V74 Series 220V Frequency Drive
User's Manual
II Version 2022.R002.EN

Prior to use, please read this user's manual carefully.
CAUTION:Please keep this user's manual for future reference.

V74 Series220V Frequency Drive

USER'S MANUAL

V2022.R002.EN

CONTENTS

1 Preface

Thank you for using V74 series single phase 220V frequency drive manufactured by Ersan Teknoloji.

This User's Manual offers complete introduction of performance, installation and use of the frequency drive, setting of function parameters, operation etc for single phase 220V series frequency drive. Before use (installation, operation, maintenance, inspection, etc.), Please be sure to read it carefully. In addition, please understand the safety precautions of the product before using it. There is two safety identity in this manual:

⚠ **Dangerous**

The electronic components inside the frequency drive are particularly sensitive to static electricity, so do not place foreign objects inside the frequency drive or touch the main circuit board.

Do not touch the drive and surrounding circuits with wet hands before and after powering on.

⚠ **Note**

All cover plates must be installed and closed before power supply; After power, do not open the cover plate, do not touch any input and output terminals of the frequency drive. Please properly ground the frequency drive according to the standard, otherwise there is danger of electric shock.

2 Checking Before Use

When opening the box, please carefully check and confirm:

(1) If the product inside together with the quality certificate, user's manual and warranty card;

(2) Please check the "Model" column on the side of the machine, and re-confirm if the product and your order are consistent;;

(3) If there's any damage, scratch or dirt (damages caused during transportation are not within the company's warranty)

If there's any damage,product missing or some other questions, please contact the dealer you purchased the product or the sales department immediately.

Note: Do not install the frequency drive if you find the product is damaged or component missing, otherwise it may cause death or safety incident

2.1Nameplate

Model: V74-S2-0R4

Max Appli Motor: 0.4kw

Input: AC1PH 220-240V 50/60Hz 5.9A

Output: AC3PH 0-240V 0/400Hz 2.5A

Operating Temperature: -10°c~50°c

IP Protection: IP20

SN: V7400R40211004

https://alvandmadar.com :وب سایت
https://shop.alvandmadar.com :فروشگاه

2.2 Model Description

V74 - S2 - xRx

Product series | Input voltage S2:Single phase | Power rating
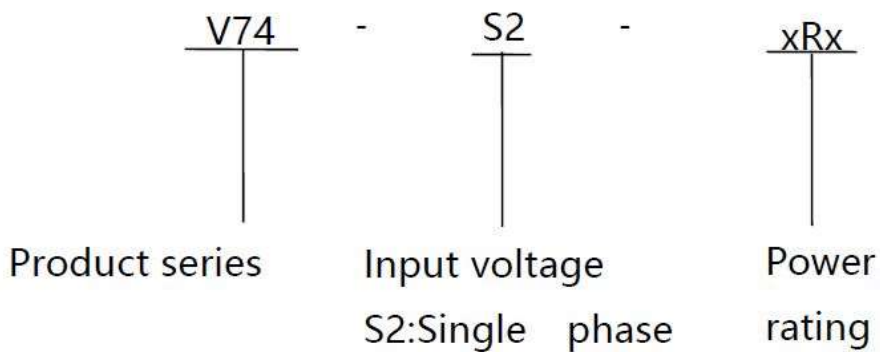
2.3 V74 Series Frequency Drive Specification (Single Phase-220V)

Model	Rated Input Current (A)	Rated Output Current (A)	Power rating (kW)
V74-S2-0R4	6.3	2.5	0.4
V74-S2-0R7	11.5	5	0.75
V74-S2-1R5	15.7	7	1.5
V74-S2-2R2	27	10	2.2

2.4 Appearance &Dimensions

2.4.1Dimensions
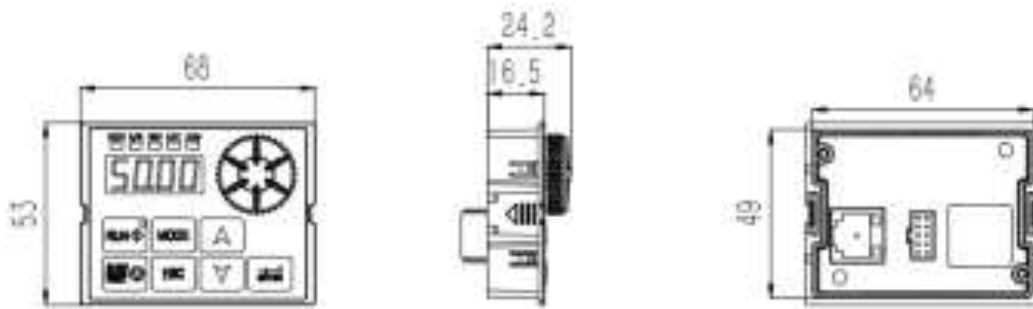
(a) Picture of Operating panel &removable panel
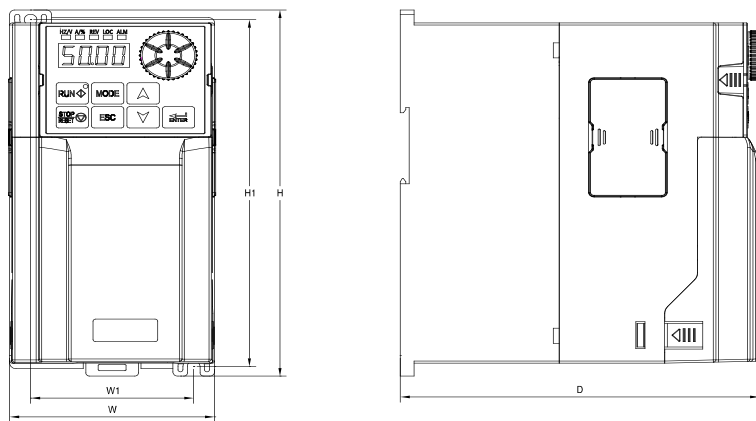
(b) VFD Appearance Size

2.4.2 Appearance &Installation Dimensions

Model	Outline Dimension (mm)			Installation Dimension (mm)		
(Single Phase 220V)	H	W	D	H1	W1	Aperture
V74-S2-0R4	170	81	142	161	64.5	Φ5
V74-S2-0R7						
V74-S2-1R5						
V74-S2-2R2						

3 Basic Wiring Diagram

3.1 Basic Wiring Diagram
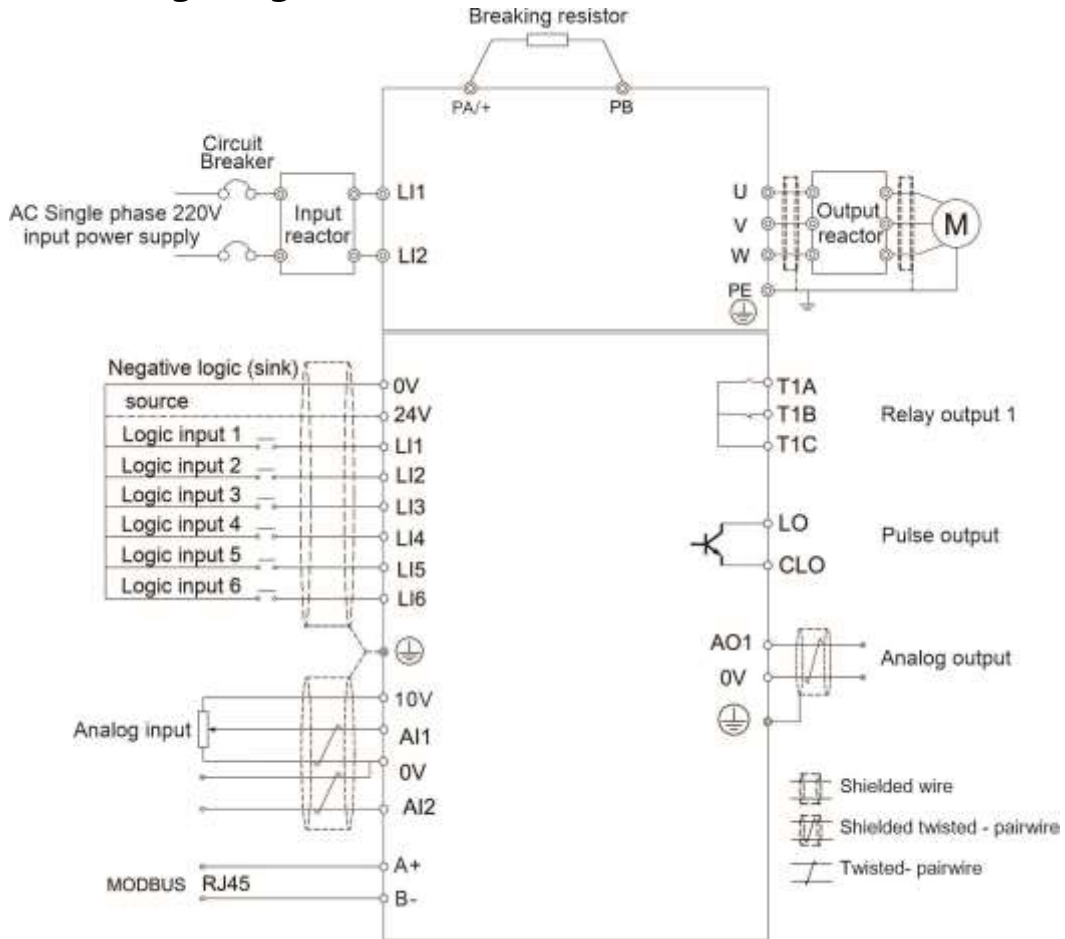
3.2 Main Circuit Terminals

3.2.1 Main Circuit Terminals Structure
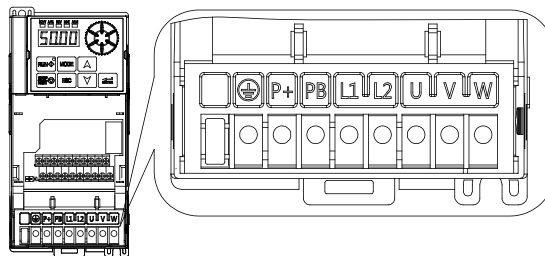
3.2.2 Function of Main Circuit Terminals

Symbol	Function
L1、L2	Single phase AC power input terminal, 220V, 50Hz /60Hz
U、V、W	Output of frequency drive, Terminal for connection to motor
PA/+、PB	Connection of braking resistor, connection to braking resistor PA/+ ——positive terminal of DC power input
⏚	Terminal for grounding, 220V level: grounding resistance is 4Ω or below.

3.3 Control Terminals

3.3.1 Control Terminals structure
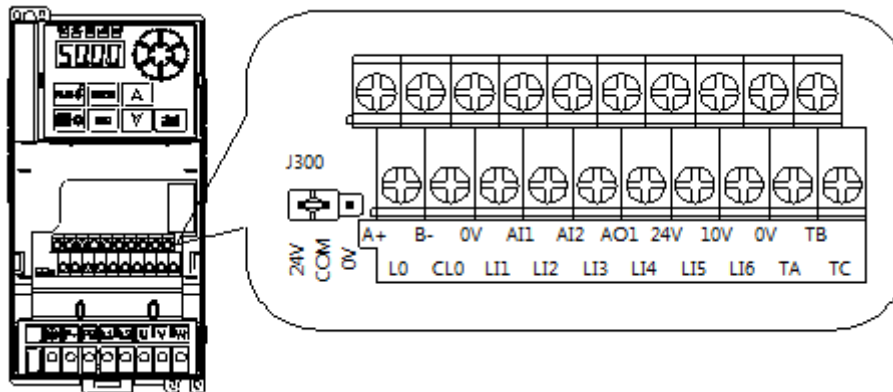
3.2.2 Description of Control Terminals Function

| Symbol	Item	Function
0V		public terminal of the controlcircuit
10V	10V outputvoltage	Commonly used as working voltage of the external potentiometer Maximum current:10mA; Accuracy:±5%
24V	24V outputvoltage	Commonly used as working voltage of the logic input terminal Maximum current:100mA; Accuracy:±20%
AI1	Voltage/Current Analog input Or programmable logic input	Voltage/current analog input：Accuracy：10 bit Analog voltage input： 0 ~ +10V，Input reactor30kΩ Analog current input：Max 20mA，Input reactor 500Ω
		changing parameter setting, the AI1 can also be used as a programmable logic input terminal. If that, a resistor （4.7kΩ~10k Ω，1/2W）should be added between 24v-AI1; And move the AI1dip switch to the 10V position. Showed as Figure1
AI2	VoltageAnalog inputOrprogrammable logic input	Analogy voltage input: accuracy:10 bit Maximum range: 0 ~ +10 V，Input reactor 30kΩ
		changing parameter setting, the AI2 can also be used asaprogrammable logic input terminal. If that, aresistor(4.7kΩ~10kΩ,1/2W)should be added between 24v-AI2，Connect as figuer 1：AI1 Wiring diagram when AI1 is log icinput terminal 。
LI1 ~ LI6	programmable logic input	+24V Power supply
		Positive Logic(source): port voltage< 5 V, input invalid (OFF), port voltage > 11V, input invalid (ON); Negative Logic (sink): port voltage >16 Vinous invalid OFF port voltage<10 Vinous invalid ON;
		Logic input connection diagram refers to Figure2
AO1	Voltage/CurrentAnalogOutput	Ana log voltage output:0 ~ +10V ，Min load reactor 470Ω; Analog current output:: x ~ 20mA ，Max load reactor 700Ω;
LO	Pulse outputcollector	Max Current：100mA Max voltage：30V
CLO	Pulse outputemitter	
TA	RelayNormally	Max switching capacity::

	open (NO) contact	TA-TC：5A @ 250VAC，5A @ 30VDC
TB	Relay Normally closed (NC)contact	TB-TC：3A @ 250VAC，3A @ 30VDC
TC	Relay Public contacts	
A+ B-	RS485 communication port	A+feet is positive port of RS485 differential signa,B- feet is the negative port of RS485 difference signal.
J300	Logic port mode	J300 is 3PIN connector，From left to right, +24V, COM, 0V Jumper cap connect COM&+24V， Logic port is positive Jumper cap connect COM&0V， Logic port is negative
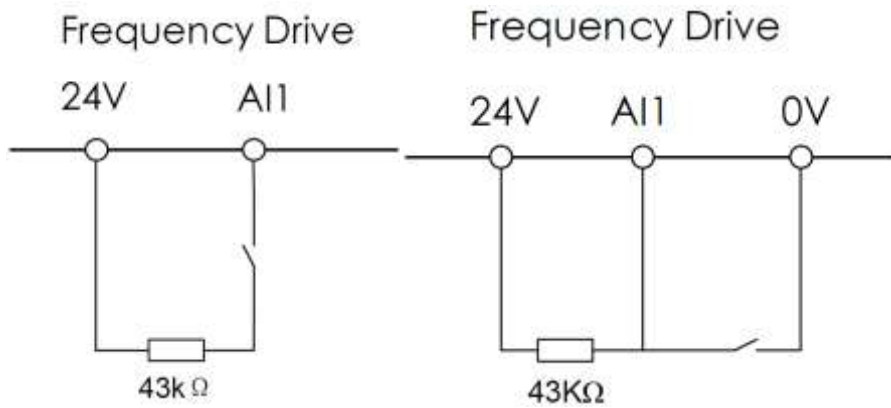
(a) Positive Logic – source   (b) negitive logic– sink

Figure1：AI1 Wiring diagram when Al1 is log ic input terminal

(a) postive logic – source (b) negitive logic– sink

Figure 2：Logic input terminal wiring diagram

4 Appearance of keyboard panel

4.1 Appearance of keyboard panel
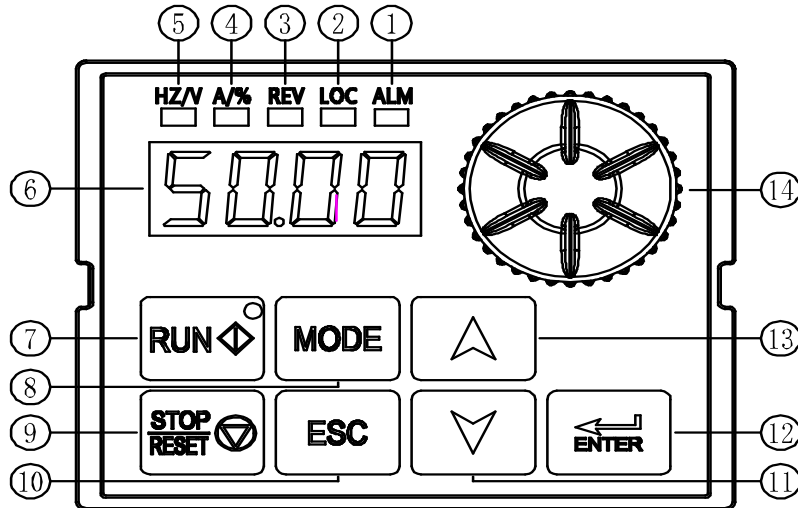
4.2 Description and function of each part of the keyboard panel

No	Designation	Sign	Function Performance
1	Failurestatusindicator	ALM	ON：Failure Off：No failure
2	Localstatusindicator	LOC	On：Local Off：Remote
3	Reversestatusindicator	REV	On：Reverse Off：Forward
4	Unitindicator	A	The Current display data unit is A
		%	The current display data is apercentage 比
5	Unitindicator	HZ	The Current display data unit is Hz
		V	The Current display data unit is V
6	Data display area	———	Use seven-section LED digital tube display function parameter sand set values , etc。
7	Run	RUN	Turn on inverter out put.
8	Mode	MODE	Select the operating mode of the converter or go back to mode from the submenu.
9	Stop/reset	STOP/RESET	Stop the output of the converter and change to the reset button when fault is detected.
10	Escape	ESC	Exits the current state and returns to the previous state.
11	Bown	▼	Reduce parameter number and parameter setting value
12	Enter	ENTER	Enter mode, view parameters, or confirm set values
13	Up	▲	Add parameter number and parameter setting value
14	Speed control knob	———	Adjust the speed.

4.3 Basic control circle wiring
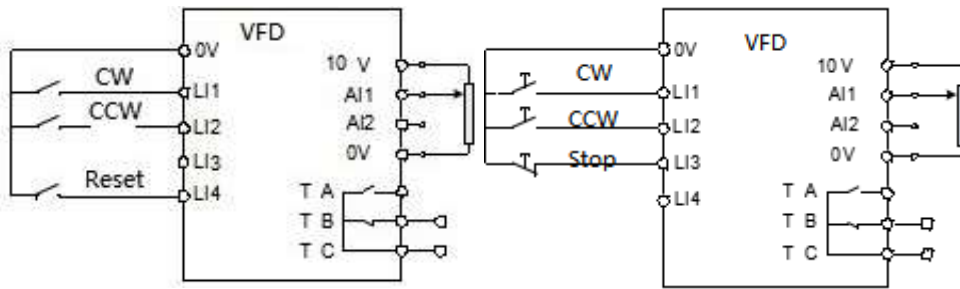
Wiring I ： 2 wires control wiring figure Wiring II ： 3 wires control wiring figure3

5 Basic Operating & Running

5.1 Basic Performance Table

Item		Instruction
Power Input	Rated voltage	S2（Single phase 220V）：Single phase AC voltage，220V
	Rated Frequency	50/60Hz ± 5%
Ouput Power	Input Power	0-100% input voltage
	Rated input current	According to each model, see standard spec.2.3
	Overload	150% Rated output current.60s，200% Rated output current 2s
Control Function	Control Mode	V/f control for constant torque, V/f control for quadratic load,vector control with out PG (open loop control),Energy-saving
	Setting method of frequency command	External terminal (including Logic multi-speed,analog input,UP/DOWN given) ,keyboard,serial communication
	Setting method of run command	External terminal, keyboard panel or serial communication
	Frequency set precision	Keyboard、UP/DOWN given：0.1Hz
		Analog given, serial communication：10bit（0.05Hz/50Hz）
	Low frequency torque	No PG V/f Control：150%Rated torque/3Hz
		No PG Vector control：150% rated torque/0.5Hz
	Speed control range	No PGV/f control：1：40
		No PG Vector control：1：200
	Speed control precision	No PGV/f control：±2%
		No PG Vector control：±0.2%
	Acceleration and Deceleration Time	0-3200.0s
	Switching frequency	1.5kHz～12kHz,according to junction temperature automatically reduce the switching frequency
Built-in control power supply	Output Voltage	10VDC±5%（1ways），24VDC±5%（1ways）
	Max load	10V：Max current 10mA，For reference potentiometers 24V：Max current 100mA，for logic input
Analoginput	Number	2ways：AI1、AI2
	Type	DC voltage or DC current
	Maximum inputrange	AI1：0-5VDC，or 0-10VDC，or 0/4-20mADC AI2：0-10VDC，or PTCprobe inputreceivable

Item		Instruction
Analogoutput	Number	1ways：AO1
	Type	DC voltage or DC current
	Maximum inputrange	0-10VDC，or 0/4-20mADC
	Function selection	Output frequency,output current,speed given,serial communication,etc.
Logic input	Number	8ways：LI1、LI2、LI3、LI4、LI5、LI6、AI1、AI2 RMKS：AI1、AI2 can set as logic input port (positive logic or negitive logic port)
	Type	Positive Logistic （Source）Negative Logistic（Sink）
	Input voltage	0-24VDC
	Funcation Selection	FWD,REV, running, fault reset,multi-speed,etc.
Logic output	number	2 ways pulse signal output（LO-CLO）、relay output1（TA、TB、TC）
	pulse signaloutput	OC, output frequency、current output、act other function
	relayoutput	TA，TB are Normally open，TCis common terminal Probe capacity：TA：5A @ 250VAC，5A @ 30VDC 　　　　　　　　TB：3A @ 250VAC，3A @ 30VDC Function choose： Fault, alarm, set frequency reach,etc.
communicationi nterface	Hardware protocol	RS-485
	Software protocol	Modbus
Structure	Protection Level	IP20
	Cool method	Forced Aircooling
Environment	Installation site	Indoor
	Work temperature	-10～40ºC
	Storage temperature	-20～60ºC
	Humidity	Below 95RH%（No **moisture condensation**）
	Altitude	1000m and below

5.2 Basic operation of Panel

5.2.1 Running model selection

Frequency drive include four running models: Powering-on default mode、Parameter setting mode、Status monitoring mode and Parameter verifying mode. Any mode can be realized by the MODE Key, showed as Figure5.1
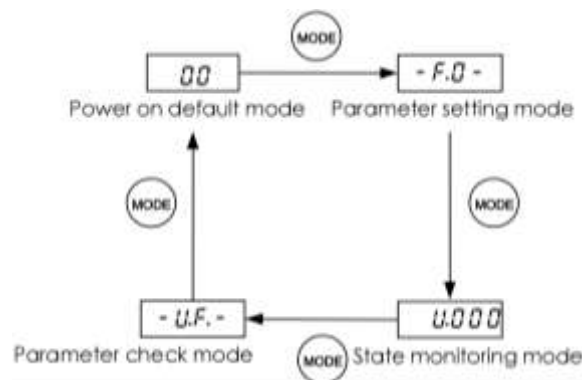
Figure 5.1 Structure of frequency drive Mode switch

<1>: when f618=1, show parameter setting mode

5.2.2 Powering-on default mode

The display data is the current output frequency under Powering-on default mode, so directly use ▲
or▼ key to modify the digital frequency setting, then press the ENT key to save the modified data
and return Powering-on default mode，As showed as Figure5.2
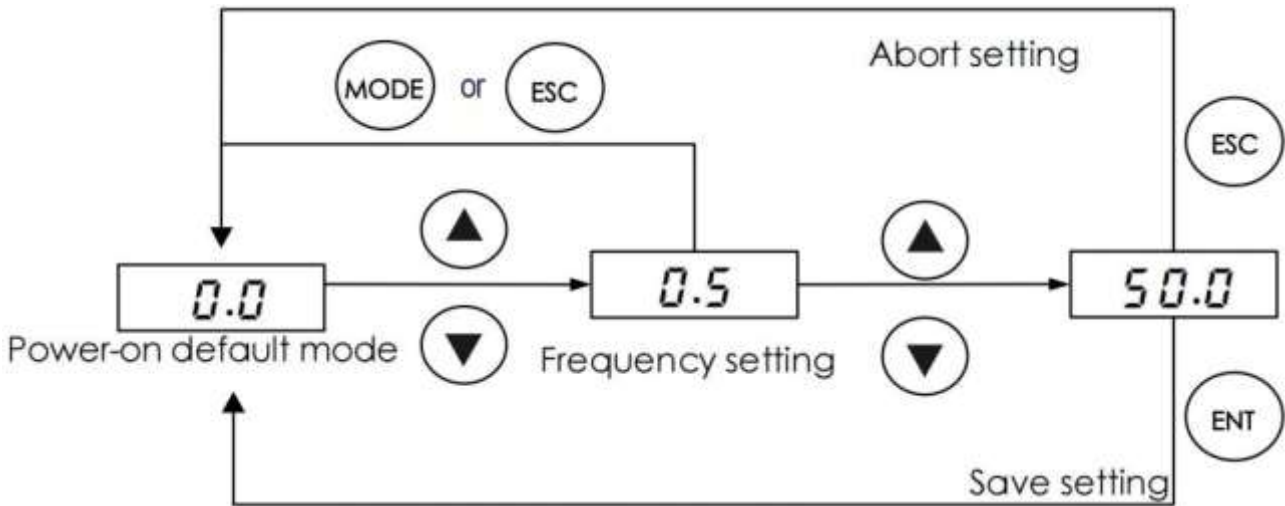
Figure 5.2 Powering-on default mode Navigation

Here the display data type can be set freely under the Powering-on default mode, showed in the
parameter f610

5.2.3 Parameter Setting Mode

There are 10 groups function parameters from F0 group to f9 group, each group includes different
numbers function parameter. The   Parameter setting value can be modified by ▲or ▼key and ENT
key, or give up the modification by ESC key, as showed as Figure5.3
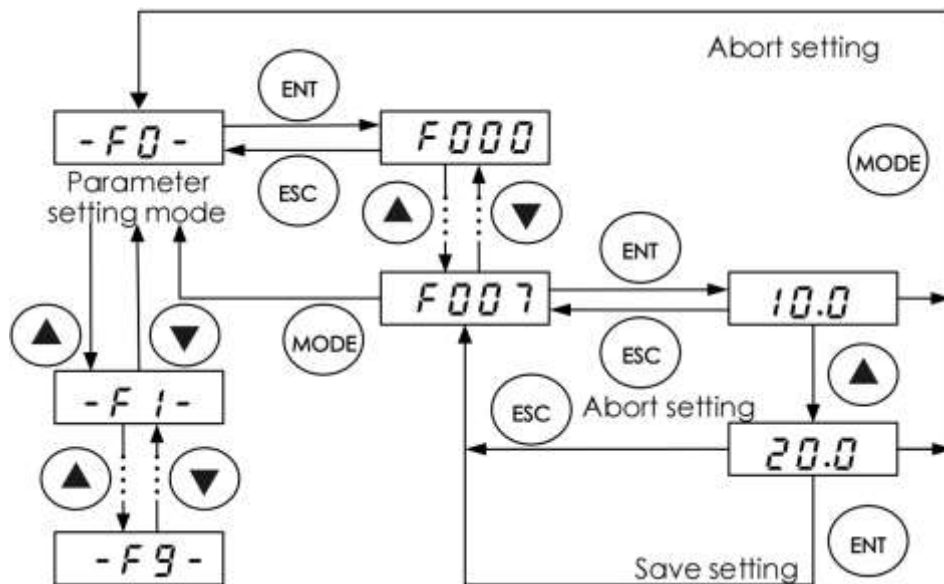
Figure 5.3 Parameter Setting Mode navigation

5.2.4 Status monitoring mode

The status monitoring mode can be used to monitor the current running status of frequency drive , or check the fault record, the operation shows as the Figure5.4
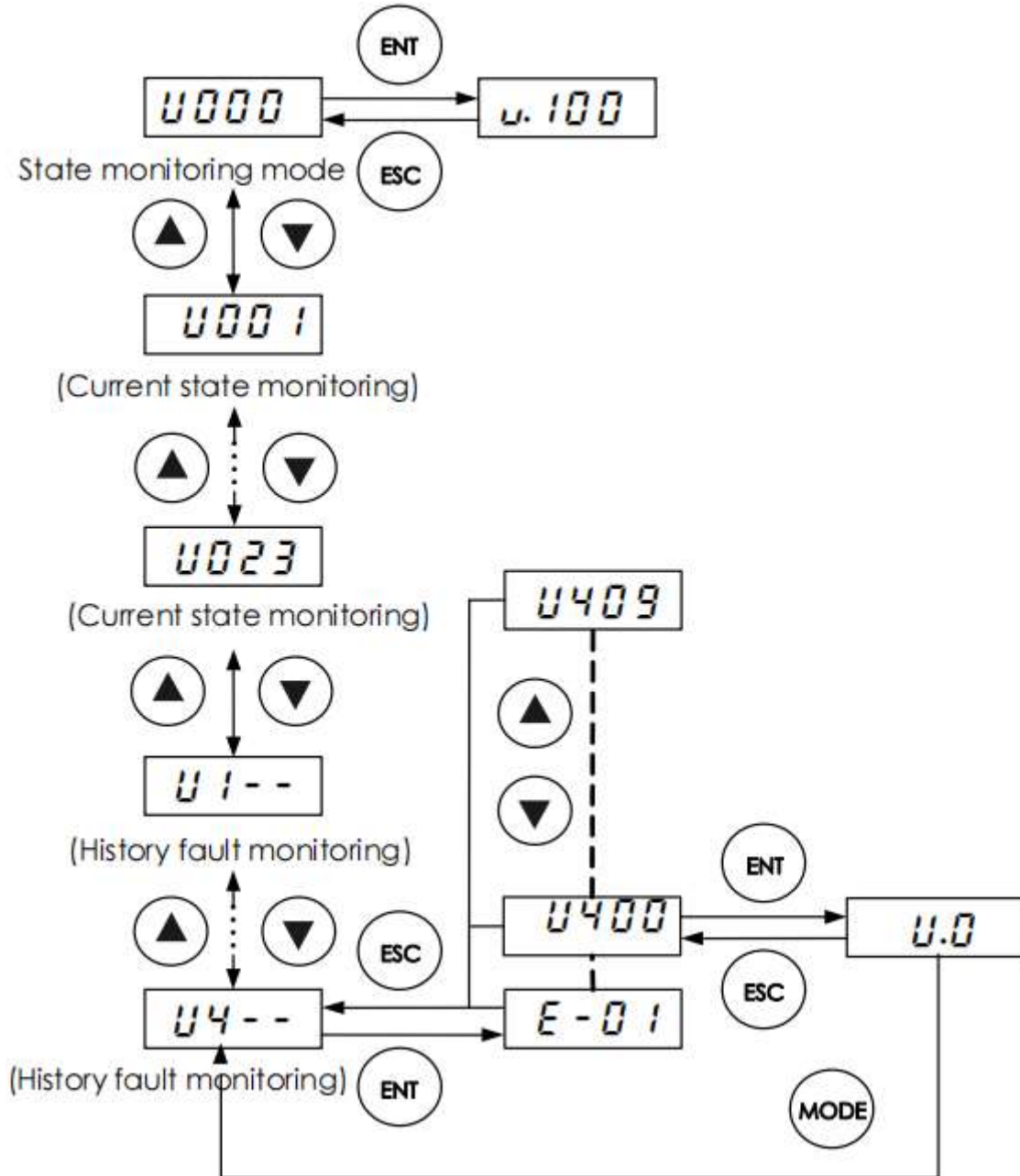
Figure 5.4. State monitoring mode navigation

Here: Monitoring parameter only can be used to check, cannot be modified or set.

5.2.5 Parameter verifying mode

When f618=1, use MODE key to switch to parameter calibration mode. Under this mode, we can see all different   parameters from the default value. The setup method for these parameters is the same to   other parameter setup way. Please see figure 5.5.

Remarks: no other display only "-uf-" when pressing the ENT key without change to any parameter
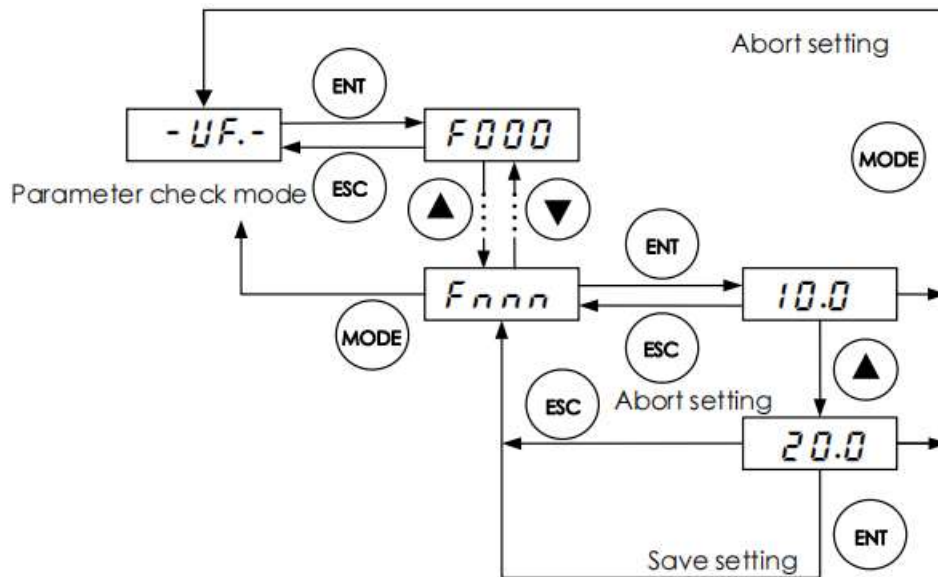
Figure 5.5 Parameter verifying mode navigation

5.3 Power on

Before switching on the frequency drive, please do check and confirm according to table 5.1, or there may be   dangerous.

Table 5.1   Inspection Item before Power on

Item	Instruction
Input power voltage	Please confirm if the power suppy is correctly connected (single phase, AC198V~ 242V, 50/60 Hz) Please confirm if the power supply input terminals L1, L2 are properly connected. Please confirm whether the frequency drive and the motor are correctly grounded.
Main circuit out put terminals	Please confirm the output terminals of the frequency drive U , V and W are reliably connected with the 3-phase input terminals of themotor.
Control circuit terminals	Please confirm the control circuit terminals are reliably connected with other device. Please confirm that all control circuit terminal sare in the state OFF (The frequency drive does not run when powere don).
State of load	Please confirm the condition of the motor load (namely the status of connection with mechanical system).

After the frequency drive is switched on, the keyboard panel enters into Powering-on mode. The displayed value type at Powering-on mode is determined by the setting value of parameter f610.

5.4 Running

5.4.1 local control mode

frequency drive provide two control   modes: local   and   remote. The mode is set with parameter f601.

At local control mode, both the command source and frequency setting source of the frequency drive are set through the keyboard panel:

(1) Command source is given through RUN and STOP keys in order to run or stop the motor.

(2) Frequency is given by ▲ and ▼ keys.

(3) Motor rotation direction: ENTER+▲——Setting motor rotation as forward；

ENTER+▼——Setting motor rotation as reverse（confirm the setting of f522）；

Parameter f522 is used to limit the ability of the motor to rotate only in a single direction。

(4) Fault reset: When fault occured, press STOP key，if show as a-00，Press STOP Key again，finish fault reset function, Please see parameter f600。

5.4.2 Remote control mode

Under remote control mode, the command source and frequency setting source of the frequency drive are set through parameters f002 and f003 respectively. The command source and frequency setting source can be combined in any way. As show as Parameter f002、f003。

Below is the main two ways of remote control mode wiring and setting:

(1) 2 wires control (including decelerating stop , free stop)

(2) 3-wire control（decelerating stop）

(1) 2 wires control (including decelerating stop , free stop)
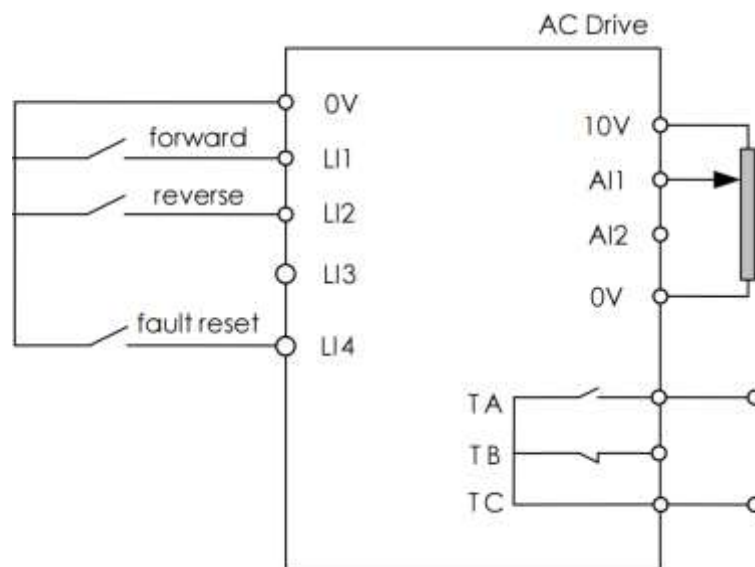
Wiring I ： 2 wires control wiring figure

Table 5.2 2-wire control parameter setting （Negative logic）

Code	Parameter	Setting value(Decelerating stop**)**	Setting Value (Free stop)
f002	Running Command Selection	0	0
f003	Frequency Command Selection	1	1
f300	AI1 Input function（Analog or logic selection）	0	0
f301	LI1 Logic input function	2	2
f302	LI2 Logic input function	3	3
f304	LI4 Logic input function	10	10
f305	Analog input mode setting	0	0

f306	Logic input type selection	1	1
f309	Forcing valid input function	1	1
f310	Forcing valid input function 2	0	0
f522	Motor reverse forbid	0	0
f523	Motor stop type	0	2

(2) Remote mode example 2: 3-wire control
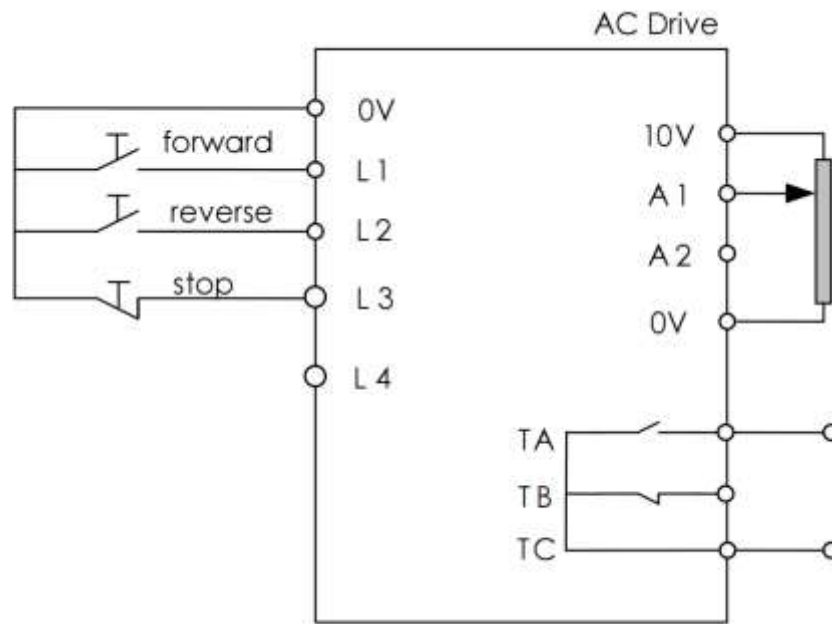
Wiring II ： 3-wires control wiring figure

Table 5.3   3-wire control parameter setting   (Negative logic)

Code	Parameter	Setting value (Decelerating stop)	Setting Value (Free stop)
f002	Running Command Selection	0	0
f003	Frequency Command Selection	1	1
f300	AI1 Input function (Analog or logic selection)	0	0
f301	LI1 Logic input function	2	2
f302	LI2 Logic input function	3	3
f303	LI3Logic input function	30	30
f305	Analog input mode setting	0	0
f306	Logic input type selection	1	1
f309	Forcing valid input function	1	1
f310	Forcing valid input function 2	0	0
f522	Motor reverse forbid	0	0
f523	Motor stop type	0	3

6 Function Parameter

6.1 f0 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f000	Operation frequency of keypad	f009~f008	0.0	○	
f001	V/F control mode selection	0 : V/F constant 1: Variable torque 2: Sensor-less vector control 3: Energy saving	0	●	
f002	Command mode selection	0: Terminal board 1: Keypad 2: Serial communication	1	●	
f003	Frequency setting mode selection	0: Built-in potentiometer 1: AI1 input 2: AI2 input 3: Keypad(Given frequency) 4: Serial communication (Given frequency) 5: UP/DOWN setting 6: AI1+AI2 7: PID setting of keypad (PID given) 8: Simple PLC running	3	●	
f004	Command mode selection 2	0: Terminal board 1: Keypad 2: Serial communication	0	○	
f005	Frequency setting mode selection 2	0: Built-in potentiometer 1: AI1 input 2: AI2 input 3: Keypad(Given frequency) 4: Serial communication (Given frequency) 5: UP/DOWN speed given 6: AI1+AI2 7: PID setting of keypad(PID given) 8: Simple PLC running option	2	○	
f006	Frequency /PID given source conversion	0: Switch between f003 and f005 1: Switch is disabled 2: Switch between f003 andf021selected frequency/PID source 3: Switch between f005 andf021 selected frequency/PID source	0	○	
f007	Maximum frequency	30.0~400.0 Hz	50.0	●	
f008	Upper limit frequency	0.5 Hz ~f007	50.0	○	
f009	Lower limit frequency	0.0 Hz ~f008	0.0	○	
f010	Acceleration time 1	0.1~3200 s	varies by	○	
f011	Deceleration time 1	0.1~3200 s	varies by	○	
f012	PWM carrier frequency	1.5k~12.0 kHz	varies by	○	
f013	Carrier frequency control mode selection	0: not reduced automatically 1: reduced automatically	1	●	
f014	Random PWM mode	0: Disable. 1: Enable.	0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f015	Automatic acceleration / deceleration	0: Disabled (manual). 1: Automatic (at acceleration & deceleration) 2: Automatic (only at acceleration)	0	●	
f016	Factory reserved	-	-		
f017	Terminal control macro	0: Factory Settings 1: 2-wire control (Negative logic mode, ramp stop). 2: 3-wire control (Negative logic mode, ramp stop). 3: External input UP/DOWN setting (Negative logic mode, slowdown stop). 4 ~ 16: Factory reserved 17: PID sleep & Wake Control 18: PID basic control 19: Factory reserved 20: JY common macro parameter	0	●	
f018	Factory reserved	-	-		
f020	Factory reserved	-	-		
f021	Primary and secondary frequencies /PID are given	0: Single channel given 1: f003 + f005 2: f003-f005 3: MAX (f003, f005) 4: MIN (f003, f005)	0	○	
f022	f005 frequency given coefficient	0.0~ 100.0%	100.0 %		
f023	f005 frequency bias given	0.0Hz~400.0Hz	0.0Hz		
f024	Lower limit selection and f005= 3/7 setting	0~ 5	0		

6.2 f1 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f100	Auto-tuning	0: Auto-tuning disabled 1: Application of individual settings off203 2: Auto-tuning enabled	0	●	
f101	Motor rated frequency	25.0~400.0 Hz	50.0	●	
f102	Motor rated frequency voltage	50~660 V	Varies by model	●	
f103	Motor rated current	0.1~200.0 A	Varies by model	●	
f104	Motor rated speed	100~30000rpm	Varies by model	●	
f105	Motor no-load current	10.0~100.0%	Varies by model	●	
f106	Motor thermal protection current setting	Varies by model	Varies by model	○	
f107	Motor current limit	Varies by model	Varies by model	●	
f108	Motor 2 rated frequency	25.0~400.0 Hz	50.0	●	
f109	Motor 2 rated frequency voltage	50~660V	Varies by model	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f110	Motor 2 electronic-thermal protection level	Varies by model	Varies by model	○	
f111	Motor 2 current limit	Varies by model	Varies by model	○	
f112 ~ f115	Factory reserved	-			
f119	Keyboard control selection	0: Llocal panel 1: Remote panel	0	●	
f120	Default setting	0: - 1: Standard default setting (Initialization) 7: Type fault (e-36) clear 8: P-type rating.	0	●	

6.3 f2 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f201	Supply voltage correction (AVR function)	0: Supply voltage uncorrected, output voltage limited. 1: Supply voltage corrected, output voltage limited. 2: Supply voltage uncorrected, output voltage unlimited. 3: Supply voltage corrected, output voltage unlimited.	3	●	
f202	Voltage boost	0.0~30.0%	Varies by model	○	
f203	Torque boost	0.0~30.0%	Varies by model	○	
f204	Slip frequency gain	0~150%	50	○	
f205	Exciting current coefficient	100~130	100	●	
f206	Voltage boost 2	0~30%	Varies by model	○	
f207	Speed control response coefficient	1~150	40	●	
f208	Speed frequency coefficient	1~100	20	●	
f209	Stall prevention control coefficient	10~250	100	●	
f210	Stall prevention control coefficient 2	50~150	100	●	
f211	Maximum voltage adjustment coefficient	90~120%	104	●	
f212	Waveform switching adjustment coefficient	0.1~14kHz	14.0	●	
f213	Factory reserved				
f214	Factory reserved				
f215	Factory reserved				
f216	Factory reserved				

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f217	Multi-point profile V/F patter	0: Factory reserved. 1: Factory reserved. 2:Enable multi-point profile V/F patter.	0	●	
f218	Point 1 output frequency（F1）	0~f220	10.0	●	
f219	Point 1 output frequency voltage（V1）	0~100%	20.0	●	
f220	Point 2 output frequency（F2）	f218~f220	20.0	●	
f221	Point 2 output frequency voltage（V2）	0~100%	40.0	●	
f222	Point 3 output frequency（F3）	f220~f101	30.0	●	
f223	Point 3 output frequency voltage（V3）	0~100%	60.0	●	

6.4 f3 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f300	AI1 terminal function selection	0: AI1 - analog input 1: AI1 - contact input (Sink mode) 2: AI1 - contact input (Source mode)	0	●	
f301	Input terminal function for LI1	0: No function is assigned 1: Standby terminal 2: Forward run command 3: Reverse run command 4: Jog run mode 5: Acceleration/deceleration 2 pattern selection 6: Preset-speed command 1 7: Preset-speed command 2 8: Preset-speed command 3 9: Preset-speed command 4 10: Reset command 11: Trip stop command from external input device 13: DC braking command 14: PID control disabling 15: Permission of parameter editing	2	●	
f302	Input terminal function for LI2	16: Combination of standby and reset commands 17: Frequency source switching to AI1 18: Combination of forward run and jog run 19: Combination of reverse run and jog run 20: Frequency setting source switching 21: No.2 Switching of V/F setting 22: No.2 motor switching 23: Frequency UP signal input from external contacts	3	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f303	Input terminal function for LI3	24: Frequency DOWN signal input from external contacts 25: Frequency UP/DOWN cancellation signal input from external contacts 26: inversion of trip stop command from external device 27 Thermal trip stop signal input from external device 28: inversion of thermal trip stop signal input from external device	0	●	
f304	Input terminal function for LI4	29: Forced switching from remote to local control 30: Operation holding (stop of 3-wire operation) 31: Forced switching of command mode and terminal board command 32: Display cancellation of the cumulative power amount (kWh) 33: Fire-speed control see f419 34: Coast stop (gate off) 35: Inversion of Reset 36: Forced switching of stall prevention level 2 37: PID control integral value clear PID control integral value clear 38: inversion of PID error signal 39: Forward running command + Acc & Dec curve 2 40: Reverse running command + Acc & Dec curve 2 41: Forward running command + Multi-speed section 1 42: Reverse running command+ Multi-speed section 1 43: Forward running command+ Multi-speed section 2 44: Reverse running command+ Multi-speed section 2 45: Forward running command+ Multi-speed section3 46: Reverse running command+ Multi-speed section 3 47: Forward running command+ Multi-speed section 4 48: Reverse running command+ Multi-speed section 4 49: Multi-speed section 1 +Acc&Dec curve 2 50: Multi-speed section 2 + Acc&Dec curve 2 51: Multi-speed section 3 + Acc&Dec curve 2 52: Multi-speed section 4 + Acc&Dec curve 2 53: Forward running command+Multi-speed section 1+ Acc&Dec curve 254: Reverse running command+Multi-speed section 1+ Acc&Dec curve 2 55: Forward running command+Multi-speed section 2+ Acc&Dec curve 2 56: Reverse running command+Multi-speed section 2+ Acc&Dec curve 2 57: Forward running Acc&Dec curve 2command+Multi-speed section	10	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
		3+Acc&Dec curve 2 58: Reverse running command+Multi-speed section 4+ Acc&Dec curve 2 59: Forward running comman+Multi-speed section 4+ Acc&Dec curve 2 60: Reverse running reverse running command (only 2-wire control) 61: UP/DOWN speed clean up+ fault reset 62: Running permission+ Forward running command (only 2-wire control) 63: Running permission+command+Multi-speed section 3+ Acc&Dec curve 2 64: Acc&dec curve 3 65: Acce/Dece curve 3+ Forward running command 66: Acce/Dece curve 3+ Reverse running command 67: Command source switch 68: Command source+ frequency source switch 69: Three-wire control stop reverse 70: Reset when simple PLC stops 71: Simple PLC hold 72: Simple PLC pause 73/74: PID control+ frequency given source switch 75: (UP/DOWN) stop speedclearance 76:2-wire control mode2-start/stop control 77:2-wire control mode2-FWD/ REV control			
f305	AI1 voltage-current input selection	0:0～5V voltage signal input. 1:0～10V voltage signal input. 2: current signal input.	0	●	
f306	sink/soruce mode selection	0: Source (Positive) logic terminal mode. 1: Sink (Negative) logic terminal mode	1	●	
f307	AO voltage-current output selection	0: Current signal output. 1: Voltage signal output.	1	●	
f308	Input terminal function of AI1	0-75, seef301~f304	0	●	
f309	Always-active terminal selection 1	0-75, seef301~f304	1	●	
f310	Always-active terminal selection 2	0-75, see f301~f304	0	●	
f311	Output terminal function A of LO-CLO	f315	4	●	
f312	Output terminal function B of LO-CLO	f315	255	●	
f313	AI2 terminal function selection	0: AI2 - analog input 1: AI2 - contact input (Sink) 2: AI2 - contact input (Source)	0	●	
f314	Input terminal function of AI2	0-75,f301~f304	0	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f315	Output terminal function A of T1 (T1A-T1B-T1C)	0: Output frequency higher than lower limit frequency 2:Output frequency equals to upper limit frequency 4:Output frequency is higher or equal to f337 6:(set frequency -f339)< output frequency<(setfrequency+f339) 8:(f338-f339) < output frequency < (f338+f339) 10:Output frequency higher or equal to f338+f339 12:f003 or f005 source supply given speed=AI1 signal	40	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f315	Output terminal function A of T1 (T1A-T1B-T1C)	14:f003 or f005 source supply given speed=AI2 signal 16:AI1's value higher or equal to f340+f341 18:AI2's value is higher or equal to f342 +f343 20:AI2 is the speed given source 22:frequency drive forward motor power supply (acceleration, deceleration, constant speed or DC braking) 24:Ready for running of the frequency drive (running permission and running command available) 26:Motor reverse running 28:Under local mode for frequency drive 30:Fault happened in the frequency drive 32:Evaluated motor torque is at f412 level time is still less than f414 set value. 34:Motor current is less than f408 and its lasting time is over f410 setting. 36:Fault occurred and could not reset. 38：Fault occurred but it could reset. 40:Fault occurs in the frequency drive 42：Alarm occurs44:Motor heating status has reached 50% of motor overload fault level. 46:DC braking resistor status has reached 50% DC braking resistor overload fault level. 48:Evaluated motor torque reaches f412*70% 50: Run time≥f428 set value 52:The equipment sends maintenance alarm warning. (Fan, PCB or capacitor needs replacement.) 54:PTC heating sensor needle has detected motor temperature reaching 60% of trip level. 56:Undervoltage alarm is valid. 58：Brake pull 60:In the process of motor acceleration process 62:In the process of motor deceleration 64:In the process of motor deceleration or acceleration 66:Heat sink temperature has reached alarm value 68:One PLC recycle completes 70:One PLC speed section completes 72: The inverter is ready to receive the running signal 74:communication address 0xfa15 bit0 state output 76~79: factory reserve 80: LI1 input is valid 82: LI2 input is valid 84: PID feedback pressure equal to or higher than f627 + f628 86: PID feedback pressure equal to or higher than f918 + f628 88:communication address 0xFA15 bit1 state output 90~253: Unused 254：Relay constant output OFF 255：Relay constant output ON	40	●	
NO.	Parameter Name	Setting Range	Default	WRT	User setting

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f316	Output terminal logic selection of LO-CLO	0: And logic 1: Or logic	0	●	
f317	LO1-CLO1 output delay	0.0~60.0 s	0.0	○	
f318	Relay 1 closing delay	0.0~60.0 s	0.0	○	
f319	External contact input - UP response time	0.0~10. 0 s	0.1	○	
f320	External contact input - UP frequency steps	0.0 Hz ~f007	0.1	○	
f321	External contact input - DOWN response time	0.0~10.0 s	0.1	○	
f322	External contact input - DOWN frequency steps	0.0 Hz ~f007	0.1	○	
f323	Initial up/down frequency	0.0 Hz ~f007	0.0	○	
f324	Change of the initial up/down frequency	0/2/4: disabled 1/3/5: enabled	1	○	
f325	AI1 speed setting level 1	0~100%	0	○	
f326	AI1 output frequency level 1	0.0~400.0 Hz	0.0	○	
f327	AI1 speed setting level 2	0~100%	100	○	
f328	AI1 output frequency level 2	0.0~400.0 Hz	50.0	○	
f329	AI2 speed setting level 1	0~100%	0	○	
f330	AI2 output frequency level 1	0.0~400.0 Hz	0.0	○	
f331	AI2 speed setting level 2	0~100%	50	○	
f332	AI2 output frequency level 2	0.0~400.0 Hz	50.0	○	
f333	AI1 input bias	0~255	Varies by model	○	
f334	AI1 input gain	0~255	Varies by model	○	
f335	AI2 input bias	0~255	Varies by model	○	
f336	AI2 input gain	0~255	Varies by model	○	
f337	Low-speed signal output frequency	0.0 Hz ~f007	0.0	○	
f338	Speed reach detection output frequency	0.0 Hz ~f007	0.0	○	
f339	Speed reach detection band	0.0 Hz ~f007	2.5	○	
f340	AI1 input reach detection level	0~100%	0	○	
f341	AI1 input reach detection band	0~20%	3	○	
f342	AI2 input reach detection level	0~100%	0	○	
f343	AI2 input reach detection band	0~20%	3	○	
f344	Frequency command agreement detection range	0.0 Hz ~f007	2.5	○	
f345	Logic output/pulse train output selection (LO- CLO)	0: Logic output 1: Pulse train output	0	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f346	Pulse train output function selection (LO - CLO)	0: Output frequency 1: Output current 2: Set frequency 3: Frequency setting value 4: DC voltage 5: Output voltage command value 6:Input power 7:Output power 8:AI1 Input value 9:AI2 Input value 10:Torque 11:Torque current 12:Motor cumulative load factor 13:Inverter cumulative load factor 14:PBR (braking reactor) cumulative load factor	0	○	
f347	Maximum numbers of pulse train	500~1600	800	○	
f348	AO1 selection	0:Output frequency 1:Output current 2:Set frequency 3:Frequency setting value 4:DC voltage 5:Output voltage command value 6:Input power 7:Output power 8:AI1 input 9:AI2 input 10:Torque 11:Torque current 12:Motor cumulative load factor 13:Inverter cumulative load factor 14:brake resistor cumulative load factor 15:Serial communication data 16:185% proofread 17:150% proofreading 18:100% proofread	0	○	
f349	AO1 gain adjustment	1~1280	Varies by model	○	
f350	Inclination characteristic of analog output (AO1)	0: Negative 1: Positive	1	○	
f351	Bias of analog output (AO1)	0~100%	0	○	
f352	Output frequency when AO1 = 0V	0 Hz ~f007	0.0	○	
f353	Output frequency when AO1 = 10V	0 Hz ~f007	0.0	○	
f354	AO1 bias	0~255	128	○	
f355	Ipput terminal function for LI5	f301~f304	0	●	
f356	Input terminal function for LI6	f301~f304	0	●	
f363	Input terminal active mode	8 bits - hexadecimal display, each option: 1: Closure is valid 2: Disconnect effective			
f364	Logical input terminal filtering	0~200	0		
f365	Relay output 1 assistant function	f315	255		
f366	Relay output function logic relation	0:and logic 1:or logic	0		

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f367	Terminal run detection selection at power on	0: disable 1: enable	0		
f374	Percentage of AO monitored values	0~250%	0	●	
f375	Relay 1 disconnect delay	0~60.0s	0.0	●	

6.5 f4 Group

NO.	Parameter Name	Setting Range	default	WRT	User setting
f400	Retry selection	0: disabled 1~10 reset times.	0	●	
f401	Electronic-thermal protection characteristic selection	0: Trip enable, stall disable (standard motor) 1: Trip enable, stall enable (standard motor) 2: Trip disable, stall disable (standard motor) 3: Trip disable, stall enable (standard motor) 5: Trip enable, stall disable (forced cooling motor) 6: Trip enable, stall enable (forced cooling motor) 7: Trip disable, stall disable (forced cooling motor) 8: Trip disable, stall enable (forced cooling motor)	0	○	
f402	Motor 150%-overload time limit	10-2400 s	300	○	
f403	Emergency stop selection	0: Coast stop 1: Slow down stop 2: Emergency DC braking	0	●	
f404	Emergency braking time	0.0-20.0 s	1.0	○	
f406	Output phase failure detection mode selection	0: Disabled 1: At start-up (Only one time after power is turned on) 2: At start-up (each time) 3: During operation 4: At start-up + during operation 5: Detection of cut off on output side	0	●	
f407	Small current trip/alarm selection	0: Alarm 1: trip	0	○	
f408	Small current detection current	0~100%	0.00	○	
f409	Small current detection current hysteresis	1~20%	10	○	
f410	Small current detection time	0-255 s	0	○	
f411	Over-torque trip/Overcurrent indication	0: Over-torque alarm (70%) 1: Over-torque fault 2: Over-torque alarm (100%) 3: Over-current alarm (70%) 4: Overcurrent fault 5: Overcurrent alarm (100%)	0	○	
f412	Over-torque detection level	0~250%	130	○	
f413	Over-torque detection level hysteresis	0~100%	10	○	
f414	Over-torque detection time	0.0~10.0 s	0.5	○	

NO.	Parameter Name	Setting Range	default	WRT	User setting
f415	Over voltage limit operation	0: Enabled. speed. 1: Disabled 2: Enabled (Quick deceleration). 3: Enabled (Dynamic quick deceleration).	2	●	
f416	Over voltage limit operation level	100-150%	130	●	
f417	Under voltage trip/alarm selection	0: Alarm only (detection level below 60%) 1: Tripping (detection level below 60%). 2: Alarm only (detection level below 50%)	0	●	
f418	Instantaneous power failure coast stop selection	0: Disabled 1: Factory reserved 2: Coast stop.	0	●	
f419	Forced fire-speed control function	0: Disabled. 1: Enabled.	0	○	
f420	Detection of output short- circuit during start-up	0: Each time (standard pulse) 1: Only one time after power is turned on (standard pulse) 2: Each time (short-time pulse) 3: Only one time after power is turned on (short-time pulse)	0	●	
f421	Motor electric-thermal protection retention selection	0: Disabled. 1: Enabled.	0	○	
f422	AI1 input loss	1~100%	0	○	
f423	Activation of the frequency drive during 4-20mA signal loss	0: No measures. 1: Coast stop. 2: Switch to Fallback speed. 3: Speed maintaining. 4: Slowdown stop.	0	●	
f424	Fallback speed	0.0 Hz ~f007	0.0	○	
f425	PTC thermal selection	0: Disabled 1: Enabled (trip mode) 2: Enabled (alarm mode)	0	○	
f426	Resistor value for PTC detection	100-9999Ω	3000	○	
f428	Cumulative operation time alarm setting	0.0-999.9 h (0.1=10 hour)	610.0	○	
f429	frequency drive trip retention selection	0: Clearing 1: Maintaining	0	○	
f430	Heat sink temperature reaches the alarm value	0 ~100℃	Varies by model	●	
f431	Analog output current scaling (AO1)	1~1280	varies by model	○	
f432	Analog Output current Bias Calibration (AO1)	0~255	varies by model	○	

6.6 f5 Group

NO.	Parameter Name	Setting Range	default	WRT	User setting
f500	Auto-restart control selection	0: Disabled 1: At auto-restart after momentary stop 2: When turning standby (input terminal function =1) on or off 3: At auto-restart or when turning standby (input terminal function =1) on or off 4: At start-up 5~7: Factory reserved 8: DC braking and then start. DC braking current level and brake time according f507&f508	0	●	
f501	auto-stop time limit for lower-limit frequency operation	0.0: disable 0.1-600.0 s	0.1	○	
f502	Bumpless operation selection	0: disabled. 1: enabled.	1	○	
f503	Starting frequency setting	0.5~10.0 Hz	0.5	○	
f504	Operation starting frequency	0.0 Hz ~f007	0.0	○	
f505	Operation starting frequency hysteresis	0.0 Hz ~f007	0.0	○	
f506	DC braking starting frequency	0.0 Hz ~f007	0.0	○	
f507	DC braking current	varies by model	varies by model	○	
f508	DC braking time	0.0~20.0 s	1.0	○	
f510	Acceleration/deceleration 1 pattern	0: Linear 1: S pattern 1 2: S pattern 2 3 : Elevator acceleration / deceleration curve	0	○	
f511	Acceleration/deceleration 2 pattern	0: Linear 1: S pattern 1 2: S pattern 2	0	○	
f512	Acceleration/deceleration 3 pattern	0: Linear 1: S pattern 1 2: S pattern 2	0	○	
f513	Acceleration/deceleration 1 and 2 switching frequency	0.0 Hz ~f008	0.0	○	
f514	Acceleration/deceleration 2 and 3 switching frequency	0.0 Hz ~f008	0.0	○	
f515	Selecting an acceleration/deceleration pattern	1: Acc/Dec 1 2: Acc/Dec 2 3: Acc/Dec 3	1	○	
f516	S-pattern lower-limit adjustment amount	0~50%	10	○	
f517	S-pattern upper-limit adjustment amount	0~50%	10	○	
f518	Acceleration time 2	0.0~3200 s	20.0	○	
f519	Deceleration time 2	0.0~3200 s	20.0	○	
f520	Acceleration time 3	0.0~3200 s	20.0	○	
f521	Deceleration time 3	0.0~3200 s	20.0	○	

NO.	Parameter Name	Setting Range	default	WRT	User setting
f522	Reverse-run prohibition	0: Forward/reverse run permitted. 1: Reverse run prohibited. 2: Forward run prohibited.	0	●	
f523	Stop type	0: Ramp shutdown 1: Free shutdown of keyboard 2: 2 line control free stop 3: 2 line control free stop	2	○	
f526	Positive and negative operation is preferred	0: Forward + reverse ->reverse 1: Forward + reverse -& GT;downtime 2: Forward + reverse -& GT;Let me give you the direction 3: Forward + reverse -& GT;In the direction given by 4: Forward + reverse -& GT;positive	1	○	
f527	Regenerative braking selection	0: Disabled 1: Enabled (with resistor overload protection) 2: Enabled (without resistor overload protection)	2		
f528	Regenerative braking resistor	1.0~1000.0Ω	20.0	●	
f529	Regenerative braking resistor capacity	0.01~30.0 kW	0.12	●	
f530	Positive and negative dead zone time	0.0~25.0s	10	○	
f531	Acceleration / deceleration S - curve upper limit 2	0~50 %	10	●	
f532	Acceleration / deceleration S - curve lower limit 3	0~50 %	10	●	
f534	Communication address E002H input current phase selection	0:1A 1:0.1A 2:0.01A	2	○	
f535	PLC Preset speed direction 2	0000H~FFFFH	0000	●	
f536	PLC speed direction selection	0:PLC speed direction select as f748 1:PLC speed direction select as f535		●	
f537	2-wire control mode 2 enabled	0: Disable 1:Enable 2-wire control mode 2-Self - locking switch (Electrial level) controls positive and negative rotation 2:Enable 2-wire control mode 2-button switch(pulse)controls positive and negative rotation		●	

6.7 f6 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f600	Prohibition of panel reset operation	0: Permitted 1: Prohibited	0	○	
f601	Switching between remote control and Local control	0: Local control mode 1: Remote control mode	1	○	
f602	Password check/input	0~9999	0	○	
f603	Current/voltage display mode	0: % 1: A (ampere)/V (volt),	1	○	
f604	Frequency free unit magnification	0: unit is Hz 0.01-200.0: free unit	0.00	○	
f605	Arbitrary unit conversion selection	0: Show as frequency unit 1: Change PID frequency to any unit	0	●	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f606	Inclination characteristic of free unit display	0: Negative inclination (downward slope) 1: Positive inclination (upward slope)	1	○	
f607	Bias of free unit display	0.00 Hz ~f007	0.00	○	
f608	Free step 1 (pressing a panel key once)	Disabled: 0.00 Enabled: 0.01 Hz~f007	0.00	○	
f609	Free step 2 (panel display)	0: disabled 1~255: enabled	0	○	
f610	Standard monitor display selection	0: Output frequency(Hz(free)) 1: Frequency command(Hz(free)) 2:Output current(%/A) 3:frequency drive rated current (A) 4:frequency drive load (%) 5:Output power (kW) 6: Stator frequency (Hz (free)) 7:communication data display 8: Output speed 9: Communication counter 10: Normal communication counter 11: Stop - given frequency (f900=0)/given PID (f900 ≠0), Run - output frequency	0	○	
f611	Panel running order clear selection	0: clear (When running order terminal off) 1: keep (When running order terminal off)	1	○	
f612	Panel operation prohibition (f000)	0: Permitted 1: Prohibited	0	○	
f613	Prohibition of panel operation (RUN/STOP keys)	0: Permitted. 1: Prohibition.	0	○	
f614	Prohibition of panel emergency stop operation	0: Permitted. 1: Prohibition.	0	○	
f616	Integral output power retention selection	0: (clear) 1: (memory)	1	○	
f617	Integral output power display unit selection	0: 1kWh. 1: 10kWh. 2: 100kWh. 3: 1000kWh.	varies by model	○	
f618	Search and resetting of changed parameters selection	0: Disable 1: Enable	0	○	
f619	Frequency drive internal temperature monitoring 1				
f620	Frequency drive internal temperature monitoring 2				
f621	LCD contrast control	15~40	25		
f622	Factory reserved				
f623	Bit0: Fan self-running	0: The fan works when the converter is running	0	○	
	Bit1: Positive power monitoring	0: Monitoring both positive and negative power			
	Bit2:main display quickly monitoring	0: Disable 1: Enable			
	Bit3:Forward and reverse dead time mode selection	0: Forward and reverse dead time mode1 1: Forward and reverse dead time mode2			
	Bit4: over current alarm	0: Alarm 1: No alarm			
	Bit5:overvoltage alarm	0: Alarm 1: No alarm			
	Bit6:overload alarm	0: Alarm 1: No alarm			
	Bit7:overheat alarm	0: Alarm 1: No alarm			

NO.	Parameter Name	Setting Range	Default	WRT	User setting
	Bit IGBT overheat current level calculation forbid	0: Enable 1: Disable			
f624	Keyboard panel displays 2	Same as f610	2	○	
	Quick Monitoring 1	Same as f610			
f625	Keyboard panel displays 3	Same as f610	1	○	
	Quick Monitoring 2	1-8: see f610 9: PID is given 10: PID feedback			
f626	Keyboard panel displays 4	Same as f610	5		
	Quick Monitoring 3	1-8: see f610 9: PID is given 10: PID feedback			
f627	Relay output -PID feedback check out	0.00~99.99	0.00	○	
f628	Relay output -PID feedback to detect bandwidth	0.00~99.99	0.00	○	
f629	Factory reserved		-	○	

6.8 f7 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f701	Jog frequency	0.0~20.1Hz	5.0	○	
f702	Jog stop mode	0: Decelerating Stop 1: Free stop 2: DC Braking	0	○	
f703	Jump frequency 1	0.0 Hz ~f007	0.0	○	
f704	Jumping width 1	0.0 ~30.0 Hz	0.0	○	
f705	Jump frequency 2	0.0 Hz ~f007	0.0	○	
f706	Jumping width 2	0.0~30.0 Hz	0.0	○	
f707	Jump frequency 3	0.0 Hz ~f007	0.0	○	
f708	Jumping width 3	0.0~30.0 Hz	0.0	○	
f709	Braking mode selection	0~3	0	●	
f710	Release frequency	f503~20.0Hz	3.0	○	
f711	Release time	0~25.0s	0.5	○	
f712	Creeping frequency	f503~20.0Hz	3.0	○	
f713	Creeping time	0~25.0s	1.0	○	
f714	Droop gain	0~100%	0	○	
f715	Droop insensitive torque band	0~100%	10	○	
f716	Preset-speed 1	f009~f008	3.0	○	
f717	Preset-speed 2	f009~f008	6.0	○	
f718	Preset-speed 3	f009~f008	9.0	○	
f719	Preset-speed 4	f009~f008	12.0	○	
f720	Preset-speed 5	f009~f008	15.0	○	
f721	Preset-speed 6	f009~f008	18.0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f722	Preset-speed 7	f009~f008	21.0	○	
f723	Preset-speed 8	f009~f008	24.0	○	
f724	Preset-speed 9	f009~f008	27.0	○	
f725	Preset-speed 10	f009~f008	30.0	○	
f726	Preset-speed 11	f009~f008	33.0	○	
f727	Preset-speed 12	f009~f008	36.0	○	
f728	Preset-speed 13	f009~f008	39.0	○	
f729	Preset-speed 14	f009~f008	45.0	○	
f730	Preset-speed 15	f009~f008	50.0	○	
f731	Factory reserved	-			
f732	Multi-speed 0 run time	0~65000.0s(min)	0.0	●	
f733	Multi-speed 1 run time	0~65000.0s(min)	0.0	●	
f734	Multi-speed 2 run time	0~65000.0s(min)	0.0	●	
f735	Multi-speed 3 run time	0~65000.0s(min)	0.0	●	
f736	Multi-speed 4 run time	0~65000.0s(min)	0.0	●	
f737	Multi-speed 5 run time	0~65000.0s(min)	0.0	●	
f738	Multi-speed 6 run time	0~65000.0s(min)	0.0	●	
f739	Multi-speed 7 run time	0~65000.0s(min)	0.0	●	
f740	Multi-speed 8 run time	0~65000.0s(min)	0.0	●	
f741	Multi-speed 9 run time	0~65000.0s(min)	0.0	●	
f742	Multi-speed 10 run time	0~65000.0s(min)	0.0	●	
f743	Multi-speed 11 run time	0~65000.0s(min)	0.0	●	
f744	Multi-speed 12 run time	0~65000.0s(min)	0.0	●	
f745	Multi-speed 13 run time	0~65000.0s(min)	0.0	●	
f746	Multi-speed 14 run time	0~65000.0s(min)	0.0	●	
f747	Multi-speed 15 run time	0~65000.0s(min)	0.0	●	
f748	PLC speed direction option	0~65535	0000	●	
f749	Simple PLC running mode	0: Run one time and then stop 1: Run one time and keep running at the final value 2: Recycle running	0	●	
f750	Simple PLC restart mode selection	0: Start running from the first phase 1:Keep running from the interrupt frequency	0	●	
f751	Simple PLC Power drop memory selection	0: No memory for power drop 1: memory for power drop	0	●	
f752	Simple PLC running time unit selection	0: Second (s) 1: Min	0	●	
f753	Non standard function selection	0~65535	0	○	
f754	AI1 curve selection	0：Curve（Point 2） 1：Curve（Point 4）	0	○	
f755	AI1 curve 2 set point 1 input	0.0 ~ 100.0%	0.0%	○	
f756	AI1 curve 2 sets point 1 output	-100% ~ 100%	0.0%	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f757	AI1 curve 2 set point 2 input	0.0 ~ 100.0%	30.0%	○	
f758	AI1 curve 2 sets point 2 output	-100% ~ 100%	30.0%	○	
f759	AI1 curve 2 set point 3 input	0.0 ~ 100.0%	60.0%	○	
f760	AI1 curve 2 sets point 3 output	-100% ~ 100%	60.0%	○	
f761	AI1 curve 2 set point 4 input	0.0 ~ 100.0%	100.0%	○	
f762	AI1 curve 2 sets point 4 output	-100% ~ 100%	100.0%	○	
f763	LI1 effective delay	6500.0 ~ 0.0 s	0.0	○	
f764	LI1 invalid delay	6500.0 ~ 0.0 s	0.0	○	
f765	LI2 effective delay	6500.0 ~ 0.0 s	0.0	○	
f766	LI2 invalid delay	6500.0 ~ 0.0 s	0.0	○	
f767	AI1 filtering coefficient	0.00 -10.00	0.30	○	
f768	AI2 filtering coefficient	0.00 -10.00	0.30	○	
f769	AO1 filtering coefficient	0.00 -10.00	0.00	○	
f771	Foreward Jog frequency	0.0HZ -f007	0.00	○	
f772	Password Setting	0~9999	0	○	
f773	Password duration	0~9999 min	5	○	

6.9 f8 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f800	Modbus baud rate	0：9600 bps 1：19200 bps 2：4800 bps 3：2400 bps 4：1200 bps	1	○	
f801	Modbus parity	0: None 1: Even 2: Odd	1	○	
f802	Modbus address	0-247	1	○	
f803	Modbus timeout	0: timeout check disabled. 1-100s	0	○	
f804	Modbus transger waiting time	0~2.00 s	0.00	○	
f805	Modbus behaviour on communication fault	0:Frequency drive stop, communication command, frequency mode open (by f002, f003) 1: None (continued operation) 2: Deceleration stop 3: Coast stop 4: Communication error (e-33 trip) or Network error (e-35 trip)	4	○	
f806	Number of motor poles for communication	2~16	2	○	
f813	Write data 1	0:No select 1:Communication commend control(fa05)	0	○	
f814	Write data 2	2:Reserved 3:Communication commend control(fa08) 4-6: Reserved	0	○	

f815	Read data 1	0：no select 1：state data（fd03） 2：Output frequency（fd12） 3：output current（fe08） 4：Output voltage（fe10） 5：Fault data（fc39）	1	○	
f816	Read data 2	6：PID feedback（fa36） 7：input terminal data（fd01） 8：output terminal data（fd02） 9：AI1 input（fe30） 10：AI2 input（fe31） 11：Motor speed（fe50） 12: Absolute value of output current（e002），unit 0.01A	2	○	
f817	Read data 3	13: Absolute value of output voltage（e006），unit V 14： Absolute value of output voltage of DC bus（e009), unit V 15: PID Given value（fa35）	12	○	
f818	Read data 4	16：output torque（fe20），0.01% of unit motor rated torque 17：input power（fe28），unit 0.01kW 18：output power（fe29），unit 0.01kW 19:Input power accumulation/ input power（fe44），see f617	18	○	
f819	Read data 5	20：output power accumulation / output power（fe45），Unit see f617 21：running time accumulation（fe17）unit h（hour）	8	○	
f821 ~ f829	Factory reserved	-	-		

6.10 f9 Group

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f900	PID control setting	0: Disabled, 1: Enabled (Feedback: AI1) 2: Enabled (Feedback: AI2)	0	○	
f901	PID Proportional gain（P control）	0.01~100.0	varies by model	○	
f902	PID Integral gain（I control）	0.01~100.0	varies by model	○	
f903	PID Differential gain(D control)	0.00~2.55	0.00	○	
f904	PID control waiting time	0~2400 s	0	○	
f905	PID regulator deviation input signal negation/Direction	0：disable/Direct action 1：enable/Reaction	0	○	
f906	Sleep mode awakening hysteresis bandwidth	0.0 Hz ~f007	0.2	○	
f907	When f917≠0.00,Sleeping mode awakening deviation(absolute value)	0.00~f917 MPa	0.00	○	
f907	When f917=0.00, based on PI error value sleeping mode awakening PI threshold value	0.0~f007Hz	0.0	○	
f908	When f917≠0.00,Sleeping mode awakening threshold value (absolute value)	0.0 Hz ~f917MPa	0.00	○	
f908	When f917=0.00, based on PI error value sleeping mode awakening PI threshold value	0.0~f007Hz	0.0	○	

NO.	Parameter Name	Setting Range	Default	WRT	User setting
f909	sleeping mode action	0: Motor slowdown to a stop. 1: Motor keep running at lower limit frequency.	0	●	
f910	wake up/ delay control time	0~600.0s	0.0	●	
f911	When f917≠0.00, Sleeping mode awakening threshold value (Percent)	0~200.0%	0.0	○	
	When f917=0.00, Sleeping mode awakening pressure percent	0~100%	0.0	○	
f912	Whenf917≠0.00, Sleeping mode awakening threshold value (Percent)	0~200.0%	0.0	○	
	When f917=0.00, Sleeping mode awakening pressure percent	0~100%	0.0	○	
f913	Upper limit of PID setting	0~100%	100	●	
f914	Lower limit of PID setting	0~f913	0	●	
f915	Delay control of sleep mode	Disable：0.0 Enable：0.1-600.0 s	0.1	○	
f916	When f917≠0.00, PID given control deviation	0~100%	0.0	○	
	When f917=0.00,PID keyboard given				
f917	Sensor range (When f917≠0.00,PID setting adopt absolute value.PID's keyboard adjustment is f918. f917=0.00,PID setting adopt percent, PID's keyboard adjustment is f916.	0.00~99.99	1.00	○	
f918	PID adjustment	0.00~f917	0.00	○	
f919	Sleeping frequency	0.0Hz~f008	0.0	○	
f920	Sleeping threshold tolerance	0.0~25.0%	0.0	○	
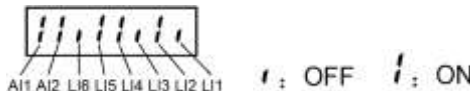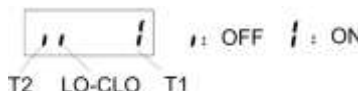
Note 1: in the volume of "○"： means writable at stop or running status, "●"： means unwritable at stop or running status；

Note 2: we can obtained modbus parameter address by replacing 'f' of '0'. E.g. f908's address is 0x0908

Note 3: Common user parameter power-off does not save the communication address. F is reserved, that is, the communication address is the same as the parameter number. For example, the communication address of f908 is 0xf908.

6.11 u0 Group

NO.	Parameter Name	Description
u000	CPU1 Version	E.g: ⌷ㄈ⌷⌷ ， version as g100
u001	Operation frequency	Value is displayed in Hz/free unit. See f604.
u002	Direction of rotation	⌷ Forward run, ㄈ Reverse run.
u003	frequency command value	Value is displayed in Hz/free unit. See f604.
u004	load current	The frequency drive output current (%/A) is displayed.

NO.	Parameter Name	Description
u005	input voltage (AC RMS)	The frequency drive input voltage (%/V) is displayed.
u006	output voltage (AC RMS)	The frequency drive output voltage command (%/V) is displayed.
u007	Input terminal status indicated	Notes:AI1-AI2 will be displayed only when it is configured as a logical port, and will not be displayed by default.
u008	Output terminal status indicated	
u009	cumulative operation time	(0.01=1 hour, 1.00=100 hours)
u010	Output speed	Displays the motor speed (min-1) by calculating with output frequency and pole numbers.
u011	Rated current	The rated current of the frequency drive (A) is displayed.
u012	Torque current	The torque current (%/A) is displayed.
u013	Load current	The frequency drive output current (load current) (%/A) is displayed.
u014	Torque	The torque (%) is displayed.
u015	Input power	The frequency drive input power (kW) is displayed.
u016	Output power	The frequency drive output power (kW) is displayed.
u017	PID feedback	The PID feedback value is displayed. (Hz/free unit)
u018	Frequency command value(PID-computed)	The PID-computed frequency command value is displayed. (Hz/free unit)
u019	Integral input power	The integrated amount of power (kWh) supplied to the frequency drive is displayed.
u020	Integral output power	The integrated amount of power (kWh) supplied from the frequency drive is displayed.
u021	Communication counter	Displays the counter numbers of communication through the network.
u022	Normal state communication counter	Displays the counter numbers of communication only at normal state in the all communication through network.
u023	HMI version	Example:
u024	Parts replacement alarm information	ON: The maintenance time is up. It is recommended to replace the components
u025	Factory Reserve	
u026	When f917=0.00; given pressure percent	When under PID control, given pressure percent monitor
	When f917≠0.00, given pressure absolute value	When under PID control, given pressure absolute value monitor (1.00=1.00Mpa=10kg/cm2)
u027	When f917=0.00, feedback pressure percent	When under PID control, feedback pressure percent monitor
	When f917≠0.00,feedback pressure absolute value	When under PID control, feedback pressure absolute value monitor (1.00=1.00Mpa=10kg/cm2)
u1--	Past trip 1	Enter into the display of detailed information on past trip 1
u2--	Past trip 2	Enter into the display of detailed information on past trip 2
u3--	Past trip 3	Enter into the display of detailed information on past trip 3

NO.	Parameter Name	Description
u4--	Past trip 4	Enter into the display of detailed information on past trip 4

7 Fault Diagnosis and Measures

7.1 Fault Code, course and measures

When fault (failure) occurs, the frequency drive takes the following actions: The keyboard panel blinks to display the fault code, the frequency drive stops output and the motor freely stops.

Table 7.1 Fault display and measures

Codeoffault	Type offault	Possiblecause	Measures(troubleshooting)
e-01	Over current protection	• Acceleration time is tooshort. • V/f parameter is wronglyset. • When the frequency drive starts, the load is still inrotation. • frequency drive is supplying power to low-impedance motor. • IntePhase short circuit orearthing failure. • Abrupt fluctuation of the load	• Increase acceleration parameter (f010 orf618) and the deceleration time (f011 orf519) • Select the correct setpoint forV/f. • Adopt forward/reverse speed tracking and restart function (STR function). • Tune the switching frequency. • Check wiring to see if there is Inte phase short circuit or earthing failure. • Reduce fluctuation of the load
e-02	Inte Phase short circuit	• Inte Phase output is short circuit. • Motor impedance is too low.	• Confirm the wiring and insulation status.
e-03	Starting over current	• Grounding fault • IGBT unit damage	• Confirm whether the wiring and device are earthing • Connect withfactory
e-04	Grounding fault	• Grounding fault • IGBT unit damage	• Confirm whether the wiring and device are earthing • Connect withfactory
e-06	Under load fault	• Frequency drive ' soutput current is lower than low current detection thre shold.	• Check whether f407~f410are correctly set.
e-07	Over torque fault	• The motor estimates that the torque has reached the level set by f412.	• Adjust the setting soff411~f414. • Confirm the load status.
e-11	Under voltage fault	• Abnormal fluctuation of input voltage; • Power network capacity higher than 200 kVA; • There is switchable capacitor to improve power factor on the power network; • SCRs is connected to the power network. • frequency drive starts theload already inrotation. • There is possible phase failure. • The deceleration time is too short.	• Install input reactor or usebrakingresistance. • Adopt forward/reverse speed tracking and restart function (STR function) (f500 = 1) • Set f418 = 2. • Determine the cause of output phase failure (such as poor connection, open circuit of output or open circuit of motor winding) and correct it. • Increase the deceleration time (f011 or f519) • Adopt over voltage protect

Codeoffault	Type offault	Possiblecause	Measures(troubleshooting)
e-12	DC bus under voltag fault	• Input voltage is too low.	• Check input voltage. • Set f417 to select alarm or tripping. • Adopt forward/reverse speed tracking and restart function (STR function) (f500 = 1) • Set f418= 2.
e-21	frequency drive over load	• Acceleration time is tooshort. • DC braking current level istoohigh. • V/f parameter is wronglyset. • When the frequency drivestarts, the load is still inrotation. • The load is toolarge.	• Increase accelerationparameterf010 or f518). • Decrease the setting of f507 orf508. • Correctly set V/f parameter. • Set parameterf418 = 2. • Adopt one frequency drive withhigher rated power.
e-22	Motor overload	• V/f parameter is wronglyset. • The motor is blocked. • The motor continues to run atlowspeed. • The load applied to the motor is toolarge.	• Correctly set V/fparameter. • Check the load.
e-23	Braking resistor over load	Improper specification selection for braking resistor	Select competent braking resistor. Prohibit braking resistor overload protection f527=2
e-24	frequency drive overheat fault	• frequency drive's coolingfandoes not work. • Environment temperature istoohigh. • Certain ventilation openingisblocked. • There is heat source nearthe frequency drive.	• Reset the frequency drive'sfault after cooling and restart the frequency drive . • Expand the free space around the frequency drive ; Remove all heat sources near the frequency drive to lower theenvironment temperature.
e-25	Motor PTC overheating fault	• External PTC embedded in the motor winding indicates existence of motor over heating.	• Correct motoroverheating. • Check whether PTC isworkingproperly. • Check logic input functions 27and28.
e-31	EEPROM fault	• Data writing and read errorsoccur. • The frequency drive haspowerfailure during parameterreset.	• Power on the frequency drive to eliminate the fault. If the fault cannot be eliminated, contact usorour distributor for main tenanceor repair of the frequency drive.
e-32	Control board fault	• Control board cannot work	• Connect manufacturer tomaintain
e-33	Communication fault	• Network communication error.	• Check network control devices and cables. • Check the setting of communication over time parameter f803. • Check remote keyboard panel cable.
e-34	Current sensor fault	• The current sensor is inabnormal status.	• Replace the frequency drive.
e-35	Network fault	• Network error	• Check network control devices and cables.
e-36	frequency drive type error	• frequency drive hardwarefault	• f120=7If error is still, connect manu facturer to maintain
e-38	AI1 signal Loss	• AI1 analog signal level is lower than the level set by the parameter f422.	• Check signal on AI1 toeliminatethe cause of signalloss. • Confirmwhetherf422 is correctlyset.

Codeoffault	Type offault	Possiblecause	Measures(troubleshooting)
e-39	frequency drive inside communication error	• communication errorbetweenkeyboard and control boardCPU	• Connect manufacturer tomaintain
e-42	Output phase failure	• The output side of the maincircuitis phasefailure.	• Determine the cause ofinputphase failure (such aspoorconnection, open circuit ofoutputor open circuit of motorwinding)and correctit. • Set f406 = 0.
e-43	EmeGency stop fault	• Use the keyboard panel toperformstop operation when themotorworks under remotemode.	• Perform faultreset.
e-45	Torque boost is too large	• Setting of torque boost parameter f203 is too high. • Motor impedance is too low.	• Repeat self-tuning of the frequency drive and down ward tune parameter f203.
e-46	Self-settin gerror	• Confirm whether motorratedparameter settings arecorrect. • The motor capacity is farsmallerthan that of thefrequency drive. • Cable of the motor is toothin. • Motor is still in rotation whentheself-setting starts.	• Correctly set motor rated parameters. • Use frequency drive with larger capacity. • Apply thicker cable of the motor. • Confirm the motor has stopped before the self-setting begins.

7.2 Description of alarm and indication code

Table 7.2   Alarm display and measures

Code	Description	Cause	Measures
a-00	Fault resetisacceptable.	Under fault code display state, press STOP keyanda -00 is displayed.	Press the STOP key again and the fault is eliminated.
a-01	Undervoltageindication	Insufficient input voltage	Check the single-phase input power supply. If the power supply is normal, the frequency drive has to berepaired.
0.0 (flash)	"Running ready" is invalid	Under remote control mode the corresponding terminal to the logic input function 1 is not closed.	Configure one logic input function as 1, and close thisterminal.
a-05	Abnormal setting of frequency point	Frequency points at point1and point 2 are set tooclosely.	Do not set f325 and f327 too closely. Do not set f329 and f331too closely.
a-06	Free stop action during transient power failure.	f418 is set to 2 and transient power failure occurs.	Input running signal to the frequency driveagain or reset the frequency drive.
a-07	In DCbraking	DC braking function is activated.	If the code disappears in several seconds,the frequency drive comes back to normal.
a-08	In running retrial	The frequency drive isinthe process ofrestart. Forward/reverse speed tracking and restart function (STR function) is activated.	The alarm code is moment arily displayed then disappears, and the frequency drive restarts.
a-10	In low speedsleep	See parameter f501.	Disabled This function or raise the frequency instruction to f009+f906.

Code	Description	Cause	Measures
a-11	Key fault onthekeyboard	Certain key on thekeyboardpanel is continuously pressed more than 20 s or the panel is damaged.	If all keys are released but the alarmdoesnot disappear, the frequency drive hastoberepaired.
a-12	In the processofparameteri nitialization	See parameterf120.	If the alarm code is moment arily displayed and then disappears , the frequency drive comes back to normal.
a-13	Loss of analog signal	Analog input terminal detection level is lower than the setting level of f422.	Check analog input terminal
e1	Exceeding displayed digit number by 1 digit	Displayed digit number exceeds 4 digits.	Try to reduce the set-point of f604
eun1	In the process of self-setting	frequency drive is performin gself-setting.	If the alarm code is momentarily displayed and then disappears, the frequency drive comes back to normal.

Table 7.3   Display of early warning code

Code	Type	Description
---c	Over current early warning	frequency drive is in current amplitude limiting state. See parameters f107 and f111.
--u-	Over voltage early warning	frequency drive approaches over voltage fault. See parameters f415 and f416.
-l--	Over load early warning	This code is displayed when the motor or frequency drive over load counter exceeds 50%.
h---	Over heat early warning	Frequency drive approaches overheat fault.

Note: Early warning types can occur simultaneously. E.g, when overheat early warning and overcurrent early warning happen in the same time, the corresponding code is h--c.

7.3 Restart of the frequency drive after fault occurs

After failure occurs in the frequency drive , it can be restarted only when the cause of the failure has been eliminated. Please follow the undermentioned operations to realize fault reset of the frequency drive .

(1) After the defect is eliminated, press STOP on the keyboard, display showa-00, press STOP again, VFD fault reset,then cansupply power to the motor.

(2) When the frequency drive is under remote control mode andf002= 0, set the input function configuration of any logic input terminal to 10. Then the frequency drive can use this terminal to perform fault reset.

(3) When the frequency drive is under remote control mode andf002= 2, fault reset is realized through remote communication devices. See Appendix A: Serial communication.

(4) Switch off the frequency drive and power it on again

Note: When the fault is motor or frequency overload (e-21 or e-22), frequency drive reset function can not be performed if computed cooling time is not up. The computed cooling time is specified as: e-21,   30 seconds after the fault occurs;e-22, 120 seconds after the the fault occurs。
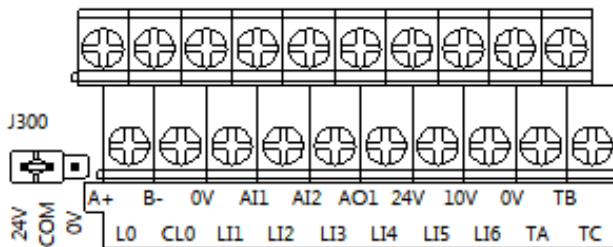
Appendix A：Serial Communication

Serial communication is the information exchange channel of the frequency drive with upper computer. Through serial communication, users can use personal computer or industrial control equipment (such as PLC etc) as host to set frequency drive (slave)'s running frequency or command, modify or read data, read working state and fault information etc and realize remote or centralized control of the frequency drive .

V74 series frequency drive adopt RS-485 bus and Modbus protocol for serial communication.

A1．RS485 Bus

The frequency drive's serial communication follows two-wiring RS-485 standard. The array sequence of the corresponding pins of RJ45 interface is shown as below:

Figure A.1   RJ45 front view   Tab

Pin	Signaldescription
A+	RS-485+
B-	RS-485-

RS-485 two-wire wiring method is half-duplex serial communication. At the same moment the host and slave can not simultaneously transmit or receive data. Only one transmits data and another receives them.

RS-485 two-wire wiring method supports bus-type topological structure. At most 32 nodes can be connected to the same bus. Normally master-slave communication method is adopted in the RS-485 communication network, namely, one master commands as many as 31 slaves.

Under the circumstance of multi-computer communication or long-distance communication, it is suggested to connect the signal ground of the master station with the common port of the frequency drive to raise the ant- interference ability of communication.

A2．Modbus protocol

Modbus is a master-slave communication protocol. The master governs the whole communication process. Only when the master sends command to the slave, the slave executes the actions or/and send feedback   information to the master. Other wise the slave performs no operation and the slave can not communicate with each other directly.

There are two kinds of dialogues between the master and slaves:

(1) Point-to-point: Master sends command individually to a certain slave which executes action or/and sends feedback information.

When the master command is correct, the slave executes corres ponding actions and transmits feedback of result information to the master.

When the master command is false, the slave transmits feedback of error information to the master but executes no actions.

(2) Broadcast mode: The master sends command to all slaves which execute action but send no feedback information.

Modbus protocol has two kinds of transmission patterns: Modbus RTU and Modbus ASCII. V74 series frequency drive supports Modbus RTU.

A2.1 Description of Modbus-RTU message format

When the Modbus-RTU mode is used for communication, the communication information (message) is represented directly with hexadecimal code (1-9, A-F). Two hexadecimal codes form one byte. The message format is shown as below:
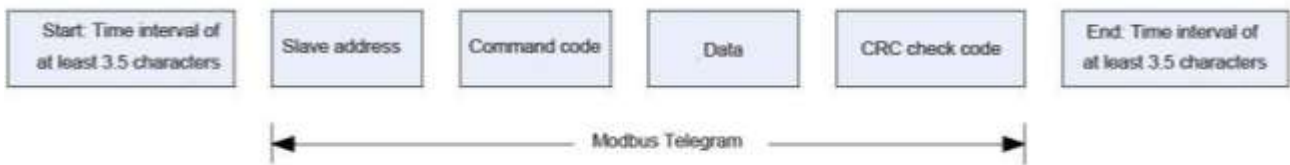

Figure A.2 Modbus Message Format

As shown in Figure A.2, during the communication process, the master and slave determine the start and end of Modbus message according to time interval of at least 3.5 characters. The message includes the complete data information to be transmitted: in the sequence of slave address, command code, data and CRC code. Its length varies with the change of the command code.

The message of Modbus-RTU is classified into three types and two formats:

1.Request (Interrogation) message: Command request message transmitted by master to slave;

2.Normal response message: The slave's feedback message when the master's command is correct.

3.Error response message: The slave's feedback message when the master's command is false / invalid.

Please find Table A.2 to check the details of Modbus-RTU message.

Table A.2   Instruction of Modbus-RTU message

Number	Name	Function
1	Slave address	● Configured from 0 to 247 ● When master checking, if slave address set as 0, All slaves execute command but provide no feedback information; If slave address is set to 1~247, the dialog is point-to-point mode. All address-matching slaves execute command and provide feedback information. ● Under the point-to-point mode, when the matching slave responses, it sends back

Number	Name	Function
2	Command code	● This frequency drive supports part of command codes of Modbusprotocol. ● All slaves execute command code and the matching slave responses codeinclude: (1) 03H:Read one word (2bytes) (2) 06H:Write one word (2bytes) ● During error response, the feedback command code of the slave = the request command code of the master +80H.
3	Data	● This part is the main content of communication and the core of data exchange. Its content and length vary with the variation of the command codes. See the following concrete descriptions of every command code.
4	CRCcode	● Cyclical redundancy check (CRC) code is used for error detection of received data done by the receiving equipment and for judging whether the received data are correct. Please refer to "A2.3 Cyclical redundancy check (CRC)" for generation of CRC code. Note: CRC code first sends low bytes then high bytes. Except this, all messages of Modbus-RTU adopt the transmission sequence of "high bytes first - then low bytes".

A2.2Detailed message description of different commands

A2.2.1 Read N words (2*N bytes) -- command code 03H

1．Master request message

Table A.3 Command code 03H host query message format

Slaveaddress	Commandcode	Communicationaddress		Read wordnumber		CRCcode	
		2bytes		2bytes		2bytes	
1byte	1byte	Highbyte	Lowbyte	Highbyte	Lowbyte	lowbyte	highbyte
	03H						

1) Slave address and CRC code: See "Table A.2".

2) Command code: 03H, request to read N words (2*N bytes) of the slave machine. Notice that N is at most 5.

3) Communication address: The address of read data. This is not the real physical address for data storage, but a number corresponding to the data. Every control, state or monitoring parameter of V74 series frequency drive corresponds to a communication address. See "A2.5 Communication parameter".

4) Read word number: The length of the read data with the word (2 bytes) as the count unit. When current request asks for reading one word, it is set to 0001H.

2．Message of slave normal response

Table A.4 Command code 03H of slave machine normal reply message

Slave address	Command code	Read bytes number	Read bytes number 2		...	Read bytes number N		CRC code	
			2 bytes		...	2 bytes		2 bytes	
1 byte	1 byte	1 byte	High byte	Low byte	...	High byte	Low byte	Low byte	High byte
	03H				...				

1)Slave address and CRC code: See "A2.2".

2)Command code: 03H. The same as the master request command code.

3)Read word number: The length of the read data with byte as the count unit. When current master requests to read one word, set read byte number transmitted from the slave to 02H.

Note: The count unit of the length of the read data is different from that of request message.

4)Read data: Data corresponding to the communication address in the request message. Note: Read data firstly sends high byte then low byte in an opposite direction to CRC code。

3．Slave error response message

Table A.5 Slave error response message of Command code 03H

Slaveaddress	Commandcode	Errorcode	CRCcode	
			2bytes	
1byte	1byte	1byte	Lowbyte	Highbyte
	83H			

1)Slave address and CRC code: See "A2.2".

2)Command code: 83H. It is = 03H + 80H.

3)Error code. For detail see "A2.4 Error code".

4)Example: Read upper limit frequency.

Master request message: 01 03 00 08 00 01 05 C8

Normal response message: 01 03 02 13 88 B5 12 (Suppose that current upper limit frequency is 50 Hz)

Error response message: 01 83 03 01 31 (Suppose that read word number is altered from 0001 to 0002)

A2.2.2 Write one word (2 bytes) ― Command code 06H

1.Master request message

Table A.6   Format of master request message

Slave address	Command code	Communication address		Write data		CRC code	
		2bytes		2bytes		2bytes	
1byte	1byte	Highbyte	Lowbyte	Highbyte	Lowbyte	Lowbyte	Highbyte
	06H						

1)Slave address and CRC code: See "Table A.2".

2)Command code: 06H. Request to write 1 word (2 bytes) of the slave.

3)Communication address: The address of read data. This is not the real physical address for data storage, but a number corresponding to the data. Every control, state or monitoring parameter of frequency drive corresponds to a communication address. See "A2.5 Communication parameter".

4)Write data: Request data written by the slave.。

A2.2.3　Write more word (2*N bytes) — Command code 10H

1．Master request message

Table A.7Command 10H: Format of master request message

Slave Address	Commend code	Communication add		Write data		Write bite	Write data1		...	Write data N		CRC code	
		2byte		2byte			2byte		...	2byte			
1byte	1byte	High byte	Low byte	High byte	Low byte	1byte	High byte	Low byte	...	High byte	Low byte	Low byte	High byte
	10H								...				

1)Slave address and CRC code: See "Table A.2".

2)Command code: 10H. Request to write N word (2*N bytes) of the slave.,note N≥5

3)Communication address: The address of read data. This is not the real physical address for data storage, but a number corresponding to the data. Every control, state or monitoring parameter of frequency drive corresponds to a communication address. See "A2.5 Communication parameter".

4)Write data: Request data written by the slave.。

5)Write byte number:Request data written by the slave.=write numer*2

6)write data1~write data N:Request data written by the slave

2．Slave normal response message

Table A.8Commend 10H: Slave normal response message

Slaveaddress	Commandcode	Communication address		Write data		CRC code	
		2bytes		2bytes		2bytes	
1byte	1byte	Highbyte	Lowbyte	Highbyte	Lowbyte	Lowbyte	Highbyte
	10H						

1)Slave address and CRC code: See "Table A.2".

2)Command code: 10H. The same as master command

3)Communication address: the same as master communication address. .

4)Write data: the same as master

3．Slave error response message

Table A.9 Commend10HFormat of slave error responsemessage

Slaveaddress	Commandcode	Errorcode	CRCcode	
			2bytes	
1byte	1byte	1byte	Lowbyte	Highbyte
	90H			

1)Slave address and CRC code: See "Table A2.2".

2)Command code: 90H. It is = 10H + 80H.

3)Error code. For detail see "A2.4 Error code".

4．Example: To write the beginning five data of f300

Master request message: 01 10 03 00 00 05 0A 00 01 00 03 00 04 00 01 00 0B 9D AE

(Suppose f300=1; f301=3; f302=4; f303=1; f304=11)

Normal response message: 01 10 03 00 00 05 00 4E

Error response message: 01 90 03 0C 01 (Suppose current writing operation cannot be performed)

Table A.10 error code explanation

Errorcode	Description
01	Command code error
	● Command code other than 03H 06 and 10H is set in the requestmessage
02	Communication address error
	● Visited communication address does notexist.
	● The register corresponding tothe communication address does not permit performance of the action demanded by the current command code.
03	Data setting error
	● Written data exceeds the allowable range of the register.
	● Improper setting of certain parameter in the request message.
04	Unable to continue implementing the master's srequest.
	● Error occurs during the process of writing data.
	● Currently the register corresponding to the communication address does notpermit performance of the action demanded by the command code.

A2.3 Cyclic redundancy check（CRC）

Modbus-RTU's communication message uses cyclic redundancy check (CRC) for transmission error check.

During each communication, the sender computes CRC code of transmitted data according to CRC rules, then sends the data by attaching the CRC code to them; After receiving the data, the receiver re-computes the CRC code according to the same rules. The computed content does not include the received CRC code. The reciever compares the re-calculated CRC code with the received code. If they are not the same, the transmitted data are determined to be false.

This frequency drive adopts CRC16 rule for message check of serial communication. Every CRC code consists of 2 bytes, including 16-bit binary value. The calculation is as follows:

1)Initialize CRC register (16 bit) to 0xFFFF;

2)Perform XOR to the first byte (slave address) and the low 8 bits of the register, and then put the computed result back to CRC register;

3)Make a right shift by 1 bit to the content of CRC register and fill in the highest bit with 0;

4)Check the shift-out bit after right shift;

· If the shift-out bit is 0, repeat 3), namely, make another right shift;

· If the shift-out bit is 1, make XOR to CRC register and 0xA001, and put the computed result back to the CRC register;

5)Repeat steps 3) and 4) until 8 right shifts are made. Implement the same procedure to all the 8-bit data; Repeat steps 2) ~ 5) to implement the processing of the next byte in the message;

7)After all the bytes in the message are computed according to the above procedures, the content in the CRC register is the CRC code.

After the CRC code is acquired through the above-mentioned method, attach it to the transmitted data and send them. It is necessary to exchange the high and low bytes of the CRC code, namely, to send the low byte firstly and then the high byte.

There are two methods to compute CRC code with software: table look-up and on-line computation. Computation speed of the table look-up is fast but its table data occupy considerable space; On-line computation method requires no table data. It saves space but needs much time. Suitable computation method is selected according to concrete circumstance during application.

A2.4 Error code

When the slave is not able to implement master's request, the slave gives feedback of corresponding error code to indicate cause of the current error. Refer to the following table for the concrete meaning of error code.。

TableA.11Error code explanation

Errorcode	Description
01	Command codeerror
	● Command code other than 03H 06 and 10H is set in the request message
02	Communication address error
	● Visited communication address does notexist.
	● The register corres ponding to the communication address does not permit performance of the action demanded by the currrent command code.
03	Data setting error
	● Written data exceeds the allowable range of the register.
	● Improper setting of certain parameter in the request message.
04	Unable to continue implementing the master's srequest.
	● Error occurs during the process of writingdata.
	● Currently the register corresponding to the communication address does not permit performance of the action demanded by the command code.

A2.5 Communication parameter

1.Control parameter

Control parameters are edited through serial communication in order to realize frequency drive ' s function setting, running frequency setting, start/stop control and logic/analog output setting.

1) Basic parameters

Basic parameters consist of 10 groups: F0 – f9. They are used to control the function setting of the frequency drive . Their detailed description, communication addresses and value ranges are shown in "5. Detailed description of parameters" .

Note: The communication address of the basic parameter corresponds to its display code. However, it is required to change F at the highest bit to 0;

Example: The display code of parameter "Running commandselectionis f001, so the corresponding communication address is 0001;

Another example: The display code of parameter "Default keyboard panel isplay value" is f702,so the corres ponding communication address is 0702.

2) Communication control word (Communication address: fa05)

3) Communication running frequency setting (Communication address: fa08)

Table A.12   Detailed description of communication control word

Bit	Description of function	0	1	Default value
0	JOG	NO-JOG	Jog frequency	0
1	Forward/reverse rotation	Forward rotation	Reverse rotation	0
2	Running/stop	Stop	Running	0
3	Free stop	No action	Free stop	0
4	Emergency stop	No action	Emergency stop	0
5	Fault reset	No action	Reset	0
6	Given frequency by communication	Disable	Enable	0
7	Given code by communication	Disable	Enable	0
8	Multi-speed 1	OFF	ON	0
9	Multi-speed 2	OFF	ON	0
10	Multi-speed 3	OFF	ON	0
11	Multi-speed 4	OFF	ON	0
12	Motor parameter switch	1nd Motor Parameter	2nd Motor Parameter	0
13	PID control Disabling	Enabling PID control	Disabling PID control	0
14	Acceleration/ deceleration curve switch	Acceleration/ deceleration curve 1	Acceleration/ deceleration curve 2	0
15	DCbraking	No DCbraking	DC brakingstart	0

(3) communication running frequency setting(communication address FA08)

Table A.13   communication running frequency setting

Bit	Description offunction	Default
0-15	Running frequency data of communication setting. Hex a decimal setting: 50Hz · (50Hz)x100 = 5000 · 1388Hz. It is if setting: 50Hz, write 1388H in the FA08 address	0.0

(4) Communication analog output setting (Communication address: FA16)

Table A.14   Communication analog output setting

Bit	Description offunction	Lowerlimit	Upperlimit	Default
0-15	Analog output data of communication setting (incorrespondence with analog output function10)	0 (0000H)	1023 (03FFH)	0

1.Monitoring parameter

Monitoring parameters can be read through serial communication to see the running state of the converter. The following table is the description of monitoring parameters.

Table A.15   Monitoring parameters 1

No.	Communication address	Description of function	Unit	Note
1	FD03	Real-time running state	-	See table A.14 for detail
2	FD12	Real-time running frequency	0.01 Hz	
3	FE18	Actual output frequency	0.01 Hz	
4	FE09	DC bus input voltage	0.01 %	
5	FE10	Output voltage	0.01 %	
6	FE08	Output current	0.01 %	
7	FE20	Output torque	0.01 %	
8	FE29	Output power	0.01 kW	
9	FE50	Motor speed (estimated)	1rpm	
10	FE11	Logic input	-	See Table A.15 for details
11	FE12	Logic output	-	See Table A.16 for details
12	FE30	Logic input AI1 (10-bit accuracy)	-	Range (0-1023)
13	FE31	Logic input AI2 (10-bit accuracy)	-	Range (0-1023)
14	FC39	Fault monitoring	-	See A.17 for details
15	FA35	Given press percent		See 6.12 for details
16	FA36	Given press percent		See 6.12 for details
17	FE41	frequency drive rated current	0.1A	

Table A.16Monitoring parameter specification 2

No.	Communication address	Description of function	Unit	Note
1	E000	Real-time running state	-	See tableA.14 for details
2	E001	Real-time running frequency	0.01Hz	
3	E002	output current	According f534 seeting	Suggest f534=1
4	E003	Fault monitoring	-	See TableA.17 for details
5	E004	PID given		
6	E005	PID feedback		
7	E006	output voltage	V	
8	E007	Motor speed (estimated)	1rpm	
9	E008	Output torque	0.01%	
10	E009	DC bus input voltage	V	
11	E010	Input power	0.01kW	
12	E011	Output power	0.01kW	
13	E012	Input power accumulates	W.h	
14	E013	Output power accumulation	Unit accoring f617dada	
15	E014	Running time accumulation	Hour	
16	E015	Logic input		See Table A.15 for details
17	E016	Logic output		See Table A.16 for details
18	E017	Analog input AI1(10-bit precision)		Range(0~1023)
19	E018	Analog input AI2(10-bit precision)		Range(0~1023)

Table A.17 Logic input statemonitoring

Communicationaddress	Description offunction		
FE11/FD01/E015	Logic input statemonitoring		
Bit	Description	0	1
0	TerminalLI1	OFF	ON
1	TerminalLI2	OFF	ON
2	TerminalLI3	OFF	ON
3	TerminalLI4	OFF	ON
4	TerminalLI5	OFF	ON
5	TerminalLI6	OFF	ON
6	Terminal LI7 or as AI1 when logic input	OFF	ON
7	Terminal LI8 or as AI2 when logic input	OFF	ON
8-15	Reserved	-	-

Table A.18 Logic Output state monitoring

Communicationaddress	Description offunction		
FE12/FD02/E016	Logic output state monitoring		
Bit	Description	0	1
0	TerminalLO1-CLO	OFF	ON
2	RelayT1	OFF	ON
3-15	Reserve	-	-

Table A.19 Real-time running state monitoring

Communication address	Description off unction		
FD03/E000	Real-time running statemonitoring		
Bit	Description	0	1
0	Reserved	-	-
1	Fault	Nofault	Tripping
2-8	Reserved	-	-
9	Forward/reverserotation	Forwardrotation	Reverserotation
10	Running/stop	Stop	Running
11-15	Reserved	-	-

Table A.20   Fault monitoring

Communication address	Description off unction	
FC39/E003	Faultmonitoring	
Value	Correspondingfault	Paneldisplay
0000H	Nofault	nerr
0001H	Accelerationovercurrent	e-01
0002H	Decelerationovercurrent	e-01
0003H	Constant speedovercurrent	e-01
0009H	Output phasefailure	e-42
000AH	Accelerationovervoltage	e-11
000BH	Decelerationovervoltage	e-11
000CH	Constant speedovervoltage	e-11
000DH	frequency driveoverload	e-21
000EH	Motoroverload	e-22
0010H	Overheattripping	e-24
0011H	EmeGencytripping	e-43
0012H	EEPROM error 1 (writeerror)	e-31
0013H	EEPROM error 2 (Readerror)	e-31
0014H	EEPROM error 3 (Internalerror)	e-31
0018H	External communicationerror	e-33
001AH	Current detectionfault	e-34

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