INTRODUCTION

First of all thank you for purchasing 820 series inverter!
This manual provides the user selection, installation, parameter setting, the scene debugging, fault diagnosis and daily maintenance and the maintenance of the relevant matters needing attention and the instruction. For proper use of this series of frequency converter, please read this manual carefully in advance, and please keep for later use.

ANNOUNCEMENTS
• **To illustrate the details of the product, illustrations in this manual are sometimes to unload the casing or the state of safety cover. When using this product, please be sure to pack good shell by the regulation or cover, and operated in accordance with the instruction content.**
• **Due to product upgrade or change in specifications, and in order to improve the convenience and accuracy of the instructions, the contents of this manual will make changes in a timely manner.**
• **Due to the loss or damage need to place an order instructions, please contact our regional agents, or direct contact with the company's customer service center.**
• **If you have any questions about your usage, please contact our customer service center.**

Out Of The Inspection：
When Unpacking, Please Confirm It Carefully：
The model nameplate and drive rating of the unit are the same as your order. The box contains your order machine, product certification, user manual and warranty.
The product in the transport process is damaged; if found to have some missing or damaged, please click the company or your supplier to resolve.
Initial Use：
For the initial use of this product, users should carefully read this manual. If you have doubts about some features and performance, please consult our technical support staff for assistance in using the product properly.
Due to the continuous improvement of the inverter, the information provided by the company is subject to change without notice.

INTRODUCTION

FIRST, THE PRODUCT OVERVIEW

820 series universal current vector-type inverter uses dsp chip for motor control , based on the new current vector control technology platform to achieve high-performance, high-precision motor drive control, a rich source of superposition and switching mode, advanced pid algorithm, 15-speed and automatic program operation as well as wobble control and speed tracking . Improve product reliability and environmental adaptability at the same time, strengthen the customer ease of use and industry-specific design . Function more optimization, more flexible application, more stable performance. Can be widely used in fan pumps, air compressors, building air conditioning, printing and packaging machinery, wood carving machine, machine tools, circular looms, flat knitting machine, noodle machine, four woodworking planer, textile machinery and other industries.

SECOND, PRODUCT CHARACTERISTICS

▲ Output Frequency 0-500hz

▲ Three speed control methods: speed sensorless vector control (svc), v / f control,

closed-loop vector control

▲ Speed sensorless vector control (SVC): Starting torque 0.5HZ up to 150%

▲ Overload capacity: 150%, one minute

▲ 15-speed and automatic program operation

▲ Support a variety of frequency settings: digital settings, analog settings, pid settings,

multi-speed set,simple plc given, pulse pulse given, rs485 communication settings

▲ I / O terminals are free to program, according to user needs a combination of a variety of

operating modesI/O

▲ Built-in PID function and UID XSABLE function

▲ Main and auxiliary frequency and proportional addition select function

▲ Provide a variety of fault protection: over-current, over voltage, undervoltage, overheating, overload, lack of all-round real-time monitoring and protection to ensure safe operation

▲ 0.75-18.5KW can be built-in braking unit

▲ Built-in RS485 communication interface, support MODBUS protocol

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安全信息及注意事项

CHAPTER 1 SAFETY INFORMATION AND PRECAUTIONS：

In This Manual, The Safety Precautions Fall Into Two Categories：

⚠ DANGER: Danger due to lack of required operation，may lead to serious injuries, and even death;

⚠ DANGER: As a result of the operation is not required by the danger, may result in moderate injury or minor injury, and equipment damage;

Please read this chapter carefully when installing, commissioning and servicing this system. Be sure to follow the safety precautions required in this chapter. The company shall not be responsible for any damages or losses arising from any illegal actions.

1.1 Safety Precautions

1.1.1 BEFORE INSTALLATION：

⚠ DANGER
● When unpacking the control system water, parts missing or damaged parts, please do not install! ● Please do not install the packing list when it does not match with the physical name.

⚠ DANGER
● Handling should be lightly, otherwise there is danger of damage to the equipment! ● Do not use the inverter with damaged drive or missing parts. Risk of injury! ● Do not touch the components of the control system, otherwise there is the risk of electrostatic damage!

1.1.2 WHEN INSTALLED：

⚠ DANGER

● Install on flame-retardant materials such as metals. Keep away from combustible materials. Doing so may cause a fire!

● Do not twist the mounting bolts of the components, especially bolts marked with red!

⚠ DANGER

● Do not drop the wire head or screw into the drive. Doing so may cause damage to the drive!

● Install the drive in a location where there is little or no direct sunlight.

● When two or more inverters are placed in the same cabinet, pay attention to the installation position to ensure the heat dissipation effect.

1.1.3 WHEN WIRING：

⚠ DANGER

● The instructions given in this manual must be followed by professional electrical engineering personnel, or there may be unexpected hazards!

● There must be a circuit breaker between the inverter and the power supply, otherwise a fire may occur!

● Make sure the power supply is in zero energy state before wiring, otherwise there is danger of electric shock!

● Please according to the standard to the frequency changer carries on the correct standard grounding, otherwise has the electric shock danger!

⚠ DANGER

● Never connect the input power supply to the output terminals (u, v, w) of the inverter. Do not take the wrong line! Doing so may cause damage to the drive!

● Ensure that the wiring complies with the emc requirements and the safety standards in the area. Refer to the recommendations of the manual for wire diameters. Otherwise, an accident may occur.

● Do not connect the braking resistor directly between the dc bus (p +) and (p-) terminals. Otherwise a fire!

- The encoder must be shielded and the shield must be grounded in a single-ended configuration!

1.1.4 BEFORE POWERING ON：

⚠ NOTE

- Check that the voltage level of the input power supply is the same as the rated voltage of the inverter. Is the wiring position on the power input terminals (r, s, t) and output terminals (u, v, w) correct. And pay attention to check with the driver connected to the external circuit whether the short circuit, connected to the line is tight, or cause damage to the drive!
- No part of the inverter withstand voltage test, the factory has made this product test. Or cause an accident!

⚠ DANGER

- The inverter must be covered with a cover before it can be powered on. Doing so may cause electric shock!
- The wiring of all peripheral accessories must be in accordance with the instructions in this manual and properly wired according to the circuit connections provided in this manual. Or cause an accident!

1.1.5 AFTER POWER-UP：

⚠ DANGER

- Do not open the cover after power-on. Otherwise there is danger of electric shock!
- Do not touch the driver and peripheral circuits with wet hands. Otherwise there is danger of electric shock!
- Do not touch any of the input and output terminals of the inverter. Otherwise there is danger of electric shock!
- At the beginning of the power-on, the inverter will automatically detect the

external strong-current circuit. In this case, you must not touch the u, v, w terminals or the motor terminals, otherwise there is danger of electric shock!

⚠ DANGER

- If parameter identification is required, please note the danger of motor rotation. Otherwise it may cause an accident!
- Do not change the inverter factory parameters. Otherwise it may cause damage to the device!

1.1.6 RUNNING：

⚠ DANGER

- Do not touch the cooling fan and discharge resistor to test the temperature. Otherwise it may cause burns!
- Do not test the signal during operation by a non-professional technician. Doing so may cause injury or equipment damage!

⚠ DANGER

- When the inverter is running, it should be avoided that something falls into the device. Doing so may cause equipment damage!
- Do not use contactor off method to control the drive start and stop. Doing so may cause equipment damage!

1.1.7 MAINTENANCE：

⚠ DANGER

- Do not charge the equipment for repair or maintenance. Otherwise there is danger of electric shock!
- Make sure that the drive is serviced and repaired only after the inverter voltage is lower than ac36v, whichever is shorter. Otherwise the residual charge on the capacitor will cause harm to people!
- Do not carry out maintenance and repair on the inverter without professional

training. Doing so may result in personal injury or equipment damage!

● Replace the inverter must be set after the parameters, all pluggable plug-in must be plugged in case of power failure!

1.2 Precautions

1.2.1 Insulation Of Motor

When the motor is used for the first time, after a long period of use and before periodic inspection, the motor insulation should be checked to prevent damage to the inverter due to insulation failure of the motor windings. Insulation inspection must be separated from the motor connection from the inverter, the proposed 500v voltage megger, should ensure that the measured insulation resistance of not less than 5mω.

1.2.2 Thermal Protection Of The Motor

If the rated capacity of the motor is not matched with the rated capacity of the inverter, especially when the rated power of the inverter is greater than the rated power of the motor, it is necessary to adjust the relevant parameters of the motor protection in the inverter or install the thermal relay before the motor to protect the motor.

1.2.3 FREQUENCY ABOVE THE RUN

This frequency changer may provide 0hz ~ 500hz output frequency. If the customer needs to run above 50hz, please consider the mechanical device tolerance.

1.2.4 Vibration Of A Mechanical Device

At some output frequency, the inverter may encounter the mechanical resonance point of the load device. This can be avoided by setting the jump frequency parameter in the inverter.

1.2.5 On The Motor Heating And Noise

Because the inverter output voltage is pwm wave, contains a certain harmonic, so the motor temperature rise, noise and vibration compared with the frequency operation will increase slightly.

1.2.6 The Output Side Of The Pressure-Sensitive Devices Or Improve The Power Factor Of The Capacitor Case

Inverter output is pwm wave, the output side such as the installation of improved power factor capacitors or lightning protection with varistors, etc., easy to cause

instantaneous over-current converter or even damage the inverter. Please do not use.

1.2.7 inverter input and output contactors used in the switching device

If the contactor is installed between the power supply and the input of the inverter, it is not allowed to use this contactor to control the start and stop of the inverter. Must use the contactor to control the frequency converter start and stop, the interval should not be less than one hour. Frequent charge and discharge easy to reduce the inverter life of the capacitor. If the output and the motor is equipped with contactors and other switching devices, should ensure that the inverter in the absence of output on-off operation, or easy to cause damage to the inverter module.

1.2.8 Rated Voltage Value Other Than The Use

It is not suitable to use the 820 series inverter outside the allowable working voltage range specified in the manual, which may lead to the damage of the devices in the inverter. If necessary, use the appropriate step-up or step-down device for the transformer.

1.2.9 three-phase input into two-phase input

820 series three-phase inverter can not be changed to two-phase use, otherwise it will lead to failure or damage to the inverter. If the customer has this need, please contact the factory technical staff.。

1.2.10 lightning impulse protection

This series inverter is equipped with lightning over-current protection device, for the induction mine has a certain degree of self-protection. For the frequent lightning customers should also install the front-end protection in the inverter.

1.2.11 Altitude And Derating Use

In areas where altitude exceeds 1000m, the heat dissipation of the inverter is degraded due to the thin air, so it is necessary to derate it. Please contact our company for technical advice.

1.2.12 some special uses

If the customer needs to use the method other than the recommended wiring diagram provided in this manual, such as the common dc bus, please consult our company.

1.2.13 caution when the inverter is scrapped

The main circuit of the electrolytic capacitors and printed circuit board electrolytic capacitor incineration may occur when the explosion. Plastic parts will produce toxic gases when incinerated. Please dispose of it as industrial waste.。

1.2.14 on the adaptation motor

    Standard adaptive motor for the four-pole squirrel cage asynchronous induction motor. If it is not the above motor, please select the inverter according to the motor rated current.

    The cooling fan of the inverter motor is coaxially connected with the rotor shaft. When the speed is reduced, the cooling effect of the fan is reduced. Therefore, when the motor is overheated, a strong exhaust fan or a variable frequency motor should be installed.

    According to the actual situation, it is necessary to identify the motor parameters or modify the default value to meet the actual value as far as possible, otherwise it will affect the operating results and protection performance;

    As a result of a short circuit inside the cable or the motor will cause the inverter alarm, and even bombing. Therefore, the initial installation of the motor and cable insulation short-circuit test, routine maintenance also need to carry out this test frequently. Note that when doing this test, be sure to disconnect the drive from the part under test.

2

PRODUCT INFORMATION

CHAPTER 2 PRODUCT INFORMATION

2.1 Naming rules
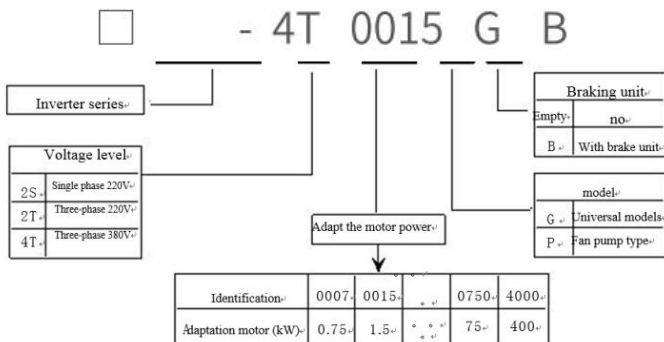
Figure 2-1 Naming Rules

2.2 Nameplate

型号 /MODEL：820-4T0040GB/4T0055PB

功率 /POWER：4kW 9A/5.5kW 13A

输入 /INPUT：3PH AC380V 50Hz/60Hz

输出 /OUTPUT：3PH AC0V~380V 0Hz-500Hz

序列号 /S.N：   条形码

Figure   2-2

Nameplate

2.3   820 series model list

INVERTER MODEL	BATTERY CAPACITY (KVA)	INPUT CURRENT (A)	OUTPUT CURRENT （A）	ADAPTER MOTOR (KW)
Single-phase power supply：220v±15%，50/60hz				
820-2s0007gb	1.5	8.2	4.0	0.75
820-2s0015gb	3	14.0	7.0	1.5
820-2s0022gb	4.0	23.0	9.6	2.2
Three-phase power：380v±15%，50/60hz				
820-4t0007gb/0015pb	1.5/3.0	3.4/5.0	2.1/3.8	0.75/1.5
820-4t0015gb/0022pb	3.0/4.0	5.0/5.8	3.8/5.1	1.5/2.2
820-4t0022gb/0037pb	4.0/5.9	5.8/10.5	5.1/9.0	2.2/3.7
820-4t0037gb/0055pb	5.9/8.9	10.5/14.6	9/13	3.7/5.5
820-4t0055gb/0075pb	8.9/11	14.6/20.5	13/17	5.5/7.5
820-4t0075gb/0110pb	11/17	20.5/26	17/25	7.5/11
820-4t0110gb/0150pb	17/21	26/35	25/32	11/15
820-4t0150gb/0185pb	21/24	35/38.5	32/37	15/18.5
820-4t0185gb/0220pb	24/30	38.5/46.5	37/45	18.5/22
820-4t0220gb/0300pb	30/40	46.5/62	45/60	22/30
820-4t0300g/0370p	40/57	62/76	60/75	30/37
820-4t0370g/0450p	57/69	76/92	75/91	37/45
820-4t0450g/0550p	69/85	92/113	91/112	45/55
820-4t0550g/0750p	85/114	113/157	112/150	55/75
820-4t0750g/0900p	114/134	157/180	150/176	75/90
820-4t0900g/1100p	134/160	180/214	176/210	90/110
820-4t1100g/1320p	160/192	214/256	210/253	110/132
820-4t1320g/1600p	192/231	256/307	253/304	132/160
820-4t1600g/2000p	231/250	307/385	304/377	160/200
820-4t2000g/2200p	250/280	385/430	377/426	200/220
820-4t2200g/2500p	280/355	430/468	426/465	220/250
820-4t2500g/2800p	355/396	468/525	465/520	250/280
820-4t2800g/3150p	396/445	525/590	520/585	280/315

INVERTER MODEL	BATTERY CAPACITY (KVA)	INPUT CURRENT (A)	OUTPUT CURRENT （A）	ADAPTER MOTOR (KW)
820-4t3150g/3550p	445/500	590/665	585/650	315/355
820-4t3550g/4000p	500/565	665/785	650/725	355/400
820-4t4000g	565	785	725	400

2.4 technical specifications

	Project	Specification
Control characteristics	Output frequency	0-500hz
	Carrier frequency	0.5khz ～ 16khz， according to the load characteristics, automatically adjust the carrier frequency
	Output frequency resolution	0.01hz
	Control method	Open - loop vector control（svc） V/fcontrol Closed loop vector control (fvc)
	Torque characteristics	With torque compensation, slip compensation, starting torque at 0.5hz up to 150%
	Torque control accuracy	±5%（fvc）
	Stall prevention action level	Set at the rated current percentage，20～250%
	Speed range	1：100 （svc） 1:1000（fvc）
	Steady speed accuracy	±0.5%（svc） ±0.02%（fvc）
	Overload capacity	Rated output current of 150% for one minute
	V/fcurve	Arbitrary v / f curve set and 1.5,1.7,2,3 power curve
	Acceleration and deceleration curve	Linear or s-curve acceleration / deceleration mode；four kinds of acceleration and deceleration time； acceleration and deceleration time range 0.1～6500.0s
	Dc braking	Dc braking frequency: 0.00hz～maximum frequency，braking time：0.0s～60.0s，braking action current value：0.0%～100.0%
	Jogging control	Jog frequency range： 0.00hz～maximum frequency；jog acceleration / deceleration time 0.1s～6500.0s
	Simple plc、multi-speed operation	Up to 16-speed operation via built-in plc or control terminal
	Built-in pid	Can be easily realized process control closed-loop control system
	Automatic voltage adjustment（avr）	When the grid voltage changes, can automatically keep the output voltage constant
	Fast current limiting function	Minimize over-current fault, to protect the normal operation of the inverter
Operating characteristics	Run the command channel	Three channels：control panel given, the control terminal is given, the serial communication port given. There are several ways to switch
	Frequency source	10 kinds of frequency sources：panel knob setting, operation panel setting, analog voltage setting, analog current setting, rs485 communication setting. There are several ways to

Project		Specification
		switch
	Auxiliary frequency source	10 kinds of auxiliary frequency source. Can be flexible to achieve auxiliary frequency fine-tuning, frequency synthesis
	Input terminal	6 digital input terminals, one of which can do high-speed pulse input Two analog inputs, ai1: input 0 ~ + 10v, ai2: input 0 ~ + 10v / 0-20ma
	Input terminal	A high-speed pulse output terminal, 0 khz ~ 50khz square wave signal output, can achieve the set frequency, output frequency and other physical output A digital output terminal A relay output terminal Two analog output terminals 0v ~ 10v / 0-20ma can indicate the output frequency / current / voltage / frequency command / speed / power factor signal output
Display and operation	Led display	There are 8 function keys, 5 7-segment led, 5 status leds, which can perform forward, reverse, reset, stop, jog and parameter setting, display
	Protective function	Short circuit detection, input and output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, etc.
Surroundings	Place of use	Indoor, not subject to direct sunlight, no dust, corrosive gases, flammable gases, oil mist, water vapor, drip or salt, etc.
	Altitude	Less than 1000m
	Ambient temperature	－10℃~＋40℃ （ambient temperature 40 ℃ ~ 50 ℃, please use the derating）
	Humidity	Less than 95% rh, no condensation
	Vibration	Less than 5.9 m / s2 (0.6 g)
	Storage temperature	－20℃~＋60℃

2.5 Product outline drawing, installation hole size

2.5.1 Product Outline
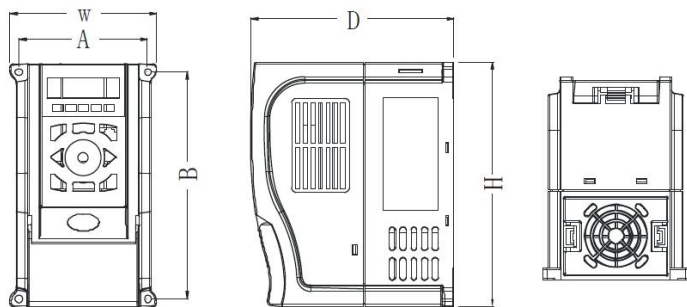
2-3 Figure   820 series of plastic structure dimensions and installation dimensions diagram
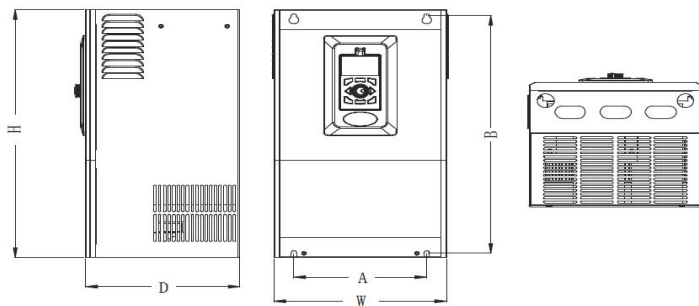
2-4 Figure   820 series sheet metal structure dimensions and installation dimensions diagram

2.5.2 Dimensions and installation dimensions

RATED OUTPUT POWER (KW)	INPUT VOLTAGE	A (mm)	B (mm)	H (mm)	W (mm)	D (mm)	MOUNTING APERTURE (mm)
0.75~2.2	SINGLE-PHASE 220V RANGE：-15%~+15%	90	157	170	101	142	5
0.75~2.2	THREE-PHASE 380V RANGE:-15%~+15%	90	157	170	101	142	5
4		111	183	197	129	175	5
5.5~11		137	237	256	157	190	5
15~22		151	303	320	170	222	6
30~37		205	366	380	218	235	6
45~75		240	430	450	330	259	9
90~132		240	587.5	610	400	286	12
160~220		400	735	760	500	355	12
250~280		400	832	862	600	455	12
315~400		500	832	862	750	455	12

2.5.3 External keyboard size
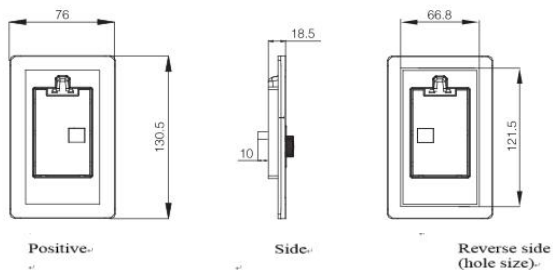
2-5 Figure   External keyboard size

2.6 Daily maintenance and maintenance of the inverter

2.6.1 Daily Maintenance

Due to environmental temperature, humidity, dust and vibration, will lead to the aging of the internal components of the inverter, resulting in potential failure of the frequency converter or reduce the life of the inverter. Therefore, it is necessary to implement regular and regular maintenance and maintenance of the inverter.

Daily inspection items：

📖   Whether or not the sound is abnormally changed when the motor is running

📖   Is there a vibration in the motor operation?

📖   Whether the installation environment of the inverter changes

📖   Drive cooling fan is working properly

📖   The inverter is overheating

Daily cleaning：

The frequency converter should always be kept in a clean state.

Effectively remove the dust on the surface of the inverter to prevent dust from entering the inverter. Especially metal dust.

Effectively remove the inverter cooling fan oil.

2.6.2 periodic inspection

Check regularly for areas that are difficult to detect during operation

Periodic inspection items:

📖   Inspect the duct and clean it regularly

📖   Check the screws for looseness

📖   Check that the inverter is corroded

📖   Check whether the terminals have arc traces

📖   Main circuit insulation test

Remind：when measuring the insulation resistance with a megohmmeter (please use dc 500v megger), disconnect the main return line from the inverter. Do not test the insulation of the control circuit with an insulation resistance meter. No high voltage test is required (factory complete).

2.6.3 replacement of the consumable parts of the inverter

Inverter wearing parts mainly include cooling fans and electrolytic capacitors for filtering, whose life is closely related to the environment and maintenance conditions. The general life time is:

Device name	Life time
Fan	2～3 year
Electrolytic capacitor	4～5 year

Users can determine the replacement time according to the running time.

    📖   Cooling fan

May cause damage: bearing wear, leaf aging.

Criteria: fan blades and other cracks, whether the abnormal sound when the boot sound of vibration.

    📖   Filter electrolytic capacitors

Possible causes of damage: poor input power quality, high ambient temperature, frequent load jump, electrolyte aging.

Criteria: whether the leakage of liquid, whether the safety valve protruding, the determination of capacitance, insulation resistance of the determination.

2.6.4 inverter storage

Users to buy the drive, the temporary storage and long-term storage must note the following:

    📖   Store as much as possible by the original packaging into the company's packaging.

    📖   Long-term storage will lead to the degradation of electrolytic capacitors, must ensure that within six months through a power, power-on time at least 5 hours, the

input voltage must be slowly raised to the rated voltage regulator.

2.7 warranty description of the drive

The free warranty refers only to the drive itself。

1） In normal use, the failure or damage, our company is responsible for 18 months warranty (from the date of manufacture factory to the bar code on the fuselage), 18 months or more, will charge a reasonable maintenance costs;

2） In 18 months, in the following circumstances, should receive a certain maintenance costs:

A） The user does not use the manual in accordance with the provisions of the damage caused by the machine;

B） Damage due to fire, flood, voltage abnormalities;

C） Damage caused when the inverter is used for abnormal functions;

The service fee is calculated on the basis of the uniform standard of the manufacturer. If there is a contract, the contract shall be handled in accordance with the principle of contract precedence.

2.8 selection guide

Three control modes are available: normal v / fvc (speed sensorless vector control), fvc speed closed loop control.

When selecting the inverter, it is necessary to make clear the technical requirements for the inverter, the application of the inverter and the specific characteristics of the load characteristics, and make a comprehensive consideration from the aspects of the adaptive motor, output voltage and rated output current. The required models and determine the mode of operation.

The basic principle is that the motor rated load current can not exceed the rated current of the inverter. Under normal circumstances as specified in the manual with the motor capacity to choose, pay attention to compare the motor and inverter rated current. The overload capacity of the frequency converter makes sense for the start and braking processes. Any short-term overload during operation can cause a change in load speed. If the speed accuracy requirements are high, please consider to enlarge a grade.

Fan and pump type: in the overload capacity requirements lower, because the load

torque and speed of the square is proportional to, so low-speed operation load lighter (except roots blower) and because of this load on the speed accuracy no special requirements, so select the square torque v / f.

Constant torque load: most load with constant torque characteristics, but the speed accuracy and dynamic performance requirements are generally not high. Such as extruders, mixers, conveyor belts, in-plant trams, and cranes. Selection of multi-stage v / f operation mode.

The controlled object has a certain dynamic and static requirements: this type of load generally requires low-speed hard mechanical properties, in order to meet the production process control system of dynamic and static indicators. Selection of svc control mode can be selected.

2.9 brake components selection guide

The choice of braking resistor needs to be determined according to the power generated by the motor in the actual application system. It depends on the inertia of the system, deceleration time and the energy of the potential energy load, and needs to be selected by the customer according to the actual situation. The greater the inertia of the system, the shorter the required deceleration time, the more frequent braking, the braking resistor need to select the greater the power, the smaller the resistance.

2.9.1 resistance selection

Braking, the motor regenerative energy is almost entirely consumed in the braking resistor.

According to the formula:u*u/r=pb

● U ---- braking system in the formula of the braking voltage

(different systems are not the same, for the general system to take 380vac 700v)

● Pb---- braking power

2.9.2 braking resistor power selection

Theoretically the braking resistor power and brake power are the same, but taking into account the derating of 70%.

According to the formula:0.7*pr=pb*d

- Pr---- resistance of the power
- D---- braking frequency（the proportion of the regeneration process to the total work process）

Elevator -----20% ~30%   open-book and take-up ----20 ~30%

Centrifuge -------50%~60%   casual braking load ----5%

Generally take 10%

Table 2-2 Selection Table Of Brake Components Of 820 Frequency Changer

INVERTER MODEL	RECOMMENDED POWER	RECOMMENDED RESISTANCE	BRAKING UNIT	REMARKS
820-2s0004	X	X	X	No built-in brake unit
820-2s0007	X	X		
820-2s0015	260w	100ω	Built-in optional	after the inverter model, add "b"
820-2s0022	260w	70ω		
820-4t0007	80w	750ω		
820-4t0015	260w	400ω		
820-4t0022	260w	250ω		
820-4t0037	390w	150ω	Standard built-in	
820-4t0055	520w	100ω		
820-4t0075	780w	75ω		
820-4t0110	1040w	50ω		
820-4t0150	1560w	40ω		
820-4t0185	4800w	32ω		
820-4t0220	4800w	27.2ω	Built-in optional	after the inverter model, add "b"
820-4t0300	6000w	20ω		
820-4t0370	4.8 kw	16ω	External	External braking unit is required
820-4t0450	9.6kw	13.6ω	External	External braking unit is required
820-4t0550	12 kw	10ω	External	External braking unit is required
820-4t0750	12 kw	6.8ω	External	External braking

				unit is required
820-4t0900	12 kw	6ω	External	External braking unit is required
820-4t1100	20 kw	6ω	External	External braking unit is required
820-4t1320	20 kw	6ω	External	External braking unit is required
820-4t1600	25kwx2	5ωx2	External	External braking unit is required
820-4t2000	30kwx3	4ωx3	External	External braking unit is required
820-4t2200	30kwx3	4ωx3	External	External braking unit is required
820-4t2500	40kw×4	3ω×4	External	External braking unit is required
820-4t2800	40kw×5	3ω×5	External	External braking unit is required
820-4t3150	40kw×5	3ω×5	External	External braking unit is required
820-4t3500	40kw×5	3ω×5	External	External braking unit is required
820-4t4000	40kw×5	3ω×5	External	External braking unit is required

Note：×2 means that the two braking units are used in parallel with their respective braking resistors.

3

MECHANICAL AND ELECTRICAL INSTALLATION

CHAPTER 3 MECHANICAL AND ELECTRICAL INSTALLATION

3.1 Mechanical Installation

3.1.1 Installation Environment：

1） Ambient temperature: the ambient temperature has a great influence on the inverter life. The operating temperature of the inverter is not allowed to exceed the permissible temperature range (-10 ° c to 50 ° c).

2） Install the inverter on the surface of the flame-retardant object, with sufficient space around it to dissipate heat. The inverter is easy to produce a lot of heat. And mounted vertically on the mounting bracket with screws.

3） Install in a location that is not easily vibrated. Vibration should not be greater than 0.6g. Special attention away from the press and other equipment.

4） Avoid direct sunlight, moisture, water droplets in place.

5） Avoid places where corrosive, flammable, explosive gases are present in the atmosphere.

6） Avoid installation in a place with oil, dust, metal dust.

3.1.2 Mechanical installation is concerned about the heat problem.
So please note the following:

1） Please install the inverter vertically to facilitate heat distribution. But not upside down. If there are more inverters, it is best to install side by side. In the case of the need to install the upper and lower, the middle need to install insulation baffle.

2） When installing the inverter, make sure the cooling space of the inverter. However, please consider the layout of other devices within the cabinet cooling.

3） The mounting bracket must be flame retardant.

4） For metal dust applications, it is recommended to install the radiator cabinet. At this point the whole cabinet space to be as large as possible.

3.2 electrical installation

And peripheral equipment connection diagram

Power supply

Circuit breaker

Earth leakage switch

Electromagnetic
contactor (MC)

Input AC
reactor (AC)

Braking resistors

Input side
Interference
Filter

Improved Power
Factor DC Reactor
(DC)

Frequency converter

Ground

Input AC
reactor (AC)

Output side
Noise filter

Motor

Ground
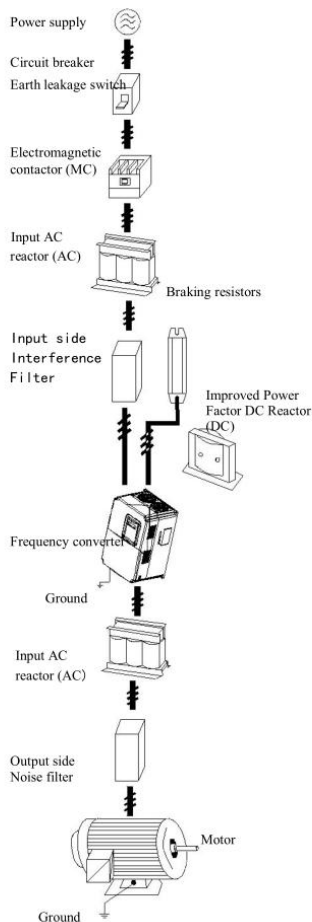
Figure 3-1   Example Of Connection To A Peripheral Device

- Do not install capacitors or surge suppressors on the output side of the frequency converter, which may cause malfunction of the frequency converter or damage to the capacitors and surge suppressors.
- The input / output (main circuit) of the inverter contains harmonic components,

which may interfere with the communication equipment of the inverter accessories. Therefore, the installation of anti-jamming filter, so that interference to a minimum.
● Refer to the selection manual of the peripheral device for details and options of the peripheral device.

3.2.1 Selection Guide For External Electrical Components

Table 3-1   Selection Guide For Electrical Components Of 820 Series Frequency Converters

Inverter model	switch (MCCB) A	Cont actor A	Recommended input side main circuit lead mm2	Recommended output side main circuit lead mm2	Recommended control loop wires mm2
820-2S0004	16	10	2.5	2.5	1.0
820-2S0007	16	10	2.5	2.5	1.0
820-2S0015	20	16	4.0	2.5	1.0
820-2S0022	20	16	4.0	2.5	1.0
820-4T0007G/0015P	10	10	2.5	2.5	1.0
820-4T0015G/0022P	16	10	2.5	2.5	1.0
820-4T0022G/0037P	16	10	2.5	2.5	1.0
820-4T0037G/0055P	25	16	4.0	4.0	1.0
820-4T0055G/0075P	32	25	4.0	4.0	1.0
820-4T0075G/0110P	40	32	4.0	4.0	1.0
820-4T0110G/0150P	63	40	4.0	4.0	1.0
820-4T0150G/0185P	63	40	6.0	6.0	1.0
820-4T0185G/0220P	100	63	6	6	1.5
820-4T0220G/0300P	100	63	10	10	1.5
820-4T0300G/0370P	125	100	16	10	1.5
820-4T0370G/0450P	160	100	16	16	1.5
820-4T0450G/0550P	200	125	25	25	1.5
820-4T0550G/0750P	200	125	35	25	1.5
820-4T0750G/0900P	250	160	50	35	1.5
820-4T0900G/1100P	250	160	70	35	1.5
820-4T1100G/1320P	350	350	120	120	1.5
820-4T1320G/1600P	400	400	150	150	1.5
820-4T1600G/1850P	500	400	185	185	1.5
820-4T1850G/2200P	600	600	150*2	150*2	1.5
820-4T2200G/2500P	600	600	150*2	150*2	1.5
820-4T2500G/2800P	800	600	185*2	185*2	1.5
820-4T2800G/3150P	800	800	185*2	185*2	1.5

Inverter model	switch (MCCB) A	Contactor A	Recommended input side main circuit lead mm2	Recommended output side main circuit lead mm2	Recommended control loop wires mm2
820-4T3150G/3500P	800	800	150*3	150*3	1.5
820-4T3500G/4000P	800	800	150*4	150*4	1.5
820-4T4000G	800	800	150*4	150*4	1.5

3.2.2 Instructions For Use Of Peripheral Electrical Components

Table 3-2   820 Frequency Converter Peripheral Electrical Components Instructions

The name of the accessory	Installation location	Function Description
Air switch	Input loop front end	Downstream equipment over-current when breaking power
Contactor	Between the air switch and the inverter input side	The frequency converter should be switched on and off frequently (less than twice per minute) or the direct start operation should be avoided by the contactor.
Ac input reactor	Inverter input side	1） Increase the input side of the power factor; 2） Effectively remove the input side of the high-order harmonics, to prevent damage due to voltage waveform distortion caused by other equipment; 3） Eliminate the imbalance between the input power supply current imbalance.
Emc input filter	Inverter input side	1） Reduce the external conduction and radiation interference; 2） Reduce the conduction interference from the power supply side to the inverter, and improve the anti-interference ability of the inverter.
Ac output reactor	Between the output side of the inverter and the motor. Install near the drive.	Inverter output side generally contains more high-order harmonics. When the distance between the motor and the inverter is far, there is a large distributed capacitance in the circuit. One of the harmonics in the loop may produce resonance, bringing two effects: 1） Damage the motor insulation performance, a long time will damage the motor. 2） Resulting in a large leakage current, causing frequent inverter protection. General inverter and motor distance more than 100m, the proposed installation of the output ac reactor.

3.2.3 Basic Wiring Diagram
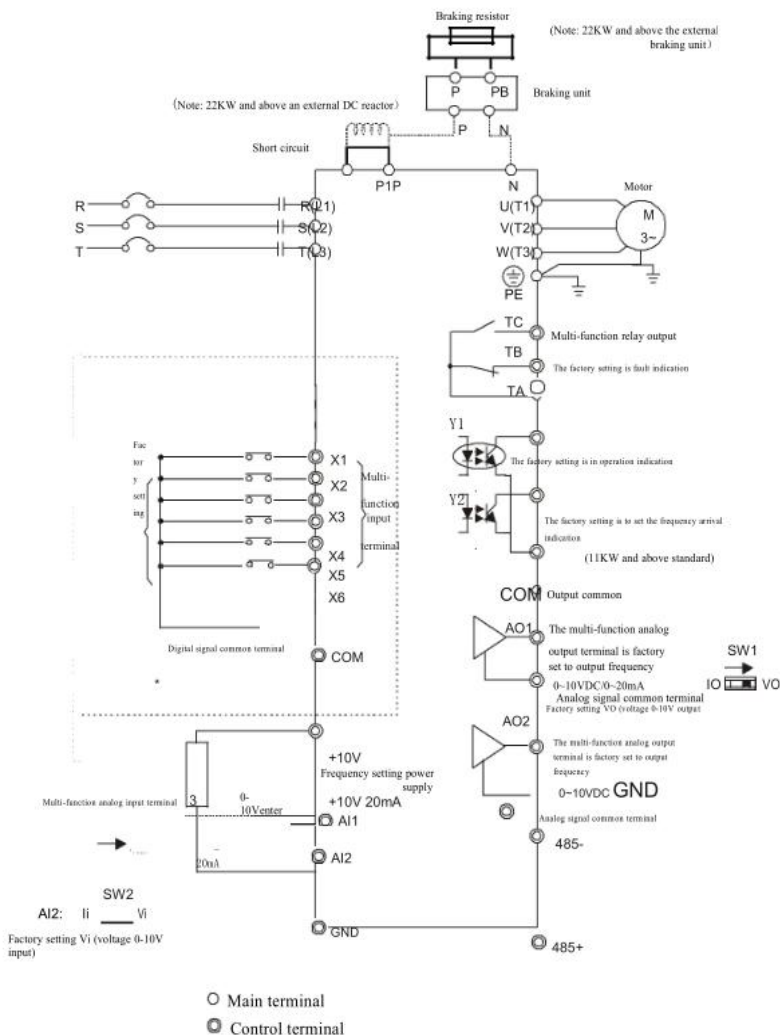
Figure3-2   External keyboard size

PRECAUTIONS：

1） Terminal ○ indicates the main circuit terminal, and ◎ indicates the control circuit terminal.

2） The braking resistor can be selected according to the user's requirements. For details, refer to the braking resistor selection guide.

3） The signal and power lines must be routed separately. If the control and power cables are crossed, they should be crossed as far as possible at 90 degrees. Shielded twisted pair is the best choice for the analog signal cable, shielded three-core cable (the specifications than the ordinary motor cable file) or follow the inverter user manual.

3.2.4 Main Circuit Terminals And Wiring

⚠ DANGER

1、 Make sure that the power switch is in the off state for wiring operation. Otherwise, electric shock may occur.

2、 Wiring personnel must be professional trainees, or it may cause harm to equipment and personal!

3、 Must be reliably grounded, or there is an electric shock or fire hazard!

⚠ DANGER

1、 Make sure the input power is consistent with the rating of the inverter. Otherwise, damage the inverter!

2、 Make sure that the motor and the inverter are matched. Otherwise, the motor may be damaged or the inverter may be protected!

3、 Do not connect the power supply to u, v, w terminals or damage the inverter!

4、 Do not connect the braking resistor directly to the dc bus p +, p-, or cause a fire!

Single-phase inverter main circuit terminal description:

TERMINAL MARK	TERMINAL MARK	DESCRIPTION
L1、l2	Single-phase power input terminal	Single-phase 220v ac power connection point
U、v、w	Inverter output terminals	Connect the three-phase motor
⏚	Ground terminal	Ground terminal

Note: single-phase frequency converter external braking resistor, through the plastic shell on the right side of the hole lead connection, the specific technical staff can confirm with the division i

Description of the main circuit terminals of the three-phase inverter

TERMINAL MARK	NAME	DESCRIPTION
R、s、t	Three-phase power input terminal	Ac input three-phase power supply connection point
(P1)p+、p-	Dc bus positive and negative terminals	Connection point of the external braking unit
P+、pb	Braking resistor connection terminal	18.5kw and below the braking resistor connection point
P、p+	External reactor connection terminal	External reactor connection point, 15kw and above frequency converter can be external reactor
U、v、w	Inverter output terminals	Connect the three-phase motor
⏚	Ground terminal	Ground terminal

Wiring precautions:

📖   Input power supply l1, l2 or r, s, t:

    Inverter input wiring, no phase sequence requirements.

📖   Dc bus p +, p- terminal:

    Note that the dc bus p +, p- terminals still have residual voltage after power failure, so be sure to wait less than 36v after charge lamp is extinguished. Otherwise, there is

danger of electric shock.

22kw and above optional external braking unit, pay attention to p +, p-polarity can not be reversed, or lead to damage to the inverter or fire.

Braking unit wiring length should not exceed 10m. Use twisted pair or tight two-wire parallel wiring.

Do not connect the braking resistor directly to the dc bus. This may cause damage to the inverter or even a fire.

📖   Braking resistor connection terminals p+、 pb：

18.5kw or less and confirm that the braking resistor has been built-in models, the braking resistor connection terminals to be effective.

Braking resistor selection recommended reference value and wiring distance should be less than 5m. Otherwise, the inverter may be damaged.

📖   Inverter output side u, v, w:

Do not connect the capacitor or surge absorber to the output side. Otherwise, the inverter will be protected or even damaged.

Motor cable is too long, due to the impact of distributed capacitance, easy to produce electrical resonance, causing damage to the motor insulation or have a greater leakage current to the inverter over-current protection. When the length of motor cable is more than 100m, the ac output reactor should be installed.

📖   Ground terminal ⏚pe：

The terminals must be properly grounded, and the earth resistance must be less than 0.1ω. Doing so may cause the device to malfunction or even be damaged.

Do not share ground terminal ⏚ and power supply neutral n terminal.

485-	AI2	AI1	AO2	X6	X4	X2	Y1	24V	TA	
	485+	+10V	GND	AO1	X5	X3	X1	COM	TB	TC

Figure 3-14   7.5KW and below the control circuit terminal diagram

3.2.5 Control Terminals And Wiring:

Control Terminal Identification Description

TERMINAL SYMBOL	TERMINAL FUNCTION DESCRIPTION	FACTORY SETTING
X1		For the function selection of terminals x1 to x4, refer to p4-00 ~ p4-06 multi-function digital input selection (on), the operating current is 16ma; open circuit (off), allowing leakage current of 10μa
X2	Multi-function digital input terminal	
X3		
X4		
X5		
X6	High-speed pulse input terminal	In addition to the characteristics of x1 ~ x5, but also as a high-speed pulse input channel Maximum input frequency: 50khz
+24v	24v power supply	+24v 200ma
Com	Common to the digital control signal	Common terminals for multi-function input and output terminals
Ta	Multi-function relay output common	Resistive load 5a(n.o.)/3a(n.c.) 240vac 5a(n.o.)/3a(n.c.) 24vdc
Tb	Multi-function relay output contact (normally open a)	Inductive load 1.5a(n.o.)/0.5a(n.c.) 240vac 1.5a(n.o.)/0.5a(n.c.) 24vdc
Tc	Multi-function relay output contact (normally closed b)	Output a variety of monitoring signals, such as running, the frequency reaches, overload indicator and other signals.
Y1	Multi-function output terminal one (optocoupler type)	The frequency changer outputs each kind of monitor signal in the open collector way. Such as during operation, frequency arrival, overload indication, and so on.
Y2	Multi-function output terminal ii (optocoupler type)	
10v	Speed setting power supply	Analog frequency setting power supply + 10vdc 20ma (variable resistor 3 ~ 5kω)
Ai1	Analog voltage frequency command	Impedance： 47kω Resolution： 10 bits Range： 0 to + 10vdc = 0 to the maximum output frequency

Ai2	Analog voltage / current frequency command	1） switch sw4 to the voltage side (vi), that accepts 0-10v
		    Voltage signal
		  Impedance： 47kω
		Resolution： 10 bits
		  Range： 0~10vdc =0~ maximum output frequency
		2) switch sw4 to the current side (ii), said to accept 4-20ma voltage signal
		  Impedance： 250ω
		Resolution： 10 bits
		  Range： 4～20ma =0～ maximum output frequency

Ao1	Analog voltage / current output	Impedance：470ω Output current：20ma max Resolution：8 bits Range：0～10vdc，4-20ma
Ao2	Analog voltage output	Impedance： 47kω Resolution： 10 bits Range： 0~ maximum output frequency =0~10vdc
Gnd	Analog control signal common	Analog control signal common

* Analog Control Signal Line Specifications：18 Awg (0.75 Mm^2)，Shielded Isolated Stranded Wire

Analog Input Terminal（Ai1, Ai2, Gnd）

  Connecting weak analog signals is particularly susceptible to external noise interference, so the wiring should be as short as possible (less than 20m) and a shielded wire should be used. In addition, the shielded cable's peripheral network cable should be grounded, but if the induced noise is large, the connection to the gnd terminal will be better.

  If a contact is used in this circuit, a two-pronged contact that can handle weak signals should be used. Also, do not use contact control for terminal gnd.

  When an external analog signal is output, the analog signal output or the disturbance caused by the ac motor driver may cause malfunction. When this happens, connect the capacitor and the iron core to the external analog output terminal as shown in the figure below. Shows:
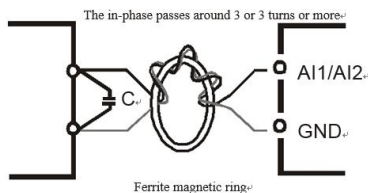
Multi-Function Digital Input Terminal(X1~X6, Com)

    📖   In case of contact input control, a contact with high reliability for weak signal contact should be used to prevent the occurrence of poor contact.

Optocoupler Isolation Output Terminals (Y1，Y2,Com)

    📖   The polarity of the external power supply should be properly connected.
    📖   When connecting the control relay, connect the surge absorber to both ends of the excitation coil. Please pay attention to the correct connection polarity.

Other

    📖   Make sure that the wiring of the control terminals is as far away from the wiring of the main circuit as possible. Doing so may cause malfunction due to noise. If the wiring of the control terminal must be interleaved with the wiring of the main circuit, cross it 90 degrees.
    📖   The control wiring inside the ac motor drive should be properly secured so that it does not directly contact the live parts of the main circuit (for example, the terminal block of the main circuit).
    📖   Do not connect or disconnect any wiring when the operation keyboard is displayed.

4

OPERATION AND DISPLAY

CHAPTER 4 OPERATION AND DISPLAY

4.1 Operation and Display Panel Introduction

With the operation panel, you can modify the function parameters of the inverter, monitor the working status of the inverter and control the operation of the inverter (start and stop). Its appearance and function area are shown as below:
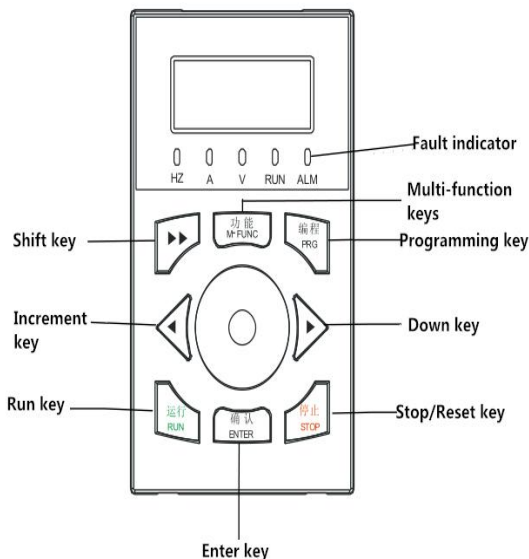
Figure 4-1 Operation panel

Function led description:

 Hz： frequency status indicator

 A： current indicator

 V： voltage indicator

 Run：when the indicator is on, it indicates that the inverter is running
  Alm：when the led is on, it indicates that the inverter is in the fault state

Digital display area:
5 LED display, can display the set frequency, output frequency, a variety of monitoring data and alarm codes.

Key Description Table

33

button	name	Features
ENTER	Enter key	Step-by-step access to the menu screen, set the parameter confirmation
PRG	Programming key	Level 1 menu entry or exit
◁	Increment key	Increment of data or function code
▷	Down key	Decrement of data or function code
▷ ▷	Shift key	In the stop display interface and run the display interface, you can cycle select display parameters; modify the parameters, you can choose to modify the parameters of bits
RUN	Run the key	In keyboard operation mode, used to run the operation
STOP	Stop key	When running, press this key to stop the operation. In the case of fault alarm, it can be used to reset operation
M-FUNC	Function keys	Press this key to execute jog frequency

4.2 Function Code View and modify the method description

820 frequency changer control panel uses three levels of menu structures to carry on the parameter establishment and so on the operation. Three menu are:

Function parameter group (first level menu) → function code (second level menu) → function code set value (third level menu). Figure 4-2 shows the operation flow.
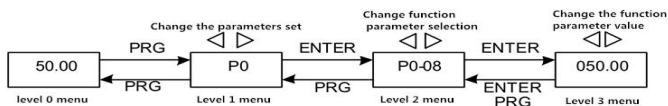
Figure 4-2 Three-level menu operation flowchart

Description:Press the PRG key or the ENTER key to return to the second level menu while the third-level menu is operating. The difference is: press ENTER key to save the setting parameters and return to the second level menu and transfer to the next function code automatically. Press PRG key to return to the second level menu without saving the parameters and return to the current function code .

Example: Change the function code P3-02 from 10.00Hz to 15.00Hz. (Boldface indicates flashing bits)
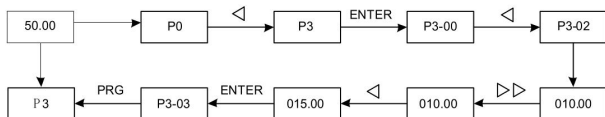
In the third-level menu state, if the parameter does not flash bits, that the function code can not be modified, Possible reasons are:

1） The function code is unmodifiable. Such as the actual detection parameters, operating parameters, such as records.

2）   The function code can not be modified in the running state and can not be modified until it is stopped.

4.3 Parameter display mode

Parameter display mode is mainly to facilitate the user to view the different needs of different forms of functional parameters, providing three parameters display,

NAME	DESCRIPTION
Function parameter mode	The sequence shows the inverter function parameters, respectively P0 ~ PP, A0 ~ AF, U0 ~ UF function parameter group
User-defined parameter mode	Customized display of the individual function parameters (up to 32 custom), You can use the PE group to determine the function parameters that need to be displayed
The user changes the parameter mode	Function parameters that do not match the factory settings

The relevant function parameters are P-02, P-03, as follows

	Function Arguments Display properties		Factory default	11
PP-02	Predetermined area	A bit	U group display selection	
		0	Do not show	
		1	display	
		Ten	Group A display selection	
		0	Do not show	
		1	display	
PP-03	Predetermined area	Personality parameter mode display selection	Factory default	0
		A bit	User-defined parameter display selection	
		0	Do not show	
		1	display	
		Ten	The user changes the parameter display selection	
		0	Do not show	
		1	display	

QUICK When the personality parameter mode display selection (PP-03) there is a display, this time through the QUICK key to switch into a different parameter display. Each parameter display mode display code is:

Parameter display mode	display
Function parameter mode	-bASE
User-defined parameter mode	-USEr
The user changes the parameter mode	--C--

The switching is as follows:

The current function parameters for the way, switch to user-defined parameters
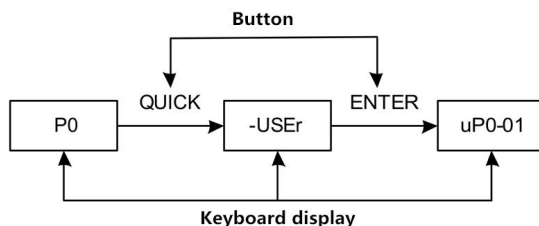
4.4 How to view the status parameters

In the stop or running state, through the shift key can display a variety of state parameters. The parameter B7-03 (operating parameter 1), P7-04 (operating parameter 2), P7-05 (stop parameter) is used to select whether the parameter is displayed in binary.

In the stop state, there are sixteen stop status parameters can be selected whether to display, namely: set frequency, bus voltage, DI input state, DO output status, analog input AI1 voltage, analog input AI2 voltage, analog input AI3 voltage, Actual value, actual length, PLC running step, load speed display, PID setting, PULSE input pulse frequency and 3 reserved parameters. Press to switch the selected parameter. In the running state, five running status parameters: operating frequency, set frequency, bus voltage, output voltage, input current is the default display, the other display parameters: output power, output torque, DI input state, DO output state, The analog input AI1 voltage, analog input AI2 voltage, analog input AI3 voltage, actual count value, actual length value, linear speed, PID setting, PID feedback, etc. are displayed by function codes P7-03, P7-04, Binary) selection, the key sequence to switch display the selected parameters.

After the inverter is powered off, the displayed parameters are defaulted to the parameters selected before the inverter is powered down.

4.5 Password settings

When the PP-00 is set to non-zero, it is the user's password, and exit the function code edit state. The password protection is effective. Press the PRG key once again to display "-----". Enter the user password correctly to enter the normal menu, or can not enter.

To cancel the password protection function, only through the password to enter, and PP-00 set to 0 the job.

4.6 motor parameters automatic tuning

Select the vector control mode of operation, before the inverter is running, you must accurately enter the motor nameplate parameters, the 820 inverter nameplate parameters to match the standard motor parameters; vector control method dependent on the motor parameters, The exact parameters of the controlled motor must be obtained.

Auto tuning of motor parameters is as follows:

First select the command source (P0-02) as the operator panel command channel. Then enter the following parameters according to the actual motor parameters (according to the current motor selection):

Motor selection	Parameter
Motor1	P1-00: Motor type selection P1-01: Motor rated power P1-02: Motor rated voltage P1-03: Motor rated current P1-04: Motor rated frequency P1-05: Motor rated speed
Motor 2	A2-00: Motor type selection A2-01: Motor rated power A2-02: Rated motor voltage A2-03: Motor rated current A2-04: Motor rated frequency A2-05: Rated motor speed
Motor 3	A3-00: Motor type selection A3-01: Motor rated power A3-02: Rated motor voltage A3-03: Motor rated current A3-04: Motor rated frequency A3-05: Nominal motor speed
Motor 4	A4-00: Motor type selection A4-01: Motor rated power A4-02: Rated motor voltage A4-03: Motor rated current A4-04: Motor rated frequency A4-05: Rated motor speed

For the asynchronous machine

If the motor can be completely disconnected from the load, P1-37 (motor 2 \ 3 \ 4 is A2 \ A3 \ A4-37), please select 2 (complete tuning of asynchronous machine), then press the RUN key on the keyboard panel, The following parameters of the motor are automatically calculated

Motor selection	parameter
Motor 1	P1-16: Synchronous machine stator resistance P1-17: Synchronizer D-axis inductance P1-18: Synchronous machine Q-axis inductance
Motor 2	A2-16: Synchronous machine stator resistance A2-17: Synchronizer D-axis inductance A2-18: Synchronous machine Q-axis inductance

Motor 3	A3-16: Synchronous machine stator resistance A3-17: Synchronizer D-axis inductance A3-18: Synchronous machine Q-axis inductance
Motor 4	A4-16: Synchronous machine stator resistance A4-17: Synchronizer D-axis inductance A4-18: Synchronous machine Q-axis inductance

Complete motor parameter auto-tuning.

If the motor can not be completely disconnected from the load, select P1 (motor 2 \ 3 \ 4 for A2 \ A3 \ A4-37) and press RUN key on the keypad panel.

4.7 Power on the inverter

4.7.1 Check and prepare before operation

Check the following before starting the operation

Check wiring is correct. In particular, check that the output terminal U. V. W of the inverter can not be connected to the power supply. Make sure that the earth terminal ⏚PE is well grounded.

Verify that there is no short circuit or short circuit to ground between terminals or exposed live parts.

Make sure that the terminal connections, plug-in connectors and screws are tightened without loosening.
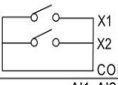
Before switching on the power, turn all switches off. Ensure that the inverter does not start and does not operate abnormally when the power is turned on.

Only after the cover is installed can the power supply be switched on.

Humid hands prohibit operating switches.

4.7.2 Operation method

There are various ways to operate the inverter. Refer to section 4.1, "Keypad Panel Operation Method" and "Function Parameter List". In accordance with the application requirements and operating requirements to select the most appropriate method of operation, usually used in the following methods:

4.7.3 Commissioning

The drive can be commissioned when the pre-run check and preparation is completed. When the product is shipped, it is set to the operation mode of the keypad panel.

Power input, confirm LED display frequency 50.00HZ

1) Use the ◁ key to set the low frequency of about 5 Hz.

2) Press the "RUN" key. Forward rotation To decelerate and stop, press the "STOP" key.

3) Check the following points
Motor rotation direction is correct Motor rotation is smooth (no abnormal noise and vibration) Acceleration / deceleration is smooth
If there is no abnormal situation, increase the running frequency to continue the test operation, through the above test run, to confirm without any abnormal conditions. And then can be put into operation.

4.7.4 Inverter status display
In the inverter with machine or running state, by setting the function codes F7-03

~ F7-05, you can select the state parameters to be displayed, the display content can

refer to the function code summary table,

4.7.5 Failure
The inverter provides a variety of fault information, please refer to the inverter fault diagnosis and countermeasures.

5

FUNCTION PARAMETER SUMMARY TABLE

CHAPTER 5 BRIEF INTRODUCTION TO FUNCTION PARAMETERS

The parameters can be divided into 22 parameter groups. It is easier to set the function codes. In most applications, the user can set the parameters according to the relevant parameters in the parameter group.

The symbols in the menu are as follows:

"$\nearrow$"： it means the setting value of this parameter can be changed when the inverter is in stop or running status.

"★"： indicating that the parameter is "factory parameter", only the manufacturer set to prohibit the user to operate;

"●"： indicates that the set value of this parameter can be changed only when the inverter is stopped.

     P0：Basic Function Group
     P1：First Motor Parameter
     P2：First Motor Vector Control Parameter
     P3：V / F Control Parameters
     P4：Input Terminal
     P5：Output Terminal
     P6：Start And Stop Control
     P7：Keyboard And Display
     P8：Accessibility
     P9： Fault And Protection
     PA：Pid Function Group
     PB：Swing Frequency, Fixed Length And Count
     PC：Multi-Stage Instruction, Simple Plc
     PD：Communication Parameters
     PP：User Password
     A0：Torque Control And Limiting Parameters
     A2：Second Motor Parameter
     A5：Control Optimization Parameters
     A6：Ai Curve Setting
     A8：Point To Point Communication
     AC：Aiao   Correction
     U0：Basic Monitoring Parameters

FUNCTION PARAMETER LIST

P0：BASIC FUNCTION GROUP

P0 BASIC FUNCTION GROUP				
FUNCTIO N CODE	**NAME**	**PREDETERMINED AREA**	**FACTORY DEFAULT**	**Property**
P0-00	Gp type display	1：g type (constant torque load model) 2：p type (variable torque load E.g. Fan and pump)	Model to determine	★
P0-01	1st motor control mode	0：speed sensorless vector control（svc） 1：a speed sensor vector control（fvc） 2：v/fcontrol	2	●
P0-02	Command source selection	0：operation panel command channel (led off) 1：terminal command channel (led on) 2：communication command channel (led flashing)	0	✗
P0-03	Main frequency source x selection	0：digital setting (preset frequency p0-08, up / down can be modified,power-down does not remember) 1：digital setting (preset frequency p0-08, up / down can be modified, power-down memory) 2：ai1 3：ai2 4：adjustable potentiometer potentiometer settings 5：pulse pulse setting (x6)pulse 6：multi - segment instruction 7：simple plc 8：pid 9：communication given	4	●
P0-04	Auxiliary frequency source y selection	With p0-03 (main frequency source x selection)	0	●
P0-05	Auxiliary frequency source y range selection	0：relative to the maximum frequency 1：relative to the frequency source x	0	✗
P0-06	Auxiliary frequency source y range when superimposed	0%～150%	100%	✗
P0-07	Frequency source superposition selection	A bit: frequency source selection 0：main frequency source x 1：main and auxiliary operation result (the operation relation is determined by ten bits) 2：the main frequency source x and the auxiliary frequency source y are switched 3：the main frequency source x and the main and auxiliary operation result are switched 4：the auxiliary frequency source y and the main and auxiliary operation result are switched ten bits: frequency source main and auxiliary operation relations 0：main + auxiliary 1：main - auxiliary 2：the two maximum 3：the minimum value	00	✗
P0-08	Preset frequency	0.00hz～maximum frequency（p0-10）	50.00hz	✗

P0-09	Running direction	0：the default run direction 1：	0	✗
P0-10	Maximum frequency	50.00hz～500.00hz	50.00hz	●
P0-11	Upper limit frequency source	0：p0-12 set up 1：ai1 2：ai2 3：adjustable potentiometer potentiometer settings 4：pulse pulse setting 5：communication given	0	●
P0-12	Upper limit frequency	Lower limit frequency p0-14～maximum frequency p0-10	50.00hz	✗
P0-13	Upper frequency offset	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	0.5khz～16.0khz	Model dependent	✗
P0-16	The carrier frequency is adjusted with temperature	0：no 1：yes	1	✗
P0-17	Acceleration time1	0.00s～65000s	Model dependent	✗
P0-18	Deceleration time1	0.00s～65000s	Model dependent	✗
P0-19	Acceleration / deceleration time unit	0：1 second 1：0.1 second 2：0.01 second	1	●
P0-20	Reserved	-	-	-
P0-21	Auxiliary frequency source bias frequency when superimposed	0.00hz～maximum frequency p0-10	0.00hz	✗
P0-22	Frequency command resolution	1：0.1hz 2：0.01hz	2	●
P0-23	Digital setting frequency stop memory selection	0：do not remember 1：memory	1	✗
P0-24	Motor selection	0：motor parameter group 1 1：motor parameter group 2	1	●
P0-25	Acceleration / deceleration time reference frequency	0：maximum frequency（p0-10） 1：set the frequency 2：100hz	0	●
P0-26	Runtime frequency command Up/down benchmarks	0：operating frequency 1：set the frequency	0	●

| P0-27 | Command source bundle frequency source | Bit: operation panel command binding frequency source selection
0：no binding
1：digital set the frequency
2：ai1
3：ai2
4：adjustable potentiometer keyboard
5：pulse pulse setting（x6）
6;multi-stage
speed
7：simple plc
8：pid
9：communication
given
10-bit: terminal command binding frequency source selection hundreds: communication command binding frequency source selection thousands: auto-run binding frequency source selection | 0000 | ✗ |
| P0-28 | Serial communication protocol selection | 0：modbus-rtu protocol
1：profibus-dp bridge or canopen bridge | 0 | ✗ |

P1：First Motor Parameter

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
P1 FIRST MOTOR PARAMETER				
P1-00	Motor type selection	0：ordinary induction motor 1：variable frequency induction motor	0	●
P1-01	Rated motor power	0.1kw～1000.0kw	Model to determine	●
P1-02	Rated motor voltage	1v～2000v	Model to determine	●
P1-03	Rated motor current	0.01a～655.35a（inverter power <=55kw） 0.1a～6553.5a（inverter power >55kw）	Model to determine	●
P1-04	Rated motor frequency	0.01hz～maximum frequency	Model to determine	●
P1-05	Rated motor speed	1rpm～65535rpm	Model to determine	●
P1-06	Asynchronous motor stator resistance	0.001Ω～65.535Ω（inverter power <=55kw） 0.0001Ω～6.5535Ω（inverter power >55kw）	Tuning parameters	●
P1-07	Asynchronous motor rotor resistance	0.001Ω～65.535Ω（inverter power <=55kw） 0.0001Ω～6.5535Ω（inverter power >55kw）	Tuning parameters	●
P1-08	Induction motor leakage inductance	0.01mh～655.35mh（inverter power <=55kw） 0.001mh～65.535mh（inverter power >55kw）	tuning parameters	●
P1-09	Asynchronous motor mutual inductance	0.1mh～6553.5mh（inverter power <=55kw） 0.01mh～655.35mh（inverter power >55kw）	Tuning parameters	●
P1-10	No - load current of induction	0.01a～p1-03 （inverter power <=55kw） 0.1a～p1-03 （inverter power >55kw）	Tuning parameters	●
P1-27	Number of encoder lines	1～65535	1024	●
P1-28	Encoder type	0：abz incremental encoder 1：uvw incremental encoder 2：rotary transformer 3：sine and cosine encoder 4：province line type uvw encoder	0	●
P1-30	Abz incremental encoder ab phase sequence	0：positive 1：reverse	0	●
P1-31	Mounting angle of encoder	0.0～359.9°	0.0°	●
P1-32	Uvw encoder uvw phase sequence	0：positive 1：reverse	0	●
P1-33	Uvw encoder offset angle	0.0～359.9°	0.0°	●
P1-34	Number of pole pairs of resolver	1～65535	1	●
P1-36	Speed feedback pt disconnection detection time	0.0：not action 0.1s～10.0s	0.0	●
P1-37	Tuning selection	0：no operation 1：stationary tuning of asynchronous machine 2：complete tuning of asynchronous machine 11：synchronous machine static tuning 12：synchronous machine complete tuning	0	●

P2：FIRST MOTOR VECTOR CONTROL PARAMETER

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
P2 FIRST MOTOR VECTOR CONTROL PARAMETER				
P2-00	Speed loop proportional gain1	1～100	30	✐
P2-01	Speed loop integration time 1	0.01s～10.00s	0.50s	✐
P2-02	Switching frequency 1	0.00～p2-05	5.00hz	✐
P2-03	Speed loop proportional gain 2	1～100	20	✐
P2-04	Speed loop integration time 2	0.01s～10.00s	1.00s	✐
P2-05	Switching frequency 2	P2-02～maximum frequency	10.00hz	✐
P2-06	Vector control slip gain	50%～200%	100%	✐
P2-07	Svc peed feedback loop filter time	0.000s～0.100s	0.050s	✐
P2-09	Torque upper limit source in speed control mode	0：function code p2-10 is set 1：ai1 2：ai2 3：adjustable potentiometer keyboard 4：pulse pulse setting 5：communication given 6：min（ai1,ai2） 7：max（ai1,ai2） 1-7option of the full scale range p2-10	0	✐
P2-10	Torque upper limit digital setting in speed control mode	0.0%～200.0%	150.0%	✐
P2-13	Excitation proportional gain	0～60000	2000	✐
P2-14	Excitation adjustment integral gain	0～60000	1300	✐
P2-15	Torque adjustment proportional gain	0～60000	2000	✐
P2-16	Torque regulation integral gain	0～60000	1300	✐
P2-17	Speed loop integral property	A bit: integral separation 0：invalid 1：invalid	0	✐

P3： V/FCONTROL PARAMETERS

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
P3 V/FCONTROL PARAMETERS
P3-00	Vf urve settings	0：straight line v/f 1：more v/f 2：square v/f 3：1.2 th power v/f 4：1.4 th power v/f 6：1.6 power v/f 8：1.8 power v/f 9：reserved 10：vf omplete separation mode 11：vf emi-detached mode	0	●
P3-01	Torque boost	0.0%：（automatic torque boost） 0.1%～30.0%	Model to determine	✗
P3-02	Torque boost cutoff frequency	0.00hz～maximum frequency	50.00hz	●
P3-03	Multi - point vf frequency point1	0.00hz～p3-05	0.00hz	●
P3-04	Multi - point vf voltage point1	0.0%～100.0%	0.0%	●
P3-05	Multi - point vf frequency point2	P3-03～p3-07	0.00hz	●
P3-06	Multi - point vf voltage point2	0.0%～100.0%	0.0%	●
P3-07	Multi - point vf frequency point3	P3-05～rated motor frequency（p1-04）	0.00hz	●
P3-08	Multi - point vf voltage point 3	0.0%～100.0%	0.0%	●
P3-09	Vf lip compensation gain	0.0%～200.0%	0.0%	✗
P3-10	Vf overexcitation gain	0～200	64	✗
P3-11	Vf oscillation suppression gain	0～100	Model to determine	✗
P3-13	Vf separation of the voltage source	0：digital settings（p3-14） 1：ai1 2：ai2 3：adjustable potentiometer keyboard 4：pulse setting（x6） 5：multi - segment instruction 6：simple plc 7：pid 8：communication given Note：100.0% corresponding to the motor rated voltage	0	✗
P3-14	Vf separate the voltage digital setting	0v～rated motor voltage	0v	✗
P3-15	Vf separation voltage rise time	0.0s～1000.0s Note: 0v changes to the rated voltage of the motor	0.0s	✗

04：INPUT TERMINAL

04　INPUT TERMINAL				
FUNCTION CODE	**NAME**	**PREDETERMINED AREA**	**FACTORY DEFAULT**	**CHANGE THE PROPERTIES**
P4-00	X1　terminal　function selection	0：no function	1	●
P4-01	X2　terminal　function selection	1：forward running（fwd） 2：reverse run（rev） 3：three-wire operation control	2	●
P4-02	X3　terminal　function selection	4：forward rotation（fjog） 5：forward rotation（rjog）	4	●
P4-03	X4　terminal　function selection	6：terminal up	9	●
P4-04	X5　terminal　function selection	7：terminal down 8：free stop	12	●
P4-05	X6　terminal　function selection	9：reset bug（reset）	0	●
P4-06	X7　terminal　function selection	10：the run is paused 11：external fault normally open input	0	●
P4-07	X8　terminal　function selection	12：multi-segment instruction terminal1	0	●
P4-08	X9　terminal　function selection	13：multi-segment instruction terminal2 14：multi-segment instruction terminal3	0	●

P4-09	X10 terminal function selection	15：multi-segment instruction terminal4 16：acceleration / deceleration time selection terminal 1 17：acceleration / deceleration time selection terminal 2 18：frequency source switching 19：up/downsetting clear (terminal, keyboard) 20：run command switch terminal 21：acceleration and deceleration stop 22：pid pauses 23：plc status reset 24：pendulum frequency suspension 25：counter input 26：counter reset 27：length count input 28：length reset 29：torque control disabled 30：pulse requency input (valid only for x6) 31：reserved 32：immediate dc braking 33：external fault normally closed input 34：frequency modification enabled 35：pid inverts the direction of action 36：external stop terminal1 37：control command to switch terminal 2 38：pid integral pause 39：the frequency source x is switched with the preset frequency 40：the frequency source y is switched with the preset frequency 41：motor selection terminal 1 42：motor selection terminal 2 43：pid parameter switching 44：user - defined fault 1 45：user defined fault 2 46：speed control / torque control switching 47：emergency stop 48：external stop terminal 2 49：deceleration dc braking 50：the running time is cleared 51-59: reserved	0	●
P4-10	X ilter time	0.000s～1.000s	0.010s	✎
P4-11	Terminal command mode	0：two - wire type1 1：two - wire type2 2：three - wire type 3：three - wire type	0	●
P4-12	Terminal up / down rate of change	0.001hz/s～65.535hz/s	1.00hz/s	✎
P4-13	Ai curve 1 minimum input	0.00v～p4-15	0.00v	✎
P4-14	Ai curve 1 minimum input setting	-100.0%～+100.0%	0.0%	✎
P4-15	Ai curve 1 maximum input	P4-13～+10.00v	10.00v	✎

P4-16	Ai curve 1 corresponds to the maximum input setting	-100.0%～+100.0%	100.0%	✎
P4-17	Ai1 filter time	0.00s～10.00s	0.10s	✎
P4-18	Ai curve 2 minimum input	0.00v～p4-20	0.00v	✎
P4-19	Ai curve 2 minimum input setting	-100.0%～+100.0%	0.0%	✎
P4-20	Ai curve 2 maximum input	P4-18～+10.00v	10.00v	✎
P4-21	Ai curve 2 maximum input corresponds to the setting	-100.0%～+100.0%	100.0%	✎
P4-22	Ai2 filter time	0.00s～10.00s	0.10s	✎
P4-23	Ai curve 3 minimum input	-10.00v～p4-25	0.01v	✎
P4-24	Ai curve 3 minimum input setting	-100.0%～+100.0%	0.0%	✎
P4-25	Ai curve 3 maximum input	P4-23～+10.00v	10.00v	✎
P4-26	Ai curve 3 maximum input setting	-100.0%～+100.0%	100.0%	✎
P4-27	Keyboard potentiometer filter time	0.00s～10.00s	0.10s	✎
P4-28	Pulse minimum input	0.00khz～p4-30	0.00khz	✎
P4-29	Pulse minimum input corresponds the setting	-100.0%～100.0%	0.0%	✎
P4-30	Pulse maximum input	P4-28～100.00khz	50.00khz	✎
P4-31	Pulse maximum input setting	-100.0%～100.0%	100.0%	✎
P4-32	Pulse filter time	0.00s～10.00s	0.10s	✎
P4-33	Aicurve selection	A bit：ai1 curve selection 1：curve 1（2 point，p4-13～p4-16） 2：curve 2（2 point，p4-18～p4-21） 3：curve 3（2 point，p4-23～p4-26） 4：curve 4（4 point，a6-00～a6-07） 5：curve 5（4 point，a6-08～a6-15） Ten：ai2 curve selection, ibid Hundreds：ai3 curve selection, ibid	321	✎
P4-34	Aibelow minimum input setting selection	A bit:ai1 below minimum input setting selection 0: corresponds to the minimum input setting 1:0.0% ten：ai2 below the minimum input setting selection, as above Hundreds：ai3 below the minimum input setting selection, as above	000	✎
P4-35	X1 delay	0.0s～3600.0s	0.0s	●
P4-36	X2 delay	0.0s～3600.0s	0.0s	●
P4-37	X3 delay	0.0s～3600.0s	0.0s	●
P4-38	X terminal valid mode selection 1	0：high active 1：active low A bit：x1 Ten：x2 Hundreds：x3 Thousands：x4 Million：x5	00000	●

P4-39	X terminal valid mode selection 2	0：high active 1：active low A bit：x6 Ten：x7 Hundreds：x8 Thousands：x9 Million：x10	00000	●

P5： OUTPUT TERMINAL

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
		P5 OUTPUT TERMINAL		
P5−00	Fm terminal output mode selection	0： pulse output（fmp） 1： switch output（fmr）	0	✎
P5−01	Y1 output function selection	0： no output 1： the inverter is running 2： fault output (fault shutdown)	0	✎
P5−02	Control board relay function selection（t/a-t/b-t/c）	3： frequency level detection pdt1 output 4： the frequency arrives 5： zero speed operation (no output during shutdown)	2	✎
P5−03	Expansion card relay 1 output function selection（r/a1-r/b1-r/c1）	6： otor overload pre - alarm 7： inverter overload pre-alarm	0	✎
P5−04	Expansion card relay 2 output function selection（r/a2-r/b2-r/c2）	8： set the count value to arrive 9： the specified count value is reached	1	✎

P5-05	Y2 output function selection (11kw and above standard)	10：the length is reached 11：the plc cycle is completed 12：the accumulated run time is reached 13：frequency limit 14：torque limit 15：run ready 16：ai1>ai2 17：the upper frequency reaches 18：lower limit frequency arrival (operation related) 19：undervoltage status output 20：communication settings 21：target completion (reserved) 22：positioning close (reserved) 23：zero speed running 2 (output in shutdown) 24：the accumulated power-up time is reached 25：requency level detection pdt2 output 26：frequency 1 reaches the output 27：frequency 2 reaches the output 28：current 1 reaches the output 29：current 2 reaches the output 30：timing to the output 31：ai1 input overrun 32：out of load 33：reverse run 34：zero current state 35：module temperature is reached 36：output current is exceeded 37：ower frequency reached (shutdown also output) 38：alarm output (continue operation) 39：motor over - temperature pre - alarm 40：this time of arrival	4	✗
P5-06	Fmp output function selection	0：operating frequency 1：set the frequency 2：output current 3：output torque 4：output power 5：the output voltage 6：pulse input (100% corresponds to 100.0 mhz) 7：ai1 8：ai2 9：ai3(expansion card) 10：length 11：count value 12：communication settings 13：motor speed 14：output current (100.0% corresponds to 1000.0a)	0	✗
P5-07	Ao1 output function selection	15：the output voltage (100.0% corresponds to 1000.0v)	0	✗

P5-08	Ao2 output function selection	16：reserved	1	✐
P5-09	Fmp outputs the 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	Y1 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	Relay3 output delay time	0.0s～3600.0s	0.0s	✐

P6： **START AND STOP CONTROL**

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
P6 START AND STOP CONTROL
P6-00	Start mode	0：direct start 1：speed tracking restart 2：pre-excitation start (ac asynchronous machine)	0	✎
P6-01	Speed tracking mode	0：start from the stop frequency 1：start at zero speed 2：start with the maximum frequency	0	●
P6-02	Speed tracking speed	1～100	20	✎
P6-03	Start frequency	0.00hz～10.00hz	0.00hz	✎
P6-04	Start frequency hold time	0.0s～100.0s	0.0s	●
P6-05	Start dc braking current / excitation current	0%～100%	0%	●
P6-06	Start dc braking time / pre-excitation time	0.0s～100.0s	0.0s	●
P6-07	Acceleration / deceleration mode	0：linear acceleration and deceleration 1：s curve acceleration and deceleration a 2：s curve acceleration and deceleration b	0	●
P6-08	S curve start time proportion	0.0%～（100.0%-p6-09）	30.0%	●
P6-09	S curve end time proportion	0.0%～（100.0%-p6-08）	30.0%	●
P6-10	Stop mode	0：deceleration stop 1：free parking	0	✎
P6-11	Stop dc braking start frequency	0.00hz～maximum frequency	0.00hz	✎
P6-12	Stop dc braking wait time	0.0s～100.0s	0.0s	✎
P6-13	Dc injection braking current	0%～100%	0%	✎
P6-14	Stop dc braking time	0.0s～100.0s	0.0s	✎
P6-15	Braking usage	0%～100%	100%	✎

P7： KEYBOARD AND DISPLAY

P7 KEYBOARD AND DISPLAY				
FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
P7-01	Mf.k key function selection	0：mfk invalid 1：operation panel command channel and remote command channel (terminal command channel or communication command channel) to switch 2：forward and reverse switching 3：forward rotation 4：reverse jog	3	●
P7-02	Stop/resetkey function	0：the stop / res key is valid only in the keypad operation mode 1：in any operating mode, the stop / res key shutdown function is active	1	✗
P7-03	Led operation display parameter 1	0000～ffff Bit00: operating frequency 1 (hz) Bit01: setting frequency (hz) Bit02: bus voltage (v) Bit03: output voltage (v) Bit04: output current (a) Bit05: output power (kw) Bit06: output torque (%) Bit07: x input state 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	✗
P7-04	Lled operation display parameter 2	0000～ffff Bit00：pidfeedback bit01：plcstage Bit02：pulse input pulse frequency (khz) Bit03：operating frequency 2 (hz) Bit04：remaining runtime Bit05：ai1 voltage before correction (v) Bit06：ai2 voltage before correction (v) Bit07：ai3 voltage before correction (v) Bit08：line speed Bit09：current power-on time (hour) Bit10：current running time (min) Bit11：pulse input pulse frequency (hz) Bit12：communication settings Bit13：encoder feedback speed (hz) Bit14：main frequency x display (hz) Bit15：auxiliary frequency y display (hz)	0	✗

P7-05	Led stops the display parameters	0000～ffff Bit00: setting frequency (hz) Bit01: bus voltage (v) Bit02: x input state Bit03: do output status Bit04: ai1 voltage (v) Bit05: ai2 voltage (v) Bit06: ai3 voltage (v) Bit07: count value Bit08: length value Bit09: plc stage Bit10: load speed Bit11: pid setting Bit12：pulse input pulse frequency (khz)	33	✎
P7-06	Load speed display factor	0.0001～6.5000	1.0000	✎
P7-07	Inverter module radiator temperature	0.0℃～100.0℃	-	★
P7-08	Rectifier bridge radiator temperature	0.0℃～100.0℃	-	★
P7-09	Cumulative running time	0h～65535h	-	★
P7-10	Product number	-	-	★
P7-11	Software version number	-	-	★
P7-12	Load speed displays the number of decimal places	0：0 decimal places 1：1 decimal place 2：2 decimal places 3：3 decimal places	1	✎
P7-13	Total power-up time	0h～65535h	-	★
P7-14	Cumulative power consumption	0kw～65535degree	-	★

P8：ACCESSIBILITY

		P8 ACCESSIBILITY		
FUNCTION CODE	**NAME**	**PREDETERMINED AREA**	**FACTORY DEFAULT**	**CHANGE THE PROPERTIES**
P8-00	Jog running frequency	0.00hz～maximum frequency	6.00hz	✎
P8-01	Jog acceleration time	0.0s～6500.0s	20.0s	✎
P8-02	Jog deceleration time	0.0s～6500.0s	20.0s	✎
P8-03	Acceleration time 2	0.0s～6500.0s	Model to determine	✎
P8-04	Deceleration time2	0.0s～6500.0s	Model to determine	✎
P8-05	Acceleration time 3	0.0s～6500.0s	Model to determine	✎
P8-06	Deceleration time3	0.0s～6500.0s	Model to determine	✎
P8-07	Acceleration time 4	0.0s～6500.0s	Model to determine	✎
P8-08	Deceleration time4	0.0s～6500.0s	Model to determine	✎
P8-09	Jump frequency 1	0.00hz～maximum frequency	0.00hz	✎
P8-10	Jump frequency 2	0.00hz～maximum frequency	0.00hz	✎
P8-11	Jump frequency amplitude	0.00hz～maximum frequency	0.00hz	✎
P8-12	Forward and reverse dead time	0.0s～3000.0s	0.0s	✎
P8-13	Invert control enabled	0：allow 1：prohibited	0	✎
P8-14	The setting frequency is lower than the lower limit frequency operation mode	0：run at lower frequency 1：shutdown 2：zero speed operation	0	✎
P8-15	Droop control	0.00hz～10.00hz	0.00hz	✎
P8-16	Sets the cumulative power-on arrival time	0h～65000h	0h	✎
P8-17	Set the cumulative run arrival time	0h～65000h	0h	✎
P8-18	Start protection selection	0：not protected 1：protection	0	✎
P8-19	The frequency detection value (pdt1)	0.00hz～maximum frequency	50.00hz	✎
P8-20	The frequency detection lag value (pdt1)	0.0%～100.0%（pdt1 level）	5.0%	✎
P8-21	The frequency reaches the detection width	0.0%～100.0%（maximum frequency）	0.0%	✎
P8-22	Whether the skip frequency is valid during acceleration or deceleration	0：invalid 1：effective	0	✎
P8-23	Run time arrival action selection	0：continue running 1：fault prompt	0	●
P8-24	Shop time arrival action select	0：continue running 1：fault prompt	0	●
P8-25	Acceleration time 1 and acceleration time 2 Switch the frequency point	0.00hz～maximum frequency	0.00hz	✎
P8-26	Deceleration time 1 and deceleration time 2 Switch the frequency point	0.00hz～maximum frequency	0.00hz	✎

P8-27	Terminal jog priority	0: invalid　　　　1: effective	0	✎
P8-28	Frequency detection value (pdt2)	0.00hz～maximum frequency	50.00hz	✎
P8-29	The frequency detection hysteresis value (pdt2)	0.0%～100.0%（pdt2 level）	5.0%	✎
P8-30	Arbitrary arrival frequency detection value 1	0.00hz～maximum frequency	50.00hz	✎
P8-31	1 any arrival frequency detection width	0.0%～100.0%（maximum frequency）	0.0%	✎
P8-32	Any frequency detection value 2	0.00hz～maximum frequency	50.00hz	✎
P8-33	2 arbitrary arrival frequency detection width	0.0%～100.0%（maximum frequency）	0.0%	✎
P8-34	Zero current detection level	0.0%～300.0% 100.0% corresponding 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	0.0%（not detected） 0.1%～300.0%（rated motor current）	200.0%	✎
P8-37	Output current overrun detection delay time	0.00s～600.00s	0.00s	✎
P8-38	Arbitrary arrival current	0.0%～300.0%（rated motor current）	100.0%	✎
P8-39	Arbitrary reach current 1 width	0.0%～300.0%（rated motor current）	0.0%	✎
P8-40	Arbitrary arrival current	0.0%～300.0%（rated motor current）	100.0%	✎
P8-41	Arbitrary reach current 2 width	0.0%～300.0%（rated motor current）	0.0%	✎
P8-42	Timing function selection	0: invalid 1: effective	0	✎
P8-43	Timed running time selection	0: p8-44 set up 1: ai1 2: ai2 3: reserved Analog input rangep8-44	0	✎
P8-44	Timed running time	0.0min～6500.0min	0.0min	✎
P8-45	Ai1 input voltage protection value lower limit	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 is reached	0℃～100℃	75℃	✎
P8-48	Cooling fan control	0: the fan is running during operation 1: the fan is always running	0	✎
P8-49	Wake-up frequency	Sleep frequency (p8-51) to maximum frequency (p0-10)	0.00hz	✎
P8-50	Wake-up delay time	0.0s～6500.0s	0.0s	✎
P8-51	Sleep frequency	0.00hz～wake-up frequency （p8-49）	0.00hz	✎
P8-52	Sleep latency	0.0s～6500.0s	0.0s	✎
P8-53	The arrival time of this operation is set	0.0min～6500.0min	0.0min	✎

P9：   FAULT AND PROTECTION

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
		P9 FAULT AND PROTECTION		
P9−00	Motor overload protection selection	0：prohibited 1：allow	1	✎
P9−01	Motor overload protection gain	0.20～10.00	1.00	✎
P9−02	Motor overload warning coefficient	50%～100%	80%	✎
P9−03	Overvoltage stall gain	0～100	20	✎
P9−04	Overvoltage stall protection voltage	120%～150%	130%	✎
P9−05	Overcurrent speed gain	0～100	0	✎
P9−06	Overcurrent speed protection current	100%～200%	150%	✎
P9−07	Short-circuit protection selection for power-on	0：invalid 1：effective	1	✎
P9−08	Reserved	-	-	★
P9−09	Number of automatic fault resets	0～20	0	✎
P9−10	Fault do action selection during fault automatic reset	0：not action 1：action	0	✎
P9−11	Fault auto reset interval time	0.1s～100.0s	1.0s	✎
P9−12	Input phase loss / contactor pull-in protection selection	Bit: input phase loss protection 10: contactor pull protection 0：prohibited 1：allow	00	✎
P9−13	Output phase loss protection selection	0：prohibited 1：allow	1	✎
P9−14	The first fault type	0：no fault 1：reserved 2：accelerated overcurrent 3：deceleration overcurrent 4：constant speed overcurrent 5：accelerated overvoltage 6：deceleration overvoltage 7：constant speed overvoltage 8：buffer resistance is overloaded 9：undervoltage 10：the inverter is overloaded	－	★

P9-15	The second fault type	11：motor overload 12：input phase loss 13：output phase loss 14：module is overheating 15：external fault 16：communication error 17：contactor error 18：current detection is abnormal 19：motor tuning is abnormal 20：encoder / pg card error 21：parameter read and write exception 22：the inverter hardware is abnormal	—	★
P9-16	The third (most recent) failure type	23：the motor is shorted to ground 24：reserved 25：reserved 26：running time arrives 27: user - defined fault 1 28: user defined fault 2 29: power-up time is reached 30: out of load 31：pid feedback is lost during operation 40：fast current limit timeout 41：switch the motor during operation 42: the speed deviation is too large 43：motor overspeed 45：motor overtemperature 51：initial position error	—	★
P9-17	The third (most recent) failure frequency	—	—	★
P9-18	The third (most recent) fault current	—	—	★
P9-19	Bus voltage for the third (most recent) fault	—	—	★
P9-20	Enter the terminal status for the third (most recent) fault	—	—	★
P9-21	The third (last) fault outputs the terminal status	—	—	★
P9-22	Drive status for the third (most recent) fault	—	—	★
P9-23	Power-up time at the third (most recent) failure	—	—	★
P9-24	The third (most recent) failure time	—	—	★
P9-27	The second failure frequency	—	—	★
P9-28	The second fault current	—	—	★
P9-29	Bus voltage at the second fault	—	—	★
P9-30	Enter the terminal status at the second fault	—	—	★
P9-31	Output terminal status at the second fault	—	—	★

P9-32	Inverter status for the second fault	—	—	★
P9-33	The second power failure time	—	—	★
P9-34	The second failure time	—	—	★
P9-37	The first failure frequency	—	—	★
P9-38	The first fault current	—	—	★
P9-39	Bus voltage at the first fault	—	—	★
P9-40	Enter the terminal status for the first fault	—	—	★
P9-41	Output terminal status at the first fault	—	—	★
P9-42	Output terminal status at the first fault...	—	—	★
P9-43	The first power failure time	—	—	★
P9-44	Run time at first failure	—	—	★
P9-47	Fault protection action selection 1	Unit: click to overload (err11) 0：free stop 1：shutdown by stop mode 2：continue running Tens digit: input phase loss (err 12) (0 to 2) the same bit Hundreds of bits: output phase loss (err 13) (0 ~ 2) same bit Thousands: external fault (err 15) (0 to 2) the same bit Million: communication error (err16) (0 ~ 2) the same bit	00000	✎
P9-48	Fault protection action selection 2	Unit bit: encoder fault（err20） 0：free stop 10: function code read and write exception（err21） 0：free stop 1：shutdown by stop mode Hundreds: reserved Thousands: click overheating (err 25) (0 ~ 2) with p9-47 bits Million: communication error (err 26) (0 ~ 2) with p9-47 bits	00000	✎
P9-49	Fault protection action selection 3	Bit: user-defined fault 1（err27） （0~2）with p9-47 bits 10-bit: user-defined fault 2（err28） （0~2）with p9-47 bits Hundreds: power on time（err29） （0~2）with p9-47 bits Thousands: out of load（err30） 0：free stop 1：deceleration stop 2：jump directly to the motor frequency of 7% to continue running, do not lose load automatically restored to the set frequency operation 000 bits: loss of pid feedback at run time (err 31) (0 to 2) with p9 to 47 bits	00000	✎
P9-50	Fault protection action selection 4	A bit: the speed deviation is too large（err42） （0~2）with p9-47 bits Ten: motor over speed（err43） （0~2）with p9-47 bits Hundreds: initial position error（err51） （0~2）with p9-47 bits Thousands: speed feedback error（err52） （0~2）with p9-47 bits Million: program execution logic error（err99） （0~2）with p9-47 bits	00000	✎

P9-54	Continue running frequency selection during fault	0：runs at the current operating frequency 1：runs at the set frequency 2：operates at the upper frequency limit 3：run at lower frequency 4：operating at an abnormal standby frequency	0	✗
P9-55	Abnormal standby frequency	0.0%～100.0% (100.0% corresponds to the maximum frequency p0-10)	100.0%	✗
P9-56	Motor temperature sensor type	0：no temperature sensor 1：pt100 2：pt1000	0	✗
P9-57	Motor overheat protection threshold	0～200℃	110℃	✗
P9-58	Motor overheating forecast threshold	0～200℃	90℃	✗
P9-59	Instantaneous stop non-stop function selection	0～2	0	●
P9-60	Momentary action to suspend judgment voltage	80.0%～100.0%	85.0%	●
P9-61	Instantaneous power failure recovery time	0.00s～100.00s	0.50s	●
P9-62	Instantaneous power failure judgment voltage	60.0%～100.0%(standard bus voltage)	80.0%	✗
P9-63	Outload protection selection	0：invalid 1：effective	0	✗
P9-64	Load detection level	0.0～100.0%	10.0%	✗
P9-65	Load detection time	0.0～60.0s	1.0s	✗
P9-67	Overspeed detection value	0.0%～50.0%（maximum frequency）	20.0%	✗
P9-68	Over-speed detection time	0.0s～60.0s	1.0s	✗
P9-69	The speed deviation is too large	0.0%～50.0%（maximum frequency）	20.0%	✗
P9-70	Excessive speed deviation detection time	0.0s～60.0s	5.0s	✗

PA： PID FUNCTION

PA PID FUNCTION				
FUNCTION CODE	**NAME**	**PREDETERMINED AREA**	**FACTORY DEFAULT**	**CHANGE THE PROPERTIES**
PA-00	Pid reference source	0： pa-01 set up 1： ai1 2： ai2 3： adjustable potentiometer keyboard 4： pulse pulse setting (x6) 5： communication given 6： multi-step instruction reference	0	✗
PA-01	Pid value is given	0.0%～100.0%	50.0%	✗
PA-02	Pid feedback source	0： ai1 1： ai2 2： adjustable potentiometer keyboard 3： ai1-ai2 4： pulse pulse setting (x6) 5： communication given 6： ai1+ai2 7： max （|ai1|, |ai2|） 8： min （|ai1|, |ai2|）	0	✗
PA-03	Pid action direction	0： positive role 1： reaction	0	✗
PA-04	Pid gives the feedback range	0～65535	1000	✗
PA-05	Proportional gain kp 1	0.0～100.0	20.0	✗
PA-06	Integration time ti 1	0.01s～10.00s	2.00s	✗
PA-07	Derivative time td 1	0.000s～10.000s	0.000s	✗
PA-08	Pid reverse cutoff frequency	0.00～maximum frequency	2.00hz	✗
PA-09	Pid deviation limit	0.0%～100.0%	0.0%	✗
PA-10	Pid differential limiting	0.00%～100.00%	0.10%	✗
PA-11	Pid gives the change time	0.00～650.00s	0.00s	✗
PA-12	Pid feedback filtering time	0.00～60.00s	0.00s	✗
PA-13	Pid output filter time	0.00～60.00s	0.00s	✗
PA-14	Reserved	-	-	✗
PA-15	Proportional gain kp2	0.0～100.0	20.0	✗
PA-16	Integral time ti 2	0.01s～10.00s	2.00s	✗
PA-17	Differential time td 2	0.000s～10.000s	0.000s	✗
PA-18	Pid parameter switching conditions	0： do not switch 1： switch through s terminal 2： according to the deviation automatically switch	0	✗
PA-19	Pid parameter switching deviation 1	0.0%～pa-20	20.0%	✗
PA-20	Pid parameter switching deviation 2	Pa-19～100.0%	80.0%	✗
PA-21	Pid initial value	0.0%～100.0%	0.0%	✗
PA-22	Pid initial hold time	0.00～650.00s	0.00s	✗
PA-23	The maximum positive deviation of the two outputs	0.00%～100.00%	1.00%	✗
PA-24	Twice the maximum value of the output deviation	0.00%～100.00%	1.00%	✗

PA-25	Pid integral attribute	A bit: integral separation 0：invalid 1：effective Tens digit: whether to stop integration after output to limit value 0：continue to score 1：stop integration	00	✗
PA-26	Pid feedback loss detection value	0.0%：no feedback loss is judged 0.1%～100.0%	0.0%	✗
PA-27	Pid feedback loss detection time	0.0s～20.0s	0.0s	✗
PA-28	Pid shutdown operation	0：stop does not operate 1：shutdown operation	0	✗

Pb： SWING FREQUENCY, FIXED LENGTH AND COUNT

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
Pb SWING FREQUENCY, FIXED LENGTH AND COUNT				
Pb-00	Wobble frequency setting mode	0： relative to the center frequency 1： relative to the maximum frequency	0	✗
Pb-01	Wobble amplitude	0.0%～100.0%	0.0%	✗
Pb-02	Jumping frequency amplitude	0.0%～50.0%	0.0%	✗
Pb-03	Wobble cycle	0.1s～3000.0s	10.0s	✗
Pb-04	Triangular wave rise time of traverse frequency	0.1%～100.0%	50.0%	✗
Pb-05	Set the length	0m～65535m	1000m	✗
Pb-06	Actual length	0m～65535m	0m	✗
Pb-07	Number of pulses per meter	0.1～6553.5	100.0	✗
Pb-08	Set the count value	1～65535	1000	✗
Pb-09	Specifies the count value	1～65535	1000	✗

PC： MULTI-STAGE INSTRUCTION, SIMPLE PLC

FUNCTION CODE	NAME	PREDETERMINED AREA	FACTORY DEFAULT	CHANGE THE PROPERTIES
		PC MULTI-STAGE INSTRUCTION, SIMPLE PLC		
PC-00	Multi - segment instruction 0	-100.0%～100.0%	0.0%	✗
PC-01	Multi - segment instruction 1	-100.0%～100.0%	0.0%	✗
PC-02	Multi - segment instruction 2	-100.0%～100.0%	0.0%	✗
PC-03	Multi - segment instruction 3	-100.0%～100.0%	0.0%	✗
PC-04	Multi - segment instruction 4	-100.0%～100.0%	0.0%	✗
PC-05	Multi - segment instruction 5	-100.0%～100.0%	0.0%	✗
PC-06	Multi - segment instruction 6	-100.0%～100.0%	0.0%	✗
PC-07	Multi - segment instruction 7	-100.0%～100.0%	0.0%	✗
PC-08	Multi - segment instruction 8	-100.0%～100.0%	0.0%	✗
PC-09	Multi - segment instruction 9	-100.0%～100.0%	0.0%	✗
PC-10	Multi - segment instruction 10	-100.0%～100.0%	0.0%	✗
PC-11	Multi - segment instruction 11	-100.0%～100.0%	0.0%	✗
PC-12	Multi - segment instruction 12	-100.0%～100.0%	0.0%	✗
PC-13	Multi - segment instruction 13	-100.0%～100.0%	0.0%	✗
PC-14	Multi - segment instruction 14	-100.0%～100.0%	0.0%	✗
PC-15	Multi - segment instruction 15	-100.0%～100.0%	0.0%	✗
PC-16	Simple plc operation mode	0： end of a single run to stop 1： the end of a single run ends 2： has been circulating	0	✗
PC-17	Simple plc power - down memory selection	A bit: power-down memory selection 0： power-down not remember 1： power-down memory Tens digit: stop memory selection 0： stop does not remember 1： shutdown memory	00	✗
PC-18	Simple plc running time of paragraph 0	0.0s（h）～6553.5s（h）	0.0s（h）	✗
PC-19	Acceleration and deceleration time selection of simple	0～3	0	✗
PC-20	Simple plc first paragraph running time	0.0s（h）～6553.5s（h）	0.0s（h）	✗

PC-21	Simple plc 1st acceleration and deceleration time selection	0～3	0	✐
PC-22	Simple plc 2nd run time	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-23	Acceleration and deceleration time selection of simple	0～3	0	✐
PC-24	Simple plc run time in the third paragraph	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-25	Acceleration and deceleration time selection of simple plc	0～3	0	✐
PC-26	Simple plc fourth paragraph running time	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-27	Simple plc 4th acceleration and deceleration time selection	0～3	0	✐
PC-28	Simple plc 5th run time	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-29	Acceleration and deceleration time selection of 5th section of simple	0～3	0	✐
PC-30	Simple plc 6th run time	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-31	Acceleration and deceleration time selection of simple plc	0～3	0	✐
PC-32	The running time of simple plc	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-33	Acceleration and deceleration time selection of simple	0～3	0	✐
PC-34	Simple plc 8th run time	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-35	Acceleration and deceleration time selection of simple	0～3	0	✐
PC-36	Simple plc run time of the ninth paragraph	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-37	Acceleration and deceleration time selection of simple	0～3	0	✐
PC-38	The running time of simple plc	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-39	Acceleration and deceleration time selection of simple	0～3	0	✐
PC-40	The running time of the simple plc	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-41	Acceleration and deceleration time selection of simple	0～3	0	✐
PC-42	Simple plc 12th run time	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-43	Acceleration and deceleration time selection of simple	0～3	0	✐
PC-44	The running time of the simple plc	0.0s（h）～6553.5s（h）	0.0s（h）	✐
PC-45	Acceleration and deceleration time selection of simple	0～3	0	✐

PC-46	The running time of the simple plc	0.0s（h）～6553.5s（h）	0.0s（h）	✗
PC-47	Acceleration and deceleration time selection of simple plc	0～3	0	✗
PC-48	The running time of simple plc	0.0s（h）～6553.5s（h）	0.0s（h）	✗
PC-49	Acceleration and deceleration time selection of simple plc	0～3	0	✗
PC-50	Simple plc run time unit	0：s（second） 1：h（hour）	0	✗
PC-51	Multi-step instruction 0 reference mode	0：function code pc-00 1：ai1 2：ai2 3：keyboard potentiometer 4：pulse 5：pid 6：preset frequency (p0-08) reference, uptown can be modified	0	✗

Pd：COMMUNICATION PARAMETERS

Pd COMMUNICATION PARAMETERS				
FUNCTI ON CODE	**NAME**	**PREDETERMINED AREA**	**FACTORY DEFAULT**	**CHANGE THE PROPERTI ES**
Pd−00	Baud rate	A bit: modbus 0：300bps 1：600bps 2：1200bps 3：2400bps 4：4800bps 5：9600bps 6：19200bps 7：38400bps 8：57600bps 9：l15200bps Ten bits: profibus-dp 0：l15200bps 1：208300bps 2：256000bps 3：512000bps Hundreds: reserved Thousands: canlink baud rate 0：20 1：50 2：100 3：125 4：250 5：500 6：1m	6005	✎
Pd−01	Data format	0：no check (8-n-2) 1：even parity (8-e-1) 2：odd parity (8-o-1) 3：8-n-1	0	✎
Pd−02	Native address	1～247，0 is the broadcast address	1	✎
Pd−03	Response delay	0ms～20ms	2	✎
Pd−04	Communication timeout	0.0（invalid），0.1s～60.0s	0.0	✎
Pd−05	Data transfer format selection	A bit: modbus 0：non-standard modbus protocol 1：standard modbus protocol Ten bits: profibus-dp 0：pppo1 format 1：ppo2 format 2：ppo3 format 3：ppo5 format	30	✎
Pd−06	Communication read current resolution	0：0.01a 1：0.1a	0	✎

PP： FUNCTION CODE MANAGEMENT

PP FUNCTION CODE MANAGEMENT				
FUNCTION CODE	**NAME**	**SETTING RANGE**	**FACTORY VALUE**	**CHANGE ATTRIBUTES**
PP–00	User password	0～65535	0	✗
PP–01	Parameter initialization	0：no-operation 01：recovery of factory parameters, not including motor parameters 02：clear record information 04：restore user backup parameters 501：backup user current parameter	0	●
PP–02	Function parameter group display selection	Bit: u select the group display 0：blank 1：display Ten: a group display selection 0：blank 1：display	11	✗
PP–04	Functional code modification	0：revisability 1：can not be modified	0	✗

A0： TORQUE CONTROL PARAMETERS

		A0 TORQUE CONTROL PARAMETERS		
FUNCTION CODE	**NAME**	**SETTING RANGE**	**FACTORY VALUE**	**CHANGE ATTRIBUTES**
A0-00	Speed / torque control mode selection	0：speed control 1：torque control	0	●
A0-01	Torque setting source selection in torque control mode	0: digital setting 1（a0-03） 1：ai1 2：ai2 3：keyboard adjustable potentiometer 4：pulse 5：communication given 6：min（ai1,ai2） 7：max（ai1,ai2）(the full range of the 1-7 option, corresponding to the a0-03 digital setting)	0	●
A0-03	Torque digital setting for torque control mode	-200.0%～200.0%	150.0%	✗
A0-05	Torque control forward maximum frequency	0.00hz～maximun-frequency	50.00hz	✗
A0-06	Torque control reverse maximum frequency	0.00hz～maximun-frequency	50.00hz	✗
A0-07	Torque control acceleration time	0.00s～65000s	0.00s	✗
A0-08	Torque control deceleration time	0.00s～65000s	0.00s	✗

A2：SECOND MOTOR CONTROL

FUNCTION CODE	NAME	SETTING RANGE	FACTORY VALUE	CHANGE ATTRIBUTES
A2 SECOND MOTOR CONTROL				
A2-00	Motor type selection	0：general induction motor 1：variable frequency induction motor 2：permanent magnet synchronous motor	0	●
A2-01	Motor rated power	0.1kw～1000.0kw	Model determination	●
A2-02	Rated voltage of motor	1v～2000v	Model determination	●
A2-03	Motor rated current	0.01a～655.35a（frequency converter power <=55kw） 0.1a～6553.5a （frequency converter power >55kw）	Model determination	●
A2-04	Rated frequency of motor	0.01hz～maximun-frequency	Model determination	●
A2-05	Motor rated speed	1rpm～65535rpm	Model determination	●
A2-06	Induction motor stator resistance	0.001Ω～65.535Ω（frequency converter power <=55kw） 0.0001Ω～6.5535Ω（frequency converter power >55kw）	Model determination	●
A2-07	Rotor resistance of induction motor	0.001Ω～65.535Ω （frequency converter power <=55kw） 0.0001Ω～6.5535Ω（frequency converter power >55kw）	**Model to determine**	●
A2-08	The leakage inductance of asynchronous motor	0.01mh～655.35mh （frequency converter power <=55kw） 0.001mh～65.535mh（frequency converter power >55kw）	Model to determine	●
A2-09	Induction motor mutual inductance	0.1mh～6553.5mh （frequency converter power <=55kw） 0.01mh～655.35mh（frequency converter power >55kw）	Model to determine	●
A2-10	No-load current of induction motor	0.01a～a2-03（frequency converter power <=55kw） 0.1a～a2-03 （frequency converter power >55kw）	Model to determine	●
A2-27	Encoder line number	1～65535	1024	●
A2-28	Speed fbk sel	0：abz incremental encoder 1：uvw incremental encoder 2：rotary transformer 3：sine cosine encoder 4：line mode uvw encoder	0	●
A2-29	Speed feedback pg selection	0：local pg 1：extension pg 2：pulse（x5）	0	●
A2-30	Abz incremental encoder ab sequence	0：forward dire 1：opposite dire	0	●
A2-31	Encoder mounting angle	0.0～359.9°	0.0°	●
A2-32	The uvw encoder uvw sequence	0：forward dire 1：opposite dire…	0	●
A2-33	Bias angle of uvw encoder	0.0～359.9°	0.0°	●
A2-34	Pole pairs of rotating transformer	1～65535	1	●
A2-36	Speed feedback pg disconnection detection time	0.0：failure to ac 0.1s～10.0s	0.0	●

A2-37	Tuning selection	0：no-operation 1：asynchronous machine static tuning 2：full tuning of asynchronous machines ll：synchronous machine static tuning 12：complete tuning of synchronous machine	00	●
A2-38	Speed loop proportional gain 1	1～100	30	⚲
A2-39	Speed loop integral time 1	0.01s～10.00s	0.50s	⚲
A2-40	Switching frequency 1	0.00～a2-43	5.00hz	⚲
A2-41	Speed loop proportional gain 2	1～100	20	⚲
A2-42	Speed loop integral time 2	0.01s～10.00s	1.00s	⚲
A2-43	Switching frequency 2	A2-40～最大频率	10.00hz	⚲
A2-44	Vector control transfer gain	50%～200%	100%	⚲
A2-45	Velocity loop filter time constant	0.000s～0.100s	0.000s	⚲
A2-46	Vector control over excitation gain	0～200	64	⚲
A2-47	Speed control mode of the torque limit source	0：a2-48 setting 1：ai1 2：ai2 3：keyboard adjustable potentiometer 4：pulse 5：communication given 6：min（ai1,ai2） 7：max（ai1,ai2） 1-7 option of the full range, corresponding to the a2-48 digital settings	0	⚲
A2-48	Speed control mode digital setting of torque limit	0.0%～200.0%	150.0%	⚲
A2-51	Excitation regulator proportional gain	0～20000	2000	⚲
A2-52	Excitation regulation integral gain	0～20000	1300	⚲
A2-53	Torque control proportional gain	0～20000	2000	⚲
A2-54	Torque control integral gain	0～20000	1300	⚲
A2-55	Velocity loop integral property	Integration and separation 0：of no avail 1：effective	0	⚲
A2-56	Weak magnetic model of synchronous machine	0: non weak magnetic 1: direct calculation model 2: automatic adjustment mode	1	⚲
A2-57	Weak magnetic depth of synchronous machine	50%～500%	100%	⚲
A2-58	Maximum weak magnetic current	1%～300%	50%	⚲
A2-59	Weak magnetic automatic adjustment gain	10%～500%	100%	⚲
A2-60	Eak magnetic integral multiple	2～10	2	⚲

A2-61	Second motor control mode	0：speed sensorless vector control（svc） 1：speed sensor vector control（fvc） 2：v/fcontrol	0	●
A2-62	Econd motor plus deceleration time selection	0：the same as the first motor 1：plus deceleration time 1 2：plus deceleration time 2 3：plus deceleration time 3 4：plus deceleration time 4	0	✗
A2-63	Second motor torque	0.0%：automatic torque lifting 0.1%～30.0%	Model determination	✗
A2-65	Second motor oscillation suppression gain	0～100	Model determination	✗

A5：CONTROL OPTIMIZATION PARAMETERS

FUNCTION CODE	NAME	SETTING RANGE	FACTORY VALUE	CHANGE ATTRIBUTES
		A0 CONTROL OPTIMIZATION PARAMETERS		
A5-00	Dpwm switching upper frequency	0.00hz～15.00hz	8.00hz	✗
A5-01	Pwm modulation mode	0：asynchronous modulation 1：isochronous modulation	0	✗
A5-02	Dead zone compensation mode selection	0: no compensation 1：compensation mode 1 2：compensation mode 2	1	✗
A5-03	Random pwm depth	0: random pwm invalid 1～10：pwm carrier random depth	0	✗
A5-04	Fast current limiting	0：not enable 1：enable	1	✗
A5-05	Current detection and compensation	0～100	5	✗
A5-06	Under pressing point setting	60.0%～140.0%	100.0%	✗
A5-07	Svc optimization model selection	0: not optimize 1：optimization model 1 2：optimization model 2	1	✗
A5-08	Dead time adjustment	100%～200%	150%	✗

A6：AICURVE SETTING

| A6 AICURVE SETTING |||||||
FUNCTION CODE	NAME	SETTING RANGE	FACTORY VALUE	CHANGE ATTRIBUTES
A6-00	Ai curve 4 minimum input	-10.00v～a6-02	0.00v	✎
A6-01	Ai curve 4 minimum input corresponding settings	-100.0%～+100.0%	0.0%	✎
A6-02	Ai curve 4 inflection point 1 input	A6-00～a6-04	3.00v	✎
A6-03	Ai curve 4 inflection point 1 input corresponding to set	-100.0%～+100.0%	30.0%	✎
A6-04	Ai curve 4 inflection point 2 input	A6-02～a6-06	6.00v	✎
A6-05	Ai curve 4 inflection point 2 input corresponding to set	-100.0%～+100.0%	60.0%	✎
A6-06	Ai curve 4 maximum input	A6-06～+10.00v	10.00v	✎
A6-07	Ai curve 4 maximum input corresponding to set	-100.0%～+100.0%	100.0%	✎
A6-08	Ai curve 5 minimum input	-10.00v～a6-10	-10.00v	✎
A6-09	Ai curve 5 minimum input corresponding settings	-100.0%～+100.0%	-100.0%	✎
A6-10	Ai curve 5 inflection point 1 input	A6-08～a6-12	-3.00v	✎
A6-11	Ai curve 5 inflection point 1 input corresponding to set	-100.0%～+100.0%	-30.0%	✎
A6-12	Ai curve 5 inflection point 2 input	A6-10～a6-14	3.00v	✎
A6-13	Ai curve 5 inflection point 2 input corresponding to set	-100.0%～+100.0%	30.0%	✎
A6-14	Ai curve 5 maximum input	A6-12～+10.00v	10.00v	✎
A6-15	Ai curve 5 maximum input corresponding to set	-100.0%～+100.0%	100.0%	✎
A6-24	Ai1 set jump point	-100.0%～+100.0%	0.0%	✎
A6-25	Ai1 set jump range	0.0%～100.0%	0.5%	✎
A6-26	Ai2 set jump point	-100.0%～+100.0%	0.0%	✎
A6-27	Ai2 set jump range	0.0%～100.0%	0.5%	✎
A6-28	Ai3 set jump point	-100.0%～+100.0%	0.0%	✎
A6-29	Ai3 set jump range	0.0%～100.0%	0.5%	✎

A8： POINT TO POINT COMMUNICATION

		A8 POINT TO POINT COMMUNICATION		
FUNCTION CODE	**NAME**	**SETTING RANGE**	**FACTORY VALUE**	**CHANGE ATTRIBUTES**
A8-00	Master slave control function selection	0： of no avail 1： effective	0	✎
A8-01	Master slave selection	0： main machine 1： from the machine	0	✎
A8-02	Master-slave information interaction	One bit:0： do not follow the host command 1： follow host command Ten bit:0： do not send fault information 1： send fault information Hundreds place0： from the machine off the station does not call the police 1： from the machine off the station alarm	011	✎
A8-03	Message frame selection	0： master slave control frame 1： droop control frame	0	✎
A8-04	Receive data zero offset (torque)	-100.00%～100.00%	0.00%	●
A8-05	Receive data gain (torque)	-10～100.00	1.00	●
A8-06	Point to point communication interrupt detection time	0.0～10.0s	1.0s	✎
A8-07	Ai curve 4 maximum input corresponding to set	0.001～10.000s	0.001s	✎

AC：AIAOCHECK

FUNCTION CODE	NAME	SETTING RANGE		CHANGE ATTRIBUTES
AC AIAO CHECK				
AC-00	Ai1 measured voltage 1	0.500v～4.000v	Factory calibration	↗
AC-01	Ai1 display voltage 1	0.500v～4.000v	Factory calibration	↗
AC-02	Ai1 measured voltage 2	6.000v～9.999v	Factory calibration	↗
AC-03	Ai1 display voltage 2	6.000v～9.999v	Factory calibration	↗
AC-04	Ai2 measured voltage 1	0.500v～4.000v	Factory calibration	↗
AC-05	Ai2 display voltage 1	0.500v～4.000v	Factory calibration	↗
AC-06	Ai2 measured voltage 2	6.000v～9.999v	Factory calibration	↗
AC-07	Ai2 display voltage 2	6.000v～9.999v	Factory calibration	↗
AC-08	Keyboard potentiometer measured voltage 1	-9.999v～10.000v	Factory calibration	↗
AC-09	Keyboard potentiometer display voltage 1	-9.999v～10.000v	Factory calibration	↗
AC-10	Keyboard potentiometer measured voltage 2	-9.999v～10.000v	Factory calibration	↗
AC-11	Keyboard potentiometer display voltage 2	-9.999v～10.000v	Factory calibration	↗
AC-12	Ao1 target voltage 1	0.500v～4.000v	Factory calibration	↗
AC-13	Ao1 measured voltage 1	0.500v～4.000v	Factory calibration	↗
AC-14	Ao1 target voltage 2	6.000v～9.999v	Factory calibration	↗
AC-15	Ao1 measured voltage 2	6.000v～9.999v	Factory calibration	↗
AC-16	Ao2 target voltage 1	0.500v～4.000v	Factory calibration	↗
AC-17	Ao2 measured voltage 1	0.500v～4.000v	Factory calibration	↗
AC-18	Ao2 target voltage 2	6.000v～9.999v	Factory calibration	↗
AC-19	Ao2 measured voltage 2	6.000v～9.999v	Factory calibration	↗

U0： BASIC MONITORING PARAMETERS

FUNCTION CODE	NAME	SMALLEST UNIT	POSTAL ADDRESS
	U0 BASIC MONITORING PARAMETERS		
U0-00	Operating frequency (hz)	0.01hz	7000h
U0-01	Set frequency (hz)	0.01hz	7001h
U0-02	Bus voltage (v)	0.1v	7002h
U0-03	Output voltage (v)	1v	7003h
U0-04	Output current (a)	0.01a	7004h
U0-05	Output power (kw)	0.1kw	7005h
U0-06	Output torque (%)	0.1%	7006h
U0-07	X input status	1	7007h
U0-08	Do output state	1	7008h
U0-09	Ai1 voltage (v)	0.01v	7009h
U0-10	Ai2 voltage (v)	0.01v	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 display	1	700eh
U0-15	Pid setting	1	700fh
U0-16	Pid feedback	1	7010h
U0-17	Plc phase	1	7011h
U0-18	Pulse input pulse frequency (hz)	0.01khz	7012h
U0-19	Feedback speed (unit 0.1hz)	0.1hz	7013h
U0-20	Residual run time	0.1min	7014h
U0-21	Ai1 corrected front voltage	0.001v	7015h
U0-22	Ai2 corrected front voltage	0.001v	7016h
U0-23	Ai3 corrected front voltage	0.001v	7017h
U0-24	Linear velocity;	1m/min	7018h
U0-25	Current power up time	1min	7019h
U0-26	Current running time	0.1min	701ah
U0-27	Input pulse frequency	1hz	701bh
U0-28	Communication setting value	0.01%	701ch
U0-29	Encoder feedback speed	0.01hz	701dh
U0-30	Dominant frequency x display	0.01hz	701eh
U0-31	Auxiliary frequency y display	0.01hz	701fh
U0-32	View arbitrary memory address values	1	7020h
U0-33	Rotor position of synchronous machine	0.1°	7021h
U0-34	Motor temperature value	1°C	7022h
U0-35	Target torque (%)	0.1%	7023h
U0-36	Rotating position	1	7024h
U0-37	Power factor angle	0.1°	7025h
U0-38	Abz position	1	7026h
U0-39	Vf separate target voltage	1v	7027h
U0-40	Vf separate output voltage	1v	7028h
U0-41	X input status intuitive display	1	7029h
U0-42	Do input status intuitive display	1	702ah
U0-43	X functional status intuitive display 1 (functional 01- function 40)	1	702bh
U0-44	X functional status intuitive display 2 (functional 41- function 80)	1	702ch
U0-45	Fault message	1	702dh
U0-58	Z signal counter	1	703ah
U0-59	Set frequency (%)	0.01%	703bh

U0−60	Operating frequency (%)	0.01%	703ch
U0−61	Transducer state	1	703dh
U0−62	Current fault code	1	703eh
U0−63	Point to point communication	0.01%	703fh
U0−64	From the number of stations	1	7040h
U0−65	Torque limit	0.01%	7041h
U0−66	Communication extension card type	100:canopen 200:profibus-dp 300:canlink	7042h
U0−67	Communication extension card version number	Indication range	7043h
U0−68	Dp card inverter status	Bit0- running state Bit1- running direction Bit2- is the inverter fault Bit3- target frequency arrival Bit4～bit7- persist Bit8～bit15- fault code	7044h
U0−69	Transfer dp card speed /0.01hz	0.00～maximun-frequency	7000h

FUNCTIONAL CODE SETTING FOR APPLICATIONS

■ **The operation of DC brake**

Application occasions	Application purpose	Function declaration	Correlation function code
Fan, the pump stops when the load may be moving	Free running motor restart	Free running motor, such as running direction, can be in the first before the start of the dc brake	F6-05 F6-06

■ **The Transducer / Electric Switching Operation**

Application occasions	Application purpose	Function declaration	Correlation function code
Fan, pump, extruder	Frequency converter / city electric switch	The frequency converter and the city electric switch operation does not need to stop the electric motor, or the heavy load first passes through the city electric start again by the frequency changer to execute the speed control operation.	F5-01 F5-02

■ **The multi segment speed**

Application occasions	Application purpose	Function declaration	Correlation function code
Conveying machinery	Perform periodic operation at multiple speeds	Through the external multi-function terminal can control fifteen speed	F4-00～f4-05 Fc-00～fc-15

■ **The multi speed switching operation**
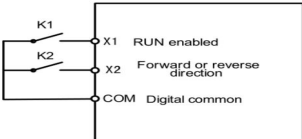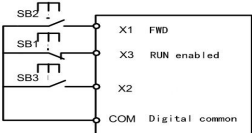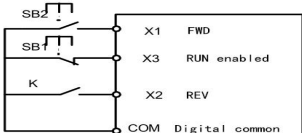
Application occasions	Application purpose	Function declaration	Correlation function code
Conveying machinery automatic turntable	External signal switching plus deceleration time	With the external signal to switch the multi section acceleration and deceleration operation, when a frequency converter with two or more motors, this function to achieve high-speed operation of the buffer start / stop function.	F0-17～f0-18 F8-03～f8-08 F4-00～f4-05

■ **CONVERTER OVERHEAT WARNING**

Application occasions	Application purpose	Function declaration	Correlation function code
Air conditioner	Security maintenance	When the frequency converter is dangerous because of the environment temperature is too high, the temperature control switch can be used to put the overheat signal into the frequency converter system, and the necessary warning protection measures are carried out.	F5-01 F5-02 F4-00～f4-05

■ **THE TWO WIRE, THREE WIRE**

Application occasions	Application purpose	Function declaration	Correlation function code
General occasions	Execute the running stop with the external terminal and the positive and negative control.	1. K1 — X1 Forward RUN(FWD) K2 — X2 Reverse RUN (REV) COM Digital common 2. K1 — X1 RUN enabled K2 — X2 Forward or reverse direction COM Digital common 3. SB2 — X1 FWD SB1 — X3 RUN enabled SB3 — X2 COM Digital common 4 SB2 — X1 FWD SB1 — X3 RUN enabled K — X2 REV COM Digital common	F4-11 F4-00～f4-05

■ **The Operation Instruction Selection**

Application occasions	Application purpose	Unction declaration	Correlation function code
General occasions	Select running control signal source	Select the transducer from the external terminal or by the keyboard control	F0-02 F4-00～f4-05

■ **The Frequency To Keep Running**

Application occasions	Application purpose	Function declaration	Correlation function code
General occasions	Acceleration and deceleration pause	Output frequency of ac motor driver plus deceleration	F4-00～f4-05

■ **THE ABNORMAL AUTOMATIC RESTART**

Application occasions	Application purpose	Function declaration	Correlation function code

| Air conditioner | Improve running continuity and reliability | After the abnormal fault detection of the inverter, if the abnormal causes of failure disappeared, the inverter automatically reset after the restart, restart the maximum number of times can be set 20 times | F9-09 F9-11 |

■ The Dc Brake Emergency Stop

Application occasions	Application purpose	Function declaration	Correlation function code
High speed rotating shaft	When the brake resistance is not installed, the motor stops rapidly.	The inverter is not equipped with brake resistance and the braking torque is insufficient. The dc brake can be used to stop the motor.	F6-11～f6-14

■ THE TORQUE SETTING

Application occasions	Application purpose	Function declaration	Correlation function code
Pump, fan, extruder	Continuous and reliable protection of mechanical lifting operation	Inverter can be set up inside the motor or mechanical torque detection level, in the event of torque to adjust the output frequency.	A0-03～a0-08

■ The Upper And Lower Frequency Operation

Application occasions	Application purpose	Function declaration	Correlation function code
Pump、fan	Control the motor speed in the upper and lower limits	External operation signal can not provide the upper and lower limits, gain, bias voltage, can be in the inverter to adjust the individual settings	F0-12 f0-14

■ The Carrier Frequency Is Set

Application occasions	Application purpose	Function declaration	Correlation function code
General occasions	Reduce noise	Frequency converter carrier frequency can be arbitrarily adjusted to reduce motor interference and noise	F0-15

■ The signal output operation

Application occasions	Application purpose	Function declaration	Correlation function code
General situation; mechanical brake	Running state signal	Motor running in the frequency converter to send a signal, let go of the mechanical brake.	F5-01,f5-02

■ The Zero Speed Output Signal

Application occasions	Application purpose	Function declaration	Correlation function code

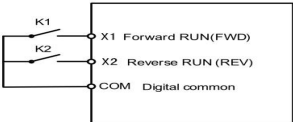| General occasions; working machinery	Running state signal	When the frequency converter output frequency is lower than the minimum output frequency, send a signal to provide the external system or control circuit.	F5-01,f5-02

■ The Set Frequency To Signal Output

Application occasions	Application purpose	Function declaration	Correlation function code
General occasions; working machinery	Running state signal	The frequency converter output frequency reaches the set frequency, sends out a signal, provides the external system or the control line to use.	F5-01,f5-02

■ The Torque Signal Output

Application occasions	Application purpose	Function declaration	Correlation function code
Working machinery, fan, pump, extruder	Mechanical protection to enhance the operation of the trust letter	A signal is sent to prevent damage to the mechanical load when the motor has a torque exceeding the set of the frequency converter.	F5-01,f5-02 A0-03～a0-08

■ The Low Voltage Signal Output

Application occasions	Application purpose	Function declaration	Correlation function code
General occasions	Running state signal	Frequency converter to detect bus side voltage, lower than the set of detection, send a signal to provide external system or control circuit.	F5-01,f5-02

■ The Arrival Of Arbitrary Frequency Signal Output

Application occasions	Application purpose	Unction declaration	Correlation function code
General occasions	Running state signal	When the frequency converter output frequency reaches any specified frequency, it can send a signal to provide the external system or control circuit.	F5-01,f5-02 F8-30～f8-33

■ Radiator Overheat Warning Output

Application occasions	Application purpose	Function declaration	Correlation function code
General occasions	Security maintenance	When the inverter in the heat sink, can send a signal to provide external systems or control circuit。	F5-01,f5-02

■ The Multi Function Analog Output

Application occasions	Application purpose	Function declaration	Correlation function code
General occasions	Display running status	The inverter operating frequency or output current, voltage signal, plus a frequency meter, voltage meter, ammeter display.	F5-07,f5-08

6

PARAMETER DECLARATION

THE SIXTH CHAPTER IS THE DESCRIPTION OF THE PARAMETERS

P0 group   Basic function group

	Gp type display		Factory value	Related to models
P0-00	Setting range	1		Type g (constant torque load type)
		2		Type p (fan, pump type load type)

This parameter is only for users to view the factory models, can not be changed.

1：constant torque load applied to the specified rated parameters

2：variable torque load (fan, water pump load) for specified rated parameters.

	First motor control mode		Factory value	2
P0-01	Setting range	0		Speed sensorless vector control （svc）
		1		Speed sensor vector control （fvc）
		2		V/f control

0：Speed Sensorless Vector Control

Refers to the open loop vector. Suitable for general high performance control applications, a transducer can only drive a motor, such as machine tools, centrifuge, wire drawing machine, injection molding machine and other loads.

1：Speed Sensor Vector Control

Refers to the closed loop vector. The encoder and pg card must be installed, suitable for high precision speed control or torque control occasions. A frequency converter can only drive a motor, such as high-speed paper machine, lifting machinery, elevators and other loads.

2：V/F Control

Suitable for load requirements is not high or a frequency converter to drive multiple motors of the occasion, such as fan, pump load. Can be used for a frequency converter to drive multiple motors of the occasion.

Tip: choose the vector control method to motor parameter identification process. Only the accurate motor parameters can play the advantages of vector control. By adjusting the speed regulator (p2a2 group, respectively corresponding to the motor parameter group 12) can obtain better performance.

P0−02	Command source selection		Factory value	0
	Setting range	0		Operation panel command channel
		1		Terminal command channel
		2		Serial port communication command channel

Select the frequency converter control command channel.

Inverter control commands include: start, stop, forward, reverse, move, and so on.

0：operation panel command channel ("local/remot");

By the operation panel on the stop/res, run button to run the command control.

1：terminal command channel（"local/remot"light）；

Fwd, rev, jogf, jogr and so on to run the command control by the multi function input terminal.

2：serial port communication command channel（"local/remot"flashing lights）

Run command from the host computer through the communication method is given. Select this option, we must select the secretary for our communications card (rtu profibus-dp, modbus card, can-link card, programmable card or canopen card).

P0-03	The main frequency source x option		The factory value	4
	Setting range	0		Digital set up and down (power lost memory)
		1		Digital setting up and down (power lost memory)
		2		Ai1
		3		Ai2
		4		The keyboard is adjustable potentiometer
		5		Set the pulse (x6)
		6		Multistage speed
		7		Plc
		8		Pid
		9		Communications given

Choose inverter main input channel of a given frequency. A total of 10 main a given frequency channel:

0: digital set (power lost memory)

The initial value for the p0-08 "digital frequency setting preset values.

The frequency setting of the inverter can be changed by pressing the ◁▷ key (up or down) of the multi-function input terminal.

Don't memory refers to the frequency converter after power off, set frequency values for p0 recovery - 08 "digital frequency setting preset values.

1: Digital Set (Power Lost Memory)

The initial value for the p0-08 "digital frequency setting preset values.

The frequency setting of the inverter can be changed by pressing the ◁▷ key (up or down) of the multi-function input terminal.

Memory refers to the frequency converter power to electricity, after setting the frequency set for last time out in front of the electric frequency (note used with p0-23).

2：ai1   3：ai2   4：the keyboard is adjustable potentiometer

Refers to the frequency by the analog inputs to determine. Standard unit provides two analog input terminals. The ai1 to 0 v to 10 v voltage input, ai2 can 0 v ~ 10 v voltage input, can also be used for ma 4 ~ 20 ma current input, choose by j8 jump line on control panel.

5, Pulse Given (X6)

Frequency is given to a given by terminal pulse.

Pulse signal given specifications: 9 v voltage range and frequency range of 0 ~ 30 v khz to 100 khz.

Description: pulse can only be given input from multifunctional input terminals x6.

6, Multistage Speed

Choose the way to multistage speed operation. You need to set up p4 "input terminal and pc group" more speed and plc "parameters to determine a given signal and the corresponding relation of a given frequency.

7、Simple Plc

Select the simple plc mode. Plc frequency source is simple and easy, you need to set up the pc group "more speed and plc" parameter to determine if a given frequency.

8、PID

The selection process pid control. At this point, you need to set up "pid" pa group. Frequency of the inverter running after pid function frequency values. Pid given source, refer to quantitative, feedback source meaning pa group "pid" is introduced.

9、Communications Given

Refers to the main frequency source by the upper machine is given by way of communication.

	Y choose auxiliary frequency sources		Factory	0
P0-04	Setting range	0		Digital set up and down (power lost memory)
		1		Digital setting up and down (power lost memory)
		2		Ai1
		3		Ai2
		4		The keyboard is adjustable potentiometer
		5		Set the pulse (x6)
		6		Multistage speed
		7		Plc
		8		Pid
		9		Communications given

Auxiliary frequency source with the frequency for a given channel as an independent (i.e. Frequency source selection of x to y switch), its usage is the same as the main frequency source x.

When the auxiliary frequency source used as a superposition of a given (i.e. Frequency source selection of x + y, x to x + y switch or y to x + y) has the following special:

1, When the auxiliary frequency source is digital, the preset frequency (p0-08) does not work. the ▲ and ▼ keys of the keyboard (or the up and down of the multi-function input terminal) can be set on the main reference frequency up and down.

2. When the auxiliary frequency source is analog input reference (ai1, ai2) or pulse input reference, 100% of the input setting corresponds to the auxiliary frequency source range (see description of p0-05 and p0-06). If you need to make the up / down adjustment based on the main reference frequency, set the corresponding setting range of the analog input to -n% ~ + n% (see p4-13 and p4-26).

3, The Frequency Source For The Pulse Input Is Given, Similar To Analog Given.

Note: the auxiliary frequency source y selection can not be the same as the main frequency source x setting, ie the primary and secondary frequency sources can not use the same frequency reference channel.

P0-05	When stacking y relative auxiliary frequency sources		The factory value	0
	Setting range	0	Relative to the maximum frequency	
		1	Relative to the main frequency source x	
P0-06	The auxiliary frequency source y when the stack		The factory value	100%
	Setting range		0%～150%	

When the frequency source is selected as the frequency superposition setting (p0-07 is set to 1, 3 or 4), it is used to determine the adjustment range of the auxiliary frequency source. P0-05 is used to determine the relative object of the range, if the relative frequency x, its range will change with the main frequency x changes.

	Frequency source superposition of choice		The factory value	00
		The unit	Frequency source selection	
		0	The main frequency source x	
		1	Advocate complementary operation result (operation relations determined by 10)	
		2	The main switch frequency source and auxiliary frequency source x y	
P0-07		3	The main switch frequency source x and advocate complementary operation results	
	Setting range	4	Auxiliary switch frequency source y and advocate complementary operation results	
		Ten	Frequency source advocate complementary operation relations	
		0	The main frequency source x y + auxiliary frequency sources	
		1	The main frequency source x - y auxiliary frequency sources	
		2	Max (the main frequency source x, the auxiliary frequency source y)	
		3	Min (the main frequency source x, the auxiliary frequency source y)	

A given channel through which the parameter selection. Through the main frequency of source and auxiliary frequency source x y compound to achieve a given frequency.

Bits: frequency source choice:

0：The Main Frequency Source X

The main frequency x as the target frequency.

1：Advocate Complementary Operation Result

Advocate complementary operation result as the target frequency (see advocate complementary relationship between operation 10).

2：The Main Switch Frequency Source And Auxiliary Frequency Source X Y

When the multifunctional input terminal 18: switch frequency source is invalid, the main frequency x as the target frequency.

When the multifunctional input terminal 18: switch frequency source is valid, auxiliary frequency y as the target frequency.

3：The Main Switch Frequency Source X And Advocate Complementary Operation Results

When the multifunctional input terminal 18: switch frequency source is invalid, the main frequency x as the target frequency.

When The Multi-Function Input Terminal 18: Switch Frequency Source Is Valid, Advocate Complementary Computing Results As The Target Frequency.

4：Auxiliary Switch Frequency Source Y And Advocate Complementary Operation Results

When the multifunctional input terminal 18: switch frequency source is invalid, auxiliary frequency y as the target frequency.

When the multi-function input terminal 18: switch frequency source is valid, advocate complementary computing results as the target frequency.

Ten: frequency source advocate complementary relationship between operation:

0：Primary Frequency Source X + Secondary Frequency Source Y
The sum of the main frequency x and the auxiliary frequency y is the target frequency. Frequency superimposed given function。

1: Primary Frequency Source X - Secondary Frequency Source Y

The difference between the main frequency x and the auxiliary frequency y is subtracted as the target frequency.

2: Max (Main Frequency Source X, Auxiliary Frequency Source Y)

The main frequency x and the auxiliary frequency y have the largest absolute value as the target frequency.

3: Min (Main Frequency Source X, Auxiliary Frequency Source Y)

And the absolute value of the main frequency x and the auxiliary frequency y is minimized as the target frequency.

P0-08	The preset frequency		The factory value	50.00hz
	Setting range		0.00~maximum frequency (for the effective way for digital frequency source choice)	

When the frequency source is selected as "digital setting" or "terminal up / down", the function code value is set as the initial value of the frequency of the inverter.

P0-09	Running direction		Factory default	0
	Predetermi ned area	0	In the same direction	
		1	In the opposite direction	

By changing the function code, it can change the direction of the motor without changing any other parameters, and its function is equivalent to changing the rotation direction of the motor by adjusting any two lines of the motor (u, v, w).

Note: after the parameter is initialized, the running direction of the motor will return to its original state. After the system debugging is strictly prohibited to change the motor to the occasion of caution.

P0-10	Maximum frequency		The factory value	50.00 hz
	Setting range		50.00hz~600.00hz	
P0-11	Upper limit frequency source		The factory value	0
	Setting range	0	P0-12 is set	
		1	Ai1	
		2	Ai2	
		3	The keyboard is adjustable potentiometer	
		4	Pulse setting	
		5	Communication settings	

Define the upper limit frequency source. Upper limit frequency can be from digital set (p0-12), also from the analog input channel. When was capped with analog input frequency, 100% of the analog input set corresponding p0-12.

For example, in torque control, the speed control is invalid. In order to avoid material disconnection appears "speed", you can use analog

Set up.

When the inverter runs to the upper limit frequency, the torque control is invalid and the

inverter continues to run at the upper limit frequency.

Note: when p0-22 selects 1: 0.1hz, the setting range is 50.0hz ~ 3200.0hz

	Upper limiting frequency	The factory value	50.00hz
P0-12	Predetermined area	Lower limit frequency p0-11 to maximum frequency p0-10	
P0-13	Upper frequency offset	Factory default	0.00hz
	Predetermined area	0.00hz～maximum frequency p0-10	

When the upper limit frequency is the analog quantity hypothesis, this parameter takes the analog quantity offset quantity. The reference value is p0-12. the offset frequency is added to the analog upper limit frequency setting as the set value of the final upper limit frequency.

	The lower frequency	The factory value	0.00hz
P0-14	Setting range	0.00hz～upper limiting frequencyp0-12	

When the inverter starts running, it starts from the starting frequency. If the reference frequency is lower than the lower limit, the inverter will run at the lower frequency until the inverter stops or the reference frequency is higher than the lower frequency

	Carrier frequency	The factory value	Related to the aircraft
P0-15	Setting range	0.5khz～16.0khz	

This function adjusts the carrier frequency of the inverter. By adjusting the carrier frequency can reduce the motor noise, to avoid the resonance point of the mechanical system to reduce the line to ground leakage current and reduce the interference generated by the inverter.

When the carrier frequency is low, the output current higher harmonic component increases, the motor loss increases, the motor temperature rise.

When the carrier frequency is high, the motor loss decreases, the motor temperature decreases, but the inverter loss increases, the inverter temperature rise increases, interference increases.

Adjusting the carrier frequency affects the following performance:

Carrier frequency	Low → high
Motor noise	Large → small
Output current waveform	Poor → good
Motor temperature rise	High → low
Inverter temperature rise	Low → high

Leakage current	Small → large
External radiation interference	Small → large

P0-16	The carrier frequency is adjusted with temperature		Factory default	1
	Predetermined area	0		No
		1		Yes

Provide two kinds of fixed and random pwm carrier frequency adjustment. The motor noise of the random pwm is wide in frequency domain, and the fixed motor noise frequency of pwm is fixed.

Carrier frequency temperature adjustment effective, refers to the frequency converter can automatically adjust the carrier frequency according to their own temperature. Select this function to reduce the chance of overheat alarm.

P0-17	Acceleration time	Factory default	Model to determine
	Predetermined area	0.0s～6500.0s	
P0-18	Deceleration time	Factory default	Model to determine
	Predetermined area	0.0s～6500.0s	

The acceleration time refers to the time required for the inverter to accelerate from zero to the acceleration / deceleration reference frequency (p0-25), see t1 in figure 6-1.

Deceleration time refers to the time required for the inverter to decelerate from the acceleration / deceleration reference frequency (p0-25) to zero frequency, see t2 in figure 6-1.
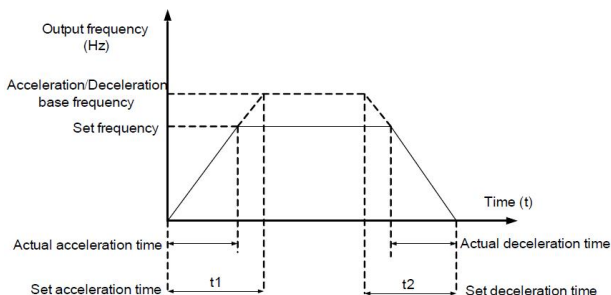
Figure 6-1 Acceleration / Deceleration Time Diagram

Note the difference between the actual acceleration / deceleration time and the

acceleration / deceleration time.

There are 4 sets of acceleration and deceleration time selection

The first group: p0-17, p0-18;

The second group: p8-03, p8-04;

The third group: p8-05, p8-06;

The fourth group: p8-07, p8-08.

Acceleration / deceleration time can be selected by the multi-function digital input terminal

(p4-00 ~ p4-09).

	Acceleration / deceleration time unit		Factory default	1
P0-19	Predetermined area	0	1 second	
		1	0.1 seconds	
		2	0.01 seconds	

This function is used to determine all units of acceleration / deceleration time.

Pay Attention To Modify The Value, The Corresponding With The Actual Deceleration

Time Change Unchanged (Decimal Point Position Change, The Actual Display Digits)

	Auxiliary frequency source superposition frequency offset	The factory value	0.00hz
P0-21	Setting range	0.00 hz ~ maximum frequency p0-10	

Advocate complementary operation for frequency source, will be the sum of offset frequency and advocate complementary operation result as the target frequency.

	Decimal frequency instruction		The factory value	2
P0-22	Setting range	1	0.1hz	
		2	0.01hz	

This function is used to make sure all units related to the frequency function parameters.

Pay attention to modify the value, the corresponding with the actual frequency change (decimal point position changes, the actual display digits, actual values change).

P0-23	Digital set frequency down memory options		The factory value	1
	Setting range	0		Don't remember
		1		Memory

The function of frequency source for digital only effective when setting.

No Memory Means The Digital Set Frequency Value Is Restored To P0-08 "Digital Preset Frequency" After The Inverter Stops.

Memory means that the digital set frequency is retained as the set frequency before the last stop after the inverter stops.

P0-24	The motor selection		The factory value	0
	Setting range	0		Motor 1
		1		Motor 2
		2		The motor 3
		3		Motor 4

4 sets of motor parameter settings are provided. Motor parameter group is selected by terminal or function code, and terminal selection is preferred.

Motor 1 corresponding function parameter set (p1, p2, motor 2, 3, 4 respectively corresponding to the a2, a3, a4.

P0-25	Deceleration time reference frequency		The factory value	0
	Setting range	0		Maximum frequency（p0-10）
		1		Set frequency
		2		100hz

Define the deceleration time corresponds to frequency range. Schematic diagram as shown in figure 6-2 deceleration time

P0-26	Runtime frequency up/down benchmark instruction		The factory value	0
	Predetermined area	0		Operating frequency
		1		Set the frequency

This function is valid only for frequency source digital setting. It is used to

determine whether the up / down setting frequency is based on the current running frequency or the current target frequency.

	Command source bundles frequency source		The factory value	0000
P0-27	Predetermin ed area	A bit	The operator panel command binds the frequency source selection	
		0	Digital setting up, down (power-down not memory)	
		1	Digital settings up, down (power-down memory)	
		2	Ai1	
		3	Ai2	
		4	Adjustable potentiometer keyboard	
		5	Pulse setting (x6)	
		6	Multi-stage speed	
		7	Plc	
		8	Pid	
		9	Communication given	
		Ten	Terminal command binding frequency source selection (0 ~ 9, same bit)	
		Hundr eds	Communication command binding frequency source selection (0 ~ 9, same bit)	
		Thous ands	Automatic operation binding frequency source selection (0 ~ 9, same bit)	

Definition of three kinds of run command channel and nine frequency reference channel between the bundled combination to facilitate the realization of synchronous switching.

The meaning of the above frequency reference channel is the same as the main frequency source x selection p0-03, please refer to p0-03 function code explanation.

Different running command channels can be bundled with the same frequency reference channel. If no binding is selected, the frequency source is determined by p0-03 to p0-07.

P0-28	Communication expansion card type		Factory default	0
	Predetermined area	0	With communication expansion io card or 485 communication adapter	
		1	Profibus-dp communication adapter card	
		2	Canopen communication adapter card	
		3	Can-link communication adapter card	

Select the drive with a communication expansion card type.

P1 The first motor parameter

P1-00	Motor type selection		The factory value	0
	Setting range	0	General asynchronous motor	
		1	Variable frequency induction motor	
P1-01	Rated power		The factory value	Models to determine
	Setting range		0.1kw～1000.0kw	
P1-02	Nominal voltage		The factory value	Models to determine
	Setting range		0v～2000v	
P1-03	Rated current		The factory value	Models to determine
	Setting range		0.01 a～655.35 a (inverter power <＝ 55 kw) 0.1 a～6553.5 a (inverter power > 55 kw)	
P1-04	Rated frequency		The factory value	Models to determine
	Setting range		0.00 hz～maximum frequency	
P1-05	Rated speed		The factory value	Models to determine
	Setting range		0rpm～65535rpm	

⚠ NOTE

1, Please Follow The Motor Nameplate Parameters To Set.

2, Vector Control Of The Excellent Control Performance, The Need For Accurate Motor Parameters, Accurate Parameter Identification From The Motor Rated Parameters Of The Correct Settings.

3, In Order To Guarantee The Control Performance, Please According To The Frequency Changer Standard Adaptation Electrical Machinery Carries On The Electrical Machinery Disposition, If The Electrical Machinery Power And The Standard Adaptation Electrical Machinery Difference Is Too Big, The Frequency Changer Control Performance Will Drop Obviously.

P1-06	Induction motor stator resistance	The factory value	Models to determine
	Setting range	Ω 0.001 ~ 65.535 Ω (inverter power < = 55 kw)	
		Ω 0.0001 ~ 6.5535 Ω (inverter power > 55 kw)	
P1-07	Induction motor rotor resistance	The factory value	Models to determine
	Setting range	0.001ω ~ 65.535ω (inverter power <= 55kw)	
		0.0001ω ~ 6.5535ω (inverter power> 55kw)	
P1-08	Leakage inductance of the asynchronous motor	The factory value	Models to determine
	Setting range	0.01mh ~ 655.35mh (inverter power <= 55kw)	
		0.001mh ~ 65.535mh (inverter power> 55kw)	
P1-09	Mutual inductance of the asynchronous motor	The factory value	Models to determine
	Setting range	0.1mh ~ 6553.5 (inverter power <= 55kw)	
		0.01mh ~ 655.35mh (inverter power> 55kw)	
P1-10	No-load current of asynchronous motor	The factory value	Models to determine
	Setting range	0.01 a ~ p1-03 (inverter power < = 55 kw)	
		0.1 a ~ p1-03 (inverter power > 55 kw)	
P1-27	The encoder pulse number	The factory value	1024
	Setting range	1~65535	

The number of pulses per revolution abz incremental encoder.

	The encoder type	The factory value		0
P1-28	Setting range	0	Abz incremental encoder	
		1	Uvw incremental encoder	
		2	Rotary transformer	
		3	Sine and cosine encoder	
		4	Province line way uvw encoder	

The currently used encoder type. Please set according to the actual situation.

P1-30	Encoder phase sequence / main direction		Factory default	0
	Setting range	0	Forward direction	
		1	Reverse	

The encoder phase sequence. In the encoder type selection of 0: abz incremental encoder is effective. Motor automatic tuning after the normal parameter value will be automatically updated.

P1-31	The encoder is installed angle	The factory value	0.0°
	Setting range	0.0°～359.9°	

The encoder is installed angle. Encoder type for abz, the sale, are effective when change. Used only for the synchronous machine, motor automatic tuning after the normal parameter values are automatically updated.

P1-32	Uvw signal direction		The factory value	0
	Predetermined area	0	Positive	
		1	Reverse	
P1-33	Uvw zero signal position angle		Factory default	0.0°
	Predetermined area		0.0°～359.9°	

Uvw encoder signal direction and position angle. This parameter is only used when the synchronous machine is used, and the parameter value is automatically updated when the motor auto-tuning is completed normally.

P1-34	Number of rotation pole pairs	Factory default	1
	Predetermined area	1～65535	

Rotating transformer logarithmic. According to the actual situation。

P1-36	Speed feedback pt disconnection detection time	Factory default	0.0
	Predetermined area	0.1s~10.0s	

Uvw encoder pole pairs. According to the actual situation.

P1-37	Tuning selection		The factory value	0
	Predetermined area	0	No operation	
		1	Stationary tuning of asynchronous machines	
		2	Complete tuning of asynchronous machine	
		3	Stationary tuning of asynchronous machines	

Note: Before Tuning, You Must Set The Correct Motor Type And Rating

(P1-00-P1-05)

0: No Operation, Ie No Tuning.

1: Induction Machine Static Tuning, Suitable For Motor And Load Is Not Easy To Disconnect And Can Not Rotate The Tuning Of The Occasion.

Action description: set the function code to 1, and press the run key to confirm, the inverter will be static tuning.

2: Complete Tuning Of The Asynchronous Machine

In order to guarantee the dynamic control performance of the inverter, please select the rotary tuning, the motor must be disconnected from the load (no load).
After selecting the rotary tuning, the inverter will perform the static tuning first. After the static tuning is finished, the motor will accelerate to 80% of the motor rated frequency according to the acceleration time set by p0-17 and keep for a period of time. Then, according to the deceleration time set by p0-18 decelerate to zero speed, end of rotation tuning.

Action description: set the function code to 2, and press the run key to confirm, the inverter will rotate the tuning.

11: Synchronous Machine Zero Load Encoder Zero Position Angle Tuning

In order to guarantee the dynamic control performance of the frequency converter, please select no-load tuning, the motor must be disengaged (no-load) when no-load tuning. After the idle tuning is selected, the inverter will perform static tuning first. After the static tuning is finished, the motor will accelerate to p0-08 (preset frequency, please set to non-zero value) according to the acceleration time set by p0-17 and keep it for a period of time. And then decelerate to zero speed according to the deceleration time set by p0-18.

Action Description: Set The Function Code To 11, And Press The Run Key To Confirm, The Inverter Will Rotate The Tuning

12: Synchronous Machine Zero-Point Encoder With Zero-Angle Tuning

The motor can be loaded when tuning with load. After the tuning is selected, the inverter will perform static tuning first. After the static tuning is finished, the motor will accelerate to p0-08 (preset frequency, please set to non-zero value) according to the acceleration time set by p0-17 and keep it for a certain period of time. And then decelerate to zero speed according to the deceleration time set by p0-18.

action description: set the function code to 11, and press the run key to confirm, the inverter will rotate the tuning

Tuning operation description:

"Tune" flashes when p1-37 is set to 1, 2, 11 or 12 and then the enter key is pressed,

then "tune" is displayed and the run key is pressed to start parameter tuning. When the tuning is finished, the display returns to the stop status screen. The tuning can be stopped by pressing the stop key during tuning. When tuning is complete, the value of p1-37 is automatically reset to zero.

Note: tuning can only be enabled in the keypad control mode, and the factory default is recommended for acceleration / deceleration time.

P2 Group Vector Control Parameters

P2 group function code is only valid for vector control, that is, p0-01 = 0 or 1 valid, p0-01 = 2 is invalid.

P2-00	Speed loop proportional gain	Factory default	30
	Predetermined area		1～100
P2-01	Speed loop integration time 1	Factory default	0.50s
	Predetermined area		0.01s～10.00s
P2-02	Switching frequency 1	Factory default	5.00hz
	Predetermined area		0.00～p2-05
P2-03	Speed loop proportional gain 2	Factory default	20
	Predetermined area		0～100
P2-04	Speed loop integration time 2	Factory default	1.00s
	Predetermined area		0.01s～10.00s
P2-05	Switching frequency 2	Factory default	10.00hz
	Predetermined area		P2-02 ~ maximum output frequency

P2-00 and p2-01 are pi adjustment parameters when the running frequency is less than switching frequency 1 (p2-02). P2-03 and p3-04 are pi adjustment parameters whose operation frequency is greater than the frequency band between switching frequency 2. the pi parameter of the frequency band between the switching frequency 1 and the switching frequency 2 is linearly switched between the two groups of pi parameters as shown in the following figure:
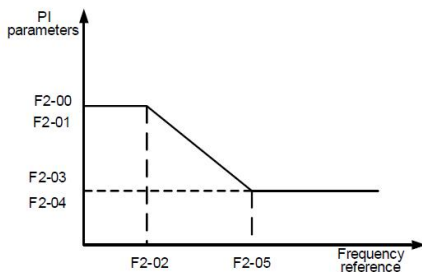
Figure 6-2 Pi Parameter Diagram

By setting the scale factor and the integration time of the speed controller, it is possible to adjust the speed dynamic response characteristics of the vector control. Increasing the proportional gain and decreasing the integration time can accelerate the dynamic response of the velocity loop. Excessive proportional gain or integral time may cause the system to oscillate.

Recommended adjustment method:

If the factory parameters can not meet the requirements, then the factory value parameters on the basis of fine-tuning: first increase the proportional gain to ensure that the system does not oscillate; and then reduce the integration time, the system has both fast response characteristics, overshoot and smaller.

Note: incorrect setting of the pi parameter may result in excessive overshoot. Even in the overshoot drop over voltage failure.

P2-06	Slip compensation coefficient	Factory default	100%
	Predetermined area	50%~200%	

For speed sensorless vector control, this parameter is used to adjust the motor speed accuracy, when the motor overload is low, then increase the parameter, and vice versa to reduce the parameters.

for speed sensor vector control, this parameter adjusts the output current of the inverter under the same load.

P2-07	Speed loop filter time constant	Factory default	0.050s
	Predetermined area	0.000s~0.100s	

In the vector control mode, the output of the speed loop regulator is a torque current command, which is used to filter the torque command. This parameter generally does not need to adjust, when the speed fluctuation big may suitably increase this to filter the time; if the electrical machinery appears the oscillation, then should suitably reduce this parameter.

Speed loop filter time constant is small, the inverter output torque may change more, but the response is fast.

	Speed control (drive) torque upper limit source	Factory default		0	
P2-09	Predetermined area	0		P2-10	
		1		Ai1	
		2		Ai2	
		3		Adjustable potentiometer keyboard	
		4		Pulse set up	
		5		Communication settings	
		6		Min(ai1，ai2)	
		7		Max(ai1，ai2)	
P2-10	Speed control (drive) torque upper limit digital setting	Factory default		150.0%	
	Predetermined area	0.0%～200.0%			

In speed control mode, the inverter output torque is limited by the torque upper limit.
p2-09 is used to select the source of the upper limit of speed. When analog quantity is set, 100% of the analog input setting corresponds to p2-10, 100% corresponds to the rated torque of the matching motor,

P2-13	M-axis current loop proportional gain	Factory default	2000
	Predetermined area	0～20000	
P2-14	M-axis current loop integral gain	Factory default	1300
	Predetermined area	0～20000	
P2-15	T - axis current loop proportional gain	Factory default	2000
	Predetermined area	0～20000	
P2-16	T - axis current loop integral gain	Factory default	1300
	Predetermined area	0～20000	

Mt coordinate system and current loop control parameter in dq coordinate system of synchronous machine will be automatically recognized after the complete parameter identification, and generally do not need to be modified;

The current loop's bandwidth directly determines the response speed of the electromagnetic torque, if the adjustment parameter is too strong, the current loop will be out of balance, resulting in the entire control loop oscillation; when the current oscillation, torque fluctuations can be adjusted manually adjust the parameters to improve the results;

P2-17	Speed loop differential time	Factory default	0
	Predetermined area		0～65535

P3 group V / F control parameter

This function code is valid only for v / f control (p0-01 = 2), invalid for vector control.

the v / f control is suitable for general purpose load such as fan, water pump, etc., or one inverter with more than one motor, or the inverter power is smaller than the motor power.

	V / f curve setting		Factory default	0
P3-00	Predetermin ed area	0		Linear v / f curve
		1		Multi-point v / f curve
		2		Square v / f curve
		3		1.2 times v / f curve
		4		1.4 times v / f curve

6	1.6 times v / f curve
8	1.8 times v / f curve
9	Reserved
10	Vf complete separation mode
11	Vf half-separation mode

Fan pump load, you can choose the square v / f control.

Ordinary vf control mode

0: straight line v / f curve. Suitable for ordinary constant torque load.

1: multi-point v / f curve. For dehydration, centrifuges and other special load.
2: square v / f curve. Suitable for fans, pumps and other centrifugal load.
vf separation control mode
10: vf finishes separation mode. At this time v in accordance with p3-13 (vf separation voltage source) set the way to set up a separate.
11: vf half-split mode.
in this case v and f are proportional, and the voltage source is only used to adjust the v / f slope, then the relationship between v and f and p1 set the motor rated voltage and rated frequency. If the voltage source input is x (x is a value of 0 to 100%), then: v / f = 2 * x * (motor rated voltage) / (motor rated frequency)

P3-01	Torque boost	Factory default	Model to determine
	Predetermined area	0.0%～30%	
P3-02	Torque boost cutoff frequency	Factory default	50.00hz
	Predetermined area	0.00hz～maximum output frequency	

In order to compensate the v / f control low frequency torque characteristic, when the low frequency frequency changer output voltage makes some promotion compensates.

Torque boost setting is too large, the motor is easy to overheat, the inverter is easy to flow. In general, the torque boost should not exceed 8.0%. Effective adjustment of this parameter, can effectively avoid the over-current conditions when starting. For larger loads, it is recommended that you increase this parameter and reduce this parameter setting when the load is light. When the torque boost is set to 0.0, the inverter is boosted automatically. Torque boost torque cut-off frequency: under this frequency, the torque boost torque is valid. If this frequency is exceeded, the torque boost is disabled. See figure 6-3 for details.
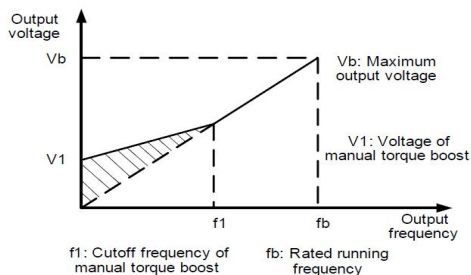
Figure 6-3 Manual Torque Boost Diagram

P3-03	V/f frequency points p1	The factory value	0.00hz
	Setting range		0.00hz～p3-05
P3-04	V/f point voltage v1	The factory value	0.0%
	Setting range		0.0%～100.0%
P3-05	V/f frequency point p2	The factory value	0.00hz
	Setting range		P3-03～p3-07
P3-06	V/f point voltage v2	The factory value	0.0%
	Setting range		0.0%～100.0%
P3-07	V/f frequency point p3	The factory value	0.00hz
	Setting range		P3-05 ~ motor rated frequency (p1-04) Note: the 2nd / 3 \ 4 motor rated frequency is a2-04 \ a3-04 \ a4-04

P3-08	V/f v3 voltage point	The factory value	0.0%
	Setting range		0.0%～100.0%

P3-03 ~ p3-08 six parameters to define multi-section v / f curve. The set value of the v / f curve is usually set according to the load characteristics of the motor. Note: v1 <v2 <v3, p1 <p2 <p3. if the voltage is set too high at low frequencies, the motor may overheat or burn, and the inverter may be stalled or overcurrent protected.

V1-V3: 1st, 2nd and 3rd voltage percentages of multi-point V/F

Vb: Rated motor voltage

F1-F3: 1st, 2nd and 3rd frequency percentages of multi-point V/F

Fb: Rated motor running frequency
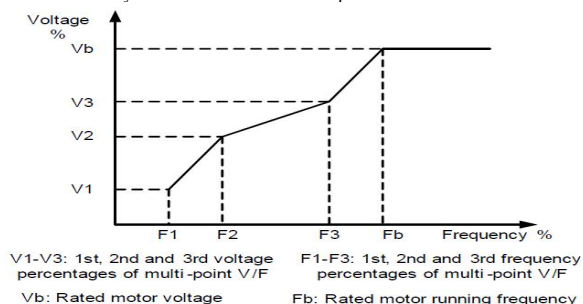
Figure 6-4 V / F Curve Setting Diagram

P3-09	Slip compensation coefficient	Factory default	0.0%
	Predetermined area		0%～200.0%

Valid for v / f control. Set this parameter to compensate for the slip caused by the load during v / f control, so that the motor speed with v / f control changes with the load to reduce the amount of change, generally 100% corresponds to the rated load with the motor rated slip . Refer to the following principles to adjust the slip coefficient: when the load is rated load, slip compensation coefficient is set to 100%, the frequency converter with the motor speed is almost close to the given speed.

P3-10	Vf overexcitation gain	Factory default	64

	Predetermined area	0～200

The function of vf over-excitation is to suppress the increase of bus voltage during inverter deceleration and avoid the overvoltage fault when the bus voltage exceeds the over-voltage protection limit value. The greater the over-excitation gain, the stronger the suppression effect. The settings are as follows:

1, the general inertia is very small, set the excitation gain is 0, the inertia of the occasion, should be appropriate to improve the over-excitation gain.

2. if there is a braking resistor, set the over-excitation gain to 0

P3-11	The oscillation suppression gain	Factory default	Models to determine
	Setting range		0～100

When the motor does not oscillate, select 0 for the gain. Only when the motor can not operate normally, the gain can be increased appropriately. The greater the gain, the more obvious the suppression of oscillation. When the oscillation suppression function is used, it is required that the deviation between the motor rated current and the no-load current parameter setting and the actual value is small. The choice of gain is in the effective suppression of oscillation as far as possible under the premise of small, so as not to have a great impact on vf operation.

P3-13	Vf separation voltage source		The factory value	0
	Setting range	0		Digital set (p3-14)
		1		Ai1
		2		Ai2
		3		The keyboard is adjustable potentiometer
		4		Pulse setting (x6)
		5		Multistage instruction
		6		Simple plc
		7		Pid
		8		Communications given
	100.0% corresponds to the motor rated voltage (p1-02 \ a4-02 \ a5-2 \ a6-02)			

Defines the voltage source for vf separation. The output voltage can come from the digital setting (p3-14) or from the analog input channel, multi-segment command, plc, pid or communication reference. When the output voltage is set with a non-digital value, the 100% of the input setting corresponds to the motor rated voltage, and the absolute value of

the input setting is taken as the valid setting value.

0: digital setting (p3-14)

   The voltage is set directly via p3-14.

1：ai1   2：ai2

   Voltage is determined by the analog input terminal, ai input 0 ~ 100% corresponds to the output voltage 0v ~ motor rated voltage.

4、pulse setting (x5)

   The voltage reference is given by terminal pulse. Set p4-28 ~ p4-31 to determine the correspondence between the given signal and the reference voltage (100% corresponds to the motor rated voltage).

   Pulse reference signal specifications: voltage range 9v ~ 30v, frequency range 0khz ~ 100khz.

   Note: the pulse reference can only be input from multi-function input terminal x5.

5, multi-speed

   When the voltage source is multi-step speed, set the p4 group "input terminal" and pc group "multi-speed and plc" parameters to determine the corresponding relationship between the given signal and the given voltage (100% corresponds to the motor rated voltage).

6, simple plc

   When the voltage source is simple plc, you need to set the pc group "multi-step speed and plc" parameter to determine the given output voltage (100% corresponds to the motor rated voltage).

7、pid

   The output voltage is generated according to the pid closed loop. For details, refer to pa group pid introduction.

8、communication given

   Refers to the voltage given by the host computer through the communication (100% corresponds to the rated motor voltage).

P3-14	Vf separate the voltage source digital settings	Factory default	0v
	Predetermined area	0v ~ rated motor voltage	

When the voltage source is digitally set, this value is directly used as the output voltage target value.

P3-15	Vf separation voltage rise time	Factory default	0.0s

	Predetermined area	0.0s～1000.0s

Vf separation rise time refers to the time required for the output voltage to change from 0v to the motor rated voltage. As shown:
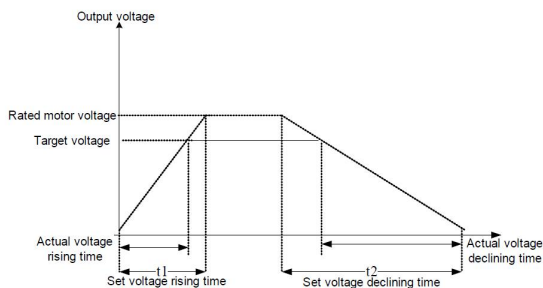
Figure 6-5 V / F Separation Diagram

P4 Group Input Terminal

820 series inverter standard unit has 5 multi-function digital input terminals (of which x6 can be used as high-speed pulse input terminal), 2 analog input terminals. If the system needs more input and output terminals, the optional multi-function input and output expansion card.

Multi-function input expansion card has three (x7 ~ x9) multi-function digital input terminal,

P4-00	X1 terminal function selection	Factory default	1 (forward running)
P4-01	X2 terminal function selection	Factory default	2 (reverse run)
P4-02	X3 terminal function selection	Factory default	4 (forward jog)
P4-03	X4 terminal function selection	Factory default	9 (fault reset)
P4-04	X5 terminal function selection	Factory default	12 (multi-stage command terminal 1)
P4-05	X6 terminal function	Factory	0

	selection	default	
P4-06	X7 terminal function selection	Factory default	0
P4-07	X8 terminal function selection	Factory default	0
P4-08	X9 terminal function selection	Factory default	0
P4-09	X10 terminal function selection	Factory default	0

This Parameter Is Used To Set The Function Corresponding To The Digital Multi-Function Input Terminal

Set value	Features	Description
0	No Function	The inverter does not operate even if a signal is input to the inverter. The unused terminals can be disabled to prevent malfunction.
1	Forward Run (Fwd)	Through the external terminal to control the inverter forward and reverse.
2	Reverse Run (Rev)	
3	Three-Wire Operation Control	Use this terminal to determine whether the drive is operating in 3-wire control mode. For details, refer to p4-11 three-wire control mode function code.
4	forward jogging (jog)	Jog for jog forward running, jog for jog reverse run. Refer to the description of p8-00, p8-01, p8-02 function codes for the jog frequency and jog acceleration / deceleration time.
5	reverse jog (jog)	
6	terminal up	When the frequency is given by the external terminal, the frequency increment command and the decrement command are modified. The frequency can be adjusted up or down when the frequency source is set to digital setting.
7	terminal down	
8	free parking	The inverter will block the output and the motor stop will not be controlled by the inverter. For loads with large inertia and no requirement for stopping time, the method is often taken. This means the same meaning as for freewheel stop described in p6-10.
9	fault reset (reset)	External fault reset function. Same function as the reset key on

Set value	Features	Description
		the keyboard. Use this function to enable remote fault reset.
10	the run is paused	The inverter decelerates to stop, but all operating parameters are in memory. Such as plc parameters, wobble parameters, pid parameters. When this signal disappears, the drive returns to its pre-stop state.
11	external fault normally open input	When the external fault signal is sent to the inverter, the inverter reports the fault and processes it according to the fault protection operation mode (p9-47 ~ p9-50).
12	multi - speed terminal	Through the four-terminal digital state combination of a total of 16-speed can be set. Please see appendix 1 for details.
13	multi - speed terminal 2	
14	multi - speed terminal 3	
15	multi - speed terminal 4	
16	acceleration / deceleration time selection terminal 1	Acceleration / deceleration time is selected by the digital state combination of these two terminals. Please see appendix 2 for details.
17	acceleration / deceleration time selection terminal 2	
18	frequency source switching	When the frequency source selection (p0-07 bit) is set to 2, the main frequency source x and the auxiliary frequency source y are switched by this terminal. When the frequency source selection (p0-07 bit) is set to 3, the main frequency source x and the main and auxiliary operation result are switched by this terminal. When the frequency source selection (p0-07 bits) is set to 4, the auxiliary frequency source y and the main and auxiliary operation result are switched by this terminal
19	up / down setting clear (terminal, keyboard)	When the digital frequency reference is given, use this terminal to clear the frequency value changed by up / down so that the reference frequency will return to the value set by p0-08.
20	run command switch terminal	When the command source (p0-02) is set to 1, terminal control and keyboard control can be switched through this terminal. When the command source (p0-02) is set to 2, this terminal can switch between the communication control and the keypad control.

Set value	Features	Description
21	acceleration and deceleration stop	To ensure that the inverter is not affected by external signals (except the shutdown command), to maintain the current output frequency.
22	pid pauses	Pid is temporarily disabled, and the inverter maintains the current frequency output.
23	plc status reset	Plc in the process of the suspension, and then run through this terminal can be restored to the simple plc to the initial state.
24	pendulum frequency suspension	The frequency converter outputs at the center frequency. Pendulum frequency suspension.
25	counter input	Count pulse input terminal.
26	counter reset	The counter status is cleared.
27	length count input	Length count input terminals.
28	length reset	The Length Is Cleared
29	torque control disabled	The inverter is prohibited from performing torque control.
30	pulse frequency input (only valid for x6)	Is a pulse input terminal.
31	reserved	
32	immediate dc braking	The Terminal Is Valid, The Inverter Directly Switches To The Dc Braking State
33	external fault normally closed input	When the external fault signal to the inverter, the inverter reported failure and shutdown.
34	frequency setting active	If this terminal function is set, the modification activation time is controlled by this terminal when the frequency is modified.
35	pid inverts the direction of action	When This Terminal Is Valid, The Pid Action Direction Is Opposite To The Direction Set By Pa-03
36	external stop terminal 1	Keyboard Control, The Terminal Can Be Used To Stop, The Equivalent Of The Stop Key On The Keyboard
37	control command to switch terminal 2	It is used to switch between terminal control and communication control. If p0-02 is set as terminal control, it will switch to communication control. If p0-02 is set as communication control, it will switch to terminal control
38	pid integral pause	The terminal is active, the pid integral action is suspended, but the proportional adjustment and differential regulation still work.

Set value	Features	Description
39	the frequency source x is switched with the preset frequency	This Terminal Is Valid, The Frequency Source X Is Replaced By The Preset Frequency (P0-08)
40	the frequency source y is switched with the preset frequency	This Terminal Is Valid, The Frequency Source Y Is Replaced By The Preset Frequency (P0-08)
41	motor selection 1	The combination of the digital status of the two terminals selects
42	motor selection 2	the four groups of motor parameters. Please see appendix 3 for detailed combinations.
43	pid parameter switching terminal	When pa-18 (pid parameter switching condition) is x terminal, this terminal is valid. Pid uses pa-15 ~ pa-17 parameter. Terminal is invalid, use pa-05 ~ pa-07 parameter
44	user - defined fault 1	When the external fault signal is sent to the inverter, the inverter reports the fault and processes it according to the fault protection operation mode (p9-47 ~ p9-50).
45	user defined fault 2	When the external fault signal is sent to the inverter, the inverter reports the fault and processes it according to the fault protection operation mode (p9-47 ~ p9-50).
46	speed control / torque control switching	Switching the inverter operates in the torque control or speed control mode. This terminal is invalid and operates in the mode defined by a0-00 (speed / torque control mode), and switches to another mode.
47	emergency shutdown	The Terminal Is Valid And The Inverter Stops At The Fastest Speed
48	external stop terminal 2	In Any Control Mode, The Terminal Can Be Used To Stop, According To The Deceleration Time 4 Stop
49	deceleration dc braking	The Terminal Is Valid, The Inverter First Decelerates To The Stop Dc Braking Start Frequency And Then Switches To The Dc Braking State

table 1 multi-speed function description

K_4	K_3	K_2	K_1	Frequency setting	Corresponding parameters

OFF	OFF	OFF	OFF	Multi - stage speed 0	Pc-0
OFF	OFF	OFF	ON	Multi - stage speed 1	Pc-01
OFF	OFF	ON	OFF	Multi - stage speed 2	Pc-02
OFF	OFF	ON	ON	Multi - stage speed 3	Pc-03
OFF	ON	OFF	OFF	Multi - stage speed 4	Pc-04
OFF	ON	OFF	ON	Multi - stage speed 5	Pc-05
OFF	ON	ON	OFF	Multi - stage speed 6	Pc-06
OFF	ON	ON	ON	Multi - stage speed 7	Pc-07
ON	OFF	OFF	OFF	Multi - stage speed 8	Pc-08
ON	OFF	OFF	ON	Multi - stage speed 9	Pc-09
ON	OFF	ON	OFF	Multi - stage speed 10	Pc-10
ON	OFF	ON	ON	Multi - stage speed 11	Pc-11
ON	ON	OFF	OFF	Multi - stage speed 12	Pc-12
ON	ON	OFF	ON	Multi - stage speed 13	Pc-13
ON	ON	ON	OFF	Multi - stage speed 14	Pc-14
ON	ON	ON	ON	Multi - stage speed 15	Pc-15

Table 2 Multi-Speed Function Description 2

Termin al 2	Termin al 1	Acceleration or deceleration time selection	Corresponding parameters
OFF	OFF	Acceleration time 1	P0-17、p0-18
OFF	ON	Acceleration time 2	P8-03、p8-04
ON	OFF	Acceleration time 3	P8-05、p8-06
ON	ON	Acceleration time	P8-07、p8-08

		4	

Table 3 Multi - Speed Function Description 3

Termin al 2	Termin al 1	Motor selection	Corresponding parameter group
OFF	OFF	Motor 1	P1、p2 group
OFF	ON	Motor 2	A2 group
ON	OFF	Motor 3	A3 group
ON	ON	Motor 4	A4 group

P4-10	X filter time	Factory default	0.010s
	Predetermined area		0.000s～1.000s

Sets the sensitivity of the x terminal. If the digital input terminal is susceptible to interference caused by malfunction, this parameter can be increased, the anti-interference ability, but caused by the x terminal sensitivity decreases.

P4-11	Terminal command mode		Factory default	0
	Predetermi ned area	0	Two - wire type1	
		1	Two - wire type2	
		2	Three-wire type 1	
		3	Three-wire type 2	

this parameter defines the four different ways in which the drive can be controlled via an external terminal.

0: 2-wire mode 1: this mode is the most commonly used two-wire mode. fwd, rev terminal command to determine the motor forward and reverse.

K1	K2	RUN command
1	0	Forward RUN
0	1	Reverse RUN
1	1	Stop
0	0	Stop

K1 ——o X1 Forward RUN(FWD)
K2 ——o X2 Reverse RUN (REV)
——o COM Digital common
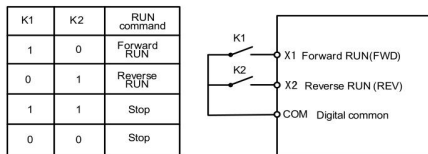
Figure 6-6 Two-Wire Mode 1

1: 2-wire mode 2: rev is enabled in this mode. The direction is determined by the state of the fwd.
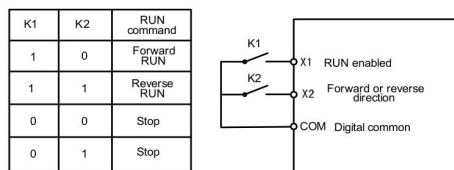
Figure 6-7 Two-Wire Mode 2

2: Three-Wire Control Mode 1: This Mode Xn Is The Enable Terminal, The Direction Is Controlled By Fwd, Rev Respectively.

But the pulse is valid, in the parking must be broken through the xn terminal signal to complete.
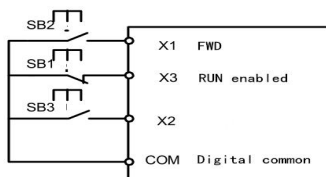
Figure 6-8 Three-Wire Control Mode 1

Among them:

Stop button sb2: forward rotation button sb3: reverse button

Xn is the multi-function input terminal of x1 ~ x5 (x1 ~ x9 if multi-function i / o expansion card is used). At this time, the corresponding terminal function should be defined as "3-line operation control".

3: 3-wire control mode 2: the enable terminal of this mode is xn. The running command is given by fwd. The direction is determined by the state of rev. The shutdown command is done by disconnecting the xn signal.
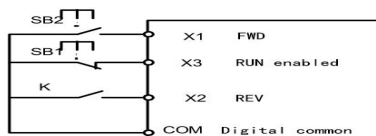
Figure 6-9 Three-Wire Control Mode 2

Among them:

Sb1: stop button sb2: run button

Xn is the multi-function input terminal of x1 ~ x5 (x1 ~ x9 if multi-function i / o expansion card is used), then the corresponding terminal function should be defined as "3-line operation control".

P4-12	Terminal up / down rate	Factory default	1.00HZ/S
	Predetermined area		0.01hz/s～65.535hz/s

Terminal up / down to adjust the rate of change at the set frequency.

When p0-22 (frequency decimal point) is 2, the value range is 0.001hz / s ~ 65.535hz / s

When p0-22 (frequency decimal point) is 1, the value range is 0.01hz / s ~ 655.35hz / s

P4-13	Curve 1 minimum input	Factory default	0.00v
	Predetermined area		0.00v～p4-15
P4-14	Curve 1 minimum input corresponds to the setting	Factory default	0.0%
	Predetermined area		-100.00%～100.0%
P4-15	Curve 1 maximum input	Factory default	10.00v
	Predetermined area		P4-13～10.00v
P4-16	Curve 1 corresponds to the maximum input setting	Factory default	100.0%
	Predetermined area		-100.00%～100.0%
P4-17	Ai1 input filter time	Factory default	0.10s
	Predetermined area		0.00s～10.00s

The above function codes define the relation between the analog input voltage and the set value represented by the analog input. When the analog input voltage exceeds the range of the maximum input, the other part will be calculated with the maximum input. When the analog input voltage exceeds the set minimum input other than the range, the ai minimum

input setting selection (p4-34) is calculated with minimum input or 0.0%.

Analog input for the current input, 1ma current is equivalent to 0.5v voltage. In different applications, the analog setting of 100% corresponds to the nominal value is different, please refer to the specific application of the description.

The following illustrations illustrate several settings:
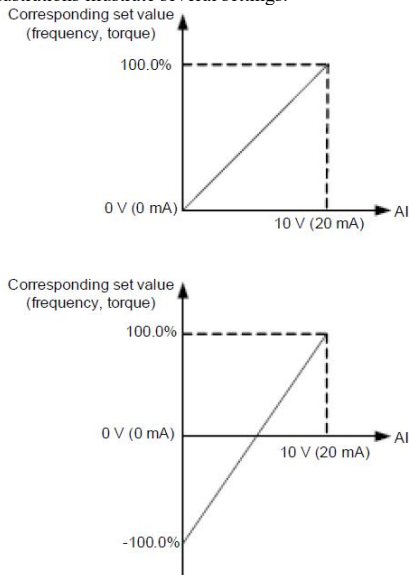
Figure 6-10 Correspondence Between Analog Reference And Set Value

P4-18	Curve 2 minimum input	Factory default	0.00V
	Predetermined area	0.00v～p4-20	
P4-19	Curve 2 minimum input corresponding setting	Factory default	0.0%
	Predetermined area	-100.00%～100.0%	
P4-20	Curve 2 maximum input	Factory default	10.00V
	Predetermined area	P4-18～10.00v	

P4-21	Curve 2 corresponds to the maximum input setting	Factory default	100.0%
	Predetermined area	-100.00%～100.0%	
P4-22	Ai2 input filter time	Factory default	0.10S
	Predetermined area	0.00s～10.00s	

The function of curve 2 is similar to that of curve 1.

P4-23	Curve 3 minimum input	Factory default	0.01v
	Predetermined area	-10.00v～p4-25	
P4-24	Curve 3 minimum input corresponds to the setting	Factory default	0.0%
	Predetermined area	-100.00%～100.0%	
P4-25	Curve 3 maximum input	Factory default	10.00v
	Predetermined area	P4-23～10.00v	
P4-26	Curve 3 corresponds to the maximum input setting	Factory default	100.0%
	Predetermined area	-100.00%～100.0%	
P4-27	Keyboard potentiometer input filter time	Factory default	0.10s
	Predetermined area	0.00s～10.00s	

The function of curve 3 is similar to that of curve 1.

P4-28	Pulse enter the minimum frequency	Factory default	0.00khz
	Predetermined area	0.00khz～p4-30	
P4-29	Pulse enter the minimum frequency setting	Factory default	0.0%
	Predetermined area	-100.00%～100.0%	
P4-30	Pulse enter the maximum frequency	Factory default	50.00khz
	Predetermined area	P4-28～50.00khz	
P4-31	Pulse (pulse) input maximum frequency setting	Factory default	100.0%

	Predetermined area		-100.00%～100.0%
P4-32	Pulse inputs the filter time	Factory default	0.10s
	Predetermined area		0.00s～10.00s

This group of function codes defines the correspondence relationship when the pulse is used as the frequency setting mode. The pulse frequency input can only be entered via the x5 channel. The application of this group of functions is similar to curve 1 function.

	Ai sets the curve selection		Factory default	321
P4-33	Predetermi ned area	A bit	Ai1 curve selection
		1	Curve 1 (2 points, see p4-13 ~ p4-16)
		2	Curve 2 (2 points, see p4-18 ~ p4-21)
		3	Curve 3 (2 points, see p4-23 ~ p4-26)
		4	Curve 4 (4 points, see a8-00 ~ a8-07)
		5	Curve 5 (4 points, see a8-08 ~ a8-15)
		Ten	Ai2 curve selection (1 ~ 6, above)
		Hundr eds	Keyboard potentiometer curve selection (1 ~ 6, ibid.)

Define the setting curve corresponding to ai1 \ ai2.

820 inverter standard unit provides two analog inputs

	Ai is below the minimum input selection		Factory default	000
P4-34	Predetermined area	A bit	Ai1 is below the minimum input setting selection
		0	Minimum input corresponds to the setting
		1	0.0%
		Ten	Ai2 is lower than the minimum input setting selection (0 ~ 1, above)
		Hundr eds	Keyboard potentiometer lower than the minimum input setting selection (0 ~ 1, ibid)

When the ai input is lower than the minimum input, the physical quantity is set as the curve minimum input corresponding setting.

When the ai input is lower than the minimum input, the physical quantity is set to 0.0%.

P4-35	X1 delay time	Factory default	0.0s
	Predetermined area		0.0s~3600.0s
P4-36	X2 delay time	Factory default	0.0S
	Predetermined area		0.0s~3600.0s
P4-37	X3 delay time	Factory default	0.0S
	Predetermined area		0.0s~3600.0s

Set the delay time at which the x terminal status changes to the drive response.
Currently only x1 \ x2 \ x3 with set delay time function.

	X input terminal valid state setting 1	Factory default	00000
P4-38		A bit	X1 terminal valid state setting
		0	High level
		1	Low level
	Predetermined area	Ten	X2 terminal valid state setting (0 ~ 1, the same as above)
		Hundreds	X3 terminal valid state setting (0 ~ 1, same as above)
		Thousands	X4 terminal valid state setting (0 ~ 1, above)
		Million	X5 terminal valid state setting (0 ~ 1, same as above)
	X input terminal valid state setting 2	Factory default	00000
P4-39		A bit	X6 terminal valid state setting
		0	High level
		1	Low level
	Predetermined area	Ten	X7 terminal valid state setting (0 ~ 1, same as above)
		Hundreds	X8 terminal valid state setting (0 ~ 1, same as above)
		Thousands	X9 terminal valid state setting (0 ~ 1, above)
		Million	X10 terminal valid state setting (0 ~ 1, same as above)

Defines the valid state setting of the input terminal.
High: s terminal and com connected to the effective disconnection invalid.

Low: s terminal and com connectivity is invalid, disconnect valid.

P5 Group Output Terminal

820 series inverter standard unit has a multi-function digital output terminal, (can be used

as high-speed pulse output terminal can also be used as open collector output), a multi-function relay output terminals, two multi-function analog output terminals. If you need to increase the relay output terminals and analog output terminals, you need to be equipped with multi-function input and output expansion cards.

Multi-function i / o expansion card has two multi-function relay output terminals (relay 2) and one multi-function digital output terminal (y2) for output.

P5-00	Fm terminal output mode selection		Factory default	0
	Predetermined area	0	Pulse output (fmp)	
		1	Open collector switch output (fmr)	

The fm terminal is a programmable multiplex terminal. Can be used as high-speed pulse output terminal (fmp), the maximum pulse frequency of 100khz. For fmp related functions, see p5-06. also available as an open collector output terminal (fmr). For fmr function see p5-01.

P5-01	Y1 output selection (open collector output terminal)	Factory default	0
P5-02	Control board relay RELAY 1 Output selection (T / A-T / B-T / C)	Factory default	2
P5-03	Expansion Card Relay RELAY 1 Output Selection (R / A1-R / B1-R / C1)	Factory default	0
P5-04	Expansion Card Relay RELAY 2 Output Selection (R / A2-R / B2-R / C2)	Factory default	1
P5-05	Y2 output selection (11KW and above standard)	Factory default	4

Note: relay 1, relay 2 refers to the TA / TB / TC, etc .;

The multi-function output terminal function is as follows:

Set value	Features	Description
0	No output	Output terminal without any function
1	The inverter is running	It indicates that the inverter is running and has output frequency (can be zero). At this time, the ON signal is output.
2	Fault output (fault shutdown)	When the inverter fails and the inverter stops, the ON signal is output.

Set value	Features	Description
3	Frequency level detection PDT arrival	Please refer to function codes P8-19, P8-20 for details.
4	The frequency arrives	Please refer to function code P8-21 for details.
5	Zero speed operation	When the inverter runs and the output frequency is 0, the ON signal is output.
6	Motor overload pre - alarm	Motor thermal protection before the action, according to forecast the value of overload to determine the value of more than the output after the ON signal. The motor overload parameter is set at P9-00 to P9-02.
7	Inverter overload pre-alarm	Check the inverter overload before the protection before the occurrence of 10S. Output ON signal.
8	Set the count pulse value to arrive	When the count value reaches the value set by PB08, the ON signal is output.
9	The specified count pulse value is reached	When the count value reaches the value set by PB-09, the ON signal is output. Refer to the PB Group function description for the counting function
10	The length is reached	When the actual length detected exceeds the length set by PB-05, the ON signal is output.
11	The PLC cycle is completed	When the simple PLC run to complete a cycle after the output of a pulse width of 250MS.
12	Running time arrives	When the accumulated running time of the inverter exceeds the time set by P8-17, the ON signal will be output.
13	Frequency limit	When the set frequency exceeds the upper and lower limit frequency limit and the inverter output frequency reaches the upper and lower limit frequency, the ON signal is output.
14	Torque limit	When the torque limit function is activated, the stall protection function operates automatically and automatically changes the output frequency, while the output ON signal indicates the output torque limit. This output signal can be used to reduce the load or display the overload status signal on the monitoring device.
15	Run Ready	The main circuit and the control circuit power is established, the inverter protection function does not work, the inverter is in the running state, the output ON signal.
16	AI1>AI2	When the value of analog input AI1 is greater than that of the other input AI2, an ON signal is output.

Set value	Features	Description
17	The upper frequency reaches	The ON signal is output when the operation frequency reaches the upper limit frequency.
18	The lower limit frequency is reached	The ON signal is output when the operating frequency reaches the lower limit frequency.
19	Undervoltage status output	When the inverter is under voltage, it will output ON signal.
20	Communication settings	See the communication protocol for instructions.
21	Positioning is complete	Reserved
22	Positioning close	Reserved
23	Zero speed operation 2	The inverter output frequency is 0, output ON signal (stop is also output).
24	Power-up time is reached	P7-13 (total power-on time of the inverter) exceeds the time set by P8-16, the ON signal is output.
25	Frequency level detection PDT2 output	Please refer to function codes P8-28, P8-29 for details.
26	The frequency reaches 1 output	Please refer to function codes P8-30, P8-31 for details.
27	The frequency reaches 2 outputs	Please refer to function codes P8-32, P8-33 for details.
28	The current reaches 1 output	Please refer to function codes P8-38, P8-39 for details.
29	The current reaches 2a output	Please refer to function codes P8-40, P8-41 for details.
30	Timing to the output	When P8-42 (timer function selection) is active, the ON signal is output when the running time of the inverter reaches the set time.
31	The AI1 input is outside the upper and lower limits	The ON signal is output when the value of analog input AI1 is greater than P8-46 (AI1 input protection upper limit) or less than P8-45 (AI1 input protection lower limit).
32	Out of load	The inverter outputs ON signal when the inverter is in load-off state.
33	Running direction	The inverter outputs ON signal when it is running in the opposite direction
34	Zero current detection	Please refer to function codes P8-28, P8-29 for details
35	Module temperature is reached	P7-07 (inverter module heat sink temperature) reaches the P8-47 (module temperature reached) value, the output ON signal
36	Software over-current output	Please refer to function codes P8-36, P8-37 for details.
37	Lower frequency arrival (operation independent)	When the operation frequency reaches the lower limit frequency, the output ON signal (stop is also output).

Set value	Features	Description
38	Fault output	When the inverter is faulty, the ON signal is output
39	Motor over-temperature alarm	When the motor temperature reaches P9-58 (motor overheating forecast threshold), the output ON signal (motor temperature through U0-34 view)

P5-06	FMP output selection (pulse output terminal)	Factory default	0
P5-07	A01 Output selection (analog output terminal 1)	Factory default	0
P5-08	A02 Output selection (analog output terminal 2)	Factory default	1

The standard output (zero offset, gain 1) of the analog output is 0MA to 20MA (or 0V to 10V), and the FMP output range is 0Hz to the setting of the function code P5-09.

The ranges of the corresponding amounts are shown in the following table:

Set value	Features	Range
0	Operating frequency	0～Maximum output frequency
1	Set the frequency	0～Maximum output frequency
2	Output current	0 ~ 2 times the motor rated current
3	Output torque	0 ~ 2 times the motor rated torque
4	Output Power	0 ~ 2 times the rated power
5	The output voltage	0 ~ 1.2 times the inverter rated voltage
6	pulse input	0.01kHz～100.00kHz
7	AI1	0V～10V
8	AI2	0V～10V/0～20mA
9	length	0～Maximum setting length
10	Count value	0～The maximum count value
11	Communication settings	
12	Motor speed	0 to the maximum output frequency corresponds to the speed
13	Output current	0.0A~1000.0A
14	The output voltage	0.0V~1000.0V

P5-09	FMP Outputs the maximum frequency	Factory default	50.00kHz
	Predetermined area	0.01kHz～100.00kHz	

When the FM terminal is selected as the pulse output, the maximum frequency value of the pulse can be output.

P5-10	AO1 zero bias coefficient	Factory default	0.0%
	Predetermined area	-100.0%～100.0%	
P5-11	AO1 gain	Factory default	1.00
	Predetermined area	-10.00～10.00	
P5-12	AO2 zero bias coefficient	Factory default	0.00%
	Predetermined area	-100.0%～100.0%	
P5-13	AO2 gain	Factory default	1.00
	Predetermined area	-10.00～10.00	

If the bias is represented by "B", the gain is expressed by K, the actual output is represented by Y, and the standard output is represented by X, the actual output is $Y=kX+b$；AO1, A02 zero bias coefficient of 100% corresponds to 10V (20MA). Standard output refers to the output 0V ~ 10V (20MA) corresponding to the analog output that the amount of 0 ~ maximum. Generally used to correct the analog output zero drift and output amplitude deviation. For example, if the analog output is operating frequency, and you want to output 8V (16MA) at frequency 0 and 3V (6MA) at the maximum frequency, the gain should be set to " -0.50 ", the zero bias should be set to" 80% ".

P5-17	Y1 Output delay time	Factory default	0.0s
	Predetermined area	0.0s～3600.0s	

P5-18	RELAY1 Output delay time	Factory default	0.0s
	Predetermined area	0.0s~3600.0s	
P5-19	RELAY2 Output delay time	Factory default	0.0s
	Predetermined area	0.0s~3600.0s	
P5-20	RELAY 3 Output delay time	Factory default	0.0s
	Predetermined area	0.0s~3600.0s	

Set the delay time for output terminal Y1, relay 1, relay 2, relay 3, Y2 to change from state change to output change.

P6 group start and stop control

P6-00	Start mode		Factory default	0
	Predetermi ned area	0	Direct start (DC braking time is not 0, the first DC braking and then start)	
		1	Speed tracking and restart	
		2	Asynchronous machine pre-excitation start (pre-excitation time is not 0, the first pre-excitation re-start)	

0: Direct start

If the start DC braking time is set to 0, start from the starting frequency. Start DC braking time is not set to 0, the implementation of the first DC braking and then start. For applications where small inertial loads may be reversed at start-up.

1: Speed tracking restart

The inverter first to motor speed and direction to judge, and then to track the motor speed corresponding to the frequency of the start of the motor in the smooth implementation of the impact-free start. For large inertia load instantaneous power failure restart. In order to ensure the performance of the speed tracking and restart, it is necessary to set accurate motor parameters. (Group P1)

2: asynchronous motor pre-excitation start

Pre-excitation current, time and DC braking current, time sharing function code. Pre-excitation current, time and DC braking current, time sharing function code.

If the pre-excitation time is set to 0, start from the start frequency. Start pre-excitation time is not set to 0, the implementation of the first pre-excitation and then start to improve the dynamic response speed.

P6-01	Speed tracking mode		Factory default	0
	Predetermined area	0	Start from the stop frequency	
		1	Start at zero speed	
		2	Start with the maximum frequency	

For the shortest time to complete the speed tracking process, select the frequency converter to track the motor speed:

0: The frequency from the power down the track, usually selected this way.

1: start from the 0 up track, and then restart the situation longer use of power outages

2: From the maximum frequency down to track, the general power load to use

P6-02	Speed tracking speed	Factory default	20
	Predetermined area		1~100

Speed tracking and restart mode, select the speed tracking speed. The higher the parameter, the faster the tracking speed. But too large may cause tracking unreliable.

P6-03	Start frequency	Factory default	0.00Hz
	Predetermined area		0.00Hz~10.00Hz
P6-04	Start frequency hold time	Factory default	0.0s
	Predetermined area		0.0s~100.0s

To ensure the torque at start-up, set an appropriate starting frequency. In addition, to start the motor to wait for the establishment of magnetic flux, so that the starting frequency to maintain a certain period of time after the start to accelerate. The start frequency value P6-03 is not limited by the lower limit frequency. The frequency reference (frequency source) is less than the starting frequency, the frequency converter can not start, is in the standby state. The start frequency hold time does not work when switching between forward and reverse rotation. The holding time is not included in the acceleration time, but is included in the runtime of the simple PLC.

example 1:

P0-03＝0   The frequency source is a digital reference

P0-08＝2.00Hz   Digital setting frequency is 2.00HZ

P6-03＝5.00Hz   The starting frequency is 5.00 Hz

P6-04＝2.0s   Start-up frequency hold time is 2.0S

In this case, the inverter will be in the standby state and the inverter output frequency will be 0Hz.

Example 2:

P0-03＝0   The frequency source is a digital reference

P0-08＝10.00Hz   10.00Hz Digital setting frequency is 10.00HZ

P6-03＝5.00Hz   The starting frequency is 5.00 Hz

P6-04＝2.0s   Start-up frequency hold time is 2.0S

In this case, the inverter accelerates to 5HZ for 2S, then accelerates to the given frequency 10HZ.

P6-05	Start DC braking / pre-excitation current	Factory default	0%
	Predetermined area		0%～100%
P6-06	Start DC brake / pre-excitation time	Factory default	0.0s
	Predetermined area		0.0s～100.0s

DC braking is generally used to start the motor to fully stop and then start.

Pre-excitation is generally used to first make the motor to establish a magnetic field and then start to improve the response speed.

If the start mode is direct start, the inverter will start DC braking according to the set DC braking current, and start the DC braking time after the set time. If the DC braking time is set to 0, DC braking is not started directly. The greater the DC braking current, the greater the braking force.

If the start mode is asynchronous motor pre-excitation start, the inverter will start the magnetic field pre-excitation according to the preset pre-excitation current, and start running after the preset pre-excitation time. If the pre-excitation time is set to 0, it will not start directly through pre-excitation.

Starting DC braking / pre-magnetizing current is the percentage relative to the rated drive current.

P6-07	Acceleration / deceleration mode		Factory default	0
	Predetermi ned area	0	Linear acceleration and deceleration	
		1	S curve acceleration and deceleration	
		2	S curve acceleration and deceleration	

Select the frequency converter in the Kai, stop the process of changing the frequency of the way.

0: Linear acceleration / deceleration

The output frequency is incremented or decremented linearly. The acceleration / deceleration time changes according to the set acceleration / deceleration time. 820 series inverter provides four kinds of acceleration and deceleration time. Acceleration / deceleration time can be selected by the multi-function digital input terminal (P4-00 ~ P4-08).

1：S curve acceleration and deceleration

The output frequency is incremented or decremented by the S-curve. S curve is generally used for Kai, stop the process requires a more gentle place, such as elevators, conveyor belt. Function codes P6-08 and P6-09 define the time proportion of S-curve acceleration / deceleration A start and end segments respectively

2: S curve acceleration and deceleration

In this acceleration / deceleration curve, the rated motor frequency is always the inflexion point of the S curve. As shown in Figure 6-4. Generally used in high-speed areas above the rated frequency, the need for short-term acceleration and deceleration occasions.

When the set frequency is above the rated frequency, the acceleration / deceleration time is:

$$t = (\frac{4}{9} \times (\frac{f}{f_b})^2 + \frac{5}{9}) \times T$$

Here, the frequency is set to f

f_b is the motor rated frequency,

T is the time from 0 frequency acceleration to rated frequency f_b

P6-08	Start of S curve	Factory default	30.0%
	Predetermined area		0.0%～40.0%
P6-09	S-curve end segment ratio	Factory default	30.0%
	Predetermined area		0.0%～40.0%

Function codes P6-08 and P6-09 define the time proportion of S-curve acceleration / deceleration A start and end segments respectively, and both satisfy: P6-08 + P6-09 ≤ 100.0%.

In Figure 6-13, T1 is the parameter defined by parameter P4-08, and the slope of the output frequency is gradually increased during this period. T2 is the time defined by parameter P4-09, in which the slope of the output frequency change gradually changes to zero. During the time between T1 and T2, the slope of the output frequency change is fixed.
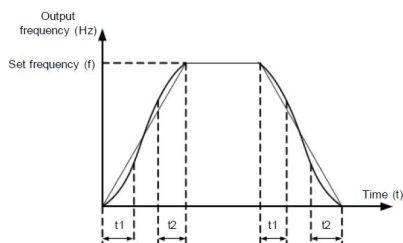
Figure 6-11 S curve acceleration and deceleration A schematic diagram
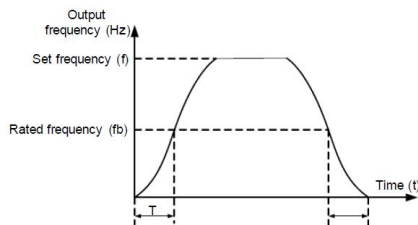
Figure 6-12 S curve acceleration and deceleration B schematic diagram

P6-10	Stop mode	Factory default	0

	Predetermi	0	Deceleration stop
	ned area	1	Free parking

0: Deceleration stop

After the stop command is valid, the inverter will reduce the output frequency according to the deceleration mode and the defined acceleration / deceleration time.

1: Freewheel stop

When the stop command is valid, the inverter terminates the output immediately. The load is freewheeled according to mechanical inertia.

P6-11	Stop DC braking start frequency	Factory default	0.00Hz
	Predetermined area		0.00Hz～Maximum frequency
P6-12	Stop DC braking wait time	Factory default	0.0s
	Predetermined area		0.0s～36.0s
P6-13	DC injection braking current	Factory default	0%
	Predetermined area		0%～100%
P6-14	Stop DC braking time	Factory default	0.0s
	Predetermined area		0.0s～36.0s

Stop DC braking start frequency: During deceleration stop, when this frequency is reached, the DC braking process is stopped.

Stop DC braking wait time: Before the DC braking is stopped, the inverter will stop the output. After this time delay, the DC braking will be started. Used to prevent over-current faults caused by DC braking at high speed.

Stop DC braking current: refers to the amount of DC braking applied. The higher the value, the stronger the DC braking effect.

DC injection braking time: The time of DC injection braking. When this value is 0, it indicates that there is no DC braking process, and the inverter stops according to the set deceleration stop process.
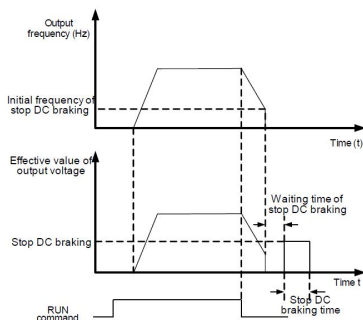
Figure 6-13 Schematic diagram of DC braking at shutdown

P6-15	Braking usage	Factory default	100%
	Predetermined area		0%～100%

It is valid for the inverter with built-in braking unit. The braking effect of the brake unit can be adjusted.

P7 keyboard and display

P7-01	MF.K key function selection		Factory default	3
	Predetermined area	0		MF.K key function is invalid
		1		Operation panel command channel and remote command channel (terminal command channel or serial communication command channel) switch
		2		Forward and reverse switching
		3		Forward Jog command
		4		Reverse Jog command

The MF.K key is a multifunction key. You can define the function of the MF.K key on the keyboard by parameter setting. This key can be used to switch between stop and run.

0: When set to 0, this key has no function.

1: Keyboard command and remote operation switch. Indicates the source of the command to switch from the current command source to keyboard control (local operation). If the current command source is keyboard control, this command does not work.

2: Forward and reverse switching

The MF.K key switches the direction of the frequency command. Valid only when the operator panel commands the channel.

3: Forward jog

Through the keyboard MF.K key to achieve forward jog

4: Reverse jog

Through the keyboard MF.K key to achieve reverse jog

P7-02	STOP / RESET key function		Factory default	1
	Predetermined area	0	Only the keypad control mode, STOP / RES key stop function is valid	
		1	The STOP / RES function is valid regardless of the control mode	

LED operation display parameter 1	Factory default	1F

| P7-03 | Predetermined area | 0000 ~ FFFF | 0000–FFFF

7 6 5 4 3 2 1 0

— Running frequency1 (Hz)
— Set frequency (Hz)
— Bus voltage (V)
— Output voltage (V)
— Output current (A)
— Output power (kW)
— Output torque (%)
— DI input status (V)

15 14 13 12 11 10 9 8

— DO output status
— AI1 voltage (V)
— AI2 voltage (V)
— AI3 voltage (V)
— Count value
— Length value
— Load speed display
— PID setting

If a parameter needs to be displayed during the running, set the corresponding bit to 1, and set F7-03 to the hexadecimal equivalent of this binary number. |

			LED operation display parameter 2	Factory default	0
P7-04	Predetermined area	0000 ~ FFFF

0000–FFFF

| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

— PID feedback
— PLC stage
— Pulse setting frequency (kHz)
— Running frequency2
— Remaining running time
— AI1 voltage before correction
— AI2 voltage before correction
— AI3 voltage before correction

| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |

— Linear speed
— Current power-on time (Hour)
— Current running time (Minute)
— Pulse setting frequency (Hz)
— Communication setting value
— Encoder feedback speed (Hz)
— Main frequency X display (Hz)
— Auxiliary frequency Y display (Hz)

If a parameter needs to be displayed during the running, set the corresponding bit to 1, and set F7-03 to the hexadecimal equivalent of this binary number. | | |
| P7-05 | | | LED Stops the display parameters | Factory default | 33 |

0000–FFFF

| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

— Set frequency (Hz)
— Bus voltage (V)
— DI input status
— DO output status
— AI1 voltage (V)
— AI2 voltage (V)
— AI3 voltage (V)
— Count value

| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |

— Length value
— PLC stage
— Load speed
— PID setting
— Pulse setting frequency (kHz)
— Reserved
— Reserved
— Reserved

If a parameter needs to be displayed during the running, set the corresponding bit to 1, and set F7-05 to the hexadecimal equivalent of this binary number.

Predetermined area

0000 ~ FFFF

P7-06	Load speed display factor	Factory default	1.0000
	Predetermined area	0.0001~6.5000	

This parameter corresponds to the inverter output frequency and load speed. Set the display when the load speed needs to be displayed.

The calculation method is described in P7-12.

P7-07	Inverter module radiator temperature	Factory default	-
	Predetermined area	0.0℃～100.0℃	

Shows the inverter module IGBT temperature, different models of inverter IGBT over-temperature protection value may be different.

P7-08	Rectifier module radiator temperature	Factory default	-
	Predetermined area		0.0℃～100.0℃

The temperature of the rectifier module is displayed. The over-temperature protection value of the rectifier module of different models may be different.

P7-09	Cumulative running time	Factory default	0h
	Predetermined area		0h～65535h

Displays the cumulative run time of the drive to date. When the time reaches the set running time (P8-17), the multi-function digital output (12) of the inverter is activated.

P7-10	Product number	Factory default	-	
	Predetermined area		Inverter product number	
P7-11	Software version number	Factory default	-	
	Predetermined area		Control board software version number.	
P7-12	Load Speed Displays the decimal point position		Factory default	1
	Predetermined area	0	0 decimal places	
		1	1 decimal place	
		2	2 decimal places	
		3	3 decimal places	

The load speed is calculated as follows:

If the load speed display factor is 2.000, the load speed decimal point position is 2: 2 decimal places Inverter operation:

If the operating frequency of 40.00HZ, 4000 * 2.000 = 8000, 2 decimal places show that the load speed of 80.00.

Inverter stop:

If the setting frequency is 50.00HZ, 5000 * 2.000 = 10000, the decimal point will display the load speed of 100.00.

P7-13	Cumulative power-up time	Factory default	0h
	Predetermined area		0h~65535h

Displays the cumulative power-up time of the drive to date. When the time reaches the set power-on time (P8-17), the multi-function digital output (24) of the inverter will operate.

P7-14	Cumulative power consumption	Factory default	0
	Predetermine d area		0~65535

Displays the cumulative power consumption of the drive to date.

P8 Group Accessibility

P8-00	Jog running	Factory	6.00Hz

	frequency	default	
	Predetermined area		0.00HZ to the maximum frequency
P8-01	Jog acceleration time	Factory default	20.0s
	Predetermined area		0.0s～6500.0s
P8-02	Jog deceleration time	Factory default	20.0s
	Predetermined area		0.0s～6500.0s

Defines the reference frequency and acceleration / deceleration time of the inverter when jogging. The jogging process starts and stops according to the start mode 0 (P6-00, direct start) and stop mode 0 (P6-10, deceleration stop).

Jog acceleration time is the time required for the inverter to accelerate from 0 Hz to the maximum output frequency (P0-10).

JOG deceleration time is the time required for the inverter to decelerate from the maximum output frequency (P0-10) to 0HZ.

	Acceleration time 2	Factory default	Model to determine
P8-03	Predetermined area		0. 0s～6500.0s
P8-04	Deceleration time2	Factory default	Model to determine
	Predetermined area		0. 0s～6500.0s
P8-05	Acceleration time 3	Factory default	Model to determine
	Predetermined area		0. 0s～6500.0s
P8-06	Deceleration time 3	Factory default	Model to determine
	Predetermined area		0. 0s～6500.0s
P8-07	acceleration time 4	Factory default	Model to determine
	Predetermined area		0. 0s～6500.0s
P8-08	Deceleration time 4	Factory default	Model to determine
	Predetermined area		0. 0s～6500.0s

Acceleration and deceleration time can be selected P0-17 and P0-18 and the three acceleration and deceleration time. The meaning is the same, please refer to P0-17 and P0-18. The acceleration / deceleration time 1 ～ 4 can be selected by the different combinations of the multi-function digital input terminal X during the running of the inverter. Refer to function codes P4-01 to P4-05.

P8-09	Jump frequency 1	Factory default	0.00Hz
	Predetermined area	0.00Hz～Maximum frequency	
P8-10	Jump frequency 2	Factory default	0.00Hz
	Predetermined area	0.00 Hz～Maximum frequency	
P8-11	Jump frequency amplitude	Factory default	0.00Hz
	Predetermined area	0.00～Maximum frequency	

When the set frequency is within the skip frequency range, the actual operating frequency will run at the hopping frequency boundary close to the set frequency. By setting the skip frequency, the inverter avoids the mechanical resonance point of the load. The inverter can set two jump frequency points. If both jump frequencies are set to 0, this function does not work.
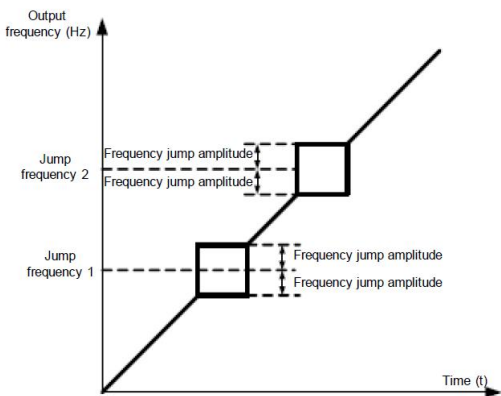
Figure 6-14 Skip frequency diagram

P8-12	Forward and reverse dead time	Factory default	0.0s
	Predetermined area	0.00s～3000.0s	

Set the transition time for the inverter to output the zero frequency during the forward / reverse transition of the inverter, as shown in the following diagram:
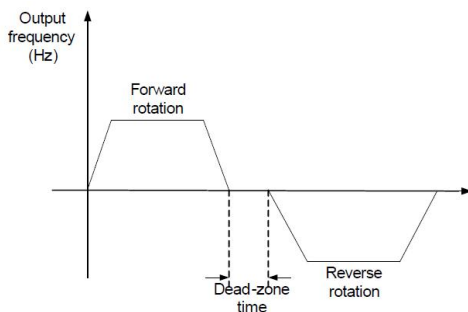
Figure 6-15 Reversal of dead time

P8-13	Reversal control		Factory default	0
	Predetermined area	0		Allow reverse
		1		Reverse rotation is prohibited

When this parameter is 0: Invert can be controlled by keyboard, terminal or communication.

When this parameter is 1: Invert control function is valid irrespective of command source selection, ie, keyboard, terminal, communication control, the inversion control function is invalid.

P8-14	Set the frequency lower than the lower limit frequency		Factory default	0
	Predetermined area	0		Run at lower frequency
		1		Shutdown
		2		Zero speed operation

Select the operating state of the inverter when the set frequency is lower than the lower limit frequency. To prevent the motor from running at low speed for a long time, you can use this function to select stop.

P8-15	Droop control	Factory default	0.00Hz
	Predetermined area		0.00Hz～10.00Hz

When multiple drives drive the same load, due to different speed caused by uneven load distribution, so that the larger the inverter to withstand heavy load. The droop control feature allows the load to be distributed evenly as the load is increased so that the speed drops.

This parameter adjusts the frequency variation of the inverter with droop.

P8-16	Set the power-on time of arrival	Factory default	0h
	Predetermined area		0h~65000h

Set the power-on time of the inverter beforehand. When the accumulated power-on time (P7-13) reaches the set power-up time, the multifunctional digital DO output run-time arrival signal of the inverter is reached. Combined with the virtual XDO function can be set to achieve the output power failure time.

For example:

A1-00=44， The virtual X1 terminal function is selected as user-defined fault 1

A1-05=0000， The virtual X1 terminal active state is derived from virtual Y1

A1-11=24， The virtual Y1 function is selected for the power-up time

The inverter output ERR24 when the accumulated power-on time reaches the set power-on time.

P8-17	Set the run time of arrival	Factory default	0h
	Predetermined area		0h~65000h

The running time of the inverter is preset. When the accumulated run time (P7-09) reaches this set run time, the multifunction digital DO output run time arrival signal of the frequency converter is reached. Combined with virtual XDO function can be set to achieve the output time of arrival failure.

P8-18	Start protection selection	Factory default		0
	Predetermi ned area	0		Not protected
		1		protection

This function code is used to improve the safety protection coefficient. If it is set to 1, it has two functions. First, if the running command is present when the inverter is powered on, the running protection must be removed. The second is if the inverter fails to run when the command is still there, you must first remove the run command to remove the running protection state. This prevents the motor from operating without knowing it, creating a danger.

P8-19	Frequency detection value (PDT1 level)	Factory default	50.00HZ
	Predetermined area		0.00Hz~Maximum frequency

P8-20	Frequency detection hysteresis (PDT1 hysteresis)	Factory default	5.0%
	Predetermined area		0.0%~100.0%（PDT1 Level）

Set the detection value of the output frequency and the hysteresis value of the output

operation.
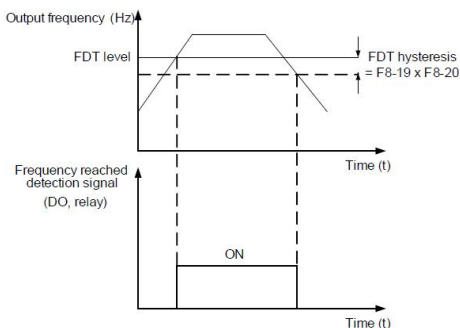
Figure 6-16   PDT level diagram

P8-21	The frequency reaches the detected amplitude	Factory default	0.0%
	Predetermined area	0.00～100% Maximum frequency	

When the output frequency of the inverter reaches the set frequency value, this function can adjust its detection amplitude. As shown below:
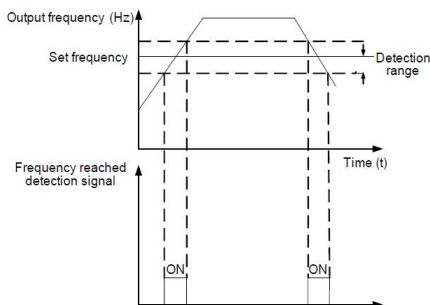
Figure 6-17   Frequency arrival detection amplitude

P8-22	Whether the skip frequency is valid during acceleration or deceleration	Factory default	0
	Predetermined area	0: Disabled 1: Enabled	

When the running frequency is within the skip frequency range, the actual running frequency will skip the set jump frequency boundary directly.
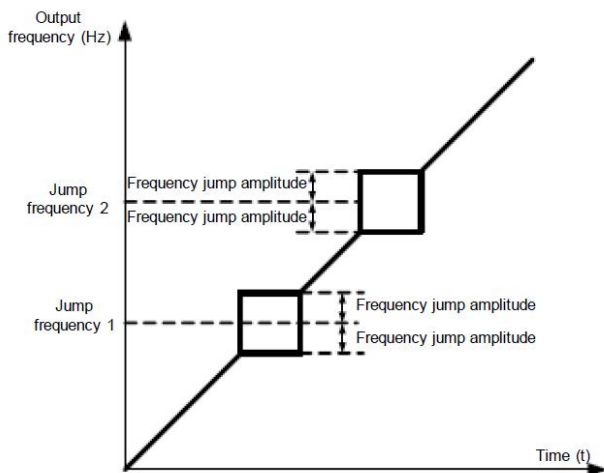
Figure 6-18   Skip frequency effective during acceleration / deceleration

P8-23	Run time arrival action selection		Factory default	0
	Predetermined area	0: Continue running 1: Fault indication		
P8-24	The power-up time reaches the action selection		Factory default	0
	Predetermined area	0: Continue running 1: Fault indication		

Set to 1: If the running time or power-on time arrives at the fault prompt, the drive will coast to stop, decelerate to stop or continue running according to the P9 group fault protection action selection (refer to function codes P9-47 ~ P9-50 for details Description).

P8-25	Acceleration time 1/2 Switching frequency point	Factory default	0.00Hz
	Predetermined area	0.00Hz～Maximum frequency	
P8-26	Deceleration time 1/2 Switching frequency point	Factory default	0.00HZ
	Predetermined area	0.00Hz～Maximum frequency	

This parameter is used to switch the acceleration / deceleration time during the running of the inverter (if and only if motor 1 and terminal no acceleration / deceleration time is selected).
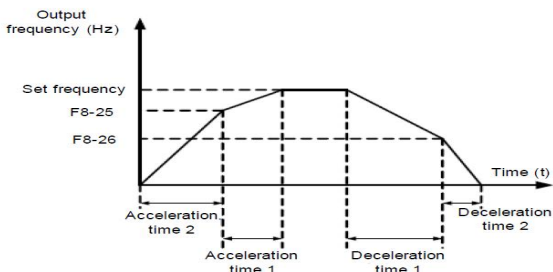
Figure 6-19   Schematic diagram of acceleration / deceleration time switching

If the running frequency is less than the acceleration time 1/2 switching frequency, the acceleration time is 2 and the acceleration time is 1.

During the deceleration, if the running frequency is less than the deceleration time 1/2 switching frequency, the deceleration time 2 will be run, otherwise the deceleration time 1 will be run

P8-27	Terminal jog priority	Factory default	0
	Predetermined area	0: Invalid
		1: Valid
P8-28	Frequency detection value (PDT2 level)	Factory default	50.00Hz
	Predetermined area	0.00Hz～Maximum frequency
P8-29	Frequency detection hysteresis (PDT2 hysteresis)	Factory default	5.0%
	Predetermined area	0.0%～100.0%（PDT2 Level）

The function of PDT2 is similar to that of PDT1 (P8-19, P8-20).
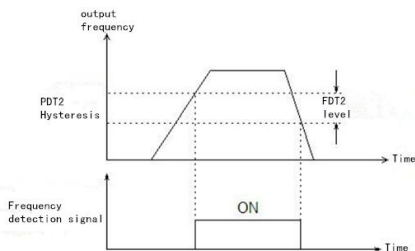
Figure 6-20   PDT2 level diagram

P8-30	Arbitrary arrival frequency detection value 1	Factory default	50.00Hz
	Predetermined area	0.00Hz～Maximum frequency
P8-31	Arbitrary arrival frequency detection range	Factory default	0.0%

	Predetermined area		0.0%～100.0%（Maximum frequency）
P8-32	Arbitrary arrival frequency detection value 2	Factory default	50.00Hz
	Predetermined area		0.00Hz～Maximum frequency
P8-33	Arbitrary arrival frequency detection range	Factory default	0.0%
	Predetermined area		0.0%～100.0%（Maximum frequency）

When the output frequency of the inverter is within the positive and negative detection range of any detected frequency, the pulse signal is output. As shown below:
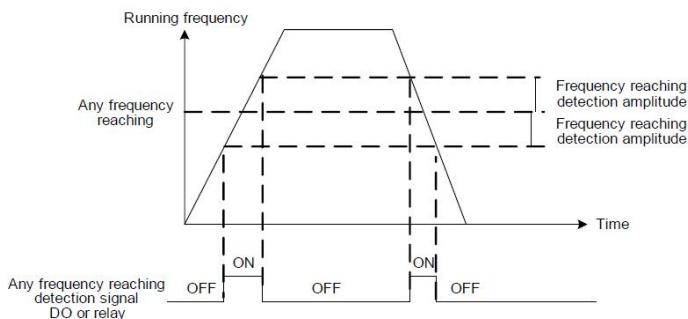
Figure 6-21   Arbitrary arrival frequency detection

P8-34	Zero current detection level	Factory default	5.0%
	Predetermined area		0.0%～300.0%（Rated motor current）
P8-35	Zero current detection delay time	Factory default	0.10s
	Predetermined area		0.01s～600.00s

When the inverter output current is less than or equal to the zero current detection level and the duration exceeds the zero current detection delay time, the pulse signal is output. As shown below:
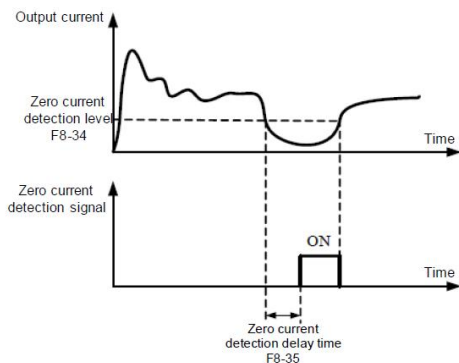
Figure 6-22 Zero current detection

P8-36	Software over-current point	Factory default	200.0%
	Predetermined area	0.0%(Not detected) 0.1%～300.0%（Rated motor current）	
P8-37	Software over-current point detection delay time	Factory default	0.00s
	Predetermined area	0.00s～600.00s	

When the inverter output current is greater than or equal to the software over-current point and the duration of the software over-flow detection delay time, the output pulse signal. As shown below:
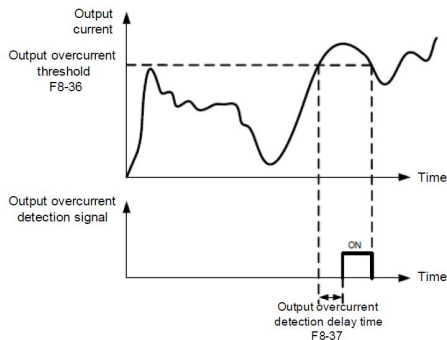
Figure 6-23   Software over-current point detection diagram

Through the virtual XDO function, making the software when the inverter over-current failure. Details Participate in the AA group (virtual XDO)

P8-38	Arbitrary arrival current	Factory default	100.0%	
	Predetermined area		0.0%~300.0%（Rated motor current）	
P8-39	Arbitrary reach current 1 width	Factory default	0.0%	
	Predetermined area		0.0%~300.0%（Rated motor current）	
P8-40	Arbitrary arrival current	Factory default	100.0%	
	Predetermined area		0.0%~300.0%（Rated motor current）	
P8-41	Arbitrary reach current 2 width	Factory default	0.0%	
	Predetermined area		0.0%~300.0%（Rated motor current）	

When the output current of the inverter is within the positive and negative detection width of any current 1 or 2, a pulse signal is output. As shown below:
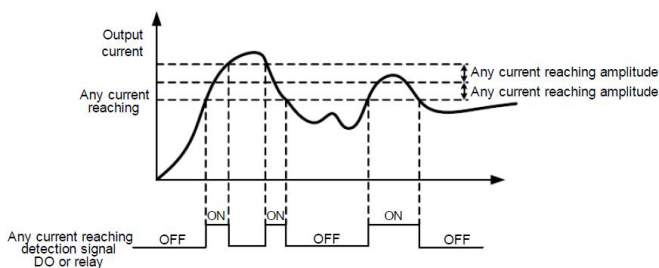
Figure 6-24   Arbitrary arrival frequency detection

P8-42	Timing function selection		Factory default	0
	Predetermined area	0	invalid	
		1	effective	
P8-43	Timed running time selection		Factory default	0
	Predetermined area	0	P8-44 set up	
		1	AI1	
		2	AI2	
		3	Reserved	
		The analog input range corresponds to P8-44		
P8-44	Timed running time		Factory default	0.0Min
	Predetermined area		0.0Min~6500.0Min	

This function is used to complete the inverter running regularly. P8-42 When the timer function is valid, the inverter will stop and output the pulse signal when the inverter is running and the set time running time is reached. The timer counts down at the next run. Timing The remaining operating time can be viewed via U0-20.

Setting the timer run time is determined by P8-43, P8-44.

P8-45	AI1 INPUT VOLTAGE PROTECTION VALUE LOWER LIMIT	FACTORY DEFAULT	3.10V
	Predetermined area	0.00V～P8-46	
P8-46	AI1 Input voltage protection value upper limit	Factory default	6.80V
	Predetermined area	P8-45～10.00V	

When the analog input AI1 value is greater than P8-46 (AI1 input protection upper limit) or less than P8-47 (AI1 input protection lower limit), the output pulse signal.

P8-47	Module temperature is reached	Factory default	75℃
	Predetermined area	0.00V～P8-46	

P7-07 (inverter module heat sink temperature) When this value is reached, a pulse signal is output

P8-49	Wake-up frequency	Factory default	0.00Hz
	Predetermined area	P8-51～P0-10（Maximum frequency）	
P8-50	Wake-up delay time	Factory default	0.0s
	Predetermined area	0.0s～6500.0s	
P8-51	Sleep frequency	Factory default	0.00Hz
	Predetermined area	0.00Hz～P8-49	
P8-52	Sleep delay time	Factory default	0.0S
	Predetermined area	0.0s～6500.0s	

This feature enables sleep and wake-up functions. If the set frequency is greater than or equal to P8-49 (wake-up frequency) after the run command, the inverter will start after elapsed time P8-50 (wake-up frequency delay time). When running, When the frequency is less than or equal to P8-51 (sleep frequency), after P8-52 (sleep delay time), the inverter enters the sleep state and stops. In general, set P8-49 (wake-up frequency) to or greater than P8-51 (sleep frequency). Setting P8-49 (wake-up frequency) and P8-51 (sleep frequency) to 0 means that Sleep and Wake-up are inactive.
note:
If PID is used as the frequency source when using the sleep function, please note that the function code PA-28 (PID stop operation) selects whether or not the operation is stopped.

P8-53	The arrival time of this run	Factory default	0.0MIN
	Predetermined area	0.0MIN～6500.0MIN	

P9 group of fault and protection

P9-00	Motor overload protection option	The factory value		1
	Setting range	0		Forbid
		1		Allow

No option to 0: inverter to the load motor overload protection, before the motor heating relay;

Option 1: the inverter to motor overload protection function. Protected values as p9-01。

P9-01	Motor overload protection	The factory value	1.00
	Setting range		0.20～10.00

Motor overload protection for inverse time curve; 220% * (p9-01) * the motor rated current 1 minute, 150% * (p9-01) * motor rated current up to 60 minutes.

P9-02	Motor overload coefficient of warning	The factory value	80%
	Setting range		50%～100%

This value is the amount of reference for motor overload current. When the inverter to detect the current output to meet (p9-02) x motor overload current and continuous inverse time curve after the prescribed time, from the do or relay output forecasting warning letter.

P9-03	The overpressure stall gain	The factory value	20
	Setting range		0 （No over-voltage stall） ～100

Adjust the frequency converter overvoltage stall control capability. This value is, the greater the ability to suppress overvoltage.

For a small moment of inertia load, this value should be smaller, otherwise slow dynamic response in the system.

For large inertia load, this value should be larger, otherwise the inhibition effect is bad, overvoltage faults that may occur.

P9-04	Over-voltage protection of stall	The factory value	130%
	Setting range		120%～150%

Select the protection of overvoltage stall at. More than this value converter began to perform the function of over-voltage protection stalled.

P9-05	Loss of speed gain	The factory value	0
	Setting range		0～100

Adjust the frequency converter of erosion speed ability. This value is, the greater the inhibition of flow ability.

For a small moment of inertia load, this value should be smaller, otherwise slow dynamic response in the system.

For large inertia load, this value should be larger, otherwise the inhibition effect is not good, may occur over current fault.

P9-06	Over current protection current stalled	The factory value	150%
	Setting range		100%～200%

Selecting erosion speed capability of current protection. More than this value converter began to implement stall over current protection function.

P9-07	Power on to choose from the short circuit protection		The factory value	1
	Setting range	0	Forbid	
		1	Allow	

Can choose on the inverter in the electrical test motor for ground fault protection. If this function effectively, the inverter in the electricity output moment and a short time.

P9-09	Automatic reset failure time	The factory value	0
	Setting range	0~20	

when selecting frequency converter fault automatic reset, which is used to set can be automatically reset the number of times. more than the value of frequency converter fault standby, waiting for repair.

p9-10	during the fault self-recovery fault relay action choice		the factory value	0
	set the range	0：failure to actuate		
		1：movement		

After choosing converter fault self-recovery function, fault reset during the implementation, and through this parameter setting, can determine whether a fault relay action will be needed, to block and fault alarm, make the equipment to continue running.

P9-11	Fault self-recovery time interval	The factory value	1.0s
	Setting range	0.1s~100.0s	

Frequency converter fault alarm, to automatically reset the wait time between failure.

P9-12	The input phase protection option	The factory value	00
	Setting range	Bits: input lacks protection 10: the contactor and protect 0: ban 1: allow	

P9-13	The output phase protection option	The factory value	1
	Setting range	0：forbid	
		1：allow	

Choose whether or not the output phase of protection.

P9-14	Fault types for the first time	0~99
P9-15	The second failure type	
P9-16	The third (last) fault type	

Record inverter recently three failure types, 0 for trouble-free. Detailed description see chapter 8.

P9-17	The third failure frequency	According to a recent failure frequency

P9-18	The third time fault current	According to a recent fault current
P9-19	The third failure busbar voltage	According to a recent failure of busbar voltage
P9-20	The third failure input terminals	This value is a decimal number. According to a recent failure all state of digital input terminals, order as follows: | BIT9	BIT8	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
DI0	DI9	DI8	DI7	DI6	DI5	DI4	DI3	DI2	DI1	 According to each state is transformed into the corresponding decimal display. When the input terminal on its corresponding to 1, off to 0. through this value to understand the current state of the digital output signal.
P9-21	the third failure output terminals	this value is a decimal number. according to a recent failure state of all 	BIT4	BIT3	BIT2	BIT1	BIT0
DO2	DO1	REL2	REL1	FMP	 input terminals, order according to each state is transformed into the corresponding decimal display. inputs to on at the time, its corresponding to 1. off to 0. through this value to understand the current state of the digital output signal.
P9-22	The third state failure frequency converter	Reserve
P9-23	The third failure time	Time from the start to electricity
P9-24	The third failure time	Timing starts from runtime
P9-27	The second failure frequency	
P9-28	The second fault current	
P9-29	The second failure busbar voltage	
P9-30	A failure in the second input terminal	
P9-31	The second failure output terminals	With p9-17～p9-24 the fault information is the third time
P9-32	The second failure state of the inverter	
P9-33	The second failure time	
P9-34	The second failure time	
P9-37	The first failure frequency	
P9-38	The first fault current	
P9-39	Failure of busbar voltage for the first time	
P9-40	Failure for the first time input terminals	With P9-17 ~ P9-24 Third Fault Information
P9-41	Failure state of the output terminal for the first time	
P9-42	The first state failure frequency converter	
P9-43	The first failure time	

P9-44	The first failure time	

	Option 1 fault protection action		The factory value	00000
P9-47		The unit	Motor overload (err11)
		0	Free downtime
		1	Press down way down
		2	Continue to run
	Setting range	Decade	The input phase (err12) (0 ~ 2, with bits)
		Hundreds	The output phase (err13) (0 ~ 2, with bits)
		Kilobit	External fault (err15) (0 ~ 2, with bits)
		Myriabit	Abnormal communication (err16) (0 ~ 2, with bits)

	Fault protection action option 2		The factory value	00000
P9-48		The unit	Encoder failure (err20)
		0	Free downtime
		1	Switch to a vf, press down way down
		2	Switch to a vf, continue to run
	Setting range	Decade	Abnormal function code to read and write (err21)
		0	Free downtime
		1	Press down way down
		Hundreds	Reserve
		Kilobit	Motor overheating (err25) (0 ~ 2, with p9-47 bits)
		Myriabit	Run time (err26) (0 ~ 2, with p9-47 bits)

	Choose 3 fault protection action		The factory value	00000
P9-49		The unit	User-defined failure 1 (err27) (0 ~ 2, with p9-47 bits)
		Decade	User-defined fault 2 (err28) (0 ~ 2, with p9-47 bits)
		Hundreds	Electricity time (err29) (0 ~ 2, with p9-47 bits)
		Kilobit	Off load (err30)
	Setting range	0	Free downtime
		1	Press down way down
		2	Slowed to 7% of the rated frequency motor continues to run, don't run off load automatically return to set frequency
		Myriabit	Runtime pid feedback lost (err31) (0 ~ 2, with p9-47 bits)

	Select 4 fault protection action		The factory value	00000
P9-50		The unit	Speed deviation is too large (err42) (0 ~ 2, with p9-47 bits)
	setting range	Decade	Super speed motor (err43) (0 ~ 2, with p9-47 bits)
		Hundreds	The initial position error (err51) (0 ~ 2, with p9-47 bits)
		Kilobit	Speed feedback error (err52) (0 ~ 2, with p9-47 bits)

		Myriabit	Program execution logic errors (err99) (0 ~ 2, with p9-47 bits)

For free parking: inverter prompt err * * and directly downtime.

To press down way down: inverter prompt a * * and press down way down, prompt errxx after downtime

To continue to run: frequency converter to continue running and presented a * *, running frequency see p9-54, p9-55.

P9-54	Failure to continue running frequency selection		The factory value	0
	Setting range	0	Run to the current operating frequency	
		1	Run at a set frequency	
		2	Above the limit frequency operation	
		3	In the lower frequency operation	
		4	To abnormal secondary frequency operation	
P9-55	Abnormal standby frequency		The factory value	100.0% (the current target frequency)
	Setting range		60.0%～100.0%	

Frequency converter running the process of failure and the failure handling to continue running, inverter prompts a * * and to determine the function of a set frequency operation.

P9-56	Motor temperature sensor type		The factory value	0
	Setting range	0	There is no temperature sensor	
		1	Pt100	
		2	Pt1000	
P9-57	Motor overheating protection threshold		The factory value	110℃
	Setting range		0℃～200℃	
P9-58	Motor overheating forecasting warning threshold		The factory value	90℃
	Setting range		0℃～200℃	

If the system uses the motor temperature sensor, it is necessary to extend card equipped with multi-function input and output. The expansion card analog input ai3 is also make motor temperature sensor input (see extended dial the code switch settings on the card), sensor ai3, pgnd is used. Motor temperature measured using u0-34 view (see u0 group).

when the motor temperature exceeds p9-58 (motor overheating forecasting warning threshold), the inverter output signal motor temperature prediction p effectively.

when the motor temperature exceeds p9-57 (motor overheating protection threshold), frequency converter fault and according to the prompt fault protection action way.

P9-59	Instantaneous stop function selection	The factory value	0
	Setting range		0～2
P9-60	Voltage instantaneous stop motion to suspend judgment	The factory value	85%
	Setting range		80%～100%
P9-61	The instantaneous stop constant voltage picks up judgment time	The factory value	0.50s
	Setting range		0.00s～100.00s
P9-62	Instantaneous stop action determine the voltage	The factory value	80.0%
	Setting range		(standard busbar voltage of 60.0% ~ 100.0%)

The instantaneous power failure function refers to the inverter will not stop. In the case of power failure or voltage suddenly reduce, inverter to reduce the output speed, through load feedback energy, low offset voltage, in order to maintain the transducer in a short period of time to continue running.

If instantaneous stop constantly function selection effectively, then stop when the bus voltage is less than shun kept movements to determine voltage (p9-62) of the voltage, frequency converter according to instantaneous stop action choice to slow down, when the bus voltage rebounded more than instantaneous stop action determine voltage (p9-62), and duration of stay instantaneous stop judging constant voltage recovery time (p9-61), the frequency converter set frequency recovery; otherwise the inverter will continue to reduce the operating frequency, down to 0. if shown in instantaneous stop stop function.

Instantaneous stop action to slow down time is too long, load feedback less energy, cannot be an effective compensation of low voltage; deceleration time is too short, big load feedback energy, cause overvoltage protection. Please according to the load moment of inertia and load weight appropriate adjust the deceleration time.

When the instantaneous stop action selection is automatically slow down, then the current running frequency is greater than or equal to instantaneous stop automatically slow frequency switching point (p9-60) 3 according to deceleration time to slow down, when the opposite to 4 deceleration deceleration time.
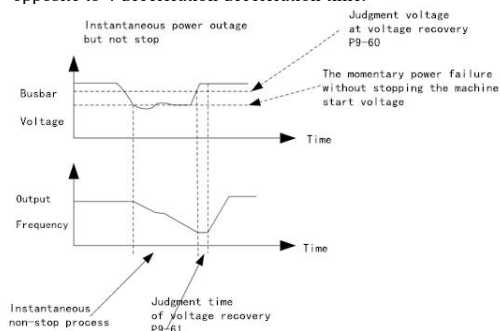
Figure 6-25 Instantaneous Stop Schematic Diagram

P9-63	Off load protection option		The factory value	0
	Setting range	0		INVALID
		1		Valid
P9-64	Load levels		The factory value	10.0%
	Setting range		0.0%～100.0%	
P9-65	Load testing time		The factory value	1.0s
	Setting range		0.0s～60.0s	

If the function effectively, then when the inverter load away, 7% of the rated frequency inverter output frequency; if the carrier recovery, according to a set frequency operation. The level of load and the time can be set.

P9-66	When a failure frequency point		The factory value	000
	Setting range	The unit	The third failure frequency decimal point	
		1	One decimal point	
		2	Two decimal point	
		Decade	The second failure frequency point (1 ~ 2, with bits)	
		Hundreds	The second failure frequency point (1 ~ 2, with bits)	

Because of the frequency point can be set, the function code is used to record down time frequency of the decimal point position (for the failure frequency (p9-17 to 27 \ \ p9 p9-37) display use).

Note: this function code display data for h.x xx, including h. Represented as hexadecimal data.

P9-67	A speed readings	The factory value	20.0%
	Setting range	0.0%～50.0%（maximum frequency）	
P9-68	Speed detection time	The factory value	1.0s
	Setting range	0.0s～60.0s	

When for fvc, motor operation frequency beyond the maximum frequency range is greater than the p9-67 (speed readings) and duration of more than p9-68 (speed detection time), frequency converter fault and according to the prompt fault protection action way.

P9-69	Excessive speed deviation values	The factory value	20.0%
	Setting range	0.0%～50.0%（maximum frequency）	
P9-70	Excessive speed deviation detection time	The factory value	5.0s

	Setting range	0.0s～60.0s

When for fvc, motor operation frequency and frequency converter for a given operating frequency difference is greater than the p9-69 (excessive speed deviation values) and duration exceeds p9-70, excessive speed deviation detection time, frequency converter fault and according to the prompt fault protection action way.

Pa group process pid control function

Pid control is a common method for process control, based on the charged amount of feedback signal and the target signal dispersion of proportion, integral, differential operation, to adjust the output frequency of frequency converter, a negative feedback system, have been accused of stability in the target amount. Suitable for flow control, pressure control, temperature control process control, etc. Control basic principle block diagram is as follows:
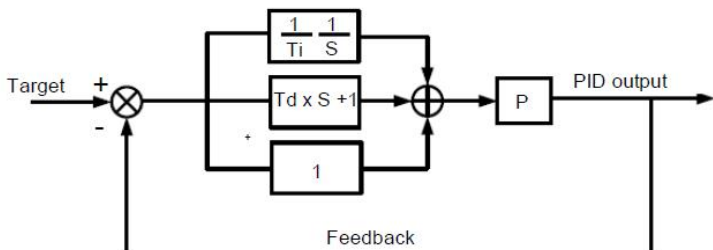
Figure 6-26   Process Pid Principle Block Diagram

		Pid a given source		The factory value	0
PA-00	Set the range	0	Pa-01		
		1	Ai1		
		2	Ai2		
		3	The keyboard is adjustable potentiometer		
		4	Pulse pulse (x6)		
		5	Set the communication		
		6	Multistage speed given		

When the pid frequency source choice, namely p0-03 or p0-04 choice of 8, the group function. (see p0 function code - 03, p0-04). The decision process of pid parameters target volume for a given channel. Process pid amount of goal setting for the relative value, of 100% of the set corresponds to the 100% of the feedback signal; range of pid (pa - 04) is not required, because, no matter how much range is set to system are to be carried out according to the relative value (0 ~ 100%) operation. But if setting the pid range, can be observed visually through the keyboard display parameters pid a given and feedback the actual value of the corresponding signal.

Pa-01	Pid the keyboard for a given	The factory value	50.0%
	Setting range	0.0%～100.0%	

Choosing pa - 00 = 0, namely the target source for keyboard is given. Need to set this parameter. A basic value of these parameters for the system of feedback.

PA-02	Pid feedback source		The factory value	0
	Setting range	0	Ai1	
		1	Ai2	
		2	The keyboard is adjustable potentiometer	
		3	Ai1－ai2	
		4	Pulse pulse（x6）	
		5	Set the communication	
		6	Ai1+ai2	
		7	Max(|ai1|,|ai2|)	
		8	Min (|ai1|,|ai2|)	

Through This Parameter To Select The Pid Feedback Channel。

PA-03	Pid direction		The factory value	0
	Setting range	0	Direct action	
		1	Reaction	

Role is: when the feedback signal is greater than a given pid, for inverter output frequency drops, can make pid equilibrium. Such as winding tension of pid control.

Reaction: when the feedback signal is greater than the pid for timing, for inverter output frequency, to make the pid equilibrium. Such as rolling tension of pid control.

The functions of the results by the terminal function 35: pid direction take effect.

PA-04	Pid feedback given range		The factory value	1000
	Setting range	0～65535	Pid feedback given range is dimensionless unit. Used for pid according to a given and feedback.	
PA-05	Proportional gain p1		The factory value	20.0
	Setting range		0.0～100.0	
PA-06	Integral time i1		The factory value	2.00s
	Setting range		0.01s～10.00s	
PA-07	Derivative time d1		The factory value	0.000s
	Setting range		0.00～10.000	

Proportional gain p: determining the overall adjustment of pid regulator intensity, the greater the p, adjust the intensity. This parameter for 100 said when pid feedback quantity and give quantitative deviation was 100%, pid regulator to adjust the amplitude of output frequency instructions for maximum frequency (ignore the integral action and derivative action).

Integration Time I: Determining Pid Regulator For Pid Feedback And Give Quantitative Deviation integral regulation speed. Integration time is when the pid feedback quantity deviation was 100%, and give quantitative integrated controller (ignore the proportional action and derivative action) after the time continuous adjustment, adjust the quantity to achieve maximum frequency (p0-09). The shorter the integration time adjustment, the greater the intensity.

Differential time d: determining pid regulator for pid feedback and adjusted to quantitative deviation of the rate of change of intensity. If differential time refers to the

amount of feedback to change within the time 100%, adjust the amount of differential controller for maximum frequency (p0-09) (ignoring scale function and the integral action). The longer the differential time adjust the intensity.

Pa-08	The cut-off frequency inversion		The factory value	2.00hz
	Setting range		0. 00～maximum frequency	
Pa-09	Pid change time given		The factory value	0.0%
	Setting range		0. 0%～100.00%	

Deviation limit: when the deviation in the range, the pid feedback pid regulation to stop;

Pa-10	Differential limiting	The factory value	0.1%
	Setting range	0%～100%	

Pa-11	Pid change time given	The factory value	0.00s
	Setting range	0.00s～650.00s	

Time refers to the pid of the pid set practical value by the time needed for change from 0.0% to 100.0%.

When a given pid changes, pid actual values will not be given as the immediate response. And according to the given time linear changes, to prevent the given mutations.

Pa-12	Pid feedback filtering time	The factory value	0.00s
	Setting range	0.00s～60.00s	
Pa-13	The pid output filtering time	The factory value	0.00s
	Setting range	0.00s～60.00s	

To filter the pid feedback and the output value, eliminate the mutation.

Pa-15	Proportional gain (p2)		The factory value	20.0
	Setting range		0.0～100.0	
PA-16	Integration time i2		The factory value	2.00s
	Setting range		0.01s～10.00s	
PA-17	Differential time d2		The factory value	0.000s
	Setting range		0.00～10.000	

Set way and pa - 05, pa, pa - 06-07. need for pid parameters change, see pa to 18.

PA-18	The pid parameter switching conditions		The factory value	0
	Settin g range	0	Don't switch	
		1	X switch	
		2	According to the deviation of automatic switching	
PA-19	Pid parameters deviation 1 switch		The factory value	20.0%
	Setting range		0.0%～pa-20	

PA-20	Pid parameters deviation switch 2	The factory value	80.0%
	Setting range	Pa-19～100.0%	

In some applications, a set of pid parameters may not be able to meet the whole operation process. This time may need to set the pid parameters of the switch.

For x when switching, multi-function terminal function selection for 43: switch terminals and the terminal is valid, the pid parameters selection for a parameter group 2, whereas selection of parameter set 1.

For x when switching, multi-function terminal function selection for 43: switch terminals and the terminal is valid, the pid parameters selection for a parameter group 2, whereas selection of parameter set 1.

To automatically according to the deviation when switching, and feedback given deviation is less than the pid parameters of deviation between 1 (pa - 19) when using, pa, pa pa - 05-06-07 as the pid parameters, and feedback given deviation is greater than the pid switch deviation between 2 (pa - 20) is used when a pa - 15, 16, pa pa - - 17 as the pid parameters. In deviation switch 1 and switch 2 of the deviation between the pid parameters for the two groups switched linear pid parameters, the following figure:
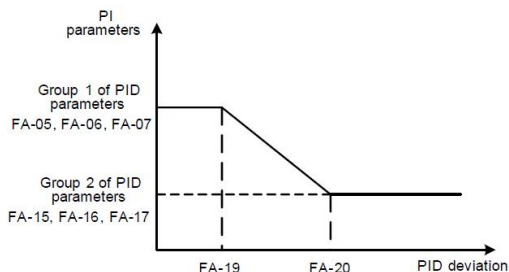
Figure 6-27   Pid Parameter Switch

PA-21	Pid starter	The factory value	0.0%
	Setting range	0.0%～100.0%	
PA-22	Pid initial value holding time	The factory value	0.00s
	Setting range	0.00s～650.00s	

Pid runtime, inverter with pid first initial value (pa - 21) for a given output and operation duration for pa - 22 (pid initial holding time), and then began to normal pid control.
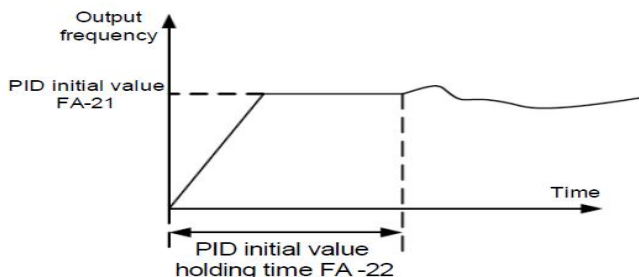
Figure 6-28 Pid Initial Value

PA-23	Two output deviation is maximum	The factory value	1.00%
	Setting range	0.00%～100.00%	
PA-24	Two reverse maximum output deviation	The factory value	1.00%
	Setting range	0.00%～100.00%	

This function code is used to limit the pid output duple (2 ms/take) the difference between, thus inhibiting the pid output change too fast. 23 and pa pa - - 24 respectively corresponding to the output of the forward and reverse maximum deviation.

PA-25	Pid integral attribute		The factory value	00
	Settin g range	The unit	Integral separation	
		0	Invalid	
		1	Valid	
		Decade	Output to the limit, if stop points	
		0	Continue to integral	
		1	Stop the integral	

➢ Integral separation
➢ If effective, 22: terminal function integral suspended, effective pid integral stop operation. Only proportional and differential calculation.

Output to the limit, if stop points

If to stop integral, the pid output value reaches the maximum or minimum value, the pid integral stop counting.

If to integral, the pid integrals at any moment

Pa-26	Pid feedback missing values	The factory value	0.0%

	Setting range	0.0%：don't judge feedback lost 0.1%～100.0%		
Pa-27	Pid feedback detection lost time	The factory value	0.0s	
	setting range	0.0s～20.0s		

this function code is used to determine the pid feedback is missing. when a pid feedback less than missing values (pa - 26), and duration of pa - 27 (feedback lost time) and frequency converter reported fault and the fault handling operation.

	pid stop operation		the factory value	0
pa-28	settin g range	0	don't stop operation	
		1	stop operation	

Pb Group Set Frequency, Fixed-Length And Counting

     Pendulum frequency function is suitable for the textile, chemical fiber and other industries and the need to traverse, winding function.

     Pendulum frequency function refers to the inverter output frequency at a set frequency (frequency instruction chosen by p0-07) as a center for bobbing up and down, the operating frequency in time axis trajectory as shown in the figure below, the oscillation amplitude are set in the pb - 00 and pb - 01, when pb - 01 to 0, the swing is 0, the pendulum frequency doesn't work.
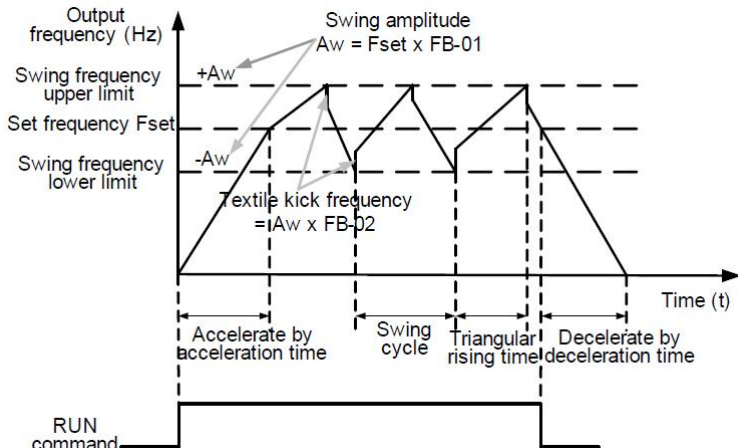
Figure 6-29   Frequency Working Schematic Diagram

PB-00	Swing set		The factory value	0
	Setting range	0	Relative to the center frequency	

		1	Relative to Maximum frequency

Through this parameter to determine the swing of the benchmark.

Sw0: relative center frequency (p0-07) frequency source choice, for the swing system. Swing along with the change of center frequency set (frequency) change.

1: the relative maximum frequency (p0-10 maximum output frequency), for the swing system. Ing is fixed.

PB-01	The pendulum frequency range	The factory value	0.0%
	Setting range	0.0%～100.0%	
PB-02	A sudden jump frequency range	The factory value	0.0%
	Setting range	0.0%～50.0%	

Through this parameter to determine the frequency amplitude and kick. The pendulum frequency operation frequency, lower frequency constraint on.

Swing relative to the center frequency (variable swing, select the pb - 00 = 0) : swing frequency source p0 aw = pb - 01-07 x swing range.

Swing relative to the maximum frequency (swing, choose the pb - 00 = 1) : swing aw = maximum frequencyp0 pb - 01-12 x swing range.

Tu rate = swing aw * kick frequency amplitude pb - 02. the pendulum frequency is run, tu rate relative value of the swing.

If choose swing relative to the center frequency (variable swing, select the pb - 00 = 0), tu value rate is change.

If choose swing relative to the maximum frequency (swing, choose the pb - 00 = 1), the rate is a fixed value.

PB-03	The pendulum frequency cycle	The factory value	10.0s
	Setting range	0.0s～3000.0s	
PB-04	Rise time coefficient triangular wave	The factory value	50.0%
	Setting range	0.0%～100.0%	

Pendulum frequency cycle: a complete frequency cycle time value. Pb - 04 triangle wave rise time coefficient is relatively pb - 03 frequency cycle.

Triangle wave rise time = frequency cycle pb-03×rise time coefficient triangular wave pb-04 （unit：s）

Triangle wave fall time = frequency cycle pb-03×（1 - a wave of triangle rise time coefficient of pb - 04）（unit：s）

PB-05	Set the length of the	The factory value	1000m
	Setting range	0m～65535m	
PB-06	Physical length	The factory value	0m
	Setting range	0m～65535m	
PB-07	Every m pulse number	The factory value	100.0
	Setting range	0.1～6553.5	

Set length and practical length, every m pulse number three function code is mainly used in fixed length control. Length through the switch quantity input terminal input pulse signal, will need to set the corresponding input terminals for counting the length of the input terminals. Generally in the pulse frequency is higher, need to use x6 input.

The actual length = length counting number input pulses per m pulse number

When the actual length of pb - 06 exceeds set length pb - 05, multi-function digital output terminals "length reaches the terminal output on signal" (please refer to the p5-04 function code).

PB-08	set counter		the factory value	1000
	setting range		1~65535	
PB-09	specifies the count		the factory value	1000
	setting range		1~65535	

Count by multi-function switch input terminals and the counter input terminal input pulse signal counting.

When the count value to set meter value, switch output terminals output signal set count value. Counter stop counting.

When the count value reaches the specified count, switch output terminals output signal specified count value. Set the counter to count, to "count" stop.

Specified count pb - 09 should not greater than set count pb - 08.

This feature as shown:
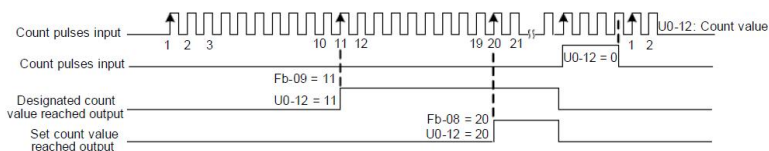
Figure 6-30   Set Count Value Given And Specified Count The Given Diagram

Pc Set Of Multistage Speed Function And Simple Function Of Plc

Simple function of plc is converter built-in a programmable controller (plc) to complete the logic of multistage frequency automatic control. Can set up running time, direction and operation frequency, in order to meet the process requirements. This series of frequency converter can achieve 16 segment speed change control, there are four kinds of deceleration time for choice. When set by plc after completion of a cycle can be made of multi-function digital output terminal y1, y2, or multi-function relay, relay output 2 1 a on signal. Details see the p5 ~ p5-05-02. p0 when frequency source choice - 07, p0-03, p0-04 identified as multistage speed operation mode, you need to set up the pc - 00 - pc - 15 to determine its characteristics.

PC-00	Multistage speed0	The factory value	0.0%
	Setting range	-100.0%～100.0%	
		100.0% corresponding maximum frequency（p0-10）	
PC-01	Multistage speed1	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-02	Multistage speed2	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-03	Multistage speed3	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-04	Multistage speed4	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-05	Multistage speed5	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-06	Multistage speed6	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-07	Multistage speed7	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-08	Multistage speed8	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-09	Multistage speed9	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-10	Multistage speed10	The factory value	0.0hz
	Setting range	-100.0%～100.0%	
PC-11	Multistage speed11	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-12	Multistage speed12	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-13	Multistage speed13	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-14	Multistage speed14	The factory value	0.0%
	Setting range	-100.0%～100.0%	
PC-15	Multistage speed15	The factory value	0.0%
	Setting range	-100.0%～100.0%	

When frequency source parameters p0-07, p0-03, p0-04 identified as plc operation mode, you need to set up the pc - 00 - pc - 15-16, pc, pc - 17-18 ~ pc, pc - 49 to determine its characteristics. Note: pc - 00 - pc - 15 symbol determines the simple plc running direction. If negative, then run the opposite direction.simple plc Diagram：
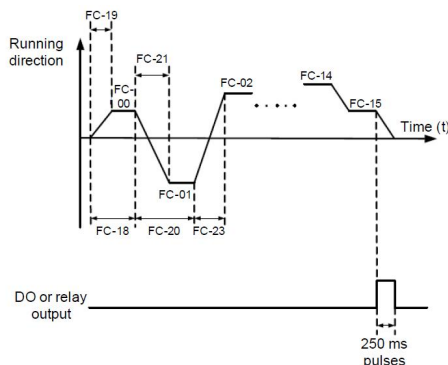
Figure 6-31　Simple Schematic Diagram Of Plc

Pc-16	Plcmode of operation		The factory value	0
	Setting range	0		One end of the run down
		1		Single run end of final value
		2		Have been circulating
Pc-17	Plc memory choice when power supply drop		The factory value	00
	Setting range	The unit		Power lost memories
		0		Don't memory
		1		Memory
		Decade		Stop memory choice
		0		Downtime is not memory
		1		Down memory

Plcmode Of Operation

0: One End Of The Run Down

　　After completing a single inverter automatic stop, need operation command given to start again.

　　1: a single run end of final value

　　after completing a single frequency converter automatically keep running frequency and direction of the last paragraph.

　　2: have been circulating

　　after completing a loop frequency converter automatically begin the next cycle, until stop command, the system outage. power lost memories

　　plc power refers to the memory before useing plc operation stage, operation frequency.

Stop memory choice

Plc memory is when power supply drop down before recorded when a plc operation stage, operation frequency.

Pc-18	Plc 0 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-19	Plc 0 deceleration time	The factory value	0
	Setting range	0～3	
Pc-20	Plc 1 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-21	Plc 1 deceleration time	The factory value	0
	Setting range	0～3	
Pc-22	Plc 2 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-23	Plc 2 deceleration time	The factory value	0
	Setting range	0～3	
Pc-24	Plc 3 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-25	Plc 3 deceleration time	The factory value	0
	Setting range	0～3	
Pc-26	Plc 4 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-27	Plc 4 deceleration time	The factory value	0
	Setting range	0～3	
Pc-28	Plc 5 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-29	Plc 5 deceleration time	The factory value	0
	Setting range	0～3	
Pc-30	Plc 6 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-31	Plc 6 deceleration time	The factory value	0
	Setting range	0～3	
Pc-32	Plc 7 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-33	Plc 7 deceleration time	The factory value	0
	Setting range	0～3	
Pc-34	Plc 8 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
Pc-35	Plc 8 deceleration time	The factory value	0
	Setting range	0～3	
Pc-36	Plc 9 segment running time	The factory value	0.0s(h)
	Setting range	0.0s(h)～6553.5s(h)	
PC-37	Plc 9 deceleration time	The factory value	0
	Setting range	0～3	
PC-38	Plc 10 period of running time	The factory value	0.0s(h)
	Setting range	0.0 s(h)～6553.5s(h)	
PC-39	Plc 10 deceleration time	The factory value	0
	Setting range	0～3	
PC-40	Plc 11 period of running time	The factory value	0.0s(h)

	Setting range		0.0s(h)～6553.5s(h)	
PC-41	Plc 11 deceleration time		The factory value	0
	Setting range		0～3	
PC-42	Plc 12 period of running time		The factory value	0.0s(h)
	Setting range		0.0s(h)～6553.5s(h)	
PC-43	Plc 12 deceleration time		The factory value	0
	Setting range		0～3	
PC-44	Plc segments running time		The factory value	0.0s(h)
	Setting range		0.0s(h)～6553.5s(h)	
PC-45	Plc 13 deceleration time		The factory value	0
	Setting range		0～3	
PC-46	Plc paragraph 14 running time		The factory value	0.0s(h)
	Setting range		0.0s(h)～6553.5s(h)	
PC-47	Plc 14 deceleration time		The factory value	0
	Setting range		0～3	
PC-48	Plc paragraph 15 running time		The factory value	0.0s(h)
	Setting range		0.0s(h)～6553.5s(h)	
PC-49	Plc 15 deceleration time		The factory value	0
	Setting range		0～3	
PC-50	Plc operation unit of time		The factory value	0
	Setting range	0	S	
		1	H	
Pc-51	Multistage speed 0 given way		The factory value	0
	Setting range	0	Function code pc - 00 a given	
		1	Ai1	
		2	Ai2	
		3	The keyboard is adjustable potentiometer	
		4	Pulse pulse	
		5	Pid	
		6	Preset frequency (p0-08), given the up/down can be modified	

This parameter decision multistage speed 0 target volume for a given channel.

Pd Group Communication Parameters

PD-00	Baud rate		The factory value	6005
		The unit：modbus baud rate		
	Setting range	0	300bps	
		1	600bps	
		2	1200bps	
		3	2400bps	
		4	4800bps	
		5	9600bps	
		6	19200bps	
		7	38400bps	

This parameter is used to set data transfer rate between the pc and inverter. Note that set the baud rate of upper machine and converter must agree, otherwise, the communication can't be. The faster the baud rate, the greater the communication.

PD-01	Data format		The factory value	0
	Setting range	0	No check: data format < 8, n, 2 >	
		1	Accidentally: inspection data format < 8, e, 1 >	
		2	Odd parity: data format < 8, o, 1 >	
		3	No check: data format > < 8 - n - 1	

Pc and data format set by the frequency converter must agree, otherwise, the communication can't be.

PD-02	The machine address	The factory value	1
	Setting range	1~247，0 for the broadcast address	

When the machine address set to 0, namely for the broadcast address, pc broadcasting functions.

The machine address has uniqueness (except the broadcast address), which is to achieve the basis of upper machine and inverter peer-to-peer communications.

Pd-03	Response latency	The factory value	2ms
	Setting range	0~20ms	

Response latency: refers to the frequency converter data to accept the end up to a machine to send data in the middle of the interval of time. If the response time delay is less than the system processing time, the response time delay will be subject to system processing time, processing time, such as response time delay is longer than system after processing the data, the system will delay waiting, until the response delay time to up to a machine to send data.

PD-04	Communication timeout	The factory value	0.0 s
	Setting range	0.0 s（Invalid），0.1~60.0s	

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

When the function code set to valid values, if a communication and the interval time of the next communication beyond the communication timeout, system will be submitted to the communication failure error (err16). Usually, it is set into is invalid. If, in the continuous communication system parameter set the time, you can monitor the communication status.

Pd-05	Data transmission format option	The factory value	30

		The unit：modbus 0：nonstandard modbus agreement 1：standard modbus agreement Decade：profibus-dp 0：ppo1 format 1：ppo2 format 2：ppo3 format 3：ppo5 format		
	Setting range			
PD-06	Read the current resolution		The factory value	0
	Setting range	0	0.01a	
		1	0.1a	

Used to determine the communication while reading the output current, current value of the output units.

820 series inverter to provide the rs485 communication interface, and support the m odbus communication protocol. Users can through the computer or plc central contro l, set the inverter running commands, modify or read function code parameter, to rea d the inverter working condition and fault information, etc.

First, Agreement Content

(1)   The serial communication protocol defines the serial communication transmission of information content and format. Including: host polling (or broadcast) format; host encoding method, the content includes: the function of the required action code, data transmission and error checking, etc. From the machine response is also using the same structure, content including: action confirmation, return the data and error checking, etc. If there was an error in receiving information from a machine, or cannot achieve the requirements of the host, it will organize a fault feedback information in response to the host.

(2)   Application mode

(3)   Frequency converter with rs485 bus access to the "from" single main pc/plc control network.

(4)   Bus structure

(5)   The interface way

(6)   Rs485 interface hardware

(2) transport

Asynchronous serial port, a half-duplex transmission mode. At the same time the host and the only one to send data from the machine and the other can only receive data. Data in the process of serial asynchronous communication, the form of a message, a frame of a frame to send.

(3) topology

From single host machine system. From the machine address setting range is 1 ~ 247, 0 for the broadcast address. In the network from the machine address must be unique.

Agreement that

820 series inverter is a kind of asynchronous serial port communication protocol of master-slave modbus communication protocol, the network has only one device (host) to establish agreement (called "query/command"). Other equipment (machine) can only through the provision of data query/command response of the host, or "query/command" according to the host to make the corresponding action. Host in this refers to the personal computer (pc), industrial control equipment or programmable logic controller (plc), etc., from machine refers to 820 inverter. The host can communicate to a separate from the machine, also can to all under a broadcast information from machine release. For access to the host alone "query/command", from the machine to return to a information (called response), for radio host information, from the machine without feedback response to the host.

Communication data structures

820 series frequency converter of the modbus protocol communication data format is as follows:

Using the rtu mode, the message is sent at least begin with 3.5 characters pause time interval. Under the network baud rate varied characters of the time, this is the most easy to implement (below t1, t2, t3, t4). Transmission equipment is the first domain address. Can use the transmission character of is the hex 0... 9, a... F. Continuously detect network bus network facilities, including pause interval of time. When the first domain (domain) to receive, every equipment decoding to determine whether to own. After the last transmission character, a pause at least 3.5 characters time calibration for the end of the message. A new message can be started after the pause.

The entire message frame must feed as a continuous flow. If the time frame to complete more than 1.5 characters before pause time, receiving equipment will refresh incomplete message and assume that the next byte is a new message the address of the domain. Likewise, if a new message in less than 3.5 characters of time and then a message before, receiving equipment will think it is a continuation of the previous message. This will result in an error, because in the final crc field value can't be right. Rtu frame format：

Frame header start	3.5 characters
SLAVE ADDRESS adr	Address: 1 ~ 247
Cmdcode ccnt	03: read from the machine parameter; 06: write from the machine parameters

Data contentdata（n-1）	Information content: function code parameter address, function code number of parameters, function code parameter values, etc.
Data contentdata（n-2）	
……	
Data contentdata0	
Crc chk high-order	Values: crc value.
Crc chk low order	
End	3.5 characters

Check - crc check: crc (cyclical redundancy check) using rtu frame format, message includes based on the method of crc error detection domain. The crc field tested the content of a message. Crc domain is two bytes, containing 16 bit binary value. After it is calculated by the transmission equipment, added to the message. Receiving device to calculate the crc messages are received, and compared with receives the crc in the domain of value, if the two crc value is not equal, then there is an error in transmission.

Crc is deposited in the 0 xffff first, and then call a process to continuous 8-bit bytes of the message and the values in the current register for processing. Only 8 bit data in each character of crc, start bit and stop bit and parity bits are invalid.

Crc produced in the process, each 8-bit characters and register separately mutually exclusive or (xor), the results to the lowest effective direction, msb to 0. lsb can be extracted, if the lsb is 1, register separately and preset value dissimilarity or, if the lsb is 0, is not. The whole process will repeat 8 times. In the last one (eighth), after the completion of the next eight bytes and and register the current value of different or separately. The values in the final register, is all the bytes in the message after execution of crc value.

Crc is added to the message, low byte to join first, and then the high byte. Crc simple function is as follows:

```
Unsigned int crc_chk_value(unsigned char *data_value,unsigned char length)
{
        unsigned int crc_value=0xffff;
        int i;
        while(length--)
        {
                Crc_value^=*data_value++;
                For(i=0;i<8;i++)
                {
                        If(crc_value&0x0001)
```

```
                    {
                            Crc_value=(crc_value>>1)^0xa001;
                    }
                    Else
                    {
                            Crc_value=crc_value>>1;
                    }
            }
        }
        Return(crc_value);
    }
```

Address definition of communication parameters

This part is the content of the communication, used to control the operation of the inverter, inverter status and related parameters setting. Read and write functional code parameters (some function code which can not be changed, only for the use of factory) :

Function code parameter address label rules:

Function block number and the label for the parameter address said rules:

High byte: 70 ~ 7 f, f0 ~ ff, a0 ~ af, b0 ~ bf, c0 ~ cf,

Low byte: 00 to ff

Such as: p3-12, address represented as p30c;

Note:

Pf group: neither read parameters, nor changing parameters; when some parameters in converter is in operation, do not change; some parameters of the frequency converter in any state, cannot be changed; change function code parameters, but also pay attention to the range of parameters, units, and related instructions.

In addition, frequent block because the eeprom is stored, the service life of the block can reduce the eeprom, so some function code under the mode of communication, do not need to store, just change the value of ram. In order to realize the function, as long as this function code address high f into 0 can be achieved. Corresponding function code shown by the following address:

High byte: 00 ~ 0 f

Low byte: 00 to ff

Such as: function code p3-12 in the block is not stored in the eeprom, the address is 030 c; The address said can only do write ram, do read, read, as invalid address.

Stop/part operation parameters:

Parameter address	Parametric description
1000h	Communication set data (10000 ~ 10000) (decimal)
1001h	Operating frequency
1002h	Busbar voltage
1003h	Output voltage
1004h	Current output
1005H	output power
1006H	output torque
1007H	running velocity
1008H	x input symbol
1009H	the do output symbol
100AH	ai1 voltage
100BH	ai2 voltage
100CH	ai3 voltage
100DH	the data input
100EH	the length of the input
100FH	loading speed
1010H	pid set
1011h	pid retroaction
1012h	plc step
1013h	pulse frequency, pulse input unit 0.01 khz
1014h	feedback speed, unit 0.1 hz
1015h	the remaining run time
1016h	ai1 voltage before correction
1017h	before ai2 correction voltage
1018h	before ai3 correction voltage
1013h	pulse frequency, pulse input unit 0.01 khz
1014h	feedback speed, unit 0.1 hz
1015h	the remaining run time
1016h	ai1 voltage before correction
1017h	before ai2 correction voltage
1018H	AI3 Voltage before calibration
1019H	linear velocity
101AH	on the current time

Parameter address	Parametric description
101BH	the current running time
101ch	pulse frequency, pulse input unit 1 hz
101dh	communication settings
101eh	the actual speed of feedback
101fh	the main frequency x display
1020h	auxiliary frequency display y
1019h	linear velocity
101ah	on the current time
101bh	the current running time
101ch	pulse frequency, pulse input unit 1 hz
101dh	communication settings
101eh	the actual speed of feedback
101fh	the main frequency x display
1020h	auxiliary frequency display y

Note:

Communication value is relative percentage, 10000 corresponds to 100.00% and -10000-100.00%.

The frequency of dimensional data, the percentage is relatively maximum frequency (p0-10) percentage; counter rotating torque dimensional data, the percentage is p2-10 (torque limit digital setting).

Control command input to the inverter (only write

The command word address	Command functions
2000h	0001： running forward
	0002： reverse run
	0003： normal inching turning
	0004： reversal point move
	0005： free downtime
	0006： slowing down
	0007： fault resetting

Read the inverter state: (read-only)

Status word address	Status word function

3000H	0001：Forward running
	0002：reverse run
	0003：halt

Parameters Lock Password Check: (If Return For 8888 H, It Indicates That The Password Check Through)

Password address	The content of the input password
1f00h	*****

Digital output terminal control：（only write）

Command address	Command content
2001h	Bit0：y1output control Bit1：y2output control Bit2：relay1output control Bit3：relay2output control Bit4：fmroutput control Bit5：vy1 Bit6：vy2 Bit7：vdo3 Bit8：vdo4 Bit9：vdo5

Analog output ao1 control：（only write）

Command address	Command content
2002h	0～7fff show0％～100％

Analog output ao2 control：（only write）

Command address	Command content
2003h	0～7fff show 0％～100％

Pulse output control (pulse)：（only write）

Command address	Command content
2004h	0～7fff show 0％～100％

Frequency converter fault description:

Frequency converter fault address	Frequency converter fault information

8000H	0000：trouble-free
	0001：reserve
	0002：accelerate the over current
	0003：slow down over current
	0004：constant speed over current
	0005：accelerate the overvoltage
	0006：deceleration overvoltage
	0007：constant speed over voltage
	0008：buffer overload fault resistance
	0009：under-voltage fault
	000a：the inverter overload
	000b：motor overload
	000c：the input phase
	000d：the output phase
	000e：module is overheating
	000f：external fault
	0010：abnormal communication
	0011：abnormal contactor
	0012：current detection fault
	0013：motor tuning fault
	0014：encoder/pg card failure
	0015：abnormal parameters, speaking, reading and writing
	0016：inverter hardware failure
	0017：motor for short circuit fault
	0018：reserve
	0019：reserve
	001a：run time
	001b: user-defined failure 1
	001c: user-defined fault 2
	001d: power on time
	001e：off load
	001f: the runtime pid feedback is missing
	0028：current limiting overtime failure quickly
	0029：the runtime switch motor fault
	002a: speed deviation is too large

	002b：super speed motor
	002d：motoruebertemperatur
	005a：encoder line number setting error
	005b：don't answer the encoder
	005c：the initial position error
	005e：speed feedback error

Pp group of users password

	USER PASSWORD	THE FACTORY VALUE	0
Pp-00			
	SETTING RANGE	0～65535	

Set to any nonzero number, password protection function.

0000：remove used to set the user password value, and disable the password protection function.

When a user password and comes into force, again into the parameter setting state, if the user password is not correct, can only view the parameters, can't modify the parameters. Please keep in mind that set by the user password. If he accidentally buy forget please contact the manufacturer.

	Parameter initialization		The factory value	0
		0	No-operation	
		1	Restore the factory settings, not including the factory parameters	
PP-01	Setting range	2	Clear record information	
		4	Backup user preferences	
		501	Restore user preferences	

1, restore the factory settings, not including motor parameters

motor parameters not recovery, frequency instruction decimal point (p0.22) recovery, record information recovery.

2, remove record information

clear inverter fault record, clear total run time (p7-09). remove accumulated on the current time (p7-13). removal of total power consumption (p7-14).

4, backup, user preferences

the parameters set the backup of the current user, the current function parameter settings backup down so, to facilitate users to recover after parameter adjustment disorder.

501 backup, restore the user parameters

Restore Backup Before The User Parameters, Namely The Recovery By A Backup Set Pp - 01 To 4 Parameters

PP-02	Function parameter display options		The factory value	11
	Setting range	The unit	U set according to choose	
		0	Blank	
		1	Show	
		Decade	According to group a choice	
		0	Blank	
		1	Show	
Pp-04	Function code read-only control		The factory value	0
	Setting range	0	Function code read-only is invalid	
		1	Function code effectively	

When selecting the function code is 1, all function code cannot be modified, as read-only.

A0 set torque control and limit parameters

A0-00	Speed/torque control mode		The factory value	0
	Setting range	0	Speed control	
		1	Torque control	

Select the inverter control method for speed control and torque control, the functions of the code needs to be combined with terminal 29: torque control is prohibited, 46: speed control/torque control switch with judgment.

When the torque control is prohibited effectively, frequency converter for speed control.

If ban is invalid when the torque control, speed control switch/torque control is invalid, is determined by a0-00 control mode, if the speed control switch/torque control effectively, the value of a0-00.

When for torque control, frequency converter operation frequency by a0-05, a0-06 given, deceleration time by a0-07, a0-08 given.

A0-01	The drive torque limit source		The factory value	0
	Setting range	0	Digital setting（a0-03）	
		1	Ai1	
		2	Ai2	

		3	The keyboard is adjustable potentiometer
		4	Pulse set the pulse
		5	Communications given
		6	Min(ai1,ai2)
		7	Max(ai1,ai2)
		1 ～ 7 Options For The Full Range Of Corresponding A0-03
A0-03	Digital settings for driving torque limit	The factory value	150.0%
	Setting range	-200.0%～200.0%

A0-01 is used to select the torque control mode when the torque limit set source, when through the analog set, 100% of the analog input set corresponding a0-03, 100% of the set corresponds to match the rated torque of the motor frequency converter,

A0-05	torque control forward maximum frequency	The factory value	50.00hz
	Setting range	0.00hz～maximum frequency（p0-10）
A0-06	maximum frequency torque control direction	The factory value	50.00hz
	setting range	0.00hz～maximum frequency（p0-10）

set the torque control mode converter positive or direction of the maximum operation frequency.

a0-07	torque control acceleration time	the factory value	0.00s
	setting range	0.00s～65000s
a0-08	torque control deceleration time	the factory value	0.00s
	setting range	0.00s～65000s

Set the torque control frequency converter under the deceleration time.

A2 Group The Second Motor Parameters

A2-00	Motor type selection		The factory value	0
	Setting range	0	General asynchronous motor	
		1	Variable frequency induction motor	
		2	Permanent magnet synchronous motor	
A2-01	Rated power		The factory value	Models to determine
	Setting range		0.1kw～1000.0kw	
A2-02	Nominal voltage		The factory value	Models to determine
	Setting range		0v～2000v	
A2-03	Rated current		The factory value	Models to determine
	Setting range		0.01a～655.35a(the inverter power<=55kw)	
			0.1a～6553.5a(the inverter power>55kw)	
A2-04	Rated frequency		The factory value	Models to determine
	Setting range		0.00hz～maximum frequency	
A2-05	Rated speed		The factory value	Models to determine
	Setting range		0rpm～65535rpm	
A2-06	Induction motor stator resistance		The factory value	Models to determine
	Setting range		0.001Ω～65.535Ω(the inverter power<=55kw)	
			0.0001Ω～6.5535Ω(the inverter power>55kw)	
A2-07	Induction motor rotor resistance		The factory value	Models to determine
	Setting range		0.001Ω～65.535Ω(the inverter power<=55kw)	
			0.0001Ω～6.5535Ω(the inverter power>55kw)	
A2-08	Leakage inductance of the asynchronous motor		The factory value	Models to determine
	Setting range		0.01mh～655.35mh(the inverter power<=55kw)	
			0.001mh～65.535mh(the inverter power>55kw)	
A2-09	Mutual inductance of the asynchronous motor		The factory value	Models to determine
	Setting range		0.1mh～6553.5mh(the inverter power <=55kw)	
			0.01mh～655.35mh(the inverter power>55kw)	
A2-10	No-load current of asynchronous motor		The factory value	Models to determine

	Setting range		0.01a~p1-03(VFD CAPACITY<=55kw)	
			0.1a~p1-03(the inverter power>55kw)	
A2-27	The encoder pulse number		The factory value	1024
	Setting range		1~65535	
	The encoder type		The factory value	0
A2-28	Setting range	0	Abz incremental encoder	
		1	Uvw incremental encoder	
		2	Magslip	
		3	Is cosine encoder	
		4	Province line way uvw encoder	
A2-30	The encoder phase sequence/principal direction		The factory value	0
	Setting range	0	Forward direction	
		1	Inversion	
A2-31	The encoder is installed angle		The factory value	0.0°
	Setting range		0.0°~359.9°	
A2-32	Uvwsense		The factory value	0
	Setting range	0	Forward direction	
		1	Inversion	
A2-33	Uvw zero signal angle position		The factory value	0.0°
	Setting range		0.0°~359.9°	
A2-34	Spiral pole changing logarithmic		The factory value	1
	setting range		1~65535	
A2-36	Speed feedback pg bolt testing time		The factory value	0.0s
	Setting range		0.0：failure to actuate 0.1s~10.0s	
A2-37	Choice of tune		The factory value	0
	Setting range	0	No-operation	
		1	The asynchronous machine static tuning	
		2	The asynchronous machine complete tuning	
		11	Synchronous machine no-load encoder zero position angle tuning	

		12	Synchronous machine with encoder zero position angle tuning

Set the motor 2 parameter information, details see p1 group of the first motor parameters

A2-38	Speed loop gain 1 proportion	The factory value	30
	Setting range	1～100	

A2-39	1 speed loop integral time	The factory value	0.50s
	Setting range	0.01s～10.00s	

A2-40	Switching frequency of 1	The factory value	5.00Hz
	Setting range	0.00～p2-05	

A2-41	Speed loop gain 2 proportion	The factory value	20
	Setting range	0～100	

A2-42	2 speed loop integral time	The factory value	1.00s
	Setting range	0.01s～10.00s	

A2-43	Switching frequency 2	The factory value	10.00hz
	Setting range	P2-02～maximum output frequency	

A2-44	Slip compensation coefficient	The factory value	100%
	Setting range	50%～200%	

A2-45	Speed loop filtering time constant	The factory value	0.000s
	Setting range	0.000s～0.100s	

A2-46	Over-excitation gain vector control	The factory value	64
	Setting range	0～200	

A2-47	The maximum torque speed control (driving) source	The factory value	0
	Setting range	0	Function code a2-48 setting
		1	Ai1
		2	Ai2
		3	The keyboard is adjustable potentiometer
		4	Pulsesetting
		5	Set the communication

A2-48	Speed control (drive) torque limit digital setting	The factory value	150.0%
	Setting range	0.0%～200.0%	

A2-51	M shaft current loop proportional gain	The factory value	2000

	Setting range		0～20000	
A2-52	M shaft current loop integral gain		The factory value	1300
	Setting range		0～20000	
A2-53	T axis current loop proportional gain		The factory value	2000
	Setting range		0～20000	
A2-54	T axis current loop integral gain		The factory value	1300
	Setting range		0～20000	
A2-55	Speed loop differential time		The factory value	0
	Setting range		0～65535	
A2-56	Weak magnetic synchronous machine model		The factory value	1
	Setting range		0	don't weak magnetic
			1	direct calculation
			2	automatic adjustment
A2-57	synchro weak magnetic coefficient		the factory value	100%
	setting range		100%～1000%	
A2-58	the biggest weak magnetic current		the factory value	50%
	setting range		1%～300%	
A2-59	weak magnetic coefficient of automatic tuning		the factory value	100%
	setting range		10%～500%	
A2-60	weak magnetic integral multiples		the factory value	2
	setting range		2～10	

Set motor vector control parameters, 2 in detail with the p2 1 set of motor vector control parameter information.

A2-61	2 motor control mode		The factory value	0
	Setting range	0	Speed sensorless vector control (svc)	
		1	A speed sensor vector control (fvc)	
		2	V/fcontrol	

2 Set Motor Control Mode, Detail See Motor 1 Control Mode (P0-01)

A2-62	2 motor control mode		The factory value	0
	Setting range	0	The same as the first motor	
		1	Deceleration time 1	
		2	Deceleration time 2	

| | | 3 | Deceleration time 3 |
| | | 4 | Deceleration time 4 |

Choose the motor and deceleration time of 2. with motor 1 to 0, the same can choose different deceleration time by terminal, 1, 2, 3, 4 directly to specify a set of deceleration time.

A2-63	2 motor torque	The factory value	Models to determine
	Setting range	0.0%：automatic torque0.1%～30.0%	

2 set motor torque increase, detail see motor torque 1 improvement (p3-01)

a2-65	2 motor oscillation suppression gain	the factory value	models to determine
	setting range	0～100	

A5 group control parameters optimization

A5-00	Dpwm limit switch frequency	The factory value	8.00hz
	Setting range	0.00hz～15hz	

Applies only to vf control. Vf runtime hair wave for asynchronous machine, lower than the value of 7 sections of continuous modulation way, on the contrary is five period of intermittent modulation mode.

7 stages when the continuous modulation inverter switching loss is bigger, but the current ripple is small; 5 less period of intermittent debug mode switch loss, large current ripple; but in high frequency may lead to the instability of the motor running, generally do not need to be modified.

About the vf please refer to the function code running instability p3-11, about the loss of the inverter and temperature rise please refer to the function code p0-15;

A5-01	Pwmmodulation system		The factory value	0
	Setting range	0	ASYNCHRONOUS MODULATION	
		1	Synchronizing modulation	

Applies only to vf control. Synchronization modulation, refers to the carrier frequency and linear change, the transformation of the output frequency to ensure both the ratio of the (carrier), generally used in the output frequency is higher, is advantageous to the quality of the output voltage. At low output frequency (100 hz), generally do not need to be synchronized modulation, since the carrier frequency and the ratio of output frequency higher than, asynchronous modulation advantages more apparent.

Running frequency above 85 hz, synchronization modulation effect, the frequency of the following fixed for asynchronous modulation mode.

A5-02	Dead zone compensation mode selection		The factory value	1
	Setting range	0	No compensation	
		1	Compensation mode 1	
		2	Compensation mode 2	

Generally do not need to modify the parameters, only in the quality of the output voltage waveform have special requirements, or abnormal oscillation, such as motor, need to try to switch to select different compensation mode.

High-power recommended compensation mode 2.

A5-03	Randompwmdepth		The factory value	0
	Setting range	0	RandompwmINVALIDINVALID	
		1~10	Pwm carrier frequency random depth	

Set up random pwm, can become monotonous voice harsh motor is relatively soft, and can be beneficial to reduce the external electromagnetic interference. When set up random pwm depth of 0, random pwm is invalid. Adjust the random pwm different depth will get different results.

A5-04	Rapid current limiting can make		The factory value	1
	Setting range	0	Can not make	
		1	Enabled	

Enable rapid current limiting function, can maximum limit reduce inverter appear over current fault, ensure the inverter uninterrupted operation. If the frequency converter in rapid current limiting condition as long duration, frequency converter could overheat and damage, the situation is not allowed, so the frequency converter for a long time will alarm when fast current limiting fault err40, said inverter overload and downtime.

A5-05	Current compensation	The factory value	5
	Setting range	0~100	

Used to set the inverter current compensation, setting may lead to excessive control performance degradation, generally do not need to make changes.

A5-06	Under-voltage point set	The factory value	100.0%
	setting range	60.0%~140.0%	

Is used to set the inverter err09 under-voltage fault voltage, frequency converter of different voltage grade 100.0%, corresponding to different voltage points, respectively:
Single-phase 220 v or 220 v three-phase: 200 v three-phase 380 v, 350 v

A5-07	Svc optimization mode selection		The factory value	1
	Setting range	0	Don't optimize	
		1	To optimize the model 1	
		2	Optimization mode 2	

Optimization Pattern 1: Have Higher Torque Control Linearity Requirements
Optimization Model 2: High Speed Stability Requirement

A5-08	Dead band time adjustment	The factory value	150%
	Setting range	100%～200%	
A5-09	Overpressure point set	The factory value	Models to
	Setting range	200v～2200v	

A6 Group Ai Curve Setting

A6-00	4 minimum input curve	The factory value	0.00v
	Setting range	-10.00v～a8-02	
A6-01	4 minimum input curves correspond to set	The factory value	0.0%
	Setting range	-100.0%～100.0%	
A6-02	4 point 1 input curve	The factory value	3.00v
	Setting range	A8-00～a8-04	
A6-03	4 point 1 input curves correspond to set	The factory value	30.0%
	Setting range	-100.0%～100.0%	
A6-04	2 input curve 4 a turning point	The factory value	6.00v
	Setting range	A8-02～a8-06	
A6-05	4 point 2 input curves correspond to set	The factory value	60.0%
	Setting range	-100.0%～100.0%	
A6-06	Curve of four largest input	The factory value	10.00v
	Setting range	A8-06～10.00v	
A6-07	4 largest input curves correspond to set	The factory value	100.0%

	Setting range	-100.0%～100.0%	
A6-08	4 minimum input curve	The factory value	-10.00v
	Setting range	-10.00v～a8-10	
A6-09	5 minimum input curves correspond to set	The factory value	-100.0%
	Setting range	-100.0%～100.0%	
A6-10	5 point 1 input curve	The factory value	-3.00v
	Setting range	A8-08～a8-12	
A6-11	5 point 1 input curves correspond to set	The factory value	-30.0%
	Setting range	-100.0%～100.0%	
A6-12	2 input curve 5 a turning point	The factory value	3.00v
	Setting range	A8-10～a8-14	
A6-13	5 point 2 input curves correspond to set	The factory value	30.0%
	Setting range	-100.0%～100.0%	
A6-14	Curve 5 maximum input	The factory value	10.00v
	Setting range	A8-14～10.00v	
A6-15	5 maximum input curves correspond to set	The factory value	100.0%
	Setting range	-100.0%～100.0%	

Curve of 4, 5, 1, 2, 3, a similar function and curve, just add a inflection point input, in order to realize more flexible. Here is:
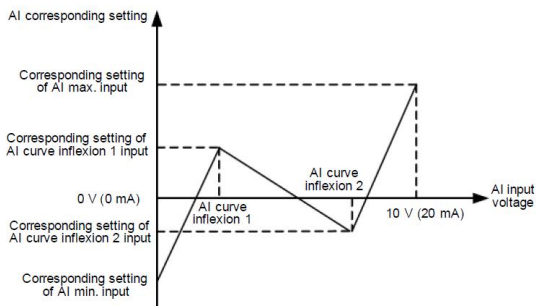
A6-24	ai1 set hops	The Factory Value	0.0%
	Setting range	-100.0%～100.0%	
A6-25	Ai1 setting jump range	The factory value	0.5%
	Setting range	0.0%～100.0%	
A6-26	Ai2 set hops	The factory value	0.0%
	Setting range	-100.0%～100.0%	
A6-27	Ai2 setting jump range	The factory value	0.5%
	Setting range	0.0%～100.0%	
A6-28	Ai3 set hops	The factory value	0.0%
	Setting range	-100.0%～100.0%	
A6-29	Ai3 setting jump range	The factory value	0.5%
	Setting range	0.0%～100.0%	

Set the ai value jumping function. If jump point - "actual value" amplitude jump point + amplitude, the given value set for ai ai jump points. A8 group point to point communication

A8-00	Point to point communication effective	The factory value	0
	Setting range	0：INVALID 1：valid	
A8-01	Master-slave choice	The factory value	0
	Setting range	0：main engine 1：slave	
A8-02	Master-slave information interaction	The factory value	011
	setting range	Bits: 0：don't talk to the host command 1：follow the host command Ten: 0：don't send the failure information 1：sends the fault information One hundred: 0：away from the machine station don't call the police 1：from the machine off alarm	

When lord from the control from the machine and p0-02 = 2 (communication control), if the value bits set to 1, the run command from the machine with the host together travel/stop; From standing ten is set to 1, from the machine failure, send the host fault information;

One hundred is set to 1, the main alarm when away from a stop.

A8-03	Message frame selection	The factory value	0
	Setting range	Zero: the master-slave control frame 1: the droop control frame	

Master-slave control mode, the function of master-slave machine code is set to 0, carried out in accordance with the master-slave control message between master-slave communication. Droop control mode, the function of master-slave Machine Code Is Set To 0, Carried Out In Accordance With The Master-Slave Control Message Between Master-Slave Communication.

A8-04	Receive data zero bias (torque)	The factory	0.0%
	Setting range	-100.0%～100.0%	
A8-05	Receive data gain (torque)	The factory	1.00
	Setting range	-10.00～10.00	

The above two feature parameters is mainly to receive the torque data amended, used for user-defined host and relations between the torque command from the machine.

If zero bias in b, gain in k, the received data from the machine with x said, with the use of actual data y said,

Is the data used in the actual $y = kx + b$;

The range is 100.0% ~ 100.0%

A8-06	Point to point communication interrupt	The factory	1.0s
	Setting range	0.0s～10.0s	

The host or set point to point communication from machine communication interrupt testing time, set to 0 means no detection

A8-07	Point to point communication host data	The factory	0.001s
	Setting range	0.001s～10.000s	

The set point to point communication when the host sends data cycle.

Ac Group Aiao Correction

AC-00	Ai1 measured voltage 1	The factory value	The factory calibration
	Setting range	0.500v~4.000v	
AC-01	Ai1 sampling voltage 1	The factory value	The factory calibration
	Setting range	0.500v~4.000v	
AC-02	Ai1 measured voltage 2	The factory value	The factory calibration
	Setting range	6.000v~9.999v	
AC-03	Ai1 sampling voltage 2	The factory value	The factory calibration
	Setting range	6.000v~9.999v	
AC-04	1 ai2 measured voltage	The factory value	The factory calibration
	Setting range	0.500v~4.000v	
AC-05	1 ai2 sampling voltage	The factory value	The factory calibration
	Setting range	0.500v~4.000v	
AC-06	2 ai2 measured voltage	The factory value	The factory calibration
	Setting range	6.000v~9.999v	
AC-07	2 ai2 sampling voltage	The factory value	The factory calibration
	Setting range	-9.999v~10.000v	
AC-08	1 keyboard potentiometer measured voltage	The factory value	The factory calibration
	Setting range	-9.999v~10.000v	
AC-09	1 keyboard potentiometer sampling voltage	The factory value	The factory calibration
	Setting range	-9.999v~10.000v	
AC-10	2 keyboard potentiometer measured voltage	The factory value	The factory calibration
	Setting range	-9.999v~10.000v	
AC-11	2 keyboard potentiometer sampling voltage	The factory value	The factory calibration
	Setting range	-9.999v~10.000v	
AC-12	1 a01 ideal voltage	The factory value	The factory calibration
	Setting range	0.500v~4.000v	
AC-13	1 a01 measured voltage	The factory value	The factory calibration
	Setting range	0.500v~4.000v	
AC-14	A01 measured voltage 2	The factory value	The factory calibration
	Setting range	6.000v~9.999v	
AC-15	A01 measured voltage 2	The factory value	The factory calibration

	Setting range	6.000v∼9.999v	
AC-16	1 how a02 ideal voltage	The factory value	The factory calibration
	Setting range	0.500v∼4.000v	
AC-17	1 how a02 measured voltage	The factory value	The factory calibration
	Setting range	0.500v∼4.000v	
AC-18	2 how a02 ideal voltage	The factory value	The factory calibration
	Setting range	6.000v∼9.999v	
AC-19	2 how a02 measured voltage	The factory value	The factory calibration
	Setting range	6.000v∼9.999v	

The group function code used for analog input and output ai \ ao. According to the actual situation, set up. Factory has been calibrated to the group function parameters, restore the factory will revert to the factory after correction values.

Analog input ai correction:

Refers to the measured voltage through the actual voltage measured precision measuring instrument, the sampling voltage refers to the inverter itself sampling the voltage value displayed, see ai before correction voltage u0 group (u0-21, u0-22, u0-23).

Analog output ao correction:

Ideal voltage is refers to the theory of inverter output voltage value. Only through the measured voltage precision instruments measured the actual output voltage value.

U0 Group Monitoring

Function Code	Name	Unit
U0-00	Running frequency (hz)	0.01Hz
U0-01	Set frequency (hz)	0.01Hz
U0-02	Bus voltage (v)	0.1V
U0-03	Output voltage (v)	1V
U0-04	Output current (a)	0.01A
U0-05	The output power (kw)	0.1kW
U0-06	The output torque (%)	0.1%
U0-07	X input state	1
U0-08	The do output state	1
U0-09	Ai1 voltage (v)	0.01V
U0-10	Ai2 voltage (v)	0.01V
U0-11	Ai3 voltage (v)	0.01V
U0-12	Count value	1
U0-13	Length	1
U0-14	Load speed display	1
U0-15	Pidsetting	1
U0-16	Pidfeedback	1
U0-17	Plcphase	1
U0-18	Pulseinput pulse frequency (hz)	0.01kHz
U0-19	Feedback speed (0.1 hz)	0.1Hz
U0-20	The remaining run time	0.1Min
U0-21	Before ai1 correction voltage	0.001V
U0-22	Before ai2 correction voltage	0.001V
U0-23	Before ai3 correction voltage	0.001V
U0-24	Line speed	1m/Min
U0-25	On the current time	1Min
U0-26	The current running time	0.1Min
U0-27	Pulsethe input pulse frequency	1Hz
U0-28	Communication settings	0.01%
U0-29	The encoder feedback speed	0.01Hz
U0-30	The main frequency x display	0.01Hz

U0-31	Auxiliary frequency display y	0.01Hz
U0-32	View any memory address values	1
U0-33	Synchro rotor position	0.0°
U0-34	The motor temperature	
U0-35	The target torque (%)	0.1%
U0-36	Spin change position	1
U0-37	Power factor angle	0.1°
U0-38	Abz place	
U0-39	Vf separation target voltage	1V
U0-40	The separation of vf output voltage	1V
U0-41	X input state visual display	
U0-42	Do visual display input state	
U0-43	Visual display function state 1 x	
U0-44	Visual display function state 2 x	
U0-45	Fault message	
U0-46	reserve	
U0-47	reserve	
U0-48	reserve	
U0-49	reserve	
U0-50	0.5msa hold-up time	0.1ms
U0-51	0.5msb hold-up time	0.1ms
U0-52	0.5msc hold-up time	0.1ms
U0-53	0.5msd hold-up time	0.1ms
U0-54	0.5msa execution time	0.1ms
U0-55	0.5msb execution time	0.1ms
U0-56	0.5msc execution time	0.1ms
U0-57	0.5msd execution time	0.1ms
U0-58	Z signal counter	1
U0-59	Set frequency (%)	0.01%
U0-60	Operating frequency (%)	0.01%
U0-61	State of the inverter	1
U0-62	The current fault code	1
U0-63	Point to point communication send the value	0.01%
U0-64	From the stand number	1

U0-65	The torque limit	0.01%
U0-66	Communication expansion card type	100：canopen 200：profibus-dp 300：canlink
U0-67	Communication expansion card version number	Indication range
U0-68	Dp card inverter state	Bit0- operating state bit1-moving direction Bit2- if the frequency converter failure Bit3- the target frequency to reach Bit4-bit7- reserve Bit8 bit15 - failure code
U0-69	The speed of transmitting dp card / 0.01 hz	0.00 - the biggest frequency

This function code user displays the inverter running status information, among which U0-00 ~ U0-31 is the running and stop monitoring parameters defined in P7-03, P7-04.

7

EMC (ELECTROMAGNETIC COMPATIBILITY) GUIDANCE

Chapter 7 Emc (Electromagnetic Compatibility) Guidance

7.1 Definition

Electromagnetic compatibility is refers to the electrical equipment in the electromagnetic interference environment, no electromagnetic environment interference ability and can realize its function stability.

7.2 Emc The Standard Is Introduced

According to the requirements of national standard gb/t12668.3 inverter need to conform to the two aspects of electromagnetic interference and electromagnetic interference.

820 series inverter in the executive standard is: in the design of iec/en61800-3:20 and 04 (adjustable speed electrical power drive systems, part 3: emc requirements and specific test methods), equivalent to the national standard gb/t12668.3.

Iec/en61800-3 mainly from two aspects of electromagnetic interference and electromagnetic interference of frequency converter, electromagnetic interference is mainly for the inverter radiation interference, the conducted interference and harmonic interference test (corresponding to the frequency converter has the demand for civil). Main converter on the conduction resistance to electromagnetic interference immunity, radiation immunity and surge immunity, mutation bursts immunity、esd immunity and low frequency power supply noise immunity (specific test items are: 1、the input voltage sag, interrupts, and a change of disturbance resistance test; 2、the perturbation resistance commutation gap test; 3、harmonic input vulnerability to jamming test；4、input frequency change test; 5、the unbalanced input voltage test；6、the input voltage fluctuation test) test。In accordance with the iec/en61800-3 strict test, the guidance of our products in accordance with 7.3 to install and use，in the general industrial environment will have a good electromagnetic compatibility.

7.3 Emc Guidance
7.3.1 The Influence Of Harmonic:

The power of higher harmonic can cause damage to frequency converter. So in some grid quality is poorer, suggest reactor with ac input.

7.3.2 Electromagnetic Interference And Installation Considerations:

There are two kinds of electromagnetic interference, one kind is the environment of electromagnetic noise interference with frequency converter, another type of interference on the surrounding equipment produced by frequency converter.

Installation note:

   The inverter and other electrical products earthing wire should be well grounded；

   Inverter power input and output of the power cord and weak current signal lines (such as: control circuit) try not to parallel arrangement, vertical arrangement when conditional;

   Inverter output power line it is recommended to use shielded cable, or the use of steel tube shielded power line, and shielding layer should be reliable grounding, wire for interference device it is recommended to use twisted-pair shielding line, and will be screened and reliable grounding;

   For the motor cable length of more than 100 m, which requires reactor with output filter or.

7.3.3 The Surrounding Electromagnetic Device Of Frequency Converter To Produce Interference Processing Methods:

   Generally the cause of the electromagnetic influence on the inverter is installed near the inverter have a large number of relay, contactor, or electromagnetic brake. When the inverter so disturbed and misoperation, recommended the following solution:

   The disturbance of devices on the surge suppressor;

   Inverter input add filter, specific reference to 7.3.6, operate;

Inverter control signal and the detection circuit with lead shielding cable shielding layer and reliable grounding.

Sections 7.3.4 inverter of peripheral devices interfere the solution:

   This part of the noise can be divided into two kinds: one kind is radiated interference frequency converter, converter and the other is the conducted interference. Both interfere with the surrounding electrical equipment by electromagnetic or electrostatic induction. Then make the device produces the misoperation. Aimed at several different interference, refer to the following solution:

   Used for measuring instrument, a receiver and sensors, such as general signal is

weak, if and when inverter in relatively close distance or in the same control cabinet, susceptible to interference and misoperation, recommended the following solution: away from disturbance sources as far as possible; don't will signal lines and power lines parallel arrangement of special don't equal banding together; signal lines and power lines with a shielded cable, and good grounding; on the output side of the converter plus ferrite beads (select inhibition in 30 ~ 1000 mhz frequency range), and 2 ~ 3 turns around, and for the bad, can choose emc output filter;

    Interference equipment and frequency converter using the same power, cause the conducted interference, if the above method can't eliminate interference, it should be between the inverter and the power supply with emc filter (specific reference to selection of 7.3.6);

Peripheral ground alone, can rule out common ground with the frequency converter of leakage current on the grounding line interference.

7.3.5 Leakage Current And Processing:

Leakage current when using frequency converter has two forms: one is a leakage current to ground; another is the line between line and leakage current.

Influence factors of floor drain current and solution:

Distributed capacitance between conductor and earth, the distributed capacitance, the greater the leakage current is larger; effectively reduce the distance between the inverter and motor to reduce the distributed capacitance. The greater the carrier frequency, the greater the leakage current. Can reduce the carrier frequency to reduce leakage current. But reduce the carrier frequency can cause motor noise increased, please note that adding reactor is also an effective way to solve the leakage current.

leakage flow increases with the loop current, so the motor power, the corresponding leakage current.

causes of leakage current between line and line and solution:

Inverter output wiring between the distributed capacitance, if through the lines containing higher harmonic current, may cause resonance and leakage current. At this point, if the use of thermal relay may make its misoperation.

The solution is to reduce the carrier frequency or reactor with output. Advice before the use of frequency converter motor is not equipped with thermal relay, the use of frequency converter electronic over-current protection function.

7.3.6 power input with emc input filter matters needing attention:

    ⚠ note: when using the filter please in strict accordance with the rating of use; belongs to class i appliance due to the filter, filter to metal case should be large and install ark metal contact is good, and require good conductive continuity, otherwise there will be a shock hazard and seriously affect the emc effect;

    Through the emc test found that pe filter to must and converter end to receive the same public ground, otherwise will seriously affect the emc effect。

📖   The power input end of the filter close to the inverter installation。

8

FAULT DIAGNOSIS AND COUNTERMEASURES

chapter 8 of the fault diagnosis and countermeasures

8.1 fault alarm and countermeasures

820 series inverter has many kinds of warning information and the protection function, once the abnormal failure, protection function, frequency converter to stop output, frequency converter fault relay contact action, and the inverter fault code shown on the display panel. user before seeking services, please refer to the following simple method for fault analysis：

The fault name	Inverter unit protection
Operation panel	Err01
The cause of the problem in screening	1、the inverter output circuit short circuit 2、motor and inverter wiring is too long 3、module is overheating 4、internal wiring of frequency converter is loose 5、main control board abnormal 6、abnormal driven plate 7、inverter module exception
Fault handling countermeasures	1、to exclude outside faults 2、adding reactor or output filter 3、check whether air duct blockage, fan is normal work and eliminate the problems 4、all cables 5、seek technical support 6、seek technical support

The fault name	Accelerate the over current
Operation panel	Err02
The cause of the problem in screening	1、the inverter output circuit grounding or short circuit 2、for the vector control way and has no parameter identification 3、accelerating time is too short 4、manual ascension or v/f torque curve is not appropriate 5、the low voltage 6、to start is rotating motor 7、accelerate the process of loading 8、small frequency converter selection

Fault handling countermeasures	1、 to exclude outside faults 2、 for motor parameter identification 3、 increase the acceleration time 4、 adjust the manual ascension or v/f torque curve 5、 set the voltage to the normal range 6、 choice of speed tracking start or stop and start 7、 cancel the loading 8、 choose larger inverter power level

The fault name	Slow down over current
Operation panel	Err03
The cause of the problem in screening	1、 the inverter output circuit grounding or short circuit 2、 for the vector control way and has no parameter identification 3、 deceleration time is too short 4、 voltage lower 5、 reduction in the process of loading 6、 not equipped with brake unit and brake resistance
Fault handling countermeasures	1、 to exclude outside faults 2、 for motor parameter identification 3、 increasing the deceleration time 4、 set the voltage to the normal range 5、 cancel the loading 6、 equipped with brake unit and resistor

The fault name	Constant speed over current
Operation panel	Err04
The cause of the problem in screening	1、 the inverter output circuit grounding or short circuit 2、 for the vector control way and has no parameter identification 3、 the low voltage 4、 if there is a sudden loading operation 5、 small frequency converter selection
Fault handling countermeasures	1、 to exclude outside faults 2、 for motor parameter identification 3、 set the voltage to the normal range 4、 cancel the loading 5、 choose larger inverter power level

The fault name	Accelerate the overvoltage
Operation panel	Err05
The cause of the problem in screening	1、the input voltage is on the high side 2、in the process of accelerating the drag force motor running 3、speed up the time is too short 4、not equipped with brake unit and brake resistance
Fault handling countermeasures	1、set the voltage to the normal range 2、cancel in addition power or add brake resistance 3、increase the acceleration time 4、equipped with brake unit and resistor

The fault name	Deceleration overvoltage
Operation panel	Err06
The cause of the problem in screening	1、the input voltage is on the high side 2、drag force exist in the process of deceleration motor running 3、deceleration time is too short 4、not equipped with brake unit and brake resistance
Fault handling countermeasures	1、set the voltage to the normal range 2、cancel in addition power or add brake resistance 3、increasing the deceleration time 4、equipped with brake unit and resistor

The fault name	Constant speed over voltage
Operation panel	Err07
The cause of the problem in screening	1、the input voltage is on the high side 2、drag force operation process of the motor running
Fault handling countermeasures	1、set the voltage to the normal range 2、cancel in addition power or add brake resistance

The fault name	Control power failure
Operation panel	Err08
The cause of the problem in screening	1、the input voltage is not within the prescribed scope of specification
Fault handling	1、the voltage to the standard range

The fault name	Under-voltage fault
Operation panel	Err09
The cause of the problem in screening	1、 the instantaneous power failure 2、 the voltage of the inverter input is not in the scope of the specification requirements 3、 bus voltage is not normal 4、 rectifier bridge and buffer resistance is not normal 5、 abnormal driven plate
Fault handling countermeasures	1、 reset the fault 2、 adjust the voltage to the normal range 3、 seek technical support 4、 seek technical support 5、 seek technical support 6、 seek technical support

The fault name	The inverter overload
Operation panel	Err10
The cause of the problem in screening	1、 load is too large or motor stalling 2、 small frequency converter selection
Fault handling countermeasures	1、 reduce the load and check the electrical and mechanical conditions 2、 choose larger inverter power level

The fault name	Motor overload
Operation panel	Err11
The cause of the problem in screening	1、 motor protection parameters p9-01 set whether appropriate 2、 load is too large or motor stalling 3、 small frequency converter selection
Fault handling countermeasures	1、 this parameter is set correctly 2、 reduce the load and check the electrical and mechanical conditions 3、 choose larger inverter power level

The fault name	The input phase
Operation panel	Err12
The cause of the problem in screening	1、the three-phase input power supply is abnormal 2、abnormal driven plate 3、lightning protection plate abnormal 4、main control board abnormal
Fault handling countermeasures	1、check and eliminate the problems existing in the peripheral circuit 2、seek technical support 3、seek technical support 4、seek technical support

The fault name	The output phase
Operation panel	Err13
The cause of the problem in screening	1、inverter to motor lead is not normal 2、when the motor running inverter output three-phase imbalance 3、abnormal driven plate 4、abnormal module
Fault handling countermeasures	1、to exclude outside faults 2、check whether the motor three-phase winding is normal and troubleshooting 3、seek technical support 4、seek technical support

The fault name	Module is overheating
Operation panel	Err14
The cause of the problem in screening	1、the environment temperature is too high 2、air duct blockage 3、damage of fan 4、module damage of thermistor 5、inverter module damage
Fault handling countermeasures	1、reduce the environment temperature 2、clean up the air duct 3、replace the fan 4、replace the thermistor 5、replace the inverter module

The fault name	External equipment failure
Operation panel	Err15
The cause of the problem in screening	1、through the multi-function terminal x input external fault signal 2、through the virtual io function input external fault signal
Fault handling countermeasures	1、reset operation 2、reset operation

The fault name	Communication fault
Operation panel	Err16
The cause of the problem in screening	1、upper machine not work properly 2、communication line is not normal 3、communication expansion card p0-28 set is not correct 3、communication parameters of pd group setting is not correct
Fault handling countermeasures	1、check the pc connection 2、check the communication cable 3、properly set communication expansion card type 4、communication parameters are set correctly

The fault name	Contact failure
Operation panel	Err17
The cause of the problem in screening	1、driver board and power supply not normal 2、contactor is not normal
Fault handling countermeasures	1、replace the driver board or power board 2、change the contactor

The fault name	Current detection fault
Operation panel	Err18
The cause of the problem in screening	1、check the hall device 2、abnormal driven plate
Fault handling countermeasures	1、replace the hall device 2、replace the drive plate

The fault name	Motor tuning fault
Operation panel	Err19
The cause of the problem in screening	1、 the motor parameters according to the nameplate not set 2、 the timeout parameter identification process
Fault handling countermeasures	1、 according to the nameplate set motor parameters correctly 2、 check frequency inverter to motor fuses

The fault name	Encoder failure
Operation panel	Err20
The cause of the problem in screening	1、 the encoder model mismatch 2、 the encoder connection errors 3、 the encoder is damaged 4、 pgabnormal card
Fault handling countermeasures	1、 according to the actual set right encoder type 2、 out of line fault 3、 replace the encoder 4、 CHANGEpgBLOCK

The fault name	Eepromread/write failure
Operation panel	Err21
The cause of the	1、 eepromthe Chip Damage
Fault handling	1、 Change Control Board

The fault name	Inverter hardware failure
Operation panel	Err22
The cause of the problem in screening	1、 There Is Overpressure 2、 There Is Flow
Fault handling countermeasures	1、 According To The Over Voltage Fault Processing 2、 According To The Over Current Fault Handling

The fault name	To ground fault
Operation panel	Err23
The cause of the	1、 Motor For Short Circuit
Fault handling	1、 Replace The Cable Or Motor

The fault name	Total run time to failure
Operation panel	Err26
The cause of the	1、Total Run Time Settings
Fault handling	1、Using Parameter Initialization Function To Remove Record Information

The fault name	User-defined failure 1
Operation panel	Err27
The cause of the problem in screening	1、 Through The Multi-Function Terminal Users Customize Failure 1 X Input Signal 2、Through The Virtual Io Function Input User-Defined Signal Failure 1
Fault handling countermeasures	1、 Reset Operation 2、Reset Operation

The fault name	User-defined fault 2
Operation panel	Err28
The cause of the problem in screening	1、 Through The Multi-Function Terminal X Input User Custom Fault Signal Of 2
Fault handling countermeasures	1、 Reset Operation 2、Reset Operation

The fault name	Electric Time To Arrive At A Cumulative Failure
Operation panel	Err29
The cause of the	1、 Accumulated On The Electric Time Reached Set Value
Fault handling	1、Using Parameter Initialization Function To Remove Record Information

The fault name	Off load fault
Operation panel	Err30
The cause of the	1、 The Inverter Running Current Is Less Than The P9-64
Fault handling countermeasures	1、 Confirm Whether The Load From Or P9 P9-64-64 Parameter Settings Is In Line With The Actual shipment working condition of line

The fault name	Runtime pid feedback lost fault
Operation panel	Err31
The cause of the	1、 pidfeedback is less than the pa - 26 set value

Fault handling	1、check the pid feedback signal or set pa - 26 to an appropriate value

The fault name	The fault current limiting wave
Operation panel	Err40
The cause of the problem in screening	1、load is too large or motor stalling 2、small frequency converter selection
Fault handling countermeasures	1、reduce the load and check the electrical and mechanical conditions 2、choose larger inverter power level

The fault name	The runtime switch motor fault
Operation panel	Err41
The cause of the	1、in the process of converter running through the terminal to change the current
Fault handling	1、inverter after downtime for motor switch operation

The fault name	Excessive speed deviation of failure
Operation panel	Err42
The cause of the problem in screening	1、encoder parameter setting is not correct 2、no parameter identification 3、excessive speed deviation detection parametersp9-69、 P9-60 setup is not reasonable
Fault handling countermeasures	1、set the encoder parameters correctly 2、for motor parameter identification 3、setting up reasonable test parameters according to actual situation

The fault name	Motor speed fault
Operation panel	Err43
The cause of the problem in screening	1、encoder parameter setting is not correct 2、no parameter identification 3、motor speed detection parameters p9-69 p9-60 set is not reasonable
Fault handling countermeasures	1、set the encoder parameters correctly 2、for motor parameter identification 3、setting up reasonable test parameters according to actual situation

The fault name	The motor thermal breakdown
Operation panel	Err45
The cause of the problem in screening	1、the temperature sensor wiring is loose 2、the motor temperature is too high
Faulthandling countermeasures	1、test temperature sensor wiring and troubleshooting 2、reduce carrier frequency or other cooling measures are taken to cooling the

The fault name	The initial position error
Operation panel	Err51
The cause of the	1、motor parameters and actual deviation is too big
Faulthandling	1、to confirm the motor parameters are correct, set partial focus on whether the

MAINTENANCE BOND

This product warranty period of 18 months (the body article code information shall prevail), warranty in accordance with the instruction for use under normal use, product failure or damage, our company is responsible for free maintenance。

Warranty period, damage caused by the following reasons, will be charged certain maintenance fee：

A、due to the error in use and repair without authorization to themselves, and lead to damage of the machine；

B、because the fire flood abnormal voltage other natural disasters and secondary disasters caused by damage to the machine；

C、after buying hardware damage due to human falls and transport；

D、not according to our company to provide the user machine failure caused by manual operation；

E、warranty card,product guarantee card,product warranty card；

Product failure or damage occurs, please correctly fill in every content in the product warranty card in detail。

Maintenance cost charge, shall be subject to the latest adjustment maintenance price list shall be in accordance with our company。

This warranty card in the general case will not be re-issued, please be sure to keep this card, and present at the time of warranty maintenance personnel。

In the process of service if you have questions, please contact our agent or our company

USTO MER I NFOR MATI ON	Unit address：	
	Company name：	Linkman：
	Postalcode：	Contact number：
RODU CT IN FORM ATIO N	Product model：	
	The Fuselage Barcode (Paste Here：	
	Fault message：	
fault Messa ge	Maintenance time and content：	
	Serviceman：	