

VFD

Delta VFD-M Series Variable Speed AC Motor Drives

Features:

- ▶ 16-bit microprocessor controlled PWM output
- ▶ Automatic torque boost & slip compensation
- ▶ Output frequency 0.1~400Hz
- ▶ 8-step speed control & 7-step process control
- ▶ Low-noise carrier frequency up to 15kHz
- ▶ 2 accel./decel. times & S-curve
- ▶ Process follower 0~10VDC, 4~20mA
- ▶ Communication interface RS-485 (Baud rate 38400)
- ▶ Energy saving & automatic voltage regulation
- ▶ Adjustable V/F curve & Simple vector control
- ▶ Automatic adjustment of accel./decel. times
- ▶ PID feedback control
- ▶ Simple position function
- ▶ 0 Speed Holding function
- ▶ Sleep / Revival function build-in



Voltage Range:

- 1 Phase 115V Series : 0.2~0.75KW (0.25~1HP)
- 1 Phase 230V Series : 0.4~2.2KW (0.5~3HP)
- 3 Phase 230V Series : 0.4~5.5KW (0.5~7.5HP)
- 3 Phase 460V Series : 0.75~7.5KW (1~10HP)
- 3 Phase 575V Series : 0.75~7.5KW (1~10HP)

www.delta.com.tw/industrialautomation

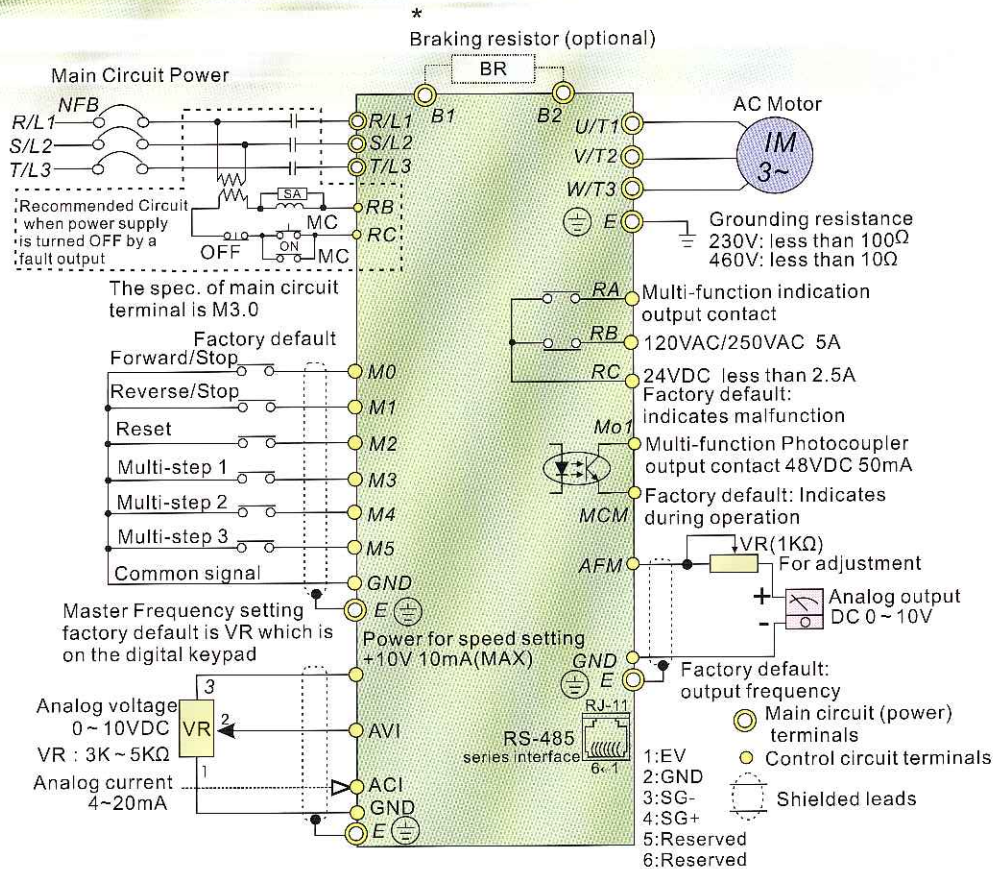


ISO-9001
REGISTERED

VFD-M series have been approved by CE and UL



Standard wiring diagram



NOTE: Do not plug a Modem or telephone line to the RS-485 communication port, permanent damage may result. Terminal 1 & 2 are the power sources for the optional copy keypad and should not be used while using RS-485 communication.

* If it is single phase model, please select any of the two input power terminals in main circuit power.
* Single phase model can be input 3-phase power.

Standard specifications

115V Series 1-Phase

	002	004	007
Mode Number VFD-□□M	002	004	007
Max. Applicable Motor Output (kW)	0.2	0.4	0.75
Max. Applicable Motor Output (HP)	0.25	0.5	1.0
Rated Output Capacity (kVA)	0.6	1.0	1.6
Rated Output Current (A)	1.6	2.5	4.2
Maximum Output Voltage (V)	3-Phase proportional to twice the Input Voltage		
Output Frequency (Hz)	0.1~400Hz		
Carrier Frequency (kHz)	1-15		
Rated Input Current (A)	Single Phase		
Rated Voltage, Frequency	6	9	16
Voltage Tolerance	Single phase 100-120V, 50/60Hz		
Frequency Tolerance	±10%(90~132V)		
Cooling Method	±5%(47~63Hz)		
Weight(Kg)	Fan Cooled		
	1.5	1.5	1.5

VFD-M

Standard specifications

230V Series 1-Phase/3-Phase

	Model Number VFD□□□□M	004	007	015	022	037	055
	Max. Applicable Motor Output (kW)	0.4	0.75	1.5	2.2	3.7	5.5
	Max. Applicable Motor Output (HP)	0.5	1.0	2.0	3.0	5.0	7.5
Output Rating	Rated Output Capacity (kVA)	1.0	1.9	2.7	3.8	6.5	9.5
	Rated Output Current (A)	2.5	5.0	7.0	10	17	25
	Maximum Output Voltage (V)	3-Phase Proportional to input voltage					
	Output Frequency (Hz)	0.1~400Hz					
	Carrier Frequency (kHz)	1-15					
Input Rating	Rated Input Current (A)	Single / 3-Phase			3-Phase		
		6.3 / 2.9	11.5 / 7.6	15.7 / 8.8	27 / 12.5	19.6	28
	Single (3-phase Input Current)	3.2	6.3	9.0	12.5		
	Rated Voltage , Frequency	Single / 3-Phase			3-Phase		
		200-240V , 50 / 60Hz			200-240V , 50 / 60Hz		
	Voltage Tolerance	± 10%(180~264V)					
	Frequency Tolerance	± 5%(47~63Hz)					
	Cooling Method	Fan Cooled					
	Weight (Kg)	2.2 / 1.5	2.2 / 1.5	2.2 / 1.5	2.2	3.2	3.2

460V Series 3-Phase

	Model Number VFD□□□□M	007	015	022	037	055	075	
	Max. Applicable Motor Output (kW)	0.75	1.5	2.2	3.7	5.5	7.5	
	Max. Applicable Motor Output (HP)	1.0	2.0	3.0	5.0	7.5	10	
Output Rating	Rated Output Capacity (kVA)	2.3	3.1	3.8	6.2	9.9	13.7	
	Rated Output Current (A)	3.0	4.0	5.0	8.2	13	18	
	Maximum Output Voltage (V)	3-Phase Proportional to input voltage						
	Output Frequency (Hz)	0.1~400Hz						
	Carrier Frequency (kHz)	1-15						
Input Rating	Rated Input Current (A)	3-Phase						
		4.2	5.7	6.0	8.5	14	23	
	Rated Voltage , Frequency	3-Phase 380 to 480V , 50 / 60Hz						
	Voltage Tolerance	± 10%(342~528V)						
	Frequency Tolerance	± 5%(47~63Hz)						
		Cooling Method	Fan Cooled					
		Weight (Kg)	1.5	1.5	2.0	3.2	3.2	3.3

575V Series 3-Phase

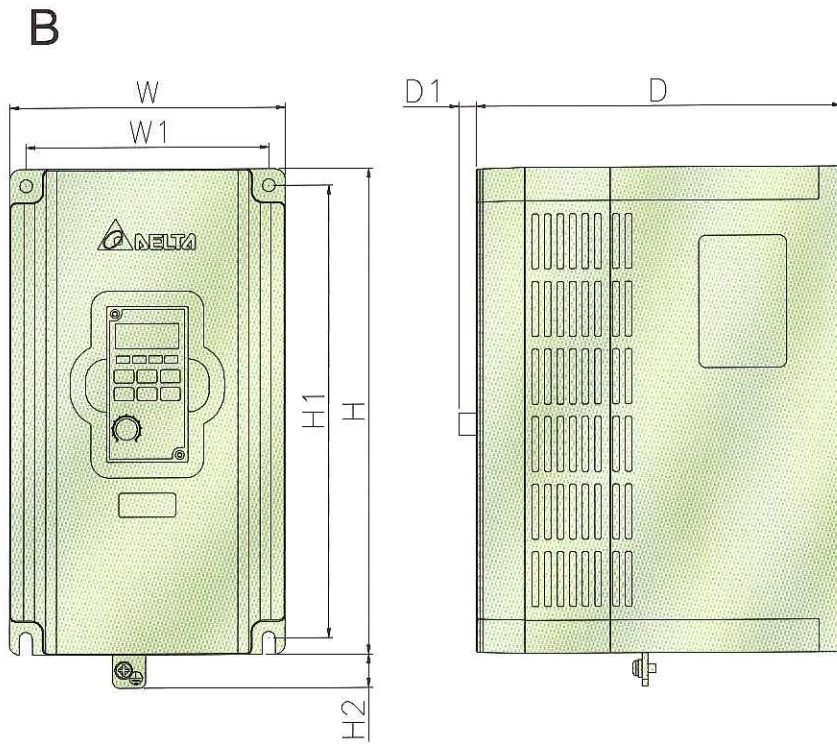
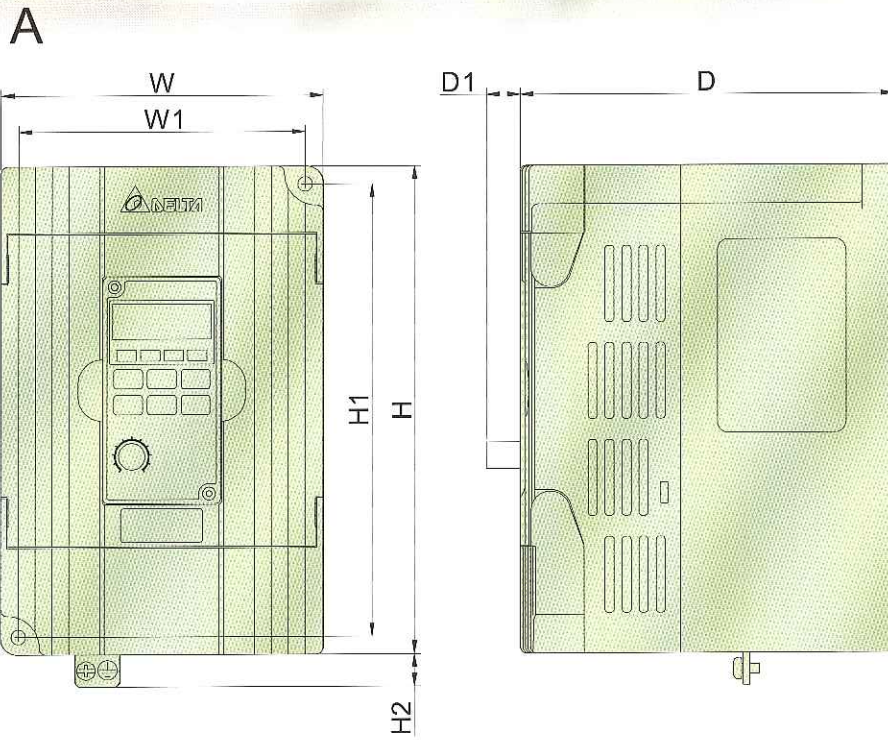
	Model Number VFD□□□□M	007	015	022	037	055	075	
	Max. Applicable Motor Output (kW)	0.75	1.5	2.2	3.7	5.5	7.5	
	Max. Applicable Motor Output (HP)	1.0	2.0	3.0	5.0	7.5	10	
Output Rating	Rated Output Capacity (kVA)	1.7	3.0	4.2	6.6	9.9	12.2	
	Rated Output Current (A)	1.7	3.0	4.2	6.6	9.9	12.2	
	Maximum Output Voltage (V)	3-Phase Proportional to input voltage						
	Output Frequency (Hz)	0.1~400Hz						
	Carrier Frequency (kHz)	1-10						
Input Rating	Rated Input Current (A)	3-Phase						
		2.4	4.2	5.9	7.0	10.5	12.9	
	Rated Voltage , Frequency	3-Phase 500 to 600V , 50 / 60Hz						
	Voltage Tolerance	-15% , +10% (425~660V)						
	Frequency Tolerance	± 5%(47~63Hz)						
		Cooling Method	Fan Cooled					
		Weight (Kg)	1.5	1.5	2.0	3.2	3.2	3.3

Standard specifications

Control Characteristics	Control System	SPWM (Sinusoidal Pulse Width Modulation) control (V/F or sensorless vector control)	
	Freq. Setting Resolution	0.1Hz	
	Output Frequency Resolution	0.1Hz	
	Torque Characteristics	Including the auto-torque, auto-slip compensation; starting torque can be 150% at 5.0Hz	
	Overload Endurance	150% of rated current for 1 minute	
	Skip Frequency	Three zones, settings range 0.1-400Hz	
	Accel/Decel Time	0.1 to 600 seconds (2 independent settings for Accel/Decel Time)	
	Stall Prevention Level Frequency Setting	20%-200%, Setting of Rated Current	
	DC Injection Braking	Operation frequency 0-60Hz, output 0-100% rated current Start time 0-5 seconds, stop time 0-25 seconds	
	Braking Torque	Approx. 20% (up to 125% possible with option braking resistor or braking unit externally mounted)	
	V/F Pattern	Adjustable V/F pattern	
	Operating Characteristics	Frequency Setting	Keypad
External Signal			Potentiometer-5KΩ/0.5W, 0 to +10VDC; 4 to 20mA, RS-485 interface; Multi-Function Inputs 0 to 5 (7 steps, Jog, up/down)
Operation Setting Signal		Keypad	Set by RUN, STOP
		External Signal	2 wires / 3 wires (Run, Stop, Forward / Rev), JOG operation, RS-485 serial interface (MODBUS)
Multi-Function Input Signal		Multi-step selection 0 to 7, 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.	
Alarm Output Contact	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, PLC, MODBUS Communication, Reverse Inhibition, abnormal reset, abnormal re-start, digital frequency output, sleep/revival function, 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	6-key, 4-digit, 7-segment LED, 4 status LEDs, master frequency, output frequency, Output current, custom units, parameter values for setup, review and faults, RUN, STOP, RESET, FWD/REV		
Environmental Conditions	Protection Level	IP20	
	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/s ² (1G) less than 20Hz, 5.88m/s ² (0.6G) at 20 to 50Hz		
Approvals	  		

External Dimensions

unit:mm



VFD-M

External Dimensions

■ Dimensions

unit: mm (inch)

Model	W	W1	H	H1	D	D1	Fan	Fig
VFD002M11A	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	A
VFD004M11A	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD004M21A	85(3.35)	74(2.91)	141.5(5.57)	130.5(5.14)	113.0(4.45)	10.0(0.39)	Yes	A
VFD004M21B	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD004M23A	85(3.35)	74(2.91)	141.5(5.57)	130.5(5.14)	113.0(4.45)	10.0(0.39)	Yes	
VFD007M11A	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD007M21A	85(3.35)	74(2.91)	141.5(5.57)	130.5(5.14)	113.0(4.45)	10.0(0.39)	Yes	
VFD007M21B	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD007M23A	85(3.35)	74(2.91)	141.5(5.57)	130.5(5.14)	113.0(4.45)	10.0(0.39)	Yes	A
VFD007M43B	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD007M53A	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD015M21A	85(3.35)	74(2.91)	141.5(5.57)	130.5(5.14)	113.0(4.45)	10.0(0.39)	Yes	
VFD015M21B	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD015M23A	85(3.35)	74(2.91)	141.5(5.57)	130.5(5.14)	113.0(4.45)	10.0(0.39)	Yes	A
VFD015M43B	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD015M53A	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	
VFD022M21A	125(4.92)	110(4.33)	220(8.66)	205(8.07)	166.3(6.55)	8.2(0.32)	Yes	B
VFD022M23B	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	A
VFD022M43B	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	A
VFD022M53A	100(3.94)	89(3.50)	151(5.94)	140(5.51)	116.5(4.59)	10.5(0.41)	Yes	A
VFD037M23A	125(4.92)	110(4.33)	220(8.66)	205(8.07)	166.3(6.55)	8.2(0.32)	Yes	
VFD037M43A							Yes	B
VFD037M53A							Yes	
VFD055M23A	125(4.92)	110(4.33)	220(8.66)	205(8.07)	166.3(6.55)	8.2(0.32)	Yes	
VFD055M43A							Yes	B
VFD055M53A							Yes	
VFD075M43A	125(4.92)	110(4.33)	220(8.66)	205(8.07)	166.3(6.55)	8.2(0.32)	Yes	
VFD075M53A							Yes	B

*We reserve the right of this catalogue contained information change without prior notice.



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