MYCON

FST 300

Technical Support Guide

Preface

Thank you for selecting FST300 series frequency inverter from our company.

The FST300 Drive is a series of high performance general frequency inverter with three kinds of control methods—V/F control, open-loop flux vector control, closed loop vector control, torque control. It has abundant parameter functions including pulse frequency setting, multi-step speed and simple PLC setting, PID setting, wobble control, non-stop at momentary power failure, auto voltage regulation and so on. It is applicable in many situations which needs accurate speed control, fast torque response speed and high start torque.

In order to make good use of the product and insure the user's safety, please read through the manual before installing or operating the FST300 inverter, and keep it carefully after your reading.
When you have any questions that is not answered in this manual, please contact the local dealers or our company, our professional staff will be ready for you. Please keep on paying attention to our products.

The information herein is subject to change without notice.

Contents

Chapter 1- Inspections

CAUTION
Please don't install the damaged inverters or those lack of components. There are the risk of injury

Our products have been strictly inspected before they leave the factory, however, due to the transportation or other unexpected circumstances, please check the products carefully after purchasing.

1.1 Inspection Items

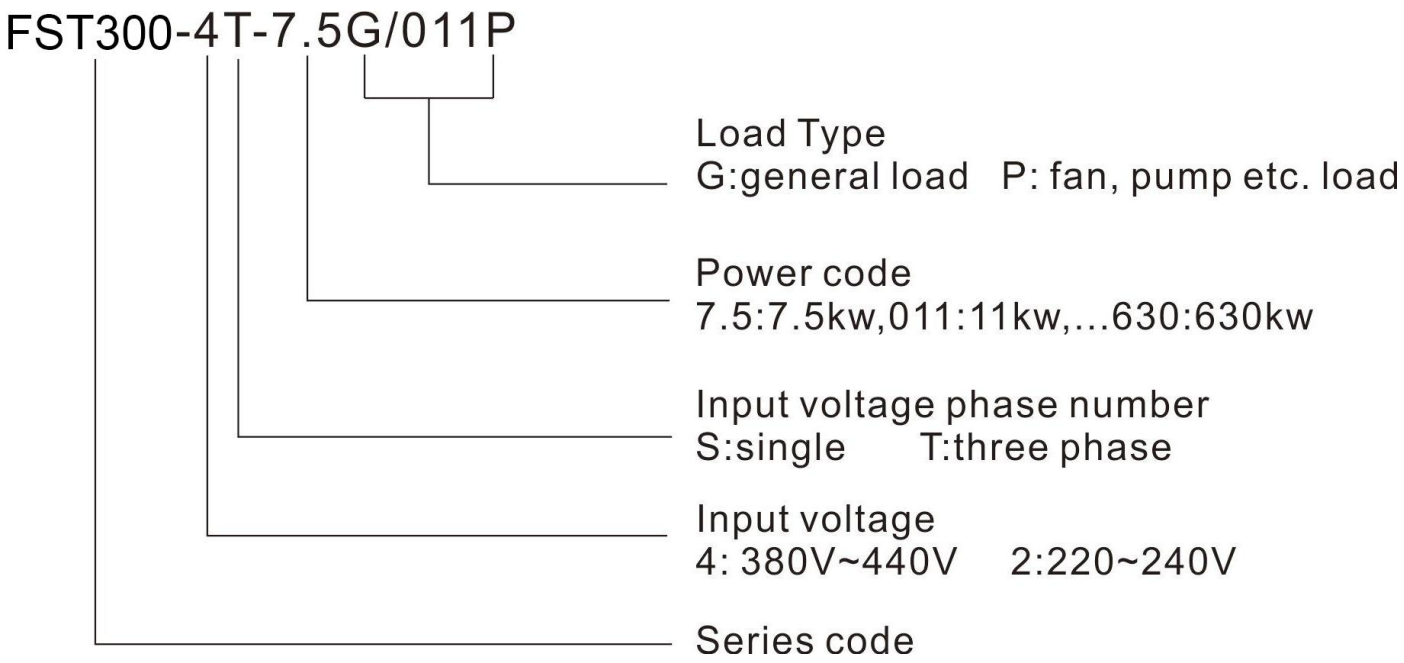
Please confirm the following items:

Confirmed items	Confirmed methods
The consistent of the products' type and model	Please check the nameplate on the side.
If there are damaged parts	Check the overall appearance and whether the goods are damaged.
If the screws or other fastening parts are loose	When necessary,check with a screwdriver
Instruction, certification and other accessories	FST300 instructions and corresponding accessories.

If there are any unusual circumstances, please contact distributor or our company directly.

1.2 Nameplate data

1.2.1 Inverter model description



Chapter 2- Wiring

2.1 wiring terminal diagram

2.1.1 the main circuit terminal

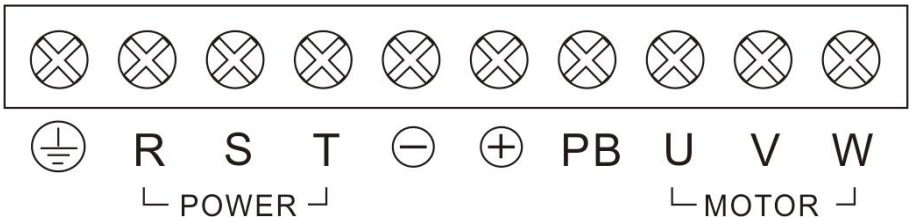


Fig. 3-1 0.75~7.5KW standard main circuit terminal

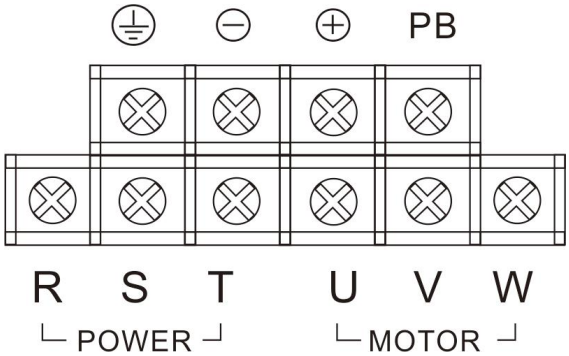


Fig. 3-2 11~15kW standard main circuit terminal

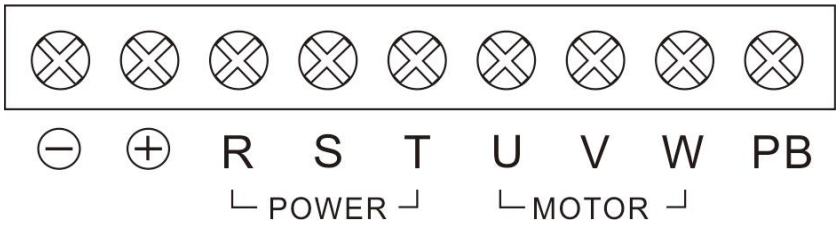


Fig. 3-3 18.5~30kW standard main circuit terminal

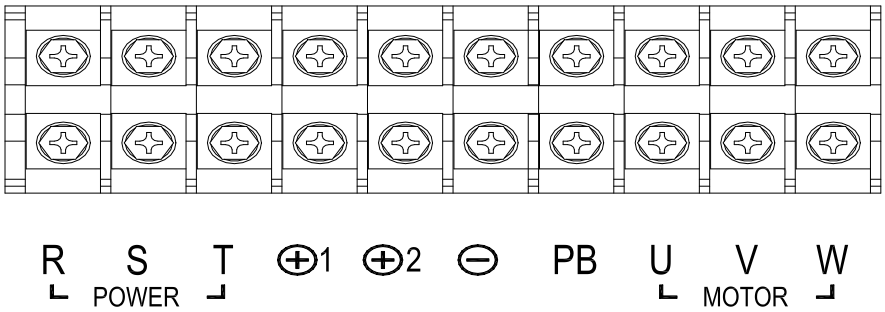


Fig. 3-4 37~630kW standard main circuit terminal

The functions of main circuit terminals are stated as below:

Terminal name	Function description
R、S、T	three phases input terminal
（+）、（-）	External brake unit reserved terminal
（+）、PB	External brake resistor reserved terminal
（+）1、（+）2	External DC reactor reserved terminal
（-）	Negative DC bus output terminal
U、V、W	Three phase AC output terminal
⏚	Grounding terminal

2.1.2 Control circuit terminal:

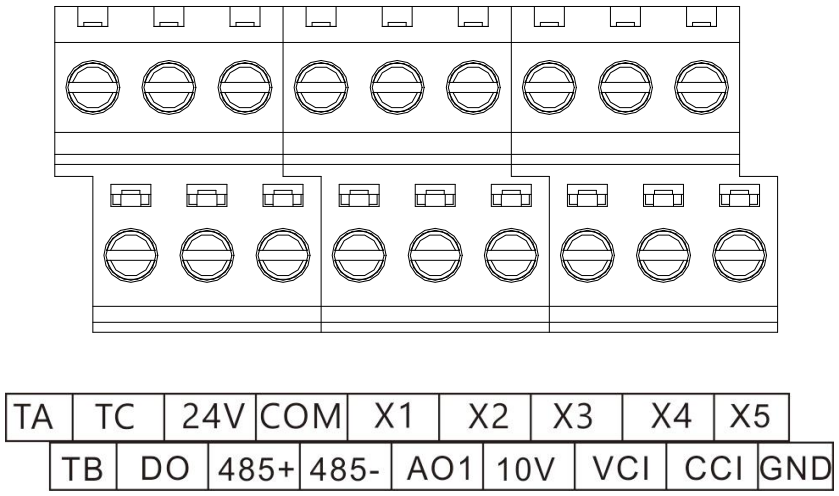
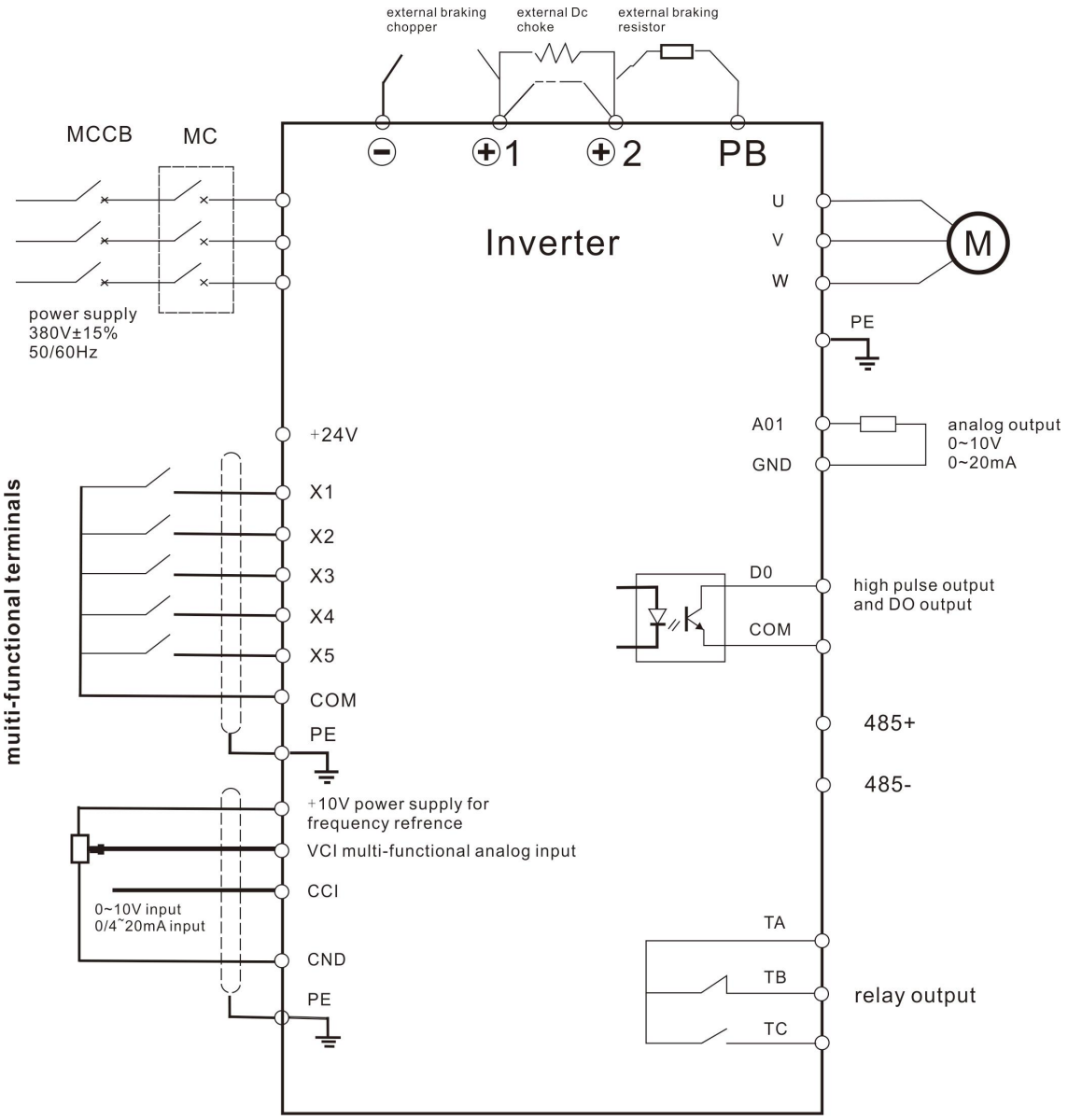


Fig. 3-6 FST300 series standard control circuit terminal

2.1.3 Wiring



Wiring diagram

2.1.4 Panel terminal description

Terminal name	Terminal usages and description
X1~X4	Switch input terminal, form bipolar coupling isolation input Input voltage range: 9~30V Input impedance: 2.4kΩ
X5	High speed pulse or switch input, form bipolar coupling isolation input with PLC and COM. Pulse input frequency range: 0~100kHz Input voltage range: 9~30V
+24V	Provide positive 24V power for this machine(current:150mA)
COM	The public side of 24V
VCI	Analog input, voltage range: -10~10V Input impedance: 22kΩ
CCI	Analog input, voltage（0~10V）/current（0~20mA）can be optional through J1 Input impedance: 10kΩ（voltage input）/500Ω（current input）
+10V	Provide positive 10V power for this machine.
GND	The reference zero potential for positive 10V (Note: GND and COM is isolated.)
D0	High speed pulse or collector open circuit input terminal, its corresponding public terminal is COM Output frequency range: 0~100 kHz
A01	Analog output terminal, among which A01 can select voltage or current output through jumper J2;. Output range: voltage (0~10V）/current（0~20mA）
TA、TB、TC	T relay output, TA public terminal, TB closed, TC open. Contact capacity: AC250V/3A，DC30V/1A
485+	Modbus 485 standard communication protocol
485-	

2.1.5 Control board jumper description

Terminal name	Terminal usage and description
J2-A01	Analog output voltage (0~10V) / current (0~20mA) output switch. V:voltage I:Current

Chapter 3- Keypad operation

3.1 keyboard description

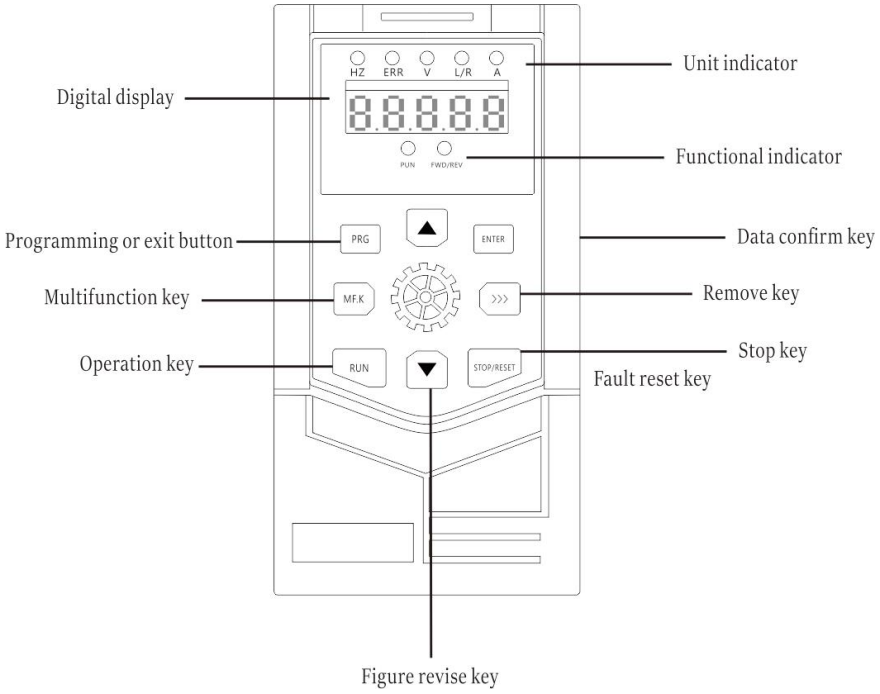


Fig 4-1 keyboard diagram

3.1.1 key function description

Key symbol	name	Function description
PRG	Programming key	Enter or exit of first level menu
ENTER	Confirm key	Gradually enter menu screen, set parameters to confirm
▲	UP increasing key	Increment of data and function code
▼	DOWN decreasing key	Decrement of data and function code
>>>	Shift key	When in the downtime or operation interface, it can shift right to choose display parameters in a circle; when modifying parameters, it can select parameter's modified bit.
RUN	Operation key	When under keyboard operation, it can be used.
STOP/RESET	stop/reset key	Under the running state, it can stop operation; constraited by F7.02, Under fault alarm condition, all control mode can be reset by this key.
MF.K	Quick multi-function key	According to value of F7.01 change the difference mode

3.1.2 indicator description

1) function indicator description:

Indicator name	Indicator description
RUN	Run state indicator： When the light is off, the inverter shutdown; when the light flikers, the inverter stay in parameter self-learning; when the light is on, the inverter is operating.
FWD/REV	Forward and reverse indicator: When the light is off, the inverter stays in the forward state; when the light is on, the inverter stays in the reverse state.
L/R	Control mode indicator: When the light is off, it stays in the keyboard control mode; when the light flickers, it stays in terminal control mode; when the light is on, it stays in remote communication control mode.
ERR	Adjust/torque control/ fault indicating lamp, light on is torque control,light blink slow is adjusting,,light blink fast is fault status

2) unit indicator description:

Indicator name	Indicator description
Hz	Frequency unit
A	Current unit
V	Voltage unit

3.2 Functions parameters

Function Code	Parameter Name	Setting Range	Default	Property
F0 Group:Basic Function				
F0.00	G/P type display	1: G type (constant torque load) 2: P type (variable torque load e.g. fan and pump)	Model dependent	★
F0.01	Motor 1 control mode	0: Sensorless flux vector control (SFVC) 1: Closed-loop vector control (CLVC) 2: Voltage/Frequency (V/F) control	2	★
F0.02	Command source selection	0: Operation panel control (LED off) 1: Terminal control (LED on) 2: Communication control (LED blinking)	0	☆
F0.03	Main frequency source X selection	0: Digital setting (non-retentive at power failure) 1: Digital setting (retentive at power failure) 2: VCI 3: CCI 4: keypad potentiometer 5: Pulse setting (X5) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication setting	0	★

F0.04	Auxiliary frequency source Y selection	The same as F0-03 (Main frequency source X selection)	0	★
F0.05	Range of auxiliary frequency Y for X and Y operation	0: Relative to maximum frequency 1: Relative to main frequency X	0	☆
F0.06	Range of auxiliary frequency Y for X and Y operation	0%–150%	100%	☆
F0.07	Frequency source selection	0: Main frequency source X 1: X and Y operation (operation relationship determined by ten's digit) 2: Switchover between X and Y 3: Switchover between X and "X and Y operation" 4: Switchover between Y and "X and Y operation" Ten's digit (X and Y operation relationship) 0: X+Y 1: X-Y 2: Maximum 3: Minimum	00	☆
F0.08	Preset frequency	0.00 to maximum frequency (valid when frequency source is digital setting)	50.00 Hz	☆
F0.09	Rotation direction	0: Same direction 1: Reverse direction	0	☆
F0.10	Maximum frequency	50.00–320.00 Hz	50.00 Hz	★
F0.11	Source of frequency upper limit	0: Set by F0-12 1: VCI 2: CCI 3: keypad potentiometer 4: Pulse setting (X5) 5: Communication setting	0	★
F0.12	Frequency upper limit	Frequency lower limit (F0-14) to maximum frequency (F0-10)	50.00 Hz	☆
F0.13	Frequency upper limit offset	0.00 Hz to maximum frequency (F0-10)	0.00 Hz	☆
F0.14	Frequency lower limit	0.00 Hz to frequency upper limit (F0-12)	0.00 Hz	☆
F0.15	Carrier frequency	0.5–16.0 kHz	Model dependent	☆
F0.16	Carrier frequency adjustment with temperature	0: No 1: Yes	1	☆
F0.17	Acceleration time 1	0.00–650.00s (F0-19 = 2) 0.0–6500.0s (F0-19 = 1) 0–65000s (F0-19 = 0)	Model dependent	☆

F0.18	Deceleration time 1	0.00–650.00s (F0-19 = 2) 0.0–6500.0s (F0-19 = 1) 0–65000s (F0-19 = 0)	Model dependent	☆
F0.19	Acceleration/ Deceleration time unit	0:1s 1: 0.1s 2: 0.01s	1	★
F0.21	Frequency offset of auxiliary frequency source for X and Y operation	0.00 Hz to maximum frequency (F0-10)	0.00 Hz	☆
F0.22	Frequency reference resolution	1: 0.1 Hz 2: 0.01 Hz	2	★
F0.23	Retentive of digital setting frequency upon power failure	0: Not retentive 1: Retentive	2	☆
F0.24	Motor parameter group selection	0: Motor parameter group 1 1: Motor parameter group 2	0	★
F0.25	Acceleration/ Deceleration time base frequency	0: Maximum frequency (F0-10) 1: Set frequency 2: 100 Hz	0	★
F0.26	Base frequency for UP/ DOWN modification during running	0: Running frequency 1: Set frequency	0	★
F0.27	Binding command source to frequency source	Unit's digit (Binding operation panel command to frequency source) 0: No binding 1: Frequency source by digital setting 2: VCI 3: CCI 4: keypad potentiometer 5: Pulse setting (X5) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication setting Ten's digit (Binding terminal command to frequency source) 0–9, same as unit's digit Hundred's digit (Binding communication command to frequency source) 0–9, same as unit's digit		☆
F0.28	Serial communication protocol	0: Modbus protocol 1: Profibus-DP bridge	0	☆

F1 Group:Motor Parameters				
F1.00	Motor type selection	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnetic synchronous motor	1	★
F1.01	Rated motor power	0.1–1000.0 kW	Model dependent	★
F1.02	Rated motor voltage	1–2000 V	Model dependent	★
F1.03	Rated motor current	0.01–655.35 A (AC drive power ≤ 55 kW) 0.1–6553.5 A (AC drive power > 55 kW)	Model dependent	★
F1.04	Rated motor frequency	0.01 Hz to maximum frequency	Model dependent	★
F1.05	Rated motor rotational speed	1–65535 RPM	Model dependent	★
F1.06	Stator resistance (asynchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535Ω(AC drive power > 55 kW)	Model dependent	★
F1.07	Rotor resistance (asynchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535Ω(AC drive power > 55 kW)	Model dependent	★
F1.08	Leakage inductive reactance (asynchronous motor)	0.01–655.35 mH (AC drive power ≤ 55 kW) 0.001–65.535mH(AC drive power >55 kW)	Model dependent	★
F1.09	Mutual inductive reactance (asynchronous motor)	0.1–6553.5 mH (AC drive power ≤ 55 kW) 0.01–655.35mH(AC drive power > 55 kW)	Model dependent	★
F1.10	No-load current (asynchronous motor)	0.01 to F1-03 (AC drive power ≤ 55 kW) 0.1 to F1-03 (AC drive power > 55 kW)	Model dependent	
F1.27	Encoder pulses per revolution	1–65535	1024	★
F1.28	Encoder type	0: ABZ incremental encoder 1: UVW incremental encoder 2: Resolver 3: SIN/COS encoder 4: Wire-saving UVW encoder	0	★
F1.30	A/B phase sequence of ABZ incremental	0: Forward 1: Reserve	0	★
F1.31	Encoder installation	0.0°–359.9°	0.0°	★
F1.32	U, V, W phase sequence of UVW	0: Forward 1: Reverse	0	★
F1.33	UVW encoder angle offset	0.0°–359.9°	0.0°	★
F1.34	Number of pole pairs of resolver	1–65535	1	★
F1.36	Encoder wire-break fault detection time	0.0s: No action 0.1–10.0s	0.0s	★

F1.37	Auto-tuning selection	0: No auto-tuning 1: Asynchronous motor static auto-tuning1 2: Asynchronous motor with-load complete auto-tuning 3.Asynchronous motor static complete auto-tuning	0	★
F2 Group Vector Control Parameters				
F2.00	Speed loop proportional gain 1	0–100	30	☆
F2.01	Speed loop integral time 1	0.01–10.00s	0.50s	☆
F2.02	Switchover frequency 1	0.00 to F2-05	5.00 Hz	☆
F2.03	Speed loop proportional gain 2	0–100	20	☆
F2.04	Speed loop integral time 2	0.01–10.00s	1.00s	☆
F2.05	Switchover frequency 2	F2-02 to maximum output frequency	10.00 Hz	☆
F2.06	Vector control slip gain	50%–200%	100%	☆
F2.07	Time constant of speed loop filter	0.000–1.00s	0.000s	☆
F2.08	Vector control over-excitation gain	0–200	64	☆
F2.09	Torque upper limit source in speed control mode	0: F2-10 1: VCI 2: CCI 3: keypad potentiometer 4: Pulse setting (X5) 5: Communication setting	0	☆
F2.10	Digital setting of torque upper limit in speed control mode	0.0%–200.0%	150.0%	☆
F2.11	Torque upper limit source in speed control model	0:F2.10 1:VCI 2:CCI 3:keypad potentiometer 4:X5 setting 5:communication setting 6Min(vci,cci)	0-8[0]	☆
F2.12	Digital setting of torque upper limit in speed control model	0.0-200.0%	150.0%	☆
F2.13	Excitation adjustment proportional gain	0–60000	2000	☆
F2.14	Excitation adjustment integral gain	0–60000	1300	☆
F2.15	Torque adjustment proportional gain	0–60000	2000	☆
F2.16	Torque adjustment integral gain	0–60000	1300	☆

F2.17	Speed loop integral property	Unit's digit: integral separation 0: Disabled 1: Enabled	0	☆
F2.18	Field weakening mode of synchronous motor	0: No field weakening 1: Direct calculation 2: Automatic adjustment	1	☆
F2.19	Field weakening depth of synchronous motor	50%–500%	100%	☆
F2.20	Maximum field weakening current	1%–300%	50%	☆
F2.21	Field weakening automatic adjustment gain	50%–200%	100%	☆
F2.22	Power limit	0:Invalid 1:Valid 3.Constant speed valid 4:Decelerate speed valid	0	☆
				☆
F3 Group V/F Control Parameters				
F3.00	V/F curve setting	0: Linear V/F 1: Multi-point 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 11: V/F half separation	0	★
F3.01	Torque boost	0.0% (fixed torque boost) 0.1%–30.0%	Model dependent	☆
F3.02	Cut-off frequency of torque boost	0.00 Hz to maximum output frequency	50.00 Hz	★
F3.03	Multi-point V/F frequency 1 (F1)	0.00 Hz to F3-05	0.00 Hz	★
F3.04	Multi-point V/F voltage 1 (V1)	0.0%–100.0%	0.0%	★
F3.05	Multi-point V/F frequency 2 (F2)	F3.03 to F3.07	0.00 Hz	★
F3.06	Multi-point V/F voltage 2 (V2)	0.0%–100.0%	0.0%	★
F3.07	Multi-point V/F frequency 3 (F3)	F3-05 to rated motor frequency (F1-04) Note: The rated frequencies of motors 2, 3, and 4 are respectively set in A2-04, A3-04, and A4-04.	0.00 Hz	★
F3.08	Multi-point V/F voltage 3 V3	0.0%–100.0%	0.0%	★
F3.09	V/F slip compensation gain	0%–200.0%	0.0%	☆

F3.10	V/F over-excitation gain	0–200	64	☆
F3.11	V/F oscillation suppression gain	0–100	Model dependent	☆
F3.13	Voltage source for V/F separation	0: Digital setting (F3-14) 1: VCI 2: CCI 3: keypad potentiometer 4: Pulse setting (X5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication setting 100.0% corresponds to the rated motor voltage (F1-02, A4-02, A5-02, A6-02).	0	☆
F3.14	Voltage digital setting for V/ F separation	0 V to rated motor voltage	0 V	☆
F3.15	Voltage rise time of V/F separation	0.0–1000.0s It indicates the time for the voltage rising from 0 V to rated motor voltage.	0.0s	☆
F3.16	Voltage decline time of V/F separation	0.0–1000.0s It indicates the time for the voltage to decline from rated motor voltage to 0 V.	0.0s	☆
F3.17	Stop mode selection upon V/F separation	0: Frequency and voltage declining to 0 independently 1: Frequency declining after voltage declines to 0	0	☆
F4 Group Input terminals 1				
F4.00	X1 function selection	0: No function 1: Forward RUN (FWD) 2: Reverse RUN (REV) 3: Three-line control 4: Forward JOG (FJOG) 5: Reverse JOG (RJOG) 6: Terminal UP 7: Terminal DOWN 8: Coast to stop 9: Fault reset (RESET) 10: RUN pause 11: Normally open (NO) input of external fault 12: Multi-reference terminal 1 13: Multi-reference terminal 2	1	★
F4.01	X2 function selection		4	★
F4.02	X3 function selection		9	★
F4.03	X4 function selection		12	

F4.04	X5 function selection	14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Terminal 1 for acceleration/ deceleration time selection 17: Terminal 2 for acceleration/ deceleration time selection 18: Frequency source switchover 19: UP and DOWN setting clear (terminal, operation panel) 20Command source switchover terminal1 21:Acceleration/Deceleration prohibited 22: PID pause 23: PLC status reset 24: Swing pause 25:Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control prohibited	13	★
F4.05	X6 function selection (over 18.5kw optional)	30: Pulse input (enabled only for X5) 31:Reserved 32: Immediate DC braking 33: Normally closed (NC) input of external fault 34: Frequency modification forbidden 35: Reverse PID action direction	U	★
F4.06	X7 function selection (over 18.5kw optional)	36: External STOP terminal 1 37: Command source switchover terminal 2 38: PID integral pause 39: Switchover between main frequency source X and preset frequency 40: Switchover between auxiliary frequency source Y and preset frequency	0	★
F4.07	X8 function selection (over 18.5kw optional)	41: Motor selection terminal 1 42: Motor selection terminal 2 43: PID parameter switchover 44: User-defined fault 1 45: User-defined fault 2 46: Speed control/Torque control switchover 47: Emergency stop 48: External STOP terminal 2 49: Deceleration DC braking 50: Clear the current running time 51: Switchover between two-line mode and three-line mode 52:prohibit reverse rotate 53–59: Reserved	0	★
F4.08	X9 function selection (over 18.5kw optional)		0	★
F4.09	X10 function selection (over 18.5kw optional)		0	★

F4.10	DI filter time	0.000–1.000s	0.010s	☆
F4.11	Terminal command mode	0: Two-line mode 1 1: Two-line mode 2 2: Three-line mode 1 3: Three-line mode 2	0	★
F4.12	Terminal UP/DOWN rate	0.01–65.535 Hz/s	1.00 Hz/s	☆
F4.13	AI curve 1 minimum input	0.00 V to F4-15	0.00 V	☆
F4.14	Corresponding setting of AI curve 1 minimum input	-100.00%–100.0%	0.0%	☆
F4.15	AI curve 1 maximum input	F4-13 to 10.00 V	10.00 V	☆
F4.16	Corresponding setting of AI curve 1 maximum input	-100.00%–100.0%	100.0%	☆
F4.17	VCI filter time	0.00–10.00s	0.10s	☆
F4.18	AI curve 2 minimum input	0.00 V to F4-20	0.00 V	☆
F4.19	Corresponding setting of AI curve 2 minimum input	-100.00%–100.0%	0.0%	☆
F4.20	AI curve 2 maximum input	F4-18 to 10.00 V	10.00 V	☆
F4.21	Corresponding setting of AI curve 2 maximum input	-100.00%–100.0%	100.0%	☆
F4.22	CCI filter time	0.00–10.00s	0.10s	☆
F4.23	AI curve 3 minimum input	0.00 V to F4-25	0.00 V	☆
F4.24	Corresponding setting of AI curve 3 minimum input	-100.00%–100.0%	0.0%	☆
F4.25	AI curve 3 maximum input	F4-23 to 10.00 V	10.00 V	☆
F4.26	Corresponding setting of AI curve 3 maximum input	-100.00%–100.0%	100.0%	☆
F4.27	keypad potentiometer filter	0.00–10.00s	0.10s	☆
F4.28	X5 Pulse minimum input	0.00 kHz to F4.30	0.00 kHz	☆
F4.29	X5 Corresponding setting of pulse minimum input	-100.00%–100.0%	0.0%	☆
F4.30	X5 Pulse maximum input	F4.28 to 1 0 0 .00 kHz	50.00 kHz	☆
F4.31	X5 Corresponding setting of pulse maximum input	-100.00%–100.0%	100.0%	☆
F4.32	X5 Pulse filter time	0.00–10.00s	0.10s	☆
F4.33	AI curve selection	Unit's digit (VCI curve selection)		
		Curve 1 (2 points, see F4-13 to F4-16) Curve 2 (2 points, see F4-18 to F4-21) Curve 3 (2 points, see F4-23 to F4-26) Curve 4 (4 points, see A6-00 to A6-07) Curve 5 (4 points, see A6-08 to A6-15)		
		Ten's digit (CCI curve selection)		
		Curve 1 to curve 5 (same as VCI)		
		Hundred's digit (keypad potentiometer curve selection)		
		Curve 1 to curve 5 (same as VCI)		

F4.34	Setting for AI less than minimum input	Unit's digit (Setting for VCI less than minimum input) 0: Minimum value 1: 0.0% Ten's digit (Setting for CCI less than minimum input) 0, 1 (same as VCI) Hundred's digit (Setting for keypad potentiometer less than minimum input) 0, 1 (same as VCI)		
F4.35	DI1 delay time	0.0–3600.0s	0.0s	★
F4.36	DI2 delay time	0.0–3600.0s	0.0s	★
F4.37	DI3 delay time	0.0–3600.0s	0.0s	★
F4.38	DI valid mode selection 1	Unit's digit (DI1 valid mode) 0: High level valid 1: Low level valid Ten's digit (DI2 valid mode) 0, 1 (same as DI1) Hundred's digit (DI3 valid mode) 0, 1 (same as DI1) Thousand's digit (DI4 valid mode) 0, 1 (same as DI1) Ten thousand's digit (X5 valid mode) 0, 1 (same as DI1)	00000	★
F4.39	DI valid mode selection 2	Unit's digit (DI6 valid mode) 0, 1 (same as DI1) Ten's digit (DI7 valid mode) 0, 1 (same as DI1) Hundred's digit (DI8 state) 0, 1 (same as DI1) Thousand's digit (DI9 valid mode) 0, 1 (same as DI1) Ten thousand's digit (DI10 valid mode) 0, 1 (same as DI1)	00000	★
F5 Group Output Terminals				
F5.00	FM terminal output mode	0: Pulse output 1: Switch signal output	0	☆

F5.01	D0 function (open-collector output terminal)	0: No output 1: AC drive running 2: Fault output (stop) 3: Frequency-level detection FDT1 output 4: Frequency reached 5: Zero-speed running (no output at stop) 6: Motor overload pre-warning 7: AC drive overload pre-warning 8: Set count value reached 9: Designated count value reached 10: Length reached 11: PLC cycle complete 12: Accumulative running time reached 13: Frequency limited 14: Torque limited 15: Ready for RUN 16: VCI larger than CCI 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state output 20: Communication setting 21: Reserved 22: Reserved 23: Zero-speed running 2 (having output at stop) 24: Accumulative power-on time reached 25: Frequency level detection FDT2 output 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached 29: Current 2 reached 30: Timing reached 31: VCI input limit exceeded 32: Load becoming 0 33: Reverse running 34: Zero current state 35: Module temperature reached 36: Software current limit exceeded 37: Frequency lower limit reached (having output at stop) 38: Alarm output 39: Motor overheat warning 40: Current running time reached 41: Fault output (There is no output if it is the coast to stop fault and undervoltage occurs.)	2	☆
F5.02	Relay function (T/A-T/B-T/C)		2	☆
F5.03	Extension card relay function (P/A-P/B-P/C)		0	☆
F5.04	DO1 function selection			
F5.05	Extension DO2 function selection			
F5.05	DO1 function selection (open-collector output terminal)		1	☆

F5.06	FMP function selection	0: Running frequency 1: Set frequency	0	☆
F5.07	AO1 function selection	2: Output current 3: Output torque (absolute value) 4: Output power 5: Output voltage 6: Pulse input 7: VCI 8: CCI 9: Keypad potentiometer 10: Length	0	☆
F5.08	AO2 function selection	11: Count value 12: Communication setting 13: Motor rotational speed 14: Output current 15: Output voltage 16: Motor output torque(actual value)	1	☆
F5.09	Maximum D0 output frequency	0.01–100.00 kHz	50.00 kHz	☆
F5.10	AO1 offset coefficient	-100.0%–100.0%	0.0%	☆
F5.11	AO1 gain	-10.00–10.00	1.00	☆
F5.12	AO2 offset coefficient	-100.0%–100.0%	0.00%	☆
F5.13	AO2 gain	-10.00–10.00	1.00	☆
F5.17	D0 output delay time	0.0–3600.0s	0.0s	☆
F5.18	Relay 1 output delay time	0.0–3600.0s	0.0s	☆
F5.19	Relay 2 output delay time	0.0–3600.0s	0.0s	☆
F5.20	DO1 output delay time	0.0–3600.0s	0.0s	☆
F5.21	DO2 output delay time	0.0–3600.0s	0.0s	☆
F5.22	DO valid mode selection	Unit's digit (D0 valid mode) 0: Positive logic 1: Negative logic Ten's digit (Relay 1 valid mode) 0, 1 (same as DO) Hundred's digit (Relay 2 valid mode) 0, 1 (same as DO) Thousand's digit (DO1 valid mode) 0, 1 (same as DO) Ten thousand's digit (DO2 valid mode) 0, 1 (same as DO)	00000	☆
F6 Group Start/Stop Control				
F6.00	Start mode	0: Direct startup 1: Rotational speed tracking restart 2: Pre-excited start (asynchronous motor)	0	☆

F6.01	Rotational speed tracking mode	0: From frequency at stop 1: From zero speed 2: From maximum frequency	0	★
F6.02	Rotational speed tracking speed	1–100	20	☆
F6.03	Startup frequency	0.00–10.00 Hz	0.00 Hz	☆
F6.04	Startup frequency holding time	0.0–100.0s	0.0s	★
F6.05	Startup DC braking current/ Pre-excited current	0%–100%	0%	★
F6.06	Startup DC braking time/ Pre-excited time	0.0–100.0s	0.0s	★
F6.07	Acceleration/ Deceleration mode	0: Linear acceleration/ deceleration 1: S-curve acceleration/ deceleration A 2: S-curve acceleration/ deceleration B	0	★
F6.08	Time proportion of S-curve start segment	0.0% to (100.0% – F6-09)	30.0%	★
F6.09	Time proportion of S-curve end segment	0.0% to (100.0% – F6-08)	30.0%	★
F6.10	Stop mode	0: Decelerate to stop 1: Coast to stop	0	☆
F6.11	Initial frequency of stop DC braking	0.00 Hz to maximum frequency	0.00 Hz	☆
F6.12	Waiting time of stop DC braking	0.0–36.0s	0.0s	☆
F6.13	Stop DC braking current	0%–100%	0%	☆
F6.14	Stop DC braking time	0.0–36.0s	0.0s	☆
F6.15	Brake use ratio	0%–100%	100%	☆
F7 Group Operation Panel and Display				
F7.01	MF.K Key function selection	0: MF.K key disabled 1: Switchover between operation panel control and remote command control (terminal or communication) 2: Switchover between forward rotation and reverse rotation 3: Forward JOG 4: Reverse JOG	0	★
F7.02	STOP/RESET key function	0: STOP/RESET key enabled only in operation panel control 1: STOP/RESET key enabled in any operation mode	1	☆

F7.03	LED display running parameters 1	0000–FFFF Bit00: Running frequency 1 (Hz) Bit01: Set frequency (Hz) Bit02: Bus voltage (V) Bit03: Output voltage (V) Bit04: Output current (A) Bit05: Output power (kW) Bit06: Output torque (%) Bit07: X input status Bit08: DO output status Bit09: VCI voltage (V) Bit10: CCI voltage (V) Bit11: keypad potentiometer voltage(V) Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID setting	1F	☆
F7.04	LED display running parameters 2	0000–FFFF Bit00: PID feedback Bit01: PLC stage Bit02: X5 Pulse setting frequency (kHz) Bit03: Running frequency 2 (Hz) Bit04: Remaining running time Bit05:VCI voltage before correction(V) Bit06: CCI voltage before correction (V) Bit07: keypad potentiometer voltage before correction (V) Bit08: Linear speed Bit09: Current power-on time (Hour) Bit10: Current running time (Min) Bit11:X 5Pulse setting frequency (Hz) Bit12: Communication setting value Bit13: Encoder feedback speed (Hz) Bit14: Main frequency X display (Hz) Bit15: Auxiliary frequency Y display (Hz)	0	☆

F7.05	LED display stop parameters	0000–FFFF Bit00: Set frequency (Hz) Bit01: Bus voltage (V) Bit02: DI input status Bit03: DO output status Bit04: VCI voltage (V) Bit05: CCI voltage (V) Bit06: keypad potentiometer voltage(V) Bit07: Count value Bit08: Length value Bit09: PLC stage Bit10: Load speed Bit11: PID setting Bit12: X5 Pulse setting frequency (kHz)	33	☆
F7.06	Load speed display coefficient	0.0001–6.5000	1.0000	☆
F7.07	Heatsink temperature of inverter module	0.0–100.0°C	-	★
F7.08	Temporary software version	-	-	★
F7.09	Accumulative running time	0–65535 h	-	★
F7.10	Product number	-	-	★
F7.11	Software version	-	-	★
F7.12	Number of decimal places for load speed display	0: 0 decimal place 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places	1	☆
F7.13	Accumulative power-on time	0–65535 h	0 h	★
F7.14	Accumulative power consumption	0–65535 kWh	-	★
F8 Group Enhanced Function				
F8.00	JOG running frequency	0.00 Hz to maximum frequency	2.00 Hz	☆
F8.01	JOG acceleration time	0.0–6500.0s	20.0s	☆
F8.02	JOG deceleration time	0.0–6500.0s	20.0s	☆
F8.03	Acceleration time 2	0.0–6500.0s	Model dependent	☆
F8.04	Deceleration time 2	0.0–6500.0s	Model dependent	☆
F8.05	Acceleration time 3	0.0–6500.0s	Model dependent	☆
F8.06	Deceleration time 3	0.0–6500.0s	Model dependent	☆
F8.07	Acceleration time 4	0.0–6500.0s	Model dependent	☆
F8.08	Deceleration time 4	0.0–6500.0s	Model dependent	☆

F8.09	Jump frequency 1	0.00 Hz to maximum frequency	0.00 Hz	☆
F8.10	Jump frequency 2	0.00 Hz to maximum frequency	0.00 Hz	☆
F8.11	Frequency jump amplitude	0.00 Hz to maximum frequency	0.00 Hz	☆
F8.12	Forward/Reverse rotation dead-zone time	0.0–3000.0s	0.0s	☆
F8.13	Reverse control	0: Enabled 1: Disabled	0	☆
F8.14	Running mode when set frequency lower than	0: Run at frequency lower limit 1: Stop 2: Run at zero speed	0	☆
F8.15	Droop control	0.00–10.00 Hz	0.00 Hz	☆
F8.16	Accumulative power-on time threshold	0–65000 h	0 h	☆
F8.17	Accumulative running time threshold	0–65000 h	0 h	☆
F8.18	Startup protection	0: No 1: Yes	0	☆
F8.19	Frequency detection value (FDT1)	0.00 Hz to maximum frequency	50.00 Hz	☆
F8.20	Frequency detection hysteresis (FDT hysteresis 1)	0.0%–100.0% (FDT1 level)	5.0%	☆
F8.21	Detection range of frequency reached	0.00–100% (maximum frequency)	0.0%	☆
F8.22	Jump frequency during acceleration/deceleration	0: Disabled1: Enabled	0	☆
F8.25	Frequency switchover point between acceleration time 1	0.00 Hz to maximum frequency	0.00 Hz	☆
F8.26	Frequency switchover point between deceleration time 1	0.00 to maximum frequency	0.00 Hz	☆
F8.27	Terminal JOG preferred	0: Disabled1: Enabled	0	☆
F8.28	Frequency detection value (FDT2)	0.00 to maximum frequency	50.00 Hz	☆
F8.29	Frequency detection hysteresis (FDT hysteresis	0.0%–100.0% (FDT2 level)	5.0%	☆
F8.30	Any frequency reaching detection value 1	0.00 Hz to maximum frequency	50.00 Hz	☆
F8.31	Any frequency reaching detection amplitude 1	0.0%–100.0% (maximum frequency)	0.0%	☆
F8.32	Any frequency reaching detection value 2	0.00 Hz to maximum frequency	50.00 Hz	☆
F8.33	Any frequency reaching detection amplitude 2	0.0%–100.0% (maximum frequency)	0.0%	☆
F8.34	Zero current detection level	0.0%–300.0% (rated motor current)	5.0%	☆
F8.35	Zero current detection delay time	0.00–600.00s	0.10s	☆

F8.36	Output overcurrent threshold	0.0% (no detection) 0.1%–300.0% (rated motor current)	200.0%	☆
F8.37	Output overcurrent detection delay time	0.00–600.00s	0.00s	☆
F8.38	Any current reaching 1	0.0%–300.0% (rated motor current)	100.0%	☆
F8.39	Any current reaching 1 amplitude	0.0%–300.0% (rated motor current)	0.0%	☆
F8.40	Any current reaching 2	0.0%–300.0% (rated motor current)	100.0%	☆
F8.41	Any current reaching 2 amplitude	0.0%–300.0% (rated motor current)	0.0%	☆
F8.42	Timing function	0: Disabled 1: Enabled	0	☆
F8.43	Timing duration source	0: F8-44 1: VCI 2:CCI 3:Keypad potentiometer (100% of analog input corresponds to the value of F8-44)	0	☆
F8.44	Timing duration	0.0–6500.0 min	0.0 min	☆
F8.45	VCI input voltage lower limit	0.00 V to F8-46	3.10 V	☆
F8.46	VCI input voltage upper limit	F8-45 to 10.00 V	6.80 V	☆
F8.47	Module temperature threshold	0–100°C	75°C	☆
F8.48	Cooling fan control	0: Fan working during running 1: Fan working continuously	0	☆
F8.49	Wakeup frequency	Dormant frequency (F8-51) to maximum frequency (F0-10)	0.00 Hz	☆
F8.50	Wakeup delay time	0.0–6500.0s	0.0s	☆
F8.51	Dormant frequency	0.00 Hz to wakeup frequency (F8-49)	0.00 Hz	
F8.52	Dormant delay time	0.0–6500.0s	0.0s	☆
F8.53	Current running time reached	0.0–6500.0 min	0.0 min	☆
F8.54	Output power correction coefficient	0.00%–200 .0%	100.0%	☆
F9 Group Fault and Protection				
F9.00	Motor overload protection selection	0:Disabled 1:Enabled	1	☆
F9.01	Motor overload protection gain	0.20–10.00	1.00	☆
F9.02	Motor overload warning coefficient	50%–100%	80%	☆
F9.03	Overvoltage stall gain	0 (no stall overvoltage)–100	0	☆
F9.04	Overvoltage stall protective voltage	200-2000		☆

F9.05	Overcurrent stall gain	0–100	20	☆
F9.06	Overcurrent stall protective current	100%–200%	150%	☆
F9.07	Short-circuit to ground upon power-on	0: Disabled 1: Enabled	1	☆
F9.09	Fault auto reset times	0–20	0	☆
F9.10	DO action during fault auto reset	0: Not act 1: Act	0	☆
F9.11	Time interval of fault auto reset	0.1s–100.0s	1.0s	☆
F9.12	Input phase loss protection/ contactor energizing protection selection	Unit's digit: Input phase loss protection Ten's digit: Contactor energizing protection 0: Disabled 1: Enabled	11	☆
F9.13	Output phase loss protection selection	0: Disabled 1: Enabled	1	☆

F9.14 F9.15 F9.16	1st fault type 2nd fault type 3rd fault type(Latest)	0: No fault 1: Reserved 2:Overcurrent during acceleration 3: Overcurrent during deceleration 4: Overcurrent at constant speed 5: Overvoltage during acceleration 6: Overvoltage during deceleration 7: Overvoltage at constant speed 8: Buffer resistance overload 9: Undervoltage 10: AC drive overload 11: Motor overload 12:Power input phase loss 13: Power output phase loss 14: Module overheat 15: External equipment fault 16: Communication fault 17: Contactor fault 18: Current detection fault 19: Motor auto-tuning fault 20: Encoder/PG card fault 21: EEPROM read-write fault 22: AC drive hardware fault 23: Short circuit to ground 24: Reserved 25: Reserved 26:Accumulative running time reached 27: User-defined fault 1 28: User-defined fault 2 29: Accumulative power-on time reached 30: Load becoming 0 31: PID feedback lost during running 40: With-wave current limit fault 41: Motor switchover fault during running 42: Too large speed deviation 43: Motor over-speed 45: Motor overheat 3rd (latest) fault type	-	★
F9.17	Frequency upon 3rd fault	-		★
F9.18	Current upon 3rd fault	-	-	★
F9.19	Bus voltage upon 3rd fault	-	-	★
F9.20	DI status upon 3rd fault	-	-	★
F9.21	Output terminal status upon 3rd fault	-	-	★
F9.22	AC drive status upon 3rd fault	-	-	★
F9.23	Power-on time upon 3rd fault	-	-	●
F9.24	Running time upon 3rd fault	-	-	★
F9.27	Frequency upon 2nd fault	-	-	★

F9.28	Current upon 2nd fault	-	-	★
F9.29	Bus voltage upon 2nd fault	-	-	★
F9.30	DI status upon 2nd fault	-	-	★
F9.31	Output terminal status upon 2nd fault	-	-	●
F9.32	Frequency upon 2nd fault	-	-	★
F9.33	Current upon 2nd fault	-	-	★
F9.34	Bus voltage upon 2nd fault	-	-	★
F9.37	DI status upon 1st fault	-	-	★
F9.38	Output terminal status upon 1st fault	-	-	★
F9.39	Frequency upon 1st fault	-	-	★
F9.40	Current upon 1st fault	-	-	★
F9.41	Bus voltage upon 3rd fault	-	-	★
F9.42	DI status upon 1st fault	-	-	★
F9.43	Output terminal status upon 1st fault	-	-	★
F9.44	Frequency upon 1st fault	-	-	★
F9.47	Fault protection action selection 1	Unit's digit (Motor overload, Err11) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run Ten's digit (Power input phase loss, Err12) Same as unit's digit Hundred's digit (Power output phase loss, Err13) Same as unit's digit Thousand's digit (External equipment fault, Err15) Same as unit's digit Ten thousand's digit (Communication fault, Err16) Same as unit's digit	00000	☆
F9.48	Fault protection action selection 2	Unit's digit (Encoder fault, Err20) 0: Coast to stop 1: Switch over to V/F control, stop according to the stop mode 2: Switch over to V/F control, continue to run Ten's digit (EEPROM read-write fault, Err21) 0: Coast to stop 1: Stop according to the stop mode	00000	☆
F9.48	Fault protection action selection 2	Hundred's digit: reserved Thousand's digit (Motor overheat, Err25) Same as unit's digit in F9-47 Ten thousand's digit (Accumulative running time reached) Same as unit's digit in F9-47	00000	☆

F9.49	Fault protection action selection 3	Unit's digit (User-defined fault 1, Err27) Same as unit's digit in F9-47 Ten's digit (User-defined fault 2, Err28) Same as unit's digit in F9-47 Hundred's digit (Accumulative power-on time reached, Err29) Same as unit's digit in F9-47 Thousand's digit (Load becoming 0, Err30) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run at 7% of rated motor frequency and resume to the set frequency if the load recovers Ten thousand's digit (PID feedback lost during running, Err31) Same as unit's digit in F9-47	00000 00000	☆ ☆
F9.50	Fault protection action selection 4	Unit's digit (Too large speed deviation, Err42) Same as unit's digit in F9-47 Ten's digit (Motor over-speed, Err43) Same as unit's digit in F9-47 Hundred's digit (Initial position fault, Err51) Same as unit's digit in F9-47 Thousand's digit (Initial position fault, Err52) Same as unit's digit in F9-47 Ten thousand's digit: Reserved		
F9.54	Frequency selection for continuing to run upon fault	0: Current running frequency 1: Set frequency 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency upon abnormality	0	☆
F9.55	Backup frequency upon abnormality	0.0%–100.0% (maximum frequency)	100.0%	☆
F9.56	Type of motor temperature sensor	0: No temperature sensor 1: PT100 2:PT1000	1	☆
F9.57	Motor overheat protection threshold	0–200°C	110°C	☆
F9.58	Motor overheat warning threshold	0–200°C	90°C	☆
F9.59	Action selection at instantaneous power failure	0: Invalid 1: Decelerate 2: Decelerate to stop	0	☆
F9.60	Action pause judging voltage at instantaneous power	80.0%–100.0%	90.0%	☆
F9.61	Voltage rally judging time at instantaneous power failure	0.00–100.00s	0.50s	☆

F9.62	Action judging voltage at instantaneous power failure	60.0%–100.0% (standard bus voltage)	80.0%	☆
F9.63	Protection upon load becoming 0	0: Disabled 1: Enabled	0	☆
F9.64	Detection level of load becoming 0	0.0%–100.0% (rated motor current)	10.0%	☆
F9.65	Detection time of load becoming 0	0.0–60.0s	1.0s	☆
F9.67	Over-speed detection value	0.0%–50.0% (maximum frequency)	20.0%	☆
F9.68	Over-speed detection time	0.0–60.0s	1.0s	☆
F9.69	Detection value of too large speed deviation	0.0%–50.0% (maximum frequency)	20.0%	☆
F9.70	Detection time of too large speed deviation	0.0–60.0s	5.0s	☆
FA Group Process Control PID Function				
FA.00	PID setting source	0: FA.01 1: VCI 2:CCI 3:Keypad potentiometer 4: Pulse setting (X5) 5: Communication setting 6: Multi-reference	0	☆
FA.01	PID digital setting	0.0%–100.0%	50.0%	☆
FA.02	PID feedback source	0: VCI 1: CCI 2: Keypad potentiometer 3: VCI – CCI 4: Pulse setting (X5) 5: Communication setting 6: VCI + CCI 7: MAX (VCI, CCI) 8: MIN (VCI, CCI)	0	☆
FA.03	PID action direction	0: Forward action 1: Reverse action	0	☆
FA.04	PID setting feedback range	0–65535	1000	☆
FA.05	Proportional gain Kp1	0.0–100.0	20.0	☆
FA.06	Integral time Ti1	0.01–10.00s	2.00s	☆
FA.07	Differential time Td1	0.00–10.000	0.000s	☆
FA.08	Cut-off frequency of PID reverse rotation	0.00 to maximum frequency	2.00 Hz	☆
FA.09	PID deviation limit	0.0%–100.0%	0.0%	☆
FA.10	PID differential limit	0.00%–100.00%	0.10%	☆
FA.11	PID setting change time	0.00–650.00s	0.00s	☆
FA.12	PID feedback filter time	0.00–60.00s	0.00s	☆
FA.13	PID output filter time	0.00–60.00s	0.00s	☆

FA.14	Reserved	-	-	☆
FA.15	Proportional gain Kp2	0.0–100.0	20.0	☆
FA.16	Integral time Ti2	0.01–10.00s	2.00s	☆
FA.17	Differential time Td2	0.000–10.000s	0.000s	☆
FA.18	PID parameter switchover condition	0: No switchover 1: Switchover via X5 2: Automatic switchover based on deviation	0	☆
FA.19	PID parameter switchover deviation 1	0.0% to FA-20	20.0%	☆
FA.20	PID parameter switchover deviation 2	FA-19 to 100.0%	80.0%	☆
FA.21	PID initial value	0.0%–100.0%	0.0%	☆
FA.22	PID initial value holding time	0.00–650.00s	0.00s	☆
FA.23	Maximum deviation between two PID outputs in forward	0.00%–100.00%	1.00%	☆
FA.24	Maximum deviation between two PID outputs in reverse direction	0.00%–100.00%	1.00%	☆
FA.25	PID integral property	Unit's digit (Integral separated)		
		0: Invalid 1: Valid		
		Ten's digit (Whether to stop integral operation when the output reaches the limit)		
		0: Continue integral operation 1: Stop integral operation		
FA.26	Detection value of PID feedback loss	0.0%: Not judging feedback loss 0.1%–100.0%	0.0%	☆
FA.27	Detection time of PID feedback loss	0.0–20.0s	0.0s	☆
FA.28	PID operation at stop	0: No PID operation at stop 1: PID operation at stop	0	☆
FB Group Swing Frequency, Fixed Length and Count				
FB.00	Swing frequency setting mode	0: Relative to the central frequency 1: Relative to the maximum frequency	0	☆
FB.01	Swing frequency amplitude	0.0%–100.0%	0.0%	☆
FB.02	Jump frequency amplitude	0.0%–50.0%	0.0%	☆
FB.03	Swing frequency cycle	0.0–3000.0s	10.0s	☆
FB.04	Triangular wave rising time coefficient	0.0%–100.0%	50.0%	☆
FB.05	Set length	0–65535 m	1000 m	☆
FB.06	Actual length	0–65535 m	0 m	☆
FB.07	Number of pulses per meter	0.1–6553.5	100.0	☆
FB.08	Set count value	1–65535	1000	☆

FB.09	Designated count value	1–65535	1000	☆
FC Group Multi-Reference and Simple PLC Function				
FC.00	Reference 0	-100.0%–100.0%	0.0%	☆
FC.01	Reference 1	-100.0%–100.0%	0.0%	☆
FC.02	Reference 2	-100.0%–100.0%	0.0%	☆
FC.03	Reference 3	-100.0%–100.0%	0.0%	☆
FC.04	Reference 4	-100.0%–100.0%	0.0%	☆
FC.05	Reference 5	-100.0%–100.0%	0.0%	☆
FC.06	Reference 6	-100.0%–100.0%	0.0%	☆
FC.07	Reference 7	-100.0%–100.0%	0.0%	☆
FC.08	Reference 8	-100.0%–100.0%	0.0%	☆
FC.09	Reference 9	-100.0%–100.0%	0.0%	☆
FC.10	Reference 10	-100.0%–100.0%	0.0%	☆
FC.11	Reference 11	-100.0%–100.0%	0.0%	☆
FC.12	Reference 12	-100.0%–100.0%	0.0%	☆
FC.13	Reference 13	-100.0%–100.0%	0.0%	☆
FC.14	Reference 14	-100.0%–100.0%	0.0%	☆
FC.16	Simple PLC running mode	0: Stop after the AC drive runs one cycle 1: Keep final values after the AC drive runs one cycle 2: Repeat after the AC drive runs one cycle	0	☆
FC.17	Simple PLC retentive selection	Unit's digit (Retentive upon power failure)		
		0: No 1: Yes		
		Ten's digit (Retentive upon stop)		
		0: No 1: Yes		
FC.18	Running time of simple PLC reference 0	0.0–6553.5s (h)	0.0s (h)	☆
FC.19	Acceleration/deceleration time of simple PLC reference 0	0–3	0	☆
FC.20	Running time of simple PLC reference 1	0.0–6553.5s (h)	0.0s (h)	☆
FC.21	Acceleration/deceleration time of simple PLC reference 1	0–3	0	☆
FC.22	Running time of simple PLC reference 2	0.0–6553.5s (h)	0.0s (h)	☆
FC.23	Acceleration/deceleration time of simple PLC reference 2	0–3	0	☆
FC.24	Running time of simple PLC reference 3	0.0–6553.5s (h)	0.0s (h)	☆

FC.25	Acceleration/deceleration time of simple PLC reference 3	0–3	0	☆
FC.26	Running time of simple PLC reference 4	0.0–6553.5s (h)	0.0s (h)	☆
FC.27	Acceleration/deceleration time of simple PLC reference 4	0–3	0	☆
FC.28	Running time of simple PLC reference 5	0.0–6553.5s (h)	0.0s (h)	☆
FC.29	Acceleration/deceleration time of simple PLC reference 5	0–3	0	☆
FC.30	Running time of simple PLC reference 6	0.0–6553.5s (h)	0.0s (h)	☆
FC.31	Acceleration/deceleration time of simple PLC reference 6	0–3	0	☆
FC.32	Running time of simple PLC reference 7	0.0–6553.5s (h)	0.0s (h)	☆
FC.33	Acceleration/deceleration time of simple PLC reference 7	0–3	0	☆
FC.34	Running time of simple PLC reference 8	0.0–6553.5s (h)	0.0s (h)	☆
FC.35	Acceleration/deceleration time of simple PLC reference 8	0–3	0	☆
FC.36	Running time of simple PLC reference 9	0.0–6553.5s (h)	0.0s (h)	☆
FC.37	Acceleration/deceleration time of simple PLC reference 9	0–3	0	☆
FC.38	Running time of simple PLC reference 10	0.0–6553.5s (h)	0.0s (h)	☆
FC.39	Acceleration/deceleration time of simple PLC reference 10	0–3	0	☆
FC.40	Running time of simple PLC reference 11	0.0–6553.5s (h)	0.0s (h)	☆
FC.41	Acceleration/deceleration time of simple PLC reference 11	0–3	0	☆
FC.42	Running time of simple PLC reference 12	0.0–6553.5s (h)	0.0s (h)	☆
FC.43	Acceleration/deceleration time of simple PLC reference 12	0–3	0	☆

FC.44	Running time of simple PLC reference 13	0.0–6553.5s (h)	0.0s (h)	☆
FC.45	Acceleration/deceleration time of simple PLC reference 13	0–3	0	☆
FC.46	Running time of simple PLC reference 14	0.0–6553.5s (h)	0.0s (h)	☆
FC.47	Acceleration/deceleration time of simple PLC reference 14	0–3	0	☆
FC.48	Running time of simple PLC reference 15	0.0–6553.5s (h)	0.0s (h)	☆
FC.49	Acceleration/deceleration time of simple PLC reference 15	0–3	0	☆
FC.50	Time unit of simple PLC running	0: s (second)1:h (hour)	0	☆
FC.51	Reference 0 source	0: Set by FC.00 1: VCI 2: CCI 3: Keypad potentiometer 4: Pulse setting X5 5.: PID 6: Set by preset frequency (F0.08), modified via terminal UP/ DOWN	0	☆
FD Group Communication Parameter				
FD.00	Baud rate	Unit's digit (Modbus baud rate) 0: 300 BPs 1: 600 BPs 2: 1200 BPs 3: 2400 BPs 4: 4800 BPs 5: 9600 BPs 6: 19200 BPs 7: 38400 BPs 8: 57600 BPs 9: 115200 BPs Ten's digit (PROFIBUS-DP baud rate) 0: 115200 BPs 1: 208300 BPs 2: 256000 BPs 3: 512000 Bps Hundred's digit (reserved) Thousand's digit (CANlink baud rate) 0: 20 1: 50 2:100 3:125 4: 250 5: 500 6: 1 M	6005 6005	☆ ☆

FD.01	Data format	0: No check, data format <8,N,2> 1: Even parity check, data format <8,E,1> 2: Odd Parity check, data format <8,O,1> 3: No check, data format <8,N,1> Valid for Modbus	0	☆
FD.02	Local address	0: Broadcast address 1–247 Valid for Modbus, PROFIBUS-DP and CANlink	1	☆
FD.03	Response delay	0–20 ms Valid for Modbus	2 ms	☆
FD.04	Communication timeout	0.0s (invalid) 0.1–60.0s Valid for Modbus, PROFIBUS-DP and CANopen	0.0s	☆
FD.05	Modbus protocol selection and PROFIBUS-DP data format	Unit's digit: Modbus protocol 0: Non-standard Modbus protocol 1: Standard Modbus protocol Ten's digit: PROFIBUS-DP data format 0: PPO1 format 1: PPO2 format 2: PPO3 format 3: PPO5 format		
FD.06	Communication reading current resolution	0: 0.01A 1: 0.1A	0	☆
FD.08	CANlink communication timeout time	0.0s: Invalid 0.1–60.0s	0	☆
FE Group User-Defined Function Codes				
FE.00	User-defined function code	F0-00 to FP-xx A0-00 to Ax-xx U0-xx to U0-xx	F0-10	☆
FE.01	User-defined function code		F0-02	☆
FE.02	User-defined function code		F0-03	☆
FE.03	User-defined function code		F0-07	☆
FE.04	User-defined function code		F0-08	☆
FE.05	User-defined function code		F0-17	☆
FE.06	User-defined function code		F0-18	☆
FE.07	User-defined function code		F3-00	☆
FE.08	User-defined function code		F3-01	☆
FE.09	User-defined function code		F4-00	☆
FE.10	User-defined function code		F4-01	☆
FE.11	User-defined function code	F0-00 to FP-xx A0-00 to Ax-xx U0-xx to U0-xx	F4-02	☆
FE.12	User-defined function code		F5-04	☆
FE.13	User-defined function code		F5-07	☆
FE.14	User-defined function code		F6-00	☆
FE.15	User-defined function code		F6-10	☆

FE.16	User-defined function code		F0-00	☆
FE.17	User-defined function code		F0-00	☆
FE.18	User-defined function code		F0-00	☆
FE.19	User-defined function code		F0-00	☆
FE.20	User-defined function code	F0-00 to FP-xx A0-00 to Ax-xx U0-xx to U0-xx	F0-00	☆
FE.21	User-defined function code		F0-00	☆
FE.22	User-defined function code		F0-00	☆
FE.23	User-defined function code		F0-00	☆
FE.24	User-defined function code		F0-00	☆
FE.25	User-defined function code		F0-00	☆
FE.26	User-defined function code		F0-00	☆
FE.27	User-defined function code		F0-00	☆
FE.28	User-defined function code		F0-00	☆
FE.29	User-defined function code		F0-00	☆
FP Group User Password				
FP.00	User password	0–65535	0	☆
FP.01	Restore default settings	0: No operation 01:Restore factory settings except motor parameters 02: Clear records 04: Restore user backup parameters 501: Back up current user parameters	0	★
FP.02	AC drive parameter display property	Unit's digit (Group U display selection) 0: Not display 1: Display Ten's digit (Group A display selection) 0: Not display 1: Display	11	★
FP.03	Individualized parameter display property	Unit's digit (User-defined parameter display selection) 0: Not display 1: Display Ten's digit (User-modified parameter display selection) 0: Not display 1: Display	00	☆
FP.04	Parameter modification property	0: Modifiable 1: Not modifiable	0	☆

A0 Group Torque Control and Restricting Parameters				
A0.00	Speed/Torque control selection	0: Speed control 1: Torque control	0	★
A0.01	Torque setting source in torque control	0: Digital setting (A0-03) 1: VCI 2: CCI 3: Keypad potentiometer 4: Pulse setting (X5) 5: Communication setting 6: MIN (VCI, CCI) 7: MAX (VCI, CCI) Full range of values 1-7 corresponds to the digital setting of A0-03.	0	★
A0.03	Torque digital setting in torque control	-200.0%–200.0%	150.0%	☆
A0.05	Forward maximum frequency in torque control	0.00 Hz to maximum frequency (F0-10)	50.00 Hz	☆
A0.06	Reverse maximum frequency in torque control	0.00 Hz to maximum frequency (F0-10)	50.00 Hz	☆
A0.07	Acceleration time in torque control	0.00–65000s	0.00s	☆
A0.08	Deceleration time in torque control	0.00–65000s	0.00s	☆
A1 Group Virtual DI /Virtual DO				
A1.00	VX1 function selection	0–59	0	★
A1.01	VX2 function selection	0–59	0	★
A1.02	VX3 function selection	0–59	0	★
A1.03	VX4 function selection	0–59	0	★
A1.04	VX5 function selection	0–59	0	★
A1.05	VDI state setting mode	Unit's digit (VX1) 0: Decided by state of VDOx 1: Decided by A1.06 Ten's digit (VX2) 0, 1 (same as VX1) Hundred's digit (VX3) 0, 1 (same as VX1) Thousand's digit (VX4) 0, 1 (same as VX1) Ten thousand's digit (VX5) 0, 1 (same as VX1)	00000	★
A1.06	VDI state selection	Unit's digit (VX1) 0: Invalid 1: Valid Ten's digit (VX2) 0, 1 (same as VX1) Hundred's digit (VX3) 0, 1 (same as VX1)	00000	★

A1.06	VDI state selection	Thousand's digit (VX4) 0, 1 (same as VX1) Ten thousand's digit (VX5) 0, 1 (same as VX1)	00000	★
A1.07	Function selection for VCI used as DI	0–59	0	★
A1.08	Function selection for CCI used as DI	0–59	0	★
A1.09	Function selection for Keypad potentiometer used as DI	0–59	0	★
A1.10	State selection for AI used as DI	Unit's digit (VCI) 0: High level valid 1: Low level valid Ten's digit (CCI) 0, 1 (same as unit's digit) Hundred's digit:Keypad potentiometer 0, 1 (same as unit's digit)		
A1.11	VDO1 function selection	0: Short with physical Xx internally 1–40: Refer to function selection of physical DO in group F5.	0	☆
A1.12	VDO2 function selection	0: Short with physical Xx internally 1–40: Refer to function selection of physical DO in group F5.	0	☆
A1.13	VDO3 function selection	0: Short with physical Dix internally 1–40: Refer to function selection of physical DO in group F5.	0	☆
A1.14	VDO4 function selection	0: Short with physical Xx internally 1–40: Refer to function selection of physical DO in group F5.	0	☆
A1.15	VDO5 function selection	0: Short with physical Xx internally 1–40: Refer to function selection of physical DO in group F5.	0	☆
A1.16	VDO1 output delay	0.0–3600.0s	0.0s	☆
A1.17	VDO2 output delay	0.0–3600.0s	0.0s	☆
A1.18	VDO3 output delay	0.0–3600.0s	0.0s	☆
A1.19	VDO4 output delay	0.0–3600.0s	0.0s	☆
A1.20	VDO5 output delay	0.0–3600.0s	0.0s	☆
A1.21	VDO state selection	Unit's digit (VDO1) 0: Positive logic 1: Reverse logic Ten's digit (VDO2) 0, 1 (same as unit's digit)		
		Hundred's digit (VDO3) 0, 1 (same as unit's digit)		

		Thousand's digit (VDO4)		
		0, 1 (same as unit's digit)		
		Ten thousand's digit (VDO5)		
		0, 1 (same as unit's digit)		
A2 Group Motor 2 Parameters				
A2.00	Motor type selection	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnetic synchronous motor	0	★
A2.01	Rated motor power	0.1–1000.0 kW	Model dependent	★
A2.02	Rated motor voltage	1–2000 V	Model dependent	★
A2.03	Rated motor current	0.01–655.35 A (AC drive power ≤ 55 kW) 0.1–6553.5 A (AC drive power > 55 kW)	Model dependent	★
A2.04	Rated motor frequency	0.01 Hz to maximum frequency	Model dependent	★
A2.05	Rated motor rotational speed	1–65535 RPM	Model dependent	★
A2.06	Stator resistance (asynchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535 Ω (AC drive power > 55 kW)	Model dependent	★
A2.07	Rotor resistance (asynchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535 Ω (AC drive power > 55 kW)	Model dependent	★
A2.07	Rotor resistance (asynchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535 Ω (AC drive power > 55 kW)	Model dependent	★
A2.08	Leakage inductive reactance (asynchronous motor)	0.01–655.35 mH (AC drive power ≤ 55 kW) 0.001–65.535 mH (AC drive power > 55 kW)	Model dependent	★
A2.09	Mutual inductive reactance (asynchronous motor)	0.1–6553.5 mH (AC drive power ≤ 55 kW) 0.01–655.35 mH (AC drive power > 55 kW)	Model dependent	★
A2.10	No-load current (asynchronous motor)	0.01 A to A2-03 (AC drive power ≤ 55 kW) 0.1 A to A2-03 (AC drive power > 55 kW)	Model dependent	★
A2.16	Stator resistance (synchronous motor)	0.001–65.535 Ω(AC drive power ≤ 55 kW) 0.0001–6.5535 Ω (AC drive power > 55 kW)	Model dependent	★
A2.17	Shaft D inductance (synchronous motor)	0.01–655.35 mH (AC drive power ≤ 55 kW) 0.001–65.535 mH (AC drive power > 55 kW)	Model dependent	★
A2.18	Shaft Q inductance (synchronous motor)	0.01–655.35 mH (AC drive power ≤ 55 kW) 0.001–65.535 mH (AC drive power > 55 kW)	Model dependent	★
A2.20	Back EMF (synchronous motor)	0.1–6553.5 V	Model dependent	★
A2.27	Encoder pulses per revolution	1–65535	1024	★

A2.28	Encoder type	0: ABZ incremental encoder 1: UVW incremental encoder 2: Resolver 3: SIN/COS encoder 4: Wire-saving UVW encoder	0	★
A2.29	Speed feedback PG selection	0:local PG 1:Extend PG 2: X5 Pulse input	0	★
A2.30	A, B phase sequence of ABZ incremental encoder	0: Forward 1: Reserve	0	★
A2.31	Encoder installation angle	0.0°–359.9°	0.0°	★
A2.32	U, V, W phase sequence of UVW encoder	0: Forward 1: Reverse	0	★
A2.33	UVW encoder angle offset	0.0°–359.9°	0.0°	★
A2.34	Number of pole pairs of resolver	1–65535	1	★
A2.36	Encoder wire-break fault detection time	0.0s: No action 0.1–10.0s	0.0s	★
A2.37	Auto-tuning selection	0: No auto-tuning 1: Asynchronous motor static auto-tuning1 2: Asynchronous motor with-load auto-tuning 3: Asynchronous motor static auto-tuning2	0	★
A2.38	Speed loop proportional gain 1	0–100	30	☆
A2.39	Speed loop integral time 1	0.01–10.00s	0.50s	☆
A2.40	Switchover frequency 1	0.00 to A2-43	5.00 Hz	☆
A2.41	Speed loop proportional gain 2	0–100	15	☆
A2.42	Speed loop integral time 2	0.01–10.00s	1.00s	☆
A2.43	Switchover frequency 2	A2-40 to maximum output frequency	10.00 Hz	☆
A2.44	Vector control slip gain	50%–200%	100%	☆
A2.45	Time constant of speed loop filter	0.000–0.100s	0.000s	☆
A2.46	Vector control over-excitation gain	0–200	64	☆
A2.47	Torque upper limit source in speed control mode	0: A2-48 1: VCI 2: CCI 3: Keypad potentiometer 4: Pulse setting (X5) 5: Via communication 6: MIN(VCI,CCI) 7: MIN(VCI,CCI)	0	☆
A2.48	Digital setting of torque upper limit in speed control mode	0.0%–200.0%	150.0%	☆

A2.51	Excitation adjustment proportional gain	0–60000	2000	☆
A2.52	Excitation adjustment integral gain	0–60000	1300	☆
A2.53	Torque adjustment proportional gain	0–60000	2000	☆
A2.54	Torque adjustment integral gain	0–60000	1300	☆
A2.55	Speed loop integral property	Unit's digit: Integral separated 0: Disabled 1: Enabled	0	☆
A2.56	Field weakening mode of synchronous motor	0: No field weakening 1: Direct calculation 2: Adjustment	0	☆
A2.57	Field weakening degree of synchronous motor	50%–500%	100%	☆
A2.58	Maximum field weakening current	1%–300%	50%	☆
A2.59	Weak Sectors Max torque coefficient	50.0%–200.0%	100%	☆
A2.60	Generated power upper limit	0:invalid 1: entire valid 2. constant speed valid 3. decelerate valid	0	☆
A2.61	Generated power limit	0-200%	Model dependent	☆
A2.62	Motor 2 control mode	0: Sensorless flux vector control (SVC) 1: Closed-loop vector control (FVC) 2: Voltage/Frequency (V/F) control	0	☆
A2.63	Motor 2 acceleration/ deceleration time	0: Same as motor 1 1: Acceleration/Deceleration time 1 2: Acceleration/Deceleration time 2 3: Acceleration/Deceleration time 3 4: Acceleration/Deceleration time 4	0	☆
A2.64	Motor 2 torque boost	0.0%: Automatic torque boost 0.1%–30.0%	Model dependent	☆
A2.66	Motor 2 oscillation suppression gain	0–100	Model dependent	☆
A5 Group Control Optimization Parameters				
A5.00	DPWM switchover frequency upper limit	0.00–15.00 Hz	12.00 Hz	☆
A5.01	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	☆
A5.02	Dead zone compensation mode selection	0: No compensation 1: Compensation mode 1 2: Compensation mode 2	1	☆

A5.03	Random PWM depth	0: Random PWM invalid 1–10: PWM carrier random depth	0	☆
A5.04	Rapid current limit	0: Disabled1: Enabled	1	☆
A5.05	Current detection compensation	0–100	5	☆
A5.06	Undervoltage threshold	3 phase:380-440V model:140v-380v 3 phase:200-240V model:140v-380v	350V	☆
A5.07	SFVC optimization mode selection	0: No optimization 1: Optimization mode 1 2: Optimization mode 2	1	☆
A5.08	Dead-zone time adjustment	100%–200%	150%	☆
A5.09	Overvoltage threshold	3 phase:380-440V model:200v-820v 3 phase:200-240V model:200v-400v	Model dependent	☆
A6 Group AI Curve Setting				
A6.00	AI curve 4 minimum input	-10.00 V to A6-02	0.00 V	☆
A6.01	Corresponding setting of AI curve 4 minimum input	-100.0%–100.0%	0.0%	☆
A6.02	AI curve 4 inflexion 1 input	A6-00 to A6-04	3.00 V	☆
A6.03	Corresponding setting of AI curve 4 inflexion 1 input	-100.0%–100.0%	30.0%	☆
A6.04	AI curve 4 inflexion 1 input	A6-02 to A6-06	6.00 V	☆
A6.05	Corresponding setting of AI curve 4 inflexion 1 input	-100.0%–100.0%	60.0%	☆
A6.06	AI curve 4 maximum input	A6-06 to 10.00 V	10.00 V	☆
A6.07	Corresponding setting of AI curve 4 maximum input	-100.0%–100.0%	100.0%	☆
A6.08	AI curve 5 minimum input	-10.00 V to A6-10	0.00 V	☆
A6.09	Corresponding setting of AI curve 5 minimum input	-100.0%–100.0%	0.0%	☆
A6.10	AI curve 5 inflexion 1 input	A6-08 to A6-12	3.00 V	☆
A6.11	Corresponding setting of AI curve 5 inflexion 1 input	-100.0%–100.0%	30.0%	☆
A6.12	AI curve 5 inflexion 1 input	A6-10 to A6-14	6.00 V	☆
A6.13	Corresponding setting of AI curve 5 inflexion 1 input	-100.0%–100.0%	60.0%	☆
A6.14	AI curve 5 maximum input	A6-14 to 10.00 V	10.00 V	☆
A6.15	Corresponding setting of AI curve 5 maximum input	-100.0%–100.0%	100.0%	☆
A6.24	Jump point of VCI input corresponding setting	-100.0%–100.0%	0.0%	☆
A6.25	Jump amplitude of VCI input corresponding setting	0.0%–100.0%	0.5%	☆
A6.26	Jump point of CCI input corresponding setting	-100.0%–100.0%	0.0%	☆
A6.27	Jump amplitude of CCI input corresponding setting	0.0%–100.0%	0.5%	☆

A6.28	Jump point of Keypad potentiometer input corresponding setting	-100.0%–100.0%	0.0%	☆
A6.29	Jump amplitude of Keypad potentiometer input corresponding setting	0.0%–100.0%	0.5%	☆
A7 Group User Programmable Function				
A7.00	User programmable function selection	0: Disabled 1: Enabled	0	★
A7.01	Selection of control mode of the output terminals on the control board	Unit's digit: DO1 0: Controlled by the AC drive 1: Controlled by the user programmable card Ten's digit: relay (TA-TB-TC) Same as unit's digit Hundred's digit: DO1 Same as unit's digit Thousand's digit D0 Same as unit's digit Ten thousand's digit: AO1 Same as unit's digit	0	★
A7.02	AI/AO function selection of the user programmable card	0: voltage input, AO2 voltage output 1: voltage input, AO2 current output 2: current input, AO2 voltage output 3: current input, AO2 current output 4: PTC input, AO2 voltage output 5: PTC input, AO2 current output 6: PT100 input, AO2 voltage output 7: PT100 input, AO2 current output	0	★
A7.03	D0 output	0.0%–100.0%	0.0%	☆
A7.04	AO1 output	0.0%–100.0%	0.0%	☆
A7.05	Digital output	Binary setting Unit's digit: Ten's digit: Relay1 Hundred's digit: DO	1	☆
A7.06	Frequency setting through the user programmable card	-100.00% to 100.00%	0.0%	☆
A7.07	Torque setting through the user programmable card	-200.00% to 200.00%	0.0%	☆
A7.08	Command given by the user programmable card	1: Forward RUN 2: Reverse RUN 3: Forward JOG 4: Reverse JOG 5: Coast to stop 6: Decelerate to stop 7: Fault reset	0	☆
A7.09	Faults given by the user programmable card	0: No fault 80–89: Fault codes	0	☆

A8 Group Point-point Communication				
A8.00	Point-point communication selection	0: Disabled 1: Enabled	0	☆
A8.01	Master and slave selection	0: Master 1: Slave	0	☆
A8.02	Slave following master command selection	0: Slave not following running commands of the master 1: Slave following running commands of the master	0	☆
A8.03	Usage of data received by slave	0: Torque setting1: Frequency setting	0	☆
A8.04	Zero offset of received data (torque)	-100.00%–100.00%	0.00%	★
A8.05	Gain of received data (torque)	-10.00–10.00	1.00	★
A8.06	Point-point communication interruption detection time	0.0–10.0s	1.0s	☆
A8.06	Point-point communication interruption detection time	0.0–10.0s	1.0s	☆
A8.07	Master data sending cycle	0.001–10.000s	0.001s	☆
A8.08	Zero offset of received data zero offset (frequency)	-100.00%–100.00%	0.00%	★
A8.09	Gain of received data gain (frequency)	-10.00–10.00	1.00	★
A8.11	window	0.20–10.00Hz	0.5Hz	★
AC Group AI/AO Correction				
AC.00	VCI measured voltage 1	0.500–4.000 V	Factory corrected	☆
AC.01	VCI displayed voltage 1	0.500–4.000 V	Factory corrected	☆
AC.02	VCI measured voltage 2	6.000–9.999 V	Factory corrected	☆
AC.03	VCI displayed voltage 2	6.000–9.999 V	Factory corrected	☆
AC.04	CCI measured voltage 1	0.500–4.000 V	Factory corrected	☆
AC.05	CCI displayed voltage 1	0.500–4.000 V	Factory corrected	☆
AC.06	CCI measured voltage 2	6.000–9.999 V	Factory corrected	☆
AC.07	CCI displayed voltage 2	6.000–9.999 V	Factory corrected	☆
AC.08	Keypad potentiometer measured voltage 1	9.999–10.000 V	Factory corrected	☆
AC.09	Keypad potentiometer displayed voltage 1	9.999–10.000 V	Factory corrected	☆

AC.10	Keypad potentiometer measured voltage 2	9.999–10.000 V	Factory corrected	☆
AC.11	Keypad potentiometer displayed voltage 2	9.999–10.000 V	Factory corrected	☆
AC.12	AO1 target voltage 1	0.500–4.000 V	Factory corrected	☆
AC.13	AO1 measured voltage 1	0.500–4.000 V	Factory corrected	☆
AC.14	AO1 target voltage 2	6.000–9.999 V	Factory corrected	☆
AC.15	AO1 measured voltage 2	6.000–9.999 V	Factory corrected	☆
AC.16	AO2 target voltage 1	0.500–4.000 V	Factory corrected	☆
AC.17	AO2 measured voltage 1	0.500–4.000 V	Factory corrected	☆
AC.18	AO2 target voltage 2	6.000–9.999 V	Factory corrected	☆
AC.19	AO2 measured voltage 2	6.000–9.999 V	Factory corrected	☆
AC.20	CCI measured current 1	0.000–20.000 mA	Factory corrected	☆
AC.21	CCI sampling current 1	0.000–20.000 mA	Factory corrected	☆
AC.22	CCI measured current 2	0.000–20.000 mA	Factory corrected	☆
AC.23	CCI sampling current 2	0.000–20.000 mA	Factory corrected	☆
AC.24	AO1 ideal current 1	0.000–20.000 mA	Factory corrected	☆
AC.25	AO1 sampling current 1	0.000–20.000 mA	Factory corrected	☆
AC.26	AO1 ideal current 2	0.000–20.000 mA	Factory corrected	☆
AC.27	AO1 sampling current 2	0.000–20.000 mA	Factory corrected	☆

C.2 Monitoring Parameters

Function Code	Parameter Name	Min. Unit	Communication Address
U0.00	Running frequency (Hz)	0.01 Hz	7000H
U0.01	Set frequency (Hz)	0.01 Hz	7001H
U0.02	Bus voltage	0.1 V	7002H
U0.03	Output voltage	1 V	7003H
U0.04	Output current	0.01 A	7004H

Function Code	Parameter Name	Min. Unit	Communication Address
U0.05	Output power	0.1 kW	7005H
U0.06	Output torque	0.1%	7006H
U0.07	DI state	1	7007H
U0.08	DO state	1	7008H
U0.09	VCI voltage (V)	0.01 V	7009H
U0.10	CCI voltage (V)/current (mA)	0.01 V/0.01 mA	700AH
U0.11	Keypad potentiometer voltage (V)	0.01 V	7007BH
U0.12	Count value	1	700CH
U0.13	Length value	1	700DH
U0.14	Load speed	1	700EH
U0.15	PID setting	1	700FH
U0.16	PID feedback	1	7010H
U0.17	PLC stage	1	7011H
U0.18	X5 Input pulse frequency (Hz)	0.01 kHz	7012H
U0.19	Feedback speed	0.01 Hz	7013H
U0.20	Remaining running time	0.1 Min	7014H
U0.21	VCI voltage before correction	0.001 V	7015H
U0.22	CCI voltage (V)/current (mA) before correction	0.01 V/0.01 mA	7016H
U0.23	Keypad potentiometer voltage before correction	0.001 V	7017H
U0.24	Linear speed	1 m/Min	7018H
U0.25	Accumulative power-on time	1 Min	7019
U0.26	Accumulative running time	0.1 Min	701AH
U0.27	X5 Input pulse frequency	1 Hz	701BH
U0.28	Communication setting value	0.01%	701CH
U0.29	Encoder feedback speed	0.01 Hz	701DH
U0.30	Main frequency X	0.01 Hz	701EH
U0.31	Auxiliary frequency Y	0.01 Hz	701FH
U0.32	Viewing any register address value	1	7020H
U0.33	Synchronous motor rotor position	0.1°	7021H
U0.34	Motor temperature	1°C	7022H
U0.35	Target torque	0.1%	7023H
U0.36	Resolver position	1	7024H
U0.37	Power factor angle	0.1°	7025H
U0.38	ABZ position	1	7026H
U0.39	Target voltage upon V/F separation	1 V	7027H
U0.40	Output voltage upon V/F separation	1V	7028H
U0.41	X terminals state visual display	1	7029H
U0.42	DO state visual display	1	702AH
U0.43	X terminals function state visual display 1	1	702BH
U0.44	X terminals function state visual display 2	1	702CH

Function Code	Parameter Name	Min. Unit	Communication Address
U0.45	Fault information	1	702DH
U0.58	Phase Z counting	1	703AH
U0.59	Current set frequency	0.01%	703BH
U0.60	Current running frequency	0.01%	703CH
U0.61	AC drive running state	1	703DH
U0.62	Current fault code	1	703EH
U0.63	Sent value of point-point communication	0.01%	703FH
U0.64	Received value of point-point communication	0.01%	7040H
U0.65	Torque upper limit	0.1%	7041H
U.0.66	Communication Expansion Card model	100: CANOpen 200: Profibus-DP 300: CANLink	7042H
U0.67	Communication expand	-	
U0.68	DP card AC drive status	bit0- Running status bit1- Running direction bit2- AC drive fault or not bit3-Reach target frequency bit4~bit7- Reserved	7043H
U0.69	Transport DP card speed	0.00-F0.10	7044H
U0.70	Transport DP card rotary	0~65535	7045H
U0.71	Current of communication card	-	-
U0.72	Communication card fault status	-	-
U0.73	Motor NO	0: Motor 1 1: Motor 2	7046H
U0.74	AC drive output torque	-300.00%–300.00%	7047H

Chapter 4 Troubleshooting

4.1 Fault and Troubleshooting

Fault Name	Display	Possible Causes	Solutions
Inverter unit protection	Err01	1: The output circuit is grounded or short circuited. 2: The connecting cable of the motor is too long. 3: The module overheats. 4: The internal connections become loose. 5:The main control board is faulty. 6: The drive board is faulty. 7: The inverter module is faulty.	1: Eliminate external faults. 2: Install a reactor or an output filter. 3: Check the air filter and the cooling fan. 4: Connect all cables properly. 5: Contact the agent or our company
Overcurrent during acceleration	Err02	1: The output circuit is grounded or short circuited. 2: Motor auto-tuning is not performed. 3: The acceleration time is too short. 4: Manual torque boost or V/F curve is not appropriate. 5: The voltage is too low. 6: The startup operation is performed on the rotating motor. 7: A sudden load is added during acceleration. 8: The AC drive model is of too small power class.	1: Eliminate external faults. 2: Perform the motor auto-tuning. 3: Increase the acceleration time. 4: Adjust the manual torque boost or V/F curve. 5: Adjust the voltage to normal range. 6: Select rotational speed tracking restart or start the motor after it stops. 7: Remove the added load. 8: Select an AC drive of higher power class.
Overcurrent during deceleration	Err03	1: The output circuit is grounded or short circuited. 2: Motor auto-tuning is not performed. 3: The deceleration time is too short. 4: The voltage is too low. 5: A sudden load is added during deceleration. 6: The braking unit and braking resistor are not installed.	1: Eliminate external faults. 2: Perform the motor auto-tuning. 3: Increase the deceleration time. 4: Adjust the voltage to normal range. 5: Remove the added load. 6: Install the braking unit and braking resistor.
Overcurrent at constant speed	Err04	1: The output circuit is grounded or short circuited. 2: Motor auto-tuning is not performed. 3: The voltage is too low. 4: A sudden load is added during operation. 5: The AC drive model is of too small power class.	1: Eliminate external faults. 2: Perform the motor auto-tuning. 3: Adjust the voltage to normal range. 4: Remove the added load. 5: Select an AC drive of higher power class.

Fault Name	Display	Possible Causes	Solutions
Overvoltage during acceleration	Err05	1: The input voltage is too high. 2: An external force drives the motor during acceleration. 3: The acceleration time is too short. 4: The braking unit and braking resistor are not installed.	1: Adjust the voltage to normal range. 2: Cancel the external force or install a braking resistor. 3: Increase the acceleration time. 4: Install the braking unit and braking resistor.
Overvoltage during deceleration	Err06	1: The input voltage is too high. 2: An external force drives the motor during deceleration. 3: The deceleration time is too short. 4: The braking unit and braking resistor are not installed.	1: Adjust the voltage to normal range. 2: Cancel the external force or install the braking resistor. 3: Increase the deceleration time. 4: Install the braking unit and braking resistor.
Overvoltage at constant speed	Err07	1: The input voltage is too high. 2: An external force drives the motor during deceleration.	1: Adjust the voltage to normal range. 2: Cancel the external force or install the braking resistor.
Control power supply fault	Err08	The input voltage is not within the allowable range.	Adjust the input voltage to the allowable range
Undervoltage	Err09	1: Instantaneous power failure occurs on the input power supply. 2: The AC drive's input voltage is not within the allowable range. 3: The bus voltage is abnormal. 4: The rectifier bridge and buffer resistor are faulty. 5: The drive board is faulty. 6: The main control board is faulty.	1: Reset the fault. 2: Adjust the voltage to normal range. 3: Contact the agent or our company
AC drive overload	Err10	1: The load is too heavy or locked-rotor occurs on the motor. 2: The AC drive model is of too small power class.	1: Reduce the load and check the motor and mechanical condition. 2: Select an AC drive of higher power class.
Motor overload	Err11	1: F9-01 is set improperly. 2: The load is too heavy or locked-rotor occurs on the motor. 3: The AC drive model is of too small power class.	1: Set F9-01 correctly. 2: Reduce the load and check the motor and the mechanical condition. 3: Select an AC drive of higher power class
Power input phase loss	Err12	1: The three-phase power input is abnormal. 2: The drive board is faulty. 3: The lightening board is faulty. 4: The main control board is faulty.	1: Eliminate external faults. 2: Contact the agent or our company

Fault Name	Display	Possible Causes	Solutions
Power output phase loss	Err13	1: The cable connecting the AC drive and the motor is faulty. 2: The AC drive's three-phase outputs are unbalanced when the motor is running. 3: The drive board is faulty. 4: The module is faulty.	1: Eliminate external faults. 2: Check whether the motor three-phase winding is normal. 3: Contact the agent or our company
Module overheat	Err14	1: The ambient temperature is too high. 2: The air filter is blocked. 3: The fan is damaged. 4: The thermally sensitive resistor of the module is damaged. 5: The inverter module is damaged.	1: Lower the ambient temperature. 2: Clean the air filter. 3: Replace the damaged fan. 4: Replace the damaged thermally sensitive resistor. 5: Replace the inverter module.
External equipment fault	Err15	1: External fault signal is input via X. 2: External fault signal is input via virtual I/O.	Reset the operation.
Communication fault	Err16	1: The host computer is in abnormal state. 2: The communication cable is faulty. 3: F0-28 is set improperly. 4: The communication parameters in group FD are set improperly.	1: Check the cabling of host computer. 2: Check the communication cabling. 3: Set F0-28 correctly. 4: Set the communication parameters properly.
Contactor fault	Err17	1: The drive board and power supply are faulty. 2: The contactor is faulty.	1: Replace the faulty drive board or power supply board. 2: Replace the faulty contactor.
Current detection fault	Err18	1: The HALL device is faulty. 2: The drive board is faulty.	1: Replace the faulty HALL device. 2: Replace the faulty drive board.
Motor auto-tuning fault	Err19	1: The motor parameters are not set according to the nameplate. 2: The motor auto-tuning times out.	1: Set the motor parameters according to the nameplate properly. 2: Check the cable connecting the AC drive and the motor.
Encoder fault	Err20	1: The encoder type is incorrect. 2: The cable connection of the encoder is incorrect. 3: The encoder is damaged. 4: The PG card is faulty.	1: Set the encoder type correctly based on the actual situation. 2: Eliminate external faults. 3: Replace the damaged encoder. 4: Replace the faulty PG card.
EEPROM read-write fault	Err21	The EEPROM chip is damaged.	Replace the main control board.
AC drive hardware fault	Err22	1: Overvoltage exists. 2: Overcurrent exists.	1: Handle based on overvoltage. 2: Handle based on overcurrent.

Fault Name	Display	Possible Causes	Solutions
Short circuit to ground	Err23	The motor is short circuited to the ground.	Replace the cable or motor.
Accumulative running time reached	Err26	The accumulative running time reaches the setting value.	Clear the record through the parameter initialization function.
User-defined fault 1	Err27	1: The user-defined fault 1 signal is input via X.terminal 2: User-defined fault 1 signal is input via virtual I/O.	Reset the operation.
User-defined fault 2	Err28	1: The user-defined fault 2 signal is input via X terminal 2: The user-defined fault 2 signal is input via virtual I/O.	Reset the operation.
Accumulative power-on time reached	Err29	The accumulative power-on time reaches the setting value.	Clear the record through the parameter initialization function.
Load becoming 0	Err30	The AC drive running current is lower than F9-64.	Check that the load is disconnected or the setting of F9-64 and F9-65 is correct.
PID feedback lost during running	Err31	The PID feedback is lower than the setting of FA-26.	Check the PID feedback signal or set FA-26 to a proper value.
Pulse-by-pulse current limit fault	Err40	1: The load is too heavy or locked-rotor occurs on the motor. 2: The AC drive model is of too small power class.	1: Reduce the load and check the motor and mechanical condition. 2: Select an AC drive of higher power class.
Motor switchover fault during running	Err41	Change the selection of the motor via terminal during running of the AC drive	Perform motor switchover after the AC drive stops.
Too large speed deviation	Err42	1: The encoder parameters are set incorrectly. 2: The motor auto-tuning is not performed. 3: F9-69 and F9-70 are set incorrectly.	1: Set the encoder parameters properly. 2: Perform the motor auto-tuning. 3: Set F9-69 and F9-70 correctly based on the actual situation.
Motor over-speed	Err43	1: The encoder parameters are set incorrectly. 2: The motor auto-tuning is not performed.3: F9-69 and F9-70 are set incorrectly.	1: Set the encoder parameters properly. 2: Perform the motor auto-tuning. 3: Set F9-69 and F9-70 correctly based on the actual situation.
Motor overheat	Err45	1: The cabling of the temperature sensor becomes loose. 2: The motor temperature is too high.	1: Check the temperature sensor cabling and eliminate the cabling fault. 2: Lower the carrier frequency or adopt other heat radiation measures.

Fault Name	Display	Possible Causes	Solutions
Initial position fault	Err51	The motor parameters are not set based on the actual situation.	Check that the motor parameters are set correctly and whether the setting of rated current is too small.
Brake pipe protection fault	Err60	Brake resistance be shorted or brake module abnormal	Check the brake resistance or Contact the agent or company for technical support

4.2 Common Faults and Solutions

You may come across the following faults during the use of the AC drive. Refer to the following table for simple fault analysis. Troubleshooting to common faults of the AC drive

SN	Fault	Possible Causes	Solutions
1	There is no display at power-on.	1: There is no power supply to the AC drive or the power input to the AC drive is too low. 2: The power supply of the switch on the drive board of the AC drive is faulty. 3: The rectifier bridge is damaged. 4: The control board or the operation panel is faulty. 5: The cable connecting the control board and the drive board and the operation panel breaks.	1: Check the power supply. 2: Check the bus voltage. 3: Re-connect the 8-core and 28-core cables. 4: Contact the agent or company for technical support.
2	“HC” is displayed at power-on.	1: The cable between the drive board and the control board is in poor contact. 2: Related components on the control board are damaged. 3: The motor or the motor cable is short circuited to the ground. 4: The HALL device is faulty. 5: The power input to the AC drive is too low.	1: Re-connect the 8-core and 28-core cables. 2: Contact the agent or company for technical support.
3	Err23” is displayed at power-on.	1: The motor or the motor output cable is short-circuited to the ground. 2: The AC drive is damaged.	1: Measure the insulation of the motor and the output cable with a megger. 2: Contact the agent or company for technical support.
4	The AC drive display is normal upon power-on. But “HC” is displayed after running and stops immediately.	1:The cooling fan is damaged or locked-rotor occurs. 2: The external control terminal cable is short circuited.	1: Replace the damaged fan. 2: Eliminate external fault.
5	Err14 (module overheat) fault is reported frequently.	1: The setting of carrier frequency is too high. 2: The cooling fan is damaged, or the air filter is blocked. 3: Components inside the AC drive are damaged (thermal coupler or others).	1: Reduce the carrier frequency (F0-15). 2: Replace the fan and clean the air filter. 3: Contact the agent or company for technical support.

Chapter 5- COMMUNICATION PROTOCOL

5.1 FST300 Communication Data Address Definition

FST300 series AC drive supports Modbus-RTU、CANopen、CANlink、Profibus-DP four kind of communication protocol(under 18.5kw not included). the user programmable card and point-to-point communication are derived CANlink agreement.Host computer through these communication protocols can be achieved on the inverter control, monitoring and function parameters to modify the view operation. FST300 communication data can be divided into functional code data, non-functional code data, which includes running commands, operating status, operating parameters, alarm information

5.1.1 FST300 Function Code Data

The drive Function code data	F Grope read and write）	F0、F1、F2、F3、F4、F5、F6、F7、F8、F9、FA、FB、FC、FD、FE、FF
	A Grope read and write）	A0、A1、A2、A3、A4、A5、A6、A7、A8、A9、AA、AB、AC、AD、AE、AF

Function code data communication address is defined as follows:

1, when reading the function code data for communication

For F0 ~ FF, A0 ~ AF group, The address of the higher 16 bits are functional group NO., the lower 16 bits are the NO. of function code in the functional group.

F0.16 function parameter, its communication address is F010H, among them F0H represents the function parameter of F0 group, 10H represents the hexadecimal data format of function code No. 16 in functional group

AC.08 function parameter, its communication address is AC08, among them ACH stands for the function parameter of AC group, 08H is the hexadecimal data format of function code number 8 in function group

2, when writing function code data for communication

For the function code data of F0 ~ FF, the communication address is 16 bits high. According to whether to write to EEPROM, it is divided into 00 ~ 0F or F0 ~ FF. The lower 16 bits are the serial number of the function code in the function group directly.

Write function parameters F0.16, do not write to EEPROM, the communication address is 0010H; need to write to the EEPROM, the communication address F010H.

For the function code data of A0 ~ AF group, the communication address is 16 bits high. According to the need to write EEPROM, it is divided into

40 ~ 4F or A0 ~ AF, the lower 16-bit function code directly in the functional group number, for example as follows:

Write function parameters AC.08, do not need to write to the EEPROM, the communication address is 4C08H; need to write EEPROM, the communication address is AC08H.

5.1.2 FST300 NON-Function Code Data

The drive Non-function code data	Status data read only）	monitoring parameter group U, the AC drive fault description, the AC drive running status
	Control parameter(write only)	Control command, communication setting value, digital output terminal control, analog output AO1 control, analog output AO2 control, high-speed pulse (DO) output control, parameter initialization

1, Status data

Status data is divided into monitoring parameters grope U, AC drive fault description, inverter running status.

U group parameter monitoring parameters

The monitoring data of group U are described in Chapter 5 and Chapter 6, and their addresses are defined as follows:

U0 ~ UF, its communication address high 16 bits are 70 ~ 7F,the low 16 bits are the serial numbers of the monitoring parameters in the group, for example :

U0.11, communication address is 700BH.

AC drive Fault description

When the communication Reads the AC drive fault description, the communication address is fixed to 8000H, the host reads the address data, then can get:

The current fault code of the AC drive and the fault code are defined in Chapter 5 F9.14 Function Code.

AC drive running status

When the communication Reads the AC drive running status, the communication address is fixed to 3000H, the host reads the address data, then can get:

The current running status of the AC drive,the definition as follows:

AC drive running status address	Read the status word definition
3000H	1：Run forward
	2：Run reverse
	3：Stop

2, Control parameters

Control parameters are divided into control commands, digital output terminal control, analog output AO1 control, analog output AO2 control, high-speed pulse output control

Control command

When F0.02 (command source) is set to 2: communication control, the host can control the related commands such as start and stop of the inverter through the communication address. The control commands are defined as follows:

Control command address	Command function
2000H	1：Run forward
	2：Run reverse
	3：Forward jog
	4：Reverse jog
	5：Coast to stop
	6：Decelerate to stop
	7：Fault reset

3,Communication setting

Communication setting Main user FST300 middle frequency source, torque upper limit source, VF separation voltage source, PID reference source, PID feedback source are selected as the given data of the given communication. Its communication address is 1000H, when the host sets the communication address value, the data range is -10000 ~ 10000, corresponding to the given value -100.00% ~ 100.00%

Digital output terminal control

When the digital output terminal function is selected as 20: communication control, the host computer through the communication address, can realize the control of AC drive the digital output terminal, defined as follows:

Digital output terminal control address	Commend content
2001H	BIT0：DO1 output control

	BIT1：DO2 output control BIT2：RELAY1 output control BIT3：RELAY2 output control BIT4：DO output control BIT5：VDO1 BIT6：VDO2 BIT7：VDO3 BIT8：VDO4 BIT9：VDO5

Analog output AO1, AO2, high-speed pulse output DO control

When the analog output AO1, AO2, high-speed pulse output DO output function is selected as 12: communication setting, the host through the communication address, can realize the control of AC drive analog, high-speed pulse output , defined as follows：

Output Control Address		Commend content
AO1	2002H	0 ~7FFF represent 0％~ 100％
AO2	2003H	
Pulse output	2004H	

4,Parameter initialization

When you want to achieve initialize operation of the AC drive parameters through the host computer, you need use this function.

If FP.00 (user password) is not 0, firstly you need verify password through the communication, after verification, in 30 seconds, the host computer initializes the parameters.

The user's password verification address is 1F00H, and write the correct user password directly to the address，then the password verification finish。

Communication parameters for the initialization address is 1F01H, the data content is defined as follows:

Parameter Initializes communication address	Command function
1F01H	1：Restore factory parameters
	2：Clear the log information
	4：Restore the user backup parameters
	501：Backs up the user's current parameters

5.2 FST300 Modbus communication protocol

FST300 series AC drive provides RS485 communication interface, and supports Modbus-RTU slave communication protocol. Users can achieve centralized control through the computer or PLC, through the communication protocol to set the AC drive running command, modify or read the function code parameters, read the working status of the AC drive and fault information.

5.2.1 Protocol content

The serial communication protocol defines the content and using format of the serial communication . It includes: host polling (or broadcast) format; host coding methods, including: the requirements action function code , transmission data and error checking. The response from the slave is also the same structure, including: action confirmation, return data and error checking. If the slave occurs error when it receives message or can not complete the action requested by the host, it will send a fault message as a response to the host.

5.2.1.1 Application

The AC drive access the “Single-master multi-slave” PC/PLC control network which has RS485 Modbus and

as the slave.

5.2.1.2 BUS structure

(1) Hardware interface

Need to insert the RS485 expansion card FST300TX1 hardware on the AC drive.

(2) Topological structure

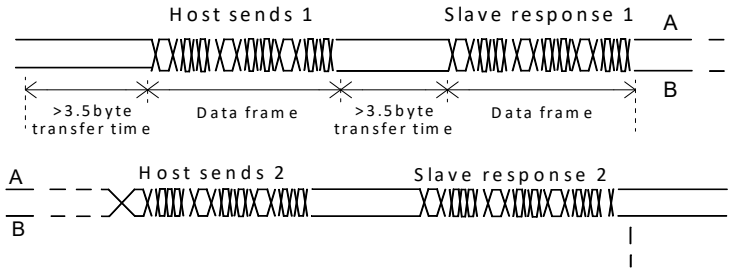
Single-master multi-slave system. Each communication device in the network has a unique slave address. One of them is the communication host (usually PC, PLC, HMI, etc.), initiates communication and reads or writes the parameters to the slave.

Other devices are the communication slaves, in response to the host query or communication operation.One time only one device can send data, while the other devices are receiving.

Slave address setting range is 1 ~ 247, 0 is the broadcast communication address. The address of the slave in the network must be unique.

(3) communication transmission

Asynchronous serial, half-duplex transmission.The data in the serial asynchronous communication process as a form of message one time can only send one frame.In MODBUS-RTU agreement when the communication line idle time is longer than 3.5Byte transmission time that means a new start of a communication frame.

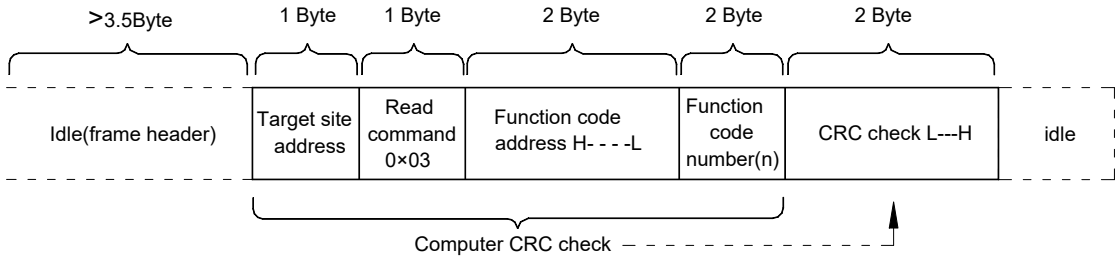


FST300 series AC drive built-in communication protocol is Modbus-RTU slave communication protocol, can respond to the host's "query / command", or according to the host's "query / command" to make the appropriate action and response communication data . Host can be a personal computer (PC), industrial control equipment or programmable logic controller (PLC), etc., the host can either communicate to a slave, or send broadcast information to all the slaves.

5.2.2 Protocol Format

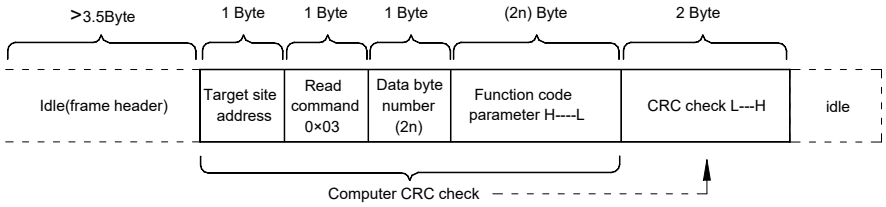
FST300 series AC drive Modbus-RTU protocol communication data format is as follows, the AC drive supports only Word-type parameter read or write, the corresponding communication read operation command is Ox03; write operation command is 0x06, does not support byte or bit Read and write operations:

The master reads command frame:

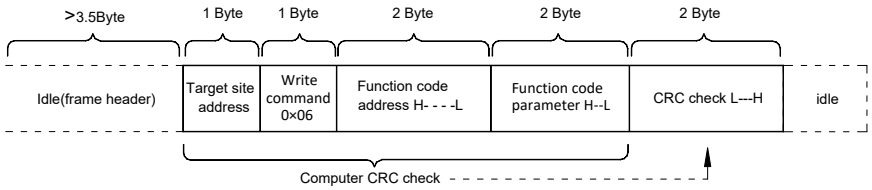


In theory, the host can read several function codes at a time (n can be up to 12), but pay attention to be not over the last function code of the group. Otherwise, it will reply the error

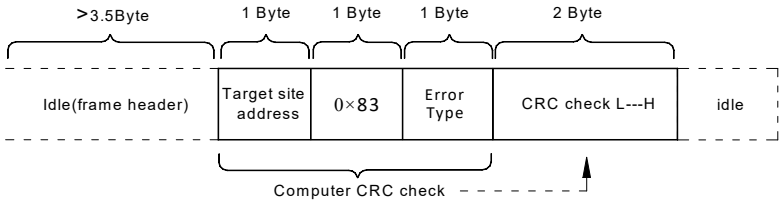
The slave reads command frame:



The master write command frame:



The slave write command frame:



If the slave detects a communication frame error, or if the read or write is otherwise unsuccessful, the error frame is acknowledged.

Error type：
01：Command code error
02：address error
03：data error
04：command can not be processed

Data frame field description:

START	More than 3.5 bytes idle time between frames
ADR	Communication address range：1 ～ 247；0 ＝broadcast address
CMD	03：read slave parameter；06：write slave parameter
CMD ADR H	Parameter address in the AC drive is hexadecimal notation, divided into function code and non-function code (such as running status parameter, running command, etc.). See address definition. Function code Address L when transmitting, the high byte in front, low byte in the post.
CMD ADR L	
CMD NO H	The number of function codes read in this frame. If 1, it means reading 1 function code. When transmitting, the high byte is first and the low byte is followed. This protocol can only overwrite one function code at a time, without this field.
CMD NO L	
DATA H	The data to be responded, or the data to be written,When transmitting , with the high byte first and the low byte being the last。
DATA L	
CRC CHK LOW Byte	Detected value: CRC16 Check value. When transmitting, the low byte first and the high byte second. CRC CHK high-bit calculation method is described in this section CRC check.
CRC CHK HIGH Byte	
END	3.5 bytes idle time

CRC check：

The CRC (Cyclical Redundancy Check) uses the RTU frame format, and the message includes an error detection field based on the CRC method. The CRC field detects the contents of the entire message. The CRC field is two bytes and contains a 16-bit binary value. It is calculated by the transmission device to be added to the message. The receiving device recalculates the CRC of the received message and compares it with the value in the received CRC field. If the two CRC values are not equal, then the transmission has an error. CRC is first stored 0xFFFF, and then call a process will message in the 8-bit bytes and the value of the current register for processing. Only the 8Bit data in each character is valid for the CRC, the start and stop bits, and the parity bit are invalid. During CRC generation, each 8-bit character is individually or differently than the register contents (XOR). The result is shifted to the least significant bit and the most significant bit is padded with zeros. LSB is extracted and detected. If LSB is '1', the register is exclusive or different from the preset value. If LSB is 0, it will not be executed. The whole process is repeated 8 times. After the last bit (8th bit) is completed, the next 8-bit byte will be separate from the current value of the register. The value in the final register is the CRC value after all the bytes in the message have been executed. When the CRC is added to the message, the low byte is first added and then the high byte.The following are C language source code for CRC checking:

```
unsigned int crc_chk_value（unsigned char *data_value,unsigned char length）
{
unsigned int crc_value=0xFFFF;
    int i;
    while（length--）          {
            crc_value^=*data_value++;
            for（i=0;i<8;i++）          {
              if（crc_value&0x0001）
    {
            crc_value=（crc_value>>1）
^0xa001;
              }
              Else
              {
              crc_value=crc_value>>1;
              }
           }
        }
        return（crc_value）;
}
```

Address definition of communication parameters

Read and write function code parameters (some function codes can not be changed, only for manufacturers using or monitoring).

5.2.3 Function Code Parameter Address Identification rule

The function code group number and label for the parameter address that rule:

High byte: F0 to FF (F group), A0 to AF (group A), 70 to 7F (U group)

Low byte: 00 ~ FF

For example, if you want to access the function code F3.12, the function code access address is 0xF30C;

Note: FF group: can not read the parameters, and can not change the parameters; U group: only read, can not change the parameters.

Some parameters can not be changed while the inverter is running; some parameters can not be changed regardless of the status of the inverter.

Change the function code parameters, but also pay attention to the parameters of the scope, units, and related instructions.

Function code NO	Communication access address	Communication Modify the function code address in RAM
F0~FE	0xF000~0xFEFF	0x0000 ~0x0EFF
A0~AC	0xA000~0xACFF	0x4000~0x4CFF
U0	0x7000~0x70FF	

Note that since the EEPROM is frequently stored, the service life of the EEPROM is reduced. Therefore, some function codes do not need to be stored in the communication mode, only change the value in the RAM. If it is a group F parameter, to achieve this function, change the high-bit F of function code address into 0.If it is a group of parameters, to achieve this function, change high-bit A of the function address into 4.The corresponding function code address is as follows:

High byte: 00 ~ 0F (F group), 40 ~ 4F (A group)

Low byte: 00 ~ FF

Such as:

Function code F3.12 is not stored in the EEPROM, the address is expressed as 030C;

Function code A0.05 is not stored in the EEPROM, the address is expressed as 4005;.

For all parameters, you can also use the command code 07H to achieve the function.

Stop / Run Parameters section:

Parameter address	Parameter description
1000H	Communication setting value (decimalism)-10000~10000
1001H	Running frequency
1002H	Bus voltage
1003H	Output voltage
1004H	Output current
1005H	Output power
1006H	Output torque
1007H	Running speed
1008H	X terminals input symbol;
1009H	DO output symbol
100AH	VCI voltage
100BH	CCI voltage
100CH	Keypad potentiometer voltage
100DH	Count value input
100EH	Length input
100FH	Load speed
1010H	PID setting
1011H	PID feedback
1012H	PLC step

1013H	X5 terminals unit:0.1Hz
1014H	Feedback speed，unit:0.1Hz
1015H	Remaining runtime
1016H	VCI Preregulation voltage
1017H	CCI Preregulation voltage
1018H	Keypad potentiometer Preregulation voltage
1019H	Line speed
101AH	The current power-on time
101BH	The current running time
101CH	X5 input pules frequency，unit:1Hz
101DH	Communication setting value
101EH	Actual feedback speed
101FH	Main frequency X
1020H	Auxiliary frequency Y

Note:

The communication setting value is a percentage of the relative value, 10000 corresponds to 100.00%, - 10000 corresponds to -100.00%.

For the data of the frequency dimension, the percentage is the percentage of the maximum frequency (F0.10); for the data of the torque dimension, the percentage is F2.10, A2.48 (the upper limit of the torque is set numerically, Respectively, corresponding to the first and second motor).

Control command input to the AC drive: (write only)

Command word address	Command function
2000H	1：Forward running
	2：Reverse running
	3：Forward jog
	4：Reverse jog
	5：Coastal stop
	6：Deceleration stop
	7：Fault reset

Read drive status: (read-only)

Status word address	Status word function
3000H	0001：forward running
	0002：reverse running
	0003：stop

Parameter lock password verification: (If the return is 8888H, which means that the password check passed)

Password address	Password contents
1F00H	*****

Digital output terminal control: (write only)

Command address	Command contents
2001H	BIT0：DO1 output control BIT1：DO2 output control BIT2：RELAY1 output control BIT3：RELAY2 output control BIT4：DO output control BIT5：VDO1 BIT6：VDO2 BIT7：VDO3 BIT8：VDO4 BIT9：VDO5

Analog output AO1 control: (write only)

Command address	Command contents
2002H	0~7FFF represents 0%~100%

Analog Output AO2 Control: (write only)

Command address	Command contents
2003H	0~7FFF represents 0%~100%

Pulse (X5) Output Control: (write only)

Command address	Command contents
2004H	0~7FFF represents 0%~100%

The AC Drive fault description:

The AC Drive Fault address	The AC Drive fault information
8000H	0000：No fault 0001：Reserve 0002：Accelerated overcurrent 0003：Decelerated overcurrent 0004：Constant speed overcurrent 0005：Accelerated overvoltage 0006：Decelerated overvoltage 0007：Constant speed overvoltage 0008：Buffer resistance overload fault 0009：Undervoltage fault 000A：The AC drive overload 000B：Motor overload 000C：Input phase loss 000D：output phase loss 000E：module overheat 000F：external fault

8000H	0010：communication error 0011：contactor error 0012：Current detection fault 0013：Motor tuning fault 0014：Encoder / PG card fault 0015：Parameter read and write exception 0016：The AC drive hardware fault 0017：Motor ground short fault 0018：reserved 0019：reserved 001A：Running time arrives 001B: User - defined fault 1 001C: User - defined fault 2 001D: Power-up time is reached 001E：Out of load 001F：PID feedback is lost during running 0028：Fast current limit timeout fault 0029：Switch the motor fault during running 002A: The speed deviation is too large 002B：Motor over speed 002D：Motor overtemperature 005A：The encoder line number setting is incorrect 005B：Missing encoder 005C：Initial position error 005E：Speed feedback error

5.2.4 FD Grope Communication Parameter Description

Fd-00	Baud rate	Factory default	6005
	RANGE	Digit：MODBUS Baud rate	
		0：300BPS 1：600BPS 2：1200BPS 3：2400BPS 4：4800BPS 5：9600BPS 6：19200BPS 7：38400BPS 8：57600BPS 9：115200BPS	

This parameter is used to set the data transfer rate between host and AC drive. Note that the host and the AC drive must set the same baud rate, otherwise, communication cannot be carried out. The higher the baud rate, the faster the communication speed.

Fd-01	Data Format	Factory default	0
	Setting range	0：No parity: Data format <8,N,2> 1：Even parity: data format <8,E,1>	

		2：Odd parity: data format <8,O,1> 3：No parity: Data format <8-N-1>	
Fd-02	Native address	Factory default	1
	Setting address	1~247，0 broadcast address	

When the native address is stetted to 0, is the broadcast address, to achieve PC broadcast function.

Local address is unique (except broadcast address), which is to achieve the host computer and inverter point-to-point communication.

Fd-03	Response delay	Factory default	2ms
	Setting range	0~20ms	

Response delay: refers to the middle interval time from AC drive Data reception ends to send data to the host. If the response delay is less than the system processing time, the response delay is based on the system processing time. If the response delay is longer than the system processing time, after processing the data, the system waits until the response delay time is reached before sending data to the upper computer.

Fd-04	Communication overtime time	Factory default	0.0 s
	Setting range	0.0 s（invalid）；0.1~60.0s	

When the function code is set to 0.0 s, the communication timeout parameter is invalid. When the function code is set to a valid value, the communication error (Err16) is reported if the interval between the primary communication and the next communication exceeds the communication timeout. Normally, it is set to invalid. If the secondary parameters are set in the system for continuous communication, the communication status can be monitored.

Fd-05	Communication protocol selection	Factory default	0
	Setting range	0：Non-standard Modbus-RTU protocol； 1：Standard Modbus-RTU protocol	

Fd-05 = 1: Selects the standard Modbus protocol.

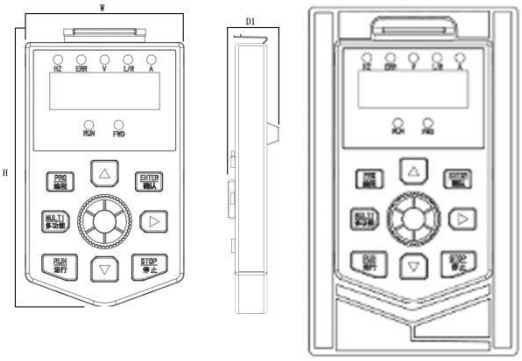
Fd-05 = 0: When read command, the slave returns one byte more than the standard Modbus protocol, refer to "5 Communication Data Structure" in this protocol.

Fd-06	Communication Read current resolution	Factory fault	0
	Setting range	0：0.01A； 1：0.1A	

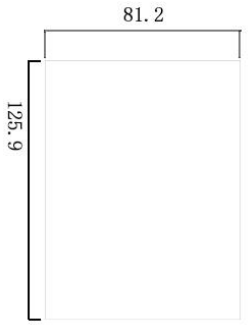
Used to determine the unit of output current when the communication reads the output current

Appendix A Installation and Dimensions

A.1 Keypad dimension



Keypad dimension



dimension for installation hole

A.2 The AC drive installation dimension

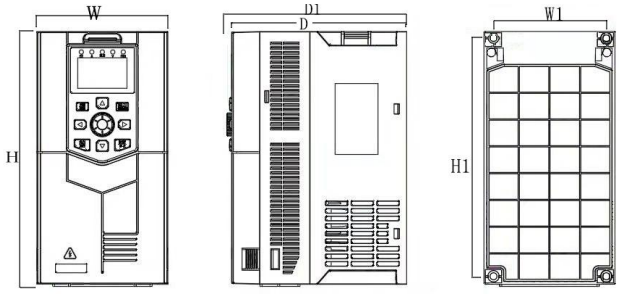


Fig 1

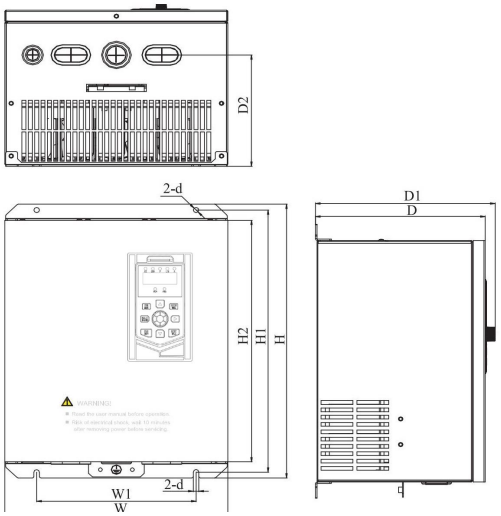


Fig 2

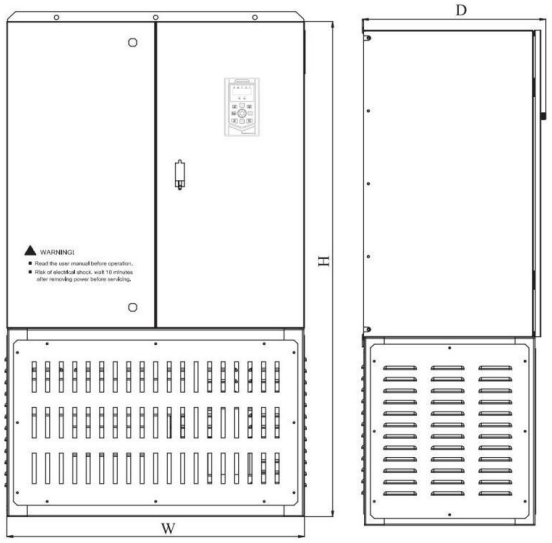
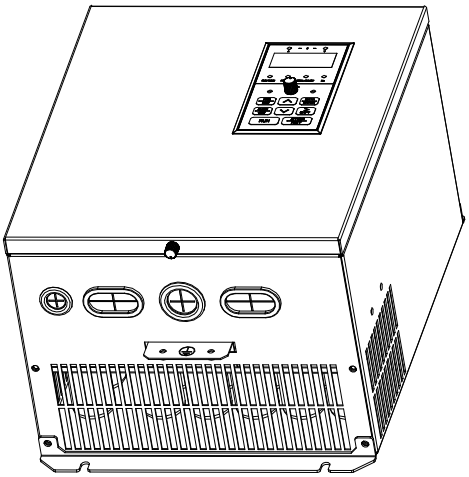
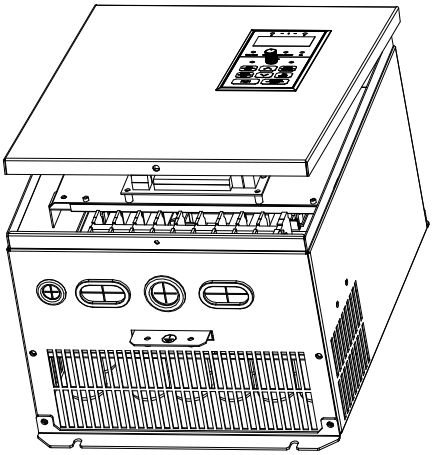


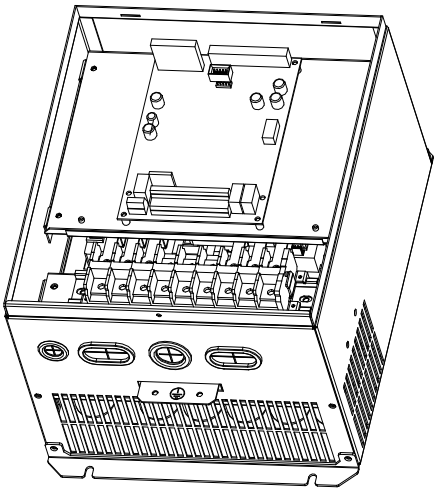
Fig3

Model no.	W	W1	H	H1	D	D1	Fig
FST300-4T-0.75G/1.5P	89.7	71.4	197	184.2	140	145	1
FST300-2S-0.4G							
FST300-4T-1.5G/2.2P							
FST300-2S-0.75G							
FST300-4T-2.2G/4.0P							
FST300-2S-1.5G							
FST300-4T-4.0G/5.5P							
FST300-2S-2.2G							
FST300-4T-5.5G/7.5P	102	90	200	189.8	160	165	1
FST300-2S-4.0G							
FST300-4T-7.5G/011P							
FST300-4T-011G/015P	210	140	344	329.5	195	200	1
FST300-4T-015G/018P							
FST300-4T-018G/022P	215	140	415	400	215	220	2
FST300-4T-022G/030P							
FST300-4T-030G/037P							
FST300-4T-037G/045P	295	160	525	507.5	217	222	2
FST300-4T-045G/055P							
FST300-4T-055G/075P	340	200	580	560	240	245	2
FST300-4T-075G/090P							
FST300-4T-090G/110P	400	240	610	590	280	285	2
FST300-4T-110G/132P							
FST300-4T-132G/160P							
FST300-4T-160G/185P	500	400	780	760	340	345	2
FST300-4T-185G/200P							
FST300-4T-200G/220P							
FST300-4T-220G/245P							
FST300-4T-160G/185P	Free standing type:1000x500x355						3
FST300-4T-185G/200P							
FST300-4T-200G/220P							
FST300-4T-220G/245P							
FST300-4T-250G/280P	Free standing type:1300x750x460						3
FST300-4T-280/315P							
FST300-4T-315G/355P							
FST300-4T-355G/400P							
FST300-4T-400G/455P	Free standing type:1500x950x510						3
FST300-4T-455G/500P							
FST300-4T-500G/560P							
FST300-4T-560G/630P	Free standing type:1600x1050x510						3
FST300-4T-630G/710P							

A.3 The assembly and detachment of Panel







SHENZHEN FSTSYSTEM TECHNOLOGY CO.,LTD

Room401-5，WeitengTechnologyBuilding，No.91，JingnanRoad,
LuogangCommunity,BujiStreet,LonggangDistrict,Shenzhen,Guangdong,China

www.fstsytem.cn Jason@fstsystem.cn

Whatsapp:+86-18680660536