

➤ High on **flexibility**
big on reliability



Fx2000 AC Drive

Three Phase 415V (0.75 ~ 450kW)

Two decades of application knowledge

For over two decades, various industry sectors have been reaping the benefits of L&T's cost-effective, performance-oriented AC Drive solutions. L&T's grasp of the specific needs of each industry enables it to offer application-specific solutions for various industries – such as processing, textile, plastic, ceramic, pharmaceutical, elevator, oil & gas, power, cement and material-handling.



Fx2000 | AC Drive

› The new **reliability** edge

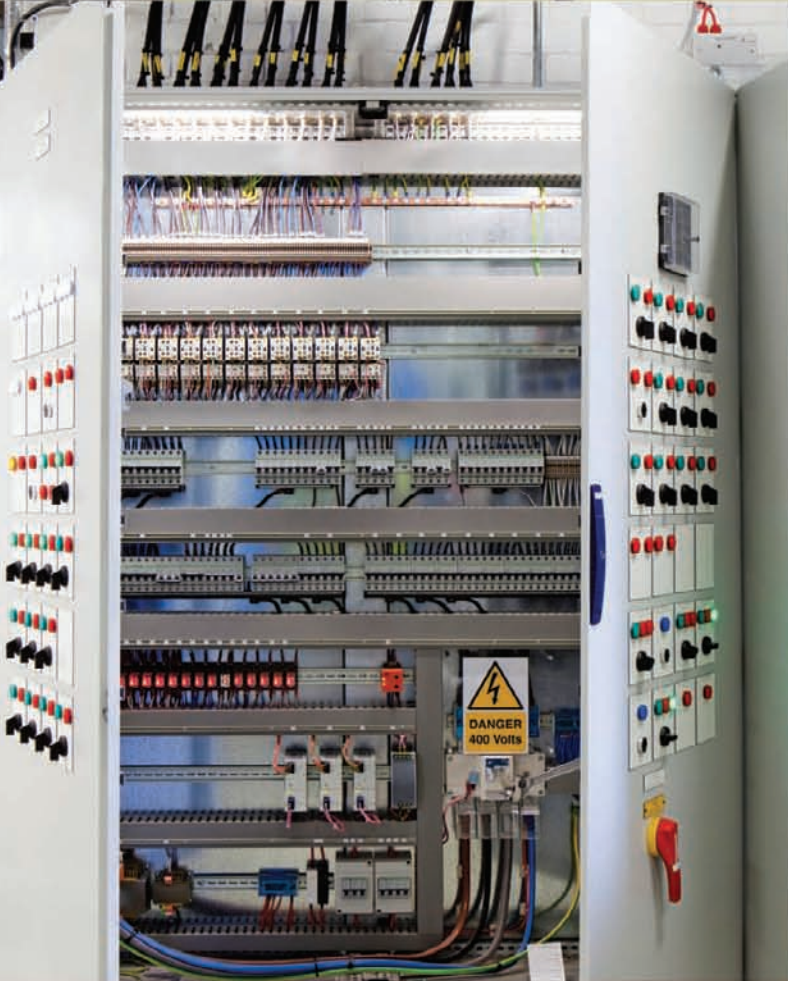
The Fx2000 adds a new dimension to L&T's AC drive solutions. Built to L&T's stringent quality standards, the Fx2000 is tested and certified to meet global benchmarks, thus giving you the assurance of total reliability.

The Fx2000 generates powerful performance and meets your precise needs through several features: superior V/F control, V/F PG, slip compensation and sensorless vector control as well as closed-loop vector control. It has a user-friendly interface and environment-friendly features, including a wide graphic LCD keypad, user and macro-



group support, electro-thermal functions for motor protection, and protection for input/output phase loss.

The Fx2000 is perfectly suited for the toughest, most complex applications – cranes, plastic winders, high-speed elevators, cement kilns, crushers... and more. It handles loads up to 375 kW - HD / 450 kW - ND, and is engineered to keep your machine operating at optimum efficiency, even in the hot, humid and dusty conditions that characterize India's industrial environment.



➤ **Backed** by engineering knowledge across seven decades

A knowledge-based company, L&T brings you the benefits of over 75 years of engineering experience and expertise, and the richness of its collaborations with technology leaders across the globe.

For 50 years, L&T's low-tension switchgear – India's widest range – has been the preferred option of top industrial houses countrywide.



➤ **Meeting** your needs, **solving** your problems

We believe in addressing your needs and not just selling a product. That's why a dedicated Solutions Team first focuses on understanding your application. Then helps you select the drive that best meets your needs. Our advice on installation, maintenance and replacement will ensure that your elevators function at peak productivity. From engineer to repair technician, our people have the knowledge and skill-sets to deliver total peace of mind.







➤ **Tested. Certified. Reliable.**

L&T is one of the few switchgear manufacturers in India with a dedicated, NABL-certified testing facility. Our products are tested for conformity to standards that exceed minimum requirements, giving you the assurance of high-quality performance. Our focus on continuous improvement ensures that our standards are on par with the best in the world. Repeat orders endorse the value that we deliver.

The reliability of the Fx2000 is ensured by international test certification – UL, CE and RoHS.

➤ **After-sales service** aimed at maximum uptime

A malfunction of the drive can bring an entire assembly line or process to a halt. To ensure maximum uptime for you, our Rapid Response service team is available to analyze the situation and help you set the problem right. We have set up strategic service centres across the country to provide temporary replacement drives or ready spares to ensure that your business keeps running smoothly.

Rapid Response Service Team





➤ **Training your people** to enhance your operations

At our countrywide Switchgear Training Centres, we can train your operators, electricians and supervisors to increase their effectiveness in the operation and maintenance and trouble-shooting of your drives. We can also conduct in-plant training and workshops at your premises to improve both power management and equipment maintenance skills. This gives you total operational excellence, minimising downtime.

L&T's engineers and channel partners also upgrade their skills through seminars, workshops, training sessions and white papers on electrical practices.

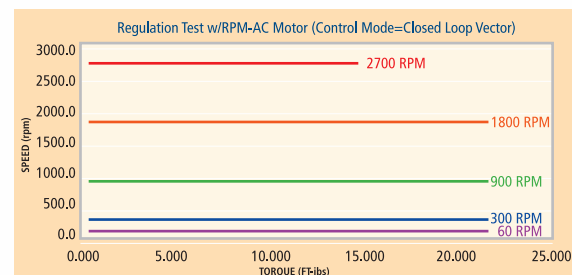
➤ Features that ensure performance

- 250% starting torque in closed loop
- Built-in Macros for Crane, Wobulation etc
- Winder Application
- Auto Sequence
- Draw Mode
- Smart PLC
- Conformal Coating as per IEC 60721-3-3 class 3C2
- Built-in RS485 MODBUS RTU Communication

➤ Closed Loop Vector realizing precise speed/torque control

In the entire speed range including zero speed, powerful torque (more than 250%) performance is materialized through receiving Max. 200kHz frequency pulse via an encoder-dedicated board.

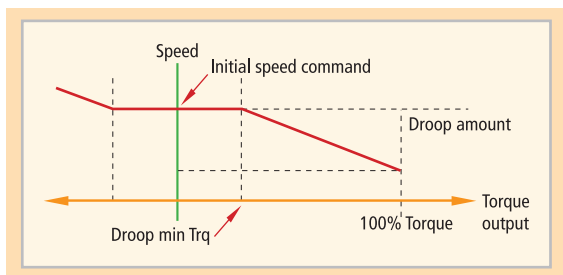
- Speed control range 1000:1
- Instant Max. torque control capability 250%
- 50Hz speed control response



Fx2000

Flexible, reliable and powerful

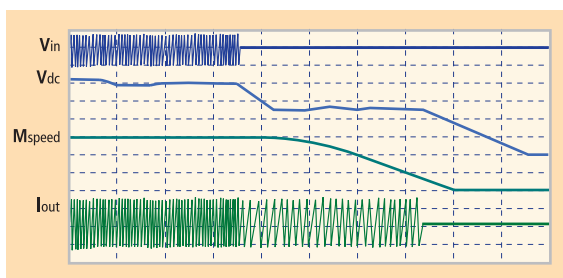
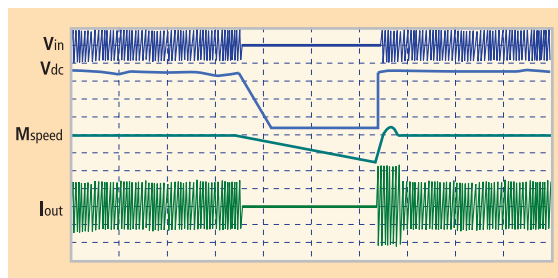
User-friendly, environment-friendly,
perfectly suited for the toughest,
most complex applications



➤ Automatic Torque Balance droop control

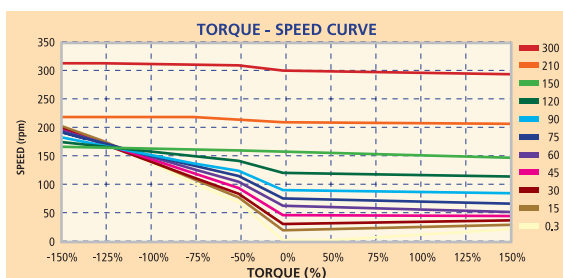
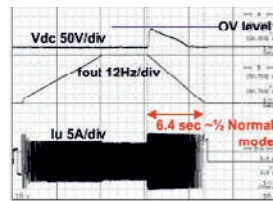
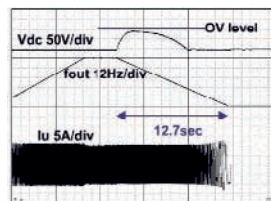
Droop control algorithm adjusts changeable torque driven by speed. This algorithm is easily applicable to open-loop linking driving and load sharing driving.

➤ Ride-through (LV trip delay) for sudden power loss



➤ Kinetic Energy Buffering (KEB) for a stable system stop in case of power loss or failure

➤ Power and flux braking for maximum deceleration



➤ Powerful current sensorless vector control

Our Fx2000 technology includes a competitive and strong low-speed torque control and a speed-precision-driven vector algorithm.

- Speed control range 100:1
- Extremely low torque control capability: 0.1Hz/150% real torque
- Max. torque control capability within the restoration range

Fx 2000

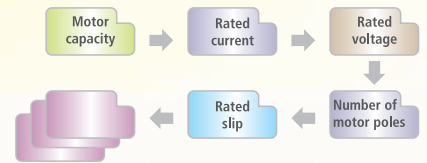


LARSEN & TOUBRO

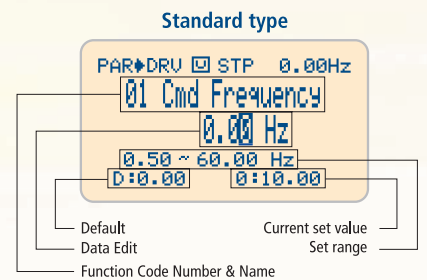
WARNING
 Risk of Injury or Electric Shock.
 Read the manual and follow the safety instructions before install or use.
 Before opening the cover, disconnect all power and wait at least 10 minutes.

➤ Convenience Environment

➤ Easy-star parameter setting



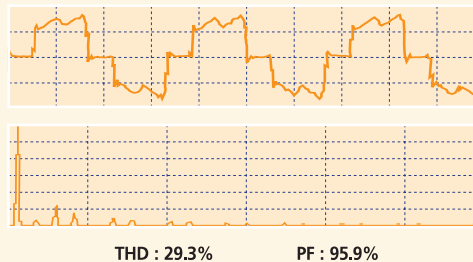
➤ Wide viewing-angle graphic LCD keypad



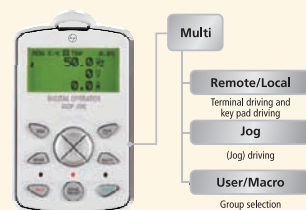
➤ **DC reactor built-in*** for harmonic reduction and power factor improvement

Overloading rate	110% (VT rated standard)
THD	18 ~ 37%
power factor	94 ~ 96%

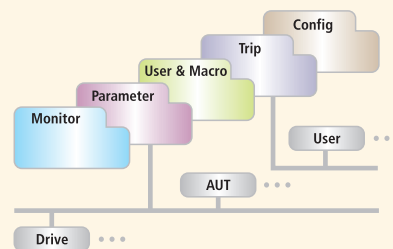
* From 22kW to 280kW



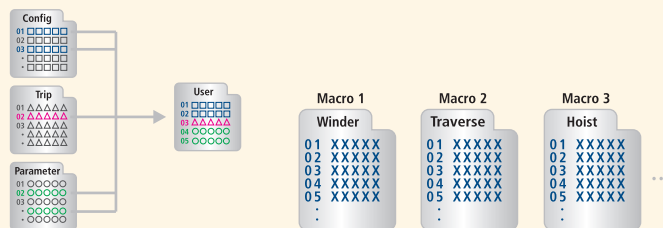
➤ **Multi-function key**



➤ **Efficient architecture of 5-mode 15-parameter groups**



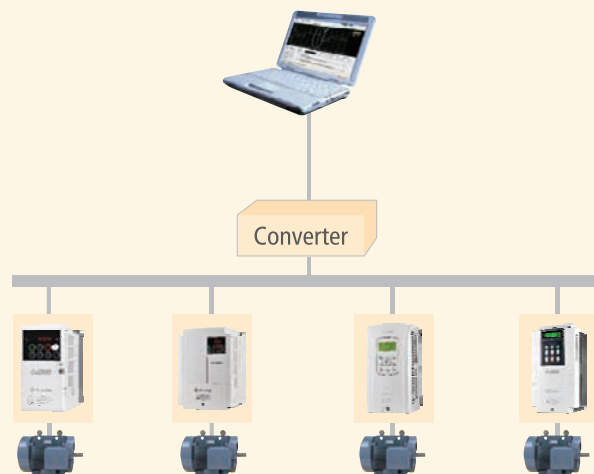
➤ **User & Macro group support**



➤ **PC-based software for Easy Maintenance of Drive & Motor Parameters**

DriveConnect software allows drive/system monitoring on a PC and easy maintenance of drive and motor parameters

- Windows-based graphic user interface (GUI)
- Modbus-RTU
- Connecting up to 31 drives
- Integrated control console
- Offline editing function
- Data upload/download
- 4-channel oscilloscope
- Trigger function



Specifications

Rated Input and Output: Input voltage of 415V (0.75~22kW - HD)

Type : LTVF-F4□□□□ □AA		0004	0006	0008	0012	0016	0024	0030	0039	0045	0061	
1) Motor Applicable (kW)	HD	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	
	ND	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	
Rated Output	2) Rated Capacity [A]	HD	2.5	4	6	8	12	16	24	30	39	45
		ND	4	6	8	12	16	24	30	39	45	61
	Rated Capacity [kVA]		1.9	3	4.5	6.1	9.1	12.2	18.3	22.9	29.7	34.3
	Output Frequency		3) 0 ~ 400 [Hz] (Sensorless-1: 0~300Hz, Sensorless-2, Vector: 0.1~120Hz)									
Output Voltage [V]		4) 3-phase 380 ~ 480V										
Rated Input	Available Voltage [V]		3-phase 380 ~ 480 VAC (-15%, +10%)									
	Input Frequency		50 ~ 60 [Hz] (±5%)									
	Rated Current [A]	HD	2.2	3.6	5.5	7.5	11	14.4	22	26.6	35.6	41.6
ND		3.7	5.7	7.7	11.1	14.7	21.9	26.4	35.5	41.1	55.7	

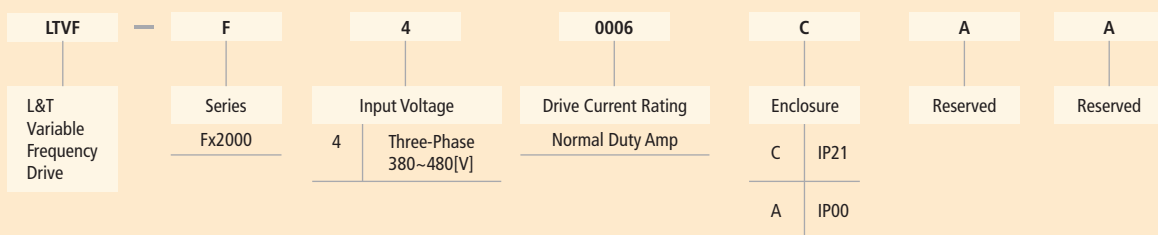
Rated Input and Output: Input voltage of 415V (30~375kW - HD)

Type : LTVF-F4□□□□ □AA		0075	0091	0110	0152	0183	0223	0264	0325	0370	0432	0547	0613	0731	0877	
1) Motor Applicable (kW)	HD	30	37	45	55	75	90	110	132	160	185	220	280	315	375	
	ND	37	45	55	75	90	110	132	160	185	220	280	315	375	450	
Rated Output	Rated Capacity [kVA]-HD		46	57	69	84	116	139	170	201	248	286	329	416	467	557
	2) Rated Capacity [A]	HD	61	75	91	110	152	183	223	264	325	370	432	547	613	731
		ND	75	91	110	152	183	223	264	325	370	432	547	613	731	877
	Output Frequency		3) 0 ~ 400 [Hz] (Sensorless-1: 0~300Hz, Sensorless-2, Vector: 0.1~120Hz)													
Output Voltage [V]		4) 3-phase 380 ~ 480V														
Rated Input	Available Voltage [V]		3-phase 380 ~ 480 VAC (-15%, +10%)													
	Input Frequency		50 ~ 60 [Hz] (±5%)													
	Rated Current [A]	HD	55.5	67.9	82.4	102.6	143.4	174.7	213.5	255.6	316.3	404	466	605	674	798
ND		67.5	81.7	101.8	143.6	173.4	212.9	254.2	315.3	359.3	463	590	673	796	948	

- 1) Motor Applied indicates the maximum capacity applied to use of a standard 4 pole standard motor.
- 2) The output of rated current is limited according to setting of the carrier frequency (CON-04).
- 3) In case of Sensorless-1, you can set the frequency at up to 300Hz by selecting 3, 4 as the control mode (DRV-09 Control Mode).
In case of Sensorless-2, you can set the frequency at up to 120Hz by selecting 3, 4 as the control mode (DRV-09 Control Mode).
- 4) The maximum output voltage does not go over the supplied power voltage. You can select the output voltage as you want below the supplied power voltage.

Model and Type

Motor Rating (Heavy duty)	Three-Phase 415V	ND / HD Current (A)
0.75kW	LTVF-F40004CAA	4 / 2.5
1.5kW	LTVF-F40006CAA	6 / 4
2.2kW	LTVF-F40008CAA	8 / 6
3.7kW	LTVF-F40012CAA	12 / 8
5.5kW	LTVF-F40016CAA	16 / 12
7.5kW	LTVF-F40024CAA	24 / 16
11kW	LTVF-F40030CAA	30 / 24
15kW	LTVF-F40039CAA	39 / 30
18.5kW	LTVF-F40045CAA	45 / 39
22kW	LTVF-F40061CAA	61 / 45
30kW	LTVF-F40075CAA	75 / 61
37kW	LTVF-F40091CAA	91 / 75
45kW	LTVF-F40110CAA	110 / 91
55kW	LTVF-F40152CAA	152 / 110
75kW	LTVF-F40183CAA	183 / 152
90kW	LTVF-F40223AAA	223 / 183
110kW	LTVF-F40264AAA	264 / 223
132kW	LTVF-F40325AAA	325 / 264
160kW	LTVF-F40370AAA	370 / 325
185kW	LTVF-F40432AAA	432 / 370
220kW	LTVF-F40547AAA	547 / 432
280kW	LTVF-F40613AAA	613 / 547
315kW	LTVF-F40731AAA	731 / 613
375kW	LTVF-F40877AAA	877 / 731



Standard Specifications

Rated Input Voltage	3-phase 380 ~ 480 VAC (-15%, +10%)
Rated Frequency	50 ~ 60 [Hz] (±5%)
Max Output Voltage	Proportional to Input Voltage
Max Output Frequency	0 to 400Hz (1000Hz optional) (Sensorless-1: 0 to 300Hz, Sensorless-2, Vector: 0.1 to 120Hz)
Keypad	LCD Detachable
DC Reactor	Built-in from 22kW to 280kW
Braking Chopper	Built-in till 22kW (HD)
Features	Built-in Crane & Winder Algorithm, WEB control for Diameter Calculation, Optional Smart PLC Card, Auto Sequence, MMC, Built-in Brake control logic.

Control

Control Method	V/F control, V/F PG, slip compensation, sensorless vector control, vector control, closed loop vector control
Frequency Setting Resolution	Digital command: 0.01Hz Analog command: 0.05Hz (maximum frequency: 50Hz)
Frequency Tolerance	Digital command operation: 0.01% of the maximum frequency Analog command operation: 0.1% of the maximum frequency
V/F Pattern	Linear, double reduction, user V/F
Overload Capacity	HD : 150% for 1 minute, 200% for 3 seconds, ND : 110% for 1 minute
Torque Boost	Manual torque boost, automatic torque boost
Starting Torque	150% for 60 Sec, 200% for 0.3Hz (Sensorless), 200% for 0RPM (Vector)
Frequency Control Range	0 to 400Hz in V/F, 0 to 300Hz in Sensorless 1, 0 to 120Hz in Sensorless 2
Output Frequency Resolution	0.01Hz
V/F pattern	Linear, double reduction, user V/F
Speed Control Range	1000:1 in close loop vector control 100:1 in open loop vector control
Accel/Decel Time	0.0 to 6000 Sec
Braking Torque	Continuous Regeneration Torque 20% (150% with DBR)

Operation

Operating Method	Selectable among keypad/terminal block/communication operation		
Frequency Setting	Analog: 0 ~ 10[V], -10 ~ 10[V], 0 ~ 20 [mA] Digital: keypad		
Operating Functions	PID control, up-down operation, 3-wire operation, DC break, frequency limit, frequency jump, second function, slip compensation, reverse rotation prevention, auto restarting, inverter by-pass, auto tuning flying start, energy-buffering, power breaking, flux breaking, leakage current reduction, MMC, easy start.		
Input	Multi-function terminal (8 points) P1 ~ P81	8 Programmable (NPN (Sink) / PNP (Source)) Function: forward operation, reverse operation, reset, external trip, emergency stop, jog operation, sequential frequency high/medium/low, multi-level acceleration and deceleration - high/medium/low, D.C. control during stop, selection of a second motor, frequency increase, frequency decrease, 3-wire operation, change to general operation during PID operation, main inverter body operation during option operation, analog command frequency fixation, acceleration and deceleration stop selectable.	
	Analog input	-10 to 10 Vdc: 1 No. & 4 ~ 20 mA: 1 No.	
Output	Multi-function open collector terminal (1)	Failure output and inverter operation output	Below DC 46V 100mA
	Multi-function relay terminal (2 NO / NC)		Below (N.O., N.C.) AC 250V 1A, Below DC 30V 1A
	Analog output	-10 to 10 Vdc: 1 No. & 4 ~ 20 mA: 1 No.	
Safety I/P	2		
Communication	Built-in RS485 Modbus RTU Optional : Profibus DP, Ethernet IP, MODBUS TCP, DeviceNet, CANopen		

Protective Functions

Fault	Over voltage, low voltage, over current, earth current detection, inverter overheat, motor overheating, output imaging, overload protection, communication error, frequency command loss, hardware failure, cooling fan failure, pre-PID failure, no motor trip, external break trip, etc
Alarm	Stall prevention, overload, light load, encoder error, fan failure, keypad command loss, speed command loss.
Instantaneous Interruption	Continuous Operation: Heavy Loads below 15 msec & normal load below 8msec Auto Restarts: Heavy Loads above 15 msec & normal load above 8msec

Structure & Environment

Cooling Method	Forced cooling : 0.75~18.5kW (230/415V), 22kW (415V) Inhalation cooling : 22~75kW (230V), 30~375kW (415V)
Protection Degree	0.75~75kW(415V): Open type IP 21 (default) 90~375kW(415V): Open type IP 00 (default)
PCB Coating	Complying to IEC 60721-3-3 class 3C2
Ambient Temperature	HD operation: - 10 ~ 50°C (no freezing) ND operation: - 10 ~ 40°C (no freezing) (However, recommended to use load at 80% when using at 50°C in case of Normal Duty).
Storage Temperature	-20C ~ 65°C
Humidity	Below 90% RH of relative humidity (with no dew formation)
Altitude, Vibration	Below 1,000m, below 5.9m/sec ² (0.6G)
Location	There should be no corrosive gas, flammable gas, oil mist, etc. (Pollution degree 2 environment)
Global Compliance	CE, UL, RoHS

AC Reactor & Braking Resistor Specifications

Drive Cat. No.	Applied Motor Heavy Duty kW	Specification of AC Reactor				Dynamic Braking Unit		Specification of Braking resistor	
		Heavy Duty		Normal Duty		DBU Cat. No	Quantity	DBR Ohms [Ω] - Wattage [W]	Quantity
		mH	A	mH	A				
LTVF-F40004CAA	0.75	8.63	2.8	4.81	4.8	Built-in	600 Ω - 150 W	1	
LTVF-F40006CAA	1.5	4.81	4.8	3.23	7.5		300 Ω - 300 W	1	
LTVF-F40008CAA	2.2	3.23	7.5	2.34	10		200 Ω - 400 W	1	
LTVF-F40012CAA	3.7	2.34	10	1.22	15		130 Ω - 600 W	1	
LTVF-F40016CAA	5.5	1.22	15	1.14	20		85 Ω - 1000 W	1	
LTVF-F40024CAA	7.5	1.14	20	0.81	30		60 Ω - 1200 W	1	
LTVF-F40030CAA	11	0.81	30	0.61	38		40 Ω - 2400 W	1	
LTVF-F40039CAA	15	0.61	38	0.45	50		30 Ω - 2400 W	1	
LTVF-F40045CAA	18.5	0.45	50	0.39	58		20 Ω - 3600 W	1	
LTVF-F40061CAA	22	0.39	58	0.287	80		20 Ω - 3600 W	1	
LTVF-F40075CAA	30	0.287	80	0.232	98	LTDBU-0370	1	16.9 Ω - 6400 W	1
LTVF-F40091CAA	37	0.232	98	0.195	118	LTDBU-0370	1	16.9 Ω - 6400 W	1
LTVF-F40110CAA	45	0.195	118	0.157	142	LTDBU-0550	1	11.4 Ω - 9600 W	1
LTVF-F40152CAA	55	0.157	142	0.122	196	LTDBU-0550	1	11.4 Ω - 9600 W	1
LTVF-F40183CAA	75	0.122	196	0.096	237	LTDBU-0750	1	8.4 Ω - 12800 W	1
LTVF-F40223AAA	90	0.096	237	0.081	289	LTDBU-0550	2	11.4 Ω - 9600 W	2
LTVF-F40264AAA	110	0.081	289	0.069	341	LTDBU-0750	2	8.4 Ω - 12800 W	2
LTVF-F40325AAA	132	0.069	341	0.057	420	LTDBU-0750	2	8.4 Ω - 12800 W	2
LTVF-F40370AAA	160	0.057	420	0.042	558	LTDBU-0750	3	8.4 Ω - 12800 W	3
LTVF-F40432AAA	185	0.042	558	0.042	558	LTDBU-0750	3	8.4 Ω - 12800 W	3
LTVF-F40547AAA	220	0.042	558	0.029	799	LTDBU-0750	3	8.4 Ω - 12800 W	3
LTVF-F40613AAA	280	0.029	799	0.029	799	For specifications please contact nearest branch office			
LTVF-F40731AAA	315	0.029	799	0.024	952				
LTVF-F40877AAA	375	0.024	952	0.024	952				

Note : Values of DBU-DBR are based on following considerations,
Drives with inbuilt DBU :Braking torque = 150% max, Enable Duty (% ED) = 5%. In case 10% ED DBR wattage should be double
Drives with external DBU, average braking torque will be 100% max with 10 % ED

Peripheral Devices

MCCB (Moulded Case Circuit Breaker) and MC (Magnetic Contactor)

Drive Cat. No.	MCCB (L&T)		MC Amp (L&T)
	Heavy Duty Load	Normal Duty Load	
LTVF-F40004CAA	DM16/4	DM16/7.5	MO 9
LTVF-F40006CAA	DM16/7.5	DM16/12	MO 9
LTVF-F40008CAA	DM16/12	DM16/16	MO 12
LTVF-F40012CAA	DM16/16	DM100/25	MO 25
LTVF-F40016CAA	DM100/25	DM100/30	MO 25
LTVF-F40024CAA	DM100/30	DM100/50	MO 32
LTVF-F40030CAA	DM100/50	DM100/50	MO 50
LTVF-F40039CAA	DM100/50	DM100/70	MO 70
LTVF-F40045CAA	DM100/70	DM100/80	MO 80
LTVF-F40061CAA	DM100/80	DN2-250M/100	MO 95
LTVF-F40075CAA	DN2-250M/100	DN2-250M/125	MNX 140
LTVF-F40091CAA	DN2-250M/125	DN2-250M/160	MNX 185
LTVF-F40110CAA	DN2-250M/160	DN2-250M/200	MNX 225
LTVF-F40152CAA	DN2-250M/200	DN3-400M/320	MNX 325
LTVF-F40183CAA	DN2-250M/250	DN3-400M/320	MNX 400
LTVF-F40223CAA	DN3-400M/320	DN3-400M/400	MNX 550
LTVF-F40264AAA	DN3-400M/400	DN3-630M/500	MNX 650
LTVF-F40325AAA	DN3-630M/500	DN3-630M/630	MNX 650
LTVF-F40370AAA	DN3-630M/630	DTH800/800	800
LTVF-F40432AAA	DTH800/800	C-Power ACB/1000	1000
LTVF-F40547AAA	C-Power ACB/1000	C-Power ACB/1250	1250
LTVF-F40613AAA	C-Power ACB/1250	C-Power ACB/1250	1250
LTVF-F40731AAA	C-Power ACB/1250	C-Power ACB/1600	1600
LTVF-F40877AAA	C-Power ACB/1600	C-Power ACB/2000	2000

Warning 1) MC (Magnetic Contactor) current is 1.5 ~ 2 times of Drives rated current.

2) MCCB should be used to protect against overload and damage of drive installation from the fault current (The Fx2000 has overload capacity of 150% for one minute).

➤ **Flexibility (Optional cards)**

➤ **PLC Card (LTAD-PLC-F)**

- Master-K 120S platform
- Normal input 6 points (Sink/Source selectable), Max. input 14 points when expanded
- Normal output 4 points (N.O. Relay), Max. output 7 points when expanded
- RTC (Real Time Clock)
- KGL WIN operating system



➤ **Encoder Card (LTEN-INC-F)**

- Closed loop control
- Pulse train reference
- 5/12/15 V insulated power supply
- Line driver or open collector
- 200kHz max. input frequency
- Signal loss detection



➤ **Profibus-DP Card (LTCI-PDP-F)**

- Profibus dedicated connector
- Max. 12Mbps communication speed
- Max. 32 stations per segment
- Bus topology
- Enhanced on-line diagnosis



➤ **I/O Expansion Card (LTIO-EX1-F)**

- Ext-1
- Digital input-3 points
- Analog voltage (-10~10V) I/O 1 point
- Analog current (0~20mV) I/O 1 point



➤ Ethernet Card (LTCI-ETH-F)

- Modbus TCP, Ethernet IP Protocol support
- 10Mbps, 100Mbps communication speed
- Half duplex, full duplex support
- Auto negotiation
- Max. 100m(328 ft.) transmission distance
- CSMA/CD communication access method
- Analog voltage (-10~10V) I/O 2 points
- Analog current (0~20mV) I/O 2 pointst



➤ DeviceNet (LTCI-DEN-F)

- Communication speed: 125kbps, 250kbps, 500kbps
- Tree/Bus topology
- Max. 64 node connection points
- Max. 500m (1640 ft.) transmission distance (125kbps)



➤ CANopen Card (LTCI-CAN-F)

- 1Mbps communication speed
- Bus Topology
- Max. 64 node connection points (include master)
- PDO, SDO, Sync, NMC communication support
- Support profile:
 - PDO1 (CiA402 drive & motion control device profile)
 - PDO3 (LS Profile)



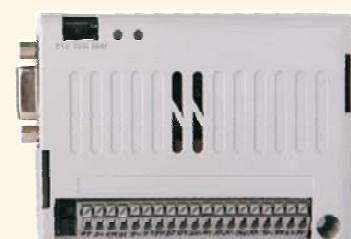
➤ Synchronization Option Card (LTCN-SYN-F)

- Closed loop control
- 100kHz max. input frequency
- Position/Speed synchronization
- Synchronization hold (only slave)
- 15 slaves per master (3 serial - 5 parallel max)
- Open collector output: 26V/100mA (2 points)



➤ Position Control Option Card (LTCN-PCN-F)

- Closed-loop control
- Pulse train reference
- 5/12/15V insulated power supply
- Line driver or open collector
- 200kHz max. input frequency
- Signal loss detection
- External brake control



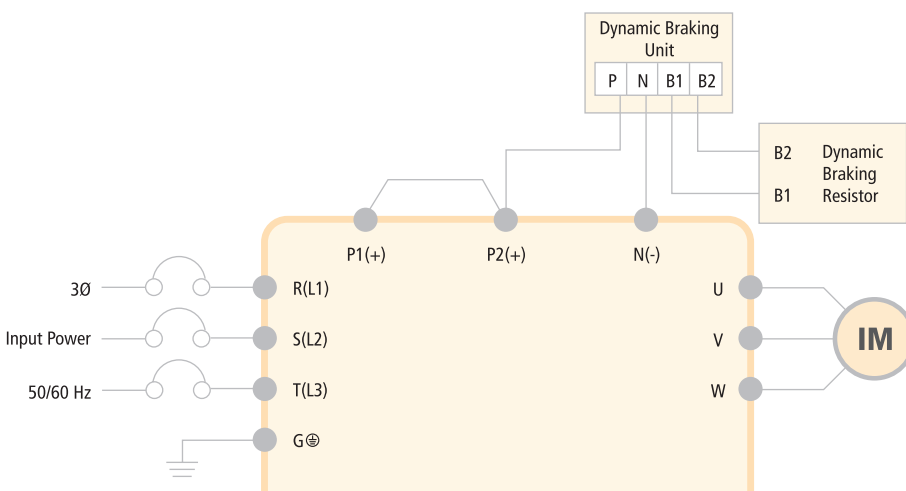
Terminal arrangement of Dynamic Braking Unit



Terminals	Functions
G	Ground Terminal
B2	Terminal for connection with B2 of DBU
B1	Terminal for connection with B1 of DBU
N	Terminal for connection with N of Drive
P	Terminal for connection with P1 of Drive

* Note: Read DBU user manual carefully when selecting DB resistors.

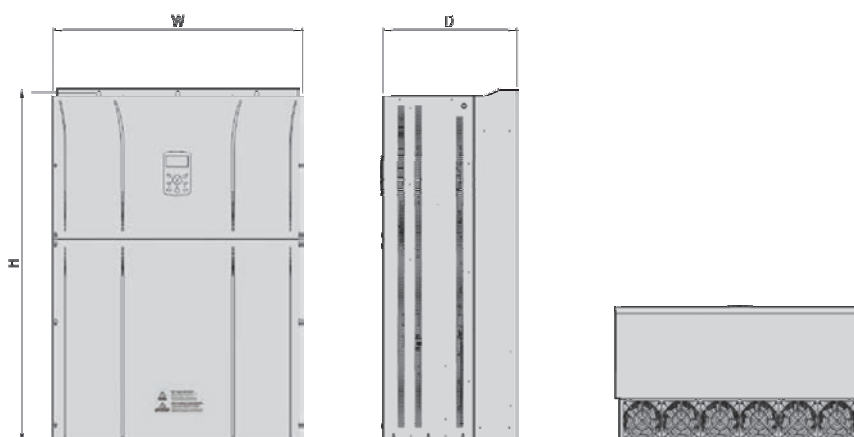
Dynamic Braking Unit (DBU) & Dynamic Braking Resistor (DBR) wiring layout



DBU Terminals	Description
B1, B2	Wire correctly referring to diagram. Connect DB Resistor to B1, B2 of DB unit.

➤ **Three-Phase 415 V**

Drive Cat No	W (mm)	H (mm)	D (mm)	Weight (kg)
LTVF-F40004CAA	150.0	284.0	200.0	4.8
LTVF-F40006CAA	150.0	284.0	200.0	4.8
LTVF-F40008CAA	150.0	284.0	200.0	4.8
LTVF-F40012CAA	150.0	284.0	200.0	4.8
LTVF-F40016CAA	200.0	355.0	225.0	8.0
LTVF-F40024CAA	200.0	355.0	225.0	8.0
LTVF-F40030CAA	250.0	385.0	284.0	14.3
LTVF-F40039CAA	250.0	385.0	284.0	14.3
LTVF-F40045CAA	280.0	461.0	298.0	20.0
LTVF-F40061CAA	280.0	461.0	298.0	30.3
LTVF-F40075CAA	300.1	594.1	303.2	41.3
LTVF-F40091CAA	300.1	594.1	303.2	41.3
LTVF-F40110CAA	300.1	594.1	303.2	41.3
LTVF-F40152CAA	370.1	663.5	373.3	63.3
LTVF-F40183CAA	370.1	663.5	373.3	63.3
LTVF-F40223AAA	510.0	783.5	422.6	101.3
LTVF-F40264AAA	510.0	783.5	422.6	101.0
LTVF-F40325AAA	510.0	861.0	422.6	114.0
LTVF-F40370AAA	510.0	861.0	422.6	114.0
LTVF-F40432AAA	690.0	1,078.0	450.0	200.0
LTVF-F40547AAA	690.0	1,078.0	450.0	200.0
LTVF-F40613AAA	771.0	1,138.0	440.0	252.0
LTVF-F40731AAA	922.0	1,302.5	495.0	352.0
LTVF-F40877AAA	922.0	1,302.5	495.0	352.0



Note: The above images are solely for reference purposes. Please refer to the technical manual.

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: 0755-3080511 / 05 / 08 / 13 / 17 / 19
Fax: 0755-3080502
e-mail: esp-bho@LNTEBG.com

Plot No. 559, Annapurna Complex
Lewis Road
Bhubaneswar 751 014
Tel: 0674-6451342, 2436690, 2436696
Fax: 0674-2537309
e-mail: nayakd@LNTEBG.com

Aspire Towers, 4th Floor
Plot No. 55, Phase-I
Industrial & Business Park
Chandigarh-160 002
Tel: 0172-4646840 / 41 / 42 / 46 / 53
Fax: 0172-4646802
Email: 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

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

5, Milanpur Road, Bamuni Maidan
Guwahati 781 021
Tel: +91 8876554410 / 8876554417
Fax: 361-2551308
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 Marg
Vaishali Nagar
Jaipur 302 021
Tel: 0141-4385914 to 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: 0522-4929905 / 04
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

L&T Business Park,
Tower 'B' / 5th Floor
Saki Vihar Road, Powai
Mumbai 400 072
Tel: 022-67052874 / 2737 / 1156
Fax: 022-67051112
e-mail: esp-bom@LNTEBG.com

12, Shivaji Nagar
North Ambajhari Road
Nagpur 440 010
Tel: 0712-2260012 / 6606421
Fax: 2260030 / 6606434
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: 020-66033395 / 66033279
Fax: 020-26164048 / 26164910
e-mail: esp-pnq@LNTEBG.com

Crystal Tower,
4th Floor, G. E. Road
Telibandha
Raipur - 492 006
Tel: 0771-4283214
e-mail: esp-raipur@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

Door No. 49-38-14/3/2, 1st floor,
NGGO's Colony, Akkayyapalem,
Visakhapatnam - 530 016
Tel: 0891 2791126, 2711125
Fax: 0891 2791100
Email: esp-viz@LNTEBG.com

Product improvement is a continuous process. For the latest information and special applications, please contact any of our offices listed here.



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 Email: cic@Lntebg.com
Web: www.Lntebg.com