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Europe

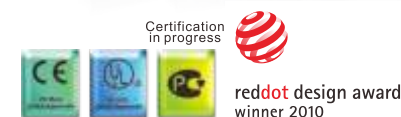
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*We reserve the right to change the information in this catalogue without prior notice.



Automation for a Changing World

Delta Classical Field Oriented Control AC Motor Drive C2000 series



www.delta.com.tw/ia

C2000_C_EN_20120410





Leading the Future of Drive Technology

Delta Electronics, a leading brand in drive technology, has officially launched its most cost-effective classical field oriented control AC motor drive: The VFD-C2000 series. This series offers four competitive values: high efficiency, high performance, low cost of maintenance and long product life, to customers to enhance their competitive advantage while spending less.

Standard Models (IP20/NEMA1)

Power range: 230V 0.75~90kW, 460V 0.75~355kW

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			F									
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	110	132	160	185	220	280	315	355
460V (HP)	1	2	3	5	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	175	215	250	300	375	425	475
Frame Size	A				B				C				D				E	F	G	H					

Main Functions and Features

- Field oriented control with built-in PLC function
- Wide variety of applications
- Modular design for easy maintenance and many extensions
- Built-in MODBUS communication
- Long-life design and self diagnosis
- Enhanced protections and adaptation to ambient conditions
- Complies with global safety standards, including CE, UL and cUL
- Wide range of models to meet requirements
- High-speed communication interface
(optional cards for PROFIBUS-DP, DeviceNet, MODBUS TCP and EtherNet/IP)
- Fully CANopen master and slave functions prepared, only option converter card CMC-COP01 needed.

High-performance Variable-frequency Technology

1. High bandwidth control
2. Speed/torque/position control mode
3. Dual rating design (Normal duty/heavy duty)
4. 4-quadrant torque control and limit
5. A drive for induction motors and synchronous motors

Versatile Driving Controls

1. Built-in safe stop function
2. Built-in PLC function
3. Built-in brake unit
4. Supports various network protocols
5. Synchronous point-to-point control

Environmental Adaptability

1. 50°C operating temperature
2. Built-in DC reactor
3. Coated circuit boards
4. Built-in RFI filter
5. Global safety standards (CE/UL/cUL)

Modular Design

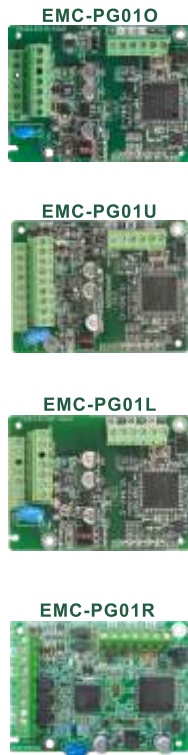
1. Hot plug LCD keypad
2. I/O extension cards
3. Various PG (encoder) feedback cards
4. Network cards for fieldbus modules
5. Removable fan



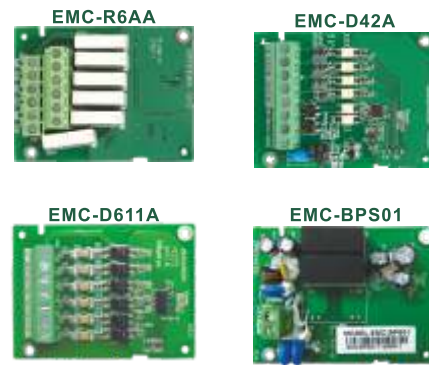
Modular Design

■ Various accessories options, such as I/O extension cards, encoder feedback cards, communication cards, hot plug LCD keypad, removable terminals and removable fan.

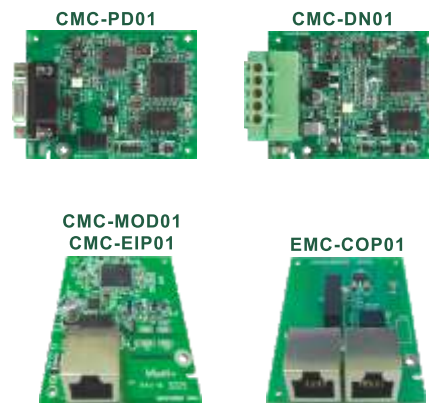
PG (Encoder) cards



I/O cards



Communication cards



Removable fan

To ensure personal safety, do not begin wiring before the indicator light is off.

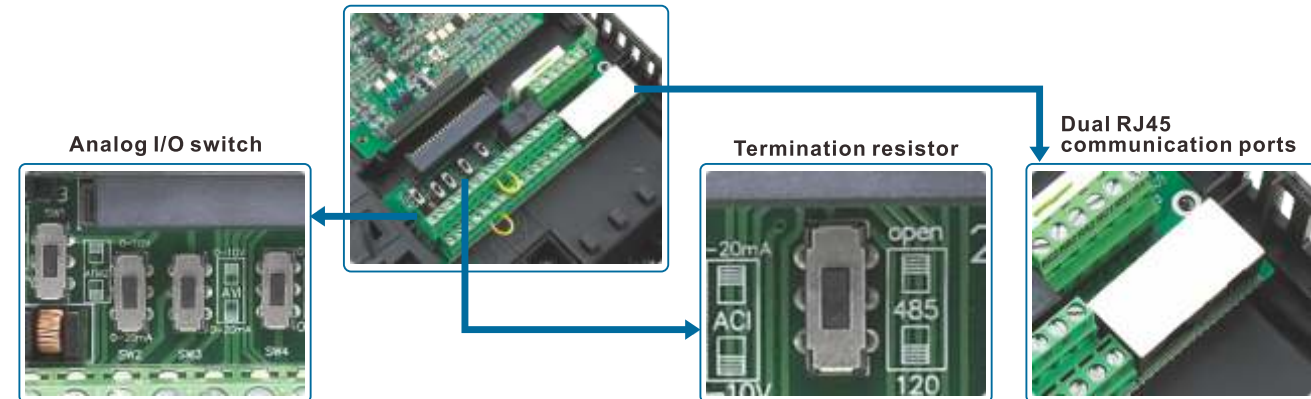
Power indicator

To prevent personal injury, please do not perform wiring before power indicator is off.

*NOTE: "▶" are optional accessories.

Removable terminals

Convenient wiring and safety equipment.



■ The modular design fulfills the needs of system applications and equipment maintenance.

- KPC-CC01 keypad
- Standard RJ45 network cable.
- Convenient push-on/push-off, to install or remove easily.



■ The product nameplate shows the input/output voltage, input/output current, the frequency range, and more.



RFI filter



■ Loosen the safety screw on the top cover, press left and right side to remove the cover then start wiring.



■ Modularized fan design, easy to change, easy to clean for longer product life.



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



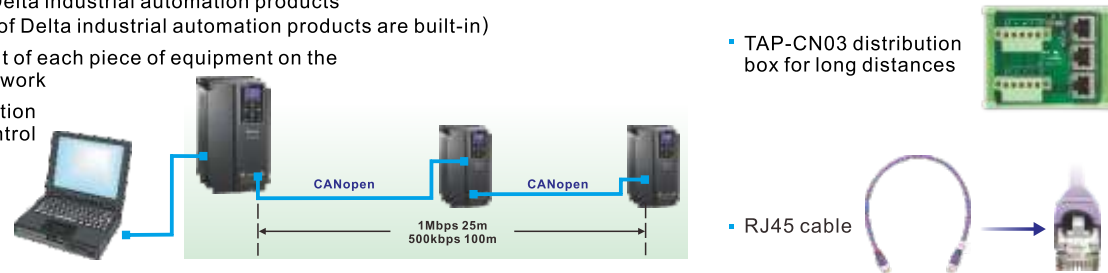
High-speed Network Building

- Provides optional MODBUS RTU and various fieldbus cards for flexible communication applications
- Advanced network functions
- Built-in MODBUS communication interface
- **CANopen (DS402)**



Ability to control up to 8 Slave drives via the CANopen Master function

- Supports all Delta industrial automation products (all EDS files of Delta industrial automation products are built-in)
- I/O data layout of each piece of equipment on the CANopen Network
- Planning function for motion control
- WPL Soft



Delta DeviceNet Builder software is specially designed for DeviceNet communication. With this software, it is easy to plan DeviceNet equipment and remote I/O via parameters to build a standard DeviceNet monitoring structure.

- Supports all Delta industrial automation products (all EDS files of Delta industrial automation products are built-in)
- I/O data layout of each piece of equipment in the DeviceNet network
- DeviceNet layout software



Delta's communication integrator software not only provides graphic module setting and human interface design but also supports settings and online monitoring for all Ethernet products

- Delta software for Ethernet/MODBUS TCP products
- Graphic module setting and human interface design
- Auto search function
- Setting interface for virtual COM port



Convenient Operation Platform for Drive System Management

- Provides a complete operation platform for users' easy control and monitoring via PC, including parameters save/setting, real-time wave monitor, quick setup, for multiple languages and with multi-language operation systems.

- **Start-up display**
Displays horsepower, rated voltage and current of present model
- **Parameter management**
Provides parameter setting/save/copy/comparison for convenient parameter management.
- **Trend records**
Monitors operation curve of the drive by communication and displays I/O terminal status. Useful for tasks such as "trial run monitoring".
- ← **Quick setup**
Guides the user step-by-step through the drive settings according to quick setup wizard.

*NOTE: please download the software above at Delta website

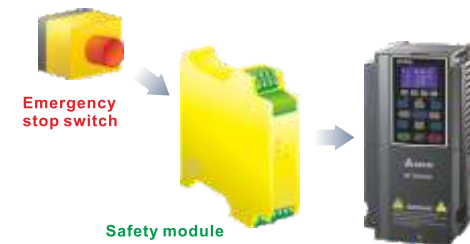
Enhanced Motor Efficiency in General Applications

Improved sensorless vector control (SVC) response and torque control in, for example, crane applications.



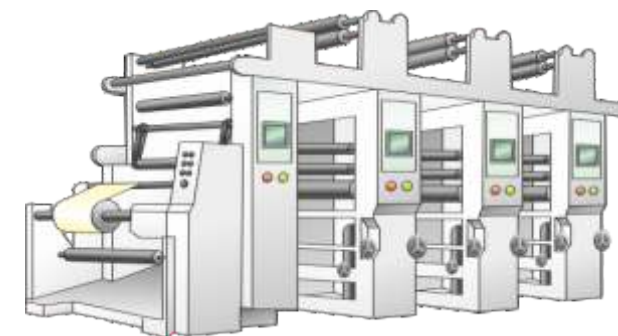
Safe Stop Function

VFD-C2000 series is built according to category safe stop standard: EN954-1, EN60204-1 and IEC6158 to prevent personal injury at accidental start-up.



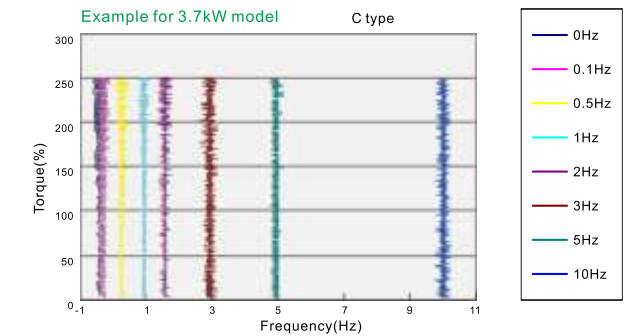
High-performance Field Oriented Control

A best choice for precise position and speed control, such as for controlling printing machines.



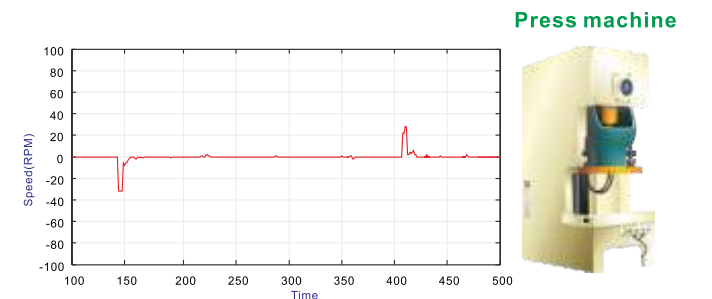
High-performance Field Oriented Control

In FOC+PG mode, C2000 is capable of creating a start-up torque up to 200% at extremely low speed to result in a much more stable speed control.



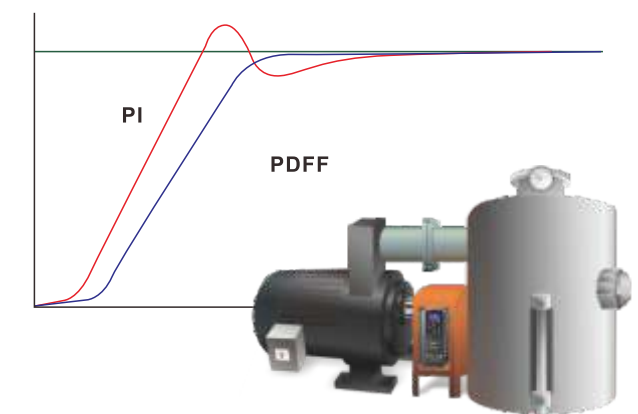
Improved Load Impact

When load changes, VFD-C2000 will provide a best torque response by FOC to minimize the vibration of load impact.



Innovative PID Technology

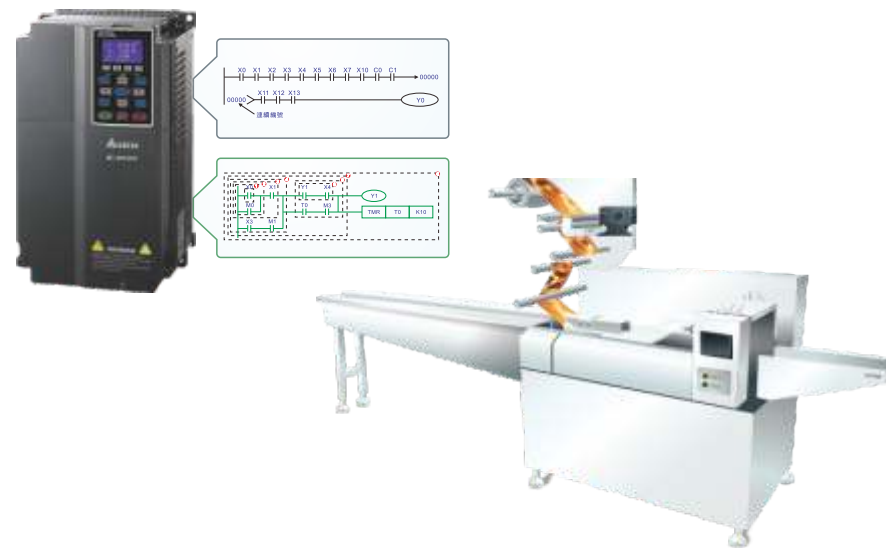
Apart from traditional PI control, VFD-C2000 also provides PDFF control in speed regulation to eliminate overshoot and increase response time.





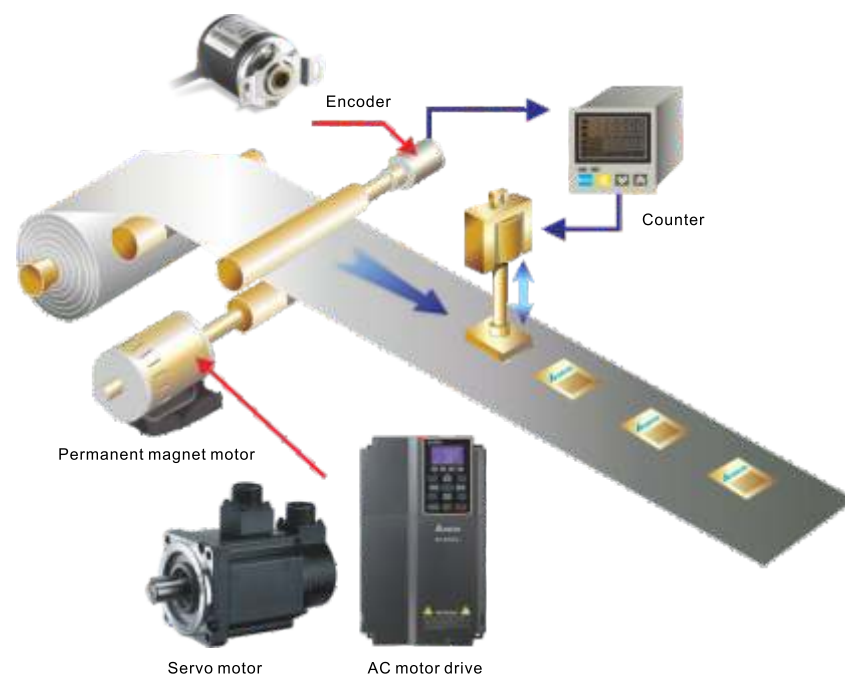
Intelligent Programmable Logic Controller

In network systems, distributed control and independent operation can easily be achieved with the built-in Delta PLC.



A Drive for Permanent Magnet (PM) Motors

VFD-C2000 is a dual mode drive for induction motors and permanent magnet motors. The dynamic response of a PM motor provides precise control of position, speed and torque.



Environment for Operation, Storage and Transportation

DO NOT expose the AC motor drive to bad 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 every year.

Installation location	IEC60364-1/IEC60664-1 Pollution degree 2, Indoor use only	
Surrounding Temperature	Storage/ Transportation	-25°C ~ +70°C
	No condensation, no frost	
Rated Humidity	Operation	Max. 90%
	Storage/ Transportation	Max. 95%
	No condensation, no frost	
Air Pressure	Operation/ Storage	86 to 106 kPa
	Transportation	70 to 106 kPa
Pollution Level	IEC60721-3-3	
	Operation	Class 3C2 : Class 3S2
	Storage	Class 2C2 : Class 2S2
	Transportation	Class 1C2 : Class 1S2
No condensation, no frost		
Altitude	Operation	If AC motor drive is installed at altitude 0~1000m, follow normal operation restriction. If it is install at altitude 1000~3000m, decrease 2% of rated current or lower 0.5°C 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. Comply 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
VFDxxxCxxA	Frame A~C 230V: 0.75~22kW 460V: 0.75~30kW	Remove top cover	Standard conduit plate	IP20/UL Open Type	-10°C ~50°C
		Standard with top cover		IP20/UL Type1/NEMA1	-10°C ~40°C
VFDxxxCxxE	Frame D~H 230V: >22kW 460V: >30kW	N/A	No conduit box	IP00 IP20/UL Open Type	-10°C ~50°C
		Remove top cover	Standard conduit plate	 Only the circled area is IP00, others are IP20.	-10°C ~50°C
Standard with top cover	Standard conduit plate	IP20/UL Type1/NEMA1			-10°C ~40°C
VFDxxxCxxE	Frame D~H 230V: >22kW 460V: >30kW	N/A	Standard conduit box	IP20/UL Type1/NEMA1	-10°C ~40°C

Specifications

230V		A						B			C			D		E		F	
Frame Size																			
Model VFD-__C__		007	015	022	037	055	075	110	150	185	220	300	370	450	550	750	900		
HEAVY DUTY 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		
NORMAL DUTY 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		
Output Rating	HEAVY DUTY																		
	NORMAL DUTY																		
	Rated Output Capacity (kVA)	1.9	2.8	4.0	6.4	9.6	12	19	25	28	34	45	55	68	81	96	131		
	Rated Output Current (A)	4.8	7.1	10	16	24	31	47	62	71	86	114	139	171	204	242	329		
Carrier Frequency (kHz)		2~6kHz																	
Output Rating	HEAVY DUTY																		
	NORMAL DUTY																		
	Rated Output Capacity (kVA)	2.0	3.2	4.4	6.8	10	13	20	26	30	36	48	58	72	86	102	138		
	Rated Output Current (A)	5	8	11	17	25	33	49	65	75	90	120	146	180	215	255	346		
Carrier Frequency (kHz)		2~15kHz						2~10kHz						2~9kHz					
Input Rating	HEAVY DUTY																		
	NORMAL DUTY																		
	Input Current (A) Heavy Duty	6.1	11	15	18.5	26	34	50	68	78	95	118	136	162	196	233	315		
	Input Current (A) Normal Duty	6.4	12	16	20	28	36	52	72	83	99	124	143	171	206	245	331		
Rated Voltage/Frequency		3-phase AC 200V~240V (-15%~+10%), 50/60Hz																	
Operating Voltage Range		170~265Vac																	
Frequency Tolerance		47~63Hz																	
Drive Weight		2.6± 0.3Kg			5.4± 1Kg			9.8± 1.5Kg			38.5± 1.5Kg			64.8± 1.5Kg			86.5± 1.5Kg		
Cooling Method		Natural cooling		Fan cooling															
Braking Chopper		Frame A to C (built-in); Frame D and above (optional)																	
DC Reactor		Frame A to C (optional); Frame D and above (built-in)																	
EMI Filter		Frame A to C (optional); Frame D and above (optional)																	
EMC-COP01		VFDXXC23A (optional); VFDXXC23E (built-in)																	

460V		A						B			C		
Frame Size													
Model VFD-__C__		007	015	022	037	040	055	075	110	150	185	220	300
HEAVY DUTY Applicable Motor Output (kW)		0.4	0.75	1.5	2.2	2.2	4.0	5.5	7.5	11	15	18.5	22
NORMAL DUTY Applicable Motor Output (kW)		0.75	1.5	2.2	3.7	4.0	5.5	7.5	11	15	18.5	22	30
Output Rating	HEAVY DUTY												
	NORMAL DUTY												
	Rated Output Capacity (kVA)	2.3	3.0	4.5	6.5	7.6	9.6	14	18	24	29	34	45
	Rated Output Current (A)	2.9	3.8	5.7	8.1	9.5	11	17	23	30	36	43	57
Carrier Frequency (kHz)		2~6kHz											
Output Rating	HEAVY DUTY												
	NORMAL DUTY												
	Rated Output Capacity (kVA)	2.4	3.2	4.8	7.2	8.4	10	14	19	25	30	36	48
	Rated Output Current (A)	3.0	4.0	6.0	9.0	10.5	12	18	24	32	38	45	60
Carrier Frequency (kHz)		2~15kHz						2~10kHz					
Input Rating	HEAVY DUTY												
	NORMAL DUTY												
	Input Current (A) Heavy Duty	4.1	5.6	8.3	13	14.5	16	19	25	33	38	45	60
	Input Current (A) Normal Duty	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											
Drive Weight		2.6± 0.3Kg			5.4± 1Kg			9.8± 1.5Kg					
Cooling Method		Natural cooling		Fan cooling									
Braking Chopper		Frame A to C (built-in); Frame D and above (optional)											
DC Reactor		Frame A to C (optional); Frame D and above (built-in)											
EMI Filter		VFDXXC43A Frame A to C (No EMI Filter) VFDXXC43E (Built-in); VFDXXC43A/43E Frame D and above (optional)											
EMC-COP01		VFDXXC43A (optional); VFDXXC43E (built-in)											

NOTE:
 · For FRAME A, B and C, Model VFDXXC43A is under IP20/NEMA1/UL TYPE1 protection level.
 · For FRAME D and above, if the last character of the model is A then it is under IP20 protection level but the wiring terminal is under IP00 protection level;
 if the last character of the model is E, it is under IP20/NEMA1/UL TYPE1 protection level.

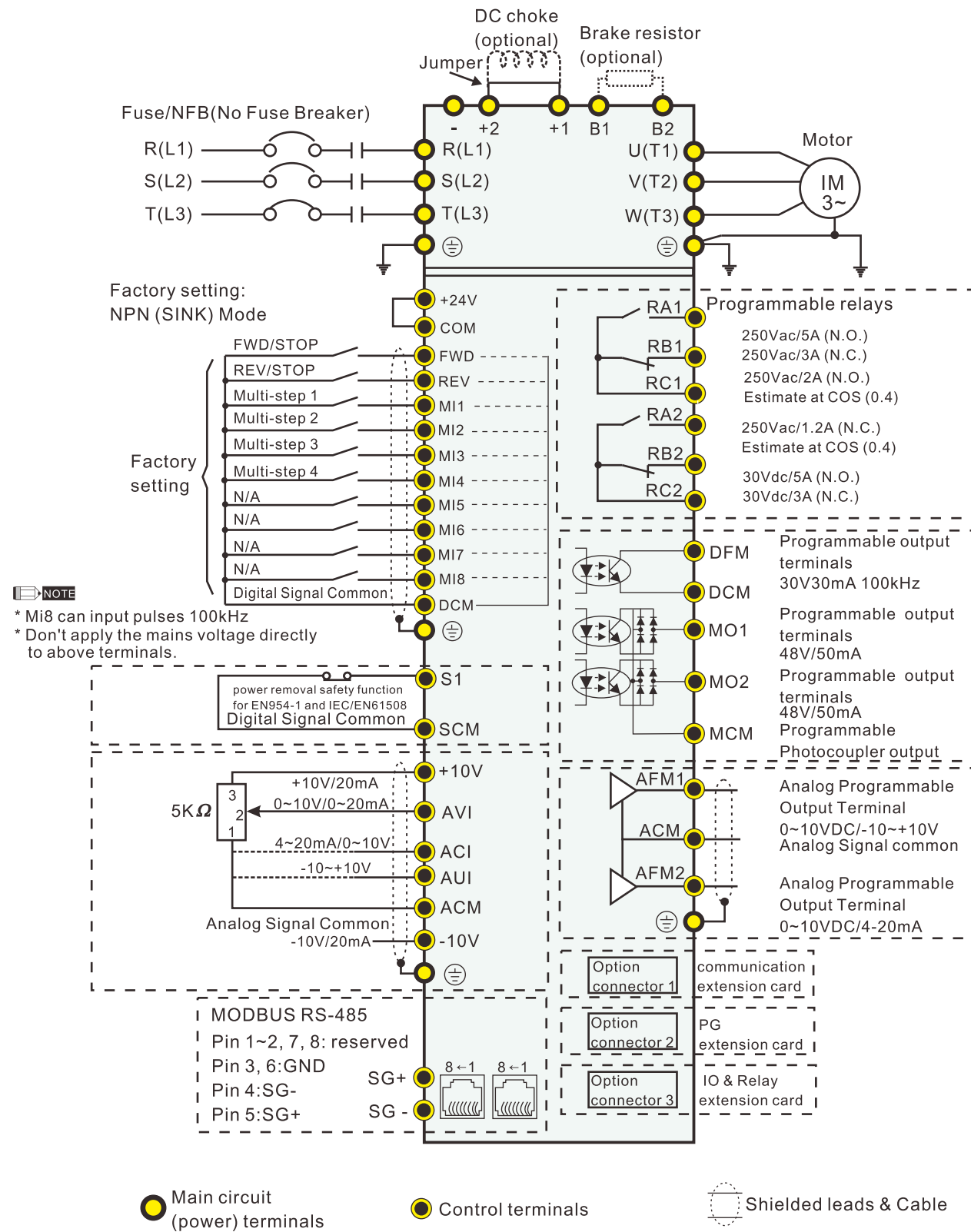
460V		D				E		F		G		H		
Frame Size														
Model VFD-__C__		370	450	550	750	900	1100	1320	1600	1850	2200	2800	3150	3550
HEAVY DUTY Applicable Motor Output (kW)		30	37	45	55	75	90	110	132	160	185	220	280	315
NORMAL DUTY Applicable Motor Output (kW)		37	45	55	75	90	110	132	160	185	220	280	315	355
Output Rating	HEAVY DUTY													
	NORMAL DUTY													
	Rated Output Capacity (kVA)	55	69	84	114	136	167	197	235	280	348	417	466	517
	Rated Output Current (A)	69	86	105	143	171	209	247	295	352	437	523	585	649
Carrier Frequency (kHz)		2~6kHz												
Output Rating	HEAVY DUTY													
	NORMAL DUTY													
	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
Carrier Frequency (kHz)		2~10kHz						2~9kHz						
Input Rating	HEAVY DUTY													
	NORMAL DUTY													
	Input Current (A) Heavy Duty	70	96	108	149	159	197	228	285	361	380	469	527	594
	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												
Drive Weight		38.5± 1.5Kg			64.8± 1.5Kg			86.5± 1.5Kg		134± 4Kg		228		
Cooling Method		Fan cooling												
Braking Chopper		Frame A to C (built-in); Frame D and above (optional)												
DC Reactor		Frame A to C (optional); Frame D and above (built-in)												
EMI Filter		VFDXXC43A Frame A to C (No EMI Filter) VFDXXC43E (Built-in); VFDXXC43A/43E Frame D and above (optional)												
EMC-COP01		VFDXXC43A (optional); VFDXXC43E (built-in)												

General Specifications

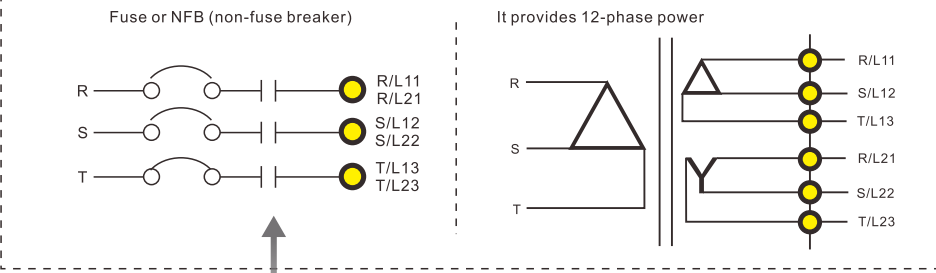
Control Method	1: V/F, 2: SVC, 3: VF+PG, 4: FOC+PG, 5: TQC+PG,
Starting Torque	Reach up to 150% or above at 0.5Hz. Under FOC+PG mode, starting torque can reach 150% at 0Hz.
V/f Curve	4-point adjustable V/f curve and square curve
Speed Response Ability	5Hz (vector control can reach up to 40Hz)
Torque Limit	Max. 200% torque current
Torque Accuracy	±5%
Max. Output Frequency (Hz)	Normal duty: 0.00~600.00Hz; Heavy duty: 0.00 ~ 300.00 Hz
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: 0.03 X max. output frequency/60 Hz (±11 bit)
Overload Tolerance	Normal duty: rated output current is 120% for 60seconds Heavy duty: rated output current is 150% for 60seconds
Frequency Setting Signal	+10V~-10, 0~+10V, 4~20mA, 0~20mA, Pulse input
Accel./decel. Time	0.00~600.00/0.0~6000.0 Seconds
Main Control Function	Torque control, Droop control, Speed/torque control switching, Feed forward control, Zero-servo control, Momentary power loss ride thru, Speed search, Over-torque 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, JOG frequency, Frequency upper/lower limit settings, DC injection braking at start/stop, High slip braking, PID control (with sleep function), Energy saving control, MODBUS communication (RS-485 RJ45, max. 115.2 kbps), Fault restart, Parameter copy
Fan Control	230V model: VFD150C23A(include) and series above: PMW control; VFD150C23A and series below: on/off switch control 460V model: VFD150C43A(include) and series above: PMW control; VFD150C43A and series below: on/off switch control
Motor Protection	Electronic thermal relay protection
Over-current Protection	Over-current protection for 220% rated current current clamp 『Normal duty: around 170~175%』 : 『Heavy duty: around 180~185%』
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

Wiring

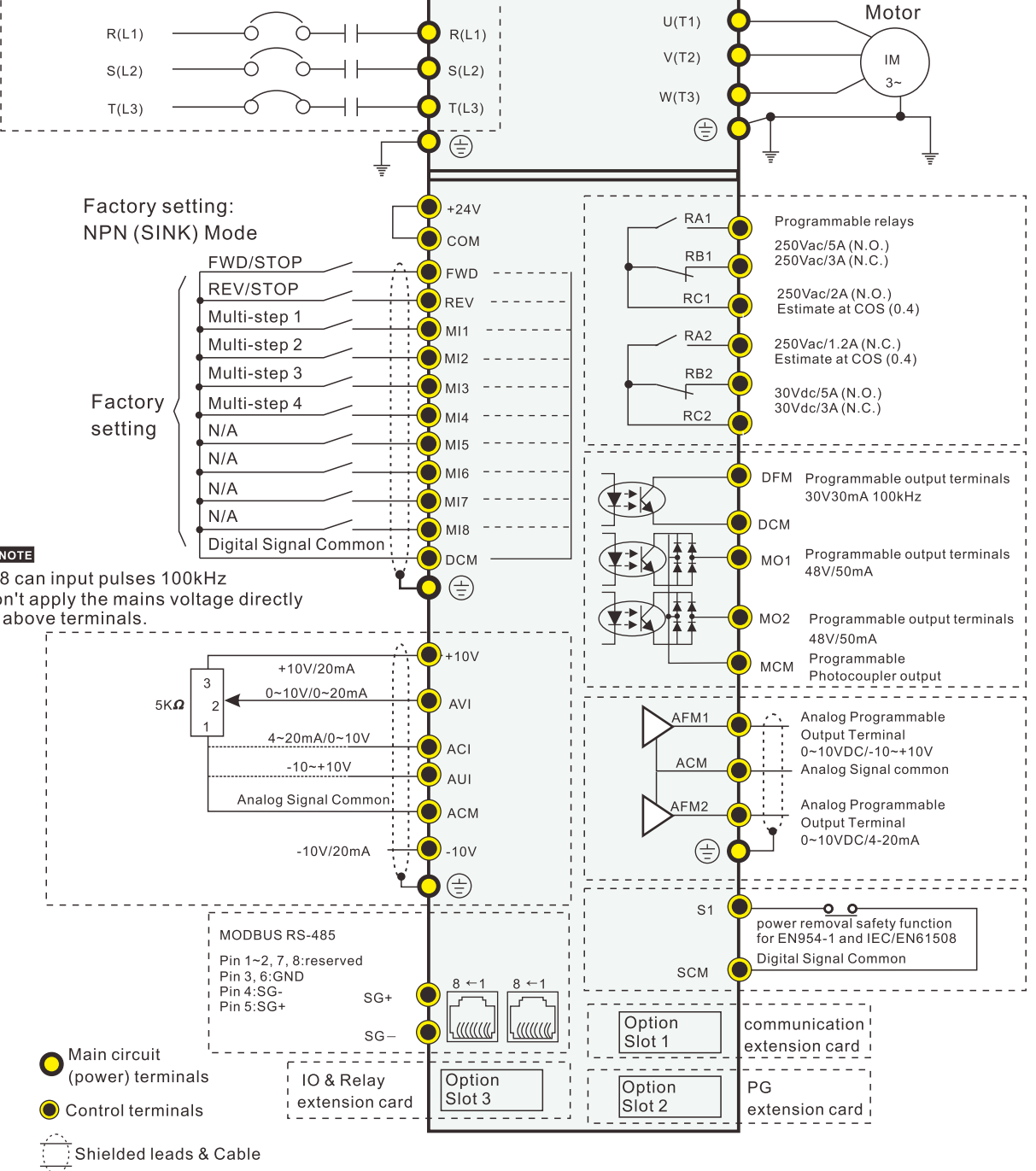
Frame A~C
Offers 3-phase power supply



Input power terminals for frame G and H Provides 3-phase power

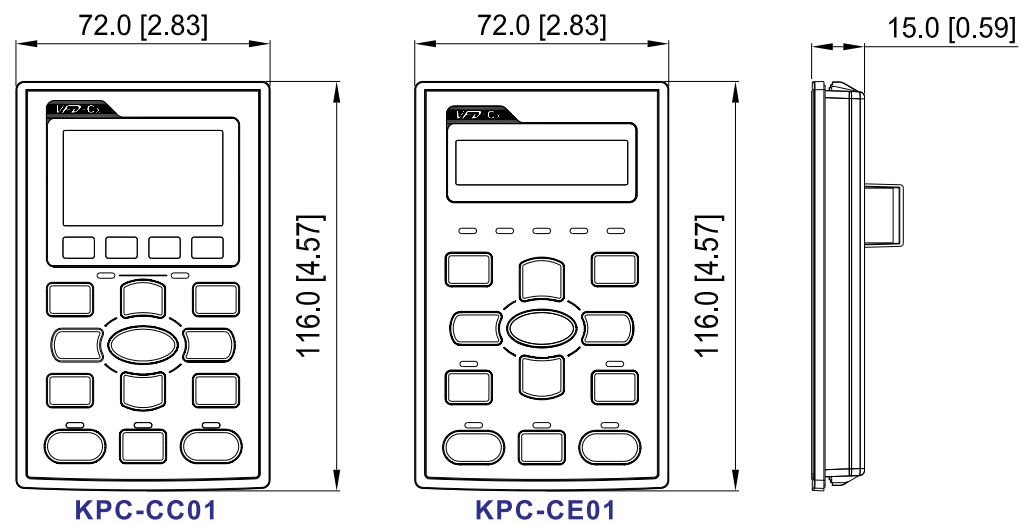


Wiring diagram for frame D and above

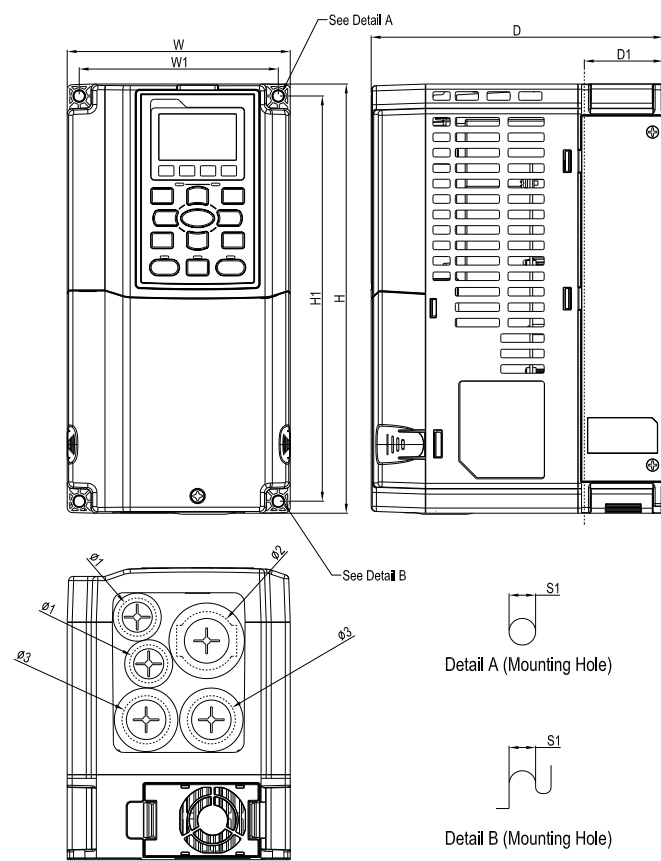


Dimensions

Digital Keypad



Frame A



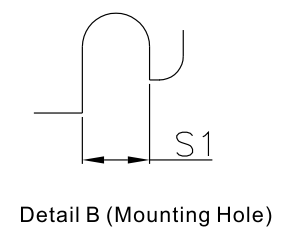
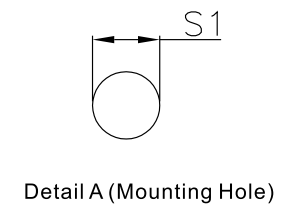
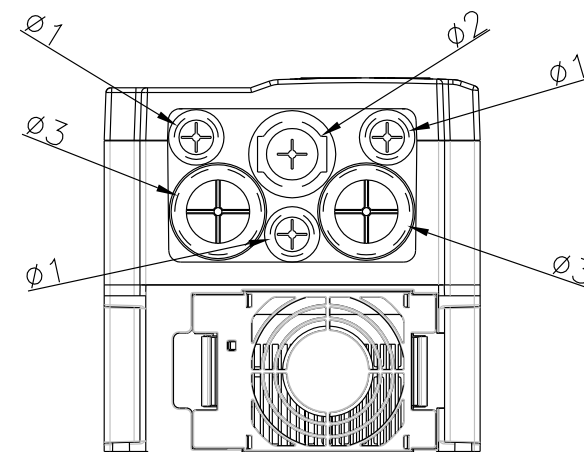
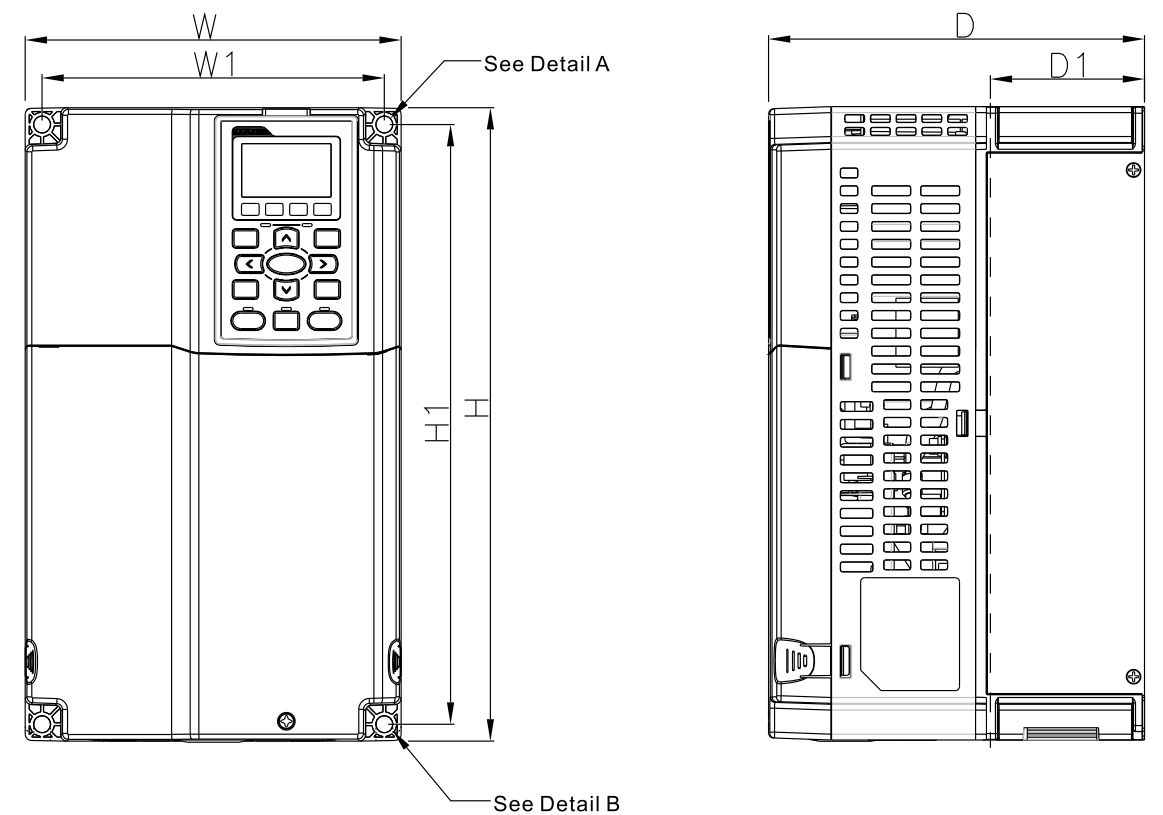
- MODEL**
 VFD007C23A
 VFD007C43A/43E
 VFD015C23A
 VFD015C43A/43E
 VFD022C23A
 VFD022C43A/43E
 VFD037C23A
 VFD037C43A/43E
 VFD040C43A/43E
 VFD055C43A/43E

Unit : mm[inch]

Frame	W	H	D	W1	H1	D1*	Ø	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

Frame B



- MODEL**
 VFD055C23A
 VFD075C23A
 VFD075C43A/43E
 VFD110C23A
 VFD110C43A/43E
 VFD150C43A/43E

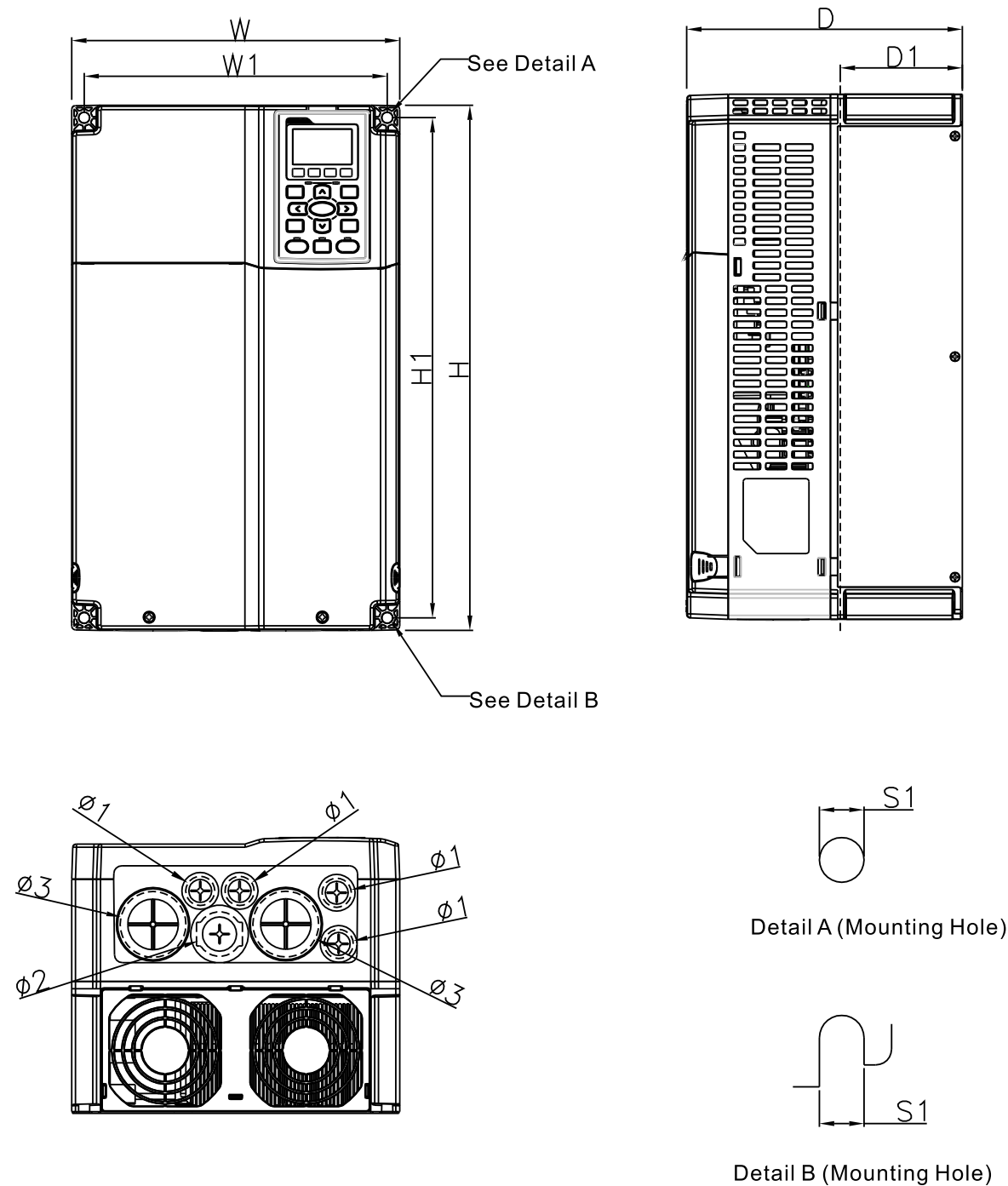
Unit : mm[inch]

Frame	W	H	D	W1	H1	D1*	S1	Ø1	Ø2	Ø3	
B1	mm	190.0	320.0	190.0	173.0	303.0	77.9	8.5	22.2	34.0	28.0
	inch	7.48	12.60	7.48	6.81	11.93	3.07	0.33	0.87	1.34	1.10

D1* : Flange mounting

Dimensions

Frame C



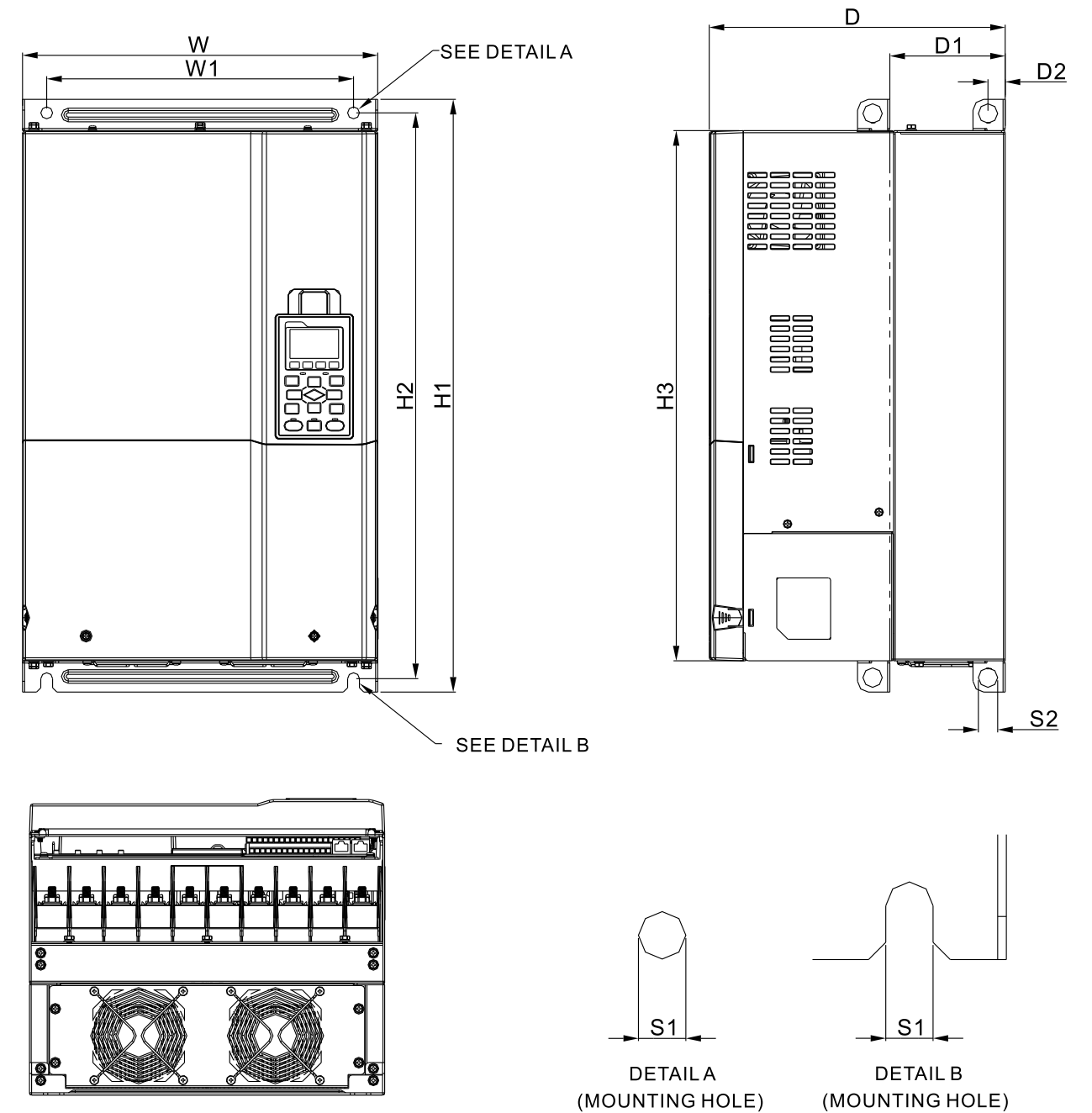
MODEL
 VFD150C23A
 VFD185C23A
 VFD185C43A/43E
 VFD220C23A
 VFD220C43A/43E
 VFD300C43A/43E

Unit : mm[inch]

Frame	W	H	D	W1	H1	D1*	S1	Ø1	Ø2	Ø3
C1	mm	250.0	400.0	210.0	231.0	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 D



MODEL
FRAME_D1
 VFD300C23A
 VFD370C23A
 VFD370C43A
 VFD450C43A
 VFD550C43A
 VFD750C43A

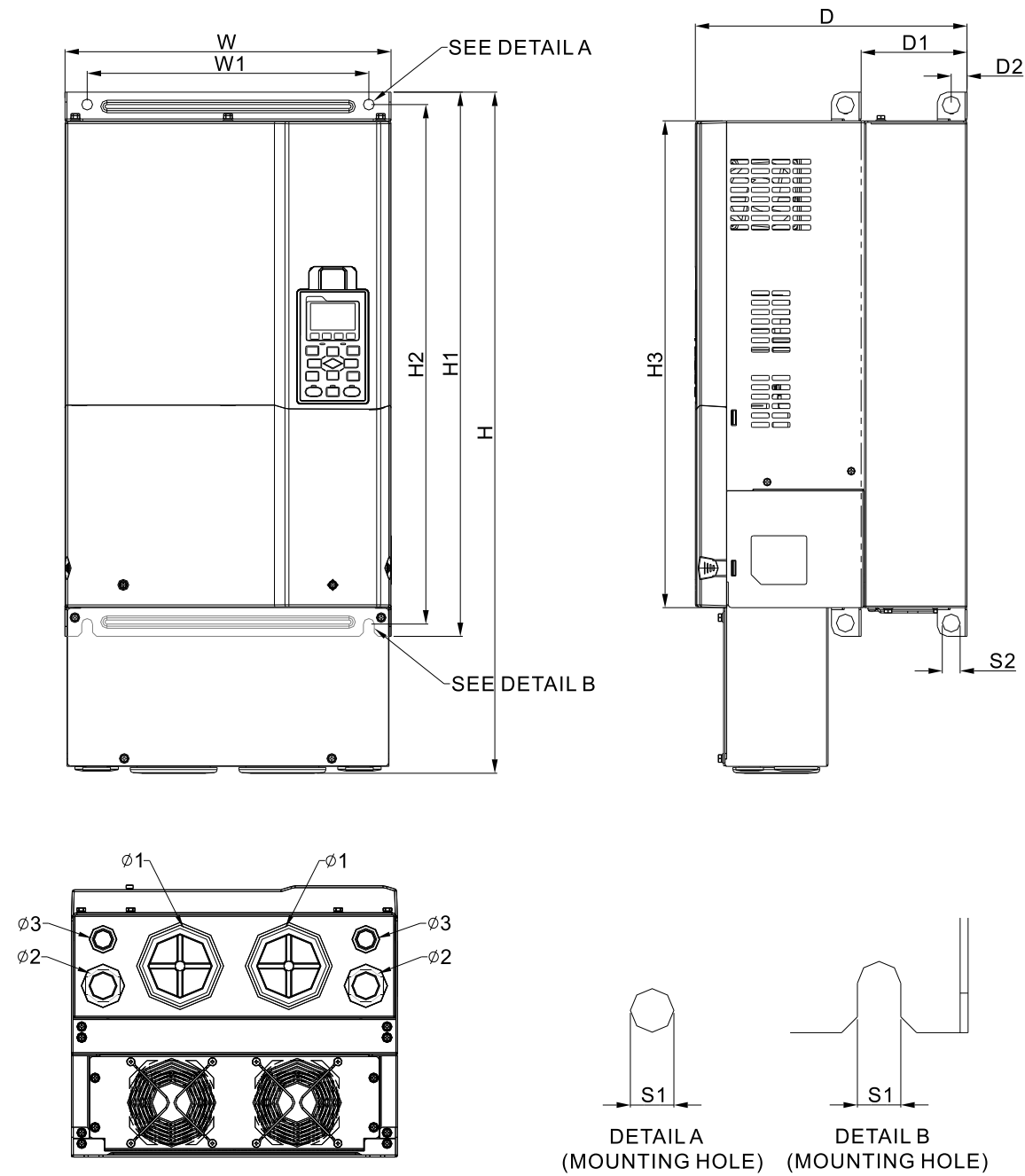
Unit : mm[inch]

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	-	-

D1* : Flange mounting

Dimensions

Frame D



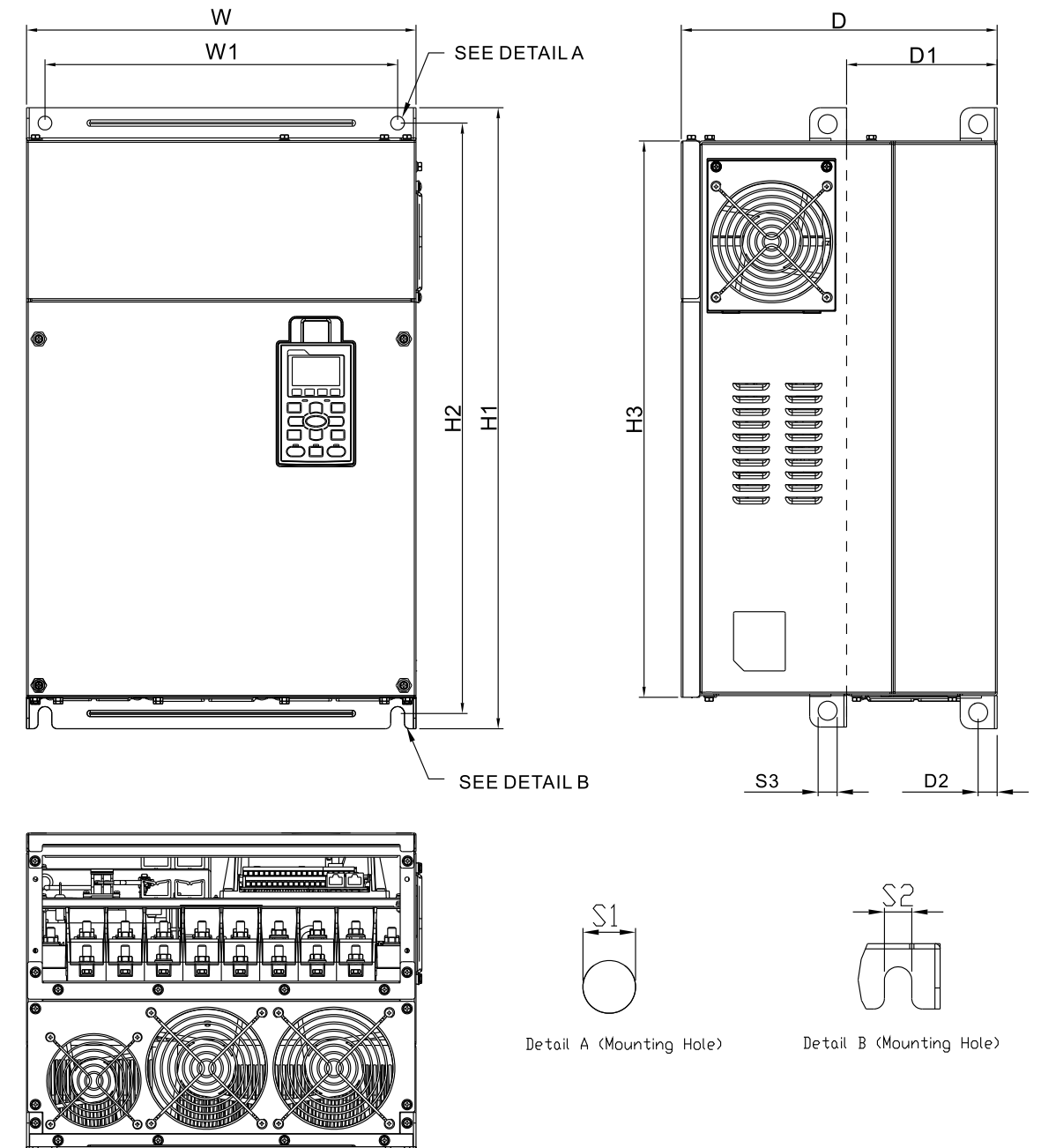
MODEL
FRAME_D2
 VFD300C23E
 VFD370C23E
 VFD370C43E
 VFD450C43E
 VFD550C43E
 VFD750C43E

Unit : mm[inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	Ø1	Ø2	Ø3
D2	mm	330.0	688.3	275.0	285.0	550.0	525.0	107.2	16.0	11.0	18.0	76.2	34.0	22.0
	inch	12.99	27.10	10.83	11.22	21.65	20.67	4.22	0.63	0.43	0.71	3.00	1.34	0.87

D1* : Flange mounting

Frame E



MODEL

FRAME_E1
 VFD450C23A
 VFD550C23A
 VFD750C23A
 VFD900C43A
 VFD1100C43A

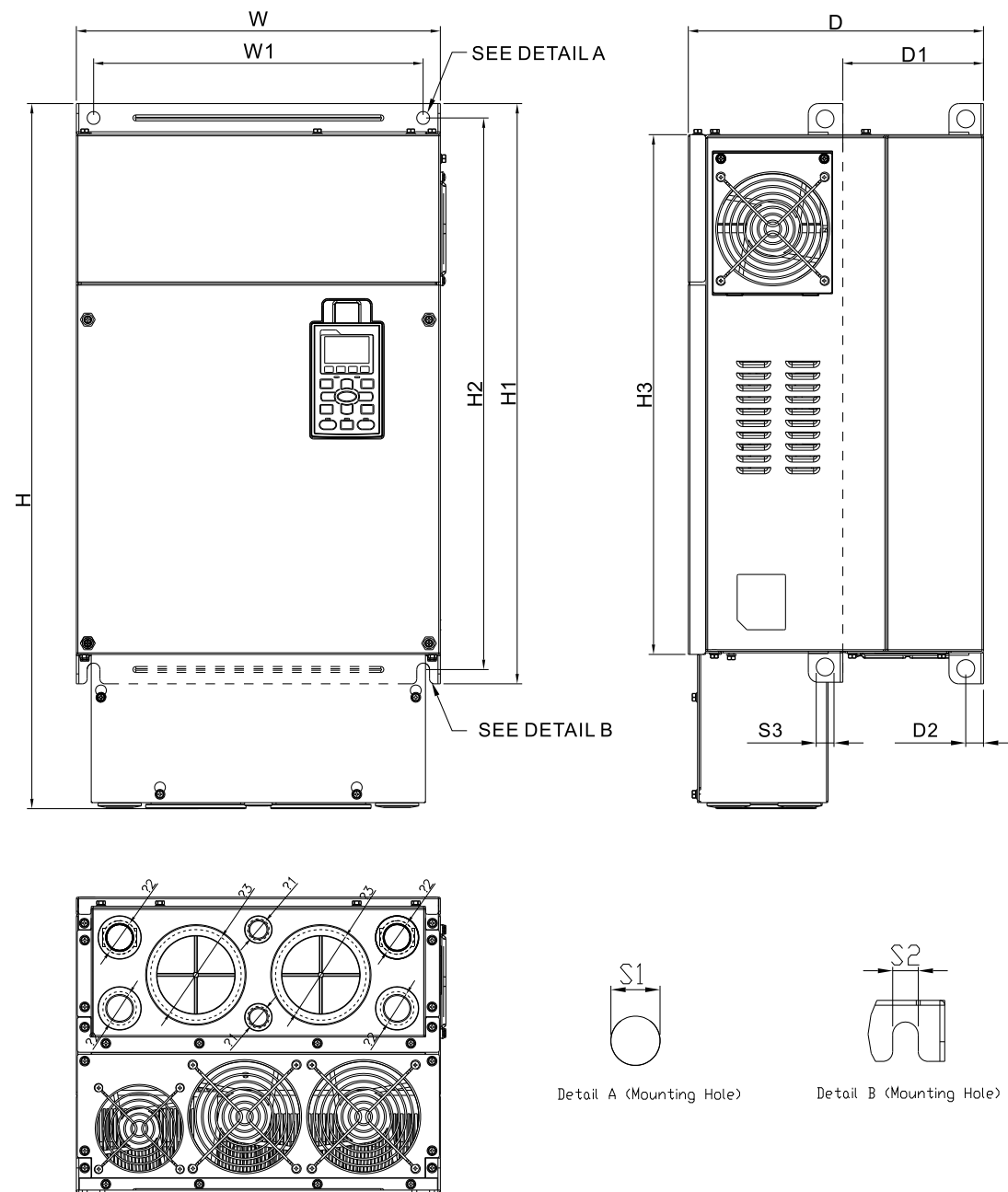
Unit : mm[inch]

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	13.0	18.0	-	-
	inch	14.57	-	11.81	13.19	23.19	22.05	20.80	5.63	0.71	0.51	0.51	0.71	-	-

D1* : Flange mounting

Dimensions

Frame E



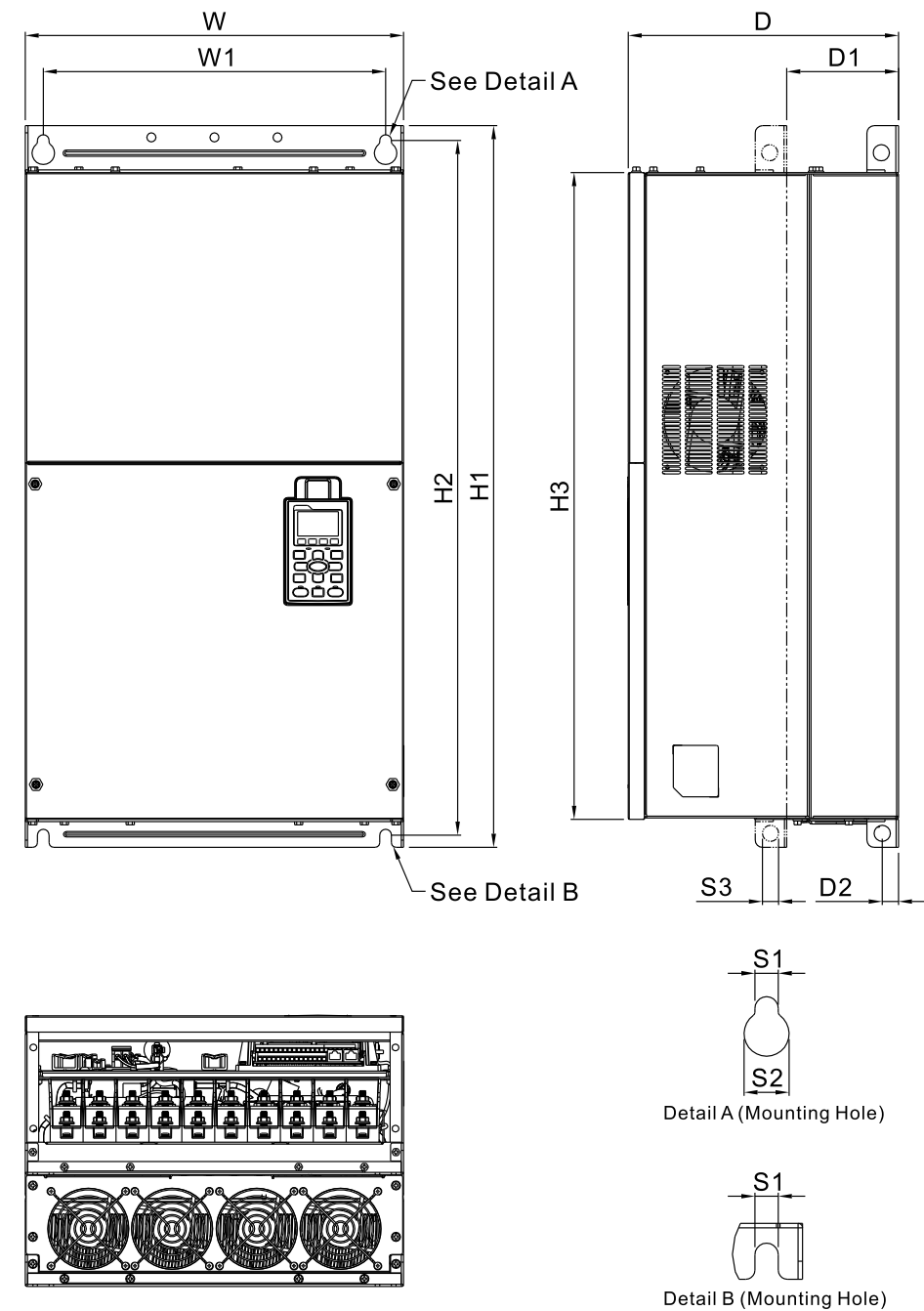
MODEL
FRAME_E2
 VFD450C23E
 VFD550C23E
 VFD750C23E
 VFD900C43E
 VFD1100C43E

Unit : mm[inch]

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	13.0	18.0	22.0	34.0	92.0
	inch	14.57	28.18	11.81	13.19	23.19	22.05	20.80	5.63	0.71	0.51	0.51	0.71	0.87	1.34	3.62

D1* : Flange mounting

Frame F



MODEL
FRAME_F1
 VFD900C23A
 VFD1320C23A
 VFD1600C23A

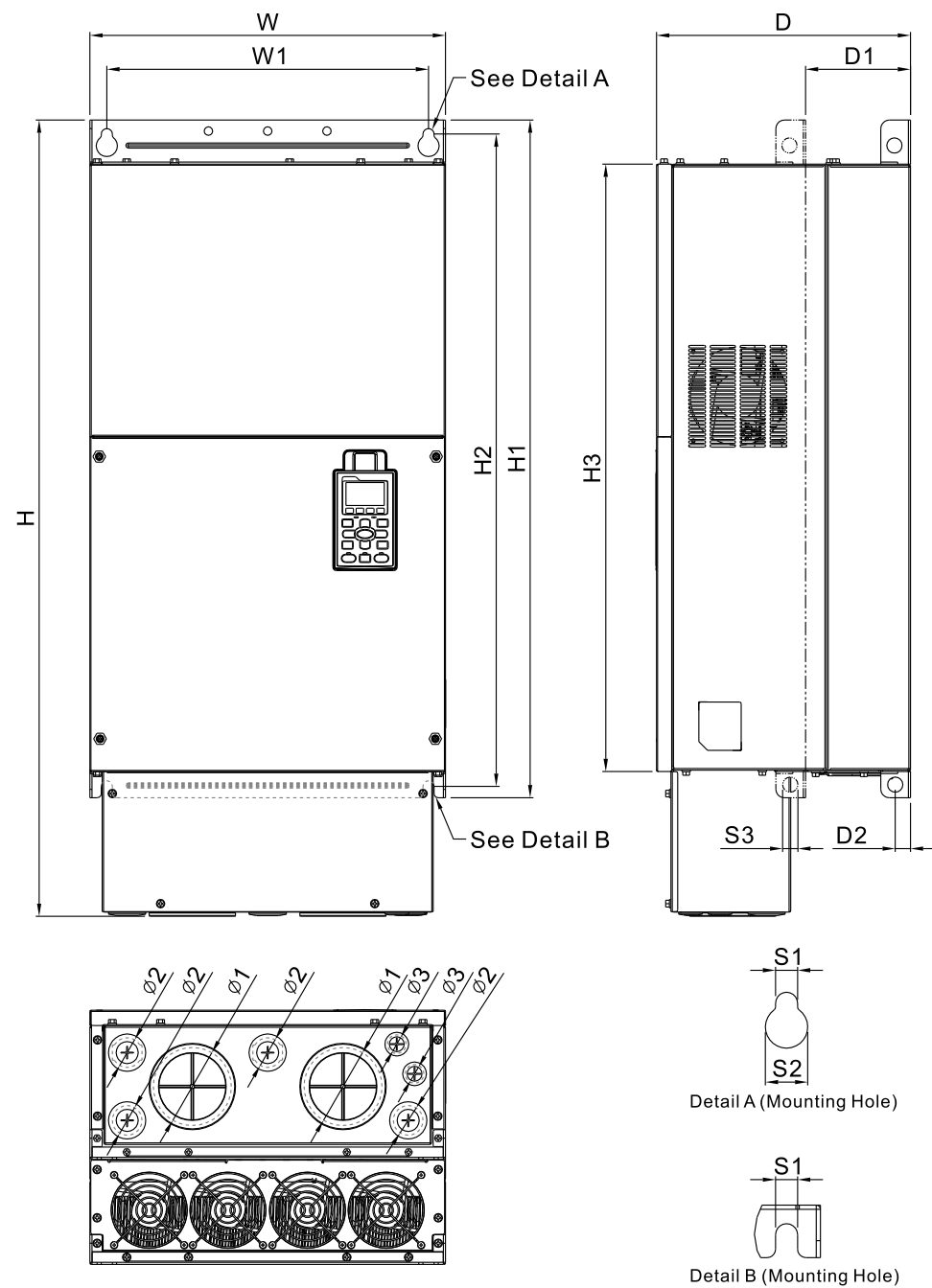
Unit : mm[inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	S3	Ø1	Ø2	Ø3	
F1	mm	420.0	-	300.0	380.0	800.0	770.0	717.0	124.0	18.0	13.0	25.0	18.0	92.0	35.0	22.0
	inch	16.54	-	11.81	14.96	31.50	30.32	28.23	4.88	0.71	0.51	0.98	0.71	3.62	1.38	0.87

D1* : Flange mounting

Dimensions

Frame F



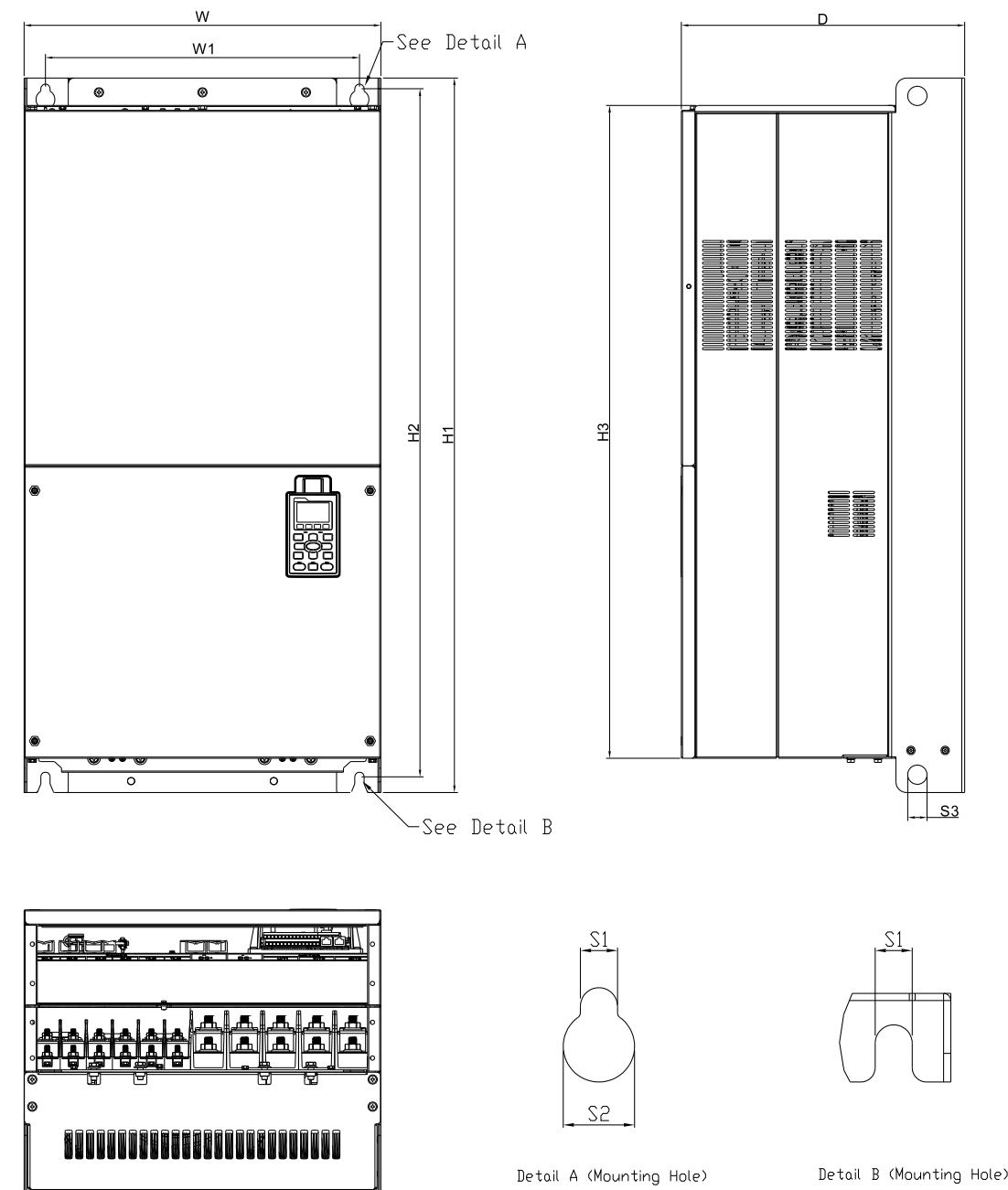
MODEL
FRAME_F2
 VFD900C23E
 VFD1320C43E
 VFD1600C43E

Unit : mm[inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	S3	Ø1	Ø2	Ø3
F2	mm	420.0	940.0	380.0	800.0	770.0	717.0	124.0	18.0	13.0	25.0	18.0	92.0	35.0	22.0
	inch	16.54	37.00	11.81	14.96	31.50	30.32	4.88	0.71	0.51	0.98	0.71	3.62	1.38	0.87

D1* : Flange mounting

Frame G



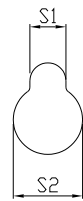
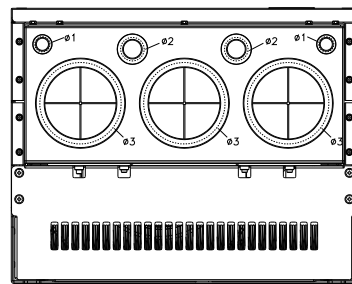
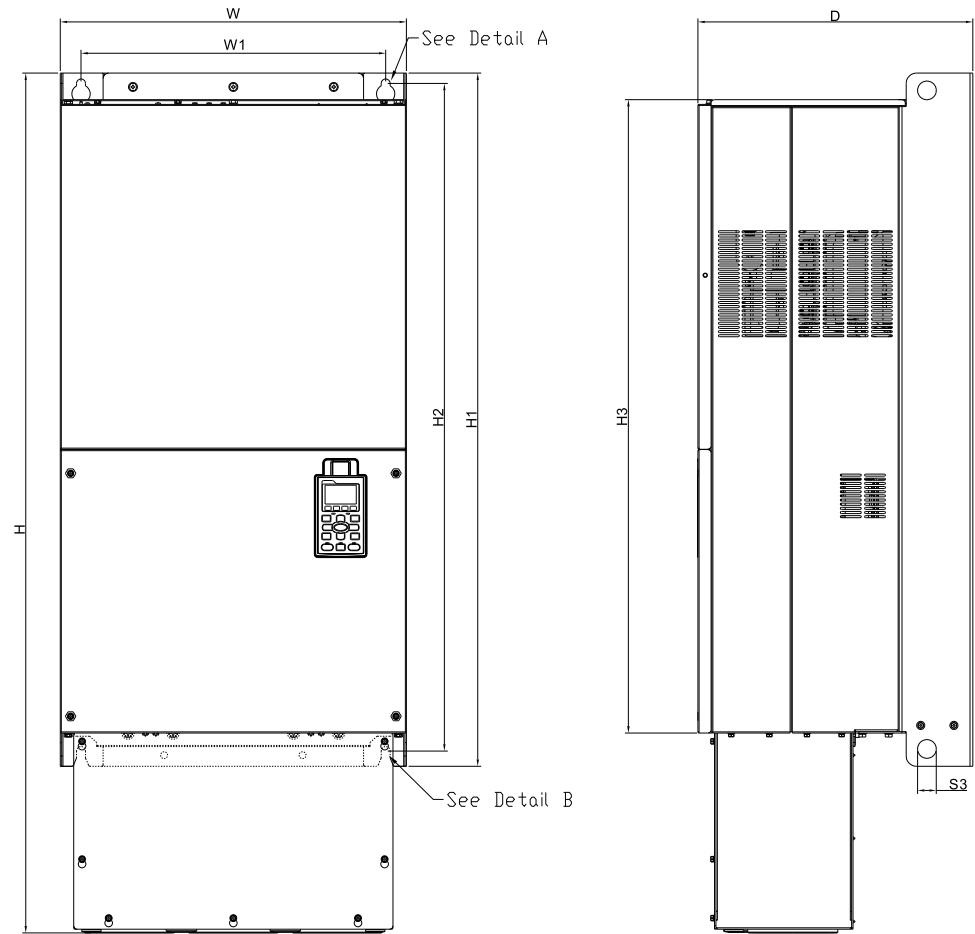
MODEL
FRAME_G1
 VFD1850C43A
 VFD2200C43A

Unit : mm[inch]

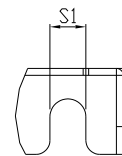
Frame	W	H	D	W1	H1	H2	H3	S1	S2	S3	Ø1	Ø2	Ø3	
G1	mm	500.0	-	397.0	440.0	1000.0	963.0	913.6	13.0	26.5	27.0	-	-	-
	inch	19.69	-	15.63	217.32	39.37	37.91	35.97	0.51	1.04	1.06	-	-	-

Dimensions

Frame G



Detail A (Mounting Hole)



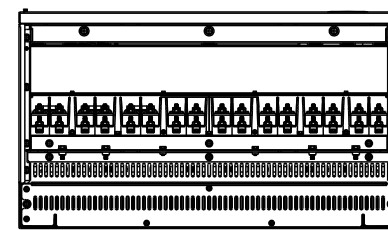
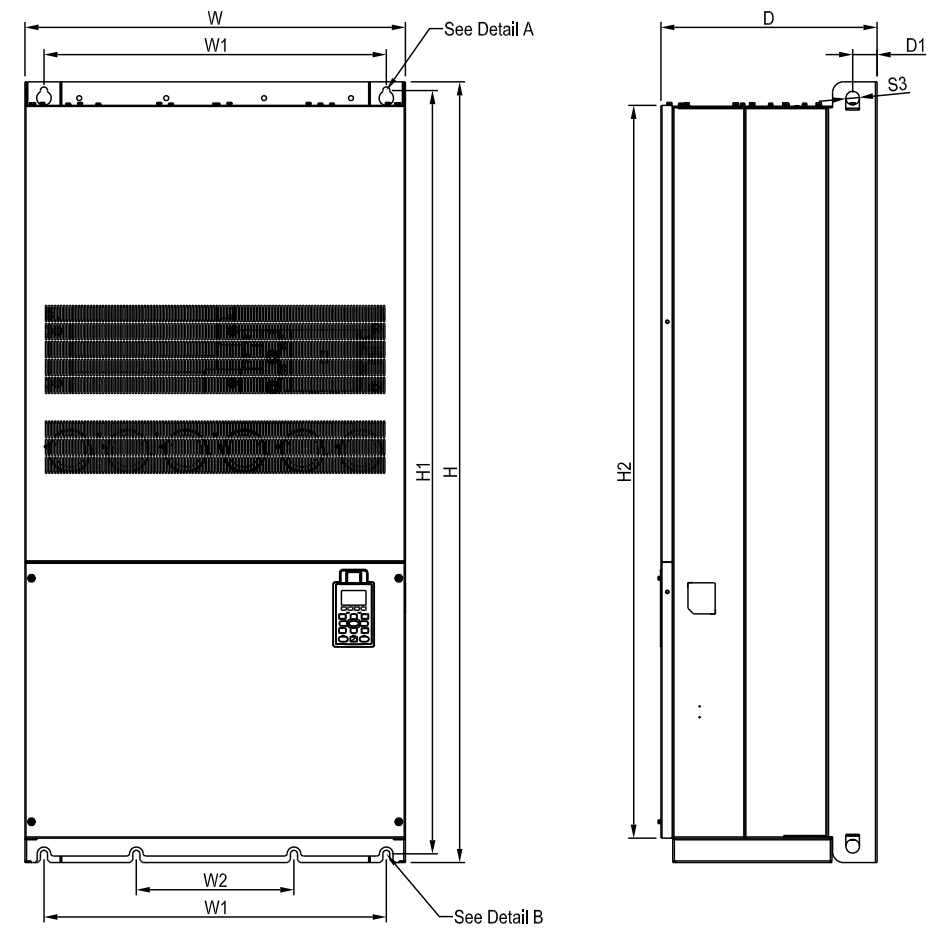
Detail B (Mounting Hole)

MODEL FRAME_G2 VFD1850C43E VFD2200C43E

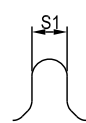
Unit : mm[inch]

Frame	W	H	D	W1	H1	H2	H3	S1	S2	S3	Ø1	Ø2	Ø3	
G2	mm	500.0	1240.2	397.0	440.0	1000.0	963.0	913.6	13.0	26.5	27.0	22.0	34.0	117.5
	inch	19.69	48.83	15.63	217.32	39.37	37.91	35.97	0.51	1.04	1.06	0.87	1.34	4.63

Frame H



See Detail A(Mounting Hole)



See Detail B(Mounting Hole)

MODEL FRAME_H1 VFD2800C43A VFD3150C43A VFD3550C43A

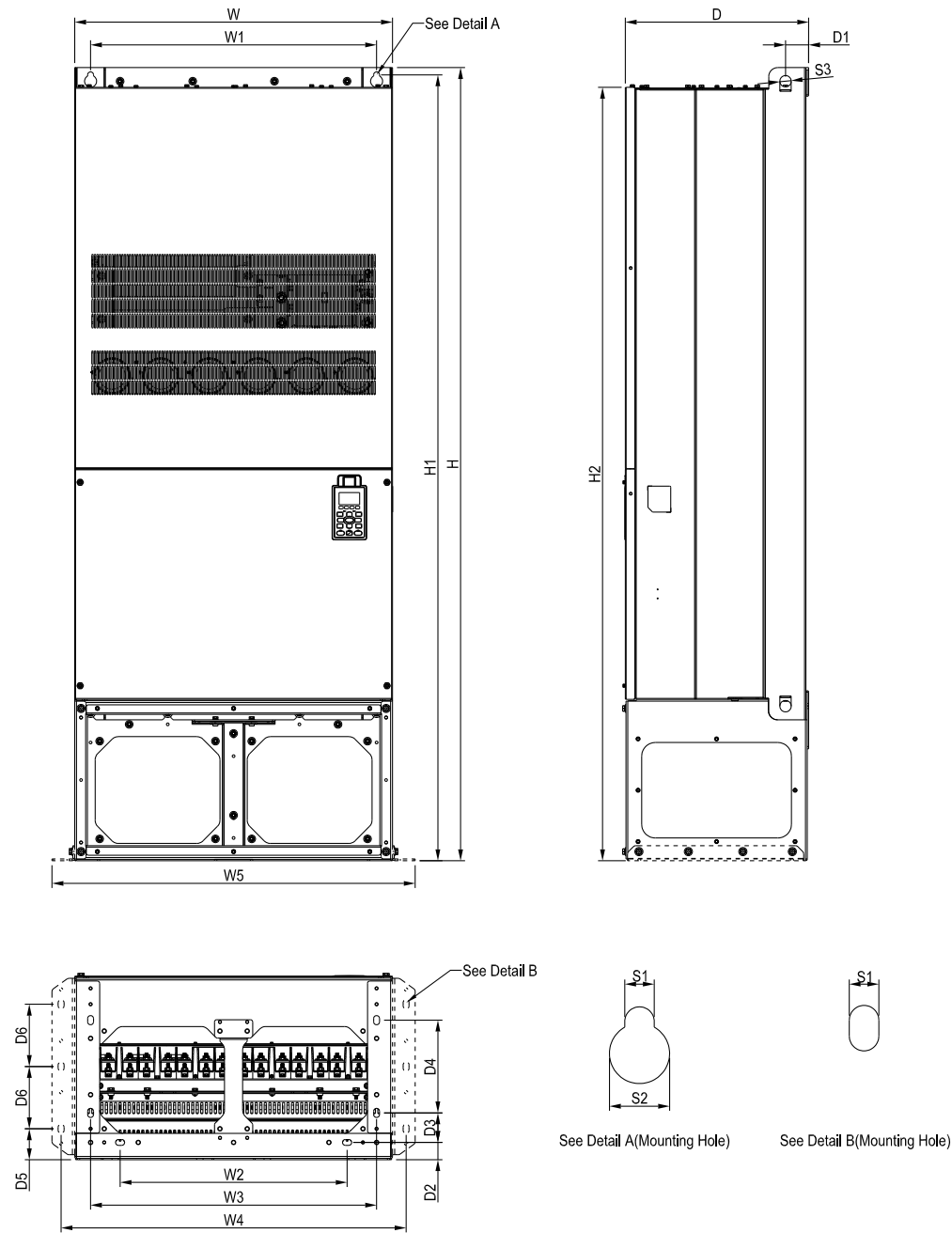
Unit : mm[inch]

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 H



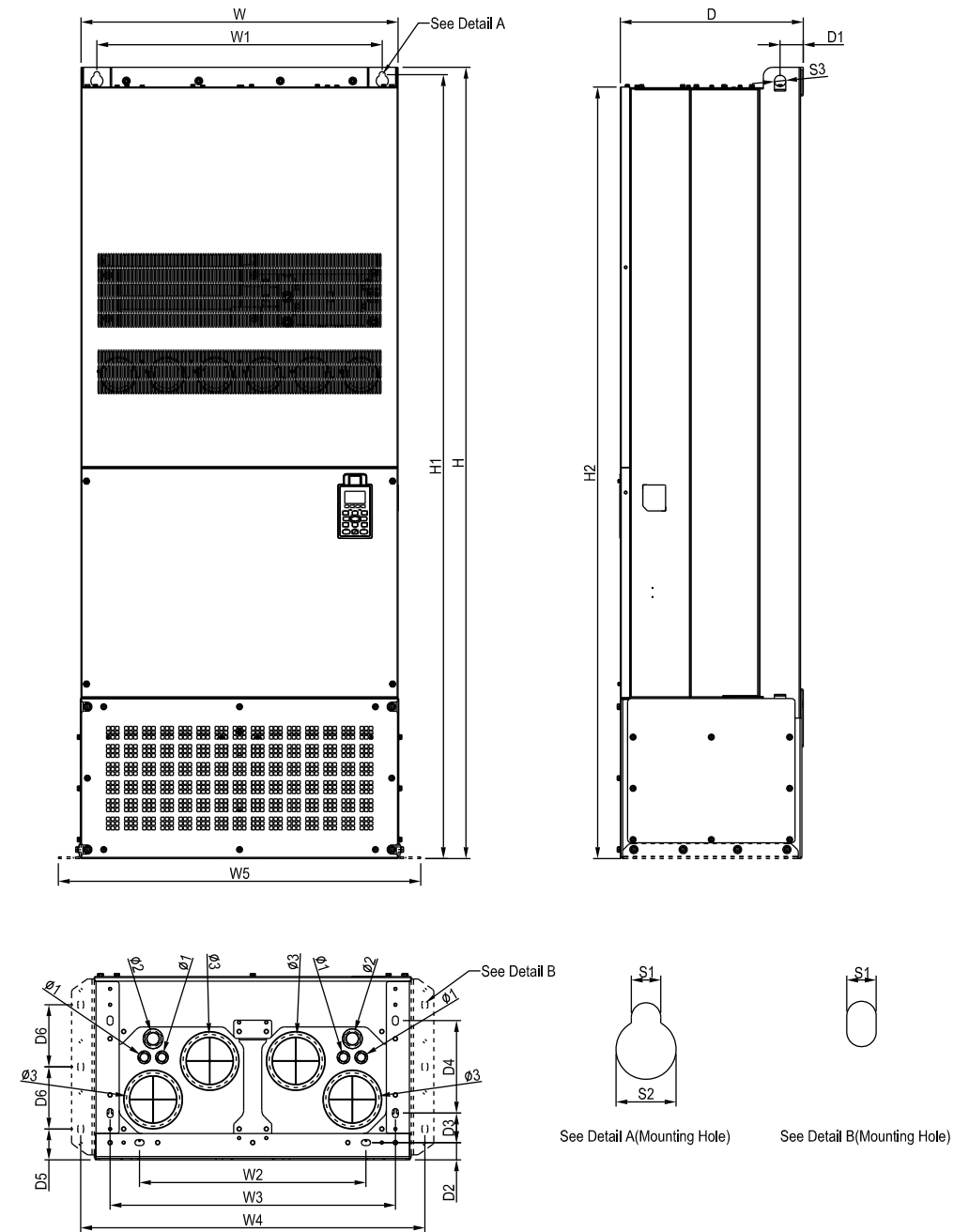
MODEL
FRAME_H2
 VFD2800C43E-1
 VFD3150C43E-1
 VFD3550C43E-1

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 H



MODEL
FRAME_H3
 VFD2800C43E
 VFD3150C43E
 VFD3550C43E

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-PG01L



Set by
Pr.10-00~10-02

Terminals		Descriptions
PG1	VP	Output voltage for power: +5V/+12V ±5% (use FSW3 to switch +5V/+12V) Max. output current: 200mA
	DCM	Common for power and signal
PG2	A1, /A1, B1, /B1, Z1, /Z1	Encoder Input signal (Line Driver) It can be 1-phase or 2-phase input; Max. output frequency: 300kP/sec
	A2, /A2, B2, /B2	Pulse Input signal (Line Driver or Open Collector) Open collector input: +5V/+12V (Note1) It can be 1-phase or 2-phase input; Max. output frequency: 300kP/sec.
PG OUT	AO, /AO, BO, /BO, ZO, /ZO, SG	PG Card Output signals. It has division frequency function: 1~255 times Max. output voltage for Line driver: 5Vdc Max. output current: 50mA; Max. output frequency: 300kP/sec SG: The GND of PG card is the same as the host controller or PLC, so a common output signal is attained.

EMC-PG010



Set by
Pr.10-00~10-02

Terminals		Descriptions
PG1	VP	Output voltage for power: +5V/+12V ±5% (use FSW3 to switch +5V/+12V) Max. output current: 200mA
	DCM	Common for power and signal
PG2	A1, /A1, B1, /B1, Z1, /Z1	Encoder Input signal (Line Driver or Open Collector) Open collector input: +5V/+12V (Note1) It can be 1-phase or 2-phase input; Max. output frequency: 300kP/sec
	A2, /A2, B2, /B2	Pulse Input Signal (Line Driver or Open Collector) Open collector input: +5V/+12V (Note1) It can be 1-phase or 2-phase input; Max. output frequency: 300kP/sec.
PG OUT	V+, /V+	Needs external power source for PG OUT circuit. Input voltage of power: +12V ~ +24V
	V-	Negative power supply input
PG OUT	A/O, B/O, Z/O	PG Card Output signals. It has division frequency function: 1~255 times Add a pull-up resistor to the open collector output signals to avoid signal interferences. [Three pull-up resistors are included in the package (1.8kΩ/1W)] Max. Output current: 20mA; Max output frequency: 300KP/Sec

EMC-PG01R



Set by
Pr.10-00~10-02

Terminals		Descriptions
PG1	R1- R2	Resolver Output Power 7Vrms, 10kHz
	S1, S2, S3, S4,	Resolver Input Signal 3.5±0.175Vrms, 10kHz
PG2	A2, /A2 B2, /B2	Pulse Input Signal (Line Driver or Open Collector) Open collector input: +5V/+12V (Note1) It can be 1-phase or 2-phase input; Max. output frequency: 300kP/sec.
PG OUT	AO, /AO, BO, /BO, ZO, /ZO, SG	PG Card Output signals. It has division frequency function: 1~255 times Max. output voltage for Line driver: 5Vdc Max. output current: 50mA Max. output frequency: 300kP/sec SG: The GND of PG card is the same as the host controller or PLC, so a common output signal is attained.

EMC-PG01U

■ FJMP1 : Standard UVW Output Encoder; : Delta Encoder



Set by
Pr.10-00~10-02

Terminals		Descriptions
PG1	VP	Output voltage for power: +5V/+12V5% (use FSW3 to switch +5V/+12V) Max. output current: 200mA
	DCM	Common for power and signal
PG2	A1, /A1, B1, /B1, Z1, /Z1	Encoder input signal (Line Driver) 1-phase or 2-phase input. Max. output frequency: 300kP/sec
	U1, /U1, V1, /V1, W1, /W1	Encoder input signal
PG2	A2, /A2 B2, /B2	Pulse Input signal Open collector input: +5V/+12V (Note1) 1-phase or 2-phase input; Max. output frequency: 300kP/sec.
PG OUT	AO, /AO, BO, /BO, ZO, /ZO, SG	PG Card Output signals. Division frequency function: 1~255 times Max. output voltage for Line driver: 5Vdc Max. output current: 50mA Max. output frequency: 300kP/sec SG: The GND of PG card is the same as the host controller or PLC, so a common output signal is attained.

Note 1: For the Open Collector, set input voltage to 5~15mA and install a pull-up resistor

[5V] Recommended pull-up resistor: 100~220Ω · 1/2W and above

[12V] Recommended pull-up resistor: 510~1.35kΩ · 1/2W and above

[24V] Recommended pull-up resistor: 1.8k~3.3kΩ · 1/2W and above

Screw Specifications for Option Card Terminals

EMC-D42A / EMC-D611A EMC-BPS01	Wire gauge	24~12AWG (0.205~3.31mm ²)
	Torque	4Kg-cm [3.47lb-in]
EMC-R6AA	Wire gauge	24~16AWG (0.205~1.31mm ²)
	Torque	6Kg-cm [5.21lb-in]
EMC-PG01L / EMC-PG010 EMC-PG01R / EMC-PG01U	Wire gauge	30~16AWG (0.0509~1.31mm ²)
	Torque	2Kg-cm [1.74lb-in]



Option Cards

EMC-D42A



I/O Extension Card

Terminals	Descriptions
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 10iA
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

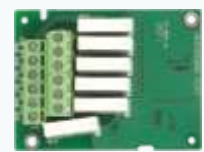
EMC-D611A



I/O Extension Card

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



Relay Extension Card

Terminals	Descriptions
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



External Power Supply Card

Terminals	Descriptions
24V GND	Input power: 24V±5% Maximum input current:0.5A Note: (1) Do not connect the control terminal +24V (Digital control signal common: SOURCE) directly to the EMC-BPS01 input terminal 24V. (2) Do not connect control terminal GND directly to the EMC-BPS01 input terminal GND.

CMC-MOD01



Features

- MDI/MDI-X auto-detect
- Virtual serial port.
- Supports MODBUS TCP protocol
- AC motor drive keypad/Ethernet configuration
- E-mail alarm
- Baud rate: 10/100Mbps auto-detect

Network Interface

Interface	RJ-45 with Auto MDI/MDIX	Transmission speed	10/100 Mbps Auto-Detect
Number of ports	1 Port	Network protocol	ICMP, IP, TCP, UDP, DHCP, SMTP, MODBUS OVER TCP/IP, Delta Configuration
Transmission method	IEEE 802.3, IEEE 802.3u		
Transmission cable	Category 5e shielding 100M		

CMC-EIP01



Features

- MDI/MDI-X auto-detect
- Supports MODBUS TCP and Ethernet/IP protocol
- Baud rate: 10/100Mbps auto-detect
- AC motor drive keypad/Ethernet configuration
- Virtual serial port

Network Interface

Interface	RJ-45 with Auto MDI/MDIX	Transmission speed	10/100 Mbps Auto-Detect
Number of ports	1 Port	Network protocol	ICMP, IP, TCP, UDP, DHCP, SMTP, MODBUS OVER TCP/IP, Delta Configuration
Transmission method	IEEE 802.3, IEEE 802.3u		
Transmission cable	Category 5e shielding 100M		

CMC-PD01



Features

- 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)

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

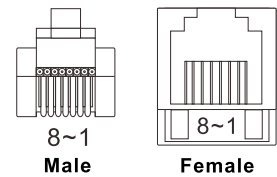
Interface	50 PIN communication terminal
Transmission method	SPI communication
Terminal function	1. Communicating with AC motor drive 2. Transmitting power supply from AC motor drive
Communication protocol	Delta HSSP protocol

Option Cards

EMC-COP01

Built-in EMC-COP01 card are available for VFDXXC23E and VFDXXC43E.

RJ-45 Pin definition



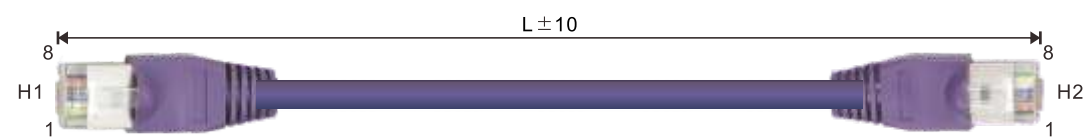
Pin	Pin name	Definition
1	CAN_H	CAN_H bus line (dominant high)
2	CAN_L	CAN_L bus line (dominant low)
3	CAN_GND	Ground/0V/V-
6	CAN_GND	Ground/0V/V-

Specification

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

Ordering information

■ Nameplate

AC Drive Model	MODEL:VFD007C43A
Input Voltage/Current	INPUT: Normal Duty: 3PH 380-480V 50/60Hz 4.3A Heavy Duty: 3PH 380-480V 50/60Hz 4.1A
Output Voltage/Current	OUTPUT: Normal Duty: 3PH 0-480V 3A 2.4kVA 1HP Heavy Duty: 3PH 0-480V 2.9A 2.3kVA 1HP
Frequency Range	FREQUENCY RANGE: Normal Duty: 0-600Hz Heavy Duty: 0-300Hz
Firmware Version	Version: VX.XX
Certifications	
Enclosure rating (IPXX)	
Serial Number	007C43A7T9300002 DELTA ELECTRONICS, INC. MADE IN XXXXXXX

■ Model name

VFD	007	C	43	A
				Version type
				Input voltage 23:230V 3-Phase 43:460V 3-Phase
				C2000 series
				Applicable motor power in kW 007: 1HP(0.75kW)~3550:475HP(355kW) Refer to the specifications for details
				Series name(Variable Frequency Drive)

Ordering information

Frame A 	230V : ND : 0.75~3.7kW HD : 0.4~2.2kW 460V : ND : 0.75~5.5kW HD : 0.4~4.0kW	VFD007C23A VFD037C23A VFD007C43A/E VFD015C43A/E VFD037C43A/E VFD040C43A/E VFD055C43A/E	VFD015C23A/E VFD022C23A/E VFD022C43A/E
Frame B 	230V : ND : 5.5~11kW HD : 3.7~7.5kW 460V : ND : 7.5~15 kW HD : 5.5~11kW	VFD055C23A VFD075C23A VFD110C23A/E VFD075C43A/E VFD110C43A/E VFD150C43A/E	
Frame C 	230V : ND : 15~22 kW HD : 11~18.5 kW 460V : ND : 18.5~30 kW HD : 15~22 kW	VFD150C23A VFD185C23A VFD220C23A VFD185C43A/E VFD220C43A/E VFD300C43A/E	
Frame D 	230V : ND : 30~37 kW HD : 20~30 kW 460V : ND : 37~75 kW HD : 30~45 kW	VFD300C23A VFD370C23A VFD370C43A VFD450C43A VFD550C43A VFD300C23E	VFD370C23E VFD370C43E VFD450C43E VFD550C43E
Frame E 	230V : ND : 45~75 kW HD : 37~55 kW 460V : ND : 90~110 kW HD : 55~90 kW	VFD450C23A/E VFD550C23A/E VFD750C43A/E VFD900C43A/E VFD1100C43A/E VFD750C23A/E	
Frame F 	230V : ND : 90 kW HD : 75kW 460V : ND : 132~160 kW HD : 110~132 kW	VFD900C23A/E VFD1320C43A/E VFD1600C43A/E	
Frame G 	460V : ND : 185~220 kW HD : 160~185 kW	VFD1850C43A/E VFD2200C43A/E	
Frame H 	460V : ND : 280~355 kW HD : 220~315 kW	VFD2800C43A/E VFD3150C43A/E VFD3550C43A/E	

NOTE: Model VFD007C43E~VFD300C43E will be available for ordering soon.



