



VersiDrive i
C2+ Series

POWERFUL FEATURES. HIGH EFFICIENCY.

The VersiDrive i ... C2 Series AC motor drive provides the most efficient solution for all types of drive applications. It features precise speed, torque and position control functions that are suitable for both sensor and sensorless types of synchronous and asynchronous motors. The VersiDrive i ... C2+ Series is also equipped with built-in PLC functions and supports the CANopen Master/Slave extension for the ultimate in system flexibility and fast data exchange.

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Future-oriented features



High Performance

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. For both synchronous and asynchronous motors

Environmental Adaptability

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

*Note: Please refer to the Product Specification

Versatile Drive Controls

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

Modular Design

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

Modular design & certificates

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

PG (Encoder) cards

- Incremental encoder and resolver

I/O extension cards

- VersiCardC-DI/DO: 4 Digital Inputs & 2 Digital Outputs
- VersiCardC-AI/AO: 2 Analog Inputs & 2 Analog Outputs

24V Power Shift Card

- VersiCardC-24VDC: Back-up power supply card (24VDC)

Relay Extension Card

- VersiCardC-Rel: 6 Relays (change over)

Communication cards

- VersiCardC-PFDP: Profibus DP
- VersiCardC-DN: DeviceNet
- VersiCardC-MbTCP: Modbus TCP/IP
- VersiCardC-ENIP: Ethernet/IP
- VersiCardC-CAN: CANopen DS402
- VersiCardC-ECAT: EtherCAT

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

Analog I/O switch

Termination resistor

Dual RJ45 communication ports

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

- Versi-KP-LCD keypad
- Standard RJ45 network cable for remote operation.
- Easy to remove with one press.
- The product nameplate shows the input / output voltage, input / output current, the frequency range, and more.
- Remove the safety screws and press on both side tabs to remove the cover.
- Modular fan design, easy to replace and clean, extending product service life.
- RFI Jumper

Excellent Environment Adaptability

- ▶ Built-in DC choke to suppress harmonics*
- ▶ Built-in EMC filter to filter noise*
- ▶ Conformal coating (Class 3C3 of IEC60721-3-3 standard) ensures drive operation stability and safety in critical environments.
- ▶ The electronic components of the drive are isolated from the cooling system to reduce heat interference. Dissipated heat can be discharged by flange-mounting installation, and forced fan cooling can import cold air into the heat sink. The heat dissipation performance is optimized by these two cooling methods.

*Note: Please refer to the Product Specification



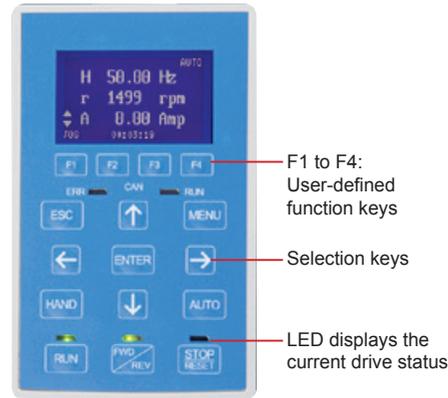
Certifications

UL, cUL	CE
C-Tick	Low Voltage: EN61800-5-1 EMC: EN61000-3-12, EN61800-3, IEC61000-6-2, IEC61000-6-4, IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8
ROHS	

LCD operation panel

Quick and Easy Parameters Setting via the LCD Keypad

- Multi-column display for the drive status
- Simple and intuitive operation
- User-defined parameter groups
- Real Time Clock and calendar function
- Language selection for display
- Copy function saves parameters and PLC programs to the keypad memory for later transfer to another drive
- IP66 protection level



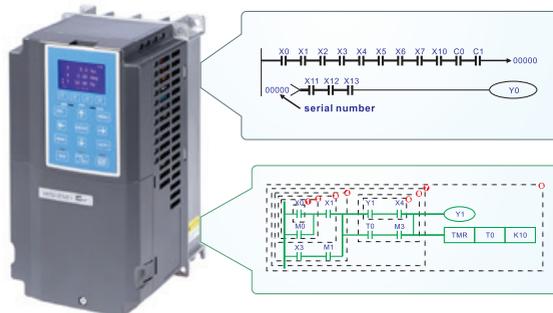
Editable message display



Editable chart display

Intelligent PLC Functions

- Built-in 10 K steps capacity of PLC functions. Distributed control and independent operation are easily achieved via network connection
- CANopen Master protocol and PLC functions provide synchronous control and fast data exchange



High-Speed Network

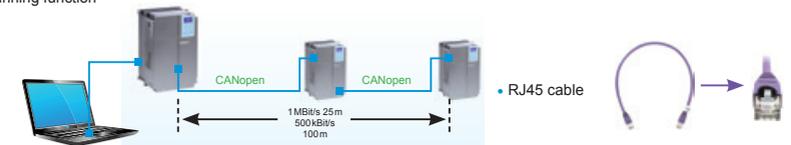
- ▶ Provides optional MODBUS RTU and various fieldbus cards for flexible applications
- ▶ Advanced network functions
- ▶ Built-in MODBUS communication



■ CANopen (DS402)

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

- Supports all PETER electronic industrial automation products (Built-in EDS files for all PETER electronic industrial automation products)
- I/O data configurations for each device on the CANopen network
- Motion control planning function
- WPL Soft



■ DeviceNet

Through the PETER electronic specially designed DeviceNet Builder software, users can easily establish a standard DeviceNet control network by the parameter pre-assignment function for each equipment and remote I/O.

- Supports all PETER electronic industrial automation products (Built-in EDS files for all PETER electronic industrial automation products)
- I/O data configurations for each device on the DeviceNet network
- DeviceNet layout software



■ EtherNet/IP

■ MODBUS TCP

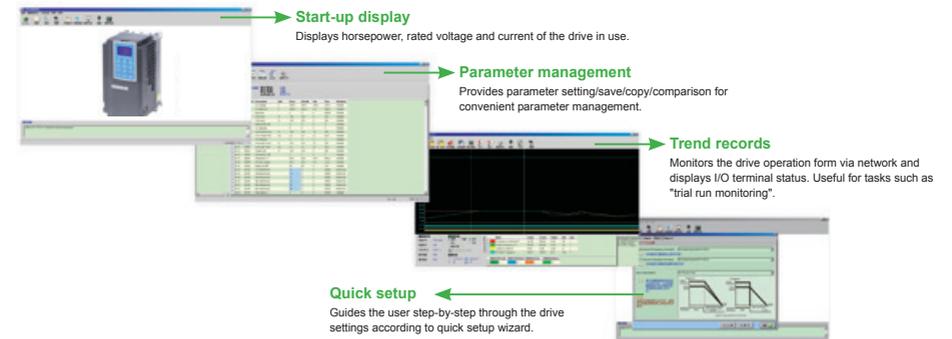
PETER electronic provides communication integrator software that offers graphic module settings and a user friendly interface to support all Ethernet products settings and online monitoring.

- PETER electronic software for Ethernet/MODBUS TCP products
- Graphic module settings and an user friendly interface
- Auto search function
- Supports Virtual COM settings



Convenient Drive System Management Platform

- 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.



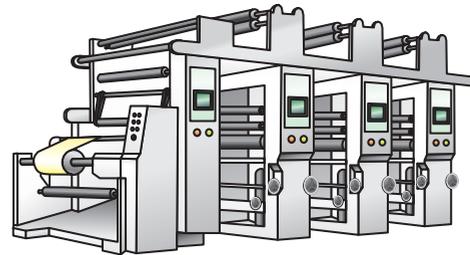
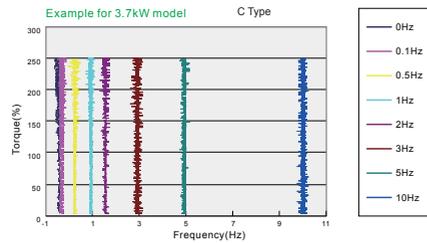
*NOTE: These software programs are available for download on PETER electronic's website.

Functions & applications

High-Performance Field Oriented Control

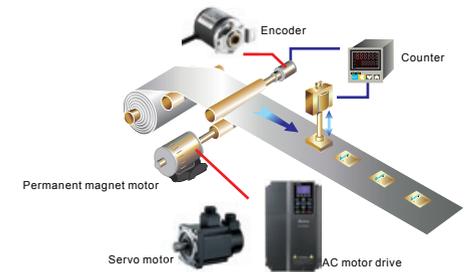
The FOC+PG mode of C2 Series can output 150% of starting torque at extremely low speeds for precise and stable speed control.

Precise position and speed control ideal for printing machine applications.



A Drive for Permanent Magnet (PM) Motors

VersiDrive i... C2 is a dual mode drive to control both an induction motor and permanent magnet motor. The dynamic response of a PM motor provides precise control of position, speed and torque.

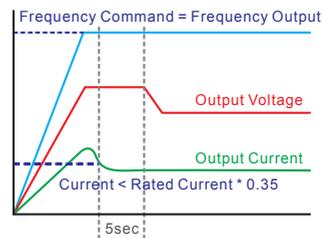
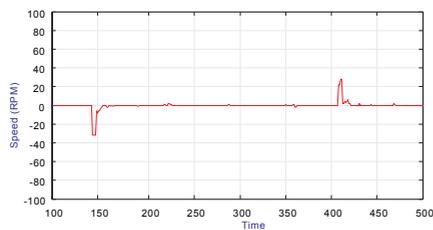


Fast Response to Impact Load

During load changes, the C2 Series calculates the required torque response and minimizes the vibration caused by load impact using FOC.

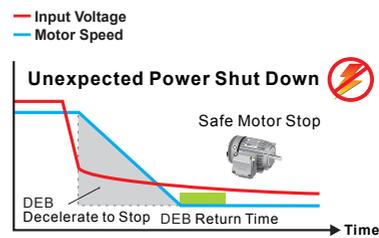
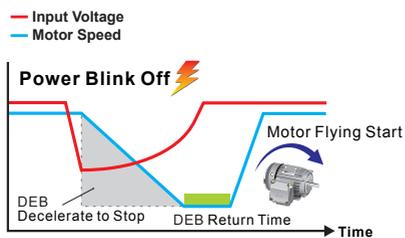
Auto Energy-Saving Operation

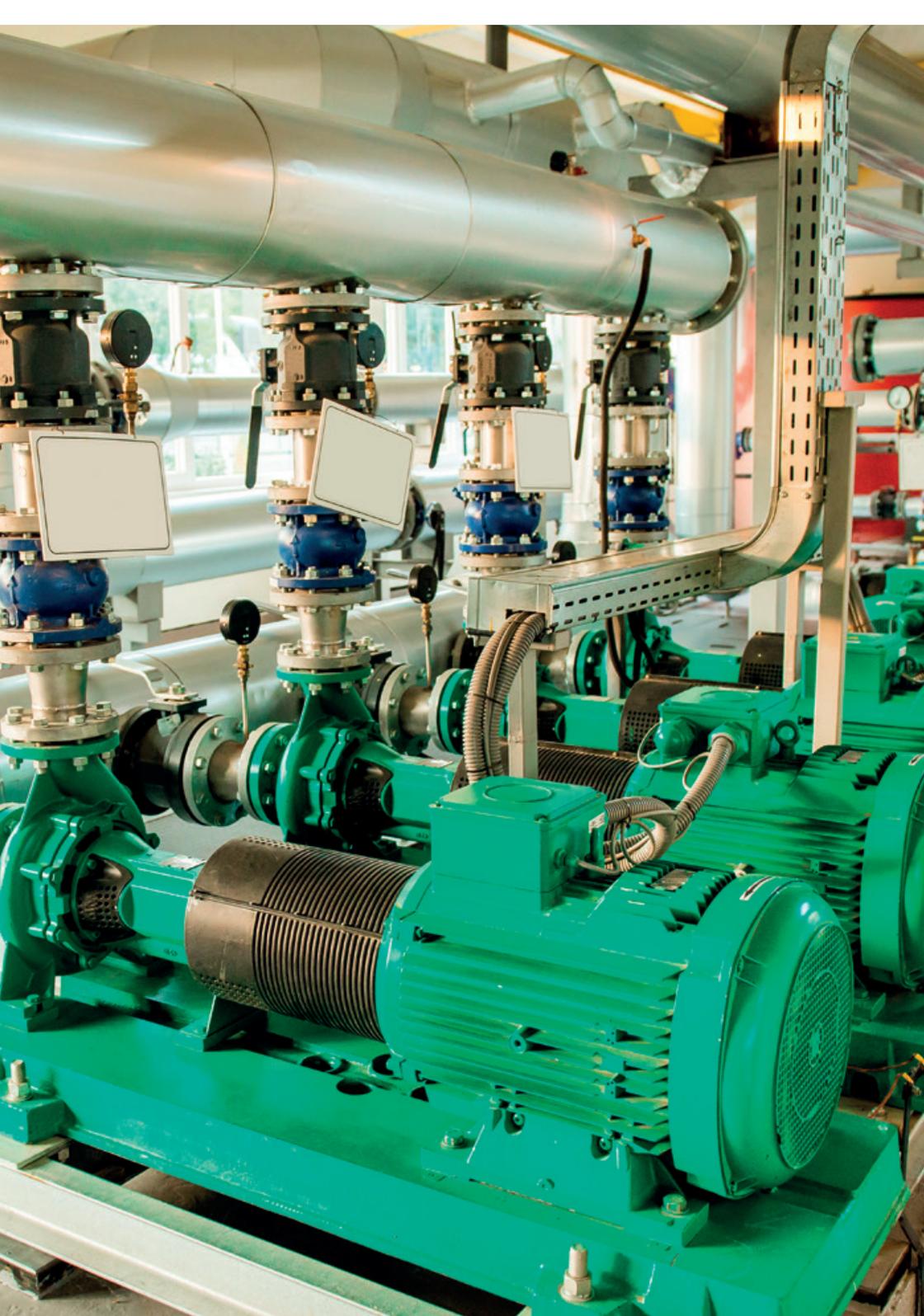
Auto-calculates the optimal voltage for the load output using load power when under constant speed operation.



Deceleration Energy Backup (DEB)

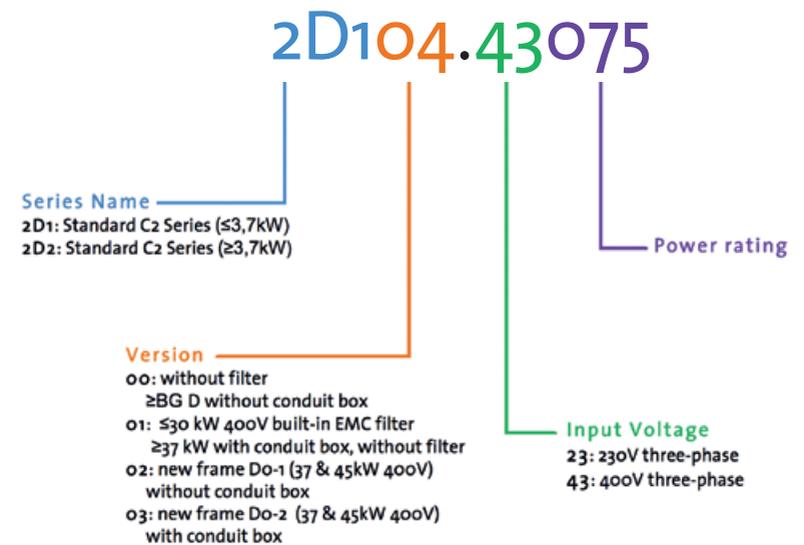
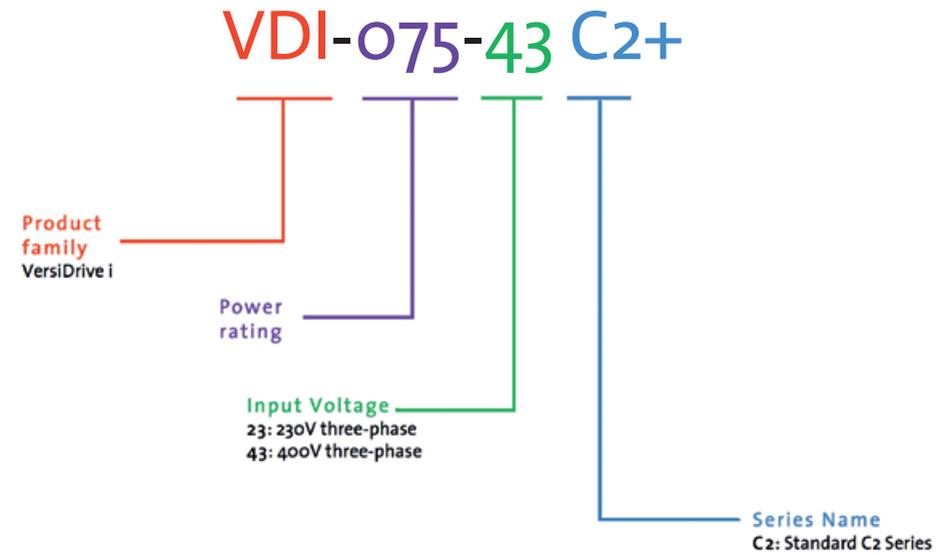
This function controls the motor deceleration to stop when power blinks off to prevent mechanical damage and then accelerates to its original operation speed when power resumes.





Specifications

Model Name Explanation



460 V series

Device data of the 460 V series (size A – C)

Frame Size		A 1						B 1			C 1			
Model VD i □43C2-__		075	150	220	370	400	550	750	1100	1500	1850	2200	3000	
Order no.: 2D101.43...		075	150	220	370	-	-	-	-	-	-	-	-	
Order no.: 2D201.43...		-	-	-	-	004	005	007	011	015	018	022	030	
Output Rating ①	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
		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
		Overload Capacity	120% of rated output current: 1 minute for every 5 minutes; 160% of rated output current: 3 seconds for every 30 seconds											
	Heavy Duty	Max. Output Frequency [Hz]	0.00–599.00											
		Carrier Frequency [kHz]	2–15 (Default: 8)						2–10 (Default: 6)					
		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
		Applicable Motor Output [kW]	0.4	0.75	1.5	2.2	3.7	4.0	5.5	7.5	11	15	18.5	22
Rating Input	Normal Duty	Applicable Motor Output [HP]	0.5	1	2	3	5	5	7.5	10	15	20	25	30
		Overload Capacity	150% of rated output current: 1 minute for every 5 minutes; 180% of rated output current: 3 seconds for every 30 seconds											
		Max. Output Frequency [Hz]	0.00–300.00											
		Carrier Frequency [kHz]	2–15 (Default: 2)						2–10 (Default: 2)					
		Input Current [A]	4.3	5.9	8.7	14	15.5	17	20	26	35	40	47	63
	Heavy Duty	Rated Voltage/Frequency	3-phase AC 380 V–480 V (-15%→+10%), 50/60 Hz											
		Operating Voltage Range	323–528 V AC											
		Frequency Tolerance	47–63 Hz											
		Efficiency [%]	97.8											
		Power Factor	>0.98											
Drive Weight [Kg]	2.6 ± 0.3			5.4 ± 1			9.8 ± 1.5							
Cooling Method	Natural cooling						Fan cooling							
Braking Chopper	Frame A–C: Built-in													
DC choke	Frame A–C: Optional													
EMC Filter	VD i (X)XXX-43C2-A: Optional; Frame A–C VD i (X)XXX-43C2-E: Built-in													
VersiCard C-CAN ②	VD i (X)XXX-43C2-A: Optional; VD i (X)XXX-43C2-E: Built-in													

460 V series

Device data of the 460 V series (size D0 – E), without conduit box

Frame Size		D0_1		D_1		E_1		
Model VD i □43C2-__		3700	4500	5500	7500	9000	11000	
Order no.: 2D202.43...		037	045	-	-	-	-	
Order no.: 2D200.43...		-	-	055	075	090	110	
Output Rating ①	Normal Duty	Rated Output Capacity [kVA]	58	73	88	120	143	175
		Rated Output Current [A]	73	91	110	150	180	220
		Applicable Motor Output [kW]	37	45	55	75	90	110
		Applicable Motor Output [HP]	50	60	75	100	125	150
		Overload Capacity	120% of rated output current: 1 minute for every 5 minutes; 160% of rated output current: 3 seconds for every 30 seconds					
	Heavy Duty	Max. Output Frequency [Hz]	0.00–599.00					
		Carrier Frequency [kHz]	2–10 (Default: 6)			2–9 (Default: 4)		
		Rated Output Capacity [kVA]	55	69	84	114	136	167
		Rated Output Current [A]	69	86	105	143	171	209
		Applicable Motor Output [kW]	30	37	45	55	75	90
Rating Input	Normal Duty	Applicable Motor Output [HP]	40	53	60	75	100	125
		Overload Capacity	150% of rated output current: 1 minute for every 5 minutes; 180% of rated output current: 3 seconds for every 30 seconds					
		Max. Output Frequency [Hz]	0.00–300.00					
		Carrier Frequency [kHz]	2–10 (Default: 2)			2–9 (Default: 2)		
		Input Current [A]	74	101	114	157	167	207
	Heavy Duty	Rated Voltage / Frequency	3-phase AC 380 V–480 V (-15% +10%), 50/60 Hz					
		Operating Voltage Range	323–528 V AC					
		Frequency Tolerance	47–63 Hz					
		Efficiency [%]	97.8			98.2		
		Power Factor	>0.98					
Drive Weight [Kg]	27 ± 1.5		38.5 ± 1.5		64.8 ± 1.5			
Cooling Method	Fan cooling							
Braking Chopper	Frame D0–E: Optional							
DC choke	Frame D0–E: Built-in							
EMC Filter	Frame D0–E: Optional							
VersiCard C-CAN ②	VD i (X)XXX-43C2-A: Optional; VD i (X)XXX-43C2-E: Built-in							

NOTES

- a: The factory setting is Normal Duty mode.
- b: CANopen® communication card
- The carrier frequency is default. Increasing the carrier frequency requires a reduction in current. Please refer to section 8.5.1 Derating Curve of Ambient Temperature.
- The AC motor drive should operate in derating current when its control method is set to FOC Sensorless, TQC+PG, TQC sensorless, PM+PG, PM sensorless. Please refer to Pr. 06-55 for more information.
- Select the AC motor drive with capacity one grade larger for the impact load application.
- The rated input current will be affected by not only Power Transformer and the connection of the reactors on input side, but also fluctuates with the impedance of power side.
- For Frame A, B and C, VD i (X)XXX-43C2-A 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.
- Model VD i 4500-43C2-x does not have UL certification.

General specifications

Control Characteristics	Control Method	Pulse Width Modulated (PWM)
	Control Mode	460 V model: 1: V / F · 2: SVC · 3: VF+PG · 4: FOC+PG · 5: TQC+PG · 6: PM+PG · 7: FOC sensorless · 8: TQC sensorless · 9: PM sensorless
	Starting Torque	Reach up to 150% or above at 0.5 Hz. Under FOC+PG mode, starting torque can reach 150% at 0 Hz
	V / F Curve	4-point adjustable V / F curve and square curve
	Speed Response Ability	5 Hz (vector control can reach up to 40 Hz)
	Torque Limit	460 V model: Normal duty 160%, heavy duty 180% of torque current
	Torque Accuracy at TQC Mode	TQC + PG: ±5% TQC Sensorless: ±15%
	Max. Output Frequency (Hz)	Light Duty / Normal duty: 0.01 ~ 599.00 Hz; 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: 0.01 Hz, Analog command: 0.03 * max. output frequency / 60 Hz (±11 bit)
Protection Characteristics	Overload Capacity	Normal duty: 120% of rated current can endure for 1 minute during every 5 minutes ; 160% of rated current can endure for 3 seconds during every 30 seconds Heavy duty: 150% of rated current can endure for 1 minute during every 5 minutes ; 180% of rated current can endure for 3 seconds during every 30 seconds
	Frequency Setting Signal	+10 V ~ -10V, 0 ~ +10 V, 4 ~ 20 mA, 0 ~ 20 mA, pulse input
	Accel. / decel. Time	0.00 ~ 600.00 / 0.0 ~ 6000.0 Seconds
	Main Control Function	Torque control, Speed / torque control switching, Feed forward control, Zero-servo control, Momentary power loss ride thru, Speed search, Over-torque detection, Torque Limit, 16-step speed (Max.), Accel / decel time switch, S-curve accel / decel, 3-wire sequence, Auto-Tuning (rotational, stationary), Dwell, Slip compensation, Torque compensation, JOG frequency, Fault restart, Frequency upper / lower limit settings, DC injection braking at start / stop, High slip braking, Parameter copy PID control (with sleep function), Energy saving control, MODOBUS communication (RS-485 RJ45, Max. 115.2 kbps)
	Fan Control	460 V model: VD i 1850-43C2-A (include) and series above: PWM control; VD i 1500-43C2-A and below: on/off switch control
	Motor Protection	Electronic thermal relay protection
	Over-current Protection	460 V model: Over-current protection for 240% of rated current (Normal duty) Current clamp (Normal duty: around 170 ~ 175%); (Heavy duty: around 180 ~ 185%)
	Over-Voltage Protection	The C2 Series will shut down under below conditions: 460 V: DC bus over 820 V
	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	
Short-circuit Current Rating (SCCR)	Per UL508C, the drive is suitable for use on a circuit capable of delivering not more than 100kA symmetrical amperes (rms) when protected by fuses given in the fuse table	
International Certifications	 	

Operation temperature and protective structure

Model	Frame	Top Cover	Conduit Box	Protection Level	Operation Temperature
VD i xxx-xxC2+	Frame A ~ C 460 V: 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
	Frame D ~ H 230 V: > 22 kW 460 V: > 30 kW	N / A	Standard conduit box	IP20 / UL Type1 / NEMA1	-10°C ~ 40°C

Environment conditions for operation, storage and transportation

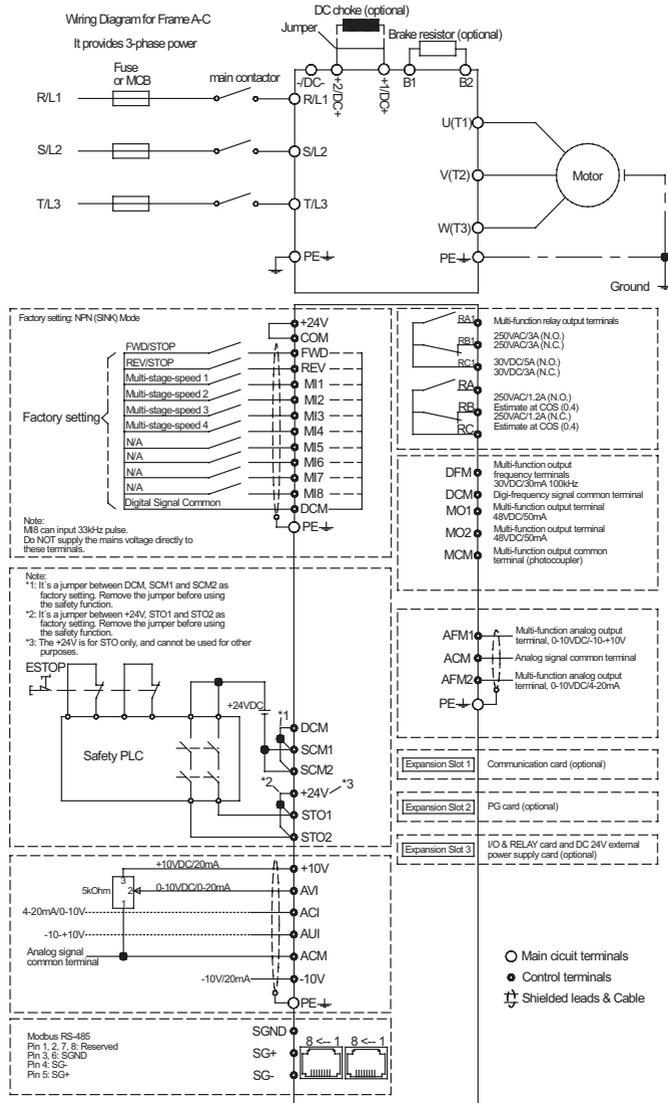
DO NOT expose the AC motor drive to harsh environments, such as dust, direct sunlight, corrosive/flammable gasses, humidity, liquid or vibrations. The salts in the air must be less than 0.01 mg/cm³ per year.

Environment	Installation Location	IEC60364-1/IEC60664-1 Pollution degree 2, indoor use only	
	Surrounding Temperature (°C)	Storage/Transportation	-25 ~ 70
		Only allowed in non-condensation, non-frost, non-conductive environment	
	Rated Humidity	Operation/Storage/Transportation	Max. 95%
		Only allowed in non-condensation, non-frost, non-conductive environment	
	Air Pressure (kPa)	Operation/Storage	86 ~ 106
		Transportation	70 ~ 106
	Pollution Level	IEC60721-3-3	
		Operation	Class 3C3; Class 3S2
		Storage	Class 1C2; Class 1S2
Transportation		Class 2C2; Class 2S2	
Altitude	If the AC motor drive is to be used under harsh environment with high level of contamination (e.g. dew, water, dust), make sure it is installed in an environment qualified for IP54 such as in a cabinet.		
	Operation	If the AC motor drive is installed at an altitude 0 ~ 1000m, follow normal operation restriction. If it is installed at altitude 1000 ~ 2000m, decrease 1% of rated current or lower 0.5°C of temperature for every 100m increase in altitude. Maximum altitude for Corner Grounded TN system is 2000m, for application over 2000m please contact Delta for more details.	
Package Drop	Storage/Transportation	ISTA procedure 1A (according to weight) IEC60068-2-31	
Vibration	1.0 mm, peak to peak value range from 2Hz to 13.2Hz; 0.7 G ~ 1.0 G range from 13.2 Hz to 55 Hz; 1.0 G range from 55Hz to 512Hz. Comply with IEC 60068-2-6.		
Impact	IEC/EN 60068-2-27		
Operation Position	Max. allowed offset angle ±10° (under normal installation position)		

Wiring

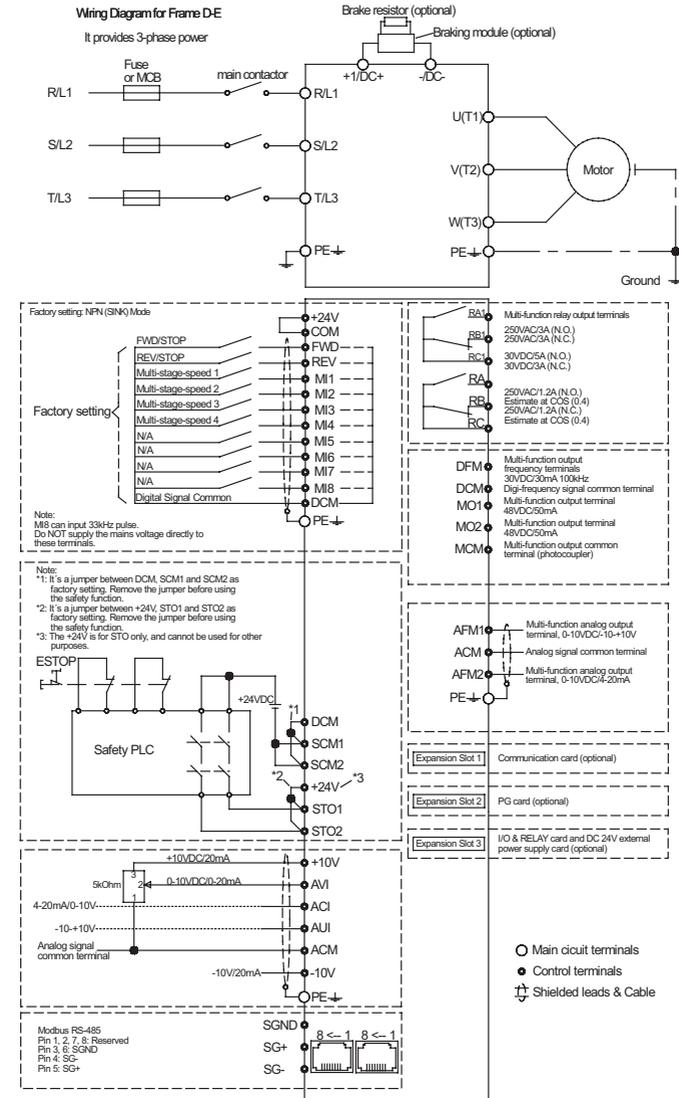
Wiring of frame A-C

*Input: 3-phase power



Wiring of Frame D-F

*Input: 3-phase power



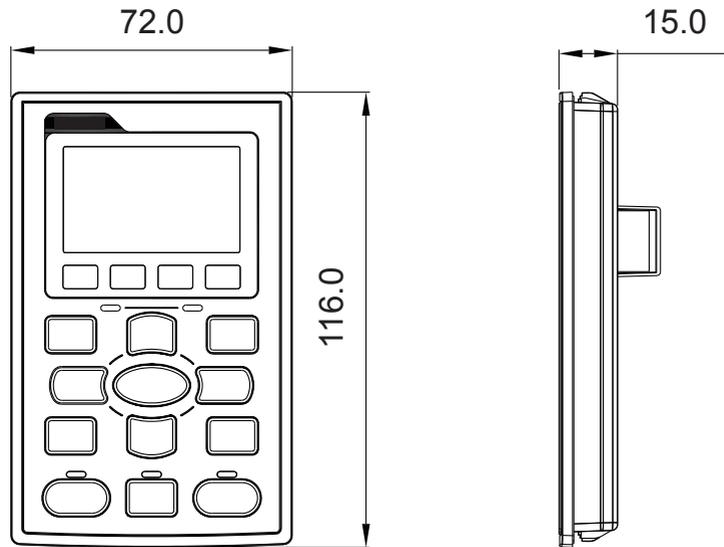
NOTE

It is not recommended to use a power capacitor or automatic power factor regulator (APFR) at the power input side. If the system requires such a device, please make sure a reactor is installed between the drive and the power capacitor or APFR.

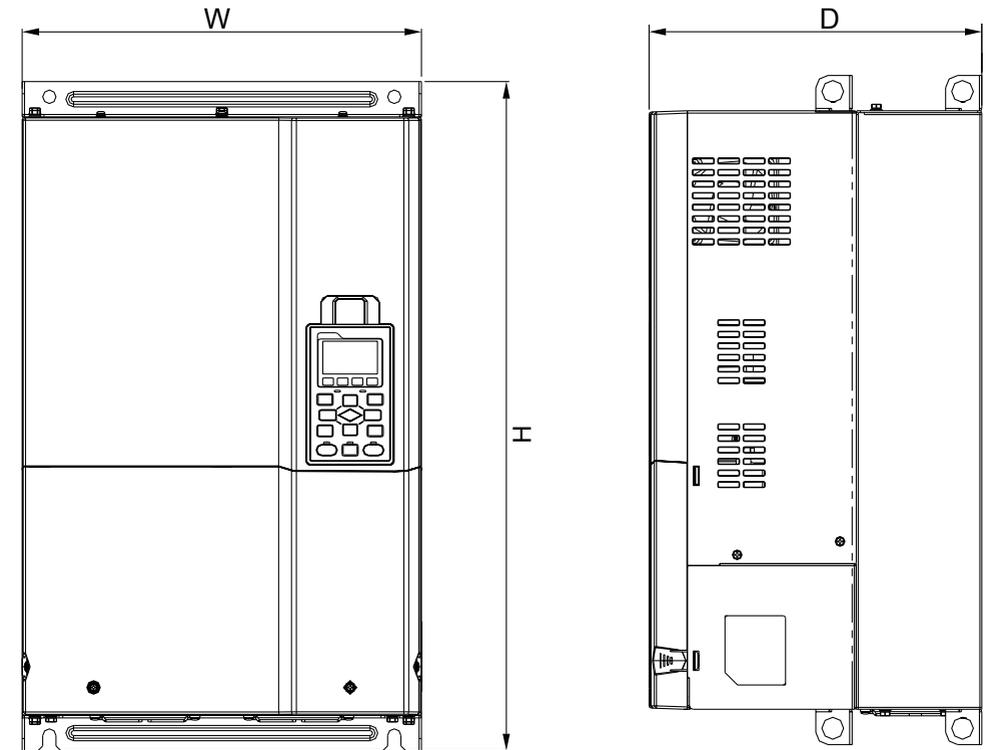
Dimensions

Operation panel

Unit: mm



Frame dimensions



Dimensions	W (mm)	H (mm)	D (mm)
A	130	250	170
B	190	320	190
C	250	400	210
D0-1	280	500	255
D1	330	550	275
E1	370	589	300



VersiDrive i C2+ Series



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