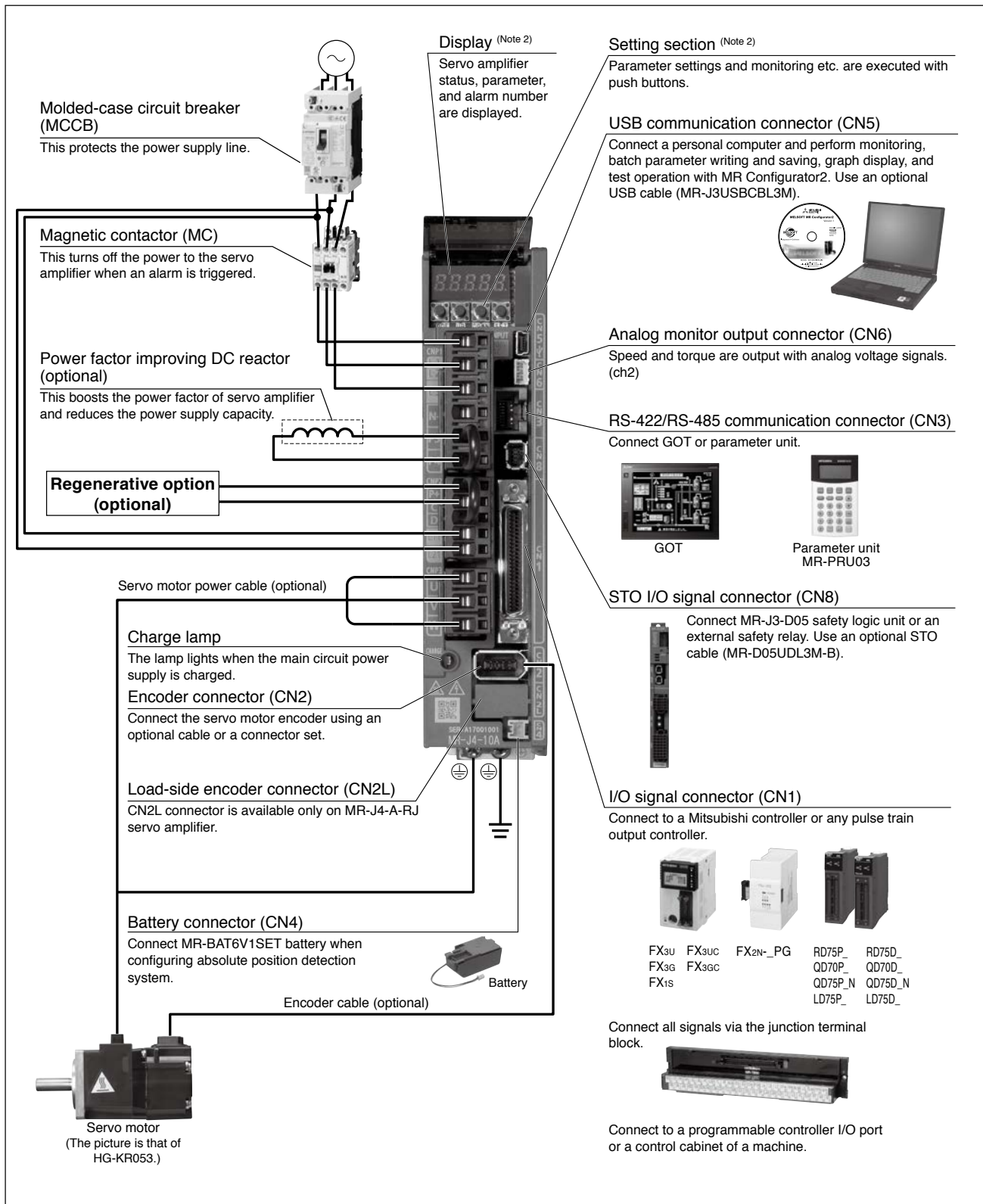


MR-J4-A/MR-J4-A-RJ Connections with Peripheral Equipment (Note 1)

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) MR-J4-03A6(-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)	AC input	3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz					3-phase or 1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz (Note 16)					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		
		DC input (Note 19)	283 V DC to 340 V DC																
	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	AC input	3-phase or 1-phase 170 V AC to 264 V AC					3-phase or 1-phase 170 V AC to 264 V AC (Note 16)					3-phase 170 V AC to 264 V AC				1-phase 85 V AC to 132 V AC		
		DC input (Note 19)	241 V DC to 374 V DC																
Permissible frequency fluctuation	±5% maximum																		
Control circuit power supply input	Voltage/frequency	AC input	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				
		DC input (Note 19)	283 V DC to 340 V DC																
	Rated current [A]	0.2						0.3						0.4					
	Permissible voltage fluctuation	AC input	1-phase 170 V AC to 264 V AC														1-phase 85 V AC to 132 V AC		
		DC input (Note 19)	241 V DC to 374 V DC																
	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																		
Permissible 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/RS-485: 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																	
Speed control mode	Torque limit	Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)																	
	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 control mode	Torque limit	Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)																	
	Analog torque command input	0 V DC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ)																	
Positioning mode (Note 17)	Speed limit	Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed)																	
		MR-J4-A(1)	Not available																
Fully closed loop control	MR-J4-A(1)-RJ	Point table method, program method, indexer (turret) method																	
	MR-J4-A(1) (Note 9)	Two-wire type communication method																	
Load-side encoder interface	MR-J4-A(1)-RJ	Two-wire/four-wire type communication method																	
	MR-J4-A(1)	Mitsubishi high-speed serial communication																	
Servo functions	MR-J4-A(1)-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal																	
		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)																	
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 (Note 20)	EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2															
	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)	MTTFd ≥ 100 [years] (314a)															
	Diagnostic coverage (DC)	DC = Medium, 97.6 [%]															
Probability of dangerous Failure per Hour (PFH)		PFH = 6.4 × 10 ⁻⁹ [1/h]															
Compliance to global standards		Refer to "Conformity with Global Standards and Regulations" on "SERVO AMPLIFIERS & MOTORS L(NA)03058" catalog.															
Structure (IP rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (Note 5)				Natural cooling, open (IP20)			
Close mounting	3-phase power input	Possible (Note 6)								Not possible							
	1-phase power input	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	2000 m or less above sea level (Note 18)															
Vibration resistance		5.9 m/s ² 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 permissible regenerative power [W] when regenerative option is used.

4. When using the built-in dynamic brake, refer to "MR-J4-(-RJ) MR-J4-03A6(-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 the servo amplifier 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 available with the servo amplifiers with software version A5 or later.

10. RS-422/RS-485 communication function is available with the servo amplifiers with software version A3 or later.

11. The value in brackets is applicable when cooling fans (two 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 when a 3-phase power supply is used.

15. This function is available with the servo amplifiers with software version B4 or later.

16. Use the servo amplifier with 75% or less of the effective load ratio when servo amplifiers are used with a 1-phase 200 V AC to 240 V AC power supply.

17. The positioning mode is available with MR-J4-A-RJ servo amplifier with software version B3 or later.

18. Refer to relevant Servo Amplifier Instruction Manual for the restrictions when using the servo amplifiers at altitude exceeding 1000 m and up to 2000 m above sea level.

19. MR-J4-(-RJ) and MR-J4-(-RJ)-EG servo amplifiers are available with DC power input. For a connection example of power circuit with DC input, refer to relevant Servo Amplifier Instruction Manual.

20. The safety level depends on the setting value of [Pr. PF18 STO diagnosis error detection time] and whether or not STO input diagnosis is performed by TOFB output. Refer to relevant Servo Amplifier Instruction Manual for details.