



Automation for a Changing World

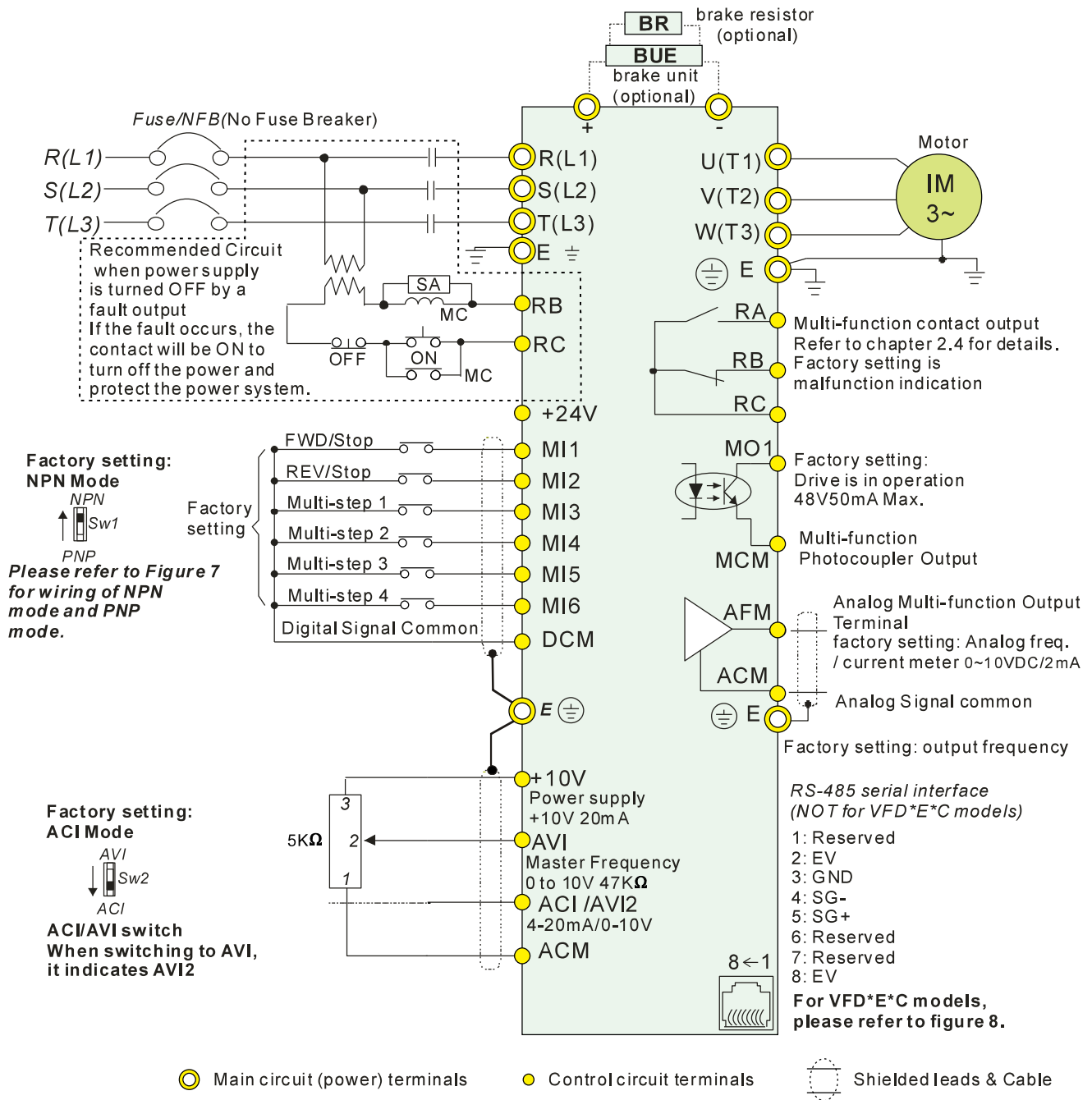
Delta Sensorless Vector Control Compact Drive VFD-E Series



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 **DELTA**
Smarter. Greener. Together.

Standard Wiring Diagram

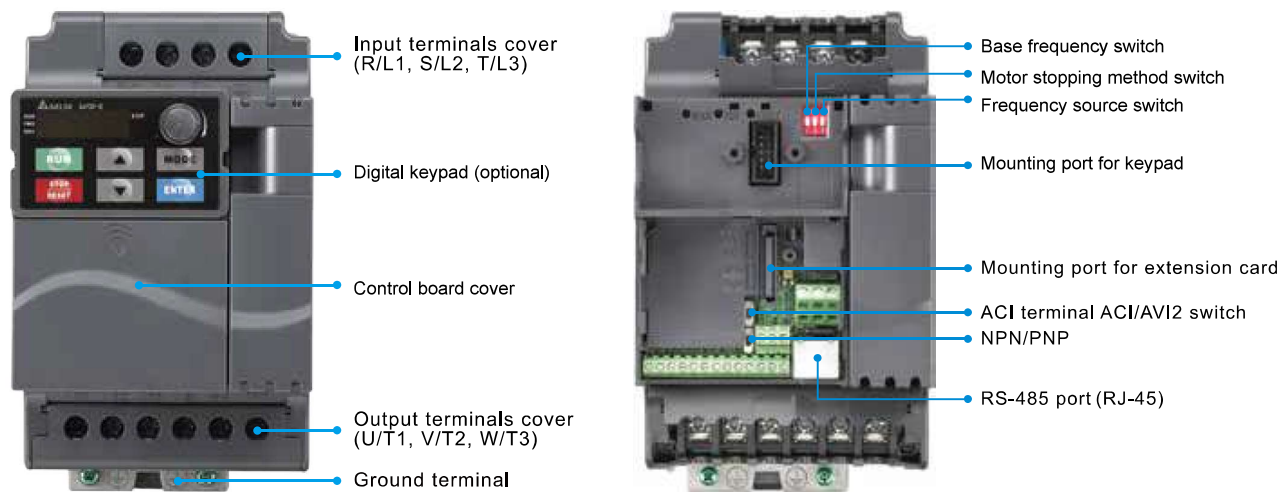


NOTE

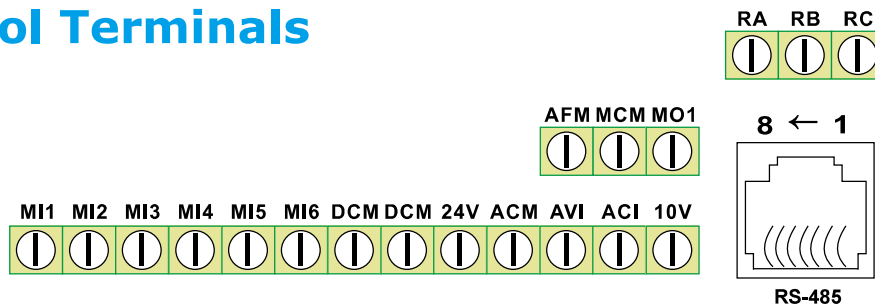
It is recommended to install a circuit breaker at the control terminal to protect the circuit from an operation abnormality or sudden power outage.

The protection circuit uses the multi-function output terminal of the AC motor drive for connection. When an abnormal condition (closed contact) occurs, the external power supply is disconnected to protect the power system of the AC motor drive.

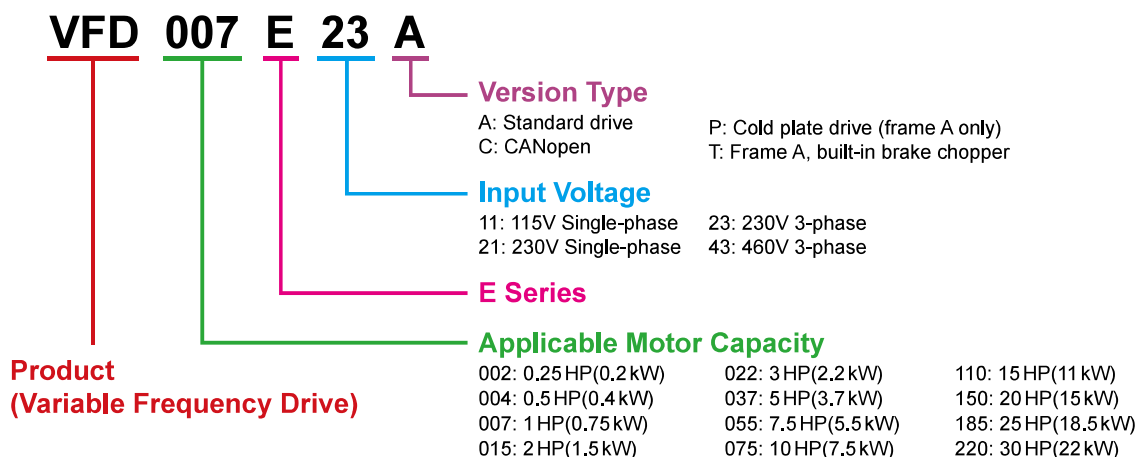
External Parts



Control Terminals



Model Explanation



Specifications

115V	Voltage Class	115 V		
	Model Number VFD-___ E	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
Output Rating	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)	0.1~599 Hz		
	Carrier Frequency (kHz)	1~15		
Input Rating	Rated Input Current (A)	Single-phase		
		6	9	18
	Rated Voltage/Frequency	Single-phase 100-120 V, 50/60 Hz		
	Voltage Tolerance	±10% (90-132 V)		
	Frequency Tolerance	±5% (47-63 Hz)		
	Cooling Method	Natural cooling		Fan cooling
	Weight (kg)	1.2	1.2	1.2

230V	Voltage Class	230 V									
	Model Number VFD-__ E	002	004	007	015	022	037	055	075	110	150
	Max. Applicable Motor Output (kW)	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
	Max. Applicable Motor Output (hp)	0.25	0.5	1.0	2.0	3.0	5.0	7.5	10	15	20
Output Rating	Rated Output Capacity (kVA)	0.6	1.0	1.6	2.9	4.2	6.5	9.5	12.5	17.1	25
	Rated Output Current (A)	1.6	2.5	4.2	7.5	11	17	25	33	45	65
	Maximum Output Voltage (V)	3-phase proportional to twice the input voltage									
	Output Frequency (Hz)	0.1~599Hz									
	Carrier Frequency (kHz)	1-15									
Input Rating	Rated Input Current (A)	Single/3-phase 4.9/1.9 6.5/2.7 9.7/5.1 15.7/9 24/15					3-phase 20.6 26 34 48 70				
	Rated Voltage/Frequency	Single/3-phase, 200-240 V, 50/60 Hz					3-phase, 200-240 V, 50/60 Hz				
	Voltage Tolerance	±10% (180-264 V)									
	Frequency Tolerance	±5% (47-63Hz)									
	Cooling Method	Natural cooling			Fan cooling						
	Weight (kg)	1.1	1.1	1.1	1.9	1.9	1.9	3.5	3.5	3.57	6.6

460V	Voltage Class	460 V										
	Model Number VFD-___ E	004	007	015	022	037	055	075	110	150	185	220
	Max. Applicable Motor Output (kW)	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22
	Max. Applicable Motor Output (hp)	0.5	1.0	2.0	3.0	5.0	7.5	10	15	20	25	30
Output Rating	Rated Output Capacity (kVA)	1.2	2.0	3.3	4.4	6.8	9.9	13.7	18.3	24	29	34
	Rated Output Current (A)	1.5	2.5	4.2	5.5	8.5	13	18	24	32	38	45
	Maximum Output Voltage (V)	3-phase proportional to input voltage										
	Output Frequency (Hz)	0.1~599 Hz										
	Carrier Frequency (kHz)	1~15										
Input Rating	Rated Input Current (A)	3-phase										
		1.9	3.2	4.3	7.1	11.2	14	19	26	35	41	49
	Rated Voltage/Frequency	3-phase, 380-480 V, 50/60 Hz										
	Voltage Tolerance	±10% (342-528 V)										
	Frequency Tolerance	±5% (47-63 Hz)										
	Cooling Method	Natural cooling		Fan cooling								
	Weight (kg)	1.2	1.2	1.2	1.9	1.9	4.2	4.2	4.2	7.47	7.47	7.47

Control Characteristics	Control System		SPWM (Sinusoidal Pulse Width Modulation) Control (V/F or sensorless vector control)
	Frequency Setting Resolution		0.01 Hz
	Output Frequency Resolution		0.01 Hz
	Torque Characteristics		Including the auto-torque/auto-slip compensation; starting torque can be 150% at 3.0 Hz
	Overload Endurance		150% of rated current for 1 minute
	Skip Frequency		Three zones, setting range 0.1 ~ 599 Hz
	Accel/Decel Time		0.1 to 600 seconds (2 Independent setting of Accel/Decel time)
	Stall Prevention Level		Setting 20 to 250% of rated current
	DC Braking		Operation frequency 0.1 ~ 599.0 Hz, output 0~100% rated current Start time 0~60 seconds, stop time 0~60 seconds
	Regenerated Braking Torque		Approx. 20% (up to 125% possible with optional brake resistor or externally mounted brake unit, 1-15hp models (built-in brake chopper))
	V/F Pattern		Adjustable V/F pattern
Operating Characteristics	Frequency Setting	Keypad	Setting by ▲ ▼
		External Signal	Potentiometer 5 k Ω /0.5 W, 0 to +10 V _{DC} , 4 to 20 mA, RS-485 interface; Multi-function Inputs 3 to 9 (15 steps, Jog, up/down)
	Operation Setting Signal	Keypad	Set by RUN and STOP
		External Signal	2 wires/3 wires (MI1, MI2, MI3), JOG operation, RS-485 serial interface (MODBUS), programmable logic controller
	Multi-function Input Signal		Multi-step selection 0 to 15, Jog, accel/decel inhibit, 2 accel/decel switches, counter, external Base Block (NC, NO), auxiliary motor control is invalid, AC1/AVI/AUI selections, driver reset, UP/DOWN key settings, sink/source (=NPN/PNP) selection
	Multi-function Output Indication		AC drive operating, frequency attained, non-zero frequency, Base Block, fault indication, local/remote indication, auxiliary motor output, drive is ready, overheat alarm, emergency stop and status selections of input terminals (NC/NO)
	Analog Output Signal		Output frequency/current
	Alarm Output Contact		Contact will be On when drive malfunctions (1 Form C/change-over contact or 1 open collector output)
	Operation Functions		Built-in PLC, AVR, accel/decel S-Curve, over-voltage/over-current stall prevention, 5 fault records, reverse inhibition, momentary power loss restart, DC braking, auto torque/slip compensation, auto tuning, adjustable carrier frequency, output frequency limits, parameter lock/reset, vector control, PID control, external counter, MODBUS communication, abnormal reset, abnormal re-start, power-saving, sleep/wake function, fan control, 1st/2nd frequency source selections, 1st/2nd frequency source combination, NPN/PNP selection
	Protection Functions		Over voltage, over current, under voltage, under current, external fault, overload, ground fault, overheating, electronic thermal, IGBT short circuit, PTC, instantly stop and then reboot (up to 20 sec by setting parameter)
Environmental Conditions	Display Keypad		6-key, 7-segment LED with 4-digit, 5 status LED, master frequency, output frequency, output current, custom units, parameter values for setup and lock, faults, RUN, STOP, RESET, FWD/REV
	Built-in EMC Filter		For 230 V 1-phase and 460 V 3-phase models
	Enclosure Rating		IP20
	Pollution Degree		2
	Installation Location		Altitude 1,000 m or lower, keep from corrosive gasses, liquid and dust
	Ambient Temperature		-10°C to + 50°C (40°C for side-by-side mounting) Non-Condensing and not frozen
	Storage/Transportation Temperature		-20°C to 60°C
	Ambient Humidity		Below 90% RH (non-condensing)
	Vibration		10 Hz ≤ f ≤ 57 Hz Fix Amplitude: 0.075 mm, 57 Hz ≤ f ≤ 150 Hz Fix Acceleration: 1 G (According to IEC 60068-2-6)
	Certifications		