Foreword

First of all, thank you for purchasing the JAC300 series inverter!

The JAC300 series inverter is a high performance vector inverter designed to drive asynchronous motors. It can be used for driving of packaging, food, fans, pumps and various automated production equipment.

This manual introduces the functional characteristics and usage methods of JAC300 series inverters, including product selection, parameter setting, operation debugging, maintenance inspection, etc. Please read this manual carefully before use. Equipment manufacturers please send this manual with the equipment. End users, convenient for subsequent reference.

Precautions
♦ To illustrate the details of the product, the illustrations in this manual are sometimes in the state of removing the cover or safety cover. When using this product, be sure to install the cover or cover as required and follow the instructions in the manual. ♦ The illustrations in this manual are for illustrative purposes only and may differ from the products you ordered. ♦ The company is committed to continuous improvement of products, product features will continue to upgrade, and the information provided is subject to change without notice. ♦If you have any problems in use, please contact our regional agents or directly contact our customer service center. Customer Service Phone: 400-680-9991

Unpacking inspection:

When unpacking, please confirm carefully:

Whether the model name and inverter rating of the machine name are consistent with your order. The box contains the machine you ordered, the product certificate, the user manual and the warranty.

Whether the product is damaged during transportation. If any kind of omission or damage is found, please contact our company or your supplier.

First time use:Users who are using this product for the first time should read this manual carefully. If you have any doubts about some functions and performance, please consult our technical support staff for help,which is beneficial to the correct use of this product.

CONTENTS

Chapter 1 Safety Information and Precautions

Security definition:

In this manual, safety precautions fall into two categories:

⚠Danger: A situation that may result in serious injury or even death due to the danger of not operating as required;

⚠Note: Due to the danger of not operating as required, it may cause moderate or minor injury and equipment damage;

Please read this chapter carefully when installing, commissioning and repairing this system. Be sure to follow the safety precautions required in this chapter. Any injury or loss caused by illegal operation is not related to the company.

1.1 Safety Precautions

Stage of use	Security Level	matter
Before installation	⚠ Danger	◆ Do not install the control system when it is found that water, parts are missing or parts are damaged when unpacking! ◆ If the packing list does not match the actual name, please do not install it!
	⚠ attention	◆ It should be lifted and handled gently during transportation, otherwise there is danger of damage to the equipment! ◆ Do not use the damaged drive or the missing inverter. Risk of injury! ◆ Do not touch the components of the control system with your hands, otherwise there is a danger of electrostatic damage!
During installation	⚠ Danger	◆ Please install on flame retardant objects such as metal; keep away from combustibles. Otherwise it may cause a fire! ◆ Do not loosen the fixing bolts of the equipment components, especially those with red markings!

Stage of use	Security Level	matter
	 attention	◆ Do not drop the wire lead or screw into the inverter. Otherwise it will cause damage to the inverter! ◆ Install the inverter in a place where there is less vibration and direct sunlight. ◆ When two or more inverters are placed in the same cabinet, please pay attention to the installation position to ensure the heat dissipation effect.
Wiring	 Danger	◆ Must be constructed by professional electrical engineers, otherwise there will be unexpected dangers! ◆ There must be a circuit breaker between the inverter and the power supply, otherwise a fire may occur! ◆ Please confirm that the power supply is in zero energy state before wiring, otherwise there is danger of electric shock! ◆ Please correctly ground the inverter according to the standard, otherwise there is danger of electric shock!
	 attention	◆ Never connect the input power to the output terminals (U, V, W) of the inverter. Pay attention to the marking of the terminal block, do not connect the wrong line! Otherwise the drive is damaged! ◆ Never connect the braking resistor directly between the DC bus (+) and (-) terminals. Otherwise it will cause a fire! ◆ Please refer to the manual for the wire diameter used. Otherwise an accident may occur! ◆ The encoder must use shielded wires, and the shield must ensure reliable grounding at one end!
Before powering up	 Danger	◆ Please confirm whether the voltage level of the input power supply is consistent with the rated voltage level of the inverter; whether the wiring positions on the power input terminals (R, S, T) and output terminals (U, V, W) are correct; and pay attention to check and frequency conversion. Whether there is a short circuit in the peripheral circuit connected to the device, and whether the

Stage of use	Security Level	matter
		connected circuit is tight, otherwise the inverter will be damaged! ◆ No part of the inverter is required to withstand voltage test. The product has been tested at the factory. Otherwise it may cause an accident!
	 attention	◆ The inverter must be covered before it can be powered on. Failure to do so may result in electric shock! ◆ All peripheral accessories must be wired in accordance with the instructions in this manual and wired in accordance with the circuit connections provided in this manual. Otherwise it will cause an accident!
After power-on	 Danger	◆ Do not open the cover after powering on. Otherwise there is a danger of electric shock! ◆ Do not touch any input/output terminals of the inverter. Otherwise there is danger of electric shock!
	 attention	◆ If parameter identification is required, please pay attention to the danger of injury during motor rotation. Otherwise it may cause an accident! ◆ Do not change the inverter manufacturer parameters at will. Failure to do so may result in damage to the equipment!
Running	 Danger	◆ Non-professional technicians should not detect signals during operation. Failure to do so may result in personal injury or equipment damage! ◆ Do not touch the cooling fan and discharge resistor to test the temperature. Otherwise it may cause burns!
	 attenti	◆ When the inverter is running, you should avoid something falling into the device. Otherwise it will cause equipment damage! ◆ Do not use the contactor on/off method to control the start and stop

Stage of use	Security Level	matter
	on	of the inverter. Otherwise it will cause equipment damage!
Maintenance time	 Danger	◆ Do not perform maintenance and maintenance on the inverter without professional training. Failure to do so may result in personal injury or equipment damage! ◆ Do not repair or maintain the equipment with electricity. Otherwise there is danger of electric shock! ◆ Make sure that the drive's input power is turned off for 10 minutes before the drive can be serviced and repaired. Otherwise the residual charge on the capacitor will cause harm to people! ◆ Before performing maintenance work on the inverter, make sure that the inverter is safely disconnected from all power sources. ◆ All pluggable plug-ins must be plugged and unplugged in case of power failure! ◆ The parameters must be set and checked after replacing the inverter.
	 attention	◆ The rotating motor feeds the inverter so that the drive is energized even when the motor is stopped and the power is turned off. Before performing maintenance work on the inverter, make sure that the motor is safely disconnected from the inverter.

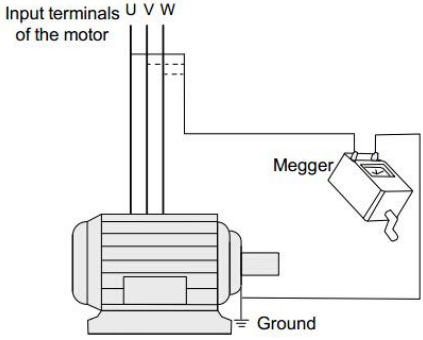
1.2 Precautions

1）Leakage protector RCD requirements

The device will generate large leakage current flowing through the protective grounding conductor during operation. Install a Type B residual current protector (RCD) on the primary side of the power supply. When selecting a leakage protector (RCD), consider the transient and steady-state earth leakage currents that may occur during startup and operation of the equipment, select a dedicated RCD with high harmonic suppression, or a common RCD with large residual current.

2）Motor insulation inspection

After the motor is used for the first time, before being used for a long time, and before the periodic inspection, the motor insulation inspection should be done to prevent damage to the inverter due to insulation failure of the motor winding. When checking the insulation, be sure to separate the motor wiring from the inverter. It is recommended to use 500V.For the stamped megger, the measured insulation resistance shall be not less than 5 MΩ.



3）Thermal protection of the motor

If the selected motor does not match the rated capacity of the inverter, especially when the rated power of the inverter is greater than the rated power of the motor, be sure to adjust the parameter value of the motor protection in the inverter or install a thermal relay in front of the motor to protect the motor.

4）Operating above the power frequency

The inverter provides an output frequency of 0Hz~500Hz. If the customer needs to operate above 50Hz, please consider the bearing capacity of the mechanical device.

5）Mechanical vibration

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

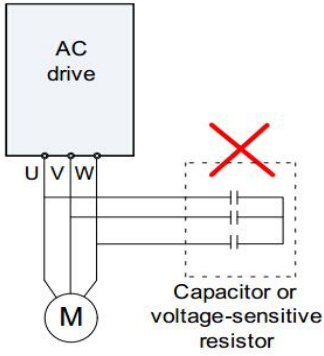
6）About motor heating and noise

Because the output voltage of the inverter is PWM wave and contains certain harmonics, the

temperature rise, noise and vibration of the motor will increase slightly compared with the power frequency operation.

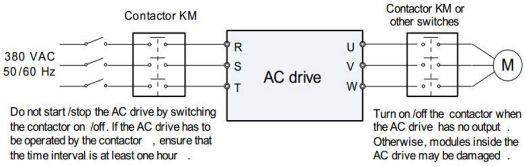
7）The case where the output side has a pressure sensitive device or a capacitor with improved power factor

The output of the inverter is PWM wave. If the output side is equipped with a capacitor with improved power factor or a varistor for lightning protection, it may cause the inverter to over-current or even damage the inverter. Please do not use.



8）Switching devices such as contactors used at the input and output of the inverter

If a contactor is installed between the power supply and the input of the inverter, this contactor is not allowed to control the start and stop of the inverter. It is necessary to use this contactor to control the start and stop of the inverter, and the interval should not be less than one hour. Frequent charging and discharging tends to reduce the service life of the capacitors in the inverter. If a switching device such as a contactor is installed between the output terminal and the motor, ensure that the inverter performs the on/off operation when there is no output, otherwise the module inside the inverter may be damaged.



9）Use outside of rated voltage

It is not suitable to use the inverter outside the allowable working voltage range specified in the manual, which may cause damage to the components inside the inverter. If needed,Please use the corresponding step-up or step-down device to transform the power supply and input it to the inverter.

10）Three-phase input changed to two-phase input

Do not change the three-phase inverter to two-phase. Failure to do so will result in malfunction or damage to the inverter.

11）Lightning shock protection

Although the inverter is equipped with lightning overcurrent protection device, it has certain self-protection ability for the induction lightning. However, for frequent lightning, the customer should also install lightning protection device at the front end of the inverter.

12）Altitude and derating

In areas where the altitude is more than 1000 m, the heat dissipation effect of the inverter is deteriorated due to the thin air, and it is necessary to derate the use. Please contact us for technical consultation in this case.

13）Some special usage

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 with us.

14）Pay attention to the inverter when it is scrapped

The electrolytic capacitor of the main circuit and the electrolytic capacitor on the printed circuit board may explode when incinerated. Toxic gases are generated when plastic parts are incinerated. Please dispose of it as industrial waste.

15）About the adapter motor

● The standard adapter motor is a four-pole squirrel cage induction motor. If it is not the above motor, please select the inverter according to the rated current of the motor.

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

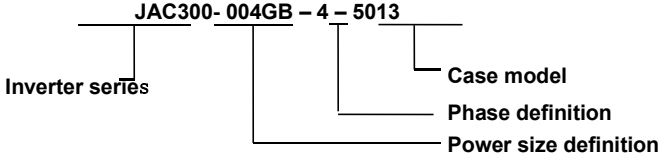
● The inverter has built-in matching motor standard parameters. According to the actual situation, it is necessary to identify the motor parameters or modify the default values to match the actual values as much as possible. Otherwise, the operation effect and protection performance will be affected.

● The inverter will alarm or even blow up the machine due to a short circuit inside the cable or motor. Therefore, first perform the insulation short-circuit test on the initially installed motor and cable, and also perform this test frequently in routine maintenance. Note that it is important to disconnect the drive from the part under test when doing this test.

Chapter 2 Product Information

2.1 Product naming and nameplate identification

2.1.1 Naming rules



1、Inverter series: representing different series

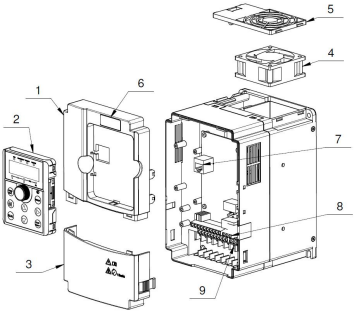
2、Power size definition: The number indicates the power, ranging from 0.4-400KW, G stands for general purpose machine, P stands for fan pump type, B stands for brake unit

3、Phase number definition: three-phase 380V is indicated by 4, single-phase 220V is represented by S2, and three-phase 220V is represented by 2

4、 Shell model definition: according to the model of the model used in this model

2.2 Name of each part of the inverter

The JAC300 series inverter is a plastic structure type, and the appearance is as shown below:



Code	name	explanation
1	Upper cover	Protect internal components
2	keyboard	See "Keyboard Operations"
3	lower lid	Protect internal components
4	cooling fan	Inverter cooling fan
5	Fan cover	Fan grille
6	Nameplate	Product nameplate information
7	Keyboard interface	Connecting keyboard
8	Control terminal	Control circuit terminal block
9	Main circuit terminal	Main circuit terminal block

2.3 Basic technical specifications

Item		Specification
Basic functions	Maximum frequency	Vector control：0～500Hz； V/F control：0～500Hz
	Carrier frequency	0.8kHz～12kHz Automatic adjustment of carrier frequency based on load characteristics
	Input frequency resolution	Digital setting ： 0.01Hz Analog setting ： Maximum frequency×0.025%
	control method	Open loop vector control（SVC） V/F control
	Starting torque	G type machine：0.5Hz/150%（SVC） P type machine： 0.5Hz/100%
	Speed range	1：100 （SVC）
	Constant-speed accuracy	±0.5%（SVC）
	Overload capacity	G type machine：60s for 150% of the rated current P type machine：60s for 120% of the rated current
	Torque boost	Automatic torque boost; Manual torque boost0.1%~30.0%
	V/F curve	Three ways: straight V/F curve; multi-point V/F curve; N-th power type V/F curve (1.2th power, 1.4th power, 1.6th power, 1.8th power, 2th power)
	V/F Separation	2 ways: full separation, semi-separation
	Acceleration / deceleration curve	Straight-line or S-curve acceleration and deceleration Four groups of acceleration/deceleration time with the range of 0.0-6500.0s

	DC braking Built-in brake unit	DC braking frequency：0.00Hz~ Maximum frequency Braking time： 0.0s~36.0s Brake action current value：0.0%~100.0%
	Jog control	Jog frequency range：0.00Hz~50.00Hz。 Jog acceleration/deceleration time0.0s~6500.0s。
Operation	Command source	The operation panel is given, the control terminal is given, and the serial communication port is given. Can be switched in a variety of ways
	Frequency source	Multiple frequency sources: digital reference, analog voltage reference, analog current reference, serial port reference. It can be switched in a variety of ways.
	Auxiliary frequency source	10 auxiliary frequency sources. Flexible implementation of auxiliary frequency trimming and frequency synthesis
	Input terminal	standard: 7 digital input terminals (customizable high-speed pulse input, support 100K) 2 analog input terminals, 1 only supports 0~10V voltage input, 1 supports 0~10V voltage input or 4~20mA current input
	Output terminal	Standard: 1 digital output terminal 1 relay output terminal 2 analog output terminals, support 0~20mA current output or 0~10V voltage output Expansion ability: 1 relay output terminal
Display and keyboard operation	LED display	Display the parameter
	Key lock and function selection	Realize partial or all key lock and define the action range of some keys to prevent misoperation

	Protection function	Short circuit test of electrified motor, input/output default phase protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, etc.

Chapter 3 Installation Instructions

3.1 Mechanical installation

3.1.1 Installation Environment

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

2） Install the inverter on the surface of the flame-retardant object, and have enough space around it to dissipate heat. The inverter is prone to generate a lot of heat when it is working. It is mounted vertically on the mounting bracket with screws.

3）Please install it in a place where it is not easy to vibrate. The vibration should be no more than 0.6G. Pay special attention to equipment such as punching machines.

4）Avoid being placed in direct sunlight, moisture, or water.

5）Avoid places that are corrosive, flammable, or explosive in the air.

6）Avoid installation in places with oil, dust, and metal dust.

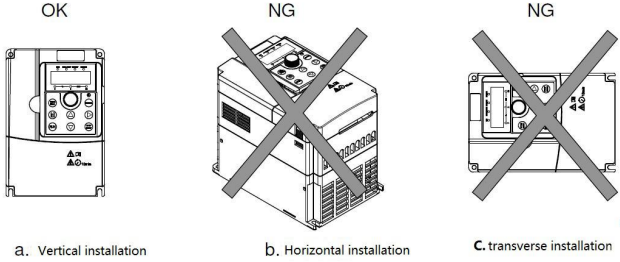
7）JAC300 series plastic casing products are Built-in products, which need to be installed in the final system. The final system should provide corresponding fireproof casing, electrical protective casing and mechanical protective casing, etc., and comply with local laws and regulations and relevant IEC standards.

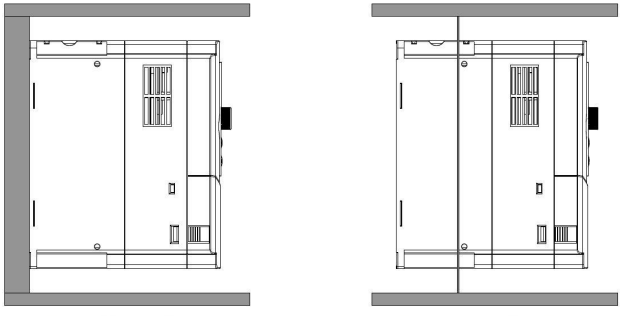
3.1.2 Installation direction

The frequency converter can be mounted on a wall or in a cabinet.

The drive must be mounted in the vertical direction. Please check the installation location as described below.

3.1.3 Installation method





Wall-mounted installation **Flange-Mounted installation**

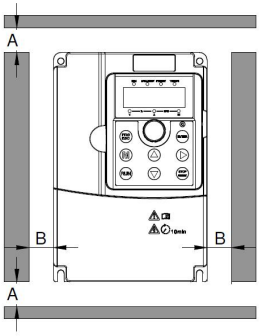
(1) Mark the position of the mounting hole. For the location of the mounting holes, please refer to the outline drawing of the inverter in the Appendix section;

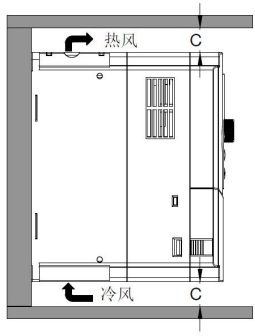
(2) Fix the screw or bolt to the marked position;

(3) leaning the inverter against the wall;

(4) Tighten the fastening screws on the wall.

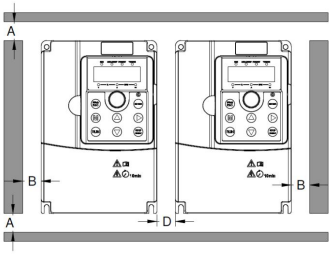
3.1.4 Single installation

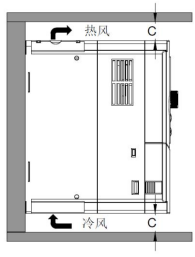




Note: The minimum size for B and C is 100mm.

3.1.5Multiple installations



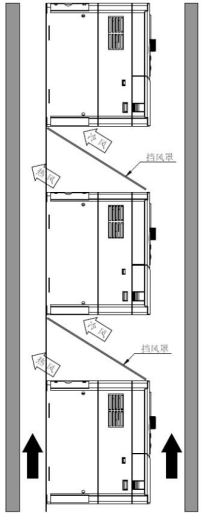


note:

1. When installing inverters with different sizes, please align the upper positions of each inverter before installing. This is convenient for later maintenance.

2. The minimum size requirement for B, D and C is 100mm.

3.1.6Vertical installation



Note: When installing vertically, the windshield must be added. Otherwise, multiple inverters will affect each other and cause poor heat dissipation.

3.2 Electrical Installation

3.2.1Main circuit wiring diagram

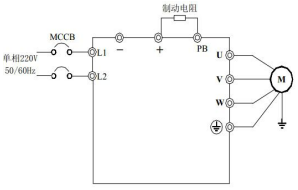


Figure 3-2 Single-phase 0.75-2.2kW wiring standard

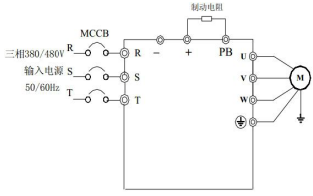


Figure 3.3 Three-phase 0.75-37kW wiring standard

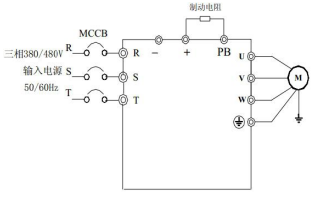


Figure 3.4 Three-phase 45-110kW wiring standard (brake resistor matching)

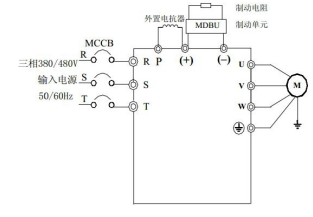


Figure 3.5 Three-phase 132-315KW

3.2.2 Main circuit terminal description

Inverter main circuit terminal description：

Figure 3-11 0.75KW-5.5KW (5013 model) main circuit terminal block

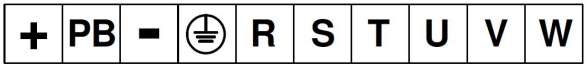


Figure 3-11 7.5KW-11KW (5023 model) main circuit terminal block

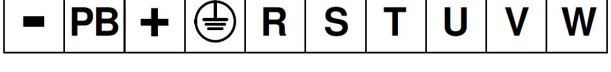


Figure 3-12 15kW-18.5kW (type 5030B) main circuit terminal block

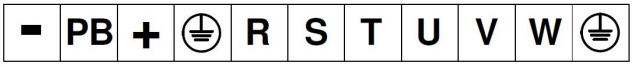


Figure 3-13 22kW (5041B type) main circuit terminal block

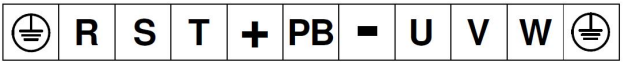


Figure 3-14 30kW-37kW (5042B type) main circuit terminal block

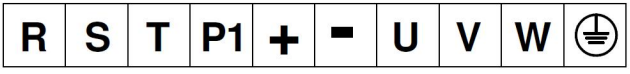


Figure 3-15 45kW-55kW (5050B type) main circuit terminal block

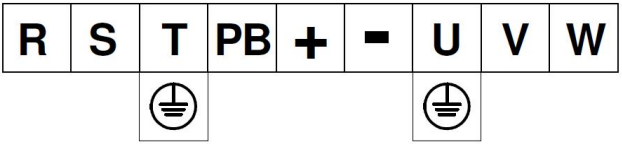


Figure 3-16 75kW-110kW (5061B type) main circuit terminal block

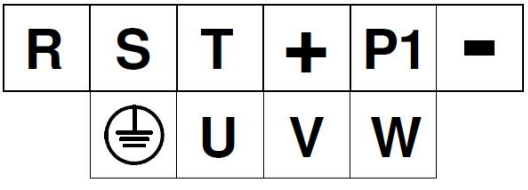


Figure 3-17 132kW-160kW (5063 type) main circuit terminal block

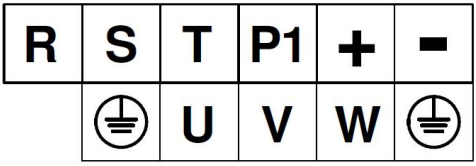


Figure 3-17 200kW-315kW main circuit terminal block

Terminal mark	Name	Description
R、S、T/L1、L2	Three-phase power input terminal	AC input three-phase power connection point, single-phase inverter connected to R, S, T any two lines
+、PB	Brake resistor connection terminal	Brake resistor connection point
U、V、W	Inverter output terminal	Connecting three-phase motor
	Ground terminal	Ground terminal

note:

● Do not use asymmetric motor cables. If there is a symmetrical grounding conductor in addition to the conductive shielding in the motor cable, ground the grounding conductor at the inverter and motor terminals.

● Separate the motor cable, input power cable and control cable separately.

● When single-phase input, the “T” terminal is not wired.

3.2.3 Control terminal description

Control circuit terminal layout:

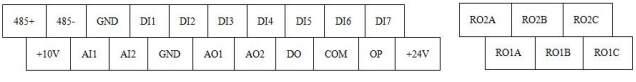


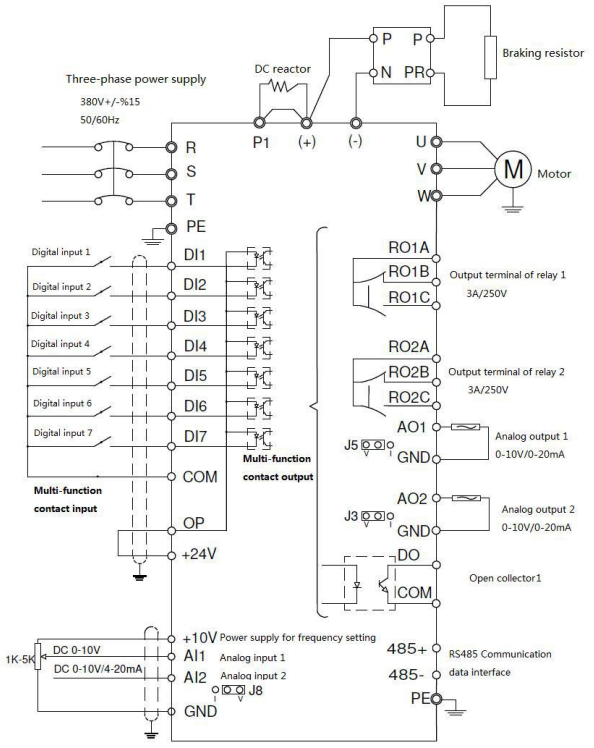
Figure 3-21 Control circuit terminal layout

Category	Terminal symbol	Terminal name	Function description
Power supply	+10V-GND	External connection of ＋10V power supply	Provide power supply of +10V externally, with maximize output current: 10mA It is generally used as working power supply for external potentiometer and the resistance range of potentiometer is 1kΩ~5k Ω
	+24V-COM	External connection of ＋24V power supply	+24V power supply is provided outwards and generally used as the working power supply for digital input/output terminal and the power supply for external sensor Maximum output current: 200mA
	OP	Input terminal of external power supply	The factory default is connection to＋24V When an external signal is used to drive DI1~DI7, OP shall be connected to external power supply and disconnected from＋24V power supply terminal
Analog input	AI1-GND	Analog Input Terminal 1	1. Input voltage range: DC 0V~10V 2. Input resistance: 22kΩ
	AI2-GND	Analog Input Terminal 2	1. Input range: DC 0V~10V/4mA~20mA, as determined by Jumper J8 on the control panel 2. Input resistance: 22kΩ for voltage input and 500Ω for current input.
Digital input	DI1- OP	Digital Input 1	1. Optical coupler isolation, with bipolar input

Category	Terminal symbol	Terminal name	Function description
	DI2- OP	Digital Input 2	2. Input resistance: 2.4kΩ 3. Voltage range in input level: 9V~30V
	DI3- OP	Digital Input 3	
	DI4- OP	Digital Input 4	
	DI6- OP	Digital Input 6	
		Digital Input 7	
	DI5- OP	High-speed pulse input terminal	Apart from the characteristics of DI1~DI7, it may be used as high-speed pulse input channel. Maximum input frequency: 100kHz
Analog output	AO1-GND	Analog Output 1	Jumper J5 on the control panel shall determine voltage or current output. Output voltage range: 0V~10V Output current range: 0mA~20mA
Analog output	AO2-GND	Analog Output 1 Analog Output 2	Jumper J3 5 on the control panel shall determine voltage or current output. Output voltage range: 0V~10V Output current range: 0mA~20mA
Digital output	DO-COM	Digital Output 1	Optical coupler isolation, bipolar open collector output Output voltage range: 0V~24V Output current range: 0mA~50mA
Relay output	RO1A-RO1B	Closed terminal	Contact drive capacity: 25V ac，3A，COSØ=0.4 。

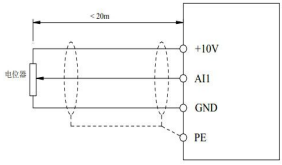
Category	Terminal symbol	Terminal name	Function description
	RO1A-RO1C	Open terminal	30Vdc ，1A
	RO2A-RO2C	Open terminal	
Secondary interface	RO2A-RO2B	Closed terminal	Contact drive capacity: 25V ac，3A，COSØ=0.4 。 30Vdc ，1A
Communication interface	485+，485-	Modbus	Modbus communication interface, non-isolated output

3.2.4 Control loop wiring diagram



1) AI analog input terminal:

Because weak analog voltage signals are particularly susceptible to external interference, shielded cables are generally required, and the wiring distance should be as short as possible, not more than 20m, as shown in Figure 3-22. In the case where some analog signals are seriously disturbed, a filter capacitor or a ferrite core should be added to the analog signal source side, as shown in Figure 3-23.



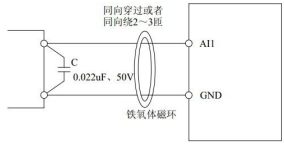


Figure 3-24 Schematic diagram of analog input terminal wiring Figure 3-25 Wiring diagram of analog input terminal processing

2) DI digital input terminal:

Generally, shielded cables are required, and the wiring distance should be as short as possible, not more than 20m. When the active mode is selected, the necessary filtering measures should be taken for the crosstalk of the power supply. Contact control is recommended.

◆Slipping type wiring (NPN)

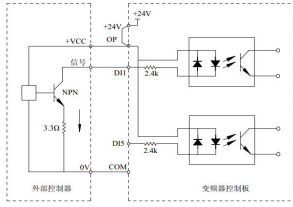


Figure 3-26 Leakage wiring method

This is one of the most common wiring methods. If an external power supply is used, the short-circuit between the +24V and the OP and the short-circuit between the COM and the CME must be removed. The positive terminal of the external power supply is connected to the OP, and the negative terminal of the external power supply is connected to the CME.

Note: Under this type of wiring, the DI terminals of different inverters cannot be used in parallel, otherwise DI may malfunction. If DI terminals are connected in parallel (between different inverters), diodes must be connected in series at the DI terminals. (Anode connected to DI), the diode must meet: IF>10mA, UF<1V, as shown below.

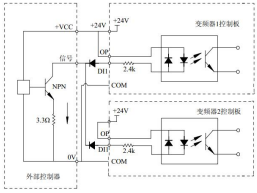


Figure 3-27 Multiple inverters DI terminal and drain type wiring

◆Source wiring method (PNP)

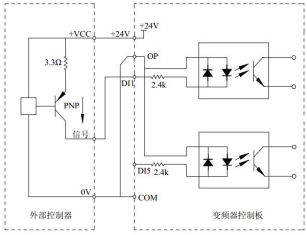


Figure 3-28 Source wiring method

This wiring method must remove the short circuit between the +24V and the OP, connect the +24V to the common terminal of the external controller, and connect the OP to the COM.

Control signal output terminal wiring instructions

3）DO digital output terminal:

When the digital output terminal needs to drive the relay, an absorbing diode should be installed on both sides of the relay coil. Otherwise, it may cause damage to the DC 24V power supply. The drive capacity is no more than 50mA.

Note: Be sure to properly install the polarity of the snubber diode. As shown below. Otherwise, when the digital output terminal has an output, the DC 24V power supply will be burned out immediately.

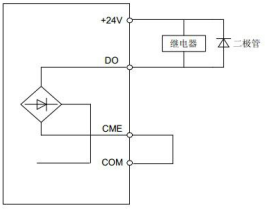


Figure 3-29 Wiring diagram of digital output terminal

Chapter 4 Operation Display

4.1 Operation and display interface introduction

With the operation panel, the inverter can be used to modify the function parameters, the inverter working status monitoring and the inverter running control (starting, stopping). The appearance and function area are as shown below:

Figure 4-1 Operation panel diagram

Function indicator description:

● RUN：When the light is on, the inverter is in the running state, and when the light is off, the inverter is in the stop state.

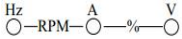
● LOC：Keyboard operation, terminal operation and remote operation (communication control) indicator:

○ LOC：Extinguished	Panel start and stop control mode
● LOC：Constantly bright	Terminal start and stop control mode
◑ LOC：flicker	Communication start and stop control mode

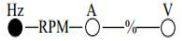
● FWD：Positive and negative indicator lights, when the light is off, it indicates the forward running state, and when the light is on, it indicates the reverse running state.

● TUNE/TC ：Tuning / Torque Control / Fault Indicator. When the light is on, it indicates that it is in the torque control mode. If the light is flashing slowly, it indicates that it is in the tuning state, and the flashing light indicates that it is in the fault state. This indicator is in the middle of the “PRG” and

"MF.K" keys.

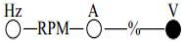


: Unit indicator, used to indicate the unit of the currently displayed data, there are several units: (○ means extinguished; ● means lit)



: Hz Frequency unit

: A current unit



: V Voltage unit

: RMP Speed unit

: % percentage

Digital display area:

A total of 5 LED displays display the set frequency, output frequency, various monitoring data, and alarm codes.

Keyboard button description table

Table 4-1 Keyboard function table

button	name	function
	Programming key	First level menu enters or exits
	Enter	Enter the menu screen step by step, set the parameter confirmation

	Increment key	Increment of data or function code
	Decrement key	Decrease in data or function code
	Shift key	In the stop display interface and the operation display interface, the display parameters can be selected cyclically; when the parameters are modified, the modification bits of the parameters can be selected.
	Run key	In keyboard operation mode, used for running operations
	Stop/reset	When in the running state, press this button to stop the running operation; in the fault alarm state, it can be used to reset the operation. The characteristics of this button are restricted by function code P7-02.
	Multi-function selection button	According to P7-01 for function switching selection, can be defined as command source, or direction

Chapter 5 Function Parameter List

PP-00 is set to a non-zero value, that is, the parameter protection password is set. In the function parameter mode and the user change parameter mode, the parameter menu must be entered after the password is correctly entered. To cancel the password, set PP-00 to 0.

The parameter menu in the user-defined parameter mode is not password protected.

Group F and Group A are basic function parameters, and Group U is a monitoring function parameter.

The symbols in the function table are as follows:

"☆": Indicates that the set value of this parameter can be changed while the inverter is in the stop state and running state;

"★": Indicates that the set value of this parameter cannot be changed while the inverter is running;

"●": The value indicating the parameter is the actual detected record value and cannot be changed.

"*" : Indicates that the parameter is "manufacturer parameter", which is limited to the manufacturer setting and prohibits the user from performing the operation;

function code	name	Predetermined area	Factory default	change
P0 basic function group				
P0-01	The first motor control method	0: No speed sensor vector control (SVC) Suitable for general high-performance control applications, one inverter can only drive one motor. 2: V/F control It is suitable for applications where the load requirements are not high, or when one inverter drives multiple motors, such as fans and pumps.	2	★
P0-02	Command source selection	Select the channel for the drive control command. Inverter control commands include: start, stop, forward, reverse, jog, fault reset, etc. 0: The operation panel command channel ("LOCAL/REMOT" light is off) is controlled by the RUN, STOP/RES buttons on the operation panel.	0	☆

function code	name	Predetermined area	Factory default	change
		1: The terminal command channel ("LOCAL/REMOT" light is on) is controlled by the multi-function input terminals FWD, REV, JOGF, JOGR, etc. 2: Communication command channel ("LOCAL/REMOT" light flashes), the running command is given by the host computer through communication.		
P0-03	Main frequency source X selection	0: Digital setting (preset frequency P0-08, UP/DOWN can be modified, power is not memorized), When the inverter is powered off and powered up again, the set frequency value returns to the value of P0-08 “ Digital Set Preset Frequency”. 1: Digital setting (preset frequency P0-08, UP/DOWN can be modified, power-down memory). When the inverter is powered off and powered on again, the set frequency is the set frequency of the last power-down time. The correction amount of the keyboard ▲, ▼ key or terminal UP, DOWN is memorized. **Note: The frequency needs to be remembered after the digital setting frequency is stopped. Set P0-23=1** 2：AI1 3：AI2 4：AI3 (keyboard potentiometer) The control board provides two analog input terminals (AI1, AI2), AI1 is 0V ~ 10V voltage type input, AI2 can be 0V ~ 10V voltage input, can also be 4mA ~ 20mA current input, selected by AI2 jumper on the control board . The input voltage value of AI1 and AI2 and the corresponding relationship with the target frequency can be freely selected by the user. JAC300 provides 5 sets of	4	★

function code	name	Predetermined area	Factory default	change
		correspondence curves, among which 3 sets of curves are linear relationships (2 points correspondence), and 2 sets of curves are arbitrary curves of 4 points correspondence. Users can pass P4-13~P4-27 function code and A6 group function. The code is set. Function code P4-33 is used to set the AI1~AI2 two-way analog input, and select which of the five sets of curves. AI is used as the frequency reference, and the voltage/current input corresponds to the set value of 100.0%, which is the percentage of the relative maximum frequency P0-10. 5: PULSE pulse setting (DI5) The frequency reference is given by the high speed pulse of terminal DI5. Pulse given signal specifications: voltage range 9V ~ 30V, frequency range 0 kHz to 100 kHz. The pulse reference can only be input from the multi-function input terminal DI5. The relationship between the input pulse frequency of DI5 terminal and the corresponding setting is set by P4-28~P4-31. The corresponding relationship is the linear correspondence of 2 points. The corresponding setting of 100.0% of the pulse input refers to the relative maximum frequency P0. The percentage of -10. 6: Multi-segment instructions When selecting the multi-segment command operation mode, it is necessary to combine different state combinations of the digital input DI terminal to correspond to different set frequency values. JAC300 can set 4 multi-segment command terminals (terminal functions 12~15), 16 states of 4 terminals, and can correspond to any 16 “multi-segment commands” through PC group function code. “Multi-segment command” is relative maximum frequency P0-10 Percentage.		

function code	name	Predetermined area	Factory default	change
		When the digital input DI terminal is used as the multi-segment command terminal function, it needs to be set in the P4 group. For details, please refer to the relevant function parameters of the P4 group. 7: Simple PLC When the frequency source is a simple PLC, the running frequency source of the inverter can be switched between 1~16 arbitrary frequency commands. The holding time of 1~16 frequency commands and the respective acceleration/deceleration time can also be set by the user. Description of the PC group. 8: PID Select the output of the process PID control as the operating frequency. Generally used for on-site process closed-loop control, such as constant pressure closed-loop control, constant tension closed-loop control and other occasions. When applying the PID as the frequency source, you need to set the PA group "PID function" related parameters. 9: Communication given The frequency is given by the Modbus communication method. The host computer gives data by the communication address 0x1000, the data format is -100.00% to 100.00%, and 100.00% refers to the percentage of the relative maximum frequency P0-10.		
P0-04	Auxiliary frequency source selection Y	Same as P0-03 (main frequency source X selection) When the auxiliary frequency source is used as the independent frequency reference channel (that is, the frequency source is selected as X to Y switching), its usage is the same as that of the main frequency source X. For the usage, refer to the description of P0-03. When the auxiliary frequency source is used as the superposition reference (ie, the composite implementation frequency given by the main	0	★

function code	name	Predetermined area	Factory default	change
		frequency source X and the auxiliary frequency source Y), it is necessary to pay attention to: 1. When the auxiliary frequency source is digital timing, the preset frequency (P0-08) does not work. The user adjusts the frequency through the ▲, ▼ keys of the keyboard (or UP, DOWN of the multi-function input terminal) directly at the main Adjust based on a given frequency. 2. When the auxiliary frequency source is analog input reference (AI1, AI2), the input setting of 100% corresponds to the auxiliary frequency source range, which can be set by P0-05 and P0-06.		
P0-05	Auxiliary frequency source Y range selection when superimposing	0: relative to the maximum frequency 1: relative to the frequency source X P0-05 is used to determine the object corresponding to the auxiliary frequency source range. It can be selected relative to the maximum frequency or relative to the main frequency source X. If it is selected relative to the main frequency source, the range of the auxiliary frequency source will follow the main The frequency X changes with changes.	0	☆
P0-06	Auxiliary frequency source Y range when superimposed	0% ～150%	100%	☆
P0-07	Frequency source overlay selection	Unit position: frequency source selection 0: main frequency source X 1: The result of the main and auxiliary operations (the operation relationship is determined by ten bits) 2: main frequency source X and auxiliary frequency source Y switch 3: Main frequency source X and main and auxiliary operation result switching 4: Auxiliary frequency source Y and main and auxiliary operation result switching	00	

function code	name	Predetermined area	Factory default	change
		Ten digits: frequency source primary and secondary operation relationship 0: main + auxiliary 1: main - auxiliary 2: the maximum of both 3: the minimum of the two The frequency reference channel is selected by this parameter. The frequency reference is achieved by a combination of the primary frequency source X and the secondary frequency source Y. When the frequency source is selected as the main and auxiliary operation, the offset frequency can be set by P0-21, and the offset frequency is superimposed on the main and auxiliary operation results to flexibly respond to various requirements.		
P0-08	Preset frequency	0.00Hz ~ maximum frequency (P0 -10) When the frequency source is selected as “Digital Setting” or “Terminal UP/DOWN”, the function code value is the initial value of the frequency digital setting of the inverter.	50.00Hz	☆
P0-09	Running direction	0: the direction is consistent 1: opposite direction By changing the function code, the purpose of changing the motor steering can be realized without changing the motor wiring. The effect is equivalent to adjusting any two wires of the motor (U, V, W) to realize the rotation direction of the motor.	0	☆
P0-10	Maximum frequency	50.00Hz ~ 500.00Hz In the JAC300, analog input, multi-segment instructions, etc., as the frequency source, each 100.0% is scaled relative to P0-10.	50.00Hz	★
P0-11	Upper frequency source	0: P0-12 setting 1: AI1 2: AI2 3: AI3 4: PULSE setting (DI5) 5: Communication given	0	★

function code	name	Predetermined area	Factory default	change
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 When the upper limit frequency source is set to the analog setting, P0-13 is used as the offset of the set value, and the offset frequency is superimposed with the upper limit frequency value set by P0-11 as the set value of the final upper limit frequency.	0.00Hz	☆
P0-14	Lower limit frequency	0.00Hz ~ upper limit frequency P0-12 When the frequency command is lower than the lower limit frequency set by P0-14, the inverter can stop, run at the lower limit frequency or run at zero speed. Which operation mode can pass P8-14 (the set frequency is lower than the lower limit frequency operation mode) Settings.	0.00Hz	☆
P0-15	Carrier frequency	0.5kHz ～ 16.0kHz This function adjusts the carrier frequency of the frequency converter. By adjusting the carrier frequency, the motor noise can be reduced, the resonance point of the mechanical system can be avoided, the line-to-ground leakage current can be reduced, and the interference generated by the frequency converter can be reduced. When the carrier frequency is low, the output current higher harmonic component increases, the motor loss increases, and the motor temperature rise increases. When the carrier frequency is high, the motor loss is reduced, the motor temperature rise is reduced, but the inverter loss is increased, the temperature rise of the inverter is increased, and the interference is increased.	Model determination	☆
P0-16	Carrier frequency is adjusted with temperature	0: No 1: yes The carrier frequency is adjusted with temperature, which means that when the inverter detects that its own radiator temperature is high, it automatically reduces the carrier frequency to reduce the temperature rise of the inverter. When the heat sink temperature is low, the carrier frequency gradually	1	☆

function code	name	Predetermined area	Factory default	change
		returns to the set value. This feature reduces the chance of the drive overheating alarm.		
P0-17	Acceleration time 1	0.00s ～ 650.00s(P0-19=2) 0.0s ～ 6500.0s(P0-19=1) 0s ～ 65000s(P0-19=0) Acceleration time refers to the time required for the inverter to accelerate from zero frequency to the acceleration/deceleration reference frequency (determined by P0-25).	Model determination	☆
P0-18	Deceleration time 1	0.00s ～ 650.00s(P0-19=2) 0.0s ～ 6500.0s(P0-19=1) 0s ～ 65000s(P0-19=0) The deceleration time refers to the time required for the inverter to decelerate to zero frequency from the acceleration/deceleration reference frequency (determined by P0-25). The JAC300 provides 4 sets of acceleration/deceleration time. The user can use the digital input terminal DI to switch between selections. The four groups of acceleration/deceleration time are set by the following function codes: The first group: P0-17, P0-18; The second group: P8-03, P8-04; The third group: P8-05, P8-06; Group 4: P8-07, P8-08	Model determination	☆
P0-19	Acceleration/deceleration unit	0：1 second 1：0.1 second 2：0.01 second	1	☆
P0-21	Auxiliary frequency source offset frequency when superimposing	0.00Hz to maximum frequency P0-10 This function code is valid only when the frequency source is selected as the main and auxiliary operation. When the frequency source is the main auxiliary operation, P0-21 is used as the offset frequency, and is superimposed with the result of the main and auxiliary operations as the final frequency setting value, so that the frequency setting can be more flexible.	0.00Hz	☆

function code	name	Predetermined area	Factory default	change
P0-22	Frequency command resolution	This parameter is used to determine the resolution of all frequency-dependent function codes.	2	★
P0-23	Digital setting frequency shutdown memory selection	0: no memory 1 : memory This function is only available when the frequency source is digitally set. “Do not remember” means that the digital set frequency value returns to the value of P0-08 (preset frequency) after the inverter stops, and the frequency correction made by the keyboard ▲, ▼ key or terminals UP and DOWN is cleared. “Memory” means that after the inverter stops, the digital set frequency remains the set frequency of the last stop time. The frequency correction made by the keyboard ▲, ▼ key or terminals UP and DOWN remains valid.	0	☆
P0-24	Motor parameter group selection	0: Motor parameter group 1 1: Motor parameter group 2 JAC300 supports the application of frequency converter to divide two motors in time division. Two motors can set motor nameplate parameters, independent parameter tuning, select different control modes, and independently set parameters related to running performance. The motor parameter group 1 corresponds to the function parameter group P1 group and P2 group, and the motor parameter group 2 corresponds to the function parameter group A2 group.The user can select the current motor parameter group through the P0-24 function code, or switch the motor parameters through the digital input terminal DI. When the function code selection conflicts with the terminal selection, the terminal selection shall prevail.	0	★
P0-25	Acceleration/deceleration time reference frequency	0: Maximum frequency (P0-10) 1: set frequency 2:100Hz Acceleration/deceleration time refers to the acceleration/deceleration time from zero frequency	0	★

function code	name	Predetermined area	Factory default	change
		to the frequency set by P0-25. Figure 6-1 shows the acceleration/deceleration time. When P0-25 is set to 1, the acceleration/deceleration time is related to the set frequency. If the set frequency changes frequently, the acceleration of the motor changes, so pay attention to the application.		
P0-26	Runtime frequency command UP/DOWN reference	0: Operating frequency 1 : Setting frequency This parameter is valid only when the frequency source is digitally set. When determining the ▲, ▼ key or terminal UP/DOWN action of the keyboard, what method is used to correct the set frequency, that is, whether the target frequency is increased or decreased based on the operating frequency or increased or decreased based on the set frequency. The difference between the two settings is obvious when the inverter is in the acceleration/deceleration process. That is, if the running frequency of the inverter is different from the set frequency, the different choices of the parameters vary greatly.	0	★
P0-27	Command source bundle frequency source	Single digit: operation panel command binding frequency source selection 0: no binding 1: digital setting frequency 2: AI1 3: AI2 4: AI3 5: PULSE setting (DI5) 6: multi-speed 7: Simple PLC 8: PID 9: Communication given Tens place: terminal command binding frequency source selection Hundreds place: communication command binding	0000	☆

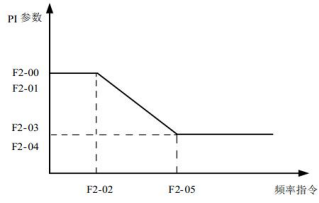
function code	name	Predetermined area	Factory default	change
		frequency source selection Thousands: automatic running binding frequency source selection The meaning of the above frequency reference channel is the same as the main frequency source X selection P0-03, please refer to P0-03 function code description. Different running command channels can bundle the same frequency given channel. When the command source has a bundled frequency source, the frequency source set by P0-03~P0-07 is no longer active during the valid period of the command source.		
P1 First motor unit				
P1-00	Motor type selection	0: ordinary asynchronous motor 1: Variable frequency asynchronous motor	0	★
P1-01	Motor rated power	0.1kW ～400.0kW	Model determination	★
P1-02	Motor rated voltage	1V～2000V	Model determination	★
P1-03	Motor rated current	0.01A～655.35A（Inverter power<=55kW ） 0.1A～6553.5A （Inverter power>55kW）	Model determination	★
P1-04	Motor rated frequency	0.01Hz～Maximum frequency	Model determination	★
P1-05	Motor rated speed	1rpm～65535rpm	Model determination	★
P1-06	Asynchronous motor stator	0.001Ω ～65.535Ω（Inverter power<=55kW ） 0.0001Ω ～6.5535Ω（Inverter power>55kW）	Tuning parameter	★

function code	name	Predetermined area	Factory default	change
	resistance			
P1-07	Asynchronous motor rotor resistance	0.001Ω ～65.535Ω（Inverter power<=55kW ） 0.0001Ω ～6.5535Ω（Inverter power>55kW）	Tuning parameter	★
P1-08	Asynchronous motor leakage inductance	0.01mH ～655.35mH （Inverter power<=55kW ） 0.001mH～65.535mH （Inverter power>55kW）	Tuning parameter	★
P1-09	Asynchronous motor mutual inductance	0.1mH ～6553.5mH （Inverter power<=55kW ） 0.01mH ～655.35mH （Inverter power>55kW）	Tuning parameter	★
P1-10	Asynchronous motor no-load current	0.01A ～P1-03 （Inverter power<=55kW ） 0.1A～P1-03 （Inverter power>55kW）	Tuning parameter	★
P1-06~P1-10 are the parameters of the asynchronous motor. These parameters are generally not o the motor nameplate and need to be automatically tuned by the inverter. Among them, "asynchronou motor static tuning" can only obtain three parameters P1-06~P1-08, and "integrated tuning o asynchronous motor" can obtain encoder phase sequence and current loop PI in addition to all fiv parameters here. Parameters, etc. When changing the rated motor power (P1-01) or the rated motor voltage (P1-02), the inverter wi automatically modify the P1-06~P1-10 parameter values and restore these 5 parameters to th common standard Y series motor parameters. If the asynchronous motor cannot be tuned at the site, you can enter the corresponding function cod according to the parameters provided by the motor manufacturer.				
P1-37	Tuning selection	0: no operation 1: Asynchronous machine static tuning 1 2: Asynchronous machine dynamic tuning 3: Asynchronous machine static tuning 2 In order to ensure the optimal control performance of the inverter during vector control, please disconnect the load from the motor and use the rotary tuning to self-learn the motor parameters, otherwise the vector control effect will be affected.	0	★

function code	name	Predetermined area	Factory default	change
		Use static tuning 2 when the motor has a large inertia load that is not easily disengaged and vector control is required. The motor type and nameplate parameters P1-00~P1-05 must be correctly set before the parameters are self-learned. Tuning action description: Set the motor nameplate parameters and self-learning type, then press RUN key, the inverter will perform static tuning. 0: No operation, ie tuning is prohibited. 1: Asynchronous machine static tuning 1, suitable for asynchronous motors and where large inertia loads are not easily disconnected and cannot be rotated and tuned. 2: Asynchronous machine dynamic tuning During the dynamic tuning process, the inverter performs static tuning first, then accelerates to 80% of the rated motor frequency according to the acceleration time P0-17. After a period of time, the inverter decelerates to stop according to the deceleration time P0-18 and ends the tuning. 3: Asynchronous machine static tuning 2 Applicable to the case of no encoder, self-learning of the motor parameters under the static state of the motor (the motor may still have slight jitter at this time, need to pay attention to safety) Action description: Set the function code to 3, then press RUN key, the inverter will perform no-load tuning. Note: Tuning supports motor tuning in keyboard operation mode, terminal mode, and communication mode.		
P2 group First motor vector control parameter				
P2-00	Speed loop proportional gain 1	1 ～100	30	☆

function code	name	Predetermined area	Factory default	change
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	☆

When the inverter runs at different frequencies, different speed loop PI parameters can be selected. When the running frequency is less than the switching frequency 1 (P2-02), the speed loop PI adjustment parameters are P2-00 and P2-01. When the running frequency is greater than the switching frequency 2, the speed loop PI adjustment parameters are P2-03 and P3-04. Switching the speed loop PI parameter between frequency 1 and switching frequency 2, linearly switching between two sets of PI parameters, as shown in the figure below.



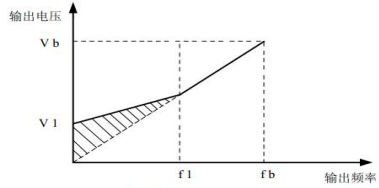
The speed dynamic response characteristic of the vector control can be adjusted by setting the speed factor and the integration time of the speed regulator.

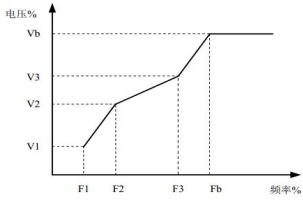
function code	name	Predetermined area	Factory default	change
Increasing the proportional gain and reducing the integration time can speed up the dynamic response of the speed loop. However, if the proportional gain is too large or the integration time is too small, the system can oscillate. The recommended adjustment method is: If the factory parameters can not meet the requirements, then fine-tuning based on the factory value parameters, first increase the proportional gain to ensure that the system does not oscillate; then reduce the integration time, so that the system has faster response characteristics, overshoot and smaller. Note: If the PI parameters are not set properly, it may cause the speed overshoot to be too large. An overvoltage fault occurs even when the overshoot falls back.				
P2-06	Vector control slip gain	50%～200% For speed sensorless vector control, this parameter is used to adjust the motor's steady speed accuracy: when the motor is loaded with a low speed, the parameter is increased, and vice versa.	100%	☆
P2-07	SVC torque filter time constant	0.000s～0.100s SVC The torque filter time constant is valid only when P0-01=0. Increasing P2-07 can improve the stability of the motor, but the dynamic response It weakens, otherwise the dynamic response is strengthened, but too small will cause the motor to oscillate. Under normal circumstances, no adjustment is required.	0.050s	☆

function code	name	Predetermined area	Factory default	change
P2-09	Torque upper limit source in speed control mode	0: Function code P2-10 setting 1: AI1 2: AI2 3: AI3 4: PULSE setting (DI5) 5: Communication given 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) The full scale of the 1-7 option corresponds to P2-10	0	☆
P2-10	Torque upper limit digital setting in speed control mode	0.0%～200.0%	150.0%	☆
In the speed control mode, the maximum value of the inverter output torque is controlled by the torque upper limit source. P2-09 is used to select the setting source of the upper torque limit. When passing the analog quantity and communication setting, 100% of the corresponding setting corresponds to P2-10, and 100% of P2-10 is the rated torque of the inverter. For the AI1 and AI2 settings, see the P4 group AI curve related introduction (select the respective curves through P4-33) When the communication setting is selected, the host computer writes -100.00% to 100.00% of the data through the communication address 0x1000, of which 100.00% corresponds to P2-10.				
P2-13	Excitation adjustment 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 adjustment integral gain	0 ～60000	1300	☆

function code	name	Predetermined area	Factory default	change
The vector control current loop PI adjustment parameter, which is automatically obtained after the asynchronous machine is dynamically tuned, generally does not need to be modified. Need to be reminded that the integral regulator of the current loop does not use the integration time as the dimension, but directly sets the integral gain. If the current loop PI gain is set too large, it may cause the entire control loop to oscillate. Therefore when the current oscillation or torque fluctuation is large, the PI proportional gain or integral gain can be manually reduced.				
P3 V/F control parameter				
P3-00	VF Curve setting	0: Straight line V/F (suitable for normal constant torque load) 1: Multi-point V/F (multi-point V/F. It is suitable for special loads such as dehydrator, centrifuge, etc. At this time, by setting P3-03~P3-08 parameters, an arbitrary VF relationship curve can be obtained.) 2: square V/F (suitable for centrifugal loads such as fans and pumps) 3:1.2 power V/F 4:1.4 power V/F 6:1.6 power V/F 8:1.8 power V/F 3~8: VF between straight line VF and square VF Relationship lines 9: Reserved 10: VF complete separation mode (at this time, the output frequency of the inverter is independent of the output voltage, the output frequency is determined by the frequency source, and the output voltage is determined by P3-13 (VF separation voltage source). Generally used in induction heating, inverter Power, torque motor control, etc.) 11: VF semi-separation mode (V is proportional to F, but the proportional relationship can be set by voltage source P3-13, and the relationship between V and F is also related to the motor rated	0	★

function code	name	Predetermined area	Factory default	change
		voltage and rated frequency of group P1. Assume voltage source input For X (X is 0~100% value), the relationship between inverter output voltage V and frequency F is: V/F=2 * X * (motor rated voltage) / (motor rated frequency))		
P3-01	Torque boost	0.0%：(automatic torque boost) 0.1%～30.0%	Model determination	☆
P3-02	Torque boost cutoff frequency	0.00Hz～Maximum frequency	50.00Hz	★
	In order to compensate the V/F control low-frequency torque characteristics, some boost compensation is applied to the inverter output voltage at low frequencies. However, the torque boost setting is too large, the motor is prone to overheating and the inverter is prone to overcurrent. It is recommended to increase this parameter when the load is heavy and the motor starting torque is insufficient. The torque boost can be reduced when the load is light. When the torque boost is set to 0.0, the inverter is automatically torque boosted. At this time, the inverter automatically calculates the required torque boost value according to parameters such as the stator resistance of the motor. Torque boost torque cutoff frequency: Under this frequency, the torque boost torque is valid. If the set frequency is exceeded, the torque boost will be invalid. See the following figure for details.			

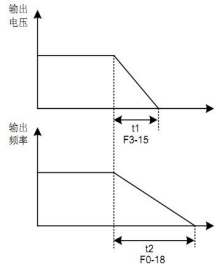
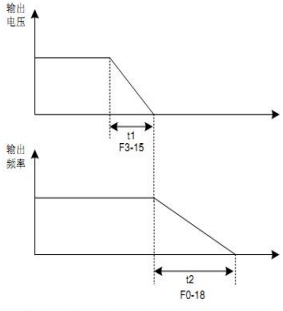
function code	name	Predetermined area	Factory default	change
	 V1：手动转矩提升电压　　V b：最大输出电压 f 1：手动转矩提升截止频率　　f b：额定运行频率 .			
P3-03	Multi-point VF frequency point 1	0.00Hz～P3-05	0.00Hz	★
P3-04	Multi-point VF voltage point 1	0.0%～100.0%	0.0%	★
P3-05	Multi-point VF frequency point 2	P3-03～P3-07	0.00Hz	★
P3-06	Multi-point VF voltage point 2	0.0%～100.0%	0.0%	★
P3-07	Multi-point VF frequency point 3	P3-05 ~ Motor rated frequency (P1-04)	0.00Hz	★
P3-08	Multi-point VF voltage point 3	0.0%～100.0%	0.0%	★
	P3-03 ~ P3-08 Six parameters define a multi-segment V/F curve. The multi-point V/F curve should be set according to the load characteristics of the motor. It should be noted that the relationship between the three voltage points and the frequency point must be satisfied: V1 < V2 < V3, P1 < P2 < P3. The figure below shows the setting of the multi-point VF curve. If the voltage is set too high at low frequencies, the motor may overheat or even burn out. The inverter may over-speed or over-current protection			

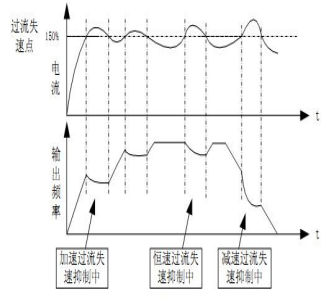
function code	name	Predetermined area	Factory default	change
		 V1-V3：多段速V/F第1-3段电压百分比 F1-F3：多段速V/F第1-3段频率百分比 Vb：电机额定电压 Fb：电机额定运行频率		
P3-09	VF slip compensation gain	0.0% to 200.0% This parameter is valid only for asynchronous motors. VF slip compensation can compensate the motor speed deviation generated by the asynchronous motor when the load increases, so that the motor speed can be basically stabilized when the load changes. The VF slip compensation gain is set to 100.0%, which means that the motor's rated slip is the rated slip of the motor when the rated load is applied to the motor. The rated slip of the motor is calculated by the inverter's rated frequency and rated speed of the P1 motor. When adjusting the VF slip compensation gain, the motor speed is basically the same as the target speed under the rated load. When the motor speed is different from the target value, the gain needs to be fine-tuned appropriately.	0.0%	☆

function code	name	Predetermined area	Factory default	change
P3-10	VF overexcitation gain	0 to 200 During the deceleration of the inverter, the overexcitation control can suppress the rise of the bus voltage and avoid overvoltage faults. The larger the overexcitation gain, the stronger the suppression effect. In the case where the inverter deceleration process is prone to overvoltage alarm, it is necessary to increase the overexcitation gain. However, if the overexcitation gain is too large, it will easily lead to an increase in the output current, which needs to be weighed in the application. For applications where the inertia is small, there is no voltage rise during motor deceleration. It is recommended to set the overexcitation gain to 0. For those with braking resistors, it is also recommended to set the overexcitation gain to 0.	64	☆
P3-11	VF oscillation suppression gain	0 ～100 The selection method of the gain is as small as possible under the premise of effectively suppressing the oscillation, so as to avoid adversely affecting the operation of the VF. Select this gain to be 0 when there is no oscillation in the motor. It is only necessary to increase the gain appropriately when the motor oscillates significantly. The greater the gain, the more obvious the suppression of the oscillation. When using the suppression oscillation function, the motor rated current and no-load current parameters are required to be accurate, otherwise the VF oscillation suppression effect is not good.	Model determination	☆

function code	name	Predetermined area	Factory default	change
P3-13	VF separated voltage source	0: Digital setting (P3-14) 1: AI1 2: AI2 3: AI3 4: PULSE pulse setting (DI5) 5: Multi-segment instructions 6: Simple PLC 7: PID 8: Communication given Note: 100.0% corresponds to the rated voltage of the motor	0	☆
P3-14	VF separation voltage digital setting	0V ~ motor rated voltage	0V	☆
	VF separation is generally used in applications such as induction heating, inverte power supply and torque motor control. When VF separation control is selected, the output voltage can be set by functio code P3-14, or it can be from analog quantity, multi-segment instruction, PLC, PI or communication reference. When using non-digital setting, 100% of each setting corresponds to the rated voltage of the motor. When the percentage of the outpu setting such as analog quantity is negative, the set absolute value is used as the effective setting value. 0: The digital setting (P3-14) voltage is set directly by P3-14. 1: AI1 2: AI2 3 : AI3 The voltage is determined by the analog input terminal. 4, PULSE pulse given 5, multiple instructions When the voltage source is a multi-segment command, the P4 group and PC group parameters should be set to determine the correspondence between the given signal and the given voltage. The PC group parameter multi-segmen command given 100.0% refers to the percentage of the rated motor voltage. 6, simple PLC When the voltage source is a simple PLC, you need to set the PC group parameters to determine the given output voltage. 7, PID The output voltage is generated according to the PID closed loop. For details, see		

function code	name	Predetermined area	Factory default	change
	the PA group introduction. 8, communication given The voltage is given by the host computer through communication. The VF separation voltage source selection is similar to the frequency source selection. See P0-03 Main Frequency Source Selection. Among them, the 100.0% of the various types of settings correspond to the rated voltage of the motor (the corresponding setting is worth the absolute value).			
P3-15	VF separation voltage acceleration time	0.0s ～1000.0s Note: indicates the time when 0V changes to the rated voltage of the motor.	0.0s	☆
P3-16	VF separation voltage deceleration time	0.0s ～1000.0s Note: indicates the time when 0V changes to the rated voltage of the motor.	0.0s	☆
The voltage acceleration time of VF separation refers to the time required for the output voltage to accelerate from 0 to the rated voltage of the motor, see t1 in the figure. The voltage deceleration time of VF separation refers to the time required for the output voltage to decelerate from the rated voltage of the motor to 0, see t2 in the figure.				
P3-17	VF separation stop mode selection	0：Frequency/voltage is independently reduced to 0 V/F separated output voltage is reduced to 0V according to voltage fall time (P3-15)； V/F Separate the output frequency and decrement it to 0Hz according to the deceleration time (P0-18)	0	☆

function code	name	Predetermined area	Factory default	change
		 1：After the voltage is reduced to 0, the frequency is reduced again. After the V/F split output voltage is first decremented to 0V according to the voltage fall time (P3-15), the frequency is decremented to 0Hz according to the deceleration time (P0-18).  图 6-7 V/F 分离频率 / 电压先后下降示意图 ● Inverter output current (torque) limit During acceleration, constant speed, and deceleration, if the current exceeds the overcurrent loss current point (150%), the overcurrent speed will work. When the current exceeds the overcurrent speed point, the output frequency begins to decrease until the current		

function code	name	Predetermined area	Factory default	change
		returns to the overcurrent speed. After the point is below, the frequency starts to accelerate upward to the target frequency, and the actual acceleration time is automatically lengthened. If the actual acceleration time cannot meet the requirements, the “ P1-21 over-running action current ” can be appropriately increased.  图 6-8 过流失速动作示意图		
P3-18	Over-speed action current	50%～200% Start the current through the stall suppression action	150%	★
P3-19	Over-speed suppression	0：invalid1：effective	1	★
P3-20	Over-speed rejection gain	0 ～100 If the current exceeds the overcurrent loss current point, the overspeed suppression will work and the actual acceleration time will automatically lengthen.	20	☆
P3-21	Double speed overrun speed action current compensatio	50%～200% Reduce the high-speed over-current operating current, the compensation coefficient is invalid when 50, the field weakening current corresponds to P3-18	50%	★

function code	name	Predetermined area	Factory default	change
	n coefficient			

In the high frequency region, the motor drive current is small, and the speed of the motor drops greatly with respect to the same stall current below the rated frequency. In order to improve the operating characteristics of the motor, the stall operating current above the rated frequency can be reduced, in some centrifuges. When the operating frequency is high, requiring several times of weak magnetic field and large load inertia, this method has a good effect on the acceleration performance Transition stall current exceeding the rated frequency= (fs/fn) * k * LimitCur;

fs： Running frequency,fn :Motor rated frequency, k: P3-21 "double speed over loss speed action current compensation coefficient", LimitCur :P3-18 "Overcurrent loss current"

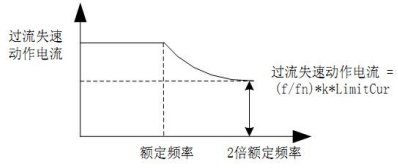


图 6-9 倍速过流失速动作示意图

Remarks:

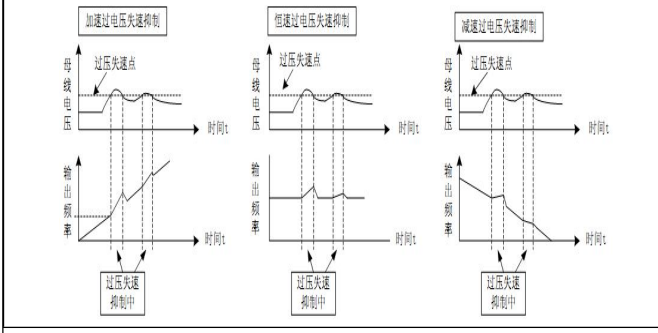
Over-current running current 150% means 1.5 times the rated current of the inverter;

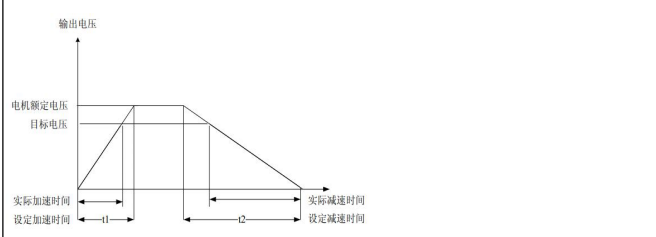
For high-power motors, the carrier frequency is below 2 kHz. Due to the increase of the ripple current the wave-by-wave current-limit response starts before the over-speed prevention action, and the torque is insufficient. In this case, reduce the over-speed prevention operation current.

- Inverter bus voltage limit (and brake resistor turn-on voltage setting)

If the bus voltage exceeds the overvoltage stall point of 760V, indicating that the electromechanical system is already in the power generation state (motor speed > output frequency), the overvoltage stall will work, adjust the output frequency (consuming more feedback than the feedback), the actual deceleration time will be automatic Stretching, avoiding trip protection, if the actual deceleration time can not meet the requirements, you can increase the overexcitation gain appropriately.

function code	name	Predetermined area	Factory default	change





P3-22	Overvoltage stall operating voltage	650.0V ～800.0V	760.0V	★
P3-23	Overvoltage stall enable	0：invalid 1：effective	1	★
P3-24	Overvoltage stall suppression frequency gain	0 ～100	30	☆
P3-25	Overvoltage stall suppression	0 ～100	30	☆

	voltage gain			
P3-26	Overvoltage stall maximum rising frequency limit	0 ～50Hz	5Hz	★

Please note when using a braking resistor or when installing a brake unit or when using an energy feedback unit:

Please set P3-11 “overexcitation gain” value to “0”. If it is not “0”, it may cause excessive current during operation.

Please set P3-23 “Overvoltage stall enable” value to “0”. If it is not “0”, it may cause the deceleration time to prolong.

P4 group input terminal				
P4-00	DI1 terminal function selection		1	★
P4-01	DI2 terminal function selection		4	★
P4-02	DI3 terminal function selection		9	★
P4-03	DI4 terminal function selection		12	★
P4-04	DI5 terminal function selection		13	★
P4-05	DI6 terminal function selection		0	★
P4-06	DI7 terminal function selection		0	★

0：No function

1：Running FWD or running commands

2：Reverse running REV or forward and reverse running direction

(Note: When set to 1, 2, the inverter is controlled to rotate forward and reverse by external terminal. It needs to be used with P4-11. See function code parameter for details.)

3：Three-wire operation control (This terminal is used to determine the inverter operation mode is the three-wire control mode. For details, please refer to the description of function code P4-11 ("Terminal Command Mode").)

4：Forward jog（FJOG ）

5：Reverse jog（RJOG ）

(FJOG is jog forward running, RJOG is jog reverse running. Jog running frequency, jog acceleration/deceleration time see description of function codes P8-00, P8-01, P8-02.)

6：Terminal UP

7：Terminal DOWN (The frequency is incremented or decremented when the frequency is given by the external terminal. When the frequency source is set to digital setting, the set frequency can be adjusted up and down.)

8：Free stop (The inverter blocks the output, and the motor stop process is not controlled by the inverter. This mode has the same meaning as the free stop described in P6-10).

9：Fault reset (RESET) (Failover function with terminal. It has the same function as the RESET button on the keyboard. This function can be used to reset the remote fault.)

10：Operation pause (The inverter decelerates to stop, but all operating parameters are memorized. For example, PLC parameters, swing frequency parameters, PID parameters. After this terminal signal disappears, the inverter returns to the operating state before stopping.)

11：External fault normally open input (When this signal is sent to the inverter, the inverter reports fault ERR15 and performs fault processing according to the fault protection action mode (details participate in function code P9-47))

12：Multi-stage command terminal 1

13：Multi-stage command terminal 2

14：Multi-stage command terminal 3

15：Multi-stage command terminal 4

(The 16-segment speed or 16 other commands can be set by 16 states of these four terminals. See Table 1 for details.)

16：Acceleration/deceleration time selection terminal 1

17：Acceleration/deceleration time selection terminal 2

(The selection of 4 kinds of acceleration/deceleration time is realized by the four states of the two terminals. For details, see Attachment 2.)

18：Frequency source switching (used to switch to select different frequency sources. According to the frequency source selection function code (P0-07) setting, when setting between two kinds of frequency sources to switch between frequency sources, the terminal is used to achieve two Switching between frequency sources.)

19：UP/DOWN setting is cleared (terminal, keyboard)

(When the frequency is given as digital frequency, this terminal can clear the frequency value changed by terminal UP/DOWN or keyboard UP/DOWN, so that the given frequency returns to the value set by P0-08.)

20：Control command switching terminal 1

(When the command source is set to terminal control (P0-02=1), this terminal can switch between terminal control and keyboard control. When the command source is set to communication control (P0-02=2), this terminal can communicate. Control and keyboard control switching.)

21：Acceleration/deceleration prohibition (Ensure that the inverter is not affected by external signals (except for the stop command) and maintain the current output frequency.)

22：PID pause (PID temporarily expires, the inverter maintains the current output frequency, and the PID adjustment of the frequency source is no longer performed.)

23：PLC State reset

(The PLC is paused during execution. When it is run again, the inverter can be restored to the initial state of the simple PLC through this terminal.)

24：Swing frequency pause (the inverter outputs at the center frequency. The swing frequency function is suspended.)

25：Counter input (input terminal for counting pulses)

26：Counter reset (counter status is cleared)

27：Length count input (input terminal for length count)

28：Length reset (length cleared)

29：Torque control disabled (The inverter is prohibited from torque control, the inverter enters the speed control mode)

30：PULSE pulse setting (DI5)

31：Reserved

32：Immediate DC braking (When this terminal is active, the inverter directly switches to DC braking)

33：External fault normally closed input (When the external fault normally closed signal is sent to the inverter, the inverter reports fault ERR15 and stops.)

34：Frequency modification enable

(If the function is set to active, the frequency converter does not respond to changes in frequency when the frequency changes until the terminal status is valid.)

35：The direction of the PID action is reversed (when the terminal is valid, the direction of the PID action is opposite to the direction set by PA-03)

36：External parking terminal 1 (This terminal can be used to stop the inverter when the keyboard is controlled, which is equivalent to the function of the STOP button on the keyboard)

37：Control command switching terminal 2

(Used for switching between terminal control and communication control. If the command source is selected as terminal control, the system switches to communication control when the terminal is valid, vice versa.)

38：PID integration pause

(When this terminal is valid, the PID integral adjustment function is suspended, but the PID proportional adjustment and differential adjustment functions are still valid.)

39：Frequency source X and preset frequency switching (This terminal is valid, frequency source X is replaced by preset frequency (P0-08))

40：Frequency source Y and preset frequency switching (This terminal is valid, frequency source X is replaced by preset frequency (P0-08))

41：Motor selection terminal 1

(Through the four states of these two terminals, 4 sets of motor parameters can be switched. For details, see Attachment 3.)

43：PID Parameter switching

(When the PID parameter switching condition is DI terminal (PA-18=1), when the terminal is invalid, the PID parameter uses PA-05 to PA-07; when the terminal is valid, PA-15 to PA-17 is used)

44：User-defined fault 1

45：User-defined fault 2

(When the user-defined faults 1 and 2 are valid, the inverter will alarm ERR27 and ERR28 respectively, and the inverter will select the action mode selected by P9-49 according to the fault protection action.)

46：Speed control / torque control switching

(The inverter is switched between torque control and speed control mode. When the terminal is invalid, the inverter runs in A0-00 (speed/torque control mode) definition mode, and when this terminal is valid, it switches to another mode.)

47：emergency pull over

（When the terminal is valid, the inverter stops at the fastest speed, and the current is at the set current upper limit during the stop. This function is used to meet the requirement that the inverter needs to stop as soon as possible when the system is in an emergency.)

48:External parking terminal 2

(In any control mode (panel control, terminal control, communication control), this terminal can be used to decelerate the inverter, and the deceleration time is fixed at deceleration time 4.)

49：Deceleration DC braking

(When this terminal is valid, the inverter will first decelerate to the stop DC braking start frequency, and then switch to DC braking state.)

50：This run time is cleared

When the terminal is valid, the timing of the inverter running this time is cleared. This function needs to be used together with the timing operation (P8-42) and the current running time arrival (P8-53).

51：Two-wire / three-wire switching

(Used to switch between 2-wire and 3-wire control. If P4-11 is 2-wire 1, switch to 3-wire 1 when the terminal function is active. And so on.)

52：Reverse rotation prohibited (This terminal is valid, the inverter is prohibited from being reversed. It has the same function as P8-13)

53-59 ：Reserved

4 multi-segment command terminals can be combined into 16 states, and each of these 16 states corresponds to 16 command set values. Specifically as shown in the following table

K4	K3	K2	K1	Command setting	Corresponding parameter
OPF	OPF	OPF	OPF	Multi-segment instruction 0	PC-00

OPF	OPF	OPF	ON	Multi-segment instruction1	PC-01
OPF	OPF	ON	OPF	Multi-segment instruction 2	PC-02
OPF	OPF	ON	ON	Multi-segment instruction 3	PC-03
OPF	ON	OPF	OPF	Multi-segment instruction 4	PC-04
OPF	ON	OPF	ON	Multi-segment instruction 5	PC-05
OPF	ON	ON	OPF	Multi-segment instruction 6	PC-06
OPF	ON	ON	ON	Multi-segment instruction 7	PC-07
ON	OPF	OPF	OPF	Multi-segment instruction 8	PC-08
ON	OPF	OPF	ON	Multi-segment instruction 9	PC-09
ON	OPF	ON	OPF	Multi-segment instruction 10	PC-10
ON	OPF	ON	ON	Multi-segment instruction 11	PC-11
ON	ON	OPF	OPF	Multi-segment instruction 12	PC-12
ON	ON	OPF	ON	Multi-segment instruction 13	PC-3
ON	ON	ON	OPF	Multi-segment instruction 14	PC-14
ON	ON	ON	ON	Multi-segment instruction 15	PC-15

When the frequency source is selected to be multi-speed, 100.0% of the function code PC-00~PC-15 corresponds to the maximum frequency P0-10. In addition to the multi-speed function, the multi-segment command can also be used as a given source of PID or as a voltage source for VF separation control to meet the need to switch between different set values.

The following table shows the function of the acceleration/deceleration time selection terminal.

Terminal 2	Terminal 1	Acceleration or deceleration time selection	Corresponding parameter
OPF	OPF	acceleration time 1	P0-17 、P0-18
OPF	ON	acceleration time 2	P8-03 、P8-04
ON	OPF	acceleration time 3	P8-05 、P8-06

	ON	ON	acceleration time 4	P8-07 、P8-08	

The following table shows the function description of the motor selection terminal.

Terminal 1	Acceleration or deceleration time selection	Corresponding parameter
OPF	Motor 1	P1, P2 group
ON	Motor 2	A2 group

P4-10	DI Filtering time	0.000s～1.000s Set the software filter time for the DI terminal status. If the input terminal is susceptible to interference and cause malfunction, the parameter can be increased to enhance the anti-interference ability. However, this increase in filtering time causes the response of the DI terminal to be slow.	0.010s	☆
P4-11	端子命令方式	0：Two-wire type 1 1：Two-line 2　2：Three-wire type 1 3：Three-wire type 2 This parameter defines four different ways to control the operation of the drive via external terminals. Note: For convenience of explanation, the following three terminals DI1, DI2, and DI3 in the multi-function input terminals of DI1 to DI10 are selected as external terminals. That is, the functions of the three terminals DI1, DI2, and DI3 are selected by setting the values of P4-00 to P4-02. For the detailed function definition, see the setting range of P4-00 to P4-09. 0：Two-wire mode 1：This mode is the most commonly used two-wire mode.The forward and reverse running of the motor is determined by terminals DI1 and DI2. The function code is set as follows:	0	★

This parameter defines four different ways to control the operation of the drive via external terminals.

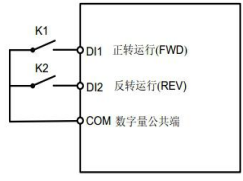
Note: For convenience of explanation, the following three terminals DI1, DI2, and DI3 in the multi-function input terminals of DI1 to DI10 are selected as external terminals.That is, the functions of the three terminals DI1, DI2, and DI3 are selected by setting the values of P4-00 to P4-02. For the detailed function definition, see the setting range of P4-00 to P4-09.

0：Two-wire mode 1：This mode is the most commonly used two-wire mode.The forward and reverse running of the motor is determined by terminals DI1 and DI2.

The function code is set as follows：

function code	name	Set value	Functional description
P4-11	Terminal command side	0	Two-wire 1
P4-00	DI1 Terminal function selection	1	Forward running(FWD)
P4-01	DI2 Terminal function selection	2	Reverse running(REV)

K1	K2	运行命令
1	0	正转
0	1	反转
1	1	停止
0	0	停止



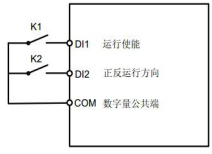
As shown in the figure above, in this control mode, K1 is closed and the inverter is running forward. K2 is closed and reversed. K1 and K2 are closed or disconnected at the same time, and the inverter stops running.

1：Two-wire mode2：In this mode, the DI1 terminal function is the operation enable terminal, and the DI2 terminal function determines the running direction.The function code is set as follows:

function code	name	Set value	Functional description
P4-11	Terminal command mode	1	Two-wire2
P4-00	DI1 Terminal function selection	1	Run enabled
P4-01	DI2 Terminal function selection	2	Forward direction and

			reverse direction

K1	K2	运行命令
1	0	正转
1	1	反转
0	0	停止
0	1	停止

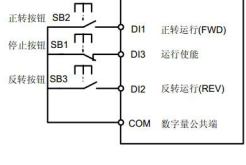


As shown in the figure above, in the closed state of K1, K2 disconnects the inverter from forward rotation, K2 closes the inverter reverse rotation; K1 disconnects and the inverter stops running.

2：Three-wire control mode 1：This mode DI3 is the enable terminal, and the direction is controlled by DI1 and DI2 respectively.

The function code is set as follows:

function code	name	Set value	Functional description
P4-11	Terminal command mode	2	Three-wire type 1
P4-00	DI1 Terminal function selection	1	Forward running(FWD)
P4-01	DI2 Terminal function selection	2	Reverse running(REV)
P4-02	DI3 Terminal function selection	3	Three-wire operation control

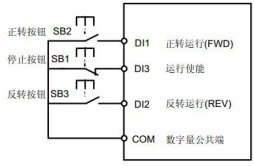


As shown in the figure above, in the control mode, when the SB1 button is closed, press the SB2 buttor to turn the inverter forward. Press the SB3 button to reverse the inverter. When the SB1 button is turned off, the inverter stops.During normal start-up and operation, it is necessary to keep the SB1 button closed. The commands of the SB2 and SB3 buttons are valid at the end of the closing action. The running status of the inverter is based on the last button action of the three buttons.

3：Three-wire control mode 2：The DI3 of this mode is the enable terminal, the run command is given by DI1, and the direction is determined by the state of DI2.

The function code is set as follows:

function code	name	Set value	Functional description
P4-11	Terminal command mode	3	Three-wire 2
P4-00	DI1 Terminal function selection	1	Run enabled
P4-01	DI2 Terminal function selection	2	Forward direction and reverse direction
P4-02	DI3 Terminal function selection	3	Three-wire operation control



As shown in the figure above, in the control mode, when the SB1 button is closed, press the SB2 buttor to run the inverter, K disconnects the inverter from forward rotation, K closes the inverter, and the inverter stops when the SB1 button is disconnected. During normal start-up and operation, the SB1 button must be closed and the SB2 button command will take effect at the end of the closing action.

P4-12	Terminal UP/DOWN Rate of change	0.001Hz/s ～65.535Hz/s Used to set the terminal UP/DOWN to adjust the set frequency, the speed of the frequency change, that is, the amount of change per second. When P0-22 (frequency point) is 2, the value ranges from 0.001 Hz/s to 65.535 Hz/s. When P0-22 (frequency point) is 1, the value ranges from 0.01 Hz/s to 655.35 Hz/s.	1.00Hz/s	☆
P4-13	AI curve 1 minimum input	0.00V ～P4-15	0.00V	☆
P4-14	AI curve 1 minimum input corresponding 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 maximum input corresponding setting	-100.0% ～+100.0%	100.0%	☆
P4-17	AI1 filtering time	0.00s ～10.00s	0.10s	☆

The above function code is used to set the relationship between the analog input voltage and the se value it represents.

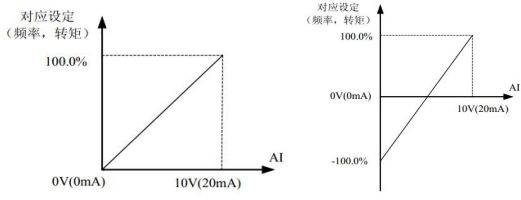
When the voltage of the analog input is greater than the set “maximum input” (P4-15), the analog voltage is calculated according to the “maximum input”; similarly, when the analog input voltage is less than the set “minimum input” (For P4-13), it is calculated with the minimum input or 0.0% according to the setting of “AI below minimum input setting selection” (P4-34).

When the analog input voltage is greater than the set "maximum input" (P4 - when the analog input is current input, 1mA current is equivalent to 0.5V voltage.

AI1 input filter time, used to set the software filter time of AI1. When the on-site analog quantity is easily interfered, please increase the filter time so that the detected analog quantity tends to be stable, but the larger the filter time is, the analog quantity detection is. The response speed is slower, and how to set it up needs to be weighed according to the actual application.

In different applications, the meaning of the nominal value corresponding to 100.0% of the analog setting is different. For details, please refer to the description of each application part.

The following illustrations are for two typical settings:



P4-18	AI curve 2 minimum input	0.00V ～P4-20	0.00V	☆
P4-19	AI curve 2 minimum input corresponding 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 corresponding setting	-100.0% ～+100.0%	100.0%	☆
P4-22	AI2 filtering time	0.00s ～10.00s	0.10s	☆
P4-23	AI curve 3 minimum input	-10.00V ～P4-25	-10.00V	☆
P4-24	AI curve 3 minimum input corresponding 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 corresponding setting	-100.0% ～+100.0%	100.0%	☆
P4-27	AI3 filtering time	0.00s ～10.00s	0.10s	☆
P4-28	PULSE curve 3 minimum input	-10.00V ～P4-25	0.00V	☆
P4-29	PULSE curve 3 minimum input corresponding setting	-100.0% ～+100.0%	0.0%	☆
P4-30	PULSE curve 3 maximum input	P4-23 ～+10.00V	10.00V	☆
P4-31	PULSE curve 3 maximum input corresponding setting	-100.0% ～+100.0%	100.0%	☆
P4-32	PULSE Filtering time	0.00s ～10.00s	0.10s	☆
P4-33	AI Curve selection		321	☆

Single digit	AI1 Curve selection
1	curve1（2 points, see P4-13 ~ P4-16 ）
2	curve2（2 points, see P4-18 ~ P4-21 ）
3	curve3（2 points, see P4-23 ~ P4-6 ）

4	curve4（4 points, see A6-00 ~ A6-07）
5	curve5（4 Point, see A6-08 ~ A6-15 ）
Ten digit	AI2 Curve selection（1 ～5，Same above）
Hundreds digit	AI3 Curve selection（1 ～5，Same above）

The ones digit of the function code, ten digits and hundred digits are used to select, the analog inpu AI1, AI2, AI3 corresponding setting curve. Each of the analog inputs can be selected from any of the five curves.

Curve 1, curve 2, and curve 3 are both 2-point curves, which are set in the P4 group function code, and curve 4 and curve 5 are both 4-point curves, which need to be set in the A6 group function code.

The standard unit of JAC300 inverter provides 2 analog input ports, and AI3 is used as keyboard potentiometer.

P4-34	AI 低于最小输入设定选择	<table><tr><td>Single digit</td><td>AI1 is below the minimum input setting selection</td></tr><tr><td>0</td><td>Corresponding to the minimum input setting</td></tr><tr><td>1</td><td>0.0%</td></tr><tr><td>Ten digit</td><td>AI2 is lower than the minimum input setting selection (0 to 1, as above)</td></tr><tr><td>Hundreds digit</td><td>AI3 is lower than the minimum input setting selection (0 to 1, as above)</td></tr></table> This function code is used to set, when the voltage of the analog input is less than the set “minimum input”, how the setting corresponding to the analog quantity is determined. The ones, tens, and hundreds of the function codes correspond to the analog inputs AI1, AI2, and AI3, respectively.	000	☆

		If 0 is selected, when the AI input is lower than the "minimum input", the corresponding setting of the analog quantity is the curve "minimum input corresponding setting" determined by the function code (P4-14, P4-19, P4- 24). If the selection is 1, the analog input is set to 0.0% when the AI input is lower than the minimum input.		
P4-35	DI1 delay time	0.0s ～3600.0s	0.0s	★
P4-36	DI2 delay time	0.0s ～3600.0s	0.0s	★
P4-37	DI3 delay time	0.0s ～3600.0s	0.0s	★
It is used to set the delay time for the inverter to change the state of the DI terminal. At present, only DI1, DI2, and DI3 have the function of setting the delay time.				
P4-38	DI Terminal valid mode selection 1	0：Active high 1：Active low Single digit：DI1 Ten digits：DI2 Hundreds digit：DI3 Thousand digits：DI4 Ten thousand digits：DI5	00000	★
P4-39	DI terminal valid mode selection 2	0：Active high 1：Active low Single digit：DI6 Ten digits：DI7	00000	★
Used to set the active status mode of the digital input terminal. When the selection is active high, the corresponding DI terminal is valid when connected to COM, and the disconnection is invalid. When the selection is active low, the corresponding DI terminal is invalid when connected to COM, and the disconnection is valid.				
P5 group output terminal				
P5-01	DO output function selection		0	☆
P5-02	Control board relay function selection(RO1A-RO1		2	☆

	B-RO1C)			
P5-03	Extended relay function selection (RO2A-RO2B-RO2C)		0	☆

0：no output

1：When the inverter is running (The inverter is running, there is output frequency (can be zero), and the ON signal is output at this time.)

2：Fault output (failure for free stop) When the inverter fails and the fault stops, the ON signal is output.

3：Frequency level detection PDT1 output Refer to the description of function codes P8-19 and P8-20.

4：Frequency arrival Please refer to the description of function code P8-21

5：Zero speed operation (not output when stopped)

When the inverter runs and the output frequency is 0, the ON signal is output. This signal is OFF when the drive is in the stop state.

6：Motor overload pre-alarm

Before the motor overload protection action, it is judged according to the threshold value of the overload pre-alarm, and the ON signal is output after the pre-alarm threshold is exceeded. For motor overload parameter setting, see function code P9-00 ~ P9-02.

7：Inverter overload pre-alarm 10 seconds before the inverter overload protection occurs, the ON signal is output.

8：Set the value to arrive When the count value reaches the value set by PB-08, the ON signal is output.

9：Specify the value to arrive

When the count value reaches the value set by PB-09, the ON signal is output. Counting function reference PB group function description

10：Length reached When the actual length detected exceeds the length set by PB-05, the ON signal is output.

11：PLC cycle completion When the simple PLC runs one cycle, it outputs a pulse signal with a width of 250ms.

12：Accumulated running time arrival When the accumulated running time of the inverter exceeds the time set by P8-17, the ON signal is output.

13：Frequency limit

When the set frequency exceeds the upper limit frequency or the lower limit frequency, and the inverter output frequency also reaches the upper limit frequency or the lower limit frequency, the ON signal is output.

14：Torque limit

When the inverter is in the speed control mode, when the output torque reaches the torque limit value, the inverter is in the stall protection state and outputs the ON signal.

15：Ready to run

When the main circuit of the inverter and the control loop power supply have been stabilized, and the inverter does not detect any fault information, the inverter outputs the ON signal when it is in the operable state.

16：AI1>AI2 When the value of analog input AI1 is greater than the input value of AI2, the ON signal is output.

17：Upper limit frequency arrival When the running frequency reaches the upper limit frequency, an ON signal is output.

18：Lower limit frequency arrival (operation related)

When the running frequency reaches the lower limit frequency, the ON signal is output. This signal is OPF in the stop state.

19：Undervoltage status output When the inverter is under voltage, it outputs an ON signal.

20：Communication setting

21：Positioning completed (reserved)

22：Positioning close (reserved)

23：2 at zero speed (also output when stopped)

When the inverter output frequency is 0, the ON signal is output. This signal is also ON in the stop state.

24：Cumulative power-on time arrives

When the cumulative power-on time (P7-13) of the inverter exceeds the time set by P8-16, the ON signal is output.

25：Frequency level detection PDT2 output

Please refer to the description of function code P8-28, P8-29

26：Frequency 1 reaches the output Please refer to the description of function codes P8-30 and P8-31.

27：Frequency 2 reaches the output Please refer to the description of function codes P8-32 and P8-33.

28：Current 1 reaches the output Please refer to the description of function codes P8-38 and P8-39.

29：Current 2 reaches the output Please refer to the description of function codes P8-40 and P8-41.

30：Timing arrival output

When the timing function selection (P8-42) is valid, the inverter will output the ON signal after the running time reaches the set timing time.

31：AI1 Input overrun

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), the ON signal is output.

32：Dropped When the inverter is in the off state, it outputs an ON signal.

33：Reverse running When the inverter is in reverse operation, it outputs ON signal.

34：Zero current state Please refer to the description of function code P8-28, P8-29

35：Module temperature reached

When the inverter module heatsink temperature (P7-07) reaches the set module temperature arrival value (P8-47), the output ON signal

36：Output current overrun Please refer to the description of function code P8-36, P8-37

37：Lower limit frequency arrival (stop output also)

When the running frequency reaches the lower limit frequency, the ON signal is output. This signa is also ON during the stop state.

38：Alarm output (all faults)

When the inverter fails and the processing mode of the fault is continuous operation, the inverte alarm output.

39：Motor over temperature pre-alarm

When the motor temperature reaches P9-58 (motor overheat pre-alarm threshold), the ON signal is output. (Motor temperature can be viewed through U0-34)

40：When the running time arrives When the inverter starts running for longer than the time set by P8-53, the ON signal is output.

41：Fault output (for free stop fault and undervoltage not output)

P5-07	AO1 Output function selection	0：Operating frequency 1：Setting frequency 2：Output current 3：Motor output torque (absolute value, relative to the motor) 4：Output Power	0	☆
P5-08	AO2 Output function selection	5：The output voltage 6：PLUSE Pulse given 7：AI1 8：AI2 9：AI3 10：length 11：Value 12：Communication setting 13：Motor speed 14：Output current (100.0% corresponds to 1000.0A) 15：Output voltage (100.0% corresponds to 1000.0V) 16：Motor output torque (actual value, relative to the motor) 17：Inverter output torque (actual value, relative to the frequency converter)	1	☆
P5-10	AO1 Zero offset coefficient	-100.0% ～+100.0%	0.0%	☆
P5-11	AO1 Gain	-10.00 ～+10.00	1.00	☆
P5-12	AO2 Zero offset coefficient	-100.0% ～+100.0%	0.0%	☆

P5-13	AO2 Gain	-10.00 ～+10.00	1.00	☆
The above function codes are generally used to correct the zero drift of the analog output and the deviation of the output amplitude. It can also be used to customize the required AO output curve. If the zero offset is indicated by "b", the gain is represented by k, the actual output is represented by Y and the standard output is represented by X, the actual output is .：Y=kX ＋b。 Among them, the zero offset coefficient of AO1 and AO2 corresponds to 10V (or 20mA), and the standard output refers to the output of 0V~10V (or 0mA~20mA) corresponding to the analog output without zero offset and gain correction. For example, if the analog output is the running frequency, it is desirable to output 8V when the frequency is 0, and output 3V when the frequency is the maximum frequency, then the gain should be set to “-0.50” and the zero offset should be set to “80%”.				
P5-17	DO 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	☆
P5-22	DO Output terminal valid state selection	0：Positive logic 1：Reverse logic Single digit：DO Ten digits：RELAY1 Hundreds digits：RELAY2	00000	☆
P6 group start and stop control				
P6-00	Startup mode	0：Direct start 1：Speed tracking restart 2：Pre-excitation start (AC asynchronous machine) Only valid for asynchronous motors, used to establish a magnetic field before the motor is running. Pre-excitation current and pre-excitation time are described in function codes P6-05 and P6-06.	0	☆
P6-01	Speed tracking method	0：Starting from the stop frequency 1：Starting from the power frequency 2：Starting from the maximum frequency Complete the speed tracking process in the shortest time and select the way the inverter tracks the motor speed.	0	★
P6-02	Speed tracking	1 ～100 The larger the parameter, the faster the tracking	20	☆

		speed. However, setting too large may cause the tracking effect to be unreliable.		
P6-03	Starting frequency	0.00Hz～10.00Hz	0.00Hz	☆
P6-04	Start frequency hold time	0.0s ～100.0s	0.0s	★

To ensure motor torque at start-up, set the appropriate starting frequency. In order to fully establish the magnetic flux when the motor starts, the starting frequency needs to be maintained for a certain period of time.

The start frequency P6-03 is not limited by the lower limit frequency. However, when the set target frequency is less than the start frequency, the inverter does not start and is in the standby state.

The start frequency hold time does not work during the forward and reverse switching.

The start frequency hold time is not included in the acceleration time, but is included in the run time of the simple PLC.

example 1:

P0-03 ＝0 Frequency source is digital given

P0-08 ＝2.00Hz The digital setting frequency is 2.00Hz

P6-03 ＝5.00Hz Starting frequency is 5.00Hz

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

At this point, the inverter will be in standby mode and the inverter output frequency will be 0.00Hz.

Example 2：

P0-03 ＝0 Frequency source is digital given

P0-08 ＝10.00Hz The digital setting frequency is 10.00Hz

P6-03 ＝5.00Hz Starting frequency is 5.00Hz

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

At this point, the inverter accelerates to 5.00 Hz for 2.0 s and then accelerates to a given frequency of 10.00 Hz.

P6-05	Start DC braking current / pre-excitation current	0% ～100%	0%	★
P6-06	Start DC braking time / pre-excitation time	0.0s ～100.0s	0.0s	★

Start DC braking, which is generally used to stop the running motor and then start. Pre-excitation is used to make the asynchronous motor establish a magnetic field before starting, which improves the

response speed.

Starting DC braking is only effective when the startup mode is direct startup. At this time, the inverter first performs DC braking according to the set starting DC braking current, and then starts running after the DC braking time is started. If the DC braking time is set to 0, it will start directly without DC braking. The greater the DC braking current, the greater the braking force.

If the starting mode is asynchronous machine pre-excitation start, the inverter first establishes the magnetic field according to the set pre-excitation current, and then starts running after the set pre-excitation time. If the pre-excitation time is set to 0, it will start directly without the pre-excitation process.

The DC braking current / pre-excitation current is activated, and there are two cases with respect to the base value.

1、When the rated current of the motor is less than or equal to 80% of the rated current of the inverter, it is the percentage base value relative to the rated current of the motor.

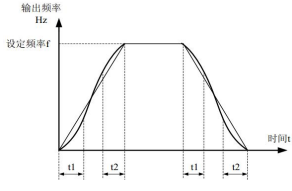
2、When the rated current of the motor is greater than 80% of the rated current of the inverter, it is relative to 80% of the rated current of the inverter as a percentage base value.

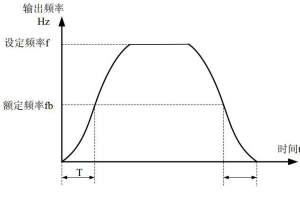
P6-07	Acceleration and deceleration	0：Linear acceleration and deceleration The output frequency is incremented or decremented by a straight line. The JAC300 offers 4 acceleration and deceleration times. It can be selected through the multi-function digital input terminals (P4-00 to P4-08). 1：S curve acceleration and deceleration A The output frequency is incremented or decremented according to the S-curve. The S-curve is used in places where gentle start or shutdown is required, such as elevators, conveyor belts, etc. Function codes P6-08 and P6-09 define the time ratio of the start and end segments of the S-curve acceleration/deceleration, respectively. 2：S curve acceleration and deceleration B In this S-curve acceleration/deceleration B, the motor rated frequency f_b is always the inflection point of the S-curve. As shown in Figure 6-12. It is generally used in applications where rapid acceleration and deceleration are required in high-speed areas above the rated frequency.	0	★

		When the set frequency is above the rated frequency, the acceleration/deceleration time is: $t = (\frac{4}{9} \times (\frac{f}{f_b})^2 + \frac{5}{9}) \times T$ f is the set frequency, fb is the rated frequency of the motor, and T is the time from the 0 frequency acceleration to the rated frequency fb.		
P6-08	S curve start time ratio	0.0%～(100.0%-P6-09)	30.0%	★
P6-09	S curve end period time ratio	0.0%～(100.0%-P6-08)	30.0%	★

The function codes P6-08 and P6-09 respectively define the ratio of the start and end time of the S-curve acceleration/deceleration A. The two function codes must satisfy: P6-08 + P6-09 ≤ 100.0%.

In the figure below, t1 is the parameter defined by parameter P6-08, and the slope of the output frequency change gradually increases during this period. T2 is the time defined by parameter P6-09 during 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, that is, the interval is linearly accelerated or decelerated.





P6-10	Stop mode	0：Slow down parking After the stop command is valid, the inverter reduces the output frequency according to the deceleration time, and stops after the frequency drops to zero. 1 ：Free parking After the stop command is valid, the inverter immediately terminates the output, and the motor is free to stop according to the mechanical inertia.	0	☆

P6-11	Stop DC braking start frequency	0.00Hz～Maximum frequency	0.00Hz	☆
P6-12	DC brake waiting time	0.0s ～100.0s	0.0s	☆
P6-13	DC braking current at stop	0% ～100%	0%	☆
P6-14	DC braking time at stop	0.0s ～100.0s	0.0s	☆

DC braking start frequency at stop: During the deceleration stop, when the running frequency decreases to this frequency, the DC braking process starts.

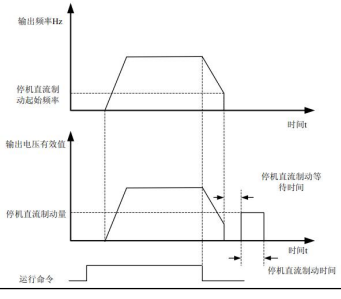
DC brake waiting time at stop: After the running frequency is reduced to the stop DC braking start frequency, the inverter stops output for a period of time before starting the DC braking process. It is used to prevent malfunctions such as overcurrent that may be caused by starting DC braking at higher speeds.

DC braking current at stop: DC braking current at stop, there are two cases relative to the base value.

1、When the rated current of the motor is less than or equal to 80% of the rated current of the inverter, it is the percentage base value relative to the rated current of the motor.

2、When the rated current of the motor is greater than 80% of the rated current of the inverter, it is the relative base value of 80% of the rated current of the inverter. DC braking time at stop: The time during which the DC braking amount is maintained. This value is 0 and the DC braking process is cancelled.

The DC braking process at stop is shown in the figure below.

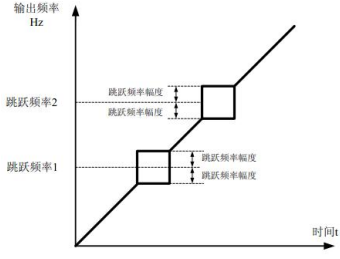


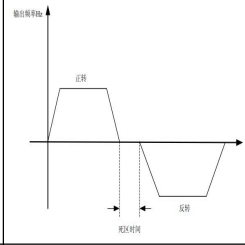
P6-15	Brake usage rate	0% ～100% Only valid for inverters with built-in brake unit. It is used to adjust the duty ratio of the moving unit, and the braking usage rate is high. The brake unit has a high duty ratio and a strong braking effect, but the bus voltage of the inverter fluctuates greatly during the	100%	☆

		braking process.		
P6-18	Speed tracking current	30% ～200% The maximum current limit of the speed tracking process is within the range of the “speed tracking current” setting. If the set value is too small, the effect of the speed tracking will be worse.	Model determination	★
P7 group keyboard and display				
P7-01	M key function selection	0：M key is invalid 1：The operation panel command channel is switched between the remote command channel (terminal command channel or communication command channel). If the current command source is keyboard control, this button function is invalid. 2：Forward and reverse switching Use the M key to switch the direction of the frequency command. This function is only available when the command source is the operator panel command channel. 3：Forward jog Forward rotation by keyboard M key（FJOG） 4：Reverse jog Reverse jog through keyboard M key（RJOG）	0	★
P7-02	STOP/RESET key function	0： STOP/RES key stop function is valid only in keyboard operation mode 1： The STOP/RES key stop function is valid in any mode of operation.	1	☆
P7-03	LED operation display parameter 1	0000～FFFF Bit00: operating frequency1(Hz) Bit01: setting frequency(Hz) Bit02: busbar voltage(V) Bit03: output voltage(V) Bit04: Output current(A) Bit05: Output Power(kW) Bit06: Output torque(%) Bit07: DI Input status Bit08: DO Output status Bit09: AI1Voltage(V) Bit10: AI2Voltage(V)	1F	☆

		Bit11: AI3 Voltage(V) Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID set up		
P7-04	LED Run display parameter 2	0000～FFFF Bit00：PID Feedback Bit01：PLC stage Bit02：PULSE Input pulse frequency (kHz) Bit03：Operating frequency 2（Hz） Bit04：Remaining running time Bit05：AI1 pre-correction voltage(V) Bit06：AI2 pre-correction voltage(V) Bit07：AI3 pre-correction voltage(V) Bit08：Line speed Bit09：Current power-on time(Hour) Bit10：Current running time(Min) Bit11：PULSE input pulse frequency (Hz) Bit12：Communication setting Bit13：Encoder feedback speed(Hz) Bit14：Main frequency X displayHz) Bit15：Auxiliary frequency Y display(Hz)	0	☆
Run display parameters, which are used to set the parameters that can be viewed when the inverter is running. The maximum number of status parameters that can be viewed is 32. According to the P8-03 and P7-04 parameter values, the status parameters to be displayed are selected. The display order starts from the lowest bit of P7-03.				
P7-05	LED stop display parameter	0000～FFFF Bit00：Setting frequency(Hz) Bit01：busbar voltage(V) Bit02：DI Input status Bit03：DO Output status Bit04：AI1 Voltage(V) Bit05：AI2 Voltage(V) Bit06：AI3 Voltage(V) Bit07：Count value Bit08：Length value Bit09：PLC stage	33	☆

		Bit10：Load speed Bit11：PID set up Bit12：PULSE Input pulse frequency（kHz）		
P7-06	Load speed display factor	0.0001～6.5000 When the load speed needs to be displayed, the corresponding relationship between the inverter output frequency and the load speed is adjusted by this parameter. Refer to the description of P7-12 for the specific correspondence.	1.0000	☆
P7-07	Module radiator temperature	0.0℃～100.0℃	-	●
P7-08	product code	-	-	●
P7-09	Cumulative running time	0h～65535h When the running time reaches the set running time P8-17, the inverter multi-function digital output function (12) outputs ON signal.	-	●
P8 group auxiliary function				
P8-00	Jog running frequency	0.00Hz～Maximum frequency	2.00Hz	☆
P8-01	Jog acceleration time	0.0s ～6500.0s	20.0s	☆
P8-02	Jog deceleration time	0.0s ～6500.0s	20.0s	☆
Define the given frequency and acceleration/deceleration time of the inverter when jogging. When jog running, the start mode is fixed to the direct start mode (P6-00=0), and the stop mode is fixed to the deceleration stop (P6-10=0)				
P8-03	acceleration time2	0.0s ～6500.0s	Model determination	☆
P8-04	deceleration time2	0.0s ～6500.0s	Model determination	☆
P8-05	acceleration time3	0.0s ～6500.0s	Model determination	☆
P8-06	deceleration time3	0.0s ～6500.0s	Model determination	☆
P8-07	acceleration time4	0.0s ～6500.0s	Model	☆

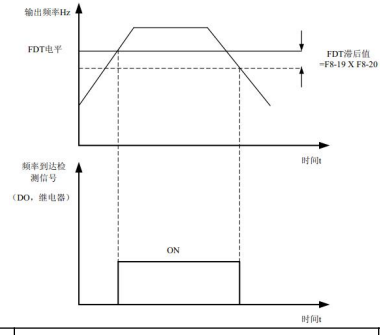
				determinat ion	
P8-08	deceleration time 4	0.0s ～6500.0s		Model determinat ion	☆
The JAC300 provides 4 sets of acceleration/deceleration time, which are P0-17\P0-18 and the above three groups of acceleration and deceleration time. The definitions of the 4 groups of acceleration and deceleration time are exactly the same. Please refer to the related instructions of P0-17 and P0-18. Through the different combinations of the multi-function digital input terminals DI, you can switch between 4 groups of acceleration/deceleration time. For details, please refer to the related instructions in function codes P4-01 to P4-05.					
P8-09	Jump frequency1	0.00Hz～Maximum frequency		0.00Hz	☆
P8-10	Jump frequency2	0.00Hz～Maximum frequency		0.00Hz	☆
P8-11	Jump frequency amplitude	0.00Hz～Maximum frequency		0.01Hz	☆
When the set frequency is within the hopping frequency range, the actual operating frequency will run at a hopping frequency that is closer to the set frequency. By setting the skip frequency, the frequency converter can be prevented from avoiding the mechanical resonance point of the load. The JAC300 can set two skip frequency points. If both skip frequencies are set to 0, the skip frequency function is canceled. The principle of the jump frequency and the frequency of the jump frequency, please refer to the following figure  					
P8-12	Positive	0.0s ～3000.0s		0.0s	☆

	reversal dead time	Set the transition time at the output 0Hz during the forward/reverse transition of the inverter, as shown below:  		
P8-13	Reverse frequency prohibition	0：allow 1 ：Prohibited	0	☆
P8-14	Set the frequency lower than the lower limit frequency operation mode	0：Running at the following frequency limit 1：Downtime 2：Zero speed operation When the set frequency is lower than the lower limit frequency, the operating state of the inverter can be selected by this parameter.	0	☆
P8-15	Droop control	0.00Hz～10.00Hz This function is generally used for load distribution when multiple motors are dragging the same load. The droop control means that as the load increases, the output frequency of the inverter decreases, so that when multiple motors are dragged by the same load, the output frequency of the motor in the load drops more, thereby reducing the load of the motor and realizing the operation of multiple motors. The load is even. This parameter refers to the frequency drop value of the output when the inverter outputs the rated load.	0.00Hz	☆
P8-16	Set the cumulative power-on	0h～65000h When the accumulated power-on time (P7-13) reaches the power-on time set by P8-16, the inverter	0h	☆

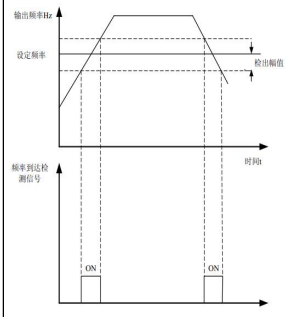
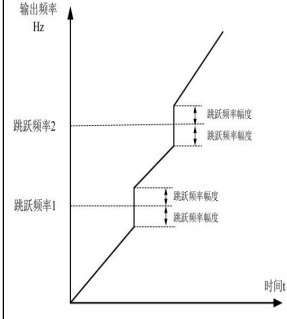
	arrival time	multi-function digital DO outputs an ON signal.		
P8-17	Set cumulative run arrival time	0h～65000h Used to set the running time of the inverter. When the accumulated running time (P7-09) reaches this set running time, the inverter multi-function digital DO outputs ON signal.	0h	☆
P8-18	Start protection selection	0：No protection 1 ：protection This parameter relates to the safety protection function of the frequency converter. If the parameter is set to 1, if the running command of the inverter is valid (for example, the terminal running command is closed before power-on), the inverter does not respond to the running command, and the running command must be removed once. After the running command is valid again. The inverter responds. In addition, if the parameter is set to 1, if the running command of the inverter fault reset time is valid, the inverter does not respond to the running command, and the running command must be removed before the running protection state can be eliminated. Setting this parameter to 1 can prevent the danger caused by the motor responding to the running command when the power is turned on or when the fault is reset without knowing it.	0	☆
P8-19	Frequency detection value(PDT1)	0.00Hz～Maximum frequency	50.00Hz	☆
P8-20	Frequency detection hysteresis(PDT1)	0.0%～100.0%（PDT1 electrical level）	5.0%	☆

When the running frequency is higher than the frequency detection value, the multi-function output DO of the inverter outputs ON signal, and after the frequency is lower than the certain frequency value of the detected value, the DO output ON signal is canceled.

The above parameters are used to set the detection value of the output frequency and the hysteresis value of the output action release. Where P8-20 is the percentage of the hysteresis frequency relative to the frequency detection value P8-19. The figure below shows a schematic diagram of the PDT function.

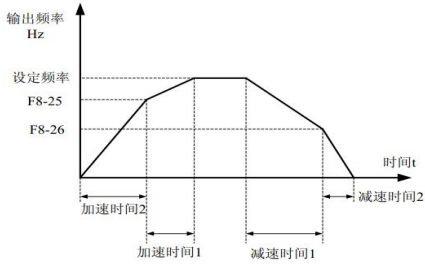


P8-21	Frequency arrival detection width	0.0%～100.0%（Maximum frequency） When the running frequency of the inverter is within a certain range of the target frequency, the inverter multi-function DO outputs ON signal. This parameter is used to set the detection range of the frequency arrival, which is a percentage relative to the maximum frequency. The figure below shows the frequency arrival.	0.0%	☆

				
P8-22	Whether the jump frequency is valid during acceleration and deceleration	0：invalid 1：effective This function code is used to set whether the skip frequency is valid during acceleration and deceleration. When set to valid, when the running frequency is in the skip frequency range, the actual running frequency will skip the set skip frequency boundary. The figure below shows the effective hopping frequency during acceleration and deceleration. 	0	☆
P8-25	Acceleration time 1 and acceleration time 2 switching	0.00Hz～Maximum frequency	0.00Hz	☆

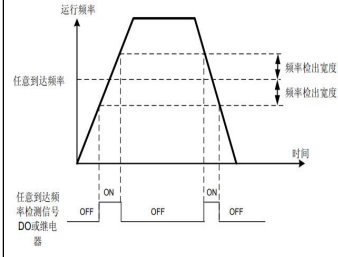
	frequency points			
P8-26	Deceleration time 1 and deceleration time 2 switch frequency point	0.00Hz～Maximum frequency	0.00Hz	☆

This function is valid when the motor is selected as motor 1 and the acceleration/deceleration time is not selected by DI terminal switching. It is used to select different acceleration/deceleration time according to the operating frequency range without running through the DI terminal during the running of the inverter.

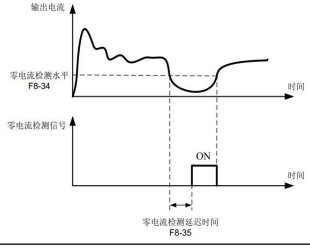


The figure above is a schematic diagram of the acceleration/deceleration time switching. During the acceleration process, if the running frequency is less than P8-25, the acceleration time 2 is selected; if the running frequency is greater than P8-25, the acceleration time 1 is selected.
During deceleration, if the running frequency is greater than P8-26, the deceleration time 1 is selected. If the running frequency is less than P8-26, the deceleration time 2 is selected.

P8-27	Terminal jog priority	0：invalid 1：valid When the terminal jog priority is valid, if the terminal jog command appears during operation, the inverter switches to the terminal jog operation state.	0	☆
P8-28	Frequency detection value(PDT2)	0.00Hz～Maximum frequency	50.00Hz	☆
P8-29	Frequency detection hysteresis(PDT2)	0.0%～100.0%（PDT2 electrical level）	5.0%	☆
P8-30	Arbitrary arrival	0.00Hz～Maximum frequency	50.00Hz	☆

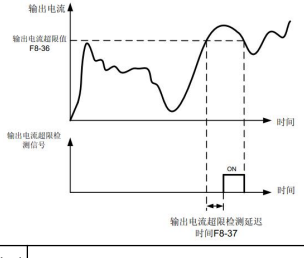
	frequency detection value 1			
P8-31	Arbitrary arrival frequency detection width 1	0.0%～100.0%（Maximum frequency）	0.0%	☆
P8-32	Arbitrary arrival frequency detection value 2	0.00Hz～Maximum frequency	50.00Hz	☆
P8-33	Arbitrary arrival frequency detection width 2	0.0%～100.0%（Maximum frequency） When the output frequency of the inverter is within the positive and negative detection range of any arrival frequency detection value, the multi-function DO outputs an ON signal. JAC300 provides two sets of arbitrary arrival frequency detection parameters, and sets the frequency value and frequency detection range respectively. The figure below shows a schematic of this function.  	0.0%	☆
P8-34	Zero current detection level	0.0%～300.0% 100.0%Corresponding motor rated current	5.0%	☆
P8-35	Current detection delay time	0.01s～600.00s	0.10s	☆

When the output current of the frequency inverter is less than or equal to the zero current detection level and the duration exceeds the zero current detection delay time, the inverter multi-function DO outputs ON signal. The figure below shows a schematic diagram of zero current detection.

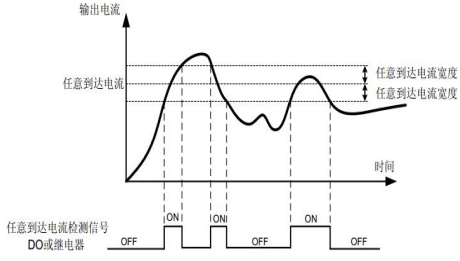


P8-36	Output current limit	0.0%（Not detecting） 0.1%～300.0%（Motor rated current）	200.0%	☆
P8-37	Output current overrun detection delay time	0.00s ～600.00s	0.00s	☆

When the output current of the inverter is greater than or exceeds the detection point and the duration exceeds the software over-current detection delay time, the inverter multi-function DO outputs ON signal. The figure below shows the output current over-limit function.



P8-38	Arbitrary arrival current 1	0.0%～300.0%(Motor rated current)	100.0%	☆
P8-39	Arbitrary arrival current 1 width	0.0%～300.0%(Motor rated current)	0.0%	☆
P8-40	Arbitrary arrival current 2	0.0%～300.0%(Motor rated current)	100.0%	☆

P8-41	Arbitrary arrival current 2 width	0.0%～300.0%(Motor rated current)	0.0%	☆
	When the output current of the frequency inverter is within the positive and negative detection width of any set current, the frequency inverter multi-function DO outputs ON signal. JAC300 provides two sets of arbitrary arrival current and detection width parameters. The figure below shows the function diagram.  		
P8-42	Timing function selection	0: invalid 1: valid	0	☆
P8-43	Timing run time selection	0：P8-44 set up 1：AI1 2：AI2 3：AI3 Analog input range corresponds to P8-44		☆
P8-44	Timed running time	0.0Min～6500.0Min	0.0Min	☆
This group of parameters is used to complete the timing operation of the inverter. P8-42 When the timing function selection is valid, the frequency inverter will start timing when it starts. After the set timing operation time, the frequency inverter will stop automatically and the multi-function DO will output the ON signal. Each time the inverter starts, it starts from 0, and the remaining running time can be viewed through U0-20. The timing running time is set by P8-43 and P8-44, and the time unit is minute.				
P8-45	AI1 lower limit of input voltage protection value	0.00V ～P8-46	3.10V	☆
P8-46	AI1 upper	P8-45 ～10.00V	6.80V	☆

	limit of input voltage protection value			
When the value of analog input AI1 is greater than P8-46, or the AI1 input is less than P8-45, the inverter multi-function DO outputs “AI1 input overrun” ON signal to indicate whether the input voltage of AI1 is within the set range.				
P8-47	Module temperature reached	0℃～100 ℃ When the temperature of the inverter radiator reaches this temperature, the inverter multi-function DO outputs the "module temperature reached" ON signal.	75℃	☆
P8-48	Cooling fan control	0：Running fan operation 1：The fan is always running It is used to select the operation mode of the cooling fan. When 0 is selected, the inverter runs in the running state. If the radiator temperature is higher than 40 degrees in the shutdown state, the fan will run. When the radiator is below 40 degrees in the shutdown state, the fan will not operate. Running. When 1 is selected, the fan operates consistently after power-on.	0	☆
P8-49	Wake-up frequency	dormancy frequency(P8-51) ～ Maximum frequency（P0-10)	0.00Hz	☆
P8-50	Wake-up delay time	0.0s ～6500.0s	0.0s	☆
P8-51	dormancy frequency	0.00Hz～dormancy frequency（P8-49)	0.00Hz	☆
P8-52	Wake-up delay time	0.0s ～6500.0s	0.0s	☆
This set of parameters is used to implement sleep and wake-up functions in water supply applications. During the running of the inverter, when the set frequency is less than or equal to the sleep frequency of P8-51, after the delay time of P8-52, the inverter enters the sleep state and stops automatically. If the inverter is in the sleep state and the current running command is valid, when the set frequency is greater than or equal to the P8-49 wake-up frequency, the inverter will start after the delay time of P8-50. In general, please set the wake-up frequency to be greater than or equal to the sleep frequency. When the wake-up frequency and sleep frequency are both set to 0.00 Hz, the sleep and wake-up functions are invalid. When the sleep function is enabled, if the frequency source uses the PID, whether the sleep state PID				

is calculated or not is affected by the function code PA-28. At this time, the PID stop operation (PA-28=1) must be selected.

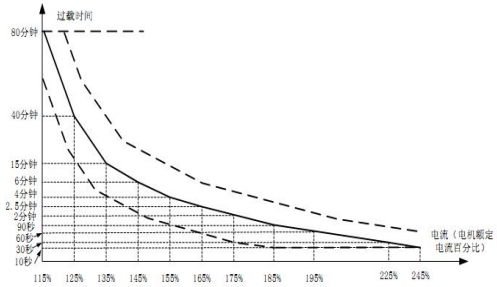
P8-53	Run arrival time setting	0.0 ～6500.0 minute When the running time of this startup reaches this time, the inverter multi-function digital DO outputs the "this running time reaches" ON signal.	0.0Min	☆
P8-54	Output power correction factor	0.00% ～200.0% When the output power (U0-05) does not correspond to the expected value, the output power can be linearly corrected by this value.	100.0%	☆
P9 group failure and protection				
P9-00	Motor overload protection option	0：Prohibited 1：allow	1	☆
P9-01	Motor overload protection gain	0.20 ～10.00	1.00	☆

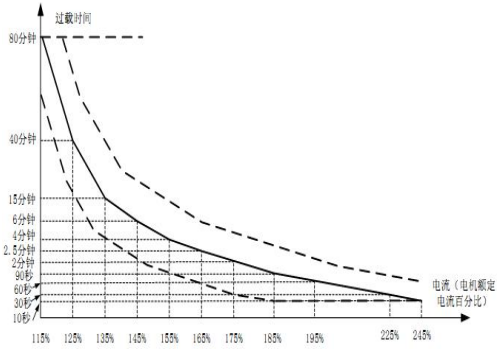
P9-00=0：There is no motor overload protection function, there may be danger of motor overheating damage. It is recommended to heat the relay between the inverter and the motor;

P9-00=1：At this time, the inverter judges whether the motor is overloaded according to the inverse time curve of the motor overload protection.

The inverse time curve of motor overload protection is: 220% × (P9-01) × motor rated current, the alarm motor is overloaded for 1 minute. Therefore, in order to effectively protect different load motors, it is necessary to set the parameters according to the motor overload capacity. . Motor overload protection is an inverse time curve.

The motor overload protection curve is shown below:：





1）When the motor running current reaches 175% of the rated motor current, the motor is overloaded after 2 minutes of continuous operation.（Err11）;

Under the condition that the motor running current reaches 115% of the rated motor current, the motor overload (Err11) is reported after continuous operation for 80 minutes. For example: motor rated current 100A

If PB-01 is set to 1.00, then when the motor running current reaches 125% (125A) of 100A, the inverter will report motor overload fault after 40 minutes;

If PB-01 is set to 1.20, then when the motor running current reaches 125% (125A) of 100A, after 40*1.2=48 minutes, the inverter reports motor overload fault;

The maximum time is 80 minutes overload, and the shortest time is 10 seconds overload.

2）Motor overload protection adjustment example: The motor needs to run for 2 minutes with 150% motor current. The motor overload curve shows that 150% (I) current is at 145% (I1) and 155% (I2). In the current range, 145% of the current is 6 minutes (T1) overload, and 155% of the current is 4 minutes (T2) overload, then the default current setting of 150% of the motor rated current is 5 minutes. The

overload is calculated as follows:

T = T1 + (T2 - T1)*(I － I1)/(I2 －I1) = 4 + (6 - 4)*(150% － 145%)/(155% －145%) = 5（分钟）It can be concluded that the motor needs to be overloaded for 2 minutes at 150% motor current, and the motor overload protection gain is:

P9-01 = 2 ÷ 5 = 0.4

3） The motor overload warning coefficient indicates that when the motor overload detection level reaches the set value of the parameter, the multi-function output terminal DO or the fault relay (RELAY) outputs a motor overload pre-alarm signal, and the parameter continues to run according to the motor at an overload point. The percentage of time for reporting an overload fault is calculated.

For example, when the motor overload protection gain is set to 1.00 and the motor overload warning coefficient is set to 80%, if the motor current reaches 145% of the rated motor current for 4.8 minutes (80% × 6 minutes), the multi-function output terminal DO Or the fault relay RELAY outputs a motor overload warning signal.

P9-02	Motor overload alarm coefficient	50%～100% This function is used to give the control system an early warning signal through the DO before the motor overload fault protection. This early warning coefficient is used to determine how much early warning is given before motor overload protection. The larger the value, the smaller the warning advance. When the cumulative output current of the inverter is greater than the product of the overload inverse time curve and P9-02, the multi-function digital DO of the inverter outputs the “motor overload pre-alarm” ON signal.	80%	☆
P9-07	Power-on short circuit protection option	0：invalid 1 ：valid The inverter can be selected to detect whether the motor is shorted to ground when it is powered on. If this function is enabled, the UVW terminal of the inverter will have a voltage output for a period of time after power-on.	1	☆
P9-08	Brake unit action starting voltage	650.0V ～800.0V The starting voltage Vbreak of the built-in braking unit action, the setting of this voltage value reference： 800≥Vbreak≥（1.414Vs+30） Vs- Enter the AC power supply voltage of the inverter	760V	☆
P9-09	Number of automatic resets	0 ～20	0	☆

<table>
<tr><td>P9-10</td><td>Fault DO action selection during automatic fault reset</td><td>0：No action
1：action</td><td>0</td><td>☆</td></tr>
<tr><td>P9-11</td><td>Fault auto reset interval</td><td>0.1s ～100.0s</td><td>1.0s</td><td>☆</td></tr>
<tr><td>P9-12</td><td>Input phase loss \ contactor suction protection option</td><td>Single digit：Input phase loss protection option
Ten digit：Contactor suction protection option
0：Prohibited
1：allow
Choose whether to protect the input phase loss or contactor pull-in.
JAC300 inverter input phase loss \ contactor suction protection start model see the following table：<table><tr><td>Voltage level</td><td>Input phase loss \ contactor suction protection start model</td></tr><tr><td>Single phase 220V</td><td>No in full series</td></tr><tr><td>Three phase 380V</td><td>7.5kW G type machine</td></tr></table>The JAC300 inverter has only the above initial power and above for the input phase loss and the contactor pull-in function. The following power segments, regardless of P9-12 set to 0 or 1, have no input phase loss, contactor pull-in Protective function.</td><td>11</td><td>☆</td></tr>
<tr><td>P9-13</td><td>Output phase loss protection option</td><td>0：Prohibited 1 ：allowed</td><td>1</td><td>☆</td></tr>
</table>

P9-14	First fault type	0：fault free 1：Reserved 2：Acceleration over current 3：Deceleration over current 4：Constant speed over current 5：Acceleration over voltage 6：Deceleration over voltage 7：Constant speed over voltage 8：Buffer resistor overload 9：Undervoltage	—	●
P9-15	Second fault type	10：Frequency inverter overload 11：Motor overload 12：Input phase loss 13：Output phase loss 14：Module over temp 15：External fault 16：Abnormal communication 17：Abnormal Contactor 18：Abnormal current detection 19：Abnormal motor tuning 21：Abnormal Parameter read and write 22：Abnormal frequency inverter hardware 23：Motor short circuit to ground	—	●
P9-16	Third (most recent) fault type	26：Running time arrives 27: User-defined fault 1 28: User-defined fault 2 29: Power on time arrives 30：Offload 31：Loss of PID feedback at runtime 40：Fast current limit timeout 41：Switching motor during operation 42: Speed deviation is too large 43：Motor overspeed	—	●
P9-17	Frequency of the third (most recent) fault	—	—	●
P9-18	Current of third (most recent) fault	—	—	●
P9-19	Bus voltage at the third (most	—	—	●

	recent) fault			
P9-20	Input terminal status for the third (most recent) fault	–	–	●
P9-21	Output terminal status for the third (most recent) fault	–	–	●
P9-22	Inverter status at the third (most recent) fault	–	–	●
P9-23	Power-on time for the third (most recent) fault	–	–	●
P9-24	Run time for the third (most recent) fault	–	–	●
P9-27	Frequency at the second fault	–	–	●
P9-28	Current at the second fault	–	–	●
P9-29	Bus voltage at the second fault	–	–	●
P9-30	Input terminal status during the second fault	–	–	●
P9-31	Output terminal status at the second fault	–	–	●
P9-32	Frequency inverter status at the second fault	–	–	●
P9-33	Power-on time during the second	–	–	●

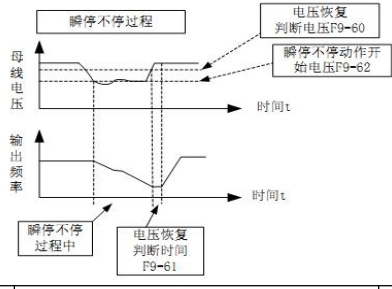
	fault			
P9-34	Run time at the second fault	—	—	●
P9-37	Frequency at the first fault	—	—	●
P9-38	Current at the first fault	—	—	●
P9-39	Bus voltage at the first fault	—	—	●
P9-40	Input terminal status at the first fault	—	—	●
P9-41	Output terminal status at the first fault	—	—	●
P9-42	Frequency Inverter status at the first fault	—	—	●
P9-43	Power-on time at the first fault	—	—	●
P9-44	Run time at the first fault	—	—	●
P9-47	Fault protection action selection 1	Single digit：Motor overload (Err11) 0：Free parking 1：Stop by downtime mode 2：Keep running Ten digits：Input phase loss(Err12) (same as single digit) Hundreds digit：Output phase loss(Err13) (same as single digit) Thousand digits：External fault(Err15) (same as	00000	☆

		single digit) Ten thousand digits：Abnormal communication(Err16) (same as single digit)		
P9-48	Fault protection action selection 2	Single digit：Reserved Ten digits： Abnormal function code read and write (Err21) 0 Free Downtime 1 Stop by downtime mode Hundreds digit：Reserved Thousand digits：Reserved Ten thousand digits：Run time arrives (Err26)	00000	☆
P9-49	Fault protection action selection 3	Single digit：User Defined Fault 1 (Err27) Ten digits：User-defined fault 2(Err28) Hundreds digit：Power on time arrives(Err29) Thousand digits：Offload(30) 0：Free parking 1：Stop by downtime mode 2：Jump directly to 7% of the rated motor frequency and continue to run. It will automatically return to the set frequency when it is not loaded. Ten thousand digits： Loss of PID feedback (Err31) during operation (same as P9-47 digits)	00000	☆
P9-50	Fault protection action selection 4	Single digit：Speed deviation is too large(Err 42) 0：Free parking 1：Stop by downtime mode 2：Keep running Ten digits：Motor overspeed(Err 43) Hundreds digit：Reserved Thousand digits：Speed feedback error（Err52）	00000	☆
When "Freewheeling" is selected, the frequency inverter displays Err** and stops directly. When “Stop in stop mode” is selected: The requency inverter displays A** and stops according to the stop mode. After the stop, Err** is displayed. When "Continuous operation" is selected: Ther equency inverter continues to run and displays A**, and the running frequency is set by P9-54.				
P9-54	Continue to run frequency selection when fault	0：Run at the current operating frequency 1：Run at set frequency 2：Run at the upper limit frequency 3：Run at the Lower limit frequency 4：Running at an abnormal backup frequency	0	☆

	occurs			
P9-55	Backup frequency is abnormal	0.0%～100.0% (100.0% Corresponding to the maximum frequency P0-10) When a fault occurs during the running of the frequency inverter and the fault is handled in the continuous mode, the inverter displays A** and runs at the frequency determined by P9-54. When the abnormal backup frequency is selected, the value set by P9-55 is the percentage relative to the maximum frequency.	100.0%	☆

Instantaneous power failure continuous operation (instantaneous stop and stop)

As shown in the figure below: When the bus voltage drops below the “instantaneous stop non-stop action judgment voltage”, the instantaneous stop non-stop process takes effect, the inverter output frequency automatically drops, the motor is in the power generation state, and the instantaneous stop non-stop function can give feedback. The electric energy to the bus voltage keeps the bus voltage at about "instantaneous stop and stop action judgment voltage", and the system is normally decelerated to 0 Hz.



P9-59	Instantaneous stop function selection	0：invalid 1：slow down 2：Deceleration downtime	0	☆
P9-60	Instantaneous stop action pause judgment	80.0% ～100.0%	90.0%	☆

	voltage			
P9-61	Instantaneous stop non-stop voltage rise judgment time	0.00s ～100.00s	0.50s	☆
P9-62	Instantaneous stop and stop action judgment voltage	60.0% ～100.0%(Standard bus voltage)	80.0%	☆
P9-71	Instantaneous stop non-stop gain KP	0 ～100	40	☆
P9-72	Instantaneous stop non-stop integral coefficient Ki	0 ～100	30	☆
P9-73	Instantaneous stop and stop motion deceleration time	0 ～300.0s	20.0s	★

Remarks：

（1）When the bus voltage is constant, when the grid resumes power supply, the inverter output frequency continues to run to the target frequency. When the grid is restored to power supply, the inverter continues to decelerate to 0 Hz and stops until the inverter issues a start command again.。

（2）The purpose of instantaneous stop is to ensure that when the power supply of the power grid is abnormal, the motor can be decelerated and stopped normally, so that after the power grid is restored to normal power supply, the motor can be started immediately, and the motor will not suddenly undervoltage due to abnormal power supply in the grid. Free parking, in the large inertia system, the motor can take a long time to freely stop. When the power supply is normal, because the motor is rotating at high speed, it is easy to start the motor to cause overload or overcurrent fault.

P9-63	Offload protection option	0：invalid 1：valid	0	☆
P9-64	Offload detection level	0.0 ～100.0%	10.0%	☆
P9-65	Offload detection time	0.0 ～60.0s	1.0s	☆

If the load-shedding protection function is valid, when the inverter output current is less than the load-drop detection level P9-64 and the duration is longer than the load-off detection time P9-65, the inverter output frequency is automatically reduced to 7% of the rated frequency. During load-shedding protection, if the load recovers, the drive automatically resumes to operate at the set frequency.				
P9-67	Overspeed detection value	0.0%～50.0 %(Maximum frequency)	20.0%	☆
P9-68	Overspeed detection time	0.0s ： Not detecting 0.1 ～60.0s	1.0s	☆
This function is only available when the drive is running with speed sensor vector control. When the inverter detects that the actual speed of the motor exceeds the maximum frequency, the excess value is greater than the overspeed detection value P9-67, and the duration is longer than the overspeed detection time P9-68, the inverter fault alarm Err43, and according to the fault protection action mode . When the overspeed detection time is 0.0s, the overspeed fault detection is canceled.				
P9-69	Speed deviation excessive detection value	0.0%～50.0 %(Maximum frequency)	20.0%	☆
P9-70	Speed deviation excessive detection time	0.0s ： Not detecting 0.1 ～60.0s	5.0s	☆
This function is only available when the drive is running with speed sensor vector control. When the inverter detects that the actual speed of the motor deviates from the set frequency, the deviation amount is greater than the speed deviation excessive detection value P9-69, and the duration is greater than the speed deviation excessive detection time P9-70, the inverter fault alarm Err42, And according to the fault protection action mode. When the speed deviation is too large and the detection time is 0.0s, the speed deviation excessive fault detection is canceled.				
PA group PID function				
PA-00	PID Given source	0：PA-01 set up 1：AI1 2：AI2 3：AI3 4：PLUSE Pulse given 5：Communication given 6：Multi-segment instruction given	0	☆

PA-01	PID Numerical given	0.0%～100.0%	50.0%	☆
PA-02	PID Feedback source	0：AI1 1：AI2 2：AI3 3：AI1-AI2 4：PLUSE Pulse given 5：Communication given 6：AI1+AI2 7：MAX(|AI1|, |AI2|) 8：MIN(|AI1|, |AI2|)	0	☆
PA-03	PID Direction of action	0：Positive action When the feedback signal of the PID is less than the given amount, the inverter output frequency rises. Such as winding tension control occasions. 1：reaction When the feedback signal of the PID is less than the given amount, the inverter output frequency drops. Such as unwinding tension control occasions. This function is affected by the inversion of the multi-function terminal PID (function 35), so pay attention to it during use.	0	☆
PA-04	PID Given feedback range	0～65535 The PID given feedback range is a dimensionless unit for the PID given display U0-15 and the PID feedback display U0-16. The relative value of the given feedback of the PID is 100.0%, corresponding to the given feedback range PA-04. For example, if PA-04 is set to 2000, when the PID is given 100.0%, the PID given display U0-15 is 2000.	1000	☆
PA-05	Proportional gain Kp1	0.0 ～100.0	20.0	☆
PA-06	Integration timeTi1	0.01s ～10.00s	2.00s	☆
PA-07	Differential timeTd1	0.000s～10.000s	0.000s	☆

Proportional gain Kp1 :
Determine the adjustment strength of the entire PID regulator. The larger the Kp1, the greater the adjustment intensity. The parameter 100.0 indicates that when the deviation between the PID feedback amount and the given amount is 100.0%, the PID regulator adjusts the output frequency command to the maximum frequency.
Integration time Ti1:
Determine the strength of the PID regulator integral adjustment. The shorter the integration time, the greater the adjustment intensity. The integration time means that when the deviation between the PID feedback amount and the given amount is 100.0%, the integral regulator continuously adjusts through this time, and the adjustment amount reaches the maximum frequency.
Derivative time Td1 :
Determine the strength of the PID regulator's adjustment to the rate of change of the deviation. The longer the differentiation time, the greater the adjustment intensity. The derivative time means that when the feedback amount changes by 100.0% during this time, the adjustment amount of the differential regulator is the maximum frequency.

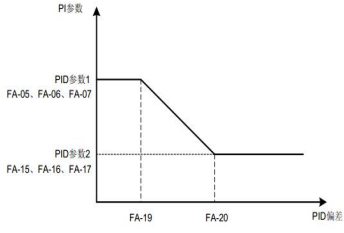
PA-08	PID Reverse cutoff frequency	0.00 to the maximum frequency In some cases, only when the PID output frequency is negative (ie, the inverter is reversed), it is possible for the PID to control the given amount and the feedback amount to the same state, but the excessive reverse frequency is not allowed for some occasions. , PA-08 is used to determine the upper limit of the reverse frequency.	2.00Hz	☆
PA-09	PID Deviation limit	0.0%～100.0% When the deviation between the PID given amount and the feedback amount is less than PA-09, the PID stops the adjustment action. In this way, the output frequency is stable when the deviation from the feedback is small, which is effective for some closed-loop control applications.	0.0%	☆
PA-10	PID Differential limiting	0.00% ～100.00% In the PID regulator, the function of the differential is relatively sensitive and can easily cause the system to oscillate. For this reason, the role of PID differentiation is generally limited to a small range, and PA-10 is used to set the range of the PID differential output.	0.10%	☆
PA-11	PID Given change time	0.00 ～650.00s PID given change time, which refers to the time	0.00s	☆

		required for the PID reference value to change from 0.0% to 100.0%. When the PID reference changes, the PID reference value changes linearly according to the given change time, which reduces the adverse effects of the given sudden change on the system.		
PA-12	PID Feedback filtering time	0.00 ～60.00s	0.00s	☆
PA-13	PID Output filtering time	0.00 ～60.00s	0.00s	☆
The PA-12 is used to filter the PID feedback amount, which is beneficial to reduce the influence of the feedback amount being disturbed, but it will bring about a decrease in the response performance of the process closed-loop system. PA-13 is used to filter the PID output frequency, which will attenuate the sudden change of the inverter output frequency, but it will also bring about a decline in the response performance of the process closed-loop system.				
PA-15	Proportional gain Kp2	0.0 ～100.0	20.0	☆
PA-16	Integration time Ti2	0.01s ～10.00s	2.00s	☆
PA-17	Differential time Td2	0.000s～10.000s	0.000s	☆
PA-18	PID Parameter switching condition	0: Do not switch 1: Switch by DI terminal 2: Automatic switching according to deviation	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%	☆
In some applications, a set of PID parameters cannot meet the requirements of the entire running process, and different PID parameters need to be used in different situations. This set of function codes is used for two sets of PID parameter switching. The setting of the regulator parameters PA-15~PA-17 is similar to the parameters PA-05~PA-07.				

The two sets of PID parameters can be switched by the multi-function digital DI terminal o automatically according to the deviation of the PID.

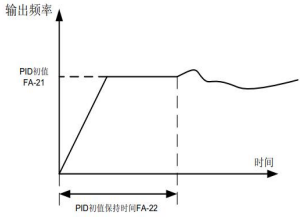
When the multi-function DI terminal is selected for switching, the multi-function terminal functio selection should be set to 43 (PID parameter switching terminal). When the terminal is invalid, selec parameter group 1 (PA-05~PA-07). When the terminal is valid, select the parameter group. 2 (PA-15~PA-17).

When automatic switching is selected, the absolute value of the deviation between the given an feedback is less than the PID parameter switching deviation 1 PA-19, the PID parameter selects parameter group 1. When the absolute value of the deviation between the reference and the feedbac is greater than the PID switching deviation 2 PA-20, the PID parameter selection selects paramete group 2. When the deviation between the reference and the feedback is between the switchin deviation 1 and the switching deviation 2, the PID parameter is the linear interpolation value of the tw sets of PID parameters, as shown in the figure below.



PA-21	PID Initial value	0.0%～100.0%	0.0%	☆
PA-22	PID Initial value retention time	0.00 ～650.00s	0.00s	☆

When the inverter starts, the PID output is fixed to the PID initial value PA-21. After the initial PID hold time PA-22, the PID starts the closed-loop adjustment operation. The figure below shows the function of the PID initial value.

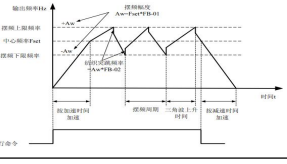


PA-23	Two output deviation positive maximum	0.00% ～100.00%	1.00%	☆
PA-24	Two output deviation reverse maximum	0.00% ～100.00%	1.00%	☆

This function is used to limit the difference between PID output two beats (2ms/beat) in order to suppress the PID output from changing too fast and stabilize the inverter operation.

PA-23 and PA-24 correspond to the maximum value of the absolute value of the output deviation in the forward and reverse directions, respectively.

PA-25	PID Integral attribute	Unit position: integral separation 0: invalid 1: valid Ten digits: Whether to stop the integration after outputting to the limit 0: Continue to score 1: stop the points Integral separation: If the integral separation is enabled, when the multi-function digital DI integration pause (function 22) is valid, the integral PID integration of the PID stops counting, and the PID only proportional and derivative action is valid. When the integral separation selection is invalid, the integral separation is invalid regardless of whether the multi-function digital DI is valid or not. Whether to stop integration after output to the limit: After the PID operation output reaches the maximum or	00	☆

		minimum value, you can choose whether to stop the integration. If you choose to stop the integration, then the PID integration stops counting, which may help reduce the overshoot of the PID.		
PA-26	PID Feedback loss detection value	0.0%：Do not judge feedback loss 0.1%～100.0%	0.0%	☆
PA-27	PID Feedback loss detection time	0.0s ～20.0s	0.0s	☆
This function code is used to determine if the PID feedback is lost. When the PID feedback amount is less than the feedback loss detection value PA-26 and the duration exceeds the PID feedback loss detection time PA-27, the inverter alarms the fault Err31 and processes according to the selected fault processing mode.				
PA-28	PID Downtime operation	0: stop does not operate 1: Operation at shutdown	0	☆
PB group swing frequency, fixed length and count				
The swing frequency function is suitable for textile, chemical fiber and other industries, as well as occasions requiring traverse and winding functions. The swing frequency function refers to the inverter output frequency, which swings up and down with the set frequency as the center. The trajectory of the running frequency in the time axis is as shown in the figure below, where the swing amplitude is set by PB-00 and PB-01, when PB-01 When set to 0, the swing is 0, and the swing frequency does not work.  				

PB-00	Swing frequency setting method	0: Relative to the center frequency (P0-07 frequency source) For the variable swing system. The swing varies with the center frequency (set frequency). 1: relative to the maximum frequency (P0-10) For a fixed swing system, the swing is fixed.	0	☆
PB-01	Swing frequency range	0.0%～100.0%	0.0%	☆
PB-02	Kick frequency amplitude	0.0%～50.0%	0.0%	☆
This parameter is used to determine the value of the swing value and the kick frequency. When setting the swing relative to the center frequency (PB-00 = 0), the swing AW = frequency source P0-07 × swing amplitude PB-01. When setting the swing relative to the maximum frequency (PB-00 = 1), the swing AW = maximum frequency P0-10 × swing amplitude PB-01. The amplitude of the kick frequency is the percentage of the frequency of the kick frequency relative to the swing when the swing frequency is running, that is, the burst frequency = swing AW × kick frequency amplitude PB-02. If the swing is selected relative to the center frequency (PB-00 = 0), the burst frequency is the change value. If the swing is selected relative to the maximum frequency (PB-00 = 1), the burst frequency is a fixed value. Swing frequency operating frequency, subject to upper limit frequency and lower limit frequency				
PB-03	Wobble cycle	0.1s ～3000.0s	10.0s	☆
PB-04	Triangular wave rise time of swing frequency	0.1%～100.0%	50.0%	☆
Wobble cycle: The time value of a complete wobble cycle. The triangular wave rise time coefficient PB-04 is the time percentage of the triangular wave rise time relative to the swing frequency period PB-03. Triangle wave rise time = swing frequency period PB-03 × triangle wave rise time coefficient PB-04, in seconds. Triangle wave fall time = swing frequency period PB-03 × (1 - triangle wave rise time coefficient PB-04), in seconds.				
PB-05	Set length	0m ～65535m	1000m	☆
PB-06	Actual length	0m ～65535m	0m	☆

PB-07	Pulse number per meter	0.1 ～6553.5	100.0	☆

The above function code is used for fixed length control.

The length information needs to be collected through the multi-function digital input terminal. The number of pulses sampled by the terminal is divided by the number of pulses per meter PB-07, and the actual length PB-06 can be calculated. When the actual length is greater than the set length PB-05, the multi-function digital DO outputs the "length reached" ON signal.

During the fixed length control, the length reset operation can be performed through the multi-function DI terminal (the DI function is selected as 28). For details, please refer to P4-00~P4-09.

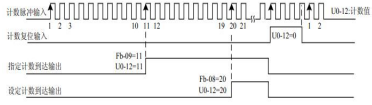
In the application, the corresponding input terminal function needs to be set to “length count input” (function 27).

PB-08	Set count value	1 ～65535	1000	☆
PB-09	Specified count value	1 ～65535	1000	☆

The count value needs to be collected through the multi-function digital input terminal. In the application, the corresponding input terminal function needs to be set to “counter input” (function 25). When the count value reaches the set count value PB-08, the multi-function digital DO outputs “set count value reaches” ON signal, and then the counter Stop counting.

When the count value reaches the specified count value PB-09, the multi-function digital DO outputs the "specified count value reached" ON signal, at which time the counter continues to count until the "set count value" is stopped.

The specified count value PB-09 should not be greater than the set count value PB-08. The figure below shows the setting of the arrival of the count value and the arrival of the specified count value.



PC 组 多段指令、简易 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%	☆

Multi-segment instructions can be used in three situations: as a frequency source, as a voltage source for VF separation, as a set source for process PID.

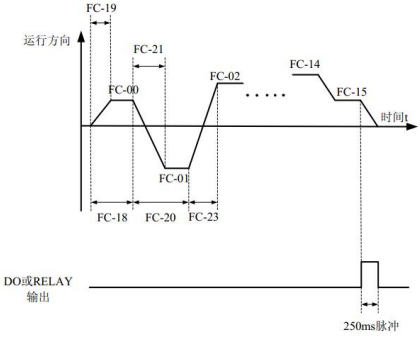
In three applications, the dimension of the multi-segment instruction is relative value, the range is -100.0%~100.0%, which is the percentage of the relative maximum frequency when used as the frequency source; when it is the VF separation voltage source, it is relative to the rated voltage of the motor. Percentage; since the PID given is originally a relative value, the multi-segment instruction does not require a dimension conversion as a PID setting source.

Multi-segment instructions need to be switched according to the different states of the multi-function digital DI. For details, please refer to the relative instructions of the P4 group.

PC-16	Simple PLC operation mode	0: Single run end shutdown 1: the end of a single run to maintain the final value 2: Always cycle	0	☆

The simple PLC function has two functions: as a frequency source or as a voltage source for VF separation.

Figure 6-31 is a schematic diagram of a simple PLC as a frequency source. When the simple PLC is used as the frequency source, the positive and negative of PC-00 to PC-15 determine the running direction. If it is negative, the inverter runs in the opposite direction.



When used as a frequency source, the PLC has three modes of operation. These three modes are nc available as a VF separation voltage source. among them:

0: Single run end shutdown

After the inverter completes a single cycle, it will automatically stop and need to give the runnin command again to start.

1: the end of a single run to maintain the final value

After the inverter completes a single cycle, it automatically maintains the running frequency an direction of the last segment.

2: Always cycle

After the inverter completes a cycle, it automatically starts the next cycle until it stops when there is stop command.

PC-17	Simple PLC power-down memory selection	Unit: Power-down memory selection 0: Power failure does not remember 1: Power-down memory Ten digits: stop memory selection 0: stop without memory 1: shutdown memory PLC power-down memory refers to the operating phase and operating frequency of the PLC before the power-down, and continues to run from the memory phase the next time the power is turned on. If you choose not to remember, the PLC process will be restarted each time you power up.	00	☆

		The PLC stop memory records the running phase and running frequency of the previous PLC when it stops, and continues to run from the memory phase in the next run. If you choose not to remember, the PLC process will be restarted each time you start.		
PC-18	Simple PLC 0th run time	0.0s（h）～6553.5s（h）	0.0s(h)	☆
PC-19	Simple PLC 0th acceleration/deceleration time selection	0 ～3	0	☆
PC-20	Simple PLC 1st run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-21	Simple PLC first stage 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	Simple PLC 2nd section acceleration and deceleration time selection	0 ～3	0	☆
PC-24	Simple PLC Stage 3 Run Time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-25	Simple PLC 3rd section acceleration and deceleration time selection	0 ～3	0	☆
PC-26	Simple PLC run time of paragraph 4	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-27	Simple PLC Stage 4 Acceleration/Deceleration Time Selection	0 ～3	0	☆
PC-28	Simple PLC 5th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆

PC-29	Simple PLC 5th acceleration/deceleration time selection	0 ～3	0	☆
PC-30	Simple PLC 6th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-31	Simple PLC 6th acceleration/deceleration time selection	0 ～3	0	☆
PC-32	Simple PLC 7th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-33	Simple PLC 7th acceleration/deceleration time selection	0 ～3	0	☆
PC-34	Simple PLC 8th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-35	Simple PLC 8th acceleration/deceleration time selection	0 ～3	0	☆
PC-36	Simple PLC 9th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-37	Simple PLC section 9 acceleration and deceleration time selection	0 ～3	0	☆
PC-38	Simple PLC run time of paragraph 10	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-39	Simple PLC section 10 acceleration and deceleration time selection	0 ～3	0	☆
PC-40	Simple PLC section 11 running time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-41	Simple PLC 11th acceleration/deceleration time selection	0 ～3	0	☆

PC-42	Simple PLC 12th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-43	Simple PLC 12th acceleration/deceleration time selection	0 ～3	0	☆
PC-44	Simple PLC 13th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-45	Simple PLC section 13 acceleration and deceleration time selection	0 ～3	0	☆
PC-46	Simple PLC 14th run time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-47	Simple PLC section 14 acceleration and deceleration time selection	0 ～3	0	☆
PC-48	Simple PLC section 15 running time	0.0s(h)～6553.5s(h)	0.0s(h)	☆
PC-49	Simple PLC section 15 acceleration and deceleration time selection	0 ～3	0	☆
PC-50	Simple PLC runtime unit	0：s(second) 1：h(hour)	0	☆
PC-51	Multi-segment instruction 0 given mode	0：Function code PC-00 given 1：AI1 2：AI2 3：AI3 4：PULSE pulse 5：PID 6：Preset frequency (P0-08) is given, UP/DOWN can be modified	0	☆
PD group communication parameters				

PD-00	Communication baud rate	Single digit：MODBUS 0：300BPS 1：600BPS 2：1200BPS 3：2400BPS 4：4800BPS 5：9600BPS 6：19200BPS 7：38400BPS 8：57600BPS 9：115200BPS	5	☆
PD-01	MODBUS Data Format	0: no parity (8-N-2) 1: even parity (8-E-1) 2: odd parity (8-O-1) 3: no parity (8-N-1)	0	☆
PD-02	Local address	0：Broadcast address 1 ～247 (MODBUS)	1	☆
PD-03	MODBUS Response delay	0 ～20ms	2	☆
PD-04	Serial communication timeout	0.0：invalid 0.1 ～60.0s	0.0	☆
PD-05	MODBUS	Unit: MODBUS 0: Non-standard MODBUS protocol 1: Standard MODBUS protocol	1	☆
PD-06	Communication read current resolution	0：0.01A 1：0.1A	0	☆
PP group function code management				
PP-00	user password	0 to 65535 PP-00 Set any non-zero number, then the password protection function will take effect. The next time you enter the menu, you must enter the password correctly. Otherwise, you cannot view and modify the function parameters. Please remember the user password you set. Set PP-00 to 00000 to clear the set user password and invalidate the password protection function.	0	☆

PP-01	Parameter initialization	0: no operation 01: Restore factory parameters, excluding motor parameters After setting PP-01 to 1, most of the inverter's function parameters are restored to the factory default parameters, but the motor parameters, frequency command decimal point (P0-22), fault record information, cumulative running time (P7-09), cumulative power-on Time (P7-13) and accumulated power consumption (P7-14) are not restored. 02: Clear record information Clear the inverter fault record information, accumulated running time (P7-09), accumulated power-on time (P7-13), and accumulated power consumption (P7-14).	0	★
PP-04	Function code modification attribute	0: Can be modified 1: Cannot be modified	0	☆
Group A0 torque control parameters				
A0-00	Speed / torque control mode selection	0: speed control 1: Torque control Used to select the inverter control mode: speed control or torque control. The JAC300's multi-function digital DI terminal has two functions related to torque control: torque control inhibit (function 29) and speed control/torque control switching (function 46). These two terminals are used in conjunction with A0-00 to achieve speed and torque control switching. When the speed control/torque control switching terminal is invalid, the control mode is determined by A0-00. If the speed control/torque control switching is valid, the control mode is equivalent to the inverse of the value of A0-00. In any case, when the torque control inhibit terminal is valid, the inverter is fixed to the speed control mode.	0	★
A0-01	Torque setting	0: Number setting 1 (A0-03) 1: AI1 2: AI2	0	★

	source selection in torque control mode	3: AI3 4: PLUSE pulse given 5: Communication given 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) (1-7 full scale of the option, corresponding to the A0-03 number setting)		
A0-03	Torque digital setting in torque control mode	-200.0% ～200.0%	150.0%	☆

A0-01 is used to select the torque setting source. There are 8 medium torque setting modes.
The torque setting uses a relative value, and 100.0% corresponds to the rated motor torque. The setting range is -200.0%~200.0%, which indicates that the maximum torque of the inverter is 2 times the rated torque of the inverter.
When the torque is given positive, the inverter runs forward
When the torque is given negative, the inverter runs in reverse
The various torque setting sources are described as follows:
0: Digital setting (A0-03)
Refers to the target torque directly using the A0-03 setpoint.
1: AI1
2: AI2
3: AI3
The target torque is determined by the analog input terminal. The JAC300 control board provides two analog input terminals (AI1, AI2).
Where AI1 is 0V ~ 10V voltage type input
AI2 can be 0V~10V voltage input, or 4mA~20mA current input, selected by AI2 jumper on the control board.
The input voltage value of AI1 and AI2 and the corresponding relationship with the target torque can be freely selected by the user through P4-33.
4, PLUSE pulse given
5, communication given
The target torque is given by the communication method.
The data is given by the host computer through the communication address 0x1000. The data format is -100.00% to 100.00%, and 100.00% refers to the percentage of the relative torque digital setting A0-03. The JAC300 supports the Modbus communication protocol. You need to select the corresponding serial communication protocol according to P0-28.

A0-05	Torque control positive maximum frequency	0.00Hz～Maximum frequency	50.00Hz	☆
A0-06	Torque control	0.00Hz～Maximum frequency	50.00Hz	☆

	reverse maximum frequency			
It is used to set the forward or reverse maximum running frequency of the inverter under the torque contro mode. When the inverter torque is controlled, if the load torque is less than the motor output torque, the motor spee will continue to rise. To prevent accidents such as flying in the mechanical system, the maximum motor spee during torque control must be limited. If you need to achieve dynamic continuous change of the torque control maximum frequency, you can contro the upper limit frequency.				
A0-07	Torque control acceleration time	0.00s ～65000s	0.00s	☆
A0-08	Torque control deceleration time	0.00s ～65000s	0.00s	☆
A5 group control optimization parameters				
A5-00	DPWM Switch upper limit frequency	5.00Hz to maximum frequency Only valid for VF control. The wave-forming mode of the asynchronous motor VF is determined. Below this value is the 7-segment continuous modulation mode, and the opposite is the 5-segment intermittent modulation mode. In the 7-segment continuous modulation, the inverter has a large switching loss, but the current ripple is small; in the 5-segment intermittent debugging mode, the switching loss is small and the current ripple is large; but at high frequencies, the motor may be caused. The instability of the operation generally does not need to be modified. Please refer to function code P3-11 for VF operation instability. For function loss and temperature rise, please refer to function code P0-15.	8.00Hz	☆
A5-01	PWM Modulation	0: Asynchronous modulation 1: synchronous modulation	0	☆
A5-03	Random PWM depth	0: Random PWM is invalid 1 to 10: PWM carrier frequency rando	0	☆

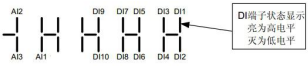
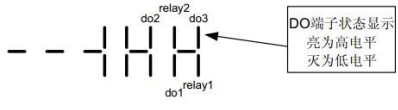
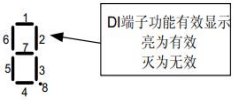
<table>
<tr><td>A5-04</td><td>Fast current limiting enable</td><td>0: not enabled
1: enable</td><td>1</td><td>☆</td></tr>
<tr><td>A5-06</td><td>Undervoltage setting</td><td>60.0% ～140.0%
It is used to set the voltage value of the inverter undervoltage fault Err09. The inverter with different voltage levels is 100.0%, corresponding to different voltage points, respectively：<table><tr><th>Voltage level</th><th>Undervoltage point base value</th></tr><tr><td>Simplex 220V</td><td>200V</td></tr><tr><td>Three phase 380V</td><td>350V</td></tr></table></td><td>100.0%</td><td>☆</td></tr>
<tr><td>A5-09</td><td>Overvoltage setting</td><td>200.0V～2200.0V
It is used to set the voltage value of the inverter overvoltage fault. The factory values of different voltage levels are：<table><tr><th>Voltage level</th><th>Overvoltage point base value</th></tr><tr><td>Simplex 220V</td><td>400.0V</td></tr><tr><td>Three phase 380V</td><td>810.0V</td></tr></table>Note: The factory value is also the upper limit of the internal overvoltage protection of the inverter. This parameter setting takes effect only when the A5-09 setting value is less than the factory default value of each voltage level. Above the factory value, the factory value is.</td><td>Model determination</td><td>★</td></tr>
</table>

U 0 group Monitoring parameter group

function code	name	Display range	mailing address
U0-00	Operating frequency (Hz)	0.00～320.00Hz(P0-22=2)	7000H
U0-01	Set frequency (Hz)	0.0～3200.0Hz(P0-22=1)	7001H
U0-02	Bus voltage (V)	0.0V～3000.0V	7002H

<table>
<tr><th>function code</th><th>name</th><th>Display range</th><th>mailing address</th></tr>
<tr><td>U0-03</td><td>Output voltage (V)</td><td>0V～1140V</td><td>7003H</td></tr>
<tr><td>U0-04</td><td>Output current (A)</td><td>0.00A～655.35A</td><td>7004H</td></tr>
<tr><td>U0-05</td><td>Output power (kW)</td><td>0～32767</td><td>7005H</td></tr>
<tr><td>U0-06</td><td>Output torque (%) Motor output torque percentage output value</td><td>-200.0%～200.0%</td><td>7006H</td></tr>
<tr><td>U0-07</td><td>DI input status</td><td>0～32767</td><td>7007H</td></tr>
<tr><td></td><td colspan="3">Displays the current DI terminal input status value. After conversion to binary data each bit corresponds to a DI input signal, with a value of 1 indicating that the input is a high level signal and a value of 0 indicating that the input is a low level signal. The correspondence between each bit and the input terminal is as follows：
<table>
<tr><td>Bit0</td><td>Bit1</td><td>Bit2</td><td>Bit3</td></tr>
<tr><td>DI1</td><td>DI2</td><td>DI3</td><td>DI4</td></tr>
<tr><td>Bit4</td><td>Bit5</td><td>Bit6</td><td>Bit7</td></tr>
<tr><td>DI5</td><td>DI6</td><td>DI7</td><td>DI8</td></tr>
<tr><td>Bit8</td><td>Bit9</td><td></td><td></td></tr>
<tr><td>DI9</td><td>DI10</td><td></td><td></td></tr>
</table></td></tr>
<tr><td>U0-08</td><td>DO Output status</td><td>0～1023</td><td>7008H</td></tr>
<tr><td></td><td colspan="3">Displays the current DO terminal output status value. After conversion to binary data each bit corresponds to a DO signal, a value of 1 indicates that the output is high, and a value of 0 indicates that the output is low. The correspondence between each bit and output terminal is as follows：
<table>
<tr><td>Bit0</td><td>Bit1</td><td>Bit2</td><td>Bit3</td></tr>
<tr><td>DO3</td><td>Relay 1</td><td>Relay 2</td><td>DO1</td></tr>
<tr><td>Bit4</td><td></td><td></td><td></td></tr>
<tr><td>DO2</td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>U0-09</td><td>AI1 Voltage (V)</td><td>0.01V</td><td>7009H</td></tr>
<tr><td>U0-10</td><td>AI2 Voltage (V) / current (mA)</td><td>0.00V～10.57V
0.00mA～20.00mA</td><td>700AH</td></tr>
<tr><td colspan="4">When P4-40 is set to 0, the AI2 sample data display unit is voltage (V)
When P4-40 is set to 1, the AI2 sample data display unit is current (mA)</td></tr>
<tr><td>U0-12</td><td>Count value</td><td>0～65535</td><td>700CH</td></tr>
<tr><td>U0-13</td><td>Length value</td><td>0～65535</td><td>700DH</td></tr>
</table>

function code	name	Display range	mailing address
U0-14	Load speed display	0～65535	700EH
U0-15	PID set up	0～65535	700FH
U0-16	PID Feedback	0～65535	7010H
The PID set value and feedback value are displayed. The value format is as follows: PID setting = PID setting (percent) *PA-04 PID feedback = PID feedback (percent) *PA-04			
U0-17	PLC stage	0～65535	7011H
U0-18	PULSE Input pulse frequency (Hz)	0~100KHz	7012H
U0-19	Feedback speed (Hz)	-320.00Hz～320.00Hz -3200.0Hz～3200.0Hz	7013H
Display the actual output frequency of the inverter When P7-12 (load speed display decimal point) is 1, the display range is -500.00Hz to 500.00Hz When P7-12 (load speed display decimal point) is 2, the display range is -3200.0Hz ~ 3200.0Hz			
U0-20	Remaining running time	0.0 to 6500.0 minutes When the timing operation is displayed, the remaining running time and timing operation are described in parameters P8-42 to P8-44.	7014H
U0-21	AI1 Pre-correction voltage	0.000V～10.570V	7015H
U0-22	AI2 Pre-correction voltage (V) / current (mA)	0.000V～10.570V 0.000mA～20.000mA	7016H
Displays the analog input sampled voltage/current actual value. The voltage/current actually used is linearly corrected to minimize the deviation of the sampled voltage/current from the actual input voltage/current. See the U0-09, U0-10, and U0-11 for the calibration voltage/current actually used. See the AC group for the calibration method.			
U0-24	Line speed	0～65535 Meter/minute	7018H
Displays the line speed of DI5 high-speed pulse sampling in meters per minute Calculate the line speed value according to the number of actual sample pulses per minute and PB-07 (pulse number per meter)			
U0-25	Current power-on time	0～6500 minute	7019H
U0-26	Current running time	0.0～6500.0 minute	701AH
U0-28	Communication setting	-100.00%～100.00%	701CH

function code	name	Display range	mailing address
U0-30	Main frequency X display	0.00Hz～500.00Hz	701EH
U0-31	Auxiliary frequency Y display	0.00Hz～500.00Hz	701FH
When P7-12 (load speed display decimal point) is 1, the display range is -500.00Hz to 500.00Hz When P7-12 (load speed display decimal point) is 2, the display range is -3200.0Hz ~ 3200.0Hz			
U0-32	View any memory address value	0～65535	7020H
U0-35	Target torque (%)	0.0° ～359.9°	7023H
U0-37	Power factor angle		7025H
U0-39	VF Separation target voltage	0V～Motor rated voltage	7027H
U0-40	VF Separate output voltage	0V～Motor rated voltage	7028H
U0-41	DI Input status visual display		7029H
Visual display of the status of the DI terminal, its display format is as follows 			
U0-42	DO Input status visual display		702AH
The D0 terminal status is displayed visually, and its display format is as follows 			
U0-43	DI function status visual display 1 (function 01 - function 40)		702BH
Visually display whether terminal functions 1 to 40 are valid The keyboard has 5 digital tubes, and each digital tube display can represent 8 function options. The digital tube is defined as follows:  Digital tubes represent functions from right to left 1 ～8、9 ～16、17～24、25～32、33～40			
U0-44	DI Functional status visual display 2 (function 41 - function		702CH

<table>
<tr><th>function code</th><th>name</th><th>Display range</th><th>mailing address</th></tr>
<tr><td></td><td>80)</td><td></td><td></td></tr>
<tr><td colspan="4">Visually display whether terminal functions 41 to 59 are valid
Display mode is similar to U0-43
The digital tube represents functions 41 to 48, 49 to 56, 57 to 59 from right to left.</td></tr>
<tr><td>U0-45</td><td>accident details</td><td></td><td>702DH</td></tr>
<tr><td>U0-59</td><td>Set frequency (%)</td><td>-100.00% ～100.00%</td><td>703BH</td></tr>
<tr><td>U0-60</td><td>Operating frequency (%)</td><td>-100.00% ～100.00%</td><td>703CH</td></tr>
<tr><td></td><td colspan="3">Shows the current set frequency and running frequency, 100.00% corresponds to the maximum frequency of the inverter (P0-10)</td></tr>
<tr><td>U0-61</td><td>Inverter status</td><td>0 ～65535</td><td>703DH</td></tr>
<tr><td colspan="4">The inverter running status information is displayed. The data definition format is as follows:
<table>
<tr><td rowspan="5">U0-61</td><td>Bit0</td><td rowspan="2">0: stop; 1: forward; 2: reverse</td></tr>
<tr><td>Bit1</td></tr>
<tr><td>Bit2</td><td rowspan="2">0: constant speed; 1: acceleration; 2: deceleration</td></tr>
<tr><td>Bit3</td></tr>
<tr><td>Bit4</td><td>0: bus voltage is normal; 1: undervoltage</td></tr>
</table>
</td></tr>
</table>

The U0 parameter group is used to monitor the running status information of the inverter. The customer can view it through the panel to facilitate on-site debugging. It can also read the parameter group value through communication for monitoring by the host computer. The communication address is 0x7000~0x7044.

Among them, U0-00~U0-31 are the running and shutdown monitoring parameters defined in P7-03 and P7-04.

Chapter 6 Selection and Size

6.1 Inverter electrical specifications

表 6-1 JAC300 Inverter model and technical data

Inverter model	power supply capacity kVA	Input Current A	Output Current A	Adapter motor		heat Power consumption kW
				kW	HP	
Single phase power supply：220V，50/60Hz						
JAC300-0R4GB-S2-5013	1	5.4	2.3	0.4	0.5	0.016
JAC300-0R7GB-S2-5013	1.5	8.2	4	0.75	1	0.030
JAC300-1R5GB-S2-5013	3	14	7	1.5	2	0.055
JAC300-2R2GB-S2-5013	4	23	9.6	2.2	3	0.072
Three-phase power：380V，50/60Hz						
JAC300-0R7GB-4-5013	1.5	3.4	2.1	0.75	1	0.027
JAC300-1R5GB-4-5013	3	5	3.8	1.5	2	0.050
JAC300-2R2GB-4-5013	4	5.8	5.1	2.2	3	0.066
JAC300-004GB-4-5013	5.9	10.5	9	3.7	5	0.120
JAC300-5R5GB-4-5013	8.9	14.6	13	5.5	7.5	0.195
JAC300-7R5GB-4-5023	11	20.5	17	7.5	10	0.262
JAC300-11GB-4-5023	17	26	25	11	15	0.445
JAC300-15GB-4-5030B	21	35	32	15	20	0.553
JAC300-18GB-4-5030B	24	38.5	37	18.5	25	0.651
JAC300-22B-4-5041B	30	46.5	45	22	30	0.807
JAC300-30G-4-5042B	40	62	60	30	40	1.01

JAC300-37G-4-5042B	57	76	75	37	50	1.20
JAC300-45G-4-5050B	69	92	91	45	60	1.51
JAC300-55G-4-5050B	85	113	112	55	75	1.80
JAC300-75G-4-5061B	114	157	150	75	100	1.84
JAC300-90G-4-5061B	134	180	176	90	125	2.08
JAC300-110G-4-5061B	160	214	210	110	150	2.55
JAC300-132G-4-5063	192	256	253	132	200	3.06
JAC300-160G-4-5063	231	307	304	160	250	3.61
JAC300-200G-4-5071B	250	385	377	200	300	4.42
JAC300-220G-4-5071B	280	430	426	220	300	4.87
JAC300-250G-4-5083	355	468	465	250	400	5.51
JAC300-280G-4-5083	396	525	520	280	370	6.21
JAC300-315G-4-5083	445	590	585	315	500	7.03

6.2 Inverter appearance and size

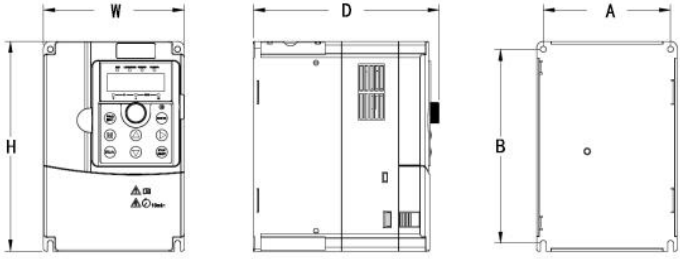


Figure 6-1 JAC300 series Plastic structure dimensions and installation dimensions

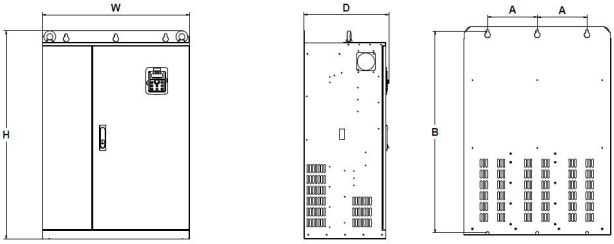


Figure 6-2 JAC300 series sheet metal structure dimensions and installation dimensions

Table 6-2 JAC300 appearance and mounting hole size

model	Power (KW)	A（mm）	B(mm)	H(mm)	W(mm)	D(mm)	Mounting aperture (mm)
		Installation size		Dimensions			
5013	0.75-5.5	113	172	186	125	165	φ5
5023	7.5-11	147	236	248	160	185	φ5
5030B	15-18.5	190	304	322	208	211	φ6
5041B	22	194	336	352	208	215	φ6
5042B	30-37	230	415	435	252	250	φ7
5050B	45-55	275	557	582	375	268	φ10
5061B	75-110	240	559	576	353	340	φ10
5063	132-160	145	686	705	403	345	φ12
5071B	200-220	210	840	870	500	424	φ12
5083	250-315	235	930	960	680	390	φ16

6.3 Keyboard size

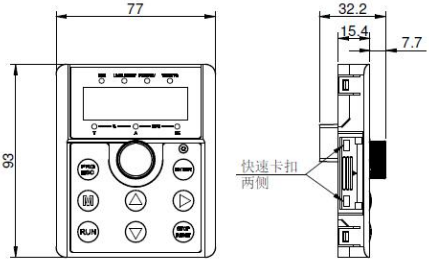


Figure 6-3 Dimensions of the keyboard

6.4 Keyboard bracket opening size

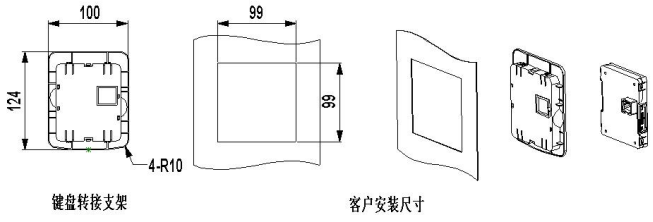


Figure 6-4 Keyboard bracket opening size

6.5 Selection of brake unit and braking resistor

Table 6-3 JAC300 Inverter Brake Kit Selection Table

Inverter model	Brake resistor recommended power	Braking resistor recommended resistance	Brake unit	Remarks
Simplex 220V				
JAC300-0R4GB-S2-5013	80W	≥200 Ω	standard Built in	No special instructions
JAC300-0R7GB-S2-5013	80W	≥150 Ω		
JAC300-1R5GB-S2-5013	100W	≥100 Ω		
JAC300-2R2GB-S2-5013	100W	≥70Ω		
Three phase 380V				
JAC300-0R7GB-4-5013	150W	≥300	standard Built in	No special instructions
JAC300-1R5GB-4-5013	150W	≥220		
JAC300-2R2GB-4-5013	250W	≥200		
JAC300-004GB-4-5013	300W	≥130		
JAC300-5R5GB-4-5013	400W	≥90Ω		
JAC300-7R5GB-4-5023	500W	≥65Ω		
JAC300-11GB-4-5023	800W	≥43Ω		
JAC300-15GB-4-5030B	1000W	≥32Ω		
JAC300-18GB-4-5030B	1300W	≥25Ω		

JAC300-22GB-4-5041B	1500W	≥22Ω		
JAC300-30G-4-5042B	2500W	≥16Ω		
JAC300-37G-4-5042B	3.7 kW	≥12.6 Ω		
JAC300-45G-4-5050B	4.5 kW	≥9.4Ω		
JAC300-55G-4-5050B	5.5 kW	≥9.4Ω	Optional	
JAC300-75G-4-5061B	7.5 kW	≥6.3Ω		
JAC300-90G-4-5061B	4.5 kW×2	≥9.4Ω×2		
JAC300-110G-4-5061B	5.5 kW×2	≥9.4Ω×2		
JAC300-132G-4-5063	6.5 kW×2	≥6.3Ω×2	External	
JAC300-160G-4-5063	16kW	≥6.3Ω×2	External	
JAC300-200G-4-5071B	20 kW	≥2.5Ω	External	
JAC300-220G-4-5071B	22 kW	≥2.5Ω	External	
JAC300-250G-4-5083	12.5 kW	≥2.5Ω×2	External	
JAC300-280G-4-5083	14kW×2	≥2.5Ω×2	External	
JAC300-315G-4-5083	16kW×2	≥2.5Ω×2	External	

Note: ×2 indicates that the two brake units are used in parallel with their respective braking resistors,

and ×3 has the same meaning as ×2.

Chapter 7 Maintenance and Troubleshooting

7.1 Daily maintenance and maintenance of the inverter

7.1.1 Daily maintenance

Due to the influence of ambient temperature, humidity, dust and vibration, the internal components of the inverter may be deteriorated, resulting in potential failure of the inverter or reducing the service life of the inverter. Therefore, it is necessary to carry out daily and regular maintenance and maintenance of the inverter.

Daily inspection items:

1) Whether the sound changes abnormally when the motor is running

2) Is vibration generated during motor operation?

3) Does the inverter installation environment change?

4) Is the inverter cooling fan working properly?

5) Is the inverter overheated?

6) Daily cleaning:

7) Always keep the drive clean.

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

9) Effectively remove the oil from the inverter's cooling fan.

7.1.2 Daily maintenance

Please check regularly for places that are difficult to check during operation.

Check the project regularly:

1) Check the air duct and clean it regularly

2) Check if the screws are loose

3) Check the inverter for corrosion

4) Check the wiring terminals for traces of arcing

5) Main circuit insulation test

Reminder: When measuring the insulation resistance with a megger (please use a DC 500V megger), disconnect the main circuit from the inverter. Do not test the control loop insulation with an insulation resistance meter. It is not necessary to perform a high voltage test (completed at the factory).

7.1.3 Replacement of consumable parts of the inverter

The consumable parts of the inverter mainly include cooling fans and electrolytic capacitors for filtering, and their service life is closely related to the environment and maintenance conditions used. The general life time is:

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

Note: The standard replacement time is the time when it is used under the following conditions, and the user can determine the replacement period based on the running time.

- Ambient temperature: The annual average temperature is about 30 ° C
- Load rate: 80% or less
- Operating rate: less than 20 hours / day

1) Cooling fan

Possible causes of damage: bearing wear and blade aging.

Judging criteria: Whether there are cracks in the fan blades, etc., whether the sound has abnormal vibration when starting up.

2) Filter electrolytic capacitor

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

Judging criteria: Whether there is liquid leakage, whether the safety valve has protruded, the measurement of electrostatic capacitance, and the measurement of insulation resistance.

7.1.4 Replacement of consumable parts of the inverter

After the user purchases the inverter, the following points must be noted for temporary storage and long-term storage:

1) When storing, please put it into the packing box of the company as much as possible in the original packaging.

2) Long-term storage will cause deterioration of the electrolytic capacitor. It must be ensured that the power is turned on within 2 years. The power-on time must be at least 5 hours. The input voltage must be gradually raised to the rated value with a voltage regulator.

7.2 Warranty Description of the Inverter

1) The free warranty refers only to the drive itself.

2) Under normal use, if the fault or damage occurs, our company is responsible for the 18-month warranty (from the date of shipment, the bar code on the fuselage shall prevail, and the contract agreement shall be implemented according to the agreement), 18 months or more, Charge reasonable maintenance costs;

3) Within 18 months, certain maintenance costs should be charged if:

4) The user does not damage the machine as specified in the manual;

5) damage caused by fire, flood, voltage abnormality, etc.;

6) Damage caused by using the inverter for abnormal functions;

7) The relevant service fees are calculated according to the uniform standards of the manufacturer.

If there is a contract, the contract is prioritized.

7.2 Fault alarm and countermeasure

When a fault occurs in the operation of the JAC300 inverter system, the inverter will immediately protect the motor from output and the inverter fault relay contact will act. The inverter panel will display the fault code. The fault types and common solutions corresponding to the fault code are detailed in the table below. The list is for reference only. Please do not repair or modify it. If you cannot solve the problem, please contact our company or product agent for technical support.

Table 7-1 List of fault information

Fault name	Operation panel display	Troubleshoot the cause	Troubleshooting
Inverter unit protection	Err01	1, the inverter output circuit is short circuit 2. The motor and inverter are too long. 3, the module is overheated 4, the internal wiring of the inverter is loose 5, the main control board is abnormal 6, the drive board is abnormal 7, the inverter module is abnormal	1. Eliminate peripheral faults 2, install reactor or output filter 3. Check if the air duct is blocked, the fan is working properly, and the problem is eliminated. 4, plug in all the cables 5, seeking technical support 6, seeking technical support 7, seeking technical support
accelerate Overcurrent	Err02	1. There is grounding or short circuit in the output circuit of the inverter. 2. The control mode is vector and no parameter identification is performed. 3, the acceleration time is too short 4. Manual torque boost or V/F curve is not suitable 5, the voltage is low 6. Start the motor that is rotating 7. Sudden load during acceleration 8, the frequency converter selection is too small	1. Eliminate peripheral faults 2. Perform motor parameter identification 3, increase the acceleration time 4. Adjust manual boost torque or V/F curve 5, adjust the voltage to the normal range 6, select the speed tracking start or wait for the motor Stop and start again 7, cancel the sudden load 8, select the inverter with a larger power level

Fault name	Operation panel display	Troubleshoot the cause	Troubleshooting
slow down Overcurrent	Err03	1. There is grounding or short circuit in the output circuit of the inverter. 2. The control mode is vector and no parameter identification is performed. 3, the deceleration time is too short 4, the voltage is low 5, sudden load during deceleration 6, no brake unit and brake resistor installed	1. Eliminate peripheral faults 2. Perform motor parameter identification 3, increase the deceleration time 4, adjust the voltage to the normal range 5, cancel the sudden load 6, install the brake unit and resistor
Constant speed Overcurrent	Err04	1. There is grounding or short circuit in the output circuit of the inverter. 2. The control mode is vector and no parameter identification is performed. 3, the voltage is low 4. Is there a sudden load during operation? 5, the frequency converter selection is too small	1. Eliminate peripheral faults 2. Perform motor parameter identification 3. Adjust the voltage to the normal range 4, cancel the sudden load 5, select the inverter with a larger power level
accelerate Overvoltage	Err05	1, the input voltage is too high 2. There is an external force drag motor running during the acceleration process. 3, the acceleration time is too short 4, no brake unit and brake resistor installed	1. Adjust the voltage to the normal range 2, cancel the additional power or install braking resistor 3, increase the acceleration time 4, install the brake unit and resistor
slow down Overvoltage	Err06	1, the input voltage is too high 2. There is external force drag motor running during deceleration 3, the deceleration time is too short 4, no brake unit and brake resistor installed	1. Adjust the voltage to the normal range 2, cancel the additional power or install braking resistor 3, increase the deceleration time 4, install the brake unit and resistor
Constant speed Overvoltage	Err07	1, the input voltage is too high 2. There is an external force drag motor running during the running	1. Adjust the voltage to the normal range 2, cancel the additional power or

Fault name	Operation panel display	Troubleshoot the cause	Troubleshooting
		process.	install braking resistor
Control power failure	Err08	1. The input voltage is not within the scope specified by the specification.	1. Adjust the voltage to the specification
Undervoltage fault	Err09	1, instantaneous power outage 2. The voltage at the input end of the inverter is not within the scope of the specification. 3, the bus voltage is not normal 4, the rectifier bridge and the buffer resistor are not normal 5, the driver board is abnormal 6, the control board is abnormal	1, reset failure 2, adjust the voltage to the normal range 3. Seek technical support 4, seeking technical support 5, seeking technical support 6, seeking technical support
Frequency converter overload	Err10	1. Is the load too large or the motor stalls? 2, the frequency converter selection is too small	1. Reduce the load and check the motor and mechanical conditions. 2, select the inverter with a larger power level
Motor overload	Err11	1. Is the motor protection parameter P9-01 set properly? 2. Is the load too large or the motor stalls? 3, the frequency converter selection is too small	1, set this parameter correctly 2. Reduce the load and check the motor and mechanical conditions 3. Select a frequency converter with a larger power level
Input phase loss	Err12	1, three-phase input power is not normal 2, the driver board is abnormal 3. The lightning protection board is abnormal 4. The main control board is abnormal.	1. Check and eliminate problems in the peripheral lines 2, seeking technical support 3. Seek technical support 4, seeking technical support
Output phase loss	Err13	1. The lead of the inverter to the motor is not normal. 2. Unbalanced three-phase output	1. Eliminate peripheral faults 2. Check if the three-phase winding of the motor is normal side by side.

Fault name	Operation panel display	Troubleshoot the cause	Troubleshooting
		of the inverter when the motor is running 3, the drive board is abnormal 4, the module is abnormal	In addition to failure 3. Seek technical support 4, seeking technical support
Module overheating	Err14	1, the ambient temperature is too high 2, the air duct is blocked 3, the fan is damaged 4, module thermistor is damaged 5, the inverter module is damaged	1, reduce the ambient temperature 2, clean up the air duct 3, replace the fan 4, replace the thermistor 5, replace the inverter module
External device failure	Err15	1. Input external fault signal through multi-function terminal DI 2. Input the signal of the external fault through the virtual IO function	1, reset operation 2, reset operation
communication fail	Err16	1, the host computer is not working properly 2, the communication line is not normal 3. The communication expansion card P0-28 is set incorrectly. 3. The communication parameter PD group setting is incorrect.	1, check the wiring of the host computer 2, check the communication cable 3, correctly set the communication expansion card type 4, correctly set the communication parameters
Contactor malfunction	Err17	1. The driver board and power supply are abnormal. 2, the contactor is not normal	1. Replace the driver board or power board 2, replace the contactor
Current detection fault	Err18	1, check the Hall device is abnormal 2, the driver board is abnormal	1, replace the Hall device 2, replace the driver board
Motor tuning failure	Err19	1. The motor parameters are not set according to the nameplate. 2. The parameter identification process times out.	1. Set the motor parameters correctly according to the nameplate 2. Check the inverter to the motor lead

Fault name	Operation panel display	Troubleshoot the cause	Troubleshooting
EEPROM Read and write failure	Err21	1、EEPROM Chip damage	1、Replace the main control board
Inverter hardware failure	Err22	1、Overpressure 2、Overcurrent	1, according to overvoltage fault handling 2、Overcurrent fault handling
Short circuit to ground	Err23	1、Motor short to ground	1、Replace cable or motor
Accumulated running time to failure	Err26	1、Cumulative running time reaches the set value	1、Use the parameter initialization function to clear the record information
User-defined fault 1	Err27	1. Input the signal of user-defined fault 1 through multi-function terminal DI 2. Enter the signal of user-defined fault 1 through the virtual IO function.	1, reset operation 2, reset operation
User-defined fault 2	Err28	1. Input the signal of user-defined fault 2 through multi-function terminal DI 2. Enter the signal of user-defined fault 2 through the virtual IO function.	1,Reset operation 2, reset operation
Accumulated power-on time to failure	Err29	1. The accumulated power-on time reaches the set value.	1, use the parameter initialization function to clear the record information
Download fault	Err30	1、The inverter running current is less than P9-64	1. Check if the load is out or whether the P9-64 and P9-65 parameter settings are in line with the actual operating conditions.
Runtime PID Feedback loss failure	Err31	1, PID feedback is less than PA-26 set value	1, check the PID feedback signal or set PA-26 to a suitable value

Fault name	Operation panel display	Troubleshoot the cause	Troubleshooting
Wave-by-wave current limiting fault	Err40	1. Is the load too large or the motor stalls? 2, the frequency converter selection is too small	1. Reduce the load and check the motor and mechanical conditions. 2, select the inverter with a larger power level
Switching motor failure during operation	Err41	1.Change the current motor selection through the terminal during the running of the inverter.	1、After the inverter stops, the motor is switched.
Speed deviation is too large	Err42	1. Encoder parameter setting is incorrect 2, no parameter identification 3. The speed deviation is too large. The detection parameters P9-69 and P9-70 are unreasonable.	1, set the encoder parameters correctly 2. Perform motor parameter identification 3. Set the detection parameters reasonably according to the actual situation.
Motor overspeed failure	Err43	1. Encoder parameter setting is incorrect 2, no parameter identification 3, motor overspeed detection parameters P9-67, P9-68 settings are not reasonable	1, set the encoder parameters correctly 2. Perform motor parameter identification 3. Set the detection parameters reasonably according to the actual situation.
Motor over temperature fault	Err45	1, the temperature sensor wiring is loose 2, the motor temperature is too high	1. Detect temperature sensor wiring and troubleshoot 2, reduce the carrier frequency or take other heat dissipation measures to heat the motor

7.3 Fault alarm and countermeasure

The following fault conditions may be encountered during the use of the inverter. Please refer to the following method for simple fault analysis:

Table 7-2 Common faults and their handling methods

Serial number	Fault phenomenon	possible reason	Solution
1	No display after power on	The grid voltage is not or too low; The switching power supply on the inverter drive board is faulty; The rectifier bridge is damaged; The inverter buffer resistance is damaged; Control board and keyboard failure; Connection between control board and driver board and keyboard Broken	Check the input power; Check the bus voltage; Re-insert 8-core and 28-core cable; Seek factory services;
2	Power on display Err23" Call the police	The motor or output line is shorted to ground; The inverter is damaged;	Use a shaker to measure the insulation of the motor and the output line; Seek factory services;
3	Frequently reported Err14 (module overheated) malfunction	The carrier frequency setting is too high; The fan is damaged or the air duct is blocked; Damage to the internal components of the inverter (thermocouple or other)	Reduce the carrier frequency (P0-15); Replace the fan and clean the air duct; Seek factory services;
4	The motor does not rotate after the inverter is running.	Motor and motor line; Inverter parameter setting error (motor parameter); Poor contact between the driver board and the control board; The drive board is faulty;	Reconfirm the connection between the inverter and the motor; Replace the motor or remove mechanical problems; Check and reset the motor parameters;
5	The DI terminal is disabled.	The parameter setting is incorrect;	Check and reset the relevant parameters of the P4 group;

Serial number	Fault phenomenon	possible reason	Solution
		External signal error; OP and +24V jumper loose; Control board failure;	Reconnect the external signal line; Reconfirm the OP and +24V jumpers; Seek factory services;
7	The inverter frequently reports overcurrent And overvoltage faults.	Motor parameter setting is incorrect; The acceleration and deceleration time is not suitable Load fluctuations;	Reset motor parameters or perform motor tuning; Set the appropriate acceleration and deceleration time; Seek factory services;
8	Power on (or running) Err17	Soft start contactor is not attracted;	Check if the contactor cable is loose; Check if the contactor is faulty; Check if the contactor 24V power supply is faulty; Seek factory services;

Appendix C: Modbus Communication Protocol

JAC300 series inverters provide RS485 communication interface and support Modbus-RTU slave communication protocol. The user can realize centralized control through computer or PLC, set the inverter running command through the communication protocol, modify or read the function code parameters, and read the working status and fault information of the inverter.

C.1 agreement content

The serial communication protocol defines the information content and usage format transmitted in serial communication. These include: host polling (or broadcast) format; host encoding method,

including: function code requiring action, transmission data and error checking. The response of the slave also adopts the same structure, including: action confirmation, return data and error check. If the slave receives an error while receiving information, or fails to complete the action requested by the host, it will organize a fault message as a response to the host.

C.1.1 Application method

The inverter is connected to the “single-master multi-slave” PC/PLC control network with RS485 bus as the communication slave.

C.1.2 Bus structure

(1) Hardware interface

The motherboard interface number is 485+, 485-.

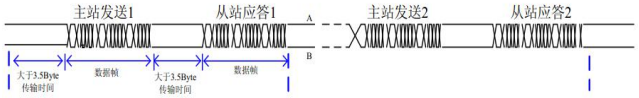
(2) Topology

Single-master multi-slave system. Each communication device in the network has a unique slave address, and one of the devices acts as a communication host (usually a flat PC host computer, PLC, HMI, etc.), actively initiates communication, and performs parameter reading or writing operations on the slave. Other devices are in the communication slave, responding to the host's inquiry or communication operation to the machine. Only one device can send data at the same time, while other devices are in the receiving state.

The slave address can be set from 1 to 247, with 0 being the broadcast communication address. The slave address in the network must be unique.

(3) Communication transmission method

Asynchronous serial, half-duplex transmission. In the process of serial asynchronous communication, the data is sent in one frame at a time in the form of a message. The MODBUS-RTU protocol stipulates that when there is no data idle time on the communication data line, the transmission time is greater than 3.5 bytes, indicating a new one. The start of the communication frame.

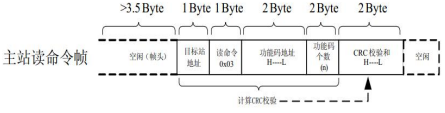


The built-in communication protocol of the JAC300 series inverter is the Modbus-RTU slave communication protocol, which can respond to the host's "query/command" or make corresponding actions according to the host's "query/command" and respond to the communication data.

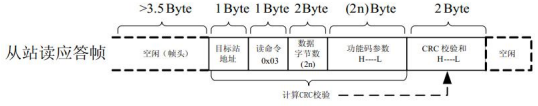
The host computer can be a personal computer (PC), an industrial control device or a programmable logic controller (PLC). The host can communicate with a slave separately and broadcast information to all slaves. For the individual access "query/command" of the host, the accessed slave returns an answer frame; for the broadcast information sent by the host, the slave does not need to feed back the response to the host.

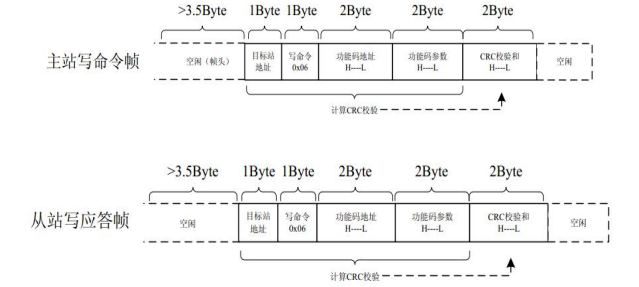
C.2 Communication data structure

The Modbus protocol communication data format of JAC300 series inverter is as follows. The inverter only supports reading or writing of Word type parameters. The corresponding communication read operation command is 0x03; the write operation command is 0x06, and byte or bit read and write operations are not supported:

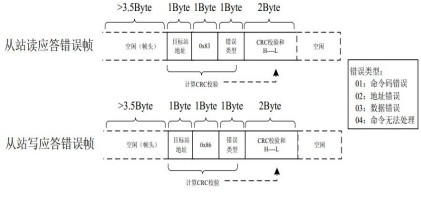


In theory, the host computer can read several consecutive function codes at a time (ie, n can be up to 12), but be careful not to cross the last function code of this function code group, otherwise it will reply the error.





If the slave detects a communication frame error, or the read/write is unsuccessful due to other reasons, it will reply the error frame.



Data frame field description:

Frame header START	Idle more than 3.5 characters of transmission time
Slave address ADR	Address range：1 ～247 ；0 ＝Broadcast address
Command code CMD	03：Read slave parameters ；06：Write slave parameters
Function code address H	The parameter address inside the inverter is expressed in hexadecimal; it is divided into function code type and non-function code type (such as running status parameter, running command, etc. parameters, etc. See the address definition for details. When transmitting, the high byte is first and the low byte is after.
Function code addressL	
Number of function codes H	The number of function codes read in this frame. If it is 1, it means that 1 function code is read. When transmitting, the high byte is first and the low byte is after. This protocol can only rewrite 1 function code at a time, there is no such field.
Number of function codes L	

Data H	The data to be acknowledged, or the data to be written, is transmitted with the high byte first and the low byte after.
Data L	
CRC CHK High position	Detection value: CRC16 check value. When transmitting, the high byte is first and the low byte is after. The calculation method is detailed in the description of the CRC check in this section.
CRC CHK Low position	
END	3.5 characters

CRC check method:

The CRC (Cyclical Redundancy Check) uses the RTU frame format, and the message includes an error detection field based on the CRC method. The CRC field detects the contents of the entire message. The CRC field is two bytes and contains a 16-bit binary value. It is calculated by the transmission device and added to the message. The receiving device recalculates the CRC of the received message and compares it with the value in the received CRC field. If the two CRC values are not equal, the transmission has an error. The CRC is first stored in 0xPPPF and then a procedure is called to process the consecutive 8-bit bytes in the message with the values in the current register. Only the 8Bit data in each character is valid for the CRC, and the start and stop bits as well as the parity bit are invalid. During the CRC generation process, each 8-bit character is individually or XORed with the contents of the register, and the result moves to the least significant bit, with the most significant bit padded with 0s. The LSB is extracted for detection. If the LSB is 1, the register is individually or different from the preset value. If the LSB is 0, it is not performed. The entire process is repeated 8 times. After the last bit (bit 8) is completed, the next 8-bit byte is individually ORed with the current value of the register. The value in the final register is the CRC value after all the bytes in the message have been executed.

When the CRC is added to the message, the low byte is added first, then the high byte. The CRC simple function is as follows:

```
unsigned int crc_chk_value（unsigned char *data_value,unsigned char length）
{
        unsigned int crc_value=0xPPPF;
        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）;
}
```

The address of the communication parameter defines the function of reading and writing function code (some function codes cannot be changed and are only used by the manufacturer or monitored):

C.3 function code parameter address marking rules

The rule is represented by the function code group number and label as the parameter address:

High byte: P0~PF (group F), A0~AF (group A), 70~7F (group U)

Low byte: 00~PF

For example, if the range function code P3-12 is required, the access address of the function code is represented as 0xP30C;

Note: PF group: neither parameters nor parameters can be changed;

Group U: Only readable, no parameters can be changed.

Some parameters cannot be changed while the inverter is running; some parameters cannot be changed regardless of the state of the inverter;

Change the function code parameters, and also pay attention to the range, unit, and related description of the parameters.

Function code group number	Communication access address	Communication modify the function code address in RAM
P0～PE group	0xP000 ～0xPEPF	0x0000～0x0EPF
A0～AC group	0xA000 ～0xACPF	0x4000～0x4CPF
U0 group	0x7000～0x70PF	

Note that since the EEPROM is frequently stored, it will reduce the lifetime of the EEPROM, so some function codes are in communication.

In mode, there is no need to store, just change the value in RAM.

If it is a group F parameter, to achieve this function, simply change the high bit F of the function code address to 0.

If it is a group A parameter, to achieve this function, simply change the high bit A of the function code address to 4.

The corresponding function code address is expressed as follows:

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

Low byte: 00~PF

For example, the function code P3-12 is not stored in the EEPROM, and the address is represented as 030C;

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

This address indicates that the RAM can only be written, and the operation cannot be performed. When reading, it is an invalid address.

For all parameters, this function can also be implemented using command code 07H.

Stop/Run Parameters section:

Parameter address	Parameter address	Parameter address	Parameter Description
1000H	* Communication setting value (decimal) –10000 ～10000	1010H	PID Setting
1001H	Operating frequency	1011H	PID Feedback
1002H	bus voltage	1012H	PLC step
1003H	The output voltage	1013H	Reserved

1004H	Output current	1014H	Feedback speed in 0.1Hz
1005H	Output Power	1015H	Remaining running time

Parameter address	Parameter Description	Parameter address	Parameter Description
1006H	Output torque	1016H	AI1 Pre-correction voltage
1007H	Running speed	1017H	AI2 Pre-correction voltage
1008H	DI Input flag	1018H	Reserved
1009H	DO Output flag	1019H	Line speed
100AH	AI1 Voltage	101AH	Current power-on time
100BH	AI2 Voltage	101BH	Current running time
100CH	AI3 Voltage	101DH	Communication setting
100DH	Count value input	101EH	Actual feedback speed
100EH	Length value input	101FH	Main frequency X display
100FH	Load speed	1020H	Auxiliary frequency Y display

note:

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

For frequency dimension data, the percentage is a percentage of the relative maximum frequency (P0-10); for the torque dimension data, the percentage

The ratio is P2-10, A2-48, A3-48, A4-48 (torque upper limit digital setting, corresponding to the first and second motors respectively).

Control command input to the inverter: (write only)

Command word address	Command function	
2000H	0001：Forward running	0005：Free stop
	0002：Reverse run	0006：Deceleration stop

	0003：Forward turn	0007：Fault reset
	0004：Reverse jog	

Read the inverter status: (read only)

Status word address	Status word address
3000H	0001：Forward running
	0002：Reverse run
	0003：Downtime

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

Password address	Enter the content of the password
1P00H	*****

Digital output terminal control: (write only)

Command address	Command content
2001H	BIT0：DO1 Output control BIT1：Reserved BIT2：RELAY1 Output control BIT3：Reserved BIT4：FMR Output control

Analog output AO1 control: (write only)

Command address	Command content
2002H	0 ～7PFF Express 0%～100 %

Analog output AO2 control: (write only)

Command address	Command content
2003H	0 ～7PFF Express 0%～100 %

Drive fault description:

Inverter fault address	Inverter fault information	
8000H	0000：Trouble free 0001：Reserved 0002：Accelerating overcurrent 0003：Deceleration over current	0012: Current detection fault 0013: Motor tuning failure 0015: Parameter read and write exception 0016: Inverter hardware failure

	0004: Constant speed over current 0005: Accelerated overvoltage 0006: Deceleration overvoltage 0007: Constant speed overvoltage 0008: Buffer resistor overload fault 0009: Undervoltage fault 000A: Inverter overload 000B: Motor overload 000C: Input phase loss 000D: output phase loss 000E: Module overheated 000F: external fault 0010: Communication error 0011: Contactor is abnormal	0017: Motor short circuit to ground 001A: Run time arrives 001B: User-defined fault 1 001C: User-defined fault 2 001D: Power on time arrives 001E: Offload 001F: Runtime PID feedback is lost 0028: Fast current limit timeout failure 0029: Switching motor failure during operation 002A: Speed deviation is too large 002B: Motor overspeed 005A: Encoder line number setting error 005E: Speed feedback error

C.4 PD group communication parameter description

PD-00	Baud rate	Factory default	5
	Predetermined area	Unit digit: MODBUS baud rate	
		0：300BPS	5：9600BPS
		1：600BPS	6：19200BPS
		2：1200BPS	7：38400BPS
		3：2400BPS	8：57600BPS
		4：4800BPS	9：115200BPS

This parameter is used to set the data transmission rate between the host computer and the inverter. Note that the baud rate set by the host computer and the inverter must be the same. Otherwise, the communication cannot be performed. The higher the baud rate, the faster the communication speed.

PD-01	Data Format	Factory default	0

	Predetermined area	0: No parity: data format <8, N, 2> 1: Even check: data format <8, E, 1> 2: Odd parity: data format <8, O, 1> 3: No parity: data format <8-N-1>

The data format set by the host computer and the inverter must be the same. Otherwise, the communication cannot be performed.

PD-02	Local address	Factory default	1
	Predetermined area	1~247 ，0 Broadcast address	

When the local address is set to 0, it is the broadcast address, and the host computer broadcast function is realized. The local address is unique (except for the broadcast address), which is the basis for the point-to-point communication between the host computer and the inverter.

PD-03	Response delay	Factory default	2ms
	Predetermined area	0~20ms	

Response delay: refers to the interval between the end of the inverter data reception and the transmission of data to the host computer. If the response delay is less than

The system processing time, the response delay is based on the system processing time. If the response delay is longer than the system processing time, the system processes

After the data is finished, wait until the response delay time expires before sending data to the host computer.

PD-04	Communication timeout	Factory default	0.0 s
	Predetermined area	0.0 s（invalid）；0.1~60.0s	

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

When the function code is set to a valid value, if the interval between one communication and the next communication exceeds the communication timeout period, the system will report a communication failure error (Err16). Normally, it is set to be invalid. If you set the secondary parameters in a continuous communication system, you can monitor the communication status.

PD-05	Communication	Factory default	1

	protocol selection		
	Predetermined area	0: Non-standard Modbus protocol; 1: Standard Modbus protocol	

PD-05=1: Select the standard Modbus protocol.

PD-05=0: When the command is read, the number of bytes returned by the slave is one byte more than the standard Modbus protocol. For details, refer to the “5 Communication Data Structure” section of this protocol.

PD-06	Communication read current resolution	Factory default	0
	Predetermined area	0：0.01A ；1：0.1A	

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

Warranty agreement

1) The warranty period of this product is 18 months (subject to the fuselage bar code information). Under the normal use of the product under the warranty period, the product is faulty or damaged. Our company is responsible for free maintenance.

2) During the warranty period, damage will be caused due to the following reasons: A certain maintenance fee will be charged:

A. Damage to the machine caused by mistakes in use and unauthorized repairs and modifications;

B. Machine damage caused by fire, flood, voltage abnormality, other natural disasters and secondary disasters;

C. Hardware damage caused by human fall and transportation after purchase;

D. Damage to the machine caused by the operation of the user manual provided by our company;

E. Failure and damage caused by obstacles other than the machine (such as external equipment factors);

3) When the product is faulty or damaged, please fill in the contents of the Product Warranty Card correctly and in detail.

4) The collection of maintenance costs shall be subject to the latest revised “Maintenance Price List” of our company.

5) This warranty card will not be reissued under normal circumstances. Please be sure to keep this card and present it to the maintenance personnel at the time of warranty.

6) If there is any problem during the service process, please contact our agent or our company in time.

7) The right to interpret this agreement belongs to Zhejiang Jiale Science and Technology Co., Ltd.

Zhejiang Jiale Science and Technology Co., Ltd.

customer service center

Address: Jiaxing City, Zhejiang Province

National unified service telephone: 400-680-9991 Zip code: 314300

Website: www.jarol.com.cn

warranty card

<table>
<tr><td rowspan="3">client information</td><td colspan="2">Unit address:</td></tr>
<tr><td>company name:</td><td>Contact:</td></tr>
<tr><td>Postal code:</td><td>contact number:</td></tr>
<tr><td rowspan="3">product information</td><td colspan="2">Product number:</td></tr>
<tr><td colspan="2">Body barcode (paste here):</td></tr>
<tr><td colspan="2">Agent name:</td></tr>
<tr><td>malfunction information</td><td colspan="2">(Maintenance time and content):

Repair man:</td></tr>
</table>