The Next Generation in Medium Voltage (MV) AC Drives

The Yaskawa MV1000!

All MV Drives offer energy savings and improved process control. The MV1000 provides these features, of course, but leapfrogs the industry with much more.

Building on past success, the MV1000 minimizes application and installation issues, by providing:

- Minimal Input Power Distortion (THD)
- Multi-phase Input Transformer with Galvanic Isolation
- Near Sinusoidal Output Waveform
- Proven Reliability with High Performance
- Compact Size
- User Friendliness
- Compatibility with Yaskawa A1000 LV Products

A History of the path we took to bring you the MV1000 Medium Voltage AC Drive:

Low-voltage drive

G7 7th generation low-voltage drive (The world's first general-purpose drive employing three-level control)

1000series (J1000/V1000/A1000)

Medium-voltage drive

VS-686HV5 1996
Medium-voltage drive with multiple outputs connected in series (first commercial product in Japan)

VS-686HV5S 1998

VS-686HV5SD 2002

MV1S 2005

MV1000

Specifications

Drive Specifications

2 kV Class

Model	CIMR-MV2UA6AA	052	068	080	093	102	115	135	160	180	205	220	280	330	390	440	505	550	600
Nominal Capacity	2.4 kV Output kVA	220	280	330	390	420	480	560	670	750	850	920	1160	1370	1620	1820	2100	2300	2500
	Motor Capacity[1] HP	200	300	350	400	450	500	600	700	800	900	1000	1250	1500	1750	2000	2250	2500	2750
Output Rating	Rated Output Current A	52	68	77	93	102	115	135	160	180	205	220	280	330	390	440	505	550	600
	Rated Output Voltage V	Three-Phase, 2400V (Sine wave, proportional to input voltage)																	
Power Supply	Main Circuit	Three-Phase, 2400V, -20% to +10%, 60Hz																	
	Auxiliary Supply (Fans Etc.)	Single-Phase, 200/240V, -10% to +10%, 50/60Hz																	
	Control Logic Power	Single-Phase, 110/120V, -10% to +10%, 50/60Hz																	

4 kV Class

Model	CIMR-MV2UD6DA	039	052	058	064	077	093	102	115	125	155	190	220	250	285	315	340	375	440	505	575	625
Nominal Capacity	4.16 kV Output kVA	280	375	420	460	550	670	735	830	900	1120	1370	1590	1800	2050	2270	2500	2700	3170	3640	4140	4500
	Motor Capacity[1] HP	300	400	450	500	600	700	800	900	1000	1250	1500	1750	2000	2250	2500	2750	3000	3500	4000	4500	5000
Output Rating	Rated Output Current A	39	52	58	64	77	93	102	115	125	155	190	220	250	285	315	340	375	440	505	575	625
	Rated Output Voltage V	Three-Phase, 4160V (Sine wave, proportional to input voltage)																				
Power Supply	Main Circuit	Three-Phase, 4160V, -20% to +10%, 60Hz																				
	Auxiliary Supply (Fans Etc.)	Single-Phase, 200/240V, -10% to +10%, 50/60Hz																				
	Control Logic Power	Single-Phase, 110/120V, -10% to +10%, 50/60Hz																				

1 : Nominal ratings for 4-pole NEMA B Motor

Common Specifications

Efficiency		Approx. 97% (At rated motor speed, 100% load)
Power Factor		Min. 0.95 (At motor rated speed, from 50% to 100% load)
Cooling Method		Forced air-cooling by fan (with failure detection)
Control Specifications	Control Method	Open-loop vector control, Closed loop vector control, V/f control (for multiple motor operation), Closed loop vector control for SM (option)
	Main Circuit	Voltage-type PWM control with multiple outputs connected in series
	Freq. Control Range	0.01 to 120 Hz
	Speed Accuracy	Open Loop Vector: 0.2%; Closed Loop Vector: 0.02%
	Freq. Control Accuracy	±0.5%
	Analog Input Resolution	0.03 Hz
	Accel/Decel Time	0.1 to 6000 s
	Torque Accuracy	±5% (open-loop vector control), ±3% (closed loop vector control)
	Overload Tolerance	Continuous rated current 100%, overload tolerance 110% for 1 minute and 120% for 15 seconds
	Momentary Power Loss Compensation Time*1	Max. 2 seconds
	Main Control Functions	Torque control, Droop control, Speed/torque control switch, Momentary power loss compensation, Speed search, Overtorque detection, Torque limit, 17-step speed (max.), Accel/decel time switch, S-curve accel/decel, 3-wire sequence, Auto-tuning (rotational, stationary), Dwell, Cooling fan on/off, 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, Modbus communication (RS-485, max. 115.2 kbps), Fault retry
Protective Functions		Overcurrent, Overvoltage, Undervoltage, Output ground fault, Output open-phase, Overload, Cooling-fan error, Transformer overheat, Motor overheat, etc., Panel door open interlock
Communications (Optional)*2		Any one of PROFIBUS-DP™, DeviceNet™, or Ethernet can be installed.
Input Transformer (with Isolated Windings)		Class H dry type (220˚C rated, 150˚C rise), -5%/N/+5% tap, secondary multi-phase winding
Temperature Protection		Power cells: protected by thermistor for temperature Transformer: protected by thermal sensor, PT100
Maintainability/ Environmental Specifications	Control Panel	Status display, Fault display, Parameter setting, Parameter reference
	Main Circuit	Replaceable modular power cell construction
	Protection Design	IP40 (simplified dustproof type): NEMA Type 1
	Ambient Temperature, Relative Humidity	−5˚C to +40˚C (23˚F to 104˚F), 95%RH max. (no condensing)
	Storage Temperature	−20˚C to +60˚C (4˚F to 140˚F), for very short term when handling
	Atmosphere	General environmental conditions, free from dust and corrosive gases Altitude: Max. 6600 ft (2000 m) without derating
Panel Specifications	Painting	Munsel 5Y7/1 semi-gloss both for inner and outer faces
	Form	Made of enclosing steel sheets, vertical standalone type, front maintenance type
Applicable Standards		UL, CSA, IEEE 519, JIS, JEM, JEC

*1: When the momentary power loss compensation function is used, an uninterruptible power supply unit for the control power supply is needed (this is an option).
*2: To use the communications function, additional wiring and the installation of an option card is required