MITSUBISHI ELECTRIC

700 series

INVERTER
Plug-in option

FR-A7AY E kit-SC
INSTRUCTION MANUAL

Analog output function

Digital output function

Thank you for choosing this Mitsubishi Inverter plug-in option.
This Instruction Manual gives handling information and precautions for use of this equipment. Incorrect handling might cause an unexpected fault. Before using the equipment, please read this manual carefully to use the equipment to its optimum.
Please forward this 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 through this Instruction Manual and appended documents carefully and can use the equipment correctly. Do not use this product until you have a full knowledge of the equipment, 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.

The ⚠ CAUTION level may even lead to a serious consequence according to conditions. Both instruction levels must be followed because these are important to personal safety.

SAFETY INSTRUCTIONS

1. Electric Shock Prevention

⚠ WARNING

- While power is ON or when the inverter is running, do not open the front cover. You may get an electric shock.
- Do not run the inverter with the front cover or wiring cover removed. Otherwise, you may access the exposed high-voltage terminals and charging part and get an electric shock.
- Even if power is OFF, do not remove the front cover except for wiring or periodic inspection. You may accidentally touch the charged inverter circuits and get an electric shock.
- Before wiring or inspection, power must be switched OFF. To confirm that, LED indication of the operation panel must be checked. (It must be OFF.) Any person who is involved in wiring or inspection shall wait for at least 10 minutes after the power supply has been switched 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 equipment shall be fully competent to do the work.
- The plug-in option must be installed before wiring. Otherwise, you may get an electric shock or be injured.
- Do not touch the plug-in option or handle the cables with wet hands. Otherwise you may get an electric shock.
- Do not subject the cables to scratches, excessive stress, heavy loads or pinching. Otherwise you may get an electric shock.

2. Injury Prevention

⚠CAUTION

- The voltage applied to each terminal must be the ones specified in the Instruction Manual. Otherwise burst, damage, etc. may occur.
- The cables must be connected to the correct terminals. Otherwise burst, damage, etc. may occur.
- Polarity must be correct. Otherwise burst, damage, etc. may occur.
- While power is ON or for some time after power-OFF, do not touch the inverter as they will be extremely hot. Doing so can cause burns.

3. Additional Instructions

Also the following points must be noted to prevent an accidental failure, injury, electric shock, etc.

1) Transportation and mounting

⚠CAUTION

- Do not install or operate the plug-in option if it is damaged or has parts missing.
- Do not stand or rest heavy objects on the product.
- The mounting orientation must be correct.
- Foreign conductive objects must be prevented from entering the inverter. That includes screws and metal fragments or other flammable substances such as oil.

2) Trial run

⚠CAUTION

- Before starting operation, each parameter must be confirmed and adjusted. A failure to do so may cause some machines to make unexpected motions.

3) Usage

⚠WARNING

- Do not modify the equipment.
- Do not perform parts removal which is not instructed in this manual. Doing so may lead to fault or damage of the inverter.

⚠CAUTION

- When parameter clear or all parameter clear is performed, the required parameters must be set again before starting operations because all parameters return to the initial value.
- For prevention of damage due to static electricity, nearby metal must be touched before touching this product to eliminate static electricity from your body.

4) Maintenance, inspection and parts replacement

⚠CAUTION

- Do not test the equipment with a megger (measure insulation resistance).

5) Disposal

⚠CAUTION

- This inverter plug-in option must be treated as industrial waste.

6) General instruction

Many of the diagrams and drawings in this Instruction Manual show the inverter without a cover or partially open for explanation. Never operate the inverter in this manner. The cover must be reinstalled and the instructions in the inverter manual must be followed when operating the inverter.

— CONTENTS —

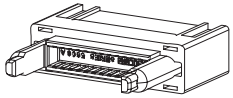
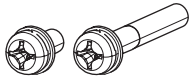
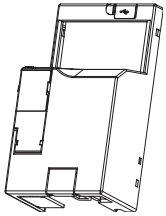
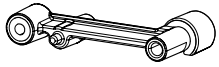
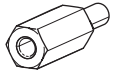
1 PRE-OPERATION INSTRUCTIONS

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-E700-SC series (safety stop function model).

1.1.1 Product confirmation

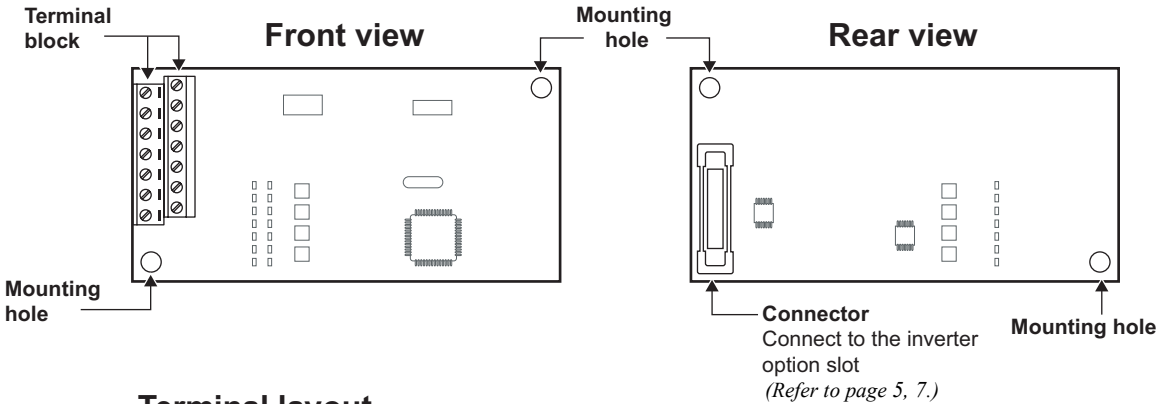
Check the enclosed items.

Plug-in option ..... 1 	Junction connector ..... 1 *(Refer to page 5, 7.)* 	M3 mounting screw (Long) (M3 × 20mm) ..... 1 (Short) (M3 × 6mm) ..... 1 *(Refer to page 5, 7.)* 
Front cover for plug-in option..... 1 *(Refer to page 5, 7)* 	Spacer for plug-in option mounting ... 1 *(Refer to page 5, 7.)* 	Hexagon spacer ..... 1 *(Refer to page 5, 7.)* 

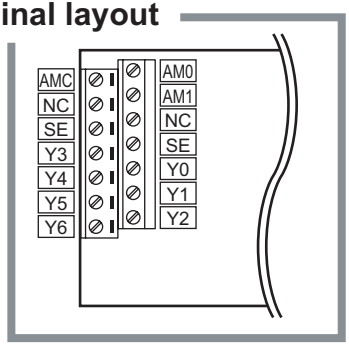
CAUTION

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

1.2 Parts



Terminal layout



1.3 Specifications

(1) Output signals
Voltage output (across terminals AM0-AMC) 0 to 10VDCMAX
Current output (across terminals AM1-AMC) 0 to 20mADC

(2) Output resolution
Voltage output 3mV
Current output 10μA

(3) Output accuracy (reference value)
±10% of the full-scale output value
Depends on the output signal type.

(4) Meters used
- Voltmeter
  DC voltmeter Full-scale 10V (internal impedance 10kΩ or more)
- Ammeter
  DC ammeter Full-scale 20mA (internal impedance 300Ω or less)
- Wiring length
  Maximum 10m

2 INSTALLATION AND WIRING

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

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.**
- **When mounting the plug-in option, do not let wires get caught in the plug-in option or the spacer for option mounting. If a wire gets caught, the inverter and the plug-in option may be damaged.**
- **When the inverter cannot recognize that the option is mounted due to improper installation, etc., "E. 1" (option fault) 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.**

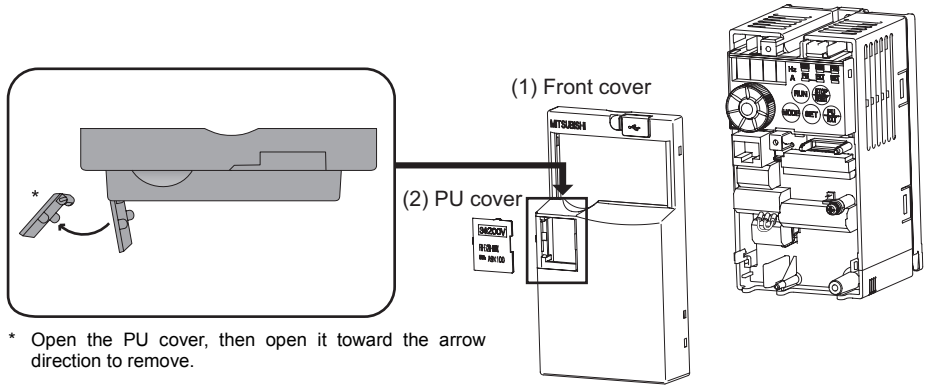
REMARKS

- Bcause the voltage class, model name and serial number (only voltage class is labeled for FR-E720-5.5KSC (FR-E720-240SC), FR-E740-5.5KSC (FR-E740-120SC) or higher) are written on the PU cover, replace the PU cover of the plug-in option with the removed PU cover of the inverter.

● Inverter with one front cover

(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.



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

(3) Fit the spacer for plug-in option mounting, the hexagon spacer, and the junction connector into their designated positions shown in the diagram on the next page. Fit the junction connector along the guide of the connector of the inverter and insert it as far as it goes.

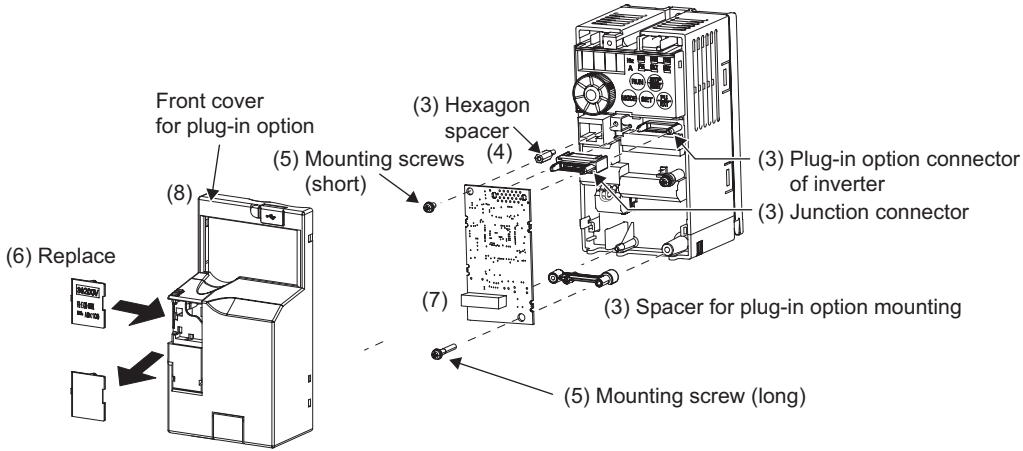
(4) Fit the connector of the plug-in option along the guide of the junction connector and insert it as far as it goes.

(5) Fix the plug-in option securely by using the supplied mounting screw (short) to the upper screw hole and the other supplied mounting screw (long) to the lower screw hole of the plug-in option. If the screw holes do not line up, the connector may not have been plugged properly. Check for loose plugging. Tightening torque: 0.33 to 0.4N·m

(6) Remove the PU cover provided on the front cover for plug-in option and mount the other PU cover, which was removed in (2).

(7) Loosen the terminal screws and insert the wires into the terminals. After that, fasten the terminal screws to the recommended tightening torque. *(Refer to page 9)*

(8) After wiring of the plug-in option has been completed, mount the front cover for the plug-in option to the inverter.



● Inverter with front covers 1 and 2

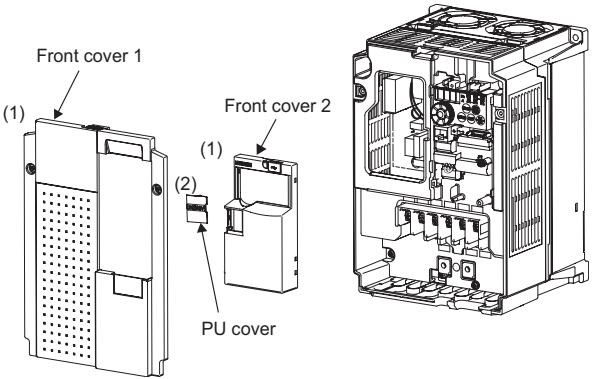
(1) Remove the front cover 1 and 2 from the inverter. (For removing the front cover, refer to the FR-E700 series instruction manual.)

(2) Remove the PU cover from the front cover 2. For removing the PU cover, refer to *page 5*.

(3) Mount the front cover 1 to the inverter.

(4) Fit the spacer for plug-in option mounting, the hexagon spacer, and the junction connector into their designated positions shown in the diagram on the next page. Fit the junction connector along the guide of the connector of the inverter and insert it as far as it goes.

(5) Fit the connector of the plug-in option along the guide of the junction connector and insert it as far as it goes.

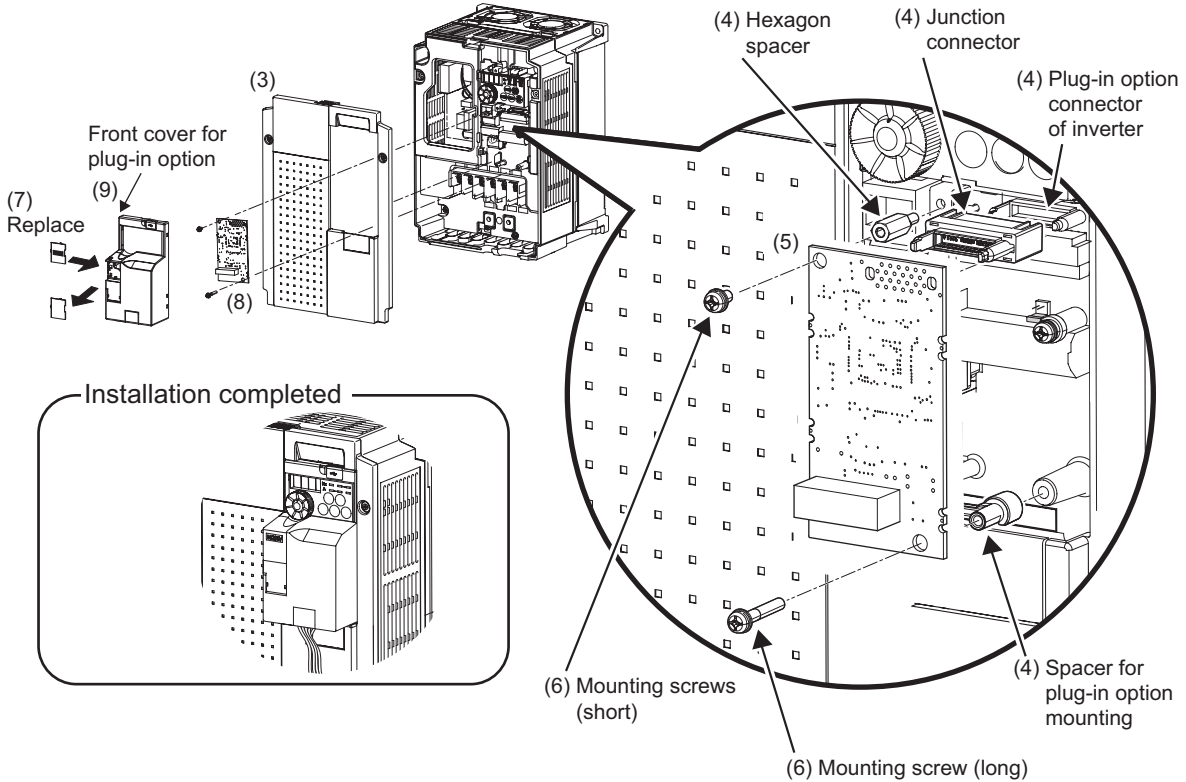


(6) Fix the plug-in option securely by using the supplied mounting screw (short) to the upper screw hole and the other supplied mounting screw (long) to the lower screw hole of the plug-in option. If the screw holes do not line up, the connector may not have been plugged properly. Check for loose plugging.
Tightening torque: 0.33 to 0.4N·m

(7) Remove the PU cover provided on the front cover for plug-in option and mount the other PU cover, which was removed in (2).

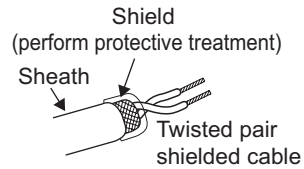
(8) Loosen the terminal screws and insert the wires into the terminals. After that, fasten the terminal screws to the recommended tightening torque. *(Refer to page 9)*

(9) Mount the front cover for plug-in option to the inverter.


(4) Hexagon spacer
(4) Junction connector
(4) Plug-in option connector of inverter
(3)
Front cover for plug-in option
(9)
(7) Replace
(8)
(5)
Installation completed
(6) Mounting screws (short)
(4) Spacer for plug-in option mounting
(6) Mounting screw (long)

2.3 Wiring

(1) Untwist the twisted pair shielded cables after stripping its sheath.
Also, perform protective treatment of the shield to ensure that it will not make contact with the conductive area.



Strip off the sheath about the size as in the right figure. If the length of the sheath peeled is too long, a short circuit may occur among neighboring wires. If the length is too short, wires might come off.
Wire the stripped cable after twisting it to prevent it from becoming loose. (Do not solder it.)

Use a blade type terminal as required.

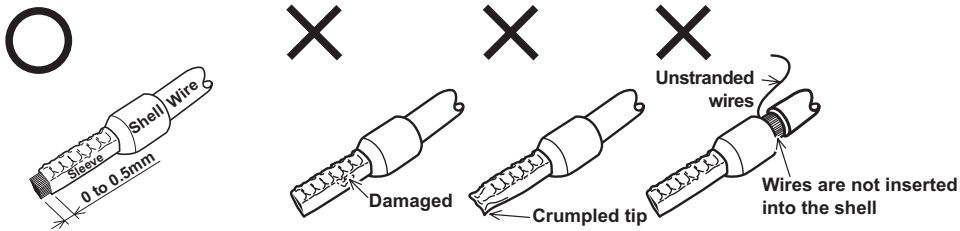
REMARKS

- Information on blade terminals
  Commercially available product examples (as of Jan. 2010)

Terminal Screw Size	Wire Size (mm^2)	Blade Terminal Model		Maker
		With insulation sleeve	Without insulation sleeve	
M2	0.3, 0.5	AI 0,5-6WH	A 0,5-6	Phoenix Contact Co.,Ltd.

Blade terminal crimping tool: CRIMPFOX 6T-F/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.

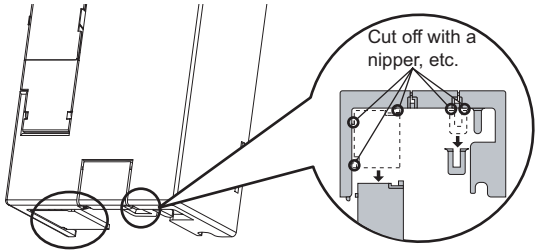
Screw Size	Tightening Torque	Cable Size	Screwdriver
M2	0.22N·m to 0.25N·m	$0.3mm^2$ to $0.75mm^2$	Small ⊖ flat-blade screwdriver (Tip thickness: 0.4mm/tip width: 2.5mm)

CAUTION

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

POINT

If a hook of the front cover for plug-in option impedes wiring, cut the hooks off and perform wiring.



Cut off hooks at the bottom of the option cover.
(Cut off so that no portion is left.)

REMARKS

- The protective structure (JEM1030) is the open type (IP00).

⚠ CAUTION

⚠ **Do not use empty terminals as junction terminals because they are used in the option unit. If they are used as the junction terminals, the option unit may be damaged.**

⚠ **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.**

3 PARAMETER LIST

When the FR-A7AY is mounted on the inverter, the following parameters are extended.

	Parameter Number	Name	Setting Range	Minimum Setting Increments	Initial Value	Refer to Page
EXTENSION ANALOG OUTPUT	306	Analog output signal selection	1 to 3, 5, 7 to 12, 14, 21, 24, 52, 53, 61, 62	1	2	*14 and later*
	307	Setting for zero analog output	0 to100%	0.1	0%	
	308	Setting for maximum analog output	0 to100%	0.1	100%	
	309	Analog output signal voltage/current switchover	0, 1, 10, 11	1	0	
	310	Analog meter voltage output selection	1 to 3, 5, 7 to 12, 14, 21, 24, 52, 53, 61, 62	1	2	
	311	Setting for zero analog meter voltage output	0 to100%	0.1	0%	
	312	Setting for maximum analog meter voltage output	0 to100%	0.1	100%	
	323	AM0 0V adjustment	900 to1100%	1	1000%	
	324	AM1 0mA adjustment	900 to 1100%	1	1000%	
	C0(900)	FM terminal calibration	—	—	—	
	C1(901)	AM terminal calibration	—	—	—	

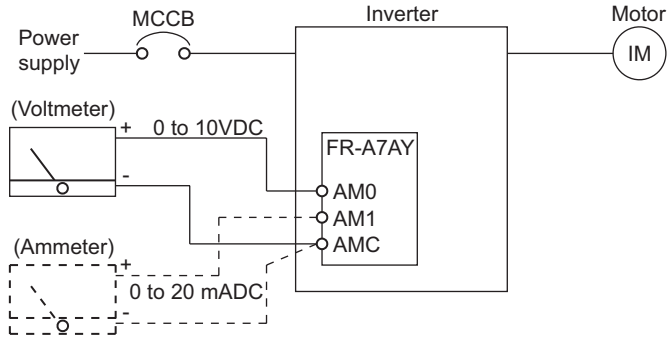
	Parameter Number	Name	Setting Range	Minimum Setting Increments	Initial Value	Refer to Page
DIGITAL OUTPUT	313	DO0 output selection	0, 1, 3, 4, 7, 8, 11 to 16, 20, 25, 26, 46, 47, 64, 80, 81, 90, 91, 93, 95, 96, 98, 99, 100, 101, 103, 104, 107, 108, 111 to 116, 120, 125, 126, 146, 147, 164, 180, 181, 190, 191, 193, 195, 196, 198, 199, 9999	1	9999	*24 and later*
	314	DO1 output selection				
	315	DO2 output selection				
	316	DO3 output selection				
	317	DO4 output selection				
	318	DO5 output selection				
	319	DO6 output selection				

4 EXTENSION ANALOG OUTPUT

4.1 Wiring Example

By setting the *Pr. 306* to *Pr. 312* values, analog signals such as the output frequency and output current can be output from the voltage output terminal (AM0) and current output terminal (AM1).

Connect the voltmeter or ammeter as shown below:

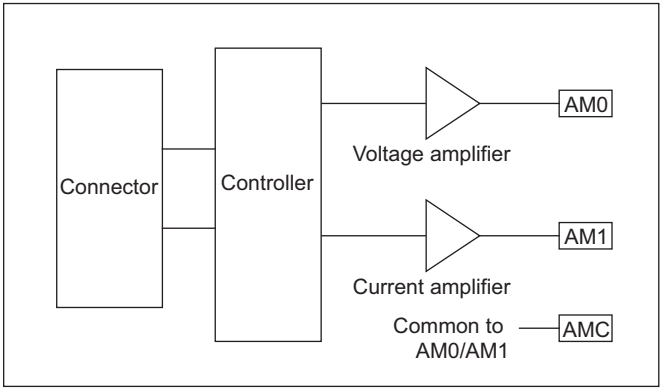


CAUTION

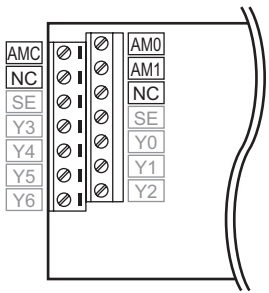
- **The wiring length between the FR-A7AY and the voltmeter/ammeter should be 10m maximum.**

4.2 Internal Block Diagram

The following is the internal block diagram about the FR-A7AY analog output function.



4.3 Terminals



Terminal Symbol	Terminal Name	Description
AM0	Voltage output terminal	Connect a DC voltmeter (10VDC).
AM1	Current output terminal	Connect a DC ammeter (20mADC).
AMC	Common terminal	Common to AM0 and AM1
Y0 to Y6	Used for digital output function. *(Refer to page 24)*	
SE		
NC (empty)	Do not use.	

4.4 Extension Analog Output Function Parameter List

Parameter Number	Name	Setting Range	Minimum Increments	Initial Value
306	Analog output signal selection	1 to 3, 5, 7 to 12, 14, 21, 24, 52, 53, 61, 62	1	2
307	Setting for zero analog output	0 to 100%	0.1	0%
308	Setting for maximum analog output	0 to 100%	0.1	100%
309	Analog output signal voltage/current switchover	0, 1, 10, 11	1	0
310	Analog meter voltage output selection	1 to 3, 5, 7 to 12, 14, 21, 24, 52, 53, 61, 62	1	2
311	Setting for zero analog meter voltage output	0 to 100%	0.1	0%
312	Setting for maximum analog meter voltage output	0 to 100%	0.1	100%
323	AM0 0V adjustment	900 to 1100%	1	1000%
324	AM1 0mA adjustment	900 to 1100%	1	1000%
C0(900)	FM terminal calibration	—	—	—
C1(901)	AM terminal calibration	—	—	—

REMARKS

- For *Pr. 306* and *Pr. 310*, write is enabled even when the inverter is operating.

4.5 Adjustment Procedure

4.5.1 Setting of analog output signal voltage/current switchover (Pr. 309)

Use *Pr. 309 Analog output signal voltage/current switchover* to select whether to output the same signal or different signals from terminal AM0 (voltage output) and terminal AM1(current output).

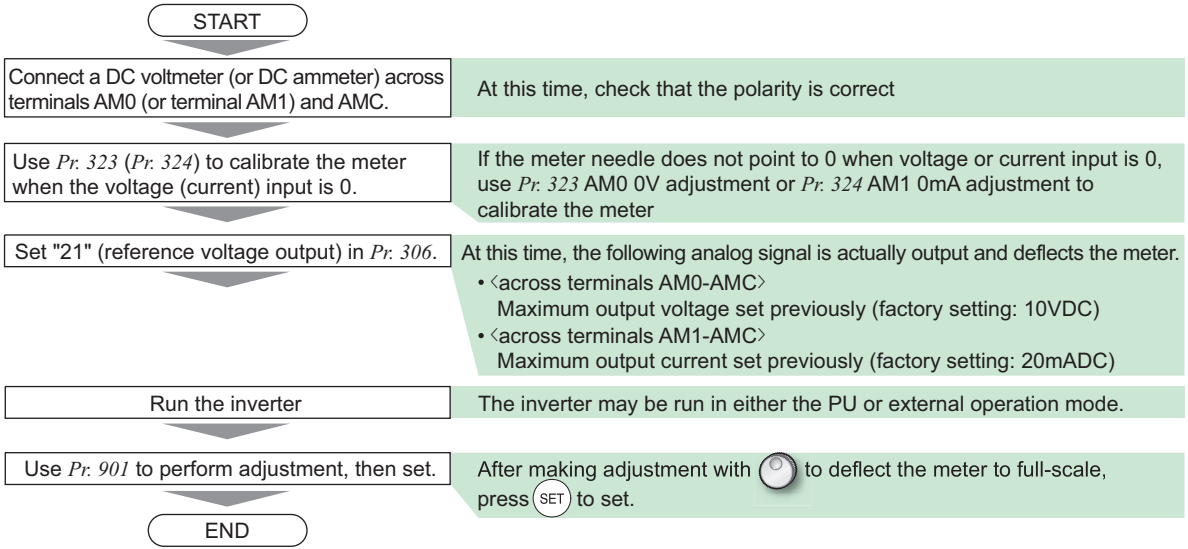
Pr. 309 Setting	Description	Terminal	Parameters for Setting	Parameters for Adjustment
0 (initial value)	Same select signals are output from the voltage output terminal (AM0) and current output terminal (AM1). The signal set in *Pr. 306 Analog output signal selection* is valid. (The setting of *Pr. 310* is invalid.)	AM0	*Pr. 306* : Select the output signal. *Pr. 307* : Output signal value for zero analog output *Pr. 308* : Output signal value for maximum analog output	*Pr. 323* *Pr. 324* *C1 (Pr. 901)*
		AM1		
10		AM0	*Pr. 306* : Select the output signal. *Pr. 307* : Analog output value for zero output signal *Pr. 308* : Analog output value for maximum output signal	
		AM1		
1	Different select signals are output from voltage output terminal (AM0) and current output terminal (AM1).	AM0	*Pr. 310* : Select the output signal. *Pr. 311* : Output signal value for zero analog output *Pr. 312* : Output signal value for maximum analog output	*Pr. 323* *C0 (Pr. 900)*
		AM1	*Pr. 306* : Select the output signal. *Pr. 307* : Output signal value for zero analog output *Pr. 308* : Output signal value for maximum analog output	*Pr. 324* *C1 (Pr. 901)*
11		AM0	*Pr. 310* : Select the output signal. *Pr. 311* : Analog output value for zero output signal *Pr. 312* : Analog output value for maximum output signal	*Pr. 323* *C0 (Pr. 900)*
		AM1	*Pr. 306* : Select the output signal. *Pr. 307* : Analog output value for zero output signal *Pr. 308* : Analog output value for maximum output signal	*Pr. 324* *C1 (Pr. 901)*

REMARKS

- Analog output means voltage (0 to 10 V) and current (0 to 20mA) output from terminal AM0 and AM1, and output signal means the monitor signal (*refer to page 21*) set in *Pr. 306* and *Pr. 310*.

4.5.2 Calibration of meter

(1) Outputting the same select signals from terminals AM0 and AM1 (*Pr. 309* = "0 or 10")

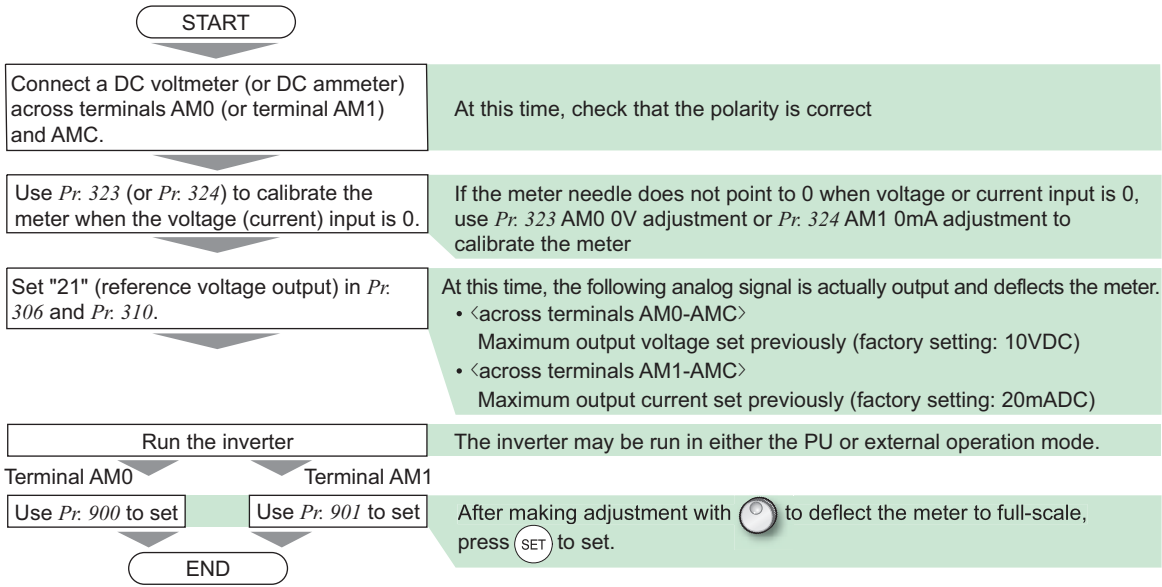


In *Pr. 306*, set the types of the signals to be output. *(Refer to page 21.)*

CAUTION

- **If calibration is made without "21" (reference voltage output) set in *Pr. 306*, terminals FM/AM* of the inverter are calibrated. To calibrate the extension analog output, always set "21" in *Pr. 306*.**
  (* Terminals provided differ according to the inverter.)
- **When the plug-in option used was remounted on other inverter, use *Pr. 323* and *Pr. 324* to calibrate again.**

(2) Outputting different select signals from terminals AM0 and AM1 (*Pr. 309* = "1 or 11")



In *Pr. 306* and *Pr. 310*, set the types of the signals to be output. *(Refer to page 21.)*

CAUTION

- **If calibration is made without "21" (reference voltage output) set in *Pr. 306* or *Pr. 310*, terminals FM/AM* of the inverter are calibrated. To calibrate the extension analog output, always set "21" in *Pr. 306*. (* Terminals provided differ according to the inverter.)**
- **When the plug-in option used was remounted on other inverter, use *Pr. 323* and *Pr. 324* to calibrate again.**

4.5.3 Output signal setting

Set the output signals to be monitored. Set *Pr. 306* to output the same signal from terminals AM0 and AM1 and *Pr. 306* and *Pr. 310* to output different signals. For details of signal definitions, refer to *Pr. 54 and Pr. 158* of *the inverter instruction manual.*

Pr. 306/Pr. 310 Setting	Types of Monitor	Increments	Full-Scale Value
1	Output frequency	0.01Hz	*Pr. 55*
2	Output current	0.01A	*Pr. 56*
3	Output voltage	0.1V	200V class : 400V 400V class : 800V
5	Frequency setting	0.01Hz	*Pr. 55*
7	Motor torque	0.1%	Rated torque of the applied motor × 2
8	Converter output voltage	0.1V	200V class : 400V 400V class : 800V
9	Regenerative brake duty	0.1%	*Pr. 70*
10	Electronic thermal relay function load factor	0.1%	100%
11	Output current peak value	0.01	*Pr. 56*
12	Converter output voltage peak value	0.1V	200V class : 400V 400V class : 800V
14	Output power	0.01kW	Rated inverter power × 2
21	Reference voltage output	—	—
24	Motor load factor	0.1%	200%
52	PID set point	0.1%	100%
53	PID process value	0.1%	100%
61	Motor thermal load factor	0.1%	Thermal relay operation level (100%)
62	Inverter thermal load factor	0.1%	Thermal relay operation level (100%)

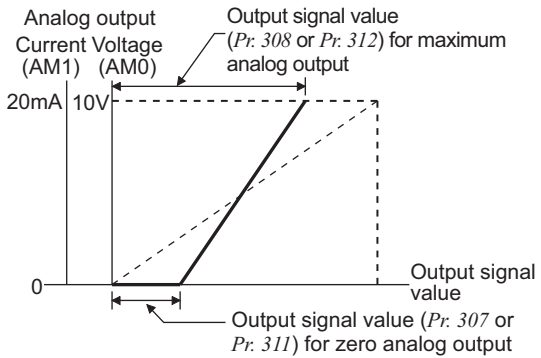
4.5.4 Analog signal adjustment [Pr. 307, Pr. 308, Pr. 311, Pr. 312]

Use *Pr. 307* or *Pr. 311* to set the value for zero analog output (meter points 0) and *Pr. 308* or *Pr. 312* for maximum analog output (full scale).

When outputting the same signal from terminals AM0 and AM1, use *Pr. 307* to set the value for zero analog output and *Pr. 308* for maximum analog output.

When outputting different signal from terminals AM0 and AM1, use *Pr. 307* (for terminal AM1) and *Pr. 311* (for terminal AM0) to set the value for zero analog output and *Pr. 308* (for terminal AM1) and *Pr. 312* (for terminal AM0) for maximum analog output. *(Refer to page 18.)*

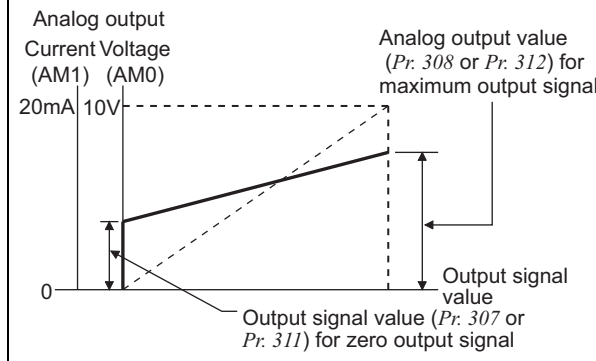
When *Pr. 309* = 0, 1



REMARKS

- When *Pr. 307* ≥ *Pr. 308*, *Pr. 311* ≥ *Pr. 312*, the output values at terminals AM0 and AM1 are always zero.

When *Pr. 309* = 10, 11



REMARKS

- When *Pr. 307* = *Pr. 308*, *Pr. 311* = *Pr. 312*, the output values at terminals AM0 and AM1 are values set in parameters always.

4.6 Instructions

(1) A voltmeter having smaller internal impedance (or an ammeter having larger internal impedance) than the value indicated in the Specifications *(page 2)* may not deflect to full-scale and may not be calibrated.

(2) When calibrating a meter with a small full-scale value, set output of terminal AM0 and AM1 to minimum, then connect a meter.

⚠ CAUTION

⚠ This option unit is factory-set to provide the full-scale output of 10VDC and 20mADC. Hence, a voltmeter (7VDC or less) or an ammeter (14mADC or less) with a small full-scale value may be damaged accidentally during calibration. This should be fully noted.

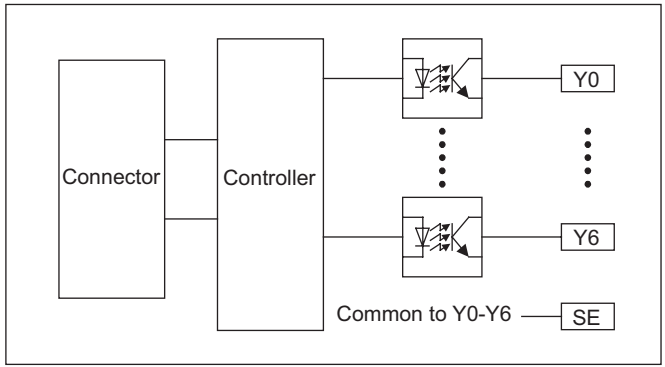
(3) Set "0%" in *Pr. 307* or *Pr. 311* and "100%" in *Pr. 308* or *Pr. 312* to prevent calibration value deviation when calibrating the meter using *Pr. 323*, *Pr. 324*, *C0 (Pr. 900)*, or *C1 (Pr. 901)* when *Pr. 309* = "10 or 11".

(4) When an option fault (E. 1) occurs, all outputs are off.

5 DIGITAL OUTPUT

5.1 Internal Block Diagram

The following is the internal block diagram about the FR-A7AY digital output function

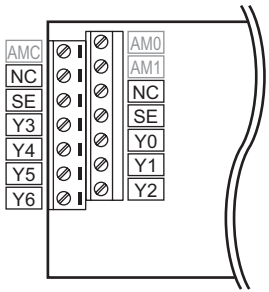


5.2 Terminals

By setting the *Pr. 313* to *Pr. 319* values, output signals (RUN, SU etc.) available with an inverter as standard can be output from the open collector terminals.

(1) Open collector output specifications: Permissible load 24V, 0.1ADC

(2) The circuit logic is the same as that of the inverter.
For details of changing the control logic, refer to *the inverter manual*.



Terminal Symbol	Terminal Name	Description
Y0	Digital output terminals	Use *Pr. 313* to assign functions.
Y1		Use *Pr. 314* to assign functions.
Y2		Use *Pr. 315* to assign functions.
Y3		Use *Pr. 316* to assign functions.
Y4		Use *Pr. 317* to assign functions.
Y5		Use *Pr. 318* to assign functions.
Y6		Use *Pr. 319* to assign functions.
SE	Common terminal	This is a common terminal (for sink and source).
AM0	Used for analog output function. *(Refer to page 14)*	
AM1		
AMC		
NC (empty)	Do not use.	

5.3 Digital Output Function Parameter List

Parameter Number	Name	Initial Value	Setting Range
313	DO0 output selection	9999	0, 1, 3, 4, 7, 8, 11 to 16, 20, 25, 26, 46, 47, 64, 80, 81, 90, 91, 93, 95, 96, 98, 99, 100, 101, 103, 104, 107, 108, 111 to 116, 120, 125, 126, 146, 147, 164, 180, 181, 190, 191, 193, 195, 196, 198, 199, 9999
314	DO1 output selection	9999	
315	DO2 output selection	9999	
316	DO3 output selection	9999	
317	DO4 output selection	9999	
318	DO5 output selection	9999	
319	DO6 output selection	9999	

REMARKS

- With this function, output signals can be set redundantly.

5.4 Output Signal List

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

Setting		Signal Name	Function
Positive Logic	Negative Logic		
0	100	RUN	Inverter running
1	101	SU	Up to frequency
3	103	OL	Overload warning
4	104	FU	Output frequency detection
7	107	RBP	Regenerative brake pre-alarm
8	108	THP	Electronic thermal O/L relay pre-alarm
11	111	RY	Inverter operation ready
12	112	Y12	Output current detection
13	113	Y13	Zero current detection
14	114	FDN	PID lower limit
15	115	FUP	PID upper limit
16	116	RL	PID forward/reverse rotation output
20	120	BOF	Brake opening request
25	125	FAN	Fan fault output
26	126	FIN	Heatsink overheat pre-alarm
46	146	Y46	During deceleration at occurrence of power failure (retained until release)
47	147	PID	During PID control activated
64	164	Y64	During retry
80	180	SAFE	Safety monitor output
81	181	SAFE2	Safety monitor output 2
90	190	Y90	Life alarm
91	191	Y91	Fault output 3 (Power-off signal)
93	193	Y93	Current average monitor signal
95	195	Y95	Maintenance timer signal
96	196	REM	Remote output
98	198	LF	Alarm output
99	199	ALM	Fault output
9999		—	No function

REMARKS

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

REVISIONS

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

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INVERTER

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