✧ PREFACE

Thank you very much for choosing this series of sensorless vector inverter

This manual provides guidance of using the inverter safely and carefully, containing introduction of installation, wiring, parameter list, routine maintenance, operating rules and cautions, etc.

In order to make good use of the inverter properly and safely, please read this manual thoroughly before using. It may lead to abnormal operation and failure, reduce using life, even damage the equipment and cause personal injury if you use it wrongly.

This manual is attachment together with the inverter. Please keep it well and it would be available to engineering and installation personnel, repairing and maintaining during the product functioning period

We has the right to modify and ameliorate products, data and dimensions without notice, so this manual is updated and all the contents in this manual are subject to change without any notice.

Version: V4.0H

Table of Contents

✧ PRECAUTIONS

In order to use the inverter properly and safely, please read this manual carefully before using. And you should follow the requirements of this manual to move, install, run, operate and repair the inverter.

1 Opening

Please check any damage that may have occurred during transportation.

[1] Please check whether the nameplate data of inverter is in accordance with your order, if anything wrong, please contact supplier immediately.

[2] Our product is manufactured, packed and transported in the strict quality system. But in case there is any error, please contact with our company or local agent, we will solve the problem as quickly as possible.

2 Safety regulations

There are two kinds of symbols being related with cautions as follows:

Danger: If user does not operate according to requirements, it will lead to death, grievous bodily harm or severe property loss.

Warning: If user does not operate according to requirements, it will lead to injury or damage of inverter.

2.1 Installing

[1] Do not put the inverter on the combustible material.

[2] THIS series inverter can't install in the explosive ambient.

[3] Do not drop other material into the inverter.

2.2 Wiring

[1] It must be operated by professional worker when wiring.

[2] Please be sure to turn off the power supply at least 10 min before wiring.

[3] Inverter and motor must be grounded correctly.

[4] Be sure to wire or inspect the inverter after power-off at least10 minutes.

3 Attention Notes:

[1] Be sure to install the inverter in a well-ventilated ambient.

[2] The temperature at variable-frequency will be higher than at line-frequency, which is normal phenomenon.

[3] When the altitude is over 1000m, the inverter will be valid to decrease the rated current, and the rated current will decrease 10% when the attitude is increased 1500m.

4 Dispose:

When you dispose inverter and its parts, please pay attention to:

Capacitor: The capacitors in inverter may explode when they are burned.

Plastic: Poisonous gas may be generated when the front panel is burned, please pay attention to the waste gas when the plastic parts are burned.

Method: Please dispose inverter as industry rubbish.

1. INTRODUCTION

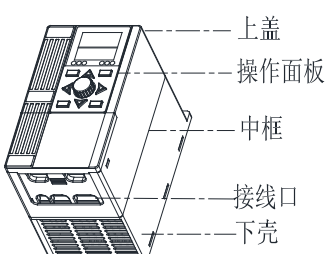
1.1 Model explanation

The inverter model is used to characterize the inverter power, input voltage and phase number, output voltage and phase number, etc,

The details shall be subject to the nameplate model.

1.2 Appearance description

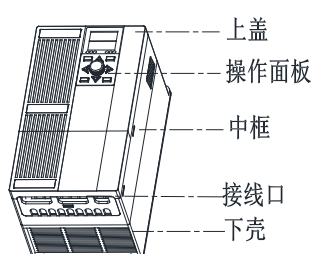
1.2.1 Appearance of model I



It is fit for：

220V-0.7KW ～ 220V-5.5KW

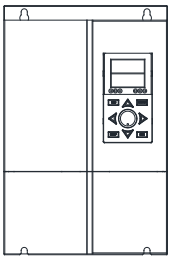
380V-1.5KW ～ 380V-7.5KW



It is fit for：

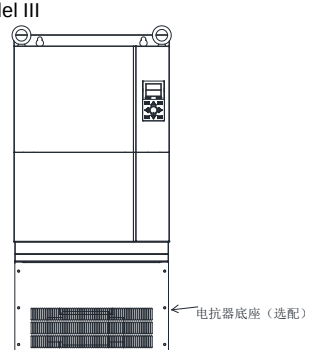
380V-7.5KW-M~380V-37KW

1.2.2 Appearance of model II



It is fit for：380V-37KW-M ~ 380V-132KW

1.2.3 Appearance of model III



It is fit for：380V-132KW-M ~ 380V-500KW

1.3 Model of Inverter

Model	General load (G-load)			Pump and fan load (P-load)		
	Rated Power (KVA)	Rated output current （A）	Applied motor Power (KW)	Rate Powe (W)	Rated output current （A）	Applied Motor Power (KW)
220V-0.7KW	1.9	5	0.75	--	--	--
220V-1.5KW	2.9	7	1.5	--	--	--
220V-2.2KW	3.8	10	2.2	--	--	--
220V-4.0KW	5.7	16	4.0	--	--	--
220V-5.5KW	8.5	20	5.5	--	--	--
380V-1.5KW	2.4	4.5	1.5	--	--	--
380V-2.2KW	3.6	5.5	2.2	--	--	--
380V-4.0KW	6.3	9.0	4.0	--	--	--
380V-5.5KW	8.6	13	5.5	--	--	--
380V-7.5KW	11	17	7.5	--	--	--
380V-11KW	16.5	25	11	--	--	--
380V-15KW	20.0	30	15	--	--	--
380V-18.5KW	25.7	39	18.5	--	--	--
380V-22KW	29.6	45	22	--	--	--
380V-30KW	39.5	60	30	--	--	--
380V-37KW	49.4	75	37	--	--	--
380V-45KW	60	91	45	--	--	--

Model	General load (G-load)			Pump and fan load (P-load)		
	Rated Power (KVA)	Rated output current （A）	Applied motor Power (KW)	Rate Powe (W)	Rated output current （A）	Applied Motor Power (KW)
380V-55KW	73.7	112	55	--	--	--
380V-75KW	98.7	150	75	--	--	--
380V-90KW	116	176	90	--	--	--
380V-110KW	138	210	110	--	--	--
380V-132KW	171	260	132	--	--	--
380V-160KW	204	310	160	--	--	--
380V-185KW	237	360	185	--	--	--
380V-200KW	253	385	200	--	--	--
380V-220KW	276	420	220	--	--	--
380V-250KW	313	475	250	--	--	--
380V-280KW	352	535	280	--	--	--
380V-315KW	395	600	315	--	--	--
380V-350KW	428	650	350	--	--	--
380V-400KW	480	730	400	--	--	--
380V-450KW	527	800	450			
380V-500KW	592	900	500			

1.4 **Specifications**

Input	Rated Voltage and freq.	Three-phase（4T） 380V, 50/60Hz	Single-phase（2S） 220V； 50/60Hz
	Permissible voltage fluctuation	Three-phase（4T） 300V ~ 460V	Single-phase（2S） 170V ~ 270V
Output	Voltage	Three-phase (4T) 0 ~380V	Single-phase(2S) 0~220V
	Frequency	0~600Hz	
	Over-loading Endurance	110% rated current for long-term； 150% rated current for 1min； 180% rated current for 2s	
Control Characteristics	Control System	V/F control	Sensorless current vector-control
	Torque start	the torque is 180% rated torque.	
	Speed range	1 ： 100	1 ： 200
	The lasting accuracy	±0.5%	±0.1%
	response time	≦ 20ms	≦ 5ms
	V/F curve	And V/F curve with multi-mode can be discretionally set. There are also three curves provided, Constant torque curve, Dec torque curve 1 and Dec torque curve 2.	
	Torque boost	Manual torque boost can be set between 0 and 20 percent； Automatic torque boost can be set according to output current.	

	Current / voltage restraint	Current close-circuit control can avoid the current attack.
Freq. Control Resolution	Analog Input	0.1% of maximum output freq.
	Digital Input	0.01Hz
Freq. Precision	Analog Input	Within 0.2% of maximum output freq.
	Digital Input	Within 0.01% of setting freq.
Typical Functions	Multi-speed selection And Wobble freq. running	Up to 8 stages of programmable multi-speed control, 6 kinds of running mode Wobble freq. function is composed of preset freq., center freq. adjusted and saving state and restart when inverter just had power off.
	PID control	Embedded PID controller can preset freq.
	RS485 communicatio n	Standard positioning RS485 Manifold communication protocols can be selected(MODBUS), having synchronous linkage function.
	Automatic energy saving	Input voltage and compensation for speed drop is adjusted by real-time output current.
	Voltage stabilizing running Automatically	To get the most stable running effect, user can select static stabilizing voltage, dynamics stabilizing voltage and non-stabilizing voltage.
	Determine speed and restart	To use the function of Smooth restarting and stop restarting during motor works.
	Counter	Embedded one counter, which will help the integration of system

	carrier frequency	1.5~12.0KHz ；
Freq. Setting	Analog input	DC 0～10V，DC current 0～20mA
	Digital input	It can be set by Operation panel, RS485, UP/DW terminal and combination setting.
Output Signa	Analog output	one output：0~10V voltage, 0~20mA current, and upper/lower limit can be set by user
	Digital output	Two OC output, 16 options can be selected, faults electric delay out can be selected .
Brake	Regenerative braking	75% above
	DC braking	Start and stop can be selected respectively, action freq. is form 0 to 50.0Hz, and action time is form 1 to 20.0s. Continuous action is also optional.
Protection/Warning Functions		Over current, over voltage, under current, under voltage, thermal relay, overheating, Short circuit, out voltage would be short of the phase, The parameters of motor is abnormal, Main contactor can't attract, Internal memory faults, etc.
Environmental Conditions	Ambient temperature	-10℃~+50℃
	Ambient	under 90%
	Ambient atmosphere	indoors (non-corrosive、non-inflammable、non-oil, non- fog etc.
	Altitude	lower than 1000m
	Enclosure	IP20
	Cooling	the cooling mode
	Vibration level	< 20m/s

2. INSTALLATION GUIDELINES

2.1 Environmental requirements:

This inverter is hanging model, so it should be in vertical way. In order to ensure the air circulation around the inverter to aid in cooling, there should be enough space around the inverter shown as Fig. 2-1-A. Add the air deflector when apply the up-down installation shown as Fig. 2-1-B.

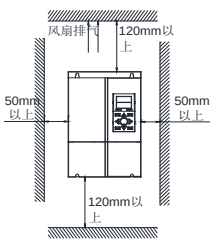


Fig2-1-A Interval distance

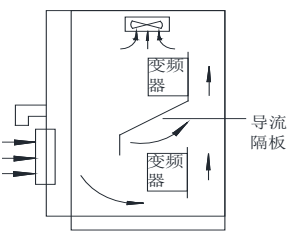
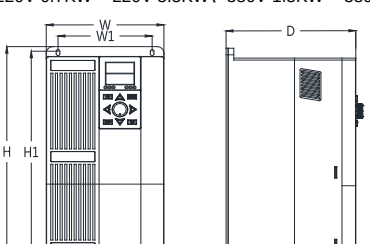


Fig2-1-B Multi-inverter Installation

2.2 Dimension of inverter

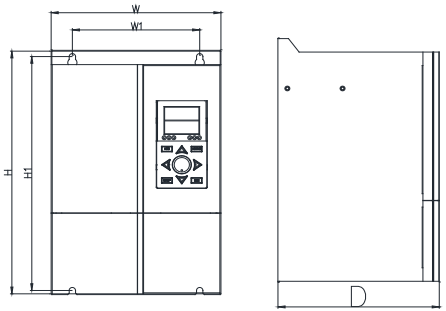
2.2.1 Model Ⅰ

It is fit for： 220V-0.7KW ~ 220V-5.5KW、380V-1.5KW ~ 380V-37KW



2.2.2 Model Ⅱ

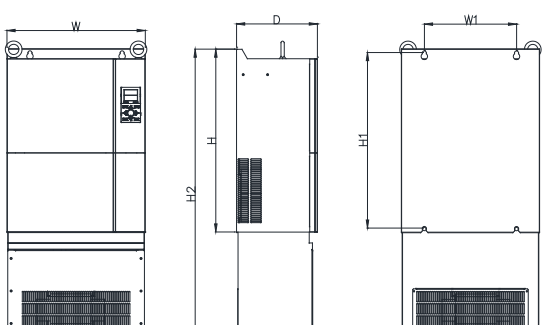
It is fit for：380V-37KW-M ~ 380V-132KW



2.2.3 Model Ⅲ

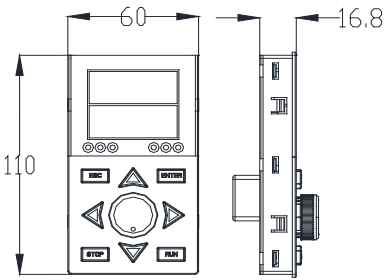
It is fit for：380V-132KW-M ~ 380V-500KW

Note: The H2 parameter in the figure represents the height dimension after adding a reactor to the frequency converter. Reactor is an optional accessory. If a reactor is not required, refer to item H for height dimensions.

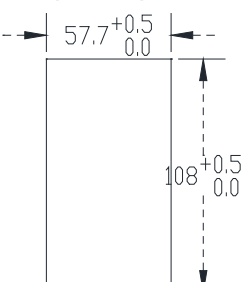


2.3 Operation panel size

2.3.1 Overall dimension of operation panel



2.3.2 Opening size of operation panel



The above dimensions are the recommended opening dimensions for directly fixing the operation panel on the electrical cabinet door (i.e. without matching the installation base of the operation panel);

For the dimension drawing of the mounting base of the operation panel and the opening dimension drawing of the mounting base of the operation panel, please refer to the instructions in the options in the appendix of this manual.

2.4 Installation dimension of inverter is shown as following table

Inverter model	W1	W	H1	H	H2	D	Screw
220V-0.7KW	76	101	182	190	--	156	M4
220V-1.5KW							
220V-2.2KW							
220V-4.0KW							
220V-5.5KW							
380V-1.5KW							
380V-2.2KW							
380V-4.0KW							
380V-5.5KW							
380V-7.5KW							
380V-7.5KW-M	100	146	266	278	--	178	M5
380V-11KW							
380V-15KW							
380V-18.5KW							
380V-18.5KW-M	136	170	308	321	--	188	M5
380V-22KW							
380V-30KW							
380V-37KW							
380V-37KW-M	140	210	454	470	--	198	M10
380V-45KW							
380V-45KW-M	160	250	458	480	--	202	M10
380V-55KW							
380V-75KW	200	290	544	565	--	225	M10
380V-90KW							
380V-110KW	220	340	700	720	--	238	M10
380V-132KW							
380V-132KW-M	253	413	823	845	1246	238	M10
380V-160KW							
380V-185KW							

Inverter model	W1	W	H1	H	H2	D	Screw
380V-185KW-M	300	500	966	983	1396	260	M10
380V-200KW							
380V-220KW							
380V-250KW							
380V-280KW							
380V-315KW							
380V-315KW-M	300	500	1238	1260	1750	280	M12
380V-350KW							
380V-400KW							
380V-450KW							
380V-500KW							

Note: “-M” means larger volume under the same power

3. WIRING PROCEDURE

3.1 Precautions:

3.1.1. Installing a middle breaker between inverter and power supply in order to avoid enlarging the accident.

3.1.2. Reducing the electromagnetic interference (EMI), please connect surge absorber to the coils of electromagnetic contactors, relays, etc.

3.1.3. Separating the main circuit wire from the signal/process circuit wiring，paralleled wiring should be at a distance of over 10cm and crossed wiring should be vertical with each other.

3.1.4. The wire must be less than 30m between motor and inverter. When the length of wire is over 30m, the carrier frequency of inverter should be reduced properly.

3.1.5. Compressive resistance of all the wire should match with the voltage grade of inverter.

It is not allowed that U、V、W of inverter connect with the surge absorber capacitor or other surge absorber equipment and shown as following Fig..

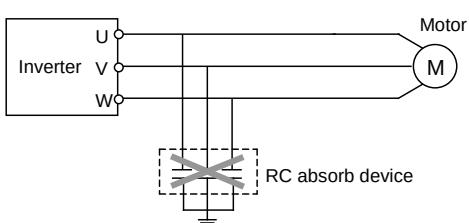


Fig.3-1 It is prohibited to connect RC absorb apparatus

3.2 Wiring of External Components

3.2.1 External Components

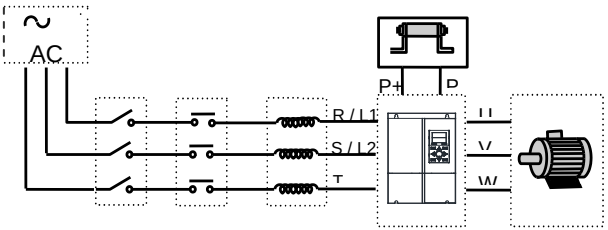


Fig.3-2 wiring

- Power Supply

  It is according to the rated input power specifications in manual.

- Air-break switch

  1. When the inverter is in maintenance or leave-unused, the air-break switch should isolate the inverter with power supply.
  2. Input side of inverter takes place the fault of short-circuits or low-voltage, the air-break will take the protection.

- Contactor

  Control the power-on or power-off of inverter expediently.

- AC electric reactor

  1. Improve the power factor.
  2. Reduce the harmonic wave input for the electric network.
  3. Weaken the imbalance effect on 3-phase power voltage.

- Brake resistor

  In the situation of regenerative braking, avoiding bringing voltage too highly.

3.2.3 Specification of commanded equipment is shown as following table.

Model	Applied Motor（KW）		**Wire spec (Main circuit) (mm^2)**	Air-break （A）	Magnetic contactor （A）
	G-load	P-load			
220V-0.7KW	0.7	--	4	20	18
220V-1.5KW	1.5	--	4	20	18
220V-2.2KW	2.2	--	6	32	18
220V-4.0KW	4.0	--	6	40	32
220V-5.5KW	5.5	--	10	63	32
380V-1.5KW	1.5	--	2.5	16	12
380V-2.2KW	2.2	--	4	16	12
380V-4.0KW	4.0	--	4	25	16
380V-5.5KW	5.5	--	6	32	22
380V-7.5KW	7.5	--	6	40	32
380V-11KW	11	--	10	63	32
380V-15KW	15	--	10	63	38
380V-18.5KW	18.5	--	16	80	45
380V-22KW	22	--	16	100	63
380V-30KW	30	--	25	125	75
380V-37KW	37	--	25	160	95
380V-45KW	45	--	50	200	115
380V-55KW	55	--	50	200	150
380V-75KW	75	--	70	250	170
380V-90KW	90	--	70	315	225
380V-110KW	110	--	95	400	225
380V-132KW	132	--	95	400	330

Model	Applied Motor（KW）		**Wire spec (Main circuit) (mm^2)**	Air-break （A）	Magnetic contactor （A）
	G-load	P-load			
380V-160KW	160	--	150	630	330
380V-185KW	185	--	150	630	400
380V-200KW	200	--	185	630	400
380V-220KW	220	--	185	800	500
380V-250KW	250	--	240	800	500
380V-280KW	280	--	240	1000	630
380V-315KW	315	--	300	1250	630
380V-350KW	350	--	300	1250	780
380V-400KW	400	--	400	1600	780
380V-450KW	450	--	400	1600	900
380V-500KW	500	--	450	1800	1000

3.3 Basic wiring

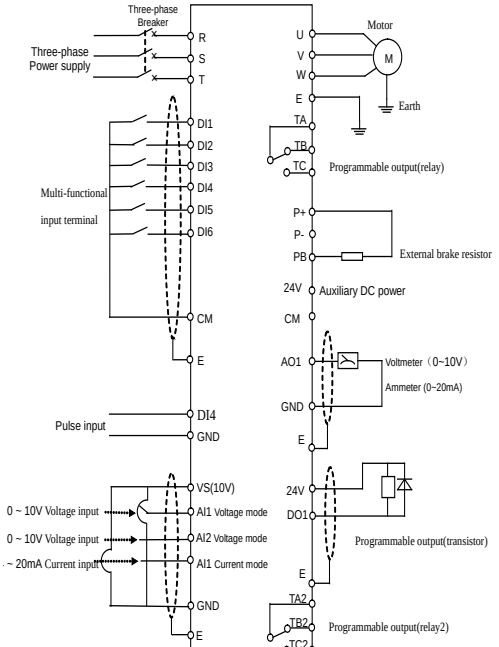


Fig.3-3 inverter basic wiring

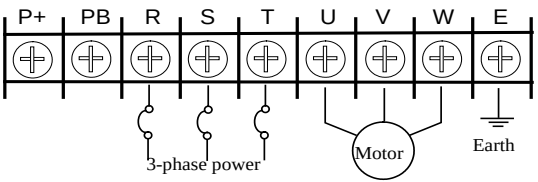
Note 1: if it is a single-phase 220V input frequency converter, the power supply is connected to the "L1" and "L2" terminals (depending on the frequency converter model)

Note 2: some terminals (such as AI2、TA2/TB2/TC2, etc.) may not exist on some power frequency converters, and the specific configuration shall prevail (refer to the subsequent chapters on the main circuit and control circuit terminals)

3.4 Terminal of main circuit

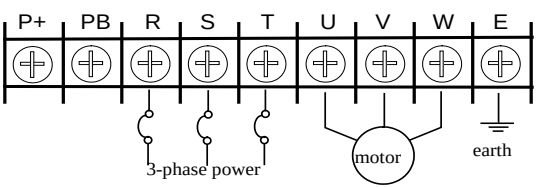
3.4.1. Class I main circuit terminal

Applicable model: 220V-0.7KW~220V-2.2KW/380V-1.5KW~380V-5.5KW



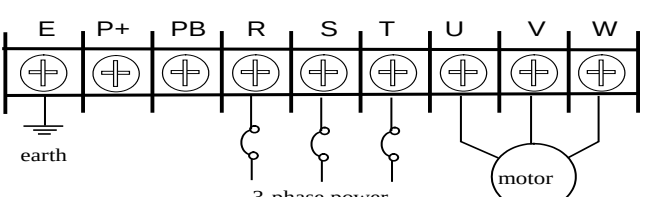
3.4.2. Class **II** main circuit terminal

Applicable model: 220V-4.0KW~220V-5.5KW/380V-7.5KW



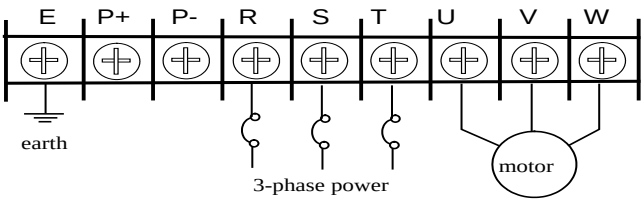
3.4.3. Class Ⅲ main circuit terminal

Applicable model: 380V-7.5KW-M~380V-18.5KW



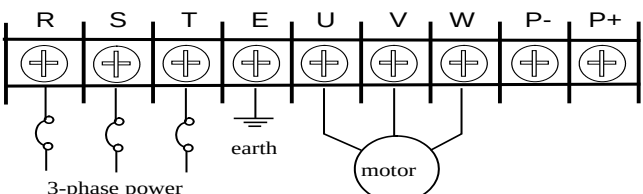
3.4.4. Class Ⅳ main circuit terminal

Applicable model: 380V-18.5KW-M -380V-37KW



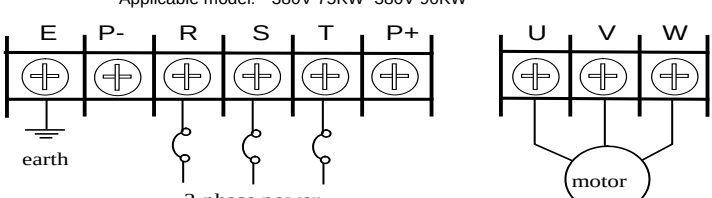
3.4.5 Class Ⅴ main circuit terminal

Applicable model: 380V-45KW~380V-55KW



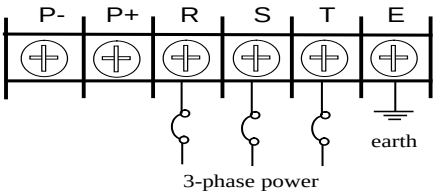
3.4.6 Class Ⅵ main circuit terminal

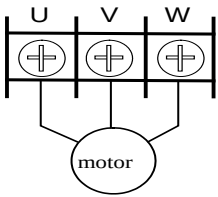
Applicable model: 380V-75KW~380V-90KW



3.4.7 Class Ⅶ main circuit terminal

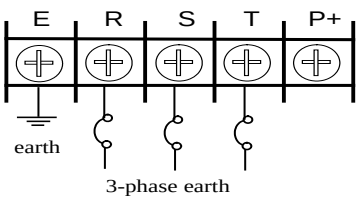
Applicable model: 380V-110KW~380V-132KW

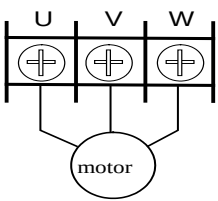




3.4.8 Class Ⅷ main circuit terminal

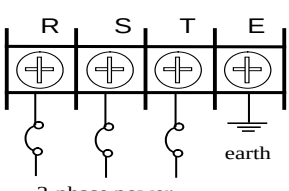
Applicable model: 380V-160KW~380V-315KW

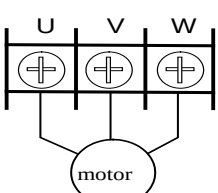




3.4.9 Class Ⅸ main circuit terminal

Applicable model: 380V-350KW~380V-500KW



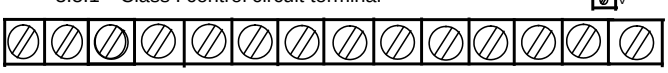


Description of terminal:

Terminal	Function
P	Positive Terminal of DC Negative
P-	Negative Terminal of DC / DC brake unite can be connected between P and P-.
P+	DC electric Reactor can be connected between P and P+.
PB	DC brake resistance can be connected between P and PB.
R、S、T	Connecting three-phase AC power supply
U、V、W	Connecting three-phase AC motor
E	Earth Terminal

3.5 Terminal of Control circuit

3.5.1 Class I control circuit terminal



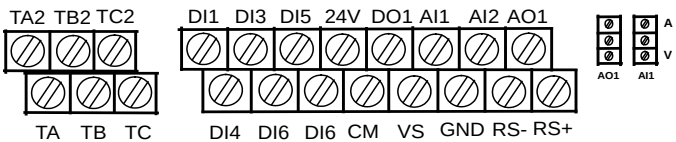
Applicable model: 220V-0.7KW~220V-5.5KW / 380V-1.5KW~380V-7.5KW

Note 1: The single row of pins on the right side of the control circuit terminal is used to switch the AI1 input signal format. The jump cap is the default short circuit between the middle pin and the lower pin (the pin next to the letter V), corresponding to a 0-10V voltage input; If you need to input a 0-20mA current signal, you need to reinsert the jump cap to short it to the middle pin and the upper pin (the pin next to the letter A); The single row pin in the upper right corner (above the VS terminal) is used to switch the AO1 output signal format. The jump cap is the default short circuit between the middle pin and the lower pin (pin next to the VS terminal), corresponding to a 0-10V voltage output;

If you need to output a 0-20mA current signal, you need to reinsert the jump cap to short it to the middle pin and the upper pin;

Note 2: The RS485 communication terminals (RS+and RS -) of this adapter model are on an additional 485 communication card and are not reflected in this figure;

3.5.2 Class Ⅱ control circuit terminal



Applicable model: 380V-7.5KW-M~380V-500KW

Note: The two sets of single row pins on the right side of the control circuit terminal are used to switch the input and output signal formats of AI1 and AO1. The jump cap is the default short circuit between the middle pin and the lower pin (the pin next to the letter V), corresponding to the 0-10V voltage input and output; If you need to input 0-20mA current for input and output, you need to reinsert the jump cap to short it to the middle pin and the upper pin (the pin next to the letter A);

3.5.3. Description of control-circuit terminal:

Type	Terminal	Function	Notes
Analog IO	AI1—GND	Analog voltage signal input 1	0~10V or 4-20mA (Jump cap selection)
	AI2—GND	Analog voltage signal input 2	0~10V
	AO1—GND	Analog voltage signal output 1	0~10V output some models)

Type	Terminal	Function	Notes
Digital IO	DI1—CM	Multi-function input terminal 1	Passive contact input
	DI2—CM	Multi-function input terminal 2	
	DI3—CM	Multi-function input terminal 3	
	DI4—CM	Multi-function input terminal 4	
	DI5—CM	Multi-function input terminal 5	
	DI6—CM	Multi-function input terminal 6	
	24V—DO1	Open-circuit collector output 1	The maximum load-current is 50mA
	24V—DO2	Open-circuit collector output 2	
	TA- TB-TC	TA：Common TB：Normally closed TC：Normally open	Relay output AC 250V/1A
	TA2- TB2-TC2	TA2：Common TB2：Normally closed TC2：Normally open	Relay2 output AC 250V/1A
power	VS or 10V	Analog power	The maximum load-current is 10mA
	GND	Common terminal of analog signal and analog power	
	24V	Digital power	The maximum load-current is 50mA
	CM	Common terminal of digital signal and digital power	
RS485	RS＋	RS485 communication interface	MODBUS-RTU
	RS－		

4. OPERATIONS OF INVERTER AND SIMPLE RUNNING

4.1 Operation panel

4.1.1 Panel layout

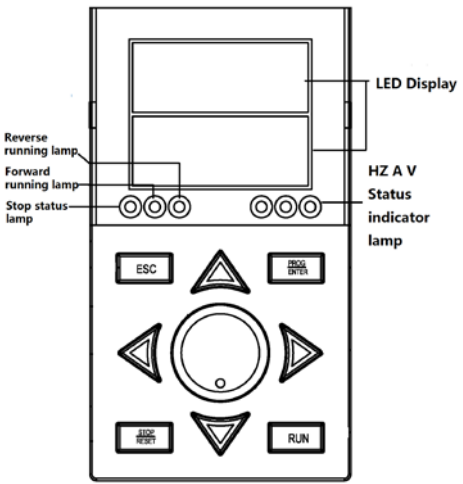


Fig.4-1-A Panel Layout

4.1.2 Keypad functions

Item	Function
Main LED	It displays current state and setting parameter.
S Light	Operation indicator light. The inverter is STOP
F Light	Operation indicator light. The inverter is running forward
R Light	Operation indicator light. The inverter is running backward
A、Hz、V Light	The corresponding unit of current display

	When the frequency converter is in the panel start stop mode, press this key to make the frequency converter run forward
	Stop and Reset key.
	Return key Press this key in normal monitor state to enter query mode of not normal monitor state /monitor parameters to check running state. In any state, press this key to return the upper state.
	Program / ENTER key. Confirm the current state or parameter (the parameter is stored in the internal memory)
	Data modify key It is used to modify the function code and parameter. In state monitor mode, if P1.00 is 0, press this key will modify the frequency instruction.
	Shift key. In addition to the regular shift function, the shift key also has the following functions Left shift: The default left shift is set to P1.48=1, which becomes the reverse run key; Right shift: The default is right shift. Pressing this button on the normal monitoring page can alternately switch the display of output frequency, output current, bus voltage, internal temperature, and other data.

4.2 List of state monitor parameter

Monitor	Content	Unit	address
d0.00	Current output frequency	Hz	D000
d0.01	Current output current(RMS)	A	D001
d0.02	DC bus voltage	V	D002
d0.03	Temperature of module	°C	D003
d0.04	output voltage (Valid)	V	D004
d0.05	Rotate speed of motor	rpm	D005
d0.06	Input voltage of inverter	V	D006
d0.07	Setting freq.	Hz	D007
d0.08	Count value of Internal counter		D008
d0.09	PID setting value		D009
d0.10	PID feedback value		D00A
d0.11	Reserved		D00B
d0.12	Reserved		D00C
d0.13	Analog input AI1（voltage）	V	D00D
d0.14	Analog input AI2（voltage）	V	D00E
d0.15	Pulse frequency reception value	mA	D00F
d0.16	Reserved	KHz	D010
d0.17	State of input terminal		D011
d0.18	Analog output AO1		D012
d0.19	Analog output AO2		D013
d0.20	Magnetization current	A	D014
d0.21	Magnetization current setting	A	D015
d0.22	Reserved	A	D016
d0.23	Reserved	A	D017
d0.24	Reserved	Hz	D018
d0.25	Reserved		D019

Monitor	Content	Unit	address
d0.26	First fault record		D01A
d0.27	Second fault record		D01B
d0.28	Third fault record		D01C
d0.29	Fourth fault record		D01D
d0.30	Fifth fault record		D01E
d0.31	Sixth fault record		D01F
d0.32	Output frequency of last fault	Hz	D020
d0.33	Setting frequency of last fault	Hz	D021
d0.34	Output current of last fault	A	D022
d0.35	Output voltage of last fault	V	D023
d0.36	DC voltage of last fault	V	D024
d0.37	Temperature of module of last fault	°C	D025
d0.38	U-phase output current (Reference)	A	D026
d0.39	V-phase output current (Reference)	A	D027
d0.40	W-phase output current (Reference)	A	D028
d0.41	Overload value of frequency converter	%	D029
d0.42	Overload value of motor converter	%	D02A
d0.43	output power		D02B
d0.44	DC BUS ripple coefficient	%	D02C

5. PARAMETERS LIST

Symbol description:

★ means that this parameter can not be changed during operation.

▲ means that this parameter is related to the inverter's model.

Code	Name	Setting range	Default value	Add-ress
P0.00	G/P selection	0000：General-purpose lode 0001：Fan and pump lode	0000	F000
P0.01	Parameter write-protect	0：All parameters are allowed to be modified 1：Forbid to modify except P0.01	0	F001
P0.02	The upper limit frequency	[P0.07] ~[P0.08]	50.0	F002
P0.03	Parameter initialization	0：Parameter initialization is off. 1：Parameter initialization is on. 2：Clean fault records	0	F003
P0.04	Manufactory password	0 ~ 9999	0000	F004
P0.05	Monitor item selection 1	Four&third part of LED: shutdown display 00~79：Refer to the D parameter group to display Second&first part of LED: run display 00~79：Refer to the D parameter group to display	0700	F005
P0.06	Monitor item selection 2		0101	F006
P0.07	The lower limit frequency	0.0 Hz~ [P0.02]	0.0	F007
P0.08	The Maximum frequency	[P0.07] ~999.9Hz	50.00	F008
P0.09	Rated frequency of motor	5.00～999.9Hz	50.00	F009
P0.10	Rated voltage of motor	200～500V 100～250V	380 220	F00A

Code	Name	Setting range	Default value	Add-ress
P0.11	Carrier wave frequency	1.5~ 12.0 KHz *The maximum carrier frequency is limited by the model*	▲	F00B
P0.12	Carrier wave characteristics	*Count from the right The first part of LED 0：The relation between low frequent and Carrier wave is off. 1：The relation between low frequent and Carrier wave is on. The second part of LED 0：The relation between output current and Carrier wave is off. 1：The relation between output current and Carrier wave is on. The third part of LED 0：The relation between module temp and Carrier wave is off. 1：The relation between module temp and Carrier wave is on.	1110	F00C
P0.13	auxiliary frequency source	0：Fre-setting by panel(saved after p.off) 1：Fre-setting by panel(unsaved after p.off) 2：RS485 interface 3：Panel potentiometer 4：External voltage signal AI1 5：External voltage signal AI2 6：Internal multi segment speed 7：PID setting 8：Terminal multi segment speed 9：High speed pulse setting	0	F00D
P0.15	the range of the auxiliary overlaying	0%～150%	100%	F00F
P0.16	the Benchmark of the auxiliary freq. Overlaying	0: Relative to [P0.08] 1: Relative to [P1.00]	0	F010
P0.18	Acc and dec unit	0: 1s 1: 0.1s	1	F012
P0.19	Current zero drift calibration	0: Not enabled 1: Enable	0	F013

Code	Name	Setting range	Default value	Add-ress
P0.20	panel STOP key function settings	0: only valid for panel mode 1: All start stop modes are valid *(Press to stop freely without alarm)* 2: All start stop modes are valid *(Press to stop freely and report EC.16)*	0	F014
P0.22	Current AD zero drift allowable	0.1A～20.0A *(Displayed 0 when the output current is less than this value)*	▲	F016
P1.00	Main frequency source	0：Fre-setting by panel(saved after p.off) 1：Fre-setting by panel(unsaved after p.off) 2：RS485 interface 3：Panel potentiometer 4：External voltage signal AI1 5：External voltage signal AI2 6：Internal multi segment speed 7：PID setting 8：Terminal multi segment speed 9：High speed pulse setting	3	F100
P1.01	Frequency digital setting	0.00 ~ P0.08	50.00	F101
P1.02	UP/DW frequency shutdown clear selection	**Count from the right* The second part of LED： 0：Setting freq will keep when stopping 1：Setting freq will save in P1.01 when stopping	0000	F102
P1.03	Modified rated of UP/DW terminals	0.01～50.0Hz/Sec	10.00	F103
P1.04	Fre-source superposition selection	**Count from the right* The first part of LED: Fre-source selection 0：Main frequency source 1：Main and auxiliary operation results 2：Main and auxiliary switching results 3：Main and operation results switching 4：auxiliary and results switching The second part of LED：Relationship between Main and auxiliary 0：A+B 1：A-B 2：Max(A,B) 3：Min(A,B)	0002	F104

Code	Name	Setting range	Default value	Add-ress
P1.05	Operation channel selection	0：Panel control 1：External terminals control 2：RS485 interface	0000	F105
P1.06	Combination methods of instruction terminals	0：Two-line mode A 1：Two-line mode B 2：Three-line mode A 3：Three-line mode B 4：Three-line mode C	0	F106
P1.07	Acc time 1	0.1S ～ 999.9 S(P0.18 = 1) 1 S ～ 9999 S (P0.18 = 0)	▲	F107
P1.08	Dec time 1	0.1S ～ 999.9 S(P0.18 = 1) 1 S ～ 9999 S (P0.18 = 0)	▲	F108
P1.09	Acc time 2	0.1～6000 Sec	▲	F109
P1.10	Dec time 2	0.1～6000 Sec	▲	F10A
P1.11	Acc time 3	0.1～6000 Sec	▲	F10B
P1.12	Dec time 3	0.1～6000 Sec	▲	F10C
P1.13	Acc time 4 /Jog Acc time	0.1～6000 Sec	▲	F10D
P1.14	Dec time 4 /Jog Dec time	0.1～6000 Sec	▲	F10E
P1.15	Jog frequency	0.0～P0.08	5.00	F10F
P1.16	Acc and dec reference fre.	0：The maximum frequency 1：setting frequency	0	F110
P1.17	Start ratio of S curve	0.0~ 100.0%	30.0	F111
P1.18	End ratio of S curve	0.0~ 100.0%	30.0	F112
P1.19	Start mode	0000：Routine mode 0001：Detect speed and restart *(P1.44、P1.45)*	0	F113
P1.20	Start frequency	0.0～10.00Hz	0.5	F114
P1.21	Start frequency duration	0.0～20.0 Sec	0.0	F115
P1.22	DC braking current when starting	0.0 ～ 150.0（%）	50.0	F116
P1.23	DC braking time when starting	0.0 ～ 20.0 Sec	0.0	F117

Code	Name	Setting range	Default value	Add-ress
P1.24	Acc and dec curve type	0: Line 1: S-curve	0	F118
P1.26	Stop mode	The first part of LED: Normal shutdown The second part of LED: Jog stop 0：Decelerate mode 1：Uncontrolled stop mode	0000	F11A
P1.27	Initial freq. of DC braking when stopping	0.0～50.00Hz	3.00	F11B
P1.28	Waiting time of DC braking when stopping	0.0～5.0 Sec	0.1	F11C
P1.29	Action time of DC braking when stopping	0.0～20.0 Sec	0.0	F11D
P1.30	DC braking current when stopping	0.0～100（%）	50.0	F11E
P1.31	Restart after power down setting	*Count from the right The first part of LED：Power-on self-start 0： Valid 1：Invalid The second part of LED：Start mode 0：Routine mode 1：Detect speed and restart mode	0011	F11F
P1.32	Waiting time of restart after poff	0.0～9.999 Sec	0.5	F120
P1.33	Dead time of FWD&REV	0.0～9.999 Sec	0.0	F121
P1.34	Set freq. below lower limit selection	0: Run at lower frequency limit (P0.07) 1: Standby operation and no voltage output 2: Zero speed operation with a certain voltage output (determined by P1.38)	0	F122
P1.35	Maximum input voltage of panel potentiometer	0.00V～10.00V	9.5	F123
P1.36	Start voltage of dynamic braking	300.0~999.9V	660	F124
P1.37	VF overvoltage excitation gain	0~200	0	F125
P1. 38	Torque Boost	0.0~50.0（%）	▲	F126

Code	Name	Setting range	Default value	Add-ress
P1.40	Compensate for slip freq.	0.0～150.0（%）	0	F128
P1.41	Automatic voltage regulation（AVR）	0： Invalid 1： valid 2： valid(Except for the dec process)	0	F129
P1.42	Energy-saving	0：Invalid 1：Valid	0	F12A
P1.43	Torque Boost cut-off freq.	0.0Hz～100.0Hz	50.0	F12B
P1.44	Starting freq. of speed tracking	0.0Hz～100.0Hz	20.0	F12C
P1.45	Start time of speed tracking	0.1S～9.999S	1.500	F12D
P1.48	Left shift key function	0: Shift Left 1: Reverse start	0	F130
P1.49	Allowable of current zero drift	0～1000	150	F131
P2.00	Input lower limit voltage AI1	0.0 ~ [P2.01]	0.20	F200
P2.01	Input upper limit voltage AI1	[P2.00] ~ 10.0V	9.80	F201
P2.02	the freq. percent of AI1 lower limit	0.0%～100.0%	0%	F202
P2.03	the freq. percent of AI1 upper limit	0.0%～100.0%	100%	F203
P2.04	lower limit freq. corresponding of AI1\AI2\DI4 pulse	0: corresponds to 0.0% 1: Corresponding minimum input settings (P2.02, P2.13, P2.19)	1	F204
P2.05	Analog output selection (AO1、AO2）	*Count from the right The first part of LED：AO1 The second part of LED：AO2 0：follow output freq. 1：follow output current 2：follow output voltage 3：follow speed of motor 4：follow PID setting 5：follow PID feedback 6：follow setting freq. 7：follow output torque of the motor 8：follow output power of the motor 9：follow AI1 channel voltage	0010	F205

Code	Name	Setting range	Default value	Add-ress
P2.06	The lower limit of AO1	0.0～[P2.07]	0.0	F206
P2.07	The upper limit of AO1	[P2.06]～10.0	10.0	F207
P2.08	Voltage percent of AO1 lower limit	0.0%～100.0%	0.0%	F208
P2.09	Voltage percent of AO1 upper limit	0.0%～100.0%	100%	F209
P2.10	AI filtering ratio	0～20	3	F20A
P2.11	AO select below lower limit	0: Output 0V 1: Lower output limit P2.06	1	F20B
P2.12	AO voltage specified value	0.00V～ 10.00V	0	F20C
P2.13	the target percent of plus lower limit	0.0%～100.0% *(Target quantity: frequency, PID given, PID feedback)*	0%	F20D
P2.14	the target percent of plus upper limit	0.0%～100.0% *(Target quantity: frequency, PID given, PID feedback)*	100%	F20E
P2.15	Minimum pulse frequency input	0.0KHz~[P2.16]	0K	F20F
P2.16	Maximum pulse frequency input	[P2.15]~50.0KHz	10K	F210
P2.17	Input lower limit voltage AI2	0.0 ~ [P2.18]	0.20	F211
P2.18	Input upper limit voltage AI2	[P2.17] ~ 10.0V	9.80	F212
P2.19	the freq. percent of AI2 lower limit	0.0%～100.0%	0%	F213
P2.20	the freq. percent of AI2 upper limit	0.0%～100.0%	100%	F214
P2.21	The lower limit Of AO2	0.0～[P2.22]	0.0	F215
P2.22	The upper limit Of AO2	[P2.21]～10.0	10.0	F216
P2.23	Voltage percent of AO2 lower limit	0.0%～100.0%	0.0%	F217
P2.24	Voltage percent of AO2 upper limit	0.0%～100.0%	100%	F218
P2.25	DI4 plus filtering coefficient	0～20	3	F219

Code	Name	Setting range	Default value	Add-ress
P3.00	DI1	0：None 1：Multi-speed control terminal 1 2：Multi-speed control terminal 2 3：Multi-speed control terminal 3 4：Multi-speed control terminal 4 5：Pendulum pause 6：FWD jog control 7：REV jog control 8：Acc & Dec time selection terminal 1 9：Acc & Dec time selection terminal 2 10：Freq. source combination switching 11：Switching main source and P1.01 12：Switching auxiliary source and P1.01 13：Freq. increase（UP） 14：Freq. decrease（DW） 15：UP-DW freq. clear 16：Running Pause 17：External fault signal input 18：Three-line mode running control 19：DC braking control 20：Inner counter clear 21：Inner counter Input 22：PLC running valid 23：PID running valid 24：PID running Pause 25：PLC status reset 26：RESET 27：FWD 28：REV 29：Length Count Input 30：DI4 pulse signal input 31：Length Count Reset 32：Torque control inhibit 33：External fault normally closed input 34：Uncontrolled stop control 35：Reset this scheduled run time 50：FWD2(Valid when P1.06=5) 51：REV2(Valid when P1.06=5) 52：Three-line mode running control2	27	F300
P3.01	DI2		28	F301
P3.02	DI3		26	F302
P3.03	DI4		0	F303
P3.04	DI5		0	F304
P3.05	DI6		0	F305
P3.06	DI characteristic setting1	*Count from the right The first part of LED: DI1 The second part of LED: DI2 The third part of LED: DI3 The fourth part of LED: DI4 0：valid when terminals are connected. 1：valid when terminals are disconnected.	0000	P306

Code	Name	Setting range	Default value	Add-ress
P3.07	DO1	0：Running； 1：Frequency reaching； 2：Freq. level detection signal1（FDT1）； 3：Over-loading alarm； 4：External fault halt； 5：Output freq. reaches the upper-limit； 6：Output freq. reaches the lower-limit； 7：Running in zero speed； 8：Inverter will stop when under voltage； 9：PLC stage is end of run； 10：PLC periodic is end of run； 11：Ready for operation； 12：Setting value of counter arrives； 13：Designated value of counter arrives； 14：Freq. level detection signal2（FDT2）； 15：During braking operation； 16：Inverter fault； 18：FWD running (excluding jogging); 19：REV running (excluding jogging); 20：Digital specified output 21：DI1 status 22：DI2 status 23：DI3 status 24：DI4 status 25：At least one DI is closed 26：DI5 status 27：DI6 status 28：Output current reaches 29：Torque level FDT output 30：Length arrival indication 32：DO1 used as DI5 33：Timed arrival indication	0	F307
P3.08	Relay2 （TA2-TB2-TC2）		1	F308
P3.09	Relay （TA-TB-TC）		16	F309
P3.10	Digital specified output function	0：Not working. 1：working	0	P30A
P3.11	DI characteristic setting1	*Count from the right The first part of LED: DI5 The second part of LED: DI6 0：valid when terminals are connected. 1：valid when terminals are disconnected.	0000	P30B

Code	Name	Setting range	Default value	Add-ress
P3.12	DO or Relay characteristic setting	*Count from the right The first part of LED: DO1 The second part of LED: Relay1 The third part of LED: Relay 0：Action when outputting. 1：Action when not outputting	0000	P30C
P3.13	DI1 connect delay time	0.0S～100.0S	0.0s	F30D
P3.14	DI1 disconnect delay time	0.0S～100.0S	0.0s	F30E
P3.15	DI2 connect delay time	0.0S～100.0S	0.0s	F30F
P3.16	DI2 disconnect delay time	0.0S～100.0S	0.0s	F310
P3.17	DI3 connect delay time	0.0S～100.0S	0.0s	F311
P3.18	DI3 disconnect delay time	0.0S～100.0S	0.0s	F312
P3.19	DI4 connect delay time	0.0S～100.0S	0.0s	F313
P3.20	DI4 disconnect delay time	0.0S～100.0S	0.0s	F314
P3.21	DI5 connect delay time	0.0S～100.0S	0.0s	F315
P3.22	DI5 disconnect delay time	0.0S～100.0S	0.0s	F316
P3.23	DI6 connect delay time	0.0S～100.0S	0.0s	F317
P3.24	DI6 disconnect delay time	0.0S～100.0S	0.0s	F318
P3.25	DO1 connect delay time	0.0S～100.0S	0.0s	F319
P3.26	DO1 disconnect delay time	0.0S～100.0S	0.0s	F31A
P3.27	Relay2 connect delay time	0.0S～100.0S	0.0s	F31B
P3.28	Relay2 disconnect delay time	0.0S～100.0S	0.0s	F31C
P3.29	Relay connect delay time	0.0S～100.0S	0.0s	F31D
P3.30	Relay disconnect delay time	0.0S～100.0S	0.0s	F31E

Code	Name	Setting range	Default value	Add-ress
P4.00	Type of V/F Curve	0：Constant torque curve 1：Low-freq. torque curve 1 2：Reserve 3：V/F user-defined curve 4：V/F fully separated mode	0	F400
P4.01	V/F freq. 3	[P4.03] ~ [P0.09]	35.0	F401
P4.02	V/F voltage 3	[P4.04] ~ 100.0(%)	80%	F402
P4.03	V/F freq. 2	[P4.05] ~ [P4.01]	17.5	F403
P4.04	V/F voltage 2	[P4.06] ~ [P4.02]	45%	F404
P4.05	V/F freq.1	0.0 ~ [P4.03]	5.0	F405
P4.06	V/F voltage 1	[P1. 38] ~ [P4.04]	15%	F406
P4.08	VF oscillation suppression gain	0~100	0	F408
P4.09	voltage source for VF separation	0: Digital setting (P4.10) 1：AI1 2：AI2 3：Panel potentiometer	0	F409
P4.10	Voltage digital setting for VF separation	0V～1000V	0V	F40A
P4.11	ACC time for VF separation	0.0S～999.9S	10s	F40B
P4.12	DEC time for VF separation	0.0S～999.9S	10s	F40C
P4.13	Overvoltage freq. up enable	0: Not enabled 1: Enable	1	F40D
P4.14	Overvoltage freq. up action voltage	200.0V～999.9V	▲	F40E
P4.15	Overvoltage freq. up Maximum freq.	0.0Hz～50.0Hz	6Hz	F40F

Code	Name	Setting range	Default value	Add-ress
P5.00	Motor control mode	0000：V/F method； 0001：ACIM sensorless vector control 0002：PMSM sensorless vector control	0000	F500
P5.01	Motor type selection	0000：Ordinary ACIM 0001：Variable ACIM 0002：PMSM	0000	F501
P5.02	Rated power of motor	0.1kW～999.9kW	▲	F502
P5.03	Rated current of motor	0.1～2000A	▲	F503
P5.04	Rated speed of motor	1～9999rpm	▲	F504
P5.05	Exciting current of ACIM motor	0.1A～2000A	▲	F505
P5.06	Parameters self-determination	0：Invalid 1：Determine when motor is stationary 2：Determine when motor is running	0	F506
P5.07	Rated speed of Motor(10K bit)	0~3	0	F507
P5.08	ACIM Stator resistance	0.001Ω～32.000Ω	▲	F508
P5.09	ACIM Rotor resistance	0.001Ω～32.000Ω	▲	F509
P5.10	ACIM leakage reactance	0.001mH～320.00mH	▲	F50A
P5.11	ACIM mutual reactance	0.001mH～320.00mH	▲	F50B
P5.13	Sensorless vector Slip compensation coefficient	50%～200%	100%	F50D
P5.14	Upper limit of electric torque Digital settings	30.0%～250.0%	165%	F50E
P5.15	Upper limit of power torque Digital settings	30.0%～250.0%	150%	F50F
P5.16	Speed loop Proportional gain 1	1~200	20	F510
P5.17	Speed loop integral time 1	0.01S-10.00S	0.5s	F511

Code	Name	Setting range	Default value	Add-ress
P5.18	Switching freq. 1	0.0Hz～P5.21	5Hz	F512
P5.19	Speed loop Proportional gain 2	1~200	20	F513
P5.20	Speed loop integral time 2	0.01S-10.00S	1s	F514
P5.21	Switching freq. 2	0.0Hz～P5.21	10Hz	F515
P5.22	ACIM Excitation Proportional gain	0~9999	2000	F516
P5.23	ACIM Excitation integral gain	0~9999	1300	F517
P5.24	ACIM torque Proportional gain	0~9999	2000	F518
P5.25	ACIM torque integral gain	0~9999	1300	F519
P5.31	Torque control mode selection	0: Invalid torque control; 1: Torque control is valid *(P5.00=1 or P5.00=2)*	0	F51F
P5.32	Torque setting source selection	0: Digital setting (P5.33) 1：AI1 2: AI2 3: panel potentiometer (*100% corresponds to P5.33)*	0	F520
P5.33	Torque digital setting	0.0%～200.0%	100%	F521
P5.34	Torque mode FWD Maximum freq.	0.0Hz～P0.08	50Hz	F522
P5.35	Torque mode REV Maximum freq.	0.0Hz～P0.08	50Hz	F523
P5.36	Torque mode Torque Acc time	0.00S-99.99S	0.01S	F524
P5.37	Torque mode Torque Dec time	0.00S-99.99S	0.01S	F525

Code	Name	Setting range	Default value	Add-ress
P5.38	Torque mode Freq. Acc time	0.1S-999.9S	2S	F526
P5.39	Torque mode Freq. Dec time	0.1S-999.9S	2S	F527
P5.40	PMSM Stator resistance	0.0001Ω～32.000Ω	▲	F528
P5.41	PMSM D-axis inductance	0.001mH～320.00mH	▲	F529
P5.42	PMSM Q-axis inductance	0.001mH～320.00mH	▲	F52A
P5.43	PMSM angle	0.0°～360°	0	F52B
P5.44	PMSM counter electromotive force	0.0V～1000.0V	▲	F52C
P5.45	PMSM excitation proportional gain	1~32000	▲	F52D
P5.46	PMSM excitation integral gain	1~32000	▲	F52E
P5.47	PMSM Torque proportional gain	1~32000	▲	F52F
P5.48	PMSM Torque integral gain	1~32000	▲	F530
P5.49	PMSM Weak Magnetism mode	0, 1, 2	1	F531
P5.50	PMSM Weak Magnetism coefficient	5~50	5	F532
P5.51	PMSM Weak Magnetism current(MAX)	1%～300%	50%	F533
P5.52	adjustment coefficient of weak magnetic	10～500	100	F534
P5.53	Power generation limit enable	0~1	0	F535

Code	Name	Setting range	Default value	Add-ress
P5.54	Output voltage saturation margin	0~50	5	F536
P5.55	PMSM Initial angle detection current	10%～180%	80%	F537
P5.58	PMSM Saliency adjustment	50～500	100	F53A
P5.59	Excitation gain coefficient	0～1	0	F53B
P5.60	Feedforward compensation mode	0～2	0	F53C
P5.61	Tuned current loop KP	1～100	6	F53D
P5.62	Tuned current loop KI	1～100	3	F53E
P5.63	Initial position before operation	0: Do not detect 1: Detect every time	0	F53F
P5.64	PMSM SVC speed filtering level	10~1000	100	F540
P5.65	PMSM SVC speed KP gain	5~200	40	F541
P5.66	PMSM SVC speed KI gain	5~200	30	F542
P5.67	PMSM SVC Initial excitation current limiting	0%～80%	30%	F543
P5.68	PMSM SVC Minimum carrier frequency	0.8KHz～5.0KHz	3.0	F544
P5.69	Low frequency operation mode	0～1	0	F545
P5.70	Low frequency braking frequency	0.0Hz～20.0Hz	2	F546
P5.71	Low frequency step size	0.1Hz～10.0Hz	0.1	F547

Code	Name	Setting range	Default value	Add-ress
P5.72	Minimum current for PMSM position detection	0%～80%	50%	F548
P6.00	Multi-speed running mode	*Count from the right The first part of LED:PLC setting 0：PLC is valid(when P1.00=6). 1：PLC is valid(immediately). 2：PLC is conditional invalid. The second part of LED：running mode 1：Single loop and stop mode 2：Continuous loop mode 3：Continuous loop and stop mode The third part of LED: 0: No memory for breakpoint shutdown 1: Breakpoint shutdown memory The fourth part of LED：PLC save state 0：Non-save after power off 1：Save after power off	0000	F600
P6.01	Multi-speed freq. 1	0.0 ~ the upper limit freq.	0	F601
P6.02	Multi-speed freq. 2	0.0 ~ the upper limit freq.	0	F602
P6.03	Multi-speed freq. 3	0.0 ~ the upper limit freq.	0	F603
P6.04	Multi-speed freq. 4	0.0 ~ the upper limit freq.	0	F604
P6.05	Multi-speed freq. 5	0.0 ~ the upper limit freq.	0	F605
P6.06	Multi-speed freq. 6	0.0 ~ the upper limit freq.	0	F606
P6.07	Multi-speed freq. 7	0.0 ~ the upper limit freq.	0	F607
P6.08	Multi-speed freq. 8	0.0 ~ the upper limit freq.	0	F608

Code	Name	Setting range	Default value	Add-ress
P6.09	Running time of Multi-speed 1	0.0～6000 Sec	0	F609
P6.10	Running time of Multi-speed 2	0.0～6000 Sec	0	F60A
P6.11	Running time of Multi-speed3	0.0～6000 Sec	0	F60B
P6.12	Running time of Multi-speed 4	0.0～6000 Sec	0	F60C
P6.13	Running time of Multi-speed 5	0.0～6000 Sec	0	F60D
P6.14	Running time of Multi-speed 6	0.0～6000 Sec	0	F60E
P6.15	Running time of Multi-speed 7	0.0～6000 Sec	0	F60F
P6.16	Running time of Multi-speed 8	0.0～6000 Sec	0	F610
P6.17	Running direction of PLC multi-speed (1~4)	The first part of LED 0：Stage 1 FWD 1：Stage 1 REV The second part of LED： 0：Stage 2 FWD 1：Stage 2 REV The third part of LED： 0：Stage 3 FWD 1：Stage 3 REV The fourth part of LED： 0：Stage 4 FWD 1：Stage 4 REV	0000	F611
P6.18	Running direction of PLC multi-speed (5~8)	The first part of LED 0：Stage 5 FWD 1：Stage 5 REV The second part of LED： 0：Stage 6 FWD 1：Stage 6 REV The third part of LED： 0：Stage 7 FWD 1：Stage 7 REV The fourth part of LED： 0：Stage 8 FWD 1：Stage 8 REV	0000	F612
P6.20	PLC running time unit	0: S 1: MIN	0000	F614
P6.21	Multiple speed segment 0 frequency source	0: P1.01 (p.off memory) 1: P1.01 (p.off without memory) 2: RS485 communication settings 3: Panel potentiometer 4: AI1 5: AI2	0000	F615

Code	Name	Setting range	Default value	Add-ress
P6.22	Multi-speed freq. 9	0.0 ~ the upper limit freq.	0	F616
P6.23	Multi-speed freq 10	0.0 ~ the upper limit freq.	0	F617
P6.24	Multi-speed freq 11	0.0 ~ the upper limit freq.	0	F618
P6.25	Multi-speed freq 12	0.0 ~ the upper limit freq.	0	F619
P6.26	Multi-speed freq 13	0.0 ~ the upper limit freq.	0	F61A
P6.27	Multi-speed freq 14	0.0 ~ the upper limit freq.	0	F61B
P6.28	Multi-speed freq 15	0.0 ~ the upper limit freq.	0	F61C
P6.29	Multi-speed freq 16	0.0 ~ the upper limit freq.	0	F61D
P6.30	Running time of Multi-speed 9	0.0～6000 Sec	0	F61E
P6.31	Running time of Multi-speed 10	0.0～6000 Sec	0	F61F
P6.32	Running time of Multi-speed 11	0.0～6000 Sec	0	F620
P6.33	Running time of Multi-speed 12	0.0～6000 Sec	0	F621
P6.34	Running time of Multi-speed 13	0.0～6000 Sec	0	F622
P6.35	Running time of Multi-speed 14	0.0～6000 Sec	0	F623
P6.36	Running time of Multi-speed 15	0.0～6000 Sec	0	F624
P6.37	Running time of Multi-speed 16	0.0～6000 Sec	0	F625
P6.38	Running direction of PLC multi-speed (9~12)	The first part of LED 0：Stage 9 FWD 1：Stage 9 REV The second part of LED： 0：Stage 10 FWD 1：Stage 10 REV The third part of LED： 0：Stage 11 FWD 1：Stage 11 REV The fourth part of LED： 0：Stage 12 FWD 1：Stage 12 REV	0000	F626

Code	Name	Setting range	Default value	Add-ress
P6.39	Running direction of PLC multi-speed (13~16)	The first part of LED 0：Stage 13 FWD 1：Stage 13 REV The second part of LED： 0：Stage 14 FWD 1：Stage 14 REV The third part of LED： 0：Stage 15 FWD 1：Stage 15 REV The fourth part of LED： 0：Stage 16 FWD 1：Stage 16 REV	0000	F627
P7.00	Running direction control	The first part of LED 0：Running direction is consistent with setting direction 1：Running direction is in contradiction To setting direction The second part of LED： 0：Prevention REV is valid 1：Prevention REV is invalid	0000	F700
P7.01	Frequency reach the checkout amplitude	0.0~20.00Hz	5.00	F701
P7.02	FDT1 setting	0.0~ the upper limit freq.	10.00	F702
P7.03	FDT1 detection hysteresis value	0.0%～100.0%（FDT1freq.）	5.0	F703
P7.04	FDT2 setting	0.0~ the upper limit freq.	10.00	F704
P7.05	FDT2 detection hysteresis value	0.0%～100.0%（FDT2freq.）	2.0	F705
P7.06	Set Count Value	P7.07～9999	1	F706
P7.07	Specify Count Value	1～P7.06	1	F707
P7.08	Skip freq. 1	0.0～the upper limit freq.	0.0	F708
P7.09	Amplitude accumulation Of Skip freq. 1	0.0～5.00Hz	0.0	F709
P7.10	Current reaches the set value	0.0～the upper limit freq.	0.0	F70A

Code	Name	Setting range	Default value	Add-ress
P7.11	Current reaches judgment time	0.00S～99.99S (0.00S does not determine current arrival)	0.0	F70B
P7.13	D073 display coefficient	0.10～2.00	1.00	F70D
P7.14	Rotator speed coefficient setting	0.01～90.00	1.00	F70E
P7.15	Swing frequency setting method	0: Relative to center frequency (set frequency) 1: Relative to maximum frequency	0	F70F
P7.16	Swing amplitude	0.0~100.0% (relative to the set frequency)	0	F710
P7.17	Jump frequency amplitude	0.0~50.0% (relative swing amplitude)	0	F711
P7.18	Swing period	0.1～999.9S	10	F712
P7.19	triangular wave Proportion of rise time	0.1～100.0%	10	F713
P7.20	Torque level detection value (FDT)	0.0%~200.0% (motor rated current)	0.0	F714
P7.21	Torque level hysteresis value (FDT)	0.0%~200.0% (torque level)	10.0	F715
P7.22	droop	0.0Hz~10.0Hz (for coaxial use)	10.0	F716
P7.23	Set length	0～9999m	1000	F717
P7.24	Actual length	0～9999m	0	F718
P7.25	Pulses per meter	0.1～999.9	1000	F719
P7.26	Timed shutdown function	0: Invalid 1: Valid	0	F71A

Code	Name	Setting range	Default value	Add-ress
P7.27	Timing time source	0: Digital setting P7.28 1: AI1 setting (relative to P7.28) 2: AI2 setting (relative to P7.28) 3: panel potentiometer	0	F71B
P7.28	Timing time setting	0~9999	0	F71C
P7.29	Timing time unit	0：s 1：min	0	F71D
P8.00	Inner PID control	*Count from the right The first part of LED: Inner PID control 0：PID control is valid(when P1.00=7). 1： PID control is valid(immediately). 2： PID control is conditional valid. The third part of LED： 0：Positive action	0000	F800
P8.01	Inner PID setting and channel selection	*Count from the right The first part of LED: PID channel. 0：Digital setting P8.02(Panel UP/DW) 1：Serials interface setting 2：panel potentiometer setting 3：External voltage signal AI1 4：External voltage signal AI2 The third part of LED：Feedback channel. 0：External voltage signal AI1 1：External voltage signal AI2 2：panel potentiometer	0000	F801
P8.02	Inner PID close-loop digital setting	0.00kg to P8.16	0.0	F802
P8.07	Proportion gain	0～9.999 (The larger then the faster the adjustment)	1.00	F807
P8.08	Integral time constant	0～9.999 (The larger then the faster the adjustment)	1.50	F808
P8.09	Allowable deviation limit	0～20.0（%）	0.0	F809
P8.10	Preset freq. for close-loop	0.0～the upper limit freq	0.0	F80A

Code	Name	Setting range	Default value	Add-ress
P8.11	Holding time of preset freq. for close-loop	0.0～6000.0Sec	0.0	F80B
P8.12	Sleep frequency	0.0Hz (no sleep)~999.9Hz	40.0	F80C
P8.13	Wake up pressure deviation percentage	0.0~100.0% relative pressure setting value	80%	F80D
P8.14	Sleep delay	0.0～600.0S	2.0	F80E
P8.15	Wake up delay	0.0～600.0S	2.0	F80F
P8.16	Pressure gauge range	0.00~50.00 kg	10	F810
P9.00	Communication setting	**Count from the right* The first part of LED：Baud rate 2: 2400bps 3: 4800bps 4: 9600bps 5: 19200bps 6: 38400bps The second part of LED：Data format 0：None check[8N1] 1：Even check[8E1] 2：Odd check[8O1] 3：None check[8N2] 4：Even check[8E2] 5：Odd check[8O2] The third part of LED：Comm format 0：Private agreement 1：Modbus-RTU	0115	F900
P9.01	Local address	0～247	1	F901
P9.02	Response delay of local	0～1000ms	5ms	F902

Code	Name	Setting range	Default value	Add-ress
P9.03	Function setting of communication Auxiliary function	The first part of LED 0: The inverter is guest 1: The inverter is host 2: The inverter is guest(Don't return data) The second part of LED: Act selection after communication is lost 0: Stop 1: Keep	0010	F903
P9.04	Checkout time of communication overtime	0.0～100.0 Sec	0.0	F904
P9.05	Linkage setting proportion	0.01～10.00	1.00	F905
P9.06	Rectify channel of linkage setting proportion	0：Close 1：Panel potentiometer 2：External voltage signal AI1（0 ~ 10V） 3：External voltage signal AI2（0 ~ 10V）	0	F906
PA.00	Under voltage protection level	320～480V（380V level） 160～240V（220V level）	350 200	FA00
PA.01	Over voltage limit level	660～760V（380V level） 330～380V（220V level）	730 350	FA01
PA.02	Current amplitude limiting level	100～210（%）	165	FA02
PA.03	Over voltage stall gain	0～100 (The larger then the longer the dec process)	0	FA03
PA.04	Over current stall gain	0～100 (The larger then the longer the acc process)	10	FA04
PA.05	Motor over-lode protection coefficient	50～120（%）	100	FA05
PA.06	Over-loading alarm level	0~100（%）	50	FA06
PA.09	Action function selection	0：Cooling fan run after inverter run. 1：Cooling fan will automatic run	0	FA09

Code	Name	Setting range	Default value	Add-ress
PA.10	Protection function selection	the first part of LED: Reserved. The second part of LED：Output phase loss protection 0：Invalid 1：Valid The third part of LED：input phase loss protection 0：Invalid 1：Valid	0110	FA0A
PA.11	Overmodulation coefficient	90.0%～120.0%	105%	FA0B
PA.15	Deadband compensation gain	0～200	60	FA0F
PA.16	Fault self-recovery time	0~5	0	FA10
PA.17	Interval time of fault self-recovery	0.2～60 Sec	2.0	FA11
PA.19	Program version		▲	FA13
PA.20	Terminal protection selection	the first part of LED: Power-on 0: No protection 1: Protection the third part of LED: Normalcy 0: No protection 1: Protection	0000	FA14

6. DESCRIPTION OF SPECIFIC FUNCTIONS

6.0 Basic operation parameter unit

P0.00 Load pattern selection	Setting range 0，1

0000： General-purpose load.

0001： Fan and pump load.

P0.01 Parameter write-protect	Setting range 0---1

It is used for preventing error modify about data.

1：Forbid to modify all parameter except P1.01 and P0.01

2：Forbid to modify all parameter, except P0.01

P0.02 The upper limit frequency	Setting range P0.07~P0.08

Used to limit the upper limit frequency of the frequency converter during operation

P0.03 Parameter initialization	Setting range 0~2

It is used for modifying inverter's parameters to manufacture setting.

0：Parameter initialization is off.

1：Parameter initialization is on.

2：Clean fault records.

P0.04 Manufactory password	Setting range 0~9999

Don't modify this parameter without our permission.

P0.05 Monitor item selection1	Setting range 0000~5050
P0.06 Monitor item selection2	Setting range 0000~5050

This parameter is used to determine the display content of the operation panel in status monitoring mode, where P0.05 corresponds to the first row of the panel and P0.06 corresponds to the second row of the panel.

In P0.05, the combination of thousands and hundreds represents the shutdown display, while the combination of tens and hundreds represents the operation display. The corresponding values refer to the d parameter table. For example,

when P0.05=0700, the 07 code represents the set frequency in the d parameter table due to the combination of thousands and hundreds being 07; After ten digit combination, it is 0, and the 0 code represents the operating frequency in the d parameter table. Therefore, P0.05=0700 means that the first line of the frequency converter displays the set frequency in the shutdown state, and the operating frequency is displayed after operation.

The setting meaning of P0.06 refers to P0.05

P0.07 The lower Limit frequency	Setting range 0.0~ **[P0.02]**
P0.08 The Maximum frequency	Setting range **[P0.07]**~999.9

When setting freq. is lower than lower limit freq., the inverter will run in lower limit freq.

P0.09 Rated frequency of motor	Setting range 5.00~999.9
P0.10 Rated voltage of motor	Setting range 200 ~500V 100 ~250V

Rated frequency of motor is corresponding minimum frequency when output voltage of inverter is highest. Usually, it is rated frequency of motor.

Rated voltage of motor is corresponding output voltage when inverter outputs the basic running frequency. Usually, it is rated voltage of motor.

P0.11 Carrier wave frequency	Setting range 1.5~ 12.0KHZ
P0.12 Carrier wave characteristics	Setting range 0000~1112

Carrier wave frequency influences audio-frequency noise and calorific effect in running.When environment temperature is too high and motor's load is too heavy, carrier frequency should be decreased properly to improve the heat thermal performance.

P0.13 auxiliary freq. source	Setting range 0~ 9

Refer to P1.00 for the meaning of setting auxiliary frequency source in P0.13

6.1 Primary application of parameter unit

P1.00 Main freq. source	Setting range 0~9

It is used for selecting input channel of frequency instruction.

0：Fre-setting by panel(saved after p.off)

1：Fre-setting by panel(unsaved after p.off)

2：RS485 interface

3：Panel potentiometer

4：External voltage signal AI1

5：External voltage signal AI2

6：Internal multi segment speed

7：PID setting

8：Terminal multi segment speed

9：High speed pulse setting

P1.01 Frequency digital setting	Setting range 0.00~ P0.08

When **[P1.00]** is 0, Frequency digital setting controls output frequency of inverter. In normal monitor state, user can use the key  and  to modify this parameter.

P1.02 UP/DW frequency shutdown clear selection	Setting range 0000~ 0021

**Count from the right*

The second part of LED：

0：Setting freq will keep when stopping

1：Setting freq will save in P1.01 when stopping

P1.04 Fre-source superposition	Setting range 0000~0030

This parameter is based on the combination of P0.13~P0.16、P1.00 and corresponding DI terminals, as shown in the table below

Setting Range	**The first part**	Fre-source selection
	0	Main frequency source
	1	Main and auxiliary operation results
	2	Main and auxiliary switching results
	3	Main and operation results switching
	4	auxiliary and operation results switching
	The second part	Relationship between Main and auxiliary
	0	Main + auxiliary
	1	Main - auxiliary
	2	Max(Main, auxiliary)
	3	Min(Main, auxiliary)

P1.05 Operation channel selection	Setting range 0000~0002

0：Panel control

The inverter is controlled by key **RUN** and **STOP** on the panel.

1：External terminals control

2： RS485 interface

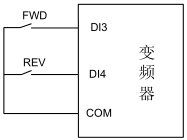
The inverter will receive running instruction from master.

P1.06 Combination methods of instruction terminals	Setting range 0~2

The premise of the following example is DI3 **[P3.02]=27**，DI4 **[P3..03]=28**, DI5 **[P3.04]=18**

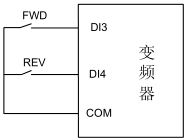
0：Two-line mode A

DI4	DI3	Run instruction
OFF	OFF	STOP
OFF	ON	FWD
ON	OFF	REV
ON	ON	STOP

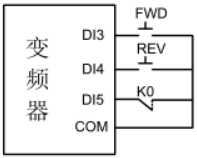


1：Two-line mode **B**

DI4	DI3	Run instruction
OFF	OFF	STOP
OFF	ON	FWD
ON	OFF	REV
ON	ON	STOP



2：Three-line mode



P1.07	Acc time 1	Setting range 0.1~6000 Sec
P1.08	Dec time 1	Setting range 0.1~6000 Sec
P1.09	Acc time 2	Setting range 0.1~6000 Sec
P1.10	Dec time 2	Setting range 0.1~6000 Sec
P1.11	Acc time 3	Setting range 0.1~6000 Sec
P1.12	Dec time 3	Setting range 0.1~6000 Sec
P1.13	Acc time 4/Jog Acc time	Setting range 0.1~6000 Sec

P1.14 Dec time 1/ Jog Dectime	Setting range 0.1~6000 Sec

Acc time 1 is the time of output frequency accelerating from 0.0 Hz to 50.00Hz.

Dec time 1 is the time of output frequency decelerating from 50.00 Hz to 0.00Hz.

P1.15 Jog frequency	Setting range 0.0~**[P0.08]**

Jog running is special running method of inverter.

Whatever the initial state of inverter is stop or run, jog signal will be received. The transition form initial running freq. to jog freq. is act according to parameters **[P1.13]** and **[P1.14]**.

P1.16 Acc and dec reference freq.	Setting range 0~1

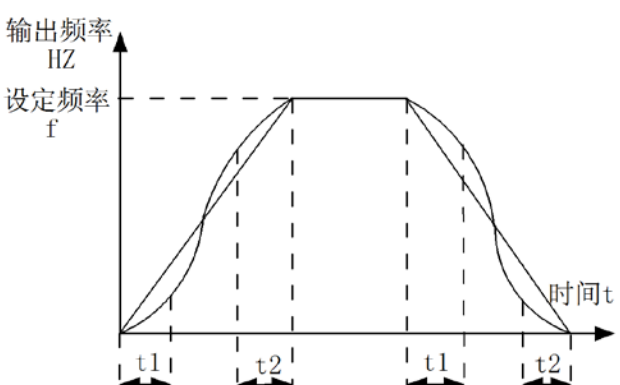
0：The maximum frequency

1：setting frequency

P1.17 Start ratio of S curve	Setting range 0.0~100.0（%）
P1.18 end ratio of S curve	Setting range 0.0~100.0（%）

Parameters **[P1.17]** and **[P1.18]** define characteristics of S curve. It is totally divide into three sections, shown as fig6-13.

Acc/Dec initial section is process that slope of output freq. is gradual increase form 0. The slope will fix in Acc/Dec ascending/decline section. And the slope will gradual decrease to 0 in end section.



P1.19	Start mode	Setting range	0~1
P1.20	Start frequency	Setting range	0.0~10.00HZ
P1.21	Start frequency duration	Setting range	0.0~20.0 Sec

Those parameters are used for defining characteristics with relation to start mode, shown as fig6-1.

The explanation of **P1.19** is shown as following.

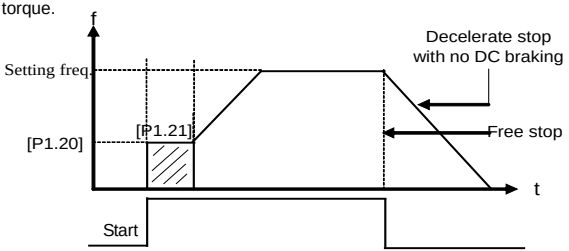
0： Routine mode

It is fit for mostly load, which have not special demand.

1：Detect speed and restart

It is fit for fault reset and restart occasion, or, power off and restart occasion. Inverter will judge automatically running speed and direction of motor. Motor, which have not stop, will start up directly according to detect result.

Start frequency ：It is fit for system, which is big inertia, heavy load and high start torque.



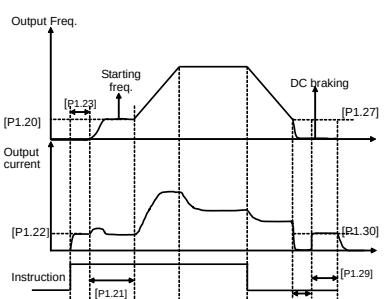
P1.22 DC braking current when starting	Setting range 0.0~100.0%
P1.23 DC braking time when starting	Setting range 0.0~20.0 Sec

Those parameters are fit for occasion that inverter needs brake before start.

$$P1.22=\frac{\text{DC braking current when starting}}{\text{Rated current of inverter}}\times 100\%$$

When rated current of motor is lower than rated current of inverter, please pay attention to set P1.22.Make sure that DC braking current is lower than rated current of motor.

Parameter P1.23 defines duration that inverter output DC braking current. When F1.12 is 0, DC braking is invalid when starting.



P1.24 Characteristics parameter of Acc and Dec	Setting range 0~1

0：Beeline

Output freq. of inverter will increase or decrease according to fixed rated.

1：S curve

Output freq. of inverter will increase or decrease according to graded rated. Characteristics of S curve is set by parameter **[P1.17]** and **[P1.18]**.

P1.26 Stop mode	Setting range 0~1

The first part of LED: Normal shutdown

0：Decelerate mode

1：Uncontrolled stop mode

The second part of LED: Jog stop

0：Decelerate mode

1：Uncontrolled stop mode

If user needs restart motor before motor complete stop, function of detect speed and restart must be valid when inverter is uncontrolled stop.

P1.27 Initial freq. of DC braking when stopping	Setting range 0~50.00 HZ
P1.28 Waiting time of DC braking when stopping	Setting range 0.0~20.0 Sec
P1.29 Action time of DC braking when stopping	Setting range 0.0~20.0 Sec
P1.30 DC braking current when stopping	Setting range 0~150%

When output freq. is lower than setting freq. of Parameter **[P1.27]**, inverter will lock output and start DC braking function after waiting setting time of parameter **[P1.28]**.

DC braking when stopping is invalid while **[P1.29]** is 0.

DC braking current when stopping is the percentage of rated current of inverter. When capability of applied motor is lower than inverter capability, please be sure to set **[P1.30]**.

P1.31 Restart after power down setting	Setting range 0000~0011
P1.32 Waiting time of restart after power down	Setting range 0.0~10.0 Sec

The first part of LED：

0：Invalid 1： Valid

When restart after power down setting is invalid, the inverter will clear automatically all running command and run according to new command after power on.

When restart after power down setting is valid, the inverter will save all running command and run according to the save command after power on.

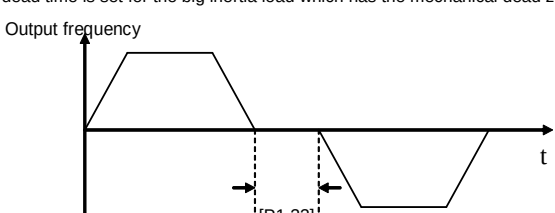
Please make sure that other equipments in system are ready before using function of restart after power down.

The second part of LED：

Applied motor is still running when user select restart. Here, user have to select function of detect speed and restart.

P1.33 Dead time of FWD&REV	Setting range 0~5.0 Sec

The parameter means that the duration at zero frequency when the inverter changes its running direction, and it is shown as the following fig.6-4. FWD and REV dead time is set for the big inertia load which has the mechanical dead zone



P1.34 Set freq. below lower limit selection	Setting range 0～1

0: Run at lower frequency limit (P0.07)

1: Standby operation and no voltage output

2: Zero speed operation with a certain voltage output (determined by P1.38)

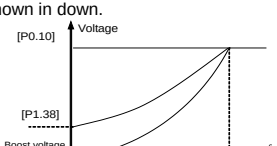
P1.36 Start voltage of dynamic braking	Setting range 300~999V
P1.37 VF overvoltage excitation gain	Setting range 0~200

Those parameters are valid for inverter with the inner brake unit. And they define the action parameter of inner brake unit. When inner DC voltage of inverter is higher than the start voltage of dynamic braking, the inner brake unit will act. If inverter connects external brake resistance, DC energy of inverter will be release by it to decline DC voltage. When DC voltage declines to the certain value (**[P1.36]-40V**);

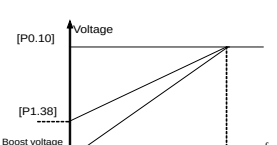
Brake unit action ratio is used for defining the voltage on brake resistor, and the voltage on brake unit is Voltage PWP. Duty cycle equals brake action ratio. The ratio is larger, and the energy is consumed more quickly, at the same time, the power of brake resistor is bigger. User can set parameter according to the resistance and power of resistor and actual brake effect.

P1.38 Torque Boost	Setting range 0.0~50%

It is used for improving the low-frequency torque characteristics. In low-frequency running, it will make boost compensation for the output voltage of inverter, as shown in down.



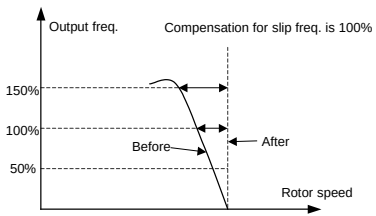
（1）Decreasing torque curve



（2）Constant torque curve

P1.40 Compensate for slip freq.	Setting range 0~150.0%

The inverter will modify output freq. automatically to offset effects that is act on rotate speed of motor form load.



P1.41 Automatic voltage regulation（AVR）	Setting range 0~2

The function of Automatic voltage regulation is to ensure the output voltage of inverter not to fluctuate with the input voltage. When the range of fluctuation of power supply voltage is too large, and expect to motor have the stabilized stator voltage and current, this function should be open.

0：Invalid 1： valid 2： valid(Except for the dec process)

When user selects dynamic voltage regulation, fast dynamic voltage regulation can inhibit form increasing current cause by DC voltage in motor deceleration. But it easy brings current resonance.

P1.42 Energy-saving running	Setting range 0~1

0：Valid 1：Invalid

When **P1.42** is 0, inverter will detect motor load automatically and real-time rectify output voltage.

Energy-saving running works high efficiency under occasions that the range of freq.

is small and the range of speed is wide.

Because of fan or pump have a specified relationship with rotate speed, it can compendiary judge load state according output freq. Low-freq. torque curve V/F is a typical example in energy-saving running. When user takes low-freq. torque curve, function of energy-saving running needn't valid.

6.2 Analog control parameter group

P2.00 Input lower limit voltage AI1	Setting range 0.0~[**P2.01**]
P2.01 Input upper limit voltage AI1	Setting range [**P2.00**]~10.0V
P2.02 the freq. percent of AI1 input lower limit	Setting range 0.0~100%
P2.03 the freq. percent of AI1 input upper limit	Setting range 0.0~100%

P2.00 and **P2.01** define the range of analog input voltage channel AI1, and it should be set according to the actual input signal.

P2.04 lower limit freq. corresponding of AI1\AI2\DI4 pulse mode	Setting range 0~1

0: corresponds to 0.0%

1: Corresponding minimum input settings (P2.02, P2.13, P2.19)

P2.05 Analog output selection	Setting range 0000~0055

It defines meaning of AO1、AO2.

The first part of LED: it defines the meaning of analog output terminal AO1.

The second part of LED: it defines the meaning of analog output terminal AO2.

0: Follow operating frequency

The amplitude of AO1&AO2 output is proportional to the output frequency of the frequency converter. The set upper limit of the analog output corresponds to the upper limit frequency.

1: Follow output current

The amplitude of AO1&AO2 output is proportional to the output current of the frequency converter. The upper limit of the analog output setting corresponds to twice the rated current of the frequency converter.

2: Follow output voltage

The amplitude of AO1&AO2 output is proportional to the output voltage of the frequency converter. The upper limit of the analog output setting corresponds to 1.2 times the rated voltage of the motor.

3: Following motor speed

The amplitude of AO1&AO2 output is proportional to the motor speed of the frequency converter. The set upper limit of the analog output corresponds to the speed corresponding to the upper limit frequency.

4: Follow PID setting value

The amplitude of AO1&AO2 output is proportional to the set value of PID. The upper limit of the analog output setting corresponds to the range setting of the P8.16 pressure gauge.

5: Follow PID feedback value

The amplitude of AO1&AO2 output is proportional to the feedback value of PID. The upper limit of the analog output setting corresponds to the range setting of the P8.16 pressure gauge.

6: Follow the set frequency

The amplitude of AO1&AO2 output is proportional to the set frequency of the frequency converter. The upper limit of the analog output setting corresponds to the maximum frequency P0.08.

7: Follow the output torque of the motor

The amplitude of AO1&AO2 output is proportional to the output torque of the motor.

8: Follow the output power of the motor

The amplitude of AO1&AO2 output is proportional to the output torque of the motor.

9: Follow AI1 channel voltage

The amplitude of AO1&AO2 output is proportional to the voltage of the analog input AI1 channel.

P2.06 The lower limit of AO1	Setting range 0.0~[**P2.07**]
P2.07 The upper limit of AO1	Setting range [**P2.06**]~10.0V
P2.08 Voltage percent of AO1 output lower limit	Setting range 0.0%~100%
P2.09 Voltage percent of AO1 output upper limit	Setting range 0.0%~100%

Those parameters define the max and min value of analog output AO1

P2.10 AI filtering coefficient	Setting range 0~20

Setting freq. set by external analog input will be filtered to eliminate fluctuate. Time constant of filtering have to appropriate set according to fluctuate of external input signal.

P2.17 Input lower limit voltage AI2	Setting range 0.0~[**P2.18**]
P2.18 Input upper limit voltage AI2	Setting range [**P2.17**]~10.0V
P2.19 the freq. percent of AI2 input lower limit	Setting range 0.0~100%
P2.20 the freq. percent of AI2 input upper limit	Setting range 0.0~100%

P2.17 and **P2.18** define the range of analog input voltage channel AI2, and it should be set according to the actual input signal.

P2.21 The lower limit of AO2	Setting range 0.0~[**P2.22**]
P2.22 The upper limit of AO2	Setting range [**P2.21**]~10.0V
P2.23 Voltage percent of AO2 output lower limit	Setting range 0.0%~100%
P2.24 Voltage percent of AO2 output upper limit	Setting range 0.0%~100%

Those parameters define the max and min value of analog output AO3

6.3 Digital control parameter group

P3.00 Function selection of DI1	Setting range 0~28
P3.01 Function selection of DI2	Setting range 0~28
P3.02 Function selection of DI3	Setting range 0~28
P3.03 Function selection of DI4	Setting range 0~28
P3.04 Function selection of DI5	Setting range 0~28
P3.05 Function selection of DI6	Setting range 0~28

0： Control terminal is idle

1： Multi-speed control terminal 1[MSCT1]

2： Multi-speed control terminal 2[MSCT2]

3： Multi-speed control terminal 3[MSCT3]

4： Multi-speed control terminal 4[MSCT4]

Combination of multi-speed control terminals is used for selecting output freq. of multi-speed.

No	MSCT4	MSCT3	MSCT2	MSCT1	mode	code
0	0	0	0	0	Multi speed 0	P6.21
1	0	0	0	1	Multi speed 1	P6.01
2	0	0	1	0	Multi speed 2	P6.02
3	0	0	1	1	Multi speed 3	P6.03
4	0	1	0	0	Multi speed 4	P6.04
5	0	1	0	1	Multi speed 5	P6.05
6	0	1	1	0	Multi speed 6	P6.06
7	0	1	1	1	Multi speed 7	P6.07
8	1	0	0	0	Multi speed 8	P6.08
9	1	0	0	1	Multi speed 9	P6.22
10	1	0	1	0	Multi speed 10	P6.23
11	1	0	1	1	Multi speed 11	P6.24

No	MSCT4	MSCT3	MSCT2	MSCT1	mode	code
12	1	1	0	0	Multi speed 12	P6.25
13	1	1	0	1	Multi speed 13	P6.26
14	1	1	1	0	Multi speed 14	P6.27
15	1	1	1	0	Multi speed 15	P6.28

5： Pendulum pause

6： FWD jog control

7： REV jog control

When the external terminal selected for the command channel is valid, this parameter defines the input terminal of the external jog signal

8： Acc& Dec time selection terminal 1

9： Acc& Dec time selection terminal 2

They are used for selecting external terminals Acc/Dec time 1~4.

10： Frequency source combination switching

Bits 2, 3, and 4 of P1.04 are required to be valid. Used to switch and select different frequency sources. According to the setting of the frequency source selection function code (P1.04), when switching between two frequency sources as frequency sources, this terminal is used to achieve switching between the two frequency sources.

11： Switching main source and P1.01

12： Switching auxiliary source and P1.01

When [P1.00] is 9, Frequency input channel is set by terminals state of 10, 11 and

13： Freq. is controlled gradually increase (UP)

14： Freq. is controlled gradually decrease (DW)

15： UP-DW freq. clear

16： Uncontrolled stop control

If one of terminal DI1~DI6 defined by this parameter is connected with CM, the inverter will lock output signal and applied motor will uncontrolled stop. Then inverter will detect speed and restart after terminal is disconnected with CM.

17： Fault signal of peripheral equipment input

When one of terminal DI1~DI6 is defined by this parameter is connected with CM, peripheral equipment is fault. The inverter will lock output signal and display EU.16.

18： Three-line mode running control

When [P1.06] is 2, one of external terminal DI1~DI6 defined by this parameter is stop trigger switch of inverter. See explanation about [P1.06].

19： DC braking control

When this terminal is effective, the frequency converter directly switches to the DC braking state.

20： Inner counter clear

21： Inner counter timer

22： PLC running valid

When [P6.00] is ###2 and any of those parameters is set 22, PLC running is valid.

23： PID running valid

When [P8.00] is ###2 and any of those parameters is set 23, PID running is valid.

24： PID running paused

The PID is temporarily invalid, and the frequency converter maintains the current output frequency without further PID adjustment of the frequency source.

25： PLC state reset after stopping

26： RESET

27： FWD

28： REV

29：Length Count Input

30：DI4 pulse signal input

31：Length Count Reset

32：Torque control inhibit

33：External fault normally closed input

34：Uncontrolled stop control

35：Reset this scheduled run time

50：FWD2(Valid when P1.06=5)

51：REV2(Valid when P1.06=5)

52：Three-line mode running control2

P3.06 DI characteristic setting1	Setting range 0000~1111

**Count from the right*

The first part of LED: DI1

The second part of LED: DI2

The third part of LED: DI3

The fourth part of LED: DI4

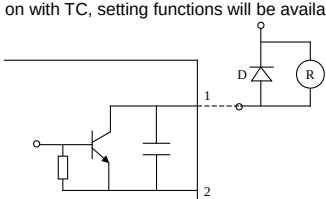
0：valid when terminals are connected.

1：valid when terminals are disconnected.

P3.07 DO1	Setting range 0~33
P3.08 Relay2（TA2-TB2-TC2）	Setting range 0~33
P3.09 Relay（TA-TB-TC）	Setting range 0~33

It defines expression content of relay contact and terminals OC1 when collector is open-circuit

When TA is on with TC, setting functions will be available.

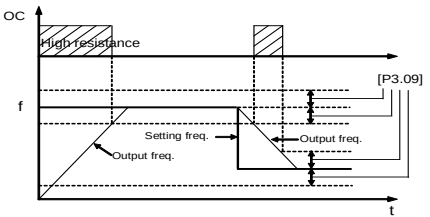


0：Running

When the inverter is in the running state, it will output the valid signal. While the inverter is in stop mode, it will output the invalid signal.

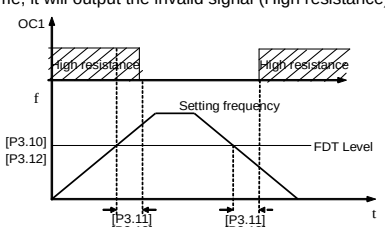
1：Frequency reaching

When the output frequency of inverter approaches the certain range of the setting frequency. (The range is decided by parameter P3.09), it outputs valid signal, otherwise, outputs the invalid signal (High-resistance).



2：Freq. level detection signal1（FDT1）

When the output frequency of inverter is over FDT1 Frequency level, the inverter will output the valid signal (Low electrical level) after the setting delay time. When the output frequency of inverter is lower than FDT1 frequency level, after the same delay time, it will output the invalid signal (High resistance).



3. Over-loading alarm

When the output current of inverter is over the over-loading alarm level, it will output the valid signal (Low level) after the setting alarm delay time. When the output current is lower than the over-loading alarm level, it will output the invalid signal (High resistance) after the same delay time.

4：External fault halt

When the external fault input signal is valid and it will lead to stop-machine, the terminal will output the valid signal (Low level), otherwise it will output the invalid signal (High resistance).

5：Output frequency reaches the upper-limit

When the output frequency reaches the upper-limit frequency, the terminal will output the valid signal (Low level). Otherwise, it will output the invalid signal (High resistance).

6：Output frequency reaches the lower-limit

When the output frequency reaches the lower-limit frequency, the terminal will output the valid signal (Low level). Otherwise, it will output the invalid signal (High resistance)

7：Running in zero speed

Running instruction is valid and output freq. is 0, if inverter is input freq., the terminal will output the valid signal (Low electrical level). If inverter is not input freq., the terminal will output the invalid signal (High resistance).

8：Internal timer reaches the setting time

When the internal timer reaches the setting time, the terminal will output the valid pulse signal of 0.5 Sec pulse widths. (Low electrical level)

9：PLC stage is end of run

When simple PLC is valid and current stage is end, this port will output pulse signal with 0.5s pulse width.

10：PLC periodic is end of run

When simple PLC is valid and current period is end, this port will output pulse signal with 0.5s pulse width.

11：Ready for operation；

12：Setting value of counter arrives

See the explanation about parameter P7.06.

13：Designated value of counter arrives

See the explanation about parameter P7.07.

14：Freq. level detection signal2（FDT2）;

15：During braking operation;

16：Inverter fault

When inverter is running with fault, it will output available signal (low level).

18：FWD running (excluding jogging);

19：REV running (excluding jogging);

20：Digital specified output

21：DI1 status

22：DI2 status

23：DI3 status

24：DI4 status

25：At least one DI is closed

26：DI5 status

27：DI6 status

28：Output current reaches

29：Torque level FDT output

30：Length arrival indication

32：DO1 used as DI5

33：Timed arrival indication

6.4 V/F Control management parameter group

P4.00 Type of V/F Curve	Setting range 0~3

0: Constant torque curve

The output voltage of inverter is in direct ratio to the output frequency, and most load take this mode.

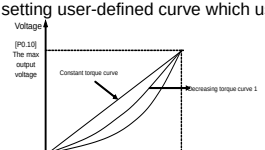
1: low-freq. torque curve 1

The output voltage of inverter is conic with the output frequency, which is suited to the fan and pump load.

2: Reserve

3: V/F user-defined curve

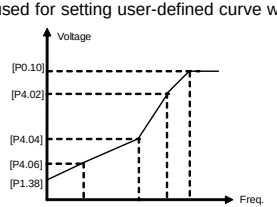
It is used for setting user-defined curve which user needs.



4: V/F fully separated mode

P4.01 V/F freq. 3	Setting range **[P4.03]~ [P0.09]**
P4.02 V/F voltage 3	Setting range **[P4.04]~ 100.0%**
P4.03 V/F freq. 2	Setting range **[P4.05]~ [P4.01]**
P4.04 V/F voltage 2	Setting range **[P4.06]~ [P4.02]**
P4.05 V/F freq. 1	Setting range **0.0 ~ [P4.03]**
P4.06 V/F voltage 1	Setting range **[P1.38]~ [P4.04]**

Those parameters are used for setting user-defined curve which user need. Shown as below:



6.5 Vector control parameter group

P5.00 Motor control mode	Setting range 0000~0002

It is used for selecting control method when inverter is working.

0000：V/F method

It is used for variable speed inverter occasions where do not demand high performance of speed control and low-frequency torque.

0001：ACIM sensorless vector control

0002：PMSM sensorless vector control

Suitable for high-performance control situations with high torque requirements, one frequency converter can only drive one motor. Such as punching machines, pile drivers, polishing machines, winding, lifting and other loads.

P5.01 Motor type selection	Setting range 0000~0002
P5.02 Rated power of motor	Setting range 0.1~999.9KW
P5.03 Rated current of motor	Setting range 0.1~2000A
P5.04 Rated speed of motor	Setting range 1~9999rpm
P5.05 Exciting current of ACIM	Setting range 0.1~2000A

Those parameters are nameplate data of applied motor. And they need input one by one according to capacity of applied motor, when inverter takes vector method.

Generally, exciting current of applied motor needn't modify. Because it will automatic update when rated current of applied motor is modified.

P5.06 Self-determination	Setting range 0~2

0：Invalid

1： Determine parameters when motor is stop

2： Determine parameters when motor is run（Reserved）

Both vector control method and panel control method are valid, parameter **P5.06** will act.

When parameter **P5.06** is valid, inverter will determine parameters by press key

Parameters will save automatically in inverter's memory and Parameter **P5.06** will to clear.

Before start function of Parameters self-determination, please make sure that nameplate parameters of motor（**P0.08** ~ **P0.10 and P5.01** ~ **P5.05**）are input correctly and motor stops.

6.6 Multi stage control parameter group

P6.00 Multi-speed running mode	Setting range 0000~1132

In this manual, “PLC” represents “Multi-speed running mode” and does not refer to “programmable controllers”. In this mode, the operating frequency of the frequency converter is determined by the internal time (P6.09~P6.16) of the frequency converter

Parameter P6.00 is multi-speed running mode. It is used for setting basic characteristics of multi-speed running.

The first part of LED(form right to left)：

Simple PLC selection

0：PLC is valid(when P1.00=6)

1：PLC is valid(immediately).

If priority of freq. channel is permit after starting, inverter will run at simple PLC state.

2：PLC is conditional invalid.

If external DI1~DI6 terminals is valid (P3.00~P3.05 is set as 22), inverter will run at simple PLC state.

Priority of freq. channel is shown as following table.

Priority	Priority	Setting freq.
High	1	JOG freq
↓	2	Wobble freq running
	3	PID output
	4	PLC multi-speed freq
	5	External terminals select multi-speed freq
Low	6	Freq setting channel selection

The second part of LED：Simple PLC running mode selection

1：Single loop and stop mode

Its function has an analogy with single loop mode. The difference is that output freq. is be reduced to 0 within the given decelerate time after a certain stage is end of run and inverter will run next stage.

2：Continuous loop mode

Inverter will run eight stages in turn. If the eighth stage is end of run, the inverter will run the next cycle form the first stage.

3：Continuous loop and stop mode

Its function has an analogy with Continuous loop mode. The difference is that output freq. is be reduced to 0 within the given decelerate time after a certain stage is end of run and inverter will run next stage.

The third part of LED

0: No memory for breakpoint shutdown

1: Breakpoint shutdown memory

The fourth part of LED：PLC save state

0：Non-save after power off

1：Save after power off

P6.01 Multi-speed freq. 1	Setting range 0.0~ the upper limit freq
P6.02 Multi-speed freq. 2	Setting range 0.0~ the upper limit freq
P6.03 Multi-speed freq. 3	Setting range 0.0~ the upper limit freq
P6.04 Multi-speed freq. 4	Setting range 0.0~ the upper limit freq
P6.05 Multi-speed freq. 5	Setting range 0.0~ the upper limit freq
P6.06 Multi-speed freq. 6	Setting range 0.0~ the upper limit freq
P6.07 Multi-speed freq. 7	Setting range 0.0~ the upper limit freq
P6.08 Multi-speed freq. 8	Setting range 0.0~ the upper limit freq
P6.09 Running time of speed 1	Setting range 0.0~6000 Sec
P6.10 Running time of speed 2	Setting range 0.0~6000 Sec
P6.11 Running time of speed 3	Setting range 0.0~6000 Sec

P6.12	Running time of speed 4	Setting range	0.0~6000 Sec
P6.13	Running time of speed 5	Setting range	0.0~6000 Sec
P6.14	Running time of speed 6	Setting range	0.0~6000 Sec
P6.15	Running time of speed 7	Setting range	0.0~6000 Sec
P6.16	Running time of speed 8	Setting range	0.0~6000 Sec
P6.17	Running direction of speed	Setting range	0000~1111
P6.18	Running direction of speed	Setting range	0000~1111

[P6.01]～[P6.08] Multi-speed freq.1～8

Those parameters are used for setting output freq. of multi-speed.

[P6.09]～[P6.16] Running time of Multi-speed 1~8

Those parameters are used for confirming running time of each stage.

[P6.17]~[P6.18] Running direction of PLC multi-speed

Those parameters are used for defining running direction of PLC multi-speed.

[P6.17] The first part of LED(form right to left):

0: Stage 1 FWD 1: Stage 1 REV

The second part of LED:

0: Stage 2 FWD 1: Stages 2 REV

The third part of LED:

0: Stage 3 FWD 1: Stages 3 REV

The fourth part of LED:

0: Stage 4 FWD 1: Stages 4 REV

[P5. 18] The first part of LED(form right to left):

0: Stage 5 FWD 1: Stages 5 REV

The second part of LED:

0: Stage 6 FWD 1: Stages 6 REV

The third part of LED:

0: Stage 7 FWD 1: Stages 7 REV

The fourth part of LED:

0: Stage 8 FWD 1: Stages 8 REV

6.7 Application management parameter group

P7.00 Running direction control	Setting range 0000~0011

This parameter is used for modifying the present output phase sequence of inverter, which modifies the running motor direction.

P7.01 Frequency reach the checkout amplitude	Setting range 0.0~20.00hz

If output freq. of inverter is within setting value that is set in **P7.01**, selected terminal will output valid signal.

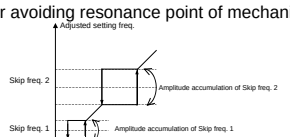
P7.02 FDT1 setting	0.0~ the upper limit freq
P7.03 FDT1 detection hysteresis value	0.0%～100.0%（FDT1freq.）
P7.04 FDT2 setting	0.0~ the upper limit freq
P7.05 FDT2 detection hysteresis value	0.0%～100.0%（FDT1freq.）

The parameter is used for setting the frequency detection level. When output frequency is higher than the setting value of FDT, after the detection hysteresis value, terminals will output the valid signal.

Parameters **P7.02** and **P7.03** are used for setting FDT1, parameters **P7.04** and **P7.05** are used for setting FDT2.

P7.06 Set Count Value	Setting range P7.07～9999
P7.07 Specify Count Value	Setting range 1～P7.06
P7.08 Skip freq. 1	Setting range 0.0~P0.08
P7.09 Amplitude accumulation Of Skip freq. 1	Setting range 0.0~5.00

It is used for avoiding resonance point of mechanical load.



P7.13 D073 display coefficient	Setting range 0.10~2.0
P7.14 Rotator speed coefficient	Setting range 0.01~90.00

Custom Speed value（d0.73）= P7.13 × actual output rotator speed

Rotator speed（d0.05）= P7.14 × actual output rotator speed

6.8 PID Control parameter group

P8.00 Inner PID control	Setting range 0000 ~ 0102

The first part of LED： Inner PID control

0：PID control is valid(when P1.00=7) .

1：PID control is valid(immediately).

2： PID control is conditional valid.

Inner PID is set by external terminals DI1～DI6 .

The third part of LED： Regulating property of PID controller

0： positive interaction 1：Reverse action

P8.01 Inner PID setting and channel selection	Setting range 0000 ~ 0104

It is used for setting inner PID and feedback channel.

The first part of LED(form right to left)：It is used for setting PID channel 。

0：Digital setting. It is set by parameter P8.02 or Panel UP/DW

1：Serials interface setting

2：Panel potentiometer setting.

3：External voltage signal A11.

4：External voltage signal AI2.

The third part of LED： It is used for setting PID feedback channel.

0：External voltage input AI1.

1：External voltage input AI2.

2：panel potentiometer.

P8.02 Inner PID close-loop digital setting	0.00kg to P8.16

If P8.01 is 0#00, setting value will be set by P8.02.

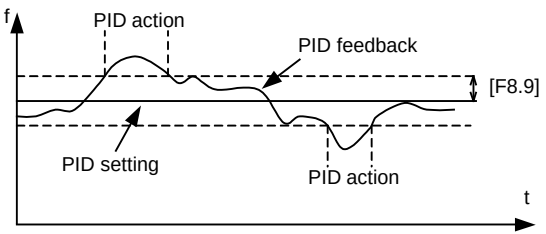
P8.07 Proportion gain	Setting range 0.0~9.999
P8.08 Integral time constant	Setting range 0.0~9.999

Those parameters are inner parameters of PID. The larger then the faster the adjustment

P8.09 Allowable deviation limit	Setting range 0.0 ~ 20.0(%)

The parameter is the allowable deviation value relative to the setting max value. When the difference between feedback value and the setting value is lower than this setting value, PID controller will stop.

This function is mainly suited for the system that has lower control precision and needs to avoid adjusting frequently, for example, water-supply with constant pressure system.



P8.10 Preset freq. for close-loop	Setting range 0.00 ~ P0.08
P8.11 Holding time of preset freq. for close-loop	Setting range 0.0 ~ 6000.0 Sec

Those parameters define freq. and running time of inverter before actual PID control is valid. In some control systems, inverters will forcible output a certain freq. (P8.10) and keep it in setting time (P8.11) for controlled object arrives fast targeted value. When controlled object almost arrives targeted value, PID controller will be valid to improve response speed.

P8.12 Sleeping frequency	Setting range 0 ~ 999.9Hz
P8.13 Wake up pressure deviation percentage	Setting range 0.0 ~ 10.0
P8.16 Pressure gauge range	Setting range 0.0 ~ 50Kg

It defines feedback value while inverter goes sleep state. When actual feedback value is bigger than setting value and inverter arrives lower limit value, the inverter will go sleep.

6.9 Communication management parameter group

P9.00 Communication setting	Setting range 0000~0156

The first part of LED(form right to left)： It is used for setting baud rate of serials communication.

2: 2400bps

3: 4800bps

4: 9600bps

5: 19200bps

6: 38400bps

To make sure both sides have the same baud rate, when client use serials communication.

The second part of LED： To set data format of serials communication.

0：None check[8N1]

1：Even check[8E1]

2：Odd check[8O1]

3：None check[8N2]

4：Even check[8E2]

5：Odd check[8O2]

To make sure both sides have the same data format, when client use serials communication.

P9.01 Local address	Setting range 0 ~ 247
P9.02 Response delay of local	Setting range 0 ~ 1000 ms

It defines waiting time, which is the time, receiving local correct code to send response data frames.

P9.03 Function setting of communication Auxiliary function	Setting range *0000 ~ 0012*

The first part of LED(form right to left)：

0: The inverter is guest

1: The inverter is host

2: The inverter is guest(Don't return data)

The second part of LED： Act selection after communication is lost

0： Stop 1：Keep

P9.04 Checkout time of communication overtime	Setting range 0.0 ~ 100.0s

If the local doesn't receive correct data signals in regulate time, the communication is fault. Inverter will keep on running or stopping according to setting of parameter P9.03.

P9.05 Linkage setting proportion	Setting range 0.01 ~ 10.00
P9.06 Rectify channel of linkage setting proportion	Setting range 0 ~ 3

It is used for setting proportion of output freq. between master and slave, when takes linkage setting control.

When P9.06 is 0, rectify channel of linkage setting proportion is invalid.

Slave freq. = Master freq.× [P9.05]

When P9.06 is 1, 2,3 or 4, rectify channel of linkage setting proportion is valid.

Slave freq. = Master freq.× [P9.05]×value of rectify channel or the max value of rectify channel

P9.06 is used for selecting rectify channel.

Rectify channel 1：Panel potentiometer

Rectify channel 2：External voltage signal AI1（0 ~ 5V）

Rectify channel 3：External voltage signal AI2（0 ~ 10V）

6.10 Reliability management parameter group

PA.00 Under voltage protection level	Setting range 160V ~ 480V

It defines lower limit voltage which terminals P+ and P- are allow while inverter is working normally. For some low voltage conditions, user can decrease under voltage protection level to ensure that inverter is running normally.

PA.01 Over voltage limit level	Setting range 330V ~ 760V

It defines threshold of voltage stall protection while motor is decelerating. If DC voltage caused by decelerating is beyond setting value of FC.1, deceleration time will automatic prolong.

PA.02 Current amplitude limiting level	Setting range 100 ~ 210%

It defines the max output current that is inverter permit. Whatever the operation mode is, inverter will adjust output freq. to inhibit current within the range of regulation, when output current of inverter is beyond setting value of PA.02

PA.03 Over voltage stall gain	Setting range 0 ~ 100%

During the deceleration process of the frequency converter, when the DC bus voltage exceeds the overvoltage stall protection voltage, the frequency converter stops decelerating and maintains the current operating frequency. After the bus voltage drops, it continues to decelerate.

Overvoltage stall gain is used to adjust the ability of the frequency converter to suppress overvoltage during deceleration. The higher this value, the stronger the ability to suppress overvoltage. The smaller the gain setting, the better, without overvoltage occurring.

For small inertia loads, the overvoltage stall gain should be small, otherwise it will cause the system's dynamic response to slow down. For loads with large inertia, this value should be high, otherwise the suppression effect may not be good and overvoltage faults may occur.

PA.04 Over current stall gain	Setting range 0 ~ 100%

During the acceleration and deceleration process of the frequency converter, when the output current exceeds the overcurrent stall protection current, the frequency converter stops the acceleration and deceleration process, remains at the current operating frequency, and continues to accelerate and decelerate after the output current decreases.

The overcurrent stall gain is used to adjust the ability of the frequency converter to suppress overcurrent during acceleration and deceleration. The higher this value, the stronger the ability to suppress overcurrent. For small inertia loads, the overcurrent stall gain should be small, otherwise it will cause the system's dynamic response to slow down. For loads with large inertia, this value should be high, otherwise the suppression effect may not be good and overcurrent faults may occur. When the overcurrent stall gain is set to 0, the overcurrent stall function is cancelled

PA.05 Motor over-lode protection	Setting range 50 ~ 110 （%）

The parameter is used for setting the sensitivity of thermal relay protection for applied motor. When the rated current of applied motor doesn't match with the rated current of inverter, it can accomplish the correct heat protection for the motor to set this parameter.

PA.06 Over-loading alarm level	Setting range 50 ~ 200（%）

If output freq. beyond the setting value set by parameter PA.06, after the setting delay time set by parameter PA.07, terminals output valid signal.

PA.09 Action function selection	Setting range 0000 ~ 0111

The first part of LED(form right to left)： Cooling fan control

0：Cooling fan run after inverter run.

Cooling fan will stop after inverter stop. When temperature is above 40℃，the cooling fan also will also run.

1：Cooling fan will automatic run when inverter is power on.

PA.16 Fault self-recovery time	Setting range 0~10
PA.17 Interval time of fault self-recovery	Setting range 0.1~60.0 Sec

PA.16 is used for resetting some faults and run again.

PA.17 defines interval time between fault starting and fault recovery. If inverter can't recover in setting value of PA.16 it will output fault signal. Inverter will check speed and restart.

PA.20 Terminal protection selection	Setting range 0000~0101

The first part of LED(form right to left)：: Power-on terminal operation protection

0: No protection (terminal closed before power on allows operation)

1: Protection (terminal closure before power on does not allow operation)

The third part of LED(form right to left)：: normal terminal operation protection

0: No protection (normal operation as long as there are no faults)

1: Protection (after resetting the normal fault, the terminal needs to be disconnected before running)

7. FAULT DIAGNOSIS AND COUNTERMEASURES

7.1 Protective functions and Countermeasures

Code	Faults	Probably Cause	Solutions
EC.01	Over-current during Acc	1. Acceleration time is too short. 2. V/F curve is not suitable. 3. User start rotating motor, but doesn't set function of detect speed and restart. 4. Value of torque boost set too high. 5. Mains voltage is too low	1. Prolong the acceleration time 2. Descend the torque boost or adjust the V/F curve 3. To set function of detect speed and restart 4. To decrease voltage of torque boost 5. Check mains voltage
EC.02	Over-current during Dec	Deceleration time is too short.	Prolong the deceleration time
EC.03	Over-current during running or stopping	1. Load occurs mutation 2. Mains voltage is too low	Decrease load fluctuation
EC.04	Over-voltage during Acc	1.Input voltage is too high 2. Power supply is switched on or off frequently.	1.Check power supply 2. Control the on-off of inverter by the control terminal
EC.05	Over-voltage during Dec	1. Deceleration time is too short. 2. Input-voltage is abnormal	1. Extend the deceleration time 2. Check power supply voltage 3. Install or select the brake resistance
EC.06	Over-voltage during running	1. Power supply is abnormal 2. There are energy feedback load	1. Check power supply 2. Install or select brake resistor
EC.07	Over voltage at stop	Power supply is abnormal	Check power supply voltage
EC.08	Under-voltage during running	1. Power supply is abnormal 2. There is great fluctuation of load in electric network.	1. Check power supply voltage 2. Provide the power supply separately

Code	Faults	Probably Cause	Solutions
EC.09	Inverter protective action	1. Output is short-circuit or ground 2. Load is too heavy	1. Check wiring 2. Reduce the load 3. Check whether brake resistor is short-circuit
EC.12	Inverter over-loading	1. Load is too heavy. 2. Acceleration time is too short. 3. Torque boost is too high or V/F curve is not suitable. 4. Voltage of Power supply is too low 5. User starts rotating motor, but doesn't set function of detect speed and restart.	1. Reduce the load or replace with higher capacity inverter. 2. Prolong Acc time. 3. Decrease the torque boost or adjusting V/F curve. 4. Check Voltage of Power supply 5. To set function of detect speed and restart
EC.13	Motor over-loading	1. Load is too heavy. 2. Acceleration time is too short. 3. The setting of protection factor is too small 4. Torque boost is too high or V/F curve is not suitable.	1. Reduce the load 2. Prolong Acc time 3. Increase the over-loading protection factor of motor 4.Decrease torque boost voltage and adjust V/F curve.
EC.14	Inverter overheat	1. Wind hole is blocked 2. Environmental temperature is too high 3. Fan is damaged	1. Clear air duct or improve the air condition.
EC.16	Peripheral equipment occur error	There is signal input on the peripheral. Equipment fault input terminal of Inverter	Check the signal source and the pertinent equipments
EC.20	Current detecting error	1.The current detecting equipment or circuit is damaged 2.Auxiliary power supply has problem	Contract Us
EC.21	Temperature sensor occur faults	1. Signal line of temperature is poor contact 2. Temperature sensor is damage.	1. Check jack 2. Contract Us

Code	Faults	Probably Cause	Solutions
EC.23	U phase output phase loss	1. Possible motor or motor wire phase loss 2. Possible frequency converter malfunction	1. Check the wiring 2. Seeking manufacturer services
EC.24	V phase output phase loss	1. Possible motor or motor wire phase loss 2. Possible frequency converter malfunction	1. Check the wiring 2. Seeking manufacturer services
EC.25	W phase output phase loss	1. Possible motor or motor wire phase loss 2. Possible frequency converter malfunction	1. Check the wiring 2. Seeking manufacturer services
EC.26	LOCK IN continuous blockade	Possible parameter setting issues	Seeking manufacturer services
EC.29	Communication timeout	Poor communication	Check communication programs or wiring
EC.30	Motor self-learning failure	Unreasonable motor parameter settings	Re self-learning or seeking manufacturer support
EC.31	OC count exceeded limit	1. Output short circuit 2. Excessive on-site interference	1. Check the output terminal 2. Check the interference situation on site
EC.39	The number of automatic resets exceeds the limit		seeking manufacturer support
EC.40	Internal memory error	Control parameter reading and writing error	seeking manufacturer support
EC.44	The number of current limiting times exceeds the limit	1. Load is too heavy. 2. Acceleration time is too short. 3. Torque boost is too high or V/F curve is not suitable. 4. Voltage of Power supply is too low 5. User starts rotating motor, but doesn't set function of detect speed and restart.	1. Reduce the load or replace with higher capacity inverter. 2. Prolong Acc time. 3. Decrease the torque boost or adjusting V/F curve. 4. Check Voltage of Power supply 5. To set function of detect speed and restart

7.2 Fault record inquiry

This inverter records the last six fault codes and the output parameters of last fault. This information is aid in looking up the fault causes. Fault information and state monitor parameters are stored uniformly, so please refer to the operation way to look up the information.

Monitor Item	Contents	Monitor Item	Contents	Monitor Item	Contents
d-26	First fault record	d-30	Fifth fault record	d-34	Output current of last fault
d-27	Second fault record	d-31	Sixth fault record	d-35	Output voltage of last fault
d-28	Third fault record	d-32	Output frequency of last fault	d-36	DC voltage of last fault
d-29	Fourth fault record	d-33	Setting frequency of last fault	d-37	Module temperature of last fault

When the inverter happens to the fault, you can reset the inverter to resume the normal running by any way as follows:

I. External reset input-terminal RST and CM terminal are closed, then off.

II. While the fault code is displayed, press STOP key.

III. Turn the power source off.

IV. It will send fault reset instrument by RS485 interface.

8. MAINTENANCE

As a result of ambient temperature, humidity, dust, vibration and aging of internal components of inverter, the inverter will probably appear the potential problem during running. In order to ensure the inverter to run steadily for a long time, the inverter should be checked up once at 3 or 6 months.

8.1 Daily Maintenance

Inspection items	Time		Inspection contents	Criterion
	Daily	Periodic		
Running Environment	√		1.Temperature, Humidity 2.Dust, gases	1. When temperature is over 40℃, the panel should be opened. 2. Humidity is less than 90%,
Cooling system		√	1.Installation Environment 2. Fan in inverter	1. Installation environment is well ventilated, and the duct is not blocked. 2. Fan is normal and no abnormal voice.
Inverter	√		1.Vibration, Temperature raise 2. Noises 3. Wire、Terminal	1. Vibration smooth, the temperature of air outlet is normal. 2. Not abnormal voice and no peculiar smell 3. Fastening screw is not loosed.
Motor	√		1.Vibration, Temperature raise 2. Noises	1. Running smooth, and temperature is normal 2. No abnormal and smooth noises.
Input/output Parameters	√		1. Input voltage 2. Output current	1. Input-voltage is in the setup range 2. Output-current is under the rated value

Input voltage	Moving-coil voltmeter
Output voltage	Rectifier-type voltmeter
O/I current	Tong-type ammeter

(1) Inverter has done the electric insulating experiment before leave-factory, so user don't need to do the withstand voltage test.
(2) Do the insulation test to the inverter if necessary, all of I/O terminals must be connected in short-circuit (R, S, T, U, V, W, P, P-, PB). Strictly prohibited from doing the insulation test for the single terminal. Please use 500V Meg-ohmmeter to perform this test.
(3) Control circuit can not be used the Meg-ohmmeter to test.

8.2 Damageable parts maintenance

Some cells in inverter are worn out or the performance descends in the process of usage process, in order to ensure the stable running of inverter, so the inverter needs to do the preventative maintenance or replace the part if necessary.

(1) Filter capacitor

Pulse current in main circuit will take effect on the performance of aluminum electrolytic filter capacitor, and the degree of effect has relation with the ambient temperature and usage condition. In normal condition, the electrolytic capacitor of inverter should be replaced at 4 to 5 years.

When the electrolytic capacitor leaks out, safety valve falls out or main block of capacitor expands, the corresponding parts should be replaced immediately.

⑵ Cooling fan

The lifetime of all the cooling fans in the inverter is about 15000 hours (that inverter is used continuously about two years). If the fan occurs the abnormal noise or vibration, it should be replaced immediately.

8.3 Storage

If the inverter isn't used for a long time, please notice the following items:

(1) To avoid storing the inverter at the environment with high-temperature，humidity, vibration or metal dust, and ensure the well ventilation.

(2) If the inverter is not used for a long time, it should be energized to resume the capability of electrolyte capacitor once at 2 years，at the same time, check the functions of inverter. When the inverter is electrified, its voltage should be increased by an autotransformer step by step and the time should not be less than 5 hours.

If inverter is not used for a long time, the performance of internal filter capacitor

8.4 After sale services

Guarantee time of this inverter is 18 months (From the day of purchase). In guarantee time, if the inverter occurs fault or be damaged in normal usage, our company will provide the free repair service or replacement.

Guarantee scale is just the mainframe of inverter.

In guarantee time, if the faults are caused by the following cases, certain service cost would be charged.

① Malfunction is caused by not following the operation manual or over using the standard specification;

② Malfunction is caused by repairing without admision.

③ Malfunction is caused by the bad-storage.

④ Malfunction is due to application of inverter for abnormal functional needs.

⑤ Damage is caused by fire, salt-corrode, gas-corrode, earthquake, storm, flood, lightning strike, voltage abnormal or other force majored.

Even if over guarantee time, our company will provide the paid service forever.

9. USAGE EXAMPLE

9.1 Panel on-off control, Panel potentio- meter setting frequency and V/F control

9.1.1 Parameters setting

1. When P5.00 is 0, V/F method is valid.
2. When P1.15 is 00#0, panel control is valid.
3. When P1.00 is 3, panel potentiometer is valid.

9.1.2 Basic wiring

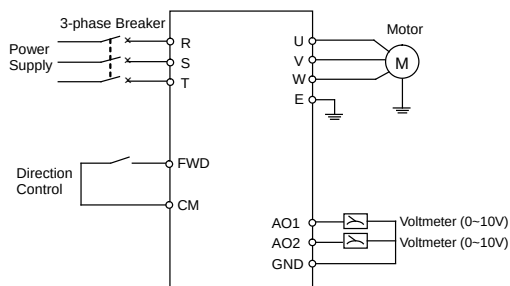


Fig9-1 Basic wiring

9.1.3 Operation

Press FWD key to start the inverter, and then rotate the button of panel potentiometer in clockwise to increased setting frequency step by step. Contrarily, rotate in anti-clockwise to decreased setting frequency step by step.

Press STOP key to stop the inverter.

External control terminal FWD decides the running direction of motor.

9.2 External control mode, external voltage setting frequency and V/F control

9.2.1 Parameters setting

1. When P5.0 is 0, V/F method is valid.
2. When P1.5 is 00#1, external terminals control is valid.
3. When P1.0 is 5, external voltage AI2（0~10V）is valid.

9.2.2 Basic wiring

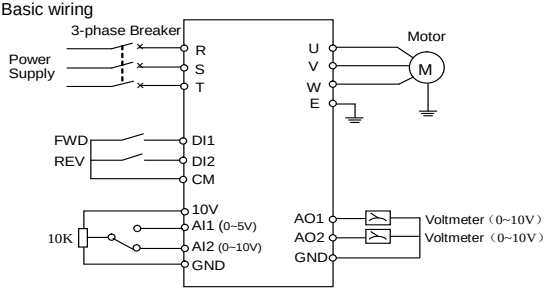


Fig9-2 Basic wiring

9.2.3 Operation

DI1-CM is off，the motor will running forward. DI2-CM is off, the motor will running backward. FWD-CM and REV- CM are off or on at the same time, the inverter will stop.Setting frequency is set by external voltage signal A12.

(**[P3.00]**=27 ,**[P3.01]**=28)

9.3 Multi-speed running, external control mode and V/F control

9.3.1 Parameters setting

1. When P5.00 is 0, V/F method is valid.
2. When P1.05 is 00#1,external terminals is valid.
3. To set external terminals DI1, DI2 and DI3 as multi-speed terminals. (Namely, parameter [P3.00]~[P3.02])
4. To set running freq. of each stage according to user needs.（namely, parameter[P6.01]~[P6.07]）。

9.3.2 Basic wiring

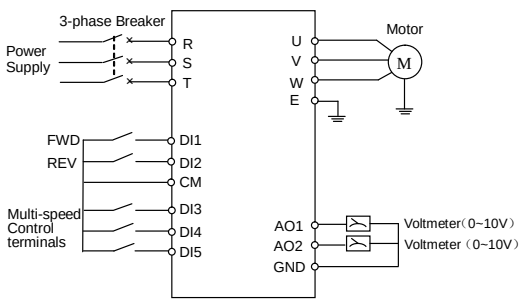


Fig9-3 Basic wiring

9.3.3 Operation

DI1-CM is off，the motor will running forward. DI2-CM is off, the motor will running backward. DI1-CM and DI2- CM are off or on at the same time, the inverter will stop.

If DI3, DI4 and DI5 are all opened with CM, the multi-speed running is invalid. The inverter will run as the setting instruction speed.

If one terminal or all of DI3, DI4 and DI5 are connected with CM terminal, the inverter will run as the multi-speed frequency selected by DI3, DI4 and DI5.

(**[P3.00]**=27,**[P3.01]**=28,**[P3.02]**=10 ,**[P3.03]**=11, **[P3.04]**=12)

9.4 Panel on-off control，Panel potentiometer setting frequency and linkage control with inverters

9.4.1 Parameters setting

Master setting：

1. Freq. setting channel is panel potentiometer mode. Namely P0.00 is 3.
2. Operation channel selection is panel control, namely P1.05 is 00#0.
3. Communication setting (Parameter P9.00) is default.
4. If P9.03 is 0001, the inverter is master.

Slave setting：

1. Freq. setting channel is RS485 interface. Namely P1.00 is 2.
2. Operation channel selection isRS485 interface. Namely P1.05 is 00#2.
3. Communication setting (Parameter P9.00) is default.
4. If P9.03 is 0000, the inverter is slave.
5. Linkage setting proportion (Parameter P9.05) will be set by user needs.
6. Rectify channel of linkage setting proportion is external voltage signal AI2. Namely P9.06 is 2.

9.4.2 Basic wiring

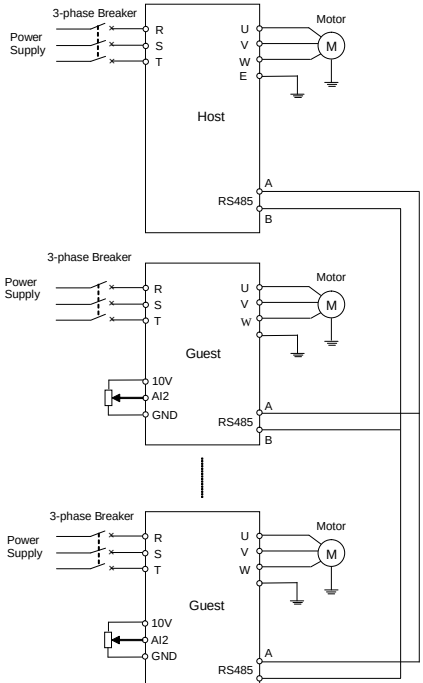


Fig9-4 Basic wiring

9.4.3 Operation

Running freq. of slave has a certain proportion with master's. Linkage setting proportion is set by parameter P9.05.

In this example, freq. proportion of master and slaves can get across by AI1 channel.

Appendix Ⅰ： **MODBUS** instructions

1、Communication format

Modbus-RTU, 1 start bit, 8 data bits, 1 stop bit。

2、Communication address

Register meaning	Register address
Functional parameters)	See the last column of the function parameter table for details
Monitoring parameters	See the last column of the Monitoring parameter table for details
PID setting	0x1000
Operation command	0x1001
Frequency setting	0x1002
Inverter status	0x2000
Fault information	0x2001

3、Operation command corresponding to operation command code

Operation command code	Operation instruction
0x0001	Forward running
0x0002	Reverse operation
0x0003	STOP
0x0004	Forward JOG
0x0005	Reverse JOG
0x0006	STOP(JOG mode)
0x0020	Fault reset

4、Corresponding indication meaning of frequency converter status code

Inverter status code	referential meaning
0x0000	Slave DC voltage not ready
0x0001	The slave is running forward
0x0002	Slave in reverse operation
0x0003	Slave shutdown
0x0004	Slave forward JOG operation
0x0005	Slave reverse JOG operation
0x0011	Forward acceleration
0x0012	Reverse acceleration
0x0013	Instantaneous shutdown restart
0x0014	Forward deceleration
0x0015	Reverse deceleration
0x0016	The slave is in DC braking state
0x0020	The slave is in fault state

Remarks: the high order of the fault information code is 0, and the low order corresponds to the frequency converter fault code EC The following label, for example, the fault information code is 0x000c, indicating that the fault code of the frequency converter is EC 12。

Appendix II： parts

Operation panel base

When you use our frequency converter products, if you need to place the control keyboard on the operation panel or control cabinet outside the frequency converter body, please purchase our frequency converter operation panel base and connecting cable, which will greatly facilitate your installation and commissioning.

Our frequency converter allows the connecting cable between the control end of the operation panel and the frequency converter body to be less than 15m. When it is necessary to operate beyond this distance, please provide a remote control cable。

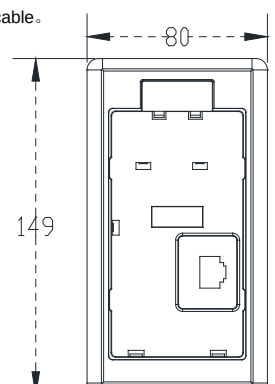


Figure-A dimensions of operation panel base

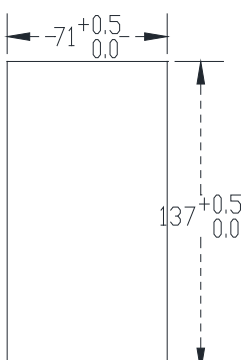


Figure-B installation opening size of operation panel base

Warrant Card

产品保修卡

维修单位(Maintain unit)_____	用　户(User)_____
产品型号(Product model)_____	购买日期(Purchasing date)_____
发票号码(Invoice number)_____	购自单位(Purchased from)_____

Noted:

请你妥善保管此卡，在需要维修时，凭此卡连同购机发票与我司售服中心或供应商联系;

Please keep this card carefully, use the card together with the Invoice when the produce need to maintain;

Certificate of Approval
合格证

检验员 QC：_____

生产日期 data：_____

本产品经我司品质控制、品质部门检验，其性能参数符合要求，准许出厂

This product has been inspected by the quality control and Quality Department of our company. Its performance parameters meet the requirements and are allowed to leave the factory