1-Axis Servo Amplifier Model Designation

B | B-RJ | B-RJ010 | A | A-RJ

MR-J4-10B__-___

Mitsubishi general-purpose AC servo amplifier MELSERVO-J4 Series

Symbol	Interface
B	SSCNET III/H (Note 7)
A	General-purpose

Symbol	Rated output [kW]
10	0.1
20	0.2
40	0.4
60	0.6
70	0.75
100	1
200	2
350	3.5
500	5
700	7
11K	11
15K	15
22K	22

Symbol	Power supply
None	3-phase 200 V AC or 1-phase 200 V AC (Note 3)
1	1-phase 100 V AC (Note 8)
4	3-phase 400 V AC (Note 4)

Symbol	Special specification
None	Standard
RJ	Fully closed loop control four-wire type/ load-side encoder A/B/Z-phase input compatible/ Functional safety unit compatible (Note 11)/ Positioning mode compatible (Note 12)
RJ010	CC-Link IE Field Network interface with Motion (Note 5)
ED	Without a dynamic brake (Note 1)
PX	Without an enclosed regenerative resistor (Note 6)
RU	MR-J4-_-RJ without a dynamic brake (Note 1)
RZ	MR-J4-_-RJ without an enclosed regenerative resistor (Note 6)
RU010	MR-J4-_B-RJ010 without a dynamic brake (Note 1)
RZ010	MR-J4-_B-RJ010 without an enclosed regenerative resistor (Note 6)
EG	DC power input type (Note 10)
KJ	MR-J4-_-RJ with DC power input type (Note 10)
LL	Pressure control type (Note 9)

Multi-Axis Servo Amplifier Model Designation

WB

MR-J4W2-22B-___

Mitsubishi general-purpose AC servo amplifier MELSERVO-J4 Series

Symbol	Number of axes
W2	2 axes
W3	3 axes

Symbol	Interface
B	SSCNET III/H

Symbol	Rated output [kW]		
	A-axis (Note 2)	B-axis (Note 2)	C-axis (Note 2)
22	0.2	0.2	-
44	0.4	0.4	-
77	0.75	0.75	-
1010	1	1	-
222	0.2	0.2	0.2
444	0.4	0.4	0.4

Symbol	Special specification
None	Standard
ED	Without a dynamic brake (Note 1)
EG	DC power input type (Note 10)

Notes: 1. Dynamic brake which is built in 7 kW or smaller servo amplifiers is removed. When using the servo amplifier without a dynamic brake, the servo motor does not stop immediately at alarm occurrence or power failure. Take measures to ensure safety on the entire system.
When the following servo motors are used, an electronic dynamic brake may operate at alarm occurrence.
HG-KR053, HG-KR13, HG-KR23, HG-KR43, HG-MR053, HG-MR13, HG-MR23, HG-MR43, HG-SR51, and HG-SR52
Disable the electronic dynamic brake by setting the following parameter to "_ _ _ 2."
For MR-J4-B/MR-J4-B-RJ/MR-J4-B-RJ010: [Pr. PF06]
For MR-J4W_-B: Disable the electronic dynamic brake for all axes with [Pr. PF06]
For MR-J4-A/MR-J4-A-RJ: [Pr. PF09]
In addition, when [Pr. PA04] is set to "2 _ _ _" (initial value), the servo motor may be decelerated to a stop forcibly at alarm occurrence. The forced stop deceleration function will be disabled by setting [Pr. PA04] to "0 _ _ _."
2. A-axis, B-axis, and C-axis indicate names of axes of the multi-axis servo amplifier. The C-axis is available for the 3-axis servo amplifier.
3. Servo amplifiers of 0.75 kW or smaller are available for 1-phase 200 V AC.
4. Servo amplifiers of 0.6 kW, and 1 kW or larger are available for 3-phase 400 V AC.
5. CC-Link IE Field Network interface with Motion is available only with MR-J4-_B-RJ010. CC-Link IE Field Network interface unit (MR-J3-T10) is required.
6. Available in 11 kW to 22 kW servo amplifier. A regenerative resistor (standard accessory) is not enclosed.
7. MR-J4-_B-RJ010 has CC-Link IE Field Network interface with Motion.
8. Servo amplifiers of 0.4 kW or smaller are available.
9. MR-J4-_B_-LL is available. Contact your local sales office for the pressure control compatible servo amplifiers.
10. Contact your local sales office for the DC power input type servo amplifier.
11. MR-D30 functional safety unit is compatible with MR-J4-B-RJ servo amplifiers. When using MR-D30, use MR-J4-B-RJ servo amplifier with software version B3 or later. MR-D30 will be compatible with MR-J4-B-RU/MR-J4-B-RZ/MR-J4-B-KJ servo amplifiers in the future.
12. The positioning mode is available with MR-J4-A-RJ servo amplifiers. Use MR-J4-A-RJ servo amplifiers with software version B3 or later.

Drive Unit Model Designation (Note 4)

B | B-RJ | A | A-RJ

MR-J4-DU30KB__-____

Mitsubishi general-purpose AC servo amplifier MELSERVO-J4 Series

Symbol	Power supply
None	3-phase 200 V AC (Note 1)
4	3-phase 400 V AC

Symbol	Interface
B	SSCNETIII/H
A	General-purpose

Symbol	Rated output [kW]
30K	30
37K	37
45K	45
55K	55

Symbol	Special specification
None	Standard
RJ (Note 2)	Fully closed loop control four-wire type/load-side encoder A/B/Z-phase input compatible/ Positioning mode compatible (Note 3)
LL	Pressure control type (Note 5)

Converter Unit Model Designation (Note 4)

MR-CR55K__

Symbol	Power supply
None	3-phase 200 V AC
4	3-phase 400 V AC

Symbol	Rated output [kW]
55K	55

Notes: 1. Drive units of 37 kW or smaller are available in 3-phase 200 V AC.
2. MR-D30 functional safety unit is not compatible with the drive unit.
3. Positioning mode is available with MR-J4-DU_A_-RJ drive unit.
4. One unit of converter unit is required for each drive unit.
5. MR-J4-DU_B_-LL is available. Contact your local sales office for the pressure control compatible drive units.

Combinations of 1-Axis Servo Amplifier and Servo Motor

B B-RJ A A-RJ

MR-J4-B/MR-J4-B-RJ/MR-J4-A/MR-J4-A-RJ (200 V)

Servo amplifier	Rotary servo motor	Linear servo motor (primary side) (Note 1)	Direct drive motor
MR-J4-10B(-RJ) MR-J4-10A(-RJ)	HG-KR053, 13 HG-MR053, 13	-	-
MR-J4-20B(-RJ) MR-J4-20A(-RJ)	HG-KR23 HG-MR23	LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20
MR-J4-40B(-RJ) MR-J4-40A(-RJ)	HG-KR43 HG-MR43	LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0	TM-RFM004C20
MR-J4-60B(-RJ) MR-J4-60A(-RJ)	HG-SR51, 52 HG-JR53	LM-U2PBD-15M-1SS0	TM-RFM006C20 TM-RFM006E20
MR-J4-70B(-RJ) MR-J4-70A(-RJ)	HG-KR73 HG-MR73 HG-JR73 HG-UR72	LM-H3P3B-24P-CSS0 LM-H3P3C-36P-CSS0 LM-H3P7A-24P-ASS0 LM-K2P2A-02M-1SS1 LM-U2PBF-22M-1SS0	TM-RFM012E20 TM-RFM012G20 TM-RFM040J10
MR-J4-100B(-RJ) MR-J4-100A(-RJ)	HG-SR81, 102 HG-JR53 (Note 2), 103	-	TM-RFM018E20
MR-J4-200B(-RJ) MR-J4-200A(-RJ)	HG-SR121, 201, 152, 202 HG-JR73 (Note 2), 103 (Note 2), 153, 203 HG-RR103, 153 HG-UR152	LM-H3P3D-48P-CSS0 LM-H3P7B-48P-ASS0 LM-H3P7C-72P-ASS0 LM-FP2B-06M-1SS0 LM-K2P1C-03M-2SS1 LM-U2P2B-40M-2SS0	-
MR-J4-350B(-RJ) MR-J4-350A(-RJ)	HG-SR301, 352 HG-JR153 (Note 2), 203 (Note 2), 353 HG-RR203 HG-UR202	LM-H3P7D-96P-ASS0 LM-K2P2C-07M-1SS1 LM-K2P3C-14M-1SS1 LM-U2P2C-60M-2SS0	TM-RFM048G20 TM-RFM072G20 TM-RFM120J10
MR-J4-500B(-RJ) MR-J4-500A(-RJ)	HG-SR421, 502 HG-JR353 (Note 2), 503 HG-RR353, 503 HG-UR352, 502	LM-FP2D-12M-1SS0 LM-FP4B-12M-1SS0 LM-K2P2E-12M-1SS1 LM-K2P3E-24M-1SS1 LM-U2P2D-80M-2SS0	TM-RFM240J10
MR-J4-700B(-RJ) MR-J4-700A(-RJ)	HG-SR702 HG-JR503 (Note 2), 703, 601, 701M	LM-FP2F-18M-1SS0 LM-FP4D-24M-1SS0	-
MR-J4-11KB(-RJ) MR-J4-11KA(-RJ)	HG-JR903, 801, 12K1, 11K1M	LM-FP4F-36M-1SS0	-
MR-J4-15KB(-RJ) MR-J4-15KA(-RJ)	HG-JR15K1, 15K1M	LM-FP4H-48M-1SS0	-
MR-J4-22KB(-RJ) MR-J4-22KA(-RJ)	HG-JR20K1, 25K1, 22K1M	-	-

Notes: 1. Models of the linear servo motor primary side are listed in this page. For compatible models of the secondary side, refer to "Combinations of Linear Servo Motor and Servo Amplifier" under section 3 Linear Servo Motor in this catalog.
2. The maximum torque can be increased from 300% to 400% of the rated torque with this combination.

MR-J4-DU_B/MR-J4-DU_B-RJ/MR-J4-DU_A/MR-J4-DU_A-RJ (200 V)

Drive unit	Rotary servo motor	Linear servo motor (primary side)	Direct drive motor
MR-J4-DU30KB(-RJ) MR-J4-DU30KA(-RJ)	HG-JR30K1 HG-JR30K1M	-	-
MR-J4-DU37KB(-RJ) MR-J4-DU37KA(-RJ)	HG-JR37K1 HG-JR37K1M	-	-

Combinations of 1-Axis Servo Amplifier and Servo Motor

B B-RJ A A-RJ

MR-J4-B1/MR-J4-B1-RJ/MR-J4-A1/MR-J4-A1-RJ (100 V)

Servo amplifier	Rotary servo motor	Linear servo motor (primary side) (Note 1)	Direct drive motor
MR-J4-10B1(-RJ) MR-J4-10A1(-RJ)	HG-KR053, 13 HG-MR053, 13	-	-
MR-J4-20B1(-RJ) MR-J4-20A1(-RJ)	HG-KR23 HG-MR23	LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20
MR-J4-40B1(-RJ) MR-J4-40A1(-RJ)	HG-KR43 HG-MR43	LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0	TM-RFM004C20

MR-J4-B4/MR-J4-B4-RJ/MR-J4-A4/MR-J4-A4-RJ (400 V)

Servo amplifier	Rotary servo motor	Linear servo motor (primary side) (Note 1)	Direct drive motor
MR-J4-60B4(-RJ) MR-J4-60A4(-RJ)	HG-SR524 HG-JR534	-	-
MR-J4-100B4(-RJ) MR-J4-100A4(-RJ)	HG-SR1024 HG-JR534 (Note 2), 734, 1034	-	-
MR-J4-200B4(-RJ) MR-J4-200A4(-RJ)	HG-SR1524, 2024 HG-JR734 (Note 2), 1034 (Note 2), 1534, 2034	-	-
MR-J4-350B4(-RJ) MR-J4-350A4(-RJ)	HG-SR3524 HG-JR1534 (Note 2), 2034 (Note 2), 3534	-	-
MR-J4-500B4(-RJ) MR-J4-500A4(-RJ)	HG-SR5024 HG-JR3534 (Note 2), 5034	-	-
MR-J4-700B4(-RJ) MR-J4-700A4(-RJ)	HG-SR7024 HG-JR5034 (Note 2), 7034, 6014, 701M4	-	-
MR-J4-11KB4(-RJ) MR-J4-11KA4(-RJ)	HG-JR9034, 8014, 12K14, 11K1M4	-	-
MR-J4-15KB4(-RJ) MR-J4-15KA4(-RJ)	HG-JR15K14, 15K1M4	-	-
MR-J4-22KB4(-RJ) MR-J4-22KA4(-RJ)	HG-JR20K14, 25K14, 22K1M4	LM-FP5H-60M-1SS0	-

MR-J4-DU_B4/MR-J4-DU_B4-RJ/MR-J4-DU_A4/MR-J4-DU_A4-RJ (400 V)

Drive unit	Rotary servo motor	Linear servo motor (primary side)	Direct drive motor
MR-J4-DU30KB4(-RJ) MR-J4-DU30KA4(-RJ)	HG-JR30K14 HG-JR30K1M4	-	-
MR-J4-DU37KB4(-RJ) MR-J4-DU37KA4(-RJ)	HG-JR37K14 HG-JR37K1M4	-	-
MR-J4-DU45KB4(-RJ) MR-J4-DU45KA4(-RJ)	HG-JR45K1M4	-	-
MR-J4-DU55KB4(-RJ) MR-J4-DU55KA4(-RJ)	HG-JR55K1M4	-	-

Notes: 1. Models of the linear servo motor primary side are listed in this page. For compatible models of the secondary side, refer to "Combinations of Linear Servo Motor and Servo Amplifier" under section 3 Linear Servo Motor in this catalog.
2. The maximum torque can be increased from 300% to 400% of the rated torque with this combination.

Combinations of 1-Axis Servo Amplifier and Servo Motor

B-RJ010

MR-J4-B-RJ010 (200 V)

Servo amplifier	Rotary servo motor
MR-J4-10B-RJ010	HG-KR053, 13 HG-MR053, 13
MR-J4-20B-RJ010	HG-KR23 HG-MR23
MR-J4-40B-RJ010	HG-KR43 HG-MR43
MR-J4-60B-RJ010	HG-SR51, 52 HG-JR53
MR-J4-70B-RJ010	HG-KR73 HG-MR73 HG-JR73 HG-UR72
MR-J4-100B-RJ010	HG-SR81, 102 HG-JR53 (Note 1), 103
MR-J4-200B-RJ010	HG-SR121, 201, 152, 202 HG-JR73 (Note 1), 103 (Note 1), 153, 203 HG-RR103, 153 HG-UR152
MR-J4-350B-RJ010	HG-SR301, 352 HG-JR153 (Note 1), 203 (Note 1), 353 HG-RR203 HG-UR202
MR-J4-500B-RJ010	HG-SR421, 502 HG-JR353 (Note 1), 503 HG-RR353, 503 HG-UR352, 502
MR-J4-700B-RJ010	HG-SR702 HG-JR503 (Note 1), 703, 601, 701M
MR-J4-11KB-RJ010	HG-JR903, 801, 12K1, 11K1M
MR-J4-15KB-RJ010	HG-JR15K1, 15K1M
MR-J4-22KB-RJ010	HG-JR20K1, 25K1, 22K1M

MR-J4-B4-RJ010 (400 V)

Servo amplifier	Rotary servo motor
MR-J4-60B4-RJ010	HG-SR524 HG-JR534
MR-J4-100B4-RJ010	HG-SR1024 HG-JR534 (Note 1), 734, 1034
MR-J4-200B4-RJ010	HG-SR1524, 2024 HG-JR734 (Note 1), 1034 (Note 1), 1534, 2034
MR-J4-350B4-RJ010	HG-SR3524 HG-JR1534 (Note 1), 2034 (Note 1), 3534
MR-J4-500B4-RJ010	HG-SR5024 HG-JR3534 (Note 1), 5034
MR-J4-700B4-RJ010	HG-SR7024 HG-JR5034 (Note 1), 7034, 6014, 701M4
MR-J4-11KB4-RJ010	HG-JR9034, 8014, 12K14, 11K1M4
MR-J4-15KB4-RJ010	HG-JR15K14, 15K1M4
MR-J4-22KB4-RJ010	HG-JR20K14, 25K14, 22K1M4

Notes: 1. The maximum torque can be increased from 300% to 400% of the rated torque with this combination.

Combinations of Multi-Axis Servo Amplifier and Servo Motors

WB

MR-J4W2-B

Any combination of the servo motors with different series and capacities is possible as long as the servo motors are compatible with the servo amplifier.

Servo amplifier	Rotary servo motor	Linear servo motor (primary side) (Note 1)	Direct drive motor
MR-J4W2-22B	HG-KR053, 13, 23 HG-MR053, 13, 23	LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20
MR-J4W2-44B	HG-KR053, 13, 23, 43 HG-MR053, 13, 23, 43	LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAB-05M-0SS0 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20 TM-RFM004C20
MR-J4W2-77B	HG-KR43, 73 HG-MR43, 73 HG-SR51, 52 HG-JR53, 73 HG-UR72	LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-H3P3B-24P-CSS0 LM-H3P3C-36P-CSS0 LM-H3P7A-24P-ASS0 LM-K2P1A-01M-2SS1 LM-K2P2A-02M-1SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBD-15M-1SS0 LM-U2PBF-22M-1SS0	TM-RFM004C20 TM-RFM006C20 TM-RFM006E20 TM-RFM012E20 TM-RFM012G20 TM-RFM040J10
MR-J4W2-1010B	HG-KR43, 73 HG-MR43, 73 HG-SR51, 81, 52, 102 HG-JR53 (Note 2), 73, 103 HG-UR72	LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-H3P3B-24P-CSS0 LM-H3P3C-36P-CSS0 LM-H3P7A-24P-ASS0 LM-K2P1A-01M-2SS1 LM-K2P2A-02M-1SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBD-15M-1SS0 LM-U2PBF-22M-1SS0	TM-RFM004C20 TM-RFM006C20 TM-RFM006E20 TM-RFM012E20 TM-RFM018E20 TM-RFM012G20 TM-RFM040J10

MR-J4W3-B

Any combination of the servo motors with different series and capacities is possible as long as the servo motors are compatible with the servo amplifier.

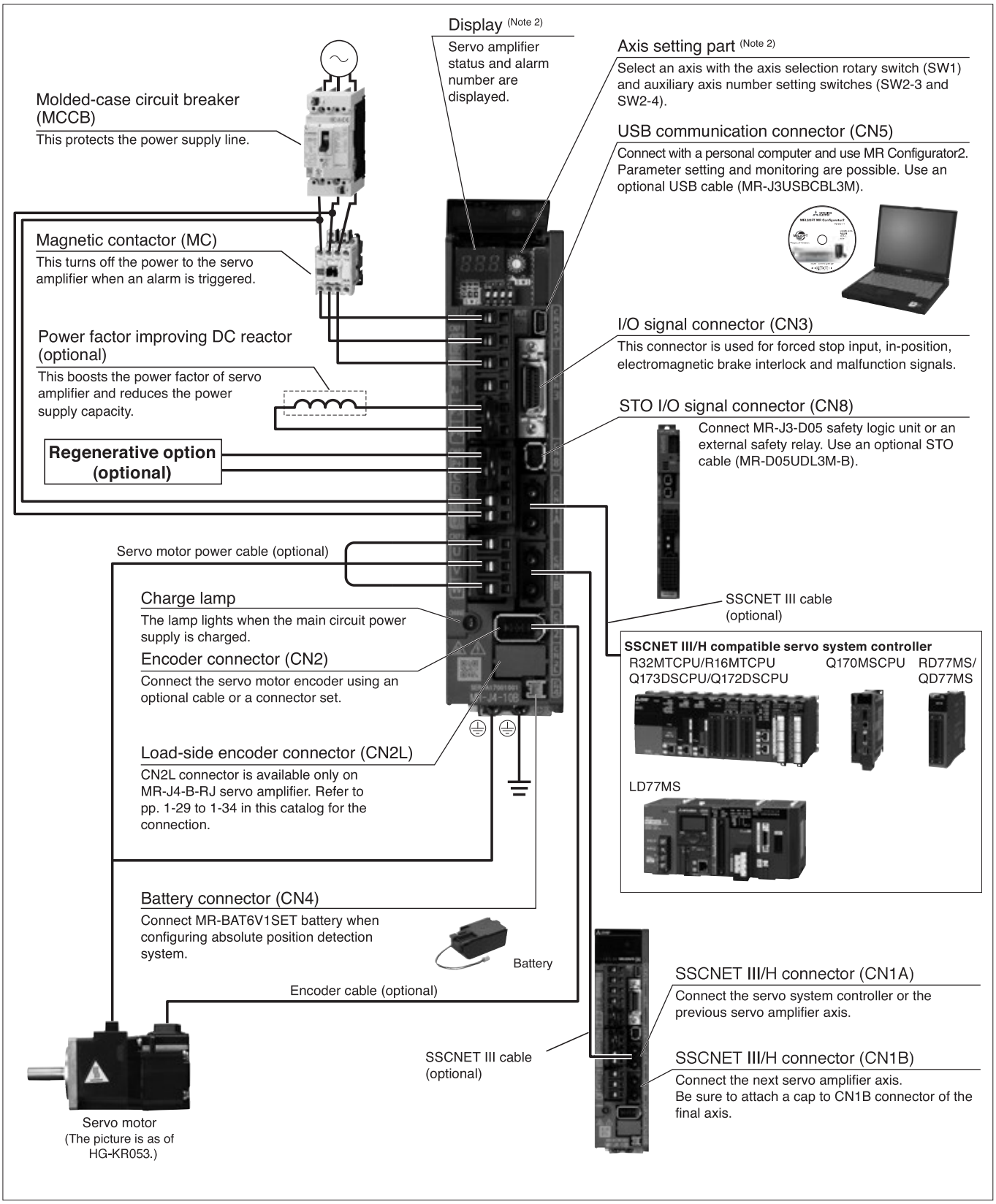
Servo amplifier	Rotary servo motor	Linear servo motor (primary side) (Note 1)	Direct drive motor
MR-J4W3-222B	HG-KR053, 13, 23 HG-MR053, 13, 23	LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20
MR-J4W3-444B	HG-KR053, 13, 23, 43 HG-MR053, 13, 23, 43	LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAB-05M-0SS0 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20 TM-RFM004C20

Notes: 1. Models of the linear servo motor primary side are listed in this page. For compatible models of the secondary side, refer to "Combinations of Linear Servo Motor and Servo Amplifier" under section 3 Linear Servo Motor in this catalog.
2. The maximum torque can be increased from 300% to 400% of the rated torque with this combination.

MR-J4-B/MR-J4-B-RJ Connections with Peripheral Equipment (Note 1)

B B-RJ

Peripheral equipment is connected to MR-J4-B/MR-J4-B-RJ as described below. Connectors, cables, options, and other necessary equipment are available so that users can set up the servo amplifier easily and start using it right away.



Notes: 1. The connection with the peripheral equipment is an example for MR-J4-350B/MR-J4-350B-RJ or smaller servo amplifiers. Refer to "MR-J4-_B_(-RJ) Servo Amplifier Instruction Manual" for the actual connections.
2. This picture shows when the display cover is open.

MR-J4-B(1)/MR-J4-B(1)-RJ (SSCNET III/H Interface) Specifications (200 V/100 V)

B B-RJ

Servo amplifier model MR-J4-_(-RJ)			10B	20B	40B	60B	70B	100B	200B	350B	500B	700B	11KB	15KB	22KB	10B1	20B1	40B1
Output	Rated voltage		3-phase 170 V AC															
	Rated current	[A]	1.1	1.5	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0	68.0	87.0	126.0	1.1	1.5	2.8
Main circuit power supply input	Voltage/frequency (Note 1)		3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz					3-phase 200 V AC to 240 V AC, 50 Hz/60 Hz								1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated current (Note 15)	[A]	0.9	1.5	2.6	3.2 (Note 8)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0	3.0	5.0	9.0
	Permissible voltage fluctuation		3-phase or 1-phase 170 V AC to 264 V AC					3-phase 170 V AC to 264 V AC								1-phase 85 V AC to 132 V AC		
	Permissible frequency fluctuation		±5% maximum															
Control circuit power supply input	Voltage/frequency		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz													1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated current	[A]	0.2								0.3					0.4		
	Permissible voltage fluctuation		1-phase 170 V AC to 264 V AC													1-phase 85 V AC to 132 V AC		
	Permissible frequency fluctuation		±5% maximum															
	Power consumption	[W]	30								45					30		
Interface power supply			24 V DC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))															
Control method			Sine-wave PWM control/current control method															
Tolerable regenerative power	Built-in regenerative resistor (Note 2, 3)	[W]	-	10	10	10	20	20	100	100	130	170	-	-	-	-	10	10
	External regenerative resistor (standard accessory) (Note 2, 3, 11, 12)	[W]	-	-	-	-	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)	-	-	-
Dynamic brake			Built-in (Note 4)										External option (Note 13)			Built-in (Note 4)		
SSCNET III/H command communication cycle (Note 10)			0.222 ms, 0.444 ms, 0.888 ms															
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)															
Encoder output pulse			Compatible (A/B/Z-phase pulse)															
Analog monitor			2 channels															
Fully closed loop control	MR-J4-B(1)		Two-wire type communication method (Note 9)															
	MR-J4-B(1)-RJ		Two-wire/four-wire type communication method															
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function (Note 14), scale measurement function (Note 14), J3 compatibility mode, super trace control (Note 16), lost motion compensation (Note 16)															
Load-side encoder interface	MR-J4-B(1)		Mitsubishi high-speed serial communication															
	MR-J4-B(1)-RJ		Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal															
Protective functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection															
Functional safety			STO (IEC/EN 61800-5-2)															
Safety performance	Standards certified by CB		EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2															
	Response performance		8 ms or less (STO input OFF → energy shut-off)															
	Test pulse input (STO) (Note 7)		Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum															
	Mean time to dangerous failure (MTTFd)		100 years or longer															
	Diagnostic coverage (DC)		Medium (90% to 99%)															
	Probability of dangerous Failure per Hour (PFH)		1.68×10^{-10} [1/h]															
Compliance to standards			Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.															
Structure (IP rating)			Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (Note 5)					Natural cooling, open (IP20)		
Close mounting			Possible (Note 6)								Not possible					Possible (Note 6)		
Environment	Ambient temperature		Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)															
	Ambient humidity		Operation/storage: 90 %RH maximum (non-condensing)															
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust															
	Altitude		1000 m or less above sea level															
	Vibration resistance		5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)															
Mass		[kg]	0.8	0.8	1.0	1.0	1.4	1.4	2.1	2.3	4.0	6.2	13.4	13.4	18.2	0.8	0.8	1.0

MR-J4-B(1)/MR-J4-B(1)-RJ (SSCNET III/H Interface) Specifications (200 V/100 V)

B B-RJ

Notes: 1. Rated output and speed of a rotary servo motor and a direct drive motor; and continuous thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4-_B_(-RJ) Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. Terminal blocks are excluded.
6. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load ratio.
7. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
8. The rated current is 2.9 A when the servo amplifier is used with UL or CSA compliant servo motor.
9. Fully closed loop control is compatible with the servo amplifiers with software version A3 or later.
10. The command communication cycle depends on the controller specifications and the number of axes connected.
11. The value in brackets is applicable when cooling fans (2 units of 92 mm × 92 mm, minimum air flow: 1.0 m^3/min) are installed, and then [Pr. PA02] is changed.
12. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "1-Axis Servo Amplifier Model Designation" in this catalog for details.
13. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
14. This function is available with the servo amplifiers with software version A8 or later.
15. This value is applicable for 750 W or smaller servo amplifiers in 200 V class when a 3-phase power supply is used.
16. This function is available with the servo amplifiers with software version B4 or later.

MR-J4-DU_B/MR-J4-DU_B-RJ (SSCNET III/H Interface) Specifications (200 V)

B B-RJ

Drive unit model MR-J4-_(-RJ)			DU30KB	DU37KB
Compatible converter unit model			MR-CR55K (Note 5)	
Output	Rated voltage		3-phase 170 V AC	
	Rated current	[A]	174	204
Main circuit power supply input			Main circuit power is supplied from the converter unit to the drive unit (Note 5)	
Control circuit power supply input	Voltage/frequency		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz	
	Rated current	[A]	0.3	
	Permissible voltage fluctuation		1-phase 170 V AC to 264 V AC	
	Permissible frequency fluctuation		±5% maximum	
	Power consumption	[W]	45	
Interface power supply			24 V DC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))	
Control method			Sine-wave PWM control/current control method	
Dynamic brake			External option (Note 4)	
SSCNET III/H command communication cycle (Note 3)			0.222 ms, 0.444 ms, 0.888 ms	
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)	
Encoder output pulse			Compatible (A/B/Z-phase pulse)	
Analog monitor			2 channels	
Fully closed loop control	MR-J4-DU_B		Two-wire type communication method	
	MR-J4-DU_B-RJ		Two-wire/four-wire type communication method	
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function, scale measurement function, J3 compatibility mode, super trace control, lost motion compensation	
Load-side encoder interface	MR-J4-DU_B		Mitsubishi high-speed serial communication	
	MR-J4-DU_B-RJ		Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal	
Protective functions			Overcurrent shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection,	
Functional safety			STO (IEC/EN 61800-5-2)	
Safety performance	Standards certified by CB		EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2	
	Response performance		8 ms or less (STO input OFF → energy shut-off)	
	Test pulse input (STO) (Note 2)		Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum	
	Mean time to dangerous failure (MTTFd)		100 years or longer	
	Diagnostic coverage (DC)		Medium (90% to 99%)	
	Probability of dangerous Failure per Hour (PFH)		1.68×10^{-10} [1/h]	
Compliance to standards			Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.	
Structure (IP rating)			Force cooling, open (IP20) (Note 1)	
Close mounting			Not possible	
Environment	Ambient temperature		Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)	
	Ambient humidity		Operation/storage: 90 %RH maximum (non-condensing)	
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude		1000 m or less above sea level	
	Vibration resistance		5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Mass		[kg]	21	

Notes: 1. Terminal blocks are excluded.
2. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the drive unit instantaneously at regular intervals.
3. The command communication cycle depends on the controller specifications and the number of axes connected.
4. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
5. One unit of converter unit is required for each drive unit. Refer to "MR-CR Converter Unit Specifications (200 V/400 V)" on p. 1-14 in this catalog for the specifications of the converter unit.

MR-J4-B4/MR-J4-B4-RJ (SSCNET III/H Interface) Specifications (400 V)

B B-RJ

Servo amplifier model MR-J4-_(-RJ)			60B4	100B4	200B4	350B4	500B4	700B4	11KB4	15KB4	22KB4
Output	Rated voltage		3-phase 323 V AC								
	Rated current	[A]	1.5	2.8	5.4	8.6	14.0	17.0	32.0	41.0	63.0
Main circuit power supply input	Voltage/frequency (Note 1)		3-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated current	[A]	1.4	2.5	5.1	7.9	10.8	14.4	23.1	31.8	47.6
	Permissible voltage fluctuation		3-phase 323 V AC to 528 V AC								
	Permissible frequency fluctuation		±5% maximum								
Control circuit power supply input	Voltage/frequency		1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated current	[A]	0.1			0.2					
	Permissible voltage fluctuation		1-phase 323 V AC to 528 V AC								
	Permissible frequency fluctuation		±5% maximum								
	Power consumption	[W]	30			45					
Interface power supply			24 V DC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))								
Control method			Sine-wave PWM control/current control method								
Tolerable regenerative power	Built-in regenerative resistor (Note 2, 3)	[W]	15	15	100	100	130 (Note 11)	170 (Note 11)	-	-	-
	External regenerative resistor (standard accessory) (Note 2, 3, 8, 9)	[W]	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic brake			Built-in (Note 4)						External option (Note 10)		
SSCNET III/H command communication cycle (Note 7)			0.222 ms, 0.444 ms, 0.888 ms								
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)								
Encoder output pulse			Compatible (A/B/Z-phase pulse)								
Analog monitor			2 channels								
Fully closed loop control	MR-J4-B4		Two-wire type communication method								
	MR-J4-B4-RJ		Two-wire/four-wire type communication method								
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function (Note 12), scale measurement function (Note 12), J3 compatibility mode, super trace control (Note 13), lost motion compensation (Note 13)								
Load-side encoder interface	MR-J4-B4		Mitsubishi high-speed serial communication								
	MR-J4-B4-RJ		Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal								
Protective functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection								
Functional safety			STO (IEC/EN 61800-5-2)								
Safety performance	Standards certified by CB		EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2								
	Response performance		8 ms or less (STO input OFF → energy shut-off)								
	Test pulse input (STO) (Note 6)		Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum								
	Mean time to dangerous failure (MTTFd)		100 years or longer								
	Diagnostic coverage (DC)		Medium (90% to 99%)								
	Probability of dangerous Failure per Hour (PFH)		1.68×10^{-10} [1/h]								
Compliance to standards			Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.								
Structure (IP rating)			Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (Note 5)				
Close mounting			Not possible								
Environment	Ambient temperature		Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)								
	Ambient humidity		Operation/storage: 90 %RH maximum (non-condensing)								
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Altitude		1000 m or less above sea level								
	Vibration resistance		5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Mass		[kg]	1.7	1.7	2.1	3.6	4.3	6.5	13.4	13.4	18.2

MR-J4-B4/MR-J4-B4-RJ (SSCNET III/H Interface) Specifications (400 V)

B B-RJ

Notes: 1. Rated output and speed of a rotary servo motor, and continuous thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4-_B_(-RJ) Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. Terminal blocks are excluded.
6. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
7. The command communication cycle depends on the controller specifications and the number of axes connected.
8. The value in brackets is applicable when cooling fans (2 units of 92 mm × 92 mm, minimum air flow: 1.0 m^3/min) are installed, and then [Pr. PA02] is changed.
9. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "1-Axis Servo Amplifier Model Designation" in this catalog for details.
10. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
11. The servo amplifier built-in regenerative resistor is compatible with the maximum torque deceleration when the servo motor is used within the rated speed and the recommended load to motor inertia ratio. Contact your local sales office if the operating motor speed or the load to motor inertia ratio exceeds the rated speed or the recommended ratio.
12. This function is available with the servo amplifiers with software version A8 or later.
13. This function is available with the servo amplifiers with software version B4 or later.

MR-J4-DU_B4/MR-J4-DU_B4-RJ (SSCNET III/H Interface) Specifications (400 V)

B B-RJ

Drive unit model MR-J4-_(-RJ)			DU30KB4	DU37KB4	DU45KB4	DU55KB4
Compatible converter unit model			MR-CR55K4 (Note 5)			
Output	Rated voltage		3-phase 323 V AC			
	Rated current	[A]	87	102	131	143
Main circuit power supply input			Main circuit power is supplied from the converter unit to the drive unit (Note 5)			
Control circuit power supply input	Voltage/frequency		1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz			
	Rated current	[A]	0.2			
	Permissible voltage fluctuation		1-phase 323 V AC to 528 V AC			
	Permissible frequency fluctuation		±5% maximum			
	Power consumption	[W]	45			
Interface power supply			24 V DC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))			
Control method			Sine-wave PWM control/current control method			
Dynamic brake			External option (Note 4)			
SSCNET III/H command communication cycle (Note 3)			0.222 ms, 0.444 ms, 0.888 ms			
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)			
Encoder output pulse			Compatible (A/B/Z-phase pulse)			
Analog monitor			2 channels			
Fully closed loop control	MR-J4-DU_B4		Two-wire type communication method			
	MR-J4-DU_B4-RJ		Two-wire/four-wire type communication method			
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function, scale measurement function, J3 compatibility mode, super trace control, lost motion compensation			
Load-side encoder interface	MR-J4-DU_B4		Mitsubishi high-speed serial communication			
	MR-J4-DU_B4-RJ		Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal			
Protective functions			Overcurrent shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection,			
Functional safety			STO (IEC/EN 61800-5-2)			
Safety performance	Standards certified by CB		EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2			
	Response performance		8 ms or less (STO input OFF → energy shut-off)			
	Test pulse input (STO) (Note 2)		Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum			
	Mean time to dangerous failure (MTTFd)		100 years or longer			
	Diagnostic coverage (DC)		Medium (90% to 99%)			
	Probability of dangerous Failure per Hour (PFH)		1.68×10^{-10} [1/h]			
Compliance to standards			Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.			
Structure (IP rating)			Force cooling, open (IP20) (Note 1)			
Close mounting			Not possible			
Environment	Ambient temperature		Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)			
	Ambient humidity		Operation/storage: 90 %RH maximum (non-condensing)			
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude		1000 m or less above sea level			
	Vibration resistance		5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Mass		[kg]	16		19	

Notes: 1. Terminal blocks are excluded.
2. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the drive unit instantaneously at regular intervals.
3. The command communication cycle depends on the controller specifications and the number of axes connected.
4. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
5. One unit of converter unit is required for each drive unit. Refer to "MR-CR Converter Unit Specifications (200 V/400 V)" on p. 1-14 in this catalog for the specifications of the converter unit.

MR-CR Converter Unit Specifications (200 V/400 V)

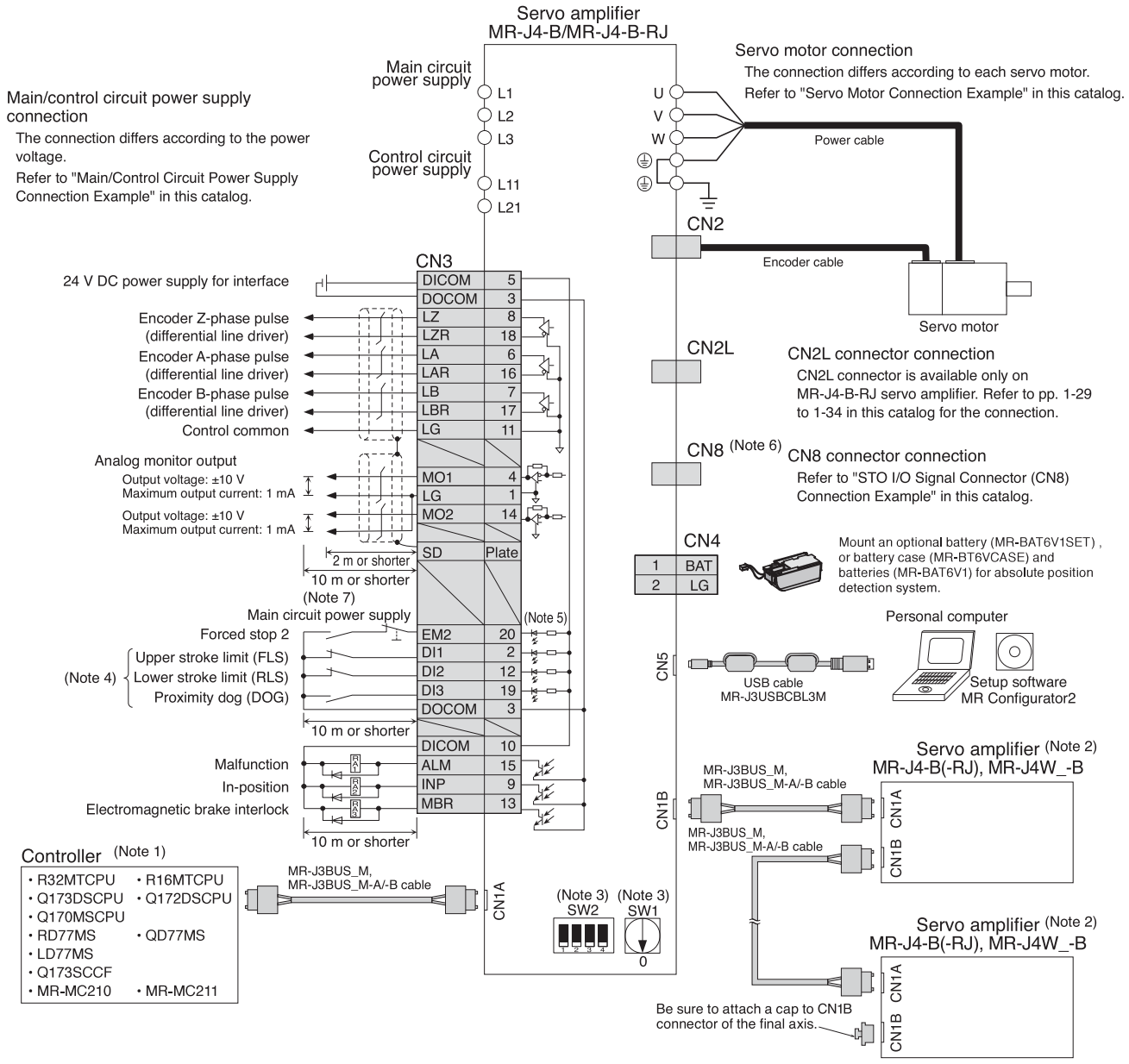
B B-RJ A A-RJ

Converter unit model			MR-CR55K	MR-CR55K4
Output	Rated voltage		270 V DC to 324 V DC	513V DC to 648 V DC
	Rated current	[A]	215.9	113.8
Main circuit power supply input	Voltage/frequency (Note 1)		3-phase 200 V AC to 240 V AC, 50 Hz/60 Hz	3-phase 380 V AC to 480 V AC, 50 Hz/60 Hz
	Rated current	[A]	191.3	100.7
	Permissible voltage fluctuation		3-phase 170 V AC to 264 V AC	3-phase 323 V AC to 528 V AC
	Permissible frequency fluctuation		±5% maximum	
Control circuit power supply input	Voltage/frequency		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz	1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz
	Rated current	[A]	0.3	0.2
	Permissible voltage fluctuation		1-phase 170 V AC to 264 V AC	1-phase 323 V AC to 528 V AC
	Permissible frequency fluctuation		±5% maximum	
	Power consumption	[W]	45	
Interface power supply			24 V DC ± 10% (required current capacity: 0.15 A)	
Rated output		[kW]	55	
Regenerative power (when regenerative option is used)			1300 W (one unit of MR-RB139) 3900 W (three units of MR-RB137)	1300 W (one unit of MR-RB137-4) 3900 W (three units of MR-RB13V-4)
Protective functions			Regenerative overvoltage shut-off, overload shut-off (electronic thermal), regenerative error protection, undervoltage protection, instantaneous power failure protection	
Compliance to standards			Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.	
Structure (IP rating)			Force cooling, open (IP20) (Note 2)	
Environment	Ambient temperature		Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)	
	Ambient humidity		Operation/storage: 90 %RH maximum (non-condensing)	
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude		1000 m or less above sea level	
	Vibration resistance		5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Mass		[kg]	22	

Notes: 1. Rated output and speed of a rotary servo motor are applicable when the servo amplifier, combined with the rotary servo motor, is operated within the specified power supply voltage and frequency.
2. Terminal blocks are excluded.

MR-J4-B/MR-J4-B-RJ Standard Wiring Diagram Example (Note 8)

B B-RJ



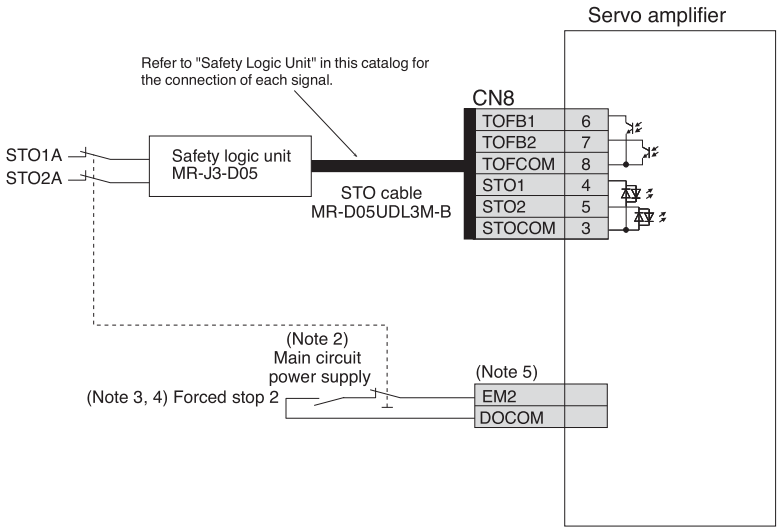
Notes: 1. For details such as setting the controllers, refer to programming manual or user's manual for the controllers.
2. Connections for the second and following axes are omitted.
3. Up to 64 axes are set by using a combination of an axis selection rotary switch (SW1) and auxiliary axis number setting switches (SW2-3 and SW2-4). Note that the number of the connectable axes depends on the controller specifications.
4. Devices can be assigned for DI1, DI2 and DI3 with controller setting. Refer to the controller instruction manuals for details on setting.
5. This is for sink wiring. Source wiring is also possible.
6. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
7. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
8. This standard wiring diagram is common for 200 V AC, 100 V AC and 400 V AC type servo amplifiers.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

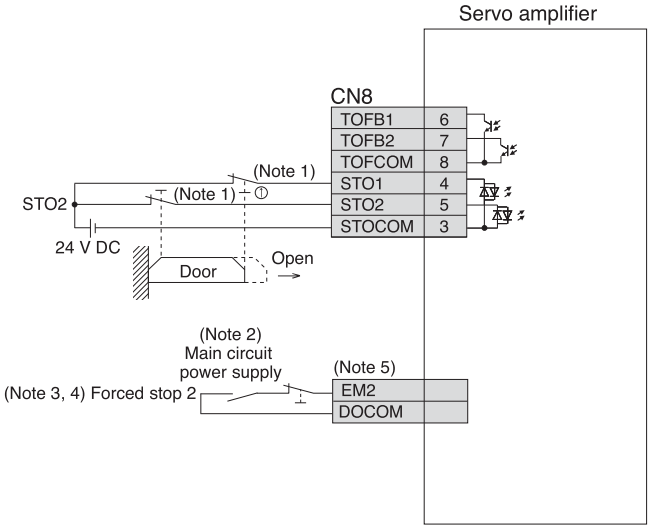
STO I/O Signal Connector (CN8) Connection Example

B | B-RJ | WB | B-RJ010 | A | A-RJ

●When used with MR-J3-D05



●When using a safety door



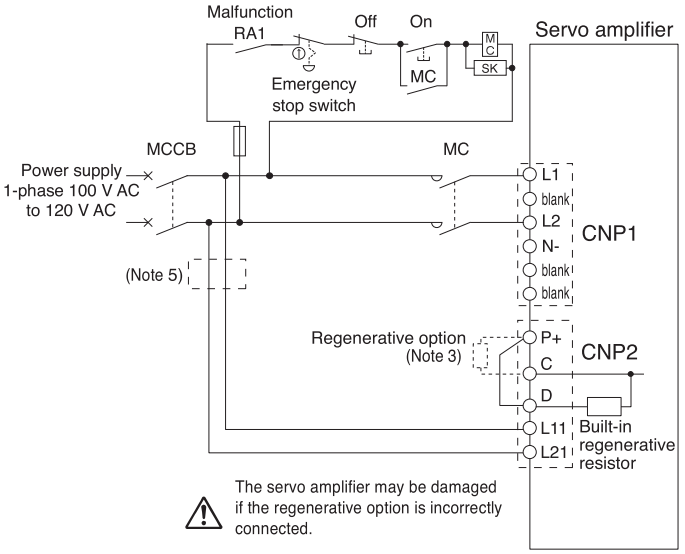
Notes: 1. When using the STO function, turn off STO1 and STO2 at the same time. Be sure to turn off STO1 and STO2 after the servo motor stops in servo-off state or after the servo motor stops with deceleration by turning off EM2 (Forced stop 2).
2. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
3. If the controller does not have a forced stop function, install a forced stop 2 switch (normally closed contact).
4. Turn on EM2 (Forced stop 2) before starting the operation.
5. The connector and the pin numbers for each signal vary depending on the servo amplifier. Refer to the standard wiring diagram example for relevant servo amplifier in this catalog for details.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

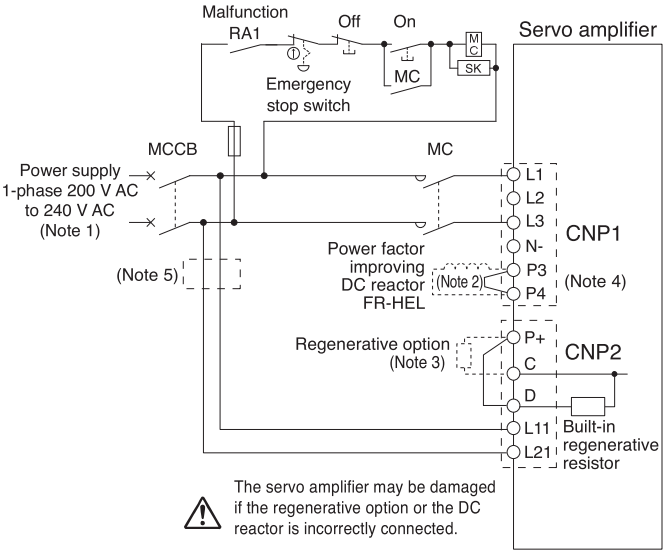
Main/Control Circuit Power Supply Connection Example (Note 7)

B | B-RJ | B-RJ010 | A | A-RJ

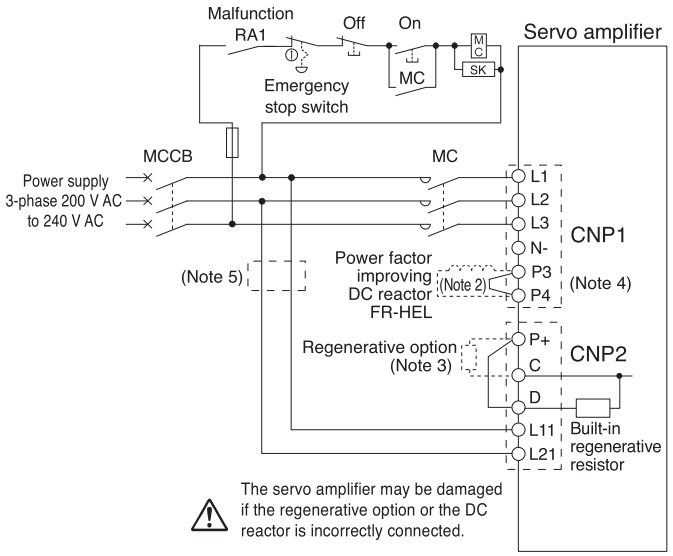
●For 1-phase 100 V AC



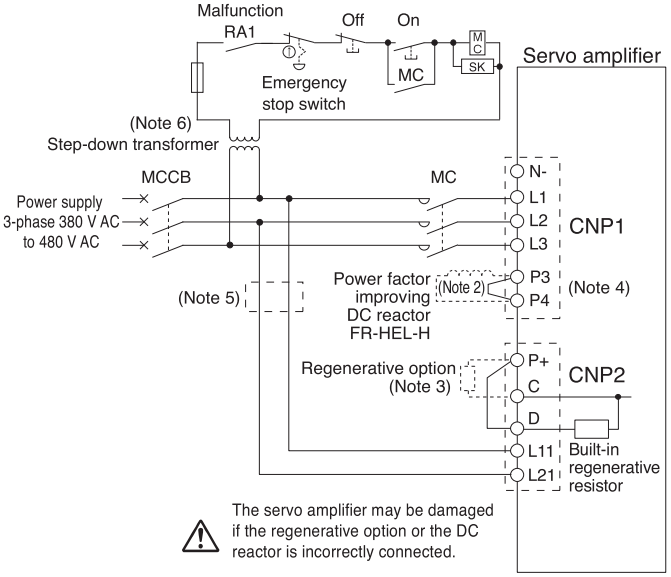
●For 1-phase 200 V AC



●For 3-phase 200 V AC, 3.5 kW or smaller



●For 3-phase 400 V AC, 3.5 kW or smaller



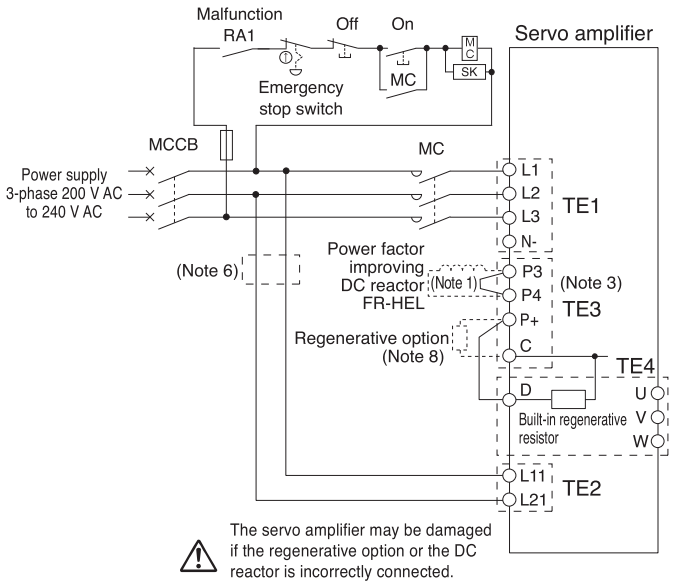
Notes: 1. For 1-phase 200 V AC to 240 V AC, connect the power supply to L1 and L3 terminals. Do not connect anything to L2. The connections are different from MR-J3 series servo amplifiers. Be careful not to make a connection error when replacing MR-J3 with MR-J4.
2. Disconnect a short-circuit bar between P3 and P4 when using the power factor improving DC reactor.
3. Disconnect a short-circuit bar between P+ and D when connecting the regenerative option externally.
4. MR-J4 series servo amplifiers have P3 and P4 in the upstream of the inrush current suppression circuit. They are different from P1 and P2 (downstream of the inrush current suppression circuit) of MR-J3 series servo amplifiers. Refer to relevant Servo Amplifier Instruction Manual for details.
5. When wires used for L11 and L21 are thinner than those for L1, L2, and L3, use a molded-case circuit breaker.
6. A step-down transformer is required if coil voltage of the magnetic contactor is in 200 V class.
7. To control main circuit power supply on/off by DC power supply, refer to relevant Servo Amplifier Instruction Manual for details.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Main/Control Circuit Power Supply Connection Example (Note 9)

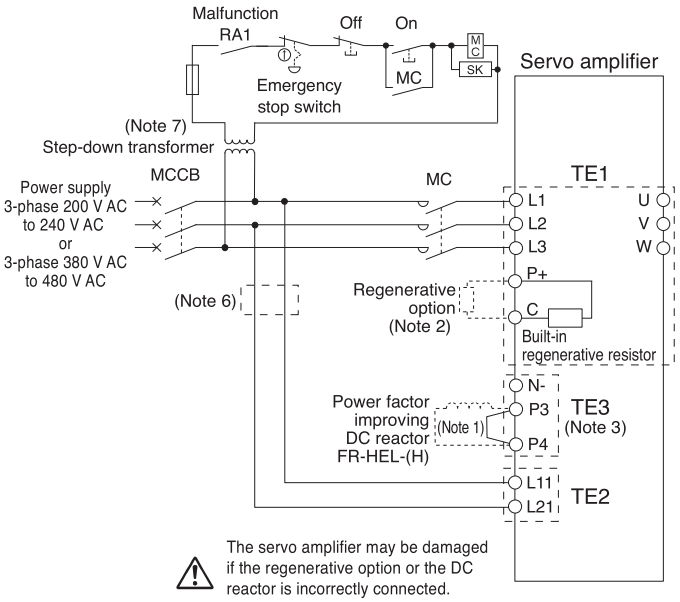
B | B-RJ | B-RJ010 | A | A-RJ

●For 3-phase 200 V AC, 5 kW

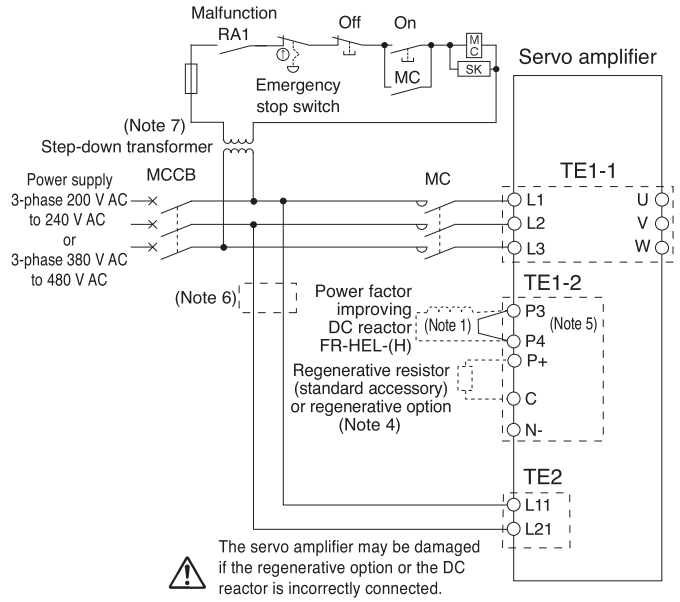


●For 3-phase 400 V AC, 5 kW

●For 3-phase 200 V AC/400 V AC, 7 kW



●For 3-phase 200 V AC/400 V AC, 11 kW to 22 kW



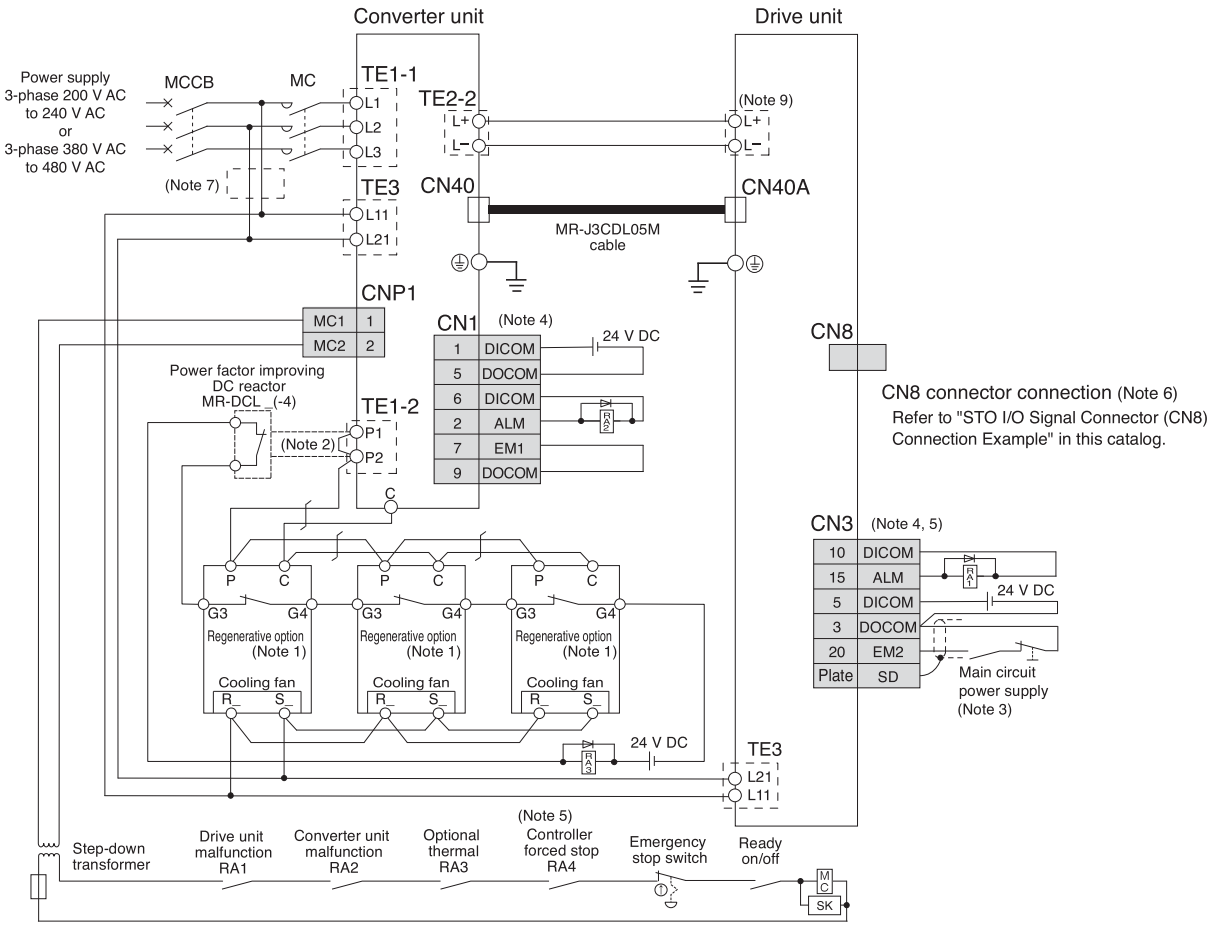
Notes: 1. Disconnect a short-circuit bar between P3 and P4 when using the power factor improving DC reactor.
2. Disconnect the wires for the built-in regenerative resistor (P+ and C) when connecting the regenerative option externally.
3. MR-J4 series servo amplifiers have P3 and P4 in the upstream of the inrush current suppression circuit. They are different from P1 and P2 (downstream of the inrush current suppression circuit) of MR-J3 series servo amplifiers. Refer to relevant Servo Amplifier Instruction Manual for details.
4. 11 kW or larger servo amplifiers do not have a built-in regenerative resistor.
5. MR-J4 series servo amplifiers have P3 and P4 in the upstream of the inrush current suppression circuit. They are different from P1 and P (downstream of the inrush current suppression circuit) of MR-J3 series servo amplifiers. Refer to relevant Servo Amplifier Instruction Manual for details.
6. When wires used for L11 and L21 are thinner than those for L1, L2, and L3, use a molded-case circuit breaker.
7. A step-down transformer is required if the servo amplifier is in 400 V class, and coil voltage of the magnetic contactor is in 200 V class.
8. Disconnect a short-circuit bar between P+ and D when connecting the regenerative option externally.
9. To control main circuit power supply on/off by DC power supply, refer to relevant Servo Amplifier Instruction Manual for details.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Main/Control Circuit Power Supply Connection Example (Note 8)

B B-RJ A A-RJ

●For 3-phase 200 V AC/400 V AC, 30 kW or larger



Notes: 1. This connection is applicable when MR-RB137 (for 200 V) or MR-RB13V-4 (for 400 V) is used. Note that three units of MR-RB137 or MR-RB13V-4 are required for each converter unit. (Permissible regenerative power: 3900 W)
2. Disconnect a short-circuit bar between P1 and P2 when using the power factor improving DC reactor.
3. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the drive unit.
4. This is for sink wiring. Source wiring is also possible.
5. This connection is applicable for MR-J4-DU_B/MR-J4-DU_B4. For MR-J4-DU_A/MR-J4-DU_A4, refer to "MR-J4-DU_(-RJ) MR-CR-55K_ Instruction Manual."
6. Be sure to attach a short-circuit connector supplied with the drive unit when the STO function is not used.
7. When wires used for L11 and L21 are thinner than those for L1, L2, and L3, use a molded-case circuit breaker.
8. To control main circuit power supply on/off by DC power supply, refer to relevant Servo Amplifier Instruction Manual for details.
9. Terminal varies depending on the drive unit capacities. Refer to the dimensions of the relevant drive unit in this catalog for details.

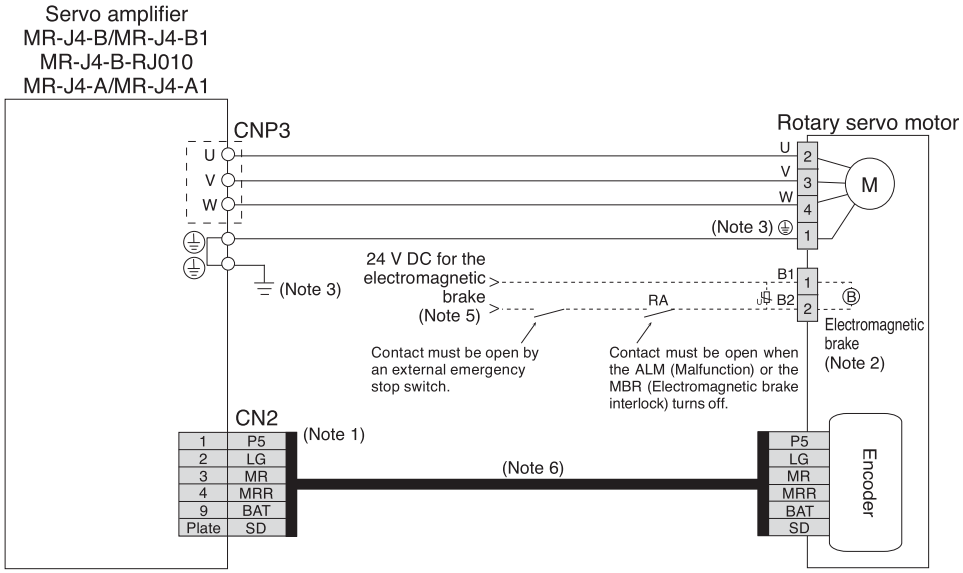
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

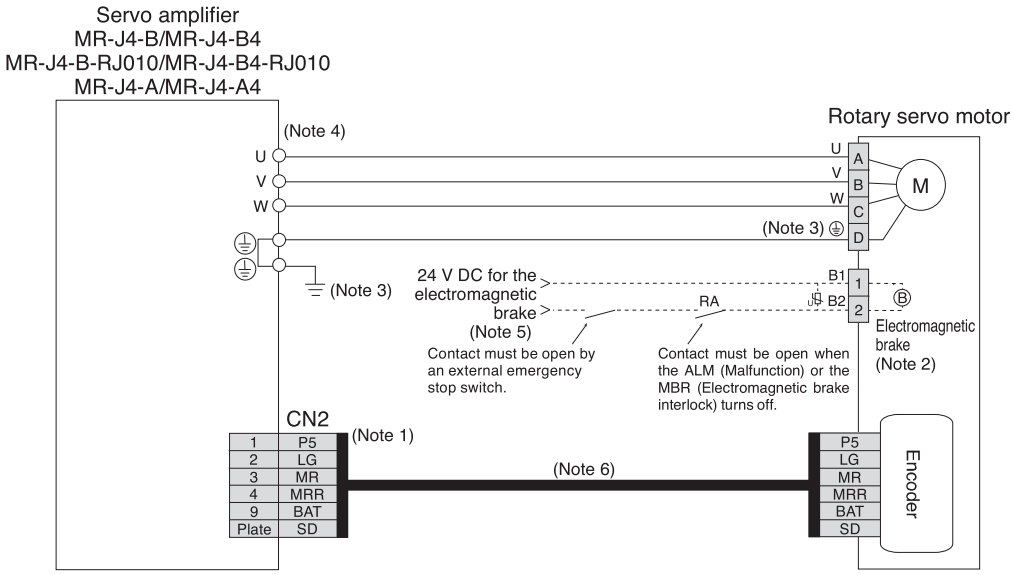
B | B-RJ010 | A

Semi Closed Loop Control System with MR-J4-B/MR-J4-B-RJ010/MR-J4-A

●For HG-KR/HG-MR series



●For HG-SR/HG-JR (9 kW or smaller) series



Notes: 1. The signals shown is applicable when using a two-wire type encoder cable. Four-wire type is also compatible.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
5. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
6. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.

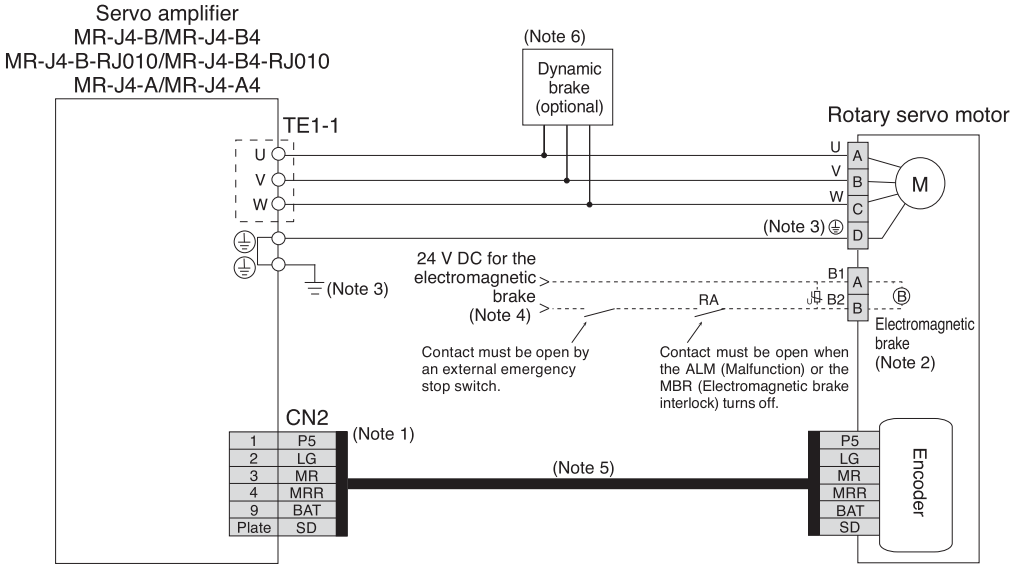
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

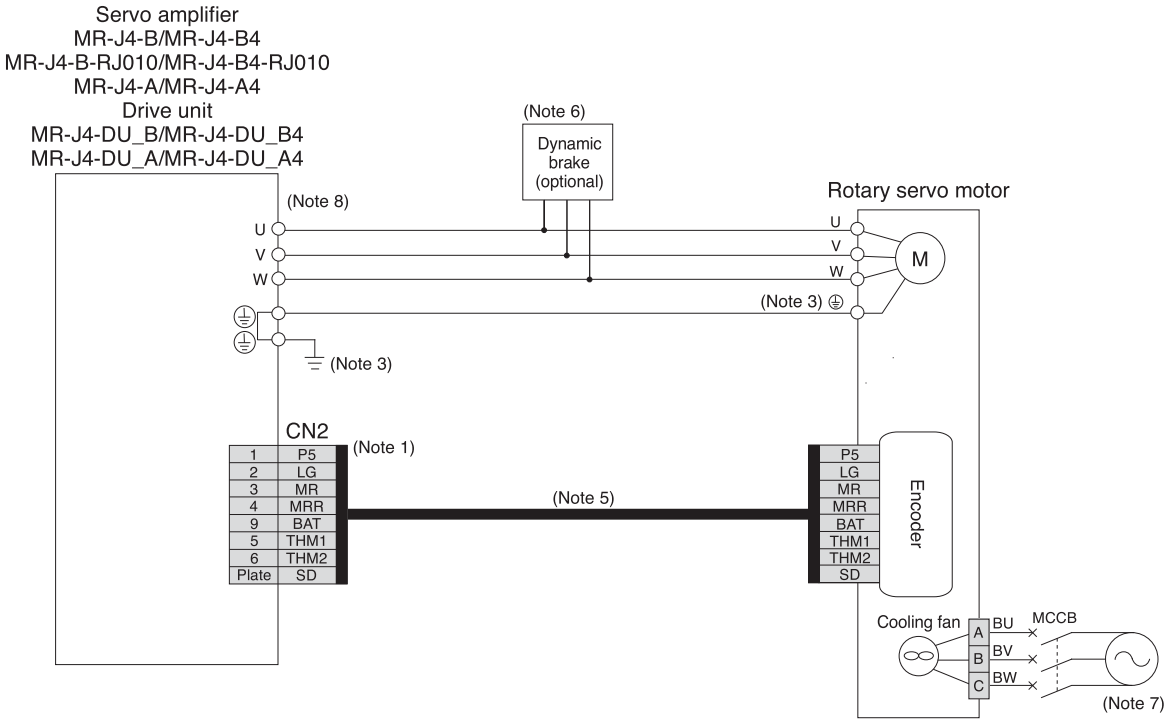
B | B-RJ010 | A

Semi Closed Loop Control System with MR-J4-B/MR-J4-B-RJ010/MR-J4-A

●For HG-JR 1500 r/min series (11 kW and 15 kW)



●For HG-JR 1000 r/min series (15 kW or larger) and HG-JR 1500r/min series (22 kW or larger)



Notes: 1. The signals shown is applicable when using a two-wire type encoder cable. Four-wire type is also compatible.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
5. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
6. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Refer to relevant Servo Amplifier Instruction Manual when wiring the dynamic brake.
7. Be sure to supply power to the cooling fan terminals. Refer to the cooling fan power supply described in the servo motor specifications in this catalog for the required power.
8. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.

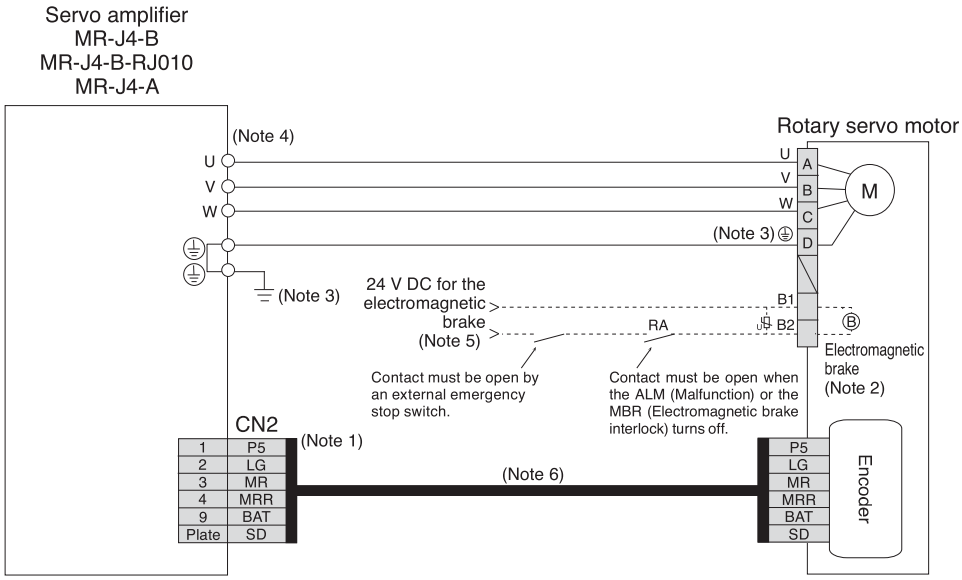
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

B | B-RJ010 | A

Semi Closed Loop Control System with MR-J4-B/MR-J4-B-RJ010/MR-J4-A

●For HG-RR/HG-UR series



Notes: 1. The signals shown is applicable when using a two-wire type encoder cable. Four-wire type is also compatible.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity. A separate connector from the motor power connector is prepared as an electromagnetic brake connector for HG-UR202B to HG-UR502B. The pin numbers vary depending on the servo motor capacity. Refer to the dimensions of the relevant servo motor in this catalog for details.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
5. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
6. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.

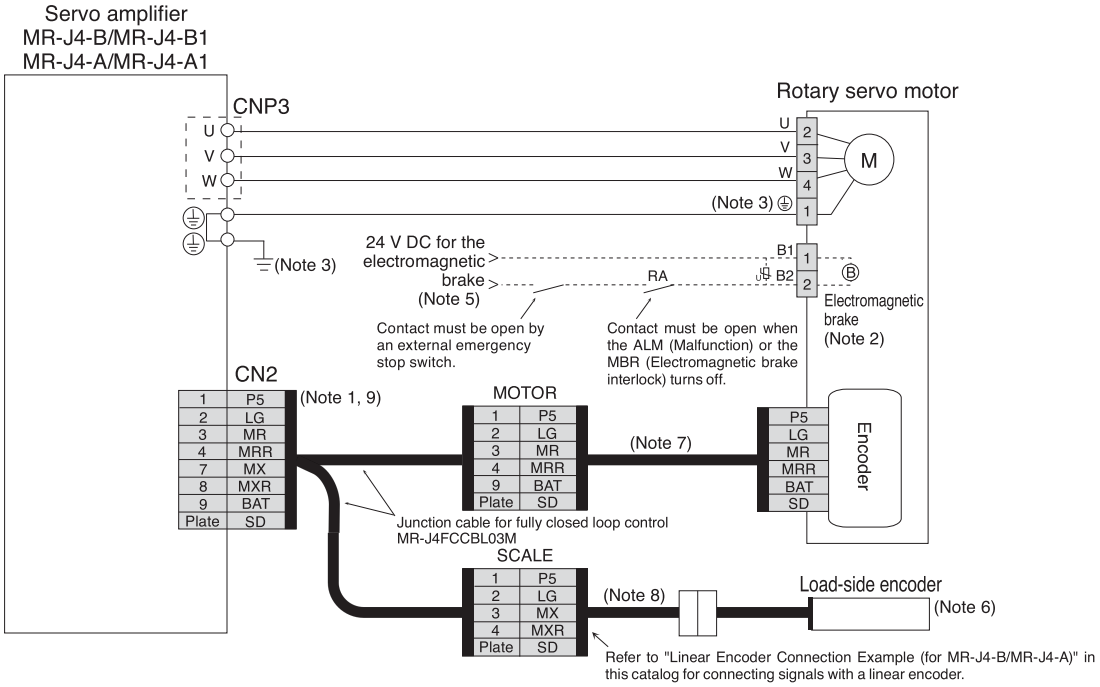
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

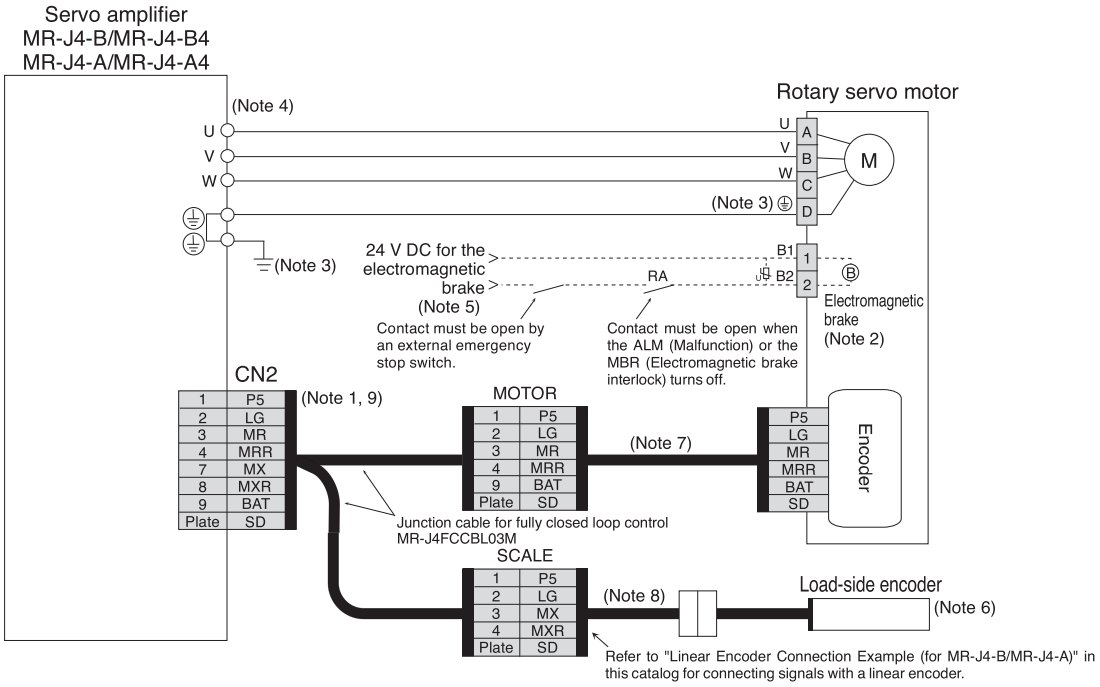
B A

Fully Closed Loop Control System with MR-J4-B/MR-J4-A

●For HG-KR/HG-MR series



●For HG-SR/HG-JR (9 kW or smaller) series



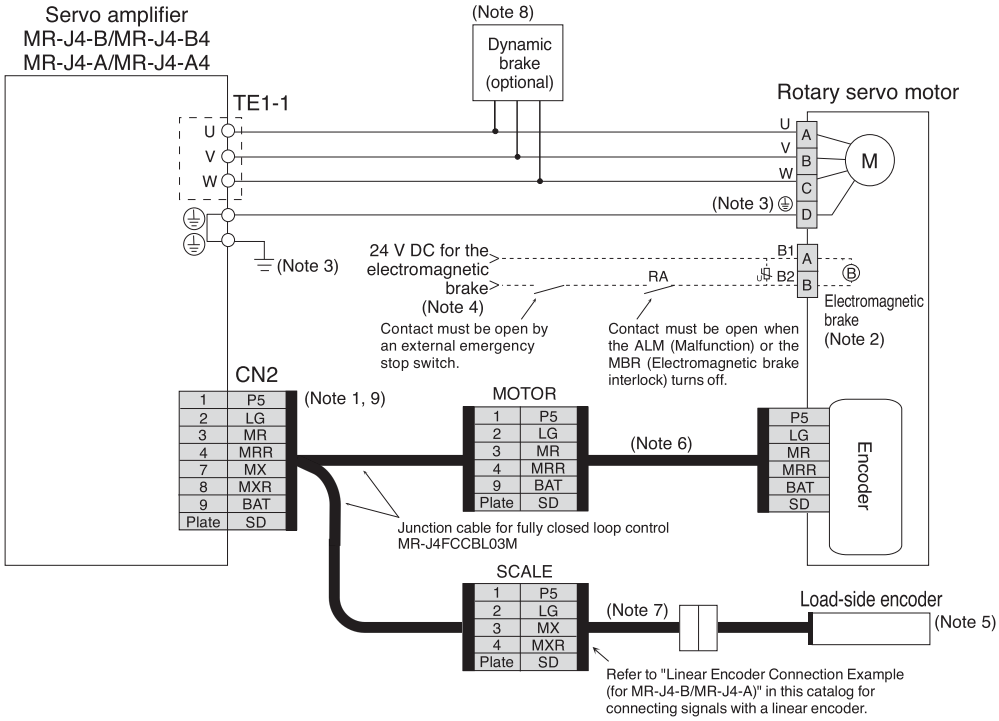
Notes: 1. For fully closed loop control, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
5. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
6. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
7. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
8. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
9. When configuring a fully closed loop control system with MR-J4-B_ or MR-J4-A_ servo amplifier, be sure to connect MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set to CN2 connector.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

Fully Closed Loop Control System with MR-J4-B/MR-J4-A

●For HG-JR 1500 r/min series (11 kW and 15 kW)



Notes: 1. For fully closed loop control, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
5. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
6. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
7. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
8. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Refer to relevant Servo Amplifier Instruction Manual when wiring the dynamic brake.
9. When configuring a fully closed loop control system with MR-J4-B_/MR-J4-A_ servo amplifier, be sure to connect MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set to CN2 connector.

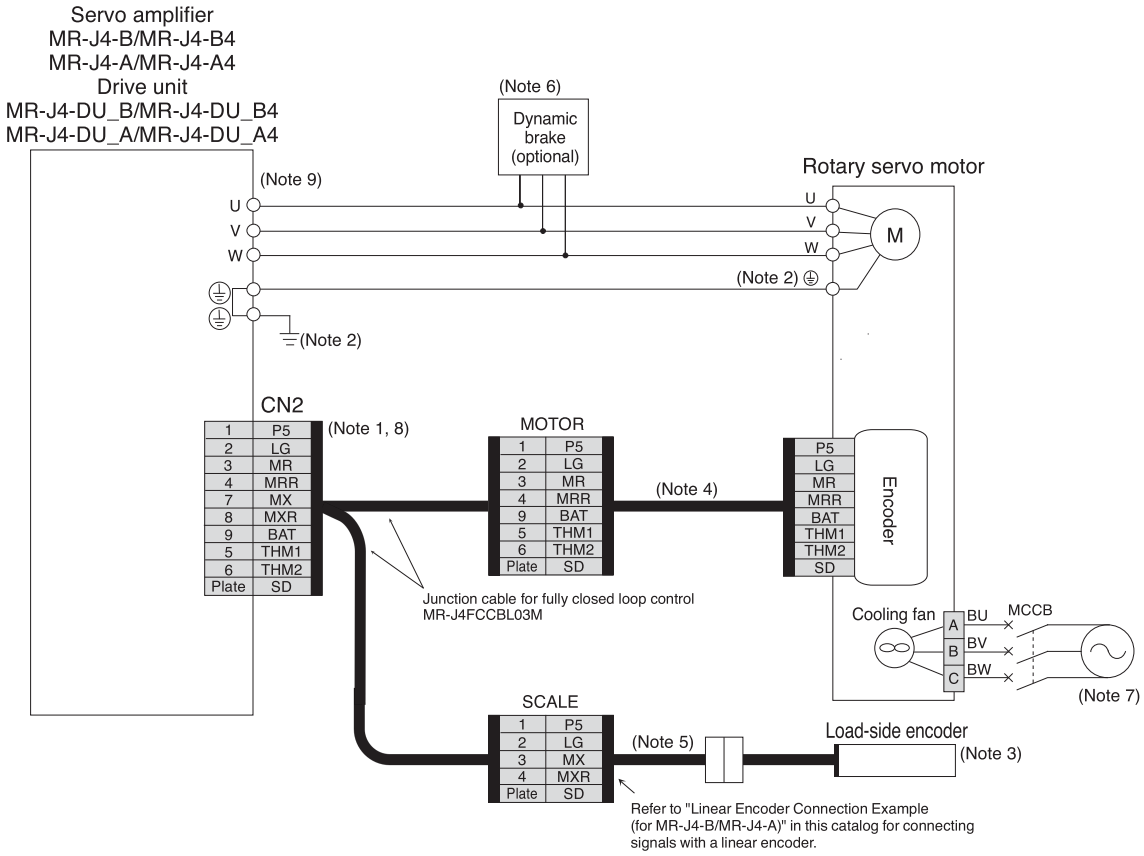
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

B A

Fully Closed Loop Control System with MR-J4-B/MR-J4-A

●For HG-JR 1000 r/min series (15 kW or larger) and HG-JR 1500r/min series (22 kW or larger)



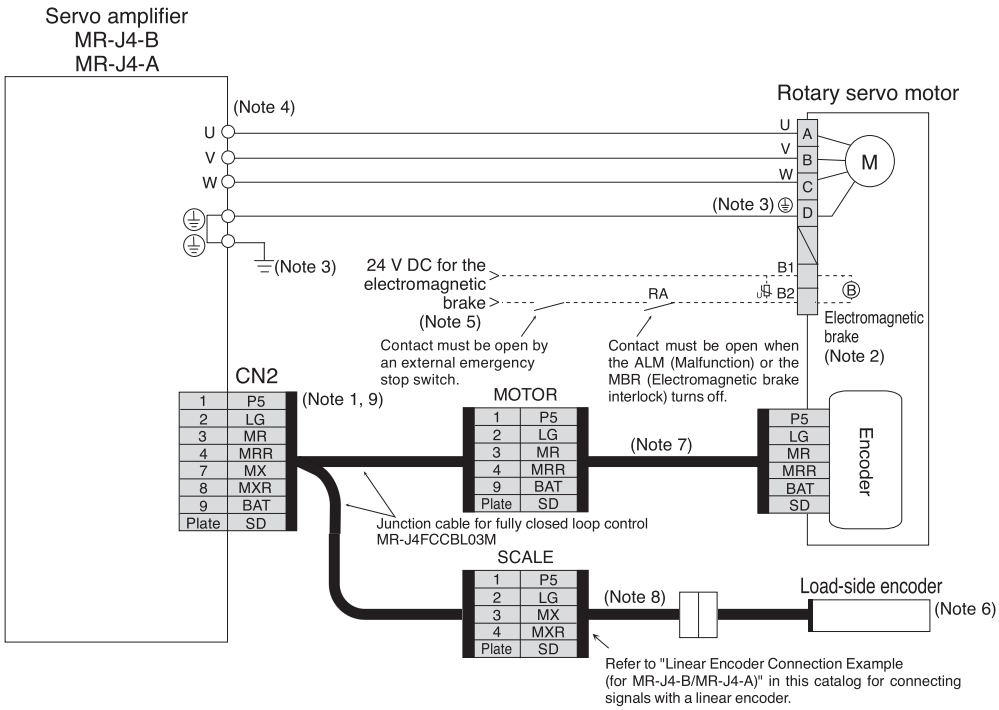
Notes: 1. For fully closed loop control, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
2. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
3. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
4. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
5. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
6. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Refer to relevant Servo Amplifier Instruction Manual when wiring the dynamic brake.
7. Be sure to supply power to the cooling fan terminals. Refer to the cooling fan power supply described in the servo motor specifications in this catalog for the required power.
8. When configuring a fully closed loop control system with MR-J4-B_/MR-J4-A_ servo amplifier, be sure to connect MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set to CN2 connector.
9. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

Fully Closed Loop Control System with MR-J4-B/MR-J4-A

●For HG-RR/HG-UR series



Notes: 1. For fully closed loop control, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity. A separate connector from the motor power connector is prepared as an electromagnetic brake connector for HG-UR202B to HG-UR502B. The pin numbers vary depending on the servo motor capacity. Refer to the dimensions of the relevant servo motor in this catalog for details.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
5. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
6. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
7. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
8. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
9. When configuring a fully closed loop control system with MR-J4-B/MR-J4-A servo amplifier, be sure to connect MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set to CN2 connector.

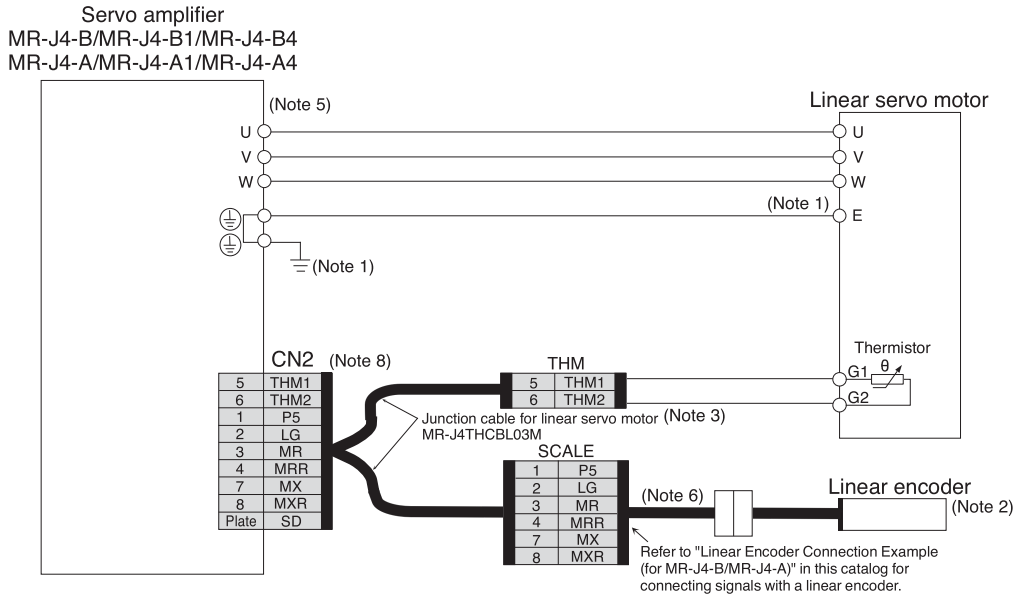
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Linear Servo Motor)

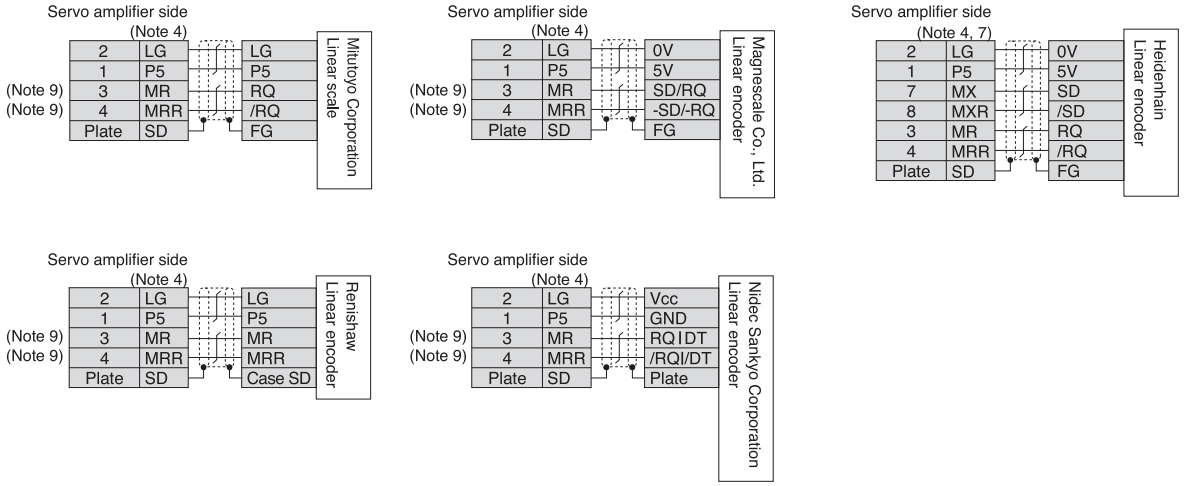
B A

Linear Servo Motor System with MR-J4-B/MR-J4-A

●For LM-H3/LM-F/LM-K2/LM-U2 series



Linear Encoder Connection Example (for MR-J4-B/MR-J4-A)



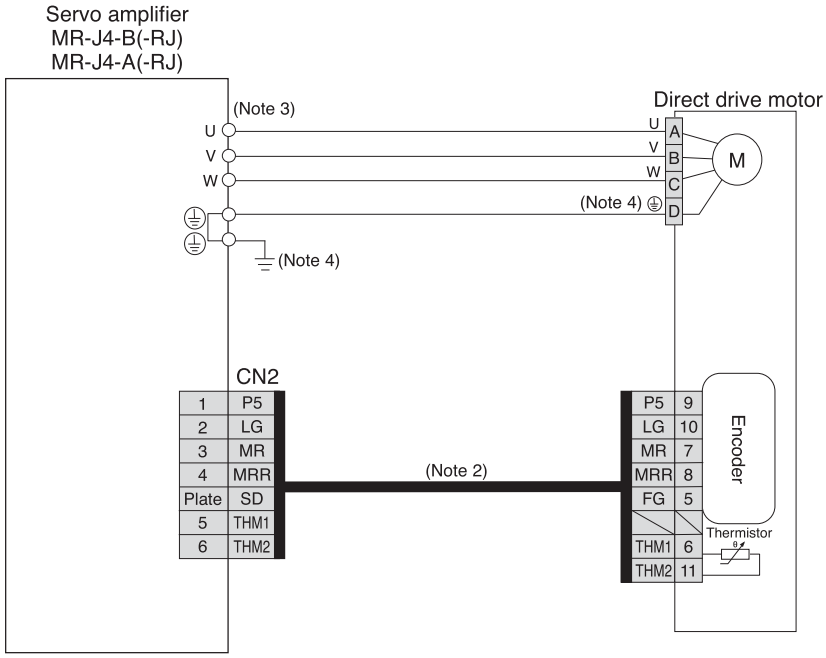
Notes: 1. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
2. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog.
3. MR-J4THCBL03M junction cable for linear servo motor is compatible with both two-wire and four-wire type linear encoders.
4. For the number of the wire pairs for LG and P5, refer to "Linear Encoder Instruction Manual."
5. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
6. Necessary encoder cables vary depending on the linear encoder. Refer to relevant Instruction Manual.
7. When fully closed loop control is configured with a rotary servo motor, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
8. When using a linear servo motor with MR-J4-B_/MR-J4-A_ servo amplifier, be sure to connect MR-J4THCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set to CN2 connector.
9. For the fully closed loop control, the signals of 3-pin and 4-pin are as follows:
3-pin: MX
4-pin: MXR

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

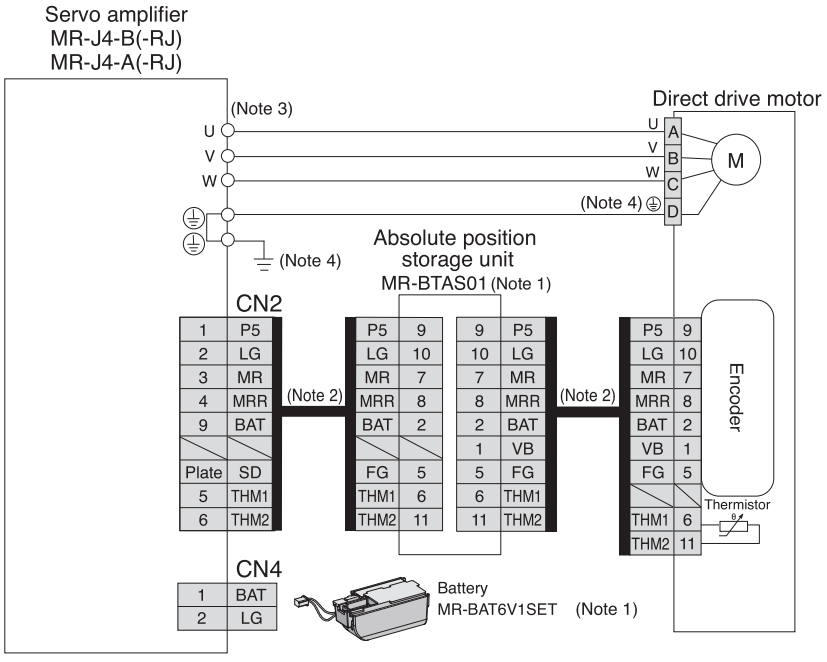
Servo Motor Connection Example (Direct Drive Motor)

B B-RJ A A-RJ

●For TM-RFM series (incremental system)



●For TM-RFM series (absolute position detection system)



Notes: 1. Optional MR-BTAS01 absolute position storage unit and MR-BAT6V1SET battery are required for absolute position detection system. Refer to relevant Servo Amplifier Instruction Manual and "Direct Drive Motor Instruction Manual" for details.
2. Fabricate this encoder cable. Refer to "Direct Drive Motor Instruction Manual" for fabricating the encoder cable.
3. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
4. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Encoder Connection Specifications

B B-RJ WB A A-RJ

When configuring a linear servo motor system or a fully closed loop control system, or when using the scale measurement function, use the servo amplifier with the following software version.
Refer to the following tables for the encoder communication method compatible with each system and for the servo amplifier connector to which a load-side encoder should be connected.

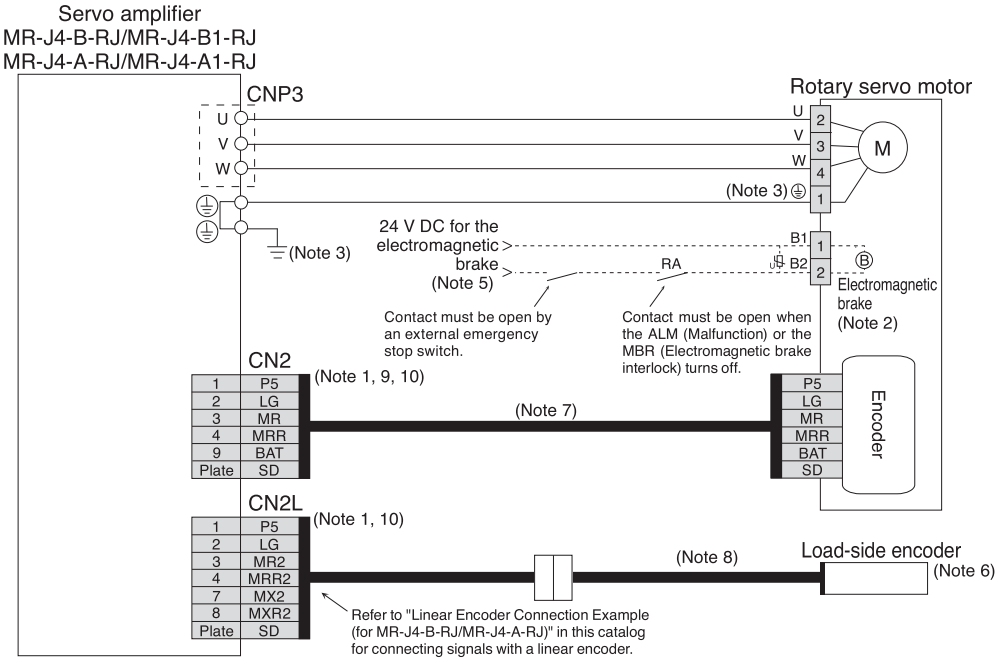
Operation mode	External encoder communication method	Connector to be connected with the external encoder					
		MR-J4-B_ MR-J4-DU_B_	MR-J4-B_-RJ MR-J4-DU_B_-RJ	MR-J4-A_ MR-J4-DU_A_	MR-J4-A_-RJ MR-J4-DU_A_-RJ	MR-J4W2-B	MR-J4W3-B
Linear servo motor system (Note 9)	Two-wire type	CN2 (Note 1)	CN2 (Note 1)	CN2 (Note 1, 6)	CN2 (Note 1)	CN2A (Note 1) CN2B (Note 1)	CN2A (Note 1) CN2B (Note 1) CN2C (Note 1)
	Four-wire type						
	A/B/Z-phase differential output type		CN2L (Note 8)		CN2L (Note 8)		
Fully closed loop control system	Two-wire type	CN2 (Note 2, 3, 5)	CN2L	CN2 (Note 2, 3, 6)	CN2L	CN2A (Note 2, 4, 5) CN2B (Note 2, 4, 5)	
	Four-wire type						
	A/B/Z-phase differential output type						
Scale measurement function	Two-wire type	CN2 (Note 2, 3, 7)	CN2L (Note 7)			CN2A (Note 2, 4, 7) CN2B (Note 2, 4, 7)	
	Four-wire type						
	A/B/Z-phase differential output type						

Notes: 1. MR-J4THCBL03M junction cable is required.
2. MR-J4FCCBL03M junction cable is required.
3. MR-J4-B_/MR-DU_B_/MR-J4-A_/MR-J4-DU_A_ servo amplifier is not compatible with a servo motor encoder with four-wire type communication method. Use MR-J4-B_-RJ/MR-DU_B_-RJ/MR-J4-A_-RJ/MR-J4-DU_A_-RJ servo amplifier.
4. MR-J4W2-B servo amplifier is not compatible with a servo motor encoder with four-wire communication method. Use MR-J4-B-RJ servo amplifier.
5. The servo amplifier with software version A3 or later is compatible.
6. The servo amplifier with software version A5 or later is compatible.
7. The servo amplifier with software version A8 or later is compatible.
8. Connect a thermistor to CN2 connector.
9. Refer to pp. 1-3 to 1-6 in this catalog for servo amplifier that is compatible with linear servo motors.

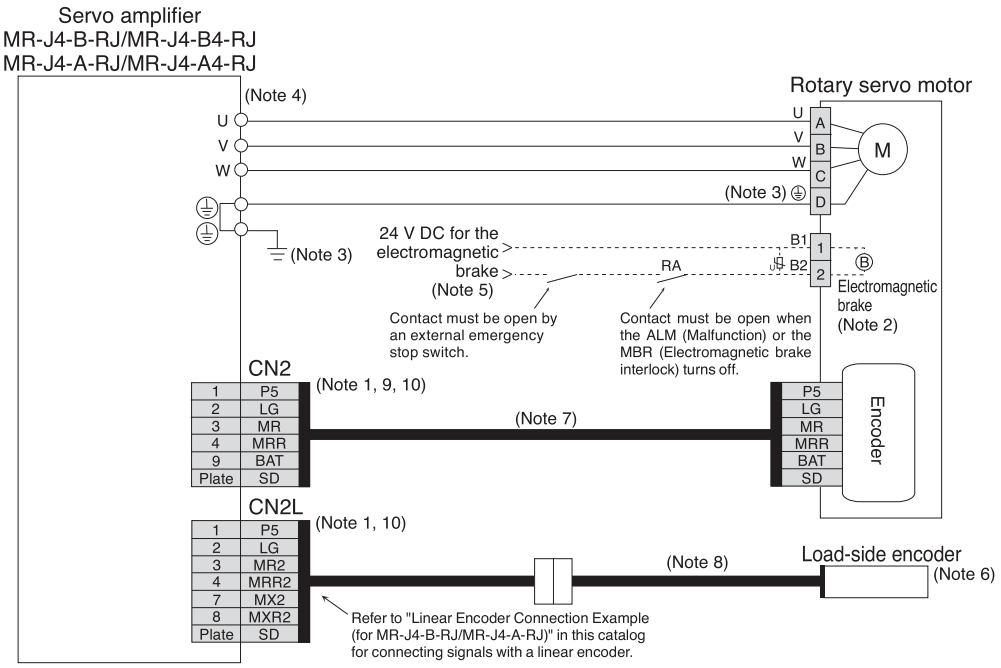
Servo Motor Connection Example (Rotary Servo Motor)

Fully Closed Loop Control System with MR-J4-B-RJ/MR-J4-A-RJ

●For HG-KR/HG-MR series



●For HG-SR/HG-JR (9 kW or smaller) series



Notes: 1. The load-side encoder and the servo motor encoder are compatible with both two-wire and four-wire type communication methods.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
5. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
6. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
7. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
8. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
9. This wiring of the servo motor encoder is applicable for the two-wire type communication method.
10. When configuring a fully closed loop control system with MR-J4-B_-RJ or MR-J4-A_-RJ servo amplifier, be sure to connect a servo motor encoder to CN2 connector and a load-side encoder to CN2L connector. Do not use MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set.

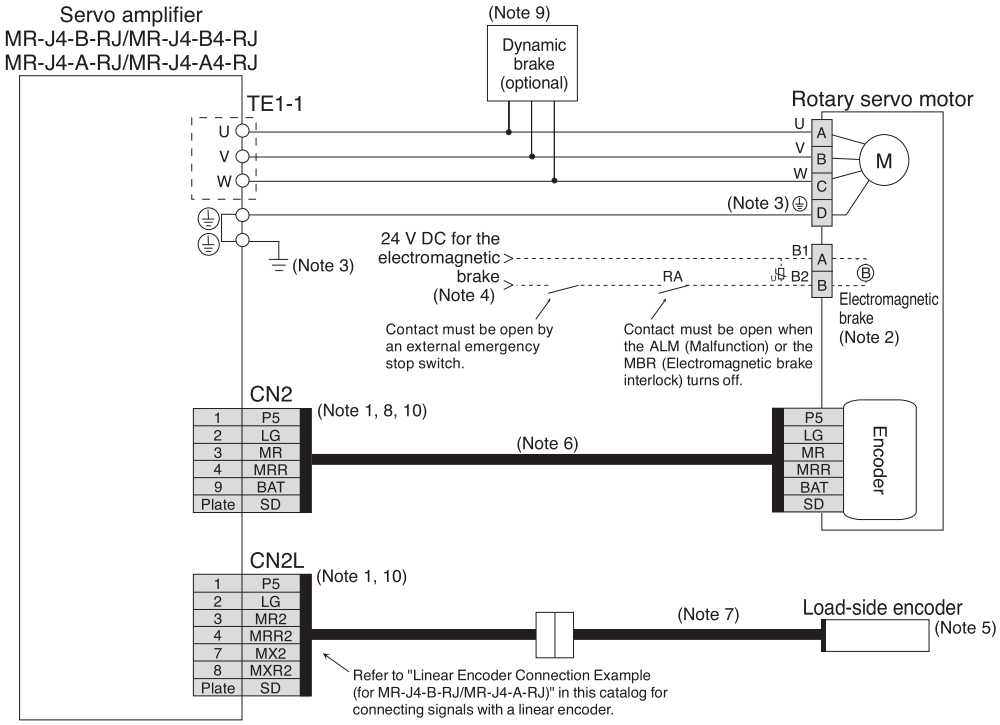
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

B-RJ A-RJ

Fully Closed Loop Control System with MR-J4-B-RJ/MR-J4-A-RJ

●For HG-JR 1500 r/min series (11 kW and 15 kW)



Notes: 1. The load-side encoder and the servo motor encoder are compatible with both two-wire and four-wire type communication methods.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
5. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
6. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
7. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
8. This wiring of the servo motor encoder is applicable for the two-wire type communication method.
9. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Refer to relevant Servo Amplifier Instruction Manual when wiring the dynamic brake.
10. When configuring a fully closed loop control system with MR-J4-B_-RJ/MR-J4-A_-RJ servo amplifier, be sure to connect a servo motor encoder to CN2 connector and a load-side encoder to CN2L connector. Do not use MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set.

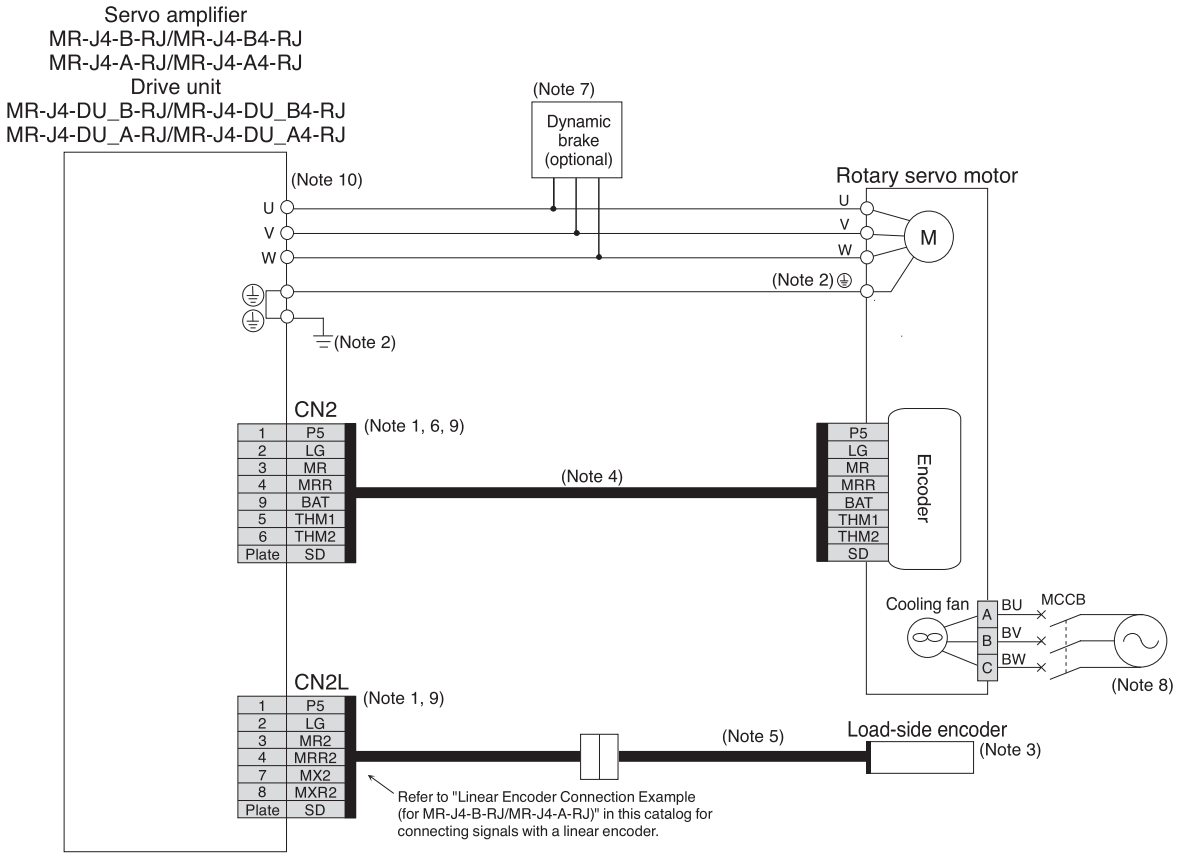
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

B-RJ A-RJ

Fully Closed Loop Control System with MR-J4-B-RJ/MR-J4-A-RJ

●For HG-JR 1000 r/min series (15 kW or larger) and HG-JR 1500r/min series (22 kW or larger)



Notes: 1. The load-side encoder and the servo motor encoder are compatible with both two-wire and four-wire type communication methods.
2. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
3. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
4. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
5. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
6. This wiring of the servo motor encoder is applicable for the two-wire type communication method.
7. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Refer to relevant Servo Amplifier Instruction Manual when wiring the dynamic brake.
8. Be sure to supply power to the cooling fan terminals. Refer to the cooling fan power supply described in the servo motor specifications in this catalog for the required power.
9. When configuring a fully closed loop control system with MR-J4-B_-RJ/MR-J4-A_-RJ servo amplifier, be sure to connect a servo motor encoder to CN2 connector and a load-side encoder to CN2L connector. Do not use MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set.
10. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.

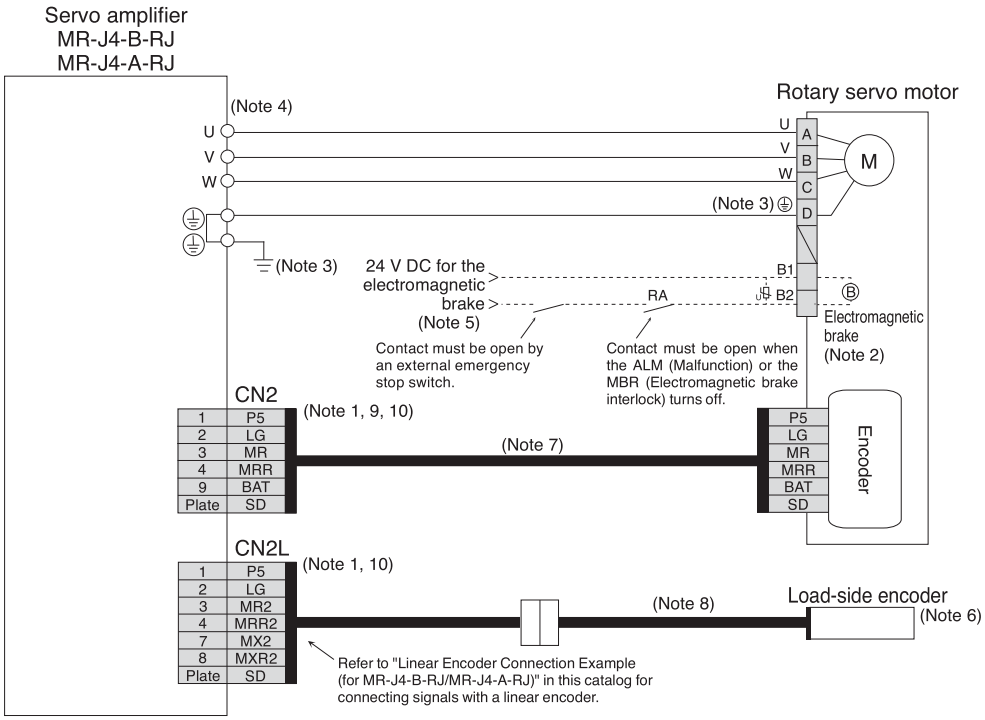
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor)

B-RJ A-RJ

Fully Closed Loop Control System with MR-J4-B-RJ/MR-J4-A-RJ

●For HG-RR/HG-UR series



Notes: 1. The load-side encoder and the servo motor encoder are compatible with both two-wire and four-wire type communication methods.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity. A separate connector from the motor power connector is prepared as an electromagnetic brake connector for HG-UR202B to HG-UR502B. The pin numbers vary depending on the servo motor capacity. Refer to the dimensions of the relevant servo motor in this catalog for details.
3. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
4. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
5. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
6. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to relevant Servo Amplifier Instruction Manual for the fully closed loop control with a rotary encoder.
7. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
8. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
9. This wiring of the servo motor encoder is applicable for the two-wire type communication method.
10. When configuring a fully closed loop control system with MR-J4-B-RJ/MR-J4-A-RJ servo amplifier, be sure to connect a servo motor encoder to CN2 connector and a load-side encoder to CN2L connector. Do not use MR-J4FCCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set.

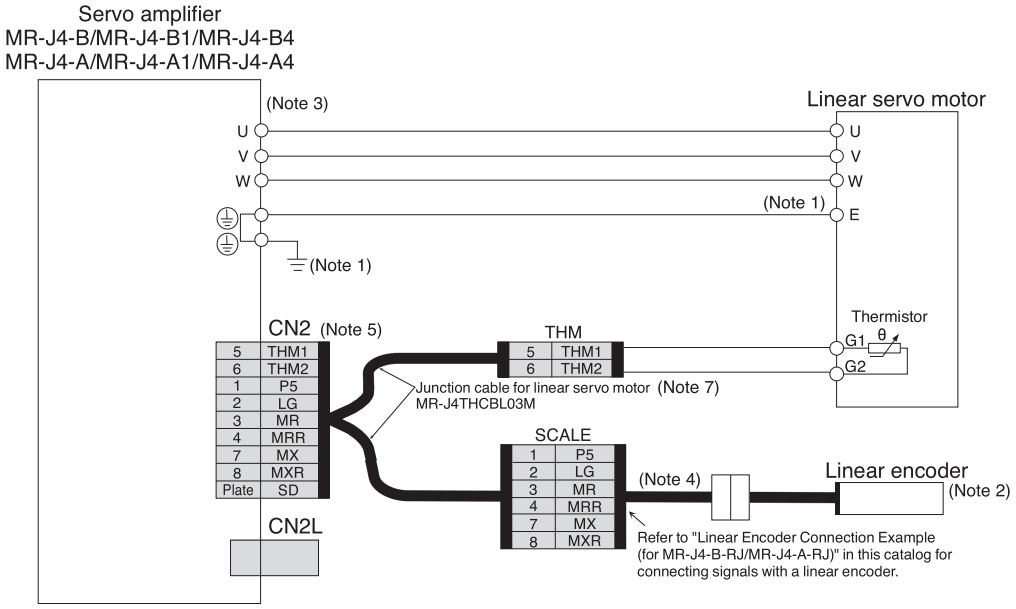
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Linear Servo Motor)

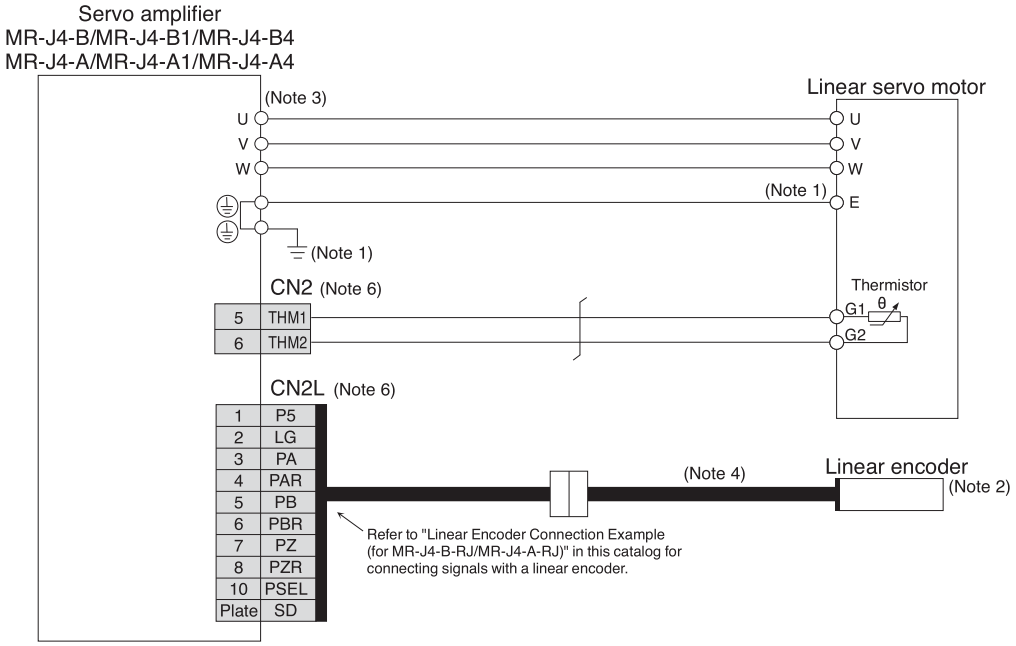
B-RJ A-RJ

Linear Servo Motor System with MR-J4-B-RJ/MR-J4-A-RJ (LM-H3, LM-F, LM-K2, LM-U2 Series)

●Connecting a serial linear encoder



●Connecting an A/B/Z-phase differential output linear encoder

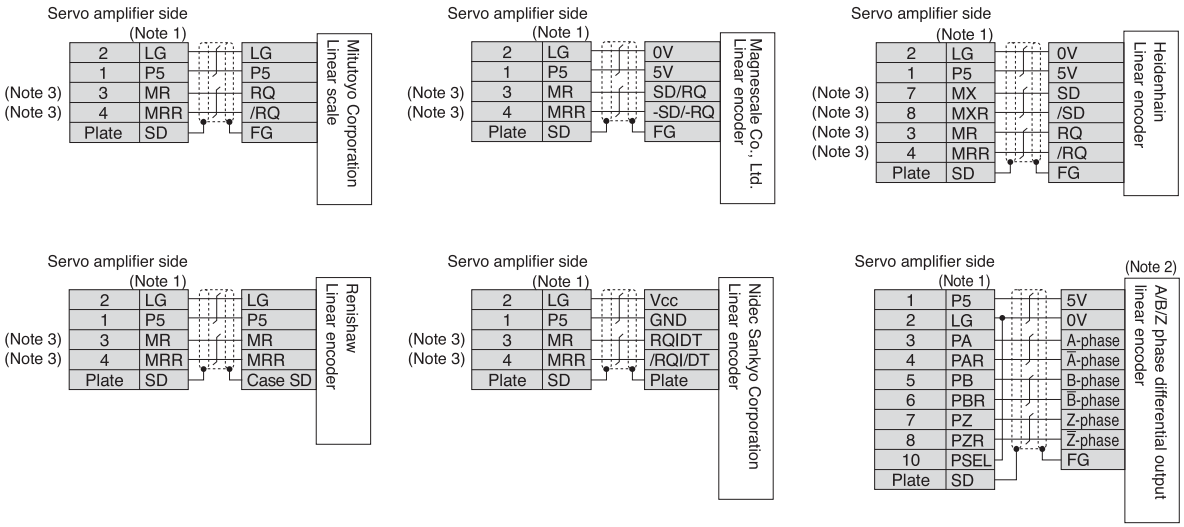


Notes: 1. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier protective earth (PE) terminal for grounding.
2. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog.
3. Connector or terminal varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
4. Necessary encoder cables vary depending on the linear encoder. Refer to "Linear Encoder Instruction Manual."
5. When configuring a linear servo system with MR-J4-B_-RJ/MR-J4-A_-RJ servo amplifier and a serial linear encoder, be sure to connect MR-J4THCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set to CN2 connector.
6. When configuring a linear servo system with MR-J4-B_-RJ/MR-J4-A_-RJ servo amplifier and an A/B/Z-phase differential output type linear encoder, be sure to connect a thermistor to CN2 connector and the linear encoder to CN2L connector. Do not use MR-J4THCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set.
7. MR-J4THCBL03M junction cable for linear servo motor is compatible with two-wire and four-wire type linear encoders.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Linear Encoder Connection Example (for MR-J4-B-RJ/MR-J4-A-RJ)

B-RJ A-RJ



Notes: 1. For the number of the wire pairs for LG and P5, refer to "Linear Encoder Instruction Manual."
2. If the encoder's current consumption exceeds 350 mA, supply power from an external source.
3. For CN2L connector, the signals of 3-pin, 4-pin, and 7-pin, and 8-pin are as follows:
3-pin: MR2
4-pin: MRR2
7-pin: MX2
8-pin: MXR2

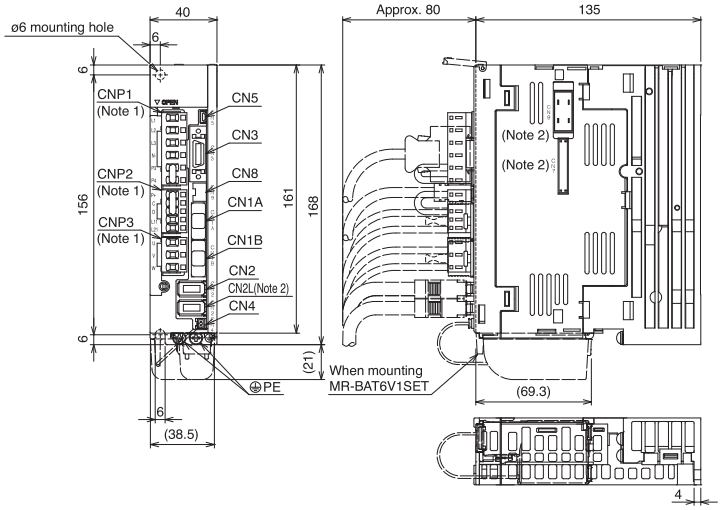
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

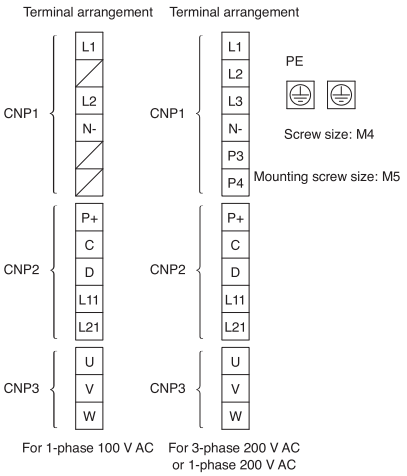
MR-J4-B/MR-J4-B-RJ Dimensions

B B-RJ

●MR-J4-10B, MR-J4-10B-RJ, MR-J4-10B1, MR-J4-10B1-RJ

●MR-J4-20B, MR-J4-20B-RJ, MR-J4-20B1, MR-J4-20B1-RJ

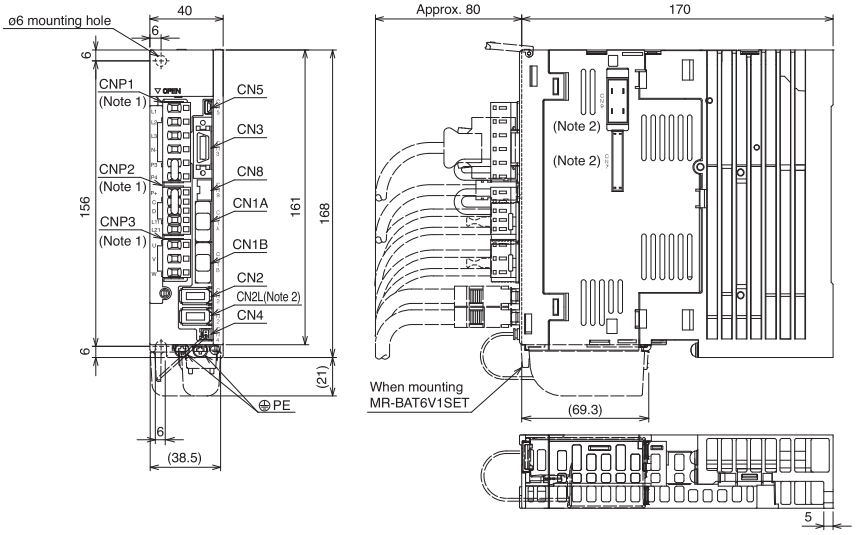


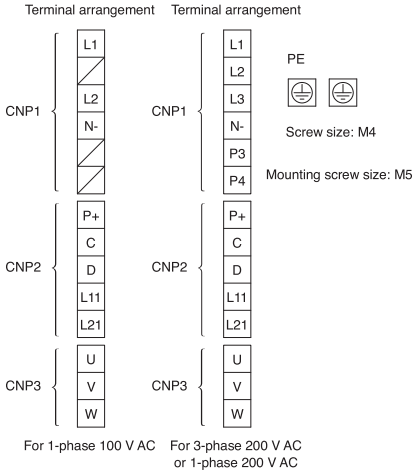


[Unit: mm]

●MR-J4-40B, MR-J4-40B-RJ, MR-J4-40B1, MR-J4-40B1-RJ

●MR-J4-60B, MR-J4-60B-RJ

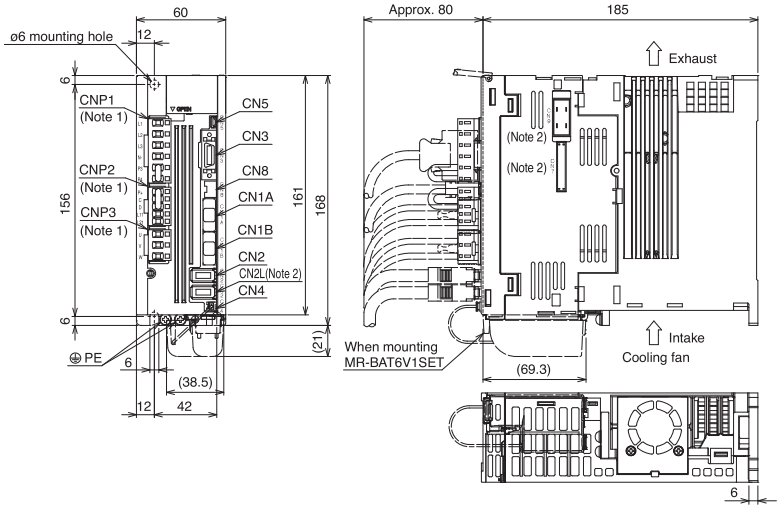


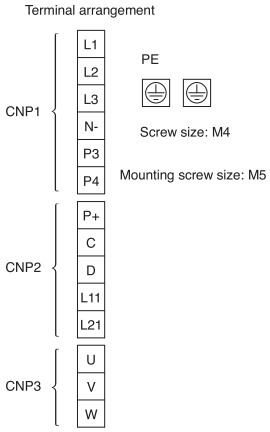


[Unit: mm]

●MR-J4-70B, MR-J4-70B-RJ

●MR-J4-100B, MR-J4-100B-RJ





[Unit: mm]

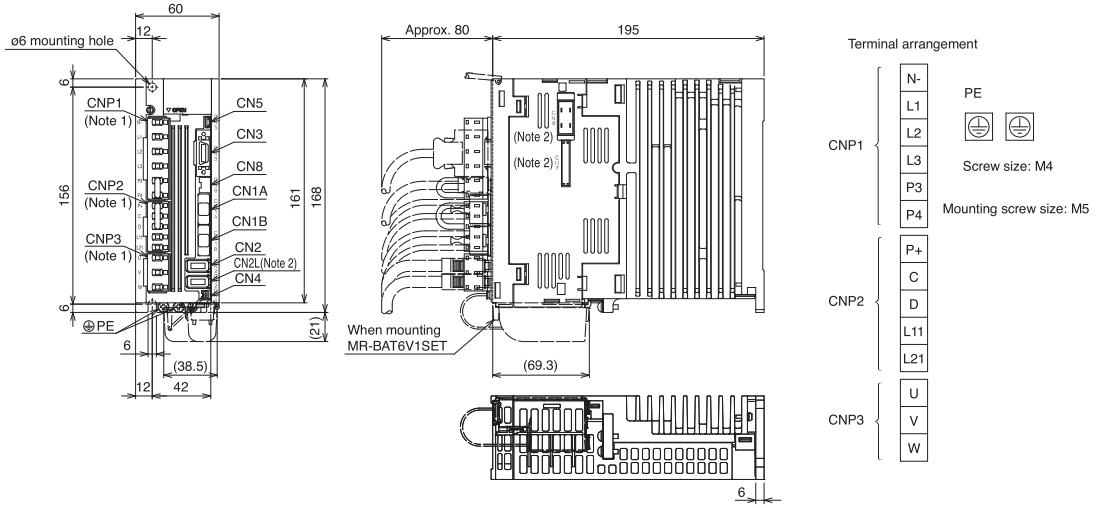
Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. CN2L, CN7, and CN9 connectors are not available for MR-J4-B servo amplifier.

MR-J4-B/MR-J4-B-RJ Dimensions

B B-RJ

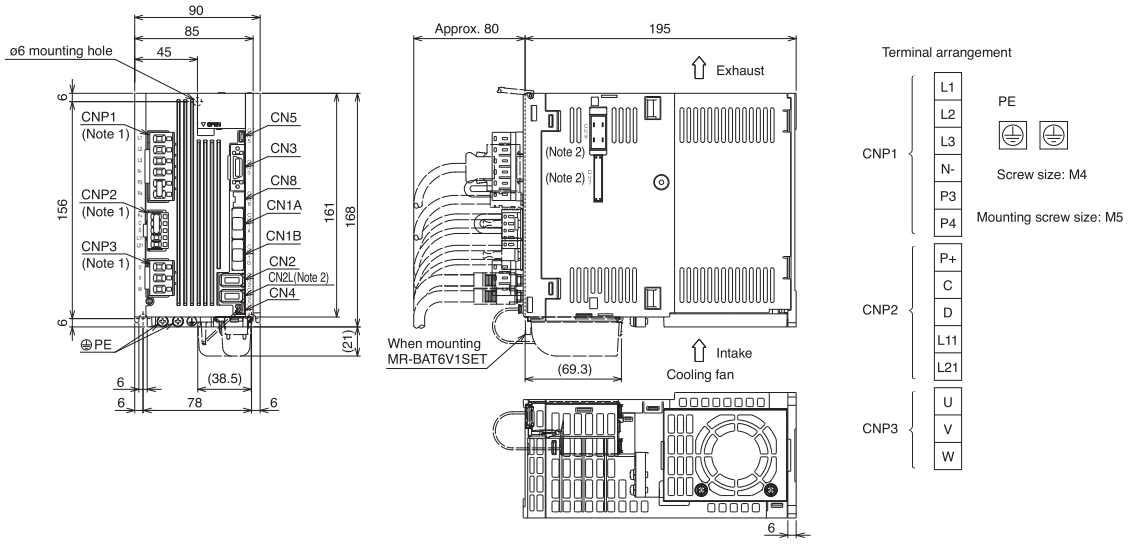
●MR-J4-60B4, MR-J4-60B4-RJ

●MR-J4-100B4, MR-J4-100B4-RJ



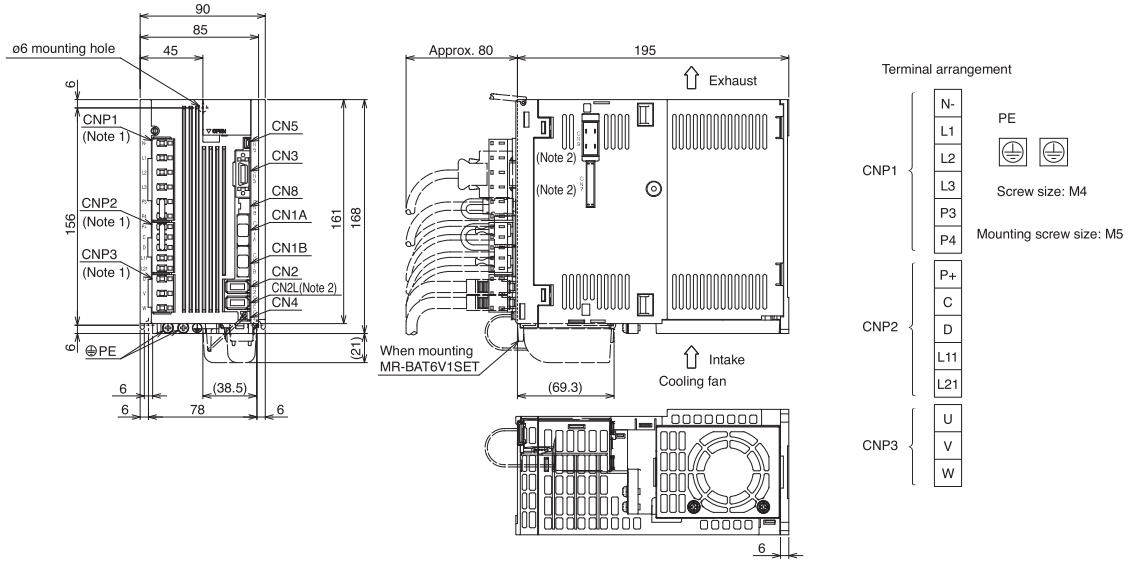
[Unit: mm]

●MR-J4-200B, MR-J4-200B-RJ



[Unit: mm]

●MR-J4-200B4, MR-J4-200B4-RJ



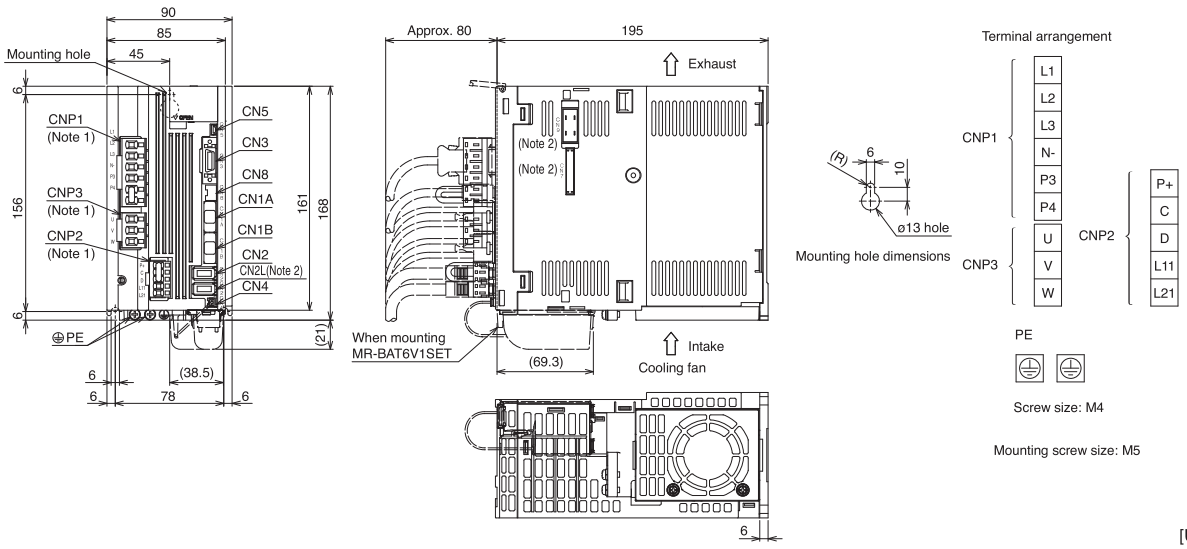
[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. CN2L, CN7, and CN9 connectors are not available for MR-J4-B servo amplifier.

MR-J4-B/MR-J4-B-RJ Dimensions

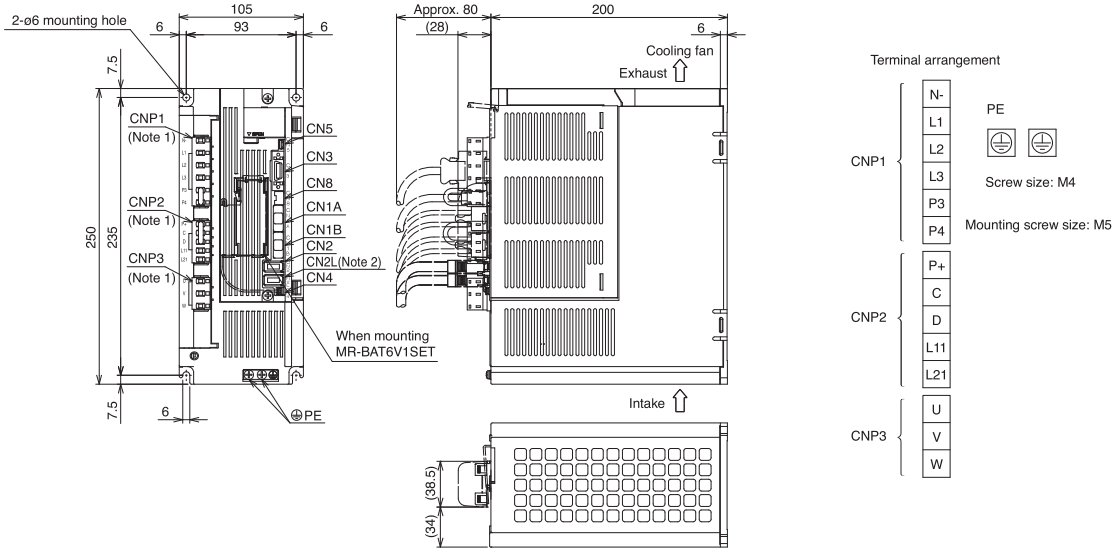
B B-RJ

●MR-J4-350B, MR-J4-350B-RJ



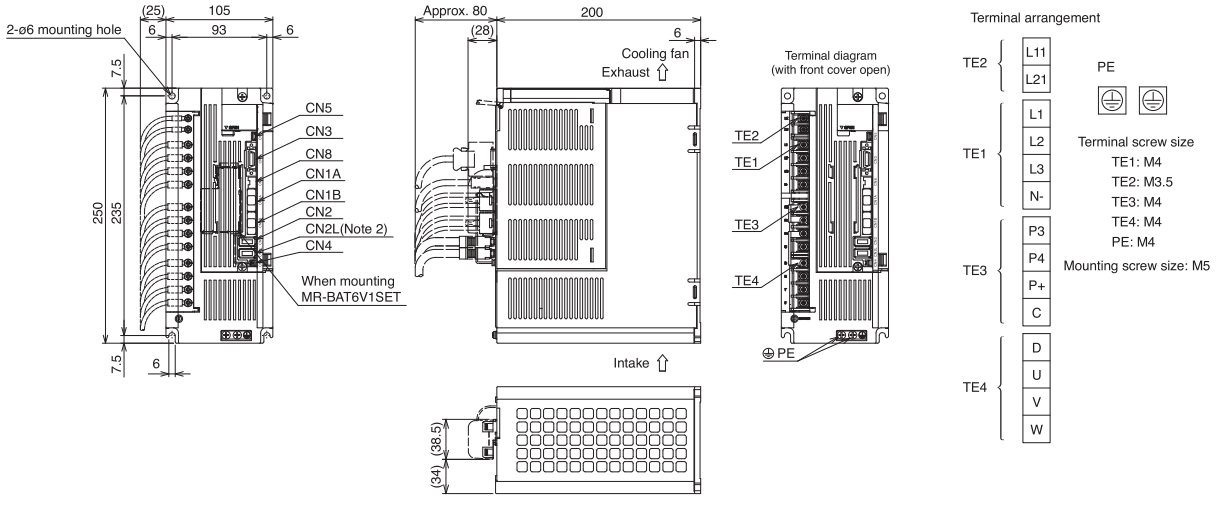
[Unit: mm]

●MR-J4-350B4, MR-J4-350B4-RJ



[Unit: mm]

●MR-J4-500B, MR-J4-500B-RJ



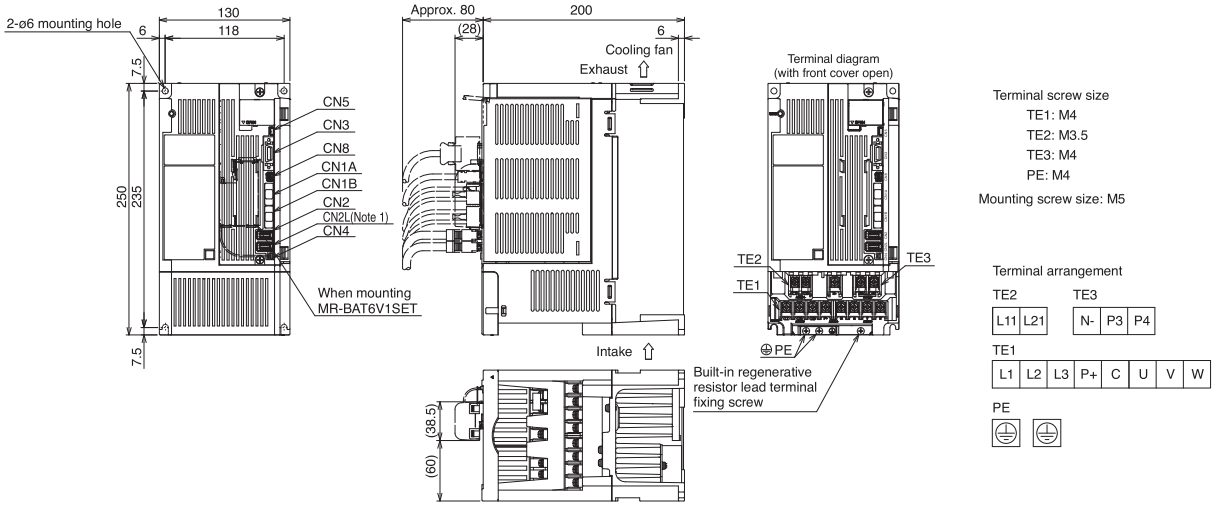
[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. CN2L, CN7, and CN9 connectors are not available for MR-J4-B servo amplifier.

MR-J4-B/MR-J4-B-RJ Dimensions

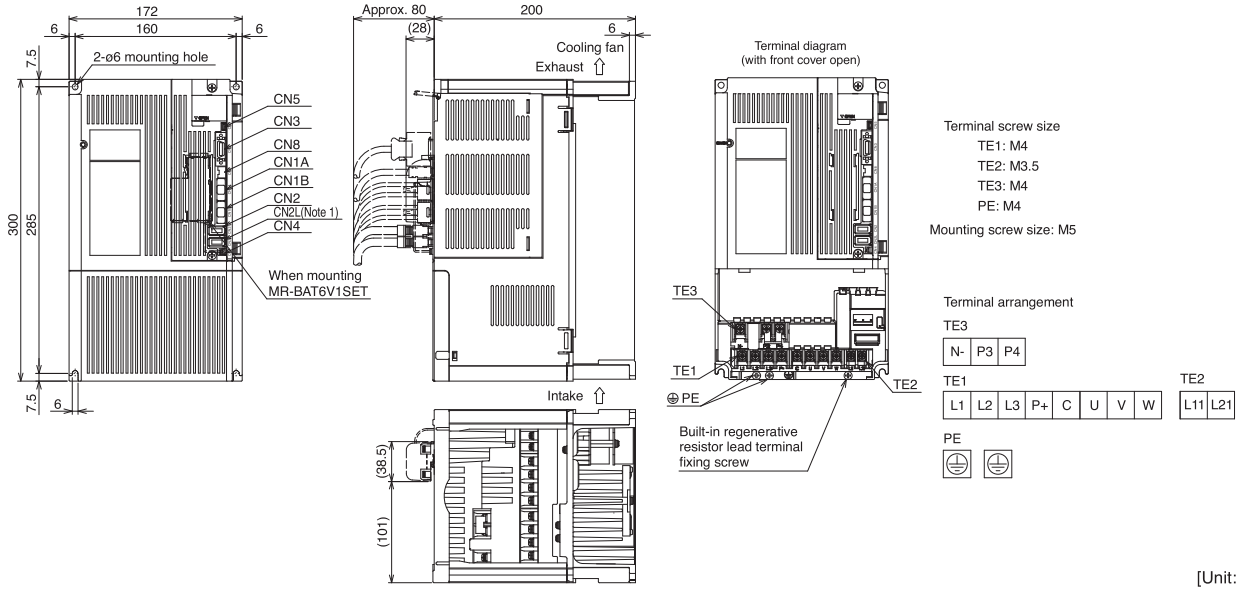
B B-RJ

●MR-J4-500B4, MR-J4-500B4-RJ



[Unit: mm]

●MR-J4-700B, MR-J4-700B-RJ, MR-J4-700B4, MR-J4-700B4-RJ



[Unit: mm]

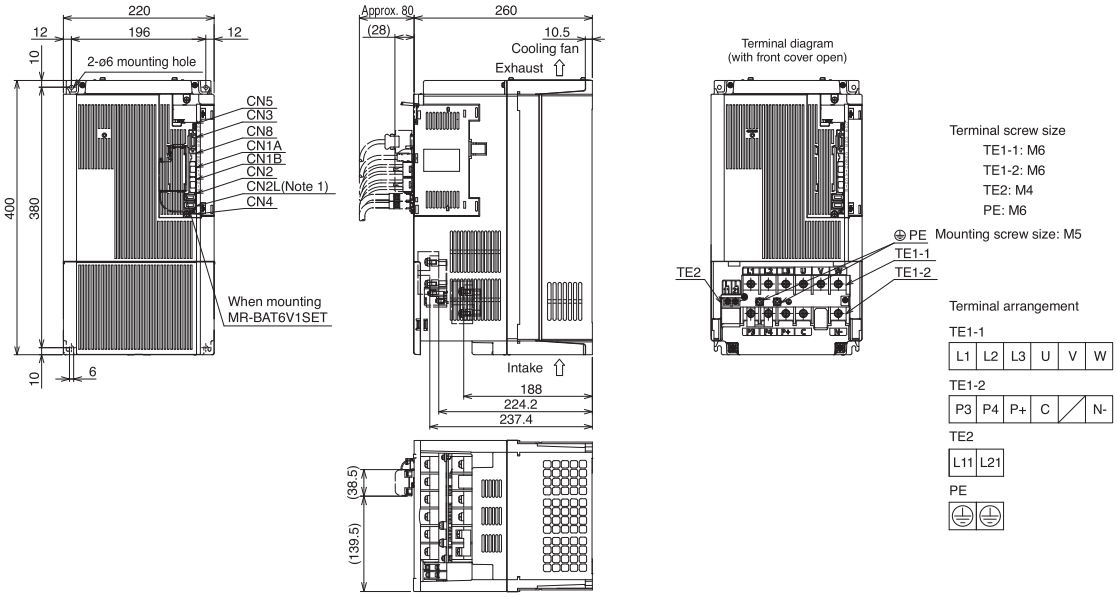
Notes: 1. CN2L, CN7, and CN9 connectors are not available for MR-J4-B servo amplifier.

MR-J4-B/MR-J4-B-RJ Dimensions

B B-RJ

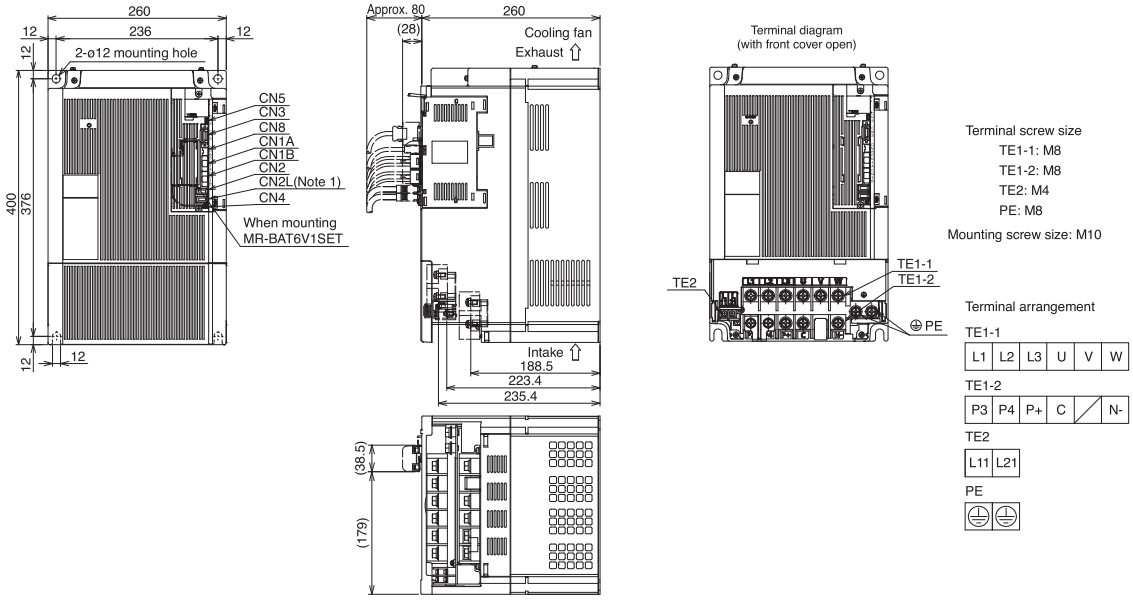
●MR-J4-11KB, MR-J4-11KB-RJ, MR-J4-11KB4, MR-J4-11KB4-RJ

●MR-J4-15KB, MR-J4-15KB-RJ, MR-J4-15KB4, MR-J4-15KB4-RJ



[Unit: mm]

●MR-J4-22KB, MR-J4-22KB-RJ, MR-J4-22KB4, MR-J4-22KB4-RJ



[Unit: mm]

Notes: 1. CN2L, CN7, and CN9 connectors are not available for MR-J4-B servo amplifier.

MR-J4-DU_B/MR-J4-DU_B-RJ Dimensions

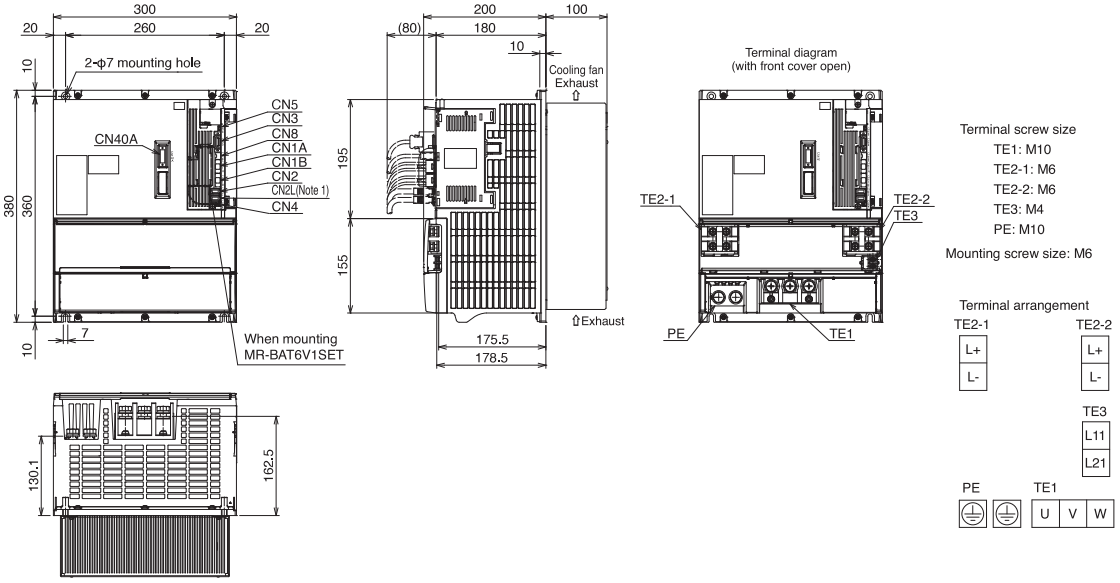
B B-RJ

●MR-J4-DU30KB, MR-J4-DU30KB-RJ

●MR-J4-DU37KB, MR-J4-DU37KB-RJ

●MR-J4-DU45KB4, MR-J4-DU45KB4-RJ

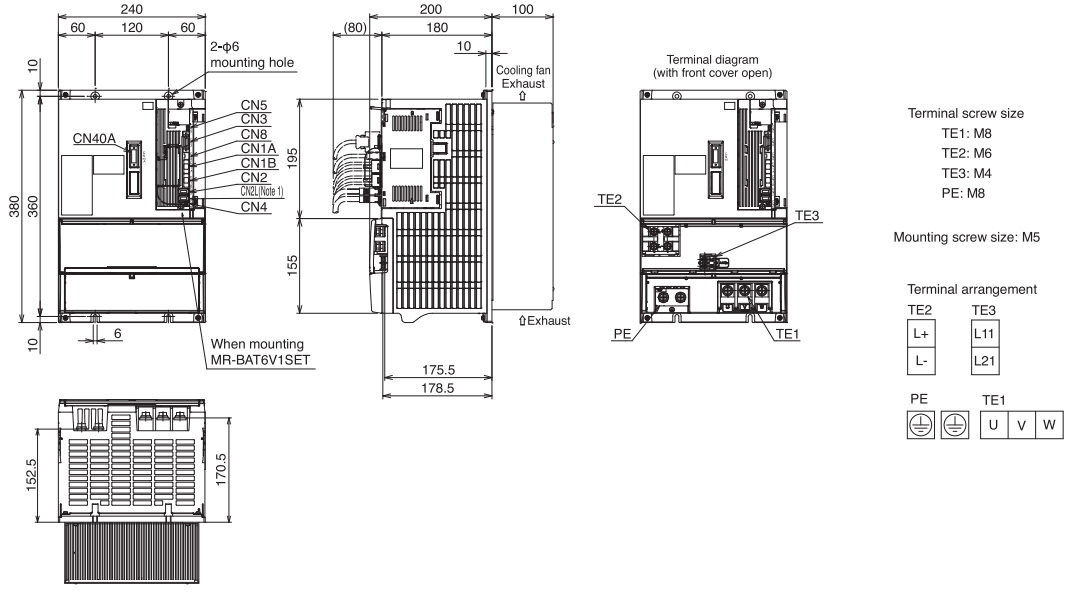
●MR-J4-DU55KB4, MR-J4-DU55KB4-RJ



[Unit: mm]

●MR-J4-DU30KB4, MR-J4-DU30KB4-RJ

●MR-J4-DU37KB4, MR-J4-DU37KB4-RJ

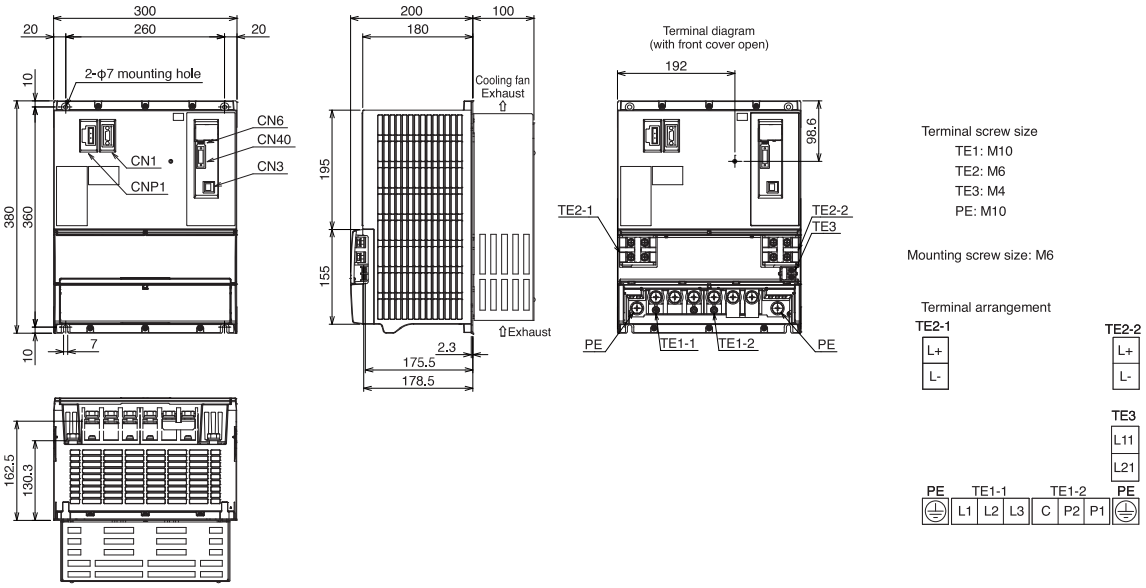


[Unit: mm]

Notes: 1. CN2L, CN7, and CN9 connectors are not available for MR-J4-DU_B_ drive unit.

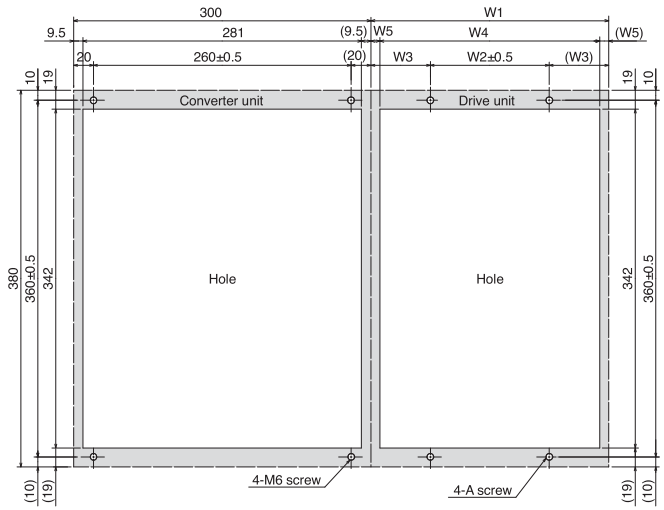
MR-CR Dimensions

●MR-CR55K, MR-CR55K4



[Unit: mm]

Panel Cut Dimensions for Converter Unit and Drive Unit (Note 1)



Drive unit model	Variable dimensions					
	W1	W2	W3	W4	W5	A
MR-J4-DU30KB/A, 37KB/A, 45KB4/A4, 55KB4/A4	300	260	20	281	9.5	M6
MR-J4-DU30KB4/A4, 37KB4/A4	240	120	60	222	9	M5

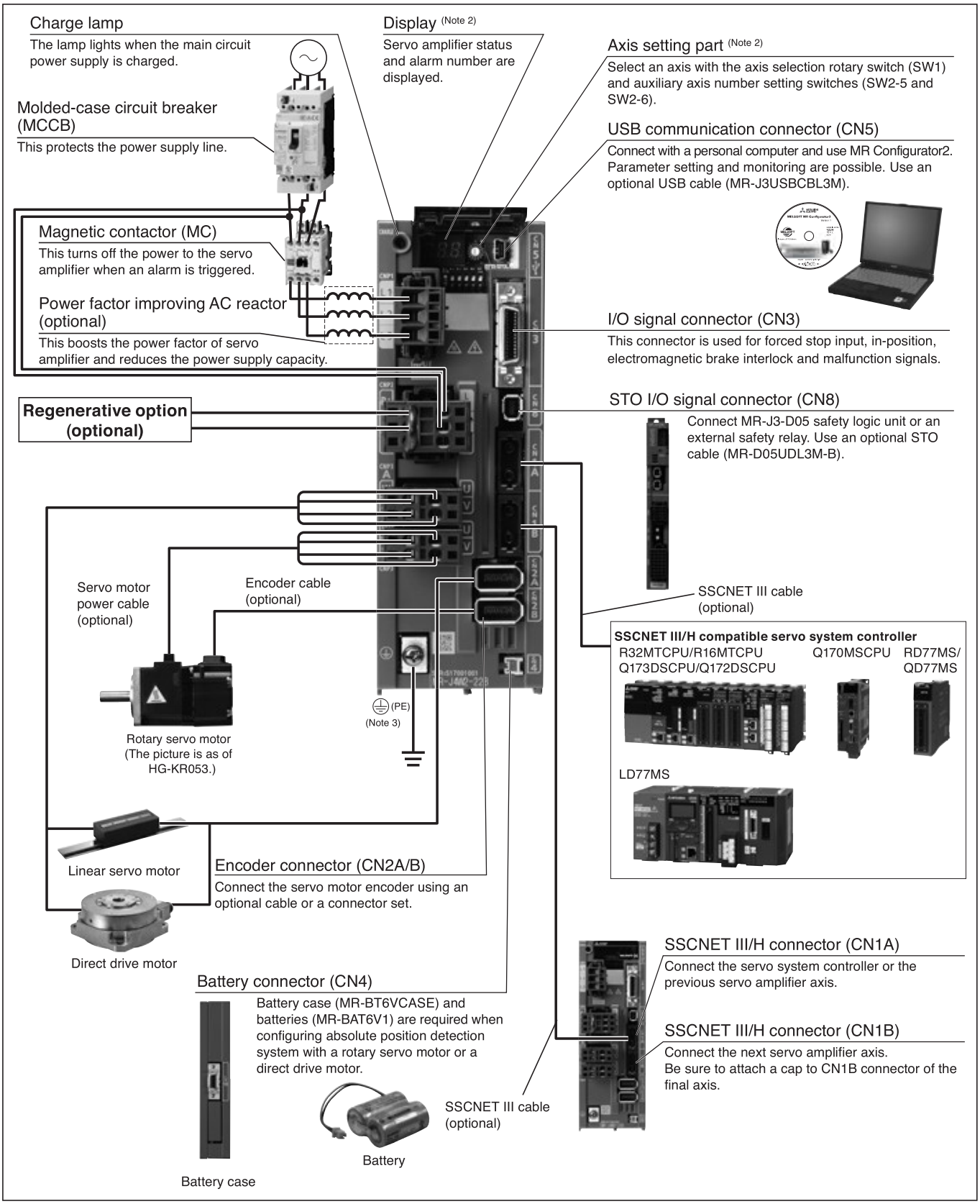
[Unit: mm]

Notes:1. The panel cut dimensions for coverter unit and drive unit are applicable for MR-J4-DU_B_/MR-J4-DU_B_-RJ/MR-J4-DU_A_/MR-J4-DU_A_-RJ.

MR-J4W_-B Connections with Peripheral Equipment (Note 1)

WB

Peripheral equipment is connected to MR-J4W_-B as described below. Connectors, cables, options, and other necessary equipment are available so that users can set up the servo amplifier easily and start using it right away.



Notes: 1. The connection with the peripheral equipment is an example for MR-J4W2-22B. CNP3C and CN2C connectors are available for MR-J4W3-B servo amplifier. Refer to "MR-J4W_-_B Servo Amplifier Instruction Manual" for the actual connections of the multi-axis servo amplifier.
2. This picture shows when the display cover is open.
3. Connect the grounding terminal of the servo motor to ⏚ of CNP3A, CNP3B, and CNP3C. Connect the protective earth (PE) terminal (⏚) located on the lower front of the servo amplifier to the cabinet protective earth (PE).

MR-J4W2-B (2-axis, SSCNET III/H Interface) Specifications

WB

Servo amplifier model MR-J4W2-			22B	44B	77B	1010B
Output	Rated voltage		3-phase 170 V AC			
	Rated current (each axis)	[A]	1.5	2.8	5.8	6.0
Main circuit power supply input	Voltage/frequency (Note 1)		3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz			3-phase 200 V AC to 240 V AC, 50Hz/60 Hz
	Rated current (Note 15)	[A]	2.9	5.2	7.5	9.8
	Permissible voltage fluctuation		3-phase or 1-phase 170 V AC to 264 V AC			3-phase 170 V AC to 264 V AC
	Permissible frequency fluctuation		±5% maximum			
Control circuit power supply input	Voltage/frequency		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz			
	Rated current	[A]	0.4			
	Permissible voltage fluctuation		1-phase 170 V AC to 264 V AC			
	Permissible frequency fluctuation		±5% maximum			
	Power consumption	[W]	55			
Interface power supply			24 V DC ± 10% (required current capacity: 0.35 A (including CN8 connector signals))			
Control method			Sine-wave PWM control/current control method			
Capacitor regeneration	Reusable regenerative energy (Note 5)	[J]	17	21	44	
	Moment of inertia (J) equivalent to permissible charging amount (Note 6)	[× 10^{-4} kg•m^2]	3.45	4.26	8.92	
	Mass equivalent to permissible charging amount (Note 7)	LM-H3 [kg]	3.8	4.7	9.8	
		LM-K2 LM-U2 [kg]	8.5	10.5	22.0	
Tolerable regenerative power of the built-in regenerative resistor (Note 2, 3)		[W]	20		100	
Dynamic brake			Built-in (Note 4)			
SSCNET III/H command communication cycle (Note 13)			0.222 ms, 0.444 ms, 0.888 ms			
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)			
Encoder output pulse			Compatible (A/B-phase pulse)			
Analog monitor			None			
Fully closed loop control (Note 11)			Available (Note 12)			
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, scale measurement function (Note 14), J3 compatibility mode			
Load-side encoder interface (Note 9)			Mitsubishi high-speed serial communication			
Protective functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection			

MR-J4W2-B (2-axis, SSCNET III/H Interface) Specifications

WB

Servo amplifier model MR-J4W2-		22B	44B	77B	1010B
Functional safety		STO (IEC/EN 61800-5-2) (Note 10)			
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2			
	Response performance	8 ms or less (STO input OFF → energy shut-off)			
	Test pulse input (STO) (Note 8)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum			
	Mean time to dangerous failure (MTTFd)	100 years or longer			
	Diagnostic coverage (DC)	Medium (90% to 99%)			
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]			
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.			
Structure (IP rating)		Natural cooling, open (IP20)	Force cooling, open (IP20)		
Close mounting		Possible			
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)			
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)			
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude	1000 m or less above sea level			
	Vibration resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Mass [kg]		1.5	1.5	2.0	2.0

Notes: 1. Rated output and speed of a rotary servo motor and a direct drive motor; and continuous thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4W_-_B Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. Reusable regenerative energy is equivalent to the energy generated under the following conditions.
For rotary servo motor: the energy that is generated when the machine, whose moment of inertia is equivalent to the permissible charging amount, decelerates from the rated speed to a stop.
For linear servo motor: the energy that is generated when the machine, whose mass is equivalent to the permissible charging amount, decelerates from the maximum speed to a stop.
For direct drive motor: the energy that is generated when the machine, whose moment of inertia is equivalent to the permissible charging amount, decelerates from the rated speed to a stop.
6. This value is the moment of inertia when the rotary servo motor decelerates from the rated speed to a stop. When two axes are simultaneously decelerated, the permissible charging amount is equivalent to the total moments of inertia of the two axes. Otherwise, the permissible charging amount is equivalent to the moment of inertia of each axis. The value also applies to the direct drive motor.
7. This value is the mass when the linear servo motor decelerates from maximum speed to a stop. Mass of primary side (coil) is included. When two axes are simultaneously decelerated, the permissible charging amount is equivalent to the total masses of the two axes. Otherwise, the permissible charging amount is equivalent to the mass of each axis.
8. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
9. Not compatible with pulse train interface (A/B/Z-phase differential output type).
10. STO is common for all axes.
11. The load-side encoder and the servo motor encoder are compatible only with two-wire type communication method.
12. Fully closed loop control is compatible with the servo amplifiers with software version A3 or later.
13. The command communication cycle depends on the controller specifications and the number of axes connected.
14. This function is available with the servo amplifiers with software version A8 or later.
15. This value is applicable when a 3-phase power supply is used.

MR-J4W3-B (3-axis, SSCNET III/H Interface) Specifications

WB

Servo amplifier model MR-J4W3-			222B	444B
Output	Rated voltage		3-phase 170 V AC	
	Rated current (each axis) [A]		1.5	2.8
Main circuit power supply input	Voltage/frequency (Note 1)		3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz	
	Rated current (Note 12) [A]		4.3	7.8
	Permissible voltage fluctuation		3-phase or 1-phase 170 V AC to 264 V AC	
	Permissible frequency fluctuation		±5% maximum	
Control circuit power supply input	Voltage/frequency		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz	
	Rated current [A]		0.4	
	Permissible voltage fluctuation		1-phase 170 V AC to 264 V AC	
	Permissible frequency fluctuation		±5% maximum	
	Power consumption [W]		55	
Interface power supply			24 V DC ± 10% (required current capacity: 0.45 A (including CN8 connector signals))	
Control method			Sine-wave PWM control/current control method	
Capacitor regeneration	Reusable regenerative energy (Note 5) [J]		21	30
	Moment of inertia (J) equivalent to permissible charging amount (Note 6) [× 10^{-4} kg•m^2]		4.26	6.08
	Mass equivalent to permissible charging amount (Note 7) [kg]	LM-H3	4.7	6.7
		LM-K2 LM-U2	10.5	15.0
Tolerable regenerative power of the built-in regenerative resistor (Note 2, 3) [W]			30	
Dynamic brake			Built-in (Note 4)	
SSCNET III/H command communication cycle (Note 10)			0.222 ms (Note 11), 0.444 ms, 0.888 ms	
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)	
Encoder output pulse			Not compatible	
Analog monitor			None	
Fully closed loop control			Not compatible	
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, J3 compatibility mode	
Protective functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection	

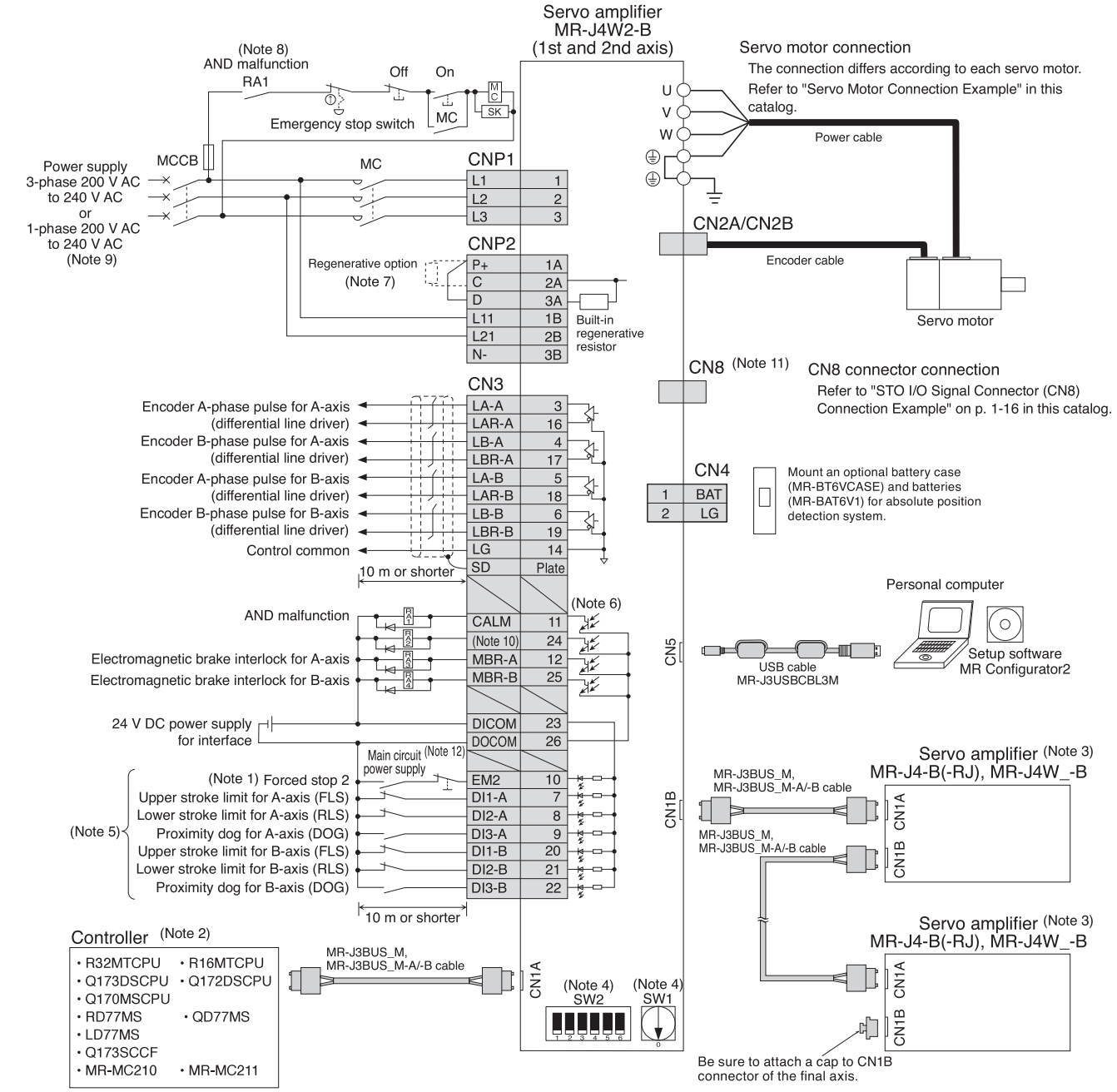
MR-J4W3-B (3-axis, SSCNET III/H Interface) Specifications

WB

Servo amplifier model MR-J4W3-		222B	444B
Functional safety		STO (IEC/EN 61800-5-2) (Note 9)	
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2	
	Response performance	8 ms or less (STO input OFF → energy shut-off)	
	Test pulse input (STO) (Note 8)	Test pulse interval: 1 Hz to 25 Hz Test pulse off time: 1 ms maximum	
	Mean time to dangerous failure (MTTFd)	100 years or longer	
	Diagnostic coverage (DC)	Medium (90% to 99%)	
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]	
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.	
Structure (IP rating)		Force cooling, open (IP20)	
Close mounting		Possible	
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)	
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)	
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude	1000 m or less above sea level	
	Vibration resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Mass [kg]		1.9	1.9

Notes:1. Rated output and speed of a rotary servo motor and a direct drive motor; and continuous thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4W_-_B Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. Reusable regenerative energy is equivalent to the energy generated under the following conditions.
For rotary servo motor: the energy that is generated when the machine, whose moment of inertia is equivalent to the permissible charging amount, decelerates from the rated speed to a stop.
For linear servo motor: the energy that is generated when the machine, whose mass is equivalent to the permissible charging amount, decelerates from the maximum speed to a stop.
For direct drive motor: the energy that is generated when the machine, whose moment of inertia is equivalent to the permissible charging amount, decelerates from the rated speed to a stop.
6. This value is the moment of inertia when the rotary servo motor decelerates from the rated speed to a stop. When three axes are simultaneously decelerated, the permissible charging amount is equivalent to the total moments of inertia of the three axes. Otherwise, the permissible charging amount is equivalent to the moment of inertia of each axis. The value also applies to the direct drive motor.
7. This value is the mass when the linear servo motor decelerates from maximum speed to a stop. Mass of primary side (coil) is included. When three axes are simultaneously decelerated, the permissible charging amount is equivalent to the total masses of the three axes. Otherwise, the permissible charging amount is equivalent to the mass of each axis.
8. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
9. STO is common for all axes.
10. The command communication cycle depends on the controller specifications and the number of axes connected.
11. Servo amplifier with software version A3 or later is compatible with the command communication cycle of 0.222 ms. However, note that the following functions are not available when 0.222 ms is used: auto tuning (real time, one-touch, and vibration suppression control), adaptive filter II, vibration tough drive, and power monitoring.
12. This value is applicable when a 3-phase power supply is used.

MR-J4W2-B Standard Wiring Diagram Example (Note 13)

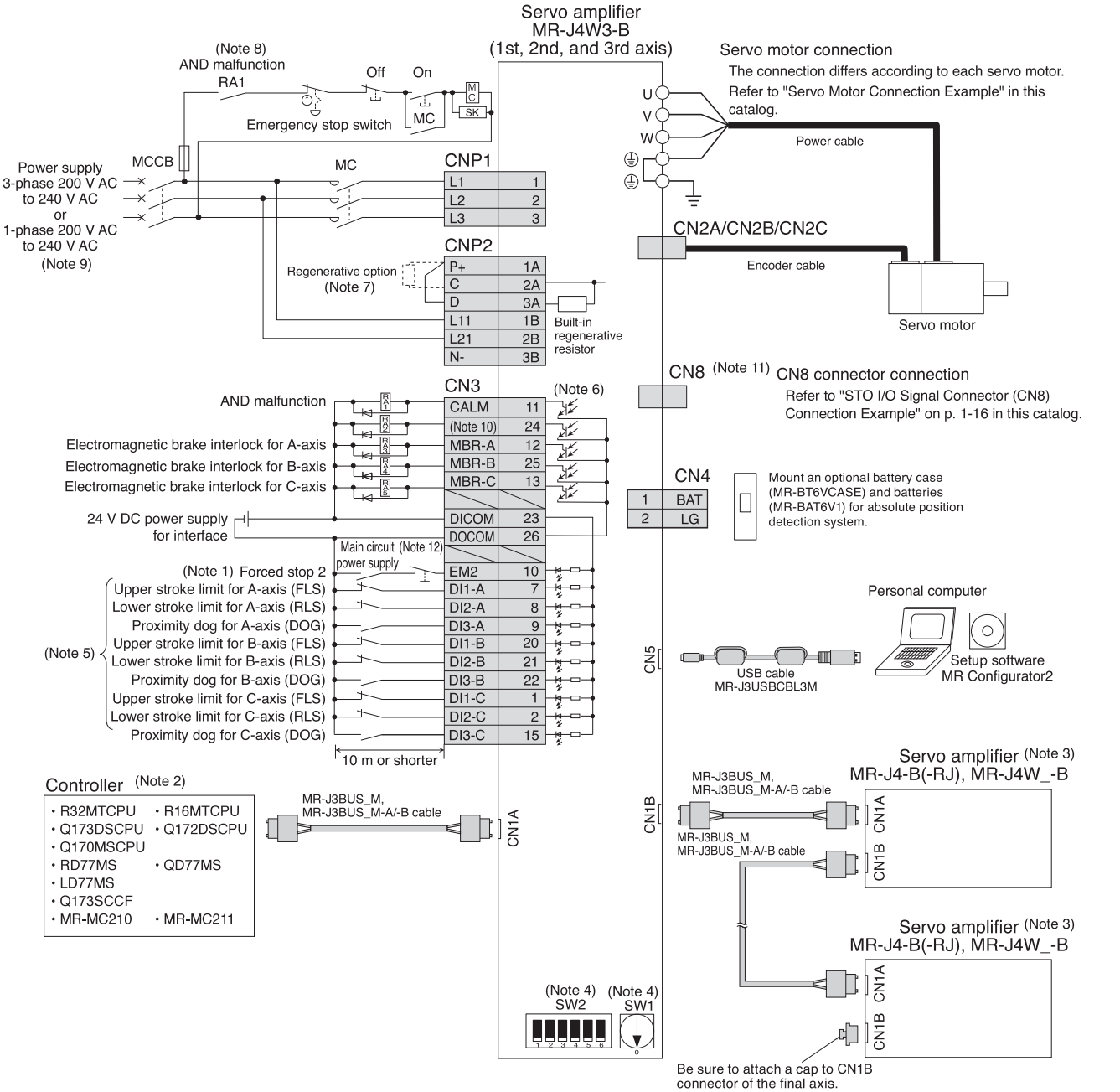


Notes: 1. The forced stop signal is issued for two axes of the servo amplifier. For overall system, apply the emergency stop on the controller side.
2. For details such as setting the controllers, refer to programming manual or user's manual for the controllers.
3. Connections for the third and following axes are omitted.
4. Up to 64 axes can be set by using a combination of an axis selection rotary switch (SW1) and auxiliary axis number setting switches (SW2-5 and SW2-6). Note that the number of the connectable axes depends on the controller specifications.
5. Devices can be assigned for DI1-A/B, DI2-A/B and DI3-A/B with controller setting. Refer to the controller instruction manuals for details on setting.
6. This is for sink wiring. Source wiring is also possible.
7. When not using a regenerative option, connect a short-circuit bar between P+ and D to use the built-in regenerative resistor. When using a regenerative option, disconnect the short-circuit bar between P+ and D, and then connect the regenerative option to P+ and C.
8. Select either of the following functions for CALM (AND malfunction) with the controller.
1) The contact opens when an alarm occurs on one of the axes.
2) The contact opens when an alarm occurs on all axes.
9. For 1-phase 200 V AC to 240 V AC, connect the power supply to L1 and L3 terminals. Do not connect anything to L2. The connections are different from MR-J3W-B series servo amplifiers. Be careful not to make a connection error when replacing MR-J3W-B with MR-J4W2-B. Refer to "MR-J4W2-B (2-axis, SSCNET III/H Interface) Specifications" in this catalog for power supply specifications.
10. CINP (AND in-position) is assigned to this pin as default. Device for this pin can be changed by [Pr. PD08].
11. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
12. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
13. To control main circuit power supply on/off by DC power supply, refer to relevant Servo Amplifier Instruction Manual for details.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4W3-B Standard Wiring Diagram Example (Note 13)

WB

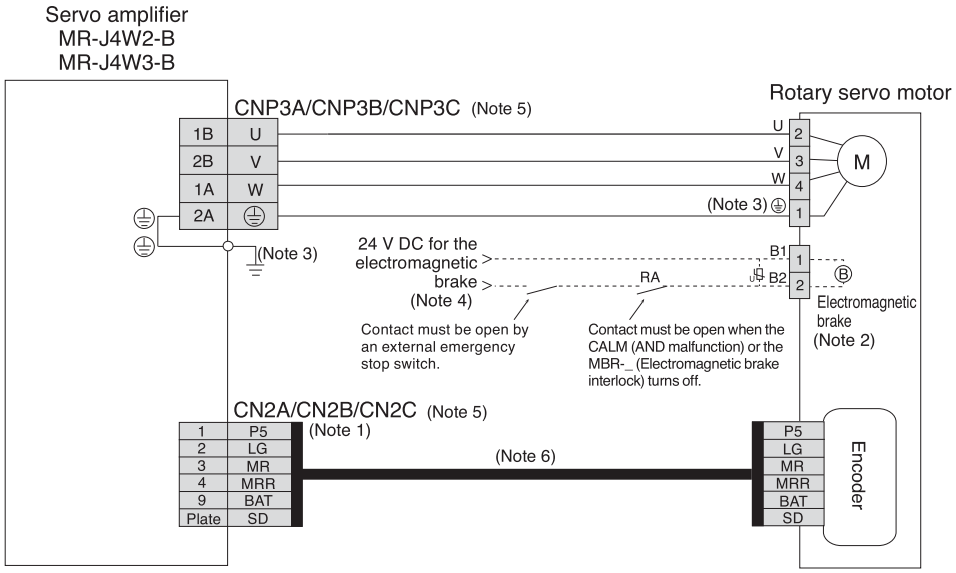


Notes: 1. The forced stop signal is issued for three axes of the servo amplifier. For overall system, apply the emergency stop on the controller side.
2. For details such as setting the controllers, refer to programming manual or user's manual for the controllers.
3. Connections for the fourth and following axes are omitted.
4. Up to 64 axes can be set by using a combination of an axis selection rotary switch (SW1) and auxiliary axis number setting switches (SW2-5 and SW2-6). Note that the number of the connectable axes depends on the controller specifications.
5. Devices can be assigned for DI1-A/B/C, DI2-A/B/C and DI3-A/B/C with controller setting. Refer to the controller instruction manuals for details on setting.
6. This is for sink wiring. Source wiring is also possible.
7. When not using a regenerative option, connect a short-circuit bar between P+ and D to use the built-in regenerative resistor. When using a regenerative option, disconnect the short-circuit bar between P+ and D, and then connect the regenerative option to P+ and C.
8. Select either of the following functions for CALM (AND malfunction) with the controller.
1) The contact opens when an alarm occurs on one of the axes.
2) The contact opens when an alarm occurs on all axes.
9. For 1-phase 200 V AC to 240 V AC, connect the power supply to L1 and L3 terminals. Do not connect anything to L2. Refer to "MR-J4W3-B (3-axis, SSCNET III/H Interface) Specifications" in this catalog for power supply specifications.
10. CINP (AND in-position) is assigned to this pin as default. Device for this pin can be changed by [Pr. PD08].
11. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
12. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
13. To control main circuit power supply on/off by DC power supply, refer to relevant Servo Amplifier Instruction Manual for details.

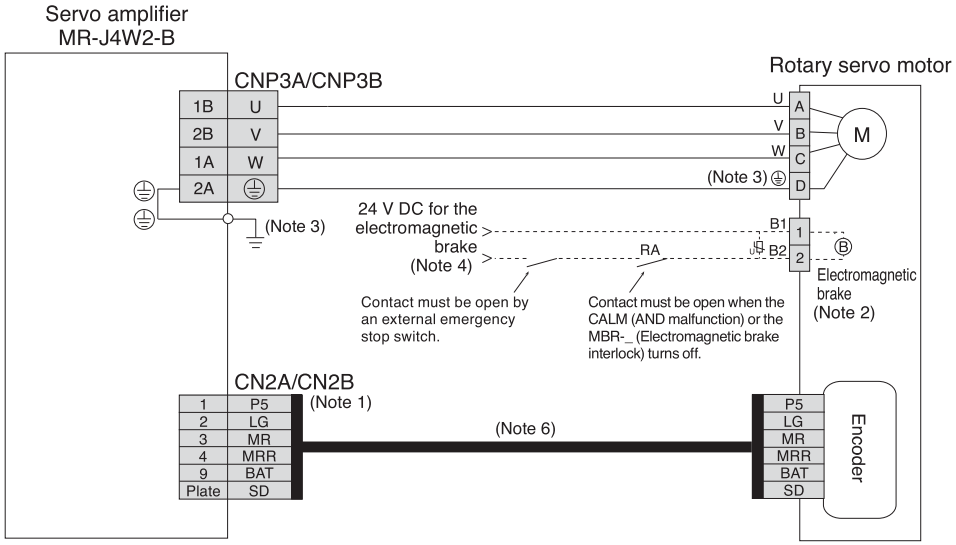
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example
(Rotary Servo Motor, Semi-Closed Loop Control System)

●For HG-KR/HG-MR series



●For HG-SR series

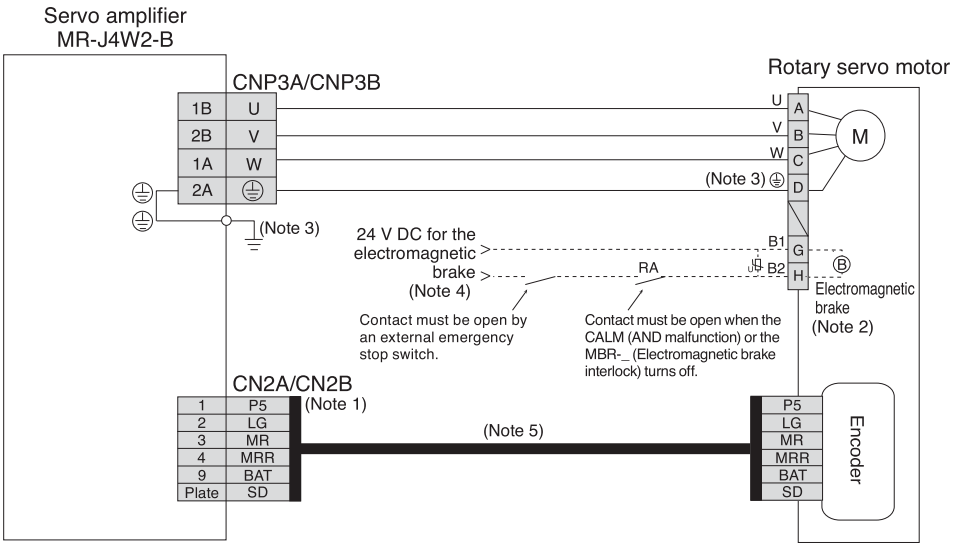


Notes: 1. The signals shown is applicable when using a two-wire type encoder cable. Four-wire type is also compatible.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding terminal of the servo motor to ⏚ of CNP3A, CNP3B, and CNP3C. Connect the protective earth (PE) terminal (⏚) located on the lower front of the servo amplifier to the cabinet protective earth (PE).
4. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
5. CNP3C and CN2C connectors are available for MR-J4W3-B servo amplifier.
6. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor, Semi-Closed Loop Control System) WB

●For HG-UR series

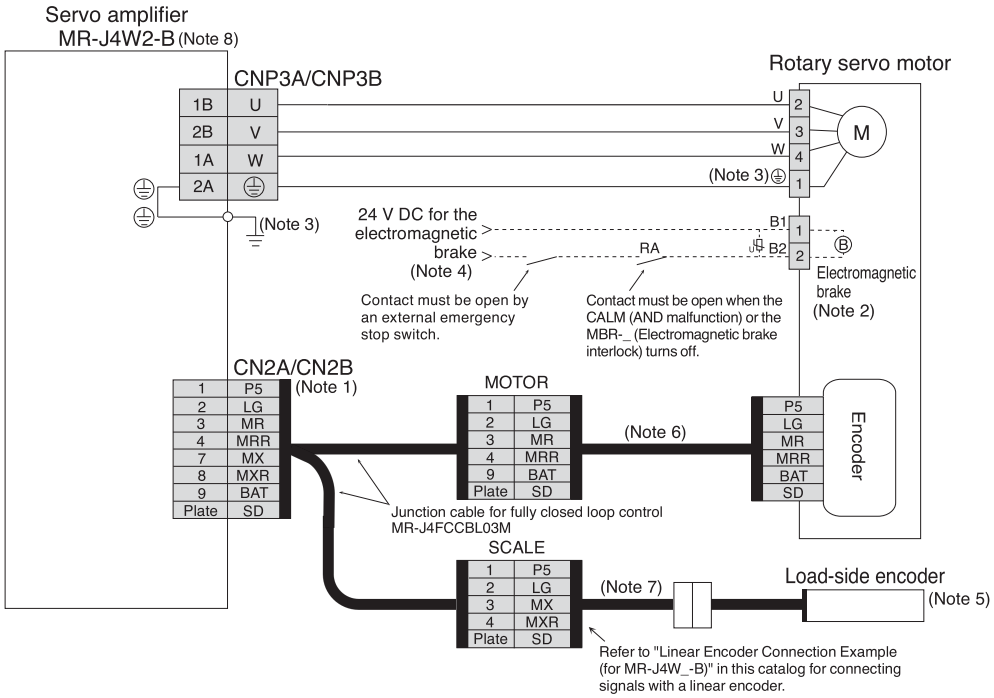


Notes: 1. The signals shown is applicable when using a two-wire type encoder cable. Four-wire type is also compatible.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding terminal of the servo motor to ⏚ of CNP3A and CNP3B. Connect the protective earth (PE) terminal (⏚) located on the lower front of the servo amplifier to the cabinet protective earth (PE).
4. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
5. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.

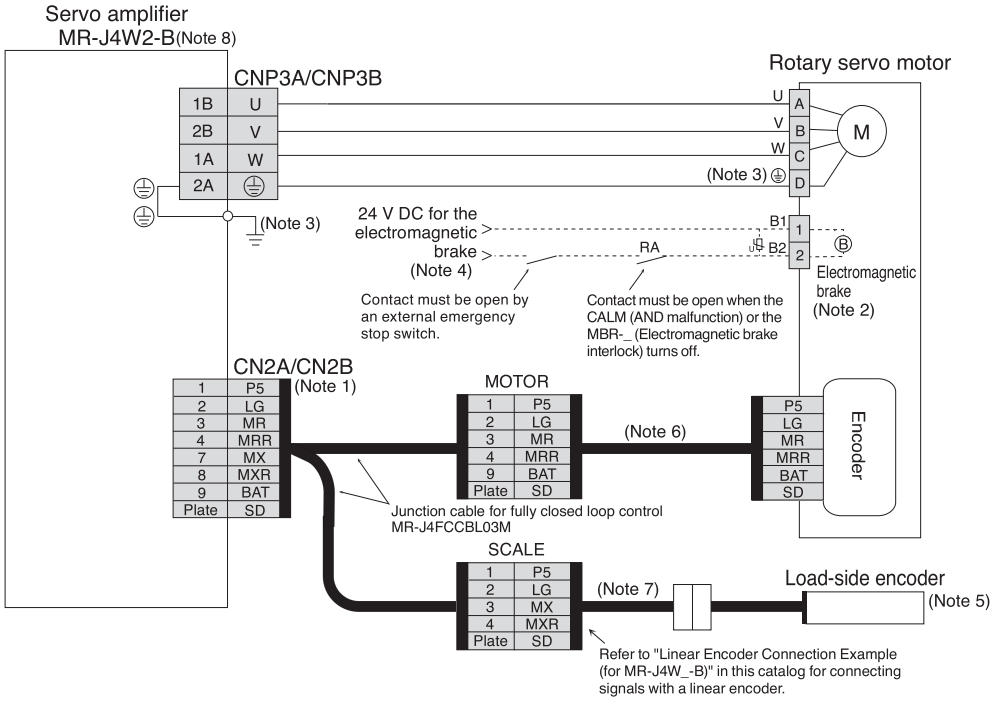
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor, Fully Closed Loop Control System) WB

●For HG-KR/HG-MR series



●For HG-SR/HG-JR series

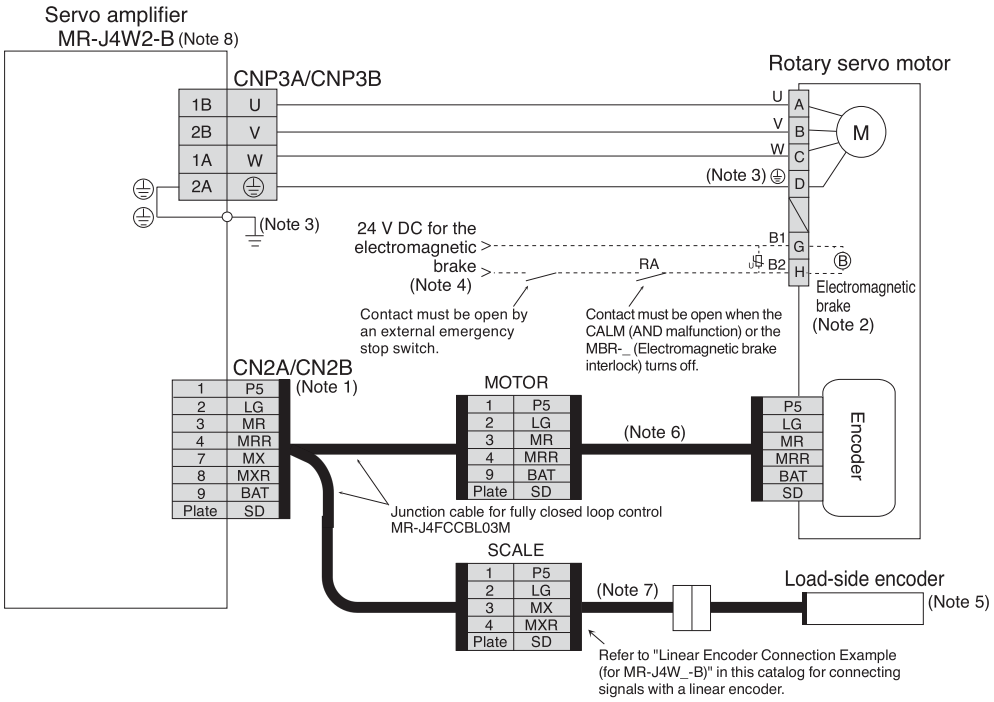


Notes: 1. For fully closed loop control, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding terminal of the servo motor to ⏚ of CNP3A, CNP3B, and CNP3C. Connect the protective earth (PE) terminal (⏚) located on the lower front of the servo amplifier to the cabinet protective earth (PE).
4. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
5. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to "MR-J4W_-_B Servo Amplifier Instruction Manual" for the fully closed loop control with rotary encoder.
6. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
7. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
8. MR-J4W3-B is not compatible with fully closed loop control.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Rotary Servo Motor, Fully Closed Loop Control System) WB

●For HG-UR series

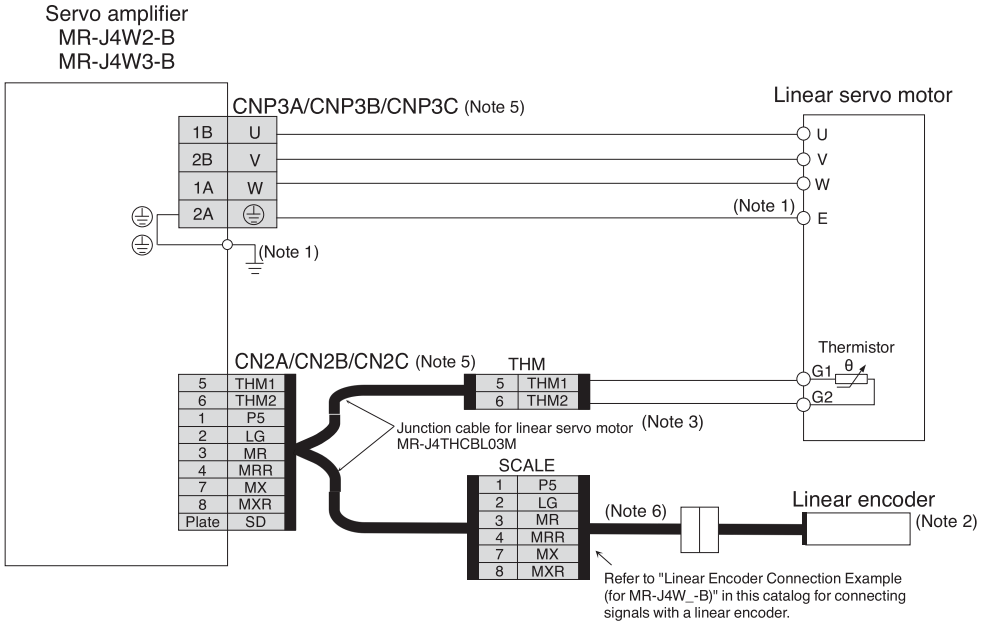


Notes: 1. For fully closed loop control, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
2. This is for the servo motor with electromagnetic brake. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Connect the grounding terminal of the servo motor to ⏚ of CNP3A and CNP3B. Connect the protective earth (PE) terminal (⏚) located on the lower front of the servo amplifier to the cabinet protective earth (PE).
4. Do not use the 24 V DC interface power supply for the electromagnetic brake. Provide a dedicated power supply to the electromagnetic brake.
5. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog. Refer to "MR-J4W_-_B Servo Amplifier Instruction Manual" for the fully closed loop control with rotary encoder.
6. Encoder cable is available as an option. Refer to "Servo Motor Instruction Manual (Vol. 3)" when fabricating the cables.
7. Necessary encoder cables vary depending on the load-side encoder. Refer to relevant Instruction Manual.
8. MR-J4W3-B is not compatible with fully closed loop control.

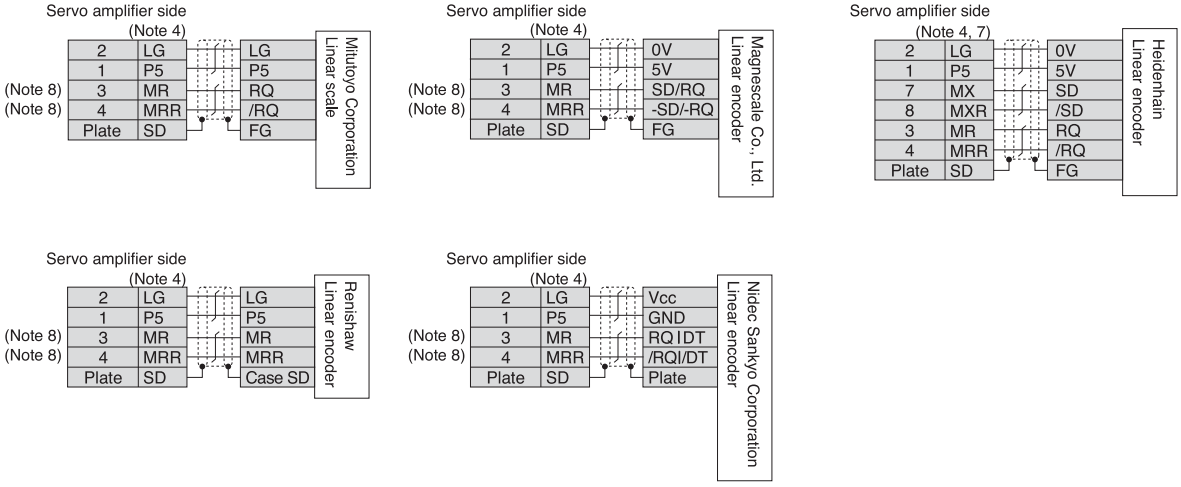
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

Servo Motor Connection Example (Linear Servo Motor)

●For LM-H3/LM-K2/LM-U2 series



Linear Encoder Connection Example (for MR-J4W_-B)



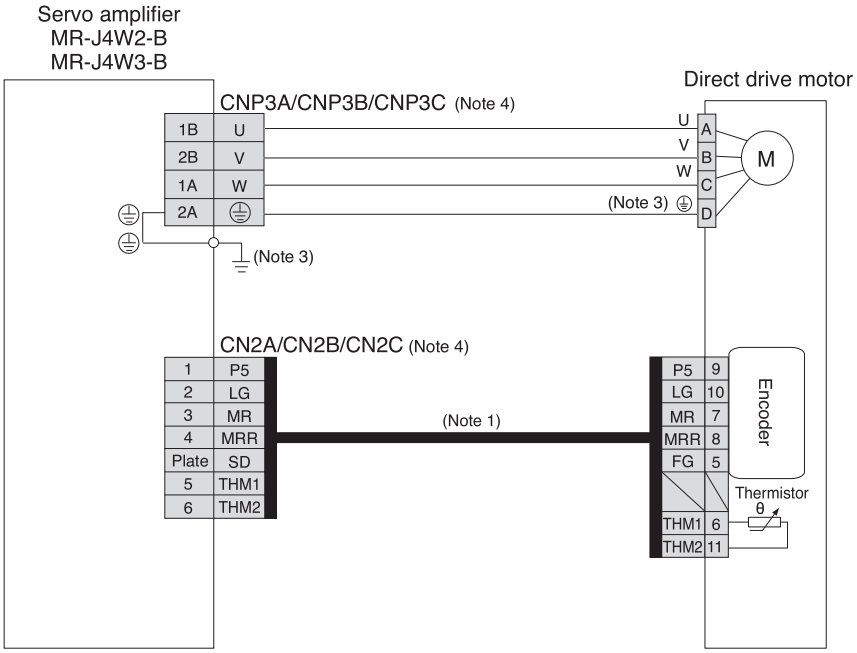
Notes: 1. Connect the grounding terminal of the servo motor to ⏚ of CNP3A, CNP3B, and CNP3C. Connect the protective earth (PE) terminal (⏚) located on the lower front of the servo amplifier to the cabinet protective earth (PE).
2. For linear encoders, refer to "List of Linear Encoders" under section 3 Linear Servo Motors in this catalog.
3. MR-J4THCBL03M junction cable for linear servo motor is compatible with both two-wire and four-wire type linear encoders.
4. For the number of the wire pairs for LG and P5, refer to "Linear Encoder Instruction Manual."
5. CNP3C and CN2C connectors are available for MR-J4W3-B servo amplifier.
6. Necessary encoder cables vary depending on the linear encoder. Refer to relevant Instruction Manual.
7. For fully closed loop control, the load-side encoder and the servo motor encoder are compatible only with two-wire type communication method. Four-wire type cannot be used.
8. For the fully closed loop control, the signals of 3-pin and 4-pin are as follows:
3-pin: MX
4-pin: MXR

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

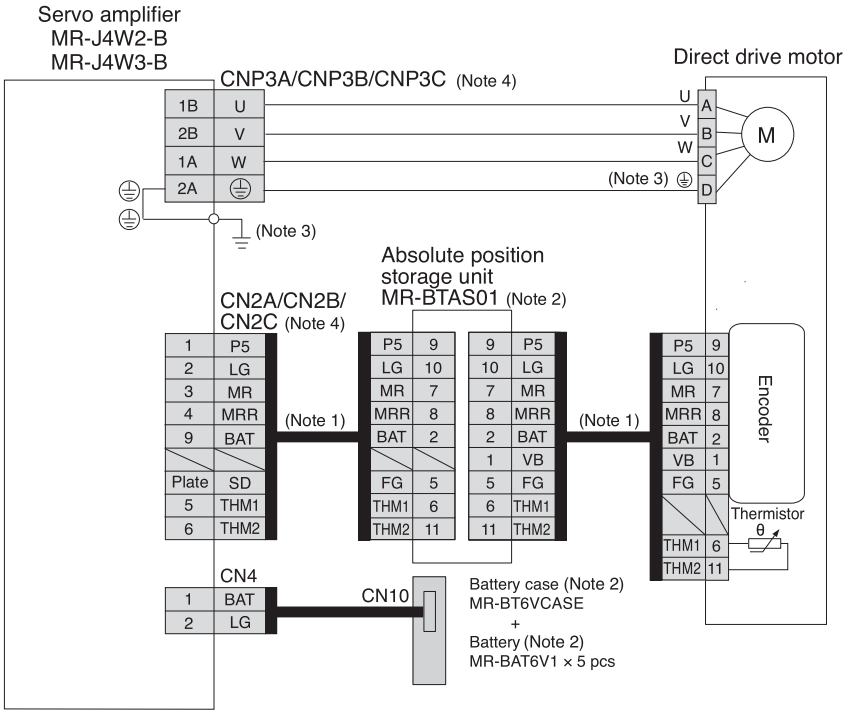
Servo Motor Connection Example (Direct Drive Motor)

WB

●For TM-RFM series (incremental system)



●For TM-RFM series (absolute position detection system)



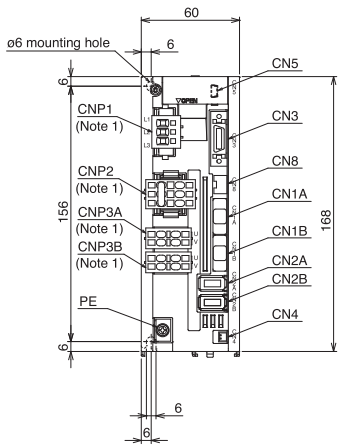
Notes: 1. Fabricate this encoder cable. Refer to "Direct Drive Motor Instruction Manual" for fabricating the encoder cable.
2. Optional MR-BTAS01 absolute position storage unit, MR-BT6VCASE battery case, and MR-BAT6V1 batteries are required for absolute position detection system. Refer to relevant Servo Amplifier Instruction Manual and "Direct Drive Motor Instruction Manual" for details.
3. Connect the grounding terminal of the servo motor to ⏚ of CNP3A, CNP3B, and CNP3C. Connect the protective earth (PE) terminal (⏚) located on the lower front of the servo amplifier to the cabinet protective earth (PE).
4. CNP3C and CN2C connectors are available for MR-J4W3-B servo amplifier.

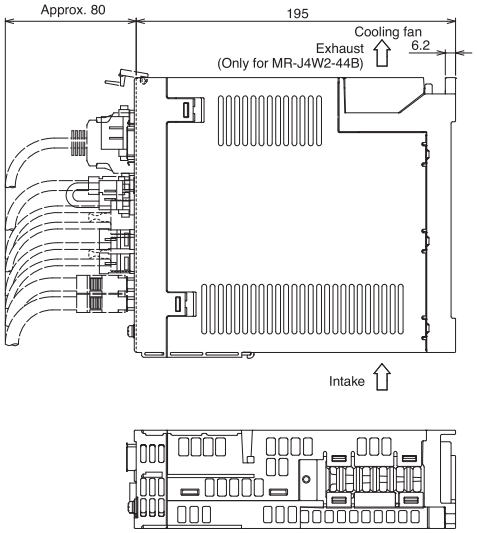
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4W2-B Dimensions

●MR-J4W2-22B

●MR-J4W2-44B





Terminal arrangement

CNP1			CNP2		
L1	1		P+	L11	1
L2	2		C	L21	2
L3	3		D	N-	3
A			A	B	

CNP3A			CNP3B		
W	U	1	W	U	1
⏚	V	2	⏚	V	2
A	B		A	B	

PE

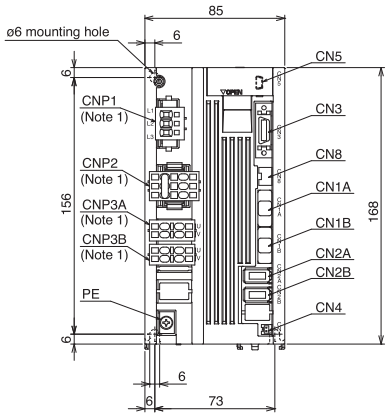
Screw size: M4

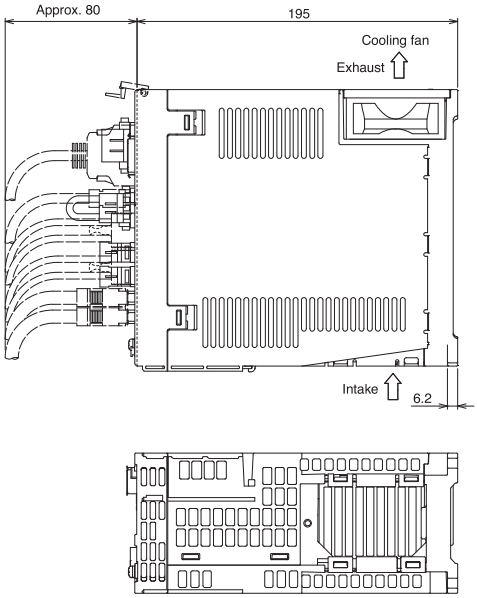
Mounting screw size: M5

[Unit: mm]

●MR-J4W2-77B

●MR-J4W2-1010B





Terminal arrangement

CNP1			CNP2		
L1	1		P+	L11	1
L2	2		C	L21	2
L3	3		D	N-	3
A			A	B	

CNP3A			CNP3B		
W	U	1	W	U	1
⏚	V	2	⏚	V	2
A	B		A	B	

PE

Screw size: M4

Mounting screw size: M5

[Unit: mm]

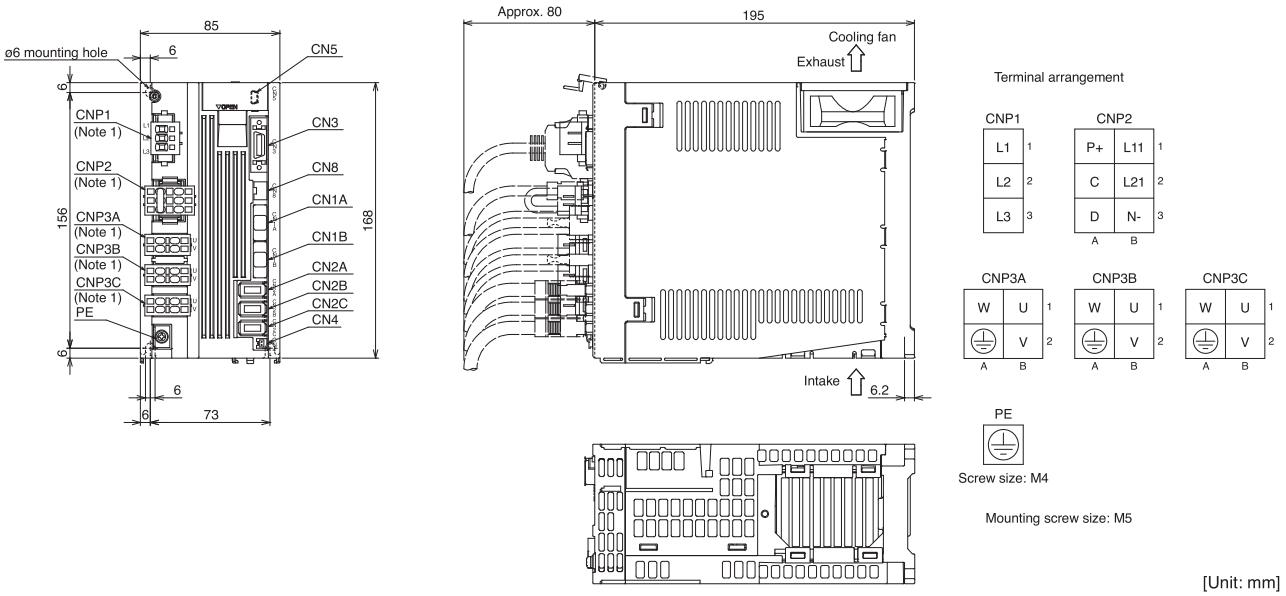
Notes: 1. CNP1, CNP2, CNP3A and CNP3B connectors (insertion type) are supplied with the servo amplifier.

MR-J4W3-B Dimensions

WB

●MR-J4W3-222B

●MR-J4W3-444B

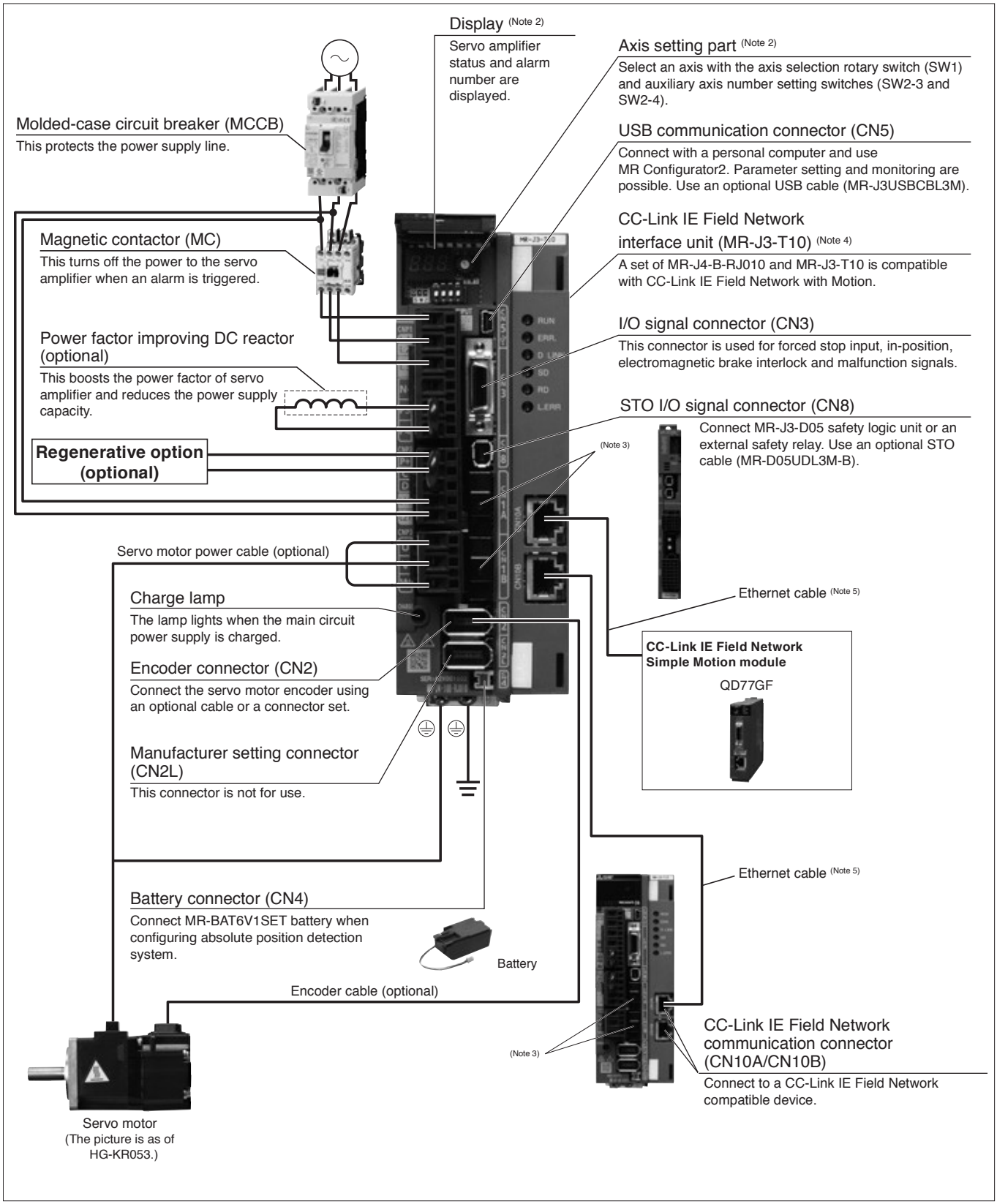


Notes: 1. CNP1, CNP2, CNP3A, CNP3B and CNP3C connectors (insertion type) are supplied with the servo amplifier.

MR-J4-B-RJ010 Connections with Peripheral Equipment (Note 1)

B-RJ010

Peripheral equipment is connected to MR-J4-B-RJ010 as described below. Connectors, cables, options, and other necessary equipment are available so that users can set up the servo amplifier easily and start using it right away.



Notes: 1. The connection with the peripheral equipment is an example for MR-J4-350B-RJ010 or smaller servo amplifiers. Refer to "MR-J4-_B_-RJ010 MR-J3-T10 Servo Amplifier Instruction Manual" for the actual connections.
2. This picture shows when the display cover is open.
3. This connector is not for use. Be sure to attach a cap supplied with the servo amplifier.
4. Refer to "CC-Link IE Field Network Interface Unit" in this catalog for details on CC-Link IE Field Network Interface Unit (MR-J3-T10).
5. For specifications of the Ethernet cable, refer to "Ethernet cable specifications" on p. 5-31 in this catalog.

MR-J4-B-RJ010

B-RJ010

(CC-Link IE Field Network interface with Motion) Specifications (200 V AC)

Servo amplifier model MR-J4-_-RJ010		10B	20B	40B	60B	70B	100B	200B	350B	500B	700B	11KB	15KB	22KB
Output	Rated voltage	3-phase 170 V AC												
	Rated current [A]	1.1	1.5	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0	68.0	87.0	126.0
Main circuit power supply input	Voltage/frequency (Note 1)	3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz					3-phase 200 V AC to 240 V AC, 50 Hz/60 Hz							
	Rated current (Note 13) [A]	0.9	1.5	2.6	3.2 (Note 8)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0
	Permissible voltage fluctuation	3-phase or 1-phase 170 V AC to 264 V AC					3-phase 170 V AC to 264 V AC							
	Permissible frequency fluctuation	±5% maximum												
Control circuit power supply input	Voltage/frequency	1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz												
	Rated current [A]	0.2								0.3				
	Permissible voltage fluctuation	1-phase 170 V AC to 264 V AC												
	Permissible frequency fluctuation	±5% maximum												
	Power consumption [W]	30								45				
Interface power supply		24 V DC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))												
Control method		Sine-wave PWM control/current control method												
Tolerable regenerative power	Built-in regenerative resistor (Note 2, 3) [W]	-	10	10	10	20	20	100	100	130	170	-	-	-
	External regenerative resistor (standard accessory) (Note 2, 3, 9, 10) [W]	-	-	-	-	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic brake		Built-in (Note 4)										External option (Note 11)		
Communication function		USB: Connect a personal computer (MR Configurator2 compatible)												
Encoder output pulse		Compatible (A/B/Z-phase pulse)												
Analog monitor		2 channels												
Fully closed loop control		Not compatible												
Servo function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function												
Load-side encoder interface		Not compatible												
Protective functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection												
Functional safety		STO (IEC/EN 61800-5-2)												
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2												
	Response performance	8 ms or less (STO input OFF → energy shut-off)												
	Test pulse input (STO) (Note 7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum												
	Mean time to dangerous failure (MTTFd)	100 years or longer												
	Diagnostic coverage (DC)	Medium (90% to 99%)												
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]												
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.												
Structure (IP rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (Note 5)				
Close mounting		Possible (Note 6)								Not possible				
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)												
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)												
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust												
	Altitude	1000 m or less above sea level												
	Vibration resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)												
Mass (Note 12) [kg]		0.8	0.8	1.0	1.0	1.4	1.4	2.1	2.3	4.0	6.2	13.4	13.4	18.2

MR-J4-B-RJ010

B-RJ010

(CC-Link IE Field Network interface with Motion) Specifications (200 V AC)

Notes: 1. Rated output and speed of a rotary servo motor are applicable when the servo amplifier, combined with the rotary servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4-_B_(-RJ) Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio.
5. Terminal blocks are excluded.
6. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load ratio.
7. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
8. The rated current is 2.9 A when the servo amplifier is used with UL or CSA compliant servo motor.
9. The value in brackets is applicable when cooling fans (2 units of 92 mm × 92 mm, minimum air flow: 1.0 m^3/min) are installed, and then [Pr. PA02] is changed.
10. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "1-Axis Servo Amplifier Model Designation" in this catalog for details.
11. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
12. The value is applicable for the MR-J4-_B-RJ010 servo amplifier only.
13. This value is applicable for 750 W or smaller servo amplifiers in 200 V class when a 3-phase power supply is used.

MR-J4-B4-RJ010

B-RJ010

(CC-Link IE Field Network interface with Motion) Specifications (400 V AC)

Servo amplifier model MR-J4-_-RJ010		60B4	100B4	200B4	350B4	500B4	700B4	11KB4	15KB4	22KB4
Output	Rated voltage	3-phase 323 V AC								
	Rated current [A]	1.5	2.8	5.4	8.6	14.0	17.0	32.0	41.0	63.0
Main circuit power supply input	Voltage/frequency (Note 1)	3-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated current [A]	1.4	2.5	5.1	7.9	10.8	14.4	23.1	31.8	47.6
	Permissible voltage fluctuation	3-phase 323 V AC to 528 V AC								
	Permissible frequency fluctuation	±5% maximum								
Control circuit power supply input	Voltage/frequency	1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated current [A]	0.1			0.2					
	Permissible voltage fluctuation	1-phase 323 V AC to 528 V AC								
	Permissible frequency fluctuation	±5% maximum								
	Power consumption [W]	30			45					
Interface power supply		24 V DC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))								
Control method		Sine-wave PWM control/current control method								
Tolerable regenerative power	Built-in regenerative resistor (Note 2, 3) [W]	15	15	100	100	130 (Note 10)	170 (Note 10)	-	-	-
	External regenerative resistor (standard accessory) (Note 2, 3, 7, 8) [W]	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic brake		Built-in (Note 4)						External option (Note 9)		
Communication function		USB: Connect a personal computer (MR Configurator2 compatible)								
Encoder output pulse		Compatible (A/B/Z-phase pulse)								
Analog monitor		2 channels								
Fully closed loop control		Not compatible								
Servo function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function								
Load-side encoder interface		Not compatible								
Protective functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection								
Functional safety		STO (IEC/EN 61800-5-2)								
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2								
	Response performance	8 ms or less (STO input OFF → energy shut-off)								
	Test pulse input (STO) (Note 6)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum								
	Mean time to dangerous failure (MTTFd)	100 years or longer								
	Diagnostic coverage (DC)	Medium (90% to 99%)								
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]								
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.								
Structure (IP rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (Note 5)				
Close mounting		Not possible								
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)								
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Altitude	1000 m or less above sea level								
	Vibration resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Mass (Note 11) [kg]		1.7	1.7	2.1	3.6	4.3	6.5	13.4	13.4	18.2

MR-J4-B4-RJ010

B-RJ010

(CC-Link IE Field Network interface with Motion) Specifications (400 V AC)

Notes: 1. Rated output and speed of a rotary servo motor are applicable when the servo amplifier, combined with the rotary servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4-_B_(-RJ) Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. Terminal blocks are excluded.
6. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
7. The value in brackets is applicable when cooling fans (2 units of 92 mm × 92 mm, minimum air flow: 1.0 m^3/min) are installed, and then [Pr. PA02] is changed.
8. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "1-Axis Servo Amplifier Model Designation" in this catalog for details.
9. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
10. The servo amplifier built-in regenerative resistor is compatible with the maximum torque deceleration when the servo motor is used within the rated speed and the recommended load to motor inertia ratio. Contact your local sales office if the operating motor speed or the load to motor inertia ratio exceeds the rated speed or the recommended ratio.
11. The value is applicable for the MR-J4-_B4-RJ010 servo amplifier only.

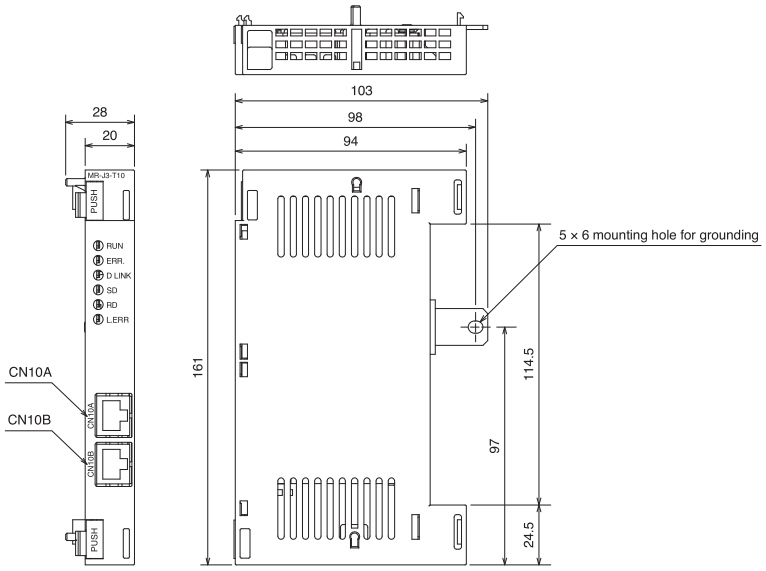
CC-Link IE Field Network Interface Unit (MR-J3-T10)

B-RJ010

Specifications

Item		Description
Model		MR-J3-T10
Control circuit power supply	Voltage	5 V DC (Control circuit power for the CC-Link IE Field Network interface unit is supplied from the servo amplifier.)
	Rated current [A]	0.8
Input/output interface		CC-Link IE Field Network
Number of communication ports		2 ports (CN10A and CN10B connectors)
Structure (IP rating)		Natural cooling, open (IP00)
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust
	Altitude	1000 m or less above sea level
	Vibration resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)
Mass [g]		150

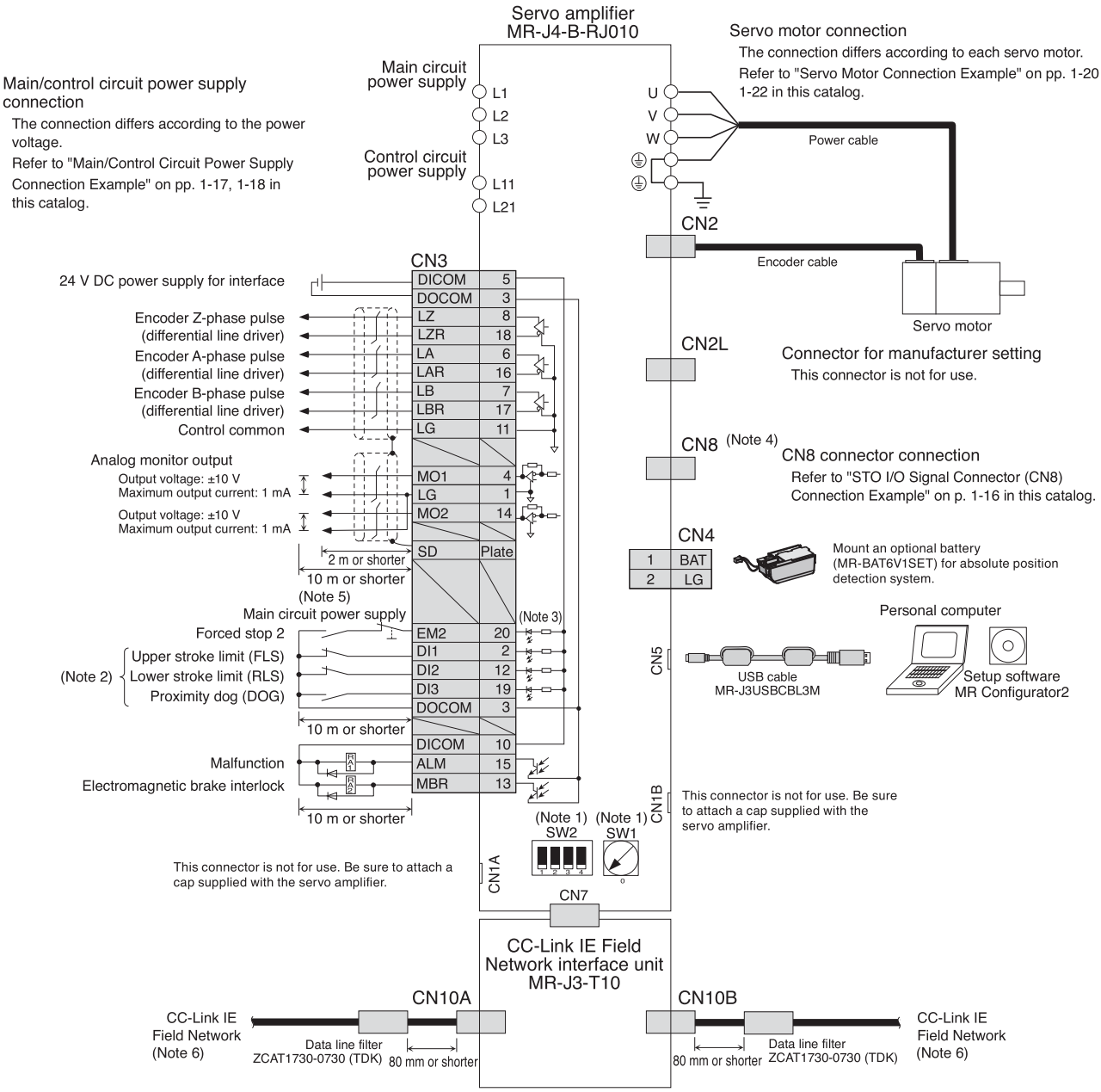
Dimensions



[Unit: mm]

MR-J4-B-RJ010 Standard Wiring Diagram Example (Note 7)

B-RJ010



Notes: 1. Up to 63 stations are set by using a combination of a station selection rotary switch (SW1) and auxiliary station number setting switches (SW2-3 and SW2-4). Note that the number of the connectable stations depends on the controller specifications.
2. Devices can be assigned for DI1, DI2 and DI3 with controller setting. Refer to the controller instruction manuals for details on setting.
3. This is for sink wiring. Source wiring is also possible.
4. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
5. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
6. When branching off CC-Link IE Field Network with a switching HUB, use DT135TX (Mitsubishi Electric System & Service Co., Ltd.).
7. This standard wiring diagram is common for 200 V AC, 100 V AC and 400 V AC type servo amplifiers.

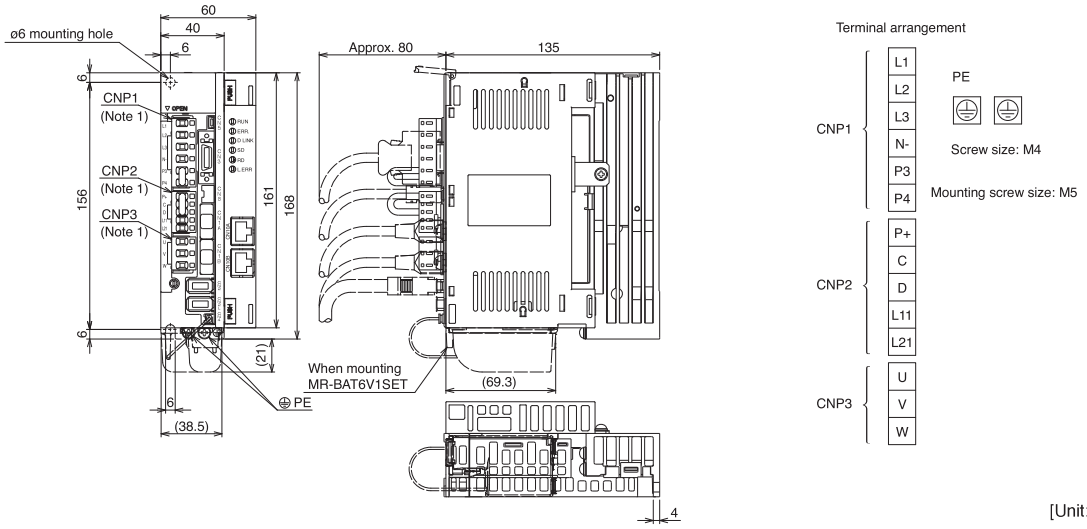
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4-B-RJ010 Dimensions (Note 2)

B-RJ010

●MR-J4-10B-RJ010

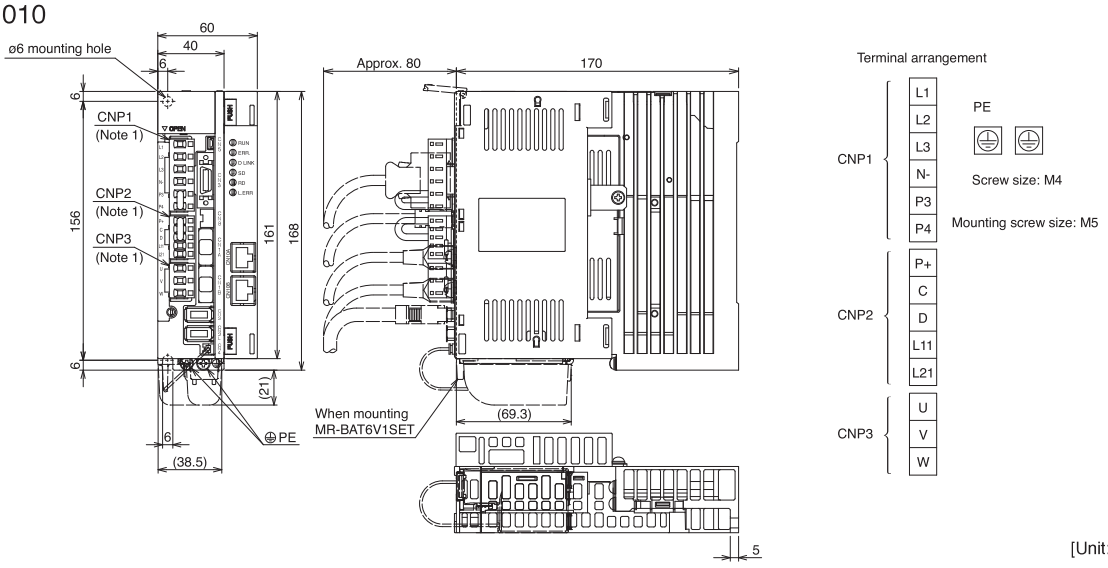
●MR-J4-20B-RJ010



[Unit: mm]

●MR-J4-40B-RJ010

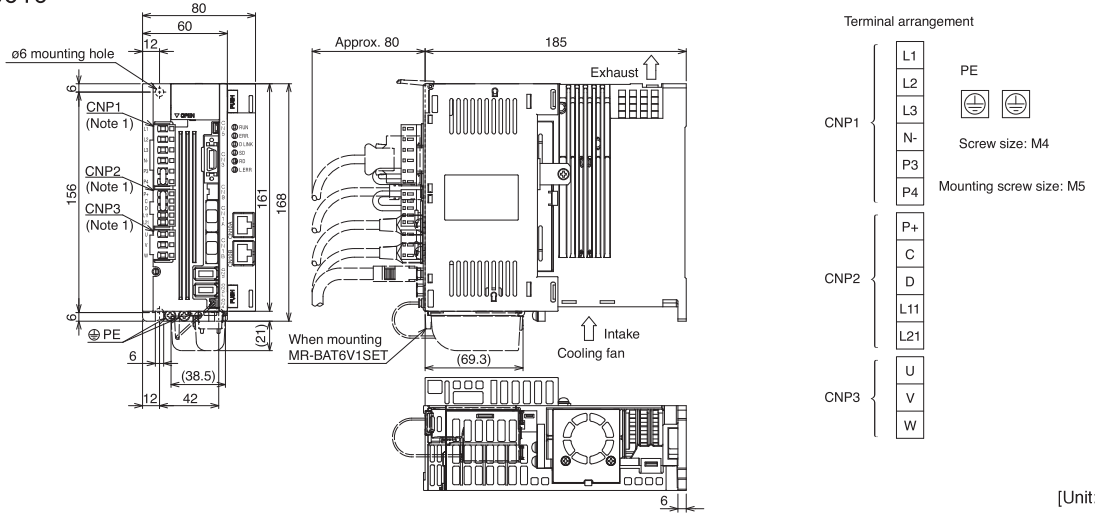
●MR-J4-60B-RJ010



[Unit: mm]

●MR-J4-70B-RJ010

●MR-J4-100B-RJ010



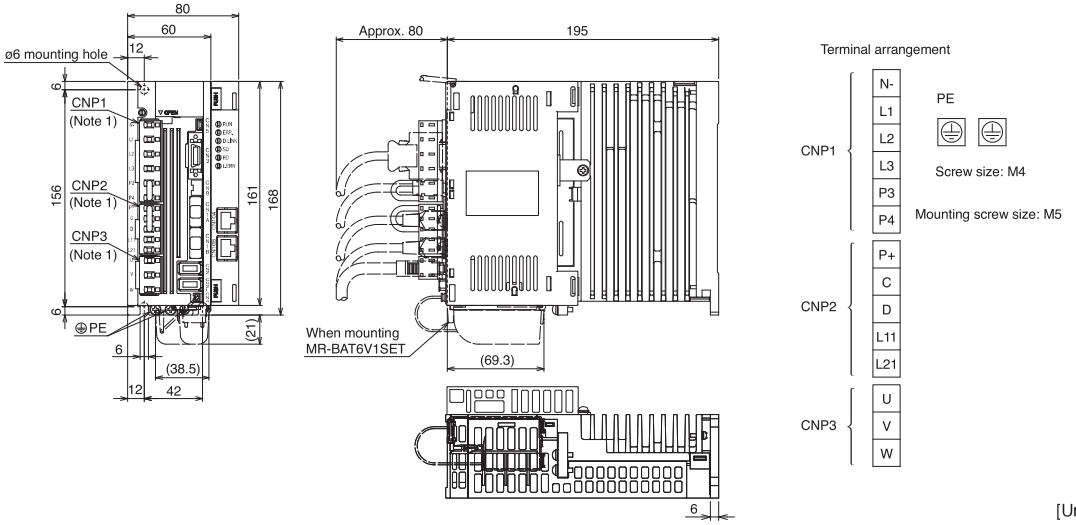
[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. The dimensions are applicable when MR-J4-B-RJ010 and MR-J3-T10 are combined. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in this catalog for the dimensions of MR-J4-B-RJ010 servo amplifiers alone.

MR-J4-B-RJ010 Dimensions (Note 2)

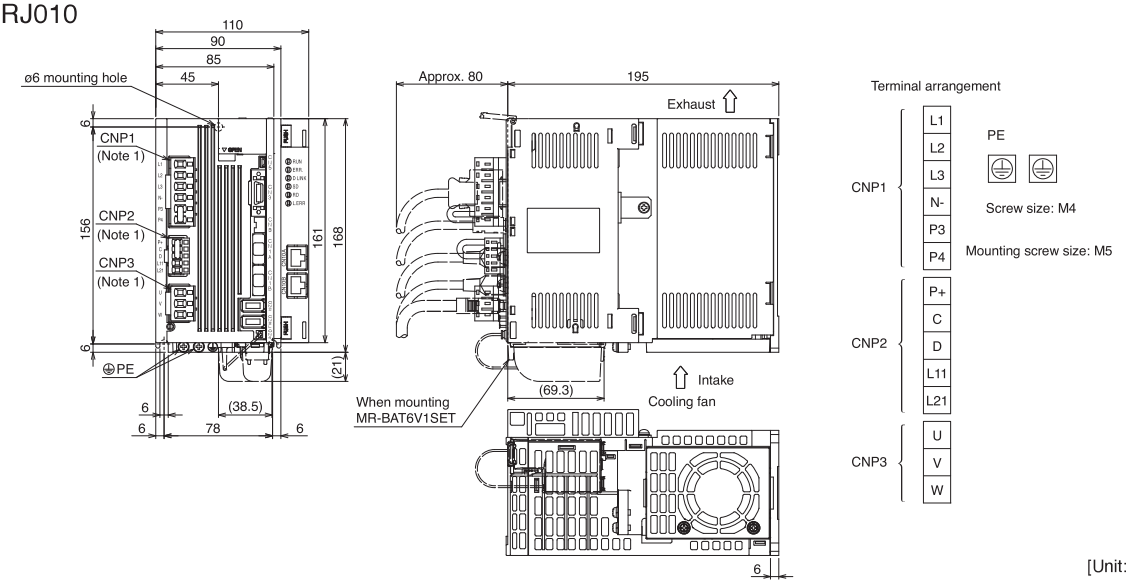
●MR-J4-60B4-RJ010

●MR-J4-100B4-RJ010



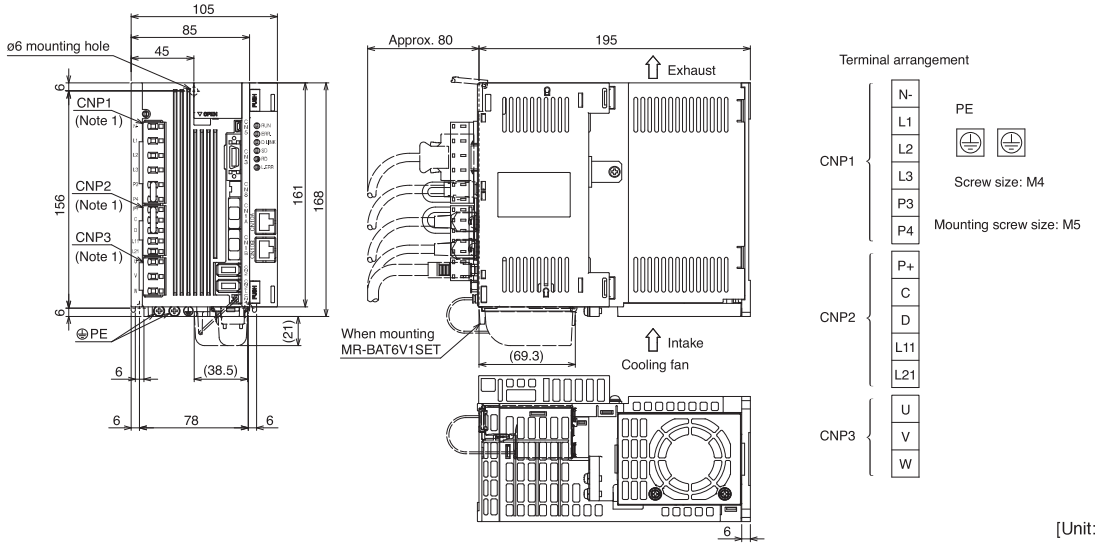
[Unit: mm]

●MR-J4-200B-RJ010



[Unit: mm]

●MR-J4-200B4-RJ010



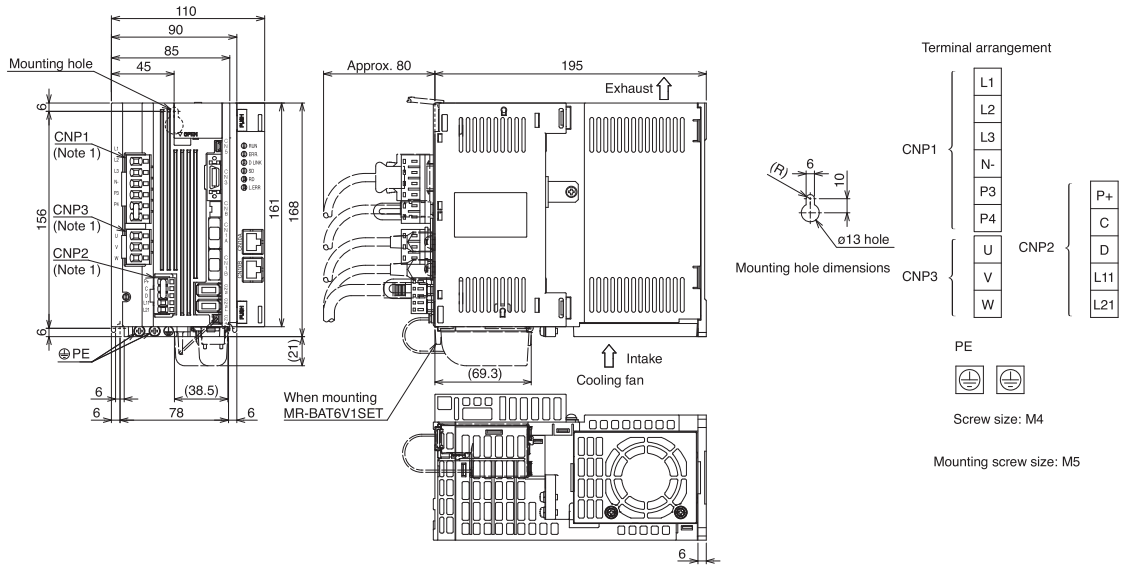
[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. The dimensions are applicable when MR-J4-B-RJ010 and MR-J3-T10 are combined. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in this catalog for the dimensions of MR-J4-B-RJ010 servo amplifiers alone.

MR-J4-B-RJ010 Dimensions (Note 2)

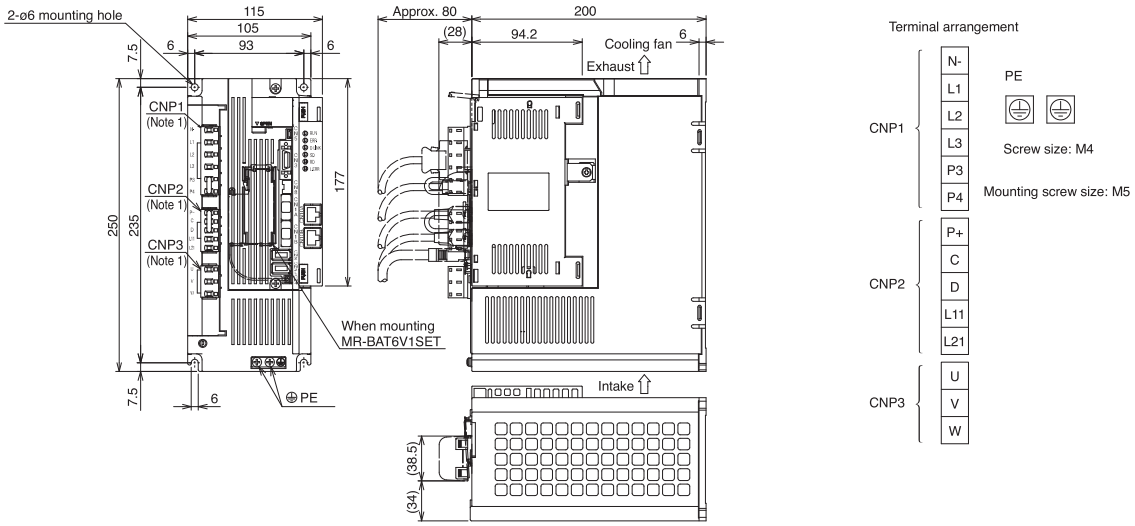
B-RJ010

●MR-J4-350B-RJ010



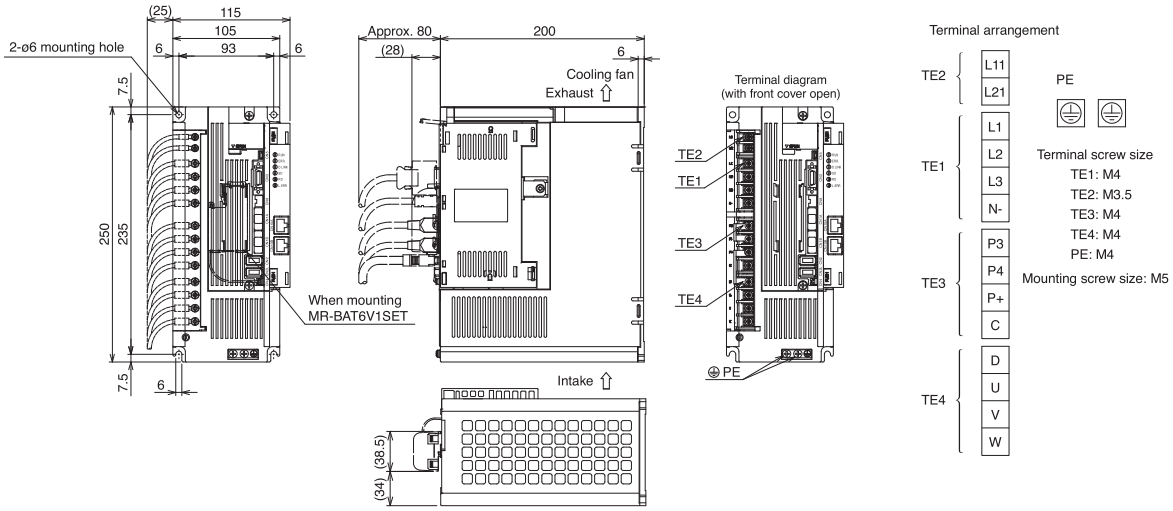
[Unit: mm]

●MR-J4-350B4-RJ010



[Unit: mm]

●MR-J4-500B-RJ010

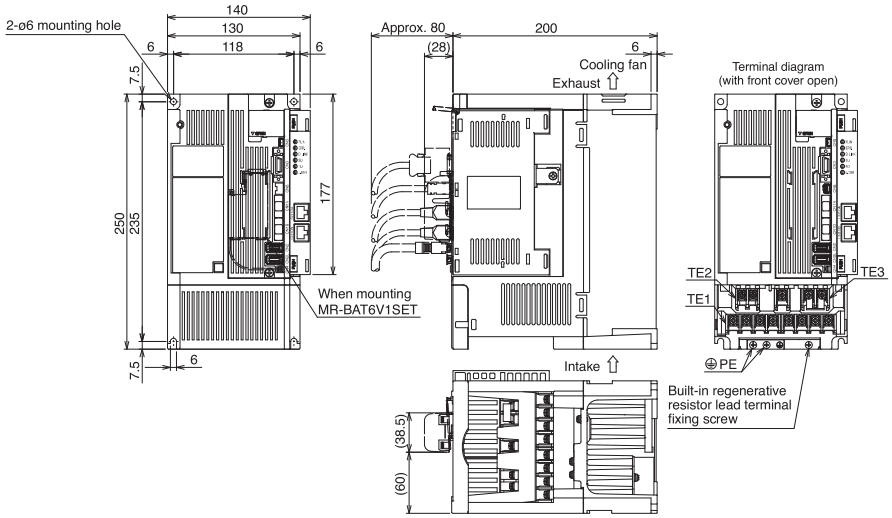


[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. The dimensions are applicable when MR-J4-B-RJ010 and MR-J3-T10 are combined. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in this catalog for the dimensions of MR-J4-B-RJ010 servo amplifiers alone.

MR-J4-B-RJ010 Dimensions (Note 1)

●MR-J4-500B4-RJ010



Terminal screw size
TE1: M4
TE2: M3.5
TE3: M4
PE: M4
Mounting screw size: M5

Terminal arrangement

TE2

L11	L21

TE3

N-	P3	P4

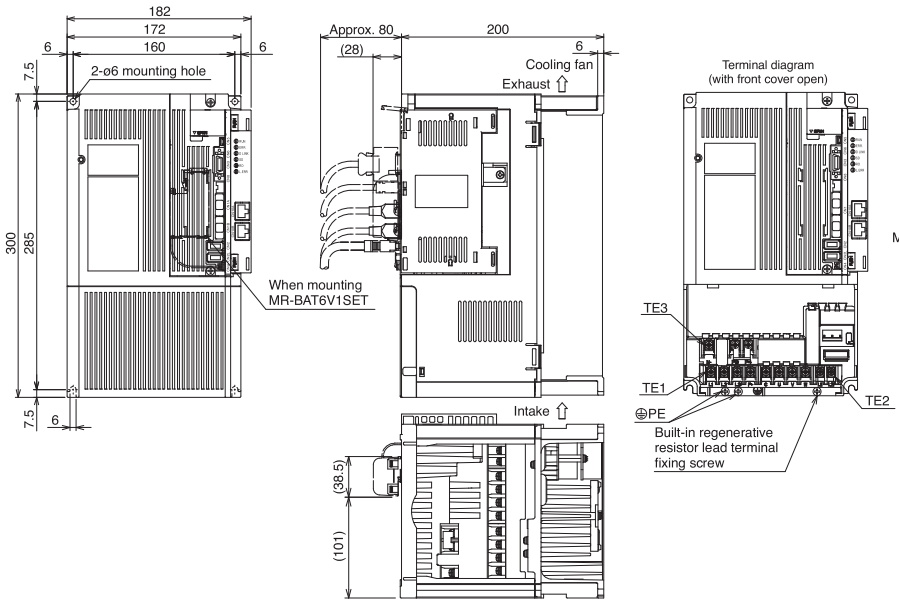
TE1

L1	L2	L3	P+	C	U	V	W

PE

[Unit: mm]

●MR-J4-700B-RJ010, MR-J4-700B4-RJ010



Terminal screw size
TE1: M4
TE2: M3.5
TE3: M4
PE: M4
Mounting screw size: M5

Terminal arrangement

TE3

N-	P3	P4

TE1

L1	L2	L3	P+	C	U	V	W

TE2

L11	L21

PE

[Unit: mm]

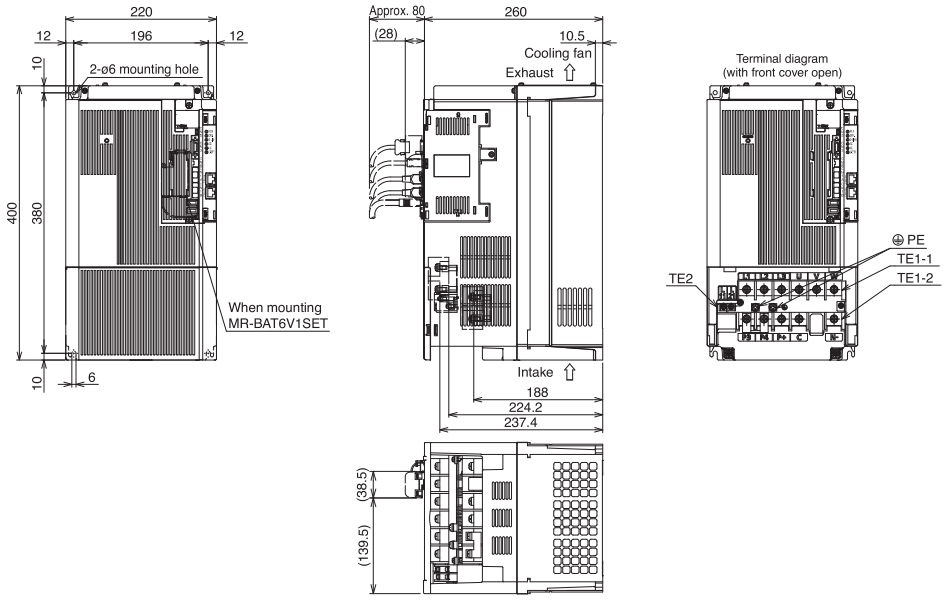
Notes: 1. The dimensions are applicable when MR-J4-B-RJ010 and MR-J3-T10 are combined. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in this catalog for the dimensions of MR-J4-B-RJ010 servo amplifiers alone.

MR-J4-B-RJ010 Dimensions (Note 1)

B-RJ010

●MR-J4-11KB-RJ010, MR-J4-11KB4-RJ010

●MR-J4-15KB-RJ010, MR-J4-15KB4-RJ010



Terminal screw size
TE1-1: M6
TE1-2: M6
TE2: M4
PE: M6
Mounting screw size: M5

Terminal arrangement

TE1-1

L1	L2	L3	U	V	W

TE1-2

P3	P4	P+	C		N-

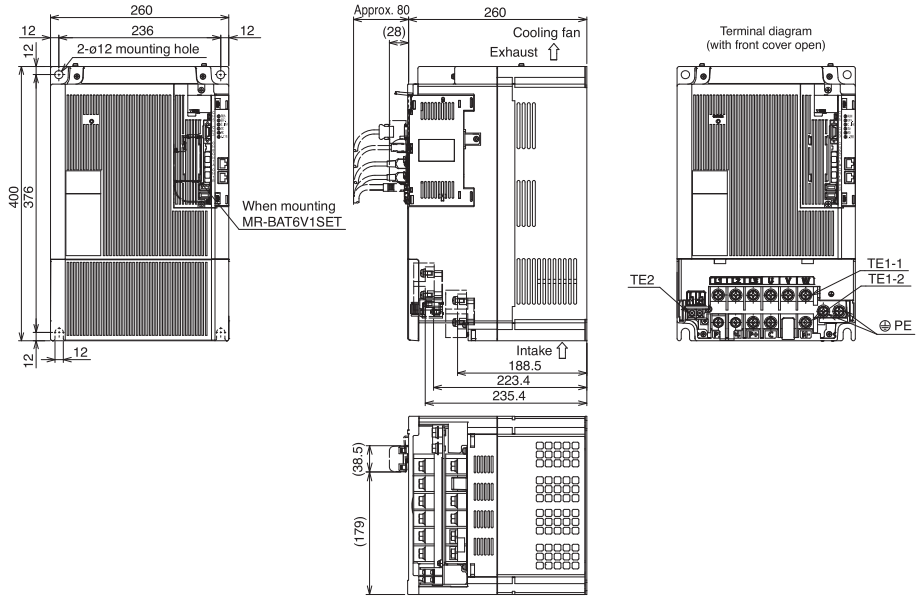
TE2

L11	L21

PE

[Unit: mm]

●MR-J4-22KB-RJ010, MR-J4-22KB4-RJ010



Terminal screw size
TE1-1: M8
TE1-2: M8
TE2: M4
PE: M8
Mounting screw size: M10

Terminal arrangement

TE1-1

L1	L2	L3	U	V	W

TE1-2

P3	P4	P+	C		N-

TE2

L11	L21

PE

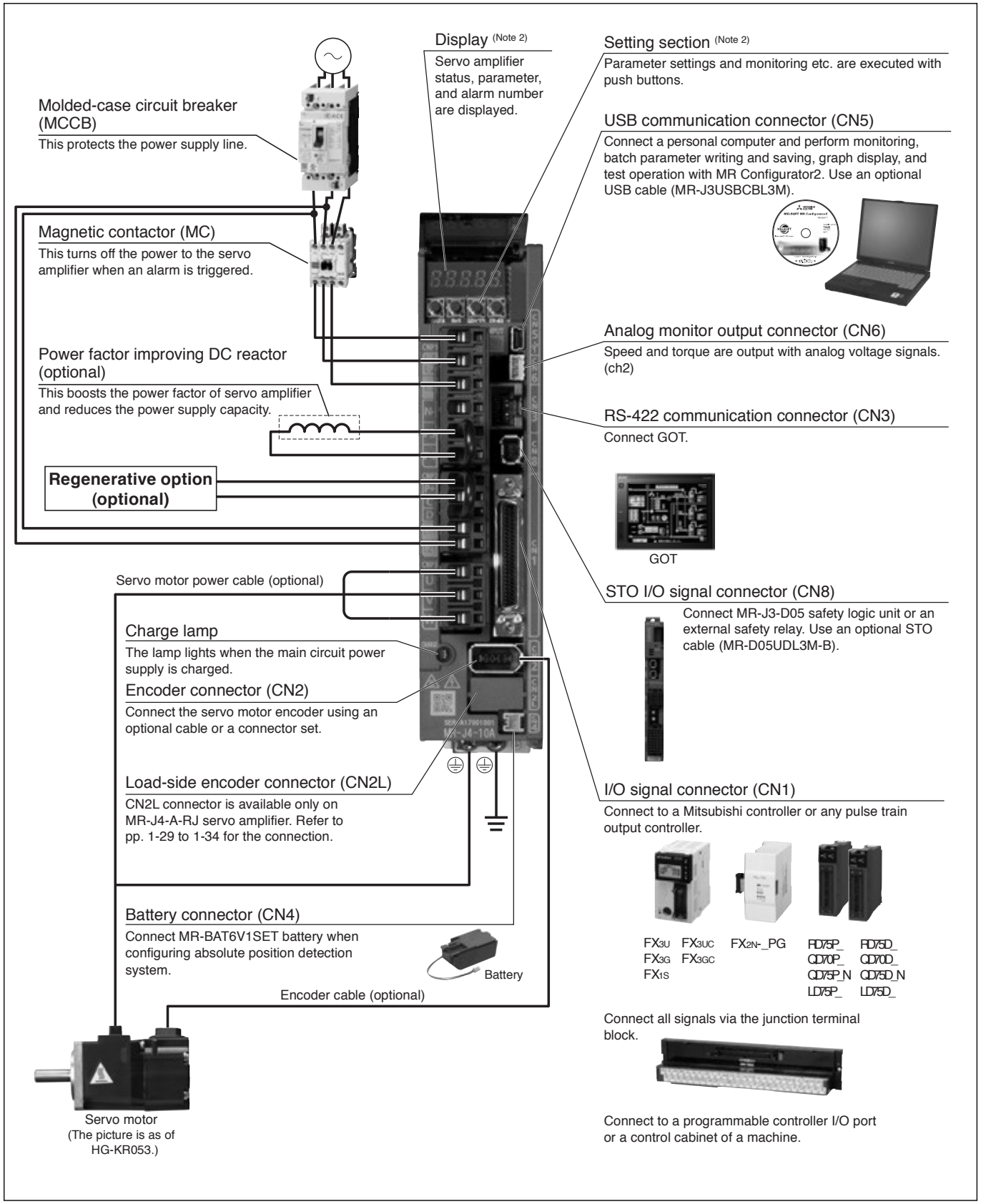
[Unit: mm]

Notes: 1. The dimensions are applicable when MR-J4-B-RJ010 and MR-J3-T10 are combined. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in this catalog for the dimensions of MR-J4-B-RJ010 servo amplifiers alone.

MR-J4-A/MR-J4-A-RJ Connections with Peripheral Equipment (Note 1)

A A-RJ

Peripheral equipment is connected to MR-J4-A/MR-J4-A-RJ as described below. Connectors, cables, options, and other necessary equipment are available so that users can set up the servo amplifier easily and start using it right away.



Notes: 1. The connection with the peripheral equipment is an example for MR-J4-350A/MR-J4-350A-RJ or smaller servo amplifiers. Refer to "MR-J4-_A_(-RJ) Servo Amplifier Instruction Manual" for the actual connections.
2. This picture shows when the display cover is open.

MR-J4-A(1)/MR-J4-A(1)-RJ (General-purpose Interface) Specifications (200 V/100 V) A A-RJ

Servo amplifier model MR-J4-_(-RJ)			10A	20A	40A	60A	70A	100A	200A	350A	500A	700A	11KA	15KA	22KA	10A1	20A1	40A1
Output	Rated voltage		3-phase 170 V AC															
	Rated current	[A]	1.1	1.5	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0	68.0	87.0	126.0	1.1	1.5	2.8
Main circuit power supply input	Voltage/frequency (Note 1)		3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz					3-phase 200 V AC to 240 V AC, 50 Hz/60 Hz								1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated current (Note 14)	[A]	0.9	1.5	2.6	3.2 (Note 8)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0	3.0	5.0	9.0
	Permissible voltage fluctuation		3-phase or 1-phase 170 V AC to 264 V AC					3-phase 170 V AC to 264 V AC								1-phase 85 V AC to 132 V AC		
	Permissible frequency fluctuation		±5% maximum															
Control circuit power supply input	Voltage/frequency		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz													1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated current	[A]	0.2								0.3					0.4		
	Permissible voltage fluctuation		1-phase 170 V AC to 264 V AC													1-phase 85 V AC to 132 V AC		
	Permissible frequency fluctuation		±5% maximum															
	Power consumption	[W]	30								45					30		
Interface power supply			24 V DC ± 10% (required current capacity: 0.5 A (including CN8 connector signals))															
Control method			Sine-wave PWM control/current control method															
Tolerable regenerative power	Built-in regenerative resistor (Note 2, 3)	[W]	-	10	10	10	20	20	100	100	130	170	-	-	-	-	10	10
	External regenerative resistor (standard accessory) (Note 2, 3, 11, 12)	[W]	-	-	-	-	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)	-	-	-
Dynamic brake			Built-in (Note 4)										External option (Note 13)			Built-in (Note 4)		
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)															
			RS-422: 1 : n communication (up to 32 axes) (Note 10)															
Encoder output pulse			Compatible (A/B/Z-phase pulse)															
Analog monitor			2 channels															
Position control mode	Maximum input pulse frequency		4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)															
	Positioning feedback pulse		Encoder resolution: 22 bits															
	Command pulse multiplying factor		Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000															
	Positioning complete width setting		0 pulse to ±65535 pulses (command pulse unit)															
	Error excessive		±3 rotations															
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)															
Speed control mode	Speed control range		Analog speed command 1:2000, internal speed command 1:5000															
	Analog speed command input		0 V DC to ±10 V DC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)															
	Speed fluctuation rate		±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command															
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)															
Torque control mode	Analog torque command input		0 V DC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ)															
	Speed limit		Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed)															
Positioning mode			Point table method, program method, indexer (turret) method															
Fully closed loop control		MR-J4-A(1)	Two-wire type communication method (Note 9)															
		MR-J4-A(1)-RJ	Two-wire/four-wire type communication method															
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control (Note 15), lost motion compensation (Note 15)															
Load-side encoder interface		MR-J4-A(1)	Mitsubishi high-speed serial communication															
		MR-J4-A(1)-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal															
Protective functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection															

MR-J4-A(1)/MR-J4-A(1)-RJ (General-purpose Interface) Specifications (200 V/100 V)

A A-RJ

Servo amplifier model MR-J4-_(-RJ)		10A	20A	40A	60A	70A	100A	200A	350A	500A	700A	11KA	15KA	22KA	10A1	20A1	40A1
Functional safety		STO (IEC/EN 61800-5-2)															
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2															
	Response performance	8 ms or less (STO input OFF → energy shut-off)															
	Test pulse input (STO) (Note 7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum															
	Mean time to dangerous failure (MTTFd)	100 years or longer															
	Diagnostic coverage (DC)	Medium (90% to 99%)															
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]															
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.															
Structure (IP rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (Note 5)					Natural cooling, open (IP20)		
Close mounting		Possible (Note 6)								Not possible					Possible (Note 6)		
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)															
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)															
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust															
	Altitude	1000 m or less above sea level															
	Vibration resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)															
Mass [kg]		0.8	0.8	1.0	1.0	1.4	1.4	2.1	2.3	4.0	6.2	13.4	13.4	18.2	0.8	0.8	1.0

Notes: 1. Rated output and speed of a rotary servo motor and a direct drive motor; and continuous thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4-_A_(-RJ) Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. Terminal blocks are excluded.
6. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load ratio.
7. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
8. The rated current is 2.9 A when the servo amplifier is used with UL or CSA compliant servo motor.
9. Fully closed loop control is compatible with the servo amplifiers with software version A5 or later.
10. RS-422 communication is compatible with the servo amplifiers with software version A3 or later.
11. The value in brackets is applicable when cooling fans (2 units of 92 mm × 92 mm, minimum air flow: 1.0 m³/min) are installed, and then [Pr. PA02] is changed.
12. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "1-Axis Servo Amplifier Model Designation" in this catalog for details.
13. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
14. This value is applicable for 750 W or smaller servo amplifiers in 200 V class when a 3-phase power supply is used.
15. This function is available with the servo amplifiers with software version B4 or later.

MR-J4-DU_A/MR-J4-DU_A-RJ (General-purpose Interface) Specifications (200 V)

A A-RJ

Drive unit model MR-J4-_(-RJ)			DU30KA	DU37KA
Compatible converter unit model			MR-CR55K (Note 4)	
Output	Rated voltage		3-phase 170 V AC	
	Rated current	[A]	174	204
Main circuit power supply input			Main circuit power is supplied from the converter unit to the drive unit (Note 4)	
Control circuit power supply input	Voltage/frequency		1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz	
	Rated current	[A]	0.3	
	Permissible voltage fluctuation		1-phase 170 V AC to 264 V AC	
	Permissible frequency fluctuation		±5% maximum	
	Power consumption	[W]	45	
Interface power supply			24 V DC ± 10% (required current capacity: 0.5 A (including CN8 connector signals))	
Control method			Sine-wave PWM control/current control method	
Dynamic brake			External option (Note 3)	
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)	
			RS-422: 1 : n communication (up to 32 axes)	
Encoder output pulse			Compatible (A/B/Z-phase pulse)	
Analog monitor			2 channels	
Position control mode	Maximum input pulse frequency		4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)	
	Positioning feedback pulse		Encoder resolution: 22 bits	
	Command pulse multiplying factor		Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000	
	Positioning complete width setting		0 pulse to ±65535 pulses (command pulse unit)	
	Error excessive		±3 rotations	
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)	
Speed control mode	Speed control range		Analog speed command 1:2000, internal speed command 1:5000	
	Analog speed command input		0 V DC to ±10 V DC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)	
	Speed fluctuation rate		±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command	
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)	
Torque control mode	Analog torque command input		0 V DC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ)	
	Speed limit		Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed)	
Positioning mode			Point table method, program method, indexer (turret) method	
Fully closed loop control		MR-J4-DU_A	Two-wire type communication method	
		MR-J4-DU_A-RJ	Two-wire/four-wire type communication method	
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control, lost motion compensation	
Load-side encoder interface		MR-J4-DU_A	Mitsubishi high-speed serial communication	
		MR-J4-DU_A-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal	
Protective functions			Overcurrent shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection	

MR-J4-DU_A/MR-J4-DU_A-RJ (General-purpose Interface) Specifications (200 V)

A A-RJ

Drive unit model MR-J4-_(-RJ)		DU30KA	DU37KA
Functional safety		STO (IEC/EN 61800-5-2)	
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2	
	Response performance	8 ms or less (STO input OFF → energy shut-off)	
	Test pulse input (STO) (Note 2)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum	
	Mean time to dangerous failure (MTTFd)	100 years or longer	
	Diagnostic coverage (DC)	Medium (90% to 99%)	
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]	
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.	
Structure (IP rating)		Force cooling, open (IP20) (Note 1)	
Close mounting		Not possible	
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)	
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)	
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude	1000 m or less above sea level	
	Vibration resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Mass [kg]		21	

Notes: 1. Terminal blocks are excluded.
2. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the drive unit instantaneously at regular intervals.
3. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
4. One unit of converter unit is required for each drive unit. Refer to "MR-CR Converter Unit Specifications (200 V/400 V)" on p. 1-14 in this catalog for the specifications of the converter unit.

MR-J4-A4/MR-J4-A4-RJ (General-purpose Interface) Specifications (400 V)

A A-RJ

Servo amplifier model MR-J4-_(-RJ)			60A4	100A4	200A4	350A4	500A4	700A4	11KA4	15KA4	22KA4
Output	Rated voltage		3-phase 323 V AC								
	Rated current	[A]	1.5	2.8	5.4	8.6	14.0	17.0	32.0	41.0	63.0
Main circuit power supply input	Voltage/frequency (Note 1)		3-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated current	[A]	1.4	2.5	5.1	7.9	10.8	14.4	23.1	31.8	47.6
	Permissible voltage fluctuation		3-phase 323 V AC to 528 V AC								
	Permissible frequency fluctuation		±5% maximum								
Control circuit power supply input	Voltage/frequency		1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated current	[A]	0.1			0.2					
	Permissible voltage fluctuation		1-phase 323 V AC to 528 V AC								
	Permissible frequency fluctuation		±5% maximum								
	Power consumption	[W]	30			45					
Interface power supply			24 V DC ± 10% (required current capacity: 0.5 A (including CN8 connector signals))								
Control method			Sine-wave PWM control/current control method								
Tolerable regenerative power	Built-in regenerative resistor (Note 2, 3)	[W]	15	15	100	100	130 (Note 10)	170 (Note 10)	-	-	-
	External regenerative resistor (standard accessory) (Note 2, 3, 7, 8)	[W]	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic brake			Built-in (Note 4)						External option (Note 9)		
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)								
			RS-422: 1 : n communication (up to 32 axes)								
Encoder output pulse			Compatible (A/B/Z-phase pulse)								
Analog monitor			2 channels								
Position control mode	Maximum input pulse frequency		4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)								
	Positioning feedback pulse		Encoder resolution: 22 bits								
	Command pulse multiplying factor		Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000								
	Positioning complete width setting		0 pulse to ±65535 pulses (command pulse unit)								
	Error excessive		±3 rotations								
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)								
Speed control mode	Speed control range		Analog speed command 1:2000, internal speed command 1:5000								
	Analog speed command input		0 V DC to ±10 V DC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)								
	Speed fluctuation rate		±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command								
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)								
Torque control mode	Analog torque command input		0 V DC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ)								
	Speed limit		Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed)								
Positioning mode			Point table method, program method, indexer (turret) method								
Fully closed loop control		MR-J4-A4	Two-wire type communication method								
		MR-J4-A4-RJ	Two-wire/four-wire type communication method								
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control (Note 11), lost motion compensation (Note 11)								
Load-side encoder interface		MR-J4-A4	Mitsubishi high-speed serial communication								
		MR-J4-A4-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal								
Protective functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection								

MR-J4-A4/MR-J4-A4-RJ (General-purpose Interface) Specifications (400 V)

A A-RJ

Servo amplifier model MR-J4-_(-RJ)		60A4	100A4	200A4	350A4	500A4	700A4	11KA4	15KA4	22KA4
Functional safety		STO (IEC/EN 61800-5-2)								
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2								
	Response performance	8 ms or less (STO input OFF → energy shut-off)								
	Test pulse input (STO) (Note 6)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum								
	Mean time to dangerous failure (MTTFd)	100 years or longer								
	Diagnostic coverage (DC)	Medium (90% to 99%)								
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]								
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.								
Structure (IP rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (Note 5)				
Close mounting		Not possible								
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)								
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Altitude	1000 m or less above sea level								
	Vibration resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Mass [kg]		1.7	1.7	2.1	3.6	4.3	6.5	13.4	13.4	18.2

Notes: 1. Rated output and speed of a rotary servo motor, and continuous thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4-_A_(-RJ) Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. Terminal blocks are excluded.
6. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
7. The value in brackets is applicable when cooling fans (2 units of 92 mm × 92 mm, minimum air flow: 1.0 m^3/min) are installed, and then [Pr. PA02] is changed.
8. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "1-Axis Servo Amplifier Model Designation" in this catalog for details.
9. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
10. The servo amplifier built-in regenerative resistor is compatible with the maximum torque deceleration when the servo motor is used within the rated speed and the recommended load to motor inertia ratio. Contact your local sales office if the operating motor speed or the load to motor inertia ratio exceeds the rated speed or the recommended ratio.
11. This function is available with the servo amplifiers with software version B4 or later.

MR-J4-DU_A4/MR-J4-DU_A4-RJ (General-purpose Interface) Specifications (400 V) A A-RJ

Drive unit model MR-J4-_(-RJ)			DU30KA4	DU37KA4	DU45KA4	DU55KA4
Compatible converter unit model			MR-CR55K4 (Note 4)			
Output	Rated voltage		3-phase 323 V AC			
	Rated current	[A]	87	102	131	143
Main circuit power supply input			Main circuit power is supplied from the converter unit to the drive unit (Note 4)			
Control circuit power supply input	Voltage/frequency		1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz			
	Rated current	[A]	0.2			
	Permissible voltage fluctuation		1-phase 323 V AC to 528 V AC			
	Permissible frequency fluctuation		±5% maximum			
	Power consumption	[W]	45			
Interface power supply			24 V DC ± 10% (required current capacity: 0.5 A (including CN8 connector signals))			
Control method			Sine-wave PWM control/current control method			
Dynamic brake			External option (Note 3)			
Communication function			USB: Connect a personal computer (MR Configurator2 compatible)			
			RS-422: 1 : n communication (up to 32 axes)			
Encoder output pulse			Compatible (A/B/Z-phase pulse)			
Analog monitor			2 channels			
Position control mode	Maximum input pulse frequency		4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)			
	Positioning feedback pulse		Encoder resolution: 22 bits			
	Command pulse multiplying factor		Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000			
	Positioning complete width setting		0 pulse to ±65535 pulses (command pulse unit)			
	Error excessive		±3 rotations			
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)			
Speed control mode	Speed control range		Analog speed command 1:2000, internal speed command 1:5000			
	Analog speed command input		0 V DC to ±10 V DC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)			
	Speed fluctuation rate		±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command			
	Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)			
Torque control mode	Analog torque command input		0 V DC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ)			
	Speed limit		Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed)			
Positioning mode			Point table method, program method, indexer (turret) method			
Fully closed loop control		MR-J4-DU_A4	Two-wire type communication method			
		MR-J4-DU_A4-RJ	Two-wire/four-wire type communication method			
Servo function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control, lost motion compensation			
Load-side encoder interface		MR-J4-DU_A4	Mitsubishi high-speed serial communication			
		MR-J4-DU_A4-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal			
Protective functions			Overcurrent shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection,			

MR-J4-DU_A4/MR-J4-DU_A4-RJ (General-purpose Interface) Specifications (400 V)

A A-RJ

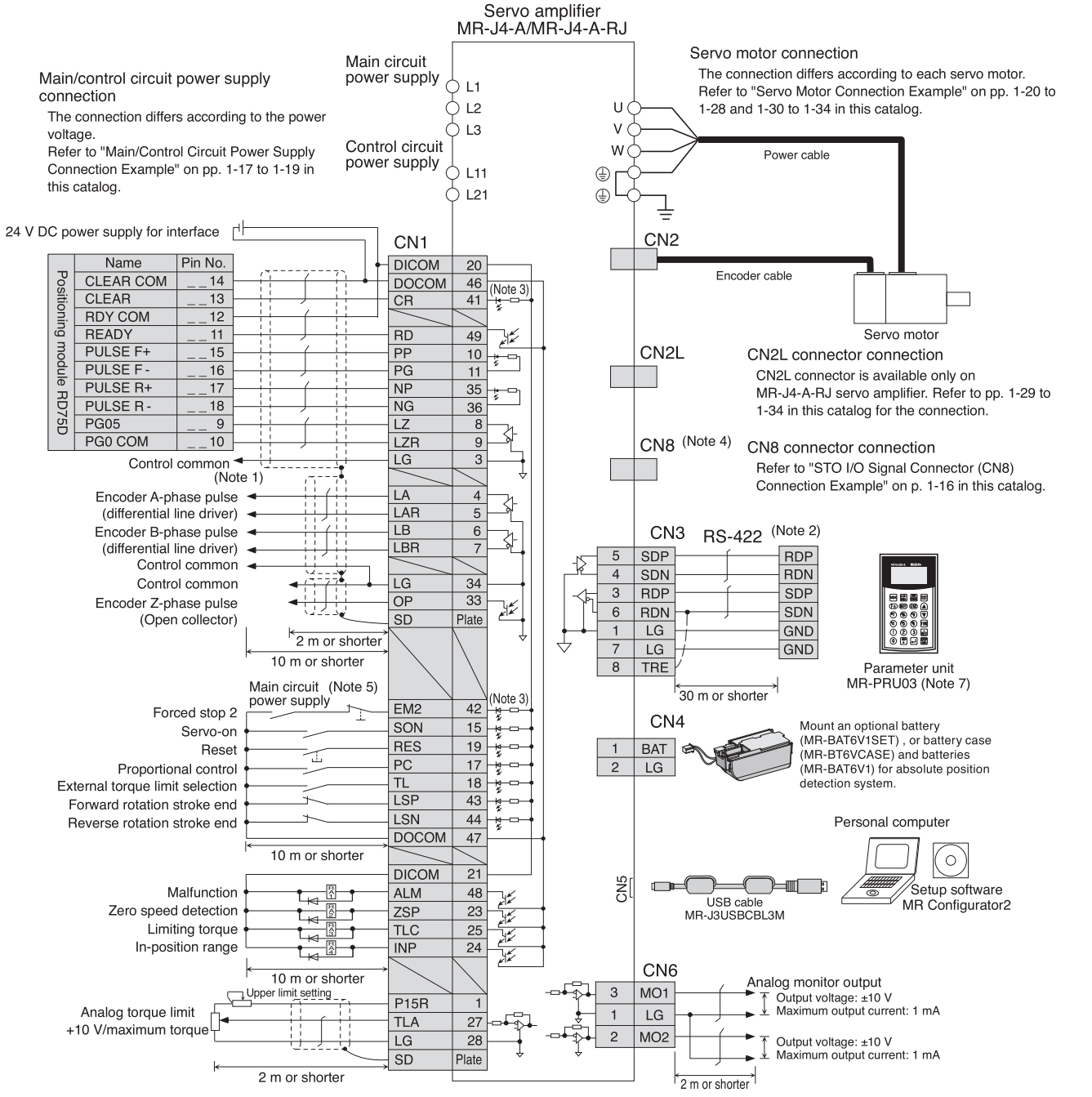
Drive unit model MR-J4-_(-RJ)		DU30KA4	DU37KA4	DU45KA4	DU55KA4
Functional safety		STO (IEC/EN 61800-5-2)			
Safety performance	Standards certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2			
	Response performance	8 ms or less (STO input OFF → energy shut-off)			
	Test pulse input (STO) (Note 2)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum			
	Mean time to dangerous failure (MTTFd)	100 years or longer			
	Diagnostic coverage (DC)	Medium (90% to 99%)			
	Probability of dangerous Failure per Hour (PFH)	1.68×10^{-10} [1/h]			
Compliance to standards		Refer to "Conformity with Global Standards and Regulations" on p. 57 in this catalog.			
Structure (IP rating)		Force cooling, open (IP20) (Note 1)			
Close mounting		Not possible			
Environment	Ambient temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)			
	Ambient humidity	Operation/storage: 90 %RH maximum (non-condensing)			
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude	1000 m or less above sea level			
	Vibration resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Mass [kg]		16		19	

Notes: 1. Terminal blocks are excluded.
2. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the drive unit instantaneously at regular intervals.
3. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a servo motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
4. One unit of converter unit is required for each drive unit. Refer to "MR-CR Converter Unit Specifications (200 V/400 V)" on p. 1-14 in this catalog for the specifications of the converter unit.

MR-J4-A/MR-J4-A-RJ Standard Wiring Diagram Example: Position Control Operation (Note 6)

A A-RJ

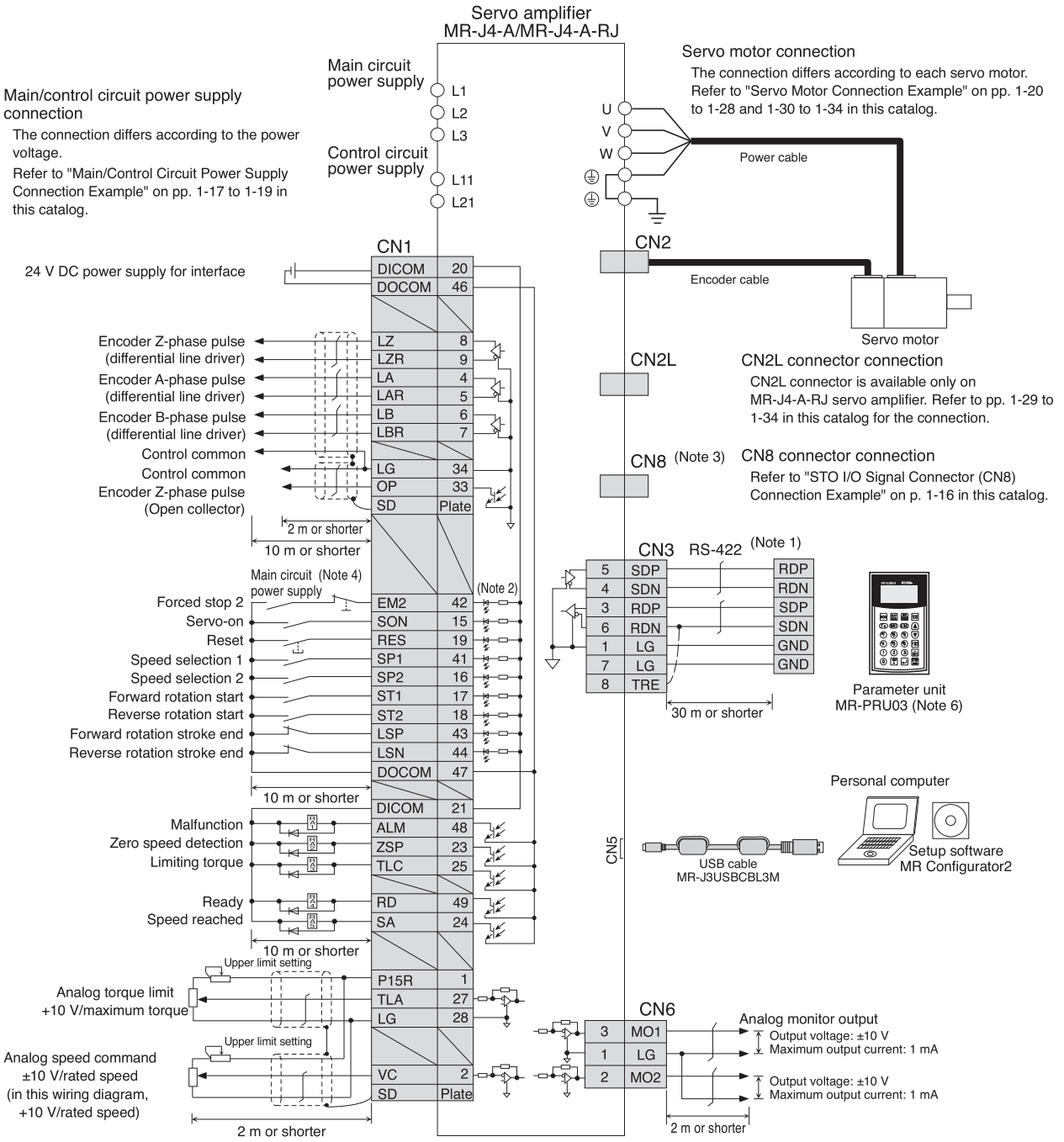
Connecting to RD75D (position servo, incremental)



Notes: 1. This connection is not necessary for RD75D Positioning module. Note that the connection between LG and control common terminal is recommended for some Positioning modules to improve noise tolerance.
2. It is also possible to connect a personal computer to CN3 connector with an RS-422/RS-232C conversion cable. However, USB interface (CN5 connector) and RS-422 interface (CN3 connector) are mutually exclusive. Do not use them at the same time. Refer to "Products on the Market for Servo Amplifiers" in this catalog for the RS-422/RS-232C conversion cable.
3. This is for sink wiring. Source wiring is also possible.
4. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
5. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
6. This standard wiring diagram is common for 200 V AC, 100 V AC and 400 V AC type servo amplifiers.
7. Use a commercial LAN cable (EIA568 compliant), and keep the wiring length to 10 m or less.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4-A/MR-J4-A-RJ Standard Wiring Diagram Example: Speed Control Operation (Note 5)

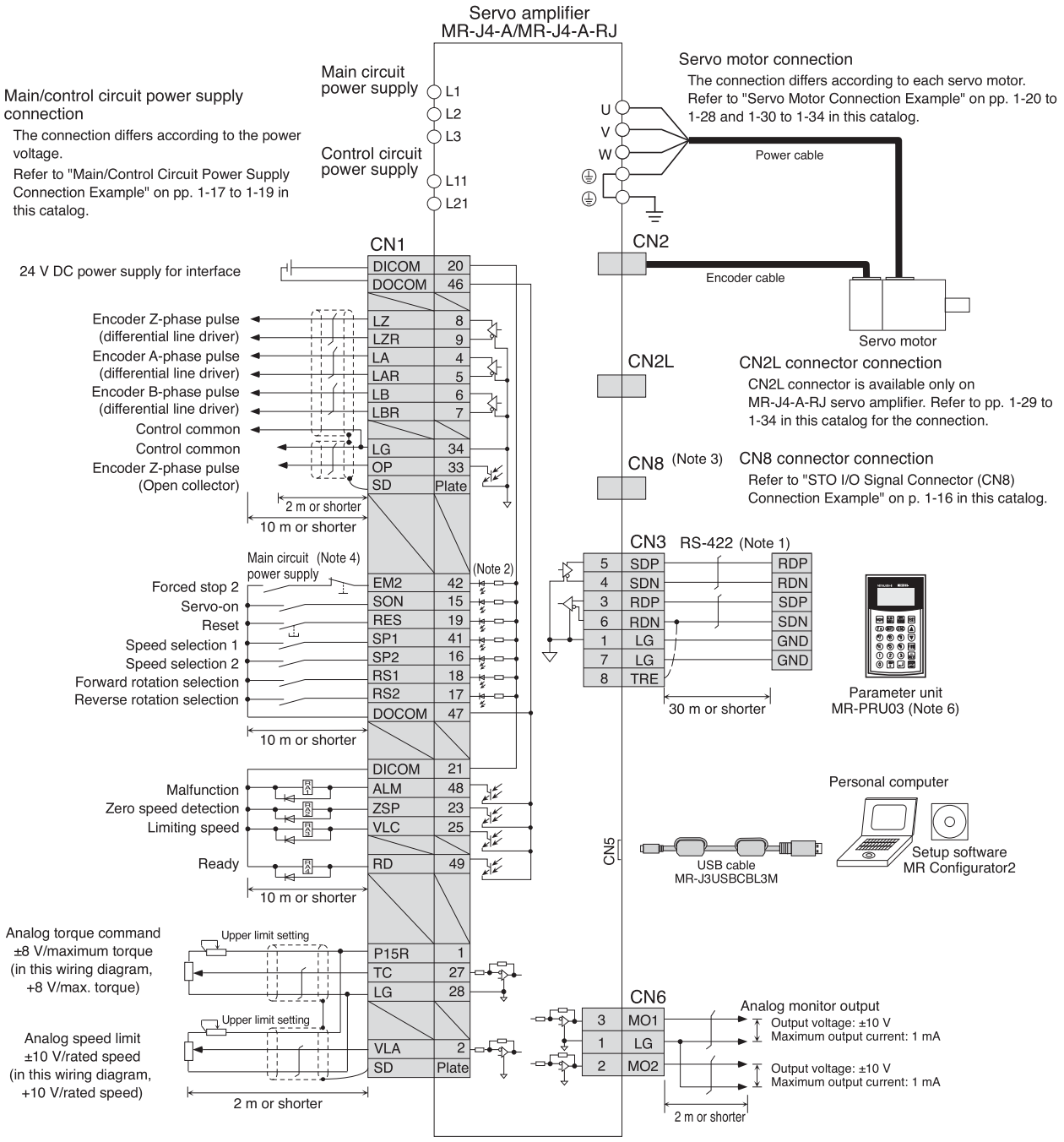


Notes: 1. It is also possible to connect a personal computer to CN3 connector with an RS-422/RS-232C conversion cable. However, USB interface (CN5 connector) and RS-422 interface (CN3 connector) are mutually exclusive. Do not use them at the same time. Refer to "Products on the Market for Servo Amplifiers" in this catalog for the RS-422/RS-232C conversion cable.
2. This is for sink wiring. Source wiring is also possible.
3. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
4. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
5. This standard wiring diagram is common for 200 V AC, 100 V AC and 400 V AC type servo amplifiers.
6. Use a commercial LAN cable (EIA568 compliant), and keep the wiring length to 10 m or less.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4-A/MR-J4-A-RJ Standard Wiring Diagram Example: Torque Control Operation (Note 5)

A A-RJ



Notes: 1. It is also possible to connect a personal computer to CN3 connector with an RS-422/RS-232C conversion cable. However, USB interface (CN5 connector) and RS-422 interface (CN3 connector) are mutually exclusive. Do not use them at the same time. Refer to "Products on the Market for Servo Amplifiers" in this catalog for the RS-422/RS-232C conversion cable.
2. This is for sink wiring. Source wiring is also possible.
3. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
4. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
5. This standard wiring diagram is common for 200 V AC, 100 V AC and 400 V AC type servo amplifiers.
6. Use a commercial LAN cable (EIA568 compliant), and keep the wiring length to 10 m or less.

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4-A-RJ Positioning Function: Point Table Method

Positioning operation is executed by selecting the point table No. with a command interface signal according to the position and speed data set in the point table.

Item				Description
Command method		Command interface		DIO (input: 11 points (excluding forced stop input (EM2)), and output: 8 points), RS-422
		Operating specification		Positioning by specifying the point table No. (255 points)
		Position command input (Note 1)	Absolute value command method	Set in the point table. Setting range of feed length per point: -999999 to 999999 [×10STM μm], -99.9999 to 99.9999 [×10STM inch], -999999 to 999999 [pulse], Setting range of rotation angle: -360.000 to 360.000 [degree]
			Incremental value command method	Set in the point table. Setting range of feed length per point: 0 to 999999 [×10STM μm], 0 to 99.9999 [×10STM inch], 0 to 999999 [pulse], Setting range of rotation angle: 0 to 999.999 [degree]
		Speed command input		Set the acceleration/deceleration time constants in the point table. Set the S-pattern acceleration/deceleration time constants with [Pr. PC03].
		System		Signed absolute value command method, incremental value command method
		Analog override		0 V DC to ±10 V DC/0% to 200%
		Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)
Operation mode	Automatic operation mode	Each positioning operation		Point table No. input, position data input method Each positioning operation is executed based on the position/speed commands.
		Automatic continuous positioning operation		Varying-speed operation (2 to 255 speeds), automatic continuous positioning operation (2 to 255 points)
	Manual operation mode	JOG operation		Inching operation is executed with DI or RS-422 communication function according to the speed command set with a parameter.
		Manual pulse generator operation		Manual feeding is executed with a manual pulse generator. Command pulse multiplication: select from ×1, ×10, and ×100 with a parameter.
	Home position return mode	Dog type		Returns to home position upon Z-phase pulse after passing through proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Count type		Returns to home position upon the encoder pulse count after touching proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Data set type		Returns to home position without dog. Any position settable as a home position using manual operation, etc. Home position address settable
		Stopper type		Returns to home position upon hitting the stroke end. Home position return direction selectable, home position address settable
		Home position ignorance (servo-on position as home position)		Sets a home position where SON (Servo-on) signal turns on. Home position address settable
		Dog type rear end reference		Returns to home position with reference to the rear end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Count type front end reference		Returns to home position with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dog cradle type		Returns to home position upon the first Z-phase pulse with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dog type adjacent Z-phase reference (Note 2)		Returns to home position upon the last Z-phase pulse with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dog type front end reference		Returns to home position to the front end of dog with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dogless Z-phase reference (Note 2)		Returns to home position to Z-phase pulse with reference to the first Z-phase pulse. Home position return direction settable, home position shift distance settable, home position address settable
	Automatic positioning to home position function			High-speed automatic positioning to a defined home position
Other functions				Absolute position detection system, backlash compensation, overtravel prevention with external limit switches (LSP/LSN), teaching function, roll feed display function, software stroke limit, mark detection (current position latch) function, analog override function

Notes: 1. STM is the ratio to the setting value of the position data. STM can be changed with [Pr. PT03].
2. Home position return modes of dog type adjacent Z-phase reference and dogless Z-phase reference are not available when the direct drive motor or incremental type linear encoder is used.

MR-J4-A-RJ Positioning Function: Point Table Method

Absolute value command method: travels to a specified address (absolute value) with reference to the home position

Item	Setting range	Description
Point table No.	1 to 255	Specify a point table in which a target position, servo motor speed, acceleration/deceleration time constants, dwell, and sub function will be set.
Target position (Note 1, 3) (position data)	-999999 to 999999 [×10^{STM} µm] -99.9999 to 99.9999 [×10^{STM} inch] -360.000 to 360.000 [degree] -999999 to 999999 [pulse]	Set a travel distance. (1) When using as absolute value command method Set a target address (absolute value). (2) When using as incremental value command method Set a travel distance. Reverse rotation command is applied with a minus sign.
Servo motor speed (Note 2)	0 to permissible speed [r/min] [mm/s]	Set a command speed for the servo motor in positioning.
Acceleration time constant	0 to 20000 [ms]	Set a time period for the servo motor to reach the rated speed.
Deceleration time constant	0 to 20000 [ms]	Set a time period for the servo motor to decelerate from the rated speed to a stop.
Dwell	0 to 20000 [ms]	Set dwell. When the dwell is set, the position command for the next point table will be started after the position command for the selected point table is completed and the set dwell is passed. The dwell is disabled when 0 or 2 is set for the sub function. Varying-speed operation is enabled when 1, 3, 8, 9, 10, or 11 is set for the sub function and when 0 is set for the dwell.
Sub function	0 to 3, and 8 to 11	Set sub function. (1) When using as absolute value command method 0: Executes automatic operation for a selected point table. 1: Executes automatic continuous operation without stopping for the next point table. 8: Executes automatic continuous operation without stopping for the point table selected at the start. 9: Executes automatic continuous operation without stopping for the point table No. 1. (2) When using as incremental value command method 2: Executes automatic operation for a selected point table. 3: Executes automatic continuous operation without stopping for the next point table. 10: Executes automatic continuous operation without stopping for the point table selected at the start. 11: Executes automatic continuous operation without stopping for the point table No. 1.
M code	0 to 99	Set a code to be outputted when the positioning completes.

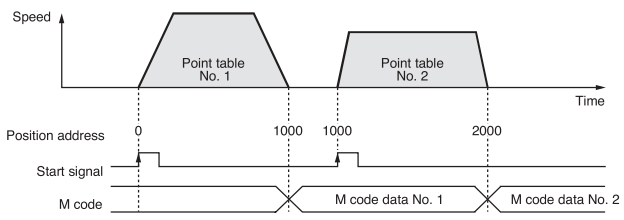
Notes: 1. Change the unit to µm/inch/degree/pulse with [Pr. PT01].
2. The speed unit is r/min for the rotary servo motors and the direct drive motors, and mm/s for the linear servo motors.
3. STM is the ratio to the setting value of the position data. STM can be changed with [Pr. PT03].

Example of setting point table data

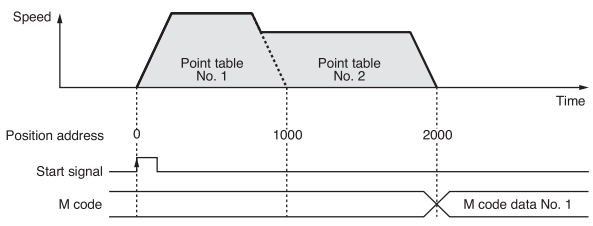
Point table No.	Target position (position data) [× 10^{STM} µm] (Note 1)	Servo motor speed [r/min]	Acceleration time constant [ms]	Deceleration time constant [ms]	Dwell [ms]	Sub function	M code
1	1000	2000	200	200	0	✻	1
2	2000	1600	100	100	0	0	2
:	:	:	:	:	:	:	:
255	3000	3000	100	100	0	2	99

✻ The operation of the next point table is set with the sub function.

● When the sub function is set to 0:
Start signal is required for each point table.



● When the sub function is set to 1:
Automatic continuous operation is executed based on the point table.



Notes: 1. STM is the ratio to the setting value of the position data. STM can be changed with [Pr. PT03].

MR-J4-A-RJ Positioning Function: Point Table Method

Incremental value command method: travels from a current position according to the set position data

Item	Setting range	Description
Point table No.	1 to 255	Specify a point table in which a target position, servo motor speed, acceleration/deceleration time constants, dwell, and sub function will be set.
Target position (Note 1, 3) (position data)	0 to 999999 [×10^{STM} µm] 0 to 99.9999 [×10^{STM} inch] 0 to 999.999 [degree] 0 to 999999 [pulse]	Set a travel distance. Operation starts with ST1 (Forward rotation start) or ST2 (Reverse rotation start).
Servo motor speed (Note 2)	0 to permissible speed [r/min] [mm/s]	Set a command speed for the servo motor in positioning.
Acceleration time constant	0 to 20000 [ms]	Set a time period for the servo motor to reach the rated speed.
Deceleration time constant	0 to 20000 [ms]	Set a time period for the servo motor to decelerate from the rated speed to a stop.
Dwell	0 to 20000 [ms]	Set a dwell. When the dwell is set, the position command for the next point table will be started after the position command for the selected point table is completed and the set dwell is passed. The dwell is disabled when 0 is set for the sub function. Varying-speed operation is enabled when 1, 8, or 9 is set for the sub function and when 0 is set for the dwell.
Sub function	0, 1, 8, and 9	Set sub function. 0: Executes automatic operation for the selected point table. 1: Executes automatic continuous operation without stopping for the next point table. 8: Executes automatic continuous operation without stopping for the point table selected at the start. 9: Executes automatic continuous operation without stopping for the point table No. 1.
M code	0 to 99	Set a code to be outputted when the positioning completes.

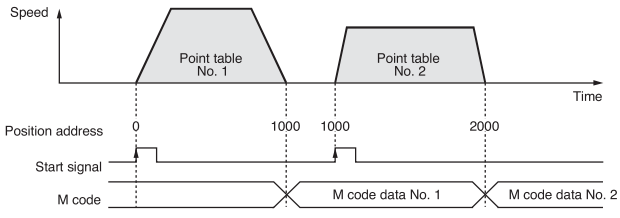
Notes: 1. Change the unit to µm/inch/degree/pulse with [Pr. PT01].
2. The speed unit is r/min for the rotary servo motors and the direct drive motors, and mm/s for the linear servo motors.
3. STM is the ratio to the setting value of the position data. STM can be changed with [Pr. PT03].

Example of setting point table data

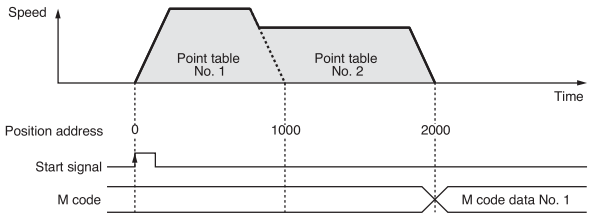
Point table No.	Target position (position data) [× 10^{STM} µm] (Note 1)	Servo motor speed [r/min]	Acceleration time constant [ms]	Deceleration time constant [ms]	Dwell [ms]	Sub function	M code
1	1000	2000	200	200	0	✻	1
2	1000	1600	100	100	0	0	2
:	:	:	:	:	:	:	:
255	3000	3000	100	100	0	0	99

✻ The operation of the next point table is set with the sub function.

● **When the sub function is set to 0:**
Start signal is required for each point table.

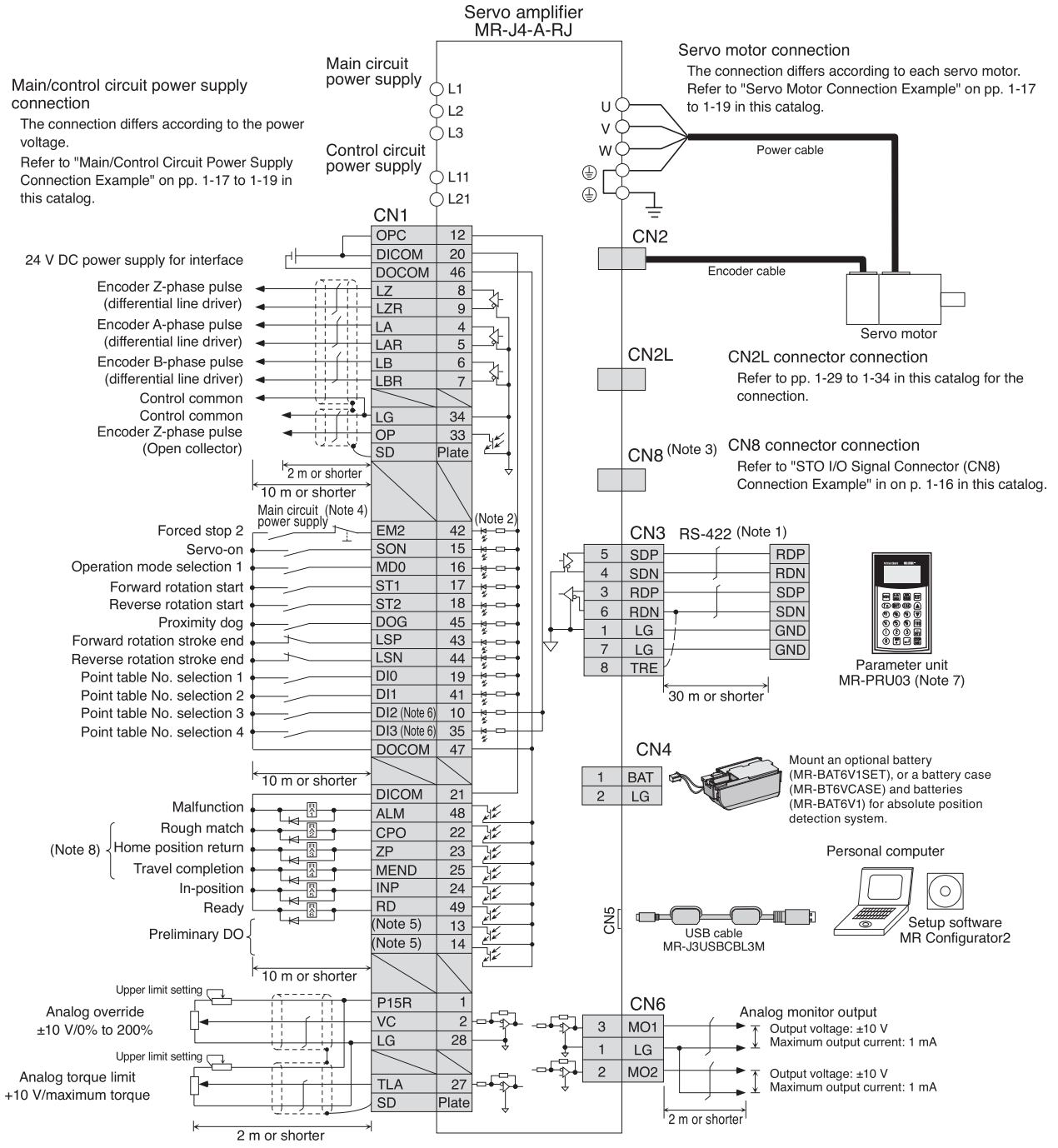


● **When the sub function is set to 1:**
Automatic continuous operation is executed based on the point table.



Notes: 1. STM is the ratio to the setting value of the position data. STM can be changed with [Pr. PT03].

MR-J4-A-RJ Standard Wiring Diagram Example: Point Table Method



Notes: 1. It is also possible to connect a personal computer to CN3 connector with an RS-422/RS-232C conversion cable. However, USB interface (CN5 connector) and RS-422 interface (CN3 connector) are mutually exclusive. Do not use them at the same time. Refer to "Products on the Market for Servo Amplifiers" in this catalog for the RS-422/RS-232C conversion cable.

2. This is for sink wiring. Source wiring is also possible. However, when input devices are assigned to CN1-10 pin and CN1-35 pin, be sure to use sink wiring. Source wiring is not possible in this case. In the positioning mode, input devices are assigned in the initial setting. Refer to "MR-J4-_A_-RJ Servo Amplifier Instruction Manual (Positioning Mode)" for details.
3. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
4. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
5. No output device is assigned in the initial setting. Assign an output device with [Pr. PD47] as necessary.
6. DI2 and DI3 are assigned to CN1-10 pin and CN1-35 pin respectively in the initial setting. Change them with [Pr. PD44] and [Pr. PD46] when using a manual pulse generator.
7. Use a commercial LAN cable (EIA568 compliant), and keep the wiring distance within 10 m when using MR-PRU03 parameter unit.
8. Assign the output devices mentioned to CN1-22 pin, CN1-23 pin, and CN1-25 pin with [Pr. PD23], [Pr. PD24] and [Pr. PD26].

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4-A-RJ Positioning Function: Program Method

Positioning operation is executed by selecting programs with command signals. The programs including position data, servo motor speed, acceleration/deceleration time constants and others need to be created beforehand. The program method enables more complex positioning operation than the point table method. MR Configurator2 is required to create programs.

Item				Description
Command method		Command interface		DIO (input: 11 points (excluding forced stop input (EM2)), and output: 8 points), RS-422
		Operating specification		Program language (program with MR Configurator2) Program capacity: 640 steps (256 programs)
		Position command input (Note 1)	Absolute value command method	Set with program language. Setting range of feed length: -999999 to 999999 [×10^{STM} μm], -99.9999 to 99.9999 [×10^{STM} inch], -999999 to 999999 [pulse], Setting range of rotation angle: -360.000 to 360.000 [degree]
			Incremental value command method	Set with program language. Setting range of feed length: -999999 to 999999 [×10^{STM} μm], -99.9999 to 99.9999 [×10^{STM} inch], -999999 to 999999 [pulse], Setting range of rotation angle: -999.999 to 999.999 [degree]
		Speed command input		Set servo motor speed, acceleration/deceleration time constants, S-pattern acceleration/deceleration time constants with program language. S-pattern acceleration/deceleration time constants are also settable with [Pr. PC03].
		System		Signed absolute value command method/signed incremental value command method
		Analog override		0 V DC to ±10 V DC/0% to 200%
		Torque limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)
Operation mode	Automatic operation mode	Program		Depends on the setting of the program language
	Manual operation mode	JOG operation		Inching operation is executed with DI or RS-422 communication function according to the speed command set with a parameter.
		Manual pulse generator operation		Manual feeding is executed with a manual pulse generator. Command pulse multiplication: select from ×1, ×10, and ×100 with a parameter.
	Home position return mode	Dog type		Returns to home position upon Z-phase pulse after passing through proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Count type		Returns to home position upon the encoder pulse count after touching proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Data set type		Returns to home position without dog. Any position settable as a home position using manual operation, etc. Home position address settable
		Stopper type		Returns to home position upon hitting the stroke end. Home position return direction selectable, home position address settable
		Home position ignorance (servo-on position as home position)		Sets a home position where SON (Servo-on) signal turns on. Home position address settable
		Dog type rear end reference		Returns to home position with reference to the rear end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Count type front end reference		Returns to home position with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dog cradle type		Returns to home position upon the first Z-phase pulse with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dog type adjacent Z-phase reference (Note 2)		Returns to home position upon the last Z-phase pulse with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dog type front end reference		Returns to home position to the front end of dog with reference to the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, automatic retract on dog back to home position, automatic stroke retract function
		Dogless Z-phase reference (Note 2)		Returns to home position to Z-phase pulse with reference to the first Z-phase pulse. Home position return direction settable, home position shift distance settable, home position address settable
	Automatic positioning to home position function			High-speed automatic positioning to a defined home position
Other functions				Absolute position detection system, backlash compensation, overtravel prevention with external limit switches (LSP/LSN), roll feed display function, software stroke limit, mark detection (current position latch) function, analog override function

Notes: 1. STM is the ratio to the setting value of the position data. STM can be changed with [Pr. PT03].
2. Home position return modes of dog type adjacent Z-phase reference and dogless Z-phase reference are not available when the direct drive motor or

MR-J4-A-RJ Positioning Function: Program Method

Command List

Command	Name	Setting range	Description
SPN(setting value) (Note 2)	Servo motor speed	0 to instantaneous permissible speed [r/min] [mm/s]	Set a command speed for the servo motor in positioning. Do not set a value exceeding the instantaneous permissible speed of the servo motor.
STA(setting value) (Note 2)	Acceleration time constant	0 to 20000 [ms]	Set acceleration time constant. The setting value is a time period that the servo motor reaches the rated speed from a stop.
STB(setting value) (Note 2)	Deceleration time constant	0 to 20000 [ms]	Set deceleration time constant. The setting value is a time period that the servo motor stops from the rated speed.
STC(setting value) (Note 2)	Acceleration/ deceleration time constants	0 to 20000 [ms]	Set acceleration and deceleration time constants. The setting value is a time period that the servo motor reaches the rated speed from a stop and stops from the rated speed.
STD(setting value) (Note 2)	S-pattern acceleration/ deceleration time constants	0 to 1000 [ms]	Set S-pattern acceleration/deceleration time constants.
MOV(setting value) (Note 4, 5)	Absolute value travel command	-999999 to 999999 [×10^{STM} µm] -99.9999 to 99.9999 [×10^{STM} inch] -360.000 to 360.000 [degree] -999999 to 999999 [pulse]	Travels according to the value set as an absolute value.
MOVA(setting value) (Note 4, 5)	Absolute value continuous travel command		Travels continuously according to the value set as an absolute value. Be sure to write this command after [MOV] command.
MOVI(setting value) (Note 4, 5)	Incremental value travel command	-999999 to 999999 [×10^{STM} µm] -99.9999 to 99.9999 [×10^{STM} inch] -999999 to 999999 [degree] -999999 to 999999 [pulse]	Travels according to the value set as an incremental value.
MOVIA(setting value) (Note 4, 5)	Incremental value continuous travel command		Travels continuously according to the value set as an incremental value. Be sure to write this command after [MOVI] command.
SYNC(setting value) (Note 1)	Waiting for external signal to switch on	1 to 3	Stops the next step until PI1 (Program input 1) to PI3 (Program input 3) turn on after SOUT (SYNC synchronous output) is outputted.
OUTON(setting value) (Note 1)	External signal on output	1 to 3	Turns on OUT1 (Program output 1) to OUT3 (Program output 3).
OUTOF(setting value) (Note 1)	External signal off output	1 to 3	Turns off OUT1 (Program output 1) to OUT3 (Program output 3) which were turned on with [OUTON] command.
TRIP(setting value) (Note 1, 4, 5)	Absolute value trip point specification	-999999 to 999999 [×10^{STM} µm] -99.9999 to 99.9999 [×10^{STM} inch] -360.000 to 360.000 [degree] -999999 to 999999 [pulse]	Executes the next step after [MOV] or [MOVA] commands are started and then the servo motor moves for the travel amount set in [TRIP] command. Be sure to write this command after [MOV] or [MOVA] command.
TRIPI(setting value) (Note 1, 4, 5)	Incremental value trip point specification	-999999 to 999999 [×10^{STM} µm] -99.9999 to 99.9999 [×10^{STM} inch] -999999 to 999999 [degree] -999999 to 999999 [pulse]	Executes the next step after [MOVI] or [MOVIA] commands are started and then the servo motor moves for the travel amount set in [TRIPI] command. Be sure to write this command after [MOVI] or [MOVIA] command.
ITP(setting value) (Note 1, 3, 4, 5)	Interrupt positioning		Stops the operation after the servo motor moves for the travel amount set when the interrupt signal is inputted. Be sure to write this command after [SYNC] command.
COUNT(setting value) (Note 1)	External pulse count	-999999 to 999999 [pulse]	Executes the next step when the value of the pulse counter exceeds the count value set in [COUNT] command. [COUNT (0)] clears the pulse counter to zero.
FOR(setting value) NEXT	Step repeat command	0, and 1 to 10000 [number of times]	Repeats the steps between [FOR (setting value)] and [NEXT] commands for the number of times set. Repeats endlessly with [FOR (0) NEXT].
LPOS (Note 1)	Current position latch	-	Latches the current position with the rising edge of the LPS signal. The latched current position data can be read with the communication command.
TIM(setting value)	Dwell	1 to 20000 [ms]	Waits for the next step until the set time passes.
ZRT	Home position return	-	Executes a manual home position return.
TIMES(setting value)	Program count command	0, and 1 to 10000 [number of times]	Set the number of program execution by writing [TIMES (setting value)] command in the first line of the program. The setting is not required for executing once. Repeats endlessly with [TIMES (0)].
STOP	Program stop	-	Stops the program in execution. Be sure to write this command in the final line.

Notes: 1. [SYNC], [OUTON], [OUTOF], [TRIP], [TRIPI], [ITP], [COUNT], and [LPOS] commands are valid while the commands are outputted.
2. [SPN] command is valid while [MOV], [MOVA], [MOVI], or [MOVIA] command is in execution. [STA], [STB], [STC], and [STD] commands are valid while [MOV] or [MOVI] command is in execution.
3. [ITP] command will be skipped to the next step when the remaining distance equals to or less than the setting value, when the servo motor is not running, or when the servo motor is decelerating.
4. Change the unit to µm/inch/degree/pulse with [Pr. PT01].
5. STM is the ratio to the setting value of the position data. STM can be changed with [Pr. PT03].

MR-J4-A-RJ Positioning Function: Program Method

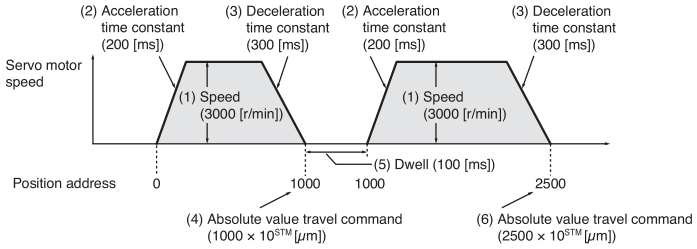
Command list

Command	Name	Setting range	Description
TLP(setting value)	Forward rotation torque limit	0, and 1 to 1000 [0.1%]	Limits the torque generated by the servo motor driving in CCW and regenerating in CW, as the maximum torque is 100%. The setting remains valid until the program is stopped. [TLP (0)] enables the setting of [Pr. PA11].
TLN(setting value)	Reverse rotation torque limit	0, and 1 to 1000 [0.1%]	Limits the torque generated by the servo motor driving in CW and regenerating in CCW, as the maximum torque is 100%. The setting remains valid until the program is stopped. [TLN (0)] enables the setting of [Pr. PA12].
TQL(setting value)	Torque limit	0, and 1 to 1000 [0.1%]	Limits the torque generated by the servo motor, as the maximum torque is 100%. The setting remains valid until the program is stopped. [TQL (0)] enables the settings of [Pr. PA11] and [Pr. PA12].

Program example 1

The following is an example of executing two types of operations with the same servo motor speed and acceleration/deceleration time constants but the different travel commands.

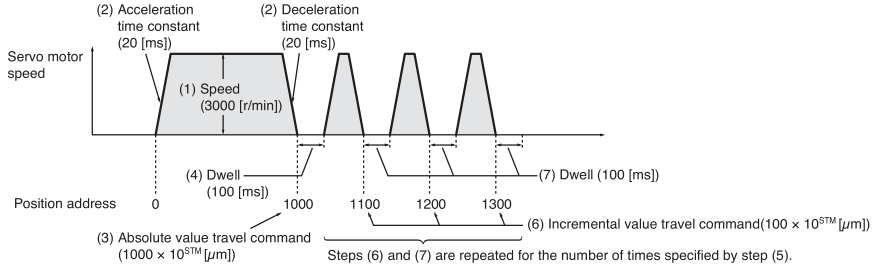
Step	Program (Note 1)	Description
(1)	SPN(3000)	Servo motor speed: 3000 [r/min]
(2)	STA(200)	Acceleration time constant: 200 [ms]
(3)	STB(300)	Deceleration time constant: 300 [ms]
(4)	MOV(1000)	Absolute value travel command: 1000 [×10^{STM} μm]
(5)	TIM(100)	Dwell: 100 [ms]
(6)	MOV(2500)	Absolute value travel command: 2500 [×10^{STM} μm]
(7)	STOP	Program stop



Program example 2

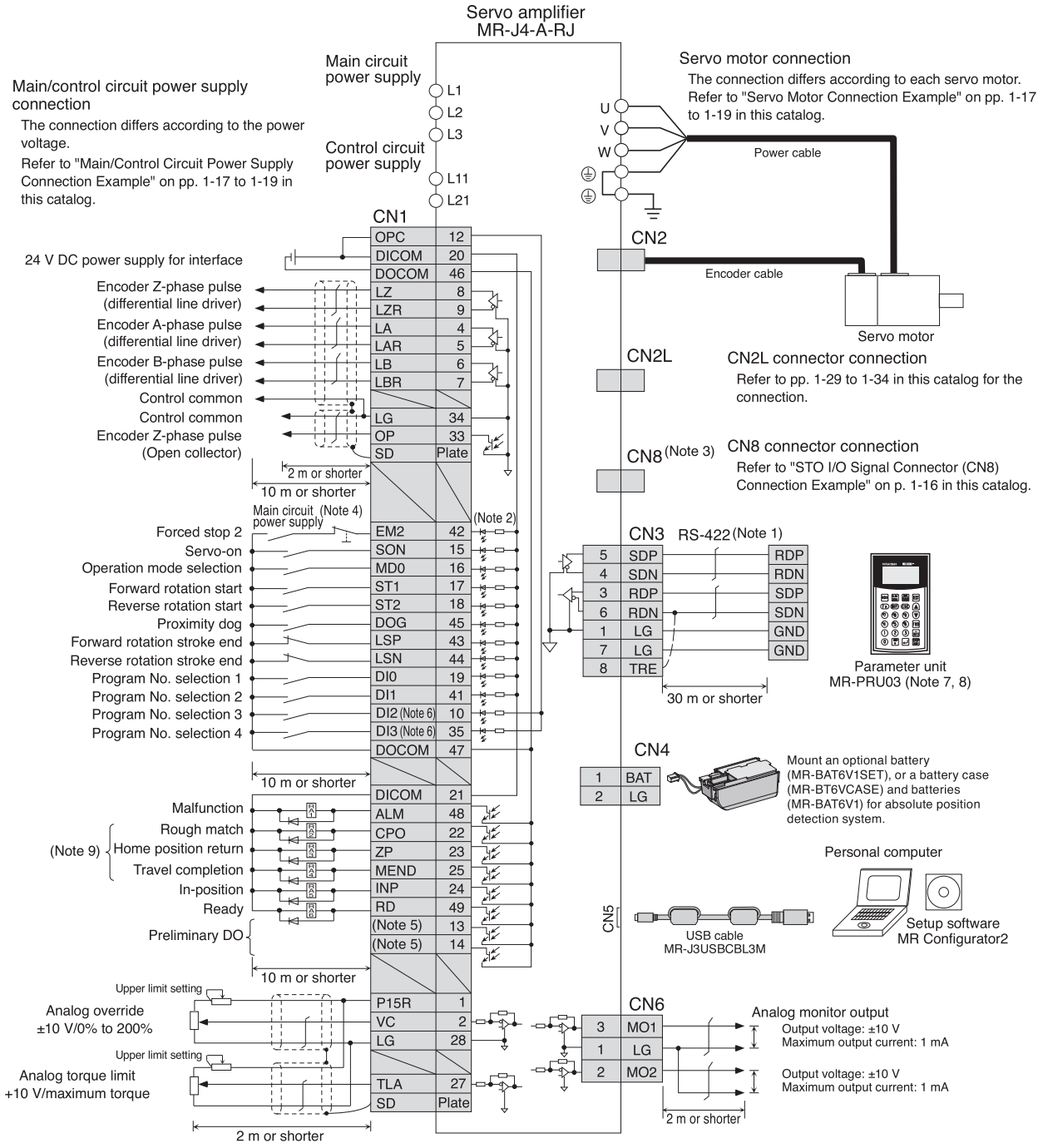
The following is an example of repeating the steps between [FOR (setting value)] and [NEXT] commands for the number of times set.

Step	Program (Note 1)	Description
(1)	SPN(3000)	Servo motor speed: 3000 [r/min]
(2)	STC(20)	Acceleration/deceleration time constants: 20 [ms]
(3)	MOV(1000)	Absolute value travel command: 1000 [×10^{STM} μm]
(4)	TIM(100)	Dwell: 100 [ms]
(5)	FOR(3)	Starting the step repeat command: 3 [number of times]
(6)	MOVI(100)	Incremental value travel command: 100 [×10^{STM} μm]
(7)	TIM(100)	Dwell: 100 [ms]
(8)	NEXT	Ending the step repeat command
(9)	STOP	Program stop



Notes: 1. The values in [SPN], [STA], [STB], and [STC] commands remains valid until they are reset. The values will not be initialized at the start of the program. The settings are also valid in other programs.

MR-J4-A-RJ Standard Wiring Diagram Example: Program Method



Notes: 1. It is also possible to connect a personal computer to CN3 connector with an RS-422/RS-232C conversion cable. However, USB interface (CN5 connector) and RS-422 interface (CN3 connector) are mutually exclusive. Do not use them at the same time. Refer to "Products on the Market for Servo Amplifiers" in this catalog for the RS-422/RS-232C conversion cable.

2. This is for sink wiring. Source wiring is also possible. However, when input devices are assigned to CN1-10 pin and CN1-35 pin, be sure to use sink wiring. Source wiring is not possible in this case. In the positioning mode, input devices are assigned in the initial setting. Refer to "MR-J4-_A_-RJ Servo Amplifier Instruction Manual (Positioning Mode)" for details.
3. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
4. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
5. No output device is assigned in the initial setting. Assign an output device with [Pr. PD47] as necessary.
6. DI2 and DI3 are assigned to CN1-10 pin and CN1-35 pin respectively in the initial setting. Change them with [Pr. PD44] and [Pr. PD46] when using a manual pulse generator.
7. Use a commercial LAN cable (EIA568 compliant), and keep the wiring distance within 10 m when using MR-PRU03 parameter unit.
8. Programs cannot be edited with the parameter unit.
9. Assign the output devices mentioned to CN1-22 pin, CN1-23 pin, and CN1-25 pin with [Pr. PD23], [Pr. PD24] and [Pr. PD26].

⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4-A-RJ Positioning Function: Indexer (Turret) Method

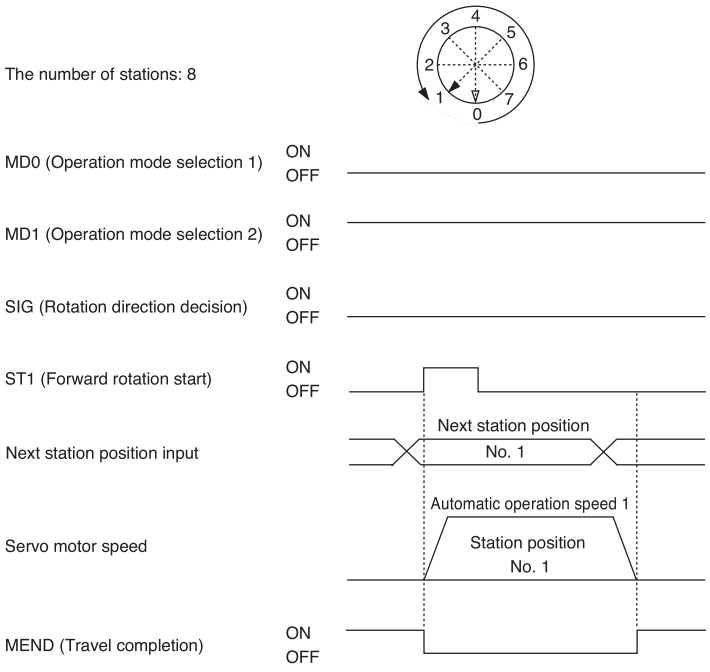
Positioning is executed by specifying stations (maximum of 255 stations).
Travel distance is automatically calculated with parameters by setting the numbers of stations.

Item			Description
Command method		Command interface	DIO (input: 11 points (excluding forced stop input (EM2)), and output: 8 points), RS-422
		Operating specification	Positioning by specifying the station position The maximum number of divisions: 255
		Speed command input	Selects the rotation speed and acceleration/deceleration time
		System	Rotation direction specifying indexer, shortest rotating indexer
		Digital override	Selects the override multiplying factor by DI
		Torque limit	Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)
Operation mode	Automatic operation mode	Rotation direction specifying indexer	Positions to the specified station. Rotation direction settable
		Shortest rotating indexer	Positions to the specified station. Rotates in the shorter direction from the current position.
	Manual operation mode	JOG operation	Decelerates to a stop regardless of the station
		Station JOG operation	Rotates in a direction specified by the rotation direction decision when the start signal turns on. Positions to the nearest station where the servo motor can decelerate to a stop when the start signal turns off.
	Home position return mode	Torque limit changing dog type	Returns to home position upon Z-phase pulse after passing through the front end of proximity dog. Home position return direction selectable, home position shift distance settable, home position address settable, torque limit automatic switching function
		Torque limit changing data set type	Returns to home position without dog. Any position settable as home position, home position address settable, torque limit automatic switching function
Other functions			Absolute position detection system, backlash compensation, overtravel prevention with external limit switches (LSP/LSN), digital override function

MR-J4-A-RJ Positioning Function: Indexer (Turret) Method

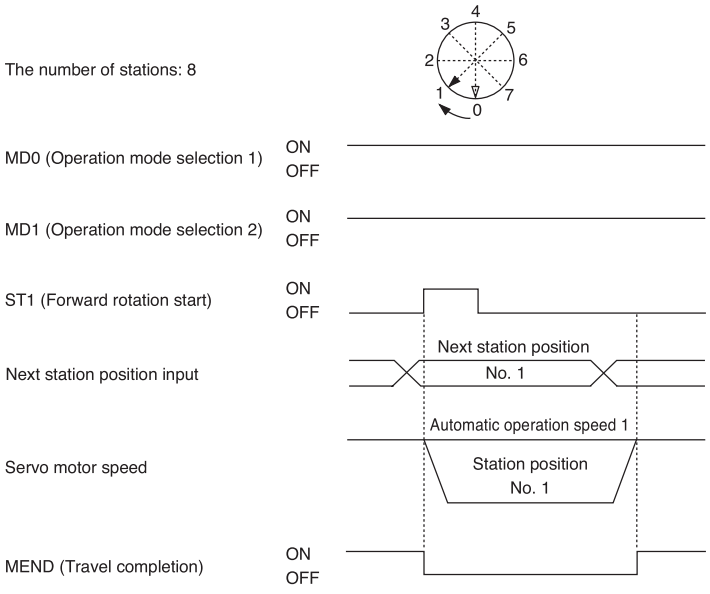
Rotation direction specifying indexer

In the rotation direction specifying indexer, the servo motor always rotates in a definite direction.
Turn off MD0 (Operation mode selection 1), and turn on MD1 (Operation mode selection 2). The servo motor moves in the station No. decreasing direction with SIG (Rotation direction decision) off, and in the increasing direction with SIG on. When ST1 (Forward rotation direction) turns on, the travel amount will be calculated from the current position and the next station position, and then the positioning will be executed to the direction specified by the rotation direction decision.
The following timing chart is an example of the operation executed from the station No. 0 where the servo motor is stopped at servo-on.

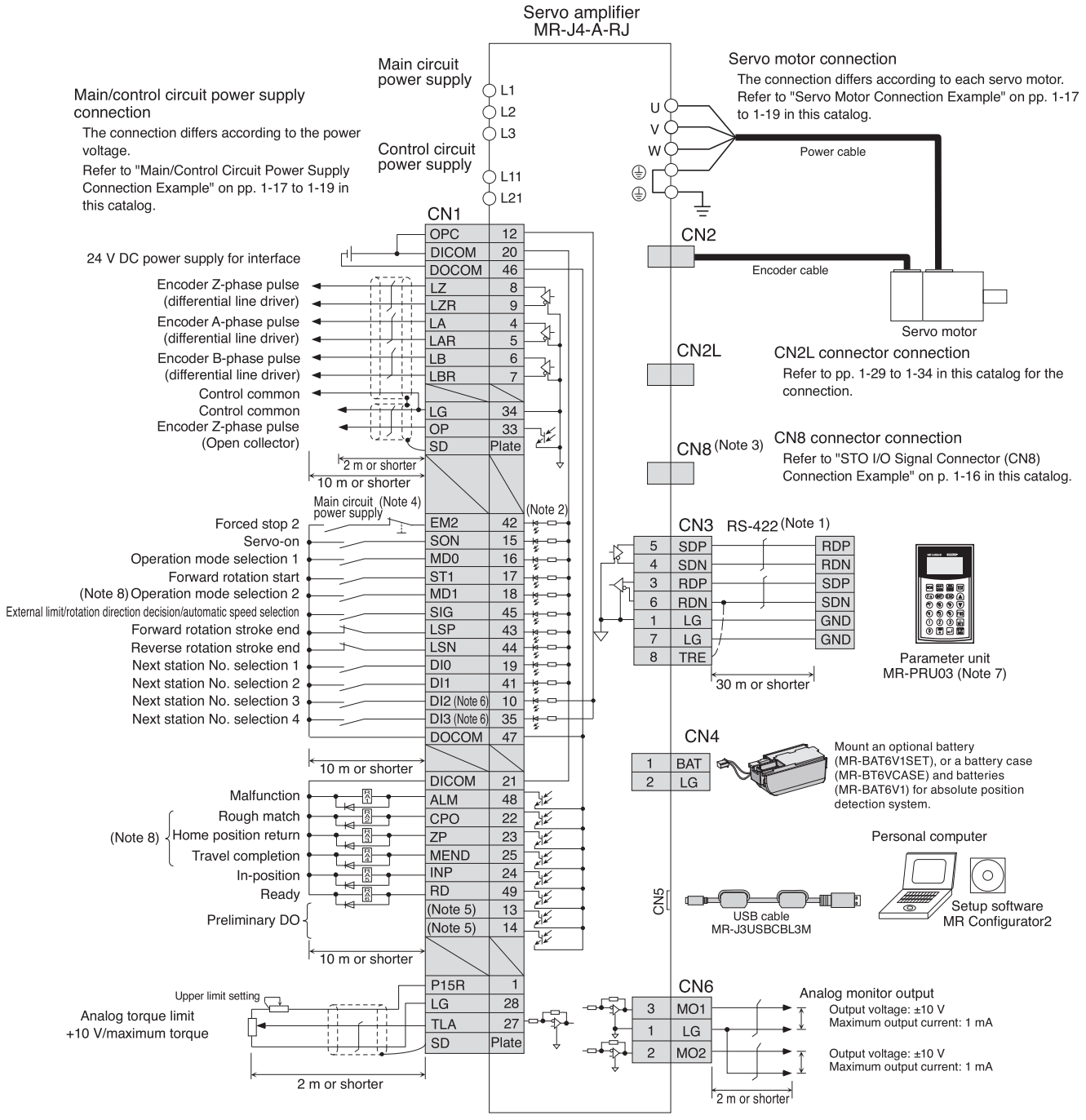


Shortest rotating indexer

In the shortest rotating indexer, the servo motor automatically rotates in the shorter direction.
Turn on both MD0 (Operation mode selection 1) and MD1 (Operation mode selection 2). When ST1 (Forward rotation direction) turns on, the travel amount will be calculated from the current position and the next station position, and then the positioning will be executed in the shorter direction.
The following timing chart is an example of the operation executed from the station No. 0 where the servo motor is stopped at servo-on.



MR-J4-A-RJ Standard Wiring Diagram Example: Indexer (Turret) Method



Notes: 1. It is also possible to connect a personal computer to CN3 connector with an RS-422/RS-232C conversion cable. However, USB interface (CN5 connector) and RS-422 interface (CN3 connector) are mutually exclusive. Do not use them at the same time. Refer to "Products on the Market for Servo Amplifiers" in this catalog for the RS-422/RS-232C conversion cable.

2. This is for sink wiring. Source wiring is also possible. However, when input devices are assigned to CN1-10 pin and CN1-35 pin, be sure to use sink wiring. Source wiring is not possible in this case. In the positioning mode, input devices are assigned in the initial setting. Refer to "MR-J4-_A_-RJ Servo Amplifier Instruction Manual (Positioning Mode)" for details.
3. Be sure to attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.
4. Create a circuit to turn off EM2 (Forced stop 2) when the main circuit power is turned off to prevent an unexpected restart of the servo amplifier.
5. No output device is assigned in the initial setting. Assign an output device with [Pr. PD47] as necessary.
6. DI2 and DI3 are assigned to CN1-10 pin and CN1-35 pin respectively in the initial setting. Change them with [Pr. PD44] and [Pr. PD46] when using a manual pulse generator.
7. Use a commercial LAN cable (EIA568 compliant), and keep the wiring distance within 10 m when using MR-PRU03 parameter unit.
8. Assign the output devices mentioned to CN1-18, CN1-22 pin, CN1-23 pin, and CN1-25 pin with [Pr. PD10], [Pr. PD23], [Pr. PD24] and [Pr. PD26].

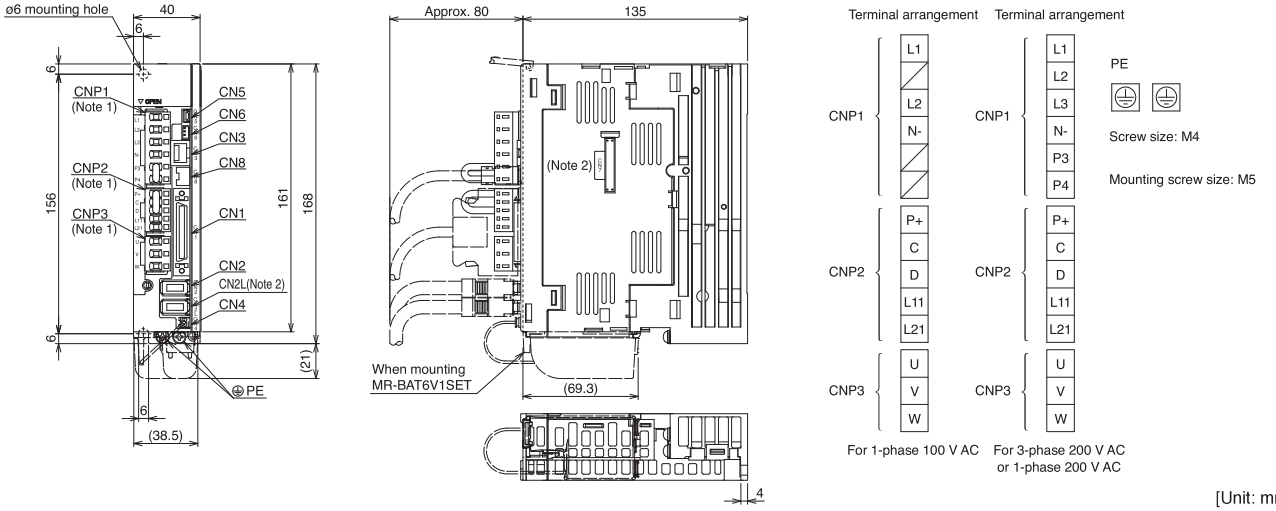
⚠ Be sure to read through Instruction Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

MR-J4-A/MR-J4-A-RJ Dimensions

A A-RJ

●MR-J4-10A, MR-J4-10A-RJ, MR-J4-10A1, MR-J4-10A1-RJ

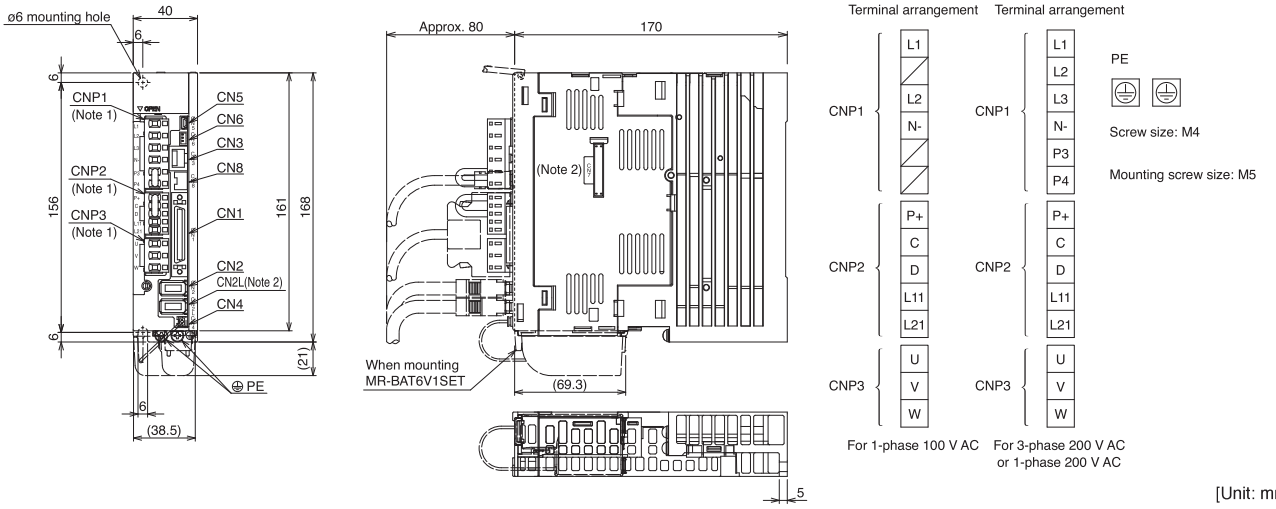
●MR-J4-20A, MR-J4-20A-RJ, MR-J4-20A1, MR-J4-20A1-RJ



[Unit: mm]

●MR-J4-40A, MR-J4-40A-RJ, MR-J4-40A1, MR-J4-40A1-RJ

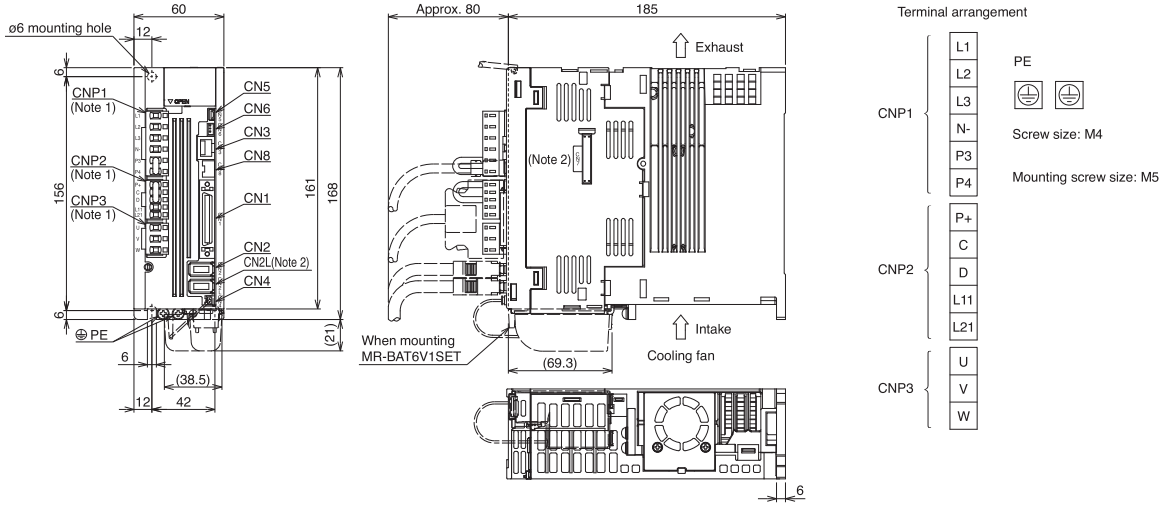
●MR-J4-60A, MR-J4-60A-RJ



[Unit: mm]

●MR-J4-70A, MR-J4-70A-RJ

●MR-J4-100A, MR-J4-100A-RJ



[Unit: mm]

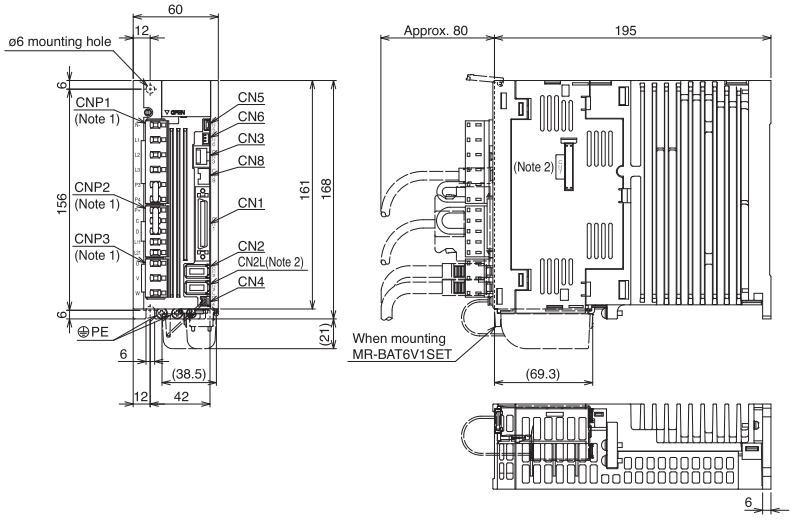
Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. CN2L and CN7 connectors are not available for MR-J4-A servo amplifier.

MR-J4-A/MR-J4-A-RJ Dimensions

A A-RJ

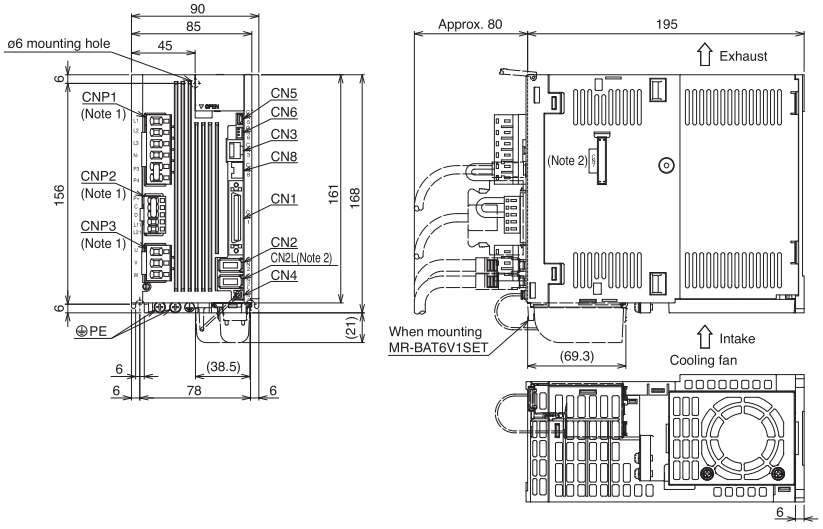
●MR-J4-60A4, MR-J4-60A4-RJ

●MR-J4-100A4, MR-J4-100A4-RJ



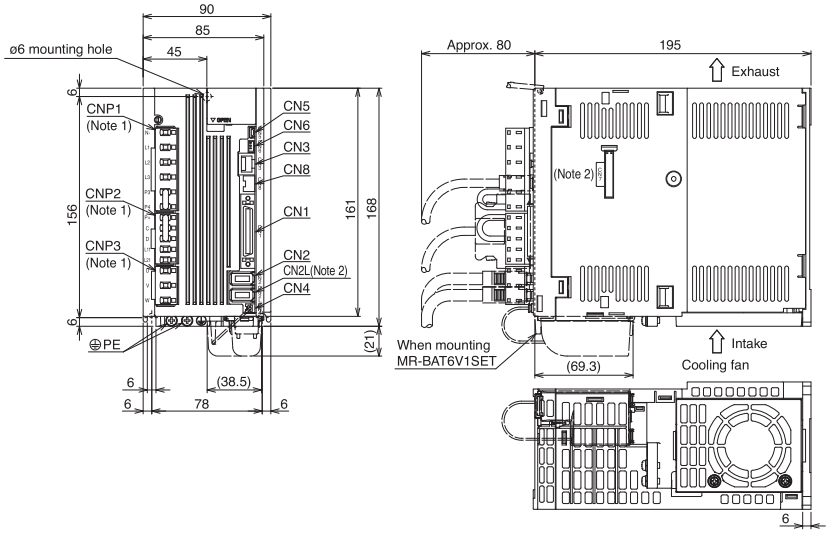
[Unit: mm]

●MR-J4-200A, MR-J4-200A-RJ



[Unit: mm]

●MR-J4-200A4, MR-J4-200A4-RJ



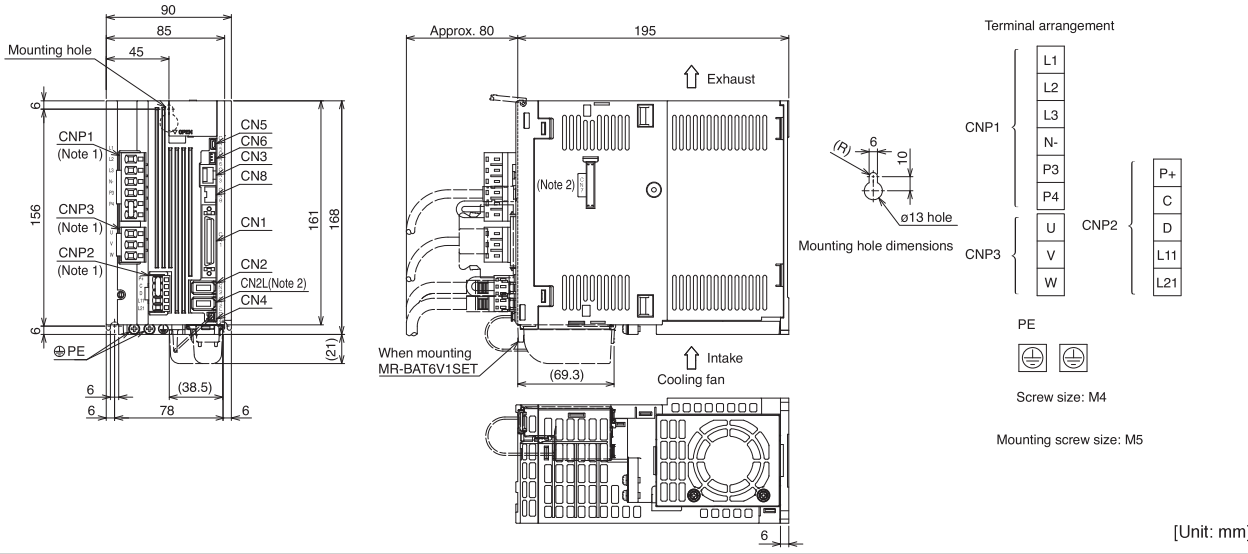
[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. CN2L and CN7 connectors are not available for MR-J4-A servo amplifier.

MR-J4-A/MR-J4-A-RJ Dimensions

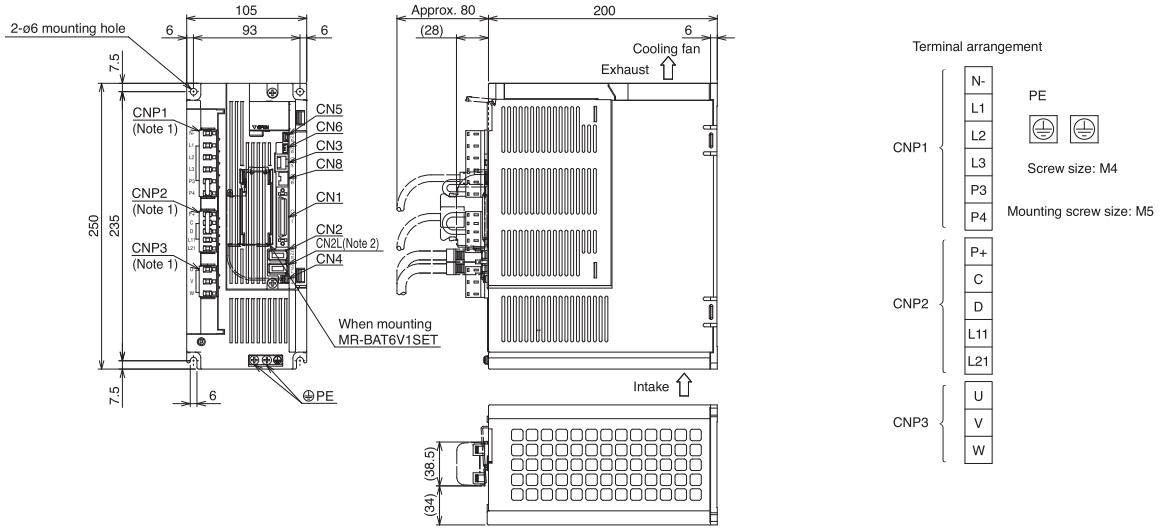
A A-RJ

●MR-J4-350A, MR-J4-350A-RJ



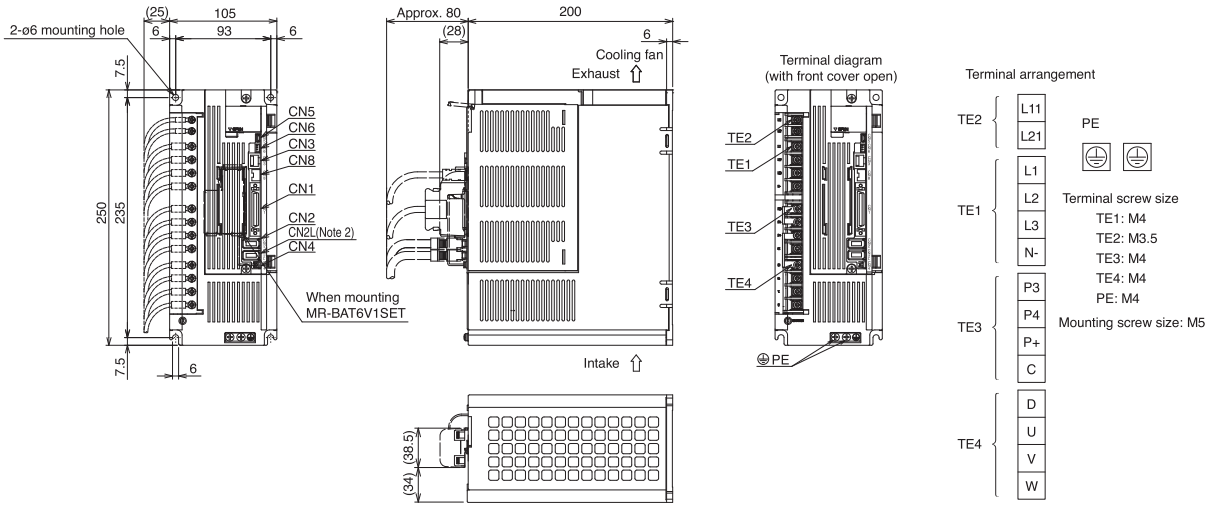
[Unit: mm]

●MR-J4-350A4, MR-J4-350A4-RJ



[Unit: mm]

●MR-J4-500A, MR-J4-500A-RJ

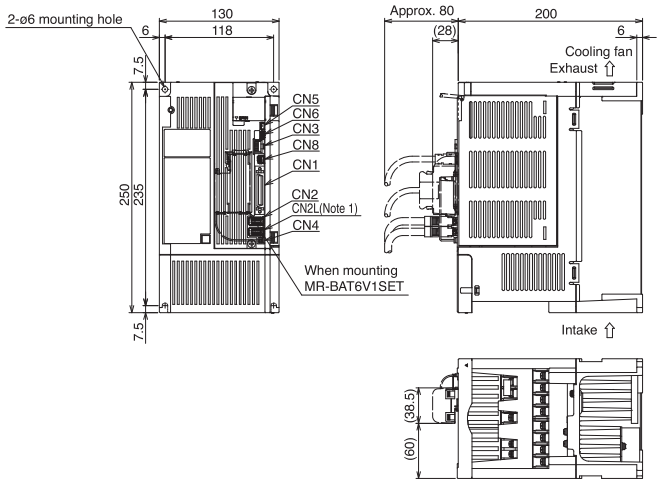


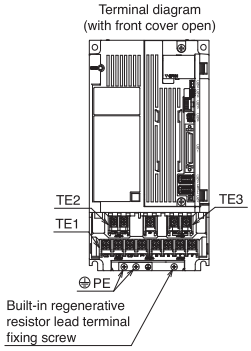
[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.
2. CN2L and CN7 connectors are not available for MR-J4-A servo amplifier.

MR-J4-A/MR-J4-A-RJ Dimensions

●MR-J4-500A4, MR-J4-500A4-RJ





Terminal screw size
TE1: M4
TE2: M3.5
TE3: M4
PE: M4

Mounting screw size: M5

Terminal arrangement

TE2

L11	L21

TE3

N-	P3	P4

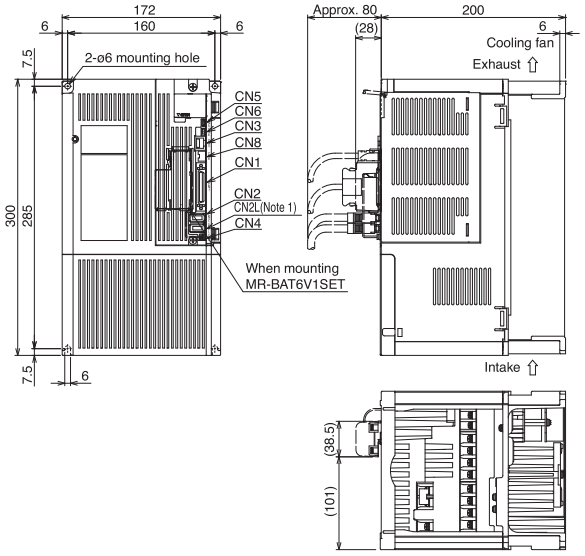
TE1

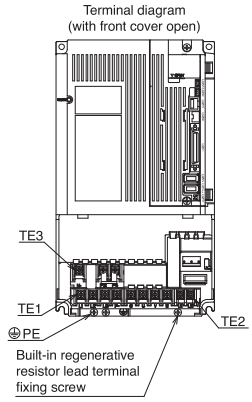
L1	L2	L3	P+	C	U	V	W

PE

[Unit: mm]

●MR-J4-700A, MR-J4-700A-RJ, MR-J4-700A4, MR-J4-700A4-RJ





Terminal screw size
TE1: M4
TE2: M3.5
TE3: M4
PE: M4

Mounting screw size: M5

Terminal arrangement

TE3

N-	P3	P4

TE1

L1	L2	L3	P+	C	U	V	W

TE2

L11	L21

PE

[Unit: mm]

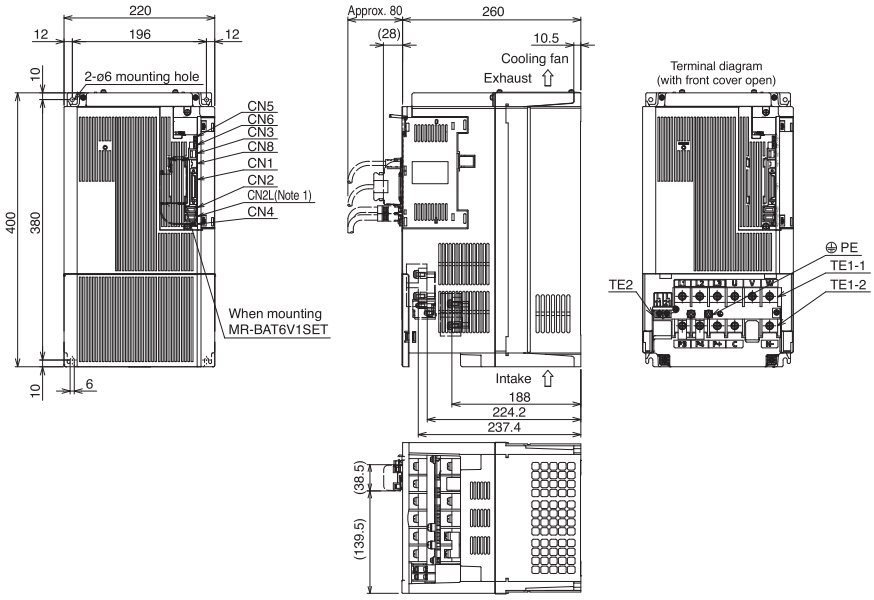
Notes: 1. CN2L and CN7 connectors are not available for MR-J4-A servo amplifier.

MR-J4-A/MR-J4-A-RJ Dimensions

A A-RJ

●MR-J4-11KA, MR-J4-11KA-RJ, MR-J4-11KA4, MR-J4-11KA4-RJ

●MR-J4-15KA, MR-J4-15KA-RJ, MR-J4-15KA4, MR-J4-15KA4-RJ



Terminal screw size
TE1-1: M6
TE1-2: M6
TE2: M4
PE: M6

Mounting screw size: M5

Terminal arrangement

TE1-1

L1	L2	L3	U	V	W

TE1-2

P3	P4	P+	C		N-

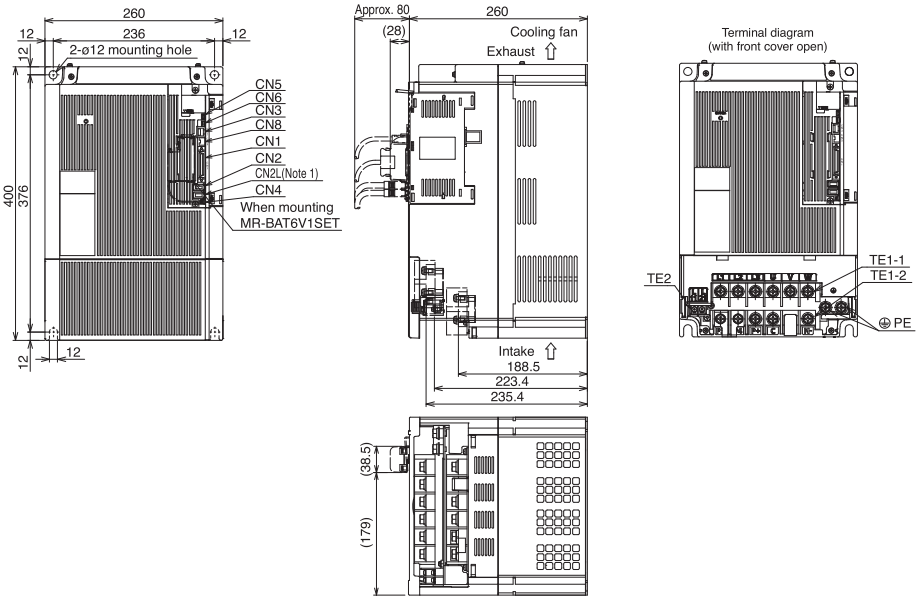
TE2

L11	L21

PE

[Unit: mm]

●MR-J4-22KA, MR-J4-22KA-RJ, MR-J4-22KA4, MR-J4-22KA4-RJ



Terminal screw size
TE1-1: M8
TE1-2: M8
TE2: M4
PE: M8

Mounting screw size: M10

Terminal arrangement

TE1-1

L1	L2	L3	U	V	W

TE1-2

P3	P4	P+	C		N-

TE2

L11	L21

PE

[Unit: mm]

Notes: 1. CN2L and CN7 connectors are not available for MR-J4-A servo amplifier.

MR-J4-DU_A/MR-J4-DU_A-RJ Dimensions (Note 1)

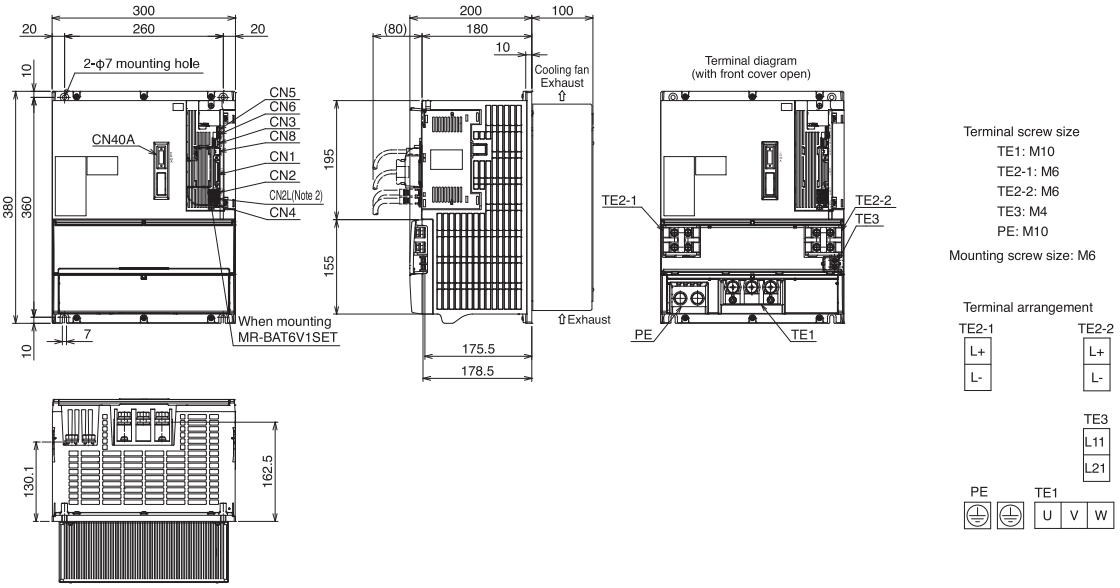
A A-RJ

●MR-J4-DU30KA, MR-J4-DU30KA-RJ

●MR-J4-DU37KA, MR-J4-DU37KA-RJ

●MR-J4-DU45KA4, MR-J4-DU45KA4-RJ

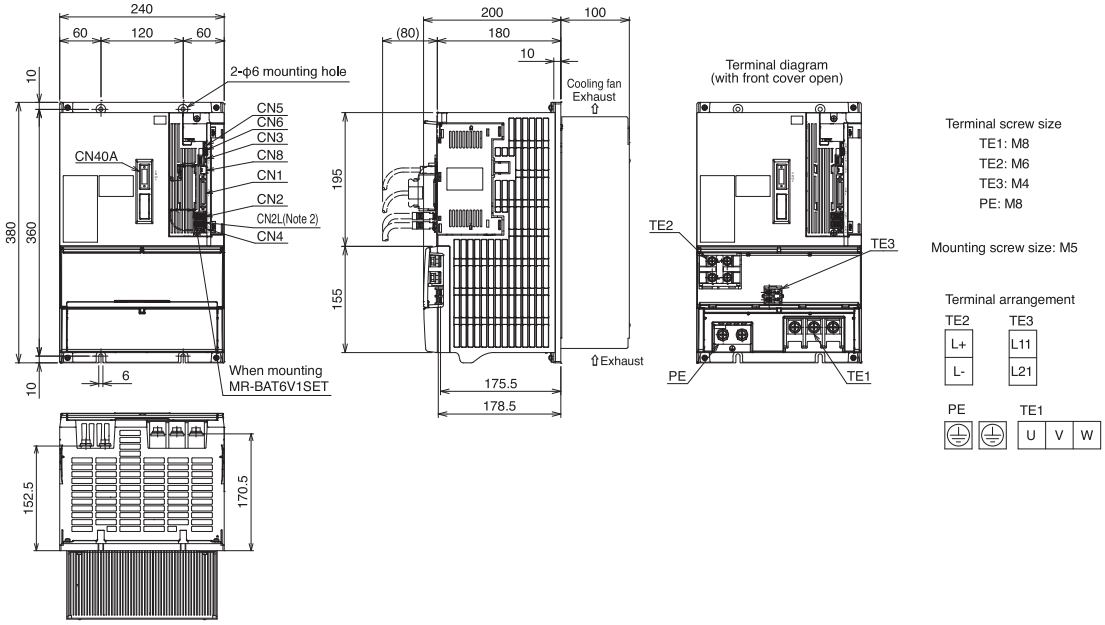
●MR-J4-DU55KA4, MR-J4-DU55KA4-RJ



[Unit: mm]

●MR-J4-DU30KA4, MR-J4-DU30KA4-RJ

●MR-J4-DU37KA4, MR-J4-DU37KA4-RJ



[Unit: mm]

Notes: 1. For the panel cut dimensions, refer to "Panel Cut Dimensions for Converter Unit and Drive Unit" in this catalog.
2. CN2L and CN7 connectors are not available for MR-J4-DU_A_ drive unit.