

Catalog CA.V1000.01
V1000 MicroDrives

Date: 08/01/07

YASKAWA

Description

1/8 – 25 HP
V1000 Drive

V1000



The V1000 is a world-class compact current vector drive that defines a new world standard. Demands for efficient production and better maintainability are on the rise, spurred by global competition. Yaskawa drives have earned a reputation for high performance, high functionality, and high quality.

The V1000 provides a world of power in the palm of your hand!

Performance Features

- Ratings:
 - 1/8 to 5 HP at 200-240 VAC 1-Phase
 - 1/8 to 25 HP (ND) at 200-240 VAC 3-Phase
 - 1/2 to 25 HP (ND) at 380-480 VAC 3-Phase
- Overload Capacity:
 - 150% for 60 sec. (Heavy Duty)
 - 120% for 60 sec. (Normal Duty)
- Control Methods: V/f Control, Open Loop Current Vector Control, PM Open Loop Current Vector Control, Simple closed loop speed control
- DC injection braking, ramp to stop
- Electronic reversing
- Adjustable accel/decel: 0.01 to 6000 seconds
- Controlled speed range:
 - 40:1⁽¹⁾ 100:1⁽²⁾
- Speed Regulation:
 - ± 0.5 to 1% with slip compensation⁽¹⁾
 - ± 0.2%⁽²⁾
- Displacement power factor: 0.98
- Output frequency: 0 to 400 Hz
- Frequency resolution:
 - 0.01 Hz with digital reference
 - 0.06 / 60 Hz with analog reference
- Frequency accuracy:
 - 0.01% with digital command
 - 0.5% with analog command
- Volts / hertz ratio: infinitely adjustable pattern
- DC Injection braking: adjustable amplitude, duration, current limited
- Torque boost: full range, auto
- Power loss ride-thru: 0.5 sec.
- Speed search
- Auto restart
- 3 Critical frequency rejection settings
- Slip Compensation
- Energy Savings Function
- Enhanced PID with loss of feedback function

Design Features

- Dual microprocessor logic
- Digital keypad operator, 5 digits
- LED status display
- Remote Mount Keypad Capability
- RJ-45 Style Digital Operator Connector
- 7 multifunction digital inputs
- 3 multifunction digital outputs
- Hardwire baseblock (EN954-1 Cat. 3)
- Programmable form C output contact for customer use: 1A at 250 VAC or 30 VDC
- 24 VDC control logic compatible with sourcing or sinking outputs (PNP or NPN)
- Carrier frequency: 15 kHz max; swing PWM
- 16 multi-speed settings plus jog speed
- 2 Remote speed references:
 - 0-10 VDC (20 kohms) or isolated
 - 4-20 mA (250 ohms)
- Signal follower: bias and gain
- 2 programmable open collector outputs
- Analog monitor output:
 - 0-10 VDC proportional to output frequency or output current
- Approximately 400 parameters
- Digital pulse train input (33 kHz max.)
- Cooling fan controlled by drive run/stop
- RS-422/485 Modbus 115 kbps
- UL recognized electronic overload
- MTBF: 28 years
- Built-in Dynamic Braking Transistor
- NEMA 1 enclosure
- Side-by-Side mounting
- Application presets
- Maintenance monitors

⁽¹⁾ V/f Mode

⁽²⁾ Open Loop Current Vector Mode

Protective Features

- Current limit, stall prevention during accel, decel, and run
- Motor and drive overload
- Over voltage prevention function
- Instantaneous over current
- Short circuit
- Under voltage
- Heatsink overheat
- Ground fault protection
- Over/under torque
- Short circuit withstand rating: 30K RMS

Service Conditions

- Ambient service temperature:
 - 10° to 40°C (+14° to 104°F) NEMA 1
 - 10° to 50°C (+14° to 122°F) Open Chassis
- Ambient storage temperature:
 - 20° to 60°C (-4° to 140°F)
- Humidity: to 95% non-condensing
- Altitude: to 3300 ft; higher by derating
- Service factor: 1.0
- Input voltage: -15% to +10%
 - 200 to 240 VAC, 380 to 480 VAC
- Input frequency: +/-5%; 50/60 Hz
- Input phase sequence insensitive

Options

- Dynamic Braking resistor (external)
- Multi-lingual, full-text remote LCD w/ copy
- Profibus-DP, DeviceNet Communications
- Modbus TCP/IP, EtherNet/IP Communications
- DriveWizard™ Plus
- CASE software
- DIN rail mounting kit
- Y-Stick Copy Unit

Standards

- UL 508C (Power Conversion)
- CSA 22.2 No. 14-95 (Industrial Control Equipment)
- UL, cUL listed; CE marked
- RoHS compliant
- EN 50178 (LVD)
- EN 50081-2, EN 50082-2 (EMC)
- EN 954-1, Category 3 Safety Standard
- EN 61800-3
- IEC 529, 146
- FCC CFR 47 Part 15 Subpart B (w/ External Filter)
- TUV

Rated Input Voltage	Drive Model Number CIMR-VU	Normal Duty ⁽¹⁾		Heavy Duty ⁽¹⁾		Drive List Price \$
		Rated Output Current (Amps)	Nominal HP ⁽²⁾	Rated Output Current (Amps)	Nominal HP ⁽²⁾	
200 - 240V 1-Phase	BA0001FAA	1.2	1/8 & 1/4	0.8	1/8	
	BA0002FAA	1.9	1/4	1.6	1/4	
	BA0003FAA	3.3	1/2 & 3/4	3.0	1/2	
	BA0006FAA	6.0	1	5.0	3/4 & 1	
	BA0010FAA	9.6	2 & 3	8.0	2	
	BA0012FAA	12.0	3	11.0	3	
	BA0018FAA	17.5	5	17.5	5	
200 - 240V 3-Phase	2A0001FAA	1.2	1/8 & 1/4	0.8	1/8	
	2A0002FAA	1.9	1/4	1.6	1/4	
	2A0004FAA	3.5	1/2 & 3/4	3.0	1/2	
	2A0006FAA	6.0	1	5.0	3/4 & 1	
	2A0010FAA	9.6	2 & 3	8.0	2	
	2A0012FAA	12.0	3	11.0	3	
	2A0020FAA	19.6	5	17.5	5	
	2A0030FAA	30.0	7.5 & 10	25.0	7.5	
	2A0040FAA	40.0	10	33.0	10	
	2A0056FAA	56.0	20	47.0	15	
	2A0069FAA	69.0	25	60.0	20	
380 - 480V 3-Phase	4A0001FAA	1.2	1/2	1.2	1/2	
	4A0002FAA	2.1	3/4 & 1	1.8	3/4	
	4A0004FAA	4.1	2	3.4	1 & 2	
	4A0005FAA	5.4	3	4.8	3	
	4A0007FAA	6.9	4	5.5	3	
	4A0009FAA	8.8	5	7.2	4	
	4A0011FAA	11.1	7.5	9.2	5	
	4A0018FAA	17.5	10	14.8	7.5 & 10	
	4A0023FAA	24.0	15	18.0	10	
	4A0031FAA	31.0	20	24.0	15	
	4A0038FAA	38.0	25	31.0	20	

- (1) Normal Duty overload current rating is 120% of rated output current for 60 seconds;
 Heavy Duty overload current rating is 150% of rated output current for 60 seconds
- (2) Horsepower rating is based on standard NEMA B 4-pole motor design and NEC table 430.150
 Full-Load Current, Three-Phase Alternating Current Motors

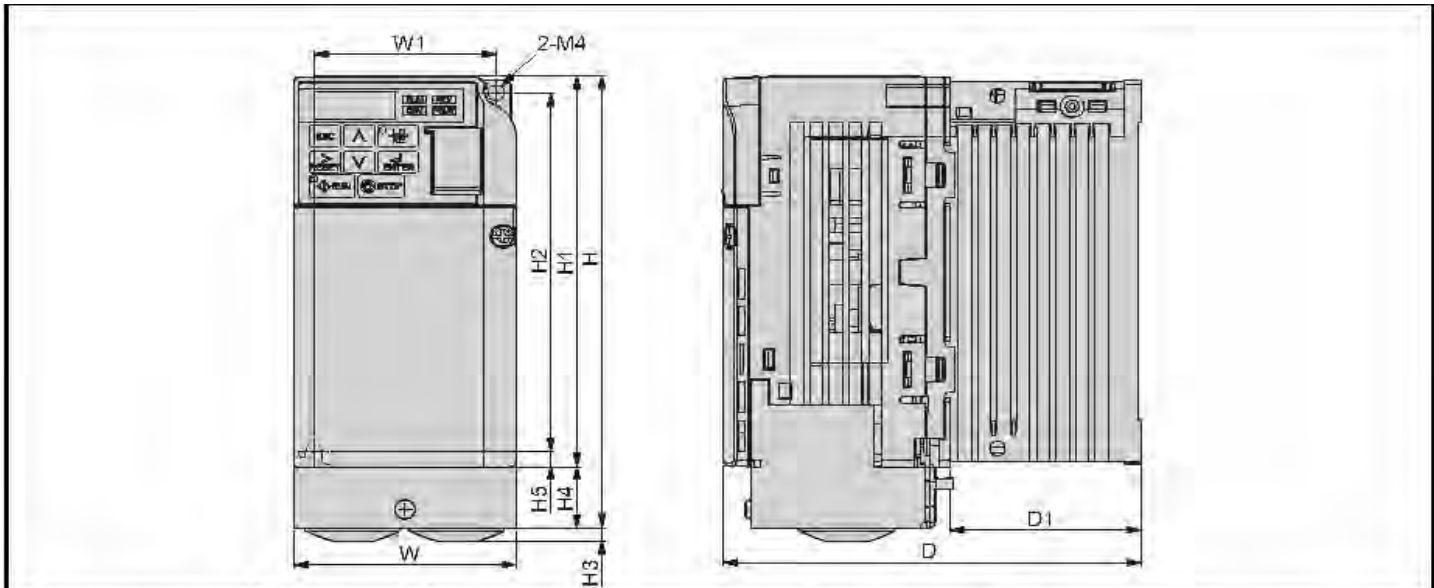
Dimensions

V1000 Drive

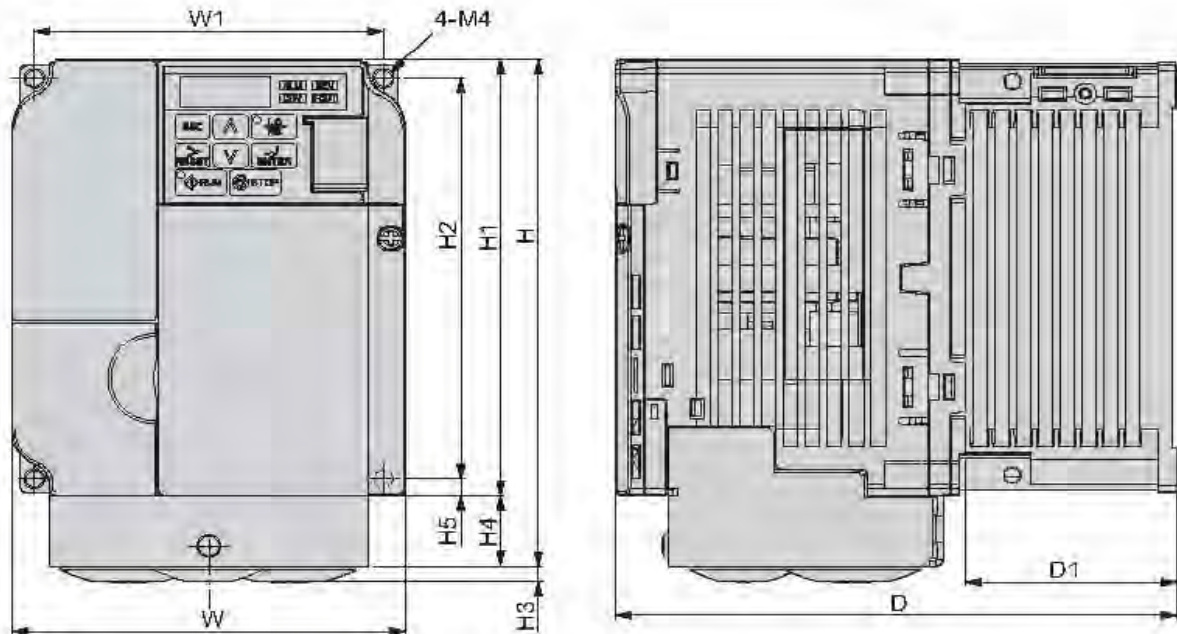
V1000

Rated Input Voltage	Drive Model Number CIMR-VU	Normal Duty		Heavy Duty		Physical Dimensions (in.)			Mounting Dimensions (in.)		Weight (lbs.) ⁽¹⁾
		Rated Output Current (Amps)	Nominal HP	Rated Output Current (Amps)	Nominal HP	Height	Width	Depth	H1	W1	
200 - 240V 1-Phase	BA0001FAA	1.2	1/8 & 1/4	0.8	1/8	5.89	2.68	2.99	5.10	2.20	1.8
	BA0002FAA	1.9	1/4	1.6	1/4	5.89	2.68	2.99	5.10	2.20	1.8
	BA0003FAA	3.3	1/2 & 3/4	3.0	1/2	5.89	2.68	4.65	5.10	2.20	2.6
	BA0006FAA	6.0	1	5.0	3/4 & 1	5.89	4.25	5.41	5.10	3.78	4.2
	BA0010FAA	9.6	2 & 3	8.0	2	5.89	4.25	6.06	5.10	3.78	4.4
	BA0012FAA	12.0	3	11.0	3	6.02	5.51	6.42	5.24	5.04	5.7
	BA0018FAA	17.5	5	17.5	5	6.02	6.69	7.09	5.24	6.22	6.6
200 - 240V 3-Phase	2A0001FAA	1.2	1/8 & 1/4	0.8	1/8	5.89	2.68	2.99	5.10	2.20	1.8
	2A0002FAA	1.9	1/4	1.6	1/4	5.89	2.68	2.99	5.10	2.20	1.8
	2A0004FAA	3.5	1/2 & 3/4	3.0	1/2	5.89	2.68	4.25	5.10	2.20	2.4
	2A0006FAA	6.0	1	5.0	3/4 & 1	5.89	2.68	5.04	5.10	2.20	2.9
	2A0010FAA	9.6	2 & 3	8.0	2	5.89	4.25	5.08	5.10	3.78	4.2
	2A0012FAA	12.0	3	11.0	3	5.89	4.25	5.41	5.10	3.78	4.2
	2A0020FAA	19.6	5	17.5	5	6.02	5.51	5.63	5.24	5.04	5.7
	2A0030FAA	30.0	7.5 & 10	25.0	7.5	10.00	5.51	5.51	9.76	4.80	8.4
	2A0040FAA	40.0	10	33.0	10	10.00	5.51	5.51	9.76	4.80	8.4
	2A0056FAA	56.0	20	47.0	15	11.42	7.09	6.42	11.18	6.30	12.1
	2A0069FAA	69.0	25	60.0	20	14.09	8.66	7.36	13.23	7.56	20.2
380 - 480V 3-Phase	4A0001FAA	1.2	1/2	1.2	1/2	5.89	4.25	3.19	5.10	3.78	2.6
	4A0002FAA	2.1	3/4 & 1	1.8	3/4	5.89	4.25	3.90	5.10	3.78	3.1
	4A0004FAA	4.1	2	3.4	1 & 2	5.89	4.25	5.41	5.10	3.78	3.5
	4A0005FAA	5.4	3	4.8	3	5.89	4.25	6.06	5.10	3.78	4.2
	4A0007FAA	6.9	4	5.5	3	5.89	4.25	6.06	5.10	3.78	4.2
	4A0009FAA	8.8	5	7.2	4	5.89	4.25	6.06	5.10	3.78	4.2
	4A0011FAA	11.1	7.5	9.2	5	6.02	5.51	5.63	5.24	5.04	5.7
	4A0018FAA	17.5	10	14.8	7.5 & 10	10.00	5.51	5.51	9.21	4.80	8.4
	4A0023FAA	24.0	15	18.0	10	10.00	5.51	5.51	9.21	4.80	8.4
	4A0031FAA	31.0	20	24.0	15	11.42	7.09	5.63	10.63	6.30	11.4
	4A0038FAA	38.0	25	31.0	20	11.42	7.09	6.42	10.63	6.30	12.1

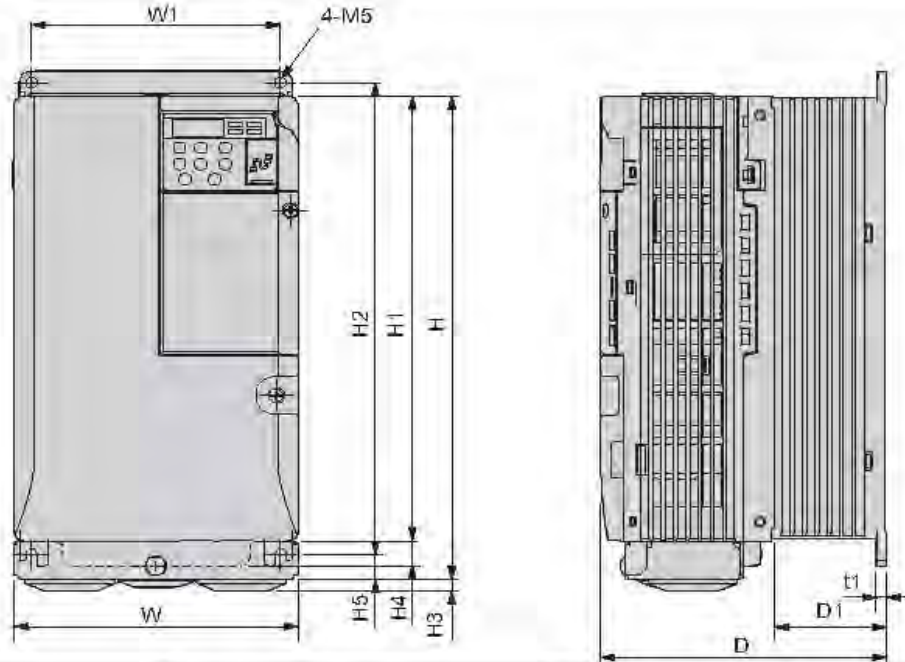
(1) This data represents the drive weight only, not shipping weight



Voltage Class	Drive Model CIMR-V□	Dimensions (in)										Weight (lb)
		W1	H2	W	H1	D	H5	D1	H	H4	H3	
Single-Phase 200 V Class	BA0001F	2.20	4.65	2.68	5.10	2.99	0.20	0.26	5.89	0.79	0.16	1.8
	BA0002F	2.20	4.65	2.68	5.10	2.99	0.20	0.26	5.89	0.79	0.16	1.8
	BA0003F	2.20	4.65	2.68	5.10	4.65	0.20	1.54	5.89	0.79	0.16	2.6
Three-Phase 200 V Class	2A0001F	2.20	4.65	2.68	5.10	2.99	0.20	0.26	5.89	0.79	0.16	1.8
	2A0002F	2.20	4.65	2.68	5.10	2.99	0.20	0.26	5.89	0.79	0.16	1.8
	2A0004F	2.20	4.65	2.68	5.10	4.25	0.20	1.54	5.89	0.79	0.16	2.4
	2A0006F	2.20	4.65	2.68	5.10	5.04	0.20	2.32	5.89	0.79	0.16	2.9



Voltage Class	Drive Model CIMR-V□	Dimensions (in)										Weight (lb)
		W1	H2	W	H1	D	H5	D1	H	H4	H3	
Single-Phase 200 V Class	BA0006F	3.78	4.65	4.25	5.10	5.41	0.20	2.28	5.89	0.79	0.16	4.2
	BA0010F	3.78	4.65	4.25	5.10	6.06	0.20	2.28	5.89	0.79	0.16	4.4
	BA0012F	5.04	4.65	5.51	5.24	6.42	0.20	2.56	6.02	0.79	0.19	5.7
Three-Phase 200 V Class	2A0010F	3.78	4.65	4.25	5.10	5.08	0.20	2.28	5.89	0.79	0.16	4.2
	2A0012F	3.78	4.65	4.25	5.10	5.41	0.20	2.28	5.89	0.79	0.16	4.2
	2A0020F	5.04	4.65	5.51	5.24	5.63	0.20	2.56	6.02	0.79	0.19	5.7
Three-Phase 400 V Class	4A0001F	3.78	4.65	4.25	5.10	3.19	0.20	0.39	5.89	0.79	0.16	2.6
	4A0002F	3.78	4.65	4.25	5.10	3.90	0.20	1.10	5.89	0.79	0.16	3.1
	4A0004F	3.78	4.65	4.25	5.10	5.41	0.20	2.28	5.89	0.79	0.16	3.5
	4A0005F	3.78	4.65	4.25	5.10	6.06	0.20	2.28	5.89	0.79	0.16	4.2
	4A0007F	3.78	4.65	4.25	5.10	6.06	0.20	2.28	5.89	0.79	0.16	4.2
	4A0009F	3.78	4.65	4.25	5.10	6.06	0.20	2.28	5.89	0.79	0.16	4.2
	4A0011F	5.04	4.65	5.51	5.24	5.63	0.20	2.56	6.02	0.79	0.19	5.7



Voltage Class	Drive Model CIMR-V□	Dimensions (in)											Weight (lb)
		W1	H2	W	H1	D	t	H5	D1	H	H4	H3	
Three-Phase 200 V Class	2A0030F	4.80	9.76	5.51	9.21	5.51	0.20	0.51	2.17	10.00	0.51	0.24	4.80
	2A0040F	4.80	9.76	5.51	9.21	5.51	0.20	0.51	2.17	10.00	0.51	0.24	4.80
	2A0056F	6.30	11.18	7.09	10.63	6.42	0.20	0.51	2.95	11.42	0.59	0.24	6.30
	2A0069F	7.56	13.23	8.66	12.60	7.36	0.20	1.18	3.07	14.09	0.59	0.28	7.56
Three-Phase 400 V Class	4A0018F	4.80	9.76	5.51	9.21	5.51	0.20	0.51	2.17	10.00	0.51	0.24	4.80
	4A0023F	4.80	9.76	5.51	9.21	5.51	0.20	0.51	2.17	10.00	0.51	0.24	4.80
	4A0031F	6.30	11.18	7.09	10.63	5.63	0.20	0.51	2.17	11.42	0.59	0.24	6.30
	4A0038F	6.30	11.18	7.09	10.63	6.42	0.20	0.59	2.95	11.42	0.51	0.24	6.30