

*Changes for the Better*

General-Purpose AC Servo MELSERVO-J4

Conversion Unit for SSCNET of MR-J2S-B Compatible Servo Amplifier: MR-J4-B-RJ020

Conversion Unit for SSCNET of MR-J2S-B: MR-J4-T20

July 2015

**New Product Release**

SV1306-1E-C



**A new capacity range of  
30 kW to 55 kW is added to  
the MR-J4-B-RJ020.**

By using the conversion unit for SSCNET of MR-J2S-B, MR-J4 series servo amplifier can be connected to the SSCNET of MR-J2S-B compatible servo system controller \*.

MR-J4-B-RJ020 is now available in the following capacities:

200 V 0.1 kW to 37 kW,  
100 V 0.1 kW to 0.4 kW, and  
400 V 0.6 kW to 55 kW

\* For compatible controllers, refer to p. 1 in this brochure.

**Conversion Unit for SSCNET of MR-J2S-B Compatible Servo Amplifier: MR-J4- \_B\_-RJ020**  
**Conversion Unit for SSCNET of MR-J2S-B: MR-J4-T20**

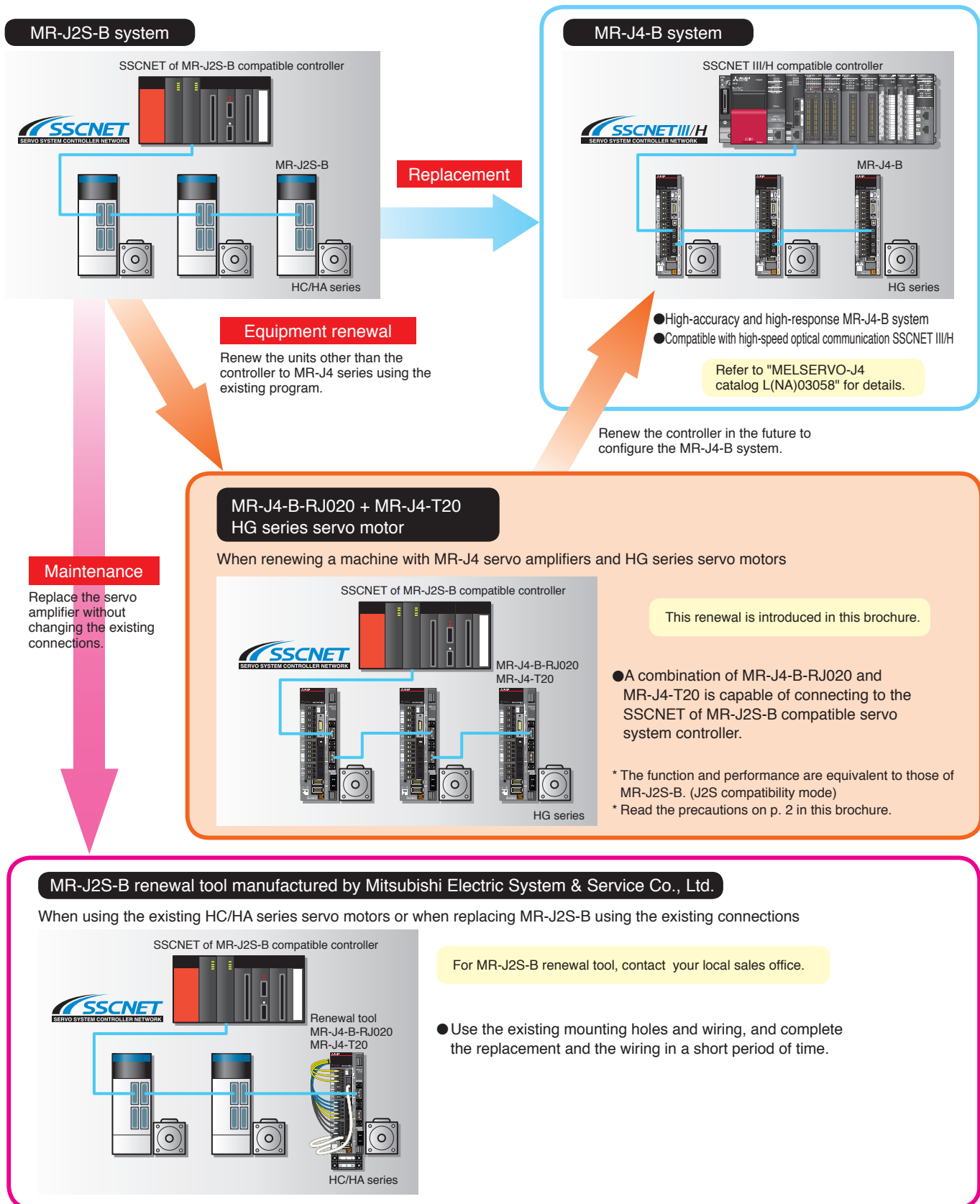
● A combination of MR-J4-B-RJ020 and MR-J4-T20 is capable of connecting to the SSCNET of MR-J2S-B compatible servo system controller and drives MR-J4 compatible HG series servo motors.

● Use the existing program.

\* For the outline of precautions, refer to p. 2 in this brochure. Refer to "MR-J4- \_B\_-RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for details.

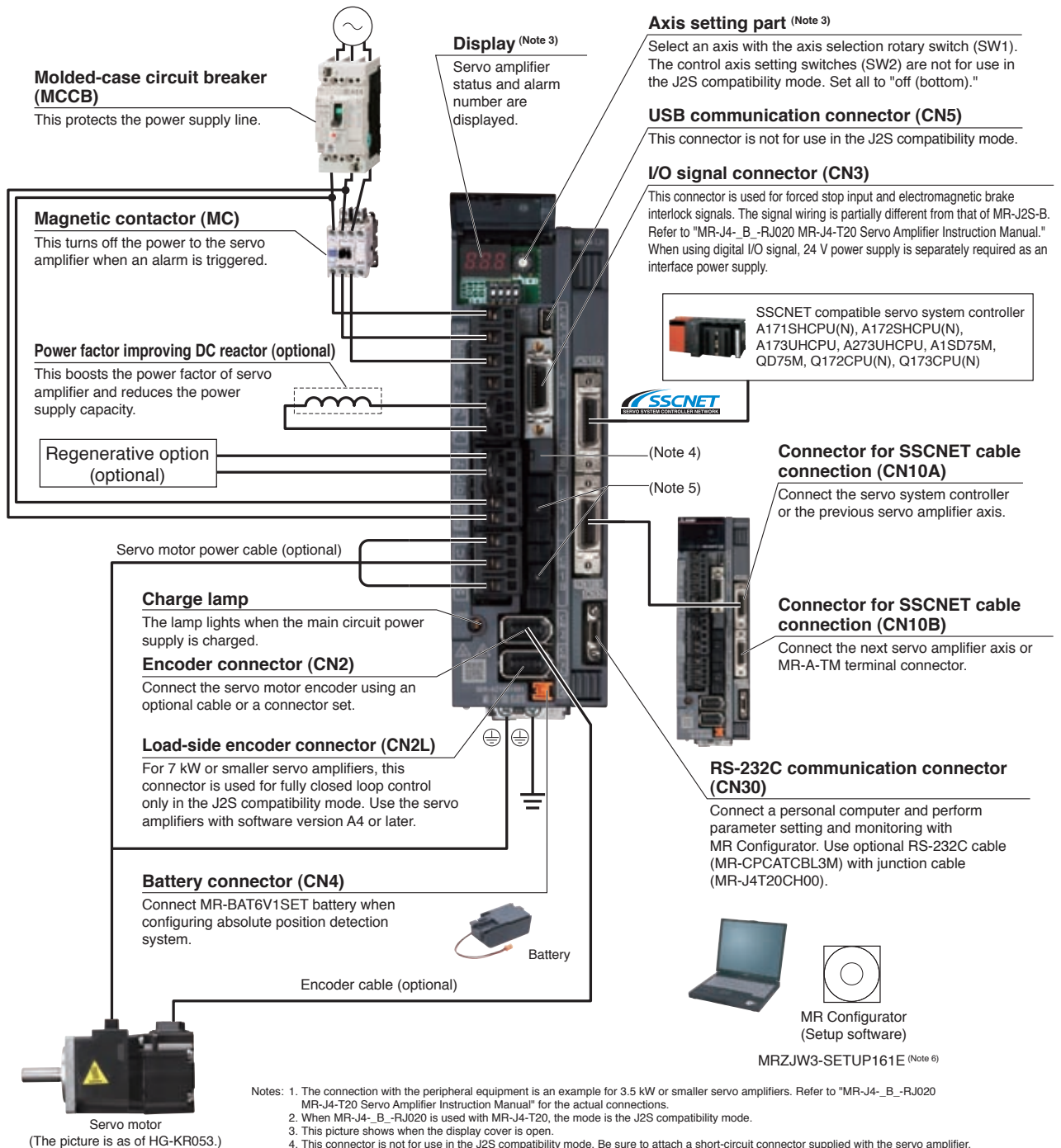
## Features

A combination of MR-J4-B-RJ020 and MR-J4-T20 is capable of connecting to the SSCNET of MR-J2S-B compatible servo system controller. Thus, renewing a machine with MR-J4 series servo amplifiers and servo motors is possible without changing the existing controller.



## Compatible Controllers

The set of MR-J4-B-RJ020 and MR-J4-T20 is compatible with the following servo system controllers:  
A171SHCPU(N), A172SHCPU(N), A173UHCPU, A273UHCPU, A1SD75M, QD75M, Q172CPU(N), and Q173CPU(N)



Notes: 1. The connection with the peripheral equipment is an example for 3.5 kW or smaller servo amplifiers. Refer to "MR-J4- B -RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for the actual connections.  
2. When MR-J4- B -RJ020 is used with MR-J4-T20, the mode is the J2S compatibility mode.  
3. This picture shows when the display cover is open.  
4. This connector is not for use in the J2S compatibility mode. Be sure to attach a short-circuit connector supplied with the servo amplifier.  
5. This connector is not for use in the J2S compatibility mode. Be sure to attach a cap supplied with the servo amplifier.  
6. Setup software (MRZJW3-SETUP161E) is available for free download. Contact your local sales office for more details.

## Precautions

### Installation

- Mounting holes are not compatible with those of MR-J2S- B \_.
- Dimensions of MR-J4- B \_ combined with MR-J4-T20 are different from those of MR-J2S- B \_.

### Wiring

- The wire size is different from that of MR-J2S- B \_ depending on the capacity.
- Options/peripheral equipment for MR-J2S series cannot be used except the SSCNET cable and the terminal connector. Select options/ peripheral equipment for MR-J4 series.
- For RS-232C communication, use RS-232C cable (MR-CPCATCBL3M) with junction cable (MR-J4T20CH00).
- MR-J4- B -RJ020 servo is not equipped with 24 V power supply for interface. When using digital I/O signal, 24 V (current capacity 0.1 A) power supply is separately required as an interface power supply.
- The signal wiring of connector for I/O signal (CN3) of MR-J4- B -RJ020 is partially different from that of MR-J2S- B \_.
- Use MR-BAT6V1SET when configuring absolute position detection system.

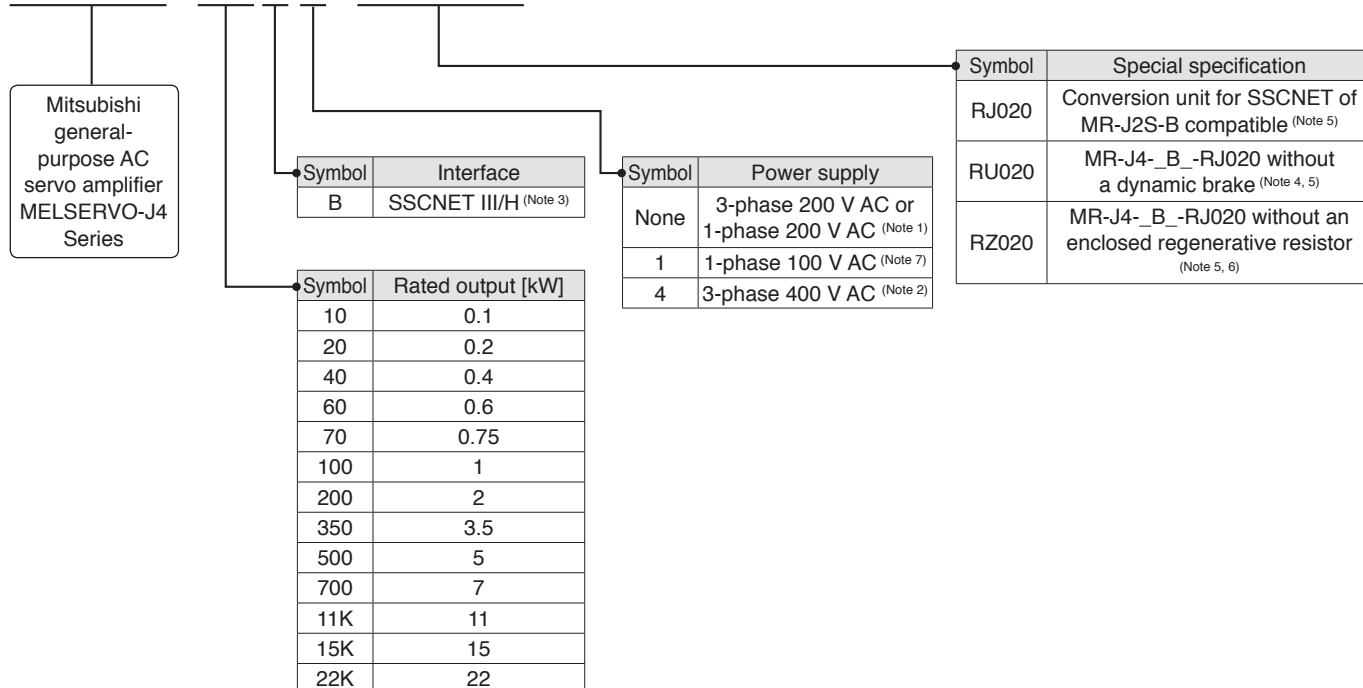
### Function/performance

- Adaptive vibration suppression control (parameter No. 25) is not available.
- Alarms are displayed in two digits, which is the same as MR-J2S- B \_.
- Some alarms are displayed in three digits.
- Use MR Configurator (MRZJW3-SETUP161E). Note that the following functions are not available.
  - Gain search
  - Machine simulation
  - Motor-less operation (Motor-less operation by the parameter setting is available.)
- Servo motors that are compatible with MR-J4 (HG series) may have different coasting distance for dynamic brake from that of conventional HC/HA series servo motors.
- The encoder resolution of HG series servo motors will be 131072 pulses/rev (17 bit).

Refer to "MR-J4- B -RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for details.

## Servo Amplifier Model Designation

MR-J4-10B-RJ020



Notes: 1. Servo amplifiers of 0.75 kW or smaller are available for 1-phase 200 V AC.

2. Servo amplifiers of 0.6 kW, and 1 kW or larger are available.

3. SSCNET III/H interface is not available in the J2S compatibility mode.

4. 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 an alarm occurrence or power failure. Take measures to ensure safety on the entire system.

When the following servo motors are used, the electronic dynamic brake may operate at an 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 [Pr. 56] to "2\_ \_ \_".

5. MR-J4-T20 conversion unit for SSCNET of MR-J2S-B is required to make the servo amplifier be compatible with SSCNET interface.

When MR-J4-B-RJ020 and MR-J4-T20 are combined, MR-J4-B-RJ020 is compatible with the following servo system controllers:

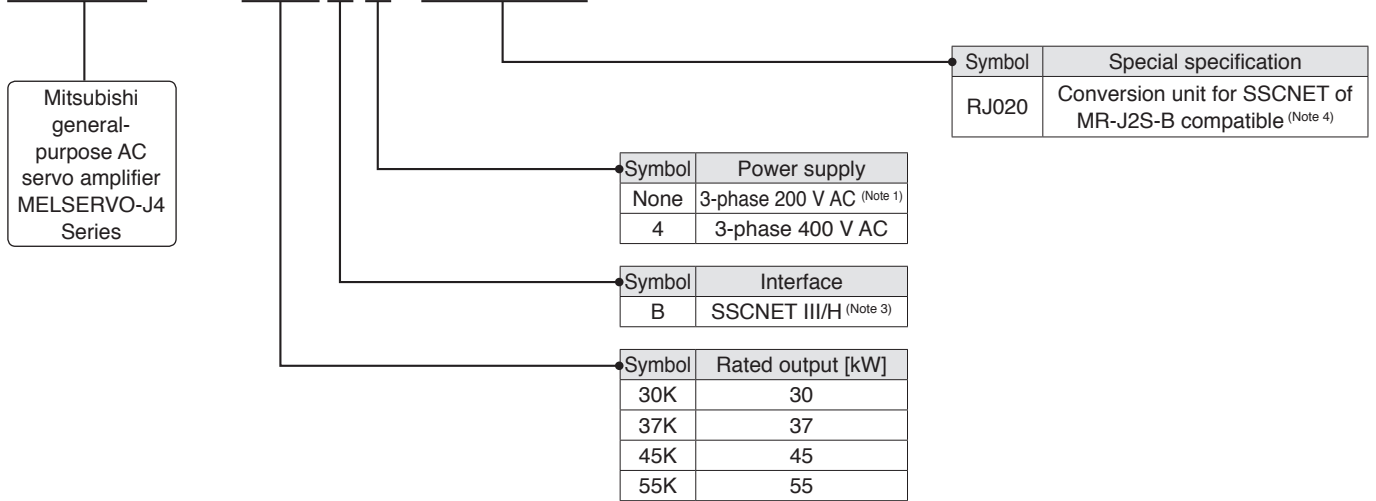
A171SHCPU(N), A172SHCPU(N), A173UHCPU, A273UHCPU, A1SD75M, QD75M, Q172CPU(N), and Q173CPU(N)

6. Available in 11 kW to 22 kW servo amplifier. A regenerative resistor (standard accessory) is not enclosed.

7. Servo amplifiers of 0.4 kW or smaller are available.

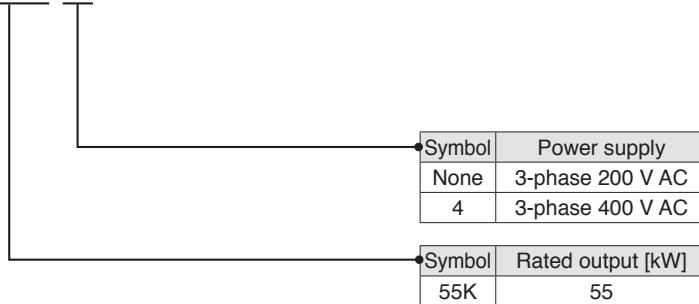
### Drive Unit Model Designation (Note 2)

MR-J4-DU30KB - RJ020



### Converter Unit Model Designation (Note 2)

MR-CR55K



- Notes: 1. Drive units of 37 kW or smaller are available in 3-phase 200 V AC.  
 2. One unit of converter unit is required for each drive unit.  
 3. SSCNET III/H interface is not available in the J2S compatibility mode.  
 4. MR-J4-T20 conversion unit for SSCNET of MR-J2S-B is required to make the servo amplifier be compatible with SSCNET interface.  
 When MR-J4-B-RJ020 and MR-J4-T20 are combined, MR-J4-B-RJ020 is compatible with the following servo system controllers:  
 A171SHCPU(N), A172SHCPU(N), A173UHCPU, A273UHCPU, A1SD75M, QD75M, Q172CPU(N), and Q173CPU(N)

## Combinations of Servo Amplifier and Servo Motor

### MR-J4-B-RJ020 (200 V)/MR-J4-B1-RJ020 (100 V)

Servo amplifier	Servo motor
MR-J4-10B-RJ020 MR-J4-10B1-RJ020	HG-KR053, 13 HG-MR053, 13
MR-J4-20B-RJ020 MR-J4-20B1-RJ020	HG-KR23 HG-MR23
MR-J4-40B-RJ020 MR-J4-40B1-RJ020	HG-KR43 HG-MR43
MR-J4-60B-RJ020	HG-SR51, 52 HG-JR53
MR-J4-70B-RJ020	HG-KR73 HG-MR73 HG-JR73 HG-UR72
MR-J4-100B-RJ020	HG-SR81, 102 HG-JR53 (Note 1), 103
MR-J4-200B-RJ020	HG-SR121, 201, 152, 202 HG-JR73 (Note 1), 103 (Note 1), 153, 203 HG-RR103, 153 HG-UR152
MR-J4-350B-RJ020	HG-SR301, 352 HG-JR153 (Note 1), 203 (Note 1), 353 HG-RR203 HG-UR202
MR-J4-500B-RJ020	HG-SR421, 502 HG-JR353 (Note 1), 503 HG-RR353, 503 HG-UR352, 502
MR-J4-700B-RJ020	HG-SR702 HG-JR503 (Note 1), 703, 601, 701M
MR-J4-11KB-RJ020	HG-JR903, 801, 12K1, 11K1M
MR-J4-15KB-RJ020	HG-JR15K1, 15K1M
MR-J4-22KB-RJ020	HG-JR20K1, 25K1, 22K1M

### MR-J4-B4-RJ020 (400 V)

Servo amplifier	Servo motor
MR-J4-60B4-RJ020	HG-SR524 HG-JR534
MR-J4-100B4-RJ020	HG-SR1024 HG-JR534 (Note 1), 734, 1034
MR-J4-200B4-RJ020	HG-SR1524, 2024 HG-JR734 (Note 1), 1034 (Note 1), 1534, 2034
MR-J4-350B4-RJ020	HG-SR3524 HG-JR1534 (Note 1), 2034 (Note 1), 3534
MR-J4-500B4-RJ020	HG-SR5024 HG-JR3534 (Note 1), 5034
MR-J4-700B4-RJ020	HG-SR7024 HG-JR5034 (Note 1), 7034, 6014, 701M4
MR-J4-11KB4-RJ020	HG-JR9034, 8014, 12K14, 11K1M4
MR-J4-15KB4-RJ020	HG-JR15K14, 15K1M4
MR-J4-22KB4-RJ020	HG-JR20K14, 25K14, 22K1M4

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

### MR-J4-DU\_B-RJ020 (200 V)

Drive unit	Servo motor
MR-J4-DU30KB-RJ020	HG-JR30K1 HG-JR30K1M
MR-J4-DU37KB-RJ020	HG-JR37K1 HG-JR37K1M

### MR-J4-DU\_B4-RJ020 (400 V)

Drive unit	Servo motor
MR-J4-DU30KB4-RJ020	HG-JR30K14 HG-JR30K1M4
MR-J4-DU37KB4-RJ020	HG-JR37K14 HG-JR37K1M4
MR-J4-DU45KB4-RJ020	HG-JR45K1M4
MR-J4-DU55KB4-RJ020	HG-JR55K1M4



## MR-J4-B-RJ020 (Interface for SSCNET of MR-J2S-B) Specifications (200 V/100 V)

Servo amplifier model MR-J4-_-RJ020		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 <sup>(Note 1)</sup>	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 <sup>(Note 12)</sup> [A]	0.9	1.5	2.6	3.2 <sup>(Note 7)</sup>	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: 0.1 A)																
Control method		Sine-wave PWM control/current control method																
Tolerable regenerative power	Built-in regenerative resistor <sup>(Note 2, 3)</sup> [W]	-	10	10	10	20	20	100	100	130	170	-	-	-	-	10	10	
	External regenerative resistor (standard accessory) <sup>(Note 2, 3, 9, 10)</sup> [W]	-	-	-	-	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)	-	-	-	
Dynamic brake		Built-in <sup>(Note 4)</sup>										External option <sup>(Note 11)</sup>			Built-in <sup>(Note 4)</sup>			
Communication function		USB: not for use in the J2S compatibility mode																
Encoder output pulse		Compatible (A/B/Z-phase pulse)																
Analog monitor		2 channels																
Fully closed loop control		Two-wire/four-wire type communication method <sup>(Note 13)</sup>										Not compatible			Two-wire/four-wire type communication method <sup>(Note 13)</sup>			
Load-side encoder interface		Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal <sup>(Note 13)</sup>										Not compatible			Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal <sup>(Note 13)</sup>			
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		Not compatible																
Compliance to standards	CE marking	LVD: EN 61800-5-1 EMC: EN 61800-3 MD: EN ISO 13849-1, EN 61800-5-2, EN 62061																
	UL standard	UL 508C																
	CSA standard	CSA C22.2 No.14																
	Korea Radio Wave Law (KC)	Compliant																
Structure (IP rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) <sup>(Note 5)</sup>				Natural cooling, open (IP20)				
Close mounting		Possible <sup>(Note 6)</sup>										Not possible			Possible <sup>(Note 6)</sup>			
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 <sup>2</sup> at 10 Hz to 55 Hz (directions of X, Y and Z axes)																
Mass <sup>(Note 8)</sup> [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	

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## MR-J4-B-RJ020 (Interface for SSCNET of MR-J2S-B) Specifications (200 V/100 V)

- 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 "MR-J4-\_B\_-RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for the tolerable regenerative power [W] when regenerative option is used.
  4. When using the built-in dynamic brake, refer to "MR-J4-\_B\_-RJ020 MR-J4-T20 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 rated current is 2.9 A when the servo amplifier is used with UL or CSA compliant servo motor.
  8. The value is applicable for MR-J4-\_B\_-RJ020 servo amplifier only.
  9. The value in brackets is applicable when cooling fans (two units of 92 mm × 92 mm, minimum air flow: 1.0 m<sup>3</sup>/min) are installed, and then [Pr. 2] is changed.
  10. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "Servo Amplifier Model Designation" in this brochure 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. For 750 W or smaller servo amplifiers in 200 V class, the listed values are applicable when a 3-phase power supply is used.
  13. Fully closed loop control is available only in the J2S compatibility mode. Use the servo amplifiers with software version A4 or later.



## MR-J4-DU\_B-RJ020 (Interface for SSCNET of MR-J2S-B) Specifications (200 V)

Drive unit model MR-J4-_R-J020		DU30KB	DU37KB
Compatible converter unit model		MR-CR55K <sup>(Note 2)</sup>	
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 <sup>(Note 2)</sup>	
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: 0.1 A)	
Control method		Sine-wave PWM control/current control method	
Dynamic brake		External option <sup>(Note 4)</sup>	
Communication function		USB: not for use in the J2S compatibility mode	
Encoder output pulse		Compatible (A/B/Z-phase pulse)	
Analog monitor		2 channels	
Fully closed loop control		Not compatible	
Load-side encoder interface		Not compatible	
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		Not compatible	
Compliance to standards	CE marking	LVD: EN 61800-5-1 EMC: EN 61800-3 MD: EN ISO 13849-1, EN 61800-5-2, EN 62061	
	UL standard	UL 508C	
	CSA standard	CSA C22.2 No.14	
	Korea Radio Wave Law (KC)	Compliant	
Structure (IP rating)		Force cooling, open (IP20) <sup>(Note 1)</sup>	
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 <sup>2</sup> at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Mass <sup>(Note 3)</sup> [kg]		21	

Notes: 1. Terminal blocks are excluded.

2. One unit of converter unit is required for each drive unit. Refer to "MR-CR Converter Unit Specifications (200 V/400 V)" on p. 11 in this catalog for the specifications of the converter unit.

3. The value is applicable for MR-J4-DU\_B-RJ020 servo amplifier only.

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.

## MR-J4-B4-RJ020 (Interface for SSCNET of MR-J2S-B) Specifications (400 V)

Servo amplifier model MR-J4-_-RJ020		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 <sup>(Note 1)</sup>	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								
	Voltage/frequency	1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
Control circuit power supply input	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: 0.1 A)								
Control method		Sine-wave PWM control/current control method								
Tolerable regenerative power	Built-in regenerative resistor <sup>(Note 2, 3)</sup> [W]	15	15	100	100	130 <sup>(Note 6)</sup>	170 <sup>(Note 6)</sup>	-	-	-
	External regenerative resistor (standard accessory) <sup>(Note 2, 3, 8, 9)</sup> [W]	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic brake		Built-in <sup>(Note 4)</sup>						External option <sup>(Note 10)</sup>		
Communication function		USB: not for use in the J2S compatibility mode								
Encoder output pulse		Compatible (A/B/Z-phase pulse)								
Analog monitor		2 channels								
Fully closed loop control		Two-wire/four-wire type communication method <sup>(Note 11)</sup>						Not compatible		
Load-side encoder interface		Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal <sup>(Note 11)</sup>						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		Not compatible								
Compliance to standards	CE marking	LVD: EN 61800-5-1 EMC: EN 61800-3 MD: EN ISO 13849-1, EN 61800-5-2, EN 62061								
	UL standard	UL 508C								
	CSA standard	CSA C22.2 No.14								
	Korea Radio Wave Law (KC)	Compliant								
Structure (IP rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) <sup>(Note 5)</sup>				
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 <sup>2</sup> at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Mass <sup>(Note 7)</sup> [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 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 "MR-J4-\_B\_-RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for the tolerable regenerative power [W] when regenerative option is used.

4. When using the built-in dynamic brake, refer to "MR-J4-\_B\_-RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio.

5. Terminal blocks are excluded.

6. 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.

7. The value is applicable for the MR-J4-\_B4\_-RJ020 servo amplifier only.

8. The value in brackets is applicable when cooling fans (two units of 92 mm × 92 mm, minimum air flow: 1.0 m<sup>3</sup>/min) are installed, and then [Pr. 2] is changed.

9. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "Servo Amplifier Model Designation" in this brochure 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. Fully closed loop control is available only in the J2S compatibility mode. Use the servo amplifiers with software version A4 or later.

## MR-J4-DU\_B4-RJ020 (Interface for SSCNET of MR-J2S-B) Specifications (400 V)

Drive unit model MR-J4-_-RJ020		DU30KB4	DU37KB4	DU45KB4	DU55KB4
Compatible converter unit model		MR-CR55K4 <sup>(Note 2)</sup>			
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 <sup>(Note 2)</sup>			
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: 0.1 A)			
Control method		Sine-wave PWM control/current control method			
Dynamic brake		External option <sup>(Note 4)</sup>			
Communication function		USB: not for use in the J2S compatibility mode			
Encoder output pulse		Compatible (A/B/Z-phase pulse)			
Analog monitor		2 channels			
Fully closed loop control		Not compatible			
Load-side encoder interface		Not compatible			
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		Not compatible			
Compliance to standards	CE marking	LVD: EN 61800-5-1 EMC: EN 61800-3 MD: EN ISO 13849-1, EN 61800-5-2, EN 62061			
	UL standard	UL 508C			
	CSA standard	CSA C22.2 No.14			
	Korea Radio Wave Law (KC)	Compliant			
Structure (IP rating)		Force cooling, open (IP20) <sup>(Note 1)</sup>			
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 <sup>2</sup> at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Mass <sup>(Note 3)</sup> [kg]		16			21

Notes: 1. Terminal blocks are excluded.

2. One unit of converter unit is required for each drive unit. Refer to "MR-CR Converter Unit Specifications (200 V/400 V)" on p. 11 in this catalog for the specifications of the converter unit.

3. The value is applicable for MR-J4-DU\_B4-RJ020 servo amplifier only.

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.

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

Converter unit model		MR-CR55K	MR-CR55K4
Output	Rated voltage	270 V DC to 324 V DC	
	Rated current [A]	215.9	113.8
Main circuit power supply input	Voltage/frequency <sup>(Note 1)</sup>	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	CE marking	LVD: EN 61800-5-1 EMC: EN 61800-3	
	UL standard	UL 508C	
	CSA standard	CSA C22.2 No.14	
	Korea Radio Wave Law (KC)	Compliant	
Structure (IP rating)		Force cooling, open (IP20) <sup>(Note 2)</sup>	
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 <sup>2</sup> 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.

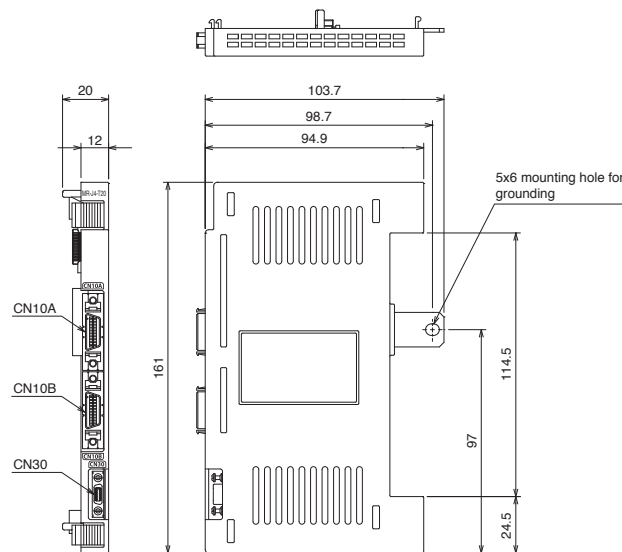
2. Terminal blocks are excluded.

## Conversion Unit for SSCNET of MR-J2S-B (MR-J4-T20)

### Specifications

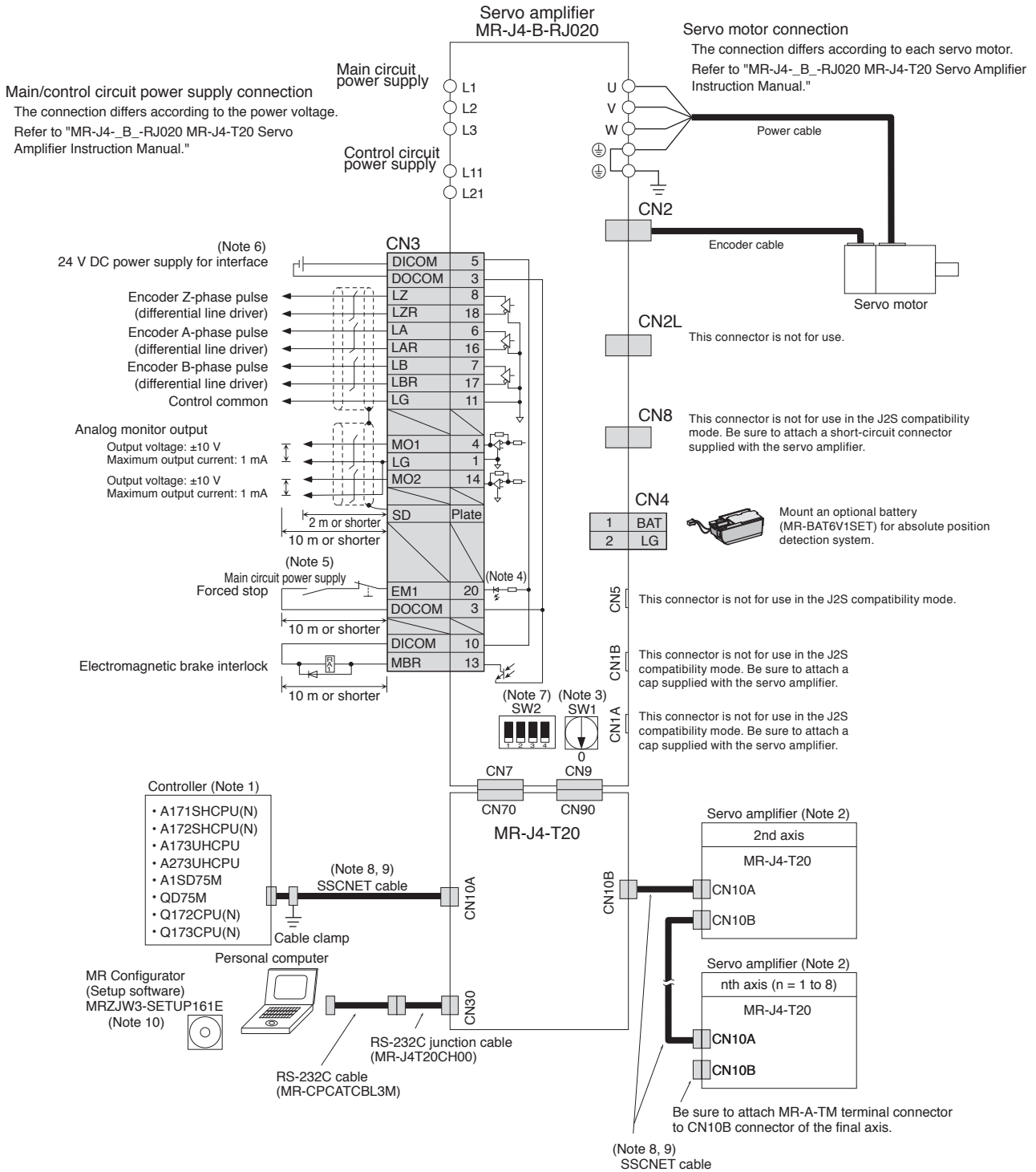
Item		Description
Model		MR-J4-T20
Control circuit power supply input	Voltage	5 V DC (Control circuit power for the conversion unit for SSCNET of MR-J2S-B is supplied from the servo amplifier.)
	Rated current [A]	0.1
Network interface		SSCNET interface (CN10A and CN10B connectors)
Communication function		RS-232C: Connect a personal computer (MR Configurator (MRZJW3-SETUP161E) compatible) (CN30 connector)
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 <sup>2</sup> at 10 Hz to 55 Hz (directions of X, Y and Z axes)
Mass [g]		140

### Dimensions



[Unit: mm]

# MR-J4-B-RJ020 Standard Wiring Diagram Example (Note 11)



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.

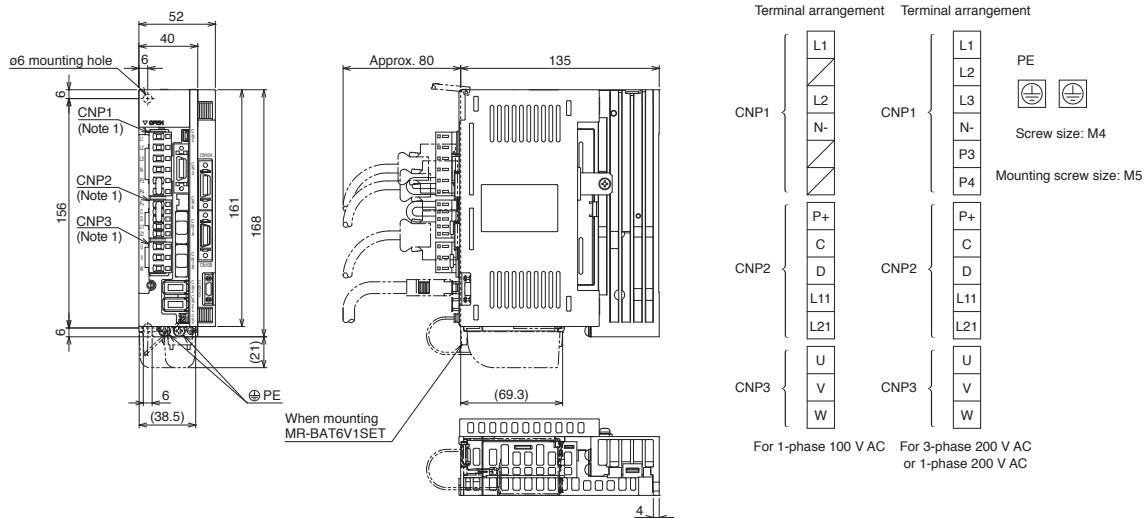
## MR-J4-B-RJ020 Standard Wiring Diagram Example

- 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 8 axes are connectable by setting the axis selection rotary switch (SW1).
  4. This is for sink wiring. Source wiring is also possible.
  5. To prevent an unexpected restart of the servo amplifier, create a circuit to turn off EM1 (Forced stop) when the main circuit power is turned off.
  6. Provide an external power supply of 24 V DC  $\pm$  10% (required current capacity: 0.1 A) to the interface.
  7. SW2 is not for use in the J2S compatibility mode.
  8. The total length of the SSCNET cables must be 30 m or shorter. It is recommended that three or four data line filters in serial connection or a cable clamp be used near the connector on the controller to improve noise tolerance.
  9. The SSCNET cables vary depending on the controller. Select the appropriate SSCNET cable as follows:
    - A171SHCPU(N)/A172SHCPU(N)/A173UHCPU/A273UHCPU/A1SD75M: MR-J2HBUS\_M-A
    - QD75M: MR-J2HBUS\_M
    - Q172CPU(N): Q172J2BCBL\_M(-B)
    - Q173CPU(N): Q173J2B\_CBL\_M
    - MR-J4-\_B\_-RJ020+MR-J4-T20: MR-J2HBUS\_M
  10. Use setup software (MRZJW3-SETUP161E) when using MR-J4-\_B\_-RJ020 servo amplifier in the J2S compatibility mode.  
Setup software (MRZJW3-SETUP161E) is available for free download. Contact your local sales office for more details.
  11. This standard wiring diagram is common for 200 V AC, 100 V AC and 400 V AC type servo amplifiers.



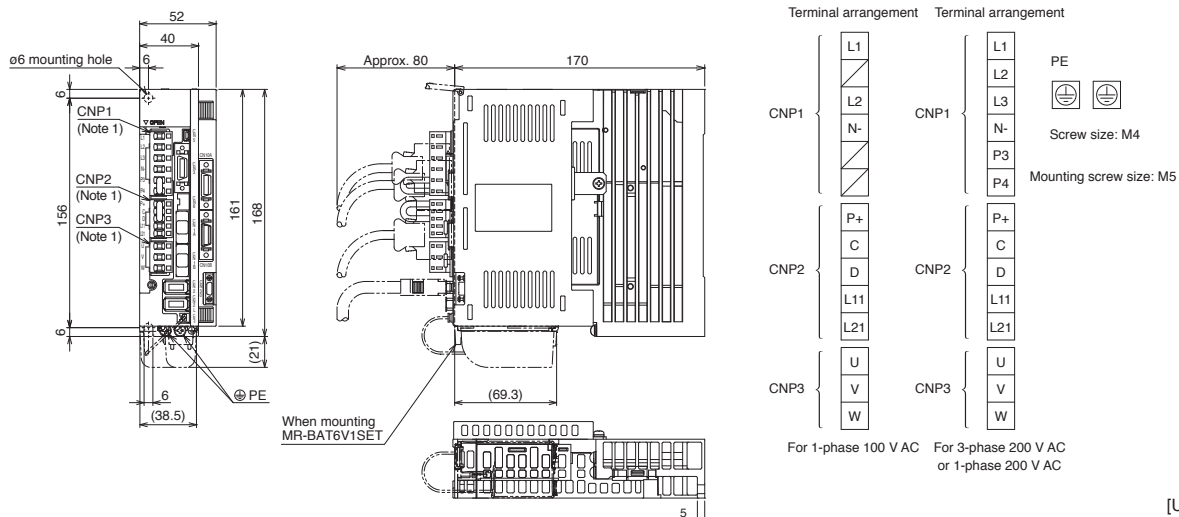
## MR-J4-B-RJ020 Dimensions (Note 2)

- MR-J4-10B-RJ020, MR-J4-10B1-RJ020
- MR-J4-20B-RJ020, MR-J4-20B1-RJ020



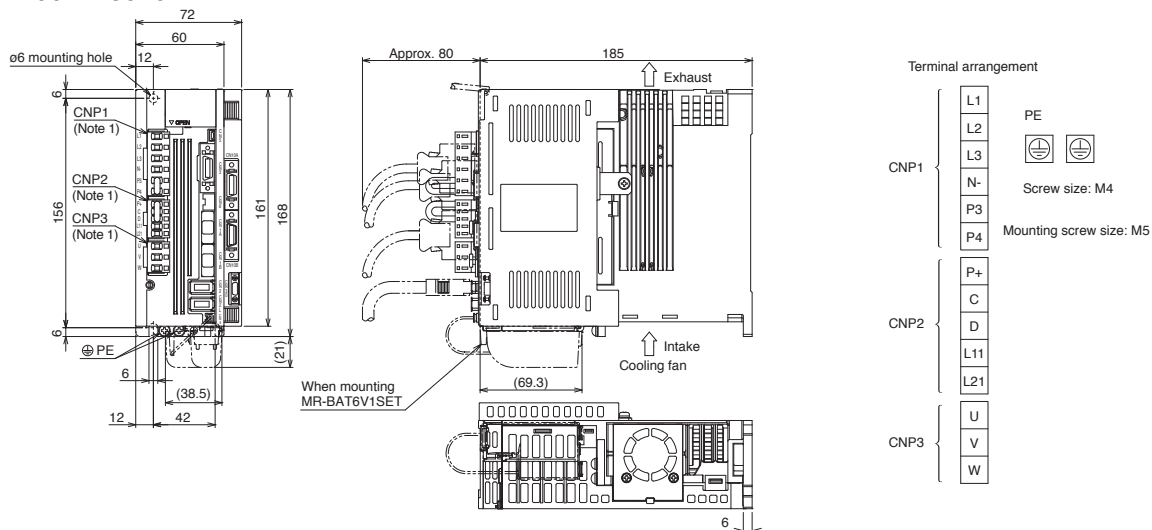
[Unit: mm]

- MR-J4-40B-RJ020, MR-J4-40B1-RJ020
- MR-J4-60B-RJ020



[Unit: mm]

- MR-J4-70B-RJ020
- MR-J4-100B-RJ020



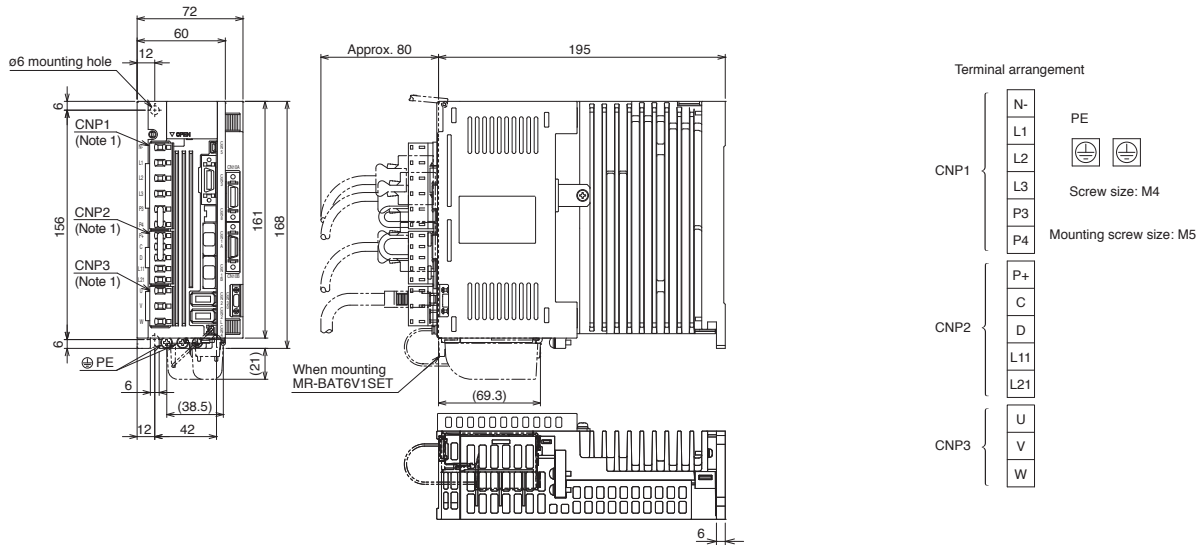
[Unit: mm]

Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.  
 2. The dimensions are applicable when MR-J4-B-RJ020 and MR-J4-T20 are combined. The dimensions of MR-J4-B-RJ020 are the same as those of MR-J4-B-RJ. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in "MELSERVO-J4 catalog (L(NA)03058)" for the dimensions of MR-J4-B-RJ020 alone.

### MR-J4-B-RJ020 Dimensions (Note2)

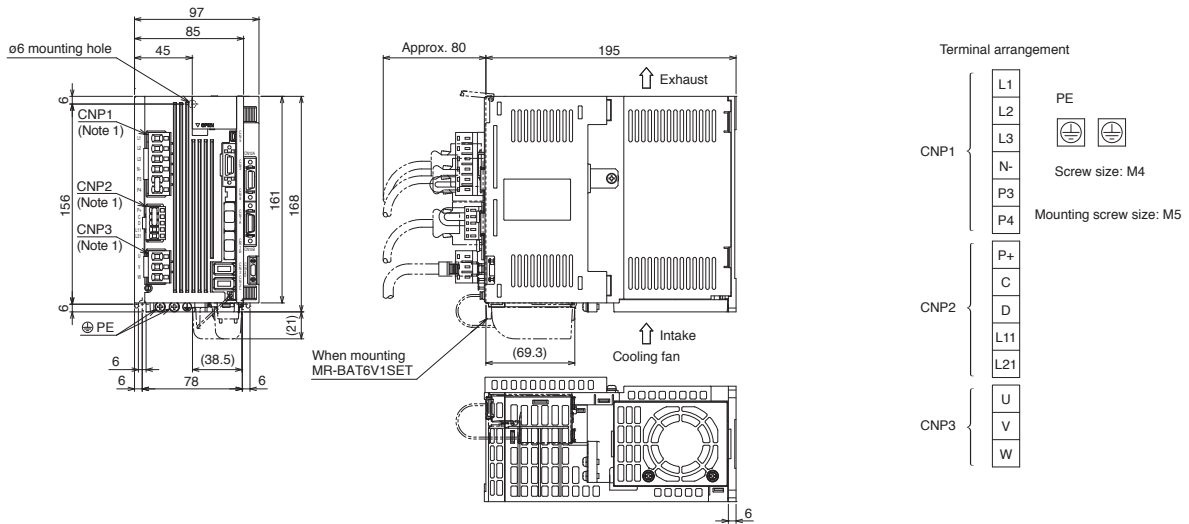
●MR-J4-60B4-RJ020

●MR-J4-100B4-RJ020



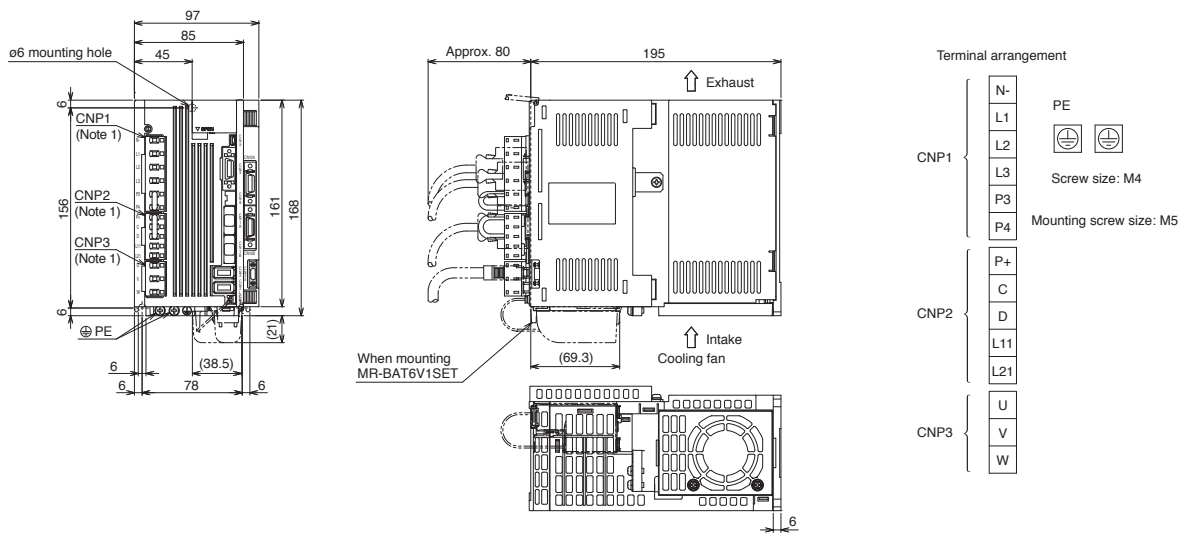
[Unit: mm]

●MR-J4-200B-RJ020



[Unit: mm]

●MR-J4-200B4-RJ020

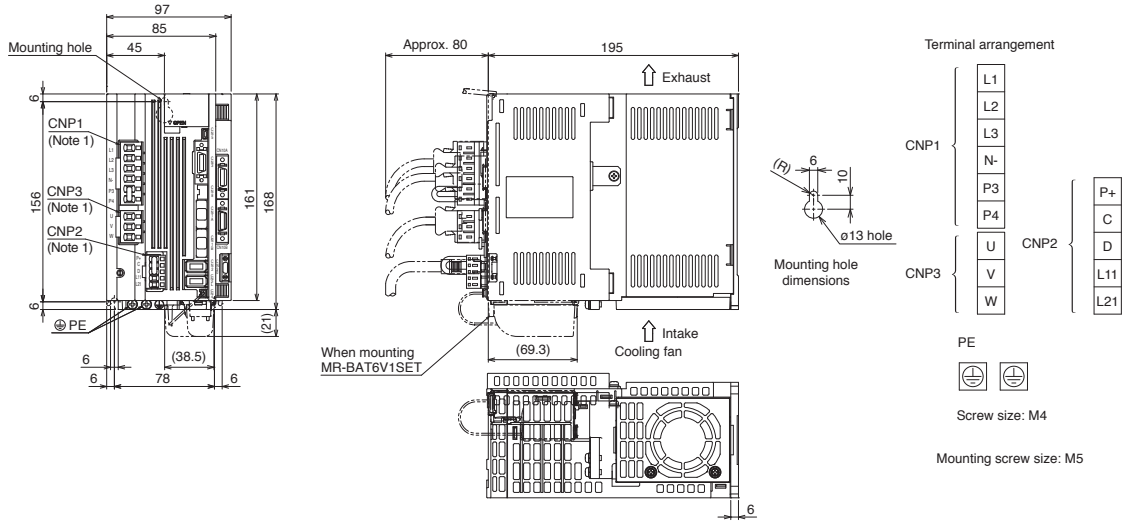


[Unit: mm]

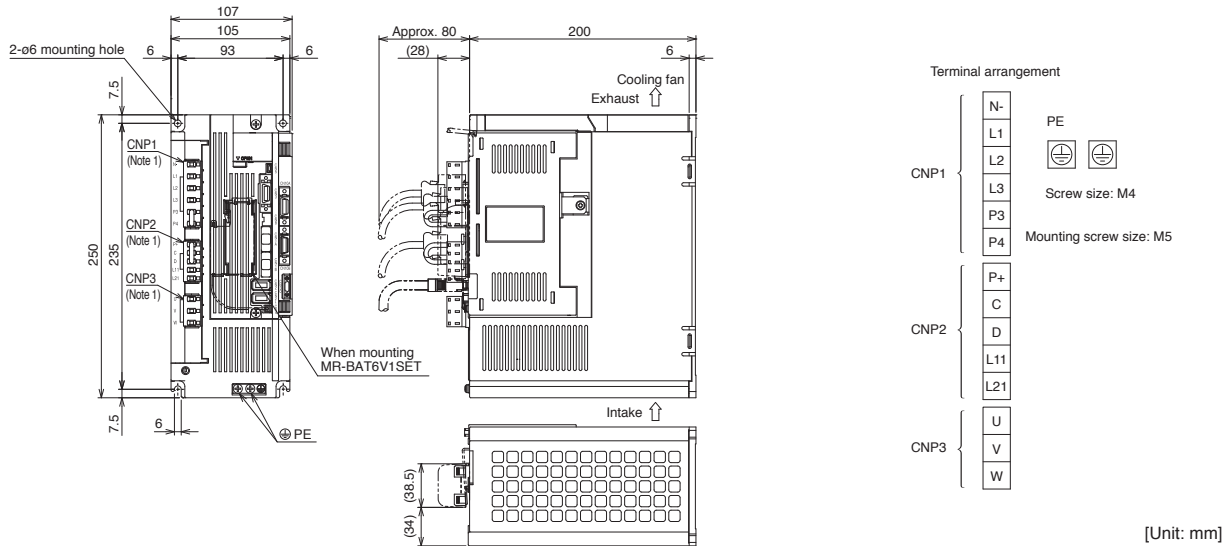
Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.  
 2. The dimensions are applicable when MR-J4-B-RJ020 and MR-J4-T20 are combined. The dimensions of MR-J4-B-RJ020 are the same as those of MR-J4-B-RJ. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in "MELSERVO-J4 catalog (L(NA)03058)" for the dimensions of MR-J4-B-RJ020 alone.

## MR-J4-B-RJ020 Dimensions (Note 2)

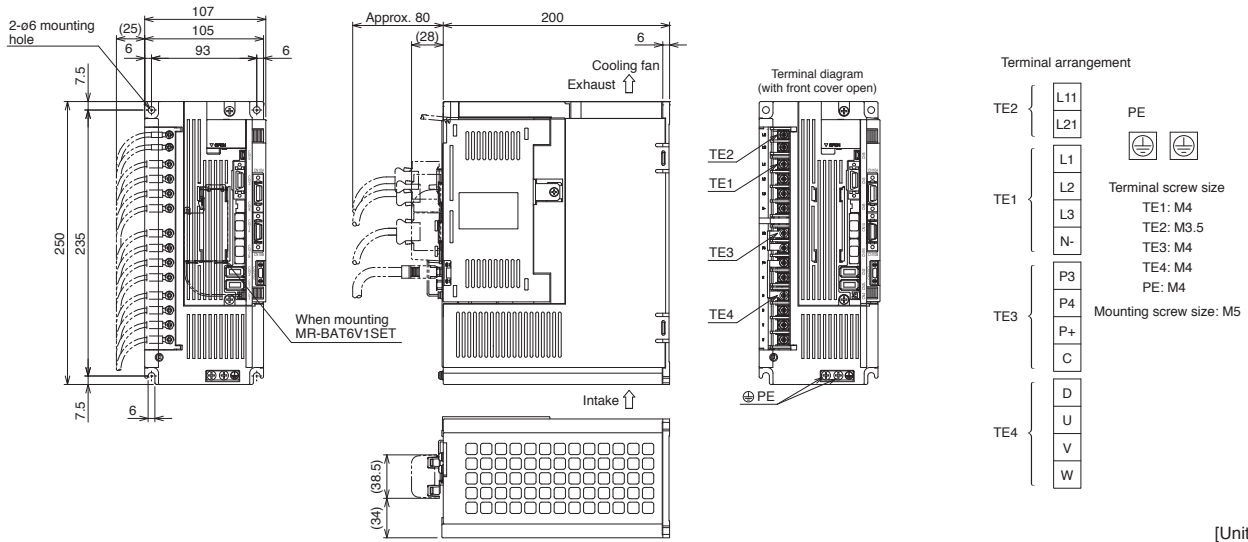
### MR-J4-350B-RJ020



### MR-J4-350B4-RJ020



### MR-J4-500B-RJ020

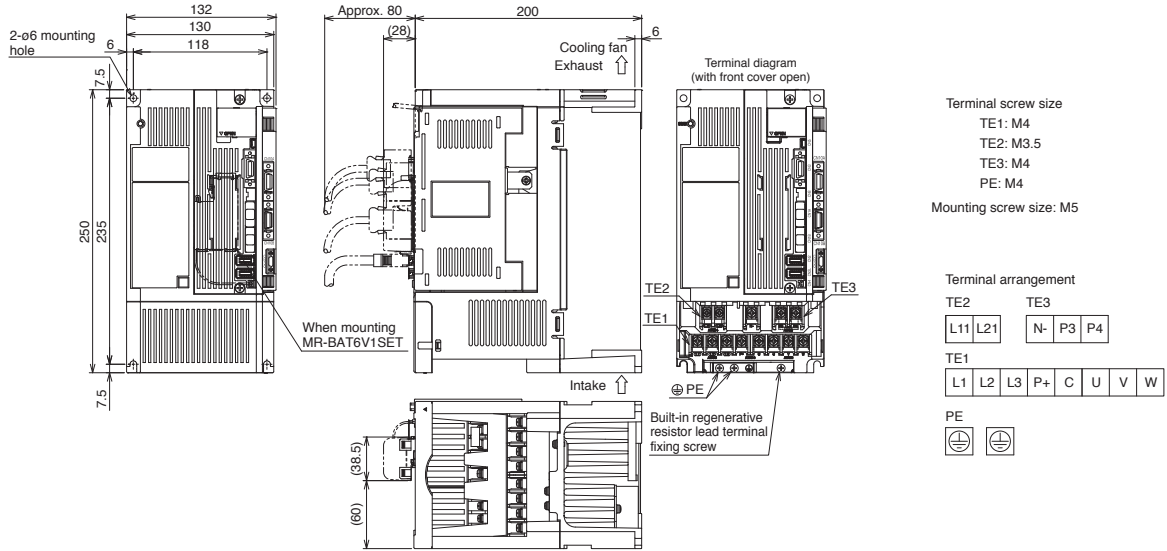


Notes: 1. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with the servo amplifier.

2. The dimensions are applicable when MR-J4-B-RJ020 and MR-J4-T20 are combined. The dimensions of MR-J4-B-RJ020 are the same as those of MR-J4-B-RJ. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in "MELSERVO-J4 catalog (L(NA)03058)" for the dimensions of MR-J4-B-RJ020 alone.

## MR-J4-B-RJ020 Dimensions (Note 1)

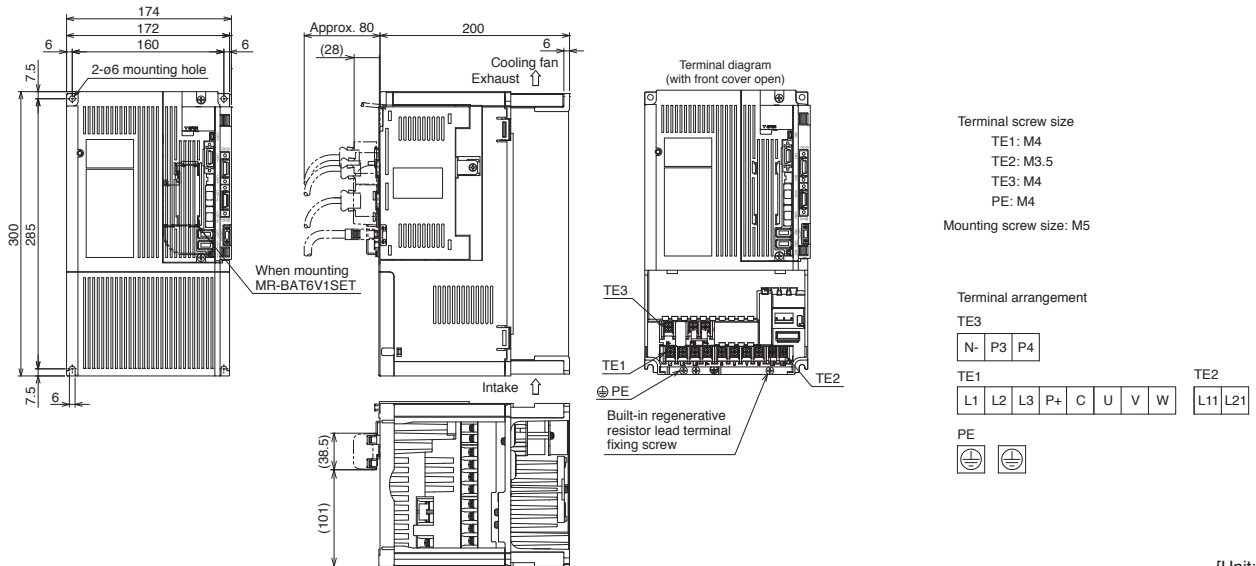
### ●MR-J4-500B4-RJ020



[Unit: mm]

### ●MR-J4-700B-RJ020

### ●MR-J4-700B4-RJ020

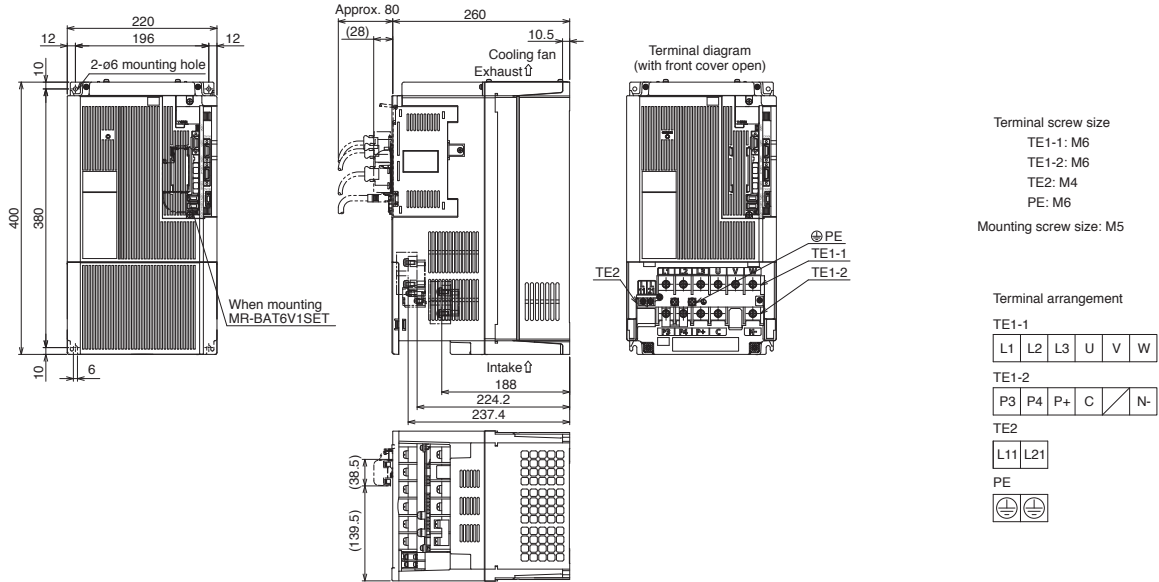


[Unit: mm]

Notes: 1. The dimensions are applicable when MR-J4-B-RJ020 and MR-J4-T20 are combined. The dimensions of MR-J4-B-RJ020 are the same as those of MR-J4-B-RJ. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in "MELSERVO-J4 catalog (L(NA)03058)" for the dimensions of MR-J4-B-RJ020 alone.

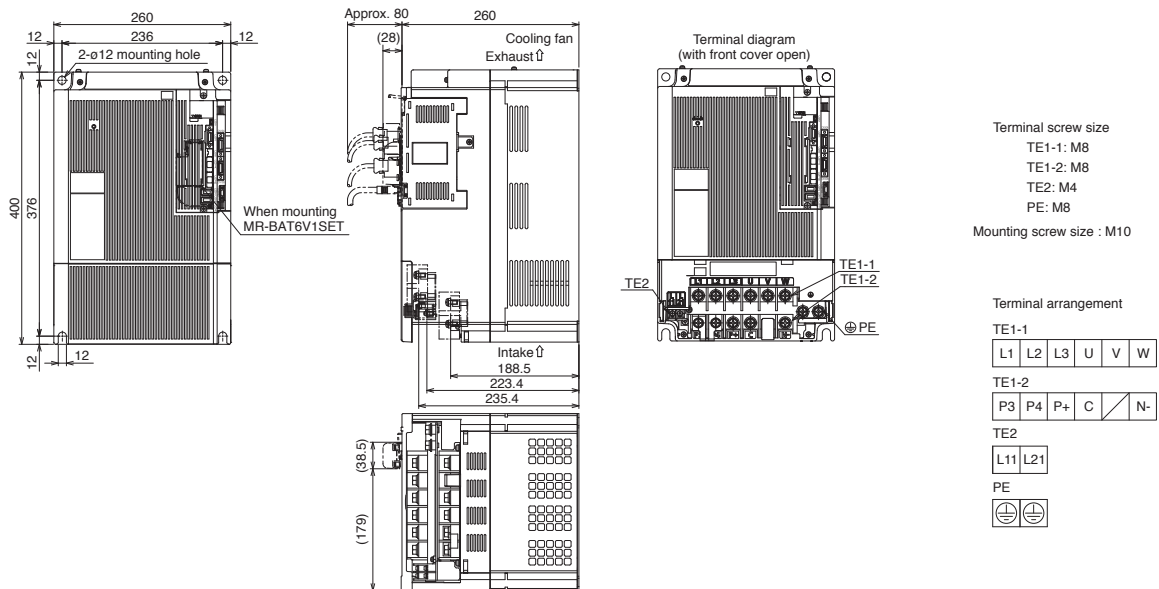
## MR-J4-B-RJ020 Dimensions (Note 1)

- MR-J4-11KB-RJ020
- MR-J4-15KB-RJ020
- MR-J4-11KB4-RJ020
- MR-J4-15KB4-RJ020



[Unit: mm]

- MR-J4-22KB-RJ020
- MR-J4-22KB4-RJ020

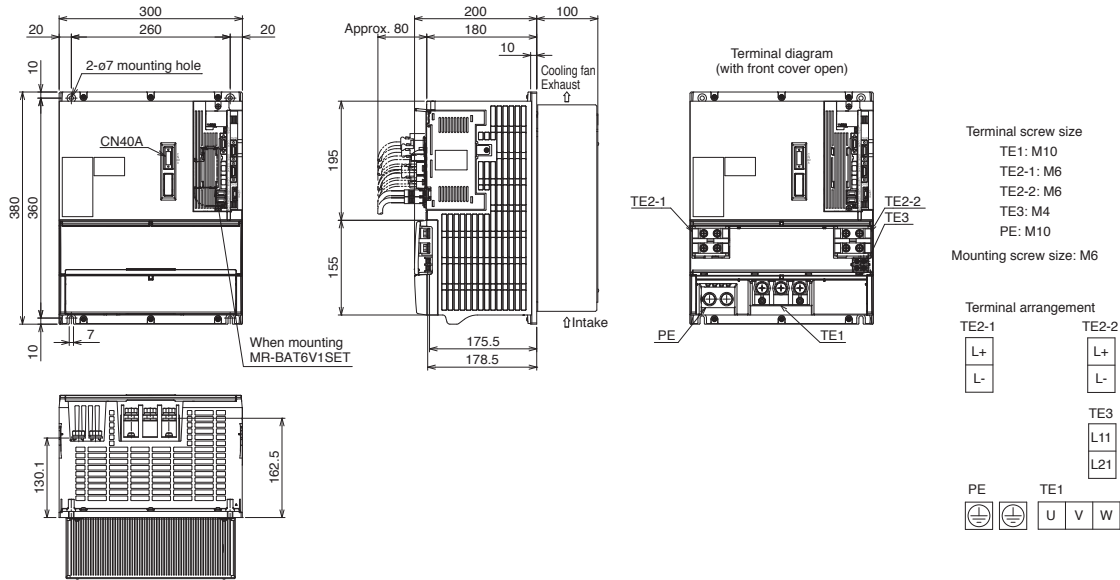


[Unit: mm]

Notes: 1. The dimensions are applicable when MR-J4-B-RJ020 and MR-J4-T20 are combined. The dimensions of MR-J4-B-RJ020 are the same as those of MR-J4-B-RJ. Refer to "MR-J4-B/MR-J4-B-RJ Dimensions" in "MELSERVO-J4 catalog (L(NA)03058)" for the dimensions of MR-J4-B-RJ020 alone.

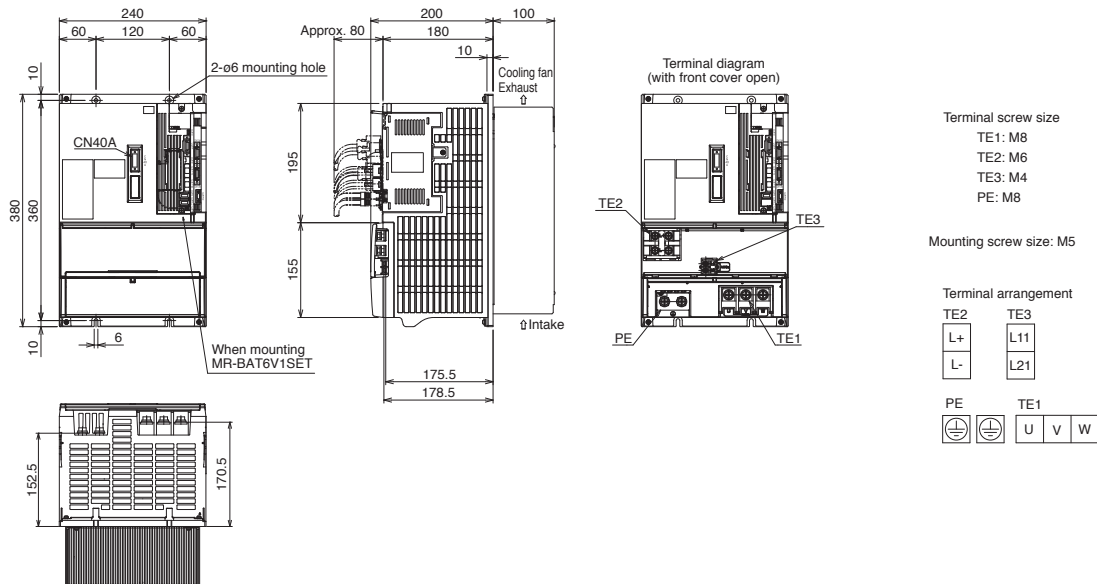
**MR-J4-DU\_B-RJ020 Dimensions (Note 1)**

- MR-J4-DU30KB-RJ020
- MR-J4-DU37KB-RJ020
- MR-J4-DU45KB4-RJ020
- MR-J4-DU55KB4-RJ020



[Unit: mm]

- MR-J4-DU30KB4-RJ020
- MR-J4-DU37KB4-RJ020

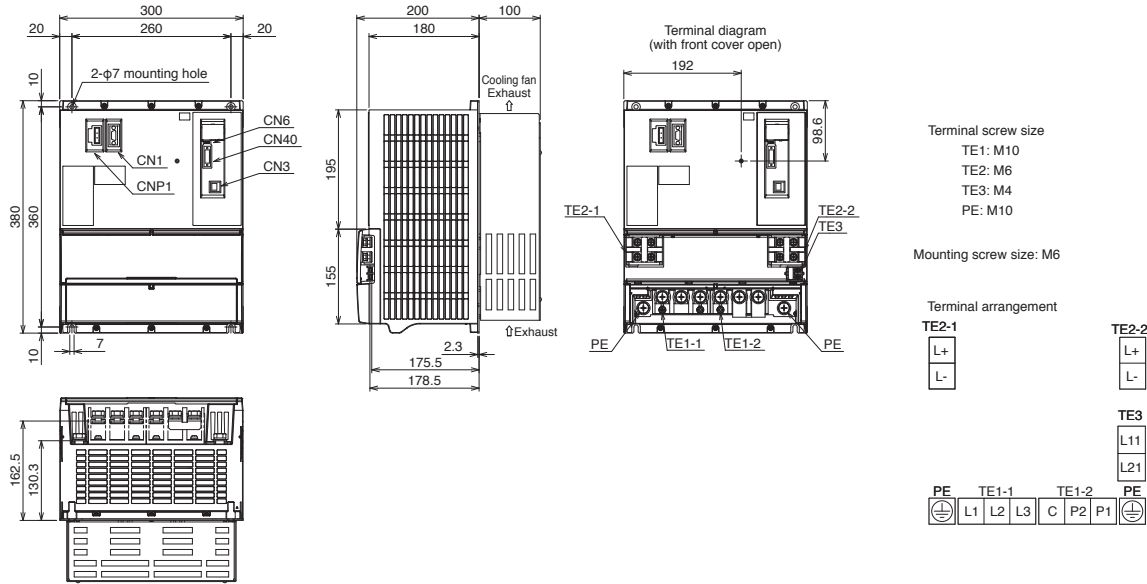


[Unit: mm]

Notes: 1. The dimensions are applicable when MR-J4-DU\_B-RJ020 and MR-J4-T20 are combined. The dimensions of MR-J4-DU\_B-RJ020 are the same as those of MR-J4-DU\_B-RJ. Refer to "MR-J4-DU\_B/MR-J4-DU\_B-RJ Dimensions" in "MELSERVO-J4 catalog (L(NA)03058)" for the dimensions of MR-J4-DU\_B-RJ020 alone.

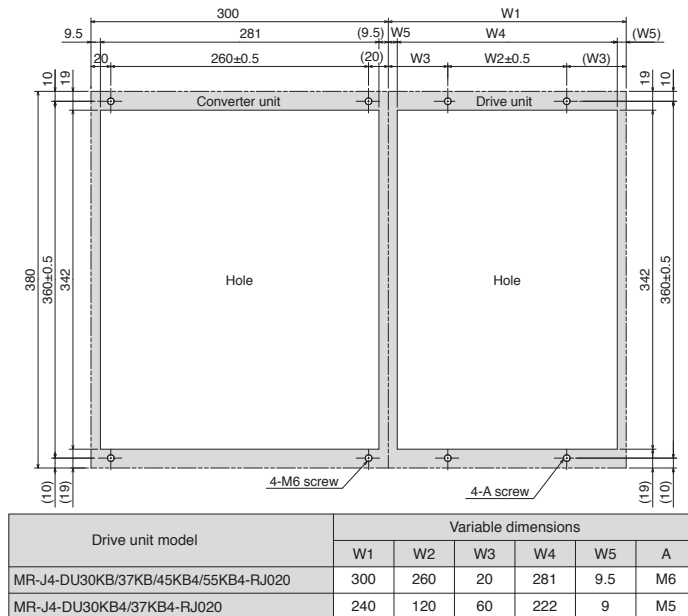
## MR-CR Dimensions

### ●MR-CR55K, MR-CR55K4



[Unit: mm]

## Panel Cut Dimensions for Converter Unit and Drive Unit

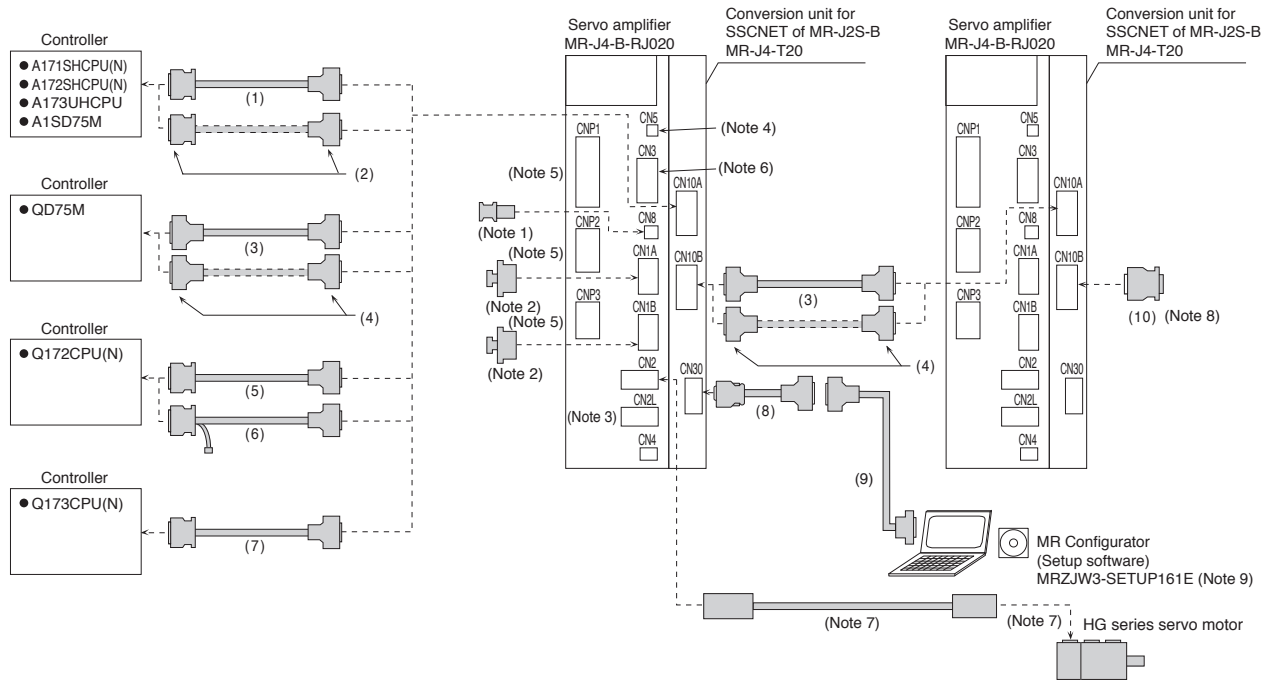


[Unit: mm]

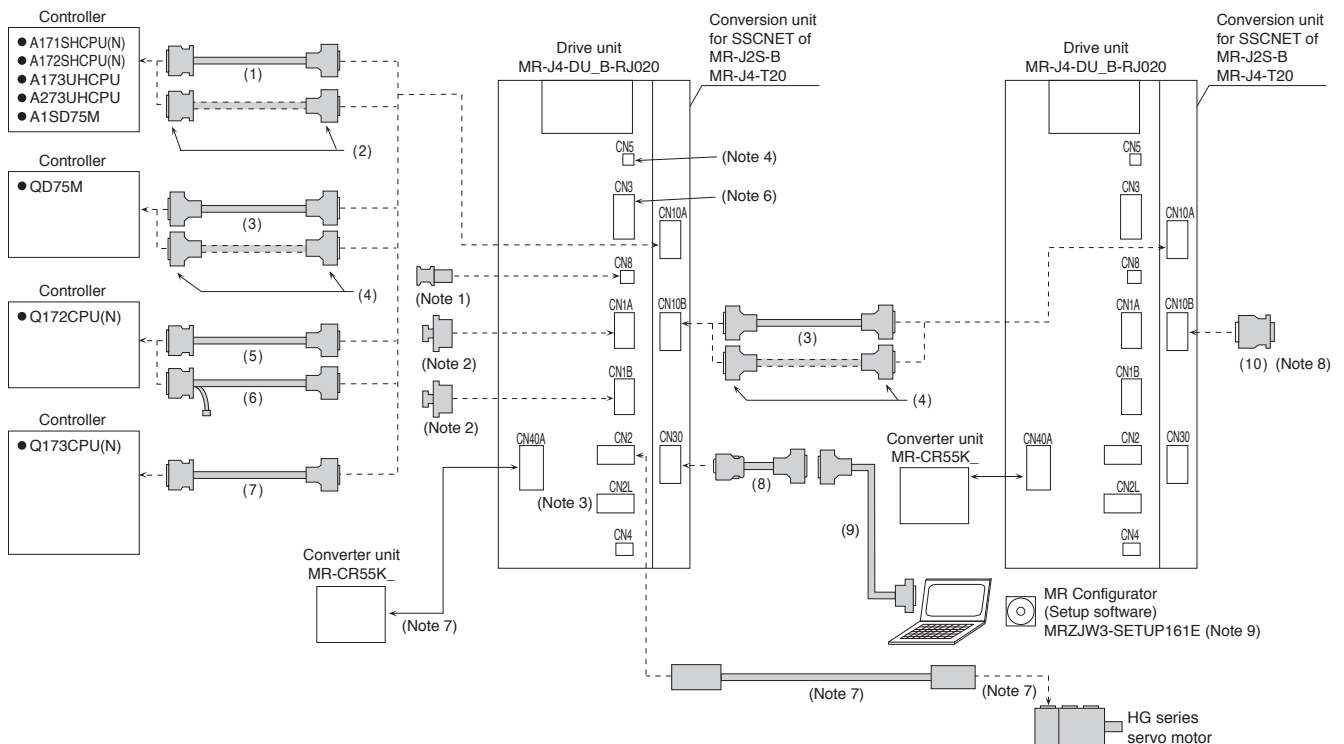


## Configuration Example

For 22 kW or smaller







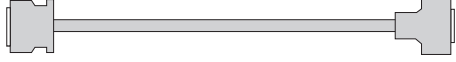



For 30 kW or larger



- Notes:
1. This connector is not for use in the J2S compatibility mode. Be sure to attach a short-circuit connector supplied with the servo amplifier.
  2. This connector is not for use in the J2S compatibility mode. Be sure to attach a cap supplied with the servo amplifier.
  3. For 7 kW or smaller servo amplifiers, this connector is used for fully closed loop control only in the J2S compatibility mode. Use the servo amplifiers with software version A4 or later. Refer to "MR-J4-\_B-RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for details.
  4. This connector is not for use in the J2S compatibility mode.
  5. CNP1, CNP2 and CNP3 connectors (insertion type) are supplied with 3.5 kW or smaller servo amplifiers. As 5 kW or larger servo amplifiers have terminal blocks mounted, these connectors are not supplied with the servo amplifier. Refer to "MR-J4-B-RJ020 Dimensions" in this brochure for details.
  6. Refer to "MR-J4-\_B-RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for CN3 connector.
  7. Refer to "MELSERVO-J4 catalog (L(NA)03058)" for cables for the drive unit and the converter unit, encoder cables, power cables, and electromagnetic cables for HG series servo motors.
  8. Be sure to attach MR-A-TM terminal connector to CN10B connector of the final axis.
  9. Setup software (MRZJW3-SETUP161E) is available for free download. Contact your local sales office for more details.



## Cables and Connectors

	Item	Model	Cable length	IP rating	Application	Description	
(1)	SSCNET cable	MR-J2HBUS05M-A	0.5 m	-	For A171SHCPU(N)/ A172SHCPU(N)/ A173UHCPU/ A273UHCPU/ A1SD75M/ MR-J4-T20	Controller-side connector Connector: PCR-S20FS+ Case: PCR-LS20LA1 (Honda Tsushin Kogyo Co., Ltd.) 	MR-J4-T20-side connector <sup>(Note 1)</sup> Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product
		MR-J2HBUS1M-A	1 m				
		MR-J2HBUS5M-A	5 m				
(2)	SSCNET connector set	MR-J2CN1-A	-	-	For A171SHCPU(N)/ A172SHCPU(N)/ A173UHCPU/ A273UHCPU/ A1SD75M/ MR-J4-T20	Controller-side connector Connector: PCR-S20FS+ Case: PCR-LS20LA1 (Honda Tsushin Kogyo Co., Ltd.)  	MR-J4-T20-side connector <sup>(Note 2)</sup> Connector: 10120-3000PE Shell kit: 10320-52F0-008 (3M) or an equivalent product
(3)	SSCNET cable	MR-J2HBUS05M	0.5 m	-	For QD75M/ MR-J4-T20	Controller/MR-J4-T20-side connector <sup>(Note 1)</sup> Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product 	MR-J4-T20-side connector <sup>(Note 1)</sup> Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product
		MR-J2HBUS1M	1 m				
		MR-J2HBUS5M	5 m				
(4)	SSCNET connector set	MR-J2CN1	-	-	For QD75M/ MR-J4-T20	Controller/MR-J4-T20-side connector <sup>(Note 2)</sup> Connector: 10120-3000PE Shell kit: 10320-52F0-008 (3M) or an equivalent product  	MR-J4-T20-side connector <sup>(Note 2)</sup> Connector: 10120-3000PE Shell kit: 10320-52F0-008 (3M) or an equivalent product
(5)	SSCNET cable	Q172J2BCBL05M	0.5 m	-	For Q172CPU(N)/ MR-J4-T20	Controller-side connector Connector: HDR-E14MG1+ Case: HDR-E14LPA5 (Honda Tsushin Kogyo Co., Ltd.) 	MR-J4-T20-side connector <sup>(Note 1)</sup> Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product
		Q172J2BCBL1M	1 m				
		Q172J2BCBL5M	5 m				
(6)	SSCNET cable	Q172J2BCBL05M-B	0.5 m	-	For Q172CPU(N)/ MR-J4-T20	Controller-side connector Connector: HDR-E14MG1+ Case: HDR-E14LPA5 (Honda Tsushin Kogyo Co., Ltd.) 	MR-J4-T20-side connector <sup>(Note 1)</sup> Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product
		Q172J2BCBL1M-B	1 m				
		Q172J2BCBL5M-B	5 m				
						Battery unit-side connector Socket: HNC2-2.5S-2 Terminal: HNC2-2.5S-D-B (Hirose Electric Co., Ltd.) * Use this cable when using Q170BAT battery unit.	

Notes: 1. Solder type (connector: 10120-3000PE and shell kit: 10320-52F0-008) (3M) is also usable. Contact the manufacturer directly.

2. Press bonding type (connector: 10120-6000EL and shell kit: 10320-3210-000) (3M) is also usable. Contact the manufacturer directly.

## Cables and Connectors

Item	Model	Cable length	IP rating	Application	Description	
(7) SSCNET cable	Q173J2B_CBL05M <sup>(Note 2)</sup>	0.5 m	-	For Q173CPU(N)/MR-J4-T20	Controller-side connector Connector: HDR-E26MG1+ Case: HDR-E26LPA5 (Honda Tsushin Kogyo Co., Ltd.)	MR-J4-T20-side connector <sup>(Note 1)</sup> Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product
	Q173J2B_CBL1M <sup>(Note 2)</sup>	1 m				
	Q173J2B_CBL5M <sup>(Note 2)</sup>	5 m				
(8) Junction cable for RS-232C	MR-J4T20CH00	0.2 m	-	For MR-J4-T20	MR-J4-T20-side connector Connector: HDR-E14MG1+ Case: HDR-E14LPA5 (Honda Tsushin Kogyo Co., Ltd.)	Junction connector Receptacle: 10220-0200EL Shell kit: 10320-E2W0-008 (3M) or an equivalent product
(9) Personal computer communication cable (RS-232C cable)	MR-CPCATCBL3M	3 m	-	For MR-J4-T20	Junction connector <sup>(Note 1)</sup> Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product	Personal computer connector Connector: DE-9SF-N Connector case: DE-C1-J6-S6 (Japan Aviation Electronics Industry, Limited)
(10) Terminal connector	MR-A-TM	-	-	For MR-J4-T20		

Notes: 1. Solder type (connector: 10120-3000PE and shell kit: 10320-52F0-008) (3M) is also usable. Contact the manufacturer directly.

2. The underbar of Q173J2B\_CBL05M/Q173J2B\_CBL1M/Q173J2B\_CBL5M indicates the number of SSCNET branched systems. None: one system, 2: two systems, 4: four systems

Refer to "MR-J4-\_B\_-RJ020 MR-J4-T20 Servo Amplifier Instruction Manual" for the wire size and other options.

## Related Material

Related material is listed below:

### Catalog and handbook

Material name	Document No.
Mitsubishi General-Purpose AC Servo MELSERVO-J4 Catalog	L(NA)03058
Transition from MELSERVO-J2-Super/J2M Series to J4 Series Handbook	L(NA)03093

### Instruction Manual

Material name	Document No.
Conversion Unit for SSCNET of MR-J2S-B Compatible AC Servo MR-J4-_B_-RJ020/MR-J4-T20 Servo Amplifier Instruction Manual	SH-030125
HG-MR/HG-KR/HG-SR/HG-JR/HG-RR/HG-UR/HG-AK Servo Motor Instruction Manual (Vol. 3)	SH-030113

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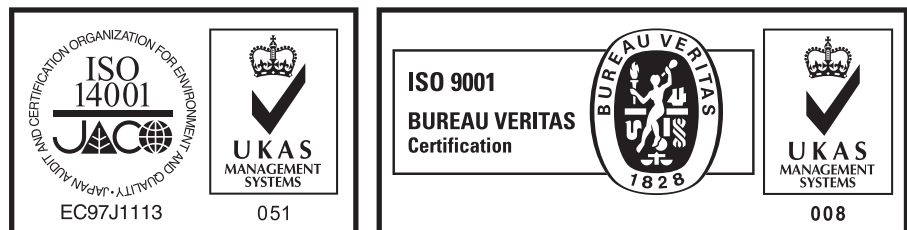
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Country/Region	Sales office	Tel/Fax
USA	MITSUBISHI ELECTRIC AUTOMATION, INC. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.	Tel : +1-847-478-2100 Fax : +1-847-478-2253
Mexico	MITSUBISHI ELECTRIC AUTOMATION, INC. Mexico Branch Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo, C.P.54030, Mexico	Tel : +52-55-3067-7500 Fax : -
Brazil	MITSUBISHI ELECTRIC DO BRASIL COMÉRCIO E SERVIÇOS LTDA. Rua Jussara, 1750- Bloco B Anexo, Jardim Santa Cecilia, CEP 06465-070, Barueri - SP, Brasil	Tel : +55-11-4689-3000 Fax : +55-11-4689-3016
Germany	MITSUBISHI ELECTRIC EUROPE B.V. German Branch Gothaer Strasse 8, D-40880 Ratingen, Germany	Tel : +49-2102-486-0 Fax : +49-2102-486-1120
UK	MITSUBISHI ELECTRIC EUROPE B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, U.K.	Tel : +44-1707-28-8780 Fax : +44-1707-27-8695
Italy	MITSUBISHI ELECTRIC EUROPE B.V. Italian Branch Centro Direzionale Colleoni - Palazzo Sirio Viale Colleoni 7, 20864 Agrate Brianza(Milano) Italy	Tel : +39-039-60531 Fax : +39-039-6053-312
Spain	MITSUBISHI ELECTRIC EUROPE, B.V. Spanish Branch Carretera de Rubí, 76-80-Apdo. 420, 08173 Sant Cugat del Vallés (Barcelona), Spain	Tel : +34-935-65-3131 Fax : +34-935-89-1579
France	MITSUBISHI ELECTRIC EUROPE B.V. French Branch 25, Boulevard des Bouvets, F-92741 Nanterre Cedex, France	Tel : +33-1-55-68-55-68 Fax : +33-1-55-68-57-57
Czech Republic	MITSUBISHI ELECTRIC EUROPE B.V. Czech Branch Avenir Business Park, Radlicka 751/113e, 158 00 Praha5, Czech Republic	Tel : +420-251-551-470 Fax : +420-251-551-471
Poland	MITSUBISHI ELECTRIC EUROPE B.V. Polish Branch ul. Krakowska 50, 32-083 Balice, Poland	Tel : +48-12-630-47-00 Fax : +48-12-630-47-01
Russia	MITSUBISHI ELECTRIC EUROPE B.V. Russian Branch St. Petersburg office Piskarevsky pr. 2, bld 2, lit "Sch", BC "Benua", office 720; RU-195027 St. Petersburg, Russia	Tel : +7-812-633-3497 Fax : +7-812-633-3499
Sweden	MITSUBISHI ELECTRIC EUROPE B.V. (Scandinavia) Fjellievägen 8, SE-22736 Lund, Sweden	Tel : +46-8-625-10-00 Fax : +46-46-39-70-18
Turkey	MITSUBISHI ELECTRIC TURKEY A.Ş Ümraniye Branch Şerifali Mahallesi Nutuk Sokak No:5, TR-34775 Ümraniye, İstanbul, Turkey	Tel : +90-216-526-3990 Fax : +90-216-526-3995
UAE	MITSUBISHI ELECTRIC EUROPE B.V. Dubai Branch Dubai Silicon Oasis, P.O.BOX 341241, Dubai, U.A.E.	Tel : +971-4-3724716 Fax : +971-4-3724721
South Africa	ADROIT TECHNOLOGIES 20 Waterford Office Park, 189 Witkoppen Road, Fourways, Johannesburg, South Africa	Tel : +27-11-658-8100 Fax : +27-11-658-8101
China	MITSUBISHI ELECTRIC AUTOMATION (CHINA) LTD. No.1386 Hongqiao Road, Mitsubishi Electric Automation Center, Shanghai, China	Tel : +86-21-2322-3030 Fax : +86-21-2322-3000
Taiwan	SETSUYO ENTERPRISE CO., LTD. 6F, No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan, R.O.C.	Tel : +886-2-2299-2499 Fax : +886-2-2299-2509
Korea	MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD. 7F-9F, Gangseo Hangang Xi-tower A, 401, Yangcheon-ro, Gangseo-Gu, Seoul 157-801, Korea	Tel : +82-2-3660-9510 Fax : +82-2-3664-8372/8335
Singapore	MITSUBISHI ELECTRIC ASIA PTE. LTD. 307, Alexandra Road, Mitsubishi Electric Building, Singapore 159943	Tel : +65-6473-2308 Fax : +65-6476-7439
Thailand	MITSUBISHI ELECTRIC FACTORY AUTOMATION (THAILAND) CO., LTD. 12th Floor, SV.City Building, Office Tower 1, No. 896/19 and 20 Rama 3 Road, Kwaeng Bangpongpan, Khet Yannawa, Bangkok 10120, Thailand	Tel : +66-2682-6522 to 6531 Fax : +66-2682-6020
Indonesia	PT. MITSUBISHI ELECTRIC INDONESIA Gedung Jaya 11th Floor, JL. MH. Thamrin No.12, Jakarta Pusat 10340, Indonesia	Tel : +62-21-3192-6461 Fax : +62-21-3192-3942
Vietnam	MITSUBISHI ELECTRIC VIETNAM COMPANY LIMITED Unit 01-04, 10th Floor, Vincom Center, 72 Le Thanh Ton Street, District 1, Ho Chi Minh City, Vietnam	Tel : +84-8-3910-5945 Fax : +84-8-3910-5947
India	MITSUBISHI ELECTRIC INDIA PVT. LTD. Pune Branch Emerald House, EL -3, J Block, M.I.D.C Bhosari, Pune - 411026, Maharashtra, India	Tel : +91-20-2710-2000 Fax : +91-20-2710-2100
Australia	MITSUBISHI ELECTRIC AUSTRALIA PTY. LTD. 348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W 2116, Australia	Tel : +61-2-9684-7777 Fax : +61-2-9684-7245

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## MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN  
NAGOYA WORKS: 1-14, YADA-MINAMI 5, HIGASHI-KU, NAGOYA, JAPAN