



Standard Specifications

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

200 V Class

ND : Normal Duty, HD : Heavy Duty

Model CIMR-A ¹ 2A ¹		0004	0006	0008 ⁵	0010	0012	0018 ⁵	0021	0030	0040	0056	0069	0081	0110	0138	0169	0211	0250	0312	0360	0415		
Max. Applicable	ND	0.75	1.1	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	110		
Motor Capacity ^{*1} kW	HD	0.4	0.75	1.1	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110		
Input	Rated Input	ND	3.9	7.3	8.8	10.8	13.9	18.5	24	37	52	68	80	92	111	136	164	200	271	324	394	471	
	Current ^{*2} A	HD	2.9	5.8	7	7.5	11	15.6	18.9	28	37	52	68	80	82	111	136	164	200	271	324	394	
Output	Rated Output	ND ^{*4}	1.3	2.3	3	3.7	4.6	6.7	8	11.4	15.2	21	26	31	42	53	64	80	95	119	137	158	
	Capacity ^{*3} kVA	HD	1.2 ^{*5}	1.9 ^{*5}	2.6 ^{*5}	3 ^{*5}	4.2 ^{*5}	5.3 ^{*5}	6.7 ^{*5}	9.5 ^{*5}	12.6 ^{*5}	17.9 ^{*5}	23 ^{*5}	29 ^{*5}	32 ^{*5}	44 ^{*5}	55 ^{*5}	69 ^{*5}	82 ^{*5}	108 ^{*5}	132 ^{*5}	158 ^{*5}	
	Rated Output	ND ^{*4}	3.5	6	8	9.6	12	17.5	21	30	40	56	69	81	110	138	169	211	250	312	360	415	
	Current	A HD	3.2 ^{*5}	5 ^{*5}	6.9 ^{*5}	8 ^{*5}	11 ^{*5}	14 ^{*5}	17.5 ^{*5}	25 ^{*5}	33 ^{*5}	47 ^{*5}	60 ^{*5}	75 ^{*5}	85 ^{*5}	115 ^{*5}	145 ^{*5}	180 ^{*5}	215 ^{*5}	283 ^{*5}	346 ^{*5}	415 ^{*5}	
Overload Tolerance	ND Rating ^{*6} : 120% of rated output current for 60 s, HD Rating ^{*6} : 150% of rated output current for 60 s (Derating may be required for repetitive loads)																						
Carrier Frequency	1 to 15 kHz ^{*8}															1 to 10 kHz ^{*8}							
Max. Output Voltage	Three-phase 200 to 240 V (relative to input voltage)																						
Max. Output Frequency	400 Hz ^{*8}																						
Rated Voltage/Rated Frequency	Three-phase AC power supply: 200 to 240 Vac 50/60 Hz, DC power supply: 270 to 340 Vdc ^{*9}																						
Allowable Voltage Fluctuation	-15% to +10%																						
Allowable Frequency Fluctuation	±5%																						
Power Supply	ND	1.8	3.3	4.0	4.9	6.4	8.5	11	17	24	31	37	42	51	62	75	91	124	148	180	215		
	kVA HD	1.3	2.7	3.2	3.4	5.0	7.1	8.6	13	17	24	31	37	37	51	62	75	91	124	148	180		
Harmonic Suppression	DC Reactor	Option												Built-in									
Braking Function	Braking Resistor	Built-in												Option									

- *1: 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.
- *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: Rated output capacity is calculated with a rated output voltage of 220 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: This value assumes a carrier frequency of 5 kHz. Increasing the carrier frequency requires a reduction in current.
- *7: These models are available in Japan only.
- *8: Carrier frequency can be set by the user.
- *9: Not compliant with the UL standards when using a DC power supply. To meet CE standards, fuses should be installed. For details, refer to page 43.

400 V Class

ND : Normal Duty, HD : Heavy Duty

Model CIMR-A ¹ 4A ¹		0002	0004	0005	0007	0009	0011	0018	0023	0031	0038	0044	0058	0072	0088	0103	0139	0165	0208	0250	0296	0362	0414	0515	0675	0930	1200		
Max. Applicable	ND	0.75	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	250	355	500	630		
Motor Capacity ^{*1} kW	HD	0.4	0.75	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	315	450	560		
Input	Rated Input	ND	2.1	4.3	5.9	8.1	9.4	14	20	24	38	44	52	58	71	86	105	142	170	207	248	300	346	410	465	657	922	1158	
	Current ^{*2} A	HD	1.8	3.2	4.4	6	8.2	10.4	15	20	29	39	44	43	58	71	86	105	142	170	207	248	300	346	410	584	830	1031	
Output	Rated Output	ND ^{*4}	1.6	3.1	4.1	5.3	6.7	8.5	13.3	17.5	24	29	34	44	55	67	78	106	126	159	191	226	276	316	392	514	709	915	
	Capacity ^{*3} kVA	HD	1.4 ^{*5}	2.6 ^{*5}	3.7 ^{*5}	4.2 ^{*5}	5.5 ^{*5}	7 ^{*5}	11.3 ^{*5}	13.7 ^{*5}	18.3 ^{*5}	24 ^{*5}	30 ^{*5}	34 ^{*5}	46 ^{*5}	57 ^{*5}	69 ^{*5}	85 ^{*5}	114 ^{*5}	137 ^{*5}	165 ^{*5}	198 ^{*5}	232 ^{*5}	282 ^{*5}	343 ^{*5}	461 ^{*5}	617 ^{*5}	831 ^{*5}	
	Rated Output	ND ^{*4}	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23	31	38	44	58	72	88	103	139	165	208	250	296	362	414	515	675	930	1200	
	Current	A HD	1.8 ^{*5}	3.4 ^{*5}	4.8 ^{*5}	5.5 ^{*5}	7.2 ^{*5}	9.2 ^{*5}	14.8 ^{*5}	18 ^{*5}	24 ^{*5}	31 ^{*5}	39 ^{*5}	45 ^{*5}	60 ^{*5}	75 ^{*5}	91 ^{*5}	112 ^{*5}	150 ^{*5}	180 ^{*5}	216 ^{*5}	260 ^{*5}	304 ^{*5}	370 ^{*5}	450 ^{*5}	605 ^{*5}	810 ^{*5}	1090 ^{*5}	
Overload Tolerance	ND Rating ^{*7} : 120% of rated output current for 60 s, HD Rating ^{*7} : 150% of rated output current for 60 s (Derating may be required for repetitive loads)																												
Carrier Frequency	1 to 15 kHz ^{*7}															1 to 10 kHz ^{*7}						1 to 5 kHz ^{*7}							
Max. Output Voltage	Three-phase 380 to 480 V (relative to input voltage)																												
Max. Output Frequency	400 Hz ^{*7}																												
Rated Voltage/Rated Frequency	Three-phase AC power supply: 380 to 480 Vac 50/60 Hz, DC power supply: 510 to 680 Vdc ^{*8}																												
Allowable Voltage Fluctuation	-15% to +10%																												
Allowable Frequency Fluctuation	±5%																												
Power Supply	ND	1.9	3.9	5.4	7.4	8.6	12.8	18.3	22	35	40	48	53	65	79	96	130	155	189	227	274	316	375	425	601	843	1059		
	kVA HD	1.6	2.9	4.0	5.5	7.5	10	13.7	18.3	27	36	40	39	53	65	79	96	130	155	189	227	274	316	375	534	759	943		
Harmonic Suppression	DC Reactor	Option												Built-in															
Braking Function	Braking Resistor	Built-in												Option															

- *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: 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: This value assumes a carrier frequency of 5 kHz. Increasing the carrier frequency requires a reduction in current.
- *7: Carrier frequency can be set by the user.
- *8: Not compliant with the UL standards when using a DC power supply. To meet CE standards, fuses should be installed. For details, refer to page 43.



Common Specifications

Item	Specifications	
Control Characteristics	Control Method	V/f Control, V/f Control with PG, Open Loop Vector Control, Closed Loop Vector Control, Open Loop Vector Control for PM, Advanced Open Loop Vector Control for PM, Closed Loop Vector Control for PM
	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 $+40^{\circ}\text{C}$) 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: 0.03 Hz / 60 Hz (11 bit)
	Output Frequency Resolution	0.001 Hz
	Frequency Setting Resolution	Main frequency reference: -10 to $+10$ Vdc, 0 to 10 Vdc ($20\text{ k}\Omega$), 4 to 20 mA ($250\ \Omega$), 0 to 20 mA ($250\ \Omega$) Main speed reference: Pulse train input (max. 32 kHz)
	Starting Torque	150%/3 Hz (V/f Control and V/f Control with PG), 200%/0.3 Hz*1 (Open Loop Vector Control), 200%/0 r/min*1 (Closed Loop Vector Control, Closed Loop Vector Control for PM, and Advanced Open Loop Vector Control for PM*2*3), 100%/5% speed (Open Loop Vector Control for PM)
	Speed Control Range	1:1500 (Closed Loop Vector Control and Closed Loop Vector Control for PM) 1:200 (Open Loop Vector Control) 1:40 (V/f Control and V/f Control with PG) 1:20 (Open Loop Vector Control for PM) 1:100*2 *3 *4 (Advanced Open Loop Vector Control for PM)
	Speed Control Accuracy*5	$\pm 0.2\%$ in Open Loop Vector Control ($25 \pm 10^{\circ}\text{C}$), $\pm 0.02\%$ in Closed Loop Vector Control ($25 \pm 10^{\circ}\text{C}$)
	Speed Response	10 Hz in Open Loop Vector Control ($25 \pm 10^{\circ}\text{C}$), 50 Hz in Closed Loop Vector Control ($25 \pm 10^{\circ}\text{C}$) (excludes temperature fluctuation when performing Rotational Auto-Tuning)
	Torque Limit	All vector control modes allow separate settings in four quadrants
	Accel/Decel Time	0.00 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque*6	① Short-time decel torque*7: 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 (Overexcitation Deceleration, High Slip Braking: approx. 40%) ② Continuous regen. torque: approx. 20% (approx. 125% with dynamic braking resistor option*8: 10% ED, 10 s)
	V/f Characteristics	User-selected programs and V/f preset patterns possible
Main Control Functions	Torque Control, Droop Control, Speed/Torque Control switch, Feed Forward Control, Zero Servo Control, Momentary Power Loss Ride-Thru, Speed Search, Overtorque detection, torque limit, 17 Step Speed (max.), accel/decel time switch, S-curve accel/decel, 3-wire sequence, Auto-Tuning (rotational, stationary), Online Tuning, Dwell, 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 Deceleration, High Slip Braking, PID control (with Sleep function), Energy Saving Control, MEMOBUS comm. (RS-485/422, max. 115.2 kbps), Fault Restart, Application Presets, DriveWorksEZ (customized functions), Removable Terminal Block with Parameter Backup...	
Protection Function	Motor Protection	Motor overheat protection based on output current
	Momentary Overcurrent Protection	Stops over 200% rated output current (Heavy Duty)
	Overload Protection	Drive stops after 60 s at 150% of rated output current (when set for Heavy Duty performance)*9
	Overvoltage Protection	200 V class: Stops when DC bus exceeds approx. 410 V, 400 V class: Stops when DC bus exceeds approx. 820 V
	Undervoltage Protection	200 V class: Stops when DC bus exceeds approx. 190 V, 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 immediately after 15 ms or longer power loss (default). Continuous operation during power up to 2 s (standard).*10
	Heatsink Overheat Protection	Thermistor
	Braking Resistance Overheat Protection	Overheat sensor for braking resistor (optional ERF-type, 3% ED)
	Stall Prevention	Stall prevention during acceleration/deceleration and constant speed operation
	Ground Fault Protection	Protection by electronic circuit *11
Charge LED	Charge LED remains lit until DC bus has fallen below approx. 50 V	
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 (derating required at altitudes from 1000 m to 3000 m)
Shock	10 Hz to 20 Hz, 9.8 m/s ² max. (5.9 m/s ² for models larger than 400 V 450 kW (when set for Heavy Duty performance)) 20 Hz to 55 Hz, 5.9 m/s ² (200 V: 45 kW or more, 400 V: 75 kW or more (when set for Heavy Duty performance)) or 2.0 m/s ² max. (200 V: 55 kW or less, 400 V: 90 kW or less (when set for Heavy Duty performance))	
Standards Compliance	· UL508C · IEC/EN61800-3, IEC/EN61800-5-1 · Two Safe Disable inputs and 1 EDM output according to ISO/EN13849-1 Cat.3 PLd, IEC/EN61508 SIL2	
Protection Design	IP00 open-chassis, IP20 NEMA Type 1 enclosure *12	

*1: Requires a drive with recommended capacity.
 *2: Valid when high frequency injection is enabled (n8-57=1).
 *3: Rotational Auto-Tuning must be performed to achieve the performance described with Advanced Open Loop Vector Control for PM.
 *4: Contact your Yaskawa or nearest agent when not using SSR1 series or SST4 series motors manufactured by Yaskawa Motor Co., Ltd.
 *5: Speed control accuracy may vary slightly depending on installation conditions or motor used.
 *6: Varies by motor characteristics.
 *7: Momentary average deceleration torque refers to the deceleration torque from 60 Hz down to 0 Hz. This may vary depending on the motor.
 *8: Set L3-04 to 0 or 3 to disable stall prevention when using a braking unit, a braking resistor, or a braking resistor unit. If the function is enabled under these conditions, the drive may not stop within the specified deceleration time. The following models come with a built-in braking transistor:
 · 200 V 30 kW or less (CIMR-A□2A0004 to 2A0138) · 400 V 30 kW or less (CIMR-A□4A0002 to 4A0072)
 Drives of 200/400 V 30 kW (CIMR-A□2A0138/A□4A0072) or less have a built-in braking transistor.
 *9: Overload protection may be triggered when operating with 150% of the rated output current if the output frequency is less than 6 Hz.
 *10: Varies in accordance with drive capacity and load. Drives with a capacity of smaller than 11 kW in the 200 V (model: CIMR-A□2A0056) or 400 V (model: CIMR-A□4A0031) require a separate Momentary Power Loss Recovery Unit to continue operating during a momentary power loss of 2 s or longer.
 *11: 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.
 *12: Removing the cover of changes the drive's NEMA Type 1 rating to IP20 (models 2A0004 to 2A0081 and 4A0002 to 4A0044).

Terminal Functions

Main Circuit Terminals

Max. Applicable Motor Capacity indicates Heavy Duty

Voltage		200 V			400 V		
Model CIMR-AA	2A0004 to 2A0081	2A0110, 2A0138	2A0169 to 2A0415	4A0002 to 4A0044	4A0058, 4A0072	4A0088 to 4A1200	
Max. Applicable Motor Capacity/kW	0.4 to 18.5	22, 30	37 to 110	0.4 to 18.5	22, 30	37 to 560	
R/L1, S/L2, T/L3	Main circuit input power supply			Main circuit input power supply			
U/T1, V/T2, W/T3	Drive output			Drive output			
B1, B2	Braking resistor unit		—	Braking resistor unit		—	
—	· DC reactor (+1, +2)	DC power supply (+1, -)*	DC power supply (+1, -)* Braking unit (+3, -)	· DC reactor (+1, +2)	DC power supply (+1, -)*	DC power supply (+1, -)* Braking unit (+3, -)	
+1	· DC power supply (+1, -)*			· DC power supply (+1, -)*			
+2	—			—			
+3	—			—			
⊕	Ground terminal (100 Ω or less)			Ground terminal (10 Ω or less)			

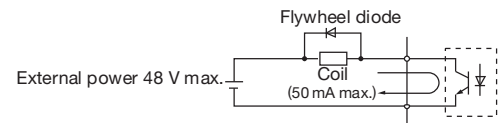
* DC power supply input terminals (+1, -) are not UL and CE certified.

Control Circuit Input Terminals (200 V/400 V Class)

Terminal Type	Terminal	Signal Function	Description	Signal Level
Multi-Function Digital Input	S1	Multi-function input selection 1	Closed: Forward run (default) Open: Stop (default)	Photocoupler 24 Vdc, 8 mA
	S2	Multi-function input selection 2	Closed: Reverse run (default) Open: Stop (default)	
	S3	Multi-function input selection 3	External fault, N.O. (default)	
	S4	Multi-function input selection 4	Fault reset (default)	
	S5	Multi-function input selection 5	Multi-step speed reference 1 (default)	
	S6	Multi-function input selection 6	Multi-step speed reference 2 (default)	
	S7	Multi-function input selection 7	Jog frequency (default)	
	S8	Multi-function input selection 8	Closed: External baseblock	
	SC	Multi-function input selection common	Multi-function input selection common	
Main Frequency Reference Input	RP	Multi-function pulse train input	Frequency reference (default) (H6-01 = 0)	0 to 32 kHz (3 kΩ)
	+V	Setting power supply	+10.5 V power supply for analog reference (20 mA max.)	
	-V	Setting power supply	-10.5 V power supply for analog reference (20 mA max.)	
	A1	Multi-function analog input 1	-10 to +10 Vdc for -100 to 100%, 0 to 10 Vdc for 0 to 100% (impedance 20 kΩ), Main frequency reference (default)	
	A2	Multi-function analog input 2	DIP switch S1 sets the terminal for a voltage or current input signal -10 to +10 Vdc for -100 to +100%, 0 to 10 Vdc for 0 to 100% (impedance 20 kΩ) 4 to 20 mA for 0 to 100%, 0 to 20 mA for 0 to 100% (impedance 250 Ω) Added to the reference value of the analog frequency for the main frequency reference (default)	
	A3	Multi-function analog input 3	-10 to +10 Vdc for -100 to +100%, 0 to 10 Vdc for 0 to 100% (impedance 20 kΩ) Auxiliary frequency reference (default)	
AC	Frequency reference common	0 V		
E(G)	Connection to wire shielding and option card ground wire	—		
Multi-Function Photocoupler Output	P1	Multi-function photocoupler output (1)	Zero speed (default)	48 Vdc or less, 2 to 50 mA Photocoupler output*1
	P2	Multi-function photocoupler output (2)	Speed agree (default)	
	PC	Photocoupler output common	—	
Fault Relay Output	MA	N.O. output	Closed: Fault	Relay output 250 Vac or less, 10 mA to 1 A, 30 Vdc or less, 10 mA to 1 A Minimum load: 5 Vdc, 10 mA
	MB	N.C. output	Open: Fault	
	MC	Digital output common	—	
Multi-Function Digital Output*2	M1	Multi-function digital output	During run (default)	10 mA to 1 A Minimum load: 5 Vdc, 10 mA
	M2		Closed: During run	
Monitor Output	MP	Pulse train input	Output frequency (default) (H6-06 = 102)	0 to 32 kHz (2.2 kΩ)
	FM	Multi-function analog monitor (1)	Output frequency (default)	0 to 10 Vdc for 0 to 100%
	AM	Multi-function analog monitor (2)	Output current (default)	-10 to 10 Vdc for -100 to 100%
	AC	Analog common	0 V	Resolution: 1/1000
Safety Input	H1	Safety input 1	24 Vdc 8 mA. One or both open: Output disabled. Both closed: Normal operation.	
	H2	Safety input 2	Internal impedance 3.3 kΩ, switching time at least 1 ms.	
	HC	Safety input common	Safety input common	
Safety Monitor Output	DM+	Safety monitor output	Outputs status of Safe Disable function. Closed	48 Vdc or less, 50 mA or less
	DM-	Safety monitor output common	when both Safe Disable channels are closed.	

*1: Connect a flywheel diode as shown below when driving a reactive load such as a relay coil. Diode must be rated higher than the circuit voltage.

*2: Refrain from assigning functions to terminals M1 and M2 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).



Serial Communication Terminals (200 V/400 V Class)

Classification	Terminal	Signal Function	Description	Signal Level
MEMOBUS/Modbus Communications	R+	Communications input (+)	MEMOBUS/Modbus communications: Use a RS-485 or RS-422 cable to connect the drive.	RS-422/485 MEMOBUS/Modbus communications protocol 115.2 kbps (max.)
	R-	Communications input (-)		
	S+	Communications output (+)		
	S-	Communications output (-)		
	IG	Shield ground		