



# LIFT INVERTER SERIES L1000V



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# L1000V

## YASKAWA INVERTER DRIVE TECHNOLOGY

### Contents

- ▶ **Page 2**  
Introduction
- ▶ **Page 3**  
YASKAWA L1000V –  
Main Features
- ▶ **Page 4**  
Specifications
- ▶ **Page 5**  
Connection Diagram
- ▶ **Page 6**  
Dimensions  
Options
- ▶ **Page 7**  
Ratings & Type Descriptions

### Experience & Innovation

For more than 90 years YASKAWA has been manufacturing and supplying mechatronic products for machine building and industrial automation. Its standard products as well as tailor-made solutions are famous and have a high reputation for outstanding quality and durability.

More than 60,000 installed YASKAWA lift inverters per year clearly indicate a high level of market acceptance. Based on many years of practical experience in the market, the innovative L1000V solution offers optimum reliability, high operation efficiency and low energy consumption.

### YASKAWA speaks Lift

The L1000V is the drive of choice for retrofit or new installation of open loop driven, geared lifts with speeds up to 1.0 m/s.

Automatic tuning functions allow an adaption to almost any induction motor in a breeze, providing the base for a smooth and comfortable ride.

Simple menus, lift specific functions and settings in lift language enable a quick and easy set-up.

Plug'n Play. With its proven reliability and low maintenance effort the L1000V reduces life cycle costs and adds real value to your lift.



### L1000V main features

- ✓ Easy setup and operation
- ✓ Designed for long service performance and low life-cycle cost
- ✓ Smooth and comfortable rides
- ✓ Global Standards



## YASKAWA L1000V – MAIN FEATURES

### THE DRIVE FOR GEARED LIFTS

#### Easy setup and operation

- ▶ New motor Auto-Tuning features
  - Stationary Auto-Tuning for motor tuning without unroping
  - Rotational Auto-Tuning for high accuracy motor tuning
- ▶ Flexible I/Os and variable sequences for operation with all common lift controllers
- ▶ The L1000V speaks the language of the lift experts (lift typical parameter names and settings)
- ▶ Quick and easy drive replacement due to multifunctional terminal block with parameter backup feature
- ▶ All-in-one software solution: The free DriveWizard Plus PC software allows monitoring, diagnoses and setup management
- ▶ Optional: LCD operator (clear text) for simple operation including copy function for saving drive settings.
- ▶ Optional: The USB copy unit for settings transfer from one drive to another with just a button click.

#### Global Standards

- ▶ UL, cUL, Low Voltage Directive 2006/95/EC: EN61800-5-1:2003, EN50178:1997

#### Designed for long performance and low life-cycle cost

- ▶ Advanced IGBT protection ensures three million starts at 165% output current.
- ▶ Cooling fan and capacitors designed for more than 70,000 hrs of maintenance-free operation
- ▶ Performance Life Monitors for IGBT, cooling fan and capacitors.
- ▶ Two relay outputs for fault and brake control reduce installation effort and costs.
- ▶ Smaller UPS (Uninterrupted Power Supply) thanks to automatic evacuation in light direction

#### Smooth and comfortable rides

- ▶ Specialized software based on many years of lift experience ensures smooth and quiet operation in passenger elevators.
- ▶ Simple and efficient brake sequence for smooth operation.
- ▶ High leveling accuracy
- ▶ Five independent jerk settings
- ▶ Pulse input feedback with PG to increase levelling accuracy
- ▶ Rescue operation with single phase UPS and light direction search
- ▶ Short floor operation mode
- ▶ Online motor data tuning for best performance even under changing conditions

#### Available too

- ▶ AC line reactors for harmonics reduction according to EN12016
- ▶ EMC line filters
- ▶ Braking resistors

- ▶ EMC Directive 2004/108/EC: EN61800-3:2004

- ▶ Lift: EN12015:2004 (with option), EN12016:2004





## Specifications

Voltage class		200 V				400 V				
Inverter model		CIMR-LC2V				CIMR-LC4V				
		0025	0033	0047	0060	0009	0015	0018	0024	0031
Inverter output	Motor output [kW]*	5.5	7.5	11.0	15.0	4.0	5.5	7.5	11.0	15.0
	Rated output current [A]	25.0* <sup>1</sup>	33.0* <sup>1</sup>	47.0* <sup>1</sup>	60.0* <sup>1</sup>	9.2* <sup>1</sup>	14.8* <sup>1</sup>	18.0* <sup>1</sup>	24.0* <sup>1</sup>	31.0* <sup>1</sup>
	Overload	165% for 30 sec from inverter rated output current								
	Rated output power [kVA]	9.5* <sup>2</sup>	12.6* <sup>2</sup>	17.9* <sup>2</sup>	22.9* <sup>2</sup>	7.0* <sup>3</sup>	11.3* <sup>3</sup>	13.7* <sup>3</sup>	18.3* <sup>3</sup>	23.6* <sup>3</sup>
	Max. output voltage	Three-phase 200 to 240 V (proportional to input voltage)				Three-phase 380 to 480 V (proportional to input voltage)				
	Max. output frequency	120 Hz								
Inverter input	Rated input voltage	Three-phase 200 to 240 V, -15% to +10%				Three-phase 380 to 480 V, -15% to +10%				
	Rated input frequency	50/60 Hz, ±5%								

\* The motor capacity (kW) refers to a YASKAWA 4-pole, 60 Hz, 200 V motor. The rated output current of the drive output amps should be equal to or greater than the motor rated current.

\*<sup>1</sup> at 8 kHz carrier frequency without derating

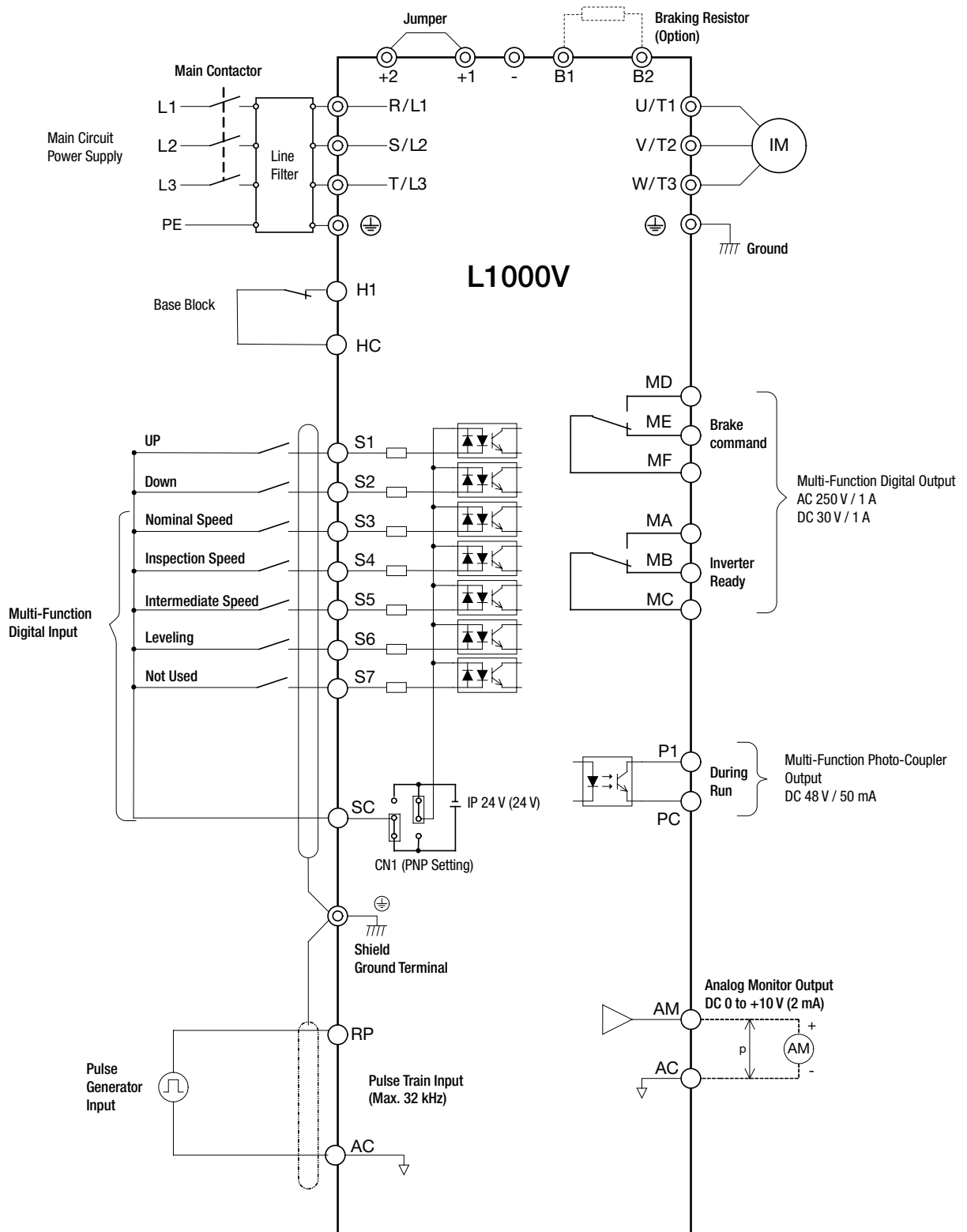
\*<sup>2</sup> based on input voltage 220 V

\*<sup>3</sup> based on input voltage 400 V

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

Specifications		
Control Functions	Control methods	Open Loop Vector Control (Current Vector), Open-Loop Vector Control with PG, V/f Control, V/f Control with PG
	Frequency Control Range	0.01 to 120 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital input: within ±0.01% of the max. output frequency (-10 to +40°C)
	Frequency Setting Resolution	Digital input: 0.01 Hz
	Output Frequency Resolution	20 bit of maximum output frequency (parameter E1-04 setting)
	Speed Control Range	1:100 (Open Loop Vector Control), 1:20 to 40 (V/f Control)
	Speed Control Accuracy	±0.2% in Open Loop Vector Control (25°C ±10°C)
	Speed Response	5 Hz in Open Loop Vector (25°C ±10°C, excludes temperature fluctuation when performing Rotational Auto-Tuning)
Protection Function	Accel/Decel Time	0.0 to 600.0 s
	Main Control Functions	Brake sequence, Rescue operation, Light load search function, Overtorque detection, Torque limit, 5 independent s-curve settings, Auto-tuning (rotational, stationary tuning for resistance between lines), Slip compensation, Upper/lower limits for frequency reference, Short floor ride, DC injection braking at start and stop, Fault restart, Removable terminal block with parameter backup function, Motor overheat protection based on output current ...
Environment	Overload Capability	Drive stops after 30 s at 165% of rated output current for 30 s
	Rescue operation	With battery or single phase 230 Vac UPS (Uninterrupted Power Supply)
	Area of Use	Indoors
	Ambient Temperature	-10 to +50°C (IP20), -10 to +40°C (NEMA Type 1)
	Humidity	95 RH% or less (no condensation)
	Storage Temperature	-20 to +60°C (short-term temperature during transportation)
Enclosure	Altitude	Max. 1000 m (output current derating of 1% per 100 m above 1000 m, max. 3000 m)
	Shock	10 to less than 20 Hz (9.8 m/s <sup>2</sup> ) max., 20 to 55 Hz (5.9 m/s <sup>2</sup> ) max.
Enclosure		IP20, NEMA Type 1 enclosure

# Connection Diagram



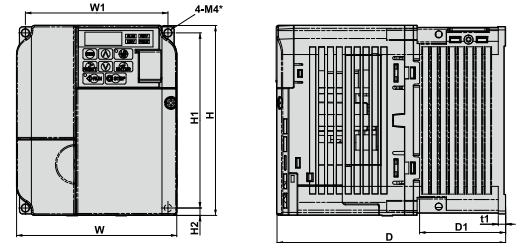




## Dimensions

### IP20

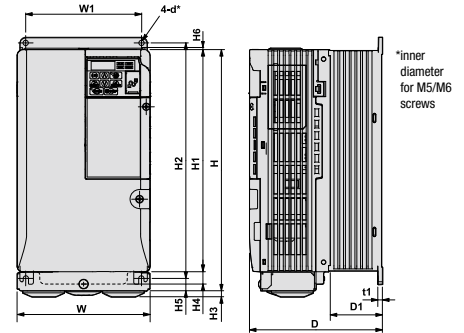
Voltage Class	Drive Model CIMR-LC□	Dimensions in mm								Weight (kg)
		W1	H1	W	H	D	t1	H2	D1	
400 V Class	4V0009B	128	118	140	128	143	5	5	65	2.4



\*inner diameter for M4 screws

### NEMA Type 1

Voltage Class	Drive Model CIMR-LC□	Dimensions in mm													Weight (kg)
		W1	H2	W	H1	D	t1	H5	D1	H	H4	H3	H6	d	
200 V Class	2V0025F	122	248	140	234	140	5	13	55	254	13	6	1.5	M5	3.8
	2V0033F	122	248	140	234	140	5	13	55	254	13	6	1.5	M5	3.8
	2V0047F	160	284	180	270	163	5	13	75	290	15	6	1.5	M5	5.5
	2V0060F	192	336	220	320	187	5	22	78	350	15	7	1.5	M6	9.2
400 V Class	4V0015F	122	248	140	234	140	5	13	55	254	13	6	1.5	M5	3.8
	4V0018F	122	248	140	234	140	5	13	55	254	13	6	1.5	M5	3.8
	4V0024F	160	284	180	270	143	5	13	55	290	15	6	1.5	M5	5.2
	4V0031F	160	284	180	270	163	5	13	75	290	13	6	1.5	M5	5.5



\*inner diameter for M5/M6 screws

## Options

Name	Purpose	Model			
Input noise filter	Line filter for EMC compliance	<b>Three-phase 200 V</b> CIMR-LC2V0025FAA CIMR-LC2V0033FAA CIMR-LC2V0047FAA CIMR-LC2V0060FAA  <b>Three-phase 400 V</b> CIMR-LC4V0009BAA CIMR-LC4V0015FAA CIMR-LC4V0018FAA CIMR-LC4V0024FAA CIMR-LC4V0031FAA	<b>Filter:</b> FS23637-52-07 FS23637-52-07 FS23637-68-07 FS23637-80-07  <b>Filter:</b> FS23639-15-07 FS23639-30-07 FS23639-30-07 FS23639-50-07 FS23639-50-07		
AC Reactors	Used for harmonic current suppression and total improving power factor.	<b>400V</b> CIMR-LC4V0009BA CIMR-LC4V0015FA CIMR-LC4V0018FA CIMR-LC4V0024FA CIMR-LC4V0031FA	<b>AC Reactor IP00</b> B 0903084 B 0903085 B 0903085 B 0903086 B 0903087	<b>AC Reactor IP20</b> B 0903088 B 0903089 B 0903089 B 0903090 B 0903091	
Braking resistor		R-EBR- □□□W □□□R Series			
USB copy unit (RS232/USB compatible plug)	- Copy unit for parameter setting - USB adapter for connecting the drive to a PC	JVOP-181			
LCD operator	For easier operation when using the optional LCD operator. Allows for remote operation. Includes a Copy function for saving drive settings.	JVOP-180			
Operator extension cable	Cable for connecting the LCD operator.	WV001: 1 m WV003: 3 m			

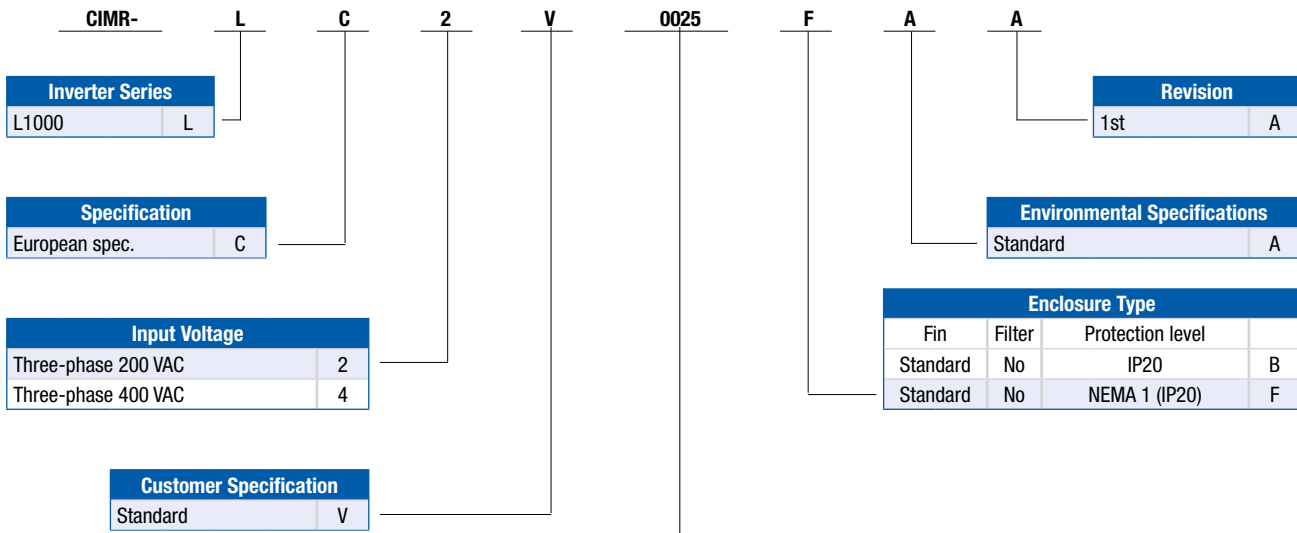
Note: contact the manufacturer in question for availability and specifications of non-YASKAWA products.

\* DriveWizardPlus | PC tool for monitoring, diagnosis and parameter setting management

\* SI-S3 | CANopen communications option card



## Ratings & Type Descriptions



200 V		
	Rated output current	Max. applicable motor
0025	25.0 A	5.5 kW
0033	33.0 A	7.5 kW
0047	47.0 A	11.0 kW
0060	60.0 A	15.0 kW

400 V		
	Rated output current	Max. applicable motor
0009	9.2 A	4.0 kW
0015	14.8 A	5.5 kW
0018	18.0 A	7.5 kW
0024	24.0 A	11.0 kW
0031	31.0 A	15.0 kW



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