

J Standard Specifications

Parameter C6-01 sets the drive for Normal Duty or Heavy Duty performance.

200 V Class (Three-Phase/Single-Phase)

Value in brackets is for a single-phase drive.

Model	Three-Phase CIMR-JA2A		0001	0002	0004	0006	0008*9	0010	0012	0018*9	0020		
	Single-Phase*1 CIMR-JABA		0001	0002	0003	0006	–	0010	–	–	–		
Max. Applicable Motor Capacity*2		kW	Normal Duty	0.2	0.4	0.75	1.1	1.5	2.2	3.0	3.7	5.5	
			Heavy Duty	0.1	0.2	0.4	0.75	1.1	1.5	2.2	3.0	3.7	
Input	Rated Input Current*3	A	Three-phase	Normal Duty	1.1	1.9	3.9	7.3	8.8	10.8	13.9	18.5	24.0
				Heavy Duty	0.7	1.5	2.9	5.8	7.0	7.5	11.0	15.6	18.9
			Single-phase	Normal Duty	2.0	3.6	7.3	13.8	–	20.2	–	–	–
				Heavy Duty	1.4	2.8	5.5	11.0	–	14.1	–	–	–
Output	Rated Output Capacity*4	kVA	Normal Duty*5	0.5	0.7	1.3	2.3	3.0	3.7	4.6	6.7	7.5	
			Heavy Duty	0.3*6	0.6*6	1.1*6	1.9*6	2.6*7	3.0*7	4.2*7	5.3*7	6.7*7	
	Rated Output Current	A	Normal Duty*5	1.2	1.9	3.5(3.3)	6.0	8.0	9.6	12.0	17.5	19.6	
			Heavy Duty	0.8*6	1.6*6	3.0*6	5.0*6	6.9*7	8.0*7	11.0*7	14.0*7	17.5*7	
	Overload Tolerance	Normal Duty Rating: 120% of rated output current for 60 s. Heavy Duty Rating: 150% of rated output current for 60 s. (Derating may be required for repetitive loads)											
	Carrier Frequency	2 kHz (user-set, 2 to 15 kHz possible)											
	Max. Output Voltage	Three-phase power supply: three-phase 200 to 240 V (relative to input voltage) Single-phase power supply: three-phase 200 to 240 V (relative to input voltage)											
	Max. Output Frequency	400 Hz (user-set)											
Power	Rated Voltage/Rated Frequency		Three-phase AC power supply: 200 to 240 V 50/60 Hz DC power supply: 270 to 340 V*8 Single-phase AC power supply: 200 to 240 V 50/60 Hz										
	Allowable Voltage Fluctuation		–15% to +10%										
	Allowable Frequency Fluctuation		±5%										
	Power Supply	kVA	Three-phase	Normal Duty	0.5	0.9	1.8	3.3	4.0	4.9	6.4	8.5	11.0
				Heavy Duty	0.3	0.7	1.3	2.7	3.2	3.4	5.0	7.1	8.6
			Single-phase	Normal Duty	0.5	1.0	1.9	3.6	–	5.3	–	–	–
Heavy Duty				0.4	0.7	1.5	2.9	–	3.7	–	–	–	

*1: Drives with a single-phase power supply input have three-phase output. Single-phase motors cannot be used.

*2: The motor capacity (kW) refers to a Yaskawa 4-pole, 60 Hz, 200 V motor. The rated output current of the drive output amps should be equal to or greater than the motor rated current.

*3: Value displayed is for the input current when operating Yaskawa standard motors of max. applicable capacity with the rated load at the rated motor speed.

This value may fluctuate based on the power supply side impedance, as well as the input current, power supply transformer, input side reactor, and wiring conditions.

*4: Rated output capacity is calculated with a rated output voltage of 220 V.

*5: This value assumes a carrier frequency of 2 kHz. Increasing the carrier frequency requires a reduction in current.

*6: This value assumes a carrier frequency of 10 kHz. Increasing the carrier frequency requires a reduction in current.

*7: This value assumes a carrier frequency of 8 kHz. Increasing the carrier frequency requires a reduction in current.

*8: Not compliant with UL or CE standards when using a DC power supply.

*9: These models are available in Japan only.

400 V Class (Three-phase)

Model	CIMR-JA4A		0001	0002	0004	0005	0007	0009	0011			
Max. Applicable Motor Capacity*1		kW	Normal Duty	0.4	0.75	1.5	2.2	3.0	3.7	5.5		
			Heavy Duty	0.2	0.4	0.75	1.5	2.2	3.0	3.7		
Input	Rated Input Current*2	A	Normal Duty	1.2	2.1	4.3	5.9	8.1	9.4	14.0		
			Heavy Duty	1.2	1.8	3.2	4.4	6.0	8.2	10.4		
Output	Rated Output Capacity*3	kVA	Normal Duty*4	0.9	1.6	3.1	4.1	5.3	6.7	8.5		
			Heavy Duty*5	0.9	1.4	2.6	3.7	4.2	5.5	7.0		
	Rated Output Current	A	Normal Duty*4	1.2	2.1	4.1	5.4	6.9	8.8	11.1		
			Heavy Duty*5	1.2	1.8	3.4	4.8	5.5	7.2	9.2		
Overload Tolerance	Normal Duty Rating: 120% of rated output current for 60 s. Heavy Duty Rating: 150% of rated output current for 60 s. (Derating may be required for repetitive loads)											
Carrier Frequency	2 kHz (user-set, 2 to 15 kHz possible)											
Max. Output Voltage	Three-phase 380 to 480 V (relative to input voltage)											
Max. Output Frequency	400 Hz (user-set)											
Power	Rated Voltage/Rated Frequency		Three-phase AC power supply: 380 to 480 V 50/60 Hz DC power supply: 510 to 680 V*6									
	Allowable Voltage Fluctuation		–15% to +10%									
	Allowable Frequency Fluctuation		±5%									
	Power Supply	kVA	Normal Duty	1.1	1.9	3.9	5.4	7.4	8.6	13.0		
Heavy Duty			1.1	1.6	2.9	4.0	5.5	7.5	9.5			

*1: The motor capacity (kW) refers to a Yaskawa 4-pole, 60 Hz, 400 V motor. The rated output current of the drive output amps should be equal to or greater than the motor rated current.

*2: Value displayed is for the input current when operating Yaskawa standard motors of max. applicable capacity with the rated load at the rated motor speed.

This value may fluctuate based on the power supply side impedance, as well as the input current, power supply transformer, input side reactor, and wiring conditions.

*3: Value displayed is for when operating at the rated output current. Rated output capacity is calculated with a rated output voltage of 440 V.

*4: This value assumes a carrier frequency of 2 kHz. Increasing the carrier frequency requires a reduction in current.

*5: This value assumes a carrier frequency of 8 kHz. Increasing the carrier frequency requires a reduction in current.

*6: Not compliant with UL or CE standards when using a DC power supply.

Common Specifications

Item		Specifications
Control Characteristics	Control Method	V/f Control
	Frequency Control Range	0.01 to 400 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital reference: within $\pm 0.01\%$ of the max. output frequency (-10 to $+50^{\circ}\text{C}$) Analog reference: within $\pm 0.1\%$ of the max. output frequency ($25 \pm 10^{\circ}\text{C}$)
	Frequency Setting Resolution	Digital reference: 0.01 Hz Analog reference: 1/1000 of max. frequency
	Output Frequency Resolution	20 bit resolution at maximum output frequency
	Frequency Setting Resolution	Main frequency reference: 0 to 10 Vdc (20 k Ω), 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω)
	Starting Torque	150% / 3 Hz
	Speed Control Range	1:20 to 1:40
	Accel/Decel Time	0.0 to 6000.0 s (2 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	① Short-time decel torque*1: over 150% for 0.1/0.2 kW motors, over 100% for 0.4/ 0.75 kW motors, over 50% for 1.5 kW motors, and over 20% for 2.2 kW and above motors. ② Continuous regen. torque: approx. 20% (approx. 125% with dynamic braking resistor option*2: 10% ED, 10 s, internal braking transistor)
	V/f Characteristics	User-selected programs, V/f preset patterns possible
	Main Control Functions	Momentary power loss ride-thru, Speed search, 9-step speed (max), Accel/decel time switch, S-curve accel/decel, 3-wire sequence, Cooling fan on/off switch, Slip compensation, Torque compensation, Frequency jump, Upper/lower limits for frequency reference, DC injection braking at start and stop, Overexcitation braking, Fault restart ...
Protection Function	Motor Protection	Motor overheat protection based on output current
	Momentary Overcurrent Protection	Drive stops when output current exceeds 200% of Heavy Duty Rating
	Overload Protection	Drive stops after 60 s at 150% of rated output current (Heavy Duty Rating)*3
	Overvoltage Protection	200 V class: Stops when DC bus exceeds approx. 410 V 400 V class: Stops when DC bus exceeds approx. 820 V (approx. 740 V when the power supply voltage is less than 400 V)
	Undervoltage Protection	Three-phase 200 V class: Stops when DC bus exceeds approx. 190 V Single-phase 200 V class: Stops when DC bus exceeds approx. 160 V Three-phase 400 V class: Stops when DC bus exceeds approx. 380 V (approx. 350 V when the power supply voltage is less than 400 V)
	Momentary Power Loss Ride-Thru	Stops after approx. 15 ms (default).
	Heatsink Overheat Protection	Protection by thermistor
	Braking Resistance Overheat Protection	Overheat sensor for braking resistor (optional ERF-type, 3% ED)
	Stall Prevention	Separate settings allowed during acceleration and during run. Enable/disable only during deceleration.
	Ground Fault Protection	Protection by electronic circuit *4
Charge LED	Charge LED remains lit until DC bus has fallen below approx. 50 V	
Operating Environment	Area of Use	Indoors
	Ambient Temperature	-10 to $+50^{\circ}\text{C}$ (open chassis), -10 to $+40^{\circ}\text{C}$ (NEMA Type 1)
	Humidity	95 RH% or less (no condensation)
	Storage Temperature	-20 to $+60^{\circ}\text{C}$ (short-term temperature during transportation)
	Altitude	Up to 1000 meters
Shock	10 to less than 20 Hz (9.8 m/s ²) max., 20 to 55 Hz (5.9 m/s ²) max.	
Safety Standard	·UL508C ·EN61800-3, EN61800-5-1	
Protection Design	IP20 open-chassis, NEMA Type 1 enclosure (option)	

*1: Momentary average deceleration torque refers to the deceleration torque from 60Hz down to 0 Hz. This may vary depending on the motor.

*2: Parameter L3-04 should be disabled when a Braking Resistor or Braking Resistor Unit is connected.

*3: Overload protection may be triggered at lower levels if output frequency is below 6 Hz.

*4: Protection may not be provided under the following conditions as the motor windings are grounded internally during run:

- Low resistance to ground from the motor cable or terminal block.
- Drive already has a short-circuit when the power is turned on.

Terminal Functions

Main Circuit Terminals

Terminal	Terminal Name	Function (Signal Level)
R/L1	Main circuit power supply input	Connects line power to the drive. Drives with single phase 200 V input power use terminals R/L1 and S/L2 only (do not use T/L3).
S/L2		
T/L3		
U/T1	Drive output	Connects to the motor.
V/T2		
W/T3		
B1	Braking resistor/ Braking resistor unit	Available for connecting a braking resistor or braking resistor unit.
B2		
+1	DC reactor connection	These terminals are shorted for shipment. Remove the jumper creating the short to install a DC choke.
+2		
+1	DC power supply input	For connecting a DC power supply. Note: DC power supply input terminals (+1, -) are not UL/cUL and CE certified.
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⊕ Two terminals	Ground	Grounding terminal Grounding resistance for 200 V class: 100 Ω or less Grounding resistance for 400 V class: 10 Ω or less

Control Circuit Input Terminals

Terminal	No.	Terminal Name (Function)	Function (Signal Level)	Default Setting
Multi-function digital input	S1	Multi-function input 1	Closed: Forward run (default) Open: Stop	Photocoupler 24 Vdc, 8 mA Note: Drive preset to sinking mode. When using source mode, set DIP switch S3 to allow for a 24 Vdc (±10%) external power supply.
	S2	Multi-function input 2	Closed: Reverse run (default) Open: Stop	
	S3	Multi-function input 3	External fault, N.O. (default)	
	S4	Multi-function input 4	Fault reset (default)	
	S5	Multi-function input 5	Multi-step speed reference 1 (default)	
	SC	Multi-function input common (Control common)	Sequence common	
Main frequency reference input	+V	Analog input power supply	+10.5 V (max. allowable current 20 mA)	
	A1	Main frequency reference	DIP switch S1 sets the terminal for a voltage or current input signal 0 to 10 Vdc (20 kΩ) resolution: 1/1000 4 to 20 mA or 0 to 20 mA (250 Ω) resolution: 1/500	
	AC	Frequency reference common	0 V	
Multi-function digital output	MA	N.O. output	Fault (default)	Digital output 30 Vdc or less, 10 mA to 1 A 250 Vac or less, 10 mA to 1 A
	MB	N.C. output	Fault (default)	
	MC	Digital output common		
Monitor output	AM	Analog monitor output	Output frequency (default)	0 to 10 Vdc (2 mA or less) Resolution: 1/256
	AC	Monitor common	0 V	

Note: Refrain from assigning functions to terminals MA and MB that involve frequent switching, as doing so may shorten relay performance life. Switching life is estimated at 200,000 times (assumes 1 A, resistive load).