

Geared and Gearless Elevator Drive L1000A



iQRISE®

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Experience & Innovation

For more than 90 years YASKAWA has been manufacturing and supplying mechatronic products for machine building and industrial automation. Its standard products as well as tailor-made solutions are famous and have a high reputation for outstanding quality and durability.

YASKAWA has proven success of manufacturing and supplying drives to the elevator industry: an installed base of over 1,000,000 elevator drives installed and operational.

The L1000A Drive Series is a dedicated drive for elevator applications suitable for both modernization projects and new installations.

The L1000A provides high-performance characteristics offering a set of attractive features:

- ▶ Single drive for either IM or PM motor control
- ▶ Peak current ratings of 200% or more based on NEC amps
- ▶ Auto-tuning routines optimally match L1000A to IM/PM motors (coupled or uncoupled)
- ▶ YASKAWA Quality – designed for more than 70,000 hours of maintenance-free operation
- ▶ Designed for extreme quiet motor operation
- ▶ Enhanced features for highest passenger comfort (i.e., torque ripple suppression)
- ▶ Additional functions to reduce floor-to-floor times
- ▶ Powerful keypad and I/O interface to simplify elevator controller integration
- ▶ Easy serviceability and maintainability with lifetime monitors and removable terminals with parameter backup
- ▶ Elevator terminology for ease of operation
- ▶ Rescue operation control flexibility
- ▶ Reduce system cost with TÜV-compliant functional safety



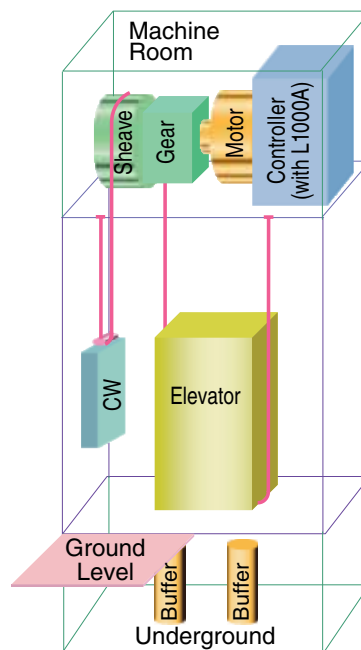
Advanced Motor / Drive Technology

High-performance current vector control technology for induction and PM motor operation

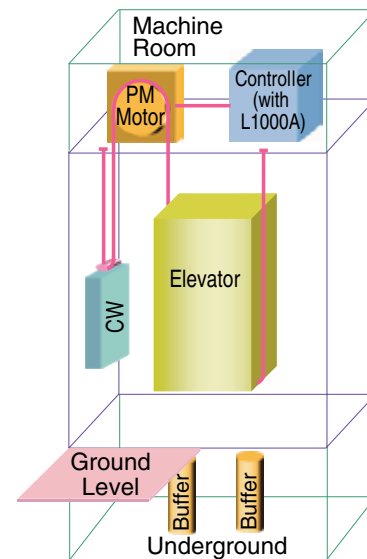
- ▶ Single software parameter to switch between the various motor types
- ▶ Perfect for a wide range of elevator applications

Control Modes

- ▶ PM motors (SPM/IPM motors): Closed Loop Vector for PM
- ▶ Induction motors (IM): V/f control, Open-Loop Vector, Closed-Loop Vector Control



With IM Motor



With PM Motor

Powerful Torque Characteristics

Control Mode	Starting Torque	Speed Range	Motor Encoders and Option Cards
Closed-loop vector control for IM motors: For geared and gearless induction motors	200% at 0 rpm	1:1500	Incremental encoders: - Line driver - Complementary
Closed-loop vector control for PM motors: For geared and gearless permanent magnet motors	200% at 0 rpm	1:1500	Incremental encoders: - Line driver - Complementary Absolute encoders: - EnDat 2.1/01, 2.2/01, 2.2/22 - HEIDENHAIN ERN1387/487
Open-loop vector control for IM motors: For modernization and new installations	200% at 1 Hz	1:120	Not required
V/f control for IM motors: For modernization applications, when auto-tuning is not possible (e.g., motor current is not known)	150% at 3 Hz	1:40	Not required

Auto-Tuning Methods

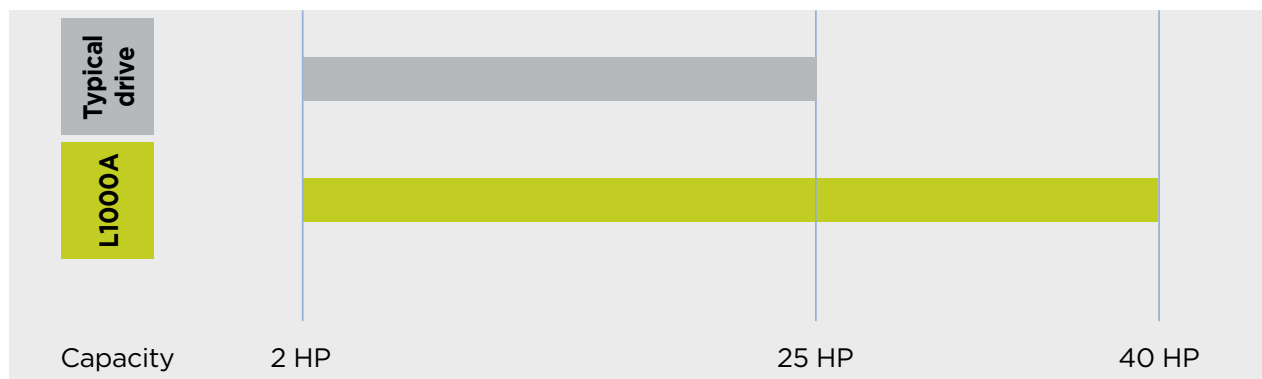
Auto-Tuning methods optimize motor handling performance. Rotational Auto-Tuning and Stationary Auto-Tuning are available for both induction motors and PM motors.

Auto-Tuning for Induction Motors	
Rotational Auto-Tuning	Rotational Auto-Tuning gives the most accurate results and is highly recommended (ropes have to be removed).
Stationary Auto-Tuning 1	Automatically calculates motor parameters needed for vector control (choose this tuning if ropes cannot be removed).
Stationary Auto-Tuning for Line-to-Line Resistance	Used for V/f control or vector control modes when the drive was previously set up properly and the motor cable has changed.
Stationary Auto-Tuning 2	Used when the motor test report is available. The no-load current and the rated slip must be entered from the test report. All other motor-related parameters are calculated automatically (use if ropes cannot be removed).

Auto-Tuning for PM Motors	
Motor Parameter Settings	Use when the motor test report is available.
Stationary Auto-Tuning	Use when the motor nameplate data is only available. The drive automatically calculates the other motor-related parameters.
Stationary Auto-Tuning for Stator Resistance	Automatically calculates stator resistance only. Should be performed if the motor cable has changed.
Pole Position Auto-Tuning	Pre-tuning for selecting an encoder offset tuning function. Checks the PM motor to determine if the stationary encoder offset auto-tuning is possible. After the initial motor auto-tuning, the Pole Position Auto-Tuning attempts to detect the rotor position without motor rotation and auto-tunes the other motor-related parameters.
Rotating Encoder Offset Auto-Tuning	Auto-tunes the encoder offset of an absolute encoder while rotating the motor. Should be performed with no load (ropes have to be removed or car must be balanced).
Stationary Encoder Offset Auto-Tuning	Auto-tunes the encoder offset of an absolute encoder without rotating the motor. Can only be used with an IPM motor. If offset cannot be tuned properly by this method, perform the Rotating Encoder Offset Auto-Tuning.

Extended Drive Range with Built-In Braking Transistor

- ▶ L1000A provides built-in braking transistor for all drive models up to 40 HP



LCD Operator for Simple Parameter Programming



All standard versions are equipped with an LCD operator including:

- ▶ Elevator language and units: for speed, accel/decel, and jerk rates
- ▶ Copy function: to upload and download parameter settings instantly
- ▶ Setup Mode: prepares the initial parameters to start the drive running immediately
- ▶ Verify function: checks parameters that have been changed from default values
- ▶ Multiple languages: 8 different languages (English, Japanese, German, French, Italian, Spanish, Portuguese, Chinese)

Support Tool: iQrise DriveWizard 2010

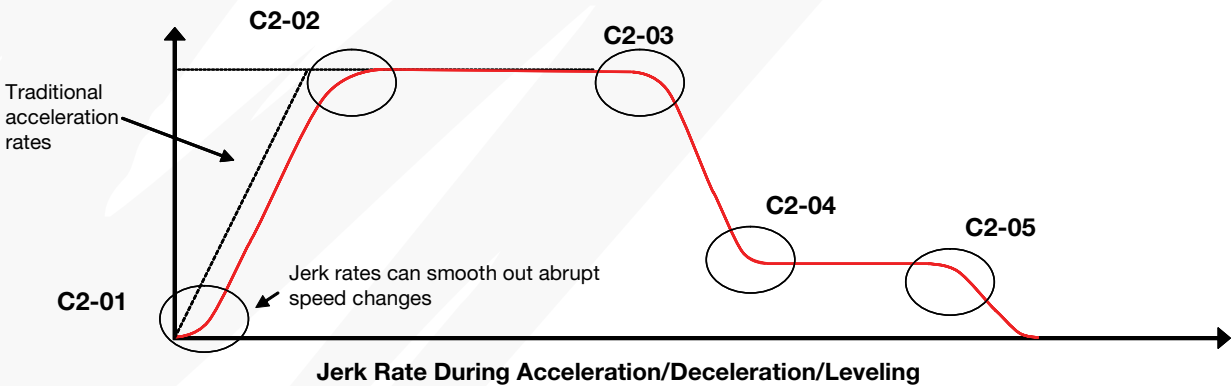
- ▶ The drive is equipped with a USB port for connecting to a PC with iQrise DriveWizard 2010 installed
- ▶ To adjust and edit parameters, access all monitors, create customized operation sequences, and observe drive performance with the oscilloscope function
- ▶ Parameter file storage
- ▶ Parameter upload/download function



Note: To obtain a copy of iQrise DriveWizard 2010, contact a YASKAWA representative.

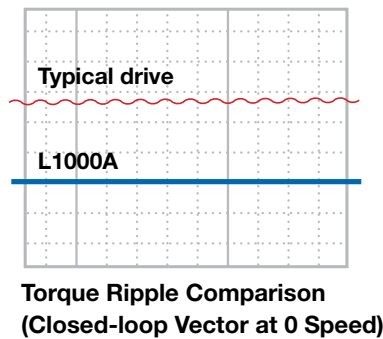
Independent Jerk Rates

- ▶ Smooth ride performance during transitions from acceleration to nominal speed and deceleration to leveling speed
- ▶ The jerk rates are used to smooth out any speed changes due to sudden changes in the motor speed
- ▶ Selectable units: seconds, ft/s^3 , or m/s^3



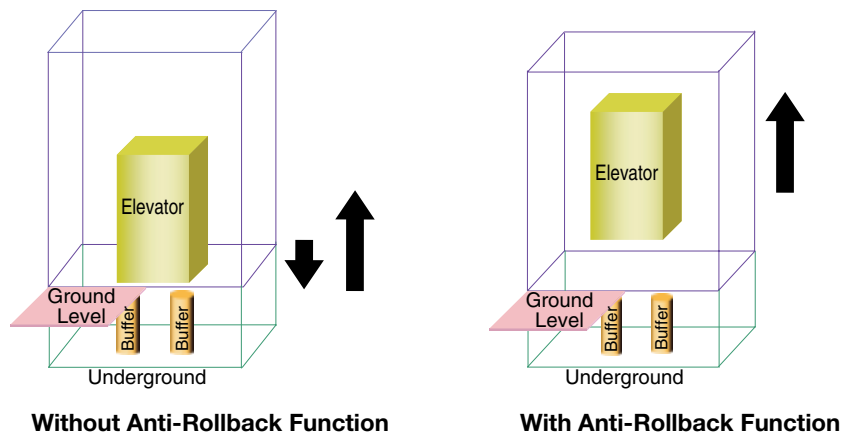
Improved Torque Ripple Suppression

- ▶ Smooth start/stop due to optimized torque ripple suppression
- ▶ Precise motor torque performance for comfortable acceleration and deceleration characteristics



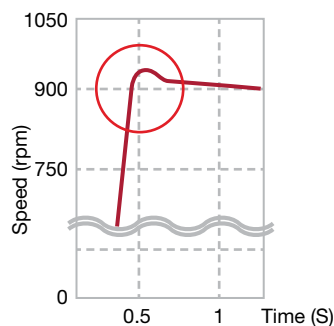
Torque Compensation at Start (Anti-Rollback) without Load Sensor

- ▶ New sensorless torque compensation function includes the YASKAWA advanced anti-rollback function, preventing shock at start to ensure a smooth start
- ▶ The anti-rollback function provides the right amount of torque compensation to suppress shock and prevent speed variations when the brake is released

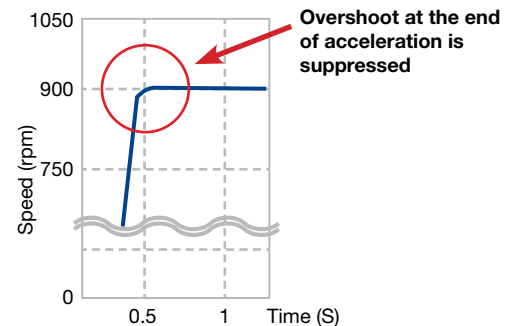


System Inertia Compensation

- ▶ Inertia compensation provides ideal speed response
- ▶ Acceleration and deceleration compensation prevents vibration and overshoot
- ▶ Adjustment of jerk settings for acceleration and deceleration to ensure a perfectly smooth ride



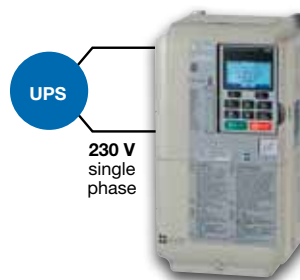
Typical Speed Control



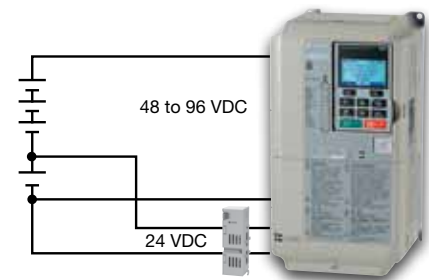
w/Inertia Compensation

UPS and Light-Load Direction Search Function for Rescue Operation

- ▶ A single-phase 230 V UPS or 48 to 96 VDC battery (24 V control power supply) provides the drive with the necessary power for evacuation
- ▶ In case of power failure, the L1000A can bring the elevator car to the next floor for evacuation using the UPS
- ▶ A “light-load direction search” function triggered by the controller detects the light-load direction of the elevator



UPS Wiring and Operation

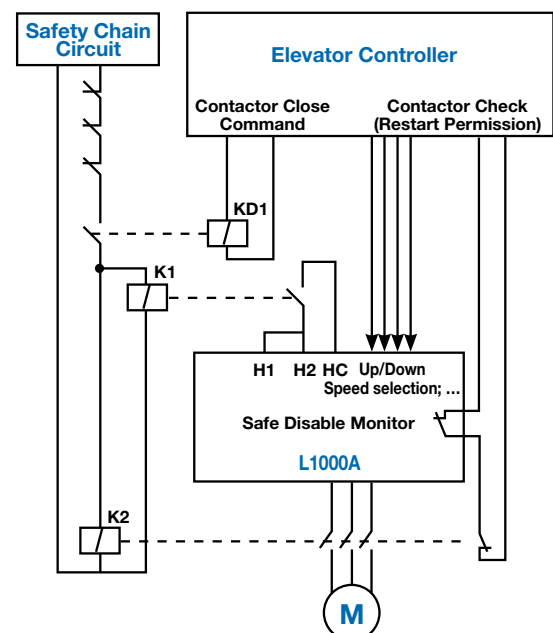


Back-up Battery Wiring and Operation

For clarity, the illustrations have been simplified, omitting several switches and control signals.

Standard Safety Features

- ▶ One contactor solution according to EN81-1
- ▶ L1000A is TÜV-compliant according to EN954-1 Cat. 3, Stop Category 0, ISO13849-1 (Cat.3 Pld) and IEC/EN 61508 SIL2
- ▶ An External Device Monitor (EDM) function has also been added to monitor the safety status of the L1000A
- ▶ Monitor status of input power supply: Immediately detects phase loss from the input power supply. Detection remains active when the L1000A is either running or stopped.



Removable Terminal Board with Parameter Backup Function

In the event of a failure requiring a drive replacement, the removable terminal board offers benefits to reduce downtime:

- ▶ Removable terminal board allows quick drive replacement without removing the control wiring
- ▶ Saves parameter data for fast re-initialization of previous parameter settings

L1000A Terminal Board



Parameter		
Name	Number	Setting
Digital Operator Display Unit Selection	o1-03	6
Control Method Selection	A1-02	0
Speed Reference Selection	b1-01	1
Up/Down Command Selection	b1-02	1

Long Performance Life

▶ Ten Years of Durable Performance

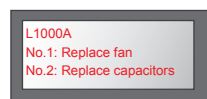
Cooling fan, capacitors, relays, and IGBTs have been carefully selected and designed for a life expectancy of up to 10 years*.

* Assumes the drive is running continuously for 24 hours a day at 80% load with an ambient temperature of 40°C

▶ Performance Life Monitors

YASKAWA's L1000A drive is equipped with performance life monitors that notify the user of part fatigue and maintenance periods to prevent problems before they occur.

- Drive outputs a signal to the control device indicating components may need to be replaced

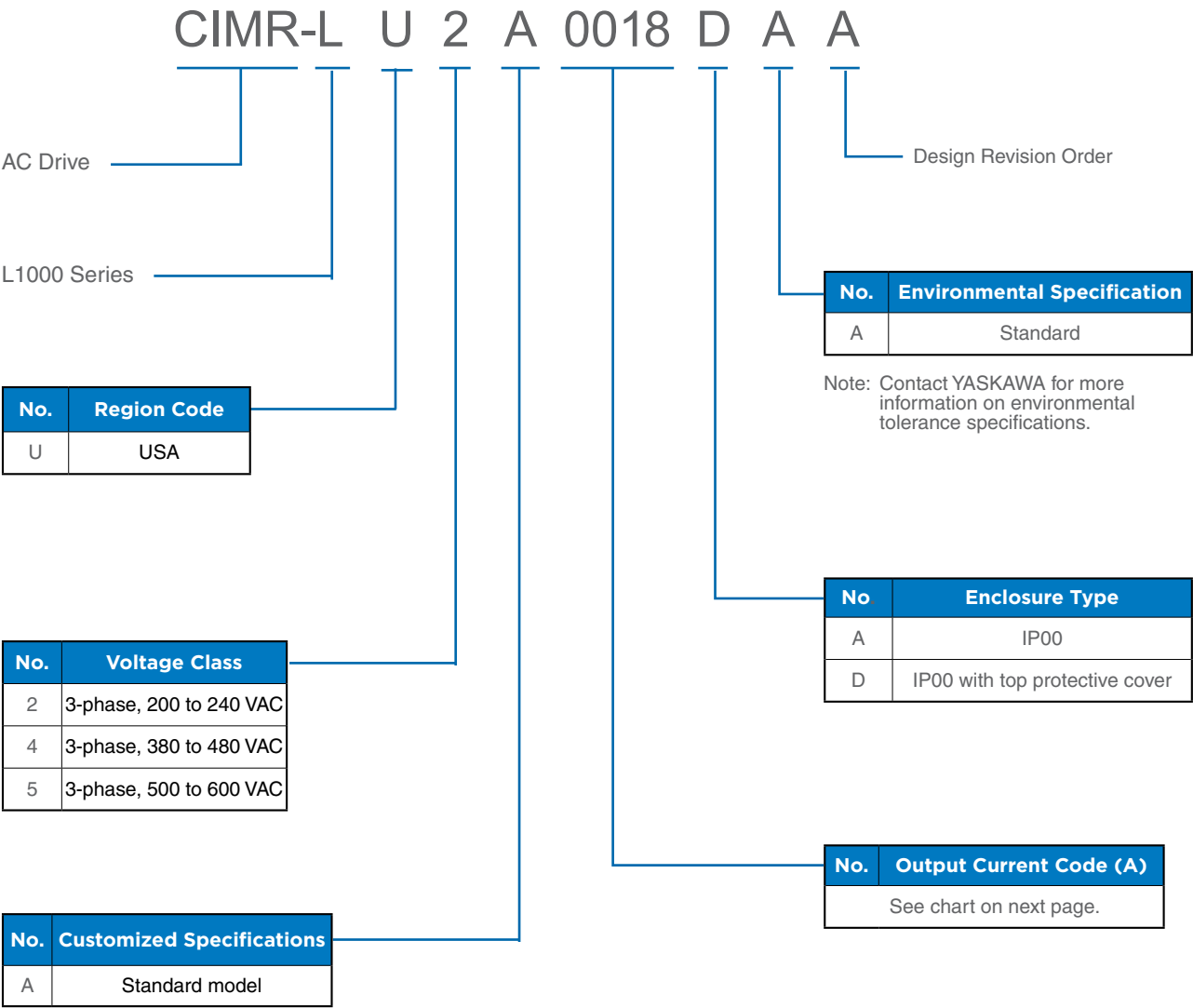


Operator Display	Corresponding Component
LT-1	Cooling fan
LT-2	Capacitors
LT-3	Inrush prevention relay
LT-4	IGBTs

Certifications



Model Number Key



Product Lineup

HP	Three-Phase 200 to 240 VAC		Three-Phase 380 to 480 VAC		Three-Phase 500 to 600 VAC	
	Model CIMR-	Rated Output	Model CIMR-	Rated Output	Model CIMR-	Rated Output
2	LU2A0011	11 A				
3	LU2A0014	14 A	LU4A0007	7 A		
5	LU2A0018	17.5 A	LU4A0009	9.2 A	LU5A0007	7 A
7.5	LU2A0025	25 A	LU4A0015	14.8 A	LU5A0011	11 A
10	LU2A0033	33 A	LU4A0018	18 A	LU5A0013	13 A
15	LU2A0047	47 A	LU4A0024	24 A	LU5A0020	20 A
20	LU2A0060	60 A	LU4A0031	31 A	LU5A0025	25 A
25	LU2A0075	75 A	LU4A0039	39 A	LU5A0031	31 A
30	LU2A0085	85 A	LU4A0045	45 A	LU5A0037	37 A
40	LU2A0115	115 A	LU4A0060	60 A	LU5A0048	48 A
50	LU2A0145	145 A	LU4A0075	75 A	LU5A0060	60 A
60	LU2A0180	180 A	LU4A0091	91 A	LU5A0072	72 A
75	LU2A0215	215 A	LU4A0112	112 A	LU5A0090	90 A
100	LU2A0283	283 A	LU4A0150	150 A	LU5A0115	115 A
125	LU2A0346	346 A	LU4A0180	180 A		
150	LU2A0415	415 A	LU4A0216	216 A		
200			LU4A0260	260 A		

Dotted lines indicate items not yet available

Standard Specifications

200 to 240 VAC (Three-Phase)

Model CIMR-LU2A			0011	0014	0018	0025	0033	0047	0060	0075	0085	0115	0145	0180	0215	0283	0346	0415	
Max. Applicable Motor Capacity			HP	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150
Output	Rated Output Capacity	kVA	3.7	4.6	6.7	9.5	12.6	17.9	23	29	32	44	55	69	82	108	132	158	
	Rated Output Current	A	11 ^{<1>}	14 ^{<1>}	17.5 ^{<1>}	25 ^{<1>}	33 ^{<1>}	47 ^{<1>}	60 ^{<1>}	75 ^{<1>}	85 ^{<1>}	115 ^{<1>}	145 ^{<2>}	180 ^{<2>}	215 ^{<2>}	283 ^{<2>}	346 ^{<2>}	415 ^{<3>}	
	Overload Tolerance		150% of rated output current for 60 s																
	Carrier Frequency (User Adjustable)		2 to 15 kHz (parameter setting)										2 to 10 kHz (parameter setting)						
	Max. Output Voltage		Three-phase: 200 to 240 VAC (Proportional to input voltage)																
	Max. Output Frequency		Up to 120 Hz (parameter setting)																
	Rated Voltage/Rated Frequency		Three-phase: 200 to 240 VAC, 50/60 Hz																
Power	Allowable Voltage Fluctuation		-15% to +10%																
	Allowable Frequency Fluctuation		±5%																
	Reactor for Harmonic Wave Prevention		DC Choke Optional									Built-in DC Choke Standard							
	Braking Transistor		Built-in (30% ED, 30 s)										Optional						
	Power Supply	kVA	5.8	7.8	9.5	14	18	27	36	44	37	51	62	75	91	124	148	180	

380 to 480 VAC (Three-Phase)

Model CIMR-LU4A			0007	0009	0015	0018	0024	0031	0039	0045	0060	0075	0091	0112	0150	0180	0216	0260	
Max. Applicable Motor Capacity			HP	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	200
Output	Rated Output Capacity	kVA	5.5	7	11.3	13.7	18.3	24	30	34	48	57	69	85	114	137	165	198	
	Rated Output Current	A	7 ^{<1>}	9.2 ^{<1>}	14.8 ^{<1>}	18 ^{<1>}	24 ^{<1>}	31 ^{<1>}	39 ^{<1>}	45 ^{<1>}	60 ^{<1>}	75 ^{<1>}	91 ^{<1>}	112 ^{<2>}	150 ^{<2>}	180 ^{<2>}	216 ^{<2>}	260 ^{<3>}	
	Overload Tolerance	150% of rated output current for 60 s																	
	Carrier Frequency (User Adjustable)	2 to 15 kHz (parameter setting)												2 to 10 kHz (parameter setting)					
	Max. Output Voltage	Three-phase: 380 to 480 VAC (Proportional to input voltage)																	
	Max. Output Frequency	Up to 120 Hz (parameter setting)																	
	Rated Voltage/Rated Frequency	Three-phase: 380 to 480 VAC, 50/60 Hz																	
Power	Allowable Voltage Fluctuation	-15% to +10%																	
	Allowable Frequency Fluctuation	±5%																	
	Reactor for Harmonic Wave Prevention	DC Choke Optional									Built-in DC Choke Standard								
	Braking Transistor	Built-in (30% ED, 30 s)										Optional							
	Power Supply	kVA	8.1	10	14.6	19.2	28.4	37.5	46.6	39.3	53	64.9	78.6	96	129.9	155	189	227	

^{<1>}: Carrier frequency default is 8 kHz for models 2A0115, 4A0091 and below. Higher carrier frequencies require derating.

^{<2>}: Carrier frequency default is 5 kHz for models 2A0145 to 2A0346, 4A0112 to 4A0216. Higher carrier frequencies require derating.

^{<3>}: Carrier frequency default is 2 kHz for models 2A0415 and 4A0260.

Common Specifications

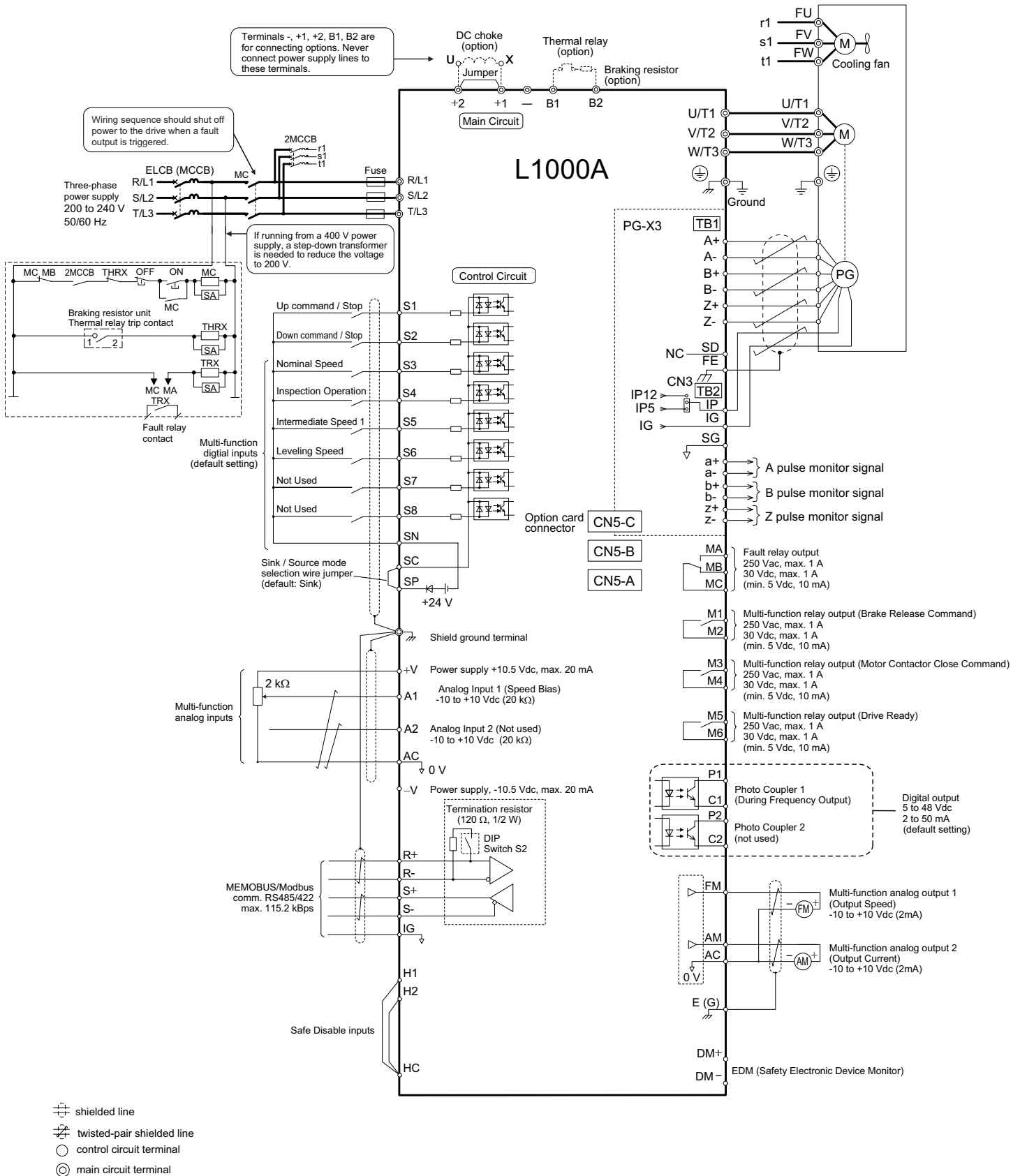
Item		Specifications
Control Characteristics	Control Method	Sinewave PWM (Flux Vector Control, Open Loop Vector Control, V/f Control, PM Flux Vector control)
	Frequency Control Range	0.01 to 120 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital reference: $\pm 0.01\%$, -10 to $+40^{\circ}\text{C}$ Analog reference: $\pm 0.1\%$, $25 \pm 10^{\circ}\text{C}$
	Frequency Setting Resolution	Digital reference: 0.01 Hz Analog reference: 0.03/60 Hz (11 bit)
	Output Speed Resolution	0.001 Hz
	Frequency Setting Signal	-10 to $+10\text{V}$, 0 to $+10\text{V}$
	Starting Torque ^{<1>}	200% at 0.3 Hz (Open Loop Vector Control), 200% at 0 rpm (Flux Vector Control, PM Flux Vector Control)
	Speed Control Range ^{<1>}	1:40 (V/f Control), 1:200 (Open Loop Vector Control), 1:1500 (Flux Vector Control, PM Flux Vector Control)
	Speed Control Accuracy ^{<1>}	$\pm 3\%$ (V/f Control), $\pm 0.2\%$ (Open Loop Vector Control at $25 \pm 10^{\circ}\text{C}$), $\pm 0.02\%$ (Flux Vector Control, PM Flux Vector Control at $25 \pm 10^{\circ}\text{C}$)
	Speed Response ^{<1>}	10 Hz (Open Loop Vector Control), 50 Hz (Flux Vector Control, PM Flux Vector Control)
	Torque Limit	Vector control allows separate settings in four quadrants
	Accel/Decel Ramp	0.01 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	Approx. 20% (approx. 125% with dynamic braking resistor option), Models up to CIMR-LQ2A0115, 4A0060 have a built-in transistor
	Torque Accuracy	$\pm 5\%$
	V/f Characteristics	Freely programmable
	Overload Accuracy	150% of rated output current for 60 s
Protection Function	Jerk (S-Curve) Rates	Starting, acceleration end, deceleration start, leveling, stop setting independently
	Main Control Functions	Inertia Compensation, Position Lock at Start and Stop (Anti-Rollback) Function, Overtorque/Undertorque Detection, Torque Limit, Speed Reference, Accel/ decel Switch, 5 Zone Jerk Settings, Auto-tuning (Stationary and Rotational Motor/Encoder Offset Tuning), Dwell, Cooling Fan On/Off or Temperature Controlled, Slip Compensation, Torque Compensation, DC Injection Braking at Start and Stop, MEMOBUS/Modbus Comm. (RS-422/485 max. 115.2 kbps), Fault Restart, Removable Terminal Block with Parameter Backup Function, Online Tuning, High Frequency Injection, Short Floor, Rescue Operation (Light Load Direction Search Function), Inspection Run, Brake Sequence, Speed Related Parameters with Elevator Units Display, etc.
	Motor Protection	Motor overheat protection based on output current
	Momentary Overcurrent Protection	Drive stops when output current exceeds 200%
	Overload Protection	Drive stops after 60 s at 150% of rated output current ^{<2>}
	Overvoltage Protection	200 V class: Stops when DC bus exceeds approx. 410 V; 400 V class: Stops when DC bus exceeds approx. 820 V 600 V class: Stops when DC bus exceeds approx. 1040 V
	Undervoltage Protection	Stops when DC bus voltage falls below the following levels: Three-phase 200 V class: approx. 190 V; Single-phase 200 V class: approx. 160 V; Three-phase 400 V class: approx. 380 V; Three-phase 380 V class: approx. 350 V; Three-phase 600 V class: approx. 475 V
	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.
Environment	Ground Fault Protection	Protection by electronic circuit ^{<3>}
	Charge LED	Charge LED remains lit until DC bus has fallen below approx. 50 V
	Area of Use	Indoors
	Ambient Temperature	-10 to 40°C (IP00 enclosure with top protective cover); -10 to 50°C (IP00 enclosure)
	Humidity	95% RH or less (non-condensing)
	Storage Temperature	-20 to 60°C (short-term temperature during transportation)
Altitude		Up to 1000 meters without derating, up to 3000 meters with output current and voltage derating
Vibration/Shock		10 to 20 Hz: 9.8 m/s^2 ; 20 to 55 Hz: 5.9 m/s^2 (2A0011 to 2A0180; 4A0007 to 4A0150) or 2.0 m/s^2 (2A0215 to 2A0415, 4A0180 to 4A0260)
Safety Standard		UL508C, UL, cUL, CE, CSA B44.1
Network Communications		Modbus communications. (RS-422/485 max. 115.2 kbps) standard. Options: CANopen, others
Feedback Devices		Incremental, EnDat, SIN/COS
Protection Design		IP00 with top protective cover, IP00

^{<1>}: The accuracy of these values depends on motor characteristics, ambient conditions, and drive settings. Specifications may vary with different motors and with changing motor temperature. Contact YASKAWA for consultation.

^{<2>}: Overload protection may be triggered when operating with 150% of the rated output current if the output speed is less than 6 Hz.

^{<3>}: Ground protection cannot be provided when the impedance of the ground fault path is too low, or when the drive is powered up while a ground fault is present at the output.

Connection Diagram



IP00 Enclosure with Top Protective Cover Dimensions

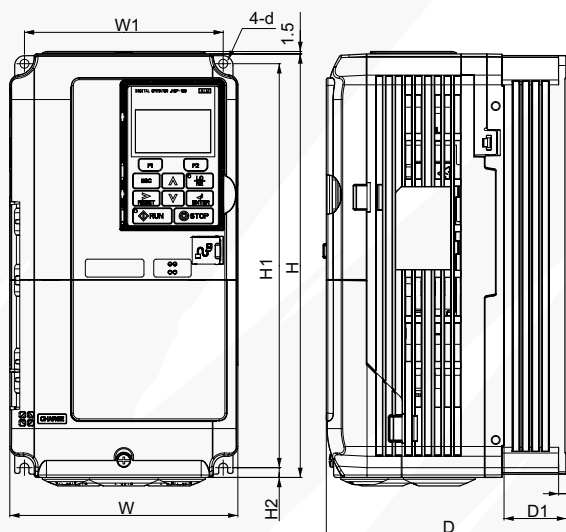


Figure 1

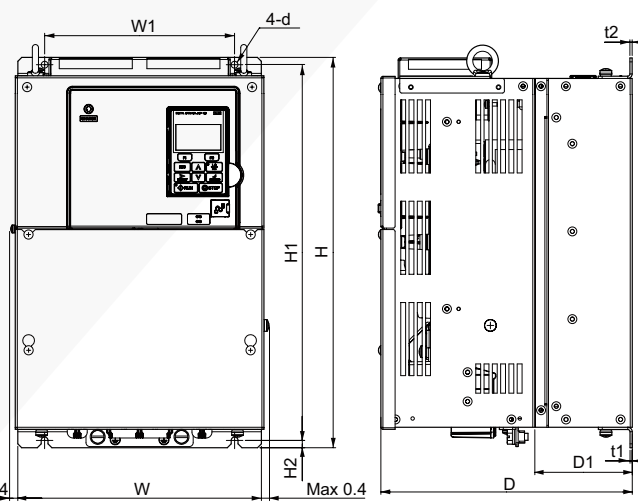


Figure 2

200 to 240 VAC Models

Model CIMR-LU□	Dimensions (in.)											Weight (lb)
	Figure	H	W	D	H1	H2	W1	D1	t1	t2	d	
2A0011	1	10.2	5.5	6.5	9.8	0.2	4.8	2.2	0.2	—	M5	7.7
2A0014		10.2	5.5	6.5	9.8	0.2	4.8	2.2	0.2	—	M5	7.7
2A0018		10.2	5.5	6.5	9.8	0.2	4.8	2.2	0.2	—	M5	7.7
2A0025		10.2	5.5	6.6	9.8	0.2	4.8	2.2	0.2	—	M5	8.8
2A0033		10.2	5.5	6.6	9.8	0.2	4.8	2.2	0.2	—	M5	8.8
2A0047		11.8	7.1	7.4	11.2	0.3	6.3	3.0	0.2	—	M5	12.3
2A0060		13.8	8.7	7.8	13.2	0.3	7.6	3.1	0.2	—	M6	19.2
2A0075	2	13.8	8.7	7.8	13.2	0.3	7.6	3.1	0.2	—	M6	21.4
2A0085		15.7	9.8	10.2	15.2	0.3	7.7	3.9	0.1	0.1	M6	46.3
2A0115		17.7	10.8	10.2	17.1	0.3	8.7	3.9	0.1	0.1	M6	55.1
2A0145		21.7	12.8	11.1	21.1	0.3	10.2	4.3	0.1	0.1	M6	81.6
2A0180		21.7	12.8	11.1	21.1	0.3	10.2	4.3	0.1	0.1	M6	83.8

380 to 480 VAC Models

Model CIMR-LU□	Dimensions (in.)											Weight (lb)
	Figure	H	W	D	H1	H2	W1	D1	t1	t2	d	
4A0007	1	10.2	5.5	6.5	9.8	0.2	4.8	2.2	0.2	—	M5	7.7
4A0009		10.2	5.5	6.5	9.8	0.2	4.8	2.2	0.2	—	M5	7.7
4A0015		10.2	5.5	6.6	9.8	0.2	4.8	2.2	0.2	—	M5	8.6
4A0018		10.2	5.5	6.6	9.8	0.2	4.8	2.2	0.2	—	M5	8.9
4A0024		11.8	7.1	6.6	11.2	0.3	6.3	2.2	0.2	—	M5	11.9
4A0031		11.8	7.1	7.4	11.2	0.3	6.3	3.0	0.2	—	M5	11.9
4A0039		13.8	8.7	7.8	13.2	0.3	7.6	3.1	0.2	—	M6	18.3
4A0045	2	15.7	9.8	10.2	15.2	0.3	7.7	3.9	0.1	0.1	M6	46.3
4A0060		17.7	10.8	10.2	17.1	0.3	8.7	3.9	0.1	0.1	M6	55.1
4A0075		20.1	12.8	10.2	19.5	0.3	10.2	4.1	0.1	0.1	M6	79.4
4A0091		20.1	12.8	10.2	19.5	0.3	10.2	4.1	0.1	0.1	M6	79.4
4A0112		21.7	12.8	11.1	21.1	0.3	10.2	4.3	0.1	0.1	M6	90.4
4A0150		21.7	12.8	11.1	21.1	0.3	10.2	4.3	0.1	0.1	M6	92.6

IP00 Enclosure Dimensions

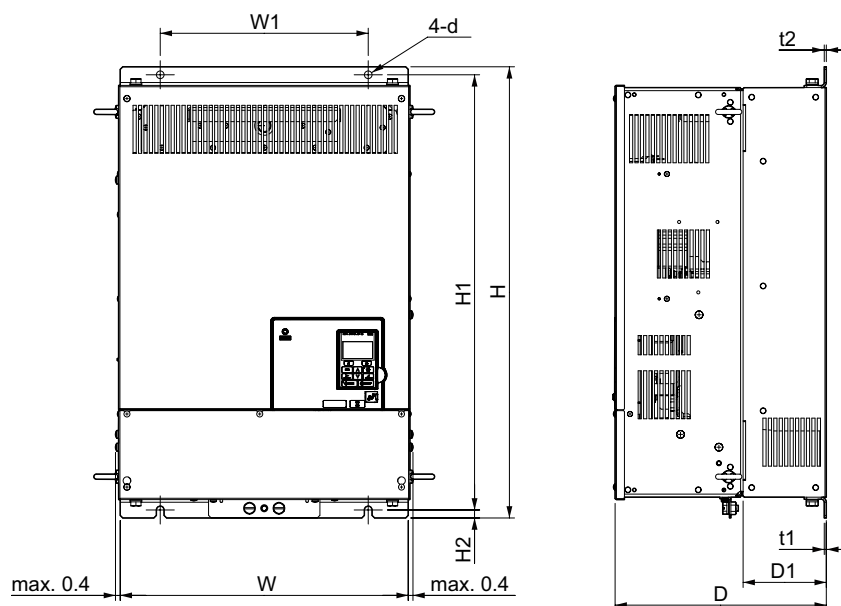


Figure 1

200 to 240 VAC Models

Model CIMR-LU□	Dimensions (in.)											Weight (lb)
	Figure	H	W	D	H1	H2	W1	D1	t1	t2	d	
2A0215	1	27.8	17.7	13.0	26.8	0.5	12.8	5.1	0.1	0.1	M10	167.6
2A0283		27.8	17.7	13.0	26.8	0.5	12.8	5.1	0.1	0.1	M10	176.4
2A0346		31.5	19.7	13.8	30.4	0.5	14.6	5.1	0.2	0.2	M12	216.1
2A0415		31.5	19.7	13.8	30.4	0.5	14.6	5.1	0.2	0.2	M12	218.3

380 to 480 VAC Models

Model CIMR-LU□	Dimensions (in.)											Weight (lb)
	Figure	H	W	D	H1	H2	W1	D1	t1	t2	d	
4A0180	1	27.8	17.7	13.0	26.8	0.5	12.8	5.1	0.1	0.1	M10	174.2
4A0216		31.5	19.7	13.8	30.4	0.5	14.6	5.1	0.2	0.2	M12	211.6
4A0260		31.5	19.7	13.8	30.4	0.5	14.6	5.1	0.2	0.2	M12	224.9

Drive Watt Loss Data

200 to 240 VAC Models

Model CIMR-LU□	Carrier Frequency: 8 kHz			
	Rated Amps (A)	Heatsink Loss (W)	Interior Unit Loss (W)	Total Loss (W)
2A0011	11.0	64.0	58.0	122.0
2A0014	14.0	77.0	60.0	137.0
2A0018	17.5	100.7	67.4	168.1
2A0025	25.0	194.4	92.3	286.6
2A0033	33.0	213.8	104.8	318.7
2A0047	47.0	280.2	129.9	410.2
2A0060	60.0	394.9	162.8	557.7
2A0075	75.0	459.8	220.9	680.7
2A0085	85.0	510.3	210.9	721.2
2A0115	115.0	662.4	250.0	912.4
2A0145	145.0 ^{*1}	815.9	306.3	1122.2
2A0180	180.0 ^{*1}	976.0	378.1	1354.1
2A0215	215.0 ^{*1}	1514.0	466.1	1980.2
2A0283	283.0 ^{*1}	1936.2	587.8	2523.9
2A0346	346.0 ^{*1}	2563.9	782.9	3346.8
2A0415	415.0 ^{*2}	2672.1	954.1	3626.2

*1: Value assumes the carrier frequency is set to 5 kHz.

*2: Value assumes the carrier frequency is set to 2 kHz.

380 to 480 VAC Models

Model CIMR-LU□	Carrier Frequency: 8 kHz			
	Rated Amps (A)	Heatsink Loss (W)	Interior Unit Loss (W)	Total Loss (W)
4A0007	7.0	53.0	55.0	108.0
4A0009	9.2	68.5	61.0	129.5
4A0015	14.8	135.4	85.7	221.1
4A0018	18.0	149.9	97.0	246.9
4A0024	24.0	208.0	115.1	323.2
4A0031	31.0	262.6	140.8	403.4
4A0039	39.0	329.8	179.4	509.2
4A0045	45.0	348.5	169.6	518.1
4A0060	60.0	484.1	217.2	701.3
4A0075	75.0	563.4	254.0	817.4
4A0091	91.0	722.6	299.0	1021.7
4A0112	112.0 ^{*1}	908.2	416.4	1324.6
4A0150	150.0 ^{*1}	1340.3	580.1	1920.3
4A0180	180.0 ^{*1}	1771.4	541.0	2312.5
4A0216	216.0 ^{*1}	2360.2	715.1	3075.3
4A0260	260.0 ^{*2}	2390.9	786.7	3177.6

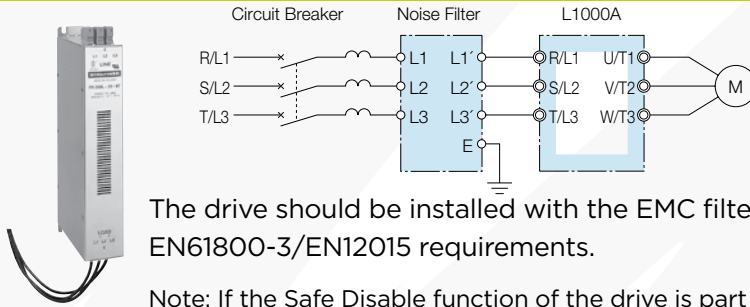
*1: Value assumes the carrier frequency is set to 5 kHz.

*2: Value assumes the carrier frequency is set to 2 kHz.

Options

Name	Purpose	Model
AC Reactors or DC Link Chokes	Harmonic Mitigation	For detailed information contact YASKAWA.
Analog Input	Provides 14-bit high-precision and high-resolution analog speed reference setting. • Input signal level: –10 to +10 Vdc (20 k Ω), 4 to 20 mA (500 Ω) • Input channels: 3 channels, DIP switch for input voltage/input current selection • Input resolution: Input voltage 13-bit signed (1/8192), Input current 1/6554	AI-A3
Digital Input	Provides 16-bit digital speed reference setting. • Input signal: 16-bit binary, 2 digit BCD + sign signal + set signal • Input voltage: +24 V (isolated) • Input current: 8 mA Selectable Parameter: 8-bit, 12-bit, 16-bit	DI-A3
CANopen Communications Interface	Used for running or stopping the drive, setting or referencing parameters and monitoring output speed, output current, or similar items through CANopen communication with the host controller.	SI-S3
Analog Monitor	Provides 12-bit outputs analog signal for monitoring drive output state (output speed, output current etc.). • Output resolution: 11-bit signed (1/2048) • Output voltage: –10 to +10 Vdc (non-isolated) • Output channels: 2 channels	AO-A3
Digital Output	Provides isolated digital output signals for monitoring drive run state (alarm signal, zero speed detection, etc.). Output channel: Photocoupler, 6 channels (48 V, 50 mA or less), Relay contact output, 2 channels, 250 Vac, 1 A or less 30 Vdc, 1 A or less	DO-A3
Open Collector PG Interface	For control modes requiring a PG encoder for motor feedback: • Phase A, B, and Z pulse (3-phase) inputs (complementary type) • PG frequency range: Approx. 50 kHz max. • Power supply output for PG: +24 V, max. current 30 mA • Pulse monitor output: Open collector, +24 V, max. current 30 mA • Power supply output for PG: +12 V, max. current 200 mA	PG-B3
Line Driver PG Interface	For control modes requiring a PG encoder for motor feedback: • Phase A, B, and Z pulse (differential pulse) inputs (RS-422) • PG frequency range: up to 300 kHz (approx.) • Pulse monitor output: RS-422 • Power supply output for PG: +5 V or +12 V, max. current 200 mA	PG-X3
Absolute Encoder	EnDat Encoder Feedback	PG-F3 (EnDat 2.1/01, 2.2/01, 2.2/22)
Absolute Encoder	HEIDENHAIN Encoder Feedback	PG-E3 (HEIDENHAIN ERN1387/487)
LED Operator	Easy long distance viewing	JVOP-182
Braking Resistor	Used to shorten the deceleration time by dissipating regenerative energy	For detailed information contact YASKAWA.
Braking Resistor Unit	Shortened deceleration time results when the L1000A is used with a Braking Resistor Unit. For units above 40 HP.	CDBR series
24 V Power Supply	Provides a separate power supply for the control circuit and option boards. Note: Parameter settings cannot be changed when the drive is operating solely from this power supply.	PS-A10H PS-A10L
USB Copy Unit (RJ-45/USB compatible port)	• Adapter for connecting the drive to the USB port of a PC • Can copy parameter settings easily and quickly to be later transferred to another drive	JVOP-181
LCD Operator Extension Cable	Extension cable for connecting the LCD operator.	UWR0051: 3.3 ft. (1 m) UWR0052: 10 ft. (3 m)

Noise Filter (EMC Filter) Option



Note: Do not connect the input noise filter to the drive output terminals (U/T1, V/T2, W/T3). Connect in parallel when using two filters. Only a single noise filter is required if the filter is made by Schaffner EMC.

The drive should be installed with the EMC filters listed below in order to comply with the EN61800-3/EN12015 requirements.

Note: If the Safe Disable function of the drive is part of the safety concept of an elevator machine or installation and used for a safe stop according to EN60204-1, stop category O. This also applies when using the safe disable function in one motor contactor installations. EMC filters must be used when IEC/EN61508 (functional safety) conformance is required.

200 to 240 VAC Models

Model CIMR-LU□	Filter Data (Manufacturer: Schaffner)								
	Model Number	Rated Current (A)	Weight (lb)	Figure (next page)	Dimensions (in.)				
					H	W	D	X	Y
2A0011	FS5972-18-07	18	3.7	1	13.0	5.6	1.8	12.3	4.5
2A0014					14.0	8.1	2.0	13.2	6.9
2A0018					16.1	9.3	2.6	15.4	8.1
2A0025	FS5972-35-07	35	4.6	2	13.0	3.5	5.9	10.0	2.6
2A0033					17.8	4.7	6.7	14.4	4.0
2A0047					24.0	5.1	9.4	19.6	3.5
2A0060	FS5972-60-07	60	8.8	3	15.2	10.2	4.5	4.7	9.3
2A0075					15.2	10.2	5.3	4.7	9.3
2A0085									
2A0115	FS5972-100-35	100	7.5	2	13.0	3.5	5.9	10.0	2.6
2A0145					17.8	4.7	6.7	14.4	4.0
2A0180					24.0	5.1	9.4	19.6	3.5
2A0215	FS5972-170-40	170	13.2	3	15.2	10.2	4.5	4.7	9.3
2A0283					15.2	10.2	5.3	4.7	9.3
2A0346									
2A0415	FS5972-250-37	250	25.8	2	13.0	3.5	5.9	10.0	2.6
					17.8	4.7	6.7	14.4	4.0
					24.0	5.1	9.4	19.6	3.5
2A0415	FS5972-410-99	410	23.1	3	15.2	10.2	4.5	4.7	9.3
					15.2	10.2	5.3	4.7	9.3

380 to 480 VAC Models

Model CIMR-LU□	Filter Data (Manufacturer: Schaffner)									
	Model Number	Rated Current (A)	Weight (lb)	Figure (next page)	Dimensions (in.)					
					H	W	D	X	Y	
4A0007	FS5972-10-07	10	2.6	1	13.0	5.6	1.8	12.3	4.5	
4A0009	FS5972-18-07	18	3.7		13.0	5.6	1.8	12.3	4.5	
4A0015	FS5972-35-07	35	4.6		14.0	8.1	2.0	13.2	6.9	
4A0018										
4A0024										
4A0031	FS5972-60-07	60	8.8		16.1	9.3	2.6	15.4	8.1	
4A0039										
4A0045										
4A0060	FS5972-100-35	100	7.5	2	13.0	3.5	5.9	10.0	2.6	
4A0075										
4A0091	FS5972-170-40	170	13.2		17.8	4.7	6.7	14.4	4.0	
4A0112										
4A0150										
4A0180	FS5972-250-37	250	25.8		24.0	5.1	9.4	19.6	3.5	
4A0216	FS5972-410-99	410	23.1		3	15.2	10.2	4.5	4.7	9.3
4A0260										

Noise Filter (EMC Filter) Dimensions

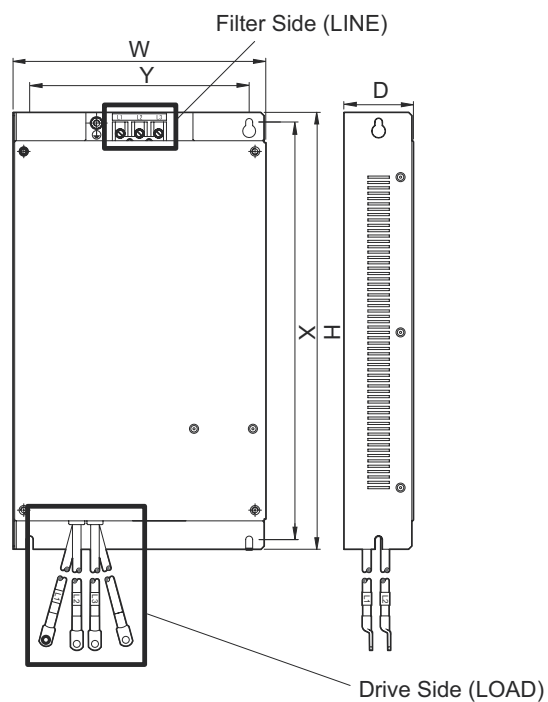


Figure 1

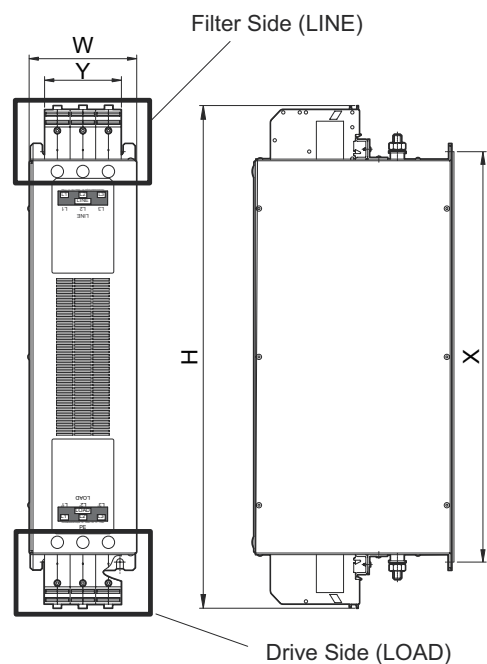


Figure 2

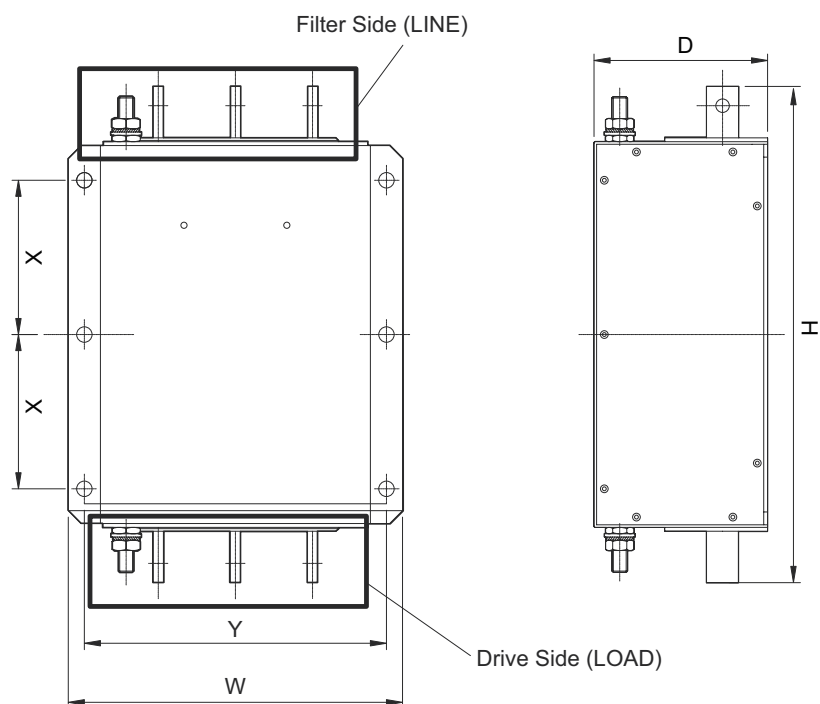


Figure 3

CDBR Braking Unit Option



The L1000A includes a built-in braking transistor up to 40 HP (200-240 VAC and 380-480 VAC). For L1000A drives above 40 HP with braking torque requirements, a CDBR Braking Unit is available as an option. Please contact a YASKAWA representative for further information on braking resistors. The table below indicates the recommended CDBR Braking Unit and the resistor specification.

200 to 240 VAC Models

Max. Applicable Motor (HP)	L1000A	Braking Unit		Braking Resistor Unit			Min.* Connection Resistance (Ω)
	Model CIMR-LU□	Model CDBR-□	Qty.	Resistor Specifications (per unit)	Qty.	Braking Torque (%) (10% ED)	
2	2A0011	Built-in		260 W 70 Ω	1	120	16
3	2A0014			390 W 40 Ω	1	150	16
5	2A0018			390 W 40 Ω	1	125	16
7.5	2A0025			520 W 30 Ω	1	115	16
10	2A0033			780 W 20 Ω	1	125	9.6
15	2A0047			2400 W 13.6 Ω	1	125	9.6
20	2A0060			3000 W 10 Ω	1	125	9.6
25	2A0075			3000 W 10 Ω	1	100	9.6
30	2A0085			4800 W 6.8 Ω	1	125	6.4
40	2A0115			4800 W 6.8 Ω	1	90	6.4
50	2A0145	20370D	1	3000 W 10 Ω	2	100	9.6
60	2A0180	20370D	2	4800 W 6.8 Ω	2	120	6.4
75	2A0215	20370D	2	4800 W 6.8 Ω	2	100	6.4
100	2A0283	2110B	1	4800 W 6.8 Ω	3	110	1.6
125	2A0346	2110B	1	4800 W 6.8 Ω	4	120	1.6
150	2A0415	2110B	1	4800 W 8 Ω	5	100	1.6

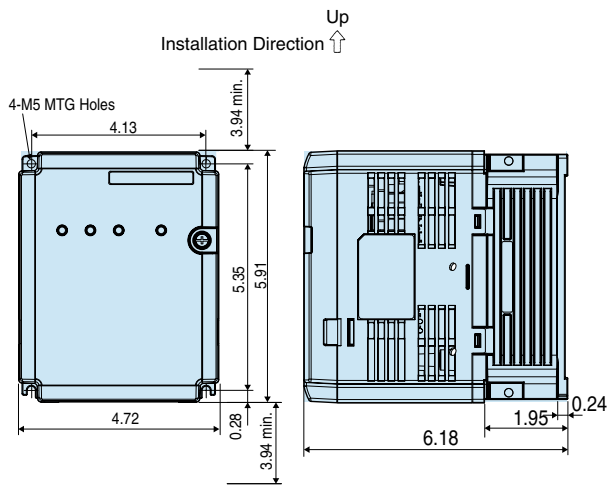
380 to 480 VAC Models

Max. Applicable Motor (HP)	L1000A	Braking Unit		Braking Resistor Unit			Min.* Connection Resistance (Ω)
	Model CIMR-LU□	Model CDBR-□	Qty.	Resistor Specifications (per unit)	Qty.	Braking Torque (%) (10% ED)	
3	4A0007	Built-in		390 W 150 Ω	1	150	32
5	4A0009			390 W 150 Ω	1	135	32
7.5	4A0015			520 W 100 Ω	1	135	32
10	4A0018			780 W 75 Ω	1	130	32
15	4A0024			1040 W 50 Ω	1	135	20
20	4A0031			1560 W 40 Ω	1	125	20
25	4A0039			4800 W 32 Ω	1	125	19.2
30	4A0045			4800 W 27.2 Ω	1	125	19.2
40	4A0060			6000 W 20 Ω	1	125	19.2
50	4A0075	40450D	1	9600 W 16 Ω	1	125	12.8
60	4A0091	40450D	1	9600 W 13.6 Ω	1	125	12.8
75	4A0112	40450D	2	6000 W 20 Ω	2	135	19.2
100	4A0150	40450D	2	9600 W 13.6 Ω	2	145	12.8
125	4A0180	40450D	2	9600 W 13.6 Ω	2	120	12.8
150	4A0216	40450D	3	6000 W 20 Ω	3	100	3.2
200	4A0260	4220B	1	9600 W 13.6 Ω	4	140	3.2

* The value shown for the minimum connection resistance is that for a single braking unit. Select a resistance value higher than the connectable resistance value and enough to generate the required braking torque.

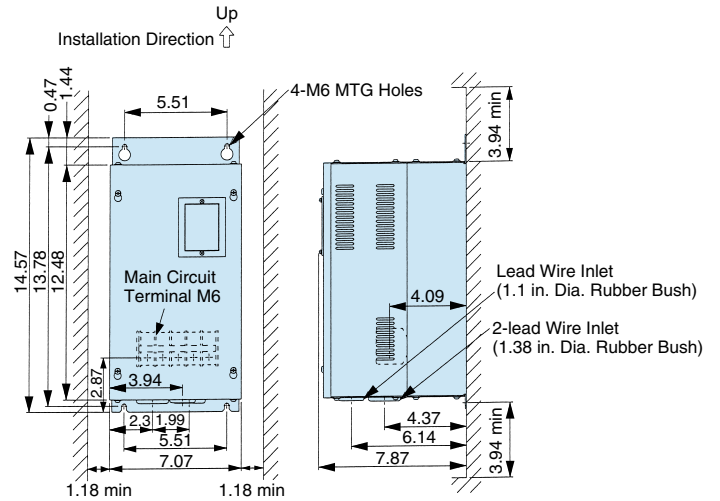
CDBR Braking Unit Dimensions (in.)

**Model: CDBR-20220D, -20370D,
-40300D, -40450D**



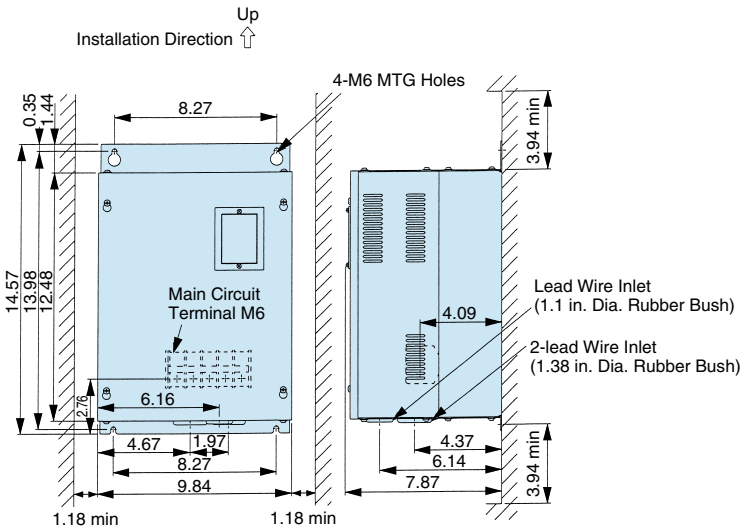
Weight: 4 lb

Model: CDBR-2110B



Weight: 18.7 lb

Model: CDBR-4220B



Weight: 26.4 lb

Model CDBR- 	Heat Loss (W)
20220D	27
20370D	38
2110B	64
40300D	24
40450D	36
4220B	71

24-Volt Power Supply Option

The 24 V Power Supply Option maintains drive control circuit power in the event of a main power outage. The control circuit keeps network communications and I/O data operational in the event of a power outage. It supplies external power to the control circuit only.

Note: Parameter settings cannot be changed when the drive is operating solely from this power supply.

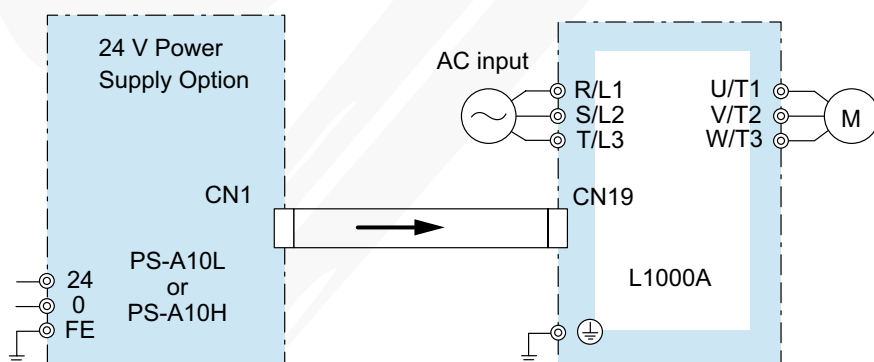
Model	Code No.
200 to 240 VAC	PS-A10L
380 to 480 VAC 500 to 600 VAC	PS-A10H



The installed option adds 1.97 in. to the total width of the drive.

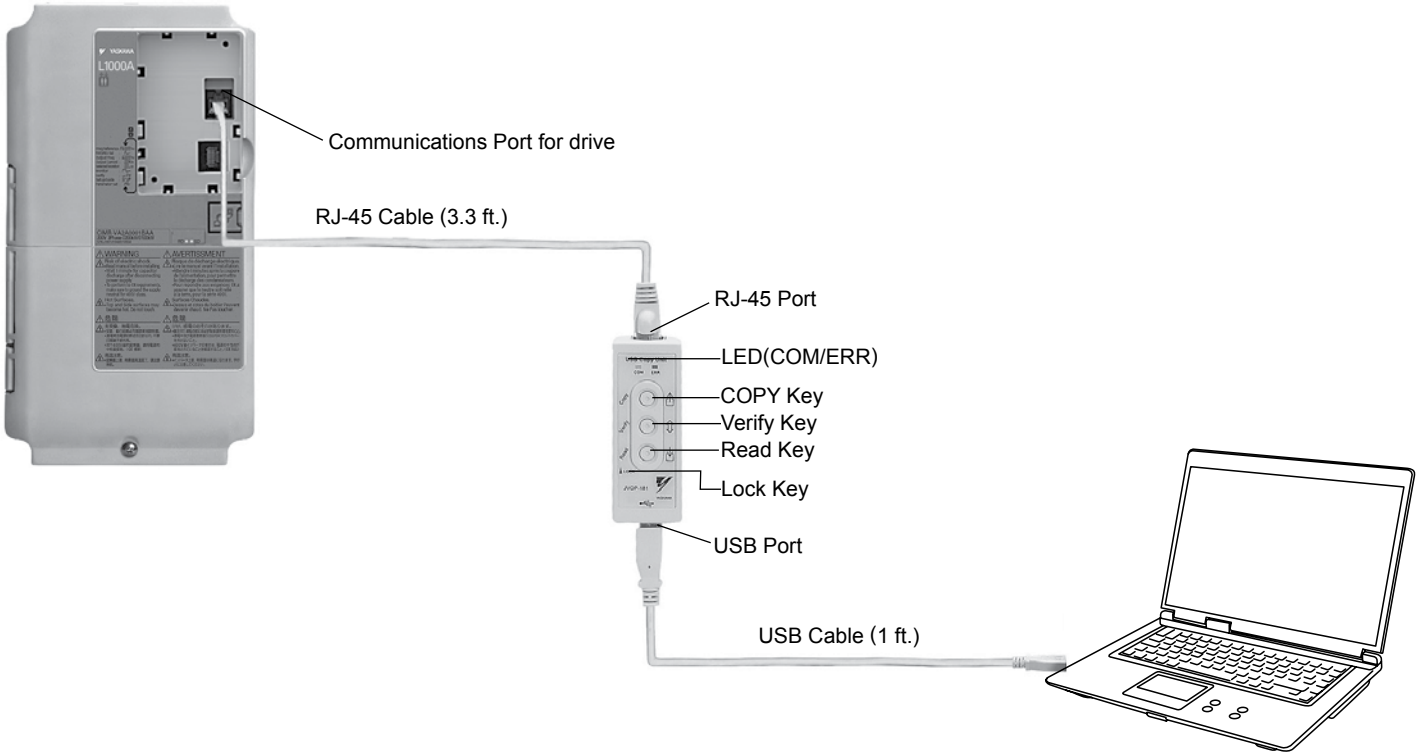


Connection Diagram



USB Copy Unit (Model JVOP-181) Option

Connection



Model	Description
JVOP-181	USB Copy Unit with RJ-45 Cable and USB Cable

Specifications

Item	Specifications
Port	LAN (RJ-45)
	USB (Ver.2.0 compatible)
Power Supply	Supplied from a PC or the drive
Operating System	Windows XP SP2, Windows 2000 SP4
Memory	Memorizes the parameters for one drive.
Dimensions	3.5 (H) × 1.2 (W) × 0.8 (D) in.
Accessories	RJ-45 Cable (3.3 ft.), USB Cable (1 ft.)

Note: 1. Drives must have identical software versions to copy parameter settings.
2. Requires a USB driver.
3. Parameter copy function is disabled when connected to a PC.

RC5 Converter (Line Regeneration Unit) Option



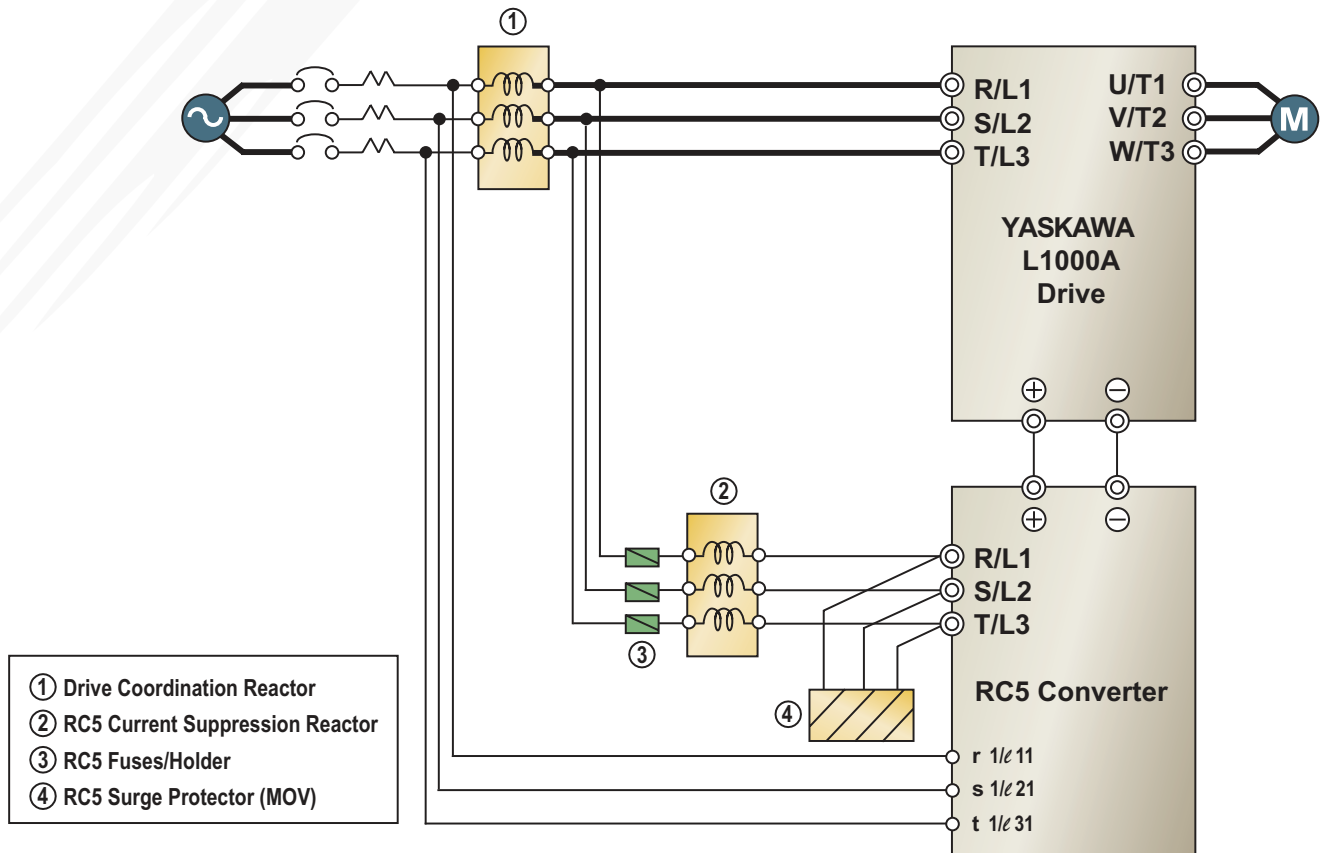
RC5 Converter
Line Regeneration Unit

The RC5 Converter is a high-performance line regeneration unit ideal for elevator applications that require a high-demand braking cycle. The RC5 is an excellent, competitive solution that takes excess regenerative energy from the driven motor and supplies it to the incoming AC power source.

In elevator applications, the RC5 is a cost-competitive alternative to DB resistors, especially when energy savings is considered. DB resistors simply dissipate the regenerated energy as heat. The RC5 returns the regenerated energy back to the power grid, reducing the total energy consumption. Payback for high duty cycle applications is typically less than one year with the RC5.

The RC5 is wired in parallel with the L1000A drive and can be independently sized to suit the projected regenerative load. The RC5 includes display monitors (i.e., power, operating time, and others). It mounts inside the panel with the drive, unlike braking resistors which must be mounted externally because of heavy heat generation and large footprints. The RC5 is also applicable to all other YASKAWA drive series including the F, G, V, and L series drives. Additional configurations are available. Consult the factory.

RC5 Connection Diagram



RC5 Converter Specifications & Dimensions

200 to 240 VAC Models

Max. Applicable Motor (HP)	L1000A	RC5 Data			Physical Dimensions			Weight (lb)	Standard Enclosure	Heat Loss (W)		
	Model CIMR-LU□	Model CIMR- R5U□	RC5 Kit Number RC5-	RC5 Line Current (A)	H	W	D			Heatsink	Internal	Total
2	2A0011	23P71A	230-5HP-SD	10	11.02	5.51	7.09	9.9	NEMA 1	70	60	130
3	2A0014	23P71A	230-5HP-SD	10	11.02	5.51	7.09	9.9	NEMA 1	70	60	130
5	2A0018	23P71A	230-5HP-SD	10	11.02	5.51	7.09	9.9	NEMA 1	70	60	130
7.5	2A0025	25P51A	230-7.5HP-SD	15	11.02	5.51	7.09	9.9	NEMA 1	70	60	130
10	2A0033	27P51A	230-10HP-SD	20	11.02	5.51	7.09	9.9	NEMA 1	90	80	170
15	2A0047	20111A	230-15HP-SD	30	11.81	7.87	8.07	12.1	NEMA 1	160	110	270
20	2A0060	20151A	230-20HP-SD	40	11.81	7.87	8.07	13.2	NEMA 1	200	130	330
25	2A0075	20181A	230-25HP-SD	50	14.96	9.84	8.86	22.0	NEMA 1	250	150	400
30	2A0085	20221A	230-30HP-SD	30	14.96	9.84	8.86	22.0	NEMA 1	320	180	500
40	2A0115	20301A	230-40HP-SD	80	15.75	9.84	8.86	24.3	NEMA 1	410	220	630
50	2A0145	20371A	230-50HP-SD	100	17.72	12.80	11.22	50.7	Open Chassis	540	290	830

380 to 480 VAC Models

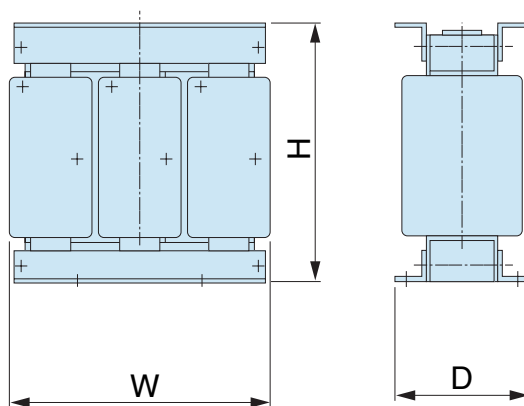
Max. Applicable Motor (HP)	L1000A	RC5 Data			Physical Dimensions			Weight (lb)	Standard Enclosure	Heat Loss (W)		
	Model CIMR-LU□	Model CIMR- R5U□	RC5 Kit Number RC5-	RC5 Line Current (A)	H	W	D			Heatsink	Internal	Total
3	4A0007	43P71A	460-5HP-SD	5	11.02	5.51	7.09	7.7	NEMA 1	30	50	80
5	4A0009	43P71A	460-5HP-SD	5	11.02	5.51	7.09	7.7	NEMA 1	30	50	80
7.5	4A0015	45P51A	460-7.5HP-SD	7.5	11.02	5.51	7.09	8.8	NEMA 1	40	60	100
10	4A0018	47P51A	460-10HP-SD	10	11.02	5.51	7.09	8.8	NEMA 1	60	60	120
15	4A0024	40111A	460-15HP-SD	15	11.81	7.87	8.07	13.2	NEMA 1	80	70	150
20	4A0031	40151A	460-20HP-SD	20	11.81	7.87	8.07	13.2	NEMA 1	110	90	200
25	4A0039	40181A	460-25HP-SD	25	14.96	9.84	8.86	23.1	NEMA 1	120	100	220
30	4A0045	40221A	460-30HP-SD	30	14.96	9.84	8.86	23.1	NEMA 1	140	110	350
40	4A0060	40301A	460-40HP-SD	40	14.96	9.84	8.86	23.1	NEMA 1	210	140	350
50	4A0075	40370A	460-50HP-SD	50	17.72	12.80	11.22	55.1	Open Chassis	290	160	450
60	4A0091	40450A	460-60HP-SD	60	17.72	12.80	11.22	58.4	Open Chassis	360	190	550
75	4A0112	40550A	460-75HP-SD	75	24.61	12.80	11.22	75.0	Open Chassis	470	260	730
100	4A0150	40750A	460-100HP-SD	100	24.61	12.80	11.22	79.4	Open Chassis	550	310	860

Note: This data represents only the RC5 unit.

RC5 Dimensions & Weights Reactors

Rated Input Voltage	Basic Drive Model Number CIMR-R5U	Physical Dimensions (in.) L1000A Reactor			Weight (lb) ⁽¹⁾	Physical Dimensions (in.) RC5 Reactor			Weight (lb) ⁽¹⁾
		H	W	D		H	W	D	
230V	23P71	5.3	6.0	3.2	9	5	6.0	3.3	9
	25P51	5.8	7.2	3.5	11	5.8	7.2	3.5	11
	27P51	5.8	7.2	4	14	5.8	7.2	3.5	11
	20111	7.4	9.0	4.7	23	5.8	7.2	4	14
	20151	7.3	9.0	5.3	24	7.3	9.0	5.3	24
	20181	7.2	9.0	6.3	25	7.2	9.0	6.3	25
	20221	7.2	9.0	6.3	25	7.2	9.0	6.3	25
	20300	7.2	9.0	6.5	29	7.3	9.0	6.5	29
	20370	7	9.0	4.7	29	7	9.0	4.7	29
460V	43P71	4.8	6.0	3	8	4.8	6.0	3.4	11
	45P51	5	6.0	3.3	10	4.8	6.0	3	8
	47P51	5.3	6.0	3.5	12	5	6.0	3.3	10
	40111	5.8	7.2	3.5	14	5.3	6.0	3.5	12
	40151	5.8	7.2	4	16	5.8	7.2	3.5	11
	40181	5.8	7.2	4	16	5.8	7.2	4	14
	40221	7.4	9.0	4.7	28	7.4	9.0	4.7	23
	40301	7	9.0	5.3	27	7	9.0	5.3	27
	40371	7.2	9.0	6.5	33	7.2	9.0	6.5	33
	40451	7.2	9.0	6.5	33	7.2	9.0	6.3	25
	40550	7.3	9.0	6.8	37	7.3	9.0	6.5	29
	40750	7.2	9.0	6.8	43	7	9.0	4.7	29

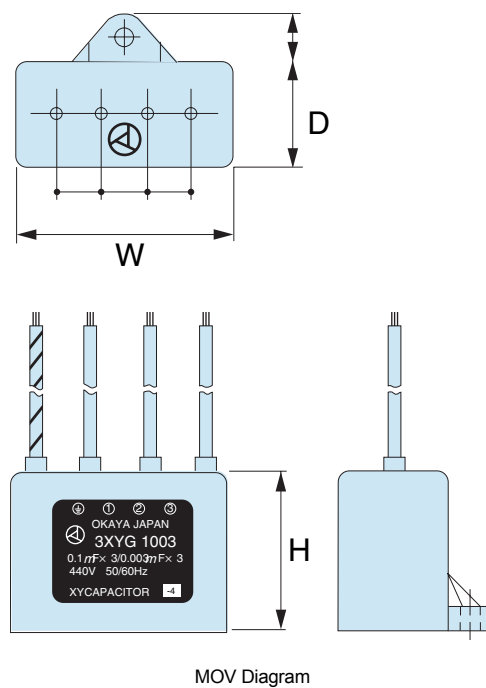
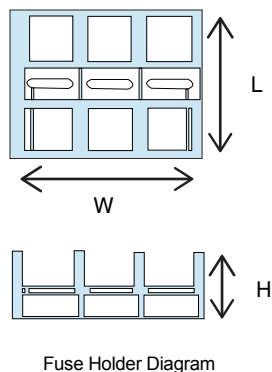
⁽¹⁾ The data represents the component unit weight only, not shipping weight.



RC5 Dimensions Fuses Holders and MOVs

Rated Input Voltage	Basic Drive Model Number CIMR-R5U	Physical Dimensions (in.) ⁽¹⁾ Fuse Holder			Physical Dimensions (in.) MOV		
		H	L	W	H	W	D
230V	23P71	1.38	3	3	1.14	1.65	1.63
	25P51	1.38	3	3			
	27P51	1.38	3	3			
	20111	2.79	4.4	4.5			
	20151	2.5	4.5	4.5			
	20181	2.5	4.5	4.5			
	20221	2.5	4.5	4.5			
	20300	2.5	4.5	4.5			
	20370	2.5	4.5	4.5			
460V	43P71	1.31	3.04	2.35	1.14	1.65	1.63
	45P51	1.31	3.04	2.35			
	47P51	1.31	3.04	2.35			
	40111	1.31	3.04	2.35			
	40151	1.31	3.04	2.35			
	40181	2.79	4.4	4.5			
	40221	2.79	4.4	4.5			
	40301	2.79	4.4	4.5			
	40371	2.79	4.4	4.5			
	40451	2.79	4.4	4.5			
	40550	2.79	4.4	4.5			
	40750	2.79	4.4	4.5			

⁽¹⁾ The (W) data represents the fuse holder width for three fuses.



Regenerative Configured Panel



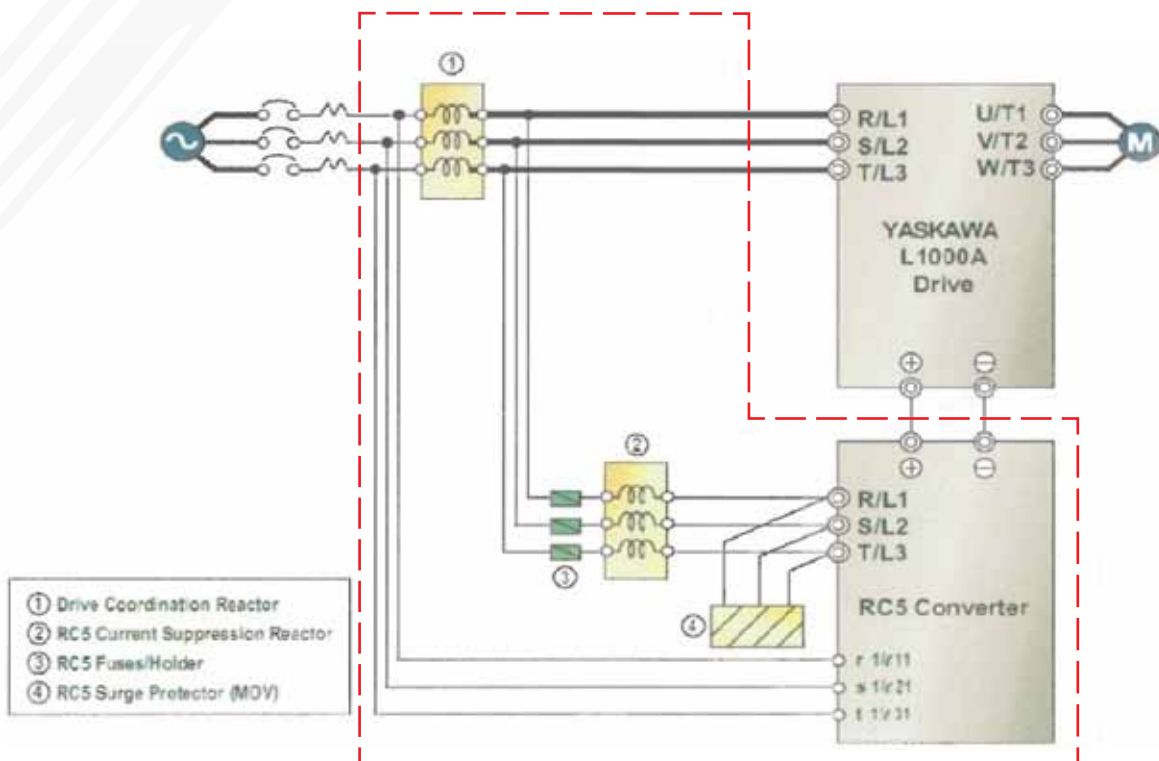
RC5 Regenerative Configured Panel

The Regenerative (RC5) Configured Panel comprises of the appropriate RC5 converter and all necessary external components.

The Regenerative (RC5) Configured Panel is sized based on NEC horsepower so that any drive can be used in conjunction with this package. The drive and regenerative kit should be sized 1:1 based on horsepower.

The Regenerative (RC5) Configured Panel is designed for demanding “hold-back” type applications, such as elevators and escalators. All regeneration energy is transferred to the incoming power lines.

The Regenerative (RC5) Configured Panel (Standard Duty) is sized for applications requiring continuous energy dissipation (100% regenerative torque for 60 seconds). The overload rating is 150% torque for 30 seconds, 200% peak torque.



 = Included with Panel

Regenerative Configured Panel Specification & Dimensions

200 to 240 VAC Models

Max. Applicable Motor (HP)	L1000A Model CIMR-LU	Regenerative Configured Panel Part Number RC5-R5UC	Physical Dimensions (in.)			Approx. Weight (lb)	Standard Enclosure	Heat Loss (W)
			H	W	D			Total
15	2A0047	2011	42.43	12.15	12.73	84	NEMA 1 Type Panel	373
20	2A0060	2015	42.43	12.15	12.73	96		458
25	2A0075	2018	42.43	12.15	12.73	107		564
30	2A0085	2022	42.43	12.15	12.73	107		664
40	2A0115	2030	42.43	12.15	12.73	117		818
50	2A0145	2037	45.43	16.15	12.82	144		1040

380 to 480 VAC Models

Max. Applicable Motor (HP)	L1000A Model CIMR-LU	Regenerative Configured Panel Part Number RC5-R5UC	Physical Dimensions (in.)			Approx. Weight (lb)	Standard Enclosure	Heat Loss (W)
			H	W	D			Total
15	4A0024	4011	43.2	12.15	12.73	74	NEMA 1 Type Panel	245
20	4A0031	4015	43.2	12.15	12.73	75		302
25	4A0039	4018	43.2	12.15	12.73	88		323
30	4A0045	4022	43.2	12.15	12.73	109		474
40	4A0060	4030	43.2	12.15	12.73	112		484
50	4A0075	4037	45.43	16.15	12.82	156		622
60	4A0091	4045	45.43	16.15	12.82	159		718

- Note: 1. The Regenerative (RC5) Configured Panel is compliant with CSA B44.1/ASME 17.5.
2. Outline drawings are not included in this book. Please refer to www.yaskawa.com for outline drawings.
3. The Regenerative (RC5) Configured Panel includes the following components: RC5 Converter, MOVs, Input Fuses, and Fuse Block.
4. The Regenerative (RC5) Configured Panel Part Number RC5-R5UC2011, 2015, 4011, and 4015 dimensions may be slightly smaller.

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