Automation for a Changing World

Delta Economy Vector Control Drive C200 Series

www.deltaww.com

DELTA

Smarter. Greener. Together.

Features

- Interface supports multi-point inputs, analog inputs, CANopen and MODBUS RS-485 provides ultimate application flexibility
- Simple and fast installation, parameter setting and tuning
- Built-in 5K steps PLC function
- Wall mount installation capability for the C200 frame A model
- Robust PCB coating and thermal design suitable for harsh environment applications
  - Fan-cooling targeting the heatsink prevents dust and dirt from entering the drive
  - Instant response to sudden load impact and prevents inrush current from interrupting system operation
  - Built-in encoder feedback terminals (MI7&MI8, maximum speed 33KHz)
  - Built-in 2 terminals for multi-function frequency output (DFM1&DFM2, maximum speed 33KHz)

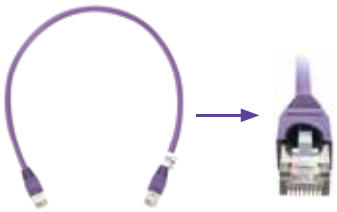
Built-in High-speed Fieldbus

- Built-in standard MODBUS RS-485 communication interfaces
- CANopen (DS402)
  - − Delta CANopen Builder software facilitates the planning process
  - − I/O data configuration for all products that support CANopen communication protocol.

Optional Accessories for CANopen

MKCB-HUB01

TAP-CB10



Fan Enlarged Model

- Blows fiber and dust out of the drive more effectively, suitable for textile applications
  *Suitable for model name 43B type.

Built-in PLC Functions

- Supports distributed control and independent operation via network.

Input Device:

Device	X0	X1	X2	X3	X4	X5	X6	X7	X10	X11	X12	X13	X14	X15	X16	X17
1	FWD	REV	M11	M12	M13	M14	M15	M16	M17	M18						

1: Control board I/O

Output Device:

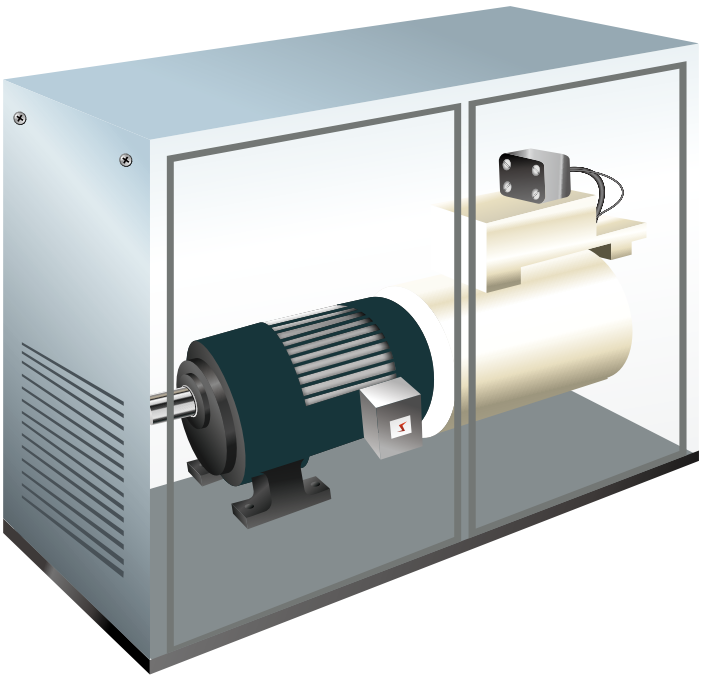
Device	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17
1	RY1	RY2		DFM1	DFM2											

1: Control board I/O

Permanent Magnet Synchronous Motor

- PM Sensorless* control function for open-loop speed control, suitable for compressors and vacuum pumps.

* PM Sensorless control function is available for the C200 series with firmware ver. 1.03 or above.



Field Applications

Easy to use with high safety standard and versatile control functions for applications that require speed.

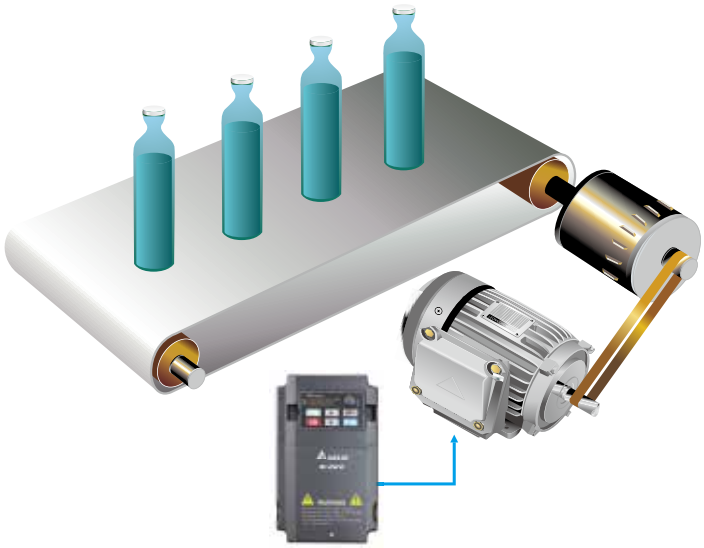
- Processing machines
- Packaging machines
- Textile machines
- Printing machines
- Material handling machines
- Treadmills
- Solar equipment

Conveyors

Conveyors are common in industrial automation for transporting products from one location to another. Delta's C200 series provides precise control for the conveyor system.

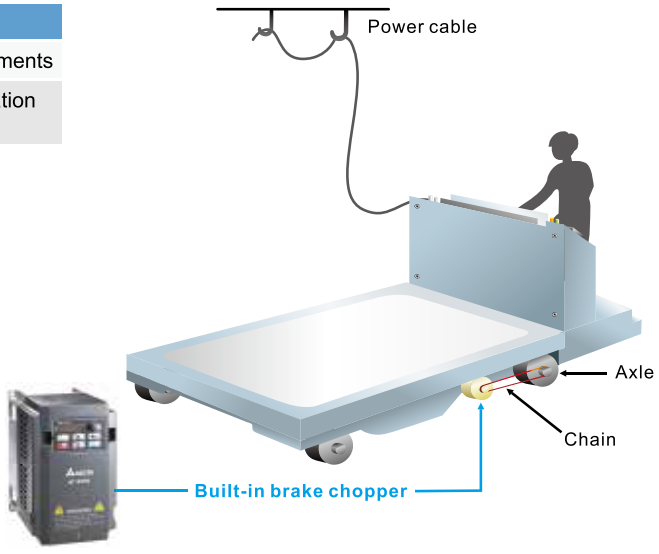
- Compact design saves installation space
- Flexible speed setting for all types of mechanical structure
- Soft start and soft stop functions prevent product damage during transportation

Benefits
Avoids spillage and slip-back
Adjusts speed to facilitate the product replacement process and improves operation efficiency



Trolley

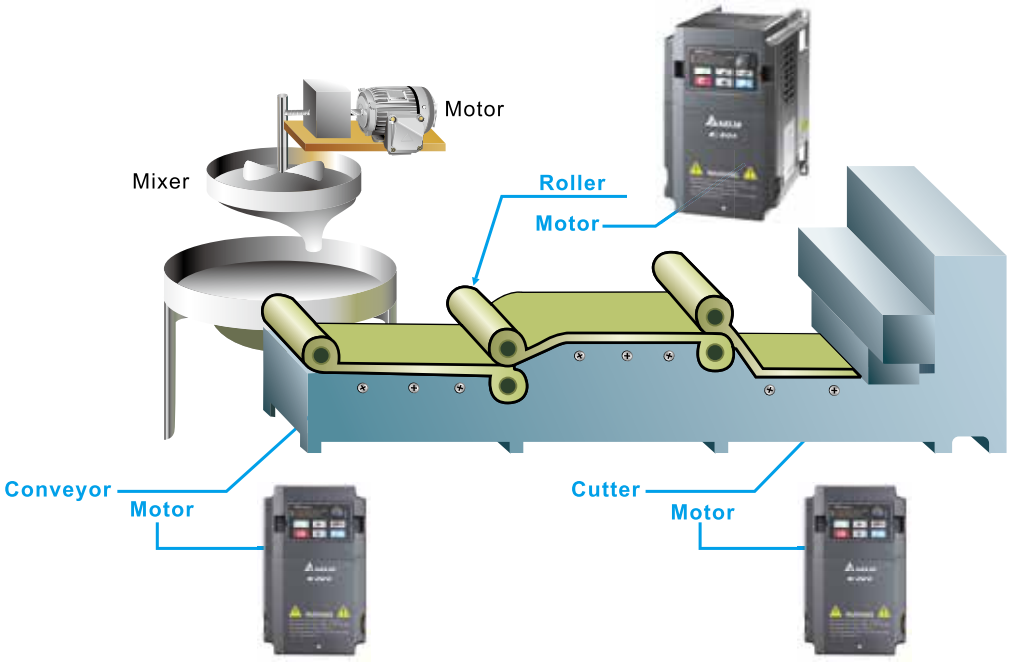
Benefits
Adjusts speed flexibly to meet different operation requirements
Reduces the speed impact on machinery during acceleration and deceleration



Food Processing Machinery

The food processing industry has a high demand for product safety and quality. Delta's C200 series provides high stability to the production line.

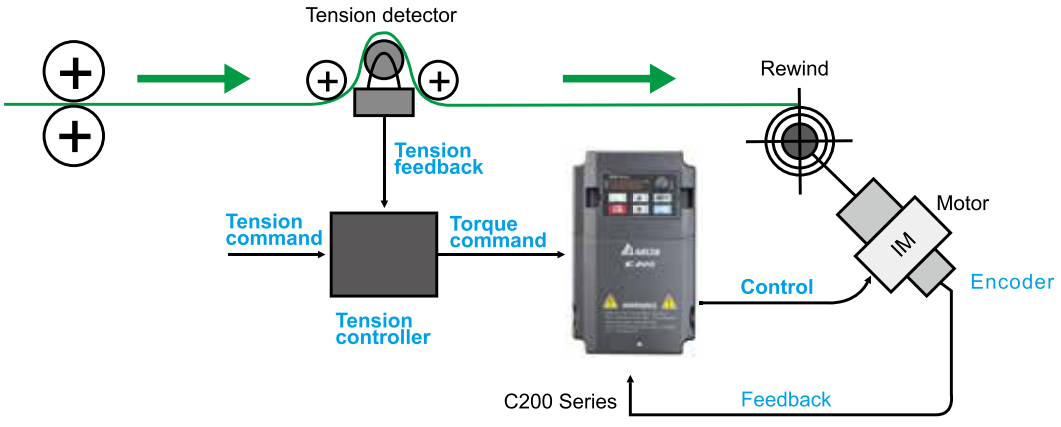
Benefits
Adjusts roller speed precisely
Adjusts noodle width flexi bly
Simple and easy to use



Winding Machinery

A winding machine requires winding and rewinding flexibility at a precise speed to prevent material breakage such as for paper, film, fabric, cable and others. Delta's C200 series accepts external torque commands to perform open loop/ closed loop torque control.

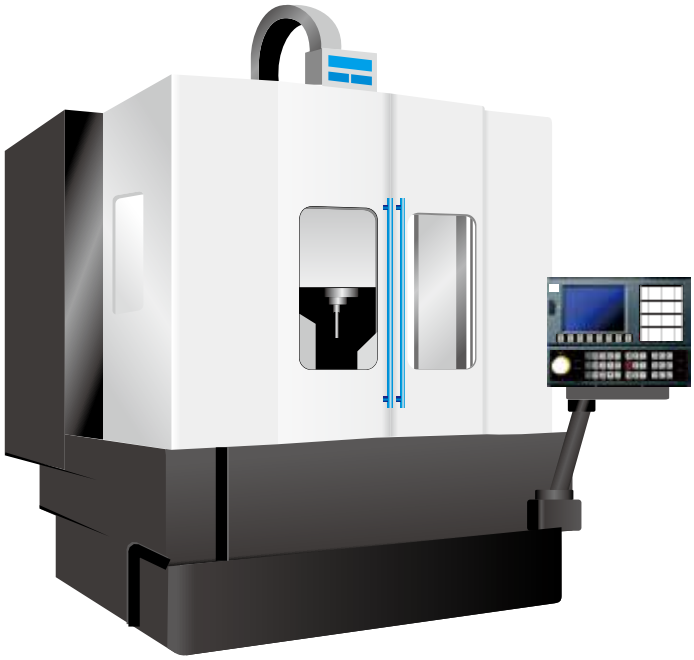
Features
Supports open loop torque control without the need of an encoder
Supports close loop torque control via the C200 series's built-in encoder feedback terminal (MI7 & MI8)
Supports various torque commands (from keypad or via analog command, RS-485 and CANopen)



Machine Tools

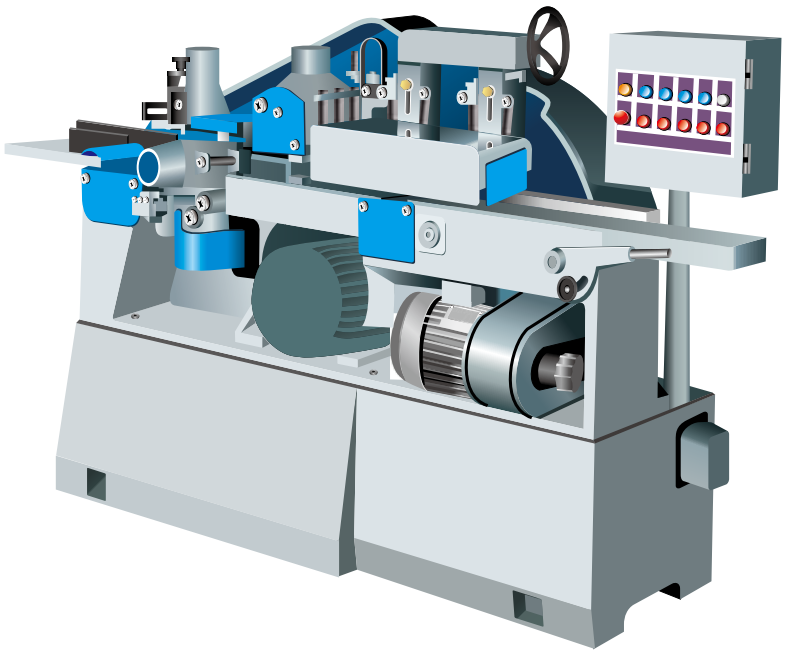
Delta's C200 series provides precise speed control, excellent low speed torque output and high durability to meet machine tool requirements.

Comparison
Before: Traditional machine tool uses hand wheel to control the spindle speed to process the workpiece
Now: Delta's C200 series controls spindle speed via simple parameter setting to provide advanced processing quality



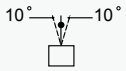
Woodworking Machinery

Benefits
Improves wood cutting efficiency
Adjusts cutting speed for different types of woods
Prevents gear damage via the soft-start function



Environment for Operation, Storage and Transportation

DO NOT expose the AC motor drive to harsh environments, such as dust, direct sunlight, corrosive/inflammable gasses, humidity, liquids or vibrations. 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℃ ~ +70℃
		Non-Dewfall, non-conductive	
	Rated Humidity	Operation	Max. 95%
		Storage/ Transportation	Max. 95%
		Non-Dewfall, non-conductive	
	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
		Non-Dewfall, non-conductive	
	Altitude	Operation	If AC motor drive is installed at altitude 0~1000m, follow normal operation restrictions. 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.
	Package Drop	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)	

Specifications for Operation Temperature and Protection Level

Model	Frame		Protection Level	Operation Temperature
VFDxxxCBxxA-20	Frame A0~A	230V: 0.4~3.7kW 460V: 0.75~7.5kW	IP20 / UL Open Type	-10~50℃
VFDxxxCBxxA-21	Frame A0~A	230V: 0.4~3.7kW 460V: 0.75~7.5kW	IP20 / NEMA1	-10~40℃
VFDxxxCBxxA-21M*2	Frame A0~A	230V: 0.4~3.7kW 460V: 0.75~7.5kW	IP20 / NEMA1	-10~40℃
VFDxxxCBxxB-20	Frame A0~A	460V: 2.2~7.5kW	IP20 / UL Open Type	-10~50℃

*2 The C200 series with model names ending with "-21M" have more rigid case covers. When ambient temperature is -10~35 ℃ , the rated current is 100%. When ambient temperature goes beyond 36℃ , the rated current decreases by 2% with every 1℃ increase in temperature. .

Product Specifications

230V

Frame Size			A0 (1-Phase)				A0 (3-Phase)				
Model VFD___CB2_A-___*1			004	007	015	022	004	007	015	022	037
Applicable Motor Output (kW)			0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2	3.7
Applicable Motor Output (hp)			0.5	1	2	3	0.5	1	2	3	5
Output Rating	Normal Duty	Rated Output Capacity (kVA)	1.2	2.0	3.2	4.4	1.2	2.0	3.2	4.4	6.8
		Rated Output Current (A)	3	5	8	11	3	5	8	11	17
		Overload Capacity	Rated output current: 120% for 1 minute; 160% for 3 seconds								
		Max. Output Frequency (Hz)	600.00Hz								
		Carrier Frequency (kHz)	2~15kHz (Factory setting: 8 kHz)								
	Heavy Duty	Rate Output Capacity (kVA)	1.1	1.9	2.8	4.0	1.1	1.9	2.8	4.0	6.4
		Rated Output Current (A)	2.8	4.8	7.1	10	2.8	4.8	7.1	10	16
		Overload Capacity	Rated output current: 150% for 1 minute; 180% for 3 seconds								
		Max. Output Frequency (Hz)	600.00Hz								
		Carrier Frequency (kHz)	2~15kHz (Factory setting: 2 kHz)								
Input Rating	Input Current (A) of Normal Duty		7.2	12	15.7	22	3.9	6.4	12	16	20
	Input Current (A) of Heavy Duty		6.7	11.5	14	20	3.6	6.1	11	15	18.5
	Rated Voltage/Frequency		1-phase/ 3-phase AC 200V~240V (-15% ~ +10%), A50/60Hz								
	Range of Operating Voltage		170~265Vac								
	Frequency Tolerance		47~63Hz								
Cooling method			Natural cooling		Fan cooling		Natural cooling		Fan cooling		
Braking Chopper			Built-in								

460V

Frame Size			A0				A		
Model VFD___CB43A-___*1			007	015	022	037	040	055	075
Applicable Motor Output (kW)			0.75	1.5	2.2	3.7	4.0	5.5	7.5
Applicable Motor Output (hp)			1	2	3	5	5.5	7.5	10
Output Rating	Normal Duty	Rated Output Capacity (kVA)	2.4	3.2	4.8	7.2	8.4	10	14
		Rated Output Current (A)	3.0	4.0	6.0	9.0	10.5	12	18
		Overload Capacity	Rated output current: 120% for 1 minute; 160% for 3 seconds						
		Max. Output Frequency (Hz)	600.00Hz						
		Carrier Frequency (kHz)	2~15kHz (Factory setting: 8 kHz)						
	Heavy Duty	Rate Output Capacity (kVA)	2.3	3.0	4.5	6.5	7.6	9.6	14
		Rated Output Current (A)	2.9	3.8	5.7	8.1	9.5	11	17
		Overload Capacity	Rated output current: 150% for 1 minute; 180% for 3 seconds						
		Max. Output Frequency (Hz)	600.00Hz						
		Carrier Frequency (kHz)	2~15kHz (Factory setting: 2 kHz)						
Input Rating	Input Current (A) of Normal Duty		4.3	5.9	8.7	14	15.5	17	20
	Input Current (A) of Heavy Duty		4.1	5.6	8.3	13	14.5	16	19
	Rated Voltage/Frequency		3-Phase AC 380V~480V (-15% ~ +10%), A50/60Hz						
	Range of Operating Voltage		323~528Vac						
	Frequency Tolerance		47~63Hz						
Cooling Method			Natural cooling		Fan cooling				
Braking Chopper			Built-in						

*1: _ _ _ refers to models -20/-21/-21M

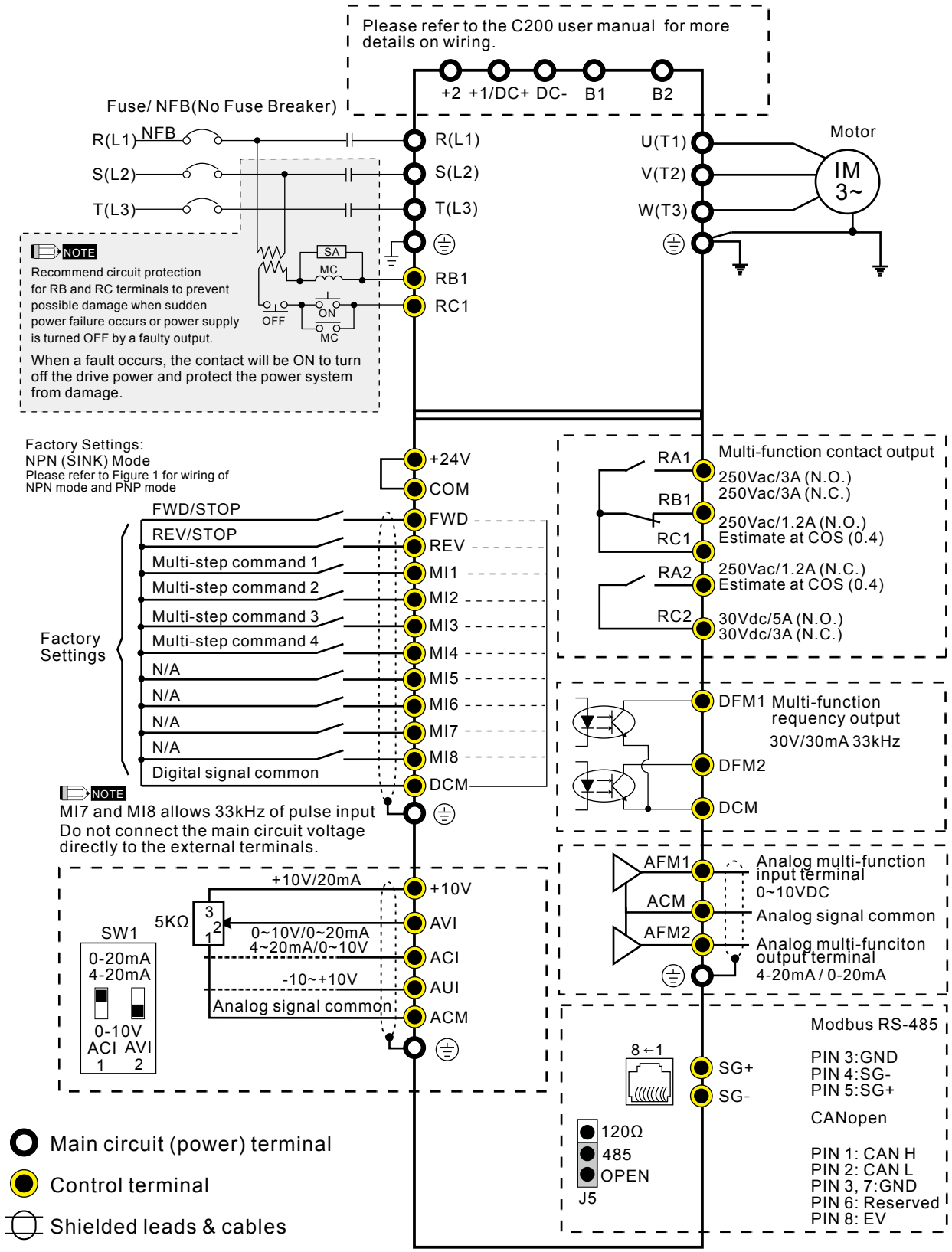
General Specifications

Control Characteristics	Control Method	V/F, V/F+PG, SVC, FOC Sensorless, FOC+PG, PM Sensorless*, TQC+PG, TQC Sensorless
	Starting Torque	Reach up to 150% or above at 0.5Hz. In FOC+PG mode, starting torque reaches above 150% at 0.5Hz and reaches 150% at 0Hz for 1 minute.
	Speed Response Ability	5Hz (vector control can reach up to 40Hz)
	Torque Limit	Normal duty: max. 160% torque current; Heavy duty: max. 180% torque current
	Torque Accuracy	±5%
	Max. Output Frequency (Hz)	0.00~600 Hz
	Frequency Output Accuracy	Digital command:0.01%, -10℃~+40℃, Analog command: 0.1%, 25±10℃
	Output Frequency Resolution	Digital command:0.01Hz, Analog command: 0.03 x max. output frequency / 60 Hz (11 bit)
	Frequency Setting Signal	+10V~-10, 0~+10V, 4~20mA
	Accel./decel. Time	0.0~6000.0seconds
	Main control Functions	Torque control, Droop control, Speed/torque control switching, Feed forward 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	Fan operation can be set by Pr.07-19
Protection Characteristics	Motor Protection	Electronic thermal relay protection
	Over-current Protection	Over-current protection for 240% rated current Current clamp [Normal duty: 170~175%] ; [Heavy duty: 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
	Ground Current Protection	Leakage current is higher than 50% of rated current of the AC motor drive
	Certifications	CE cULus*2 EAC

*1PM Sensorless ready in Ver. 1.03
*2Fan enlarged model: certification in progress

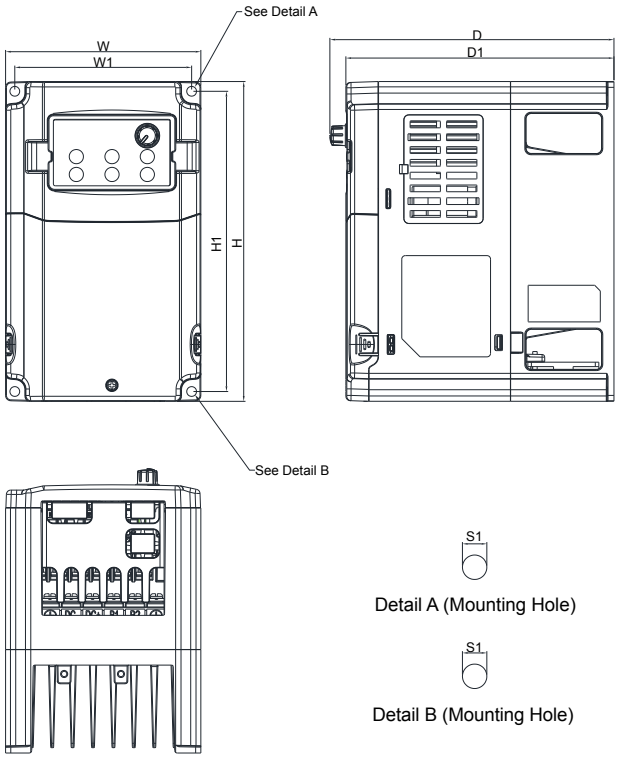
Wiring

Provides 1-phase/3-phase power



Dimensions

Frame A0



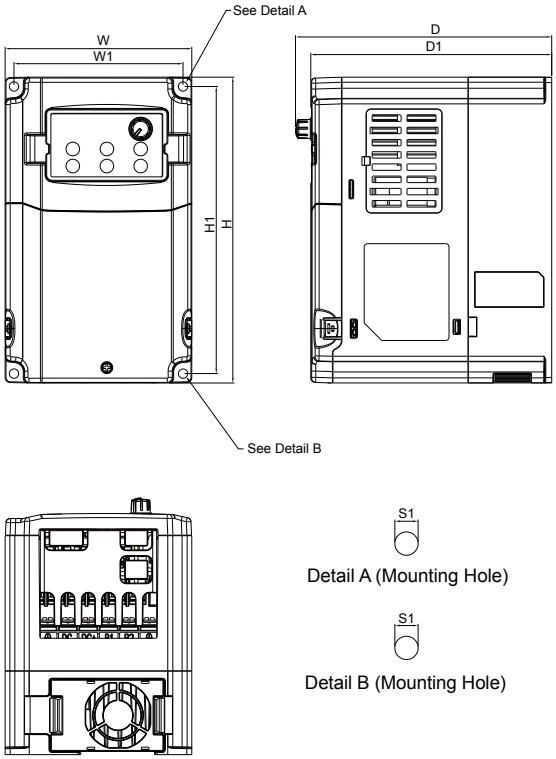
MODEL

VFD004CB21A-20
VFD007C B21A-20
VFD004CB23A-20
VFD007CB23A-20
VFD007CB43A-20
VFD015CB43A-20
VFD015CB23A-20 (Built-in fan module)

Unit：mm[inch]

Frame		W	H	D	W1	H1	D1	S1	Ø1	Ø2	Ø3
A0	mm	110.0	180.0	160.0	99.6	169.0	151.0	5.5	-	-	-
	inch	4.33	7.09	6.30	3.92	6.65	5.94	0.22	-	-	-

Frame A0



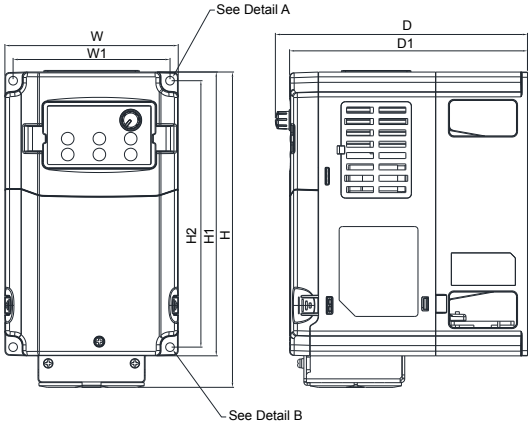
MODEL

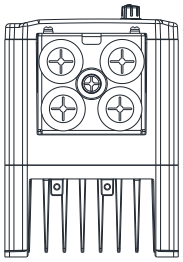
VFD015CB21A-20
VFD022CB21A-20
VFD022CB23A-20
VFD037CB23A-20
VFD022CB43A-20
VFD037CB43A-20

Unit：mm[inch]

Frame		W	H	D	W1	H1	D1	S1	Ø1	Ø2	Ø3
A0	mm	110.0	180.0	151.0	99.6	169.0	142.0	5.5	-	-	-
	inch	4.33	7.09	5.94	3.92	6.65	5.59	0.22	-	-	-

Frame A0





Detail A (Mounting Hole)

Detail B (Mounting Hole)

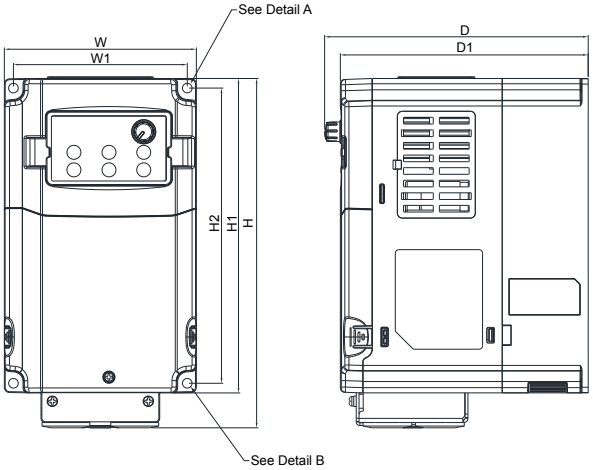
MODEL

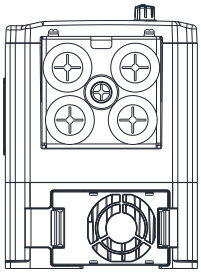
VFD004CB21A-21
VFD007CB21A-21
VFD004CB23A-21
VFD007CB23A-21
VFD007CB43A-21
VFD015CB43A-21
VFD015CB23A-21 (Built-in fan module)

Unit : mm[inch]

Frame		W	H	D	W1	H1	H2	D1	S1	Ø1	Ø2	Ø3
A0	mm	110.0	200.0	160.0	99.6	180.0	169.0	151.0	5.5	-	-	-
	inch	4.33	7.87	6.30	3.92	7.09	6.65	5.94	0.22	-	-	-

Frame A0





Detail A (Mounting Hole)

Detail B (Mounting Hole)

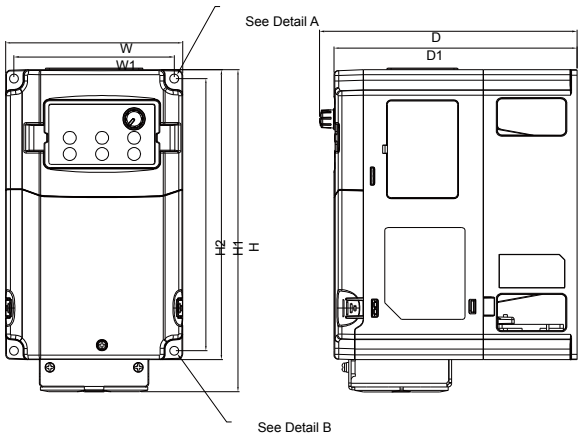
MODEL

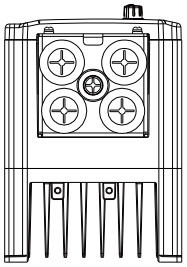
VFD015CB21A-21
VFD022CB21A-21
VFD022CB23A-21
VFD037CB23A-21
VFD022CB43A-21
VFD037CB43A-21

Unit : mm[inch]

Frame		W	H	D	W1	H1	H2	D1	S1	Ø1	Ø2	Ø3
A0	mm	110.0	200.0	151.0	99.6	180.0	169.0	142.0	5.5	-	-	-
	inch	4.33	7.87	5.94	3.92	7.09	6.65	5.59	0.22	-	-	-

Frame A0





Detail A (Mounting Hole)

Detail B (Mounting Hole)

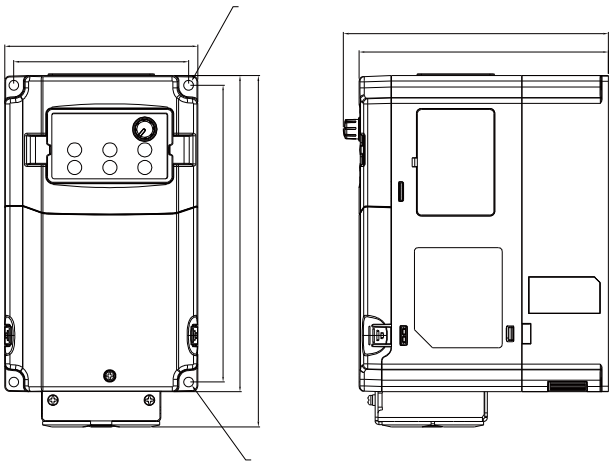
MODEL

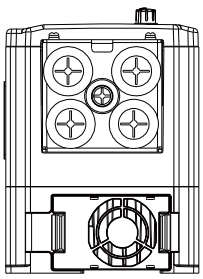
VFD004CB21A-21M
VFD007CB21A-21M
VFD004CB23A-21M
VFD007CB23A-21M
VFD007CB43A-21M
VFD015CB43A-21M
VFD015CB23A-21M (Built-in fan module)

Unit : mm[inch]

Frame		W	H	D	W1	H1	H2	D1	S1	Ø1	Ø2
A0	mm	110.0	200.0	160.0	99.6	180.0	169.0	151.0	5.5	-	-
	inch	4.33	7.87	6.30	3.92	7.09	6.65	5.94	0.22	-	-

Frame A0





MODEL

VFD015CB21A-21M
VFD022CB21A-21M
VFD022CB23A-21M
VFD037CB23A-21M
VFD022CB43A-21M
VFD037CB43A-21M

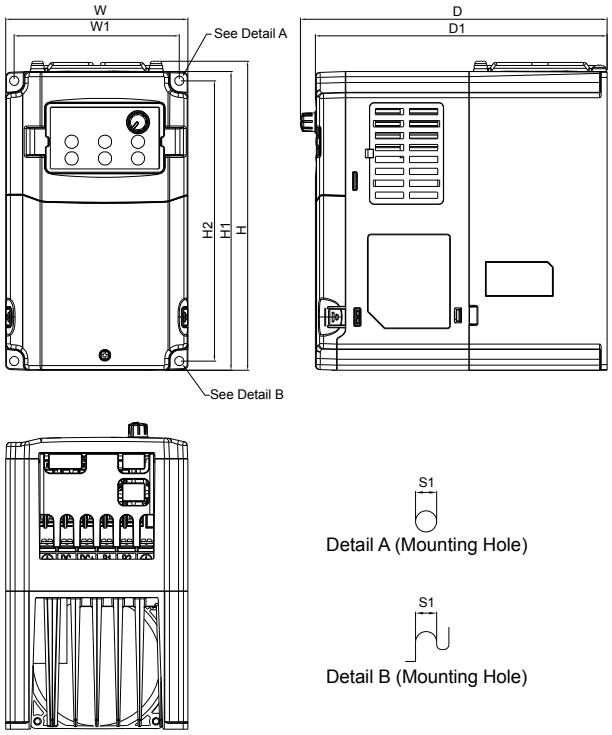
Unit : mm[inch]

Frame		W	W1	H	H1	H2	D	D1	S1	Ø1	Ø2
A0	mm	110.0	200.0	151.0	99.6	180.0	169.0	142.0	5.5	-	-
	inch	4.33	7.87	5.94	3.92	7.09	6.65	5.59	0.22	-	-

Dimensions

Frame A0

(Fan enlarged model)



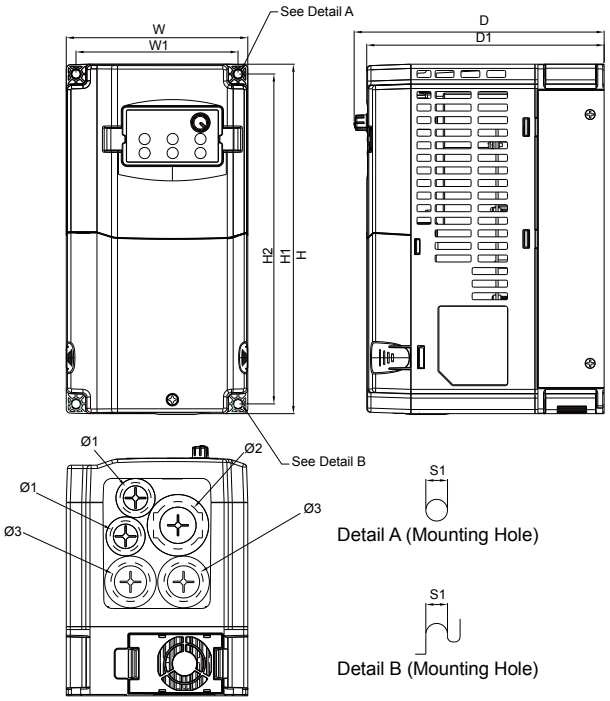
MODEL

VFD022CB43B-20
VFD037CB43B-20

Unit : mm[inch]

Frame		W	W1	H	H1	H2	D	D1	S1	Ø1	Ø2
A0	mm	110.0	99.6	186.3	169.0	180.0	185.0	176.0	5.5	-	-
	inch	4.33	3.92	7.34	6.65	7.09	7.28	6.93	0.22	-	-

Frame A



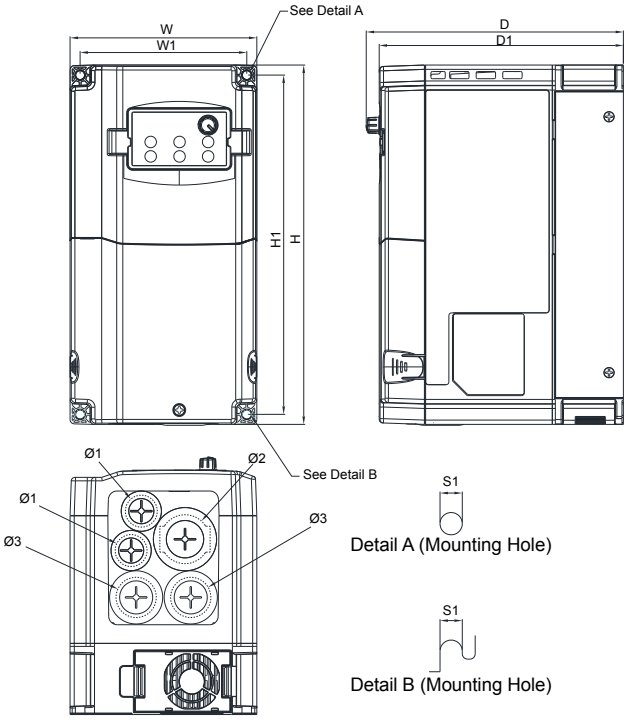
MODEL

VFD040CB43A-20
VFD055CB43A-20
VFD075CB43A-20
VFD040CB43A-21
VFD055CB43A-21
VFD075CB43A-21

Unit : mm[inch]

Frame		W	H	D	W1	H1	D1	S1	Ø1	Ø2	Ø3
A	mm	130.0	250.0	179.0	116.0	236.0	170.0	6.2	22.2	34.0	28.0
	inch	5.12	9.84	7.05	4.57	9.29	6.69	0.24	0.87	1.34	1.10

Frame A



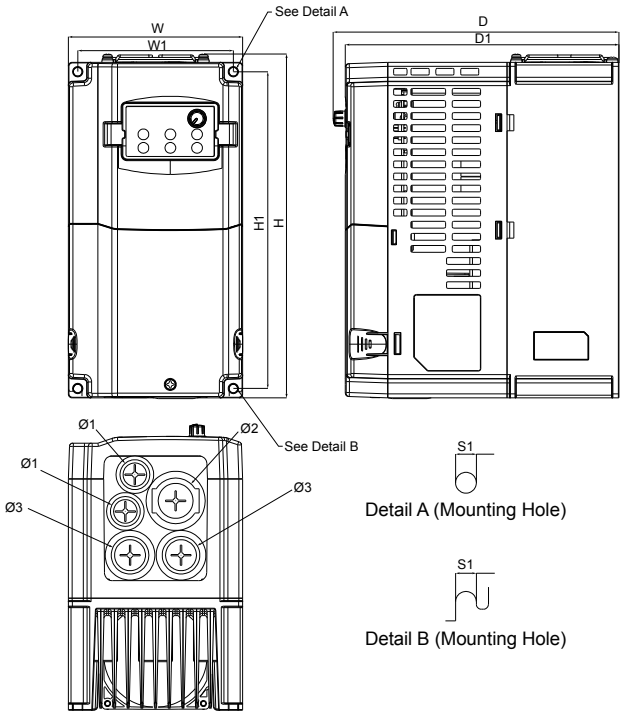
MODEL

VFD040CB43A-21M
VFD055CB43A-21M
VFD075CB43A-21M

Unit : mm[inch]

Frame		W	H	D	W1	H1	D1	S1	Ø1	Ø2	Ø3
A	mm	130.0	250.0	179.0	116.0	236.0	170.0	6.2	22.2	34.0	28.0
	inch	5.12	9.84	7.05	4.57	9.29	6.69	0.24	0.87	1.34	1.10

Frame A
(Fan enlarged model)



MODEL

VFD040CB43B-20
VFD055CB43B-20
VFD075CB43B-20

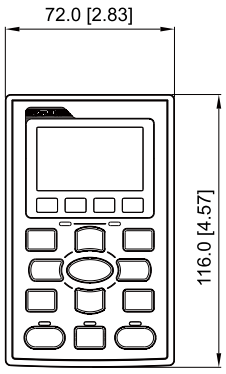
Unit : mm[inch]

Frame		W	W1	H	H1	D	D1	S1	Ø1	Ø2	Ø3
A	mm	130.0	116.0	250.0	236.0	213.0	204.0	6.2	22.2	34.0	28.0
	inch	5.12	4.57	9.84	9.29	8.38	8.03	0.24	0.87	1.34	1.10

Dimensions of Accessories

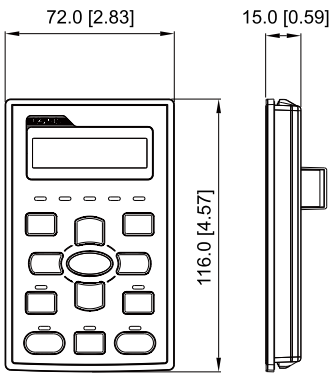
Optional:

KPC-CC01



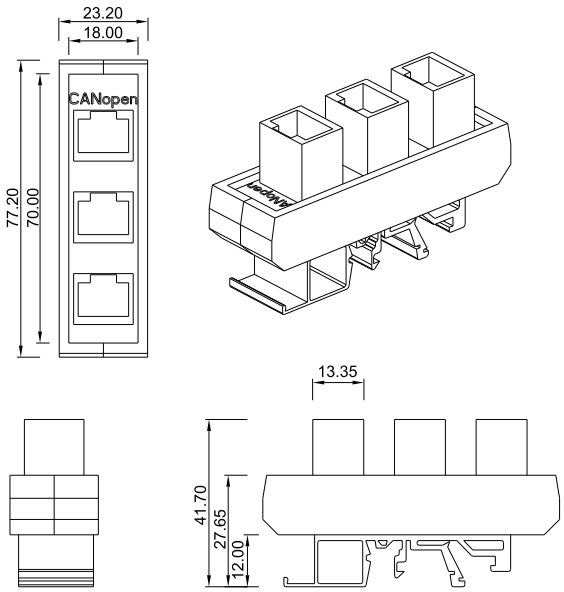
LCD Keypad

KPC-CE01



LED Keypad

MKCB-HUB01



Digital Keypad

- Built-in high resolution LED panel with turning knob facilitates the frequency tuning process
- Easy to install and wire

1 Status Display
Indicates the drive's operation status
(during operations, STOP, FWD, REV and more)

2 LED Display
Displays the frequency, voltage, current, operation direction, user-defined unit, fault and more

3 Frequency Knob
Master frequency can be set by turning the knob

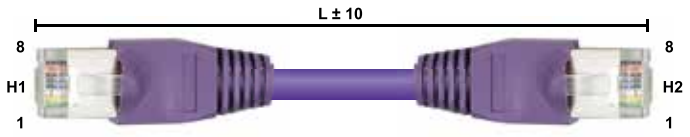
4 Up/Down Keys
Changes the value or parameter settings

- Function Key Description

Key	Description	Key	Description
RUN	Operation begins	MODE	Select display mode
STOP / RESET	Stop the operation or reset the drive when an error occurs	ENTER	Read or change parameter settings

CANopen Communication Cable

Model: TAP-CB05, TAP-CB10



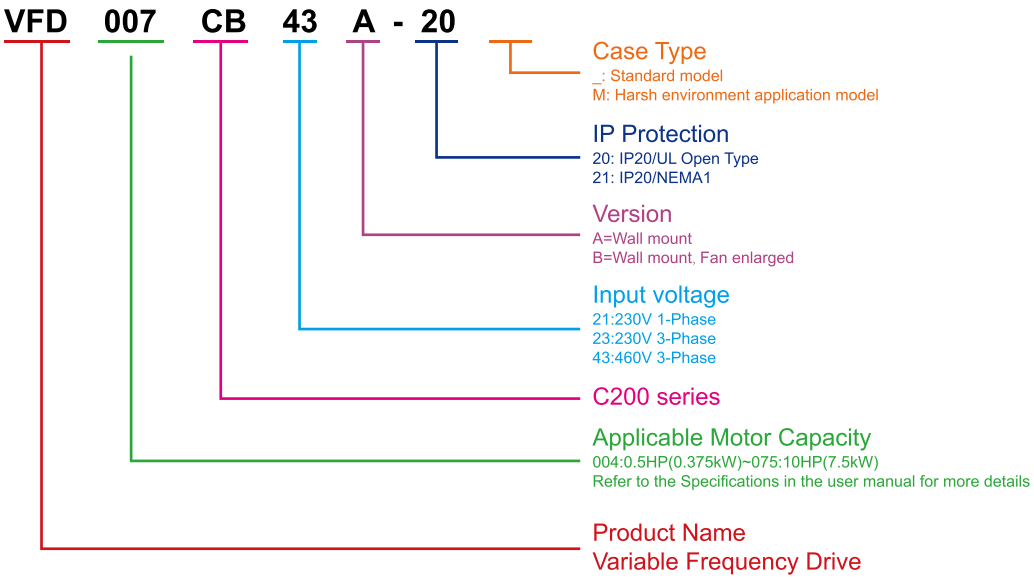
Title	Part No.	L	
		mm	inch
1	TAP-CB05	500±10	19±0.4
2	TAP-CB10	1000±10	39±0.4

Digital Accessories: RJ45 Extension Leads and CMC-EIP01 Cables

Applicable Models: CBC-K3FT、CBC-K5FT、CBC-K7FT、CBC-K10F、CBC-K16FT

Title	Part No.	Explanation
1	CBC-K3FT	RJ45 extension lead, 3 feet (approximately 0.9m)
2	CBC-K5FT	RJ45 extension lead, 5 feet (approximately 1.5m)
3	CBC-K7FT	RJ45 extension lead, 7 feet (approximately 2.1m)
4	CBC-K10FT	RJ45 extension lead, 10 feet (approximately 3m)
5	CBC-K16FT	RJ45 extension lead, 16 feet (approximately 4.9m)

Model Name



Frame Size		Power Range	Models		
			230V Single phase	230V 3 phase	460V 3 phase
Frame A0		230V: 0.4kW ~ 3.7kW 460V: 0.75kW ~ 3.7kW	VFD004CB 21A-20 VFD007CB 21A-20 VFD015CB 21A-20 VFD022CB 21A-20	VFD004CB 23A-20 VFD007CB 23A-20 VFD015CB 23A-20 VFD022CB 23A-20 VFD037CB 23A-20	VFD007CB 43A-20 VFD015CB 43A-20 VFD022CB 43A-20 VFD037CB 43A-20
Frame A0		230V: 0.4kW ~ 3.7kW 460V: 0.75kW ~ 3.7kW	VFD004CB 21A-21 VFD007CB 21A-21 VFD015CB 21A-21 VFD022CB 21A-21 VFD004CB 21A-21M VFD007CB 21A-21M VFD015CB 21A-21M VFD022CB 21A-21M	VFD004CB 23A-21 VFD007CB 23A-21 VFD015CB 23A-21 VFD022CB 23A-21 VFD037CB 23A-21 VFD004CB 23A-21M VFD007CB 23A-21M VFD015CB 23A-21M VFD022CB 23A-21M VFD037CB 23A-21M	VFD007CB 43A-21 VFD015CB 43A-21 VFD022CB 43A-21 VFD037CB 43A-21 VFD007CB 43A-21M VFD015CB 43A-21M VFD022CB 43A-21M VFD037CB 43A-21M
Frame A		460V: 4kW ~ 7.5kW			VFD040CB 43A-20 VFD055CB 43A-20 VFD075CB 43A-20 VFD040CB 43A-21 VFD055CB 43A-21 VFD075CB 43A-21 VFD040CB 43A-21M VFD055CB 43A-21M VFD075CB 43A-21M
Frame A0 (Fan size enlarged model)		460V: 2.2kW ~ 3.7kW			VFD022CB 43B-20 VFD037CB 43B-20
Frame A (Fan size enlarged model)		460V: 4kW ~ 7.5kW			VFD040CB 43B-20 VFD055CB 43B-20 VFD075CB 43B-20

Attention

Standard Motors

Used with 400V Standard Motors

It is recommended to add an AC output reactor when using with a 400V standard motor to prevent damage to motor insulation.

Torque Characteristics and Temperature Rise

When a standard motor is drive controlled, the motor temperature will be higher than with DOL operation.
Please reduce the motor output torque when operating at low speeds to compensate for less cooling efficiency.
For continuous constant torque at low speeds, external forced motor cooling is recommended.

Vibration

When the motor drives the machine, resonances may occur, including machine resonances.
Abnormal vibration may occur when operating a 2-pole motor at 60Hz or higher.

Noise

When a standard motor is drive controlled, the motor noise will be higher than with DOL operation.
To lower the noise, please increase the carrier frequency of the drive. The motor fan can be very noisy when the motor speed exceeds 60Hz.

Special Motors

High-speed Motor

To ensure safety, please try the frequency setting with another motor before operating the high-speed motor at 120Hz or higher.

Explosion-proof Motor

Please use a motor and drive that comply with explosion-proof requirements.

Submersible Motor & Pump

The rated current is higher than that of a standard motor.
Please check before operation and select the capacity of the AC motor drive carefully.
The motor temperature characteristics differ from a standard motor, please set the motor thermal time constant to a lower value.

Brake Motor

When the motor is equipped with a mechanical brake, the brake should be powered by the mains supply.
Damage may occur when the brake is powered by the drive output. Please DO NOT drive the motor with the brake engaged.

Gear Motor

In gearboxes or reduction gears, lubrication may be reduced if the motor is continuously operated at low speeds.
Please DO NOT operate in this way.

Synchronous Motor

These motors need suitable software for control. Please contact Delta for more information.

Single-phase Motor

Single-phase motors are not suitable for being operated by an AC Motor Drive. Please use a 3-phase motor instead when necessary.

Environmental Conditions

Installation Position

1. The drive is suitable for installation in a place with ambient temperature from -10 to 50℃.
2. The surface temperature of the drive and brake resistor will rise under specific operation conditions. Therefore, please install the drive on materials that are noncombustible.
3. Ensure that the installation site complies with the ambient conditions as stated in the manual.

Wiring

Limit of Wiring Distance

For the remote operation, please use twist-shielding cable and the distance between the drive and control box should be less than 20m.

Maximum Motor Cable Length

Motor cables that are too long may cause overheating of the drive or current peaks due to stray capacitance.
Please ensure that the motor cable is less than 30m.
If the cable length can't be reduced, please lower the carrier frequency or use an AC reactor.

Choose the Right Cable

Please refer to current value to choose the right cable section with enough capacity or use recommended cables.

Grounding

Please ground the drive completely by using the grounding terminal.

How to Choose the Drive Capacity

Standard Motor

Please select the drive according to applicable motor rated current listed in the drive specification.
Please select the next higher power AC drive in case higher starting torque or quick acceleration/deceleration is needed.

Special Motor

Please select the drive according to: Rated current of the drive > rated current of the motor

Transportation and Storage

Please transport and store the drive in a place that meets environment specifications.

Peripheral Equipment

Molded-Case Circuit Breakers (MCCB)

Please install the recommended MCCB or ELCB in the main circuit of the drive and make sure that the capacity of the breaker is equal to or lower than the recommended one.

Add a Magnetic Contactor(MC) in the Output Circuit

When a MC is installed in the output circuit of the drive to switch the motor to commercial power or other purposes, please make sure that the drive and motor are completely stopped and remove the surge absorbers from the MC before switching it.

Add a Magnetic Contactor (MC) in the Input Circuit

Please only switch the MC ONCE per hour or it may damage the drive. Please use RUN/STOP signal to switch many times during motor operation.

Motor Protection

The thermal protection function of the drive can be used to protect the motor by setting the operation level and motor type (standard motor or variable motor).
When using a high-speed motor or a water-cooled motor the thermal time constant should be set to a lower value.

When using a longer cable to connect the motor thermal relay to a motor, high-frequency currents may enter via the stray capacitance.
It may result in malfunctioning of the relay as the real current is lower than the setting of thermal relay. Under this condition, please lower the carrier frequency or add an AC reactor to solve this.

DO NOT Use Capacitors to Improve the Power Factor

Use a DC reactor to improve the power factor of the drive. Please DO NOT install power factor correction capacitors on the main circuit of the drive to prevent motor faults due to over current.

Do NOT Use Surge Absorber

Please DO NOT install surge absorbers on the output circuit of the drive.

Lower the Noise

To ensure compliance with EMC regulations, usually a filter and shielded wiring is used to lower the noise.

Method Used to Reduce the Surge Current

Surge currents may occur in the phase-lead capacitor of the power system, causing an overvoltage when the drive is stopped or at low loads.

It is recommended to add a DC reactor to the drive.

Smarter. Greener. Together.

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