



Digitized Automation for a Changing World

Delta Fan/Pump Vector Control Drive CP2000 Series



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 **DELTA**
Smarter. Greener. Together.

WHY CP2000?

Delta Industrial Automation Green Technology

Delta Industrial Automation introduces the CP2000 Series AC motor drive for energy-saving HVAC systems and for pump and fan applications. The CP2000 Series is equipped with special HVAC parameters and PID control functions for efficient operation, as well as multi-segment V/F control curve and soft start functions to assist frequent torque change and constant output applications with energy-saving performance.





CP2000

Water Circulation Pump Control

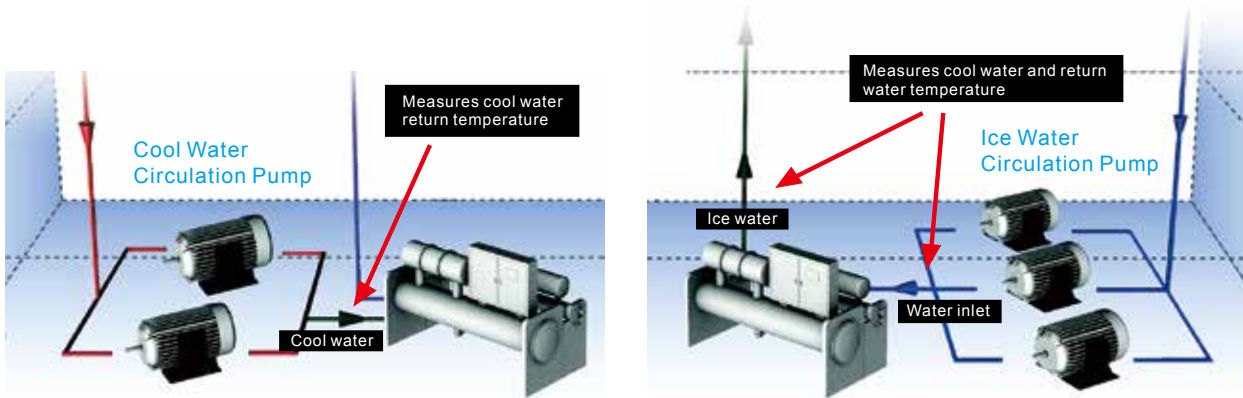


Figure1: Multi-Pump Control

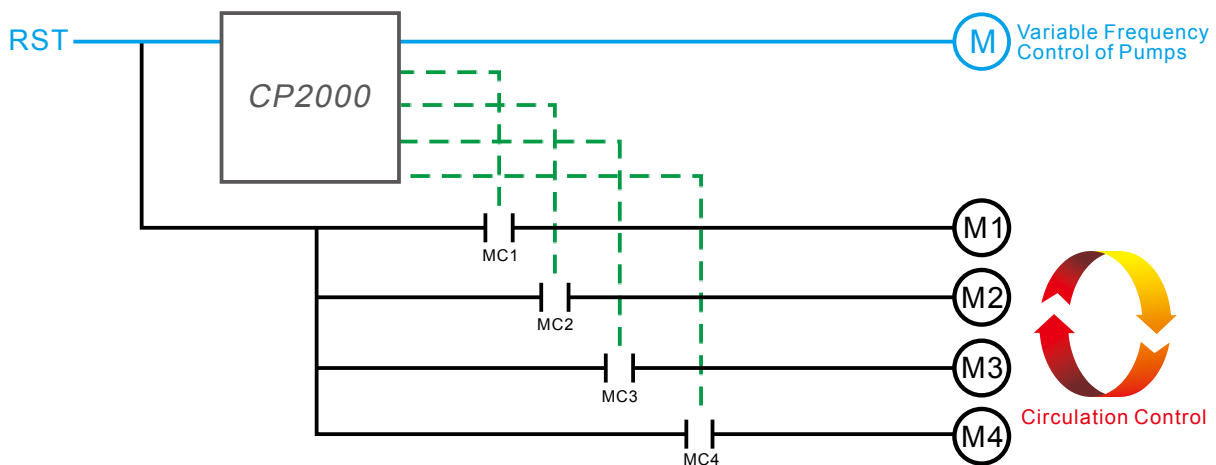


Figure 2: Fixed Amount and Circulation Control

Features

- ▶ LCD keypad - An easy-to-use text panel with TP Editor software allows users to customize the main page screen
- ▶ Quick setting functions to support self-defined parameter groups and parameter duplication for fast and easy installation
- ▶ Modular design for flexible extension and easy maintenance
- ▶ High-speed communications include BACnet and Modbus. Optional communication cards are available upon purchase: PROFIBUS DP, PROFINET, DeviceNet, Modbus TCP, EtherNet/IP, CANopen and BACnet IP
- ▶ Extended life cycle
- ▶ Enhanced conformal coating on PCBs for superior durability in critical environments
- ▶ Fire mode and bypass functions: continuous pressure to extract smoke when emergencies occur
- ▶ Various modes for fans/pump applications including PID control, sleep/wake up functions, flying start and skip frequency
- ▶ Multi-pumps synchronous control of up to 8 motors at one time and provides fixed amount and fixed time circulation control
- ▶ Built-in 10K steps PLC programming capacity and Real Time Clock (RTC)

Advanced Drive Technology

High Performance Variable Frequency Drive Technology

1. Sensorless Vector Control (SVC)
2. Dual rating design (Light duty & Normal duty)
3. Excellent variable torque control of asynchronous motors

Versatile Drive Control

1. Built-in PLC function
2. Built-in brake unit*
3. Networking drive system
4. Auto energy saving



Modular Design

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

Environmental Adaptability

1. 50°C operation temperature
2. Built-in DC choke*
3. Coated circuit boards
4. Built-in EMC filter*
5. International safety standard CE/UL/cUL

*Note: Please refer to the Product Specifications for more details.

Standard Models

Power range: 230V 0.75~90kW, 460V 0.75~630kW

| | | | | | | | | | | | | | | | | |
|------------|------|-----|-----|-----|-----|-----|----|----|------|----|----|----|----|----|-----|-----|
| 230 V (kW) | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 |
| 230 V (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 | | | |

| | | | | | | | | | | | | | |
|------------|------|-----|-----|-----|-----|-----|-----|----|----|------|----|----|----|
| 460 V (kW) | 0.75 | 1.5 | 2.2 | 3.7 | 4.0 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 |
| 460 V (HP) | 1 | 2 | 3 | 5 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |
| Frame Size | A | | | | | | B | | | C | | | |

| | | | | | | | | | | | | | | | | | | |
|------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 460 V (kW) | 45 | 55 | 75 | 90 | 110 | 132 | 160 | 185 | 200 | 220 | 250 | 280 | 315 | 355 | 400 | 500 | 560 | 630 |
| 460 V (HP) | 60 | 75 | 100 | 125 | 150 | 175 | 215 | 250 | 270 | 300 | 340 | 375 | 425 | 475 | 530 | 675 | 750 | 850 |
| Frame Size | D0 | | D | | E | | F | | G | | | | H | | | | | |

Power range: 575V 1.5~15kW, 690V 18.5~630kW


| | | | | | | | |
|------------|-----|-----|-----|-----|-----|----|----|
| 575 V (kW) | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 |
| 575 V (HP) | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 |
| Frame Size | A | | | B | | | |

| | | | | | | | | | | | | | | |
|------------|------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 690 V (kW) | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 | 132 | 160 | 200 | 250 | 315 |
| 690 V (HP) | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 | 150 | 175 | 215 | 270 | 335 | 425 |
| Frame Size | C | | | D | | E | | | | F | | G | | |

| | | | | |
|------------|-----|-----|-----|-----|
| 690 V (kW) | 400 | 450 | 560 | 630 |
| 690 V (HP) | 530 | 600 | 750 | 850 |
| Frame Size | H | | | |

High-Speed Network

▶ Advanced network functions

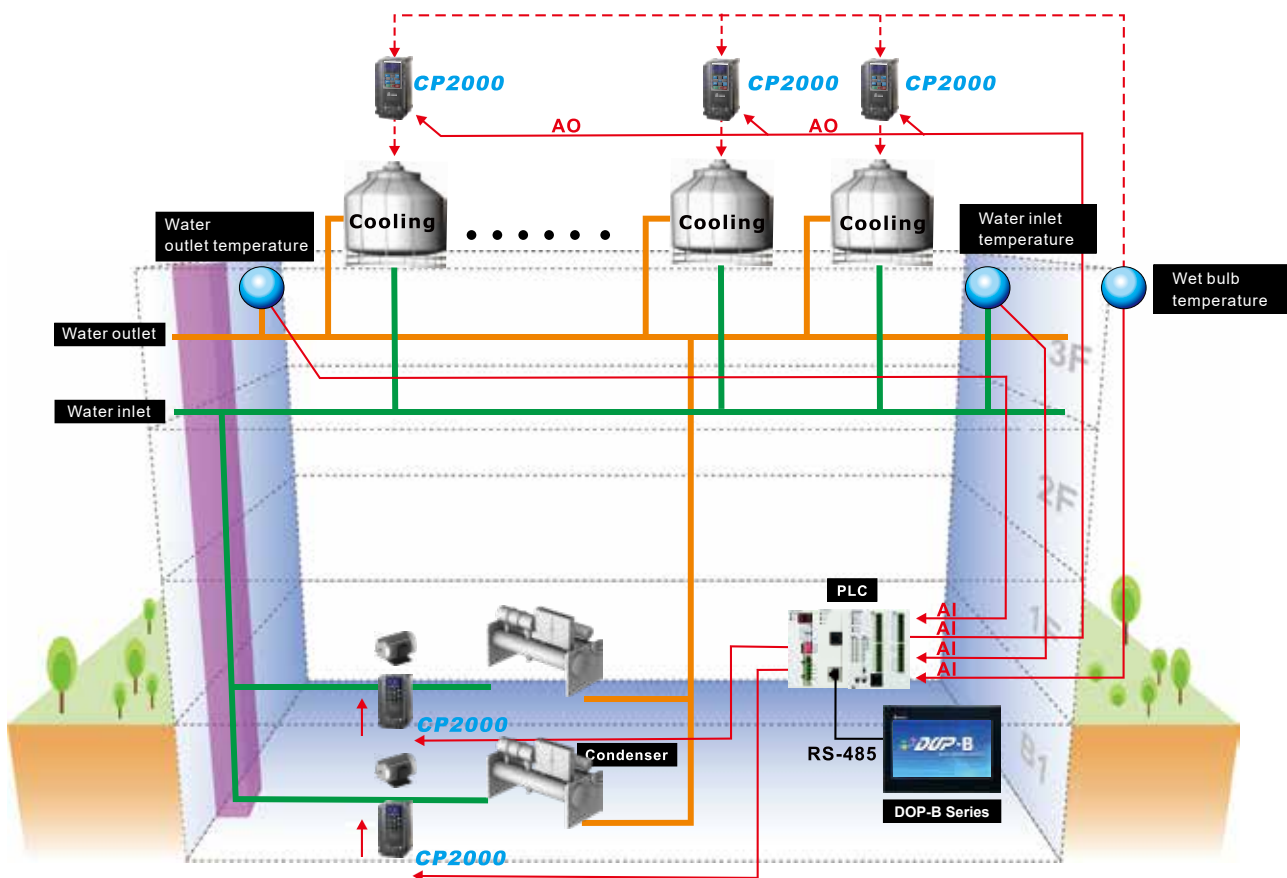
- Built-in RS-485 (Modbus)
- Built-in BACnet MS/TP 

▶ Various communication card options

PROFINET, PROFIBUS DP, **EtherNet/IP**, BACnet IP, DeviceNet, Modbus TCP, CANopen (DS402)

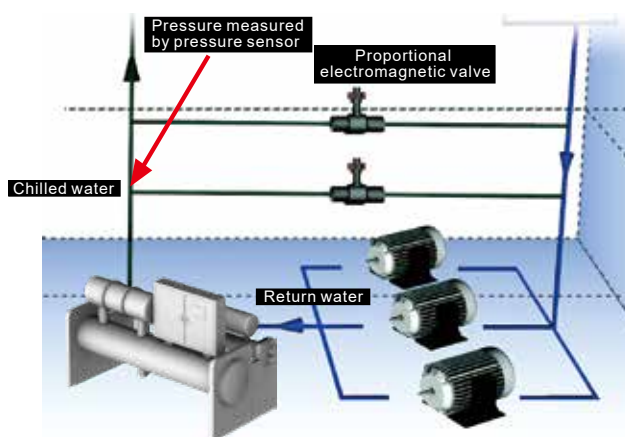
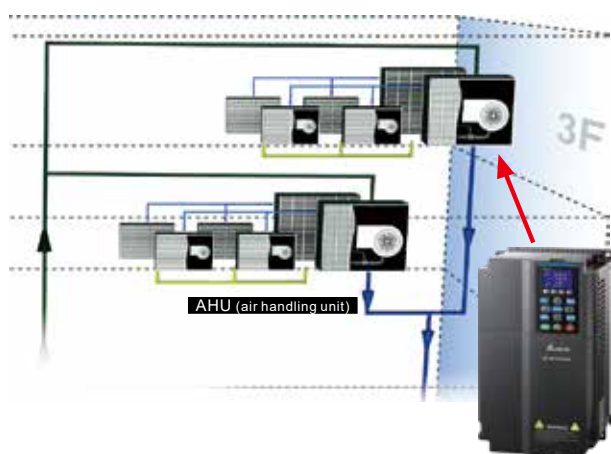
Building Automation Applications

- ▶ 4-point adjustable V/F control - Real-time adjustment of output voltage under variable torque load environments, especially for pump and fan applications.
- ▶ Flying start and auto restart after momentary power loss functions, suitable for fan application.
- ▶ Skip frequency function avoids mechanical resonance and protects the equipment.
- ▶ Low-current protection function prevents free load operation.
- ▶ Built-in BACnet communication protocol saves wiring for building automation applications.



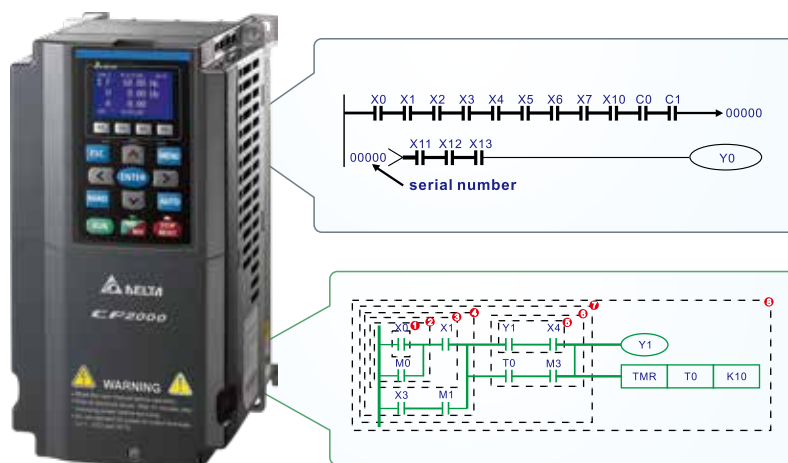
Improves Motor Performance

- ▶ Sensorless Vector Control (SVC) and auto-tuning functions improve motor performance for variable torque load applications.
- ▶ Deceleration Energy Backup (DEB) function decelerates motor to a stop when sudden power failure occurs to protect the equipment from damage.
- ▶ Auto adjusting acceleration/deceleration speed, reduces mechanical vibration when activating and stopping the equipment and provides smooth operation.
- ▶ Energy saving control functions include PID control, sleep/wakeup mode and auto-energy saving mode.



Built-in PLC Function

- ▶ Built-in 10K steps PLC function supports independent and distributed control when connecting to a network system for high operation flexibility.
- ▶ Real Time Clock (RTC) function facilitates the PLC program writing process for ON/OFF chronology, daylight saving operation and many other settings.



Standards

| | |
|--|---|
| <ul style="list-style-type: none"> ■ CE Low Voltage: EN61800-5-1 | EMC: <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> ■ UL, cUL ■ RCM ■ ROHS | |

Modular Design

Powerful motor drive control functions. The modular design satisfies various system applications with higher flexibility and is easy to maintain. Accessories include input/output extension cards, communication cards, hot pluggable LCD keypad, removable terminal blocks and removable fans.

- KPC-CC01 keypad
- Standard RJ45 cable for remote operation.
- Easy to install and remove with one press.



- RFI Jumper



- Remove the safety screws and press on both side tabs to remove the cover.



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



- Modular fan design, easy to replace and clean, extending product life.



High Adaptability to Environment


- ▶ Built-in DC choke to suppress harmonics*
- ▶ Built-in EMC and RFI filter for noise suppression*
- ▶ Enhanced conformal coating on PCBs for superior durability 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 Specifications for more detail



Environment 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/cm² per year.

| Environment | Installation Location | IEC60364-1/IEC60664-1 Pollution degree 2, indoor use only | | |
|---|--|---|----------------------|--|
| | Surrounding Temperature | Storage/Transportation (°C) | -25 ~ 70 | |
| | | Non-condensation, non-frozen | | |
| | Rated Humidity | Operation | Max. 95% | |
| | | Storage/Transportation | Max. 95% | |
| | | No condense water | | |
| | Air Pressure | Operation/Storage (kPa) | 86 ~ 106 | |
| | | Transportation (kPa) | 70 ~ 106 | |
| | Pollution Level | IEC60721-3-3 | | |
| | | Operation | Class 3C3; Class 3S2 | |
| Storage | | Class 1C2; Class 1S2 | | |
| Transportation | | Class 2C2; Class 2S2 | | |
| If the AC motor drive is to be used under harsh conditions 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. | | | | |
| Altitude | Operation | If the AC motor drive is installed at an altitude of 0~1,000m, follow normal operation restrictions. If it is installed at altitude 1,000~2,000m, 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 2,000m. For application over 2,000m, please contact Delta for more details. | | |
| | | | | |
| Package Drop | Storage/Transportation | ISTA procedure 1A (according to weight) IEC60068-2-31 | | |
| Vibration | 1.0mm, peak to peak value range from 2Hz to 13.2Hz; 0.7G~1.0G range from 13.2Hz to 55Hz; 1.0G 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) |  | | |

Specifications for Operation Temperature and Protection Level

| Model | Frame | Top Cover | Conduit Box | Protection Level | Operation Temperature |
|---|--|-------------------------|------------------------|---------------------------|---|
| VFDxxxxCP23x-21 VFDxxxxCP43x-21 VFDxxxxCP4Ex-21 VFDxxxxCP53x-21 VFDxxxxCP63x-xx | Frame A~C 230V: 0.75~30kW 460V: 0.75~37kW 575V: 1.5~15kW 690V: 18.5~37kW | Remove top cover | Standard conduit plate | IP20/UL Open Type | 30V & 460V: -10°C~50°C*1 575V & 690V: -10°C~50°C |
| | | Standard with top cover | | IP20/UL Type1/NEMA1 | -10°C~40°C |
| | Frame D~H 230V: ≥ 37kW 460V: ≥ 45kW 690V: ≥ 45kW | N/A | Conduit box | IP20/UL Type1/NEMA1 | -10°C~40°C |
| VFDxxxxCP23x-00 VFDxxxxCP43x-00 VFDxxxxCP63x-00 | Frame D~H 230V: ≥ 37kW 460V: ≥ 45kW 690V: ≥ 45kW | N/A | No conduit box | IP00 IP20/UL Open Type | 230V & 460V: -10°C~50°C*1 690V: -10°C~50°C |



Protection degree for the circled area is IP00; other areas are IP20

*1 When the carrier wave for light duty is 2kHz, the maximum operation temperature can reach up to 50°C

Specifications

| 230 V | | | | | | | | | | | | | | | | | | | |
|------------------------|-------------------------|-------------------------------|---|------|-------------|-----|-----|---------|--------------------------|-----|-----------|--------------------------------|-----|------------|-------------------------|------------|--------|-----|--|
| Frame Size | | A | | | | | B | | | C | | | D | | E | | | | |
| Model VFD-□□□□CP23□-□□ | | 007 | 015 | 022 | 037 | 055 | 075 | 110 | 150 | 185 | 220 | 300 | 370 | 450 | 550 | 750 | 900 | | |
| Output Rating | LIGHT DUTY | Rated Output Capacity (kVA) | 2.0 | 3.0 | 4.0 | 6.0 | 8.4 | 12 | 18 | 24 | 30 | 36 | 42 | 58 | 72 | 86 | 110 | 128 | |
| | | Rated Output Current (A) | 5 | 7.5 | 10 | 15 | 21 | 31 | 46 | 61 | 75 | 90 | 105 | 146 | 180 | 215 | 276 | 322 | |
| | | Applicable Motor Output (kW) | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | |
| | | Applicable Motor Output (HP) | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes | | | | | | | | | | | | | | | | |
| | NORMAL DUTY | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | | | | | | 400.00 | | |
| | | Carrier Frequency (kHz) | 2~15 (default setting 8) | | | | | | 2~10 (default setting 6) | | | | | | 2~9 (default setting 4) | | | | |
| | | Rated Output Capacity (kVA) | 1.2 | 2.0 | 3.2 | 4.4 | 6.8 | 10 | 13 | 20 | 26 | 30 | 36 | 48 | 58 | 72 | 86 | 102 | |
| | | Rated Output Current (A) | 3 | 5 | 8 | 11 | 17 | 25 | 33 | 49 | 65 | 75 | 90 | 120 | 146 | 180 | 215 | 255 | |
| | | Applicable Motor Output (kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 19 | 22 | 30 | 37 | 45 | 55 | 75 | |
| Input Rating | LIGHT DUTY | Applicable Motor Output (HP) | 0.5 | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | | | | | | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | | | | | | 400.00 | | |
| | | Carrier Frequency (kHz) | 2~15 (default setting 8) | | | | | | 2~10 (default setting 6) | | | | | | 2~9 (default setting 4) | | | | |
| | | Rated Output Capacity (kVA) | 1.2 | 2.0 | 3.2 | 4.4 | 6.8 | 10 | 13 | 20 | 26 | 30 | 36 | 48 | 58 | 72 | 86 | 102 | |
| | NORMAL DUTY | Rated Output Current (A) | 3 | 5 | 8 | 11 | 17 | 25 | 33 | 49 | 65 | 75 | 90 | 120 | 146 | 180 | 215 | 255 | |
| | | Applicable Motor Output (kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 19 | 22 | 30 | 37 | 45 | 55 | 75 | |
| | | Applicable Motor Output (HP) | 0.5 | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | | | | | | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | | | | | | 400.00 | | |
| Input Rating | LIGHT DUTY | Carrier Frequency (kHz) | 2~15 (default setting 8) | | | | | | 2~10 (default setting 6) | | | | | | 2~9 (default setting 4) | | | | |
| | | Input Current (A) Light Duty | 6.4 | 9.6 | 15 | 22 | 25 | 35 | 50 | 65 | 83 | 100 | 116 | 146 | 180 | 215 | 276 | 322 | |
| | | Input Current (A) Normal Duty | 3.9 | 6.4 | 12 | 16 | 20 | 28 | 36 | 52 | 72 | 83 | 99 | 124 | 143 | 171 | 206 | 245 | |
| | | Rated Voltage/Frequency | 3-phase, 200~240 V _{AC} (-15%~+10%), 50/60 Hz | | | | | | | | | | | | | | | | |
| | | Operating Voltage Range | 170~264 V _{AC} | | | | | | | | | | | | | | | | |
| | NORMAL DUTY | Frequency Tolerance | 47~63 Hz | | | | | | | | | | | | | | | | |
| | | Efficiency (%) | 97.8 | | | | | | | | | | | | | | 98.2 | | |
| | | Power Factor | >0.98 | | | | | | | | | | | | | | | | |
| | | Weight (Kg) | 2.6 ± 0.3 | | | | | 5.4 ± 1 | | | 9.8 ± 1.5 | | | 38.5 ± 1.5 | | 64.8 ± 1.5 | | | |
| | | Cooling Method | Natural Cooling | | Fan Cooling | | | | | | | | | | | | | | |
| Braking Chopper | Frame A, B, C, Built-in | | | | | | | | | | | Frame D and above: Optional | | | | | | | |
| DC Choke | Frame A, B, C, Optional | | | | | | | | | | | Frame D and above: Built-in 3% | | | | | | | |
| EMC Filter | Optional | | | | | | | | | | | | | | | | | | |

| 460 V | | | | | | | | | | | | | | | | | | | |
|---|--|-------------------------------|---|------|-------------|------|------|---------|--------------------------|------|-----------|------|------|--------|-----|-----|-----|-----|--|
| Frame Size | | A | | | | | B | | | C | | | D0 | | | | | | |
| Models VFD-□□□□CP43□-□□ VFD-□□□□CP4E□-□□ | | 007 | 015 | 022 | 037 | 040 | 055 | 075 | 110 | 150 | 185 | 220 | 300 | 370 | 450 | 550 | | | |
| Output Rating | LIGHT DUTY | Rated Output Capacity (kVA) | 2.4 | 3.3 | 4.4 | 6.8 | 8.4 | 10.4 | 14.3 | 19 | 25 | 30 | 36 | 48 | 58 | 73 | 88 | | |
| | | Rated Output Current (A) | 3 | 4.2* | 5.5* | 8.5* | 10.5 | 13* | 18* | 24* | 32* | 38* | 45 | 60* | 73* | 91 | 110 | | |
| | | Applicable Motor Output (kW) | 0.75 | 1.5 | 2.2 | 3.7 | 4.0 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | | |
| | | Applicable Motor Output (HP) | 1 | 2 | 3 | 5 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes | | | | | | | | | | | | | | | | |
| | NORMAL DUTY | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | | | | | | | | |
| | | Carrier Frequency (kHz) | 2~15 (default setting 8) | | | | | | 2~10 (default setting 6) | | | | | | | | | | |
| | | Rated Output Capacity (kVA) | 2.2 | 2.4 | 3.2 | 4.8 | 7.2 | 8.4 | 10.4 | 14.3 | 19 | 25 | 30 | 36 | 48 | 58 | 73 | 88 | |
| | | Rated Output Current (A) | 1.7 | 3.0 | 4.0 | 6.0 | 9.0 | 10.5 | 12 | 18 | 24 | 32 | 38 | 45 | 60 | 73 | 91 | 110 | |
| | | Applicable Motor Output (kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 4.0 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | |
| Input Rating | LIGHT DUTY | Applicable Motor Output (HP) | 0.5 | 1 | 2 | 3 | 5 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 53 | 60 | | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | | | | | | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | | | | | | | | |
| | | Carrier Frequency (kHz) | 2~15 (default setting 8) | | | | | | 2~10 (default setting 6) | | | | | | | | | | |
| | | Rated Output Capacity (kVA) | 2.2 | 2.4 | 3.2 | 4.8 | 7.2 | 8.4 | 10.4 | 14.3 | 19 | 25 | 30 | 36 | 48 | 58 | 73 | 88 | |
| | NORMAL DUTY | Rated Output Current (A) | 1.7 | 3.0 | 4.0 | 6.0 | 9.0 | 10.5 | 12 | 18 | 24 | 32 | 38 | 45 | 60 | 73 | 91 | 110 | |
| | | Applicable Motor Output (kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 4.0 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | |
| | | Applicable Motor Output (HP) | 0.5 | 1 | 2 | 3 | 5 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 53 | 60 | 75 | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | | | | | | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | | | | | | | | |
| Input Rating | LIGHT DUTY | Carrier Frequency (kHz) | 2~15 (default setting 8) | | | | | | 2~10 (default setting 6) | | | | | | | | | | |
| | | Input Current (A) Light Duty | 4.3 | 6.0 | 8.1 | 12.4 | 16 | 20 | 22 | 26 | 35 | 42 | 50 | 66 | 80 | 91 | 110 | | |
| | | Input Current (A) Normal Duty | 3.5 | 4.3 | 5.9 | 8.7 | 14 | 15.5 | 17 | 20 | 26 | 35 | 40 | 47 | 63 | 74 | 101 | | |
| | | Rated Voltage/Frequency | 3-phase, 380~480 V _{AC} (-15%~+10%), 50/60 Hz | | | | | | | | | | | | | | | | |
| | | Operating Voltage Range | 323~528 V _{AC} | | | | | | | | | | | | | | | | |
| | NORMAL DUTY | Frequency Tolerance | 47~63 Hz | | | | | | | | | | | | | | | | |
| | | Efficiency (%) | 97.8 | | | | | | | | | | | | | | | | |
| | | Power Factor | >0.98 | | | | | | | | | | | | | | | | |
| | | Weight (Kg) | 2.6 ± 0.3 | | | | | 5.4 ± 1 | | | 9.8 ± 1.5 | | | 27 ± 1 | | | | | |
| | | Cooling Method | Natural cooling | | Fan cooling | | | | | | | | | | | | | | |
| Braking Chopper | Frame A, B, C, Built-in; Frame D and above, Optional | | | | | | | | | | | | | | | | | | |
| DC Choke | Frame A, B, C, Optional; Frame D and above, Built-in 3% | | | | | | | | | | | | | | | | | | |
| EMC Filter | Frame A, B, C of VFD____CP4EA_-_-; Built-in Frame A, B, C of VFD____CP43A_-_-; no built-in Frame D above, Optional | | | | | | | | | | | | | | | | | | |

* It means the rated output current is for the models of version B. (e.g. VFD015CP43B-21)

| 460 V | | | | | | | | | | | | | | | | | | |
|------------------------|-------------------------------|--|---|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Frame Size | | D | | | E | | F | | G | | | H | | | | | | |
| Model VFD-□□□□CP43□-□□ | | 750 | 900 | 1100 | 1320 | 1600 | 1850 | 2000 | 2200 | 2500 | 2800 | 3150 | 3550 | 4000 | 5000 | 5600 | 6300 | |
| Output Rating | LIGHT DUTY | Rated Output Capacity (kVA) | 120 | 143 | 175 | 207 | 247 | 295 | 315 | 367 | 383 | 422 | 491 | 544 | 613 | 773 | 872 | 966 |
| | | Rated Output Current (A) | 150* | 180 | 220 | 260* | 310 | 370* | 395 | 460 | 481 | 530 | 616 | 683 | 770 | 930 | 1094 | 1212 |
| | | Applicable Motor Output (kW) | 75 | 90 | 110 | 132 | 160 | 185 | 200 | 220 | 250 | 280 | 315 | 355 | 400 | 500 | 560 | 630 |
| | | Applicable Motor Output (HP) | 100 | 125 | 150 | 175 | 215 | 250 | 270 | 300 | 340 | 375 | 425 | 475 | 530 | 675 | 750 | 850 |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes | | | | | | | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | 400.00 | | | | | | | | | | | | | | |
| | | Carrier Frequency (kHz) | 2~10 (default setting 6) | 2~9 (default setting 4) | | | | | | | | | | | | | | |
| | NORMAL DUTY | Rated Output Capacity (kVA) | 88 | 120 | 143 | 175 | 207 | 247 | 270 | 295 | 315 | 367 | 438 | 491 | 544 | 720 | 741 | 872 |
| | | Rated Output Current (A) | 110 | 150 | 180 | 220 | 260 | 310 | 310 | 370 | 395 | 460 | 550 | 616 | 683 | 866 | 930 | 1094 |
| | | Applicable Motor Output (kW) | 55 | 75 | 90 | 110 | 132 | 160 | 160 | 185 | 200 | 220 | 280 | 315 | 355 | 450 | 500 | 560 |
| | | Applicable Motor Output (HP) | 75 | 100 | 125 | 150 | 175 | 215 | 215 | 250 | 270 | 300 | 375 | 425 | 475 | 600 | 675 | 750 |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | | | | | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | 400.00 | | | | | | | | | | | | | | |
| | | Carrier Frequency (kHz) | 2~10 (default setting 6) | 2~9 (default setting 4) | | | | | | | | | | | | | | |
| Input Rating | Input Current (A) Light Duty | 150 | 180 | 220 | 260 | 310 | 370 | 395 | 460 | 481 | 530 | 616 | 683 | 770 | 930 | 1094 | 1212 | |
| | Input Current (A) Normal Duty | 114 | 157 | 167 | 207 | 240 | 300 | 300 | 380 | 390 | 400 | 494 | 555 | 625 | 866 | 930 | 1094 | |
| | Rated Voltage/Frequency | 3-phase, 380~480 V _{AC} (-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 | | | | | | | | | | | | | | | | | |
| Weight (Kg) | 38.5 ± 1.5 | 64.8 ± 1.5 | 86.5 ± 1.5 | 134 ± 4 | | | 228 | | | | | | | | | | | |
| Cooling Method | Fan cooling | | | | | | | | | | | | | | | | | |
| Braking Chopper | Frame D above, Optional | | | | | | | | | | | | | | | | | |
| DC Choke | Frame D above, Built-in, 3% | | | | | | | | | | | | | | | | | |
| EMC Filter | Frame D above, Optional | | | | | | | | | | | | | | | | | |

* It means the rated output current is for the models of Version B. (e.g. VFD015CP43B-21)

| 575 V | | | | | | | | | | | | | | | | | |
|-------------------------------|-------------------------|--|-------------------------|-----|------|------|-------------|------|------|--|--|--|--|--|--|--|--|
| Frame Size | | A | | | | | | B | | | | | | | | | |
| Model VFD-□□□CP53A-21 | | 015 | 022 | 037 | 055 | 075 | 110 | 150 | | | | | | | | | |
| Output * | LIGHT DUTY | Rated Output Capacity (kVA) | 3 | 4.3 | 6.7 | 9.9 | 12.1 | 18.6 | 24.1 | | | | | | | | |
| | | Rated Output Current (A) | 3 | 4.3 | 6.7 | 9.9 | 12.1 | 18.7 | 24.2 | | | | | | | | |
| | | Applicable Motor Output (kW) | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | | | | | | | | |
| | | Applicable Motor Output (HP) | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | | | | | | | | |
| | NORMAL DUTY | Rated Output Capacity (kVA) | 2.5 | 3.6 | 5.5 | 8.2 | 10 | 15.4 | 19.9 | | | | | | | | |
| | | Rated Output Current (A) | 2.5 | 3.6 | 5.5 | 8.2 | 10 | 15.4 | 20 | | | | | | | | |
| | | Applicable Motor Output (kW) | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | | | | | | | | |
| | | Applicable Motor Output (HP) | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | | | | | | | | |
| | Carrier Frequency (kHz) | | 2~9 (default setting 4) | | | | | | | | | | | | | | |
| | Input | Input Current (A) Light Duty | 3.8 | 5.4 | 10.4 | 14.9 | 16.9 | 21.3 | 26.3 | | | | | | | | |
| Input Current (A) Normal Duty | | 3.1 | 4.5 | 7.2 | 12.3 | 15 | 18 | 22.8 | | | | | | | | | |
| Rated Voltage/Frequency | | 3-Phase, 525~600 V _{AC} (-15%~+10%), 50/60 Hz | | | | | | | | | | | | | | | |
| Operating Voltage Range | | 446~660 V _{AC} | | | | | | | | | | | | | | | |
| Frequency Tolerance | 47~63 Hz | | | | | | | | | | | | | | | | |
| Efficiency (%) | 97 | | | | | | 98 | | | | | | | | | | |
| Power Factor | >0.98 | | | | | | | | | | | | | | | | |
| AC Drive Weight (Kg) | 3±0.3 | | | | | | 4.8±1 | | | | | | | | | | |
| Cooling Method | Natural cooling | | | | | | Fan cooling | | | | | | | | | | |
| Braking Chopper | Built-in | | | | | | | | | | | | | | | | |
| DC Choke | Optional | | | | | | | | | | | | | | | | |

| 690V | | | | | | | | | | | | |
|-------------------------|-------------------------------|--|---|------|--------|------------------------------|-----|--------|-----|------|------|-----|
| Frame Size | | C | | | | D | | E | | | | |
| Model VFD-□□□CP63A-□□ | | 185 | 220 | 300 | 370 | 450 | 550 | 750 | 900 | 1100 | 1320 | |
| Output * | LIGHT DUTY | Rated Output Capacity (kVA) | 29 | 36 | 43 | 54 | 65 | 80 | 103 | 124 | 149 | 179 |
| | | Applicable Motor Output (690V, kW) | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 | 132 |
| | | Applicable Motor Output (690V, HP) | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 | 150 | 175 |
| | | Applicable Motor Output (575V, HP) | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 | 150 |
| | | Rated Output Current (A) | 24 | 30 | 36 | 45 | 54 | 67 | 86 | 104 | 125 | 150 |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | |
| | NORMAL DUTY | Rated Output Capacity (kVA) | 24 | 29 | 36 | 43 | 54 | 65 | 80 | 103 | 124 | 149 |
| | | Applicable Motor Output (690V, kW) | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 |
| | | Applicable Motor Output (690V, HP) | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 | 150 |
| | | Applicable Motor Output (575V, HP) | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 |
| | | Rated Output Current (A) | 20 | 24 | 30 | 36 | 45 | 54 | 67 | 86 | 104 | 125 |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | |
| Carrier Frequency (kHz) | 2~9 (default setting 4) | | | | | | | | | | | |
| Input | Input Current (A) Light Duty | 29 | 36 | 43 | 54 | 65 | 81 | 84 | 102 | 122 | 147 | |
| | Input Current (A) Normal Duty | 24 | 29 | 36 | 43 | 54 | 65 | 66 | 84 | 102 | 122 | |
| | Rated Voltage/Frequency | 3-Phase, 525~690 V _{AC} (-15%~+10%), 50/60 Hz | | | | | | | | | | |
| | Operating Voltage Range | 446~759 V _{AC} | | | | | | | | | | |
| | Frequency Tolerance | 47~63 Hz | | | | | | | | | | |
| Efficiency (%) | 97 | | | | | | | | | | | |
| Power Factor | >0.98 | | | | | | | | | | | |
| AC Drive Weight (Kg) | 10±1.5 | | | | 39±1.5 | | | 61±1.5 | | | | |
| Cooling Method | Fan cooling | | | | | | | | | | | |
| Braking Chopper | Frame C (built-in) | | | | | Frame D and above (optional) | | | | | | |
| DC Choke | Frame C (optional) | | | | | Frame D and above (built-in) | | | | | | |


| 690V | | | | | | | | | | | | |
|-------------------------|-------------------------------|--|---|-------|------|------|-------|-------|-------|----------------------------|--|--|
| Frame Size | | F | | | G | | H | | | | | |
| Model VFD-□□□CP63A-□□ | | 1600 | 2000 | 2500 | 3150 | 4000 | 4500 | 5600 | 6300 | | | |
| Output * | LIGHT DUTY | Rated Output Capacity (kVA) | 215 | 263 | 347 | 418 | 494.5 | 534.7 | 678.5 | 776 | | |
| | | Applicable Motor Output (690V, kW) | 160 | 200 | 250 | 315 | 400 | 450 | 560 | 630 | | |
| | | Applicable Motor Output (690V, HP) | 215 | 270 | 335 | 425 | 530 | 600 | 750 | 850 | | |
| | | Applicable Motor Output (575V, HP) | 150 | 200 | 250 | 350 | 400 | 450 | 500 | 750 | | |
| | | Rated Output Current (A) | 180 | 220 | 290 | 350 | 430 | 465 | 590 | 675 | | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | |
| | NORMAL DUTY | Rated Output Capacity (kVA) | 179 | 215 | 239 | 347 | 402.5 | 442.7 | 534.7 | 776 | | |
| | | Applicable Motor Output (690V, kW) | 132 | 160 | 200 | 250 | 315 | 355 | 450 | 630 | | |
| | | Applicable Motor Output (690V, HP) | 175 | 215 | 270 | 335 | 425 | 475 | 600 | 850 | | |
| | | Applicable Motor Output (575V, HP) | 150 | 150 | 200 | 250 | 350 | 400 | 450 | 750 | | |
| | | Rated Output Current (A) | 150 | 180 | 220 | 290 | 350 | 385 | 465 | 675 | | |
| | | Overload Tolerance | 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | | | | | | | |
| | | Max. Output Frequency (Hz) | 599.00 | | | | | | | | | |
| Carrier Frequency (kHz) | 2~9 (default setting 4) | | | | | | | | | 2~9 (default setting 3) | | |
| Input | Input Current (A) Light Duty | 178 | 217 | 292 | 353 | 454 | 469 | 595 | 681 | | | |
| | Input Current (A) Normal Duty | 148 | 178 | 222 | 292 | 353 | 388 | 504 | 681 | | | |
| | Rated Voltage/Frequency | 3-Phase, 525~690 V _{AC} (-15%~+10%), 50/60 Hz | | | | | | | | | | |
| | Operating Voltage Range | 446~759 V _{AC} | | | | | | | | | | |
| | Frequency Tolerance | 47~63 Hz | | | | | | | | | | |
| Efficiency (%) | 97 | | | | 98 | | | | | | | |
| Power Factor | >0.98 | | | | | | | | | | | |
| AC Drive Weight (Kg) | 88±1.5 | | | 135±4 | | | 243±5 | | | | | |
| Cooling Method | Fan cooling | | | | | | | | | | | |
| Braking Chopper | Frame D and above (optional) | | | | | | | | | | | |
| DC Choke | Frame D and above (built-in) | | | | | | | | | | | |

Note : 1. When a load is a surge load, use a higher level model.

2. For Frame A, B and C, Model VFDXXXCPXXX-21, the enclosure type is IP20/ UL OPEN TYPE.

3. For Frame D and above, if the last two characters of the model are 00, then the enclosure type is IP00/ IP20/ UL OPEN TYPE; if the last two characters of the model are 21, the enclosure type is IP20/NEMA1/ UL TYPE1.

General Specifications

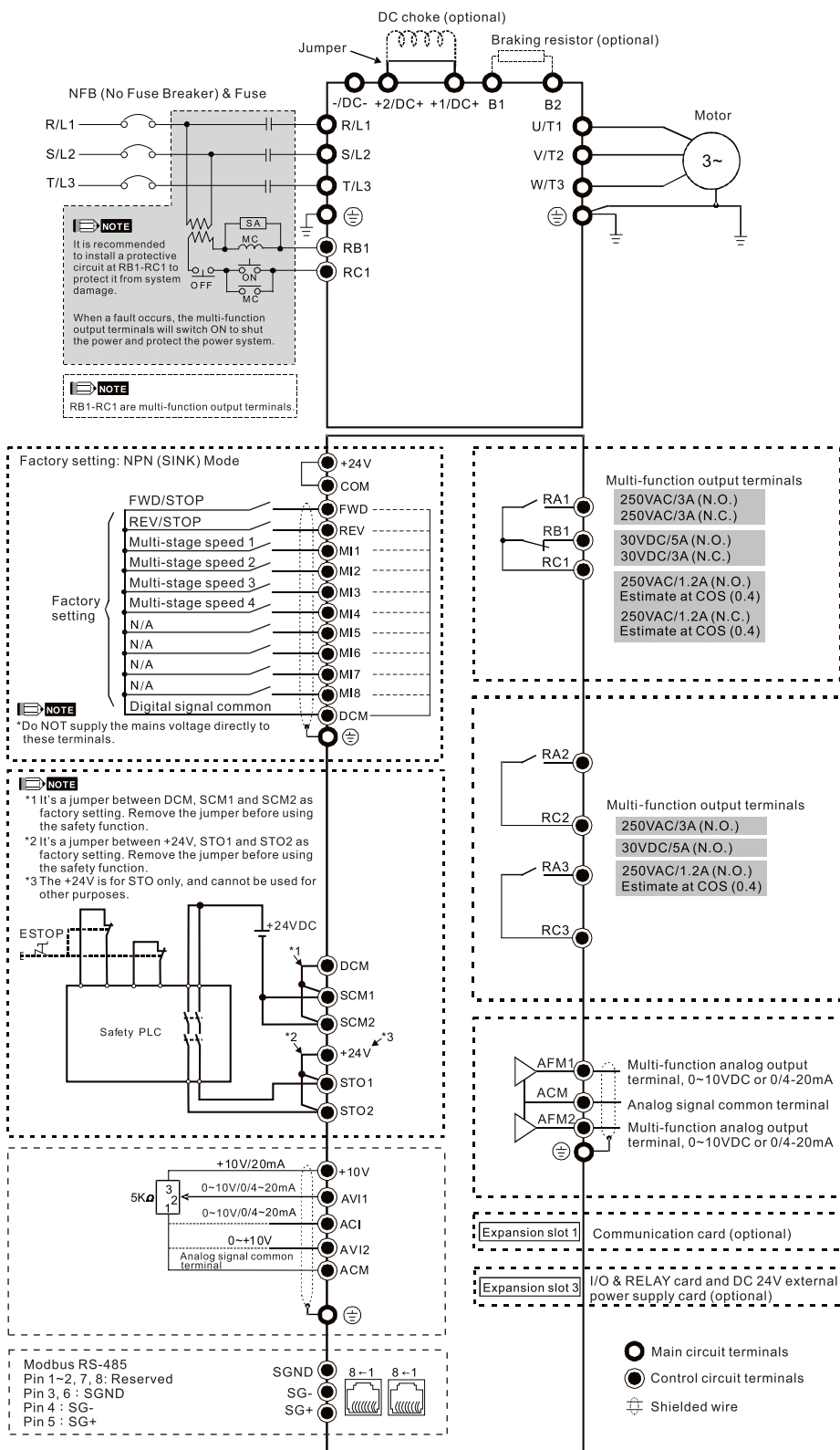
| | | | | | |
|--|---|--|------------------------------------|--------------------------------------|--------------------------------|
| Control Characteristics | Control Method | Pulse Width Modulated (PWM) | | | |
| | Control Mode | 1: V/F (V/F control), 2: SVC (Sensorless Vector Control), 3: PM (Permanent Magnet Motor) | | | |
| | Starting Torque | Reach up to 150% or above at 0.5Hz | | | |
| | V/F Curve | 4 point adjustable V/F curve and square curve | | | |
| | Speed Response Ability | 5Hz | | | |
| | Torque Limit | Light Duty: Max. 130% torque current; Normal Duty: Max. 160% torque current | | | |
| | Torque Accuracy | ±5% | | | |
| | Max. Output Frequency (Hz) | 230 V model: 599.00 (55kW and above: 400.00) 460 V model: 599.00 (90kW and above: 400.00) 575V/690 V model: 599.00 | | | |
| | 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: Max. output frequency×0.03/60Hz (±11 bit) | | | |
| | Overload Tolerance | Light duty: 120% of rated current for 1 minute during every 5 minutes Normal duty: 120% of rated current for 1 minute during every 5 minutes; 160% of rated current for 3 seconds during every 25 seconds | | | |
| | Frequency Setting Signal | 0~+10V, 4~20 mA, 0~20 mA | | | |
| | Accel./decel. Time | 0.00~600.00/0.0~6000.0 seconds | | | |
| Main Control Function | Fault restart | Torque limit | High-Slip braking | Dwell | 3-wire sequence |
| | Speed search | Parameter copy | JOG frequency | Slip compensation | Torque compensation |
| | S-curve accel/decel | Energy saving control | Accel/Decel. Time switch | Frequency upper/lower limit settings | Momentary power loss ride thru |
| | PID control (with sleep function) | Auto-Tuning (rotational, stationary) | DC injection braking at start/stop | BACnet Communication | 17-step speed (max.) |
| | Over-torque detection | Modbus communication (RS-485 RJ45, Max. 5.2Kbps) | | | |
| Fan Control | 230 V model: Model with spec higher than VFD185CP23 (included) are PWM control; Model with spec lower than VFD150CP23 (not included) are on/off switch control. 460 V model: Model with spec higher than VFD220CP43/4E (included) are PWM control; Model with spec lower than VFD185CP43/4E (not included) are on/off switch control. 575V/690 V model: PWM control | | | | |
| Protection Characteristics | Motor Protection | Electronic thermal relay protection | | | |
| | Over-Current Protection | 230V/460V model: Light duty: Over-current protection for 185% rated current, Normal duty: Over-current protection for 240% rated current, Current clamp (Light duty: 130~135%); (Normal duty: 170~175%) | | | |
| | | 575V/690V model: Over-current protection for 225% rated current Current clamp (Light duty: around 128~141%); (Normal duty: around 170~175%) | | | |
| | Over-Voltage Protection | 230V model: drive will stop when DC bus voltage exceeds 410V 460V model: drive will stop when DC bus voltage exceeds 820V 575V model: drive will stop when DC bus voltage exceeds 1016V 690V model: drive will stop when DC bus voltage exceeds 1189V | | | |
| | 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* |  SEMI F47, GB/T12668.3 | | | | |

Note : 1. EAC Certification is for 230 V and 460 V models only
2. No UL certification for models above 500 kW

Wiring

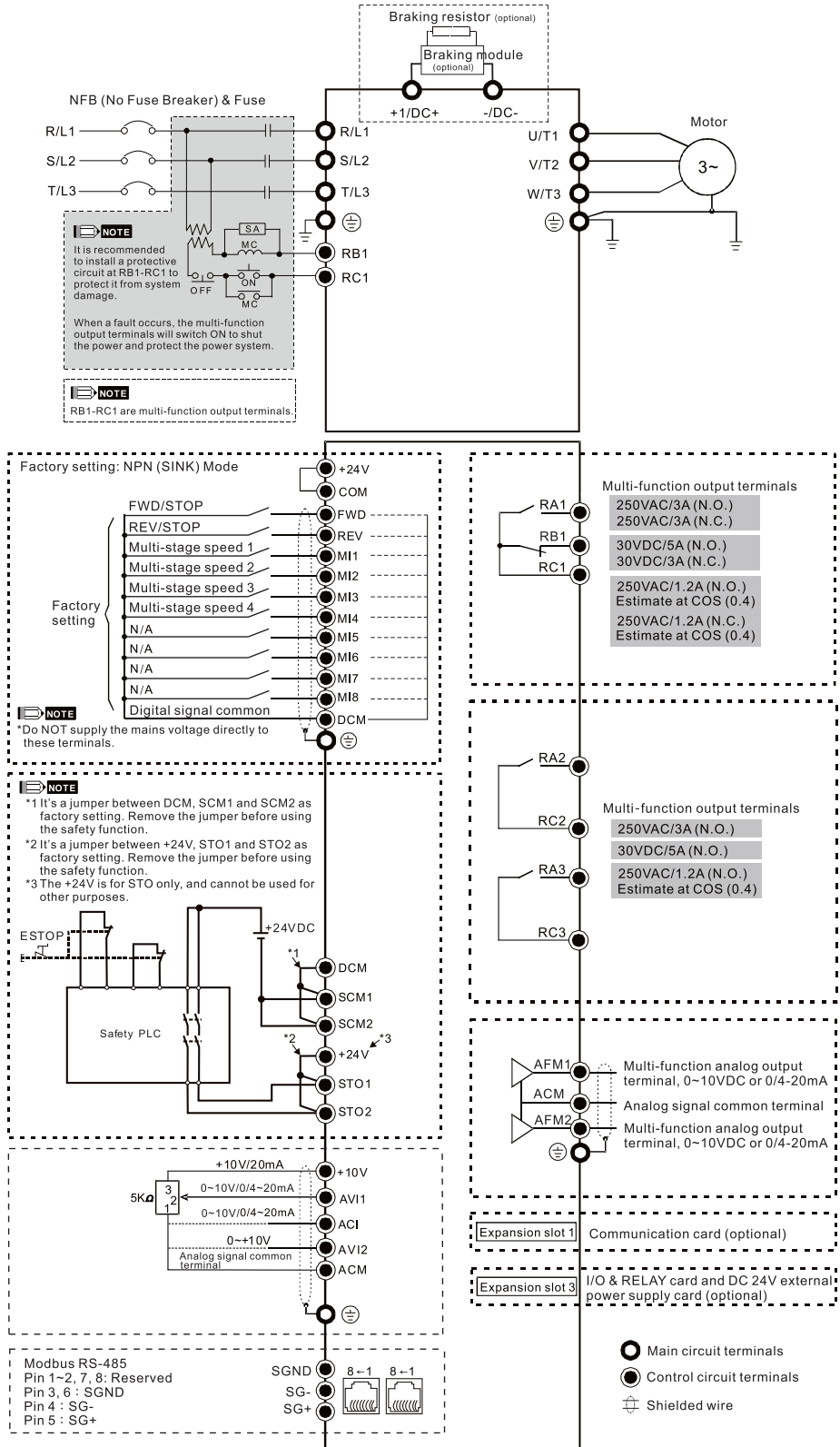
Wiring Diagram for Frame A ~ C

*Input: 3-phase power



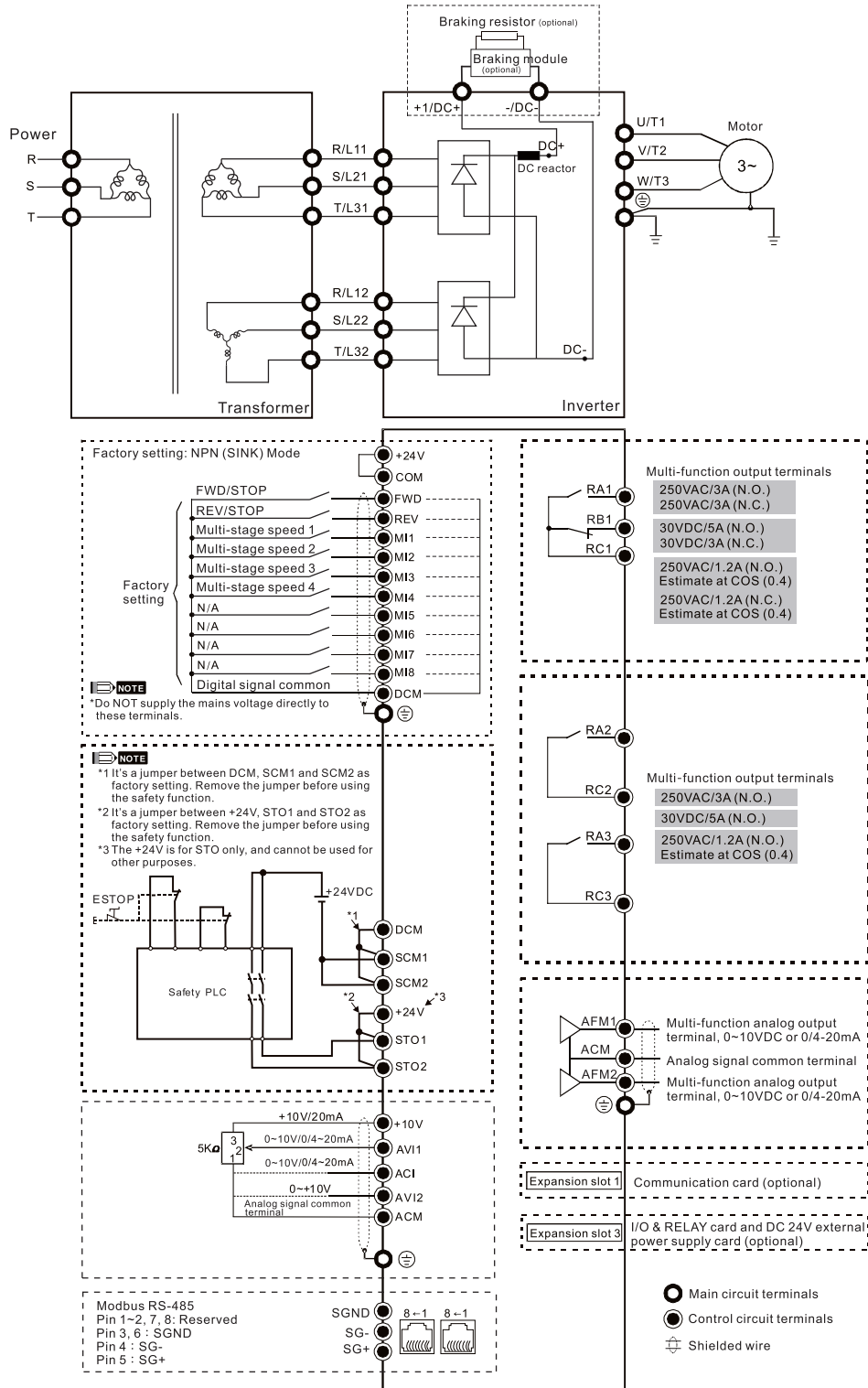
Wiring Diagram for Frame D ~ F

*Input: 3-phase power



Wiring Diagram for Frame G ~ H

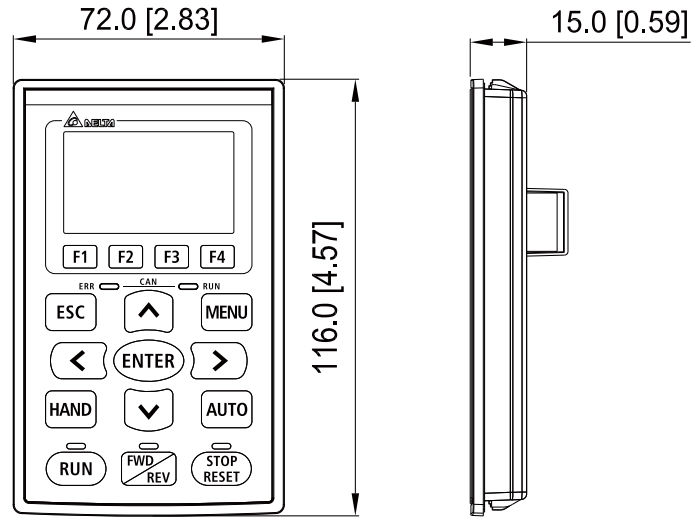
*Input: 3-phase power



• When wiring for 12 Pulse Input, please strictly follow above wiring diagram.

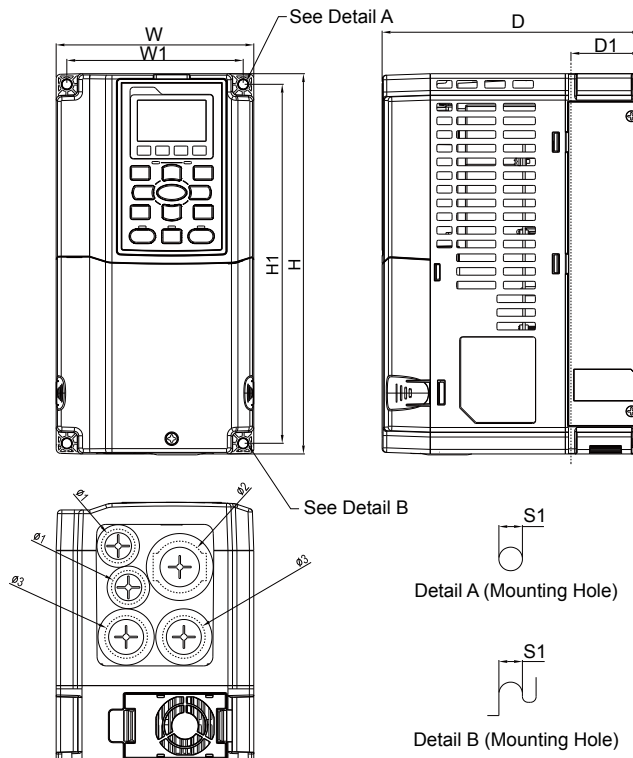
Dimensions

Digital Keypad Unit: mm [inch]



Standard LCD keypad

Frame A



MODEL

- VFD007CP23A-21 VFD007CP4EA-21
- VFD015CP23A-21 VFD015CP4EB-21
- VFD022CP23A-21 VFD022CP4EB-21
- VFD037CP23A-21 VFD037CP4EB-21
- VFD055CP23A-21 VFD040CP4EA-21
- VFD007CP43A-21 VFD055CP4EB-21
- VFD015CP43B-21 VFD075CP4EB-21
- VFD022CP43B-21 VFD015CP53A-21
- VFD037CP43B-21 VFD022CP53A-21
- VFD040CP43A-21 VFD037CP53A-21
- VFD055CP43B-21
- VFD075CP43B-21

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

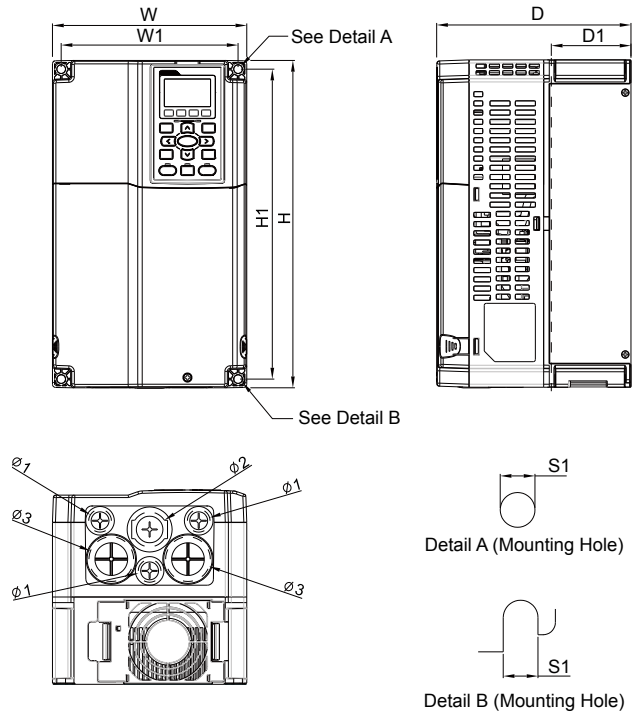
*D1: Flange mount.



Frame B

MODEL

- VFD075CP23A-21
- VFD110CP23A-21
- VFD150CP23A-21
- VFD110CP43B-21
- VFD150CP43B-21
- VFD185CP43B-21
- VFD110CP4EB-21
- VFD150CP4EB-21
- VFD185CP4EB-21
- VFD055CP53A-21
- VFD075CP53A-21
- VFD110CP53A-21
- VFD150CP53A-21



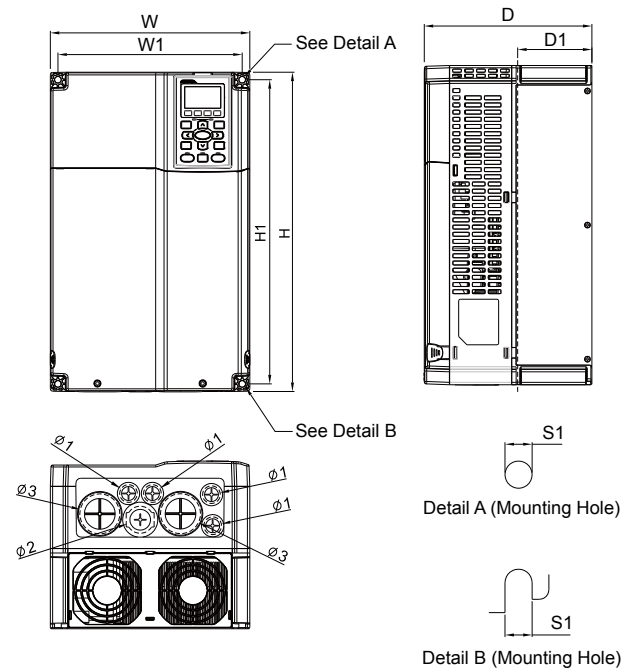
| Frame | W | H | D | W1 | H1 | D1* | S1 | Ø1 | Ø2 | Ø3 | |
|-------|------|-------|-------|-------|-------|-------|------|------|------|------|------|
| B1 | mm | 190.0 | 320.0 | 190.0 | 173.0 | 303.0 | 77.9 | 8.5 | 22.2 | 34.0 | 43.8 |
| | inch | 7.48 | 12.60 | 7.48 | 6.81 | 11.93 | 3.07 | 0.33 | 0.87 | 1.34 | 1.72 |

*D1: Flange mount.

Frame C

MODEL

- VFD185CP23A-21
- VFD220CP23A-21
- VFD300CP23A-21
- VFD220CP43A-21
- VFD300CP43B-21
- VFD370CP43B-21
- VFD220CP4EA-21
- VFD300CP4EB-21
- VFD370CP4EB-21
- VFD185CP63A-21
- VFD220CP63A-21
- VFD300CP63A-21
- VFD370CP63A-21



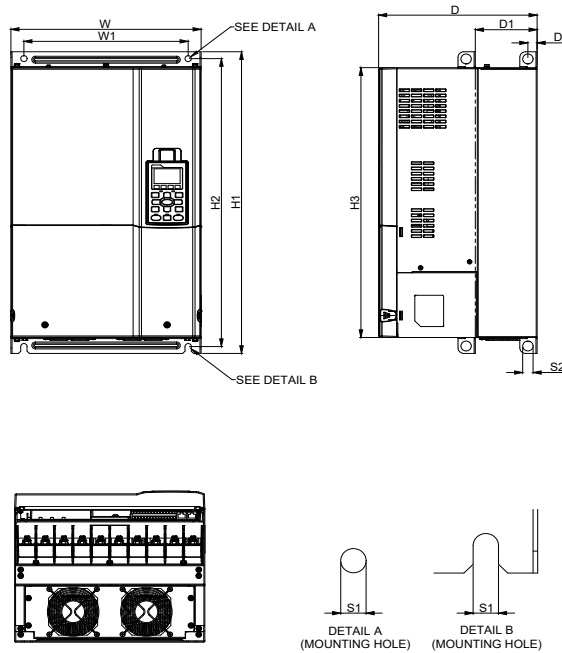
| Frame | W | H | D | W1 | H1 | D1* | S1 | Ø1 | Ø2 | Ø3 |
|-------|------|-------|-------|-------|-------|-------|------|------|------|------|
| C1 | mm | 250.0 | 400.0 | 231.0 | 381.0 | 92.9 | 8.5 | 22.2 | 34.0 | 50.0 |
| | inch | 9.84 | 15.75 | 8.27 | 9.09 | 15.00 | 3.66 | 0.33 | 0.87 | 1.97 |

*D1: Flange mount.

Frame D1

MODEL
FRAME_D1

VFD370CP23A-00
VFD450CP23A-00
VFD750CP43B-00
VFD900CP43A-00
VFD450CP63A-00
VFD550CP63A-00



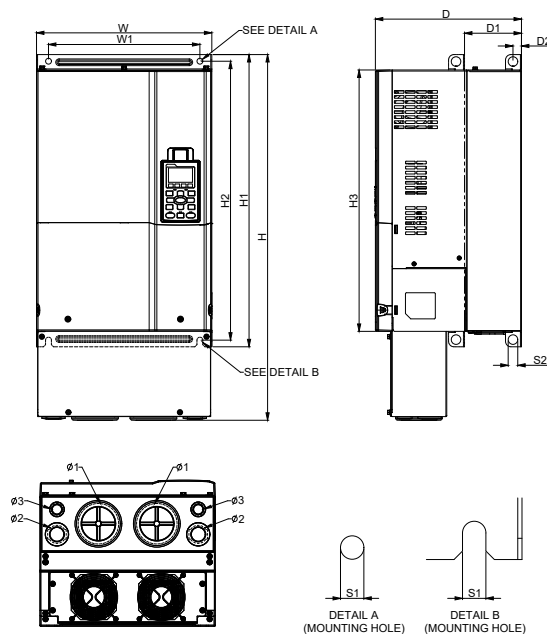
| Frame | W | H | D | W1 | H1 | H2 | H3 | D1* | D2 | S1 | S2 | Ø1 | Ø2 | Ø3 | |
|-------|------|-------|---|-------|-------|-------|-------|-------|-------|------|------|------|----|----|---|
| D1 | mm | 330.0 | - | 275.0 | 285.0 | 550.0 | 525.0 | 492.0 | 107.2 | 16.0 | 11.0 | 18.0 | - | - | - |
| |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

*D1: Flange mount.

Frame D2

MODEL
FRAME_D2

VFD370CP23A-21
VFD450CP23A-21
VFD750CP43B-21
VFD900CP43A-21
VFD450CP63A-21
VFD550CP63A-21



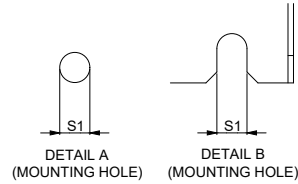
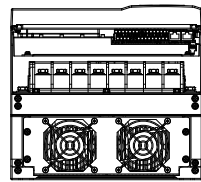
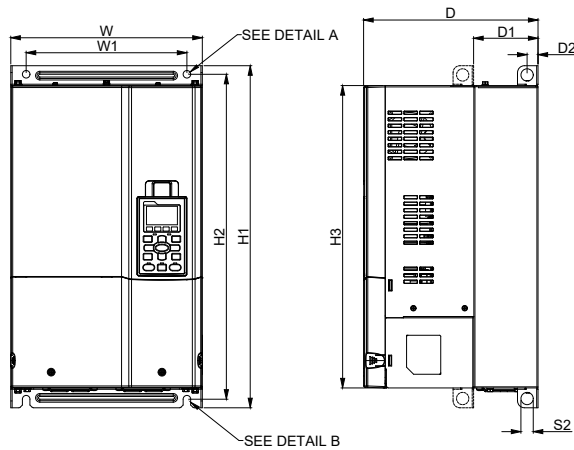
| Frame | W | H | D | W1 | H1 | H2 | H3 | D1* | D2 | S1 | S2 | Ø1 | Ø2 | Ø3 | |
|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| D2 | mm | 330.0 | 688.3 | 275.0 | 285.0 | 550.0 | 525.0 | 492.0 | 107.2 | 16.0 | 11.0 | 18.0 | 76.2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

*D1: Flange mount.

Frame D0-1

MODEL
FRAME_D0-1

VFD450CP43S-00
VFD550CP43S-00



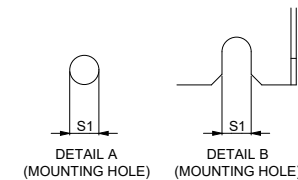
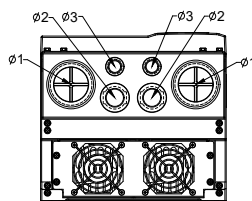
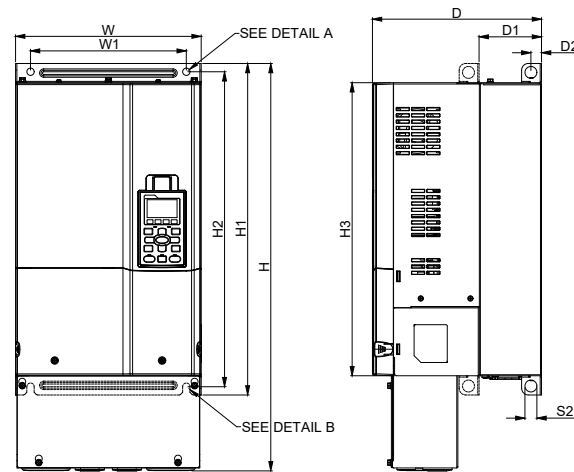
| Frame | | W | H | D | W1 | H1 | H2 | H3 | D1* | D2 | S1 | S2 |
|-------|------|-------|---|-------|-------|-------|-------|-------|------|------|------|------|
| D0-1 | mm | 280.0 | - | 255.0 | 235.0 | 500.0 | 475.0 | 442.0 | 94.2 | 16.0 | 11.0 | 18.0 |
| | inch | 11.02 | - | 10.04 | 9.25 | 19.69 | 18.70 | 17.40 | 3.71 | 0.63 | 0.43 | 0.71 |

*D1: Flange mount.

Frame D0-2

MODEL
FRAME_D0-2

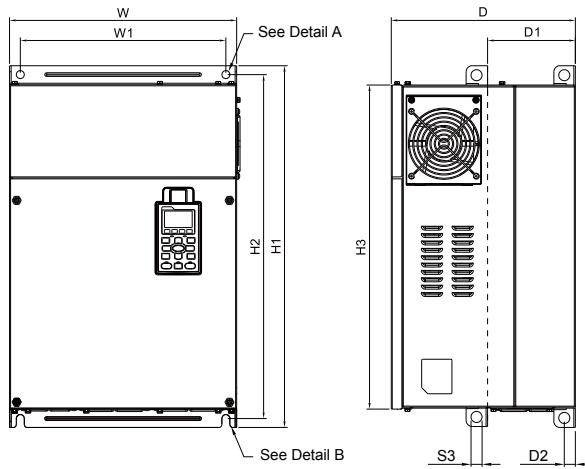
VFD450CP43S-21
VFD550CP43S-21



| Frame | | W | H | D | W1 | H1 | H2 | H3 | D1* | D2 | S1 | S2 | Ø1 | Ø2 | Ø3 |
|-------|------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| D0-2 | mm | 280.0 | 614.4 | 255.0 | 235.0 | 500.0 | 475.0 | 442.0 | 94.2 | 16.0 | 11.0 | 18.0 | 62.7 | 34.0 | 22.0 |
| | inch | 11.02 | 24.19 | 10.04 | 9.25 | 19.69 | 18.70 | 17.40 | 3.71 | 0.63 | 0.43 | 0.71 | 2.47 | 1.34 | 0.87 |

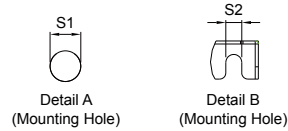
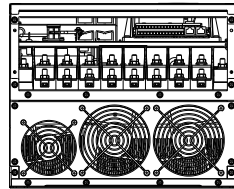
*D1: Flange mount.

Frame E1



MODEL

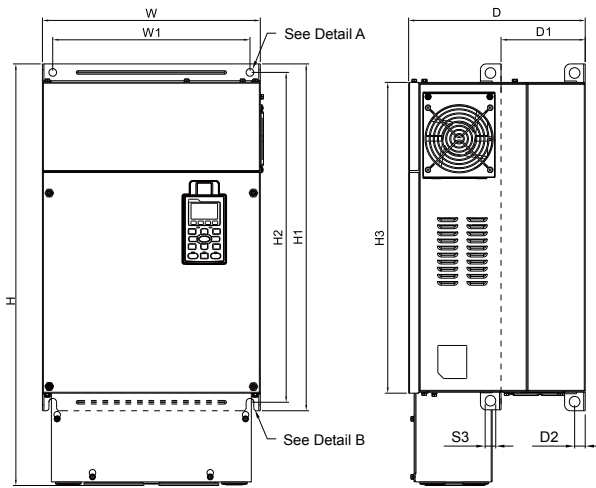
| | |
|-----------------|-----------------|
| VFD550CP23A-00 | VFD750CP63A-00 |
| VFD750CP23A-00 | VFD900CP63A-00 |
| VFD900CP23A-00 | VFD1100CP63A-00 |
| VFD1100CP43A-00 | VFD1320CP63A-00 |
| VFD1320CP43B-00 | |



| Frame | | W | H | D | W1 | H1 | H2 | H3 | D1* | D2 | S1 | S2 | S3 | Ø1 | Ø2 | Ø3 |
|-------|------|-------|---|-------|-------|-------|-------|-------|-------|------|------|------|------|----|----|----|
| E1 | mm | 370.0 | - | 300.0 | 335.0 | 589.0 | 560.0 | 528.0 | 143.0 | 18.0 | 13.0 | 13.0 | 18.0 | - | - | - |
| | inch | 14.57 | - | 11.81 | 13.19 | 23.19 | 22.05 | 20.80 | 5.63 | 0.71 | 0.51 | 0.51 | 0.71 | - | - | - |

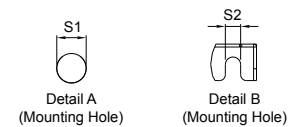
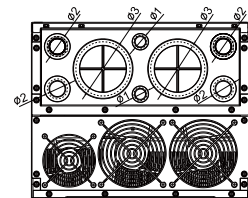
*D1: Flange mount.

Frame E2



MODEL

| | |
|-----------------|-----------------|
| VFD550CP23A-21 | VFD750CP63A-21 |
| VFD750CP23A-21 | VFD900CP63A-21 |
| VFD900CP23A-21 | VFD1100CP63A-21 |
| VFD1100CP43A-21 | VFD1320CP63A-21 |
| VFD1320CP43B-21 | |

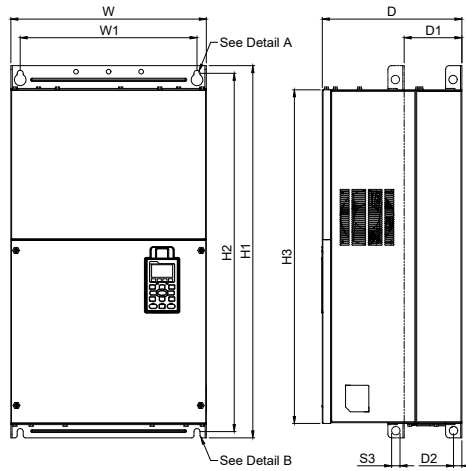


| Frame | | W | H | D | W1 | H1 | H2 | H3 | D1* | D2 | S1 | S2 | S3 | Ø1 | Ø2 | Ø3 |
|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| E2 | mm | 370.0 | 715.8 | 300.0 | 335.0 | 589.0 | 560.0 | 528.0 | 143.0 | 18.0 | 13.0 | 13.0 | 18.0 | 22.0 | 34.0 | 92.0 |
| | inch | 14.57 | 28.18 | 11.81 | 13.19 | 23.19 | 22.05 | 20.80 | 5.63 | 0.71 | 0.51 | 0.51 | 0.71 | 0.87 | 1.34 | 3.62 |

*D1: Flange mount.

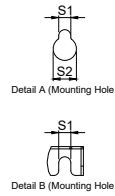
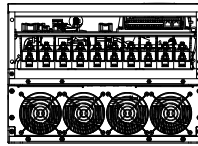


Frame F1



MODEL

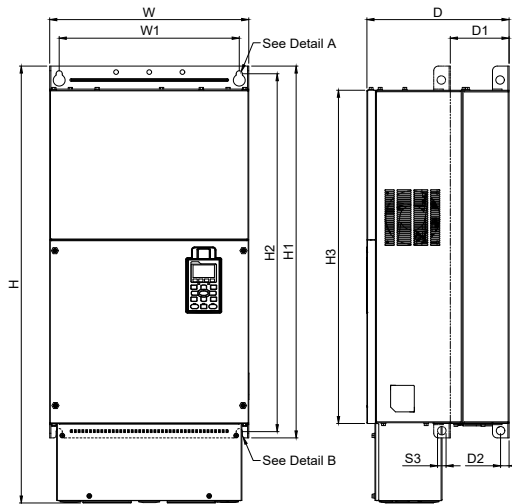
VFD1600CP43A-00
 VFD1850CP43B-00
 VFD1600CP63A-00
 VFD2000CP63A-00



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

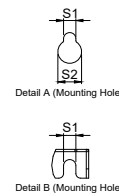
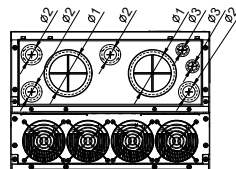
*D1: Flange mount.

Frame F2



MODEL

VFD1600CP43A-21
 VFD1850CP43B-21
 VFD1600CP63A-21
 VFD2000CP63A-21



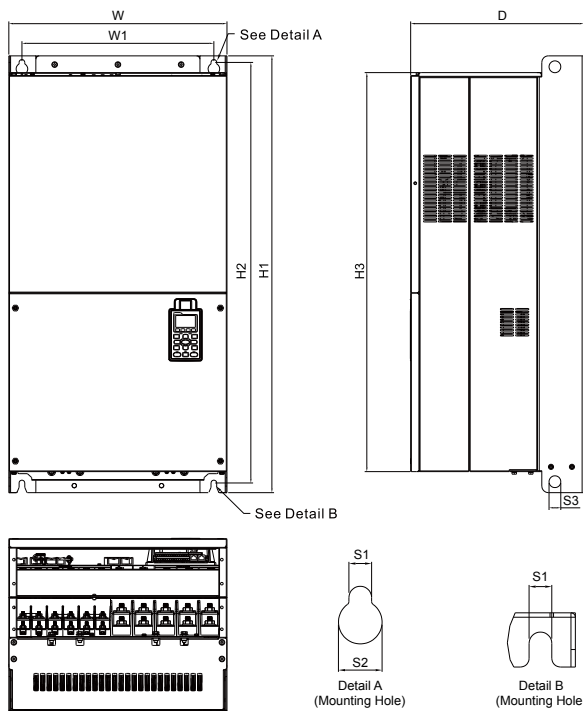
| Frame | | W | H | D | W1 | H1 | H2 | H3 | D1* | D2 | S1 | S2 | S3 | Ø1 | Ø2 | Ø3 |
|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| F2 | mm | 420.0 | 940.0 | 300.0 | 380.0 | 800.0 | 770.0 | 717.0 | 124.0 | 18.0 | 13.0 | 25.0 | 18.0 | 92.0 | 35.0 | 22.0 |
| | inch | 16.54 | 37.00 | 11.81 | 14.96 | 31.50 | 30.32 | 28.23 | 4.88 | 0.71 | 0.51 | 0.98 | 0.71 | 3.62 | 1.38 | 0.87 |

*D1: Flange mount.

Frame G1

MODEL

- VFD2000CP43A-00
- VFD2200CP43A-00
- VFD2500CP43A-00
- VFD2800CP43A-00
- VFD2500CP63A-00
- VFD3150CP63A-00

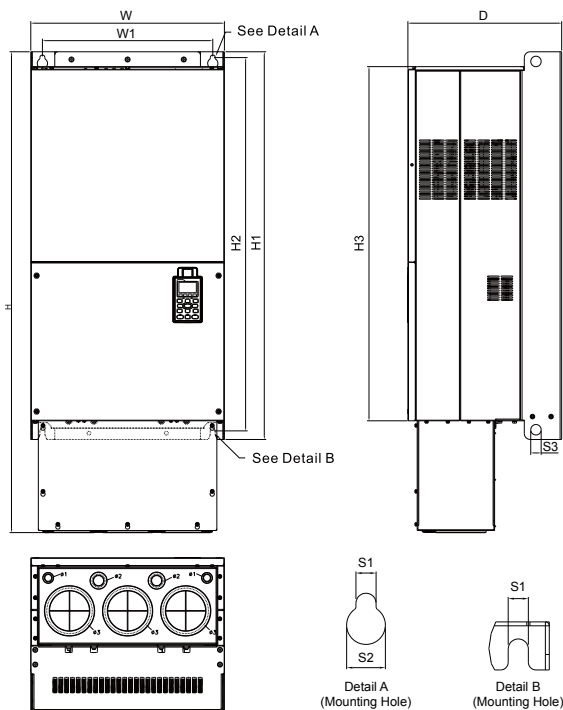


| Frame | W | H | D | W1 | H1 | H2 | H3 | S1 | S2 | S3 | Ø1 | Ø2 | Ø3 | |
|-------|------|-------|---|-------|--------|--------|-------|-------|------|------|------|----|----|---|
| G1 | mm | 500.0 | - | 397.0 | 440.0 | 1000.0 | 963.0 | 913.6 | 13.0 | 26.5 | 27.0 | - | - | - |
| | inch | 19.69 | - |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

Frame G2

MODEL

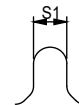
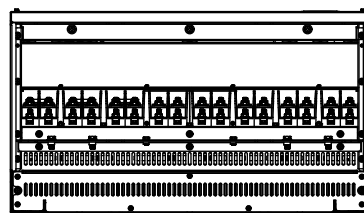
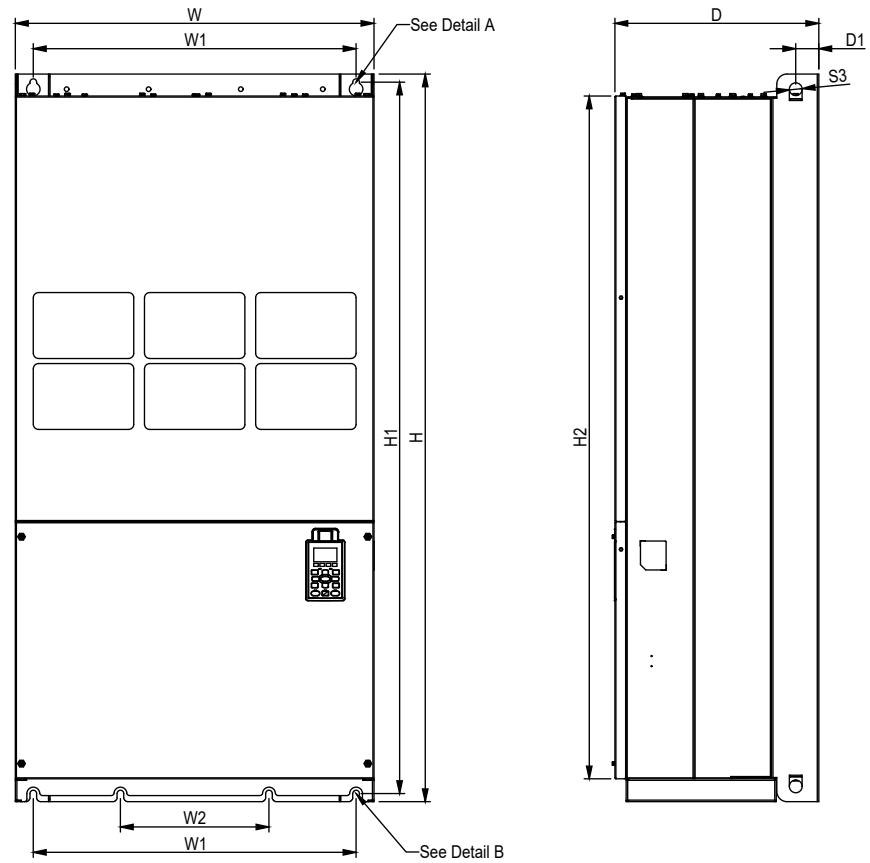
- VFD2000CP43A-21
- VFD2200CP43A-21
- VFD2500CP43A-21
- VFD2800CP43A-21
- VFD2500CP63A-21
- VFD3150CP63A-21



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



Frame H1



See Detail A(Mounting Hole)

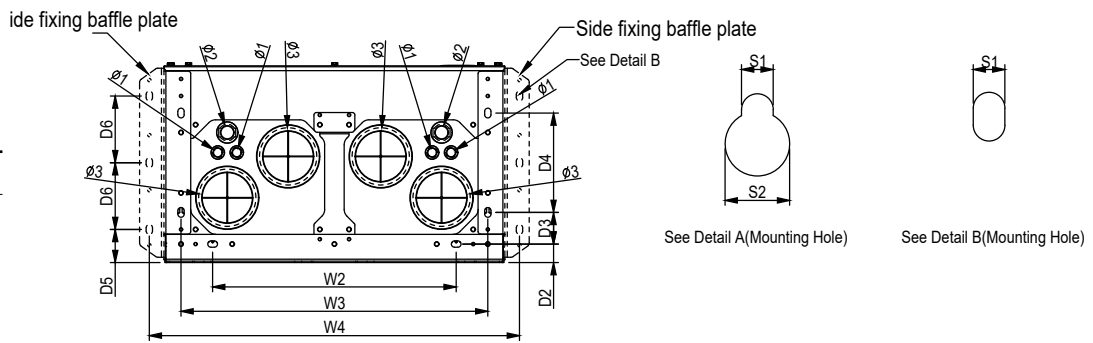
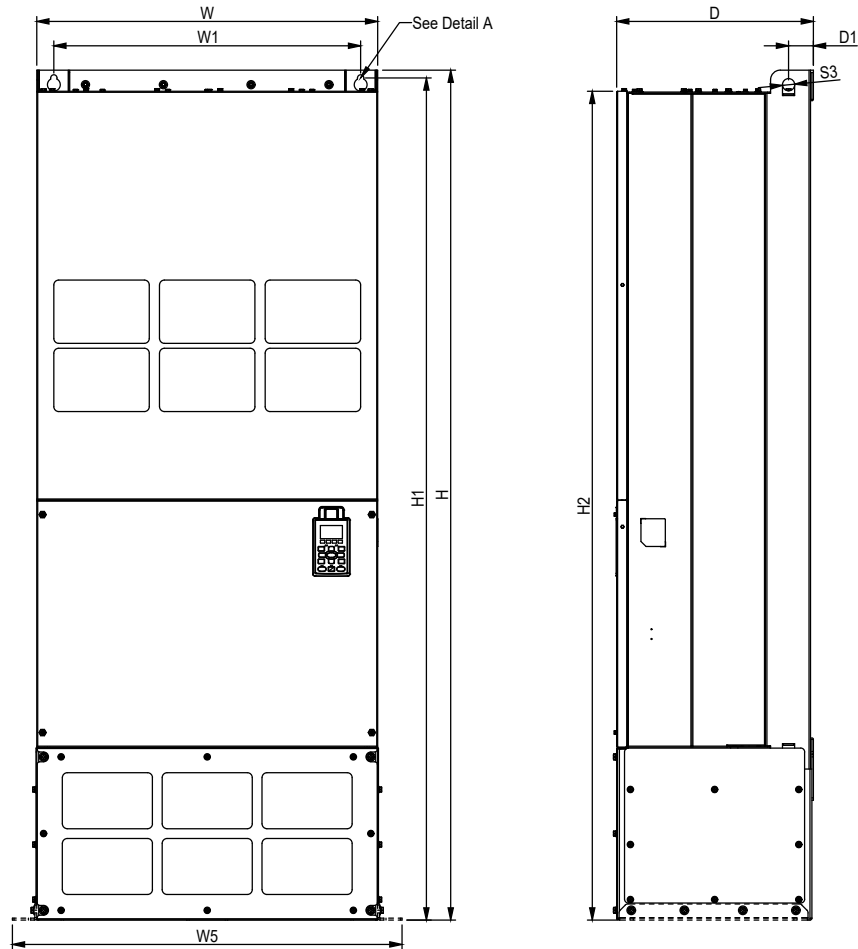
See Detail B(Mounting Hole)

MODEL

- VFD3150CP43A-00
- VFD3550CP43A-00
- VFD4000CP43A-00
- VFD5000CP43A-00
- VFD5600CP43A-00
- VFD6300CP43A-00

| Frame | W | H | D | W1 | W2 | W3 | W4 | W5 | W6 | H1 | H2 | H3 | H4 |
|-------|------|-------|--------|-------|-------|-------|----|------|------|--------|--------|----|----|
| H1 | mm | 700.0 | 1435.0 | 398.0 | 630.0 | 290.0 | - | - | - | 1403.0 | 1346.6 | - | - |
| | inch | 27.56 | 56.5 | 15.67 | 24.80 | 11.42 | - | - | - | 55.24 | 53.02 | - | - |
| Frame | H5 | D1 | D2 | D3 | D4 | D5 | D6 | S1 | S2 | S3 | Ø1 | Ø2 | Ø3 |
| H1 | mm | - | 45.0 | - | - | - | - | 13.0 | 26.5 | 25.0 | - | - | - |
| | inch | - | 1.77 | - | - | - | - | 0.51 | 1.04 | 0.98 | - | - | - |

Frame H3

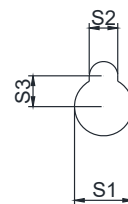
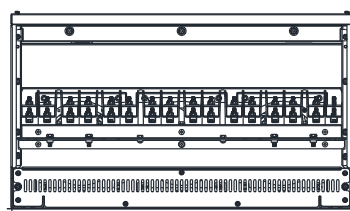
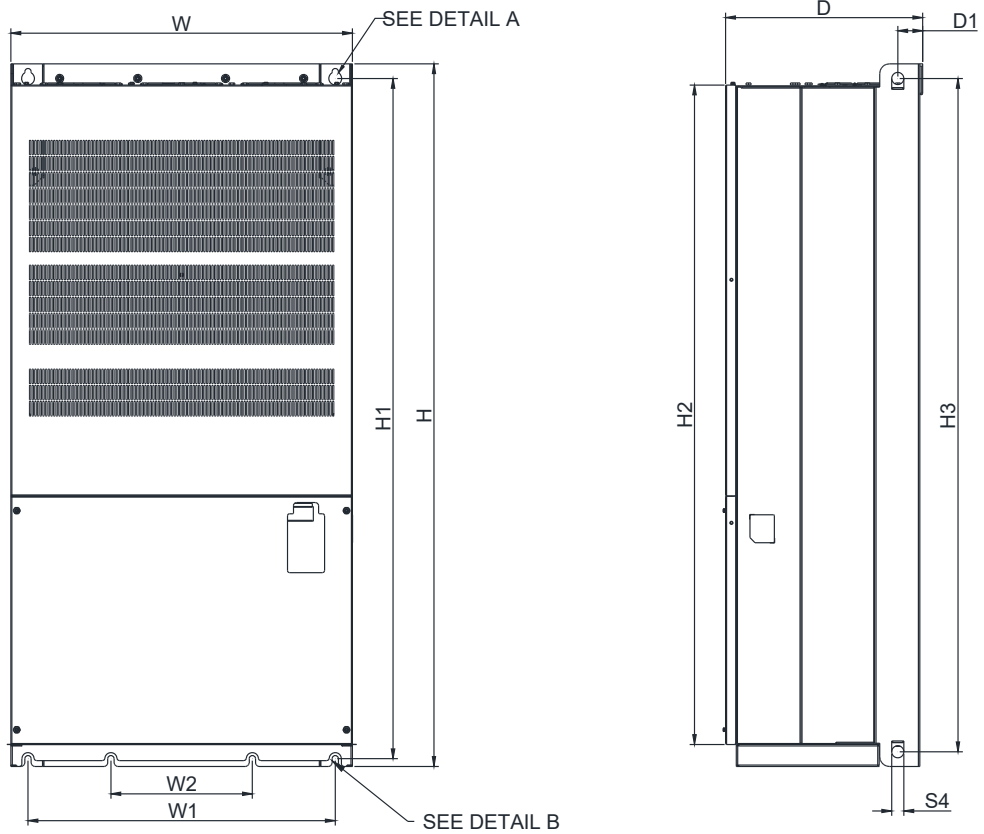


MODEL

- VFD3150CP43C-21
- VFD3550CP43C-21
- VFD4000CP43C-21
- VFD5000CP43C-21
- VFD5600CP43C-21
- VFD6300CP43C-21

| Frame | W | H | D | W1 | W2 | W3 | W4 | W5 | W6 | H1 | H2 | H3 | H4 | |
|-------|------|-------|--------|-------|-------|-------|-------|-------|-------|------|--------|--------|------|-------|
| H3 | mm | 700.0 | 1745.0 | 404.0 | 630.0 | 500.0 | 630.0 | 760.0 | 800.0 | - | 1729.0 | 1701.6 | - | - |
| | inch | 27.56 | 68.70 | 15.91 | 24.80 | 19.69 | 24.80 | 29.92 | 31.50 | - | 68.07 | 66.99 | - | - |
| Frame | H5 | D1 | D2 | D3 | D4 | D5 | D6 | S1 | S2 | S3 | Ø1 | Ø2 | Ø3 | |
| H3 | mm | - | 51.0 | 38.0 | 65.0 | 204.0 | 68.0 | 137.0 | 13.0 | 26.5 | 25.0 | 22.0 | 34.0 | 117.5 |
| | inch | - | 2.0 | 1.50 | 2.56 | 8.03 | 2.68 | 5.4 | 0.51 | 1.04 | 0.98 | 0.87 | 1.34 | 4.63 |

690 V Frame H1



DETAIL A
(MOUNTING HOLE)

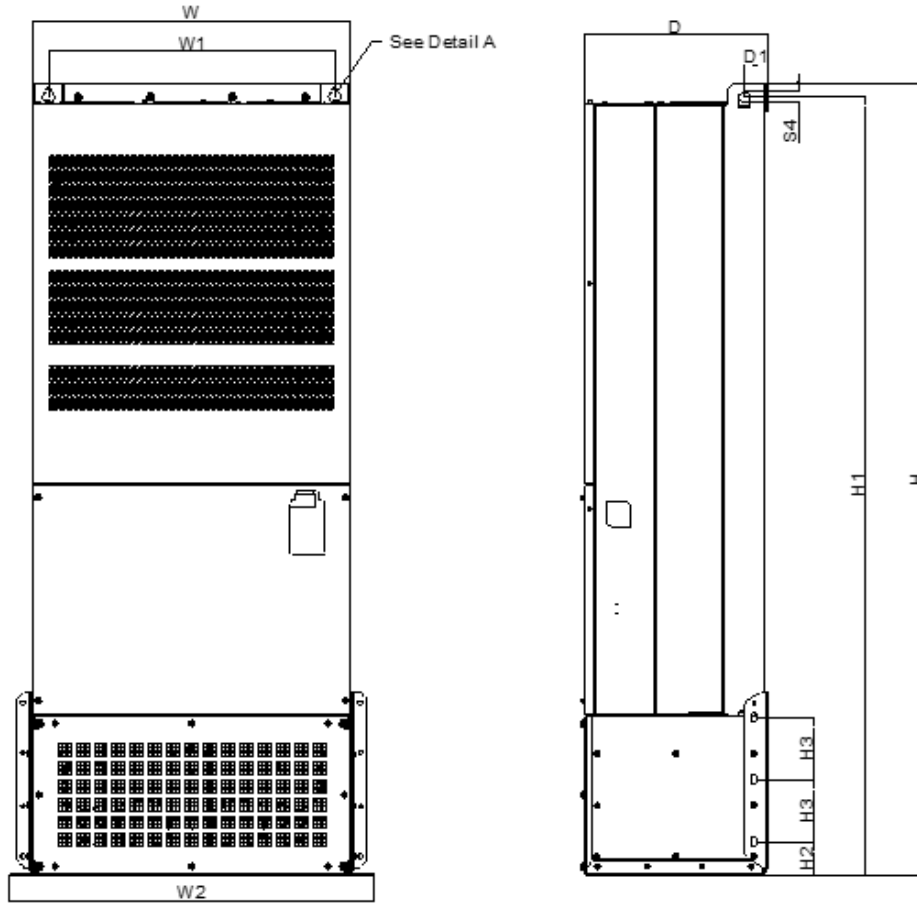
DETAIL B
(MOUNTING HOLE)

MODEL
690V FRAME_H1

- VFD4000CP63A-00
- VFD4500CP63A-00
- VFD5600CP63A-00
- VFD6300CP63A-00

| Frame | | W | H | D | W1 | W2 | W3 | W4 | W5 | W6 | H1 | H2 | H3 | H4 |
|-------|------|-------|--------|-------|-------|-------|----|----|------|------|--------|--------|--------|----|
| H1 | mm | 700.0 | 1435.0 | 398.0 | 630.0 | 290.0 | - | - | - | - | 1389.0 | 1346.6 | 1375.0 | - |
| | inch | 27.56 | 56.5 | 15.67 | 24.8 | 11.42 | - | - | - | - | 54.68 | 53.02 | 54.13 | - |
| Frame | | H5 | D1 | D2 | D3 | D4 | D5 | D6 | S1 | S2 | S3 | S4 | | |
| H1 | mm | - | 45.0 | - | - | - | - | - | 26.5 | 13.0 | 14.0 | 25.0 | | |
| | inch | - | 1.77 | - | - | - | - | - | 1.04 | 0.51 | 0.55 | 0.98 | | |

690 V Frame H2



MODEL
690V FRAME_H2


- VFD4000CP63A-21
- VFD4500CP63A-21
- VFD5600CP63A-21
- VFD6300CP63A-21

| Frame | W | H | D | W1 | W2 | W3 | W4 | W5 | W6 | H1 | H2 | H3 | H4 | H5 | |
|-------|------|-------|--------|-------|-------|-------|-------|-------|-------|------|--------|------|-------|------|-------|
| H2 | mm | 700.0 | 1745.0 | 404.0 | 630.0 | 800.0 | 500.0 | 630.0 | 760.0 | - | 1715.0 | 74.5 | 137.0 | - | - |
| | inch | 27.56 | 68.70 | 15.91 | 24.8 | 31.5 | 19.69 | 24.8 | 29.92 | - | 67.52 | 2.93 | 5.39 | - | - |
| Frame | D1 | D2 | D3 | D4 | D5 | D6 | S1 | S2 | S3 | S4 | S5 | Ø1 | Ø2 | Ø3 | |
| H2 | mm | 51.0 | 68.0 | 137.0 | 103.0 | 204.0 | - | 26.5 | 13.0 | 14.0 | 25.0 | 13.0 | 22.0 | 34.0 | 117.5 |
| | inch | 2.01 | 2.68 | 5.39 | 4.06 | 8.03 | - | 1.04 | 0.51 | 0.55 | 0.98 | 0.51 | 0.87 | 1.34 | 4.63 |

Accessories


Relay Extension Card

▪ EMC-R6AA

| | Terminals | Descriptions |
|---|------------------|---|
|  | RA10~RA15 | Refer to Pr. 02-36~Pr. 02-41 for multi-function output selection Resistive load: 3A (N.O.)/250 V _{AC} 5A (N.O.)/30 V _{DC} Inductive load (COS 0.4) 1.2A (N.O.)/250 V _{AC} 2.0A (N.O.)/30 V _{DC} It is used to output each monitor signal, such as for drive in operation, frequency attained or overload indication. |
| | RC10~RC15 | |


Analog I/O Extension Card

▪ EMC-A22A

| | Terminals | Description |
|--|------------------------------|---|
|  | AVI10 AVI11 | Refer to Pr. 14-00~Pr. 14-01 for function selection (input), and Pr. 14-18~Pr. 14-19 for mode selection Two sets of AVI port for AVI or ACI switch: SSW3 (AVI10) and SSW4 (AVI11) AVI: Input 0~10V ACI: Input 0~20mA/4~20mA |
| | AFM10 AFM11 | Refer to Pr. 14-12~Pr. 14-13 for function selection (output), and Pr. 14-36~Pr. 14-37 for mode selection Two sets of AFM port for AVO or ACO switch: SSW1 (AFM10) and SSW2 (AFM11) AVO: Output 0~10V ACO: Output 0~20.0mA/4.0~20.0mA |
| | ACM | Analog signal common terminal |


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: 100~130 V _{AC} ; Input frequency: 57~63 Hz Input impedance: 27 K Ω Terminal response time: ON: 10 ms; OFF: 20 ms |


I/O Extension Card

▪ 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 Pr. 02-26~Pr. 02-29 to program the multi-function inputs MI10~MI13 Internal power is applied from terminal E24: +24 V _{DC} \pm 5% 200 mA, 5 W External power +24 V _{DC} : max. voltage 30 V _{DC} , min. voltage 19 V _{DC} , 30 W ON: the activation current is 6.5 mA; OFF: leakage current tolerance is 10 μ A |
| | MO10~MO11 | Multi-function output terminals (photocoupler) Duty-cycle: 50%; Max. output frequency: 100 Hz Max. current: 50 mA; Max. voltage: 48 V _{DC} |
| | MXM | Common for multi-function output terminals MO10, MO11 (photocoupler) Max. 48 V _{DC} 50 mA |

24V Power Shift Card

EMC-BPS01

| Terminals | Descriptions |
|--|--|
|  24V GND | Allows operation of network system, PLC function and partial functions when the AC motor drive is power off Input power: 24 V _{DC} ± 5% Maximum input current: 0.5A Note: Do not connect the control terminal +24V (Digital control signal common: SOURCE) directly to the EMC-BPS01 input terminal 24V. Do not connect control terminal GND directly to the EMC-BPS01 input terminal GND. |

CANopen Card

EMC-COP01

| RJ-45 Pin | Pin name | Definition |
|-----------|----------|--------------------------------|
| 1 | CAN_H | CAN_H bus line (dominant high) |
| 2 | CAN_L | CAN_L bus line (dominant low) |
| 3 | CAN_GND | Ground/0V/V- |
| 6 | CAN_GND | Ground/0V/V- |

EtherNet/IP, Modbus TCP Card

CMC-EIP01 / CMC-EIP02 NEW



Features

- ▶ Supports max. 32 words input and 32 words output of I/O connection
- ▶ User-defined parameter mapping
- ▶ IP Filter, basic firewall function
- ▶ Supports DLR ring nodes
*Applicable to CMC-EIP02

Network Interface

| | | | |
|------------------------------|---------------------------------------|---------------------------|-----------------------------|
| Network Protocol | DHCP, BOOTP, EtherNet/IP, Modbus TCP | Interface | RJ-45 |
| Transmission Speed | 10/100 Mbps | Number of Ports | 1(CMC-EIP01) / 2(CMC-EIP02) |
| Transmission Method | I/O connection / Explicit message | Transmission Cable | Category 5e shielding |
| Transmission Distance | 100m, extension is allowed via switch | | |

BACnet Card

eZVFD-CC NEW



Features

- ▶ Supports native BACnet protocol Rev 12
- ▶ Supports BACnet/IP, BACnet over Ethernet communication protocols
- ▶ Dual port Ethernet supports daisy-chaining multiple VFD devices
- ▶ Maps VFD I/O terminals as BACnet I/O
- ▶ Fully programmable in GCL+
- ▶ Setup and configure using Delta Controls facility management software enteliWEB
- ▶ Real-time clock with supercap power backup

eZVFD Connector

| | |
|----------------------------|-------------------|
| Interface | Dual Port RJ45 |
| Transmission Method | Ethernet |
| Transmission Cable | Shielded CAT 5e/6 |

eZVFD Communication

| | |
|---------------------------|----------------------------|
| Transmission Speed | 10/100 Base-T |
| Network Protocol | BACnet/IP, BACnet Ethernet |
| BACnet Protocol | Rev 12 |
| Device Addressing | Software Addressed |

Accessories

PROFINET Card

CMC-PN01 NEW



Features

- ▶ Supports PROFINET IO device
- ▶ Supports synchronous data transmission and synchronous parameter access
- ▶ Provides GSDML file for PROFINET communication

Network Interface

| | | | |
|----------------------------|------------|---------------------------|----------------------------|
| Interface | RJ-45 | Transmission Cable | Category 5e shielding 100M |
| Number of Ports | 2 Ports | Transmission Speed | 10/100 Mbps auto-negotiate |
| Transmission Method | IEEE 802.3 | Network Protocol | PROFINET |

PROFIBUS DP Card

CMC-PD01



Features

- ▶ Supports PZD control data exchange
- ▶ Supports PKW polling AC motor drive parameters
- ▶ Supports user diagnosis function
- ▶ Supports remote I/O function
- ▶ Baud (auto-detection): max. 12Mbps

PROFIBUS DP Connector

| | |
|-----------------------------|-----------------------------|
| Interface | DB9 connector |
| Transmission Method | High-speed RS-485 |
| Transmission Cable | Shielded twisted pair cable |
| Electrical Isolation | 500 V _{DC} |

Communication

| | |
|---|--|
| Message Type | Cyclic data exchange |
| Module Name | CMC-PD01 |
| GSD Document | DELA08DB.GSD |
| Company ID | 08DB (HEX) |
| Serial Transmission Speed Supported (auto-detection) | 9.6 Kbps; 19.2 Kbps; 93.75 Kbps; 187.5 Kbps; 125 Kbps; 250 Kbps; 500 Kbps; 1.5 Mbps; 3 Mbps; 6 Mbps; 12 Mbps (bits per second) |

DeviceNet Card

CMC-DN01



Features

- ▶ Based on the high-speed communication interface of Delta HSSP protocol, able to conduct immediate control of an AC motor drive
- ▶ Supports Group 2 only connection and polling I/O data exchange
- ▶ Supports max. 32 words input / 32 words output and remote I/O function for I/O mapping
- ▶ Node address and serial transmission speed can be set up on AC motor drive
- ▶ Power supplied from AC motor drive

DeviceNet Connector

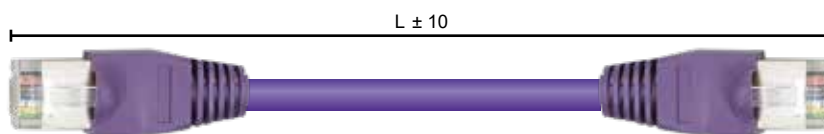
| | |
|----------------------------|--|
| Interface | 5-Pin 5.08mm Pluggable Connector |
| Transmission Method | CAN |
| Transmission Cable | Shielded twisted pair cable (with 2 power cables) |
| Transmission Speed | 125 Kbps, 250 Kbps, 500 Kbps and extendable serial transmission speed mode |
| Network Protocol | DeviceNet protocol |

DeviceNet Connector

| | |
|-------------------------------|--|
| 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 |

Delta Standard Fieldbus Cables

| Delta Cables | Part Number | Description | Length |
|-----------------|---------------|-------------------------------|--------|
| CANopen Cable | UC-CMC003-01A | CANopen cable, RJ45 connector | 0.3m |
| | UC-CMC005-01A | CANopen cable, RJ45 connector | 0.5m |
| | UC-CMC010-01A | CANopen cable, RJ45 connector | 1m |
| | UC-CMC015-01A | CANopen cable, RJ45 connector | 1.5m |
| | UC-CMC020-01A | CANopen cable, RJ45 connector | 2m |
| | UC-CMC030-01A | CANopen cable, RJ45 connector | 3m |
| | UC-CMC050-01A | CANopen cable, RJ45 connector | 5m |
| | UC-CMC100-01A | CANopen cable, RJ45 connector | 10m |
| | UC-CMC200-01A | CANopen cable, RJ45 connector | 20m |
| DeviceNet Cable | UC-DN01Z-01A | DeviceNet cable | 305m |
| | UC-DN01Z-02A | DeviceNet cable | 305m |
| EtherNet Cable | UC-EMC003-02A | EtherNet cable, Shielding | 0.3m |
| | UC-EMC005-02A | EtherNet cable, Shielding | 0.5m |
| | UC-EMC010-02A | EtherNet cable, Shielding | 1m |
| | UC-EMC020-02A | EtherNet cable, Shielding | 2m |
| | UC-EMC050-02A | EtherNet cable, Shielding | 5m |
| | UC-EMC100-02A | EtherNet cable, Shielding | 10m |
| | UC-EMC200-02A | EtherNet cable, Shielding | 20m |
| PROFIBUS Cable | UC-PF01Z-01A | PROFIBUS DP cable | 305m |



CANopen / DeviceNet TAP Breakout Boxes

| Part Number | Description |
|-------------|---|
| TAP-CN01 | 1 in 2 out, built-in 121Ω terminal resistor |
| TAP-CN02 | 1 in 4 out, built-in 121Ω terminal resistor |
| TAP-CN03 | 1 in 4 out, RJ45 connector, built-in 121Ω terminal resistor |

Unit: mm [inch]



TAP-CN01





TAP-CN02



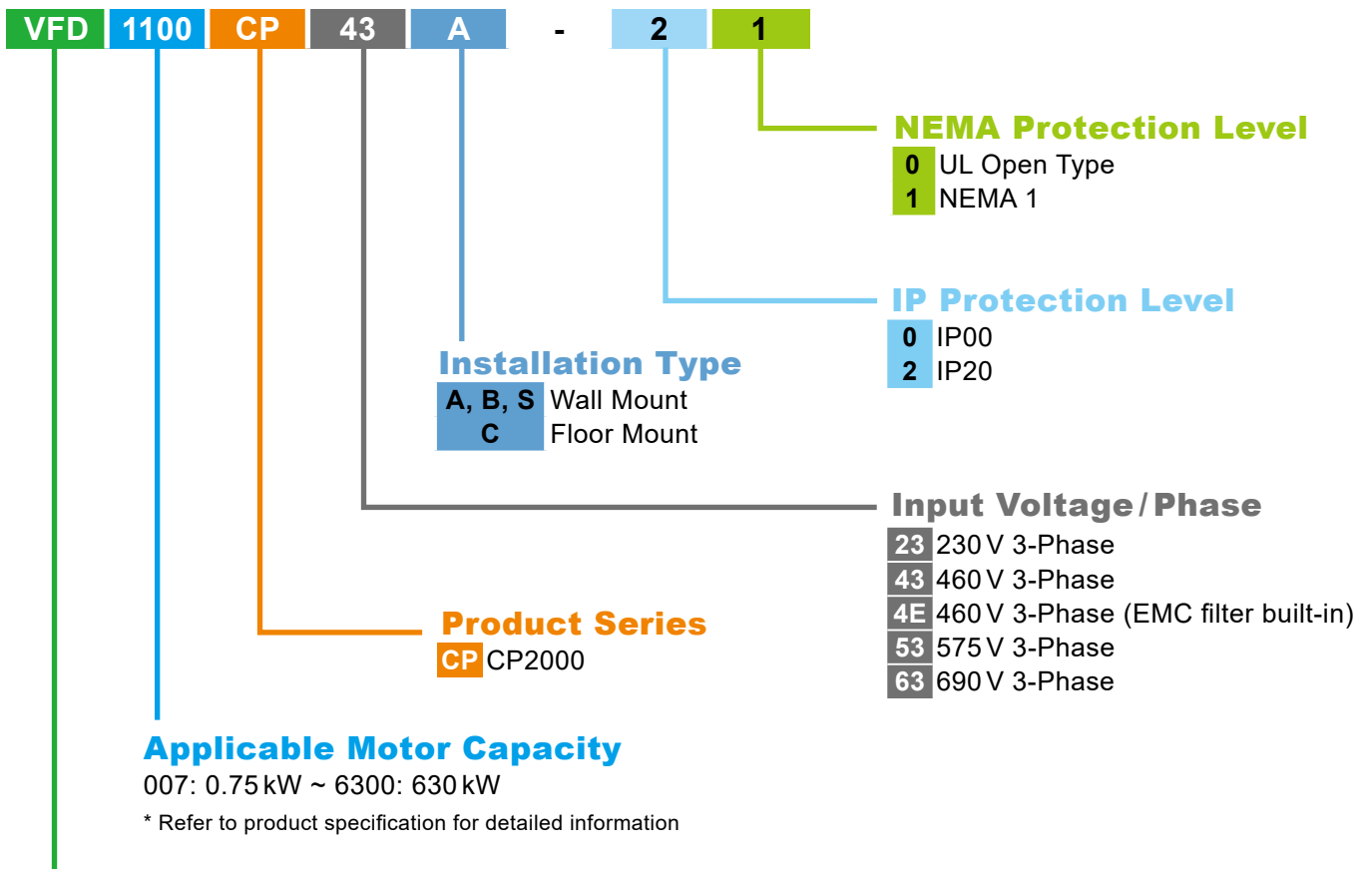
TAP-CN03

Ordering Information

| Frame Size | Power Range | Models | | | | |
|---|---|--|--|--|--|--|
| Frame A  | 230 V: 0.75 ~ 5.5 kW 460 V: 0.75 ~ 7.5 kW 575 V: 1.5 ~ 3.7 kW | VFD007CP23A-21 VFD015CP23A-21 VFD022CP23A-21 VFD037CP23A-21 VFD055CP23A-21 | VFD007CP43A-21 VFD015CP43B-21 VFD022CP43B-21 VFD037CP43B-21 VFD040CP43A-21 VFD055CP43B-21 VFD075CP43B-21 | VFD007CP4EA-21 VFD015CP4EB-21 VFD022CP4EB-21 VFD037CP4EB-21 VFD040CP4EA-21 VFD055CP4EB-21 VFD075CP4EB-21 | VFD015CP53A-21 VFD022CP53A-21 VFD037CP53A-21 | |
| Frame B  | 230 V: 7.5 ~ 15 kW 460 V: 11 ~ 18.5 kW 575 V: 5.5 ~ 15 kW | VFD075CP23A-21 VFD110CP23A-21 VFD150CP23A-21 | VFD110CP43B-21 VFD150CP43B-21 VFD185CP43B-21 | VFD110CP4EB-21 VFD150CP4EB-21 VFD185CP4EB-21 | VFD055CP53A-21 VFD075CP53A-21 VFD110CP53A-21 VFD150CP53A-21 | |
| Frame C  | 230 V: 18.5 ~ 30 kW 460 V: 22 ~ 37 kW 690 V: 18.5 ~ 37 kW | VFD185CP23A-21 VFD220CP23A-21 VFD300CP23A-21 | VFD220CP43A-21 VFD300CP43B-21 VFD370CP43B-21 | VFD220CP4EA-21 VFD300CP4EB-21 VFD370CP4EB-21 | VFD185CP63A-21 VFD220CP63A-21 VFD300CP63A-21 VFD370CP63A-21 | |
| Frame D  | 230 V: 37 ~ 45 kW 460 V: 45 ~ 90 kW 690 V: 55 ~ 75 kW | Frame D1: VFD370CP23A-00 VFD450CP23A-00 VFD750CP43B-00 VFD900CP43A-00 Frame D0-1: VFD450CP43S-00 VFD550CP43S-00 | Frame D2: VFD370CP23A-21 VFD450CP23A-21 VFD750CP43B-21 VFD900CP43A-21 Frame D0-2: VFD450CP43S-21 VFD550CP43S-21 | Frame D1: VFD450CP63A-00 VFD550CP63A-00 Frame D2: VFD450CP63A-21 VFD550CP63A-21 | | |
| Frame E  | 230 V: 55 ~ 90 kW 460 V: 110 ~ 132 kW 690 V: 75 ~ 132 kW | Frame E1: VFD550CP23A-00 VFD750CP23A-00 VFD900CP23A-00 VFD1100CP43A-00 VFD1320CP43B-00 | Frame E2: VFD550CP23A-21 VFD750CP23A-21 VFD900CP23A-21 VFD1100CP43A-21 VFD1320CP43B-21 | Frame E1: VFD750CP63A-00 VFD900CP63A-00 VFD1100CP63A-00 VFD1320CP63A-00 Frame E2: VFD750CP63A-21 VFD900CP63A-21 VFD1100CP63A-21 VFD1320CP63A-21 | | |
| Frame F  | 460 V: 160 ~ 185 kW 690 V: 160 ~ 200 kW | Frame F1: VFD1600CP43A-00 VFD1850CP43B-00 | Frame F2: VFD1600CP43A-21 VFD1850CP43B-21 | Frame F1: VFD1600CP63A-00 VFD2000CP63A-00 Frame F2: VFD1600CP63A-21 VFD2000CP63A-21 | | |
| Frame G  | 460 V: 220 ~ 280 kW 690 V: 250 ~ 315 kW | Frame G1: VFD2000CP43A-00 VFD2200CP43A-00 VFD2500CP43A-00 VFD2800CP43A-00 | Frame G2: VFD2000CP43A-21 VFD2200CP43A-21 VFD2500CP43A-21 VFD2800CP43A-21 | Frame G1: VFD2500CP63A-00 VFD3150CP63A-00 Frame G2: VFD2500CP63A-21 VFD3150CP63A-21 | | |

| Frame Size | | Power Range | Models | |
|--------------------------|---|---------------------|--|--|
| Frame H |  | 460V: 315~ 630kW | Frame H1: VFD3150CP43A-00 VFD3550CP43A-00 VFD4000CP43A-00 VFD5000CP43A-00 VFD5600CP43A-00 VFD6300CP43A-00 | Frame H3: VFD3150CP43C-21 VFD3550CP43C-21 VFD4000CP43C-21 VFD5000CP43C-21 VFD5600CP43C-21 VFD6300CP43C-21 |
| Frame H (690 V Model) |  | 690V: 400~ 630kW | | Frame H1: VFD4000CP63A-00 VFD4500CP63A-00 VFD5600CP63A-00 VFD6300CP63A-00 Frame H2: VFD4000CP63A-21 VFD4500CP63A-21 VFD5600CP63A-21 VFD6300CP63A-21 |

Model Name



Product

Variable Frequency Drive





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[°]C.
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 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 Absorbers

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.





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