nstant No.	Name		Desc	criptio	on			
	Multi-function output terminal function selection	Selec	ts the function of signals output	from	control	circuit	termina	ls 9, 25 and
	Tunction selection	Set Value	Function	V/f	V/f with PG	Open Loop Vector	Flux Vector	Referenc
		00	During run	0	0	0	0	62
H2-01	Multi-function output	01	Zero-speed	0	0	0	0	62
	(terminal 9-10)	02	Frequency agree 1	0	0	0	0	62
		03	Desired frequency agree	0	0	0	0	62
H2-02	Multi-function output	04	Frequency detection 1	0	0	0	0	62
	(terminal 25-27)	05	Frequency detection 2	0	0	0	0	62
		06	Inverter operation ready	0	0	0	0	62
H2-03	Multi-function output	07	During undervoltage detection	0	0	0	0	62
	(terminal 26-27)	08	During baseblock	0	0	0	0	62
	-	09	Frequency reference mode	0	0	0	0	62
		OA.	Run command mode	0	0	0	0	62
		OB	Overtorque detection 1 (NO contact output)	0	0	0	0	63
		oc	Frequency reference missing	0	0	0	0	63
		OD	Braking resistor fault	0	0	0	0	63
		0E	Fault	0	0	0	0	63
		0F	Not used				_	
		10	Alarm	0	0	0	0	63
		11	During fault reset	0	0	0	0	63
		12	Timer output	0	0	0	0	63
		13	Frequency agree 2	0	0	0	0	63
		14	Desired frequency agree 2	0	0	0	0	63
		15	Frequency detection 3	0	0	0	0	64
		16	Frequency detection 4	0	0	0		64
		17	Overtorque detection 1 (NC contact output)	0	0	0	0	64
	,	18	Overtorque detection 2 (NC contact output)	0	0	0	0	64
		19	Overtorque detection 2 (NC contact output)	0	0	0	0	64
		1A	During REV run	0	0	0	0	64
		1B	During baseblock	0	0	0	0	64
		1C	Not used		 -		-	
		1D	Motoring retry	×	×	×	0	64
		1E	During retry	0	0	0	0	64
		1F	OL1 pre-alarm	0	0	0	0	64
		20	OH1 pre-alarm	0	0	0	0	64
			Not used		 _	_	-	
		30	During torque limit	×	×	0	0	64
		31	During speed limit		×	×	_	64
		32	Not used	×	×	×		65
		33	Zero servo completion				0	65
		37 34~3E	During run 2 Not used	<u> </u>	-	0		- 65
							1	9,500

Set Value	Description
00	• During run Closed when the inverter is outputting voltage or a run command is input.
01	 During zero-speed Closed when the inverter output frequency is less than the min. output frequency (E1-09) in V/f control with PG feedback. Closed when the motor speed is less than the zero-speed level (B2-01) in flux vector control.
	DURING ZERO-SPEED CLOSED
02	 Frequency agree 1 Closed when output frequency is Frequency reference - L4-02 ≤ SFS output ≤ frequency reference + L4-02
03	 Desired frequency agree 1 Closed when the set value = 02 (frequency agree status) and output frequency is within the detection range shown below. L4-01 - L4-02 ≤ SFS output (without a sign) ≤ L4-01 + L4-02
04	Frequency detection 1 Closed when output frequency is less than the detection shown below. SFS output (without a sign) \leq L4-01 + L4-02
05	• Frequency detection 2 Closed when output frequency is less than the detection level shown below. SFS output (without a sign) \geq L4-01
06	• Inverter operation ready Closed when inverter operation is ready.
07	 During undervoltage detection Closed when the main circuit or control circuit power supply is reduced or main circuit MC is turned OFF
08	 During baseblock Closed during inverter output baseblock. (NO contact output)
09	• Frequency reference mode Open during run with frequency reference given by control circuit terminal or option. Closed during run with frequency reference from the digital operator.
OA	 Run command mode Open during run by run command given by control circuit terminal or option. Closed during run by run command from the digital operator

Set value	Description
ОВ	• Overtorque detection 1 Closed while overtorque detection 1 is being detected. (Refer to L6-01 to 03.)
OC	 During frequency reference is missing. Closed when frequency reference is missing. (Example) By setting this constant to ENABLED (L4-05), operation is continued at 80% of the frequency reference as shown below. By setting L4-05 = 1, master frequency reference obtained 0.4 second before is always compared with the current reference; when the current reference is reduced to 10% or less of the reference obtained 0.4 second before, operation continues at 80% of the master frequency reference obtained 0.4 second before. At this time, during frequency reference missing signal is closed.
	INVERTER OUTPUT FREQUENCY DURING FREQUENCY REFERENCE MISSING
OD	 Braking resistor fault Closed during braking resistor overheating or a braking transistor fault.
0E	• Fault Closed during a fault excluding CPF00 and CPF01.
10	 Alarm Closed while an alarm is displayed.
11	 During fault reset Closed while fault is being reset.
12	• Time output Closed while a time input is being output
13	• Frequency agree 2 Closed when output frequency is within the detection range shown below. Frequency reference -L4-04 ≤ SFS output ≤ frequency reference + L4-04 Same as frequency agree 1 (set value = 02) except that the detection width is L4-04.
14	 Desired frequency agree 2 Closed when the set value is 13 (speed agree status) and it is within detection range shown below. L4-03 -L4-04 ≤ SFS output (with a sign) ≤ L4-03 + L4-04

Set	Description				
15	• Frequency detection 3 Closed when output frequency is less than the detection level shown below. SFS output (with a sign) \leq L4-03				
16	• Frequeny detection 4 Closed when output frequency is less than the detection level shown below. SFS output (with a sign) \leq L4-03				
17	Overtorque detection 1 Open while overtorque detection 1 is being detected (NC contact output). (Refer to L6-01 \sim 03.)				
18	 Overtorque detection 2 Closed while overtorque detection 2 is being detected (NO contact output). (Refer to L6-04, 05, 07.) 				
19	Overtorque detection 2 Open while overtorque detection 2 is being detected (NO contact output). (Refer to L6-04, 05, 07.)				
14	During REV run Closed during REV run.				
18	• During baseblock Open during inverter output baseblock (NC contact output).				
10	 Motoring/regenerating mode Closed in the regenerating mode in flux vector control. 				
1E	 During retry Closed during retry operation at fault retry. 				
1F	 OL1 pre-alarm Closed when electronic thermal overload relay integrated value becomes 90% of the fault detection level. (L8-02, 03.) 				
20	 OH pre-alarm Closed when the cooling fin temperature exceeds the cooling fin overheat temperature. (Refer to L8-02, 03.) 				
30	 During torque limit Closed during torque limit. 				
31	 During speed limit Closed when the speed limit level is reached at torque control in flux vector control. 				

Set Value	Description						
33	 Zero-servo completion Closed when zero-servo is completed. 						
37	 During run 2 Closed, Except during baseblock (BB), or injection braking (OB), or during initial excitation. 						
	*						

Constant No.	Name		Description					Remarks
H3-01	Signal level selection (terminal 13)	Set Va	O to 10V input					Resolution [11 bit + sign inpu
H3-02	Gain (terminal 13)		e input gain (level) when frequency re	ference	volt	age is	10V.	
H3-03	Gain (termainal 13)	Sets the	e input bias (level) when frequency re	ferenc	e vol	tage i	s OV.	
H3-04	Signal level selection (terminal 16)	Set Va	Tue Description O to 10V input	-				 Resolution [11 bit + sign inpu
H3-05	Multi-function analog input (terminal 16)		-10 to 10V + input rminal 16 to multi-function analog re llowing table shows the set values.	ferenc	e.			
		Set Value	Function	V/f	V/f with P(Open Loop Vector	Flux Vector	Input Level
		00	Auxiliary frequency reference	0	0	0	0	±100% / ±10V
		01	FGAIN	0	0	0	0	100% / 10V
		02	FBIAS	0	0	0	0	±100% / ±10V
		04	VBIAS	0	0	×	×	100% / 10V
		05	Accel/decel time reduction coefficient	0	0	0	0	100% / 1V
		06	DC injection braking current	0	0	0	×	100% / 10V
	,	07	Overtorque detection level	0	0	0	0	100% / 10V
		08	Stall prevention level during run	0	0	×	×	100% / 10V
		09	Frequency reference lower limit level	0	0	0	0	100% / 10V
		OA	Jump frequency	0	0	0	0	100% / 10V
		0B	PID feedback	0	0	0	0	±100% / ±10V
		0C~0F	Not used	_	-	_	_	
		10	FWD side torque limit	×	×	0	0	100% / ±10V
		- 11	REV side torque limit	×	×	0	0	100% / ±10V
		12	Regeneration side torque limit	×	×	0	0	100% / ±10V
		13	Torque reference (at torque control) Torque limit (at speed control)	×	×	×	0	±100% / ±10V
1		14	Torque compensation (bias)	×	×	×	0	±100% / ±10V
		15	FWD/REV side torque limit	×	×	0	0	±100% / 10V
			Not used ption of torque limits] +TORQUE					
			REGENERATION SIDE TORQUE LIMIT - f		REC	GENERATI	OM SIDE	TORQUE LIMIT
			- TORQUE		REC			

Note: For torque limit, one of the smallest, (L7-01 to 04) or analog reference

Constant No.	Name	Description	Remarks
		Auxiliary frequency reference (set value=00) FBIAS (set value=02) PID feedback (set value=08) Frequency reference lower limit (set value=09) Jump frequency (set value=0A)	Accel/decal time reduction coefficient (set value=05)
		(100%=fmax) 100% -10V 0 10V -100%	100% 10% 10V 0 IV 10V
		(set value=08) value=09)	reference lower limit (set
		100% 100% 100% 100% 100% 100% 100% 100%	0 10V
		Torque reference Torque limit Torque (set value=13) (set value=10, 11, 12) Torque compensation (set value=14) 100%	limit (set value=15)
		100% -10V 0 10V -100% -100%	100
H3-06 H3-07	Gain (terminal 16) Bias (terminal 16)	Sets the input gain (level) when terminal 16 is 10V. Sets the input bias (level) when terminal 16 is 0V.	
Н3-08	Signal level selection (terminal 14)	Set value Description 0 0 to 10V input 1 -10 to +10V input 2 4 to 20mA input Note: To activate the setting value "0" or "1", it is necessary to cut a Jumper-wire (J1) on the control board. Located in the bottom left hand corner directly behind terminal 13.	• Resolution [10-bit input]
H3-09	Multi-function analog input (terminal 14)	Inputs the set value of multi-function analog reference. (Refer to H3-05.) However, set values "00" and "1F" have functions different from those of H3-05 as described below. 00: not used 1F: master frequency reference When "1F" (terminal 13/14 selection) is not set to multi-function input terminal function selection (H1-01 to H1-06) and when terminal 14 (H3-09) is set to "1F" (master frequency reference), master frequency reference is the sum of terminals 13 and 14. When any value other than "1F" (master frequency ref.) is set to terminal 14 (H3-09) and when "1F" (terminal 13/14 selection) is set to multi-function input terminal function selection (H1-01 to H1-06), setting error (OPE03) occurs.	

Constant No.	Name	Description	Remarks
H3-10	Gain (terminal 14)	Sets the input gain (level) when terminal 16 is 10V.	
H3-11	Bias (terminal 14)	Sets the input bias (level) when terminal 16 is OV.	
H3-12	Analog input filter time constant	Sets terminals 13, 14 and 16 to primary delay filter time constant.	
H4-01	Monitor selection (terminal 21)	Selects control circuit terminals 21-22 (multi-function analog monitor) items to be output. Sets a monitor No. (U1-XX) to be output.	• Resolution
H4-02	Gain (terminal 21)	Multiplies the monitor constant output level by H4-O2 set value.	[9 bits + sign]
H4-03	Bias (terminal 21)	Adds the H4-03 set value to the value obtained by multiplying the monitor constant output level by H4-02 set value.	
H4-04	Monitor selection (terminal 23)	Selects control circuit terminals 23-22 (multi-function and analog monitor) to items to be output. Sets a monitor No. (U1-XX) to be output.	• Resolution [9 bits + sign]
H4-05	Gain (terminal 23)	Miltiplies the monitor constant output level by H4-05 set value.	
H4-06	Bias (terminal 23)	Adds the H4-06 set value to the value obtained by multiplying the monitor constant output level by H4-05 set value.	
H4-07	Analog output signal		, , , , , , , , , , , , , , , , , , , ,
	level selection	Set value Description	
		0 0 to 10V input	
		1 -10 to +10V inputt	
H5-01	Station address	Sets an inverter station address.	174
H5-02	Communication speed selection	Selects 6CN MEMOBUS transmission speed.	
		Set value Description	
		0 1200BPS	
		1 2400BPS	
		2 4800BPS	
		3 9600BPS	
H5-03	Communication parity selection	Selects 6CN MEMOBUS transmission parity.	
		Set value Description	
		O No parity	
		1 Even parity	
		2 Odd parity	
H5-04	Stopping method after communication error	Selects the stopping method at transmission error detected.	
		Set value Description	
		O Decel to stop (decel time: C1-O2)	
		1 Emergency stop (decel time: C1-09)	
		2 Coasting to stop	
	İ	3 Continuous operation (displayed only)	

L PROTECTION-RELATED CONSTANTS

Constant No.	Name	Description	Remarks
L1-01	Motor protection selection	Selects whether motor overload protection is provided at electronic thermal overload relay. Set Value Description 0 Disabled 1 Enabled • To drive several motors by one inverter simultaneously, this electronic thermal overload relay cannot protect the motors from overloading. A thermal overload relay must be inserted in each motor cable. • If the inverter power supply is turned OFF, the assumed value of the motor temperature is cleared to 0. Therefore, in some applications where the inverter power supply is turned OFF, protection may not be effective.	
L1-02	Motor protection time constant	Sets the electronic thermal overload relay protection time when 150% of overload is applied (hot-start) after the motor is operated continuously at rated current. The factory setting is one minute. Set the value according to the overload resistance of motors to be used. 10 7 0PERATING 10 10 100 150 200 MOTOR CURRENT (%): E2-01 BECOMES 100% Typical Electronic Thermal Overload Relay Protection Time Charactertics (L1-02=1.0, run at 60Hz, general-purpose motor characteristics)	
L2-01	Momentary	Selects whether the inverter is stopped at momentary power loss detection or operation restarts after recovery if momentary power loss occurs. Set Value Operation does not restart after recovery. A fault contact is output to stop the inverter when a momentary power loss is detected. Operation restart after recovery. Operation restarts at recovery within the time set to L2-02. In this case, a fault contact output is not activated. If it does not restart within the L2-02 set time, a fault contact output is activated to stop the inverter after elapse of the L2-02 set time. Operation restarts after recovery. Disregarding the L2-02 set time, when the power supply can be recovered while the inverter control power supply can be held, a mode to restart operation is entered. A fault contact output is not activated. The control power supply holding time differs depending on the inverter capacity.	

Constant No.	Name	Description	Remarks
L2-02	Momentary power loss ridethru time	Sets the allowable value of power supply recovery time when restart of operation after recovery of the power supply (L2-01=1) is selected for a process at momentary power loss occurrence. If the power supply recovers within this time, operation restarts. If not, a fault contact is not activated to stop the inverter after this set value from detection of a power loss.	
L2-03	Min. baseblock time	To restart operation after detecting a momentary power loss. (If the motor has residual voltage) excessive current is applied to the motor at the moment of startup and the inverter may detect a fault. The baseblock time is the wait time for restart until the motor residual voltage is almost dissipated. Effective when L2-02=1 or 2 is selected. • When "min. baseblock time ≥ recovery time" Operation restarts after elapse of the min. baseblock time from a momentary power loss. • When "min. baseblock time < recovery time" Operation restarts after recovery.	,
L2-04	Voltage restarts time	At restart after recovery from a momentary power loss, the inverter performs speed search operation in order to detect the motor speed. After completion of speed search, the time to start up output voltage to normal V/f pattern is set. It is defined as follows. 220V class: 0→time to increase output voltage from 0 to 220V. 440V class: 0→time to increase output voltage from 0 to 440V.	
L2-05	Undervoltage detection level	Sets inverter main circuit DC bus bar voltage value to detect undervoltage. To set this value less than the standard set value (220V class: 190VDC, 440V classs: 380VDC), it may be necessary to insert at the input side.	
L3-01	Stall prevention selection during accel	Sets a function to prevent the motor from stalling at acceleration.	
		Set Value Contents	
		Motor stall prevention during acceleration disabled. Disregarding the motor status, the inverter increases output frequency at the set acceleration rate. With a large load, the motor may stall.	
		Motor stall prevention during acceleration enabled. Acceleration rate is automatically reduced according to motor current to prevent the motor from stalling during acceleration. Acceleration time may be longer than the set value according to the load.	
		Optimum acceleration mode. By monitoring motor current, acceleration rate is automatically adjusted so that acceleration can be accomplished in the shortest time disregarding the setting of acceleration time.	