Variation

Model List

Applicable motor rating (kW)	Standard type: Three-phase 200V series	Standard type: Three-phase 400V series	Standard type: Single-phase 200V series	Semi-standard type EMC filter built-in type: Three-phase 200V series	Semi-standard type EMC filter built-in type: Three-phase 400V series	Semi-standard type EMC filter built-in type: Single-phase 200V series
0.1	FRN0.1E1S-2□		FRN0.1E1S-7□	FRN0.1E1E-2□		FRN0.1E1E-7□
0.2	FRN0.2E1S-2□		FRN0.2E1S-7□	FRN0.2E1E-2□		FRN0.2E1E-7□
0.4	FRN0.4E1S-2□	FRN0.4E1S-4□	FRN0.4E1S-7□	FRN0.4E1E-2□	FRN0.4E1E-4□	FRN0.4E1E-7□
0.75	FRN0.75E1S-2□	FRN0.75E1S-4□	FRN0.75E1S-7□	FRN0.75E1E-2□	FRN0.75E1E-4□	FRN0.75E1E-7□
1.5	FRN1.5E1S-2□	FRN1.5E1S-4□	FRN1.5E1S-7□	FRN1.5E1E-2□	FRN1.5E1E-4□	FRN1.5E1E-7□
2.2	FRN2.2E1S-2□	FRN2.2E1S-4□	FRN2.2E1S-7□	FRN2.2E1E-2□	FRN2.2E1E-4□	FRN2.2E1E-7□
3.7	FRN3.7E1S-2□	FRN3.7E1S-4□		FRN3.7E1E-2□	FRN3.7E1E-4□	
5.5	FRN5.5E1S-2□	FRN5.5E1S-4□		FRN5.5E1E-2□	FRN5.5E1E-4□	
7.5	FRN7.5E1S-2□	FRN7.5E1S-4□		FRN7.5E1E-2□	FRN7.5E1E-4□	
11	FRN11E1S-2□	FRN11E1S-4□		FRN11E1E-2□	FRN11E1E-4□	
15	FRN15E1S-2□	FRN15E1S-4□		FRN15E1E-2□	FRN15E1E-4□	

* The code in □ represents followings; A(Asia), K(Korea, Taiwan) , C(China), J(Japan)

How to read the inverter model

FRN 0.75 E 1 S - 2 A

Code	Series name
FRN	FRENIC series

Code	Applicable motor rating
0.1	0.1kW
0.2	0.2kW
0.4	0.4kW
0.75	0.75kW
≀	≀
7.5	7.5kW
11	11kW
15	15kW

Code	Application range
E	High performance/Compact

Code	Developed inverter series
1	Series

Code	Enclosure
S	Standard type (IP20)
E	EMC filter built-in type

Code	Input power source
2	Three-phase 200V
4	Three-phase 400V
7	Single-phase 200V

Code	Destination, Instruction manuals
A	Asia, English
K	Koria, Taiwan
C	China
J	Japan

Caution The contents of this catalog are provided to help you select the product model that is best for you. Before actual use, be sure to read the User's Manual thoroughly to assure correct operation.

Specifications

Standard type

Three-phase 200V series

Item			Specifications										
Type (FRN□□□E1S-2A/K/C/J)			0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Applicable motor rating [kW] (*1)			0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Output ratings	Rated capacity [kVA] (*2)		0.30	0.57	1.1	1.9	3.0	4.1	6.4	9.5	12	17	22
	Rated voltage [V] (*3)		Three-phase 200V to 240V (with AVR function)										
	Rated current [A] (*4)		0.8 (0.7)	1.5 (1.4)	3.0 (2.5)	5.0 (4.2)	8.0 (7.0)	11 (10)	17 (16.5)	25 (23.5)	33 (31)	47 (44)	60 (57)
	Overload capability		150% of rated current for 1min, 200% - 0.5s										
	Rated frequency [Hz]		50, 60Hz										
Input power	Phases, voltage, frequency		Three-phase, 200 to 240V, 50/60Hz										
	Voltage/frequency variations		Voltage: +10 to -15% (Voltage unbalance (*8): 2% or less) Frequency: +5 to -5%										
	Rated current [A] (*9)	(with DCR)	0.57	0.93	1.6	3.0	5.7	8.3	14.0	21.1	28.8	42.2	57.6
		(without DCR)	1.1	1.8	3.1	5.3	9.5	13.2	22.2	31.5	42.7	60.7	80
	Required power supply capacity [kVA] (*5)		0.2	0.3	0.6	1.1	2.0	2.9	4.9	7.4	10	15	20
Braking	Torque [%] (*6)		150		100		70	40		20			
	Torque [%] (*7)		—		150								
	DC injection braking		Starting frequency: 0.1 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100% of rated current										
	Braking transistor		Built-in										
Applicable safety standards			UL508C, C22.2No.14, EN50178:1997										
Enclosure (IEC60529)			IP20, UL open type										
Cooling method			Natural cooling				Fan cooling						
Weight / Mass [kg]			0.6	0.6	0.7	0.8	1.7	1.7	2.3	3.4	3.6	6.1	7.1

Three-phase 400V series

Item			Specifications								
Type (FRN□□□E1S-4A/K/C/J)			0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Applicable motor rating [kW] (*1)			0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Output ratings	Rated capacity [kVA] (*2)		1.1	1.9	2.8	4.1	6.8	9.9	13	18	22
	Rated voltage [V] (*3)		Three-phase 380V to 480V (with AVR function)								
	Rated current [A] (*4)		1.5	2.5	3.7	5.5	9.0	13	18	24	30
	Overload capability		150% of rated current for 1min, 200% - 0.5s								
	Rated frequency [Hz]		50, 60Hz								
Input power	Phases, voltage, frequency		Three-phase, 380 to 480V, 50/60Hz								
	Voltage/frequency variations		Voltage: +10 to -15% (Voltage unbalance (*8): 2% or less) Frequency: +5 to -5%								
	Rated current [A] (*9)	(with DCR)	0.85	1.6	3.0	4.4	7.3	10.6	14.4	21.1	28.8
		(without DCR)	1.7	3.1	5.9	8.2	13.0	17.3	23.2	33.0	43.8
	Required power supply capacity [kVA] (*5)		0.6	1.1	2.0	2.9	4.9	7.4	10	15	20
Braking	Torque [%] (*6)		100		70	40		20			
	Torque [%] (*7)		150								
	DC injection braking		Starting frequency: 0.1 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100% of rated current								
	Braking transistor		Built-in								
Applicable safety standards			UL508C, C22.2No.14, EN50178:1997								
Enclosure (IEC60529)			IP20, UL open type								
Cooling method			Natural cooling		Fan cooling						
Weight / Mass [kg]			1.1	1.2	1.7	1.7	2.3	3.4	3.6	6.1	7.1

Single-phase 200V series

Item			Specifications					
Type (FRN□□□E1S-7A/K/C/J)			0.1	0.2	0.4	0.75	1.5	2.2
Applicable motor rating [kW] (*1)			0.1	0.2	0.4	0.75	1.5	2.2
Output ratings	Rated capacity [kVA] (*2)		0.3	0.57	1.1	1.9	3.0	4.1
	Rated voltage [V] (*3)		Three-phase 200V to 240V (with AVR function)					
	Rated current [A] (*4)		0.8 (0.7)	1.5 (1.4)	3.0 (2.5)	5.0 (4.2)	8.0 (7.0)	11 (10)
	Overload capability		150% of rated current for 1min, 200% - 0.5s					
	Rated frequency [Hz]		50, 60Hz					
Input power	Phases, voltage, frequency		Single-phase, 200 to 240V, 50/60Hz					
	Voltage/frequency variations		Voltage: +10 to -10%, Frequency: +5 to -5%					
	Rated current [A] (*9)	(with DCR)	1.1	2.0	3.5	6.4	11.6	17.5
		(without DCR)	1.8	3.3	5.4	9.7	16.4	24.8
	Required power supply capacity [kVA] (*5)		0.3	0.4	0.7	1.3	2.4	3.5
Braking	Torque [%] (*6)		150		100		70	40
	Torque [%] (*7)		—		150			
	DC injection braking		Starting frequency: 0.1 to 60.0Hz, Braking level: 0 to 100% of rated current, Braking time: 0.0 to 30.0s					
	Braking transistor		Built-in					
Applicable safety standards			UL508C, C22.2No.14, EN50178:1997					
Enclosure (IEC60529)			IP20, UL open type					
Cooling method			Natural cooling				Fan cooling	
Weight / Mass [kg]			0.6	0.6	0.7	0.9	1.8	2.4

(*1) Fuji's 4-pole standard motor
(*2) Rated capacity is calculated by assuming the output rated voltage as 220V for three-phase 200V series and 440V for three-phase 400V series.
(*3) Output voltage cannot exceed the power supply voltage.
(*4) When setting the carrier frequency (F26) to 3 kHz or less. Use the current ( ) or below when the carrier frequency setting is higher than 4kHz and continuously operating at 100%.
(*5) Obtained when a DC REACTOR is used.
(*6) Average braking torque obtained when reducing the speed from 60Hz with AVR control OFF (Varies with the efficiency of the motor.)
(*7) Average braking torque obtained by use of external braking resistor (standard type available as option)
(*8) Voltage unbalance [%] = $\frac{\text{Max voltage [V] - Min voltage [V]}}{\text{Three-phase average voltage [V]}}$ x 67 (IEC 61800-3)
If this value is 2 to 3%, use AC REACTOR (ACR: option).
(*9) The value is calculated on assumption that the inverter is connected with a power supply capacity of 500kVA (or 10 times the inverter capacity if the inverter capacity exceeds 50kVA) and %X is 5%.

●Semi-standard type

EMC filter built-in type

■Three-phase 200V series(0.1 to 15kW)

Item			Specifications										
Type (FRN□□□E1E-2A/K/C/J)			0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Nominal applied motor [kW] (*1)			0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Output ratings	Rated capacity [kVA] (*2)		0.30	0.57	1.1	1.9	3.0	4.1	6.4	9.5	12	17	22
	Rated voltage [V] (*3)		Three-phase 200 to 240V (with AVR)										
	Rated current [A] (*4)		0.8 (0.7)	1.5 (1.4)	3.0 (2.5)	5.0 (4.2)	8.0 (7.0)	11 (10)	17 (16.5)	25 (23.5)	33 (31)	47 (44)	60 (57)
	Overload capability		150% of rated current for 1min or 200% of rated current for 0.5s										
	Rated frequency [Hz]		50, 60Hz										
Input ratings	Phases, voltage, frequency		Three-phase, 200 to 240V, 50/60Hz										
	Voltage/frequency variations		Voltage: +10 to -15% (Voltage unbalance : 2% or less (*7)) Frequency: +5 to -5%										
	Rated current [A] (*8)	(with DCR)	0.57	0.93	1.6	3.0	5.7	8.3	14.0	21.1	28.8	42.2	57.6
		(without DCR)	1.1	1.8	3.1	5.3	9.5	13.2	22.2	31.5	42.7	60.7	80
	Required power supply capacity [kVA] (*5)		0.2	0.3	0.6	1.1	2.0	2.9	4.9	7.4	10	15	20
Braking	Torque [%] (*6)		150		100		70	40		20			
	DC injection braking		Starting frequency: 0.0 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100%										
	Braking transistor		Built-in										
Applicable safety standards			UL508C, C22.2No.14(pending), EN50178:1997										
Enclosure			IP20(IEC60529)/UL open type(UL50)										
Cooling method			Natural cooling				Fan cooling						
EMC standard compliance	Emission		Class 1A (EN55011:1998/A1:1999)							2nd Env. (EN61800-3:1996+A11:2000)			
	Immunity		2nd Env. (EN61800-3:1996/A11:2000)										
Weight / Mass [kg]			0.7	0.7	0.8	0.9	2.4	2.4	2.9	5.1	5.3	10.3	11.3

■Three-phase 400V series (0.4 to 15kW)

Item			Specifications								
Type (FRN□□□E1E-4A/K/C/J)			0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Nominal applied motor [kW] (*1)			0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Output ratings	Rated capacity [kVA] (*2)		1.1	1.9	2.8	4.1	6.8	9.9	13	18	22
	Rated voltage [V] (*3)		Three-phase 380 to 480V (with AVR)								
	Rated current [A] (*4)		1.5	2.5	3.7	5.5	9.0	13	18	24	30
	Overload capability		150% of rated current for 1min or 200% of rated current for 0.5s								
	Rated frequency [Hz]		50, 60Hz								
Input ratings	Phases, voltage, frequency		Three-phase, 380 to 480V, 50/60Hz								
	Voltage/frequency variations		Voltage:+10 to -15% (Voltage unbalance: 2% or less (*7)), Frequency: +5 to -5%								
	Rated current [A] (*8)	(with DCR)	0.85	1.6	3.0	4.4	7.3	10.6	14.4	21.1	28.8
		(without DCR)	1.7	3.1	5.9	8.2	13.0	17.3	23.2	33.0	43.8
	Required power supply capacity [kVA] (*5)		0.6	1.1	2.0	2.9	4.9	7.4	10	15	20
Braking	Torque [%] (*6)		100		70	40		20			
	DC injection braking		Starting frequency: 0.0 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100%								
	Braking transistor		Built-in								
Applicable safety standards			UL508C, C22.2No.14 (pending), EN50178:1997								
Enclosure			IP20 (IEC60529)/UL open type (UL50)								
Cooling method			Natural cooling		Fan cooling						
EMC standard compliance	Emission		Class 1A (EN55011:1998/A1:1999)					2nd Env. (EN61800-3:1996+A11:2000)			
	Immunity		2nd Env. (EN61800-3:1996/A11:2000)								
Weight / Mass [kg]			1.5	1.6	2.5	2.5	3.0	4.8	5.0	8.1	9.1

■Single-phase 200V series(0.1 to 2.2kW)

Item			Specifications					
Type (FRN□□□E1E-7A/K/C/J)			0.1	0.2	0.4	0.75	1.5	2.2
Nominal applied motor [kW] (*1)			0.1	0.2	0.4	0.75	1.5	2.2
Output ratings	Rated capacity [kVA] (*2)		0.3	0.57	1.1	1.9	3.0	4.1
	Rated voltage [V] (*3)		Three-phase 200 to 240V (with AVR)					
	Rated current [A] (*4)		0.8 (0.7)	1.5 (1.4)	3.0 (2.5)	5.0 (4.2)	8.0 (7.0)	11 (10)
	Overload capability		150% of rated current for 1min or 200% of rated current for 0.5s					
	Rated frequency [Hz]		50, 60Hz					
Input ratings	Phases, voltage, frequency		Single-phase, 200 to 240V, 50/60Hz					
	Voltage/frequency variations		Voltage: +10 to -10%, Frequency: +5 to -5%					
	Rated current [A] (*8)	(with DCR)	1.1	2.0	3.5	6.4	11.6	17.5
		(without DCR)	1.8	3.3	5.4	9.7	16.4	24.8
	Required power supply capacity [kVA] (*5)		0.3	0.4	0.7	1.3	2.4	3.5
Braking	Torque [%] (*6)		150		100		70	40
	DC injection braking		Starting frequency: 0.0 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100%					
	Braking transistor		Built-in					
Applicable safety standards			UL508C, C22.2No.14 (pending),EN50178:1997					
Enclosure			IP20 (IEC60529)/UL open type (UL50)					
Cooling method			Natural cooling				Fan cooling	
EMC standard compliance	Emission		Class 1A (EN55011:1998/A1:1999)					
	Immunity		2nd Env. (EN61800-3:1996/A11:2000)					
Weight / Mass [kg]			0.7	0.7	0.8	1.3	2.5	3.0

*1) Fuji's 4-pole standard motor
*2) Rated capacity is calculated by regarding the output rated voltage as 220V for three-phase 200V series.
*3) Output voltage cannot exceed the power supply voltage.
*4) The load shall be reduced so that the continuous operating current is the rated current in parenthesis or less if the carrier frequency is set to 4kHz or above.
*5) Obtained when a DC REACTOR is used.
*6) Average braking torque when a motor of no load decelerates.(Varies with the efficiency of the motor.)
*7) Voltage unbalance [%] = $\frac{\text{Max. voltage [V] - Min. voltage [V]}}{\text{Three-phase average voltage [V]}}$ x 67 (IEC61800-3(5.2.3))
If this value is 2 to 3%, use an AC REACTOR.
*8) The currents are calculated on the condition that the inverters are connected to power supply of 500kVA, %X=5%.

Specifications

●Common specifications

Item		Explanation	Remarks	Related function code
Output frequency	Setting range: Maximum frequency	25 to 400Hz variable setting		F03
	Setting range: Base frequency	25 to 400Hz variable setting		F04
	Setting range: Starting frequency	0.1 to 60.0Hz variable setting, Duration: 0.0 to 10.0s		F23,F24
	Setting range: Carrier frequency	0.75 to 15kHz variable setting	Frequency may drop automatically to protect the inverter depending on environmental temperature and output current.This protective operation can be canceled by function code H98.	F26 F27 H98
	Accuracy (Stability)	• Analog setting: ±0.2% of maximum frequency (at 25±10˚C) • Keypad setting: ±0.01% of maximum frequency (at -10 to +50˚C)		
	Setting resolution	• Analog setting: 1/3000 of maximum frequency (ex. 0.02Hz at 60Hz, 0.4Hz at 120Hz) • Keypad setting: 0.01Hz (99.99Hz or less), 0.1Hz (100.0Hz or more) • Link setting: Selectable from 2 types • 1/2000 of maximum frequency (ex. 0.003Hz at 60Hz, 0.006Hz at 120Hz) • 0.01Hz (fixed)	Setting with ∧ and ∨ keys	
Control	Control method	• V/f control • Dynamic torque-vector control (magnetic flux estimator) • V/f control (with sensor, when the PG interface card (option) is installed)		
	Voltage/freq. characteristic	Possible to set output voltage at base frequency and at maximum output frequency (common spec). AVR control can be turned ON or OFF (Factory setting: OFF).	Three-phase 200V, single-phase 200V: 80 to 240V Three-phase 400V: 160 to 500V	F03 to F06
	(Non-linear V/f setting)	2 points (Desired voltage and frequency can be set.)	Three-phase and single-phase 200V: 0 to 240V/0 to 400Hz Three-phase 400V: 0 to 500V/0 to 400Hz	H50 to H53
	Torque boost	Torque boost can be set with the function code F09.	Set when 0, 1, 3, or 4 is selected at F37.	F09, F37
	(Load selection)	Select application load type with the function code F37. 0: Squared variable torque load 1: Constant torque load 2: Auto torque boost 3: Auto energy-save operation (variable torque load in deceleration) 4: Auto energy-save operation (constant torque load) 5: Auto energy-save operation (auto torque boost)		F09, F37
	Starting torque	200% or over (Auto torque boost in 0.5Hz operation, slip compensation and auto torque boost)		H68, F37
	Start/stop	Keypad operation: Start and stop with RUN and STOP keys	Keypad (standard)	F02
		Keypad operation: Start and stop with FWD / REV and STOP keys	Multi-function keypad	F02
		External signals (7digital inputs): FWD (REV), RUN, STOP commands (3 wire operation possible), coast-to-stop, external alarm, alarm reset, etc.		E01 to E05 E98, E99
		Linked operation: Operation through RS-485 or field buss (option) communications		H30, y98
		Switching operation command: Link switching, switching between communication and inverter (keypad or external signals)		
	Frequency setting	Key operation: Can be set with ∧ and ∨ keys	With data protection	F01, C30
		External volume: Can be set with external potentiometer (1 to 5kΩ1/2W)	Connected to analog input terminals 13, 12, and 11. Potentiometer must be provided.	
		Analog input: Analog input can be set with external voltage/current input • 0 to ±10V DC (0 to ±5V DC)/0 to ±100% (terminal 12, C1 (V2)) • +4 to +20mA DC/0 to 100% (terminal C1)	• 0 to +5V DC can be used depending on the analog input gain (200%). +1 to +5V DC can be adjusted with bias and analog input gain. • Voltage can be input (terminal V2) to the terminal 1.	F18, C50, C32 to C34, C37 to C39, C42 to C44
		Multistep frequency: Selectable from 16 steps (step 0 to 15)		C05 to C19
		UP/DOWN operation: Frequency can be increased or decreased while the digital input signal is ON.		F01, C30
		Linked operation: Frequency can be set through RS-485 or field buss (optional) communications.		H30, y98
		Switching frequency setting: Frequency setting can be switched (2 settings) with external signal (digital input). Switching to frequency setting via communication and multi-frequency setting are available.		F01, C30
		Auxiliary frequency setting: Terminal 12 input and terminal C1 input (terminal V2 input) can be added to main setting as auxiliary frequency.		E61 to E63
		Inverse operation: Normal/inverse operation can be set or switched with digital input signal and function code setting. • +10 to 0V DC /0 to 100% (terminal 12, C1 (V2)) • +20 to +4mA DC/0 to 100% (terminal C1)		C53
		Pulse train input: 30kHz (max.)/ Maximum output frequency	When the PG interface card (optional) is installed.	
	Acceleration/deceleration time	0.00 to 3600s *If 0.00s is set, the time setting is cancelled and acceleration and deceleration is made according to the pattern given with an external signal.		F07, F08
		Acceleration and deceleration time can be independently set with 2 types and selected with digital input signal (1 point).		E10,E11
	(Curve)	Acceleration and deceleration pattern can be selected from 4 types: Linear, S-curve (weak), S-curve (strong), Non-linear		H07
		Deceleration with coasting can be stopped with operation stop command.		H11
	Frequency limiter (Upper limit and lower limit frequencies)	High and Low limiters can be set. (Setting range: 0 to 400Hz)	If the set frequency is lower than lower limit, continuous motor running or stop running motor can be selected.	F15, F16 H63
	Bias	Bias of set frequency and PID command can be independently set (setting range: 0 to ±100%).		F18, C50 to C52
	Gain	Analog input gain can be set between 0 and 200%.	Voltage signal from terminal 12, C1 (V2) and current signal (from terminal C1) can be set independently.	C32, C34, C37 C39, C42, C44
	Jump frequency	Three operation points and their common jump width (0 to 30.0Hz) can be set.		C01 to C04
	Timer operation	The inverter operates and stops for the time set with the keypad (1-cycle operation).		C21
	Jogging operation	• Can be operated using digital input signal or keypad. • Acceleration and deceleration time (same duration used only for jogging) can be set. • Jogging frequency: 0.00 to 400.0Hz		H54 C20
	Auto-restart after momentary power failure	• Restarts the inverter without stopping the motor after instantaneous power failure. • Select "Continuous motor mode" to wait for the power recovering with low output frequency. • Restart at 0Hz, restart from the frequency used before momentary power failure, restart at the set frequency can be selected. • Motor speed at restart can be searched and restarted.		F14 H13 to H16 H92, H93
	Torque limit	• Controls the output torque lower than the set limit value. • Can be switched to the second torque limit with digital input signal. • Soft start (filter function) is available when switching the torque control to 1/2.		F40, F41 E16, E17 H76
	Current limit	Keeps the current under the preset value during operation.		F43, F44
	Slip compensation	• Compensates for decrease in speed according to the load, enabling stable operation. • Time constant can be changed. Possible to enable or disable slip compensation during acceleration/deceleration or in constant output range.		H68 P09 to P12
	Droop control	Decrease the speed according to the load torque.		H28

	Item	Explanation	Remarks	Related function code
Control	PID control	Control with PID regulator or dancer controller. ■ Process command • Key operation (∧ and ∨ keys) : 0 to 100% • Analog input (terminal 12, C1 (V2)) : 0 to ±10V DC/0 to ±100% • Analog input (terminal C1) : 4 to 20mA DC/0 to 100% • UP/DOWN (digital input) : 0 to 100% • Communication (RS-485, bus option) : 0 to 20000/0 to 100% ■ Feedback value • Analog input from terminal 12, C1 (V2) : 0 to ±10V DC/0 to ±100% • Analog input (terminal C1) : 4 to 20mA DC/0 to 100% ■ Accessory functions • Alarm output (absolute value alarm, deviation alarm) • Normal operation/inverse operation • PID output limiter • Anti-reset wind-up function • Integration reset/hold		E61 to E63 J01 to J06 J10 to J19
Control	Pick-up	Operation begins at a preset pick-up frequency to search for the motor speed to start an idling motor without stopping it.		H09, H13, H17
Control	Automatic deceleration	When the torque calculation value exceeds the limit level set for the inverter during deceleration, the output frequency is automatically controlled and the deceleration time automatically extends to avoid an OU trip.	Trip may occur due to load conditions.	H69, F08
Control	Deceleration characteristic	The motor loss increases during deceleration to reduce the load energy regenerating at the inverter to avoid an OU trip upon mode selection.		H71
Control	Automatic energy-saving operation	The output voltage is controlled to minimize the total sum of the motor loss and inverter loss at a constant speed.		F37, F09
Control	Overload Prevention Control	The output frequency is automatically reduced to suppress the overload protection trip o inverter caused by an increase in the ambient temperature, operation frequency, motor load or the like.		H70
Control	Auto-tuning	The motor parameters are automatically tuned.	Mode that the motor rotates and mode that the motor does not rotate can be selected.	P04
Control	Cooling fan ON/OFF control	Detects inverter internal temperature and stops cooling fan when the temperature is low.	An external output is issued in a transistor output signal.	H06
Control	Secondary motor setting	• One inverter can be used to control two motors by switching (switching is not available while a motor is running). Base frequency, rated current, torque boost, electronic thermal, slip compensation can be set as data for the secondary motor. • The second motor constants can be set in the inverter. (Auto-tuning possible)		
Control	Universal DI	The presence of digital signal in a device externally connected to the set terminal can be sent to the master controller.		
Control	Universal AO	The output from the master controller can be output from the terminal FM.		
Control	Speed control	The motor speed can be detected with the pulse encoder and speed can be controlled.	When the PG interface card (optional) Is installed.	
Control	Positioning control	Only one program can be executed by setting the number of pulses to the stop position and deceleration point.	When the PG interface card (optional) Is installed.	
Control	Rotation direction control	Select either of reverse prevention or forward rotation prevention.		
Indication	Running/stopping	• Speed monitor, output current [A], output voltage [V], torque calculation value, input power [kW], PID reference value, PID feedback value, PID output, load factor, motor output, period for timer operation [s] ◆Select the speed monitor to be displayed from the following: Output frequency [Hz], Output frequency 1 [Hz] (before slip compensation), Output frequency 2 (after slip compensation) [Hz], Motor speed (set value) [r/min], Motor speed [r/min], Load shaft speed (set value) [r/min], Load shaft speed (r/min), Line speed (set value), Line speed (r/min)		E43 E48
Indication	Life early warning	The life early warning of the main circuit capacitors, capacitors on the PC boards and the cooling fan can be displayed.	An external output is issued in a transistor output signal.	
Indication	Cumulative run hours	The cumulative motor running hours, cumulative inverter running hours and cumulative watt-hours can be displayed.		
Indication	I/O check	Displays the input signal status of the inverter.		
Indication	Power monitor	Displays input power (momentary), accumulated power, electricity cost (accumulated power x displayed coefficient).		
Indication	Trip mode	Displays the cause of trip by codes. • OC1 (Overcurrent during acceleration) • OC2 (Overcurrent during deceleration) • OC3 (Overcurrent at constant speed) • Lin (Input phase loss) • LU (Undervoltage) • OPL (Output phase loss) • OU1 (Overvoltage during acceleration) • OU2 (Overvoltage during deceleration) • OU3 (Overvoltage at constant speed) • OH1 (Overheating of the heat sink) • OH2 (External alarm) • OH3 (Inverter overheat) • OH4 (Motor protection (PTC thermistor)) • OL1 (Motor 1 overload) • OL2 (Motor 2 overload) • OLU (Inverter overload) • dbH (Overheating of braking resistor) • PG (PG disconnection) • Er1 (Memory error) • Er2 (Keypad communication error) • Er3 (CPU error) • Er4 (Optional communication error) • Er5 (Option error) • Er6 (Operation error) • Er7 (Tuning error) • Er8 (RS-485 communication error) • ErF (Data save error due to undervoltage) • ErP (RS485 communication error (option)) • ErH (Power LSI error) • Err (Simulation error)		
Indication	Running or trip mode	Trip history: Saves and displays the last 4 trip codes and their detailed description.		E52
Protection	Overcurrent protection	The inverter is stopped upon an overcurrent caused by an overload.		
Protection	Short circuit protection	The inverter is stopped upon an overcurrent caused by a short circuit in the output circuit.		
Protection	Grounding fault protection	The inverter is stopped upon an overcurrent caused by a grounding fault in the output circuit.		
Protection	Overvoltage protection	An excessive DC link circuit voltage is detected to stop the inverter.	3-phase 200V / 400V DC, Single-phase 200V/400V DC 3-phase 400V / 800V D	
Protection	Undervoltage	Stops the inverter by detecting voltage drop in DC link circuit.	3-phase 200V / 200V DC, Single-phase 200V/400V DC 3-phase 400V / 400V DC	F14
Protection	Input phase loss	Stops or protects the inverter against input phase loss.	The protective function can be canceled with function code 99.	H98
Protection	Output phase loss	Detects breaks in inverter output wiring at the start of running and during running, stopping the inverter output.	The protective function can be canceled with function code 99.	H98
Protection	Overheating	The temperature of the heat sink of the inverter or that inside the inverter unit is detected to stop the inverter, upon a failure or overload of the cooling fan.		H43
Protection	Overload	The inverter is stopped upon the temperature of the heat sink of the inverter or the temperature of the switching element calculated from the output current.		
Protection (Motor protection)	Electronic thermal	The inverter is stopped upon an electronic thermal function setting to protect the motor.	Thermal time constant can be adjusted (0.5 to 75.0min.)	F10 to F12, P99
Protection (Motor protection)	PTC thermistor	A PTC thermistor input stops the inverter to protect the motor.		H26, H27
Protection (Motor protection)	Overload early warning	Warning signal can be output based on the set level before the inverter trips.		F10, F12, E34, E35, P99
Protection	Stall prevention	The output frequency decreases upon an output current exceeding the limit during acceleration or constant speed operation, to avoid overcurrent trip.		H12
Protection	Momentary power failure protection	• A protective function (inverter stoppage) is activated upon a momentary power failure for 15msec or longer. • If restart upon momentary power failure is selected, the inverter restarts upon recovery of the voltage within the set time.		H13 to H16 F14
Protection	Retry function	When the motor is tripped and stopped, this function automatically resets the tripping state and restarts operation.	Waiting time before resetting and the number of retry times can be set.	H04, H05
Protection	Command loss detection	A loss (broken wire, etc.) of the frequency command is detected to output an alarm and continue operation at the preset frequency (set at a ratio to the frequency before detection).		E65
Environment	Installation location	Shall be free from corrosive gases, flammable gases, oil mist, dusts, and direct sunlight. (Pollution degree 2 (IEC60664-1)). Indoor use only.		
Environment	Ambient temperature	-10 to +50˚C	-10 to 40˚C when inverters are installed side by side without clearance.	
Environment	Ambient humidity	5 to 95% RH (without condensation)		
Environment	Altitude	Altitude [m] / Output decrease Lower than 1,000 / None 1,001 to 2,000 / Decreases 2,001 to 3,000 / Decreases*	* If the altitude exceeds 2,000m, insulate the interface circuit from the main power supply to conform to the Low Voltage Directives.	
Environment	Vibration	3mm (vibration width): 2 to less than 9Hz, 9.8m/s^2: 9 to less than 20Hz, 2m/s^2: 20 to less than 55Hz, 1m/s^2: 55 to less than 200Hz		
Environment (Storage)	Ambient temp.	-25 to +65˚C		
Environment (Storage)	Ambient humidity	5 to 95%RH (without condensation)		

External Dimensions

●Inverter main body (standard type)

Fig. a

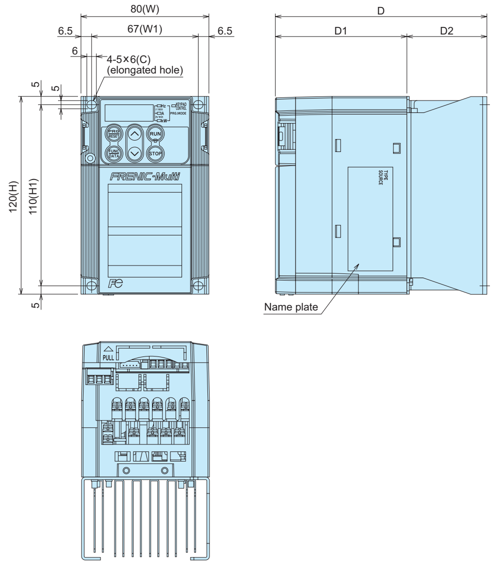


Fig.b

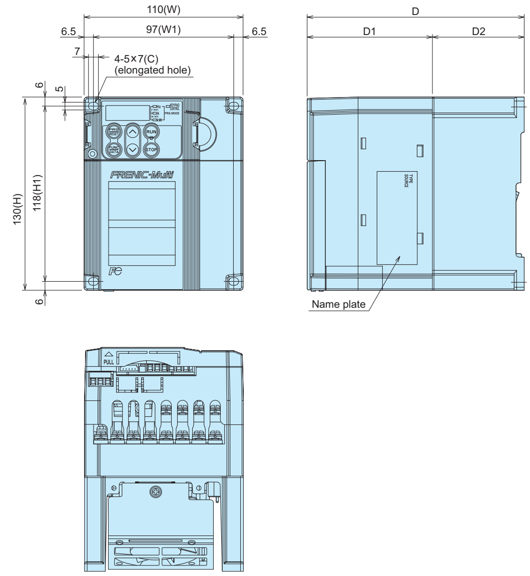


Fig. c

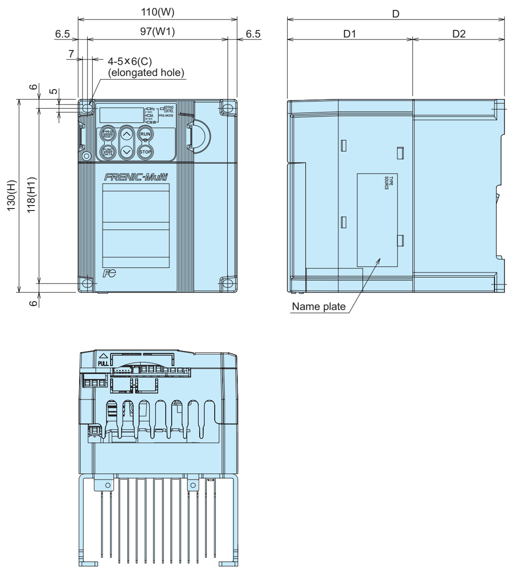


Fig. d

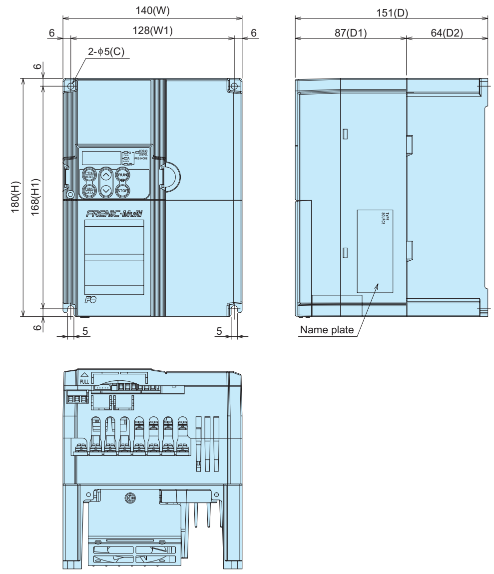


Fig. e

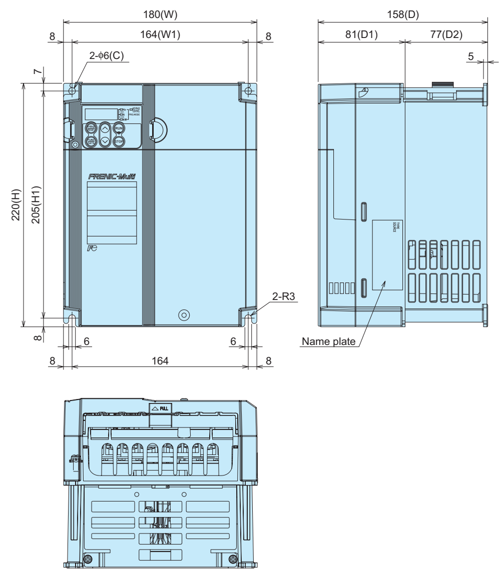
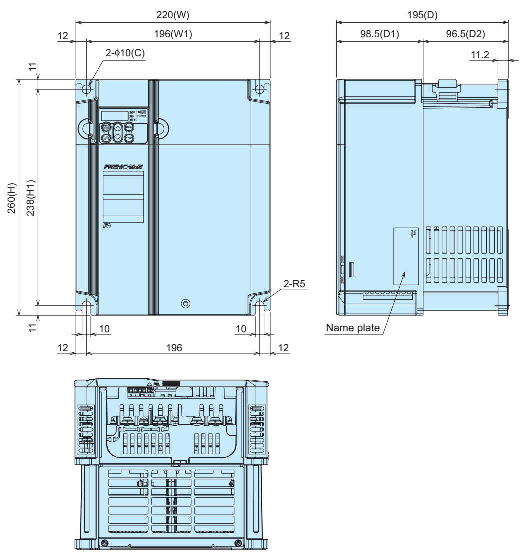


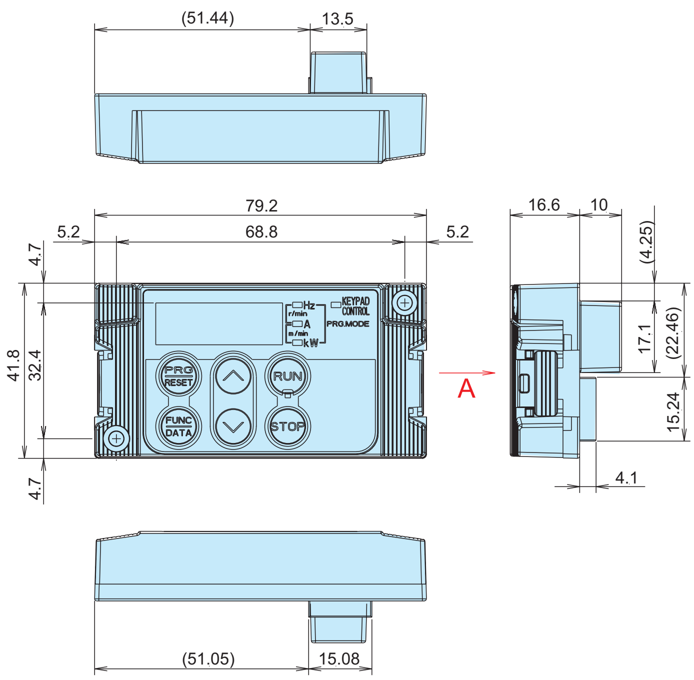
Fig. f



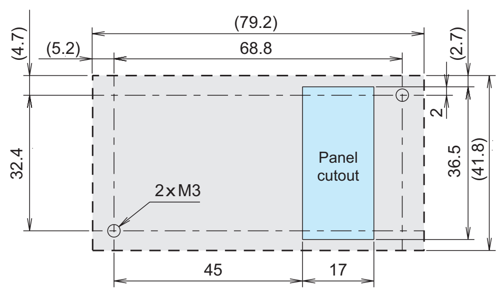
Power supply voltage	Inverter type	Fig.	Dimension (mm)							
			W	W1	H	H1	D	D1	D2	C
Three-phase 200V	FRN0.1E1S-2■	a	80	67	120	110	92	82	10	5x6(elongated hole)
	FRN0.2E1S-2■									
	FRN0.4E1S-2■						107		25	
	FRN0.75E1S-2■						132		50	
	FRN1.5E1S-2■	b	110	97	130	118	150	86	64	5x7(elongated hole)
	FRN2.2E1S-2■									
	FRN3.7E1S-2■	d	140	128	180	168	151	87	64	ϕ5
	FRN5.5E1S-2■	e	180	164	220	205	158	81	77	ϕ6
	FRN7.5E1S-2■									
	FRN11E1S-2■	f	220	196	260	238	195	98.5	96.5	ϕ10
	FRN15E1S-2■									
Three-phase 400V	FRN0.4E1S-4■	c	110	97	130	118	126	86	40	5x6(elongated hole)
	FRN0.75E1S-4■						150		64	
	FRN1.5E1S-4■	b	110	97	130	118	150	86	64	5x7(elongated hole)
	FRN2.2E1S-4■									
	FRN3.7E1S-4■	d	140	128	180	168	151	87	64	ϕ5
	FRN5.5E1S-4■	e	180	164	220	205	158	81	77	ϕ6
	FRN7.5E1S-4■									
	FRN11E1S-4■	f	220	196	260	238	195	98.5	96.5	ϕ10
	FRN15E1S-4■									
Single-phase 200V	FRN0.1E1S-7■	a	80	67	120	110	92	102	10	5x6(elongated hole)
	FRN0.2E1S-7■									
	FRN0.4E1S-7■						107		25	
	FRN0.75E1S-7■						152		50	
	FRN1.5E1S-7■	b	110	97	130	118	150	86	64	5x7(elongated hole)
	FRN2.2E1S-7■	d	140	128	180	168	151	87	64	ϕ5

Note: For the inverter type FRN0.1E1S-2 ■, the symbol ■ is replaced with either of the following alphabets.
■ A(Asia), K(Koria, Taiwan), C(China), J(Japan)

●Keypad



* Dimensions when installing the supplied rear cover



Dimensions of panel cutting (viewed from "A")

External Dimensions

●Inverter main body (EMC filter built-in type)

Fig. g

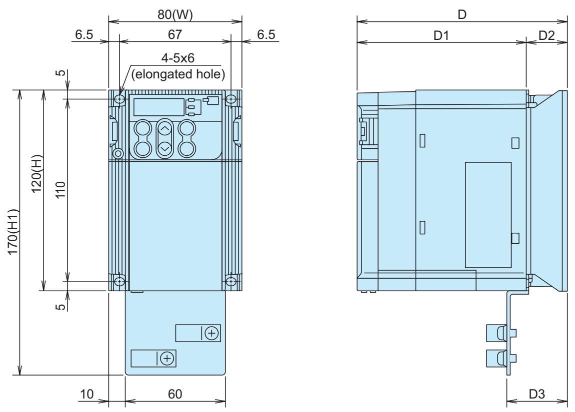


Fig. h

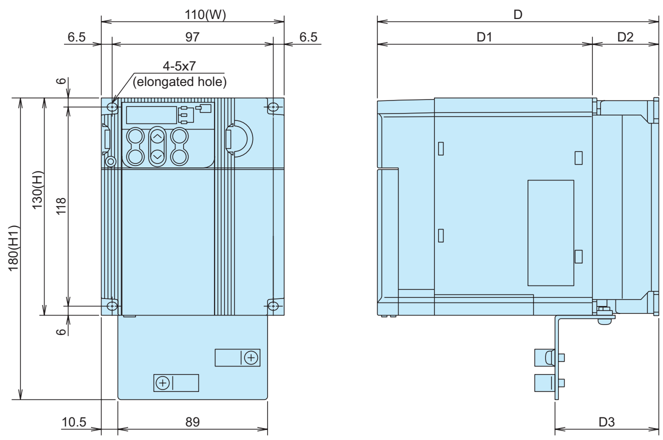


Fig. i

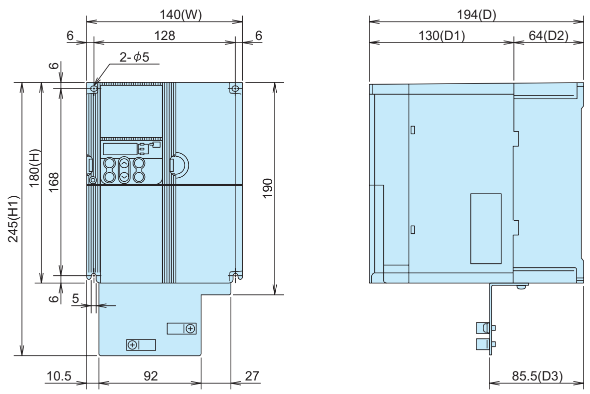


Fig. j

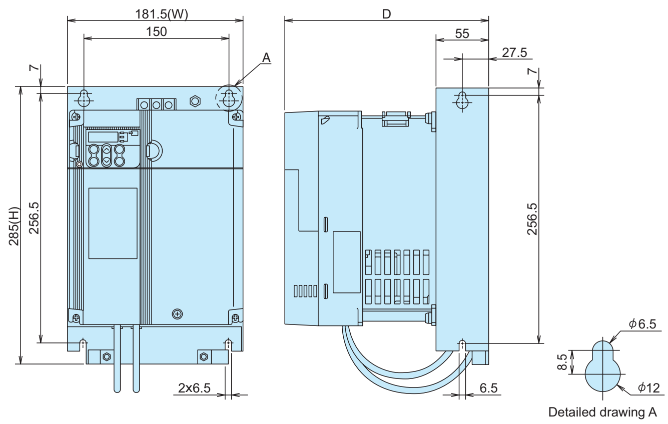


Fig. k

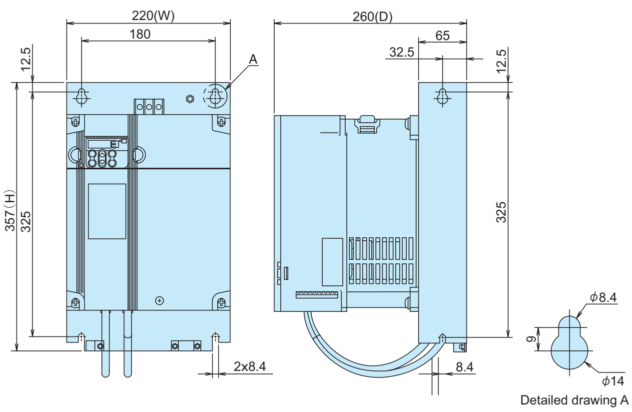
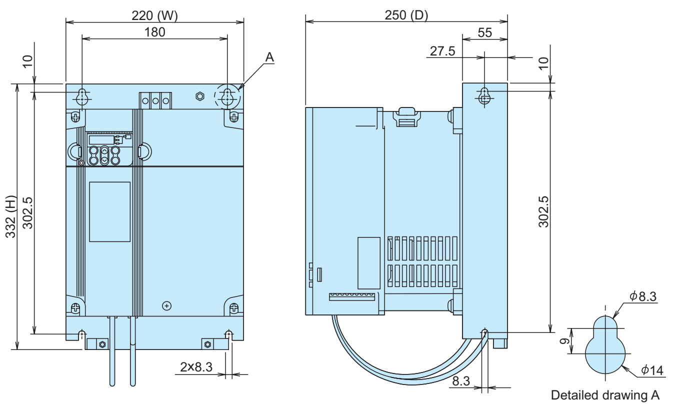


Fig. l



Power supplyvoltage	Inverter type	Fig.	Dimension (mm)						
			W	H	H1	D	D1	D2	D3
Three-phase 200V	FRN0.1E1E-2■	g	80	120	170	112	102	10	21.2
	FRN0.2E1E-2■								
	FRN0.4E1E-2■					127		25	36.2
	FRN0.75E1E-2■					152		50	61.2
	FRN1.5E1E-2■	i	140	180	245	194	130	64	85.5
	FRN2.2E1E-2■								
	FRN3.7E1E-2■								
	FRN5.5E1E-2■	j	181.5	285	–	213	–	–	–
	FRN7.5E1E-2■								
	FRN11E1E-2■	k	220	357	–	260	–	–	–
	FRN15E1E-2■								
Three-phase 400V	FRN0.4E1E-4■	h	110	130	180	169	129	40	61.5
	FRN0.75E1E-4■					193		64	85.5
	FRN1.5E1E-4■	i	140	180	245	194	130	64	85.5
	FRN2.2E1E-4■								
	FRN3.7E1E-4■								
	FRN5.5E1E-4■	j	181.5	285	–	208	–	–	–
	FRN7.5E1E-4■								
	FRN11E1E-4■	l	220	332	–	250	–	–	–
	FRN15E1E-4■								
Single-phase 200V	FRN0.1E1E-7■	g	80	120	170	112	102	10	21.2
	FRN0.2E1E-7■								
	FRN0.4E1E-7■					127		25	36.2
	FRN0.75E1E-7■	h	110	130	180	150	110	40	55.2
	FRN1.5E1E-7■	i	140	180	245	194	130	64	85.5
	FRN2.2E1E-7■								

Note: For the inverter type FRN0.1E1S-2 ■ the symbol ■ is replaced with either of the following alphabets.
■ A(Asia), K(Koria, Taiwan), C(China), J(Japan)

Keypad Operations

Keypad switches and functions

LED monitor

When the motor is running or stopped:
The monitor displays speeds, such as output frequency, set frequency, motor speed and load shaft speed, output voltage, output current, and power consumption.

Alarm mode:
The monitor shows the alarm description with a fault code.

Program/Reset key

Used to change the mode.

Programming mode:
Used to shift the digit (cursor movement) to set data.

Alarm mode:
Resets trip prevention mode.

Function/Data select key

Used to change the LED monitor and to store the function code and data.

Up/Down keys

During operation: Used to increase or decrease the frequency or motor speed.

In data setting: Used to indicate the function code number or to change data set value.

Unit display

The unit of the data displayed at the LED monitor is indicated.
Use the FUNC DATA key to switch the displayed data.

Operation mode display

During keypad operation:
When function code F 02 is, 0, 2 or 3 (keypad operation), the green KEYPAD CONTROL LED lights up.

Run key

While the motor is stopped:
Used to start the operation.
This key is invalid if the function code F 02 (operation by external signals) is set to 1.

During operation:
The green RUN LED lights up.

Stop key

Used to stop the operation.

During operation:
This key is invalid if the function code F 02 (operation by external signals) is set to 1.
The inverter stops when the function code H 96 is set to 1 or 3.

Monitor display and key operation

The keypad modes are classified into the following 3 modes.

Operation mode / Monitor, keys			Programming mode STOP	Programming mode RUN	Running mode STOP	Running mode RUN	Alarm mode
Monitor	8.8.8.8.	Function	Displays the function code and data.		Displays the output frequency, set frequency, loaded motor speed, power consumption, output current, and output voltage.		Displays the alarm description and alarm history.
		Display	Lighting		Blinking	Lighting	Blinking/Lighting
	□Hz r/min □A m/min □kW PRG.MODE	Function	Indicates that the program mode is selected.		Displays the units of frequency, output current, power consumption, and rotation speed.		None
		Display	■Hz r/min □A m/min ■kW PRG.MODE ON		Frequency display: ■Hz r/min □A m/min ■kW PRG.MODE ON Current display: □Hz r/min ■A m/min □kW PRG.MODE ON	Speed display: ■Hz r/min ■A m/min □kW PRG.MODE ON Capacity or Current indication: □Hz r/min □A m/min ■kW PRG.MODE blinks or lit	OFF
	□ KEYPAD CONTROL	Function	Operation selection (keypad operation/terminal operation) is displayed.				
		Display	Lit in keypad operation mode				
	□ RUN	Function	Indicates absence of operation commands.	Indicates presence of operation commands.	Indicates absence of operation commands.	Indicates presence of operation commands.	Indicates that the operation is trip-stopped.
		Display	□ RUN unlit	■ RUN lit	□ RUN unlit	■ RUN lit	If an alarm occurs during operation, the lamp is unlit during keypad operation and lit during terminal block operation.
Keys	PRG RESET	Function	Switches to running mode Digit shift (cursor movement) in data setting		Switches to programming mode		Releases the trip and switches to stop mode or running mode.
	FUNC DATA	Function	Determines the function code, stores and updates data.		Switches the LED monitor display.		Displays the operation information.
	∧ ∨	Function	Increases/decreases the function code and data.		Increases/decreases the frequency, motor speed and other settings.		Displays the alarm history.
	RUN	Function	Invalid		Starts running (switches to running mode (RUN)).	Invalid	Invalid
	STOP	Function	Invalid	Deceleration stop (switches to programming mode (STOP)).	Invalid	Deceleration stop (switches to running mode (STOP)).	Invalid

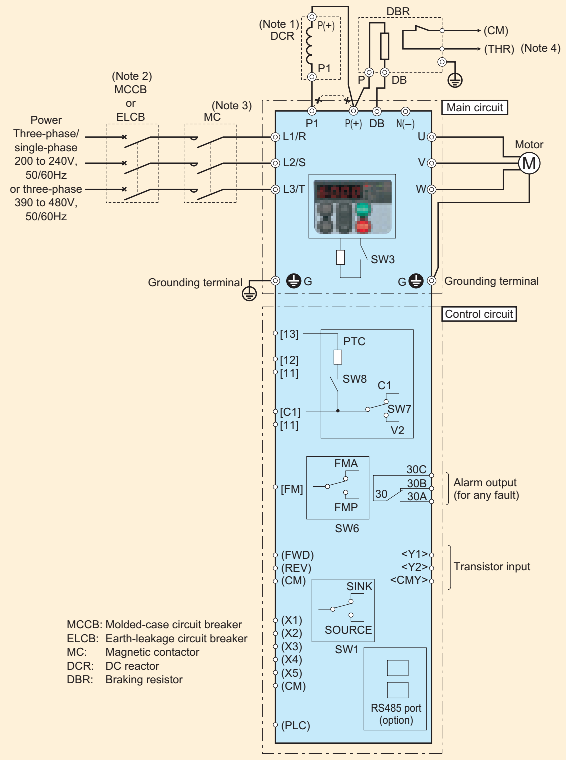
This keypad supports the full menu mode that allows you to set or display the following information. Indication and setting change of changed function code, drive monitor, I/O check, maintenance information, and alarm information. For the actual operation methods, refer to the FRENIC-Multi Instruction Manual or User's Manual.

Basic Wiring Diagram

●Wiring diagram

The following diagram is for reference only. For detailed wiring diagrams, refer to the instruction manual.

■Keypad operation



■Run/Stop operation and frequency setting on the keypad

[Wiring procedure]

(1) Wire the inverter main power circuit.

[Operation method]

(1) Run/Stop: Press RUN or STOP key.

(2) Setting frequency: Set the frequency with ∧ and ∨ keys.

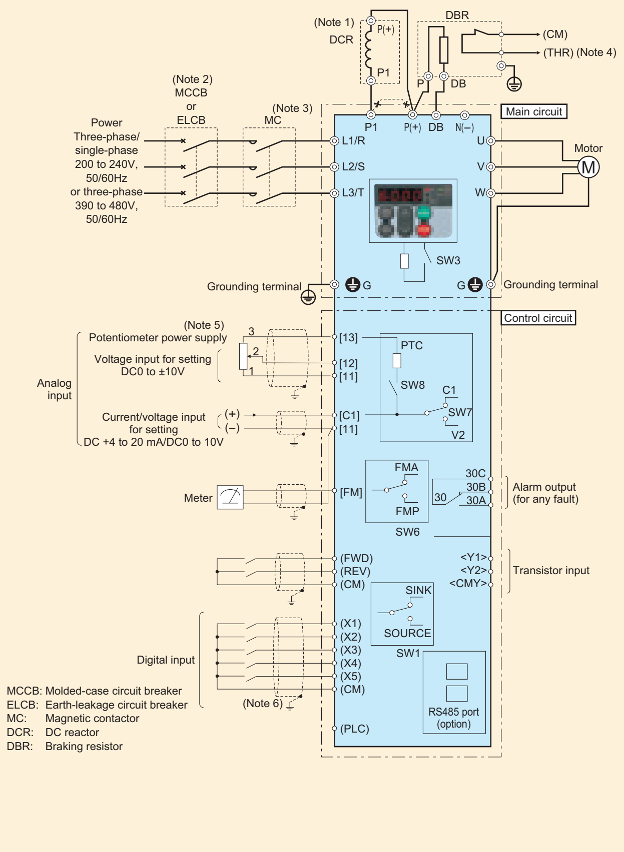
Note1: When connecting a DC REACTOR (DCR option), remove the jumper bar from across the terminals [P1] and [P (+)].

Note2: Install a recommended molded-case circuit breaker (MCCB) or an earth-leakage circuit-breaker (ELCB) (with an overcurrent protection function) in the primary circuit of the inverter to protect wiring. At this time, ensure that the circuit breaker capacity is equivalent to or lower than the recommended capacity.

Note3: Install a magnetic contactor (MC) for each inverter to separate the inverter from the power supply, apart from the MCCB or ELCB, when necessary.
Connect a surge killer in parallel when installing a coil such as the MC or solenoid near the inverter.

Note4: (THR) function can be used by assigning code "9" (external alarm) to any of the terminals X1 to X5, FWD or REV (function code; E01 to E05, E98, or E99).

■Operation by external signal inputs



■Run/Stop operation and frequency setting through external signals

[Wiring procedure]

(1) Wire both the inverter main power circuit and control circuit.

(2) Set 1 (external signal) at function code F02. Next, set 1 (voltage input (terminal 12) (0 to +10V DC)), 2 (current input (terminal C1) (+4 to 20mA DC)), or other value at function code F01.

[Operation method]

(1) Run/Stop: Operate the inverter across terminals FDW and CM short-circuited, and stop with open terminals.

(2) Frequency setting: Voltage input (0 to +10V DC), current input (+4 to 20mA DC)

Note1: When connecting a DC REACTOR (DCR option), remove the jumper bar from across the terminals [P1] and [P (+)].

Note2: Install a recommended molded-case circuit breaker (MCCB) or an earth-leakage circuit-breaker (ELCB) (with an overcurrent protection function) in the primary circuit of the inverter to protect wiring. At this time, ensure that the circuit breaker capacity is equivalent to or lower than the recommended capacity.

Note3: Install a magnetic contactor (MC) for each inverter to separate the inverter from the power supply, apart from the MCCB or ELCB, when necessary.
Connect a surge killer in parallel when installing a coil such as the MC or solenoid near the inverter.

Note4: (THR) function can be used by assigning code "9" (external alarm) to any of the terminals X1 to X5, FWD or REV (function code; E01 to E05, E98, or E99).

Note5: Frequency can be set by connecting a frequency-setting device (external potentiometer) between the terminals 11, 12 and 13 instead of inputting a voltage signal (0 to +10V DC, 0 to +5V DC or +1 to +5V DC) between the terminals 12 and 11.

Note 6: For the control signal wires, use shielded or twisted wires.
Ground the shielded wires. To prevent malfunction due to noise, keep the control circuit wiring away from the main circuit wiring as far as possible (recommended: 10cm or more). Never install them in the same wire duct.
When crossing the control circuit wiring with the main circuit wiring, set them at right angles.

Terminal Functions

Division	Symbol	Terminal name	Functions	Remark	Related function code
Main circuit	L1/R,L2/S,L3/T	Power input	Connect a three-phase power supply.		
	U,V,W	Inverter output	Connect a three-phase motor.		
	P1,P (+)	For DC REACTOR	Connect the DC reactor (DCR).		
	P (+),DB	For braking resistor	Connect the braking resistor (option).		
	P (+),N (–)	For DC bus connection	Used for DC bus connection.		
	⏚ G	Grounding	Terminal for inverter chassis (case) and motor grounding	Two terminals are provided.	
Frequency setting	13	Potentiometer power supply	Used for frequency setting device power supply (variable resistance: 1 to 5kΩ) (10V DC 10mA DC max.)	Connect the potentiometer with higher than 1/2W.	
	12	Analog setting voltage input	Used as a frequency setting voltage input.0 to ±10V DC/0 to 100% (0 to ±5V DC/0 to 100%)	Input impedance: 22kΩ Maximum input: +15V DC However, the current larger than ±20mA DC is handled as ±20mA DC.	F18 C32 to C35 E61
		(Inverse operation)	±10 to 0V DC/0 to ±100%		
		(PID control)	Used for setting signal (PID process command value) or feedback signal.		
		(Frequency aux. setting)	Used as additional auxiliary setting to various frequency settings.		
	C1	Analog setting current input	Used as a frequency setting current input.4 to 20mA DC/0 to 100%	Input impedance: 250Ω Maximum input: 30mA DC However, the voltage higher than ±10V DC is handled as ±0V DC.	F18 C37 to C39 E62
		(Inverse operation)	20 to 4mA DC/0 to 100%		
		(PID control)	Used for setting signal (PID process command value) or feedback signal.		
		(Frequency aux. setting)	Used as additional auxiliary setting to various frequency settings.		
	(V2)	Analog setting voltage input	Used as a frequency setting voltage input.0 to +10V DC/0 to 100% (0 to +5V DC/0 to 100%)	Input impedance: 22kΩ Maximum input:+15V DC However, the voltage higher than ±10V DC is handled as ±10V DC.	F18 C42 to C44 E63
		(Inverse operation)	+10 to 0V DC/0 to 100%		
		(PID control)	Used for setting signal (PID process command value) or feedback signal.		
		(Frequency aux. setting)	Used as additional auxiliary setting to various frequency settings.		
	(PTC)	(PTC thermistor)	Connect the thermistor used to protect the motor.		H26, H27
	11	Analog common	Common terminal for frequency setting signals (13, 12, C1, FM)	Two terminals are provided. Isolated from terminals CM and CMY.	
Digital input	X1	Digital input 1	The following functions can be set at terminals X1 to X5, FWD and REV for signal input. <Common function> • Sink and source are changeable using the built-in sliding switch. • ON timing can be changed between short-circuit of terminals X1 and CM and open circuits of them. The same setting is possible between CM and any of the terminals among X2, X3, X4, X5, FWD, and REV.	ON state Source current: 2.5 to 5mA Voltage level: 2V Allowable leakage current: Smaller than 0.5mA Voltage: 22 to 27V	E01
	X2	Digital input 2			E02
	X3	Digital input 3			E03
	X4	Digital input 4			E04
	X5	Digital input 5			E05
	FWD	Forward operation command			E98
	REV	Reverse operation command			E99
	(FWD)	Forward operation command	The motor runs in the forward direction upon ON across (FWD) and CM. The motor decelerates and stops upon OFF.	This function can be set only for the terminals FWD and REV.	
	(REV)	Reverse operation command	The motor runs in the reverse direction upon ON across (REV) and CM. The motor decelerates and stops upon OFF.		
	(SS1) (SS2) (SS4) (SS8)	Multistep freq. selection	16-step operation can be conducted with ON/OFF signals at (SS1) to (SS8).		C05 to C19

Digital input \ Multistep frequency	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(SS1)	–	ON	–	ON	–	ON	–	ON	–	ON	–	ON	–	ON	–	ON
(SS2)	–	–	ON	ON	–	–	ON	ON	–	–	ON	ON	–	–	ON	ON
(SS4)	–	–	–	–	ON	ON	ON	ON	–	–	–	–	ON	ON	ON	ON
(SS8)	–	–	–	–	–	–	–	–	ON	ON	ON	ON	ON	ON	ON	ON

Division	Symbol	Terminal name	Functions	Remark	Related function code
Digital input	(RT1)	Acceleration time selection command	ON across (RT1) and CM: The acceleration time 2 setting is available. OFF across (RT1) and CM: The acceleration time 1 setting is available.		E10, E11 F07, F08
	(HLD)	3-wire operation stop command	Used for 3-wire operation. ON across (HLD) and CM: The inverter self-holds FWD or REV signal. OFF across (HLD) and CM: The inverter releases self-holding.		
	(BX)	Coast-to-stop command	ON across (BX) and CM: The inverter output is shut off immediately and the motor coasts to a stop.	No alarm signal will be output.	
	(RST)	Alarm (error) reset	ON across (RST) and CM: Faults are reset.	Alarm reset signal width: 0.1(s) or more	
	(THR)	Trip command (External fault)	OFF across (THR) and CM: The inverter output is shut off immediately and the motor coasts-to-stop.	Alarm signal OH2 will be output.	
	(Hz2/Hz1)	Freq. set 2/Freq. set 1	ON across (Hz2/Hz1) and CM: Freq. set 2 is effective.		F01, F30
	(M2/M1)	Motor2/Motor1	ON across (M2/M1) and CM: The motor 2 setting is available. OFF across (M2/M1) and CM: The motor 1 setting is available.		A01 to A46 P01 to P99
	(DCBRK)	DC braking command	ON across (DCBRK) and CM: Starts DC braking action.		F20 to F22
	(TL2/TL1)	Torque limit 2/Torque limit 1	ON across (TL2/TL1) and CM: The torque limit 2 setting is available. OFF across (TL2/TL1) and CM: The torque limit 1 setting is available.		E16, E17 F40, F41
	(UP)	UP command	The output frequency rises while the circuit across (UP) and CM is connected.		F01, C30
	(DOWN)	DOWN command	The output frequency drops while the circuit across (DOWN) and CM is connected.		J02
	(WE-KP)	Write enable for KEYPAD (Changing data is available.)	The function code data can be changed from the keypad only when (WE-KP) is ON.		F00
	(Hz/PID)	PID cancel	PID control can be canceled when the circuit across (Hz/PID) and CM is connected. (Operation proceeds according to the selected frequency setting method such as the multi-step frequency, keypad and analog input.)		J01 to J06 J10 to J19
	(IVS)	Inverse mode changeover	The frequency setting or PID control output signal (frequency setting) action mode switches between normal and inverse actions when the circuit across (IVS) and CM is connected.		C50, J01
	(LE)	Link enable	Operation proceeds according to commands sent via RS485 communication or field bus (option) when the circuit across (LE) and CM are connected.		H30, y98
	(U-DI)	Universal DI	An arbitrary digital input signal is transmitted to the host controller.		
	(STM)	Starting characteristic selection	ON across (STM) and CM: Starting at the pick-up frequency becomes valid.		H17, H09
	(STOP)	Forcible stop	OFF across (STOP) and CM: The inverter is forcibly stopped in the special deceleration time.		H56
	(PID-RST)	PID differentiation / integration reset	ON across (PID-RST) and CM: Resets differentiation and integration values of PID.		J01 to J06
	(PID-HLD)	PID integral hold	ON across (PID-HLD) and CM: Holds integration values of PID.		J10 to J19
	(JOG)	Jogging operation	ON across (JOG) and CM: The operation node enters jogging mode and frequency setting switches to jogging frequency and acceleration and deceleration time for jogging operation.		C20 H54
	PLC	PLC terminal	Connect to PLC output signal power supply. Common for 24V power.	+24V (22 to 27V) 50mA max.	
	CM	Digital common	Common terminal for digital input signal	Isolated from terminals 11 and CMY. Two terminals are provided.	

Terminal Functions

Division	Symbol	Terminal name	Functions	Remark	Related function code
Analog output	FM (FMA)	Analog monitor	A monitor signal of analog DC voltage between 0 to +10V DC) can be output for the item selected from the following: • Output frequency 1 (before slip compensation) • Output frequency 2 (after slip compensation) • Output current • Output voltage • Output torque • Load factor. • Power consumption • PID feedback value (PV) • DC link circuit voltage • Universal AO. • Motor output • Analog output test. • PID command (SV) • PID output (MV)	Connectable impedance (Minimum impedance: 5kW In the (0 to +10V DC) In case of voltage output, up to two analog voltmeters (0 to 10V DC, input impedance: 10kW) can be connected.Gain adjustment range: 0 to 300%	F29 to F31
Pulse output	(FMP)	Pulse monitor	One of the following items can be output in a pulse frequency. • Output frequency 1 (before slip compensation) • Output frequency 2 (after slip compensation) • Output current • Output voltage • Output torque • Load factor.o Power consumption • PID feedback value (PV) • DC link circuit voltage • Universal AO • Motor output • Analog output test • PID command (SV) • PID output (MV)	Up to two analog voltmeters (0 to10V DC, input impedance: 10kΩ) can be connected. (Driven at average voltage)	F29, F31, F33
Transistor output	(PLC)	Transistor output power	Power supply for a transistor output load. (24V DC 50mA DC Max)	• Short circuit across terminals CM and CMY to use. • Same terminal as digital input PLC terminal	E20
	Y1	Transistor output 1	The following functions can be set at terminals Y1 or Y2 for signal output. • The setting of "short circuit upon active signal output" or "open upon active signal output" is possible. • Sink/source support (switching unnecessary)	Max. voltage: 27V DC Max. current: 50mA Leak current: 0.1mA max. ON voltage: within 2V (at 50mA)	E21
	Y2	Transistor output 2			E22
	(RUN)	Inverter running	An ON signal is output when the inverter runs at higher than the starting frequency.		
	(RUN2)	Inverter output on	A signal is issued when the inverter runs at smaller than the starting frequency or when DC braking is in action.		
	(FAR)	Speed/freq. arrival	An active signal is issued when the output frequency reaches the set frequency.	Detection width: 0 to 10.0 [Hz]	E30
	(FDT)	Speed/freq. detection	An ON signal is output at output frequencies above a preset detection level. The signal is deactivated if the output frequency falls below the detection level.	Operation level: 0.0 to 400.0 [Hz] Hysteresis width: 0.0 to 400.0 [Hz]	E31 E32
	(LV)	Undervoltage detection	The signal is output when the inverter stops because of undervoltage.		
	(B/D)	Torque polarity detection	The OFF signal is output when the inverter is running in drive mode and the ON signal is output in the braking mode or stopped state.		
	(IOL)	Inverter output limit (limit on current)	The signal is output when the inverter is limiting the current.		F43, F44
	(IPF)	Auto-restarting	The signal is output during auto restart operation (after momentary power failure and until completion of restart).		F14
	(OL)	Overload early warning (motor)	The signal is output when the electronic thermal relay value is higher than the preset alarm level.		F10 to F12
	(RDY)	Operation ready output	A signal is issued if preparation for inverter operation is completed.		
	(SWM2)	Motor 2 switching	The motor switching signal (M2/M1) is input and the ON signal is output when the motor 2 is selected.		
	(TRY)	Retry in action	The signal is output during an active retry.		H04, H05
	(OH)	Heat sink overheat early warning	An early warning signal is issued before the heat sink trips due to overheat.		
	(FAR2)	Frequency arrival 2	The signal is output when the time set in E29 elapses after the frequency arrival signal (FAR) is output.		E29
	(IOL2)	Inverter output limit	If more than 20ms elapse while one of the following operations is operating: current limiter for the inverter, automatic deceleration operation or torque limiter.		F41 to F44 H69
	(LIFE)	Lifetime alarm	Outputs alarm signal according to the preset lifetime level.		H42, H43, H98
	(REF OFF)	Command loss detection	A loss of the frequency command is detected.		E65
	(OLP)	Overload preventive control	The signal is output when the overload control is activated.		H70
	(ID)	Current detection	The signal is output when a current larger than the set value has been detected for the timer-set time.		E34, E35
	(ID2)	Current detection 2	The signal is output when a current larger than the set value 2 has been detected for the timer-set time.		E37, E38
	(PID-ALM)	PID alarm output	An absolute value alarm or deviation alarm under PID control is issued as a signal.		J11 to J13
	(BRKS)	Brake signal	The signal for enabling or releasing the brake is output.		J68 to J72
	(ALM)	Alarm relay output (for any fault)	An alarm relay output (for any fault) signal is issued as a transistor output signal.		
	CMY	Transistor output common	Common terminal for transistor output	The terminal is isolated from terminals 11 and CM.	
Contact output	30A,30B,30C	Alarm relay output (for any fault)	• A no-voltage contact signal (1c) is issued when the inverter is stopped due to an alarm. • Multi-purpose relay output; signals similar to above-mentioned signals Y1 to Y2 can be selected. • An alarm output is issued upon either excitation or no excitation according to selection.	Contact capacity: 250V AC,0.3A, cosϕ=0.3, +48V DC, 0.5A	E27
Communication	—	RJ-45 connector for connection of keypad	One of the following protocols can be selected. • Protocol exclusively for keypad (default selection) • Modbus RTU • Fuji's special inverter protocol • SX protocol for PC loader	Power (+5V) is supplied to the keypad.	H30 y01 to y20 y98,y99

Terminal Functions

Terminal Functions

Terminal Arrangement

●Main circuit terminals

Power source	Applied motor [kW]	Inverter type	Fig.
Three-phase 200V	0.1	FRN0.1E1□-2■	Fig. A
	0.2	FRN0.2E1□-2■	
	0.4	FRN0.4E1□-2■	
	0.75	FRN0.75E1□-2■	
	1.5	FRN1.5E1□-2■	Fig. B
	2.2	FRN2.2E1□-2■	
	3.7	FRN3.7E1□-2■	
	5.5	FRN5.5E1□-2■	Fig. C
	7.5	FRN7.5E1□-2■	
	11	FRN11E1□-2■	
	15	FRN15E1□-2■	
Three-phase 400V	0.4	FRN0.4E1□-4■	Fig. B
	0.75	FRN0.75E1□-4■	
	1.5	FRN1.5E1□-4■	
	2.2	FRN2.2E1□-4■	
	3.7	FRN3.7E1□-4■	
	5.5	FRN5.5E1□-4■	Fig. C
	7.5	FRN7.5E1□-4■	
	11	FRN11E1□-4■	
	15	FRN15E1□-4■	
Single-phase 200V	0.1	FRN0.1E1□-7■	Fig. D
	0.2	FRN0.2E1□-7■	
	0.4	FRN0.4E1□-7■	
	0.75	FRN0.75E1□-7■	
	1.5	FRN1.5E1□-7■	Fig. E
	2.2	FRN2.2E1□-7■	

Note : For the inverter type FRN0.1E1□-2■, the symbol □ and ■ is replaced with either of the following alphabets.

□ S (standard type), E (EMC filter built-in type)

■ A (Asia), K (Koria, Taiwan), C (china), J (Japan)

Fig. A

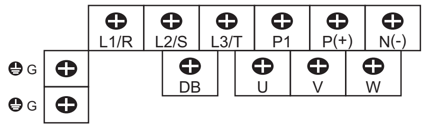


Fig. B

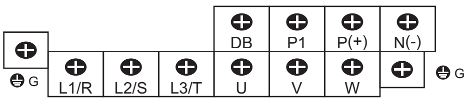


Fig. C

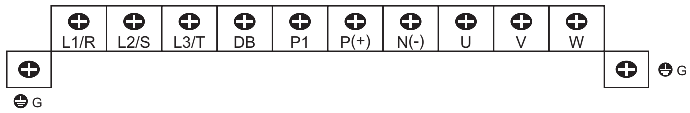


Fig. D

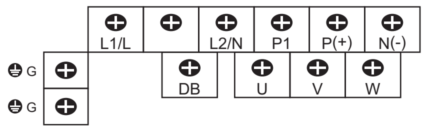
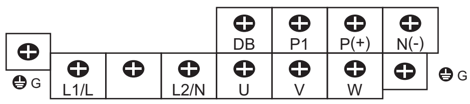


Fig. E



●Control circuit terminals (common to all the inverter models)

CMY	Y1	Y2	C1	11	FM	CM	X1	X2	X3	X4	X5	PLC

11	12	13	CM	FWD	REV

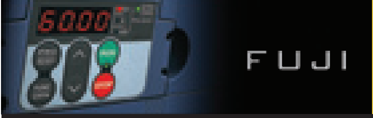
30A	30B	30C

Terminal size: M3

Protective Functions

Protective Functions	Description		LED indication	Alarm output (30A, B, C) Note)	Related function code
Overcurrent protection	The inverter is stopped for protection against overcurrent.	During acceleration	OC1	○	
Short circuit protection	The inverter is stopped for protection against overcurrent caused by a short circuit in the output circuit.	During deceleration	OC2		
Grounding fault protection	The inverter is stopped upon start-up for protection against overcurrent caused by a grounding fault in the output circuit. If the power supply is turned on with the grounding fault, the inverter and the controlled equipment may not be protected.	During constant speed operation	OC3		
Overvoltage protection	An excessive voltage (3-phase and Single-phase 200V series: 400V DC, 3-phase 400V series: 800V DC) in the DC link circuit is detected and the inverter is stopped. If an excessive voltage is applied by mistake, the protection cannot be guaranteed.	During acceleration	OU1	○	
		During deceleration	OU2		
		During constant speed operation	OU3		
Undervoltage protection	The voltage drop (3-phase 200V series: 200V DC, 3-phase 400V series: 400V DC) in the DC link circuit is detected to stop the inverter. However, when "F14: 3, 4 or 5" is selected, an alarm is not issued even upon a voltage drop in the DC link circuit.		LU	△	F14
Input phase loss protection	The input phase loss is detected to shut off the inverter output. This function protects the inverter from being damaged by adding extreme stress caused by a power phase loss or imbalance between phases. When the load to be connected is small or DC REACTOR is connected a phase loss is not detected.		Lin	○	H98
Output phase loss protection	Detects breaks in inverter output wiring at the start of operation and during running, to shut off the inverter output.		OPL	○	H98
Overheating protection	Stops the inverter output upon detecting excess heat sink temperature in case of cooling fan failure or overload.		OH1	○	H43, H98
	Discharging and inverter operation are stopped due to overheating of an external braking resistor. * Function codes must be set corresponding to the braking resistor.		dbH	○	
Overload protection	The temperature inside the IGBT is calculated from the detection of output current and internal temperature, to shut off the inverter output.		OLU	○	
External alarm input	With the digital input signal (THR) opened, the inverter is stopped with an alarm.		OH2	○	E01 to E05 E98, E99
Motor protection: Electronic thermal	The inverter is stopped with an electronic thermal function set to protect the motor. • The standard motor is protected at all the frequencies. • The inverter motor is protected at all the frequencies. *The operation level and thermal time constant can be set.		OL1 OL2	○	F10,A06 F11,F12,A07,A08
Motor protection: PTC thermistor	A PTC thermistor input stops the inverter to protect the motor. • The PTC thermistor is connected between terminals C1 and 11 to set switches and function codes on the control PC board.		OH4	○	H26,H27
Motor protection: Overload early warning	Warning signal is output at the predetermined level before stopping the inverter with the electronic thermal function to protect the motor.		—	—	E34,E35
Stall prevention	This is protected when the instantaneous overcurrent limit works. • Instantaneous overcurrent limit: Operates when the inverter output current goes beyond the instantaneous overcurrent limiting level, and avoids tripping (during acceleration and constant speed operation).		—	—	H12
Alarm relay output (for any fault)	The relay signal is output when the inverter stops upon an alarm. <Alarm reset> The PRG/RESET key or digital input signal (RST) is used to reset the alarm stop state. <Storage of alarm history and detailed data> Up to the last 4 alarms can be stored and displayed.		—	○	E20,E21,E27 E01 to E05 E98,E99
Memory error	Data is checked upon power-on and data writing to detect any fault in the memory and to stop the inverter if any.		Er1	○	
Keypad communication error	The keypad (standard) or multi-function keypad (optional) is used to detect a communication fault between the keypad and inverter main body during operation and to stop the inverter.		Er2	○	F02
CPU error	Detects a CPU error or LSI error caused by noise.		Er3	○	
Option communication error	When each option card is used, a fault of communication with the inverter main body is detected to stop the inverter.		Er4	—	
Option error	When each option card is used, the option card detects a fault to stop the inverter.		Er5	—	
Operation error	STOP key priority:	Pressing the STOP key on the keypad or entering the digital input signal will forcibly decelerate and stop the motor even if the operation command through signal input or communication is selected.	Er6	○	H96
	Start check:	Start check: If the operation command is entered in the following cases, Er6 will be displayed on the LED monitor to prohibit operation. • Power-on • Alarm reset (PRG/RESET key ON or alarm (error) reset [RST] is reset.) • The link operation selection "LE" is used to switch operation.			
Tuning error	When tuning failure, interruption, or any fault as a result of turning is detected while tuning for motor constant.		Er7	○	P04
RS-485 communication error	When the connection port of the keypad connected via RS485 communication port to detect a communication error, the inverter is stopped and displays an error.		Er8	○	
Data save error upon Undervoltage	When the undervoltage protection works, an error is displayed if data cannot be stored.		ErF	○	
RS-485 communication error (optional)	When an optional RS-485 communication card is used to configure the network, a fault of communication with the inverter main body is detected to stop the inverter.		ErP	○	
Retry	When the inverter is tripped and stopped, this function automatically resets the tripping state and restarts operation. (The number of retries and the length of wait before resetting can be set.)		—	—	H04,H05
Surge protection	The inverter is protected against surge voltage intruding between the main circuit power line and ground.		—	—	
Command loss detection	A loss (broken wire, etc.) of the frequency command is detected to output an alarm and continue operation at the preset frequency (set at a ratio to the frequency before detection).		—	—	E65
PG disconnection	An error displays when the signal line for PG is disconnected while the PG feedback card is installed.		PG	○	
Momentary power failure protection	• A protective function (inverter stoppage) is activated upon a momentary power failure for 15msec or longer. • If restart upon momentary power failure is selected, the inverter restarts upon recovery of the voltage within the set time.		—	—	F14 H13 to H16
Overload avoidance control	The inverter output frequency is reduced to avoid tripping before heat sink overheating or tripping due to an overload (alarm indication: OH1 or OLU.		—	—	H70
Hardware error	The inverter is stopped when poor connection between the control board and power source board or interface board, or short-circuit between terminals between 13 and 11 is detected.		ErH	○	
Simulation error	Simulated alarm is output to check the fault sequence.		Err	○	H45

Note: The item indicated with △ in the alarm output (30A, B, C) column may not be issued according to some function code settings.



Function Settings

Function Settings

●F codes: Fundamental Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
F00	Data Protection	0: Disable both data protection and digital reference protection 1: Enable data protection and disable digital reference protection 2: Disable data protection and enable digital reference protection 3: Enable both data protection and digital reference protection	—	—	Y	0
F01	Frequency Command 1	0 : ⊙/⊙keys on keypad 1: Voltage input to terminal [12] (-10 to +10 VDC) 2: Current input to terminal [C1] (C1 function) (4 to 20 mA DC) 3: Sum of voltage and current inputs to terminals [12] and [C1] (C1 function) 5: Voltage input to terminal [C1] (V2 function) (0 to 10 VDC) 7: Terminal command UP /DOWN control 11: Digital input (option) 12: Pulse input (option)	—	—	Y	0
F02	Operation Method	0: RUN/STOP keys on keypad (Motor rotational direction specified by terminal command FWD/REV) 1: Terminal command FWD or REV 2: RUN/STOP keys on keypad (forward) 3: RUN/STOP keys on keypad (reverse)	—	—	Y	2
F03	Maximum Frequency 1	25.0 to 400.0	0.1	Hz	Y	60.0
F04	Base Frequency 1	25.0 to 400.0	0.1	Hz	Y	60.0
F05	Rated Voltage at Base Frequency 1	0: Output a voltage in proportion to input voltage 80 to 240: Output an AVR-controlled voltage (for 200 V class series) 160 to 500: Output an AVR-controlled voltage (for 400 V class series)	1	V	Y2	220
F06	Maximum Output Voltage 1	80 to 240: Output an AVR-controlled voltage (for 200 V class series) 160 to 500: Output an AVR-controlled voltage (for 400 V class series)	1	V	Y2	380
F07	Acceleration Time 1	0.00 to 3600 Note: Entering 0.00 cancels the acceleration time, requiring external soft-start.	0.01	s	Y	6.00
F08	Deceleration Time 1	0.00 to 3600 Note: Entering 0.00 cancels the deceleration time, requiring external soft-start.	0.01	s	Y	6.00
F09	Torque Boost 1	0.0 to 20.0 (percentage with respect to "F05: Rated Voltage at Base Frequency 1") Note: This setting takes effect when F37 = 0, 1, 3, or 4.	0.1	%	Y	Depending on the inverter capacity
F 10	Electronic Thermal Overload Protection for Motor 1 (Select motor characteristics)	1: For a general-purpose motor with shaft-driven cooling fan 2: For an inverter-driven motor, non-ventilated motor, or motor with separately powered cooling fan	—	—	Y	1
F 11	(Overload detection level)	0.00: Disable1 to 135% of the rated current (allowable continuous drive current) of the motor	0.01	A	Y1Y2	100% of the motor rated current
F 12	(Thermal time constant)	0.5 to 75.0	0.1	min	Y	5.0
F 14	Restart Mode after Momentary Power Failure (Mode selection)	0: Disable restart (Trip immediately) 1: Disable restart (Trip after a recovery from power failure) 4: Enable restart (Restart at the frequency at which the power failure occurred, for general loads) 5: Enable restart (Restart at the starting frequency, for low-inertia load)	—	—	Y	1
F 15	Frequency Limiter (High)	0.0 to 400.0	0.1	Hz	Y	70.0
F 16	(Low)	0.0 to 400.0	0.1	Hz	Y	0.0
F 18	Bias (Frequency command 1)	-100.00 to 100.00 *1	0.01	%	Y	0.00
F20	DC Braking 1 (Braking starting frequency)	0.0 to 60.0	0.1	Hz	Y	0.0
F21	(Braking level)	0 to 100	1	%	Y	0
F22	(Braking time)	0.00 : Disable 0.01 to 30.00	0.01	s	Y	0.00
F23	Starting Frequency 1	0.1 to 60.0	0.1	Hz	Y	0.5
F24	(Holding time)	0.01 to 10.00	0.01	s	Y	0.00
F25	Stop Frequency	0.1 to 60.0	0.1	Hz	Y	0.2
F26	Motor Sound (Carrier frequency)	0.75 to 15	1	kHz	Y	2
F27	(Tone)	0 : Level 0 (Inactive) 1 : Level 1 2 : Level 2 3 : Level 3	—	—	Y	0
F29	Analog Output [FM] (Mode selection)	0 : Output in voltage (0 to 10 VDC) [FMA] 2 : Output in pulse (0 to 6000p/s) [FMP]	—	—	Y	0
F30	(Voltage adjustment)	0 to 300 [FMA]	1	%	Y	100
F31	(Function)	Select a function to be monitored from the followings. 0: Output frequency 1 (before slip compensation) 1: Output frequency 2 (after slip compensation) 2: Output current 3: Output voltage 4: Output torque 5: Load factor 6: Input power 7: PID feedback amount (PV) 8: PG feedback value 9: DC link bus voltage 10: Universal AO 13: Motor output 14: Calibration 15: PID command (SV) 16: PID output (MV)	—	—	Y	0
F33	(Pulse rate)	25 to 6000 (FMP, Pulse rate at 100% output)	1	p/s	Y	1440
F37	Load Selection/ Auto Torque Boost / Auto Energy Saving Operation 1	0: Variable torque load 1: Constant torque load 2: Auto-torque boost 3: Auto-energy saving operation (Variable torque load during ACC/DEC) 4: Auto-energy saving operation (Constant torque load during ACC/DEC) 5: Auto-energy saving operation (Auto-torque boost during ACC/DEC)	—	—	Y	1
F39	Stop Frequency (Holding Time)	0.00 to 10.00	0.01	s	Y	0.00
F40	Torque Limiter 1 (Limiting Level for driving)	20 to 200 999 : Disable	1	%	Y	999
F41	(Limiting Level for braking)	20 to 200 999 : Disable	1	%	Y	999
F42	Control Mode Selection 1	0: V/f control with slip compensation inactive 1: Dynamic torque vector control 2: V/f control with slip compensation active 3: V/f control with PG 4: Dynamic torque vector control with PG	—	—	Y	0

●F codes: Fundamental Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
F43	Current Limiter (Mode selection)	0: Disable (No current limiter works.) 1: Enable at constant speed (Disable during ACC/DEC) 2: Enable during ACC/constant speed operation	—	—	Y	2
F44	(Level)	20 to 200 (The data is interpreted as the rated output current of the inverter for 100%.)	1	%	Y	180
F50	Electronic Thermal Overload Protection (Discharging capability)	1 to 900 999: Disable 0: Reserved	1	kWs	Y	999
F51	for braking resistor (Allowable average loss)	0.001 to 50.000 0.000: Reserved	0.001	kW	Y	0.000

●E codes: Extension Terminal Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
E01	Terminal X1 function	Selecting function code data assigns the corresponding function to terminals [X1] to [X5] as listed below.	—	—	Y	0
E02	Terminal X2 function	0 (1000) : Select multi-frequency [SS1]	—	—	Y	1
E03	Terminal X3 function	1 (1001) : Select multi-frequency [SS2]	—	—	Y	2
E04	Terminal X4 function	2 (1002) : Select multi-frequency [SS4]	—	—	Y	7
E05	Terminal X5 function	3 (1003) : Select multi-frequency [SS8]	—	—	Y	8
		4 (1004) : Select ACC/DEC time [RT1]				
		6 (1006) : Enable 3-wire operation [HLD]				
		7 (1007) : Coast to a stop [BX]				
		8 (1008) : Reset alarm [RST]				
		9 (1009) : Enable external alarm trip [THR]				
		10 (1010) : Ready for jogging [JOG]				
		11 (1011) : Select frequency command 2/1 [Hz2/Hz1]				
		12 (1012) : Select motor 2/motor 1 [M2/M1]				
		13 : Enable DC braking [DCBRK]				
		14 (1014) : Select torque limiter level [TL2/TL1]				
		17 (1017) : UP (Increase output frequency) [UP]				
		18 (1018) : DOWN (Decrease output frequency) [DOWN]				
		19 (1019) : Enable data change with keypad [WE-KP]				
		20 (1020) : Cancel PID control [Hz/PID]				
		21 (1021) : Switch normal/inverse operation [IVS]				
		24 (1024) : Enable communications link via RS-485 or field bus [LE]				
		25 (1025) : Universal DI [U-DI]				
		26 (1026) : Enable auto search for idling motor speed at starting [STM]				
		27 (1027) : Speed feedback control switch [PG/Hz]				
		30 (1030) : Force to stop [STOP]				
		33 (1033) : Reset PID integral and differential components [PID-RST]				
		34 (1034) : Hold PID integral component [PID-HLD]				
		42 (1042) : Position control limit switch [LS]				
		43 (1043) : Position control start/reset command [S/R]				
		44 (1044) : Serial pulse Receive mode [SPRM]				
		45 (1045) : Position Control return mode [RTN]				
		46 (1046) : Overload stopping effective command [OLS]				
		Setting the value of 1000s in parentheses ( ) shown above assigns a negative logic input to a terminal. Note: In the case of THR and STOP , data (1009) and (1030) are for normal logic, and "9" and "30" are for negative logic, respectively.				
E10	Acceleration Time 2	0.00 to 3600 Note: Entering 0.00 cancels the acceleration time, requiring external soft-start.	0.01	s	Y	10.0
E11	Deceleration Time 2	0.00 to 3600 Note: Entering 0.00 cancels the acceleration time, requiring external soft-start.	0.01	s	Y	10.0
E16	Torque (Limiting Level for driving)	20 to 200 999 : Disable	1	%	Y	999
E17	Limiter 2 (Limiting Level for braking)	20 to 200 999 : Disable	1	%	Y	999
E20	Terminal [Y1] Function	Selecting function code data assigns the corresponding function to terminals [Y1], [Y2], and [30A/B/C] as listed below.	—	—	Y	0
E21	Terminal [Y2] Function	0 (1000) : Inverter running [RUN]	—	—	Y	7
E27	Terminal [30A/B/C] Function	1 (1001) : Frequency arrival signal [FAR]	—	—	Y	99
		2 (1002) : Frequency detected [FDT]				
		3 (1003) : Undervoltage detected (Inverter stopped) [LU]				
		4 (1004) : Torque polarity detected [B/D]				
		5 (1005) : Inverter output limiting [IOL]				
		6 (1006) : Auto-restarting after momentary power failure [IPF]				
		7 (1007) : Motor overload early warning [OL]				
		10 (1010) : Inverter ready to run [RDY]				
		21 (1021) : Frequency arrival signal 2 [FAR2]				
		22 (1022) : Inverter output limiting with delay [IOL2]				
		26 (1026) : Auto-resetting [TRY]				
		28 (1028) : Heat sink overheat early warning [OH]				
		30 (1030) : Service lifetime alarm [LIFE]				
		33 (1033) : Reference loss detected [REF OFF]				
		35 (1035) : Inverter output on [RUN2]				
		36 (1036) : Overload prevention control [OLP]				
		37 (1037) : Current detected [ID]				
		38 (1038) : Current detected 2 [ID2]				
		42 (1042) : PID alarm [PID-ALM]				
		49 (1049) : Switched to motor 2 [SWM2]				
		57 (1057) : Brake signal [BRKS]				
		76 (1076) : PG error signal [PG-ERR]				
		80 (1080) : Over traveling [OT]				
		81 (1081) : Time up of the start timer or the end timer [TO]				
		82 (1082) : Completion of positioning [PSET]				
		83 (1083) : Current position pulse overflow [POF]				
		99 (1099) : Alarm output (for any alarm) [ALM]				
		Setting the value of 1000s in parentheses ( ) shown above assigns a negative logic input to a terminal.				

*1 When you make settings from the keypad, the incremental unit is restricted by the number of digits that the LED monitor can display.
(Example) If the setting range is from -200.00 to 200.00, the incremental unit is as follows: "1" for -200 to -100, "0.1" for -99.9 to -10.0, "0.01" for -9.99 to -0.01, "0.01" for 0.00 to 99.99, and "0.1" for 100.0 to 200.0

*2 Symbols in the "Data copy" column
Y: Will be copied unconditionally.
Y1: Will not be copied if the rated capacity differs from the source inverter.
Y2: Will not be copied if the rated input voltage differs from the source inverter.
N: Will not be copied.

*3 Reserved for the maker. Do not set any data.

<Changing, validating, and saving function code data when the motor is running>
: Impossible, : Possible (Change data with keys and then save/validate it with key), : Possible (Change and validate data with keys and then save it with key)

Function Settings

Functions Settings

●E codes: Extension Terminal Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
E29	Frequency Arrival Delay Time	0.01 to 10.00	0.01	s	Y	0.10
E30	Frequency Arrival (hysteresis width)	0.0 to 10.0	0.1	Hz	Y	2.5
E31	Frequency Detection (FDT) (Detection level)	0.0 to 400.0	0.1	Hz	Y	60.0
E32	(hysteresis width)	0.0 to 400.0	0.1	Hz	Y	1.0
E34	Overload Early Warning /Current Detection (Level)	0.00 : Disable Current value of 1 to 200% of the inverter rated current	0.01	A	Y1Y2	100% of the motor rated current
E35	(Timer)	0.01 to 600.00 *1	0.01	s	Y	10.00
E37	Current detection 2 (Level)	0.00 : Disable Current value of 1 to 200% of the inverter rated current	0.01	A	Y1Y2	100% of the motor rated current
E38	(Timer)	0.01 to 600.00 *1	0.01	s	Y	10.00
E39	Coefficient for Constant Feeding Rate Time	0.000 to 9.999	0.001	—	Y	0.000
E40	PID Display Coefficient A	-999 to 0.00 to 9990 *1	0.01	—	Y	100
E41	B	-999 to 0.00 to 9990 *1	0.01	—	Y	0.00
E42	LED Display filter	0.0 to 5.0	0.1	s	Y	0.5
E43	LED Monitor (Item selection)	0: Speed monitor (select by E48) 3: Output current 4: Output voltage 8: Calculated torque 9: Input power 10: PID command 12: PID feedback amount 13: Timer 14: PID output 15: Load factor 16: Motor output 21: Present pulse position 22: Deviation of pulse position	—	—	Y	0
E45	LCD Monitor *4 (Item selection)	0: Running status, rotational direction and operation guide 1: Bar charts for output frequency, current and calculated torque	—	—	Y	0
E46	(Language selection)	0 : Japanese 1 : English 2 : German 3 : French 4 : Spanish 5 : Italian	—	—	Y	1
E47	(Contrast control)	0 (Low) to 10 (High)	1	—	Y	5
E48	LED Monitor (Speed monitor item)	0: Output frequency (Before slip compensation) 1: Output frequency (After slip compensation) 2: Reference frequency 3: Motor speed in r/min 4: Load shaft speed in r/min 5: Line speed in m/min 6: Constant feeding rate time	—	—	Y	0
E50	Coefficient for Speed Indication	0.01 to 200.00 *1	0.01	—	Y	30.00
E51	Display Coefficient for Input Watt-hour Data	0.000 (Cancel/reset) 0.001 to 9999	0.001	—	Y	0.010
E52	Keypad (Menu display mode)	0: Function code data editing mode (Menus #0 and #1) 1: Function code data check mode (Menu #2) 2: Full-menu mode (Menus #0 through #6)	—	—	Y	0
E59	Terminal [C1] Signal Definition (C1/V2 Function)	0: Current input (C1 function), 4 to 20 mADC 1: Voltage input (V2 function), 0 to +10 VDC	—	—	Y	0
E61	Terminal [12] Extended Function	Selecting function code data assigns the corresponding function to terminals [12] and [C1] (C1/V2 function) as listed below. 0: None 1: Auxiliary frequency command 1 2: Auxiliary frequency command 2 3: PID command 1 5: PID feedback amount	—	—	Y	0
E62	Terminal [C1] Extended Function (C1 function)		—	—	Y	0
E63	Terminal [C1] Extended Function (V2 function)		—	—	Y	0
E65	Reference Loss Detection (Continuous running frequency)	0: Decelerate to stop 20 to 120 999: Disable	1	%	Y	999
E98	Terminal [FWD] Function	Selecting function code data assigns the corresponding function to terminals [FWD] and [REV] as listed below. 0 (1000) : Select multi-frequency [SS1] 1 (1001) : Select multi-frequency [SS2] 2 (1002) : Select multi-frequency [SS4] 3 (1003) : Select multi-frequency [SS8] 4 (1004) : Select ACC/DEC time [RT1] 6 (1006) : Enable 3-wire operation [HLD] 7 (1007) : Coast to a stop [BX] 8 (1008) : Reset alarm [RST] 9 (1009) : Enable external alarm trip [THR] 10 (1010) : Ready for jogging [JOG] 11 (1011) : Select frequency command 2/1 [Hz2/Hz1] 12 (1012) : Select motor 2/motor 1 [M2/M1] 13 : Enable DC braking [DCBRK] 14 (1014) : Select torque limiter level [TL2/TL1] 17 (1017) : UP (Increase output frequency) [UP] 18 (1018) : DOWN (Decrease output frequency) [DOWN] 19 (1019) : Enable data change with keypad [WE-KP] 20 (1020) : Cancel PID control [Hz/PID] 21 (1021) : Switch normal/inverse operation [IVS] 24 (1024) : Enable communications link via RS-485 or field bus [LE] 25 (1025) : Universal DI [U-DI] 26 (1026) : Enable auto search for idling motor speed at starting [STM] 27 (1027) : Speed feedback control switch [PG/Hz] 30 (1030) : Force to stop [STOP] 33 (1033) : Reset PID integral and differential components [PID-RST] 34 (1034) : Hold PID integral component [PID-HLD]	—	—	Y	98
E99	Terminal [REV] Function		—	—	Y	99

●E codes: Extension Terminal Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
		42 (1042) : Position control limit switch [LS] 43 (1043) : Position control start/reset command [S/R] 44 (1044) : Serial pulse Receive mode [SPRM] 45 (1045) : Position Control return mode [RTN] 46 (1046) : Overload stopping effective command [OLS] 98 : Run forward [FWD] 99 : Run reverse [REV] Setting the value of 1000s in parentheses ( ) shown above assigns a negative logic input to a terminal. Note: In the case of THR and STOP , data (1009) and (1030) are for normal logic, and "9" and "30" are for negative logic, respectively.				

●C codes: Control Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
C01	Jump Frequency 1	0.0 to 400.0	0.1	Hz	Y	0.00
C02	2				Y	0.00
C03	3				Y	0.00
C04	(Hysteresis width)	0.0 to 30.0	0.1	Hz	Y	3.0
C05	Multi-Frequency 1	0.00 to 400.00	0.01	Hz	Y	0.00
C06	2				Y	0.00
C07	3				Y	0.00
C08	4				Y	0.00
C09	5				Y	0.00
C10	6				Y	0.00
C11	7				Y	0.00
C12	8				Y	0.00
C13	9				Y	0.00
C14	10				Y	0.00
C15	11				Y	0.00
C16	12				Y	0.00
C17	13				Y	0.00
C18	14				Y	0.00
C19	15				Y	0.00
C20	Jogging Frequency	0.00 to 400.00	0.01	Hz	Y	0.00
C21	Timer Operation	0 : Disable 1 : Enable	-	-	Y	0
C30	Frequency Command 2	0 : ∧ / ∨ keys on keypad 1: Voltage input to terminal [12] (-10 to +10 VDC) 2: Current input to terminal [C1] (C1 function) (4 to 20 mA DC) 3: Sum of voltage and current inputs to terminals [12] and [C1] (C1 function) 5: Voltage input to terminal [C1] (V2 function) (0 to 10 VDC) 7: Terminal command UP / DOWN control 11: Didital input (option) 12: Pulse input (option)	-	-	Y	2
C31	Analog Input Adjustment (offset)	-5.0 to 5.0	0.1	%	Y	0.0
C32	for [12] (Gain)	0.00 to 200.00 *1	0.01	%	Y	100.0
C33	(Filter time constant)	0.00 to 5.00	0.01	s	Y	0.05
C34	(Gain base point)	0.00 to 100.00 *1	0.01	%	Y	100.0
C35	(Polarity)	0 : Bipolar 1 : Unipolar	-	-	Y	1
C36	Analog Input Adjustment (offset)	-5.0 to 5.0	0.1	%	Y	0.0
C37	for [C1] (C1 function) (Gain)	0.00 to 200.00 *1	0.01	%	Y	100.0
C38	(Filter time constant)	0.00 to 5.00	0.01	s	Y	0.05
C39	(Gain base point)	0.00 to 100.00 *1	0.01	%	Y	100.0
C41	Analog Input Adjustment (offset)	-5.0 to 5.0	0.1	%	Y	0.0
C42	for [C1] (V2 function) (Gain)	0.00 to 200.00 *1	0.01	%	Y	100.0
C43	(Filter time constant)	0.00 to 5.00	0.01	s	Y	0.05
C44	(Gain base point)	0.00 to 100.00 *1	0.01	%	Y	100.0
C50	Bias (Frequency command 1) (Bias base point)	0.00 to 100.00 *1	0.01	%	Y	0.00
C51	Bias (PID command 1) (Bias value)	-100.00 to 100.00 *1	0.01	%	Y	0.00
C52	(Bias base point)	0.00 to 100.00 *1	0.01	%	Y	0.00
C53	Selection of Normal/Inverse Operation (Frequency command 1)	0 : Normal operation 1 : Inverse operation	-	-	Y	0

*1 When you make settings from the keypad, the incremental unit is restricted by the number of digits that the LED monitor can display.
(Example) If the setting range is from -200.00 to 200.00, the incremental unit is as follows:
"1" for -200 to -100, "0.1" for -99.9 to -10.0, "0.01" for -9.99 to -0.01, "0.01" for 0.00 to 99.99, and "0.1" for 100.0 to 200.0

*2 Symbols in the "Data copy" column
Y: Will be copied unconditionally.
Y1: Will not be copied if the rated capacity differs from the source inverter.
Y2: Will not be copied if the rated input voltage differs from the source inverter.
N: Will not be copied.

*3 Reserved for the maker. Do not set any data.

*4 Use these functions by connection with the multi-tasking keypad (optional).

<Changing, validating, and saving function code data when the motor is running>
: Impossible, : Possible (Change data with ∧ ∨ keys and then save/validate it with key), : Possible (Change and validate data with ∧ ∨ keys and then save it with key)

Functions Settings

Functions Settings

●P codes: Motor Parameters

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
P01	Motor 1 (No. of poles)	2 to 22	2	Pole	Y1Y2	4
P02	(Rated capacity)	0.01 to 30.00 (where, P99 data is 0, 3, or 4.)	0.01	kW	Y1Y2	Rated capacity of motor
		0.01 to 30.00 (where, P99 data is 1.)	0.01	HP		
P03	(Rated current)	0.00 to 100.0	0.01	A	Y1Y2	Rated value of Fuji standard motor
P04	(Auto-tuning)	0: Disable 1: Enable (Tune %R1 and %X while the motor is stopped.) 2: Enable (Tune %R1, %X and rated slip while the motor is stopped, and no-load current while running.)	—	—	N	0
P05	(Online tuning)	0 : Disable 1 : Enable	—	—	Y	0
P06	(No-load current)	0.00 to 50.00	0.01	A	Y1Y2	Rated value of Fuji standard motor
P07	(%R1)	0.00 to 50.00	0.01	%	Y1Y2	Rated value of Fuji standard motor
P08	(%X)	0.00 to 50.00	0.01	%	Y1Y2	Rated value of Fuji standard motor
P09	(Slip compensation gain for driving)	0.0 to 200.0	0.01	%	Y	100.0
P10	(Slip compensation response time)	0.00 to 10.00	0.01	s	Y1Y2	0.50
P11	(Slip compensation gain for braking)	0.0 to 200.0	0.01	%	Y	100.0
P12	(Rated slip frequency)	0.00 to 15.00	0.01	Hz	Y1Y2	Rated value of Fuji standard motor
P99	Motor 1 Selection	0: Motor characteristics 0 (Fuji standard motors, 8-series) 1: Motor characteristics 1 (HP rating motors) 3: Motor characteristics 3 (Fuji standard motors, 6-series) 4: Other motors	—	—	Y1Y2	0

●H codes: High Performance Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
H03	Data Initialization	0: Disable initialization 1: Initialize all function code data to the factory defaults 2: Initialize motor 1 parameters 3: Initialize motor 2 parameters	—	—	N	0
H04	Auto-reset (Times)	0: Disable 1 to 10	1	Times	Y	0
H05	(Reset interval)	0.5 to 20.0	0.1	s	Y	5.0
H06	Cooling Fan ON/OFF Control	0: Disable (Always in operation) 1: Enable (ON/OFF controllable)	—	—	Y	0
H07	Acceleration/Deceleration Pattern	0: Linear 1: S-curve (Weak) 2: S-curve (Strong) 3: Curvilinear	—	—	Y	0
H08	Limiting the direction of the motor rotation	0: Disable 1: Enable (Reverse rotation inhibited) 2: Enable (Forward rotation inhibited)	—	—	Y	0
H09	Starting Mode (Auto search)	0: Disable 1: Enable (At restart after momentary power failure) 2: Enable (At restart after momentary power failure and at normal start)	—	—	Y	0
H11	Deceleration Mode	0: Normal deceleration 1: Coast-to-stop	—	—	Y	0
H12	Instantaneous Overcurrent Limiting (Mode selection)	0 : Disable 1 : Enable	—	—	Y	1
H13	Restart Mode after Momentary Power Failure (Restart time)	0.1 to 10.0	0.1	s	Y1Y2	Depending on the inverter capacity
H14	(Frequency fall rate)	0.00 : FSelected deceleration time 0.01 to 100.00 999: Follow the current limit command	0.01	Hz/s	Y	999
H16	(Allowable momentary power failure time)	0.0 to 30.0 999 : Automatically determined by inverter	0.1	s	Y	999
H26	Thermistor (Mode selection)	0: Disable 1: Enable (With PTC, the inverter immediately trips with OH4 displayed.)0.00 to 5.00V 2: Enable (With PTC, the inverter issues output signal THM and continues to run.	—	—	Y	0
H27	(Level)	0.00 to 5.00	0.01	V	Y	1.60
H28	Droop control	-60.0 to 0.0	0.1	Hz	Y	0.0
H30	Communications Link Function (Mode selection)	Frequency command Run command 0: F01/C30 F02 1: RS-485 F02 2: F01/C30 RS-485 3: RS-485 RS-485 4: RS-485 (option) F02 5: RS-485 (option) RS-485 6: F01/C30 RS-485 (option) 7: RS-485 RS-485 (option) 8: RS-485 (option) RS-485 (option)	—	—	Y	0
H42	Capacitance of DC Link Bus Capacitor	Indication for replacing DC link bus capacitor (0000 to FFFF: Hexadecimal)	1	—	N	—
H43	Cumulative Run Time of Cooling Fan	Indication of cumulative run time of cooling fan for replacement	—	—	N	—
H44	Startup Times of Motor 1	Indication of cumulative startup times	—	—	N	—
H45	Mock Alarm	0: Disable 1: Enable (Once a mock alarm occurs, the data automatically returns to 0.)	—	—	N	0
H47	Initial Capacitance of DC Link Bus Capacitor	Indication for replacing DC link bus capacitor (0000 to FFFF: Hexadecimal)	—	—	N	Set at factory shipping
H48	Cumulative Run Time of Capacitors on Printed Circuit Boards	Indication for replacing capacitors on printed circuit boards (0000 to FFFF: Hexadecimal). Resettable.	—	—	N	—
H49	Starting Mode (Delay time)	0.0 to 10.0	0.1	s	Y	0.0
H50	Non-linear V/f Pattern,1 (Frequency)	0.0 : Cancel 0.1 to 400.0	0.1	Hz	Y	0.0
H51	(Voltage)	0 to 240 : Output an AVR-controlled voltage (for 200 V class series) 0 to 500 : Output an AVR-controlled voltage (for 400 V class series)	1	V	Y2	0
H52	Non-linear V/f Pattern,2 (Frequency)	0.0 : Cancel 0.1 to 400.0	0.1	Hz	Y	0.0
H53	(Voltage)	0 to 240: Output an AVR-controlled voltage (for 200 V class series) 0 to 500: Output an AVR-controlled voltage (for 400 V class series)	1	V	Y2	0
H54	ACC/DEC time (Jogging operation)	0.00 to 3600 *ACC time and DEC time are common.	0.01	s	Y	6.00
H56	Deceleration Time for Forced Stop	0.00 to 3600	0.01	s	Y	6.00

●H codes: High Performance Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
H61	UP/DOWN Control (Initial frequency setting)	0 : 0.00 1 : Last UP /DOWN command value on releasing run command	—	—	Y	1
H63	Low Limiter (Mode selection)	0 : Limit by F16 (Frequency limiter: Low) and continue to run 1 : If the output frequency lowers less than the one limited by F16 (Frequency limiter: Low), decelerate to stop the motor.	—	—	Y	0
H64	(Lower limiting frequency)	0.0 (Depends on F16 (Frequency limiter: Low)) 0.1 to 60.0	0.1	Hz	Y	1.6
H68	Slip Compensation 1 (Operating conditions)	0 : Enable during ACC/DEC and enable at base frequency or above 1 : Disable during ACC/DEC and enable at base frequency or above 2 : Enable during ACC/DEC and disable at base frequency or above 3 : Disable during ACC/DEC and disable at base frequency or above	—	—	Y	0
H69	Automatic Deceleration (Mode selection)	0 : Disable 2 : Enable (Canceled if actual deceleration time exceeds three times the one specified by F08/E11.) 4 : Enable (Not canceled if actual deceleration time exceeds three times the one specified by F08/E11.)	—	—	Y	0
H70	Overload Prevention Control	0.00 : Follow deceleration time specified by F08/E11 0.01 to 100.0 999: Disable	0.01	Hz/s	Y	999
H71	Deceleration Characteristics	0 : Disable 1 : Enable	—	—	Y	0
H76	Torque Limiter (Frequency increment limit for braking)	0.0 to 400.0	0.1	Hz	Y	5.0
H80	Output Current Fluctuation Damping Gain for Motor 1	0.00 to 0.40	0.01	—	Y	0.20
H89 ~ H90	Reserved. *3					
H91	C1 Disconnection Detection Time (PID control feedback line)	0.0: Disable 0.1 to 60.0: Detection time	—	s	Y	0.0
H94	Cumulative Motor Run Time 1	Change or reset the cumulative data	—	—	N	—
H95	DC Braking (Braking response mode)	0 : Slow 1 : Quick	—	—	Y	1
H96	STOP Key Priority/ Start Check Function	Item \ Data: 0 / 1 / 2 / 3 STOP key priority: Disable / Enable / Disable / Enable Start check function: Disable / Disable / Enable / Enable	—	—	Y	0
H97	Clear Alarm Data	Setting H97 data to "1" clears alarm data and then returns to zero.	—	—	N	0
H98	Protection/Maintenance Function (Mode selection)	0 to 31: Display data on the keypad's LED monitor in decimal format (In each bit, "0" for disabled, "1" for enabled.) Bit 0 : Lower the carrier frequency automatically Bit 1 : Detect input phase loss Bit 2 : Detect output phase loss Bit 3 : Select life judgment threshold of DC link bus capacitor Bit 4 : Judge the life of DC link bus capacitor	—	—	Y	19 (bit 4,1,0=1)

●A codes: Motor 2 Parameters

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
A01	Maximum Frequency 2	25.0 to 400.0	0.1	Hz	Y	60.0
A02	Base Frequency 2	25.0 to 400.0	0.1	Hz	Y	60.0
A03	Rated Voltage at Base Frequency 2	0: Output a voltage in proportion to input voltage 80 to 240: Output an AVR-controlled voltage (for 200 V class series) 160 to 500: Output an AVR-controlled voltage (for 400 V class series)	1	V	Y2	220
A04	Maximum output Voltage 2	80 to 240V: Output an AVR-controlled voltage (for 200 V class series) 160 to 500V: Output an AVR-controlled voltage (for 400 V class series)	1	V	Y2	380
A05	Torque Boost 2	0.0 to 20.0(percentage with respect to "A03: Rated Voltage at Base Frequency 2") Note: This setting takes effect when A13 = 0, 1, 3, or 4.	0.1	%	Y	Depending on the inverter capacity
A06	Electronic Thermal Overload Protection for Motor 2 (Select motor characteristics)	1 : For a general-purpose motor with shaft-driven cooling fan 2 : For an inverter-driven motor, non-ventilated motor, or motor with separately powered cooling fan	—	—	Y	1
A07	(Overload detection level)	0.00 : Disable 1 to 135% of the rated current (allowable continuous drive current) of the motor	0.01	A	Y1Y2	100% of the motor rated current
A08	(Thermal time constant)	0.5 to 75.0	0.1	min	Y	5.0
A09	DC Braking 2 (Braking starting frequency)	0.0 to 60.0 Hz	0.1	Hz	Y	0.0
A10	(Braking level)	0 to 100	1	%	Y	0
A11	(Braking time)	0.00 : Disable 0.01 to 30.00	0.01	s	Y	0.00
A12	Starting Frequency 2	0.1 to 60.0	0.1	Hz	Y	0.5
A13	Load Selection/ Auto Torque Boost / Auto Energy Saving Operation 2	0 : Variable torque load 1 : Constant torque load 2 : Auto-torque boost 3 : Auto-energy saving operation (Variable torque load during ACC/DEC) 4 : Auto-energy saving operation (Constant torque load during ACC/DEC) 5 : Auto-energy saving operation (Auto-torque boost during ACC/DEC)	—	—	Y	1
A14	Control Mode Selection 2	0 : V/f operation with slip compensation inactive 1 : Dynamic torque vector operation 2 : V/f operation with slip compensation active 3 : V/f operation with PG 4 : Dynamic torque vector operation with PG	—	—	Y	0

*1 When you make settings from the keypad, the incremental unit is restricted by the number of digits that the LED monitor can display.
(Example) If the setting range is from -200.00 to 200.00, the incremental unit is as follows:
"1" for -200 to -100, "0.1" for -99.9 to -10.0, "0.01" for -9.99 to -0.01, "0.01" for 0.00 to 99.99, and "0.1" for 100.0 to 200.0

*2 Symbols in the "Data copy" column
Y: Will be copied unconditionally.
Y1: Will not be copied if the rated capacity differs from the source inverter.
Y2: Will not be copied if the rated input voltage differs from the source inverter.
N: Will not be copied.

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<Changing, validating, and saving function code data when the motor is running>
: Impossible, : Possible (Change data with keys and then save/validate it with key), : Possible (Change and validate data with keys and then save it with key)

Functions Settings

Functions Settings

A codes: Motor 2 Parameters

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
A15	Motor 2 (No. of poles)	2 to 22	2	Pole	Y1Y2	4
A16	(Rated capacity)	0.01 to 30.00 (where, P99 data is 0, 3, or 4.)	0.01	kW	Y1Y2	Rated capacity of motor
		0.01 to 30.00 (where, P99 data is 1.)	0.01	HP		
A17	(Rated current)	0.00 to 100.0	0.01	A	Y1Y2	Rated value of Fuji standard motor
A18	(Auto-tuning)	0: Disable 1 : Enable (Tune %R1 and %X while the motor is stopped.) 2 : Enable (Tune %R1, %X and rated slip while the motor is stopped, and no-load current while running.)	—	—	N	0
A19	(ON-Line tuning)	0 : Disable 1 : Enable	—	—	Y	0
A20	(No-load current)	0.00 to 50.00	0.01	A	Y1Y2	Rated value of Fuji standard motor
A21	(%R1)	0.00 to 50.00	0.01	%	Y1Y2	Rated value of Fuji standard motor
A22	(%X)	0.00 to 50.00	0.01	%	Y1Y2	Rated value of Fuji standard motor
A23	(Slip compensation gain for driving)	0.0 to 200.0	0.01	%	Y	100.0
A24	(Slip compensation response time)	0.00 to 10.00	0.01	s	Y1Y2	0.50
A25	(Slip compensation gain for braking)	0.0 to 10.00	0.01	%	Y	100.0
A26	(Rated slip frequency)	0.00 to 15.00	0.01	Hz	Y1Y2	Rated value of Fuji standard motor
A39	Motor 2 Selection	0 : Motor characteristics 0 (Fuji standard motors, 8-series) 1 : Motor characteristics 1 (HP rating motors) 3 : Motor characteristics 3 (Fuji standard motors, 6-series) 4 : Other motors	—	—	Y1Y2	0
A40	Slip compensation 2 (Operating conditions)	0 : Enable during ACC/DEC and enable at base frequency or above 1 : Disable during ACC/DEC and enable at base frequency or above 2 : Enable during ACC/DEC and disable at base frequency or above 3 : Disable during ACC/DEC and disable at base frequency or above	—	—	Y	0
A41	Output Current Fluctuation Damping Gain for Motor 2	0.00 to 0.40	0.01	—	Y	0.20
A45	Cumulative Motor Run Time 2	Change or reset the cumulative data	—	—	N	—
A46	Startup Times of Motor 2	Indication of cumulative startup times	—	—	N	—

J codes: Application Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
J01	PID Control (Mode selection)	0 : Disable 1 : Enable (Process control, normal operation) 2 : Enable (Process control, inverse operation) 3 : Enable (Dancer control)	—	—	Y	0
J02	(Remote command SV)	0 : UP/DOWN keys on keypad 1 : PID command 1 3 : Terminal command UP /DOWN control 4 : Command via communications link	—	—	Y	0
J03	P (Gain)	0.000 to 30.000 *1	0.001	Times	Y	0.100
J04	I (Integral time)	0.0 to 3600.0 *1	0.1	s	Y	0.0
J05	D (Differential time)	0.0 to 600.00 *1	0.01	s	Y	0.00
J06	(Feedback filter)	0.0 to 900.0	0.1	s	Y	0.5
J10	PID Control (Anti reset windup)	0 to 200	1	%	Y	200
J11	(Select alarm output)	0 : Absolute-value alarm 1 : Absolute-value alarm (with Hold) 2 : Absolute-value alarm (with Latch) 3 : Absolute-value alarm (with Hold and Latch) 4 : Deviation alarm 5 : Deviation alarm (with Hold) 6 : Deviation alarm (with Latch) 7 : Deviation alarm (with Hold and Latch)	—	—	Y	0
J12	(Upper level alarm (AH))	-100 to 100	1	%	Y	100
J13	(Lower level alarm (AL))	-100 to 100	1	%	Y	0
J18	(Upper limit of PID process output)	-150 to 150 999 : F Disable	1	%	Y	999
J19	(Lower limit of PID process output)	-150 to 150 999 : F Disable	1	%	Y	999
J56	(Speed command filter)	0.00 to 5.00	0.01	s	Y	0.10
J57	(Dancer reference position)	-100 to 100	1	%	Y	0
J58	(Detection width of Dancer position deviation)	0 : Disable switching PID constant 1 to 100	1	%	Y	0
J59	P (gain) 2	0.000 to 30.00 *1	0.001	times	Y	0.100
J60	I (Integration time) 2	0.0 to 3600.0 *1	0.1	s	Y	0.0
J61	D (Derivative time) 2	0.00 to 600.00 *1	0.01	s	Y	0.00
J62	(Selection PID control block) (PID control block Selection)	Bit 0 : PID output pole 0 = addition, 1 = subtraction Bit 1 : Select compensation of output ratio 0 = speed command, 1 = ratio	1	—	Y	0
J63	Overload stop (Detection value)	0 : Torque 1 : Current	—	—	Y	0
J64	(Detection level)	20 to 200	0.1	%	Y	100
J65	(Mode selection)	0 : Disable 1 : Decelerate to stop 2 : Coast to a stop 3 : Hit mechanical stop	—	—	Y	0
J66	(Operation condition)	0 : Enable at constant speed and during deceleration 1 : Enable at constant speed 2 : Enable anytime	—	—	Y	0
J67	(Timer)	0.00 to 600.00	0.01	s	Y	0
J68	Braking signal (Released current)	0 to 200	1	%	Y	100
J69	(Brake OFF frequency)	0.0 to 25.0	0.1	Hz	Y	1.0
J70	(Brake OFF timer)	0.0 to 5.0	0.1	s	Y	1.0
J71	(Brake ON frequency)	0.0 to 25.0	0.1	Hz	Y	1.0
J72	(Brake ON timer)	0.0 to 5.0	0.1	s	Y	1.0

●J codes: Application Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
J73	Position control (the start timer)	0.0 to 1000.0	0.1	s	Y	0.0
J74	(Start point: MSD)	-999 to 999	1	p	Y	0
J75	(Start point: LSD)	[P], 0 to 9999	1	p	Y	0
J76	(Position preset: MSD)	-999 to 999	1	p	Y	0
J77	(Position preset: LSD)	[P], 0 to 9999	1	p	Y	0
J78	(Creep speed switch point: MSD)	0 to 999	1	p	Y	0
J79	(Creep speed switch point: LSD)	0 to 9999	1	p	Y	0
J80	(Creep speed)	0 to 400	1	Hz	Y	0
J81	(Stopping position: MSD)	-999 to 999	1	p	Y	0
J82	(Stopping position: LSD)	0 to 9999	1	p	Y	0
J83	(Completion width)	0 to 9999	1	p	Y	0
J84	(End timer)	0.0 to 1000.0	0.1	s	Y	0.0
J85	(Coasting compensation)	0 to 9999	1	p	Y	0
J86	(Stopping position specifying method)	0, 1	—	—	Y	0
J87	(Position pre-set condition)	0, 1, 2	—	—	Y	0
J88	(Position detecting direction)	0, 1	—	—	Y	0
J90	Overload stopping, torque limit P (Gain)	0.000 to 2.000, 999	0.001	—	Y	999
J91	Function, torque limit I (Integral time)	0.001 to 9.999, 999	0.001	s	Y	999
J92	Current control level	50.0 to 150.0	0.1	%	Y	100.0

●y codes: Link Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
y01	RS-485 Communication (Standard) (Station address)	1 to 255	1	—	Y	1
y02	(Communications error processing)	0 : Immediately trip with alarm Er8 1 : Trip with alarm Er8 after running for the period specified by timer y03 2 : Retry during the period specified by timer y13.If the retry fails, trip with alarm Er8. If it succeeds, continue to run. 3 : Continue to run	—	—	Y	0
y03	(Timer)	0.0 to 60.0	0.1	s	Y	2.0
y04	(Baud rate)	0 : 2400 bps 1 : 4800 bps 2 : 9600 bps 3 : 19200 bps 4 : 38400 bps	—	—	Y	3
y05	(Data length)	0 : 8 bits 1 : 7 bits	—	—	Y	0
y06	(Parity check)	0 : None (2 stop bits for Modbus RTU) 1 : Even parity (1 stop bit for Modbus RTU) 2 : Odd parity (1 stop bit for Modbus RTU) 3 : None (1 stop bit for Modbus RTU)	—	—	Y	0
y07	(Stop bits)	0 : 2 bits 1 : 1 bit	—	—	Y	0
y08	(No-response error detection time)	0 : No detection 1 to 60	1	s	Y	0
y09	(Response interval)	0.00 to 1.00	0.01	s	Y	0.01
y10	(Protocol selection)	0 : Modbus RTU protocol 1 : FRENIC Loader protocol (SX protocol) 2: Fuji general-purpose inverter protocol	—	—	Y	1
y11	RS-485 Communication (Option) (Station address)	1 to 255	1	—	Y	1
y12	(Communications error processing)	0 : Immediately trip with alarm ErP 1 : Trip with alarm ErP after running for the period specified by timer y13 2 : Retry during the period specified by timer y13. If the retry fails, trip with alarm ErP. If it succeeds, continue to run. 3 Continue to run	—	—	Y	0
y13	(Timer)	0.0 to 60.0	0.1	s	Y	2.0
y14	(Baud rate)	0 : 2400 bps 1 : 4800 bps 2 : 9600 bps 3 : 19200 bps 4 : 38400 bps	—	—	Y	3
y15	(Data length)	0 : 8 bits 1 : 7 bits	—	—	Y	0
y16	(Parity check)	0 : None (2 stop bits for Modbus RTU) 1 : Even parity (1 stop bit for Modbus RTU) 2 : Odd parity (1 stop bit for Modbus RTU) 3 : None (1 stop bit for Modbus RTU)	—	—	Y	0
y17	(Stop bits)	0 : 2 bits 1 : 1 bit	—	—	Y	0
y18	(No-response error detection time)	0 : No detection 1 to 60	1	s	Y	0
y19	(Response interval)	0.00 to 1.00	0.01	s	Y	0.01
y20	(Protocol selection)	0 : Modbus RTU protocol 2 : Fuji general-purpose inverter protocol	—	—	Y	0
y98	Bus Link Function (Mode selection)	Frequency command / Run command 0 : Follow H30 data / Follow H30 data 1 : Via field bus option / Follow H30 data 2 : Follow H30 data / Via field bus option 3 : Via field bus option / Via field bus option	—	—	Y	0
y99	Loader Link Function (Mode selection)	Frequency command / Run command 0 : Follow H30 and y98 data / Follow H30 and y98 data 1 : Via RS-485 link (Loader) / Follow H30 and y98 data 2 : Follow H30 and y98 data / Via RS-485 link (Loader) 3 : Via RS-485 link (Loader) / Via RS-485 link (Loader)	—	—	N	0

*1 When you make settings from the keypad, the incremental unit is restricted by the number of digits that the LED monitor can display.
(Example) If the setting range is from -200.00 to 200.00, the incremental unit is as follows: "1" for -200 to -100, "0.1" for -99.9 to -10.0, "0.01" for -9.99 to -0.01, "0.01" for 0.00 to 99.99, and "0.1" for 100.0 to 200.0

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Functions Settings

Functions Settings

o codes: Link Functions

Func. Code	Name	Data setting range	Min.	Unit	Data copy*2	Default setting
o01	Command/feedback input (Input form selection)	0, 1, 2, 10, 11, 12, 20, 21, 22	1	–	Y	0
o02	Speed control (P item)	0.01 to 200.00	0.01	–	Y	10.00
o03	(I item)	0.000 to 5.000	0.001	s	Y	0.100
o04	(Filter time constant)	0.000 to 5.000	0.001	s	Y	0.020
o05	(Pulse line input) (Encode pulse number)	20 to 3600	1	–	Y	1024
o06	(Filter time constant)	0.000 to 5.000	0.001	s	Y	0.005
o07	(Pulse compensation coefficient 1)	1 to 9999	1	–	Y	1
o08	(Pulse compensation coefficient 2)	1 to 9999	1	–	Y	1
o09	Feedback (Feedback input) (Encoder pulse number)	20 to 3600	1	–	Y	1024
o10	(Filter time constant)	0.000 to 5.000	0.001	s	Y	0.005
o11	(Pulse compensation coefficient 1)	1 to 9999	1	–	Y	1
o12	(Pulse compensation coefficient 2)	1 to 9999	1	–	Y	1
o13	Speed control (Output limiter)	0.00 to 100.00	0.01	%	Y	100.00
o14	Reserved *3	0.1	1	–	Y	0
o15	Reserved *3	0.1	1	–	Y	0
o16	Reserved *3	0 to 255	1	–	Y	0
o17	Excessive speed deviation (Level)	0 to 50	1	%	Y	10
o18	(Timer)	0.0 to 10.0	0.1	s	Y	0.5
o19	PG abnormal error selection	0, 1, 2	1	–	Y	2
o20	DIO option (DI mode selection)	0: 8 bit binary setting 1: 12 bit binary setting 4: BCD 3-digit setting 0 to 99.9 5: BCD 3-digit setting 0 to 999	–	–	Y	0
o21	(DO mode selection)	0: Output frequency (befor slip compensation) 1: Out put frequency (after slip compensation) 2: Output current 3: Output voltage 4: Output torque 5: Overload rate 6: Power consumption 7: PID feedback amount 9: DC link circuit voltage 13: Motor output 15: PID command (SV) 16: PID command (MV) 99: Individual signal output	–	–	Y	0
o27	Transmission error (Operation selection)	0 to 15	1	–	Y	0
o28	(Timer selection)	0.0 to 60.0	0.1	s	Y	0.0
o30	Bus setting parameter 1	0 to 255	1	–	Y	0
o31	Bus setting parameter 2	0 to 255	1	–	Y	0
o32	Bus setting parameter 3	0 to 255	1	–	Y	0
o33	Bus setting parameter 4	0 to 255	1	–	Y	0
o34	Bus setting parameter 5	0 to 255	1	–	Y	0
o35	Bus setting parameter 6	0 to 255	1	–	Y	0
o36	Bus setting parameter 7	0 to 255	1	–	Y	0
o37	Bus setting parameter 8	0 to 255	1	–	Y	0
o38	Bus setting parameter 9	0 to 255	1	–	Y	0
o39	Bus setting parameter 10	0 to 255	1	–	Y	0
o40	Writing function code allocation 1	0000H to FFFFH	1	–	Y	0000H
o41	Writing function code allocation 2	0000H to FFFFH	1	–	Y	0000H
o42	Writing function code allocation 3	0000H to FFFFH	1	–	Y	0000H
o43	Writing function code allocation 4	0000H to FFFFH	1	–	Y	0000H
o44	Writing function code allocation 5	0000H to FFFFH	1	–	Y	0000H
o45	Writing function code allocation 6	0000H to FFFFH	1	–	Y	0000H
o46	Writing function code allocation 7	0000H to FFFFH	1	–	Y	0000H
o47	Writing function code allocation 8	0000H to FFFFH	1	–	Y	0000H
o48	Read function code allocation 1	0000H to FFFFH	1	–	Y	0000H
o49	Read function code allocation 2	0000H to FFFFH	1	–	Y	0000H
o50	Read function code allocation 3	0000H to FFFFH	1	–	Y	0000H
o51	Read function code allocation 4	0000H to FFFFH	1	–	Y	0000H
o52	Read function code allocation 5	0000H to FFFFH	1	–	Y	0000H
o53	Read function code allocation 6	0000H to FFFFH	1	–	Y	0000H
o54	Read function code allocation 7	0000H to FFFFH	1	–	Y	0000H
o55	Read function code allocation 8	0000H to FFFFH	1	–	Y	0000H
o56	Read function code allocation 9	0000H to FFFFH	1	–	Y	0000H
o57	Read function code allocation 10	0000H to FFFFH	1	–	Y	0000H
o58	Read function code allocation 11	0000H to FFFFH	1	–	Y	0000H
o59	Read function code allocation 12	0000H to FFFFH	1	–	Y	0000H

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