



VF-0 Series

Super-Compact AC Inverters



1-phase
200V class
0.2kW
0.4kW
0.75kW
1.5kW



3-phase
400V class
0.75kW
1.5kW
2.2kW
3.7kW

Compact

Enhanced compactness has been achieved in response to request to save space.

Volume is 40 to 56% of previous MEW models.
(Width of 400V type excludes installation bracket.)

Easy to Operate

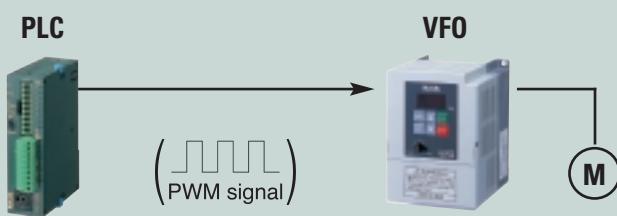
New volume switch makes operation easier.
Forward/reverse run direction can be set with operation panel.



* When parameter P08 data setting is 1.

Frequency control with PLC is possible

PWM signals from a PLC make frequency control for motors possible, without needing analogue I/O units.



High level features despite compact size

- 8-speed control function
- Retry function
- Frequency increase, decrease and memory functions using external switch
- Complete regeneration brake function

(0.2kW type does not have circuit or resistor. 0.4kW type is packaged with resistor and installation is external.)

Rating

Input voltage	1-phase 200V class				3-phase 400V class			
Part No. 1)	BFV00022D BFV00042D BFV00042G BFV00072D BFV00072G BFV00152D BFV00152G	0.2	0.4	0.75	1.5	0.75	1.5	2.2
Applied motor output (kW)	0.2	0.4	0.75	1.5	0.75	1.5	2.2	3.7
Rated output current (A)	1.4 2)	2.4 2)	3.6 2)	7.0 2)	2.1	3.8	5.4	8.7 3)
Rated output capacity (kVA) 4)	0.6	1.0	1.4	2.8	1.7	3.0	4.3	6.9
Power supply capacity (kVA)5)	0.7	1.2	1.7	3.7	2.6	3.6	6.4	10.4
Mass (kg)	0.7	0.7	1.2	1.3	1.4	1.4	1.4	2.1

- 1) In 200V class part numbers the suffix "D" means there is no brake (no circuit and resistor); the suffix "G" means there is a brake (0.75 and 1.5kW: built-in circuit and resistor; 0.4kW: circuit built-in and resistor is included but installed externally). All of the 400V class have a built-in brake circuit (Brake resistor is an externally installed dedicated option.).
- 2) The rated output current for the 200V class indicates that the carrier frequency is 10kHz or lower. Please use after reducing the rating to 95% when 12.5kHz and to 90% when 15kHz.
- 3) The rated output current for the 3.7kW/400V type indicates that the carrier frequency is 7.5kHz or lower. Please use after reducing the rating to 90% when 10kHz.
- 4) Regarding the rated output capacity: The 200V class indicates that the output voltage is 230V. The 400V class indicates that the output voltage is 460V.
- 5) Power supply capacity depends on power supply impedance. It should be equal to or exceed the capacity specified above.



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Specifications

Input voltage		1-phase 200V class	3-phase 400V class
Input power supply	Applied motor output	0.2 to 1.5kW	0.75 to 3.7kW
	Rated output voltage	3-phase 200 to 230VAC (proportional to power supply voltage)	3-phase 380 to 460VAC (proportional to power supply voltage)
	Overload current rating	150% of rated output current for 1 minute	
	Phases, voltage, frequency	1-phase 200 to 230VAC 50/60Hz	3-phase 380 to 460VAC 50/60Hz
	Tolerable voltage variations	+10%, -15% of rated AC input voltage	
	Tolerable frequency variations	±5% of rated input frequency	
	Instantaneous voltage drop resistance capacity	Continuous operation at 165V or more. Continuous operation at less than 165V for 15ms.	Continuous operation at 323V or more. Continuous operation at less than 323V for 15ms.
Output frequency	Output frequency range	0.5 to 250Hz	
	Frequency display	Digital display	
	Frequency accuracy	±0.5% of selected maximum set frequency (25±10°C) for analogue setting	
	Frequency setting resolution	Digital setting: 0.1Hz (1Hz over 100Hz), Analogue setting: 0.1Hz (50/60Hz mode)	
Inverter control method		High carrier frequency sinusoidal PWM control (V/F control method)	
Carrier frequency		Select from 9 types (The output current must be reduced for 12.5 and 15.0kHz) (0.8, 1.1, 1.6, 2.5, 5.0, 7.5, 10, 12.5, 15kHz)	Select from 7 types (0.8, 1.1, 1.6, 2.5, 5.0, 7.5, and 10kHz) (The output current of 3.7kW must be reduced when set to 10kHz.)
Operation	Start/Stop	Operation panel buttons or 1a contact signal (wait time setting possible)	
	Forward/Reverse	Operation panel buttons or 1a contact signal (reverse rotation prohibit setting possible)	
	Jog operation	Operating frequency: Optional setting for 0.5 to 250Hz, Acceleration/deceleration time: Optional setting each for 0.04 to 999 seconds	
	Stop mode	Select from ramp-to-stop or coast-to-stop (selection changeover)	
	Reset function	Stop signal reset, external reset, panel reset (setting possible) and power supply reset	
	Stop frequency	Optional setting from 0.5 to 60Hz	
	Instantaneous power failure restart	Function OFF, and 0Hz restart, operating frequency restart (selection changeover)	
Retry function		Retry selection: Select function OFF and details of retry fault, No. of retries: Optional setting for 1 to 10 times	
Control	Frequency setting signal	<ul style="list-style-type: none"> Local setting: Potentiometer, digital setting (operation panel) External analog setting signal: Potentiometer (10kW, 1/4Ω or more), 0 to 5V, 0 to 10V, 4 to 20mA (Connect a 200Ω, 1/4W or more external resistor) External digital setting signal: PWM signal (signal cycle: 0.9 to 1100ms), Frequency up SW, down SW, save SW signal 	
	Voltage/frequency characteristics	Base frequency: 50, 60Hz fixed and optional setting between 45 and 250Hz V/F curve: Constant torque, square torque pattern (selection changeover)	
	2nd voltage/frequency characteristics	Optional base frequency setting for 45 to 250Hz	
	1st and 2nd torque boost level	Optional setting for 0 to 40%	
	1st and 2nd accel./Decel. Time	0.04 to 999sec. (individual accel. and decel. Time setting), Accel./Decel. Characteristics: Linear	
	Multi-speed frequency setting	Up to 8 preset frequency settings (optional setting)	
	Skip frequency setting	Up to 3 place settings (skip frequency band setting from 1 to 10Hz)	
Upper and lower frequency setting		Optional setting from 0.5 to 250Hz	
Bias/gain frequency settings		Bias frequency: set from -99 to 250Hz, Gain frequency: set from 0 to 250Hz	
External stop function		Select from auxiliary stop or coast-to-stop (selection setting)	
Braking	With brakes	0.4kW, 0.75kW, 1.5kW: 100% or more (short-time)	20% or more
	Without brakes	0.2kW: 100% or more, 0.4kW: 80% or more 0.75kW: 20% or more, 1.5kW: 20% or more	100% or more with connection of brake resistor (option) (built-in brake circuit)
DC braking		Operates when less than stop frequency, Braking torque level: 0 to 100 (set between 20 levels), Braking time: Optional setting for 0.1 to 120 seconds	
Output signal	Analogue output	Output specifications: 0 to 5V (max. 1mA), Output functions: Output frequency, output current proportional (selection changeover)	
	Open collector output	Output specifications: Max. rating 50VDC, 50mA Output functions: Run signal, arrival signal, overload prealarm, frequency detection, reverse run signal, fault warning, output frequency/current proportional PWM signal (cycle 1ms)	
	Relay output	Output specifications: 1c contact (contact capacity 250VAC, 0.5A resistance load) Output functions: Run signal, arrival signal, overload prealarm, frequency detection, reverse run signal, fault warning	
Display	Operating condition	Output frequency or line speed (selection changeover), output current, rotation direction	
	Fault details	Symbol indicated when protective function activates (last 4 faults are stored)	
Protection	Current limit	Current limit can be set from 1 to 200% of rated output current	
	Shut-off (stop)	Instantaneous overcurrent, over temperature (SC1 to 3), overcurrent (OC 1 to 3), overload/electronic thermal overload (OL), low voltage (LU), overvoltage (OU 1 to 3), auxiliary stop (AU), operation error (OP)	
	Stall prevention function	Overcurrent stall prevention, regenerative overvoltage stall prevention	
	Working ambient temperature and humidity	-10°C to +50°C (with no freezing), 90% RH or less (with no dew condensation)	
	Transportation/storage temperature and humidity	-25°C to +65°C, 95% RH or less	
Environment	Altitude and vibration	1000m or less, 5.9m/s ² (0.6G) or less	
	Atmosphere	Indoors, with no corrosive gases, explosive gases, oil mist or dust present	
	Enclosure	IP00	
	Cooling method	Self-cooling: 0.2 to 0.75kW, Forced-air cooling: 1.5kW	Self-cooling: 0.75kW, Forced-air cooling: 1.5 to 3.7kW

- Protection against Electric shock: Class I
- Overvoltage category: II
- Pollution degree: 2

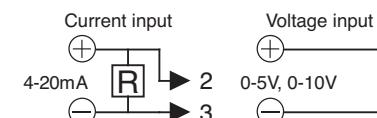
Note: The specifications for the 200 V and 400 V classes are not the same.
Please keep in mind their slight differences.

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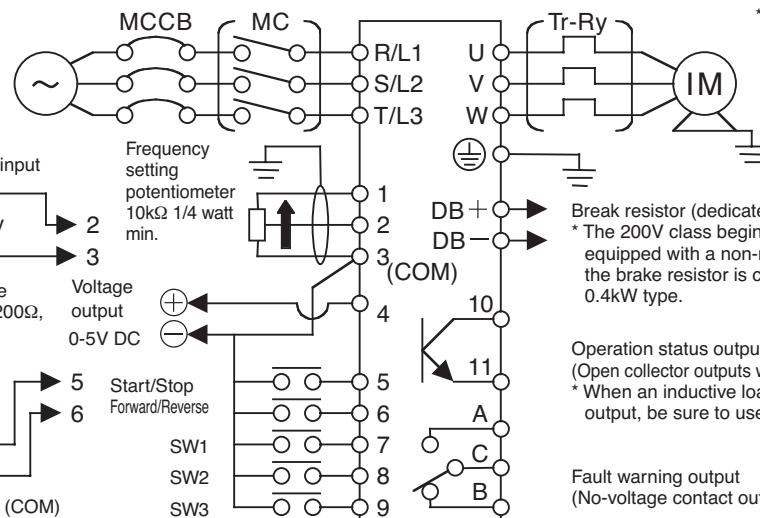
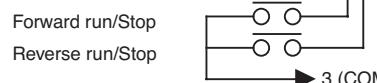
Specifications

Wiring Diagram

* This diagram is for 3-phase 400V. The power input terminals for 1-phase 200V class are the two terminals L and N.



* When using a 4 to 20mA signal for the frequency setting, always connect a 200Ω, 1/4W resistor. (When no resistor is connected, the inverter may become damaged.)



* The built-in electronic thermal relay is for overload protection. Use the thermal relay with open phase protection for this purpose.

Break resistor (dedicated option for 400V class)
* The 200V class beginning with the 0.4kW inverter is equipped with a non-regenerative brake. Make sure the brake resistor is connected to the terminal with 0.4kW type.

Operation status output
(Open collector outputs with 50VDC, 50mA max. ratings.)

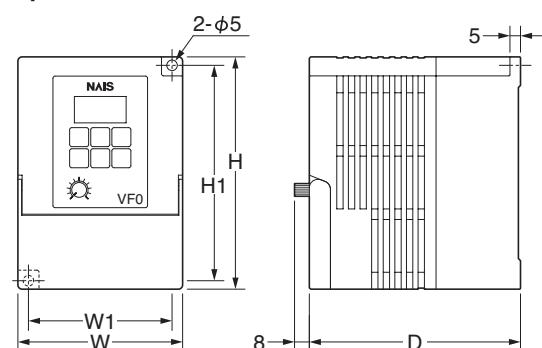
* When an inductive load is to be driven by an open-collector output, be sure to use a freewheel diode.

Fault warning output
(No-voltage contact output 250VAC, 0.5A resistance load)

* When shipped it is set for control using the operation panel. Parameter settings will have to be changed depending on the control signals that will be used.

Dimensions

1-phase 200V class

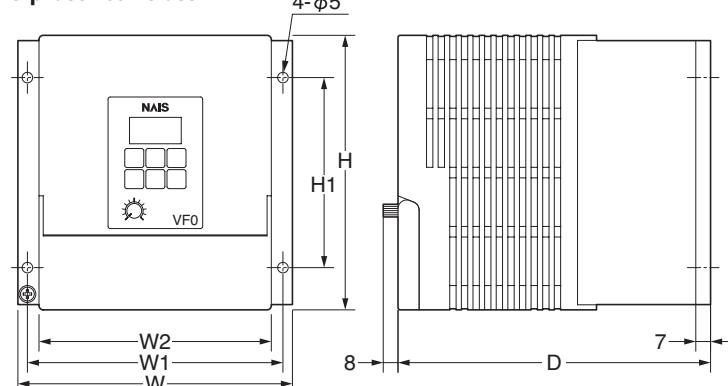


Unit: mm

Inverters capacity (kW)	W	W1	H	H1	D
0.2	78	68	110	102	100
0.4					
0.75	100	90	130	121	115
1.5					

Note 1: 1.5kW includes a cooling fan

3-phase 400V class



Unit: mm

Inverters capacity (kW)	W	W1	W2	H	H1	D
0.75	130	121	110	130	90	148
1.5						
2.2	130	121	110	130	90	161
3.7	160	151	140	130	90	161

Note 2: 1.5 to 3.7kW includes a cooling fan