



INVERTER

Plug-in option

**FR-A7AR**

**FR-A7AR E kit**

INSTRUCTION MANUAL

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*Relay output function*

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PRE-OPERATION INSTRUCTIONS

**1**

INSTALLATION AND WIRING  
(FR-A700/F700 SERIES)

**2**

INSTALLATION AND WIRING  
(FR-E700 SERIES (E kit))

**3**

RELAY OUTPUT

**4**

Thank you for choosing this Mitsubishi Electric inverter plug-in option.

This Instruction Manual provides handling information and precautions for use of this product. Incorrect handling might cause an unexpected fault. Before using this product, read all relevant instruction manuals carefully to ensure proper use.

Please forward this Instruction Manual to the end user.

## This section is specifically about safety matters

Do not attempt to install, operate, maintain or inspect this product until you have read this Instruction Manual and supplementary documents carefully. Do not use this product until you have a full knowledge of this product mechanism, safety information and instructions.

In this Instruction Manual, the safety instruction levels are classified into "WARNING" and "CAUTION".

### WARNING

Incorrect handling may cause hazardous conditions, resulting in death or severe injury.

### CAUTION

Incorrect handling may cause hazardous conditions, resulting in medium or slight injury, or may cause only material damage.

Note that even the  CAUTION level may lead to a serious consequence depending on conditions. Be sure to follow the instructions of both levels as they are critical to personnel safety.

## SAFETY INSTRUCTIONS

### 1. Electric shock prevention

#### WARNING

- Do not remove the front cover or the wiring cover of the inverter while the inverter power is ON. Do not operate the inverter with any cover or wiring cover removed, as accidental contact with exposed high-voltage terminals and internal components may occur, resulting in an electrical shock.
- Even if power is OFF, do not remove the front cover of the inverter except for wiring or periodic inspection as you may accidentally touch the charged circuits and get an electric shock.
- Before wiring or inspection, check that the display of the inverter operation panel is OFF. Any person who is involved in wiring or inspection shall wait for 10 minutes or longer after power OFF and check that there are no residual voltage using a tester or the like. The capacitor is charged with high voltage for some time after power OFF, and it is dangerous.
- Any person who is involved in wiring or inspection of this product shall be fully competent to do the work.
- This product must be installed before wiring. Otherwise you may get an electric shock or be injured.
- Do not subject the cables to scratches, excessive stress, heavy loads or pinching. Doing so may cause an electric shock.
- Do not touch this product or handle the cables with wet hands. Doing so may cause an electric shock.

### 2. Injury prevention

#### CAUTION

- The voltage applied to each terminal must be as specified in the Instruction Manual. Otherwise an explosion or damage may occur.
- The cables must be connected to the correct terminals. Otherwise an explosion or damage may occur.
- The polarity (+ and -) must be correct. Otherwise an explosion or damage may occur.
- While power is ON or for some time after power OFF, do not touch the inverter as it will be extremely hot. Doing so may cause burns.

### 3. Additional instructions

The following instructions must be also followed. If this product is handled incorrectly, it may cause unexpected fault, an injury, or an electric shock.

#### 1) Transportation and installation

##### CAUTION

- Do not install or operate the plug-in option if it is damaged or has parts missing.
- Do not stand or place heavy objects on this product.
- Ensure the mounting orientation of this product is correct.
- Foreign conductive objects must be prevented from entering the inverter. That includes screws and metal fragments or other flammable substance such as oil.
- If halogens (including fluorine, chlorine, bromine, and iodine), contained in fumigants for wood packages enter this product, the product may be damaged. Prevent the entry of fumigant residuals or use an alternative method such as heat disinfection. Note that sterilization or disinfection of wood packages should also be performed before packing the product.

#### 2) Test operation

##### CAUTION

- Before starting operation, confirm or adjust the parameter settings. Failure to do so may cause some machines to make unexpected motions.

#### 3) Usage

##### WARNING

- Do not modify this product.
- Do not remove any part which is not instructed to be removed in the Instruction Manuals. Doing so may lead to a failure or damage of this product.

##### CAUTION

- As all parameters return to their initial values after Parameter clear or All parameter clear is performed, the needed parameters for operation of the inverter and this product must be set again before the operation is started.
- To avoid damage to this product due to static electricity, static electricity in your body must be discharged before you touch this product.

#### 4) Maintenance, inspection and parts replacement

##### CAUTION

- Do not carry out a megger (insulation resistance) test.

#### 5) Disposal

##### CAUTION

- This product must be treated as industrial waste.

#### 6) General instruction

For clarity, illustrations in this Instruction Manual may be drawn with covers or safety guards removed. Ensure all covers and safety guards are properly installed prior to starting operation.

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# 1 PRE-OPERATION INSTRUCTIONS

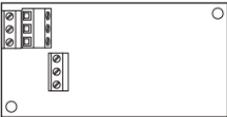
## 1.1 Unpacking and Product Confirmation

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 dedicated for the FR-A700/F700/E700 series.

### 1.1.1 Packing confirmation (FR-A700/F700 series)

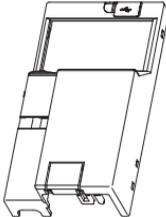
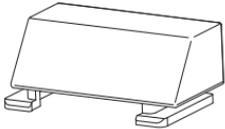
Check the enclosed items.

<p>Plug-in option ..... 1</p> 	<p>Mounting screw (M3 × 6mm) ..... 2 (Refer to page 6.)</p> 	<p>Hex-head screw for option mounting (5.5mm) ..... 1 (Refer to page 6.)</p> 
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### 1.1.2 Packing confirmation (FR-E700 series (E kit))

Check the enclosed items.

<p>Plug-in option ..... 1</p> 	<p>Mounting screw (M3 × 6mm) ..... 2 (Refer to page 13, 16)</p> 	<p>Front cover for plug-in option .....1(Refer to page 13, 16)</p> 
<p>Option protective cover *1 ..... 1(Refer to page 13)</p> 	<p>Option small cover *2 ..... 1(Refer to page 16)</p> 	<p>Insulation sheet .....1(Refer to page 13, 16)</p> 

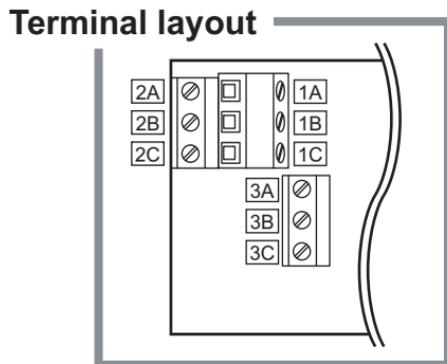
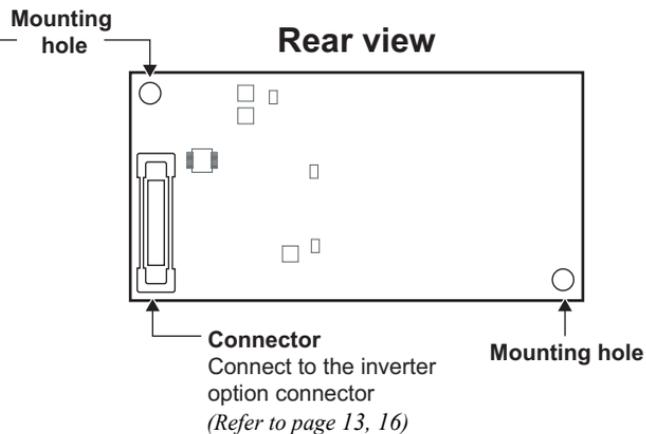
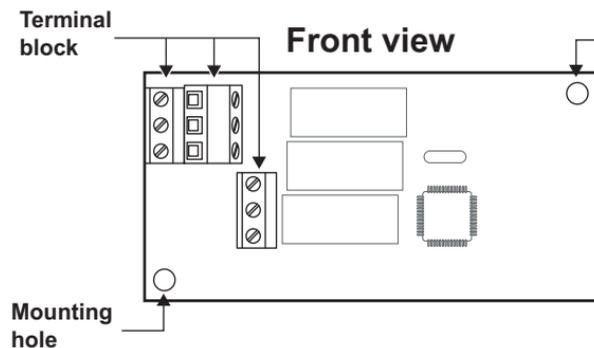
\*1 Used with the FR-E720-3.7K (FR-E720-175) or less and FR-E740-7.5K (FR-E740-170) or less.

\*2 Used with the FR-E720-5.5K (FR-E720-240) or more and FR-E740-11K (FR-E740-230) or more.

#### CAUTION

- In place of the inverter front cover, install a provided front cover for plug-in option.

## 1.2 Parts





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## 1.3 Specifications

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- (1) Types of output signal  
1 changeover contact output (three relays are provided)
  
- (2) Contact capacity  
230VAC ..... 0.3A  
30VDC ..... 0.3A

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### CAUTION

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- The contacts should be used within the rated capacity to prevent contacts weld resulting from faster contacts wearing.
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## **2** **INSTALLATION AND WIRING (FR-A700/F700 SERIES)**

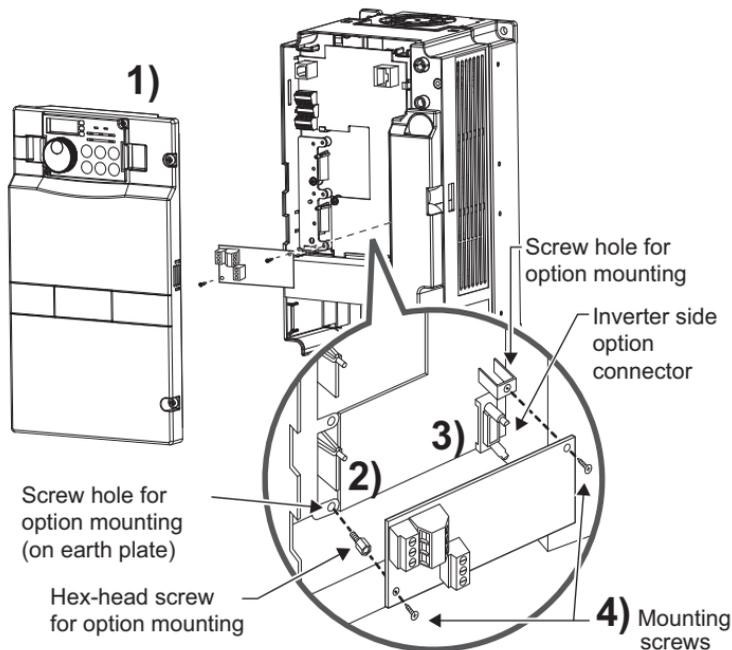
### **2.1 Pre-Installation Instructions**

Make sure that the input power of the inverter is off.

#### **CAUTION**

-  **With input power on, do not install or remove the plug-in option. Otherwise, the inverter and plug-in option may be damaged.**
-  **For prevention of damage due to static electricity, touch nearby metal before touching this product to eliminate static electricity from your body.**

## 2.2 Installation Procedure



- 1) Remove the inverter front cover.
- 2) Mount the hex-head screw for option mounting into the inverter screw hole (on earth plate). (size 5.5mm, tightening torque 0.56N·m to 0.75N·m)
- 3) Securely fit the connector of the plug-in option to the inverter connector along the guides.
- 4) Securely fix the both right and left sides of the plug-in option to the inverter with the accessory mounting screws. (Tightening torque 0.33N·m to 0.40N·m) If the screw holes do not line-up, the connector may not have been plugged snugly. Check for loose plugging.

### REMARKS

- Remove a plug-in option after removing two screws on both left and right sides. (When the plug-in option is mounted in the connector 3 (connector 1 for the FR-F700 series), it is easier to remove the plug-in option after removing a control circuit terminal block.)

### CAUTION

- When used with other plug-in options, always connect the FR-A7AR to the connector 1 to prevent malfunction.
- Only one type of option per inverter may be used. When two or more options are mounted, priority is in order of inverter option connectors 1, 2 and 3, the options having lower priority are inoperative.
- When the inverter cannot recognize that the option is mounted due to improper installation, etc., "E. 1 to E. 3" (option alarm) are displayed for the FR-A700 series. The errors shown differ according to the mounting positions (connectors 1, 2, 3).

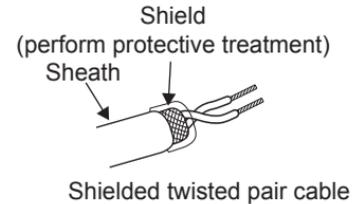
Mounting Position	Error Display
Connector 1	E. 1
Connector 2	E. 2
Connector 3	E. 3

- The FR-F700 series has one connection connector for the plug-in option. When the inverter can not recognize that the option unit is mounted due to improper installation, etc., "E. 1" (option alarm) is displayed.
- When installing/removing the plug-in option, hold the sides of the option. Do not press on the parts on the option circuit board. Stress applied to the parts by pressing, etc. may cause a failure.
- Take care not to drop a hex-head screw for option mounting or mounting screw during mounting and removal.
- Pull out the option straight to remove. Otherwise, the connector and to the option circuit board may be damaged.



## 2.3 Wiring

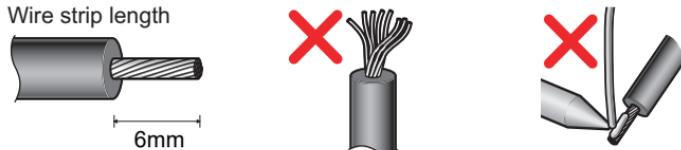
- (1) Wire the shielded twisted pair cable after stripping its sheath to make its cables loose.  
Also, protect the shielded cable of the shielded twisted pair cable to ensure that it will not make contact with the conductive area.



Strip the signal wires as shown below. If too much of the wire is stripped, a short circuit may occur with neighboring wires.

If not enough of the wire is stripped, wires may become loose and fall out.

Twist the stripped end of wires to prevent them from fraying. Do not solder it.



Use appropriate crimp terminals (ferrules, blade terminals, etc.) for these terminal blocks as necessary.

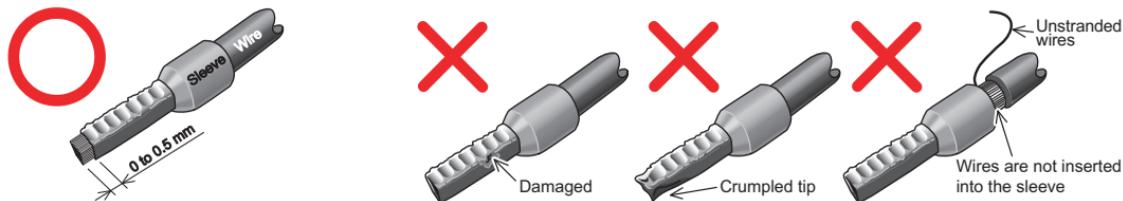
## REMARKS

- Information on crimp terminals  
Commercially available product examples (as of Jan. 2017)

Terminal screw size	Wire gauge (mm <sup>2</sup> )	Ferrule part No.		Maker
		With insulation sleeve	Without insulation sleeve	
M3	0.3	AI 0,34-6TQ	A 0,34-7	Phoenix Contact Co.,Ltd.
	0.5	AI 0,5-6WH	A 0,5-6	
	0.75	AI 0,75-6GY	A 0,75-6	

Crimping tool model No.: CRIMPFOX 6 (Phoenix Contact Co., Ltd.)

Insert wires to a blade terminal, and check that the wires come out for about 0 to 0.5 mm from a sleeve. Check the condition of the blade terminal after crimping. Do not use a blade terminal of which the crimping is inappropriate, or the face is damaged.



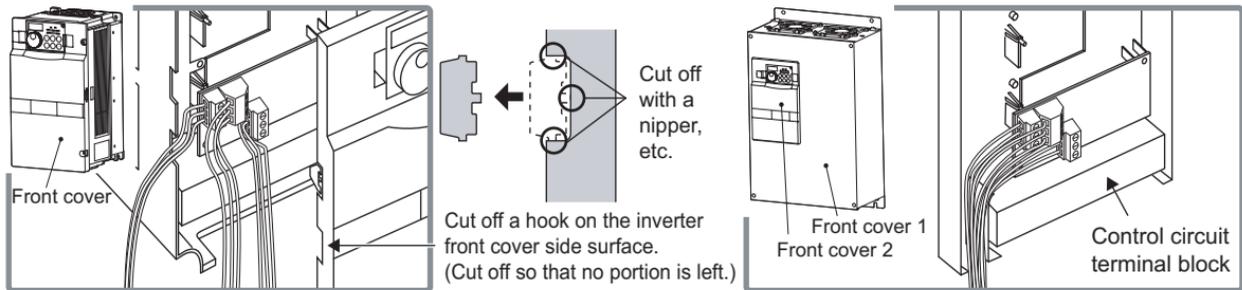
- (2) Loosen the terminal screw and insert the cable into the terminal.

Screw size	Tightening torque	Wire gauge	Screwdriver
M3	0.5N·m to 0.6N·m	0.3mm <sup>2</sup> to 0.75mm <sup>2</sup>	Small ⊖ flat-blade screwdriver (Tip thickness: 0.4mm/tip width: 2.5mm)

## CAUTION

- Undertightening can cause cable disconnection or malfunction. Overtightening can cause a short circuit or malfunction due to damage to the screw or unit.

- (3) For wiring of the inverter with one front cover, route wires between the control circuit terminal block and front cover. If cables can not be routed between the control circuit terminal block and front cover due to the increased number of cables, remove a hook of the front cover and use a space become available. For wiring of the inverter which has front cover 1 and 2, use the space on the left side of the control circuit terminal block.



**Inverter with one front cover**

**Inverter which has front cover 1 and 2**

### REMARKS

- When the hook of the inverter front cover is cut off for wiring, the protective structure (JEM1030) changes to open type (IP00).

### ⚠ CAUTION

- ⚠ **When performing wiring using the space between the inverter front cover and control circuit terminal block, take caution not to subject the cable to stress.**
- ⚠ **After wiring, wire offcuts must not be left in the inverter. These may cause a fault, failure or malfunction.**

# 3 INSTALLATION AND WIRING (FR-E700 SERIES (E kit))

## 3.1 Pre-Installation Instructions

Make sure that the input power of the inverter is off.

### ⚠ CAUTION

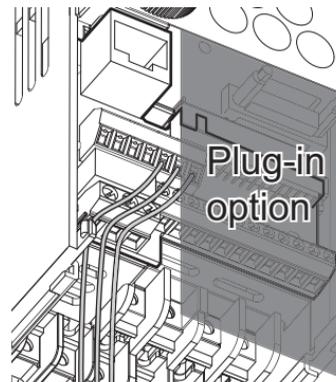
- ⚠ With input power on, do not install or remove the plug-in option. Otherwise, the inverter and plug-in option may be damaged.
- ⚠ For prevention of damage due to static electricity, touch nearby metal before touching this product to eliminate static electricity from your body.

## 3.2 Installation Procedure

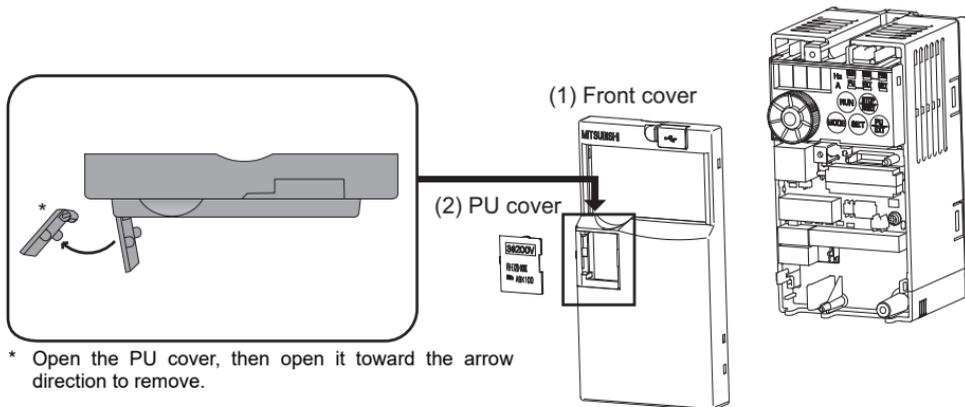
The FR-E700 series has one connection connector for the plug-in option.

### 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.
- When installing/removing the plug-in option, hold the sides of the option. Do not press on the parts on the option circuit board. Stress applied to the parts by pressing, etc. may cause a failure.
- Take care not to drop a mounting screws during mounting and removal.
- Pull out the option straight to remove. Otherwise, the connector and to the option circuit board may be damaged.



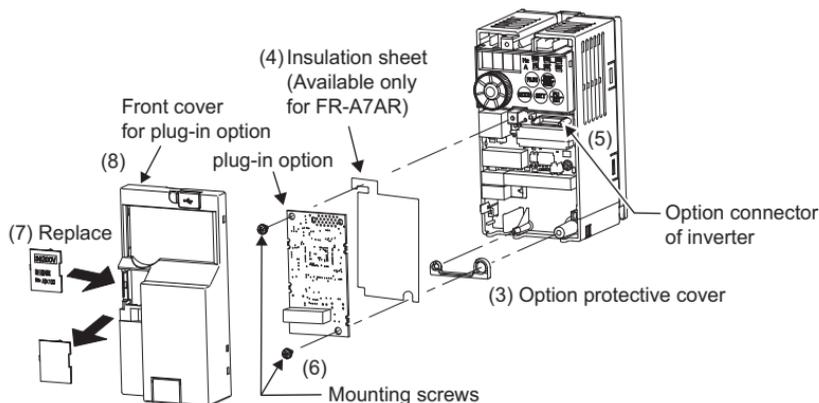
- For FR-E720-3.7K (FR-E720-175) or less, FR-E740-7.5K (FR-E740-170) or less
- (1) Remove the front cover from the inverter. (For removing the front cover, refer to the FR-E700 series instruction manual.)
  - (2) Remove the PU cover from the front cover. Open the PU cover with a driver, etc. and remove it in the direction of arrow as shown below.



## REMARKS

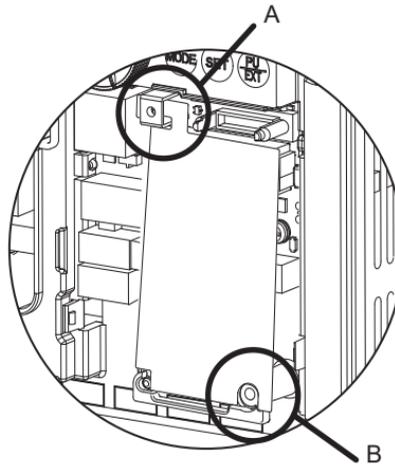
- Because the voltage class, model name and serial (only voltage class is labeled for the FR-E740-5.5K (FR-E740-120) or more) are stated on the PU cover, replace a PU cover of a plug-in option front cover with the removed PU cover from the inverter.

- (3) Install the option protective cover.
- (4) Correctly install the insulating sheet between the inverter and plug-in option. (Refer to *page 14* for installation method of an insulation sheet.)
- (5) Securely fit the connector of the plug-in option to the inverter connector along the guides.
- (6) Securely fix the both top and bottom of the plug-in option to the inverter with the accessory mounting screws. (tightening torque 0.33N·m to 0.40N·m) If the screw holes do not line-up, the connector may not have been plugged snugly. Check for loose plugging.
- (7) Remove the PU cover provided on the front cover for plug-in option and install the other PU cover, which was removed in (2).
- (8) When wiring to the plug-in option is completed, install the front cover for plug-in option to the inverter.



- Installation of an insulation sheet

For FR-A7AR, put an insulation sheet under the screw platform of inverter (A of the following figure) and fit the insulation sheet to the screw position on the inverter side (B of the following figure).

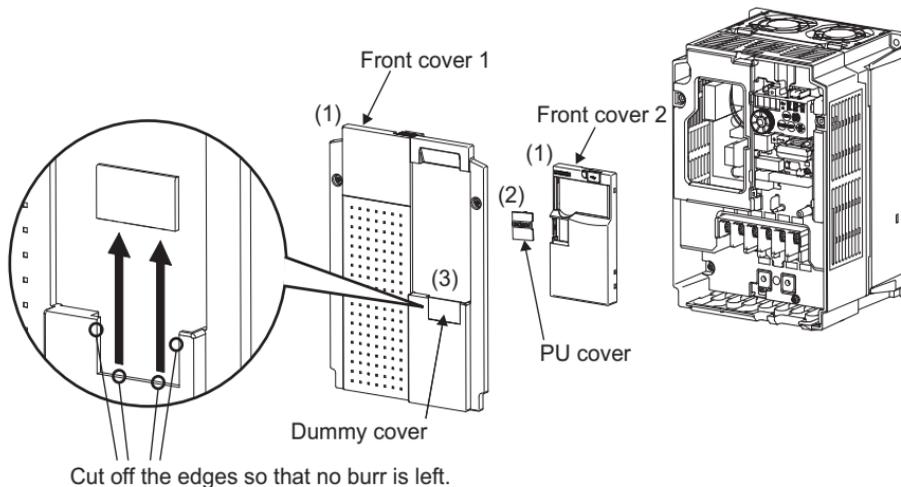


### CAUTION

- If an insulation sheet is not installed, the inverter and plug-in option may malfunction.

## 7 INSTALLATION AND WIRING (FR-E700 SERIES (E kit))

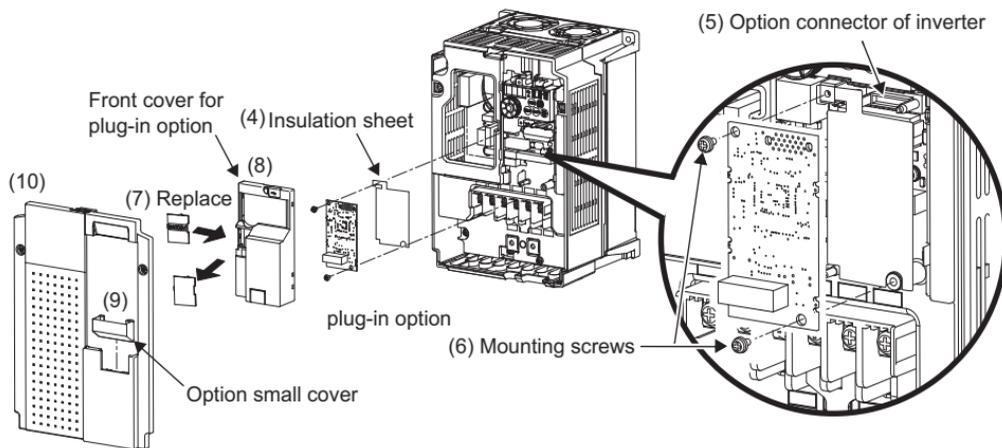
- For FR-E720-5.5K (FR-E720-240) or more, FR-E740-11K (FR-E740-230) or more
- (1) Remove the front cover 1 and 2 from the inverter. (For removing the front cover, refer to the FR-E700 series instruction manual.)
  - (2) Remove the PU cover from the front cover 2. For removing the PU cover, refer to *page 12*.
  - (3) Cut off the dummy cover of the front cover 1 with a nipper, etc. and make a space for installing the option small cover.



### REMARKS

- Because voltage is stated on the PU cover, replace a PU cover of a plug-in option front cover with the removed PU cover from the inverter.

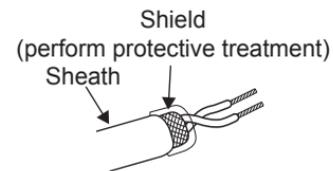
- (4) Correctly install the insulating sheet between the inverter and plug-in option. (Refer to *page 14* for installation method of an insulation sheet.)
- (5) Securely fit the connector of the plug-in option to the inverter connector along the guides.
- (6) Securely fix the both top and bottom of the plug-in option to the inverter with the accessory mounting screws. (tightening torque 0.45N·m to 0.55N·m) If the screw holes do not line-up, the connector may not have been plugged snugly. Check for loose plugging.
- (7) Remove the PU cover provided on the front cover for plug-in option and install the other PU cover, which was removed in (2).
- (8) When wiring to the plug-in option is completed, install the front cover for plug-in option to the inverter.
- (9) Install the option small cover to the front cover 1.
- (10) Install the front cover 1 to the inverter.



## 3.3 Wiring

- (1) Wire the shielded twisted pair cable after stripping its sheath to make its cables loose.

Also, protect the shielded cable of the shielded twisted pair cable to ensure that it will not make contact with the conductive area.



Shielded twisted pair cable

Strip the signal wires as shown below. If too much of the wire is stripped, a short circuit may occur with neighboring wires.

If not enough of the wire is stripped, wires may become loose and fall out.

Twist the stripped end of wires to prevent them from fraying. Do not solder it.



Use appropriate crimp terminals (ferrules, blade terminals, etc.) for these terminal blocks as necessary.

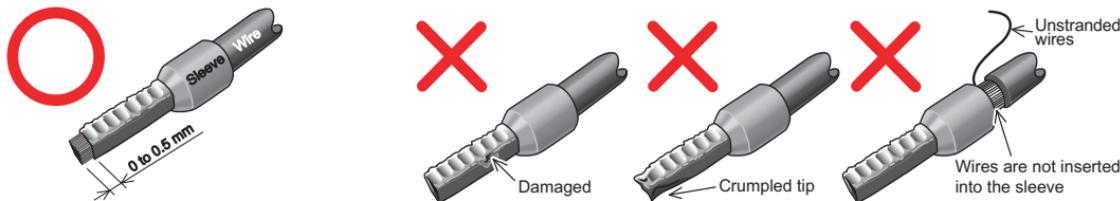
## REMARKS

- Information on crimp terminals  
Commercially available product examples (as of Jan. 2017)

Terminal screw size	Wire gauge (mm <sup>2</sup> )	Ferrule part No.		Maker
		With insulation sleeve	Without insulation sleeve	
M3	0.3	AI 0,34-6TQ	A 0,34-7	Phoenix Contact Co.,Ltd.
	0.5	AI 0,5-6WH	A 0,5-6	
	0.75	AI 0,75-6GY	A 0,75-6	

Crimping tool model No.: CRIMPFOX 6 (Phoenix Contact Co., Ltd.)

Insert wires to a blade terminal, and check that the wires come out for about 0 to 0.5 mm from a sleeve. Check the condition of the blade terminal after crimping. Do not use a blade terminal of which the crimping is inappropriate, or the face is damaged.



- (2) Loosen the terminal screw and insert the cable into the terminal.

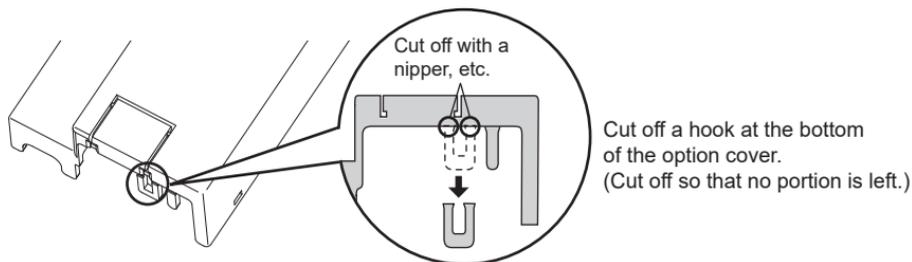
Screw size	Tightening torque	Wire gauge	Screwdriver
M3	0.5N·m to 0.6N·m	0.3mm <sup>2</sup> to 0.75mm <sup>2</sup>	Small ⊖ flat-blade screwdriver (Tip thickness: 0.4mm/tip width: 2.5mm)

## CAUTION

- Undertightening can cause cable disconnection or malfunction. Overtightening can cause a short circuit or malfunction due to damage to the screw or unit.

## 7 INSTALLATION AND WIRING (FR-E700 SERIES (E kit))

- (3) When wiring the FR-E700 series, if a hook of the front cover for the plug-in option impedes wiring, cut off the hook and perform wiring.



### REMARKS

- When the option protective cover or option small cover is not fitted or wire is not passed through even if the hook of the front cover of the plug-in option has been cut off, the protective structure (JEM1030) changes to open type (IP00).

### ⚠ CAUTION

- ⚠ When wiring, take care not to subject the cable to stress.
- ⚠ After wiring, wire offcuts must not be left in the inverter. They may cause a fault, failure or malfunction.

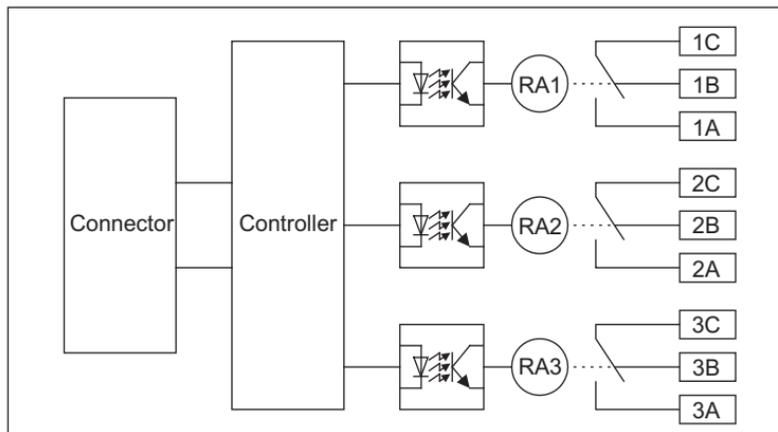
# 4 RELAY OUTPUT

## 4.1 Internal Block Diagram

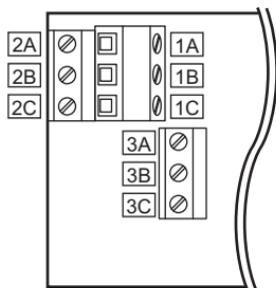
You can select any three output signals (RUN, SU, FU, etc.) available with an inverter as standard, and output them as relay contact signals.

Refer to *page 22, 24* of the Instruction Manual (detailed) for details.

The following is the internal block diagram of the FR-A7AR.



## 4.2 Terminals



Terminal Symbol	Description
1A	Relay RA1's normally open contact terminal
1B	Relay RA1's normally closed contact terminal
1C	Relay RA1's contact common terminal
2A	Relay RA2's normally open contact terminal
2B	Relay RA2's normally closed contact terminal
2C	Relay RA2's contact common terminal
3A	Relay RA3's normally open contact terminal
3B	Relay RA3's normally closed contact terminal
3C	Relay RA3's contact common terminal

\*The operation of each relay depends on the output signal selected.

## 4.3 Parameter List

By installing this plug-in option, the parameters below are extended.  
Set the values according to need.

Parameter Number	Name	Initial Value
320	RA1 output selection	0
321	RA2 output selection	1
322	RA3 output selection	2 (4) *1

\*1 For the FR-E700 series only, the initial value of Pr. 322 is "4".

Use Pr. 320 to Pr. 322 to select signals used for relay output. (Refer to page 22, 24 for signal types.)

### REMARKS

- When an option alarm (E. 1 to E. 3) occurs, all outputs are tuned off.

## 4.4 Output Signal List (FR-A700/F700 series)

For details of signal definitions, refer to *Pr. 190 to Pr. 196 (Output terminal function selection)* of the inverter (FR-A700/F700 series) manual.

Setting	Signal Name	Function
Positive logic		
0	RUN	Inverter running
1	SU	Up to frequency
2	IPF	Instantaneous power failure/undervoltage
3	OL	Overload alarm
4	FU	Output frequency detection
5	FU2	Second output frequency detection
6	FU3	Third output frequency detection *1
7	RBP	Regenerative brake pre-alarm *2
8	THP	Electronic thermal O/ L relay pre-alarm
10	PU	PU operation mode
11	RY	Inverter operation ready
12	Y12	Output current detection
13	Y13	Zero current detection
14	FDN	PID lower limit
15	FUP	PID upper limit
16	RL	PID forward/reverse rotation output
17	MC1	Electronic bypass MC1
18	MC2	Electronic bypass MC2
19	MC3	Electronic bypass MC3

Setting	Signal Name	Function
Positive logic		
20	BOF	Brake opening request *1
25	FAN	Fan fault output
26	FIN	Heatsink overheat pre-alarm
27	ORA	Orientation complete *1
28	ORM	Orientation fault *1
30	Y30	Forward rotation output *1
31	Y31	Reverse rotation output *1
32	Y32	Regenerative status output *1
33	RY2	Operation ready 2 *1
34	LS	Low speed detection *1
35	TU	Torque detection *1
36	Y36	In-position *1
39	Y39	Start time tuning completion signal *1
41	FB	Speed detection *1
42	FB2	Second speed detection *1
43	FB3	Third speed detection *1
44	RUN2	Inverter running 2 *1
45	RUN3	Inverter running and start command is ON
46	Y46	During deceleration at occurrence of power failure (retained until release)

Setting	Signal Name	Function
47	PID	During PID control activated
64	Y64	During retry
70	SLEEP	PID output interruption
71	RO1	Commercial-power supply side motor 1 connection RO1 *4
72	RO2	Commercial-power supply side motor 2 connection RO2 *4
73	RO3	Commercial-power supply side motor 3 connection RO3 *4
74	RO4	Commercial-power supply side motor 4 connection RO4 *4
75	RIO1	Inverter side motor 1 connection RIO1 *4
76	RIO2	Inverter side motor 2 connection RIO2 *4
77	RIO3	Inverter side motor 3 connection RIO3 *4
78	RIO4	Inverter side motor 4 connection RIO4 *4
84	RDY	Preparation ready signal *1

Setting	Signal Name	Function
85	Y85	DC current feeding *1
86	Y86	Control circuit capacitor life *3
87	Y87	Main circuit capacitor life *3
88	Y88	Cooling fan life *3
89	Y89	Inrush current limit circuit life *3
90	Y90	Life alarm
91	Y91	Fault output 3 (power-off signal)
94	ALM2	Fault output 2
95	Y95	Maintenance timer signal
96	REM	Remote output
97	ER	Alarm output 2 *1
98	LF	Alarm output
99	ALM	Fault output
9999	—	No function

\*1 They can be set for the FR-A700 series only.

\*2 For the FR-F700 series, this function is available with the 75K (FR-F720-03160, FR-F740-01800) or more.

\*3 Pr. 190 to Pr. 196 can not be set.

\*4 Setting can be made only for FR-F700 series NA, EC and CH version.

## REMARKS

- Negative logic can not be set.

## 4.5 Output Signal List (FR-E700 series)

For details of signal definitions, refer to *Pr. 190 to Pr. 192 (Output terminal function selection)* of the inverter (FR-E700 series) manual.

Setting	Signal Name	Function
Positive logic		
0	RUN	Inverter running
1	SU	Up to frequency
3	OL	Overload alarm
4	FU	Output frequency detection
7	RBP	Regenerative brake pre-alarm
8	THP	Electronic thermal O/L relay pre-alarm
11	RY	Inverter operation ready
12	Y12	Output current detection
13	Y13	Zero current detection
14	FDN	PID lower limit
15	FUP	PID upper limit
16	RL	PID forward/reverse rotation output
20	BOF	Brake opening request

Setting	Signal Name	Function
Positive logic		
25	FAN	Fan fault output
26	FIN	Heatsink overheat pre-alarm
46	Y46	During deceleration at occurrence of power failure (retained until release)
47	PID	During PID control activated
64	Y64	During retry
80	SAFE	Safety monitor output *1
81	SAFE2	Safety monitor output 2 *1
90	Y90	Life alarm
91	Y91	Fault output 3 (power-off signal)
95	Y95	Maintenance timer signal
96	REM	Remote output
98	LF	Alarm output
99	ALM	Fault output
9999	—	No function

\*1 These parameters can be set only in the safety stop function model.

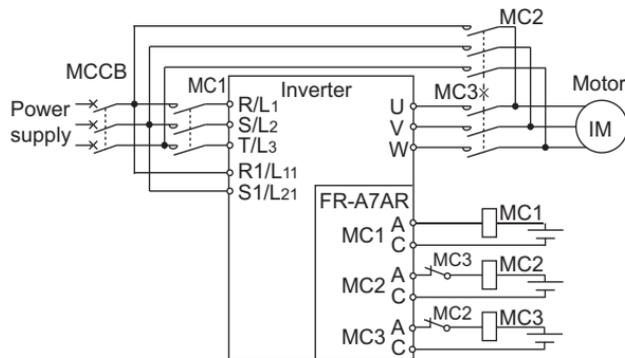
### REMARKS

- Negative logic can not be set.

## 4.6 Connection Diagram When Using Electronic Bypass Sequence Function (FR-A700/F700 series)

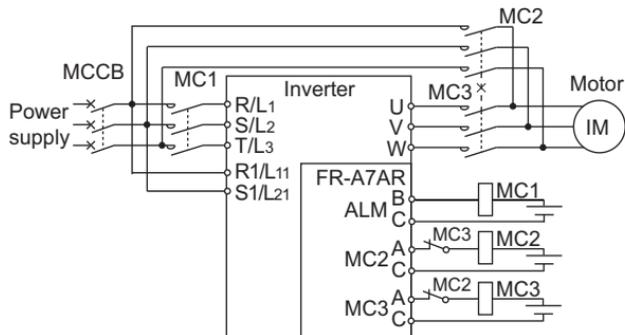
When using the electronic bypass sequence function with the FR-A7AR mounted to the FR-A700/F700 series inverter, it is recommended to use either connection shown below.

(1) Recommended connection example 1



(2) Recommended connection example 2

When using relay output of the FR-A7AR, set the alarm output signal (ALM) instead of the MC1 signal and output it from contacts B and C.



### Appendix 1 Instructions for compliance with the EU Directives

The EU Directives are issued to standardize different national regulations of the EU Member States and to facilitate free movement of the equipment, whose safety is ensured, in the EU territory.

Since 1996, compliance with the EMC Directive that is one of the EU Directives has been legally required.

Since 1997, compliance with the Low Voltage Directive, another EU Directive, has been also legally required.

When a manufacturer confirms its equipment to be compliant with the EMC Directive and the Low Voltage Directive, the manufacturer must declare the conformity and affix the CE marking.



- The authorized representative in the EU

The authorized representative in the EU is shown below.

Name: Mitsubishi Electric Europe B.V.

Address: Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany

- Note

- To use this product in the EU, the operating capacity of the relay outputs should be 30 VDC, 0.3 A. (Relay output has basic isolation from the inverter internal circuit.)

- ◆ **EMC Directive**

We declare that this product conforms with the EMC Directive when installed in a compatible inverter, and affix the CE marking on the packaging plate.

- EMC Directive: 2004/108/EC
- Standard(s): EN 61800-3:2004+A1:2012 (Second environment / PDS Category "C3")

- Note

- To install and wire the inverter, refer to the "Instructions for compliance with the EU Directives" in the Instruction Manual enclosed with the inverter.
- Confirm that the final integrated system with the inverter conforms with the EMC Directive.

## Appendix 2 Instructions for EAC

The product certified in compliance with the Eurasian Conformity has the EAC marking on the packaging plate.



### Note: EAC marking

In 2010, three countries (Russia, Belarus, and Kazakhstan) established a Customs Union for the purposes of revitalizing the economy by forming a large economic bloc by abolishing or reducing tariffs and unifying regulatory procedures for the handling of articles.

Products to be distributed over these three countries of the Customs Union must comply with the Customs Union Technical Regulations (CU-TR), and the EAC marking must be affixed to the products.

For information on the country of origin, manufacture year and month, and authorized sales representative (importer) in the CU area of this product, refer to the following:

- **Country of origin indication**

Check the package of this product.

Example: MADE IN JAPAN

- **Manufactured year and month**

Check the SERIAL number indicated on this product.

<u>□</u>	<u>○</u>	<u>○</u>	<u>○○○</u>
Symbol	Year	Month	Control number
SERIAL			

The SERIAL consists of one symbol, two characters indicating the production year and month, and three characters indicating the control number. The last digit of the production year is indicated as the Year, and the Month is indicated by 1 to 9, X (October), Y (November), or Z (December).

- **Authorized sales representative (importer) in the CU area**

The authorized sales representative (importer) in the CU area is shown below.

Name: Mitsubishi Electric (Russia) LLC

Address: 52, bld 1 Kosmodamianskaya Nab 115054, Moscow, Russia

Phone: +7 (495) 721-2070

Fax: +7 (495) 721-2071

## Appendix 3 Restricted Use of Hazardous Substances in Electronic and Electrical Products

The mark of restricted use of hazardous substances in electronic and electrical products is applied to the product as follows based on the “Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products” of the People’s Republic of China.

电器电子产品有害物质限制使用标识要求



本产品中所含有的有害物质的名称、含量、含有部件如下表所示。

- 产品中所含有害物质的名称及含量

部件名称*2	有害物质*1					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
电路板组件（包括印刷电路板及其构成的零部件，如电阻、电容、集成电路、连接器等）、电子部件	×	○	×	○	○	○
金属壳体、金属部件	×	○	○	○	○	○
树脂壳体、树脂部件	○	○	○	○	○	○
螺丝、电线	○	○	○	○	○	○

上表依据SJ/T11364的规定编制。

○：表示该有害物质在该部件所有均质材料中的含量均在GB/T26572规定的限量要求以下。

×：表示该有害物质在该部件的至少一种均质材料中的含量超出GB/T26572规定的限量要求。

\*1 即使表中记载为×，根据产品型号，也可能会有有害物质的含量为限制值以下的情况。

\*2 根据产品型号，一部分部件可能不包含在产品中。

## **Appendix 4 Referenced Standard (Requirement of Chinese standardized law)**

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This Product is designed and manufactured accordance with following Chinese standards.

EMC: GB/T 12668.3

## REVISIONS

\*The manual number is given on the bottom left of the back cover.

<b>Print Date</b>	<b>*Manual Number</b>	<b>Revision</b>
May, 2004	IB(NA)-0600166ENG-A	First edition
Dec., 2004	IB(NA)-0600166ENG-B	<div style="border: 1px solid black; padding: 2px;">Partial modification</div> Board shape change <div style="border: 1px solid black; padding: 2px;">Addition</div> Compatible with the FR-F700-NA series
Sep., 2005	IB(NA)-0600166ENG-C	<div style="border: 1px solid black; padding: 2px;">Addition</div> Compatible with the FR-A700 series
Dec., 2007	IB(NA)-0600166ENG-D	<div style="border: 1px solid black; padding: 2px;">Addition</div> Compatible with the FR-E700 series
Mar., 2019	IB(NA)-0600166ENG-E	<div style="border: 1px solid black; padding: 2px;">Addition</div> Appendix 1 Instructions for compliance with the EU Directives Appendix 2 Instructions for EAC Appendix 3 Restricted Use of Hazardous Substances in Electronic and Electrical Products Appendix 4 Referenced Standard (Requirement of Chinese standardized law)

INVERTER

**mitsubishi electric corporation**

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