



INVERTER

Plug-in option

FR-A8AN

INSTRUCTION MANUAL

Isolated analog current input function

Isolated analog current output function

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INSTALLATION AND WIRING

2

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ANALOG CURRENT OUTPUT

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Thank you for choosing this Mitsubishi 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, always read this Instruction Manual carefully to use this product correctly.

Please forward this Instruction Manual to the end user.

Safety instructions

Do not attempt to install, operate, maintain or inspect the 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.

◆ Electric Shock Prevention



Warning

- While the inverter power is ON, do not open the front cover or the wiring cover. Do not run the inverter with the front cover or the wiring cover removed. Otherwise you may access the exposed high voltage terminals or the charging part of the circuitry and get an electric shock.
- Do not remove the inverter front cover even if the power supply is disconnected. The only exception for this would be when performing wiring and periodic inspection. You may accidentally touch the charged inverter circuits and get an electric shock.
- Before wiring or inspection, LED indication of the inverter unit operation panel must be switched 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 is no residual voltage using a tester or the like. For some time after the power-OFF, a high voltage remains in the smoothing capacitor, 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.

◆ Injury Prevention



Caution

- The voltage applied to each terminal must be the ones specified in the Instruction Manual. Otherwise a burst, damage, etc. may occur.
- The cables must be connected to the correct terminals. Otherwise a burst, damage, etc. may occur.
- The polarity (+ and -) must be correct. Otherwise a burst 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. Touching these devices may cause a burn.

◆ Additional Instructions

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

Caution

Transportation and mounting

- 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 substance such as oil.
- If halogen-based materials (fluorine, chlorine, bromine, iodine, etc.) infiltrate into a Mitsubishi product, the product will be damaged. Halogen-based materials are often included in fumigant, which is used to sterilize or disinfest wooden packages. When packaging, prevent residual fumigant components from being infiltrated into Mitsubishi products, or use an alternative sterilization or disinfection method (heat disinfection, etc.) for packaging. Sterilization or disinfection of wooden package should also be performed before packaging the product.

Trial run

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

Warning

Usage

- 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 product.

Caution

Usage

- When parameter clear or all parameter clear is performed, the required parameters must be set again before starting operations. Because all parameters return to their initial values.
- Static electricity in your body must be discharged before you touch the product.

Maintenance, inspection and parts replacement

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

Disposal

- The inverter must be treated as industrial waste.

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 Instruction Manual must be followed when operating the inverter.



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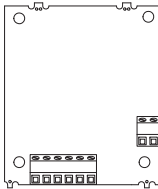

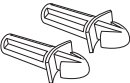
1 PRE-OPERATION INSTRUCTIONS

1.1 Unpacking and checking the product

Take the plug-in option out of the package, check the product name, and confirm that the product is as you ordered and intact. The product is a plug-in option for the FR-A800 series.

1.1.1 Product confirmation

Check the enclosed items.

| | | |
|---|---|--|
| <p>Plug-in option1</p>  A technical drawing of a rectangular plug-in option board. It features a central rectangular area with two circular mounting holes at the top corners. At the bottom, there are two rows of connectors: a row of six circular connectors on the left and a row of six rectangular connectors on the right. | <p>Mounting screw (M3 × 8 mm)2 (Refer to page 9.)</p>  Two screws with a cross-shaped head, representing M3 x 8 mm screws. | <p>Spacer2 (Refer to page 9.)</p>  Two cylindrical spacers with a flange on one end and a hole on the other. |
|---|---|--|

1.1.2 SERIAL number check

The plug-in option is compatible with the inverter having the following SERIAL number or later.
Check the SERIAL number indicated on the inverter rating plate or package.

◆ SERIAL number check

Rating plate example

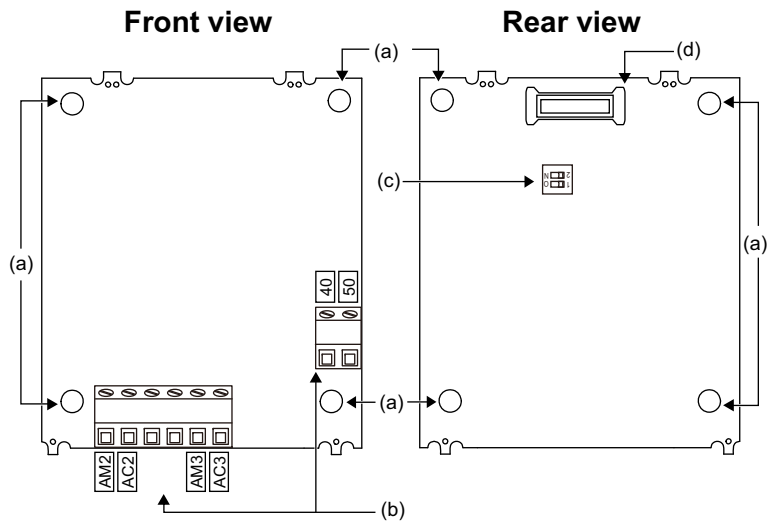
| | | | |
|--------|------|-------|----------------|
| □ | ○ | ○ | ○○○○○○ |
| Symbol | Year | Month | Control number |
| SERIAL | | | |


The SERIAL consists of one symbol, two characters indicating the production year and month, and six 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).

◆ FR-A800 series

| Type | SERIAL number |
|--|---------------|
| FR-A820-00046(0.4K) to 04750(90K) FR-A840-00023(0.4K) to 06830(280K) FR-A842-07700(315K) to 12120(500K) FR-A846-00023(0.4K) to 00470(18.5K) | □ 49 ○○○○○○ |

1.2 Component names



| Symbol | Name | Description | Refer to page |
|--------|---------------------------------------|--|---------------|
| a | Mounting hole | Fixes the option to the inverter with screws, or installs spacers. | 9 |
| b | Terminal block | Connect signal cables. | 12 |
| c | Switch for manufacturer setting (SW3) | Do not change the initially-set status. (Switches 1 and 2 are OFF  .) | — |
| d | Connector | Connects to the option connector of the inverter. | 9 |

1.3 Specifications

- Output signals
 - Across terminals AM2 and AC2: 4-20mADC
 - Across terminals AM3 and AC3: 4-20mADC
- Output resolution 1 μ A
- Display accuracy (reference value)
 - $\pm 10\%$ of the full scale output value
 - This value depends on the output signal type
- Meters used
 - DC ammeter full scale 20mA(internal impedance 40 Ω or less)
- Maximum cable length 10m



- FR-A8AN current-input/output circuit is isolated from the control circuit of the inverter. (2500V (5s), (2000V (60s))

2 INSTALLATION

2.1 Pre-installation instructions

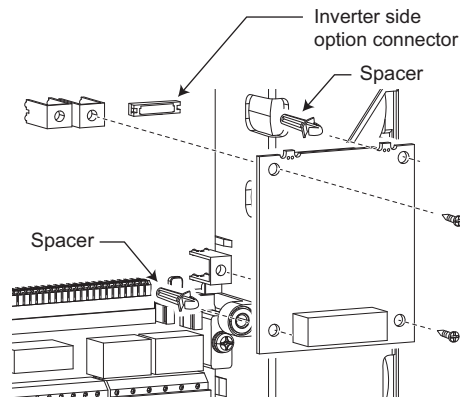
Check that the inverter's input power and the control circuit power are both OFF.

Caution

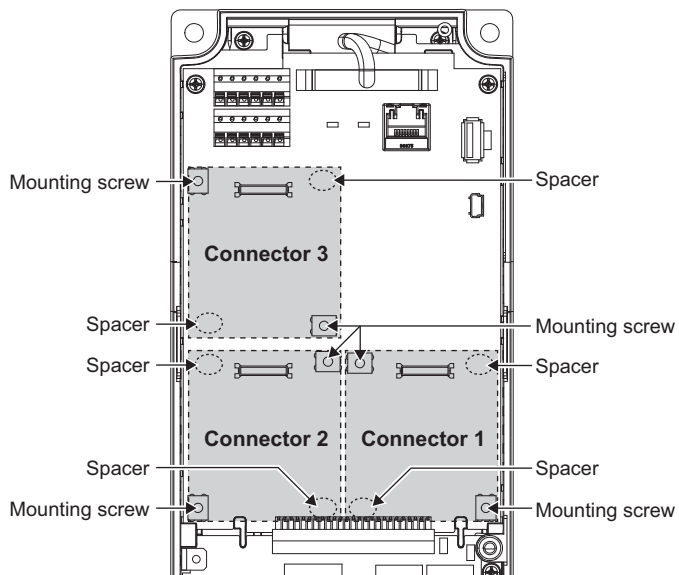
- With input power ON, do not install or remove the plug-in option. Otherwise, the inverter and plug-in option may be damaged.
- To avoid damage due to static electricity, static electricity in your body must be discharged before you touch the product.

2.2 Installation procedure

- (1) Remove the inverter front cover. (Refer to Chapter 2 of the Instruction Manual (Detailed) of the inverter for details on how to remove the front cover.)
- (2) For the two mounting holes (as shown in the next page) that will not be tightened with mounting screws, insert spacers.
- (3) Fit the connector of the plug-in option to the guide of the connector on the inverter unit side, and insert the plug-in option as far as it goes.
- (4) Fit the two locations, the left and right, of the plug-in option securely to the inverter unit by screwing in the supplied mounting screws. (tightening torque 0.33 N·m to 0.40 N·m) If the screw holes do not line up, the connector may not be inserted deep enough. Check the connector.



Example of installation to connector 1



Insertion positions for screws and spacers

NOTE

- When mounting/removing the plug-in option, hold the sides of the option. Do not press on the parts on the circuit board. Stress applied to the parts by pressing, etc. may cause a failure.
- Caution must be applied to mounting screws falling off when removing and mounting the plug-in option.
- Only one option can be used. When multiple options are mounted, priority is given to option connectors 1, 2 and 3 on the inverter in this order, and options having a lower priority do not function.
- When the inverter cannot recognize that the option unit is mounted due to improper installation, etc., the protective function (E.1 to E.3) is activated. A different indication will appear according to the mounted position (option connector 1 to 3).

| Mounted position | Fault indication |
|--------------------|------------------|
| Option connector 1 | E. 1 |
| Option connector 2 | E. 2 |
| Option connector 3 | E. 3 |

- When removing the plug-in option, remove the two screws on the left and right, then pull it straight out. Pressure applied to the connector and to the option board may break the option.

2.3 Wiring

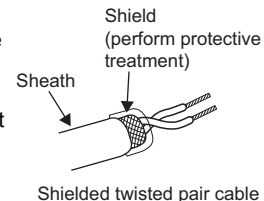
(1) Untwist the shielded twisted pair cables after stripping its sheath.

Also, perform protective treatment of the shield to ensure that it will not make contact with the conductive area.

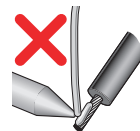
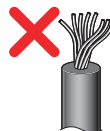
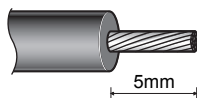
Strip off the sheath for the below length. If the length of the sheath peeled is too long, a short circuit may occur with neighboring wires. If the length is too short, wires might come off.

Wire the stripped cable after twisting it to prevent it from becoming loose. (Do not solder it.)

Use a bar type terminal as required.



Cable sheath stripping length

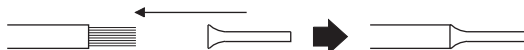


NOTE

- Ferrule terminals commercially available (as of February 2012. The product may be changed without notice.)

| Terminal screw size | Cable gauge (mm ²) | Ferrule terminal model | | Manufacturer | Crimping tool name |
|---------------------|--------------------------------|------------------------|---------------------------|---------------------------|--------------------|
| | | With insulation sleeve | Without insulation sleeve | | |
| M2 | 0.3, 0.5 | AI 0,5-6WH | AI 0,5-6 | Phoenix Contact Co., Ltd. | CRIMPFOX 6 |

When using the ferrule terminal (without insulation sleeve), take caution that the twisted wires do not come out.



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

| 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) |

 **NOTE**

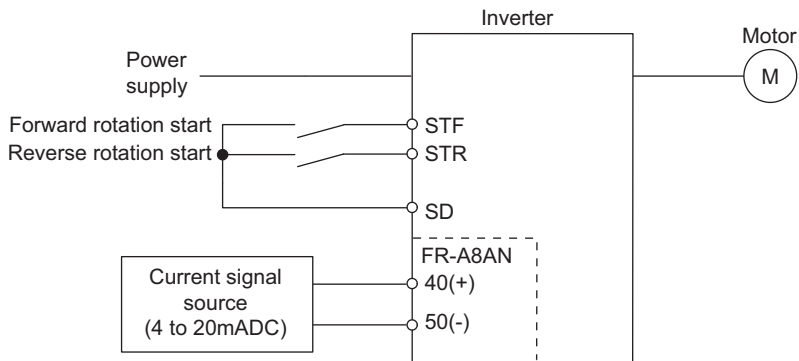
- Undertightening can cause cable disconnection or malfunction. Overtightening can cause a short circuit or malfunction due to damage to the screw or unit.

3 ANALOG CURRENT INPUT

3.1 Wiring example

4 to 20mA current input gives the frequency command to the inverter. The FR-A8AN can substitute for terminal 2 of the inverter.

Connect the current signal source as shown below:

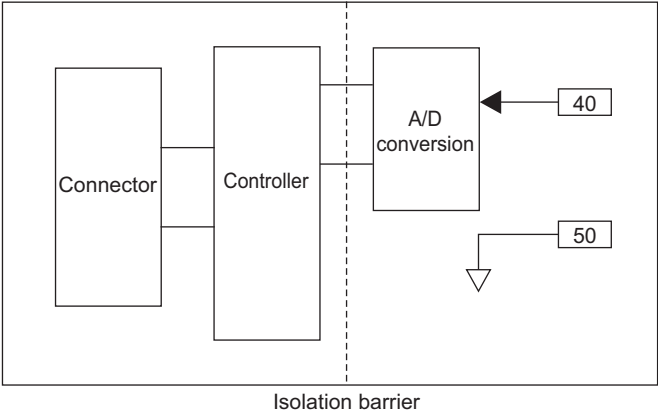


NOTE

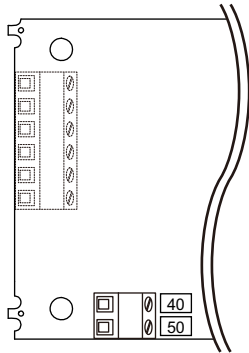
- The wiring length between the FR-A8AN and the current signal source should be 10m maximum.

3.2 Internal block diagram

The following is the internal block diagram about the FR-A8AN analog current input function.



3.3 Terminals



| Terminal symbol | Terminal name | Description |
|-----------------|-----------------------------|---|
| 40 | 4-20mA current input (+) | 4-20mA current input signal for the positive connection |
| 50 | 4-20mA current input common | 4-20mA current input signal for the common connection |

3.4 Analog current input function parameter list

| Pr. | Pr. group | Name | Setting range | Minimum increments | Initial value | |
|----------|-----------|--|------------------|--------------------|---------------|------|
| | | | | | FM | CA |
| 73 | T000 | Analog input selection | 0 to 7, 10 to 17 | 1 | 1 | |
| 74 | T002 | Input filter time constant | 0 to 8 | 1 | 1 | |
| 241 | M043 | Analog input display unit switchover | 0, 1 | 1 | 0 | |
| 242 | T021 | Terminal 1 added compensation amount (terminal 2/ Terminal 40) | 0 to 100% | 0.1% | 100% | |
| 325 | T070 | Terminal 40 input selection | 0, 1 | 1 | 1 | |
| 849 | T007 | Analog input offset adjustment | 0 to 200% | 0.1% | 100% | |
| C2(902) | T200 | Terminal 2/ Terminal 40 frequency setting bias frequency | 0 to 590Hz | 0.01Hz | 0Hz | |
| C3(902) | T201 | Terminal 2/ Terminal 40 frequency setting bias | 0 to 300% | 0.1% | 0% | |
| 125(903) | T202 | Terminal 2/ Terminal 40 frequency setting gain frequency | 0 to 590Hz | 0.01Hz | 60Hz | 50Hz |
| C4(903) | T203 | Terminal 2/ Terminal 40 frequency setting gain | 0 to 300% | 0.1% | 100% | |

3.5 Setting and adjustment of analog current input

3.5.1 Analog input selection

You can select the function that switches between forward rotation and reverse rotation according to the analog current input terminal selection specifications, the override function and the input signal polarity.

Setting **Pr. 325 (Terminal 40 input selection)** to "1" (initial value) with the FR-A8AN mounted, analog current input command by terminal 40 is valid. Refer to the following table and set **Pr. 73** and **Pr. 267**. (indicates the main speed setting)

| Pr. 73 setting | Terminal 40 input | Terminal 1 input | Terminal 4 input | Compensation input terminal and compensation method | Polarity reversible |
|------------------|-------------------|------------------|---|---|---|
| 0 | 4 to 20mA | 0 to ±10V | Terminal 4 acts as main speed setting by turning ON the AU signal. According to Pr. 267 setting 0: 4 to 20mA (initial value) 1: 0 to 5V 2: 0 to 10V | Terminal 1 Added compensation | No (Indicates that a frequency command signal of negative polarity is not accepted.) |
| 1(initial value) | 4 to 20mA | 0 to ±10V | | | |
| 2 | 4 to 20mA | 0 to ±5V | | Terminal 40 Override | |
| 3 | 4 to 20mA | 0 to ±5V | | | |
| 4 | 4 to 20mA | 0 to ±10V | | Terminal 1 Added compensation | Yes |
| 5 | 4 to 20mA | 0 to ±5V | | | |
| 6 | 4 to 20mA | 0 to ±10V | | Terminal 40 Override | |
| 7 | 4 to 20mA | 0 to ±5V | | | |
| 10 | 4 to 20mA | 0 to ±10V | | Terminal 1 Added compensation | |
| 11 | 4 to 20mA | 0 to ±10V | | | |
| 12 | 4 to 20mA | 0 to ±5V | | Terminal 40 Override | |
| 13 | 4 to 20mA | 0 to ±5V | | | |
| 14 | 4 to 20mA | 0 to ±10V | | Terminal 1 Added compensation | |
| 15 | 4 to 20mA | 0 to ±5V | | | |
| 16 | 4 to 20mA | 0 to ±10V | | Terminal 1 Added compensation | |
| 17 | 4 to 20mA | 0 to ±5V | | | |

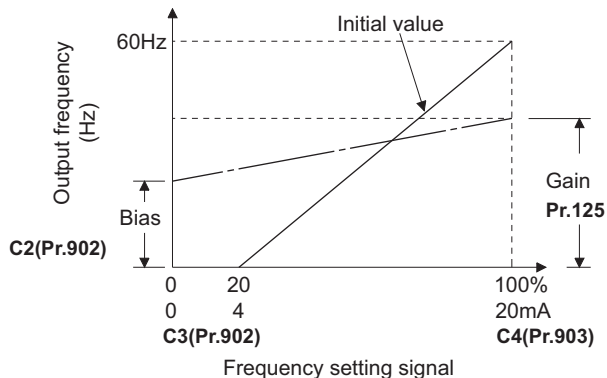
 **NOTE**

- Make sure that the parameter and switch settings are the same to use terminal 4. A different setting may cause a fault, failure or malfunction. (For details, refer to the Instruction Manual(Detailed) of the inverter.)
- The terminal 1 (frequency setting auxiliary input) signal is added to the main speed setting signal of the terminal 40 or 4.
- When an override is selected, the terminal 1 or 4 is used for the main speed setting and the terminal 40 for the override signal (50% to 150% at 0 to 20mA). (When the main speed of the terminal 1 or terminal 4 is not input, compensation by the terminal 40 is invalid.)
- Use **Pr. 125 (frequency setting gain)** to change the maximum output frequency at input of the maximum output frequency command current. At this time, the command current need not be input.
Also, the acceleration/deceleration time, which is a slope up/down to the acceleration/deceleration reference frequency, is not affected by the change in **Pr. 73** setting.
- Inputting current of 25mA or more to terminal 40 results in analog input alarm (E.AIE), causing the inverter to trip.
- When the FR-A8AN is installed and **Pr.325** = "1 (initial value)", terminal 2 is invalid. (However, inputs from the PTC thermistor are valid.)
- The priorities of frequency (speed) command of terminal 40 is the same as terminal 2.

3.5.2 Bias and gain of frequency setting current (Pr. 125, Pr. 241, C2(Pr. 902) to C4(Pr. 903))

You can set the magnitude (slope) of the output frequency as desired in relation to the frequency setting signal (4 to 20mADC). When using analog current input of the FR-A8AN, be sure to calibrate with **Pr. 125, C2 to C4** before starting operation.

◆ Analog input bias/gain calibration (Pr.125, C2(Pr. 902) to C4(Pr. 903))



- Set a value in Pr. 125 when changing only the frequency setting (gain) of the maximum analog input current. (**C2 (Pr. 902) to C4 (Pr. 903)** setting need not be changed)
- The "bias" and "gain" functions are used to adjust the relationship between the input signal entered from outside the inverter to set the output frequency, e.g. 4 to 20mADC, and the output frequency.
- Set the bias frequency of the terminal 40 input using **C2 (Pr. 902)**. (initially set to the frequency at 0mA)
- Using **Pr. 125**, set the output frequency relative to the frequency command current.

NOTE

- When the terminal 40 is calibrated to change the inclination of the set frequency, the setting of the terminal 1 is also changed.
- When a voltage is input to the terminal 1 to make calibration, (terminal 40 analog value + terminal 1 analog value) is the analog calibration value.
- When the plug-in option used was remounted on another inverter, use **Pr.125, C2 to C4** to calibrate again.

◆ Analog input display unit changing (Pr. 241)

- You can change the analog input display unit (%V/mA) for analog input bias/gain calibration.
- The display units of C3 (Pr. 902) and C4 (Pr. 903) change as shown below.

| Analog command (terminal 40) | Pr. 241 = "0 (initial value)" | Pr. 241 = "1" |
|---------------------------------|---|---|
| 0 to 20mA input | 0 to 20mA → displayed in 0 to 100% (0.1%). | 0 to 100% → displayed in 0 to 20mA (0.01mA). |

3.5.3 Adjustment of analog input

◆ Filter of terminal 40 input

When giving the speed command from terminal 40 input, settings of Pr. 74 Input filter time constant is valid. Refer to the inverter manual for details of Pr. 74 Input filter time constant.

◆ Calibration and adjustment of terminal 40

Pr. 242 Terminal 1 added compensation amount (terminal 2/terminal 40) becomes valid for terminal 40 and compensation of terminal 40 input is made by terminal 1 input.

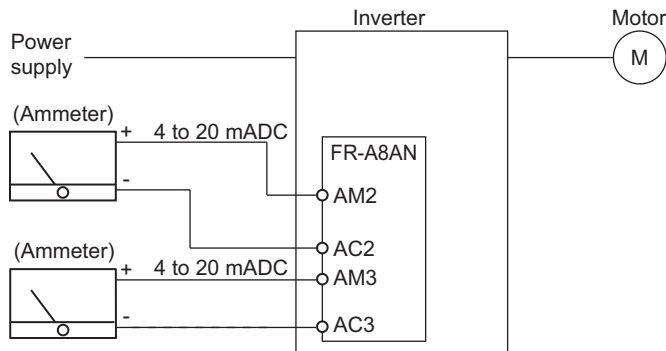
Pr. 849 Analog input offset adjustment becomes valid for terminal 40 and terminal 40 input is provided with offset. Refer to the Instruction Manual (Detailed) of the inverter for details of Pr. 242 and Pr. 849.

4 ANALOG CURRENT 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 current output terminal AM2 and AM3.

Connect the ammeter as shown below:

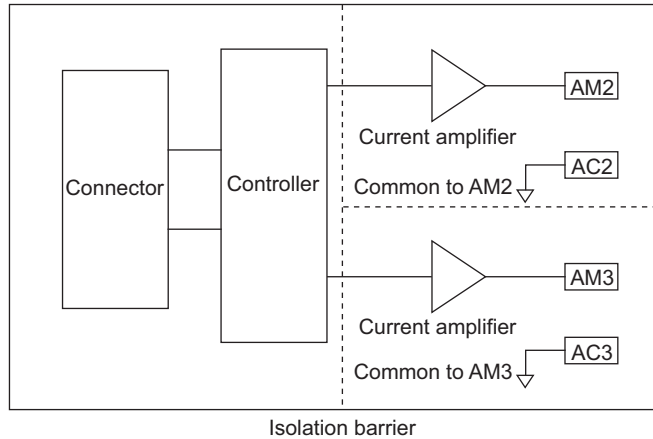


NOTE

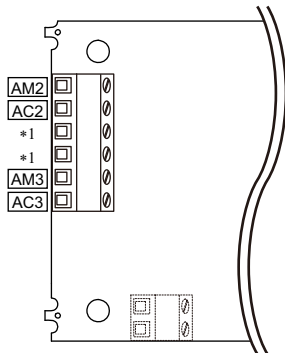
- The wiring length between the FR-A8AN and the ammeter should be 10m maximum.

4.2 Internal block diagram

The following is the internal block diagram about the FR-A8AN analog current output function.



4.3 Terminals



| Terminal symbol | Terminal name | Description |
|-----------------|-------------------------|--------------------------------|
| AM2 | Current output terminal | Connect a DC ammeter (20mADC). |
| AM3 | | |
| AC2 | Common terminal | Common to AM2 |
| AC3 | Common terminal | Common to AM3 |

*1 Do not use empty terminals.

4.4 Analog current output function parameter list

When the FR-A8AN is mounted on the inverter, the following parameters are extended.

Perform the settings as required.

| Pr. | Pr. group | Name | Setting range | Minimum increments | Initial value |
|---------|-----------|---|---------------|--------------------|---------------|
| 306 | M303 | Analog output signal selection | *1 | 1 | 2 |
| 307 | M340 | Setting for zero analog output | 0 to 100% | 0.1% | 0% |
| 308 | M341 | Setting for maximum analog output | 0 to 100% | 0.1% | 100% |
| 309 | M342 | Analog output signal voltage/current switchover | 0, 1, 10, 11 | 1 | 0 |
| 310 | M343 | Analog meter voltage output selection | *1 | 1 | 2 |
| 311 | M344 | Setting for zero analog meter voltage output | 0 to 100% | 0.1% | 0% |
| 312 | M345 | Setting for maximum analog meter voltage output | 0 to 100% | 0.1% | 100% |
| 323 | M346 | AM0/AM2 0V adjustment | 900 to 1100% | 1% | 1000% |
| 324 | M347 | AM1/AM3 0mA adjustment | 900 to 1100% | 1% | 1000% |
| C0(900) | M310 | FM/CA terminal calibration | — | — | — |
| C1(901) | M320 | AM terminal calibration | — | — | — |

*1 The setting values are the same as those of **Pr.158**. For details, refer to the Instruction Manual (Detailed) of the inverter.



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

4.4.1 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 AM2 and terminal AM3.

| Pr. 309 setting | Description | Terminal | Parameters for setting | Parameters for adjustment |
|---------------------------------|---|----------|---|---|
| | | | | |
| 0 (initial value) (10) *1 | Same select signals are output from the terminal AM2 and terminal AM3. The signal set in Pr. 306 Analog output signal selection is valid. (The setting of Pr. 310 is made invalid.) | AM2 | 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 C1 (Pr. 901) |
| | | AM3 | | Pr. 324 C1 (Pr. 901) |
| 1 (11) *1 | Different select signals are output from terminal AM2 and terminal AM3. | AM2 | 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) |
| | | AM3 | | Pr. 306 : Select the output signal. Pr. 307 : Output signal value for zero analog output Pr. 308 : Output signal value for maximum analog output |

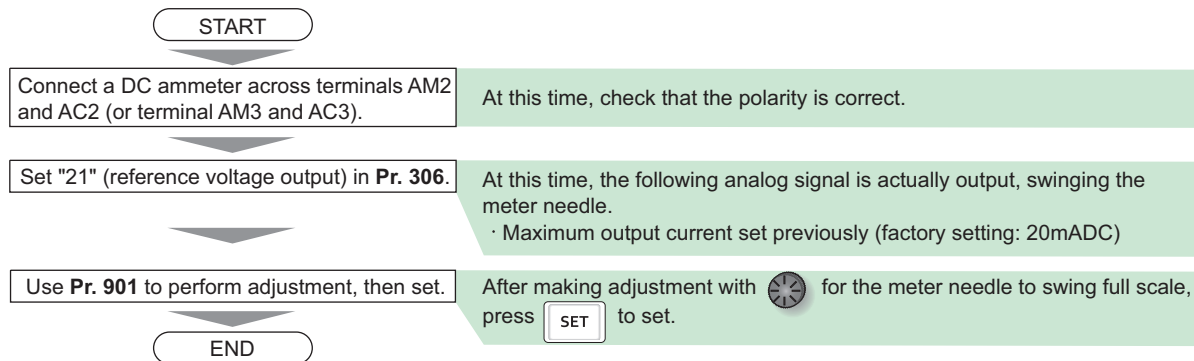
*1 The same operation is performed for the both settings.



- Analog output means current (0 to 20mA) output from terminal AM2 and AM3, and output signal means the monitor signal (refer to the Instruction Manual (Detailed) of the inverter) set in **Pr. 306** and **Pr. 310**.

4.4.2 Calibration of meter

(1) Outputting the same selected signals from terminals AM2 and AM3 (Pr. 309 = "0 or 10")

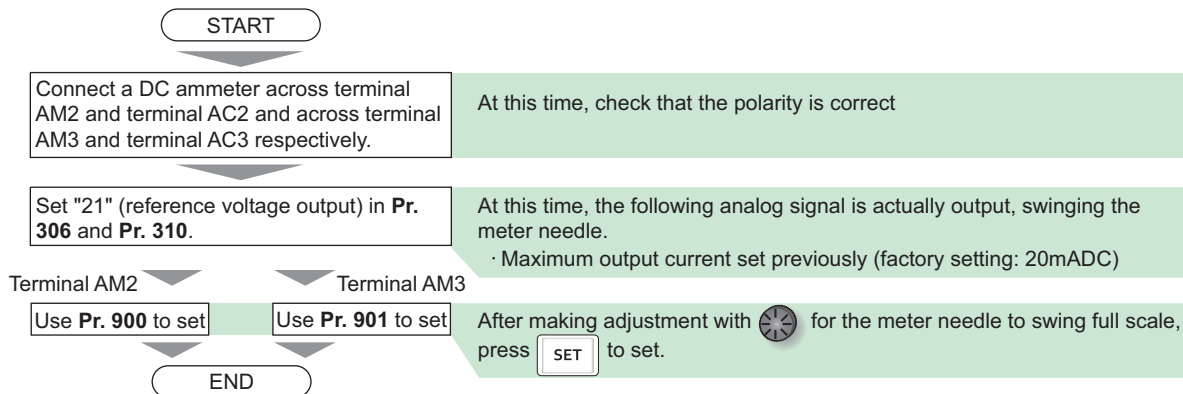


In Pr. 306, set the types of the signals to be output. (refer to the Instruction Manual (Detailed))

NOTE

- If calibration is made without setting "21" (reference voltage output) in Pr. 306, Terminals AM of the inverter is calibrated. To calibrate the extension analog output, **always set "21" in Pr. 306.**
- When a plug-in option (FR-A8AN) has been re-fitted to other inverter, calibrate again.

(2) Outputting different selected signals from terminals AM2 and AM3 (Pr. 309 = "1 or 11")



In Pr. 306 and Pr. 310, set the types of the signals to be output. (refer to the Instruction Manual(Detailed))

NOTE

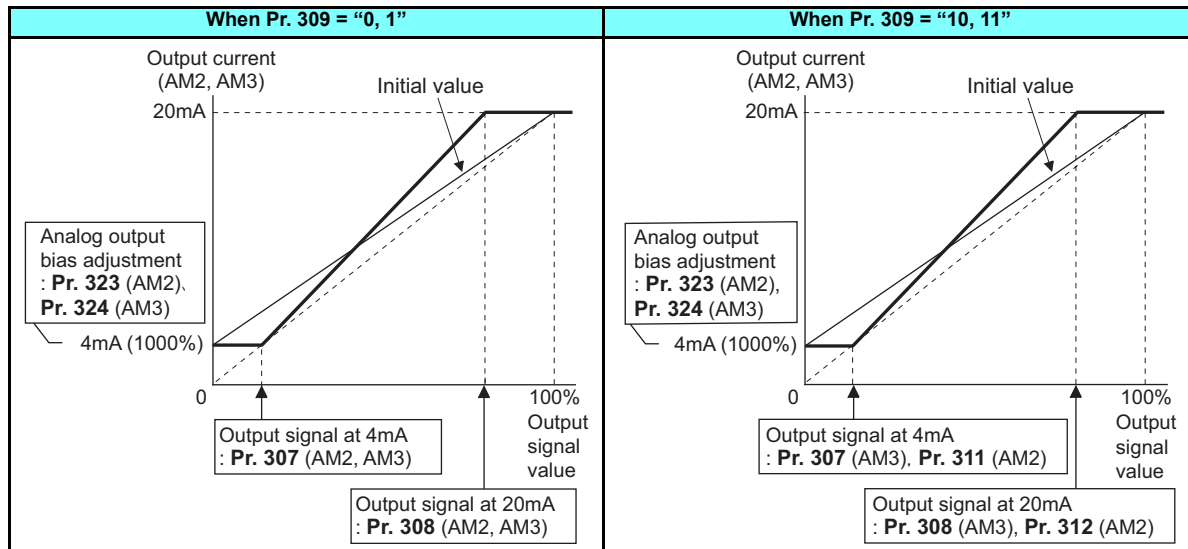
- If calibration is made without setting "21" (reference voltage output) in Pr. 306 and Pr. 310, terminals FM/CA, terminal AM of the inverter is calibrated. To calibrate the extension analog output, **always set "21" in Pr. 306 and Pr. 310.**
- When a plug-in option (FR-A8AN) has been re-fitted to other inverter, calibrate again.

4.4.3 Output signal setting

Set the output signals to be monitored. Set Pr. 306 to output the same signal from terminals AM2 and AM3 and Pr. 306 and Pr. 310 to output different signals. The settings of Pr. 306 and Pr. 310 are the same as those of Pr.54 FM/CA terminal function selection and Pr.158 AM terminal function selection. For the details of Pr.54 and Pr.158, refer to the Instruction Manual (Detailed) of the inverter.

4.4.4 Analog signal adjustment (Pr. 307, Pr. 308, Pr. 311, Pr. 312, Pr. 323, Pr. 324)

The analog output values for minimum and maximum output signals are fixed at 20% and 100% (4mA and 20mA). The output signals at 4mA and 20mA are set using Pr. 307, Pr. 308, Pr. 311, and Pr. 312. Calibration of 4 to 20mA current output function on bias side is set using Pr. 323, Pr. 324. See below.



NOTE

- When Pr. 307 \geq Pr. 308, Pr. 311 \geq Pr. 312, the output values at terminals AM2 and AM3 are always Pr. 323 and Pr. 324 setting.

4.5 Instructions

- When both the FR-A8AN and a plug-in option FR-A8AY are mounted, analog output function (**Pr. 306 to Pr. 312**) of the FR-A8AN has precedence.
For the FR-A8AY, only digital output function (**Pr. 313 to Pr. 319**) is valid.
- An ammeter having larger internal impedance than the value indicated in the 1.3 Specifications on [page 8](#) may not deflect to full-scale and may not be calibrated.
- When calibrating a meter which has a small full-scale value, set the output of terminal AM2 (or AM3) to the minimum without the meter connected. Then, connect the meter and make calibration.

Caution

- This option unit is factory-set to provide the full-scale output of 20mADC. Hence, an ammeter (14mADC or less) with a small full-scale value may be damaged accidentally during calibration. This should be fully noted.
- Set "20%" in **Pr. 307 (Pr. 311)** and "100%" in **Pr. 308 (Pr. 312)** when calibrating **Pr. 323, Pr. 324, C0 (Pr. 900), C1 (Pr. 901)** when **Pr. 309 = "10 or 11"** to prevent calibration value deviation.
- When the protective function (E.1 to E.3) is activated, all the outputs are shut off.

MEMO

REVISIONS

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

| Print date | *Manual number | Revision |
|------------|---------------------|---------------|
| Sep. 2014 | IB(NA)-0600561ENG-A | First edition |
| | | |

INVERTER

