

New Product News

Advanced servo technology with optical network

**MELSERVO
J3-B**



Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems)



Taking the Various Possibilities of the Servo System to Optics MR-J3-B

Features of MR-J3-B Type

- A completely synchronized system can be made using SSCNET III (fiber-optic cable) utilizing high-speed serial communication with cycle times of up to 0.44ms between controller and amplifier. Such a system will provide high levels of reliability with high levels of performance.
- SSCNET III is a completely synchronized network, so synchronized control and synchronized starting for advanced interpolation etc. can all be carried out.
- As the SSCNET III bus system is used to connect the servo system

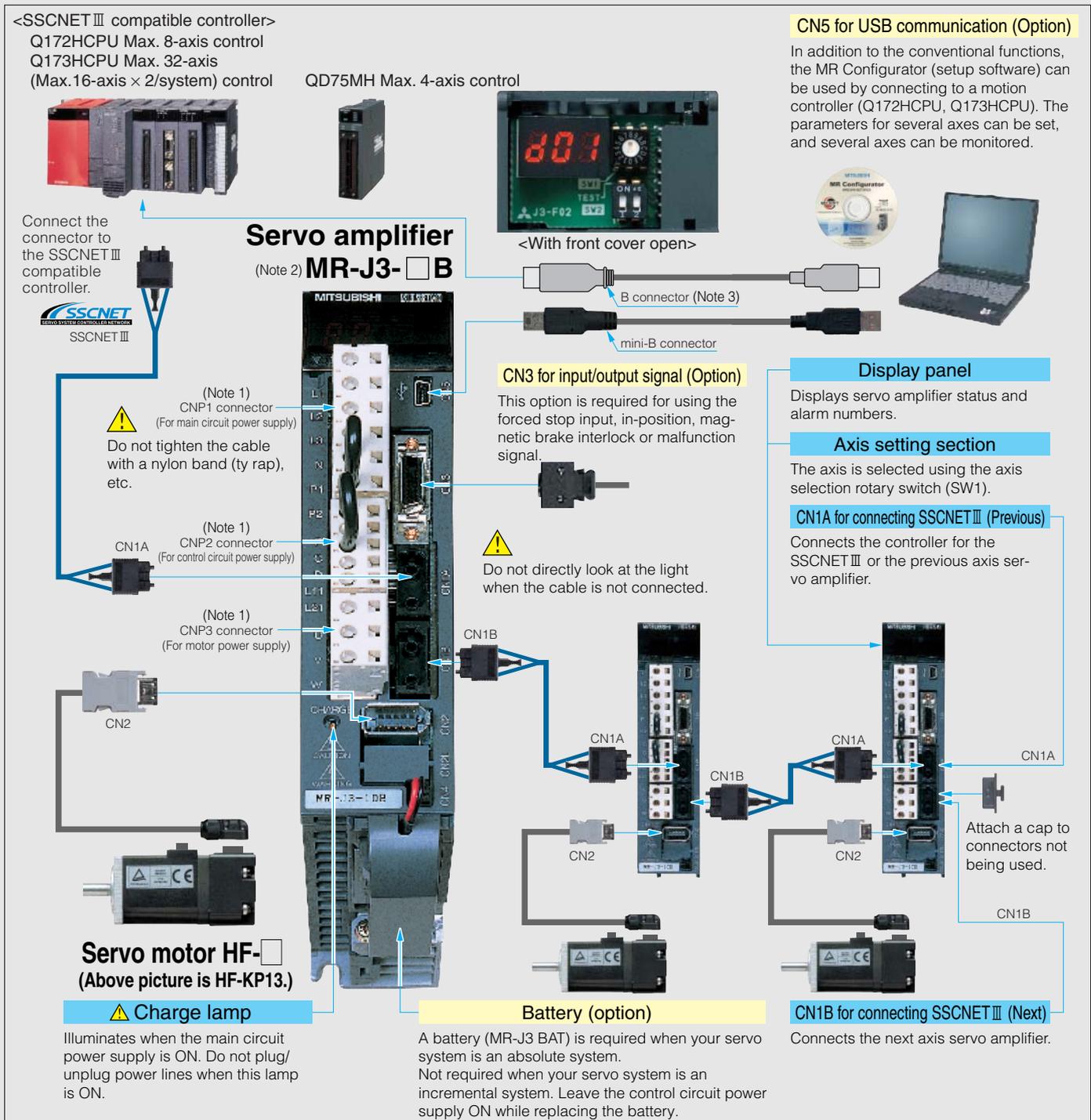
tem together, the consolidated management features such as servo amplifier parameter settings and data gathering are all present in the motion controller.

- A dedicated cable is used for the SSCNET III system that simply connects the amplifiers and controllers. This simple connection method reduces wiring time and also helps to prevent noise (due to the serial data transfer when using SSCNET III).
- An absolute system can be made by simply adding a battery to the Servo amplifier.

Connections with peripheral equipment

Peripheral equipment is connected to MR-J3-B as described below.

Connectors, cables, options, and other necessary equipment are available so that users can set up MR-J3-B easily and begin using it right away. Through its SSCNET III-compatible one-touch connections, MR-J3-B series reduce the number of wires and the chances of wiring errors.



Notes: 1. Connect CNP1, CNP2 and CNP3 according to "MR-J3-B Type Standard Wiring Diagram" in this New Product News.
2. The connections with the peripheral equipment shown above apply for the MR-J3-350B or smaller. Connect the MR-J3-500B or larger as shown in the section "MR-J3-B Type Standard Wiring Diagram" of this New Product News.
3. The cable connected between the controller and personal computer must be prepared by the user. Refer to "MOTION CONTROLLER Q series User's Manual" for details.

The next generation's high-speed synchronous network SSCNET III !

Servo Amplifier MR-J3-B Type Specifications

Servo amplifier model MR-J3-		10B	20B	40B	60B	70B	100B	200B	350B	500B	700B	10B1	20B1	40B1		
Servo amplifier	Main circuit power supply	Voltage/frequency (Note 1)	3-phase 200 to 230VAC 50/60Hz or 1-phase 230VAC 50/60Hz					3-phase 200 to 230VAC 50/60Hz					1-phase 100 to 120VAC 50/60Hz			
		Permissible voltage fluctuation	3-phase 200 to 230VAC: 170 to 253VAC 1-phase 230VAC: 207 to 253VAC					3-phase 170 to 253VAC					1-phase 85 to 132VAC			
		Permissible frequency fluctuation	±5% maximum													
	Control circuit power supply	Voltage/frequency	1-phase 200 to 230VAC 50/60Hz										1-phase 100 to 120VAC / 50, 60Hz			
		Permissible voltage fluctuation	1-phase 170 to 253VAC										1-phase 85 to 132VAC			
		Permissible frequency fluctuation	±5% maximum													
		Power consumption (W)	30					45			30					
	Regenerative resistor/tolerable regenerative power (W)	With no option (Amplifier built-in resistor)		—	10	10	10	20	20	100	100	130	170	—	10	10
		Optional regeneration unit	MR-RB032	30	30	30	30	30	30	×	×	×	×	30	30	30
			MR-RB12	×	100	100	100	100	100	×	×	×	×	×	100	100
			MR-RB30	×	×	×	×	×	×	300	300	×	×	×	×	×
			MR-RB31	×	×	×	×	×	×	×	×	300	300	×	×	×
			MR-RB32	×	×	×	×	300	300	×	×	×	×	×	×	×
			MR-RB50 (Note 2)	×	×	×	×	×	×	500	500	×	×	×	×	×
	MR-RB51 (Note 2)	×	×	×	×	×	×	×	×	500	500	×	×	×		
	Interface power supply		24VDC±10% (required current capacity : 150mA) (Note 3)													
Control system		Sine-wave PWM control/current control system														
Dynamic brake		Built-in (Note 4)														
Safety features		Overcurrent shutdown, regeneration overvoltage shutdown, overload shutdown (electronic thermal), servo motor overheat protection, encoder fault protection, regeneration fault protection, undervoltage/sudden power outage protection, overspeed protection, excess error protection														
Structure		Self-cooling open (IP00)					Fan cooling open (IP00)					Self-cooling open (IP00)				
Environment	Ambient temperature (Note 5)		0 to 55°C (32 to 131°F) (non freezing), storage: -20 to 65°C (-4 to 149°F) (non freezing)													
	Ambient humidity		90% RH maximum (non condensing), storage: 90% RH maximum (non condensing)													
	Atmosphere		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust													
	Elevation		1000m (3280ft) or less above sea level													
	Vibration		5.9m/s ² maximum													
Mass (kg [lb])		0.8 (1.8)	0.8 (1.8)	1.0 (2.2)	1.0 (2.2)	1.4 (3.1)	1.4 (3.1)	2.3 (5.1)	2.3 (5.1)	4.6 (10.1)	6.2 (13.7)	0.8 (1.8)	0.8 (1.8)	1.0 (2.2)		

- Notes: 1. Rated output and rated speed of the servo motor used in combination with the servo amplifier are as indicated when using the power supply voltage and frequency listed. The torque drops when the power supply voltage is less than specified.
 2. Install the cooling fan (1.0m³/min, approx. □92).
 3. 150mA is the value when all of the input/output points are used. The current capacity can be stepped down according to the number of input/output points in use. Refer to "MR-J3-□B SERVO AMPLIFIER INSTRUCTION MANUAL" for details.
 4. For products without a dynamic brake (MR-J3-□B(1)-ED), special compliance is possible.
 5. Close mounting is possible for MR-J3-350B or smaller servo amplifiers. However, when mounting the amplifier closely, keep the ambient temperature within 0 to 45°C (32 to 113°F), or use with the effective load rate of 75% or less.

Servo Amplifier Model Configuration

MR-J3- 10 B □

**Mitsubishi
AC servo amplifier
MELSERVO-J3 Series**

**A : General-purpose interface
B : SSCNET III compatible (new products)**

List of compatible motors

Symbol	HF-MP	HF-KP	HF-SP	
			1000r/min	2000r/min
10	053, 13	053, 13	—	—
20	23	23	—	—
40	43	43	—	—
60	—	—	51	52
70	73	73	—	—
100	—	—	81	102
200	—	—	121, 201	152, 202
350	—	—	—	352
500	—	—	—	502
700	—	—	—	702

*** Conforms to following standards: EN, UL, cUL**

Symbol	Power supply
None	3-phase 200VAC or 1-phase 230VAC (Note 1)
1	1-phase 100VAC (Note 2)

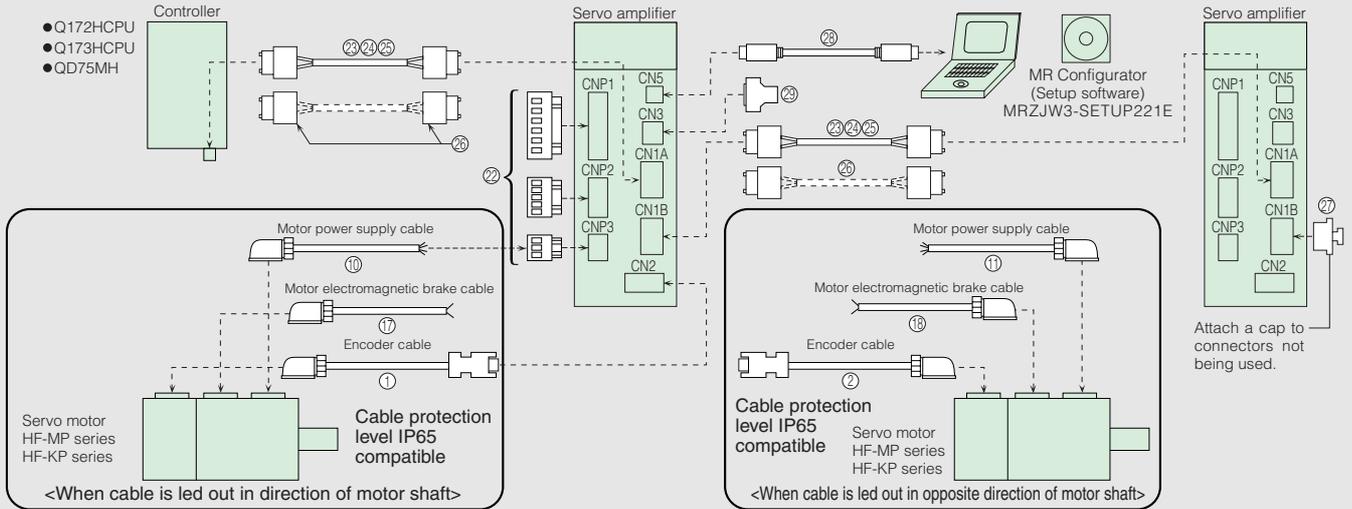
Notes: 1. The 1-phase 230VAC is available only for the MR-J3-70□ or smaller servo amplifiers.
 2. Only for MR-J3-40□1 or smaller servo amplifiers.

Options

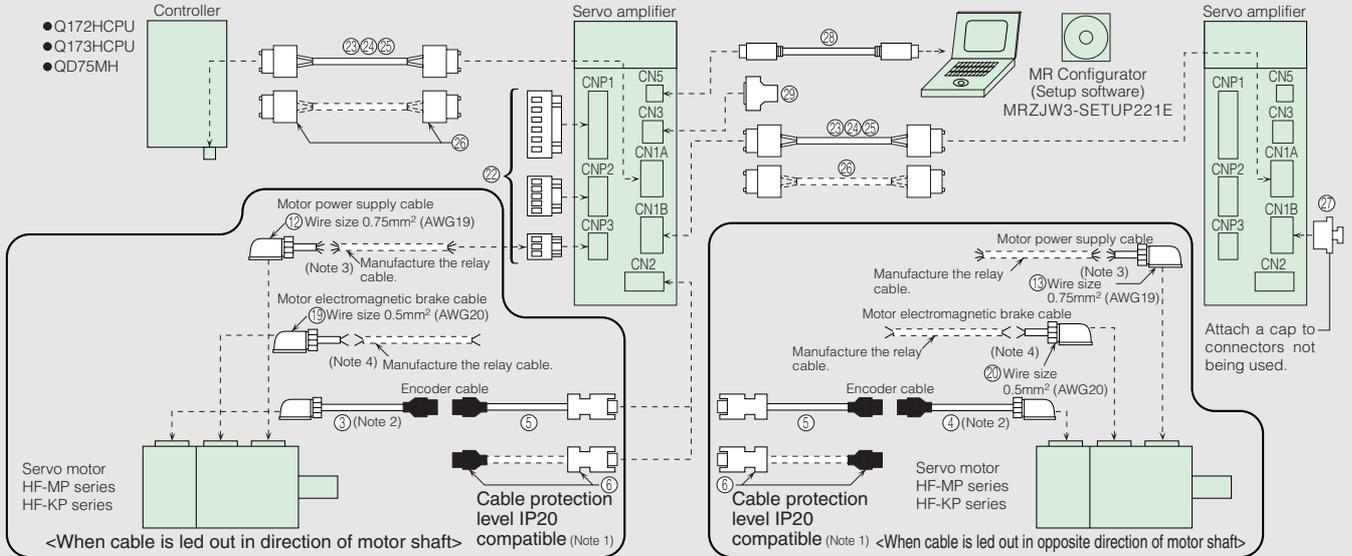
● Cables and connectors (MR-J3-B type)

Optional cables and connectors are shown in the diagram below.

<Servo motor HF-MP, HF-KP series: encoder cable length 10m (32.81ft) or shorter>



<Servo motor HF-MP, HF-KP series: Encoder cable length over 10m (32.81ft) >



Notes: 1. Compatible with protection level IP20. Contact Mitsubishi when using in a protection level IP65 environment.

2. This cable does not have a long bending life, so always fix the cable before using.

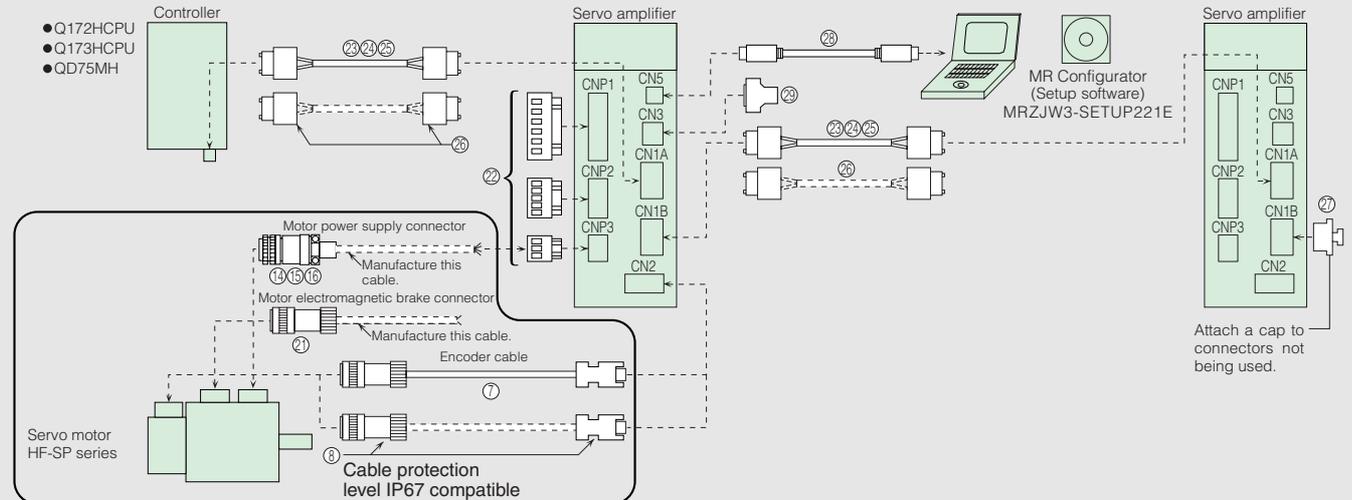
3. If the length exceeds 10m (32.81ft), relay the cable using the cable MR-PWS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using.

The relay cable's wire size and the ⑫ and ⑬ wire sizes are different. Refer to "MR-J3-□B SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.

4. If the length exceeds 10m (32.81ft), relay the cable using the cable MR-BKS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using.

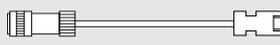
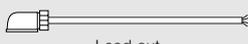
The relay cable's wire size and the ⑬ and ⑭ wire sizes are different. Refer to "MR-J3-□B SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.

<For servo motor HF-SP series>



Options

● Cables and connectors

Item		Model	Protection level	Description		
Encoder cable for CN2	① 10m (32.81ft) or shorter (Direct connection type)	Encoder cable for HF-MP, HF-KP series motor Lead out in direction of motor shaft	MR-J3ENCBL□M-A1-H □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65	 Encoder-side connector (made by Tyco Electronics) 1674320-1 Amplifier-side connector (made by 3M, or an equivalent product) 36210-0100JL (receptacle) 36310-3200-008 (shell kit)	
			MR-J3ENCBL□M-A1-L □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65		
	②	Encoder cable for HF-MP, HF-KP series motor Lead out in opposite direction of motor shaft	MR-J3ENCBL□M-A2-H □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65		
			MR-J3ENCBL□M-A2-L □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65		
	③	Exceeding 10m (32.81ft) (Relay type)	Encoder cable for HF-MP, HF-KP series motor Lead out in direction of motor shaft	MR-J3JCBLO3M-A1-L Cable length 0.3m (0.98ft) (Note 1)	IP20	Encoder-side connector (made by Tyco Electronics) 1674320-1 Junction connector (made by Tyco Electronics) 1473226-1 (with ring) (contact) 1-172169-9 (housing) 316454-1 (cable clamp) Use this in combination with ⑤ or ⑥.
			Encoder cable for HF-MP, HF-KP series motor Lead out in opposite direction of motor shaft	MR-J3JCBLO3M-A2-L Cable length 0.3m (0.98ft) (Note 1)	IP20	
	⑤	Exceeding 10m (32.81ft) (Relay type)	Amplifier-side cable for HF-MP, HF-KP series motor	MR-EKCBL□M-H □=cable length 20, 30, 40, 50m (65.62, 98.43, 131.23, 164.04ft) (Note 1)	IP20	Junction connector (made by Tyco Electronics) 1-172161-9 (housing) 170359-1 (connector pin) MTI-0002 (cable clamp, made by Toa Electric) Amplifier-side connector (made by 3M, or an equivalent product) 36210-0100JL (receptacle) 36310-3200-008 (shell kit) Use this in combination with ③ or ④.
				MR-EKCBL□M-L □=cable length 20, 30m (65.62, 98.43ft) (Note 1)	IP20	
	⑥	Exceeding 10m (32.81ft) (Relay type)	Junction connector, Amplifier-side connector (Note 2) for HF-MP, HF-KP series motor	MR-ECNM	IP20	Junction connector (made by Tyco Electronics) 1-172161-9 (housing) 170359-1 (connector pin) MTI-0002 (cable clamp, made by Toa Electric) Amplifier-side connector (made by Molex, or an equivalent product) 54593-1011 (connector housing) 54594-1015 (plug cover A) 54595-1005 (plug cover B) 58935-1000 (shell cover) 58934-1000 (shell body) 58937-0000 (cable clamp) 58203-0010 (screw) (Note 3) <Applicable cable example> Wire size: 0.3mm ² (AWG22) 58203-0010 (screw) Completed cable outer diameter: φ8.2mm (φ0.323inch) Crimping tool (91529-1) is required. Use these in combination with ③ or ④.
	⑦	Encoder cable for HF-SP series motor	MR-J3ENSCBL□M-H □=cable length 2, 5, 10, 20, 30, 40, 50m (6.56, 16.40, 32.81, 65.62, 98.43, 131.23, 164.04ft) (Note 1)	IP67	 Amplifier-side connector (made by 3M, or an equivalent product) 36210-0100JL (receptacle) 36310-3200-008 (shell kit)	
			MR-J3ENSCBL□M-L □=cable length 2, 5, 10, 20, 30m (6.56, 16.40, 32.81, 65.62, 98.43ft) (Note 1)	IP67		
	⑧	Encoder connector set for HF-SP series motor	MR-J3SCNS	IP67	Amplifier-side connector (made by Molex, or an equivalent product) 54593-1011 (connector housing) 54594-1015 (plug cover A) 54595-1005 (plug cover B) 58935-1000 (shell cover) 58934-1000 (shell body) 58937-0000 (cable clamp) 58203-0010 (screw) (Note 3) Encoder-side connector (made by DDK) <For 10m (32.81ft) or shorter cable> CM10-SP10S-M (straight plug) CM10-#22SC (C1)-100 (socket contact) <For the cable length over 10m (32.81ft)> CM10-SP10S-M (straight plug) CM10-#22SC (C2)-100 (socket contact) <Applicable cable example> Wire size: 0.5mm ² (AWG20) or less Completed cable outer diameter: φ6.0 to 9.0mm (φ0.236 to 0.354inch)	
⑨	Battery connection relay cable	MR-J3BTCBLO3M Cable length 0.3m (0.98ft) (Note 4)	—	Amplifier-side CN2 connector (made by 3M, or an equivalent product) 36210-0100JL (receptacle) 36310-3200-008 (shell kit) Battery-side connector (made by Hirose Electric) DF3-2EP-2C (plug) DF3-EP2428PCA (crimping terminal for plug) 2 pcs. 36310-F200-008 (shell kit) Use this option cable to hold the absolute system's absolute values when the encoder cable is disconnected from the amplifier.		
Select one of motor power supply cables ⑩ to ⑬ for use	⑩ 10m (32.81ft) or shorter (Direct connection type)	Power supply cable for HF-MP, HF-KP series motor Lead out in direction of motor shaft	MR-PWS1CBL□M-A1-H □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65	Motor power supply-side connector (made by Japan Aviation Electronics Industry) JN4FT04SJ1 (plug) ST-TMH-S-C1B-100-(A534G) (socket contact)  Lead-out	
			MR-PWS1CBL□M-A1-L □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65		
	⑪	Power supply cable for HF-MP, HF-KP series motor Lead out in opposite direction of motor shaft	MR-PWS1CBL□M-A2-H □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65		
			MR-PWS1CBL□M-A2-L □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65		
	⑫	Exceeding 10m (32.81ft) (Relay type)	Power supply cable for HF-MP, HF-KP series motor Lead out in direction of motor shaft	MR-PWS2CBL03M-A1-L Cable length 0.3m (0.98ft) (Note 1)		IP55
	⑬	Exceeding 10m (32.81ft) (Relay type)	Power supply cable for HF-MP, HF-KP series motor Lead out in opposite direction of motor shaft	MR-PWS2CBL03M-A2-L Cable length 0.3m (0.98ft) (Note 1)		IP55

- Notes: 1. -H and -L indicate bending life. -H indicates a long bending life part, -L indicates a standard part.
 2. Refer to "MR-J3-□B SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the cable.
 3. 3M connector can be used for the amplifier-side connector. Model: 36210-0100JL (receptacle), 36310-3200-008 (shell kit)
 4. Use this battery connection relay cable (MR-J3BTCBLO3M), as the cable is a special cable with a built-in diode. Don't manufacture the cable.

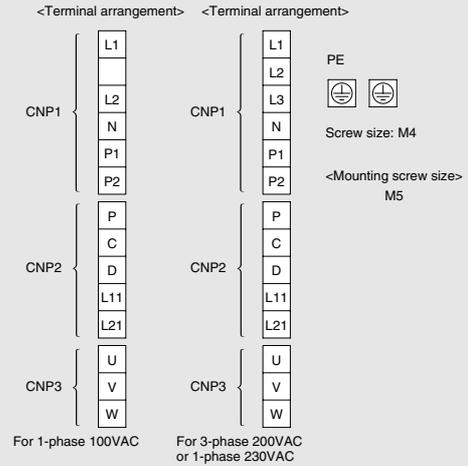
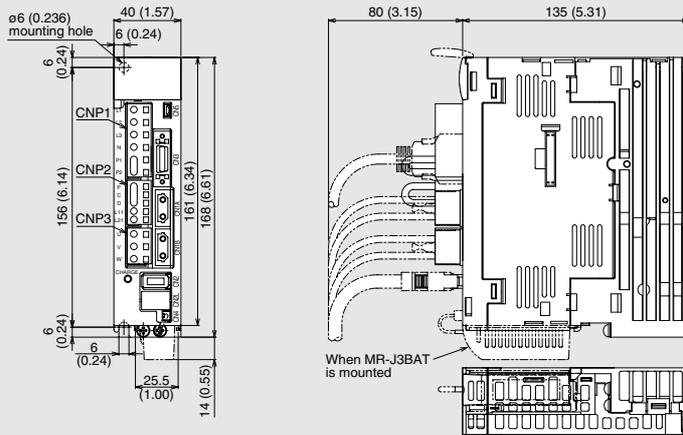
Item		Model	Protection level	Description			
Select one of motor power supply cables (10 to 16) for use	14	Power supply connector for HF-SP51, 81, HF-SP52, 102, 152 motor	MR-PWCNS4 (Straight type)	IP67  Motor power supply connector (made by DDK) CE05-6A18-10SD-B-BSS (plug) (straight) CE3057-10A-1 (D265) (cable clamp) <Applicable cable example> Wire size: 2mm ² (AWG14) to 3.5mm ² (AWG12) Completed cable outer diameter: φ10.5 to 14.1mm (φ0.413 to 0.555inch)			
	15	Power supply connector for HF-SP121, 201, HF-SP202, 352, 502 motor	MR-PWCNS5 (Straight type)	IP67  Motor power supply connector (made by DDK) CE05-6A22-22SD-B-BSS (plug) (straight) CE3057-12A-1 (D265) (cable clamp) <Applicable cable example> Wire size: 5.5mm ² (AWG10) to 8mm ² (AWG8) Completed cable outer diameter: φ12.5 to 16mm (φ0.492 to 0.630inch)			
	16	Power supply connector for HF-SP702 motor	MR-PWCNS3 (Straight type)	IP67  Plug (straight) (made by DDK) CE05-6A32-17SD-B-BSS Cable clamp (made by DDK) CE3057-20A-1 (D265) <Applicable cable example> Wire size: 14mm ² (AWG6) to 22mm ² (AWG4) Completed cable outer diameter: φ22 to 23.8mm (φ0.866 to 0.937inch)			
Select one of motor brake cables for use	17	10m (32.81ft) or shorter (Direct connection type) Brake cable for HF-MP, HF-KP series motor Lead out in direction of motor shaft	MR-BKS1CBL□M-A1-H □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65	Motor brake-side connector (made by Japan Aviation Electronics Industry) JN4FT02SJ1 (plug) ST-TMH-S-C1B-100-(A534G) (socket contact)  Lead-out		
			MR-BKS1CBL□M-A1-L □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65			
	18	Brake cable for HF-MP, HF-KP series motor Lead out in opposite direction of motor shaft	MR-BKS1CBL□M-A2-H □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65			
			MR-BKS1CBL□M-A2-L □=cable length 2, 5, 10m (6.56, 16.40, 32.81ft) (Note 1)	IP65			
	19	Exceeding 10m (32.81ft) Brake cable for HF-MP, HF-KP series motor Lead out in direction of motor shaft	MR-BKS2CBL03M-A1-L Cable length 0.3m (0.98ft) (Note 1)	IP55			
	20	(Relay type) Brake cable for HF-MP, HF-KP series motor Lead out in opposite direction of motor shaft	MR-BKS2CBL03M-A2-L Cable length 0.3m (0.98ft) (Note 1)	IP55			
For CNP1, CNP2, CNP3	21	Brake connector for HF-SP series motor	MR-BKCNS1 (Straight type)	IP67  <Applicable cable example> CM10-#22SC (S2)-100 (socket contact) Wire size: 1.25mm ² (AWG16) or less Completed cable outer diameter: φ9.0 to 11.6mm (φ0.354 to 0.457inch)			
	22	Servo amplifier power supply connector set (For MR-J3-10B (1) to MR-J3-350B) (Note 2)	(Standard accessory: Insertion type)	— CNP1 connector  • 1kW or less (made by Molex, or an equivalent product) 54928-0610 (connector) • 2.35kW (PHOENIX or an equivalent product) PC4/6-STF-7.62-CRWH (connector) CNP2 connector  (made by Molex, or an equivalent product) 54927-0510 (connector) CNP3 connector  • 1kW or less (made by Molex, or an equivalent product) 54928-0310 (connector) • 2.35kW (PHOENIX or an equivalent product) PC4/3-STF-7.62-CRWH (connector) Insertion tool  (made by Molex, or an equivalent product) 54932-0000 <Applicable cable example> (Note 5) • CNP2 for 1kW or less, 2 and 3.5kW Wire size: 0.14mm ² (AWG26) to 2.5mm ² (AWG14) Completed cable outer diameter: to φ3.8mm (to φ0.150inch) <Applicable cable example> (Note 5) • CNP1 and CNP3 connector for 2 and 3.5kW Wire size: 0.2mm ² (AWG24) to 5.5mm ² (AWG10) Completed cable outer diameter: to φ5mm (to φ0.197inch)			
For controller, CN1A, CN1B	23	SSCNET III cable (Standard cord for inside panel)	MR-J3BUS□M □=cable length 0.15, 0.3, 0.5, 1, 3m (0.49, 0.98, 1.64, 3.28, 9.84ft)	—	Connector (made by Japan Aviation Electronics Industry) PF-2D103 (connector)	Connector (made by Japan Aviation Electronics Industry) PF-2D103 (connector)	Note) Always read the precautions enclosed with the option before starting use.
	24	SSCNET III cable (Standard cable for outside panel)	MR-J3BUS□M-A □=cable length 5, 10, 20m (16.40, 32.81, 65.62ft)	—			
	25	SSCNET III cable (Long distance cable) (Note 4)	MR-J3BUS□M-B □=cable length 30, 40, 50m (98.43, 131.23, 164.04ft)	—	Connector (made by Japan Aviation Electronics Industry) CF-2D103-S (connector)	Connector (made by Japan Aviation Electronics Industry) CF-2D103-S (connector)	
	26	Connector set for SSCNET III	MR-J3BCN1	—	Connector (made by Japan Aviation Electronics Industry) PF-2D103 (connector)	Connector (made by Japan Aviation Electronics Industry) PF-2D103 (connector)	
For CN1B	27	Connector cap for SSCNET III	(Standard accessory)	—			
For CN5	28	Personal computer communication cable USB cable	MR-J3USBCBL3M Cable length 3m (9.84ft)	—	Amplifier-side connector mini-B connector (5 pin) 	Personal computer-side connector A connector  Note) This cable cannot be used with the SSCNET III compatible controller.	
For CN3	29	Input/output signal connector	MR-CCN1	—	 Amplifier-side connector (made by 3M, or an equivalent product) 10120-3000VE (connector) 10320-52F0-008 (shell kit) (Note 3)		

Notes: 1. -H and -L indicate bending life. -H indicates a long bending life part, -L indicates a standard part.
 2. The connector type terminal block is available only for the MR-J3-350B or smaller. Refer to "Amplifier Dimensions" in this New Product News for details.
 3. The model listed in the table is the soldered model. The model for press bonding is 10120-6000EL (connector) and 10320-3210-000 (shell kit).
 4. Contact Mitsubishi for details on cables shorter than 30m (98.43ft).
 5. Refer to "MR-J3-□B SERVO AMPLIFIER INSTRUCTION MANUAL" for details on the Mitsubishi-recommended wire sizes.

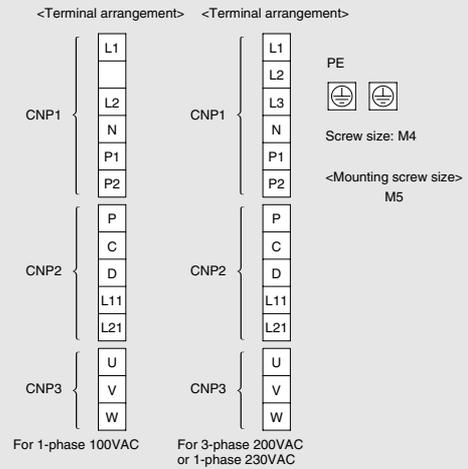
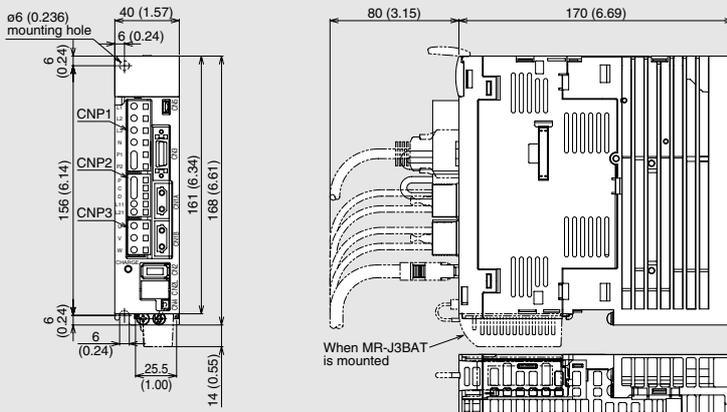
Amplifier Dimensions

●MR-J3-10B (1), 20B (1) (Note 1)

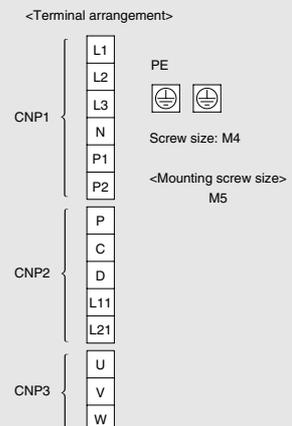
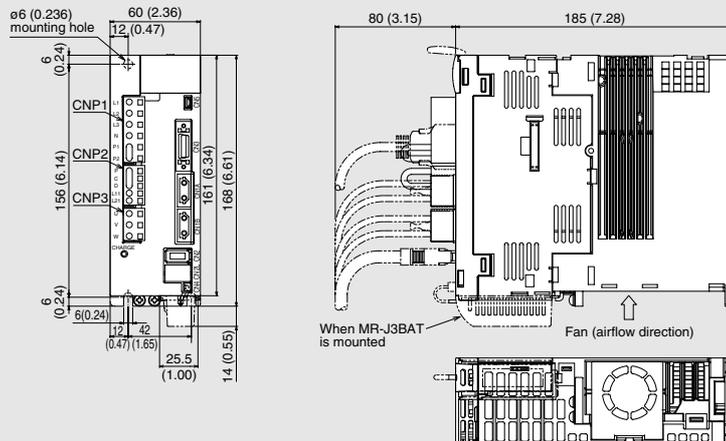
Unit: mm (inch)



●MR-J3-40B (1), 60B (Note 1)



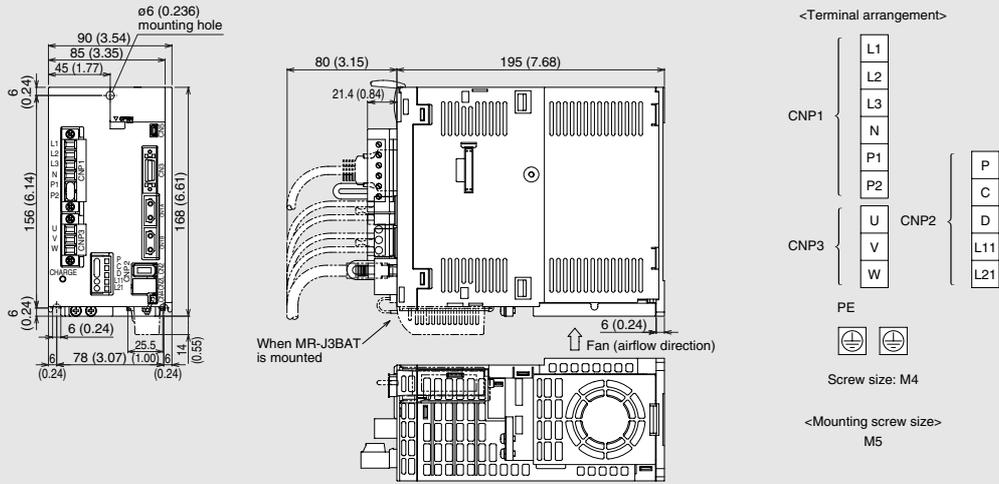
●MR-J3-70B, 100B (Note 1)



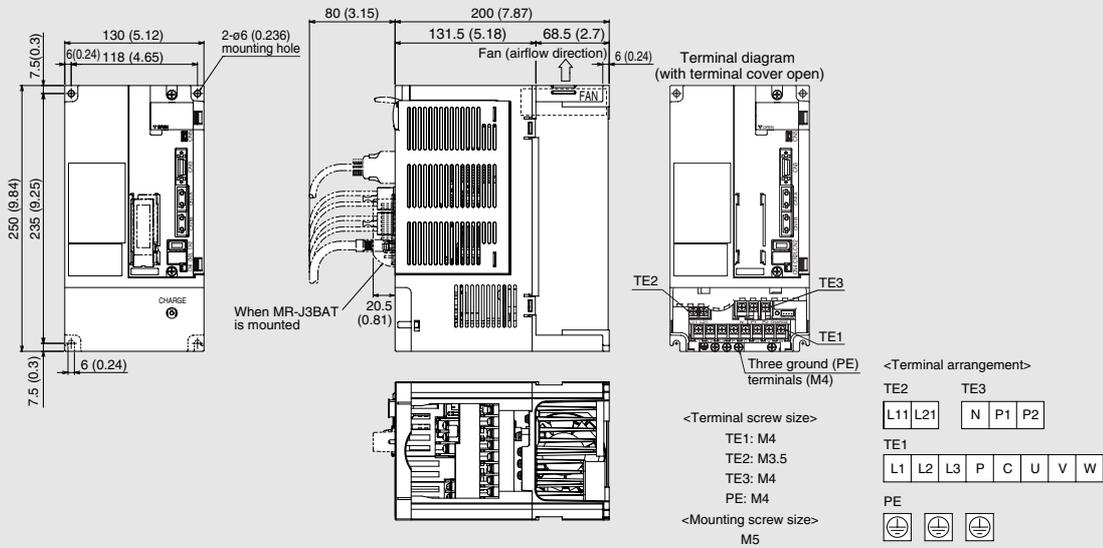
Amplifier Dimensions

● MR-J3-200B, 350B (Note 1)

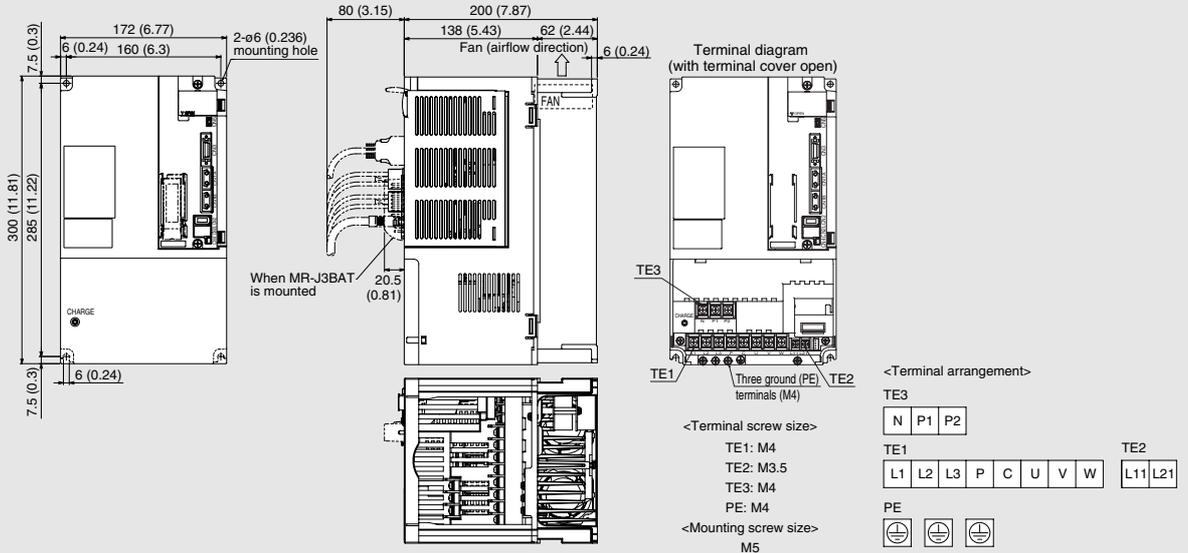
Unit: mm (inch)



● MR-J3-500B



● MR-J3-700B



Note: 1. The CNP1 connector, CNP2 connector and CNP3 connector (insertion type) are enclosed with the servo amplifier.

Cautions Concerning Use

To ensure safe use

- To use the products given in this catalog properly, always read the “Installation Guide” and “MR-J3-B INSTRUCTION MANUAL” before starting to use them.
- These products have been manufactured as a general-purpose part for general industries, and have not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the products for special purposes such as nuclear power, electric power, aerospace, medicine, passenger movement vehicles or underwater relays, contact Mitsubishi.
- These products have been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

Cautions concerning use

Transport and installation of motor

- Protect the motor or encoder from impact during handling. When installing a pulley or coupling, do not hammer on the shaft. Impact can damage the encoder. In the case of motor with key, install a pulley or coupling with the screw of shaft-end. Use a pulley extractor when taking off the pulley.



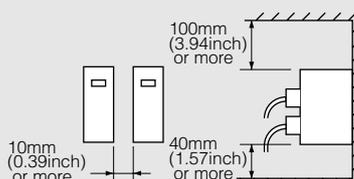
- Do not apply a load exceeding the tolerable load onto the servo motor shaft. The shaft could break.

Installation

- Avoid installation in an environment in which oil mist, dust, etc. are in the air. When using in such an environment, enclose the servo amplifier in a sealed panel. Protect the motor by furnishing a cover for it or taking similar measures.
- Mount the amplifier vertically on a wall.
- When installing several amplifiers in a row in a sealed panel, leave 10mm(0.39inch) or more open between each amplifier. MR-J3-350B or smaller servo amplifiers can be mounted closely. In this case, keep the ambient temperature within 0 to 45°C (32 to 113°F), or use them with the effective load rate of 75% or less.

When using one amplifier, always leave 40mm(1.57inch) or more open in the upward direction and 40mm(1.57inch) or more open in the downward direction.

To ensure the life and reliability, keep space as open as possible toward the top plate so that heat does not build up. Take special care, especially when installing several amplifiers in a row.



- For installing a single motor, the motor can be installed horizontally or vertically. When installing vertically (shaft-up),

take measures on the machine side to ensure that oil from the gear box does not get into the motor.

- Do not touch the servo motor, while turned ON or for a period after the power has been shutdown. The motor could be very hot, and touching it could burn skin.
- The optional regeneration unit becomes hot (temperature rise of 100°C(212°F) or more) with frequent use. Do not install within flammable objects or objects subject to thermal deformation. Take care to ensure that electrical wires do not come into contact with the main unit.
- Carefully consider the cable clamping method, and make sure that bending stress and the stress of the cable's own weight are not applied on the cable connection section.
- If using in an application where the servo motor moves, select the cable bending radius according to the required bending life and wire type.

Grounding

- Securely ground to prevent electric shocks and to stabilize the potential in the control circuit.
- To ground the servo motor and servo amplifier at one point, connect the grounding terminal from each unit, and ground from the servo amplifier side.
- Faults such as a deviation in position could occur if the grounding is insufficient.

Wiring

- When a commercial power supply is applied to the amplifier's output terminal (U, V, W), the amplifier will be damaged. Before switching the power on, perform thorough wiring and sequence checks to ensure that there are no wiring errors, etc.
- When a commercial power supply is applied to the motor's input terminal (U, V, W), the motor will be damaged. Connect the motor to the amplifier's output terminal (U, V, W).
- Match the phase of the motor's input terminal (U, V, W) to the amplifier's output terminal (U, V, W) before connecting. If they are not the same, the motor control cannot be performed.
- Validate the stroke end signals (LSP, LSN) in the position control or speed control mode. The motor will not start if the signals are invalid.
- For the fiber-optic cable, do not apply excessive tension when cabling.
- For the fiber-optic cable, use in situations less than the minimum bending radius (MR-J3BUS□M: 25mm(0.98inch), MR-J3BUS□M-A/-B: 50mm(1.97inch)) cannot be guaranteed.
- If the ends of the fiber-optic cable are dirty, the light will be obstructed and could result in malfunctions. Always clean the ends if dirty. Attach a cap to connectors not being used.
- Do not tighten the fiber-optic cable with a nylon band (ty rap), etc.
- Do not directly look at the light when the fiber-optic cable is not connected.

Cautions Concerning Use

Factory settings

- All available motor and amplifier combinations are predetermined. Confirm the model of the motor and amplifier to be used before installation.
- For the MR-J3-B type, the control mode are selected by a controller.
- When using the optional regeneration unit, please change the parameter No.PA02 (for MR-J3-B type). The optional regeneration unit is disabled as the default, so the parameter must be changed to increase the regeneration performance.

Operation

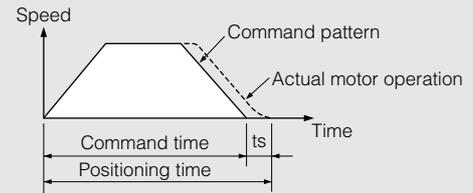
- When a magnetic contactor (MC) is installed on the amplifier's primary side, do not perform frequent starts and stops with the MC. Doing so could cause the amplifier to fail.
- When a trouble occurs, the amplifier's safety features are activated, halting output, and the dynamic brake instantly stops the motor. If free run is required, contact Mitsubishi about solutions involving servo amplifiers where the dynamic brake is not activated.
- When using a motor with an electromagnetic brake, do not apply the brake when the servo is on. Doing so could cause an amplifier overload or shorten brake life. Apply the brake when the servo is off.

Precautions for Choosing the Products

- Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

Cautions concerning model selection

- Select a motor with a rated torque above the continuous effective load torque.
- Design the operation pattern in the command section so that positioning can be completed, taking the stop setting time (t_s) into account.



- The load inertia moment should be below the recommended load inertia moment ratio of the motor being used. If it is too large, desired performance may not be attainable.

 **Safety Warning**

To ensure proper use of the products listed in this New Product News, please be sure to read the instruction manual prior to use.