TECORP-GROUP

VG5、VG2 Series

Users manual

TABLE OF CONTENTS

1. Foreword 1

2. Products Inspection 2

2.1 Model Description 2

2.2 Inverter Outline 3

2.3 specification 4

3. Installation.....6

4. Wiring 8

4.1 Wiring: 8

4.2 Description of terminal function: 9

4.3 Description of control circuit terminal function 9

4.4 Notice of applications and accessories: 12

5. Trial running.....16

5.1 The inspection before running 16

5.2 Running Test 16

5.3 The setting before start running 18

5.4 Application Examples 21

5.5 VG5 and VG2 Outline Demension 27

6. Control Mode Setting 29

6.1 Four typs of control mode selection 29

6.2 Feature of the control modes 30

6.3 Adjustment of the control mode 30
6.4 Auto-tunning Procedure 31

7 Parameter Description 35
7.1 A group parameter 35
7.2 B group parameter 35
7.3 C group parameter 43
7.4 D Group Parameter 49
7.5 E Group Parameter 54
7.6 F Group Paramater 57
7.7 H Group Paramater 61
7.8 L- Group parameters 78
7.9 Ogroup parameter 89

8 Fault Diagnosis and Solution 94

9 Parameter lists and Factory Settings 101
9.1 Factory settings 102

Appendix 1 133

Appendix 2 136

1. Foreword

Thank you for choosing this Inverter which has an outstanding performance and is manufactured by TECORP ELECTRONIC., LTD from Taiwan.

For full extending, this inverter function and ensuring user's safety, please carefully read these instructions. If you have any questions, please contact us or our agent in you local place, we are glad to service you and please continually support TECORP products.

Safety Precautions

For your safety concern, please pay attention to the symbol "danger" and "warning" before starting running, installation, and during inverter inspection. Please follow these safety instructions, and thanks for your cooperation.

! Danger: Misuse may cause fire, severe injury, even death.

⚠ Warning: Misuse may cause medium or minor injury and equipment damage.

Danger
• After turning off power and before the indicator light has turned off, please do not touch the circuit board and components. • Please do not adjust the wiring during power inputting, and not open the circuit board and components during product running. • Please do not change the components inside on product without the instruction from Manufacturer.

Warning
• Please do not make any abnormal testing to the product or components inside of it. • Please do not connect the output terminal U.V.W with AC power supply. • Please do not touch the circuit board in order to prevent it from static electricity injury.

2. Products Inspection

Each TECORP product has passed quality and function testing before lefting the factory. After taking off its packing, please follow the steps below to check first:

• Please check the inverter model and capacity is the same as you ordered.

• If the inverter sutains any serious damage during shipping delivery, please do not input power or turn on the product.

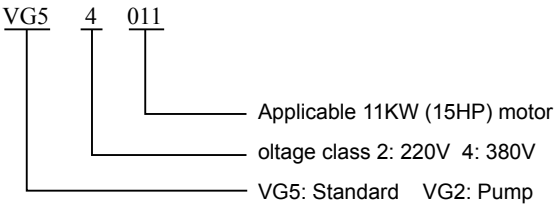
※ If you have any problems as mentioned above, please contact TECORP Company or our local agent soon, thanks for your cooperation.

2.1 Model Description

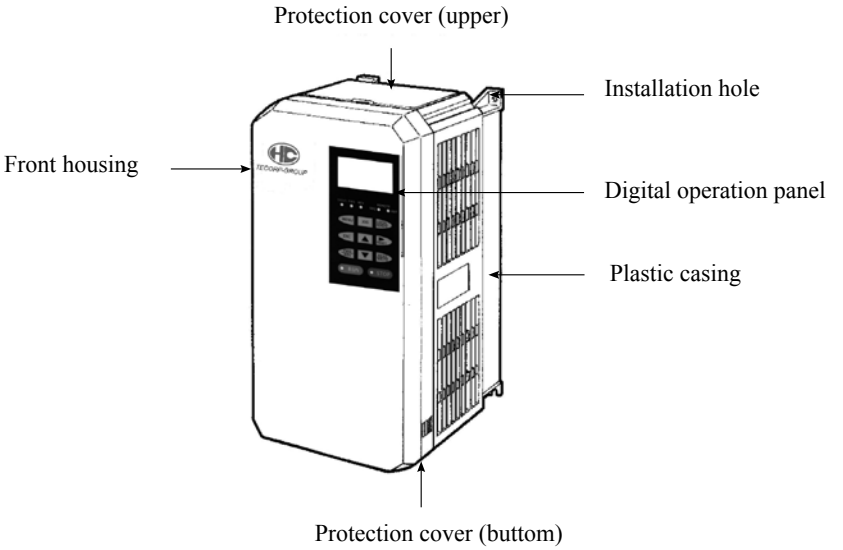
Take three phas AC 380V 11KW as an example, below is it detail.

Inverter model name→MODEL: VG5-4011
Input power spec→INTPUT: AC3PH 380V~460V 50/60HZ
Power→CAPACITY: 11KW(15HP)
Output spec→OUTPUT: 0~460V 0~400HZ 27A 21KVA
Serial Number→S/NO.: 100223
TECORP TECHNOLOGY CO,LTD

Model Name Description



2.2 Inverter Outline



Product weight list

VG5 /VG2 200V Weight																			
KW	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200
KG	5.1	7.4	7.3	14.8	14.8	29.8	40	46	49	120	120	108	155	174	174	232	233	350	360

VG5 400V Weight																					
KW	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	250	315
Kg	5.1	5.1	5.1	7.4	7.3	14.8	14.8	29.1	29.8	40	46	49	98	120	108	155	156	174	174	232	233	350

VG2 400V Weight																			
KW	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	200	220	250	280	315-400
KG	14.6	14.6	24.2	24.6	25.3	32	33.2	61	65	64.2	135	132	143	174	223	223	222	350	360

2.3 Specification

	Specification	VG5	VG2
Control Character	Control Mode	Current vector sine wave PWM	
	Start Torque	150%/1Hz (150%/0rpm with PG)	150%/1Hz
	Speed Control Range	1:100 (1:1000 in case of PG)	1:100
	Speed Control Accuracy	±0.2% (25℃~10℃). (0.02%) with PG	±0.2% (25℃~10℃). (0.02%)
	Speed Response	5Hz (30Hz with PG)*2	5Hz
	Torque Limit	Yes (four quadrant)	Yes (two quadrant)
	Torque Accuracy	±5%	Without torque control function
	Frequency Control Range	0.1~400Hz	0.1~400Hz
	Frequency Accuracy (Temperature Fluctuation)	Digital command ±0.01% (10℃~+40℃)	Analog command ±0.01% (25℃~+10℃)
	Frenquency Setting Resolution	Digital command 0.01Hz, analog command 0.03Hz/60Hz (11bit +symbol)	
	Output Frequency Resolution (Calculation)	0.001Hz	0.001Hz
	Overload Capacity	150% of rated output current, 1 min	120% of rated output current, 1 min
	Frequency Setting Signal	Analog 10~10V, 0~10V, 4~20mA	Analog 10~10V, 0~10V, 4~20mA
	Acceleration and Deceleration Time	0.01~6000 sec. (individual setting of acceleration and deceleration... 4 switches)	
	Braking Torque	About 20%	About 20%
Protection Function	Motor Protection	Electronic thermal protection	Electronic thermal protection
	Prompt Over Current	Protection for 200% of the rated output current	Protection for over 160% of the rated output current
	Fuse Protection	Protection by fast fusing instrument	Protection by fast fusing instrument
	Overload	150% of the rated output current, 1 min.	120% of the rated output current, 1 min.

	Specification	VG5	VG2
Protection Function	Over Voltage Protection	Stop above 820V of the main circuit voltage	
	Low Voltage Protection	Stop below 380V of the main circuit voltage (adjust by parameter setting)	
	Prompt Power Failure Compensation	Stop by operation mode in more than 15ms, Contiune running after recovering in 2 seconds.	
	Overheat	Protected by thermistor	Protected by thermistor
	Stall Prevention	Prevent from stalling in accelertion and deceleration	
	Grounding Protection	Electronic circuit protection (over-current level)	
	Charge Indication	Indication falling to 50V of DC voltage of main circuit	
Enviroment	Ambient Temperature	Closed wall mount type 10℃~+40℃, cabient installed type 10℃~+45℃	
	Humidity	Less than 90%RH	Less than 90%RH
	Storage Temperature	20℃~60℃	20℃~60℃
	Application Site	Indoors (without corrosive gas and dust)	Indoors (without corrosive gas and dust)
	Altitude	Less than 1000m	Less than 1000m
	Vibration	10~20Hz less than 9.8m/s(1G), 20~50 less than 2m/s(0.2G)	
General Function	ProfiBus Communication	Yes(option)	No
	DeviceNET Communication	Yes(option)	No
	RS485 Communication	Yes	Yes
	PG Vector Control	Yes	No
	PID Function	Yes	Yes
	Zero-Serve Function	Yes	No
	Speed Limit for Torque Control	Yes	No

3. Installation

Environment for product installation

The environment of product installation has direct influence on the product life time and its performance.

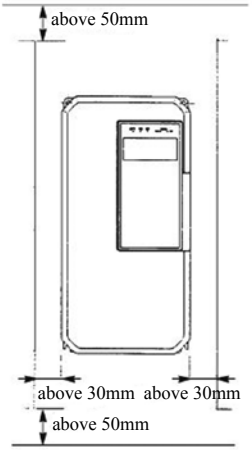
Therefore, the condition of product installation should fit with the following requirements.

- Environment temperature: Cabinet type (-10~45℃/+14~113ºF)
  Wall hang type (-10℃~40℃/+14~104ºF)
- To prevent water droplets pouring rain or humid environment
- Avoid direct sunlight
- Prevent oil dew, water erosion
- To prevent the corrosive liquids, gas•
- To prevent dust, cotton and metal fine dust intrusion
- Radioactive substances and combustible materials away from the product
- To prevent electromagnetic interference (welding machine, power machinery)
- Prevent vibration (punch) can not be avoided, if requested to install anti-vibration pads to reduce vibration.
- When installing inverter inside of control panel, Please pay attention to its location ie. Where would be best for a cooling effect. Basically, the surrounding temperature should be under 45 degrees; otherwise, please install extra heat sin (fan) to maintain this temperature.

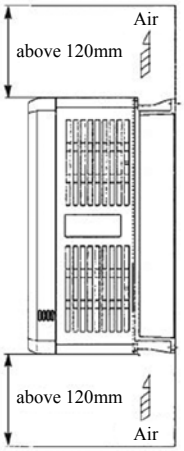
Please ensure the front side of inverter is face up for radiation

	Surrounding temperature	Surrounding humidity
Cabinet type	-10 ~ +45℃	90% relative (non-dew)
Wall hang type	-10 ~ +40℃	90% relative (non-dew)

•Installation space must meet the following requirements:



A. Room between left and right side



B. Room upper and buttom side

VG5/VG2 installation room and direction

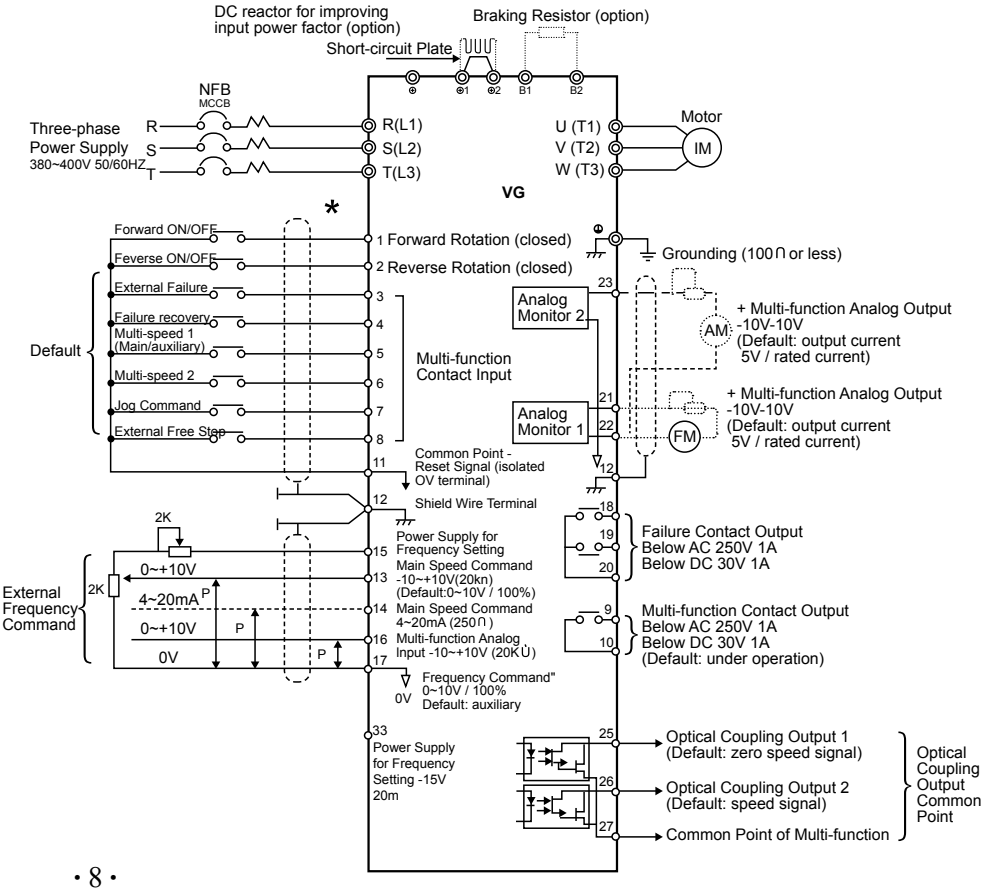
4. Wiring

The inverter should all equip with terminal diagram, please find the detail below, and pay attention to the terminal part number.

11	12(G)	13	14	15	16	17	25	26	27	33	18	19	20
1	2	3	4	5	6	7	8	21	22	23		9	10

4.1 Wiring:

According to the wiring diagram below, the digital panel only needs to use main circuit to operate. R.S.T (power input), U.V.W (motor output)



Note 1: ⏚ shielded wire ⏚P Isolated wire

2: Terminal 15,33 rated Output +15V, -15V, 20mA.

3: Terminal 13, 14 can not be used simultaneously, when using ad the same time its frequency command will be added together.

4: The multi-functional analog output is for extra frequency / current direction usage. Please do not use it as close-loop circuit system. This control system can add an interface card.

4.2 Description of terminal function:

• Main loop terminals and description

Terminal	Functions
R	The main circuit power input terminal
S	
T	
U	inverter output terminal
V	
W	
P	Brake unit connect terminal
N	
E	Ground terminal (The third grounding in particular)

4.3 Description of control circuit terminal function

Signal	NO.	Name	Terminal function		Signal Location
Running Output signal	1	Forward / Stop	Close → Forward, Open → Stop		DC24V, 8MA Light through close insulation
	2	Reverse / stop	Close → Reversal, Open → Stop		

Signal	NO.	Name	Terminal function		Signal Location
Running Output signal	3	External abnormal input	Close → Error, Open → Normal	Please refer to H1-01-H1-06	DC24V, 8MA Light through close insulation
	4	Abnormal return	Close → Return		
	5	Main-speed auxiliary switch	Close → Auxiliary frequency instructions		
	6	Multi-function command 2	Close → multi-speed command 2 effective		
	7	Jog command	Close → Jog running		
	8	External to suspend operations	Close → Inverter stop output		
	11	1 ~ 8 joints	With the short-circuit signal input terminal 1-8		
Analogy Input signal	15	Speed command power +15 V	Instruction set power terminal velocity, + 15V power		+15V, 20MA
	33	Speed command power -15 V	Instruction set power terminal velocity, -15V power		-15V, 20MA
	13	Main speed frequency command	0-10V/100% Frequency -10 -+10 V/-100% - +100% Frequency 4-20MA/100% Frequency	H3: 01-03 H3: 08-10	0~10V (20K ohms) -10 ~ +10 V (20K ohms) 4-20MA (250 ohms)
	14				
	16	Auxiliary frequency command	0-10V/100% Frequency -10 - +10 V/-100% - +100% Frequency	Auxiliary analog input H3-05	0-10V (20K ohms) 4-20MA (250 ohms)

Signal	NO.	Name	Terminal function		Signal Location
Analogy Input signal	17	Joint	Joint of terminal 13, 14 speed command		-
	12	Shielding wire terminals	Shelter stranded terminal		-
The Control Output signals	9	Signal operation Output (1A contact)	Conduction terminal at running	Multi-function signal output H2-01-03	Contact AC250V.1A DC30V .1A
	10				
	25	Zero speed detection	Lower than the lowest frequency B2-01 is close		Open collector output 48V, 50MA following
	26	Speed reach detection	Setting frequency ±2HZ as LOW		
	27	Joint of terminal 25, 26			
	18	Abnormal output signal 18-20 : A contact 19-20 : B-contact	In abnormality: terminals 18-20 close terminal 19-20 open		Contact AC250V 1A DC30V 1A
	19				
	20				
Analog output	21	Frequency meter output	0-10V/100% Frequency	Multi-function analog output 1 (H4-01, H4-02)	f0-10V MAX+-5% 20MA low
	22	Joint			
	23	Output current monitoring	5V / inverter rated current	function2 (H4-04, H4-05)	

4.4 Notice of applications and accessories:

◆ **Power:**
- Please make sure the voltage level, to avoid damage happening.
- It is necessary to install non-fuse breaker between the inverter and AC power.

◆ **Non-fuse breaker:**
- Please choose the non-fuse breaker conforms to the rated voltage and power level of inverter for ON/OFF control and protection.
- The non-fuse breaker should not operate the run/stop switch function as the inverter.

◆ **Leakage circuit breaker:**
- Please install leakage circuit breakers, to prevent from leaking and protect personnel safety.

◆ **Electromagnetic Contactor:**
- General usage will not require installation of the electromagnetic contactor. But for external control, or restart function when power-off, and the brake controller, an electromagnetic contactor is required.
- Magnetic Contactor can not operate the run/stop switch function as the inverter

◆ **AC reactor for power improvement:**
- Below the 15KW 400V/220V inverter, when inputting big power Capacity (more than 600KVA). It is helpful to install the AC reactor for improving its functions.

◆ **Input side noise filter:**
- It is necessary to install it when inductance loads surround the inverter.

◆ **Inverter:**
- The power input terminal R.S.T without phase-sequence can change its phase connection.
- The output terminal U.V.W. connects with the U.V.W. terminal of motor. When the motor is reverse running, only need to exchange two phases of U.V.W. terminals.
- Input terminal U.V.W cannot connect with AC power
- Ground terminal requests properly grounded, 200V Class third grounding. / 400V Class Special ground level.

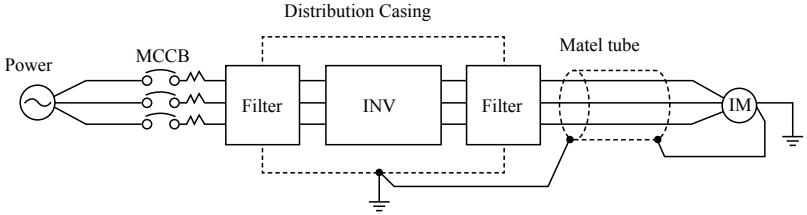
◆ **Output side noise filter:**
- Reduce the inverter if high harmonic wave problem occur, in order to avoid affecting the nearby communications equipment

◆ **Motor**
- Please use the induction motor for three phase capacity
- If an inverter drives multi-motors, please consider motor capacity and the current operation must be less than inverter's
- Do not install the capacitance between the inverter and motor.
- Inverter and motor must be grounded separately.

For the external wiring, please follow the below steps. After finished wiring please make sure it is correct. (Do not use control loop buzzer to check the wiring)

(A) The main power circuit wiring must keep a distance and away from other high voltage or power lines in order to avoid noise interference. Please find the following details:

•Main circuit output terminal install the filter can restrain the noise. In order to avoid radiation noise, please install metal tub on the wiring line and keep distance with other machines more than 30 CM.



The description of VG5 / VG2 Braking Resistor selection

Inveter		Braking Unit		Braking Resistor		Braking Torque (10% ED)
Voltage Level	Applicable Motor HP (KW)	CDBR-	Number	Watt Value	Number	
200V ~ 230V	2(1.5)	*		260W100Ω	1	125
	3(2.2)	*		260W70Ω	1	120
	5(3.7)	*		390W40Ω	1	125
	7.5(5.5)	*		520W30Ω	1	115
	10(7.5)	*		780W20Ω	1	125
	15(11)	2015	1	2400W13.6Ω	1	125
	20(15)	2015	1	3000W10Ω	1	125
	25(18.5)	2022	1	4800W8Ω	1	125
	30(22)	2022	1	4800W6.8Ω	1	125
	40(30)	2015	2	3000W10Ω	2	125
	50(37)	2015	2	3000W10Ω	2	100
	60(45)	2022	2	4800W6.8Ω	2	120
	75(55)	2022	2	4800W6.8Ω	2	100
	100(75)	2110	1	4800W6.8Ω	3	110
	125(90)	2110	1	4800W6.8Ω	4	120
	150(110)	2110	1	4800W6.8Ω	5	100

Inveter		Braking Unit		Braking Resistor		Braking Torque (10% ED)
Voltage Level	Applicable Motor HP (KW)	CDBR-	Number	Watt Value	Number	
380 ~ 460V	2(1.5)	*		260W400Ω	1	125
	3(2.2)	*		260W250Ω	1	135
	5(3.7)	*		390W150Ω	1	135
	7.5(5.5)	*		520W100Ω	1	135
	10(7.5)	*		780W75Ω	1	130
	15(11)	*		1040W50Ω	1	135
	20(15)	*		1560W40Ω	1	125
	25(18.5)	4030	1	4800W32Ω	1	125
	30(22)	4030	1	4800W27.2Ω	1	125
	40(30)	4030	1	6000W20Ω	1	125
	50(37)	4045	1	9600W16Ω	1	125
	60(45)	4045	1	9600W13.6Ω	1	125
	75(55)	4030	2	6000W20Ω	2	135
	100(75)	4045	2	9600W13.6Ω	2	145
	125(90)	4045	2	9600W13.6Ω	2	120
	150(110)	4220	1	6000W20Ω	3	100
	175(132)	4220	1	9600W13.6Ω	4	150
	200(160)	4220	1	9600W13.6Ω	4	140
	250(185)	4220	1	9600W13.6Ω	4	120
	300(220)	4220	1	9600W16Ω	5	125
	320(250)	4220	1	9600W16Ω	5	90
	400(315)	4220	2	9600W16Ω	6	110

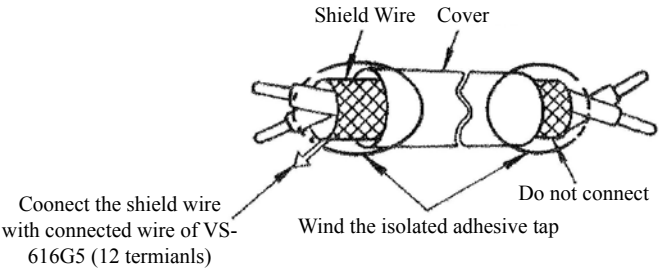
If the wiring distance between the inverter and motor is too long, please consider the voltage drop between lines, the voltage drop (V) with appropriate = $\sqrt{3}X$

Line resistance (Ω/km) x line length (m) x current $X10^{-3}$ and must be in accordance with carrier number. Distance wiring

The inverter and the motor wiring distance	50M below	100M below	More than 100M
Allowable carrier wave	15KHZ below	10KHZ below	5KHZ below
Parameters C6-01	15.0	10.0	5.0

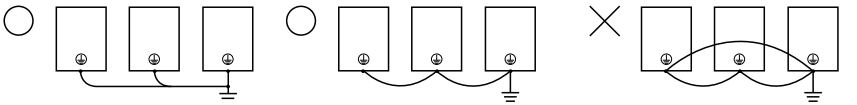
(B) Control loop wiring has to be away from the main circuit control lines or other high voltage or power lines. In order to avoid the noise interference problem happening.

- Control loop wiring terminal 9, 10,18,19,20 (output point) must be separated from other terminal wiring.
- To prevent noise interference result in incorrect running problem happening. The control circuit wiring has to use the Shielded cable. Please refer to the wiring diagram as below shows, and the distance should not exceed 50 meters.



(C) inverter's grounding terminal, be sure to be properly grounded, 220V-class third grounding, 440V-class special grounding.

- Grounding electrical equipment wiring to technical benchmarks (AWG) subject to the earth wire, the shorter the better.
- inverter's grounding wire must not be with the other high current loads (such as welding machines, high-powered motors) common ground must be separately grounded.
- the number of inverters of common ground, do not form a ground loop.



(D) Wiring specification, the main power circuit and control circuit wiring of the diameter size of the selected request in accordance with the provisions of wiring electrician Act, to ensure safety.

(E) After completed wiring, please to make sure the wiring is correct connection, whether the cable is damaged or not, and screw terminals are tighten or not.

5. Trial running

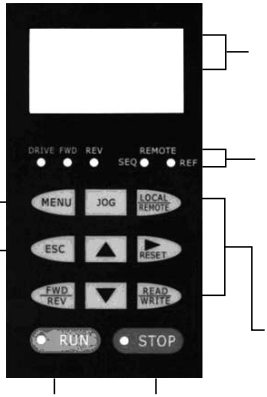
5.1 The inspection before running

(A) Power input before the examination

- Main circuit wiring is correct?
- Terminal screws tightened?
- Whether or wire breakage caused by improper wiring short circuit?
- Load condition normal?

5.2 Running Test

- Make sure before the power input that the voltage level before and wiring are correct.
- After the power input if abnormal sound, smoke, or smell when you cut off the power generated.
- Power input in the display of digital manipulator is as follows:



Display status part
Display parameter name and setting data
LCD 16 words, double lines

Parameter button

Disply running status
Drive: Instruction of running status
FWD: Light-up when enter forward
REV: Light-off when enter reverse
SEQ: Running order is effective when external control
REF: Frequency order is effective when external control
JOG: JOG Button

Press ESC to return the previous status

Running button: It can set parameters,monitior,JOGand auto-tuning functions.

LED button will light-up when operational

LED button will light-up in non-operational

The test the running safety:

Danger
• Do not take off the front cover during power sending, to prevent personnel got hurt. • With auto-restart setting function; the motor will start running after stopped run. Please keep away from the machine for dangers. • The STOP switches will effective after set its functions. It's different than emergent STOP switches. Please pay attention on it.

Warning
• Cooling seat, brake resistors such heating components please do not touch. • Inverter can be easily changed speed from low to high operation, verify the allowable range of motors and machinery. • When using the brake resistor please make sure all related settings. • Do not check the signal of board when the inverter under running. • Since the inverter had adjusted the setting before left the factory, please do not randomly change.

Running mode selection:

Inverter running mode has two types: LOCAL and REMOTE. Factory setting is REMOTE (control circuit terminal order is effective), the parameter content please see the following shows:

LOCAL: Frequency and Running command will mainly be set by the running panel. At this time SEQ and REF will lights off.

REMOTE: Frequency and Running command will mainly be set by the external terminal. At this time SEQ and REF will lights up.

Code	Display	Name	Frequency Command	REF LED	SEQ LED
B1-01	Reference Source	Frequency command selection	0: Frequency command set by running panel (D1-01) 1:Frequency command set by external terminal 13.14 2: Frequency command set by the communication delivering 3:Frequency command set by the interface card	OFF ON Scintillation Scintillatio	

Code	Display	Name	Frequency Command	REF LED	SEQ LED
B1-02	Run Source	Running instruction selection	0: Running command set by running panel 1: Running command set by external terminal 2: Running command set by the communication delivering 3: Running command set by the interface card		OFF ON Scintillation Scintillation

5.3 The setting before start running

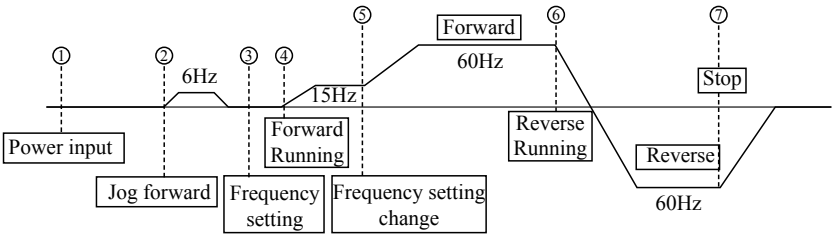
Please test the running when the motor without loads situation, in order to prevent incorrect process happening to damage the machinery. If it's necessary to test with loads, please pay attention on the machinery and personnel safety.

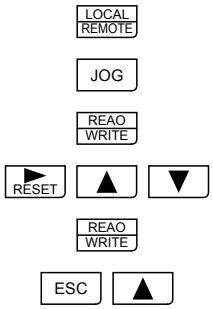
◆ Checking Notice when running:

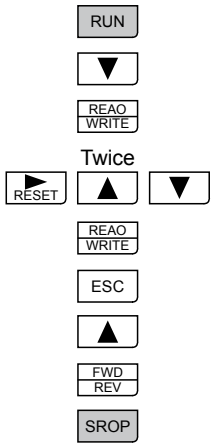
When running please check the followings are normal working.

- Motor run is smooth.
- Motor running direction is normal.
- Whether there are abnormal motor vibrations.
- Accelerations, decelerations running are smooth.
- The current load is under rated range.
- The light of running panel is normally display.

(A) Using digital manipulator Test Run

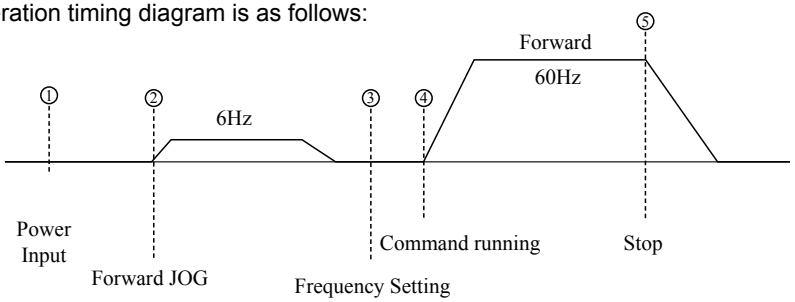


Steps	Key Operation	Display
Power input - Frequency value instructions Operation mode setting - LOCAL mode of operation Forward-inch dynamic run (6HZ) - Jog run operation Number of frequency - Frequency value change Data input Select output frequency		Frequency Ref U1-01=00.00HZ **REMOTE LED(SEQ、REF) flash** Frequency Ref U1-01=00.00HZ Frequency Ref U1-01=15.00HZ Frequency Ref U1-01=15.00HZ Output Freq U1-02=0.00HZ

Steps	Key Operation	Display
Forward operation - 15HZ operation Alteration of frequency number 15HZ to 60HZ) - Change frequency value - Data input - Select output frequency Monitoring feverse operation - Reverse operation command Switch Stop - Decelerate to stop		Output Freq U1-02=15.00HZ FWD LED Light-up RUN Frequency Ref 15.00HZ Frequency Ref 60.00HZ Output Freq U1-02=60.00HZ Output Freq U1-02=60.00HZ REV LED Lights-up Output Freq U1-02=0.00HZ Speed up the RUN LED lightup, stopping STOP LI SROP

(B) The external terminal signal test operation

Operation timing diagram is as follows:



Steps	Key Operation	Display
Power input: - Frequency value instruction Operation condition setting - Select Remote mode to display output Frequency - Output frequency monitoring Forward / inching operation - Control Terminal of 7-11 first, and then ON - When terminal 1-11 ON and inching is OFF, stop. Frequency number setting: - Control terminal 13 or 14 send out voltage or current signals to change the display of frequency value Output frequency monitoring Operation command input - When control terminal 1-11 is ON, running forward with 60HZ. Stop - When control terminal 1-11 is OFF, decelerate to stop.	LOCAL REMOTE ▲ ▼ ▲	Frequency Ref U1-01=00.00HZ REMOTE LED (SEQREF) lights Output Freq U1-02=00.00HZ Output Freq U1-02=6.00HZ FWD LED lights RUN Frequency Ref U1-01=60.00HZ Frequency of inputting 10V to Terminal 13 Output Freq U1-02=00.00HZ Output Freq U1-02=6.00HZ RUN FWD Light-up RUN Output Freq U1-02=0.00HZ RUN LED is flashing in deceleration SROP

5.4 Application Examples

This module describes the various functions and Inverter applications

Function name	Applications	Purpose	Description	Related
3-wire	General occasion	Running with the PB implementation, stop, control one contact	The following diagram shows the wiring control inverter: start, stop, forward/reverse operation.	A1 – 03 H1 – 01
Operation Signal Selection	General occasion	Select control signal source	Select frequency Inverter controlled by an external terminal or by a digital device manipulator	B1–01,02 H1–01~06
Carrier frequency	General occasion	Reduce noise	Adjust the Inverter carrier frequency to reduce the noise of motor caused by metal.	C6-01-03
Load rotational speed	General occasion	Show running frequency	Motor speed (rpm), mechanical speed (rpm) mechanical speed (m / min) shown on the digital manipulator	01–03
Operation Output	General occasion Mechanical brake	Running Signals	Motor Inverter operation sent a signal to release mechanical brake, (free-running frequency Inverter stops, the signal disappears)	H2–01~03
At zero velocity Signal output	General occasion Machine tool	Running Signals	Inverter output frequency is below the minimum output frequency, sending a signal to provide an external system or control circuit to use.	
Speed reach signal output	General occasion Machine tool	Running Signals	Inverter output frequency reaches the set frequency, sending a signal to provide an external system or control circuit to use.	

Function name	Applications	Purpose	Description	Related
After the torque signal output	Machine tool Fan to help Extruder	Protection to enhance reliability of loading and unloading operation	The motor occurred torque which is beyond the Inverter setting, sending a signal to prevent mechanical damage to the load.	H2–01~03
Frequency of operation of upper and lower limits	Pump Fan	Control the motor speed within the upper and lower limits	External operation signals can not provide upper and lower limits, gain, bias; they can adjust the individual settings within the inverter.	D2–01~02
Set against the frequency command	Pump Fan	Prevent mechanical vibration	When prohibit frequency setting; the Inverter can not operate to the regular speed within prohibit frequency. Against frequency can be set to three groups.	D3–01~04
Low Voltage Output	general occasion	Running condition Signals	Converter-side P-N terminal voltage, after the detection of low voltage, sending a signal to provide external systems and control circuit to use.	H2–01~03
Maintaining Frequency Operation	general occasion	Acceleration and deceleration Suspension	Maintain the output frequency in Inverter acceleration and deceleration.	H1–01~06
Abnormal automatic restart	air-conditioner	Ascension movement continuity and reliability	After inverter abnormal failure is detected, abnormal failure disappears and the inverter reset and start automatically, the start frequency can be set to 10 times.	L5–01
Dc brake urgent stop	High-speed shaft	No brake resistor installed, motor stop rapidly	When inverter braking resistance and brakes are not installed and torque is in shortage, dc brakes can be used to stop motor urgently. (Decelerating cycle no more than 5%, brake torque, use of 50-70%)	B1–03 B2–01~04

Function name	Applications	Purpose	Description	Related
Overtorque setting	Pump Fan Extruder	Protect machine and enhance operation continuity and reliability	Detection level of the motor or machinery torque overtorque can be set for the Inverter to adjust the output frequency when the overtorque occurred. Applicable to the wind power and hydraulic machinery without tripping operation.	L3–01~06 L6–01~06
When frequency instruction stops, keep running.	air-conditioner	Enhance the operation Continuity	Control system fault frequency instruction ends, inverter can continue to run. Applicable to intelligent building air-conditioning equipment.	L4-05
Speed searching	Windmill, winding equipment and inertia loads	Motor restart in free operation	Before the free-running motor stops, the motor can restart without detecting the speed; the inverter automatically tracks the speed, and then speed up after the speed is consistent.	B3-01-03
The pre-operational DC brake	Windmill, pump, and stop when the load is still turning	Motor restart in free operation	If the running direction of free-running motor is changeable, implement the DC braking before the motor start running.	B2-01-03
Converter Commercial power switching and running	Windmill, explain the movable load when stop	Converter Commercial power switching	Inverter and commercial power switching operation without stopping motors, or heavy load starts through commercial power, and the inverter runs with variable speed.	H1-01-06
Energy efficient Operation	Press, Precision Work Machinery.	Energy efficient Reduce vibration	Acceleration and deceleration in the full-voltage operation, setting the rate in order to run efficiently in fixed-speed operation. Best suited for precision machine tool to reduce vibration	B8-01-02 H1-01-06

Function name	Applications	Purpose	Description	Related
Multi-speed Running	Conveyor	To implement the periodic operation of multi-stage presetting speed	Control 8-phrase speed operation with simple contact signals; also implement the simple position control with an external micro-switch.	D1-01-08 H1-01-06
Multistage Acceleration and deceleration Switch operation	Conveyor Rotary machinery	To switch acceleration and deceleration time by an external signal	To switch multi-stage acceleration and deceleration motor with an external signal, when an inverter driven 2 motors above, to perform high-speed / slowly start and stop function	C1-01-08 H1-01-06
Inverter Overheating warning	air-conditioner	Security maintenance	Inverter cause danger because of the surrounding temperature is high; the external heat switches can send a signal into the inverter to make the necessary warnings protective measures.	H1-01-06
Arbitrary Speed arrival Output	General occasion	Operation status signals	Converters Frequency at any arbitrary setting range can send out the signals to the external system or to circuit control.	L4-01-04 H2-01-03
Output Frequency Arrival 1	General occasion	Operation status signals	Inverter output frequency at any arbitrary value and above, it can send out the signals to external system to circuit control.	
Output Frequency Arrival 2	General occasion	Operation status signals	Inverter output frequency at any arbitrary value and above, it can send out the signals to external system or to circuit control.	
Base Block (BB) statues	General occasion	Operation status signals	When the inverter complement Base Block (output interrupt), it can send out a signal to external system or to control circuit.	H2-01-03

Function name	Applications	Purpose	Description	Related
Brake resistor overheat protection	General occasion	Security maintenance	When the inverter have installed Built-in braking resistor, it can send out a signal of braking resistor overheated or brake transistor anomalies.	L8-01
Frequency instructions Rapidly varied change	General occasion	Upgrade the continuity and reliability of operation	Frequency command value dropped drastically to 10% of the original set below; the inverter sends out the signals to external systems or to control circuit.	H2-01-03 L4-05
Analog Input	General occasion	Upgrade Operability	Inverter can be attached interface cards using high-resolution analog frequency command. External positive and negative voltage signal can directly control the forward/reverse operation of inverter.	F2-01
Analog output	General occasion	Display operation status	Inverter can be attached interface cards using high-resolution. Voltage, DC voltage signal plus the interface card can be displayed by applied frequency counter, voltage meter, current meter.	F4-01-04
Digital input	General occasion	Upgrade Operability	Inverter can be attached interface cards using digital frequency command (BCD 2 Bit/ BIN 8Bit) (BCD 4 Bit / BIN 16 bit)	F3-01
Pulse Output	General occasion	Display operation status	Inverter output frequency output into the interface card in way of the pulse output mode.	F7-01

Function name	Applications	Purpose	Description	Related
Digital Output	General occasion	Display operation status	The inverter failure conditions can output through 6 groups of optical coupling, and the two groups of electrical output.	F6-01
2C contact output card	General occasion	Display operation status	2 groups C contacts provide the running condition of inverter for the customers to control.	F5-01-03 H2-01-03
Multi-function Analog Input	General occasion	Upgrade Operability	Auxiliary frequency command of inverter, input voltage, and current adjustment can be controlled by an external analog signal.	H3-04-07
Multi-function Analog Output	General occasion	Display operation State	Inverter plus frequency ammeter can display operation frequency, output current, output voltage, DC voltage.	H4-01-06
Cumulative working hours	General occasion	Display Runtime	The computation of inverter running hour accumulation can be applied to calculate the work rate calculation.	02-07-08
Stall Prevention	General occasion	Upgrade the functional sustainability	Inverter can be set to detect current level when motor stalls, and prevent unnecessary downtime.	L3-01-06
Detection of Input/Output power phase failure	General occasion	Security maintenance	The inverter self-protection function for power supply or motor-side power phase failure to perform the necessary warning protective measures.	L8-05-07
PID Control Function	Air conditioner	Upgrade Operability	The use of PID to stabilize the scheduled and feedback numerical control output.	B5-01-08

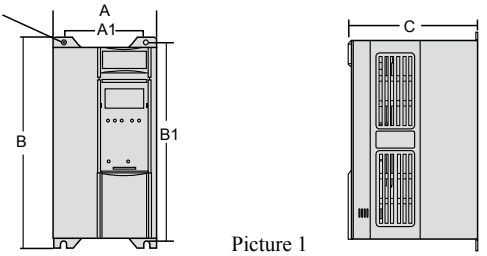
Function name	Applications	Purpose	Description	Related
RS-232C/485 Communication card	General occasion	Upgrade Operability	The use of interface card reach one-to-many control with the PIC, or MOD-BUS communication.	H5-01-04

5.5 VG5 and VG2 Outline Demension

3-phase 400V								
Model	Capacity (kW)	Size (mm)						Piture
		A	A1	B	B1	C	D	
VG5	1.5-3.7	146	116	316	300	200	7	1
	5.5-7.5	200	170	340	324	210	7	
VG5 VG2	11-15	240	150	445	418	230	9	2
VG5	18.5-22	246	160	600	578	258	9	
	30-45	282	180	665	638	288	11	
	55-93	465	325	774	740	368	15	
VG2	18.5-30	300	212	464	437	288	9	
	37-45	331	275	556	530	288	9	
	55-93	408	275	616	620	342	11	
VG5 VG2	110-185	585	445	924	895	400	15	2
	200-250	765	625	1046	1015	404	15	
	280-400	1050		1600		500		

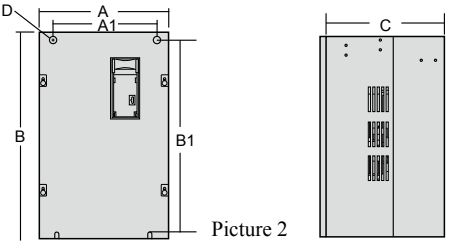
3-phase 200V								
Model	Capacity (kW)	Size (mm)						Picture
		A	A1	B	B1	C	D	
VG5 VG2	1.5	146	116	316	300	200	7	1
	2.2-3.7	200	170	340	324	210	7	
VG5 VG2	5.5-7.5	240	150	445	418	230	9	2

VG5 VG2	11	246	160	600	578	258	9	2
	15-22	282	180	665	638	288	11	
	30-45	465	325	774	740	368	15	
VG5 VG2	55-90	585	445	924	895	400	15	
	110	765	625	1046	1015	404	15	
	132-200	1050		1600		500		

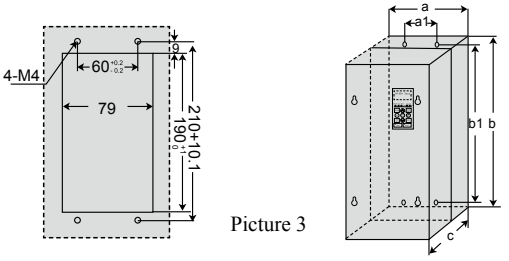


Picture 1

External keypad and open hole installion



Picture 2



Picture 3

Open hole size: 79×190
Open hole size: 60×210

6. Control Mode Setting

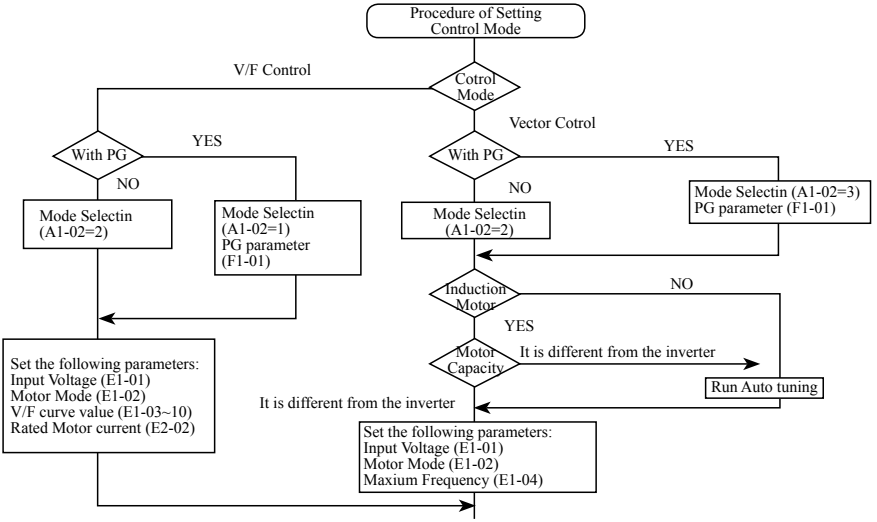
6.1 Four typs of control mode selection

VG5 provides four control modes:

1. The current vector without PG control.
2. Current vector controls with PG. control.
3. V/F control without PG control.
4.V/F control with PG control.

Users can use the digital operators to choose control mode according to their application necessity.

The converter is set without following the PG control, please set motor control mode and related parameters according to the following procedures before using the VG5 series.



6.2 Feature of the control modes

Control Mode	V / F control without PG	V/F control with PG	Vector Control without PG	Vector Control with PG
Basic control	Voltage / frequency control (Open loop)	Voltage/ frequency control with Speed compensation	Current vector control without PG	Current vector control without PG
Speed detector	NO	YES (PG)	No	YES (PG)
Speed detector	NO	PG-A2, PG-D2	NO	PG-B2 PG-X2
Range of Speed control	1:40	1:40	1:100	1:1000
starting torque	150%/3HZ	150%/3HZ	150%/1HZ	150%/0HZ/min
Speed control accuracy	±2%~±3%	±0.03%	±0.2%	±0.02%
Torque control	NO	NO	NO	NO
Low-noise correspondence	Standard correspondence*	Standard correspondence*	Standard correspondence*	Standard correspondence*
Applicable purposes	1. Simultaneously drive multiple motor 2. Motor parameters unknown 3. Unable to Auto tuning	Mechanical side with pulse generator	Occasion to change the speed	1. Simple Servo Driver 2. High precision speed control 3. Torque Control

6.3 Adjustment of the control mode

The following example illustrates the operation procedures of control modes from the vector control without PG vector control with PG.

Description	Key sequence	Operation displays
Frequency Command Display	MENU	Freqency Ref U1-01=60.00HZ
Action Mode Selection	↓ ↑	**Main Menu** Operation
Environment Setting Display		**Main Menu** Initialize
Environment Settings Selection	READ / WRITE	Select language English
Parameter name change (Control mode display)	↓ ↑	Control Method Open Loop Vecctor
Press DATA / ENTER key, the parameter No, and setting values are displayed	READ / WRITE	A1-02=02 Open Loop Vector
Change control mode (Display V / F control)	↓ ↑	A1-02=00 v/f Control
Choose V / F control mode	READ / WRITE	Entry Accepted
Back to the action mode	MENU	**Main Menu** Operation
Back to the frequency command mode	READ / WRITE	Freqency Ref U1-01=60.00HZ

6.4 Auto-tunning Procedure

Note
1. During Auto Tuning procedure, the motor runs automatically; please separate motors and mechanical parts for safety reason. 2. During Auto Tuning procedure, the input signal of controlling loop terminal is invalid. 3. During Auto Tuning procedure, there will have obvious electromagnetic noise when the motor is running because of the carrier frequency alteration to 2KHZ. 4. Set the access level (A1-01) of environmental parameters to BASIC or ADVANCED, and then runs Auto Tuning procedure. 5. Before Auto Tuning procedure, please confirm the stop status of motor, and then enter the RUN key.

Operation procedure

Procedures		Operation
1	Safety confirmation	• Motor and mechanical separation? • There are people around the motor shaft? • Mechanical brake release? (The occasion when motor with mechanical braking) • Rmoval of the shaft key on the motor Shaft?

<table>
<tr><th colspan="2">Procedures</th><th>Operation</th></tr>
<tr><td>2</td><td>Inverter power input</td><td>• Confirmed that no failure occurred.
• Confirmed PG turning direction. (equipped with PG)</td></tr>
<tr><td>3</td><td>Tuning Mode Selection</td><td>In operation, major failure, the parameter error does not confirm.
Control mode selection (Default value: vector control without PG)
A1-02 2: Vector Control without PG
3: Vector Control without PG
Press MENU button, select
[**Main Menu**
Operation]
Press [▼] OR [▲] KEY, SELECT [**Main Menu**
Auto-Ttuning]</td></tr>
<tr><td>4</td><td>Enter Motor Data</td><td>Press [DATA
WRITE] Key to enter the motor data (value on motor brand card)
<table>
<tr><td>Name of input data</td><td>Input values</td></tr>
<tr><td>Rated Voltage [VAC]</td><td>Motor rated voltage [VAC]</td></tr>
<tr><td>Rated Current [A]</td><td>Motor rated current[A]</td></tr>
<tr><td>Rated Frequency [HZ]</td><td>Motor rated currency[HZ]</td></tr>
<tr><td>Rated Speed [RPM]</td><td>Rated Speed [RPM](Rated torque motors)
Based Speed [RPM](Rated output Motor)</td></tr>
<tr><td>Number of pole</td><td>Motor Poles</td></tr>
<tr><td>Select Motor 1/2</td><td>Motor selection</td></tr>
<tr><td>PG Pulses/Rev [RPM]</td><td>Pulse per second [RPM]of Pulse generator (PG)</td></tr>
</table></td></tr>
<tr><td>4</td><td>Enter Motor Data</td><td>① Press [READ
WRITE] key, display [Rated Voltage
□□□.□□ VAC] [DATA
ENTER]
② To changes the information, make use of [▲], [▼] key, And press [>
Reset] key after the alteration.
③ Press [▲] key, display [Rated Current
□.□□A]
④ To change information, repeat step ②.
[Rated Frequency
□□.□ HZ] [Rated Speed
□□□ RPM] [Number of Pole
□□]
[Select Motor1/2
□] [PG Pulses/Rev
*□□ RPM]
* Those data will not appear on screen if Vector control without PG.
⑥ Press [▲] key, display [Tuning Ready?
Press RUN Key]</td></tr>
</table>

Procedures		Operation
5	Perform Tuning	The direction of motor rotation is shown by the LED. FWD/REV After press key FWD / REV to change the operation direction, Press key RUN When necessary. Tuning proceed Tuning completed, display “Tune Successful (note) Press key STOP when Turning proceeding, Auto Tuning interrupted, motor gradually slow down until stop.
6	Tuning complete	• Tuning completed or interrupted, press key MENU to return to the action mode. • Perform Auto tuning again, repeat procedures 1-5.

[Display of Anomaly and Countermeasures in Auto-Tuning Procedure]

When the following abnormal occasions occur, the digital manipulator will display anomaly, the motor gradually slow down until stop

Error Display	Content	Description	Solutions
Data Invalid	Motor data error	The motor data input for tuning is not correct.	• To confirm input data. • Confirm inverter and motor capacity
Resistance	Impedance between lines anomaly	Tuning is not completed within the specified time	• To confirm input data. • Confirmed the motor wire specifications.
No-Load current	No load current anomaly		
Saturation-1	Iron core saturation coefficient 1 anomaly		
Saturation-2	Iron core saturation coefficient 2 anomaly		
Rated slip	Rated slip anomaly		

Accelerate	Acceleration anomaly	Motor acceleration not completed within the specified time.	Acceleration time (C1-01) increased. If the motors and mechanical link together, please separate the motors and mechanical.
PG Direction	Direction of motor rotation anomaly	Inverter PG (A.B phase) and the motor (U, V, W) connection is not correct.	• Confirmed the PG wiring. • Confirm motor wiring.
Motor speed	Motor speed anomaly	Tuning, the torque command is excessive.(100 %)	• If the motor and mechanical link together, please separate the motor and mechanical • Acceleration time (C1-01) excessive. Confirm the input data, especially the PC wave number
ALARM: Over Load	Over load	Tuning, the torque command Change 20 %.	• Confirm the input data, especially the PC wave number
Turn Aborted Minor Failure □□□	Minor failure	Minor failure of inverter occur	Check the minor failure information of □□□
V/F Over Setting	V/F Over Setting	The torque command is over 100% during auto tuning and the no load current of generator is over 70 % of rated current	• Confirm the setting value and correct it. • load of generator

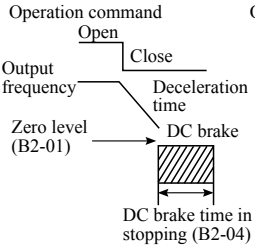
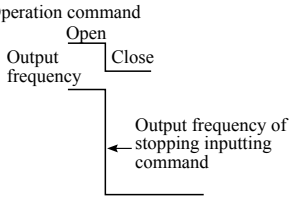
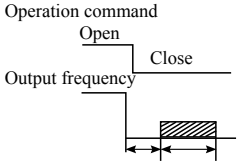
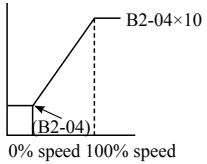
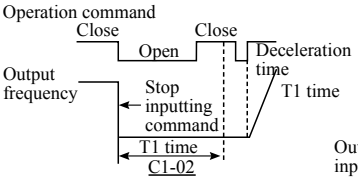
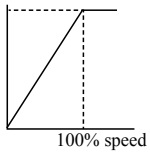
7 Parameter Description

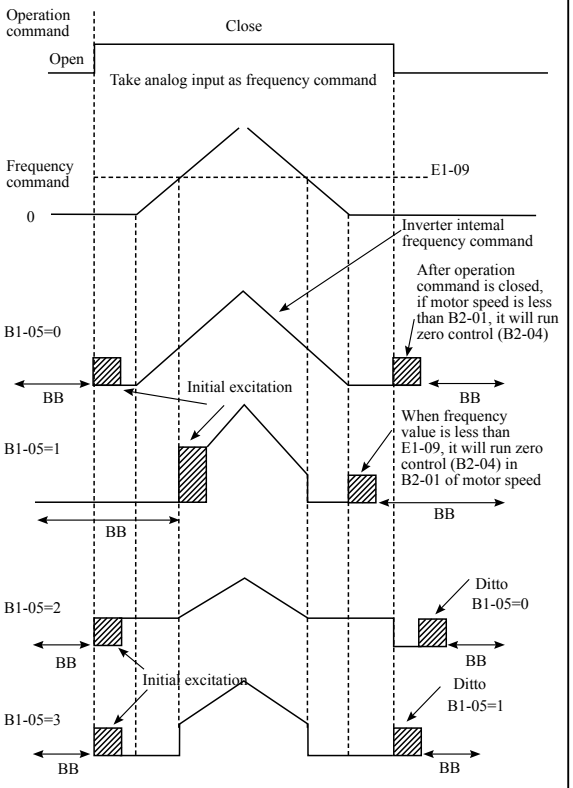
7.1 A group parameter

Code	Name	Default	Description
A1-00	Select the Language	0	0：English
A1-02	Parameter read / write level	2	0: Monitor Private 1: users choose 2: Quick Setup3: Basic Set 4: Advanced Settings
A1-02	Control Mode Selection	2	0: V / F control without PG 1: V / F control with PG 2: Vector Control without PG 3: Vector Control with PG
A1-03	Reset to factory setting	0000	1110 = Reset to user's value. 2220 = 2-wire reset. 3330 = 3-wire reset.
A1-04	Password1	0000	Enter 1 password
A1-05	Password	0000	Enter 2 password
A2-01 A2-32	User's Parameter		When A1-01 = 1 , A2-01 ~ 32 can be set up by the user's value to read / write parameters of NO

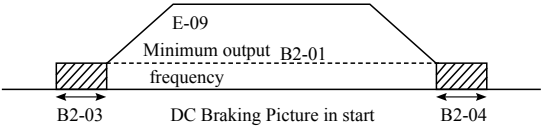
7.2 B group parameter

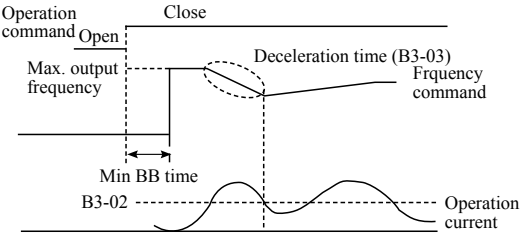
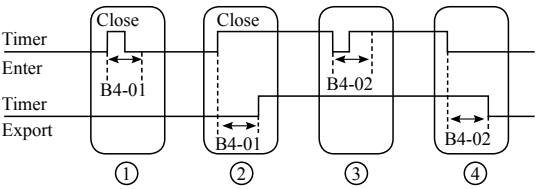
Code	Name	Default	Description
B1-01	Frequency command selection	1	Settings: 0 = Operation command from digital manipulator 1 = Operation command from the control terminal 2 = Operation command from the serial communication 3 = Operation command from the Option Card 4 = MEMOBUS (CP-717 only)

Code	Name	Default	Description
B1-02	Torque command selection	1	When stop running through the LOCAL REMOTE key, which can be able to select operation modes. LOCAL: frequency of command and operation command from digital manipulator. REMOE; frequency of command and operation of command by the parameters of B1-01 and B1-02. Note; When input the power then the REMOTE to be set 1. B1-01 = 1, the frequency of instruction for the terminal 13; 2. 14 together when terminals and configured for multifunctional input, frequency for terminals and instructions
B1-03	Stop Methods	1	① B1-03 = 00 Deceleration for stop ② B1-03 = 01 free to stop   (3) B1-03=02 all field DC brake   (3) B1-03=03 free stop (with timer)   The command will not run within T1 time after it stops inputting command. It will not run if there is no command input after T1 time A1-02 would only be able to set 00 or 01

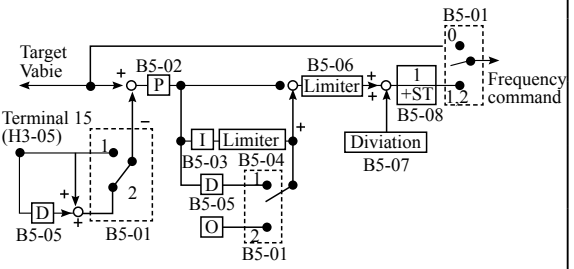
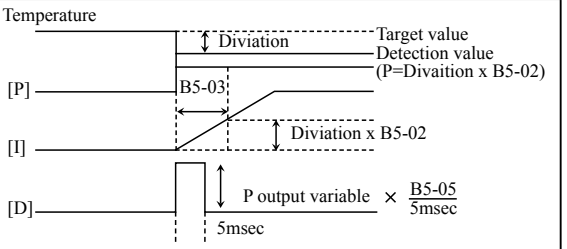
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>B1-04</td><td>Select ban on reverse</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Can be reversed to run</td></tr>
<tr><td>1</td><td>Reverse run prohibited</td></tr>
</table>
</td></tr>
<tr><td>B1-05</td><td>The running selection under the lowest frequency situation</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Normal running (E1-09 invalid)</td></tr>
<tr><td>1</td><td>Output Interrupt (BB)</td></tr>
<tr><td>2</td><td>Running on the lowest frequency</td></tr>
<tr><td>3</td><td>Zero-speed selection</td></tr>
</table>


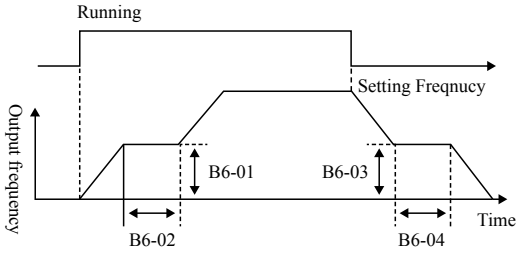
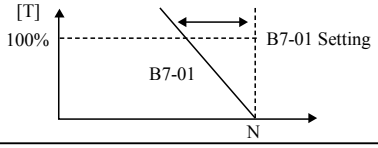
E1-09=0, this function is ineffective.
A1-02=0 or 1 or 2, less than minimum freqneucy will bb motion.
</td></tr>
</table>

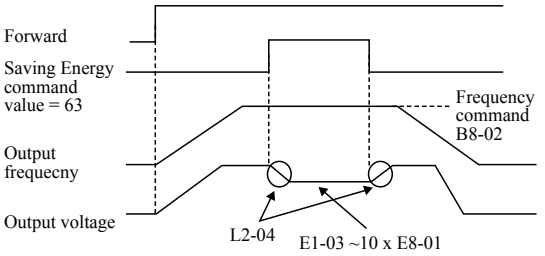
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>B1-06</td><td>Time option of terminal scanning twice</td><td>1</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>2msec</td></tr>
<tr><td>1</td><td>5msec</td></tr>
</table>
</td></tr>
<tr><td>B1-07</td><td>transferring option after swifting the operation command</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Default</th><th>Description</th></tr>
<tr><td>0</td><td rowspan="2">0</td><td>When local switch to the Remote, Remote command has been put into operation, running unavailable.</td></tr>
<tr><td>1</td><td>hen local switch to the Remote , Remote command has been put into operation , running immediately</td></tr>
</table>
</td></tr>
<tr><td>B1-08</td><td>Local/Remote change</td><td>0</td><td>Running order from internal (operate panel) change to external(control ternminal) operation will be locked together.
0: Change to external, input running order won’t move
1: Change to external, follow running signal to move.</td></tr>
<tr><td>B2-01</td><td>Zero speed level (DC braking start frequency)</td><td>0.5</td><td>When decelerate to stop, The settin unit for DC braking start frequency is 0.1HZ,
When B2-01 <E1-09, then the E1-09 as the DC braking start value</td></tr>
<tr><td>B2-02</td><td>DC Brake Current</td><td>50</td><td>Setting unit for DC braking start frequency is 1% ,inverter rated current is 100%</td></tr>
<tr><td>B2-03</td><td>The Dc braking time when start</td><td>0.00</td><td>When the motor rotation direction is uncertain, start DC braking in order to prevent the trip from the re-start when the motor in the situation of free run, the setting unit is 0.1 seconds.</td></tr>
<tr><td>B2-04</td><td>The DC braking time when stop</td><td>0.5</td><td>To prevent the slip situation occurd when the motor stop,(Note) vector control with PG Please refer to the diagram of B1-05
 
</td></tr>
<tr><td>B2-08</td><td>Flow compensation</td><td>0</td><td>Magnatic compesation value. Take current value in non-loading as 100%</td></tr>
</table>

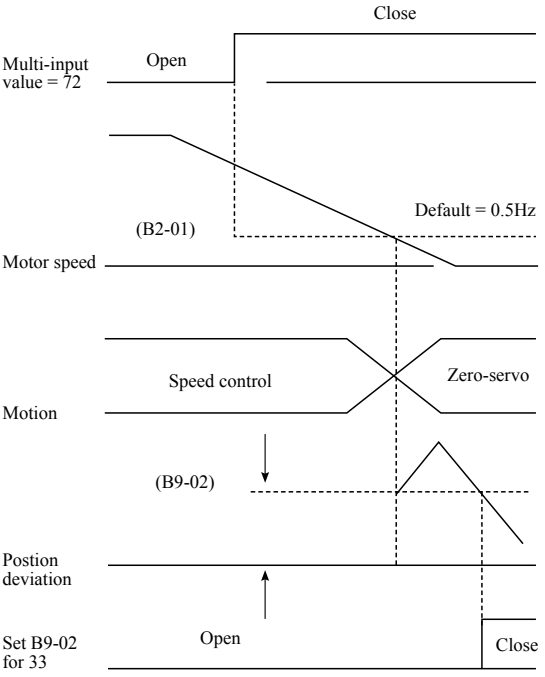
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>B3-01</td><td>Option of speed searching at start</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Ineffective</td></tr>
<tr><td>1</td><td>Effective</td></tr>
</table>
</td></tr>
<tr><td>B3-02</td><td>The unit of speed search</td><td>100</td><td>The setting unit for speed seraching level is 1% ,inverter rated current is 100%</td></tr>
<tr><td>B3-03</td><td>Speed Search Deceleration Time</td><td>2.0</td><td>Setting unit for speed seraching deceleration time is 0.1 seconds , V/F control without PG when the speed search start.
 
</td></tr>
<tr><td>B4-01</td><td>Time ON DELAY time</td><td>0.00</td><td rowspan="2"> 

1: When the Timer input contact "closed" time short than B4-01, Timer output contact does not motion.
2: When the Timer input contact "closed" time is greater than B4-01 , Timer output contacts into "closed."
3: When the Timer input contact "on" time short than B4-02 , Timer output contacts remain "open."
4: When the Timer input contact "on" time is greater than B4-02, Timer output contacts become "open."</td></tr>
<tr><td>B4-02</td><td>OFF DELAY time</td><td>0.00</td></tr>
<tr><td>B5-01</td><td>PID Mode</td><td>0</td><td rowspan="6">
<table>
<tr><th>B5-01</th><th>PID control function</th></tr>
<tr><td>0</td><td>Ineffective</td></tr>
<tr><td>1</td><td>Effective (deviation value D control)</td></tr>
<tr><td>2</td><td>Effective (feedback value D control)</td></tr>
<tr><td>3</td><td>Effective (frequency +PID deviation value D control)</td></tr>
<tr><td>4</td><td>Effective (frequency +PID feedback value D control)</td></tr>
</table>
</td></tr>
<tr><td>B5-02</td><td>PID Gain</td><td>1</td></tr>
<tr><td>B5-03</td><td>PID I Time</td><td>1</td></tr>
<tr><td>B5-04</td><td>PID I Limit</td><td>100</td></tr>
<tr><td>B5-05</td><td>PID D Time</td><td>0</td></tr>
<tr><td>B5-06</td><td>PID Limit</td><td>100</td></tr>
</table>

Code	Name	Default	Description
B5-07	PID Offset	0	
B5-08	PID Delay Time	0	
B5-09	PID Forward /Reverse	0	
B5-10	PID Output Gain	1	
B5-11	PID Reverse output mode	0	
B5-12	PID Feedback Loss Output	0	The Target value is set by the frequency of reference signal selection parameters (B1-01), when B1-01 = 0, It can be through speed command parameters 1-3 (H1-03, H1-04, H1-05) or the jog command signals H1-06 as a target value. When S1-01 = 1, the target value from terminal 13 or 14 analog input signal.
B5-13	PID Feedback Loss Output Detection Level	0	
B5-14	PID Feedback Loss Output Detection Time		
	Connects to the last page		 Under following condition the I value will be reverted to 0 • Input the stop command or stop in. • When the multi-function terminal set on “called the PID control ” and Inputting terminal on the condition of “ closed”. • When the Multi-terminal PID control integral reset have been chosen, and the terminal closed is the integral reset, In running, when the multi-functional terminal is set to "called the PID control", the target signal will be treated as frequency command signal . The limitation of “I” can be set by the B5-04, To increase the ability of controlling brake from integral- constant (increase the value of B5-04). When the control system oscillated, which can not be solved by the adjustment integral-constant time or the principal constant- time, reduce the value of B5-04?

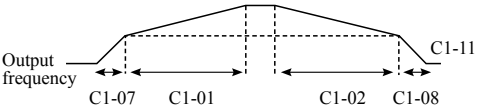
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>B6-01</td><td>DWELL start frequency</td><td>0.0</td><td rowspan="4">When the Motor-driven on a heavy load, and if it is required to suspend the acceleration in order to facilitate the start or suspend the deceleration, This escape function is called DWELL.
The suspension of accelerating frequency when speed up. B6-01≦E1-09 when starts DWELL function is invalid.
The suspension of accelerating time when speed up.
The suspension of decelerating frequency B6-03≦E1-09, when stopped DWELL function is invalid
 
</td></tr>
<tr><td>B6-02</td><td>DWELL time to start</td><td>0.0</td></tr>
<tr><td>B6-03</td><td>Frequency of stops DWELL</td><td>0.0</td></tr>
<tr><td>B6-04</td><td>Stop the time when the DWELL</td><td>0.0</td></tr>
<tr><td>B7-01</td><td>Droop Control Gain</td><td>0.0</td><td rowspan="2">Droop control provides a corresponding change of load in the rate of decline to a certain percentage of the function. B7-01 is a rated torque of 100% corresponding to maximum speed (E1-04) a decline in the ratio. Reduce the B7-02 settings, Droop's response sooner, but this would result in pursuit of the motor behavior.
 
</td></tr>
<tr><td>B7-02</td><td>Control Delay Time</td><td>0.00</td><td>This feature is restricted to the A1-02 = 3 (with PG vector control) mode.</td></tr>
<tr><td>B8-01</td><td>Saving Energy Gain</td><td>80</td><td>• After acceleration is complete, the current of load will become small: in this case, through the reducing of output voltage which will achieve the energy saving purpose.
• Set the Multi-function input terminals to "energy saving " command, and the frequency reach to the rate of energy saving (B8-02), the output voltage begins to lower.
• Energy efficient running of the output voltage as the normal of V / F settings (E1-03 ~ 13) × Saving Energy Gain (B8-01), the output voltage reduction and recovery time set by L2-04</td></tr>
</table>

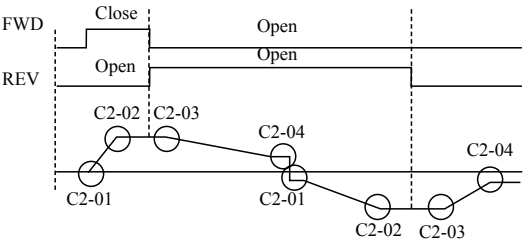
<table>
<tr><td>B8-02</td><td>Start frequency of energy Saving</td><td>0.0</td><td> 

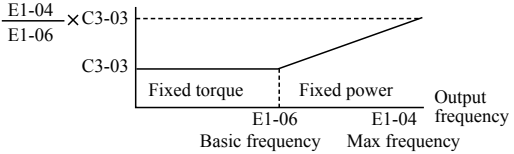
In A1-02=0, this function is effective</td></tr>
<tr><td>B9-01</td><td>Zero Servo Gain</td><td>5</td><td rowspan="2">Zero speed servo motor function is that when the motor speed below the Inverter’s zero-speed level of the implementation of position control.
Zero-servo gain settings.
Zero servo completion of width,
set the PG Pulse as one unit.
 
</td></tr>
<tr><td>B9-02</td><td>Zero-servo completion of width</td><td>10</td></tr>
</table>

7.3 C group parameter

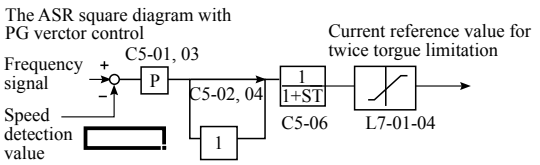
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>C1-01, 03, 05, 07</td><td>Acceleration time 1 ~4</td><td rowspan="2">10</td><td rowspan="2">OHZ accelerate to the maximum frequency (E1-04) as the acceleration time.
The maximum frequency (E1-04) slow-down to the OHZ as the deceleration time.
Use of multi-function input terminal to set the acceleration and deceleration command 1.2 , which can obtain the acceleration and deceleration time for 4 sections of variation
<table>
<tr><th>Velocity time plus or minus 2 (multi-function terminal, set value = 1A)</th><th>Acceleration and deceleration with time 1 (multi-function terminal, set value = 07)</th><th>Acceleration</th><th>Deceleration</th></tr>
<tr><td>Open or not set</td><td>Open or not set</td><td>C1-01</td><td>C1-02</td></tr>
<tr><td>Open or set</td><td>close</td><td>C1-03</td><td>C1-04</td></tr>
<tr><td>close</td><td>Open or not set</td><td>C1-05</td><td>C1-06</td></tr>
<tr><td>close</td><td>close</td><td>C1-07</td><td>C1-08</td></tr>
</table></td></tr>
<tr><td>C1-02, 04, 06, 08</td><td>Deceleration time 1 ~4</td></tr>
<tr><td>C1-09</td><td>Emergency stop time</td><td>10</td><td>The emergency stopping time can be effected as following conditions: Multi-functional terminal is set as an emergency stop command (set value = 15) detection of inputting anomaly is set as emergency stop.</td></tr>
<tr><td>C1-10</td><td>Acceleration and deceleration time setting unit</td><td>1</td><td>
<table>
<tr><th>Value</th><th>description</th></tr>
<tr><td>0</td><td>Acceleration and deceleration time (C1-01 ~ 09) in 0.1 seconds, setting range 0 to 600.00 seconds</td></tr>
<tr><td>1</td><td>Acceleration and deceleration time (C1-01 ~ 09) of 0.01 seconds, setting range 0 to 600.00 seconds</td></tr>
</table></td></tr>
<tr><td>C1-11</td><td>Acceleration and deceleration time switching frequency</td><td>0.0</td><td>According to C1-11 settings, acceleration and deceleration time can be automatically switched.
• When C1-10 is changed, the inverter internal C1-01-09 automatically set the unit of change
• When C1-01 ~ 09 change of more than 600.1 seconds, c1-10 can not be changed to a
Output frequency≧C1-11 Shi, C1-01.02 plus deceleration time of operation
Output Frequency <c1-11, as C1-07.08 Acceleration and deceleration time of operation</td></tr>
</table>

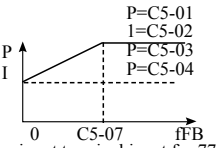
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>C1-11</td><td>Acceleration and deceleration time switching frequency</td><td>0.0</td><td> 

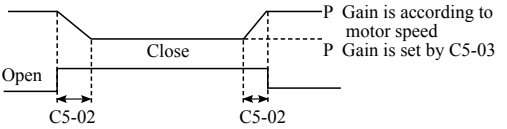
Multi-functional terminal is set to enter the deceleration command, its priority is greater than acceleration and deceleration time of automatic switching function</td></tr>
<tr><td>C2-01, 03</td><td>S-curve time in starting acceleration /deceleation</td><td rowspan="2">0.20</td><td rowspan="2">S curve characteristic prevent the machine from vibrating in starting and stopping. There are 4 characteristics in Acceleration and Deceleration.
 
</td></tr>
<tr><td>C2-02, 04</td><td>S-curve time in completing acceleration</td></tr>
<tr><td>C3-01</td><td>Slip Correction Gain</td><td>1.0</td><td>Slip correction gain will be different according to control method
V / F and non- PG vector
According to the output current and Motor torque and gain values to compensate for output frequency, set the unit of 0.1.
The accuracy reduced when running load; adjust the C3-01.
<table>
<tr><th>Running condition</th><th>C3-01 adjustments</th></tr>
<tr><td>Faster than the actual speed</td><td>Increasing value</td></tr>
<tr><td>Slower than the actual speed</td><td>Decreasing value</td></tr>
</table>
Vector control (with PG) c3-01 gradually change for each 0.1.
Adjust the gain value to compensate the slip caused by temperature changes.Usually it does not need to change the settings.</td></tr>
<tr><td>C3-02</td><td>Slip a delay time correction</td><td>200</td><td>When V / F under the load without PG and vector control, the speed's response and stability can be adjust by following command.</td></tr>
</table>

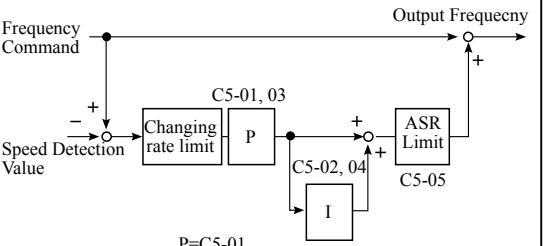
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>C3-02</td><td>Slip a delay time correction</td><td>200</td><td>
<table>
<tr><th>Running condition</th><th>C3-02 adjustments</th></tr>
<tr><td>Faster than the actual speed</td><td>Increasing setting value</td></tr>
<tr><td>Slower than the actual speed</td><td>Decreasing setting value</td></tr>
</table>
* Each adjusted by 10ms
</td></tr>
<tr><td>C3-03</td><td>Slip correction limit</td><td>200</td><td>
Slip compensation limit corresponds to rated motor slip setting, E2-02 ratio Torque and horsepower range limit value as below.


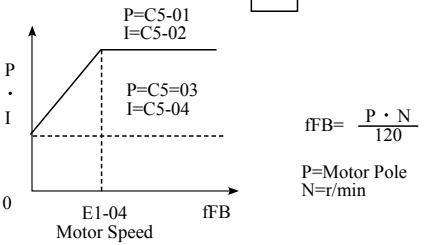
</td></tr>
<tr><td>C3-04</td><td>Slip compensation selection</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Recovery in the torque compensation</th></tr>
<tr><td>0</td><td>NO</td></tr>
<tr><td>1</td><td>YES</td></tr>
</table>
</td></tr>
<tr><td>C3-05</td><td>Magnetic characteristic selection</td><td></td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Output of frequency calculation according to complete Slip compensation</td></tr>
<tr><td>1</td><td>Output of frequency calculation before getting slip compensation</td></tr>
</table>
</td></tr>
<tr><td>C3-06</td><td>Output</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Output voltage limitation</th></tr>
<tr><td>0</td><td>No</td></tr>
<tr><td>1</td><td>Yes, auto reduce motor magnatic value when output voltage is max</td></tr>
</table>
</td></tr>
<tr><td>C4-01</td><td>Torque Compensation Gain</td><td>1.0</td><td>
Calculations of the load torque values according to output current. Follow by the value of output voltage compensation to ensure the required load torque.
When PG control with vector, It is unnecessary to adjust the compensate gain, V / F control of the adjustments as shown below.
<table>
<tr><th>Working condition</th><th>C4-01</th></tr>
<tr><td>torque is insufficient when Low running</td><td>Increasing the setting value</td></tr>
<tr><td>When the large motor current occurred due to the motor current is unstable or in light-load operation</td><td>Decreasing the setting value</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>C4-01</td><td>Torque Compensation Gain</td><td>1.0</td><td>The following conditions may occurred when increasing the value of torque compensation gain:
Flow through the large motor current causing inverter failed
Motor get heating and vibration situation occurring.
To avoid this situation happening, please adjust the settings value carefully.</td></tr>
<tr><td>C4-02</td><td>Constant of torque compensation Time</td><td>20</td><td>When the motor output current is unstable or response time is slow, with the PG vector control, constant of compensation time should be unnecessary to adjust.
<table><tr><th>Operation conditions</th><th>C4-02</th></tr><tr><td>Motor current is unstable</td><td>Increase setting value</td></tr><tr><td>Rate of speed reaction is slower</td><td>Decreasie setting value</td></tr></table>
Adjustments per 10ms each</td></tr>
<tr><td>C5-01</td><td>ASR gain ratio 1</td><td>20</td><td>ASR gain ration 1, setting unit as 0.01.</td></tr>
<tr><td>C5-02</td><td>ASR integral time 1</td><td>0.5</td><td>ASR integral time 1, setting unit as 1ms.</td></tr>
<tr><td>C5-03</td><td>ASR gain ratio 2</td><td>20</td><td>ASR gain ratio 2, setting unit as 0.01.</td></tr>
<tr><td>C5-04</td><td>ASR integral time 2</td><td>0.5</td><td>ASR integral time 2, setting unit as 1ms.</td></tr>
<tr><td>C5-05</td><td>ASR limit</td><td>5</td><td>In V/F control with PG, limit ASR of correction frequency [the Vector control with PG for ASR] (Note) When the V/F control with PG,ASR's P (gain value) with the highest frequency as the base.
The maximum output frequency value setting 1% as unit</td></tr>
<tr><td>C5-06</td><td>ASR output delay time</td><td>0.004</td><td>In vector control with PG, delay time of limit twice changes of current command</td></tr>
<tr><td>C5-07</td><td>ASR switching frequency</td><td>0</td><td>In vector control with PG, ratio gain of ASR, the integral time constant switches frequecy</td></tr>
<tr><td>C5-08</td><td>ASR integral limit</td><td>400</td><td>Vector control with PG for ASR.
 
</td></tr>
</table>

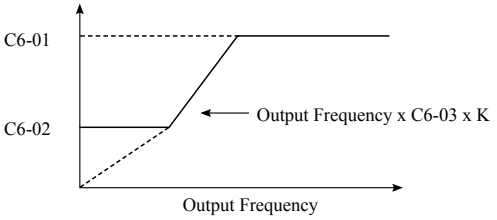
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>C5-08</td><td>ASR integral limit</td><td>400</td><td>
Ratio gain and integration time is almost a line.
The figure of related motor as below:


C5-07=0时
P=C5-01, 1=C5-02
fFB= $\frac{PN}{120}$
P=Motor pole
N=r/min
When input terminal is set for 77, the ratio gain can be changed


Time change is set by C5-02
Integration time wil not be changed
(V / F control with PG for ASR)




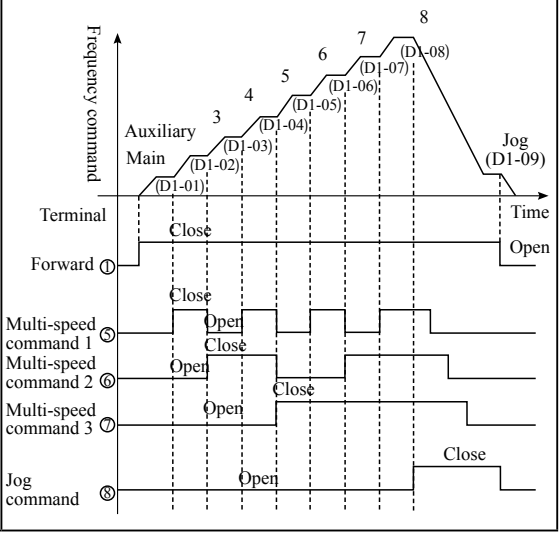
fFB= $\frac{P \cdot N}{120}$
P=Motor Pole
N=r/min
</td></tr>
<tr><td>C6-01</td><td>The carrier frequency for upper limit</td><td>15</td><td>The following picture shows the relation between carrier frequency (06-01 ~ 03) and output frequency.. C6-01 is effective under the vector control. It is required for carrier frequency in use. (C6-01 setting value), set the same value between C6-03 to 0. C6-01 and C6-02</td></tr>
</table>

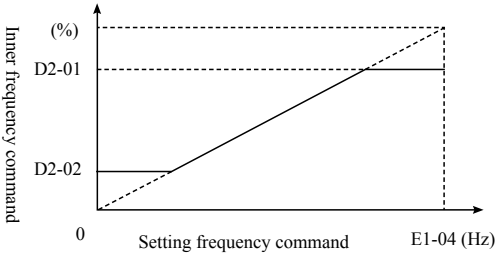
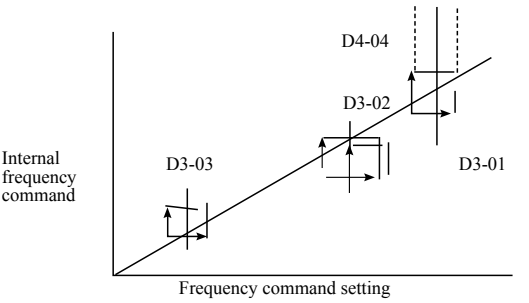
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>C6-02</td><td>The carrier frequency for lower limit</td><td>15</td><td rowspan="2"> 

According to the different carrier frequencyupper limit, K value is also different.
<table>
<tr><td>C6-01≧10.0kHz</td><td>K=3</td></tr>
<tr><td>10.0kHz>C6-01≧5.0 kHz</td><td>K=2</td></tr>
<tr><td>C6-01<5.0 kHz</td><td>K=1</td></tr>
</table>
Under following conditions, inverter will display an error message OPE11
1. C6-03>6, C6-02> C6-01
2. C6-01>5 kHz, C6-02<5kHz</td></tr>
<tr><td>C6-03</td><td>The carrier frequency for proportional gain</td><td>00</td></tr>
<tr><td>C7-01</td><td>The mode of Chase prevention function</td><td>1</td><td>When loading is the light loads and operation is duringt 10 ~ 30HZ, motor current amplitude has changed or the phenomenon of mechanical viberation which is referred to as chasing phenomenon.
In V / F control, the Chaos prevention function must be set effective.
<table>
<tr><th>Setting value</th><th>description</th></tr>
<tr><td>0</td><td>ineffective</td></tr>
<tr><td>1</td><td>effective</td></tr>
</table></td></tr>
<tr><td>C7-02</td><td>The gain of Chasing prevention</td><td>1.00</td><td>The gain of Choas prevention setting unit as 0.1 units
<table>
<tr><th>Operation conditions</th><th>C7-02</th></tr>
<tr><td>The choas phenomenon occurrs in the light-load</td><td>Increase value</td></tr>
<tr><td>The chaos or vibrating phenomenon occurrs in heavy load</td><td>Decrease value</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>C8-08</td><td>AFR Gain</td><td>1.00</td><td rowspan="2">The adjustment for the motor reaction speed or vibration in vector control without PG
<table><tr><th>Operation conditions</th><th>C8-08 adjustment</th><th>C8-09 adjustment</th></tr><tr><td>Slow torque reaction speed</td><td>Decrease value</td><td>Decrease value</td></tr><tr><td>Vibration</td><td>Increase value</td><td>Increase value</td></tr></table>* 0.1 for each of adjustment</td></tr>
<tr><td>C8-09</td><td>AFR constant</td><td>50</td></tr>
<tr><td>C8-30</td><td>Carrie frequency mode in Auto-Tuning</td><td>1</td><td><table><tr><th>Value</th><th>Carrier frequency</th></tr><tr><td>0</td><td>2KHZ</td></tr><tr><td>1</td><td>C6-01</td></tr><tr><td>2</td><td>5KHZ</td></tr></table></td></tr>
</table>

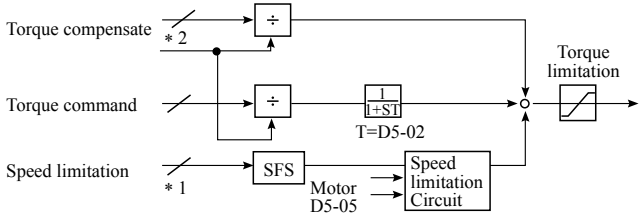
7.4 D Group Parameter

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>D1-01
~8</td><td>Frequency command1 ~8</td><td>0.0</td><td><table><tr><th>Terminal</th><th>Default</th><th>Value</th><th>Name</th></tr><tr><td>5 (H1-03)</td><td>3</td><td>3</td><td>Multi-speed command 1</td></tr><tr><td>6 (H1-04)</td><td>4</td><td>4</td><td>Multi-speed command 2</td></tr><tr><td>7 (H1-06)</td><td>6</td><td>5</td><td>Multi-speed command 3</td></tr><tr><td>8 (H1-06)</td><td>8</td><td>6</td><td>Jog command</td></tr></table> 
</td></tr>
</table>

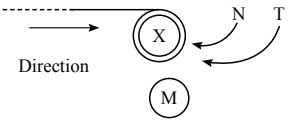
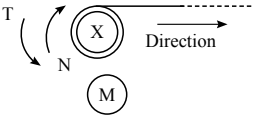
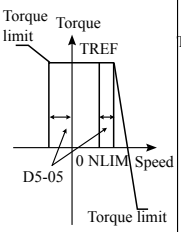
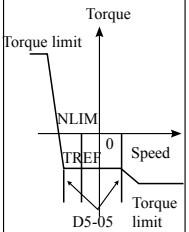
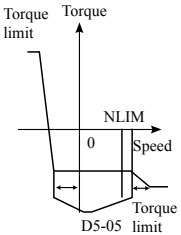
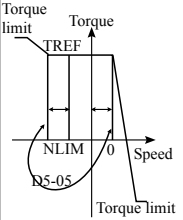
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>D1-01
~8</td><td>Frequency command1 ~8</td><td>0.0</td><td rowspan="2">B1-01 = 0, set the main-speed frequency by D1-01.
B1-01, set the main-speed frequency by input analog signal of terminal 13 or 14
* H3-05 = 00, set the auxiliary frequency by D1-02, if the multi-function of analog input terminal 16 is not used, it should be set for 1F</td></tr>
<tr><td>D1-09</td><td>Jog frequency</td><td>6.0</td></tr>
<tr><td>D2-01</td><td>Upper limit of Frequency command</td><td>100</td><td rowspan="2">The unit of output frequency upper / lower limit as 1%. The maximum frequency (E1-04) up to 100%.
When the frequency command is 0 and the operation command is inputting, the motor will speed up from the lowest frequency to the frequency command lower limit, and keep running the frequency command lower limit.
 
</td></tr>
<tr><td>D2-02</td><td>Lower limit of Frequency command</td><td>0.0</td></tr>
<tr><td>D3-01</td><td>Jump frequency 1~3</td><td>0.0</td><td rowspan="2"> 
</td></tr>
<tr><td>D3-04</td><td>Jump frequency width</td><td>1.0</td></tr>
<tr><td>D4-01</td><td>Frequency maintance</td><td>0</td><td>When using the multi-function input terminal UP / DOWN or using the acceleration and deceleration stop command with hold status and the power supply OFF or stop command input, whether the memory of Frequency to be set or not</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>D4-01</td><td>Frequency maintance</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>No memory when HOLD command</td></tr>
<tr><td>1</td><td>No memory when HOLD command, but newly operation will be ran based on the memory output frequency</td></tr>
</table>
</td></tr>
<tr><td>D4-02</td><td>+&- Speed limit</td><td>25</td><td>The +&- speed range in using multi-functional input termerinal</td></tr>
<tr><td>D5-01</td><td>Torque control option</td><td>0</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Speed control</td></tr>
<tr><td>1</td><td>Torque control</td></tr>
</table>
</td></tr>
<tr><td>D5-02</td><td>Torque command delay time</td><td>0</td><td>Torque control mode, the torque command input method in one time delay, 1ms as unit</td></tr>
<tr><td>D5-03</td><td>Speed limit mode</td><td>1</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>By terminal 13 and 14 to set</td></tr>
<tr><td>1</td><td>By parameter D5-04 to set</td></tr>
</table>
</td></tr>
<tr><td>D5-04</td><td>Speed limit</td><td>0</td><td>When the D5-03 = 2, the torque control mode of the speed limit for highest frequency (E1-04) is 100%.</td></tr>
<tr><td>D5-05</td><td>Speed limit bias</td><td>10</td><td>Torque control mode, the speed limit bias of the highest frequency (E1-04) is 100%.</td></tr>
<tr><td>D5-06</td><td>Speed / torque control for switching time</td><td>0</td><td>When input the command to the Speed / torque control terminal, the actual control mode of switch time as 1ms as Time. 1ms as unit.</td></tr>
</table>

Description
When A1-02 = 3, the function of torque control is effective. When torque control, the parameters of D5-01 is set for 1 or multi-functional terminal is set for "speed / torque control" (input terminals close), and the terminal 16 is set for "torque instruction" (H3-05 = 13). (As per block diagram)

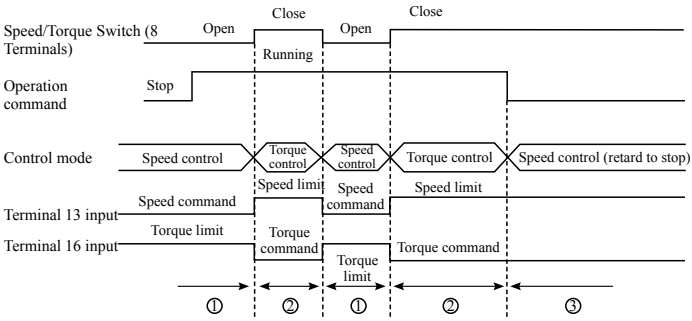


*1: When the speed limit mode (D5-03) = 1, and 13 or 14 terminal inputting of main frequency signal terminal 14 on the status of speed limit inputting, set H3-09 set for 1F, when D5-03 = 2, the speed limit value is determined by the parameters of D5-04. 1:
2: When the terminal 14 of the function is set for "Torque Compensation" (H3-09 = 14), the terminals 14 input values shall be torque compensation value.

	The motion of Drum machine		Roll out the machine moves	
Composition				
Divert	Forward	Reverse	Forward	Reverse
Instruction polarity — Torque command (TREF)	+	—	—	+
Instruction polarity — Speed limit (NLIM)	+	—	+	—
Torque				

The action of torque Control : (Note) the polarity of the torque value of speed limit, depending on D5-03 (* the speed limit choice) choice of the speed limit, the input polarity and operation of the quality of instruction to determine the positive inversion.

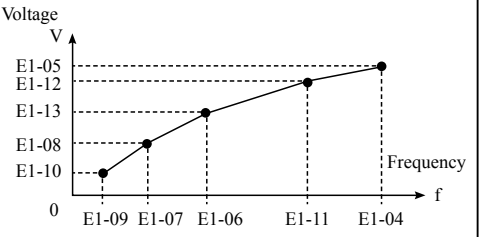
The speed limit input polarity / Operating instructions	+	-
Forward	+	-
Reverse	-	+

<table>
<tr><th>Code.</th><th>Name</th><th>Description</th></tr>
<tr><td></td><td>Speed Torque Switch</td><td>
(Action description)
When the torque command > 0, speed limitation = 0 (winding machine action), then run the following steps:
• -1 *When speed limit bias (D5-05) < motor speed < speed limit + + D5-05 "then implementation of torque based on the torque command.
• When motor speed >the speed limit + D5-05, the speed limit loop will output the negative torque commands to prevent the increase in motor speed.
• When motor Speed < "-1*D5-05",The speed limit loop will output the positive torque commands to prevent the increase in motor speed.
Hence. When the torque command> 0, speed limits> 0, the possible torque control range "-1 * D5-05" < motor speed < speed limit + D5-05 ".
When the A1-02 = 3, the multi-function input terminals is set for 71, it is workable to switch the speed control and torque control while running, as shown below:
<table>
<tr><th>Terminal</th><th>Code</th><th>Default</th><th>Value</th><th>Description</th></tr>
<tr><td>8</td><td>H1-06</td><td>8</td><td>71</td><td>Switch of speed / torque control</td></tr>
<tr><td rowspan="2">13</td><td>B1-01</td><td>1</td><td>1</td><td>Frequency command mode (terminal 13-14)</td></tr>
<tr><td>D5-03</td><td>1</td><td>1</td><td>Speed limit of mode (terminals 13,14)</td></tr>
<tr><td>16</td><td>H3-05</td><td>1</td><td>13</td><td>Torque command / Torque limit</td></tr>
</table>


1. When opening the torque / speed control switch command, then implementation of the speed control.
• In speed control, the speed command in accordance with the parameters of B1-01.
• In speed control, the limit value of torque according to the limit value of torque on the terminal 16 and the setting value of the parameters of L7-01 ~ 04 of minimum absolute value as a benchmark.
• Input the stop command while the speed control, the speed control of the terminal 16 remains the smallest absolute value, and the torque smallest limit value and parameters limit value of L7-01 ~ 04 as the torque limit to stop.
</td></tr>
</table>

Code.	Name	Description
	Speed Torque Switch	2. In close the torque / speed control switch command, then implementation of the Torque control. • While in the torque control, when the D5-03 = 1, the speed limit value inputs from terminal 13 or 14, In the D5-03 = 2, the speed limit value is set by the parameters of D5-04. • In torque control, the signal of terminal 16 as torque command. 3. In the torque control, when the stop command input the automatically switch to speed control mode, then the motor decrease the speed until stop, the torque limit of slow down to stop based on the parameter of L7-01~04.

7.5 E Group Parameter

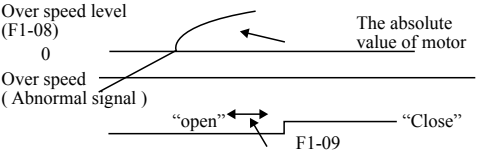
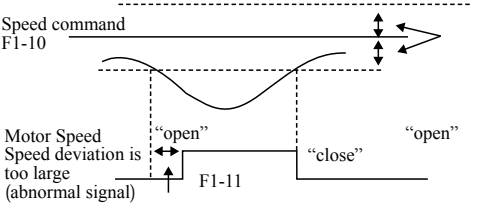
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>E1-01</td><td>Input voltage</td><td>200</td><td>Inverter inputting voltage is set for 1V as a unit.</td></tr>
<tr><td>E1-02</td><td>Motor mode</td><td>0</td><td>Motor protection feature settings
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Standard Motor Protection Features</td></tr>
<tr><td>1</td><td>Inverter Motor Protection Features</td></tr>
<tr><td>2</td><td>Vector Motor Protection Features</td></tr>
</table>
The V / F curve mode for V / F control mode
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0~E</td><td>Constant Curve</td></tr>
<tr><td>F</td><td>Arbitrary V / F Curve</td></tr>
</table>
• The fixed setting value as F when vector control</td></tr>
<tr><td>E1-03</td><td>V/FCurve</td><td>OF</td><td>Refer to to Appendix 1Table1 1 Table 2</td></tr>
<tr><td>E1-04</td><td>Maximum output frequency</td><td>60.0</td><td>In E1-03 = F, V / F curve values can be set E1-04 ~ 13

</td></tr>
</table>

Code	Name	Default	Description
E1-05	Maximum voltage	200.0	Please set the frequency by E9-09 ≦ E1-07 ≦ E1-06 ≦ E1-11 ≦ E1-04 the order according to the size. (Note) When raise on value of V in the V curve, then the motor torque will go large, exceeding value of V will get the following circumstances: • The current flow through motor is too high which cause inverter failed. • Motor will get heat and vibration and so on. Therefore, raise the V value step by step and check if the motor current is simultaneous.
E1-06	Basic voltage frequency	60.0	
E1-07	Middle output frequency	3.0	
E1-08	Intermediate Output frequency voltage	11.0	
E1-09	Minimum output frequency	0.5	
E1-10	Minimum output frequency voltage	2.0	
E1-11	Middle output frequency	0.0	
E1-12	Intermediate output frequency voltage	0.0	When E1-13 is set for 0 the based voltage is maximum
E1-13	Basic voltage	0.0	
E2-01	Motor rated current	1.9	The motor rated current under 7.5KWP , then 0.01A is the unit, , 11KW and above then 0.1A is the unit. Motor Rated Slip difference based on 0.01HZ as unit (RPM)-(HZ) Convert to formula is as follows: Fs (Rated poor) = (rated frequency) - $\frac{\text{(Rated Speed (rpm)) (Poles)}}{120}$ Motor no-load current below 7.5KW then 0.01A as unit, 11KW and above 0.1A is the unit. In order to set the number of motor pole Line impedance between the motor unit set up to 0.01 ∩ = (Interphase Impedance) * Light motor leakage reactance of 0.1% of the units set Magnetic beam 50% of the motor iron core saturation coefficient set. (Auto tuning automatically set) Magnetic beam 75% of the motor iron core saturation coefficient set. (Auto tuning automatically set) Motor mechanical loss to 0.1% as the unit set the motor rated output of 100%.
E2-02	Motor rated Slip	2.9	
E2-03	Motor non-load current	1.20	
E2-04	Motor Pole	4	
E2-05	Motor cable in impedance	9.842	
E2-06	Motor light leakage reactance	18.2	
E2-07	Motor iron core saturation coefficient 1	0.5	
E2-08	Motor iron core saturation coefficient 2	0.75	
E2-09	Motor iron loss	0.0	
E2-10	Torque compensation of motor iron loss	14	

Code	Name	Default	Description
E4-01	Maximum (motor 2)	60	V/F curve setting
E4-02	Maximum output voltage (Motor2)	400	V/F curve setting
E4-03	Basic Frequency (Motor2)	60	V/F curve setting
E4-04	Intermidiate output frequency (Motor2)	3.0	On the occasion of E1-03=”F”,the parameters of E1-04~E1-10 can be set. In "V / F characteristic with straight line, then set the E1-07(Intermidiate output frequency) and E1-09(Lowest frequency) to be the same value. At this point E1-08 (Intermidiate output voltage) is independent.
E4-05	Lowest output Voltage (Motor2)	22.0	Same as above
E4-06	Lowest output Frequency (Motor 2)	0.5	Same as above
E4-07	Lowest output Voltage	4.0	Same as above
E5-01	Rated motor current (Motor 2)		The setting range is 10~100% of rated current, the factory setting is according to the inverter power, please set the rated current value according to motor nameplate information.
E5-02	Rated motor slip (Motor 2)		The factory setting is according to power of inverter, calculate and set the rated slip from information of the nameplate. Motor rated slip = motor rated frequency - Rated RPM * Motor's pole / 120
E5-03	Motor current without load (Motor 2)		The factory setting according to the inverter power, set motor current in non-loading when the motor is in the rated voltage and frequency.
E5-04	The pole of motor (Motor 2)		Set the motor of pole according to the motor plate information.
E5-05	Motor resistor between lines (Motor 2)		The factory setting is according to the inverter power, please measure the motor resistor between lines (U-V, V-W, W-U), Usually the nameplate on the motor does not recorded.
E5-06	Motor resistor leakage(motor 2)		Voltage drop caused by the motor leakage resistor. Rated voltage of compared motor is set by %. The factory setting is according to the capacity lakage inductance which causes to drop voltage contrasts to percent of rated motor voltage as setting.

7.6 F Group Paramater

Code	Name	Default	Description
F1-01	PG Constant	600	The pulse number of encorder per revolution
F1-02	The operation mode when detecting the PG disconnection.	1	When detecting the PG disconnection , the setting of stop method 0: decelerately stop (deceleration time: C1-02) 1: Free stop 2: Emergent stop (deceleration time: C1-09) 3: Continue running (display only disconnection, it can not be set when A1-02 = 3)
F1-03	Over speed detection the Action Mode	1	Over speed detection, the stop method of setting. 0: decelerately stop (deceleration time: C1-02) 1: Free stop 2: Emergent stop (deceleration time: C1-09) 3: Continue running (only show the speed, it can not be set in A1-02=3)
F1-04	Detection bias is too large, the Action Mode		Speed deviation is too large, the setting of stop method 0: decelerately stop (deceleration time: C1-02) 1: Free stop 2: Emergent stop (deceleration time: C1-09) 3: Continue running (only show bias when it is too large)
F1-05	PG rotation direction	0	The relationship between motor rotation direction and PG polarity, it is ineffective when using PG-A2, D2 card. 0: A-phase motor ahead of B-phase 90 º. 1: Motor reverse-phase in the A's ahead of B-phase 90
F1-06	The rate of division on PG signal (with PG card effective)	1	Set the rate of division on PG pulse as a monitor. (The setting of rate of division on PG-signal) The rate of PG= N-1/ M (Setting range 1/1~1/32) n: 0,1 m:1~32
F1-07	Acceleration & deceleration in the integral control	0	Acceleration and deceleration in the speed control loop (ASR) whether the implementation of the integral actions or not 0: integral action is ineffective 1: integral action Effective

Code	Name	Default	Description
F1-08	Over speed detection of level	115	Motor over speed detection quasi-spaces to E1-04 (maximum frequency) to 100%. Time setting is between the detected over speed and the given abnormal signal. When the motor speed's absolute value is more than F1-08 value, and over speed is longer than F1-09 value, the abnormal signal will output and stop running.
F1-09	Over speed detection time	0	
F1-10	Over speed deviation detection level	10	Over speed deviation detection level is 100% based on E1-04 (Max. Frequency)
F1-11	Speed deviation beyond detection time	0.5	Time setting is between detected speed deviation and the abnormal signal. When the speed command and motor speed deviation is more than F1-10 value, and deviation time is longer than F1-11 value, the abnormal signal will output and stop running.  On the condition of accelerate / decelerate speed or torque control, the detection is ineffective
F1-12~13	PG Gear number of deceleration 1~2	0 0	$\text{motor speed [r/min]} = \frac{\text{PG}}{\frac{\text{Pg output p/r} * 60}{\text{PG constant (F1-01)}}} \quad \frac{\text{Gear Reducer 2}}{\text{Gear Reducer 2 (F1-12)}}$ This function will be ineffective when F1-12=0 & F1-13=0
F1-14	PG section line detection delay time	2.0	PG disconnection time settings when the abnormal

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>F2-01</td><td>Analog input card</td><td>0</td><td>When analog input card is installed, CH1-3 of the input function options.
<table>
<tr><th>Value</th><th>Function</th><th>CH1 (TC1-TC4)</th><th>CH2 (TC2-TC4)</th><th>CH3 (TC3-TC4)</th></tr>
<tr><td>0</td><td>3CH single input</td><td>Displace terminal (13)-(17)</td><td>Displace terminal (14)-(17)</td><td>Displace terminal (16)-(17)</td></tr>
<tr><td>1</td><td>3CH added inputting</td><td colspan="3">The sum up of CH1-3 value as the frequency of instruction.</td></tr>
</table>
The function of muti-input and the machine designaed on switch (setting value 02) will be ineffective if inserting A1-14B card</td></tr>
<tr><td>F3-01</td><td>Digital input card</td><td>0</td><td>In a signal from digital input card:
<table>
<tr><th>Value</th><th>Frequency command settings</th></tr>
<tr><td>0</td><td>BCD 1% Units</td></tr>
<tr><td>1</td><td>BCD 0 .1% Units</td></tr>
<tr><td>2</td><td>BCD 0.01% Units</td></tr>
<tr><td>3</td><td>BCD 1HZ Units</td></tr>
<tr><td>4</td><td>BCD 0.1HZ Units</td></tr>
<tr><td>5</td><td>BCD 0.01HZ Units</td></tr>
<tr><td>6</td><td>BCD 5 lows(0.01Hz)</td></tr>
<tr><td>7</td><td>Binary
DI-08: 255/100%
DI-16H (12 bit) : 4096/100%
DI-16H (16 bit) : 30000/100%</td></tr>
</table></td></tr>
<tr><td>F4-01</td><td>AO-08,AO-12 CH1 output item mode</td><td>2</td><td rowspan="6">AO-08,AO-12 the mode of output item and setting of output gain
Set the output project you want to monitor (U1-XX)

The project of monitor of output level x F4-02 or F4-04 = Output level bit

CH1 output deviation items of offset When set the analog monitoring card by 100%10V
CH2 output deviation items of offset When set the analog monitoring card by 100%10V</td></tr>
<tr><td>F4-02</td><td>CH1 output gain</td><td>1</td></tr>
<tr><td>F4-03</td><td>CH2 output item mode</td><td>3</td></tr>
<tr><td>F4-04</td><td>CH2 output gain</td><td>0.5</td></tr>
<tr><td>F4-05</td><td>CH1output deviation</td><td>0.0</td></tr>
<tr><td>F4-06</td><td>CH2 output deviation</td><td>0.0</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>F5-01</td><td>DO-02C
CH1 output item</td><td>0</td><td rowspan="2">Multi output item setting of DO-02Ccard (optional)
The instruction of mode Output item pleae refer to H2-01~03.</td></tr>
<tr><td>F5-02</td><td>CH2 output item mode</td><td>1</td></tr>
<tr><td>F6-01</td><td>DO-08 output mode</td><td>0</td><td>
<table>
<tr><th>Value</th><th>The contents of the output signal</th></tr>
<tr><td>0</td><td>
<table>
<tr><th>TerminaNO</th><th>The contents of the output signal</th></tr>
<tr><td>TD05-TD11</td><td>Over current (SC, OC, GF)</td></tr>
<tr><td>TD06-TD11</td><td>Over voltage (OV)</td></tr>
<tr><td>TD07-TD11</td><td>Inverter overload (OL2)</td></tr>
<tr><td>TD08-TD11</td><td>fuse burn-out (PUF)</td></tr>
<tr><td>TD09-TD11</td><td>Over speed (OS)</td></tr>
<tr><td>TD10-TD11</td><td>Inverter overheating (OH) Overload (OL1)</td></tr>
<tr><td>TD01-TD02</td><td>Zero-speed detection</td></tr>
<tr><td>TD03-TD04</td><td>Consistent in the speed</td></tr>
</table>
</td></tr>
<tr><td>1</td><td>
<table>
<tr><th>TerminaNO</th><th colspan="2">The contents of the output signal</th></tr>
<tr><td>TD05-TD11</td><td>Bit0</td><td rowspan="4">Refer to the following table</td></tr>
<tr><td>TD06-TD11</td><td>Bit1</td></tr>
<tr><td>TD07-TD11</td><td>Bit2</td></tr>
<tr><td>TD08-TD11</td><td>Bit3</td></tr>
<tr><td>TD09-TD11</td><td colspan="2">Zero-speed detection</td></tr>
<tr><td>TD10-TD11</td><td colspan="2">Consistent in the speed</td></tr>
<tr><td>TD01-TD02</td><td colspan="2">In operation</td></tr>
<tr><td>TD03-TD04</td><td colspan="2">Tiny Failure</td></tr>
</table>
<table>
<tr><th>Bit3210</th><th>Description</th><th>Bit3210</th><th>Description</th></tr>
<tr><td>0000</td><td>Normal</td><td>1000</td><td>External Exception (EFXX)</td></tr>
<tr><td>0001</td><td>Overcurrent (oc/sc/gf)</td><td>1001</td><td>Controller exceptions (CPFXX)</td></tr>
<tr><td>0010</td><td>Overvoltage</td><td>1010</td><td>Motor overload (OL1)</td></tr>
<tr><td>0011</td><td>Inverter overload (OL2)</td><td>1011</td><td>Non-used</td></tr>
<tr><td>0100</td><td>Innverter overheating (OH/OH1)</td><td>1100</td><td>Power failure (UV1, UV2, UV3)</td></tr>
<tr><td>0101</td><td>Over speed (OS)</td><td>1101</td><td>Speed deviation is too large (DEV)</td></tr>
<tr><td>0110</td><td>Fuse melting off (PUF)</td><td>1110</td><td>PG Break (PGO)</td></tr>
<tr><td>0111</td><td>Braking resistor overheating (RH) Braking transistor failure (RR)</td><td>1111</td><td>Non-used</td></tr>
</table>
</td></tr>
</table>
</td></tr>
</table>

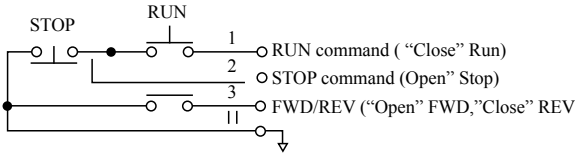
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>F7-01</td><td>PO-36F output inpulse mode</td><td>1</td><td>
<table>
<tr><th>Value</th><th>Output pulse number</th></tr>
<tr><td>0</td><td>1 times</td></tr>
<tr><td>1</td><td>6 times</td></tr>
<tr><td>2</td><td>10 times</td></tr>
<tr><td>3</td><td>12 times</td></tr>
<tr><td>4</td><td>36 times</td></tr>
</table>
</td></tr>
</table>

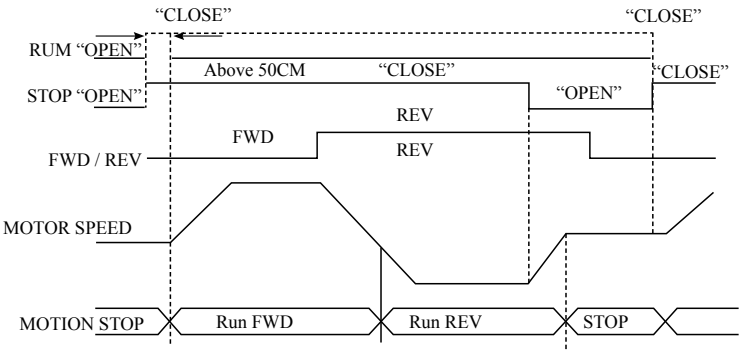
7.7 H Group Paramater

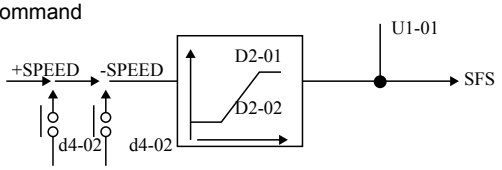
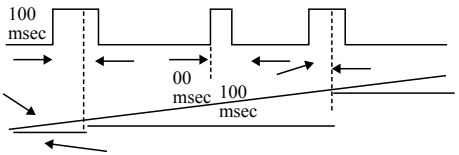
Code	Name	Default	Description					
	Multi-function input terminal function mode		Terminal ③ ~ ⑧ functional mode		V/F	V//F with PG	Vector without PG	Vector with PG
H1-01	Terminal 3~11	24	Value	Function	V/F	V/F PG	VVC	FVC
H1-02	Terminal 4~11	14	00	Three-wire control is being transferred / reverse mode	○	○	○	○
H1-03	Terminal 5~11	3	01	LOCAL/REMOTE mode	○	○	○	○
H1-04	Terminal 6~11	4	02	Option/ Ontology switching inverter	○	○	○	○
H1-05	Terminal 7~11	6	03	Multi-stage speed instruction 1	○	○	○	○
H1-06	Terminal 8~11	8	04	Multi-stage speed instruction 2	○	○	○	○
			05	Multi-stage speed instruction 3	○	○	○	○
			06	Jog speed mode	○	○	○	○
			07	Acceleration and deceleration time 1	○	○	○	○
			08	External bb (a contact)	○	○	○	○
			09	External bb (b contact)	○	○	○	○

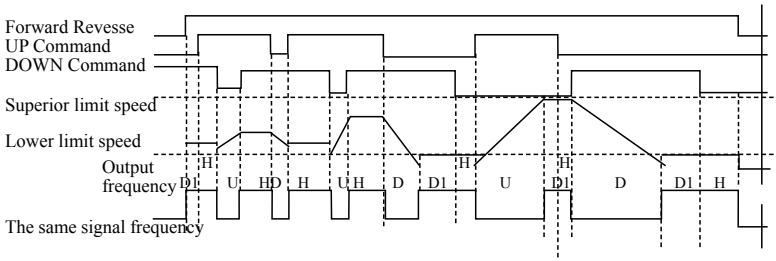
			0A	Acceleration and deceleration to stop	○	○	○	○
			0B	Inverter overheating notice (OH2)	○	○	○	○
			0C	Multi-function analog input effective / ineffective	○	○	○	○
			0D	Speed control cancel	×	○	×	×
			0E	Reversion speed control points	×	○	×	○
			0F	Non-used	_	_	_	_
			10	UP command	○	○	○	○
			11	DOWN command	○	○	○	○
			12	FJOG command	○	○	○	○
			13	RJOG command	○	○	○	○
			14	Exception Reset	○	○	○	○
			15	Emergency Stop	○	○	○	○
			16	Non-used	_	_	_	_
			17	Non-used	_	_	_	_
			18	Timer ON Delay OFF delay input	○	○	○	○
			19	PIDControls have been removed	○	○	○	○
			1A	Acceleration and deceleration time 2	○	○	○	○
			1B	Argument against writing	○	○	○	○
			1C	+SPEED command	○	○	○	○
			1D	-SPEED command	○	○	○	○
			1E	Analog frequency sampling time	○	○	○	○
			1F	Terminal 13 / 14 mode **	○	○	○	○
			20-2F	External Exception	○	○	○	○

			60	DC-braking command	○	○	○	○
			61	External speed search command 1	○	×	○	×
			62	External speed search command 1	○	×	○	×
			63	Energy efficient operation	○	○	×	×
			64	External speed search command 3	○	○	×	×
			65	Instantaneous deceleration operation instruction b connection	○	○	○	○
			66	Instantaneous deceleration operation command a contact	○	○	○	○
			71	Speed / Torque Control	×	×	×	○
			72	Zero Servo	×	×	×	○
			77	Speed control proportional gain switch	×	×	×	○
			** H3-09 is effective when set on 1F					

Value	Description
00	H1-01=00 Three-wire mode of H1-01 ~ 06 , value 00 of the control terrminals for Forward / Reverse, running. 

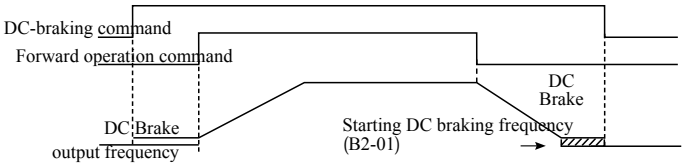
Value	Description
	TIMING DIAGRAM 
01	• LOCAL /REMOTE mode The switch of running signal is effective on stoping. Open: In REMOTE, set the value of running according to B1-01, B1-02. Closed: In LOCAL, running according to the manipulator of frequency command. (Note) When terminal of multi-function sets for LOCAL/REMOTE, the LOCAL/ REMOTE key is ineffective on the panel.
02	• Optional cards / inverter switch. It is effective when stop. Open: operate in accordance with inverter control circuit terminals or operate in accordance with the frequency demand and operation signal from digital manipulator Closed: operate in accordance with the frequency command and operation command from optional card.
08	• External bb (output interrupt) Execute the bb operation in terminal "closed", the panel is blinking bb signal, when bb signal disappears and then inverter will run in accordance with the frequency command of disconnection. Input BB signal after inputting the stop signal, the display will appear BB blinking, and then inverter stop outputting.
09	• External bb (output interrupt) In terminal "on", and then run the bb.
0A	• The command to suspend the acceleration and deceleration When input the command to suspend the acceleration and deceleration, then the motion of acceleration and deceleration will stop, maintain the current output frequency output signal when lifted operation signal then the command to suspend to acceleration and deceleration will be lifted at same time.

Value	Description
	D4-1 = 1 when input the pause command to the acceleration and deceleration while running, after inputting the pause command then input the running command, the output frequency of HOLD will be memorized. upto the pause command to the acceleration and deceleration has been lifted. As result the HOLD of output frequency will keep running. In D4-1 = 0, HOLD output frequency is not in memory.
0B	• Inverter overheating warning When input the Inverter overheating signal, the digital manipulator displays OH2.
0C	• Multi-function analog input effective / ineffective Open: Multi-function analog input is ineffective. Closed: Multi-function analog input is effective.
0D	• Speed control cancel Open: Speed control is effective (closed-loop control). Closed: Speed control is ineffective (open loop control).
0E	• Speed control integral value reset In F1-07 (The options of integral control for acceleration and deceleration) = 0, this function effectively. Speed control integral reset even if the operation is also effective. Open: PI control, speed control plus the integral value is counted. Closed: P control, integral time constant is reset.
1C.1D	+SPEED command, -SPEED command Frequency command and D4-02 set value relative to addition and subtraction, Frequency command  Note: a frequency command to d1-01 ~ 09 hours + SPEED,-SPEED command is ineffective 2 When set the + SPEED /-SPEED command which will be displayed (OPE3) failure at the same time
1E	Analog command sampling maintain: 100msec after closed the analog input value as the frequency instruction, sample / hold 

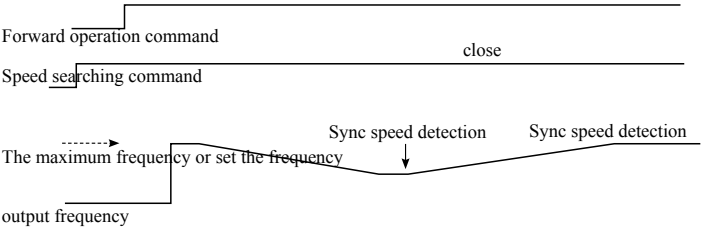
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td></td><td>Notes: 1. Analog sampling frequency of instruction / Hold terminals 13.14.16.AI-14U.B. Use the card corresponds to an effective analog input.
2. Acceleration and deceleration to stop (OA) UP / DOWN command (10.11) + SPEED-SPEED instruction 1C.1D analog frequency instructions S / H (1E) is set at the same time more than 2, then display OPE03</td></tr>
<tr><td>10.11</td><td>• UP/DOWN instruction
When input the Forward (Reverse) command, if want to change the frequency command, then the UP and DOWN signals can be used for execution of acceleration and deceleration.
<table>
<tr><th colspan="2">Set value = 10 UP signal</th><th colspan="3">Set value =11 DOWN signal</th></tr>
<tr><td>UP</td><td>close</td><td>open</td><td>open</td><td>close</td></tr>
<tr><td>DOWN</td><td>open</td><td>close</td><td>open</td><td>close</td></tr>
<tr><td>Status</td><td>Acceleration</td><td>deceleration</td><td>HOLD</td><td>HOLD</td></tr>
</table>


U = UP (accelerating) status
D = DOWN (deceleration) state
H = HOLD (a certain speed) status
U1 = acceleration to the higher limit of frequency
D1 = deceleration to the lower limit of frequency
Note: 1. When use UP/DOWN command, B1-01 require to be set for 1.
2. The maximum speed limit = maximum output frequency (E1-04) * Frequency command upper limit (D2-01).
3. Lower speed limit to the frequency command lower limit (D2-02) or the main part of either control circuit terminal 13 or 14 is the biggest.
4. In D4-01 = 1, then input the acceleration and deceleration command, when the power OFF, the current output frequency will be memorized.
5. When the UP/DOWN command is execute under running status, if input the jog command, the jog command will be a top priority for execution.
6. UP/DOWN command, without at the same time setting, OPE03 display.
7. When the command of stopping acceleration and deceleration in Multi-functional terminal has set at same time, n, OPE03 display.</td></tr>
</table>

Value	Description
12,13	• FJOG command, RJOG command Implementation of the Forward and reverse jog command. Set value = 12FJOG command: "closed", the implementation of the Forward jog command (D1-09). Set value = 13RJOG command: "closed" the implementation of reverse jog command (D1-09). 1. When input the FJOG command or RJOG command under running status, RJOG and FJOG command will be top priority to execute. 2. When inputting the value over 500ms under the FJOG command and RJOG command at the same time,the inverter will stop according to B1-03 of set the stop method. 3. FJOG command, RJOG command can be set and use individually.
14	• Irregular Reset: Close: Implementation of an irregular reset action
15	• Emergent stop (A contact) Terminal “close”, excute the emergent stop, the stop time is according to the setting value of C1-09.
16	• Motor swith function (Motor2) Open: Motor1. operation mode, Use A1-02, E1-04~13, E2-01~09 parameter. Close: Motor2. operation mode, Use E2-01, E4-01~17, E5-01~06 parameter.
17	• Emergent stop (B contact) Terminal “open”, excute the emergent stop, the stop time is according to the setting value of C1-09.
1B	• Prohibit writing parameters Open: prohibit from Inputting parameter by manipulator , close: input parameters by manipulator
1F	Terminal (13) / (14) options Open: The main frequency is the terminal (13) close: the main frequency is terminal (14) The selection of multi-functional input terminal (H01-01 ~ H01-06): The main frequency is the plus of the terminal 13 and 14 when 1F is not set but the terminal 14 is set 1F

<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>20~2F</td><td>
External abnormality
The purpose is inverter failure leading to stop or inverter sending an alarm to accessories
<table>
<tr><td colspan="2">Setting</td><td colspan="8">Mode</td></tr>
<tr><td></td><td></td><td colspan="2">Connection Mode</td><td colspan="2">Detection Mode</td><td colspan="4">Stop Mode</td></tr>
<tr><td>2</td><td>1</td><td>A-input</td><td>B-input</td><td>Abnormal Detection</td><td>Operation Detection</td><td>decerr-ation to stop (serious problem)</td><td>Free to Stop (serious problems)</td><td>sudden stop (serious problem)</td><td>continu-ous operation (light problem)</td></tr>
<tr><td rowspan="16">2</td><td>0</td><td>○</td><td></td><td>○</td><td></td><td>○</td><td></td><td></td><td></td></tr>
<tr><td>1</td><td></td><td>○</td><td>○</td><td></td><td>○</td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>○</td><td></td><td></td><td>○</td><td>○</td><td></td><td></td><td></td></tr>
<tr><td>3</td><td></td><td>○</td><td></td><td>○</td><td>○</td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>○</td><td></td><td>○</td><td></td><td></td><td>○</td><td></td><td></td></tr>
<tr><td>5</td><td></td><td>○</td><td>○</td><td></td><td></td><td>○</td><td></td><td></td></tr>
<tr><td>6</td><td>○</td><td></td><td></td><td>○</td><td></td><td>○</td><td></td><td></td></tr>
<tr><td>7</td><td></td><td>○</td><td></td><td>○</td><td></td><td>○</td><td></td><td></td></tr>
<tr><td>8</td><td>○</td><td></td><td>○</td><td></td><td></td><td></td><td>○</td><td></td></tr>
<tr><td>9</td><td></td><td>○</td><td>○</td><td></td><td></td><td></td><td>○</td><td></td></tr>
<tr><td>A</td><td>○</td><td></td><td></td><td>○</td><td></td><td></td><td>○</td><td></td></tr>
<tr><td>B</td><td></td><td>○</td><td></td><td>○</td><td></td><td></td><td>○</td><td></td></tr>
<tr><td>C</td><td>○</td><td></td><td>○</td><td></td><td></td><td></td><td></td><td>○</td></tr>
<tr><td>D</td><td></td><td>○</td><td>○</td><td></td><td></td><td></td><td></td><td>○</td></tr>
<tr><td>E</td><td>○</td><td></td><td></td><td>○</td><td></td><td></td><td></td><td>○</td></tr>
<tr><td>F</td><td></td><td>○</td><td></td><td>○</td><td></td><td></td><td></td><td>○</td></tr>
</table>
Example: H1-06 (Terminal 8 to 10 are the functional selections) is set to 24 hours
When terminals 8 and 11 are closed, the external is abnormal.
External abnormalities are immediately detected
When there are serious faults, it will freely stop.
</td></tr>
<tr><td>60</td><td>
DC-braking command
When inverter stops and the DC-brake command is input, the implementation of the DC-braking will act.
When operation command is input, DC braking will be released and it will be running. (Run firstly)


(Note:A1-01=3, the initial excitation effective)
</td></tr>
</table>

Value	Description
61~62	Speed searching command When the power or inverter is switched, the speed search function should be used to start the motor, to prevent the inverter from escaping. The speed searching begins from the highest frequency when the setting value is 61. The speed searsh begins from the seeting frequency rate when the setting value is 62. In the base block, speed of the searching command is "closed" and the operation command input, the searching speed will act in a minimum base block time (L2 -03)  Notes: 1. Regardless of the operation instructions or speed of the search command, searching speed begins from output frequency in the immediate continueous mode. The searching speed is completed according to operation instruction 2. Speed search command values can not be set 61 and 62 at the same time, result in (OPE3)

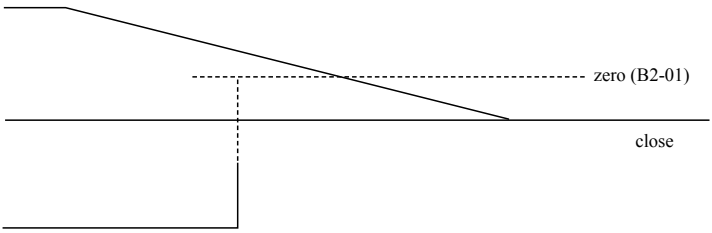
Code	Name	Default	Description
	Multi - functional Termianal Mode		
H2-01	Terminal (9) Mode	0	
H2-02	Terminal (25) Mode	1	
H2-03	Terminal (26) Mode	2	

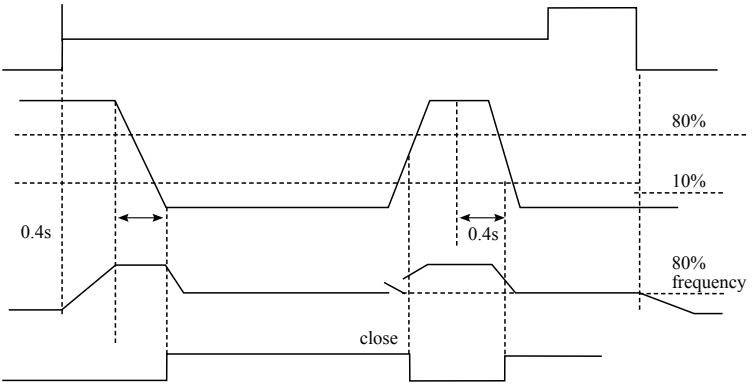
Function	V/F*	V/F PG*	VVC*	FVC*	Reference pages
In operation	○	○	○	○	54
Zero-speed	○	○	○	○	54
Arrival frequency 1	○	○	○	○	54
Any arrival frequency 1	○	○	○	○	54
Frequency detection 1	○	○	○	○	54
Frequency detection 2	○	○	○	○	54
Complete prepration of inverter operation	○	○	○	○	54
Low-voltage detection	○	○	○	○	54
Base block (A-contact output)	○	○	○	○	54
Frequency command mode	○	○	○	○	54

Code	Name	Default	Description

Command operation mode	○	○	○	○	54
Torque detection 1 (A-contact output)	○	○	○	○	54
Frequency command loss	○	○	○	○	55
Abnormal brake resistor	○	○	○	○	55
Abnormality	○	○	○	○	55
Reserved	-	-	-	-	-
Alarm	○	○	○	○	55
Reset on abnormality	○	○	○	○	55
Timing output	○	○	○	○	55
Arrival frequency 2	○	○	○	○	55
Radom arrival frequency 2	○	○	○	○	55
Frequency detection 3	○	○	○	○	55
Frequency detection 4	○	○	○	○	55
Torque detection 1 (B contact output)	○	○	○	○	55
Torque detection 2 (A contact output)	○	○	○	○	55
Torque detection 2 (B contact output)	○	○	○	○	55
Reverse	○	○	○	○	56
Base block (B-contact output)	○	○	○	○	56
Reserved	-	-	-	-	-
Electric retrogradation pattern	×	×	×	○	56
Re-start abnormality	○	○	○	○	56
OL1 Alert	○	○	○	○	56
OH Alert	○	○	○	○	56
Reserved	-	-	-	-	-
Torque limits	×	×	○	○	56
Speed limit	×	×	×	○	56
Reserved	-	-	-	-	-
Zero-servo completion	×	×	×	○	56
Operation 2	○	○	○	○	56
Reserved	-	-	-	-	-

The option of multi-functional output terminal. The option of control circuit terminals (9), (25), (26)

Value	Description
00	In operation When the inverter has output voltage or the operation command input contact is "closed"
01	Zero speed In VF control with PG card, when the output frequency is lower than minimum frequency (E1-09), the contact is closed. In Vector control with PG card, when the motor speed is lower than speed zero (B2-01), the contact is closed. 
02	Arrival frequency 1 When the output frequency is in the output frequency command-L4-02 ≦ SFS output frequency ≦ command + L4-02 detection range, the contact is "closed"
03	Radom arrival frequency 1 When the output frequency follows the setup = 2 and in the detection range of L4-01—L4-02≦SFS output) ≦L4-01+L4-02, the contact is "closed."
04	Frequency detection 1 When the outputting frequency is in detection range of the SFS output (symbol-free) ≦ L4-01 + L4-02., the contact is "closed."
05	Frequency detection 2 When the output frequency detection range is above the SFS output (symbol-free) ≧ L4-01, the contacts is "closed".
06	The inverter completes operation When the inverter completes operation, the contact is "closed."

Value	Description
07	Low-voltage detection The main circuit or control circuit voltage is too low or the main circuit magnetic contactor is OFF, the contact is "closed."
08	In basd block, when inverter output "base block ",the contact is "closed."
09	Frequency command mode In operation, frequency commands from the control circuit terminals or the election supplies, the contact is "closed." In operation, frequency commands from the operating device, the contact is "closed."
0A	Operation command mode When the operation instruction is from the control circuit terminals or the election supplies, the contact is "open."
0B	Torque detection 1 When the torque detection 1 was detected, the contact is "closed."
0C	Frequency command loss When frequency command loses, the contact is "closed." Example: L4-05 = 1, the current speed frequency is always associated with 0.4 seconds to compare with the main-speed frequency, when the main-speed frequency below 10 % of the main-speed frequency, the motor will continue to run with 80% of the main-speed frequency rate in 0.4 seconds earlier. Meanwhile this point frequency command is losing, and the contact is "closed." 

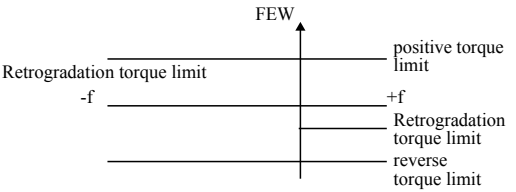
Value	Description
0D	Bad brake resistor Brake resistor or brake overheating abnormal crystal contacts as "closed."
0E	Abnormality The contact point is "closed" in Abnormality except CPF00 and CPF0
10	Alarm The contact point is "closed" in alram
11	Abnormality reset The contacts is "closed" in Abnormality reset
12	Timer The contact is "closed" in output of the timer
13	Arrival frequency 2 The output frequency is in the following range, the contact point will be "closed." Frequency command-L4-04 ≦ SFS output frequency ≦ command + L4-04.
14	Random frequency 2 When setting value of the output frequency is 13 or the following detection range, the contact point will be "closed." L4-03-L4-04 ≦ SFS output frequency (with symbols)≦ L4-03+L4-04.
15	Frequency detection 3 The output frequency detection is in the range of SFS output (with symbols) ≦ L4-03, the contact is "closed."
16	Frequency detection 4 The output frequency detection is in the range of SFS output (with symbols) ≧ L4-03, the rcontact is "closed."
17	Torque detection 1 When the torque detection 1 is detected, the contact is "open." Please refer to L6-01 ~ 03
18	Torque detection 2 When torque detection 2 is detected, the contact is "open." Please refer to e L6-04, 05,07
19	Torque detection 3 When torque detection 2 is detected, the contact is "open." Please refer to e L6-04, 05,07
1A	In reverse The contact point is "closed" in reverse
1B	In BASD BLOCK The contact point is "open" in the base block

Value	Description
1D	Regeneration mode The contact point of regeration mode is closed in vector control mode wth PG
1E	Abnormality restart The contact point is "closed" in abnormality
1F	OL1 Alert The contact point is "closed" in 90% of the accumulative value of Electronic Thermal Powert.
20	OH Alert The contact point is "closed" in the temperature more than rated.
30	Torque limit The contact point is "closed" in torque limit.
31	Speed limit 1. frequency command capped d2-01 2. torque control, the speed reaches the speed limit quasi-position, the contact is "closed." 3. frequency command lower limit d2-02, = 09 multi-function analog input
33	Zero servo achievement The contact point is "closed" in zero servo achievement
37	In operation 2 The initial contact point is "closed." in operation except base block and DC brake

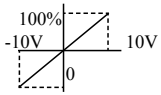
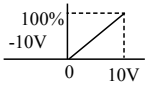
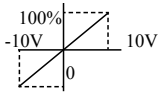
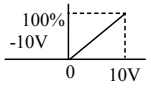
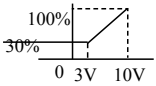
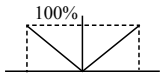
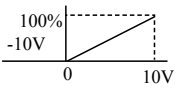
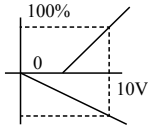
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>H3-01</td><td>Terminal Signal (13) Option</td><td>0</td><td rowspan="3">setup | Description
0 | 0 ~ 10V Input
1 | =Q143-10V ~ +10V Input

In inputting Voltage 10V, frequency command corresponds to the gain level
In inputting Voltage 0V, frequency command corresponds to the deviation level</td></tr>
<tr><td>H3-02</td><td>Terminal (13) Input Gain</td><td>100</td></tr>
<tr><td>H3-03</td><td>Terminal (13) Input Deviation</td><td>0.0</td></tr>
<tr><td>H3-04</td><td>Terminal (16)</td><td>0</td><td>setup | Description
0 | 0 ~ 10V Input
1 | -10V ~ +10V Input

Terminal(16)- multifuctional analog command setting</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>H3-04</td><td>Terminal (16)</td><td>0</td><td>
<table>
<tr><th>Setup</th><th>Function</th><th>V/F*</th><th>V/F PG*</th><th>VVC*</th><th>FVC*</th><th>Enter level</th></tr>
<tr><td>00</td><td>Grant Frequency command</td><td>○</td><td>○</td><td>○</td><td>○</td><td>±100% ±10V</td></tr>
<tr><td>01</td><td>FGAIN</td><td>○</td><td>○</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>02</td><td>FBIAS</td><td>○</td><td>○</td><td>○</td><td>○</td><td>±100% ±10V</td></tr>
<tr><td>04</td><td>VBIAS</td><td>○</td><td>○</td><td>×</td><td>×</td><td>100% / 10V</td></tr>
<tr><td>05</td><td>Shortening Factor of speed up/down</td><td>○</td><td>○</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>06</td><td>DC Brake Current</td><td>○</td><td>○</td><td>○</td><td>×</td><td>100% / 10V</td></tr>
<tr><td>07</td><td>Detection of Operational Torque level</td><td>○</td><td>○</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>08</td><td>Prevention from losing speed in operation</td><td>○</td><td>○</td><td>×</td><td>×</td><td>100% / 10V</td></tr>
<tr><td>09</td><td>The frequency command lower limit level</td><td>○</td><td>○</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>0A</td><td>Set against the frequency</td><td>○</td><td>○</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>0B</td><td>PID feedback</td><td>○</td><td>○</td><td>○</td><td>○</td><td>±100% ±10V</td></tr>
<tr><td>0C-0F</td><td>Reserved</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>10</td><td>Forward Torque limit</td><td>×</td><td>×</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>11</td><td>Reverse torque limit</td><td>×</td><td>×</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>12</td><td>Retrogradation torque limit</td><td>×</td><td>×</td><td>○</td><td>○</td><td>100% / 10V</td></tr>
<tr><td>13</td><td>Torque Command (Torque Controll)
torque limit (speed controll)</td><td>×</td><td>×</td><td>○</td><td>○</td><td>±100% ±10V</td></tr>
<tr><td>14</td><td>torque Compensation (Deviation)</td><td>×</td><td>×</td><td>×</td><td>○</td><td>±100% ±10V</td></tr>
<tr><td>15</td><td>positive and negetive torque limit</td><td>×</td><td>×</td><td>○</td><td>○</td><td>±100% / 10V</td></tr>
<tr><td>16-1F</td><td>Reserved</td><td></td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
</table>
*V/f=V/f with PG, but V/f PG=V/f with PG, VVC=vector without PG, but FVC=vector withPG
</td></tr>
<tr><td>H3-05</td><td>Terminal(16)</td><td>0</td><td>


Note:the Value of torque limit refers to the minimum of the analgo(L7~04)
</td></tr>
</table>

Code	Name	Default	Description
			.Grant Frequency command .(setting=00) .FBIAS (setting=02) .PID feedback .(setting=0B) (100%=fmax)  .DC Brake current (setting=06) .Detection of level before torque (setting=07)  torque command (setting=07) torque compansation (setting=14)  .FGAIN (=01) .VBIAS (=04) DC Brake current .setting=0 Detection of level before torque .setting=7 .frequency command down limit .setting=09 .forbiding frequency .(setting=0A) .Acceleration and deceleration shortening Factor (setting=05)  .Prevention from losing Speed the level in operation (setting=08) .Frequency command down limit (setting=09) .Forbiding frequency (setting=0A) (100%=fmax)  torque limit (setting10. 11. 12)   Forwarding and tiltting torque limit (setting=15) 
H3-06	Terminal (16) Input Gain	100	10V input terminal (16) corresponds to the gain when the level is set.
H3-07	Terminal (16) Input Deviation	0.0	(16) input terminal of the deviation corresponds to 0V when the level is set.

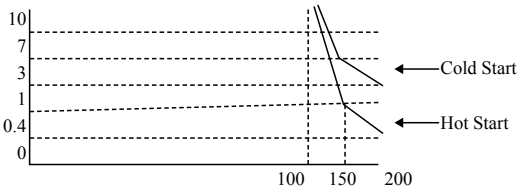
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>H3-08</td><td>Terminal (14) signal level mode</td><td>2</td><td rowspan="4">
<table>
<tr><th>setup</th><th>Description</th></tr>
<tr><td>0</td><td>0~10Vinput</td></tr>
<tr><td>1</td><td>0~10V Input</td></tr>
<tr><td>2</td><td>4~20mA input</td></tr>
</table>
(note: level analog command changes the current input (4-20mA) to the voltage
input (0 ~ 10V, or -10 ~ 10V), please cut off the control panel jump line (J1).
The setting value of multi-functional terminals input can be refered to function and content H3-05
But the setting value, 00 and 1F are different from the function of H3-05 as the following shows:
00: Reserved
1F: Main speed frequency command (H3-09 is not set 1F while the H1-01-06 is set F, jumping COPE03)
The selection of Multi-function input terminal (H1-01 ~ H1-06) is not set to 1F (the selection of functional terminals 13,14), while the function of the terminal 14 is set to 1F (H3-09 main-speed frequency command), the main Speed frequency is the sum of input terminals 13-14.
10V input terminal (14)corresponds to the gain level setting.
0V input terminal (14)of the corresponds to the deviation level setting</td></tr>
<tr><td>H3-09</td><td>Terminal (14) Function Mode</td><td>1F</td></tr>
<tr><td>H3-10</td><td>Terminal (14) Gain</td><td>100</td></tr>
<tr><td>H3-11</td><td>Terminal (14) Deviation</td><td>0.0</td></tr>
<tr><td>H3-12</td><td>Analog input filter constant</td><td>0.00</td><td>Set the constant of the delay filter time of Terminal (13), (14), (16).</td></tr>
<tr><td>H4-01</td><td>Terminal 21-22 monitoring output</td><td>2</td><td>Monitoring project U1-XX, the terminal 21-22 outputs the selection of the project.</td></tr>
<tr><td>H4-02</td><td>Terminal 21-22 output gain</td><td>1.00</td><td>The level of the monitoring parameters multiplies the output of the setup of H4-02.</td></tr>
<tr><td>H4-03</td><td>Terminal 21-22 output deviation</td><td>0.0</td><td>The level of monitoring parameters multiplies the setup of H4-05 and plus the setup value of H4-03.</td></tr>
<tr><td>H4-04</td><td>Terminal 23-22 monitoring Output</td><td>3</td><td>Monitoring project U1-XX, terminal 23-22 (multi-function analog monitor) output projects selection.</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>H4-05</td><td>Terminal 23-22 Output Gain</td><td rowspan="2">0.5

0.0</td><td>The levelof monitoring parameters multiplies the output of H4-02.</td></tr>
<tr><td>H4-06</td><td>Terminal 23-22 output deviation</td><td>The level of monitoring parameters multiplies the output of H4-05 setup value, plus H4-06 settings.</td></tr>
<tr><td>H7-07</td><td>Analog output signal level mode</td><td>0</td><td><table><tr><th>Setup</th><th>Description</th></tr><tr><td>0</td><td>0-10V input</td></tr><tr><td>1</td><td>-10-10V input</td></tr></table></td></tr>
<tr><td>H5-01</td><td>Modbus Station Address</td><td>1F</td><td>Set the inverter address</td></tr>
<tr><td>H5-02</td><td>Transmission Speed</td><td>3</td><td>6CN of MODBUS transmission speed choice.<table><tr><th>Setup</th><th>Description</th></tr><tr><td>0</td><td>1200BPS</td></tr><tr><td>1</td><td>2400BPS</td></tr><tr><td>2</td><td>4800BPS</td></tr><tr><td>3</td><td>9600BPS</td></tr></table></td></tr>
<tr><td>H5-03</td><td>Same Bit Transmission</td><td>0</td><td><table><tr><th>Setup</th><th>Description</th></tr><tr><td>0</td><td>No Parity</td></tr><tr><td>1</td><td>even parity</td></tr><tr><td>2</td><td>Odd Parity</td></tr></table></td></tr>
</table>

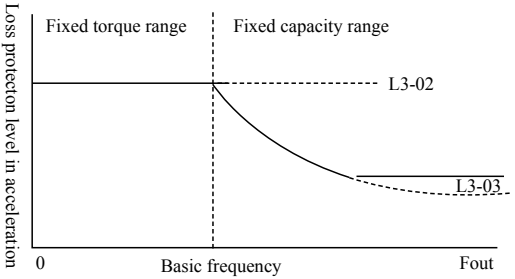
7.8 L- Group parameters

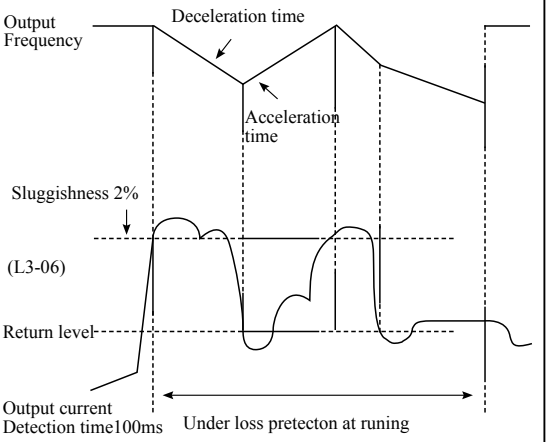
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>H5-04</td><td>Error sending</td><td>3</td><td><table><tr><th>Setup</th><th>Description</th></tr><tr><td>0</td><td>Decelerate to stop (deceleration time: C1-02)</td></tr><tr><td>1</td><td>Emergency stop (deceleration time: C1-09)</td></tr><tr><td>2</td><td>Free stop</td></tr><tr><td>3</td><td>Continue running</td></tr></table></td></tr>
<tr><td>H5-05</td><td>Error sending (CE Detection)</td><td>1</td><td><table><tr><th>Setup</th><th>Explanatiuon</th></tr><tr><td>0</td><td>No detection in abnormal sending</td></tr><tr><td>1</td><td>detection in abnormal sending of b1-01 and 02 , when setting above 2 and the back signal does not received after 2 seconds, it will display the sending abnormality according to H5-04.</td></tr></table></td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>L1-01</td><td>Motor Protection</td><td>1</td><td>
<table>
<tr><th>Setup</th><th>Description</th></tr>
<tr><td>0</td><td>Electronic Thermal Power is ineffective</td></tr>
<tr><td>1</td><td>Electronic Thermal Power is effective</td></tr>
</table>
When one inverter simultaneously drives serveral motors, please insert Electronic Thermal Power to protect from overloading for the motors.
When the inverter power supply is OFF, the measurement value of motor temperature is to 0. Therefore, apply to the inverter power supply is in OFF codition, this function may be ineffective.
</td></tr>
<tr><td>L1-02</td><td>Motor Protection Time</td><td>1.0</td><td>
When the motor is running over rated current more than 150% of the load Electronic Thermal Power will be set. Please set value according to motor capacity


Example of Electronic Thermal Power: L1 - 02 = 1.0 at 60Hz running
</td></tr>
<tr><td>L2-01</td><td>Action mode in immediate power failure occures</td><td>0</td><td>
In instantaneous power failure, the inverter stops when the power failure is detected, the option for "restart running function" after recovering the power.
<table>
<tr><th>Setup</th><th>Description</th></tr>
<tr><td>0</td><td>Restart the operation ineffective The detection of Power failure, the abnormal contact takes an action</td></tr>
<tr><td>1</td><td>Restart the operation effective after recovering power. In L2-02 setting time of recovering power, run "restart running function" Meanwhile the abnormal contact is not in action. Without recoverying power in L2-02, the abnormal contact take an action.</td></tr>
<tr><td>2</td><td>Restart the operation effective after recovering power. Nothing about L2-02 setting time of recovering power, as long as inverter action in the range, run "restart running function after recovering power and the contact is not in action.</td></tr>
</table>
</td></tr>
</table>

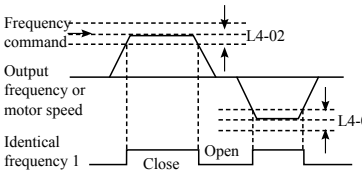
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>L2-02</td><td>Ensuring time of Immediate Stop</td><td>0.7</td><td>Instantaneous power failure occurs, and the re-start the operation after power (L2-01 = 1) choice of the blackout time allows, the value set. In the recovery of electricity within the warranty period, then the implementation of the re-start the operation. If the period from the power outage to ensure that there is no resumption of power, then after the warranty period, the abnormal contact action.</td></tr>
<tr><td>L2-03</td><td>Minimum time of base block</td><td>0.5</td><td>When it restarts after power detects, there is still some current in the motor. If restarting instantly, the over-current will enter the motor, which will cause the converter to get failed. Minimum-time of the base block is the standby time which the motor needs consuming the residual electricity. The motor will be effective when setting for 1 or 2. The minimum-time of the base block is less than recovery time, it will restart.</td></tr>
<tr><td>L2-04</td><td>Voltage return time</td><td>0.3</td><td>When restarting in power-supply failure, the speed search will run in order to detect the speed of the motor. And then, the input voltage will return the normal V/F curve in required time.
220V stage: 0 →220Vde 440V stage: 0 →440Vde</td></tr>
<tr><td>L2-05</td><td>Low voltage detection</td><td>190</td><td>Set the voltage of the inverter's main loop of DC power to be the level of LV detection. When the input side has installed AC reactor, the value should be less than the standard. 220V stage: 190V 440V stage: 380V</td></tr>
<tr><td>L3-01</td><td>Motor stall prevention in acceleration</td><td>1</td><td>The setting of motor stall prevention in acceleration:
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Motor stall prevention is ineffective in acceleration. Whatever status of the motor, the inverter will take output frequency according to the setup. Overload may cause loss-speed in the motor.</td></tr>
<tr><td>1</td><td>Motor stall prevention is effective in acceleration. Automatically reduce acceleration to prevent the motor from losing speed according to the motor current.</td></tr>
<tr><td>2</td><td>The mode of most proper acceleration
Monitor the motor current. Ignore time setting of speed up/down, but it will be the shortest in acceleration.</td></tr>
</table></td></tr>
</table>

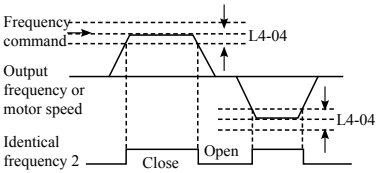
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>L3-02</td><td>The level of motor stall Prevention in acceleration</td><td>150</td><td>When Vector function (L3-01=1) or most proper acceleration (L3-01=2) is chosen, the inverter will auto adjust acceleration rate preventing the motor from overtaking the setting value.</td></tr>
<tr><td>L3-03</td><td>The limitation of motor stall prevention in acceleration</td><td>50</td><td>When the motor is used to a certain range, vector function will reduce speed according to acceleration.
 
</td></tr>
<tr><td>L3-04</td><td>Motor speed loss prevention in deceleration</td><td>1</td><td>The setting of motor speed loss prevention in deceleration:
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Motor speed loss prevention is ineffective in deceleration.
Whatever status of the motor, the inverter will take output frequency according to the setup.
Overload may cause loss-speed in the motor</td></tr><tr><td>1</td><td>Motor speed loss prevention is effective in deceleration.
Automatically reduce acceleration to prevent the motor from losing
speed according to the motor current</td></tr><tr><td>2</td><td>The mode of most proper deceleration Monitor the motor current. Ignore time setting of speed up/down, but it will be the shortest in deceleration.</td></tr></table>In using the braking unit, set this function for 0, the motor chase also does so. In vector control, the function (L3-04=2) cannot be set.</td></tr>
<tr><td>L3-05</td><td>Stall prevention in running</td><td>1</td><td><table><tr><th>Setup</th><th>Description</th></tr><tr><td>0</td><td>In running, stall prevention is ineffective</td></tr><tr><td>1</td><td>In running, stall prevention is effective</td></tr><tr><td>2</td><td>In running, stall prevention is effective</td></tr></table></td></tr>
</table>

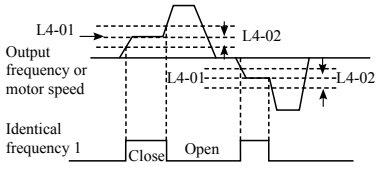
Code	Name	Default	Description
L3-06	Level of Stall prevention in running	160	Set output current level to start stall function at running 
L4-01	Level of frequency detection	0.0	Frequency detection value of the identical speed (The detection does not include direction of the output frequency)
L4-02	level width of frequency detection	2.0	L4-01 Set level width of frequency detection
L4-03	Level of frequency detection (+/-)	0.0	Frequency detection value of the identical speed (The detection includes direction of the output frequency)
L4-01	Level of frequency detection	0.0	Frequency detection value of the identical speed (The detection does not include direction of the output frequency)

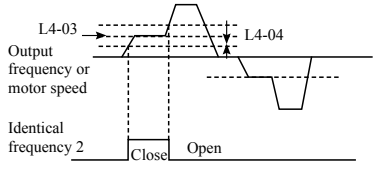
Descriptoion of related frequency detection

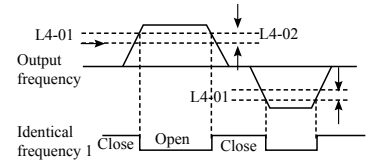
(1) Settign value of A1-02 for 1 or 2:

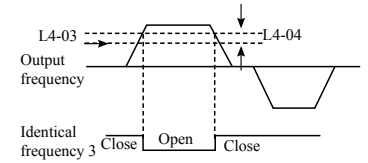
<table>
<tr><th>Related</th><th>L4-01 (frequency of detection bit quasi-)
L4-02 (frequency detection width)</th><th>L4-01 (frequency of detection bit quasi-)
L4-02 (frequency detection width)</th></tr>
<tr><td rowspan="2">Arrival Frequency</td><td>Arrival Frequency1</td><td>Arrival Frequency2</td></tr>
<tr><td> 

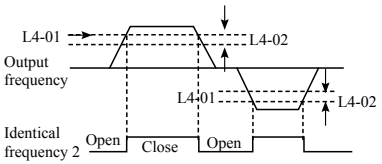
(Output contact value = 02)</td><td> 

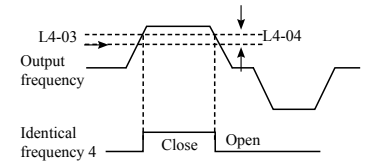
(Output contact value = 13)</td></tr>
<tr><td rowspan="2">Radom Arrival Frequency</td><td>Any Arrival Frequency1</td><td>Any Arrival Frequency2</td></tr>
<tr><td> 

(Output contact value = 03)</td><td> 

(Output contact value = 14)</td></tr>
<tr><td rowspan="4">Frequency detection</td><td>Detection frequency1</td><td>Detection frequency2</td></tr>
<tr><td> 

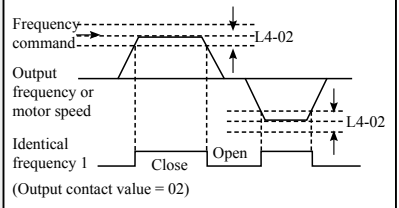
(Output contact value = 04)</td><td> 

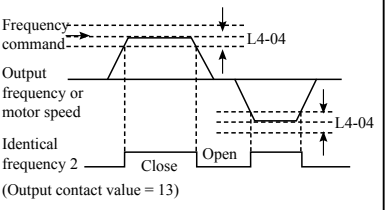
(Output contact value = 15)</td></tr>
<tr><td>Detection frequency3</td><td>Detection frequency4</td></tr>
<tr><td> 

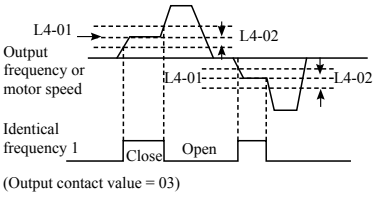
(Output contact value = 05)</td><td> 

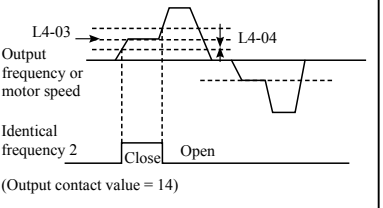
(Output contact value = 16)</td></tr>
</table>

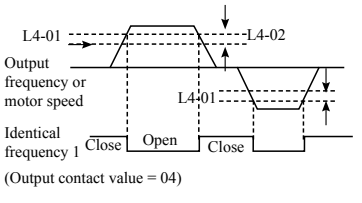
(2) Settign value of A1-01 for 3:

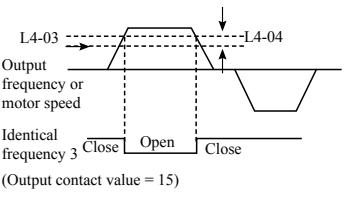
<table>
<tr><td>Related</td><td>L4-01 (frequency of detection bit quasi-)
L4-02 (frequency detection width)</td><td>L4-01 (frequency of detection bit quasi-)
L4-02 (frequency detection width)</td></tr>
<tr><td rowspan="2">Arrival Frequency</td><td>Arrival Frequency1</td><td>Arrival Frequency2</td></tr>
<tr><td> 

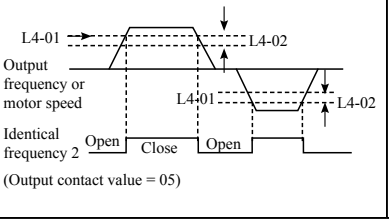
(Output contact value = 02)</td><td> 

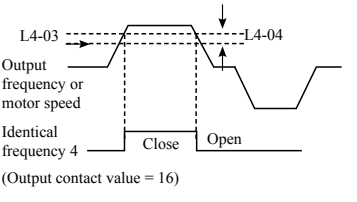
(Output contact value = 13)</td></tr>
<tr><td rowspan="2">Any Arrival Frequency</td><td>Any Arrival Frequency1</td><td>Any Arrival Frequency2</td></tr>
<tr><td> 

(Output contact value = 03)</td><td> 

(Output contact value = 14)</td></tr>
<tr><td rowspan="3">Detection frequency</td><td>Detection frequency1</td><td>Detection frequency3</td></tr>
<tr><td> 

(Output contact value = 04)</td><td> 

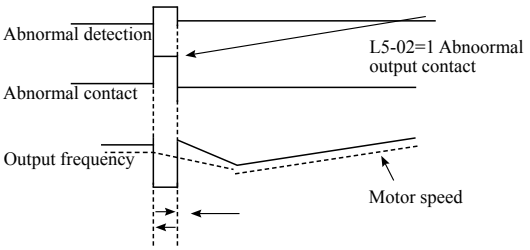
(Output contact value = 15)</td></tr>
<tr><td>Detection frequency2</td><td>Detection frequency4</td></tr>
<tr><td> 

(Output contact value = 05)</td><td> 

(Output contact value = 16)</td></tr>
</table>

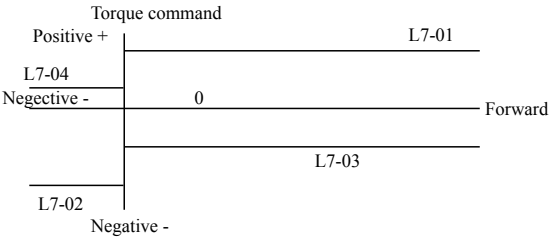
<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>L4-05</td><td>Lost frequency command</td><td>0</td><td>The dealing option of immediate change from the control terminal
<table><tr><th>Value</th><th>Descirption</th></tr><tr><td>0</td><td>Normal operation (track of command change)</td></tr><tr><td>1</td><td>Frequency command in the control terminals dramatically changes 90% in the 400ms which continues to operate with the fore 80% command.</td></tr></table></td></tr>
<tr><td>L5-01</td><td>Restart number in error</td><td>0</td><td>Restarting is in getting failed, the inverter will automatically restart for the founction of continuing running.

Abnormal restart
1. In abnormal detection, the drive with a minimum baseblock time (L2-03) output, the manipulator displays abnormality
2. As the result of minimum baseblock time, it will automatically restart and the output frequency of speed search function will be carried out
3. When the abnormal number is more than restart number, auto restart function will be no longer carried out, the inverter will be interrupted, the contact will take action.

Remove the record in the following circustances
1. No abnormality occurs again over 10 minutes
2. Input resetting singal to the coontroller terminals or digital operator.
3. The power supply is OFF, and then turns ON.</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>L5-01</td><td>Restart number in error</td><td>0</td><td>Not carry out the abnormal restart in the following circustances
<table>
<tr><td>UV2: Low-voltage control loop</td><td>OPR: Parameter error</td></tr>
<tr><td>UV3: Main circuit contactor bad</td><td>CE: Transfer error</td></tr>
<tr><td>SC: load short-circuit</td><td>EF3-8: External error</td></tr>
<tr><td>OH: Overheat</td><td>ERR: E2PROM error</td></tr>
<tr><td>EF: Bad command operation</td><td>SVE: Zero-servo error</td></tr>
<tr><td>OS: Over speed</td><td>CF: Control error</td></tr>
<tr><td>DEV: Speed deviation is too large</td><td rowspan="2">UV1: main circuit voltage is too low, only in L2-02 = 0</td></tr>
<tr><td>PGO: PG disconnection</td></tr>
</table></td></tr>
<tr><td>L5-02</td><td>Contact action of restarting in error</td><td>0</td><td>Action mode of the contact in the abnormal restart
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>In restart, the abnormal contact does not action</td></tr>
<tr><td>1</td><td>In restart, the abnormal contact actions.</td></tr>
</table></td></tr>
<tr><td>L6-01</td><td>Over torque detection mode 1</td><td>0</td><td>Set the function of torque detection:
*In V / F control mode, determined by the output current.
*In vector control mode, standard by the internal torque level of the converter.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Torque detection is effective.</td></tr>
<tr><td>1</td><td>Torque detection is effective. The torque will be detected when the speed is reached. The OL3 will flashe and continue running after the detection</td></tr>
<tr><td>2</td><td>Operation-torque detection is effective. The torque will be detected at running. The OL3 will flashe and continue running after the detection</td></tr>
<tr><td>3</td><td>Torque detection is effective. The torque will be detected when the speed is reached. The OL3 will show abnormality and the inverter will be interrupted</td></tr>
<tr><td>4</td><td>Torque detection is effective. The torque will be detected at running. The OL3 will show abnormality and the inverter will be interrupted</td></tr>
</table></td></tr>
<tr><td>L6-02</td><td>Over torque detection level 1</td><td>150</td><td>Set torque level detection.
V / F control mode: the inverter rated current to 100%.
Vector control mode: the motor rated torque of 100%.</td></tr>
<tr><td>L6-03</td><td>Over torque detection time1</td><td>0.1</td><td>The current or torque of the motor is more than the setting value of L6-02 and longer than L6-03, then detected. In the detection, the device displays “OL3”</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>L6-04</td><td>Over torque detection mode2</td><td>0</td><td rowspan="3">The function of L6-04 ~ L6-06 is the same with that of L6-01 ~ L6-3, which is cooperative with the multi-function output terminal, setting “Detection of operation torque 2”.When detected, the device displays “OL4”.</td></tr>
<tr><td>L6-05</td><td>Over torque detection level 2</td><td>150</td></tr>
<tr><td>L6-06</td><td>Over torque detection time2</td><td>0.1</td></tr>
<tr><td>L7-01</td><td>Forward torque motor limit</td><td>200</td><td>Set forward torque motor limit for value</td></tr>
<tr><td>L7-02</td><td>Reverse torque motor limit</td><td>200</td><td>Set feverse torque motor limit for value</td></tr>
<tr><td>L7-03</td><td>Forward torque revival limit</td><td>200</td><td>Set forward torque revival limit for value</td></tr>
<tr><td>L7-04</td><td>Reverse torque revival limit</td><td>200</td><td>Set reverse torque revival limit for value
 
</td></tr>
<tr><td>L8-01</td><td>Built-in protection of braking resistor</td><td>0</td><td>When the braking resistor is built in the inverter, the protection functional option is overheat.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Overheat protection of Braking resistor is ineffective.</td></tr>
<tr><td>1</td><td>Overheat protection of Braking resistor is effective.</td></tr>
</table></td></tr>
<tr><td>L8-02</td><td>OH alarm level</td><td>95</td><td>Setting of overheat pre-alarm in the heat sink.</td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>L8-03</td><td>OH alarm mode</td><td>3</td><td>The detection mode of overheat pre-alarm in the heat sink.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Decelerate to stop according to C1-02.</td></tr>
<tr><td>1</td><td>Free operation</td></tr>
<tr><td>2</td><td>Decelerate to stop according to C1-09.（Rapidly）</td></tr>
<tr><td>3</td><td>Continue to run.</td></tr>
</table></td></tr>
<tr><td>L8-05</td><td>Short input phase protection</td><td>0</td><td>Under short phase of power supply or imbalanced voltage or the electrolytic capacitor is getting bad, over ripple more than the main loop detection of DC frequency will make the inverter stop.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Over ripple detection is ineffective.</td></tr>
<tr><td>1</td><td>Over ripple detection is effective.</td></tr>
</table></td></tr>
<tr><td>L8-07</td><td>Short output phase protection</td><td>0</td><td>Detection of short output phase
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Detection of short output phase is ineffective</td></tr>
<tr><td>1</td><td>Detection of short output phase is effective.</td></tr>
</table></td></tr>
<tr><td>L8-10</td><td>Grouding failure</td><td>1</td><td>Detection of grouding failure
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Detection of grouding failure is ineffective</td></tr>
<tr><td>1</td><td>Detection of grouding failure effective.</td></tr>
</table></td></tr>
<tr><td>L8-17</td><td>Reduce carrier frequency mode</td><td>1</td><td>Detection of reducing carrier frequency
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Detection of reducing carrier frequency is ineffective</td></tr>
<tr><td>1</td><td>Detection of reducing carrier frequency effective.</td></tr>
</table></td></tr>
<tr><td>L8-19</td><td>OL2 detection mode in low speed</td><td>0</td><td>Detection of OL2 detection mode in low speed
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Detection of OL2 detection mode in low speed is ineffective</td></tr>
<tr><td>1</td><td>Detection of OL2 detection mode in low speed effective.</td></tr>
</table></td></tr>
</table>

7.9 Ogroup parameter

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>01-01</td><td>Monitor mode</td><td>6</td><td>There are 4 types of programs at running under monitor instead of U1-04 mode, and used to take place of output voltage display. Setting mode is 01-01 in place of □□ within U1- □□</td></tr>
<tr><td>01-02</td><td>Mode of monitoring project in inputting power</td><td>1</td><td>Display project when inputting power<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>Display frequency command</td></tr><tr><td>2</td><td>Output frequency command</td></tr><tr><td>3</td><td>Display output current</td></tr><tr><td>4</td><td>Display set point 01-01</td></tr></table></td></tr>
<tr><td>01-03</td><td>Frequency command/ monitoring setup unit</td><td>0</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Unit: 0.01HZ</td></tr><tr><td>1</td><td>Unit: 0.01%</td></tr><tr><td>2~39</td><td>Unit: r/min
Vector control with r/min=120* FREF (HZ) / 01-03</td></tr><tr><td>40 ~ 39999</td><td>The fifth number of 01-03 decides a position of the decimal point.
The fifth number = 0: presented by □□□□
The fifth number = 1: presented by □□□.□
The fifth number = 2: presented by □□.□□
The fifth number = 3: presented by □.□□□
From the forth number to the first number of 0.-03 decides the means of 100% frequency value.
(example one)
When 01-03=12000 is setted,100%speed presented by 200.0; 60% speed presented by 120.0.
(example two)
When 01-03=26500 is settled, 60%speed presented by 39.00.</td></tr></table></td></tr>
<tr><td>01-04</td><td>Parameter setup unit</td><td>0</td><td>Setup unit of V/F related parameter (E1-04, 06, 07, 09) can be changed by the rpm.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Unit: 0.01HZ</td></tr><tr><td>1</td><td>Unit: rpm</td></tr></table></td></tr>
</table>

<table>
<tr><th>Code</th><th>Name</th><th>Default</th><th>Description</th></tr>
<tr><td>01-05</td><td>Parameter No. mode</td><td>0</td><td>The parameter No. on the controller presents option.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Usual display (eg. A1-00)</td></tr><tr><td>1</td><td>MODBUS displays the address.</td></tr></table></td></tr>
<tr><td>02-01</td><td>Local/remote button</td><td>1</td><td>Local / Remote button setting<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>The Local/Remote button is ineffective.</td></tr><tr><td>1</td><td>The Local/Remote button is effective.</td></tr></table></td></tr>
<tr><td>02-02</td><td>Stop button</td><td>1</td><td>At running , stop button setting<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Stop button is ineffective.</td></tr><tr><td>1</td><td>STOP button is effective.</td></tr></table></td></tr>
<tr><td>02-03</td><td>Users reset to the initial value</td><td>1</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>02-03 = 1, save initial value of the users. After setting the initial value, and set A1-03 = 1110, all the parameters will be returned to the initial value of the users.</td></tr><tr><td>2</td><td>Clear the initial value of the users</td></tr></table></td></tr>
<tr><td>02-04</td><td>Inverter capacity mode</td><td>-</td><td>Inverter capacity mode</td></tr>
<tr><td>02-05</td><td>Setting mode of frequency command</td><td>0</td><td>In inputting the frequency command, whether it is necessary to push Enter key<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>ENTER key - necessary</td></tr><tr><td>1</td><td>ENTER key - unnecessary</td></tr></table></td></tr>
<tr><td>02-06</td><td>Mode of Disconnected manipulator</td><td>0</td><td>Transmission between the manipulator and the inverter gets abnormal (broken cable or removed manipulator).<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Inverter continues to operate</td></tr><tr><td>1</td><td>Decelerate to stop and the alarm message display "OPR"</td></tr></table></td></tr>
<tr><td>02-07</td><td>Setting of accumulative working time</td><td>-</td><td>accumulate working time</td></tr>
<tr><td>02-08</td><td>Mode of accumulative working time</td><td>0</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>When Power is supplying to the inverter, accumulate the working time.</td></tr><tr><td>1</td><td>When Inverter is running, accumulate working time.</td></tr></table></td></tr>
</table>

Setup List of Multi-Functional Input / Output Terminals

**H3-09 is set 1F as effectiveness

Setup	Multi-functional input (H1-01, 02,03,04,05,06)	Multi-functional output (H2-01, 02,03)	Multi-functional analog input (H3-05)
00	3 phase control mode	Running	Auxiliary frequency command
01	Local/Remote mode	Zero Speed	FGAIN
02	Option cards / switched by inverter	Frequency1	FBIAS
03	Multi-speed command1	Random arrival frequency1	Reserved
04	Multi-speed command2	Frequency detection 1	VBIAS
05	Multi-speed command3	Frequency detection 2	Speed up/down Coefficient
06	Jog	Ready	DC braking current
07	Time mode of acceleration and deceleration 1	Detecting low voltage	Over torque detection level
08	External b.b (A contact point)	In b.b (A contact point)	Stall level in running
09	External b.b (a contact)	Frequency command mode	Frequency command minimum level
0A	Speed down to stop	Operation command mode	Frequency prohibition number
0B	Overheating warning (OH2)	In torque detection	PID feedback
0C	Multi-function analog input	Loss frequency command	Reserved
0D	Cancel speed control	Bad connection of brake resistor	
0E	Reset speed control integral value	Abnormality	
0F	Reserved	Reserved	
10	Acceleration contact (UP)	Alarm	Forward torque limit
11	Deceleration contact (DOWN)	In abnormality return	Reverse torque limit
12	Jog forward	Timer output	retro gradation limit
13	Jog reverse	Arrival frequency 2	torque command, torque limit
14	Abnormality reset	Random arrival frequency 2	Torque compensation

Setup	Multi-functional input (H1-01, 02,03,04,05,06)	Multi-functional output (H2-01, 02,03)	Multi-functional analog input (H3-05)
15	Emergency stop	Frequency detection 3	Forward / reverse torque limits
16	Reserved	Frequency detection 4	Reserved
17	Reserved	Detecting torque 1 (B contact)	
18	Timer input	Detecting torque 2 (A contact)	
19	Cancel PID control	Detecting torque 3 (B contact)	
1A	Time mode of acceleration and deceleration 2	Reversed	
1B	Argument against writing	In b.b (B contact)	
1C	+SPEED command	Reserved	
1D	-SPEED command	Motor / generator mode	
1E	Analog input sample / hold	Abnormality restart	
1F	**Analog input terminal (13/14)	OL1 Alarm	
20	External abnormality	OH Alarm	
21-2F		Reserved	
30	PID integral return	In torque limit	
Setup	Multi-functional input 3-8 Function mode (H1-01. 02. 03. 04. 05. 06)	Multi-functional output 9.25-26 Function mode (H2-01. 02. 03)	Multi-functional analog input 16 Function mode (H3-05)
31	Reserved	In speed limit	Reserved
32		Reserved	
33		Zero-servo completion	
37		Running 2	
34-5F		Reserved	
60	DC-braking command		
61	External search command 1		
62	External search command 2		
63	Energy saving running		
64	External search command 3		

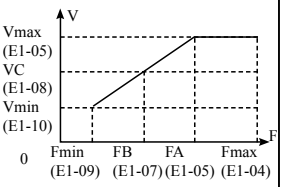
Setup	Multi-functional input (H1-01, 02,03,04,05,06)	Multi-functional output (H2-01, 02,03)	Multi-functional analog input (H3-05)
65	Operation command of instantaneous deceleration to stop (A contact point)	Reserved	Reserved
66	Operation command of instantaneous deceleration to stop (B contact point)		
67-70	Reserved		
71	Switch of speed control/torque control		
72	Zero Servo command		
73-76	Reserved		
77	Switch of speed control/ ratio gain		
78-FF	Reserved		

8 Fault Diagnosis and Solution

Error Display	Name	Descirption	Solution	Level
UV1 Undervol tage fault (puv)	Power under Voltage	While main DC circuit voltage in running lower than" low voltage detect level 15ms"(Instant stop protection 2S) low voltage detect level: 220V class: under 190V 440V class: under 380V	Check power supply voltage, and accessories Check if the capacity of voltage and power supply systems operates properly or not.	A
UV2 Undervoltage fault (cuv)	Control Under Voltage	The control circuit voltage lower than the low voltage detection level		A
UV3 Undervoltage fault (ms-ansfault)	Internal fault of magnetic wiring	Open loop of main circuit of contactor in running		A
UV Momentary power loes	Immediate power outage	DC main loop voltage is lower than the low voltage detection level. The main circuit connects with open loop. The control circuit voltage is lower than low voltage detection level		B
Oc Overcurrent (OC)	Over current (OC)	Output current of the inverter beyond OC level	Check if impedance and insulation of the motor is normal. Prolong the acceleration and deceleration time.	A

Error Display	Name	Descirption	Solution	Level
GF Grounding (GF)	Ground Fault (OF)	Output ground current of the inverter higher than 50% of the rated current.	Check if insulation of the motor is normal. Check if the wiring is broken between Frequency inverter and motor.	A
OV Overvol tage (OV)	Overvoltage (OV)	The main DC circuit voltage higher than the low voltage detect level 200V: about 400V; 400V Class: about 800V	To extend the deceleration time, strengthen the brake resistor and braking controller	A
SC	Short-circuit (SC)	The inverter output is short-circuit	Check whether the motor of impedance and insulation is normal or not.	A
PUF	Fuse broken wire (PU)	The main circuit transistor module Error DC circuit fuse melts	Check the load of the fuse and whether there are situations such as short circuit, grounding	A
OH Motor overheat (OHI)	Radiator overheat (OH1)	The transistor modules cooling board temperature exceeds the allowance.	Check whether the ambient temperature is within the rated temperature	A
OLI Motor overload (OLI)	Motor overload (OL1)	Output current over the motor speed limited.	Reduce the load capacity	A
OL2 Inverter overload (OL2)	Inverter overload (OL2)	The output current of inverter exceeds the 150% of rated current	Reduce the load and the acceleration time	A
OL3 Overtorque det1	Over torque 1	When the torque or current value over the setting value of L6-02, please set up as L6-01 standard through the setting time of L6-03	Reduce the load	A/B
OL2 Overtorque det 2	Over torque 2	When the torque or current value over the setting value of L6-05, please set up as L6-01 standard over the setting time of L6-03	Reduce the load	A/B
RR Braking transistor fault	Braking transistor fault	Braking transistor fault	Repair converter	A

Error Display	Name	Descirption	Solution	Level
RH Braking resistor unit overheat	Braking resistor unit overheat	Braking resistor overheat	Revise the time and frequency of the braking resistor braking	A
OS Over speed (OS)	Over speed	The speed of motor over the speed limited (F1-08)		A
PGO PG disconnection (PGO)	PG disconnection	PG connection short-circuit	Check PG connection, check whether the motor shaft blocked	A
DEV Excessive speed deviation (DEV)	Excessive speed deviation	The speed command and speed feedback is over the deviation of the speed bias-bit quasi-(F1-10)	Check whether the overload	B
EF Operation reference fault	Operation reference fault	Forward operation and reverse operation command exist more than 0.5 seconds	Control of timing checks, positive inversion instruction does not exist	B
EFO	external abnormal signal	From the selection of cards to send to external abnormal signal, inverter, according to F9-03 set by the action	Check to send cards, the signal	B
EF3~EF8 External terminal 3 external fault	External terminal 3 external fault	Input abnormal signal of the external terminal 3 ~ 8	from U1-10 to confirm abnormal signal input terminal. According to the abnormality of the terminal to repair	A
OPE 01 KVA selection fault	KVA selection fault	Set converter parameters (02-04) badly	Adjust the setup	C
OPE 02 Constant setting range fault	Constant setting range fault	Parameter setup are beyond the setting value	Adjust the settup	C
OPE 03 Multifunction input selecfion fault	Multifunction input selecfion fault	The order of H1-01 ~ 06 is not in order from small to large or set repeated.	Adjust the setup	C
OPE 05 Sequence Select	OPE command card set inappropriately	When B1-01, 02 is set to 3, the communication card is not installed	Adjust the B1-01, -02 or install the communication card	C

Error Display	Name	Descirption	Solution	Level
OPE 06 PG Opt Missing	The mode selected inappropriately	when A1-02 is set to 1.3, the feedback card is not installed	Adjust the settings or install feedback cards	C
OPE 07 Analog Selection	The option of Multi-functional analog input inappropriately	H3-05.09 setted to the same value After installing the analog inputting card and F2.01 = 0, the converter does not receive frequency command.	Adjust the frequency settings Check the wiring of the analog input card	C
OPE08	The option of multi-functional inappropriately	1 Select the parameterst unable to use F4-01, 02, FS-01, 02 2. Select the controlling mode H1-01 ~ 06, HS-01 ~ 03.H3-05, 09 H4-01, 04, but not the parameters. 3. Select 01-01 control mode, but not the parameters.	Reset parameters	D
OPE 10 V/F Pattern setting	V/F parameter inappropriate	E1-04~10 must meet the following conditionsFmax ≧ FA≧FB≧Fmin (E1-04)) (E1-06) (E1-07) (E1-09) 	Adjust the settings	C
OPE 11 CarrFrq/ON-Delay	Parameter inappropriate	① Setting Parameter C6-01 ＞5KHZ but C6-02≦ 5KHZ ② C6-03＞6 but C6-02＞ C6-01	Adjust the settings	C
CPF 00 Control circuit fault 1	Control circuit fault 1	After inputting the power, the wire between the manipulator and the control panel is abnormal in 5 minutes	Re-install digital manipulator Check control circuit wiring	A

Error Display	Name	Descirption	Solution	Level
CPF 01Control circuit fault 2	Control circuit fault 2	Error of MPU Peripheral Components	Replacement control panel	A
CPF 02 Control circuit fault	Base block (BB) bad loop	Error of the inverter control panel	Replacement Control Panel	A
CPF 03 NV-RAM (S-RAM) fault	EEPROM bad			
CPF 04 Constant destruction	Internal A / D converter of CPU bad			
CPF 05 A/D converter fault in CPU	External A / D converter of CPU bad			
CPF 06 Option connection fault	The connection around the interface is bad	The installation of the interface is not correct.	Peripheral adapter re-install	A
CPF 20 A/D converter fault	A / D converter of the analog command card is bad	Analog input card, A / D converter adverse action	Replace analog input card	A
CPF21	Self-diagnosis of send-cards is abnormal.	Error of selective card	Seven new ones	A
CPF22	Models yards of send-card are abnormal			
CPF23	Mutual Diagnosis of cards are abnormal			
CF	Controlling abnormal	When the vector control mode operats without PG, the torque limit can continue for more than 3 consecutive seconds in deceleration to stop	Whether Motor parameters is right	A

Error Display	Name	Descirption	Solution	Level
PF	Due phase input	The input power of converter is due phase Input voltage is unbalanced in three phase	Check power supply voltage is normal Check whether the input endpoint screws tightened	A
LF Open-phase load (LF)	Due phase output	The output power of the converter is due phase.	Check out whether the endpoint of the screws and the wiring is normal Check three-phase motor resistance	A
OPR Open Disconnect	Manipulator connecting bad	Operators, in the operation, disconnect.	Check the operation of the wiring devices	A
SVE	Zero Servo abnormal	In the operation of zero servo, the PG values of the motor is more than 10,000 times	Set the size of the torque limit The load torque is too large Check PG signal is affected by noise interference	A
ERR EEPROM writing fault (ERR)	Bad input EEPROM	When the parameters initialize, the correct information can not be input. EEPROM	Switch controller	B
CALL SI-B transmission error	Errors of SI-B transmission	When the power inputs, the controlling signal is abnormal	Re-examine the transferring machine control signal	C
CE	Transmission Error	After transmitting the signal in 2 seconds, the normal response signal isn't received.	Re-examine the transferring machine control signal	A
BUS	Transmission Fault	The setting mode operation command and frequency setting from the transmitting card is failure.	Check the transferring card and signal	A

Grade the fault level

A: Serious error. The motor stops naturally. The error displays the digital manipulator and the abnormal contact outputs 18, 20 connected.

B: Light error. The motor continues to operate. The error displays the digital manipulator and the abnormal connect does't work, multi-functional output works.

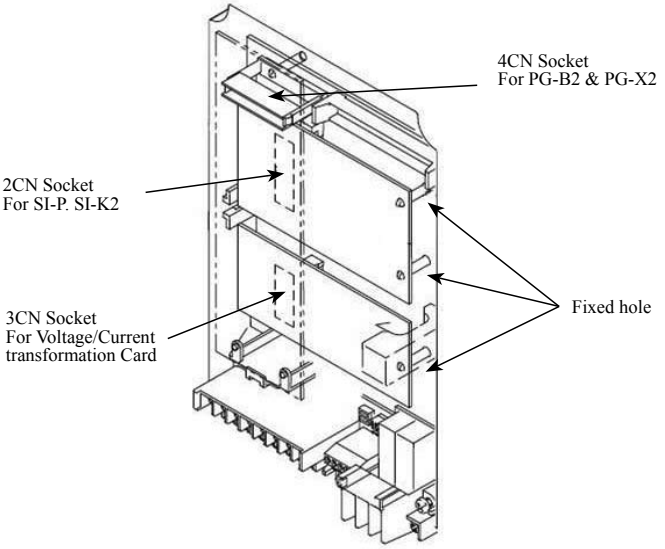
C: Warning, the converter doesn't work. he error displays the digital manipulator and the abnormally multi- functional connect doesn't work

Discrepancy of VG5 & VG2 model and Description of the accessories

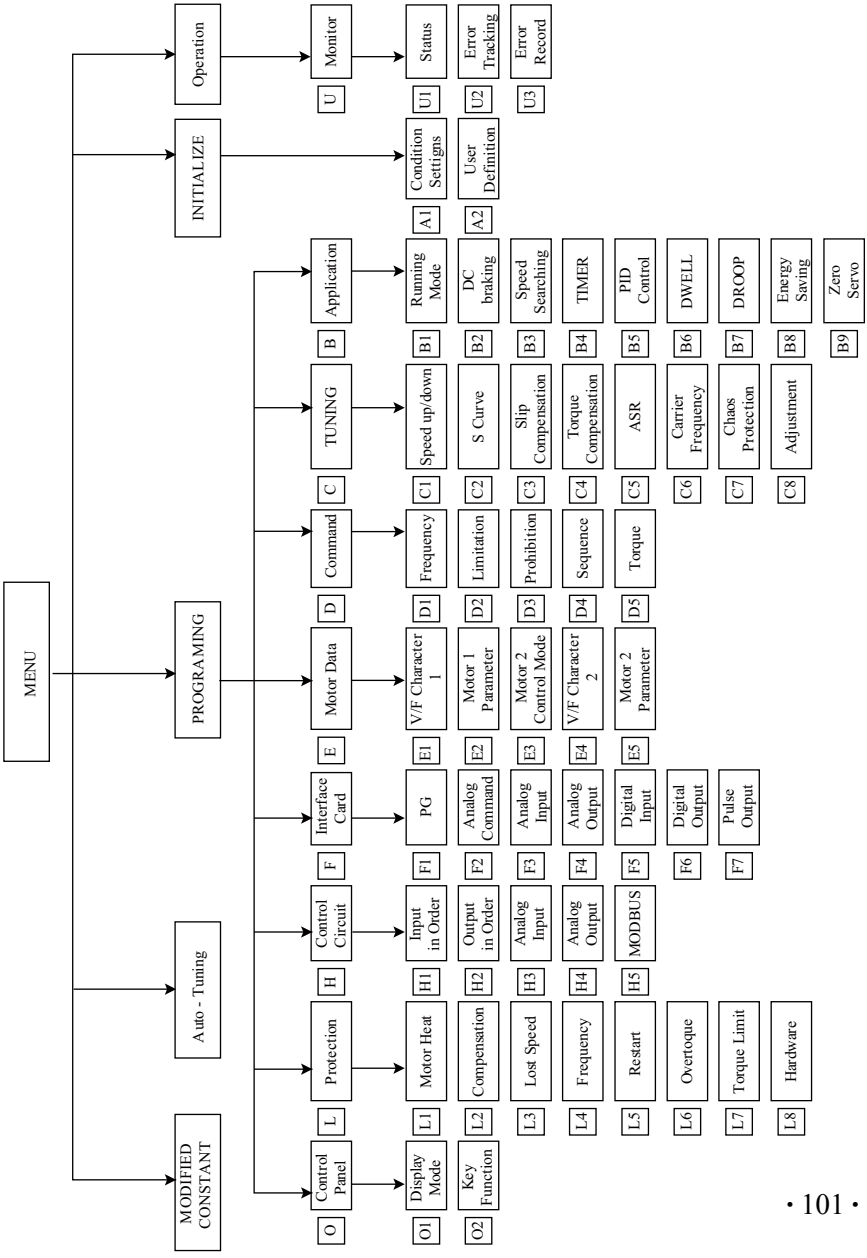
Discrepancy of VG5 and VG2		
Model	VG2	VG5
Model Discrepancy	120% 1 min of overload Without close-loop control funciton Without communication	150% 1 min of overload With close-loop control funciton With communication
Parameter Discrepancy	V/F mode: Without parameter B7, B9, C5, C8, D5, F1, L7 Without PG mode: Without B7, B8, B9, C5, D5, F1	All the parameter can be used

Code	Function
SI-K2	RS485/232 Card
SI-P1	Profibus Card
PG-B2	PG Feedback Card with 12V Push Pull
PG-X2	PG Feed back Card with 5V Lin Drive
Voltage/Current transformation Card	

VG5 installation description



9 Parameter lists and Factory Settings



9.1 Factory settings

Function		Code	Display	Name	Range	Unit	Default	Description	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Environmental setting	Environmental setting	A1-00	Select Language	Select Language	0.1	1	1	0: English	O	Q	Q	Q	Q
		A1-01	(Access Level)	Save / Load	0~4	1	2	0: Monitor 1: User choice 2: Quick-start 3: Basic 4: Advanced	O	Q	Q	Q	Q
		A1-02	(Control Method)	Control mode	0~3	1	2	O: V / F Control 1: V / F control with PG 2: Vector Control without PG 3: Vector Control with PG	X	Q	Q	Q	Q
		A1-03	(Init Parameters)	Reset to Default	0000 ~ 9999	1	0000	1110: Reset parameters by users 2220: Reset in second-line type 3333: Reset in three-line type	X	Q	Q	Q	Q
		A1-04	(Enter Password)	Password 1	0000 ~ 9999	1	0000	Input password	X	Q	Q	Q	Q
		A1-05	(Select Password)	Password 2	0000 ~ 9999	1	0000	Set password in the A1-04 and press MENU + RESET button both	X	Q	Q	Q	Q
		A2-01∫ A2-32	(User Param I to 32)	User Mode	-	-	-		X	Q	Q	Q	Q

Function	Code	Display	Name	Range	Unit	Default	Description	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Application Parameters	Operation mode selection	B1-01	(Reference Source)	Frequency Command Mode	0~4	1	1	O: Operators 1: Control circuit terminal 2:Transmission 3: option 4: MEMOBUS	X	Q	Q	Q	Q
		B1-02	(Run Source)	Operation Command Mode	0~4	1	1	O: Operators 1: Control circuit terminal 2:Transmission 3: option 4: MEMOBUS	X	Q	Q	Q	Q
		B1-03	(Stopping Method)	Stop Mode	0~3	1	1	O: Deceleration to stop 1: Free Stop 2: DC braking stop 3: Free stop and timing	X	Q	Q	Q	Q
"Application Parameters"	Operation mode selection	B1-04	(Revrse Oper)	Option of prohibition reverse	0,1	1	0	0: reversal 1: not reversal	X	B	B	B	B
		B1-05	(Zero-Speed Oper)	Operation mode in minimum frequency	0~3	1	0	0: Usually running 1: Output interrupt (BB) 2: the minimum frequency operation of 3: Zero speed running	X	X	X	X	A
		B1-06	(Cutl Input Scan)	Time option of terminal scanning twice	0,1	1	1	0:2msec 1:5msec	X	A	A	A	A
		B1-07	(LOC/REM RUN Sel Cycle EXtrn Run)	transferring option after swifting the operation command	0,1	1	0		X	B	B	B	B

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
"Application Parameters"												
DC brake	B2-01	(Dclnj Start Freq)	Zero speed level	0.0 ~ 10.0	0.1HZ	0.5		X	A	A	A	A
	B2-02	(Dclnj Current)	DC current braking	0 ~ 100	1%	50		X	B	B	B	
	B2-03	(DClnj Time @Start)	Time of DC braking at start	0.00 ~ 10.00	0.01 sec	0.00		X	B	B	B	B
	B2-04	(DClnj Time @Stop)	Time of DC braking at stop	0.00 ~ 10.0	0.01 sec	0.00		X	B	B	B	B
Speed Search	B3-01	(Spdsrch at Start)	Otion of speed searching at start	0,1	1	0	0: start with searching speed 1: starts without searching speed	X	A	A	A	A
	B3-02	(Spdsrch Current)	Current of speed searching	0 ~ 200	1%	150		X	X	X	A	A
	B3-03	(Spdsrch Dec Time)	Time of decelation in speed searching	0.1 ~ 10.0	0.1sec	2.0		X	A	A	A	A
Time function	B4-01	(Delay-ON Time)	Delay-ON Time	0.0 ~ 300	0.1sec	0.0		X	A	X	A	X
	B4-02	(Delay-OFF Time)	Delay-OFF Time	0.0 ~ 300.0	0.1sec	0.0		X	A	X	A	X

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Application Parameters	PID contrall											
	B5-01	(PID Mode)	PID Mode	0,1,2	1	0	0: PID is ineffective 1: PID is effective 2: PID is effective	X	A	A	A	A
	B5-02	(PID Gain)	PID Gain	0.00 ~ 10.00	0.01	1.00		O	A	A	A	A
	B5-03	(PID I Time)	PID I Time	0.0 ~ 360.0	0.1sec	1.0		O	A	A	A	A
	B5-04	(PID I Limit)	PID I Limit	0.0 ~ 100.0	0.1%	100.0		O	A	A	A	A
	B5-05	(PID D Time)	PID D Time	0.00 ~ 10.0	0.01sec	0.00		O	A	A	A	A
	B5-06	(PID Limit)	PID Limit	0.0 ~ 100.0	0.1%	100.0		O	A	A	A	A
	B5-07	(PID Offset)	PID Offset	-100.0 ~ 100.0	0.1%	0.0		O	A	A	A	A
	B5-08	(PID Delay Time)	PID Delay Time	-100.0 ~ 100.0	0.01sec	0.00		X	A	A	A	A
	B5-09	(Output Level Sel0)	PID Forward/ Reverse Output mode	0.1	0	0	0: forward 1:reverse	X	A	A	A	A

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Application Parameters												
PID contrall	B5-10	(Output Gain)	PID Output Gain	0.0 ~ 25	0.1	1		X	A	A	A	A
	B5-11	(Output Rev Sel)	PID Reverse output mode	0.1	1	0	0: limit is 0 in minus 1: reverse in minus	X	A	A	A	A
	B5-12	(Fb Los Det Sel)	PID Feedback Loss Output	0 ~ 2	1	0	0: feedback loss detection 1: continue detecting after loss 2: declerating to stop after loss	X	A	A	A	A
	B5-13	(Fb Los Det Lvl)	PID Feedback Loss Output Detection Level	0 ~ 100	1	0	100% rated level as maX output	O	A	A	A	A
	B5-14	(Fb Los Det Time)	PID Feedback Loss Output Detection Time	0.0 ~ 25.5	0.1	1		X	A	A	A	A
DWELL motor	B6-01	(Dwell Ref @ Start)	Dwell Ref @ Start	0.0 ~ 400.0	0.1HZ	0.0		X	A	A	A	A
	B6-02	(Dwell Time @ Stop)	Dwell Time @ Stop	0.0 ~ 10.0	0.1sec	0.0		X	A	A	A	A
	B6-03	(Dwell Ref @ Stop)	Dwell Ref @ Stop	0.0 ~ 400.0	0.1HZ	0.0		X	A	A	A	A
	B6-04	(Dwell Time @ Stop)	Dwell Time @ Stop	0.0 ~ 400.0	0.1sec	0.0		X	A	A	A	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
TUNING	DROOP	B7-01	(Droop gain)	Droop gain	0.00 ~ 1.00	0.01	0.0		O	X	X	X	A
		B7-02	(Droop Delay Time)	Droop Delay Time	0.00 ~ 1.00	0.01sec	0.00		O	X	X	X	A
	Saving Energy	B8-01	(Energy Save Gain)	Energy Save Gain	0 ~ 100	1%	80		X	A	A	X	X
		B8-02	(Energy Save Freq)	Energy Save Freq	0.0 ~4 00.0	0.1HZ	0.0		X	A	A	X	X
	Zero Servo	B9-01	(Zero Servo Gain)	Zero Servo Gain	0 ~ 100	1	5		X	X	X	X	A
		B9-02	(Zero Servo Count)	the width of Zero Servo Count	0 ~ 16383	1	10		X	X	X	X	A
	Acceleration and deceleration time	C1-01	(Accel Time 1)	Acceleration Time 1	0.00 ~ 6000.0	0.1sec ~ 0.1see	10.0		O	Q	Q	Q	Q
		C1-02	(Decel Time 1)	Deceleration Time 1			10.0		O	Q	Q	Q	Q
		C1-03	(Accel Time 2)	Acceleration Time 2			10.0		O	B	B	B	B
		C1-04	(Decel Time 2)	Deceleration Time 2			10.0		O	B	B	B	B
		C1-05	(Accel Time 3)	Acceleration Time 3			10.0		X	A	A	A	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
TUNING	Acceleration and deceleration time	C1-06	(Decel Time 3)	Deceleration Time 3	0.00 ~ 6000.0	0.1sec ~ 0.1see	10.0		X	A	A	A	A
		C1-07	(Accel Time 4)	Acceleration Time 4			10.0		X	A	A	A	A
		C1-08	(Decel Time 4)	Deceleration Time 4			10.0		X	A	A	A	A
		C1-09	(Fast Stop Time)	Fast Stop Time			10.0		X	B	B	B	B
		C1-10	(Acc/Dec Unist)	Time Unit of Acc/Dec	0,1	1	1	0: the Unit of time of acceleration and deceleration is 0.1 seconds 1: the Unit of time of acceleration and deceleration is 0.01 seconds	X	A	A	A	A
		C1-11	(Acc/Dec SW Freq)	Acc/Dec switch Frequency	0.0 ~ 400.0	0.1HZ	0.1		X	A	A	A	A
	S-characteristics	C2-01	(SCrv Acc @ Start)	characteristics of accelerating time at start	0.00 ~ 2.50	0.01sec	0.20		X	A	A	A	A
		C2-02	(SCrv Acc @ End)	characteristics of accelerating time at end	0.00 ~ 2.50	0.01sec	0.20		X	A	A	A	A
		C2-03	(SCrv Acc @ Start)	characteristics of accelerating time at start	0.00 ~ 2.50	0.01sec	0.20		X	A	A	A	A
		C2-04	(SCrv Acc @ End)	characteristics of accelerating time at end	0.00 ~ 2.50	0.01sec	0.20		X	A	A	A	A

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
TUNING												
Slip Compensation	C3-01	(Slip Comp gain)	Slip Comp gain	0.00~2.50	0.01	1.0		O	B	X	B	B
	C3-02	(Slip Comp Time)	Slip Comp Time	0~1000	1ms	200		X	A	X	A	X
	C3-03	(Slip comp Limit)	Slip compensation Limit	0 ~ 250	0.01	200		X	A	X	A	X
	C3-04	(Slip comp Regen)	Slip compensation Regeneration	0.1	1	0	"0: without deterioration 1: with deterioration "	X	A	A	A	A
	C3-05	(FLUX Select)	Magnetic calculation time	0.1	1	0	0: Output after compensation 1: Output before compansation	X	X	X	A	X
	C3-06	(Output V Limit)	Output Voltage limit	0.1	1	0	0: Unlimited 1: Limited	X	X	X	A	X
Slip Compensation ASR	C4-01	(Torq comp gain)	Torq compensation gain	0.00 ~ 2.5	0.01	1.00		O	B	B	B	X
	C4-02	(Torq comp Time)	Torq compensation Time	0 ~ 1000	0msec	20		X	A	A	A	X
	C4-03	(F Torq Cmp @ Start)	Forward start comensation value	0.0 ~ 200.0	0msc	20		X	X	X	A	X
	C4-04	(R Torq Cmp @ Start)	Reverse start comensation value	-200.0 ~ 0.0	0.1%	0.0		X	X	X	A	X

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
TUNING	C4-05	(Torq Cmp Delay T)	Start comensation time	0 ~ 200	0.1%	0.0		X	X	B	X	B
Slip Compensation ASR	C5-01	(ASR P Gain 1)	ASR P Gain 1	0.00 ~ 300.0	0.01	20.00		O	X	B	X	B
	C5-02	(ASR I Time 1)	ASR I Time 1	0.000 ~ 10.000	0.001 sec	0.500		O	X	B	X	B
	C5-03	(ASR P Gain 2)	ASR P Gain 2	0.00 ~ 300.0	0.01	20.00		O	X	B	X	B
	C5-04	(ASR I Time 2)	ASR I Time 2	0.000 ~ 10.000	0.001 sec	0.500		O	X	B	X	B
	C5-05	(ASR Limit)	ASR Limit	0.0 ~ 20.0	0.1%	5.0		X	X	A	X	B
	C5-06	(ASR Delay Time)	ASR Delay Time	0.000 ~ 0.500	0.001 sec	0.004		X	X	X	X	A
	C5-07	(ASR Gain SW Freq)	ASR Gain swich Frequency	0.0 ~ 400.0	0.01HZ	0.0		X	X	X	X	A
Carrier frequency	C6-01	(Carrier Freq MaX)	Carrier Frequency MaXiium	0.4 ~ 15.0	0.1KHZ	15.0	Vector with PG. The range of C6-01 ~ 02 is 2.0-15.0	X	B	B	B	B
	C6-02	(carrier Freq Min)	carrier Frequency Minium	0.4 ~ 15.0	0.1 KHZ	15.0		X	A	A	X	X
	C6-03	(carrier Freq Gain)	carrier Frequency Gain	00 ~ 99	1	00		X	A	A	X	X

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
relations of command	C7-01	(Hunt Prev Select)	Hunt Preventing Select	0.1 ~ 1	1	1	0: Effective. 1: Ineffective.	X	A	A	X	X
Chase Protection	C7-02	(Hnut Prev Gain)	Hunt Preventing Select	0.00 ~ 2.50	0.01	1.00		X	A	A	X	X
	C8-08	(AFR Gain)	AFR Gain	0.00 ~ 10.00	0.01	1.00		X	X	X	A	X
	C8-09	(AFR Time)	AFR Time	0 ~ 1000	1m sec	50		O	Q	Q	Q	Q
Frequency command value	D1-01	(Reference 1)	frequency 1	0.0 ~ 400.0	01 HZ%	0.0		O	Q	Q	Q	Q
	C8-30	(Currier in tune)	Fequency currier in auto tune	0,1	1	0	"0: 2KHZ 1: C6-01 value 2: 5KHZ"	O	Q	Q	Q	Q
	D1-02	(Reference 2)	Frequency command 2	0.0 ~ 400.0	0.1HZ	0.0		O	Q	Q	Q	Q
	D1-03	(Reference 3)	Frequency command 3	0.0 ~ 400.0	0.1HZ	0.0		O	Q	Q	Q	Q
	D1-04	(Reference 4)	Frequency command 4	0.0 ~ 400.0	0.1HZ	0.0		O	Q	Q	Q	Q
	D1-05	(Reference 5)	Frequency command 5	0.0 ~ 400.0	0.1HZ	0.0		O	B	B	B	B
	D1-06	(Reference 6)	Frequency command 6	0.0 ~ 400.0	0.1HZ	0.0		O	B	B	B	B
	D1-07	(Reference 7)	Frequency command 7	0.0 ~ 400.0	0.1HZ	0.0		O	B	B	B	B
	D1-08	(Reference 8)	Frequency command 8	0.0 ~ 400.0	0.1HZ	0.0		O	B	B	B	B
	D1-09	(Jog Reference)	Jog frequency	0.0 ~ 400.0	0.1HZ	6.0		O	Q	Q	Q	Q

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
relations of command	D2-01	(Ref Upper Limit)	Frequency command upper limit	0.0 ~ 110.0	100.0%	100%		X	B	B	B	B
Frequency limits	D2-02	(Ref Lower Limit)	frequency command lower limit	0.0 ~ 100.0	0.1%	0.0		X	B	B	B	B
Against frequency	D3-01	(Jump freq 1)	jump frequency 1	0.0 ~ 400.0	0.1HZ	0.0		X	B	B	B	B
	D3-02	(Jump freq 2)	jump frequency 2	0.0 ~ 400.0	0.1HZ	0.0		X	B	B	B	B
	D3-03	(Jump Freq 3)	jump frequency 3	0.0 ~ 400.0	0.1HZ	0.0		X	B	B	B	B
	D3-04	(Jump Bandwidth)	jump width	0.0 ~ 20.0	0.1HZ	1.0		X	B	B	B	B
Frequency setting	D4-01	(MOP Ref Memory)	Keep functional option for the frequency command	0.1	1	0	"0: Keep memory 1: Not keep memory"	X	A	A	A	A
	D4-02	(Trim Control Lvl)	+/- speed limit	0 ~ 100	1%	25		X	A	A	A	A
Torque command	D5-01	(Torq Control Sel)	Torque control limit	0.1	1	0	0: Speed control 1: Torque Control	X	X	X	X	A
	D5-02	(Torque Ref Filter)	Torque control delaying time	0 ~ 1000	1m sec	0		X	X	X	X	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
relations of command	Torque command	D5-03	(Speed Limit Sel)	speed limit option	1.2	1	1	0: Analog Signal 1: Program Settings	X	X	X	X	A
		D5-04	(Speed Lmt Value)	speed limit	-120 ~ 120	1%	0		X	X	X	X	A
		D5-05	(Speed Lmt Bias)	speed limit bias	0 ~ 120	1%	10		X	X	X	X	A
		D5-06	(Ref Hold Time)	switching time speed / torque control	0 ~ 1000	1m sec	0		X	X	X	X	A
parameter of the motor	V/Fcharacteristic	E1-01	(Input Voltage)	Input Voltage	155 ~ 255	1v	200		X	Q	Q	Q	Q
		E1-02	(Motor Selection)	Motor Selection	0,1	1	2	0: Standard Motor 1: Special Motor	X	Q	Q	Q	Q
		E1-03	(V/F Selection)	V/F Selection	00 ~ OF	1	OF	"00 ~ OE: 15 types of fiXed curves OF: Arbitrary Curve"	X	Q	Q	Q	Q
		E1-04	(MaX frequency)	MaXium frequency	50.0 ~ 400.0	0.1HZ	60.0		X	Q	Q	Q	Q
		E1-05	(MaX Voltage)	MaXium Voltage	0.0 ~ 255.0	0.1V	200.0		X	Q	Q	Q	Q
		E1-06	(Base Frequency)	MaXium frequency	0.0 ~ 400.0	0.1HZ	60.0		X	Q	Q	Q	Q
		E1-07	(Mid Frequency A)	Middle output frequency	0.0 ~ 400.0	0.1HZ	3.0	different according to A1-02 settings	X	Q	Q	A	
		E1-08	(Mid Voltage A)	Middle Voltage	0.0 ~ 255.0	0.1V	11.0	different according to A1-02 settings	X	Q	Q	A	
		E1-09	(Min Frequency)	Miniium Frequency	0.0 ~ 400.0	0.1HZ	0.5	different according to A1-0.2 settings	X	Q	Q	Q	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
parameter of the motor	V/Fcharacteristic	E1-10	(Min Voltage)	Minium Voltage	0.0 ~ 255.0	0.1V	2.0	different according to A1-0.2 settings	X	Q	Q	A	
		E1-11	(Min Frequency 2)	Minium Frequency 2	0.0 ~ 400.0	0.1HE	0.0		X	A	A	A	A
		E1-12	(Min Voltage 2)	Minium Voltage 2	0.0 ~ 255.0	0.1V	0.0		X	A	A	A	A
		E1-13	(Base Voltage 2)	MaXium frequency 2	0.0 ~ 255.0	0.1V	0.0		X	A	A	Q	Q
	Motor Parameters	E2-01	(Motor Rated FLA)	Motor Rated FLA	0.01 ~ 1500.0	0.1A	1.90	Default is determinered by the capacility of the converter.	X	Q	Q	Q	Q
		E2-02	(Motor Rated Slip)	Motor Rated Slip	0.00 ~ 20.00	0.01HZ	2.9		X	A	A	Q	Q
		E2-03	(No-Load Current)	No-Load Current	0.00 ~ 1500.00	0.01A	1.20		X	A	A	Q	Q
		E2-04	(Number of poles)	Number of poles	2 ~ 48	1 pole	4		X	X	Q	X	Q
		E2-05	(Term Resistance)	Term Resistance	0.00 ~ 65.000	0.001Ω	9.842		X	A	A	A	A
		E2-06	(Leak Inductance)	Leak Inductance	0.0~30.0	0.1%	18.2		X	X	X	A	A
		E2-07	(Saturation comp 1)	Saturation compensation 1	0.00 ~ 0.50	0.01	0.5		X	X	X	A	A
		E2-08	(Saturation comp 2)	Saturation compensation 2	0.00 ~ 0.75	0.01	0.75		X	X	X	A	A
		E2-09	(Mechanical Loss)	Mechanical Loss	0.0~10.0	0.10%	0.0		X	X	X	X	A
		E2-10	(T comp Iron Loss)	Mechanical Loss in Troque Compensation	0~65.535	1W	14		X	A	A	X	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
parameter of the motor	Motor control 2	E3-01	(Control Method)	Control Method	0~3	1	2	0: V / F 1: V / F with PG 2: Vector without PG 3: vector with PC	X	A	A	A	A
	V/F characteristic2	E4-01	(V/F2 MaX Frep)	MaXium output Frequency	50.0 ~ 400.0	0.1HZ	60.0		X	A	A	A	A
		E4-02	(V/F3 MaX Voltage)	MaXium output voltage	0.0 ~ 255.0	0.1V	200.0		X	A	A	A	A
		E4-03	(V/F2 Base Freq))	MaXium output Frequency	0.0 ~ 400.0	0.1HZ	60.0		X	A	A	A	A
		E4-04	(V/F2 Mid Freq)	MaXium output Frequency	0.0 ~ 400.0	0.1HZ	3.0	different according to A1-03 settings	X	A	A	A	
		E4-05	(V/F2 Min Voltage)	middle output frequency	0.0 ~ 255.0	0.1V	10.0	different according to A1-03 settings	X	A	A	A	
		E4-06	(V/F2 Mid Freq)	minium output frequency	0.0 ~ 400.0	0.1HZ	0.5	different according to A1-03 settings	X	A	A	A	
		E4-07	(V/F2 Min Voltage)	minium output voltage	0.0 ~ 255.0	0.1V	1.7	different according to A1-03 settings	X	A	A	A	
	Motor Parameters	E5-01	(Motor 2 rated FLA)	Motor 2 rated FLA	0.00 ~ 1500.0	0.1A	1.90		X	A	A	A	A
		E5-02	(Motor 2 Slip Freq)	Motor 2 Slip Freq	0.00 ~ 20.00	0.01HZ	2.90		X	A	A	A	A
		E5-03	(Motor 2 No-load 1)	Motor 2 No-load 1	0.00 ~ 1500.0	0.01A	1.20		X	A	A	A	A
		E5-04	(Motor 2 # Poles)	Motor 2 # Poles	2~48	1 pole	4		X	X	A	X	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
		E5-05	(Motor 2 term Ohms)	Motor 2 term Ohms	0.000 ~ 65.000	0.001Ω	9.842		X	X	A	X	A
		E5-06	(Motor 2 Leak)	Motor 2 Leak	0.0~30.0	0.1%	18.2		X	X	X	A	A
interface	PG card	F1-01	(Motor 2 Leak)	Motor 2 Leak	0~60000	1	600		X	X	Q	X	Q
		F1-02	(PG Fdbk Loss Sel)	PG Fdbk Loss Sel	0~3	1	1	0: deceleration to stop 1: Special Stop 2: Free Stop 3: continue to operate	X	X	B	X	B
Interface card		F1-03	(PG Overspeed Sel)	PG Overspeed Sel	0~3	1	1	0: deceleration to stop 1: specially Stop 2: Free Stop 3: continue to operate	X	X	B	X	B
		F1-04	(PG Deviation Sel)	PG Deviation Sel	0~3	1	1	0: deceleration to stop 1: Very Stop 2: Free Stop 3: continue to operate	X	X	B	X	B
		F1-05	(PG Rotation Sel)	PG Rotation Sel	0,1	1	0	0: Forward 1: reverse	X	X	B	X	B
		F1-06	(PG Output Ratio)	PG Output Ratio	1~132	1	1	PG-B2 card is effective	X	X	B	X	B
		F1-07	(PG Ramp PI/1 Sel)	PG Ramp PI/1 Sel	0,1	1	0	0: integral control is ineffective 1: integral control is effective	X	X	B	X	B
		F1-08	(PG Overspd Level)	PG Overspd Level	1~120	1%	115		X	X	A	X	A
		F1-09	(PG Overspd Time)	PG Overspd Time	0.0~2.0	0.1sec	0.0		X	X	A	X	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Interface card	PG card	F1-10	(PG Deviate Level)	PG Deviate Level	0~50	1%	10		X	X	A	X	A
		F1-11	(PG Deviate Time)	PG Deviate Time	0.0~10.0	0.1sec	0.5		X	X	A	X	A
		F1-12	(PG# Gear Teeth1)	PG# Gear Teeth1	0~1000	1	0		X	X	A	X	A
		F1-13	(PG# Gear Teeth2)	PG# Gear Teeth2	0~1000	1	0		X	X	A	X	A
		F1-14	(PG Odetection)	time of PG detection					X	X	A	X	A
	Aicard	F2-01	(A1-14 Input sel)	A1-14 Input function	0,1	1	0	0:Input 3 channels individually 1: Sum up three signals	X	B	B	B	X
	Dicard	F3-01	(DI Input)	Setting frequency command	0~7	1	0	0:BCD 1% 1:BCD 0.1% 2:BCD 0.01% 3:BCD 1HZ 4:BCD 0.1HZ 5:BCD 0.01HZ 6:Binary 255/100% 7:Binary	X	B	B	B	
	AO/08.12 card	F4-01	(Ao Chl Select)	select of the output program of CH1	1~31	1	2		X	B	B	B	B
		F4-02	(Ao Chl Gain)	Output Gain of CH1	0.00 ~ 2.50	0.01	1.00		O	B	B	B	B
		F4-03	(Ao Ch2 Select)	select of the output program of CH2	1~31	1	3		X	B	B	B	B

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
interface		F4-04	(Ao Ch2 Gain)	Output Gain of CH2	0.00 ~ 2.50	0.01	0.5		O	B	B	B	B
	DO/02 card	F5-01	(DO-02 Chl Select)	select of the output of CH1	00~FF	1	0		X	B	B	B	B
		F5-02	(DO-02 Ch2 Select)	select of the output of CH2	00~FF	1	1		X	B	B	B	B
	DO/08 card	F6-01	(Do-08 Selection)	Selection mode of output	0,1	1	0	0: output 8 channels individually 1: output Binary code	X	B	B	B	B
	PO/36 card	F7-01	(Po-36F Selection)	select of output pulse	0~4	1	1	0:1F 1: 6F 2:10F 3:12F 4:36F	X	B	B	B	B
functional termianl of controlling main loop	Input sequence	H1-01	(Terminal 3 Sel)	Select of Terminal 3	00~FF	1	24		X	B	B	B	B
		H1-02	(Terminal 4 Sel)	Select of Terminal 4	00~FF	1	14		X	B	B	B	B
		H1-03	(Terminal 5 Sel)	Select of Terminal 5	00~FF	1	3		X	B	B	B	B
		H1-04	(Terminal 6 Sel)	Select of Terminal 6	00~FF	1	4		X	B	B	B	B
		H1-05	(Terminal 7 Sel)	Select of Terminal 7	00~FF	1	6		X	B	B	B	B
		H1-06	(Terminal 8 Sel)	Select of Terminal 8	00~FF	1	8		X	B	B	B	B

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
functional termianl of controlling main loop												
order input	H2-01	(Terminal 9 Sel)	Select of Terminal 9	00~FF	1	0		X	B	B	B	B
	H2-02	(Terminal 25 Sel)	Select of Terminal 25	00~FF	1	1		X	B	B	B	B
	H2-03	(Terminal 26 Sel)	Select of Terminal 26	00~FF	1	2		X	B	B	B	B
analog input	H3-01	(Term 13 Signal)	signal of Terminal 13	0,1	1	0	0: input 0~+10V 1: input -10V~+10V	X	B	B	B	B
	H3-02	(Terminal 13 Gain)	gain of terminal 13	0.0 ~ 1000.0	0.10%	100.0		O	B	B	B	B
	H3-03	(Terminal 13 Bias)	bias of terminal 13	-'1'00' ~ +100	0.10%	0.0		O	B	B	B	B
	H3-04	(Term 16 Signal)	signal of Terminal 16	0,1	1	0	0: input 0~+10V 1: input -10V~+10V	X	B	B	B	B
analog input	H3-05	(Terminal 16 Sel)	Select of Terminal 16	0~1F	1	0		X	B	B	B	B
	H3-06	(Terminal 16 Gain)	gain of terminal 16	0.0 ~ 1000.0	0.1%	100.0		O	B	B	B	B
	H3-07	(Terminal 16 Bias)	bias of terminal 16	-'1'0'0.0' ~ +100.0	0.1%	0.0		O	B	B	B	B
	H3-08	(Term 14 Signal)	signal of Terminal 14	0,1,2	1	2	0: input 0~+10V 1: input -10V~+10V 2:4~20mA	X	A	A	A	A
	H3-09	(Terminal 14 Sel)	Select of Terminal 14	0~1F	1	1F		X	A	A	A	A
	H3-10	(Terminal 14 Gain)	gain of terminal 14	0.0 ~ 1000.0	0.1%	100.0		O	A	A	A	A
	H3-11	(Terminal 14 Bias)	bias of terminal 14	-'1'0'0.0' ~ +100.0	0.10%	0.0		O	A	A	A	A
	H3-12	(Filter Avg Time)	Filtering constant of analog input	0.00 ~ 2.00	0.01sec	0.00		X	A	A	A	A

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
terminal of controlling main circuit loop												
analog input	H4-01	(Terminal 21 Sel)	Select of Terminal 21	1~31	1	2		X	B	B	B	B
	H4-02	(Terminal 21 Gain)	gain of terminal 21	0.0~2.50	0.01	1.00		O	B	B	B	B
	H4-03	(Terminal 21 Bias)	bias of terminal 21	-'10.0' ~ +10.0	0.0%	0.0		O	B	B	B	B
	H4-04	(Terminal 23 Sel)	Select of Terminal 23	1~31	1	3		X	B	B	B	B
	H4-05	(Terminal 23 Gain)	gain of terminal 23	0.0~2.50	0.01	0.50		O	B	B	B	B
	H4-06	(Terminal 23 Bias)	bias of terminal 23	-'10.0' ~ +10.0	0.1%	0.0		O	B	B	B	B
	H4-07	(AO Level Select)	Selection Quasi-bit of analog output signal	0,1	1	0	0: 0~+10V 1: -10V~+10V	X	B	B	B	B
MODBUS communication	H5-01	(Serial Comm Adr)	website setting of MODBUS communication	0~1F	1	1F		X	A	A	A	A
	H5-02	(Serial baud Rate)	Tranmission speed	0~30,	1	3	0: 1200PBS 1: 2400PBS 2: 4800PBS 3: 9600BPS	X	A	A	A	A
	H5-03	(Serial com Sel)	Tranmission the same bit	0,1,2	1	0	0: NO Parity 1: Even Parity 2: Odd Parity	X	A	A	A	A
	H5-04	(Serial fault Sel)	Tranmission fault detection	0~3	1	3	0: Decelerate to stop 1: Emergency stop 2:free to stop 3: continue to operate	X	A	A	A	A

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
terminal of controlling main circuit loop												
Motor Protection	L1-01	(MOL Fault Select)	option of protecting the motor	0,1	1	1	0: ineffective 1: Effective	X	B	B	B	B
	L1-02	(MOL time Const)	time of protecting the motor	0.1~5.0	0.1min	1.0		X	B	B	B	B
Instantaneous power failure compensation	L2-01	(PwrL selection)	option of immediate power failure	0,1,2	1	0	0: instantaneous stop or error 1: In instantaneous compensation, continue to operate	X	B	B	B	B
	L2-02	(PwrL Ridethru t)	time of immediate compensation	0.0~2.0	0.1sec	0.7*2	* 2: the default is various with capacility	X	B	B	B	B
	L2-03	(PwrL Baseblock t)	minium time	0.0~5.0	0.1sec	0.5*2	* 2: Due to the size of the capacity of different factory settings	X	B	B	B	B
	L2-04	(PwrL V/F Ramp t)	reset of time	0.0~2.0	0.1sec	0.3*2	* 2: the default is various with capacility	X	A	A	A	A
	L2-05	(PUV Det Level)	quasi-bit of Low voltage detection	150~210	1V	190*3	* 3:440 V-class is set to the twice value of 220V class	X	A	A	A	A
	L2-06	(KEB Frequency)	KEB deceleration rate					X	A	A	A	A
Stall Prevention Function	L3-01	(StallP Accel Sel)	In acceleration, functional selection of preventing speed-lossing	0,1,2	1	1	0: Ineffective 1: Effective	X	B	B	B	X
	L3-02	(StallP Accel LVl)	Stall speed to prevent potential	0~200	1%	150		X	B	B	B	X

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
terminal of controlling main circuit loop	Stall Prevention Function	L3-03	(StallP CHP LVl)	Stall speed to prevent potential limit	0~100	1%	100*4	* 4: Default varies with A1-02	X	A	A	A	X
		L3-04	(StallP decel Sel)	In deceleration, functional selection of preventing speed-lossing	0,1,2	1	1	0: Ineffective 1: Effective	X	B	B	B	B
		L3-05	(StallP Run Sel)	in operation, fuctional speed	0,1,2	1	1	0: Ineffective 1: Effective (C1-02) 2: Effective (C1-04)	X	B	B	X	X
		L3-06	(StallP Run Level)	in operation, Stall speed to prevent potential	30~200	1%	160		X	B	B	B	B
	Frequency detection	L4-01	(Spd Agree Level)	Bit quasiof frequency detection	0.0 ~ 400.0	0.1HZ	0.0		X	B	B	X	X
		L4-02	(Spd Agree width)	width of frequency detection	0.0~20.0	0.1HZ	2.0		X	B	B	X	X
		L4-03	(spd Agree Lvl + -)	quasi-bit of frequency detection(+/-)	0.0~± 400.0	0.1HZ	0.0		X	B	B	B	B
		L4-04	(spd Agree Wdth + -)	width of frequency detection(+/-)	0.0~20.0	0.1HZ	2.0		X	A	A	A	A
	Frequency detection	L4-05	(Ret Loss Sel)	the selection of lossing frequency command	0,1	1	0	"0: Stop 1: The loss 80% of the former operation"	X	A	A	A	A

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Protection	Instantaneous power failure compensation											
	L5-01	(Num of Restarts)	Number of Restarts	0~10	1	0		X	A	A	A	A
	L5-02	(Restart Sel)	contracting Selection of restarts	0, 1	1	0	"0:Abnormal contacts don't work 1: Abnormal contacts work"	X	B	B	B	B
	L6-01	(Torq Det Sel)	selection of torque detection 1	0~4	1	0	"0: Torque detection is no effect 1: Reaching speed, the detection continues to operate 2: In operation, the detection continues to operate 3: Reaching speed, the detection stops to operate 4: In operation, the detection stops to operate "	X	B	B	B	B
	L6-02	(Torq Det Lvl)	quasi-bit of torque detection1	0~300	1%	150		X	B	B	B	B
	L6-03	(Torq Det I Time)	time of torque detection 1	0.0~10.0	0.1sec	0.1		X	B	B	B	B
	L6-04	(Torq Det 2 Sel)	selection of torque detection 2	0~4	1	0	"0: Torque detection is no effect 1: Reaching speed, the detection continues to operate 2: In operation, the detection continues to operate	X	A	A	A	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Protection		L6-04	(Torq Det 2 Sel)	selection of torque detection 2	0~4	1	0	3: Reaching speed, the detection stops to operate 4: In operation, the detection stops to operate "	X	A	A	A	A
	torque detection	L6-05	(Torq Det 2 Lvl)	time of torque detection 2	0~300	1%	150		X	A	A	A	A
		L6-06	(Torq Det 2 Time)	time of torque detection 2	0.0~10.0	0.1sec	0.1		X	A	A	A	A
	Torque limit	L7-01	(Torq Limit Fwd)	torque limit forward	0~300	1%	200		X	X	X	B	B
		L7-02	(Torq Limit Rev)	torque limit reverse	0~300	1%	200		X	X	X	B	B
		L7-03	(Torq Lmt Fwd Rgn)	torque limit forward regeneration	0~300	1%	200		X	X	X	B	B
		L7-04	(Torq Lmt Rev Rgn)	torque limit reverse regeneration	0~300	1%	200		X	X	X	B	B
	Hardware Protection	L8-01	(DB Resistor Prot)	Built-in brake resistor protection	0,1	1	0	"0: Built-in braking resistor protection is ineffective 1: Built-in braking resistor protection is effective"	X	B	B	B	B
		L8-02	(OH Pre-Alarm Lvl)	quasi-bit of OH pre-alarm	50~110	1deg	95		X	A	A	A	A
		L8-03	(OH Pre-Alarm Sel)	selection pf OH pre-alarm	0~3	1	3	0: deceleration to stop 1: Freed to Stop 2: Specially Stop 3: continue to operate	X	A	A	A	A

Function	Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Protection	Hardware Protection	L8-05	(Ph Loss In Sel)	due phase of selection of input	0,1	1	0	"0: Input side phase protection due to an ineffective 1: Enter the side of less-phase protection and effective"	X	A	A	A
		L8-07	(Ph Loss Out Sel)	due phase of selection of output	0,1	1	0	"0: The protection of input side, due to phase, is ineffective 1: The protection of input side, due to phase, is effective "	X	A	A	A
		L8-10	(Ground fault Sel)	Ground fault Selection	0,1	1	1	1: Ground Protection ineffective	X	A	A	A
		01-01	(Monitor Select)	Monitor Selection	4~29	1	6		○	B	B	B
Manipulator	operation	01-02	(Power-On Monitor)	Power-On Monitor	1~4	1	1	1: Frequency command 2: Output frequency 3: Output current 4: Control Mode	○	B	B	B
		01-03	(Display Scaling)	Display Scaling	0~39999	1	0		X	B	B	B
		01-04	(Display Units)	Display Units	0,1	1	0	0:HZ 1::r/min	X	X	X	B
		01-05	(Address Display)	Address Display	0,1	1	0	0: parameter NO. 1: MODBUS address	X	A	A	A

Function		Code	Display	Name	Range	Unit	Value	Remark	Change in running	V/F	V/F with PG	Vector without PG	Vector without PG
Manipulator	the function of key	02-01	(Local/ Remote Key)	Local/ Remote Key	0,1	1	1	0: REMOTE / LOCAL key is ineffective 1: REMOTE / LOCAL key is effective	X	B	B	B	B
		02-02	(Opers STOP Key)	Opers STOP Key	0,1	1	1	0: STOP ineffective 1: STOP effective	X	B	B	B	B
		02-03	(User Defaults)	User Defaults	0,1,2	1	1	"1: Remember the initial value 2: Reset the initial value"	X	B	B	B	B
		02-04	(Inverter Model #)	Inverter Model #	0~ff	1	-		X	B	B	B	B
		02-05	(Operator M.O.P.)	Operator M.O.P.	0,1	1	0	0:ENTEP NEEDED 1:ENTEP NOT NEEDED	X	A	A	A	A
		02-06	(Oper Detection)		0,1	1	0	"0: Operators continue to operate when it disconnects. 1: The converter displays abnormally when the operator disconnects."	X	A	A	A	A
		02-07	(Elapsed Time Sel)		0~65535	1hour	-		X	A	A	A	A
		02-08	(Elapsed Time Run)		0,1	1	0	"0: Accumulate electricity working hours 1: Accumulate operative working hours "	X	A	A	A	A

Function	Code	Display	Name	Unit	Remark	Output level of Analog monitor	V/F	V/F with PG	Vector without PG	Vector without PG
Monitor Status	U1-01	(Frequency Ref)	Frequency Reference	0.01HZ		10V / maximum output frequency	Q	Q	Q	Q
	U1-02	(Output Freq)	Output Frequency	0.01HZ		10V / maximum output frequency	Q	Q	Q	Q
	U1-03	(Output Current)	Output Current	0.1A		10V / inverter rated current	Q	Q	Q	Q
	U1-04	(Control Method)	Control Method	-	0: V / F Control 1: V / F control with PG 2: Vector Control without PG 3: Vector Control with PG	-	Q	Q	Q	Q
	U1-05	(Motor Speed)	Motor Speed	0.01HZ		10V maximum output of class rate	X	Q	Q	Q
	U1-06	(Output Voltage)	Output Voltage	0.1V		10V/200V or 10V/400V	Q	Q	Q	Q
	U1-07	(Dc Bus Voltage)	Dc Bus Voltage	1V		10V/200V or 10V/400V	Q	Q	Q	Q
	U1-08	(Output kWatts)	Output kWatts	0.1KW		10V / Inverter Capacity (KW)	Q	Q	Q	Q

Function	Code	Display	Name	Unit	Remark	Output level of Analog monitor	V/F	V/F with PG	Vector without PG	Vector without PG
Monitor Status	U1-09	(Torque Reference)	Torque Reference	0.1%		10V / Motor rated torque	Q	Q	Q	Q
	U1-10	(Input Term Sts)	Input Term Sts		0 0 0 0 0 0 0 0 1: Control circuit terminal 1 "close" 1: Control circuit terminal 2 "close" 1: Control circuit terminal 3 "close" 1: Control circuit terminal 4 "close" 1: Control circuit terminal 5 "close" 1: Control circuit terminal 6 "close" 1: Control circuit terminal 7 "close" 1: Control circuit terminal 8 "close"		Q	Q	Q	Q
	U1-11	(Output Term Sts)	"Output Terminal status "	-	0 0 0 0 0 0 0 0 1: Control circuit terminal 9-10 "close" 1: Control circuit terminal 25 "close" 1: Control circuit terminal 26 "close" 0: reserved 0: reserved 0: reserved 0: reserved 1: Abnormal output poinf		Q	Q	Q	Q

Function	Code	Display	Name	Unit	Remark	Output level of Analog monitor	V/F	V/F with PG	Vector without PG	Vector without PG
Monitor Status	U1-12	(Int ctl Sts I)	operation status	-	0 0 0 0 0 0 0 0 1: In running 1: In zero speed 1: In reversing 1: In reset 1: Speed reached 1: Inverter is ready 1: Light error 1: Sevious error		Q	Q	Q	Q
	U1-13	(Elapsed time)	Accumulative time	1hour		-	Q	Q	Q	Q
	U1-14	(FLASH ID)	Software Code	-		-	Q	Q	Q	Q
	U1-15	(Term 13 Level)	terminal 13 input voltage	0.1%		10V/100%	B	B	B	B
	U1-16	(Term 14 Level)	terminal 14 input voltage	0.1%		10V/100%	B	B	B	B
	U1-17	(Term 16 Level)	terminal 16 input voltage	0.1%		10V/100%	B	B	B	B
	U1-18	(Mot SEC Current)	Second current of the motor	0.1%		10V / motor rated current	B	B	B	B

Function	Code	Display	Name	Unit	Remark	Output level of Analog monitor	V/F	V/F with PG	Vector without PG	Vector without PG
Monitor Status	U1-19	(Mot EXC Current)	the initiation current of the motor	0.1%		10V / motor rated current	X	X	B	B
	U1-20	(SFS Output)	(SFS Output)	0.01HZ		10V / maximum output frequency	A	A	A	A
	U1-21	(ASR Input)	ASR Input	0.01%		10V / maximum output frequency	X	A	X	A
	U1-22	(ASR Outupt)	ASR Outupt	0.01%		10V / inverter rated current	X	A	X	A
	U1-23	(Speed Deviation)	Speed Deviation	0.01%		10V / maximum output frequency	X	A	X	A
	U1-24	(PID Feedback)	PID Feedback	0.01%		-	A	A	A	A
	U1-25	(D1-16 Reference)	D1-16 inputting status	-		-	A	A	A	A
	U1-26	(Voltage Ref (vq))	output voltage (vq)	0.1V		10V/200V or 10/400V	X	X	A	A
	U1-27	(Voltage Ref (vd))	output voltage (vd)	0.1V		10V/200V or 10/400V	X	X	A	A
	U1-28	(CPU ID)CPU	software code	-		-	A	A	A	A

Function	Code	Display	Name	Unit	Remark	Output level of Analog monitor	V/F	V/F with PG	Vector without PG	Vector without PG
Function Traking	U2-01	(Current Fault)	(Current Fault)	-		-	Q	Q	Q	Q
	U2-02	(Last Fault)	(Last Fault)	-		-	Q	Q	Q	Q
	U2-03	(Frequency Ref)	frequency command in abnormality	0.01HZ		-	Q	Q	Q	Q
	U2-04	(Output Frep)	output frequency in abnormality	0.01HZ		-	Q	Q	Q	Q
	U2-05	(Output Current)	Output Current in abnormality	0.1A		-	Q	Q	Q	Q
	U2-06	(Motor Speed)	Motor Speed in abnormality	0.01HZ		-	X	Q	Q	Q
	U2-07	(Output Voltabe)	Output Voltabe in abnormality	0.1V		-	Q	Q	Q	Q
	U2-08	(DC Bus Voltage)	DC Bus Voltage in abnormality	1V		-	Q	Q	Q	Q
	U2-09	(Output kWatts)	Output kWatts in abnormality	0.1KW		-	Q	Q	Q	Q
	U2-10	(Torque Reference)	Torque Reference in abnormality	0.1%		-	X	X	Q	Q

Function	Code	Display	Name	Unit	Remark	Output level of Analog monitor	V/F	V/F with PG	Vector without PG	Vector without PG
Function Traking	U2-11	(Input Term Sts)	Input Terminal status	-	same with U1-10	-	Q	Q	Q	Q
	U2-12	(Output Term Sts)	Output Terminal status	-	same with U1-11	-	Q	Q	Q	Q
	U2-13	(Inverter Status)	Inverter Status	-	same with U1-12	-	Q	Q	Q	Q
	U2-14	(Elapsed Time)	Cumulative time	1hour		-	Q	Q	Q	Q
	U3-01	(Last Fault)	Last Fault	-		-	Q	Q	Q	Q
	U3-02	(Fault Messaqe 2)	Fault Messaqe 2	-		-	Q	Q	Q	Q
	U3-03	(Fault Messaqe 3)	Fault Messaqe 3	-		-	Q	Q	Q	Q
	U3-04	(Fault Messaqe 4)	Fault Messaqe 4	-		-	Q	Q	Q	Q
	U3-05	(Elapsed Time 1)	Elapsed Time 1	1hour		-	Q	Q	Q	Q
	U3-06	(Elapsed Time 2)	Elapsed Time 2	1hour		-	Q	Q	Q	Q
	U3-07	(Elapsed Time 3)	Elapsed Time 3	1hour		-	Q	Q	Q	Q
	U3-08	(Elapsed Time 4)	Elapsed Time 4	1hour		-	Q	Q	Q	Q

Appendix 1

Specification Table

Table 1 220V-class standard specifications

Series		VG2 / VG5																			
Model		21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110	2132	2160	2185	2200
Applicable motor capacity KW		1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	200
Related output	Capacity KVA	6.1	11	14	21	26	37	50	61	73	98	130	140	170	230	260	340	430	460	490	519
	Related Current A	8	14	18	27	34	48	65	80	96	128	165	180	224	302	340	450	530	605	695	788
	Maximum output voltage	Three Phase 200/208/220/230V (Corresponding to input power)																			
	Rated output frequency	setting Parameter to 400Hz																			
power supply	voltage/ Frequency	three phase 200/208/220/230V 50/60Hz																			
	Allowed voltage changes	-10%, -15%																			
	Allowed frequency changes	±5%																			
Control Characteristics	Control mode	contral by vector magnetic beam, positive wave PWM																			
	Starting torque	150%/1Hz(150%/or/min to PG)																			
	Speed control	1:100(1:1000 to PG)																			
	Control precision	±0.2%(±0.02% to PG)																			
	Speed of change	5Hz(30Hz to PG)																			
	Torque limit	parameter setting 4 models																			
	Torque Accuracy	±5%																			
	Torque change	20Hz (40Hz up to PG)																			

Series		VG2 / VG5																			
Model		21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110	2132	2160	2185	2200
Control Characteristics	Frequency control range	0.1 ~ 400Hz																			
	Frequency precision	Digital command: ± 0.01% (-10℃ ~ 40 ℃) Analog commands: ± 0.1% (25 ℃ ± 10 ℃)																			
	Frequency Analysis	Digital operation of disk commands: ± 0.01Hz Analog command: ± 0.03Hz/60Hz (11bit - code)																			
	Output Frequency Resolution	0.01Hz																			
	Overload	Rated torque 150% / 1 minute																			
	Frequency setting signal	-10 ~ 10V, 0 ~ 10V (20KΩ), 4 ~ 20mA																			
	Acceleration and deceleration time	0.01 to 6000.0 seconds (the time of acceleration, deceleration is independent, four kinds of timing for option)																			
	Brake Torque	20% (with brake resistor to 150%)																			
	Voltage / frequency characteristics	15 types of fixed V / F characteristics can be chosen and arbitrary V / F characteristic is set																			
protection function	Motor overload protection	protection by electronic integrable thermoelectric relay																			
	Transient overvoltage 200%	When the related output current is 200%, the motor stops naturally.																			
	Fuse fuse protection	The operation of the motor stops naturally.																			
	Overload	When the related output current is 150% per minute, the motor stops naturally(If it's 150% / 2 minutes, .it can be ordered)																			
	Overvoltage	Stop when the main loop voltage is over 410V																			
	Insufficient voltage	Stop when the main loop voltage is bellow 190V																			

Series		VG2 / VG5																	
	Model	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110	2132	2160	2185	2200
protection function	Instantaneous power failure compensation	The selection of the operation mode, about within 2sec the power failure, return 0, continuing to operate.																			
	Heatsink overheat	Protect by the temperature switch																			
	Stall Prevention	In the acceleration and deceleration, prevent the loss of the speed.																			
	Ground Fault	In the acceleration and deceleration, prevent the loss of the speed.																			
	Charging protection	The main circuit won't display when DC voltage is bellow 50V .																			
Environment	Ambient temperature	-10 ℃ ~ +40 ℃ (atresia-wall type) C20:Q21+C43 -10 ℃ ~ +45 ℃ (in-tray to take payment type)																			
	Humidity	bellow 90%RH																			
	Storage Temperature	-20℃ ~ +60℃																			
	The use of premises	Housing estates (non-corrosive gases)																			
	Elevation	bellow 1000M																			
	Vibration	20Hz insufficient 9.8m/s2(0.2G)																			

Appendix 2

Specification Table

Table 2 440V-class standard specifications

Series		VG2 / VG5																		
Model		41P5	42P2	43P7	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185
Applicable motor capacity KW		1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185
Related output	Capacity KVA	3.7	4.7	6.1	11	14	21	26	31	37	50	61	73	98	130	140	170	200	230	260
	Related Current A	4.8	6.2	8	14	18	27	34	41	48	65	80	96	128	165	180	224	260	302	340
	Maximum output voltage	Three Phase 380 / 400 / 415 / 440 / 460V (Corresponding to input power)								Model	4200	4220	4250	4280	4315	4355	4400	4450	4500	4630
	Rated output frequency	Parameter setting up to 400Hz								KW	200	220	250	280	315	355	400	450	500	630
power supply	voltage/Frequency	Three phase380 / 400 / 415 / 440 / 460V 50/60Hz								KVA	300	340	380	430	460	490	519	585	650	780
	Allowed voltage changes	-10%, -15%								A	380	450	470	530	605	695	788	890	986	1185
	Allowed frequency changes	±5%																		
Control Characteristics	Control mode	Magnetic beam vector control, sine wave PWM																		
	Starting torque	150% / 1Hz (150% / or / min to PG)																		
	Speed control	1:100 (1:1000 to PG)																		
	Control precision	±0.2%(±0.02% to PG)																		
	"Speed of change"	5Hz(30Hz to PG)																		

Control Characteristics	Torque limit	0.01 to 6000.0 seconds (acceleration, deceleration time an independent set, four kinds of timing)
	Torque Accuracy	±5%
	Torque change	20Hz (40Hz to PG)
	Frequency control range	0.1 ~ 400Hz
	Frequency precision	Digital: ± 0.01% (-10℃ ~ 40℃) Analog: ± 0.1% (25℃ ± 10℃)
	Frequency Analysis	Digital operation of disk commands: ± 0.01Hz Analog command: ± 0.03Hz / 60Hz (11bit - code)
	Output Frequency Resolution	0.01Hz
	Overload	Rated torque 150% / 1 minute
	Frequency setting signal	-10 ~ 10V, 0 ~ 10V (20KΩ), 4 ~ 20mA
	Acceleration and deceleration time	0.01 to 6000.0 seconds (the time of acceleration, deceleration is independent, four kinds of timing for option)
	Brake Torque	20% (with brake resistor to 150%)
	Voltage / frequency characteristics	15 types of fixed V / F characteristics can be chosen and arbitrary V / F characteristic is set
protection function	Motor overload protection	protection by electronic integrable thermoelectric relay
	Transient overvoltage 200%	When the related output current is 200%, the motor stops naturally.
	Fuse fuse protection	The operation of the motor stops naturally.
	Overload	When the related output current is 150% per minute, the motor stops naturally(If it's 150% / 2 minutes, .it can be ordered)
	Overvoltage	Stop when the main loop voltage is over 820V
	Insufficient voltage	Stop when the main loop voltage is bellow 380V

protection function	Instantaneous power failure compensation	The selection of the operation mode, about within 2sec the power failure, return 0, continuing to operate.
	Heatsink overheat	Protect by the temperature switch
	Stall Prevention	In the acceleration and deceleration, prevent the loss of the speed.
	Ground Fault	In the acceleration and deceleration, prevent the loss of the speed.
	Charging protection	The main circuit won't display when DC voltage is bellow 50V .
Environment	Ambient temperature	-10℃ ~ +40℃ (atresia-wall type) C20: Q21 + C43 - 10℃ ~ +45℃ (in-tray to take payment type)
	Humidity	bellow 90% RH
	Storage Temperature	-20℃ ~ 60℃
	The use of premises	Housing estates (non-corrosive gases)
	Elevation	Bellow 1000M
	Vibration	20Hz insufficient 9.8m/s2(0.2G)

TECORP TECHNOLOGY

TECORP-GROUP

Address: 3F-3, No. 12, Lane 609, Sec. 5, Chung Hsin Rd.,
San Chung, Taipei County, Taiwan, R.O.C.
Tel: 886-2-29991466 Fax: 886-2-29992691
www.tecorp-group.com.tw

2010.9