



AC Inverter Drives

The New 1000 Series AC Drives

Larsen & Toubro's New 1000 series AC Drives incorporate the latest technological advancements in AC motor speed control.



Performance and Technology

L&T offers a range of performance choices and innovative technologies. Control methods include V/f, open loop vector and closed loop vector control for speed regulation choices. These can run induction as well as Permanent Magnet motors.

Standards & Reliability

- MTBF: Exceeds 28 years
- Tested on fully-loaded motors
- Surface mount technology
- Protective PCB coating
- 0.6G or less (20 to 55Hz)
- UL[®] and CE listed
- RoHS compliant

Easy To Use

The New Generation Drives are factory-programmed and ready to run. J1000, V1000 & A1000 drives have standard LED display. The keypad is intuitive and includes parameter-copying functions to copy parameters from one drive to another. Display extension is optional for J1000 and V1000.

Commissioning Software: Drive Wizard

This support tool is a windows based PC program designed to make commissioning and troubleshooting of these drives as simple as possible. The user friendly Drive Wizard exchanges data with drive and data can be retrieved, reviewed, changed, stored and graphed.

J1000, V1000 & A1000
AC Drives are manufactured by :
YASAKAWA Electric Corporation
JAPAN

Salient Features of J1000, V1000 & A1000 Drives

Performance Features

- ▶ Low noise operation
- ▶ High starting torque
- ▶ High slip breaking
- ▶ Volts/Frequency ratio: fully adjustable
- ▶ Kinetic energy buffering
- ▶ Over-voltage suppression
- ▶ Drive efficiency: 96 to 98%
- ▶ Output frequency: 1.0 to 400 Hz
- ▶ Torque boost: full range
- ▶ Auto carrier reduction
- ▶ Performance Monitors

Protection

- ▶ Torque limit
- ▶ Heat sink over-heat to give overload protection to inverter
- ▶ Motor overload protection
- ▶ Phase-to-phase, ground fault and short circuit protection
- ▶ Over/under torque protection
- ▶ Input/output single phasing protection
- ▶ Optically-isolated controls: to completely isolate control circuit from power circuit

Functions

- ▶ Digital keypad operator
- ▶ Copy keypad function
- ▶ 24 VDC control logic for sourcing/sourcing outputs (both PNP or NPN transistors)
- ▶ RJ-45 style digital operator connector
- ▶ Multi speed settings plus jog speed
- ▶ Flash RAM software memory for update
- ▶ Split front cover for easy wiring
- ▶ Heat sink fan: Plug-in with on-off control



J1000

Micro Size OEM Drive



The J1000 series offers ultimate ease of use, portability and options for wide ranging applications.

With this series, L&T brings international standard inverter drive that meet all automation requirements for compact applications with variable speed operation and energy saving characteristics. A wide range of useful functions upgrade your machine and offer greater potential.

The concept of small size and easy handling makes the J1000 a handy alternative in the drive market not only for its performance but also for economy of cost.

Common Applications

- Conveyor
- Pump
- Grinder
- Hoist
- Crane
- Screw Feeder
- Escalator
- Fan
- Elevator (door)

Features

- ➔ V/f Control
- ➔ Plug'n Play installation function
- ➔ High flux braking function
- ➔ Easy parameter programming and controller functions
- ➔ Braking Chopper built-in
- ➔ Heavy duty / normal duty rating
- ➔ 9 step speed
- ➔ Slip compensation
- ➔ Speed search
- ➔ Momentary power log the ride through

COMMON SPECIFICATIONS

200-240V Single Phase 50/60Hz

Model CIMR-JT	BAA	BA0003	BA0006	BA0010
Application Motor Capacity (kW)	ND	0.75	1.1	2.2
	HD	0.4	0.75	1.5
Output Current (A)	ND	3.3	6.0	9.5
	HD	3.0	5.0	8.0

380-480V Three Phase 50/60 Hz

Model CIMR-JT	BAA	4A0004	4A0005	4A0007	4A0009	4A00011
Application Motor Capacity (kW)	ND	1.5	2.2	3.0	3.7	5.5
	HD	0.75	1.5	2.2	3.0	3.7
Output Current (A)	ND	4.1	5.4	6.9	8.8	11.1
	HD	3.4	4.8	5.5	7.2	9.2

Specifications		
Control Functions	Control methods	V/f Control
	Starting Torque	150%/3Hz
	Speed Control Range	1:20~1:40 (V/f control)
	Output frequency Range	0.01 Hz to 400 Hz
	Frequency Reference Setting Accuracy	Digital set value: $\pm 0.01\%$ (-10..+50°C) Analogue set value: $\pm 0.5\%$ (25±10°C)
	Resolution of frequency set value	Digital set value: 0.01 Hz (<100Hz), 0.1 Hz (>100 Hz) Analogue set value: 1/1000 of maximum frequency (10 bit)
	Resolution of output frequency	0.001 Hz
	Overload capability	Heavy duty use: 150% rated output current for one minute Normal duty use: 120% rated output current for one minute
	V/f Characteristics	Preset V/f patterns and user-set program available
	Analogue Inputs	1 analogue input: 0..10 V (20kΩ) at 0/4..20 mA (250kΩ)
Functionality	Analogue Outputs	1 analogue output: 0..10V
	Deceleration/acceleration times	0.01 Sec. to 6000 s
	Display	5 digit, 7 Segment LED Error and status LED
	Motor overload protection	Motor overheat protection via output current sensor
Protection Functions	Instantaneous overcurrent	Drive stops when output exceeds 200% of the rated current (Heavy Duty)
	Overload	Heavy duty: A stop command will be entered after operative at 150% for 60 sec Normal duty: A stop command will be entered after operative at 120% to 60 sec
	Overspeed	Motor coasts to a stop if DC Bus voltage exceeds 820V for 400V class (410V for 200V class)
	Undervoltage	Drive stops when DC Bus voltage falls below following levels: 190V (3-phase 200V), 160V (Single-phase 200V), 380V (3-phase 400V)
	Momentary power loss power	Following items are selectable: not provided (stop if power loss is 15 ms or longer), continuous operation if returns within set time, Drive will restart if power returns as long as the CPU is working.
	Cooling fin overheat	Protected by thermistor
	Stall prevention level	Stall prevention is available during acceleration, deceleration and during run. Separate settings for each type of stall prevention determine the current level at which stall prevention is triggered.
	Ground fault	Protected by electronic circuit (triggered by the same level as momentary current protection)
	Degree of Protection	IP20, NEMA1 available as an option
Ambient Conditions	Ambient humidity	95% RH or less (without condensation)
	Storage temperature	-20°C to +60°C (short-term temperature during transportation)
	Installation	Indoor (no corrosive gas, dust, etc.)
	Installation height	Max. 1000 m (output derating of 1% per 100 m above 1000 m, max. 3000 m)
	Vibration	Up to 1G at 10 to 20 Hz, Up to 0.6G at 20 to 55 Hz

J1000

V1000

Compact Current Control Vector Drive Normal & Heavy Duty



The V1000 drive is incredibly compact, technologically advanced, environmentally responsible package capable of driving induction as well as synchronous motor. With its preset application function and dual rating it can handle wide variety of application ranging from Fan, Pump Compressor, Elevator, Crane Conveyor and many more. V1000 employs dual CPU concept that is 4 times faster than other drives, which improves motor control performance especially in vector control applications. Custom software, network communications, plugin I/O cards, packaging options as among the many choices. V1000 with its highly advanced features stands out in its class and a perfect solutions for most of your applications.

Common Applications

- Pump
- Fan
- HVAC (AHU)
- Conveyor
- Air Compressor
- Crane Hoist
- Crane (Travel)
- Elevator
- Packaging machines
- Extruders
- Centrifuge

Features

- ⇒ 10 years performance life design
- ⇒ Normal Duty and Heavy Duty selection depending on the application
- ⇒ Single drive for both Induction & permanent magnet motors
- ⇒ Drive customization / PLC functionality
- ⇒ Dual microprocessor for faster control
- ⇒ Rotation & Static Auto-tuning
- ⇒ On-line Auto-tuning
- ⇒ 200% starting torque
- ⇒ Allows side by side mounting-reduces panel space
- ⇒ High flux braking for faster stopping without use of braking resistors
- ⇒ Intelligent detachable terminal block
- ⇒ Stores last 10 faults
- ⇒ High speed serial communication at 115kbps
- ⇒ Optional LCD operator

STANDARD SPECIFICATIONS

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

Model		Three-Phase	CIMR-VT2A	0004	0006	0010	0012	0020	0030	0040	0056	0069	
		Single-Phase ¹	CIMR-VTBA	0003	0006	0010	0012	0018	-	-	-	-	
Input	Max. Applicable Motor Capacity ² (kW)		Normal Duty	0.75	1.1	2.2	3.0	5.5	7.5	11.0	15.0	18.5	
			Heavy Duty	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11.0	15.0	
	Rated Input Current (A)	Three-Phase	Normal Duty	3.9	7.3	10.8	13.9	24.0	34.7	50.9	69.4	85.6	
			Heavy Duty	2.9	5.8	7.5	11.0	18.9	26.0	35.4	51.9	70.8	
		Single-Phase	Normal Duty	7.3	13.8	20.2	24.0	-	-	-	-	-	
			Heavy Duty	5.5	11.0	14.1	20.6	35.0	-	-	-	-	
Output	Rated Output Capacity (kVA)		Normal Duty	1.3	2.3	3.7	4.6	7.5	11.4	15.2	21.3	26.3	
			Heavy Duty	1.1	1.9	3.0	4.2	6.7	9.5	12.6	17.9	22.9	
	Rated Output Current (A)		Normal Duty	3.5(3.3)	6.0	9.6	12.0	19.6	30.0	40.0	56.0	69.0	
			Heavy Duty	3.0	5.0	8.0	11.0	17.5	250	33.0	47.0	60.0	
	Overload Tolerance			Normal Duty Rating: 120% of rated output current for 60 sec Heavy Duty Rating: 150% of rated output current for 60 sec									
	Carrier Frequency			2 kHz (user-set, up 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			400 Hz									
Power	Rated Voltage/Rated Frequency			Three-Phase Power Supply: Three-Phase 200 to 240 V 50/60 Hz Single-Phase Power Supply: Single-Phase 200 to 240 V 50/60 Hz									
	Allowable Voltage Fluctuation			- 15 to 10%									
	Allowable Frequency Fluctuation			±5%									

*1: Drives with a single-phase power supply input have Three-phase output and cannot be used for single phase motors.

*2: Based on a standard 4-pole motor for max. applicable motor output.

Note: Value inside parenthesis is for a single-phase drive.

400 V Class (Three-phase)

Model		CIMR-VT4A	0002	0004	0005	0007	0009	0011	0018	0023	0031	0038
Input	Max. Applicable Motor Capacity ¹ (kW)		Normal Duty	0.75	1.5	2.2	3.0	3.7	5.5	7.5	11.0	15.0
			Heavy Duty	0.4	0.75	1.5	2.2	3.0	3.7	5.5	7.5	11.0
Output	Rated Input Current (A)		Normal Duty	2.1	4.3	5.9	8.1	9.4	14.0	20.0	24.0	38.0
			Heavy Duty	1.8	3.2	4.4	6.0	8.2	10.4	15.0	20.0	29.0
Power	Rated Output Capacity (kVA)		Normal Duty	1.6	3.1	4.1	5.3	6.7	8.5	13.3	17.5	23.6
			Heavy Duty	1.4	2.6	3.7	4.2	5.5	7.0	11.3	13.7	18.3
	Rated Output Current (A)		Normal Duty	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23.0	31.0
			Heavy Duty	1.8	3.4	4.8	5.5	7.2	9.2	14.8	18.0	24.0
	Overload Tolerance			Normal Duty Rating: 120% of rated output current for 60 sec Heavy Duty Rating: 150% of rated output current for 60 sec								
	Carrier Frequency			2 kHz (user-set, up to 15 kHz possible)								
	Max. Output Voltage			Three-Phase 380 to 480 V (relative to input voltage)								
	Max. Output Frequency 400 Hz			400 Hz (user-set)								
Power	Rated Voltage/Rated Frequency			Three-Phase 380 to 480 V 50/60 Hz								
	Allowable Voltage Fluctuation			- 15 to 10%								
	Allowable Frequency Fluctuation			±5%								

*1: Based on a standard 4-pole motor for max. applicable motor output.

COMMON SPECIFICATION

ITEM	SPECIFICATIONS
Control Characteristics	Control Method Open Loop Vector Control (Current Vector), V/f Control, PM Open Loop Vector Control (for SPM and IPM motors)
	Frequency Control Range 0.01 to 400 Hz
	Frequency Accuracy (Temperature Fluctuation) Digital Input : within $\pm 0.01\%$ of the max. output frequency (-10°C to $+50^\circ\text{C}$) (Analog Input : within $\pm 0.1\%$ of the max. output frequency ($25^\circ\text{C} \pm 10^\circ\text{C}$)
	Frequency Setting Digital Input : 0.01 Hz
	Resolution Analog Input : 1/1000 of max. frequency
	Output Frequency Resolution $1/2^{20}$ of maximum output frequency (parameter E1 - 04 setting)
	Frequency Setting Main frequency reference : 0 to + 10Vdc ($20\text{k}\Omega$) 4 to 20mA (250 Ω), 0 to 20mA (250 Ω) Pulse Train Input max. 32 kHz
	Starting Torque 200%/0.5 Hz 50%/6 Hz
	Speed Control Range 1:100 (Open Loop Vector Control), 1:20 to 40 (V/f Control), 1:10 (PM Open Loop Vector Control)
	Speed Control Accuracy $\pm 0.2\%$ in Open Loop Vector Control ($25^\circ\text{C} \pm 10^\circ\text{C}$)
	Speed Response 5 Hz in Open Loop Vector ($25^\circ\text{C} \pm 10^\circ\text{C}$)
	Torque Limit Open Loop Vector Control allows separate settings in four quadrants
	Accel/Decel Time 0.0 to 6000.0 sec (4 selectable combinations)
	Braking Torque Continuous regen. torque : approx. 20% (approx. 125% with dynamic braking resistor option : 10% ED, 10s, internal braking transistor)
	V/f Characteristics User-selected programs, V/f preset patterns possible
	Main Control Functions Momentary power loss ride-thru, Speed search, Over torque detection, Torque limit, 17-step speed (max), Accel/Decel time switch, S-Curve accel/decel, 3-wire sequence, Auto-Tuning (Rotational, Stationary tuning for resistance between lines), Cooling fan on/off switch, Slip compensation, Torque compensation, Frequency jump, Upper/Lower limits for frequency reference, DC Injection braking at start and stop, High slip braking, PID control (With sleep function), Energy saving Control, Memobus comm. (RS-485/422 max 115.2 kbps), Fault restart, Application presets, Removable terminal block with parameter backup function
Operating Environment	Protection Motor overheat protection based on output current, Momentary over-current protection, Overload protection, Over-voltage protection, Undervoltage protection, Momentary power loss ride-thru, Heatsink overheat, Braking resistance overheat protection, Stall prevention, Ground fault protection
	Area of Use Indoors
	Ambient Temperature -10°C to $+50^\circ\text{C}$
	Humidity 95 RH% or less (no condensation)
	Storage Temperature -20°C to $+60^\circ\text{C}$ (short-term temperature during transportation)
	Altitude Up to 1000 meters
	Shock 10 to less than 20 Hz (9.8m/s^2) max., 20 to 50 Hz (5.9m/s^2) max
	Safety Standard UL 508 C, EN954 - 1Cat. 3, IEC/EN61508 SIL2
	Protection Design IP20 open-chassis, NEMA1 enclosure

Rotational Auto-Tuning must be performed to achieve the performance described with Open Loop Vector Control.

MODEL SELECTION BY MOTOR CAPACITY

MODEL	Heavy Duty			Normal Duty		
	kW	Amps	KVA	kW	Amps	KVA
3PH 415V INPUT						
CIMR-VT4A0002BAA	0.4	1.8	1.4	0.75	2.1	1.6
CIMR-VT4A0004BAA	0.75	3.4	2.6	1.5	4.1	3.1
CIMR-VT4A0005BAA	1.5	4.8	3.7	2.2	5.4	4.1
CIMR-VT4A0007BAA	2.2	5.5	4.2	3.0	6.9	5.3
CIMR-VT4A0009BAA	3.0	7.2	5.5	3.7	8.8	6.7
CIMR-VT4A0011BAA	3.7	9.2	7.0	5.5	11.1	8.5
CIMR-VT4A0018FAA	5.5	14.8	11.3	7.5	17.5	13.3
CIMR-VT4A0023FAA	7.5	18.0	13.7	11.0	23.0	17.5
CIMR-VT4A0031FAA	11.0	24.0	18.3	15.0	31.0	23.6
CIMR-VT4A0038FAA	15.0	31.0	23.6	18.5	38.0	29.0
3 PH 220V INPUT						
CIMR-VT2A0004BAA	0.4	3.0	1.1	0.75	3.3	1.3
CIMR-VT2A0006BAA	0.75	5.0	1.9	1.1	6.0	2.3
CIMR-VT2A0008BAA	1.1	6.9	2.6	1.5	8.0	3.0
CIMR-VT2A0010BAA	1.5	8.0	3.0	2.2	9.6	3.7
CIMR-VT2A0012BAA	2.2	11.0	4.2	3.0	12.0	4.6
CIMR-VT2A0018BAA	3.0	14.0	5.3	3.7	17.5	6.7
CIMR-VT2A0020BAA	3.7	17.5	6.7	5.5	19.6	7.5
CIMR-VT2A0030FAA	5.5	25.0	9.5	7.5	30.0	11.4
CIMR-VT2A0040FAA	7.5	33.0	12.6	11.0	40.0	15.2
CIMR-VT2A0056FAA	11.0	47.0	17.9	15.0	56.0	21.3
CIMR-VT2A0069FAA	15.0	60.0	22.9	18.5	69.0	26.3

Normal Duty : 120% Overload for 1 min on inverter rated output current.

Application : Fans, pumps, variable torque load and application which do not require high overload

Heavy Duty : 150% overload for 1 min on inverter rated output current.

Application : Constant torque or impact load, like elevator, crane, compressor, Centrifuges and mixers with high viscosity material

A 1000

Industrial Workhorse
For Induction and Permanent
Magnet Product



L&T A1000 drives with its latest vector control technology is capable of delivering higher order performance to meet customer expectations. A1000, not only performs but is aesthetically superior and incredibly powerful. A truly reliable product to address future requirements & current needs, only possible from L&T.

Common Applications

- Conveyors
- Mixers
- Machine tools
- Cut-to-length
- Centrifugal Pumps
- Centrifuges
- Extruders
- Packaging Machines
- HVAC
- Fan
- Compressor

Features

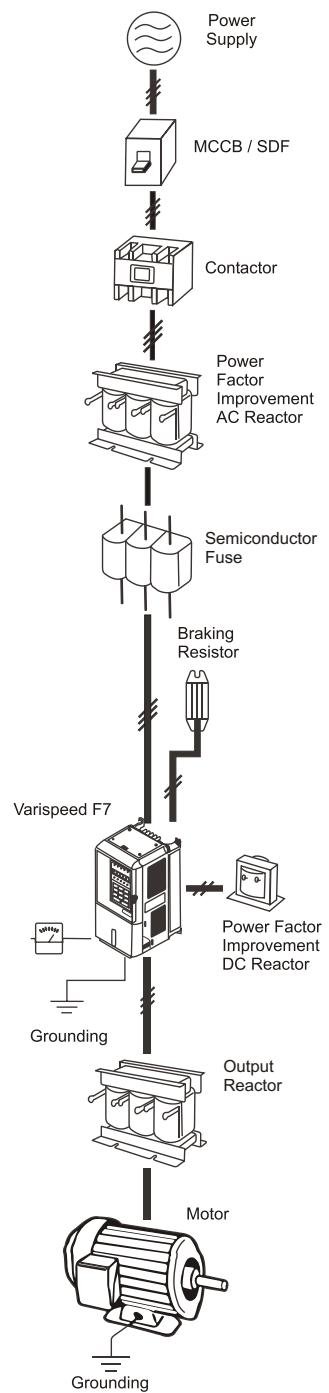
- ▶ 10 years performance life design
- ▶ Uses most advanced drive technology to run induction and synchronous motors
- ▶ Positioning accuracy without use of external sensors
- ▶ Excellent torque characteristics
- ▶ Loaded with new auto-tuning features
- ▶ Tackles power loss
- ▶ Easy setup with application presets
- ▶ Open to all serial network protocols
- ▶ Easy to maintain
- ▶ 10 years performance life design
- ▶ Environment friendly

OPTIONS, PERIPHERAL DEVICES

Device	Objective	Details
MCCB or S-D-F	To protect inverter wiring	Always install the MCCB or S-D-F on the power supply side to protect the inverter wiring.
Contactor	To prevent burning of braking reactor	When Braking resistor is attached, install the contactor to prevent the braking resistor from burning. Also insert voltage surge suppressor on the coil.
DC/AC Reactor	To improve inverter power factor	Applied to further improve the power factor of the inverter. The Varispeed A1000 incorporates DC Reactor on model of 22kW or more.
Braking Resistor	To stop machine within the preset time	Shortens the deceleration time by consuming the regenerative energy of the motor by the resistor.
Braking Unit		Used in combination with the braking resistor to reduce the deceleration time of the motor.

Accessories

Type	Cat. Nos.	Function	Applicable For
Complementary PG card	PG-B3	For speed feedback input by connecting a motor encoder Input: 3 track (can be used with one or two tracks), for HTL encoder connection, 50 kHz max; Output: 3 track, open collector Encoder power supply: 12 V, max current 200 mA	A1000
Line Driver PG card	PG-X3	For speed feedback input by connecting a motor encoder Input: 3 track (can be used with one or two tracks), line driver, 300 kHz max; Output: 3 track, line driver Encoder power supply: 5 V or 12 V, max current 200 mA	A1000
Communication Option Cards	SI-P3	Profibus-DP interface cards	A1000
	SI-P3/V		V1000
	SI-N3	DeviceNet interface cards	A1000
	SI-N3/V		V1000
	SI-C3	CC-Link interface card	A1000
	SI-S3	CAN open interface card	
	SI-T3	MECHTOLINK-II interface card	
	SI-485/J	Memobus / modbus interface card	J1000
	JVOP-180	Digital LCD operator display	V1000 & A1000
	JVOP-181	USB Copy unit for copy & verify functions	



Connection Scheme

DBU & DBR selection Chart for 400V J1000 / V1000 / A1000 AC drives

Motor (kW)	ND/HD	Drive Model	Dynamic Braking Unit (DBU)		Dynamic Braking Resistance (DBR)		
			Cat. No.	Quantity	Wattage (W)	Resistance (Ω)	Quantity
0.4	HD	CIMR-VT4A***** CIMR-AD4A*****	Built In	-	70	750	1
0.75	ND		Built In	-	70	750	1
	HD		Built In	-			
1.5	ND	CIMR-JT4A***** CIMR-VT4A***** CIMR-AD4A*****	Built In	-	260	400	1
	HD		Built In	-			
2.2	ND		Built In	-	260	250	1
	HD		Built In	-			
3.7	ND		Built In	-	390	150	1
	HD		Built In	-			
5.5	ND		Built In	-	520	100	1
	HD		Built In	-			
7.5	ND	CIMR-VT4A***** CIMR-AD4A*****	Built In	-	780	75	1
	HD		Built In	-			
11	ND		Built In	-	1040	50	1
	HD		Built In	-			
15	ND		Built In	-	1560	40	1
	HD		Built In	-			
18.5	ND		Built In	-	4800	32	1
	HD		Built In	-			
22	ND		Built In	-	4800	27.2	1
	HD		Built In	-			
30	ND		Built In	-	6000	20	1
	HD		Built In	-			
37	ND		Built In	-	6000	20	1
	HD		CDBR-4045	1	9600	16	1
45	ND		CDBR-4045	1			
	HD		CDBR-4045	1			
55	ND		CDBR-4045	1	9600	13.6	1
	HD		CDBR-4030	2			
75	ND		CDBR-4030	2	6000	20	2
	HD		CDBR-4045				
90	ND		CDBR-4045	2	9600	13.6	2
	HD		CDBR-4045	2			
110	ND		CDBR-4220	1	6000	20	3
	HD		CDBR-4220	1			
132	ND		CDBR-4220	1	9600	13.6	4
	HD		CDBR-4220	1			
160	ND		CDBR-4220	1	9600	13.6	4
	HD		CDBR-4220	1			
185	ND		CDBR-4220	1	9600	13.6	4
	HD		CDBR-4220	1			
220	ND		CDBR-4220	1	9600	16	5
	HD		CDBR-4220	1			
250	ND		CDBR-4220	1	9600	16	5
	HD		CDBR-4220	2			
315	HD		CDBR-4220	2	9600	13.6	6
	ND		CDBR-4220	2			

Note:

- 1) Duty factor = 10% ED, for 10 seconds only; This chart is not applicable for Hoist / Elevator motions
- 2) DBU shall be purchased from L&T however DBR of given values must be purchased from local vendors
- 3) ND = Normal Duty ; HD = Heavy Duty

Dimensions & Weights J1000 Drive

Voltage Class	Model No.	Max Application Heavy Duty	Motor Capacity(kW) Normal Duty	Dimensions(mm)			Weight	Cooling
				W	H	D		
400V Class Three Phase	CIMR-JT4A0004BAA	0.75	1.50	108	128	138	3.80	Self Cooling
	CIMR-JT4A0005BAA	1.50	2.20			154		
	CIMR-JT4A0007BAA	2.20	3.00			143		
	CIMR-JT4A0011BAA	3.70	5.50			140		
200V Class Single Phase	CIMR-JTBA0003BAA	0.40	0.75	108	68	118	2.2	
	CIMR-JTBA0006BAA	0.75	1.50		128	138	3.8	
	CIMR-JTBA0010BAA	1.50	2.20			154	4	

Open-Chassis (IP20)

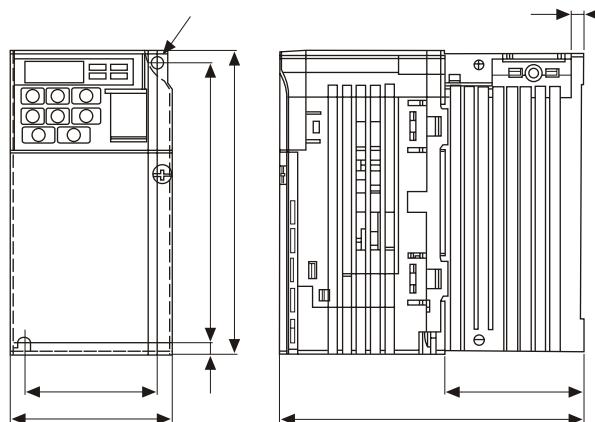


Figure 1

Notes:

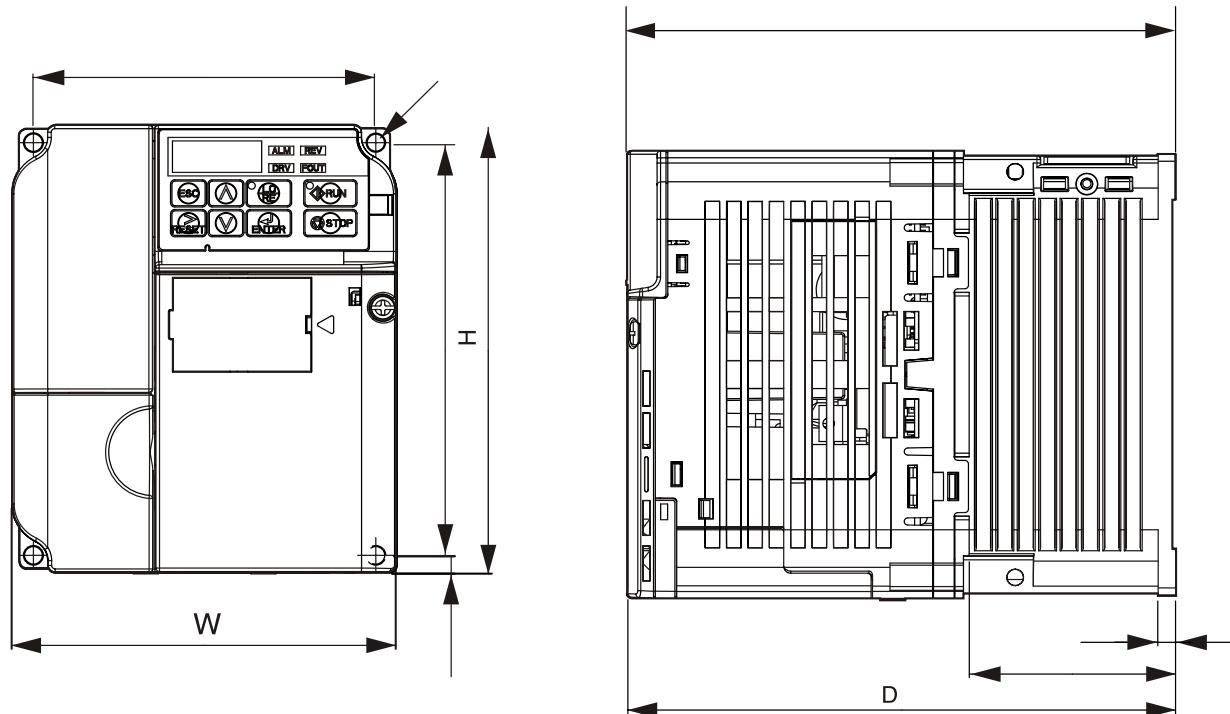
- (a) All Dimension in mm.
- (b) For more technical details on heat sink and all please refer the manual.

Dimensions & Weights

V1000 Drive

Enclosures

Voltage Class	Model No.	Max Application Heavy Duty	Motor Capacity(kW) Normal Duty	Dimensions(mm)			Weight	Cooling
				W	H	D		
400V Class Three Phase	CIMR-VT4A0002BAA	0.4	0.75	108	128	99	1.2	Self Cooling
	CIMR-VT4A0004BAA	0.75	1.5			137.5		
	CIMR-VT4A0005BAA	1.5	2.2			154	1.7	
	CIMR-VT4A0007BAA	2.2	3			143	2.4	
	CIMR-VT4A0009BAA	3	3.7			254	140	
	CIMR-VT4A0011BAA	3.7	5.5	140	180	290	143	
	CIMR-VT4A0018FAA	5.5	7.5			163	3.8	
	CIMR-VT4A0023FAA	7.5	11			143	5.2	
	CIMR-VT4A0031FAA	11	15			163	5.5	
200V Class Three Phase	CIMR-VT2A0004BAA	0.4	0.75	68	149.5	108	0.9	
	CIMR-VT2A0006BAA	0.75	1.5	108	128	137.5	1.1	
	CIMR-VT2A0010BAA	1.5	2.2			154		
	CIMR-VT2A0012BAA	2.2	3			163	1.7	
	CIMR-VT2A0020BAA	3.7	5.5	140	140	143	2.4	
	CIMR-VT2A0030FAA	5.5	7.5			254	140	
	CIMR-VT2A0040FAA	7.5	11			143	3.8	
	CIMR-VT2A0056FAA	11	15			180	163	
	CIMR-VT2A0069FAA	15	18.5	220	350	187	9.2	



Notes:

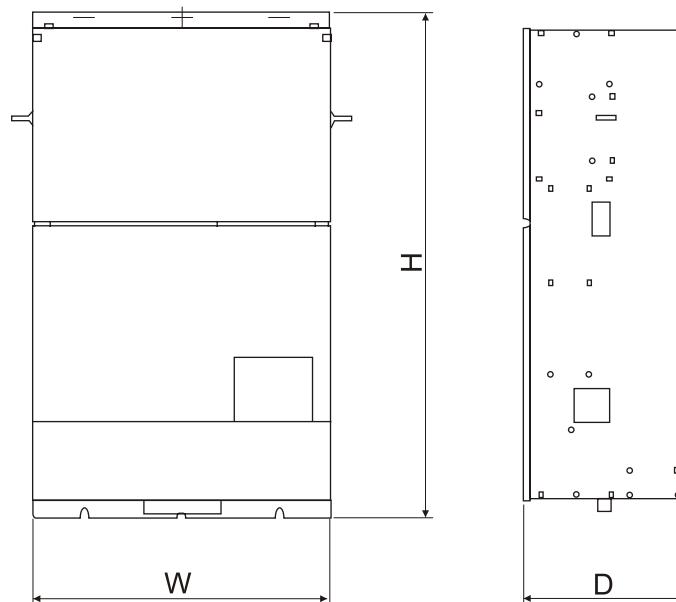
- (a) All Dimension in mm.
- (b) For more technical details on heat sink and all please refer the manual.

Dimensions & Weights

A1000 Drive

400 V Class

Model CIMR-AD4A □□□□	Max. Application Motor Capacity (kw)		Dimensions (mm)			Weight (kg)	Cooling
	Normal Duty	Heavy Duty	W	H	D		
CIMR-AD4A0002FMA	0.75	0.4	140	260	147	3.2	Self cooling
CIMR-AD4A0004FMA	1.5	0.75					
CIMR-AD4A0005FMA	2.2	1.5					
CIMR-AD4A0007FMA	3.0	2.2					
CIMR-AD4A0011FMA	5.5	3.7					
CIMR-AD4A0018FMA	7.5	5.5					
CIMR-AD4A0023FMA	11	7.5					
CIMR-AD4A0031FMA	15	11					
CIMR-AD4A0038FMA	18.5	15					
CIMR-AD4A0044FMA	22	18.5					
CIMR-AD4A0058AMA	30	22	180	300	220	258	Fan cooling
CIMR-AD4A0072AMA	37	30	275	450	350	197	
CIMR-AD4A0088AMA	45	37	325	510	400	258	
CIMR-AD4A0103AMA	55	45	325	550	450	258	
CIMR-AD4A0139AMA	75	55	450	550	505	283	
CIMR-AD4A0165AMA	90	75	450	705	605	330	
CIMR-AD4A0208AMA	110	90	500	800	705	330	
CIMR-AD4A0250AMA	132	110	500	800	800	350	
CIMR-AD4A0296AMA	160	132	500	950	950	350	
CIMR-AD4A0362AMA	185	160	670	1140	1050	370	
CIMR-AD4A0414AMA	220	185					
CIMR-AD4A0515AMA	250	220					
CIMR-AD4A0675AMA	355	315					



Notes:

- (a) All Dimension in mm.
- (b) For more technical details on heat sink and all please refer the manual.

General Information

- ▶ An AC or DC reactor should be installed in the following conditions:
 - to suppress harmonic currents.
 - to suppress peak currents when power factor correction capacitors in the power supply network are switched.
 - when the drive is connected to the same power supply system with thyristor converters like DC drives.
- ▶ When running a specialized motor or more than one motor in parallel from a single drive, the capacity of the drive should be larger than 1.1 times of the total motor rated current.
- ▶ Terminals B1, B2, F, +1, +2, - are provided for connecting optional features for the drive. Do not connect other equipment designed by other manufacturers.
- ▶ Acceleration / deceleration times are affected by how much torque the motor generates the load torque.
- ▶ Never connect the power supply lines to output terminals U/T1, V/T2 or W/T3. Doing so will destroy the drive. Be sure to perform a final check of all sequence wiring and other connections before turning the power on. Make sure there are no short circuits on the control terminals (+V, AC, etc.), as this could damage the drive.
- ▶ As a general principle, the user should avoid opening and closing the magnetic contactor between the motor and the drive during run. Doing so can cause high peak currents and over current faults. If magnetic contactors are used to bypass the drive by connecting the motor to the power supply directly, make sure to close the bypass not before the drive is stopped and fully disconnected from the motor. If the motor start running even while coasting, select the speed search functions. Set up delayed release when using a magnetic contactor to handle momentary power loss.
- ▶ In case of submersible motor, since rated current is greater than a standard motor, select the drive capacity accordingly. Be sure to use a large enough motor cable to avoid decreasing the maximum torque level on account of voltage drop caused by a long motor cable.
- ▶ Variable speed drives are not designed for operating single phase motor. Using a capacitor to start the motor causes excessive current to flow into the capacitor, potentially causing damage. A slit-phase start or a repulsion start can end up burning out the starting coils because the internal centrifugal switch is not activated. The drive can only be used with three phase motors.

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