintenance communication, Modbus RTU slave, or data link slave, the slave number can be changed.
No	D8103	Online Mode Protocol Selection		Modem mode is not supported. D8103 is defined as Slave Number (Port 3). When port 3 is maintenance communication, Modbus RTU slave, or data link slave, the slave number can be changed.
Indirectly	D8104	RS232C Communication board	Control Signal Status	The port number is defined differently. Set and refer to the number according to the communication port to be used.
Indirectly	D8105		DR Input Control Signal Option	
Indirectly	D8106		ER Output Control Signal Option	
-	D8107	Reserved		Reserved
-	D8108	Reserved		Reserved
No	D8109	Retry Cycles		Modem mode is not supported and cannot be used. D8109 to D8111 are defined as reserved.
No	D8110	Retry Interval		
No	D8111	Modem Mode Status		
-	D8112	Reserved		Reserved
-	D8113	Reserved		Reserved
-	D8114	Reserved		Reserved
No	D8115 to D8129	AT Command Result Code		Modem mode is not supported and cannot be used. Special data registers are defined as follows. D8115 to D8119: Reserved D8120 to D8121: HMI Module Information D8122 to D8127: Cartridge Slot 1-3 Information D8128 to D8169: Reserved D8170 to D8181: Information related to analog cartridge I/O D8182 to D8191: Reserved D8192 to D8197: High-speed Counter (Group 2/I1) D8198 to D8203: High-speed Counter (Group 6/I7)
No	D8130 to D8144	AT Command String		
No	D8145 to D8169	Initialization String		
No	D8170 to D8199	Modem dialing command		
-	D8200 to D8203	Reserved		
Indirectly	D8204	RS232C Control Signal Status (Port 7)		The port number is defined differently. Set and refer to the number according to the communication port to be used.
Indirectly	D8205	RS232C DR Input Control Signal Option (Port 7)		
Indirectly	D8206	RS232C ER Output Control Signal Option (Port 7)		
-	D8207 to D8209	Reserved		Reserved
Indirectly	D8210	High-speed Counter (X0-X2) Current Value		There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 1/I0) near device allocation.
Indirectly	D8211			
Indirectly	D8212	High-speed Counter (X0-X2) Preset Value 1		
Indirectly	D8213			
Indirectly	D8214	High-speed Counter (X0-X2) Preset Value 2		
Indirectly	D8215			
Indirectly	D8216	High-speed Counter (X0-X2) Reset Value		
Indirectly	D8217			

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special data register	FC4A/5A series specifications	FC6A series specifications
Indirectly	D8218	High-speed Counter (X3) Current Value	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 3/I3) near device allocation.
Indirectly	D8219		
Indirectly	D8220	High-speed Counter (X3) Reset Value	
Indirectly	D8221		
Indirectly	D8222	High-speed Counter (X4) Current Value	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 4/I4) near device allocation.
Indirectly	D8223		
Indirectly	D8224	High-speed Counter (X4) Reset Value	
Indirectly	D8225		
Indirectly	D8226	High-speed Counter (X5-X7) Current Value	There is no compatibility with the high-speed counter. Set and refer to the high-speed counter (group 5/I6) near device allocation.
Indirectly	D8227		
Indirectly	D8228	High-speed Counter (X5-X7) Reset Value 1	
Indirectly	D8229		
Indirectly	D8230	High-speed Counter (X5-X7) Reset Value 2	
Indirectly	D8231		
Indirectly	D8232	High-speed Counter (X5-X7) Preset Value	
Indirectly	D8233		
-	D8234 to D8251	Reserved	Reserved
TBD	D8252	Expansion Interface Module I/O Refresh Time (x100 µs)	It is not supported and cannot be used. Expansion module I/O refresh is performed by the CPU Module. It is not performed by the Expansion Interface Module. D8252 is defined as reserved.
-	D8253 to D8277	Reserved	Reserved
No	D8278	Communication Mode Information (Client Connection)	There is no compatibility. D8278 is defined as "Communication Mode Information (Client Connection) Connection 1 to 4."
No	D8279	Communication Mode Information (Server Connection)	There is no compatibility. D8279 is defined as "Communication Mode Information (Client Connection) Connection 5 to 8."
-	D8280 to D8301	Reserved	Reserved
No	D8302	Memory Cartridge Capacity	It is not supported and cannot be used. For SD memory card capacity, refer to D8250. D8302 is defined as reserved.
No	D8303	IP Address Switching	It is not supported and cannot be used. Make the selection and setting in the network setting for the function setting.
Yes	D8304 to D8307	IP Address (New Data) Write only	Same with FC5A series.
Yes	D8308 to D8311	Subnet Mask (New Data) Write only	Same with FC5A series.
Yes	D8312 to D8315	Default Gateway (New Data) Write only	Same with FC5A series.
Yes	D8316 to D8319	Preferred DNS Server (New Data) Write only	Same with FC5A series.
Yes	D8320 to D8323	Alternate DNS Server (New Data) Write only	Same with FC5A series.
Yes	D8324 to D8329	MAC Address	Same with FC5A series.
Yes	D8330 to D8333	IP Address (Current Data) Read only	Same with FC5A series.

Replaceability	Special data register	FC4A/5A series specifications	FC6A series specifications
Yes	D8334 to D8337	Subnet Mask (Current Data) Read only	Same with FC5A series.
Yes	D8338 to D8341	Default Gateway (Current Data) Read only	Same with FC5A series.
Yes	D8342 to D8345	Preferred DNS Server (Current Data) Read only	Same with FC5A series.
Yes	D8346 to D8349	Alternate DNS Server (Current Data) Read only	Same with FC5A series.
Indirectly	D8350 to D8353	Maintenance Communication Server 1 Connected IP Address	There is no compatibility. Make the settings for connection 1 to 8 (commonly used for the server/client) of the CPU Module, and refer to the corresponding connected IP address (D8350 to D8381).
Indirectly	D8354 to D8357	Maintenance Communication Server 2 Connected IP Address	
Indirectly	D8358 to D8361	Maintenance Communication Server 3 Connected IP Address	Special data registers are defined as follows.
Indirectly	D8362 to D8365	Server Connection 1 Connected IP Address	D8350 to D8353: Connection 1 Connected IP Address
Indirectly	D8366 to D8369	Server Connection 2 Connected IP Address	D8354 to D8357: Connection 2 Connected IP Address
Indirectly	D8370 to D8373	Server Connection 3 Connected IP Address	D8358 to D8361: Connection 3 Connected IP Address
Indirectly	D8374 to D8377	Server Connection 4 Connected IP Address	D8362 to D8365: Connection 4 Connected IP Address
Indirectly	D8378 to D8381	Server Connection 5 Connected IP Address	D8366 to D8369: Connection 5 Connected IP Address D8370 to D8373: Connection 6 Connected IP Address D8374 to D8377: Connection 7 Connected IP Address D8378 to D8381: Connection 8 Connected IP Address
Indirectly	D8382 to D8385	Server Connection 6 Connected IP Address	There is no compatibility. Make the settings for connection 1 to 8 (commonly used for the server/client) of the CPU Module, and refer to the corresponding connected IP address (D8350 to D8381).
Indirectly	D8386 to D8389	Server Connection 7 Connected IP Address	
Indirectly	D8390 to D8393	Server Connection 8 Connected IP Address	Special data registers are defined as follows.
–	D8406 to D8412	Reserved	D8382 to D8387: HMI Module MAC Address (Current Value Read-only) D8388 to D8391: HMI Module IP Address (Current Value Read-only) D8392 to D8395: HMI Module Subnet Mask (Current Value Read-only) D8396 to D8399: HMI Module Default Gateway (Current Value Read-only) D8400 to D8403: HMI Module Preferred DNS Server (Current Value Read-only) D8404 to D8407: HMI Module Alternate DNS Server (Current Value Read-only) D8408 to D8412: Reserved

Compatibility table (FC4A/5A series -> FC6A Plus)

Replaceability	Special data register	FC4A/5A series specifications	FC6A series specifications
Yes	D8413	Time Zone Offset	Same with FC4A/5A series.
No	D8414	Year (Obtained from SNTP)	It is not supported and cannot be used. The CPU Module uses the built-in clock, and a simple clock function is not required. Also, information obtained from SNTP will be automatically reflected to the built-in clock. Special data registers are defined as follows. D8414: SNTP Operation Status D8415: SNTP Access Elapsed Time D8416 to D8420: Reserved
No	D8415	Month (Obtained from SNTP)	
No	D8416	Day (Obtained from SNTP)	
No	D8417	Day of Week (Obtained from SNTP)	
No	D8418	Hour (Obtained from SNTP)	
No	D8419	Minute (Obtained from SNTP)	
No	D8420	Second (Obtained from SNTP)	
No	D8421	Maintenance Communication Server 1 Port Number of Client	Connection port numbers are not supported and cannot be used. Special data registers are defined as follows. D8421 to D8348: Reserved D8429 to D8431: Refer to HMI Module connection information.
No	D8422	Maintenance Communication Server 2 Port Number of Client	
No	D8423	Maintenance Communication Server 3 Port Number of Client	
No	D8424	Server Connection 1 Port Number of Client	
No	D8425	Server Connection 2 Port Number of Client	
No	D8426	Server Connection 3 Port Number of Client	
No	D8427	Server Connection 4 Port Number of Client	
No	D8428	Server Connection 5 Port Number of Client	
No	D8429	Server Connection 6 Port Number of Client	
No	D8430	Server Connection 7 Port Number of Client	
No	D8431	Server Connection 8 Port Number of Client	
-	D8432 to D8456	Reserved	D8432 to D8434: Refer to HMI Module connection information. D8435 to D8436: Reserved D8437 to D8440: HMI Module IP Address (Write-only) D8441 to D8444: HMI Module Subnet Mask (Write-only) D8445 to D8448: HMI Module Default Gateway (Write-only) D8449 to D8452: HMI Module Preferred DNS Server (Write-only) D8453 to D8456: HMI Module Alternate DNS Server (Write-only)
Yes	D8457	EMAIL Error Information	D8457: HMI module E-mail command detailed error information D8759: Ethernet Port1 E-mail command detailed error information
-	D8458 to D8499	Reserved	Reserved

The following table shows the comparison of the I/O number between the FC4A series and FC6A series.

	FC4A series						FC6A series				
	C10	C16	C24	D20*3	D20R *1	D40	C16	C24	C40	D16	D32
User program (steps)	800	2500	4500	4500	5,200/10,750*1		9,000/48,000*2			100,000	
Input relay	6 pts.	9 pts.	78 pts.	140 pts.	236 pts.	248 pts.	393 pts.	494 pts.	504 pts.	2,024.pts.	2,032 pts.
Output relay	4 pts.	7 pts.	74 pts.	136 pts.	232 pts.	240 pts.	391 pts.	490 pts.	496 pts.	2,024 pts.	2,032 pts.
Internal relay	256 pts.	1,024 pts.		1,024 pts.			12,400 pts.			15,400 pts.	
Internal relay for AS-Interface	-			-	560 pts.		-			-	
Special internal relay	128 pts.			128 pts.			256 pts.			800 pts.	
Shift resister	64 pts.	128 pts.		128 pts.			256 pts.			256 pts.	
Timer	32 pts.	100 pts.		100 pts.			1,024 pts.			2,000 pts.	
Counter	32 pts.	100 pts.		100 pts.			512 pts.			512 pts.	
Data register	400 pts.	1,300 pts.		1,300 pts.			54,000 pts.			60,000 pts. 200,000 pts *3	
Expansion data register	-			-	6,000 pts.		-			-	
Data register for AS-Interface	-			-	300 pts.		-			-	
Special data register	100 pts.	200 pts.		20 pts.			500 pts.			900 pts.	

*1   When a 64 KB memory cartridge is used.
*2   The download function cannot be used during running.
*3   Non-Retentive Data Register

The following table shows the comparison of the I/O number between the FC5A series and FC6A series.

	FC5A series						FC6A series				
	C10	C16	C24	D16	D32	D12	C16	C24	C40	D16	D32
User program (steps)	2300	4500	9000	10400 10,400/21,300*1			9,000/48,000*1			100,000	
Input relay	78 pts.	9 pts.	78 pts.	788 pts.	496 pts.	788 pts.	393 pts.	494 pts.	504 pts.	2,024 pts.	2,032 pts.
Output relay	74 pts.	7 pts.	74 pts.	788 pts.	496 pts.	484 pts.	391 pts.	490 pts.	496 pts.	2,024 pts.	2,032 pts.
Internal relay	2,048 pts.			2,048 pts.			12,400 pts.			15,400 pts.	
Special internal relay	128 pts.			256 pts.			256 pts.			256 pts.	
Shift resister	128 pts.			256 pts.			256 pts.			256 pts.	
Timer	256 pts.			256 pts.			1,024 pts.			2,000 pts.	
Counter	256 pts.			256 pts.			512 pts.			512	
Data register	2,000 pts.			2,000 + 40,000 pts.			54,000 pts.			60,000 pts. 200,000 pts *2.	
Expansion data register	-			6,000 pts.			-			-	
Special data register	200 pts.			500 pts.			500 pts.			900 pts.	

*1   The download function cannot be used during running.
*2   Non-Retentive Data Register

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