

Group & Code selection

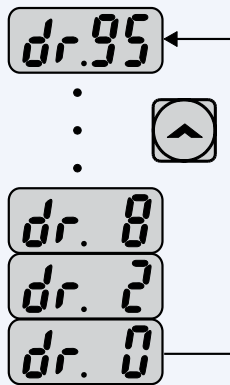
Step	Instruction	Keypad Display
1	Move to the group you want using the [MODE] keys. Press the [MODE] key for longer than 1 second to move in the opposite direction.	
2	Move up and down through the codes using the [▲] and [▼] keys until you locate the code that you require.	
3	Press the [ENT] key to save the change.	-

When moving up and down through the codes using the [▲] and [▼] keys in each group, there are cases where the code number does not increase or decrease. This is because the number was left blank in the inverter program by expecting additional features or the program was set up to not display the unused features.

Navigating Directly to Different Codes





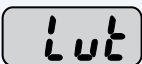
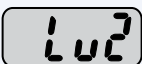









The following example details navigating to code dr. 95, from the initial code in the drive group (dr. 0). This example applies to all groups whenever you would like to navigate to a specific code number.

Step	Instruction	Keypad Display
1	Ensure that you are currently at the first code of the drive group (dr. 0).	
2	Press the [ENT] key. Number "9" will flash.	
3	Press the [▼] key and change the ones' place of the code "95" to "5."	
4	Press the [MODE] to move to the tens' place. The cursor will move to the left and "05" will be displayed. At this time, the number "0" will be flashing.	
5	Press the [▲] key to change the tens' place number from "0" to "9," so the designated code is "95."	
6	Press the [ENT] key. Code dr.95 is displayed.	



Fault Trips

Protection functions for output current and input voltage

Keypad Display	Name	Type	Description
	Over Load	Latch	Displayed when the motor overload trip is activated and the actual load level exceeds the set level. Operates when Pr.20 is set to a value other than 0.
	Under Load	Latch	Displayed when the motor underload trip is activated and the actual load level is less than the set level. Operates when Pr.27 is set to a value other than 0.
	Over Current 1	Latch	Displayed when inverter output current exceeds 200% of the rated current.
	Over Voltage	Latch	Displayed when internal DC circuit voltage exceeds the specified value.
	Low Voltage	Level	Displayed when internal DC circuit voltage is less than the specified value.
	Low Voltage 2	Latch	Displayed when internal DC circuit voltage is less than the specified value during inverter operation. Operates when Pr.82 is set to 1.
	Ground Trip*	Latch	Displayed when a ground fault trip occurs on the output side of the inverter and causes the current to exceed the specified value. The specified value varies depending on inverter capacity.
	E-Thermal	Latch	Displayed based on inverse time-limit thermal characteristics to prevent motor overheating. Operates when Pr.40 is set to a value other than 0.
	Out Phase Open	Latch	Displayed when a 3-phase inverter output has one or more phases in an open circuit condition. Operates when bit 1 of Pr.05 is set to 1.
	In Phase Open	Latch	Displayed when a 3-phase inverter input has one or more phases in an open circuit condition. Operates only when bit 2 of Pr.05 is set to 1.
	Inverter OLT	Latch	Displayed when the inverter has been protected from overload and resultant overheating, based on inverse time-limit thermal characteristics. Allowable overload rates for the inverter are 150% for 1 min and 200% for 4 sec. Protection is based on inverter rated capacity, and may vary depending on the device's capacity.
	No Motor Trip	Latch	Displayed when the motor is not connected during inverter operation. Operates when Pr.31 is set to 1.
	Relay Open Trip	Latch	Occurs when the DC voltage relay is not operating when power the is input. The Pr-90 code must be set to 1 to operate.
	Over Torque Trip 1	Latch	Occurs when the output current is higher than the level set in Ou-68. Operates when OU-67 is set to 3, 4.
	Over Torque Trip 2	Latch	Occurs when the output current is higher than the level set in OU-71. Operates when OU-70 is set to 3, 4.
	Under Torque Trip 1	Latch	Occurs when the output current is lower than the level set in OU-68. Operates when OU-67 is set to 7, 8.
	Under Torque Trip 2	Latch	Occurs when the output current is lower than the level set in OU-71. Operates when OU-70 is set to 7, 8.

* Ground Trip (GFT) feature is not provided in the products under 4.0 kW. Over current trip (OCT) or over voltage trip (OVT) may occur during low resistance grounding.

Fault Trips




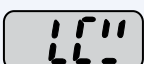
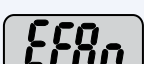
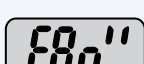
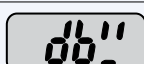
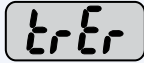

Protection functions using abnormal internal circuit conditions and external signals

Keypad Display	Name	Type	Description
	Over Heat	Latch	Displayed when the temperature of the inverter heat sink exceeds the specified value.
	Over Current 2	Latch	Displayed when the DC circuit in the inverter detects a specified level of excessive, short circuit current.
	External Trip	Latch	Displayed when an external fault signal is provided by the multi-function terminal. Set one of the multi-function input terminals at In.65-69 to 4 (External trip) to enable external trip.
	BX	Level	Displayed when the inverter output is blocked by a signal provided from the multi-function terminal. Set one of the multi-function input terminals at In. 65-69 to 5 (BX) to enable input block function.
	H/W-Diag	Fatal	Displayed when an error is detected in the memory (EEPROM), analog-digital converter output (ADC Off Set), or CPU watchdog (Watch Dog-1, Watch Dog-2). <ul style="list-style-type: none"> EEP Err: An error in reading/Writing parameters due to keypad or memory (EEPROM) fault. ADC Off Set: An error in the current sensing circuit (U/V/W terminal, current sensor, etc.).
	NTC Open	Latch	Displayed when an error is detected in the temperature sensor of the insulated Gate Bipolar Transistor (IGBT).
	Fan Trip	Latch	Displayed when an error is detected in the cooling fan. Set Pr.79 to 0 to activate fan trip (for models below 22kW capacity).
	Pre-PID Fail	Latch	Displayed when pre-PID is operating with functions set at AP.34-AP.36. A fault trip occurs when a controlled variable (PID feedback) is measured below the set value and the low feedback continues, as it is treated as a load fault.
	Ext-Brake	Latch	Operates when the external brake signal is provided by the multi-function terminal. Occurs when the inverter output starting current remains below the set value at Ad.41. Set either OU.31 or OU.32 to 35 (BR Control).
	Overheat Pre Alarm	Latch	When the user has set Pr-78 to 2: Free-Run or 3: Dec, pre-overheating warning trip of inverter occurs if the inverter temperature exceeds the temperature set by the user in Pr-77.

Protection functions for communication options

Keypad Display	Name	Type	Description
	Lost Command	Level	Displayed when a frequency or operation command error is detected during inverter operation by controllers other than the keypad (e.g., using a terminal block and a communication mode). Operates when Pr.12 is set to a value other than 0.
 	IO Board Trip	Latch	Displayed when the I/O board or external communication card is not connected to the inverter or there is a bad connection.
			Displayed when the error code continues for more than 5 sec. (‘Errc’ -> ‘-rrc’ -> ‘-Er-c’ -> ‘-Er-c’ -> ‘-Err-’ -> ‘-rc’ -> ‘-Er-’ -> ‘- - - - -’ -> ‘Errc’ -> ...)
	Option Trip -1	Latch	Displayed when a communication error is detected between the inverter and the communication board. Occurs when the communication option card is installed.

Warning Messages

Keypad Display	Name	Description
	Over Load	Displayed when the motor is overloaded. Operates when Pr.17 is set to 1. To operate, select 5. Set the digital output terminal or relay (OU.31 or OU.33) to 5 (Over load) to receive overload warning output signals.
	Under Load	Displayed when the motor is underloaded. Operates when Pr.25 is set to 1. Set the digital output terminal or relay (OU.31 or OU.33) to 7 (Under load) to receive underload warning output signals.
	INV Over Load	Displayed when the overload time equivalent to 60 % of the inverter overheat protection (inverter IOLT) level, is accumulated. Set the digital output terminal or relay (OU.31 or OU.33) to 6 (IOL) to receive inverter overload warning output signals.
	Lost Command	Lost command warning alarm occurs even with Pr.12 set to 0. The warning alarm occurs based on the condition set at Pr.13- 15. Set the digital output terminal or relay (OU.31 or OU.33) to 13 (Lost command) to receive lost command warning output signals. If the communication settings and status are not suitable for P2P, a lost command alarm occurs.
	Fan Exchange	An alarm occurs when the value set at PRT-86 is less than the value set at PRT-87. To receive fan exchange output signals, set the digital output terminal or relay (OUT-31 or OUT-33) to 38 (Fan exchange).
	Fan Warning	Displayed when an error is detected from the cooling fan while Pr.79 is set to 1. Set the digital output terminal or relay (OU.31 or OU.33) to 8 (Fan warning) to receive fan warning output signals.
	DB Warn %ED	Displayed when the DB resistor usage rate exceeds the set value. Set the detection level at Pr.66.
	Retry Tr Tune	Operates when dr.9 is set to 4. The warning alarm occurs when the motor's rotor time constant (Tr) is either too low or too high.
	Overheat Pre Alarm	When the user has set Pr-78 to 1: Warning, pre-overheating warning of inverter occurs if the inverter temperature exceeds the temperature set by the user in Pr-77.

Code	Comm. Address	Name	Keypad Display	Setting Range		Initial Value	Property*	V/F	SL
-	0h1D00	Target frequency	0.00	0-Maximum frequency(Hz)		0.00	0	0	0
-	0h1D01	Acceleration time	ACC	0.0-600.0(s)		5.0	0	0	0
-	0h1D02	Deceleration time	dEC	0.0-600.0(s)		10.0	0	0	0
-	0h1D03	Command source	drv	0	Keypad	1: Fx / Rx-1	X	0	0
				1	Fx / Rx-1				
				2	Fx / Rx-2				
				3	Int 485				
				4	Fieldbus ¹⁾				
-	0h1D04	Frequency reference source	Frq	0	Keypad-1	0: Keypad-1	X	0	0
				1	Keypad-2				
				2	V1				
				4	V0 (Built-in volume)				
				5	I2				
				6	Int 485				
				8	Fiedbus ¹⁾				
-	0h1D05	Multi-step speed frequency 1	St1	0.00-Maximum frequency (Hz)		10.00	0	0	0
-	0h1D06	Multi-step speed frequency 2	St2	0.00-Maximum frequency (Hz)		20.00	0	0	0
-	0h1D07	Multi-step speed frequency 3	St3	0.00-Maximum frequency (Hz)		30.00	0	0	0
-	0h1D08	Output current	CUr			-	-	0	0
-	0h1D09	Motor revolutions per minute	Rpm				-	0	0
-	0h1D0A	Inverter DC voltage	dCL	-		-	-	0	0
-	0h1D0B	Inverter output voltage	vOL				-	0	0
-	0h1D0C	Out of order signal	nOn				-	0	0
-	0h1D0D	Select rotation direction	drC	F	Forward direction operation	F	0	0	0
				r	Reverse run				

* SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

¹⁾ Table of options are provided separately in the option manual.

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL	
dr-00	-	Jump code	1-99	9	O	O	O	
dr-09	0h1109	Control mode	0	V / F	0: V / F	X	O	O
			2	Slip compen				
			4	IM sensorless				
dr-11	0h110B	Jog frequency	0.00, Start frequency-Maximum frequency(Hz)	10.00	O	O	O	
dr-12	0h110C	Jog run acceleration time	0.0-600.0(s)	20.0	O	O	O	
dr-13	0h110D	Jog run deceleration time	0.0-600.0(s)	30.0	O	O	O	
dr-14	0h110E	Motor capacity	0: 0.2kW 1: 0.4kW 2: 0.75kW 3: 1.1kW 4: 1.5kW 5: 2.2kW 6: 3.0kW 7: 3.7kW 8: 4.0kW 9: 5.5kW 10: 7.5kW 11:11.0kW	Varies by motor capacity	X	O	O	
dr-15	0h110F	Torque boost mode	0	Manual	0: Manual	X	O	X
			1	Auto				
dr-16	0h1110	Forward torque boost	0.0-15.0(%)	2.0	X	O	X	
dr-17	0h1111	Reverse torque boost	0.0-15.0(%)	2.0	X	O	X	
dr-18	0h1112	Base frequency	30.00-400.00(Hz) [V / F, Slip compen] 40.00-120.00(Hz) [IM sensorless]	60.00	X	O	O	
dr-19	0h1113	Start frequency	0.01-10.00(Hz)	0.50	X	O	O	
dr-20	0h1114	Maximum frequency	40.00-400.00(Hz) [V / F, Slip compen] 40.00-120.00(Hz) [IM sensorless]	60.00	X	O	O	
dr-26 ²⁾	0h111A	Auto torque boost filter gain	1~1000	2	O	O	X	
dr-27 ²⁾	0h111B	Auto torque boost motoring gain	0.0-300.0[%]	50.0	O	O	X	
dr-28 ²⁾	0h111C	Auto torque boost regeneration gain	0.0-300.0[%]	50.0	O	O	X	
dr-80	0h1150	Select ranges at power input	Select ranges inverter displays at power input		0: Operation frequency	O	O	O
			0	Operation frequency				
			1	Acceleration time				
			2	Deceleration time				
			3	Command source				
			4	Frequency reference source				
			5	Multi-step speed frequency 1				
			6	Multi-step speed frequency 2				
			7	Multi-step speed frequency 3				
			8	Output current				
			9	Motor RPM				
			10	Inverter DC voltage				
			11	User select signal (dr.81)				
			12	Currently out of order				
13	Select run direction							

* SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

²⁾ Appears when Dr15 is 1 (automatic torque boost).

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL
dr-80	0h1150	Select ranges at power input	14	Output current 2	0: Operation frequency	-	-
			15	Motor RPM 2			
			16	Inverter DC voltage 2			
			17	User select signal 2(dr.81)			
dr-81	0h1151	Select monitor code	Monitors user selected code		0: Output voltage	0	0
			0	Output voltage(V)			
			1	Output power(kW)			
			2	Torque(kgf·m)			
dr-89	0h03E3	Display changed parameter display	0	View all	0: View All	0	0
			1	View changed			
dr-91	0h115B	Smart copy	0	None	0: None	X	0
			1	Smartdownload			
			3	Smartupload			
			4	Remoteupload			
			5	Remotedownload			
dr-92	0h115C	Parameter save	0	None	0: None	X	0
			1	Parameter save			
dr-93	0h115D	Parameter initialization	0	No	0: No	X	0
			1	All grp			
			2	dr grp			
			3	bA grp			
			4	Ad grp			
			5	Cn grp			
			6	In grp			
			7	OU grp			
			8	CM grp			
			9	AP grp			
			11	AO grp			
			12	Pr grp			
			13	M2 grp			
			14	run grp			
dr-94	0h115E	Password registration	0~9999			0	0
dr-95	0h115F	Parameter lock settings	0~9999			0	0
dr-97	0h1161	Software version				-	0
dr-98	0h1162	Display I / O board version				-	0

* SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL	
bA-00	-	Jump code	1~99	20	O	O	O	
bA-01	0h1201	Auxiliary reference source	0	None	0: None	X	O	O
			1	V1				
			3	V0				
			4	I2				
bA-02 ³⁾	0h1202	Auxiliary command calculation type	0	M+(G*A)	0: M+(GA)	X	O	O
			1	Mx (G*A)				
			2	M / (G*A)				
			3	M+[M*(G*A)]				
			4	M+G*2(A-50%)				
			5	Mx[G*2(A-50%)				
			6	M / [G*2(A-50%)]				
			7	M+M*G*2(A-50%)				
bA-03 ³⁾	0h1203	Auxiliary frequency reference gain	-200.0~200.0(%)	100.0	O	O	O	
bA-04	0h1204	2nd command source	0	Keypad	1: Fx / Rx-1	X	O	O
			1	Fx / Rx-1				
			2	Fx / Rx-2				
			3	Int 485				
			4	FieldBus ⁴⁾				
bA-05	0h1205	2nd frequency source	0	Keypad-1	0: Keypad-1	O	O	O
			1	Keypad-2				
			2	V1				
			4	V0				
			5	I2				
			6	Int 485				
			8	FieldBus ⁴⁾				
bA-07	0h1207	V / F pattern	0	Linear	0: Linear	X	O	X
			1	Square				
			2	User V / F				
			3	Square 2				
bA-08	0h1208	Acc / Dec reference	0	Max freq	0: Max freq	X	O	O
			1	Delta freq				
bA-09	0h1209	Time scale setting	0	0.01 sec	1: 0.1 sec	X	O	O
			1	0.1 sec				
			2	1 sec				
bA-10	0h120A	input power frequency	0	60Hz	0: 60Hz	X	O	O
			1	50Hz				
bA-11	0h120B	Number of motor poles	2~48	Dependent on motor setting	X	O	O	
bA-12	0h120C	Rated slip speed	0~3000(Rpm)		X	O	O	
bA-13	0h120D	Motor rated current	1.0~1000.0(A)		X	O	O	
bA-14	0h120E	Motor no-load current	0.0~1000.0(A)		X	O	O	
bA-15	0h120F	Motor rated voltage	0, 100~480(V)		0	X	O	O

• In the following table, data shaded in blue will be displayed when the related code has been selected.

• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

³⁾ Displayed if bA.01 is not set to 0 (None).

⁴⁾ Table of options are provided separately in the option manual.

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL	
bA-16	0h1210	Motor efficiency	64~100(%)	Dependent on motor setting	X	O	O	
bA-17	0h1211	Load inertia rate	0~8	0	X	O	O	
bA-18	0h1212	Trim power display	70~130(%)	100%	O	O	O	
bA-19	0h1213	Input power voltage	170~480V	220 / 380V	O	O	O	
bA-20	-	Auto tuning	0	None	0: None	X	X	O
			1	All(Rotation type)				
			2	All(Static type)				
			3	Rs+Lsigma(Rotation type)				
			6	Tr(Static type)				
bA-21	-	Stator resistance	Dependent on motor setting	Dependent on motor setting	X	X	O	
bA-22	-	Leakage inductance			X	X	O	
bA-23	-	Stator inductance			X	X	O	
bA-24 ⁵⁾	-	Rotor time constant	25~5000(ms)	-	X	X	O	
bA-41 ⁶⁾	0h1229	User frequency 1	0.00-Maximum frequency(Hz)	15.00	X	O	X	
bA-42 ⁶⁾	0h122A	User voltage 1	0~100(%)	25	X	O	X	
bA-43 ⁶⁾	0h122B	User frequency 2	0.00-Maximum frequency(Hz)	30.00	X	O	X	
bA-44 ⁶⁾	0h122C	User voltage 2	0~100(%)	50	X	O	X	
bA-45 ⁶⁾	0h122D	User frequency 3	0.00-Maximum frequency(Hz)	45.00	X	O	X	
bA-46 ⁶⁾	0h122E	User voltage 3	0~100(%)	75	X	O	X	
bA-47 ⁶⁾	0h122F	User frequency 4	0.00-Maximum frequency(Hz)	Maximum frequency	X	O	X	
bA-48 ⁶⁾	0h1230	User voltage 4	0~100(%)	100	X	O	X	
bA-53 ⁷⁾	0h1235	Multi-step speed frequency 4	0.00-Maximum frequency(Hz)	40.00	O	O	O	
bA-54 ⁷⁾	0h1236	Multi-step speed frequency 5	0.00-Maximum frequency(Hz)	50.00	O	O	O	
bA-55 ⁷⁾	0h1237	Multi-step speed frequency 6	0.00-Maximum frequency(Hz)	Maximum frequency	O	O	O	
bA-56 ⁷⁾	0h1238	Multi-step speed frequency 7	0.00-Maximum frequency(Hz)	Maximum frequency	O	O	O	
bA-70	0h1246	Multi-step acceleration time 1	0.0~600.0(s)	20.0	O	O	O	
bA-71	0h1247	Multi-step deceleration time 1	0.0~600.0(s)	20.0	O	O	O	
bA-72 ⁸⁾	0h1248	Multi-step acceleration time 2	0.0~600.0(s)	30.0	O	O	O	
bA-73 ⁸⁾	0h1249	Multi-step deceleration time 2	0.0~600.0(s)	30.0	O	O	O	
bA-74 ⁸⁾	0h124A	Multi-step acceleration time 3	0.0~600.0(s)	40.0	O	O	O	
bA-75 ⁸⁾	0h124B	Multi-step deceleration time 3	0.0~600.0(s)	40.0	O	O	O	
bA-76 ⁸⁾	0h124C	Multi-step acceleration time 4	0.0~600.0(s)	50.0	O	O	O	
bA-77 ⁸⁾	0h124D	Multi-step deceleration time 4	0.0~600.0(s)	50.0	O	O	O	
bA-78 ⁸⁾	0h124E	Multi-step acceleration time 5	0.0~600.0(s)	40.0	O	O	O	
bA-79 ⁸⁾	0h124F	Multi-step deceleration time 5	0.0~600.0(s)	40.0	O	O	O	
bA-80 ⁸⁾	0h1250	Multi-step acceleration time 6	0.0~600.0(s)	30.0	O	O	O	
bA-81 ⁸⁾	0h1251	Multi-step deceleration time 6	0.0~600.0(s)	30.0	O	O	O	
bA-82 ⁸⁾	0h1252	Multi-step acceleration time 7	0.0~600.0(s)	20.0	O	O	O	
bA-83 ⁸⁾	0h1253	Multi-step deceleration time 7	0.0~600.0(s)	20.0	O	O	O	

* In the following table, data shaded in blue will be displayed when the related code has been selected.

• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

⁵⁾ Displayed when dr.09 is set to 4(IM sensorless).

⁶⁾ Displayed if either bA.07 or M2.25 is set to 2 (User V / F).

⁷⁾ Displayed if one of In.65-71 is set to speed-L / M / H.

⁸⁾ Displayed one of In.65-71 is set to Xcel-L / M / H.

Expanded Function Group (PAR → Ad)

General Drive

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL
Ad-00	-	Jump code	1~99	24	O	O	O
Ad-01	0h1301	Acceleration pattern	0 Linear	0: Linear	X	O	O
Ad-02	0h1302	Deceleration pattern	1 S-curve		X	O	O
Ad-03 ⁹⁾	0h1303	S-curve acceleration start point gradient	1~100(%)	40	X	O	O
Ad-04 ⁹⁾	0h 1304	S-curve acceleration end point gradient	1~100(%)	40	X	O	O
Ad-05 ¹⁰⁾	0h1305	S-curve deceleration start point gradient	1~100(%)	40	X	O	O
Ad-06 ¹⁰⁾	0h1306	S-curve deceleration end point gradient	1~100(%)	40	X	O	O
Ad-07	0h1307	Start mode	0 Acc	0: Acc	X	O	O
			1 Dc-start				
Ad-08	0h1308	Stop mode	0 Dec	0: Dec	X	O	O
			1 Dc-brake				
			2 Free-run				
			4 Power braking				
Ad-09	0h1309	Run prevention options	0 None	0: None	X	O	O
			1 Forward prev				
			2 Reverse prev				
Ad-10	0h130A	Starting with power on	0 No	0: No	O	O	O
			1 Yes				
Ad-12 ¹¹⁾	0h130C	Start DC braking time	0.00~60.00(s)	0.00	X	O	X
Ad-13	0h130D	Amount of applied DC	0-inverter rated current(%)	50	X	O	X
Ad-14 ¹²⁾	0h130E	Output blocking time before DC braking	0.00~60.00(s)	0.10	X	O	O
Ad-15 ¹²⁾	0h130F	DC braking time	0.00~60.00(s)	1.00	X	O	O
Ad-16 ¹²⁾	0h1310	DC braking rate	0 - inverter rated current / motor rated current x 100 (%)	50	X	O	O
Ad-17 ¹²⁾	0h1311	DC braking frequency	Start frequency-60Hz	5.00	X	O	O
Ad-20	0h1314	Dwell frequency on acceleration	Start frequency-maximum frequency(Hz)	5.00	X	O	O
Ad-21	0h1315	Dwell operation time on acceleration	0.0~60.0(s)	0.0	X	O	O
Ad-22	0h1316	Dwell frequency during deceleration	Start frequency-maximum frequency(Hz)	5.00	X	O	O
Ad-23	0h1317	Operation time during deceleration	0.0~60.0(s)	0.0	X	O	O
Ad-24	0h1318	Frequency limit	0 No	0: No	X	O	O
			1 Yes				
Ad-25 ¹³⁾	0h1319	Frequency lower limit value	0.00-Upper limit frequency(Hz)	0.50	O	O	O
Ad-26 ¹³⁾	0h131A	Frequency upper limit value	Lower limit frequency-maximum frequency(Hz)	Maximum frequency	X	O	O
Ad-27	0h131B	Frequency jump	0 No	0: No	X	O	O
			1 Yes				
Ad-28 ¹⁴⁾	0h131C	Jump frequency lower limit 1	0.00-Jump frequency upper limit1(Hz)	10.00	O	O	O
Ad-29 ¹⁴⁾	0h131D	Jump frequency upper limit 1	Jump frequency lower limit1-maximum frequency(Hz)	15.00	O	O	O
Ad-30 ¹⁴⁾	0h131E	Jump frequency lower limit 2	00-Jump frequency upper limit2(Hz)	20.00	O	O	O
Ad-31 ¹⁴⁾	0h131F	Jump frequency upper limit 2	Jump frequency lower limit2-maximum frequency(Hz)	25.00	O	O	O

* In the following table, data shaded in blue will be displayed when the related code has been selected.

• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

⁹⁾ Displayed when Ad. 01 is set to 1 (S-curve).

¹⁰⁾ Displayed when the Ad. 02 code is set to 1 (S-curve).

¹¹⁾ Displayed when Ad. 07 is set to 1 (DC-start).

¹²⁾ Displayed when Ad. 08 is set to 1 (DC-brake).

¹³⁾ Displayed when the Ad.24 code is set to 1 (Yes).

¹⁴⁾ Displayed when the Ad.27 code is set to 1 (Yes).

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL	
Ad-32 ¹⁴⁾	0h1320	Jump frequency lower limit 3	0.00-Jump frequency upper limit3(Hz)	30.00	O	O	O	
Ad-33 ¹⁴⁾	0h1321	Jump frequency upper limit 3	Jump frequency lower limit3-maximum frequency(Hz)	35.00	O	O	O	
Ad-41 ¹⁵⁾	0h1329	Brake release current	0.0-180.0(%)	50.0	O	O	O	
Ad-42 ¹⁵⁾	0h132A	Brake release delay time	0.00-10.00(s)	1.00	X	O	O	
Ad-44 ¹⁵⁾	0h132C	Brake release forward frequency	0.00-Maximum frequency(Hz)	1.00	X	O	O	
Ad-45 ¹⁵⁾	0h132D	Brake release reverse frequency	0.00-Maximum frequency(Hz)	1.00	X	O	O	
Ad-46 ¹⁵⁾	0h132E	Brake engage delay time	0.00-10.00(s)	1.00	X	O	O	
Ad-47 ¹⁵⁾	0h132F	Brake engage frequency	0.00-Maximum frequency(Hz)	2.00	X	O	O	
Ad-50	0h1332	Energy saving operation	0	None	0: None	X	O	X
			1	Manual				
			2	Auto				
Ad-51 ¹⁶⁾	0h1333	Energy saving amount	0-30(%)	0	O	O	X	
Ad-60	0h133C	Acc / Dec time transition frequency	0.00-Maximum frequency(Hz)	0.00	X	O	O	
Ad-61	0h133D	Rotation count speed gain	0.1-6000.0[%]	100.0	O	O	O	
Ad-62	0h133E	Rotation count speed scale	0	x 1	0: x 1	O	O	O
			1	x 0.1				
			2	x 0.01				
			3	x 0.001				
			4	x 0.0001				
Ad-63	0h133F	Rotation count speed unit	0	Rpm	0: rpm	O	O	O
			1	mpm				
Ad-64	0h1340	Cooling fan control	0	During run	0: During run	O	O	O
			1	Always on				
			2	Temp control				
Ad-65	0h1341	Up / Down operation frequency save	0	No	0: No	O	O	O
			1	Yes				
Ad-66	0h1342	Output contact on / Off control options	0	None	0: None	X	O	O
			1	V1				
			3	V0				
			4	I2				
Ad-67	0h1343	Output contact on level	Output contact off level-100.00 %	90.00	X	O	O	
Ad-68	0h1344	Output contact off level	-100.00-output contact on level (%)	10.00	X	O	O	
Ad-70	0h1346	Safe operation selection	0	Always enable	0: Always enable	X	O	O
			1	DI Dependent				
Ad-71 ¹⁷⁾	0h1347	Safe operation stop options	0	Free-run	0: Free-run	X	O	O
			1	Q-Stop				
			2	Q-Stop resume				
Ad-72 ¹⁷⁾	0h1348	Safe operation deceleration time	0.0~600.0(s)	5.0	O	O	O	

• In the following table, data shaded in blue will be displayed when the related code has been selected.

• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

¹⁴⁾ Displayed when the Ad.27 code is set to 1 (Yes).

¹⁵⁾ Displayed if either OU.31 or OU.33 is set to 35 (BR Control).

¹⁶⁾ Displayed if Ad.50 is not set to 0 (None).

¹⁷⁾ Displayed when Ad.70 is set to 1 (DI Dependent).

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL
Ad-74	0h134A	Selection of regeneration evasion function for press	0	No	0: No	X	O
			1	Yes			
Ad-75	0h134B	Voltage level of regeneration evasion motion for press	200V : 300-400V		350	X	O
			400V : 600-800V		700		
Ad-76 ¹⁸⁾	0h134C	Compensation frequency limit of regeneration evasion for press	0.00-10.00 Hz		1.00	X	O
Ad-77 ¹⁸⁾	0h134D	Regeneration evasion for press P gain	0.0-100.0%		50.0	O	O
Ad-78 ¹⁸⁾	0h134E	Regeneration evasion for press I gain	20-30000(ms)		500	O	O
Ad-79	0h134F	DB Unit turn on voltage level	200V: Min ¹⁹⁾ 400[V]		390[V]	X	O
			400V: Min ¹⁹⁾ 800[V]		780[V]		
Ad-80	0h1350	Fire Mode selection	0	None	0: None	X	O
			1	Fire mode			
			2	Fire mode test			
Ad-81 ²⁰⁾	0h1351	Fire mode operation frequency	Start frequency-maximum frequency [Hz]		60.00	X	O
Ad-82 ²⁰⁾	0h1352	Fire mode run direction	0	Forward	0: Forward	X	O
			1	Reverse			
Ad-83 ²⁰⁾		Fire mode operation count	Not configurable		-	-	-

• In the following table, data shaded in blue will be displayed when the related code has been selected.

• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

¹⁸⁾ Displayed when the Ad.74 code is set to 1 (Yes).

¹⁹⁾ Voltage type which DC converted the bA.19 AC input voltage: +20V (200Vtype), +40V (400V type). 200V type is limited to 350V and 400V type is limited to 600V.

²⁰⁾ Displayed if Ad.80 is not set to 0 (None).

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL	
Cn-00	-	Jump code	1~99	4	O	O	O	
Cn-04 ²¹⁾	0h1404	Carrier frequency	Heavy duty	V / F: 1.0~15.0(kHz) IM: 2.0~15.0(kHz)	3.0	X	O	O
			Normal duty	V / F: 1.0~ 5.0(kHz) IM: 2.0~5.0(kHz)	2.0			
Cn-05	0h1405	Switching mode	0 Normal PWM	0: Normal PWM	X	O	O	
Cn-09	0h1409	Initial excitation time	0.00~60.00(s)	1.00	X	X	O	
Cn-10	0h140A	Initial excitation amount	100.0~300.0(%)	100.0	X	X	O	
Cn-11	0h140B	Continued operation duration	0.00~60.00(s)	0.00	X	X	O	
Cn-21	0h1415	Low - speed torque compensation gain	50~300(%)	Varies by motor capacity	X	X	O	
Cn-22	0h1416	Output torque compensation gain	50~300(%)	Varies by motor capacity	X	X	O	
Cn-23	0h1417	Speed deviation sub compensation gain	50~300(%)	Varies by motor capacity	X	X	O	
Cn-24	0h1418	Speed deviation main compensation gain	50~300(%)	Varies by motor capacity	X	X	O	
Cn-29	0h141D	No-load speed deviation compensation gain	0.50~2.00	1.06	O	X	O	
Cn-30	0h141E	Speed controller adjustment gain	2.0~10.0	4.0	O	X	O	
Cn-53	0h1435	Torque limit setting	0	Keypad-1	0: Keypad-1	X	X	O
			1	Keypad-2				
			2	V1				
			4	V0				
			5	I2				
			6	Int 485				
			8	FieldBus				
Cn-54 ²²⁾	0h1436	Positive-direction reverse torque limit	0.0~200.0(%)	180	O	X	O	
Cn-55 ²²⁾	0h1437	Positive-direction regeneration torque limit	0.0~200.0(%)	180	O	X	O	
Cn-56 ²²⁾	0h1438	Negative-direction regeneration torque limit	0.0~200.0(%)	180	O	X	O	
Cn-57 ²²⁾	0h1439	Negative-direction reverse torque limit	0.0~200.0(%)	180	O	X	O	
Cn-70	0h 1446	Speed search mode selection	0	Flying start-1 ²³⁾	0: Flying start-1	X	O	O
			1	Flying start-2				
Cn-71	0h1447	Speed search operation selection	bit	0000~1111	0000 ²⁴⁾	X	O	O
			0001	Selects the speed search function at acceleration.				
			0010	Initialization after a fault trip				
			0100	Restart after instantaneous power interruption				
			1000	Starting with power-on				


* In the following table, data shaded in blue will be displayed when the related code has been selected.

• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

²¹⁾ It is for 5.5~7.5kW.

²²⁾ Displayed when dr.09 is set to 4 (IM Sensorless). This will change the initial value of the parameter at Ad.74 (Torque limit) to 150%.

²³⁾ Will not be displayed if dr.09 is set to 4 (IM Sensorless).

²⁴⁾ The initial value 0000 will be displayed on the keypad as .

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL
Cn-72 ²⁵⁾	0h1448	Speed search reference current	80~200(%)	150	O	O	O
Cn-73 ²⁶⁾	0h1449	Speed search proportional gain	0~9999	Flying start-1: 100	O	O	O
				Flying start-2: 600 ²⁷⁾			
Cn-74 ²⁶⁾	0h144A	Speed search integral gain	0~9999	Flying start-1: 200	O	O	O
				Flying start-2: 1000			
Cn-75 ²⁶⁾	0h144B	Output block time before speed search	0.0~60.0(s)	1.0	X	O	O
Cn-76 ²⁶⁾	0h144C	Speed search estimator gain	50~150(%)	100	O	O	O
Cn-77	0h144D	Energy buffering selection	0	No	0: No	X	O
			1	KEB-1			
			2	KEB-2			
Cn-78 ²⁸⁾	0h144E	Energy buffering start level	110.0~200.0(%)	125.0	X	O	O
Cn-79 ²⁸⁾	0h144F	Energy buffering stop level	Cn78~210.0(%)	130.0	X	O	O
Cn-80 ²⁸⁾	0h1450	Energy buffering P gain	0~20000	1000	O	O	O
Cn-81 ²⁸⁾	0h1451	Energy buffering I gain	1~20000	500	O	O	O
Cn-82 ²⁸⁾	0h1452	Energy buffering slip gain	0~2000.0%	30.0	O	O	O
Cn-83 ²⁸⁾	0h1453	Energy buffering acceleration time	0.0~600.0(s)	10.0	O	O	O

• In the following table, data shaded in blue will be displayed when the related code has been selected.

• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

²⁵⁾ Displayed when any of the Cn.71 code bits are set to 1 and Cn70 is set to 0 (Flying start-1).

²⁶⁾ Displayed when any of the Cn.71 code bits are set to 1.

²⁷⁾ The initial value is 1200 when the motor-rated capacity is less than 7.5 kW

²⁸⁾ Displayed when Cn.77 is not set to 0 (No).

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL
In-00	-	Jump code	1~99	65	O	O	O
In-01	0h1501	Frequency for maximum analog input	Start frequency-maximum frequency(Hz)	Maximum frequency	O	O	O
In-02	0h1502	Torque at maximum analog input	0.0~200.0(%)	100.0	O	X	X
In-05	0h1505	V1 input voltage display	-12.00~12.00(V)	0.00	-	O	O
In-06	0h1506	V1 input polarity selection	0	Unipolar	0: Unipolar	X	O
			1	Bipolar			
In-07	0h1507	Time constant of V1 input filter	0~10000(ms)	100	O	O	O
In-08	0h1508	V1 Minimum input voltage	0.00~10.00(V)	0.00	O	O	O
In-09	0h1509	V1 output at Minimum voltage(%)	0.00~100.00(%)	0.00	O	O	O
In-10	0h150A	V1 Maximum input voltage	0.00~12.00(V)	10.00	O	O	O
In-11	0h150B	V1 output at Maximum voltage(%)	0.00~100.00(%)	100.00	O	O	O
In-12 ²⁹⁾	0h150C	V1 Minimum input voltage	-10.00~ 0.00(V)	0.00	O	O	O
In-13 ²⁹⁾	0h150D	V1 output at Minimum voltage(%)	-100.00~0.00(%)	0.00	O	O	O
In-14 ²⁹⁾	0h150E	V1 Maximum input voltage	-12.00~ 0.00(V)	-10.00	O	O	O
In-15 ²⁹⁾	0h150F	V1 output at Maximum voltage(%)	-100.00~0.00(%)	-100.00	O	O	O
In-16	0h1510	Changing rotation direction of V1	0	No	0: No	O	O
			1	Yes			
In-17	0h1511	V1 quantization level	0.00 ³⁰⁾ , 0.04~10.00(%)	0.04	X	O	O
In-35	0h1523	V0 input voltage display	0.00~5.00(V)	0.00	-	O	O
In-37	0h1525	Time constant of V0 input filter	0~10000(ms)	100	O	O	O
In-38	0h1526	V0 Minimum input voltage	0.00~5.00(V)	0.00	O	X	O
In-39	0h1527	V0 output at minimum voltage(%)	0.00~100.00(%)	0.00	O	O	O
In-40	0h1528	V0 Maximum input voltage	0.00~5.00(V)	5.00	O	X	O
In-41	0h1529	V0 output at maximum voltage(%)	0.00~100.00(%)	100.00	O	O	O
In-46	0h152E	Changing rotation direction of V0	0	No	0: No	O	O
			1	Yes			
In-47	0h152F	V0 quantization level	0.00 ³⁰⁾ , 0.04~10.00(%)	0.04	O	O	O
In-50	0h1532	I2 input voltage display	0~24(mA)	0.00	-	O	O
In-52	0h1534	I2 input filter time constant	0~10000(ms)	100	O	O	O
In-53	0h1535	I2 minimum input current	0.00~20.00(mA)	4.00	O	O	O
In-54	0h1536	I2 output at minimum current(%)	0.00~100.00(%)	0.00	O	O	O
In-55	0h1537	I2 maximum input current	0.00~24.00(mA)	20.00	O	O	O
In-56	0h1538	I2 output at maximum current(%)	0.00~100.00(%)	100.00	O	O	O
In-61	0h153D	Changing rotation direction of I2	0	No	0: No	O	O
			1	Yes			
In-62	0h153E	I2 quantization level	0.00 ²⁹⁾ , 0.04~10.00(%)	0.04	O	O	O
In-65	0h1541	P1 terminal function setting	0	None	1: Fx	X	O
			1	Fx			
In-66	0h1542	P2 terminal function setting	2	Rx	2: Rx	X	O
			3	RST			
In-67	0h1543	P3 terminal function setting	4	External trip	5: BX	X	O
			5	BX			
In-68	0h1544	P4 terminal function setting	6	JOG	3: RST	X	O
			7	Speed-L			
In-69	0h1545	P5 terminal function setting	8	Speed-M	7: Sp-L	X	O
			9	Speed-H			

• In the following table, data shaded in blue will be displayed when the related code has been selected.


• SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

²⁹⁾ Displayed when In.06 is set to 1 (Bipolar).

³⁰⁾ Quantizing is not used when set to 0.

Code	Comm. Address	Name	Setting Range	Initial Value	Property*	V/F	SL
-	-	-	11	XCEL-L	-	-	-
			12	XCEL-M			
			13	RUN enable			
			14	3-Wire			
			15	2nd source			
			16	Exchange			
			17	Up			
			18	Down			
			20	U / D Clear			
			21	Analog hold			
			22	I-Term clear			
			23	PID Openloop			
			24	P Gain2			
			25	XCEL stop			
			26	2nd motor			
			27	U / D Enable			
			33	Baseblock			
			34	Pre excite			
			38	Timer in			
			40	dis Aux ref			
			46	FWD JOG			
			47	REV JOG			
			49	XCEL-H			
51	Fire mode						
52	KEB-1 Select						
In-84	0h1554	Multi-function input terminal on filter selection	P5 - P1		1 1111 ³¹⁾	O	O
			0	Disable(Off)			
			1	Enable(On)			
In-85	0h1555	Multi-function input terminal on filter	0~10000(ms)		10	O	O
In-86	0h1556	Multi-function input terminal off filter	0~10000(ms)		3	O	O
In-87	0h1557	Multi-function input terminal selection	P5 - P1		0 0000 ³²⁾	X	O
			0	A contact (NO)			
			1	B contact (NC)			
In-88	0h1558	Selects the NO / NC operation command	0	NO	0	X	O
			1	NO/NC			
In-89	0h1559	Multi-step command delay time	1-5000(ms)		1	X	O
In-90	0h155A	Multi-function input terminal status	P5 - P1		0 0000	-	O
			0	release(Off)			
			1	Connection (On)			
In-99	0h1563	SW1(NPN/PNP), status	Bit	0~1	0	-	O
			0	NPN			
			1	PNP			


*SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

³¹⁾ The initial value 11111 will be displayed on the keypad as .

³²⁾ The initial value 0000 will be displayed on the keypad as .

Code	Comm.Address	Name	Setting Range	Initial Value	Property*	V/F	SL	
OU-00	-	Jump code	1~99	30	0	0	0	
OU-01	0h1601	Analog output 1 item	0	Frequency	0: Frequency	0	0	0
			1	Output current				
			2	Output voltage				
			3	DCLink voltage				
			4	Torque				
			5	Output power				
			6	Idse				
			7	Iqse				
			8	Target freq				
			9	Ramp freq				
			10	Speed fdb				
			12	PID ref value				
			13	PID fdb value				
			14	PID output				
			15	Constant				
OU-02	0h1602	Analog output 1 gain	-1000.0~1000.0(%)	100.0	0	0	0	
OU-03	0h1603	Analog output 1 bias	-100~100(%)	0	0	0	0	
OU-04	0h1604	Analog output 1 filter	0~10000(ms)	5	0	0	0	
OU-05	0h1606	Analog constant output 1	0.0~100.0(%)	0.0	0	0	0	
OU-06	0h1606	Analog output 1 monitor	0.0~1000.0(%)	0.0	-	0	0	
OU-30	0h161E	Fault output item	bit	000~111	010 ³³⁾	0	0	0
			1	Low voltage				
			2	Any faults other than low voltage				
			3	Final failure of automatic restart				
OU-31	0h161F	Multi-function relay 1 item	0	None	29: Trip	0	0	0
			1	FDT-1				
			2	FDT-2				
			3	FDT-3				
			4	FDT-4				
			5	Over load				
			6	IOL				
			7	Under load				
			8	Fan warning				
			9	Stall				
			10	Over voltage				
			11	Low voltage				
			12	Over heat				
			13	Lost command				
			14	Run				
15	Stop							

* SL: Sensorless vector control (dr.09), Property: Write-enabled during operation

³³⁾ The initial value 0000 will be displayed on the keypad as .

Code	Comm.Address	Name	Setting Range	Initial Value	Property*	V/F	SL	
OU-31	0h161F	Multi-function relay 1 item	16	Steady	29: Trip	0	0	0
			17	Inverter line				
			18	Comm line				
			19	Speed search				
			21	Regeneration				
			22	Ready				
			23	Zero speed				
			28	Timer out				
			29	Trip				
			31	DB Warn%ED				
			34	On / Off control				
			35	BR control				
			36	Reserved				
			37	FAN exchange				
			38	Fire mode				
			40	KEB operating				
			41	Pre overheat				
42	Minor fault							
43	Torque detect 1							
44	Torque detect 2							
OU-33	0h1621	Multi-function relay 2 item	0	None	14: Run	0	0	0
			1	FDT-1				
			2	FDT-2				
			3	FDT-3				
			4	FDT-4				
			5	Over load				
			6	IOL				
			7	Under load				
			8	Fan warning				
			9	Stall				
			10	Over voltage				
			11	Low voltage				
			12	Over heat				
			13	Lost command				
			14	Run				
			15	Stop				
			16	Steady				
			17	Inverter line				
			18	Comm line				
			19	Speed search				
21	Regeneration							
22	Ready							
23	Zero speed							

* SL: Sensorless vector control (dr.09), Property: Write-enabled during operation