

V1000 Inverter

COMPACT CURRENT VECTOR DRIVE

200 V CLASS, THREE-PHASE INPUT: 0.1 to 18.5 kW
200 V CLASS, SINGLE-PHASE INPUT: 0.1 to 3.7 kW
400 V CLASS, THREE-PHASE INPUT: 0.2 to 18.5 kW



So advanced! So easy! So small!



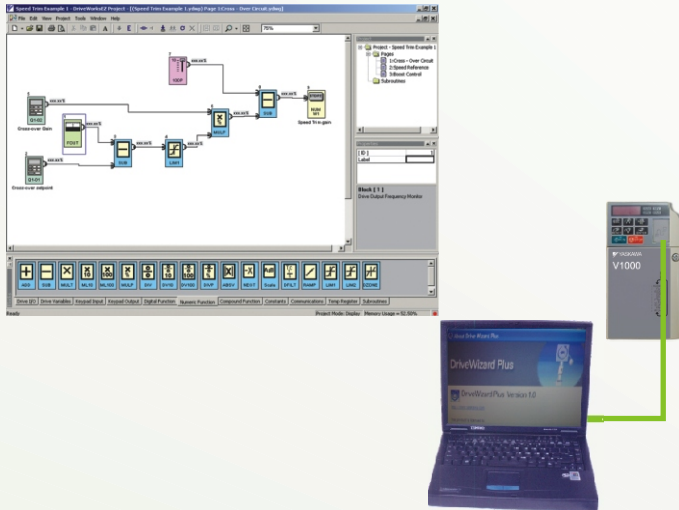
EBG - Control & Automation Business Unit

LARSEN & TOUBRO LIMITED

So Advanced!

Logic Programmability

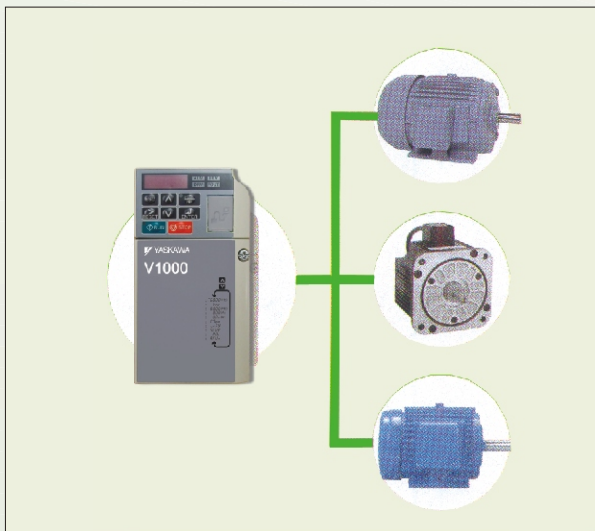
- Build Your Own Program Logic



Optional visual programming software lets you instantly customize V1000 to your application. Let the drive do external device or PLC functions! Easy Drag and Drop functions starting from simple timers up to complex application blocks let you create your very own drive.

Versatility - Two Drives in One

- Combined Drive for IM & PM



V1000 runs not only induction motors, but synchronous motors like IPM / SPM¹ motors as well. Get a single drive for all your application needs, and save on spare parts.

* For use with Yaskawa IPM / SPM motors
See product specifications for information on motor precision.
The variable torque ratio of synchronous motors is 1 to 10.

Optimal Performance

- On-line Tuning



Continuous monitoring of motor parameters eliminates influence of variation in motor temperature and governs the motor so as to eliminate need of fine-tuning.

* Only in Open Loop Vector control

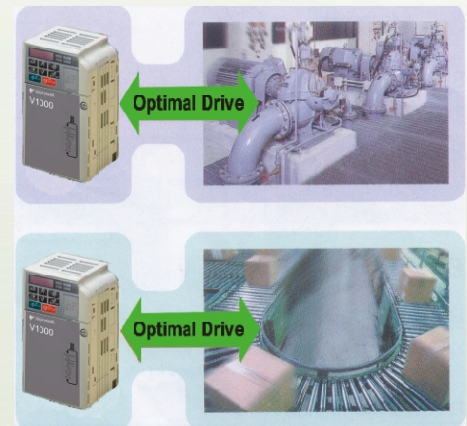
So easy!

Ready To Go - Application Presets

- Start-up Instantly for common Applications

Setting	Application Preset
01	Water Supply Pump
02	Conveyor
03	Exhaust Fan
04	HAVC Fan
05	Air Compressor
06	Crane (Hoist)
07	Crane (Travel)

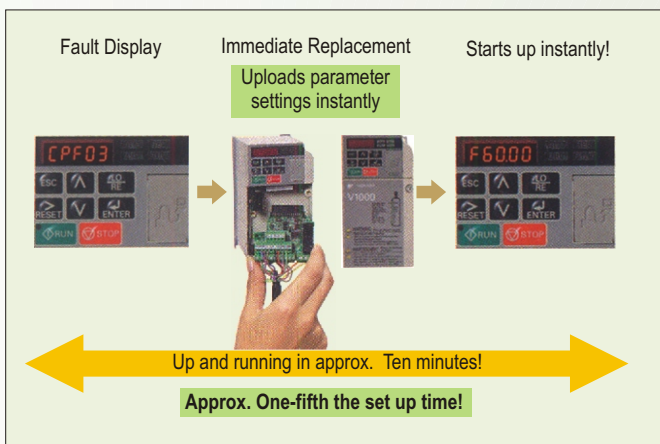
Parameters are programmed automatically	
B1-01	Frequency Reference Selection 1
B1-01	Run Command Selection 1
C1-01	Acceleration Time 1
C1-02	Deceleration Time 1



V1000 automatically sets the parameters needed for various applications. Presets for water supply pumps, conveyor systems, exhaust fans and other applications program the drive instantly for optimized performance, saving enormous hassles setting up for a test run.

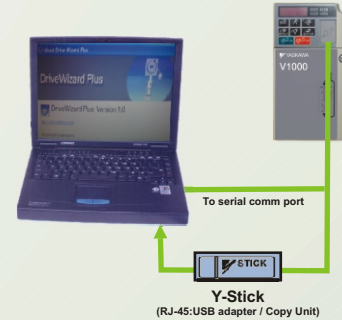
Long Life & Easy Maintenance

- Exceptional Performance Life - 10 years
(Assumes operation condition at 40°C, 80% Load & 24 Hours Operation)
- Maintenance Monitors specifying used percentage life for drive Components. (IGBT, DC Bus Capacitors, & Fan)
- Faster Replacement of drive with parameters backed up in Terminal Block.
- Last Fault Trace & Last Ten Fault History for easy Troubleshooting.
- Verify Menu listing all changed parameters from default setting enables easy understanding of application.



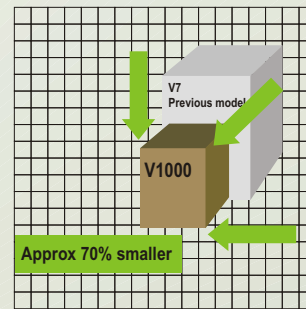
Back-up! Set-up!

- Backup parameters using USB copy Unit / PC DriveWizard Software.
- Instant Setup of New drives using stored Backup



So small!

Smallest in its Class



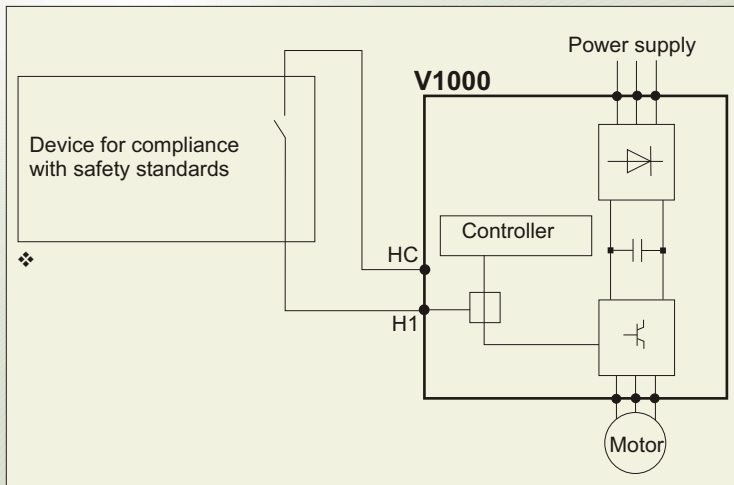
Yaskawa has applied the most advanced thermal simulation technology and top reliability to create the world's smallest compact drive. V1000 reduces the space required by approx. 70% when compared to our earlier models

* Volume compared with V1000 200V, 5.5kW Normal Duty

Safety Standard Compliance

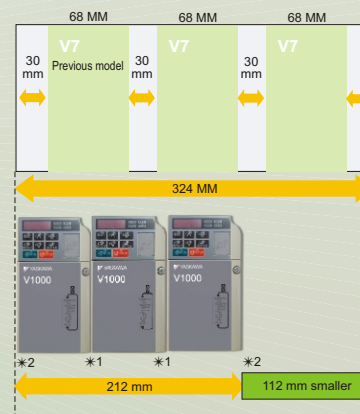
V1000 is the first drive in its class to come standard with safety input features compliant with EN954-1, safety category 3, IEC/EN61508 SIL2.

By being able to perform an EN60204-1, stop category 0 conforms safe stop. V1000 reduces the number of peripheral devices needed to satisfy the safety regulations.



- ❖ The time-between activation of the safety input and shutdown of the output is 1 ms.
- ❖ Be sure that the wiring length for the safety input is 30 m max.

Side by Side Mounting



Note: May require torque derating
*1: Drives should be spaced 2 mm apart.
*2: Leave a 3 mm gap from the wall.

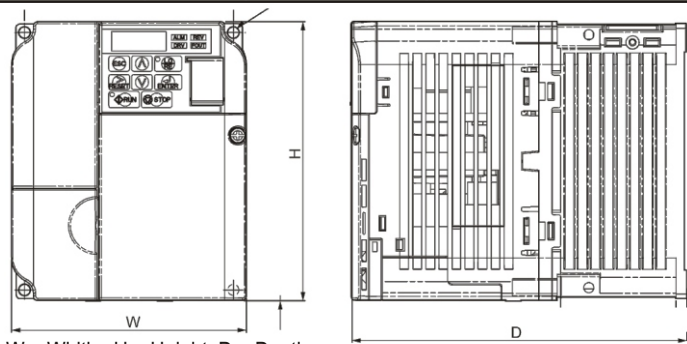
V1000 allows for a truly compact installation, requiring minimal space between units even in a tight enclosure.

* Example shown above is of 200V, 0.75kW

Ratings & Dimensions

Drive Specifications

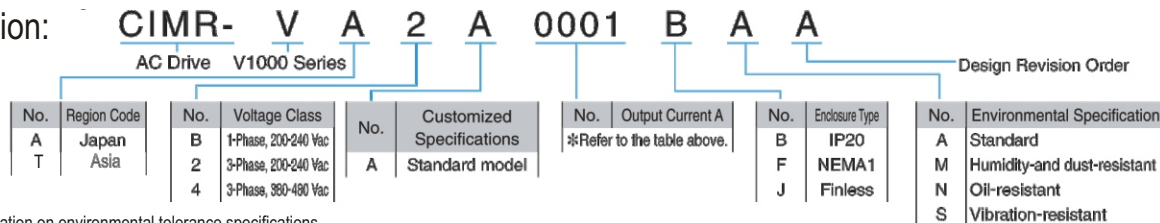
Rated Input Voltage	Drive Model	Rated Output Capacity						Dimensions (mm)		
		Normal Duty			Heavy duty			W	H	D
Range	CIMR-VA..	kW	Amp	KVA	kW	Amp	KVA			
200V - 240V 1 Phase	BA0001B	0.2	1.2	0.5	0.1	0.8	0.3	68	128	76
	BA0002B	0.4	1.9	0.7	0.2	1.6	0.6	68	128	76
	BA0003B	0.75	3.3	1.3	0.4	3.0	1.1	68	128	118
	BA0006B	1.1	6.0	2.3	0.75	5.0	1.9	108	128	137.5
	BA0010B	2.2	9.6	3.7	1.5	8.0	3.0	108	128	154
	BA0012B	3.0	12.0	4.6	2.2	11.0	4.2	140	128	163
	BA0018B	--	--	--	3.7	17.5	6.7	170	128	180
200V - 240V 3 Phase	2A0001B	0.2	1.2	0.5	0.1	0.8	0.3	68	128	76
	2A0002B	0.4	1.9	0.7	0.2	1.6	0.6	68	128	76
	2A0004B	0.75	3.3	1.3	0.4	3.0	1.1	68	128	108
	2A0006B	1.1	6.0	2.3	0.75	5.0	1.9	68	128	128
	2A0008B	1.5	8.0	3.0	1.1	6.9	2.6	108	128	129
	2A0010B	2.2	9.6	3.7	1.5	8.0	3.0	108	128	129
	2A0012B	3.0	12.0	4.6	2.2	11.0	4.2	108	128	137.5
	2A0018B	3.7	17.5	6.7	3.0	14.0	5.3	140	128	143
	2A0020B	5.5	19.6	7.5	3.7	17.5	6.7	140	128	143
	2A0030F	7.5	30.0	11.4	5.5	25.0	9.5	140	254	140
	2A0040F	11.0	40.0	15.2	7.5	33.0	12.6	140	254	140
	2A0056F	15.0	56.0	21.3	11.0	47.0	17.9	180	290	163
	2A0069F	18.5	69.0	26.3	15.0	60.0	22.9	220	350	187
	380V - 480V 3 Phase	4A0001B	0.4	1.2	0.9	0.2	1.2	0.9	108	128
4A0002B		0.75	2.1	1.6	0.4	1.8	1.4	108	128	99
4A0004B		1.5	4.1	3.1	0.75	3.4	2.6	108	128	137.5
4A0005B		2.2	5.4	4.1	1.5	4.8	3.7	108	128	154
4A0007B		3.0	6.9	5.3	2.2	5.5	4.2	108	128	154
4A0009B		3.7	8.8	6.7	3.0	7.2	5.5	108	128	154
4A0011B		5.5	11.1	8.5	3.7	9.2	7.0	140	128	143
4A0018F		7.5	17.5	13.3	5.5	14.8	11.3	140	254	140
4A0023F		11.0	23.0	17.5	7.5	18.0	13.7	140	254	140
4A0031F		15.0	31.0	23.6	11.0	24.0	18.3	180	290	143
4A0038F		18.5	38.0	29.0	15.0	31.0	23.6	180	290	163



W = Width, H = Height, D = Depth

Item	Specification
Rated Input Voltage	200V Class Single Phase & Three Phase : 200-240V, 400 V Class Three Phase: 380-480V, Allowed Variation: +10% to -15%
Rated Frequency	50/60 Hz, Allowed Variation: +/- 5%
Control Method	V/f Control, Open Loop Current Vector Control and PM Open Loop Vector for use with IPM / SPM (Sine Wave PWM) * For Yaskawa IPM / SPM
Frequency Control Range	0.01 to 400 Hz
Frequency Setting signal	Main frequency reference: 0 to +10 Vdc (20 k Ω), 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω), Pulse Train Input (Max 33 kHz) or Memobus Communication
Speed Control Range	1:100 (Open Loop Vector Control), 1:40 (V/f Control), 1:10 (PM Open Loop Vector Control) (excludes temperature fluctuation when performing Rotational Auto-Tuning)
Braking Torque	Continuous Regen Torque: 20%, 125% with a Braking Resistor Unit (10%ED) 10s with a braking Resistor
Overload	Heavy Duty: 150% for 60 Sec., Normal Duty: 120% for 60Sec.
Drive Functions	Momentary Power Loss Ride-Thru, Speed Search, Overtorque Detection, Torque Limit, Multi-Step Speed (17 steps max), Accel/Decel Time Switch, S-Curve Accel/Decel, 3-Wire Sequence, Rotational Auto-Tuning, Stationary Auto-Tuning of Line-to-Line Resistance, On-line Tuning, Dwell, Cooling Fan ON/OFF, Slip Compensation, Torque Compensation, Frequency Jump, Frequency Reference Upper/Lower Limit, DC Injection Braking (start and stop), High Slip Braking, PID Control (with Sleep Function), Energy Saving, MEMOBUS (RS-485/422 Max 115.2 kbps), Fault Reset, Parameter Copy.
Protection	Motor/ Inverter Overload, Momentary Overcurrent, Mains Undervoltage, DC Bus Overvoltage, Heatsink Overheat, Stall Prevention, Overcurrent, Undertorque, Input/Output Phase Loss, Output Ground Fault
Monitors	Reference Frequency, Output Frequency, Output current, Output voltage, Output power, kWh, Input/output terminal status, PID parameters, Component life monitors for IGBT, Capacitor & Fan, Fault status & fault history, Communication status
Input / Outputs	Digital: 7nos. Inputs / 3nos Outputs, 24V DC Analog: 2nos. Inputs & 1 no. Output, 0-10V or 0/4-20mA Pulse: One no. Input & One no. Output, 0-32KHz Safe I/O: One no. Safety Input as per EN954-1 Safety Category 3; EN61508 SIL2
Storage/Installation Area	Indoors free from oil mist, dust, harmful gases, liquids & radioactive material
Ambient Temperature	-10 to +50°C (Open Chassis), -10 to +40°C (NEMA 1)
Humidity	95% RH or less with no condensation
Storage Temperature	-20 to +60°C
Altitude	1000 m or less
Standard Compliance	RoHS compliant

Model Identification:



Note: Contact us for more information on environmental tolerance specifications.



For more details, please contact:

EBG - Control & Automation Business Unit

LARSEN & TOUBRO LIMITED

Automation Campus, A-600, TTC Industrial Area,

Shil Mahape Road, Navi Mumbai - 400 710

Tel: 91-22-27782230 / 67226200 Fax: 91-22-277833032

Website: www.LNTEBG.com

Mumbai

Tel: 022-67051191 • Fax: 022-67051463

New Delhi

Tel: 011-41419523 • Fax: 011-41419600

Chennai

Tel: 044-28462050 • Fax: 044-28462102

Kolkata

Tel: 033-22828418 • Fax: 033-22827587

Baroda

Tel: 0265-6613618 • Fax: 0265-2336184

Pune

Tel: 020-56033409 • Fax: 020-26124910

Bangalore

Tel: 080-25020342 • Fax: 080-25583613

Hyderabad

Tel: 040-66720319 • Fax: 040-23242356

Coimbatore

Tel: 0422-2311872 • Fax: 0422-2313881

Durg

Tel: 0788- 6451644 • Fax : 0788- 2210161

Abu Dhabi

Tel: +971-50-4422097

Qatar

Tel: +974-5853988