NAiS

VF Series
AC INVERTERS   VF-7E/VF-7F/VF-8X/VF-8Z
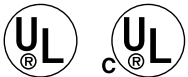
AC INVERTER LINE-UP

VF-7E

TÜV Rheinland

R9551112 (200V)
R9551113 (400V)

UL® cUL®

E114917

IP20

- Sensorless vector control
- Very low acoustic noise
- Multiple protection features
- Type approved under EC, LVD and EMC standards (EN Type)

Single-phase 200V	0.2kW	2.2kW
Three-phase 200V	0.2kW	3.7kW
Three-phase 400V	0.75kW	3.7kW

- Type approved under UL and CUL standards (UL Type)

Three-phase 200V	0.2kW	3.7kW
Three-phase 400V	0.75kW	3.7kW

VF-7F

TÜV Rheinland

R9551112 (200V)
R9551113 (400V)

UL® cUL®
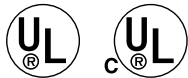
E114917

IP20

- Unique PWM control (V/F control)
- Very low acoustic noise
- Fault alarm signaling function
- Type approved under EC, LVD and EMC standards (EN Type)

Single-phase 200V	0.2kW	2.2kW
Three-phase 400V	0.75kW	3.7kW

- Type conforming to UL and CUL standards (UL Type)

Three-phase 200V	0.2kW	3.7kW
Three-phase 400V	0.75kW	3.7kW

VF-8X
VF-8Z

IP20

※ The followings are for VF-8X only.

TÜV Rheinland

R9551112 (200V)
R9551113 (400V)

UL® cUL®
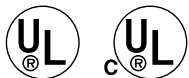
E114917

VF-8X

VF-8Z

- Unique PWM control (V/F control)
- Very low acoustic noise
- Extensive operating range

※The followings are for VF-8X only.

- Type approved under EC, LVD and EMC standards (EN Type)

Three-phase 400V	5.5kW	37kW

- Type conforming to UL and CUL standards (UL Type)

Three-phase 200V	5.5kW	37kW
Three-phase 400V	5.5kW	37kW

VF series inverters with enhanced, sophisticated functioning meet the world's toughest approvals, and fulfill the global market's demanding needs.

Standard line-up with the TÜV/UL/CUL-approved inverters

EUROPE

• Required CE marking

→ Low Voltage Directive ······ Obtained the certificate of conformity from TÜV Rheinland

→ EMC Directive ······ Obtained the certificate of conformity from TÜV Rheinland in combination with noise filter

NORTH AMERICA

UL/CUL approval ······ Obtained both approvals for assured safety levels.

• Approved product range

	Input voltage	0 1 2 3 4 5 ... 20 (kW)	Noise filter
VF-7E	Single-phase 200V	0.2 — 2.2kW	Option sold separately
	Three-phase 200V	0.2 — 3.7kW	
	Three-phase 400V	0.75 — 3.7kW	
VF-7F	Single-phase 200V	0.2 — 2.2kW	Option sold separately
	Three-phase 400V	0.75 — 3.7kW	
VF-8X	Three-phase 400V	5.5 — 37kW	Option sold separately

	Input voltage	0 1 2 3 4 5 ... 30 (kW)
VF-7E	Three-phase 200V	0.2 — 3.7kW
	Three-phase 400V	0.75 — 3.7kW
VF-7F	Three-phase 200V	0.2 — 3.7kW
	Three-phase 400V	0.75 — 3.7kW
VF-8X	Three-phase 200V	5.5 — 37kW
	Three-phase 400V	5.5 — 37kW

3

NAiS

Complying with TÜV and UL Standards—Designed for improved safety, operability and functionality

VF-7E
Series

200V 1.5kW

200V 3.7kW

200V 0.4kW

Safety

■ Product conforming to the EC Low Voltage Directive (TÜV-approved product)
• Conforms to DIN VDE 0160

■ Product conforming to the UL standard

■ Accident prevention system
• Data lock function controlled by password.

■ Also conforms to the EMC Directive
• By combination use with EMI filter.

■ Programmable password for operational integrity

■ Electronic thermal overload

Operability

■ Improved monitoring functions
• Simple operation for frequency settings.
• The main display on the control panel can be altered between command frequency, output frequency and other settings.
• The four most recent faults are stored in the memory after a power failure to facilitate system diagnosis.

Indication of frequency, trip cause(s), etc.

• Frequency resolution
  Digital setting: Min. 0.01Hz
  Analog setting: Min. 0.1Hz
• Trip cause(s)
  Instantaneous overcurrent (ground fault and high temperature), overcurrent, overvoltage, low voltage, auxiliary interlock, overload, operation error and auxiliary stop

Indication of Local/External control for operation signal and frequency signal, parameter number, etc.

■ Panel reset function
• After a trip, you can reset by pressing the stop button on the control panel, rather than through an external signal. (The function can be modified.)

Functions

■ Simple vector control
• Simple vector control ensures a high torque even at low speeds (150% torque at 1 Hz).
• The output torque characteristics for general-purpose motors when operated by an inverter at variable speeds are shown below.
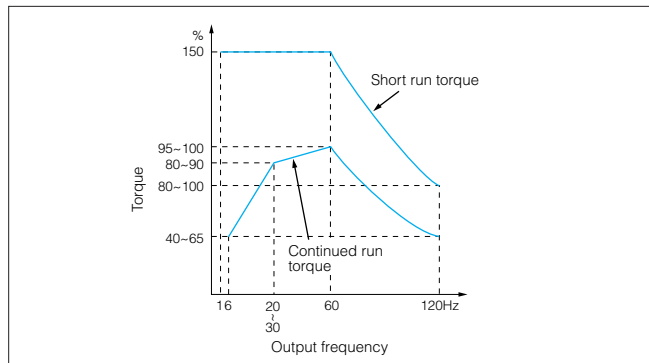

■ Auto tuning function (with slip compensation)
• This function automatically detects and controls the constant of a motor required for vector control and is applicable to three-phase squirrel-cage motors with 2, 4 or 6 poles.

■ Speed search function
• The inverter is activated without stopping the motor (on a free run) for a changeover from the commercial run to an inverter run or a return from sudden power failure.
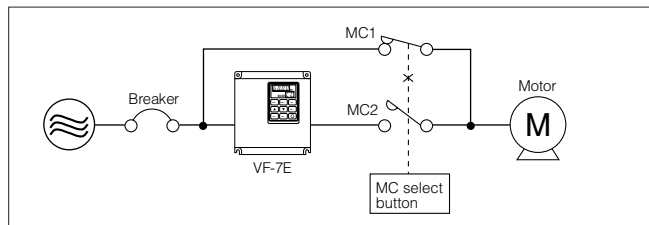
■ Improved tripless function
• This function automatically decreases the frequency when the output current reaches the overcurrent stall level during overload operation.
• When the load returns to normal, the function automatically returns the frequency to its original level and continues operation.
• The function prevents overcurrent trips in equipment such as kneading machines that are used for viscous materials.
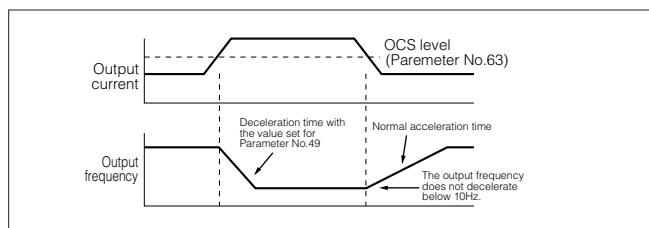
MODELS

Applied motor output	UL Type							
	200V Three-Phase Series				400V Three-Phase Series			
	Catalogue.No.	Rated output current (A)	Rated output capacity (kVA)	Mass (kg)	Catalogue.No.	Rated output current (A)	Rated output capacity (kVA)	Mass (kg)
0.2kW (1/2HP)	BFV70022E	2.3	0.9	1.2	———	——	——	—
0.4kW (3/4HP)	BFV70042E	3 (2.5)	1.2	1.2	———	——	——	—
0.75kW (1HP)	BFV70072E	5 (4.1)	2.0	1.5	BFV70074E	2.1	1.7	2.5
1.5kW (2HP)	BFV70152E	8 (7)	3.2	1.6	BFV70154E	4 (3.8)	3.2	2.7
2.2kW (3HP)	BFV70222E	11 (10)	4.4	3.0	BFV70224E	6 (5.4)	4.8	2.9
3.7kW (5HP)	BFV70372E	17.5 (16.5)	7.0	3.0	BFV70374E	9.4 (8.7)	7.5	3.1

Applied motor output	EN Type											
	200V Single-Phase Series				200V Three-Phase Series				400V Three-Phase Series			
	Catalogue.No.	Rated output current (A)	Rated output capacity (kVA)	Mass (kg)	Catalogue.No.	Rated output current (A)	Rated output capacity (kVA)	Mass (kg)	Catalogue.No.	Rated output current (A)	Rated output capacity (kVA)	Mass (kg)
0.2kW (1/2HP)	BFV70022EBP	2.0	0.8	1.4	BFV70022EP	2.0	0.8	1.4	———	——	——	—
0.4kW (3/4HP)	BFV70042EBP	2.8	1.2	1.4	BFV70042EP	2.8	1.2	1.4	———	——	——	—
0.75kW (1HP)	BFV70072EBP	3.6	1.5	1.5	BFV70072EP	3.6	1.5	1.5	BFV70074EP	2.1	1.5	2.5
1.5kW (2HP)	BFV70152EBP	7.0	2.9	2.7	BFV70152EP	7.0	2.9	1.6	BFV70154EP	3.8	2.7	2.7
2.2kW (3HP)	BFV70222EBP	9.1	3.8	3.0	BFV70222EP	9.1	3.8	3.0	BFV70224EP	5.4	3.9	2.9
3.7kW (5HP)	———	——	——	—	BFV70372EP	15.5	6.4	3.1	BFV70374EP	8.7	6.3	3.1

STANDARD SPECIFICATIONS

The rated output current, rated output capacity, etc. of three phase 200V and 400V EN types are slightly different from those UL types. The figures in parentheses are those when the carrier frequency is set at 2.5 kHz or more.

Models	200V Three-Phase Series	200V Single-Phase Series	400V Three-Phase Series
Applied motor output	0.2 to 3.7kW	0.2 to 2.2kW	0.75 to 3.7kW
Rated output — Rated output voltage	3-phase, 200 to 230V (240V)	3-phase, 200 to 240V	3-phase, 380 to 460V (415V)
Rated output — Overload capacity	150% of rated output current for 1 minute		
Input power supply — Number of phases, voltage, frequency	Three phase, 200 to 230V (240V), 50/60Hz	Single phase, 200 to 240V, 50/60Hz	Three phase, 380 to 460V (415V), 50/60Hz
Input power supply — Voltage variations	±10% of rated AC input voltage		
Input power supply — Frequency variations	±5% of rated input frequency		
Input power supply — Instantaneous voltage drop resistance	Continuous operation at 165V or more, or at less than 165V for 15ms.		Continuous operation at 330V or more, or at less than 330V for 15ms.

COMMON SPECIFICATIONS

The figures in parentheses are those of EN types.

Overvoltage category		II
Pollution degree		2
Output frequency — Output frequency range		0.2 to 400Hz
Output frequency — Frequency display		Digital display
Output frequency — Output frequency accuracy		±0.5% of selected maximum output frequency (25 ±10°C) for analog setting
Output frequency — Frequency setting resolution		Digital setting; 0.01Hz (0.1Hz over 100Hz) Analog setting; 0.1Hz (50/60Hz by parameter setting)
Inverter control		High carrier frequency sinusoidal PWM control (Select from V/F control method or simple vector control method)
Carrier frequency		Variable from 0.8 to 15kHz
Operation	Start/Stop	Select with operation panel buttons, 1a contact signal (either 1a, 1b contact signal) or wait time setting (0.1 to 100sec.)
Operation	Forward/Reverse	Select with operation panel buttons, 1a contact signal (reverse operation prohibit setting possible)
Operation	Jog operation	Optional setting for 0.2 to 20Hz Optional Accel./Decel. time setting for 0.04 to 1600 seconds
Operation	Stop select	Select from; ramp-to-stop or coast-to-stop
Operation	Reset	Select from; rest by power supply or by inputting stop signal. External reset setting is also possible.
Operation	Stop frequency	Select from 0.2 to 60Hz
Operation	Instantaneous power failure restart	Select from; function OFF, restart at 0Hz, or restart at the setting frequency
Control	Frequency setting signal	Digital setting; Operation panel Analog setting; 0-5V DC, 0-10V DC, 4-20mA DC, 10kΩ potentiometer, input impedance at 50kΩ (0-5V DC) 20kΩ (0-10V DC), and approx. 350Ω (4-20mADC)
Control	Voltage/frequency characteristics	Select from; 50Hz, 60Hz, optional base frequency setting for 45Hz to 400Hz, constant torque, or square low torque pattern
Control	2nd voltage/frequency characteristics	Optional base frequency setting for 45 to 400Hz
Control	2nd torque boost level	Optional setting for 0 to 40%
Control	Torque boost	Optional setting for 0 to 40%
Control	Accel./Decel. time	0.04 to 1600sec. Individual accel. and decel. time setting
Control	Accel./Decel. characteristics	Linear/S-characteristics (selection switchover)
Control	Accel./Decel. time 2, 3, and 4	0.1 to 1600sec. Individual accel.and decel. time setting Can be linked with multispeed setting.
Control	Multispeed frequency settings	Up to 8 preset frequency settings (programmable) Can be linked with accel. and decel. time setting.
Control	Skip frequency setting	Up to 3 place settings (skip frequency band setting from 1 to 10Hz)
Control	Upper frequency setting	Setting for 0.2 to 400Hz
Control	Lower frequency setting	Setting for 0.2 to 400Hz
Control	Bias and gain frequency settings	Bias: set for- 99.9 to 400Hz Gain: set for 0 to 400Hz
Control	External fault trip	Select from: auxiliary interlock fault or auxiliary stop (coast-to-stop)
Braking — Braking torque	Regenerative braking	20% min. (0.2kW; 100% min. 0.4kW; 80% min.)
Braking — Braking torque	DC dynamic braking	Working at less than setting stop frequency (braking torque and braking time settings)
External output signal	Operation frequency signal	0-5V DC
External output signal	Output signal	Open collector output (50V, 50mA max.) Run signal, arrival signal, frequency detection signal, overload alarm signal, reverse operation signal (selectable)
External output signal		1c contact output (contact capacity at 250 AC, resistance load at 0.5A) Fault alarm signal, run signal, frequency detection signal, overload alarm signal, reverse operation signal (selectable)
Display	Operating conditions	Output frequency, setting frequency (F1) (A2) Line speed display (selection switchover) Output current (A0), output voltage (A1), rotation direction
Display	Fault trip buffers	Display when protective functions are activated (last 4 faults are stored).
Protection	Current limit	Current limit can be set from 1 to 200% of rated output current
Protection	Shut-off (stop)	Instantaneous overcurrent, over temperature (SC), overcurrent (OC), low voltage (LU), overvoltage (OU), auxiliary interlock (AU), overload/electronic thermal overload (OL), operation error (OP),
Protection	Stall prevention	Overcurrent stall prevention, regenerative overvoltage stall prevention
Environment	Ambient temperature and relative humidity	–10°C to +50°C (+14°F to +122°F) *1 (non-freezing), 90% RH max (non-condensing)
Environment	Storage and transport temperature, relative humidity	–25°C to +65°C (–13°F to +149°F), 95% RH max.
Environment	Vibration	5.9m/s² (0.6G) max.
Environment	Installation condition	Altitude of 1000m or less, indoors, free of corrosive gases and dust
Enclosure		IP20 screen-protected type

*1 –10°C to +40°C (+14°F to +104°F) in case of EN types

MODE DISPLAY (RUN/FAULT)

Mode display	Run signal	Frequency signal	Main display (Examples)								
LL	Local (Operation panel)	Local (Operation panel)	Frequency display	Instantaneous overcurrent during acceleration or abnormal heating of heat radiating fins	Overcurrent during acceleration	Excessive Internal DC voltage during acceleration (overvoltage)	Undervoltage	Auxiliary interlock	Overload	Operation error	Auxiliary stop
LE	Local (Operation panel)	External (Control terminal block)									
EL	External (Control terminal block)	Local (Operation panel)									
EE	External (Control terminal block)	External (Control terminal block)	50.00	SC1	OC1	OU1	LU	AU	OL	OP	AS

Note: When the sudden power failure function is selected, "LU" is stored in the trip cause memory and does not send an alarm signal.

PARAMETER SETTINGS

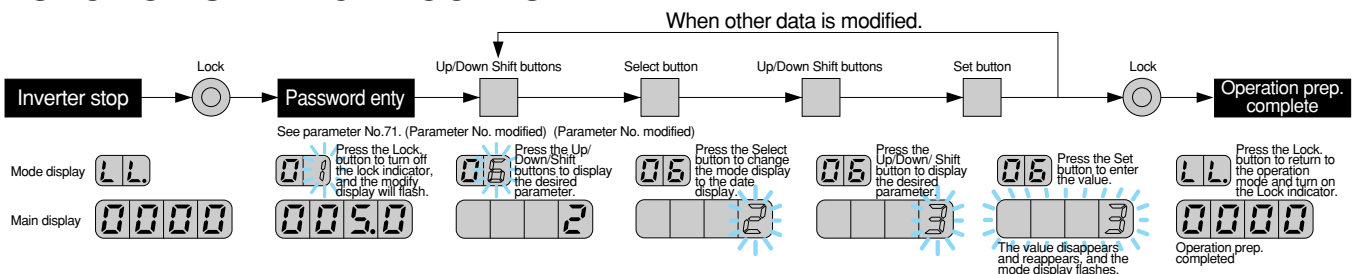| Parameter No.	Parameter name	Parameter object	Setting value or code	Factory setting
01	1st Accel Time	Sets acceleration time: 0.2 Hz to max. output frequency.	0000: 40msec., 0.1~1600sec.	005.0
02	1st Decel Time	Sets deceleration time: max output frequency to 0.2 Hz.	0000: 40msec., 0.1~1600sec.	005.0
03	Freq. Range	Sets V/F pattern.	50 60 FF (50:50Hz, 60:60Hz, FF:FREE)	60
04	V/F (Volts-per-Hertz) Curve	Sets V/F curve.	0 1 (0: Constant torque, 1: Reduced torque)	0
05	DC Boost Level	Sets torque boost level.	0 ~40%	05
06	Overload Function	Selects thermal overload functions.	0 OFF 1 without output Freq. derating 2 with output Freq. derating 3 for special motor	2
07	Overload Current	Sets current value.	0.1~100A	*
08	Local/Ext. Control	Specifies local or external control.	0~6	0
09	Local/Ext. Freq.	Specifies local or external frequency control (Volts/Current).	0 Local 1 VR (10k) 2 0~5V 3 0~10V 4 4~20mA	0
10	Reverse Lockout	Specifies forward-only operation.	0 Forward operation/Reverse operation 1 Forward operation (No reverse operation)	0
11	Stop Mode Select	Specifies ramp-to-stop or coast-to-stop.	0 Ramp-to-stop 1 Coast-to-stop	0
12	Stop Freq.	Sets stop frequency.	0.2~60Hz	00.50
13	DC Brake Time	Sets DC dynamic brake time.	000:OFF, 0.1~30sec.	000
14	DC Brake Level	Sets DC dynamic brake level.	0~100	00
15	Max. Freq.	Sets maximum output frequency.	50~400Hz	60.00
16	Base Freq.	Sets base frequency.	45~400Hz	60.00
17	Accel. Freq. Hold	Selects accel stall prevention.	0 No 1 Available	1
18	Decel. Freq. Hold	Selects decel stall prevention.	0 No 1 Available	1
19	Preset Function Select	Selects multi-speed functions.	0 Multi-speed 1 Accel/Decel 2 Multi-speed linked to Accel/Decel	0
20	Multifunction Input Select	Selects functions for SW 1,2 and 3.	Values 0 1 2 3 4 5 6 7 8 9 10	0
21	SW4 Function Select	Selects a function for SW4.	0 Second Characteristic 2 selected 1 Speed search	0
22	Aux. Interlock	Specifies auxiliary interlock trip or auxiliary stop.	0 Auxiliary interlock 1 Auxiliary stop	0
23	Output Terminal Select	Selects detection frequency functions. Selects output terminal functions.	0 Run 1 Arrival 2 Overload 3 Frequency detection 4 Reverse operation	0
24	Output RY Select	Selects output relay functions.	0 Run 1 Arrival 2 Overload 3 Frequency detection 4 Reverse operation 5 Fault (when energized) 6 Fault (When not energized)	5
25	Detect Freq. (Output Terminal)	Sets detection frequency value.	0000,0.2~400Hz	00.50
26	Detect Freq. (Output RY)	Sets detection frequency value.	0000,0.2~400Hz	00.50
27	Jog Freq.	Sets jog frequency value.	0.2~20Hz	10.00
28	Jog.Accel. Time	Sets acceleration time of jog operation.	0000: 40msec., 0.1~1600sec.	005.0
29	Jog Decel. Time	Sets deceleration time of jog operation.	0000: 40msec., 0.1~1600sec.	005.0
30	Preset Freq.2	Sets Preset Frequency 2.	0000: 0V stop, 0.2~400Hz	20.00
31	Preset Freq.3	Sets Preset Frequency 3.	0000: 0V stop, 0.2~400Hz	30.00
32	Preset Freq.4	Sets Preset Frequency 4.	0000: 0V stop, 0.2~400Hz	40.00
33	Preset Freq.5	Sets Preset Frequency 5.	0000: 0V stop, 0.2~400Hz	15.00
34	Preset Freq.6	Sets Preset Frequency 6.	0000: 0V stop, 0.2~400Hz	25.00
35	Preset Freq.7	Sets Preset Frequency 7.	0000: 0V stop, 0.2~400Hz	35.00
36	Preset Freq.8	Sets Preset Frequency 8.	0000: 0V stop, 0.2~400Hz	45.00
37	Accel.Time 2	Sets Accel.Time 2.	0.1~1600sec.	005.0
38	Decel.Time 2	Sets Decel.Time 2.	0.1~1600sec.	005.0
39	Accel.Time 3	Sets Accel.Time 3.	0.1~1600sec.	005.0
40	Decel.Time 3	Sets Decel.Time 3.	0.1~1600sec.	005.0
41	Accel.Time 4	Sets Accel.Time 4.	0.1~1600sec.	005.0
42	Decel.Time 4	Sets Decel.Time 4.	0.1~1600sec.	005.0
43	2nd Base Freq.	Sets base frequency 2.	45~400Hz	60.00
44	2nd DC Boost Level	Sets boost level 2.	0~40%	05
45	Skip Freq. 1	Sets Skip Frequency 1.	0000: OFF,0.2~400Hz	0000

PARAMETER SETTINGS

Parameter No.	Parameter name	Parameter object	Setting value or code				Factory setting
46	Skip Freq.2	Sets Skip Frequency 2.	0000: OFF, 0.2~400Hz				0000
47	Skip Freq.3	Sets Skip Frequency 3.	0000: OFF, 0.2~400Hz				0000
48	Skip Freq.Band Width	Sets skip frequency bands.	0: OFF, 1~10Hz				0
49	Current Limit Function	Sets the current limit function.	00:OFF, 0.1~9.9				00
50	Power Loss Start Mode	Selects restart action when the power is turned on.	0 Run	1 Stop	2 Run after wait time	3 Stop	1
51	Ride-Thru Restart	Selects instantaneous power failure function.	0 OFF	1 0 Hz restart	2 Continued restart		0
52	Wait Time	Sets waiting time for parameters 50 and 51.	0.1~100 sec.				000.1
53	Accel./Decel. Pattern	Sets Accel/Decel patterns.	0 Linear Accel/Decel	1 S-shaped Accel/Decel			0
54	Lower Freq. Clamp	Sets lower frequency.	0.2~400Hz				00.50
55	Upper Freq. Clamp	Sets upper frequency.	0.2~400Hz				400.0
56	Bias/Gain Function Select	Selects enabling or disabling this function.	0 OFF	1 ON			0
57	Bias Freq.	Sets bias frequency.	-99.9~400Hz				000.0
58	Gain Freq.	Sets gain frequency.	0000: 0V stop, 0.2~400Hz				60.00
59	0-5V Output Voltage compensation	Adjusts the 0~5V output signal.	75~125%				100
60	Monitor Select	Selects monitoring modes.	0 Frequency	1 Frequency	2 Line speed	3 Line speed	0
61	Line Speed Multiplier	Sets line speed multiplier.	000.1~100				030.0
62	Max. Output Voltage	Sets maximum output voltage to motor rating.	000:OFF, 1~500V				000
63	OCS Level	Sets overcurrent stall prevention level.	1~200%				140
64	Carrier Freq.	Sets carrier frequency.	0.8/1.1/1.6kHz, 2.5/5.0/7.5/10.0/12.5/15.0kHz				0.8
65	Vector Control Select	Sets control system.	0 V/F control	1 Vector control			0
66	Motor Capacity Set	Sets applicable motor capacity.	0.2/0.4/0.7/1.5/2.2/3.7				✳
67	Motor Poles Select	Matches the number of applicable motor poles.	2/4/6				4
68	Motor Constant Measurement Function	Selects function for constant motor measurement.	0 OFF	1 Volt Comp. measurement	2 Slip Comp. measurement	3 Recommended constant	0
69	Voltage Compensation Constant	Sets the voltage compensation constant.	00.01~99.99				Recommended value
70	Slip Compensation Frequency	Sets the slip conpensation frequency.	-5.00~05.00				03.00
71	Password	Sets password for data input (prevents operational errors).	000: OFF, 1~999 Mask code				000
72	Setting Data Clear	Clears factory settings.	0/1/2				0
73	Baud Rate	Sets communication speed.	300/600/1200/2400/4800/9600				9600
74	Stop Bit Length	Sets stop bit length.	1/2				1
75	Parity Check	Sets parity bit.	0/1/2				0
76	No. of Communication Retries	Sets the number of communication retries.	0~10				0
77	CR/LF Select Validity	Selects CR or LF.	0/1/2/3				0

Note: Data can be read only when the power is on.　Parameters in ☐ can be set during inverter operation.
✳The same value as inverter's rating.

FUNCTION SETTING PROCEDURE

● Notes on setting parameters

1. While the inverter is in operation, only values for the numbers in the ☐ of parameter settings can be modified.
2. No values can be modified unless the Lock indicator is off.
3. While the inverter is stopped, it cannot be operated unless the Lock indicator is ON.
4. If the function setting returns to the "Operation Prep. Complete" state during data modification while an external start signal is received, the error code "OP" will be displayed, and the inverter will remain inoperative.
5. The values set by pressing the Set button are stored in the memory even if the power is off.

Terminal Function Selection by Parameter No.20

Parameter No.20	Control terminal No.14 SW1	Control terminal No.15 SW2	Control terminal No.16 SW3	Parameter No.20	Control terminal No.14 SW1	Control terminal No.15 SW2	Control terminal No.16 SW3
0	Multi-speed function	Multi-speed function	Multi-speed function	5	Multi-speed function		Reset input
1			Reset input	6			Reset lockout
2			Reset lockout	7		Auxiliary stop input	Jog function
3			Jog function	8	Analog input changeover		Reset input
4			Auxiliary stop output	9			Reset lockout
				10			Jog function

NAiS

Super reliable, powerful and quiet operation inverters

VF-7F
Series

200V 2.2kW

200V 0.75kW

Safety

■ Product conforming to the EC Low Voltage Directive (TÜV-approved product)
• Conforms to DIN VDE O160

■ Product conforming to the UL standard

■ Accident prevention system
• Data lock function controlled by password

■ Also conforms to the EMC Directive
• By combination use with EMI filter

■ Programmable password for operational integrity

■ Electronic thermal overload

Operability

• Easy to operate by means of Digital Parameter Programming on operation panel.
• Enhanced monitoring features and space saving design.
• Super compact design with very powerful and extensive parameters.

Functions

• Matsushita's unique PWM control for good low speed torque and control.
• Programmable 15.0kHz carrier frequency, low acoustic noise.

Device Features

■ Extensive Frequency Range Selection:
Frequency range selectable for 50/60 Hz and from 50 to 400 Hz independent of maximum output frequency (50 to 400 Hz). Constant torque and low torque modes can also be selected.

■ Powerful Acceleration/Deceleration:
Torque boost capability offers powerful acceleration at optimum V/F ratio. In addition, the stall prevention feature greatly reduces inverter trips during rapid acceleration or deceleration.

■ Frequency Skip Feature:
Vibrations resulting from resonance with associated facilities are prevented by skipping resonant frequencies. Up to three frequencies can be skipped, and skip frequency span is user adjustable.

■ Max. Output Voltage Setting:
The inverter output voltage can be adjusted by AVR (Automatic Voltage Regulator).

■ Jog Operation:
Select either local or external jog operation, for which acceleration/deceleration time can be independently specified.

■ Smooth Operation at Low Frequencies:
Our unique PWM control method ensures smooth operation in the low frequency range with minimum torque ripple.

■ Overload Function Protection:
Complete motor overload protection over a wide range of operating conditions by selection of device functions according to motor characteristics.

■ Ride-Through Restart Capability:
Restarts after power failures or surges can be programmed in different modes depending on load or system conditions. A wait time programming feature is also included.

System Features

■ Operation Status Feedback:
Provides run, arrival, frequency detection and fault alarm signals. The user can create commands for the next process step using those signals.

■ Acceleration/Deceleration linked with Multispeed Operation:
In addition to multispeed (eight speeds) and multi-acceleration/deceleration rates (four rates), this device enables combination of those rates (four speeds) with link capability. Flexible speed/acceleration/deceleration combinations allow easy system design.

■ Wide Choice of Speed Control:
Motor speed can be controlled with external analog signal, manual control or in two to eight steps with external switching signal.

■ DC Brake Range and Time Adjustment:
To ensure reliable stopping during deceleration, DC braking can be activated when output frequency is reduced below the specified stop frequency (0.5 to 60 Hz). The DC brake application time can be adjusted from 0 to 120 seconds.

■ Master-Slave (Proportional) Operation:
The 0-5 V output signal and bias gain features allow proportional operations for up to five inverters. This makes transfer system construction easier.

■ More practical and effective application by combination use with NAiS PLC.

MODELS

UL Type

Applied motor output	200V Three-Phase Series				400V Three-Phase Series			
	Catalogue.No.	Rated output current (A) *1	Rated output capacity (kVA)	Mass (kg)	Catalogue.No.	Rated output current (A) *1	Rated output capacity (kVA)	Mass (kg)
0.2kW (1/2HP)	BFV70022F	2.0	0.8	1.4	———	——	——	—
0.4kW (3/4HP)	BFV70042F	2.8	1.1	1.4	———	——	——	—
0.75kW (1HP)	BFV70072F	3.6	1.4	1.5	BFV70074F	2.1	1.7	2.5
1.5kW (2HP)	BFV70152F	7.0	2.8	1.6	BFV70154F	3.8	3.0	2.7
2.2kW (3HP)	BFV70222F	9.1	3.6	3.0	BFV70224F	5.4	4.3	2.9
3.7kW (5HP)	BFV70372F	15.5	6.2	3.1	BFV70374F	8.7	6.9	3.1

EN Type

Applied motor output	200V Single-Phase Series				400V Three-Phase Series			
	Catalogue.No.	Rated output current (A) *2	Rated output capacity (kVA)	Mass (kg)	Catalogue.No.	Rated output current (A) *2	Rated output capacity (kVA)	Mass (kg)
0.2kW (1/2HP)	BFV70022FBP	2.0	0.8	1.4	———	——	——	—
0.4kW (3/4HP)	BFV70042FBP	2.8	1.2	1.4	———	——	——	—
0.75kW (1HP)	BFV70072FBP	3.6	1.5	1.5	BFV70074FP	2.1	1.5	2.5
1.5kW (2HP)	BFV70152FBP	7.0	2.9	2.7	BFV70154FP	3.8	2.7	2.7
2.2kW (3HP)	BFV70222FBP	9.1	3.8	3.0	BFV70224FP	5.4	3.9	2.9
3.7kW (5HP)	———	——	——	—	BFV70374FP	8.7	6.3	3.1

*1<Precautions>
When using the carrier frequency at 12.5kHz or 15kHz, the output current must be decreased to the following values. (The current does not need to be decreased for capacities other than those listed below.)
- 3-phase 200V input series 0.75kW
  12.5kHz : (rated output current) x 0.95 (3.4A)
  15kHz   : (rated output current) x 0.9 (3.2A)
- 3-phase 200V input series 3.7kW
  12.5kHz : (rated output current) x 0.94 (14.5A)
  15kHz   : (rated output current) x 0.87 (13.5A)
- 3-phase 400V input series 3.7kW
  12.5kHz : (rated output current) x 0.81 (7.0A)
  15kHz   : (rated output current) x 0.62 (5.4A)

*2<Precautions>
When using the carrier frequency at 12.5kHz or 15kHz, the output current must be decreased to the following values. (The current does not need to be decreased for capacities other than those listed below.)
- Single-phase 200V input series 0.75kW
  12.5kHz : (rated output current) x 0.95 (3.4A)
  15kHz   : (rated output current) x 0.9 (3.2A)
- 3-phase 400V input series 3.7kW
  12.5kHz : (rated output current) x 0.81 (7.0A)
  15kHz   : (rated output current) x 0.62 (5.4A)

STANDARD SPECIFICATIONS

Models	200V Three-Phase Series	200V Single-Phase Series	400V Three-Phase Series
Applied motor output	0.2 to 3.7kW	0.2 to 2.2kW	0.75 to 3.7kW
Rated output — Rated output voltage	3-phase, 200 to 230V	3-phase, 200 to 240V	3-phase, 380 to 460V (415V)
Rated output — Overload capacity	150% of rated output current for 1 minute		
Input power supply — Number of phases, voltage, frequency	Three phase, 200 to 230V; 50/60Hz	Single phase, 200 to 240V; 50/60Hz	Three phase, 380 to 460V (415V); 50/60Hz
Input power supply — Voltage variations	±10% of rated AC input voltage		
Input power supply — Frequency variations	±5% of rated input frequency		
Input power supply — Instantaneous voltage drop resistance	Continuous operation at 165V or more, or at less than 165V for 15ms.		Continuous operation at 330V or more, or at less than 330V for 15ms.

The figures in parentheses are those of EN types.

COMMON SPECIFICATIONS

Overvoltage category		II
Pollution degree		2
Output frequency	Output frequency range	0.5 to 400Hz
	Frequency display	Digital display
	Output frequency accuracy	±0.5% of selected maximum output frequency (25 ±10°C) for analog setting
	Frequency setting resolution	Digital setting; 0.1Hz (1Hz over 100Hz) Analog setting; 0.1Hz (50/60Hz by parameter setting)
Inverter control		High carrier frequency sinusoidal PWM control
Carrier frequency		Variable from 0.8 to 15kHz
Operation	Start/Stop	Select with operation panel buttons, 1a contact signal (either 1a, 1b contact signal) or wait time setting (0.1 to 100sec.)
	Forward/Reverse	Select with operation panel buttons, 1a contact signal (reverse operation prohibit setting possible)
	Jog operation	Optional setting for 0.5 to 400Hz. Optional Accel./Decel. time setting for 0.04 to 999 seconds
	Stop select	Select from; ramp-to-stop or coast-to-stop
	Reset	Select from; rest by power supply or by inputting stop signal. External reset setting is also possible.
	Stop frequency	Select from 0.5 to 60Hz
	Instantaneous power failure restart	Select from; function OFF, restart at 0 Hz, or restart at the setting frequency
Control	Frequency setting signal	Digital setting; Operation panel. Analog setting; 0-5V DC, 0-10V DC, 4-20mA DC, 10kΩ potentiometer, input impedance at 200kΩ (0-5V DC, 0-10V DC), and approx. 200Ω (4-20mA DC)
	Voltage/frequency characteristics	Select from; 50Hz,60Hz,optional base frequency setting for 45 Hz to 400Hz, constant torque, or square low torque pattern
	2nd voltage/frequency characteristics	Optional base frequency setting for 45 to 400Hz
	2nd torque boost level	Optional setting for 0 to 40%
	Torque boost	Optional setting for 0 to 40%
	Accel./Decel. time	0.04 to 999sec. Individual accel. and decel. time setting
	Accel./Decel. time 2, 3, and 4	0.1 to 999sec. Individual accel, and decel. time setting Can be linked with multispeed setting.
	Multispeed frequency settings	Up to 8 preset frequency settings (programmable) Can be linked accel. and decel. time setting.
	Skip frequency setting	Up to 3 place settings (skip frequency band setting from 1 to 10Hz)
	Upper frequency setting	Setting for 0.5 to 400Hz
	Lower frequency setting	Setting for 0.5 to 400Hz
	Bias and gain frequency settings	Bias: set for-99 to 400Hz Gain: set for 0 to 400Hz
	External fault trip	Select from: auxiliary interlock fault or auxiliary stop (coast-to-stop)
Braking	Braking torque — Regenerative braking	20% min. (0.2kW; 100% min. 0.4kW; 80% min.)
	Braking torque — DC dynamic braking	Working at less than setting stop frequency (braking torque and braking time settings)
External output signal	Operation frequency signal	0-5V DC
	Output signal	Open collector output (50V, 50mA max.) Run signal, arrival signal, frequency detection signal, overload alarm signal, reverse operation signal (selectable)
		1c contact output (contact capacity at 250V AC, resistance load at 0.5A) Fault alarm signal, run signal, frequency detection signal, overload alarm signal, reverse operation signal (selectable)
Display	Operating conditions	Output frequency, line speed display (selection switchover). Output current, rotation direction
	Fault trip buffers	Display when protective functions are activated (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 (SC), overcurrent (OC), low voltage (LU), overvoltage (OU), auxiliary interlock (AU), overload/electronic thermal overload (OL), operation error (OP),
	Stall prevention	Overcurrent stall prevention, regenerative overvoltage stall prevention
Environment	Ambient temperature and relative humidity	–10°C to +50°C (+14°F to +122°F) *1 (non-freezing), 90% RH max (non-condensing)
	Storage and transport temperature, relative humidity	–25°C to +65°C (–13°F to +149°F), 95% RH max.
	Vibration	5.9m/s² (0.6G) max.
	Installation condition	Altitude of 1000m or less
Enclosure		IP20 screen-protected type

*1–10°C to +40°C (+14°F to +104°F) in case of EN types

MODE DISPLAY(RUN/FAULT)

	Main display (Examples)								
Frequency display	Instantaneous overcurrent during acceleration or abnormal heating of heat radiating fins	Overcurrent during acceleration	Excessive internal DC voltage during acceleration (overvoltage)	Undervoltage	Auxiliary interlock	Overload	Operation error	Auxiliary stop	
50.0	SC1	OC1	OU1	LU	AU	OL	OP	AS	

Note: When the sudden power failure function is selected, "LU" is stored in the trip cause memory and does not send an alarm signal.
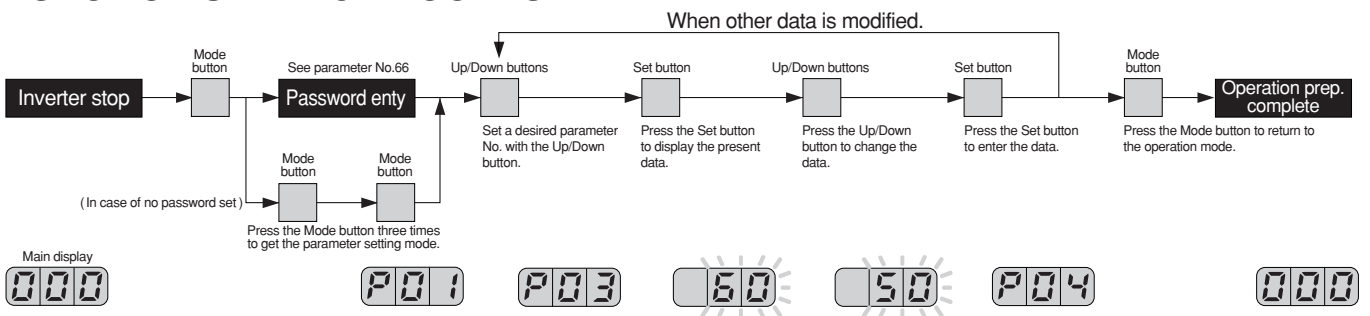
PARAMETER SETTINGS

Parameter No.	Parameter name	Parameter object	Setting value or code										Factory setting
P01	1ST Accel Time	Sets acceleration time: 0.5 Hz to max. output frequency.	000: 40msec., 0.1~999sec.										05.0
P02	1ST Decel Time	Sets deceleration time: max output frequency to 0.5 Hz.	000: 40msec., 0.1~999sec.										05.0
P03	Freq. Range	Sets V/F pattern.	50	60	FF	(50:50Hz, 60:60Hz, FF:FREE)							60
P04	V/F (Volts-per-Hertz) Curve	Sets V/F curve.	0	1	(0: Constant torque, 1: Reduced torque)								0
P05	DC Boost Level	Sets torque boost level.	0 ~40%										05
P06	Overload Function	Selects thermal overload functions.	0 OFF	1 without output Freq. derating	2 with output Freq. derating	3 for special motor							2
P07	Overload Current	Sets current value.	0.1~100A										✳
P08	Local/Ext. Control	Specifies local or external control.	0~6										0
P09	Local/Ext. Freq.	Specifies local or external frequency control (Volts/Current).	0 Local	1 VR (10k)	2 0~5V	3 0~10V	4 4~20mA						0
P10	Reverse Lockout	Specifies forward-only operation.	0 Forward operation/Reverse operation		1 Forward operation (No reverse operation)								0
P11	Stop Mode Select	Specifies ramp-to-stop or coast-to-stop.	0 Ramp-to-stop	1 Coast-to-stop									0
P12	Stop Freq.	Sets stop frequency.	0.5~60Hz										00.5
P13	DC Brake Time	Sets DC dynamic brake time.	000:OFF, 0.1~120sec.										000
P14	DC Brake Level	Sets DC dynamic brake level.	0~100										0
P15	Max. Freq.	Sets maximum output frequency.	50~400Hz										60.0
P16	Base Freq.	Sets base frequency.	45~400Hz										60.0
P17	Accel. Freq. Hold	Selects accel stall prevention.	0 No		1 Available								1
P18	Decel. Freq. Hold	Selects decel stall prevention.	0 No		1 Available								1
P19	Preset Function Select	Selects multi-speed functions.	0 Multi-speed	1 Accel/Decel	2 Multi-speed linked to Accel/Decel								0
P20	SW1 Function Select	Selects a function for SW1	Values	0	1	2	3	4	5	6			0
P21	SW2 Function Select	Selects a function for SW2	Values	0	1	2	3	4	5	6			0
P22	SW3 Function Select	Selects a function for SW3	Values	0	1	2	3	4	5	6	7		0
P23	SW4 Function Select	Selects a function for SW4	Values	–	1	2	3	4	5	6	7		1
P24	Aux. Interlock	Specifies auxiliary interlock trip or auxiliary stop.	0 Auxiliary interlock		1 Auxiliary stop								0
P25	Output Terminal Select	Selects detection frequency functions. Selects output terminal functions.	0 Run	1 Arrival	2 Overload	3 Frequency detection	4 Reverse operation						0
P26	Output RY Select	Selects output relay functions.	0 Run	1 Arrival	2 Overload	3 Frequency detection	4 Reverse operation	5 Fault (when energized)	6 Fault (When not energized)				5
P27	Detect Freq. (Output Terminal)	Sets detection frequency value.	000, 0.5~400Hz										00.5
P28	Detect Freq. (Output RY)	Sets detection frequency value.	000, 0.5~400Hz										00.5
P29	Jog Freq.	Sets jog frequency value.	0.5~400Hz										10.0
P30	Jog.Accel. Time	Sets acceleration time of jog operation.	000: 40msec., 0.1~999sec.										05.0
P31	Jog Decel. Time	Sets deceleration time of jog operation.	000: 40msec., 0.1~999sec.										05.0
P32	Preset Freq.2	Sets Preset Frequency 2.	000: 0V stop, 0.5~400Hz										20.0
P33	Preset Freq.3	Sets Preset Frequency 3.	000: 0V stop, 0.5~400Hz										30.0
P34	Preset Freq.4	Sets Preset Frequency 4.	000: 0V stop, 0.5~400Hz										40.0
P35	Preset Freq.5	Sets Preset Frequency 5.	000: 0V stop, 0.5~400Hz										15.0
P36	Preset Freq.6	Sets Preset Frequency 6.	000: 0V stop, 0.5~400Hz										25.0
P37	Preset Freq.7	Sets Preset Frequency 7.	000: 0V stop, 0.5~400Hz										35.0
P38	Preset Freq.8	Sets Preset Frequency 8.	000: 0V stop, 0.5~400Hz										45.0
P39	Accel.Time 2	Sets Accel.Time 2.	0.1~999sec.										05.0
P40	Decel.Time 2	Sets Decel.Time 2.	0.1~999sec.										05.0
P41	Accel.Time 3	Sets Accel.Time 3.	0.1~999sec.										05.0
P42	Decel.Time 3	Sets Decel.Time 3.	0.1~999sec.										05.0
P43	Accel.Time 4	Sets Accel.Time 4.	0.1~999sec.										05.0
P44	Decel.Time 4	Sets Decel.Time 4.	0.1~999sec.										05.0
P45	2nd Base Freq.	Sets base frequency 2.	45~400Hz										60.0

PARAMETER SETTINGS

Parameter No.	Parameter name	Parameter object	Setting value or code				Factory setting
P46	2nd DC Boost Level	Sets boost level 2.	0~40%				05
P47	Skip Freq. 1	Sets Skip Frequency 1.	000: OFF,0.5~400Hz				000
P48	Skip Freq.2	Sets Skip Frequency 2.	000: OFF, 0.5~400Hz				000
P49	Skip Freq.3	Sets Skip Frequency 3.	000: OFF, 0.5~400Hz				000
P50	Skip Freq.Band Width	Sets skip frequency bands.	0: OFF, 1~10Hz				0
P51	Current Limit Function	Sets the current limit function.	00:OFF, 0.1~9.9				00
P52	Power Loss Start Mode	Selects restart action when the power is turned on.	0 Run	1 Stop	2 Run after wait time / 3 Stop		1
P53	Ride-Thru Restart	Selects instantaneous power failure function.	0 OFF	1 0 Hz restart	2 Continued restart		0
P54	Wait Time	Sets waiting time for parameters 52 and 53.	0.1~100 sec.				00.1
P55	Lower Freq. Clamp	Sets lower frequency.	0.5~400Hz				00.5
P56	Upper Freq. Clamp	Sets upper frequency.	0.5~400Hz				400
P57	Bias/Gain Function Select	Selects enabling or disabling this function.	0 OFF	1 ON			0
P58	Bias Freq.	Sets bias frequency.	-99~400Hz				00.0
P59	Gain Freq.	Sets gain frequency.	000: 0V stop, 0.5~400Hz				60.0
P60	0-5V Output Voltage compensation	Adjusts the 0~5V output signal.	75~125%				100
P61	Monitor Select	Selects monitoring modes.	0 Frequency	1 Line speed			0
P62	Line Speed Multiplier	Sets line speed multiplier.	0.1~100				03.0
P63	Max. Output Voltage	Sets maximum output voltage to motor rating.	0:OFF, 1~500V				000
P64	OCS Level	Sets overcurrent stall prevention level.	1~200%				140
P65	Carrier Freq.	Sets carrier frequency.	0.8/1.1/1.6kHz, 2.5/5.0/7.5/10.0/12.5/15.0kHz				0.8
P66	Password	Sets password for data input (prevents operational errors).	0: OFF, 1~999 Mask code				000
P67	Setting Data Clear	Clears factory settings.	0/1				0
P68	Fault Display 1	Displays the history of faults 1	Most recent				
P69	Fault Display 2	Displays the history of faults 2	Second most recent				
P70	Fault Display 3	Displays the history of faults 3	Third most recent				
P71	Fault Display 4	Displays the history of faults 4	Fourth most recent				

Note: Data can be read only when the power is on.   Parameters in ☐ can be set during inverter operation.
✱ The same current value as the rated current of the inverter.

FUNCTION SETTING PROCEDURE

● Notes on setting parameters
1. While the inverter is in operation, only values for the numbers in the ☐ of parameter settings can be modified.
2. The values set by pressing the set button are stored in the memory even if the power is off.

NAiS

Super reliable, powerful and quiet operation inverters

VF-8X
VF-8Z
Series

VF-8X

VF-8Z

Safety

■ Accident prevention system
• Data lock function controlled by password

■ Programmable password for operational integrity

■ Electronic thermal overload

┌─ ※ **The followings are for VF-8X only.** ─┐

■ Product conforming to the EC Low Voltage Directive (TÜV-approved product)
• Conforms to DIN VDE O160

■ Product conforming to the UL standard

■ Also conforms to the EMC Directive
• By combination use with EMI filter

Operability

• Easy to operate by means of Digital Parameter Programming on operation panel.
• Enhanced monitoring features and space saving design.
• Super compact design with very powerful and extensive parameters.

Functions

• Matsushita's unique PWM control for good low speed torque and control.
• Programmable 15.0kHz carrier frequency, low acoustic noise.

Device Features

■ Extensive Frequency Range Selection:
Frequency range selectable for 50/60 Hz and from 50 to 400 Hz independent of maximum output frequency (50 to 400 Hz). Constant torque and low torque modes can also be selected.

■ Powerful Acceleration/Deceleration:
Torque boost capability offers powerful acceleration at optimum V/F ratio. In addition, the stall prevention feature greatly reduces inverter trips during rapid acceleration or deceleration.

■ Frequency Skip Feature:
Vibrations resulting from resonance with associated facilities are prevented by skipping resonant frequencies. Up to three frequencies can be skipped, and skip frequency span is user adjustable.

■ Max. Output Voltage Setting:
The inverter output voltage can be adjusted by AVR (Automatic Voltage Regulator).

■ Jog Operation:
Select either local or external jog operation, for which acceleration/deceleration time can be independently specified.

■ Smooth Operation at Low Frequencies:
Our unique PWM control method ensures smooth operation in the low frequency range with minimum torque ripple.

■ Overload Function Protection:
Complete motor overload protection over a wide range of operating conditions by selection of device functions according to motor characteristics.

■ Ride-Through Restart Capability:
Restarts after power failures or surges can be programmed in different modes depending on load or system conditions. A wait time programming feature is also included.

System Features

■ Operation Status Feedback:
Provides run, arrival, frequency detection and fault alarm signals. The user can create commands for the next process step using those signals.

■ Acceleration/Deceleration linked with Multispeed Operation:
In addition to multispeed (eight speeds) and multi-acceleration/deceleration rates (four rates), this device enables combination of those rates (four speeds) with link capability. Flexible speed/acceleration/deceleration combinations allow easy system design.

■ Wide Choice of Speed Control:
Motor speed can be controlled with external analog signal, manual control or in two to eight steps with external switching signal.

■ DC Brake Range and Time Adjustment:
To ensure reliable stopping during deceleration, DC braking can be activated when output frequency is reduced below the specified stop frequency (0.5 to 60 Hz). The DC brake application time can be adjusted from 0 to 30 seconds.

■ Master-Slave (Proportional) Operation:
The 0-5 V output signal and bias gain features allow proportional operations for up to five inverters. This makes transfer system construction easier.

■ More practical and effective application by combination use with NAiS PLC.

MODELS

Applied motor output	VF-8X Series											
	UL Type								EN Type			
	200V Three-Phase Series				400V Three-Phase Series				400V Three-Phase Series			
	Catalogue.No.	Rated output current (A)*1	Rated output capacity (kVA)	Mass (kg)	Catalogue.No.	Rated output current (A)*1	Rated output capacity (kVA)	Mass (kg)	Catalogue.No.	Rated output current (A)*1	Rated output capacity (kVA)	Mass (kg)
5.5kW (7.5HP)	BFV80552X	22.0	8.8	4.0	BFV80554X	12.0	9.6	4.0	BFV80554XP	12.0	8.6	4.0
7.5kW (10HP)	BFV80752X	33.0	13.1	10.0	BFV80754X	17.0	13.5	4.2	BFV80754XP	17.0	12.2	9.5
11kW (15HP)	BFV81102X	45.0	17.9	13.0	BFV81104X	22.0	17.5	13.0	BFV81104XP	22.0	15.8	13.0
15kW (20HP)	BFV81502X	61.0	24.3	13.0	BFV81504X	31.0	24.7	13.0	BFV81504XP	31.0	22.3	13.0
19kW (25HP)	BFV81902X	75.0	29.9	20.0	BFV81904X	38.0	30.3	20.0	BFV81904XP	38.0	27.3	20.0
22kW (30HP)	BFV82202X	87.0	34.7	20.0	BFV82204X	43.0	34.3	20.0	BFV82204XP	43.0	30.9	20.0
30kW (40HP)	BFV83002X	117.0	46.6	30.0	BFV83004X	61.0	48.6	30.0	BFV83004XP	61.0	43.8	30.0
37kW (50HP)	BFV83702X	140.0	55.8	31.0	BFV83704X	70.0	55.8	31.0	BFV83704XP	70.0	50.3	31.0

| Applied motor output | VF-8Z Series | | |
| | 400V Three-Phase Series | | |
	Catalogue.No.	Rated output current (A)*2	Rated output capacity (kVA)	Mass (kg)
5.5kW (7.5HP)	BFV80554Z	12.0	9.6	4.0
7.5kW (10HP)	BFV80754Z	17.0	13.5	4.2
11kW (15HP)	BFV81104Z	22.0	17.5	10.0
15kW (20HP)	BFV81504Z	31.0	24.7	10.0
19kW (25HP)	BFV81904Z	38.0	30.3	13.0
22kW (30HP)	BFV82204Z	43.0	34.3	13.0
30kW (40HP)	BFV83004Z	61.0	48.6	20.0
37kW (50HP)	BFV83704Z	70.0	55.8	24.0

*1 Note) The rated output current is for a carrie frequency of 10kHz or less.
when using at 12.5kHz or 15kHz, decrease the rated current to the following values and use.
- 12.5kHz : (rated current) x 0.9
- 15.0kHz : (rated current) x 0.8

*2 Note) The rated output current is for a carrie frequency of 10kHz or less.
decrease at 12.5kHz or 15kHz, decrease the rated current to the following values and use.
1) 5.5~22kW
- 12.5kHz : (rated current) x 0.9
- 15.0kHz : (rated current) x 0.8
2) 30, 37kW
- 12.5kHz : (rated current) x 0.7
- 15.0kHz : (rated current) x 0.6

STANDARD SPECIFICATIONS

Models	200V Three-Phase Series	400V Three-Phase Series
Applied motor output	5.5 to 37kW	5.5 to 37kW
Rated output — Rated output voltage	3-phase, 200 to 230V	3-phase, 380 to 460V (415V)
Rated output — Overload capacity	150% of rated output current for 1 minute	
Input power supply — Number of phases, voltage, frequency	Three phase, 200 to 230V; 50/60Hz	Three phase, 380 to 460V (415V); 50/60Hz
Input power supply — Voltage variations	±10% of rated AC input voltage	
Input power supply — Frequency variations	±5% of rated input frequency	
Input power supply — Instantaneous voltage drop resistance	Continuous operation at 165V or more, or at less than 165V for 15ms.	Continuous operation at 330V or more, or at less than 330V for 15ms.

The figures in parentheses are those of EN types.

COMMON SPECIFICATIONS

Overvoltage category	Ⅱ (Not for VF-8Z)	
Pollution degree	2 (Not for VF-8Z)	
Output frequency — Output frequency range	0.2 to 400Hz	
Output frequency — Frequency display	Digital display	
Output frequency — Output frequency accuracy	±0.5% of selected maximum output frequency (25 ±10°C) for analog setting	
Output frequency — Frequency setting resolution	Digital setting; 0.01Hz (0.1Hz over 100Hz) Analog setting; 0.1Hz (50/60Hz by parameter setting)	
Inverter control	High carrier frequency sinusoidal PWM control	
Carrier frequency	Variable from 0.8 to 15kHz (When using at 12.5kHz or 15kHz, decrease the rated current)	
Operation — Start/Stop	Select with operation panel buttons, 1a contact signal (either 1a, 1b contact signal) or wait time setting (0.1 to 100sec.)	
Operation — Forward/Reverse	Select with operation panel buttons, 1a contact signal (reverse operation prohibit setting possible)	
Operation — Jog operation	Optional setting for 0.2 to 20Hz Optional Accel./Decel. time setting for 0.04 to 1600 seconds	
Operation — Stop select	Select from; ramp-to-stop or coast-to-stop	
Operation — Reset	Select from; reset by power supply or by inputting stop signal. External reset setting is also possible.	
Operation — Stop frequency	Select from 0.2 to 60Hz	
Operation — Instantaneous power failure restart	Select from; function OFF, restart at 0 Hz, or restart at the setting frequency	
Control — Frequency setting signal	Digital setting; Operation panel Analog setting; 0-5V DC, 0-10V DC, 4-20mA DC, 10kΩ potentiometer, input impedance at 50kΩ (0-5V DC) 20kΩ (0-10V DC), and approx.350Ω (4-20mA DC)	
Control — Voltage/frequency characteristics	Select from; 50Hz, 60Hz,optional base frequency setting for 45 Hz to 400Hz, constant torque, or square low torque pattern	
Control — 2nd voltage/frequency characteristics	Optional base frequency setting for 45 to 400Hz	
Control — 2nd torque boost level	Optional setting for 0 to 40%	
Control — Torque boost	Optional setting for 0 to 40%	
Control — Accel./Decel. time	0.04 to 1600sec. Individual accel. and decel. time setting	
Control — Accel./Decel. characteristics	Linear/S-character characteristics (selection switchover)	
Control — Accel./Decel. time 2, 3, and 4	0.1 to 1600sec. Individual accel. and decel. time setting Can be linked with multispeed setting.	
Control — Multispeed frequency settings	Up to 8 preset frequency settings (programmable) Can be linked accel. and decel. time setting.	
Control — Skip frequency setting	Up to 3 place settings (skip frequency band setting for 1 to 10Hz)	
Control — Upper frequency setting	Setting for 0.2 to 400Hz	
Control — Lower frequency setting	Setting for 0.2 to 400Hz	
Control — Bias and gain frequency settings	Bias: set for-99.9 to 400Hz Gain: set for 0 to 400Hz	
Control — External fault trip	Select from: auxiliary interlock fault or auxiliary stop (coast-to-stop)	
Braking — Braking torque — Regenerative braking	20% min.	
Braking — Braking torque — DC dynamic braking	Working at less than setting stop frequency (braking torque and braking time settings)	
External output signal — Operation frequency signal	0-5V DC	
External output signal — Output signal	Open collector output (50V, 50mA max.) Run signal, arrival signal, frequency detection signal, overload alarm signal, reverse operation signal (selectable)	
	1c contact output (contact capacity at 250V AC, resistance load at 0.5A) Fault alarm signal, run signal, frequency detection signal, overload alarm signal, reverse operation signal (selectable)	
Display — Operating conditions	Output frequency, setting frequency (F1) (F2) Line speed display (selection switchover) Output current (A0), output voltage (A1), rotation direction	
Display — Fault trip buffers	Display when protective functions are activated (last 4 faults are stored).	
Protection — Current limit	Current limit can be set from 1 to 200% of rated output current	
Protection — Shut-off (stop)	Instantaneous overcurrent, over temperature (SC), overcurrent (OC), low voltage (LU), overvoltage (OU), auxiliary interlock (AU), overload/electronic thermal overload (OL), operation error (OP),	
Protection — Stall prevention	Overcurrent stall prevention, regenerative overvoltage stall prevention	
Environment — Ambient temperature and relative humidity	–10°C to +50°C (+14°F to +122°F) *1 (non-freezing), 90% RH max (non-condensing)	
Environment — Storage and transport temperature, relative humidity	–25°C to +65°C (–13°F to +149°F), 95% RH max.	
Environment — Vibration	5.9m/s² (0.6G) max.	
Environment — Installation condition	Altitude of 1000m or less	
Enclosure	IP20 screen-protected type	

*1 –10°C to +40°C in case of the followings.
・VF-8X : EN type(all)
　　　　 UL type(200V 5.5kW, 400V 5.5kW・7.5kW)
・VF-8Z : all

MODE DISPLAY(RUN/FAULT)

Mode display	Run signal	Frequency signal	Main display (Examples)								
LL	Local (Operation panel)	Local (Operation panel)	Frequency display	Instantaneous overcurrent during acceleration or abnormal heating of heat radiating fins	Overcurrent during acceleration	Excessive internal DC voltage during acceleration (overvoltage)	Undervoltage	Auxiliary interlock	Overload	Operation error	Auxiliary stop
LE	Local (Operation panel)	External (Control terminal block)									
EL	External (Control terminal block)	Local (Operation panel)									
EE	External (Control terminal block)	External (Control terminal block)	50.00	SC1	OC1	OU1	LU	AU	OL	OP	AS

Note: When the sudden power failure function is selected, "LU" is stored in the trip cause memory and does not send an alarm signal.
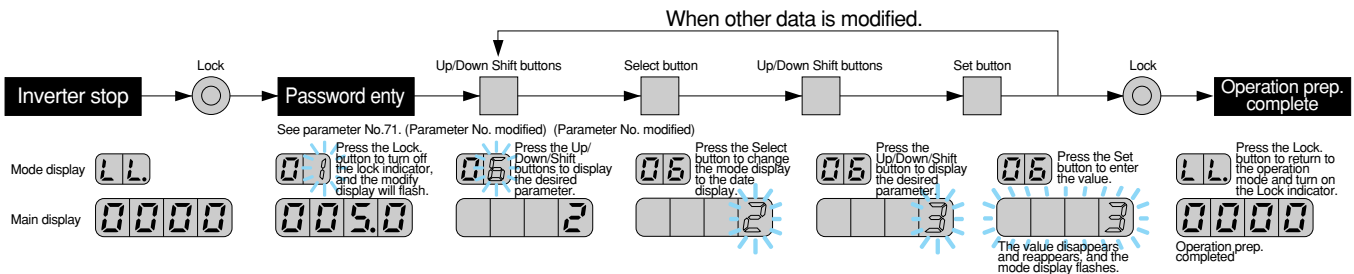
PARAMETER SETTINGS

Parameter No.	Parameter name	Parameter object	Setting value or code									Factory setting
01	1st Accel Time	Sets acceleration time: 0.2 Hz to max. output frequency.	0000: 40msec., 0.1~1600sec.									** 005.0
02	1st Decel Time	Sets deceleration time: max output frequency to 0.2 Hz.	0000: 40msec., 0.1~1600sec.									** 005.0
03	Freq. Range	Sets V/F pattern.	50	60	FF	(50:50Hz, 60:60Hz, FF:FREE)						60
04	V/F (Volts-per-Hertz) Curve	Sets V/F curve.	0	1	(0: Constant torque, 1:Reduced torque)							0
05	DC Boost Level	Sets torque boost level.	0 ~40%									02
06	Overload Function	Selects thermal overload functions.	0 OFF	1 without output Freq. derating	2 with output Freq. derating	3 for special motor						2
07	Overload Current	Sets current value.	0.1~300A									*
08	Local/Ext. Control	Specifies local or external control.	0~6									0
09	Local/Ext. Freq.	Specifies local or external frequency control (Volts/Current).	0 Local	1 VR (10k)	2 0~5V	3 0~10V	4 4~20mA					0
10	Reverse Lockout	Specifies forward-only operation.	0 Forward operation/Reverse operation		1 Forward operation (No reverse operation)							0
11	Stop Mode Select	Specifies ramp-to-stop or coast-to-stop.	0 Ramp-to-stop	1 Coast-to-stop								0
12	Stop Freq.	Sets stop frequency.	0.2~60Hz									00.50
13	DC Brake Time	Sets DC dynamic brake time.	000:OFF, 0.1~30sec.									000
14	DC Brake Level	Sets DC dynamic brake level.	0~100									00
15	Max. Freq.	Sets maximum output frequency.	50~400Hz									60.00
16	Base Freq.	Sets base frequency.	45~400Hz									60.00
17	Accel. Freq. Hold	Selects accel stall prevention.	0 No	1 Available								1
18	Decel. Freq. Hold	Selects decel stall prevention.	0 No	1 Available								1
19	Preset Function Select	Selects multi-speed functions.	0 Multi-speed	1 Accel/Decel	2 Multi-speed linked to Accel/Decel							0
20	Multifunction Input Select	Selects functions for SW 1,2 and 3.	Values	0	1	2	3	4	5	6 7 8 9 10		0
21	For manufacturer use only.											—
22	Aux. Interlock	Specifies auxiliary interlock trip or auxiliary stop.	0 Auxiliary interlock		1 Auxiliary stop							0
23	Output Terminal Select	Selects detection frequency functions. Selects output terminal functions.	0 Run	1 Arrival	2 Overload	3 Frequency detection	4 Reverse operation					0
24	Output RY Select	Selects output relay functions.	0 Run	1 Arrival	2 Overload	3 Frequency detection	4 Reverse operation	5 Fault (when energized)	6 Fault (When not energized)			5
25	Detect Freq. (Output Terminal)	Sets detection frequency value.	0000,0.2~400Hz									00.50
26	Detect Freq. (Output RY)	Sets detection frequency value.	0000,0.2~400Hz									00.50
27	Jog Freq.	Sets jog frequency value.	0.2~20Hz									10.00
28	Jog.Accel. Time	Sets acceleration time of jog operation.	0000: 40msec., 0.1~1600sec.									** 005.0
29	Jog Decel. Time	Sets deceleration time of jog operation.	0000: 40msec., 0.1~1600sec.									** 005.0
30	Preset Freq.2	Sets Preset Frequency 2.	0000: 0V stop, 0.2~400Hz									20.00
31	Preset Freq.3	Sets Preset Frequency 3.	0000: 0V stop, 0.2~400Hz									30.00
32	Preset Freq.4	Sets Preset Frequency 4.	0000: 0V stop, 0.2~400Hz									40.00
33	Preset Freq.5	Sets Preset Frequency 5.	0000: 0V stop, 0.2~400Hz									15.00
34	Preset Freq.6	Sets Preset Frequency 6.	0000: 0V stop, 0.2~400Hz									25.00
35	Preset Freq.7	Sets Preset Frequency 7.	0000: 0V stop, 0.2~400Hz									35.00
36	Preset Freq.8	Sets Preset Frequency 8.	0000: 0V stop, 0.2~400Hz									45.00
37	Accel.Time 2	Sets Accel.Time 2.	0.1~1600sec.									** 005.0
38	Decel.Time 2	Sets Decel.Time 2.	0.1~1600sec.									** 005.0
39	Accel.Time 3	Sets Accel.Time 3.	0.1~1600sec.									** 005.0
40	Decel.Time 3	Sets Decel.Time 3.	0.1~1600sec.									** 005.0
41	Accel.Time 4	Sets Accel.Time 4.	0.1~1600sec.									** 005.0
42	Decel.Time 4	Sets Decel.Time 4.	0.1~1600sec.									** 005.0
43	2nd Base Freq.	Sets base frequency 2.	45~400Hz									60.00
44	2nd DC Boost Level	Sets boost level 2.	0~40%									05
45	Skip Freq. 1	Sets Skip Frequency 1.	0000: OFF,0.2~400Hz									0000

14

PARAMETER SETTINGS

Parameter No.	Parameter name	Parameter object	Setting value or code				Factory setting
46	Skip Freq.2	Sets Skip Frequency 2.	0000: OFF, 0.2~400Hz				0000
47	Skip Freq.3	Sets Skip Frequency 3.	0000: OFF, 0.2~400Hz				0000
48	Skip Freq.Band Width	Sets skip frequency bands.	0: OFF, 1~10Hz				0
49	Current Limit Function	Sets the current limit function.	00:OFF, 0.1~9.9				00
50	Power Loss Start Mode	Selects restart action when the power is turned on.	0 Run	1 Stop	2 Run after wait time	3 Stop	1
51	Ride-Thru Restart	Selects instantaneous power failure function.	0 OFF	1 0 Hz restart	2 Continued restart		0
52	Wait Time	Sets waiting time for parameters 50 and 51.	0.1~100 sec.				000.1
53	Accel./Decel. Pattern	Sets Accel/Decel patterns.	0 Linear Accel/Decel	1 S-shaped Accel/Decel			0
54	Lower Freq. Clamp	Sets lower frequency.	0.2~400Hz				00.50
55	Upper Freq. Clamp	Sets upper frequency.	0.2~400Hz				400.0
56	Bias/Gain Function Select	Selects enabling or disabling this function.	0 OFF	1 ON			0
57	Bias Freq.	Sets bias frequency.	-99.9~400Hz				000.0
58	Gain Freq.	Sets gain frequency.	0000: 0V stop, 0.2~400Hz				60.00
59	0-5V Output Voltage compensation	Adjusts the 0~5V output signal.	75~125%				100
60	Monitor Select	Selects monitoring modes.	0 Frequency	1 Frequency	2 Line speed	3 Line speed	0
61	Line Speed Multiplier	Sets line speed multiplier.	000.1~100				030.0
62	Max. Output Voltage	Sets maximum output voltage to motor rating.	000:OFF, 1~500V				000
63	OCS Level	Sets overcurrent stall prevention level.	1~200%				140
64	Carrier Freq.	Sets carrier frequency.	0.8/1.1/1.6kHz, 2.5/5.0/7.5/10.0/12.5/15.0kHz				0.8
65	For manufacturer use only.	—	—				—
66	For manufacturer use only.	—	—				—
67	For manufacturer use only.	—	—				—
68	For manufacturer use only.	—	—				—
69	For manufacturer use only.	—	—				—
70	For manufacturer use only.	—	—				—
71	Password	Sets password for data input (prevents operational errors).	000: OFF, 1~999 Mask code				000
72	Setting Data Clear	Clears factory settings.	0/1/2				0
73	Baud Rate	Sets communication speed.	300/600/1200/2400/4800/9600				9600
74	Stop Bit Length	Sets stop bit length.	1/2				1
75	Parity Check	Sets parity bit.	0/1/2				0
76	No. of Communication Retries	Sets the number of communication retries.	0~10				0
77	CR/LF Select Validity	Selects CR or LF.	0/1/2/3				0

Note: Data can be read only when the power is on.　　Parameters in ▢ can be set during inverter operation.
＊The same value as inverter's rating.
＊＊5.5~15kW: 005.0,19~37kW: 015.0

FUNCTION SETTING PROCEDURE

- **Notes on setting parameters**
1. While the inverter is in operation, only values for the numbers in the ▢ of parameter settings can be modified.
2. No values can be modified unless the Lock indicator is off.
3. While the inverter is stopped, it cannot be operated unless the Lock indicator is ON.
4. If the function setting returns to the "Operation Prep. Complete" state during data modification while an external start signal is received, the error code "OP" will be displayed, and the inverter will remain inoperative.
5. The values set by pressing the Set button are stored in the memory even if the power is off.

Terminal Function Selection by Parameter No.20

Parameter No.20	Control terminal No.14 SW1	Control terminal No.15 SW2	Control terminal No.16 SW3	Parameter No.20	Control terminal No.14 SW1	Control terminal No.15 SW2	Control terminal No.16 SW3
0	Multi-speed function	Multi-speed function	Multi-speed function	5	Multi-speed function	Multi-speed function	Reset input
1			Reset input	6			Reset lockout
2			Resetlockout	7		Auxiliary stop input	Jog function
3			Jog function	8	Analog input changeover		Reset input
4			Auxiliary stop output	9			Reset lockout
				10			Jog function

DIMENSIONS Unit: mm
<Figure No. Table>

※ The models which are more than 1.5kW are with fans.

VF-7E

		0.2kW	0.4kW	0.75kW	1.5kW	2.2kW	3.7kW
Three-phase 200V	UL Type	Fig.1	Fig.1	Fig.2	Fig.3	Fig.4	Fig.4
	EN Type	Fig.2	Fig.2	Fig.2	Fig.3	Fig.4	Fig.4
Single-phase 200V	EN Type	Fig.2	Fig.2	Fig.2	Fig.4	Fig.4	–
Three-phase 400V	UL/EN Type	–	–	Fig.4	Fig.4	Fig.4	Fig.4

VF-7F

		0.2kW	0.4kW	0.75kW	1.5kW	2.2kW	3.7kW
Three-phase 200V	UL Type	Fig.2	Fig.2	Fig.2	Fig.3	Fig.4	Fig.4
Single-phase 200V	EN Type	Fig.2	Fig.2	Fig.2	Fig.4	Fig.4	–
Three-phase 400V	UL/EN Type	–	–	Fig.4	Fig.4	Fig.4	Fig.4

VF-8X

		5.5kW	7.5kW	11kW	15kW	19/22kW	30/37kW
Three-phase 200V	UL Type	Fig.A	Fig.B	Fig.B	Fig.D-2	Fig.D-3	Fig.D-4
Three-phase 400V	UL Type	Fig.A	Fig.A	Fig.D-2	Fig.D-2	Fig.D-3	Fig.D-4
	EN Type	Fig.A	Fig.D-1	Fig.D-2	Fig.D-2	Fig.D-3	Fig.D-4

VF-8Z

		5.5kW	7.5kW	11kW	15kW	19/22kW	30/37kW
Three-phase 400V	–	Fig.A	Fig.A	Fig.C	Fig.C	Fig.D-2	Fig.E

Fig.1 Fig.2 Fig.3 Fig.4

Fig.A Fig.B Fig.C

Fig.D Fig.E
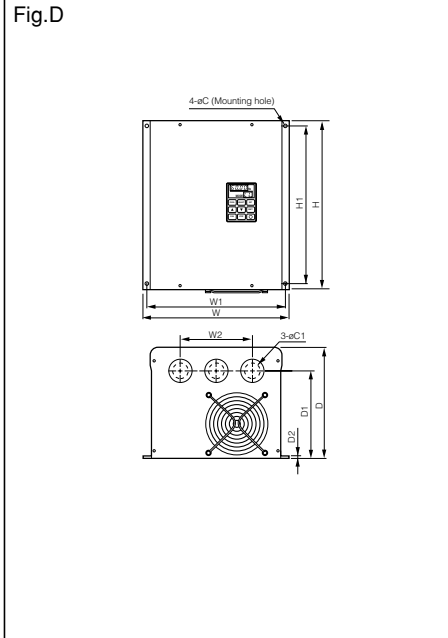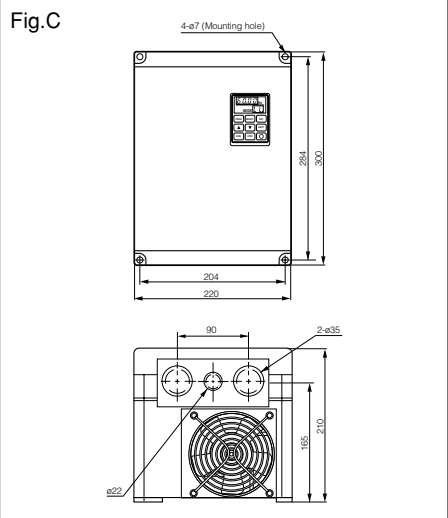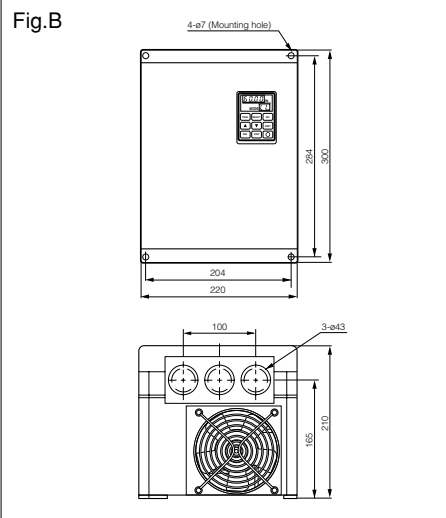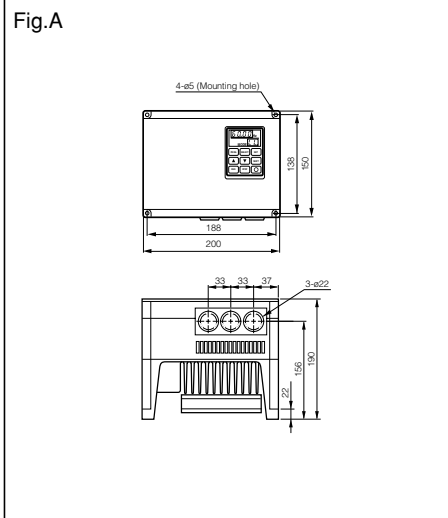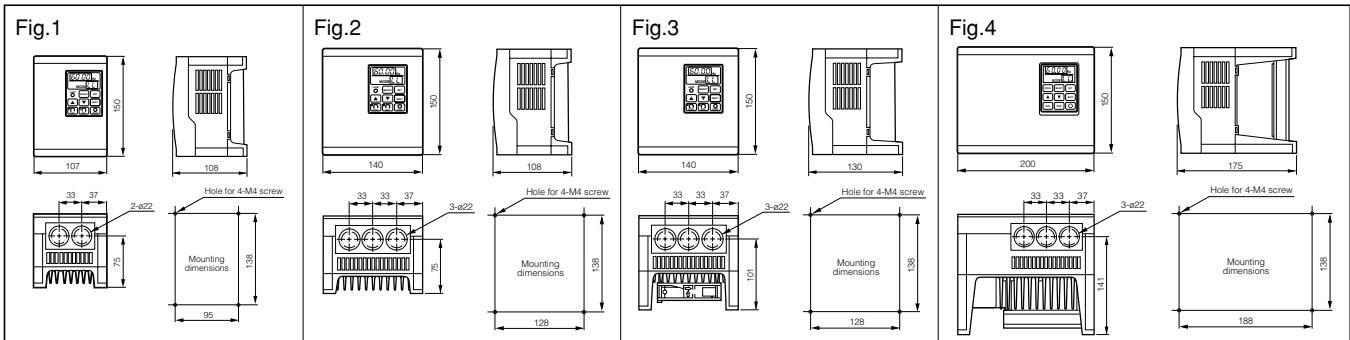
Unit: mm

Fig.No	H	H1	W	W1	W2
D-1	320	280	270	255	130
D-2	400	360	370	255	130
D-3	450	410	380	365	160
D-4	725	695	380	300	240

Fig.No	D	D1	D2	C	C1
D-1	210	162	5	7	35
D-2	210	162	5	7	43
D-3	230	174	5	8	43
D-4	233	169	2.3	10	54
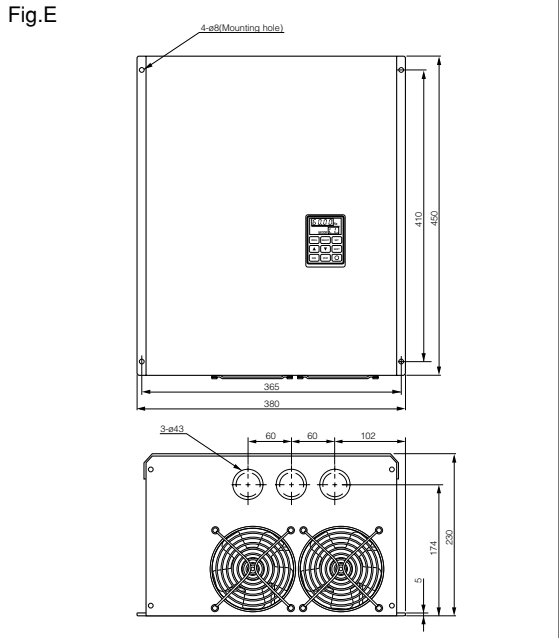
WIRING DIAGRAM

VF-7E   VF-8X   VF-8Z

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

• Control Circuit Wiring

Operation status output
(Open collector outputs with 50V DC, 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 250V AC, 0.5A resistance load)

Frequency setting Volume 10kΩ 1/4 watt min.

Current Setting 4-20mA Input

0-5V DC Output

Voltage Setting 0-5V 0-10V Input

Set the functions of switch 1,2,3 and 4 with parameter No.19, 20 and 21.

Forward/stop
Reverse/stop
Run/stop

Speed pot (10kΩ, 1/4 watt min)

Relay output
NO COM NC

Run Forward/reverse Stop SW4 SW1 SW2 SW3

Operation status outputs
Open-collector outputs with 50V DC, 50mA max. ratings

※ VF-8X 11-37kW / VF-8Z 15-37kW

Bus+ ---→ Brake U/T
Bus- ---→

VF-7F

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

• Control Circuit Wiring

Operation status output
(Open collector outputs with 50V DC, 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 250V AC, 0.5A resistance load)

Frequency setting Volume 10kΩ 1/4 watt min.

Current Setting 4-20mA Input

0-5V DC Output

Voltage Setting 0-5V 0-10V Input

Set the functions of switch 1,2,3 and 4 with parameter No.19~23

Forward/stop
Reverse/stop
Run/stop

0~5V/0~10V Input

Speed pot (10kΩ, 1/4 watt min)

Forward/reverse

Run Stop

Relay output
NO COM NC

4~20mA input 0~5V Output

SW1 SW2 SW3 SW4

Operation status outputs
Open-collector outputs with 50V DC, 50mA max. ratings

Note:When setting the frequency with the 4 to 20mA signal,short circuit terminal Nos.2 and 10

OPTION

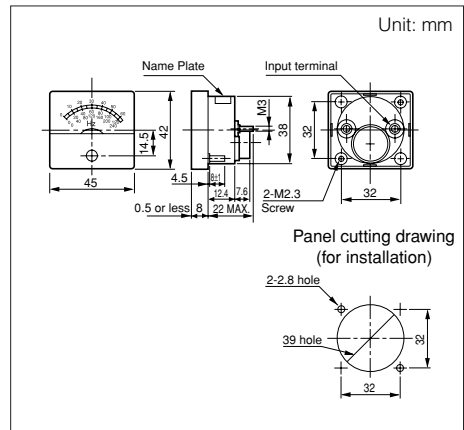| Product	Product number · Specifications · Application · Dimensions

External frequency meter (0-5V)

• Standard specifications

| Product No.	**BFV912**
Control specification	5V in full scale
Ambient temperature and humidity	−10˚C to 50˚C (no freezing) Max. 90% (no condensation)
Atmosphere	No corrosive gases; no dust (indoors)
Vibration	Max. 0.6G

• Dimensions

Unit: mm

Panel cutting drawing (for installation)

External volume

• Standard specifications

Product No.	**BFV914**
Method	B special volume
Output	2W
Resister	10kΩ

• Dimensions

Unit: mm

Panel cutting drawing (for installation)
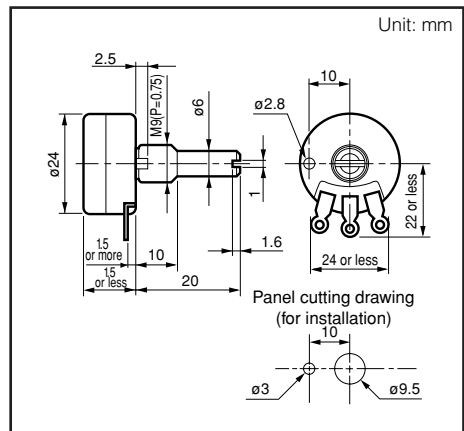
Brake resistor

Inverter	Product number		Dimensions			
Capacity	200V	400V	L1	L2	W	H
0.75~1.5kW	**BFV 9161**	**BFV9164**	132	122	44	20
2.2kW	**BFV 9162**	**BFV9165**	182	172	42	20
3.7kW	**BFV 9163**	**BFV9166**	230	220	60	20

• Standard specifications

| Input voltage	Supplied from DB+and DB−terminals (DC Voltage)
Brake torque	100% (Max.braking time:5 secs)
Repeating rate	Max. 5%
Ambient temperature and humidity	−10˚C to 50˚C (no freezing) Max. 90%RH (no condensation)
Storage temperature and humidity	−25˚C to 65˚C Max. 95%RH Max. 90%RH
Vibration	Max. 5.9m/s² {0.6G}
Atmosphere	No corrosive gases; no dust (Indoors)

• Dimensions

Unit: mm
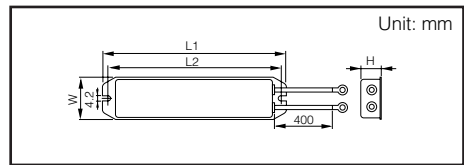
• Wiring diagram
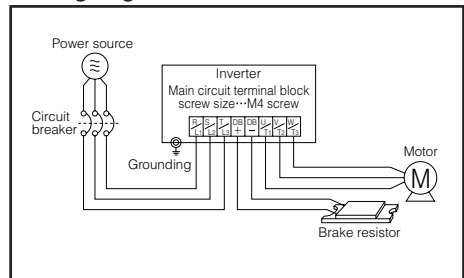
• Installation
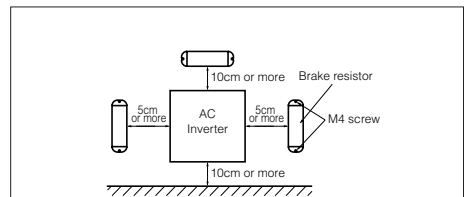
1. Install the brake resistor firmly with M4 size screws
2. Allow enough space around the inverter, as shown above.
3. Install the brake resistor on a metal plate measuring at least 50cm × 50cm.
   Do not install the unit on combustible material such as wood, and avoid direct contact as it becomes hot during operation. (Maximum 150˚C)

OPTION

Product	Product number · Specifications · Application · Dimensions

EMI filter for VF-7E

• For three phase 200V

Filter rated current	Inverter capacity	Product number	Dimensions						
			W	W1	L	L1	H	H1	D
10A	0.2~1.5kW	**BFV93701512**	200	188	175	165	105	65	5
20A	2.2,3.7kW	**BFV93703712**							

• For three phase 400V

Filter rated current	Inverter capacity	Product number	Dimensions						
			W	W1	L	L1	H	H1	D
5A	0.75,1.5kW	**BFV93701514**	160	140	245	235	90	65	5
15A	2.2,3.7kW	**BFV93703714**							

• For single phase 200V

Filter rated current	Inverter capacity	Product number	Dimensions						
			W	W1	L	L1	H	H1	D
10A	0.2~0.75kW	**BFV93700702**	130	118	175	165	85	60	5
20A	1.5kW	**BFV93701502**							
25A	2.2kW	**BFV93702202**							

• Standard specifications

	Single phase 200V	Three phase 200V	Three phase 400V
Power source	Max. 250V AC		Max. 500V AC
Frequency	50/60Hz		
Overload endurance	150% of rated current for 1 minute		
Leakage current	Max.15mA	Max.15mA	Max.35mA
Ambient temperature and humidity	−10°C to 40°C (no freezing) Max. 90%RH (no condensation)		
Storage and transporting temp. and humidity	−25°C to 65°C (no freezing) Max. 95%RH (no condensation)		
Applicable category	Group 1, class A (EN55011:1991)		

• Dimensions

Unit: mm

4−øD
⊕ L N
T1 T2 T3
No output cable for the three phase 400V types.

(Single phase 200V Type)
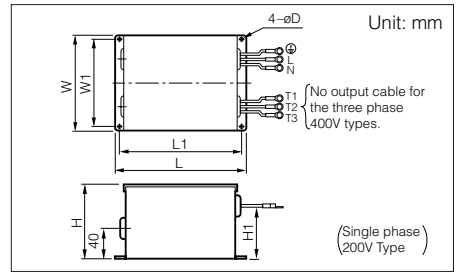
EMI filter for VF-7F

• For three phase 400V

Filter rated current	Inverter capacity	Product number	Dimensions					
			W	W1	L	L1	H	D
5A	0.75,1.5kW	**BFV937F01514**	112	98	177	160	95	5
15A	2.2,3.7kW	**BFV937F03714**	135	100	210	180	105	7

• For single phase 200V

Filter rated current	Inverter capacity	Product number	Dimensions					
			W	W1	L	L1	H	D
10A	0.2~0.75kW	**BFV937F00702**	77	63	130	113	77	5
25A	1.5,2.2kW	**BFV937F02202**						

• Standard specifications

	Single phase 200V	Three phase 400V
Power source	Max. 250V AC	Max. 460V AC
Frequency	50/60Hz	
Overload endurance	150% of rated current for 1 minute	
Leakage current	Max. 35mA	
Ambient temperature and humidity	−10°C to 40°C (no freezing) Max. 90%RH (no condensation)	
Storage and transporting temp. and humidity	−10°C to 65°C (no freezing) Max. 95%RH (no condensation)	
Applicable category	Group 1, class A (EN55011:1991)	

• Dimensions

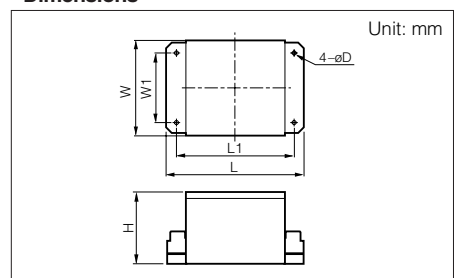Unit: mm

øD

(Three phase 400V Type)

EMI filter for VF-8X

• For three phase 400V

Filter rated current	Inverter capacity	Product number	Dimensions					
			W	W1	L	L1	H	D
30A	5.5,7.5kW	**BFV938X07514**	135	100	210	180	105	5.5
40A	11,15kW	**BFV938X15014**	147	112	250	220	140	5.5
60A	19,22kW	**BFV938X22014**	147	112	320	290	140	6.5

• Standard specifications

Power source	Max. 460V AC
Frequency	50/60Hz
Overload endurance	150% of rated current for 1 minute
Leakage current	Max. 35mA
Ambient temperature humidity	−10°C to 40°C (no freezing) Max. 90%RH (no condensation)
Storage and transporting temp. and humidity	−10°C to 65°C (no freezing) Max. 95%RH (no condensation)
Applicable category	Group 1, class A (EN55011:1991)

• Dimensions

Unit: mm

4−øD

OPTION

Product	Product number · Specifications · Application · Dimensions
Panel holder	

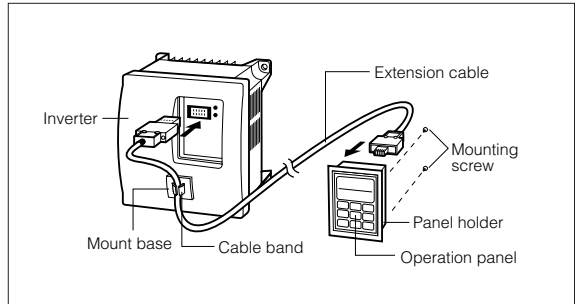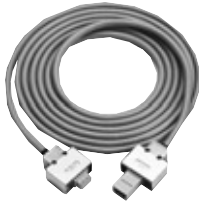**Panel holder**

Product No.	**BFV9060**

■ **Using the operation panel remotely from the inverter unit**
• The operation panel can be removed from the inverter and mounted on a remote wall, etc.
(The optional extension cable and panel holder are required.)
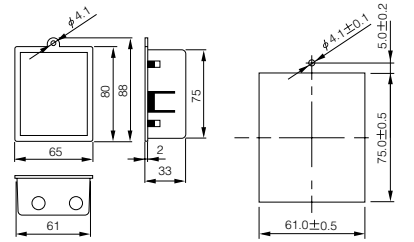

Extension cable

Cable length (L)	Product No.
1m	**BFV9061**
3m	**BFV9063**
5m	**BFV9065**

<Connection>
• Connect one end of the extension cable to the inverter (at the point where the operation panel was removed) and the other end to the now remote operation panel. See diagram.
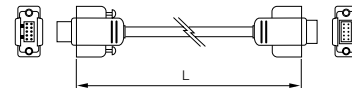Caution: Incorrect connector orientation may result in damage to the inverter.

• **Dimensions**

• Panel holder   Unit: mm

Mounting hole dimensions

• Extension cable   Unit: m

Please contact ....

Matsushita Electric Works, Ltd.

AUTOMATION CONTROLS GROUP
■ Head Office: 1048, Kadoma, Kadoma-shi, Osaka 571, Japan
■ Telephone: Japan (81) Osaka (06) 908-1050
■ Facsimile: Japan (81) Osaka (06) 908-5781