



User Constants

This chapter lists all user constants that can be used in the Programming and Initialize modes.

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User Constant Descriptions

Constant Number	Name		Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page
	Display						V/f	V/f with PG	Open-Loop Vector	Flux Vector	
A1-00	Language selection for digital operator display		Used to select the language displayed on the Digital Operator 0: English 1: Japanese * This constant is not changed by the initialize operation.	0, 1	1	○	Q	Q	Q	Q	71
	Select Language										

- Constant Number: The constant number.
- Name: The constant name.
- Display: The constant name displayed on the Digital Operator.
- Description: Details of the constant function or setting value.
- Setting Range: The constant setting range.
- Factory Setting: The factory setting value.
(Therefore the factory setting changes when the control method is changed.)
→See Page 257 for factory settings by control method.
- Change During Operation: Indicates whether or not the constant can be changed while in the Inverter is in operation.
○ - Changes possible during operation.
X - Changes not possible during operation.
- Control Method: Indicates which control methods and which access levels can be set and referenced.
Q - Items which can be set and referenced in Quick-Start only.
B - Items which can be set and referenced in Quick-Start and Basic.
A - Items which can be set and referenced on all access levels; Quick-Start, Basic, and Advanced.
X - Items which cannot be set or referenced in that control method.
- Page: Reference page for more detailed information on the constant.



8.1 Initialize Mode Constants

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
A1-00	Language selection for Digital Operator display	Used to select the language displayed on the Digital Operator 0: English 1: Japanese * This constant is not changed by the Initialize operation.	Q	1	○	Q	Q	Q	Q	71
	Select Language									
A1-01	Constant Access Level	Used to set the constant access level (set/read). 0: Monitoring only (Displays only Operation mode and Initialize mode) 1: Used to select user constant (Constants A2-01 to A2-32 only can be set/read.) 2: Quick-Start: Q 3: Basic: B 4: Basic: A	0 to 4	2	○	Q	Q	Q	Q	71, 96
	Access Level									
A1-02	User Setting Constant	Used to select the control method for the Inverter. 0: V/f Control 1: V/f with PG Feedback 2: Open-Loop Vector 3: Flux Vector * This constant is not initialized by the Initialize operation.	0 to 3	2	X	Q	Q	Q	Q	72, 97
	User Param 1 to 32									
A1-03	Initialize	Used to initialize the constants using the specified method. 0: No initializing 1110: Initializes using the User constants. 2220: Initializes using a 2-wire sequence. (Initializes to the factory setting.) 3330: Initializes using a 3-wire sequence.	0 to 3330	0	X	Q	Q	Q	Q	73
	Init Constants									
A1-04	Password 1	Password input when a password has been set in A1-05. This function write-protects some constants of the Initialize mode. * If the password is changed, A1-01 to A1-03 and A2-01 to A2-32 constants can no longer be changed. (Programming mode constants can be changed.)	0 to 9999	0	X	Q	Q	Q	Q	75
	Enter Password									
A1-05	Password 2	Used to set a four digit number as the password. * This constant is not usually displayed. When the password (A1-04) is displayed, hold down the Reset/Select key and press the Menu key and the password will be displayed.	0 to 9999	0	X	Q	Q	Q	Q	75
	Select Password									
A2-01 to A2-32	User Setting Constant	User to set the constant numbers that can be set/read. Maximum 32. * Effective when the access level (A1-01) is set to User Program (1). Constants set in constants A2-01 to A2-32 can be set/read in the Programming mode.	B1-01 to o2-08	—	X	A	A	A	A	75
	User Param 1 to 32									

8.2 Programming Mode Constants

8.2.1 Application Constants: b

■ Operation Mode Selections: b1

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b1-01	Reference Selection	Used to set the input method for the frequency reference. 0: Digital Operator 1: Control circuit terminals (analog inputs) 2: Transmission 3: Option Card	0 to 3	1	X	Q	Q	Q	Q	98, 101
	Reference Source									
b1-02	Operation Method Selection	Used to set the source of the run command. 0: Digital Operation 1: Control circuit terminals (sequence inputs) 2: Transmission 3: Option Card	0 to 3	1	X	Q	Q	Q	Q	103
	Run Source									
b1-03	Stopping Method Selection	Used to set the stopping method used when a stop command is input. 0: Ramp to stop. 1: Coast to stop 2: DC Injection Braking stop: (Stops faster than coast to stop, no regenerative operation.) 3: Coast to stop with timer: run commands are disregarded during deceleration. * Only settings 0 and 1 can be used with Flux Vector Control.	0 to 3	0	X	Q	Q	Q	Q	106, 124
	Stopping Method									
b1-04	Prohibition of Reverse Operation	0: Reverse enabled 1: Reverse disabled	0, 1	0	X	B	B	B	B	105
	Reverse Oper									
b1-05	Operation selection for setting E1-09 or less.	Used to set the method of operation when the frequency reference input is less than the minimum output frequency (E1-09). 0: Run at frequency reference (E1-09 not effective). 1: STOP (Frequencies below E1-09 in the Coast to Stop state.) 2: Run at minimum frequency. (E1-09) 3: Run at Zero Speed (Frequencies below E1-09 are zero.) * This function is only available with Flux Vector Control.	0~3	0	X	X	X	X	A	124
	Zero Speed Oper									
b1-06	Read Sequence Input Twice	Used to set the responsiveness of the control inputs (forward/reverse and multi-function inputs.) 0: Two scans every 2 ms (Use when connecting transistor outputs.) 1: Two scans every 5 ms (Use when connecting contract outputs or switches.)	0, 1	1	X	A	A	A	A	103
	Cntl Input Scans									



Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b1-07	Operation selection after switching to Remote mode.	Used to set the Operation mode by switching to the Remote mode using the Local/Remote key. 0: Run signals that are input during mode switching are disregarded. (Input run signals after switching the mode.)	0, 1	0	X	A	A	A	A	103
	LOC/REM RUN Sel									

■ DC Braking: b2

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b2-01	Zero Speed Level (DC Injection Braking starting frequency)	Used to set the frequency which starts DC Injection Braking (the initial excitation for Flux Vector Control) in units of 0.1 Hz when deceleration to stop is selected. * When b2-01 is less than E1-09, E1-09 becomes the DC Injection Braking starting frequency. Only with Flux Vector Control is b2-01 used.	0.0 to 10.0	0.5	X	B	B	B	B	124, 170
	DCInj Start Freq									
b2-02	DC Injection Braking Current	Sets the DC Injection Braking current as a percentage of the Inverter rated current. * The initial excitation current for Flux Vector Control depends on the E2-03 setting.	0 to 100	50	X	B	B	B	X	170
	DCInj Current									
b2-03	DC Injection Braking Time at Start	Used to set the time to perform DC Injection Braking (initial excitation for Flux Vector Control) at start in units of 1 second. * Used to stop coasting motor and restart it. When the set vale is 0, DC Injection Braking at start is not performed.	0.00 to 10.00	0.50	X	B	B	B	B	124, 170
	DCInj Time @ Start									
b2-04	DC Injection Braking Time at Stop	Used to set the time to perform DC Injection Braking (initial excitation for Flux Vector Control) at stop in units of 1 second. * Used to prevent coasting after the stop command is input. When the set value is 0.00, DC Injection Braking at stop is not performed.	0.00 to 10.00	0.50	X	B	B	B	B	124, 170
	DCInj Time @ Stop									

■ **Speed Search: b3**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b3-01	Speed Search Selection at Start	Sets the speed search function to start when the run command is input. 0: Disabled (Starts from the minimum output frequency.) 1: Enabled (Speed search is started from the maximum frequency. In a control method with PG, the motor starts at the frequency of motor rotation when the run command is input.)	0, 1	0*	X	A	A	A	A	171
	SpdSrch at Start									
b3-02	Speed Search Operating Current	Sets the speed search operation current as a percentage of the Inverter rated current. * Not usually necessary to set. When restarting is not possible with the set value, reduce the value.	0 to 200	100	X	A	X	A	X	171
	SpdSrch Current									
b3-03	Speed Search Deceleration Time	Sets the output frequency deceleration time during speed search in 1 second units. * Set the time for deceleration from the maximum output frequency to 0 Hz.	0.1 to 10.0	2.0	X	A	X	A	X	171
	SpdSrch Dec Time									

* When the control method is changed, the Inverter reverts to factory settings. (The Open-Loop Vector Control factory settings will be displayed.)

■ **Timer Function: b4**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b4-01	Timer Function ON-Delay Time	Sets the timer function output ON-delay time (dead band) for the timer function input, in 1 second units. * Enabled when the timer function is set for multi-function inputs and outputs.	0.0 to 30.0	0.0	X	A	A	A	A	172
	Delay-ON Timer									
b4-02	Timer Function OFF-Delay Timer	Sets the timer function output OFF-delay time (dead band) for the timer function input, in 1 second units. * Enabled when the timer function is set for multi-function inputs and outputs.	0.0 to 300.0	0.0	X	A	A	A	A	172
	Delay-OFF Timer									

■ PID Control: b5

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b5-01	PID Control Mode Selection	0: Disabled 1: Enabled (Deviation is D-controlled.)	0 to 2	0	X	A	A	A	A	172, 175
	PID Mode	2: Enabled (Feedback value is D-controlled.)								
b5-02	Proportional Gain (P)	Sets P-Control proportional gain as a percentage. * P-Control is not performed when the setting is 0.00.	0.00 to 25.00	1.00	○	A	A	A	A	172, 175
	PID Gain									
b5-03	Integral (I) Time	Sets I-Control integral time in 1 second units. * I-Control is not performed when the setting is 0.0.	0.0 to 360.0	1.0	○	A	A	A	A	172, 175
	PID I Time									
b5-04	Integral (I) Time	Sets the I-Control limit as a percentage of the maximum output frequency.	0.0 to 100.00	100.0	○	A	A	A	A	172, 175
	PID I Limit									
b5-05	Differential (D) Time	Sets D-Control derivative time in 1 second units. * D-Control is not performed when the setting is 0.00.	0.00 to 10.00	0.00	○	A	A	A	A	172, 175
	PID D Time									
b5-06	PID Limit	Sets the limit after PID-Control as a percentage of the maximum output frequency.	0.0 to 100.0	100.0	○	A	A	A	A	172, 175
	PID Limit									
b5-07	PID Offset Adjustment	Sets the offset after PID-Control as a percentage of the maximum output frequency.	-100.0 to +100.0	0.0	○	A	A	A	A	172, 176
	PID Offset									
b5-08	PID Primary Delay Time Constant	Sets the time constant for low pass filter for PID-Control outputs in 1 second units. * Not usually necessary to set.	0.00 to 10.0	0.00	○	A	A	A	A	172, 176
	PID Delay Time									

■ Dwell Functions: b6

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b6-01	Dwell Frequency at Start	<p>* The dwell function is used to stop/start the output frequency temporarily when driving a motor with a heavy load.</p>	0.0 to 400.0	0.0	X	A	A	A	A	177
	Dwell Ref @ Start		0.0 to 10.0	0.0	X	A	A	A	A	177
b6-02	Dwell Time at Start		0.0 to 400.0	0.0	X	A	A	A	A	177
	Dwell Time @ Start		0.0 to 10.0	0.0	X	A	A	A	A	177
b6-03	Dwell Frequency at Stop		0.0 to 400.0	0.0	X	A	A	A	A	177
	Dwell Ref @ Stop		0.0 to 10.0	0.0	X	A	A	A	A	177
b6-04	Dwell Time at Stop		0.0 to 400.0	0.0	X	A	A	A	A	177
	Dwell Time @ Stop		0.0 to 10.0	0.0	X	A	A	A	A	177

■ **Droop Control: b7**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b7-01	Droop Control Gain	Sets the slip as a percentage of maximum frequency when the maximum output frequency is specified and the rated torque occurs. * Droop Control is not performed when the setting is 0.0	0.0 to 100.0	0.0	○	X	X	X	A	151
	Droop Gain									
b7-02	Droop Control Delay Time	Droop Control responsiveness constant. * When hunting or oscillation occurs, increase the value.	0.03 to 2.00	0.05	○	X	X	X	A	152
	Droop Delay Time									

■ **Energy Saving: b8**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b8-01	Energy Saving Gain	Sets the Inverter output voltage when the Energy Saving command is input. * Enabled when the “Energy Saving mode” command is set for multi-function input. Set as a percentage of the V/f pattern voltage.	0 to 100	80	X	A	A	X	X	147, 167
	Energy Save Gain									
b8-02	Energy Saving Frequency	Sets the Energy Saving effective range minimum frequency in Hz. * The Energy Saving function is only enabled when the frequency is greater than the Energy Saving frequency and the speeds are consistent.	0.0 to 400.0	0.0	X	A	A	X	X	148
	Energy Save Freq									

■ **Zero Servo: b9**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
b9-01	Zero Servo Gain	Used to adjust the strength of the Zero Servo lock. * Enabled when the “Zero Servo command” is set for the multi-function input. When the Zero Servo command has been input and the frequency reference drops below excitation level 9b2-01), a position Control Loop is created and the motor stops. Increasing the Zero Servo gain in turn increases the strength of the lock. Increasing it by too much will cause oscillation.	0 to 100	5	X	X	X	X	A	152
	Zero Servo Gain									
b9-02	Zero Servo Completion Width	Sets the output width of the P-lock completion signal. * Enabled when the “Zero Servo completion (end)” is set for a multi-function input. The Zero Servo completion signal is ON when the current position is within the range (the Zero Servo position + Zero Servo completion width). Set the allowable position displacement from Zero Servo position to 4 times the PG in use.	0 to 16383	10	X	X	X	X	A	152
	Zero Servo Count									



8.2.2 Auto-Tuning Constants: C

■ Acceleration/Deceleration: C1

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)																																
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector																																	
C1-01	Acceleration Time 1	Sets the acceleration time to accelerate from 0 to the maximum output frequency, in 1 second units.	0.0 to 6000.0 *	10.0	○	Q	Q	Q	Q	104																																
	Accel Time 1																																									
C1-02	Deceleration Time 1	Sets the deceleration time to decelerate from the maximum output frequency to 0, in 1 second units.									0.0 to 6000.0 *	10.0	○	Q	Q	Q	Q	104																								
	Decel Time 1																																									
C1-03	Acceleration Time 2	The acceleration time when the multi-function inputs "accel/decl time 1" is set to ON.																	0.0 to 6000.0 *	10.0	○	B	B	B	B	104																
	Accel Time 2																																									
C1-04	Deceleration Time 2	The deceleration time when the multi-function input "accel/decl time 1" is set to ON.																									0.0 to 6000.0 *	10.0	○	B	B	B	B	104								
	Decel Time 2																																									
C1-05	Acceleration Time 3	The acceleration time when the multi-function input "accel/decl time 2" is set to ON.																																	0.0 to 6000.0 *	10.0	X	A	A	A	A	104
	Accel Time 3																																									
C1-06	Deceleration Time 3	The deceleration time when the multi-function input "accel/decl time 1" and "accel/decl time 2" are set to ON.																																								
	Decel Time 3																																									
C1-07	Acceleration Time 4	The acceleration time when the multi-function input "accel/decl time 1" and accel/decl time 2" are set to ON.	0.0 to 6000.0 *	10.0	X	A	A	A	A	104																																
	Accel Time 4																																									
C1-08	Deceleration Time 4	The deceleration time when the multi-function input "accel/decl time 1" and "accel/decl time 2" are set to ON>									0.0 to 6000.0 *	10.0	X	A	A	A	A	104																								
	Decel Time 4																																									
C1-09	Emergency Stop Time	The deceleration time when the multi-function input "Emergency (fast) stop" is set to ON. * This function can be used as a stopping method when a fault has been detected.																	0.0 to 6000.0 *	10.0	X	B	B	B	B	105																
	Decl Time 4																																									
C1-10	Accel/Decel Time Setting Unit	0: 0.01 second units 1: 0.1 second units																									0.0 to 6000.0 *	10.0	X	A	A	A	A	104								
	Acc/Dec Units																																									
C1-11	Accel/Decel Time Switching Frequency	Sets the frequency for automatic acceleration/deceleration switching. Below set frequency: Accel/decl time 4. Above set frequency: Accel/decl time 1 * The multi-function input "accel/decl time 1" or "accel/decl time 2" take priority.																																	0.0 to 6000.0 *	10.0	X	A	A	A	A	105
	Acc/Dec SW Freq																																									

* The setting range for acceleration/deceleration times will differ according to the setting for C1-10 (the unit for acceleration/deceleration time). When C1-01 is set to 0, the setting range for acceleration/deceleration times becomes 0.00 to 600.00 seconds.

■ S-Curve Acceleration/Deceleration: C2

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C2-01	S-Curve Characteristic Time at Acceleration Start	All sections of the S-Curve characteristic time are set in seconds units. * When the S-Curve characteristic time is set, the accel/decel times will increase by only half of the S-Curve characteristic times at start and end.	0.0 to 2.50	0.20	X	A	A	A	A	178
	SCrv Acc @ Start									
C2-02	S-Curve Characteristic Time at End		0.0 to 2.50	0.20	X	A	A	A	A	178
	SCrv Acc @ End									
C2-03	S-Curve Characteristic Time at Deceleration Start		0.00 to 2.50	0.20	X	A	A	A	178	
	SCrv Dec @ Start									
C2-04	S-Curve Characteristic Time at Deceleration End		0.00 to 2.50	0.00	X	A	A	A	A	178
	SCrv Dec @ End									

■ Motor Slip Compensation: C3

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C3-01	Slip Compensation Gain	Used to improve speed accuracy when operating with a load. * Usually setting is not necessary. When actual speed is low, increase the set value. When actual speed is high, decrease the set value. In Flux Vector Control mode this function becomes gain to compensate for slip caused by temperature variation.	0.0 to 2.5	1.0*	○	B	X	B	B	165, 178
	Slip Comp Gain									
C3-02	Slip Compensation Primary Delay Time	Slip compensation primary delay time is set in ms units. * Usually setting is not necessary. Adjust when slip compensation responsiveness is low, or speed is not stabilized.	0 to 10000	200*	X	A	X	A	X	179
	Slip Comp Time									
C3-03	Slip Compensation Limit	Sets the slip compensation limit as a percentage of motor rated slip.	0 to 250	200	X	A	X	A	X	179
	Slip Comp Limit									
C3-04	Slip Compensation Selection During Regeneration	0: Disabled. 1: Enabled. * When the slip compensation during regeneration function has been activated, as regeneration capacity increases momentarily, it may be necessary to use a braking option (Braking Resistor, Braking Resistor Unit or Braking Unit.)	0, 1	0	X	A	X	A	X	179
	Slip Comp Regen									



Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C3-05	Flux Calculation Method	Used to set the flux calculation method. 0: Flux is calculated based on the output frequency after compensation. 1: Flux is calculated based on the output frequency before compensation.	0, 1	0	X	X	X	A	X	—
	Flux Select									

* When the control method is changed, the Inverter reverts to factory settings. (The Open-Loop Vector Control factory settings will be displayed.)

■ **Torque Compensation: C4**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C4-01	Torque Compensation Gain	Sets torque compensation gain as a ratio. * Usually setting is not necessary. Adjust in the following circumstances: • When the cable is long, increase the set value. • When the motor capacity is smaller than the Inverter capacity (maximum applicable motor capacity), increase the set values. • When the motor is oscillating, decrease the set values. Adjust the output current range at minimum speed rotation so that it does not exceed the Inverter rated output current.	0.00 to 2.50	1.00	○	B	B	B	X	180
	Torq Comp Gain									
C4-02	Torque Compensation Time Constant	The torque compensation delay time is set in ms units. * Usually setting is not necessary. Adjust in the following circumstances: • When the motor is oscillating, increase the set values. • When the responsiveness of the motor is low, decrease the set values.	0 to 10000	20*	X	A	A	A	X	180
	Torq Comp Time									

* When the control method is changed, the Inverter reverts to factory settings. (The Open-Loop Vector Control factory settings will be displayed.)

■ Speed Control (ASR): C5

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C5-01	ASR Proportional (P) Gain 1	Sets the proportional gain of the speed loop (ASR).	0.00 to 300.00	20.00*	○	X	B	X	B	128, 136
	ASR P Gain 1									
C5-02	ASR Integral (I) Time 1	Sets the integral time of the speed loop (ASR) in 1 second units.	0.000 to 10.000	0.500*	○	X	B	X	B	128, 136
	ASR I Time 1									
C5-03	ASR Proportional (P) Gain 2	* Usually setting is not necessary. Set to change the rotational speed gain. 	0.00 to 300.00	20.00*	○	X	B	X	B	128, 136
	ASR P Gain 2									
C5-04	ASR Integral (I) Time 2		0.000 to 10.000	0.500*	○	X	B	X	B	128, 136
	ASR I Time 2									
C5-05	ASR Limit	Sets the upper limit for the compensation frequency for the speed control loop (ASR) to a percentage of the maximum output frequency.	0.0 to 20.0	5.0	X	X	A	X	X	138
	ASR Limit									
C5-06	ASR Primary Delay Time	Sets the filter time constant; the time from the speed loop to the torque command output, in units 1 second. * Usually setting is not necessary.	0.000 to 0.500	0.004	X	X	X	X	A	129
	ASR Delay Time									
C5-07	ASR Switching Frequency	Sets the frequency for switching between Proportion Gain 1, 2 and Integral Time 1, 2 in Hz units. * The multi-function input "ASR Gain SW" takes priority.	0.0 to 400.0	0.0	X	X	X	X	A	128
	ASR Gain SW Freq									
C5-08	ASR Integral (I) Limit	Set to a small value to prevent any radical load change. Set to 100% of the maximum output frequency.	0 to 400	400	X	X	X	X	A	—
	ASR I Limit									

* When the control method is changed, the Inverter reverts to factory settings. (The Open-Loop Vector Control factory settings will be displayed.)



■ **Carrier Frequency: C6**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C6-01	Carrier Frequency Upper Limit	Sets the carrier frequency upper limit and lower limit in kHz units. (See note 2.) The carrier frequency gain is set as follows: * In Vector Control mode, the upper limit of the carrier frequency is fixed at C6-01.	2.0 to 15.0 ²	15.0 ¹	X	B	B	B	B	181
	Carrier Freq Max									
C6-02	Carrier Frequency Lower Limit	Carrier frequency • C6-01 ≥ 10.0 : K=3 • 10.0 > C6-01 ≥ 5.0 : K=2 • 5.0 > C6-01 : K=1	0.4 to 15.0	15.0 ¹	X	A	A	X	X	181
	Carrier Freq Min									
C6-03	Carrier Frequency Gain		00 to 99	00	X	A	A	X	X	181
	Carrier Gain									

¹ The setting range and the factory setting of the Inverter will differ depending on its capacity and control method. (The value for the 200 V class 0.4 kW Inverter in Open-Loop Vector Control mode will be displayed.) (See Page 258)

² For a 400 V Inverter, if the carrier frequency is set to a value higher than the factory setting, the Inverter overload "OL2" detection value will decrease.

■ **Hunting Prevention: C7**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C7-01	Hunting Prevention Selection	0: Disabled. 1: Enabled * The Hunting Prevention function is used to stop a motor under a light load from hunting. This function is exclusively for the V/f Control mode. When greater responsiveness than oscillation control is required, set Hunting Prevention to "disabled".	0, 1	1	X	A	A	X	X	148, 167
	Hunt Prev Select									
C7-02	Hunting Prevention Gain	Sets the ratio for Hunting Prevention gain. * Usually setting is not necessary. Adjust in the following circumstances: • When oscillation occurs due to a light load, increase the set values. • When the motor is stalled, decrease the set values. If the set values become too large, the motor may stall as a result of non-controlled current.	0.00 to 2.50	1.00	X	A	A	X	X	148, 167
	Hunt Prev Gain									

■ **factory Tuning: C8**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
C8-08	AFR Gain	Sets the internal speed feedback detection control section as a ratio. * Usually setting is not necessary. Adjust in the following circumstances: • When hunting occurs, increase the set values. • When responsiveness is low, decrease set values. Change the responsiveness in 0.05 units at a time, checking after each change.	0.00 to 10.00	1.00	X	X	X	A	X	143
	AFR Gain									
C8-09	Speed Feedback Detection Limit (ARF) Time	• Increase setting if hunting occurs. • Decrease setting if response is poor.	0 to 2000	50	X	X	X	A	X	—
	AFR Time									
C8-30	Carrier Frequency Selection During Auto-Tuning	0: Carrier frequency is set to 2.0 kHz. 1: Carrier frequency is set to a value as set in C6-01. 2: Carrier frequency is set to 5 kHz. (2.5 kHz for 400 V class, 185 to 300 kW Inverters.)	0, 1, 2	2	X	X	X	A	X	—
	Carrier In Tune									



8.2.3 Reference Constants: d

■ Preset Reference: d1

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)																					
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector																						
d1-01	Frequency Reference 1	Sets the frequency reference in the units used in o1-03 (frequency reference display/set units). The factory setting unit for o1-03 is Hz.	0 to 400.00	0.00	○	Q	Q	Q	Q	102																					
	Reference 1																														
d1-02	Frequency Reference 2	The frequency reference when the multi-function input "multi-step speed reference 1" is ON.									0.00	○	Q	Q	Q	Q	102														
	Reference 2																														
d1-03	Frequency Reference 3	The frequency reference when the multi-function input "multi-step speed reference 2" is ON.																0.00	○	Q	Q	Q	Q	102							
	Reference 3																														
d1-04	Frequency Reference 4	The frequency reference when the multi-function input "multi-step speed reference 1, 2" is ON.																							0.00	○	Q	Q	Q	Q	102
	Reference 4																														
d1-05	Frequency Reference 5	The frequency reference when the multi-function input "multi-step speed reference 3" is ON.																													
	Reference 5																														
d1-06	Frequency Reference 6	The frequency reference when the multi-function input "multi-step speed reference 1, 3" is ON.	0.00	○	B	B	B	B	102																						
	Reference 6																														
d1-07	Frequency Reference 7	The frequency reference when the multi-function input "multi-step speed reference 2, 3" is ON.								0.00	○	B	B	B	B	102															
	Reference 7																														
d1-08	Frequency Reference 8	The frequency reference when the multi-function input "multi-step speed reference 1, 2, 3" is ON.															0.00	○	B	B	B	B	102								
	Reference 8																														
d1-09	Jog Frequency Reference	The frequency reference when the multi-function inputs, "Jog frequency reference selection", "FJOG command", and "RJOG command" are ON.																						6.00	○	Q	Q	Q	Q	102	
	Jog Reference																														

■ Reference Limits: d2

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
d2-01	Frequency Reference Upper Limit	Sets the output frequency upper limit as a percentage of the maximum output frequency.	0.0 to 110.0	100.0	X	B	B	B	B	181
	Ref Upper Limit									
d2-02	Frequency Reference Lower Limit	Sets the output frequency lower limit as a percentage of the maximum output frequency.	0.0 to 109.0	0.0	X	B	B	B	B	181
	Ref Lower Limit									

■ **Jump Frequencies: d3**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
d3-01	Jump Frequency1	Set the center values of the jump frequencies in Hz. * This function is disabled by setting the jump frequency to 0 Hz. Always ensure that the following applies: $d3-01 \geq d3-02 \geq d3-03$ Operation in the jump frequency range is prohibited but during acceleration and deceleration, speed changes smoothly without jump.	0.0 to 400.0	0.0	X	B	B	B	B	182
	Jump Freq 1									
d3-02	Jump Frequency 2									
	Jump Freq 2									
d3-03	Jump Frequency 3									
	Jump Freq 3									
d3-04	Jump Frequency Width	Sets the jump frequency bandwidth in Hz. * The jump frequency will be the jump frequency \pm d3-04.	0.0 to 20.0	1.0	X	B	B	B	B	182
	Jump Bandwidth									

■ **Reference Frequency Hold: d4**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
d4-01	Frequency Reference Hold Function Selection	Sets whether or not frequencies on hold will be recorded. 0: Disabled. (When operation is stopped or the power is turned ON again starts at 0.) 1: Enabled. (When operation is stopped or the power is turned ON again starts at the previous hold frequency.) * This function is available when the multi-function inputs "accel/decl Ramp Hold" or "up/down" commands are set.	0, 1	0	X	A	A	A	A	183
	MOP Ref Memory									
d4-02	+ = Speed Limits	Sets the increase/decrease frequency for analog frequency references as a percentage of the maximum output frequency. * This function is available when the multi-function inputs "Trim Ctl Increase" or "Trim Decrease" is set.	0 to 100	25	X	A	A	A	A	183
	Trim Control Lvl									



■ Torque Control: d5

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
d5-01	Torque Control Selection	0: Speed Control (C5-01 to C5-07) 1: Torque Control * This function is only available in Flux Vector Control mode. To use the function for switching between Speed and Torque Control, set to 0 and set the multi-function input to "Speed/Torque Control Change".	0, 1	0	X	X	X	X	A	153, 159
	Torq Control Sel									
d5-02	Torque Reference Delay Time	Sets the torque reference delay time in ms units. * This function can be used to adjust the noise of the Torque Control signal or the responsiveness with the host controller. When oscillation occurs during Torque Control, increase the set value.	0 to 1000	0	X	X	X	X	A	157
	Torq Ref Filter									
d5-03	Speed Limit Selection	Sets the speed limit command method for the Torque Control mode. 1: The analog input limit from an analog frequency reference terminal (Terminals 13 and 14). 2: Limited by d5-04 constant setting values.	1, 2	1	X	X	X	X	A	155
	Speed Limit Sel									
d5-04	Speed Limit	Sets the speed limit during Torque Control as a percentage of the maximum output frequency. * This function is enabled when d5-03 is set to 2. Directions are as follows: +: operation command direction -: operation command opposite direction	-120 to +120	0	X	X	X	X	A	155
	Speed Lmt Value									
d5-05	Speed Limit Bias	Sets the speed limit bias as a percentage of the maximum output frequency. * Bias is given to the specified speed limit. It can be used to adjust the margin for the speed limit.	0 to 120	10	X	X	X	X	A	156
	Speed Lmt Bias									
d5-06	Speed/Torque Control Switching Timer	Sets the delay time from inputting the multi-function input "Speed/Torque Control Change" (from ON to OFF or OFF to ON) until the control is actually changed, in ms units. * This function is enabled when the multi-function input "Speed/Torque Control Change" is set. In the Speed/Torque Control switching timer, the three analog inputs hold the values of when the "Speed/Torque Control Change" changes. Always be sure to allow time for this process to finish completely.	0 to 1000	0	X	X	X	X	A	159
	Ref Hold Time									

8.2.4 Motor Constant Constants: E

■ V/f Pattern: E1

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)	
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector		
E1-01	Input Voltage Setting	Sets the Inverter input voltage in units of 1 V. * This setting is used as the reference value for functions such as the protection functions.	155 to 255 ^{*1}	200 ^{*1}	X	Q	Q	Q	Q	89, 112, 114, 124, 132	
	Input Voltage										
E1-02	Motor Selection	0: Standard fan-cooled motor (general purpose motor) 1: Standard blower-cooled motor (Inverter exclusive motor) * This setting is used as the reference value for functions such as the protection functions.	0, 1	0	X	Q	Q	Q	Q	90, 114, 132	
	Motor Selection										
E1-03	V/f Pattern Selection	0 to E: Select from the 15 preset patterns. F: Custom user-set patterns (Applicable for settings E1-04 to E1-10.)	0 to F	F	X	Q	Q	X	X	115, 133	
	V/F Selection										
E1-04	Maximum Output Frequency Max Frequency		40.0 to 400.0	60.0	X	Q	Q	Q	Q	119, 143, 162	
E1-05	Maximum Voltage Max Voltage		0.0 to 255.0 ^{*1}	200.0 ^{*1}	X	Q	Q	Q	Q	92, 119, 143, 162	
	Base Frequency Base Frequency		0.0 to 400.0	60.0	X	Q	Q	Q	Q	119, 143	
E1-07	Mid. Output Frequency Mid Frequency A		* To set V/f characteristics in a straight line, set the same values for E1-07 and E1-09. In this case, the setting for E1-08 will be disregarded. Always ensure that the four frequencies are set in the following manner: * E1-04(FMAX) ≥ E1-06(FA) > E1-07 (FB) ≥ E1-09 (FMIN)	0.0 to 400.0	3.0 ^{*2}	X	Q	Q	A	X	119, 143
	Mid. Output Frequency Voltage Mid Voltage A		0.0 to 255.0 ^{*1}	11.0 ^{*1*2}	X	Q	Q	Q	A	119, 143	
E1-09	Min. Output Frequency Min Frequency		0.0 to 400.0	0.5 ^{*2}	X	Q	Q	Q	A	119, 124, 143, 162	
	Min. Output Frequency Voltage Min Voltage		0.0 to 255.0 ^{*1}	2.0 ^{*1*2}	X	Q	Q	A	X	119, 143	
E1-11	Mid. Output Frequency 2 Mid Frequency B		Set only to fine-adjust V/f for the output range when using Flux Vector Control. Normally, this setting is not required.	0.0 to 400.0	0.0 ^{*3}	X	A	A	A	A	—
	Mid. Output Frequency Voltage 2 Mid Voltage B			0.0 to 255.0 ^{*1}	0.0 ^{*3}	X	A	A	A	A	—
E1-13	Base Voltage Base Voltage			0.0 to 255.0 ^{*1}	0.0 ^{*4}	X	A	A	Q	Q	119, 143, 162

^{*1} These are values for a 200 V class Inverter. Values for the 400 V class Inverter are double.

^{*2} When the control method is changed, the Inverter reverts to factory settings. (The Open-Loop Vector Control factory settings will be displayed.)

^{*3} E1-11 and E1-12 are disregarded when set to 0.0.

^{*4} E1-13 is set to the same value as E1-05 by Auto-Tuning.



■ **Motor Setup: E2**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
E2-01	Motor Rated Current	Sets the motor rated current in 1 A units. * These set values will become the reference values for motor protection, torque limits and Torque Control. These values will automatically be set if they were set during Auto-Tuning.	0.32 to 6.40 ²	1.90 ¹	X	Q	Q	Q	Q	92, 132, 144, 163
	Motor Rated FLA									
E2-02	Motor Rated Slip	Sets the motor rated slip in Hz units. * These set values will become the reference values for slip compensation. These values will be automatically set during Auto-Tuning.	0.00 to 20.00	2.90 ¹	X	A	A	Q	Q	145, 149, 163, 168
	Motor Rated Slip									
E2-03	Motor No-Load Current	Sets the motor no-load current in 1 A units. * These values will be automatically set during Auto-Tuning.	0.00 to 1500.0	1.20 ¹	X	A	A	Q	Q	145, 149, 163, 168
	No-Load Current									
E2-04	Number of Motor Poles	Sets the number of motor poles. * These values will automatically be set during Auto-Tuning.	2 to 48	4	X	X	Q	X	Q	132, 163
	Number of Poles									
E2-05	Motor Line-to-Line Resistance	Sets the motor phase-to-phase resistance in x units. * These values will be automatically set during Auto-Tuning.	0.000 to 65.000	9.842 ¹	X	A	A	A	A	145, 149, 164, 168
	Term Resistance									
E2-06	Motor Leak Inductance	Sets the voltage drop due to motor leakage inductance as a percentage of the motor rated voltage. * These values will be automatically set during Auto-Tuning.	0.0 to 30.0	18.2	X	X	X	A	A	145, 164
	Leak Inductance									
E2-07	Motor Iron-Core Saturation Coefficient 1	Sets the motor iron-core saturation coefficient at 50% of magnetic flux. * These values will be automatically set during Auto-Tuning.	0.00 to 0.50	0.50	X	X	X	A	A	146, 164
	Saturation Comp 1									
E2-08	Motor Iron-Core Saturation Coefficient 2	Sets the motor iron-core saturation coefficient at 75% of magnetic flux. * These values will be automatically set during Auto-Tuning.	0.00 to 0.75	0.75	X	X	X	A	A	146, 164
	Saturation Comp 2									
E2-09	Motor Mechanical Loss	Sets the motor mechanical loss as a percentage of motor rated output (W). * Usually setting is not necessary. Adjust in the following circumstances: • When torque loss is large due to motor bearing. • When the torque loss in the pump or fan is large. The set mechanical loss will compensate for torque.	0.0 to 10.0	0.0	X	X	X	X	A	165
	Mechanical Loss									

¹ The factory setting depends upon the Inverter capacity. The values for a 200 V class Inverter of 0.4 kW will be displayed. See Page 258.

² The setting range is 10% to 200% of the Inverter's rated output current. The values for a 200 V class Inverter of 0.4 kW will be displayed.

■ **Motor 2 Control Mode: E3**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
E3-01	Motor 2 Control Method Selection	0: V/f Control 1: Open-Loop Vector	0 to 2	2	X	A	X	A	X	—
	Control method									

■ **Motor 2 V/f Pattern: E4**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
E4-01	Motor 2 Max. Output Frequency	<p>* To set V/f characteristics in a straight line, set the same values for E4-04 and E4-06. In this case, the setting for E4-05 will be disregarded. Always ensure that the four frequencies are set in the following manner: E4-01 (FMAX) ≥ E4-03 (FA) > E4-04 (FB) ≥ E4-06 (FMIN)</p>	40.0 to 400.0	60.0	X	A	X	A	X	119
	V/F2 Max Freq									
E4-02	Motor 2 Max. Voltage		0.0 to 255.0 ^{*1}	200 ^{*1}	X	A	X	A	X	119
	V/F2 Max Voltage									
E4-03	Motor 2 Max. Voltage Frequency		0.0 to 400.0	60.0	X	A	X	A	X	119
	V/F2 Base Freq									
E4-04	Motor 2 Mid. Output Frequency 1		0.0 to 400.0	3.0 ^{*2}	X	A	X	A	X	119
	V/F2 Mid Freq									
E4-05	Motor 2 Mid. Output Frequency Voltage 1		0.0 to 255.0 ^{*1}	11.0 ^{*1}	X	A	X	A	X	119
	V/F2 Mid Voltage									
E4-06	Motor 2 Min. Output Frequency	0.0 to 400.0	0.5 ^{*2}	X	A	X	A	X	119	
	V/F2 Min Freq									
E4-07	Motor 2 Min. Output Frequency Voltage	0.0 to 255.0 ^{*1}	2.0 ^{*1}	X	A	X	A	X	119	
	V/F2 Min Voltage									

^{*1} These are values for a 200 V class Inverter. Values for the 400 V class Inverter are double.

^{*2} When the control method is changed, the Inverter reverts to factory settings. (The Open-Loop Vector Control factory settings will be displayed.)



■ **Motor 2 Setup: E5**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
E5-01	Motor 2 Rated Current	Sets the motor rated current in 1 A units. * These set values will become the reference values for motor protection, torque limits and Torque control. These values will automatically be set if they were set during Auto-Tuning.	0.32 to 6.40 ^{*2}	1.90 ^{*1}	X	A	X	A	X	144
	Motor 2 Rated FLA									
E5-02	Motor 2 Rated Slip	Sets the motor rated slip in Hz units. * These set values will become the reference values for slip compensation. These values will be automatically set during Auto-Tuning.	0.00 to 20.00	2.90 ^{*1}	X	A	X	A	X	145
	Motor 2 Slip Freq									
E5-03	Motor 2 No-Load Current	Sets the motor no-load current in 1 A units. * These values will automatically be set during Auto-Tuning.	0.00 to 1500.0	1.20 ^{*1}	X	A	X	A	X	145
	Motor 2 No-Load 1									
E5-04	Motor 2 Number of Poles	Sets the number of motor poles. * These values will automatically be set during Auto-Tuning.	2 to 48	4	X	X	X	X	X	—
	Motor 2 # Poles									
E5-05	Motor 2 Line-to-Line Resistance	Sets the motor phase-to-phase resistance in \times units. * These values will be automatically set during Auto-Tuning.	0.000 to 65.000	9.842 ^{*1}	X	A	X	A	X	145
	Motor 2 Term Ohms									
E5-06	Motor 2 Leak Inductance	Sets the voltage drop due to motor leakage inductance as a percentage of the motor rated voltage. * These values will be automatically set during Auto-Tuning.	0.0 to 30.0	18.2 ^{*1}	X	X	X	A	X	145
	Motor 2 Leak									

^{*1} The factory setting depends upon the Inverter capacity. The values for a 200 V class Inverter of 0.4 kW will be displayed. See Page 258.

^{*2} The setting range is 10% to 200% of the Inverter's rated output current. The values for a 200 V class Inverter of 0.4 kW will be displayed.

8.2.5 Options Constants: F

■ PG Option Setup: F1

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
F1-01	PG Constant	Sets the number of PG pulses. * Sets the number of pulses per motor revolution.	0 to 60000	600	X	X	Q	X	Q	121, 134
	PG Pulse/Rev									
F1-02	Operation Selection at PG Open Circuit	Sets the PG disconnection stopping method. 0: Ramp to stop. (Deceleration stop using deceleration time 1, C1-02.) 1: Coast to stop. 2: Fast stop. (Emergency stop using the fast-stop time, C1-09.) 3: Continue operation. (This setting cannot be made with Flux Vector Control.)	0 to 3	1	X	X	B	X	B	122, 135
	PG Fdbk Loss Sel									
F1-03	Operation Selection at Overspeed	Sets the stopping method when an overspeed (os) fault occurs. 0: Ramp to stop (Deceleration stop using deceleration time 1, C1-02.) 1: Coast to stop 2: Fast stop (Emergency stop using the fast-stop time, C1-09.) 3: Continue operation (This setting cannot be made with Flux Vector Control.)	0 to 3	1	X	X	B	X	B	123, 135
	PG Overspeed Sel									
F1-04	Operation Selection at Deviation	Sets the stopping method when a Speed Deviation (DEV) fault occurs. 0: Ramp to stop. (Deceleration stop using deceleration time 1, C1-02.) 1: Cast to stop. 2: Fast stop. (Emergency stop using fast-stop time, C1-09.) 3: Continue operation. (DEV is displayed and control continued.)	0 to 3	3	X	X	B	X	B	123, 135
	PG Deviation Sel									
F1-05	PG Rotation	0: Phase-A leads with forward run command. (Phase-B leads with reverse run command.) 1: Phase-B leads with forward run command. (Phase-A leads with reverse run command.)	0, 1	0	X	X	B	X	B	121
	PG Rotation Sel									
F1-06	PG Division Rate (PG Pulse Monitor)	Sets the division ratio for the PG Speed Option Card pulse output. Division ratio = $(1+n) / m$ ($n=0, 1$ $m=1$ to 32) F1-06= $\frac{n}{m}$	1 to 132	1	X	X	B	X	B	122
	PG Output Ratio									
F1-07	Integral Value During Accel/Decl Enable/Disable	Sets integral control during acceleration/deceleration to either enabled or disabled. 0: Disabled. (The integral function is not used while accelerating or decelerating; it is used at constant speeds.) 1: Enabled. (The integral function is used at all times.)	0, 1	0	X	X	B	X	X	134
	PG Ramp PI/I Sel									



Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
F1-08	Overspeed Detection Level	Sets the overspeed detection method. Frequencies above that set for F1-08 (set as a percentage of the maximum output frequency), which continue to exceed this frequency for the detection time (F1-09), are detected as overspeed faults.	0 to 120	115	X	X	A	X	A	123, 135
	PG Overspd Level									
F1-09	Overspeed Detection Delay Time		0.0 to 2.0	0.0*	X	X	A	X	A	123, 135
	PG Overspd Time									
F1-10	Excessive Speed Deviation Detection Level	Sets the Speed Deviation detection method. Any Speed Deviation above the F1-10 set level (set as a percentage of the maximum output frequency), which continues for the deviation detection time (F1-11) is detected as a Speed Deviation. * Speed deviation is the difference between actual motor speed and the reference command speed.	0 to 50	10	X	X	A	X	A	123, 135
	PG Deviate Level									
F1-11	Excessive Speed Deviation Detection Delay Time		0.0 to 10.0	0.5	X	X	A	X	A	123
	PG Deviate Time									
F1-12	Number of PG Gear Teeth 1	Sets the number of teeth on the gears if there are gears between the PG and the motor. No. of pulses input PG x 60 F1-13 = _____ X _____ No. of PG pulses (F1-01) Motor gear teeth F1-12	0 to 1000	0	X	X	A	X	X	134
	PG# Gear Teeth 1									
F1-13	Number of PG Gear Teeth 2	* A gear ratio of 1 will be used if either of these constants is set to 0.		0	X	X	A	X	X	134
	PG# Gear Teeth 2									
F1-14	PG Open-Circuit Detection Time	Used to set the PG disconnection detection time. PGO will be detected if the detection time continues beyond the set time.	0.0 to 10.0	2.0	X	X	A	X	A	122, 135
	PGO Time									

* The setting range will change when the control method is changed. (The setting range for Open-Loop Vector Control will be displayed.)

■ Other Options Setup: F2 through F9

F2: Analog Reference Card
 F3: Digital Reference Card
 F4: Analog Monitor Card
 F5: DO-02 Digital Output Card

F6: DO-08 Digital Output Card
 F7: Pulse Monitor Card
 F8: SI-F/G
 F9: DOS/SI-B

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
F2-01	Bi-Polar or Uni-Polar Input Selection	Sets the function for channel 1 to 3 which are effective when the A1-14B Analog Reference Card is used. 0: 3-channel individual (Channel 1: Terminal 13, Channel 2: Terminal 14, Channel 3: Terminal 16) 1: 3-channel addition (Addition values are the frequency reference) * When set to 0, select 1 for b1-01. In this case the multi-function input "Option/Inverter selection" cannot be used.	0, 1	0	X	B	B	B	B	184
	AI-14 Input Sel									
F3-01	Digital Input Option	Sets the Digital Reference Card input method. 0: BCD 1% unit 1: BCD 0.1% unit 2: BCD 0.01% unit 3: BCD 1 Hz unit 4: BCD 0.1 Hz unit 5: BCD 0.01 Hz unit 6: BCD special setting (5-digit input) 7: Binary input * 6 is only effective when the DI-16H2 is used.	0 to 7	0	X	B	B	B	B	184
	DI Input									
F4-01	Channel 1 Monitor Selection	Effective when the Analog Monitor Card is used. Monitor selection: Set the number of the monitor item to be output. (U1-□□)	1 to 33	2	X	B	B	B	B	185
	AO Ch1 Select									
F4-02	Channel 1 gain	Gain: Set the multiple of 10 V for outputting monitor items. * 4, 10, 11, 12, 13, 14, 25, and 28 cannot be set. 29 to 31 are not used. When the AO-12 is used outputs of ±10 V are possible. In this case, set H4-07 (select multi-function analog output signal level) to 1. When the AO-08 is used, only outputs of 0 to +10 V are possible.	0.00 to 2.50	1.00	○	B	B	B	B	185
	AO Ch1 Gain									
F4-03	Channel 2 Monitor Selection	* 4, 10, 11, 12, 13, 14, 25, and 28 cannot be set. 29 to 31 are not used. When the AO-12 is used outputs of ±10 V are possible. In this case, set H4-07 (select multi-function analog output signal level) to 1. When the AO-08 is used, only outputs of 0 to +10 V are possible.	1 to 33	3	X	B	B	B	B	185
	AO Ch2 Select									
F4-04	Channel 2 Gain	* 4, 10, 11, 12, 13, 14, 25, and 28 cannot be set. 29 to 31 are not used. When the AO-12 is used outputs of ±10 V are possible. In this case, set H4-07 (select multi-function analog output signal level) to 1. When the AO-08 is used, only outputs of 0 to +10 V are possible.	0.00 to 2.50	0.50	○	B	B	B	B	185
	AO Ch2 Gain									
F5-01	Channel 1 Output Selection	Effective when a Digital Output Card is used. Set the number of multi-function output to be output.	0.0 to 37	0	X	B	B	B	B	185
	DO-02 Ch1 Select									
F5-02	Channel 2 Output Selection	Effective when a Digital Output Card is used. Set the number of the multi-function output to be output.	0.0 to 37	1	X	B	B	B	B	185
	DO-02 Ch2 Select									



Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
F6-01	Output Mode Selection	Effective when a DO-08 Digital Output Card is used. 0: 8-channel individual outputs 1: Binary code output	0, 1	0	X	B	B	B	B	186
	DO-08 Selection									
F7-01	Frequency Multiple Selection	Effective when the Pulse Monitor Card is used. Sets the number of output pulses. 0: 1F, 1: 6F, 2: 10F, 3: 12F, 4: 36F * F=the output frequency displayed in Hz. Example: When 0 (1F) is set, and the output frequency is 60 Hz, 60 pulses per second are output. (50% duty)	0 to 4	1	X	B	B	B	B	186
	PO-36F Selection									
F8-01	Optional Option (SI-F/G)	0: Deceleration to stop 1: Coast to stop 2: Emergency stop 3: Continue operation	0 to 3	1	○	B	B	B	B	—
	E-15 Det Sel									
F9-01	External Fault Input Level from Optical Option	0: NO contact 1: NC contact	0, 1	0	X	B	B	B	B	—
	E-15 Selection									
F9-02	External Fault from Optical Option	0: Always detect 1: Detect during operation	0, 1	0	X	B	B	B	B	—
	EFO Detection									
F9-03	Action for External Fault from Optical Option	0: Deceleration to stop 1: Coast to stop 2: Emergency stop 3: Continue operation	0 to 3	1	X	B	B	B	B	—
	EFO Fault Act									
F9-04	Optical Option Trace Sampling Time	—	0 to 60000	0	X	B	B	B	B	—
	Trace Sample Time									

8.2.6 Terminal Constants: H

Multi-Function Inputs: H1

Constant Number	Name	Display	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
						V/f	V/f with PG	Open-Loop Vector	Flux Vector	
H1-01	Multi-function input 1 (Terminal 3)	Terminal 3 Sel	0 to 77	24	X	B	B	B	B	107, 188
H1-02	Multi-function input 2 (Terminal 4)	Terminal 4 Sel	0 to 77	14	X	B	B	B	B	107, 188
H1-03	Multi-function input 4 (Terminal 5)	Terminal 5 Sel	0 to 77	3(0)*	X	B	B	B	B	107, 108, 188
H1-04	Multi-function input 3 (Terminal 6)	Terminal 6 Sel	0 to 77	4(3)*	X	B	B	B	B	107, 108, 188
H1-05	Multi-function input 5 (Terminal 7)	Terminal 7 Sel	0 to 77	6(4)*	X	B	B	B	B	107, 108, 188
H1-06	Multi-function input 6 (Terminal 8)	Terminal 8 Sel	0 to 77	8(6)*	X	B	B	B	B	107, 108, 188

* The values in parentheses indicate initial values when initialized in 3-wire sequence.

Multi-Function Input Functions

Setting Value	Function	Control Methods				Page
		V/f	V/f with PG	Open-Loop-Vector	Flux Vector	
0	3-wire sequence (Forward/Reverse run command.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	108
1	Local/Remote selection (ON: Operator, OFF: Constant setting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	187
2	Option/Inverter selection (ON: Option Card)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	187
3	Multi-step speed reference 1 When H3-05 is set to "0", this function is combined with "Master/auxiliary speed switch".	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	108
4	Multi-step speed reference 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	108
5	Multi-step speed reference 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	108
6	Jog frequency reference (higher priority than multi-step speed reference)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	108
7	Accel/Decel time 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	111
8	External baseblock NO (NO contact: Baseblock at ON)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	188
9	External baseblock NC (NC contact: Baseblock at OFF)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	188
A	Accel/Decel ramp hold (ON: Accel/decel stopped, frequency on hold)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	189
B	OH2 alarm signal input (ON: Oh2 will be displayed)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	189
C	Multi-function analog input selection (ON: Enable)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	190
D	No V/f Control with PG (ON: speed feedback control disabled) (normal V/f Control)	X	<input type="radio"/>	X	X	190
E	Speed Control integral reset (ON: Integral control disabled)	X	<input type="radio"/>	X	<input type="radio"/>	190
F	Not used. (Do not input this setting.)	—	—	—	—	—
10	Up command (Always set with the down command)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	190
11	Down command (Always set with the up command)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	190
12	FJOG command (ON: Forward run at jog frequency d1-09)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	111
13	RJOG command (ON: Reverse run at jog frequency d1-09)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	111
14	Fault reset (Reset when turned ON)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	191
15	Emergency stop (ON: Deceleration to stop in emergency stop time C1-09)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	111
16	Motor switch command (Motor 2 selection)	<input type="radio"/>	—	<input type="radio"/>	—	191
18	Timer function input (Functions are set with b4-01, b4-02 and the timer function is set at the same time.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	172
19	PID Control disable (ON: PID Control disabled)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	192
1A	Accel/Decel time 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	111
1B	Constants write enable (ON: All constants can be written-in. OFF: All constants other than frequency monitor are write protected.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	192
1C	Trim Control increase (ON: d4-02 frequencies are added to analog frequency references.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	192
1D	Trim Control decrease (ON: d4-02 frequencies are subtracted from analog frequency references.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	192
1E	Analog frequency reference sample/hold	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	193
1F	Frequency reference Terminal 13/14 selection (ON: Selects Terminal 14.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	111
20 to 2F	External fault (Desired settings possible.) Input mode: NO contact/NC contact. Detection mode: Normal/during operation. Stopping method: Deceleration to stop, coast to stop, emergency stop or continue operation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	193
30	PID Control integral reset (ON: Reset)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
60	DC Injection Braking command (ON: Performs DC Injection Braking)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	196
61	External speed search command 1: Maximum output frequency (ON: speed search)	<input type="radio"/>	X	<input type="radio"/>	X	196
62	External speed search command 2: Set frequency (ON: speed search)	<input type="radio"/>	X	<input type="radio"/>	X	196
63	Energy Saving command (ON: Energy Saving Control set for b8-01, b8-02)	<input type="radio"/>	<input type="radio"/>	X	X	147
64	External speed search command 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
65	KEB (deceleration at momentary power loss) command (NO contact)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
66	KEB (deceleration at momentary power loss) command (NO contact)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
71	Speed/Torque Control Change (ON: Torque control)	X	X	X	<input type="radio"/>	196
72	Zero Servo command (ON: Zero Servo)	X	X	X	<input type="radio"/>	197
77	Speed Control (ASR) proportional gain switch (ON: C5-03)	X	X	X	<input type="radio"/>	197



■ Multi-Function Outputs: H2

Constant Number	Name	Display	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
						V/f	V/f with PG	Open-Loop Vector	Flux Vector	
H2-01	Multi-function input (Terminal 9-10)	Terminal 9 Sel	0 to 37	0	X	B	B	B	B	198
H2-02	Multi-function input (Terminal 25-27)	Terminal 25 Sel	0 to 37	1	X	B	B	B	B	198
H2-03	Multi-function input (Terminal 26-27)	Terminal 26 Sel	0 to 37	2	X	B	B	B	B	198

Multi-Function Output Functions

Setting Value	Function	Control Methods				Page(s)
		V/f	V/f with PG	Open-Loop Vector	Flux Vector	
0	During run (ON: run command is ON or voltage is being output)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	198
1	Zero Speed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	199
2	Frequency agree 1: (Detection width L4-02)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
3	Desired frequency agree 1 (ON: Output frequency = ±L4-01, detection width in L4-02)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
4	Frequency (Four) detection 1 (ON: +L4-01 ≥ output frequency ≥ -L4-01, detection width in L4-02)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
5	Frequency (Four) detection 2 (ON: Output frequency ≥ +L4-01 or output frequency ≤ -L4-01, detection width in L4-02)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
6	Inverter operation ready READY: After initialization, no faults	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
7	During DC bus undervoltage (UV) detection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
8	During baseblock (ON: During baseblock)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
9	Frequency reference selection (ON: Frequency reference from Operator)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
A	Run command selection (ON: Run command from Operator)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
B	Overtorque detection 1 NO (NO contact: Overtorque detection at ON)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	213
C	Loss of frequency reference (Effective when operation selection is "1" for L4-05 frequency reference missing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
D	Braking resistor fault (ON: Resistor overheat or braking transistor fault)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
E	Fault (ON: Faults other than CPF00, CPF01 have occurred.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	262
F	Not used. (Do not set.)	—	—	—	—	—
10	Minor fault (ON: Alarm displayed)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	265
11	Fault reset command active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
12	Timer function output	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	172
13	Frequency agree 2 (Detection width: L4-04)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
14	Desired frequency agree 2 (ON: Output frequency = L4-03, detection width in L4-04)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
15	Frequency detection 3 (ON: Output frequency ≤ -L4-03, detection width in L4-04)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
16	Frequency detection 4 (ON: Output frequency ≥ -L4-03, detection width in L4-04)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	210
17	Overtorque detection 1 NC (NC contact: Torque detection at OFF)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	213
18	Overtorque detection 2 NO (NO contact: Torque detection at ON)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	213
19	Overtorque detection 2 NC (NC contact: Torque detection at OFF)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	213
1A	During reverse run (ON: During reverse run)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
1B	During baseblock 2 (OFF: During baseblock)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	—
1C	Motor selection (Motor under selection)	—	—	—	—	—
1D	Regenerating (ON: Regenerating)	X	X	X	<input type="radio"/>	—
1E	Restart enabled (On: Restart enabled)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	212
1F	Motor overload (OL1) pre-alarm (ON: 90% or more of the detection level)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	199
20	Inverter overheat (OH) pre-alarm (ON: Temperature exceeds L8-02 setting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	199
30	During torque limit (current limit) (ON: During torque limit)	X	X	<input type="radio"/>	<input type="radio"/>	—
31	During speed limit (ON: During speed limit)	X	X	X	<input type="radio"/>	—
33	Zero Servo end (ON: Zero Servo function completed)	X	X	X	<input type="radio"/>	199
37	During run 2 (ON: Frequency output, OFF: Baseblock, DC Injection Braking, initial excitation, operation stop.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	198

■ Analog Inputs: H3

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
H3-01	Signal level selection (Terminal 13)	0: 0 to +10V 1: 0 to ±10V	0, 1	0	X	B	B	B	B	98, 155
	Term 13 Signal									
H3-02	Gain (Terminal 13)	Sets the frequency when 10 V is input, as a percentage of the maximum output frequency.	0.0 to 1000.0	100.0	○	B	B	B	B	100, 158
	Terminal 13 Gain									
H3-03	Bias (Terminal 13)	Sets the frequency when 0 V is input, as a percentage of the maximum frequency.	-100.0 to +100.0	0.0	○	B	B	B	B	100, 158
	Terminal 13 Bias									
H3-04	Signal level selection (Terminal 16)	0: 0 to +10V 1: 0 to ±10V	0, 1	0	X	B	B	B	B	100, 155, 158
	Term 16 Signal									
H3-05	Multi-function analog input (Terminal 16)	Select from the functions listed in the following table. Refer to Page 200.	0 to 1F	0	X	B	B	B	B	98, 142, 154, 157, 161, 200
	Terminal 16 Sel									
H3-06	Gain (Terminal 16)	Sets the input gain (level) when Terminal 16 is 10 V. Set according to the 100% value on Page 200.	0.0 to 1000.0	100.0	○	B	B	B	B	100, 158
	Terminal 16 Gain									
H3-07	Bias (Terminal 16)	Sets the input gain (level) when Terminal 16 is 0 V. Set according to the 100% value on Page 200.	-100.0 to +100.0	0.0	○	B	B	B	B	100, 158
	Terminal 16 Bias									
H3-08	Signal level selection (Terminal 14)	0: 0 to +10 V (Always cut jumper wire J1) 1: 0 to ±10 V (Always cut jumper wire J1) 2: 4 to 20 mA	0 to 2	2	X	A	A	A	A	98, 154, 158
	Term 14 Sel									
H3-09	Multi-function analog input (Terminal 14)	Set as for H3-05. * Cannot be set to 0. The 1F function will become "frequency reference".	1 to 1F	1F	X	A	A	A	A	98, 142, 157, 161, 200
	Terminal 14 Sel									
H3-10	Gain (Terminal 14)	Sets the input gain (level) when Terminal 14 is 10 V (20 mA). Set according to the 100% value on Page 200. If H3-09 = "1F" the setting in H3-02 is used.	0.0 to 1000.0	100.0	○	A	A	A	A	100, 158
	Terminal 14 Gain									
H3-11	Bias (Terminal 14)	Sets the input gain (level) when Terminal 14 is 0 V (4 mA). Set according to the 100% value on Page 200. If H3-09 = "1F" the setting in H3-03 is used.	-100.0 to +100.0	0.0	○	A	A	A	A	100, 158
	Terminal 14 Bias									
H3-12	Analog input filter time constant	Sets Terminals 13, 14 and 16 to primary delay filter time constant, in seconds units. * Effective for noise control, etc.	0.00 to 2.00	0.00	X	A	A	A	A	100, 101
	Filter Avg Time									



H3-05 and H3-09 Settings

Setting	Function	Contents	Control Methods			
			V/f	V/f with PG	Open-Loop-Vector	Flux Vector
0	H3-05: Auxiliary frequency reference	Maximum output frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	H3-09: "-0" cannot be set					
1	Frequency gain	Frequency reference (voltage) command value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Frequency gain	Maximum output frequency (added to H3-03)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Voltage bias	Motor rated voltage (E1-05)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
5	Acce/decel change (reduction coefficient)	Set acceleration and deceleration times (C1-01 to C1-08)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	DC Injection Braking current	Inverter rated output current	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
7	Overtorque detection level	Motor rated torque	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Stall Prevention level during run	Inverter rated current	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
9	Frequency reference lower limit level	Maximum output frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A	Jump frequency	Maximum output frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B	PID feedback	Maximum output frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	Forward torque limit	Motor's rated torque	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	Reverse torque limit	Motor's rate torque	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	Regeneration torque limit	Motor's rated torque	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	Torque reference/torque limit at Speed Control	Motor's rated torque	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
14	Torque compensation bias	Motor's rated torque	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
15	Forward/reverse side torque limit	Motor's rated torque	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
1F	H3-05: Not used (Terminal 14: frequency reference)	—	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	H3-09: Frequency reference	Maximum output frequency				

■ **Analog Outputs: H4**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
H4-01	Monitor selection (Terminal 21)	Sets the number of the monitor item to output (U1-□□) from Terminal 21. * 4, 10, 11, 12, 13, 14, 25 and 28 cannot be set and 29 to 31 are not used.	1 to 33	2	X	B	B	B	B	202
	Terminal 21 Sel									
H4-02	Gain (Terminal 21)	Sets the multi-function analog output 1 voltage level gain. Sets whether the monitor item output will be output in multiples of 10 V.	0.00 to 2.50	1.00	○	B	B	B	B	202
	Terminal 21 Gain									
H4-03	Bias (Terminal 21)	Sets the multi-function analog output 1 voltage level bias. Sets output characteristic up/down parallel movement as a percentage of 10 V.	-10.0 to +10.0	0.0	○	B	B	B	B	202
	Terminal 21 Bias									
H4-04	Monitor selection (Terminal 23)	Sets the number of the monitor item to be output (U1-□□) from Terminal 23. * 4, 10, 11, 12, 13, 14, 25 and 28 cannot be set and 29 to 31 are not used.	1 to 33	3	X	B	B	B	B	202
	Terminal 23 Sel									
H4-05	Gain (Terminal 23)	Sets the multi-function analog output 2 voltage level gain. Sets whether the monitor item output will be output in multiples of 10 V.	0.00 to 2.50	0.50	○	B	B	B	B	202
	Terminal 23 Gain									
H4-06	Bias (Terminal 23)	Sets the multi-function analog output 2 voltage level bias. Sets output characteristic up/down parallel movement as a percentage of 10 V.	-10.0 to +10.0	0.0	○	B	B	B	B	202
	Terminal 23 Bias									
H4-07	Analog output signal level selection	Sets the signal output level for multi-function outputs 1 and 2 (Terminals 21 and 23.) 0: 0 to +10 V output 1: 0 to +10 V output * The optional Analog Monitor Card may also be used with this setting.	0, 1	0	X	B	B	B	B	202
	AO Level Select									

■ **MEMOBUS Communications: H5**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
H5-01	Station address	Set the Inverter's node address.	0 to 20	1	X	A	A	A	A	203
	Serial Com ADR									
H5-02	Communication speed selection	Set the baud rate for 6CN MEMOBUS communications. 0: 1200 bps 1: 2400 bps 2: 4800 bps 3: 9600 bps	0 to 3	1	X	A	A	A	A	203
	Serial Com Sel									
H5-03	Communication parity selection	Set the parity of 6CN MEMOBUS communications. 0: No parity 1: Even parity 2: Odd parity	0, 1, 2	1	X	A	A	A	A	203
	Serial Com Sel									
H5-04	Stopping method after communication error	Set the stopping method for communications errors. 0: Deceleration stop 1: Coast to stop 2: Emergency stop 3: Continue operation	0 to 3	1	X	A	A	A	A	203
	Serial Fault Sel									
H5-05	Communication error detection selection	Set whether or not a communications timeout is to be detected as a communications error. 0: Do not detect 1: Detect	0, 1	1	X	A	A	A	A	203
	Serial Flt Dtct									



8.2.7 Protection Constants: L

■ Motor Overload: L1

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L1-01	Motor protection selection	Sets whether the motor overload function is enabled or disabled at electric thermal overload relay. 0: Disabled 1: Enabled * In some applications when the Inverter power supply is turned OFF, the thermal value is reset, so even if this constant is set to 1, (Enabled), protection may not be effective. When several motors are connected to one Inverter, set to 0 (Disabled) and ensure that each motor is installed with a protection device.	0, 1	1	X	B	B	B	B	204
	MOL Fault Select									
L1-02	Motor protection time constant	Sets the electric thermal detection time in seconds units. * Usually setting is not necessary. The factory setting is 150% overload for one minute. When the motor's overload resistance is known, set at the overload resistance when the motor is hot started.	0.1 to 5.0	1.0	X	B	B	B	B	204
	MOL Time Const									

■ Power Loss Ridethru: L2

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L2-01	Momentary power loss detection	0: Disabled (Undervoltage fault detection.) 1: Enabled (Restarted when the power returns within the time for L2-02. When L2-02 is exceeded, undervoltage fault detection.) 2: Enabled while CPU is operating. (Restarts when power returns during control operations. Does not detect undervoltage fault.	0 to 2	0	X	B	B	B	B	205
	PwrL Selection									
L2-02	Momentary power loss ridethru time	Sets the recovery time, when momentary power loss selection (L3-01) is set to 1, in units of one second.	0.0 to 2.0	0.7 *1	X	B	B	B	B	205
	PwrL Ridethru t									
L2-03	Min. baseblock time	Sets the Inverter's minimum baseblock time in units of one second, when the Inverter is restarted after power loss ridethrough. * Sets the time for the motor's residual voltage to dissipate. When an overcurrent occurs when starting a speed search or DC Injection Braking, increase the set values.	0.0 to 5.0	0.5 *1	X	B	B	B	B	171, 206
	PwrL Baseblock t									

Chapter 8: User Constants

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L2-04	Voltage recovery time	Sets the time required to return to normal voltage at the completion of a speed search, in units of one second. * Set the time required for a 200 V class Inverter to recover from 0 V to 200 VAC. (For the 400 V class Inverter, the time from 0 V to 400 VAC.)	0.0 to 5.0	0.3	X	A	A	A	A	206
	PwrL V/F Ramp t									
L2-05	Undervoltage detection level	Sets the main circuit under voltage (UV) detection level (main circuit DC voltage) in V units. * Usually setting is not necessary. Insert an AC Reactor to lower the main circuit undervoltage detection level.	150 to 210 ^{*2}	190 ^{*2}	X	A	A	A	A	206
	PUV Det Level									
L2-06	KEB deceleration rate	Restores the operating conditions for momentary power loss by applying a frequency deceleration to create inertia energy when a power loss occurs, and thus avoid the power loss.	0.0 to 100.0	0.0	X	A	A	A	A	206
	KEB Frequency									

^{*1} The factory setting depends upon the Inverter capacity. The values for a 200 V class Inverter of 0.4 kW will be displayed. See Page 258.

^{*2} These are values for a 200 V class Inverter. Value for a 400 V class Inverter is double.



■ Stall Prevention: L3

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L3-01	Stall Prevention selection during accel	0: Disabled (Acceleration as set. With a heavy load, the motor may stall.) 1: Enabled (Acceleration stopped when L3-02 level is exceeded. Acceleration starts again when the current is returned.) 2: Intelligent acceleration mode (Using the L3-02 level as a basis, acceleration is automatically adjusted. Set acceleration time is disregarded.)	0 to 2	1	X	B	B	B	X	207
	StallP Accel Sel									
L3-02	Stall prevention level during accel	Effective when L3-01 is set to 1 or 2. Set as a percentage of Inverter rated current. * Usually setting is not necessary. The factory setting reduces the set values when the motor stalls.	0 to 200	150	X	B	B	B	X	207
	StallP Accel Lvl									
L3-03	Stall prevention limit during accel	Sets the lower limit for stall prevention during acceleration, as a percentage of the Inverter rated current, when operation is in the frequency range above the maximum voltage frequency (E1-06). * Usually setting is not necessary.	0 to 100	50	X	A	A	A	X	208
	StallP CHP Lvl									
L3-04	Stall prevention selection during decel	0: Disabled (Deceleration as set. If deceleration time is too short, a main circuit overvoltage may result.) 1: Enabled (Deceleration is stopped when the main circuit voltage exceeds the overvoltage level. Deceleration restarts when voltage is returned.) 2: Intelligent deceleration mode (Deceleration rate is automatically adjusted so that the Inverter can decelerate in the shortest possible time. Set deceleration time is disregarded.) * When a braking option (Braking Resistor, Braking Resistor Unit, Braking Unit) is used, always set to 0 (Disabled).	0 to 2	1	X	B	B	B	B	208
	StallP Decel Sel									
L3-05	Stall prevention selection during running	0: Disabled (Runs as set. With a heavy load, the motor may stall.) 1: Enabled: Deceleration time 1 (The deceleration time for the Stall Prevention function is C1-02.) 2: Enabled: Deceleration time 2 (The deceleration time for the Stall Prevention function is C1-04).	0 to 2	1	X	B	B	X	X	209
	StallP Run Sel									
L3-06	Stall prevention level during running	Effective when L3-04 is 1 or 2. Set as a percentage of the Inverter rated current. * Usually setting is not necessary. The factory setting reduces the set values when the motor stalls.	30 to 200	160	X	B	B	X	X	209
	StallP Run Level									

■ Reference Detection: L4

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L4-01	Speed agree detection level	Effective when "Desired frequency (Ref/Setting) agree 1", "Frequency detection 1", and "Frequency detection 2" are set for multi-function output. Frequencies to be detected are set in Hz units.	0.0 to 400.0	0.0	X	B	B	B	B	210
	Spd Agree Level									
L4-02	Speed agree detection width	Effective when "Frequency (Ref/Out) agree 1", "Desired frequency (Ref/Setting) agree 1", Frequency detection 1", and Frequency detection 2" are set for multi-function output. Sets the frequency detection width in Hz units.	0.0 to 20.0	2.0	X	B	B	B	B	210
	Spd Agree Width									
L4-03	Speed Agree detection level (+/-)	Effective when "Desired frequency (Ref/Setting) agree 2", "Frequency detection 2", "Frequency detection 3", and "Frequency detection 4" are set for multi-function output. Frequency detection width is set in Hz units.	-400.0 to +400.0	0.0	X	A	A	A	A	210
	Spd Agree Lvl + -									
L4-04	Speed agree detection width (+/-)	Effective when "Frequency (Ref/Out) agree 2", "Desired frequency (Ref/Setting) agree 1", Frequency detection 3", and "Frequency detection 4" are set for multi-function output. Frequency detection width is set in Hz units.	0.0 to 20.0	2.0	X	A	A	A	A	210
	Spd Agree Wdth + -									
L4-05	Operation when frequency reference is missing	0: Stop (Operation follows the frequency reference.) 1: Operation at 80% speed continues. (At 80% of speed before the frequency reference was lost.) * Frequency reference is lost: Frequency reference dropped over 90% in 400 ms.	0, 1	0	X	A	A	A	A	211
	Ref Loss Sel									

■ Fault Restart: L5

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L5-01	Number of auto restart attempts	Sets the number of auto restart attempts. Automatically restarts after a fault and conducts a speed search from the run frequency.	0 to 10	0	X	B	B	B	B	212
	Num of Restarts									
L5-02	Auto restart operation selection	Sets whether a fault contact output is activated during fault restart. 0: Not output (Fault contact is not activated.) 1: Output (Fault contact is activated.)	0, 1	0	X	B	B	B	B	213
	Restart Sel									

■ Torque Detection: L6

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L6-01	Torque detection selection 1	0: Overtorque detection disabled. 1: Detection during speed agree only/operation continues after detection. (Minor fault) 2: Detection during run/operation continues after detection. (Minor fault) 3: Detection during speed agree only/Inverter output is shut OFF after detection. (Fault) 4: Detection during run/Inverter output is shut OFF after detection. (Fault)	0 to 4	0	X	B	B	B	B	213
	Torq Det 1 Sel									
L6-02	Torque detection level 1	Vector Control: Motor rated torque is set as 100%. Vector Control: Inverter rated current is set as 100%.	0 to 300	150	X	B	B	B	B	213
	Torq Det 1 Lvl									
L6-03	Torque detection time 1	Sets the torque detection time in 1 second units.	0.0 to 10.0	0.1	X	B	B	B	B	213
	Torq Det 1 Time									
L6-04	Torque detection selection 2	Setting procedure is the same as for "Torque detection selection 1" (L6-01 to L6-03). The following output are possible: Torque detection selection 1: Multi-function output "Torque detection selection 1" NO/NC	0 to 4	0	X	A	A	A	A	213
	Torq Det 2 Sel									
L6-05	Torque detection level 2	Torque detection selection 2: Multi-function output "Torque detection selection 2" NO/NC	0 to 300	150	X	A	A	A	A	213
	Torq Det 2 Lvl									
L6-06	Torque detection time 2	Torque detection selection 2: Multi-function output "Torque detection selection 2" NO/NC	0.0 to 10.0	0.1	X	A	A	A	A	213
	Torq Det 2 Time									

■ Torque Limit: L7

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L7-01	Forward torque limit	Sets the torque limit value as a percentage of the motor rated torque. Four individual regions can be set.	0 to 300	200	X	X	X	B	B	141, 160
	Torq Limit Fwd									
L7-02	Reverse torque limit		0 to 300	200	X	X	X	B	B	141, 160
	Torq Limit Rev									
L7-03	Forward regenerative torque limit		0 to 300	200	X	X	X	B	B	141, 160
	Torq Lmt Fwd Rgn									
L7-04	Reverse regenerative torque limit		0 to 300	200	X	X	X	B	B	141, 160
	Torq Lmt Rev Rgn									

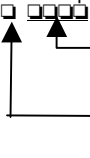
■ **Hardware Protection: L8**

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
L8-01	Protect selection for internal DB resistor (Type ERF)	0: Disabled (No overheating protection.) 1: Enabled (Overheating protection.)	0, 1	0	X	B	B	B	B	214
	DB Resistor Prot									
L8-02	Overheat pre-alarm level	Sets the detection temperature for the Inverter overheat detection pre-alarm in °C.	50 to 110	95	X	A	A	A	A	214
	OH Pre-Alarm Lvl	* The pre-alarm detects when the cooling fin temperature reaches the set value.								
L8-03	Operation selection after overheat pre-alarm	Sets the operation for when the Inverter overheat pre-alarm goes ON.	0 to 3	3	X	A	A	A	A	214
	OH Pre-Alarm Sel	0: Ramp to stop in deceleration time C1-02. 1: Coast to stop 2: Fast stop in fast stop time C1-09. 3: Continue operation (Monitor display only.) * A fault will be given in setting 0 to 2 and a minor fault will be given in Setting 3.)								
L8-05	Input open-phase protection selection	0: Disabled 1: Enabled (Detects if input current open-phase, power supply voltage imbalance or main circuit electrostatic capacitor deterioration occurs.)	0, 1	0	X	A	A	A	A	214
	Ph Loss In Sel									
L8-07	Output open-phase protection selection	0: Disabled 1: Enabled (Output open-phase detected less than 5% of Inverter rated current.)	0, 1	0	X	A	A	A	A	215
	Ph Loss Out Sel	* Output open-phase may be detected inadvertently when applied motor capacity is small for Inverter capacity. In this case, set to 0. (Disabled)								



8.2.8 Operator Constants: o

▪ Monitor Select: o1

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
o1-01	Monitor selection	Set the number of the monitor item to be displayed in the earliest 4 monitor items. (U1-□□) * The output monitor voltage (factory setting) can be changed.)	4 to 33	6	○	B	B	B	B	215
	Monitor Select									
o1-02	Monitor selection after power up	Sets the monitor item to be displayed when the power is turned on. 1: Frequency reference 2: Output frequency 3: Output current 4: The monitor item set for o1-01	1 to 4	1	○	B	B	B	B	69, 215
	Power-On Monitor									
o1-03	Frequency units of reference setting and monitor	Sets the units that will be set and displayed for the frequency reference and frequency monitor. 0: 0.01 Hz units 1: 0.01% units (Maximum output frequency is 100%.) 2 to 39: r/min units (Sets the motor poles. Cannot be set in Flux Vector Control.) 40 to 399999: User desired display. Set the desired values for setting and display for the maximum output frequency.  Set four digits without the decimal point. Set the position of the decimal point in the first digit. Example: When the maximum output frequency value is 200.0, set 12000.	0 to 39999	0	X	B	B	B	B	101, 216
	Display Scaling									
o1-04	Frequency units of constant setting	Set the V/f pattern setting units. (E1-04, 06 and 09 set units.) 0: Hz units 1: r/min units * Effective only in the Flux Vector Control mode.	0, 1	0	X	X	X	X	B	162, 216
	Display Units									
o1-05	Constant number display selection	Set the Operator constant number display method. 0: Normal display (e.g., A1-00) 1: Display MEMOBUS communications register address.	0, 1	0	X	A	A	A	A	216
	Address Display									

■ Multi-Function Selections: o2

Constant Number	Name	Description	Setting Range	Factory Setting	Change During Operation	Control Methods				Page (s)
	Display					V/f	V/f with PG	Open-Loop Vector	Flux Vector	
o2-01	LOCAL/REMOT E key enable/disable	Sets the Digital Operator Local/Remote key 0: Disabled 1: Enabled (Switches between the Digital Operator and the constant settings.)	0, 1	1	X	B	B	B	B	216
	Local/remot key									
o2-02	STOP key during control circuit terminal operation	Sets the Stop key in the run mode. 0: Disabled (When the run command Digital Operator and the constant settings.) 1: Enabled (Effective even during run.)	0, 1	1	X	B	B	B	B	217
	Oper STOP key									
o2-03	User constant initial value	Clears or stores user initial values. 0: Stores/not set 1: Begins storing (Records the set constants as user initial values.) 2: All clear (Clear all recorded user initial values.) * When the set constants are recorded as user initial values, 1110 will be displayed in the Initialize mode (A1-03).	0 to 2	0	X	B	B	B	B	217
	User Defaults									
o2-04	kVA selection	Do not set.	0 to FF*	0*	X	B	B	B	B	217
	Inverter Model #									
o2-05	Frequency reference setting method selection	When the frequency reference is set on the Digital Operator frequency reference monitor, sets whether the Enter key is necessary. 0: Enter key needed 1: Enter key not needed * When set to 1, the Inverter accepts the frequency reference without Enter key operation.	0, 1	0	X	A	A	A	A	218
	Operator M.O.P.									
o2-06	Operation selection when Digital Operator is disconnected	Sets the operation when the Digital Operator is disconnected. 0: Disabled (Operation continues even if the Digital Operator is disconnected.) 1: Enabled (OPR is detected at Digital Operator disconnection. Inverter output is cut off, and fault contact is operated.)	0, 1	0	X	A	A	A	A	218
	Oper Detection									
o2-07	Cumulative operation time setting	Sets the cumulative operation time in hour units. * Operation time is calculated from the set values.	0 to 65535	0	X	A	A	A	A	218
	Elapsed Time Set									
o2-08	Cumulative operation time selection	0: Cumulative time when the Inverter power is ON. (All time while the Inverter power is on is accumulated.) 1: Cumulative Inverter run time. (Only Inverter output time is accumulated.)	0, 1	0	X	A	A	A	A	218
	Elapsed Time Run									
o2-09	Initialize mode selection	Do not set.	0 to 2	0	X	A	A	A	A	—
	Init Mode Sel									

* The factory setting depends upon the Inverter capacity. The values for a 200 V class Inverter of 0.4 kW will be displayed.

8.2.9 Factory Settings that Change with the Control Method (A1-02)

Constant Number	Name	Setting Range	Unit	Factory Setting			
	Display			V/f Control A1-02=0	V/f with PG A1-02=1	Open-Loop Vector A1-02=2	Flux Vector A1-02=3
b3-01	Speed search selection at start	0, 1	1	0	1	0	1
	SpfSrch at Start						
b3-02	Speed search operating current	0 to 200	1%	150	—	100	—
	SpdSrch Current						
C3-01	Slip compensation gain	0.0 to 2.5	0.1	0.0	—	1.0	1.0
	Slip Comp Gain						
C3-02	Slip compensation primary delay time	0 to 10000	1 msec	2000	—	200	—
	Slip Comp Time						
C4-02	Torque compensation time constant	0 to 100001	1 msec	200	200	20	—
	Torq Comp Time						
C5-01	ASR proportional (P) gain 1	0.00 to 200.00	0.01	—	0.20	—	20.00
	ASR P Gain 1						
C5-02	ASR integral (I) time 1	0.000 to 10.000	0.001 sec	—	0.200	—	0.500
	ASR I Time 1						
C5-03	ASR proportional (P) gain 2	0.00 to 300.00	0.01	—	0.02	—	20.00
	ASR P Gain 2						
C5-04	ASR integral (I) time 2	0.000 to 10.000	0.001 sec	—	0.050	—	0.500
	ASR I time 2						
E1-07 E4-04	Mid. output frequency	0.0 to 400.0	0.1 Hz	3.0	3.0	3.0	0.0
	Mid Frequency A						
E1-08 E4-05	Mid. output frequency voltage	0.0 to 255.0 (0.0 to 510.0)	0.1V	*	*	11.0 (22.0)	0.0
	Mid Voltage A						
E1-09 E4-06	Min. output frequency	0.0 to 400.0	0.1 Hz	1.5	1.5	0.5	0.0
	Min Frequency						
E1-10 E4-07	Min. output frequency voltage	0.0 to 255.0 (0.0 to 510.0)	0.1 V	*	*	2.0 (4.0)	0.0
	Min Voltage						
F1-09	Overspeed detection delay time	0.0 to 2.0	0.1 sec	—	1.0	—	0.0
	PG Overspd Time						

* Settings vary as shown in the following tables depending on the Inverter capacity.

NOTE: Values in parentheses are for 400 V class Inverters.

200 V Class Inverters

Inverter Capacity (kW)	0.4 to 1.5	2.2 to 45	55, 75
E1-08, E4-05	15.0	14.0	12.0
E1-10, E4-06	9.0	7.0	6.0

400 V Class Inverters

Inverter Capacity (kW)	0.4 to 1.5	2.2 to 45	55 to 300
E1-08, E4-05	30.0	28.0	24.0
E1-10, E4-06	18.0	14.0	12.0

8.2.10 Factory Settings that Change with the Inverter Capacity (o2-04)

▪ 200 V Class Inverters

Constant Number	Name	Unit	Factory Setting							
			0.4	0.75	1.5	2.2	3.7	5.5	7.5	11
—	Inverter Capacity	kW	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11
o2-04	kVA selection	1	0	1	2	3	4	5	6	7
C6-01	Carrier frequency upper limit	kHz	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
—	Carrier frequency upper limit range	kHz	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
C6-02	Carrier frequency lower limit	kHz	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
C6-03	Carrier frequency proportional gain	1	0	0	0	0	0	0	0	0
E2-01 (E5-01)	Motor rated current	A	1.90	3.30	6.20	8.50	14.00	19.6	26.60	39.7
E2-02 (E5-02)	Motor rated slip	Hz	2.0	2.50	2.60	2.90	2.73	1.50	1.30	1.70
E2-03 (E5-03)	Motor no-load current	A	1.20	1.80	2.80	3.0	4.50	5.10	8.00	11.2
E2-05 (E5-05)	Motor line-to-line resistance	×	9.842	5.156	1.997	1.601	0.771	0.399	0.288	0.230
E2-06 (E5-06)	Motor leak inductance	%	18.2	13.8	18.5	18.4	19.6	18.2	15.5	19.5
L2-02	Momentary power loss ridethru time	sec	0.7	1.0	1.0	1.0	2.0	2.0	2.0	2.0
L2-03	Min. baseblock time	sec	0.5	0.5	0.5	0.5	0.5	0.7	0.7	0.7
L2-04	Voltage recovery time	sec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Constant Number	Name	Unit	Factory Setting							
			15	18.5	22	30	37	45	55	75
—	Inverter Capacity	kW	15	18.5	22	30	37	45	55	75
o2-04	kVA selection	1	8	9	A	B	C	D	E	F
C6-01	Carrier frequency upper limit	kHz	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
—	Carrier frequency upper limit range	kHz	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
C6-02	Carrier frequency lower limit	kHz	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
C6-03	Carrier frequency proportional gain	1	0	0	0	0	0	0	0	0
E2-01 (E5-01)	Motor rated current	A	53.0	65.8	77.2	105.0	131.0	160.0	19.0	260.0
E2-02 (E5-02)	Motor rated slip	Hz	1.60	1.67	1.70	1.80	1.33	1.60	1.43	1.39
E2-03 (E5-03)	Motor no-load current	A	15.2	15.7	18.5	21.9	38.2	44.0	45.6	72.0
E2-05 (E5-05)	Motor line-to-line resistance	×	0.138	0.101	0.079	0.064	0.039	0.030	0.022	0.023
E2-06 (E5-06)	Motor leak inductance	%	17.2	20.1	19.5	20.8	18.8	20.2	20.5	20.0
L2-02	Momentary power loss ridethru time	sec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
L2-03	Min. baseblock time	sec	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0
L2-04	Voltage recovery time	sec	0.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6



■ 400 V Class Inverters

Constant Number	Name	Unit	Factory Setting									
			0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5
—	Inverter Capacity	kW	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5
o2-04	kVA selection	1	20	21	22	23	24	26	27	28	29	2A
C6-01	Carrier frequency upper limit	kHz	15.0	15.0	15.0	15.0	15.0	15.0	12.5	12.5	12.5	12.5
—	Carrier frequency upper limit range	kHz	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
C6-02	Carrier frequency lower limit	kHz	15.0	15.0	15.0	15.0	15.0	15.0	12.5	12.5	12.5	12.5
C6-03	Carrier frequency proportional gain	1	0	0	0	0	0	0	0	0	0	0
E2-01 (E5-01)	Motor rated current	A	1.00	1.60	3.10	4.20	7.00	9.80	13.30	19.9	26.5	32.9
E2-02 (E5-02)	Motor rated slip	Hz	2.90	2.60	2.50	3.00	2.70	1.50	1.30	1.70	1.60	1.67
E2-03 (E5-03)	Motor no-load current	A	0.60	0.80	1.40	1.50	2.30	2.60	4.00	5.6	7.6	7.8
E2-05 (E5-05)	Motor line-to-line resistance	×	38.198	22.459	10.100	6.495	3.333	1.595	1.152	0.922	0.550	0.403
E2-06 (E5-06)	Motor leak inductance	%	18.2	14.3	18.3	18.7	19.3	18.2	15.5	19.6	17.2	20.1
L2-02	Momentary power loss ridethru time	sec	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
L2-03	Min. baseblock time	sec	0.5	0.5	0.5	0.5	0.5	0.7	0.7	0.7	0.7	1.0
L2-04	Voltage recovery time	sec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6

Constant Number	Name	Unit	Factory Setting										
			22	30	37	45	55	75	110	160	185	220	300
—	Inverter Capacity	kW	22	30	37	45	55	75	110	160	185	220	300
o2-04	kVA selection	1	2B	2C	2D	2E	2F	30	32	34	35	36	37
C6-01	Carrier frequency upper limit	kHz	10.0	10.0	10.0	7.0	6.0	6.0	5.0	5.0	2.0	2.0	2.0
—	Carrier frequency upper limit range	kHz	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0	2.5	2.5	2.5
C6-02	Carrier frequency lower limit	kHz	10.0	10.0	10.0	7.0	6.0	6.0	5.0	5.0	1.0	1.0	1.0
C6-03	Carrier frequency proportional gain	1	0	0	0	0	0	0	0	0	36	36	36
E2-01 (E5-01)	Motor rated current	A	38.6	52.3	65.6	79.7	95.0	130.0	190.0	270.0	310.0	370.0	500.0
E2-02 (E5-02)	Motor rated slip	Hz	1.70	1.80	1.33	1.60	1.46	1.39	1.40	1.35	1.30	1.30	1.25
E2-03 (E5-03)	Motor no-load current	A	9.2	10.9	19.1	22.0	24.0	36.0	49.0	70.0	81.0	96.0	130.0
E2-05 (E5-05)	Motor line-to-line resistance	×	0.316	0.269	0.155	0.122	0.088	0.092	0.046	0.029	0.025	0.020	0.014
E2-06 (E5-06)	Motor leak inductance	%	23.5	20.7	18.8	19.9	20.0	20.0	20.0	20.0	20.0	20.0	20.0
L2-02	Momentary power loss ridethru time	sec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
L2-03	Min. baseblock time	sec	1.0	1.0	1.0	1.0	1.0	1.0	4.0	4.0	4.0	4.0	4.0
L2-04	Voltage recovery time	sec	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6