

**MODELS: FR-D800**

**TITLE: Instructions for using analog frequency meters from predecessor models with the FR-D800 series**

**CATEGORY: Instructions for use**

1. Overview

For the FR-D800, terminal FM is no longer provided and terminal AM is provided. This document describes how to use frequency meters from predecessor models (refer to section 3) with the FR-D800 series. While the meters were connected to terminal FM for predecessor models, they will be connected to terminal AM of the FR-D800.

2. Precautions for using the analog frequency meters

(1) Due to the deletion of terminal FM and the addition of terminal AM, parameters related to terminal FM have been removed in the FR-D800.

Note that the frequency meters must be re-calibrated. Refer to section 4 for the calibration procedure.

Deleted parameters

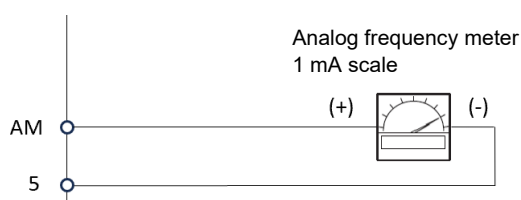
Pr.	Name
54	FM terminal function selection
C0 (900)	FM terminal calibration

Added parameters

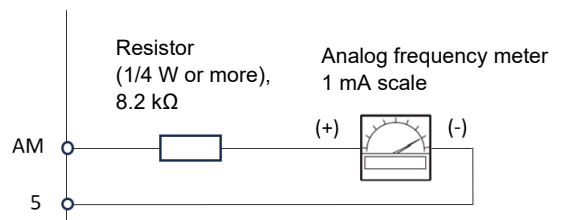
Pr.	Name
158	AM terminal function selection
C1 (901)	AM terminal calibration

(2) Each of the analog frequency meters (refer to section 3) can be used either with or without a resistor.

1) Without resistor

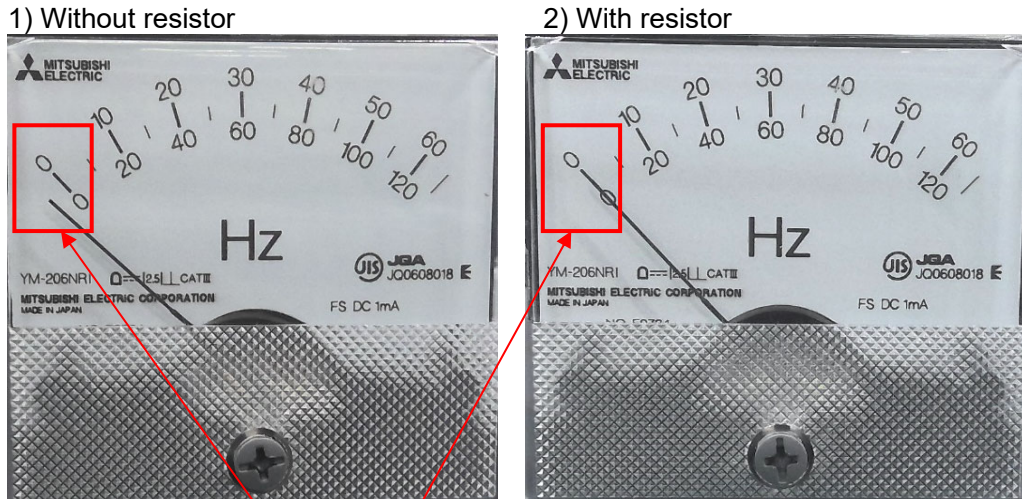


2) With resistor



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**However, when using the meter without a resistor, the needle does not point to 0 Hz when the power is turned off. (Refer to the figure below.)**



Position of the needle when the power is off

**To set the position of the needle to 0 Hz even when the inverter power is tuned off, install a resistor (1/4 W or more) of 8.2 kΩ between the analog frequency meter and terminal AM. When using a variable resistor, use a resistor that can be set to 8.2 kΩ.**

3. Applicable device

Analog frequency meters

Item	Specification	
Model	KY-452	YM-206NR1
Rating	1 mADC	
Internal resistance (Ω)	Approx. 200 Ω	
Scale	0 to 60 Hz / 0 to 120 Hz	0 to 65 Hz / 0 to 130 Hz

For details, refer to the following.

<https://www.melco.jp/business/overseas/inverter/specification.html>

\* Digital frequency meters cannot be used.  
 (Model: HZ-1N)

4. Instructions for use

Before using the applicable frequency meter (refer to section 3) to be connected to terminal AM of the FR-D800, calibrate the meter according to the instructions in the reference pages shown in the following table.

Device	Instructions for use	Refer to page
Analog frequency meter, without a resistor	1) Calibration procedure when a resistor is not used	Page 3 to 7
Analog frequency meter, with a resistor	2) Calibration procedure when a resistor is used	Page 8 to 11

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**1) Calibration procedure when a resistor is not used**

The following shows the instructions for using the applicable frequency meter (refer to section 3) to be connected to terminal AM of the FR-D800. The YM-206NRI is used in the following calibration procedure, and the scale for "0 to 60" Hz (\*1) is used (\*2).

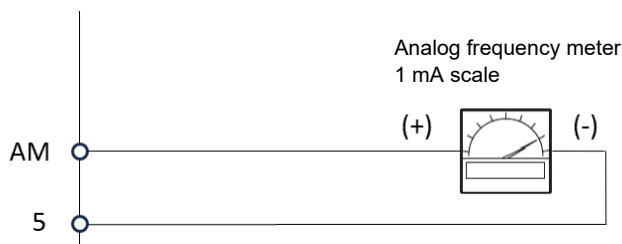
Calibration does not require a motor to be connected to the inverter or to be operated.

(\*1) When the scale for "0 to 60" Hz is used, set Pr.55 (Frequency monitoring reference) = 60 Hz (initial value (MADE IN JAPAN)).

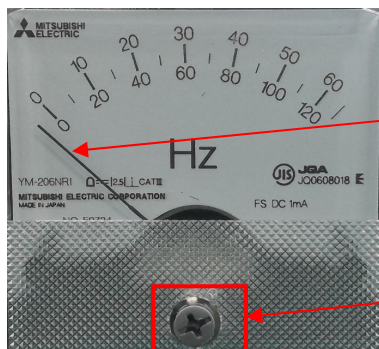
When the scale for "0 to 120" Hz is used, set 120 Hz in Pr.55 and replace "60 Hz" with "120 Hz" in the following instructions.

(\*2) Set Pr.158 (AM terminal function selection) = "1" (output frequency (initial value)). Do not set Pr.158 = "21" (reference voltage output).

1. Connect the meter to the FR-D800. Connect the meter so that terminal AM becomes positive and terminal 5 becomes negative.



2. Before powering ON, move the needle to the leftmost position with the zero adjustment button (indispensable step).



**Move the needle to the leftmost position with the zero adjustment button (indispensable step).**

(Needle position when the inverter power is turned off.

Move the needle beyond 0 Hz to the leftmost position.)

Zero adjustment button

3. Turn ON the inverter power.



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4. Press the HAND/AUTO key to choose the PU operation mode.



When the inverter is in the PU operation mode, the HAND LED is ON.

5. Press the MODE key to switch to the parameter display mode and turn the setting dial until Pr.1200 (AM output offset calibration) appears. "Pr." and "1200" are displayed alternately.





The PRM LED is ON in the parameter display mode.

6. Press the SET key to show the current value.



7. Change the setting value of Pr.1200 (AM output offset calibration) to adjust the needle to the zero position. The needle moves to the right when a value larger than "4499 (initial value)" is set in Pr.1200 (AM output offset calibration). Turn the setting dial from the status of step 6 until the desired setting value appears, then press the SET key. The Pr.1200 (AM output offset calibration) setting will be updated.

	Before	After
Pr.1200 (AM output offset calibration) setting	4499 (initial value)	4519 *1
Analog frequency meter		

\*1 The data is shown for reference. The setting value for the needle to point to "0" differs depending on the inverter and the meter.

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8. Press the MODE key to display the monitor screen.



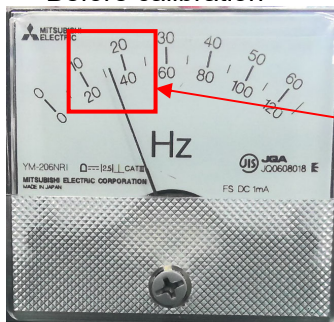
The MON LED is ON in the monitor screen.

9. To prevent overcurrent at terminal AM, start calibration with 1.00 Hz. Turn the setting dial until "1.00" appears, then press the SET key. The set frequency will be updated with the displayed value.

(Always set Pr.158 = "1" (initial value). Do not set Pr.158 = "21" (reference voltage output).)

10. Press the RUN key to start the operation. When a motor is connected, be careful as the motor rotates.

Before calibration



The needle points a value larger than 1 Hz, but the inverter outputs 1 Hz.

11. Press the MODE key to switch to the parameter display mode and turn the setting dial until Pr.C1 (AM terminal calibration) appears.

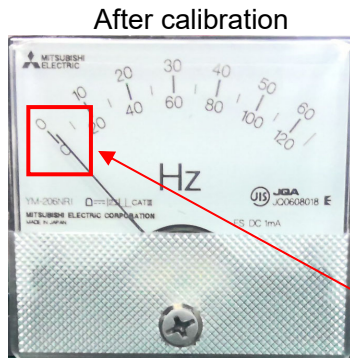


12. Press the SET key to show the current output frequency.



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13. Turn the setting dial to calibrate the frequency so that the needle points to the current output frequency. Turn the setting dial to the left to move the needle left, and to the right to move it right. After calibration is completed, press the SET key to update the parameter setting. (This step is for a rough calibration. Detailed calibration will be performed later.)



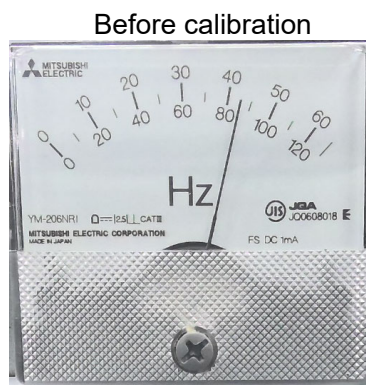
Calibrated to point to the current output frequency (1 Hz)

14. Press the MODE key to return to the monitor screen.



The MON LED is ON in the monitor screen.

15. Turn the setting dial until 60 Hz appears, then press the SET key. The inverter output frequency will be changed from 1 Hz to 60 Hz. When a motor is connected, be careful as the motor accelerates.



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16. Press the MODE key to switch to the parameter display mode and turn the setting dial until Pr.C1 (AM terminal calibration) appears.

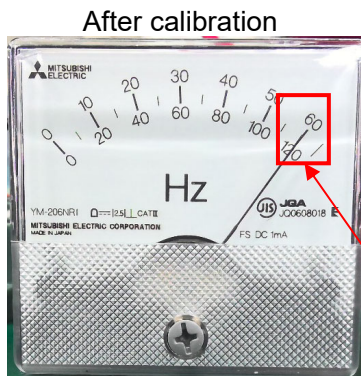


The PRM LED is ON in the parameter display mode.

17. Press the SET key to show the current output frequency. The figure shows the operation at 60.00 Hz.



18. Turn the setting dial to calibrate the frequency so that the needle points to the current output frequency. Turn the setting dial to the left to move the needle left, and to the right to move it right. After calibration is completed, press the SET key to update the parameter setting.



Calibrated to point to the current output frequency (60 Hz)

19. Press the STOP/RESET key to stop.



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**2) Calibration procedure when a resistor is used**

The following shows the instructions for using the applicable frequency meter (refer to section 3) to be connected to terminal AM of the FR-D800. The YM-206NRI is used in the following calibration procedure, and the scale for "0 to 60" Hz (\*1) is used (\*2).

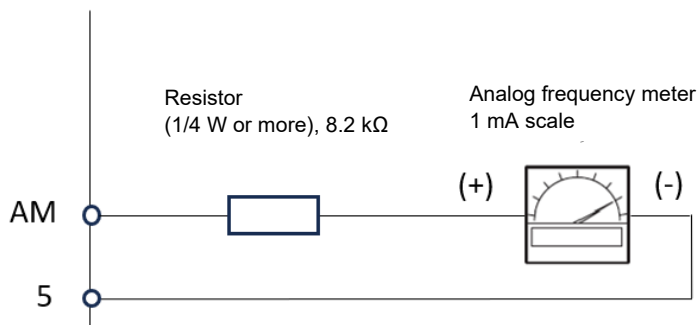
Calibration does not require a motor to be connected to the inverter or to be operated.

(\*1) When the scale for "0 to 60" Hz is used, set Pr.55 (Frequency monitoring reference) = 60 Hz (initial value (MADE IN JAPAN)).

When the scale for "0 to 120" Hz is used, set 120 Hz in Pr.55 and replace "60 Hz" with "120 Hz" in the following instructions.

(\*2) Set Pr.158 (AM terminal function selection) = "1" (output frequency (initial value)). Do not set Pr.158 = "21" (reference voltage output).

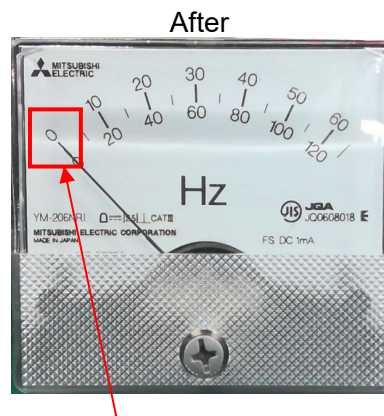
1. Connect the meter to the FR-D800. To prevent overcurrent when 10 V is output from terminal AM, install a resistor (1/4 W or more) of 8.2 kΩ between the analog frequency meter and terminal AM. Connect the meter so that terminal AM becomes positive and terminal 5 becomes negative.



2. If the needle does not point to 0 Hz, adjust the needle to 0 Hz with the zero adjustment button.



Zero adjustment button



Adjusted to point to 0 Hz

(Needle position when the inverter power is turned off.)



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3. Turn ON the inverter power.



4. Press the HAND/AUTO key to choose the PU operation mode.



When the inverter is in the PU operation mode, the HAND LED is ON.

5. To prevent overcurrent at terminal AM, start calibration with 30.00 Hz. Turn the setting dial until "30.00" appears, then press the SET key. The set frequency will be updated with the displayed value.

(Always set Pr.158 = "1 (initial value). Do not set Pr.158 = "21" (reference voltage output).)

6. Press the RUN key to start the operation.  
When a motor is connected, be careful as the motor rotates.



7. Press the MODE key to switch to the parameter display mode and turn the setting dial until Pr.C1 (AM terminal calibration) appears.



The PRM LED is ON in the parameter display mode.

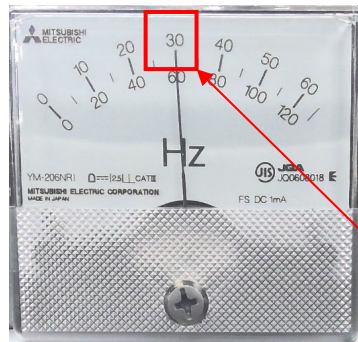
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8. Press the SET key to show the current output frequency.



9. Turn the setting dial to calibrate the frequency so that the needle points to the current output frequency. Turn the setting dial to the left to move the needle left, and to the right to move it right. After calibration is completed, press the SET key to update the parameter setting.

After calibration



Calibrated to point to the current output frequency (30 Hz)

10. Press the MODE key to return to the monitor screen.



11. Turn the setting dial until 60 Hz appears, then press the SET key. The inverter output frequency will be changed from 30 Hz to 60 Hz. When a motor is connected, be careful as the motor accelerates.

Before calibration



(Calibration steps 12 to 14 are not required if the needle points 60 Hz correctly in the above indication.)

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12. Press the MODE key to switch to the parameter display mode and turn the setting dial until Pr.C1 (AM terminal calibration) appears.

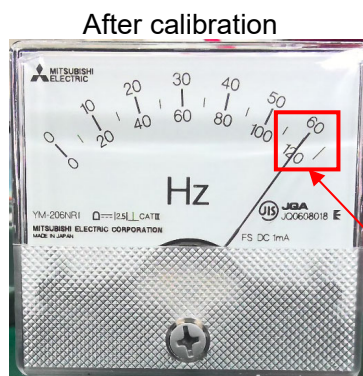


The PRM LED is ON in the parameter display mode.

13. Press the SET key to show the current output frequency.



14. Turn the setting dial to calibrate the frequency so that the needle points to the current output frequency. Turn the setting dial to the left to move the needle left, and to the right to move it right. After calibration is completed, press the SET key to update the parameter setting.



Calibrated to point to the current output frequency (60 Hz)

15. Press the STOP/RESET key to stop.

