



CTF200 Series User Manual

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深圳市合信自动化技术有限公司
COTRUST TECHNOLOGIES CO., LTD.

Contents

1 INTRODUCTION	5
2 SAFETY INFORMATION AND PRECAUTIONS	7
3 CTF200 SERIES SPECIFICATIONS	9
3.1 NAMING RULES	9
3.2 NAMEPLATE	9
3.3 CTF200SERIES FREQUENCY CONVERTERS	10
3.4 PRODUCT PROFILE	10
3.4.1 <i>Profile and Installation Hole Size</i>	11
3.4.2 <i>External Keyboard Size</i> :	12
3.5 TYPICAL CONNECTION DIAGRAM	12
3.6 TERMINAL LAYOUT OF CONTROL CIRCUIT AS FOLLOWS:	13
3.7 FUNCTION DESCRIPTION OF CONTROL TERMINAL:	13
3.8 INTRODUCTION TO OPERATION AND DISPLAY INTERFACE	14
4 FUNCTIONAL PARAMETER TABLE	16
4.1 BASIC FUNCTIONAL PARAMETERS SUMMARY	16
4.1.1 <i>Group F0 Basic Function Group</i>	16
4.1.2 <i>Group F1 First Motor Parameters</i>	20
4.1.3 <i>Group F3 V/F Control Parameters</i>	21
4.1.4 <i>Group F4 Digital Input and Output Terminals Function</i>	22
4.1.5 <i>Group F5 Input and Output Function Terminal</i>	27
4.1.6 <i>Group F6 Start/stop Control</i>	28
4.1.7 <i>Group F7 Keyboard and Display Function</i>	28
4.1.8 <i>Group F8 Auxiliary Functional Terminal</i>	31
4.1.9 <i>Group F9 Closed-loop PID and Constant Pressure Water Supply Special Parameter</i>	33
4.1.10 <i>Group FA Multi-reference, Simple PLC, Swing Frequency, Fixed Length and Counting</i>	35

4. 1. 11 *Group Fb Fault and Protection* 39

4. 1. 12 *Group FC Fault Recording Group* 40

4. 1. 13 *Group Fd Communication Parameters* 42

4. 2 SUMMARY OF MONITORING PARAMETERS 44

5 ROUTINE REPAIR AND MAINTENANCE 46

6 WARRANTY 51

6. 1 WARRANTY PERIOD 51

6. 2 WARRANTY INFORMATION 51

6. 3 MAINTENANCE LIST 52



1

Safety Precautions

*Please do follow



1 introduction

First of all, thank you for purchasing our CTF200 series inverter!

This manual describes how to use CTF200 series frequency converter correctly. Please read this manual carefully before use (installation, operation, maintenance, inspection, etc.). In addition, please understand the safety precautions of the product before using the product.

Disclaimer: COTRUST is not responsible for the device damage or personal injury which caused by the operations against the requirements.

In order to prevent harm to people and damage to property, the following instructions must be observed. Please refer to the relevant symbol description for the possible harm and damage degree caused by the wrong use of this product.

Safety precautions

- In order to illustrate the details of the product, the legend in this manual sometimes shows the state of removal of the cover or safety cover.
- When using this product, be sure to install the shell or cover as prescribed, and follow the instructions.
- The legends in this manual are for illustration only and may differ from the products you ordered.
- Due to product upgrades or specification changes, and to improve the convenience and accuracy of the instruction manual, the contents of this instruction manual are subject to change without notice.
- If you need to order the instruction manual due to damage or loss, please contact our regional agents or directly contact our customer service center.
- If you still have some problems, please contact our customer service center.



2

Safety Information and Precautions


*Please do follow


2 Safety Information and Precautions

This manual will explain the use and precautions of the product. Please read this manual carefully before installation and use, so as to use the frequency converter correctly and safely.

Safety precautions

- Qualified professionals shall be invited to carry out installation, operation and maintenance inspection
- In this manual, the safety precautions are classified into "warning" and "attention".

 **Warning** : Improper operation will cause dangerous situation, which will lead to death or serious injury.

 **Note** : Improper operation can cause dangerous conditions, general or minor injury or object damage

Warning

- Do not open the front cover plate and terminal block of the frequency converter when it is powered on. It is not allowed to operate the frequency converter when the front cover plate and terminal block are removed. Otherwise, it may contact the high voltage terminal and charging part and cause electric shock accident.
- To change the wiring or check, first turn off the power supply of the converter. Before the seven segment code display of the frequency converter goes out, it indicates that there is still high voltage inside the frequency converter. Please do not touch the internal circuit and components.
- The inverter must be grounded properly.
- Please do not use wet hands to operate, touch the radiator, plug and unplug the cable, otherwise it will cause electric shock.
- Do not replace the cooling fan when it is powered on, otherwise danger may occur. It is dangerous to exchange cooling fans during power on.

Notes

- The voltage applied to each terminal can only be the voltage specified in the operation manual, otherwise failure or damage will be caused.
- Do not carry out voltage withstand test on the components inside the frequency converter, because the semiconductor used by the frequency converter is easily damaged by high voltage breakdown.
- During power on or shortly after power off, because the converter temperature is high, only touch the operator, otherwise it will cause burns.
- Do not connect the terminals by mistake, otherwise it will cause failure or damage.
- Do not mistake the polarity (+, -), otherwise it will cause failure or damage.
- Please install the frequency converter on the non combustible wall without holes (avoid touching the radiator of the frequency converter from the back). It will cause fire if it is directly installed on or near the inflammables.
- When the frequency converter fails, please disconnect the power supply of the frequency converter. If the current flows continuously, it will cause fire.



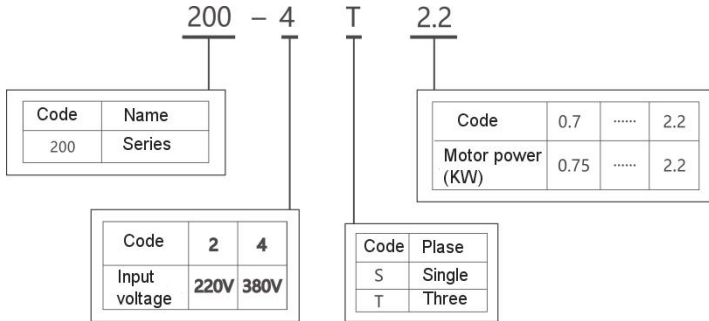
CTF200 series Specifications






***Products Information**

3 CTF200 series Specifications

3.1 Naming Rules



3.2 Nameplate

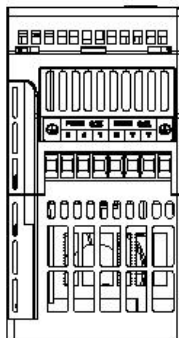
COTRUST	
MODEL: CTF200-2S0.7	
POWER: 0.75KW	
INPUT: AC1PH 220V 50/60Hz 8.2A	
OUTPUT: AC3PH 0-220V 0-320Hz 4.0A	
LOT NO:	
REV: V1.1	
 	 SN: FAAY0000001
Made in china	
COTRUST TECHNOLOGIES CO., LTD.	

3.3 CTF200Series Frequency Converters

CTF200 model and technical data

Type	Rated Capacity (KVA)	Rated Input Current (A)	Rated Output Current(A)	Adapter Motor(KW)
Single-phase power supply		200~240V	50/60Hz	
CTF200-2S0.4	1	5.4	2.3	0.4
CTF200-2S0.7	1.5	8.2	4	0.75
CTF200-2S1.5	3	14	7	1.5
Three-phase power supply		380~480V	50/60Hz	
CTF200-4T0.7	1.5	3.4	2.1	0.75
CTF200-4T1.5	3	5	3.8	1.5
CTF200-4T2.2	4	5.8	5.1	2.2

3.4 Product Profile



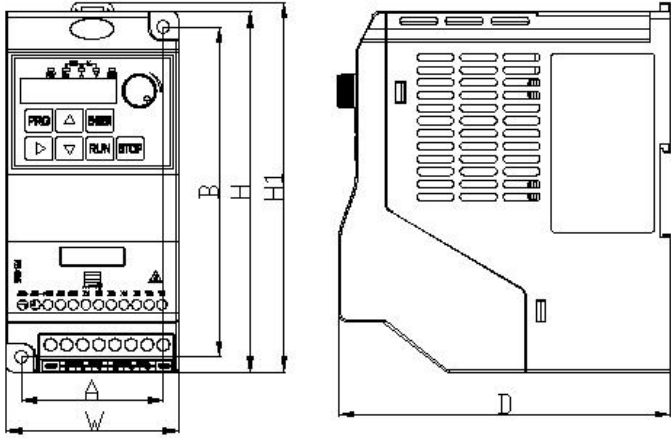


Figure 3-1 0.4kW~2.2kW Outline Size and Installation Size

3.4.1 Profile and Installation Hole Size

Profile and Installation Hole Size

Shell code	Model	Installation Hole Position mm		Dimension (mm)				Installation Diameter (mm)	Weight (kg)
		A	B	H	H1	W	D		
Z2	CTF200-2S0.4	56	130	142	145.5	68	131	5.0	0.8
	CTF200-2S0.7								
	CTF200-2S1.5								
	CTF200-4T0.7								
	CTF200-4T1.5								
	CTF200-4T2.2								

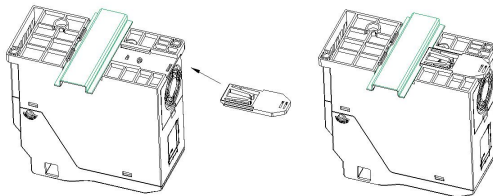


Fig.3-2 T200 installation diagram of guide rail

3. 4. 2 External Keyboard Size :

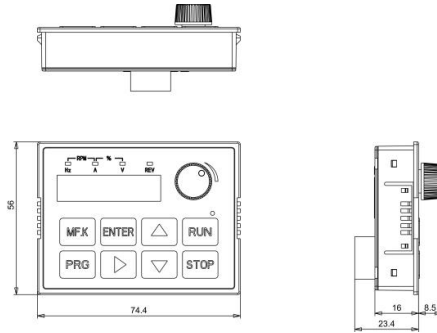


Fig.3-3 The dimension of external panel CTF-KB200

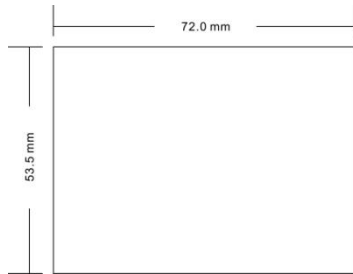


Fig.3-4 The installation hole size of external panel CTF-KB200

3. 5 Typical connection diagram

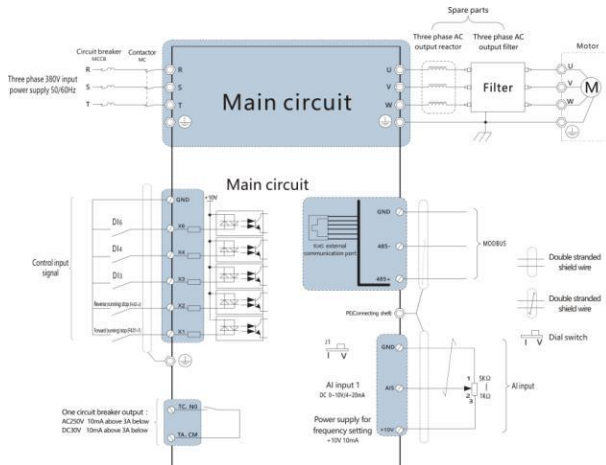


Fig.3-4 Typical connection diagram

3.6 Terminal layout of control circuit as follows:

Terminal layout of control circuit as follows:

485+	485-	+10V	AI	GND	X1	X2	X3	X4	AO	TA	TC
------	------	------	----	-----	----	----	----	----	----	----	----

3.7 Function description of control terminal:

CTF200 function description of control terminal

Item	Terminal Label	Terminal Name	Function Descriptions
Power	+10V-GND	External + 10V power supply	Provide + 10V power supply outwards, maximum output current : 10mA. It is generally used as the working power supply of external potentiometer, and the resistance range of potentiometer is 1K Ω ~ 5K Ω .
AI	AI5-GND	AI terminal	1、 Input range : determined by the selection of the J1 dial switch on the control board. The current is set from the left to the right and the voltage is set from the right. 2、 Input impedance : 22K Ω at voltage input and 250 Ω at current input.
AO	AO-GND	AO terminal	Output 0~10V simulation quantity, see F5.27 parameters for details
DI	X1-GND	Digital input 1	1.Optocoupler isolation, compatible with bipolar input. 2.Input impedance : 3.3k Ω . 3.Voltage range at level input : 9V ~ 30V 4、 Internal + 10V power supply, do not support external power supply, if live input needs to add intermediate relay.
	X2-GND	Digital input 2	
	X3-GND	Digital input 3	
	X4-GND	Digital input 4	
Communication serial port	485+	485 positive end of Differential signal	Standard RS-485 interface, please use twisted pair or shielded wire, J5 is terminal resistance matching jumper, factory value is off without jumper cap.
	485-	485 negative end Of differential signal	
Relay output	TA-TC	Normally open terminal	Contact drive capability : AC250V , 3A , COS ϕ =0.4.DC30V 1A
Auxiliary interface	J10	External panel port	485 external panel interface

3.8 Introduction to operation and display interface

The operation panel can be used to modify the functional parameters of the frequency converter, monitor the working state of the frequency converter and control the operation of the frequency converter (start, stop), etc. its shape and functional area are shown in the following figure:

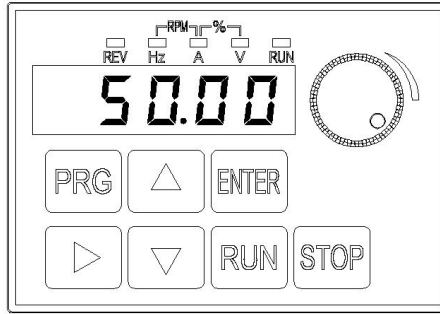


Fig.3-4 Operation keyboard layout

Keyboard button description table

Key	Name	Name
	Programming/Exit	Entry or exit shortcut parameter deletion
	Shift/Monitor	Under the downtime display interface and the running display interface, the display parameters can be selected circularly, and the modification bit of the parameters can be selected when modifying the parameters.
	Function/Data	Enter menu screen step by step and confirm setting parameters
	Multi-function selection key	Detailed operation method is described in F0.40 (MF.K key function selection)
	Forward Run	Press this key to turn the frequency converter forward under the mode of operation panel
	Stop/Reset	Pressing this key can be used to stop operation when running, and reset operation when fault alarm occurs. The characteristics of this key are restricted by function code F0.05 (STOP/RES key function).
	Increment	Incremental increment of data or function code (increasing incremental speed when pressed continuously)
	Decrement	Decreasing of data or function code (increasing deceleration when pressed continuously)
	Menu mode selection	Shift to different menu modes (default is a menu mode) according to the median value of F0.35 (personality parameter group display selection)



4

Functional Parameter Table

*Descriptions of Parameters

4 Functional Parameter Table

Descriptions of Parameters

F0.36 is set to non-zero value, that is, parameter protection password is set. In functional parameter mode and user change parameter mode, the parameter menu must enter the password correctly before entering. To cancel the password, F0.36 should be set to "0".

The parameter menu in user customized parameter mode is not protected by password.

Group F and group A are basic function parameters, while group L is monitoring function parameters. The symbols in the function table are as follows :

“☆” : It means that the setting value of the parameter can be changed when the frequency converter is down and running.

“★” : Indicates that the setting value of this parameter cannot be changed when the frequency converter is in operation.

“.” : The value of this parameter is the actual detection record value, which can not be changed ;

“*”: Indicates that the parameter is "Manufacturer Parameter", which is limited to manufacturer settings and prohibits users from operating.

4.1 Basic Functional Parameters Summary

4.1.1 Group F0 Basic Function Group

Function Code	Name	Setting Range	Default	Property
F0.01	Command source selection	0: Operating panel control(REMOT LED off) 1: Terminal control (REMOT LED on) 2: Communication control (REMOT blinking)	0	☆
F0.02	Main frequency instruction selection	0: Digital setting (preset frequency F0.09, UP/DOWN can be modified, non-retentive at power failure) 1: Digital setting (preset frequency F0.09, UP/DOWN can be modified, retentive at power failure) 2:A11 3:A12 4:Panel potentiometer	4	★

Function Code	Name	Setting Range	Default	Property
		5:PULSE pulse setting (X5) 6: Multi-reference 7: Simple PLC 8:PID 9:Communication given Note : When the function of F4.01-F4.07 is set to 56,57,58, the multi-band frequency has the highest priority when the terminal is valid. See F8.01-F8.07 for the multi-band frequency setting.		
F0.03	Auxiliary frequency instruction selection	Same as F0.03 (main frequency instruction selection)	0	★
F0.04	Frequency instruction overlay mode selection	Unit 's digit : Frequency instruction selection 0: Main frequency instruction 1: Result of main and auxiliary operations (Operation relationship is determined by ten 's digit) 2: Switching between main frequency instruction and auxiliary frequency instruction 3: Switching between main frequency instruction and main and auxiliary operation results 4: Switching between auxiliary frequency instruction and primary and auxiliary operations Ten 's digit : Principal and auxiliary operational relations of frequency instructions 0: Master + auxiliary 1: Main-auxiliary 2: Maximum of both 3: Minimum of both	0	☆
F0.05	Selection of auxiliary Frequency instruction range in overlay	0: Relative to maximum frequency 1: Relative to the main frequency instruction	0	☆
F0.06	Range of auxiliary Frequency instruction in overlay	0%~150%	100%	☆
F0.08	Offset frequency of auxiliary frequency source in superposition	0.00Hz ~ maximum frequency (F0.13)	50.00Hz	☆
F0.09	Preset frequency	0.00Hz ~ maximum frequency (F0.13)	50.00Hz	☆
F0.10	Digital setting frequency downtime memory selection	0: Not retentive 1: Retentive	1	☆

Function Code	Name	Setting Range	Default	Property
F0.11	Frequency instruction resolution	1: 0.1Hz (maximum frequency can be adjusted to 320Hz) 2: 0.01 Hz (maximum frequency can be adjusted to 3200 Hz)	2	★
F0.12	Runtime frequency instruction UP/DOWN benchmark	0: Running frequency 1: Setting frequency	0	★
F0.13	Maximum frequency	50.00Hz~320Hz	50.00Hz	★
F0.14	Upper limit frequency	Lower limit frequency F0.17~maximum frequency F0.13	50.00Hz	☆
F0.15	Upper limit frequency instruction	0: F0.14 setting 1:A11 2:A12 3: Panel potentiometer 4: Pulse setting 5: Communication given	0	★
F0.16	Upper limit frequency bias	0.00Hz ~ maximum frequency F0.13	0.00Hz	☆
F0.17	Lower limit frequency	0.00Hz ~upper limit frequency F0.14	0.00Hz	☆
F0.18	Setting frequency below lower limit frequency operation mode	0: Operating at the lower frequency limit 1:Stopping 2: Zero speed operation (V/F mode, no output below 0.20Hz)	0	☆
F0.19	Carrier frequency	0.5kHz ~ 16.0kHz	Model dependent	☆
F0.20	Carrier frequency adjustment with temperature	0:No 1:Yes	1	☆
F0.21	Acceleration Time 1	0.00s~650.00s(F0.23=2) 0.0s~6500.0s(F0.23=1) 0s~65000s(F0.23=0)	Model dependent	☆
F0.22	Deceleration Time 1	0.00s~650.00s(F0.23=2) 0.0s~6500.0s(F0.23=1) 0s~65000s(F0.23=0)	Model dependent	☆
F0.23	Acceleration and deceleration time unit	0:1 seconds 1:0.1 seconds 2:0.01 seconds	1	★
F0.24	Acceleration and deceleration time Reference frequency	0: Maximum frequency (F0.13) 1: Set frequency 2:100Hz	0	★

Function Code	Name	Setting Range	Default	Property
F0.25	Acceleration and deceleration mode	0:Linear acceleration and deceleration 1:S Curve acceleration and deceleration A 2:S Curve acceleration and deceleration B	0	★
F0.26	Proportion of S curve starting time	0.0%~ (100.0%~ F0.27)	30.0%	★
F0.27	S curve end time ratio	0.0%~ (100.0% ~F0.26)	30.0%	★
F0.28	Point motion frequency	0.00Hz ~ maximum frequency	6.00Hz	☆
F0.29	Point acceleration time	0.0s~6500.0s	20.0s	☆
F0.30	Point motion deceleration time	0.0s~6500.0s	20.0s	☆
F0.31	Terminal point priority	0: Invalid 1: Valid	1	☆
F0.32	Running direction	0: Consistent with the set direction 1:Contrary to the set direction	0	☆
F0.33	Anti-inversion control	0: Permit motor inversion 1: No motor inversion	0	☆
F0.34	Selection of functional parameter group display	Unit 's digit :Group L display selection 0: No display 1: Display Ten 's digit : Group A display selection 0: No display 1: Display	01	☆
F0.35	Display selection of personality parameter group	Unit 's digit : User customized parametric group display selection 0: No display 1: Display Ten 's digit : User change parametric group display selection 0: No display 1: Display	00	☆
F0.36	User Password	0~65535	0	☆
F0.37	Function code modification properties	0: Modifiable 1: Not modifiable (except F0.36 and F0.37 can modify other parameters can not be modified)	0	☆
F0.38	Selection of terminal protection for	0: No protection. When power on, the converter runs directly when the terminal is closed. 1: Protection. When the power is on, the operation terminal is closed, the	0	☆

Function Code	Name	Setting Range	Default	Property
	power-on starter	frequency converter does not run, and the operation terminal needs to be disconnected and closed before it can run.		
F0.39	Undervoltage point setting	75.0% ~140.0%	100.0%	☆
F0.41	STOP/RESET	0: STOP/RES key downtime is effective only in keyboard mode 1: The STOP/RES key downtime function is effective in any mode of operation.	1	☆
F0.49	Application macro instructions	0: Invalid	0	★
F0.50	Parameter initialization	0: No operation 01: Restore factory parameters, excluding motor parameters, F0.11 02: Clear record information 03: Restore all factory parameters, including motor parameters 06: Backup user's current parameters 888: Restore user backup parameters	0	★

4.1.2 Group F1 First Motor Parameters

Function Code	Name	Setting Range	Default	Property
F1.00	No.1 motor control mode	0:Reversed 1:Reserved 2:V/F control	2	★
F1.02	Rated power Of motor	0.1kW~1000.0kW	Model dependent	★
F1.03	Rated voltage Of motor	1V~2000V	Model dependent	★
F1.04	Rated current of motor	0.01A~655.35A (inverter power≤ 55kW) 0.1A~6553.5A (inverter power>55kW)	Model dependent	★
F1.05	Rated frequency of motor	0.01Hz~maximum frequency	Model dependent	★
F1.06	Rated speed of motor	1rpm~6553rpm	Model dependent	★

4. 1. 3 Group F3 V/F Control Parameters

Function Code	Name	Setting Range	Default	Property
F3.00	V/F curve setting	0:Linear V/F 1:Multipoint V/F 2:Square V/F 3 :1.2 power V/F 4 :1.4 power V/F 6 :1.6 power V/F 8 :1.8 power V/F 9 : Reserved 10:V/F complete separation model 11:V/F semi-separation model	0	★
F3.01	Torque lifting	0.0% : (automatic torque lifting) 0.1%~30.0%	Model dependent	☆
F3.02	Torque lifting cut-off frequency	0.00Hz~maximum frequency	50.00Hz	★
F3.03	Multi-point V/F frequency point 3	F3.05~rated frequency of motor (F1.05)	40.00Hz	★
F3.04	Multi-point V/F voltage point 3	0.0%~100.0%	80.0%	★
F3.05	Multi-point V/F frequency point 2	F3.07~F3.03	25.00Hz	★
F3.06	Multi-point V/F voltage point 2	0.0%~100.0%	50.0%	★
F3.07	Multi-point V/F frequency point 1	0.00Hz~F3.05	10.00Hz	★
F3.08	Multi-point V/F voltage point 1	0.0%~100.0%	20.0%	★
F3.09	V/F slip compensation gain	0.0%~200.0%	0.0%	☆
F3.10	V/F overexcitation gain	0~600	0	☆
F3.11	V/F oscillation suppression gain	0~100	Model dependent	☆
F3.12	Flux braking	0 :Invalid 1 :Valid Note :If overpressure or overcurrent occurs,please enlarge Fb.06.	0	★
F3.13	V/F separated	0:Digital setting (F3.14) 3:Panel potentiometer 4:AI5 input setting	0	☆

Function Code	Name	Setting Range	Default	Property
	voltage source	5:Multi-reference 6:Simple PLC 7:PID 8:Communication given 9:Multi-segment V/F given (F3.03~F3.08) Note :100.0% corresponding to rated voltage of motor		
F3.14	Voltage digital setting for V/F separation	0V~rated voltage of motor	0V	☆
F3.15	Voltage acceleration time of V/F separation	0.0s~1000.0s represents the time from 0V to the rated voltage of the motor.	0.0s	☆
F3.16	Voltage deceleration time of V/F separation	0.0s~1000.0s represents the time when the rated voltage of the motor reaches 0V.	0.0s	☆
F3.17	Selection of V/F separation and shutdown mode	0:Frequency/voltage independent reduction to 0 1:Frequency decreases after voltage reduction to 0	0	☆

4.1.4 Group F4 Digital Input and Output Terminals Function

Function Code	Name	Setting Range	Default	Property
F4.00	Terminal command mode	0: Two-line 1 1: Two-line 2 2: Trilinear 1 3: Three-line 2 4: Electronic cam two-line 3	0	★
F4.01	Functional selection of X1 terminal	0: No function 1: Forward operation (FWD)	1	★
F4.02	Functional selection of X2 terminal	2: Reverse operation (REV) 3: Three-line operation control	2	★
F4.03	Functional selection of X3 terminal	4: FJOG	41	★
F4.04	Functional selection of X4 terminal	5: Reverse point move (RJOG) 6: Terminal UP	9	★

Function Code	Name	Setting Range	Default	Property
F4.05	Reserved	7: Terminal DOWN	56	★
F4.06	Functional selection of X6 terminal	8: Coast to stop 9: Fault reset (RESET) 10: Operation pause 11: External fault normal open input 12: Multi reference terminal 1 13: Multi reference terminal 2 14: Multi reference terminal 3 15: Multi reference terminal 4 16: Acceleration/deceleration time selection terminal 1 17: Acceleration/deceleration time selection terminal 2 18: Frequency instruction switching 19: UP/DOWN setting zero (terminal, keyboard) 20: Run command switching terminal 1 21: Acceleration/deceleration ban 22: PID pause 23: PLC state reset 24: Swing pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reduction 29: Torque control ban 30: PULSE (Pulse) frequency input(only for X5) 31: Reserved 32: Direct current brake immediately 33: Normally closed input for external faults 34: Frequency modification enablement 35: The direction of action of PID is reversed 36: External stop terminal 1 37: Run command switching terminal 2 38: PID integral suspension 39: Primary frequency instruction and preset frequency switching 40: Auxiliary frequency instruction and preset frequency switching 41: Forward turn point move 1, point move priority	6	★

Function Code	Name	Setting Range	Default	Property
		42: Reverse point move 1, point move priority 43:PID parameter switching 44: User-defined fault 1 45: User-defined fault 2 46: Speed/torque control switching 47: Emergency stop 48: External stop terminal 2 49: Decelerated DC braking 50:The running time cleared. 51: Two-line/three-line switching 52: Reserved 53: Multistage closed-loop terminal 1 (corresponding to FA.00-FA.07) 54: Multistage closed-loop terminal 2 (corresponding to FA.00-FA.07) 55: Multistage closed-loop terminal 3 (corresponding to FA.00-FA.07) 56: Multistage frequency terminal 1 (corresponding to F8.01-F8.07) 57: Multistage frequency terminal 2 (corresponding to F8.01-F8.07) 58: Multistage frequency terminal 3 (corresponding to F8.01-F8.07)		
F4.11	X filtering time	0.000s~1.000s	0.010s	☆
F4.12	Change rate of terminal UP/DOWN	0.001Hz/s~65.535Hz/s	1.00Hz/s	☆
F4.16	Effective mode selection of X terminal 1	0:High level effective 1 : Low level effective Unit's digit : X1 Ten's digit : X2 Hundred's digit : X3 Thousand's digit : X4	00000	★
F4.17	Effective mode selection of X terminal 1	0:High level effective 1 : Low level effective Unit's digit : X6	00000	★
F4.20	Functional selection of panel potentiometer terminal as X	0~60	0	★

Function Code	Name	Setting Range	Default	Property
F4.21	Effective mode selection of AI terminal as X.	0:High level effective 1 : Low level effective Hundred's digit: Panel potentiometer	000	★
F4.30	Function selection of control board relay (TA-TC)	0: No output 1: Frequency converter in operation 2: Fault output (fault shutdown) 3: Frequency level detection FDT1 output 4: Frequency arrives 5: Zero speed operation (no output when shutdown) 6: Motor overload forecasting alarm 7: Frequency converter overload warning 8: Set the numeric arrives 9: Designated numeric arrives 10:Length arrives 11:PLC cycle completion 12: Accumulated runtime arrives 13: Frequency limit 14: Torque limit 15: Ready for operation 16:AI1>AI2 17: Upper limit frequency arrives 18: Lower limit frequency arrives (operation related) 19: Under-voltage state output 20: Communication setting 21:FDT2 non-standard output 22: Reserved 23: Zero speed operation 2 (output when shutdown) 24:Cumulative power-on time arrives 25:Frequency level detection FDT2 output 26:Frequency 1 arrives at output 27:Frequency 2 arrives output 28: Current 1 arrives output 29: Current 2 arrives output 30:Timing arrives output 31:AI1 input overrun 32: Downloading 33: In reverse operation	2	☆

Function Code	Name	Setting Range	Default	Property
		34:Zero current state 35: Module temperature arrives 36: Output current overrun 37: Lower limit frequency arrives (outage also) 38: Alarm output (continue running) 39: Motor overtemperature forecast warning 40:Runtime arrives 41: Fault output (coast to stop fault, and undervoltage not output)		
F4.36	RELAY1 (TA/B/C) output delay time	0.0s~3600.0s	0.0s	☆
F4.41	Y output effective state selection 1	0:Positive logic 1:Negative logic Ten's digit:RELAY1 (TA/B/C)	00000	☆
F4.54	Frequency detection value (FDT1)	0.00Hz~maximum frequency	50.00Hz	☆
F4.55	Frequency detection delay value (FDT1)	0.0%~100.0% (FDT1 level)	5.0%	☆
F4.56	Frequency detection width	0.0%~100.0% (maximum frequency)	0.0%	☆
F4.57	Frequency detection value (FDT2)	0.00Hz~maximum frequency	50.00Hz	☆
F4.58	Frequency detection delay value (FDT2)	0.0%~100.0% (FDT2 level)	0.0%	☆
F4.59	Arbitrary arrival frequency detection value 1	0.00Hz~maximum frequency	50.00Hz	☆
F4.60	Arbitrary arrival frequency detection width 1	0.0%~100.0% (maximum frequency)	0.0%	☆
F4.61	Arbitrary arrival frequency detection value 2	0.00Hz~maximum frequency	50.00Hz	☆
F4.62	Arbitrary arrival frequency detection width 2	0.0%~100.0% (maximum frequency)	0.0%	☆

4.1.5 Group F5 Input and Output Function Terminal

Function Code	Name	Setting Range	Default	Property
F5.14	Maximum input of panel potentiometer	F5.12~+10.00V	9.50V	☆
F5.15	Panel potentiometer maximum input corresponding setting	-100.0%~+100.0%	100.0%	☆
F5.16	Panel potentiometer filtering time	0.00s~10.00s	0.10s	☆
F5.17	AI minimum input	0.00kHz~F5.19	0.05	☆
F5.18	AI minimum input corresponding setting	-100.0%~100.0%	0.0%	☆
F5.19	AI maximum input	F5.17~3.10kHz (3.10kHz corresponding 10.00V)	2.94kHz	☆
F5.20	AI maximum input setting	-100.0%~100.0%	100.0%	☆
F5.21	AI filtering time	0.00s~10.00s	0.10s	☆
F5.27	AO output function selection	0: Operating frequency 1: Setting frequency 2: Output current 3: Output torque 4: Output power 5: Output voltage 6: PULSE input (100.0% corresponds to 100.0kHz) 7: AI1 8: AI2 9: Panel potentiometer 10: Length 11: Numbering 12: Communication setting 13: Motor speed 14: Output current (100.0% corresponds to 1000.0 A) 15: Output voltage (100.0% corresponds to 1000.0 V) 16: Reserved	0	☆
F5.30	AO zero bias coefficient	-100.0%~+100.0%	0.0%	☆

Function Code	Name	Setting Range	Default	Property
F5.31	AO gain	-10.00~+10.00	1.00	☆

4.1.6 Group F6 Start/stop Control

Function Code	Name	Setting Range	Default	Property
F6.00	Startup mode	0:Direct start 1:Speed tracking restart 2:Preexcitation startup (AC asynchronous motor)	0	☆
F6.01	Speed tracking mode	0:Start with downtime frequency 1 :Start at zero speed 2:Start with the maximum frequency	0	★
F6.02	Speed tracking	1~100	20	☆
F6.03	Startup frequency	0.00Hz~10.00Hz	0.00Hz	☆
F6.04	Startup frequency holding time	0.0s~100.0s	0.0s	★
F6.05	Startup DC braking current/preexcitation current	0%~100%	0%	★
F6.06	Start DC braking time/preexcitation time	0.0s~100.0s	0.0s	★
F6.07	Shutdown time	0:Deceleration to stop 1 :Coast to stop	0	☆
F6.08	Shutdown DC braking start frequency	0.00Hz~maximum frequency	0.00Hz	☆
F6.09	Shutdown DC braking holding time	0.0s~100.0s	0.0s	☆
F6.10	Shutdown DC braking current	0%~100%	0%	☆
F6.11	Shutdown DC braking time	0.0s~100.0s	0.0s	☆
F6.12	Braking usage rate	0%~100%	100%	☆

4.1.7 Group F7 Keyboard and Display Function

Function Code	Name	Setting Range	Default	Property
F7.02	LED operation monitoring parameter display selection 1	0000 ~ 1111 Unit 's digit : L0.00- operating frequency1 (Hz) Ten 's digit : L0.01 - set frequency (Hz) Hundred 's digit : L0.02 - bus voltage Thousand 's digit : L0.03 - output voltage 0:No display 1:Display	0101	☆
F7.03	LED operation monitoring parameter display selection 2	0000-1111 Unit 's digit : L0.04 - output current (A) Ten 's digit : L0.05 - output power (kw) Hundred 's digit : L0.06 - output torque (%) Thousand 's digit : L0.07-X input state 0:No display 1:Display	0001	☆
F7.04	LED operation monitoring parameter display selection 3	0000-1111 Unit 's digit : L0.08-Y output state Ten 's digit : L0.09-AI1 voltage (V) Hundred 's digit : L0.10-AI2 voltage (V) Thousand 's digit : L0.11 - panel potentiometer voltage (V) 0:No display 1:Display	0000	☆
F7.05	LED operation monitoring parameter display selection 4	0000 ~ 1111 Unit 's digit : L0.12 - count value Ten 's digit : L0.13 - length value Hundred 's digit : L0.14 - load speed display Thousand 's digit : L0.15-PID setting 0:No display 1:Display	0100	☆
F7.06	LED operation monitoring parameter display selection 5	0000 ~ 1111 Unit 's digit : L0.16-PID feedback Ten 's digit : L0.17-PLC stage Hundred 's digit : Reserved Thousand 's digit : L0.19- operating frequency 2 (Hz) 0:No display 1:Display	0000	☆
F7.07	LED operation Monitoring Parameter display selection 6	0000 ~ 1111 Unit 's digit : L0.20 - remaining runtime Ten 's digit : L0.21-AI1precorrection voltage (V)	0000	☆

Function Code	Name	Setting Range	Default	Property
		Hundred 's digit :L0.22-AI2precorrection voltage (V) Thousand 's digit : L0.23-panel potentiometer precorrection voltage (V) 0:No display 1:Display		
F7.08	LED operation monitoring parameter display selection 7	0000 ~ 1111 Unit 's digit :L0.24 - linear speed Ten 's digit : L0.25 - current power-on time (hour) Hundred 's digit : L0.26 - current runtime (min) Thousand 's digit : Reserved 0:No Display 1:Display	0000	☆
F7.09	LED operation monitoring parameter display selection 8	0000~ 1111 Unit 's digit : L0.28 - communication settings Ten 's digit : Reserved Hundred 's digit : L0.30 - main frequency X display (Hz) Thousand 's digit : L0.31 - auxiliary frequency Y display (Hz) 0: No display 1:Display	0000	☆
F7.12	LED parameter display selection 1	0000 ~1111 Unit's digit:L0.01 - set frequency (Hz) Ten's digit:L0.02 - bus voltage (V) Hundred's digit:L0.07-X input state Thousand's digit:L0.08-Y output state 0 : No display 1:Display	0011	☆
F7.13	LED parameter display selection 2	0000~1111 Hundred's digit:L0.11 - panel potentiometer voltage (V) Thousand's digit:L0.12 - count value 0 : No display 1:Display	0000	☆
F7.14	LED Parameter display selection 3	0000~ 1111 Unit's digit:L0.13 - length value Ten's digit:L0.17 - PLC stage Hundred's digit:L0.14 - load speed Thousand's digit:L0.15 - PID setting 0 : No display 1:Display	0000	☆

Function Code	Name	Setting Range	Default	Property
F7.15	LED shutdown parameter display selection 4	0000~1111 Ten's digit:L0.16 - PID feedback Thousand ' s digit:L0.18-AI5(3.1kHz corresponding 10.00V) 0:No display 1:Display	0000	☆
F7.22	Load speed display coefficient	0.01~ 200.00	100.00%	☆
F7.23	Load speed display decimal points	0:0 decimal digit 1:1 decimal digit 2:2 decimal digit 3:3 decimal digit	0	☆
F7.24	Inverter module radiator temperature	0.0℃~ 100.0℃	-	●
F7.25	Rectifier module radiator temperature	0.0℃~ 100.0℃	-	●
F7.27	Cumulative running time	0h ~65535 hours	-	●
F7.28	Cumulative power-on time	0h~ 65535 hours	-	●
F7.29	Product ID	-	-	●
F7.30	Functional software version number	-	-	●
F7.31	Cumulative power consumption	0~65535 degrees	-	●
F7.32	Output power Correction coefficient	0.00%~200.00%	100.00%	☆
F7.33	The local machine, the external lead keyboard effectively filling	0: The local keyboard is valid 1: External introduction keyboard is effective	-	●
F7.34	External of keyboard potentiometer	0.00Hz~5.00Hz	0.10Hz	☆

4.1.8 Group F8 Auxiliary Functional Terminal

Function Code	Name	Setting Range	Default	Property
F8.00	Forward and reverse dead zone time	0.0s~3000.0s	0.0s	☆
F8.01	Multistage frequency 1	0.00Hz ~ maximum frequency	10.00Hz	☆
F8.02	Multistage frequency 2	0.00Hz ~ maximum frequency	15.00Hz	☆
F8.03	Multistage frequency3	0.00Hz ~ maximum frequency	20.00Hz	☆
F8.04	Multistage frequency4	0.00Hz ~ maximum frequency	25.00Hz	☆
F8.05	Multistage frequency5	0.00Hz ~ maximum frequency	30.00Hz	☆
F8.06	Multistage frequency 6	0.00Hz ~ maximum frequency	35.00Hz	☆
F8.07	Multistage frequency 7	0.00Hz ~ maximum frequency	40.00Hz	☆
F8.16	Acceleration time 2	0.0s~ 6500.0s	Model dependent	☆
F8.17	Deceleration time 2	0.0s ~6500.0s	Model dependent	☆
F8.18	Acceleration time 3	0.0s~ 6500.0s	Model dependent	☆
F8.19	Deceleration time 3	0.0s~ 6500.0s	Model dependent	☆
F8.20	Acceleration Time 4	0.0s~ 6500.0s	Model dependent	☆
F8.21	Deceleration time 4	0.0s~ 6500.0s	Model dependent	☆
F8.23	Jump frequency 2	0.00Hz ~ maximum frequency	0.00Hz	☆
F8.24	Jump frequency amplitude	0.00Hz ~ maximum frequency	0.01Hz	☆
F8.25	Droop control	0.00Hz ~ 10.00Hz	0.00Hz	☆
F8.26	Cooling fan control	0:Running fan 1: The fan is running all the time.	0	☆
F8.27	Set cumulative power-on arrival time	0h ~65000h	0h	☆
F8.28	Set accumulated running arrival time	0h~ 65000h	0h	☆
F8.29	Acceleration and deceleration process jump frequency valid	0: Invalid 1: Valid	0	☆

Function Code	Name	Setting Range	Default	Property
	or not			
F8.30	Acceleration time 1 and acceleration time 2 switch frequency points	0.00Hz ~ maximum frequency	0.00Hz	☆
F8.31	Deceleration time 1 and deceleration time 2 switch frequency points	0.00Hz ~ maximum frequency	0.00Hz	☆
F8.32	Timing function selection	0: Invalid 1: Valid	0	☆
F8.33	Timing runtime selection	0:F8.34 setting 1 :Reversed 2:Reversed 3: Analog input range of panel potentiometer corresponds to F8.34	0	☆
F8.34	Timing running time	0.0 Min ~6500.0 Min	0.0Min	☆
F8.35	Set the arrival time of this run	0.0Min~6500.0Min	0.0Min	☆

4. 1. 9 Group F9 Closed-loop PID and Constant Pressure Water Supply Special Parameter

Function Code	Name	Setting Range	Default	Property
F9.00	PID given source	0:F9.01 setting 1 :Reserved 2:Reserved 3:Panel potentiometer 4:AI input 5:Communication given 6:Given multistage instructions	0	☆
F9.01	PID value given	0.000~F9.04 (Mpa)	0.200	☆
F9.02	PID feedback source	0:Reserved 1 :Reserved	0	☆

		2:Panel potentiometer 3:Reserved 4:AI 5 5:Communication given		
F9.03	PID action direction	0:Positive effect 1 :Reaction	0	☆
F9.04	PID given feedback (distance pressure gauge range for water supply)	0.00~655.35 (water supply for Mpa)	1.00	☆
F9.05	Proportional KP1	gain	0.0~100.0	☆
F9.06	Integral time Ti1	0.01s~10.00s	0.50s	☆
F9.07	Differential time Td1	0.000s~10.000s	0.000s	☆
F9.08	PID reverse cut-off frequency	0.00~maximum frequency	0.00Hz	☆
F9.09	PID deviation limit	0.0%~100.0%	0.0%	☆
F9.10	PID differential limitation	0.00%~100.00%	0.10%	☆
F9.11	PID given change time	0.00~650.00s	0.00s	☆
F9.12	PID feedback filtering time	0.00~60.00s	0.00s	☆
F9.13	PID output filtering time	0.00~60.00s	0.00s	☆
F9.14	PID shutdown given initial value	0:Actual PID setting 1:Equivalent to F9.21, used in conjunction with F9.11	0	☆
F9.15	Proportional gain KP2	0.0~100.0	20.0	☆
F9.16	Integral time Ti2	0.01s~10.00s	2.00s	☆
F9.17	Differential time Td2	0.000s~10.000s	0.000s	☆
F9.18	PID parameter switching conditions	0:No switching 1:Switching through X-terminal 2:Automatic switching according to deviation	0	☆
F9.19	PID parameter switching deviation 1	0.0%~F9.20	20.0%	☆
F9.20	PID parameter switching deviation 2	F9.19~100.0%	80.0%	☆
F9.21	PID initial value	0.0%~100.0%	0.0%	☆
F9.22	PID initial holding time	0.00~650.00s	0.00s	☆
F9.23	Twice output deviation positive maximum	0.00%~100.00%	1.00%	☆

F9.24	Two output deviations reverse maximum	0.00%~100.00%	1.00%	☆
F9.25	PID integral attribute	Unit 's digit : Integral separation 0: Invalid 1: Valid Ten 's digit : Whether to stop integral after output to limit value 0: Continue to integrate 1: Stop integral	00	☆
F9.26	PID feedback loss detection value	0.0%: Loss of feedback without judgment 0.1%~100.0%	0.0%	☆
F9.27	PID feedback loss detection time	0.0s~20.0s	0.0s	☆
F9.28	PID shutdown operation	0:Stop without operation 1 :Downtime operation	0	☆
F9.36	Recovery coefficient	0.0%~100.0% (relative to the target force percentage) pressure recovery calculated by multiplying F9.36 by F9.01	75.0%	☆
F9.37	Delayed recovery time	0.0s~6500.0s	0.0s	☆
F9.38	Sleep frequency	0.00Hz~maximum frequency (Converter belongs to sleep state, LED digital tube will display SLP)	38.00Hz	☆
F9.39	Sleep delay time	0.0s~6500.0s	0.0s	☆
F9.40	Water supply sleep tolerance	0.0%~100.0%, which is the corresponding percentage of the given pressure. See chapter VI, F9.38, F9.39 for details.	20.0%	☆
F9.41	Closed-loop PID monitoring mode selection of keyboard UP/DOWN	function In the closed-loop PID mode, this function is effective. In the non-closed-loop PID mode, this function code is invalid. 0:Keyboard frequency is set to adjust 1 :PID digital setting adjustment	1	☆

4.1.10 Group FA Multi-reference, Simple PLC, Swing Frequency, Fixed Length and Counting

Function Code	Name	Setting Range	Default	Property
FA.00	Reference 0	-100.0%~100.0%	0.0%	☆
FA.01	Reference 1	-100.0%~100.0%	0.0%	☆

FA.02	Reference 2	-100.0%~100.0%	0.0%	☆
FA.03	Reference 3	-100.0%~100.0%	0.0%	☆
FA.04	Reference 4	-100.0%~100.0%	0.0%	☆
FA.05	Reference 5	-100.0%~100.0%	0.0%	☆
FA.06	Reference 6	-100.0%~100.0%	0.0%	☆
FA.07	Reference 7	-100.0%~100.0%	0.0%	☆
FA.08	Reference 8	-100.0%~100.0%	0.0%	☆
FA.09	Reference 9	-100.0%~100.0%	0.0%	☆
FA.10	Reference 10	-100.0%~100.0%	0.0%	☆
FA.11	Reference 11	-100.0%~100.0%	0.0%	☆
FA.12	Reference 12	-100.0%~100.0%	0.0%	☆
FA.13	Reference 13	-100.0%~100.0%	0.0%	☆
FA.14	Reference 14	-100.0%~100.0%	0.0%	☆
FA.15	Reference 15	-100.0%~100.0%	0.0%	☆
FA.16	Reference 0 given mode	0: Function code FA.00 given 1:Reserved 2:Reserved 3: Panel potentiometer 4:PULSE pulse 5:PID 6: Given the preset frequency (F0.09), UP/DOWN can be modified.	0	☆
FA.17	Simple PLC running mode	0: Stop at the end of single operation 1: Keep the final value at the end of a single run 2: Continuous cycle	0	☆
FA.18	Simple PLC power-off memory selection	Unit 's digit : Power-off memory selection 0: No power failure, no memory 1: Power-off memory Ten 's digit : Downtime memory selection 0: No memory of downtime 1: Downtime memory	00	☆
FA.19	Simple PLC section 0 running time	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆
FA.20	Simple PLC selection of acceleration and deceleration time in section 0	0~ 3	0	☆

FA.21	Simple PLC section 1 running time	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆
FA.22	Simple PLC selection of acceleration and deceleration time in section 1	0~3	0	☆
FA.23	Simple PLC section 2 running time	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆
FA.24	Simple PLC selection of acceleration and deceleration time in section 2	0~3	0	☆
FA.25	Simple PLC section 3 running time	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆
FA.26	Simple PLC selection of acceleration and deceleration time in section 3	0~3	0	☆
FA.27	Simple PLC section 4 running time	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆
FA.28	Simple PLC selection of acceleration and deceleration time in section 4	0~3	0	☆
FA.29	Simple PLC section 5 running time	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆
FA.30	Simple PLC selection of acceleration and deceleration time in section 5	0~3	0	☆
FA.31	Simple PLC section 6 running time	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆
FA.32	Simple PLC selection of acceleration and deceleration time in section 6	0~3	0	☆
FA.33	Simple PLC	0.0s (h) ~ 6553.5s (h)	0.0s (h)	☆

	section 7 running time			
FA.34	Simple PLC selection of acceleration and deceleration time in section 7	0~3	0	☆
FA.35	Simple PLC section 8 running time	0.0s (h) ~6553.5s (h)	0.0s (h)	☆
FA.36	Simple PLC selection of acceleration and deceleration time in section 8	0~3	0	☆
FA.37	Simple PLC section 9 running time	0.0s (h) ~6553.5s (h)	0.0s (h)	☆
FA.38	Simple PLC selection of acceleration and deceleration time in section 9	0~3	0	☆
FA.39	Simple PLC section 10 running time	0.0s (h) ~6553.5s (h)	0.0s (h)	☆
FA.40	Simple PLC selection of acceleration and deceleration time in section 10	0~3	0	☆
FA.41	Simple PLC section 11 running time	0.0s (h) ~6553.5s (h)	0.0s (h)	☆
FA.42	Simple PLC selection of acceleration and deceleration time in section 11	0~3	0	☆
FA.43	Simple PLC section 12 running time	0.0s (h) ~6553.5s (h)	0.0s (h)	☆
FA.44	Simple PLC selection of acceleration and deceleration time in section 12	0~3	0	☆
FA.45	Simple PLC section 13 running	0.0s (h) ~6553.5s (h)	0.0s (h)	☆

	time			
FA.46	Simple PLC selection of acceleration and deceleration time in section 13	0~3	0	☆
FA.47	Simple PLC section 14 running time	0.0s (h) ~6553.5s (h)	0.0s (h)	☆
FA.48	Simple PLC selection of acceleration and deceleration time in section 14	0~3	0	☆
FA.49	Simple PLC section 15 running time	0.0s (h) ~6553.5s (h)	0.0s (h)	☆
FA.50	Simple PLC selection of acceleration and deceleration time in section 15	0~3	0	☆
FA.51	Simple PLC running time unit	0: s 1: h	0	☆

4. 1. 11 Group Fb Fault and Protection

Function Code	Name	Setting Range	Default	Property
Fb.00	Motor overload protection selection	0: Prohibition 1: Permission	1	☆
Fb.01	Motor overload protection gain	0.20~10.00	1.00	☆
Fb.02	Motor overload warning coefficient	50%~100%	80%	☆
Fb.03	Overvoltage stall gain	0~100	0	☆
Fb.04	Overvoltage stall protection voltage/energy consumption braking initial voltage	120%~150%	130%	☆
Fb.05	Overflow stall gain	0~100	20	☆
Fb.06	Overflow Stall protection current	100%~200%	150%	☆
Fb.07	Power-on short circuit protection to	0: Invalid 1: Valid	1	☆

	ground selection			
Fb.08	Fault automatic reset number	0~20	0	☆
Fb.09	During fault automatic reset, Y action selection	0: No action 1: Action	0	☆
Fb.10	Fault automatic reset interval	0.1s~100.0s	1.0s	☆
Fb.11	Input phase shortage and input line fault protection selection	Unit 's digit : Selection of input phase shortage protection Ten 's digit : Selection of input line fault protection 0: Prohibition 1: Permission	11	☆
Fb.12	Selection of output shortage protection	0: Prohibition 1: Permission	1	☆

4. 1. 12 Group FC Fault Recording Group

Function Code	Name	Setting Range	Default	Property
FC.00	Previous (the latest) fault type	0: No fault 1: Reserved	—	●
FC.01	The first and second faults type	2: Accelerated overcurrent 3: Deceleration overcurrent	—	●
FC.02	The first three faults type	4: Constant speed overcurrent 5: Accelerated overvoltage	—	●
FC.03	The first four fault type	6: Deceleration overvoltage 7: Constant speed overvoltage	—	●
FC.04	The first five fault type	8: Control power supply overvoltage (Constant speed medium overvoltage) 9: Undervoltage		
FC.05	The first six fault type	10: Converter overload 11: Motor overload 12: Input phase shortage 13: Output phase shortage 14: Module overheating 15: External Fault 16: Communication fault 17: Abnormal input line 18: Current detection fault 19: Motor self-learning fault 20: Encoder/PG card fault 21: Parametric read-write exception 22: Frequency converter hardware fault 23: Short circuit between motor and ground 24: Reserved 25: Reserved 26: Reserved 27: User-defined fault 1 28: User-defined fault 2 29: Power-on time arrives 30: Download 31: Loss of PID feedback at running time	—	●

		40: Fast current limiting and overtime 41: Switching motor at running time 42: Excessive speed deviation 43: Motor Overspeed 45: Motor Overtemperature 51: Initial position error		
FC.06	Previous (the latest) fault frequency	—	—	●
FC.07	Previous (the latest) fault current	—	—	●
FC.08	Previous (the latest) fault bus voltage	—	—	●
FC.09	Previous (the latest) fault input terminal status	—	—	●
FC.10	Previous (the latest) fault output terminal status	—	—	●
FC.11	Previous (the latest) fault converter status	—	—	●
FC.12	Previous (the latest) fault power-on time	—	—	●
FC.13	Previous (the latest) fault running time	—	—	●
FC.14	Previous (the latest) fault Radiator temperature of converter module	—	—	●
FC.15	Previous (the latest) fault set frequency			
FC.16	The first two times fault frequency	—	—	●
FC.17	The first two times fault current	—	—	●
FC.18	The first two times fault bus voltage	—	—	●
FC.19	The first two times fault input terminal status	—	—	●
FC.20	The first two times fault output terminal status	—	—	●
FC.21	The first two times fault converter status	—	—	●

FC.22	The first two times fault power-on time	—	—	●
FC.23	The first two times fault running time	—	—	●
FC.24	The first two times fault converter radiator temperature	—	—	●
FC.25	The first two times fault set frequency	—	—	●
FC.26	The first three fault frequency	—	—	●
FC.27	The first three fault current	—	—	●
FC.28	The first three fault bus voltage	—	—	●
FC.29	The first three faults input terminal status	—	—	●
FC.30	The first three fault output terminal status	—	—	●
FC.31	The first three fault converter status	—	—	●
FC.32	The first three fault power-on time	—	—	●
FC.33	The first three fault running time	—	—	●
FC.34	The first three fault converter radiator temperature	—	—	●
FC.35	The first three fault set frequency	—	—	●

4. 1. 13 Group Fd Communication Parameters

Function Code	Name	Setting Range	Default	Property
Fd.00	Communication baud rate	Unit 's digit: Modbus 0: 300bps 1: 600bps 2: 1200bps 3: 2400bps 4: 4800bps	6005	☆

		5: 9600bps 6: 19200bps 7: 38400bps 8: 57600bps 9: 115200bps		
Fd.01	MODBUS data format	0: No check (8-N-2) 1: Dual check (8-E-1) 2: Odd check (8-O-1) 3: No check (8-N-1) (MODBUS valid)	0	☆
Fd.02	Local address	0: Broadcast address 1~247 (MODBUS valid)	1	☆
Fd.03	MODBUS response delay	0ms~20ms (MODBUS valid)	2	☆
Fd.04	Serial Communication Overtime	0.0 (Invalid), 0.1s~60.0s (MODBUS valid)	0.0	☆
Fd.06	Communication read current resolution	0: 0.01A 1: 0.1A	0	☆

4.2 Summary of Monitoring Parameters

Function Code	Name	Minimum Unit	Communication Address
Group L0 basic monitoring parameters			
L0.00	Running frequency (Hz)	0.01Hz	7000H
L0.01	Set frequency (Hz)	0.01Hz	7001H
L0.02	Bus voltage (V)	0.1V	7002H
L0.03	Output voltage (V)	1V	7003H
L0.04	Output current (A)	0.01A	7004H
L0.05	Output power (kW)	0.1kW	7005H
L0.06	Output torque (%)	0.1%	7006H
L0.07	X input status	1	7007H
L0.08	Y output status	1	7008H
L0.11	Panel potentiometer voltage (V)	0.01V	700BH
L0.12	Counting value	1	700CH
L0.13	Length value	1	700DH
L0.14	Load speed display	1	700EH
L0.15	PID set	0.01	700FH
L0.16	PID feedback	0.01	7010H
L0.18	AI5 input (Hz)	0.01kHz (3.1kHz corresponding to 10.00V)	7012H
L0.27	AI analog input (V)	0.00V~10.57V	701BH



Maintenance and Troubleshooting



*Routine Repair and Maintenance

5 Routine Repair and Maintenance

Fault Name	Display	Possible Causes	Solutions
Acceleration overcurrent	E002	<ol style="list-style-type: none"> 1. Grounded or short circuit of converter output circuit. 2. The control mode is vector without parameter identification. 3. Acceleration time is too short. 4. Inappropriate manual torque lifting or V/F curve. 5. Low voltage. 6. Start the rotating motor. 7. Sudden load during acceleration. 8. Converter selection is too small. 	<ol style="list-style-type: none"> 1. Eliminating peripheral fault. 2. Identification of motor parameters. 3. Increase the acceleration time. 4. Adjusting manual lifting torque or V/F curve. 5. Adjust the voltage to normal range 6. Select speed tracking start or restart after the machine stops. 7. Cancel sudden load. 8. Choosing converter with higher power level.
Deceleration overcurrent	E003	<ol style="list-style-type: none"> 1. Grounded or short circuit of converter output circuit. 2. The control mode is vector without parameter identification. 3. The deceleration time is too short. 4. Low voltage. 5. Sudden load during deceleration. 6. No brake unit and brake resistance. 	<ol style="list-style-type: none"> 1. Eliminating peripheral fault. 2. Identification of motor parameters. 3. Increase deceleration time. 4. Adjust voltage to normal range. 5. Cancel sudden load. 6. Installation of brake unit and resistor.
Constant speed overcurrent	E004	<ol style="list-style-type: none"> 1. Grounded or short circuit of converter output circuit. 2. The control mode is vector without parameter identification. 3. Low voltage. 4. Whether there is sudden load in operation. 5. Converter selection is too small. 	<ol style="list-style-type: none"> 1. Eliminating peripheral fault. 2. Identification of motor parameters. 3. Adjust the voltage to normal range. 4. Cancel sudden load. 5. Choosing converter with higher power level.
Acceleration overvoltage	E005	<ol style="list-style-type: none"> 1. High input voltage. 2. Existing external force driving motor operation in acceleration process. 3. Acceleration time is too short. 4. No brake unit and brake resistance. 	<ol style="list-style-type: none"> 1. Adjust the voltage to normal range. 2. Cancel additional power or install brake resistance. 3. Increase the acceleration time. 4. Installing brake unit and resistor.

Fault Name	Display	Possible Causes	Solutions
Deceleration overvoltage	E006	<ol style="list-style-type: none"> 1. High input voltage. 2. Existing external force driving motor operation in deceleration process. 3. Too short deceleration time. 4. Brake unit and brake resistance. 	<ol style="list-style-type: none"> 1. Adjust the voltage to normal range. 2. Cancel additional power or install brake resistance. 3. Increase deceleration time. 4. Installing brake unit and resistor.
Constant speed overvoltage	E007	<ol style="list-style-type: none"> 1. High input voltage. 2. Existing external force driving motor run in running process. 	<ol style="list-style-type: none"> 1. Adjust the voltage to normal range. 2. Cancel additional power or install brake resistance.
Control source fault	E008	<ol style="list-style-type: none"> 1. The input voltage is not within the range specified in the code. 	<ol style="list-style-type: none"> 1. Adjust the voltage to the specification requirements.
Undervoltage fault	E009	<ol style="list-style-type: none"> 1. Instantaneous blackout. 2. Converter input voltage is not within the scope of specifications. 3. Abnormal bus voltage 4. Abnormal rectifier bridge and buffer resistance. 5. Abnormal driving plate. 6. Abnormal control board 	<ol style="list-style-type: none"> 1. Reset fault. 2. Adjust voltage to normal range. 3. Seeking technical support.
Converter overload	E010	<ol style="list-style-type: none"> 1. Whether the load is too large or the motor is blocked . 2. Converter selection is too small. 	<ol style="list-style-type: none"> 1. Load reduction and inspection of motor and machinery. 2. Choosing a frequency converter with higher power level.
Motor overload	E011	<ol style="list-style-type: none"> 1. Whether the setting of motor protection parameter Fb.01 appropriate or not . 2. Whether the load is too large or the motor is blocked. 3. Converter selection is too small. 	<ol style="list-style-type: none"> 1. Setting this parameter correctly. 2. Load reduction and inspection of motor and machinery. 3. Choosing converter with higher power level.
Input phase shortage	E012	<ol style="list-style-type: none"> 1. Abnormal three-phase input power supply. 2. Drive board abnormality. 3. Abnormal lightning protection plate. 4. Abnormal main control board 	<ol style="list-style-type: none"> 1. Check and eliminate problems in peripheral cable. 2. Seeking technical support.
Output phase shortage	E013	<ol style="list-style-type: none"> 1. The lead from the frequency converter to the motor is abnormal. 2. Three-phase output unbalance of frequency converter during motor operation. 	<ol style="list-style-type: none"> 1. Eliminating peripheral fault 2. Check whether the three-phase winding of the motor normal or not and troubleshooting.

Fault Name	Display	Possible Causes	Solutions
		3. Drive board abnormality. 4. Module exception.	3. Seeking technical support.
Module overheating	E014	1. Excessive ambient temperature. 2. Air duct blockage. 3. Fan damage. 4. Module thermistor damage. 5. Converter module damage.	1. Reducing ambient temperature. 2. Clean up the air duct. 3. Replacement of fans. 4. Replacement of thermistor. 5. Replacement of converter module.
External equipment fault	E015	1. Input signal of multi-function terminal X external fault. 2. Input signal of virtual IO function external fault.	1. Reset operation.
Communication fault	E016	1. The upper computer is not working properly. 2. Abnormal communication cable 3. Correct setting of communication parameters group Fd .	1. Check PC cable. 2. Check the communication connection. 3. Correct setting of communication parameters.
Input line fault	E017	1. L, N or R, S, T input line problem. 2. Electric shock in power grid.	1. Check the input power line. 2. Put Fb.11 = 00.
Current detection fault	E018	1. Check hall device abnormality. 2. Drive board abnormality.	1. Replacement of hall devices. 2. Replacement of drive plate.
EEPROM reading and writing fault	E021	1. EEPROM chip damage.	1. Replacement of master control board.
Frequency converter hardware fault	E022	1. Existence of overpressure.	1. Dealing with overvoltage fault.
Grounded short circuit fault	E023	Short circuit of motor to ground.	1. Replacement of cable or motor.
User-defined fault 1	E027	1. Input user-defined fault 1 signal through multi-function terminal X. 2. Input user-defined fault 1 signal through the virtual IO function.	1. Reset operation.
User-defined fault 2	E028	1. Input user-defined fault 2 signal through multi-function terminal X. 2. Input user-defined fault 2 signal through virtual IO function.	1. Reset Operation.

Fault Name	Display	Possible Causes	Solutions
Accumulated power-on time to fault	E029	1. Accumulated power-on time to the setting value.	1. Clearing record information with parameter initialization function.
Download fault	E030	1. The operating current of the converter is less than Fb.31.	1. Verify whether the load is detached or whether the parameters of Fb.31 and Fb.32 meet the actual operating conditions.
Runtime PID feedback loss fault	E031	1. PID feedback is less than F9.26.	1. Check the PID feedback signal or set F9.26 as a suitable value.
Constant pressure water supply water shortage fault	E069	1. Water sources shortage.	1. Check up water sources.
In sleeping	SLP	1. Constant pressure water supply sleep state.	1. Normal phenomena, If not, please set sleeping-related parameters.
Password protection	-----	Converter is set with user password.	1. Enter the correct user password or contact the agent.



6

Warranty

***Guarantee clauses and maintenance list**

6 Warranty

Guarantee clauses and maintenance list

For consumers being assured and satisfied to use the products, we will strictly in accordance with the relevant laws and regulations issued by country to make reasonable after-sales service system.

6.1 Warranty Period

COTRUST provides warranty service in certain time (calculated from the date of first delivery) for products, please use as followed by regulations. Any non-human fault during the warranty period is free to be maintained.

Equipment damaged due to one of the following reasons during the warranty period, it will be charged for maintenance

- 1) Failure and damage caused by human factors and abnormal working environment, or not using according to the user manual provided by our company;
- 2) Users disassemble, repair or modify products without the consent of COTRUST.
- 3) Failure or damage due to falling or poor transportation after purchasing the product.
- 4) Failure or damage due to natural causes (such as flood, lightning, earthquake, abnormal voltage, other secondary disasters)
- 5) Failure or damage due to external device.
- 6) Abrasion or fracture by normally use.
- 7) No valid shopping credentials or the fuselage serial number was damaged

6.2 Warranty Information

- ◆ In case of product failure or damage, please fill in the " maintenance list" correctly and send it to us (see the mailing address on the next page).
- ◆ The charge of maintenance fee is subject to the price list of COTRUST.
- ◆ If your problem is not properly solved, please call or email our customer service department (see the contact information on the back cover), we will help you solve the problem in the shortest time.
- ◆ COTRUST reserves the right to interpret these clauses.

6.3 Maintenance List

Company that sends product to repair:

Company address:

Name: _____ Tel: _____ Fax: _____

No.	Type	Serial No.	Fault	Note
1				Repair (√) Detect () Upgrade ()
2				Repair (√) Detect () Upgrade ()
3				Repair (√) Detect () Upgrade ()
4				Repair (√) Detect () Upgrade ()
5				Repair (√) Detect () Upgrade ()
6				Repair (√) Detect () Upgrade ()
7				Repair (√) Detect () Upgrade ()
8				Repair (√) Detect () Upgrade ()
9				Repair (√) Detect () Upgrade ()
10				Repair (√) Detect () Upgrade ()
11				Repair (√) Detect () Upgrade ()
12				Repair (√) Detect () Upgrade ()
13				Repair (√) Detect () Upgrade ()
14				Repair (√) Detect () Upgrade ()
15				Repair (√) Detect () Upgrade ()

Agent seal:

(Seal to be valid)

 **Delivery info**

Address: 268 New road, Yangyong village, Dalang town, Dongguan, CHINA
 Addressee: Maintenance department
 Tel: 0796-82220668
 Postcode: 523770



Address: 9/F, block a, building 6, international innovation Valley, Nanshan District, Shenzhen

Tel: 0755-86226822

Fax: 0755-86226922

E-mail: sales@co-trust.com

Website: <http://www.co-trust.com>

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