L&T Electrical & Automation

High on compactness, Higher on functionality

Nx2000

Single Phase 230V (0.2 - 2.2kW)

Nx2000+

Three Phase 230V (0.4 - 11kW)
Three Phase 400V (0.4 - 11kW)

Two decades of application knowledge

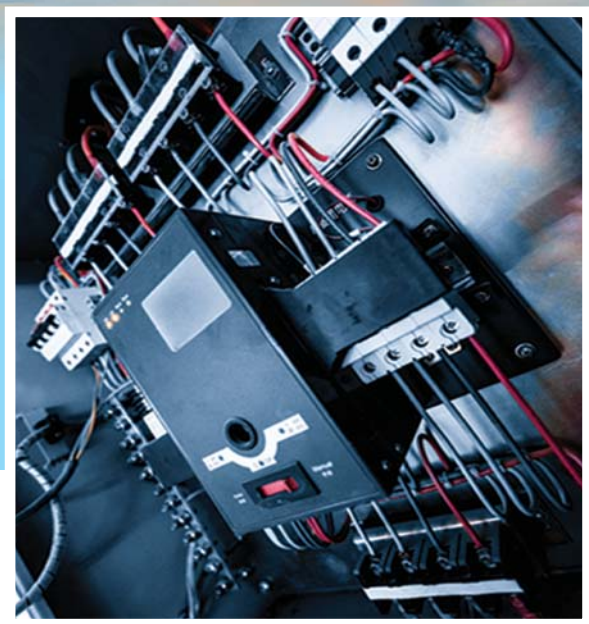
For over three decades, various industry sectors have been reaping the benefits of L&T Electrical & Automation (E&A)'s cost-effective, performance-oriented AC Drive solutions. E&A's grasp of the specific needs of each industry enables it to offer application-specific solutions for various industries - such as Processing, HVAC, Water, Sugar, Plastic, Ceramic, Pharmaceutical, Elevator, Oil & Gas, Power, Cement and & Material-handling.

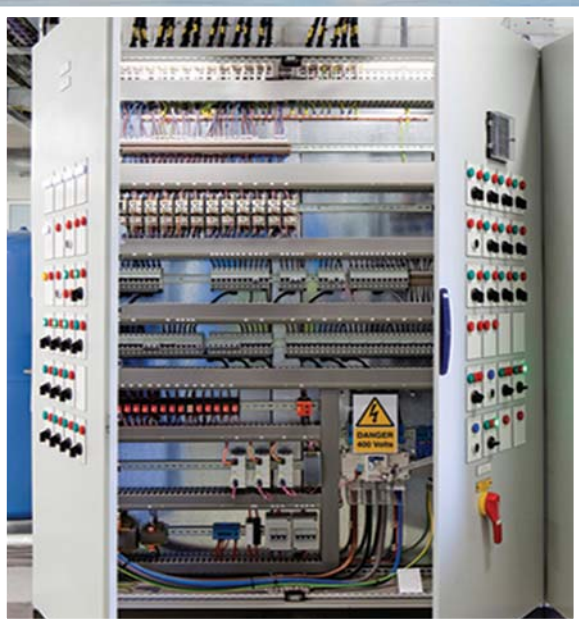
Nx2000 Series AC Drive

The new reliability edge

The Nx2000 series adds a new dimension to L&T Electrical & Automation E&A's AC drive solutions. Built to E&A's stringent quality standards, the Nx2000 Series AC drive is tested and certified to meet global benchmarks, thus giving you the assurance of total reliability.

Compact, lightweight, easy to install, operate and service - the Nx2000 Series is perfectly suited for conveyors, pumps, fans and textile machinery. It handles load up to 11 kW, and is engineered to keep your machine operating at optimum efficiency, even in the hot, humid and dusty conditions that characterise India's industrial environment.





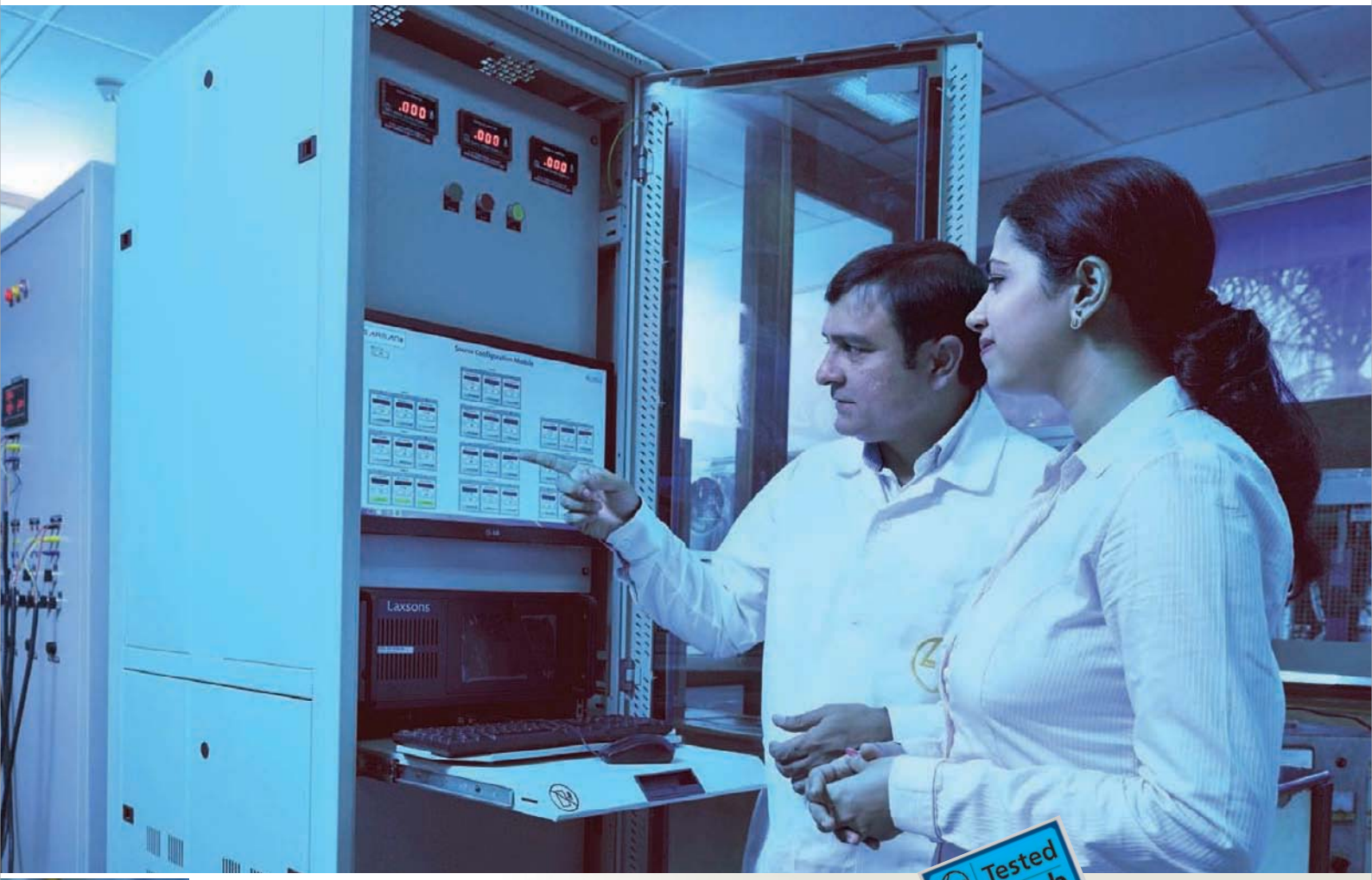
Backed by engineering knowledge across seven decades

A knowledge-based company, L&T Electrical & Automation (E&A) 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, E&A'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 application 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 Electrical & Automation (E&A) 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 Nx2000 Series AC drive 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 Electrical & Automation (E&A)'s engineers and channel partners also upgrade their skills through seminars, workshops, training sessions and white papers on electrical practices.

General Purpose Drive

Nx2000+ c UL us CE

The Nx2000+ is the solution for general purpose applications because of its high performance sensorless operation, premium quality and high reliability.

Great Performance

- Enhanced motor control - Sensorless & V/F performance
- Peak torque at low speed
- Suitable for most applications

Great Reliability

- Meets UL 61800-5-1
- Military (MIL 217Plus) design based methodology
- Enhanced materials and manufacturing processes

User Friendly

- Easy to install, use and maintain
- Simplified SLVC setup
- Various options

Great Performance

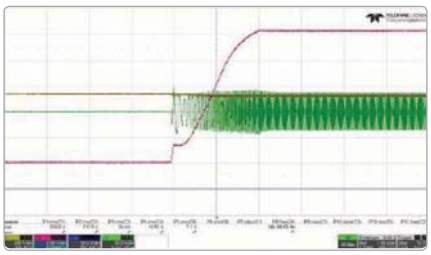
The Nx2000+ has an advanced sensorless vector mode along with a highly adaptable V/F mode making it one of the most versatile drives in the market.

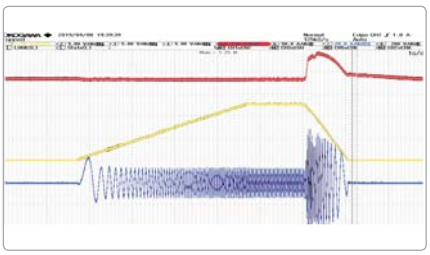
Application Adaptability

Dual ratings enables use in most applications

V/F Accelerate and Decelerate Function

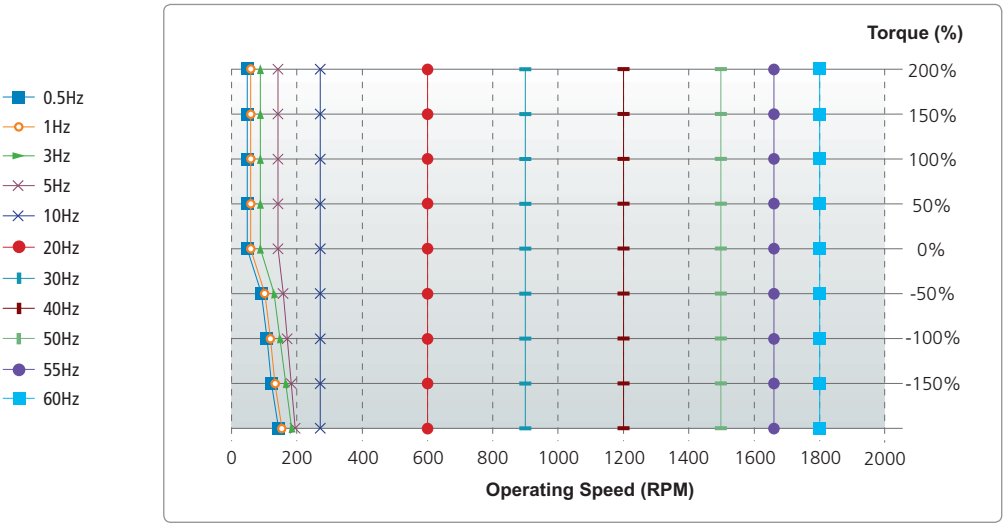
Applied ATB & Flux braking function





Sensorless Performance

Low speed/High torque
Speed regulation +/-1% under load change
0.5Hz 200% peak torque

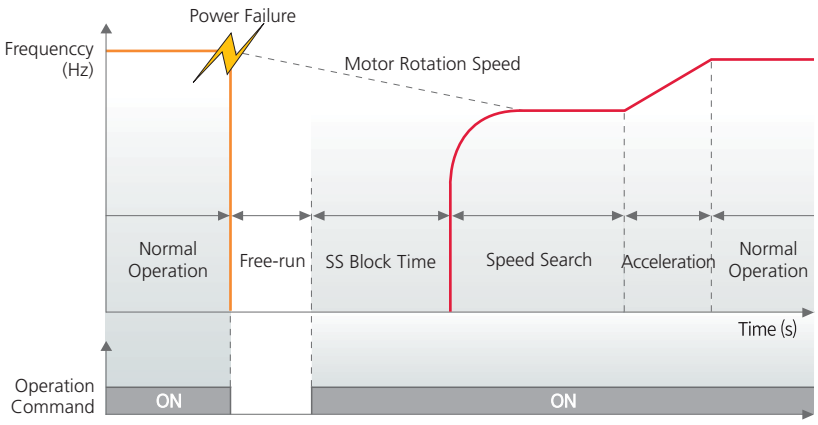


KEB (Kinetic Energy Buffering)

KEB for controlled stop in case of power loss or failure, for different speeds.
User has choice to start from zero speed or same speed

Flying Start

Select optimal flying start operation for different applications



Great Reliability

Nx2000+ is designed to meet global standards through upgraded design, material and manufacturing improving its endurance for harsh environments.

UL 61800-5-1 Design

Satisfied the new UL certification

Robust Design

Construction of the air flow design minimizes exposure of critical components (IGBT, PCB, etc.) from outside contaminants.

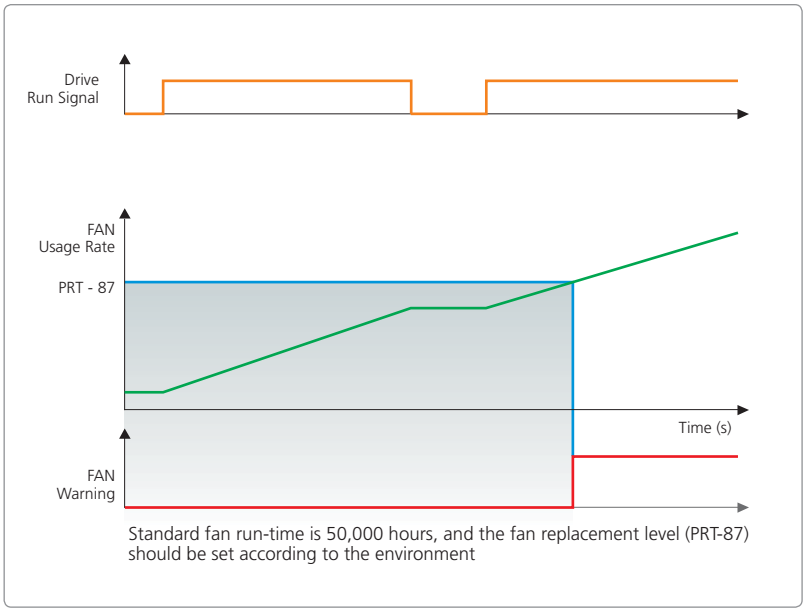
Built-in EMC Filter

Embeded EMC filter to meet IEC 61800-3 standards for noise reduction



Fan Lifecycle Diagnosis

Displays fan replacement warning message with digital output or keypad



Standard fan run-time is 50,000 hours, and the fan replacement level (PRT-87) should be set according to the environment

MIL 217Plus based Design

Reliability design basis tool (PSA, Fr-FMEA, FTA, RBD,PBS)
Improved circuit robustness through strict quality margins

Category	NX2000+
Estimated Life Cycle	240, 455 hrs (27 yrs) (Accelerated life test result : 295, 951 hrs)
Reliablity Test Method	MTTF
Standard	MIL - HDBK-217F RIAC HDBK 217Plus
Ambient Temperature	30°C (86°F)

Material Design

Enhanced thermal resistance and intensity through upgraded materials
Increased thickness to prevent damage

Modbus RTU

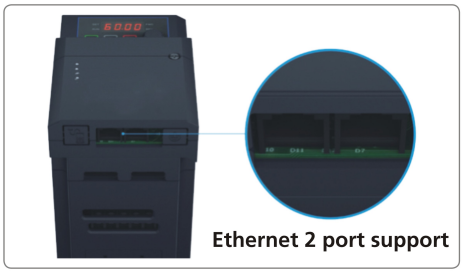
Modus TCP / Ethernet IP with dual port

User-friendly Design

Nx2000+ is convenient to install, control, perform maintenance and many other functions.

Fieldbus Options

Provides various communication options with simple mounting structure
- Dual Port Ethernet/IP, Modbus TCP, RAPIEnet
- Profibus-DP
- CANopen



Ethernet 2 port support

Built-in Potentiometer

Easy operation with built-in potentiometer

Remote Keypad Option

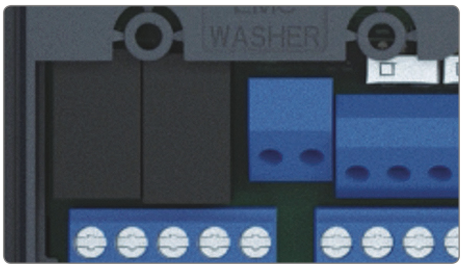
Copy parameter (Read/Write)
using remote keypads

PC Tools (Drive Connect)

New version PC Tool
- Windows-based graphic user interface (GUI)
- Modbus RTU & Modbus TCP
- Connecting multiple drives
- Integrated control console
- Offline editing function
- Data upload/download
- 8-channel oscilloscope
- Trigger function

Built in 2No's Multi Function Relays

Cost efficient and easy to compose system
with two embedded relays.



Simplified SLVC Setup

Tuning parameters reduced to 6 Nos

Before

Parameter	Name	Parameter Description
CON-09	PreEx Time	Initial excitation time
CON-10	Flux Force	Initial excitation amount
CON-20	SI2 G View Sel	Sensorless gain display setting
CON-21	ASR-SL P Gain 1	Sensorless speed controller proportional gain 1
CON-22	ASR-SL I Gain 1	Sensorless speed controller integral gain 1
CON-23	ASR-SL P Gain 2	Sensorless speed controller proportional gain 2
CON-24	ASR-SL I Gain 2	Sensorless speed controller integral gain 2
CON-25	ASR-SL I Gain 0	Sensorless speed controller integral gain 0
CON-26	Flux P Gain	Flux estimator proportional gain
CON-27	Flux I Gain	Flux estimator integral gain
CON-28	S-Est P Gain 1	Speed estimator proportional gain 1
CON-29	S-Est I Gain 1	Speed estimator integral gain 1
CON-30	S-Est I Gain 2	Speed estimator integral gain 2
CON-31	ACR SL P Gain	Current controller P gain
CON-32	ACR SL I Gain	Current controller I gain
CON-54	FWD + Trq Limit	Positive-direction reverse torque limit
CON-55	FWD - Trq Limit	Positive-direction regeneration torque limit
CON-56	REV + Trq Limit	Negative-direction reverse torque limit
CON-57	REV - Trq Limit	Negative-direction regeneration torque limit
CON-85	Flux P Gain 1	Flux estimator proportional gain 1
CON-86	Flux P Gain 2	Flux estimator proportional gain 2
CON-87	Flux P Gain 3	Flux estimator proportional gain 3
CON-88	Flux I Gain 1	Flux estimator integral gain 1
CON-89	Flux I Gain 2	Flux estimator integral gain 2
CON-90	Flux I Gain 3	Flux estimator integral gain 3
CON-91	SL Volt Comp 1	Sensorless voltage compensation 1
CON-92	SL Volt Comp 2	Sensorless voltage compensation 2
CON-93	SL Volt Comp 3	Sensorless voltage compensation 3
CON-94	SL FW Freq	Sensorless field weakening start frequency
CON-95	SL Fc Freq	Sensorless gain switching frequency

After

Parameter	Name	Parameter Description
CON-21	Out Trq. Comp. Gain at Low Spd.	Output Torque Compensation Gain at Low speed
CON-22	Out Trq. Comp. Gain	Output Torque Compensation Gain
CON-23	Spd. Comp. Sub Gain	Speed Compensation Subsidiary Gain
CON-24	Spd. Comp. Main Gain	Speed Compensation Main Gain
CON-29	Spd. Comp. Gain at No-load	Speed Compensation Gain at No-load
CON-30	Spd. Response Adjustment Gain	Speed Response Adjustment Gain

Easy Modbus Communication Connection

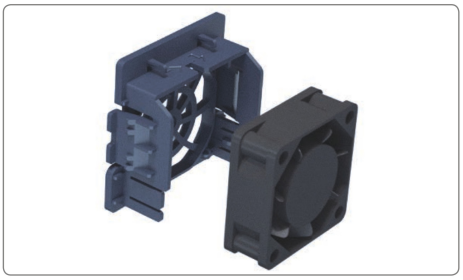
2 type of connection of Modbus communication
- RJ45 Port
- I/O (S+, S-)
- Communication Speed - upto 115kbps

DIN Rail Mount (upto 4kW)

Install using DIN rails (Side-by-Side)

Fan Replacement

Simple cooling fan replacement procedure



Operation Group

- Access commonly used parameters in the operation group
- Identical Parameter group structure for all x2000 series

x2000 Series Parameter Group Configuration Applied

Model & Type

Motor rating	Three - Phase 230V Normal duty	Three - Phase 415V Normal duty
0.75 kW	LTVF-N203P1BAA	LTVF-N402P0BAA
1.50 kW	LTVF-N206P0BAA	LTVF-N403P1BAA
2.20 kW	LTVF-N209P6BAA	LTVF-N405P1BAA
3.70 kW	LTVF-N212P0BAA	LTVF-N406P9BAA
5.50 kW	LTVF-N218P0BAA	LTVF-N410P0BAA*
7.50 kW	LTVF-N230P0BAA	LTVF-N416P0BAA*
11 kW	LTVF-N240P0BAA	LTVF-N423P0BAA*

LTVF	- N	4	00P0	B	A	A
E&A Variable Frequency Drive	Nx2000 Series	2: 3Φ 200~240V 4: 3Φ 380~480V	Normal Duty Amp 06P9 : 6.9Amp	B : IP20	With Built-in keypad	Reserved

Note: * Available soon

Model LTVF-N2□□□□BAA			03P1	06P0	09P6	12P0	18P0	30P0	40P0
Applied motor	Heavy load	HP	0.5	1.0	2.0	3.0	5.0	7.5	10.0
		kW	0.4	0.75	1.5	2.2	4.0	5.5	7.5
	Normal load	HP	1.0	2.0	3.0	5.0	7.5	10.0	15.0
		kW	0.75	1.5	2.2	3.7	5.5	7.5	11.0
Rated output	Rated capacity (kVA)	Heavy load	1.0	1.9	3.0	4.2	6.5	9.1	12.2
		Normal load	1.2	2.3	3.8	4.6	6.9	11.4	15.2
	Rated current [3-Phase input] (A)	Heavy load	2.5	5.0	8.0	11.0	17.0	24.0	32.0
		Normal load	3.1	6.0	9.6	12.0	18.0	30.0	40.0
	Rated current [1-Phase input, 230V] (A)	Heavy load	1.5	2.8	4.6	6.1	9.3	12.8	17.4
		Normal load	2.0	3.6	5.9	6.7	9.8	16.3	22.0
	Output frequency		0~400Hz (IM Sensorless: 0~120Hz)						
	Output voltage (V)		3-phase 200-240 V						
Rated input	Working voltage (V)		3-phase 200-240 VAC (-15% to +10%)						
	Input frequency		50~60Hz (±5%)						
	Rated current [3-Phase input] (A)	Heavy load	2.2	4.9	8.4	11.8	18.5	25.8	34.9
		Normal load	3.0	6.3	10.8	13.1	19.4	32.7	44.2
Weight (kg)			1.04	1.06	1.36	1.4	1.89	3.08	3.21

Model LTVF-N4□□□□BAA			02P0	03P1	05P1	06P9	10P0	16P0	23P0
Applied motor	Heavy load	HP	0.5	1.0	2.0	3.0	5.0	7.5	10.0
		kW	0.4	0.75	1.5	2.2	4.0	5.5	7.5
	Normal load	HP	1.0	2.0	3.0	5.4	7.5	10.0	15.0
		kW	0.75	1.5	2.2	3.7	5.5	7.5	11.0
Rated output	Rated capacity (kVA)	Heavy load	1.0	1.9	3.0	4.2	6.5	9.1	12.2
		Normal load	1.5	2.4	3.9	5.3	7.6	12.2	17.5
	Rated current [3-Phase input] (A)	Heavy load	1.3	2.5	4.0	5.5	9.0	12.0	16.0
		Normal load	2.0	3.1	5.1	6.9	10.0	16.0	23.0
	Rated current [Phase-Phase input, 415V] (A)	Heavy load	0.7	1.4	2.1	2.8	4.9	6.4	8.7
		Normal load	1.3	1.9	2.8	3.6	5.4	8.7	12.6
	Output frequency		0~400Hz (IM Sensorless: 0~120Hz)						
	Output voltage (V)		3-phase 380-480 V						
Rated input	Working voltage (V)		3-phase 380-480 VAC (-15% to +10%)						
	Input frequency		50~60Hz (±5%)						
	Rated current [3-Phase input] (A)	Heavy load	1.1	2.4	4.2	5.9	9.8	12.9	17.5
		Normal load	2.0	3.3	5.5	7.5	10.8	17.5	25.4
Weight (kg)			1.04	1.08	1.44	1.46	1.98	3.24	3.28

Specifications

Control

Control Method	V/F, Slip Compensation, Sensorless Vector
Frequency Setting Resolution	Digital command : 0.01Hz Analog command : 0.05Hz
Frequency Accuracy	1% of the maximum output frequency
V/F Pattern	Linear, squared, user V/F
Overload Capacity	HD:150% for 1 minute, ND: 120% for 1 minute
Torque Boost	Manual/Automatic torque boost

Operation

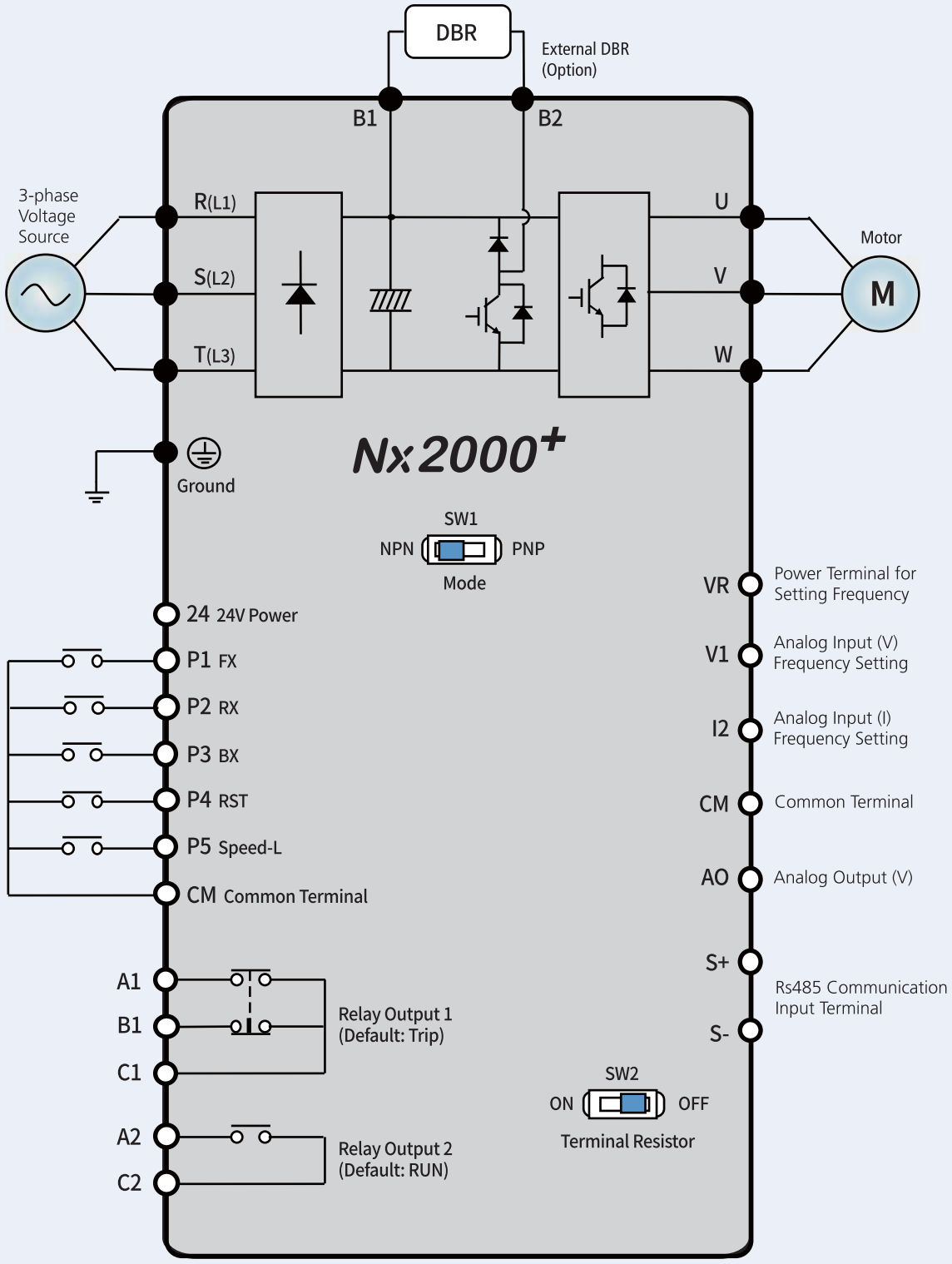
Operation Mode		Select keypad, terminal strip, or communication operation	
Frequency Setting		Analog: -10~10[V], 0~10[V], 4~20[mA] Digital : Keypad	
Operation Function		PID control, 3-wire operation, Frequency limit, Second function, Anti-forward and reverse direction rotation, Commercial transition, Speed search, Power braking, Leakage reduction, Frequency up/down operation, DC braking, Frequency jump, Slip compensation, Automatic restart, Automatic tuning, Energy buffering, Flux braking, Fire mode	
Input	**Multi-Function Terminal (5 Points)**	NPN (Sink) / PNP (Source) Selectable	
		Function: Forward run, Reverse run, Reset, External trip, Emergency stop, Jog operation, Multi-step frequency-high, middle, low, Multi-step acceleration/deceleration-high, middle, low, DC braking at stop, 2nd motor select, Frequency up/down, 3-wire operation, change into normal operation during PID operation, Analog command frequency fixing, Acceleration/deceleration stop etc. selectable	
	Analog Input	V1:-10~10V, I2: 4~20mA	
Output	**Multi-funaction Relay Terminal**	Fault output and drive operation status output	(N.O., N.C.) less than AC 250V 1A, less than DC 30V 1A
	Analog Output	0~12Vdc: Frequency, Output current, Output voltage, DC link voltage etc. selectable	

Protective Function

Trip	Over current trip, external signal trip, ARM short current fault trip, Over heat trip, input phase loss trip, ground trip, motor over heat trip, I/O board link trip, no motor trip, parameter writing trip, emergency stop trip, command loss trip, external memory error, CPU watchdog trip, motor light load trip Over voltage trip, temperature sensor trip, inverter over heat, option trip, output image trip, inverter overload trip, fan trip, pre-PID operation failure external brake trip, low voltage trip during operation, low voltage trip, analog input error, motor overload trip, over torque trip, under torque trip
Alarm	Command loss trip warning, overload warning, light load warning, inverter overload warning, fan operation warning, braking resistance braking rate warning, rotor time constant tuning error, inverter pre-overheat warning, over torque warning, under torque warning
Momentary Power Loss	HD below 15ms (ND below 8ms): Continuous operation (To be within rated input voltage, rated ouput) HD above 15ms (ND above 8ms): Automatic restart operation enable

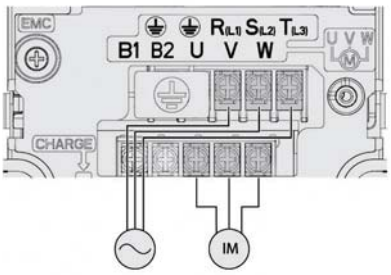
Environment

Cooling Type	Forced fan cooling structure
Enclosure Type	IP20/UL Open (Default), UL Enclosed type 1 (Option)
Conformal Coating	Complies to IEC 60721-3-3 class 3C3 (Avg)
Ambient Temperature	Ambient temperature under the condition of no ice or frost. HD: -10~50°C(14~122°F) / ND: -10~40°C(14~104°F) [However, recommended to use load upto 80% when using Normal Duty rating at 50° C]
Humidity	Relative humidity upto 95% RH (no dew formation)
Storage Temperature	-20~65°C (-4~149°F)
Location	No corrosive gas, flammable gas, oil mist and dust etc. indoor (Pollution degree 2 environment)
Altitude, Vibration	Below 1,000m (From 1000 to 4000m, the rated input voltage and rated output current of the drive must be derated by 1% for every 100m.), below 9.8m/sec^2 (1G)
Pressure	70~106 kPa

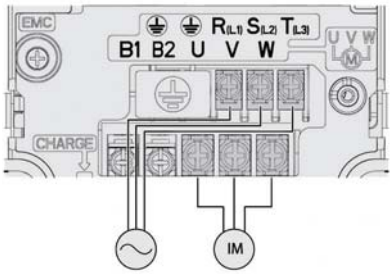

DBR
External DBR
(Option)
B1
B2
3-phase
Voltage
Source
R(L1)
S(L2)
T(L3)
U
V
W
Motor
M
Nx2000+
Ground
SW1
NPN
PNP
Mode
24 24V Power
P1 FX
P2 RX
P3 BX
P4 RST
P5 Speed-L
CM Common Terminal
A1
B1
C1
Relay Output 1
(Default: Trip)
A2
C2
Relay Output 2
(Default: RUN)
VR
Power Terminal for
Setting Frequency
V1
Analog Input (V)
Frequency Setting
I2
Analog Input (I)
Frequency Setting
CM
Common Terminal
AO
Analog Output (V)
S+
S-
Rs485 Communication
Input Terminal
SW2
ON
OFF
Terminal Resistor

Power Terminals

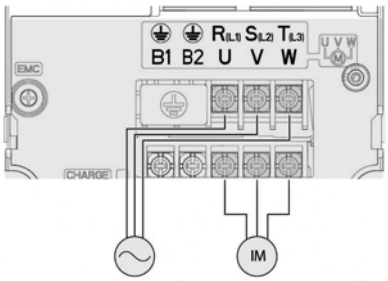
0.4/0.75kW



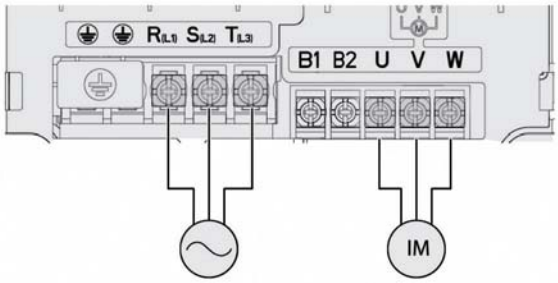
1.54/2.2kW



4.0kW



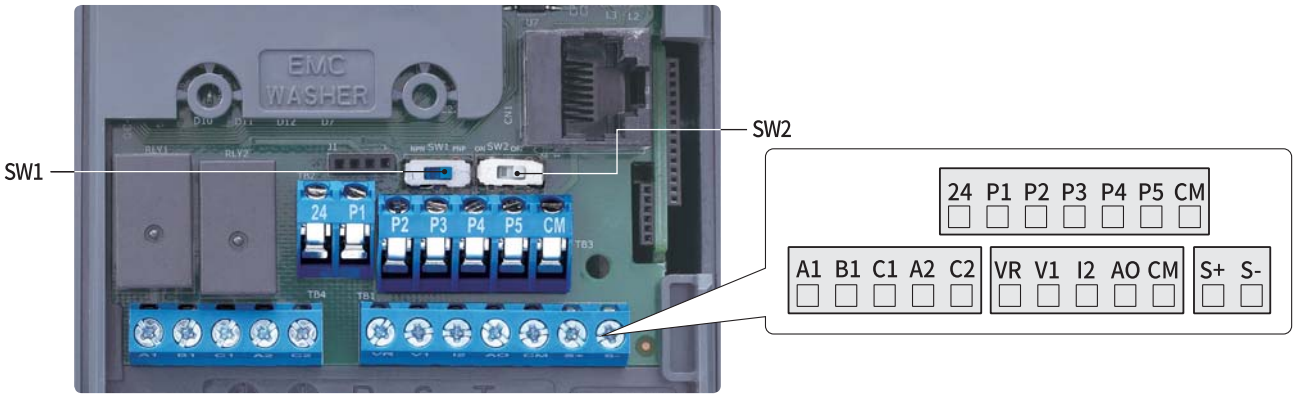
5.5/7.5kW



Terminal Labels	Name	Description
⏚	Ground terminal	Connect earth grounding
R(L1)/S(L2)/T(L3)	AC power input terminal	Mains supply AC power connections
B1/B2	Brake resistor terminals	Brake resistor wiring connection
U/V/W	Motor output terminals	3-phase induction motor wiring connections

Capacity (kW)		Terminal Screw Size	Rated Screw Torque (Kgf.cm/Nm)
3-Phase 230V Class	0.4	R/S/T, U/V/W : M3	R/S/T, U/V/W : 5.1/0.5
	0.75		
	1.5	R/S/T, U/V/W : M4	R/S/T, U/V/W : 12.1/1.2
	2.2		
	4	R/S/T, U/V/W : M4	R/S/T, U/V/W : 18.4/1.8
	5.5	R/S/T, U/V/W : M4	R/S/T : 24.0/2.4 U/V/W : 15.0/1.5
	7.5		
3-Phase 415V Class	0.4	R/S/T, U/V/W : M3.5	R/S/T, U/V/W : 10.3/1.0
	0.75		
	1.5		
	2.2		
	4	R/S/T, U/V/W : M4	R/S/T, U/V/W : 18.4/1.8
	5.5	R/S/T, U/V/W : M4	R/S/T : 14.3 / 1.4 U/V/W : 18.4 / 1.8
	7.5		

- Only use the specified torque on the screw heads otherwise damage could occur. Loose screws can cause overheating and damage.
- Use copper wires with 600V, 75°C specification.

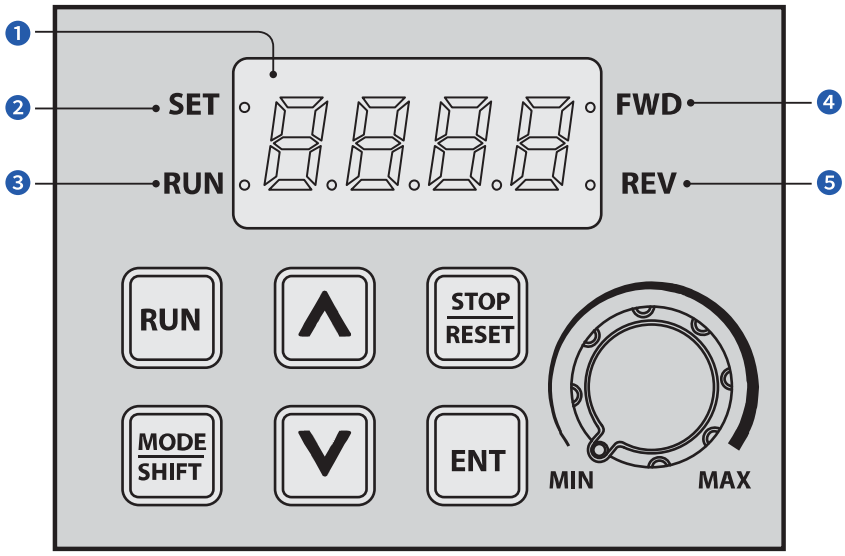


Terminals	Terminal Screw Size	Screw Torque (Kgf.cm/Nm)
P1~P5/CM/VR/V1/I2/AO/24/S+/S-	M2	2.2~2.5/0.22~0.25
A1/B1/C1,A2/C2	M2.6	4.0/0.4

- Only use the specified torque on the screw heads otherwise damage could occur.
  Loose screws can cause overheating and damage.

Category	Terminal Labels	Name	Description
Multi-function Terminal Configuration	P1~P5	Multi-function Input 1-5	Configurable for multi-function input terminal. Factory default terminal ad setup are as follows. • P1:Fx • P2:Rx • P3:Bx • P4:RST • P5:Speed-L
	24	External 24V power source	Maximum current output: 100mA
	CM	Sequence common terminal	Common terminal for digital & analog terminal inputs and outputs.
Analog Input	VR	Potentiometer frequency reference input	Used to setup or modify a frequency reference via analog voltage or current input. • Maximum voltage output:12V • Maximum current output:100mA • Potentiometer:1/5 kΩ
	V1	Voltage input for frequency reference input	Used to setup or modify a frequency reference via analog voltage input terminal. • Unipolar: 0-10V (12V Max.) • Bipolar: -10-10V (±12V Max.)
	I2	Current input for frequency reference input terminal	Used to setup or modify a frequency reference via current input terminal. • Input current: 4-20 mA • Maximum Input current:24mA • Input resistance: 249 Ω
Analog Output	AO	Voltage Output terminal	Used to send inverter output information to external devices: Output frequency, output current, output voltage, or a DC voltage. • Output voltage: 0-10V • Maximum output voltage/Current: 12V, 10mA • Factory default output: Frequency
Digital Output	A1/C1/B1	Fault signal output 1	Sends out alarm signals when the inverter's safety features are activated (AC 250V 1A, DC 30V 1A) • Fault condition:A1 and C1 contacts are connected (B1 and C1 open connection) • Normal operation : B1 and C1 contacts are connected (A1 and C1 open connection)
	A2/C2	Fault signal output 2	Sends out alarm signals when the inverter's safety features are activated (AC 250V 1A, DC 30V 1A) • Fault condition: A2 and C2 contacts are connected • Normal operation: A2 and C2 contacts are open condition
RS-485 Communication	S+/S-	RS-485 signal line	Used to send or receive RS-485 signals.

Keypad Functions



No.	Name	Function
1	7-Segment Display	Displays Current Operational status and Parameter information.
2	SET Indicator	LED flashes during parameter configuration.
3	RUN Indicator	LED turns on (Steady) during an operation, and flashes during acceleration or deceleration.
4	FWD Indicator	LED turns on (Steady) during forward operation.
5	REV Indicator	LED turns on (Steady) during reverse operation

Key	Name	Function
RUN	[RUN] Key	Used to run the inverter (Inputs a RUN command).
STOP RESET	[STOP/RESET] Key	STOP: Stops the inverter RESET: Resets the inverter if a fault or failure occurs.
▲ ▼	[▲] Key, [▼] Key	Switches between codes, or increases or decreases parameter values.
MODE SHIFT	[MODE/SHIFT] Key	Moves between groups or moves to the digit on the left when setting the parameter. Press the MODE/SHIFT key once again on the maximum number of digits to move to the minimum number of digits.
ENT	[ENTER] Key	Switches from the selected state of parameter to the input state. Edits parameter and apply change. Accesses the operation information screen during failure.
▲ + ▼ MODE SHIFT + ▼ MODE SHIFT + ▲	-	Escape to the initial display.
MIN MAX	Potentiometer or Rotating Knob	Used to set the operation frequency.

Group	Keypad Display	Description
Operation	-	Configures basic parameters for inverter operation.
Drive		Configures parameters for basic operation. These include jog operation, motor capacity evaluation, torque boost, and other keypad related Parameters
Basic		Configures basic operation parameters These parameters include motor parameters and multi-step frequency parameters.
Advanced		Configures acceleration or deceleration patterns, frequency limits, etc.
Control		Configures sensorless vector-related features.
Input Terminal		Configures input terminal-related features, including digital multi-functional inputs and analog inputs.
Output Terminal		Configures output terminal-related features such as relays and analog outputs.
Communication		Configures communication features for RS -485 or other communication options.
Application		Configures functions related to PID control.
Protection		Configures motor and inverter protection features
Motor 2 (Secondary Motor)		Configures secondary motor related features. The secondary motor (M2) group appears on the keypad only when one of the multi-function Input terminals (In.65-In.69) has been set to 26 (secondary motor).

Braking Resistor Specification

Product (kW) HD		Resistance(Ω)	Rated Capacity (W)
3-Phase 230V	0.4	300	100
	0.75	150	150
	1.5	60	300
	2.2	50	400
	3.7	33	600
	4.0	33	600
	5.5	20	800
	7.5	15	1,200
3-Phase 415V	0.4	1,200	100
	0.75	600	150
	1.5	300	300
	2.2	200	400
	3.7	130	600
	4.0	130	600
	5.5	85	1,000
	7.5	60	1,200

* The standard for braking torque is 150% and the working rate (%ED) is 5%. If the working rate is 10% the rated capacity for braking resistance must be calculated at twice the standard.

Compatible Circuit Breaker & Magnetic Contactor Models of L&T Electrical & Automation

Inverter Capacity (kW) HD		Specification of Breaker (MPCB / MCCB)				Magnetic Contactor			
		Heavy Duty		Normal Duty		Heavy Duty		Normal Duty	
		Type	A	Type	A	Type	A	Type	A
3-Phase 230V	0.4	MOG-S1/MOG-H1	2.5-4.0	MOG-S1/MOG-H1	4.0-6.3	MNX	9	MNX	9
	0.75	MOG-S1/MOG-H1	4.0-6.3	MOG-S1/MOG-H1	9.0-13.0	MNX	9	MNX	9
	1.5	MOG-S1/MOG-H1	9.0-13.0	MOG-S1/MOG-H1	14.0-20.0	MNX	9	MNX	12
	2.2	MOG-S1/MOG-H1	14.0-20.0	MOG-S1/MOG-H1	14.0-20.0	MNX	12	MNX	12
	4.0	MOG-S1/MOG-H1	24.0-32.0	MOG-S1/MOG-H1	24.0–32.0	MNX	18	MNX	18
	5.5	MOG-S1/MOG-H1	28.0-40.0	MOG-H2	35.0-50.0	MNX	25	MNX	32
	7.5	MOG-H2	35.0-50.0	MOG-H2	45.0-63.0	MNX	32	MNX	40
3-Phase 415V	0.4	MOG-S1/MOG-H1	1.6-2.5	MOG-S1/MOG-H1	4.0-6.3	MNX	9	MNX	9
	0.75	MOG-S1 /MOG-H1	2.5-4.0	MOG-S1/MOG-H1	4.0-6.3	MNX	9	MNX	9
	1.5	MOG-S1 /MOG-H1	4.0-6.3	MOG-S1/MOG-H1	6.3-10.0	MNX	9	MNX	9
	2.2	MOG-S1 /MOG-H1	6.3-10	MOG-H1	6.3-10.0	MNX	9	MNX	9
	4.0	MOG-H1	11.0-16.0	MOG-H1	11.0-16.0	MNX	9	MNX	18
	5.5	MOG-H1	11.0-16.0	MOG-H1	14.0-20.0	MNX	18	MNX	18
	7.5	MOG-H1	14.0-20.0	MOG-H1	24.0-32.0	MNX	18	MNX	25

Fuse & Reactor Specification

Inverter capacity (kW) HD		AC Input Fuse			AC Reactor	
		Model	Current [A]	Voltage [V]	Inductance (mH)	Current (A)
3-Phase 230V	0.4 / 0.75	DFJ-10	10	600	1.2	10
	1.5	DFJ-15	15		0.88	14
	2.2	DFJ-20	20		0.56	20
	4.0	DFJ-30	30		0.39	30
	5.5	DFJ-50	50		0.3	34
	7.5	DFJ-60	60		0.22	45
3-Phase 415V	0.4 / 0.75	DFJ-10	10	600	4.81	4.8
	1.5	DFJ-10	10		3.23	7.5
	2.2	DFJ-15	15		2.34	10
	4.0	DFJ-20	20		1.22	15
	5.5	DFJ-30	30		1.12	19
	7.5	DFJ-35	35		0.78	27

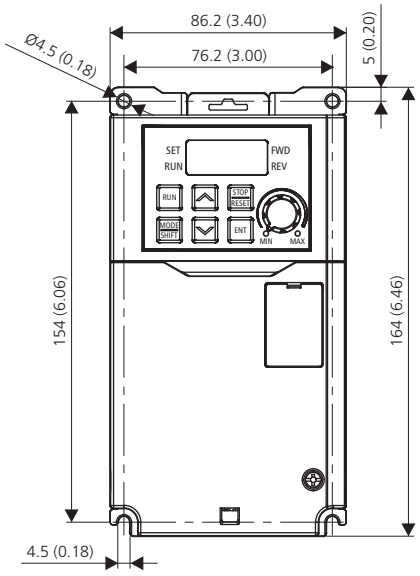
Drive Watt Loss Data

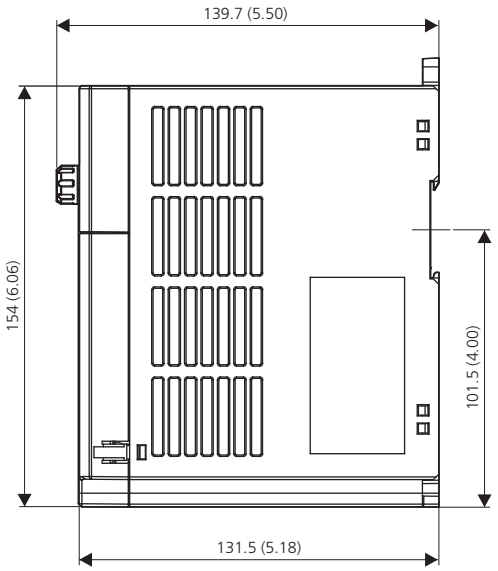
Voltage	Model Number	Rated Power (kW)	HD				ND			
			Rated Output Current (A)	Total Losses (W)	Internal Losses (W)	Heat Losses (Kacl)	Rated Output Current (A)	Total Losses (W)	Internal Losses (W)	Heat Losses (Kacl)
220	LTVF-N203P1BAA	0.4	2.5	19	16.8	2	3.1	24	16.8	7
220	LTVF-N206P0BAA	0.75	5.0	34	16.8	14	6.0	37	16.8	17
220	LTVF-N209P6BAA	1.5	8.0	50	17.4	28	9.6	59	17.4	35
220	LTVF-N212P0BAA	2.2	11.0	80	17.4	54	12.0	89	17.4	62
220	LTVF-N218P0BAA	4.0	17.0	127	17.7	94	18.0	160	17.7	122
220	LTVF-N230P0BAA	5.5	24.0	173	18.7	132	30.0	267	18.7	214
220	LTVF-N240P0BAA	7.5	32.0	247	18.7	197	40.0	398	18.7	326
440	LTVF-N402P0BAA	0.4	1.3	21	17.4	3	2.0	22	17.4	4
440	LTVF-N403P1BAA	0.75	2.5	25	17.4	7	3.1	31	17.4	12
440	LTVF-N405P1BAA	1.5	4.0	40	17.7	19	5.1	47	17.7	25
440	LTVF-N406P9BAA	2.2	5.5	54	17.7	31	6.9	57	17.7	33
440	LTVF-N410P0BAA	4.0	9.0	93	18.7	64	10.0	125	18.7	91
440	LTVF-N416P0BAA	5.5	12.0	170	19.7	129	16.0	153	19.7	115
440	LTVF-N423P0BAA	7.5	16.0	194	19.7	149	23.0	225	19.7	177

Note: Total Losses (W) = Internal Losses (W) + Heat Loss (W)
1wh = 3,600J,1kcal = 4,186 J

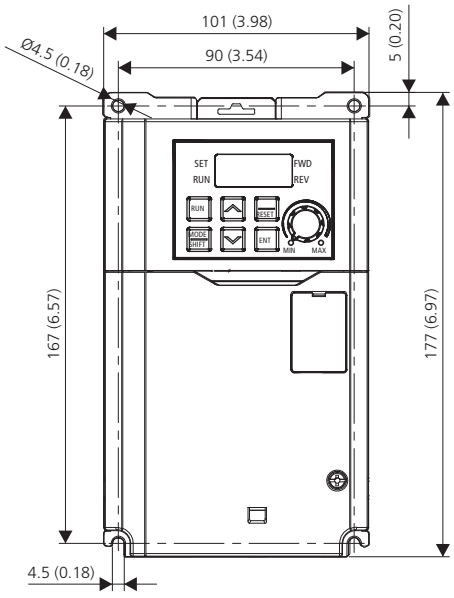
Dimensions

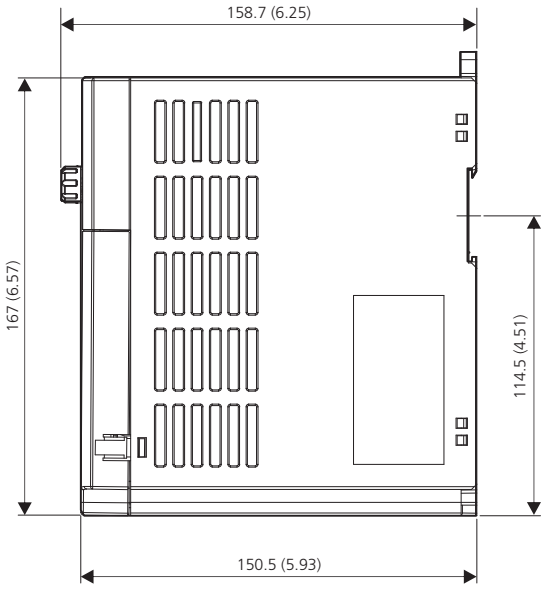
0.4~0.75kW (LTVF- N203P1BAA, LTVF-N206P0BAA, LTVF-N402P0BAA, LTVF-N403P1BAA)





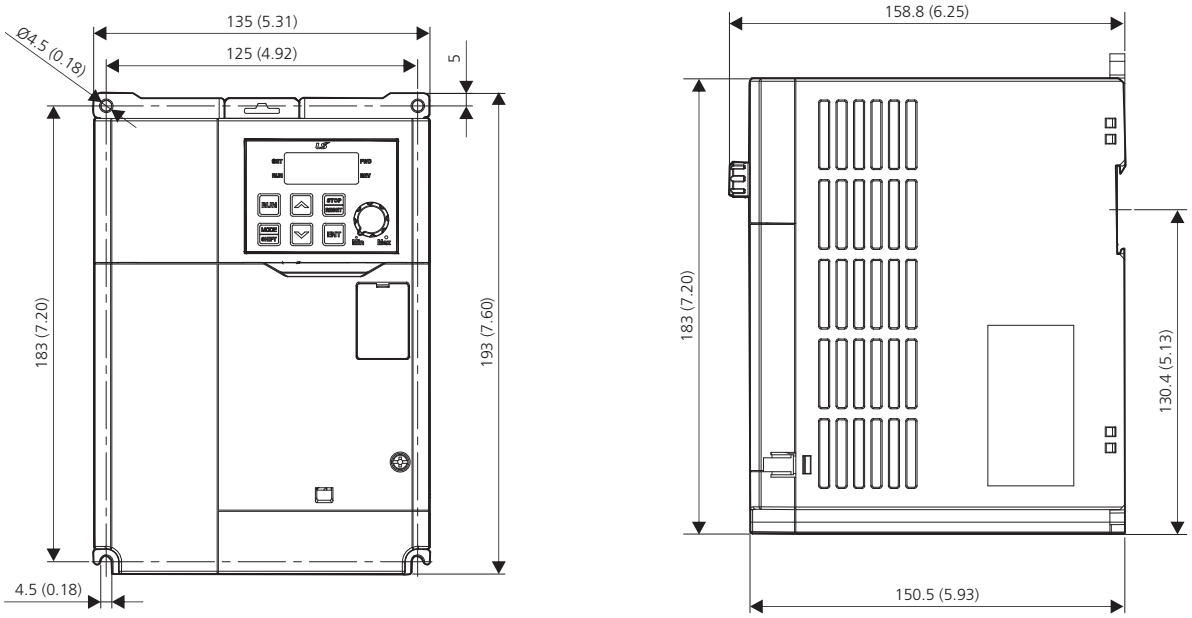
1.5~2.2kW (LTVF-N209P6BAA, LTVF-N212P0BAA, LTVF-N405P1BAA, LTVF-N406P9BAA)



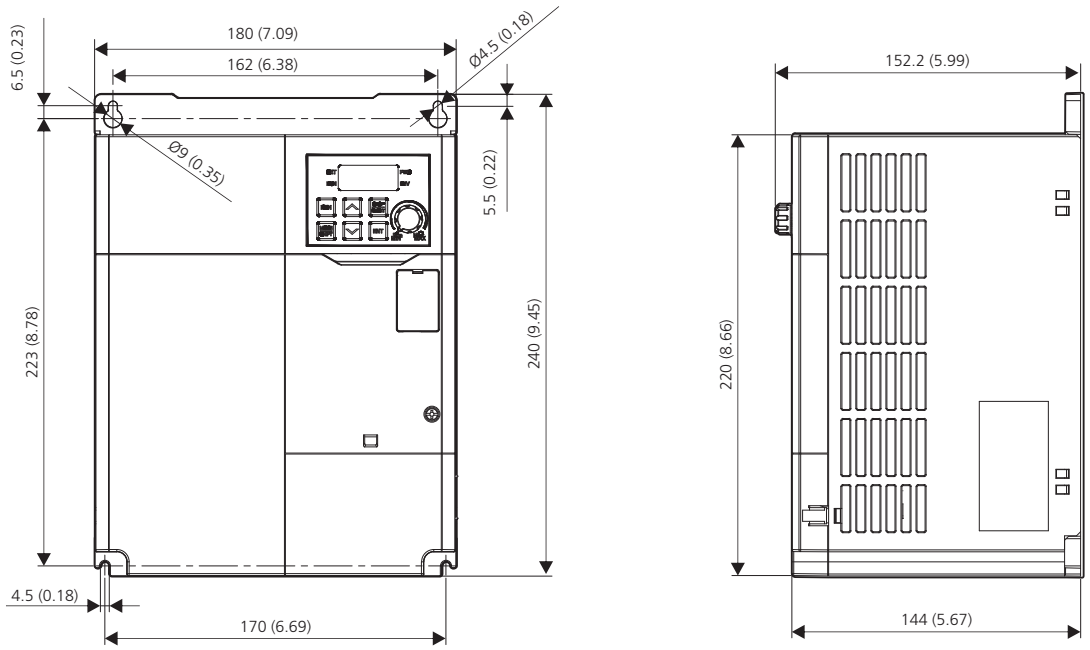


Units: mm (inches)

4.0kW (LTVF-N218P0BAA, LTVF-N410P0BAA)



5.5~7.5kW (LTVF-N230P0BAA, LTVF-N240P0BAA, LTVFN416P0BAA, LTVF-N423P0BAA)



Units: mm (inches)

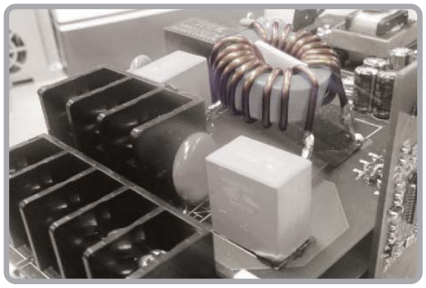
Nx2000

Single Phase 230V (0.2 - 2.2kW)

Nx2000

The best way to save money & time

- Built-in EMC Filter
- New UL61800-5-1 Design
- Built-in DB Unit : ⩾1.5kW
- Built-in Modbus Communication
- User - Friendly Design
  - DIN - rail mountable
  - Side-by-side installation
  - Easy connection with Rj45 port
  - Modbus / Smart Copier / Remote keypad / DriveConnect



Built-in EMC Filter

Side-by-Side Installation
(2mm between drives)

DIN-rail Mountable

Model and Type

LTVF	N	1	00P0	B	A	A
E&A Variable Frequency Drive	Nx2000 Series	1 : 1ϕ 200~240V	Heavy Duty Amp 01P4 : 1.4 Amp	B : IP20	With Built-in keypad	Reserved

Specification

Model LTVF - N1☐☐BAA			01P4	02P4	04P2	07P5	10P0
Applied motor	Heavy load	HP	0.25	0.5	1.0	2.0	3.0
		kW	0.2	0.4	0.75	1.5	2.2
Rated output	Rated capacity (kVA)		0.6	0.95	1.9	3.0	4.5
	Rated current (A)		1.4	2.4	4.2	7.5	10.0
	Output frequency		0~400Hz				
	Output voltage (V)		3-phase 200~240V				
Rated input	Working voltage (V)		Single phase 200~240Vac (-15%~+10%)				
	Input frequency		50~60Hz(±5%)				
	Rated current (A)		1.8	3.7	7.1	13.6	18.7
Weight (kg)			0.66	1.0		1.45	

Control

Control Method	V/F , Slip Compensation
Frequency Setting Resolution	Digital command : 0.01Hz Analog command : 0.05 Hz
Frequency Accuracy	1% of maximum output frequency
V/F Pattern	Linear, Square reduction, User V/F
Overload Capacity	150% for 1 min
Torque Boost	Manual / Automatic torque boost

Specifications

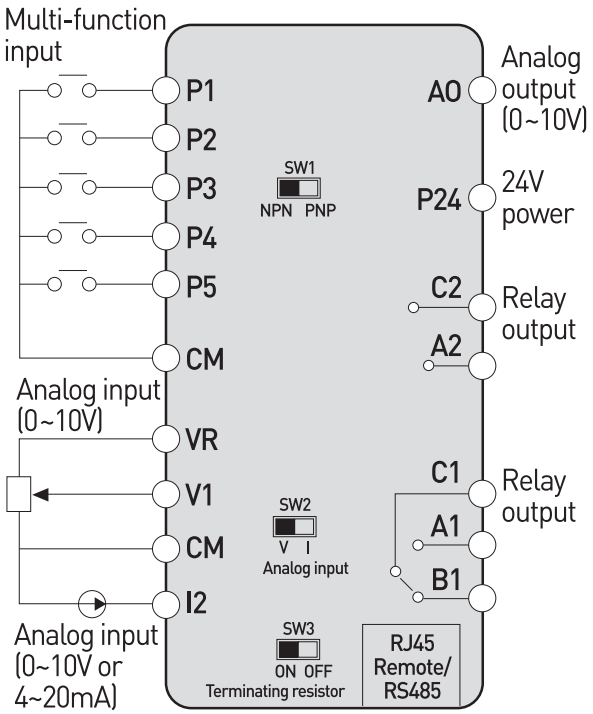
Operation

Operation Mode		Select keypad, Terminal strip or Communication operation	
Frequency Setting		Analog : 0~10 [V], 4~20 [mA], 0~20 [mA] Digital : Keypad	
Operation Function		Anti-forward and reverse direction rotation, Frequency jump, Frequency limit, DC braking, Jog operation, Up-down operation, 3-wire operation, Dwell operation, Slip compensation, PID control, Energy saving operation, Speed search, Automatic restart	
Input	**Multi-Function Terminal**	NPN (Sink) / PNP (Source) selectable	
		Function: Forward run, Reverse run, Reset, Emergency stop, Multi-step speed frequency-high/med/low, DC braking during stop, Frequency increase, 3-wire, Select acc/dec/stop, Reverse direction operation, External trip, Jog operation, Multi-step acc/dec-high/med/low, Second motor selection, Frequency reduction, Fix analog command frequency, Transition from PID to general operation	
	Analog Input	V1: 0~10V, I2: 4~20mA or 0~20mA	
Output	**Multi-function relay terminal**	Fault output and inverter operation status output	(N.O., N.C.) less than AC 250V 1A, less than DC 30V 1A
	Analog output	0-10 Vdc: Frequency, Output current, Output voltage, DC terminal voltage etc. selectable	

Environment

Ambient Temperature	-10~50°C (14~122°F), Ambient temperature under the condition of no ice or frost
Ambient Humidity	Relative humidity less than 95% RH (No condensation forming)
Storage Temperature	-20~65°C(-4~149°F)
Surrounding Environment	Prevent contact with corrosive gases, inflammable gases,oil stains, dust and other pollutants (Pollution degree 2 environment)
Altitude / Oscillation	Below 1,000m, below 9.8m / sec^2 (1G)
Pressure	70~106 kPa

I/O Configuration



Braking Resistor Specification

Product (kW) HD	Resistance (Ω)	Rated Capacity (W)
1.5	60	300
2.2	50	400

* The standard for braking torque is 150% and the working rate (%ED) is 5%. If the working rate is 10%, the rated capacity for braking resistance must be calculated at twice the standard

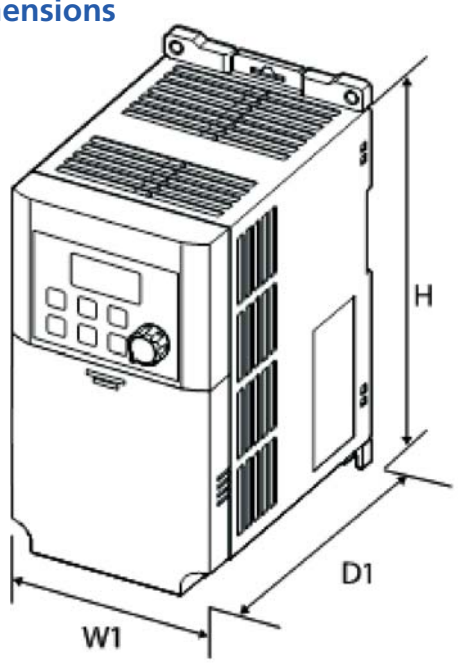
Compatible MCB & Magnetic Contactor of L&T Electrical & Automation

Inverter Capacity (kW) HD		Circuit Breaker		Magnetic Contactor	
		Model	Rating [A]	Model	Rating [A]
Single phase 200V	0.2kW	AU	6	MNX	9
	0.4kW	AU	6	MNX	9
	0.8kW	AU	10	MNX	9
	1.5kW	AU	20	MNX	18
	2.2kW	AU	25	MNX	22

Fuse and Reactor Specifications

Inverter capacity (KW) HD		AC Input Fuse		AC Reactor	
		Current [A]	Voltage[V]	Inductance[mH]	Current [A]
Single phase 200V	0.2kW	5	600	4.2	3.5
	0.4/0.8kW	10		1.2	10
	1.5kW	15		0.88	14
	2.2kW	20		0.56	20

Dimensions



CAT No.	W1	H	D1
LTVF-N101P4BAA	85 (3.34)	135 (5.31)	100 (3.94)
LTVF-N102P4BAA		153 (6.02)	123 (4.84)
LTVF-N104P2BAA			
LTVF-N107P5BAA	100 (3.94)	180 (7.08)	140 (5.51)
LTVF-N110P0BAA			

Units: mm (inches)

Notes:

Notes:

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