

Firmware Upgrade for the FR-E800 Series General-Purpose Inverters

Thank you for your continued patronage of Mitsubishi Electric drive control products.
The firmware of the FR-E800 series general-purpose inverters will be upgraded to improve functionality.

1. Products Affected

FR-E800 series

2. Details of Change

(1) Addition of supported EM-A motor capacities

For the EM-A series global PM motors, the following capacities will be added.

200 V: 0.75 kW to 3.7 kW

400 V: 3.7 kW and 5.5 kW

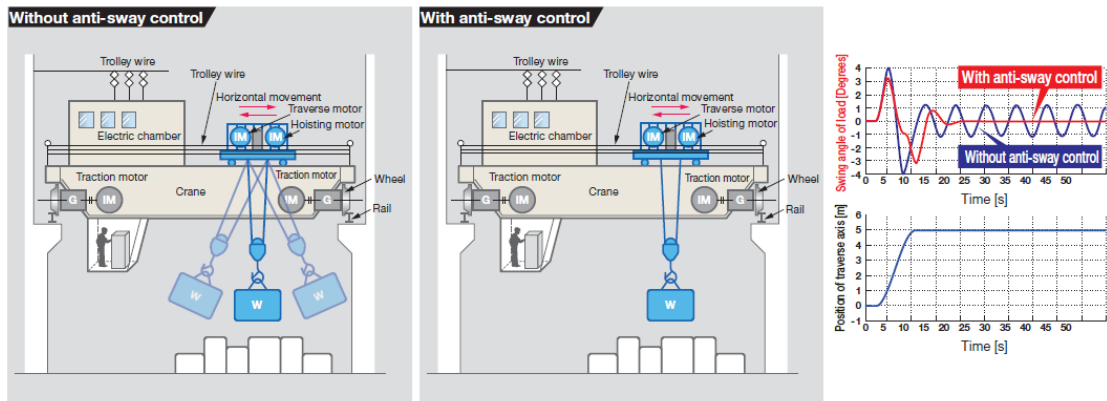
Speed control and position control under PM sensorless vector control will be available.

(2) Anti-sway control

When an object is moved by a crane, swinging is suppressed on the crane's traverse axis or travel axis.

This control is available for cranes which transfer an object linearly, such as a ceiling crane.

<Example: Ceiling crane>



Pr.	Name	Initial value	Setting range	Description
1072 A310	DC brake judgment time for anti-sway control operation	3 s	0 to 10 s	Set the time from when the output frequency becomes the Pr.10 DC injection brake operation frequency or less to when the DC injection brake (zero speed control or the servo lock) operation starts.
1073 A311	Anti-sway control operation selection	0	0 1	Anti-sway control disabled Anti-sway control enabled
1074 A312	Anti-sway control frequency	9999	0.05 to 3 Hz 9999	Set a swinging frequency of the object. Anti-sway control is performed using a swinging frequency estimated by the inverter according to the settings of Pr.1077 to Pr.1079.

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Pr.	Name	Initial value	Setting range	Description
1075 A313	Anti-sway control depth	0	0 to 3	0 (Deep) → 3 (Shallow)
1076 A314	Anti-sway control width	0	0 to 3	0 (Narrow) → 3 (Wide)
1077 A315	Rope length	1 m	0.1 to 100 m	Set the rope length of the crane.
1078 A316	Trolley weight	0 kg	0 to 50000 kg	Set the weight of the trolley.
1079 A317	Load weight	0 kg	0 to 50000 kg	Set the weight of the object.

(3) Addition of CC-Link IE TSN communication specifications (for E800-EPA/E800-EPB/E800-SCEPA/E800-SCEPB)

CC-Link IE TSN (authentication class A) protocol version 2.0 will be available.

When both authentication class B and class A products are used as remote stations, up to 120 units can be connected.

Pr.	Name	Initial value	Setting range	Description
1210 N120	CC-Link IE TSN protocol version selection	0	0 9999	Protocol version 2.0 Protocol version 1.0

Master station and engineering software compatible with protocol version 2.0

Master station	Firmware version	Engineering software	Version
RJ71GN11-T2	14 or later	GX Works3	1.080J or later
RJ71GN11-EIP	01 or later		
FX5-CCLGN-MS	1.010 or later		
RD78G[]/GH[]	20 or later		
FX5-[]SSC-G	1.002 or later		

(4) Addition of EtherNet/IP communication specifications (for E800-EPA/E800-SCEPA)

Instance 21216 (Speed scale (numerator)) and instance 21217 (Speed scale (denominator)) will be added for Inverter Configuration Object (64h).

A scaling factor can be set for attributes 7, 8, 20, and 21 of AC/DC Drive Object (2Ah).

Inverter control parameter

Instance No.	Name	Access	Initial value	Setting range
21216 (52E0h)*1	Speed scale (numerator)	Set/Get	1	1 to 65535
21217 (52E1h)*1	Speed scale (denominator)	Set/Get	1	1 to 65535

*1 Not available for I/O message communication.

The set speed (inverter) can be set according to the following formula.

$$\text{Set speed (inverter)} = \text{Set speed to be scaled (master)} \times \frac{\text{Instance 21216}}{\text{Instance 21217}}$$

(5) Addition of the special register SD200 (switch state)

Input status of the SQ signal can be checked using the PLC function.

Device number	Name	Description																																				
SD200	Switch state	<p>When the SQ signal input via an external terminal or terminal NET is valid for operation, the commanded state is reflected.</p> <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td>b15</td><td>~</td><td>b12</td><td>b11</td><td>~</td><td>b8</td><td>b7</td><td>~</td><td>b4</td><td>b3</td><td>~</td><td>b0</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table> </div> <table border="1" style="margin: auto;"> <thead> <tr> <th>bit</th> <th>Item</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>b0</td> <td>CPU switch (SQ signal) state</td> <td>0</td> <td>RUN</td> </tr> <tr> <td></td> <td></td> <td>1</td> <td>STOP</td> </tr> </tbody> </table>	b15	~	b12	b11	~	b8	b7	~	b4	b3	~	b0													bit	Item	Value	Description	b0	CPU switch (SQ signal) state	0	RUN			1	STOP
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3. Date of Change

Country of origin	Date of Change
MADE IN JAPAN	The change will be sequentially applied to the May 2022 production or later.
MADE IN CHINA	The change will be sequentially applied to the June 2022 production or later.

4. Product Identification

The SERIAL (determined by date of production) can be checked on the product's rating plate.

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 Symbol Year Month Control number

SERIAL

The SERIAL consists of two symbols, three characters indicating the production year and month, and six characters indicating the control number.

The last two digits of the production year are indicated as the Year, and the Month is indicated by 1 to 9, X (October), Y (November), or Z (December).

5. Firmware Version

The inverter firmware version to which the change described will be applied is as follows:

Firmware version "9" or later

For how to install the firmware, refer to the FR Configurator2 (SW1DND-FRC2-E) Instruction Manual (IB-0600516ENG).