



Automation for a Changing World

Delta Sensorless Vector Control Drives

CP2000 Series

For HVAC Drive Applications





CP2000

WHY CP2000?

IABU green technology

To fulfill Delta's mission "to provide innovative, clean and energy-efficient solutions for a better tomorrow", we are proud to introduce a sensorless vector control VFD which is made for pump and fan applications and HVAC systems.

With the best performance in the industry, this VFD is specially designed for related applications with an intelligent PID controller.

Functions such as sensorless vector control, multi-segment V/F control curve and soft start greatly improve the efficiency of the variable torque loads and constant horsepower loads.

Water Circulating Pumps Control

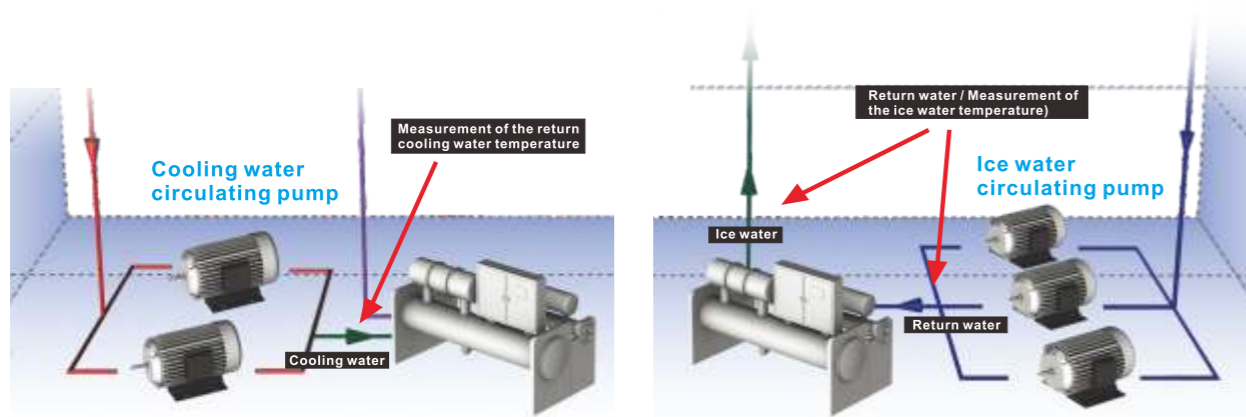


Figure 1: Multi-Pump Control

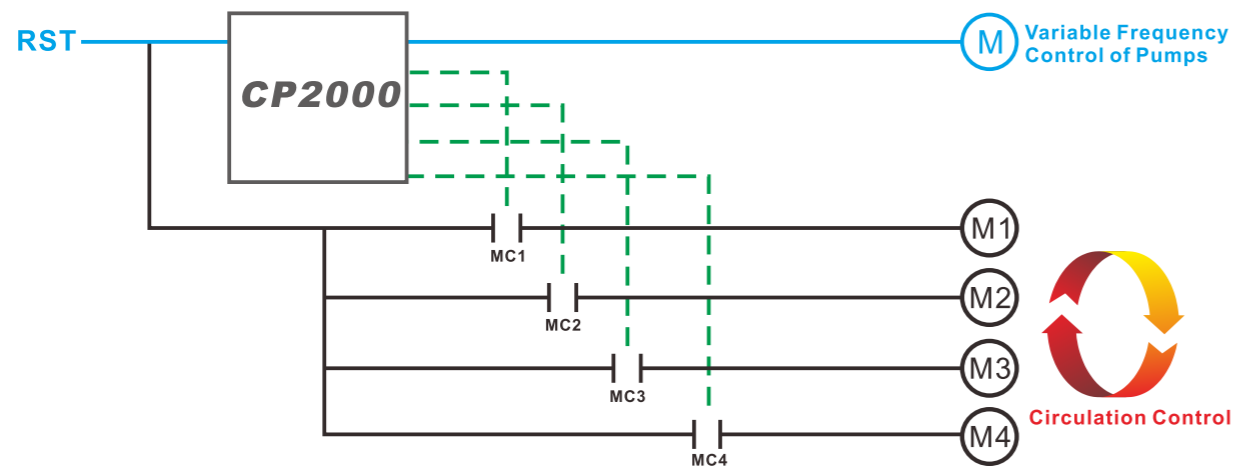


Figure 2: Fixed Quantity and Circulation Control of Pumps

Features

- 01 LCD keypad offers a user-friendly operation interface. The display screen can be defined by the user with TP-Editor soft.
- 02 Quick setting, user defined parameter management, and parameter copy functions make the installation fast and easy.
- 03 Modular design for flexible extension and easy maintenance.
- 04 Built-in BACnet and MODBUS RS-485. Various optional communication cards such as Profibus-DP, DeviceNet, MODBUS TCP, EtherNet-IP, and CANopen.
- 05 Long-life design.
- 06 The PCB (Printed Circuit Board) coating enhances reliability and durability.
- 07 Fire mode and Bypass functions provide safe operation in an emergency.
- 08 Useful functions for pump and fan applications, such as: PID control, sleep/wake up functions, flying start, and skip frequency.
- 09 Multi-pumps control functions, such as: fixed time, fixed quantity, circulating controls. The driver can control a maximum of eight pumps at the same time. An optional relay extension card is available depending on the pump quantity.
- 10 Built-in PLC 10K step and Real Time Clock.



Standard Models

Power range: 230V 0.75~90kW, 460V: 0.75~400kW

230V (kW)	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	
230V (HP)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	
Frame Size	A			B			C			D			E				
460V (kW)	0.75	1.5	2.2	3.7	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
460V (HP)	1	2	3	5	5	7.5	10	15	20	25	30	40	50	60	75	100	125
Frame Size	A			B			C			D							
460V (kW)	90	110	132	160	185	220	280	315	355	400							
460V (HP)	125	150	175	215	250	300	375	425	475	536							
Frame Size	E		F		G		H										

Advanced Drive Technology

High performance Variable Frequency Drive Technology

1. SVC Sensorless vector control
2. Dual rating design (Light duty & Normal duty)
3. Excellent variable torque control

Modular Design

1. Hot plug LCD keypad
2. I/O extension card
3. Various communication card
4. Removable fans

Versatile Drive Control

1. Built-in Programmable Logic Controller
2. Built in brake unit*
3. Networking drive system
4. Auto energy saving design

Environmental Adaptability

1. 50°C operation temperature
2. Built-in DC choke*
3. Coated circuit boards
4. Built-in EMI filter*
5. Global safety standards (CE/UL/cUL)



* Note: Please refer to the Product Specification

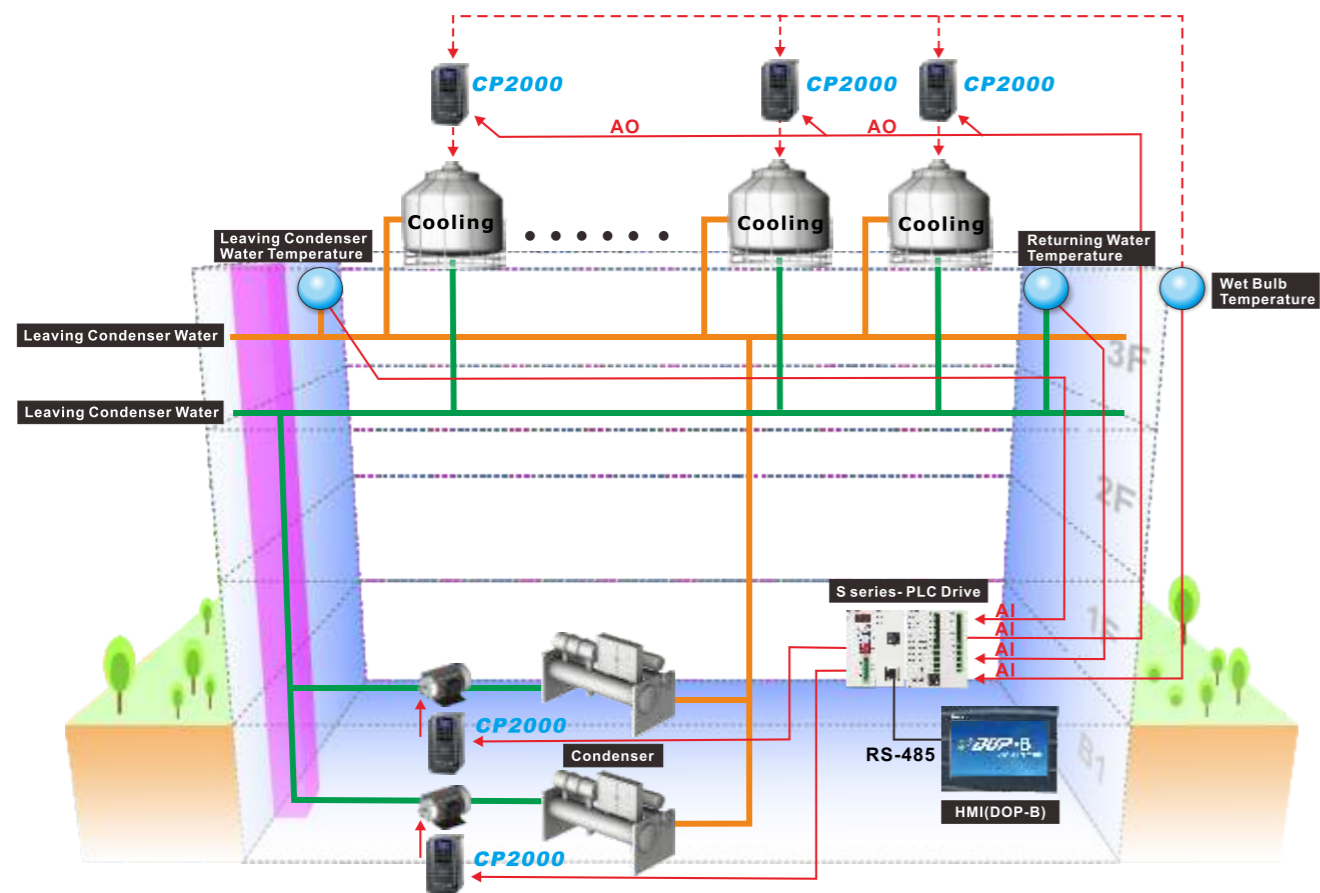
High-Speed Network

- Advanced Network Functions.
 - RS-485 built in: International Standard Communication Interface.
 - Built-in BACnet, MODBUS
- Various communication network cards and field bus cards are available.



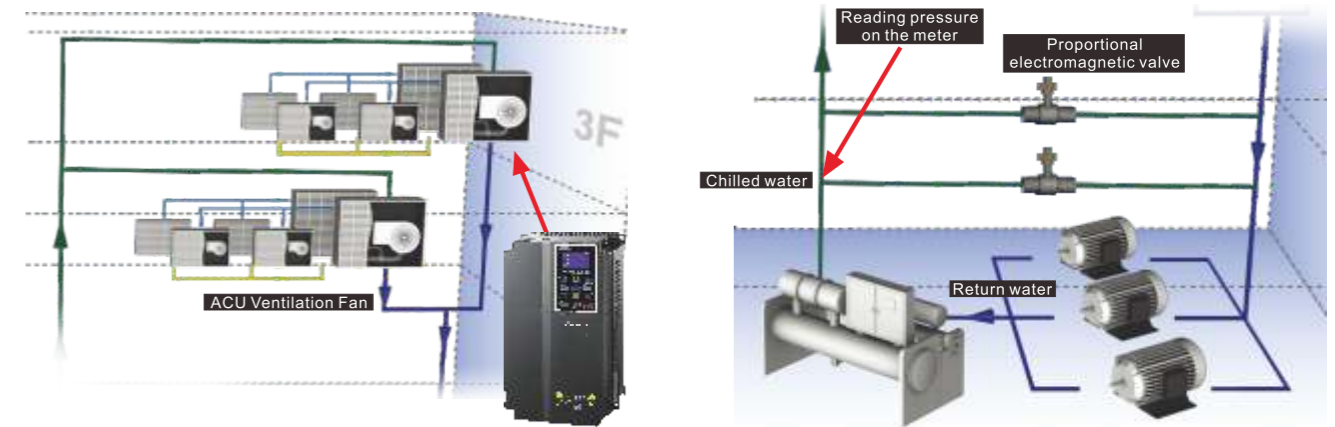
Features for Building Automation Applications

- The four-segment exponential response curve can adjust the input voltage to increase performance for variable torque loads applications, especially for pump and fan applications.
- Flying start and restart functions avoids a momentary power down provide the best operation for fan applications.
- Skip frequency function avoids motor vibration at a specific frequency band and protects the equipment.
- Low current protection protects the motor from load loss.
- Built-in BACnet lowers the cost of wiring for building automation.



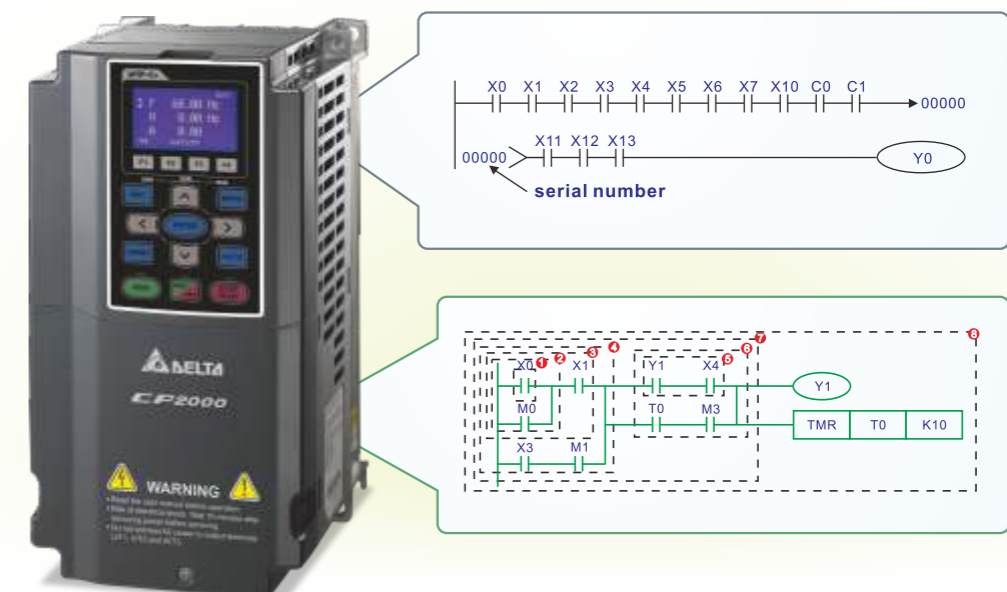
Increases Motor Performance

- The sensorless vector control (SVC) and AUTO-TUNING functions increase motor performance for variable torque loads applications.
- Deceleration Energy Backup (DEB): when a power loss occurs the drive decelerates and stops the motor to protect the equipment.
- Optimal Acceleration/Deceleration function makes the motor run smoothly and reduces vibration during start and stop.
- Various control functions for saving energy, such as: PID control, sleep/wake up function, and auto energy saving mode.



Intelligent Programmable Logic Controller

- By connecting the built-in Delta PLC (programmable logic controller) to a network, you can easily use distributed control mode and independent operation to create an intelligent control space.
- The real time clock & calendar function allows you to program the PLC procedure, ON/OFF in chronological order, daylight saving time and more.



Modular Design

Modular design enhances drive and control. Depending on the requirements of system applications maintenance you can install input/output expansion cards, communication cards, hot plug LCD keypads, assembly terminal blocks and removable fans.

▲ KPC-CCO1數位操作器

- Convenient push-on/push-off, to install or remove easily.
- Standard RJ45 network cable.



Designed for Environmental Adaptability

- Built-in DC choke*
- Built-in RFI filter
- Enhanced coating on the control board's PCB to ensure reliability of VFD in an adverse environment.
- Flange mounting: designed to completely separate the heat dissipating system and other electronic components. Its installation can disperse heat out of the VFD. Cooling fan method can blow cold air into aluminum heat sink. Both heat dissipating methods are efficient, choose the one that fits the working environment for the best heat dissipation results.



*Note: Please refer to the Product Specification

Operating Environment

DO NOT expose the AC motor drive to harsh environments, such as dust, direct sunlight, corrosive/ inflammable gasses humidity, liquid or vibrations. The salt in the air must be less than 0.01mg/cm² per year.

Environment	Installation location	IEC60364-1/IEC60664-1 Pollution degree 2, Indoor use only	
	Surrounding Temperature	Storage/ Transportation	-25°C ~ +70°C
		No-condensation, non-frozen	
	Rated Humidity	Operation	Max. 90%
		Storage/ Transportation	Max. 95%
	No condensed water		
	Air Pressure	Operation/ Storage	86 to 106 kPa
		Transportation	70 to 106 kPa
	Pollution Level	IEC721-3-3	
		Operation	Class 3C2 : Class 3S2
Storage		Class 2C2 : Class 2S2	
Transportation		Class 1C2 : Class 1S2	
No concentrate			
Altitude	Operation	If AC motor drive is installed at altitude 0~1000m, follow normal operation restriction. If it is installed at altitude 1000~3000m, decrease 2% of rated current or lower 0.5% of temperature for every 100m increase in altitude. Maximum altitude for Corner Grounded is 2000m.	
	Storage/ Transportation	ISTA procedure 1A (according to weight) IEC60068-2-31	
Package Drop	1.0mm, peak to peak value range from 2Hz to 13.2 Hz; 0.7G~1.0G range from 13.2Hz to 55Hz; 1.0G range from 55Hz to 512 Hz. Complies with IEC 60068-2-6		
Vibration	IEC/EN 60068-2-27		
Impact	Max. allowed offset angle ±10° (under normal installation position)		
Operation Position			

Specification for Operation Temperature and Protection Level

Model	Frame	Top cover	Conduit Box	Protection Level	Operation Temperature	
VFDxxxxCP23A-21 VFDxxxxCP43A-21 VFDxxxxCP4EA-21 VFDxxxxCP43C-21	Frame A~C 230V: 0.75~30kW 460V: 0.75~37kW	Remove top cover	Standard conduit plate	IP20/UL Open Type	ND: -10°C ~50°C LD: -10°C ~40°C	
		Standard with top cover		IP20/UL Type1/NEMA1	ND: -10°C ~40°C LD: -10°C ~40°C	
	Frame D~H 230V: above 37kW 460V: above 45kW	N/A	With conduit box	IP20/UL Type1/NEMA1		ND: -10°C ~40°C LD: -10°C ~40°C
		IP00 IP20/UL Open Type		ND: -10°C ~50°C LD: -10°C ~40°C (ND=Normal Duty LD=Light Duty)		
VFDxxxxCP23A-00 VFDxxxxCP43A-00 VFDxxxxCP43C-00	Frame D~H 230V: above 37kW 460V: above 45kW	N/A	With conduit box	<p>Only the circled area is IP00, others parts are IP20.</p>	ND: -10°C ~50°C LD: -10°C ~40°C (ND=Normal Duty LD=Light Duty)	

Product Specifications

230V



Frame Size		A					B				C				D		E	
Model : VFD-___CP23A-__	007	015	022	037	055	075	110	150	185	220	300	370	450	550	750	900		
Rated Output Capacity (kVA)	2.0	3.0	4.0	6.0	8.4	12	18	24	30	36	42	58	72	86	110	128		
Rated Output Current (A)	5	7.5	10	15	21	31	46	61	75	90	105	146	180	215	276	322		
Applicable Motor Output(kW)	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90		
Applicable Motor Output(HP)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125		
Overload tolerance	120% of rated current for 1 minute																	
Max. output frequency (Hz)	600.00Hz										400.00Hz							
Carrier Frequency (kHz)	2~15kHz(8KHz)					2~10kHz(6KHz)					2~9kHz(4KHz)							
Rated Output Capacity (kVA)	1.8	2.0	3.2	4.4	6.8	10	13	20	26	30	36	48	58	72	86	102		
Rated Output Current (A)	4.6	5	8	11	17	25	33	49	65	75	90	120	146	180	215	255		
Applicable Motor Output(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		
Applicable Motor Output(HP)	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100		
Overload tolerance	120% of rated current for 1 minute;160% of rated current for 3 seconds																	
Max. output frequency (Hz)	600.00Hz										400.00Hz							
Carrier Frequency (kHz)	2~15kHz(8KHz)					2~10kHz(6KHz)					2~9kHz(4KHz)							
Input Current (A) Light Duty	6.4	9.6	15	22	25	35	50	65	83	100	116	146	180	215	276	322		
Input Current (A) Normal Duty	3.9	6.4	12	16	20	28	36	52	72	83	99	124	143	171	206	245		
Rated Voltage/Frequency	3-Phase AC 200V~240V(-15%~+10%), 50/60Hz																	
Operating Voltage Range	170~265Vac																	
Frequency Tolerance	47~63Hz																	
Cooling method	Natural Cooling		Fan Cooling															
Braking Chopper	Frame A,B,C Built-in										Frame D and above: Optional							
DC choke	Frame A,B,C Optional										Frame D and above: 3% built-in							
EMI Filter	Optional																	

460V

Frame		A							B				C	
Models VFD-___CP43A-___; VFD-___CP4EA-___;	007	015	022	037	040	055	075	110	150	185	220	300	370	
Rated Output Capacity(kVA)	2.4	2.9	4.0	6.0	8.4	9.6	11.2	18	24	29	36	45	57	
Rated Output Current (A)	3	3.7	5	7.5	10.5	12	14	22.5	30	36	45	56	72	
Applicable Motor Output(kW)	0.75	1.5	2.2	3.7	4.0	5.5	7.5	11	15	18.5	22	30	37	
Applicable Motor Output(HP)	1	2	3	5	5	7.5	10	15	20	25	30	40	50	
Overload tolerance	120% of rated current for 1 minute													
Max. output frequency(Hz)	600.00Hz													
Carrier Frequency (kHz)	2~15kHz(8KHz)							2~10kHz(6KHz)						
Rated Output Capacity(kVA)	2.2	2.4	3.2	4.8	7.2	8.4	10	14	19	25	30	36	48	
Rated Output Current (A)	2.8	3.0	4.0	6.0	9.0	10.5	12	18	24	32	38	45	60	
Applicable Motor Output(kW)	0.4	0.75	1.5	2.2	3.7	4.0	5.5	7.5	11	15	18.5	22	30	
Applicable Motor Output(HP)	0.5	1	2	3	5	5	7.5	10	15	20	25	30	40	
Overload tolerance	120% of rated current for 1 minute;160% of rated current for 3 seconds													
Max. output frequency(Hz)	600.00Hz													
Carrier Frequency (kHz)	2~15kHz(8KHz)							2~10kHz(6KHz)						
Input Current (A) Light Duty	4.3	5.4	7.4	11	16	18	20	25	33	39	47	58	76	
Input Current (A) Normal Duty	3.5	4.3	5.9	8.7	14	15.5	17	20	26	35	40	47	63	
Rated Voltage/Frequency	3-Phase AC 380V~480V(-15%~+10%), 50/60Hz													
Operating Voltage Range	323~528Vac													
Frequency Tolerance	47~63Hz													
Cooling method	Natural Cooling			Fan Cooling										
Braking Chopper	Frame A,B,C Built-in													
DC choke	Frame A,B,C Optional													
EMI Filter	Frame A,B,C of VFD___CP4EA-___, Eml filter Built-in Frame A,B,C of VFD___CP43A-___, Eml filter NOT Built-in													

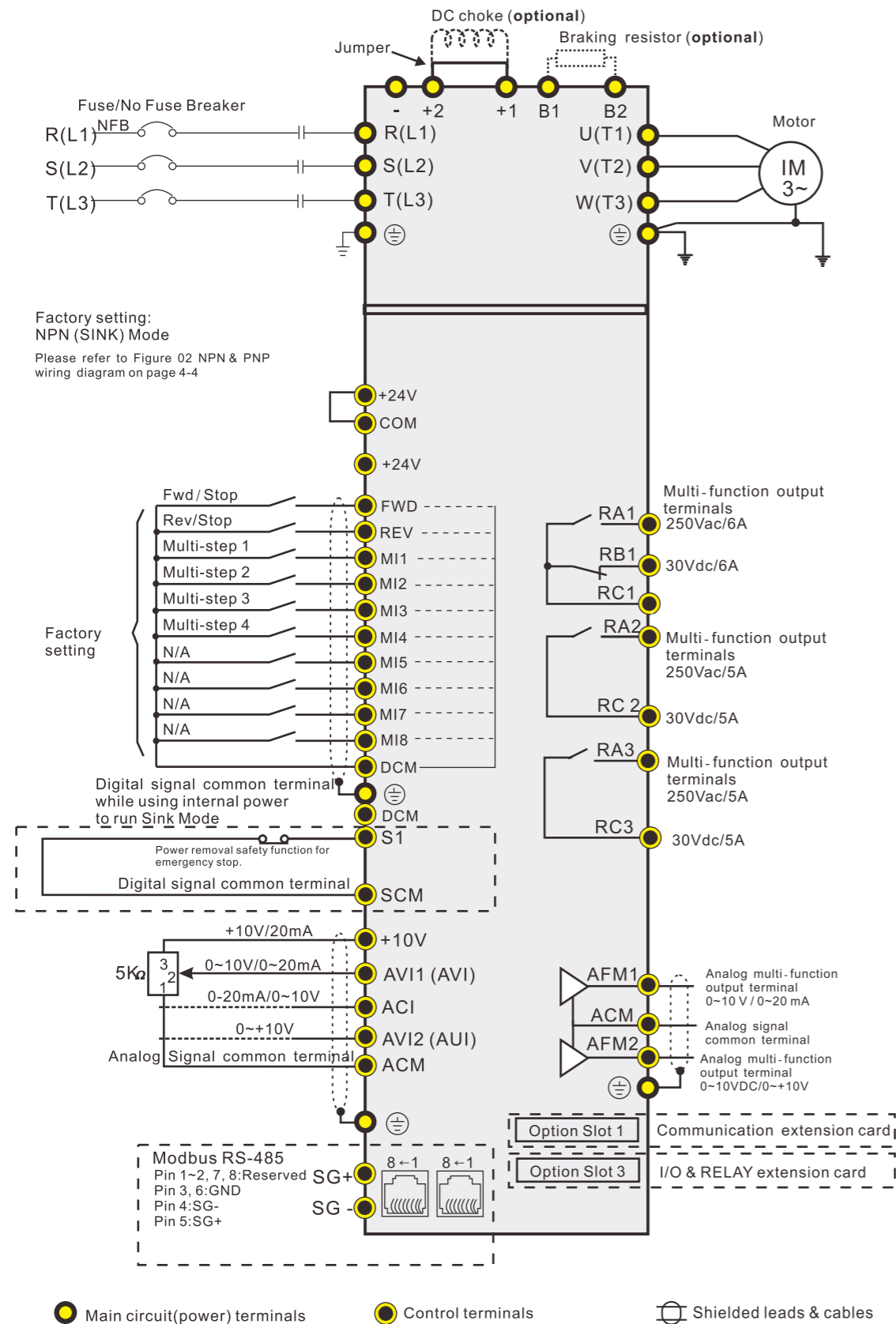
460V

Frame		D				E		F		G		H		
Models VFD-___CP43A-___; VFD-___CP43C-___;		450	550	750	900	1100	1320	1600	1850	2200	2800	3150	3550	4000
Rated Output Capacity(kVA)		73	88	115	143	175	196	247	273	367	422	491	544	613
Rated Output Current (A)		91	110	144	180	220	246	310	343	460	530	616	683	770
Applicable Motor Output(kW)		45	55	75	90	110	132	160	185	220	280	315	355	400
Applicable Motor Output(HP)		60	75	100	125	150	175	215	250	300	375	425	475	536
Overload tolerance		120% of rated current for 1 minute												
Max. output frequency(Hz)		600.00Hz					400.00Hz							
Carrier Frequency (kHz)		2~10kHz(6KHz)					2~9kHz(4KHz)							
Rated Output Capacity(kVA)		58	73	88	120	143	175	207	247	295	367	438	491	544
Rated Output Current (A)		73	91	110	150	180	220	260	310	370	460	550	616	683
Applicable Motor Output(kW)		37	45	55	75	90	110	132	160	185	220	280	315	355
Applicable Motor Output(HP)		50	60	75	100	125	150	175	215	250	300	375	425	475
Overload tolerance		120% of rated current for 1 minute;160% of rated current for 3 seconds												
Max. output frequency(Hz)		600.00Hz					400.00Hz							
Carrier Frequency (kHz)		2~10kHz(6KHz)					2~9kHz(4KHz)							
Input Current (A) Light Duty		91	110	144	180	220	246	310	343	460	530	616	683	770
Input Current (A) Normal Duty		74	101	114	157	167	207	240	300	380	400	494	555	625
Rated Voltage/Frequency		3-Phase AC 380V~480V(-15%~+10%), 50/60Hz												
Operating Voltage Range		323~528Vac												
Frequency Tolerance		47~63Hz												
Cooling method		Fan Cooling												
Braking Chopper		Frame D and above: Optional												
DC choke		Frame D and above: 3% built-in												
EMI Filter		Frame D and above: Optional												

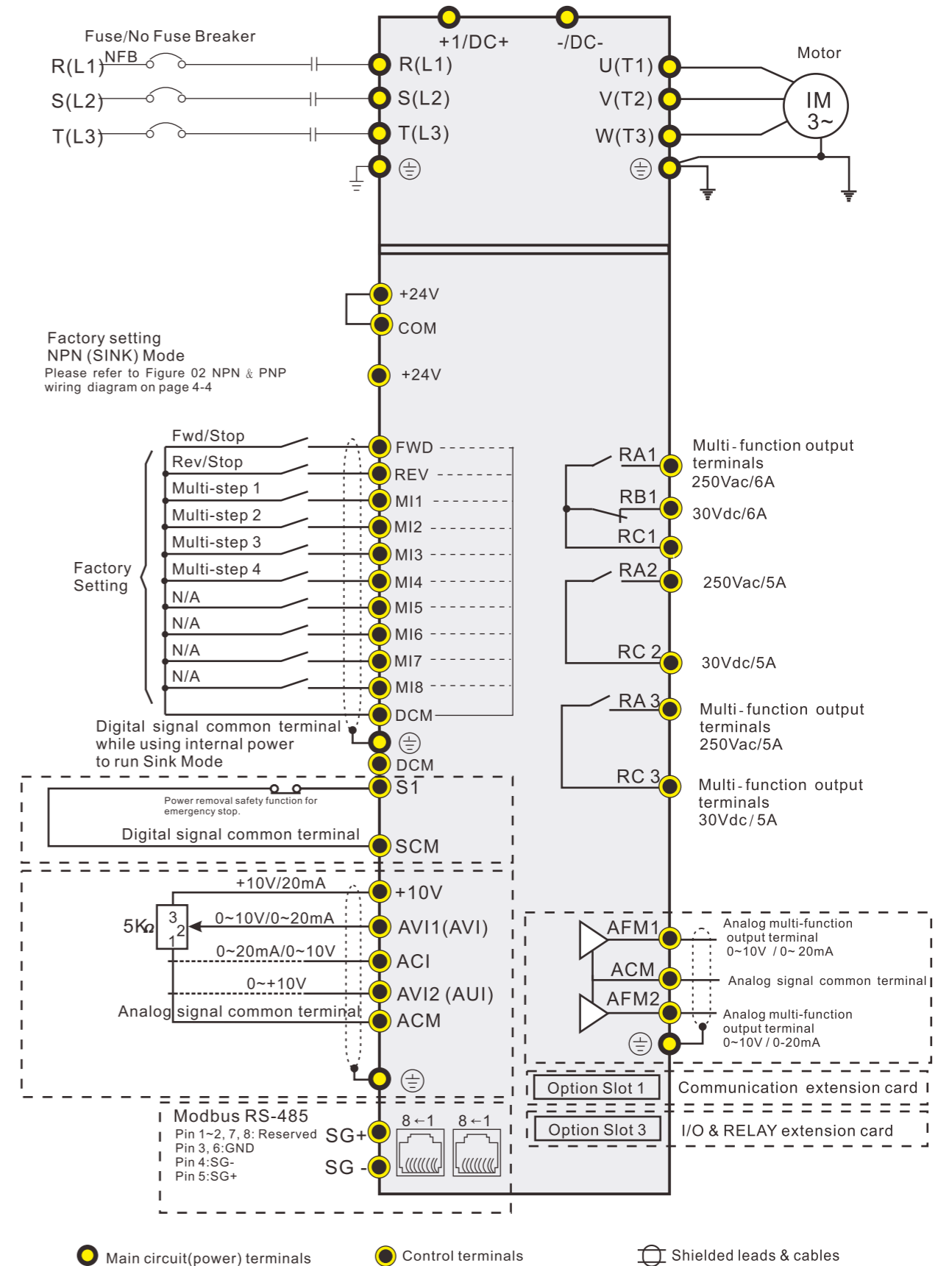
Control Method	1: V/F(V/F control), 2: SVC(Sensorless Vector Control)				
Starting Torque	Reach up to 160% or above at 0.5Hz				
V/F Curve	4 point adjustable V / F curve and square curve				
Speed Response Ability	5Hz				
Torque Limit	Normal Duty: Max. 170% torque current				
Torque Accuracy	±5%				
Max. Output Frequency (Hz)	230V series: 600.00Hz (55kW and above: 400.00Hz); 460V series: 600.00Hz (90kW and above: 400.00Hz)				
Frequency Output Accuracy	Digital command:±0.01%, -10°C~+40°C, Analog command: ±0.1%, 25±10°C				
Output Frequency Resolution	Digital command: 0.01Hz, Analog command: max. output frequency x 0.03/60Hz (±11 bit)				
Overload Tolerance	Light duty: 120% of rated current for 1 minute; Normal duty: 120% of rated current for 1 minute;160% of rated current for 3 seconds				
Frequency Setting Signal	0~+10V, 4~20mA, 0~20mA, pulse input				
Accel. / Decel. Time	0.00~600.00/0.0~6000.0 seconds				
Main control function	Fault restart	Torque limit	Smart stall	Dwell	3-wire sequence
	Speed search	Parameter copy	JOG frequency	Slip compensation	Torque compensation
	S-curve accel/decel	Energy saving control	Accel/Decel. Time switch	Frequency upper/lower limit settings	Momentary power loss ride thru
	PID control (with sleep function)	Auto-Tuning (rotational, stationary)	DC injection braking at start/stop	BACnet Communication	MODBUS communication (RS-485 Rj45, max. 115.2 kbps)
			Over-torque detection		16-step speed (max)
Fan Control	230V series: Models higher than VFD150CP23A-21 (included) are PWM control; Models lower than VFD150CP23A-21 (not included) are on / off switch control. 460V series: Models higher than VFD150CP43A-21 (included) are PWM control; Models lower than VFD150CP43A-21 (not included) are on / off switch control.				
Motor Protection	Electronic thermal relay protection				
Over-current Protection	Normal Duty: Over-current protection for 240% rated current Current clamp 『Normal duty: 170~175%』				
Over-voltage Protection	230: drive will stop when DC-BUS voltage exceeds 410V 460: drive will stop when DC-BUS voltage exceeds 820V				
Over-temperature Protection	Built-in temperature sensor				
Stall Prevention	Stall prevention during acceleration, deceleration and running independently				
Restart After Instantaneous Power Failure	Parameter setting up to 20 seconds				
Grounding Leakage Current Protection	Leakage current is higher than 50% of rated current of the AC motor drive				
International Certifications	  GB 12668.3				

Wiring

Wiring Diagram for Frame A~C, 3-phase power is provided

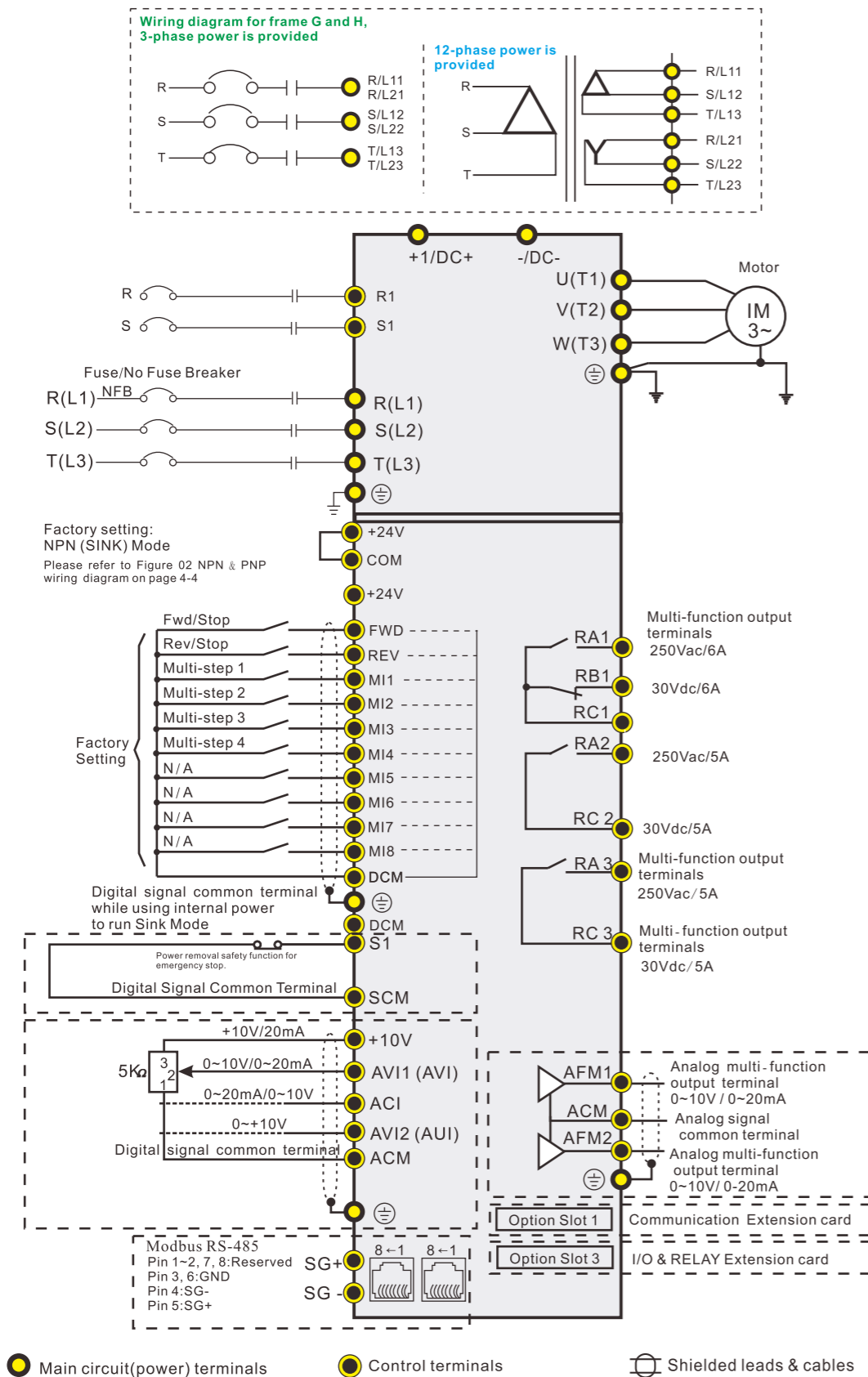


Wiring Diagram for Frame D, 3-phase power is provided



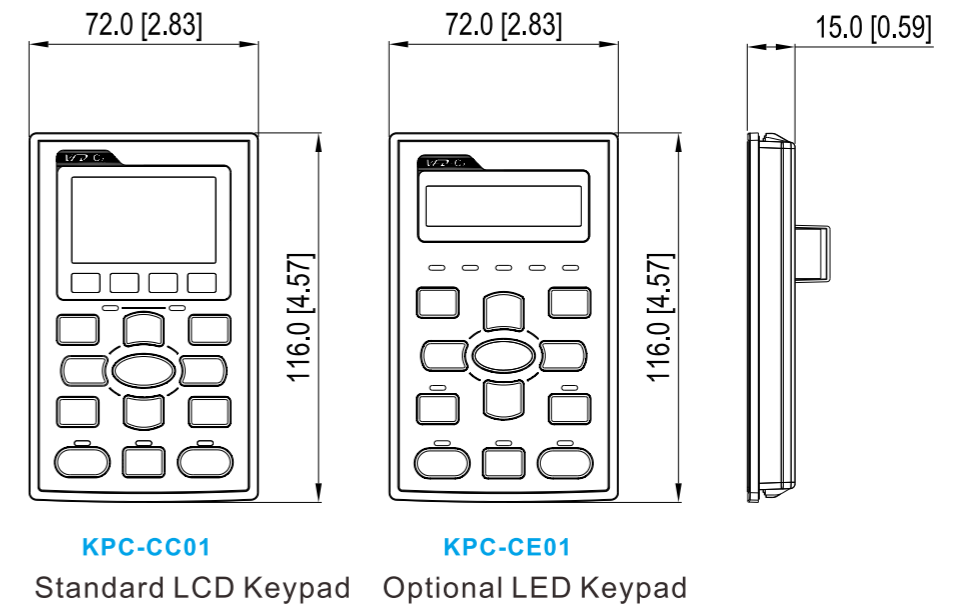
Wiring

Wiring diagram for frame E and above, 3-phase power is provided

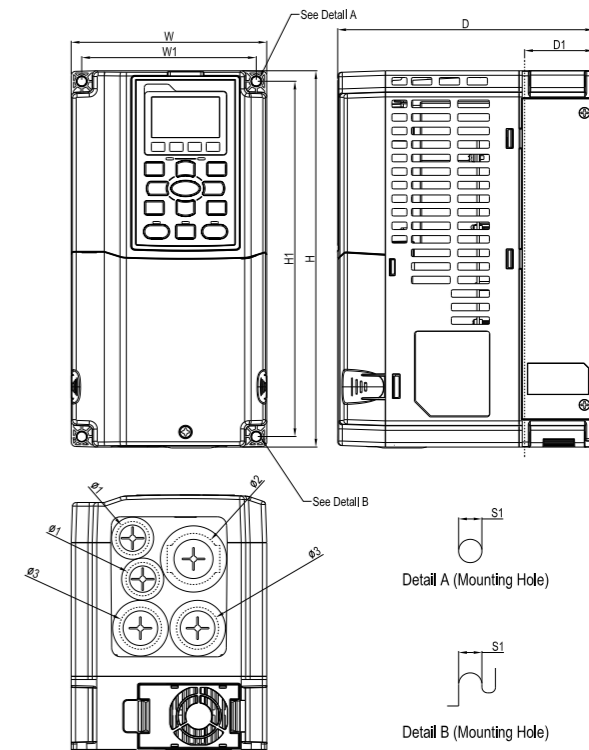


Dimensions

■ Digital Keypad



■ Frame A



MODEL

VFD007CP23A-21	VFD055CP43A-21
VFD015CP23A-21	VFD075CP43A-21
VFD022CP23A-21	VFD007CP4EA-21
VFD037CP23A-21	VFD015CP4EA-21
VFD055CP23A-21	VFD022CP4EA-21
VFD007CP43A-21	VFD037CP4EA-21
VFD015CP43A-21	VFD040CP4EA-21
VFD022CP43A-21	VFD055CP4EA-21
VFD037CP43A-21	VFD075CP4EA-21
VFD040CP43A-21	

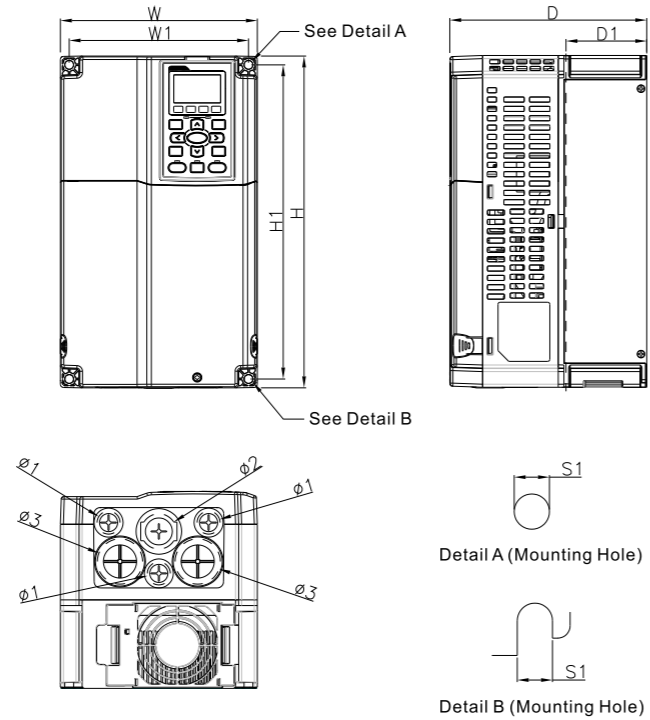
Frame	W	H	D	W1	H1	D1*	S1	Ø1	Ø2	Ø3	
A1	mm	130.0	250.0	170.0	116.0	236.0	45.8	6.2	22.2	34.0	28.0
	inch	[5.12]	[9.84]	[6.69]	[4.57]	[9.29]	[1.80]	[0.24]	[0.87]	[1.34]	[1.10]

D1* : Flange mounting

Unit : mm[inch]

Dimensions

■ Frame B



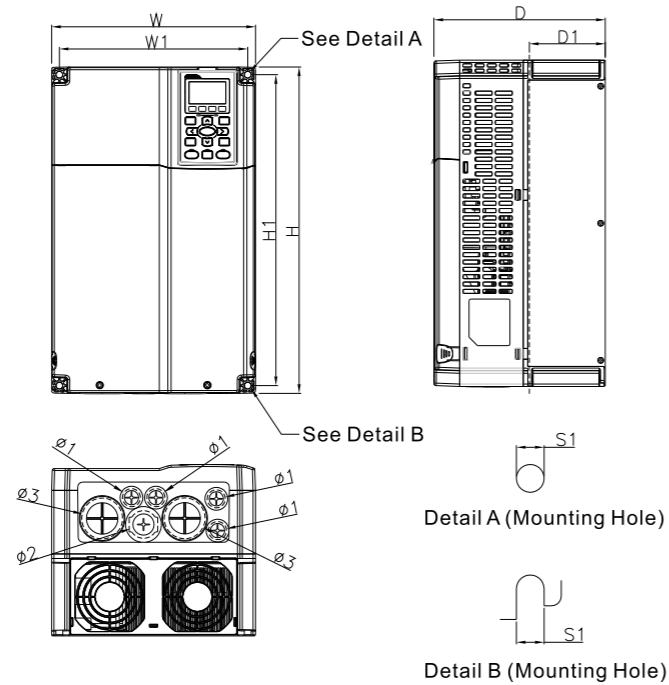
MODEL

- VFD075CP23A-21
- VFD110CP23A-21
- VFD150CP23A-21
- VFD110CP43A-21
- VFD150CP43A-21
- VFD185CP43A-21
- VFD110CP4EA-21
- VFD150CP4EA-21
- VFD185CP4EA-21

Unit : mm[inch]

Frame	W	H	D	W1	H1	D1*	S1	Ø1	Ø2	Ø3
B1	mm	190.0	320.0	190.0	173.0	77.9	8.5	22.2	34.0	28.0
	inch	7.48	12.60	7.48	6.81	3.07	0.33	0.87	1.34	1.10

■ Frame C



MODEL

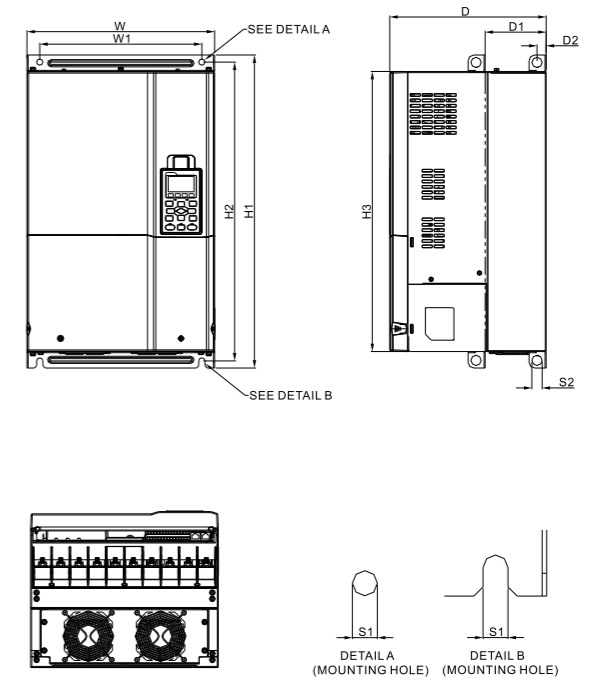
- VFD185CP23A-21
- VFD220CP23A-21
- VFD300CP23A-21
- VFD220CP43A-21
- VFD300CP43A-21
- VFD370CP43A-21
- VFD220CP4EA-21
- VFD300CP4EA-21
- VFD370CP4EA-21

Unit : mm[inch]

Frame	W	H	D	W1	H1	D1*	S1	Ø1	Ø2	Ø3
C1	mm	250.0	400.0	231.0	381.0	92.9	8.5	22.2	34.0	50.0
	inch	9.84	15.75	8.27	9.09	3.66	0.33	0.87	1.34	1.97

D1* : Flange mounting

■ Frame D1



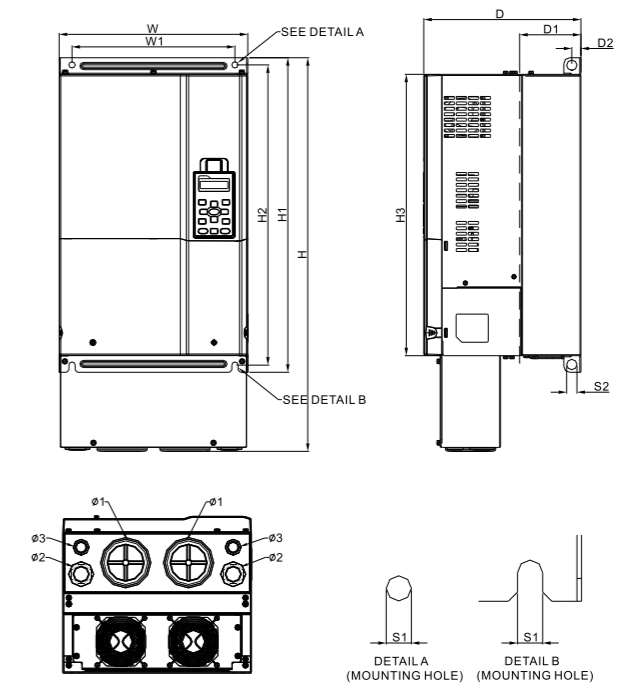
MODEL

- VFD370CP23A-00
- VFD450CP23A-00
- VFD450CP43A-00
- VFD750CP43A-00
- VFD900CP43A-00

Unit : mm[inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	Ø1	Ø2	Ø3
D1	mm	330.0	-	275.0	285.0	550.0	525.0	492.0	107.2	16.0	11.0	18.0	-	-
	inch	[12.99]	-	[10.83]	[11.22]	[21.65]	[20.67]	[19.37]	[4.22]	[0.63]	[0.43]	[0.71]	-	-

■ Frame D2



MODEL

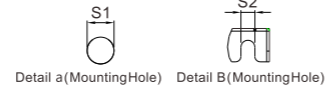
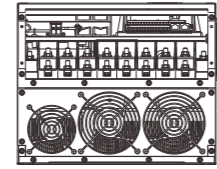
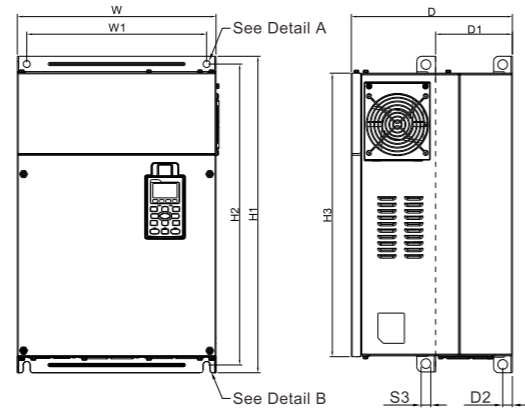
- VFD370CP23A-21
- VFD450CP23A-21
- VFD450CP43A-21
- VFD750CP43A-21
- VFD900CP43A-21

Unit : mm[inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	Ø1	Ø2	Ø3
D1	mm	330.0	688.3	275.0	285.0	550.0	525.0	492.0	107.2	16.0	11.0	18.0	76.2	34.0
	inch	[12.99]	[27.10]	[10.83]	[11.22]	[21.65]	[20.67]	[19.37]	[4.22]	[0.63]	[0.43]	[0.71]	[3.00]	[1.34]

Dimensions

■ Frame E1



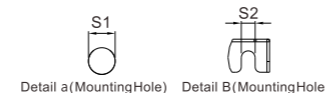
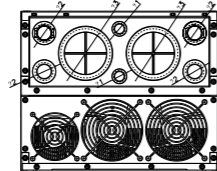
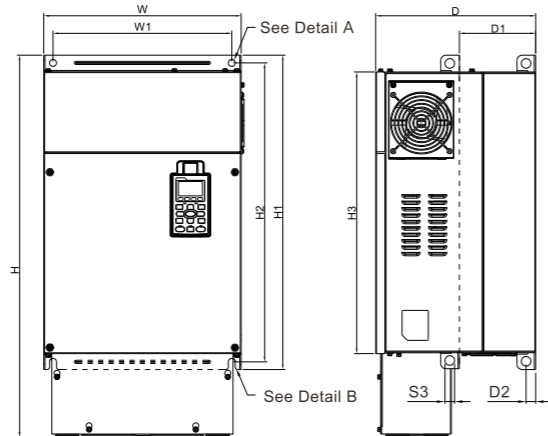
Unit : mm[inch]

MODEL

- VFD550CP23A-00
- VFD750CP23A-00
- VFD900CP23A-00
- VFD1100CP43A-00
- VFD1320CP43A-00

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1,S2	S3	Ø1	Ø2	Ø3
E1	mm	370.0	-	300.0	335.0	589	560.0	528.0	143.0	18.0	13.0	18.0	-	-
	inch	[14.57]	-	[11.81]	[13.19]	[23.19]	[22.05]	[20.80]	[5.63]	[0.71]	[0.51]	[0.71]	-	-

■ Frame E2



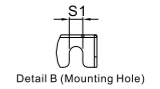
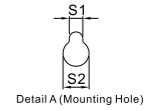
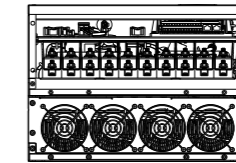
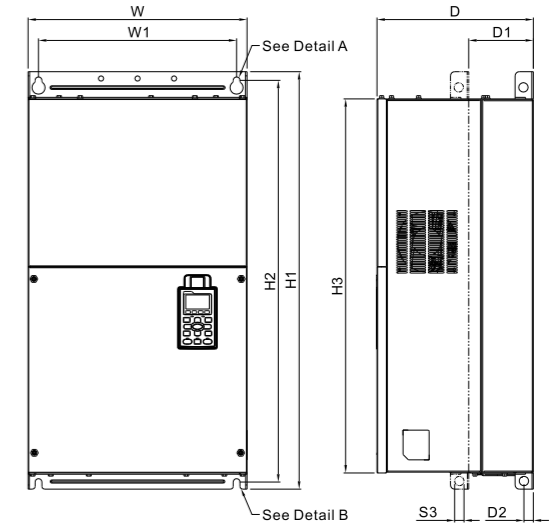
Unit : mm[inch]

MODEL

- VFD550CP23A-21
- VFD750CP23A-21
- VFD900CP23A-21
- VFD1100CP43A-21
- VFD1320CP43A-21

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1,S2	S3	Ø1	Ø2	Ø3
E2	mm	370.0	715.8	300.0	335.0	589	560.0	528.0	143.0	18.0	13.0	18.0	22.0	34.0
	inch	[14.57]	[28.18]	[11.81]	[13.19]	[23.19]	[22.05]	[20.80]	[5.63]	[0.71]	[0.51]	[0.71]	[0.87]	[1.34]

■ Frame F1



Unit : mm[inch]

MODEL

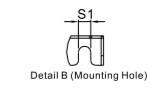
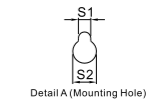
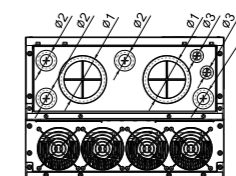
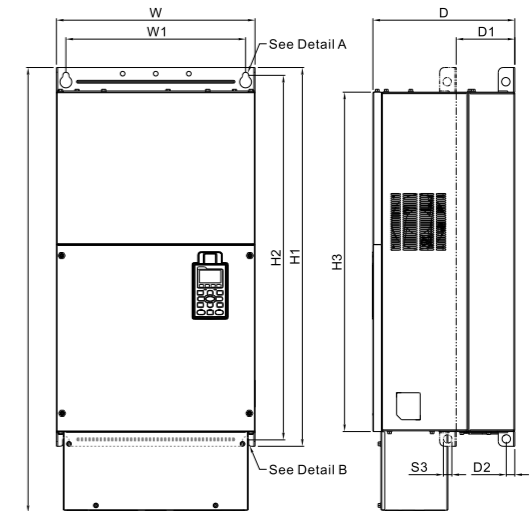
- VFD1600CP43A-00
- VFD1850CP43A-00

Frame	W	H	D	W1
F1	mm	420.0	-	300.0
	inch	[16.54]	-	[11.81]

Frame	H1	H2	H3	D1*	D2	S1	S2	S3	Ø1	Ø2	Ø3
F1	mm	800.0	770.0	717.0	124.0	18.0	13.0	25.0	18.0	92.0	35.0
	inch	[31.50]	[30.32]	[28.23]	[4.88]	[0.71]	[0.51]	[0.98]	[0.71]	[3.62]	[1.38]

D1* : Flange mounting

■ Frame F2



Unit : mm[inch]

MODEL

- VFD1600CP43A-21
- VFD1850CP43A-21

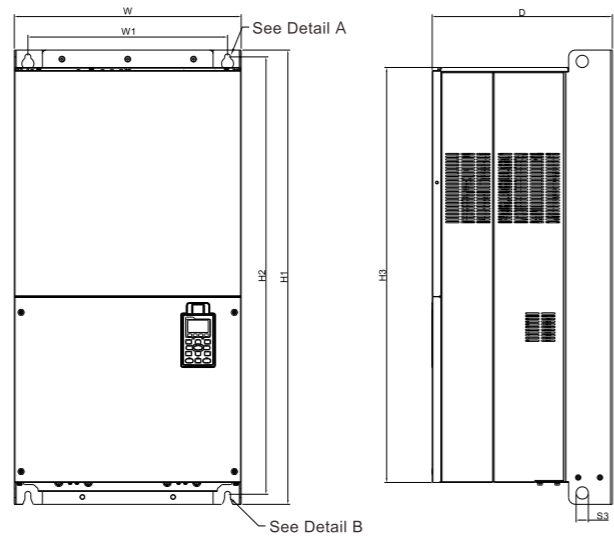
Frame	W	H	D	W1
F2	mm	420.0	940.0	300.0
	inch	[16.54]	[37.00]	[11.81]

Frame	H1	H2	H3	D1*	D2	S1	S2	S3	Ø1	Ø2	Ø3
F2	mm	800.0	770.0	717.0	124.0	18.0	13.0	25.0	18.0	92.0	35.0
	inch	[31.50]	[30.32]	[28.23]	[4.88]	[0.71]	[0.51]	[0.98]	[0.71]	[3.62]	[1.38]

D1* : Flange mounting

Dimensions

■ Frame G1

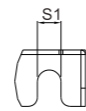
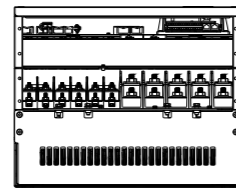


MODEL

VFD2200CP43A-00
VFD2800CP43A-00

Unit : mm[inch]

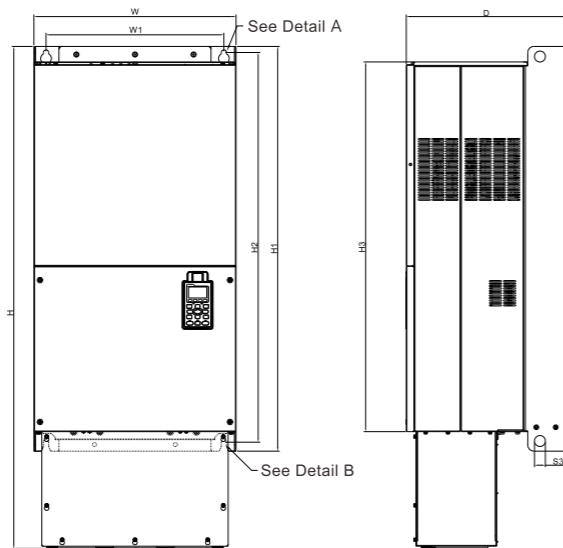
Frame	W	H	D
G1	mm 500.0	-	397.0
	inch [19.69]		[15.63]



Detail a(MountingHole) Detail B(MountingHole)

Frame	W1	H1	H2	H3	S1	S2	S3	Ø1	Ø2	Ø3
G1	mm 440.0	1000.0	963.0	913.6	13.0	26.5	27.0	-	-	-
	inch [217.32]	[39.37]	[37.91]	[35.97]	[0.51]	[1.04]	[1.06]			

■ Frame G2

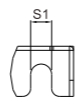
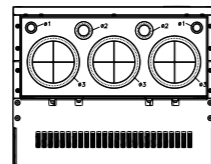


MODEL

VFD2200CP43A-21
VFD2800CP43A-21

Unit : mm[inch]

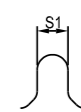
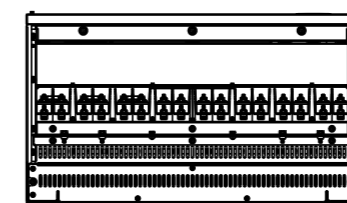
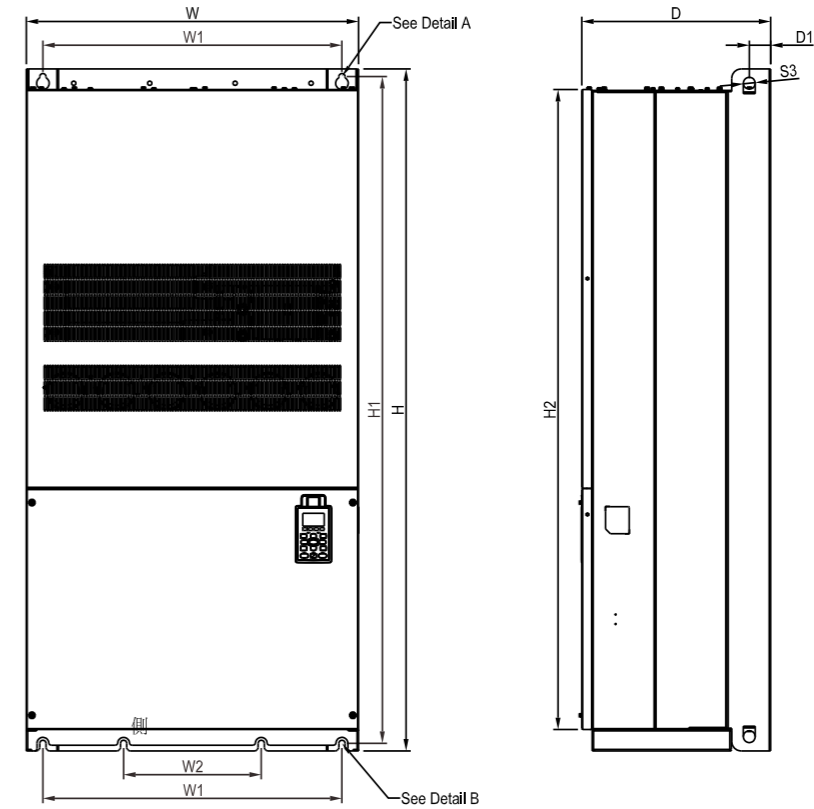
Frame	W	H	D
G2	mm 500.0	1240.2	397.0
	inch [19.69]	[48.83]	[15.63]



Detail a(MountingHole) Detail B(MountingHole)

Frame	W1	H1	H2	H3	S1	S2	S3	Ø1	Ø2	Ø3
G2	mm 440.0	1000.0	963.0	913.6	13.0	26.5	27.0	22.0	34.0	117.5
	inch [217.32]	[39.37]	[37.91]	[35.97]	[0.51]	[1.04]	[1.06]	[0.87]	[1.34]	[4.63]

■ Frame H1



See Detail A(Mounting Hole)

See Detail B(Mounting Hole)

MODEL

VFD3150CP43A-00
VFD3550CP43A-00
VFD4000CP43A-00

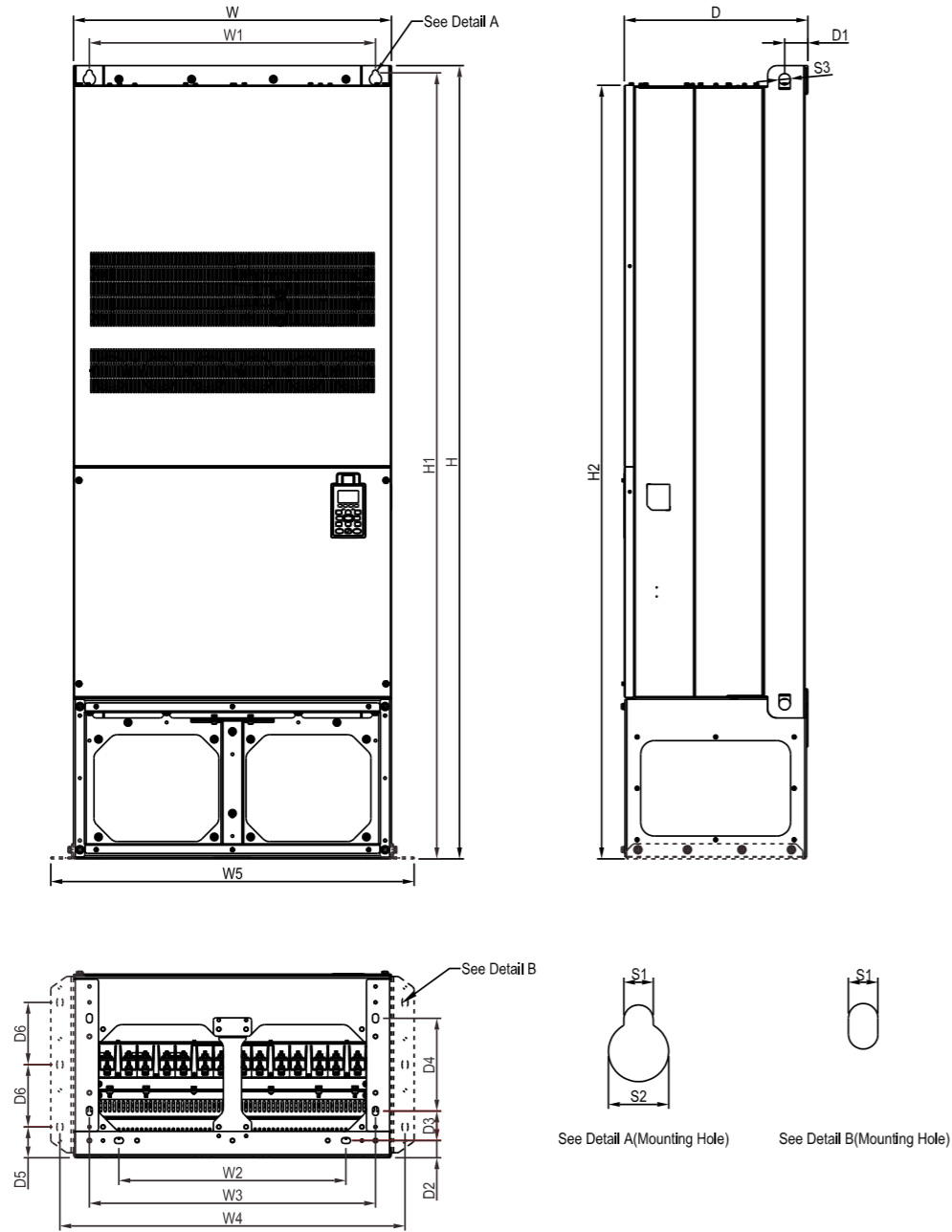
Unit : mm[inch]

Frame	W	H	D	W1	W2	W3	W4	W5	W6	H1	H2	H3	H4
H1	mm 700.0	-	398.0	-	630.0	290.0	-	-	-	-	1435.0	1403.0	-
	inch [27.56]		[15.67]		[24.80]	[11.42]					[56.50]	[55.24]	

Frame	H5	D1	D2	D3	D4	D5	D6	S1	S2	S3	Ø1	Ø2	Ø3
H1	mm 1346.6	45.0	-	-	-	-	-	13.0	26.5	25.0	-	-	-
	inch [53.02]	[1.77]						[0.51]	[1.04]	[0.98]			

Dimensions

■ Frame H2



MODEL

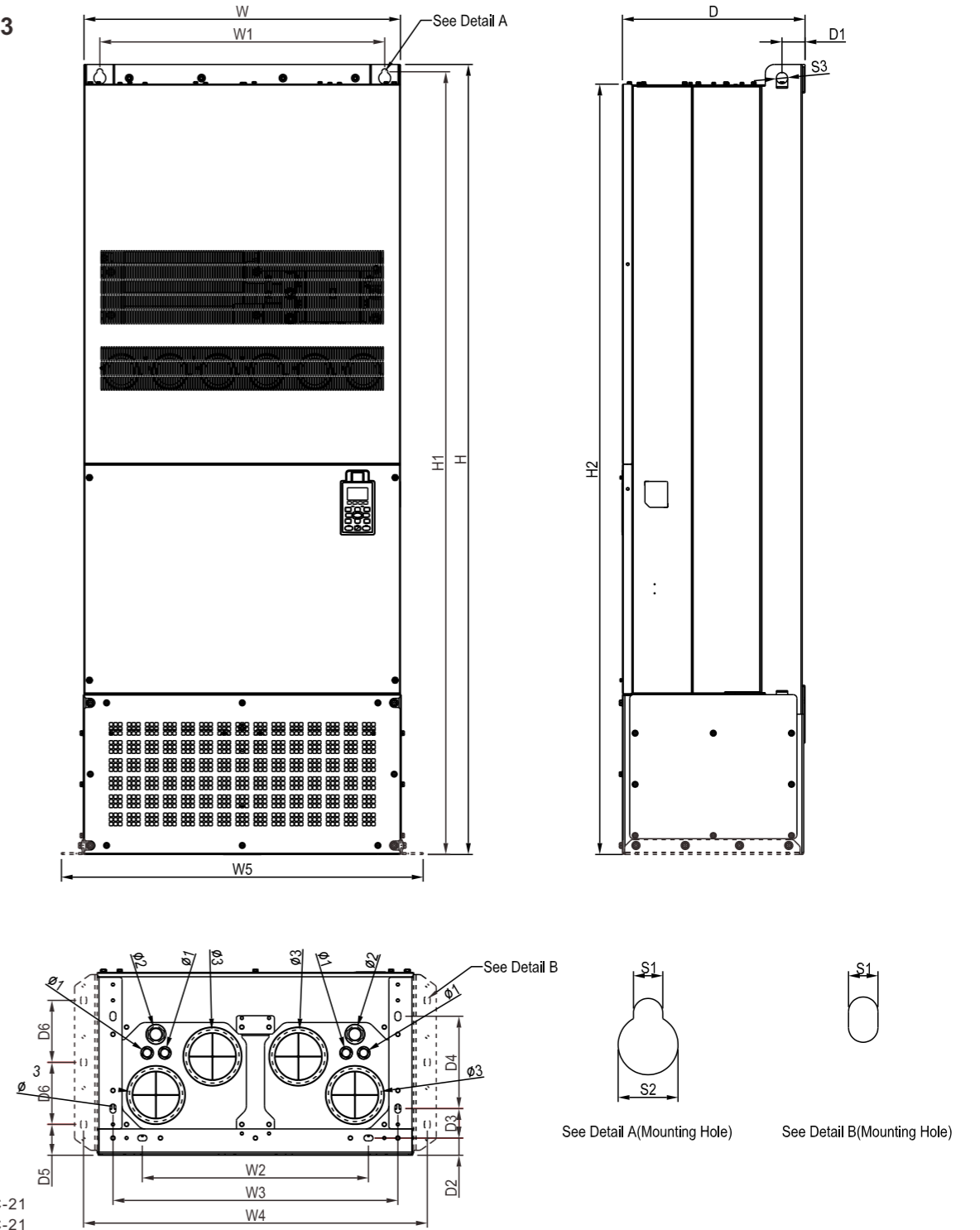
VFD3150CP43C-00
 VFD3550CP43C-00
 VFD4000CP43C-00

Unit : mm[inch]

Frame	W	H	D	W1	W2	W3	W4	W5	W6	H1	H2	H3	H4	
H2	mm	700.0	1745.0	404.0	800.0	-	-	500.0	630.0	760.0	1729.0	-	-	1701.6
	inch	[27.56]	[68.70]	[15.91]	[31.50]	-	-	[19.69]	[24.80]	[29.92]	[68.07]	-	-	[66.99]

Frame	H5	D1	D2	D3	D4	D5	D6	S1	S2	S3	Ø1	Ø2	Ø3	
H2	mm	1346.6	51.0	38.0	65.0	204.0	68.0	137.0	13.0	26.5	25.0	-	-	-
	inch	[53.02]	[2.01]	[1.50]	[2.56]	[8.03]	[2.68]	[5.39]	[0.51]	[1.04]	[0.98]	-	-	-

■ Frame H3



MODEL

VFD3150CP43C-21
 VFD3550CP43C-21
 VFD4000CP43C-21


Unit : mm[inch]

Frame	W	H	D	W1	W2	W3	W4	W5	W6	H1	H2	H3	H4	
H3	mm	700.0	1745.0	404.0	800.0	-	-	500.0	630.0	760.0	1729.0	-	-	1701.6
	inch	[27.56]	[68.70]	[15.91]	[31.50]	-	-	[19.69]	[24.80]	[29.92]	[68.07]	-	-	[66.99]


Frame	H5	D1	D2	D3	D4	D5	D6	S1	S2	S3	Ø1	Ø2	Ø3	
H3	mm	1346.6	51.0	38.0	65.0	204.0	68.0	137.0	13.0	26.5	25.0	22.0	34.0	117.5
	inch	[53.02]	[2.01]	[1.50]	[2.56]	[8.03]	[2.68]	[5.39]	[0.51]	[1.04]	[0.98]	[0.87]	[1.34]	[4.63]

Option Cards


EMC-D42A

	Terminals	Descriptions
 I/O Extension Card	COM	Common for multi-function input terminals Select SINK (NPN) /SOURCE (PNP) in J1 jumper / external power supply
	MI10~ MI13	Refer to parameters 02-26~02-29 to program the multi-function inputs MI10~MI13. Internal power is applied from terminal E24: +24Vdc±5% 200mA, 5W External power +24Vdc: max. voltage 30Vdc, min. voltage 19Vdc, 30W ON: the activation current is 6.5mA OFF: leakage current tolerance is 10μA
	MO10~MO11	Multi-function output terminals (photocoupler) Duty-cycle: 50% Max. output frequency: 100Hz Max. current: 50mA Max. voltage: 48Vdc
	MXM	Common for multi-function output terminals MO10, MO11(photocoupler) Max 48Vdc 50mA


EMC-D611A

	Terminals	Descriptions
	AC	AC power common for multi-function input terminal (Neutral)
	MI10~ Mi15	Refer to Pr. 02.26~ Pr. 02.31 for multi-function input selection Input voltage: 100~130VAC Input frequency: 57~63Hz Input impedance: 27Kohm Terminal response time: ON: 10ms OFF: 20ms


EMC-R6AA

	Terminals	Descriptions
 Relay Extension Card	R10A~R15A R10C~R15C	Refer to Pr. 02.36~ Pr. 02.41 for multi-function input selection Resistive load: 5A(N.O.)/3A(N.C.) 250VAC 5A(N.O.)/3A(N.C.) 30Vdc Inductive load (COS 0.4) 2.0A(N.O.)/1.2A(N.C.) 250VAC 2.0A(N.O.)/1.2A(N.C.) 30Vdc It is used to output each monitor signal, such as for drive in operation, frequency attained or overload indication.


EMC-BPS01

	Terminals	Descriptions
 External Power Supply Card	24V GND	Input Power Specification: 24V±5% Maximum input current:0.5A Note: 1) Do not connect the control terminal +24V terminal directly to the EMC-BPS01 input terminal 24V. 2) Do not connect the control terminal GND directly to the EMC-BPS01 input terminal GND to ensure a proper grounding.


CMC-MOD01

	Features	
	<ul style="list-style-type: none"> ■ MDI/MDI-X auto-detect ■ Virtual serial port. ■ Supports Modbus TCP protocol ■ AC motor drive keypad/Ethernet configuration 	<ul style="list-style-type: none"> ■ E-mail alarm ■ Baud rate: 10/100Mbps auto-detect
Network Interface		
Interface	RJ-45 with Auto MDI/MDIX	
Number of ports	1 Port	
Transmission method	IEEE 802.3, IEEE 802.3u	
Transmission cable	Category 5e shielding 100M	
Transmission speed	10/100 Mbps Auto-Detect	
Network protocol	ICMP, IP, TCP, UDP, DHCP, SMTP, MODBUS OVER TCP/IP, Delta Configuration	

CMC-EIP01

	Features	
	<ul style="list-style-type: none"> ■ MDI/MDI-X auto-detect ■ Supports Modbus TCP and Ethernet/IP protocol ■ Baud rate: 10/100Mbps auto-detect ■ AC motor drive keypad/Ethernet configuration 	<ul style="list-style-type: none"> ■ Virtual serial port
Network Interface		
Interface	RJ-45 with Auto MDI/MDIX	
Number of ports	1 Port	
Transmission method	IEEE 802.3, IEEE 802.3u	
Transmission cable	Category 5e shielding 100M	
Transmission speed	10/100 Mbps Auto-Detect	
Network protocol	ICMP, IP, TCP, UDP, DHCP, HTTP, SMTP, MODBUS OVER TCP/IP, EtherNet/IP, Delta Configuration	

CMC-PD01

	Features	
	<ul style="list-style-type: none"> ■ Supports PZD control data exchange. ■ Supports PKW polling AC motor drive parameters. ■ Supports user diagnosis function. ■ Auto-detects baud rates; supports Max. 12Mbps. 	
PROFIBUS DP Connector		
Interface	DB9 connector	
Transmission method	High-speed RS-485	
Transmission cable	Shielded twisted pair cable	
Electrical isolation	500VDC	
Communication		
Message type	Cyclic data exchange	
Module name	CMC-PD01	
GSD document	DELA08DB.GSD	
Company ID	08DB (HEX)	
Serial transmission speed supported (auto-detection)	9.6kbps; 19.2kbps; 93.75kbps; 187.5kbps; 125kbps; 250kbps; 500kbps; 1.5Mbps; 3Mbps; 6Mbps; 12Mbps (bits per second)	

Option Cards

CMC-DN01



Features

- Based on the high-speed communication interface of Delta HSSP protocol, able to conduct immediate control of AC motor drive.
- Supports Group 2 only connection and polling I/O data exchange.
- For I/O mapping, supports Max. 32 words of input and 32 words of output.
- Supports EDS file configuration in DeviceNet configuration software.
- Supports all baud rates on DeviceNet bus: 125kbps, 250kbps, 500kbps and extendable serial transmission speed mode.
- Node address and serial transmission speed can be set up on AC motor drive.
- Power supplied from AC motor drive.

DeviceNet Connector

Interface	5-PIN open removable connector. Of 5.08mm PIN interval
Transmission method	CAN
Transmission cable	Shielded twisted pair cable (with 2 power cables)
Transmission speed	125kbps, 250kbps, 500kbps and extendable serial transmission speed mode
Network protocol	DeviceNet protocol

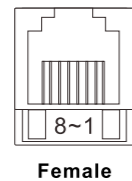
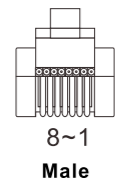
AC Motor Drive Connection Port

Interface	50 PIN communication terminal
Transmission method	SPI communication
Terminal function	1. Communicating with AC motor drive 2. Transmitting power supply from AC motor drive
Communication protocol	Delta HSSP protocol

EMC-COP01



RJ-45 Pin Definition



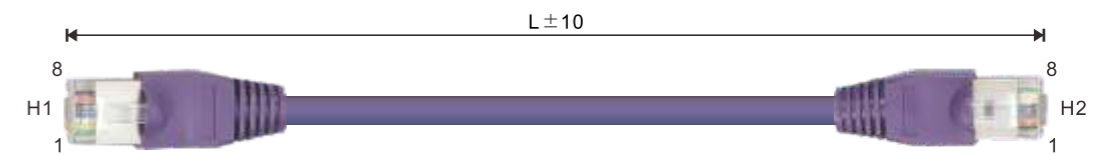
Pin	Pin name	Definition
1	CAN_H	CAN_H bus line (dominant high)
2	CAN_L	CAN_L bus line (dominant low)
3	CAN_GND	Ground/0V/V-
7	CAN_GND	Ground/0V/V-

Specifications

Interface	RJ-45
Number of ports	1 Port
Transmission method	CAN
Transmission cable	CAN standard cable
Transmission speed	1M 500k 250k 125k 100k 50k
Communication protocol	CANopen

CANopen Communication Cable

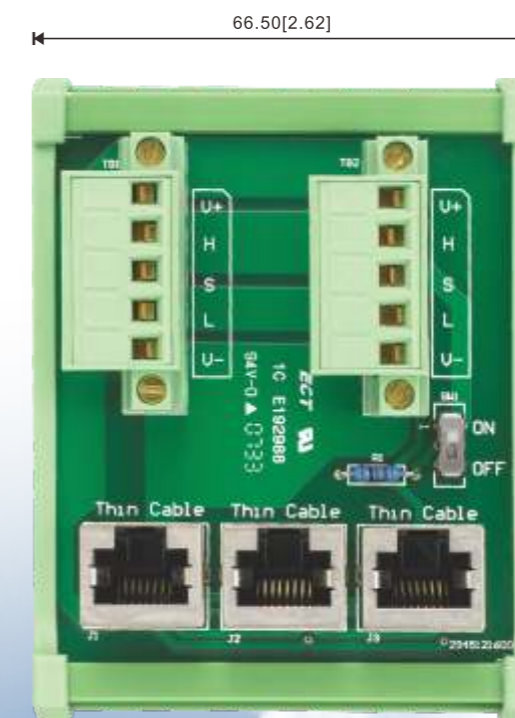
Model: TAP-CB03, TAP-CB04



Title	Part No.	L	
		mm	inch
1	TAP-CB03	500±10	19±0.4
2	TAP-CB04	1000±10	39±0.4



CANopen Breakout Box

Model: TAP-CN03

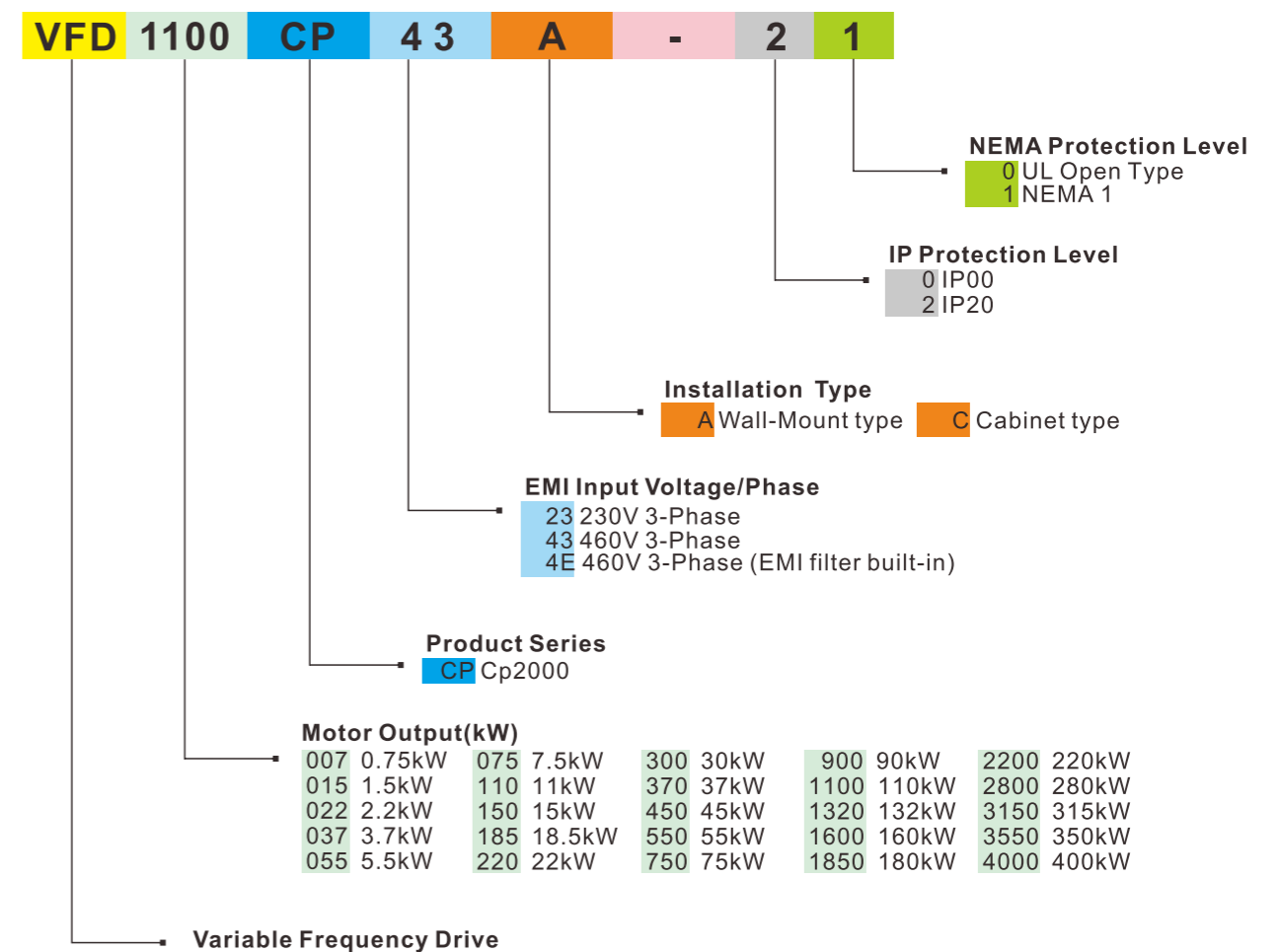


Ordering Information

Frame A 	230V: 0.75kW~5.5kW 460V: 0.75kW~7.5kW	VFD007CP23A-21 VFD007CP43A-21 VFD007CP4EA-21 VFD015CP23A-21 VFD015CP43A-21 VFD015CP4EA-21 VFD022CP23A-21 VFD022CP43A-21 VFD022CP4EA-21 VFD037CP23A-21 VFD037CP43A-21 VFD037CP4EA-21 VFD055CP23A-21 VFD040CP43A-21 VFD040CP4EA-21 VFD055CP43A-21 VFD055CP4EA-21 VFD075CP43A-21 VFD075CP4EA-21
Frame B 	230V: 7.5kW~15kW 460V: 11kW~18.5kW	VFD075CP23A-21 VFD110CP43A-21 VFD110CP4EA-21 VFD110CP23A-21 VFD150CP43A-21 VFD150CP4EA-21 VFD150CP23A-21 VFD185CP43A-21 VFD185CP4EA-21
Frame C 	230V: 18.5kW~30kW 460V: 22kW~37kW	VFD185CP23A-21 VFD220CP43A-21 VFD220CP4EA-21 VFD220CP23A-21 VFD300CP43A-21 VFD300CP4EA-21 VFD300CP23A-21 VFD370CP43A-21 VFD370CP4EA-21
Frame D 	230V: 37kW~45kW 460V: 45kW~90kW	Frame D1: VFD370CP23A-00 VFD370CP23A-21 VFD450CP23A-00 VFD450CP23A-21 VFD450CP43A-00 VFD450CP43A-21 VFD750CP43A-00 VFD750CP43A-21 VFD900CP43A-00 VFD900CP43A-21 Frame D2: VFD370CP23A-21 VFD370CP23A-21 VFD450CP23A-21 VFD450CP23A-21 VFD450CP43A-21 VFD450CP43A-21 VFD750CP43A-21 VFD750CP43A-21 VFD900CP43A-21 VFD900CP43A-21
Frame E 	230V: 55kW~90kW 460V: 110kW~132kW	Frame E1: VFD550CP23A-00 VFD550CP23A-21 VFD750CP23A-00 VFD750CP23A-21 VFD900CP23A-00 VFD900CP23A-21 VFD1100CP43A-00 VFD1100CP43A-21 VFD1320CP43A-00 VFD1320CP43A-21 Frame E2: VFD550CP23A-21 VFD550CP23A-21 VFD750CP23A-21 VFD750CP23A-21 VFD900CP23A-21 VFD900CP23A-21 VFD1100CP43A-21 VFD1100CP43A-21 VFD1320CP43A-21 VFD1320CP43A-21
Frame F 	460V: 160kW~185kW	Frame F1: VFD1600CP43A-00 VFD1600CP43A-21 VFD1850CP43A-00 VFD1850CP43A-21 Frame F2: VFD1600CP43A-21 VFD1600CP43A-21 VFD1850CP43A-21 VFD1850CP43A-21

Frame G 	460V: 220kW~280kW	Frame G1: VFD2200CP43A-00 VFD2200CP43A-21 VFD2800CP43A-00 VFD2800CP43A-21 Frame G2: VFD2200CP43A-21 VFD2200CP43A-21 VFD2800CP43A-21 VFD2800CP43A-21
Frame H 	460V: 315kW~400kW	Frame H1: VFD3150CP43A-00 VFD3150CP43C-00 VFD3150CP43C-21 VFD3550CP43A-00 VFD3550CP43C-00 VFD3550CP43C-21 VFD4000CP43A-00 VFD4000CP43C-00 VFD4000CP43C-21 Frame H2: VFD3150CP43C-00 VFD3150CP43C-00 VFD3150CP43C-21 VFD3550CP43C-00 VFD3550CP43C-00 VFD3550CP43C-21 VFD4000CP43C-00 VFD4000CP43C-00 VFD4000CP43C-21 Frame H3: VFD3150CP43C-21 VFD3150CP43C-21 VFD3150CP43C-21 VFD3550CP43C-21 VFD3550CP43C-21 VFD3550CP43C-21 VFD4000CP43C-21 VFD4000CP43C-21 VFD4000CP43C-21

Model Name



Global Operations

ASIA (Taiwan)



Taoyuan Technology Center (Green Building)



Taoyuan Plant 1



Tainan Plant (Diamond-rated Green Building)

ASIA (China)



Wujiang Plant 3



Delta Electronics

ASIA (Japan)



Tokyo Office

ASIA (India)



Rudrapur Plant (Green Building)

EUROPE



Amsterdam, Netherlands

AMERICA



Research Triangle Park

Sales Channels of Delta Industrial Automation are Located Worldwide in 74 Countries

▲ Factories 2 ■ Branch offices 60 ● R&D Centers 5 □ Distributors 581

