

IABU Headquarters

Delta Electronics, Inc.
Taoyuan
31-1, Xingbang Road, Guishan Industrial Zone,
Taoyuan County 33370, Taiwan, R.O.C.
TEL: 886-3-362-6301 / FAX: 886-3-362-7267

Asia

Delta Electronics (Jiang Su) Ltd.
Wujiang Plant3
1688 Jiangxing East Road,
Wujiang Economy Development Zone,
Wujiang City, Jiang Su Province,
People's Republic of China (Post code: 215200)
TEL: 86-512-6340-3008 / FAX: 86-512-6340-7290

Delta Greentech (China) Co., Ltd.
238 Min-Xia Road, Cao-Lu Industry Zone, Pudong, Shanghai,
People's Republic of China
Post code: 201209
TEL: 021-58635678 / FAX: 021-58630003

Delta Electronics (Japan), Inc.
Tokyo Office
Delta Shibadaimon Building, 2-1-14
Shibadaimon, Minato-Ku, Tokyo, 105-0012,
Japan
TEL: 81-3-5733-1111 / FAX: 81-3-5733-1211

Delta Electronics (Korea), Inc.
234-9, Duck Soo Building 7F, Nonhyun-Dong,
Kangnam-Gu, Seoul, Korea 135-010
TEL: 82-2-515-5305 / FAX: 82-2-515-5302

Delta Electronics (Singapore) Pte. Ltd.
8 Kaki Bukit Road 2, #04-18 Ruby Warehouse Complex,
Singapore 417841
TEL: 65-6747-5155 / FAX: 65-6744-9228

Delta Electronics (India) Pvt. Ltd.
Plot No. 43, Sector - 35, HSIIDC,
Gurgaon 122001, Haryana, India
TEL: 91-124-416-9040 / FAX: 91-124-403-6045

America

Delta Products Corporation (USA)
Raleigh Office
P.O. Box 12173, 5101 Davis Drive,
Research Triangle Park, NC 27709, U.S.A.
TEL: 1-919-767-3813 / FAX: 1-919-767-3969

Delta Products Corporation (Brazil)
Sao Paulo Office
Rua Itapeva, Nº 26, 3º andar, Bela vista
ZIP: 01332-000 - São Paulo - SP - Brasil
TEL: 55-11-3568-3875 / FAX: 55-11-3568-3865

Europe

Deltronics (The Netherlands) B.V.
Eindhoven Office
De Wilfbogt 15, 5652 AG Eindhoven, The Netherlands
TEL: 31-40-2592850 / FAX: 31-40-2592851

VFD C2000

Classical Field Oriented Control AC Motor Drive



reddot design award
winner 2010

C2000

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 in AC motor drive VFD-C2000 series. This series offers four competitive values "high efficiency, high performance, lost cost of maintenance and long product life" to customers to enhance their competitive advantage while spending less cost.

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 motor and synchronous motor

Versatile Driving Controls

1. Built-in safe stop function
2. Built-in PLC function
3. Built-in brake unit
4. Support various network protocols
5. Synchronous position 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-plugging digital 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-plugging LCM keypad, removable terminals and removable fan.

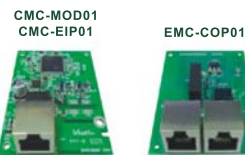
PG (Encoder) cards



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.

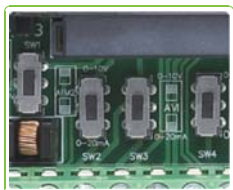
Removable terminals

Convenient wiring and safety equipment.

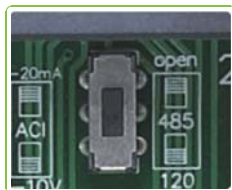


*NOTE: * are optional accessories.

Analog I/O switch



Termination resistor



Dual RJ45 communication ports



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

- Easy to remove with one touch
- Uses standard RJ45 cable for long-distance operation

Optional accessory

RFI filter disconnection

- Press the tabs on both sides of the front cover after the screws are removed.

- With its modular design, the fan is easy to clean and replace for longer fan life.

- Product label includes I/O current, voltage and enclosure rating

Environmental Adaptability Design

- The built-in DC reactor and RFI filter controls harmonics and noise interference effectively.

- Strong coating to ensure safe operation in harsh environments

- Heatsink and electronics components are completely isolated from each other. With the following two heatsink designs, the best cooling according to requirements is achieved:

- Flange mounting: Heat from the drive can be dissipated out of the cabinet
- Forced fan cooling: Blow cool air into aluminum heatsink.



High-speed Network Building

- Provides various communication network cards and fieldbus cards
- Built-in RS-485 modbus protocol
- Advanced network functions

CANopen (DS402)

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

PROFI BUS

- TAP-CN03 distribution box for long distances
- RJ45 cable

DeviceNet

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

EtherNet/IP

MODBUS TCP

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

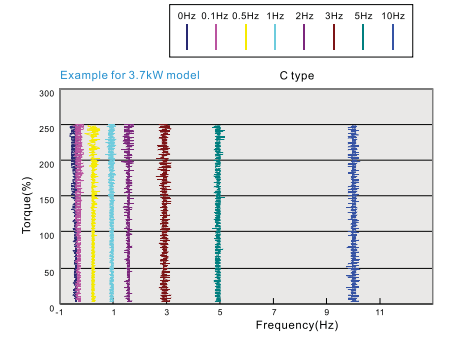
VFD-C2000 series is built according to category safe stop standard: EN954-1, EN60204-1 and IEC6158 to prevent personal injury at accidental start-up.

Emergency stop switch

Safety module

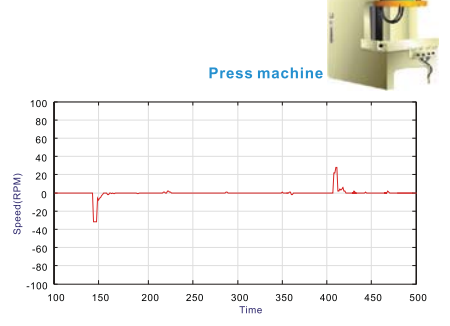
High-performance Field Oriented Control

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



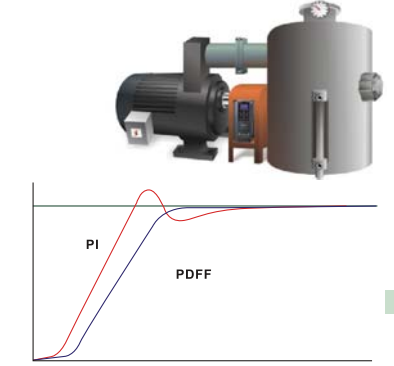
High-performance Field Oriented Control

A best choice for precise position and speed control, applicable to e.g. control printing machine.



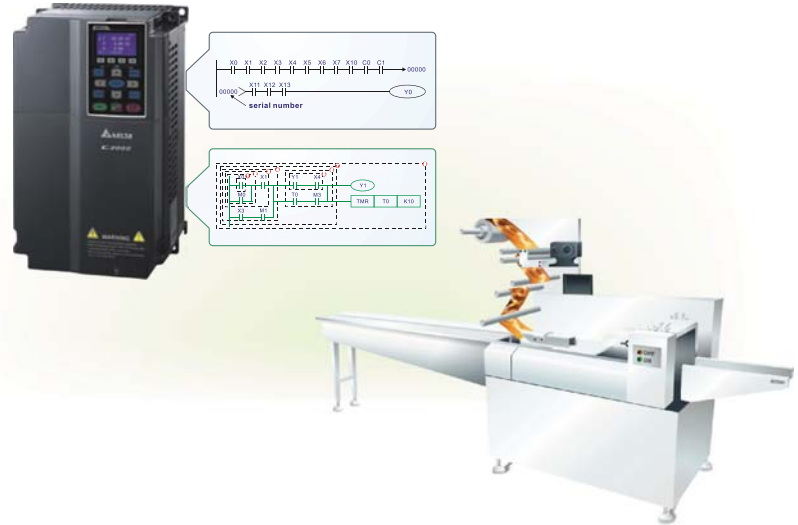
Innovative PID Technology

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 in the bad environment, such as dust, direct sunlight, corrosive/ inflammable gasses, humidity, liquid and vibration environment. The salt in the air must be less than 0.01mg/cm² every 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 condense water		
	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 concentrate			
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	
Vibration	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		
Impact	IEC/EN 60068-2-27		
Operation Position	Max. allowed offset angle ± 10° (under normal installation 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 A~C 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
VFDxxxCxxA	Frame D~H 230V: >22kW 460V: >30kW	N/A	No conduit box	IP00 IP20/UL Open Type	-10°C ~50°C
				 Only the circled area is IP00, others are IP20.	
VFDxxxCxxE	Frame D~H 230V: >22kW 460V: >30kW	N/A	Standard conduit box	IP20/UL Open Type	-10°C ~50°C
				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
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
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															
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	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															
Cooling Method	Natural cooling	Fan cooling															
Braking Chopper		Built-in						Option									
DC Reactor		Option						Built-in									
EMI Filter		Option															

460V		A				B			C				
Frame Size	Model VFD-__C__	007	015	022	037	040	055	075	110	150	185	220	300
Applicable Motor Output (kW)		0.75	1.5	2.2	3.7	4.0	5.5	7.5	11	15	18.5	22	30
Applicable Motor Output (hp)		1	2	3	5	5	7.5	10	15	20	25	30	40
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											
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	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											
Cooling Method	Natural cooling	Fan cooling											
Braking Chopper		Built-in											
DC Reactor		Option											
EMI Filter		VFDXXXC43A: without EMI filter VFDXXXC43E: built-in EMI filter											

NOTE:
 * Frame F~H is under development.
 - For FRAME A, B and C, Model VFDXXXC43A 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.

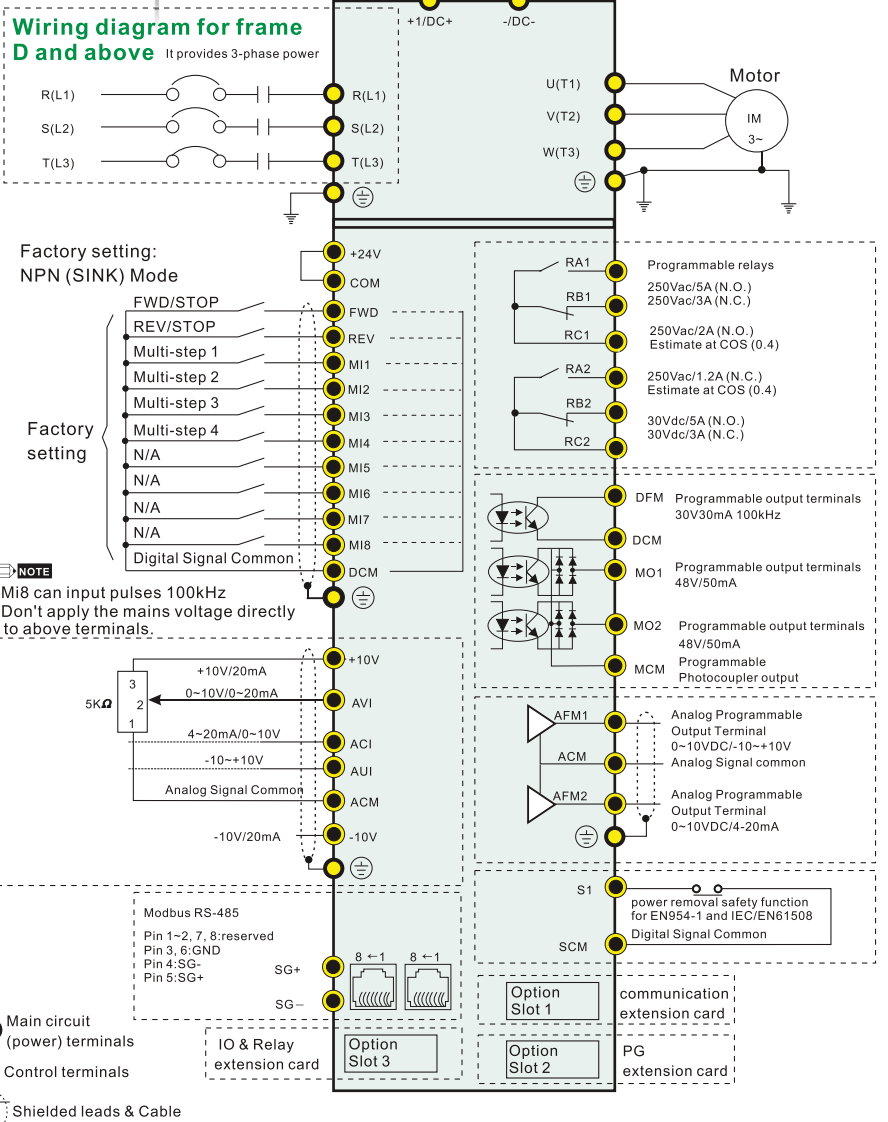
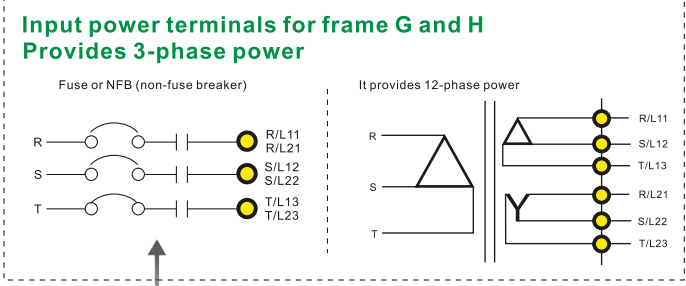
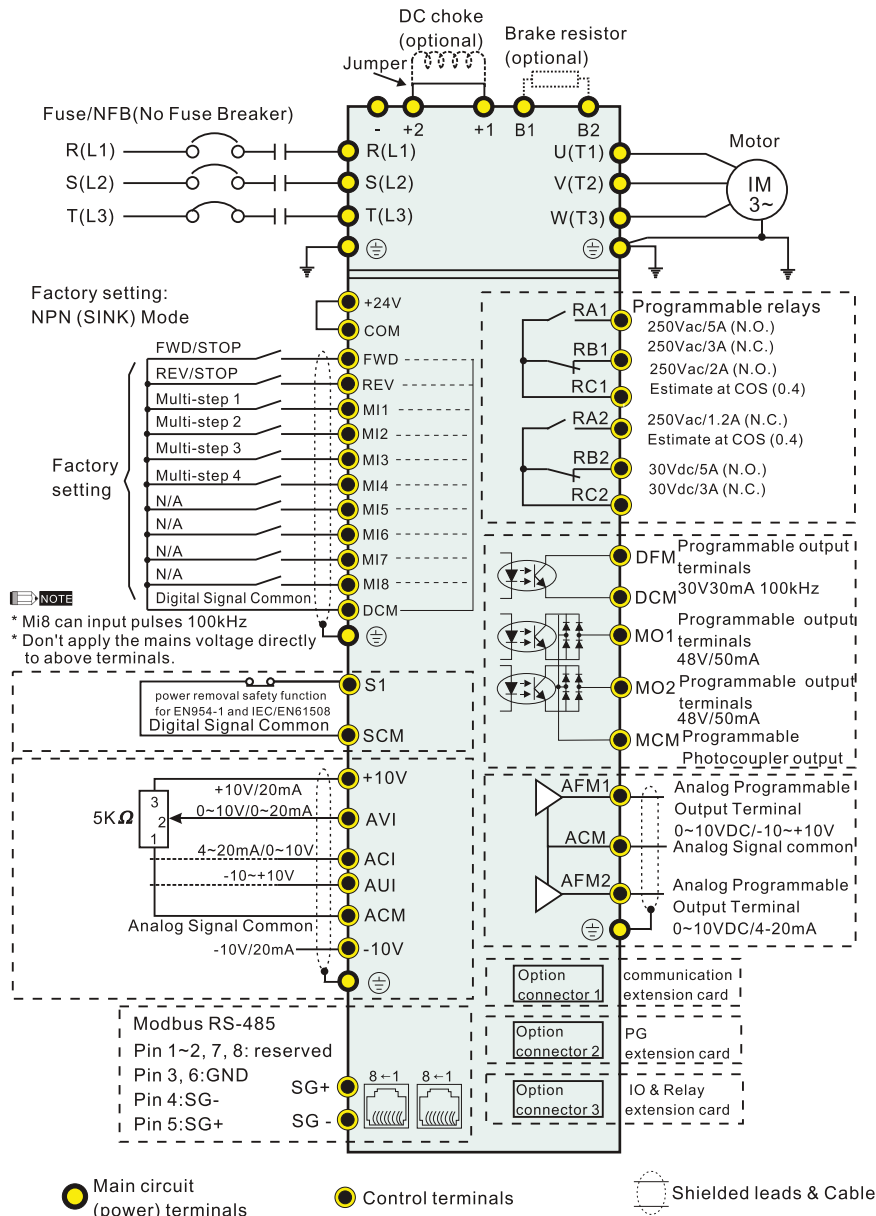
460V		D				E		*F		*G		*H		
Frame Size	Model VFD-__C__	370	450	550	750	900	1100	1320	1600	1850	2200	2800	3150	3550
Applicable Motor Output (kW)		37	45	55	75	90	110	132	160	185	220	280	315	355
Applicable Motor Output (hp)		50	60	75	100	125	150	175	215	250	300	375	425	475
Output Rating	HEAVY DUTY													
	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												
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	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												
Cooling Method		Fan cooling												
Braking Chopper		Option												
DC Reactor		Built-in												
EMI Filter		VFDXXXC43A: without EMI filter VFDXXXC43E: built-in EMI filter												

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: 0.01~600.00Hz; 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: VFD150C23A(include) and series above: PMW control; VFD150C23A 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

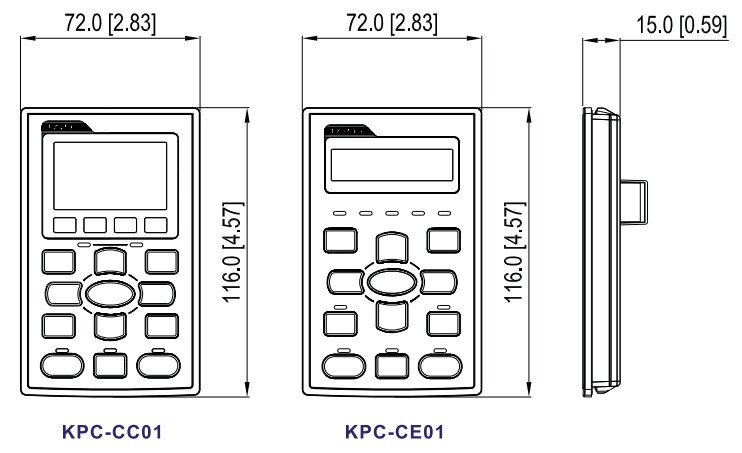
Wiring

Frame A~C
Offers 3-phase power supply

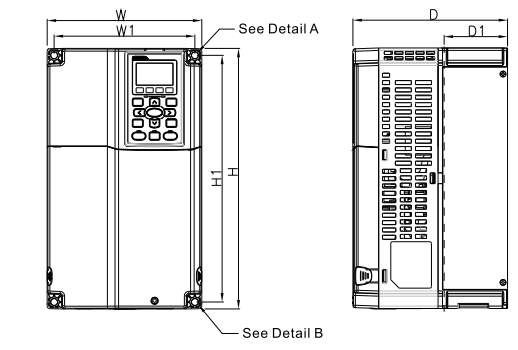


Dimensions

Digital Keypad

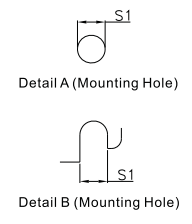
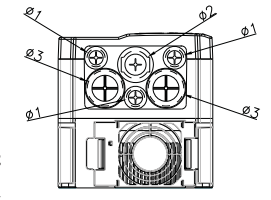


Frame B



MODEL

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

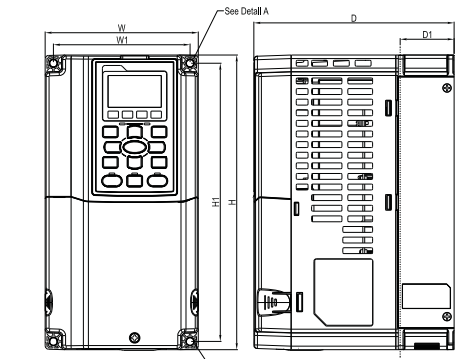


Unit : mm[inch]

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

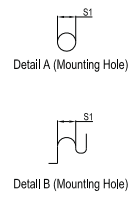
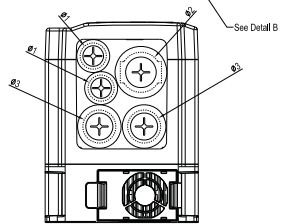
NOTE: Model VFD075C43E, VFD110C43E, VFD150C43E will be available for ordering soon. Please contact your local distributor or Delta representative for detailed launch schedule.

Frame A



MODEL

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

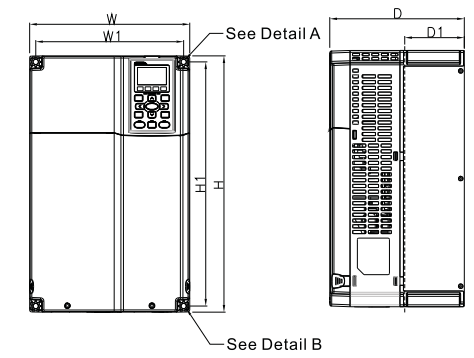


Unit : mm[inch]

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

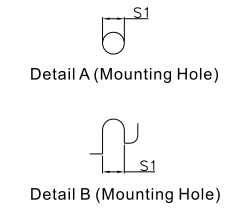
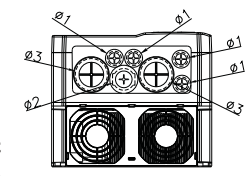
NOTE: Model VFD007C43E, VFD015C43E, VFD022C43E, VFD037C43E, VFD040C43E, VFD055C43E will be available for ordering soon. Please contact your local distributor or Delta representative for detailed launch schedule.

Frame C



MODEL

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



Unit : mm[inch]

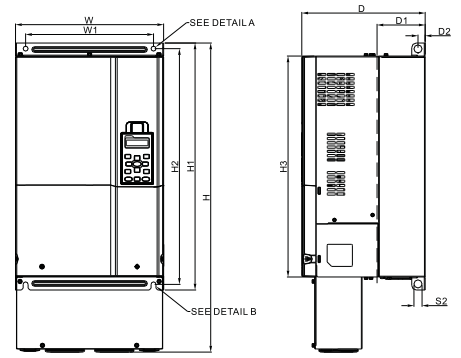
Frame	W	H	D	W1	H1	D1*	S1	Ø1	Ø2	Ø3	
C1	mm	250.0	400.0	210.0	231.0	381.0	92.9	8.5	22.2	34.0	50.0
	inch	9.84	15.75	8.27	9.09	15.00	3.66	0.33	0.87	1.34	1.97

NOTE: Model VFD185C43E, VFD220C43E, VFD300C43E will be available for ordering soon. Please contact your local distributor or Delta representative for detailed launch schedule.

D1* : Flange mounting

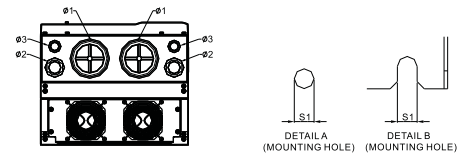
■ Dimensions

■ Frame D



MODEL

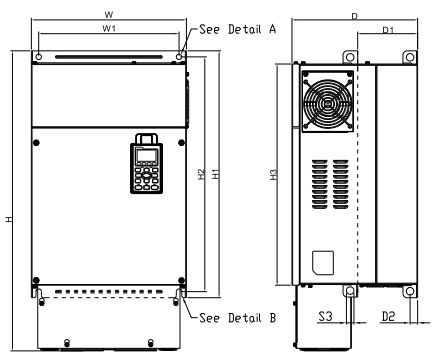
- | | |
|-----------------|-----------------|
| FRAME D1 | FRAME D2 |
| VFD300C23A | VFD300C23E |
| VFD370C23A | VFD370C23E |
| VFD370C43A | VFD370C43E |
| VFD450C43A | VFD450C43E |
| VFD550C43A | VFD550C43E |
| VFD750C43A | VFD750C43E |



Unit : mm[inch]

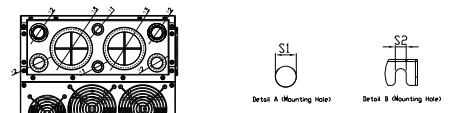
Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	Ø1	Ø2	Ø3
D1	330.0 [12.99]	-	275.0 [10.83]	285.0 [11.22]	550.0 [21.65]	525.0 [20.67]	492.0 [19.37]	107.2 [4.22]	16.0 [0.63]	11.0 [0.43]	18.0 [0.71]	-	-	-
D2	330.0 [12.99]	688.3 [27.10]	275.0 [10.83]	285.0 [11.22]	550.0 [21.65]	525.0 [20.67]	492.0 [19.37]	107.2 [4.22]	16.0 [0.63]	11.0 [0.43]	18.0 [0.71]	76.2 [3.00]	34.0 [1.34]	22.0 [0.87]

■ Frame E



MODEL

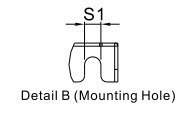
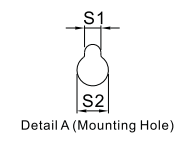
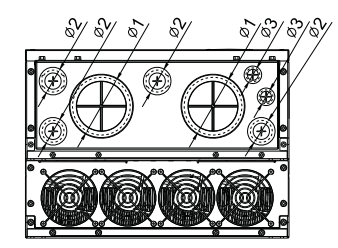
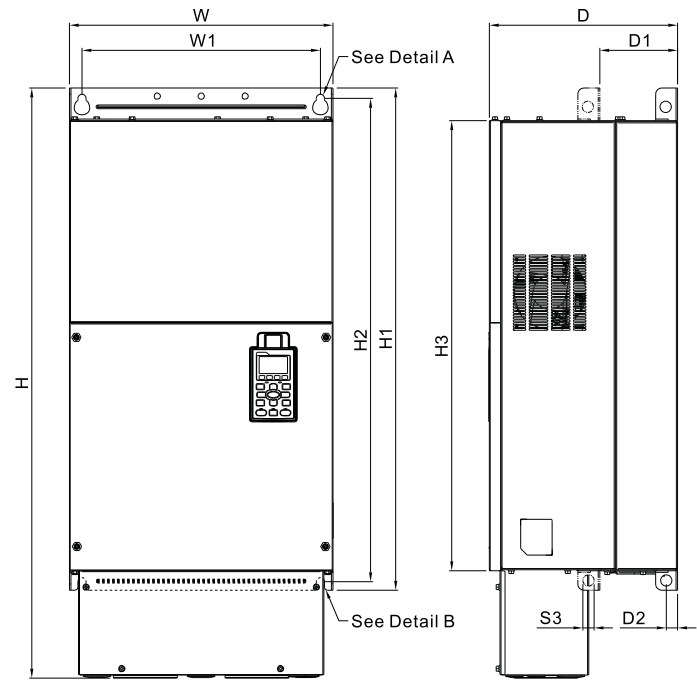
- | | |
|-----------------|-----------------|
| FRAME E1 | FRAME E2 |
| VFD450C23A | VFD450C23E |
| VFD550C23A | VFD550C23E |
| VFD750C23A | VFD750C23E |
| VFD900C43A | VFD900C43E |
| VFD1100C43A | VFD1100C43E |



Unit : mm[inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1,S2	S3	Ø1	Ø2	Ø3
E1	370.0 [14.57]	-	300.0 [11.81]	335.0 [13.19]	589 [23.19]	560.0 [22.05]	528.0 [20.80]	143.0 [5.63]	18.0 [0.71]	13.0 [0.51]	18.0 [0.71]	-	-	-
E2	370.0 [14.57]	715.8 [28.18]	300.0 [11.81]	335.0 [13.19]	589 [23.19]	560.0 [22.05]	528.0 [20.80]	143.0 [5.63]	18.0 [0.71]	13.0 [0.51]	18.0 [0.71]	22.0 [0.87]	34.0 [1.34]	92.0 [3.62]

■ Frame F



MODEL

- | | |
|-----------------|-----------------|
| FRAME F1 | FRAME F2 |
| VFD900C23A | VFD900C23E |
| VFD1320C23A | VFD1320C43E |
| VFD1600C23A | VFD1600C43E |

Frame	W	H	D	W1
F1	420.0 [16.54]	-	300.0 [11.81]	380.0 [14.96]
F2	420.0 [16.54]	940.0 [37.00]	300.0 [11.81]	380.0 [14.96]

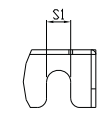
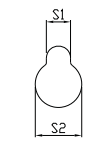
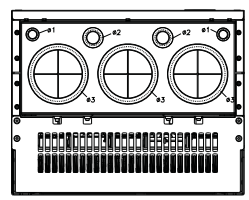
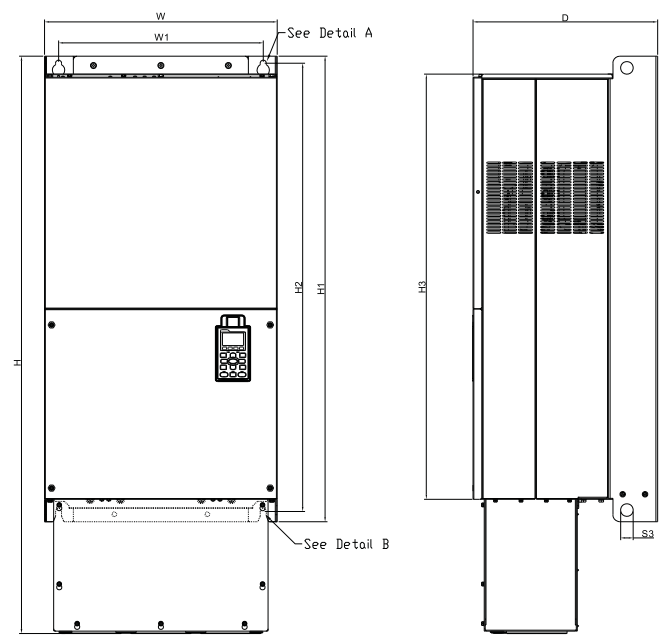
Unit : mm[inch]

Frame	H1	H2	H3	D1*	D2	S1	S2	S3	Ø1	Ø2	Ø3
F1	800.0 [31.50]	770.0 [30.32]	717.0 [28.23]	124.0 [4.88]	18.0 [0.71]	13.0 [0.51]	25.0 [0.98]	18.0 [0.71]	92.0 [3.62]	35.0 [1.38]	22.0 [0.87]
F2	800.0 [31.50]	770.0 [30.32]	717.0 [28.23]	124.0 [4.88]	18.0 [0.71]	13.0 [0.51]	25.0 [0.98]	18.0 [0.71]	92.0 [3.62]	35.0 [1.38]	22.0 [0.87]

D1* : Flange mounting

■ Dimensions

■ Frame G



Detail A (Mounting Hole)

Detail B (Mounting Hole)

MODEL

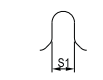
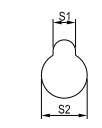
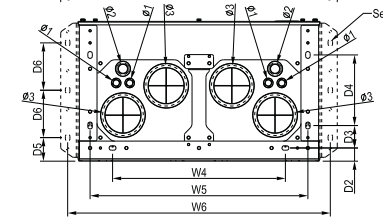
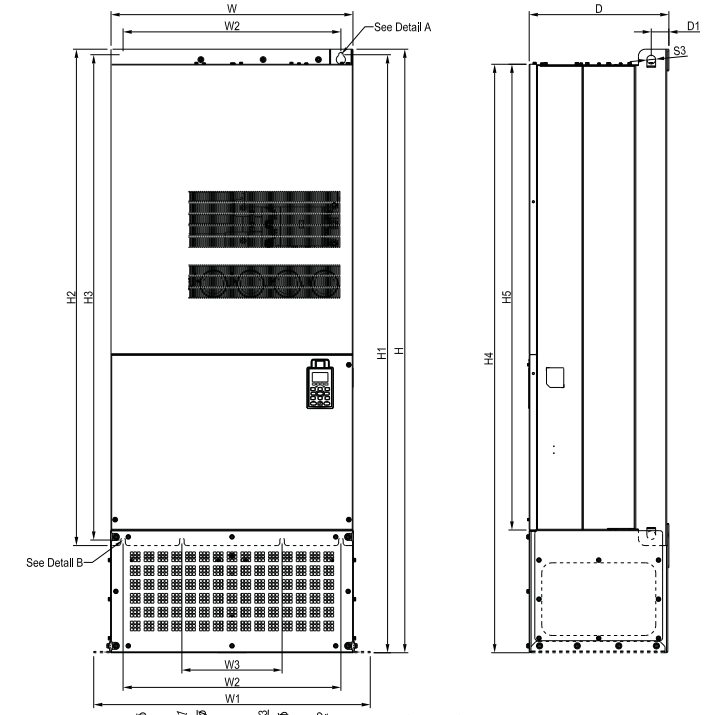
FRAME_G1	FRAME_G2
VFD1850C43A	VFD1850C43E
VFD2200C43A	VFD2200C43E

Frame	W	H	D
G1	500.0 [19.69]	-	397.0 [15.63]
G2	500.0 [19.69]	1240.2 [48.83]	397.0 [15.63]

Unit : mm[inch]

Frame	W1	H1	H2	H3	S1	S2	S3	Ø1	Ø2	Ø3
G1	440.0 [217.32]	1000.0 [39.37]	963.0 [37.91]	913.6 [35.97]	13.0 [0.51]	26.5 [1.04]	27.0 [1.06]	-	-	-
G2	440.0 [217.32]	1000.0 [39.37]	963.0 [37.91]	913.6 [35.97]	13.0 [0.51]	26.5 [1.04]	27.0 [1.06]	22.0 [0.87]	34.0 [1.34]	117.5 [4.63]

■ Frame H



Detail A (Mounting Hole)

Detail B (Mounting Hole)

Detail C (Mounting Hole)

MODEL

FRAME_H1	FRAME_H2	FRAME_H3
VFD2800C43A	VFD2800C43E-1	VFD2800C43E
VFD3150C43A	VFD3150C43E-1	VFD3150C43E
VFD3550C43A	VFD3550C43E-1	VFD3550C43E

Unit : mm[inch]

Frame	W	H	D	W1	W2	W3	W4	W5	W6	H1	H2	H3	H4
H1	700.0 [27.56]	-	398.0 [15.67]	-	630.0 [24.80]	290.0 [11.42]	-	-	-	-	1435.0 [56.50]	1403.0 [55.24]	-
H2	700.0 [27.56]	1745.0 [68.70]	404.0 [15.91]	800.0 [31.50]	-	-	500.0 [19.69]	630.0 [24.80]	760.0 [29.92]	1729.0 [68.07]	-	-	1701.6 [66.99]
H3	700.0 [27.56]	1745.0 [68.70]	404.0 [15.91]	800.0 [31.50]	-	-	500.0 [19.69]	630.0 [24.80]	760.0 [29.92]	1729.0 [68.07]	-	-	1701.6 [66.99]

Frame	H5	D1	D2	D3	D4	D5	D6	S1	S2	S3	Ø1	Ø2	Ø3
H1	1346.6 [53.02]	45.0 [1.77]	-	-	-	-	-	13.0 [0.51]	26.5 [1.04]	25.0 [0.98]	-	-	-
H2	1346.6 [53.02]	51.0 [2.01]	38.0 [1.50]	65.0 [2.56]	204.0 [8.03]	68.0 [2.68]	137.0 [5.39]	13.0 [0.51]	26.5 [1.04]	25.0 [0.98]	-	-	-
H3	1346.6 [53.02]	51.0 [2.01]	38.0 [1.50]	65.0 [2.56]	204.0 [8.03]	68.0 [2.68]	137.0 [5.39]	13.0 [0.51]	26.5 [1.04]	25.0 [0.98]	22.0 [0.87]	34.0 [1.34]	117.5 [4.63]

Option Cards

EMC-D42A

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 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

I/O
Extension Card

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

I/O
Extension Card

EMC-R6AA

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.

Relay
Extension Card

EMC-PG01L

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
	A1, /A1 B1, /B1 Z1, /Z1	Encoder Input signal It can be 1-phase or 2-phase input. Max. output frequency: 300kP/sec
PG2	A2, /A2 B2, /B2	Pulse Input signal It can be 1-phase or 2-phase input. Max. output frequency: 300kP/sec.
PG OUT	AO, /AO BO, /BO ZO, /ZO	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

Set by
Pr.10-00~10-02

EMC-PG01O

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
	A1, /A1 B1, /B1 Z1, /Z1	Encoder Input signal It can be 1-phase or 2-phase input. Max. output frequency: 300kP/sec
PG2	A2, /A2 B2, /B2	Pulse Input Signal 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
	A/O, B/O, /O	PG Card Output signals. It has division frequency function: 1~255 times Input signal of open collector. Please add a pull-high resistor on the external power V+~V-(e.g. power of PLC) to prevent the interference of the receiving signal. Max. Output current: 20mA. Max output frequency: 300KP/Sec

Set by
Pr.10-00~10-02

EMC-PG01R

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 It can be 1-phase or 2-phase input. Max. output frequency: 300kP/sec.
PG OUT	AO, /AO, BO /BO, ZO, /ZO	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

Set by
Pr.10-00~10-02

Screw Specifications for Option card Terminals:

EMC-D42A	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-PG01O EMC-PG01R EMC-PG01U	Wire gauge Torque	30~16AWG (0.0509~1.31mm ²) 2Kg-cm [1.74lb-in]

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 FS3 to switch +5V/+12V) Max. output current: 200mA
	DCM	Common for power and signal
	A1, /A1, B1, /B1, Z1, /Z1	Encoder input signal 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 1-phase or 2-phase input. Max. output frequency: 300kP/sec.
PG OUT	AO, /AO, BO, /BO, ZO, /ZO	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

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
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

- 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
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

- 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

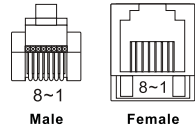
AC Motor Drive Connection Port

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

RJ-45 Pin definition



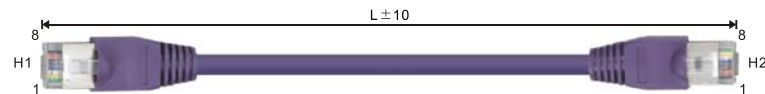
Pin	Pin name	Definition
1	CAN_H	CAN_H bus line (dominant high)
2	CAN_L	CAN_L bus line (dominant low)
3	CAN_GND	Ground/0V/V-
7	CAN_GND	Ground/0V/V-

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

CANopen Dimensions

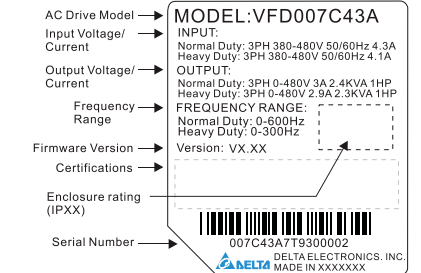
Model: TAP-CN03



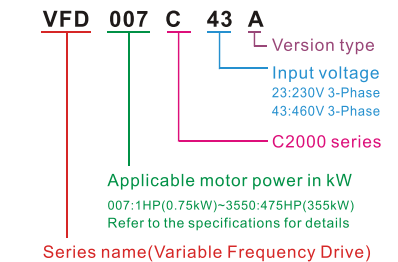
Ordering information

Frame	230V:	VFD Model
Frame A	0.75~3.7kW (1~5HP)	VFD007C23A VFD007C43A/E VFD015C43A/E VFD037C43A/E VFD040C43A/E VFD055C43A/E
Frame B	5.5~11kW (7.5~15HP)	VFD055C23A VFD075C23A VFD110C23A/E VFD075C43A/E VFD110C43A/E VFD150C43A/E
Frame C	15~22 kW (20~30HP)	VFD150C23A VFD185C23A VFD220C23A VFD185C43A/E VFD220C43A/E VFD300C43A/E
Frame D	30~37 kW (40~50HP)	VFD300C23A VFD370C23A VFD370C43A VFD450C43A VFD550C43A VFD750C43A VFD300C23E VFD370C23E VFD370C43E VFD450C43E VFD550C43E VFD750C43E
Frame E	45~55 kW (60~75HP)	VFD450C23A/E VFD550C23A/E VFD900C43A/E VFD1100C43A/E VFD750C23A/E
Frame F	75~90 kW (100~125HP)	VFD900C23A/E VFD1320C43A/E VFD1600C43A/E
Frame G	132~160 kW (175~215HP)	VFD1850C43A/E VFD2200C43A/E
Frame H	280~355 kW (375~475HP)	VFD2800C43A/E VFD3150C43A/E VFD3550C43A/E

Nameplate



Model name



Optional Accessories

- ▶ Digital Keypad KPC-CE01
- ▶ Option Cards
- ▶ Fuse
- ▶ Non-fuse Circuit Breaker
- ▶ All Brake Resistors and Brake Units Used in AC Motor Drives
- ▶ AC Reactor
- ▶ Zero Phase Reactor
- ▶ DC Reactor
- ▶ EMI Filter
- ▶ Panel Mounting
- ▶ Conduit Box Kit
- ▶ Fan Kit
- ▶ Flange Mounting Kit

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

