



HV500P Series Solar Pump Frequency Inverter User Manual

HNC Electric Limited

Foreword

Thank you for using the HV500P series of high-performance vector inverter.

HV500P series is a general current vector control inverter integrated with the performance and features in a high degree.

HV500P with industry-leading drive performance and functionality control, using unique current vector control algorithm can efficiently drive induction motor and synchronous motor to achieve high accuracy, high torque and high-performance control.

Customer success, market service ! HV500P in terms of performance and control are worthy of trust!

This guide explains how to properly use HV500P series inverter. Before using (installation, operation, maintenance, inspection, etc.), be sure to carefully read the instructions. Understanding of product safety precautions before using this product.

General notes
● This manual due to product improvement, specifications change, as well as to the instructions of their ease of use will be appropriate changes. We will update the information number of instructions, issued a revised edition. ● Due to damage to or loss need to order the manual, please contact HNC or HNC agents to order it as per the information number on the cover. ● This icon in the instructions with the products you ordered may be different, please refer to the specific documentation for products supplied.

When get the product, please read following:

Items	Ensure way
And the order of the types of goods, models are consistent	Please confirm the HV500P side of the brand name
Whether there are parts damaged or damaged	Check the overall appearance and check for damage in shipping
Screws and other fastening parts are loose	If necessary, check with a screwdriver
Brochures, warranty cards and other accessories	HV500P manual and corresponding accessories

Contents

CHAPTER I SAFETY INFORMATION AND PRECAUTION.....	4 -
1.1 SAFETY INFORMATION.....	- 4 -
1.2 GENERAL PRECAUTIONS.....	- 6 -
CHAPTER II PRODUCT INFORMATION.....	10 -
2.1 INSTRUCTIONS ON NAMEPLATE OF FREQUENCY CONVERTER.....	- 10 -
2.2 HV500P PRODUCT SERIES.....	- 10 -
2.3 TECHNICAL DATA.....	- 12 -
2.4 INSTRUCTIONS ON NAMES OF COMPONENTS OF FREQUENCY CONVERTER.-	15
-	
2.5 OVERALL DIMENSION OF INVERTER.....	- 15 -
2.6 THE DAILY MAINTENANCE AND MAINTENANCE OF THE INVERTER MAINTENANCE.....	- 18 -
2.7 INVERTER WARRANTY INSTRUCTIONS.....	- 19 -
2.8 BRAKE ASSEMBLY SELECTION GUIDE.....	- 19 -
CHAPTER III MECHANICAL AND ELECTRICAL INSTALLATION-	22 -
3.1 MECHANICAL INSTALLATION.....	- 22 -
3.2 ELECTRICAL INSTALLATION.....	- 23 -
3.3 TERMINAL BLOCK DIAGRAM.....	- 27 -
3.4 STANDARD WIRING DIAGRAM.....	- 38 -
CHAPTER IV OPERATION DISPLAY AND APPLICATION EXAMPLES-	44 -
4.1 OPERATION AND DISPLAY INTERFACE.....	- 44 -
4.2 VIEWING AND MODIFYING FUNCTION CODES.....	- 46 -
4.3 HOW TO ORGANIZE THE INVERTER FUNCTION CODE.....	- 47 -
4.4 INVERTER DEBUGGING FLOW CHART.....	- 48 -
4.5 MOTOR PARAMETER SELF-LEARNING.....	- 50 -
CHAPTER V FUNCTION CODE TABLE.....	53 -
5.1 STANDARD FUNCTION PARAMETER.....	- 53 -
5.2 MONITORING PARAMETERS.....	- 89 -
CHAPTER VI EMC(ELECTROMAGNETIC COMPATIBILITY).....	- 91 -
6.1 SOLUTIONS TO COMMON EMC INTERFERENCE PROBLEMS.....	- 91 -
CHAPTER VII FAULT DIAGNOSIS AND COUNTERMEASURES.....	- 93 -

7.1 ADJUSTMENT GUIDE BEFORE THE INVERTER IS TESTED.....	- 93 -
7.2 FAULT ALARM AND COUNTERMEASURE.....	- 96 -
7.3 COMMON FAULTS AND SOLUTIONS.....	- 102 -
CHAPTER VIII HV500P COMMUNICATION DATA ADDRESS	
DEFINITION.....	- 104 -
8.1 HV500P FUNCTION CODE DATA.....	- 104 -
CHAPTER IX MODBUS COMMUNICATION PROTOCOL.....	- 108 -
9.1 AGREEMENT CONTENT.....	- 108 -
CHAPTER X THE ADJUSTMENT OF THE PHOTOVOLTAIC WATER	
PUMPING DEDICATED CONTROLLER.....	- 119 -
QUALITY ASSURANCE AND PRODUCT WARRANTY.....	- 122 -

Chapter I Safety Information and Precaution

In this manual, the notices are graded based on the degree of danger:

 **DANGER:** indicates that failure to comply with the notice will result in severe personal injury or even death;

 **WARNING:** indicates that failure to comply with the notice will result in personal injury or property damage;

Read this manual carefully so that you have a thorough understanding. Installation, commissioning or maintenance may be performed in conjunction with this chapter. HNC Electric will assume no liability or responsibility for any injury or loss caused by improper operation.

1.1 Safety Information

Use Stage	Safety Grade	Precautions
Before installation	 DANGER	● Do not install the equipment if you find water seepage, component missing or damage upon unpacking. ● Do not install the equipment if the packing list does not conform to the product you received
	 WARNING	● Handle the equipment with care during transportation to prevent damage to the equipment. ● Do not use the equipment if any component is damaged or missing. Failure to comply will result in personal injury. ● Do not touch the components with your hands. Failure to comply will result in static electricity damage.
During installation	 DANGER	● Install the equipment on incombustible objects such as metal, and keep it away from combustible materials. Failure to comply may result in a fire ! ● Do not loosen the fixed screws of the components, especially the screws with red mark. !
	 WARNING	● Do not drop wire end or screw into the AC drive. Failure to comply will result in damage to the AC drive ! ● Install the AC drive in places free of vibration and direct sunlight. ● When two AC drives are laid in the same cabinet, arrange the installation positions properly to ensure the cooling effect.
At wiring	 DANGER	● Wiring must be performed only by qualified personnel under instructions described in this manual. Failure to comply may result in unexpected accidents ! ● A circuit breaker must be used to isolate the power supply and the AC drive. Failure to comply may result in a fire ! ● Ensure that the power supply is cut off before wiring. Failure to comply may result in electric shock ! ● Tie the AC drive to ground properly by standard. Failure to comply may result in electric shock !

At wiring	 WARNING	● Never connect the power cables to the output terminals (U,V, W) of the AC drive. Pay attention to the marks of the wiring terminals and ensure correct wiring. Failure to comply will result in damage to the AC drive ! ● Use wire sizes recommended in the manual. Failure to comply may result in accidents ! ● Never connect the braking resistor between the DC bus terminals(+) and (-). Failure to comply may result in a fire ! ● Use a shielded cable for the encoder, and ensure that the shielding layer is reliably grounded !
Before power-on	 DANGER	● Check that the following requirements are met: The input terminals (R, S, T) and output terminals (U, V, W) are properly connected; The voltage class of the power supply is consistent with the rated voltage class of the AC drive; No short-circuit exists in the peripheral circuit; The wiring is secured ● Do not perform the voltage resistance test on any part of the AC drive because such test has been done in the factory. Failure to comply will result in accidents.
	 WARNING	● Cover the AC drive properly before power-on to prevent electric shock ! ● All peripheral devices must be connected properly under the instructions described in this manual. Failure to comply will result in accidents !
After power-on	 DANGER	● Do not open the AC drive's cover after power-on. Failure to comply may result in electric shock. ! ● Do not touch the driver and peripheral circuits with wet hands. Otherwise there is danger of electric shock! ● Do not touch any input/output terminals of the inverter. Otherwise there is danger of electric shock! ● At the beginning of power-on, the inverter automatically performs safety detection on the external high-voltage circuit. At this time, never touch the U, V, W terminal or motor terminal of the driver, otherwise there is danger of electric shock!
	 WARNING	● 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 default settings of the AC drive. Failure to comply will result in damage to the AC drive !
During operation	 DANGER	● Do not touch the fan or the discharging resistor to check the temperature. Failure to comply will result in personal burnt ! ● Signal detection must be performed only by qualified personnel during operation. Failure to comply will result in personal injury or damage to the AC drive !
	 WARNING	● Avoid objects falling into the AC drive when it is running. Failure to comply will result in damage to the AC drive ! ● Do not start/stop the AC drive by turning the contactor ON/OFF. Failure to comply will result in damage to the AC drive !

During maintenance	 DANGER	● Personnel without professional training should not perform maintenance and repair on the inverter. Otherwise, personal injury or equipment damage will result! ● Do not repair or maintain the equipment with electricity. Otherwise there is danger of electric shock! ● Confirm that the inverter's input power is turned off for 10 minutes before the driver can be maintained and repaired. Otherwise, the residual charge on the capacitor will cause harm to people! ● 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.
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1.2 General Precautions

1.2.1 Motor insulation test

Perform the insulation test when the motor is used for the first time, or when it is reused after being stored for a long time, or in a regular check-up, in order to prevent the poor insulation of motor windings from damaging the AC drive. The motor must be disconnected from the AC drive during the insulation test. A 500-V mega-Ohm meter is recommended for the test. The insulation resistance must not be less than 5 MΩ.

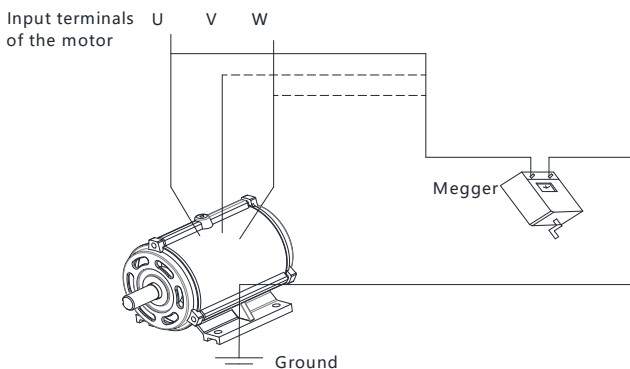


Fig1-1

1.2.2 Thermal protection of motor

If the rated capacity of the motor selected does not match that of the AC drive, especially when the AC drive's rated power is greater than the motor's, adjust the motor protection parameters on the operation panel of the AC drive or install a thermal relay in the motor circuit for protection.

1.2.3 Voltage-sensitive device or capacitor on output side of the AC drive

Do not install the capacitor for improving power factor or lightning protection voltage-sensitive resistor on the output side of the AC drive because the output of the AC drive is PWM wave. Otherwise, the AC drive may suffer transient overcurrent or even be damaged.

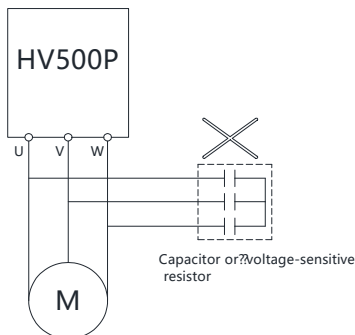


Fig 1-2

1.2.4 Contactor at the I/O terminal of the AC drive

When a contactor is installed between the input side of the AC drive and the power supply, the AC drive must not be started or stopped by switching the contactor on or off. If the AC drive has to be operated by the contactor, ensure that the time interval between switching is at least one hour since frequent charge and discharge will shorten the service life of the capacitor inside the AC drive; When a contactor is installed between the output side of the AC drive and the motor, do not turn off the contactor when the AC drive is active. Otherwise, modules inside the AC drive may be damaged.

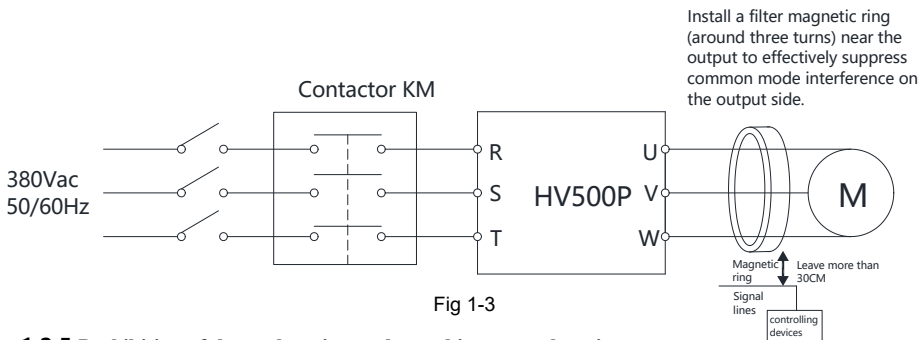


Fig 1-3

1.2.5 Prohibition of three-phase input changed into two-phase input

Do not change the three-phase input of the AC drive into two-phase input. Otherwise, a fault will result or the AC drive will be damaged.

1.2.6 Lightning shock protection

This series of inverters are equipped with lightning overcurrent protection devices, which have certain self-protection ability for inductive lightning. For lightning frequent customers, customers should also install protection on the front end of the inverter.

1.2.7 Temperature derating, altitude derating, carrier frequency derating

If the ambient temperature of the installation site exceeds 40 °C, the altitude exceeds 1000m, or the switching frequency changes from 4KHz to 8, 12KHz, the inverter must be derated.

The temperature range is between +40 °C and +50 °C. For every 1 °C increase in temperature,

the rated output current is reduced by 3%. Refer to the figure below for actual derating.

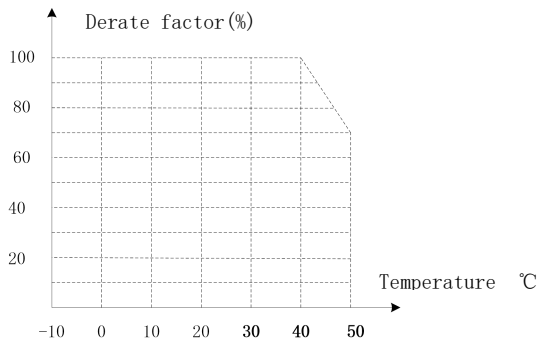


Fig.1-4 Inverter temperature derating curve

Note: We do not recommend using the inverter above 50 ° C, otherwise the consequences will be the responsibility of the customer.

In areas where the altitude is more than 1000m, the heat dissipation effect of the inverter is deteriorated due to the thin air, so it is necessary to derate the use. Please consult our company for technical consultation.

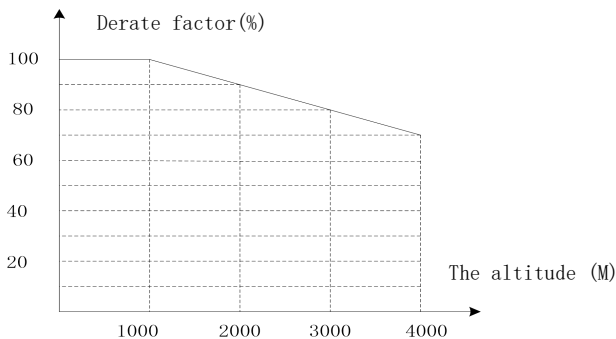


Fig. Frequency converter altitude derating curve

For three-phase 200V inverter, the maximum altitude is 3000m. If the altitude is between 2000-3000m, the derating will be 1% for every 100m.

The HV500P inverter has different carrier frequency setting ranges for different power levels. The rated power of the inverter is defined based on its factory carrier frequency. If it exceeds the factory value, the inverter derating 20% for every 1KHz carrier frequency.

1.2.8 Note when the inverter is scrapped

The electrolytic capacitor of the main circuit and the electrolytic capacitor on the printed

circuit board may explode when incinerated. When the plastic parts are incinerated, toxic gas will be generated. Please dispose of it as industrial waste.

1.2.9 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.

Chapter II product information

2.1 Instructions on Nameplate of Frequency Converter

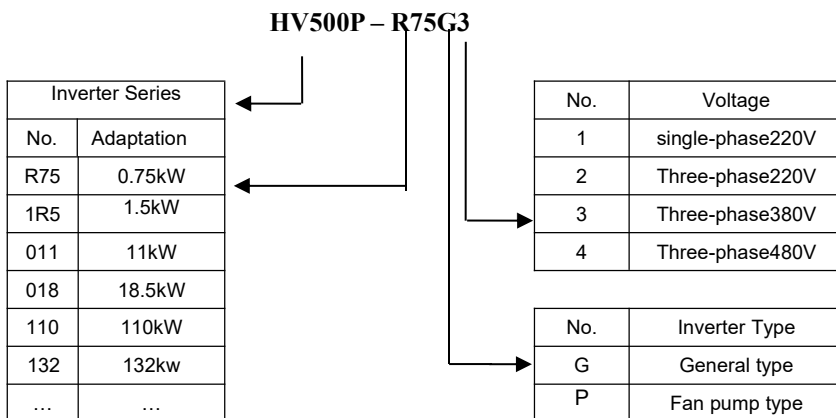


Fig. 2-1 Instructions on Nameplate of Frequency Converter

2.2 HV500P Product series

Model	Power kVA	Input current A	Output current A	Match motor KW
Single-phase:220V input,50/60Hz ; Single-phase:220V output,				
HV500PM-R40G1	0.6	5.4	3.4	0.4
HV500PM-R75G1	1.1	8.2	5.5	0.75
HV500PM-1R5G1	2.3	14	10	1.5
HV500PM-2R2G1	3.4	23	15.8	2.2
Single-phase:220V input,50/60Hz ; Three phase:220V output,				
HV500P-R40G1	1.0	5.4	2.3	0.75
HV500P-R75G1	1.5	8.2	4.0	0.75
HV500P-1R5G1	3.0	14.0	7.0	1.5
HV500P-2R2G1	4.0	23.0	9.6	2.2
Three-phase:220V,50/60Hz				
HV500P-004G2	8.9	14.6	13.0	3.7
HV500P-5R5G2	17.0	26.0	25.0	5.5
HV500P-7R5G2	21.0	35.0	32.0	7.5
HV500P-011G2	30.0	46.5	45.0	11
HV500P-015G2	40.0	62.0	60.0	15

Model	Power kVA	Input current A	Output current A	Match motor KW
HV500P-0185G2	57.0	76.0	75.0	18.5
HV500P-022G2	69.0	92.0	91.0	22
HV500P-030G2	85.0	113.0	112.0	30
HV500P-037G2	114.0	157.0	150.0	37
HV500P-045G2	134.0	180.0	176.0	45
HV500P-055G2	160.0	214.0	210.0	55
HV500P-075G2	231.0	307.0	304.0	75
HV500P-090G2	250.0	235.0	215.0	90
HV500P-110G2	280.0	247.0	245.0	110
Three-phase:380V/480V,50/60Hz				
HV500P-R75G3	1.5	3.4	2.1	0.75
HV500P-1R5G3	3.0	5.0	3.8	1.5
HV500P-2R2G3	4.0	5.8	5.1	2.2
HV500P-004G3	5.9	10.5	9.0	3.7
HV500P-5R5G3	8.9	14.6	13.0	5.5
HV500P-7R5G3	11.0	20.5	17.0	7.5
HV500P-011G3	17.0	26.0	25.0	11
HV500P-015G3	21.0	35.0	32.0	15
HV500P-0185G3	24.0	38.5	37.0	18.5
HV500P-022G3	30.0	46.5	45.0	22
HV500P-030G3	40.0	62.0	60.0	30
HV500P-037G3	57.0	76.0	75.0	37
HV500P-045G3	69.0	92.0	91.0	45
HV500P-055G3	85.0	113.0	112.0	55
HV500P-075G3	114.0	157.0	150.0	75
HV500P-090G3	134.0	180.0	176.0	90
HV500P-110G3	160.0	214.0	210.0	110
HV500P-132G3	192.0	256.0	253.0	132
HV500P-160G3	231.0	307.0	304.0	160
HV500P-200G3	250.0	385.0	377.0	200
HV500P-220G3	280.0	430.0	426.0	220
HV500P-250G3	355.0	468.0	465.0	250
HV500P-280G3	396.0	525.0	520.0	280
HV500P-315G3	445.0	590.0	585.0	315

2.3 Technical data

Item		Specification	
Basic function	Highest frequency	Vector control:0 ~ 500Hz V/F control:0 ~ 500Hz	
	Carrier frequency	0.8kHz ~ 12kHz According to the load characteristic, automatically adjust the carrier frequency.	
	Input frequency resolution	Digital setting::0.01Hz Analog setting: maximum frequency×0.025%	
	Control mode	without PG Vector(SVC) ,Feedback vector(FVC) V/F control	
	Startup torque	G type:0.5Hz/150%(SVC);0Hz/180%(FVC)	
	Speed range	1:100 (SVC)	1:1000 (FVC)
	Speed control accuracy	±0.5%(SVC)	±0.02%(FVC)
	Torque control accuracy	±5%(FVC)	
	Overload capacity	G type:150% rated current 60sec;180% rated current 3sec	
	Torque boost	Auto-torque boost;manual torque boost 0.1%~30.0%	
	V/F curve	Three types:linear type; multi-point type; the nth power of V/F curve	
Item		Specification	
Basic function	V/F Separation	Two types:full separation,half of separation	
	ACC/DEC curve	Linear or S curve of ACC/DEC ways.Four types of ACC/DEC Time, ACC/DEC time range is 0.0~6500.0s	
	DC brake	DC brake frequency: 0.00Hz~ max frequency,brake time: 0.0s~36.0s,brake action current: 0.0%~100.0%	
	JOG Control	JOG frequency range: 0.00Hz~50.00Hz.JOG speed-up/down time: 0.0s~6500.0.	
	Simple PLC,multi-stage speed running	Via built-in PLC or control terminal can realize max 16 stage speed running	
	Built-in PID	Can realize process control close-loop system conveniently	
	Auto-adjust voltage(AVR)	When grid voltage changes,can keep output voltage steadily automatically	
	Overcurrent and overvoltage speed control	During running,limit current and voltage automatically,protect from tripping off frequently for overvoltage and overcurrent.	
	Quick current-limit function	Reduce overcurrent error on max extent,protect inverter normal running	
	Torque limitation and control	"digger"feature,invertercouldlimit torque automatically,prevent overcurrent tripping off;close-loop vector can realize torque control.	

Item		Specification
Individualized functions	High performance	Control of asynchronous motor is implemented through the high-performance current vector control technology
	Power dip ride through	The load feedback energy compensates the voltage reduction so that the AC drive can continue to run for a short time.
	Rapid current limit	It helps to avoid frequent overcurrent faults of the AC drive.
	Timing control	Time range: 0.0–6500.0 minutes
	Multi-motor switchover	Two motors can be switched over via two groups of motor parameters.
	Multiple communication protocols	Support multiple fieldbus:RS-485、Can link
	Multi-encoder support	Support differential, open collector, rotary transformer
	Command source	control panel, control terminal, communication; can be switched by several modes
Individualized functions	Frequency source	10 types of frequency sources: digital setting, analog voltage setting, analog current setting, pulse setting,communication setting, can be switched by several methods
	Auxiliary frequency sources	10 types of auxiliary frequency source, can realize auxiliary frequency trimming, frequency combining flexiably
Run	Input terminal	Standard:7 digital input terminal, one of them support max 100KHz HS pulse input;2 analog input terminal, one of them support 0~10V voltage input,one support 0~10V voltage or 0~20mA current input.
	Output terminal	Standard : 1 high-speed pulse output terminal(optional open collector),support 0~100kHzpulse ;1 digit output terminals;2 relay output terminal;2 analog output terminals,one of them support 0~20mA current output;
Display and operation on the operation panel	LED display	Can display parameter
	Press-key locking and function selection	Realize press-key partial or full locking, define partial press-key function range, to avoid wrong operation
	Protection function	Power-on motor short circuit test,output phase-loss protection, over-current protection, over-voltage protection, under-voltage protection, overheat protection, overload protection etc
	Optional parts	Differential PG card, open collector PG card,rotary transformer PG card

Item		Specification
Environment	Application site	Indoor, without direct sunlight, no powder, corrosive gas, combustion air, oil dust, water steam, water drop or salt etc.
	Altitude level	Less than 1000m
	Environment temperature	— 10 ℃ ~ + 40 ℃ (During 40 ℃ ~50 ℃ ,please reduce capacity touse)
	Humidity	<95%RH, no water drop condensed

2.4 instructions on Names of Components of Frequency Converter

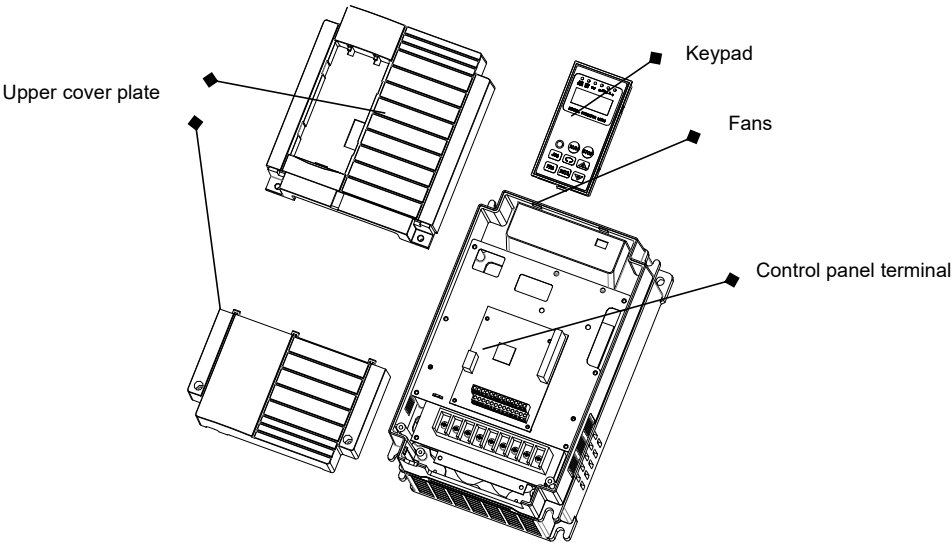


Fig. 2-2 The Schematic Diagram of Names of Components of Inverter

2.5 Overall Dimension of Inverter

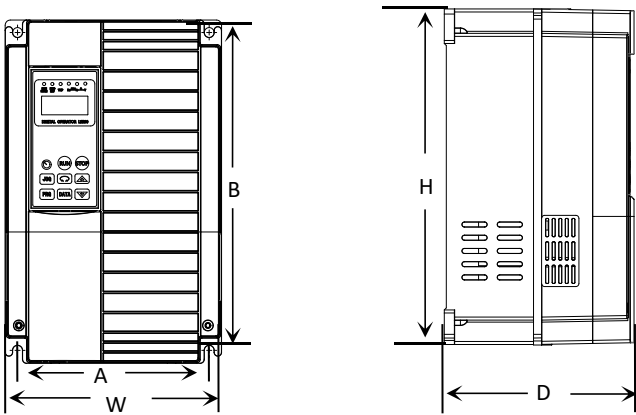


Fig. 2-3 The Schematic Diagram of Overall Dimension of Inverter

2.5.1 mechanical parameters

Model	Installation Dimensions		Overall Dimension			Mounting Hole	Weight (kg) ≈
	A(mm)	B (mm)	W(mm)	H(mm)	D(mm)		
HV500P-R40G1	101	171	112	180	118	Φ4.9	1.3
HV500P-R75G1							
HV500P-1R5G1							
HV500P-2R2G1							
HV500P-R75G2							
HV500P-1R5G2							
HV500P-2R2G2							
HV500P-004G2	135	245	150	260	153	Φ6	3.9
HV500P-5R5G2							
HV500P-7R5G2	186	306	210	330.5	188	Φ9.5	7.5
HV500P-011G2							
HV500P-015G2							
HV500P-0185G2	238	396	260	420	196	Φ8.5	10.5
HV500P-022G2							
HV500P-030G2	272	455	304	470	240	Φ9	21
HV500P-037G2	200	614	278	630	310	Φ9	-
HV500P-045G2							
HV500P-055G2							
HV500P-075G2	300	695	450	630	310	Φ11	-
HV500P-090G2							
HV500P-110G2							
HV500P-R75G3	101	171	112	180	118	Φ4.9	1.3
HV500P-1R5G3							
HV500P-2R2G3							
HV500P-004G3	101	171	112	180	118	Φ4.9	2.1
HV500P-5R5G3							
HV500P-7R5G3	135	245	150	260	153	Φ6	3.9
HV500P-011G3							
HV500P-015G3							
HV500P-0185G3	186	306	210	330.5	188	Φ9.5	7.5
HV500P-022G3							
HV500P-030G3							
HV500P-037G3	238	396	260	420	196	Φ8.5	10.2
HV500P-045G3							
HV500P-055G3							
HV500P-075G3	200	614	278	630	310	Φ9	-
HV500P-090G3							
HV500P-110G3							

cabinet	HV500P-132G3	300	695	450	630	310	$\Phi 11$	-
	HV500P-160G3							
	HV500P-185G3	400	810	520	1170	380	$\Phi 13$	-
	HV500P-200G3							
	HV500P-220G3							
Wall-mounted	HV500P-250G3	400	810	520	820	380	$\Phi 13$	-
	HV500P-185G3							
	HV500P-200G3							
	HV500P-220G3							
	HV500P-250G3	460	894	720	1305	380	$\Phi 13$	-
	HV500P-280G3							
	HV500P-315G3							

2.5.2 The Overall Dimension of Operation Panel

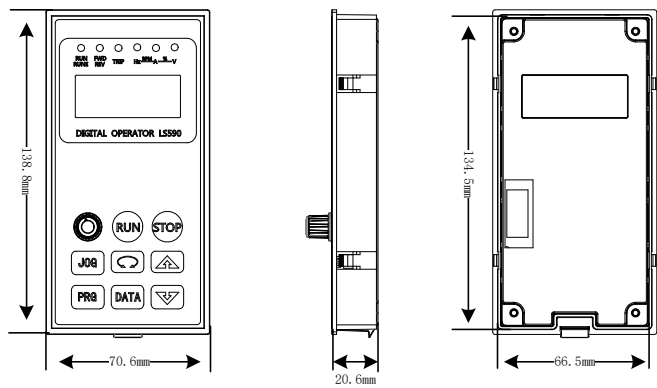


Fig2-4 The Figure of Keyboard Operator Appearance and Installation Dimension

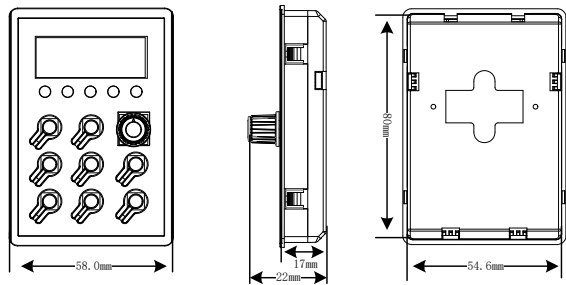


Fig2-5 The Figure of Keyboard Operator Appearance and Installation Dimension

2.6 The daily maintenance and maintenance of the inverter

2.6.1 Daily Maintenance

In order to avoid faults of the frequency converter, ensure the normal operation of equipment and prolong the service life of the frequency converter, daily maintenance is necessary for the frequency converter. The contents of the daily maintenance are shown in the following table.

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?

Daily cleaning:

- 1) Always keep the inverter clean.
- 2) Effectively remove the dust on the surface of the inverter to prevent dust from entering the inverter, especially metal dust.
- 3) Effectively remove the oil from the inverter's cooling wind turbine.

2.6.2 Periodic inspection

Please check regularly for places that are difficult to check during operation. Check items 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 of the motor with a megohmmeter (please use DC 500V megohmmeter), disconnect the main circuit line from the inverter. Do not use the insulation resistance meter to test the control loop insulation. It is not necessary to carry out high voltage test (factory completed).

2.6.3 Inverter wearing parts replacement

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

Component	Service Life
Fan	2 to 3 years
Electrolytic capacitor	4 to 5 years

The user can determine the replacement period based on the running time.

- 1) Cooling fan

Possible causes of damage: bearing wear, 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 jump, electrolyte aging. Judging criteria: whether there is liquid leakage, whether the safety valve has protruded, the measurement of electrostatic capacitance, the determination of insulation resistance.

2.6.4 Inverter storage

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 lead to deterioration of electrolytic capacitors. It must be ensured that the power is turned on within 2 years. The power-on time is at least 5 hours. The input voltage must be gradually increased to the rated value with a voltage regulator.

2.7 Inverter warranty instructions

The free warranty refers only to the inverter itself. Under normal use, failure or damage, our company is responsible for the 12-month warranty (from the date of manufacture, the bar code on the fuselage shall prevail), for more than 12 months, will be charged Reasonable maintenance costs;

Within 12 months, certain maintenance costs should be charged if:

- 1)The user does not damage the machine caused by the instructions in the manual;
- 2)Damage caused by fire, flood, voltage abnormality, etc;
- 3)damage caused when the inverter is used for abnormal functions;
- 4)The relevant service fees are calculated according to the uniform standards of the manufacturer. If there is a contract, the contract is prioritized.

2.8 Brake Assembly Selection Guide

(*):Table 2-1 is the guidance data. The user can select different resistance values and power according to the actual situation, (but the resistance must not be less than the recommended value in the table, the power can be large.) The selection of the braking resistor needs to be based on The power of the motor power generation in the actual application system is determined, and it is related to the inertia of the system, the deceleration time, the energy of the potential energy load, etc., and the customer needs to select according to the actual situation. The greater the inertia of the system, the shorter the required deceleration time, and the braking The more frequently, the braking resistor needs to select the higher the power and the smaller the resistance.

2.8.1 Resistance selection

When braking, the regenerative energy of the motor is almost completely consumed by the braking resistor.

According to the formula: $U \cdot I = P_b$

In the formula U ----the braking voltage of the system stable braking

(Different systems are also different, typically 700V for 380VAC systems)

P_b ---- brake power

2.8.2 Brake resistor power selection

Theoretically, the braking resistor power is the same as the braking power, but considering the derating is 70%. According to the formula: $0.7 \cdot P_r = P_b \cdot D$

P_r ---- resistance power

D---- Brake frequency (the proportion of the regeneration process to the entire working process)

Common application	Elevator	Unwinding and taking	Centrifuge	Accidental braking resistor	General occasion
Braking frequency value	20% ~30%	-20 ~30%	50%~60%	-5%	10%

Model type	Brake power	Braking resistor Recommended resistance	brake	note
Single phase 220V				
HV500P-R75G2	80W	≥150Ω	Standard built-in	No special instructions
HV500P-1R5G2	100W	≥100Ω		
HV500P-2R2G2	100W	≥70Ω		
Three-phase 220V				
HV500P-004G2	400W	≥45Ω	Standard built-in	No special instructions
HV500P-5R5G2	800W	≥22Ω		
HV500P-7R5G2	1000W	≥16Ω		
HV500P-011G2	1500W	≥11Ω	Built-in optional	Add "B" after the inverter model
HV500P-015G2	2500W	≥8Ω		
HV500P-0185G2	3.7 kW	≥8.0Ω	External	-
HV500P-022G2	4.5 kW	≥8Ω	External	
HV500P-030G2	5.5 kW	≥4Ω	External	
HV500P-037G2	7.5 kW	≥4Ω	External	
HV500P-045G2	4.5 kW×2	≥4Ω×2	External	
HV500P-055G2	5.5 kW×2	≥4Ω×2	External	
HV500P-075G2	16kW	≥1.2Ω	External	
HV500P-090G2	18KW	≥1.5Ω	External	
HV500P-110G2	22KW	≥1.2Ω	External	
Three-phase 380V				
HV500P-R75G3	150W	≥300Ω	Standard built-in	No special instructions
HV500P-1R5G3	150W	≥220Ω		
HV500P-2R2G3	250W	≥200Ω		
HV500P-004G3	300W	≥130Ω		
HV500P-5R5G3	400W	≥90Ω		
HV500P-7R5G3	500W	≥65Ω		
HV500P-011G3	800W	≥43Ω		

Model type	Brake power	Braking resistor Recommended resistance	brake	note
HV500P-015G3	1000W	$\geq 32\Omega$		
HV500P-0185G3	1300W	$\geq 25\Omega$		
HV500P-022G3	1500W	$\geq 22\Omega$	Built-in optional	Add "B" after the inverter model
HV500P-030G3	2500W	$\geq 16\Omega$		
HV500P-037G3	3.7 kW	$\geq 16.0\Omega$	External	-
HV500P-045G3	4.5 kW	$\geq 16\Omega$	External	
HV500P-055G3	5.5 kW	$\geq 8\Omega$	External	
HV500P-075G3	7.5 kW	$\geq 8\Omega$	External	
HV500P-090G3	4.5 kW×2	$\geq 8\Omega \times 2$	External	
HV500P-110G3	5.5 kW×2	$\geq 8\Omega \times 2$	External	
HV500P-132G3	6.5kW×2	$\geq 8\Omega \times 2$	External	
HV500P-160G3	16kw	$\geq 2.5\Omega$	External	
HV500P-200G3	20kw	$\geq 2.5\Omega$	External	
HV500P-220G3	22kw	$\geq 2.5\Omega$	External	
HV500P-250G3	12.5kw×2	$\geq 2.5\Omega \times 2$	External	
HV500P-280G3	14kw×2	$\geq 2.5\Omega \times 2$	External	
HV500P-315G3	16kw×2	$\geq 2.5\Omega \times 2$	External	

NOTE:

- ×2 Indicates that the two brake units are used in parallel with their respective braking resistors.,×3 The same as ×2.

Chapter III Mechanical and Electrical Installation

3.1 Mechanical Installation

3.1.1 Installation environment:

- 1) Ambient temperature: The ambient temperature has a great influence on the life of the inverter. Do not allow the operating temperature of the inverter to exceed the permissible temperature range ($-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$).
- 2) Mount the inverter on the surface of the flame retardant and attach it to the mounting bracket vertically with screws. Inverter work easy to produce a lot of heat, there should be enough space around the heat.
- 3) Please install it where it is not easy to vibrate. Vibration should not be greater than 0.6G . Special attention away from the punch and other equipment.
- 4) to avoid the place in the direct sunlight, wet, there are drops of water.
- 5) to avoid installed in the air corrosive, flammable, explosive gas of the place.
- 6) to avoid the equipment in the oil, dust, dust and more places.

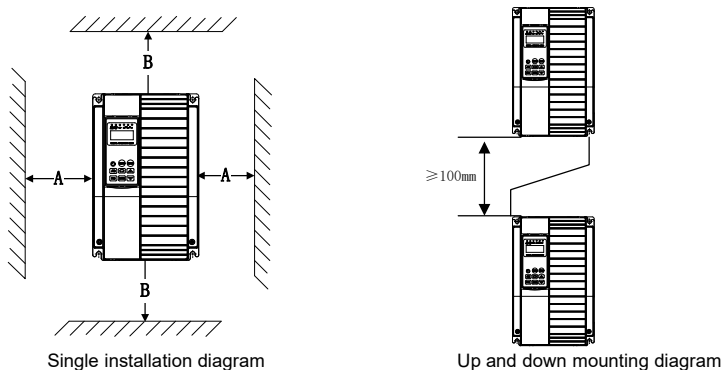


Figure 3-1 installation schematic diagram

Unit installation: When the inverter power is not greater than 22kW can not consider the A size. When greater than 22kW , A should be greater than 50mm . Up and down installation: Install the thermal insulation baffle when the inverter is installed up and down.

Power level	Installment size	
	B	B
$\leq 15\text{kW}$	$\geq 100\text{mm}$	Not requirement
$18.5\text{kW}—30\text{kW}$	$\geq 200\text{mm}$	$\geq 50\text{mm}$
$\geq 37\text{kW}$	$\geq 300\text{mm}$	$\geq 50\text{mm}$

3.1.2 Mechanical installation need to focus on the heat problem. So please note the following:

- 1) Please install the inverter vertically, so that the heat can be distributed upwards. But can

not be inverted. If the cabinet has more frequency converter, it is best to install side by side. Please refer to Figure 3-1 for the installation of the insulation baffle.

2) Installation space Follow the example shown in Figure 3-1 to ensure the cooling space of the inverter. However, please consider the layout of the cabinet when the heat dissipation of other devices.

3) The mounting bracket must be flame retardant.

4) For metal dust applications, it is recommended to install the radiator cabinet. At this time fully sealed cabinet space as much as possible.

3.2 Electrical Installation

3.2.1 Selection of external electrical components

Model	Empty open(MCCB) A	recommended Contactor A	Recommended input side Main circuit lead wiremm ²	Recommended output side main Circuit wire mm ²	Recommended control circuit Wire mm ²
Single phase 220V					
HV500P-R75G2	16	10	2.5	2.5	1.0
HV500P-1R5G2	20	16	4.0	2.5	1.0
HV500P-2R2G2	32	20	6.0	4.0	1.0
Three phase 220V					
HV500P-004G2	32	25	4.0	4.0	1.0
HV500P-5R5G2	63	40	4.0	4.0	1.0
HV500P-7R5G2	63	40	6.0	6.0	1.0
HV500P-011G2	100	63	10	10	1.5
HV500P-015G2	125	100	16	10	1.5
HV500P-0185G2	160	100	16	16	1.5
HV500P-022G2	200	125	25	25	1.5
HV500P-030G2	200	125	35	25	1.5
HV500P-037G2	250	160	50	35	1.5
HV500P-045G2	250	160	70	35	1.5
HV500P-055G2	350	350	120	120	1.5
HV500P-075G2	500	400	185	185	1.5
HV500P-090G2	600	600	150×2	150×2	1.5
HV500P-110G2	600	600	150×2	150×2	1.5
Three phase 380V/480V					
HV500P-R75G3	10	10	2.5	2.5	1.0
HV500P-1R5G3	16	10	2.5	2.5	1.0
HV500P-2R2G3	16	10	2.5	2.5	1.0
HV500P-004G3	25	16	4.0	4.0	1.0
HV500P-5R5G3	32	25	4.0	4.0	1.0

Model	Empty open(MCCB) A	recommen d Contactor A	Recommend ed input side Main circuit lead wiremm2	Recommended output side main Circuit wire mm2	Recommended control circuit Wire mm2
HV500P-7R5G3	40	32	4.0	4.0	1.0
HV500P-011G3	63	40	4.0	4.0	1.0
HV500P-015G3	63	40	6.0	6.0	1.0
HV500P-0185G3	100	63	6	6	1.5
HV500P-022G3	100	63	10	10	1.5
HV500P-030G3	125	100	16	10	1.5
HV500P-037G3	160	100	16	16	1.5
HV500P-045G3	200	125	25	25	1.5
HV500P-055G3	200	125	35	25	1.5
HV500P-075G3	250	160	50	35	1.5
HV500P-090G3	250	160	70	35	1.5
HV500P-110G3	350	350	120	120	1.5
HV500P-132G3	400	400	150	150	1.5
HV500P-160G3	500	500	185	185	1.5
HV500P-200G3	600	400	150*2	150*2	1.5
HV500P-220G3	600	500	150*2	150*2	1.5
HV500P-250G3	800	400	185*2	185*2	1.5
HV500P-280G3	800	500	185*2	185*2	1.5
HV500P-315G3	800	400	150*3	150*3	1.5

3.2.2 Connect with peripheral devices

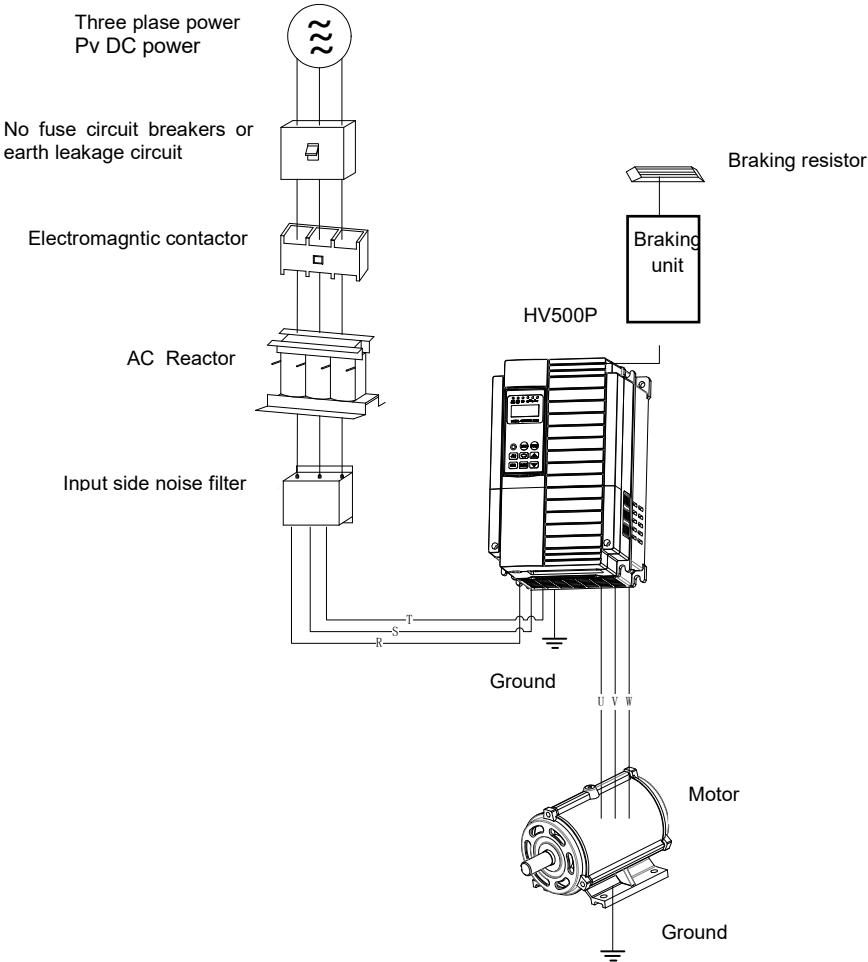


Figure 3-2 Connection to peripheral devices

3.2.3 Instructions for the use of external electrical components

Name	Setting station	Function
air switch	Input the front of the loop	When the downstream device is overcurrent, disconnect the power supply
Contactors	Empty and between the input side of the drive	The inverter should be operated up and down, and the frequency converter should be avoided by the contactor (Less than twice per minute) or direct start operation.
AC input Reactor	Inverter input side	Improve the input side of the power factor; effectively eliminate the input side of the high harmonics, to prevent the voltage waveform Distortion caused by other equipment damage; to eliminate the power supply phase imbalance caused by the input current imbalance.
EMC AC output filter	Inverter input side	Reduce the conduction and radiation interference of the inverter to the outside; reduce the conduction from the power supply side to the inverter Interference, improve the anti-interference ability of the inverter.
DC Reactor	315G The above DC reactor is standard	Improve the input side of the power factor; improve the efficiency of the whole machine and thermal stability. Effectively eliminate the loss The impact of the high-order harmonic on the inverter, reducing external conduction and radiation interference.
AC output filter	Between the inverter output side and the motor. Close to the inverter installation.	Inverter output side generally contains more high-order harmonics. When the distance between the motor and the inverter, because the line There is a large distributed capacitance in the road. Where a harmonic may produce resonance in the loop, bringing two Aspect: damage to the motor insulation performance, long time will damage the motor. produce a large leakage current, causing frequent protection of the inverter. General frequency converter and motor distance Over 100m, it is recommended to install the output AC reactor.

3.3 Terminal block diagram

3.3.1 Description of Major Loop Terminal Block

a) The Major Loop Terminal Block Distribution Diagram of 0.4KW-2.2KW(220V)(as shown in fig. 3-3a1、3-3a2)

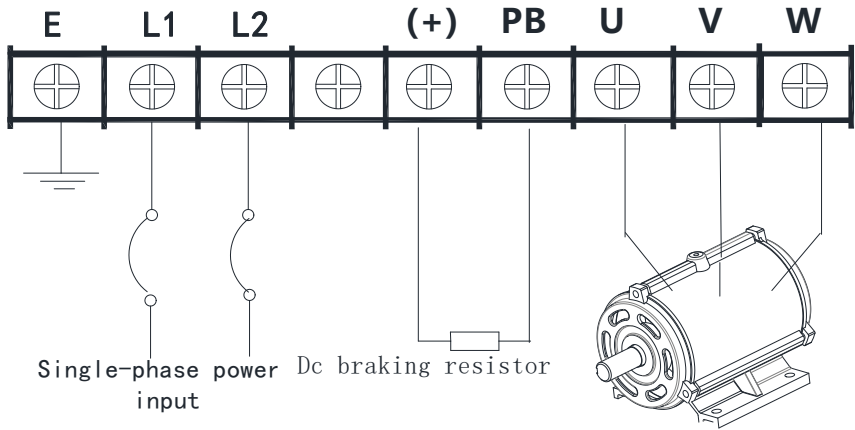


Figure 3-3a1

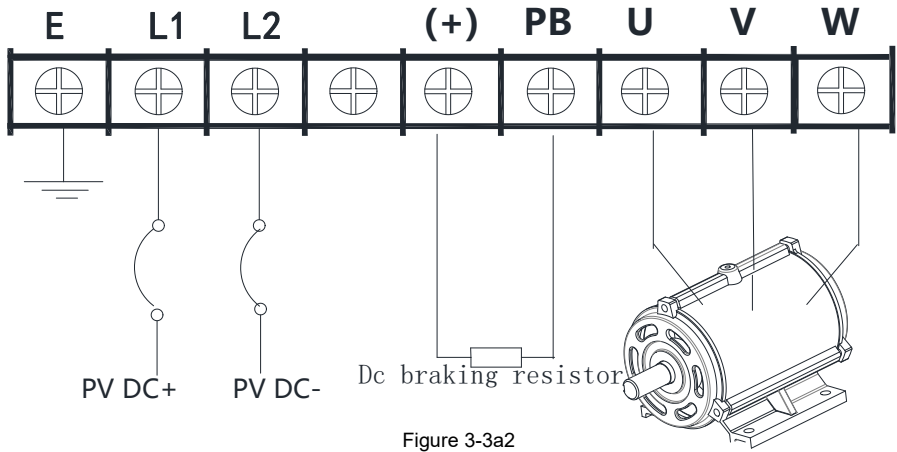


Figure 3-3a2

b) The Major Loop Terminal Block Distribution Diagram of 0.75KW-5.5KW(380V)(as shown in fig. 3-3b1、3-b2)

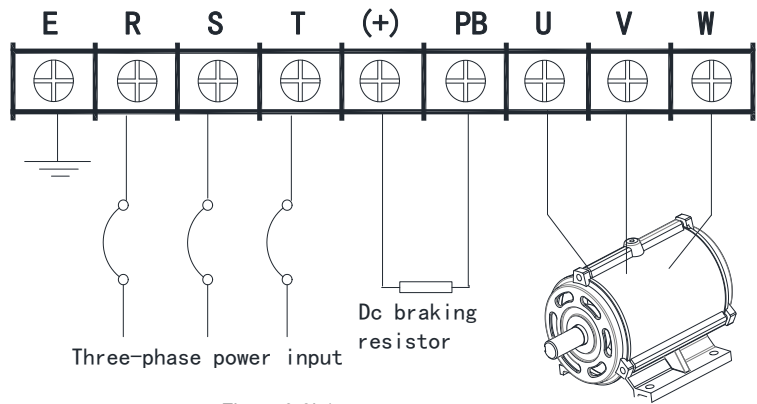


Figure 3-3b1

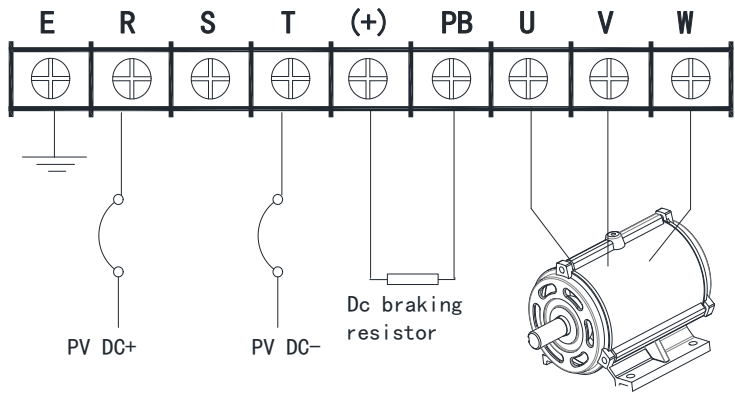


Figure 3-3b2

c) The Major Loop Terminal Block Distribution Diagram of 7.5KW-18.5KW(as shown in fig. 3-3c1、3-3c2)

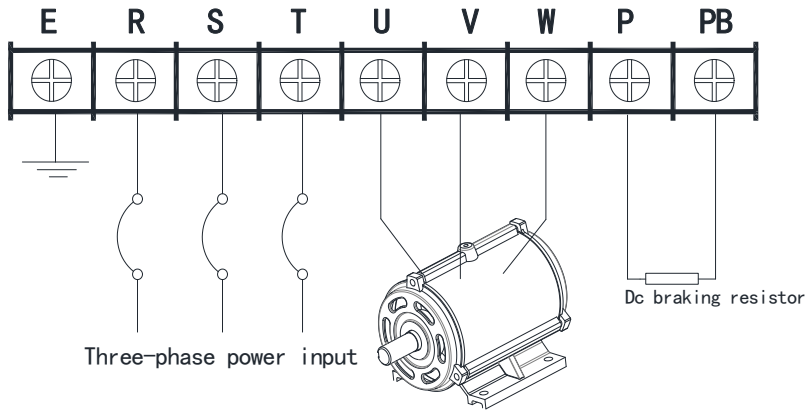


Figure 3-3c1

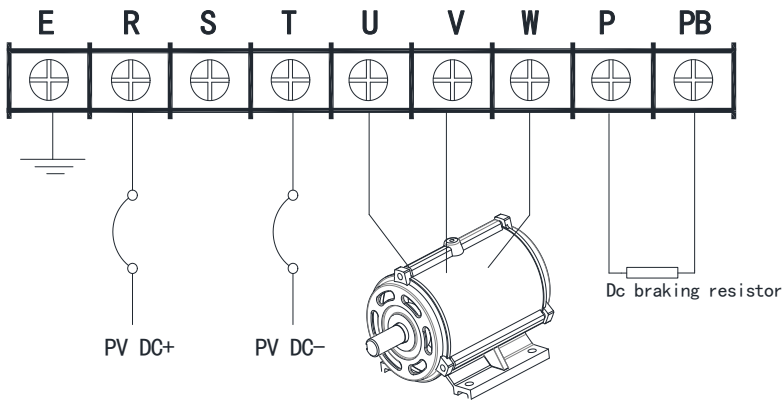


Figure 3-3c2

d) The Major Loop Terminal Block Distribution Diagram of 22KW-30KW(as shown in fig. 3-3d1、3-3d2)

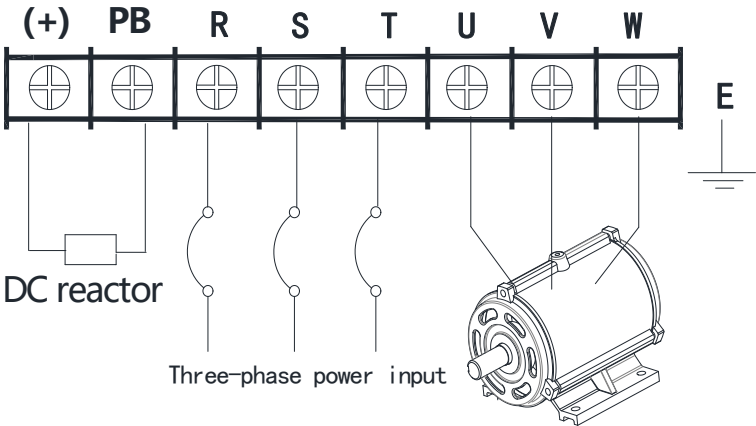


Figure 3-3d1

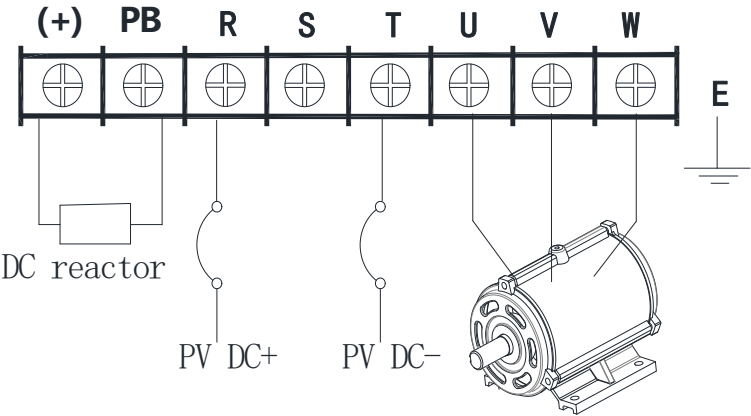


Figure 3-3d2

e) The Major Loop Terminal Block Distribution Diagram of 37KW-45KW(as shown in fig. 3-3e1、3-3e2)

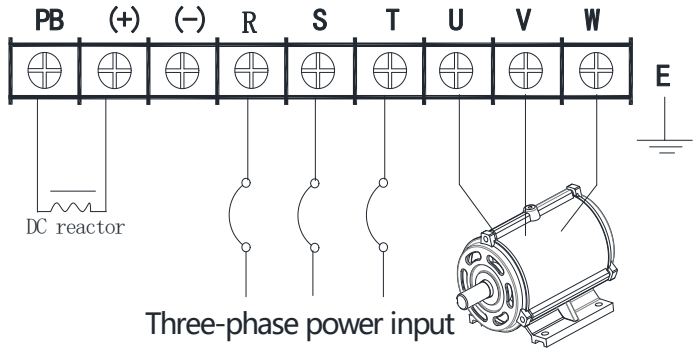


Figure 3-3e1

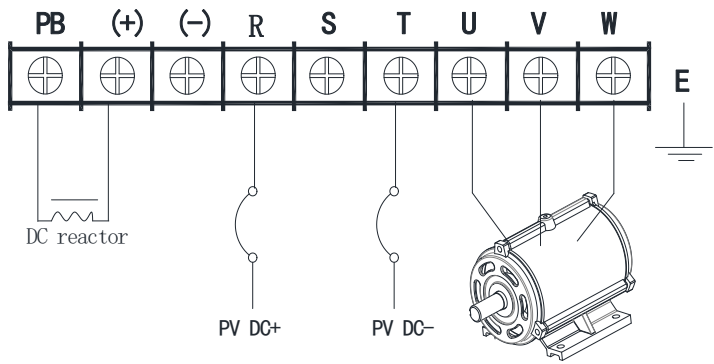


Figure 3-3e2

f) The Major Loop Terminal Block Distribution Diagram of 55KW(as shown in fig. 3-3f1、3-f2)

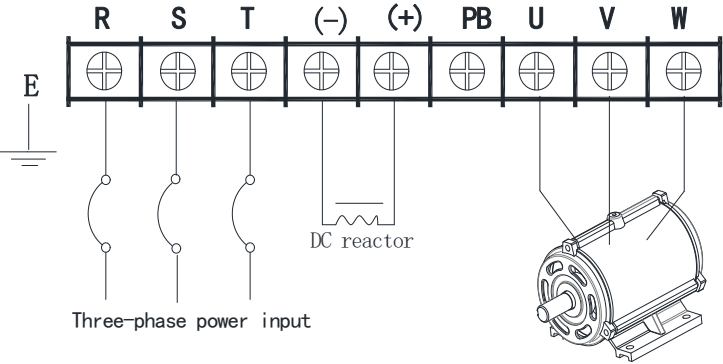


Figure 3-3f1

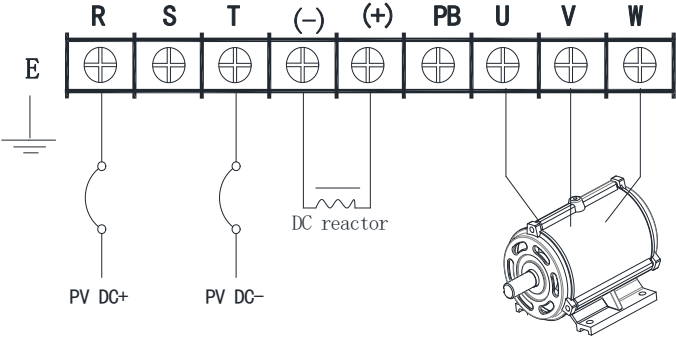


Figure 3-3f2

g) The Major Loop Terminal Block Distribution Diagram of 75KW-110KW (as shown in fig. 3-3g1、3-3g2)

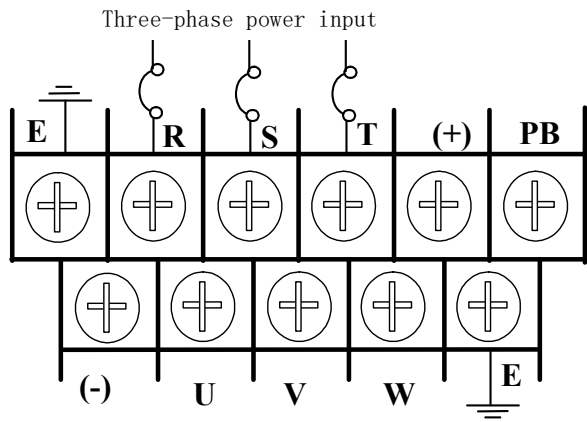


Fig 3-3g1

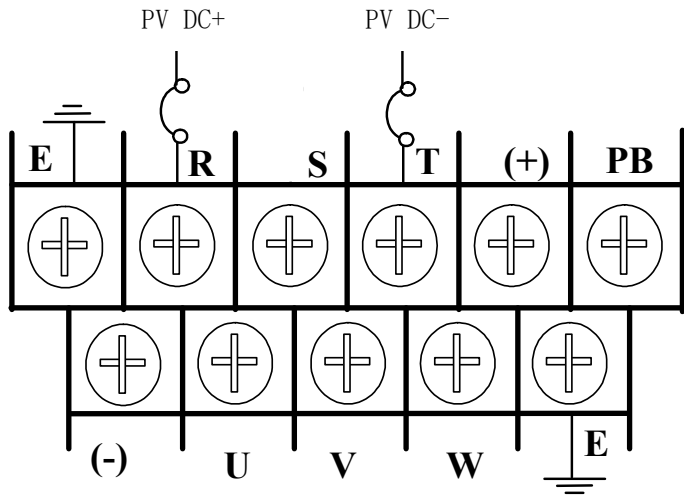


Fig 3-3g2

h) The Major Loop Terminal Block Distribution Diagram of 75KW-110KW (as shown in fig. 3-3h1、3-3h2)

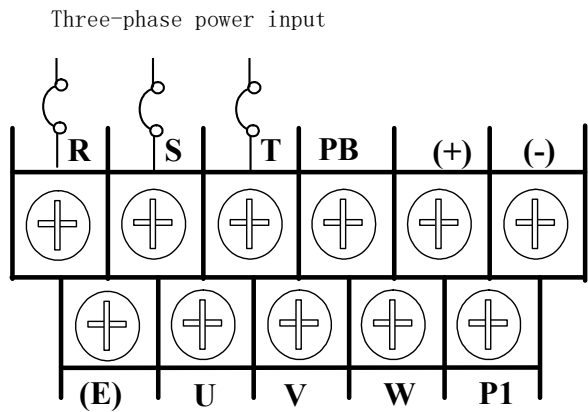


Fig. 3-3h1

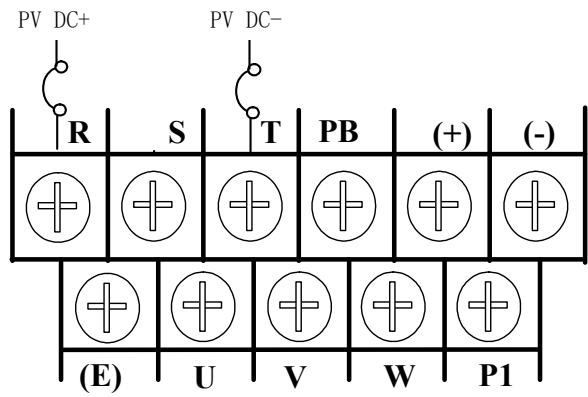


Fig. 3-3h2

i) The Major Loop Terminal Block Distribution Diagram of 132KW-160KW (as shown in fig. 3-3i1、3-3i2)

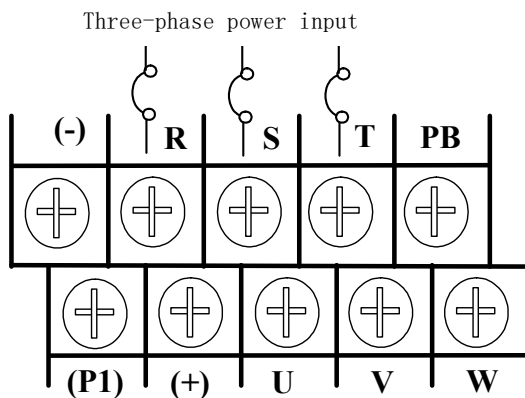


Fig. 3-3i1

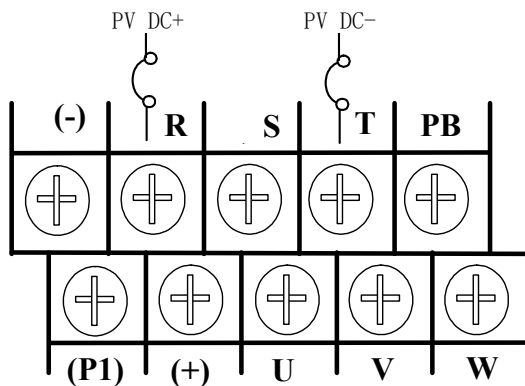


Fig. 3-3i2

j) The Major Loop Terminal Block Distribution Diagram of 185KW-250KW (as shown in fig. 3-3j1、3-3j2)

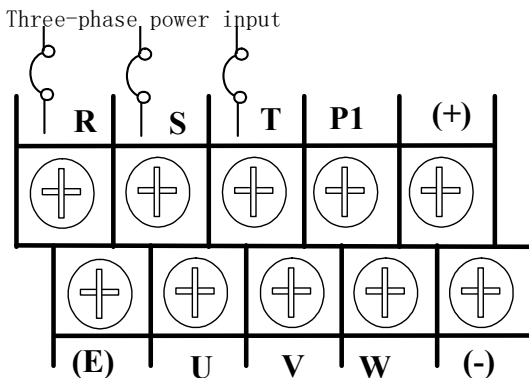


Fig. 3-3j1

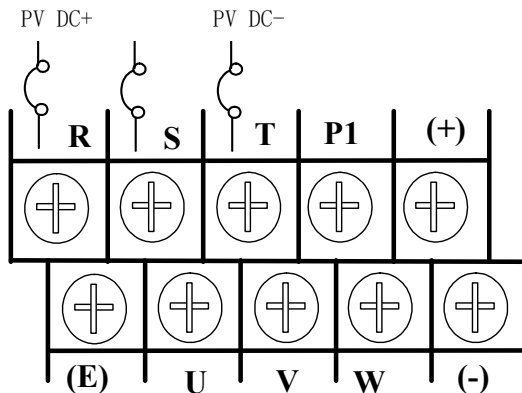


Fig. 3-3j2

k) The Major Loop Terminal Block Distribution Diagram of 280KW-315KW (as shown in fig. 3-3k1、3-3k2

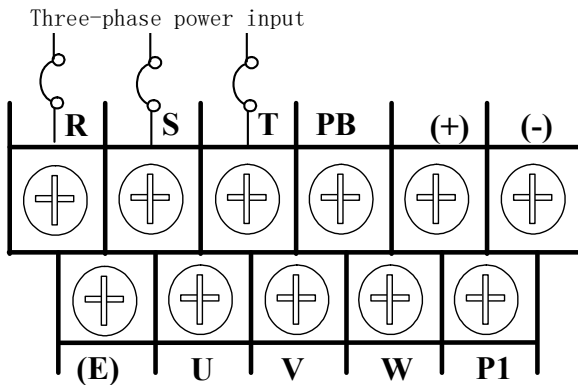


Fig. 3-3k1

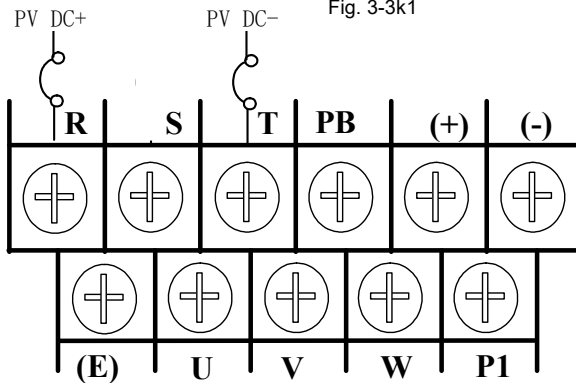


Fig. 3-3k2

Terminal code	Function
E	ground terminal
R、S、T	To be connected with power grid three-phase AC power supply R connected with PV DC+ T connected with PV DC-
L1、L2	To be connected with power grid single-phase AC power supply L1 connected with PV DC+ L2 connected with PV DC-
U、V、W	Connect (380V/220V)AC motor
P1	DC side voltage positive terminal(And between the DC can be connected to the reactor)
+	Filter capacitor DC side voltage positive terminal 1, and P1 can be connected between the DC reactor. 2, and - between the external braking unit
-	DC side voltage negative terminal
PB	DC Braking Resistor can be connected between P and PB

3.3.2 Terminals of Control Loop:

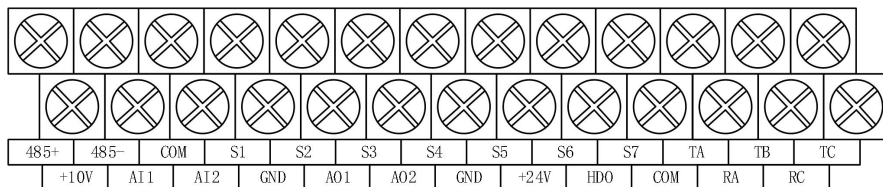


Fig. 3-4 Control Loop Wiring Terminal Diagram

3.4 Standard Wiring Diagram

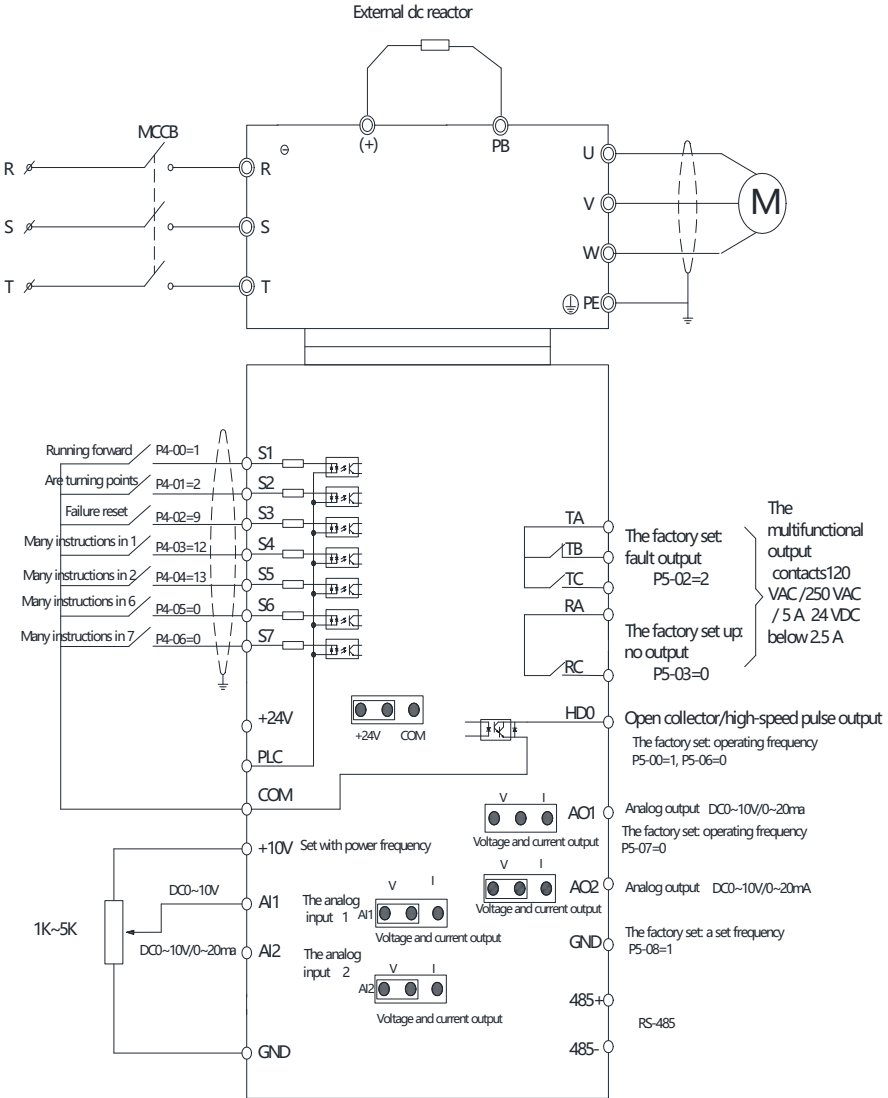


figure 3-5 Standard Wiring Diagram

3.4.1 Control board terminal section

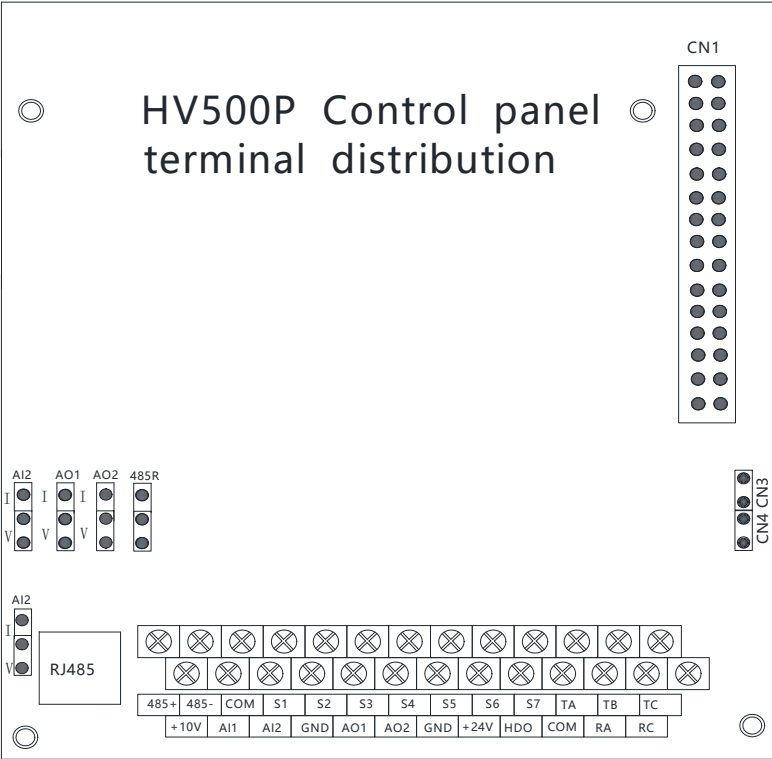
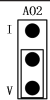
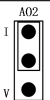


Figure 3-6 Control board terminal section

Note: jump line position refers to the position for terminals observed.

Jumper position	Function description	Jumper position	Function description
	AI1 input voltage 0~10V (factory default)		AI1 input current 0~20mA
	AI2 input voltage 0~10V (factory default)		AI2 input current 0~20mA
	AO1 output voltage choosing 0~1 (factory default)		AO1 output current 0~20mA

	AO2 output voltage choosing 0~1 (factory default)		AO2 output current 0~20mA
	485/CAN Communication resistor (factory default)		485/CAN Communication resistor is shorted
	+24V&PLC shorted (factory default)		COM & PLC shorted

3.4.2 Description of Control Panel Terminals

Terminal Name	Purpose and Description of Terminal
S1~S7	Multifunctional digital input 1.optical lotus isolation, compatible bipolar input 2.input impedance: 5.1kΩ 3.input voltage range: 9~30V
+24V-COM	+24V power supply provided for this equipment (current: 150mA)
+10V-GND	+10V power supply provided for this equipment (current: 10mA)
COM	common terminal of +24V
AI1-GND AI2-GND	Analog input, voltage (0 ~ 10V) / current (0 ~ 20mA) through the motherboard jumper optional Input impedance: 10kΩ (voltage input) / 250Ω (current input)
GND	zero potential reference of +10V (Note: GND is isolated from COM)
HDO	high-speed pulse or open collector output terminal, the corresponding common terminal of which is COM output frequency range: 0~100 kHz
AO1, AO2	analog output terminal output range: voltage (0~10V) /current (0~20mA)
TA-TB-TC	TA relay output, TA common terminal, TB is normally closed, and TC is normally open contact capacity: AC250V/3A, DC30V/1A
RA- RC	RA relay output, RA common terminal, and RC is normally open contact capacity: AC250V/3A, DC30V/1A
485+, 485-	485 communication ports, positive and negative terminals for 485 differential signal, please use twisted pair cable or shielded wire for standard 485 communication ports
Jump CN5	Internal power supply: PLC and +24V connection (factory default) External power supply: When driving S1~S7 with external signal, you must adjust the shorting cap of CN5. Adjust the short cap of CN5 position to PLC and COM

Terminal Name	Purpose and Description of Terminal
AI1 ,AL2	Input voltage and current are optional, default voltage
AO1,AO2	Input voltage and current are optional, default voltage
485 JUMP	Terminal resistance selection, default disconnect

Signal input terminal wiring instructions:

a) AI analog input terminal:

Due to the weak analog voltage signal is particularly vulnerable to external interference, it is generally necessary to use shielded cable, and the wiring distance as short as possible, not more than 20m, as shown in Figure 3-7. In some analog signals are seriously interfered with the occasion, the analog signal side of the need to add filter capacitors or ferrite core, as shown in Figure 3-8.

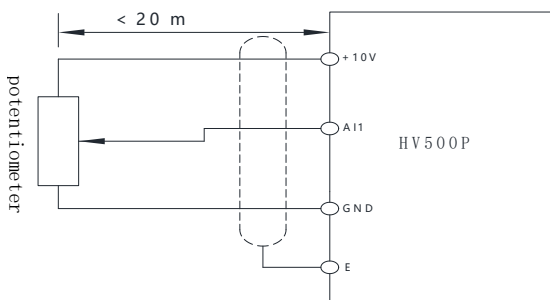


Figure 3-7 Analog input terminal wiring diagram

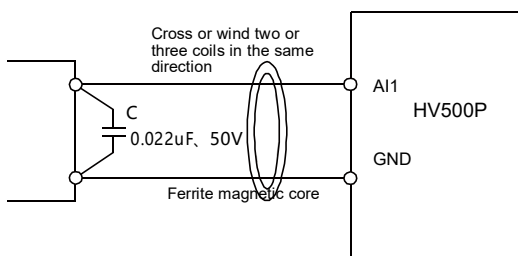


Figure 3-8 Analog input terminal wiring diagram

b) S1-S7 Digital input terminal:

Generally need to use shielded cable, and wiring as short as possible, not more than 20m. When the active mode is activated, the necessary filtering measures are required for the cross talk of the power supply. It is recommended to use contact control.

Leak type wiring

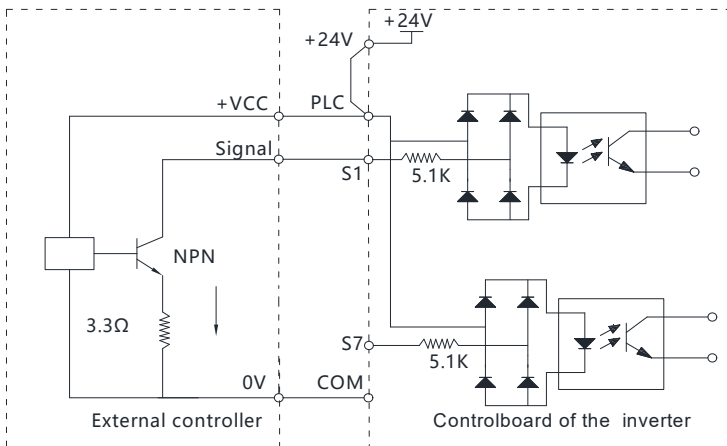


Figure 3-9 Leak type wiring

This is one of the most commonly used wiring methods. If you use an external power supply, you must remove the short circuit between + 24V and PLC, connect the external power supply to the PLC, and connect the negative of the external power supply to COM

Note: In this wiring mode, the S terminal of different frequency converters can not be used in parallel, otherwise it may cause S malfunction; if S terminal is connected (between different frequency converters), then the S terminal is connected to the series diode Anode connected S) use, the diode to be satisfied; IF > 10mA, UF < 1V, as shown below

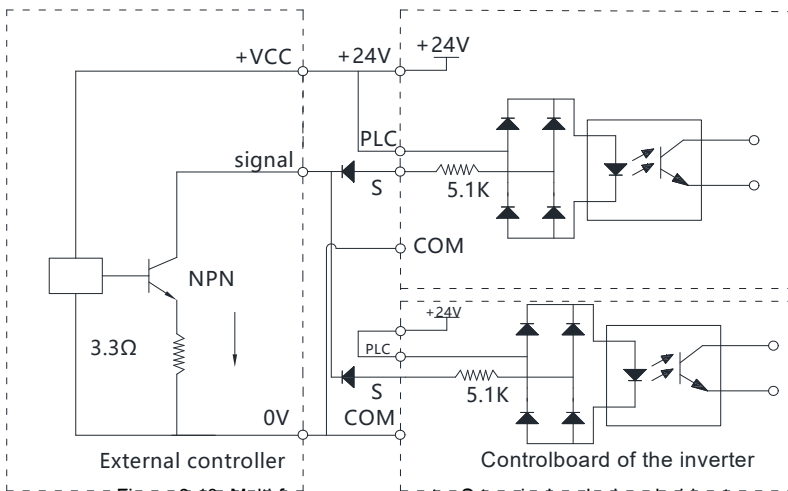


Figure 3-10 Multi-frequency converter S-terminal and missed wiring type

source type wiring method

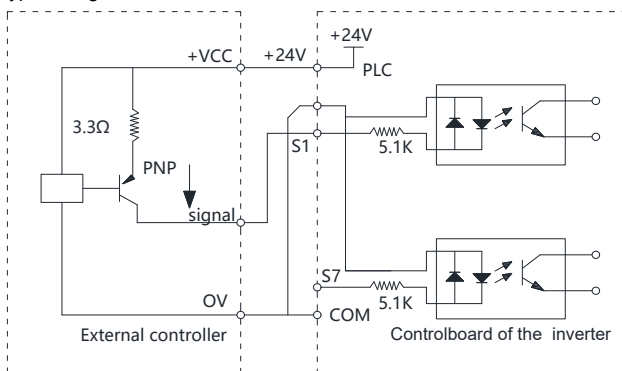


Figure 3-11 source type wiring method

This wiring must be +24 V and PLC before the short circuit to remove the +24 V and the external controller of the common end together. While the PLC and COM together

Control signal output terminal wiring instructions

d)HDO digital output terminal:

When the digital output terminals need to drive the relay, should be installed on both sides of the relay coil absorption diode. Otherwise easily lead to DC 24V power supply damage. Drive capacity is not greater than 50mA.

Note: Be sure to properly install the polarity of the absorption diode. As shown in Figure 3-12. Otherwise when the digital output terminal has output, will immediately burn the DC 24V power supply

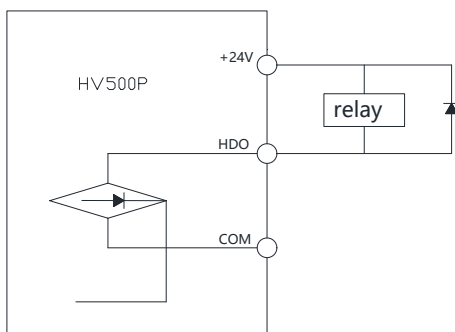


Figure 3-12 output terminal wiring

Chapter IV Operation Display and Application Examples

4.1 Operation and display interface

4.1.1 Panel diagram



Figure 4-1 Details of the operating panel

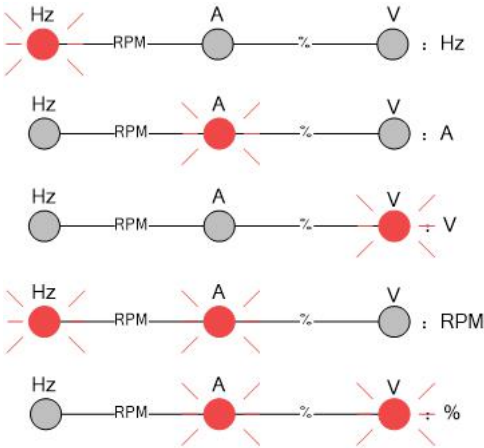
4.1.2 Keys on LED Operating Panel

Key	Key name	Key function
PRG	Programming	Enter or exit Level I menu. Return to the previous menu.
DATA	Confirm	Enter each level of menu interface. Confirm displayed parameter setting.
	UP Increment	Data or function code increase
	DOWN Decrement	Data or function code decrease
	Shift key	In the shutdown display interface and run the display interface, you can cycle to select the display parameters; modify the parameters, you can select the parameters of the modified bit
RUN	RUN	Start the AC drive when using the operating panel control mode.
STOP	stop/reset	Stop the AC drive when the drive is in the RUNNING status, controlled by P7-02 Perform a reset operation when the drive is in the FAULT status, not control by P7-02
JOG	Quick multi-function key	as defined by the setting of P7-01 0: invalid 1: Panel and remote communication command channel switching 2: positive jogging 3: reverse jog

4.1.3 Lights

● light is off, ● light is on, ● light flashes.

Light statue		instructions
RUN/TUNE	 RUN TUNE	Light off:running
	 RUN TUNE	Light on:running
FWD/REV	 FWD REV	Light off:normal work
	 FWD REV	Light on:Reverse run
TRIP	 TRIP	Light off:normal work
	 TRIP	Light on:Torque contro
	 TRIP	Slow flash:Motor self learning(1 times/s)
	 TRIP	Quick flash:error(4 times/s)



4.2 Viewing and Modifying Function Codes

The operation panel of the EV380 adopts three-level menu. The three-level menu consists of function code group (Level I), function code (Level II), and function code setting value (level III), as shown in the following figure.

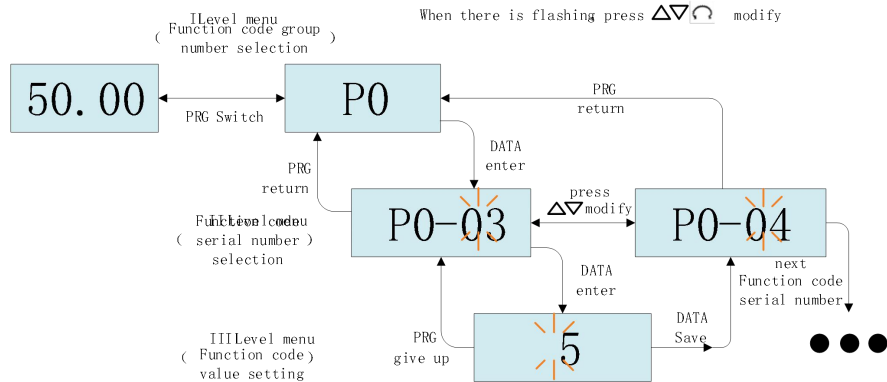


Figure 4-2 Operation procedure on the operation pane

Note: In the third-level menu operation, you can press the PRG key or ENTER key to return to the second-level menu. The difference between the two is: ENTER key will save the setting parameters and return to the second-level menu, and automatically transfer to the next function code; Press the PRG key to return to the secondary menu, no parameters are stored, and return to the current function code.

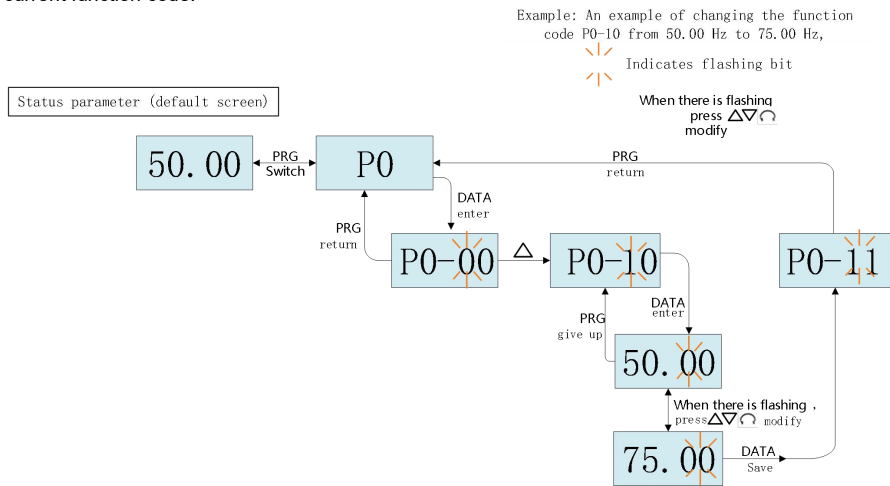


Figure 4-3 Operation procedure on the operation pane

In the third level menu state, if the parameter has no flashing bit, it means that the function code cannot be modified. The possible reasons are as follows:

- 1) The function code is an unmodifiable parameter, such as actual detection parameters, operation record parameters, etc.
- 2) The function code cannot be modified in the running state, and can be modified after it needs

to be stopped.

4.3 How to organize the inverter function code

Function code	Function description	Description
P0 ~ PP	General inverter function code	The common function code of the inverter, combined to set most functions of the inverter
A0 ~ AC	Enhanced function code group	Multi-motor parameters, AI/AO characteristic correction optimization control
d0 ~ d3	Operating status parameter group	Display of the basic characteristics of the inverter

In the function code browsing state, select the function code group number you want to view by pressing the Δ or ∇ key, as shown below:

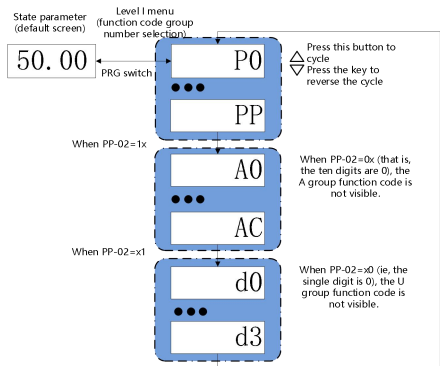


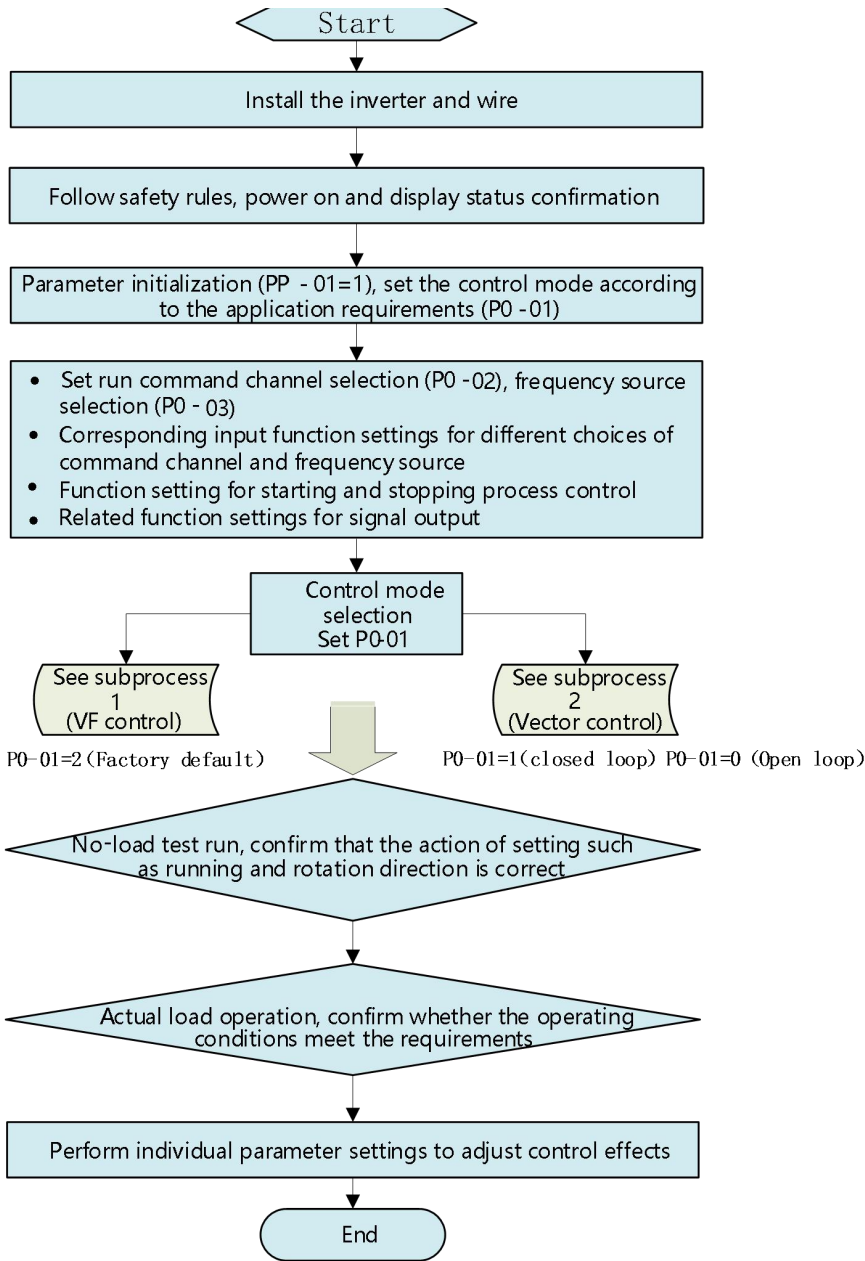
Fig 4-4 code group number browsing operation

PP-02 is used to determine whether group A and group U are displayed.

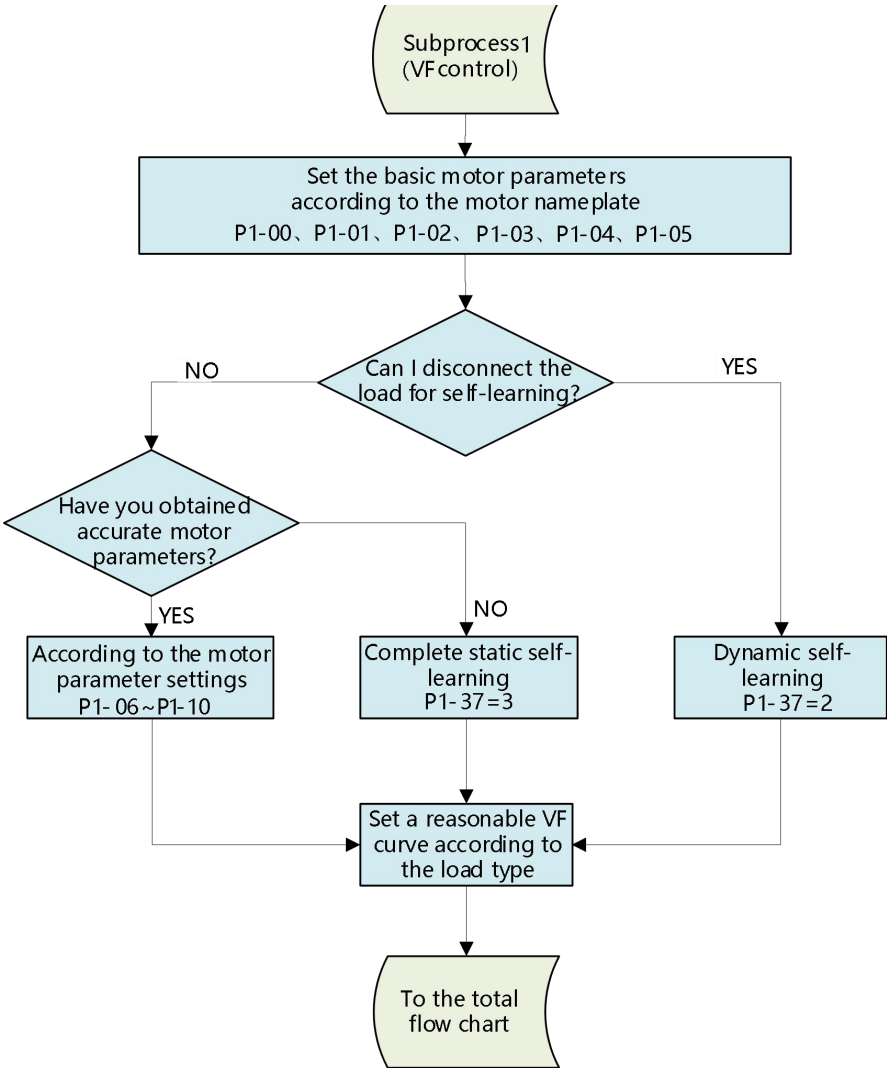
PP-02	Factory default:11		
	Setting	tens	Single digit
	Function	A group display choice D group display choice	
	Setting range	0:undisplay 1:display	0:undisplay 1:display

4.4 Inverter debugging flow chart

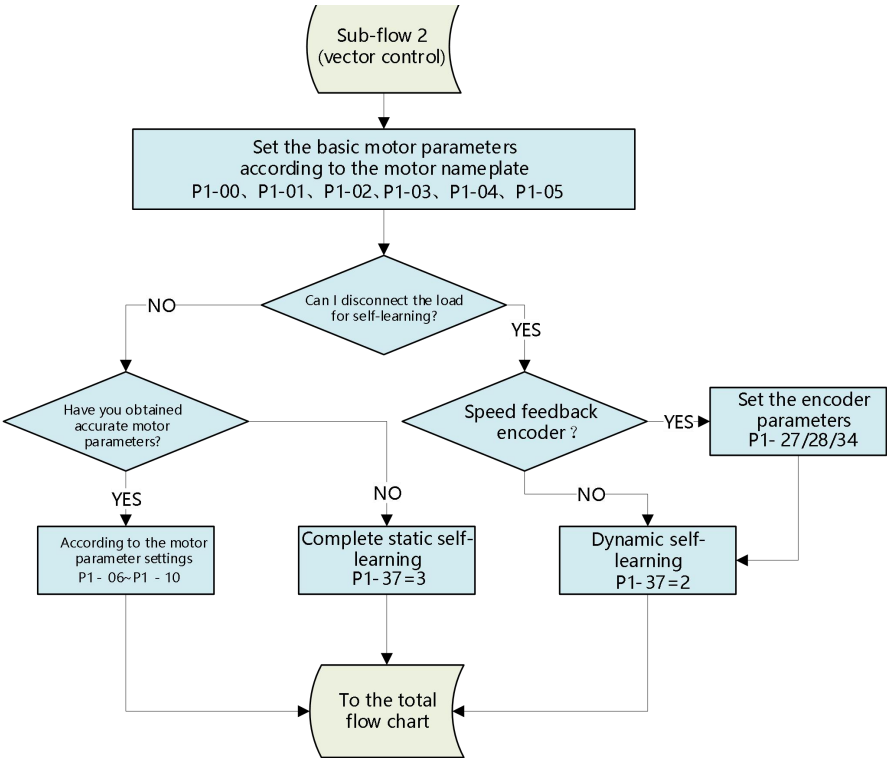
4.4.1. Inverter debugging general flow chart



4.4.2 Inverter debugging sub-flow chart 1



4.4.3 Inverter debugging sub-flow chart 2



4.5 Motor parameter self-learning

The methods for the inverter to obtain the internal electrical parameters of the controlled motor are: dynamic self-learning, static self-learning, static self-learning, manual input of motor parameters, etc.

Self-learning method	Suitable condition	Self-learning effect
No-load dynamic self-learning P1-37 = 2	Motor and application system are easy to separate	optimal
No-load dynamic self-learning P1-37 = 2	The motor and the application system are inconvenient to disengage, but can be operated together with the load. The friction of the load is small, and the load is close to no-load at constant speed.	The smaller the friction,The better the effect
Static self-learning 1 P1-37 = 1	The motor and load are difficult to separate, and dynamic self-learning operation is not allowed.	Normal

Self-learning method	Suitable condition	Self-learning effect
Static self-learning 2 P1-37 = 3	The motor and the load are difficult to separate, and the dynamic self-learning operation is not allowed. The static self-learning is recommended to use this mode, and the self-learning time is longer than the static self-learning 1.	better
Manual input parameters	In the case where the motor and the application system are difficult to separate, the previous inverter successfully self-learned The same type of motor parameter copy is input to P1-00 to P1-10 corresponding function code	better

The automatic self-learning steps of the motor parameters are as follows:

The following takes the parameter self-learning method of the default motor 1 as an example. The self-learning method of the motor 2 is the same, except that the function code number should be changed in a targeted manner.

The first step: If the motor can be completely disconnected from the load, in the case of power failure, the motor is mechanically separated from the load, so that the motor can rotate freely under no load.

Step 2: After power-on, first select the inverter command command (P0-02) as the operation panel command channel.

Step 3: Accurately input the nameplate parameters of the motor (such as P1-00 to P1-05), please input the following parameters according to the actual parameters of the motor (according to the current motor selection):

Motor choosing	datasheet
First motor parameter	P1-00: Motor type selection P1-01: Motor rated power P1-02: rated motor voltage P1-03: rated motor current P1-04: rated motor frequency P1-05: rated motor speed
Second motor parameter	A2-00 ~ A2-05: the same as list

If there is an encoder, enter the encoder parameters (P1-27, P1-28, P1-30).

Step 4: If it is an asynchronous motor, then P1-37 (self-learning selection, motor 2 corresponds to A2-37 function code), please select 2 (asynchronous machine complete self-learning), press DATA key to confirm, at this time, the keyboard displays TUNE.

Then press the RUN key on the keyboard panel, the inverter will drive the motor acceleration and deceleration, forward and reverse running, the running indicator will light, and the self-learning running duration lasts about 2 minutes. When the above display information disappears, the normal parameter display status is returned, indicating that Learning is complete.

After the complete self-learning, the inverter will automatically calculate the following parameters of the motor:

Motor choosing	datasheet
First motor parameter	P1-06: Asynchronous motor stator resistance P1-07: Asynchronous motor rotor resistance P1-08: Asynchronous motor leakage inductance P1-09: Asynchronous motor mutual inductance P1-10: asynchronous motor no-load current
Second motor parameter	A2-06 ~ A2-10: the same as list

If the motor can not be completely disconnected from the load, then P1-37 (motor 2 is A2-37), please select 3 (asynchronous machine static self-learning 2), then press the RUN key on the keyboard panel to start the self-learning operation of the motor parameters

Chapter V Function Code Table

If PP-00 is set to a non-zero number, parameter protection is enabled. You must enter the correct user password to enter the menu.

To cancel the password protection function, enter with password and set PP-00 to 0.
The parameter menu in the user-customized parameter mode is not protected by a password.
Group P and Group A are standard function parameters. Group d includes the monitoring function parameters.

The symbols in the function code table are described as follows:

“☆”: The parameter can be modified when the AC drive is in either stop or running state;

“★”: The parameter cannot be modified when the AC drive is in the running state.

“●”: The parameter is the actually measured value and cannot be modified.

“*” : The parameter is factory parameter and can be set only by the manufacturer.

5.1 Standard Function Parameter

Function Code	Parameter Name	Setting Range	Default	Property
Group P0: Standard Function Parameters				
P0-01	Motor 1 control mode	0: Sensorless flux vector control (SFVC) 1: Closed-loop vector control (CLVC) 2: Voltage/Frequency (V/F) control	2	★
P0-02	Command source selection	0: Operation panel control 1: Terminal control 2: Communication control	0	☆
P0-03	Main frequency source A selection	0: digital setting (preset frequency P0-08, UP / DOWN can be modified, power is not memory) 1: digital setting (preset frequency P0-08, UP / DOWN can be modified, power-down memory) 2: AI1 3: AI2 4: AI3 5: High-speed pulse input setting (S5) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication setting 10: PV	4	★

P0-04	Auxiliary frequency source B selection	The same as P0-03 (Main frequency source A selection)	0	★
P0-05	Range of auxiliary frequency B operation	0: Relative to maximum frequency 1: Relative to main frequency A	0	☆
P0-06	Range of auxiliary frequency B operation	0%~150%	100%	☆
P0-07	Frequencysource combination mode selection	Bit: frequency source selection 0: Main frequency source A 1: main and auxiliary operation results (operation relationship determined by ten) 2: Main frequency source A and auxiliary frequency source B switch 3: Main frequency source A and master and slave operation result switching 4: auxiliary frequency source B and master and slave operation result switching Ten: frequency source main and auxiliary operation relationship 0: main + auxiliary 1: main - auxiliary 2: the two maximum 3: the two minimum	00	☆
P0-08	Preset frequency	0.00Hz~max frequency(P0-10)	50.00Hz	☆
P0-09	Running direction	0:same direction 1:opposite direction	0	☆
P0-10	Max. frequency	50.00Hz~320.00Hz	50.00Hz	★
P0-11	Setting channel of frequency upper limit	0: P0-12 is set 1: AI1 (Note: J6 jumper) 2: AI2 3: AI3 4: High-speed pulse input setting(S5) 5: communication given	0	★
P0-12	Frequency reference upper limit	Upper limitP0-14~max frequency P0-10	50.00Hz	☆
P0-13	Frequency reference upper limit offset	0.00Hz~max frequency P0-10	0.00Hz	☆
P0-14	Frequency reference lower limit	0.00Hz~ frequency upper limit P0-12	0.00Hz	☆

P0-15	Carrier frequency	0.8kHz~12.0kHz	Model determined	☆
P0-16	Carrier frequency adjusted with temperature	0:NO 1:YES	1	☆
P0-17	Acceleration time 1	(0~65000)*P0-19	Model determined	☆
P0-18	Deceleration time 1	(0~65000)*P0-19	Model determined	☆
P0-19	Acceleration/Deceleration time unit	0:1sec 1:0.1se 2:0.01sec	1	★
P0-21	Frequency offset of Auxiliary frequency setting channel for main and auxiliary calculation	0.00Hz~ max frequency P0-10	0.00Hz	☆
P0-22	Frequency reference resolution	1:0.1Hz 2:0.01Hz	2	★
P0-23	Retentive of digital setting frequency upon stop	0: do not remember 1: memory	1	☆
P0-24	Motor parameter group selection	0: motor 1 1: motor 2	0	★
P0-25	Acceleration/Deceleration time base frequency	0: maximum frequency (P0-10) 1: Set frequency 2:100Hz	0	★
P0-26	Base frequency for UP/DOW modification during running	0: Run frequency 1: Set frequency	0	★
P0-27	The run command is tied to the main frequency source A command selection	Bit: Operation panel command Bind frequency source selection 0: no binding 1: Digital setting frequency 2: AI1 (Note: J6 jumper) 3: AI2 4: AI3 5: High-speed pulse input setting (S5) 6: multi-speed 7: Simple PLC 8: PID 9: communication given Ten: Terminal Command Binding Frequency Source Selection Hundreds: communication command binding frequency source selection	000	☆

P0-28	Serial port comms. protocol	0:Modbus communication 1: keep	0	
P1 Motor 1 Parameters				
P1-00	Motor 1 type selection	0: ordinary asynchronous motor 1: Variable frequency asynchronous motor	0	★
P1-01	Motor 1 Rated power	0.1kW~1000.0kW	Model dependent	★
P1-02	Motor 1 Rated voltage	1V~2000V	Model dependent	★
P1-03	motor 1 Rated current	0.01 to 655.35 A	Model dependent	★
P1-04	Rated motor 1 frequency	0.01Hz~Max frequency	Model dependent	★
P1-05	Rated motor 1 speed	1rpm~65535rpm	Model dependent	★
P1-06	Stator resistance of asynchronous motor 1	0.001Ω~65.535Ω	Tuning parameter	★
P1-07	Rotor resistance of asynchronous motor 1	0.001Ω~65.535Ω	Tuning parameter	★
P1-08	Leakage inductive reactance of asynchronous motor 1	0.01mH~655.35mH	Tuning parameter	★
P1-09	Mutual inductive of asynchronous motor 1	0.1mH~6553.5mH	Tuning parameter	★
P1-10	No-load current of asynchronous motor 1	0.01A~P1-03	Tuning parameter	★
P1-27	Encoder pulses per revolution	1~65535	2500	★
P1-28	Encoder type	0: ABZ incremental encoder 2: Resolver	0	★
P1-30	A/B phase sequence of ABZ incremental encoder	0: Forward 1: Reserve	0	★
P1-34	Number of pole pairs of resolver	1~65535	1	★
P1-36	Encoder wire-break fault detection time	0.0s: No action 0.1~10.0s	0.0	★

P1-37	Auto-tuning selection	0: no operation 1: Asynchronous machine static part of the parameters of self-learning 2: asynchronous machine dynamic complete self-learning 3: asynchronous machine static complete self-learning	0	★
Group P2: Vector Control Parameters				
P2-00	Speed loop proportional gain 1	0~100	30	☆
P2-01	Speed loop integral time 1	0.01~10.00s	0.50s	☆
P2-02	Switchover frequency 1	0.00 to P2-05	5.00Hz	☆
P2-03	Speed loop proportional gain 2	1~100	20	☆
P2-04	Speed loop integral time 2	0.01s~10.00s	1.00s	☆
P2-05	Switchover frequency 2	P2-02~ max frequency	10.00Hz	☆
P2-06	Vector control slip gain	50%~200%	100%	☆
P2-07	SVC Speed feedback filter time constant	0.000s~0.100s	0.015s	☆
P2-09	Torque upper limit source in speed control mode	0: Function code P2-10 setting 1: AI1 2: AI2 3: AI3 4: High-speed pulse input setting (S5) 5: communication given 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) 1-7 option full scale corresponds to P2-10	0	☆
P2-10	Digital setting of torque upper limit in speed control mode	0.0%~200.0%	150.0%	☆
P2-11	Torque limit source in speed control (in regenerative state)	0: Function code P2-12 setting (no distinction between electric and power generation) 1: AI1 2: AI2 3: AI3 4: High-speed pulse input setting 5: communication given 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) 8: Function code P2-12 setting 1-7 The full scale of the option corresponds to P2-12	0	☆
P2-12	Digital setting of torque limit in speed control (in regenerative state)	0.0%~200.0%	150.0%	☆

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	☆
P2-17	Speed loop integral separation selection	Units: integral separation 0: Disabled 1: Enabled	0	☆
P2-20	Max output voltage	keep	-	-
P2-21	Max. torque coefficient of field weakening area	50%~200%	100%	☆
P2-22	Regenerative power limit selection	0: Disabled 1: Enabled	0	☆
P2-23	Regenerative power limit	0~200%	Model dependent	☆
Group P3: V/F Control Parameters				
P3-00	V/F curve setting	0: Linear V/F 1: Multi-point V/F 2: Square V/F 3: 1.2-power V/F 4: 1.4-power V/F 6: 1.6-power V/F 8: 1.8-power V/F 9: Reserved 10: V/F complete separation 11: V/F half separation	0	★
P3-01	Torque boost	0.0% (fixed torque boost) 0.1%~30.0%	Model dependent	☆
P3-02	Cut-off frequency of torque boost	0.00Hz~ maximum frequency	50.00Hz	★
P3-03	Multi-point V/F frequency 1	0.00Hz~P3-05	0.00Hz	★
P3-04	Multi-point V/F voltage 1	0.0%~100.0%	0.0%	★
P3-05	Multi-point V/F frequency 2	P3-03~P3-07	0.00Hz	★
P3-06	Multi-point V/F voltage 2	0.0%~100.0%	0.0%	★
P3-07	Multi-point V/F frequency 3	P3-05~ rated motor frequency (P1-04)	0.00Hz	★
P3-08	Multi-point V/F voltage 3	0.0%~100.0%	0.0%	★
P3-09	V/F slip compensation gain	keep	-	-
P3-10	V/F over-excitation gain	0~200	64	☆

P3-11	V/F oscillation suppression gain	0~100	40	☆
P3-13	Voltage source for V/F separation	0: Digital setting (P3-14) 1: AI1(Note: J6 jumper) 2: AI2 3: AI3 4: High-speed pulse input setting(DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication setting Note:100.0% corresponds to the rated motor voltage	0	☆
P3-14	Voltage digital setting for V/	0 V ~rated motor voltage	0V	☆
P3-15	Voltage rise time of V/F separation	0.0~1000.0s It indicates the time for the voltage rising from 0 V to rated motor voltage	0.0s	☆
P3-16	Voltage decline time of V/F separation	0.0s~1000.0s Note: time of 0v to rated motor voltage	0.0s	☆
P3-17	Stop mode selection for V/F separation	0: Frequency and voltage declining to 0 independently 1: Frequency declining after voltage declines to 0	0	☆
P3-18	Current limit level	50~200%	150%	★
P3-19	Current limit selection	0: useless 1: useful	1	★
P3-20	Current limit gain	0~100	20	☆
P3-21	Compensation factor of speed multiplying current limit level	50~200%	50%	★
P3-22	Voltage limit	650V~800.0V	770V	★
P3-23	Voltage limit selection	0: useless 1: useful	1	★
P3-24	Frequency gain for voltage limit	0~100	30	☆
P3-25	Voltage gain for voltage limit	0~100	30	☆

P3-26	Frequency rise threshold during voltage limit	0~50Hz	5Hz	★
Group P4: Input Terminals				
P4-00	S1 function selection	0: No function 1: Forward RUN (FWD) 2: Reverse RUN (REV) 3: Three-line control 4: Forward JOG (FJOG) 5: Reverse JOG (RJOG) 6: Terminal UP 7: Terminal DOWN 8: Coast to stop	1	★
P4-01	S2 function selection	9: Fault reset (RESET) 10: RUN pause 11: Normally open (NO) input of external fault 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Terminal 1 for acceleration/ deceleration time selection	2	★
P4-02	S3 function selection	17: Terminal 2 for acceleration/ deceleration time selection 18: Frequency source switchover 19: UP and DOWN setting clear (terminal, operation panel) 20: Command source switchover terminal 1 21: Acceleration/Deceleration prohibited	9	★
P4-03	S4 function selection	22: PID pause 23: PLC status reset 24: Swing pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control prohibited 30: Pulse input (enabled only for DI5)	12	★

P4-04	S5 function selection	31:Reserved 32: Immediate DC braking 33: Normally closed (NC) input of external fault 34: Frequency modification forbidden 35: Reverse PID action direction 36: External STOP terminal 1 37: Command source switchover terminal 2	13	★
P4-05	S6 function selection	38: PID integral pause 39: Switchover between main frequency source X and preset frequency 40: Switchover between auxiliary frequency source Y and preset frequency 41: Motor selection terminal 1 42: Motor selection terminal 2 43: PID parameter switchover	0	★
P4-06	S7 function selection	44: User-defined fault 1 45: User-defined fault 2 46: Speed control/Torque control switchover 47: Emergency stop 48: External STOP terminal 2 49: Deceleration DC braking 50: Clear the current running time 51: two-wire / three-wire switch 52: Reverse frequency disabled 53-59:Keep	0	★
P4-10	SI~S7 filter time	0.000s~1.000s	0.010s	☆
P4-11	Terminal control mode	0: Two-line mode 1 1: Two-line mode 2 2: Three-line mode 1 3: Three-line mode 2	0	★
P4-12	Terminal UP/DOWN rate	0.001Hz/s~65.535Hz/s	1.00Hz/s	☆
P4-13	AI curve 1 minimum input	0.00V~P4-15	0.00V	☆
P4-14	Corresponding setting of AI curve 1 minimum input	-100.0%~+100.0%	0.0%	☆
P4-15	AI curve 1 maximum input	P4-13~+10.00V	10.00V	☆
P4-16	Corresponding setting of AI curve 1 maximum input	-100.0%~+100.0%	100.0%	☆
P4-17	AI1 filter time	0.00s~10.00s	0.10s	☆
P4-18	AI curve 2 minimum input	0.00V~P4-20	0.00V	☆

P4-19	Corresponding setting of AI curve 2 minimum input	-100.0%~+100.0%	0.0%	☆
P4-20	AI curve 2 maximum input	P4-18~+10.00V	10.00V	☆
P4-21	Corresponding setting of AI curve 2 maximum input	-100.0%~+100.0%	100.0%	☆
P4-22	AI2 filter time	0.00s~10.00s	0.10s	☆
P4-23	AI curve 3 minimum input	-10.00V~P4-25	0.00V	☆
P4-24	Corresponding setting of AI curve 3 minimum input	-100.0%~+100.0%	0%	☆
P4-25	AI curve 3 maximum input	P4-23~+10.00V	10.00V	☆
P4-26	Corresponding setting of AI curve 3 maximum input	-100.0%~+100.0%	100.0%	☆
P4-27	AI3 filter time	0.00s~10.00s	0.10s	☆
P4-28	Pulse minimum input	0.00kHz~P4-30	0.00kHz	☆
P4-29	Corresponding setting of pulse minimum input	-100.0%~100.0%	0.0%	☆
P4-30	Pulse maximum input	P4-28~100.00kHz	50.00kHz	☆
P4-31	Corresponding setting of pulse maximum input	-100.0%~100.0%	100.0%	☆
P4-32	Pulse filter time	0.00s~10.00s	0.10s	☆
P4-33	AI curve selection	Bits :AI1 curve selection Curve 1 (2 points, see P4-13 to P4-16) Curve 2 (2 points, see P4-18 to P4-21) Curve 3 (2 points, see P4-23 to P4-26) Curve 4 (4 points, see A6-00 to A6-07) Curve 5 (4 points, see A6-08 to A6-15) Ten:AI2 curve selection, ibid Hundred:AI3 curve selection, ibid	321	☆
P4-34	Setting selection when AI less than min. input	Bits : Setting for AI1 less than minimum input 0: Minimum value 1: 0.0% Ten:Setting for AI2 less than minimum input, ibid Hundred:Setting for AI3 less than minimum input, ibid	000	☆
P4-35	S1 delay time	0.0s~3600.0s	0.0s	★

P4-36	S2 delay time	0.0s~3600.0s	0.0s	★
P4-37	S3 delay time	0.0s~3600.0s	0.0s	★
P4-38	SI valid mode selection 1	0: active high 1: active low Bit: S1 Ten: S2 Hundred places: S3 Thousands of bits: S4 Ten thousand: S5	00000	★
P4-39	SI valid mode selection 2	0: active high 1: active low Bit :S6 Ten :S7 Hundred :S8 Thousands : Ten thousand :	00000	★
P5 Output Terminals				
P5-00	HDO terminal output mode	0: Pulse output (HDP) 1: Switch signal output (HDY)	1	☆
P5-01	HDY function selection	0: No output 1: AC drive running 2: Fault output (stop) 3: Frequency-level detection FDT1 output 4: Frequency reached 5: Zero-speed running (no output at stop) 6: Motor overload pre-warning 7: AC drive overload pre-warning	0	☆
P5-02	Relay1 function selection (TA-TB-TC)	8: Set count value reached 9: Designated count value reached 10: Length reached 11: PLC cycle complete 12: Accumulative running time reached 13: Frequency limited 14: Torque limited 15: Ready for RUN	2	☆

P5-03	Relay2 function selection (RA -RC)	16: AI1 larger than AI2 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state output 20: Communication setting 21: Reserved 22: Reserved 23: Zero-speed running 2 (having output at stop)	0	☆
P5-04	HDO function selection	24: Accumulative power-on time reached 25: Frequency level detection FDT2 output 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached 29: Current 2 reached 30: Timing reached 31: AI1 input limit exceeded	1	☆
P5-05	Keep	32: Load becoming 0 33: Reverse running 34: Zero current state 35: Module temperature reached 36: Software current limit exceeded 37: Frequency lower limit reached (having output at stop) 38: Alarm output 39: Motor overheat warning 40: Current running time reached 41: Fault output (There is no output if it is the coast to stop fault and undervoltage occurs.)	-	☆
P5-06	HDP function selection	0: Running frequency 1: Set frequency 2: Output current 3: Output torque 4: Output power 5: Output voltage 6: Pulse input	0	☆

P5-07	AO1 function selection	(100.% corresponds to 100.0kHz) 7: AI1(Note: J6 jumper) 8: AI2 9: AI3 10: length 11: Count value 12: Communication setting 13: Motor rotational speed 14: Output current (100.0% corresponds to 1000.0A) 15: Output voltage (100.0% corresponds to 1000.0V) 16: Keep	0	☆
P5-08	AO2 function selection		1	☆
P5-09	HDO Maximum output frequency (FMP)	0.01kHz~100.00kHz	50.00kHz	☆
P5-10	AO1 offset coefficient	-100.0%~+100.0%	0.0%	☆
P5-11	AO1 gain	-10.00~+10.00	1.00	☆
P5-12	AO2 offset coefficient	-100.0%~+100.0%	0.0%	☆
P5-13	AO2 gain	-10.00~+10.00	1.00	☆
P5-17	FMR output delay time	0.0s~3600.0s	0.0s	☆
P5-18	Relay 1 output delay time	0.0s~3600.0s	0.0s	☆
P5-19	Relay 2 output delay time	0.0s~3600.0s	0.0s	☆
P5-20	DO output delay time	0.0s~3600.0s	0.0s	☆
P5-21	Keep	0.0s~3600.0s	0.0s	☆
P5-22	HDO active mode selection	0: Positive logic 1: anti logic Bit:HDO(HDY) Ten:TA Hundred place:RA Thousands of bits : DO Ten thousand : Keep	00000	☆
P6 Start/Stop Control				
P6-00	Start mode	0: Direct start 1: Catching a spinning motor 2: Pre-excited start 3: SVC quick start	0	☆
P6-01	Rotational speed tracking mode	0: From stop frequency 1: From 50 Hz 2: From max. frequency	0	★
P6-02	Rotational speed tracking speed`	20	20	☆

P6-03	Startup frequency	0.00Hz~10.00Hz	0.00Hz	☆
P6-04	Startup frequency holding time	0.0s~100.0s	0.0s	★
P6-05	Startup DC braking current/Pre-excited current	0%~100%	50%	★
P6-06	Startup DC braking time/Pre-excited time	0.0s~100.0s	0.0s	★
P6-07	Acceleration/Deceleration mode	0: Linear acceleration/ deceleration 1: S-curve acceleration/ deceleration A 2: S-curve acceleration/ deceleration B	0	★
P6-08	Time proportion of S-curve start segment	0.0%~(100.0%-P6-09)	30.0%	★
P6-09	Time proportion of S-curve end segment	0.0%~(100.0%-P6-08)	30.0%	★
P6-10	Stop mode	0: Decelerate to stop 1: Coast to stop	0	☆
P6-11	Initial frequency of stop DC braking	0.00Hz~ maximum frequency	0.00Hz	☆
P6-12	Initial frequency of stop DC braking	0.0s~100.0s	0.0s	☆
P6-13	Stop DC braking current	0%~100%	50%	☆
P6-14	Stop DC braking time	0.0s~100.0s	0.0s	☆
P6-15	Brake use ratio	0%~100%	100%	☆
P6-18	Catching a spinning motor current limit	30%~200%	Model dependent	☆
P6-21	Demagnetization time (effective for SVC)	0.00~5.00s	Model dependent	☆
Group P7: Operation Panel and Display				
P7-01	JOG default display check	0: JOG is invalid 1: Operation panel command channel and remote command channel (terminal command channel or communication command channel) switch 2: Forward and reverse switching 3: moving forward 4: reverse JOG	0	★
P7-02	STOP/RESET key function	0: The STOP / RES key stop function is valid only during keyboard operation 1: STOP / RES key shutdown is active in any mode of operation	1	☆

P7-03	LED display running parameters 1	0000 ~ FFFF Bit00: Operating frequency 1 (Hz) Bit01: Set frequency (Hz) Bit02: Bus voltage (V) Bit03: Output voltage (V) Bit04: Output current (A) Bit05: Output power (kW) Bit06: Output torque (%) Bit07: S terminal input status Bit08: HDO output status Bit09: AI1 voltage (V) Bit10: AI2 Voltage (V) Bit11: AI3 Voltage (V) Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID setting	1F	☆
P7-04	LED display running parameters 2	0000 ~ FFFF Bit00: PID feedback Bit01: PLC stage Bit02: High-speed pulse input frequency (kHz) Bit03: Operating frequency 2 (Hz) Bit04: Remaining runtime Bit05: AI1 before correction voltage (V) Bit06: AI2 before correction voltage (V) Bit07: AI3 Correction before voltage (V) Bit08: Line speed Bit09: Current power-on time (Hour) Bit10: Current running time (Min) Bit11: High-speed pulse input frequency (Hz) Bit12: Communication setpoint Bit13: Encoder feedback speed (Hz) Bit14: Main frequency A display (Hz) Bit15: Secondary frequency B display (Hz)	0	☆
P7-05	LED display stop parameters	0000~FFFF Bit00: Set frequency (Hz) Bit01: Bus voltage (V) Bit02: DI input status Bit03: DO output status Bit04: AI1 voltage (V)	33	☆

		Bit05: AI2 voltage (V) Bit06: AI3 voltage (V) Bit07: Count value Bit08: Length value Bit09: PLC stage Bit10: Load speed Bit11: PID setting Bit12: High-speed pulse input settingfrequency (kHz)		
P7-06	Load speed display coefficient	0.0001~6.5000	1.0000	☆
P7-07	Heatsink temperature of inverter module	-20.0℃~120.0℃	-	●
P7-09	Accumulative running time	0h~65535h	-	●
P7-12	Number of decimal places for load speed display	Bit: d0-14 the number of decimal places 0: 0 decimal places 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places Ten: d0-19 / d0-29 the number of decimal places 1: 1 decimal place 2: 2 decimal places	20	☆
P7-13	Accumulative power-on time	0h~65535h	-	●
P7-14	Accumulative power consumption	0kW~65535 kWh	-	●
Group P8: Auxiliary Functions				
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	☆
P8-03	Acceleration time 2	0.0s~6500.0s	Model dependent	☆
P8-04	Deceleration time 2	0.0s~6500.0s	Model dependent	☆
P8-05	Acceleration time 3	0.0s~6500.0s	Model dependent	☆
P8-06	Deceleration time 3	0.0s~6500.0s	Model dependent	☆
P8-07	Deceleration time 4	0.0s~6500.0s	Model dependent	☆
P8-08	Deceleration time 4	0.0s~6500.0s	Model dependent	☆
P8-09	Jump frequency 1	0.00Hz~ maximum frequency	0.00Hz	☆
P8-10	Jump frequency 2	0.00Hz~ maximum frequency	0.00Hz	☆
P8-11	Frequency jump amplitude	0.00Hz~ maximum frequency	0.00Hz	☆

P8-12	Forward/Reverse rotation dead-zone time	0.0s~3000.0s	0.0s	☆
P8-13	Reverse control	0: Enabled 1: Disabled	0	☆
P8-14	Running mode when set frequency lower than frequency lower limit	0: Run at frequency lower limit 1: Stop 2: Run at zero speed	0	☆
P8-15	Droop control	0.00Hz~10.00Hz	0.00Hz	☆
P8-16	Accumulative power-on time threshold	0h~65000h	0h	☆
P8-17	Accumulative running time threshold	0h~65000h	0h	☆
P8-18	Startup protection	0: No 1: Yes	0	☆
P8-19	Frequency detection value (FDT1)	0.00Hz~ maximum frequency	50.00Hz	☆
P8-20	Frequency detection hysteresis (FDT1)	0.0%~100.0%(FDT1 level)	5.0%	☆
P8-21	Detection range of frequency reached	0.0%~100.0%(maximum frequency)	0.0%	☆
P8-22	Jump frequency during acceleration/deceleration	0: Disabled 1: Enabled	0	☆
P8-25	Frequency switchover point between acceleration time 1 and acceleration time 2	0.00Hz~ maximum frequency	0.00Hz	☆
P8-26	Frequency switchover point between deceleration time 1 and deceleration time 2	0.00Hz~ maximum frequency	0.00Hz	☆
P8-27	Terminal JOG preferred	0: Disabled1: Enabled	0	☆
P8-28	Frequency detection value (FDT2)	0.00Hz~ maximum frequency	50.00Hz	☆
P8-29	Frequency detection hysteresis (FDT2)	0.0%~100.0%(FDT2 level)	5.0%	☆
P8-30	Any frequency reaching detection value 1	0.00Hz~ maximum frequency	50.00Hz	☆
P8-31	Any frequency reaching detection amplitude 1	0.0%~100.0%(maximum frequency)	0.0%	☆
P8-32	Any frequency reaching detection value 2	0.00Hz~ maximum frequency	50.00Hz	☆
P8-33	Any frequency reaching detection amplitude 2	0.0%~100.0%(maximum frequency)	0.0%	☆
P8-34	Zero current detection level	0.0%~300.0% 100.0% corresponding to rated motor current)	5.0%	☆
P8-35	Zero current detection delay time	0.01s~600.00s	0.10s	☆
P8-36	Output overcurrent threshold	0.0%(no detection) 0.1%~300.0%(rated motor current)	200.0%	☆
P8-37	Output overcurrent detection delay time	0.00s~600.00s	0.00s	☆

P8-38	Any current reaching 1	0.0%~300.0%(rated motor current)	100.0%	☆
P8-39	Any current reaching amplitude 1	0.0%~300.0%(rated motor current)	0.0%	☆
P8-40	Any current reaching 2	0.0%~300.0%(rated motor current)	100.0%	☆
P8-41	Any current reaching amplitude 2	0.0%~300.0%(rated motor current)	0.0%	☆
P8-42	Timing function	0: Disabled 1: Enabled	0	☆
P8-43	Timing duration source	0:P8-44 setting 1:A11 2:A12 3:A13 The analog Input range correspondingP8-44	0	☆
P8-44	Timing duration	0.0Min~6500.0Min	0.0Min	☆
P8-45	A11 input voltage lower limit	0.00V~P8-46	3.10V	☆
P8-46	A11 input voltage upper limit	P8-45~10.00V	6.80V	☆
P8-47	Dormant mode selection	0: Do not dormant 1: No dormant pressure judgment Wakeup pressure= Wakeup pressure percentage 2: Dormant pressure=setting pressure* dormant pressure percentage Wakeup pressure= setting pressure* Wakeup pressure percentage	0	★
P8-49	Dormant pressure	90.0%~100.0%	98.0%	☆
P8-50	Wakeup pressure	0.0%~100.0%	60.0%	☆
P8-51	Dormant frequency	0.00Hz~ 50.00HZ	30.00Hz	★
P8-52	Wakeup frequency	0.00Hz~ 50.00HZ	40.00s	★
P8-53	Wakeup delay time	0.0~6500.0S	3.0S	☆
P8-54	Dormant delay time	0.0~6500.0S	5.0S	☆
Group P9: Fault and Protection				
P9-00	Motor overload protection selection	0: Disabled 1: Enabled	1	☆
P9-01	Motor overload protection gain	0.20~10.00	1.00	☆
P9-02	Motor overload warning coefficient	50%~100%	80%	☆

P9-03	Overvoltage stall gain	0~100	30	☆
P9-04	Overvoltage stall protective voltage	650V~800V	770V	☆
P9-07	Short-circuit to ground upon power-on	Bits: Power-on-to-ground short-circuit protection options 0: Disabled 1: Enabled Ten: Selection of short-circuit protection to ground before operation 0: Disabled 1: Enabled	01	☆
P9-08	Starting voltage of braking unit action	650V~800V	720V	☆
P9-09	Fault auto reset times	0~20	0	☆
P9-10	HDO action during fault auto reset	0: Not act 1: Act	0	☆
P9-11	Time interval of fault auto reset	0.1s~100.0s	1.0s	☆
P9-12	Input phase loss protection, contactor energizing protection selection	Bits : Input phase loss protection selection 0: Disabled 1: Enabled Ten: contactor energizing protection selection 0: Disabled 1: Enabled	01	☆
P9-13	Output phase loss protection selection	Bits : Input phase loss protection selection 0: Disabled 1: Enabled Ten: Output phase loss protection selection before running 0: Disabled 1: Enabled	01	☆
P9-14	1st fault type	0: No fault 1: Reserved 2: Overcurrent during acceleration 3: Overcurrent during deceleration 4: Overcurrent at constant speed 5: Overvoltage during acceleration 6: Overvoltage during deceleration 7: Overvoltage at constant speed 8: Buffer resistance overload 9: Undervoltage 10: AC drive overload 11: Motor overload 12: Power input phase loss	—	●

P9-15	2nd fault type	13: Power output phase loss 14: Module overheat 15: External equipment fault 16: Communication fault 17: Contactor fault 18: Current detection fault 19: Motor auto-tuning fault 20: Encoder/PG card fault 21: EEPROM read-write fault 22: AC drive hardware fault 23: Short circuit to ground 24: Reserved 25: Reserved 26: Accumulative running time reached 27: User-defined fault 1 28: User-defined fault 2 29: Accumulative power-on time reached 30: Load becoming 0 31: PID feedback lost during running 40: With-wave current limit fault 41: Motor switchover fault during running 42: Too large speed deviation 43: Motor over-speed 45: Motor overheat 51: Initial position fault	—	●
P9-16	3rd (latest) fault type		—	●
P9-17	Frequency upon 3rd fault	—	—	●
P9-18	Current upon 3rd fault	—	—	●
P9-19	Bus voltage upon 3rd fault	—	—	●
P9-20	input terminal status upon 3rd fault	—	—	●
P9-21	Output terminal status upon 3rd fault	—	—	●
P9-22	AC drive status upon 3rd fault	—	—	●
P9-23	Power-on time upon 3rd fault	—	—	●
P9-24	Running time upon 3rd fault	—	—	●
P9-27	Frequency upon 2nd fault	—	—	●

P9-28	Current upon 2nd fault	—	—	●
P9-29	Bus voltage upon 2nd fault	—	—	●
P9-30	input terminal status upon 2nd fault	—	—	●
P9-31	Output terminal status upon 2nd fault	—	—	●
P9-32	AC drive status upon 2nd fault	—	—	●
P9-33	Power-on time upon 2nd fault	—	—	●
P9-34	Running time upon 2nd fault	—	—	●
P9-37	Frequency upon 1st fault	—	—	●
P9-38	Current upon 1st fault	—	—	●
P9-39	Bus voltage upon 1st fault	—	—	●
P9-40	input terminal status upon 1st fault	—	—	●
P9-41	Output terminal status upon 1st fault	—	—	●
P9-42	AC drive state upon 1st fault	—	—	●
P9-43	Power-on time upon 1st fault	—	—	●
P9-44	Running time upon 1st fault	—	—	●
P9-47	Fault protection action selection 1	Bit: Motor overload (FU11) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run Ten: Power input phase loss (FU12) Hundred : Power output phase loss (FU13) Thousand : External equipment fault(FU15) Ten thousand : Communication fault (FU16)	00000	☆

P9-48	Fault protection action selection 2	Bit :(Encoder/PG card fault (FU20) 0: Coast to stop Ten : EEPROM read-write fault (FU21) 0: Coast to stop 1: Stop according to the stop mode Hundred : Inverter overload fault action selection(FU10) 0: Coast to stop 1: Derated operation Thousand : Motor overheat(FU45) Ten thousand : Accumulative running time reached(FU26)	00000	☆
P9-49	Fault protection action selection 3	Bit: User-defined fault 1(FU27) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run Ten: User-defined fault 2(FU28) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run Hundred : Accumulative power-on time reached (FU29) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run Thousand: Load becoming 0 (FU30) 0: Coast to stop 1: Slow down parking 2: Continue to run at 7% of rated motor frequency and resume to the set frequency if the load recovers Ten thousand: PID feedback lost during running(FU31) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run	00000	☆

P9-50	Fault protection action selection 4	Bit: Too large speed deviation (FU42) 0: Coast to stop 1: Stop according to the stop mode 2: Continue to run Ten : Motor over-speed(FU43) Hundred : Initial position fault (FU51)	00000	☆
P9-54	Frequency selection for continuing to run upon fault	0: Current running frequency 1: Set frequency 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency upon abnormality	0	☆
P9-55	Backup frequency upon abnormality	60.0%~100.0% (100.0%corresponding maximum frequency P0-10)	100.0%	☆
P9-59	Action selection at instantaneous power failure	0: Invalid 1: Decelerate 2: Decelerate to stop	0	☆
P9-60	Action pause judging voltage at instantaneous power failure	80%~100.0%	85.0%	☆
P9-61	Voltage rally judging time at instantaneous power failure	0.00s~100.00s	0.50s	☆
P9-62	Action judging voltage at instantaneous power failure	60.0%~100.0%(standard bus voltage)	80.0%	☆
P9-63	Protection upon load becoming 0	0: Disabled 1: Enabled	0	☆
P9-64	Detection level of load becoming 0	0.0~100.0%	10.0%	☆
P9-65	Detection time of load becoming 0	0.0~60.0s	1.0s	☆
P9-67	Over-speed detection value	0.0%~50.0%((maximum frequency)	20.0%	☆
P9-68	Over-speed detection time	0.0s~60.0s	1.0s	☆
P9-69	Detection value of too large speed deviation	0.0%~50.0%((maximum frequency)	20.0%	☆
P9-70	Detection time of too large speed deviation	0.0s~60.0s	5.0s	☆
P9-71	Instantaneous non-stop gain KP	0~100	40	☆
P9-72	Instantaneous non-stop integral coefficient KI	0~100	30	☆
P9-73	Momentary stop and non-stop action deceleration time	0~300.0s	20.0s	★
P9-76	Inverter G/P switching	1: G 2: P	1	★
Group PA: Process Control PID Function				

PA-00	PID setting source	0:PA-01 setting 1:AI1 2:AI2 3:AI3 4: High-speed pulse input setting(S5) 5: Communication setting 6: Multi-reference	0	☆
PA-01	PID digital setting	0.0%~100.0%	50.0%	☆
PA-02	PID feedback source	0: AI1 1:AI2 2:AI3 3:AI1-AI2 4:PULSE setting (S5) 5: Communication setting 6:AI1+AI2 7:MAX(AI1 , AI2) 8:MIN(AI1 , AI2)	0	☆
PA-03	PID action direction	0: Forward action 1: Reverse action	0	☆
PA-04	PID setting feedback range	0~65535	1000	☆
PA-05	Proportional gain KP1	0.0~100.0	20.0	☆
PA-06	Integral time Ti1	0.01s~10.00s	2.00s	☆
PA-07	Differential time Td1	0.000s~10.000s	0.000s	☆
PA-08	Cut-off frequency of PID reverse rotation	0.00~ maximum frequency (p0-10)	0.00Hz	☆
PA-09	PID deviation limit	0.0%~100.0%	0.0%	☆
PA-10	PID differential limit	0.00%~100.00%	0.10%	☆
PA-11	PID setting change time	0.00~650.00s	0.00s	☆
PA-12	PID feedback filter time	0.00~60.00s	0.00s	☆
PA-13	PID output filter time	0.00~60.00s	0.00s	☆
PA-14	Reserved	-	-	☆
PA-15	Proportional gain KP2	0.0~1000.0	20.0	☆
PA-16	Integral time Ti2	0.01s~10.00s	2.00s	☆

PA-17	Differential time Td2	0.000s~10.000s	0.000s	☆
PA-18	PID parameter switchover condition	0: No switchover 1: Switchover via S terminal 2: Automatic switchover based on deviation 3: Automatically switch according to operating frequency	0	☆
PA-19	PID parameter switchover deviation 1	0.0%~PA-20	20.0%	☆
PA-20	PID parameter switchover deviation 2	PA-19~100.0%	80.0%	☆
PA-21	PID initial value	0.0%~100.0%	0.0%	☆
PA-22	PID initial value holding time	0.00~650.00s	0.00s	☆
PA-23	Maximum deviation between two PID outputs in forward direction	0.00%~100.00%	1.00%	☆
PA-24	Maximum deviation between two PID outputs in reverse direction	0.00%~100.00%	1.00%	☆
PA-25	PID integral property	Bit:(Integral separated) 0: Invalid 1: Valid Ten: Whether to stop integral operation when the output reaches the limit 0: Continue integral operation 1: Stop integral operation	00	☆
PA-26	Detection value of PID feedback loss	0.0%: Not judging feedback loss 0.1%~100.0%	0.0%	☆
PA-27	Detection time of PID feedback loss	0.0s~20.0s	0.0s	☆
PA-28	PID operation at stop	0: No PID operation at stop 1: PID operation at stop	0	☆
Group PB: Swing Frequency, Fixed Length and Count				
Pb-00	Swing frequency setting mode	0: Relative to the central frequency 1: Relative to the maximum frequency	0	☆
Pb-01	Swing frequency amplitude	0.0%~100.0%	0.0%	☆
Pb-02	Jump frequency amplitude	0.0%~50.0%	0.0%	☆
Pb-03	Swing frequency cycle	0.1s~3000.0s	10.0s	☆

Pb-04	Triangular wave rising time coefficient	0.1%~100.0%	50.0%	☆
Pb-05	Set length	0m~65535m	1000m	☆
Pb-06	Actual length	0m~65535m	0m	☆
Pb-07	Number of pulses per meter	0.1~6553.5	100.0	☆
Pb-08	Set count value	1~65535	1000	☆
Pb-09	Designated count value	1~65535	1000	☆
Group PC: Multi-Reference and Simple PLC Function				
PC-00	Reference 0	-100.0%~100.0%	0.0%	☆
PC-01	Reference 1	-100.0%~100.0%	0.0%	☆
PC-02	Reference 2	-100.0%~100.0%	0.0%	☆
PC-03	Reference 3	-100.0%~100.0%	0.0%	☆
PC-04	Reference 4	-100.0%~100.0%	0.0%	☆
PC-05	Reference 5	-100.0%~100.0%	0.0%	☆
PC-06	Reference 6	-100.0%~100.0%	0.0%	☆
PC-07	Reference 7	-100.0%~100.0%	0.0%	☆
PC-08	Reference 8	-100.0%~100.0%	0.0%	☆
PC-09	Reference 9	-100.0%~100.0%	0.0%	☆
PC-10	Reference 10	-100.0%~100.0%	0.0%	☆
PC-11	Reference 11	-100.0%~100.0%	0.0%	☆
PC-12	Reference 12	-100.0%~100.0%	0.0%	☆
PC-13	Reference 13	-100.0%~100.0%	0.0%	☆
PC-14	Reference 14	-100.0%~100.0%	0.0%	☆
PC-15	Reference 15	-100.0%~100.0%	0.0%	☆

PC-16	Simple PLC running mode	0: Stop after the AC drive runs one cycle 1: Keep final values after the AC drive runs one cycle 2: Repeat after the AC drive runs one cycle	0	☆
PC-17	Simple PLC retentive selection	Bit: Power-down memory selection 0: No memory when power-down 1: Memory when Power-down Ten: Shutdown memory selection 0: No memory when Shutdown 1: Memory when shutdown	00	☆
PC-18	Running time of simple PLC reference 0	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-19	Acceleration/deceleration time of simple PLC reference 0	0~3	0	☆
PC-20	Running time of simple PLC reference 1	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-21	Acceleration/deceleration time of simple PLC reference 1	0~3	0	☆
PC-22	Running time of simple PLC reference 2	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-23	Acceleration/deceleration time of simple PLC reference 2	0~3	0	☆
PC-24	Running time of simple PLC reference 3	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-25	Acceleration/deceleration time of simple PLC reference 3	0~3	0	☆
PC-26	Running time of simple PLC reference 4	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-27	Acceleration/deceleration time of simple PLC reference 4	0~3	0	☆
PC-28	Running time of simple PLC reference 5	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-29	Acceleration/deceleration time of simple PLC reference 5	0~3	0	☆
PC-30	Running time of simple PLC reference 6	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-31	Acceleration/deceleration time of simple PLC reference 6	0~3	0	☆
PC-32	Running time of simple PLC reference 7	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-33	Acceleration/deceleration time of simple PLC reference 7	0~3	0	☆
PC-34	Running time of simple PLC reference 8	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-35	Acceleration/deceleration time of simple PLC reference 8	0~3	0	☆
PC-36	Running time of simple PLC reference 9	0.0s(h)~6553.5s(h)	0.0s(h)	☆

PC-37	Acceleration/deceleration time of simple PLC reference 9	0~3	0	☆
PC-38	Running time of simple PLC reference 10	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-39	Acceleration/deceleration time of simple PLC reference 10	0~3	0	☆
PC-40	Running time of simple PLC reference 11	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-41	Acceleration/deceleration time of simple PLC reference 11	0~3	0	☆
PC-42	Running time of simple PLC reference 12	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-43	Acceleration/deceleration time of simple PLC reference 12	0~3	0	☆
PC-44	Running time of simple PLC reference 13	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-45	Acceleration/deceleration time of simple PLC reference 13	0~3	0	☆
PC-46	Running time of simple PLC reference 14	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-47	Acceleration/deceleration time of simple PLC reference 14	0~3	0	☆
PC-48	Running time of simple PLC reference 15	0.0s(h)~6553.5s(h)	0.0s(h)	☆
PC-49	Acceleration/deceleration time of simple PLC reference 15	0~3	0	☆
PC-50	Time unit of simple PLC running	0:s(second) 1:h(hou)	0	☆
PC-51	Reference 0 source	0: Set by PC-00 1:AI1 2:AI2 3:AI3 4:PULSE setting 5:PID 6:Set by preset frequency (P0-08), modified via terminal UP/DOWN	0	☆
Group Fd: Communication Parameters				

Pd-00	Baud rate	Bit:MODBUS 0:300BPS 1:600BPS 2:1200BPS 3:2400BPS 4:4800BPS 5:9600BPS 6:19200BPS 7:38400BPS 8:57600BPS 9:115200BPS Ten:ProPibus-DP 0:115200BPs 1:208300BPs 2:256000BPs 3:512000Bps Hundred : reserved Thousand :CANlink baud rate 0:20 1:50 2:100 3:125 4:250 5:500 6:1M	5005	☆
Pd-01	Data format	0: No check,(8-N-2) 1: Even parity check (8-E-1) 2: Odd Parity check,(8-O-1) 3:8-N-1	3	☆
Pd-02	Local address	0: Broadcast address 1~247	1	☆
Pd-03	Response delay	0ms~20ms	2	☆
Pd-04	Communication timeout	0.0(invalid) ,0.1s~60.0s	0.0	☆
Pd-05	Modbus protocol selection and PROFIBUS-DP data format	Bit:MODBUS 0: Non-standard Modbus protocol 1: Standard Modbus protocol Ten:Profibus-DP 0:PPO1 format 1:PPO2 format 2:PPO3 format 3:PPO5 format	31	☆
Pd-06	Communication reading current resolution	0:0.01A (Valid when ≤55kW) 1:0.1A	0	☆
Pd-07	Expansion card (Profibus, CANopen) Interrupt detection time	-	-	-
Group PE: User-defined Parameters				

PE-00	User-defined function code 0	P0-00~PP-xx A0-00~Ax-xx D0-00~d0-xx D3-00~d3-xx	d3-17	☆
PE-01	User-defined function code 1		d3-18	☆
PE-02	User-defined function code 2		P0.03	☆
...	...		P0.00	☆
PE-29	User-defined function code 29		P0.00	☆
Group PP: Function Code Management				
PP-00	User password	0~65535	0	☆
PP-01	Restore default settings	0: No operation 01: Restore factory settings except motor parameters 02: Clear records 04: Restore user backup parameters 501: Back up current user parameters	0	☆
PP-02	parameter display property	Bit:Group D display selection 0: Not display 1: Display Ten:Group A display selection 0: Not display 1: Display	11	★
PP-03	Individual parameter group display selection	Bit: User-defined parameter group display selection 0: Not display 1: Display Ten: User changes parameter group display selection 0: Not display 1: Display	00	☆
PP-04	Parameter modification property	0: Modifiable 1: Not modifiable	0	☆
PP-05	Inverter function macro	0: no 1: Water supply macro mode 1 2: Water supply macro mode 2 3: GPS 4: Machine-specific functions	0	★
Group A0: Torque Control and Restricting Parameters				
A0-00	Speed/Torque control selection	0: Speed control 1: Torque control	0	★

A0-01	Torque setting source in torque control	0: Digital setting (A0-03) 1: AI1 2: AI2 3: AI3 4: High-speed pulse input setting(DI5) 5: Communication setting 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) Full range of values 1–7 corresponds to the digital setting of A0-03	0	★
A0-03	Torque digital setting in torque control	-200.0%~200.0%	150.0%	☆
A0-05	Forward maximum frequency in torque control	0.00Hz~ maximum frequency	50.00Hz	☆
A0-06	Reverse maximum frequency in torque control	0.00Hz~ maximum frequency	50.00Hz	☆
A0-07	Acceleration time in torque control	0.00s~65000s	0.00s	☆
A0-08	Deceleration time in torque control	0.00s~65000s	0.00s	☆
Group A2: Motor 2 Parameters				
A2-00	Motor 2 type selection	0:Common asynchronous motor 1: Variable frequency asynchronous motor	0	★
A2-01	Rated motor 2 power	0.1kW~1000.0kW	Model dependent	★
A2-02	Rated motor 2 voltage	1V~2000V	Model dependent	★
A2-03	Rated motor 2 current	0.1A~655.35A	Model dependent	★
A2-04	Rated motor 2 frequency	0.01Hz~ maximum frequency(p0-10)	Model dependent	★
A2-05	Rated motor 2 rotational speed	1rpm~65535rpm	Model dependent	★
A2-06	Stator resistance asynchronous motor 2	0.001Ω~65.535Ω	Model dependent	★
A2-07	Rotor resistance asynchronous motor 2	0.001Ω~65.535Ω	Model dependent	★
A2-08	Leakage inductive reactance asynchronous motor 2	0.01mH~655.35mH	Model dependent	★
A2-09	Mutual inductive reactance asynchronous motor 2	0.1mH~6553.5mH	Model dependent	★
A2-10	No-load current asynchronous motor 2	0.01A~A2-03	Model dependent	★

A2-27	Encoder pulses per revolution	1~65535	2014	★
A2-28	Encoder type	0: ABZ incremental encoder 2: Resolver	0	★
A2-29	Speed feedback PG selection	0: local PG 1: Extended PG 2: High-speed pulse input (S5)	0	★
A2-30	A, B phase sequence of ABZ incremental encoder	0: Forward 1: Reserve	0	★
A2-31	Encoder installation angle	0.0~359.9°	0.0°	★
A2-34	Number of pole pairs of resolver	1~65535	1	★
A2-36	Encoder wire-break fault detection time	0.0s: No action 0.1~10.0s	0.0	★
A2-37	Tuning selection	0: no operation 1: Asynchronous machine static tuning 2: Asynchronous machine complete tuning 3: Asynchronous machine static and complete self-learning	0	★
A2-38	Speed loop proportional gain1	1~100	30	☆
A2-39	Speed loop integral time 1	0.01s~10.00s	0.50s	☆
A2-40	Switchover frequency 1	0.00~A2-43	5.00Hz	☆
A2-41	Speed loop proportional gain 2	1~100	20	☆
A2-42	Speed loop integral time 2	0.01s~10.00s	1.00s	☆
A2-43	Switchover frequency 2	A2-40~ maximum frequency	10.00Hz	☆
A2-44	Vector control slip gain	50%~200%	100%	☆
A2-45	Time constant of speed loop filter	0.000s~0.100s	0.015s	☆
A2-47	Torque upper limit source in speed control mode	0:A2-48 1:AI1 2:AI2 3:AI3 4: High-speed pulse input 5: Via communication 6:MIN(AI1,AI2) 7:MAX(AI1,AI2) 1-7 options of full scale, corresponding A2-48 digital setting	0	☆

A2-48	Digital setting of torque upper limit in speed control mode	0.0%~200.0%	150.0%	☆
A2-49	Torque upper limit command in speed control mode Selection (power generation)	0:set by p2-10 1:AI1 2:AI2 3:AI3 4:High-speed pulse input 5:Via communication 6:MIN(AI1,AI2) 7:MAX(AI1,AI2) 8: set by p2-12 1-7 options of full scale, corresponding p2-12 digital setting	0	☆
A2-50	Torque upper limit digital in speed control mode Setting (power generation)	0.0%~200.0%	150.0%	☆
A2-51	Excitation adjustment proportional gain	0~60000	2000	☆
A2-52	Excitation adjustment integral gain	0~60000	1300	☆
A2-53	Torque adjustment proportional gain	0~60000	2000	☆
A2-54	Torque adjustment integral gain	0~60000	1300	☆
A2-55	Speed loop integral property	Bit: Integral separated 0: Disabled 1: Enabled	0	☆
A2-59	Field weakening automatic adjustment gain	50%~200%	100%	☆
A2-60	Power generation limit enable	0: Disabled 1: Enabled	0	☆
A2-61	Maximum power generation	0.0%~200.0%	Model dependent	☆
A2-62	Motor 2 control mode	0:Speed sensorless vector control(SVC) 1:Speed sensor vector control(FVC) 2:V/F control	0	★
A2-63	Motor 2 acceleration/ deceleration time	0:Same as motor 1 1:Acceleration/Deceleration time 1 2:Acceleration/Deceleration time 2 3:Acceleration/Deceleration time 3 4:Acceleration/Deceleration time 4	0	☆
A2-64	Motor 2 torque boost	0.0%: Automatic torque boost 0.1%~30.0%	Model dependent	☆
A2-66	Motor 2 oscillation suppression gain	0~100	Model dependent	☆

Group A5: Control Optimization Parameters				
A5-00	DPWM switchover frequency upper limit	5.00Hz~Maximum frequency(P0-10)	8.00Hz	☆
A5-01	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	☆
A5-02	Dead zone compensation mode selection	0: No compensation 1: Compensation mode 1	1	☆
A5-03	Random PWM depth	0: Random PWM invalid 1~10: Random PWM depth	0	☆
A5-04	Rapid current limit	0: Disabled1: Enabled	1	☆
A5-05	Maximum output voltage coefficient	100%~110%	105%	★
A5-06	Undervoltage threshold	150V~420v	350V	☆
A5-08	Dead-zone time adjustment	0.0%~8.0%	0.0%	★
A5-09	Overvoltage threshold	650V~820v	Model dependent	★
Group A6: AI Curve Setting				
A6-00	AI curve 4 minimum input	-10.00V~A6-02	0.00V	☆
A6-01	Corresponding setting of AI curve 4 minimum input	-100.0%~+100.0%	0.0%	☆
A6-02	AI curve 4 inflexion 1 input	A6-00~A6-04	3.00V	☆
A6-03	Corresponding setting of AI curve 4 inflexion 1 input	-100.0%~+100.0%	30.0%	☆
A6-04	AI curve 4 inflexion 1 input	A6-02~A6-06	6.00V	☆
A6-05	Corresponding setting of AI curve 4 inflexion 1 input	-100.0%~+100.0%	60.0%	☆
A6-06	AI curve 4 maximum input	A6-06~+10.00V	10.00V	☆
A6-07	Corresponding setting of AI curve 4 maximum input	-100.0%~+100.0%	100.0%	☆
A6-08	AI curve 5 minimum input	-10.00V~A6-10	-10.00V	☆
A6-09	Corresponding setting of AI curve 5 minimum input	-100.0%~+100.0%	-100.0%	☆
A6-10	AI curve 5 inflexion 1 input	A6-08~A6-12	-3.00V	☆
A6-11	Corresponding setting of AI curve 5 inflexion 1 input	-100.0%~+100.0%	-30.0%	☆
A6-12	AI curve 5 inflexion 2 input	A6-10~A6-14	3.00V	☆

A6-13	Corresponding setting of AI curve 5 inflexion 2 input	-100.0%~+100.0%	30.0%	☆
A6-14	AI curve 5 maximum input	A6-12~+10.00V	10.00V	☆
A6-15	Corresponding setting of AI curve 5 maximum input	-100.0%~100.0%	100.0%	☆
A6-24	AL1 jump point setting	-100.0%~100.0%	0.0%	☆
A6-25	AL1jump amplitude setting	0.0%~100.0%	0.5%	☆
A6-26	AL2 jump point setting	-100.0%~100.0%	0.0%	☆
A6-27	AL2 jump amplitude setting	0.0%~100.0%	0.5%	☆
A6-28	AL3ump point setting	-100.0%~100.0%	0.0%	☆
A6-29	AL3 jump amplitude setting	0.0%~100.0%	0.5%	☆
Group A8: Point-point Communication				
A8-00	Point-point communication selection	0: Disabled 1: Enabled	0	☆
A8-01	Master and slave selection	0: Master 1: Slave	0	☆
A8-02	Slave commands follow the master-slave information interaction	Bit:Slave command follow 0:The slave does not follow the command of the host to run 1:The slave follows the host to run the command Ten: Slave fault information transmission 0: Slave fault information is not transmitted 1: Slave fault information transmission Hundred: The host shows that the slave is offline 0: The host does not report the failure when the slave is disconnected 1: The slave is disconnected and the host reports a fault	011	★
A8-03	Usage of data received by slave	0: Torque setting 1: Frequency setting	0	☆
A8-04	Zero offset of received data (torque)	-100.00%~100.00%	0.00%	★
A8-05	Gain of received data (torque)	-10.00~10.00	1.0	★

A8-06	Point-point communication interruption detection time	0.0~10.0S	1.0s	☆
A8-07	Point-to-point communication host data Send cycle	0.001~10.000S	0.001s	☆
Group AC: AI/AO Correction				
AC-00	AI1 measured voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-01	AI1 displayed voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-02	AI1 measured voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-03	AI1 displayed voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-04	AI2 measured voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-05	AI2 displayed voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-06	AI2 measured voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-07	AI2 displayed voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-08	AI3 measured voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-09	AI3 displayed voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-10	AI3 measured voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-11	AI3 displayed voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-12	AO1 target voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-13	AO1 measured voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-14	AO1 target voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-15	AO1 measured voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-16	AO2 target voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-17	AO2 measured voltage 1	-10.00V~10.000V	Factory corrected	☆
AC-18	AO2 target voltage 2	-10.00V~10.000V	Factory corrected	☆
AC-19	AO2 measured voltage 2	-10.00V~10.000V	Factory corrected	☆

5.2 Monitoring Parameters

Function Code	Parameter Name	Min. Unit	Communication Address
Group D0: Standard Monitoring Parameters			
d0-00	Running frequency(Hz)	0.01Hz	7000H
d0-01	Set frequency(Hz)	0.01Hz	7001H
d0-02	Bus voltage(V)	0.1V	7002H
d0-03	Output voltage(V)	1V	7003H
d0-04	Output current(A)	0.01A	7004H
d0-05	Output power(kW)	0.1kW	7005H
d0-06	Output torque(%)	0.1%	7006H
d0-07	S terminal input state	1	7007H
d0-08	HDO Output state	1	7008H
d0-09	AI1 voltage(V)	0.01V	7009H
d0-10	AI2 voltage(V)/ current(mA)	0.01V/0.01mA	700AH
d0-11	AI3 voltage(V)	0.01V	700BH
d0-12	Count value	1	700CH
d0-13	Length value	1	700DH
d0-14	Load speed	1	700EH
d0-15	PID setting	1	700FH
d0-16	PID feedback	1	7010H
d0-17	PLC stage	1	7011H
d0-18	Input pulse frequency(Hz)	0.01kHz	7012H
d0-19	Feedback speed(Hz)	0.01Hz	7013H
d0-20	Remaining running time	0.1Min	7014H
d0-21	AI1 voltage before correction	0.001V	7015H
d0-22	AI2 voltage before correction (V)/ /current(mA)	0.001V/0.01mA	7016H
d0-23	AI3 voltage before correction	0.001V	7017H
d0-24	Linear speed	1m/Min	7018H
d0-25	Accumulative power-on time	1Min	7019H
d0-26	Accumulative running time	0.1Min	701AH
d0-27	Pulse input frequency	1Hz	701BH

Function Code	Parameter Name	Min. Unit	Communication Address
d0-28	Communication setting value	0.01%	701CH
d0-29	Encoder feedback speed	0.01Hz	701DH
d0-30	Main frequency A	0.01Hz	701EH
d0-31	Auxiliary frequency B	0.01Hz	701FH
d0-32	Viewing any register address value	1	7020H
d0-34	Motor temperature	1℃	7022H
d0-35	Target torque	0.1%	7023H
d0-36	Resolver position	1	7024H
d0-37	Power factor angle	0.1°	7025H
d0-38	ABZ position	1	7026H
d0-39	Target voltage upon V/F separation	1V	7027H
d0-40	Output voltage upon V/F separation	1V	7028H
d0-41	S state visual display	1	7029H
d0-42	HDO state visual display	1	702AH
d0-43	S function state visual display 1(01-40)	1	702BH
d0-44	S function state visual display 2(41-80)	1	702CH
d0-45	Fault information	1	702DH
d0-58	Phase Z counting	1	703AH
d0-59	Current set frequency(%)	0.01%	703BH
d0-60	Current running frequency(%)	0.01%	703CH
d0-61	AC drive running state	1	703DH
d0-62	Current fault code	1	703EH
d0-63	Sent value of point-point communication	0.01%	703FH
d0-64	Torque upper limit	1	7040H
d0-65	Torque limit	0.1%	7041H
d0-73	Motor serial number	0: motor1 1: motor 2	7046H
d0-74	Actual output torque of the motor	-100~100%	7047H

Chapter VI EMC(Electromagnetic compatibility)

6.1 Solutions to Common EMC Interference Problems

The AC drive generates very strong interference. Although EMC measures are taken, the interference may still exist due to improper cabling or grounding during use. When the AC drive interferes with other devices, adopt the following solutions.

Table 6.1 Solutions to Common EMC Interference Problems and Processing method

Interference Type	Solution
Leakage protection switch tripping	1) Reduce the carrier frequency; 2) reduce the length of the drive line; 3) Add the magnetic ring on the input drive line (not around the PE line); 4) If the power is instantaneously tripped, it is necessary to disconnect the large-to-ground capacitance of the input terminal; (disconnect the ground terminal of the external or built-in filter, and the ground terminal of the input port to the ground Y capacitor) 5) When operating or enabling tripping, it is necessary to install leakage current suppression measures at the input end (leakage current filter, safety capacitor + magnetic ring, magnetic ring)
AC drive interference during running	1) Connect the motor housing to the PE of the AC drive; 2) Connect the PE of the AC drive to the PE of the mains voltage; 3) Add a safety capacitor to the power input cable and wind the cable with magnetic rings.; 4) Add a safety capacitor to the interfered signal port or wind the signal cable with magnetic rings.; 5)Connect the equipment to the common ground
Communication interference	1) Connect the motor housing to the PE of the AC drive.; 2) Connect the PE of the AC drive to the PE of the mains voltage. 3) Add a safety capacitor to the power input cable and wind the cable with magnetic rings; 4) Add a matching resistor between the communication cable source and the load side 5) Add a common grounding cable besides the communication cable. 6) Use a shielded cable as the communication cable and

	connect the cable shield to the common grounding point.7)Multi-node communication wiring needs to be daisy-chained, and the branch length is less than 30cm
I/O interference	1) Enlarge the capacitance at the low-speed S maximum of 0.11 uF capacitance is suggested 2) Enlarge the capacitance at the AI. A maximum of 0.22 uF is suggested.;

Chapter VII Fault Diagnosis and Countermeasures

7.1 Adjustment guide before the inverter is tested

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

The control mode is to control the speed and torque of the motor in the application where the motor has no encoder speed feedback. In this control mode, the motor parameters need to be self-learned to complete the automatic tuning of the motor parameters..

Problems and failures	Treatment strategy
Report overload during motor start-up Or over current fault	◆ Motor parameters (P1-01~P1-05) are set according to the motor nameplate ◆ Perform self-learning of motor parameters (P1-37). It is best to carry out dynamic self-learning of the motor under certain conditions.
Torque or speed below 5Hz Should be slow, motor vibration	◆ To improve the response of torque and speed, it is necessary to strengthen the speed loop proportional adjustment (P2-00 increases the set value by 10) or reduces the speed loop integral time (P2-01 decreases by 0.05) ◆ If there is vibration, you need to weaken the P2-00, P2-01 parameter values.
More than 5Hz torque or speed Should be slow, motor vibration.	◆ Improve torque and speed response, you need to strengthen the speed loop proportional adjustment (P2-03 increase the set value by 10) or reduce the speed loop integration time (P2-04 decreases by 0.05) ◆ If there is vibration, you need to weaken the P2-03, P2-04 parameter values.
Low speed accuracy	◆ When the motor load speed deviation is too large, increase the vector slip compensation gain (P2-06), increase or decrease by 10%.
High speed fluctuation	◆ When the motor speed is abnormally fluctuating, increase the speed filter time (P2-07) and increase it by 0.001s.
Noise big	◆ Appropriately increase the carrier frequency value (P0-15) and increase it in units of 1.0KHz; (Note: increasing the leakage current of the carrier frequency motor will increase)
Insufficient motor torque or Not enough	◆ Whether the upper torque limit is limited, the upper limit of the torque is increased in the speed mode (P2-10); the torque command is increased in the torque mode

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

This mode is used when the motor has an encoder speed feedback application. It is necessary to correctly set the encoder line number, encoder type and signal direction to complete the automatic tuning of the motor parameters

Problems and failures	Treatment strategy
Start reporting overcurrent or overload fault	◆ Correctly set the encoder line number, type, encoder direction

Report overload during motor rotation Or overcurrent fault	◆ Motor parameters (P1-01~P1-05) are set according to the motor nameplate. ◆ Self-learning of motor parameters (P1-37), it is best to carry out dynamic self-learning of the motor under certain conditions.
Torque or speed below 5Hz Should be slow, motor vibration	◆ To improve the response of torque and speed, it is necessary to strengthen the speed loop proportional adjustment (P2-00 increases the set value by 10) or reduces the speed loop integral time (P2-01 decreases by 0.05) ◆ If there is vibration, you need to weaken the P2-00, P2-01 parameter values.
More than 5Hz torque or speed Should be slow, motor vibration.	◆ To improve the response of torque and speed, it is necessary to strengthen the speed loop proportional adjustment (P2-03 increases the set value by 10) or reduces the speed loop integral time (P2-04 decreases by 0.05)) ◆ If there is vibration, you need to weaken the P2-03, P2-04 parameter values.
High speed fluctuation	◆ When the motor speed is abnormally fluctuating, increase the speed filter time (P2-07) and increase it by 0.001s.
Motor noise	◆ Appropriately increase the carrier frequency value (P0-15) and increase it in units of 1.0 kHz; (Note: increasing the leakage current of the carrier frequency motor will increase)
Insufficient motor torque or output enough	◆ Whether the upper torque limit is limited, the upper limit of the torque is increased in the speed mode (P2-10); the torque command is increased in the torque mode

3) V/F control mode (P0-01=2 factory default)

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

Problems and failures	Treatment strategy
Motor oscillation during operation	◆ Increase the oscillation suppression parameter (P3-11) and increase it by 10 (maximum adjustment to 100)
High-power start report overcurrent	◆ Reduce torque boost (P3-01), adjusted in 0.5% increments
Motor noise	◆ Appropriately increase the carrier frequency value (P0-15) and increase it in units of 1.0 kHz; (Note: increasing the leakage current of the carrier frequency motor will increase)
Large current during operation	◆ Correctly set the rated voltage (P1-02) and rated frequency (P1-04) of the motor. ◆ Reduce torque boost (P3-01), adjusted in 0.5% increments
Overload and heavy load report overpressure and deceleration Overpressure	◆ Confirm that the overvoltage stall enable (P3-23) is set to the enable state; increase the overvoltage stall gain (P3-24/P3-25, factory 30), increase by 10 (maximum adjustment to 100) ◆ Reduce the overvoltage stall operating voltage (P3-22 factory 770V), reducing in 10V (minimum adjustment to 700V)

Suddenly overloaded reporting overcurrent Report overcurrent	◆ Increase the overrun speed gain (P3-20 factory 20), increase by 10 (maximum adjustment to 100) ◆ Reduce the over-current operating current (P3-18 150% off the factory) and reduce it by 10% (minimum adjustment to 50%))
--	---

7.2 Fault alarm and countermeasure

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

Fault Name	Display	Possible Causes	Solutions
Overcurrent during acceleration	FU02	The output circuit is grounded or short circuited.	◆ Eliminate peripheral faults, detect motor or interrupt contactor for short circuit
		The control mode is FVC or SVC and no parameter identification is performed.	◆ Set the motor parameters according to the motor nameplate to identify the motor parameters.
		The acceleration time is too short	◆ Increase the acceleration time
		Overrun speed suppression setting is not suitable	◆ Confirm that the overspeed suppression function (P3-19=1) has been enabled.; ◆ Over-speed running current (P3-18) setting value is too large, it is recommended to adjust within 120% to 150%; ◆ Over-speed fast suppression gain (P3-20) setting is too small, it is recommended to adjust within 20 to 40
		Manual torque boost or V/F curve is not appropriate	◆ Adjust the manual torque boost or V/F curve
		Start the motor that is rotating	◆ Select the speed tracking start or wait for the motor to stop before starting
		Subject to external interference	◆ View the historical fault record. If the current value is far from the overcurrent point value when the fault occurs, you need to find the interference source. If there is no other interference source, it may be the driver board or the Hall device.
Overcurrent during deceleration	FU03	The output circuit is grounded or short circuited	◆ Eliminate peripheral faults and detect motor short circuit or open circuit
		Control mode is FVC or SVC and No parameter identification	◆ Set the motor parameters according to the motor nameplate to identify the motor parameters.
		The deceleration time is too short.	◆ Increase the deceleration time.

Fault Name	Display	Possible Causes	Solutions
		Overrun speed suppression setting is not suitable	◆ Confirm that the overspeed suppression function (P3-19) has been enabled.; ◆ Over-speed running current (P3-18) setting value is too large, it is recommended to adjust within 120% to 150%; ◆ Over-speed fast suppression gain (P3-20) setting is too small, it is recommended to adjust within 20 to 40;
		The braking unit and braking resistor are not installed	◆ Install the braking unit and braking resistor.
		Subject to external interference	◆ View the historical fault record. If the current value is far from the overcurrent point value when the fault occurs, you need to find the interference source. If there is no other interference source, it may be the driver board or the Hall device..
Overcurrent at constant speed	FU04	The output circuit is grounded or short circuited	◆ Eliminate peripheral faults and detect motor short circuit or open circuit
		The control mode is FVC or SVC and no parameter identification is performed.	◆ Set the motor parameters according to the motor nameplate to identify the motor parameters.
		Overrun speed suppression setting is not suitable	◆ Confirm that the overspeed suppression function (P3-19) has been enabled.; ◆ Over-speed running current (P3-18) setting value is too large, it is recommended to adjust within 120% to 150%; ◆ Over-speed fast suppression gain (P3-20) setting is too small, it is recommended to adjust within 20 to 40;
		Inverter selection is too small	◆ In the steady running state, if the running current has exceeded the rated current of the motor or the rated output current of the inverter, please select the inverter with higher power level.
		Subject to external interference	◆ View the historical fault record. If the current value is far from the overcurrent point value when the fault occurs, you need to find the interference source. If there is no other interference source, it may be the driver board or the Hall device.
Overvoltage during	FU05	The input voltage is too high.	◆ Adjust the voltage to normal range.

Fault Name	Display	Possible Causes	Solutions
acceleration		An external force drives the motor during acceleration.	◆ Cancel the external force or install the braking resistor.
		Overvoltage suppression setting is not suitable	◆ Confirm that the overvoltage suppression function (P3-23) is enabled; ◆ Overvoltage suppression action voltage (P3-22) setting value is too large, it is recommended to adjust within 770V~700V; ◆ Overvoltage suppression gain (P3-24) setting is too small, it is recommended to adjust within 30 to 50;
		The braking unit and braking resistor are not installed	◆ Install the braking unit and braking resistor.
		The acceleration time is too short.	◆ Increase the acceleration time.
Overvoltage during deceleration	FU06	Overvoltage suppression setting is not suitable	◆ Confirm that the overvoltage suppression function (P3-23) is enabled; ◆ Overvoltage suppression action voltage (P3-22) setting value is too large, it is recommended to adjust within 770V~700V; ◆ Overvoltage suppression gain (P3-24) setting is too small, it is recommended to adjust within 30 to 50;
		An external force drives the motor during deceleration	◆ Cancel the external force and Install the braking unit and braking resistor.
		The deceleration time is too short.	◆ Increase the deceleration time
		The braking unit and braking resistor are not installed	◆ Install the braking unit and braking resistor
Overvoltage at constant speed	FU07	Confirm that the overvoltage suppression function (P3-23) has been made	◆ Confirm that the overvoltage suppression function (P3-23) is enabled; ◆ Overvoltage suppression action voltage (P3-22) setting value is too large, it is recommended to adjust within 770V~700V; ◆ Overvoltage suppression gain (P3-24) setting is too small, it is recommended to adjust within 30 to 50;; ◆ Overvoltage suppression maximum rising frequency (P3-26) setting is too small, it is recommended to adjust within 5~20Hz
		An external force drives the motor during deceleration	◆ Cancel the external force or install the braking resistor

Fault Name	Display	Possible Causes	Solutions
Control power supply fault	FU08	The input voltage is not within the allowable range	◆ Adjust the input voltage to the allowable range
Undervoltage	FU09	Instantaneous power outage	◆ Enable instantaneous stop non-stop function (P9-59) to prevent instantaneous power failure and under voltage failure
		The AC drive's input voltage is not within the allowable range	◆ Adjust the voltage to normal range
		The bus voltage is abnormal	◆ Seek technical support
		Rectifier bridge, buffer resistor, driver board, Control board exception	◆ Seek technical support
AC drive overload	FU10	The load is too heavy or locked- rotor occurs on the motor	◆ Reduce the load and check the motor and mechanical condition.
		The AC drive model is of too small power class.	◆ Select an AC drive of higher power class.
Motor overload	FU11	F9-01 is set improperly.	◆ Set F9-01 correctly.
		The load is too heavy or locked- rotor occurs on the motor.	◆ Reduce the load and check the motor and the mechanical condition
Power output phase loss	FU13	Motor fault	◆ Check if the motor is open
		The lead of the inverter to the motor is not normal.	◆ Troubleshoot peripheral faults
		The AC drive's three-phase outputs are unbalanced when the motor is running.	◆ Check whether the motor three-phase winding is normal
		The drive board and IGBT is faulty.	◆ Seek technical support
Module overheat	FU14	The ambient temperature is too high	◆ Lower the ambient temperature
		The air filter is blocked	◆ Clean the air filter
		The fan is damaged	◆ Replace the damaged fan
		The thermally sensitive resistor of the module is damaged	◆ Replace the damaged thermally sensitive resistor
		The inverter module is damaged.	◆ Replace the inverter module.
External equipment fault	FU15	Input external fault signal via multi-function terminal S	◆ Troubleshoot peripheral faults, confirm that the machine is allowed to restart (P8-18), reset operation

Fault Name	Display	Possible Causes	Solutions
Communicatio fault	FU16	The host computer is not working properly.	◆ Check the host computer wiring
		Communication line is not normal	◆ Check the communication cable
		Communication expansion card P0-28 setting is incorrect	◆ Set the communication expansion card type correctly
		Communication parameter Pd group setting is incorrect	◆ Set communication parameters correctly
		◆ Try to restore factory settings after the above tests.	
Contactor fault	FU17	The drive board and power supply are faulty	◆ Replace the faulty drive board or power supply board
		The contactor is faulty	◆ Replace the faulty contactor.
		Lightning board abnormality	◆ Replace the lightning protection board
Current detection fault	FU18	The HALL device is faulty	◆ Replace the faulty HALL device
		The drive board is faulty	◆ Replace the faulty drive board.
Motor auto- tuning fault	FU19	The motor parameters are not set according to the nameplate	◆ Set the motor parameters according to the nameplate properly
		Parameter identification process timed out	◆ Check the inverter to the motor lead
		Encoder exception	◆ Check if the encoder line number setting is correct. P1-27. Check if the encoder signal line connection is correct and firm.
Encoder fault	FU20	The encoder type is incorrect.	◆ Set the encoder type correctly based on the actual situation
		The cable connection of the encoder is incorrect	◆ Detect PG card power and phase sequence
		The encoder is damaged	◆ Replace the damaged encoder
		The PG card is faulty	◆ Replace the faulty PG card
EEPROM read- write fault	FU21	The EEPROM chip is damaged	◆ Replace the main control board.
Short circuit to ground	FU23	The motor is short circuited to the ground.	◆ Replace the cable or motor.
Accumulative running time reached	FU26	The accumulative running time reaches the setting value	◆ Clear the record through the parameter initialization function
User-defined fault 1	FU27	Enter the user via the multi-function terminal S Customize the signal for fault	◆ Reset the operation

Fault Name	Display	Possible Causes	Solutions
		1	
User-defined fault 2	FU28	Input the signal of user-defined fault 2 via multi-function terminal S	◆ Reset the operation
Accumulative power-on time reached	FU29	The accumulative power-on time reaches the setting value	◆ Clear the record through the parameter initialization function.
Load becoming 0	FU30	The AC drive running current is lower than F9-64	◆ Check that the load is disconnected or the setting of F9-64 and F9-65 is correct
PID feedback lost during running	FU31	The PID feedback is lower than the setting of FA-26	◆ Check the PID feedback signal or set FA-26 to a proper value
Pulse-by-pulse current limit fault	FU40	The load is too heavy or locked- rotor occurs on the motor	◆ Reduce the load and check the motor and mechanical condition
		The AC drive model is of too small power class.	◆ Select an AC drive of higher power class.
Motor switchover fault during running	FU41	Change the selection of the motor via terminal during running of the AC drive.	◆ Perform motor switchover after the AC drive stops.
Too large speed deviation	FU42	The encoder parameters are set incorrectly	◆ Set the encoder parameters properly
		The motor auto-tuning is not performed	◆ Perform the motor auto- tuning
		F9-69 and F9-70 are set incorrectly.	◆ Set correctly based on the actual situation
Motor over-speed	FU43	The encoder parameters are set incorrectly	◆ Set the encoder parameters properly
		The motor auto-tuning is not performed	◆ Perform the motor auto- tuning
		F9-69 and F9-70 are set incorrectly.	◆ Set correctly based on the actual situation

7.3 Common Faults and Solutions

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

SN	Fault	Possible Causes	Solutions
1	There is no display at power-on	There is no power supply to the AC drive or the power input to the AC drive is too low	◆ Check the power supply
		The power supply of the switch on the drive board of the AC drive is faulty	◆ Check the bus voltage
		The cable connecting the control board and the drive board and the operation panel breaks	◆ Re-connect the 30-core cables
		Inverter buffer resistance is damaged	◆ Seek technical support
		The control board or the operation panel is faulty	
		The rectifier bridge is damaged	
2	"510" is displayed at power-on.	The cable between the drive board and the control board is in poor contact	◆ Re-connect the 30-core cables
		Related components on the control board are damaged	◆ Seek technical support
		The motor or the motor cable is short circuited to the ground	
		The HALL device is faulty	
		The power input to the AC drive is too low	
3	"FU23" is displayed at power-on.	The motor or the motor output cable is short-circuited to the ground	◆ Measure the insulation of the motor and the output cable with a megger
		The AC drive is damaged	◆ Seek technical support
4	The AC drive display is normal upon power-on. But "510" is displayed after running and stops immediately	The cooling fan is damaged or locked-rotor occurs	◆ Replace the damaged fan.
		The external control terminal cable is short circuited.	◆ Eliminate external fault.
5	FU14 (module overheat) fault is reported frequently.	The setting of carrier frequency is too high	◆ Reduce the carrier frequency (P0-15)
		The cooling fan is damaged, or the air filter is blocked	◆ Replace the fan and clean the air filter

		Components inside the AC drive are damaged (thermal coupler or others).	◆ Seek technical support
6	The motor does not rotate after the AC drive runs	Check the motor and the motor cables	◆ Ensure the cable between the AC drive and the motor is normal
		The AC drive parameters are set improperly (motor parameters)	◆ Restore factory parameters and reset the usage parameter group ; ◆ Check that the encoder parameters are set correctly and the motor rated parameters are set correctly, such as motor rated frequency, rated speed, etc. ; ◆ Check P0-01 (control mode), P0-02 (operation mode), set correctly ; ◆ In V/F mode, adjust the P3-01 (torque boost) parameter under heavy load starting. .
		The cable between the drive board and the control board is in poor contact	◆ Check and re-set motor parameters.
		The drive board is faulty.	◆ Seek technical support
7	The S terminals are disabled	The parameters are set incorrectly	◆ Check and reset the parameters in group F4
		The external signal is incorrect	◆ Re-connect the external signal cables
		The jumper bar across PLC and +24 V becomes loose	◆ Re-confirm the jumper bar across PLC and +24 V .
		The control board is faulty	◆ Seek technical support
8	The motor speed is always low in FVC mode	The encoder is faulty	◆ Replace the encoder and ensure the cabling is proper
		The encoder cable is connected incorrectly or in poor contact.	◆ Replace the PG card.
		The PG card is faulty.	◆ Seek technical support
		The drive board is faulty	
9	The AC drive reports overcurrent and overvoltage frequently..	The motor parameters are set improperly	◆ Re-set motor parameters or re-perform the motor auto- tuning
		The acceleration/deceleration time is improper	◆ Set proper acceleration/deceleration time
		The load fluctuates.	◆ Seek technical support
10	FU17 is reported upon power-on or running.	The soft startup contactor is not picked up	◆ Check whether the contactor cable is loose ◆ Check whether the contactor is faulty ◆ Check whether 24 V power supply of the contactor is faulty ◆ Seek technical support
11	Motor free stop or no brake when decelerating or decelerating to	Encoder disconnection or overvoltage stall protection takes effect	◆ When there is speed sensor vector control mode (P0-01=1), please check the encoder wiring. ◆ If the brake resistor is configured,

	stop		select "Overvoltage stall enable" to "Invalid" (set P3-23=0), turn off the overvoltage stall.
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Chapter VIII HV500P Communication data address

definition

HV500P series inverter supports Modbus communication protocol, and the host computer can realize the control, monitoring and function parameter modification viewing operation of the inverter through Modbus communication protocol..

HV500P communication data can be divided into function code data and non-function code data. The latter includes running commands, running status, operating parameters, alarm information, etc..

8.1 HV500P Function code data

The function code data is an important setting parameter of the inverter. The HV500P has P group and A group function parameters. The parameter group is as follows:

HV500P Function code data	Group P (read and write)	P0、P1、P2、P3、P4、P5、P6、P7、P8、P9、PA、 PB、PC、PD、PE、PF
	Group A (read and write)	A0、A1、A2、A3、A4、A5、A6、A7、A8、A9、AA、 AB、AC、AD、AE、AF

The function code data communication address is defined as follows:

When reading function code data for communication

For the P0-PF and A0-AF group function code data, the upper eight bits of the communication address are directly the function group number, and the lower eight bits are directly the function code number in the function group:

P0-16 function parameter, its communication address is F010H, where F0H represents the function parameter of P0 group, and 10H represents the hexadecimal data format of serial number 16 in the function group.

AC-08 function parameter, its communication address is AC08H, where ACH represents the AC group function parameter, and 08H represents the hexadecimal data format of the function code in the function group No. 8.

When writing function code data for communication

For the P0-PF group function code data, its communication address is higher than eight bits. It is divided into 00-0F or P0-PF according to whether it is written into EEPROM. The lower eight bits are directly used as the function code in the function group. For example,:

Write function in parameter P0-16

When you do not need to write to EEPROM, its communication address is 0010H

When you need to write to EEPROM, its communication address is F010H

For the A0-AF group function code data, the communication address is higher than eight bits. According to whether it needs to be written into the EEPROM, it is divided into 40-4F or A0-AF. The lower eight bits are directly used as the function code in the function group. For example,:

Write function parameter AC-08H

When you do not need to write to EEPROM, its communication address is 4C08H

When you need to write to EEPROM, its communication address is AC08H

1.2 HV500P Non-functional code data

HV500P Non-functional code data	Status data (readable)	Group d monitoring parameters, inverter fault description, inverter running status
	control parameter (writable)	Control commands, communication setpoints, digital output terminal control, analog output AO1 control, Analog output AO2 control, high speed pulse (FMP) output control, parameter initialization

1、Status data

The status data is divided into d group monitoring parameters, inverter fault description, and inverter running status.

d group parameter monitoring parameters

d group monitoring data is described in Chapter 5 and Chapter 6. The address is defined as follows.:

d0-dF,The upper eight bits of the communication address are 70~7F, and the lower eight bits are the serial numbers of the monitoring parameters in the group.:

D0-11, its mailing address is 700BH

Drive fault description

When the communication reads the inverter fault, the communication address is fixed at 8000H. The host computer can obtain the current inverter fault code by reading the address data. For the fault code description, see Chapter 5, P9-14 Function Code Definition.

Inverter running status

When the communication reads the running status of the inverter, the communication address is set to 3000H. By reading the data of the map, the host computer can obtain the current running status information of the inverter, as defined below.:

Inverter running status communication address	Read status word definition
3000H	1:Forward running
	2:Reverse run
	3:Downtime

2、control parameter

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

control.

control commands

When P0-02 (command source) selects 2: communication control, the host computer can control the start and stop of the inverter through the communication address. The control commands are defined as follows::

Control command communication address	Command function
2000H	1:Forward running
	2:Reverse run
	3:Forward turn
	4:Reverse jog
	5:Free stop
	6:Deceleration stop
	7:Fault reset

3、Communication setting

Communication setting value The main user HV500P frequency source, torque upper limit source, VF separation voltage source, PID reference source, PID feedback source, etc. are selected as the given data for communication timing. The communication address is 1000H, the upper computer is set. When the communication address value is used, the data range is -10000 to 10000, corresponding to a relative given value -100.00% - 100.00%

Digital output terminal control

When the digital output terminal function is selected as 20: communication control, the upper computer can control the digital output terminal of the inverter through the communication address, as defined below.:

Digital output terminal control communication address	Command content
2001H	BiT0:None BiT1:None BiT2:RELAY1 Output control BiT3:RELAY2 Output control BiT4:HD0 Output control

4、Analog output AO1, AO2, high speed pulse output FMP control

When the analog output AO1, AO2, high-speed pulse output FMP output function is selected as 12: communication setting, the host computer can realize the control of the inverter analog quantity and high-speed pulse output through the communication address, as defined below.

Output control communication address		Command content
AO1	2002H	0 to 7FFF means 0% to 100%
AO2	2003H	

5、Parameter initialization

This function is required when it is necessary to initialize the parameters of the inverter through the host computer..

If PP-00 (user password) is not 0, you need to perform password verification first. After the verification is passed, after 30 seconds, the host computer performs parameter initialization..

The communication address for the user password verification is 1F00H, and the correct user password is directly written into the address, and the password verification can be completed.

The address for initializing the parameters of the communication is 1F01H, and the data content is defined as follows:

Parameter initialization address	Command function
1F01H	1:Restore factory parameters
	2:Clear record information
	4:Restore user backup parameters
	501:Back up user current parameters

Chapter IX Modbus communication protocol

HV500P series inverter provides RS485 communication interface and supports Modbus-RTd communication protocol. Users can realize centralized control through computer or PLC, set inverter operation command through this communication protocol, modify or read function code parameters, read inverter Working status and fault information, etc..

9.1 agreement content

The serial communication protocol defines the information content and usage format transmitted in serial communication, including: host polling (or broadcast) format; host encoding method, including: function code requiring action, transmission data and error correction The slave response is also the same structure, including: action confirmation, return data and error check, etc. If the slave receives an error while receiving information, or can not complete the action required by the host, it will organize a fault. Information as feedback to the host.

Application method

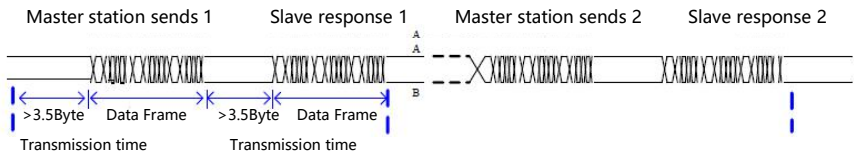
The inverter is connected to the "single-master multi-slave" PC/PLC control network with RS485 bus as the communication slave.

Bus structure

(1) 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.). Communication, parameter reading or writing operation to the slave, other devices are communication slaves, 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 receiving state..

The slave address is set from 1 to 247, and 0 is the broadcast communication address. The slave address in the network must be unique.

(2) Asynchronous serial and half-duplex transmission mode of communication transmission mode. In the process of serial asynchronous communication, data is sent in one frame at a time, as stipulated in the MODBdS-RTd protocol, when the communication data line No data idle time is greater than 3.5 Bytes of transmission time, indicating the start of a new communication frame.

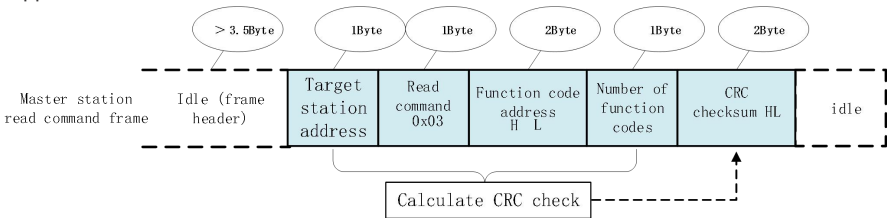


The built-in communication protocol of the HV500P series inverter is the Modbus-RTd slave communication protocol, which can respond to the host's "query/command" or make corresponding actions according to the host's "inquiry/command" and communicate data response..

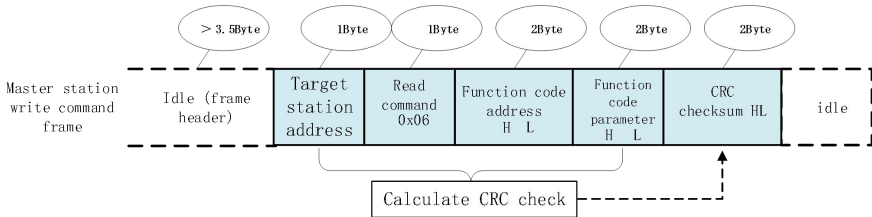
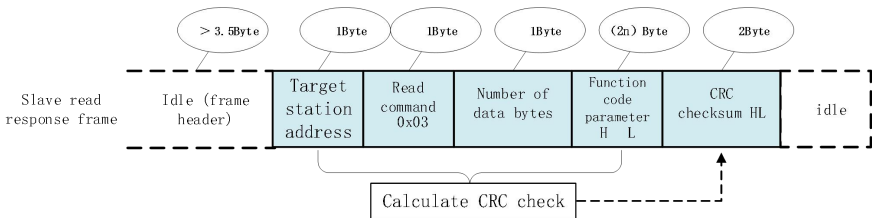
The host can refer to a personal computer (PC), an industrial control device or a programmable logic controller (PLC). The host can communicate with a slave separately and broadcast information to all slaves. The "query/command" is accessed separately, and the accessed slave returns a response frame rate; for the broadcast information sent by the host, the slave does not need to respond to the host..

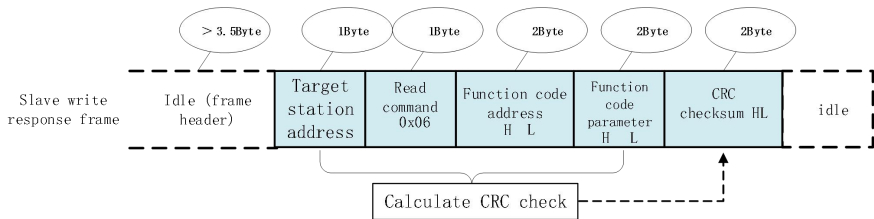
Communication data structure

The Modbus protocol communication data format of HV500P 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.:

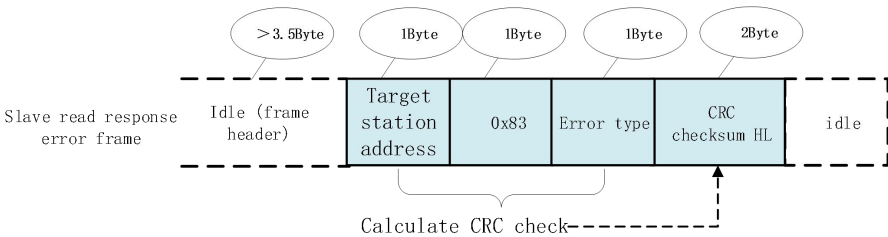


In theory, the host computer can read several consecutive function codes at a time (ie, n can be up to 12), but be careful not to cross the last function code of this function code group, otherwise it will reply with an error..

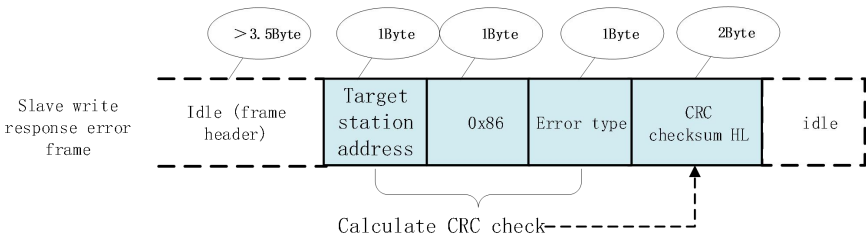




If the slave detects a communication frame error, or the read/write is unsuccessful due to other reasons, it will reply to the error frame.



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



Data frame field description:

Frame header START	Free for more than 3.5 characters of transmission time
--------------------	--

Slave address ADR	Communication 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, expressed in hexadecimal; divided into function code type and non-function code type (such as running Status parameters, running commands, etc.) parameters, etc. See the address definition for details. When transmitting, the high byte is in front and low. Bytes after
Function code address L	
Number of function codesH	The number of function codes read in this frame. If it is 1, it means to read 1 function code. When transmitting, the high byte is first. The low byte is after. This protocol can only rewrite 1 function code at a time, there is no such field.
Number of function codesL	
Data H	The data that is acknowledged, or the data that is close-in, when transmitted, the high byte is first and the low byte is after
Data L	
CRC CHK high	Detection value: CRC16 check value. When transmitting, the high byte is first and the low byte is after For the calculation method, please refer to the description of the CRC check in this section.
CRC CHK low	
END	3.5 character time

CMD Calibration method:

Check mode: CRC check mode: CRC (Cyclical Redundancy Check) uses RTd frame format, the message includes the error detection field based on CRC method. The CRC field detects the content of the whole message. The CRC field is two bytes, including 16-bit binary value. It is calculated by the transmission device and added to the message. The receiving device recalculates the received message CRC and compares it with the value in the received CRC field. If the two CRC values are not equal, then the transmission has error.

The CRC is first stored in 0xFFFF, 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, the start and stop bits, and the parity. Invalid position.

During the CRC generation process, each 8-bit character is different from the register contents (XOR), and the result moves to the least significant bit direction. The most significant bit is padded with 0. The LSB is extracted and detected. If the LSB is 1, the register is separate. It is different from the preset value. If LSB is 0, it will not be performed. The whole process is repeated 8 times. After the last bit (8th bit) is completed, the next 8-bit byte is separated from the current value of the register. The value in the difference or the final register is the CRC value after all bytes in the message are 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:

The next octet is individually different from the current value of the register. The value in the final register is the CRC value after all 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=0xFFFF;
    int i;
    while(length--)
    {
        crc_value^=*data_value++;
        for(i=0;i<8;i++)
        {
            if(crc_value&0x0001)
            {
                return(crc_value)crc_value=(crc_value>>1)
            }
            else
            {
                {
                    }
                }
            }
        }
    }
    crc_value=crc_value>>1;
}
```

Address definition of communic
parameters

Read and write function code parameters (some function codes cannot be changed, only for manufacturers to use or monitor): 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 (P group), A0~AF (Group A), 70~7F (Group d)

Low byte: 00~FF

For example, if the range function code P3-12 is required, the access address of the function code is represented as 0×F30C.;

Note:

PF group: neither parameters nor parameters can be changed; group d: 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	0×F000~0×FEFF	0×0000~0×0EFF
A0~AC	0×A000~0×ACFF	0×4000~0×4CFF
d0	0×7000~0×70FF	

Note that since the EEPROM is frequently stored, it will reduce the service life of the EEPROM. Therefore, some function codes do not need to be stored in the communication mode. It is only necessary to change the value in the RAM..

If it is a P group parameter, to realize this function, it can be realized by changing the upper bit F of the function code address to 0. If it is a group A parameter, to realize this function, just change the high bit A of the function code address to 4 It can be realized. The corresponding function code address is expressed as follows:

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

Low byte: 00~FF

Such as:

Function code P3-12 is not stored in EEPROM, 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 only RAM can be written, and reading cannot be performed. When reading, it is an invalid address..

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

Stop/run parameter section:

Parameter address	Parameter Description	Parameter address	Parameter Description
1000	Communication setting value (decimal)-10000~10000	1010	PID Setting
1001	Operating frequency	1011	PID Feedback
1002	bus voltage	1012	PLC step
1003	The output voltage	1013	High speed pulse input frequency,unit :0.01kHz
1004	Output current	1014	Feedback speed,unit :0.1Hz
1005	Output Power	1015	Remaining running time
1006	Output torque	1016	AI1 pre-correction voltage
1007	Running speed	1017	AI2 pre-correction voltage
1008	S input sign	1018	AI3 pre-correction voltage
1009	HDO output flag	1019	Line speed
100A	AI1 voltage	101A	Current power-on time
100B	AI2 voltage	101B	Current running time
100C	AI3 voltage	101C	High speed pulse frequency input,unit :1Hz
100D	Count value input	101D	Communication setting
100E	Length value input	101E	Actual feedback speed
100F	Load speed	101F	Main frequency A display
		1020	Auxiliary frequency B 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 the frequency dimension data, the percentage is the percentage of the relative maximum frequency (P0-10); for the torque dimension data, the percentage is P2-10, A2-48 (the torque upper limit number is set, respectively corresponding to the One or two motors).

Control command input to the inverter: (write only)

Command word address	Command function
2000	0001:Forward running
	0002:Reverse running
	0003:Forward turn
	0004:Reverse jog
	0005:Free stop
	0006:Deceleration stop
	0007:Fault reset

Read the inverter status: (read only)

Status word address	Status word function
3000	0001:Forward running
	0002:Reverse running
	0003:Stop

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

Password address	Enter the content of the password
1F00	*****

Digital output terminal control: (write only)

Command address	Command content
2001	BIT2:RELAY1 Output control BIT3:RELAY2 Output control BIT4:HDO Output control

Analog output AO1 control: (write only)

Command address	Command content
2002	0~7FFF means 0%~100%

Analog output AO2 control: (write only)

Command address	Command content
2003	0~7FFF means 0%~100%

High-speed pulse output control: (write only)

Command address	Command content
2004	0~7FFF means 0%~100%

Drive fault description:

Inverter fault address	Inverter fault information	
8000	0000: no fault 0001: Reserved 0002: Accelerated overcurrent 0003: Deceleration over current 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 (reserved) 000D: output phase loss 000E: Module overheated 000F: external fault 0010: Communication error 0011: Contactor is abnormal 0012: Current detection fault 0013: Motor tuning failure 0014: Encoder/PG card failure 0015: Parameter read and write exception	0016: Inverter hardware failure 0017: Motor short circuit to ground 0018: Reserved 0019: Reserved 001A: Run time arrives 001B: User-defined fault 1 001C: User-defined fault 2 001D: Power on time arrives 001E: Underload 001F: Loss of PID feedback at runtime 0028: Fast current limit timeout failure 0029: Switching motor failure during operation 002A: Speed deviation is too large 002B: Motor overspeed 002D: Motor over temperature 005A: Encoder line number setting error 005B: Unconnected encoder 005C: The initial position is wrong. 005E: Speed feedback error

Pd Group communication parameter description

Pd-00	Baud rate	Factory default	6005
	Predetermined area	Bit:Modbus baud rate	
		0:300BPS 1:600BPS 2:1200BPS 3:2400BPS 4:4800BPS	5:9600BPS 6:19200BPS 7:38400BPS 8:57600BPS 9:115200BPS

This parameter is used to set the data 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	Modbus 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 is the broadcast address	

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

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

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

Response delay: refers to the intermediate interval between the end of the inverter data reception and the transmission of data to the upper computer. If the response delay is less than the system processing time, the response delay is based on the system processing time, such as the response delay is longer than the system processing time. After the system has processed the data, it is necessary to delay waiting until the response delay time expires before sending data to the host computer.

Pd-04	Communication 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 (FU16). Normally, it is set to be invalid. If continuous communication is in progress In the system, set the secondary parameters to monitor the communication status..

Pd-05	Communication protocol selection	Factory default	30
	Predetermined area	Bit:MODBUS 0: Non-standard MODBUS protocol 1: Standard MODBUS protocol	
		Tens:Profibus-DP(Reserved) 0:PPO1 format 1:PPO2 format 2:PPO3 format 3:PPO5 format	

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.

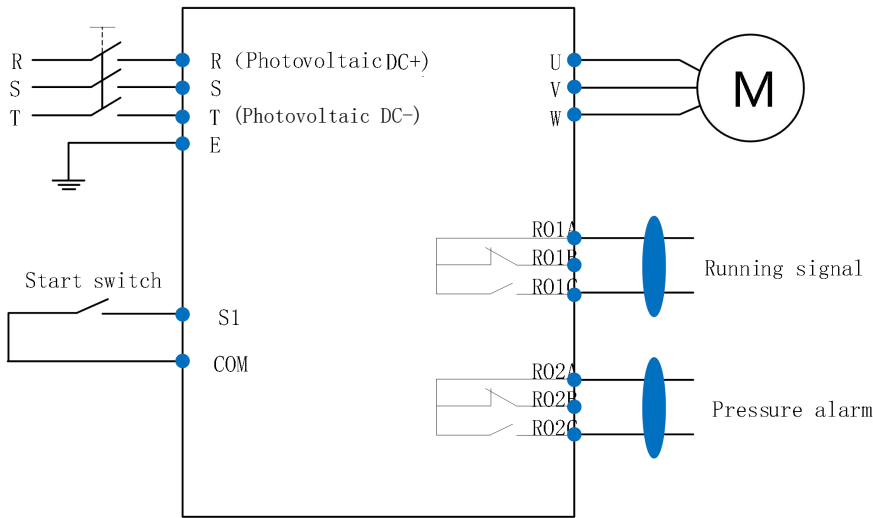
Pd-06	Communication read current resolution	Factory default	0
	Predetermined area	0:0.01A;;1:0.1A	

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

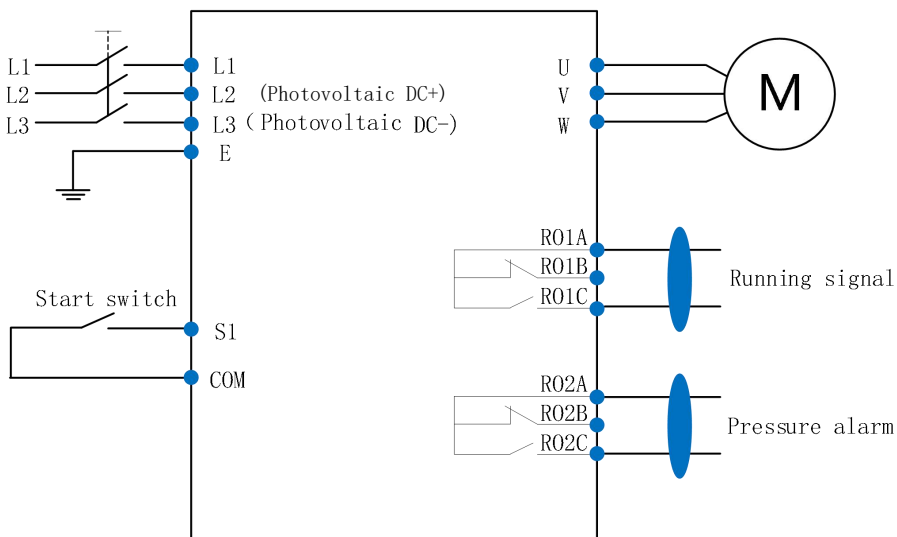
Chapter X The adjustment of the photovoltaic water pumping dedicated controller

1. Wiring

1.1 Wiring as shown in Figure 1、Figure 2、 Figure 3



(Figure 1)

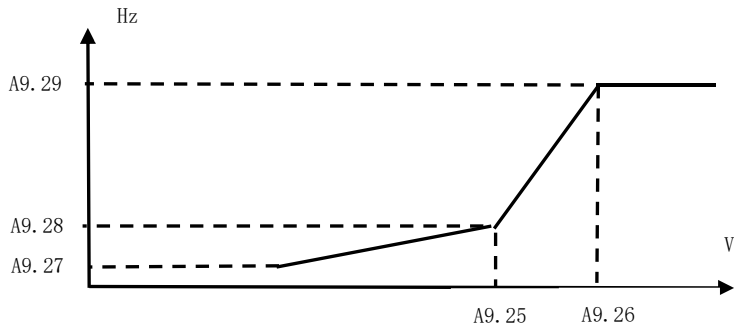


(Figure 2)

- 1.2 reset(PP.01 = 1).
- 1.3 PV water pumping settings(PP.05 = 3).
- 1.4 Closed S1, Start photovoltaic water pumping.

2. Photovoltaic water lifting parameter description

function	Name	Predetermined area	Special function factory value
P0-02	Running command channel	0:Operation panel 1:Terminal instruction 2:Communication instruction	1
P0-03	Main frequency source A command selection	10:Photovoltaic water pumping	10
P0-17	acceleration time 1	0.0S~6500.0S	20.0S
P0-18	deceleration time 1	0.0S~6500.0S	2.0S
PP-01	Parameter initialization	0:No operation 1:Restore factory parameters 2:Clear fault information	0
PP-05	Parameter macro	03:Photovoltaic water lifting special macro	0
A9-22	Starting voltage	220V level:300.0V~380.0V 380V level:500.0V~700.0V	220V level:310.0V 380V level:540.0V
A9-23	Start delay time	0.0S~20.0S	5.0S
A9-24	Photovoltaic voltage point 1	220V level:200.0V~350.0V 380V level:400.0V~600.0V	220V level:200.0V 380V level:420.0V
A9-25	Photovoltaic voltage point 2	220V level:200.0V~350.0V 380V level:400.0V~600.0V	220V level:480.0V 380V level:500.0V
A9-26	Photovoltaic voltage point 3	220V level:200.0V~350.0V 380V level:400.0V~600.0V	220V level:300.0V 380V level:515.0V
A9-27	Frequency point 1	0.00Hz~50.00Hz	5.00Hz
A9-28	Frequency point 2	0.00Hz~50.00Hz	20.00Hz
A9-29	Frequency point 3	0.00Hz~50.00Hz	50.00Hz



(Output voltage frequency graph)

Quality Assurance and Product Warranty

This Regulation is an agreement between the manufacturer that produces the product (hereinafter referred to as the "manufacturer") and the user who purchases or uses the product (hereinafter referred to as the "user"). Anyone who purchases or uses the product provided by the manufacturer will As deemed to understand and agree to this Agreement.

About product quality and warranty

1. Manufacturers provide complete and available products.
2. During the warranty period, damage will be caused due to the following reasons, and a certain maintenance fee will be charged:
 - 1) Machine damage caused by mistakes in use and unauthorized repairs and modifications.
 - 2) Machine damage due to fire, flood, voltage anomalies, other natural disasters and secondary disasters.
 - 3) Machine damage caused by human fall and transportation after purchase.
 - 4) Damage to the machine caused by the operation manual provided by our company.
 - 5) Failure and damage caused by obstacles other than the machine (such as external equipment).

The manufacturer's warranty certificate for the products produced

1. When used domestically:
 - 1) Replacement, repair, and return within one week after shipment.
 - 2) Replacement and repair within one month after shipment.
 - 3) Repair within 12 months after shipment.
 - 4) If the warranty period or warranty is exceeded, a fee will be charged..
2. Exported overseas, repaired within three months after shipment.
3. Enjoy lifelong paid services whenever and wherever you use our branded products.
4. The company's sales, production, and agency throughout the country can provide after-sales service for this product..
5. For products that have failed, the company has the right to entrust others to be responsible for warranty and other matters..

Factory reserved rights and exemptions

1. The manufacturer shall not be liable for any direct or indirect problem losses caused by the installation of this product..
2. The manufacturer reserves all rights to the products, if any, without prior notice, the product is subject to the actual product..
3. The manufacturer has the final right to interpret this product regulation.
4. This regulation can also be used for other products of the manufacturer..

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