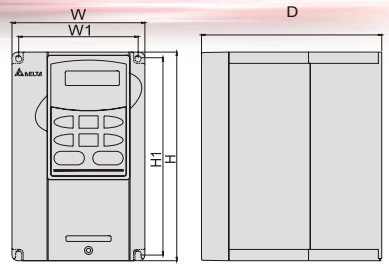
# VFD-B

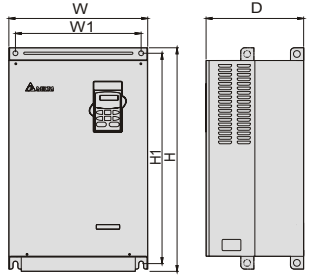
## External Dimensions

unit:mm

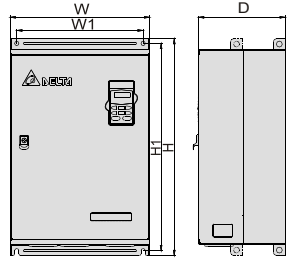
A




B




C





# VFD-B

## External Dimensions


■ Dimensions

unit: mm (inch)

| Model | W | W1 | H | H1 | D | Fan cooled | Fig |
|---|---|---|---|---|---|---|---|
| VFD007B21A | 118(4.65) | 108(4.25) | 185(7.28) | 173(6.81) | 160(6.30) | NO | A |
| VFD007B23A | 118(4.65) | | | | 145(5.71) | NO | |
| VFD007B43A | 118(4.65) | | | | 145(5.71) | NO | |
| VFD007B53A | 118(4.65) | | | | 145(5.71) | NO | |
| VFD015B21A | 118(4.65) | 108(4.25) | 185(7.28) | 173(6.81) | 160(6.30) | NO | A |
| VFD015B21B | 118(4.65) | | | | 145(5.71) | Yes | |
| VFD015B23A | 118(4.65) | | | | 160(6.30) | NO | |
| VFD015B23B | 118(4.65) | | | | 145(5.71) | Yes | |
| VFD015B43A | 118(4.65) | | | | 160(6.30) | NO | |
| VFD015B53A | 118(4.65) | | | | 160(6.30) | NO | |
| VFD022B21A | 150(5.91) | 135(5.32) | 260(10.24) | 244.3(9.68) | 160.2(6.31) | Yes | A |
| VFD022B23B | 118(4.65) | 108(4.25) | 185(7.28) | 173(6.81) | 145(5.71) | Yes | |
| VFD022B43A | 118(4.65) | 108(4.25) | 185(7.28) | 173(6.81) | 145(5.71) | Yes | |
| VFD022B43B | 118(4.65) | 108(4.25) | 185(7.28) | 173(6.81) | 145(5.71) | Yes | |
| VFD037B23A | 150(5.91) | 135(5.32) | 260(10.24) | 244.3(9.68) | 160.2(6.31) | Yes | A |
| VFD037B43A | | | | | | Yes | |
| VFD037B53A | | | | | | Yes | |
| VFD055B23A | 200(7.88) | 185.6(7.31) | 323(12.72) | 303(11.93) | 183.2(7.22) | Yes | A |
| VFD055B43A | | | | | | Yes | |
| VFD055B53 | | | | | | Yes | |
| VFD075B23A | 200(7.88) | 185.6(7.31) | 323(12.72) | 303(11.93) | 183.2(7.22) | Yes | A |
| VFD075B43A | | | | | | Yes | |
| VFD075B53A | | | | | | | |
| VFD110B23A | 200(7.88) | 185.6(7.31) | 323(12.72) | 303(11.93) | 183.2(7.22) | Yes | A |
| VFD110B43A | | | | | | Yes | |
| VFD110B53A | | | | | | | |
| VFD150B23A | 250(9.84) | 226(8.90) | 430.8(15.90) | 384(15.12) | 205.4(8.08) | Yes | A |
| VFD150B43A | | | | | | Yes | |
| VFD150B53A | | | | | | Yes | |
| VFD185B23A | 250(9.84) | 226(8.90) | 430.8(15.90) | 384(15.12) | 205.4(8.08) | Yes | A |
| VFD185B43A | | | | | | Yes | |
| VFD185B53A | | | | | | Yes | |
| VFD220B23A | 250(9.84) | 226(8.90) | 430.8(15.90) | 384(15.12) | 205.4(8.08) | Yes | A |
| VFD220B43A | | | | | | Yes | |
| VFD220B53A | | | | | | Yes | |
| VFD300B23A | 370(14.57) | 335(13.19) | 595(23.43) | 560(22.55) | 260(10.24) | Yes | B |
| VFD300B43A | 370(14.57) | 335(13.19) | 589(23.19) | 560(22.55) | 260(10.24) | Yes | |
| VFD300B53A | 370(14.57) | 335(13.19) | 589(23.19) | 560(22.55) | 260(10.24) | Yes | |
| VFD370B23A | 370(14.57) | 335(13.19) | 595(23.43) | 560(22.55) | 260(10.24) | Yes | B |
| VFD370B43A | 370(14.57) | 335(13.19) | 589(23.19) | 560(22.55) | 260(10.24) | Yes | |
| VFD370B53A | 370(14.57) | 335(13.19) | 589(23.19) | 560(22.55) | 260(10.24) | Yes | |
| VFD450B43A | 370(14.57) | 335(13.19) | 589(23.19) | 560(22.55) | 260(10.24) | Yes | B |
| VFD450B53A | | | | | | Yes | |
| VFD550B43A | 425(16.73) | 385(15.16) | 660(25.98) | 631(24.84) | 280(11.02) | Yes | C |
| VFD550B53A | 370(14.57) | 335(13.19) | 595(23.43) | 560(22.55) | 260(10.24) | Yes | |
| VFD750B43A | 425(16.73) | 385(15.16) | 660(25.98) | 631(24.84) | 280(11.02) | Yes | C |
| VFD750B53A | 370(14.57) | 335(13.19) | 595(23.43) | 560(22.55) | 260(10.24) | Yes | |

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20051012AMD-BE


DELTA ELECTRONICS, INC.

# Delta VFD-B Series

## *Variable Speed AC Motor Drives*

**Features:**

- 16-bit microprocessor controlled PWM output
- Automatic torque boost & slip compensation
- Output frequency 0.1~400Hz
- 16-step speed control & 15-step preset speed
- PID feedback control & PG feedback control
- 4 accel./decel. times & 2 S-curve selections
- Pump control & automatic energy-saving
- Process follower - 10~10VDC, 0~10VDC, 4~20mA
- MODBUS communication RS-485 (Baud rate 38400)
- Coast or ramp to stop
- Adjustable V/F curve & automatic voltage regulation
- Automatic adjustment of accel./decel. time
- Auto tuning & sensorless vector control
- Sleep / Revival Function
- Master / Auxiliary and 1st/2nd frequency source selectable

**Voltage Range:**

1 Phase 230V Series : 0.75~2.2KW (1~3HP)
3 Phase 230V Series : 0.75~37KW (1~50HP)
3 Phase 460V Series : 0.75~75KW (1~100HP)
3 Phase 575V Series : 0.75~75KW (1~100HP)

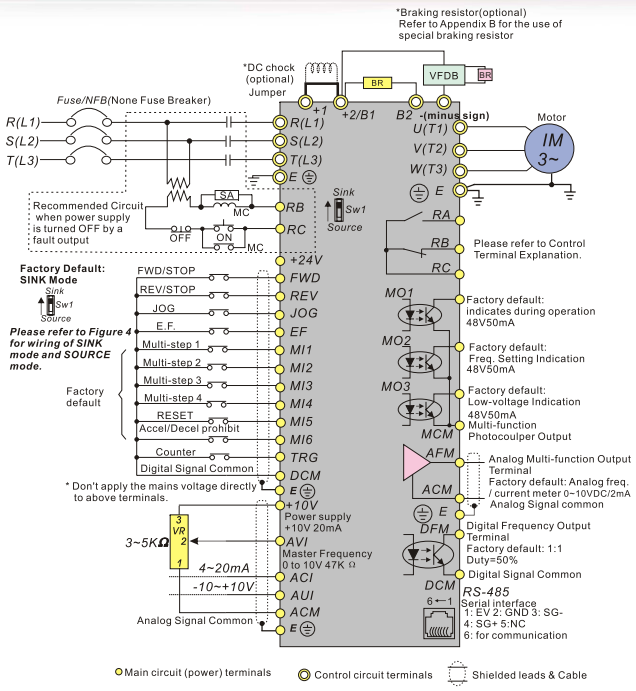
ISO-9001 REGISTERED

VFD-B series have been approved by CE and UL

www.delta.com.tw/industrialautomation

# VFD-B

## Standard wiring diagram




* Three phase input power may apply to single phase drives

* For the single phase application, the AC input line can be connected to any two of the three input terminals R,S,T.

# VFD-B

## Standard specifications

### 230V Series 1-Phase/3-Phase

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model Number VFD - ☐ ☐ ☐ B | | 007 | 015 | 022 | 037 | 055 | 075 | 110 | 150 | 185 | 220 | 300 | 370 |
| Max. Applicable Motor Output (kW) | | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 |
| Max. Applicable Motor Output (HP) | | 1.0 | 2.0 | 3.0 | 5.0 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |
| Output Rating | Rated Output Capacity (kVA) | 1.9 | 2.5 | 4.2 | 6.5 | 9.5 | 12.5 | 18.3 | 24.7 | 28.6 | 34.3 | 45.7 | 55 |
| | Rated Output Current (A) | 5.0 | 7.0 | 11 | 17 | 25 | 33 | 49 | 65 | 75 | 90 | 120 | 145 |
| | Maximum Output Voltage (V) | 3-Phase Proportional to input voltage | | | | | | | | | | | |
| | Ouput Frequency (Hz) | 0.1~400Hz | | | | | | | | | | | |
| | Carrier frequency (kHz) | 1-15 | | | | | | | | | 1-9 | | |
| Input Rating | Rated Input Current (A) | Single/3-Phase | | | 3-Phase | | | | | | | | |
| | | 11.9/5.7 | 15.3/7.6 | 22/15.5 | 20.6 | 26 | 34 | 50 | 60 | 75 | 90 | 110 | 142 |
| | Single (3-phase Input Current) | 7.0 | 9.4 | 14.0 | | | | | | | | | |
| | Rated Voltage , Frequency | Single/3-phase 200-240V , 50/60Hz | | | 3-phase 200-240V , 50/60Hz | | | | | | | | |
| | Voltage Tolerance | ±10%(180~264V) | | | | | | | | | | | |
| | Frequency Tolerance | ±5%(47~63Hz) | | | | | | | | | | | |
| | Cooling Method | Natural | | | Fan Cooled | | | | | | | | |
| | Weight (Kg) | 2.7 | 3.2 | 4.5 | 6.8 | 8 | 10 | 13 | 13 | 13 | 13 | 36 | 36 |

### 460V Series 3-Phase

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model Number VFD - ☐ ☐ ☐ B | | 007 | 015 | 022 | 037 | 055 | 075 | 110 | 150 | 185 | 220 | 300 | 370 | 450 | 550 | 750 |
| Max. 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 |
| Max. Applicable Motor Output (HP) | | 1.0 | 2.0 | 3.0 | 5.0 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 |
| Output Rating | Rated Output Capacity (kVA) | 2.3 | 3.2 | 4.2 | 6.5 | 9.9 | 13.7 | 18.3 | 24.4 | 28.9 | 34.3 | 45.7 | 55.6 | 69.3 | 84 | 114 |
| | Rated Output Current (A) | 2.7 | 4.2 | 5.5 | 8.5 | 13 | 18 | 24 | 32 | 38 | 45 | 60 | 73 | 91 | 110 | 150 |
| | Maximum Output Voltage (V) | 3-Phase Proportional to input voltage | | | | | | | | | | | | | | |
| | Output Frequency (Hz) | 0.1~400Hz | | | | | | | | | | | | | | |
| | Carrier frequency (kHz) | 1-15 | | | | | | | | | 1-9 | | | | 1-6 | |
| Input Rating | Rated Input Current (A) | 3-Phase | | | | | | | | | | | | | | |
| | | 3.2 | 4.3 | 5.9 | 11.2 | 14 | 19 | 25 | 32 | 39 | 49 | 60 | 63 | 90 | 130 | 160 |
| | Rated Voltage , Frequency | 3-phase 380-480V , 50/60Hz | | | | | | | | | | | | | | |
| | Voltage Tolerance | ±10%(342~528V) | | | | | | | | | | | | | | |
| | Frequency Tolerance | ±5%(47~63Hz) | | | | | | | | | | | | | | |
| | Cooling Method | Natural | | | Fan Cooled | | | | | | | | | | | |
| | Weight (Kg) | 2.7 | 3.2 | 4.5 | 2.7 | 3.2 | 4.5 | 6.8 | 8 | 10 | 13 | 13 | 13 | 13 | 36 | 36 |

### 575V Series 3-Phase

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model Number VFD - ☐ ☐ ☐ B | | 007 | 015 | 022 | 037 | 055 | 075 | 110 | 150 | 185 | 220 | 300 | 370 | 450 | 550 | 750 |
| Max. 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 |
| Max. Applicable Motor Output (HP) | | 1.0 | 2.0 | 3.0 | 5.0 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 |
| Output Rating | Rated Output Capacity (kVA) | 1.7 | 3.5 | 4.5 | 7.5 | 10 | 13.4 | 18.9 | 21.9 | 26.9 | 33.9 | 40.8 | 51.8 | 61.7 | 79.7 | 99.6 |
| | Rated Output Current (A) | 1.7 | 3.5 | 4.5 | 7.5 | 10 | 13.5 | 19 | 22 | 27 | 34 | 41 | 52 | 62 | 80 | 100 |
| | Maximum Output Voltage (V) | 3-Phase Proportional to input voltage | | | | | | | | | | | | | | |
| | Output Frequency (Hz) | 0.1~400Hz | | | | | | | | | | | | | | |
| | Carrier frequency (kHz) | 1-10 | | | | | | | | | 1-8 | | | | 1-6 | |
| Input Rating | Rated Input Current (A) | 3-Phase | | | | | | | | | | | | | | |
| | | 2.0 | 3.6 | 4.9 | 9.9 | 10.8 | 14.3 | 19.8 | 22 | 27.7 | 37 | 41 | 52 | 62 | 95 | 117 |
| | Rated Voltage , Frequency | 3-phase 500-600V , 50/60Hz | | | | | | | | | | | | | | |
| | Voltage Tolerance | -15%+10% ( 425~660V ) | | | | | | | | | | | | | | |
| | Frequency Tolerance | ±5%(47~63Hz) | | | | | | | | | | | | | | |
| | Cooling Method | Natural | | | Fan Cooled | | | | | | | | | | | |
| | Weight (Kg) | 2.7 | 3.2 | 4.5 | 6.8 | 8 | 10 | 13 | 13 | 13 | 13 | 36 | 36 | 36 | 50 | 50 |

| | | | |
|---|---|---|---|
| Control Characteristics | Control System | | SPWM (Sinusoidal Pulse Width Modulation)control (V/F or sensorless vector control) |
| | Freq. Setting Resolution | | 0.01Hz |
| | Output Frequency Resolution | | 0.01Hz |
| | Torque Characteristics | | Including the auto-torque, auto-slip compensation; starting torque can be 150% at 1.0Hz |
| | Overload Endurance | | 150% of rated current for 1 minute |
| | Skip Frequency | | Three zones, settings range 0.1-400Hz |
| | Accel/Decel Time | | 0.1 to 3600 seconds (4 independent settings for Accel/Decel Time) |
| | Stall Prevention Level Frequency Setting | | 20%-250%, Setting of Rated Current |
| | DC Injection Braking | | Operation frequency 0-400Hz, output 0-100% rated current<br>Start time 0-60 seconds, stop time 0-60 seconds |
| | Braking Torque | | Approx. 20% (up to 125% possible with option braking resistor or braking unit externally mounted, 1-15HP braking transistor built-in) |
| | V/F Pattern | | Adjustable V/F pattern |
| Operating Characteristics | Frequency Setting | Keypad | Set by ▲/▼ |
| | | External Signal | Potentiometer-5KΩ/0.5W, 0 to +10VDC; -10 to +10VDC, 4 to 20mA, RS-485 interface; Multi-Function Inputs 1 to 6 (15 steps, Jog, up/down) |
| | Operation Setting Signal | Keypad | Set by RUN, STOP and JOG |
| | | External Signal | 2 wires / 3 wires (Fwd, Rev, EF ), JOG operation, RS-485 serial interface (MODBUS) |
| | Multi-Function Input Signal | | Multi-step selection 0 to 15, Jog, accel/decel inhibit, first to forth accel/decel switches, counter, PLC operation, external Base Block (NC, NO), auxiliary motor control is invalid, ACI/AVI selections, drive reset, UP/DOWN key settings, sink/source selection |
| | Multi-Function Output Indication | | AC Drive Operating, Frequency Attained, Non-zero, Base Block, Fault Indication, Local/Remote indication, PLC Operation indication, Auxiliary Motor Output, Driver is Ready, Overheat, Alarm, Emergency Stop |
| | Analog Output Signal | | Analog frequency/current signal output. |
| Alam Output Contaact | | | 1Form C contact or open collector output. |
| Operation Functions | | | AVR, S-Curve, Over-Voltage, Over-Current Stall Prevention, Fault Records, Adjustable Carrier Frequency, DC Braking, Momentary Power Loss restart, Auto Tuning, Frequency Limits, Parameter Lock/Reset, Vector Control, Counter, PID Control, Fan & Pump Control, PLC, MODBUS Communication, Reverse Inhibition, PG feedback control, abnormal reset, abnomal re-start, digital frequency output, sleep/revival function, master/auxiliary frequency, 1 st/2nd frequency source selections |
| Protective Functions | | | Self-testing, Over Voltage, Over Current, Under Voltage, Overload, Overheating, External Fault, Electronic thermal, Ground Fault. |
| Display Keypads | | | 8-key, 5-digit, 7-segment LED, 8 status LEDs, master frequency, output frequency, Output current, custom units, parameter values for setup, review and faults, RUN, STOP, RESET, FWD/REV, JOG |
| Enviromental Conditions | Protection Level | | IP20 ; NEMA1 |
| | Pollution Degree | | 2 |
| | Installation Location | | Altitude 1,000m or less, keep from corrosive gas, liquid and dust |
| | Ambient Temperature | | -10°C to 40°C (-10°C to 50°C without blind plate) Non-Condensing and not frozen |
| | Storage / Transportation Temperature | | -20°C to 60°C |
| | Ambient Humidity | | Below 90% RH (non-condensing ) |
| | Vibration | | 9.80665m/s² (1G) less than 20Hz, 5.88m/s² (0.6G) at 20 to 50Hz |
| Approvals | | | CE cULus |