Standard Specifications

General-Purpose

Compact V/f Control J1000

200 V Class

Model			0001	0002	0004	0006	0008	0010	0012	0018	0020
Model	Three-Phase CIMR-J□2A□□□□		0001	0002	0003	0006	–	0010	–	–	–
	Single-Phase CIMR-J□BA□□□□										
Max. Applicable Motor Capacity kW		ND	0.2	0.4	0.75	1.1	1.5	2.2	3	3.7	5.5
		HD	0.1	0.2	0.4	0.75	1.1	1.5	2.2	3	3.7
Output	Rated Output Capacity kVA	ND	0.5	0.7	1.3	2.3	3.0	3.7	4.6	6.7	7.5
		HD	0.3	0.6	1.1	1.9	2.6	3	4.2	5.3	6.7
	Rated Output Current A	ND	1.2	1.9	3.5 (3.3)	6	8	9.6	12	17.5	19.6
		HD	0.8	1.6	3	5	6.9	8	11	14	17.5
	Overload Tolerance		ND Rating: 120% of rated output current for 60 s, HD Rating: 150% of rated output current for 60 s. (Derating may be required for repetitive loads)								
	Max. Output Voltage		Three-phase power supply: three-phase 200 to 240 V (relative to input voltage) Single-phase power supply: three-phase 200 to 240 V (relative to input voltage)								
	Max. Output Frequency		400 Hz (user-set)								
Power	Rated Voltage/Rated Frequency		Three-phase AC power supply: 200 to 240 V 50/60 Hz, Single-phase AC power supply: 200 to 240 V 50/60 Hz, DC power supply: 270 to 340 V								
	Allowable Voltage Fluctuation		−15 to +10%								
	Allowable Frequency Fluctuation		±5%								

400 V Class

Model CIMR-J□4A□□□□			0001	0002	0004	0005	0007	0009	0011
Max. Applicable Motor Capacity kW		ND	0.4	0.75	1.5	2.2	3	3.7	5.5
		HD	0.2	0.4	0.75	1.5	2.2	3	3.7
Output	Rated Output Capacity kVA	ND	0.9	1.6	3.1	4.1	5.3	6.7	8.5
		HD	0.9	1.4	2.6	3.7	4.2	5.5	7
	Rated Output Current A	ND	1.2	2.1	4.1	5.4	6.9	8.8	11.1
		HD	1.2	1.8	3.4	4.8	5.5	7.2	9.2
	Overload Tolerance		ND Rating: 120% of rated output current for 60 s, HD Rating: 150% of rated output current for 60 s. (Derating may be required for repetitive loads)						
	Max. Output Voltage		Three-phase 380 to 480 V (relative to input voltage)						
	Max. Output Frequency		400 Hz (user-set)						
Power	Rated Voltage/Rated Frequency		Three-phase AC power supply: 380 to 480 V 50/60 Hz, DC power supply: 510 to 680 V						
	Allowable Voltage Fluctuation		−15 to +10%						
	Allowable Frequency Fluctuation		±5%						

Common Specifications

Item		Specifications
Control Characteristics	Control Method	V/f Control
	Frequency Control Range	0.01 to 400 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital reference: within ±0.01% of the max. output frequency (−10 to +50℃)
		Analog reference: within ±0.1% of the max. output frequency (25 ±10℃)
	Frequency Setting Resolution	Digital reference: 0.01 Hz
		Analog reference: 1/1000 of max. output frequency
	Output Frequency Resolution	20 bit resolution at maximum output frequency
	Frequency Setting Signal	Main frequency reference: 0 to +10 Vdc (20 kΩ), 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω)
	Starting Torque	150% / 3 Hz
	Speed Control Range	1:20 to 1:40
	Accel/Decel Time	0.01 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	① Instantaneous decel torque: over 150% for 0.1/0.2 kW, over 100% for 0.4/ 0.75 kW, over 50% for 1.5 kW, and over 20% for 2.2 kW and above. ② Continuous regen. torque: approx. 20% (approx. 125% with dynamic braking resistor option: 10% ED, 10 s, Internal braking transistor)
	V/f Characteristics	User-selected programs, V/f preset patterns possible
	Main Control Functions	Momentary power loss ride-thru, Speed search, 9-step speed (max), Accel/decel time switch, S-curve accel/decel, 3-wire sequence, Cooling fan on/off switch, Slip compensation, Torque compensation, Frequency jump, Upper/lower limits for frequency reference, DC injection braking at start and stop, Overexcitation braking, Fault restart ...
Standards Compliant		· UL508C · IEC/EN61800-3, IEC/EN61800-5-1
Analog Input		1 (4-20 mA/ 0-10V)
Ambient Temperature		-10 to 50 deg C; derating above 50 to 60 deg C at 2% per 1 deg C
Available I/O		(7) multi-function digital inputs
		(1) hardwire baseblock
		(2) multi-function analog inputs
		(1) multi-function pulse inputs
		(1) multi-function relay output
		(2) multi-function photo-coupler outputs
		(1) multi-function 0-10 Vdc analog outputs
		(1) multi-function pulse outputs

General-Purpose

Compact Vector Control V1000

200 V Class

Model	Three-Phase CIMR-V□2A□□□□		0001	0002	0004	0006	0008	0010	0012	0018	0020	0030	0040	0056	0069
	Single-Phase CIMR-V□BA□□□□		0001	0002	0003	0006	–	0010	0012	–	0018	–	–	–	–
Max. Applicable Motor Capacity kW		ND	0.2	0.4	0.75	1.1	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5
		HD	0.1	0.2	0.4	0.75	1.1	1.5	2.2	3	3.7	5.5	7.5	11	15
Output	Rated Output Capacity kVA	ND	0.5	0.7	1.3	2.3	3	3.7	4.6	6.7	7.5	11.4	15.2	21.3	26.3
		HD	0.3	0.6	1.1	1.9	2.6	3	4.3	5.3	6.7	9.5	12.6	17.9	22.9
	Rated Output Current A	ND	1.2	1.9	3.5 (3.3)	6	8	9.6	12	17.5	19.6	30	40	56	69
		HD	0.8	1.6	3	5	6.9	8	11	14	17.5	25	33	47	60
	Overload Tolerance		ND Rating: 120% of rated output current for 60 s. HD Rating: 150% of rated output current for 60 s. (Derating may be required for repetitive loads)												
	Max. Output Voltage		Three-phase power supply: Three-phase 200 to 240 V (proportional to input voltage) Single-phase power supply: Three-phase 200 to 240 V (proportional to input voltage)												
	Max. Output Frequency		400 Hz (user-set)												
Power	Rated Voltage/Rated Frequency		Three-phase AC power supply: 200 to 240 V 50/60 Hz, Single-phase AC power supply: 200 to 240 V 50/60 Hz, DC power supply: 270 to 340 V												
	Allowable Voltage Fluctuation		−15 to +10%												
	Allowable Frequency Fluctuation		±5%												

400 V Class

Model	Three-Phase CIMR-V□4A□□□□		0001	0002	0004	0005	0007	0009	0011	0018	0023	0031	0038
Max. Applicable Motor Capacity kW		ND	0.4	0.75	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5
		HD	0.2	0.4	0.75	1.5	2.2	3	3.7	5.5	7.5	11	15
Output	Rated Output Capacity kVA	ND	0.9	1.6	3.1	4.1	5.3	6.7	8.5	13.3	17.5	23.6	29
		HD	0.9	1.4	2.6	3.7	4.2	5.5	7	11.3	13.7	18.3	23.6
	Rated Output Current A	ND	1.2	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23	31	38
		HD	1.2	1.8	3.4	4.8	5.5	7.2	9.2	14.8	18	24	31
	Overload Tolerance		ND Rating: 120% of rated output current for 60 s. HD Rating: 150% of rated output current for 60 s. (Derating may be required for repetitive loads)										
	Max. Output Voltage		Three-phase 380 to 480 V (proportional to input voltage)										
	Max. Output Frequency		400 Hz (user-set)										
Power	Rated Voltage/Rated Frequency		Three-phase AC power supply: 380 to 480 V 50/60 Hz, DC power supply: 510 to 680 V										
	Allowable Voltage Fluctuation		−15 to +10%										
	Allowable Frequency Fluctuation		±5%										

Common Specifications

Items		Specifications
Control Characteristics	Control Method	Open Loop Vector Control (Current Vector), V/f Control, Open Loop Vector Control for PM motors (for SPM and IPM motors)
	Frequency Control Range	0.01 to 400 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital reference: within ±0.01% of the max. output frequency (−10 to +50°C)
		Analog reference: within ±0.1% of the max. output frequency (25 ±10°C)
	Output Frequency Resolution	20 bit of maximum output frequency (parameter E1-04 setting)
	Frequency Setting Signal	Main frequency reference: 0 to +10 Vdc (20 kΩ), 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω) Main speed reference: Pulse Train Input max. 32 kHz
	Starting Torque	200% / 0.5 Hz (assumes Heavy Duty rating IM of 3.7 kW or less using Open Loop Vector Control), 50% / 6 Hz (assumes Open Loop Vector Control for PM motors)
	Speed Control Range	1:100 (Open Loop Vector Control), 1:20 to 40 (V/f Control), 1:10 (Open Loop Vector Control for PM motors)
	Speed Control Accuracy	±0.2% in Open Loop Vector Control (25 ±10°C)
	Speed Response	5 Hz in Open Loop Vector (25 ±10°C) (excludes temperature fluctuation when performing Rotational Auto-Tuning)
	Torque Limit	Open Loop Vector Control allows separate settings in four quadrants.
	Accel/Decel Time	0.00 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	①Instantaneous decel torque: over 150% for 0.1/0.2 kW, over 100% for 0.4/0.75 kW, over 50% for 1.5 kW, and over 20% for 2.2 kW and above (overexcitation braking/High-Slip Braking: approx. 40%). ②Continuous regen. torque: approx. 20% (approx. 125% with dynamic braking resistor option: 10% ED, 10 s, Internal braking transistor)
	V/f Characteristics	User-selected programs, V/f preset patterns possible
	Main Control Functions	Momentary power loss ride-thru, 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 tuning for resistance between lines), Dwell, Cooling fan on/off switch, Slip compensation, Torque compensation, Frequency jump, Frequency upper/lower limit settings, DC injection braking at start/stop, Overexcitation braking High slip braking, PID control (with sleep function), Energy saving control, MEMOBUS communication (RS-485/422 max. 115.2 kbps), Fault restart, Application presets, DriveWorksEZ (customization function), Removable terminal block with parameter backup function...
Standards Compliant		· UL508C · IEC/EN61800-3, IEC/EN61800-5-1 · ISO/EN13849-1 Cat.3 PLd, IEC/EN61508 SIL2
Protection Design		IP20 open-chassis, NEMA Type 1 enclosure
		· UL508C · IEC/EN61800-3, IEC/EN61800-5-1
Ambient Temperature		-10 to 50 deg C; derating above 50 to 60 deg C at 2% per 1 deg C
Available I/O		(7) multi-function digital inputs
		(1) hardwire baseblock
		(2) multi-function analog inputs
		(1) multi-function pulse inputs
		(1) multi-function relay output
		(2) multi-function photo-coupler outputs
		(1) multi-function 0-10 Vdc analog outputs
		(1) multi-function pulse outputs

General-Purpose

High Performance Vector Control A1000

200 V Class

Model CIMR-A□2A□□□□			0004	0006	0008	0010	0012	0018	0021	0030	0040	0056	0069	0081	0110	0138	0169	0211	0250	0312	0360	0415
Max. Applicable Motor Capacity kW		ND	0.75	1.1	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	110
		HD	0.4	0.75	1.1	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
Output	Rated Output Capacity kVA	ND	1.3	2.3	3	3.7	4.6	6.7	8	11.4	15.2	21	26	31	42	53	64	80	95	119	137	158
		HD	1.2	1.9	2.6	3	4.2	5.3	6.7	9.5	12.6	17.9	23	29	32	44	55	69	82	108	132	158
	Rated Output Current A	ND	3.5	6	8	9.6	12	17.5	21	30	40	56	69	81	110	138	169	211	250	312	360	415
		HD	3.2	5	6.9	8	11	14	17.5	25	33	47	60	75	85	115	145	180	215	283	346	415
	Overload Tolerance		ND Rating: 120% of rated output current for 60 s HD Rating: 150% of rated output current for 60 s.(Derating may be required for repetitive loads)																			
	Max. Output Voltage		Three-phase 200 to 240 V (relative to input voltage)																			
	Max. Output Frequency		400 Hz (user-set)																			
Power	Rated Voltage/ Rated Frequency		Three-phase AC power supply: 200 to 240 V 50/60 Hz, DC power supply: 270 to 340 V																			
	Allowable Voltage Fluctuation		−15% to +10%																			
	Allowable Frequency Fluctuation		±5%																			

400 V Class

Model CIMR-A□4A□□□□			0002	0004	0005	0007	0009	0011	0018	0023	0031	0038	0044	0058	0072	0088	0103	0139	0165	0208	0250	0296	0362	0414	0515	0675	0930	1200
Max. Applicable Motor Capacity kW		ND	0.75	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	250	355	500	630
		HD	0.4	0.75	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	315	450	560
Output	Rated Output Capacity kVA	ND	1.6	3.1	4.1	5.3	6.7	8.5	13.3	17.5	24	29	34	44	55	67	78	106	126	159	191	226	276	316	392	514	709	915
		HD	1.4	2.6	3.7	4.2	5.5	7	11.3	13.7	18.3	24	30	34	46	57	69	85	114	137	165	198	232	282	343	491	617	831
	Rated Output Current A	ND	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23	31	38	44	58	72	88	103	139	165	208	250	296	362	414	515	675	930	1200
		HD	1.8	3.4	4.8	5.5	7.2	9.2	14.8	18	24	31	39	45	60	75	91	112	150	180	216	198	304	370	450	605	810	1090
	Overload Tolerance		ND Rating: 120% of rated output current for 60 s HD Rating: 150% of rated output current for 60 s.(Derating may be required for repetitive loads)																									
	Max. Output Voltage		Three-phase 380 to 480 V (relative to input voltage)																								input V× 0.95	
	Max. Output Frequency		400 Hz (user-set)																									
Power	Rated Voltage/ Rated Frequency		Three-phase AC power supply: 380 to 480 V 50/60 Hz, DC power supply: 510 to 680 V																									
	Allowable Voltage Fluctuation		−15% to +10%																									
	Allowable Frequency Fluctuation		±5%																									

Common Specifications

Item		Specifications
Control Characteristics	Control Method	V/f Control, V/f Control with PG, Open Loop Vector Control, Closed Loop Vector Control with PG, Open Loop Vector for PM, Closed Loop Vector for PM, Advanced Open Loop Vector for PM
	Frequency Control Range	0.01 to 400 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital referece: within ±0.01% of the max. output frequency (−10 to +40°C)
		Analog referece: within ±0.1% of the max. output frequency (25°C ±10°C)
	Output Frequency Resolution	0.001 Hz
	Frequency Setting Resolution	Main frequency reference: −10 to +10 Vdc, 0 to +10 Vdc (20 kΩ), 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω) Main speed reference: Pulse train input (max. 32 kHz)
	Starting Torque	150%/3 Hz (V/f Control and V/f Control with PG), 200%/0.3 Hz (Open Loop Vector Control), 200%/0 r/min (Closed Loop Vector Control, Closed Loop Vector Control for PM, and Advanced Open Loop Vector Control for PM), 100%/5% speed (Open Loop Vector Control for PM)
	Speed Control Range	1:1500 (Open Loop Vector Control with PG and Closed Loop Vector for PM) 1:200 (Open Loop Vector Control) 1:40 (V/f Control and V/f Control with PG) 1:20 (Open Loop Vector for PM) 1:100 (Advanced Open Loop Vector for PM)
	Speed Control Accuracy	±0.2% in Open Loop Vector Control (25°C ±10°C), 0.02% in Closed Loop Vector Control (25°C±10°C)
	Speed Response	10 Hz in Open Loop Vector (25°C ±10°C), 50 Hz in Closed Loop Vector Control (25°C±10°C) (excludes temperature fluctuation when performing Rotational Auto-Tuning)
	Torque Limit	All Vector Control allows separate settings in four quadrants
	Accel/Decel Time	0.00 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	①Short-time decel torque: over 100% for 0.4/ 0.75 kW motors, over 50% for 1.5 kW motors, and over 20% for 2.2 kW and above motors (over excitation braking/High-Slip Braking: approx. 40%) ②Continuous regen. torque: approx. 20% (approx. 125% with dynamic braking resistor option: 10% ED,10s)
	V/f Characteristics	User-selected programs and V/f preset patterns possible
	Main Control Functions	Torque control, Droop control, Speed/torque control switching, Feed forward control, Zero-servo control, Momentary power loss ride-thru, 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, Online tuning, Cooling fan on/off switch, Slip compensation, Torque compensation, Frequency jump, Upper/lower limits for frequency reference, DC injection braking at start and stop, Overexcitation braking, High slip braking, PID control (with sleep function), Energy saving control, MEMOBUS comm. (RS-485/422 max, 115.2 kbps), Fault restart, Application presets, DriveWorksEZ (customization function), Removable terminal block with parameter backup function...
Standards Compliant		· UL508C · IEC/EN61800-3, IEC/EN61800-5-1 · Two Safe Disable inputs and 1EDM output according to ISO/EN13849-1 Cat. 3 PLd, IEC/EN61508 SIL2
Protection Design		IP00 open-chassis, IP20 NEMA Type 1 enclosure
Ambient Temperature		-10 to 50 deg C; derating above 50 to 60 deg C at 2% per 1 deg C
Standard I/O		(8) multi-function digital inputs (24Vdc)
		(3) multi-function analog inputs (0 +/- 10 VDC, 4-20 mA)
		(1) multi-function pulse inputs
		(1) fault relay output (form C)
		(3) multi-function relay outputs (1 Relay, 2 Photocouples)
		(2) multi-function analog outputs (0 +/- 10 VDC)
		(1) multi-function pulse outputs

General-Purpose

Low Harmonics Regenerative Matrix Converter U1000

200 V Class

Model CIMR-UA			2 0028	2 0042	2 0054	2 0068	2 0081	2 0104	2 0130	2 0154	2 0192	2 0248
Rated Input/Output	Rated Input Current A	ND	25	38	49	62	74	95	118	140	175	226
		HD	20	25	38	49	62	74	95	118	140	175
	Rated Input Capacity kVA	ND	12	17	22	28	34	43	54	64	80	103
		HD	9	12	17	22	28	34	43	54	64	80
	Rated Output Current A	ND	28	42	54	68	81	104	130	154	192	248
		HD	22	28	42	54	68	81	104	130	154	192
	Overload Tolerance		HD Rating: 150% of rated output current for 60 s, ND Rating: 120% of rated output current for 60 s (Derating may be required for repetitive loads)									
	Carrier Frequency		4 kHz (User adjustable up to 10 kHz. Derating may be required.)									
	Max. Output Voltage		Depends on input voltage									
	Max. Output Frequency		400 Hz									
Power	Rated Voltage/Rated Frequency		Three-phase AC power supply: 200 to 240 Vac 50/60 Hz									
	Allowable Voltage Fluctuation		-15% to +10%									
	Allowable Frequency Fluctuation		±3% (Frequency fluctuation rate: 1 Hz/100 ms or less)									
	Allowable Power Voltage Imbalance between Phases		less than 2%									
Harmonic Current Distortion Rate			5% or less (IEEE 519)									
Input Power Factor			0.98 or more (for rated load)									

400 V Class

Model CIMR-UA			4 0011	4 0014	4 0021	4 0027	4 0034	4 0040	4 0052	4 0065	4 0077	4 0096	4 0124	4 0156
Rated Input/Output	Rated Intput Current A	ND	10	13	19	25	31	36	47	59	70	87	113	142
		HD	8.7	10	13	19	25	31	36	47	59	70	87	113
	Rated Input Capacity kVA	ND	9	12	17	22	28	33	43	54	64	80	103	130
		HD	8	9	12	17	22	28	33	43	54	64	80	103
	Rated Output Current A	ND	11	14	21	27	34	40	52	65	77	96	124	156
		HD	9.6	11	14	21	27	34	40	52	65	77	96	124
Model CIMR-UA			4 0180	4 0216	4 0240	4 0302	4 0361	4 0414	4 0477	4 0590	4 0720	4 0900	4 0930	
Rated Input/Output	Rated Intput Current A	ND	164	197	218	275	329	377	434	537	655	819	846	
		HD	142	164	197	218	275	329	377	434	537	655	819	
	Rated Input Capacity kVA	ND	150	180	200	251	300	344	396	490	598	748	773	
		HD	130	150	180	200	251	300	344	396	490	598	748	
	Rated Output Current A	ND	180	216	240	302	361	414	477	590	720	900	930	
		HD	156	180	216	240	302	361	414	477	590	720	900	

Rated output	Overload Tolerance	HD Rating: 150% of rated output current for 60 s, ND Rating: 120% of rated output current for 60 s (Derating may be required for repetitive loads)
	Carrier Frequency	CIMR-UA4□0011 to 4□0414: 4 kHz (User adjustable up to 10 kHz. Derating may be required.) CIMR-UA4□0477 to 4□0930: 3 kHz
	Max. Output Voltage	Depends on input voltage
	Max. Output Frequency	400 Hz
Power	Rated Voltage/Rated Frequency	Three-phase AC power supply: 380 to 480 Vac 50/60 Hz
	Allowable Voltage Fluctuation	-15% to +10%
	Allowable Frequency Fluctuation	±3% (Frequency fluctuation rate: 1 Hz/100 ms or less)
	Allowable Power Voltage Imbalance between Phases	less than 2%
Harmonic Current Distortion Rate		5% or less (IEEE 519)
Input Power Factor		0.98 or more (for rated load)

Common Specifications

Item		Specifications
Control Characteristics	Control Method	V/f Control, V/f Control with PG, Open Loop Vector Control, Closed Loop Vector Control, Open Loop Vector Control for PM, Advanced Open Loop Vector Control for PM, Closed Loop Vector Control for PM
	Frequency Control Range	0.01 to 400 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital reference : within ±0.01% of the max. output frequency (-10 to +40°C) Analog reference : within ±0.1% of the max. output frequency (25 ±10°C)
	Frequency Setting Resolution	Digital reference : 0.01 Hz, Analog reference : 0.03 Hz / 60 Hz (11 bit)
	Output Frequency Resolution	0.001 Hz
	Frequency Setting Resolution	Main frequency reference : -10 to +10 Vdc, 0 to 10 Vdc (20 k), 4 to 20 mA (250), 0 to 20 mA (250) Main speed reference : Pulse train input (max. 32 kHz)
	Starting Torque	V/f Control 150%/3 Hz V/f Control with PG 150%/3 Hz Open Loop Vector Control 200%/0.3 Hz Closed Loop Vector Control 200%/0 min^{-1} Open Loop Vector Control for PM 100%/5% Speed Advanced Open Loop Vector Control for PM 200%/0 min^{-1} Closed Loop Vector Control for PM 200%/0 min^{-1}
	Speed Control Range	V/f Control 1 : 40 V/f Control with PG 1 : 40 Open Loop Vector Control 1 : 200 Closed Loop Vector Control 1 : 1500 Open Loop Vector Control for PM 1 : 20 Advanced Open Loop Vector Control for PM 1 : 100 Closed Loop Vector Control for PM 1 : 1500
	Speed Control Accuracy	±0.2% in Open Loop Vector Control (25 ±10°C), ±0.02% in Closed Loop Vector Control (25 ±10°C)
	Speed Response	10 Hz in Open Loop Vector Control (25 ±10°C), 250 Hz in Closed Loop Vector Control (25 ±10°C) (excludes temperature fluctuation when performing Rotational Auto-Tuning)
	Torque Limit	Parameters setting allow separate limits in four quadrants (available in OLV, CLV, AOLV/PM, CLV/PM)
	Accel/Decel Time	0.00 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	Same value as overload tolerance
	V/f Characteristics	User-selected programs and V/f preset patterns possible
	Main Control Functions	Torque Control, Droop Control, Speed/Torque Control switch, Feed Forward Control, Zero Servo Control, Momentary Power Loss Ride-Thru, Speed Search,Synchronous Transfer with Commercial Power Supply,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 switch, 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, MEMOBUS comm. (RS-485/422, max. 115.2 kbps),Fault Restart, Application Presets,DriveWorksEZ (customized functions), Removable Terminal Block with Parameter Backup, Online Tuning,Overexcitation Deceleration, Inertia (ASR) Tuning, High Frequency Injection, etc.
Standards Compliance		· UL508C · IEC/EN61800-3,IEC/EN61800-5-1 · Two Safe Disable inputs and 1EDM output according to ISO/EN13849-1 Cat.3 Ple,IEC/EN61508 SIL3
Protection Design		IP00 open-chassis, IP20 NEMA Type 1 enclosure
Ambient Temperature		-10 to 50 deg C; derating above 50 to 60 deg C at 2% per 1 deg C
Standard I/O		(8) multi-function digital inputs (24Vdc)
		(3) multi-function analog inputs (0 +/- 10 VDC, 4-20 mA)
		(1) multi-function pulse inputs
		(1) fault relay output (form C)
		(3) multi-function relay outputs (1 Relay, 2 Photocouples)
		(2) multi-function analog outputs (0 +/- 10 VDC)
		(1) multi-function pulse outputs

General-Purpose

Advanced Vector Control Inverter Varispeed G7

200 V Class

Model CIMR-G7A□□□□			20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110
Max. Applicable Motor Capacity		kW	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
Output	Rated Output Capacity	kVA	1.2	2.3	3	4.6	6.9	10	13	19	25	30	37	50	61	70	85	110	140	160
	Rated Output Current	A	3.2	6	8	12	18	27	34	49	66	80	96	130	160	183	224	300	358	415
	Max. Output Voltage		Three-phase, 200/208/220/230/240 V (proportional to input voltage)																	
	Max. Output Frequency		400 Hz by parameter settings																	
Power	Rated Voltage/Rated Frequency		Three-phase, 200/208/220/230/240 V, 50/60 Hz																	
	Allowable Voltage Fluctuation		−15 to +10%																	
	Allowable Frequency Fluctuation		±5%																	
Harmonic Suppression	DC Reactor		Optional											Standard						
	12-pulse Input		Not available											Available						

400 V Class

Model CIMR-G7A□□□□			40P4	40P7	41P5	42P2	43P7	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300
Max. Applicable Motor Capacity		kW	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	300
Output	Rated Output Capacity	kVA	1.4	2.6	3.7	4.7	6.9	11	16	21	26	32	40	50	61	74	98	130	150	180	210	230	280	340	460
	Rated Output Current	A	1.8	3.4	4.8	6.2	9	15	21	27	34	42	52	65	80	97	128	165	195	240	270	302	370	450	605
	Max. Output Voltage		Three-phase, 380/400/415/440/460/480 V (proportional to input voltage)																						
	Max. Output Frequency		400 Hz by parameter settings																						
Power	Rated Voltage/Rated Frequency		Three-phase, 380/400/415/440/460/480 V, 50/60 Hz																						
	Allowable Voltage Fluctuation		−15 to +10%																						
	Allowable Frequency Fluctuation		±5%																						
Harmonic Suppression	DC Reactor		Optional											Standard											
	12-pulse Input		Not available											Available											

Common Specifications

Items		Specifications
Control Characteristics	Control Method	Sine wave PWM (Flux Loop Vector Control, Open Loop Vector Control 1 and 2, V/f Control, V/f with PG Control)
	Starting Torque	150% at 0.3 Hz (Open Loop Vector Control 2), 150% at 0 r/min (Flux Loop Vector Control)
	Speed Control Range	1 : 200 (Open Loop Vector Control 2), 1: 1000 (Flux Loop Vector Control)
	Speed Control Accuracy	±0.2%*9 (Open Loop Vector Control 2 at 25±10°C), ±0.02% (Flux Loop Vector Control at 25±10°C)
	Speed Response	10 Hz (Open Loop Vector Control 2), 40 Hz (Flux Loop Vector Control)
	Torque Limit	Vector Control allows separate settings in four quadrants.
	Torque Accuracy	±5%
	Frequency Control Range	0.01 to 400 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital reference: ±0.01%, −10 to +40°C ; Analog reference: ±0.1%, 25±10°C
	Frequency Setting Resolution	Digital reference: 0.01 Hz; Analog reference: 0.03/60 Hz (11 bit signed)
	Output Frequency Resolution	0.001 Hz
	Overload Tolerance	150% of rated output current for 1 min., 200% of rated output current for 0.5 s
	Frequency Setting Signal	−10 to +10 V, 0 to 10 V, 4 to 20 mA, pulse train
	Accel/Decel Time	0.00 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	Approx. 20% (approx. 125% with dynamic braking resistor option), 200/400 V 15 kW or less have an internal braking transistor.
	Main Control Functions	Momentary power loss ride-thru, 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 switch, Slip compensation, Torque compensation, Frequency jump, Frequency upper/lower limit settings, DC injection braking at start/stop, High slip braking, PID control (with sleep function), Energy saving control, MEMOBUS communication (RS-485/422 max. 19.2 kbps), Fault restart, Parameter copy, Droop control, Torque control, Speed/torque control switching, Feedforward control, Zero-servo control...
Ambient Temperature		-10 to 50 deg C; derating above 50 to 60 deg C at 2% per 1 deg C
Standard I/O		(12) multi-function digital inputs
		(3) multi-function analog inputs
		(1) multi-function pulse input
		(2) multi-function relay output
		(4) multi-function photo-coupler outputs
		(2) multi-function 0-10 VDC analog output
		(1) multi-function pulse output

Application Specific

Elevator applications L1000A

200 V Class

Model CIMR-LT2A□□□□		0008	0011	0018	0025	0033	0047	0060	0075	0085	0115	0145	0180	0215	0283	0346	0415
Max. Applicable Motor Capacity kW		1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
Output	Rated Output Capacity kVA	3	4.2	6.7	9.5	12.6	17.9	23	29	32	44	55	69	82	108	132	158
	Rated Output Current A	8	11	17.5	25	33	47	60	75	85	115	145	180	215	283	346	415
	Overload Tolerance	150% of rated output current for 60 s															
	Max. Output Voltage	Three-phase 200 to 240 V (proportional to input voltage)															
	Max. Output Frequency	120 Hz (user adjustable)															
Power	Rated Voltage/Rated Frequency	Three-phase 200 to 240 Vac 50/60 Hz 270 to 340 Vdc															
	Allowable Voltage Fluctuation	−15 to +10%															
	Allowable Frequency Fluctuation	±5%															

400 V Class

Model CIMR-LT4A□□□□		0005	0006	0009	0015	0018	0024	0031	0039	0045	0060	0075	0091	0112	0150	0180	0216
Max. Applicable Motor Capacity kW		1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
Output	Rated Output Capacity kVA	3.7	4.2	7	11.3	13.7	18.3	24	30	34	48	57	69	85	114	137	165
	Rated Output Current A	4.8	5.5	9.2	14.8	18	24	31	39	45	60	75	91	112	150	180	216
	Overload Tolerance	150% of rated output current for 60 s															
	Max. Output Voltage	Three-phase 380 to 480 V (proportional to input voltage)															
	Max. Output Frequency	120 Hz (user adjustable)															
Power	Rated Voltage/Rated Frequency	Three-phase 380 to 480 Vac 50/60 Hz 510 to 680 Vdc															
	Allowable Voltage Fluctuation	−15 to +10%															
	Allowable Frequency Fluctuation	±5%															

Common Specifications

Item		Specification
Control Characteristics	Control Method	V/f Control, Open Loop Vector Control, Closed Loop Vector Control, Closed Loop Vector Control for PM
	Frequency Control Range	0.01 to 120 Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital reference: within ±0.01% of the max. output frequency (−10 to +40°C) Analog reference: within ±0.1% of the max. output frequency (25±10°C)
	Output Frequency Resolution	0.001 Hz
	Frequency Setting Resolution	Main frequency reference: −10 to +10 Vdc (20 kΩ), 0 to +10 Vdc (20 kΩ), 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω)
	Starting Torque	150% / 3 Hz (V/f Control) 200% / 0 r/min (Closed Loop Vector Control) 200% / 0.3 Hz (Open Loop Vector Control) 200% / 0 r/min (Closed Loop Vector Control for PM)
	Speed Control Range	1 : 40 (V/f Control) 1 : 1500 (Closed Loop Vector Control) 1 : 200 (Open Loop Vector Control) 1 : 1500 (Closed Loop Vector Control for PM)
	Speed Control Accuracy	±0.2% in Open Loop Vector Control (25±10°C), ±0.02% in Closed Loop Vector Control (25±10°C)
	Speed Response	10 Hz in Open Loop Vector Control (25±10°C), 50 Hz in Closed Loop Vector Control (25±10°C) (excludes temperature fluctuation when performing Rotational Auto-Tuning)
	Torque Limit	All vector control modes allow separate settings in four quadrants
	Accel/Decel Time	0.00 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking Torque	Approximately 125% when using a braking resistor option
	V/f Characteristics	User-selected programs and V/f preset patterns possible
	Main Control Functions	Torque compensation at start (with or without sensors), Auto-Tuning (for motor and encoder offset), braking sequence, Feed Forward, Short Floor, Rescue Operation using back-up power supply, Light Load Direction Search, Removable Terminal Block with Parameter Backup...
Standards Compliant		· UL508C · IEC/EN61800-3, IEC/EN61800-5-1 · Two Safe Disable inputs and 1EDM output according to ISO/EN13849-1 Cat. 3 PLd, IEC/EN61508 SIL2
Protective Design		IP00 open-chassis, NEMA Type 1 enclosure
Standard I/O		(8) multi-function digital inputs
		(2) multi-function analog inputs
		(4) multi-function relay output
		(2) multi-function photo-coupler outputs
		(2) multi-function 0-10 VDC analog output
		(2) Hardware baseblock

Energy-Saving Unit

Power regenerative converter D1000

D1000 Energy-saving Unit

Voltage			200 V Class								400 V Class											
Model CIMR-DA A			0005	0010	0020	0030	0050	0065	0090	0130	0005	0010	0020	0030	0040	0060	0100	0130	0185	0270	0370	0630
Max. Applicable Motor Capacity kW			3.7	7.5	15	22	37	55	75	110	3.7	7.5	15	22	30	45	75	110	160	220	315	560
Rating	Rated Output Capacity kW		5	10	20	30	50	65	90	130	5	10	20	30	40	60	100	130	185	270	370	630
	Rated Output Current(DC) A		15	30	61	91	152	197	273	394	8	15	30	45	61	91	152	197	280	409	561	955
	Rated Input Current(AC) A		15	29	57	83	140	200	270	400	8	16	30	43	58	86	145	210	300	410	560	1040
Input	Rated Output Voltage		330 Vdc								660 Vdc											
	Rated Voltage/Rated Frequency		200 to 240 Vac 50/60 Hz								380 to 480 Vac 50/60 Hz											
	Allowable Voltage Fluctuation		−15 to +10%																			
	Allowable Frequency Fluctuation		±2%																			
Control Characteristics	Control Method		Sine-wave PWM control																			
	Input Power Factor		Input power factor of 0.99 min. (for rated operation)																			
	Output Voltage Accuracy		±5%																			
	Overload Protection		Unit stops after 60 s at 150% of rated output current or after 3 s at 200% of rated output current.																			
	Voltage Reference Range		300 to 360 Vdc								600 to 730 Vdc											
	Carrier Frequency		6 kHz				4 kHz				6 kHz						4 kHz			2 kHz		
	Main Control Functions		Current Limit, Cooling Fan on/off Switch, Removable Terminal Block with Parameter Backup Function, MEMOBUS/Modbus Comm. (RS-422/RS-485 max, 115.2 kbps)																			
Protection Functions	Momentary Overcurrent Protection		Unit stops when input current exceeds 250%.																			
	Fuse burnout		Operation stops if the fuse burns out.																			
	Overloads		Operation stops after 60 s at 150% of rated output current. Operation stops after 3 s at 200% of rated output current. (electrical operation and regeneration)																			
	Overvoltage Protection	Output	Stops when DC bus voltage exceeds approx. 410 Vdc								Stops when DC bus voltage exceeds approx. 820 Vdc											
		Input	Stops when input voltage exceeds approx. 227 Vac								Stops when input voltage exceeds approx. 554 Vac											
	Undervoltage Protection	Output	Stops when DC bus voltage falls below approx. 190 Vdc								Stops when DC bus voltage falls below approx. 380 Vdc											
		Input	Stops when input voltage falls below approx. 150 Vac								Stops when input voltage falls below approx. 300 Vac											
	Momentary Power Loss		Immediately stops after Momentary Power Loss is detected.																			
	Power Supply Frequency Fault		Operation stops for a deviation of ±6 Hz or more from the rated input frequency.																			
	Heatsink Overheat Protection		Protection by thermistor																			
	Ground Fault Protectionn		Protection by electronic circuit																			
	Charge LED		Charge LED remains lit until DC bus has fallen below approx. 50 V																			
Environment	Area of Use		Indoors																			
	Ambient Temperature		−10 to +50° C (IP00/IP20/Open Type enclosure) -10 to 50 deg C; derating above 50 to 60 deg C at 2% per 1 deg C																			
	Humidity		95% RH or less (no condensation)																			
	Shock		(2A0005 to 2A0050, 4A0005 to 4A0100) 10 to 20 Hz : 9.8 m/s², 20 to 55 Hz : 5.9 m/s² (2A0065 to 2A0130, 4A0130 to 4A0370) 10 to 20 Hz : 9.8 m/s², 20 to 55 Hz : 2.0 m/s² (4A0630) 10 to 20 Hz : 5.9 m/s², 20 to 55 Hz : 2.0 m/s²																			
	Storage Temperature		−20 to +60° C (short-term temperature during transportation)																			
	Altitude		Up to 1000 meters (derating required at altitudes from 1000 m to 3000 m)																			
Protection Design			IP00/IP20/Open Type enclosure																			
Safety Standard			UL508C, IEC61800-5-1, IEC61800-3																			

D1000 Standard Configuration Devices

Voltage		200 V								400 V											
Model CIMR-DA A		0005	0010	0020	0030	0050	0065	0090	0130	0005	0010	0020	0030	0040	0060	0100	0130	0185	0270	0370	0630
Harmonic Filter Module	Rated Current A	15	29	57	83	140	200	270	400	8	16	30	43	58	86	145	210	300	–	–	–
Input AC Reactor 1	Rated Current A	15	29	57	83	140	200	270	400	8	16	30	43	58	86	145	210	300	410	560	560
	Inductance mH	2.45	1.27	0.64	0.44	0.26	0.18	0.14	0.09	9.19	4.59	2.45	1.71	1.27	0.85	0.51	0.35	0.25	0.18	0.13	0.13
Input AC Reactor 2	Rated Current A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	410	560	1140
	Inductance mH																		0.06	0.05	0.02
Reactor for Harmonic Filter	Rated Current A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	64	87	177
	Inductance mH																		0.022	0.0158	0.0079
Condenser for Harmonic Filter	Rated Capacity µF	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	290	402	800

Energy-Saving Unit

Power Regenerative Unit R1000

R1000 Energy-saving Unit

Voltage			200 V Class												400 V Class														
Model CIMR-RA A			03P5	0005	0007	0010	0014	0017	0020	0028	0035	0053	0073	0105	03P5	0005	0007	0010	0014	0017	0020	0028	0035	0043	0053	0073	0105	0150	0210	0300
Max. Applicable Motor Capacity kW			3.7	5.5	7.5	11	15	18.5	22	30	37	55	75	110	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	110	160	220	315
Rating	Regeneration Capacity kW		3.5	5	7	10	14	17	20	28	35	53	73	105	3.5	5	7	10	14	17	20	28	35	43	53	73	105	150	210	300
	Rated Output Current (DC) A		14	20	27	41	55	68	81	112	138	207	282	413	7	11	15	22	30	36	43	58	73	89	109	149	217	320	440	629
	Rated Input Current (AC) A		10	15	20	30	41	50	60	83	102	153	209	306	5	8	11	16	22	27	32	43	54	66	81	110	161	237	326	466
Input	Rated Voltage/Rated Frequency		200 to 240Vac 50/60Hz												380 to 480Vac 50/60Hz															
	Allowable Voltage Fluctuation		−15 to +10%																											
	Allowable Frequency Fluctuation		±2%																											
Control Characteristics	Control Method		120° excitation method																											
	Input Power Factor		0.9 min. (for rated load)																											
	Overload Protection		30 s at approx. 150% of rated current.																											
	Regenerative Torque		150% 30 s, 100% 25% ED 60 s, 80% continuous																											
	Main Control Functions		Cooling Fan on/off Switch,MEMOBUS/Modbus Comm. (RS-422/RS-485 max, 115.2 kbps)																											
Protection Functions	Momentary Overcurrent Protection		Operation stops for approx. 250% or higher of the rated power supply current.																											
	Fuse burnout		Operation stops if the fuse burns out.																											
	Overloads		Operation stops for 150% of the rated power supply current for 30 s.																											
	Overvoltage Protection	Output	Stops when DC bus voltage exceeds approx. 410 Vdc												Stops when DC bus voltage exceeds approx. 820 Vdc															
		Input	Stops when input voltage exceeds approx. 227 Vac												Stops when input voltage exceeds approx. 554 Vac															
	Undervoltage Protection	Output	Stops when DC bus voltage falls below approx. 190 Vdc												Stops when DC bus voltage falls below approx. 380 Vdc															
		Input	Stops when input voltage falls below approx. 150 Vac												Stops when input voltage falls below approx. 300 Vac															
	Momentary Power Loss		Immediately stops after Momentary Power Loss is detected.																											
	Power Supply Frequency Fault		Operation stops for a deviation of ±6 Hz or more from the rated input frequency.																											
	Heatsink Overheat Protection		Protection by thermistor																											
	Ground Fault Protection		Protection by electronic circuit																											
	Charge LED		Charge LED remains lit until DC bus has fallen below approx. 50 V																											
Environment	Area of Use		Indoors																											
	Ambient Temperature		−10 to +40°C [Enclosed Wall-Mounted (NEMA Type1)] −10 to +50°C [Open Type enclosure (IP00)], -10 to 50 deg C; derating above 50 to 60 deg C at 2% per 1 deg C																											
	Humidity		95% RH or less (no condensation)																											
	Shock		(2A03P5 to 2A0053, 4A03P5 to 4A0073)10 to 20 Hz : 9.8 m/s², 20 to 55 Hz : 5.9 m/s² (2A0073 to 2A0105, 4A0105 to 4A0300)10 to 20 Hz : 9.8 m/s², 20 to 55 Hz : 2.0 m/s²																											
	Storage Temperature		−20 to +60° C (short-term temperature during transportation)																											
	Altitude		Up to 1000 meters (derating required at altitudes from 1000 to 3000 m)																											
Protection Design			Open Type enclosure (IP00) Enclosed Wall-Mounted (NEMA Type1 (IP20))																											
Safety Standard			UL508C, IEC/EN61800-5-1, IEC/EN61800-3																											

R1000 Standard Configuration Devices

Voltage		200 V Class												400 V Clas														
Model CIMR-RA A		03P5	0005	0007	0010	0014	0017	0020	0028	0035	0053	0073	0105	03P5	0005	0007	0010	0014	0017	0020	0028	0035	0043	0053	0073	0105	0150	0210	0300
Power Coordinating Reactor	Rated Current A	20	30	40	60	80	90	120	160	200	280	360	500	10	15	20	30	40	50	60	80	90	120	150	200	250	330	490	660
	Inductance mH	0.53	0.35	0.265	0.18	0.13	0.12	0.09	0.07	0.05	0.038	0.026	0.02	2.2	1.42	1.06	0.7	0.53	0.42	0.36	0.26	0.24	0.18	0.15	0.11	0.09	0.06	0.04	0.03
Current Suppression Reactor	Rated Current A	15	15	20	40	40	50	60	80	100	153	209	306	7.5	7.5	10	15	25	25	30	40	50	60	75	100	161	237	326	466
	Inductance mH	0.31	0.31	0.15	0.1	0.1	0.06	0.05	0.04	0.03	0.02	0.015	0.01	1.2	1.2	0.6	0.4	0.3	0.3	0.2	0.15	0.12	0.1	0.08	0.06	0.04	0.03	0.02	0.013
Fuse	Rated Current A	20	25	32	50	63	80	100	125	160	200	350	500	16	16	16	25	40	40	50	63	80	100	125	160	250	350	500	630

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