

Sales and Service

Change of Fuses and Other Recommended Peripheral Equipment along with UL Standards Transition for AC Servo Amplifiers

Thank you for your continued patronage of the Mitsubishi Electric AC servo system. MR-J4 will comply with the latest UL 61800-5-1, which MR-J5 complies with.

1. Target Model

MR-J4 with a capacity of 22 kW or less

*1 For details of the target models, refer to Table 2. "External protection devices (selection examples)".

*2 The functional safety unit MR-D30 is included.

2. Reason for the Change

UL 508C has been withdrawn and replaced with UL 61800-5-1 since February, 2020. The products which are certified by UL LLC to UL 508C will remain certified and their external protection devices do not need to be changed unless the specifications or the components of the products are changed.

As a result of limited availability of components and other situations, it is expected that we will have difficulty keeping the models in Table 2 certified to UL 508C in the future, and thus the models will comply with the latest UL 61800-5-1.

The instruction manuals will also be revised to comply with UL 61800-5-1.

3. Details of the Change

In addition to the semiconductor fuses added for compliance with UL 61800-5-1 (UL LISTED compliant), the external protection devices recommended by UL 508C have also been certified. Therefore, the list of recommended external protection devices in the instruction manuals will be updated.

Table 1. External protection devices

Before	After	
	UL 508C/UL 61800-5-1 compliant	UL LISTED compliant (UL 61800-5-1)
Fuse (Class T)	Fuse (Class T, SCCR: 100 kA)	
Molded-case circuit breaker (UL 489 listed)	Molded-case circuit breaker (UL 489 listed)	Semiconductor fuse (SCCR: 100 kA)
Type E Combination motor controller	Type E Combination motor controller	

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Table 2. External protection devices (selection examples)

Servo amplifier (Note 1)	IEC/EN/UL 61800-5-1, UL 508C, CSA C22.2 No. 274 compliant (Note 4)			UL LISTED compliant	
	Molded-case circuit breaker (Note 3, 5)		Fast-acting fuse (Note 6) (Class T, J, CC)	Semiconductor fuse (Note 2)	
	Recommended model (Mitsubishi Electric)	Maximum rating	Maximum rating	Recommended model (Bussmann)	Maximum rating
MR-J4-10_1/MR-J4-20_1/ MR-J4-40_1	NV50-SVFU-15A	120 V, 15 A	300 V, 20 A	170M1411	700 V, 25 A
MR-J4-10_1/MR-J4-20_1/MR-J4-40_1/ MR-J4-60_1(3)/MR-J4-70_1(3)	NF50-SVFU-5A	240 V, 15 A	300 V, 15 A	170M1412	700 V, 32 A
MR-J4W2-22_1(3)				170M1414	700 V, 50 A
MR-J4-60_1(1)/MR-J4-70_1(1)/ MR-J4-100_1(3)				170M1412	700 V, 32 A
MR-J4W2-22B_1(1)/ MR-J4W2-44B_1(3)/MR-J4W3-222B/ MR-J4W3-444B_1(3)	NF50-SVFU-10A	240 V, 15 A	300 V, 15 A	170M1414	700 V, 50 A
MR-J4W2-77B_1(3)				170M1415	700 V, 63 A
MR-J4-100_1(1)				170M1412	700 V, 32 A
MR-J4-200_1(3)/MR-J4W2-44B_1(1)	NF50-SVFU-15A	240 V, 15 A	300 V, 30 A	170M1414	700 V, 50 A
MR-J4W2-1010B				170M1415	700 V, 63 A
MR-J4-200_1(1)/MR-J4W3-444B_1(1)				170M1414	700 V, 50 A
MR-J4-350_1/MR-J4W2-77B_1(1)	NF50-SVFU-20A	240 V, 20 A	300 V, 40 A	170M1415	700 V, 63 A
MR-J4-500_1	NF50-SVFU-30A	240 V, 30 A	300 V, 60 A	170M1415	700 V, 63 A
MR-J4-700_1	NF50-SVFU-40A	240 V, 40 A	300 V, 80 A	170M1416	700 V, 80 A
MR-J4-11K_1	NF100-CVFU-60A	240 V, 60 A	300 V, 125 A	170M1418	700 V, 125 A
MR-J4-15K_1	NF100-CVFU-80A	240 V, 80 A	300 V, 150 A	170M1419	700 V, 160 A
MR-J4-22K_1	NF250-CVU-125A	240 V, 125 A	300 V, 300 A	170M1422	700 V, 315 A
MR-J4-60_4/MR-J4-100_4	NF100-HRU-5A	480 V, 15 A	600 V, 15 A	170M1411	700 V, 25 A
MR-J4-200_4	NF100-HRU-10A	480 V, 15 A	600 V, 15 A	170M1412	700 V, 32 A
MR-J4-350_4	NF100-HRU-10A	480 V, 15 A	600 V, 20 A	170M1413	700 V, 40 A
MR-J4-500_4	NF100-HRU-15A	480 V, 15 A	600 V, 30 A	170M1413	700 V, 40 A
MR-J4-700_4	NF100-HRU-20A	480 V, 20 A	600 V, 40 A	170M1414	700 V, 50 A
MR-J4-11K_4	NF100-HRU-30A	480 V, 30 A	600 V, 60 A	170M1417	700 V, 100 A
MR-J4-15K_4	NF100-HRU-40A	480 V, 40 A	600 V, 80 A	170M1418	700 V, 125 A
MR-J4-22K_4	NF100-HRU-60A	480 V, 60 A	600 V, 125 A	170M1418	700 V, 125 A

- Note
- "(1)" in the table indicates the case with 1-phase 200 V AC input, and "(3)" indicates the case with 3-phase 200 V AC input.
 - Tubular ferrule fuses can also be used other than the recommended square-body DIN fuses. For details, contact your local sales office.
 - For selection of the Type E Combination motor controller, refer to Servo Amplifier Instruction Manual.
 - When using MR-J4W series servo amplifiers for a machine that is required to comply with CSA standards, use molded-case circuit breakers with a rating of 15 A.
 - For products having "5A" or "10A" in the recommended model, products up to "15A" can be used. NF250-CVU-125A is the replacement for NF225-CWU-125A.
 - Other fuses, such as time-delay fuses, are also available for some fuse classes; however, we recommend fast-acting fuses.

4. Schedule

The products manufactured in January 2023 or later comply with UL 61800-5-1 (the products that have rating plates indicating "DATE: 2023-01" or later date of manufacture).

Revision

Version	Date of issue	Revision
A	December 2022	The external protection devices compliant with UL 508C have been added to Table 1 and Table 2.
B	August 2023	Compliance with UL 61800-5-1 for external protective devices in Table 1 and Table 2 has been added.