

PREFACE

First of all, thank you for purchasing the MC9001 series frequency inverter developed and produced by our company!

The MC9001 series frequency inverter is a general-purpose high-performance current vector inverter, which is mainly used to control and adjust the speed and torque of three-phase AC asynchronous motors. MC9001 uses high-performance vector control technology, low-speed and high-torque output, with good dynamic characteristics, super overload capacity, stable performance, powerful protection function, simple man-machine interface, simple operation. Can be used for weaving, paper, wire drawing, machine tool, packaging, food, fan, water pump and a variety of automatic production equipment drive.

This manual will provide you with relevant details, and notes for the installation, wiring, functional parameters, routine maintenance, troubleshooting of MC9001 series inverter. To properly use the MC9001 series of frequency inverters, maximize the excellent performance of the product, and ensure the safety of users and equipment, be sure to read this manual in detail before using this series of frequency inverters.

Due to the continuous improvement of the product, the information provided by the company will not change without further notice. If you have difficulties in the use of this series of inverter or have special requirements, please contact our company after-sales service center, we will serve you wholeheartedly!

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Chapter I Security Information and Precautions

Security definition:

In this manual, the safety precautions are divided into the following two categories:

 Risk: the danger caused by not operating as required, which may lead to serious injury, or even death;

 Note: The danger caused by no required operation may lead to moderate injury or minor injury, and equipment damage;

Please read this chapter carefully when installing, debugging and repairing the system, and you must follow the safety precautions required in this chapter. Any injury and loss caused by the violation is irrelevant to the Company.

1.1 Security matters

Use the stage	security classification	Item
Before installation	 Danger	<ul style="list-style-type: none"> ◆ When the control system water is missing or damaged, please do not install! ◆ When the packing list does not match the physical name, please do not install it!
	 Note	<ul style="list-style-type: none"> ◆ Handling should be carried lightly and gently put, otherwise there is a danger of damage to the equipment! ◆ Do not use damaged drives or missing frequency converter. In danger of injury! ◆ Do not touch the components of the control system by hand, otherwise there is a danger of static damage!
installing	 Danger	<ul style="list-style-type: none"> ◆ Install on flame retardant objects such as metal; away from combustible. Otherwise, it may cause a fire alarm! ◆ Do not arbitrarily unscrew the fixing bolts of the equipment components, especially the bolts with red marks!
	 Note	<ul style="list-style-type: none"> ◆ Do not let the wire head or screw drop into the drive. Otherwise, cause drive damage! ◆ Install the drive where there is less vibration to avoid direct sunlight. ◆ When more than two frequency converters are placed in the same cabinet, please pay attention to the installation position to ensure the heat dissipation effect.

Use the stage	security classification	Item
Wiring	 Danger	<ul style="list-style-type: none"> ◆ Must be constructed by professional electrical engineering personnel, otherwise there will be unexpected danger! ◆ A circuit breaker must be separated between the frequency converter and the power supply, otherwise a fire alarm may occur! ◆ Please confirm that the power supply is at zero energy before wiring, otherwise there is a danger of electric shock! ◆ Please ground the frequency converter correctly according to the standard, otherwise there is a danger of electric shock!
	 Note	<ul style="list-style-type: none"> ◆ The input power supply must never be connected to the inverter output terminal (U, V, W). Note the marking of the terminals and do not connect the wrong line! Otherwise, cause drive damage! ◆ The brake resistance must not be connected directly between the DC bus (+) and (-) terminals. Otherwise, cause a fire alarm! ◆ Refer to the recommendations in the manual. Otherwise, an accident may occur! ◆ The encoder must use the shield wire, and the shield layer must ensure that the single end is reliable ground!
Before the electricity	 Danger	<ul style="list-style-type: none"> ◆ Please confirm that the voltage level of the input power supply is consistent with the rated voltage level of the frequency converter; the wiring position on the power input terminals (R, S, T) (U, V, W) and output terminals are correct; and check whether the peripheral circuit and connected circuit is fastened, otherwise the drive is damaged! ◆ Any part of the inverter does not require a withstand voltage test, when the factory product has done this test. deny May cause accidents!
	 Note	<ul style="list-style-type: none"> ◆ The input power supply must never be connected to the inverter output terminal (U, V, W). Note the marking of the terminals and do not connect the wrong line! Otherwise, cause drive damage! ◆ The brake resistance must not be connected directly between the DC bus (+) and (-) terminals. Otherwise, cause a fire alarm! ◆ Refer to the recommendations in the manual. Otherwise, an accident may occur! ◆ The encoder must use the shield wire, and the shield layer must ensure that the single end is reliable ground!

Use the stage	security classification	Item
After electricity	 Danger	<ul style="list-style-type: none"> ◆ Do not open the cover plate after charging. Otherwise, there is a danger of electric shock! ◆ Do not touch any input / output terminals of the frequency converter. Otherwise, there is electric shock!
	 Note	<ul style="list-style-type: none"> ◆ If parameter tuning is required, pay attention to the danger of injury during motor rotation. Otherwise, it may cause an accident! ◆ Do not change the parameters. Otherwise, damage may cause equipment!
In service	 Danger	<ul style="list-style-type: none"> ◆ Non-professional technicians do not detect signals during operation. Otherwise, it may cause personal damage or equipment damage! ◆ Do not touch the cooling fan and the discharge resistance to test the temperature. Otherwise, it may cause burns!
	 Note	<ul style="list-style-type: none"> ◆ During the operation of the frequency converter, something should be avoided from falling into the equipment. Otherwise, cause equipment damage! ◆ Do not use the contactor on and break method to control the drive start and stop. Otherwise, cause equipment damage!
Wiring	 Danger	<ul style="list-style-type: none"> ◆ Personnel without professional training do not repair and maintain the frequency converter. Otherwise, cause personal injury or equipment damage! ◆ Do not repair and maintain the equipment with electricity. Otherwise, there is electric shock! ◆ Verify that the input power of the inverter can be cut off for 10 minutes. Otherwise, the residual charge on the capacitor will cause harm to people! ◆ Before performing maintenance work on the converter, ensure that the converter is safely disconnected from all power sources. ◆ All pluggable plug-ins must be plugged under power failure! <p>The ameters must be set and checked after replacing the frequency converter.</p>
	 Note	<ul style="list-style-type: none"> □ The rotating power to the converter so that the converter will be charged even when the motor stops and cuts the power off. Ensure sure the motor is safely disconnected from the inverter.

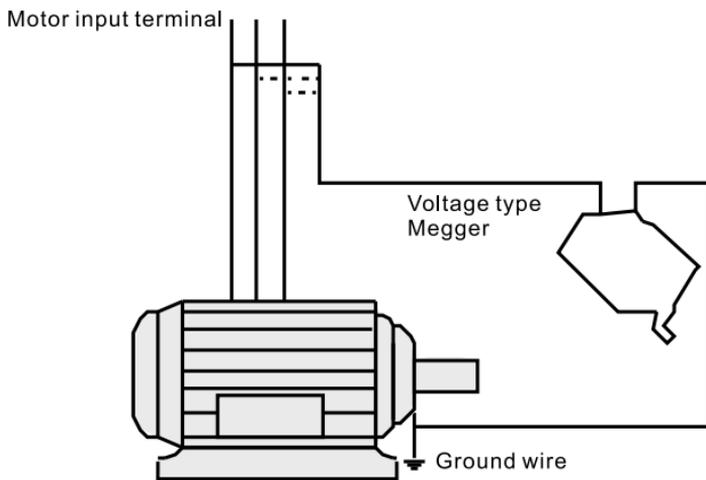
1.2 Attention

1) Leakage protector RCD requirements

The equipment will generate a large electric leakage current flowing through the protective grounding conductor during operation, please install the type B electric leakage protection device (RCD) on the primary side of the power supply. When selecting leakage protector (RCD), consider the transient and steady state ground drain current during the equipment start and operation, select special RCD with inhibitory high harmonic measures, or general RCD with large residual current.

2) Motor insulation inspection

And before the first use and regular inspection after the long time placement, the motor insulation inspection should be done to prevent the damage to the inverter due to the insulation failure of the motor winding. During the insulation inspection, the motor connection must be separated from the inverter. It is recommended to use the 500V voltage type watt-euro meter to ensure that the measured insulation resistance is not less than 5M Ω.



3) Thermal protection of motor

If the motor and the inverter rated capacity do not match, especially when the inverter rated power is greater than the rated power of the motor is selected, be sure to adjust the motor protection parameters in the frequency converter or install a thermal relay in front of the motor to protect the motor.

4) power frequency above run

This inverter provides an output frequency of 0 Hz to 500 Hz. If the customer operates above 50Hz

5) Vibration of the mechanical devices

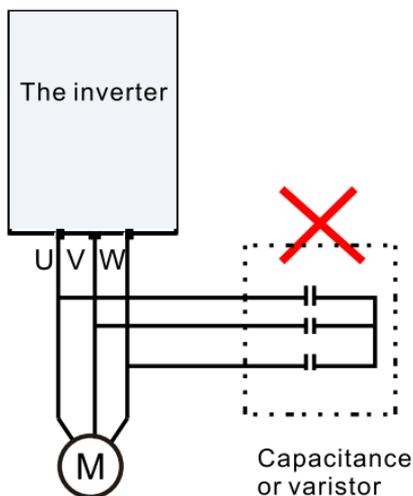
At some output frequency points, the frequency converter may encounter the mechanical resonance point of the load device, which can be avoided by setting the jump frequency parameters in the frequency converter.

6) About the motor heating and noise

Because the output voltage of the frequency converter is PWM wave, which contains a certain harmonic wave, so the temperature rise, noise and vibration of the motor will be slightly increased compared with the power frequency operation.

7) Output side with voltage sensitive device or capacitance improving the power factor

The output of the frequency converter is PWM wave. If the output side is installed with improved power factor capacitance or voltage transistor for lightning protection, it is easy to cause the instantaneous overcurrent or even damage to the frequency converter. Please don't use it.



8) Switching devices such as contactors used for inverter input and output terminals

If a contactor is installed between the power supply and the input end of the inverter, it is not allowed to control the start and stop of the inverter. The contactor needs to be used to control the start and stop of the frequency converter.

9) Use other than the rated voltage value

It is not suitable to use the frequency converter outside the allowable operating voltage range specified in the manual, which is easy to cause damage to the devices in the frequency converter. If necessary, use the corresponding boost or lowering device to change the power supply and input it to the frequency converter.

10) Lightning impact protection

Although this series of frequency converter is equipped with lightning overcurrent protection device, which has a certain self-protection ability for the induction of lightning, but for lightning frequency places, customers should also install lightning protection device at the front end of the frequency converter.

11) Elevation and descending use

In the altitude of more than 1000m, the cooling effect of the frequency converter becomes poor due to the thin air, so it is necessary to reduce the amount. Please ask our company for technical consultation on this situation.

12) Some special usage

If the customer uses the methods other than the suggested wiring diagram provided in this manual, such as the common DC bus line, please consult us.

13) Pay attention to it when the frequency converter is scrapped

An explosion may occur on the electrolytic capacitance of the main circuit and on the printed board. Plastic parts can produce toxic gases when burned. Please treat it as industrial waste.

Chapter 2: Product Information



Safety precautions

- Do not grab the front cover or terminal cover to handle the inverter. If only grasp the front cover plate, it will make the main body fall, there is a danger of injury;
- Operates the inverter, follow the steps specified in the static precautions (ESD). Otherwise, the internal circuit of the inverter will be damaged due to static electricity.

2.1 The nameplate and model shall refer to page 8 of the old manual

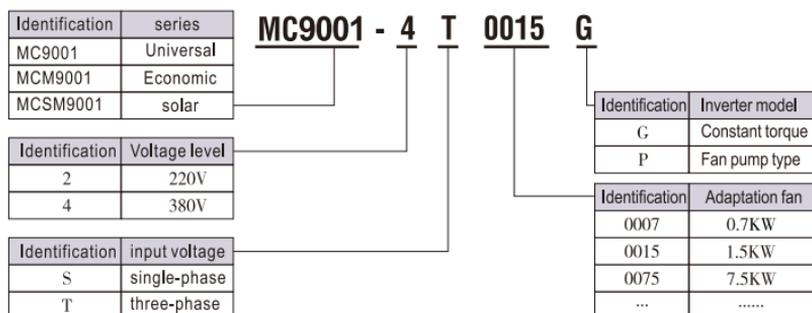
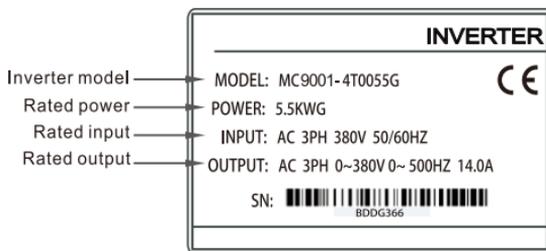


Figure 2-1 Product naming and nameplate identification



2-2 Definition of frequency converter nameplate



- 3-phase 380V~480V, 37G and below has internal brake units.

2.2 Technical specifications of frequency converter

Table 2-2 Technical specifications of MC9001 series inverter

Project		Technical Specifications	
Basic function	Input the frequency resolution	Number setting: 0.01Hz; simulation setting: maximum frequency 0.025%	
	control method	Open-loop vector control (SVC); closed-loop vector control (FVC); V / F control.	
	pull-in torque	0.25Hz/150%(SVC); 0Hz/180%(FVC)	
	Speed range	1:200(SVC)	1:1000 (FVC)
	Steady speed accuracy	±0.5%(SVC)	±0.02% (FVC)
	Torque control accuracy	FVC: ± 3%; SVC: 5Hz above ± 5%.	
	Recurrent ascension	Automatic torque increase; manual torque increase of 0.1%~30.0%.	
	V/F curve	Four ways: straight line; multi-point type; complete V / F separation; incomplete V / F separation.	
	Add deceleration curve	Straight-line or S-curve acceleration and deceleration mode; Four acceleration and deceleration times, acceleration and deceleration time range 0.0~6500.0s.	
	DC injection braking	DC brake starting frequency: 0.00Hz~ maximum frequency; Brake time: 0.0s~36.0s; Brake action current value: 0.0%~100.0%.	
	Electronic Control	Tap movement frequency range: 0.00Hz~50.00Hz; Tap action, acceleration and deceleration time is 0.0s~6500.0s.	
	Simple PLC, multi-segment speed operation	Up to 16 segments can be run with a built-in PLC or control terminal.	
	built-in PID	It can easily realize the process control closed-loop control system.	
	Automatic Voltage Adjustment (AVR)	When the grid voltage changes, the output voltage constant.	
	Over pressure over loss speed control	Automatic limit of current and voltage during operation to prevent frequent excessive flow pressure trip.	
	Quick flow restriction function	Minimize the over current fault, and protect the normal operation of the frequency converter.	
Torque limit and control	Operation Of The Frequency Converter. The characteristic of "excavator" automatically limits the torque during operation to prevent frequent current trip; the vector control mode can realize torque control.		

Project		Technical Specifications
Personalized function	Instantly stop	In case of instantaneous power outage, the frequency converter is maintained to reduce the load feedback energy compensation voltage in a short time.
	Fast flow limit	Avoid the frequent over current fault of the frequency converter.
	invented IO	Five sets of virtual DIDO, which can achieve simple logic control.
	timing control	Timing control function: set the time range of 0.0Min ~ 6500.0Min.
	Multi-motor switching	Two sets of motor parameters, can realize two motor switch control.
	Multithreaded bus support	Support for six fieldbuses: Modbus, Profibus-DP, CANlink, CANopen, Profinet, and EtherCAT.
	Motor overheating protection	With the IO extension card 1 option, the analog input AI3 accepts the motor temperature sensor input (PT100, PT1000).
	Multi-encoder support	Support for differential, open-circuit collector, UVW, rotary transformer, etc
Run	Run instructions	Operation panel given, control terminal given, serial communication port given. It can be switched in many ways
	Frequency instruction	10 frequency commands: digital given, analog voltage, analog current, pulse, serial port given. You can be switched in many ways
	Auxiliary frequency instruction	10 Auxiliary frequency commands. It can flexibly realize the auxiliary frequency fine-tuning and frequency synthesis
	input terminal	<p>standard:</p> <ul style="list-style-type: none"> ●Five DI terminals, one of which supports a high-speed pulse input of up to 100kHz ●Two AI terminals, 1, one only supports 0~10V voltage input, one supports 0~10V voltage input or 0~20mA current input <p>Extended ability: ●The 5 DI terminals of the</p> <ul style="list-style-type: none"> ●One AI terminal, support-10V~10V, voltage input, and support PT100 / PT1000 support
	leading-out terminal	<p>standard:</p> <ul style="list-style-type: none"> ●One high-speed pulse output terminal (optional as the open-circuit collector type), ●Support the square-wave signal output of 0~100kHz ●1 DO terminal ●One relay output terminal ●One AO terminal with 0 to 20 mA current output or 0 to 10 V voltage output <p>Extended ability: ●1 DO terminal ●One relay output terminal</p> <ul style="list-style-type: none"> ●One AO terminal with 0 to 20 mA current output or 0 to 10 V voltage output

Project		Technical Specifications
Displays and keyboard operation	LED show	Display parameters
	Parameter copy	Quick replication of the parameters is available through the LCD action panel option
	Key-lock and function selection	Part or all of the keys can be locked to define the scope of some keys to prevent misoperation
Protect Function	Lack of phase protection	Input phase protection, output phase protection
	Instant over current protection	Stop at over 250% of the rated output current
	Over voltage crowbar	Stop when the main circuit DC current is above 820V
	Under voltage protection	Stop when the main circuit DC current is below 350V
	overheat protection	Protection is triggered when the inverter bridge overheated
	overload protection	150% rated current for 60s shutdown (4T4500G: 130% rated current running for 60s shutdown)
	Over current protection	Stop protection exceeding 2.5 times rated current
	Brake protection	Brake unit overload protection, brake resistance short-circuit protection
	short-circuit protection	Output alternate with short circuit protection, output short circuit to ground protection

Project		Technical Specifications
Environment	Where to use	Indoor, free from direct sunlight, no dust, corrosive gas, combustible gas, oil mist, water steam, dripping water or salt, etc
	above sea level	Below 1000m, 1% for 100m over 1000m, 1% over 3000m (Note: The highest elevation of 0.4~3kW drive is 2000m, if used above 2000m, please contact the manufacturer)
	ambient temperature	-10°C ~ + 40°C, when the temperature exceeds 40°C. The decrease is 1.5% per 1°C increase, and the maximum ambient temperature is 50°C
	humidity	Less than 95%RH, no condensation
	vibrate	Less than 5.9m / s ² 0.6g
	Storage temperature	- 20°C ~ + 60°C

Frequency converter Model	Power supply capacity is KVA	Input current A	Output current A	Adaptation motor	
				KW	HP
Single-phase power supply: 220V (-10%~+15) , 50/60Hz					
MC9001-2S0007G	1.5	8.2	4.0	0.75	1
MC9001-2S0015G	3.0	14	7.0	1.5	2
MC9001-2S0022G	4.0	23	9.6	2.2	3
MC9001-2S0040G	8.9	14.6	13	4.0	5
MC9001-2S0055G	17	26	25	5.5	7.5
Three-phase power supply: 220V (-10%~+15) , 50/60Hz					
MC9001-2T0007G	3	5	3.8	0.75	1
MC9001-2T0015G	4	5.8	5.1	1.5	2
MC9001-2T0022G	5.9	10.5	9	2.2	3
MC9001-2T0040G	8.9	14.6	13	4.0	5
MC9001-2T0055G	17	26	25	5.5	7.5
MC9001-2T0075G	21	35	32	7.5	10
MC9001-2T0110G	30	46.5	45	11	15
MC9001-2T0150G	40	62	60	15	20
MC9001-2T0185G	57	76	75	18.5	25
MC9001-2T0220G	69	92	91	22	30
MC9001-2T0300G	85	113	112	30	40
MC9001-2T0370G	114	157	150	37	50
MC9001-2T0450G	135	180	176	45	60
MC9001-2T0550G	161	215	210	55	75
MC9001-4T0750G	236	315	304	75	100

Frequency converter model	Power supply capacity is KVA	input current A	output A	Adaptation motor	
				KW	HP
Three-phase power supply: 380V (-10%~+15) , 50/60Hz					
MC9001-4T0015G	3.0	5	3.8	1.5	2
MC9001-4T0022G	4.0	5.8	5.1	2.2	3
MC9001-4T0030G	5.0	8.0	7.2	3.0	4
MC9001-4T0040G	5.9	10.5	9	4.0	5
MC9001-4T0055G	8.9	14.6	13	5.5	7.5
MC9001-4T0075G	11	20.5	17	7.5	10
MC9001-4T0110G	17	26	25	11	15
MC9001-4T0150G	21	35	32	15	20
MC9001-4T0185G	24	38.5	37	18.5	25
MC9001-4T0220G	30	46.5	45	22	30
MC9001-4T0300G	54	57	60	30	40
MC9001-4T0370G	63	69	75	37	50
MC9001-4T0450G	81	89	91	45	60
MC9001-4T0550G	97	106	112	55	75
MC9001-4T0750G	127	139	150	75	100
MC9001-4T0900G	150	164	176	90	120
MC9001-4T1100G	179	196	210	110	150
MC9001-4T1320G	220	240	253	132	180
MC9001-4T1600G	263	287	304	160	210
MC9001-4T1850G	305	323	340	185	240
MC9001-4T2000G	334	365	377	200	260
MC9001-4T2200G	375	410	426	220	285
MC9001-4T2500G	404	441	465	250	320
MC9001-4T2800G	453	495	520	280	370
MC9001-4T3150G	517	565	585	315	420
MC9001-4T3550G	565	617	650	355	480
MC9001-4T4000G	629	687	725	400	530
MC9001-4T4500G	716	782	820	450	600
MC9001-4T5000G	800	820	900	500	680
MC9001-4T5600G	930	950	1020	560	750
MC9001-4T6300G	1050	1050	1120	630	850
MC9001-4T7200G	1200	1200	1300	720	960
MC9001-4T8000G	1330	1380	1420	800	1060
MC9001-4T10000G	1660	1650	1720	1000	1330

2.3 Appearance and installation dimensions

MC9001--1.5KW-1000KW complete machine size

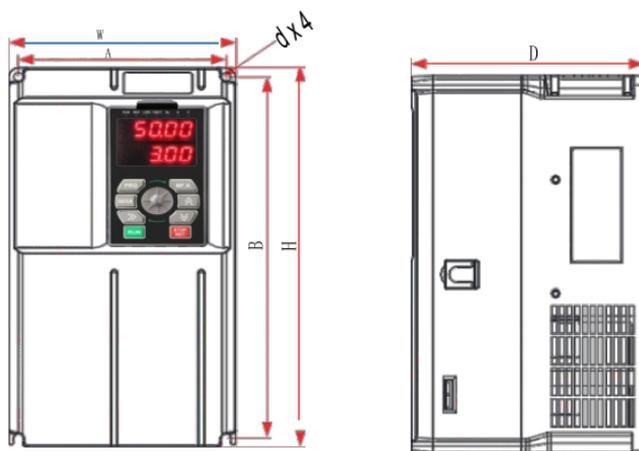


Figure 2-2 Schematic diagram of MC 9001 exterior size and installation size

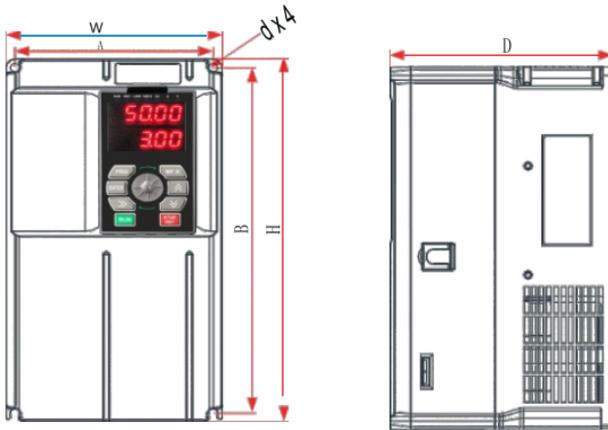
Table 2-4 MC9001 external shape and mounting hole dimensions
(3-phase 380V~480V)

Frequency converter model	Install the hole position of mm		External size: mm			Install aperture mm
	A	B	H	W	D	
MC9001-4T0015G	79	154	164	89	125	Ø4
MC9001-4T0022G						
MC9001-4T0030G						
MC9001-4T0040G	86	173	184	97	145	Ø4
MC9001-4T0055G						
MC9001-4T0075G	101	204	220	126	182	Ø4
MC9001-4T0110G	131	245	257	146.5	185	Ø4
MC9001-4T0150G						

Frequency converter model	Install the hole position of mm		External size: mm			Install aperture mm
	A	B	H	W	D	
MC9001-4T0185G	151	303	320	170	205	Ø6
MC9001-4T0220G						
MC9001-4T0300G	120	385	400	200	220	Ø6
MC9001-4T0370G						
MC9001-4T0450G	200	493	510	260	252	Ø6
MC9001-4T0550G						

Frequency converter model	Install the hole position of mm		External size: mm			Install aperture mm
	A	B	H	W	D	
MC9001-4T0550GH	200	493	510	260	252	Ø 8
MC9001-4T0750G						
MC9001-4T0900G	200	630	660	320	300	Ø 8
MC9001-4T1100G						
MC9001-4T1320G	250	755	780	400	345	Ø10
MC9001-4T1600G						
MC9001-4T1850G						
MC9001-4T2000G	300	872	900	460	355	Ø10
MC9001-4T2200G						
MC9001-4T2500G	360	922	950	500	355	Ø12
MC9001-4T2800G						
MC9001-4T3150G	500	1029	1050	650	365	Ø12
MC9001-4T3550G						
MC9001-4T4000G	500	1265	1300	650	385	Ø14
MC9001-4T4500G						
MC9001-4T5000G						
MC9001-4T5600G	600	1415	1450	850	435	Ø14
MC9001-4T6300G						
MC9001-4T7200G						
MC9001-4T8000G	1000	1415	1450	1100	465	Ø14
MC9001-4T10000G						

MCM9001 (Economy) -0.75KW-11KW Overall Dimensions



External dimensions and Installation dimensions diagram of MCM9001 (Economy)

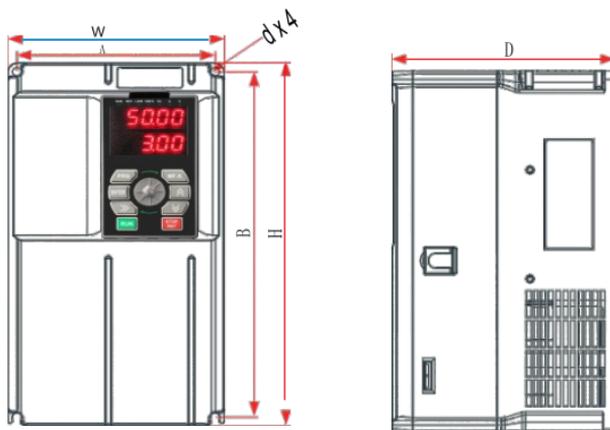
External dimensions and Mounting hole dimensions of MCM9001 (Economy) (Three phase 380V-480V)

Frequency Inverter Model	Install hole position:mm		External size: mm			Install aperture: mm
	A	B	H	W	D	
MCM9001-4T0007	79	154	164	89	125	Ø4
MCM9001-4T0015						
MCM9001-4T0022						
MCM9001-4T0030						
MCM9001-4T0040	86	173	184	97	145	Ø4
MCM9001-4T0055						
MCM9001-4T0075	101	204	220	126	182	Ø4
MCM9001-4T0110						

**External dimensions and Mounting hole dimensions of MCM9001
(Single phase 220V)**

Frequency Inverter Model	Install hole position:mm		External size: mm			Install aperture: mm
	A	B	H	W	D	
MC9001-2S0007	79	154	164	89	125	Ø4
MC9001-2S0015						
MC9001-2S0022	86	173	184	97	145	Ø4
MC9001-2S0037						
MC9001-2S0055	101	204	220	126	182	Ø4
MC9001-2S0075						

MCS9001 -0.75KW-1000KW Overall Dimensions



External dimensions and Installation dimensions diagram of MCS9001

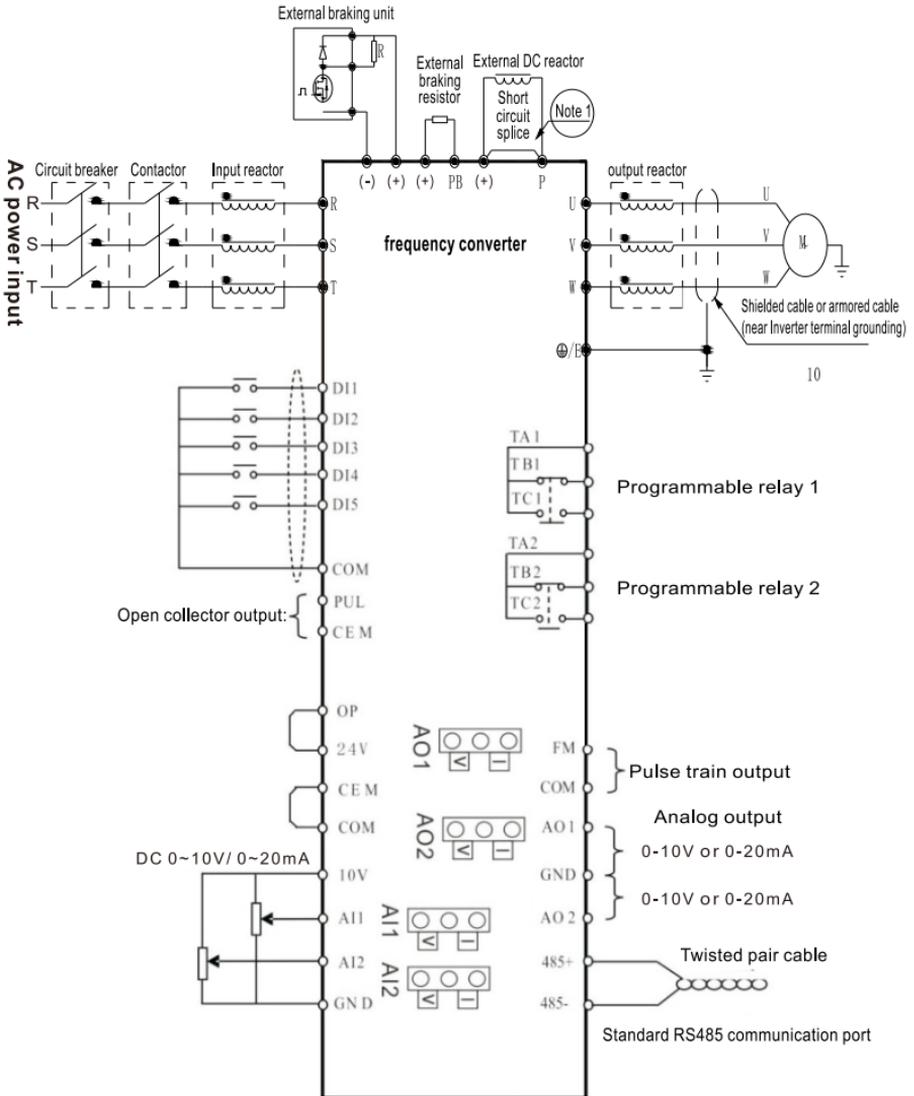
External dimensions and Mounting hole dimensions of MCS9001 (Three phase 380V-480V)

Frequency Inverter Model	Install hole position:mm		External size: mm			Install aperture: mm
	A	B	H	W	D	
MCS9001-4T0007	79	154	164	89	125	Ø4
MCS9001-4T0015						
MCS9001-4T0022						
MCS9001-4T0030	86	173	184	97	145	Ø4
MCS9001-4T0040						
MCS9001-4T0055	101	204	220	126	182	Ø4
MCS9001-4T0075						
MCS9001-4T0110	131	245	257	146.5	185	Ø4
MCS9001-4T0150						

Frequency Inverter Model	Install hole position:mm		External size: mm			Install aperture: mm
	A	B	H	W	D	
MCS9001-4T0185	151	303	320	170	205	Ø6
MCS9001-4T0220						
MCS9001-4T0300	120	385	400	200	220	Ø6
MCS9001-4T0370						
MCS9001-4T0450	200	493	510	260	252	Ø6
MCS9001-4T0550						
MCS9001-4T0550H	200	493	530	260	252	Ø8
MCS9001-4T0750						
MCS9001-4T0900	200	630	660	320	300	Ø8
MCS9001-4T1100						
MCS9001-4T1320	250	755	780	400	345	Ø10
MCS9001-4T1600						
MCS9001-4T1850						
MCS9001-4T2000	300	872	900	460	355	Ø10
MCS9001-4T2200						
MCS9001-4T2500	360	922	950	500	355	Ø12
MCS9001-4T2800						
MCS9001-4T3150	500	1029	1050	650	365	Ø12
MCS9001-4T3550						
MCS9001-4T4000	500	1265	1300	650	385	Ø14
MCS9001-4T4500						
MCS9001-4T5000						
MCS9001-4T5600	600	1415	1450	850	435	Ø14
MCS9001-4T6300						
MCS9001-4T7200						
MCS9001-4T8000	1000	1415	1450	1100	465	Ø14
MCS9001-4T10000						

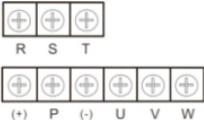
2.4 Main circuit and control circuit wiring

2.4.1 Standard wiring diagram



2.4.2 Main circuit terminal function description and precautions

1) Inverter main circuit terminal

220V 1PH 0.75KW-3.7KW		L1, L2	Single phase AC 220V input terminal
		U, V, W	Three phase motor output terminal
		(+), PB	Braking resistor terminal
		PE	Grounding terminal
380V 3PH 1.5KW-5.5KW		R, S, T	Three phase AC 380V input terminal
		U, V, W	Three phase motor output terminal
		(+), PB	Braking resistor terminal
		(+), (-)	Positive and negative terminals of DC bus
380V 3PH 7.5KW		R, S, T	Three phase AC 380V input terminal
		U, V, W	Three phase motor output terminal
		(+), PB	Braking resistor terminal
		(+), (-)	Positive and negative terminals of DC bus
380V 3PH 11KW-22KW		R, S, T	Three phase AC 380V input terminal
		U, V, W	Three phase motor output terminal
		(+), PB	Braking resistor terminal
		(+), (-)	Positive and negative terminals of DC bus
380V 3PH 30KW-55KW		R, S, T	Three phase AC 380V input terminal
		U, V, W	Three phase motor output terminal
		(+), PB	Braking resistor terminal (45 and above external braking unit)
		(+), (-)	Positive and negative terminals of DC bus
380V 3PH 75KW-1000KW		R, S, T	Three phase AC 380V input terminal
		U, V, W	Three phase motor output terminal
		(+), P	DC reactor terminal
		(+), (-)	Positive and negative terminals of DC bus

2) Selection of the main loop cable type

Symmetrically shielded cables are recommended for the input and output main loop cables. The use of symmetrically shielded cables can reduce electromagnetic radiation throughout the conduction system, compared to four-core cables.

3) Input the power supply: R, S, and T

Input side wiring of the frequency converter, with no phase sequence requirements. Specifications and installation methods of external main loop wiring shall comply with local regulations and relevant IEC standards.

The filter shall be installed close to the input terminal of the frequency converter, and the connecting cables shall be less than 30cm. The ground terminal of the filter and the ground terminal of the frequency converter should be connected together, and ensure that the filter and the frequency converter are installed on the same conductive installation plane, which is connected to the main connection ground of the cabinet.

4) DC bus line (+), (-)

- Pay attention to the residual voltage of the DC bus (+) and (-) terminals just after the power failure, so the CHARGE light must be turned off, and the wiring operation can only be carried out after 10 minutes of power failure, otherwise there is a danger of electric shock.
- When 90kW and above choose the external brake assembly, note that (+), (-) polarity can not be reversed, otherwise cause the inverter and brake assembly damage or even fire.
- The wiring length of the brake unit shall not exceed 10m. Twair or tight double line parallel wiring shall be used.
- Can not connect the brake resistance directly to converter damage or even fire.

5) B the DC bus, which may cause frequency rake resistance connection terminals (+), BR

- The brake resistance connection terminals are valid for 30kW and below models with the built brake unit.
- The brake resistance selection value is recommended and the wiring distance shall be less than 5m. Otherwise, the inverter may be damaged.
- Note that there is no combustible around the brake resistance. Avoid overheating of the brake resistance and igniting the surrounding devices.
- After the connects to the brake resistance, the models below 30kW and already have a built-in brake unit shall reasonably set the "P6-15" brake utilization rate and the "P9-08" brake unit action starting voltage parameters according to the actual load ;

6) U, V, and W on the output side of the frequency converter

- Wiring specification and installation of external main circuit shall comply with local regulations and relevant IEC standards.

The output side of ● converter can not be connected to the capacitor or surge absorber, otherwise the converter will be often protected or even damaged.

- When the motor cable is too long, due to the influence of the distribution capacitance, it is easy to produce electrical resonance, and cause the motor insulation damage or produce a large leakage current to make the frequency converter over current protection. When the motor cable length is greater than 100m, the AC output reactor must be installed near the frequency converter.

- The shield wire is recommended for the output motor cable. The shield layer needs to make 360° lap on the structure with the cable shield grounding bracket, and press the shield lead wire to the PE terminal.
- The lead wire of motor cable shield shall be as short as possible, and the width is not less than 1 / 5 in length.

7) Ground terminal (PE)

- The terminal must be reliably grounded and the grounding resistance must be less than $10\ \Omega$. Otherwise, the equipment will lead to abnormal operation or even damage.
- Do not share the ground terminal and the power zero line N terminals.
- Protection grounding conductors must be yellow-green cables.
- Ground position of the main circuit shield layer.
- Inverter is recommended to be installed on the conductive metal installation surface, to ensure that the whole conductive bottom of the inverter and the installation surface are good lap;
- The filter should be installed on the same installation surface with the frequency converter to ensure the filter effect of the filter.

8) Grid system requirements

This product is suitable for neutral grounding grid system, if used for IT grid system (neutral to ground insulation or high impedance grounding), need to resistor (VDR) to ground jumper and safety gauge capacitor (EMC) to ground jumper, 1 and 2 screws shown in the figure below, and the filter cannot be installed, otherwise may cause injury or damage to frequency converter.

In the configuration of leakage circuit breaker, if the leakage protection phenomenon occurs in the start, the safety gauge capacitor (EMC) can be removed from the ground jumper, and the no. 2 screw is shown in the figure below.

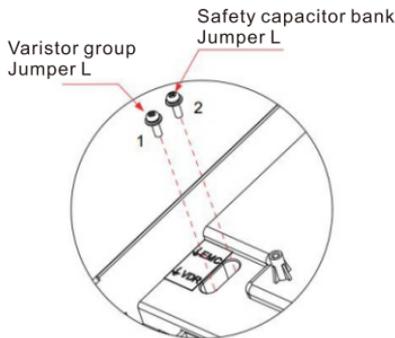
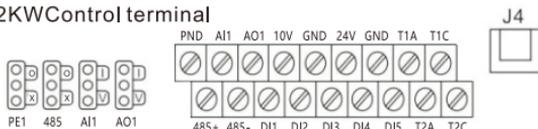


Figure 2-5-2 Location diagram of piezosistor (VDR) and gauge capacitance (EMC) to ground jumper

Figure 2-5-3 Layout drawing of the control loop terminals

0.75KW-22KW Control terminal



Note: COM and GND are shared

30KW-1000KW Control terminal

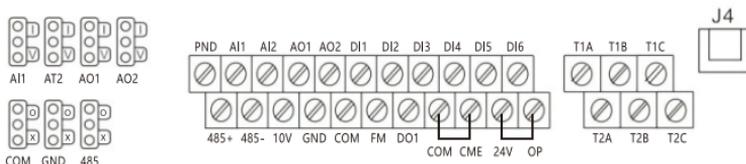


Table 1-4 Function description of the control terminal of the MC9001 frequency converter

Class	Terminal symbol	Terminal name	Function declaration
Source	+10V-GND	External connection with +10V power supply	Provide +10V power supply outward, with the maximum output current: 10mA Generally used as the working power supply of the external potentiometer, the potentiometer resistance value range : 1 kΩ~5k
	+24V-COM	External connection with +24V power supply	Provide the +24V external power supply, which is generally used as the digital input and output terminal working power supply and the external sensor power supply, with the maximum output current: 200mA
	OP	External power supply input terminal	The factory supply is connected to the +24V by default. When driving the DI1 to DI5 with external signals, the OP needs to be connected to the external power supply and disconnected from the +24V power supply terminal
Imitate Import	AI1-GND	Analog quantity input terminal 1	Input range: 0Vdc~10Vdc / 0mA~20mA, as determined by the AI1 jumper selection on the control board. Input impedance: 22 kΩ at voltage input.
	AI2-GND	Analog quantity input terminal 2	Input range: 0Vdc~10Vdc / 0mA~20mA, as determined by the AI2 jumper selection on the control board. Input impedance: 22 kΩ at voltage input.
Imitate Output	AO1-GND	Analog output 1	The voltage or current output is determined by the AO1 jumper selection on the control board. Output voltage range: 0V~10V. Output current range: 0mA~20mA
	AO2-GND	Analog output 2	The voltage or current output is determined by the AO2 jumper selection on the control board. Output voltage range: 0V~10V; output current range: 0mA~20mA

Class	Terminal	SymbolTerminal	Namefunction declaration
	AI1	The AI1 input selection is made	Voltage and current input are optional, with the default voltage input
	AI2	The AI2 input selection is made	Voltage and current input are optional, with the default voltage input
	AO1	The AO1 output selection	Voltage and current output is optional, with the default voltage output
	AO2	Ao2 output selection	Voltage and current output is optional, with the default voltage output
	485	Rs485 Terminal Matching Resistor selection jumper	RS485 Terminal matching resistance selection
	DI1	Digital input 1	Light lotus root isolation, compatible with bipolar input Input impedance: 1.39 kΩ Voltage range of effective level input: 9V~30V
	DI2	Digital input 2	
	DI3	Digital input 3	
	DI4	Digital input 4	
	DI5 DO1- CME	High-speed pulse input terminal Digital output 1	In addition to the DI1~DI4, it can also be used as a high speed pulse input channel. Maximum input frequency: 100kHz; Input impedance: 1.03 kΩ Light lotus root isolation, bipolar open circuit collector electrode output output voltage range: 0V~24V; the output current range: 0mA~50mA Note: The digital output CME is internally isolated from the digital input COM, but the CME and COM are externally short-connected (the DO1 defaults to + 24V driver). When the DO1 wants to drive with an external power supply, the external shortcut must break the CME from the COM.
	FMCOM	High speed pulse output	Subject to the parameter P5-00 "FM Terminal Output Mode Selection" constraint; when used as a high-speed pulse output, the highest frequency is up to 100kHz; When open output as collector, as DO1 specification.
	T1A-T1B	Often closed terminal	Contact point drive capability: 250Vac,3A,COSØ=0.430Vdc, 1A
	T1A-T1C	Often start	
	T2A-T2B	Often closed terminal	Contact point drive capability: 250Vac,3A,COSØ=0.430Vdc, 1A
	T2A-T2C	Often start	

When the ambient temperature exceeds 23℃, the use amount needs to be reduced. For every 1℃ increase of the ambient temperature, the output current decreases by 1.8mA. The maximum output current at 40℃ ambient temperature is 170mA. When the user connects OP to 24V, the current of the DI terminal is also taken into account.

Chapter 3 Panel operation

3.1 Panel operation instructions

The MC9001 series inverter can conduct parameter operation, state monitoring and control through the LED operation panel.

3.2 LED operation Panel Introduction

With the operation panel, the inverter can be parameter set / modified, working state monitoring, operation control (start, stop) and other operations. The appearance and operation key name of the operation panel are shown in the figure below:



Picture3-1 Operation panel

3.2.1 Function indicator light

The following table  means the light is bright,  means the lights out,  means the light flashing

Indicator lights status		State description
LOCAL/REMOT Running the instruction indicator light	 RUN	Light out: stop
	 RUN	Light bright: run

Indicator lights status		State description
LOCAL/REMOT Running the instruction indicator light	 LOCAL/ REMOT	Light out: panel control
	 LOCAL/ REMOT	Light bright: terminal control
	 LOCAL/ REMOT	Light flashing: Communication control
REVPositive reversal indicator light	 REV	Light out: positive turn operation
	 REV	Light bright: reverse operation
ALM Tuned / torque control / fault indicator lamp	 ALM	Light out:normal operation
	 ALM	Light bright:Torque control mode
	 ALM	Light slow flash: Tuning state (1 time /s)
	 ALM	Light quick flashing: Fault state (4 times /s)

3.2.2 Keypad button function

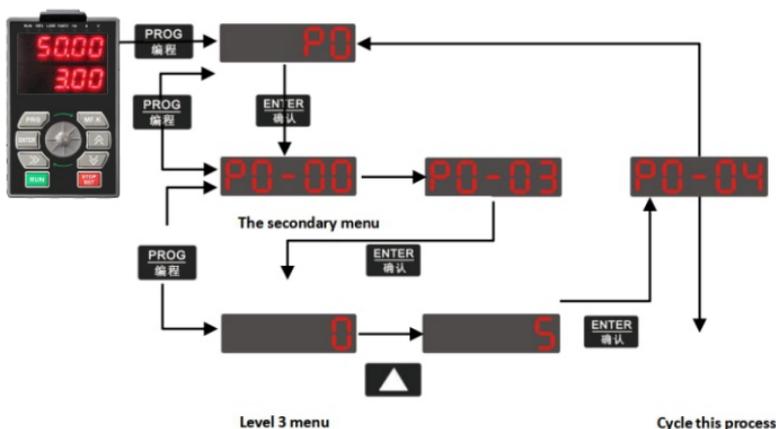
Key	Key name	Key function
PROG	Programming key	Level 1 menu to enter or exit.
ENETER	Confirm key	Enter the menu screen step by step and confirm the setting parameters.
	Increased key	Increments of the data or parameters.
	Decreased key	Dedining of the data or the parameters.
SHIFT	Shiftkey	Under the shutdown display interface and the running display interface, you can then select the display parameter by a cycle; when modifying the parameter, you can select the modification bit of the parameter.
RUN	Runkey	Under the "Operation panel" start-stop control mode, used for operation.
STOP	Stop / reset	When running the state, press this key to stop the operation. This feature is restricted by the parameter P7-02; and you can reset the operation for the fault alarm state.
MF.K	Multi-function selection key	Switch between the selected functions according to the set value of P7-01.

3.2.4 Parameter view and modify method

The operating panel of the MC9001 frequency converter adopts the three-level menu structure for parameter setting. The three-level menus are respectively:

- 1)Functional parameter group (Level 1 menu)
- 2)Parameters (Level 2 menu)
- 3)Parameter setting value(Level 3 menu)

After entering each level menu, when the display bit flashes, you can press ▲, ▾, ←, → keys to modify. The operation process is shown in the following figure:



3-2 Level-3 menu operation flow chart

a)When the tertiary level menu operates, you can press PRG or ENETER to return to the secondary menu. The difference between the two is that of the following: Press ENTER key to save the set parameters and return to the secondary menu, and automatically transfer to the next parameter; press PRG key to discard the current parameter modification, and then directly return to the secondary menu of the current parameter serial number.

b) In the level 3 menu state, if the parameter does not flashing, it means that the parameter cannot be modified for possible reasons:

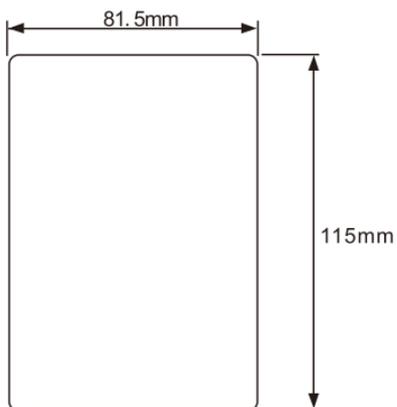
1.This parameter is non-modifiable parameters, such as inverter type, actual detection parameters, operation record parameters, etc.

.2.This parameter cannot be modified in the running state and can only be modified after downtime.

3.2.5 Parameter composition

Parameter group	Functional description	Instruction
P0 ~ PP	Basic parameter	Operation instruction, frequency command, motor parameters, control mode, AI/AO characteristic correction, optimization control and other parameters.
A0~AC		
U0	Monitor parameter groups	Display of the basic monitoring parameters of the frequency converter.

3.3 Panel tray opening dimensions



3-3 Plate tray opening dimensions diagram

Chapter 4 Functional Parameter Table

The frequency converter user password is only used to lock the panel operation. After setting the password, when reading and write through the keyboard operation parameters, they require password verification; during the communication operation (except PP, Pfgroup). The parameter menu in user custom parameter mode is not password protected.

Groups P and Group A are the basic functional parameters, while group U is the monitoring functional parameters. The symbols in the parameter table are described as follows:

"☆": indicates that the setting value of this parameter can be changed when the frequency converter is in the shutdown and running state;

"★": indicates that the set value of this parameter cannot be changed when the frequency converter is in the running state;

"●": The value of the parameter is the actual detected record value and cannot be changed;

"**": It means that the parameter is a "manufacturer parameter", which is only set by the manufacturer, and prevents users from operating;

4.1 Brief table of basic function parameters

Parameter	name	Set the scope	Factory value	change
P0 group Basic functional group				
P0-00	GP type	1: Type G (constant torque load model) 2: P-type (fan, water pump load type)	1	●
P0-01	The first motor control method	0: No speed sensor for vector control (SVC) 1: Speed sensor vector control (FVC) 2: V / F control	asynchronous:2 synchronization : 0	★
P0-02	Run instruction selection	0: Operating panel 1: Terminal 2: Communication	0	☆
P0-03	Main frequency instruction input select	0: Number setting (power loss memory) 1: Number setting (power memory) 2:AI1 3:AI2 4: Panel potentiometer 5: Pulse setting (DI5) 6: Multiple instructions 7: Simple PLC 8:PID 9: Communication given	asynchronous:4 synchronization : 0	★

parameter	name	Set the scope	Factoryvalue	change
P0-04	quenching frequency Instruction input selection	Same as P0-03 (Selection)	0	★
P0-05	Auxiliary frequency when overlaying Directive range selection	0: Relative to the maximum frequency 1: Relative to the main frequency instruction	0	☆
P0-06	Auxiliary frequency when overlaying Directive range	0%~150%	100%	☆
P0-07	Frequency instruction superposition selection	Individual bit: frequency instruction selection 0: main frequency instruction 1: Main and auxiliary operations result (operation relationship is determined by ten digits) 2: Switch between main frequency command and auxiliary frequency command 3: Switch between main frequency command and main and auxiliary operation results 4: Auxiliary frequency instruction and main and auxiliary operation result switch ten points: frequency command main and auxiliary operation relationship 0: Main + auxiliary 1: Main-auxiliary 2: Maximum value of both cases 3: Minimum value of both cases	00	☆

Parameter	Name	Set TheScope	FactoryValue	Change
P0-08	Preset frequency	0.00Hz~ Maximum frequency (P0-10)	50.00Hz	☆
P0-09	Running direction	0: Run in the default direction 1: Run in the opposite direction of the default direction	0	☆
P0-10	Maximun-frequency	50.00Hz~500.00Hz	50.00Hz	★
P0-11	Upper limit frequency instruction selection	0: P0-12 Setting 1:AI1 2:AI2 3:AI3 4: Pulse setting 5: Communication given	0	★
P0-12	Upper Limiting Frequency	Lower limit frequency P0-14 to maximum frequency P0-10	50.00Hz	☆
P0-13	Upper limit frequency bias	0.00Hz~ Maximum frequency P0-10	0.00Hz	☆
P0-14	Lower limit frequency	0.00Hz~ upper limit frequency P0-12	0.00Hz	☆
P0-15	Carrier frequency	Model determination	Model determination	☆
P0-16	Carrier frequency Adjust with temperature	0: No 1: Is	1	☆

parameter	Name	Set the scope	Factoryvalue	change
P0-17	Acceleration time 1	0.00s~650.00s(P0-19=2) 0.0s~6500.0s(P0-19=1) 0s~65000s(P0-19=0)	Model determination	☆
P0-18	Slow down time 1	0.00s~650.00s(P0-19=2) 0.0s~6500.0s(P0-19=1) 0s~65000s(P0-19=0)	Model determination	☆
P0-19	Increase and deceleration time unit	0:1 Seconds At 1:0.1 seconds 2:0.01 sec	1	★
P0-21	Auxiliary frequency when overlaying Instruction bias frequency	0.00Hz~ Maximum frequency P0-10	0.00Hz	☆
P0-22	Frequency command resolution	2: 0.01Hz	2	★
P0-23	Number setting frequency Downtime memory choice	0: Don't remember 1: memory	0	☆
P0-24	Motor parameter group selection	0: Motor parameter group 1 1: Motor parameter group 2	0	★
P0-25	Add deceleration time reference frequency	0: Maximum frequency (P0-10) 1: Set the frequency 2: 100Hz	0	★
P0-26	Runtime frequency instruction P/DOWN benchmark	0: Run frequency 1: Set the frequency	0	★
P0-27	Run instruction bundle Main Frequency instruction selection	Individual bit: operation panel binding frequency source selection 0: No binding 1: Digital set frequency 2: AI1 3: AI2 4: AI3 5: Pulse setting (DI5) 6: Multi-section speed 7: Simple PLC 8: PID 9: Communication given Ten digits: Terminal binding frequency source selection 100 bits: communication binding frequency source selection	0000	☆
P0-28	Communication protocol selection	0: The Modbus protocol 1: Profibus-DP, CANopen, Profinet, EtherCAT protocol	0	★

Parameter	Name	Set the scope	Factory value	change
P1 group The first motor parameter group				
P1-00	Motor type selection	0: Ordinary Asynchronous motor 1: Frequency conversion Asynchronous motor 2: Permanent magnet synchronous motor	0	★
P1-01	The motor is rated power	0.1kW~1000.0kW	Model determination	★
P1-02	The motor is rated voltage	1V~2000V	Model determination	★
P1-03	Rated current of motor	0.01A~655.35A (frequency converter power: 55KW) 0.1A~6553.5A (frequency converter power: 55KW)	Model determination	★
P1-04	Rated frequency of motor	0.01Hz~ Maximum frequency	Model determination	★
P1-05	Motor rated speed	1rpm~65535rpm	Model determination	★
P1-06	asynchronous motor stator resistance	0.001 Ω ~65.535 Ω (frequency converter power 55kW) 0.0001 Ω ~6.5535 Ω (frequency converter power> 55kW)	Tuning parameters	★
P1-07	asynchronous motor rotor resistance	0.001 Ω ~65.535 Ω (frequency converter power 55kW) 0.0001 Ω ~6.5535 Ω (frequency converter power> 55kW)	Tuning parameters	★
P1-08	Leakresistance of asynchronous motor	0.01mH~655.35mH (frequency converter power: 55kW) 0.001mH~65.535mH (frequency converter power> 55kW)	Tuning parameters	★
P1-09	asynchronous motor mutual resistance	0.1mH~6553.5mH (frequency converter power: 55kW) 0.01mH~655.35mH (frequency converter power> 55kW)	Tuning parameters	★
P1-10	No load current of asynchronous motor	0.01A~P1-03 (frequency converter power: 55kW) 0.1A~P1-03 (frequency converter power> 55kW)	Tuning parameters	★
P1-16	Stator resistance of synchronous motor	0.001 Ω ~65.535 Ω (Inverter power \leq 55kW) 0.0001 Ω ~6.5535 Ω (Inverter power > 55kW)	Tuning parameters	★
P1-17	Synchronous motor D-axis inductance	0.01mH~655.35mH (Inverter power \leq 55kW) 0.001mH~65.535mH(Inverter power>55kW)	Tuning parameters	★
P1-18	Synchronous motor Q-axis inductance	0.01mH~655.35mH(Inverter power \leq 55kW) 0.001mH~65.535mH(Inverter power>55kW)	Tuning parameters	★
P1-20	Synchronous motor back electromotive force	0.0V ~6553 .5V	Tuning parameters	★
P1-27	Number of encoder lines	1~65535	1024	★
P1-28	Encoder type	0: ABZ, the incremental encoder 2: Rotary transformer	0	★
P1-30	ABZ Incremental encoder AB phase sequence	0: Positive 1: Reverse	0	★
P1-31	Encoder installation angle	0~359.9°	0.0°	★

Parameter	Name	Set the scope	Factory value	change
P1-32	UVW encoder phase sequence	0 : Positive 1 : Reverse	0	★
P1-33	UVW signal zero position angle	0~359.9°	0.0°	★
P1-34	Rotary transformer pole-logarithm	1~65535	1	★
P1-36	Speed feedback PG disconnection detection time	0.0s: No action 0.1s~10.0s		★
P1-37	Tune selection	0: No operation 1: parameter tuning of asynchronous machine 2: Dynamic and complete tuning of the asynchronous machine 3: asynchronous static and complete tuning 11: Synchronous machine load tuning 12: Synchronous machine no-load tuning	0	★

Parameter	Name	Set the scope	Factory value	change
P2 group The first motor vector control parameter group				
P2-00	Speed-loop proportional gain of 1	1~100	30	☆
P2-01	The velocity loop integral time 1	0.01s~10.00s	0.50s	☆
P2-02	Switch frequency 1	0.00~P2-05	5.00Hz	☆
P2-03	Speed loop proportional gain 2	1~100	20	☆
P2-04	The velocity loop integral time2	0.01s~10.00s	1.00s	☆
P2-05	Switch frequency 2	P2-02~ maximum frequency	10.00Hz	☆
P2-06	Vector-controlled transfer gain	50%~200%	100%	☆
P2-07	SVC velocity Feedback filtering time	0.000s~0.100s	0.015s	☆
P2-08	Vector control excitation gain	0-200	64	☆
P2-09	Speed control mode under the Torque upper limit instruction selection	0: Parameter P2-10 setting 1:A11 2:A12 3:A13 4: Pulse (DI5) 5: Communication given 6:MIN(A11,A12) 7:MAX(A11,A12) The full range of options 1-7 corresponds to P2-10	0	☆
P2-10	Set the torque upper limit number under the speed control mode	0.0%~200.0%	150.0%	☆
P2-11	Speed control mode under the Torque upper limit instruction selection (power generation)	0: Parameter P2-10 setting (distinction between electric and power generation) 1:A11 2:A12 3:A13 4: PULSE pulse setting 5: Communication given 6:MIN(A11,A12) 7:MAX(A11,A12) 8: Parameter P2-12 setting The full range of options 1-7 corresponds to P2-12	0	☆
P2-12	Number limit limit setting under speed control mode (power generation)	0.0% ~ 200.0%	150.0%	☆
P2-13	excitation regulation proportional gain	0~60000	2000	☆
P2-14	Excitation regulation integral gain	0~60000	1300	☆

Parameter	Name	Set the scope	Factory value	change
P2-15	Torque regulation proportional gain	0-60000	2000	☆
P2-16	Torque regulation Integral gain	0-60000	1300	☆
P2-17	Speed loop integral property	Individual bit: integral separation 0: invalid 1: valid	0	☆
P2-18	Synchronous machine weak magnetic mode	0 : Weak magnetism is ineffective 1 : Direct calculation mode 2 : Automatic adjustment mode	1	☆
P2-19	Synchronous machine weak magnetic gain	1~50	5	☆
P2-20	Maximum weak magnetic current	1%~300%	50%	☆
P2-21	The weak magnetic region is the largest moment coefficient	50~200%	100%	☆
P2-22	Power generation limit enable	0 : Invalid 1 : Effective throughout	0	☆
P2-23	Upper limit of asynchronous power generation	0-200.0	20	☆
	Upper limit margin of synchronous machine output voltage	1%~50%	5%	☆
P2-24	Synchronous machine initial position angle detection current	50%~180%	80%	☆
P2-25	Synchronous machine initial position angle detection	0: Detect every startup 1: Not detecting 2: First power on inspection	0	☆
P2-27	Synchronous machine convex polarity adjustment gain	50~500	100	☆
P2-28	The Maximum Torque per Ampere Control	0:close 1:open	0	☆
P2-30	Current loop KP during tuning	1~100	6	☆
P2-31	Current loop KI during tuning	1~100	6	☆
P2-32	Z signal correction enable	0:close 1:open	1	☆
P2-33	Synchronous SVC speed filtering level	10~1000	100	☆

Parameter	Name	Set the scope	Factory value	change
P2-34	Synchronous SVC speed estimation proportional gain	5~200	40	☆
P2-35	Synchronous SVC speed estimation integral gain	5~200	30	☆
P2-36	Synchronous machine SVC initial excitation current limit	0~80	30	☆
P2-37	Synchronous SVC Minimum Carrier Frequency	0.8K~P0-15	1.5K	☆
P2-42	Synchronous SVC speed tracking	0:close 1:open	0	☆
P2-43	Zero servo enable	0:close 1:open	0	☆
P2-44	Switching frequency	0.00Hz~P2-02	0.30Hz	☆
P2-45	Zero servo speed loop proportional gain	1~100	10	☆
P2-46	Zero servo speed loop integration time	0.01S~10.00S	0.50S	☆
P2-47	Shutdown prohibited from reversing	0:close 1:open	0	☆
P2-48	Shutdown angle	0.0°~359.9°	0.8°	☆
P2-49	Online tuning enabled	0: Turn off this function 1: Automatic tuning before the first power on operation 2: Automatically tune before each run	0	☆
P2-50	Online identification of back electromotive force	0: Turn off this function 1: Online identification of back electromotive force	0	☆
P2-51	SVC initial position compensation angle	0.0°~360.0°	0.0	☆

The P3 group is the V / F control parameter group				
P3-00	V/F curve setting	0: Direct Line V / F 1: Multipoint V / F 2: Square V / F 3:1.2 Square 2: V / F 0: Direct Line V / F 1: Multipoint V / F 2: Square V / F 3:1.2 Square 2: V / F 4:1.4 Square V / F 6:1.6 Square V / F 8:1.8 Square V / F 9: Keep 10: V / F, completely separated mode 11: V / F semi-separation mode	0	★
P3-01	Recurrent ascension	0.0%: (Automatic Torque Lift) 0.1%~30.0%	Model determination	☆
P3-02	Torque lift stop frequency	0.00Hz~ Maximum frequency	50.00Hz	★
P3-03	Multipoint V / F, frequency point 1	0.00Hz~P3-05	0.00Hz	★
P3-04	Multi-point V / F, voltage point 1	0.0%~100.0%	0.0%	★
P3-05	Multipoint V / F, frequency point 2	P3-03~P3-07	0.00Hz	★
P3-06	Multi-point V / F, voltage point 2	0.0%~100.0%	0.0%	★
P3-07	Multipoint V / F, frequency point 3	P3-05~, Motor Rated Frequency (P1-04)	0.00Hz	★
P3-08	Multi-point V / F, voltage point 3	0.0%~100.0%	0.0%	★
P3-10	V / F overexcitation gain	0~200	64	☆
P3-11	The V / F oscillations suppress the gain	0~100	40	☆
P3-12	Oscillation suppression gain mode	0~4	3	

Parameter	Name	Set the scope	Factory value	change
P3-13	V / F	0: Number setting (P3-14) 1:AI1 2:AI2 3:AI3 4: PULSE Pulse Setting (DI5) 5: Multiple instructions 6: Simple PLC 7:PID 8: Communication given Note: 100.0%, corresponding to the motor rated voltage	0	☆
P3-14	Voltage for V / F separation Digital setting	0V~ Motor rated voltage	0V	☆
P3-15	Voltage for V / F separation acceleration time	0.0s~1000.0s Note: indicates the time of 0V changes to motor rated voltage	0.0s	☆
P3-16	Voltage for V / F separation deceleration time	0.0s~1000.0s Note: indicates the time of 0V changes to motor rated voltage	0.0s	☆
P3-17	V/F separation Stop mode selection	0 1: The frequency is reduced after the voltage is reduced to 0	0	☆
P3-18	Over-drain speed action current	50~200%	150%	★
P3-19	Excessive loss speed enabling	0: invalid 1: valid	1	★
P3-20	Overdrain speed suppression gain	0~100	20	☆
P3-21	Compensation coefficient of action current at the excess loss speed	50~200%	50%	★
P3-22	Over-voltage stall action voltage	Three-phase 380~480V models: 30.0V~800.0V Three-phase 200~240V models: 30.0V~800.0V	★	
P3-23	Overpressure stall enabling	0: invalid 1: valid	1	★
P3-24	Overpressure stall Inhibition of frequency gain	0~100	30	☆
P3-25	Overpressure stall Inhibition of voltage gain	0~100	30	☆
P3-26	Overpressure stall is the largest Increase frequency limit	0~50Hz	5Hz	★

Parameter	Name	Set the scope	Factory value	change
P4 group input terminal parameter group				
P4-00	DI1 terminal unction selection	0: No function 1: Running FWD or running command 2: Invert running REV or reverse direction 3: Three-line operation control 4: Forward rotation (FJOG) 5: Reverse movement (RJOG)	1	★
P4-01	DI2 terminal function selection	6: Terminal UP 7: Terminal DOWN 8: Free parking 9: Fault reset (RESET) 10: Operation is paused 11: External fault often open input	2	★
P4-02	DI3 terminal functional selection	13: Multi-segment command terminal 2 14: Multi-segment command terminal 3 15: Multi-segment command terminal 4	3	★
P4-03	DI4 terminal function selection	17: Increase and deceleration time to select terminal 2 18: Frequency instruction switching 19: UP / DOWN setting reset (terminal, keyboard) 20: Control the command to switch over the terminal 1 21: Prohibition, acceleration and deceleration 22: The PID is paused 23: Simple PLC state reset 24: Sent-out frequency pause	12	★
P4-04	DI5 terminal function selection	25: Counter input 26: Counter is reset 27: Length count input 28: Length reset 29: Torque control is prohibited 30: Pulse frequency input (valid for DI5 only) 31: Keep	13	★
P4-05	DI6 terminal function selection	32: Immediately with DC braking 33: Frequent closed input for external faults 34: Frequency modification enables 35: PID, the direction of action is reversed 36: External parking terminal 1	0	★

Parameter	Name	Set the scope	Factory value	change
P4-06	Di7 terminal functional selection	37: Control the command to switch over the terminal 2 38: The PID points are suspended 39: Switch between main frequency and preset frequency	0	★
P4-07	Di8 terminal function selection	40: Switching between auxiliary frequency and preset frequency 41: Motor terminal selection function 42: Keep	0	★
P4-08	Di9 terminal function selection	43: PID parameter switching 44: User-defined custom fault 1 45: User-defined custom fault 2 46: Speed control / torque control switch 47: Emergency stop	0	★
P4-09	Di10 terminal function selection	48: External parking terminal 2 49: Slow down the DC brake 50: The operation time will be cleared to zero 51: Two line / three line switch 52: Reverse frequency is prohibited 53-59: Keep it	0	★
P4-10	DI filtering time	0.000s~1.000s	0.010s	☆
P4-11	Terminal command mode	0: Two-line type 1 1: Two-line type 2 2: Three-line type 1 3: Three-line type 2	0	★
P4-12	Terminals UP / DOWN change rate	0.001Hz/s~65.535Hz/s	1.00Hz/s	☆
P4-13	AI curve 1 minimum input	0.00V~P4-15	0.00V	☆
P4-14	The minimum input of the AI curve 1 corresponds to the setting	-100.0%~+100.0%	0.0%	☆
P4-15	AI curve 1 maximum input	P4-13~+10.00V	10.00V	☆
P4-16	The maximum input of the AI curve 1 corresponds to the setting	-100.0%~+100.0%	100.0%	☆
P4-17	The AI1 filtering time	0.00s~10.00s	0.10s	☆
P4-18	AI curve 2 minimum input	0.00V~P4-20	0.00V	☆
P4-19	The minimum input of the AI curve 2 corresponds to the setting	-100.0%~+100.0%	0.0%	☆
P4-20	AI curve 2 maximum input	P4-18~+10.00V	10.00V	☆
P4-21	The maximum input of the AI curve 2 corresponds to the setting	-100.0%~+100.0%	100.0%	☆

Parameter	Name	Set the scope	Factory value	change
P4-22	The AI2 filtering time	0.00s~10.00s	0.10s	☆
P4-23	AI curve 3 minimum input	-10.00V~P4-25	-10.00V	☆
P4-24	The minimum input of AI curve 3 corresponds to the setting	-100.0%~+100.0%	-100.0%	☆
P4-25	AI Curve 3 max input	P4-23~+10.00V	10.00V	☆
P4-26	The maximum input of AI curve 3 corresponds to the setting	-100.0%~+100.0%	100.0%	☆
P4-27	The AI3 filtering time	0.00s~10.00s	0.10s	☆
P4-28	Pulse input minimum frequency	0.00kHz~P4-30	0.00kHz	☆
P4-29	The pulse minimum input frequency corresponds to the setting	-100.0%~100.0%	0.0%	☆
P4-30	Pulse maximum input frequency	P4-28~100.00kHz	50.00kHz	☆
P4-31	The maximum pulse-based input frequency corresponds to the set	-100.0%~100.0%	100.0%	☆
P4-32	Pulse filtering time	0.00s~10.00s	0.10s	☆
P4-33	The AI curve selection	Individual bit: AI1 curve selection 1: Curve 1 (2, point, see P4-13~P4-16) 2: Curve 2 (2, point, see P4-18~P4-21) 3: Curve 3 (2, point, see P4-23~P4-26) 4: Curve 4 (4, point, see A6-00~A6-07) 5: Curve 5 (4, point, see A6-08~A6-15) Ten places: AI2 curve selection, ibid to above Hundred bits: AI3 curve selection, ibid to above	321	☆
P4-34	The AI is below the minimum input setting selection	Individual bit: AI1 is below the minimum input setting Select 0: corresponding to the minimum input setting 1:0.0% Ten digits: The AI2 is below the minimum input setting selection, ibid Hundred bits: the AI3 is below the minimum input setting selection, ibid. above	000	☆
P4-35	DI1 delay time	0.0s~3600.0s	0.0s	★
P4-36	DI2 delay time	0.0s~3600.0s	0.0s	★
P4-37	DI3 delay time	0.0s~3600.0s	0.0s	★

Parameter	Name	Set the scope	Factory value	change
P4-38	DI terminal valid mode Choose 1	0: Effective at a high power level 1: Effective at the low level Position: DI1 Ten places: DI2 Hundred bits: DI3 Thousand bits: DI4 Ten bits: DI5	00000	★
P4-39	DI terminal valid mode selection 2	0: Effective at a high power level 1: Low level effective individual bit: DI6 Ten: DI7 100 Position: DI8 Thousand position: DI9 Ten thousand bits: DI10	00000	★
The P5 group is the output terminal parameter group				
P5-00	FM terminal output mode selection	0: Pulse output (FMP) 1: Switch volume output (FMR)	0	☆
P5-01	FMR function selection (collector open-circuit output terminal)	0: No output 1: frequency converter in operation 2: Fault output (fault for free shutdown fault) 3: Frequency level detection 1 4: Frequency arrives 5: Zero-speed operation (no output during shutdown)	0	☆
P5-02	Relay 1 Function Selection (T1A-T1B-T1C)	6: Motor overload forecast alarm 7: frequency converter overload forecast alarm 8: Set the value arrives 9: Specify that the marked value arrives 10: Length reached 11: Simple PLC cycle is completed 12: Accumulated running time for arrival	1	☆
P5-03	Relay 2 function selection (T2A-T2B-T2C)	13: Frequency limit is in the middle 14: Torque limit in 15: Ready to run 16: A1>A2 17: Upper limit frequency reaches 18: Lower limit frequency reached (no output when shutdown)	2	☆

Parameter	Name	Set the scope	Factory value	change
P5-04	Do1 output function selection	19: Underpressure state 20: Communication settings 21: Keep 22: Keep 23: Zero-speed operation 2 (also output when shutdown) 24: Accumulated power supply time arrives 25: Frequency level detection2 26: Frequency 1 of the arrival 27: Frequency 2 of the arrival	0	☆
P5-05	Expansion card DO2 output function selection	28: Current 1 arrives 29: Current 2 arrives 30: Regular arrival 31: The AI1 input is overrun 32: In the load 33: Reverse is in operation 34: Zero-current state 35: The module temperature arrives 36: Output current limit 37: Lower frequency reached (shutdown also output) 38: Warning (all faults) 39: Motor overtemperature 40: The running time arrives 41: Fault (for free shutdown fault and underpressure is not output)	4	☆
P5-06	The FMP output function selection	0: Run frequency 1: Set the frequency 2: Output current 3: Motor output torque (absolute value, percentage relative to the motor) 4: Output power 5: Output voltage 6: Pulse input (100.0% corresponding to 100.0kHz)	0	☆

Parameter	Name	Set the scope	Factory value	change
P5-07	AO1 output function selection	7: AI1 8: AI2 9: Panel potentiometer 10: Length 11: Remember the value 12: Communication setting 13: Motor rotation speed 14: Output current (100.0% corresponding to 1000.0A) 15: Output voltage (100.0% corresponding to 1000.0V) 16: Motor output torque (actual value, percentage relative to motor) The FMP output function selection	0	☆
P5-08	Ao2 output function selection		4	☆
P5-09	FMP output maximum frequency	0.01kHz~100.00kHz	50.00kHz	
P5-10	Ao1 zero-bias coefficient	-100.0%~+100.0%	0.0%	
P5-11	AO1 gain	-10.00~+10.00	1.00	
P5-12	Ao2 zero-bias coefficient	-100.0%~+100.0%	0.0%	
P5-13	AO2 gain	-10.00~+10.00	1.00	
P5-17	The FMR output delay time	0.0s~3600.0s	0.0s	
P5-18	RELAY1 output delay time	0.0s~3600.0s	0.0s	
P5-19	RELAY2 output delay time	0.0s~3600.0s	0.0s	
P5-20	DO1 output delay time	0.0s~3600.0s	0.0s	
P5-21	DO2 output delay time	0.0s~3600.0s	0.0s	
P5-22	DO output terminal Valid State Selection	0: Positive logic 1: Antilogical unit position: FMR Ten places: RELAY1 Hundred bits: RELAY2 Thousand position: DO1 Ten thousand positions: DO2	00000	

Parameter	Name	Set the scope	Factory value	change
P6 group of start-stop control parameter group				
P6-00	starting mode	0: Direct start 1: Speed tracking and restart 2: Pre-excitation starts (AC asynchronous machine) 3: SVC quick start	0	☆
P6-01	Speed tracking method	0: Start with the shutdown frequency 1: Start with the power frequency 2: Start with the maximum frequency	0	★
P6-02	Speed tracking fast and slow	1~100	20	☆
P6-03	Start frequency	0.00Hz~10.00Hz	0.00Hz	☆
P6-04	Startup frequency retention time	0.0s~100.0s	0.0s	★
P6-05	Start the DC brake current / Pre-excitation current	0%~100%	50%	★
P6-06	Start the DC braking time / Pre-excitation time	0.0s~100.0s	0.0s	★
P6-07	Add deceleration mode	0: Straight-line acceleration and deceleration 1: Static S-curve 2: Dynamic S-curve acceleration and deceleration	0	★
P6-08	The S-curve start segment time scale	0.0%~(100.0%-P6-09)	30.0%	★
P6-09	The S-curve end segment time scale	0.0%~(100.0%-P6-08)	30.0%	★
P6-10	Downtime method	0: Slow down parking 1: Free parking	0	☆
P6-11	Downtime DC brake initial frequency	0.00Hz~ Maximum frequency	0.00Hz	☆
P6-12	Downtime DC brake wait time	0.0s~100.0s	0.0s	☆
P6-13	Stop the DC brake current	0%~100%	50%	☆
P6-14	Stop the DC brake time	0.0s~100.0s	0.0s	☆
P6-15	Brake utilization rate	0%~100%	100%	☆
P6-18	Speed tracking current size	30%~200%	Model determination	★
P6-21	degauss time (SVC valid)	0.00~5.00s	Model determination	☆

Parameter	Name	Set the scope	Factory value	change
P6-23	Excessive excitation selection	0: Not effective 1: Effective with deceleration only 2: Effective throughout the whole process	0	☆
P6-24	Overexcitation suppression current value	0~150%	100%	☆
P6-25	Overexcitation gain	1.00~2.50	1.25	☆
P7 group keyboards and display parameter group				
P7-00	Digital pipe lack drawing inspection enables	0~1	0	☆
P7-01	MF. K Key function selection	0:MF. K of no avail 1: The operation panel command channel switches from the remote command channel (terminal command channel or communication command channel) 2: Forward and reverse switch 3: Positive point movement 4: Reverse point movement	0	★
P7-02	STOP/RESET Key function	0: The STOP / RES key shutdown function is valid only in the keyboard operation mode 1: The STOP / RES key shutdown function is valid in any operation mode	1	☆
P7-03	LED1 runs Display parameter 1	0000~FFFF Bit00: Operating frequency 1 (Hz) Bit01: Set Frequency (Hz) Bit02: Bus line voltage (V) Bit03: Output voltage (V) Bit04: output current (A) Bit05: output power (kW) Bit06: Output torque: (%) Bit07: DI input status Bit08: DO output status Bit09: AI1 voltage (V) Bit10: AI2 voltage (V) Bit11: AI3 voltage (V) Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID setting	1F	☆

Parameter	Name	Set the scope	Factory value	change
P7-04	LED1 runs Display parameter 2	0000~FFFF Bit00:PID feedback Bit01: The PLC stage Bit02: PULSE input pulse frequency kHz Bit03: Operating Frequency 2 (Hz) Bit04: remaining Bit05: AI1 Correction front Voltage (V) Bit06: AI2 Correction front Voltage (V) Bit07: AI3 Correction front Voltage (V) Bit08: Motor speed Bit09: Current Power Up Time (Hour) Bit10: Current Running Time (Min) Bit11: PULSE Input Pulse Frequency (Hz) Bit12: Communication Setpoint Bit13: Encoder Feedback Speed (Hz) Bit14: Main Frequency X Display (Hz) Bit15: Auxiliary frequency Y display (Hz)	0	☆
P7-05	LED1 shutdown display parameters	0000~FFFF Bit00: Set Frequency (Hz) Bit01: Bus line voltage (V) Bit02: DI input status Bit03: DO output status Bit04: AI1 voltage (V) Bit05: AI2 voltage (V) Bit06: AI3 voltage (V) Bit07: Count value Bit08: Length value Bit09: The PLC stage Bit10: Load speed Bit11: The PID setting Bit12: PULSE input pulse frequency kHz	33	☆
P7-06	Load transmission ratio	0.001~65.000	2.92	☆
P7-07	Inverter module Radiator temperature	-20℃~120℃	-	●

Parameter	Name	Set the scope	Factory value	change
P7-08	Product number	-	-	●
P7-09	Cumulative running time	0h~65535h	-	●
P7-10	Performance version number	-	-	●
P7-11	Functional version number	-	-	●
P7-12	load speed Displays the decimal point	Individual bit: the number of decimal points of U0-14 The 0:0 decimal places The 1:1 decimal place In the 2:2 decimal places Ten places: U0-19 / U0-29 decimal points The 1:1 decimal place In the 2:2 decimal places	21	☆
P7-13	Cumulative power time	0 ~ 655 For 35 hours	-	●
P7-14	Accumulated power consumption	0 ~ 65,535 degrees	-	●
P7-17	LED2 shutdown display parameters	U0-00~U0-75	2	★
P7-18	The LED2 run display parameter	U0-00~U0-75	4	★
P7-19	LED3 Shutdown Display Parameters	U0-00~U0-75	0	★
P7-20	LED3 Operating Display Parameters	U0-00~U0-75	0	★
P7-21	LED4 Shutdown Display Parameters	U0-00~U0-75	0	★
P7-22	LED4 Operating Display Parameters	U0-00~U0-75	0	★
P8 group: Auxiliary function parameter group				
P8-00	Point movement operation frequency	0.00Hz~ Maximum frequency	2.00Hz	●
P8-01	Point motion acceleration time	0.0s~6500.0s	20.0s	
P8-02	Point motion deceleration time	0.0s~6500.0s	20.0s	
P8-03	Acceleration time 2	0.00s~650.00s (P0-19=2) 0.0s~6500.0s (P0-19=1) 0s~65000s (P0-19=0)	Model determination	
P8-04	Slow down time 2	0.00s~650.00s (P0-19=2) 0.0s~6500.0s (P0-19=1) 0s~65000s (P0-19=0)	Model determination	
P8-05	Acceleration time 3	0.00s~650.00s (P0-19=2) 0.0s~6500.0s (P0-19=1) 0s~65000s (P0-19=0)	Model determination	
P8-06	Slow down time 3	0.00s~650.00s (P0-19=2) 0.0s~6500.0s (P0-19=1) 0s~65000s (P0-19=0)	Model determination	
P8-07	Slow down time 4	0.00s~650.00s (P0-19=2) 0.0s~6500.0s (P0-19=1) 0s~65000s (P0-19=0)	0.0s	

Parameter	Name	Set the scope	Factory value	change
P8-08	Slow down time 4	0.00s~650.00s (P0-19=2) 0.0s~6500.0s (P0-19=1) 0s~65000s (P0-19=0)	0.0s	☆
P8-09	Receive data gain (frequency)	-10.00~10.00	1.00	☆
P8-10	Jump frequency 2	0.00Hz~ Maximum frequency	0.00Hz	☆
P8-11	Jump frequency amplitude	0.00Hz~ Maximum frequency	0.00Hz	☆
P8-12	Reverse the dead zone time	0.0s~3000.0s	0.0s	☆
P8-13	Reverse frequency prohibited	0: Invalid 1: valid	0	☆
P8-14	Set the frequency is below the lower limit frequency operating mode	0: Run at the lower limit frequency 1: Downtime 2: Zero speed operation	0	☆
P8-15	The sagging rate	0.00%~100.00%	0.00%	☆
P8-16	Set the cumulative power arrival time	0h~65000h	0h	☆
P8-17	Sets the cumulative run arrival time	0h~65000h	0h	☆
P8-18	Start protection options	0: No protection 1: Protection	0	☆
P8-19	Frequency detection value of 1	0.0%~100.0% (FDT1 level)	50.00Hz	☆
P8-20	Frequency detection lag rate 1	0.00Hz~ Maximum frequency	5.0%	☆
P8-21	Frequency reaches the detection amplitude	0.0%~100.0% (Maximum frequency)	0.0%	☆
P8-22	Is the jump frequency effective during the acceleration and deceleration process	0: invalid 1: valid	0	☆
P8-25	Acceleration time 1 and acceleration time 2 switch frequency points	0.00Hz~ Maximum frequency	0.00Hz	☆
P8-26	Switch the frequency points between deceleration time 1 and deceleration time 2	0.00Hz~ Maximum frequency	0.00Hz	☆
P8-27	Terminal point motion is preferred	0: invalid 1: valid	0	☆
P8-28	Frequency detection value of 2	0.00Hz~ Maximum frequency	50.00Hz	☆
P8-29	Frequency detection lag rate 2	0.0%~100.0% (FDT2 level)	5.0%	☆
P8-30	Any arrival frequency Detection value 1	0.00Hz~ Maximum frequency	50.00Hz	☆
P8-31	Any arrival frequency Detection amplitude 1	0.0%~100.0% (Maximum frequency)	0.0%	☆

Parameter	Name	Set the scope	Factory value	change
P8-32	Any arrival frequency Detection value 2	0.00Hz~ Maximum frequency	50.00Hz	☆
P8-33	Any arrival frequency Detection amplitude 2	0.0%~100.0% (Maximum frequency)	0.0%	☆
P8-34	Zero-current detection level	0.0%~300.0% 100.0% corresponds to the motor rated current	5.0%	☆
P8-35	Zero current detection delay time	0.01s~600.00s	0.10s	☆
P8-36	Output current limit value	0.0% (Untested) 0.1%~300.0% (rated current of the motor)	200.0%	☆
P8-37	Output current over limit Detect the delay time	0.00s~600.00s	0.00s	☆
P8-38	Any reach current 1	0.0%~300.0% (rated current of the motor)	100.0%	☆
P8-39	Any arrival Current: 1 amplitude	0.0%~300.0% (rated current of the motor)	0.0%	☆
P8-40	Any reach current 2	0.0%~300.0% (rated current of the motor)	100.0%	☆
P8-41	Any arrival Current of 2 amplitude	0.0%~300.0% (rated current of the motor)	0.0%	☆
P8-42	Time function selection	0: Invalid 1: valid	0	★
P8-43	Timrunning time selection	0: P8-44 Setting 1: AI1 2: AI2 3: AI3 The simulated input range corresponds to P8-44	0	★
P8-44	Time running time	0.0Min~6500.0Min	0.0Min	★
P8-45	AI1 Input voltage Lower limit of protection value	0.00V~P8-46	3.10V	☆
P8-46	AI1 Input voltage Protection value upper limit	P8-45~10.00V	6.80V	☆
P8-47	Module temperature arrives	0°C ~100°C	75°C	☆
P8-48	Heat dissipation fan control	0: The fan operates during operation 1: The fan is always running	0	☆
P8-49	Wake up frequency	Hibernation Frequency (P8-51) ~ Maximum frequency (P0-10)	0.00Hz	☆

Parameter	Name	Set the scope	Factory value	change
P8-50	Wake up delay time	0.0s~6500.0s	0.0s	☆
P8-51	The dormancy frequency	0.00Hz~ Wake Up Frequency (P8-49)	0.00Hz	☆
P8-52	Sleep delay time	0.0s~6500.0s	0.0s	☆
P8-53	Arrival time of this operation	0.0~6500.0 min	0.0Min	☆
P8-54	Output power correction factor	0.00%~200.0%	100.0%	☆
P8-55	Emergency stop deceleration time	0~6553.5	Model determination	☆
The P9 group fault and protection parameter group				
P9-00	Motor overload protection selection	0: Forbidden 1: allowed	1	☆
P9-01	Motor overload protection gain	0.20~10.00	1.00	☆
P9-02	Motor overload early warning factor	50%~100%	80%	☆
P9-03	Overpressure stall gain	0~100	30	☆
P9-04	Overvoltage stall protection voltage	650V~800V	770V	☆
P9-07	Short-circuit-to-ground protection selection	Individual bit: upper power short circuit to ground protection selection 0: Invalid 1: valid Ten places: short circuit to ground protection selection before operation 0: Invalid 1: valid	01	☆
P9-08	Brake unit action starting voltage	Three-phase 380~480V models: 330.0V~800.0V Three-phase 200~240V models: 330.0V~800.0V	★	☆
P9-09	Number of automatic reset times of failures	0~20	0	☆
P9-10	Fault DO action selection during the automatic fault reset	0: Do not move 1: Action	0	☆
P9-11	Failure automatically reset waiting time	0.1s~100.0s	1.0s	☆
P9-12	Enter the phase absence \ contactor suction protection selection	Individual bit: Enter the missing phase protection selection 0: No input of missing phase protection 1: Protection when both software and hardware input and phase absence conditions are met 2: Protection as long as the software input missing phase conditions are met 3: Protection as long as the hardware input-phase absence conditions are met Ten places: contactor suction protection selection 0: Forbidden 1: allowed	11	☆

Parameter	Name	Set the scope	Factory value	change
P9-13	Lack of phase protection choice	Individual bit: Output the missing phase protection selection 0: Forbidden 1: allowed Ten digits: the output is missing phase protection selection before operation	01	☆
P9-14	First-time failure type	Individual bit: Output the missing phase protection selection 0: Forbidden 1: allowed Ten digits: the output is missing phase protection selection before operation 0: Forbidden 1: allowed 0: No fault 1: Keep 2: Accelerated overcurrent 3: Slow down the overcurrent 4: Constant-speed over-current 5: Accelerated overvoltage 6: Reduced-down overvoltage 7: Constant speed overvoltage 8: Buffer resistance to overload 9: Underpressure 10: frequency converter overload 11: Motor overload 12: Enter the missing phase 13: Output phase absence 14: The module is overheated 15: External fault 16: Special communication exception 17: The Contactor is abnormal 18: Abnormal current detection 19: Abnormal motor tuning 20: Encoder / PG, card exception 21: parameter read and write exception 22: The frequency converter hardware is abnormal 23: Motor short-circuit to the ground 24: Keep 25: Keep 26: Runtime arrival 27: User-custom fault 12 29: Power-on time arrives	-	•
P9-15	Second failure type		-	•

Parameter	Name	Set the scope	Factory value	change
P9-16	Third-time failure type	30: Loading 31: Runtime PID feedback is lost 40: Fast flow limit timeout 41: Switch the motor during operation 42: Speed deviation is too large 43: Motor overspeed 45: Motor overtemperature 51: Initial position is incorrect 55: slave fault during main and slave control	-	●
P9-17	Third time (most recent time) Frequency of failure	0.00Hz~655.35Hz	0.00Hz	●
P9-18	Third time (most recent time) Current in case of failure	0.00A~655.35A	0.00A	●
P9-19	Third time (most recent time) Bus voltage in fault	0.0V~6553.5V	0.0V	●
P9-20	Third time (most recent time) Input terminal status on failure	0~9999	0	●
P9-21	Third time (most recent time) Output terminal status at fault	0~9999	0	●
P9-22	Third time (most recent time) Power converter status in fault	0~65535	0	●
P9-23	Third time (most recent time) Power time during failure	0s~65535s	0s	●
P9-24	Third time (most recent time) Running time on failure	0.0s~6553.5s	0.0s	●
P9-27	Frequency at the second fault	0.00Hz~655.35Hz	0.00Hz	●
P9-28	Current at the second fault	0.00A~655.35A	0.00A	●
P9-29	Bus voltage at the second fault	0.0V~6553.5V	0.0V	●
P9-30	When the second fault Enter terminal status	0~9999	0	●
P9-31	When the second fault Output terminal status	0~9999	0	●
P9-32	When the second fault Frequency converter state	0~65535	0	●

Parameter	Name	Set the scope	Factory value	change
P9-33	Power-on time during the second failure	0s~65535s	0s	●
P9-34	Run time for the second failure	0.0s~6553.5s	0.0s	●
P9-37	Frequency during the first failure	0.00Hz~655.35Hz	0.00Hz	●
P9-38	Current at the first fault	0.00A~655.35A	0.00A	●
P9-39	Bus voltage at the first fault	0.0V~6553.5V	0.0V	●
P9-40	When the first fault Enter terminal status	0~9999	0	●
P9-41	When the first fault Output terminal status	0~9999	0	●
P9-42	When the first fault Frequency converter state	0~65535	0	●
P9-43	Power-on time during the first failure	0s~65535s	0s	●
P9-44	Run time on the first failure	0.0s~6553.5s	0.0s	●
P9-47	Fault protection action selection 1	Individual bit: Motor overload (Err11) 0: Free parking 1: Stop down by shutdown mode 2: Continue running Ten digit: input missing phase (Err12) Hundred bits: output phasedefault (Err13) Thousand-bit: external fault (Err15) Ten: abnormal communication (Err16)	00000	☆
P9-48	Fault protection action selection 2	Individual bit: encoder / PG, card exception (Err20) 0: Free parking Ten digit: Parameter read-write exception (Err21) 0: Free parking 1: Stop down by shutdown mode Hundred bit: inverter overload fault action selection (Err10) 0: Free shutdown 1: Reduced operation Thousand bits: Motor overheat (Err45) Ten bits: Runtime arrival (Err26)	00000	☆

Parameter	Name	Set the scope	Factory value	change
P9-49	error protection Action Selection 3	Individual bit: User custom fault 1 (27) 0: Free parking 1: Stop down by shutdown mode 2: Continue running Ten digit: User custom fault 2 (28) 0: Free parking 1: Stop down by shutdown mode 2: Continue running Hundred bits: power-on time arrival (29) 0: Free parking 1: Stop down by shutdown mode 2: Continue running Thousand: drop (30) 0: Free parking 1: Slow down and stop 2: Jump directly to 7% of the rated frequency of the motor to continue the operation, and automatically return to the set frequency operation when not dropped Ten: Runtime PID feedback loss (31) 0: Free parking 1: Stop down by shutdown mode 2: Continue running	00000	☆
P9-50	Fault protection action selection 4	Individual bits: excessive speed deviation (42) 0: Free parking 1: Stop down by shutdown mode 2: Continue running Ten-place: Motor overspeed (43) Hundred bits: initial position error (51)	.00000	☆
P9-54	Continue running frequency selection when failure	0: Run at the current operating frequency 1: Run at a set frequency 2: Above limit frequency operation 3: Run at the lower limit frequency 4: Run at an abnormal standby frequency	0	☆
P9-55	Abnormal backup frequency	0.0%~100.0% (100.0% corresponds to the maximum frequency of P0-10)	100.0%	☆

Parameter	Name	Set the scope	Factory value	change
P9-56	Motor temperature sensor type	0: No temperature sensor 1: PT100 2: PT1000	0	☆
P9-57	Motor overheat protection threshold	0°C ~200°C	110°C	☆
P9-58	Motor overheating forecast alarm threshold	0°C ~200°C	90°C	☆
P9-59	Instant stop no stop function selection	0: invalid 1: Bus voltage constant control 2: Slow down 3: Power suppression	0	★
P9-60	Instant stop no stop recovery voltage	80%~100%	85%	★
P9-61	Instant stop no stop voltage recovery think time	0.0~100.0s	0.5S	★
P9-62	Instant stop no stop voltage	60%~100%	80%	☆
P9-63	Loading protection options	0: invalid 1: valid	0	☆
P9-64	Drop load detection level	0.0~100.0%	10.0%	
P9-65	Drop load detection time	0.0~60.0s	1.0s	☆
P9-67	Overspeed detection value	0.0% ~50.0% (Maximum frequency)	20.0%	☆
P9-68	Overspeed detection time	0.0s: Non-detection 0.1~60.0s	1.0s	☆
P9-69	Excessive velocity deviation	0.0% ~50.0% (Maximum frequency)	20.0%	☆
P9-70	Too large speed deviation and too large detection time	0.0s: Non-detection 0.1~60.0s	5.0s	☆
P9-71	Instant stop no stop gain Kp	0~100	40	☆
P9-72	Instant stop no stop integral coefficient Ki	0~100	30	☆
P9-73	Instant stop no stop action and deceleration time	0~300.0s	20.0s	★
P9-74	uvw Encoder Fault (Err20) Enable	0:Disable 1: Enable	1	☆
P9-75	Initial Position Fault Enable	Single digit : Initial Position Angle Identification Fault (51) 0: Continue Running 1: Free Parking ten digit:Load Tuning Fault (19) 0: Continue Running 1: Free Parking	00	☆
PA group The PID functional parameter group				
PA-00	PID, given the source	0: PA-01 setting 1:A11 2:A12 3:A13 4: Pulse setting (DI5) 5: Communication given 6: Multiple instructions are given	0	☆

Parameter	Name	Set the scope	Factory value	change
PA-01	The PID values are given for the following time periods	0.0%~100.0%	50.0%	
PA-02	The PID, the feedback source	0:A11 1:A12 2:A13 3:A11-A12 4: Pulse setting (DI5) 5: Communication given 6:A11+A12 7:MAX(A11 , A12) 8:MIN(A11 , A12)	0	
PA-03	PID application direction	0: Positive action 1: reverse action	0	
PA-04	The PID is given to the feedback range	0~65535	1000	
PA-05	Proportional gain of KP1	0.0~1000.0	20.0	
PA-06	Integral time, T11	0.01s~10.00s	2.00s	
PA-07	Differential time, TD1	0.000s~10.000s	0.000s	
PA-08	PID Reverse cutoff frequency	0.00~ Maximum frequency	0.00Hz	
PA-09	The PID deviation limit	0.0%~100.0%	0.0%	
PA-10	PID differential limit amplitude	0.00%~100.00%	0.10%	
PA-11	PID given the change time	0.00~650.00s	0.00s	☆
PA-12	PID feedback filtering time	0.00~60.00s	0.00s	
PA-13	The PID output filtering time	0.00~60.00s	0.00s	
PA-14	Continue to have	-	-	
PA-15	Proportional gain of KP2	0~1000.0	20.0	
PA-16	Integration time T12	0.01s~10.00s	2.00s	
PA-17	Differential time, TD2	0.000s~10.000s	0.000s	
PA-18	The PID parameter s switching condition	0: Don't switch 1: Switch through the DI terminal 2: Automatic switch according to the deviation 3: Automatic switch according to the operating frequency	0	
PA-19	The PID parameter switching deviation 1	0.0%~PA-20	20.0%	
PA-20	The PID parameter switching deviation 2	PA-19~100.0%	80.0%	
PA-21	PID starter	0.0%~100.0%	0.0%	
PA-22	PID initial value retention time	0.00~650.00s	0.00s	
PA-23	Two-Time Output Deviation Forward Maximum Value	0.0~100.0	20.0	

Parameter	Name	Set the scope	Factory value	change
PA-24	Two-Time Output Deviation Reverse Maximum Value	0.0~100.0	80.0	☆
PA-25	PID integral attribute	Individual bit: integral separation 0: Invalid 1: valid Ten digits: whether to stop the integration after the output to the limit 0: Continue the points 1: Stop the points	00	☆
PA-26	PID feedback loss detection value	0.0%: Do not judge the missing feedback 0.1%~100.0%	0.0%	☆
PA-27	The PID feedback is lost Detection time	0.0s~20.0s	0.0s	☆
PA-28	The PID shutdown operation	0: Stop and do not operate 1: Downtime operation	0	☆
PB group Swing Frequency, Fixed Length, and Counting Parameters				
PB-00	GroupSwing Frequency Setting Method	0:Relative to the center frequency 1: Relative to Maximum Frequency	0	☆
PB-01	Swing Frequency Amplitude	0.0%~100.0%	100.0%	
PB-02	Jump Frequency Amplitude	0.0%~50.0%	100.0%	
PB-03	Swing Frequency Period	0.1s~3000.0s	10.0s	
PB-04	Swing Triangle Wave Rising Time	0.1%~100.0%	50.0%	
PB-05	Set Length	0m~65535m	1000m	
PB-06	Actual Length	0m~65535m	0m	
PB-07	Pulses Per Meter	0.1~6553.5	100.0	
PB-08	Set Counting Value	1~65535	1000	
PB-09	Specified Counting Value	1~65535	1000	

PC group Multiple instructions, simple PLCparameter group				
PC-00	Multiparagraph instruction 0	-100.0%~100.0%	0.0%	☆
PC-01	Multiparagraph Directive 1	-100.0%~100.0%		
PC-02	Multiparagraph Directive 2	-100.0%~100.0%		
PC-03	Multiparagraph Directive 3	-100.0%~100.0%		
PC-04	Multiparagraph Directive 4	-100.0%~100.0%		
PC-05	Multiparagraph Directive 5	-100.0%~100.0%		
PC-06	Multiparagraph Directive 6	-100.0%~100.0%		
PC-07	Multiparagraph Directive 7	-100.0%~100.0%		
PC-08	Multiparagraph instruction 8	-100.0%~100.0%		
PC-09	Multiparagraph Directive 9	-100.0%~100.0%		
PC-10	Multiparagraph directive 10	-100.0%~100.0%		
PC-11	Multiparagraph directive 11	-100.0%~100.0%		
PC-12	Multiparagraph 12	-100.0%~100.0%		
PC-13	Multiple paragraph instruction 13	-100.0%~100.0%		
PC-14	Multiple instructions: 14	-100.0%~100.0%		
PC-15	Multiple instructions: 15	-100.0%~100.0%		
PC-16	Simple PLC operation mode	0: Stop after the end of a single operation 1: Final value is maintained at the end of a single run 2: Always cycle	0	☆

Parameter	Name	Set the scope	Factory value	change
PC-17	Simple PLC power loss Memory choice	Individual bit: power loss memory selection 0: Do not remember the power loss 1: ELECTRIC memory Ten places: Stop memoryselection 0: Stop without memory 1: Stop memory	00	☆
PC-18	Easy PLC segment 0 run time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-19	Simple PLC, paragraph 0 Increase and deceleration time selection	0~3	0	
PC-20	Simple PLC segment 1 runtime	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-21	Paragraph 1 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-22	Simple PLC segment 2 runtime	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-23	Paragraph 2 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-24	Simple PLC segment 3 running time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-25	Paragraph 3 of the Simple PLC Increase and deceleration time selection	0~3	0	

Parameter	Name	Set the scope	Factory value	change
PC-26	Simple PLC segment 4 running time	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-27	Paragraph 4 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-28	Simple PLC segment 5 run time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-29	Paragraph 5 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-30	Simple PLC segment 6 running time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-31	Paragraph 6 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-32	Simple PLC segment 7 runtime	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-33	Summary PLC, paragraph 7 Increase and deceleration time selection	0~3	0	
PC-34	Simple PLC segment 8 running time	0.0s(h)~6553.5s(h)	0.0s(h)~6553.5s(h)	
PC-35	Paragraph 8 of the Simple PLC Increase and deceleration time selection	0~3	0~3	

Parameter	Name	Set the scope	Factory value	change
PC-36	Simple PLC segment 9 runtime	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-37	Paragraph 9 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-38	Easy PLC segment 10 running time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-39	Paragraph 10 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-40	Easy PLC segment 11 running time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-41	Paragraph 11 of the Summary PLC Increase and deceleration time selection	0~3	0	
PC-42	Simple PLC period 12 running time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-43	Paragraph 12 of the Simple PLC Increase and deceleration time selection	0~3	0	
PC-44	Simple PLC Period 13 Runtime	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-45	Paragraph 13 of the Summary PLC Increase and deceleration time selection	0~3	0	
PC-46	Simple PLC period 14 running time	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-47	Paragraph 14 of the Summary PLC Increase and deceleration time selection	0~3	0	
PC-48	Simple PLC Period 15 Runtime	0.0s(h)~6553.5s(h)	0.0s(h)	
PC-49	Paragraph 15 of the Summary PLC Increase and deceleration time selection	0~3	0	
PC-50	Easy PLC running time unit	0: s (sec) 1: h (hour)	0	
PC-51	Multiple instruction 0 given	0: Parameter PC-00 is given 1:A11 2:A12 3:A13 4: Pulse 5:PID 6: Given the preset frequency (P0-08), UP / DOWN can be modified	0	

Parameter	Name	Set the scope	Factory value	change
The Pd Group Communication Parameter group				
Pd-00	Communication Porter rate	Individual bit: MODBUS 0:300BPS 1:600BPS 2:1200BPS 3:2400BPS 4:4800BPS 5:9600BPS 6:19200BPS 7:38400BPS 8:57600BPS 9:115200BPS Ten places: Profibus-DP 0:115200BPs 1:208300BPs 2:256000BPs 3:512000Bps 100 Positions: Keep Thousand bits: CANlink Porter rate 0:20 1:50 2:100 3:125 4:250 5:500 6:1M	5005	☆
Pd-01	The MODBUS data format	0: No calibration (8-N-2) 1: Dual (8-E-1) 2: Strange check (8-O-1) 3: No calibration (8-N-1) (MODBUS valid)	0	☆
Pd-02	This machine address	0: Radio address 1~247 (Modbus, Profibus-DP, CANlink, Profinet, EtherCAT are valid)	1	☆
Pd-03	The MODBUS response was delayed	0~20ms (MODBUS is valid)	2	☆

Parameter	Name	Set the scope	Factory value	change
Pd-04	Serial port communication timeout time	0.0: invalid 0.1 ~ 60.0s(Modbus, Profibus-DP, CANopen, Profinet, EtherCAT is valid)	0.0	☆
Pd-05	Data transfer format selection	Individual bit: Modbus 0: Non-standard Modbus protocol 1: Standard Modbus protocol Ten places: Profibus-DP, CANopen, Profinet, EtherCAT 0: PPO1 format 1: PPO2 format 2: The PPO3 format 3: PPO5 format	31	
Pd-06	Communication to read the current resolution	0:0.01A (valid at 55kW) 1: 0.1A	0	
Pd-08	Profibus-DP, CANopen, Profinet, EtherCAT communication interruption detection time	The 0.0s: Invalid 0.1~60.0s	0	
The PE group water supply parameter group				
PE-00	Hibernian pressure deviation	0.0~PE-04	0.0%	☆
PE-01	Sleep rate	0~10, In Unit of 5Hz / S	02	
PE-02	The dormancy frequency	0.00Hz~ Maximum frequency (P0-10)	2.00Hz	
PE-03	hold time	000.0~999.9S	2.0	
PE-04	Wake up stress bias	0.0~PA-01	5.0%	
PE-05	Wake up delay time	000.0~999.9S	0.0	
PE-06	Sleep reduction time	000.0~100.0S	2.0	
PE-07	Selection of water shortage detection method	0: No detection 1: Current mode 2: Pressure mode 3: Both are used	0	
PE-08	Water shortage detection pressure	0.0~PA-01	0.5%	
PE-09	Water shortage detection frequency	0.00Hz~ Maximum frequency (P0-10)	5.00Hz	
PE-10	Water shortage detection time	000.0~999.9S	5.0	
PE-11	Water shortage detection current	0.01~ Rated current of the installed model	00.01	

Parameter	Name	Set the scope	Factory value	change
PE-12	Water shortage fault is automatic Reduction interval time	001~100S	15	☆
PE-13	The PID high-limit alarm setting value	0.0%~100%	100.0	☆
PE-14	PID high-limit alarm detection time	From 000~200S, set to 0 without alarm	0.0	☆
PE-15	PID low-limit alarm settings	0.0%~100%	0.0	☆
PE-16	PID low-limit alarm detection time	From 000~200S, set to 0 without alarm	0.0	☆
PE-17	Power-on automatic run selection	0: Close 1: Turn On	0	☆
PE-18	Auto-run the latency time	00.1~100S	1.00	☆
PE-19	Anti-freezing function selection	0: Close 1: Turn On	0	☆
PE-20	Anti-freezing cycle	000~9999S, set to 0, running at antifreeze frequency	0	☆
PE-21	Anti-freezing operation time	000~9999S	60	☆
PE-22	Anti-freezing operation frequency	0.00~30.00Hz	10.00	☆
PP group Functional code manages the parameter group				
PP-00	User password	0~65535	0	☆
PP-01	Parameter initialization	0: No operation 01: Restore the factory parameters, excluding the motor parameters 02: Clear the record information 21: Constant Pressure Water Supply Application Macro 22: Sleep Mode Water Supply Application Macro	0	★
PP-02	Functional parameter group display selection	Individual bit: U group display selection 0: Do not show 1: Show Ten digits: Group A display selection 0: Do not show 1: Show Hundred digit: B group display selection 0: Not displayed 1: Display	111	★
PP-04	Parameter Modification Properties	0: Modifiable 1: Unmodifiable	0	☆

Parameter	Name	Set the scope	Factory value	change
A0 Group: Torque Control Parameters Group				
A0-00	Speed/Torque Control Mode Selection	0: Speed Control 1: Torque Control	0	★
A0-01	Torque Control Mode torque setting Selection	0: Digital setting 1 (A0-03) 1: AI1 2: AI2 3: AI3 4: PULSE 5: Communication Command 6: MIN(AI1, AI2) 7: MAX(AI1, AI2)(1-7 Full range of options, corresponding to A0-03 Digital Settings)	0	★
A0-03	Torque Control Mode Digital Setting	-200.0%~200.0%	150.0%	☆
A0-04	Torque Filtering	0.00-10.00	0.00	☆
A0-05	Torque Control Forward Maximum Frequency	0.00Hz~ Maximum Frequency	50.00Hz	☆
A0-06	Torque Control Reverse Maximum Frequency	0.00Hz~ Maximum Frequency	50.00Hz	☆
A0-07	Torque Rise filtering Time	0.00s~650.00s	0.00s	☆
A0-08	Torque Fall filtering Time	0.00s~650.00s	0.00s	☆
A5 Group: Control Optimization Parameters Group				
A5-00	DPWM Switching Upper Frequency	5.00Hz~Maximum Frequency	8.00Hz	☆
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	1	☆
A5-03	PWM Depth at Random	0: Random PWM is invalid 1~10: PWM carrier frequency random depth	0	☆
A5-04	Fast Current Limit Enable	0: Disabled 1: Enabled	1	☆
A5-05	Current Detection Delay Compensation	0~110	105	★
A5-06	Under voltage Point Setting	Three-Phase 690V Model: 00.0V~650.0V Three-Phase 380V Model: 00.0V~400.0V Three-Phase 220V Model: 40.0V~200.0V	Model determination	☆
A5-08	Dead Zone Time Adjustment	100~200	150	★
A5-08	Dead Zone Time Adjustment	100~200	150	★
A5-09	Over voltage point setting	Three phase e380V Model:200.0V~820.0V Three phase 220V Model:200.0V~400.0V		★

Parameter	Name	Set the scope	Factory value	change
b0 Group PV special machine parameters				
b0-00	PV power tracking control, mode	0. Invalid, 1. CVT mode 2. MPPT mode	0	★
b0-01	CVT mode target voltage ratio	0~99.9% Unit: percentage of open circuit voltage Control voltage=(b0 - 02 open circuit voltage)*(b0-01)	80%	
b0-02	Photovoltaic open circuit voltage	The bus voltage automatically collected during shutdown shall not be given		
b0-03	MPPT upper limit voltage ratio	0~99.9%	99.9%	
b0-04	0-MPPT lower limit voltage ratio	0~99.9%	0.1%	
b0-05	MPPT search time	0.01s~10.00s	1s	
b0-06	MPPT initial voltage	0~99.9%	80%	
b0-07	MPPT PID Proportion gain	0~65535	5000	
b0-08	MPPT PID Integration gain	0~65535	300	
b0-10	MPPT Search Refresh	0.1~200.0	20.0	
b0-11	MPPT step size in search	0~30.0V	1.0V	
b0-12	Actual control target voltage display	Control target voltage for automatic calculation Both the CVT and MPPT patterns are shown here		
b0-13	Current PV voltage display	When B0-20=1, the PV voltage is displayed		
b0-14	Output power display	Unit : 0.01kW		
b0-15	Sleep wake up voltage ratio	0~99.9% ◦ Unit: Percentage of open circuit voltage, wake speed determined by low speed sleep count. 10s after the first dormancy, second 30s, third 60s, fourth 180s and fifth 3600s	80%	

Parameter	Name	Set the scope	Factory value	change
b0-16	Low-speed dormancy frequency ratio	0~99.9% Unit: the percentage of the maximum frequency Threshold frequency=(P0 - 10 maximum frequency)*(b0-16)	33.3%	★
b0-17	dormancy sign	1~4		
b0-18	Low-time dormancy judgment time	0~3600s	30s	
b0-19	Low speed downtime	0~5 Each entry into dormancy accumulation · reset after 3 minutes of operation	0	
b0-20	Photovoltaic voltage sampling source	0:busbar voltage 1:A11(0~10V corresponding 0-1000V)		

Regulate points of attention:

If the pressure cannot be stabilized effectively, improve the motor dynamic response speed and reduce the acceleration and deceleration time (PO-17 and PO-18). The recommended acceleration time 10.0s deceleration time is 1.0s.

2.If the MPPT point adjustment is unstable, b0-05 , MPPT the time interval can adjust by 1.00s. If the motor operates at the MPPT point, the motor speed ring parameter can be adjusted P2-00=30 and P2-03=10.

3. Switching the power frequency operation: During dormancy, if the bus voltage is higher than the photovoltaic open circuit voltage b0-02, the power frequency is considered to have been switched, and the motor is operated at a fixed speed at the low speed dormancy frequency b0-16. The specific speed is: P0-10 maximum frequency * (b0-16) * 100%. Switch the power frequency condition, b0-17=4, b0-19> =4, DO port 45 function is valid, and other time is invalid.

4.Wake up:

In dormancy, the voltage selected by the photovoltaic voltage input source is used as the judgment of b0-20 wake up voltage

4.2 Monitoring parameters summary table

Parameter	Name	Minimum unit	postal address
The U0 Group Monitoring Parameter Table			
U0-00	Operating frequency (Hz)	0.01Hz	7000H
U0-01	Set Frequency (Hz)	0.01Hz	7001H
U0-02	busbar voltage (V)	0.1V	7002H
U0-03	output voltage (V)	1V	7003H
U0-04	output (A)	0.01A	7004H
U0-05	Output power (kW)	0.1kW	7005H
U0-06	output torque (%)	0.1%	7006H
U0-07	DI input mode	1	7007H
U0-08	DO output state	1	7008H
U0-09	AI1 Voltage (V)	0.01V	7009H
U0-10	AI2 voltage (V) / current (mA)	0.01V/0.01mA	700AH
U0-11	AI3 voltage (V)	0.01V	700BH
U0-12	count value	1	700CH
U0-13	Length value	1	700DH
U0-14	load speed	1RPM	700EH
U0-15	PID setting	1	700FH
U0-16	PID feedback	1	7010H
U0-17	PLC stage	1	7011H
U0-18	Input pulse frequency (Hz)	0.01kHz	7012H
U0-19	Feedback speed (Hz)	0.01Hz	7013H
U0-20	The remaining running time	0.1Min	7014H
U0-21	AI1 corrected front voltage	0.001V	7015H
U0-22	Ai2 pre-correction voltage (V) / current mA)	0.001V/0.01mA	7016H
U0-23	Ai3 correction front voltage	0.001V	7017H
U0-24	motor speed	1RPM	7018H
U0-25	Current power time	1Min	7019H
U0-26	Current run time	0.1Min	701AH
U0-27	Input pulse frequency	1Hz	701BH
U0-28	Communication set value	0.01%	701CH
U0-29	Encoder feedback speed	0.01Hz	701DH
U0-30	The primary frequency is shown	0.01Hz	701EH
U0-31	Auxiliary frequency display	0.01Hz	701FH

Parameter	Name	Minimum unit	postal address
U0-32	View any memory address values	1	7020H
U0-34	Motor temperature value	1°C	7022H
U0-35	Target torque: (%)	0.1%	7023H
U0-36	The rotation position	1	7024H
U0-37	Power factor Angle	0.1°	7025H
U0-38	ABZ position	1	7026H
U0-39	V / F separates the target voltage	1V	7027H
U0-40	V / F to separate the output voltage	1V	7028H
U0-41	The DI input status is visually displayed	1	7029H
U0-42	The DO output status is visually displayed	1	702AH
U0-43	DI function Status 1 (function 01-40)	1	702BH
U0-44	DI Function Status Visual Display 2 (Function 41-80)	1	702CH
U0-45	fault message	1	702DH
U0-51	MPPT power display	0.1kW	7033H
U0-58	Z event counter	1	703AH
U0-59	Set the frequency of (%)	0.01%	703BH
U0-60	running frequency (%)	0.01%	703CH
U0-61	Frequency converter state	1	703DH
U0-62	Current fault coding	1	703EH
U0-63	Point-to-point host communication sends torque values	0.01%	703FH
U0-64	Number of stations	1	7040H
U0-65	Cycle upper limit	0.1%	7041H
U0-73	Motor serial number	0: Motor 1 1: Motor 2	7049H
U0-74	Power converter output torque	0.1%	704AH
U0-76	Cumulative electricity consumption is low	0.1 Degrees	704CH
U0-77	Cumulative electricity consumption is high	1 Degrees	704DH
U0-78	linear velocity	1m/Min	704EH

Chapter 5 Communication Protocol

5.1 Definition of the address of the communication data

The inverter supports four communication protocols: Modbus-RTU, CANopen, CANlink and Profibus-DP. User programmable card and point-to-point communication are derived from CANlink protocol. Through these communication protocols, the upper computer can control and monitor the function parameters.

The frequency converter communication data can be divided into functional code data and non-functional code data, which includes operation command, operation status, operating parameters, alarm information, etc.

5.1.1, Functional code data:

Functional code data The important setting parameters of the frequency converter are as follows:

Functional code data	P group (readable and written)	P0、P1、P2、P3、P4、P5、P6、P7、P8、P9、PA、PB、PC、Pd、PE、PF
	A group (readable and written)	A0、A1、A2、A3、A4、A5、A6、A7、A8、A9、AA、AB、AC、AD、AE、AF

The function code data communication address is defined as follows:

1. When the functional code data is read for communication

For the functional code data of F0~FF and A0~AF, the communication address higher 16 directly the functional group number, and the lower 16 directly the serial number of the functional code in the functional group.

The examples are as follows:

F0-16 function parameters, whose communication address is F010H. FOH represents the function parameter of F0 group, and 10H represents the hexadecimal data format of function number 16 in the function group

AC-08 function parameters, whose communication address is AC08, where ACH represents the AC group function parameters and 08H represents the hexadecimal data format of number 8 in the functional group

2. When the functional code data is written for the communication For

The function code data of F0~FF group, its communication address is 16 high, according to whether the EEPROM is written, distinguish into 00~0F or F0~FF, and 16 low directly is the serial number of the function code in the function group.

Examples are given below: write the functional parameters F0-16,

When EEPROM is not required to be written, its communication address is 0010H.

If EEPROM needs to be written, its communication address is F010H.

For the function code data of A0~AF group, its communication address is 16 years high, according to whether EEPROM needs to be written, it is divided into 40 to 4 F or A 0 to AF, and 16 years low is the serial number of the function code in the function group.

Examples are given below: Write function parameters AC-08,

When EEPROM does not need to be written, its communication address is 4C08H.

If EEPROM needs to be written, its communication address is AC08H.

5.1.2 Non-functional code data

Non-functional code data	status data (read only)	Monitoring parameters of U group, fault description of converter and operating status of converter
	controlling parameter (write only)	Control command, communication set point, digital output terminal control, analog output AO1 control, analog output AO2 control, high-speed pulse (FMP) output control, and parameter initialization

1. Status data

The status data is divided into U-group monitoring parameters, frequency converter fault description, and frequency converter operation status U-group parameter monitoring parameters

The description of U-group monitoring data can be found in Chapter 5 and Chapter 6, and its address is defined as follows:

U0~UF, The upper sixteen bits of its communication address are 70~7F, and the lower sixteen bits are the sequence numbers of the monitoring parameters in the group. For example, U0-11 has a communication address of 700BH

Fault description of frequency converter

When reading the fault description of the frequency converter through communication, the communication address is fixed at 8000H. The upper computer can obtain the current frequency converter fault code by reading the data from this address. The fault code description is defined in Chapter 5 P9-14 Function Code

Operating status of frequency converter

When reading the operating status of the frequency converter through communication, the communication address is fixed at 3000H. The upper computer can obtain the current operating status information of the frequency converter by reading the data from this address.

The definition is as follows:

Frequeter operating status address	Read the state word definition
3000H	1:corotation operation
	2:Reverse operation
	3:closing down

2. Control parameters

The control parameters are divided into control command, digital output terminal control, analog output AO1 control, analog output AO2 control, high speed pulse (FMP) output control control command. When P0-02 (command source) is selected as 2: communication control, the upper computer can realize the relevant command control of the start and stop of the inverter through the communication address. The control command is defined as follows:

Control the command communication address	Command function
2000H	1:corotation operation
	2:Reverse operation
	3:normal inching turning
	4:reverse inching turning
	5:Free shutdown
	6:Slow down
	7:Fault reset

Communication Settings

The communication setting value is mainly used to select the medium frequency source, torque upper limit source, VF separation voltage source, PID set source, PID feedback source, etc. as the given data of the communication timing. Its communication address is 1000H, when the host computer sets the communication address value, its data range is -10000~10000, corresponding to the relative 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 can realize the control of the inverter digital output terminal through the communication address, which is defined as follows:

The digital output terminal controls the communication address	Command content
2001H	BIT0: DO1 output control BIT1: DO2 output control BIT2: RELAY1 output control BIT3: RELAY2 output control BIT4: FMR output control BIT5: VDO1 BIT6: VDO2 BIT7: VDO3 BIT8: VDO4 BIT9: VDO5

Analog output A01, A02, high-speed pulse output FMP control

When the analog output A01, A02, high-speed pulse output FMP output function is selected as 12: communication setting, the host computer can realize the control of the inverter analog output and high-speed pulse output through the communication address, which is defined as follows:

Output control communication address	Command content
AO1	0 ~ 7FFF expression 0% ~ 100%
AO2	
FMP	

Parameter initialization

This function is needed when the parameter initialization operation of the frequency converter needs to be realized by the upper computer

If PP-00(user password) is not 0, the password needs to be verified through communication.

After the verification is successful, the host initializes parameters within 30 seconds.

The communication address for verifying the user password is 1F00H. If the correct user password is written to the address, the password verification can be completed

The address for parameter initialization of communication is 1F01H, and its data content is defined as follows:

Parameter Initializes the communication address	command functions
1F01H	1: Restore factory parameters
	2: Clear record information
	4: Restore user backup parameters
	501: Back up the current user parameters

5.2 Modbus Communication Protocol

The frequency converter provides RS485 communication interface and supports MODBUS-RTU slave station communication protocol. Users can achieve centralized control through the computer or PLC, through the communication protocol to set the inverter running command, modify or read the function code parameters, read the inverter working status and fault information.

5.2.1 Protocol Content

The serial communication protocol defines the content and format of information transmitted in serial communication. These include: host polling (or broadcast) formats; The coding method of the host includes: the function code of the required action, the transmission data and the error check, etc., and the response of the slave machine also uses the same structure, including: / The action confirmation, the return data and the error check. If the slave machine makes an error while receiving the information, or fails to perform the action required by the host, it will organize a fault message as a response to the host.

5.2.1.1 Application Mode

The frequency converter connects to the "single master and multiple slaves" PC/PLC control network with RS485/ bus as the communication slave.

5.2.1.2 Bus Structure

1) Hardware port

The RS485 expansion card MD38TX1 hardware needs to be inserted into the frequency converter

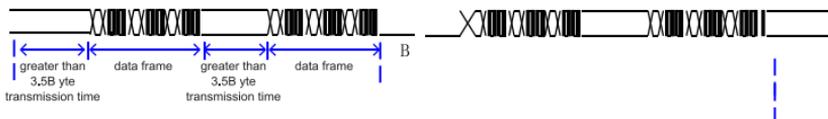
2) Topology Single-host multi-slave system.

Each communication device in the network has a unique slave address, in which there is a device as a communication host (usually a flat PC host, PLC, HMI, etc.), actively initiate communication, and read or write parameters to the slave. Other devices are the communication slave, responding to the inquiry or communication operation of the host to the machine, and only one device can send data at the same time, while the other devices are in the receiving state.

The slave IP address ranges from 1 ~ 247, 0 indicates the broadcast IP address. The slave address in the network must be unique.

3) Communication transmission mode

Asynchronous serial, half-duplex transmission mode, data in the process of serial asynchronous communication, in the form of packets, one frame of data is sent at a time. According to the MODBUS-RTU protocol, when the idle time of no data on the communication data line is greater than 3.5 bytes of transmission time, it indicates the start of a new communication frame.

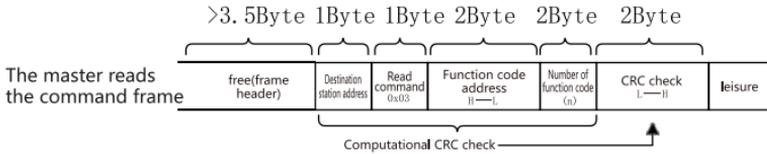


The communication protocol built into this series of frequency converters is Modbus-RTU slave communication protocol, which can respond to the host's "query/command", or make corresponding actions according to the host's "query/command", and communicate data response.

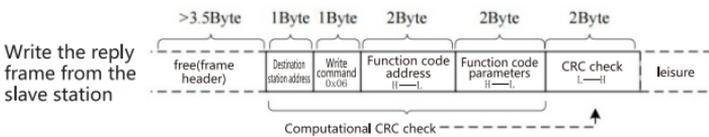
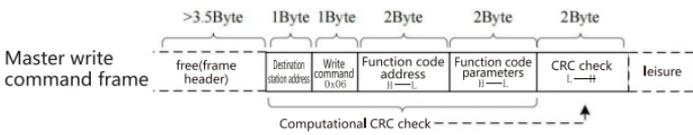
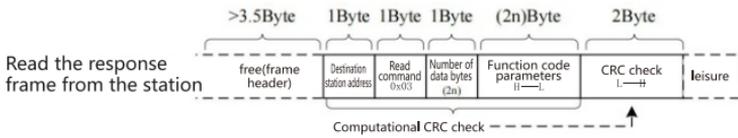
The host can refer to a personal computer (PC), industrial control equipment or programmable logic controller (PLC), etc., the host can communicate with a slave separately, but also broadcast information to all the lower slaves. For individual access to the host "query/command" is accessed from the server to return a reply frame; The slave does not need to respond to the broadcast message sent by the host.

5.3 Communication data structure

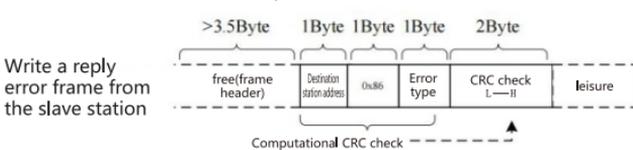
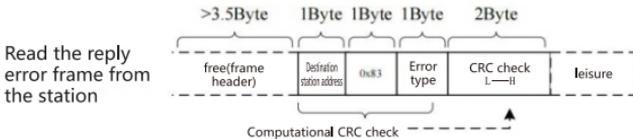
The Modbus-RTU protocol communication data format of this series of frequency converters is as follows. The frequency converters only support Word type parameter reading or writing, and the corresponding communication read operation command is 0x03. The write command is 0x06 and does not support byte or bit read and write operations:



In theory, the host computer can read several consecutive function codes at a time (that is, n can reach a maximum of 12), but it should be noted that it cannot cross the last function code of the function code group, otherwise it will reply incorrectly.



If the slave detects a communication frame error or fails to read or write for other reasons, the slave replies with an error frame.



Error type:
 01: Command code error
 02: Address error
 03: Data error
 04: Command cannot be processed

Data frame field description:

Header START	The transmission time is more than 3.5 characters idle
Slave address ADR	Mailing address range :1~247; 0= broadcast address
Command code CMD	03: Read slave machine parameters; 06: Write slave parameters
Function code Address H	The parameter address inside the inverter, expressed in hexadecimal; It is divided into functional code type and non-functional code type (such as running status parameters, running commands, etc.) parameters, see the address definition for details. When transmitted, the high byte comes first and the low byte comes after.
Function code Address L	
Number of function codes H	Number of function codes read in this frame. 1 indicates that one function code is read. When transmitted, the high byte comes first and the low byte follows. This protocol can only rewrite one function code at a time, without this field.
Number of function codes L	
Data H	Answered data, or data to be written, is transmitted with the high byte first and the low byte last.
Data L	
CRC CHK Indicates the low position	Detection value: CRC16 check value. When transmitted, the low byte comes first and the high byte comes last. For details about the calculation method, see the description of CRC check in this section.
CRC Indicates a high CHK	
END	3.5 characters

CRC verification method:

CRC (Cyclic Redundancy Check) uses RTU frame format messages to include error detection domains based on CRC methods. CRC domain detects the content of the whole message. The CRC field is two bytes and contains 16 bit binary values.

It is calculated by the transmission equipment Add to the message after calculation. 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, it indicates that there is an error in the transmission.

CRC stores 0xFFFF first, and then calls a process to process the consecutive 8-bit bytes in the message with the value in the current register. Only the 8Bit data in each character is valid for CRC, and the start bit, stop bit and parity bit are invalid.

During CRC generation, each 8-bit character is different or (XOR) from the register content, and the result moves to the least significant bit, and the most significant bit is filled with 0. LSB is extracted for detection. If LSB is 1, the register is different from the preset value or, If LSB is 0, it will not be carried out.

The whole process should be repeated 8 times. After the last bit (the 8th bit) is completed, the next 8-bit byte is different or different from the current value of the register. The value in the final register is the CRC value after all bytes in the message are executed. When CRC is added to the message, the low byte is added first, and then the high byte

CRC simple functions are as follows:

```

unsigned int crc_chk_value (unsigned char *data_value,unsigned char length) {
    unsigned int crc_value=0xFFFF;
    int i;
    while (length-->0) {
        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 definitions for communication parameters

Read/write function code parameters (some function codes cannot be changed and are only for the manufacturer's use or monitoring):

5.4 Function code parameter address labeling rules

Parameter address representation rules by function code group number and labeling:

High byte: PO~PF (group P), AO~AF (group A), 70~7F (group U) Low byte: OO~FF

For example: if you want to access function code P3-12, the access address of the function code is represented as 0xF30C;

Note: PF group: parameters can neither be read nor changed; Group U: It can only be read and parameters cannot be changed.

Some parameters can not be changed when the frequency converter is in operation; some parameters can not be changed regardless of what state the frequency converter is in; change the function code parameters, but also pay attention to the scope of the parameters, units, and related instructions.

Function code group number	The address of the correspondence room	Function code address in RAM for communication modification
P0 ~ PE group	0xF000 ~ 0xFEFF	0x0000 ~ 0x0EFF
A0 ~ AC group	0xA000 ~ 0xACFF	0x4000 ~ 0x4CFF
U0 group	0x7000 ~ 0x70FF	

Note that the frequent storage of thousands of EEPROM will reduce the service life of EEPROM. Therefore, some function codes do not need to be stored in the communication mode, just change the value in RAM.

If P group parameters, to achieve this function, just the function code address of the high F to 0 can be achieved. If the parameter is group A, to achieve this function, just the function code address of the high level A to 4 can be achieved. The corresponding function code address is shown as follows:

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

For example:

Function code P3-12 is not stored in EEPROM, and the address is 030C. Function code A0-05 is not stored in EEPROM. The address is represented as 4005;

This address indicates that the RAM can only be written, but cannot be read. The read address is invalid. For all parameters, you can also use commands Code 07H to implement this function

Shutdown/operation parameters section:

Address	Description	Address	Description
1000H	Communication Settings (decimal) -10000 ~ 10000	1010H	PID setting
1001H	Operating frequency	1011H	PID feedback
1002H	Busbar Voltage	1012H	PLC Step
1003H	Output Voltage	1013H	PULSE input pulse frequency, unit: 0.01kHz
1004H	Output Current	1014H	Feedback speed, unit 0.1Hz
1005H	Output Power	1015H	Remaining running time
1006H	output torque	1016H	AI1 Voltage before correction
1007H	running speed	1017H	AI2 Voltage before correction
1008H	DI input flag	1018H	AI3 Voltage before correction
1009H	DO output flag	1019H	Line Speed
100AH	AI1 Voltage	101AH	Current power-on time
100BH	AI2 Voltage	101BH	Current running time
100CH	AAI3 Voltage	101CH	PULSE Input pulse frequency (unit: 1Hz)
100DH	Count input	101DH	Communication Settings
100EH	Length input	101EH	Actual feedback velocity
100FH	loading speed	101FH	Master frequency X display
-	-	1020H	Auxiliary frequency Y display

* Note:

The communication setpoint is a percentage of the relative value, with 10000 corresponding to 100.00% and -10000 corresponding to -100.00%.

For frequency dimension data, the percentage is the percentage relative to the maximum frequency (F0-10); For the data of the torque dimension, the percentage is P2-10 and A2-48 (the torque upper limit number is set, corresponding to the first and second motors respectively).

Control command input to inverter: (write only)

Address	Functions
2000H	0001: indicates forward running
	0002: Inverted operation
	0003: Forward turning jog
	0004: Reverse jog
	0005: Free shutdown
	0006: Slow down and stop the machine
	0007: Fault reset

Read inverter status: (Read only)

Address	Functions
3000H	0001: indicates forward running
	0002: Inverted operation
	0003: Stop

Parameter lock Password verification:

(If 8888H is returned, the password verification is successful)

Address	Description
1F00H	*****

Digital output terminal control: (write only)

Address	Description
2001H	BIT0: D01 output control BIT1: DO2 output control BIT2: RELAY1 output control BIT3: RELAY2 Output control BIT4: FMR Output Control BIT5: VD01 BIT6: VD02 BIT7: Vd03 BIT8: VD04 BIT9: VD05

Analog output A01 control: (write only)

Address	Description
2002H	0 ~ 7FFF indicates 0% ~ 100%

Analog output A02 control: (write only)

Address	Description
2003H	0 ~ 7FFF indicates 0% ~ 100%

PULSE output control: (write only)

Address	Description
2004H	0 ~ 7FFF indicates 0% ~ 100%

Inverter fault description:

Fault Address	Fault Information	
8000H	0000: NO FAULT 0001: Reserve 0002: Accelerating overcurrent 0003: decelerating overcurrent 0004: constant overcurrent 0005: Acceleration overvoltage 0006: decelerating overvoltage 0007: constant speed overvoltage 0008: Buffer resistance overload fault 0009: Undervoltage fault 000A: The inverter is overloaded. 000B: the motor is overloaded 000C: The input phase is missing 000D: Output phase missing 000E: The module overheats 000F: external fault 0010: The communication is abnormal 0011: The contactor is abnormal 0012: Current detection fault 0013: Motor tuning failure 0014: The encoder /PG card is faulty	0015: parameter read and write exception 0016: The inverter hardware is faulty 0017: Motor short circuit to ground fault 0018: reserve 0019: Reserved 001A: The running time is up 001B: User-defined fault 1 001C: User-defined fault 2 001D: The power-on time arrives 001E: load dropped 001F: PID feedback is lost during running 0028: The fast current limiting times out 0029: Switch motor failure during operation 002A: Speed deviation is too large 002B: Motor excess speed 002D: The motor is overheated 005A: The number of encoder lines is incorrectly set 005B: No encoder 005C: The initial position is incorrect 005E: Velocity feedback error

5.5 Communication Parameters of the Pd group

	Baud rate	Factory default	5005
	Pd-00	setting range	Units: MODBUS baud rate
		0: 300BPS	5: 9600BPS
		1: 600BPS	6: 19200BPS
		2: 1200BPS	7: 38400BPS
		3: 2400BPS	8: 57600BPS
		4: 4800BPS	9: 115200BPS

This parameter is used to set the data transmission rate between the host computer and the frequency converter. Note that the baud rate set by the upper computer and the frequency converter must be consistent, otherwise, communication cannot be carried out. The higher the baud rate, the faster the communication speed.

	data format	Factory default	0
	Pd-01	setting range	0: none Check: data format <8,N,2> 1: even check: data format <8,E,1> 2: odd check: data format <8,0,1> 3: none Check: data format < 8-N-1 >

The data format set by the upper computer and the inverter must be consistent, otherwise, the communication cannot be carried out.

Pd-02	Loopback Address	Factory default	1
	setting range	1~247, 0 indicates the broadcast address	

When the local address is set to 0, it is the broadcast address, and the host computer broadcast function is realized.

The local address is unique (except the broadcast address), which is the basis of point-to-point communication between the host computer and the inverter

Pd-03	Response delay	Factory default	2ms
	setting range	0~20ms	

Response delay: refers to the intermediate interval between the end of the frequency converter data acceptance and the sending of data to the upper machine. 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, the system will wait until the response delay time is up before sending data to the upper computer.

Pd-04	Communication timeout	Factory default	0.0 s
	setting range	0.0s (invalid) ; 0.1 ~ 60.0 s	

When the function code is set to 0.0s, the communication timeout parameter is invalid.

When this function code is set to valid value, if the interval between one communication and the next communication exceeds the communication timeout period, the system reports a communication fault error (Err16). Usually, this is set to invalid. If you set the next parameter in a continuous communication system, you can monitor the communication status.

Pd-05	Data transfer format selection	Factory default	31
	Factory default	One bit: Modbus 0: non-standard Modbus-RTU protocol. 1: Standard Modbus-RTU protocol Tens place: Profibus-DP CANopen Profinet EtherCAT 0:PPO format 1:PPO2 format 2:PP03 format 3:PP0 format	

Pd-05=31: selects the standard Modbus protocol.

Pd-05=30: When the command is read, the number of bytes returned by the slave is one byte more than that of the standard Modbus protocol. For details, see the "Communication Data Structure" section of this protocol

Pd-06	Communication read current resolution	Factory default	0
	setting range	0: 0.01A; 1: 0.1A	

The output unit used to determine the current value when the communication reads the output current.

Chapter 6 Fault Diagnosis and Countermeasures

6.1 Safety precautions

Safety precautions



Danger

- Never connect with power on. Please keep all circuit breakers in OFF state.



Warn

- Please ensure that the frequency converter is grounded in accordance with the local regulations. Otherwise, there will be an electric shock danger or a fire danger.
- Do not remove the housing or touch the internal circuit after the frequency converter is charged. Otherwise, there will be a danger of electric shock.
- Fault inspection must be carried out by professional personnel, and non-professional personnel are strictly prohibited to check, maintain and repair the frequency converter. Otherwise, there will be an electric shock danger or a fire danger.
- When installing the frequency converter in a closed cabinet or chassis, please use the cooling fan or cooling air conditioner to keep the inlet temperature of the frequency converter intake air below 50°C. Otherwise, it can lead to overheating or a fire.
- Please lock all the screws at the specified torque. Otherwise, there may be a fire or electric shock risk.
- Please confirm that the input voltage of the product is within the rated voltage range of the nameplate, otherwise there will be an electric shock or fire hazard.
- Do not place inflammable and explosive items near the frequency converter.



Attention

- During the installation work, please cover the upper part of the frequency converter with cloth or paper to prevent the metal chips, oil and water during drilling into the frequency converter. If the foreign body enters the frequency converter interior, it may cause the frequency converter failure.
- After the work ends, please remove the cloth or paper. If you continue to cover on the top, the ventilation will become worse, resulting in abnormal heating of the frequency converter.
- When operating the inverter, please follow the steps specified in the static electricity prevention measures (ESD), otherwise the circuit inside the inverter will be damaged due to the static electricity.

6.2 Adjustment guide for frequency converter before trial operation

1) Open-loop vector control mode (P0-01=0 factory default value)

The control mode is to control the speed and torque of the motor with no encoder speed feedback. In this control mode, motor parameters are learned to complete the automatic calibration of motor parameters.

Problems and faults	Deal with countermeasures
Overload or overload fault is reported during motor startup	<ul style="list-style-type: none"> ●Motor parameters (P1-01~P1-05) are set according to the motor nameplate. ●Motor parameter tuning (P1-37), it is best to perform motor dynamic complete tuning.
Torque or speed response below 5Hz is slow, and motor vibration occurs	<ul style="list-style-type: none"> ●To improve the response of torque and speed, strengthen the speed loop ratio adjustment (P2-00 by 10) or reduce the speed loop integration time (P2-01 by 0.05); ●If there is a vibration, weaken the P2-00 and increase the P2-01 parameter value.
Torque or speed response above 5Hz is slow, and motor vibration.	<ul style="list-style-type: none"> ●To improve the response of torque and speed, strengthen the speed loop ratio adjustment (P2-03 by 10) or reduce the speed loop integration time (P2-04 by 0.05); ●If there is a vibration, weaken the P2-03 and increase the P2-04 parameter value.
Low speed accuracy	<ul style="list-style-type: none"> ●When the motor belt load speed deviation is too large, the vector rotation difference compensation gain (P2-06) should be increased by 10%.
Fast fluctuations	<ul style="list-style-type: none"> ●When the motor speed has an abnormal fluctuation, the speed filtering time (P2-07) can be appropriately increased by 0.001s.
The motor is loud	<ul style="list-style-type: none"> ●Increase the increasing load frequency frequency value (P0-15) by 1.0KHz appropriately; (Note: the leakage current of the increasing load frequency motor will increase)
Motor torque is insufficient or Output is not enough	<ul style="list-style-type: none"> ●Whether the torque upper limit is limited, raise the torque upper limit (P2-10) in speed mode; increase the torque instruction in torque mode

2) Closed-loop vector control mode (P0-01=1)

This mode is used in the motor with an encoder speed feedback application, and the number of encoder lines, the type of encoder and the signal direction are correctly set to complete the automatic calibration of the motor parameters.

Problems and faults	Deal with countermeasures
Start-reported overcurrent or overload fault	<ul style="list-style-type: none"> ●Set the number of encoder lines, type, and encoder direction correctly
Overload or overload fault Is reported during motor rotation	<ul style="list-style-type: none"> ●Motor parameters (P1-01~P1-05) are set according to the motor nameplate. ●Motor parameter tuning (P1-37), it is best to perform motor dynamic complete tuning.

Problems and faults	Deal with countermeasures
Torque or speed response below 5Hz is slow, and motor vibration occurs	<ul style="list-style-type: none"> ●To improve the response of torque and speed, strengthen the speed loop ratio adjustment (P2-00 by 10) or reduce the speed loop integration time (P2-01 by 0.05); ●If a vibration occurs, the P2-00 and P2-01 parameters need to be weakened.
Torque or speed response above 5Hz is slow, and motor vibration.	<ul style="list-style-type: none"> ●To improve the response of torque and speed, strengthen the speed loop ratio adjustment (P2-03 by 10) or reduce the speed loop integration time (P2-04 by 0.05); ●If a vibration occurs, the P2-03 and P2-04 parameters need to be weakened.
Fast fluctuations	<ul style="list-style-type: none"> ●When the motor speed has an abnormal fluctuation, the speed filtering time (P2-07) can be appropriately increased by 0.001s.
The motor is loud	<ul style="list-style-type: none"> ●Increase the increasing load frequency frequency value (P0-15) by 1.0kHz appropriately; (Note: the leakage current of the increasing load frequency motor will increase)
Insufficient motor torque or insufficient output	<ul style="list-style-type: none"> ●Whether the torque upper limit is limited, raise the torque upper limit (P2-10) in speed mode; increase the torque instruction in torque mode

3)V/F control model (P0-01=2)

This mode is used in applications where the motor has no encoder speed feedback. It is not sensitive to the motor parameters, and only needs to correctly set the rated voltage and rated frequency value of the motor.

Problems and faults	Deal with countermeasures
Motor shock during operation	<ul style="list-style-type: none"> ●Increase the shock suppression parameters (P3-11), and increase in 10 units (the maximum adjustment to 100);
High-power start-off reports the overcurrent	<ul style="list-style-type: none"> ●Reduce the torque increase (P3-01), adjust in 0.5%;
The current is too large in the operation	<ul style="list-style-type: none"> ●Correct set the rated voltage (P1-02) and rated frequency (P1-04) of the motor; ●Reduce the torque increase (P3-01), adjust in 0.5%;
The motor is loud	<ul style="list-style-type: none"> ●Increase the increasing load frequency frequency value (P0-15) by 1.0kHz appropriately; (Note: the leakage current of the increasing load frequency motor will increase)
Sudden discharge heavy load overpressure, deceleration overpressure	<ul style="list-style-type: none"> ●Confirm that the overvoltage stall enabling capacity (P3-23) is set to the enabling state; increase the overvoltage stall gain (P3-24 / P3-25, factory 30) in 10 (maximum adjustment to 100); ●Reduce the overvoltage stall action voltage (P3-22 factory 770V), reduce in 10V (minimum adjustment to 700V);
Sudden increased load current, accelerated report current	<ul style="list-style-type: none"> ●Increase the excessive loss speed gain (P3-20 factory 20), increase in 10 (maximum adjustment to 100); ●Reduce the action current of over-loss speed (P3-18 factory is 150%), and reduce it in units of 10% (minimum adjustment to 50%);

6.3 Fault alarm and countermeasures

The following fault types may be encountered during the use of the frequency converter, please refer to the following methods for simple fault analysis:

Fault name and panel display	Troubleshooting	Troubleshooting countermeasures
Accelerated overcurrent Err02	Ground or short circuit exists in the frequency converter output circuit	<ul style="list-style-type: none"> Eliminates peripheral faults and detects the motor or interrupted contactor for short circuit
	Control mode is FVC or SVC and No parameter identification was performed	<ul style="list-style-type: none"> Set the motor parameters according to the motor nameplate to identify the motor parameters
	Rapid acceleration condition, acceleration time setting is set too short	<ul style="list-style-type: none"> The \bullet increases the acceleration time
	Overdrain speed suppression setting is not appropriate	<ul style="list-style-type: none"> confirms that the loss speed suppression function (P3-19) is enabled; The setting value of \bullet current current (P3-18) is too large, recommended to adjust within 120% to 150%; The \bullet excessive loss speed suppression gain (P3-20) setting is too small, and it is recommended to adjust within 20 to 40;
	Manual torque lift or V / F curve is not appropriate	<ul style="list-style-type: none"> Adjust the manual lifting torque or V / F curve
	Start the rotating motor	<ul style="list-style-type: none"> Select speed tracking start or wait the motor stops before starting
	Externally disturbed	<ul style="list-style-type: none"> Check the historical fault record. If the current value is far from the overcurrent point value, find the interference source. If no other source of interference may be a drive plate or Hall device problem.
Slow down over current Err03	Ground or short circuit exists in the frequency converter output circuit	<ul style="list-style-type: none"> Troubleshoots peripheral faults and detects the motor for short circuit or open circuit
	The control mode is FVC or SVC with no parameter identification	<ul style="list-style-type: none"> Set the motor parameters according to the motor nameplate to identify the motor parameters
	Rapid deceleration condition, the deceleration time is set is too short	<ul style="list-style-type: none"> The \bullet increases the deceleration time
	Over current speed suppression setting is not appropriate	<ul style="list-style-type: none"> confirming that the loss speed suppression function (P3-19) is enabled; The setting value of current current (P3-18) is too large, recommended to adjust within 120% to 150%; The excessive loss speed suppression gain (P3-20) setting is too small, and it is recommended to adjust within 20 to 40;
	No brake unit and brake resistance are installed	<ul style="list-style-type: none"> Equipped with the brake unit and the resistance
	Externally disturbed	<ul style="list-style-type: none"> Check the historical fault record. If the current value is far from the overcurrent point value, find the interference source. If no other source of interference may be a drive plate or Hall device problem.

Fault name and panel display	Troubleshooting	Troubleshooting countermeasures
Constant speed overcurrent Err04	Inverter output circuit exists Ground or short circuit	<ul style="list-style-type: none"> ● Troubleshoots peripheral faults and detects the motor for short circuit or open circuit
	The Control mode is eitherFVC or SVC And the parameter identification is not performed	<ul style="list-style-type: none"> ● Set the motor parameters according to the motor nameplate to identify the motor parameters
	Over current speed suppression setting is not appropriate	<ul style="list-style-type: none"> ● confirming that the loss speed suppression function (P3-19) is enabled; ● Setting value of current current (P3-18) is too large, recommended to adjust within 120% to150%; ● Excessive loss speed suppression gain (P3-20) setting is too small, and it is recommended to adjust within 20 to 40;
	The frequency converter selection is too small	<ul style="list-style-type: none"> ● In the stable operation state, if the operating current already exceeds the rated motor current or the rated output current value of the frequency converter, please choose the frequency converter with a larger power level
	Externally disturbed	<ul style="list-style-type: none"> ● Check the historical fault record. If the current value is far from the overcurrent point value, find the interference source. If no other source of interference may be a drive plate or Hall device problem.
Accelerated overvoltage Err05	The input voltage is high	<ul style="list-style-type: none"> ● Adjusting the voltage to the normal range
	There is an external drag during the acceleration process Motor operation	<ul style="list-style-type: none"> ● Cancel additional power or adds a brake resistance
	Overpressure suppression setting is not appropriate	<ul style="list-style-type: none"> ● Confirming that the overpressure suppression function (P3-23) has been enabled; ● Setting value of overvoltage suppression action voltage (P3-22) is too large, and it is recommended to adjust within 770V~700V; ● Overpressure inhibition gain (P3-24) is too small and recommended to be adjusted within 30 to 50;
	No brake unit and brake resistance are installed	<ul style="list-style-type: none"> ● Equipped with the brake unit and the resistance
	The acceleration time is too short	<ul style="list-style-type: none"> ● Increases the acceleration time
Slow down over voltage Err06	Overpressure suppression setting is not appropriate There is an external drag during the deceleration process Motor operation	<ul style="list-style-type: none"> ● Confirming that the overpressure suppression function (P3-23) has been enabled; The setting value of ● overvoltage suppression action voltage (P3-22) is too large, and it is recommended to adjust within 770V~700V; ● Overpressure inhibition gain (P3-24) is too small and recommended to be adjusted within 30 to 50; ● Cancel additional power or adds a brake resistance
	The deceleration time is too short	<ul style="list-style-type: none"> ● Increase the deceleration time
	No brake unit and brake resistance are installed	<ul style="list-style-type: none"> ● Equipped with the brake unit and the resistance

Fault name and panel display	Troubleshooting	Troubleshooting countermeasures
<p>Constant speed overvoltage</p> <p>Err07</p>	<p>Overpressure suppression setting is not appropriate</p> <p>There is an external force dragging during the operation Motor operation</p>	<ul style="list-style-type: none"> ● Confirming that the overpressure suppression function (P3-23) has been enabled; ● The setting value of overvoltage suppression action voltage (P3-22) is too large, and it is recommended to adjust within 770V~700V; ● The overvoltage suppression frequency gain (P3-24) setting is too small, and it is recommended to be adjusted within 30 to 50; ● The maximum rise frequency of overpressure suppression (P3-26) setting is set too small, and it is recommended to adjust within 5~20Hz; ● The cancels additional power or adds a brake resistance
<p>Buffer power fault</p> <p>Err08</p>	<p>The bus voltage fluctuates around the undervoltage point</p>	<ul style="list-style-type: none"> ● Seeks technical support
<p>Undervoltage fault</p> <p>Err09</p>	<p>Instantaneous power failure</p>	<ul style="list-style-type: none"> ● Enables the instantaneous non-stop function (P9-59) to prevent the instantaneous power failure
	<p>The input voltage of the frequency converter is not as required by the specification</p>	<ul style="list-style-type: none"> ● The adjusts the voltage to the normal range
	<p>Bus voltage is abnormal</p>	<ul style="list-style-type: none"> ● Seeks technical support
	<p>Rectifier bridge, buffer resistance, drive board, control board are abnormal</p>	<ul style="list-style-type: none"> ● Seeks technical support
<p>Inverter overload</p> <p>Err10</p>	<p>Whether the load is too large or motor blockage</p>	<ul style="list-style-type: none"> ● Reduce the load and check the motor and mechanical conditions
	<p>The frequency converter selection is too small</p>	<ul style="list-style-type: none"> ● The uses a frequency converter with a larger power grade
<p>Motor overload</p> <p>Err 11</p>	<p>Whether the motor protection parameter P9-01 is set suitable</p>	<ul style="list-style-type: none"> ● These sets this parameter correctly
	<p>Whether the load is too large or motor blockage</p>	<ul style="list-style-type: none"> ● Reduce the load and check the motor and mechanical conditions
<p>Enter the missing phase</p> <p>Err12</p>	<p>Three-phase input power supply is abnormal</p>	<ul style="list-style-type: none"> ● The checks and excludes problems in the peripheral lines
	<p>Drive plate, lightning protection plate, main control plate, rectifier bridge is abnormal</p>	<ul style="list-style-type: none"> ● Seeks technical support
<p>Output is missing phase</p> <p>Err13</p>	<p>Motor failure</p>	<ul style="list-style-type: none"> ● The detects whether the motor is in an open circuit
	<p>The lead from the frequency converter to the motor is not normal</p>	<ul style="list-style-type: none"> ● Troubleshoots peripheral faults
	<p>frequency converter during motor operation</p>	<ul style="list-style-type: none"> ● Check the three-phase winding of the motor for normal operation and troubleshooting
	<p>Three-phase output imbalance</p>	<ul style="list-style-type: none"> ● Seeks technical support

Fault name and panel display	Troubleshooting	Troubleshooting countermeasures
The module overheating Err14	The ambient temperature is too high	<ul style="list-style-type: none"> ● reduce the ambient temperature
	The air duct is blocked	<ul style="list-style-type: none"> ● clean up air duct
	Fan damage	<ul style="list-style-type: none"> ● replacement fan
	The module thermistor is damaged	<ul style="list-style-type: none"> ● seek manufacturer services
	The inverter module is damaged	<ul style="list-style-type: none"> ● seek manufacturer services
External equipment failure Err15	Enter the external fault signal through the multifunctional terminal DI	<ul style="list-style-type: none"> ● troubleshoots peripheral faults and confirms that the machinery allows a restart (P8-18), reset operation
	Enter it through the virtual IO function Signal of an external failure	<ul style="list-style-type: none"> ● confirm that the A1 group virtual IO group parameters are set correctly and the reset runs
Communication fault Err16	The upper position computer is not working properly	<ul style="list-style-type: none"> ● Check the upper-position computer wiring
	The communication line is not normal	<ul style="list-style-type: none"> ● Check the communication cable
	Communication extension card P0-28, not set correctly	<ul style="list-style-type: none"> ● set the communication extension card type correctly
	Communication parameter P D group is not set correctly	<ul style="list-style-type: none"> ● set the communication parameters correctly
	After the above detection, the fault can not be eliminated, so you can try to restore the factory setting.	
Contactor fault Err17	Drive board and power supply exception	<ul style="list-style-type: none"> ● seek manufacturer services
	Contactor anomaly	<ul style="list-style-type: none"> ● seek manufacturer services
	Lightning protection plate abnormal	<ul style="list-style-type: none"> ● seek manufacturer services
Current detection fault Err18	Check for Hall device abnormalities	<ul style="list-style-type: none"> ● seek manufacturer services
	Exception of drive board	<ul style="list-style-type: none"> ● seek manufacturer services
Motor tuning fault Err19	Motor parameters are not set according to the nameplate	<ul style="list-style-type: none"> ● set motor parameters according to the nameplate
	The Parameter identification process has timed out	<ul style="list-style-type: none"> ● Check the inverter to the motor leads
		<ul style="list-style-type: none"> ● Check whether the number of encoder lines set is correct P1-27. Check whether the signal line connection of the encoder is correct and firm
Encoder fault Err20	Encoder model does not match	<ul style="list-style-type: none"> ● set the encoder type correctly
	Encoder connection error	<ul style="list-style-type: none"> ● detect the PG card power supply and the phase sequence
	The encoder is damaged	<ul style="list-style-type: none"> ● Replacement Encoder
	PG card anomaly	<ul style="list-style-type: none"> ● Replacement PG card
EEPROM Read and write fault Err21	The EEPROM chip is damaged	<ul style="list-style-type: none"> ● seek manufacturer services

Fault name and panel display	Troubleshooting	Troubleshooting countermeasures
Short circuit to ground fault Err23	Motor short circuit to ground	<ul style="list-style-type: none"> ● Replace the cable or the motor
Accumulated run time reaches the fault Err26	The cumulative running time reaches the set point	<ul style="list-style-type: none"> ● use the parameter initialization function to clear the record information
User Custom Fault # 1 Err27	Enter the user-custom fault 1 signal through the multifunction terminal DI	<ul style="list-style-type: none"> ● reset runs
	Enter a user-custom fault 1 signal through the virtual IO function	<ul style="list-style-type: none"> ● reset runs
User Custom Fault # 2 Err28	Enter the user through the multifunction terminal DI Custom signal for fault 2	<ul style="list-style-type: none"> ● reset runs
	Enter the user from through the virtual IO feature Defines the signal for fault 2	<ul style="list-style-type: none"> ● reset runs
The cumulative power-up time reaches the fault Err29	The cumulative power-on time reaches the set value	<ul style="list-style-type: none"> ● use the parameter initialization function to clear the record information
Loading fault Err30	The operating current of the frequency converter is less than P9-64	<ul style="list-style-type: none"> ● confirm whether the load is detached or whether the P9-64 and P9-65 parameter settings meet the actual operating conditions
Runtime PID feedback lost fault Err31	The PID feedback is less than the PA-26 Setpoint	<ul style="list-style-type: none"> ● check the PID feedback signal or sets PA-26 to a suitable value
PID low-limit alarm Err32	The PID feedback is less than the P E-15 setting value	<ul style="list-style-type: none"> ● set the PE-15 to a suitable value
PID high limit alarm Err33	The PID feedback is greater than the P E-13 settings	<ul style="list-style-type: none"> ● set the PE-13 to a suitable value
Water shortage alarm Err34	The operating frequency is higher than PE-09 and the feedback pressure is lower than PE-08	<ul style="list-style-type: none"> ● set PE-08 and PE-11 to a suitable value
Wave wave limiting fault Err40	Whether the load is too large or motor blockage	<ul style="list-style-type: none"> ● Reduce the load and check the motor and mechanical conditions
	The frequency converter selection is too small	<ul style="list-style-type: none"> ● use a frequency converter with a larger power grade

Fault name and panel display	Troubleshooting	Troubleshooting countermeasures
Switching motor failure during operation Err 41	Change the current motor selection through terminals during the operation of the frequency converter	<ul style="list-style-type: none"> ● Perform motor switching operation after shutting down the frequency converter
Speed deviation Excessive malfunction Err 42	Incorrect encoder parameter settings	<ul style="list-style-type: none"> ● Correctly set encoder parameters
	No parameter identification has been carried out The detection parameters P9-69 and P9-70 for excessive speed deviation are set improperly	<ul style="list-style-type: none"> ● Perform motor parameter identification ● Reasonably set detection parameters according to the actual situation
Motor overspeed fault Err 43	Incorrect encoder parameter settings	<ul style="list-style-type: none"> ● Correctly set encoder parameters
	No parameter identification has been carried out	<ul style="list-style-type: none"> ● Perform motor parameter identification
	The setting of motor overspeed detection parameters P9-67 and P9-68 is unreasonable	<ul style="list-style-type: none"> ● Reasonably set detection parameters according to the actual situation
Motor overheating fault Err 45	Loose wiring of temperature sensor	<ul style="list-style-type: none"> ● Check the wiring of the temperature sensor and troubleshoot any issues
	Motor temperature is too high	<ul style="list-style-type: none"> ● Raise the carrier frequency or take other heat dissipation measures to dissipate heat from the motor
Initial position Angle identification fault Err 51	Inverter output phase missing	<ul style="list-style-type: none"> ● Check motor line and troubleshoot
	The inverter current detection is faulty or Hall is damaged	<ul style="list-style-type: none"> ● Check the hall and troubleshoot
	The inductance value of the motor is too large	<ul style="list-style-type: none"> ● Function Function code F9-75 masks this fault
Master slave control slave failure Err 55	The slave has malfunctioned, check the slave	<ul style="list-style-type: none"> ● Troubleshooting according to the slave fault code
Brake unit overload Err 61	The braking resistance value is too small	<ul style="list-style-type: none"> ● Replace the brake resistance with a higher resistance value
Brake circuit short circuit Err 62	Brake module anomaly	<ul style="list-style-type: none"> ● Seek technical support
Back electromotive force identification anomaly warning A 64	Motor parameters are incorrectly set	<ul style="list-style-type: none"> ● Set motor parameters correctly, especially rated frequency and rated speed
	Wrong setting of F1-20 back electromotive force during static identification	<ul style="list-style-type: none"> ● Check if the F1-20 setting is too large or too small and modify it
	Abnormal identification of back electromotive force in dynamic identification	<ul style="list-style-type: none"> ● Check whether the motor is completely no-load during dynamic identification, and whether the motor rotates to the motor rating during identification Speed of 40% if at identification time due to motor connection If the load fails to rotate to 40% of the rated speed of the motor, the load needs to be removed and identified again
	There is a demagnetization of the motor	<ul style="list-style-type: none"> ● Check whether the motor is demagnetized
	The back electromotive force of the motor is really too large or too small	<ul style="list-style-type: none"> ● If you confirm that the back electromotive force of the motor is too large or too small, you can press the "STOP" key to reset this warning. Continue with the next run

6.4 Common faults and handling methods

order number	fault phenomenon	Possible cause	processing method
1	The upper power is not shown	The grid voltage is not present or is too low	● Check for the input power supply
		Switch power failure on frequency converter drive panel	● Check whether the 24V and 10V output voltage on the control board is normal
		The connection between the control board and the drive board and the keyboard is disconnected	● replug 8-core and 34-core wiring
		The frequency converter buffer resistance is damaged	● seek manufacturer services
		Control board, keyboard failure	
		The rectifier bridge is damaged	
2	The upper power is always displayed -A-C-	The connection contact between the drive plate and the control board is poor	● replug 8-and 28-core wiring
		Related devices on the control board are damaged	● seek manufacturer services
		The motor or motor wire has a short circuit to the ground	
		Hall fault	
		The power grid voltage is too low	

order number	fault phenomenon	Possible cause	processing method
3	On the display Police show Err 23	Motor or output line is short-circuit to ground	●measure the insulation of the motor and output lines with a shake meter
		Frequency converter damage	● seek manufacturer services
4	The electric frequency converter is normal and displayed after operation -A-C- And shut down immediately	The fan is damaged or blocked	● replacement fan
5	Frequent reporting of Err14 (module overheating) fault Err 14	The load frequency setting is too high	● load frequency reduction (P0-15)
6	Motor after frequency converter operation Do not turn	Damaged fan or blocked air duct	● Replace the fan and clean up the air duct
		Damaged fan or blocked air duct	● Replace the fan and clean up the air duct
		Internal inverter device damage (thermistor or other)	● seek manufacturer services
		Poor contact between drive board and control board	● replug the cable, confirm that the wiring is firm;
		Drive board failure	● seeks manufacturer services

order number	fault phenomenon	Possible cause	processing method
7	DI terminal failure	Parameter setting error	The ● checks for and resets the P 4 group-related parameters
		External signal error	● reconnects to the external signal line
		OP and + 24V, loose jumper	● reconfirms the OP with the + 24V jumper and ensures fastening.
		Control board failure	● seek manufacturer services
8	Motor speed cannot be increased during closed-loop vector control	Encoder failure	●Replace the code tray and reconfirm the wiring
		The encoder has the wrong wire or poor contact	●rewiring to ensure good contact
9	The frequency converter frequently reports the overcurrent and overvoltage faults	Motor parameters are not set correctly	●to reset the motor parameters or perform motor tuning
		Increase and deceleration time is not appropriate	● set the appropriate acceleration and deceleration time
		fluctuation of load	● seek manufacturer services
10	power on (Or run) To Err17	The soft-start contactor is not engaged	<ul style="list-style-type: none"> ● Check whether the contactor cable is loose ● Check the contactor for a fault ● Check the contactor 24V power supply for a fault ● seeks manufacturer services

Appendix A Maintenance bond

- 1.The warranty period of this product is 18 months (subject to the body barcode information).During the warranty period, our company is responsible for free maintenance if the product fails or damages according to the user manual.
- 2.During the warranty period, certain maintenance costs will be charged for the damage due to the following reasons:
 - A.Damage caused by wrong use and unauthorized repair and transformation;
 - B.Machine damage caused by fire, flood, abnormal voltage, other natural disasters and secondary disasters;
 - C.Hardware damage caused by man-made fall and transportation after the purchase;
 - D.Machine damage caused by not following the product user manual provided by us;
 - E.Failure and machine damage caused by faults other than the machine (such as external equipment factors).
- 3.When the product fails or damages, please fill in the Product Warranty Card correctly and in detail.
- 4.If you have any questions during the service process, please contact our after-sales service center in time.

Product warranty card

Customer information	Company Name:	
	Address:	
	Contacts:	
	Tel Number:	
Product information	Product Model:	Fault Description
	Date:	
	Barcode:	
Service record		

Product Qualification Certificate

Product Name: _____ Frequency converter _____

examination clerk: _____ Check 1 _____

**According to the inspection results,
this product meets the technical
requirements and is allowed to leave
the factory.**



Due to continuous product updates and technological improvements, any changes to the data should be based on the latest confirmation from our company's technical department without prior notice. If the sample image does not match the actual product, the actual product shall prevail.

If you need the latest information, please contact our company or local agent! Our company reserves the right to interpret the printed content of this manual.