



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)
-  and  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 Plus

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
- Screw Feeder
- 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 loss ride through
- ➔ Optional door mounted LED operator
- ➔ Communication options

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	4A0011
Application Motor Capacity (kW)	ND	1.5	2.2	3.0	5.5
	HD	0.75	1.5	2.2	3.7
Output Current (A)	ND	4.1	5.4	6.9	11.1
	HD	3.4	4.8	5.5	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: $\pm 0.01\%$ ($-10..+50^{\circ}\text{C}$) Analogue set value: $\pm 0.5\%$ ($25\pm 10^{\circ}\text{C}$)
	Resolution of frequency set value	Digital set value: 0.01 Hz ($<100\text{Hz}$), 0.1 Hz ($>100\text{ Hz}$) 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
Functionality	Analogue Inputs	1 analogue input: 0..10 V (20k Ω) at 0/4..20 mA (250k Ω)
	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
Protection Functions	Motor overload protection	Motor overheat protection via output current sensor
	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
	Overvoltage	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 ride through	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)
Ambient Conditions	Degree of Protection	IP20, NEMA1 available as an option
	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

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
- 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
	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	18.5
		Heavy Duty	0.4	0.75	1.5	2.2	3.0	3.7	5.5	7.5	11.0	15.0
Input	Rated Input Current (A)	Normal Duty	2.1	4.3	5.9	8.1	9.4	14.0	20.0	24.0	38.0	44.0
		Heavy Duty	1.8	3.2	4.4	6.0	8.2	10.4	15.0	20.0	29.0	39.0
Output	Rated Output Capacity (kVA)	Normal Duty	1.6	3.1	4.1	5.3	6.7	8.5	13.3	17.5	23.6	29.0
		Heavy Duty	1.4	2.6	3.7	4.2	5.5	7.0	11.3	13.7	18.3	23.6
	Rated Output Current (A)	Normal Duty	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23.0	31.0	38.0
		Heavy Duty	1.8	3.4	4.8	5.5	7.2	9.2	14.8	18.0	24.0	31.0
	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)									
Power	Max. Output Voltage		Three-Phase 380 to 480 V (relative to input voltage)									
	Max. Output Frequency		400 Hz (user-set)									
	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	Digital Input : within $\pm 0.01\%$ of the max. output frequency (-10°C to $+50^{\circ}\text{C}$)
	(Temperature Fluctuation)	(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)
Operating Environment	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
	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 to $+60^{\circ}\text{C}$ (Deration at 2% beyond 50°C)
	Humidity	95 RH% or less (no condensation)
	Storage Temperature	-20° to $+60^{\circ}\text{C}$ (short-term temperature during transportation)
	Altitude	Upto 1000 meters
	Shock	10 to less than 20 Hz (9.8m/s ²) max., 20 to 50 Hz (5.9 m/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

A1000

Industrial Workhorse
For Induction and Permanent
Magnet Motor



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
- Crane (Travel)
- Elevator

Features

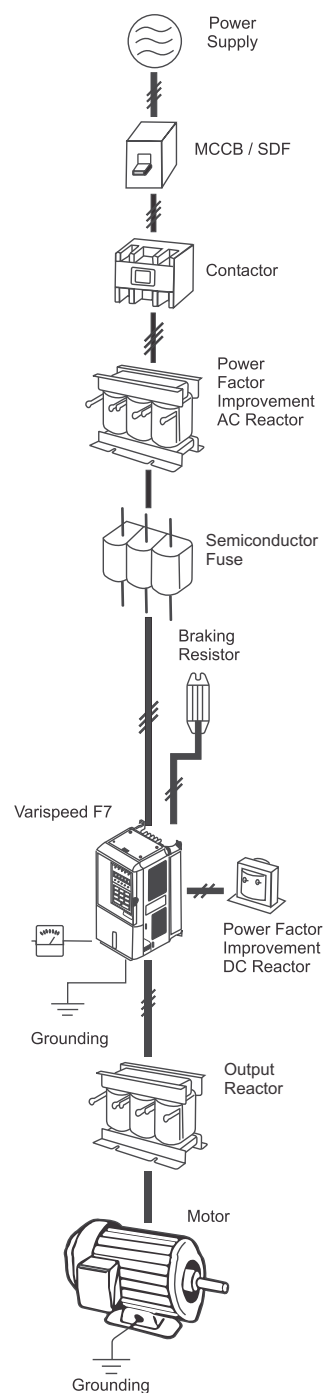
- ➔ 10 years performance life design
- ➔ Uses most advanced drive technology to run induction and synchronous motors
- ➔ Positioning accuracy without use of external sensors
- ➔ Excellent torque characteristics
- ➔ Loaded with new auto-tuning features
- ➔ Tackles power loss
- ➔ Easy setup with application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

A1000

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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 resistor	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.



Connection Scheme

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	MECHATROLINK-II interface card	
	SI-485/J	Memobus / modbus interface card	J1000
	SI-EM3	MODBUS/TCP interface board	A1000
	SI-EM3/V		V1000
	SI-EN3	Ethernet/IP interface board	A1000
	SI-EN3/V		V1000
Operator display	SI-EP3	Profinet interface board	A1000
	SI-EP3/V		V1000
	JVOP-180	Digital LCD operator display	V1000 & A1000
	JVOP-181	USB Copy unit for copy & verify functions	A1000

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

Motor (kW)	ND/HD	Drive Model	Dyanamic Braking Unit (DBU)		Dynamic Braking Resistance (DBR)		
			Cat. No.	Quantity	Wattage (W)	Resistance (Ω)	Quantity
0.4	HD	CIMR-VT4A*****	Built In	-	70	750	1
0.75	ND	CIMR-AD4A*****	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	CIMR-VT4A***** CIMR-AD4A*****	Built In	-	520	100	1
	HD		Built In	-			
7.5	ND		Built In	-	780	75	1
	HD		Built In	-			
11	ND		Built In	-	1040	50	1
	HD		Built In	-			
15	ND	CIMR-VT4A***** CIMR-AD4A*****	Built In	-	1560	40	1
	HD		Built In	-			
18.5	ND		Built In	-	4800	32	1
	HD		Built In	-			
22	ND	CIMR-AD4A*****	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	
45	ND		CDBR-4045	1	9600	13.6	1
	HD		CDBR-4045	1	9600	13.6	
55	ND		CDBR-4045	1	9600	13.6	1
	HD		CDBR-4030	2	6000	20	
75	ND		CDBR-4030	2	6000	20	2
	HD		CDBR-4045		9600	13.6	
90	ND		CDBR-4045	2	9600	13.6	2
	HD		CDBR-4045	2	9600	13.6	
110	ND		CDBR-4220	1	6000	20	3
	HD		CDBR-4220	1	9600	13.6	
132	ND		CDBR-4220	1	9600	13.6	4
	HD		CDBR-4220	1	9600	13.6	
160	ND		CDBR-4220	1	9600	13.6	4
	HD		CDBR-4220	1	9600	13.6	
185	ND		CDBR-4220	1	9600	13.6	4
	HD		CDBR-4220	1	9600	13.6	
220	ND		CDBR-4220	1	9600	16	5
	HD		CDBR-4220	1	9600	16	
250	ND		CDBR-4220	1	9600	16	5
315	HD		CDBR-4220	2	9600	13.6	
355	ND		CDBR-4220	2	9600	13.6	8
450	HD		CDBR-4220	2	9600	16	
500	ND		CDBR-4220	2	9600	16	10
560	HD		CDBR-4220	2	9600	16	
630	ND		CDBR-4220	3	9600	16	15
			CDBR-4220	3	9600	16	

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

Guideline For Panel Component Selection : A1000/V1000/J1000 Drive

Motor kW	Type HD/ND	A1000 AC Drive / Inverter / VFD / VFSD/ VVVF Drive Cat. No. for	Drive Rated Amp @ 50°C	Incomer MCCB	Semiconductor Input Fuse: 3 quantity Bussmann (Pre-arc I ² t)	Chokes		
						I/P AC choke	DC choke	O/P Choke
						uH/A	uH/A	uH/A
0.4	HD	CIMR-AD4A0002FMA	1.80	DM16/5 Amp	FWH-40B (76)	18000/2	28000/3.2	8072/2
0.75	ND	CIMR-AD4A0002FMA	2.10	DM16	FWH-40B (76)	18000/2	28000/3.2	8072/2
	HD	CIMR-AD4A0004FMA	3.40	6.3 Amp	FWH-50B (135)	8400/4	28000/3.2	6538/4.2
1.5	ND	CIMR-AD4A0004FMA	4.10	DM16	FWH-50B (135)	8400/4	28000/3.2	6538/4.2
	HD	CIMR-AD4A0005FMA	4.80	7.5 Amp	FWH-70B (210)	4200/5.5	11000/5.7	3710/5.5
2.2	ND	CIMR-AD4A0005FMA	5.40	DM16	FWH-70B (210)	4200/5.5	11000/5.7	3710/5.5
	HD	CIMR-AD4A0007FMA	5.50	10 Amp	FWH-70B (210)	3600/7.5	11000/5.7	2446/7
3.7	ND	CIMR-AD4A0007FMA	6.90	DM16	FWH-70B (210)	3600/7.5	11000/5.7	2446/7
	HD	CIMR-AD4A0011FMA	9.20	16 Amp	FWH-90B (360)	2200/10	6300/12	1899/12
5.5	ND	CIMR-AD4A0011FMA	11.10	DM100	FWH-90B (360)	2200/10	6300/12	1899/12
	HD	CIMR-AD4A0018FMA	14.80	25 Amp	FWH-80B (305)	1420/15	3600/23	1076/18
7.5	ND	CIMR-AD4A0018FMA	17.50	DM100	FWH-80B (305)	1420/15	3600/23	1076/18
	HD	CIMR-AD4A0023FMA	18.00	25 Amp	FWH-100B (475)	1060/20	3600/23	807/25
11	ND	CIMR-AD4A0023FMA	23.00	DM100	FWH-100B (475)	1060/20	3600/23	807/25
	HD	CIMR-AD4A0031FMA	24.00	35 Amp	FWH-125B (800)	700/30	1900/33	538/35
15	ND	CIMR-AD4A0031FMA	31.00	DM100	FWH-125B (800)	700/30	1900/33	538/35
	HD	CIMR-AD4A0038FMA	31.00	50 Amp	FWH-200B (1900)	530/40	1900/33	448/38
18.5	ND	CIMR-AD4A0038FMA	38.00	DM100	FWH-200B (1900)	530/40	1900/33	448/38
	HD	CIMR-AD4A0044FMA	39.00	50 Amp	FWH-250A (6300)	420/50	1300/47	359/45
22	ND	CIMR-AD4A0044FMA	44.00	DM100	FWH-250A (6300)	420/50	1300/47	359/45
	HD	CIMR-AD4A0058AMA	45.00	70 Amp	FWH-250A (6300)	360/60	Built In	294/60
30	ND	CIMR-AD4A0058AMA	58.00	DM100	FWH-250A (6300)	360/60	Built In	294/60
	HD	CIMR-AD4A0072AMA	60.00	80 Amp	FWH-250A (6300)	260/80	Built In	231/70
37	ND	CIMR-AD4A0072AMA	72.00	DN2-250M	FWH-250A (6300)	260/80	Built In	231/70
	HD	CIMR-AD4A0088AMA	75.00	100 Amp	FWH-250A (6300)	240/90	Built In	190/85
45	ND	CIMR-AD4A0088AMA	88.00	DN2-250M	FWH-250A (6300)	240/90	Built In	190/85
	HD	CIMR-AD4A0103AMA	91.00	125 Amp	FWH-250A (6300)	180/120	Built In	161/100
55	ND	CIMR-AD4A0103AMA	103.00	DN2-250M	FWH-250A (6300)	180/120	Built In	161/100
	HD	CIMR-AD4A0139AMA	112.00	160 Amp	FWH-350A (14500)	150/150	Built In	115/140
75	ND	CIMR-AD4A0139AMA	139.00	DN2-250M	FWH-350A (14500)	150/150	Built In	115/140
	HD	CIMR-AD4A0165AMA	150.00	250 Amp	FWH-400A (19200)	110/200	Built In	90/180
90	ND	CIMR-AD4A0165AMA	165.00	DN2-250M	FWH-400A (19200)	110/200	Built In	90/180
	HD	CIMR-AD4A0208AMA	180.00	250 Amp	FWH-500A (29200)	90/250	Built In	77/216
110	ND	CIMR-AD4A0208AMA	208.00	DN3-400M	FWH-500A (29200)	90/250	Built In	77/216
	HD	CIMR-AD4A0250AMA	216.00	320 Amp	FWH-600A (41300)	90/250	Built In	67/240
132	ND	CIMR-AD4A0250AMA	250.00	DN3-400M	FWH-600A (41300)	90/250	Built In	67/240
	HD	CIMR-AD4A0296AMA	260.00	400 Amp	FWH-700A (55000)	60/330	Built In	50/320
160	ND	CIMR-AD4A0296AMA	296.00	DN3-400M	FWH-700A (55000)	60/330	Built In	50/320
	HD	CIMR-AD4A0362AMA	304.00	400 Amp	FWH-800A (76200)	60/330	Built In	45/360
185	ND	CIMR-AD4A0362AMA	362.00	DN3-630S TM	FWH-800A (76200)	60/330	Built In	45/360
	HD	CIMR-AD4A0414AMA	370.00	630 Amp	FWH-800A (76200)	40/490	Built In	34/475
220	ND	CIMR-AD4A0414AMA	414.00	DN3-630S TM	FWH-800A (76200)	40/490	Built In	34/475
	HD	CIMR-AD4A0515AMA	450.00	630 Amp	FWH-1000A (92000)	40/490	Built In	26/630
250	ND	CIMR-AD4A0515AMA	515.00	DTH800	FWH-1000A (92000)	40/490	Built In	26/630
315	HD	CIMR-AD4A0675AMA	605.00	800 Amp	FWH-1200A (122000)	30/660	Built In	31/800
355	ND	CIMR-AD4A0675AMA	675.00	DTH800/800A	FWH-1200A (122000)	30/660	Built In	31/800
450	HD	CIMR-AD4A0930AMA	810	DN1 1250 Amp ⁸	FWH-1200A (122000)	0.04/490 ⁷	Built-in	16/1025
500	ND	CIMR-AD4A0930AMA	930		FWH-1200A (122000)	0.04/490 ⁷	Built-in	16/1025
560	HD	CIMR-AD4A1200AMA	1090	DN1 1600 Amp ⁸	FWH-1600A (290000)	0.03/660 ⁷	Built-in	12/1320
630	ND	CIMR-AD4A1200AMA	1200		FWH-1600A (290000)	0.03/660 ⁷	Built-in	12/1320

Note:

- 1) For any other make for fuses, kindly ensure pre-arc I² t value mentioned in the bracket.
- 2) Motor kW refers to a 4-pole motor. Rated output current of drive should be equal to or greater than the motor rated current.
- 3) DN3-630S TM for 185 & 22kW motor is thermal-magnetic release dsine MCCB.
- 4) Panel Fan EBM make : 115W.
- 5) Either use input AC choke or use DC choke upto CIMR-AD4A0044FMA models, V1000 and J1000 models.
- 6) For models CIMR-AD4A0930 and CIMR-AD4A1200, make sure to install a fuse and an ELCB.
- 7) Connect 2 chokes in parallel.
- 8) Connect C-Power ACB with SR-18G release, MDO type.

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			140		
	CIMR-JT4A0011BAA	3.70	5.50	140		143	5.3	
200V Class Single Phase	CIMR-JTBA0003BAA	0.40	0.75	68	128	118	2.2	
	CIMR-JTBA0006BAA	0.75	1.50	108		138	3.8	
	CIMR-JTBA0010BAA	1.50	2.20			154	4	

Open-Chassis (IP20)

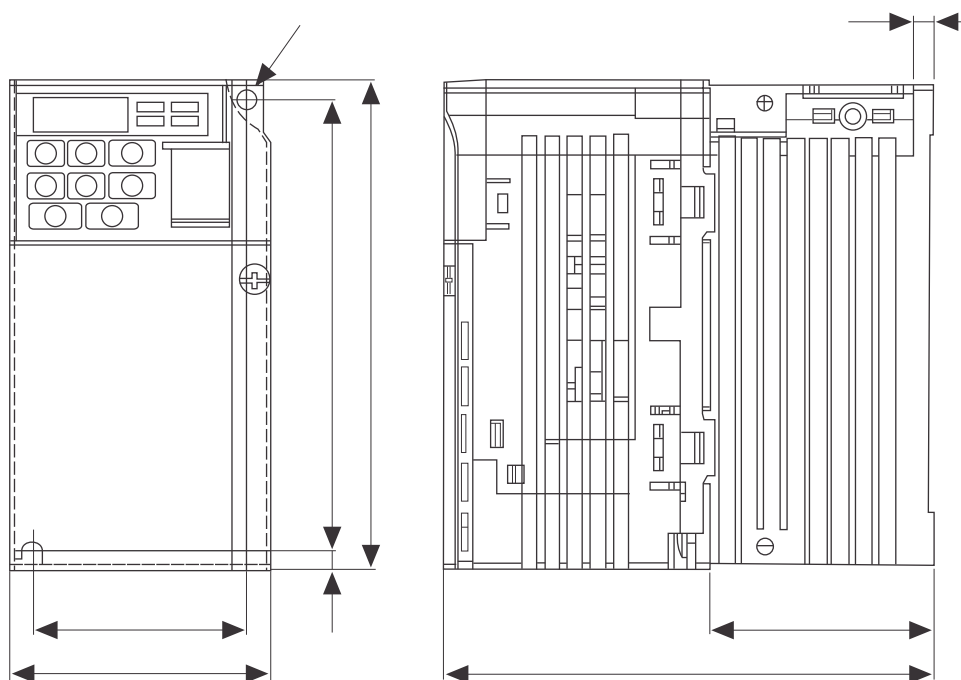


Figure 1

Notes:

(a) All Dimension in mm.

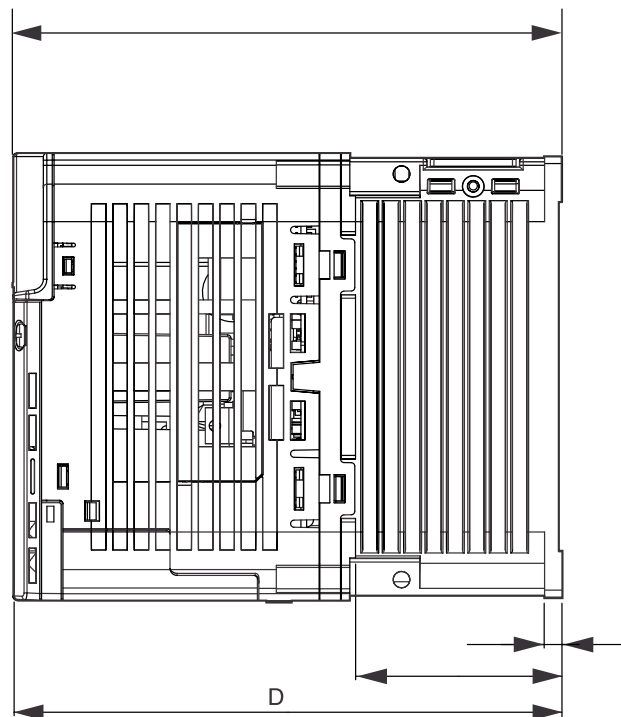
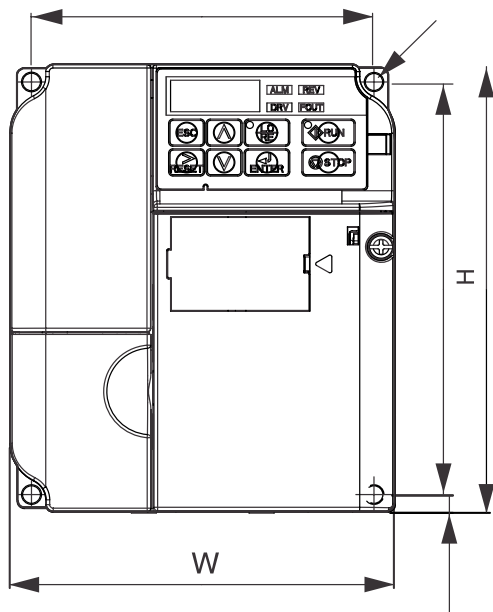
(b) For more technical details on heat sink and all please refer the manual.

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	1.7			
	CIMR-VT4A0005BAA	1.5	2.2			154				
	CIMR-VT4A0007BAA	2.2	3							
	CIMR-VT4A0009BAA	3	3.7			140	143		2.4	
	CIMR-VT4A0011BAA	3.7	5.5	254	140		3.8			
	CIMR-VT4A0018FAA	5.5	7.5		180		290		143	5.2
	CIMR-VT4A0023FAA	7.5	11				163		5.5	
	CIMR-VT4A0031FAA	11	15	180					290	143
	CIMR-VT4A0038FAA	15	18.5		163	5.5	163		5.5	
200V Class Three Phase	CIMR-VT2A0004BAA	0.4	0.75	68	149.5	108	0.9	Self Cooling		
	CIMR-VT2A0006BAA	0.75	1.5	108	128	137.5	1.1			
	CIMR-VT2A0010BAA	1.5	2.2			154	1.7			
	CIMR-VT2A0012BAA	2.2	3	163						
	CIMR-VT2A0020BAA	3.7	5.5	140		143	2.4			
	CIMR-VT2A0030FAA	5.5	7.5	140		254	140		3.8	
	CIMR-VT2A0040FAA	7.5	11		140		3.8			
	CIMR-VT2A0056FAA	11	15	180	290	163	5.5			
	CIMR-VT2A0069FAA	15	18.5	220	350	187	9.2			



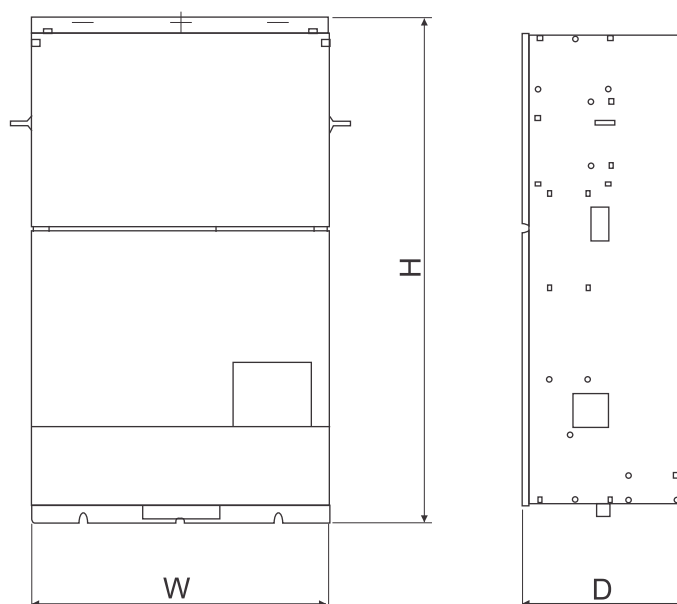
Notes:
 (a) All Dimension in mm.
 (b) For more technical details on heat sink and all please refer the manual.

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	140	260	164	3.4	Fan cooling
CIMR-AD4A0011FMA	5.5	3.7				3.5	
CIMR-AD4A0018FMA	7.5	5.5			167	3.9	
CIMR-AD4A0023FMA	11	7.5				5.4	
CIMR-AD4A0031FMA	15	11				5.7	
CIMR-AD4A0038FMA	18.5	15	180	300	187	8.3	
CIMR-AD4A0044FMA	22	18.5	220	350	197	21	
CIMR-AD4A0058AMA	30	22	250	400	258	25	
CIMR-AD4A0072AMA	37	30	275	450		36	
CIMR-AD4A0088AMA	45	37	325	510	258	41	
CIMR-AD4A0103AMA	55	45				42	
CIMR-AD4A0139AMA	75	55	325	550	283	79	
CIMR-AD4A0165AMA	90	75	450	705	330	96	
CIMR-AD4A0208AMA	110	90	500	800	350	102	
CIMR-AD4A0250AMA	132	110				107	
CIMR-AD4A0296AMA	160	132				125	
CIMR-AD4A0362AMA	185	160	500	950	370	221	
CIMR-AD4A0414AMA	220	185	670	1140		545	
CIMR-AD4A0515AMA	250	220				555	
CIMR-AD4A0675AMA	355	315					
CIMR-AD4A0930AMA	500	450	1250	1380			
CIMR-AD4A1200AMA	630	560					



Notes:

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

APPLICATION SPECIFIC DRIVES



A1000 for Crane

L&T A1000 drives with specially embedded CRANE Control Software achieve safe operation with advanced and precise brake & torque control.

Range: 200V Class- 0.4 to 110 kW
400V Class- 0.4 to 300 kW

L1000A for Elevators

L&T L1000A drive is a reliable product with superior aesthetics, power and high performance vector control technology that meets the current needs and future requirements.

Range: 200V Class- 1.5 to 110 kW
400V Class- 1.5 to 110 kW



Active Front End Converter

The DC5 is a sine wave PWM converter with an effective power regenerating function and protective measures against power supply harmonics. The DC5 is compact and user-friendly with new functions that can monitor the operation status and failures with a digital operator.

Range: 200V Class- 20 to 90 kW
400V Class- 20 to 370 kW

Industrial Automation Product Range



AC Inverter Drives



Programmable Logic Controllers
(PLCs)



Softstarters



Programmable
Smart Relay - Lp 1000



LnTOR - DC Drives



Servo Drives



Human Machine Interface

Electrical Standard Products (ESP) Branch Offices:

REGISTERED OFFICE AND HEAD OFFICE

L&T House, Ballard Estate
P. O. Box 278
Mumbai 400 001
Tel: 022-67525656
Fax: 022-67525858
Website: www.Larsentoubro.com

ELECTRICAL STANDARD PRODUCTS (ESP)

501, Sakar Complex I
Opp. Gandhigram Rly. Station
Ashram Road
Ahmedabad 380 009
Tel: 079-66304006-11
Fax: 079-66304025
e-mail: esp-ahm@LNTEBG.com

38, Cubbon Road, P. O. Box 5098
Bangalore 560 001
Tel: 080-25020100 / 25020324
Fax: 080-25580525
e-mail: esp-blr@LNTEBG.com

131/1, Zone II
Maharana Pratap Nagar
Bhopal 462 011
Tel: 0755-4098721 / 7 / 8 / 9
Fax: 0755-2769264
e-mail: esp-bho@LNTEBG.com

Plot No. 559, Annapurna Complex
Lewis Road
Bhubaneswar 751 014
Tel: 0674-6451342, 2436696
Fax: 0674-2537309
e-mail: esp-bbi@LNTEBG.com

SCO 32, Sector 26-D
Madhya Marg, P. O. Box 14
Chandigarh 160 026
Tel: 0172-4646840, 4646853
Fax: 0172-4646802
e-mail: esp-chd@LNTEBG.com

L&T Construction Campus
TC-1 Building, II Floor
Mount-Poonamallee Road
Manapakkam
Chennai 600 089
Tel: 044-2270 6800
Fax: 044- 22706940
e-mail: esp-maa1@LNTEBG.com

67, Appuswamy Road
Post Bag 7156
Opp. Nirmala College
Coimbatore 641 045
Tel: 0422-2588120 / 1 / 5
Fax: 0422-2588148
e-mail: esp-cbe@LNTEBG.com

L&T House, Group MIG-5
Padmanabhpur
Durg 491 001
Tel: 0788-2213833 / 14 / 21 / 29
Fax: 0788-2213820
e-mail: esp-durg@LNTEBG.com

Khairasol, Degaul Avenue
Durgapur 713 212
Tel: 2559848, 2559849, 2559844
Fax: 0343-2553614
e-mail: esp-dgp@LNTEBG.com

Milanpur Road, Bamuni Maidan
Guwahati 781 021
Tel: 0361-2550562 / 65
Fax: 0361-2551308
e-mail: hazrasudipto@LNTEBG.com

II Floor, Vasantha Chambers
5-10-173, Fateh Maidan Road
Hyderabad 500 004
Tel: 040-67015052
Fax: 040-23296468
e-mail: esp-hyd@LNTEBG.com

Monarch Building, 1st Floor
D-236 & 237, Amrapali Road
Vaishali Nagar
Jaipur 302 021
Tel: 0141-4385914 / 18
Fax: 0141-4385925
e-mail: esp-jai@LNTEBG.com

Akashdeep Plaza, 2nd Floor
P. O. Golmuri
Jamshedpur 831 003
Jharkhand
Tel: 0657-2312205 / 38
Fax: 0657-2341250
e-mail: esp-jam@LNTEBG.com

Skybright Bldg; M. G. Road
Ravipuram Junction, Ernakulam
Kochi 682 016
Tel: 0484-4409420 / 4 / 5 / 7
Fax: 0484-4409426
e-mail: esp-cok@LNTEBG.com

3-B, Shakespeare Sarani
Kolkata 700 071
Tel: 033-44002572 / 3 / 4
Fax: 033-22821025 / 7587
e-mail: esp-ccu@LNTEBG.com

A28, Indira Nagar, Faizabad Road
Lucknow 226 016
Tel: 0522-2312904 / 5 / 6
Fax: 0522-2311671
e-mail: esp-Lko@LNTEBG.com

No: 73, Karpaga Nagar, 8th Street
K. Pudur
Madurai 625 007
Tel: 0452-2537404, 2521068
Fax: 0452-2537552
e-mail: esp-mdu@LNTEBG.com

EBG North Wing Office-Level 2
Gate 7, Powai Campus
Mumbai 400 072
Tel: 022-67052874 / 2737 / 1156
Fax: 022-67051112
e-mail: esp-bom@LNTEBG.com

12, Shivaji Nagar
North Ambazari Road
Nagpur 440 010
Tel: 0712-2260012 / 3
Fax: 0712-2260020 / 30
e-mail: esp-nag@LNTEBG.com

32, Shivaji Marg
P. O. Box 6223
New Delhi 110 015
Tel: 011-41419514 / 5 / 6
Fax: 011-41419600
e-mail: esp-del@LNTEBG.com

L&T House
P. O. Box 119
191/1, Dhole Patil Road
Pune 411 001
Tel: 020-26135048 / 26164048
Fax: 020-26124910, 26135048
e-mail: esp-pnq@LNTEBG.com

3rd Floor
Vishwakarma Chambers
Majura Gate, Ring Road
Surat 395 002
Tel: 0261-2473726
Fax: 0261-2477078
e-mail: esp-sur@LNTEBG.com

Radhadaya Complex
Old Padra Road
Near Charotar Society
Vadodara 390 007
Tel: 0265-6613610 / 1 / 2
Fax: 0265-2336184
e-mail: esp-bar@LNTEBG.com

48-8-16, Dwarakanagar
Visakhapatnam 530 016
Tel: 0891-6620411-2 / 3
Fax: 0891-6620416
e-mail: esp-viz@LNTEBG.com

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Larsen & Toubro Limited
Electrical Standard Products
Powai Campus, Mumbai 400 072
Customer Interaction Center (CIC)
BSNL / MTNL (toll free) : 1800 233 5858
Reliance (toll free) : 1800 200 5858
Tel : 022 6774 5858, Fax : 022 6774 5859
E-mail : cic@LNTEBG.com
Website : www.LNTEBG.com