1.3 Servo amplifier standard specifications

(1) 200 V class

Model: MR-J4-_(-RJ)			10A	20A	40A	60A	70A	100A	200A	350A	500A	700A	11KA	15KA	22KA
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	At 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 14)		3-phase 200 V AC to 240 V AC, 50 Hz/60 Hz					
		At DC input (Note 17)	283 V DC to 340 V DC												
	Rated current (Note 11)	[A]	0.9	1.5	2.6	3.2 (Note 5)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0
	Permissible voltage fluctuation	At 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 14)		3-phase 170 V AC to 264 V AC					
		At DC input (Note 17)	241 V DC to 374 V DC												
	Permissible frequency fluctuation		Within ±5%												
	Power supply capacity	[kVA]	Refer to section 10.2.												
	Inrush current	[A]	Refer to section 10.5.												
Control circuit power supply input	Voltage/ Frequency	At AC input	1-phase 200 V AC to 240 V AC, 50 Hz/60 Hz												
		At DC input (Note 17)	283 V DC to 340 V DC												
	Rated current	[A]	0.2								0.3				
	Permissible voltage fluctuation	At AC input	1-phase 170 V AC to 264 V AC												
		At DC input (Note 17)	241 V DC to 374 V DC												
	Permissible frequency fluctuation		Within ±5%												
	Power consumption [W]		30								45				
	Inrush current	[A]	Refer to section 10.5.												
Interface power supply	Voltage		24 V DC ± 10%												
	Current capacity	[A]	0.5 (including the CN8 connector signals) (Note 1)												
Control method			Sine-wave PWM control, current control method												
Dynamic brake			Built-in											External option (Note 8, 12)	
Fully closed loop control			Compatible (Note 9)												
Load-side encoder interface (Note 10)			Mitsubishi Electric high-speed serial communication												
Communication function			USB: Connection to a personal computer or others (MR Configurator2-compatible)												
			RS-422/RS-485: 1: n communication (up to 32 axes) (Note 7, 13)												
Encoder output pulses			Compatible (A/B/Z-phase pulse)												
Analog monitor			Two channels												

Model: MR-J4-_(-RJ)			10A	20A	40A	60A	70A	100A	200A	350A	500A	700A	11KA	15KA	22KA
Position control mode	Max. input pulse frequency		4 Mpulses/s (for differential receiver) (Note 6), 200 kpulses/s (for open collector)												
	Positioning feedback pulse		Encoder resolution (resolution per servo motor revolution): 22 bits												
	Command pulse multiplying factor		Electronic gear A:1 to 16777215, B:1 to 16777215, 1/10 < A/B < 4000												
	In-position range setting		0 pulse to ±65535 pulses (command pulse unit)												
	Error excessive		±3 revolutions												
	Torque limit		Set by parameter setting 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 to ±10 V DC/rated speed (The speed at 10 V is changeable with [Pr. PC12].)												
	Speed fluctuation ratio		±0.01% or less (load fluctuation: 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% or less (ambient temperature: 25 °C ± 10 °C) when using analog speed command												
	Torque limit		Set by parameter setting 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 parameter setting or external analog input (0 V DC to 10 V DC/rated speed)												
Positioning mode			Refer to "MR-J4-_A_-RJ Servo Amplifier Instruction Manual (Positioning Mode)" section 1.1. The positioning mode is used by MR-J4-_A_-RJ servo amplifier with software version B3 or later.												
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, and linear servo control fault protection												
Functional safety			STO (IEC/EN 61800-5-2)												
Safety performance	Standards certified by CB (Note 15)		EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, and EN 61800-5-2												
	Response performance		8 ms or less (STO input off → energy shut off)												
	Test pulse input (STO) (Note 3)		Test pulse interval: 1 Hz to 25 Hz Test pulse off time: Up to 1 ms												
	Mean time to dangerous failure (MTTFd)		MTTFd ≥ 100 [years] (314a)												
	Diagnostic coverage (DC)		DC = Medium, 97.6 [%]												
	Average probability of dangerous failures per hour (PFH)		PFH = 6.4×10^{-9} [1/h]												
Compliance with global 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												
Structure (IP rating)			Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (Note 4)				
Close mounting (Note 2)	3-phase power supply input		Possible								Impossible				
	1-phase power supply input		Possible					Impossible							
Environment	Ambient temperature	Operation	0 °C to 55 °C (non-freezing)												
		Storage	-20 °C to 65 °C (non-freezing)												
	Ambient humidity	Operation	5 %RH to 90 %RH (non-condensing)												
		Storage													
	Ambience		Indoors (no direct sunlight), free from corrosive gas, flammable gas, oil mist, dust, and dirt												
	Altitude		2000 m or less above sea level (Note 16)												
	Vibration resistance		5.9 m/s^2, at 10 Hz to 55 Hz (directions of X, Y and Z axes)												
Mass		[kg]	0.8		1.0		1.4		2.1	2.3	4.0	6.2	13.4		18.2

Note 1. 0.5 A is the value applicable when all I/O signals are used. The current capacity can be decreased by reducing the number of I/O points.

2. When closely mounting the servo amplifiers, operate them at the ambient temperature of 0 ˚C to 45 ˚C or at 75% or smaller effective load ratio.
3. Test pulse is a signal which instantaneously turns off a signal to the servo amplifier at a constant period for external circuit to self-diagnose.
4. Except for the terminal block.
5. The rated current is 2.9 A when the servo amplifier is used with a UL or CSA compliant servo motor.
6. 1 Mpulse/s or lower commands are supported in the initial setting. When inputting commands over 1 Mpulse/s and 4 Mpulses/s or lower, change the setting in [Pr. PA13].
7. RS-422 communication is supported by servo amplifier with software version A3.
8. Use an external dynamic brake for this servo amplifier. Failure to do so will cause an accident because the servo motor does not stop immediately but coasts at emergency stop. Ensure the safety in the entire equipment.
9. For the compatible version for the fully closed loop system, refer to table 1.1. Check the software version of the servo amplifier with MR Configurator2.
10. The MR-J4-_A servo amplifier is compatible only with the two-wire type.
    The MR-J4-_A-RJ servo amplifier is compatible with the two-wire type, four-wire type, and A/B/Z-phase differential output method. Refer to table 1.1 for details.
11. This value is applicable when a 3-phase power supply is used.
12. The external dynamic brake cannot be used for compliance with SEMI-F47 standard. Do not assign DB (Dynamic brake interlock) in [Pr. PD23] to [Pr. PD26], [Pr. PD28], and [Pr. PD47]. Failure to do so will cause the servo amplifier to become servo-off when an instantaneous power failure occurs.
13. RS-485 communication is available with servo amplifiers manufactured in November 2014 or later.
14. When using 1-phase 200 V AC to 240 V AC power supply, operate the servo amplifier at 75% or smaller effective load ratio.
15. The safety level depends on the setting value of [Pr. PF18 STO diagnosis error detection time] and whether STO input diagnosis by TOFB output is performed or not. For details, refer to the Function column of [Pr. PF18] in section 5.2.6.
16. Follow the restrictions in section 2.6 when using this product at altitude exceeding 1000 m and up to 2000 m above sea level.
17. The DC power supply input is available only with MR-J4-_A-RJ servo amplifiers. For the connection example of the power circuit when a DC input is used, refer to app. 13.

(2) 400 V class

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	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	Within ±5%								
	Power supply capacity [kVA]	Refer to section 10.2.								
	Inrush current [A]	Refer to section 10.5.								
Control circuit power supply input	Voltage/Frequency	1-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated current [A]	0.1			0.2					
	Permissible voltage fluctuation	1-phase 323 V AC to 528 V AC								
	Permissible frequency fluctuation	Within ±5%								
	Power consumption [W]	30			45					
	Inrush current [A]	Refer to section 10.5.								
Interface power supply	Voltage	24 V DC ± 10%								
	Current capacity [A]	0.5 (including CN8 connector signals) (Note 1)								
Control method		Sine-wave PWM control, current control method								
Dynamic brake		Built-in						External option (Note 6, 7)		
Fully closed loop control		Compatible								
Load-side encoder interface (Note 5)		Mitsubishi Electric high-speed serial communication								
Communication function		USB: connection to a personal computer or others (MR Configurator2-compatible)								
		RS-422/RS-485: 1: n communication (up to 32 axes) (Note 8)								
Encoder output pulses		Compatible (A/B/Z-phase pulse)								
Analog monitor		Two channels								
Position control mode	Max. input pulse frequency	4 Mpulses/s (for differential receiver) (Note 4), 200 kpulses/s (for open collector)								
	Positioning feedback pulse	Encoder resolution (resolution per servo motor revolution): 22 bits								
	Command pulse multiplying factor	Electronic gear A:1 to 16777215, B:1 to 16777215, 1/10 < A/B < 4000								
	In-position range setting	0 pulse to ±65535 pulses (command pulse unit)								
	Error excessive	±3 revolutions								
	Torque limit	Set by parameter setting 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 to ±10 V DC/rated speed (The speed at 10 V is changeable with [Pr. PC12].)								
	Speed fluctuation ratio	±0.01% or less (load fluctuation 0 % to 100%), 0% (power fluctuation ±10%), ±0.2% or less (ambient temperature 25 ± 10 °C) when using analog speed command								
	Torque limit	Set by parameter setting 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 parameter setting or external analog input (0 V DC to 10 V DC/rated speed)								
Positioning mode		Refer to "MR-J4-_A_-RJ Servo Amplifier Instruction Manual (Positioning Mode)" section 1.1. The positioning mode is used by MR-J4-_A_-RJ servo amplifier with software version B3 or later.								
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, and linear servo control fault protection								
Functional safety		STO (IEC/EN 61800-5-2)								

Model: MR-J4-_(-RJ)			60A4	100A4	200A4	350A4	500A4	700A4	11KA4	15KA4	22KA4
Safety performance	Standards certified by CB (Note 9)		EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, and EN 61800-5-2								
	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: Up to 1 ms								
	Mean time to dangerous failure (MTTFd)		MTTFd ≥ 100 [years] (314a)								
	Diagnostic coverage (DC)		DC = Medium, 97.6 [%]								
	Average probability of dangerous failures per hour (PFH)		PFH = 6.4×10^{-9} [1/h]								
Compliance with 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								
Structure (IP rating)			Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (Note 3)				
Close mounting			Impossible								
Environment	Ambient temperature	Operation	0 °C to 55 °C (non-freezing)								
		Storage	-20 °C to 65 °C (non-freezing)								
	Ambient humidity	Operation	5 %RH to 90 %RH (non-condensing)								
		Storage									
	Ambience		Indoors (no direct sunlight), free from corrosive gas, flammable gas, oil mist, dust, and dirt								
	Altitude		2000 m or less above sea level (Note 10)								
	Vibration resistance		5.9 m/s^2, at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Mass		[kg]	1.7		2.1	3.6	4.3	6.5	13.4		18.2

Note 1. 0.5 A is the value applicable when all I/O signals are used. The current capacity can be decreased by reducing the number of I/O points.

2. Test pulse is a signal which instantaneously turns off a signal to the servo amplifier at a constant period for external circuit to self-diagnose.
3. Except for the terminal block.
4. 1 Mpulse/s or lower commands are supported in the initial setting. When inputting commands over 1 Mpulse/s and 4 Mpulses/s or lower, change the setting in [Pr. PA13].
5. MR-J4-_A4 servo amplifier is compatible only with two-wire type. MR-J4-_A4-RJ servo amplifier is compatible with two-wire type, four-wire type, and A/B/Z-phase differential output method. Refer to table 1.1 for details.
6. Use an external dynamic brake for this servo amplifier. Failure to do so will cause an accident because the servo motor does not stop immediately but coasts at emergency stop. Ensure the safety in the entire equipment.
7. The external dynamic brake cannot be used for compliance with SEMI-F47 standard. Do not assign DB (Dynamic brake interlock) in [Pr. PD23] to [Pr. PD26], [Pr. PD28], and [Pr. PD47]. Failure to do so will cause the servo amplifier to become servo-off when an instantaneous power failure occurs.
8. RS-485 communication is available with servo amplifiers manufactured in November 2014 or later.
9. The safety level depends on the setting value of [Pr. PF18 STO diagnosis error detection time] and whether STO input diagnosis by TOFB output is performed or not. For details, refer to the Function column of [Pr. PF18] in section 5.2.6.
10. Follow the restrictions in section 2.6 when using this product at altitude exceeding 1000 m and up to 2000 m above sea level.

(3) 100 V class

Model: MR-J4-_(-RJ)		10A1	20A1	40A1
Output	Rated voltage	3-phase 170 V AC		
	Rated current [A]	1.1	1.5	2.8
Main circuit power supply input	Voltage/Frequency	1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated current [A]	3.0	5.0	9.0
	Permissible voltage fluctuation	1-phase 85 V AC to 132 V AC		
	Permissible frequency fluctuation	Within ±5%		
	Power supply capacity [kVA]	Refer to section 10.2.		
	Inrush current [A]	Refer to section 10.5.		
Control circuit power supply input	Voltage/Frequency	1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated current [A]	0.4		
	Permissible voltage fluctuation	1-phase 85 V AC to 132 V AC		
	Permissible frequency fluctuation	Within ±5%		
	Power consumption [W]	30		
	Inrush current [A]	Refer to section 10.5.		
Interface power supply	Voltage	24 V DC ± 10%		
	Current capacity [A]	0.5 (including the CN8 connector signals) (Note 1)		
Control method		Sine-wave PWM control, current control method		
Dynamic brake		Built-in		
Fully closed loop control		Compatible (Note 5)		
Load-side encoder interface (Note 6)		Mitsubishi Electric high-speed serial communication		
Communication function		USB: Connection to a personal computer or others (MR Configurator2-compatible)		
		RS-422/RS-485: 1: n communication (up to 32 axes) (Note 7)		
Encoder output pulses		Compatible (A/B/Z-phase pulse)		
Analog monitor		Two channels		
Position control mode	Max. input pulse frequency	4 Mpulses/s (for differential receiver) (Note 4), 200 kpulses/s (for open collector)		
	Positioning feedback pulse	Encoder resolution (resolution per servo motor revolution): 22 bits		
	Command pulse multiplying factor	Electronic gear A:1 to 16777215, B:1 to 16777215, 1/10 < A/B < 4000		
	In-position range setting	0 pulse to ±65535 pulses (command pulse unit)		
	Error excessive	±3 revolutions		
	Torque limit	Set by parameter setting 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 to ±10 V DC/rated speed (The speed at 10 V is changeable with [Pr. PC12].)		
	Speed fluctuation ratio	±0.01% or less (load fluctuation: 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% or less (ambient temperature: 25 °C ± 10 °C) when using analog speed command		
	Torque limit	Set by parameter setting 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 parameter setting or external analog input (0 V DC to 10 V DC/rated speed)		
Positioning mode		Refer to "MR-J4-_A_-RJ Servo Amplifier Instruction Manual (Positioning Mode)" section 1.1. The positioning mode is used by MR-J4-_A_-RJ servo amplifier with software version B3 or later.		
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, and linear servo control fault protection		
Functional safety		STO (IEC/EN 61800-5-2)		

Model: MR-J4-_(-RJ)			10A1	20A1	40A1
Safety performance	Standards certified by CB (Note 8)		EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, and EN 61800-5-2		
	Response performance		8 ms or less (STO input off → energy shut off)		
	Test pulse input (STO) (Note 3)		Test pulse interval: 1 Hz to 25 Hz Test pulse off time: Up to 1 ms		
	Mean time to dangerous failure (MTTFd)		MTTFd ≥ 100 [years] (314a)		
	Diagnostic coverage (DC)		DC = Medium, 97.6 [%]		
	Average probability of dangerous failures per hour (PFH)		PFH = 6.4×10^{-9} [1/h]		
Compliance with global 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		
Structure (IP rating)			Natural cooling, open (IP20)		
Close mounting (Note 2)			Possible		
Environment	Ambient temperature	Operation	0 °C to 55 °C (non-freezing)		
		Storage	-20 °C to 65 °C (non-freezing)		
	Ambient humidity	Operation	5 %RH to 90 %RH (non-condensing)		
		Storage			
	Ambience		Indoors (no direct sunlight), free from corrosive gas, flammable gas, oil mist, dust, and dirt		
	Altitude		2000 m or less above sea level (Note 9)		
	Vibration resistance		5.9 m/s^2, at 10 Hz to 55 Hz (directions of X, Y and Z axes)		
Mass [kg]			0.8		1.0

Note 1. 0.5 A is the value applicable when all I/O signals are used. The current capacity can be decreased by reducing the number of I/O points.

2. When closely mounting the servo amplifiers, operate them at the ambient temperature of 0 °C to 45 °C or at 75% or smaller effective load ratio.
3. Test pulse is a signal which instantaneously turns off a signal to the servo amplifier at a constant period for external circuit to self-diagnose.
4. 1 Mpulse/s or lower commands are supported in the initial setting. When inputting commands over 1 Mpulse/s and 4 Mpulses/s or lower, change the setting in [Pr. PA13].
5. For the compatible version for the fully closed loop system, refer to table 1.1. Check the software version of the servo amplifier with MR Configurator2.
6. The MR-J4-_A servo amplifier is compatible only with the two-wire type.
   The MR-J4-_A-RJ servo amplifier is compatible with the two-wire type, four-wire type, and A/B/Z-phase differential output method. Refer to table 1.1 for details.
7. RS-485 communication is available with servo amplifiers manufactured in November 2014 or later.
8. The safety level depends on the setting value of [Pr. PF18 STO diagnosis error detection time] and whether STO input diagnosis by TOFB output is performed or not. For details, refer to the Function column of [Pr. PF18] in section 5.2.6.
9. Follow the restrictions in section 2.6 when using this product at altitude exceeding 1000 m and up to 2000 m above sea level.

1.4 Combinations of servo amplifiers and servo motors

POINT

●When a 1-phase 200 V AC input is used, the maximum torque of 400% cannot be achieved with HG-JR series servo motor.

●When you use the MR-J4-100A or MR-J4-200A with the 1-phase 200 V AC input, contact your local sales office for the torque characteristics of the HG-UR series, HG-RR series, and HG-JR series servo motors.

(1) 200 V class

Servo amplifier	Rotary servo motor						Linear servo motor (primary side) (Note 1)	Direct drive motor (Note 1)
	HG-KR	HG-MR	HG-SR	HG-UR	HG-RR	HG-JR		
MR-J4-10A(-RJ)	053 13	053 13						
MR-J4-20A(-RJ)	23	23					LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20 TM-RG2M002C30 (Note 2) TM-RU2M002C30 (Note 2) TM-RG2M004E30 (Note 2) TM-RU2M004E30 (Note 2)
MR-J4-40A(-RJ)	43	43					LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0	TM-RFM004C20 TM-RG2M004E30 (Note 2, 4) TM-RU2M004E30 (Note 2, 4) TM-RG2M009G30 (Note 2) TM-RU2M009G30 (Note 2)
MR-J4-60A(-RJ)			51 52			53	LM-U2PBD-15M-1SS0	TM-RFM006C20 TM-RFM006E20
MR-J4-70A(-RJ)	73	73		72		73	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-J4-100A(-RJ)			81 102			53 (Note 3) 103		TM-RFM018E20
MR-J4-200A(-RJ)			121 201 152 202	152	103 153	73 (Note 3) 103 (Note 3) 153 203	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-J4-350A(-RJ)			301 352	202	203	153 (Note 3) 203 (Note 3) 353	LM-H3P7D-96P-ASS0 LM-K2P2C-07M-1SS1 LM-K2P3C-14M-1SS1 LM-U2P2C-60M-2SS0	TM-RFM048G20 TM-RFM072G20 TM-RFM120J10
MR-J4-500A(-RJ)			421 502	352 502	353 503	353 (Note 3) 503	LM-FP2D-12M-1SS0 LM-FP4B-12M-1SS0 LM-K2P2E-12M-1SS1 LM-K2P3E-24M-1SS1 LM-U2P2D-80M-2SS0	TM-RFM240J10
MR-J4-700A(-RJ)			702			503 (Note 3) 601 701M 703	LM-FP2F-18M-1SS0 LM-FP4D-24M-1SS0	
MR-J4-11KA(-RJ)						801 12K1 11K1M 903	LM-FP4F-36M-1SS0	
MR-J4-15KA(-RJ)						15K1 15K1M	LM-FP4F-48M-1SS0	
MR-J4-22KA(-RJ)						20K1 25K1 22K1M		

Note 1. This is available with servo amplifiers with software version A5 or later.
2. This is available with servo amplifiers with software version C8 or later.
3. The combination increases the maximum torque of the servo motor to 400%.
4. The combination increases the rated torque and the maximum torque.

(2) 400 V class

Servo amplifier	Rotary servo motor		Linear servo motor (primary side) (Note 1)
	HG-SR	HG-JR	
MR-J4-60A4(-RJ)	524	534	
MR-J4-100A4(-RJ)	1024	534 (Note 2) 734 1034	
MR-J4-200A4(-RJ)	1524 2024	734 (Note 2) 1034 (Note 2) 1534 2034	
MR-J4-350A4(-RJ)	3524	1534 (Note 2) 2034 (Note 2) 3534	
MR-J4-500A4(-RJ)	5024	3534 (Note 2) 5034	
MR-J4-700A4(-RJ)	7024	5034 (Note 2) 6014 701M4 7034	
MR-J4-11KA4(-RJ)		8014 12K14 11K1M4 9034	
MR-J4-15KA4(-RJ)		15K14 15K1M4	
MR-J4-22KA4(-RJ)		20K14 25K14 22K1M4	LM-FP5H-60M-1SS0

Note 1. This is available with servo amplifiers with software version A5 or later.
2. The combination is for increasing the maximum torque of the servo motor to 400%.

(3) 100 V class

Servo amplifier	Rotary servo motor		Linear servo motor (primary side) (Note 1)	Direct drive motor (Note 1)
	HG-KR	HG-MR		
MR-J4-10A1(-RJ)	053 13	053 13		
MR-J4-20A1(-RJ)	23	23	LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0	TM-RFM002C20 TM-RG2M002C30 (Note 2) TM-RU2M002C30 (Note 2) TM-RG2M004E30 (Note 2) TM-RU2M004E30 (Note 2)
MR-J4-40A1(-RJ)	43	43	LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0	TM-RFM004C20 TM-RG2M004E30 (Note 2, 3) TM-RU2M004E30 (Note 2, 3) TM-RG2M009G30 (Note 2) TM-RU2M009G30 (Note 2)

Note 1. This is available with servo amplifiers with software version A5 or later.
2. This is available with servo amplifiers with software version C8 or later.
3. The combination increases the rated torque and the maximum torque.

1.5 Function list

The following table lists the functions of this servo. For details of the functions, refer to each section indicated in the detailed explanation field.

Function	Description	Detailed explanation
Model adaptive control	This realizes a high response and stable control following the ideal model. The two-degrees-of-freedom-model model adaptive control enables you to set a response to the command and response to the disturbance separately. Additionally, this function can be disabled. Refer to section 7.5 for disabling this function. This is used with servo amplifiers with software version B4 or later. Check the software version of the servo amplifier with MR Configurator2.	
Position control mode	This servo amplifier is used as a position control servo.	Section 3.2.1 Section 3.6.1 Section 4.2
Speed control mode	This servo amplifier is used as a speed control servo.	Section 3.2.2 Section 3.6.2 Section 4.3
Torque control mode	This servo amplifier is used as a torque control servo.	Section 3.2.3 Section 3.6.3 Section 4.4
Positioning mode	Used when you use an MR-J4-_A_-RJ servo amplifier in the positioning mode under the point table/program/indexer method. The positioning mode is used by MR-J4-_A_-RJ servo amplifier with software version B3 or later.	MR-J4-_A_-RJ Servo Amplifier Instruction Manual (Positioning Mode)
Position/speed control change mode	Using an input device, control can be switched between position control and speed control.	Section 3.6.4
Speed/torque control change mode	Using an input device, control can be switched between speed control and torque control.	Section 3.6.5
Torque/position control change mode	Using an input device, control can be switched between torque control and position control.	Section 3.6.6
High-resolution encoder	High-resolution encoder of 4194304 pulses/rev is used as the encoder of the rotary servo motor compatible with the MELSERVO-J4 series.	
Absolute position detection system	Merely setting a home position once makes home position return unnecessary at every power-on.	Chapter 12
Gain switching function	You can switch gains during rotation and during stop, and can use an input device to switch gains during operation.	Section 7.2
Advanced vibration suppression control II	This function suppresses vibration at the arm end or residual vibration.	Section 7.1.5
Machine resonance suppression filter	This is a filter function (notch filter) which decreases the gain of the specific frequency to suppress the resonance of the mechanical system.	Section 7.1.1
Shaft resonance suppression filter	When a load is mounted to the servo motor shaft, resonance by shaft torsion during driving may generate a mechanical vibration at high frequency. The shaft resonance suppression filter suppresses the vibration.	Section 7.1.3
Adaptive filter II	Servo amplifier detects mechanical resonance and sets filter characteristics automatically to suppress mechanical vibration.	Section 7.1.2
Low-pass filter	Suppresses high-frequency resonance which occurs as servo system response is increased.	Section 7.1.4
Machine analyzer function	Analyzes the frequency characteristic of the mechanical system by simply connecting an MR Configurator2 installed personal computer and servo amplifier. MR Configurator2 is necessary for this function.	
Robust filter	This function provides better disturbance response in case low response level that load to motor inertia ratio is high for such as roll send axis.	[Pr. PE41]
Slight vibration suppression control	Suppresses vibration of ±1 pulse produced at a servo motor stop.	[Pr. PB24]
Electronic gear	Input pulses can be multiplied by 1/10 to 4000.	[Pr. PA06] [Pr. PA07]
S-pattern acceleration/ deceleration time constant	Speed can be increased and decreased smoothly.	[Pr. PC03]