MITSUBISHI ELECTRIC Inverter
Sales and Service

No. 610E

Firmware Upgrade for the FR-A800, A800 Plus, F800 Series General-Purpose Inverters and the FR-B, B3 Series Inverters (FR-A800 Specification) for Pressure-Resistant Explosion-Proof Motors

Thank you for your continued patronage of Mitsubishi Electric drive control products.
The firmware of the FR-A800, A800 Plus, F800 series general-purpose inverters and the FR-B, B3 series inverters (FR-A800 specification) for pressure-resistant explosion-proof motors will be upgraded to improve functionality.

1. Products Affected

FR-A800 series inverters (excluding the FR-A800-P),
FR-A800 Plus series inverters (FR-A800-CRN/LC), FR-F800 series inverters, FR-B, B3 series inverters

2. Details of the Change

(1) Direct multi-speed operation function added

When the RLF (RLR) signal is input, the operation is the same as the one when the STF (STR) signal and RL signal are input. To assign the RLF and RLR signals to input terminals, set "128 (RLF)" and "129 (RLR)" in any two parameters from Pr.178 to Pr.189 (Input terminal function selection).

Setting value	Signal name	Function	Related parameter
128	RLF	Low-speed forward rotation command	Pr.6
129	RLR	Low-speed reverse rotation command	Pr.6

(2) Vector control supported when using a PM motor with encoder (except for FR-F800 series and FR-B, B3 series inverters)

When the FR-A8AL or FR-A8TP is installed, the PM motor with an encoder, as well as the induction motor with an encoder, can be driven under Vector control.

- Offline auto tuning enables the optimal operation of a motor with encoder.

Pr.	Name	Initial value	Setting range	Description	
				PM motor	Induction motor
96 C110	Auto tuning setting/status	0	0	Offline auto tuning disabled.	
			1	Offline auto tuning enabled (the motor does not rotate).	
			11	Offline auto tuning enabled only for motor constant R1 (the motor does not rotate).	
			101	Encoder position tuning and offline auto tuning enabled (the motor rotates slightly).	Offline auto tuning enabled (the motor rotates).
463 C210	Second motor auto tuning setting/status	0	0, 1, 11, 101	Second motor offline auto tuning enabled.	

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• Encoder position tuning is required when a PM motor with an encoder is driven.
(The initial value and setting range of Pr.1105 and Pr.887 will be changed.)

Pr.		Name	Initial value	Setting range	Description
373 C142*1	871 C243*2	Encoder position tuning setting/status	0	0	Encoder position tuning disabled.
				1	Encoder position tuning enabled.
1105 C143*1	887 C244*2	Encoder magnetic pole position offset	65535	0 to 16383	Encoder position tuning data set.
				65535	Encoder position tuning not performed.

*1 The setting can be changed only when the FR-A8AL is installed.

*2 The setting can be changed only when the FR-A8TP is installed.

(3) Operation with negative frequency command value during dancer control (except for FR-F800)

The dancer position data can be retained when the frequency command value is around 0 Hz during dancer control. When "10 to 17" is set in Pr.73 Analog input selection, the negative values can be output as the main speed command to which PID manipulated amount is added. (For the negative value of the main speed command without the addition, the output is limited to 0 Hz.)

(4) Function for current input check of analog input terminal enhanced

Pr.573 can be used to determine which terminal's current input is checked.

Pr.573 setting	Terminal to be checked
1 to 4	Terminals 2 and 4
11 to 14	Terminal 4
21 to 24	Terminal 2

(5) Monitoring of safety stop input terminals

Safety stop input terminals S1 and S2 can be monitored.

Monitor item	Unit	Pr.52, Pr.774 to Pr.776, Pr.992 settings	RS-485	MODBUS RTU	Description
Input terminal status	-	55*2	H0F*1	40215*1	The ON/OFF state of the input terminals on the inverter is displayed.

*1 The details of bits for the input terminal status are as follows. (1: ON, 0: OFF, "—" denotes an indefinite (null) value.)

b15															b0
S1	S2	-	-	CS	RES	STP (STOP)	MRS	JOG	RH	RM	RL	RT	AU	STR	STF

*2 Parameter setting is not valid to set the item as the main monitor item on the LCD operation panel (FR-LU08) or the parameter unit (FR-PU07). Use the monitor function of the FR-LU08 or the FR-PU07 for setting.

(6) Function for measuring the main circuit capacitor life added

The measurement of the main circuit capacitor life can start whenever the power supply is turned OFF without setting the parameter every time.

Pr.	Name	Initial value	Setting range	Description
259 E704*1	Main circuit capacitor life measuring	0	0	No measurement
			1 (2, 3, 8, 9)	Setting "1" and turning OFF the power supply starts the measurement of the main circuit capacitor life (only once). If the setting value of Pr.259 becomes "3" after turning ON the power supply again, it means that the measurement is completed. The degree of deterioration is read to Pr.258.
			11 (12, 13, 18, 19)	When "11" is set, turning OFF the power supply starts the measurement of the main circuit capacitor life. If the setting value of Pr.259 becomes "13" after turning ON the power supply again, it means that the measurement is completed. The degree of deterioration is read to Pr.258.

*1 The setting is available for the standard structure model and the IP55 compatible model.

(7) Change of the initial value of Pr.10 in the FR-A870 inverter (except for the liquid cooled type)
The initial value of Pr.10 DC injection brake operation frequency will be changed from 3 Hz to 1 Hz.

3. Date of Change

Country of origin	Date of change
MADE IN JAPAN	The change will be sequentially applied to the products manufactured in November 2019 or later.
MADE IN CHINA	The change will be sequentially applied to the products manufactured in December 2019 or later.

4. Product Identification

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

□ 9 Y ○○○○○○
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).