

# Contents

Chapter I Overview .....	1
1.1 Safety Requirement and Cautions.....	1
1.2 Before Use.....	2
1.3 Technical Criterion.....	3
Chapter II Installation.....	5
Chapter III Keyboard Layout and Operating Instructions.....	9
Chapter IV Function Table .....	11
4.1 Safety Precautions .....	11
4.2 Reading Method of Parameter List.....	11
4.3 Functional Group.....	11
4.4 Group F00: Environmental Applications .....	13
4.5 Group F01: Basic Settings.....	14
4.6 Group F02: Motor 1 Parameters .....	18
4.7 Group F03: Vector Control.....	20
4.8 Group F04: V/F Control .....	24
4.9 Group F05: Input Terminal .....	25
4.10 Group F06: Output Terminal .....	30
4.11 Group F07: Operation Control .....	34
4.12 Group F08: Auxiliary Control .....	37
4.13 Group F09: Reserved .....	39
4.14 Group F10: Protection Parameters .....	39
4.15 Group F11: Operator Parameters .....	44
4.16 Group F12: Communication Parameters.....	48
4.17 Group F13: Process PID Control .....	49
4.18 Group F14: Multi-Speed and Simple PLC.....	52
4.19 Group F15: Reserved .....	56
4.20 Group C0x: Monitoring Parameters.....	56
4.21 Terminal Input and Output Function Selection.....	58
4.22 Fault Code Table .....	59

**Chapter V Periodic Overhaul and Maintenance ..... 62**

**5.1 Overhaul ..... 62**

**5.2 Maintenance..... 63**

**5.3 Product Warranty ..... 63**

**Appendix: Modbus Communication Protocol..... 64**



# Chapter I Overview

## 1.1 Safety Requirement and Cautions

Please do totally understand this part before using the AC Drive.

### Warning signs and meanings

This manual has used following signs which means there is an important part of security. While observing against the rules, there is a danger of injury even death or machine system damage.

 危险	<b>Danger:</b> Wrong operation may cause death or large accident.
 注意	<b>Caution:</b> Wrong operation may cause minor wound.

### Operation requirement

Only professionally trained persons can be allowed to operate the equipment. "Professional trained persons" means the workers must have experience professional trained skill, and must be familiar with installation, wiring, running and maintain and can rightly deal with emergency cases in use.

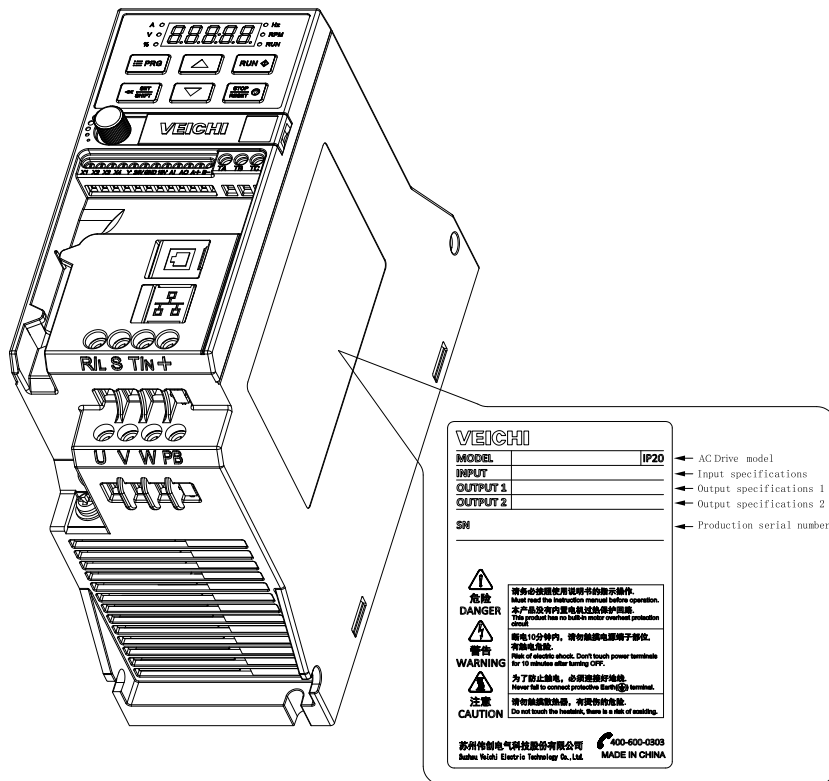
### Safety guidance

Warning signs come for your security. They are measures to prevent the operator and machine system from damage. Please carefully read this manual before using and strictly observe the regulations and warning signs while operating.

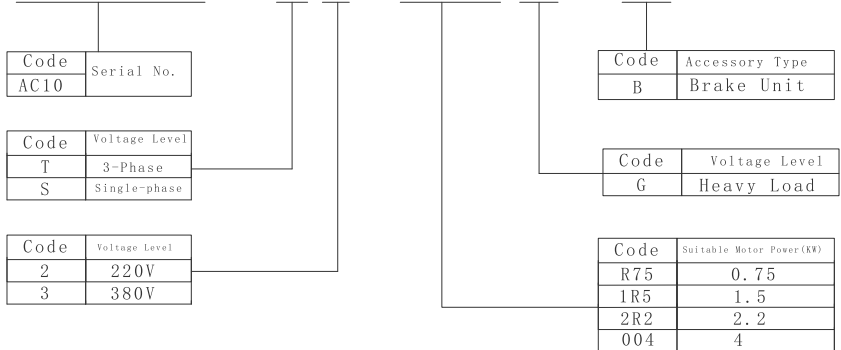
- Correct transportation, store, installation, careful operation and maintenance are important for AC Drive safe operation. In transport and store process, make sure the AC Drive is free from impact and vibration. It must be stored where is dry without corrosive air and conductive dust, and the temperature must be lower than 60°C.
- This product carries dangerous voltage and controls driver machine with potential danger. If you don't abide by the regulations or requirements in this manual, there is danger of body injury even death and machine system damage.
- Do not wire while the power is connected. Otherwise, there is danger of death for electric shock. Before wiring, inspection and maintenance, please cut off power supply of all related equipment's and ensure main DC voltage in safe range. And please operate it after 5 mins.
- Power wire, motor wire and control wire should be all connected firmly. Earth must be reliable and earth resistance must be lower than 10Ω.
- Human body electrostatic will damage inner sensitive components seriously. Before operation, please follow ESD measures. Otherwise, there is danger of AC Drive damage.
- AC Drive output voltage is pulse wave. If components such as capacitor which improves power factor and pressure-sensitive resistance for anti-thunder and so on are installed at the output side, please dismantle them or change to input side.
- No switch components such as breaker and contactor at the output side (If there must be one, please make sure the output current is 0 while the switch acting).
- No matter where the fault is, there is danger of serious accident. So there must be additional external prevent measures or other safety devices.
- Only used in application fields as maker stated. No use in equipments related to special fields such as emergency, succor, ship, medical treatment, aviation, nuclear and etc.
- Only Veichi Electric co., ltd service department or its authorized service center can maintain the products. It may cause product fault while using accessories not authorized or permitted. Any defective components must be changed in time in maintenance.

## 1.2 Before Use

On receiving your order, please check the package and confirm intact before opening, and check if there's any damage, scratch or dirt (damages caused during transportation are not within the company's warranty). If there's any damage caused during transportation, please contact us or the transport company immediately. After confirming the receipt of the goods intact, please re-confirm if the product and your order are consistent.



# AC10 - T3-1R5G - B



Voltage	220V	380V	Voltage	220V	380V
Power(KW)	Rated Output Current (A)		Power(KW)	Rated Output Current (A)	
0.75	4	3	2.2	10	5
1.5	7	4	5.5		13

### 1.3 Technical Criterion

Project		Specification
Power Input	Voltage, Frequency	S2:Single-phase 220V 50/60Hz T2:Three-phase 220V 50/60Hz T3:Three-phase 380V 50/60Hz
	Allow fluctuations	T/S2: -10% to 10%; T3: -15% to 10%; Voltage imbalance rate: <3%; Frequency: ±5% The distortion rate meets the requirements of IEC61800-2
	Closing impulse current	Less than rated current
Output	Output voltage	Output under rated conditions: 3 phases, 0 to input voltage, error less than 5%
	Output frequency	0-600.00Hz
	Output frequency	±0.5% of the maximum frequency value
	Overload capability	T3 model: 150% rated current for 1 minute, 180% rated current for 5 seconds, 200% rated current for 0.5 second S2 model: 150% rated current 20 seconds, 180% rated current 0.5 seconds
Main control performance	Motor type	PMSM, AM
	Motor control	No PG V/F control, no PG vector control
	Modulation	Optimized space vector PWM modulation
	Carrier frequency	1.0~16.0kHz
	Speed control	No PG vector control, rated load 1:100
	Starting torque	No PG vector control: 150% rated torque at 0.5Hz
	Torque response	No PG vector control: <20ms
	Frequency	Digital setting: Maximum frequency × ± 0.01%; analog setting: Maximum frequency × ± 0.2%
Basic product function	Frequency resolution	Digital setting: 0.01Hz; Analog setting: Maximum frequency × 0.05%
	Torque Control	Torque setting calculation, torque mode speed limit
	DC braking capability	Starting frequency: 0.00~50.00Hz Braking time: 0.0~60.0s Braking current: 0.0~150.0% rated current
	Torque boost	Automatic torque increase 0.0%~100.0% Manual torque increase 0.0% ~ 30.0%
	V/F curve	Four modes: linear torque characteristic curve, self-set V/F curve, torque reduction characteristic curve (1.1 to 2.0 power), square V/F curve
	Acce. / Dece. curve	Two ways: linear acceleration and deceleration, S curve acceleration and deceleration Four sets of acceleration and deceleration time, the time unit is 0.01s, the longest is 650.00s
	Rated output voltage	Using the power supply voltage compensation function, the rated voltage of the motor is 100%, which can be set within the range of 50 to 100% (the output cannot exceed the input voltage)
	Automatic voltage adjustment	Automatically keeps the output voltage constant when the grid voltage fluctuates
Automatic energy saving operation	Automatically optimize output voltage according to load under V/F control mode to achieve energy-saving operation	

	Automatic current limiting	Automatically limit current during operation to prevent frequent overcurrent fault trips	
	Instant power down handling	Uninterrupted operation through bus voltage control during instantaneous power loss	
	Standard function	PID control, speed tracking and power-down restart, skip frequency, frequency upper and lower limit control, program operation, multi-step speed, RS485, analog output, frequency pulse output	
	Frequency setting channel	Keyboard digital setting, keyboard potentiometer, analog voltage/current terminal AI, communication setting and multi-channel terminal selection, main and auxiliary channel combination, can be switched in various ways	
	Feedback input channel	Keyboard potentiometer, voltage/current terminal AI, communication reference, pulse input X4/PUL	
	Run command channel	Operation panel reference, external terminal reference, communication reference	
	Input command signal	Start, stop, forward and reverse, jog, multi-speed, free stop, reset, acceleration/deceleration time selection, frequency setting channel selection, external fault alarm	
	External output signal	1 relay output, 1 collector output, 1 AO output can be selected as 0~10V or 4~20mA or 4~20mA output	
Protective function		Overvoltage, undervoltage, current limiting, overcurrent, overload, electronic thermal relay, overheating, overvoltage stall, data protection, fast protection, input and output phase loss protection	
Keyboard display	Parameter copy	Single line 5-digit display	1 AC Drive status quantity display
		Double line 5-digit digital tube display	2 AC Drive status quantity display
	Parameter	Upload and download function code information of the AC Drive for fast parameter copying	
	Status monitoring	All parameters of the monitoring parameter group such as output frequency, given frequency, output current, input voltage, output voltage, motor speed, PID feedback amount, PID given amount, module temperature, etc.	
Error alarm	Overvoltage, undervoltage, overcurrent, short circuit, phase loss, overload, overheat, overvoltage stall, current limit, data protection damage, current fault operation, historical fault		
surroundings	Installation place	The altitude is less than 1000 meters, and the derating is more than 1000 meters. The derating is 1% for every 100 meters. No condensation, icing, rain, snow, sputum, etc., solar radiation is less than 700W/m <sup>2</sup> , air pressure 70~106kPa	
	temperature humidity	-10 ~ +50 ° C, derating can be used above 40 ° C, the maximum temperature is 60 ° C (no-load operation) 5% to 95% RH (no condensation)	
	Vibration	At 9 to 200 Hz, 5.9 m/s <sup>2</sup> (0.6 g)	
	Storage temperature	-30~+60 °C	
	Installation method	Wall-mounted, closet	
	Protection level	IP20	
	cooling method	Forced air cooling	

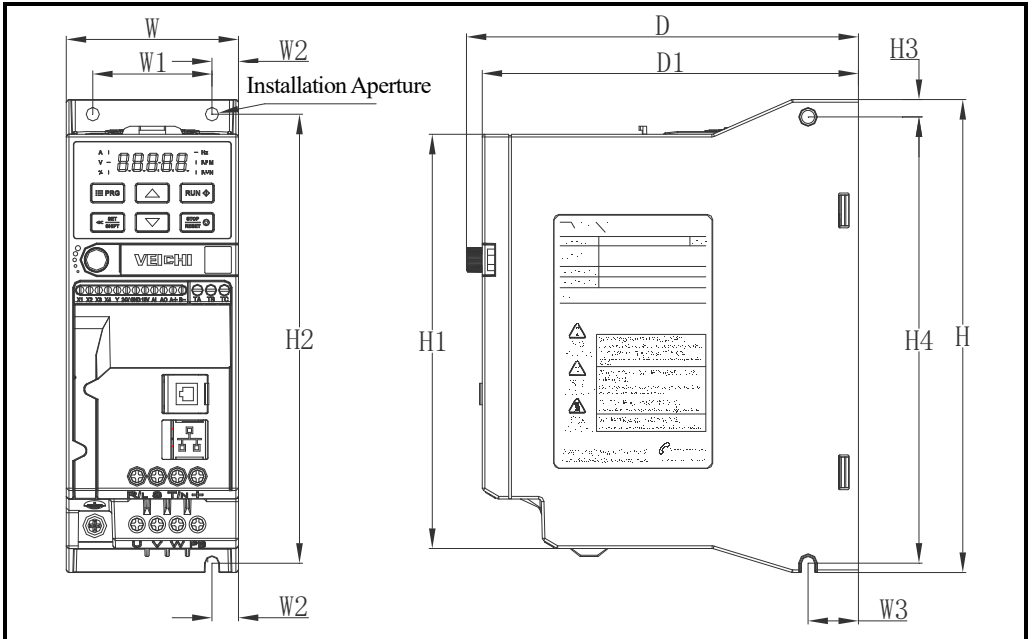
**Note:** The three-phase 220V 50/60Hz power input mode is specially described:

The AC10-S2 series AC Drive is designed for single-phase 220V AC voltage input; it is compatible with three-phase 220V AC input, which will cause the three-phase current imbalance of the grid R, S, T.

## Chapter II Installation

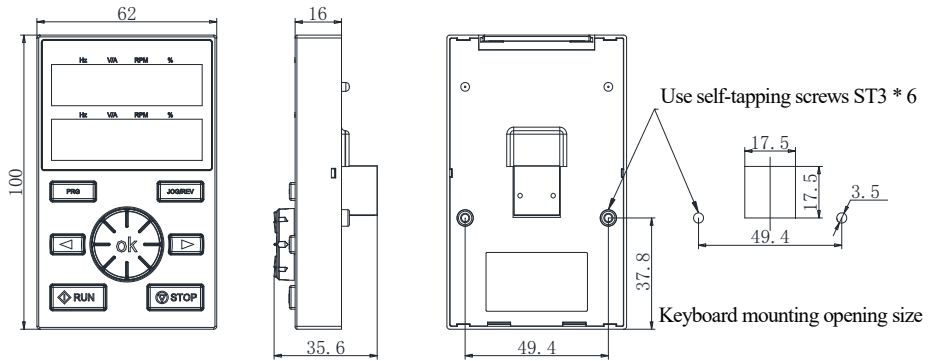
In order to ensure the safe use of this product by users, maximize the performance of the AC Drive, and ensure the reliable operation of the AC Drive, please strictly use the product in accordance with the environment, wiring, ventilation and other requirements described in this chapter.

### AC Drive and keyboard dimensions

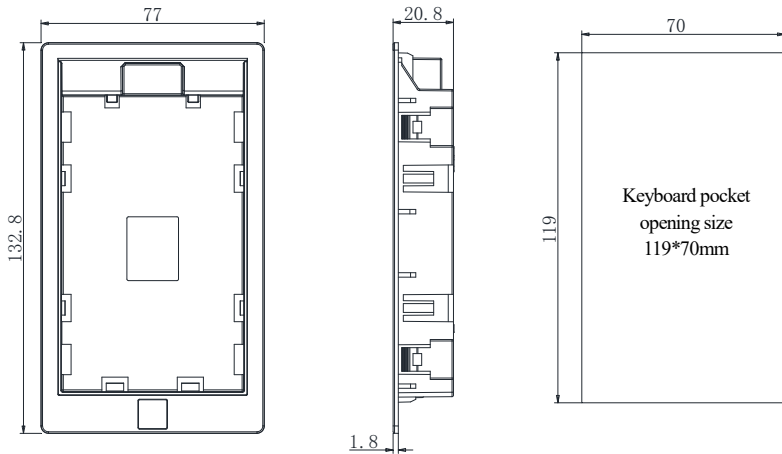


MODEL	Overall Dimension(mm)					Forward mounting size (mm)			Side mounting size (mm)			Mounting aperture
	W	H	H1	D	D1	W1	W2	H2	W3	H3	H4	
AC10-S2-R75G-B	65	177	155	148	142	45	10	168	19	6.5	167	3-M4
AC10-S2-1R5G-B	75	202	180	163	157	55	10	193	19	6.5	192	3-M4
AC10-S2-2R2G-B												
AC10-T3-R75G-B	65	177	155	148	142	45	10	168	19	6.5	167	3-M4
AC10-T3-1R5G-B												
AC10-T3-2R2G-B												
AC10-T3-004G-B	75	202	180	163	157	55	10	193	19	6.5	192	3-M4
AC10-T3-5R5G-B												

**External keyboard shape and opening size Note: LCD is fully compatible with LED keyboard size and opening size.**



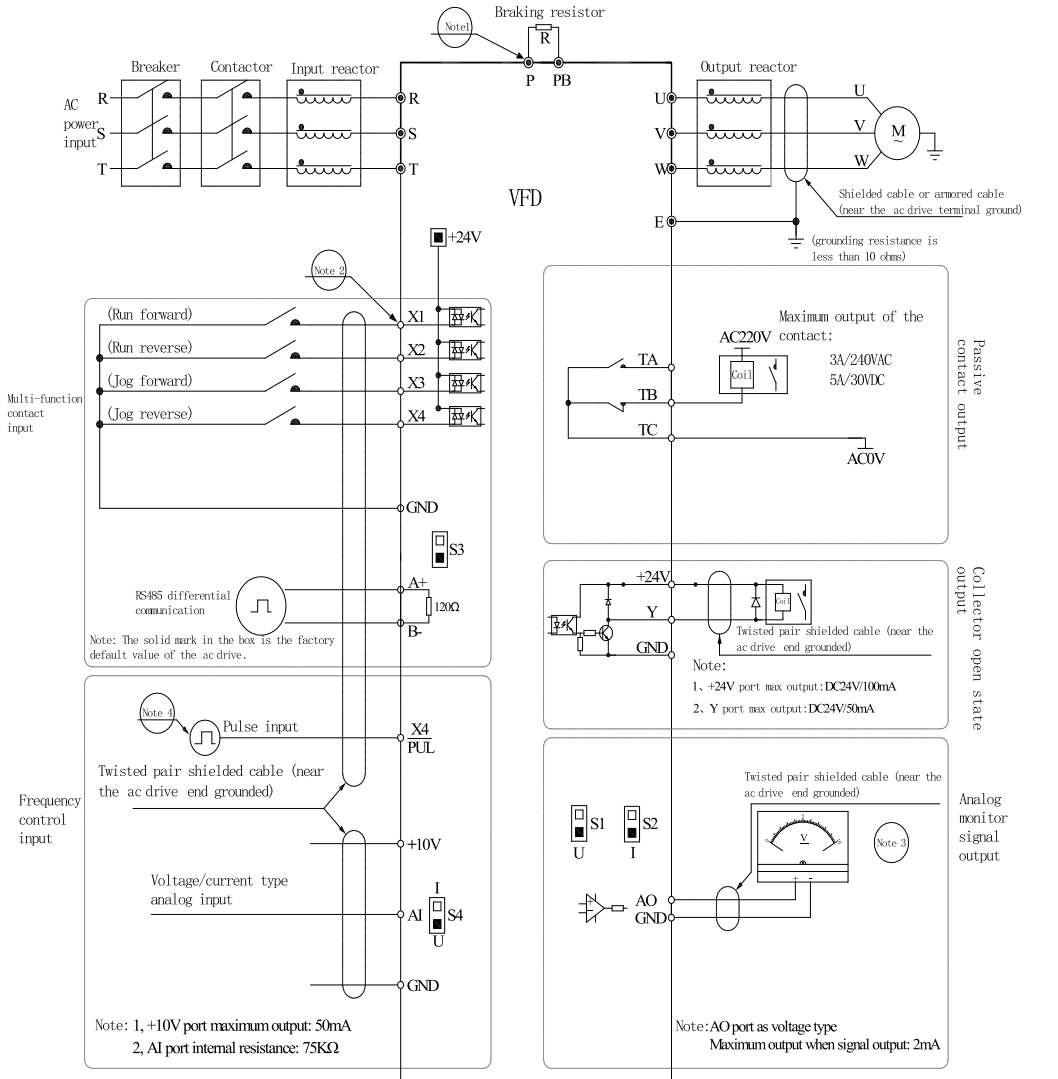
AC10 series external keyboard size



AC10 series external keyboard pocket shape and opening size chart



# 2100000229 Standard connection diagram



Scale: Symbol  $\odot$  represents the main circuit terminal  
Symbol  $\circ$  represents control circuit terminal

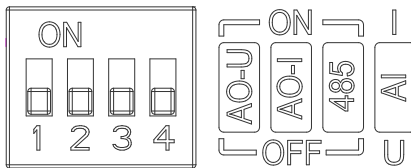
## Note:

- The multi-function input terminal (X1~X4/PUL) can select the NPN transistor signal as the input.
- The analog monitor output is a dedicated output of the meter such as ammeter and voltmeter, and cannot be used for control operations such as feedback control.
- Due to the existence of multiple pulse types in actual use, please refer to the detailed description for the specific wiring method.

**Auxiliary terminal output capability**

Terminal	Function Definition	Maximum output
+10V	The 10V auxiliary power supply output and GND form a loop.	50mA
AO	The analog monitor outputs and forms a loop with GND.	Maximum output 2mA as a voltage type signal
+24V	The 24V auxiliary power supply output forms a loop with GND.	100mA
Y	The open collector output can be programmed to operate the object.	DC24V/50mA
TA/TB/TC	Passive contact output, programmable action object.	3A/240VAC 5A/30VDC

● **Transfer switch function legend and description**



Bit	Select location	Function Description
S1	ON	Enable AO output 0~10V
	OFF	Disabling AO voltage output
S2	ON	Enable AO output 0~20mA or 4~20mA
	OFF	Disabling AO current output
S3	ON	RS485 communication access 120Ω termination resistor
	OFF	RS485 communication disconnects 120Ω termination resistor
S4	I	AI input 0~20mA or 4~20mA
	U	AI input 0~10V

## Chapter III Keyboard Layout and Operating Instructions

### ● Keyboard operator appearance



### ● Key function

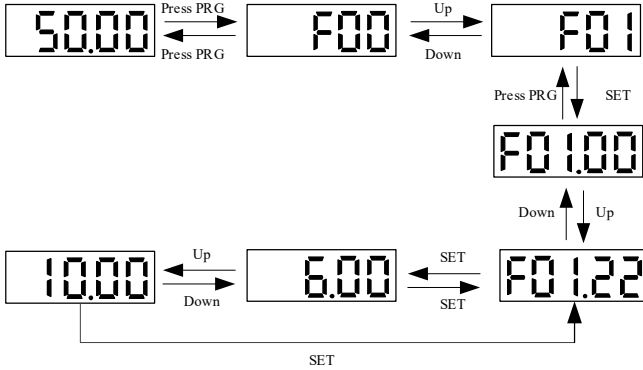
Symbol	Definition	Function Description
	Menu	Enter the function menu interface during standby or running; press this button to exit the modification when the parameter is modified; press the button (1 second) during standby or running to enter the status interface directly.
	Set/shift	Set function: After modifying the value, press this key to confirm the modified value. Shift function: long press this button (1 second) to move the operation bit, long press is not loose, then cyclic shift
	Up/Down	The up key increases the operation value and the down key decreases the operation value.
	Run	When the run/stop is controlled by the keyboard, press this button to turn the AC Drive forward. The status indicator is always on during forward run, and the status indicator is flashing during reverse run.
	Stop/Reset	When the command given channel is keyboard control, press this key to stop the AC Drive; the parameter [F04.08] can be used to define whether other command channels are valid; the AC Drive resets when pressing the key in fault status.

### ● Indicator Definition

Name	Status	Definition	
Unit indicator	Hz	Flash/Light on	Indicates the frequency unit
	A	Light on	Represents current unit
	V	Light on	Represents voltage unit
	RPM	Light on	Express unit of speed
	%	Flash/Light on	Indicates the percentage unit
Status Indicator	RUN	Light on	The AC Drive is running forward
	RUN	Flash	The AC Drive is running reverse
	RUN	Light off	AC Drive is shutdown

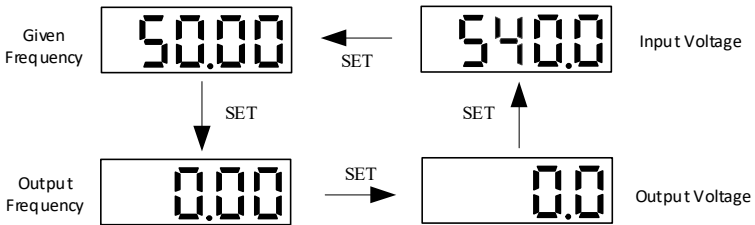
● Basic parameter group parameter setting

The following is an example of setting the F1.22 [acceleration time] = 10.00s to illustrate the basic operation of the LED operator.



Note: When modifying the LED “00”, “000”, “0000” digits of the parameter value, use the keyboard shift key function to quickly select.

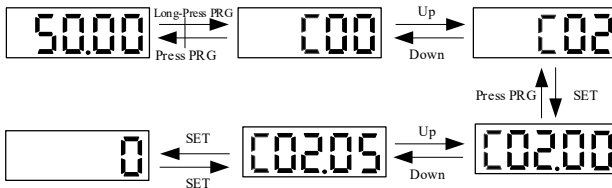
● Run monitoring status view



Note: When using the external keyboard, use the left shift button to cycle through the first line of monitoring parameters, and use the right shift button to cycle through the second line of monitoring parameters.

● Monitoring parameter view

Let's take a look at C02.05 [PLC Operation Phase] as an example to illustrate the basic operation of the LED operator.



## Chapter IV Function Table

This section only provides a function summary. For detailed function descriptions, please refer to the AC10 technical manual or consult our company.

### 4.1 Safety Precautions

DANGER
Please pay attention to all the information about safety in this book.
If you do not follow the warnings, you may cause death or serious injury, so please pay attention. The company will not be responsible for any damage or equipment damage caused by your company or your company's customers who fail to comply with the contents of this book.

### 4.2 Reading Method of Parameter List

#### ◆ Icons and terms that represent control modes

Icon	Content
V/F	Valid parameters in V/F control mode
SVC	Effective parameters under open loop vector control

#### ◆ Icons and terms that represent control modes

Icon	Content
RUN	Parameters that can be modified during operation
STOP	Parameters that cannot be modified during operation
READ	This parameter can only be read and cannot be modified.

### 4.3 Functional Group

NOTE
Parameter [F 11.30] sets RS485/external keyboard to choose one. This parameter is not restored with [F00.03] parameter. Users are strongly advised to unlock the hardware connection of another channel when using one of them.

#### ◆ Indicates the type of this product parameter

	Parameter	Name
F00 group environment application	F00.0X	Environment setting
	F00.1X	Common parameter settings
F01 group basic settings	F01.0X	Basic instruction
	F01.1X	Frequency command
	F01.2X-F01.3X	Acceleration time
	F01.4X	PWM control
F02 group motor 1	F02.0X	Basic motor parameters and self-learning options

parameters	F02.1X	Asynchronous motor advanced parameters
	F02.2X-F02.4X	Reserved
	F02.5X	Motor application parameters
F03 group vector control	F03.0X	Speed loop
	F03.1X	Current loop and torque limit
	F03.2X	Torque optimization control
	F03.3X	Flux optimization
	F03.4X-F03.5X	Torque control
F04 group V/F control	F04.0X	V/F control
	F04.1X	Custom V/F curve
	F04.2X	Reserved
	F04.3X	V/F energy saving control
F05 group input terminal	F05.0X	Digital input terminal
	F05.1X	X1-X4 detection delay
	F05.2X	Digital input terminal action selection
	F05.3X	PUL terminal
	F05.4X	Analog type processing
	F05.5X	Analog linear processing
	F05.6X	AI curve 1 processing
	F05.7X	AI curve 2 processing
	F05.8X	AI as a digital input terminal
F06 group output terminal	F06.0X	AO output
	F06.1X	Reserved
	F06.2X- F06.3X	Digital, register output
	F06.4X	Frequency detection
	F06.5X	Monitor parameter comparator output
	F06.6X	Virtual input and output terminal
F07 group operation control	F07.0X	Start control
	F07.1X	Shutdown control
	F07.2X	DC braking and speed tracking
	F07.3X	Jog
	F07.4X	Start, stop frequency maintenance and frequency hopping
F08 group auxiliary control 1	F08.0X	Counting and timing
	F08.1X	Reserved
	F08.2X	Reserved
	F08.3X	Swing frequency control
	F08.4X	Droop control
F09 group auxiliary control 2	F09.0X	Reserved
F10 group protection parameters	F10.0X	Current protection
	F10.1X	Voltage protection
	F10.2X	Auxiliary protection
	F10.3X	Load protection
	F10.4X	Stall protection

	F10.5X	Failure recovery protection
F11 group keyboard parameters	F11.0X	Key operation
	F11.1X	Status interface loop monitoring
	F11.2X	Monitoring parameter control
	F11.3X	Keyboard special features
F12 group communication parameters	F12.0X	MODBUS slave parameters
	F12.1X	MODBUS host parameters
F13 group process PID control	F13.00-F13.06	PID given and feedback
	F13.07-F13.24	PID adjustment
	F13.25-F13.28	PID feedback disconnection judgment
	F13.29-F13.33	Sleep function
F14 group multi-speed and simple PLC	F14.00-F14.14	Multi-speed frequency given
	F14.15	PLC operation mode selection
	F14.16-F14.30	PLC running time selection
	F14.31-F14.45	PLC direction and acceleration and deceleration time selection
Monitoring parameter group	C00.XX	Basic monitoring
	C01.XX	Fault monitoring
	C02.XX	Application
	C03.XX	Maintenance monitoring
Communication variable group	MODBUS basic communication group	Communication address 0x3000~0x301F, 0x2000~0x201F
	Input and output interface group	Communication address 0x3400~0x341F
	Extended fault and power down parameters	Communication address 0x3600~0x361F

#### 4.4 Group F00: Environmental Applications

##### F00.0x group: Environment setting

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F00.00 (0x0000) RUN	Parameter access level	V/F SVC Set the parameter access level based on the case of restricted parameter access. 0: Standard parameter 1: Common parameters (F00.00, Pxx.yy) 2: Monitoring parameters (F00.00, Cxx.yy) 3: The parameter has been changed (F00.00, Hxx.yy)	0 (0 ~ 3)	
F00.03 (0x0003) STOP	Initialization	V/F SVC Set the initialization method. 0: Not initialized 11: Select the set value according to the purpose to carry out the parameters (excluding the motor parameters) 22: All parameters are initialized 33: Clear the fault record	0 (0 ~ 33)	

F00.04 (0x0004) STOP	Keyboard parameter copy	V/F SVC 0: No function 11: Upload parameters to the keyboard 22: Download parameters to the AC Drive	0 (0 ~ 9999)	
F00.05 (0x0005) STOP	User password	V/F SVC Used to set the user password.	0 (0 ~ 65535)	
F00.06 (0x0006) RUN	LCD keyboard language selection	V/F SVC Select the language displayed on the LCD operator. 0: Chinese 1: English	0 (0 ~ 1)	
F00.07 (0x0007) RUN	Free parameter 1	V/F SVC When using multiple machines, it is used as the machine number. When using multiple machines, the mode number is used for each purpose.	0 (0 ~ 65535)	
F00.08 (0x0008) RUN	Free parameter 2	V/F SVC When using multiple machines, it is used as the machine number. When using multiple machines, the mode number is used for each purpose.	0 (0 ~ 65535)	

#### F00.1x group: Common parameter settings

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F00.10~F00.39 (0x0010 ~ 0x0027) RUN	Common parameter address setting	V/F SVC LED "0" and "00" digit: yy setting in function parameter number Fxx.yy 00~99 LED "000" and "0000": Function parameter number Fxx.yy in xx setting 00~31	0102 (0000 ~ 2363)	

## 4.5 Group F01: Basic Settings

#### F01.0x group: Basic instructions

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F01.00 (0x0100) STOP	Motor 1 control mode	V/F SVC The way the motor is controlled. 0: AM-VF; VF control 1: AM-SVC; Open loop vector control, current closed loop control	0 (0 ~ 1)	S/T2 models only support VF control
F01.01 (0x0101) RUN	Run command channel	V/F SVC Used to select the channel that the drive accepts the run and stop commands and the direction of travel. 0: Keyboard control (external keyboard priority) 1: Terminal control 2: RS485 communication control 3: Reserved	0 (0 ~ 3)	



F01.02 (0x0102) RUN	Frequency reference source channel A	V/F SVC The frequency converter sets the given source of the frequency. 0: Keyboard digital given frequency 1: Keyboard analog potentiometer given 2: Current/voltage analog AI given 3: Reserved 4: Reserved 5: Terminal pulse PUL given 6: RS485 communication given 7: Terminal UP/DW control 8: PID control given 9: Program Control (PLC) given 10: Option card 11: Multi-speed speed given	0 (0 ~ 11)	
F01.03 (0x0103) STOP	Frequency reference source channel A gain	V/F SVC The frequency gives the gain of source channel A.	100.0 (0.0 ~ 500.0%)	
F01.04 (0x0104) RUN	Frequency reference source channel B	V/F SVC The frequency converter sets the given source of the frequency. Same as [F01.02]	0 (0 ~ 11)	
F01.05 (0x0105) STOP	Frequency reference source channel B gain	V/F SVC The frequency gives the gain of source channel B.	100.0 (0.0 ~ 500.0%)	
F01.06 (0x0106) RUN	Frequency channel B reference source	V/F SVC The reference source of frequency given channel B is selected by this parameter. 0: Reference source with maximum output frequency 1: Use A to set the frequency as the reference source	0 (0 ~ 1)	
F01.07 (0x0107) RUN	Frequency reference source selection	V/F SVC It is used to select the combination mode of the AC Drive setting frequency channel A and channel B. 0: Channel A 1: Channel B 2: Channel A + Channel B. 3: Channel A-channel B 4: Channel A, channel B both maximum 5: Channel A, channel B, both minimum	0 (0 ~ 5)	
F01.08 (0x0108) RUN	Run command bundled given frequency	V/F SVC When this parameter is valid, it is used to set the channel source frequency channel for each running command channel. LED "0" digit: Keyboard command instruction bundle LED "00" digit: Terminal command command bundle LED "000" digit: Bundle of communication command instructions LED "0000" digit: Optional Card Command Command Bundle 0: No binding 1: Keyboard digital given frequency 2: Keyboard analog potentiometer given 3: Current/voltage analog AI given 4: Reserved 5: Reserved 6: Terminal pulse PUL given 7: Communication given 8: Terminal UP/DW control 9: PID control given A: Program control (PLC) given B: Option card C: Multi-speed speed given D: Reserved	0000 (0000 ~ DDDD)	

F01.09 (0x0109) RUN	Keyboard digital given frequency	V/F SVC Used to set and modify the keyboard digital setting frequency.	50Hz (0.00 to upper limit frequency setting)	
---------------------------	----------------------------------	---	--	--

**F01.1x group: Frequency command**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F01.10 (0x010A) STOP	Maximum frequency	V/F SVC The maximum frequency that the frequency converter can set.	50.00Hz (upper limit frequency~600.00Hz)	
F01.11 (0x010B) RUN	Upper frequency source selection	V/F SVC Select a given source for the upper limit frequency of the drive. 0: Upper limit frequency number given 1: Keyboard analog potentiometer given 2: Current/voltage analog AI given 3: Reserved 4: Reserved 5: Terminal pulse PUL given 6: RS485 communication given	0 (0~7)	
F01.12 (0x010C) RUN	Upper limit frequency digital setting	V/F SVC The upper line frequency is given when F01.11 is set to 0.	0.00Hz (0.00~upper limit frequency digital setting)	
F01.13 (0x010D) RUN	Lower limit frequency	V/F SVC Given a lower frequency limit, the given frequency is limited.	0.00Hz (0.00~upper limit frequency digital setting)	

**F01.2x-F01.3x group: Acceleration and deceleration time**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F01.20 (0x0114) STOP	Acceleration/deceleration time reference frequency	V/F SVC Set the reference frequency to calculate the acceleration/deceleration time. 0: Maximum frequency 1: Fixed frequency 50Hz 2: Set the frequency	0 (0~2)	
F01.21 (0x0115) STOP	Acceleration time unit	V/F SVC The unit of acceleration time setting. 0: 1s 1: 0.1s 2: 0.01s	2 (0~2)	
F01.22 (0x0116) RUN	Acceleration time 1	V/F SVC The time required for the output frequency to accelerate from 0.00 Hz to the time reference frequency. 1 to 65000 s (F01.21 = 0) 0.1 to 6500.0 s (F01.21 = 1) 0.01 to 650.00 s (F01.21 = 2)	Model setting (0.01 ~ 650.00s)	

F01.23 (0x0117) RUN	Deceleration time 1	V/F SVC The time it takes for the output frequency to decelerate from the time reference frequency to 0.00 Hz.	Model setting (0.01~650.00s)	
F01.24 (0x0118) RUN	Acceleration time 2	V/F SVC The time required for the output frequency to accelerate from 0.00 Hz to the time reference frequency.	Model setting (0.01~650.00s)	
F01.25 (0x0119) RUN	Deceleration time 2	V/F SVC The time it takes for the output frequency to decelerate from the time reference frequency to 0.00 Hz.	Model setting (0.01~650.00s)	
F01.26 (0x011A) RUN	Acceleration time 3	V/F SVC The time required for the output frequency to accelerate from 0.00 Hz to the time reference frequency.	Model setting (0.01~650.00s)	
F01.27 (0x011B) RUN	Deceleration time 3	V/F SVC The time it takes for the output frequency to decelerate from the time reference frequency to 0.00 Hz.	Model setting (0.01~650.00s)	
F01.28 (0x011C) RUN	Acceleration time 4	V/F SVC The time required for the output frequency to accelerate from 0.00 Hz to the time reference frequency.	Model setting (0.01~650.00s)	
F01.29 (0x011D) RUN	Deceleration time 4	V/F SVC The time it takes for the output frequency to decelerate from the time reference frequency to 0.00 Hz.	Model setting (0.01~650.00s)	
F01.30 (0x011E) STOP	S curve acceleration and deceleration selection	V/F SVC S curve acceleration and deceleration selection is valid 0: Invalid 1: Valid	1 (0~1)	
F01.31 (0x011F) STOP	Acceleration start S curve time	V/F SVC Set the acceleration start S curve time.	0.20s (0.00~10.00)	
F01.32 (0x0120) STOP	Accelerated end S curve time	V/F SVC Set the acceleration end S curve time.	0.20s (0.00~10.00)	
F01.33 (0x0121) STOP	Deceleration start S curve time	V/F SVC Set the deceleration start S curve time.	0.20s (0.00~10.00)	
F01.34 (0x0122) STOP	Deceleration end S curve time	V/F SVC Set the deceleration end S curve time.	0.20s (0.00~10.00)	
F01.35 (0x0123) RUN	Acceleration time 1 and acceleration time 2 switching frequency	V/F SVC Set the acceleration time 1 and acceleration time 2 to switch the frequency.	0.00Hz (0.00~Maximum frequency)	

#### F01.4x group: PWM control

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
--	------	---------	---------------------------------	-------

F01.40 (0x0128) RUN	Carrier frequency	V/F SVC Used to set the switching frequency of the AC Drive IGBT.	4.0 kHz (1.0~16.0kHz)	
F01.41 (0x0129) RUN	PWM control mode	V/F SVC LED "0" digit: Carrier and temperature 0: Independent of temperature 1: Related to temperature LED "00" digit: Carrier and output frequency correlation 0: Independent of the output frequency 1: Related to the output frequency LED "000" digit: Random PWM Enable 0: Forbidden 1: Enable LED "0000" digit: PWM modulation method 0: Only three-phase modulation is used 1: Two-phase three-phase modulation automatically switches	1111 (0000 ~ 1111)	
F01.42 (0x012A) RUN	Reserved			
F01.43 (0x012B) RUN	Dead zone compensation gain	V/F SVC Dead zone compensation gain	306 (0 ~ 512)	

## 4.6 Group F02: Motor 1 Parameters

### F02.0x group: Basic motor parameters and self-learning options

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F02.00 (0x0200) READ	Motor type	V/F SVC Set the type of motor 0: Asynchronous motor (AM) 1: Reserved	0 (0 ~ 1)	
F02.01 (0x0201) STOP	Pole number	V/F SVC Set the number of motor stages.	4 (2 ~ 98)	
F02.02 (0x0202) STOP	Motor rated power	V/F SVC Set the rated power of the motor.	Model setting (0.1~1000.0kW)	
F02.03 (0x0203) STOP	Motor rated frequency	V/F SVC Set the rated frequency of the motor.	Model setting (0.01~Maximum frequency)	
F02.04 (0x0204) STOP	Motor rated speed	V/F SVC Set the rated speed of the motor.	Model setting (0~65000rpm)	
F02.05 (0x0205) STOP	Motor rated voltage	V/F SVC Set the rated voltage of the motor.	Model setting (0~1500V)	

F02.06 (0x0206) STOP	Motor rated current	V/F SVC Set the rated current of the motor.	Model setting (0.1~3000.0A)	
F02.07 (0x0207) STOP	Motor parameter auto-tuning selection	V/F SVC After the parameter auto-tuning is completed, the set value of [F02.07] will be automatically set to "0". 0: No operation 1: Rotary self-tuning 2: Static self-tuning 3: Stator resistance self-tuning	0 (0 ~ 3)	S/T2 models do not support parameter auto-tuning

### F02.1x group: asynchronous motor advanced parameters

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F02.10 (0x020A) STOP	Asynchronous motor no-load current	V/F SVC Set the size of the no-load current of the asynchronous motor.	Model setting (0.1~3000.0A)	
F02.11 (0x020B) STOP	Asynchronous motor stator resistance	V/F SVC Set the size of the asynchronous motor stator resistance.	Model setting (0.01mΩ ~ 60000mΩ)	
F02.12 (0x020C) STOP	Asynchronous motor rotor resistance	V/F SVC Set the size of the asynchronous motor rotor resistance.	Model setting (0.01mΩ ~ 60000mΩ)	
F02.13 (0x020D) STOP	Asynchronous motor stator leakage inductance	V/F SVC Set the stator leakage inductance of the asynchronous motor.	Model setting (0.01mH~ 65535mH)	
F02.14 (0x020E) STOP	Asynchronous motor stator inductance	V/F SVC Set the stator inductance of the asynchronous motor.	Model setting (0.01mH~ 65535mH)	
F02.15 (0x020F) READ	Stator resistance standard value	V/F SVC Set the stator resistance value.	Model setting (0.01~50.00%)	
F02.16 (0x0210) READ	Rotor resistance standard value	V/F SVC Set the rotor resistance value.	Model setting (0.01~50.00%)	
F02.17 (0x0211) READ	Stator leakage inductance	V/F SVC Set the stator leakage inductance value.	Model setting (0.01~50.00%)	
F02.18 (0x0212) READ	Stator inductance value	V/F SVC Set the stator inductance value.	Model setting (0.1~999.0%)	
F02.19 (0x0213) STOP	F02.11~F02.14 decimal point selection	V/F SVC Set the decimal point of the four parameters F02.11~F02.14.	0x0000 (0x0000 ~ 0x2222)	

**F02.2x-F02.4x group: Reserved****F02.5x group: Motor application parameters**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F02.50 (0x0232) STOP	Motor online learning function selection	V/F SVC 0: Invalid 1: Power-on self-learning 2: Run the initial segment self-learning 3: Self-learning in operation	0 (0 ~ 3)	S/T2 models do not support motor online learning

**4.7 Group F03: Vector Control****F03.0x group: Speed loop**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F03.00 (0x0300) RUN	ASR speed rigidity level	SVC The rigidity level is set, and the higher the level, the better the speed rigidity.	10 (1 ~ 25)	
F03.01 (0x0301) RUN	ASR speed rigid mode	SVC The rigidity level is set, and the higher the level, the better the speed rigidity.	0x0000 (0x0000~0x1111)	
F03.02 (0x0302) RUN	ASR (speed loop) proportional gain 1	SVC Set the ASR (speed loop) proportional gain 1.	10 (0.01 ~ 100.00)	
F03.03 (0x0303) RUN	ASR (speed loop) integration time 1	SVC Set the ASR (speed loop) integration time 1.	0.100s (0.000~6.000s)	
F03.04 (0x0304) RUN	ASR filtering time 1	SVC Set the ASR filter time 1.	0.0ms (0.0~100.0ms)	
F03.05 (0x0305) RUN	ASR switching frequency 1	SVC Set the ASR switching frequency to 1.	0.00Hz (0.00~Maximum frequency)	
F03.06 (0x0306) RUN	ASR (speed loop) proportional gain 2	SVC Set the ASR (speed loop) proportional gain 2.	10 (0.01 ~ 100.00)	
F03.07 (0x0307) RUN	ASR (speed loop) integration time 2	SVC Set the ASR (speed loop) integration time 2.	0.100s (0.000~6.000s)	
F03.08 (0x0308) RUN	ASR filtering time 2	SVC Set the ASR filter time 2.	0.0ms (0.0~100.0ms)	
F03.09 (0x0309) RUN	ASR switching frequency 2	SVC Set the ASR switching frequency 2.	0.00Hz (0.00~Max frequency)	

## Group F03.1x: Current loop and torque limit

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F03.10 (0x030A) RUN	Current loop D-axis proportional gain	SVC Set the current loop D-axis proportional gain.	1.00 (0.001 ~ 4.000)	
F03.11 (0x030B) RUN	Current loop D-axis integral gain	SVC Set the current loop D-axis integral gain.	1.00 (0.001 ~ 4.000)	
F03.12 (0x030C) RUN	Current loop Q-axis proportional gain	SVC Set the current loop Q-axis proportional gain.	1.00 (0.001 ~ 4.000)	
F03.13 (0x030D) RUN	Current loop Q-axis integral gain	SVC Set the current loop Q-axis integral gain.	1.00 (0.001 ~ 4.000)	
F03.15 (0x030E) RUN	Electric state torque limit	SVC Set the motor state torque limit.	180.0% (0.0~400.0%)	
F03.16 (0x030F) RUN	Power generation torque limit	SVC Set the generator state torque limit.	180.0% (0.0~400.0%)	
F03.17 (0x0312) RUN	Regenerative torque limit at low speed	SVC Set the regenerative torque limit value at low speed.	50.0% (0.0~400.0%)	
F03.18 (0x0313) RUN	Torque limit action frequency amplitude at low speed	SVC Set the torque limit action frequency range at low speed.	6.00s (0.00~30.00s)	

## F03.2x group: Torque optimization control

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F03.23 (0x0314) RUN	Asynchronous motor slip compensation	SVC Set the asynchronous motor slip compensation.	100.0% (0.0 ~ 250.0%)	
F03.24 (0x0315) RUN	Starting torque initial value	SVC Set the initial value of the starting torque.	0.0% (0.0 ~ 250.0%)	

## F03.3x group: Flux optimization

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F03.30 (0x031E) RUN	Weak magnetic feedforward coefficient	SVC Set the weak magnetic feed forward coefficient.	10.0% (0.0 ~ 200.0%)	

F03.31 (0x031F) RUN	Weak magnetic control gain	SVC Set the field weakening control gain.	10.0% (0.0 ~ 500.0%)	
F03.32 (0x0320) RUN	Weak magnetic current upper limit	SVC Set the upper limit of the field weakening current.	60.0% (0.0 ~ 250.0%)	
F03.33 (0x0321) RUN	Weak magnetic voltage coefficient	SVC Set the weak magnetic voltage coefficient.	97.0% (0.0 ~ 120.0%)	
F03.34 (0x0322) RUN	Output power limit	SVC Set the output power limit.	250.0% (0.0 ~ 400.0%)	
F03.35 (0x0323) RUN	Overexcitation braking gain	SVC Set the overexcitation braking gain.	100.0% (0.0 ~ 500.0%)	
F03.36 (0x0324) RUN	Overexcitation braking limit	SVC Set the overexcitation brake limiter.	10.0% (0.0 ~ 250.0%)	
F03.37 (0x0325) RUN	Energy efficient operation	SVC 0: off 1: on	0 (0 ~ 1)	
F03.38 (0x0326) RUN	Energy-saving operation excitation lower limit	SVC Set the lower limit of excitation for energy saving operation.	50.0% (0.0 ~ 80.0%)	
F03.39 (0x0327) RUN	Energy-saving operating filter coefficient	SVC Set the energy saving operation filter coefficient.	0.010s (0.000 ~ 6.000s)	

## Group F03.4x-F03.5x: Torque Control

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F03.40 (0x0328) RUN	Torque control selection	SVC 0: Speed control mode limit torque 1: Torque control mode speed limit	0 (0 ~ 1)	
F03.41 (0x0329) RUN	Torque command given	SVC LED "0" digit: Channel A: 0: Torque keyboard digital reference 1: Integrated keyboard potentiometer given 2: AI 3: Reserved 4: Reserved 5: PUL 6: RS485 communication given LED "00" digit: Channel B: Same channel A LED "000" digit: Combination method: 0: A 1: B 2: A+B 3: A-B 4: MIN(A,B) 5: MAX (A, B)	0000 (0000 ~ 0566)	



F03.42 (0x032A) RUN	Torque keyboard digital setting	SVC Set the torque keyboard number.	0.0% (0.0 ~ 100.0%)	
F03.43 (0x032B) RUN	Torque input lower limit	SVC Set the torque input lower limit.	0.00% (0.0 ~ 100.00%)	
F03.44 (0x032C) RUN	Lower limit corresponding setting	SVC Set the lower limit corresponding value.	0.0% (-200.0~200.0%)	
F03.45 (0x032D) RUN	Torque input upper limit	SVC Set the upper limit of the torque input.	100.0% (0.0~100.0%)	
F03.46 (0x032E) RUN	Upper limit corresponding setting	SVC Set the upper limit to correspond.	100.0% (-200.0~200.0%)	
F03.47 (0x032F) RUN	Torque filtering time	SVC Set the torque limit action frequency range at low speed.	0.100s (0.000~6.000s)	
F03.52 (0x0334) RUN	Torque command upper limit	SVC Set the upper limit of the output torque.	150.0% (0.0 ~ 200.0%)	
F03.53 (0x0335) RUN	Torque command lower limit	SVC Set the lower limit of the output torque.	0.0% (0.0 ~ 200.0%)	
F03.54 (0x0336) RUN	Torque control forward speed limit selection	SVC 0: Function code F03.56 is set; 1: Integrated keyboard potentiometer given $\times$ F03.56; 2: AI $\times$ F03.56; 3: Reserved; 4: Reserved 5: PUL $\times$ F03.56; 6: RS485 communication given $\times$ F03.56 7: Reserved	0 (0 ~ 7)	
F03.55 (0x0337) RUN	Torque control reverse speed limit selection	SVC 0: Function code F03.57 is set; 1: Integrated keyboard potentiometer given $\times$ F03.57; 2: AI $\times$ F03.57; 3: Reserved; 4: Reserved 5: PUL $\times$ F03.57; 6: RS485 communication given $\times$ F03.57 7: Reserved	0 (0 ~ 7)	
F03.56 (0x0338) RUN	Torque control forward speed maximum speed limit	SVC Set the torque control forward maximum speed limit.	100.0% (0.0~100.0%)	
F03.57 (0x0339) RUN	Torque control anyway maximum speed limit	SVC Set the torque control reverse maximum speed limit.	100.0% (0.0~100.0%)	
F03.58 (0x033A) RUN	Given torque gain switching frequency	SVC Set the given torque gain switching frequency.	2.00Hz (0.00 ~ 50.00Hz)	
F03.59 (0x033B) RUN	Given torque gain	SVC Set the given torque gain.	100.0% (0.0 ~ 500.0%)	

## 4.8 Group F04: V/F Control

### F04.0x group: V/F control

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F04.00 (0x0400) STOP	Linear VF curve selection	V/F Used to select the type of V/F curve to meet different load features. 0: Straight line VF curve; 1-9: Respectively, a power VF curve of 1.1-1.9; 10: Square VF curve; 11: Custom VF curve;	0 (0 ~ 11)	
F04.01 (0x0401) RUN	Torque boost	V/F 0.0%: automatic torque boost 0.1~30.0%: manual torque boost	0.0% (0.0 ~ 30.0%)	
F04.02 (0x0402) RUN	Torque boost cutoff frequency	V/F Set the effective range of the torque boost function. When the output frequency exceeds this value, the torque boost function is cut off.	100.0% (0.0 ~ 100.0%)	
F04.03 (0x0403) RUN	Slip compensation gain	V/F Set the slip compensation gain.	0.0% (0.0 ~ 200.0%)	
F04.04 (0x0404) RUN	Slip compensation limit	V/F Set the slip compensation limit value.	100.0% (0.0 ~ 300.0%)	
F04.05 (0x0405) RUN	Slip compensation filter time	V/F The slip compensation function needs to correctly input the motor nameplate parameters and learn the parameters to achieve the best results.	0.200 (0.000 ~ 6.000)	
F04.06 (0x0406) RUN	Oscillation suppression gain	V/F By adjusting this value, low frequency resonance can be suppressed, but not too large; otherwise it will cause additional stability problems.	100.0% (0.0 ~ 900.0%)	
F04.07 (0x0407) RUN	Oscillation suppression filter time	V/F Set the oscillation suppression filter time.	1.0s(0.0 ~ 100.0s)	
F04.08 (0x0408) STOP	Output voltage percentage	V/F Set the output voltage percentage.	100.0% (25.0~120.0%)	

### F04.1x group: Custom V/F curve

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F04.10 (0x040A) STOP	Self-setting voltage V1	V/F Self-setting voltage V1	3.0% (0.0 ~ 100.0%)	
F04.11 (0x040B) STOP	Self-set frequency F1	V/F Self-set frequency F1	1.00Hz (0.00~Maximum frequency)	
F04.12 (0x040C) STOP	Self-setting voltage V2	V/F Self-setting voltage V2	28.0% (0.0 ~ 100.0%)	

F04.13 (0x040D) STOP	Self-set frequency F2	V/F Self-set frequency F2	10.0Hz (0.00~Maximum frequency)	
F04.14 (0x040E) STOP	Self-setting voltage V3	V/F Self-setting voltage V3	55.0% (0.0 ~ 100.0%)	
F04.15 (0x040F) STOP	Self-set frequency F3	V/F Self-set frequency F3	25.00Hz (0.00~Maximum frequency)	
F04.16 (0x0410) STOP	Self-setting voltage V4	V/F Self-setting voltage V4	78.0% (0.0 ~ 900.0%)	
F04.17 (0x0411) STOP	Self-set frequency F4	V/F Self-set frequency F4	37.5Hz (0.00~Maximum frequency)	
F04.18 (0x0412) STOP	Self-setting voltage V5	V/F Self-setting voltage V5	100.0% (0.0~100.0%)	
F04.19 (0x0413) STOP	Self-set frequency F5	V/F Self-set frequency F5	50.00Hz (0.00~Maximum frequency)	

**F04.2x group: Reserved**

**F04.3x group: V/F energy saving control**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F04.30 (0x041E) STOP	Automatic energy saving control	V/F 0: Off 1: On	0 (0 ~ 1)	
F04.31 (0x041F) STOP	Energy saving step frequency lower limit	V/F Set the lower limit of the energy saving buck frequency.	15.0Hz (0.0~50.0Hz)	
F04.32 (0x0420) STOP	Energy-saving step-down voltage lower limit	V/F Set the lower limit of the energy-saving step-down voltage.	50.0% (20.0~100.0%)	
F04.33 (0x0421) RUN	Energy-saving step-down voltage regulation rate	V/F Set the energy-saving step-down voltage regulation rate.	0.010V/MS (0.000~0.200 V/MS)	
F04.34 (0x0422) RUN	Energy-saving voltage and voltage recovery rate	V/F Set the energy saving voltage and voltage recovery rate.	0.20V/MS (0.00~2.00 V/MS)	

## 4.9 Group F05: Input Terminal

**F05.0x group: Digital input terminal function**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
---	------	---------	------------------------------------	-------

F05.00 (0x0500) STOP	Terminal X1 function selection	V/F SVC See the function of terminal X for details.	1 (0 ~ 63)	
F05.01 (0x0501) STOP	Terminal X2 function selection	V/F SVC See the function of terminal X for details.	2 (0 ~ 63)	
F05.02 (0x0502) STOP	Terminal X3 function selection	V/F SVC See the function of terminal X for details.	4 (0 ~ 63)	
F05.03 (0x0503) STOP	Terminal X4 function selection	V/F SVC See the function of terminal X for details.	8 (0 ~ 63)	

**F05.1x group: Curve X1-X4 detection delay**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.10 (0x050A) RUN	X1 effective detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X1 from the inactive state to the active state	0.010 (0.000 ~ 6.000s)	
F05.11 (0x050B) RUN	X1 invalid detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X1 from the active state to the inactive state	0.010 (0.000 ~ 6.000s)	
F05.12 (0x050C) RUN	X2 effective detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X2 from the inactive state to the active state	0.010 (0.000 ~ 6.000s)	
F05.13 (0x050D) RUN	X2 invalid detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X2 from the active state to the inactive state	0.010 (0.000 ~ 6.000s)	
F05.14 (0x050E) RUN	X3 effective detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X3 from the inactive state to the active state	0.010 (0.000 ~ 6.000s)	
F05.15 (0x050F) RUN	X3 invalid detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X3 from the active state to the inactive state	0.010 (0.000 ~ 6.000s)	
F05.16 (0x0510) RUN	X4 effective detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X4 from the inactive state to the active state	0.330 (0.000 ~ 6.000s)	
F05.17 (0x0511) RUN	X4 invalid detection delay	V/F SVC Delay time corresponding to the transition of the output terminal X4 from the active state to the inactive state	0.330 (0.000 ~ 6.000s)	

**F05.2x group: Digital input terminal action selection**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.20 (0x0514) STOP	Terminal control mode	V/F SVC 0: Two-wire system 1 1: Two-wire system 2 2: Three-wire system 1 3: Three-wire system 2	0 (0 ~ 3)	

F05.21 (0x0515) STOP	Terminal start protection	V/F SVC 0: Off 1: On LED "0" digit: Terminal start protection when exiting abnormal LED "00" digit: Jog terminal start protection when exiting abnormal LED "000" digit: Start protection when the command channel is switched to the terminal LED "0000" digit: Reserved Free stop, emergency stop, forced stop, default on	0111 (0000 ~ 1111)	
F05.22 (0x0516) RUN	X1 ~ X4 terminal characteristics selection	V/F SVC 0: Closed valid 1: Disconnected is valid LED "0" digit: X1 terminal LED "00" digit: X2 terminal LED "000" digit: X3 Terminal LED "0000" digit: X4 Terminal	0000 (0000 ~ 1111)	
F05.25 (0x0519) STOP	Terminal UP/DW control selection	V/F SVC 0: Frequency power down storage 1: Frequency power down is not stored 2: Adjustable during operation, stop and clear	0 (0 ~ 2)	
F05.26 (0x051A) RUN	Terminal UP/DW controls frequency increase and decrease rate	V/F SVC Set terminal UP/DW to control the frequency increase and decrease rate	0.50Hz/s (0.01~50.00Hz/s)	
F05.27 (0x051B) RUN	Terminal emergency stop deceleration time	V/F SVC Set terminal emergency stop deceleration time	1.00s (0.01~650.00s)	

### F05.3x group: PUL terminal

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.30 (0x051E) STOP	Reserved			
F05.31 (0x051F) RUN	PUL input minimum frequency	V/F SVC The minimum frequency accepted by the PUL, below the frequency signal of this value, the frequency converter will be processed at the minimum frequency. 0.00 to 50.000 kHz	0.00kHz (0.00~500.00kHz)	
F05.32 (0x0520) RUN	PUL minimum frequency corresponding setting	V/F SVC Corresponding to the percentage of the set value	0.00% (0.00~100.00%)	
F05.33 (0x0521) RUN	PUL input maximum frequency	V/F SVC The maximum frequency accepted by the PUL is higher than the frequency signal of this value, and the AC Drive will process at the maximum frequency. 0.00 to 50.000 kHz	50.00kHz (0.00~500.00kHz)	
F05.34 (0x0522) RUN	PUL maximum frequency corresponding setting	V/F SVC Corresponding to the percentage of the set value	100.00% (0.00~100.00%)	
F05.35 (0x0523) RUN	PUL filter time	V/F SVC Defines the size of the input pulse signal to be used to eliminate interfering signals.	0.200s (0.000~9.000s)	
F05.36 (0x0524) RUN	PUL cutoff frequency	V/F SVC When the frequency is below of this parameter, the drive is no longer recognized. Processed at 0 Hz.	0.010kHz (0.000~1.000kHz)	

## F05.4x group: Analog (AI) type processing

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.40 (0x0528) RUN	AI input signal type selection method	V/F SVC 0: DIP switch 1: Reserved	0 (0~1)	
F05.43 (0x052B) RUN	Analog input curve selection	V/F SVC 0: Straight line (default) 1: Curve 1 2: Curve 2 LED "0" digit: AI LED "00" digit: Reserved LED "000" digit: Reserved LED "0000" digit: Reserved	0000 (0000~2222)	

## F05.5x group: Analog (AI) linear processing

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.50 (0x0532) RUN	AI lower limit	V/F SVC Define the signal received by the terminal. The voltage signal below this value is processed by the limit value.	0.0% (0 0.0~100.0%)	
F05.51 (0x0533) RUN	AI lower limit corresponding setting	V/F SVC Set the percentage of the corresponding set value	0.0% (-100.0~100.0%)	
F05.52 (0x0534) RUN	AI upper limit	V/F SVC Define the signal received by the terminal. The voltage signal above this value is processed according to the upper limit value.	100.00% (0.00~100.00%)	
F05.53 (0x0535) RUN	AI upper limit corresponding setting	V/F SVC Set the percentage of the corresponding set value	100.0% (0.00~100.0%)	
F05.54 (0x0536) RUN	AI filter time	V/F SVC Defines the size of the analog signal to be used to eliminate interfering signals.	0.010s (0.000~6.000s)	

## F05.6x group: AI curve 1 processing

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.60 (0x053C) RUN	Curve 1 lower limit	V/F SVC Set the lower limit of curve 1	0.0% (0.0 ~ 100.0%)	
F05.61 (0x053D) RUN	Curve 1 lower limit corresponding setting	V/F SVC Corresponding set percentage	0.0% (0.0 ~ 100.0%)	

F05.62 (0x053E) RUN	Curve 1 inflection point 1 input voltage	V/F SVC Set curve 1 inflection point 1 input voltage	30.0% (0.0 ~ 100.0%)	
F05.63 (0x053F) RUN	Curve 1 inflection point 1 corresponding setting	V/F SVC Corresponding set percentage	30.00% (0.00~100.00%)	
F05.64 (0x0540) RUN	Curve 1 inflection point 2 input voltage	V/F SVC Set curve 1 inflection point 2 input voltage	60.0% (0.0 ~ 100.0%)	
F05.65 (0x0541) RUN	Curve 1 inflection point 2 corresponding setting	V/F SVC Corresponding set percentage	70.00% (0.00~100.00%)	
F05.66 (0x0542) RUN	Curve 1 upper limit	V/F SVC Set the upper limit of curve 1	100.00% (0.00~100.00%)	
F05.67 (0x0543) RUN	Curve 1 upper limit corresponding setting	V/F SVC Corresponding set percentage	100.0% (0.0 ~ 100.0%)	

#### F05.7x group: AI curve 2 processing

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.70 (0x0546) RUN	Curve 2 lower limit	V/F SVC Set the lower limit of curve 2	0.0% (0.0~100.0%)	
F05.71 (0x0547) RUN	Curve 2 lower limit corresponding setting	V/F SVC Corresponding set percentage	0.0% (0.0~100.0%)	
F05.72 (0x0548) RUN	Curve 2 inflection point 1 input voltage	V/F SVC Set curve 2 inflection point 1 input voltage	30.0% (0.0~100.0%)	
F05.73 (0x0549) RUN	Curve 2 inflection point 1 corresponding setting	V/F SVC Corresponding set percentage	30.00% (0.00~100.00%)	
F05.74 (0x054A) RUN	Curve 2 inflection point 2 input voltage	V/F SVC Set curve 2 inflection point 2 input voltage	60.0% (0.0 ~ 100.0%)	
F05.75 (0x054B) RUN	Curve 2 inflection point 2 corresponding setting	V/F SVC Corresponding set percentage	70.00% (0.00~100.00%)	
F05.76 (0x054C) RUN	Curve 2 upper limit	V/F SVC Set the upper limit of curve 2	100.00% (0.00~100.00%)	
F05.77 (0x054D) RUN	Curve 2 upper limit corresponding setting	V/F SVC Corresponding set percentage	100.0% (0.0 ~ 100.0%)	

**F05.8x group: AI as a digital input terminal**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F05.80 (0x0550) RUN	AI port to do digital input terminal feature selection	V/F SVC 0: Active low 1: Active high LED "0" digit: AI LED "00" digit: Reserved LED "000" digit: Reserved LED "0000" digit: Reserved	0000 (0000 ~ 1111)	
F05.81 (0x0551) STOP	AI terminal function selection (as X)	V/F SVC See X terminal function	0 (0~63)	
F05.82 (0x0552) RUN	AI high level setting	V/F SVC The input setting is greater than the high level setting, which is the input high level.	70.00% (0.00~100.00%)	
F05.83 (0x0553) RUN	AI low level setting	V/F SVC Less than the low level setting is low.	30.00% (0.00~100.00%)	

**4.10 Group F06: Output Terminal****F06.0x group: AO (analog) output**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F06.00 (0x0600) RUN	AO output mode selection	V/F SVC 0: 0~10V 1: 4.00~20.00mA 2: 0.00~20.00mA 3: Reserved 4: Reserved	0 (0 ~ 4)	
F06.001 (0x0601) RUN	AO output selection	V/F SVC 0: Given frequency 1: Output frequency 2: Output current 3: Input voltage 4: Output voltage 5: Mechanical speed 6: Given torque 7: Output torque 8: PID given 9: PID feedback amount 10: Output power 11: Bus voltage 12: VS input value 13: AI input value 14: AS input value 15: PUL input value 16: Module temperature 1 17: Module temperature 2 18: 485 communication given 19: Virtual terminal vY1	0 (0 ~ 19)	



F06.02 (0x0602) RUN	AO output gain	V/F SVC Adjust the value of the analog output of the terminal.	100.0% (0.0 ~ 200.0%)	
F06.003 (0x0603) RUN	AO output bias	V/F SVC Set the AO output offset. Used to adjust the zero point of the terminal output.	0.0% (-10.0~10.0%)	
F06.04 (0x0604) RUN	AO output filtering	V/F SVC Defined as the size of the analog signal filtering used to eliminate interfering signals.	0.01s (0.0 ~ 6.00s)	

**F06.1x group: Reserved****Group F06.2x-F06.3x: Digital, relay output**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F06.20 (0x0614) RUN	Output terminal polarity selection	V/F SVC 0: Positive polarity 1: Negative polarity LED "0" digit: Y terminal LED "00" digit: Relay output terminal 1 LED "000" digit: Reserved LED "0000" digit: Reserved	0000 (0000 ~ 1111)	
F06.21 (0x0615) RUN	Output terminal Y	V/F SVC See terminal Y function	1 (0 ~ 63)	
F06.22 (0x0616) RUN	Relay 1 output (TA-TB-TC)	V/F SVC See terminal Y function	4 (0 ~ 63)	
F06.25 (0x0619) RUN	Y output ON delay time	V/F SVC Set the Y output ON delay time.	0.010s (0.000~60.000s)	
F06.26 (0x061A) RUN	Relay 1 output ON delay time	V/F SVC Set relay 1 to output the ON delay time.	0.010s (0.000~60.000s)	
F06.29 (0x061D) RUN	Y output OFF delay time	V/F SVC Set the Y output OFF delay time.	0.010s (0.000~60.000s)	
F06.30 (0x061E) RUN	Relay 1 output OFF delay time	V/F SVC Set relay 1 output OFF delay time.	0.010s (0.000~60.000s)	

**F06.4x group: Frequency detection**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F06.40 (0x0628) RUN	Frequency detection value 1	V/F SVC Set the frequency detection value 1	30.00Hz (0.00~Maximum frequency)	
F06.41 (0x0629) RUN	Frequency detection amplitude 1	V/F SVC Set the frequency detection amplitude 1	1.00Hz (0.00~Maximum frequency)	

F06.42 (0x062A) RUN	Frequency detection value 2	V/F SVC Set the frequency detection value 2	50.00Hz (0.00~Maximum frequency)	
F06.43 (0x062B) RUN	Frequency detection range 2	V/F SVC Set the frequency detection range 2	1.00Hz (0.00~Maximum frequency)	
F06.44 (0x062C) RUN	The given frequency reaches the detection range	V/F SVC Set the given frequency to reach the detection range	2.00Hz (0.00~Maximum frequency)	

**F06.5x group: Monitoring parameter comparator output**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F06.50 (0x0632) RUN	Comparator 1 monitor selection	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00~63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00~07	0001 (0000 ~ 0763)	
F06.51 (0x0633) RUN	Comparator 1 upper limit	V/F SVC	3000 (0 ~ 65535)	
F06.52 (0x0634) RUN	Comparator 1 lower limit	V/F SVC	0 (0 ~ 65535)	
F06.53 (0x0635) RUN	Comparator 1 bias	V/F SVC	0 (0 ~ 1000)	
F06.54 (0x0636) RUN	Action selection when sending CP1	V/F SVC 0: Continue running (digital terminal output only) 1: Alarm and free parking 2: Warning and continue to run 3: Forced shutdown	0 (0 ~ 3)	
F06.55 (0x0637) RUN	Comparator 2 monitor selection	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00~63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00~07	0002 (0000 ~ 0763)	
F06.56 (0x0638) RUN	Comparator 2 upper limit	V/F SVC	100 (0 ~ 65535)	
F06.57 (0x0639) RUN	Comparator 2 lower limit	V/F SVC	0 (0 ~ 65535)	
F06.58 (0x063A) RUN	Comparator 2 bias	V/F SVC	0 (0 ~ 1000)	

F06.59 (0x063B) RUN	Action selection when sending CP2	V/F SVC 0: Continue running (digital terminal output only) 1: Alarm and free parking 2: Warning and continue to run 3: Forced shutdown	0 (0 ~ 3)	
---------------------------	--------------------------------------	--	--------------	--

### F06.6x group: virtual input and output terminals

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F06.60 (0x063C) STOP	Virtual vX1 terminal function selection	V/F SVC See terminal X function	0 (0 ~ 63)	
F06.61 (0x063D) STOP	Virtual vX2 terminal function selection	V/F SVC See terminal X function	0 (0 ~ 63)	
F06.62 (0x063E) STOP	Virtual vX3 terminal function selection	V/F SVC See terminal X function	0 (0 ~ 63)	
F06.63 (0x063F) STOP	Virtual vX4 terminal function selection	V/F SVC See terminal X function	0 (0 ~ 63)	
F06.64 (0x0640) RUN	vX terminal valid status source	V/F SVC 0: Internal connection with virtual vYn 1: Link to physical terminal Xn 2: Is the function code setting valid? LED "0" digit: Virtual vX1 LED "00" digit: Virtual vX2 LED "000" digit: Virtual vX3 LED "0000" digit: Virtual vX4	0000 (0000 ~ 2222)	
F06.65 (0x0641) RUN	Virtual vX terminal function code setting valid status	V/F SVC 0: Invalid; 1: Valid LED "0" digit: Virtual vX1 LED "00" digit: Virtual vX2 LED "000" digit: Virtual vX3 LED "0000" digit: Virtual vX4	0000 (0000 ~ 1111)	
F06.66 (0x0642) RUN	Virtual vY1 output selection	V/F SVC See Y terminal function	0 (0~31)	
F06.67 (0x0643) RUN	Virtual vY2 output selection	V/F SVC See Y terminal function	0 (0~31)	
F06.68 (0x0644) RUN	Virtual vY3 output selection	V/F SVC See Y terminal function	0 (0~31)	
F06.69 (0x0645) RUN	Virtual vY4 output selection	V/F SVC See Y terminal function	0 (0~31)	
F06.70 (0x0646) RUN	vY1 output ON delay time	V/F SVC	0.010s (0.000~60.000s)	
F06.71 (0x0647) RUN	vY2 output ON delay time	V/F SVC	0.010s (0.000~60.000s)	

F06.72 (0x0648) RUN	vY3 output ON delay time	V/F SVC	0.010s (0.000~60.000s)	
F06.73 (0x0649) RUN	vY4 output ON delay time	V/F SVC	0.010s (0.000~60.000s)	
F06.74 (0x064A) RUN	vY1 output OFF delay time	V/F SVC	0.010s (0.000~60.000s)	
F06.75 (0x064B) RUN	vY2 output OFF delay time	V/F SVC	0.010s (0.000~60.000s)	
F06.76 (0x064C) RUN	vY3 output OFF delay time	V/F SVC	0.010s (0.000~60.000s)	
F06.77 (0x064D) RUN	vY4 output OFF delay time	V/F SVC	0.010s (0.000~60.000s)	

#### 4.11 Group F07: Operation Control

##### F07.0x group: Start control

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F07.00 (0x0700) STOP	Start mode	V/F SVC 0: Started by the start frequency 1: DC braking first starts again from the starting frequency 2: Start after the speed tracking and direction judgment	0 (0 ~ 2)	S/T2 models do not support speed tracking
F07.01 (0x0701) STOP	Start pre-excitation time	V/F SVC Just asynchronous machine vector control (no PG) supports pre-excitation, others would be ignored	0.00s (0.00~60.00s)	S/T2 models do not support starting pre-excitation
F07.02 (0x0702) STOP	Starting frequency	V/F SVC When the given frequency is less than this value, it does not start and is in standby state.	0.50Hz (0.00~Upper limit frequency digital setting)	
F07.03 (0x0703) STOP	Start protection selection	V/F SVC 0: Off 1: On LED "0" digit: Terminal start protection when exiting abnormal LED "00" digit: Jog terminal start protection when exiting abnormal LED "000" digit: Terminal start protection when the command channel is switched to the terminal LED "0000" digit: Reserved <b>Note: The terminal start protection is enabled by default when the free stop, emergency stop and forced stop commands are valid.</b>	0111 (0000~1111)	
F07.05 (0x0705) STOP	Direction of rotation	V/F SVC LED "0" digit: Reverse the running direction 0: The direction is unchanged 1: Direction reversal LED "00" digit: No direction of operation	0000 (0000~1111)	

		0: Allow forward and reverse commands 1: Only forward commands are allowed 2: Only reverse command is allowed LED "000" digit: Frequency Control Command Direction 0: The frequency control direction is invalid. 1: Frequency control direction is valid LED "0000" digit: Reserved		
F07.06 (0x0706) STOP	Power failure restart action selection	V/F SVC 0: Invalid 1: Valid	0 (0 ~ 1)	
F07.07 (0x0707) STOP	Power failure restart waiting time	V/F SVC	0.50s (0.00~60.00s)	

**F07.1x group: Shutdown control**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F07.10 (0x070A) RUN	Stop mode	V/F SVC 0: Deceleration stop 1: Free stop	0 (0 ~ 1)	
F07.11 (0x070B) RUN	Shutdown detection frequency	V/F SVC When decelerating to stop, when the AC Drive output frequency is less than this value, it will enter the stop state.	0.50Hz (0.00~Upper limit frequency digital setting)	
F07.12 (0x070C) STOP	Stop and restart limit time	V/F SVC Waiting time after restarting after shutdown	0.00s (0.00~60.00s)	
F07.15 (0x070F) RUN	Insufficient lower limit frequency action selection	V/F SVC 0 : Run according to frequency command 1 : Free running stops, enters the pause state 2 : The following limited frequency operation 3 : Zero speed operation	0 (0~3)	
F07.16 (0x0710) RUN	Zero speed torque retention factor	V/F SVC	60.0% (0.0~150.0%)	
F07.17 (0x0711) RUN	Zero speed torque holding time	V/F SVC	0s (0.0~6000.0s)	
F07.18 (0x0712) STOP	Positive reversal dead time	V/F SVC Positive and negative switching, zero frequency maintenance time	0.0s (0.0~120.0s)	

**F07.2x group: DC braking and speed tracking**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F07.20 (0x0714) STOP	Braking current before starting	V/F SVC	60.0% (0.0~150.0%)	

F07.21 (0x0715) STOP	Braking time before starting	V/F SVC	0.0s (0.0~60.0s)	
F07.22 (0x0716) STOP	DC braking start frequency	V/F SVC	1.00Hz (0.00~50.00Hz)	
F07.23 (0x0717) STOP	DC braking current	V/F SVC The reference is the rated current of the AC Drive, and the internal limit does not exceed the rated current of the motor.	60.0% (0.0~150.0%)	
F07.24 (0x0718) STOP	DC braking time during shutdown	V/F SVC	0.0s (0.0~60.0s)	
F07.25 (0x0719) STOP	Speed tracking mode	V/F SVC LED "0" digit: Search method 0: Search from the maximum frequency 1: Search from stop frequency LED "00" digit: Reverse search 0: Off 1: Open LED "000" digit: Search Source 0: Software search 1: Hardware search LED "0000" digit: Reserved	0000 (0000~0111)	
F07.26 (0x071A) STOP	Speed tracking speed	V/F SVC	0.5s (0.0~60.0s)	
F07.27 (0x071B) STOP	Speed tracking stop delay	V/F SVC	1.00s (0.0~60.0s)	
F07.28 (0x071C) STOP	Speed tracking current	V/F SVC	120.0% (0.0~400.0%)	

**F07.3x group: Jog**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F07.30 (0x071E) RUN	Jog running frequency setting	V/F SVC	5.00Hz (0.00~Maximum frequency)	
F07.31 (0x071F) RUN	Jog acceleration time	V/F SVC	10.0s (0.0~650.0s)	
F07.32 (0x0720) RUN	Jog deceleration time	V/F SVC	10.0s (0.0~650.0s)	
F07.33 (0x0721) RUN	Jog S curve selection	V/F SVC 0: Invalid 1: Valid	0 (0~1)	
F07.34 (0x0722) RUN	Jog stop mode selection	V/F SVC 0: Same as F7.10 1: Deceleration only	0 (0~1)	

**F07.4x group: Start, stop frequency maintenance and skip frequency**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F07.40 (0x0728) STOP	Maintain frequency at startup	V/F SVC Startup maintenance frequency is greater than the start frequency, less than the upper limit digital set frequency	0.50Hz (0.00~Upper limit frequency digital setting)	
F07.41 (0x0729) STOP	Maintain frequency time at startup	V/F SVC The set value needs to be greater than the start frequency, and when it is insufficient, press the start frequency.	0.0s (0.0~60.0s)	
F07.42 (0x072A) STOP	Maintain frequency during shutdown	V/F SVC	0.50Hz (0.00~Upper limit frequency digital setting)	
F07.43 (0x072B) STOP	Maintain frequency time during shutdown	V/F SVC The terminal DC braking and jogging are invalid. When the stop DC braking is valid, it is invalid when the shutdown maintenance frequency is less than the DC braking frequency. No stop DC braking, it's invalid when the shutdown maintenance frequency is less than the shutdown detection frequency.	0.0s (0.0~60.0s)	
F07.44 (0x072C) RUN	Jump frequency 1	V/F SVC	0.00Hz (0.00~Maximum frequency)	
F07.45 (0x072D) RUN	Jump frequency amplitude	V/F SVC	0.00Hz (0.00~Maximum frequency)	
F07.46 (0x072E) RUN	Jump frequency 2	V/F SVC	0.00Hz (0.00~Maximum frequency)	
F07.47 (0x072F) RUN	Jump frequency amplitude	V/F SVC	0.00Hz (0.00~Maximum frequency)	

## 4.12 Group F08: Auxiliary Control

### F08.0x group: Counting and timing

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F08.00 (0x0800) RUN	Counter input source	V/F SVC 0: normal X terminal 1: input terminal PUL 2-5: Reserved	0 (0 ~ 5)	
F08.01 (0x0801) RUN	Count input crossover	V/F SVC	0 (0 ~ 6000)	
F08.02 (0x0802) RUN	Counter maximum	V/F SVC	1000 (0 ~ 65000)	

F08.03 (0x0803) RUN	Counter setting	V/F SVC	500 (0 ~ 65000)	
F08.04 (0x0804) RUN	Pulse number per meter	V/F SVC Count value per meter	10.0 (0.1~6500.0)	
F08.05 (0x0805) STOP	Set length	V/F SVC Add a length to the output, one terminal length reset	1000 (0 ~ 65000M)	
F08.06 (0x0806) STOP	Actual length	V/F SVC Power is not saved, consider whether the power is saved	0 (0 ~ 65000M)	
F08.07 (0x0807) STOP	Timer time unit	V/F SVC 0: Second 1: Minute 2: Hour	0 (0 ~ 2)	
F08.08 (0x0808) STOP	Timer setting	V/F SVC	0 (0 ~ 65000)	

**F08.1x group: Reserved**

**F08.2x group: Reserved**

**F08.3x group: Swing frequency control**

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F08.30 (0x081E) STOP	Swing frequency control	V/F SVC 0: Swing control is invalid 1: Swing frequency control is effective	0 (0 ~ 1)	
F08.31 (0x081F) STOP	Swing frequency amplitude control	V/F SVC LED "0" digit: Startup mode 0: Automatic 1: Terminal manual LED "00" digit: Swing amplitude control: 0: Relative center frequency 1: Relative maximum frequency. LED "000" digit: Preset frequency enable: 0: Not enabled 1: Enabled LED "0000" digit: Reserved	0000 (0000~0111)	
F08.32 (0x0820) STOP	Swing frequency preset frequency	V/F SVC	0.00Hz (0-upper frequency)	
F08.33 (0x0821) STOP	Swing frequency preset frequency waiting time	V/F SVC	0.0s (0.0~3600.0s)	
F08.34 (0x0822) STOP	Swing frequency amplitude	V/F SVC	10.0% (0.0~50.0%)	
F08.35 (0x0823) STOP	Kick frequency	V/F SVC	10.0% (0.0~50.0%)	
F08.36 (0x0824) STOP	Triangle wave rise time	V/F SVC	5.00s (0.1~999.9s)	
F08.37 (0x0825) STOP	Triangle wave fall time	V/F SVC	5.00s (0.0~100.0s)	



### 4.13 Group F09: Reserved

### 4.14 Group F10: Protection Parameters

#### F10.0x group: Current protection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F10.00 (0x0A00) RUN	Overcurrent suppression	V/F SVC The automatic limiting output current does not exceed the set overcurrent suppression point to prevent overcurrent faults from being triggered by excessive current. 0: Inhibition is always valid 1: Acceleration/deceleration is valid, constant speed is invalid	0 (0 ~ 1)	
F10.01 (0x0A01) RUN	Overcurrent suppression point	V/F SVC Set the load current limit level, 100% corresponds to the rated motor current.	160.0% (0.0 ~ 300.0%)	
F10.02 (0x0A02) RUN	Overcurrent suppression gain	V/F SVC Set the response effect of overcurrent suppression.	100.0% (0.0 ~ 500.0%)	
F10.03 (0x0A03) STOP	Current protection setting 1	V/F SVC Set whether current-related protection is enabled LED "0" digit: wave-by-wave current limit (CBC) 0: Off 1: On LED "00" digit: OC protection interference suppression 0: Normal 1: Primary interference suppression 2: Secondary interference suppression LED "000" digit: SC Protection Interference Suppression 0: Normal 1: Primary interference suppression 2: Secondary interference suppression LED "0000" digit: Reserved	0001 (0000~0221)	
F10.04 (0x0A04) STOP	Current protection setting 2	V/F SVC LED unit: reserved 0: Off 1: On	0001 (0000~0001)	

#### F10.1x group: voltage protection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F10.10 (0x0A0A) STOP	Operation Pause Delay	V/F SVC When the set value is zero, trigger the UV fault as usual. While if the set value is non-zero, trigger the UV warning, the output will be suppressed, and the system will pause. If the UV still exists after the delay, report fault, and if the voltage recovers during delay, operation is immediately resumed.	0.0s (0.0s~10.0s)	

F10.11 (0x0A0B) STOP	Bus overvoltage suppression	V/F SVC When the bus voltage is greater than the overvoltage suppression point, it will slow down or stop the acceleration and deceleration to prevent overvoltage faults. LED "0" digit: Overvoltage suppression function 0: Off 1: Only open when decelerating 2: Both open and decelerate LED "00" digit: Overexcitation function 0: Off 1: On	0012 (0000 ~0012)	
F10.12 (0x0A0C) STOP	Bus overvoltage suppression point	V/F SVC Set bus voltage value for trigger overvoltage suppression function	T3: 780 S2: 370 (T3: 650 ~760 S2: 340 ~380) Also subject to overvoltage limit	T3 overvoltage point: 820V (750 ~840) S2 overvoltage point: 400V (360 ~410)
F10.13 (0x0A0D) RUN	Bus overvoltage suppression gain	V/F SVC Set the response of overvoltage suppression	100.0% (0.0~500.0%)	
F10.14 (0x0A0E) RUN	Energy brake enable	V/F SVC Set whether the energy brake function is on 0: off 1: Turn on, but turn off the overvoltage suppression function 2: Turn on, and turn on the overvoltage suppression function.	2 (0 ~2)	
F10.15 (0x0A0F) RUN	Energy consumption braking action voltage	V/F SVC Set the energy consumption braking action voltage, when the bus voltage is greater than this value, the energy consumption brake starts to act.	T3: 740 S2: 360 (T3: 650 ~800 S2: 350 ~390) Also subject to overvoltage limit	T3 overvoltagepoint: 820V (750 ~840) S2 overvoltagepoint 400V (360 ~410)
F10.16 (0x0A10) STOP	Bus undervoltage suppression	V/F SVC When the bus voltage is lower than the undervoltage suppression point, the operating frequency is automatically adjusted to suppress the bus voltage from decreasing, preventing the undervoltage fault. 0: Off 1: On	0 (0 ~ 1)	
F10.17 (0x0A11) STOP	Bus undervoltage suppression point	V/F SVC Set bus voltage value for trigger undervoltage suppression function	T3: 430 S2: 240 (T3: 350 ~450 S2: 180 ~260) Also subject to overvoltage limit	T3 overvoltagepoint: 820V (750 ~840) S2 overvoltagepoint 400V (360 ~410)
F10.18 (0x0A12) RUN	Bus undervoltage suppression gain	V/F SVC Set the response effect of undervoltage suppression	100.0% (0.0~500.0%)	

F10.19 (0x0A13) STOP	Bus undervoltage protection point	V/F SVC The lower limit voltage allowed by the set bus voltage. Below this value, the AC Drive reports an undervoltage fault.	T3: 320 S2: 190 (T3: 300 ~400 S2: 160 ~240) Also subject to overvoltage limit	T3 overvoltagepoint: 820V (750 ~840) S2 overvoltagepoint 400V (360 ~410)
----------------------------	-----------------------------------	---	---	---

### F10.2x group: Auxiliary protection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F10.20 (0x0A14) STOP	Input and output phase loss protection options	V/F SVC Set whether the input and output phase loss protection functions are enabled. LED "0" digit: Output phase loss protection 0: Off 1: On LED "00" digit: Input phase loss protection 0: Off 1: On, detected the input missing phase report warning A.I.LF, continue to run 2: Turn on, detect input missing phase report fault E.I.LF, free stop	021 (000 ~ 121)	
F10.21 (0x0A15) STOP	Input phase loss threshold	V/F SVC Set the percentage of voltage detection of the input phase loss detection function, 100% corresponds to the rated bus voltage	10% (0 ~30.0%)	
F10.22 (0x0A16) STOP	Ground short circuit protection option	V/F SVC Set whether the AC Drive output and the AC Drive cooling fan ground short circuit protection function are enabled. LED "0" digit: Output short circuit protection 0: Off 1: On LED "00" digit: Fan to ground short circuit protection 0: Off 1: On	11 (00 ~12)	
F10.23 (0x0A17) RUN	Fan ON/OFF control selection	Set the AC Drive cooling fan operation mode 0: The fan runs after the AC Drive is powered on. 1: After the shutdown, the fan operation is related to temperature, and the operation is running. 2: After the shutdown, the fan stops after F10.24, and the operation is related to temperature.	1 (0-2)	
F10.24 (0x0A18) STOP	Fan control delay time	V/F SVC Set the time from when the run command is canceled to when the cooling fan stops running.	30.00s (0 ~600.00)	
F10.25 (0x0A19) RUN	AC Drive overheating oH1 detection level	V/F SVC Set the temperature value of the AC Drive overheat warning, which is greater than the value to report the overheat warning.	80.0°C (0 ~100.0)	

## F10.3x group: Load protection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F10.30 (0x0A1E) STOP	Motor overload protection curve coefficient	V/F SVC Set the coefficient of overload protection for the load motor. Increasing this value can increase the overload capacity of the motor.	100.0% (0 ~250.0%)	
F10.31 (0x0A1F) STOP	Selection of AC Drive overload characteristics at low speed	V/F SVC When the low speed (less than 5Hz) is set, the overload protection function of the AC Drive is valid. 0: Invalid 1: Valid	0 (0 ~1)	
F10.32 (0x0A20) STOP	Load warning checkout setting	V/F SVC Set the AC Drive load warning detection mode and the early warning mode at this time LED "0" digit: Load warning detection 1 setting 0: no detection 1: Detection load is too large 2: Excessive load detection only at constant speed 3: Insufficient detection load 4: Insufficient load detection only at constant speed LED "00" digit: Alarm setting when the alarm is detected 0: Continue to run, report A.LD1 1: Free stop, reported to E.LD1 LED "000" digit: Load Warning Checkout 2 Settings 0: no detection 1: Detection load is too large 2: Excessive load detection only at constant speed 3: Insufficient detection load 4: Insufficient load detection only at constant speed LED "0000" digit: Early warning set when load warning is detected 2 0: Continue to run, report A.LD1 1: Free stop, reported to E.LD1	0000 (0000 ~1414)	
F10.33 (0x0A21) STOP	Load warning detection level 1	V/F SVC Set the detection value of load warning 1 When VF is controlled, this value is 100% corresponding to the rated current of the motor. When vector control, this value corresponds to 100% of the rated output torque of the motor.	130.0% (0 ~200.0%)	
F10.34 (0x0A22) STOP	Load warning detection time 1	V/F SVC Set the duration of the detected load warning 1 and the load is greater than the load warning detection level for the duration, and the load warning is detected.	5.0s (0 ~60.0)	
F10.35 (0x0A23) STOP	Load warning detection level 2	V/F SVC Set the detection value of load warning 2 When VF is controlled, this value is 100% corresponding to the rated current of the motor. When vector control, this value corresponds to 100% of the rated output torque of the motor.	130.0% (0 ~200.0%)	
F10.36 (0x0A24) STOP	Load warning detection time 2	V/F SVC Set the duration of the detected load warning 2, the load is greater than the load warning detection level and continue for that time, and the load warning is detected 2	5.0s (0 ~60.0)	

## F10.4x group: Stall protection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F10.40 (0x0A28) STOP	Too large speed deviation protection action	V/F SVC Set the warning detection mode selection and alarm mode selection when the motor reference speed and feedback speed deviation are too large LED "0" digit: Check out options 0: No detection 1: Only at constant speed detection 2: Always testing LED "00" digit: Alarm selection 0: Free stop and report failure 1: Alarm and continue to run	00 (00 ~12)	
F10.41 (0x0A29) STOP	Speed deviation excessive detection threshold	V/F SVC Set the detected value whose speed deviation is too large. This value corresponds to F01.10 [maximum frequency].	10.0% (0 ~60.0%)	
F10.42 (0x0A2A) STOP	Speed deviation too large detection time	V/F SVC Set the duration of the detection speed deviation too large, the deviation of the given speed and feedback speed is greater than F10.41 and continues to be like that, an early warning of excessive speed deviation is detected.	2s (0 ~60)	
F10.43 (0x0A2B) STOP	Speed protection action	V/F SVC Set the alarm detection mode selection and alarm mode selection when the motor is rotating too fast LED "0" digit: check out options 0: No detection 1: Only at constant speed detection 2: Always testing LED "00" digit: Alarm selection 0: Free stop and report failure 1: Alarm and continue to run	00 (00 ~12)	
F10.44 (0x0A2C) STOP	Rapid detection threshold	V/F SVC Set the detection value of the fast warning, which corresponds to F01.10 [maximum frequency]	110.0% (0 ~150.0%)	
F10.45 (0x0A2D) STOP	Rapid speed detection time	V/F SVC Set the duration of the detection of the rotating speed, the feedback speed is greater than F10.44 and continues like that, and the speed warning is detected.	0.01s (0 ~2)	

## F10.5x group: Fault recovery protection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F10.50 (0x0A32) STOP	Failure self-recovery	V/F SVC Set the number of fault self-recovery that is allowed to be performed. <b>Note: A value of 0 indicates that the fault self-recovery function is turned off; otherwise it indicates that the function is enabled.</b>	0 (0 ~10)	
F10.51 (0x0A33) STOP	Failure self-recovery interval	V/F SVC Set the waiting time before the AC Drive resets to the time before each reset.	1.0s (0 ~100.0)	

F10.52 (0x0A34) STOP	Numbers of failures recovered	V/F SVC Indicates the number of self-recovery faults that have been performed. This parameter is a read-only parameter.	0	
----------------------------	-------------------------------	--	---	--

## 4.15 Group F11: Operator Parameters

### F11.0x group: Button operation

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F11.00 (0x0B00) RUN	Key lock selection	V/F SVC 0: Not locked 1: Keyboard function parameter modification lock 2: Function parameters and non-start stop button lock 3: Function parameters and button full lock	0 (0 ~ 3)	
F11.01 (0x0B01) RUN	Key lock password	V/F SVC	0 (0 ~ 65535)	
F11.02 (0x0B02) STOP	Keyboard multi-function key selection	V/F SVC 0: Invalid 1: Reverse run key 2: Forward jog operation key 3: Reverse jog run key 4: Keyboard command channel and terminal naming channel switch 5: Keyboard command channel and communication naming channel switch 6: Terminal command channel and communication naming channel switch 7: Keyboard, terminal, communication command channel cycle switching	1 (0 ~ 7)	
F11.03 (0x0B03) STOP	Keyboard STOP button settings	V/F SVC 0: Non-keyboard control mode is invalid 1: Non-keyboard control mode stops according to stop mode 2: Non-keyboard control mode stops in free mode	0 (0 ~ 2)	
F11.04 (0x0B04) STOP	Status interface up and down keys (knob) function selection	V/F SVC LED "0" digit: Keyboard up and down keys to modify the selection 0: Invalid 1: Used to adjust the frequency keyboard given F01.09 2: Used to adjust the PID keyboard given F13.01 3: Keyboard up and down keys to modify the parameter number setting LED "00" digit: Power-down storage 0: Frequency is not stored when power is off 1: Frequency power down storage LED "000" digit: Action Limit 0: Adjustable operation stop 1: Adjustable only during operation, stop and keep 2: Adjustable during operation, stop and clear LED "0000" digit: Reserved	0011 (0000~0213)	

F11.05 (0x0B05) RUN	Up and down keys to quickly change the parameter code setting	V/F SVC LED "0" and "00" digit: yy setting in function parameter number Fxx.yy 00~99 LED "000" and "0000" digit: xx setting in function parameter number Fxx.yy 00~15	0109 (0000 ~ 1563)	
F11.06 (0x0B06) STOP	Keyboard command key selection	V/F SVC LED "0" digit: Built-in, external keyboard button commands (run command, stop/reset command) 0: External priority, when the external is valid, the built-in is invalid. 1: Built-in priority, when the built-in is valid, the external is invalid 2: Internal and external are valid, the stop/reset command takes precedence; when both forward and reverse are active, and the command is invalid. LED "00" digit: Keyboard communication options 0: Both internal and external keyboards are valid 1: Only the built-in keyboard is valid 2: Only external keyboard is valid	0000 (0000 ~ 1122)	

#### F11.1x group: Status interface cyclic monitoring

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F11.10 (0x0B0A) STOP	Status interface left shift, right shift key function selection	V/F SVC LED "0" digit: Left shift key to adjust the first line of monitoring 0: Invalid, 1: Valid LED "00" digit: Right shift key to adjust the second line of monitoring 0: Invalid, 1: Valid	0011 (0000 ~ 0011)	
F11.11 (0x0B0B) RUN	Parameter 1 showed up on first line of the keyboard	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00~63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00~07	0000 (0000 ~ 0763)	
F11.12 (0x0B0C) RUN	Parameter 2 showed up on first line of the keyboard	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00~63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00~07	0001 (0000 ~ 0763)	

F11.13 (0x0B0D) RUN	Parameter 3 showed up on first line of the keyboard	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00-63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00-07	0002 (0000 ~ 0763)	
F11.14 (0x0B0E) RUN	Parameter 4 showed up on first line of the keyboard	V / F SVC LED "0" and "00" digit: Monitor parameter number Cxx.yy YY setting 00-63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy XX setting 00-07	0011 (0000 ~ 0763)	
F11.15 (0x0B0F) RUN	Parameter 1 showed up on second line of the keyboard	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00-63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00-07	0002 (0000 ~ 0763)	
F11.16 (0x0B10) RUN	Parameter 2 showed up on second line of the keyboard	V / F SVC LED "0" and "00" digit: Monitor parameter number Cxx.yy YY setting 00-63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy XX setting 00-07	0004 (0000 ~ 0763)	
F11.17 (0x0B11) RUN	Parameter 3 showed up on second line of the keyboard	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00-63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00-07	0010 (0000 ~ 0763)	
F11.18 (0x0B12) RUN	Parameter 4 showed up on second line of the keyboard	V/F SVC LED "0" and "00" digit: Setting yy setting in monitoring parameter number Cxx.yy 00-63 LED "000" and "0000" digit: Monitoring parameter number Cxx.yy xx setting 00-07	0012 (0000 ~ 0763)	

### F11.2x group: Monitoring parameter control

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F11.20 (0x0B14) RUN	Keyboard display item settings	V/F SVC LED "0" digit: Output frequency display selection 0: Target frequency 1: Operating frequency LED "00" digit: Reserved 0: Invalid 1: Active power to remove stator resistance loss LED "000" digit: Power Display Dimensions 0: Power display percentage (%) 1: Power display kilowatt (KW) LED "0000" digit: Reserved	0000 (0000 ~ 1111)	



F11.21 (0x0B15) RUN	Speed display factor	V/F SVC	100.0% (0.0~500.0%)	
F11.22 (0x0B16) RUN	Power display factor	V/F SVC	100.0% (0.0~500.0%)	
F11.23 (0x0B17) RUN	Monitoring parameter group display selection	V/F SVC LED "0" digit: Reserved 0: Invalid 1: Valid LED "00" digit: C05 display selection 0: Automatically switch according to the control mode 1: V/F mode related parameters 2: VC mode related parameters LED "000" digit: C00.40~C00.63 display selection 0: Not displayed 1: Display LED "0000" digit: Reserved	0000 (0000 ~ FFFF)	
F11.24 (0x0B18) RUN	Reserved			
F11.25 (0x0B19) STOP	Display selection when the motor is self-tuning	V/F SVC 0: Display the status of the self-learning process 1: Do not display the status of the self-learning process	0 (0 ~ 1)	S/T2 models do not support this parameter.

### F11.3x group: Keyboard special features

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F11.30 (0x0B1E) STOP	AC10 serial port function selection	V/F SVC 0: RS485 1: External keyboard The terminal 485 bus and the external keyboard function are selected one by one. When the external keyboard is selected, the 485 bus (master/slave) cannot be used.	0 (0 ~ 1)	
F11.31 (0x0B1F) RUN	Keyboard potentiometer lower limit voltage	V/F SVC	0.50v (0.00-3.00v)	
F11.32 (0x0B20) RUN	Keyboard potentiometer lower limit corresponding value	V/F SVC	0.00% (0.00-100.00%)	
F11.33 (0x0B21) RUN	Keyboard potentiometer upper limit voltage	V/F SVC	2.80v (0.00-3.00v)	
F11.34 (0x0B22) RUN	Keyboard potentiometer upper limit corresponding value	V/F SVC	100.0% (0.00-100.00%)	
F11.35 (0x0B23) RUN	External keyboard potentiometer control	0: invalid 1: valid	0 (0 ~ 1)	

## 4.16 Group F12: Communication Parameters

**Note:** When F11.30 selects the external keyboard, the MODBUS bus (master/slave) cannot be used.

F12.0x group: MODBUS slave parameters

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F12.00 (0x0C00) STOP	Master-slave choice	V/F SVC 0: Slave 1: Host	0 (0 ~ 1)	
F12.01 (0x0C01) STOP	Modbus communication address	V/F SVC	1 (1 ~ 247)	
F12.02 (0x0C02) STOP	Communication baud rate selection	V/F SVC 0: 1200 bps 1: 2400 bps 2: 4800 bps 3: 9600 bps 4: 19200 bps 5: 38400 bps 6: 57600 bps	3 (0 ~ 6)	
F12.03 (0x0C03) STOP	Modbus data format	V/F SVC 0: (N, 8, 1) no parity, Data bits: 8, Stop position: 1 1: (E, 8, 1) even parity, Data bits: 8, Stop position: 1 2: (O, 8, 1) odd parity, Data bits: 8, Stop position: 1 3: (N, 8, 2) no parity, Data bits: 8, Stop position: 2 4: (E, 8, 2) even parity, Data bits: 8, Stop position: 2 5: (O, 8, 2) odd parity, Data bits: 8, Stop position: 2	0 (0 ~ 5)	
F12.04 (0x0C04) RUN	Modbus transmission response processing	V/F SVC 0: The writing operation has a response 1: The writing operation has no response	0 (0 ~ 1)	
F12.05 (0x0C05) RUN	Modbus communication response delay	V/F SVC	0ms (0 ~ 500ms)	
F12.06 (0x0C06) RUN	Modbus communication timeout failure time	V/F SVC	1.0s (0.1 ~ 100s)	
F12.07 (0x0C07) RUN	Communication disconnection processing	V/F SVC 0: Do not detect timeout failure 1: Fault and free parking 2: Warning and continue to run 3: Forced shutdown	0 (0 ~ 3)	
F12.08 (0x0C08) RUN	Receive data (address 0x3000) zero bias	V/F SVC	0.00 (-100.00-100.00)	

F12.09 (0x0C09) RUN	Receive data (address 0x3000) gain	V/F SVC	100.0% (0.0~500.0%)	
---------------------------	------------------------------------	---------	------------------------	--

### F12.1x group: MODBUS host parameters

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F12.10 (0x0C0A) RUN	Host cyclically send parameter selection	V/F SVC LED "0", "00", "000", "0000" digit 0: Invalid 1: Host running command 2: Host given frequency 3: Host output frequency 4: Host upper limit frequency 5: The given torque of the host 6: Host output torque 7: Reserved 8: Reserved 9: Host PID given A: Host PID feedback B: Reserved C: Active current component	0031 (0000 ~ CCCC)	
F12.11 (0x0C0B) RUN	Frequency given custom address setting	V/F SVC	0000 (0000 ~ FFFF)	
F12.12 (0x0C0C) RUN	Command given custom address settings	V/F SVC	0000 (0000 ~ FFFF)	
F12.13 (0x0C0D) RUN	Command given as forward run command value	V/F SVC	0001 (0000 ~ FFFF)	
F12.14 (0x0C0E) RUN	Command given as reverse run command value	V/F SVC	0002 (0000 ~ FFFF)	
F12.15 (0x0C0F) RUN	Command given as stop command value	V/F SVC	0005 (0000 ~ FFFF)	
F12.16 (0x0C10) RUN	Command given as reset command value	V/F SVC	0007 (0000 ~ FFFF)	

## 4.17 Group F13: Process PID Control

### F13.00-F13.06: PID given and feedback

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F13.00 (0x0D00) RUN	PID controller given signal source	V/F SVC 0: Keyboard digital PID given 1: Keyboard analog potentiometer given 2: Current/voltage analog AI given 3: Reserved 4: Reserved	0 (0 ~ 9)	

		5: Terminal pulse PUL given 6: RS485 communication given 7: Option card 8: Terminal selection 9: Communication given active current		
F13.01 (0x0D01) RUN	Keyboard digital PID given / feedback	V/F SVC	50.0% (0.00~100.0%)	
F13.02 (0x0D02) RUN	PID given change time	V/F SVC	1.00s (0.00~60.00s)	
F13.03 (0x0D03) RUN	PID controller feedback signal source	V/F SVC 0: Keyboard digital PID feedback 1: Keyboard analog potentiometer feedback 2: Current/voltage analog AI feedback 3: Reserved 4: Reserved 5: Terminal pulse PUL feedback 6: RS485 communication feedback 7: Option card 8: Terminal selection 9: Local active current	2 (0 ~ 9)	
F13.04 (0x0D04) RUN	Feedback signal low pass filtering time	V/F SVC	0.010s (0.000~6.000s)	
F13.05 (0x0D05) RUN	Feedback signal gain	V/F SVC	1.00 (0.00~10.00)	
F13.06 (0x0D06) RUN	Feedback signal range	V/F SVC	100.0 (0~100.0)	

### F13.07-F13.24: PID Adjustment

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F13.07 (0x0D07) RUN	PID control selection	V/F SVC LED "0" digit: Feedback characteristics selection 0: Positive characteristic 1: Negative characteristic LED "00" digit: Reserved LED "000" digit: Reserved LED "0000" digit: Differential Adjustment Properties 0: Differentiate the deviation 1: Differentiate the feedback	0000 (0000 ~ 1111)	
F13.08 (0x0D08) RUN	PID preset output	V/F SVC	100.0% (0.0~100.0%)	
F13.09 (0x0D09) RUN	PID preset output running time	V/F SVC	0.0s (0.0~6500.0s)	

F13.10 (0x0D0A) RUN	PID control deviation limit	V/F SVC	0.0% (0.0~100.0%)	
F13.11 (0x0D0B) RUN	Proportional gain P1	V/F SVC	0.100 (0.000~4.000)	
F13.12 (0x0D0C) RUN	Integration time I1	V/F SVC	1.0s (0.0~600.0s)	
F13.13 (0x0D0D) RUN	Differential gain D1	V/F SVC	0.000s (0.000~6.000s)	
F13.14 (0x0D0E) RUN	Proportional gain P2	V/F SVC	0.100 (0.000~4.000)	
F13.15 (0x0D0F) RUN	Integration time I2	V/F SVC	1.0s (0.0~600.0s)	
F13.16 (0x0D10) RUN	Differential gain D2	V/F SVC	0.000s (0.000~6.000s)	
F13.17 (0x0D11) RUN	PID parameter switching condition	V/F SVC 0: Do not switch 1: Switch using DI terminal 2: Switch according to the deviation	0 (0 ~ 2)	
F13.18 (0x0D12) RUN	Switching deviation low value	V/F SVC When the PID deviation is less than this value, the gain 1 parameter is used.	20.0% (0.0~100.0%)	
F13.19 (0x0D13) RUN	Switching deviation high value	V/F SVC When the PID deviation is greater than this value, the gain 2 parameter is used.	80.0% (0.0~100.0%)	
F13.20 (0x0D14) RUN	Reserved	V/F SVC		
F13.21 (0x0D15) RUN	Differential limiting	V/F SVC	5.0% (0.0~100.0%)	
F13.22 (0x0D16) RUN	PID output upper limit	V/F SVC	100.0% (0.0~100.0%)	
F13.23 (0x0D17) RUN	PID output lower limit	V/F SVC	0.0% (-100.0~Fb.19)	
F13.24 (0x0D18) RUN	PID output filtering time	V/F SVC	0.000s (0.000~6.000s)	

## F13.25-F13.28: PID feedback disconnection judgment

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F13.25 (0x0D19) STOP	Feedback disconnection action selection	V/F SVC 0: Continue PID operation without reporting failure 1: Stop and report failure 2: Continue PID operation and output alarm signal 3: Run at the current frequency, output alarm signal	0 (0 ~ 3)	
F13.26 (0x0D1A) RUN	Feedback disconnection detection time	V/F SVC	1.0s (0.0~120.0s)	
F13.27 (0x0D1B) RUN	Wire break alarm upper limit	V/F SVC	100.0 (0.0~100.0%)	
F13.28 (0x0D1C) RUN	Wire break alarm lower limit	V/F SVC	0.0% (0.0~100.0%)	

## F13.29-F13.33: PID dormancy function

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F13.29 (0x0D1D) RUN	Sleep selection	V/F SVC 0: Off 1: Valid	0 (0 ~ 1)	
F13.30 (0x0D1E) RUN	Sleep frequency	V/F SVC	10.00Hz (0.00~50.00Hz)	
F13.31 (0x0D1F) RUN	Sleep delay	V/F SVC	60.0S (0.0~3600.0S)	
F13.32 (0x0D20) RUN	Wake up deviation	V/F SVC	5.0% (0.0~50.0%)	
F13.33 (0x0D21) RUN	Wake-up delay	V/F SVC	1.0S (0.0~60.0S)	

## 4.18 Group F14: Multi-Speed and Simple PLC

## F14.00~F14.14: Multi-speed frequency given

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F14.00 (0x0E00) RUN	PLC multi-speed 1	V/F SVC	10.00Hz (0.00~Maximum frequency)	
F14.01 (0x0E01) RUN	PLC multi-speed 2	V/F SVC	20.00Hz (0.00~Maximum frequency)	
F14.02 (0x0E02) RUN	PLC multi-speed 3	V/F SVC	30.00Hz (0.00~Maximum frequency)	
F14.03 (0x0E03) RUN	PLC multi-speed 4	V/F SVC	40.00Hz (0.00~Maximum frequency)	
F14.04 (0x0E04) RUN	PLC multi-speed 5	V/F SVC	50.00Hz (0.00~Maximum frequency)	
F14.05 (0x0E05) RUN	PLC multi-speed 6	V/F SVC	40.00Hz (0.00~Maximum frequency)	
F14.06 (0x0E06) RUN	PLC multi-speed 7	V/F SVC	30.00Hz (0.00~Maximum frequency)	
F14.07 (0x0E07) RUN	PLC multi-speed 8	V/F SVC	20.00Hz (0.00~Maximum frequency)	
F14.08 (0x0E08) RUN	PLC multi-speed 9	V/F SVC	10.00Hz (0.00~Maximum frequency)	
F14.09 (0x0E09) RUN	PLC multi-speed 10	V/F SVC	20.00Hz (0.00~Maximum frequency)	
F14.10 (0x0E0A) RUN	PLC multi-speed 11	V/F SVC	30.00Hz (0.00~Maximum frequency)	
F14.11 (0x0E0B) RUN	PLC multi-speed 12	V/F SVC	40.00Hz (0.00~Maximum frequency)	
F14.12 (0x0E0C) RUN	PLC multi-speed 13	V/F SVC	50.00Hz (0.00~Maximum frequency)	
F14.13 (0x0E0D) RUN	PLC multi-speed 14	V/F SVC	40.00Hz (0.00~Maximum frequency)	
F14.14 (0x0E0E) RUN	PLC multi-speed 15	V/F SVC	30.00Hz (0.00~Maximum frequency)	

## F14. 15: PLC operation mode selection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F14.15 (0x0E0F) RUN	PLC operation mode selection	V/F SVC LED "0" digit: Cycle mode 0: Stop after single cycle 1: Continuous cycle 2: Keep the final value after a single cycle LED "00" digit: Timing unit 0: Second 1: Minute 2: Hour LED "000" digit: Power-down storage 0: No storage 1: Storage LED "0000" digit: Startup mode 0: Re-run from the first stage 1: Re-run from the phase of the downtime 2: Continue to run for the rest of the downtime phase	0000 (0000 ~ 2122)	

## F14.16~F14.30: PLC running time selection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F14.16 (0x0E10) RUN	PLC first stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.17 (0x0E11) RUN	PLC second stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.18 (0x0E12) RUN	PLC third stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.19 (0x0E13) RUN	PLC fourth stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.20 (0x0E14) RUN	PLC fifth stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.21 (0x0E15) RUN	PLC sixth stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.22 (0x0E16) RUN	PLC seventh stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.23 (0x0E17) RUN	PLC eighth stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.24 (0x0E18) RUN	PLC ninth stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	
F14.25 (0x0E19) RUN	PLC tenth stage running time	V/F SVC	10.0 (0.0~6500.0(s/m/h))	



F14.26 (0x0E1A) RUN	PLC eleventh stage running time	V/F SVC	10.0 (0.0–6500.0(s/m/h))	
F14.27 (0x0E1B) RUN	PLC twelfth stage running time	V/F SVC	10.0 (0.0–6500.0(s/m/h))	
F14.28 (0x0E1C) RUN	PLC thirteenth stage running time	V/F SVC	10.0 (0.0–6500.0(s/m/h))	
F14.29 (0x0E1D) RUN	PLC fourteenth stage running time	V/F SVC	10.0 (0.0–6500.0(s/m/h))	
F14.30 (0x0E1E) RUN	PLC fifteenth stage running time	V/F SVC	10.0 (0.0–6500.0(s/m/h))	

#### F14.31–F14.45: PLC running direction and time selection

Parameter (address) adjustable attribute	Name	Content	Factory default (setting range)	Notes
F14.31 (0x0E1F) RUN	PLC first direction and acceleration and deceleration time	V/F SVC LED "0" digit: The running direction of this segment (compared with the running command) 0: Same direction 1: Reverse LED "00" digit: The acceleration and deceleration time of this segment 0: Acceleration/deceleration time 1 1: Acceleration and deceleration time 2 2: Acceleration and deceleration time 3 3: Acceleration and deceleration time 4 LED "000" digit: Reserved LED "0000" digit: Reserved	0000 (0000–0031)	
F14.32 (0x0E20) RUN	PLC second direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000–0031)	
F14.33 (0x0E21) RUN	PLC third direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000–0031)	
F14.34 (0x0E22) RUN	PLC fourth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000–0031)	
F14.35 (0x0E23) RUN	PLC fifth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000–0031)	
F14.36 (0x0E24) RUN	PLC sixth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000–0031)	
F14.37 (0x0E25) RUN	PLC seventh direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000–0031)	
F14.38 (0x0E26) RUN	PLC eighth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000–0031)	

F14.39 (0x0E27) RUN	PLC ninth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000-0031)	
F14.40 (0x0E28) RUN	PLC tenth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000-0031)	
F14.41 (0x0E29) RUN	PLC eleventh direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000-0031)	
F14.42 (0x0E2A) RUN	PLC twelfth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000-0031)	
F14.43 (0x0E2B) RUN	PLC thirteenth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000-0031)	
F14.44 (0x02C) RUN	PLC fourteenth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000-0031)	
F14.45 (0x0E2D) RUN	PLC fifteenth direction and acceleration and deceleration time	V/F SVC The same settings as F14.31	0000 (0000-0031)	

#### 4.19 Group F15: Reserved

#### 4.20 Group C0x: Monitoring Parameters

##### Group C00: Basic monitoring

Parameter code (address)	Name	Content	Signal level of multi-function analog output	Notes
C00.00 (0x2100)	Given frequency	V/F SVC	10V corresponds to the maximum frequency (60Hz)	
C00.01 (0x2101)	Output frequency	V/F SVC	10V corresponds to the maximum frequency	
C00.02(0x2102)	Output current	V/F SVC	10V corresponds to the rated current of the double motor (5A)	
C00.03 (0x2103)	Input voltage	V/F SVC	10V corresponds to 380V	
C00.04 (0x2104)	The output voltage	V/F SVC	10V corresponds to the rated voltage of the motor 360V	
C00.05 (0x2105)	Mechanical speed	V/F SVC	10V corresponds to the maximum frequency of mechanical speed	
C00.06 (0x2106)	Given torque	V/F SVC	10V corresponds to +/-200%	
C00.07 (0x2107)	Output torque	V/F SVC	10V corresponds to +/-200%	
C00.08 (0x2108)	PID given	V/F SVC	10V corresponds to 100%	
C00.09 (0x2109)	PID feedback	V/F SVC	10V corresponds to 100%	
C00.10 (0x210A)	Output Power	V/F SVC		
C00.11 (0x210B)	bus voltage	V/F SVC	5V corresponding rated bus voltage	
C00.12 (0x210C)	Module temperature 1	V/F SVC	10V corresponds to 100 ° C	
C00.13 (0x210D)	Module temperature 2	V/F SVC	10V corresponds to 100 ° C	
C00.14 (0x210E)	Input terminal X is on	V/F SVC		

C00.15 (0x210F)	Output terminal Y is on	V/F SVC		
C00.16(0x2110)	Analog AI input value	V/F SVC	10V corresponds to 10V	
C00.17 (0x2111)	Reserved	V/F SVC		
C00.18 (0x2112)	Keyboard potentiometer input value	V/F SVC	10V corresponds to 10V	
C00.19 (0x2113)	Pulse signal PUL input value	V/F SVC		
C00.20 (0x2114)	Analog output AO	V/F SVC		
C00.21 (0x2115)	Reserved	V/F SVC		
C00.22 (0x2116)	Counter count value	V/F SVC		
C00.23 (0x2117)	Power-on running time	V/F SVC		
C00.24 (0x2118)	Accumulated running time of the machine	V/F SVC		
C00.25 (0x2119)	AC Drive power level	V/F SVC		
C00.26 (0x211A)	AC Drive rated voltage	V/F SVC		
C00.27 (0x211B)	AC Drive rated current	V/F SVC		
C00.28 (0x211C)	Software version	V/F SVC		
C00.29 (0x211D)	PG feedback frequency	V/F SVC		
C00.30 (0x211E)	Timer timing	V/F SVC		
C00.31 (0x211F)	PID output value	V/F SVC		
C00.32 (0x2120)	AC Drive software subversion	V/F SVC		
C00.33(0x2121)	Encoder feedback angle	V/F SVC		
C00.34 (0x2122)	Z pulse cumulative error	V/F SVC		
C00.35 (0x2123)	Z pulse count	V/F SVC		
C00.36 (0x2124)	Failure warning code	V/F SVC		
C00.37 (0x2125)	Cumulative power consumption (low level)	V/F SVC		
C00.38 (0x2126)	Cumulative power consumption (high)	V/F SVC		
C00.39 (0x2127)	Power factor angle	V/F SVC		

### Group C01: Fault monitoring

Parameter code (address)	Name	Content	Signal level of multi-function analog	Notes
C01.00 (0x2200)	Fault type diagnostic information	V/F SVC		
C01.01 (0x2201)	Troubleshooting information	V/F SVC		
C01.02 (0x2202)	Fault operating frequency	V/F SVC		
C01.03 (0x2203)	Fault output voltage	V/F SVC		
C01.04 (0x2204)	Fault output current	V/F SVC		
C01.05 (0x2205)	Fault bus voltage	V/F SVC		
C01.06 (0x2206)	Faulty module temperature	V/F SVC		

C01.07 (0x2207)	Faulty AC Drive status	V/F SVC		
C01.08 (0x2208)	Fault input terminal status	V/F SVC		
C01.09 (0x2209)	Fault output terminal status	V/F SVC		
C01.10 (0x220A)	Previous failure type	V/F SVC		
C01.11 (0x220B)	Previous troubleshooting information	V/F SVC		
C01.12 (0x220C)	The first fault operation frequency	V/F SVC		
C01.13 (0x220D)	Last fault output voltage	V/F SVC		
C01.14 (0x220E)	Last fault output current	V/F SVC		
C01.15 (0x220F)	The first fault bus voltage	V/F SVC		
C01.16 (0x2210)	The first fault module temperature	V/F SVC		
C01.17 (0x2211)	The first faulty AC Drive status	V/F SVC		
C01.18 (0x2212)	The first fault input terminal status	V/F SVC		
C01.19 (0x2213)	The first fault output terminal status	V/F SVC		
C01.20 (0x2214)	First 2 fault types	V/F SVC		
C01.21 (0x2215)	The first 2 troubleshooting information	V/F SVC		
C01.22 (0x2216)	Top 3 fault types	V/F SVC		
C01.23 (0x2217)	The first 3 troubleshooting information	V/F SVC		

#### 4.21 Terminal Input and Output Function Selection

X	Functional interpretation	X	Functional interpretation	X	Functional interpretation
0	No function	21	PID control pause	42	Counter clock input terminal
1	Forward running	22	PID characteristic switching	43	Counter clear terminal
2	Reverse run	23	PID parameter switching	44	DC brake command
3	Three-wire operation control (Xi)	24	PID given switch 1	45	Pre-excitation command terminal
4	Forward turn	25	PID given switch 2	46	Reserved
5	Reverse jog	26	PID given switch 3	47	Reserved
6	Free parking	27	PID feedback switching 1	48	Command channel switch to keyboard
7	Emergency pull over	28	PID feedback switching 2	49	Command channel switch to terminal
8	Fault reset	29	PID feedback switching 3	50	Command channel switch to communication
9	External fault input	30	Program run (PLC) pause	51	Command channel switch to expansion card
10	Frequency increment (UP)	31	Program run (PLC) restart	52	Run prohibition
11	Frequency decrement (DW)	32	Acceleration/deceleration time selection terminal 1	53	Forward prohibition
12	Frequency increment decrement clear (UP/DW clear)	33	Acceleration/deceleration time selection terminal 2	54	Reverse prohibition
13	Channel A switches to channel B	34	Suspension acceleration	55	Reserved
14	Switch the frequency channel combination to A	35	Swing frequency input	56	Reserved
15	Switch the frequency channel combination to B	36	Swing frequency pause	57	Zero servo command

16	Multi-speed terminal 1	37	Swing frequency reset	58	Run output blocking command
17	Multi-speed terminal 2	38	Keyboard button and display self-test selection	59	Reserved
18	Multi-speed terminal 3	39	X4 frequency measurement	60	Speed torque control switching
19	Multi-speed terminal 4	40	Timer trigger terminal	61	Reserved
20	PID control canceled	41	Timer clear terminal	62	Reserved
<b>Y</b>	<b>Functional interpretation</b>	<b>Y</b>	<b>Functional interpretation</b>	<b>Y</b>	<b>Functional interpretation</b>
0	No output	14	Lower limit frequency is reached	28	Underload pre-alarm output 2
1	The AC Drive is running	15	Program run cycle is completed	29	AC Drive is warning
2	AC Drive running in reverse	16	The running phase of the program is completed.	30	Communication address 0x3018 control output
3	The AC Drive is running in forward rotation	17	PID feedback exceeds the upper limit	31	AC Drive overheat warning
4	Fault trip alarm 2 (no alarm during fault self-recovery)	18	PID feedback is below the lower limit	32	Motor overheat alarm output
5	Fault trip alarm 2 (no alarm during fault self-recovery)	19	PID feedback sensor disconnection	33	Frequency (speed) is consistent 1
6	External downtime	20	Meter length arrives	34	Any frequency (speed) is consistent 1
7	AC Drive is under-voltage	21	Timer time is up	35	Frequency detection 1
8	The AC Drive is ready for operation	22	Counter reaches maximum	36	Frequency detection 2
9	Output frequency level detection 1 (FDT1)	23	Counter reaches the set value	37	Frequency (speed) is consistent 2
10	Output frequency level detection 2 (FDT2)	24	Energy consumption braking	38	Any frequency (speed) is consistent 2
11	Arrived at a given frequency	25	PG feedback disconnection	39	Frequency detection 3
12	Zero speed operation	26	Emergency stop	40	Frequency detection 4
13	Upper limit frequency is reached	27	Overload pre-alarm output 1		

## 4.22 Fault Code Table

**Note:** The numbers in parentheses in the code column are fault codes or warning codes (Dec stands for decimal).

Keyboard Display(DEC.)	Fault Name	Fault Type	Keyboard Display(DEC.)	Fault Name	Fault Type
E.SC1 (1)	System failure during acceleration	Fault	E.SPD (78)	Rapid failure	Fault
E.SC2 (2)	System failure during deceleration	Fault	E.LD1 (79)	Load protection 1	Fault
E.SC3 (3)	System failure in constant speed	Fault	E.LD2 (80)	Load protection 2	Fault
E.SC4 (4)	System failure in downtime	Fault	E.CPU (81)	CPU timeout failure	Fault
E.OC1 (5)	Overcurrent in acceleration	Fault	Reserved (82)	Reserved	Fault
E.OC2 (6)	Overcurrent during deceleration	Fault	Reserved (83)	Reserved	Fault
E.OC3(7)	Overcurrent at constant speed	Fault	Reserved (84)	Reserved	Fault
E.OC4 (8)	AC10 software overcurrent	Fault	E.LOC (85)	Chip lock	Fault
E.OU1 (9)	Over-voltage during acceleration	Fault	E.EEP (86)	Parameter storage failure	Fault
E.OU2 (10)	Over-voltage during deceleration	Fault	Reserved (87)	Reserved	Fault

E.OU3 (11)	Over-voltage at constant speed	Fault	Reserved (88)	Reserved	Fault
Reserved (12)	Reserved	Fault	Reserved (89)	Reserved	Fault
E.LU (13)	Under-voltage in operation	Fault	Reserved (90)	Reserved	Fault
E.OL1 (14)	Motor overload	Fault	E.BUS1 (91)	Expansion card A disconnected	Fault
E.OL2 (15)	AC Drive overload 1	Fault	E.BUS2 (92)	Expansion card B is disconnected	Fault
E.OL3 (16)	AC Drive overload 2 CBC continues to generate	Fault	E.BUS3 (93)	CAN expansion card failure	Fault
E.OL4 (17)	AC Drive overload 3	Fault	E.BUS4 (94)	Other expansion card failure	Fault
E.ILF (18)	Input phase loss	Fault	E.BUS5 (95)	Other expansion card failure	Fault
E.OLF(19)	Three-phase output loss	Fault	E.BUS6 (96)	Other expansion card disconnection	Fault
E.OLF1 (20)	U phase output phase loss	Fault	E.CP1 (97)	Monitor compare output 1 fault	Fault
E.OLF2 (21)	V phase output phase loss	Fault	E.CP2 (98)	Monitor compare output 2 fault	Fault
E.OLF3 (22)	W phase output phase loss	Fault	E.DAT (99)	Parameter setting error	Fault
Reserved (23)	Reserved	Fault	Reserved (100~109)	Reserved	Fault
Reserved (24)	Reserved	Fault	E.FA1 (110)	External extension reserve 1	Fault
Reserved (25)	Reserved	Fault	E.FA2 (111)	External extension reserve 2	Fault
Reserved (26)	Reserved	Fault	E.FA3 (112)	External extension reserve 3	Fault
Reserved (27)	Reserved	Fault	E.FA4 (113)	External extension reserve 4	Fault
Reserved (28)	Reserved	Fault	E.FA5 (114)	External extension reserve 5	Fault
Reserved (29)	Reserved	Fault	E.FA6 (115)	External extension reserve 6	Fault
E.OH1 (30)	Rectifier module is over-temperature	Fault	E.FA7 (116)	External extension reserve 7	Fault
E.OH2 (31)	IGBT module is over- temperature	Fault	E.FA8( 117)	External extension reserve 8	Fault
E.OH3 (32)	Motor is over- temperature	Fault	Reserved (118~126)	Reserved	Fault
E.EF (33)	External fault	Fault	A.LU1 (128)	Undervoltage during shutdown	Warning
E.CE (34)	Modbus communication failure	Fault	A.OU (129)	Over-voltage during shutdown	Warning
E.HAL1 (35)	U phase zero drift	Fault	A.ILF(130)	Input phase loss	Warning
E.HAL2 (36)	V phase zero drift	Fault	A.PID (131)	PID feedback disconnection	Warning
E.HAL (37)	Three-phase current and not 0 fault	Fault	A.EEP (132)	Parameter storage warning	Warning
E.HAL3 (38)	W phase zero drift	Fault	A.DEF (133)	Speed deviation is too large	Warning
Reserved (39)	Reserved	Fault	A.SPD (134)	Speed warning	Warning
E.SGxx (40)	Short circuit to ground	Fault	A.GPS1 (135)	GPS lock machine	Warning
E.FSG (41)	Fan short circuit	Fault	A.GPS2 (136)	GPS disconnection	Warning
E. PID (42)	PID feedback disconnection	Fault	A.CE (137)	External warning	Warning
E.COP (43)	Parameter copy failure	Fault	A.LD1 (138)	Load protection 1	Warning
E.PG (44)	PG parameter setting error	Fault	A.LD2 (139)	Load protection 2	Warning

Reserved (45)	Reserved	Fault	A.BUS (140)	Expansion card disconnection warning	Warning
Reserved (46)	Reserved	Fault	A.OH1 (141)	Module over-temperature warning	Warning
Reserved (47)	Reserved	Fault	A.OH3 (142)	Motor over-temperature warning	Warning
Reserved (48)	Reserved	Fault	A.RUN1 (143)	Running warning 1	Warning
Reserved (49)	Reserved	Fault	A.PA2 (144)	External keyboard disconnection warning	Warning
E.BRU (50)	Brake unit failure	Fault	A.COP (145)	Parameter copy warning	Warning
Reserved (51)	Reserved	Fault	A.CP1 (146)	Monitor comparison output 1 warning	Warning
E.TExx (52)	Self-tuning output current overrun	Fault	A.CP2 (147)	Monitor comparison output 2 warning	Warning
Reserved (53-70)	Reserved	Fault	A.RUN2 (148)	Running warning 2	
E.IAE1 (71)	Motor angle learning fault 1	Fault	A.RUN3 (149)	Running warning 3	Warning
E.IAE2 (72)	Motor angle learning fault 2	Fault	A.FA1 (150)	External extension reserve 1	Warning
E.IAE3 (73)	Motor angle learning fault 3	Fault	A.FA2 (151)	External extension reserve 2	Warning
E.PST1 (74)	PMSM out of step fault 1	Fault	A.FA3 (152)	External extension reserve 3	Warning
E.PST2 (75)	PMSM out of step fault 2	Fault	A.FA4 (153)	External extension reserve 4	Warning
E.PST3 (76)	PMSM out of step fault 3	Fault	A.FA5 (154)	External extension reserve 5	Warning
E.DEF (77)	Speed deviation is too large	Fault	A.FA6 (155)	External extension reserve 6	Warning

## Chapter V Periodic Overhaul and Maintenance

### 5.1 Overhaul

AC Drive is composed by semi-conductive components, passive electronic component and motive component. All of these components have useful life. Even under normal working environment, some of the components can not work after the life time. To avoid malfunction, daily checking, periodic overhaul, component changing and other maintenance should be carried out to prevent. We suggest one overhaul every 3-4 months after installation.

#### ● Daily checking

To avoid machine damage and to prolong life time, please check the following items everyday.

Items	Checking content	Treatment
Power supply	Check if power supply meets the requirement and whether there is lack-phase.	Treat it as nameplate explains.
Surroundings	Check whether it meets the environment requirement.	Make sure the problem and solve it.
Cooling system	Check whether the AC Drive or the motor heat or change color abnormally and cooling fan working state.	Check whether it overload. Tighten screw. Check whether cooling fan is dirty or stall rotate.
Motor	Check if there is abnormal vibration or noise.	Tighten machine and electric connection and lubricate the machine components.
Load	Check whether output current is over the rated value of the motor or the AC Drive and has lasted for a period.	Make sure whether it overloads and whether the machine model is right.

#### ● Periodic overhaul:

Under normal state, one overhaul every 3 or 4 months is ok. Please confirm the actual overhaul period according to the machine use condition and work circumstance while using the machine.

Items	Checking content	Treatment
Whole	<ul style="list-style-type: none"> <li>● Check insulated resistance;</li> <li>● Check circumstance.</li> </ul>	<ul style="list-style-type: none"> <li>● Tighten and change bad component;</li> <li>● Clear and improve circumstance.</li> </ul>
Electric connection	<ul style="list-style-type: none"> <li>● Check whether the wire and connector color changes, whether there is disrepair, crack color change or aging in insulated layer.</li> <li>● Check whether the connect terminals are frayed, damaged or loose.</li> <li>● Earth checking.</li> </ul>	<ul style="list-style-type: none"> <li>● Change bad wires.</li> <li>● Fasten terminals and change bad terminals.</li> <li>● Measure earth resistance and fasten earth terminals.</li> </ul>
Mechanical connection	<ul style="list-style-type: none"> <li>● Check if there is abnormal vibration or noise or something is loose.</li> </ul>	<ul style="list-style-type: none"> <li>● Tighten, lubricate and change the bad components.</li> </ul>
semi-conductive component	<ul style="list-style-type: none"> <li>● Check whether there is dust or rubbish.</li> <li>● If there is obvious out change</li> </ul>	<ul style="list-style-type: none"> <li>● Clean operation environment</li> <li>● Change damaged component</li> </ul>
Electrolytic capacitor	<ul style="list-style-type: none"> <li>● Whether there is liquid leak, color change or crack. Whether the safety valve outtop, inflation, creak or liquid leak.</li> </ul>	<ul style="list-style-type: none"> <li>● Change damaged component</li> </ul>
Peripheral equipment	<ul style="list-style-type: none"> <li>● Peripheral equipment outlook and insulation checking.</li> </ul>	<ul style="list-style-type: none"> <li>● Clear and change damaged component.</li> </ul>
PCB	<ul style="list-style-type: none"> <li>● Peculiar smell color change, bad rust and connector checking.</li> </ul>	<ul style="list-style-type: none"> <li>● Fasten connector</li> <li>● Clear PCB</li> <li>● Change damaged PCB</li> </ul>
Cooling system	<ul style="list-style-type: none"> <li>● Check whether the fan is damaged or blocked up.</li> <li>● Whether rubbish and dust is stuck to the heat sink.</li> <li>● Whether the air inlet/outlet blocked Or is there something sticking to the inlet/outlet.</li> </ul>	<ul style="list-style-type: none"> <li>● Clean operation environment</li> <li>● Change damaged component</li> </ul>



Keyboard	<ul style="list-style-type: none"> <li>Whether it is damaged. Check whether display is complete.</li> </ul>	<ul style="list-style-type: none"> <li>Change damaged component</li> </ul>
Motor	<ul style="list-style-type: none"> <li>Check if there is abnormal vibration or noise.</li> </ul>	<ul style="list-style-type: none"> <li>Tighten machine and electric connection and lubricate the machine components.</li> </ul>

Do not perform related work while the power is on, otherwise there is a danger of death due to electric shock. When performing related work, please cut off the power supply and confirm that the DC voltage of the main circuit has dropped to a safe level, and wait 5 minutes before performing related work.

## 5.2 Maintenance

All equipment and components have lifespan. Right maintenance can prolong the lifetime. But it can not avoid damage. Please change the components before their lifetime over.

Component	Lifespan	Component	Lifespan	Component	Lifespan
Fan	2~3 years	Electrolytic capacitor	4~5 years	PCB	8~10 years

The replacement of the other components has strict requirements on maintenance technology and product familiarity. And they cannot be used without strict detection after replacement. So we suggest the user not to replace the other inner components. If they need to change indeed, please contact to the dealer or the sales department of Manufacture Company.

## 5.3 Product Warranty

- The product during the warranty period is faulty. For details, please refer to the warranty terms in the warranty card.
- Primary fault diagnosis is implemented by your company in principle, but can be provided by the company or the company's service network according to the requirements of your company. According to the results of negotiations with your company, the company will provide free services for the reasons of the failure.
- Liability exemption, due to the company's product failure, the inconvenience caused to your company or your company's customers and the damage caused by non-Company products, whether within the warranty period or not, are not within the scope of the company's responsibility.

## Appendix: Modbus Communication Protocol

### ● Communication Frame Structure

Communication data format is as follows:

The byte composition: Including initiation bit, 8 data bit, check bit and stop bit.

Initiation Bit	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Bit8	Check bit	Stop bit
----------------	------	------	------	------	------	------	------	------	-----------	----------

One frame message must be transmitted as a continued data flow, and if there is an interval over 1.5 byte before ending, the receiving equipment will clear the half-baked information. And the next byte will be considered as the address field of a new frame. Similarly, if the interval between a new frame start-up and the former frame is smaller than 3.5 byte time, the receiving equipment will consider that it is the continuation of former one frame. Since the jumbled frame, the final CRC checking value is incorrect, which would lead to the communication mistake.

### ● Communication Control Parameter Group Address Specification:

Function Specification	Address Definition	Data meaning description		R/W attribute
Communication Given Frequency	0x3000 or 0x2000	0~32000 is corresponding to 0.00Hz~320.00Hz		W/R
Communication Command Setting	0x3001 or 0x2001	0000H: No order 0001H: FWD running 0002H: REV running 0003H: FWD jog 0004H: REV jog	0005H: DEC stop 0006H: free stop 0007H: malfunction reset 0008H: Running banned command 0009H: Running allowed command	W/R
State of AC Drive	0x3002 or 0x2002	Bit0	0: stop 1: running	R
		Bit1	0: non-acc state 1: ACC	
		Bit2	0: non-dec state 1: DEC	
		Bit3	0: Forward 1: REV	
		Bit4	0: no fault 1: fault	
		Bit5	0: GPRS unlocked 1: GPRS locked	
Bit6	0: no pre- alarm 1: pre alarm			
AC Drive Fault Code	0x3003 or 0x2003	current AC Drive fault code(refer to fault code table)		R
Communication Given Upper Frequency	0x3004 or 0x2004	0~32000 corresponds to 0.00Hz~320.00Hz		W/R
Communication Torque Setting	0x3005 or 0x2005	0~1000 corresponds to 0.0~100.0%		W/R
The FWD Max Frequency limit in Torque Control	0x3006 or 0x2006	0~1000 corresponds to 0.0~100.0%		W/R
The REV Max Frequency limit in Torque Control	0x3007 or 0x2007	0~1000 corresponds to 0.0~100.0%		W/R
Communication Given PID Setting	0x3008 or 0x2008	0~1000 corresponds to 0.0~100.0%		W/R
Communication Given PID Feedback	0x3009 or 0x2009	0~1000 corresponds to 0.0~100.0%		W/R
Fault and warning code reading	0x3010 or 0x2010	0-63- fault code 64- warning code		R
Output terminal state	0x3018 or 0x2018	External borrowing AC Drive output terminal, BI10 – Y	BIT1 – TA1-TB1-TC1; BIT2 – TA2-TB2-TC2	R
AO output	0x3019 or 0x2019	0-10000 corresponds to 0-10V, 0-20mA		R

**Note: For other function code addresses, see the “Communication Address” column in the function code profile.**

When using the write command (06H) to write the F00–F15 parameter group parameters, if the function code parameter address field highest bit is 0, it is only written into the AC Drive RAM, and the power is not stored; if the function code parameter address field is high nibble As 1, write to EEPROM, that is, power down storage. For example, group F00: 0x00XX (write RAM) 0x10XX (stored in EEPROM).

When using the write command (06H) to write the F16–F29 parameter group parameters, if the function code parameter address field has the highest bit of 5, it is only written into the AC Drive RAM, and the power is not stored; if the function code parameter address field is high nibble Write D, write to EEPROM, that is, power down storage. For example, F16 group: 0x50XX (write RAM) 0xD0XX (stored in EEPROM); F17 group: 0x51XX (write RAM) 0xD1XX (stored in EEPROM).

**●The error code meaning of the slave responding to the exception information**

Fault Code	Meanings	Fault Code	Meanings	Fault Code	Meanings
1	Order code fault	3	CRC checking fault	4	Illegal address
5	Illegal data	6	Unable to modify when running	8	AC Drive is busy(EEPROM is storing)
9	Value over limit	10	Reserved parameters can't be modify	11	Number of Bytes wrong when reading