

FR-A7NC Instruction Manual Supplement

Plug-in option (E kit/E kit cover) dedicated for the FR-E700 series

1 PRE-OPERATION INSTRUCTIONS

1.1 Unpacking and Product Confirmation

Take the plug-in option out of the package, check the product name, and confirm that the product is as you ordered and intact.



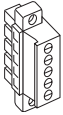
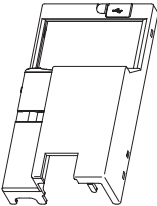
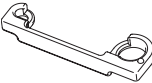
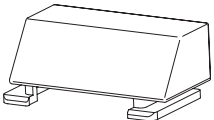
This product is a plug-in option unit dedicated for the FR-E700 series.

CAUTION

- **Install a provided front cover for plug-in option, in place of the inverter front cover.**
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1.1.1 Packing confirmation

Check the enclosed items.

<p>Plug-in option *1 1</p> 	<p>Mounting screw (M3 × 6mm) *1 2</p> 	<p>Terminal block *1 1</p> 
<p>Front cover for plug-in option 1</p> 	<p>Option protective cover *2 1</p> 	<p>Option small cover (Not used) 1</p> 

*1 Not included in the plug-in option E kit cover for the FR-E700 series.

*2 Used with the FR-E720-3.7K (FR-E720-175) or less and FR-E740-7.5K (FR-E740-170) or less.

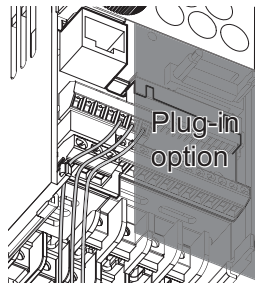
2 INSTALLATION AND WIRING

2.1 Installation Procedure

The FR-E700 series has one connection connector for the plug-in option.

CAUTION

- Always perform wiring to the main circuit terminals and control circuit terminals before installing the option. Wiring cannot be performed after installing the option. For wiring to terminal RUN, FU, SE of control circuit terminal, run cables to prevent them from being caught between the option board and control circuit terminal block as shown in the right figure. In case cables are caught, the inverter may be damaged.
- When the inverter cannot recognize that the option is mounted due to improper installation, etc., "E. 1" (option alarm) is displayed.
- Take care not to drop a mounting screws during mounting and removal.
- Pull out the option straight to remove. Otherwise, the connector may be damaged.

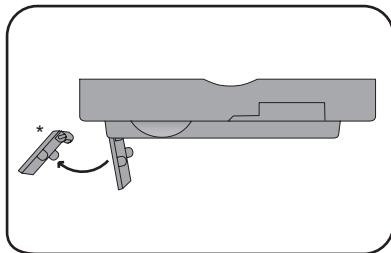


REMARKS

- Because the voltage class, model name and serial (only voltage class is labeled for FR-E740-5.5K (FR-E740-120) or more) are stated on the PU cover, replace a PU cover of a plug-in option front cover with the removed PU cover from the inverter.

● For FR-E720-3.7K (FR-E720-175) or less and FR-E740-7.5K (FR-E740-170) or less

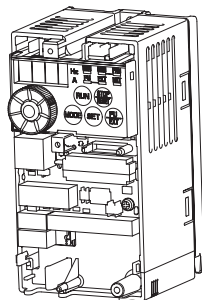
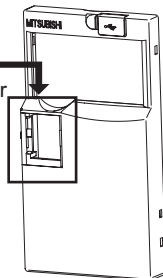
- (1) Remove the front cover from the inverter. (For removing the front cover, refer to the FR-E700 instruction manual.)
- (2) Remove the PU cover from the front cover. Open the PU cover with a driver, etc. and remove it in the direction of arrow as shown below.



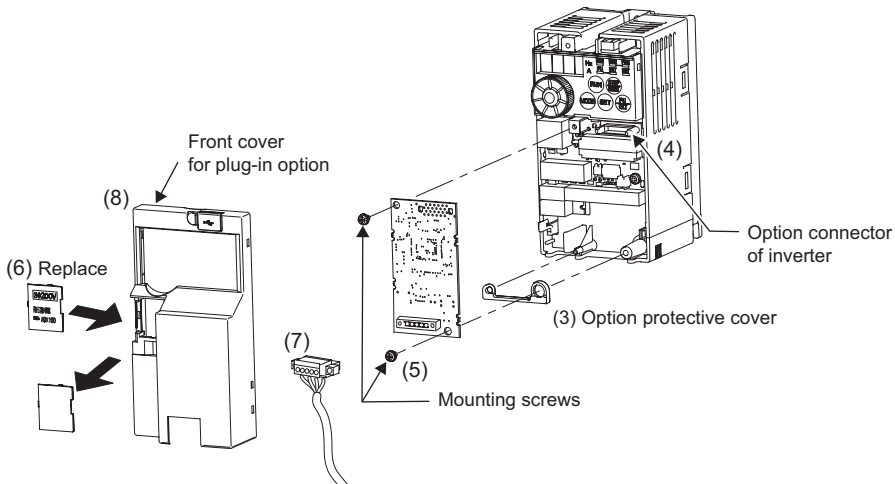
* Open the PU cover, then open it toward the arrow direction to remove.

(1) Front cover

(2) PU cover



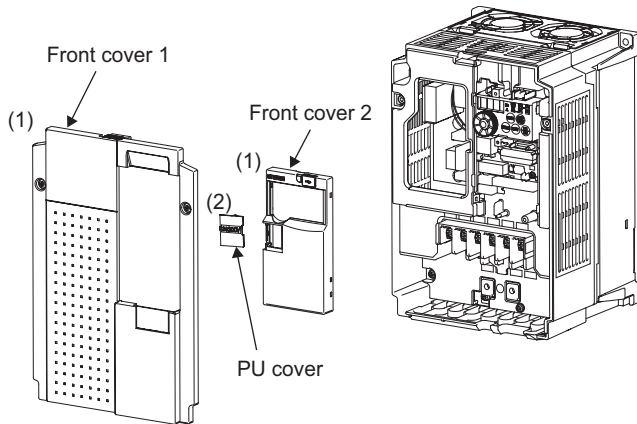
- (3) Install the option protective cover.
- (4) Securely fit the connector of the plug-in option to the inverter connector along the guides.
- (5) Securely fix the both top and bottom of the plug-in option to the inverter with the accessory mounting screws. If the screw holes do not line-up, the connector may not have been plugged snugly. Check for loose plugging.
- (6) Remove the PU cover provided on the front cover for plug-in option and install the other PU cover, which was removed in (2).
- (7) Mount the already wired terminal block to the plug-in option.
- (8) Install the front cover for plug-in option to the inverter.



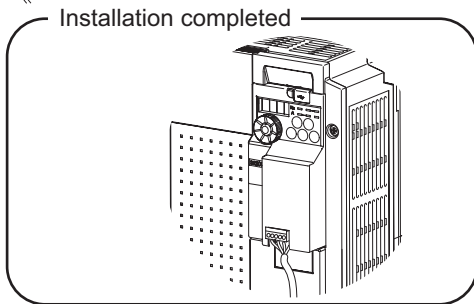
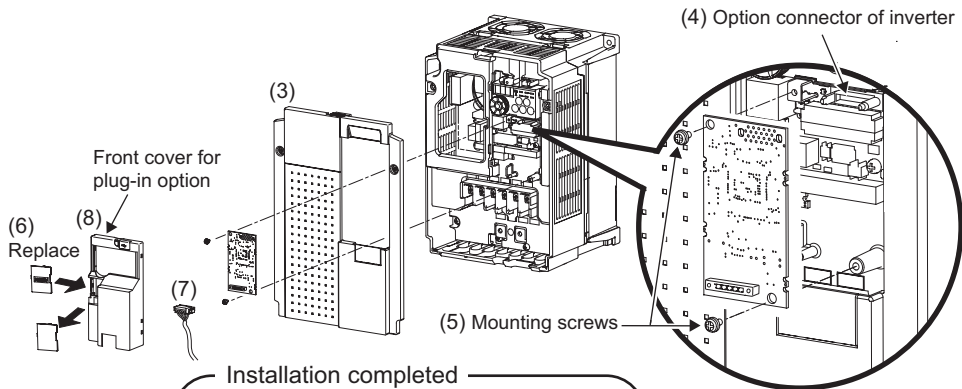
REMARKS

- When the option protective cover is not installed, the protective structure (JEM1030) changes to open type (IP00).

- For FR-E720-5.5K (FR-E720-240) or more and FR-E740-11K (FR-E740-230) or more
- (1) Remove the front cover 1 and 2 from the inverter. (For removing the front cover, refer to the FR-E700 instruction manual.)
 - (2) Remove the PU cover from the front cover 2. For removing the PU cover, refer to *page 4*.



- (3) Install the front cover 1 to the inverter.
- (4) Securely fit the connector of the plug-in option to the inverter connector along the guides.
- (5) Securely fix the both top and bottom of the plug-in option to the inverter with the accessory mounting screws. If the screw holes do not line-up, the connector may not have been plugged snugly. Check for loose plugging.
- (6) Remove the PU cover provided on the front cover for plug-in option and install the other PU cover, which was removed in (2).
- (7) Mount the already wired terminal block to the plug-in option.
- (8) Install the front cover for plug-in option to the inverter.



3 I/O SIGNAL LIST

3.1 I/O Signal List

3.1.1 I/O signal when CC-Link Ver.1 one station (FR-A5NC compatible) is occupied (Pr. 544 = "0")

(1) Remote I/O (32 points)

Device No	Signal	Device No	Signal
RYn0	Forward rotation command	RXn0	Forward running
RYn1	Reverse rotation command	RXn1	Reverse running
RYn2	High-speed operation command (terminal RH function) *1	RXn2	Running (terminal RUN function) *3
RYn3	Middle-speed operation command (terminal RM function) *1	RXn3	Up to frequency (SU signal)
RYn4	Low-speed operation command (terminal RL function) *1	RXn4	Overload alarm (OL signal)
RYn5	Not used	RXn5	Not used
RYn6	Second function selection (RT signal) *2	RXn6	Frequency detection (terminal FU function) *3
RYn7	Current input selection (AU signal) *2	RXn7	Error (terminal ABC1 function) *3
RYn8	Not used	RXn8	Not used
RYn9	Output stop (terminal MRS function) *1	RXn9	Pr. 313 assignment function (DO0) *4

Device No	Signal
RYnA	Not used
RYnB	Reset (terminal RES function) *1
RYnC	Monitor command
RYnD	Frequency setting command (RAM)
RYnE	Frequency setting command (RAM, EEPROM)
RYnF	Instruction code execution request
RY(n+1)0 to RY(n+1)7	Reserved
RY(n+1)8	Not used (initial data process completion flag)
RY(n+1)9	Not used (initial data process request flag)
RY(n+1)A	Error reset request flag
RY(n+1)B to RY(n+1)F	Reserved

Device No	Signal
RXnA	<i>Pr. 314</i> assignment function (DO1) *4
RXnB	<i>Pr. 315</i> assignment function (DO2) *4
RXnC	Monitoring
RXnD	Frequency setting completion (RAM)
RXnE	Frequency setting completion (RAM, EEPROM)
RXnF	Instruction code execution completion
RX(n+1)0 to RX(n+1)7	Reserved
RX(n+1)8	Not used (initial data process request flag)
RX(n+1)9	Not used (initial data process completion flag)
RX(n+1)A	Error status flag
RX(n+1)B	Remote station ready
RX(n+1)C to RX(n+1)F	Reserved

("n" indicates a value determined according to the station number setting.)

- *1 Signal names are initial values. Using *Pr. 180* to *Pr. 184*, you can change input signal functions.
Signals of the RYn0 and RYn1 can not be changed. Even when changed using *Pr. 178* and *Pr. 179*, the settings are invalid.
Refer to the inverter manual (applied) for details of *Pr. 178* to *Pr. 184*.
- *2 Signals of the RY6 and RY7 can not be changed.
- *3 Signal names are initial values. Using *Pr. 190* to *Pr. 192*, you can change output signal functions.
Refer to the inverter manual (applied) for details of *Pr. 190* to *Pr. 192*.
- *4 Output signal can be assigned using *Pr. 313* to *Pr. 315*.
Refer to *Pr. 190* to *Pr. 192* of the inverter manual for details of signals.

(2) Remote resister

Address	Description		Address	Description
	Upper 8 Bits	Lower 8 Bits		
RWwn	Monitor code 2	Monitor code 1	RWrn	First monitor value
RWwn+1	Set frequency (0.01Hz increments) *2		RWrn+1	Second monitor value
RWwn+2	H00 (arbitrary) *1	Instruction code	RWrn+2	Reply code
RWwn+3	Write data		RWrn+3	Read data

("n" indicates a value determined according to the station number setting.)

- *1 The above 8 bit is always H00 even if a value other than H00 is set.
- *2 When *Pr. 37* is not equal to 0, this will be speed display (1 increments).

3.1.2 I/O signal when CC-Link Ver.1 one station is occupied (Pr. 544 = "1")

(1) Remote I/O (32 points)

Same as when Pr. 544 = "0" (👉 Refer to page 10)

(2) Remote resister

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWwn	Monitor code 2	Monitor code 1
RWwn+1	Set frequency (0.01Hz increments) *1	
RWwn+2	Link parameter expansion setting	Instruction code
RWwn+3	Write data	

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWrn	First monitor value	
RWrn+1	Second monitor value	
RWrn+2	Reply code 2	Reply code 1
RWrn+3	Read data	

("n" indicates a value determined according to the station number setting.)

*1 When Pr. 37 is not equal to 0, this will be speed display (1 increments).

3.1.3 I/O signal when CC-Link Ver.2 double setting is selected (Pr. 544 = "12")

(1) Remote I/O (32 points)

Same as when Pr. 544 = "0" (👉 Refer to page 10)

(2) Remote resister

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWwn	Monitor code 2	Monitor code 1
RWwn+1	Set frequency (0.01Hz increments) *1	
RWwn+2	Link parameter expansion setting	Instruction code
RWwn+3	Write data	
RWwn+4	Monitor code 3	
RWwn+5	Monitor code 4	
RWwn+6	Monitor code 5	
RWwn+7	Monitor code 6	

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWrn	First monitor value	
RWrn+1	Second monitor value	
RWrn+2	Reply code 2	Reply code 1
RWrn+3	Read data	
RWrn+4	Third monitor value	
RWrn+5	Fourth monitor value	
RWrn+6	Fifth monitor value	
RWrn+7	Sixth monitor value	

("n" indicates a value determined according to the station number setting.)

*1 When Pr. 37 is not equal to 0, this will be speed display (1 increments).

3.1.4 I/O signal when CC-Link Ver.2 quadruple setting is selected (Pr. 544 = "14")

(1) Remote I/O (32 points)

Same as when Pr. 544 = "0" (👉 Refer to page 10)

(2) Remote resister

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWwn	Monitor code 2	Monitor code 1
RWwn+1	Set frequency (0.01Hz increments) *2	
RWwn+2	Link parameter expansion setting	Instruction code
RWwn+3	Write data	
RWwn+4	Monitor code 3	
RWwn+5	Monitor code 4	
RWwn+6	Monitor code 5	
RWwn+7	Monitor code 6	
RWwn+8	Alarm definition No.	H00
RWwn+9	PID set point (0.01% increments) *1	
RWwn+A	PID measured value (0.01% increments) *1	
RWwn+B	PID deviation (0.01% increments) *1	
RWwn+C	H00 (Free)	

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWrn	First monitor value	
RWrn+1	Second monitor value	
RWrn+2	Reply code 2	Reply code 1
RWrn+3	Read data	
RWrn+4	Third monitor value	
RWrn+5	Fourth monitor value	
RWrn+6	Fifth monitor value	
RWrn+7	Sixth monitor value	
RWrn+8	Alarm definition No.	Alarm definition data
RWrn+9	Alarm definition (output frequency)	
RWrn+A	Alarm definition (output current)	
RWrn+B	Alarm definition (output voltage)	
RWrn+C	Alarm definition (energization time)	

*1 When Pr. 128 = "50, 51, 60, 61", they are valid.

*2 When Pr. 37 is not equal to 0, this will be speed display (1 increments).

Address	Description		Address	Description	
	Upper 8 Bits	Lower 8 Bits		Upper 8 Bits	Lower 8 Bits
RWwn+D	H00 (Free)		RWrn+D	H00 (Free)	
RWwn+E					
RWwn+F					

("n" indicates a value determined according to the station number setting.)

3.1.5 I/O signal when CC-Link Ver.2 octuple setting is selected (Pr. 544 = "18")

(1) Remote I/O (32 points)

Same as when Pr. 544 = "0" (👉 Refer to page 10)

(2) Remote resistor

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWwn	Monitor code 2	Monitor code 1
RWwn+1	Set frequency (0.01Hz increments) *2	
RWwn+2	Link parameter expansion setting	Instruction code
RWwn+3	Write data	
RWwn+4	Monitor code 3	
RWwn+5	Monitor code 4	
RWwn+6	Monitor code 5	
RWwn+7	Monitor code 6	
RWwn+8	Alarm definition No.	H00
RWwn+9	PID set point (0.01% increments) *1	
RWwn+A	PID measured value (0.01% increments) *1	
RWwn+B	PID deviation (0.01% increments) *1	
RWwn+C	H00 (Free)	

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWrn	First monitor value	
RWrn+1	Second monitor value	
RWrn+2	Reply code 2	Reply code 1
RWrn+3	Read data	
RWrn+4	Third monitor value	
RWrn+5	Fourth monitor value	
RWrn+6	Fifth monitor value	
RWrn+7	Sixth monitor value	
RWrn+8	Alarm definition No.	Alarm definition data
RWrn+9	Alarm definition (output frequency)	
RWrn+A	Alarm definition (output current)	
RWrn+B	Alarm definition (output voltage)	
RWrn+C	Alarm definition (energization time)	

*1 When Pr. 128 = "50, 51, 60, 61", they are valid.

*2 When Pr. 37 is not equal to 0, this will be speed display (1 increments).

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWwn+D	H00 (Free)	
RWwn+E		
RWwn+F		
RWwn+10	Link parameter expansion setting	Instruction code
RWwn+11	Write data	
RWwn+12	Link parameter expansion setting	Instruction code
RWwn+13	Write data	
RWwn+14	Link parameter expansion setting	Instruction code
RWwn+15	Write data	
RWwn+16	Link parameter expansion setting	Instruction code
RWwn+17	Write data	
RWwn+18	Link parameter expansion setting	Instruction code
RWwn+19	Write data	
RWwn+1A to RWwn+1F	H00 (Free)	

Address	Description	
	Upper 8 Bits	Lower 8 Bits
RWrn+D	H00 (Free)	
RWrn+E		
RWrn+F		
RWrn+10	Reply code	
RWrn+11	Read data	
RWrn+12	Reply code	
RWrn+13	Read data	
RWrn+14	Reply code	
RWrn+15	Read data	
RWrn+16	Reply code	
RWrn+17	Read data	
RWrn+18	Reply code	
RWrn+19	Read data	
RWwn+1A to RWwn+1F	H00 (Free)	

("n" indicates a value determined according to the station number setting.)

MEMO

MEMO