C ONVO
Electrical Kangwo

Kang fertile Frequency Control

CVF-G2/P2

Inverter Series

使用手册

Shenzhen Kangwo Electric Technology Co., Ltd.

SHENZHEN CONVO ELECTRIC TECHNOLOGIES CO., LTD

before Speech

Thank you for choosing Shenzhen Kangwo Electrical Technology Co., universal inverter, the operating instructions manual provides the following two kinds of products:

① CVF-G2 Series Universal Converter

② CVF-P2 Series fan, water pump special frequency converter

To maximize the high performance of this product and to ensure the safety of users and devices before using, please read this manual.

This manual is attachment after use, please be sure to keep ready for use when the inverter future repair and maintenance.

As for the use of this drive, doubts or special requests, please feel free to contact the company's local offices or distributors, but also directly contact the company headquarters service center, we will be happy to serve you.

The contents are subject to change without notice.

Welcome to choose the company's other series inverter:

ÿ CVF-G1 Series Universal Frequency Control

ÿ CVF-P1 Series fan, water pump special frequency converter

ÿ CVF-S1 Series of low-power single-phase inverter

ÿ CVF-ZS Injection molding machine series inverter

ÿ CVF-ZC Series injection integration Guiji

Shenzhen Kangwo Electric Technology Co., Ltd.

Agents: Guangzhou Fang Ling Electric Co., Ltd.

Website: www.forin.ik8.com

Eye record

1. Notes

To ensure your personal safety, equipment and property, before using the inverter, please read this chapter and follow all the subsequent handling, installation, operation, commissioning and maintenance process.

1.1 Safety Precautions

Use the manual following four security-related warning:

Danger This sign, if not observed, could result in death, serious injury or serious damage to property.

caveat This symbol indicates that failure to follow instructions can cause physical injury or equipment damage.

prompt This symbol indicates some useful information.

note This symbol explanation points to note when operating.

Danger

(1) inverter is forbidden to install on combustible;

(2) The series inverter does not apply to flammable and explosive environment, if necessary, to order special inverter manufacturers;

(3) prohibit unauthorized disassembly, conversion inverter;

(4) prohibited to drive the AC output terminal U, the V, W;

(5) inverter energizing process, please do not open the lid or wiring work.

caveat

(1) After ten minutes after power on or off ten minutes prohibit touch the radiator, to prevent burns;

When wiring (2) embodiment, check, etc., must be carried out after turning off the power supply 10 min;

(3) must be well grounded ground terminal of the inverter;

(4) It does not allow foreign object gets into the drive.

1.2 Use of

(1) This drive is only suitable for general industrial three-phase AC induction motor. (2) If the inverter seizes up when it may cause personal injury of equipment (such as nuclear control system

Systems, aviation systems, safety equipment and instrumentation, etc.) requires careful consideration, in this case, please consult factory. (3) This inverter is manufactured under strict quality control, but if a dangerous equipment, equipment

Expand the scope of the accident when due security measures to prevent inverter fault.

1.3 Precautions

caveat

(1) Prohibit the use of wet hands inverter;

(2) Inverter case of damage, the best agent or designated repair maintenance.

(1) Inverter installation environment should be well ventilated. (2) Common motor not running at low speed, or time should choose Save inverter motor at low speed

Light motor load. (3) Motor temperature rise will be higher than the frequency inverter is running at the time of use, it is a normal phenomenon. (4) The use of environmental permit conditions than the inverter, please contact the manufacturer to order special inverter. (5) At an altitude of more than 1000 M under the conditions of the inverter should be derated for each additional 1500 Meter

About the height of the output current derating 10% . (6) Prohibit the output terminal of the inverter filter capacitor or other absorbing means.

1.4 Notes scrapped

When dealing with scrap inverter and its parts, it should be noted:

Electrolytic capacitors: The capacitors in inverter may explode when burned.

plastic: Drive surface cover or the like may cause harmful plastic article upon combustion, toxic gases

Body, use caution when burning.

clear LI: Please dispose inverter as an industrial waste disposal.

2. Purchase inspection and inverter types and sizes

2.1 Incoming inspection

Any damage (1) transportation, whether parts are damaged, dropped, or if the body is bruised.

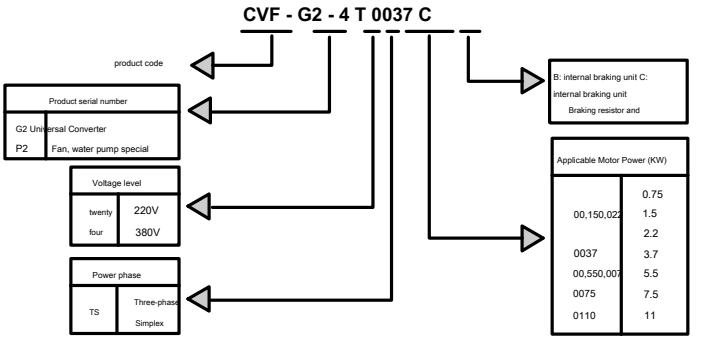
(2) careful verification purchased the drive nameplate with your order data is consistent.

The company in product manufacturing, packaging, transportation and other strict quality assurance system, but some kind of oversight the event, please contact our company or local agent, we will solve the first time.

caveat

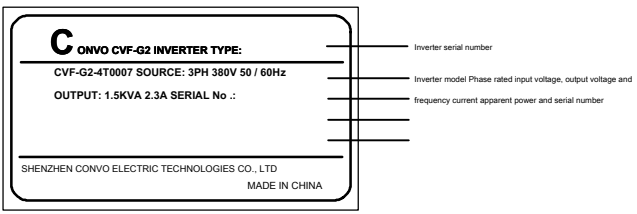
Selection must be correct, incorrect selection may cause a malfunction or damage to the drive motor.

2.2 Inverter type



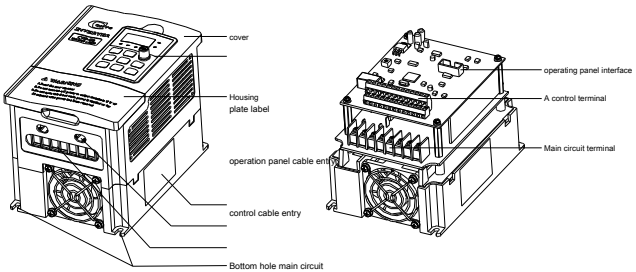
Nameplate data converter 2.3

In the bottom right of the drive, drive type label affixed rating and the rating plate contents shown in Figure 2-1.



Map 2-1 Nameplate

2.4 part name and appearance of the product



Map 2-2 Inverter Part Name

Applicable models:

G2 Series Inverter	P2 series inverter
CVF-G2-4T0007 ~ 4T0075	CVF-P2-4T0015 ~ 4T0110

2.5 Series Model Description

Inverter model		Rated Capacity (KVA)	Rated output current (A)	Applicable Motor Power (KW)
G2 Series (Universal)	P2 series (fan, water pump special)			
CVF-G2-4T0007		1.5	2.3	0.75
CVF-G2-4T0015	CVF-P2-4T0015	2.4	3.7	1.5
CVF-G2-4T0022	CVF-P2-4T0022	3.3	5.0	2.2
CVF-G2-4T0037	CVF-P2-4T0037	5.6	8.5	3.7
CVF-G2-4T0055	CVF-P2-4T0055	8.6	13	5.5
CVF-G2-4T0075	CVF-P2-4T0075	11	17	7.5
	CVF-P2-4T0110	16.5	25	11

2.6 Technical indicators and specifications

lose	Rated voltage, frequency		Three-phase 380V 50 / 60Hz
The allowable fluctuation range of the voltage			320V ~ 460V
Export	Voltage		0 ~ 380V
	frequency		0Hz ~ 500Hz
	Overload		G2 series: 1 150% minute, 180% 2 second; P2 series: 120% 1 minute
control system special Sex	Controlling party formula		V / F control
	Frequency setting resolution	Analog input terminal	The maximum output frequency 0.1%
		Digital setting	0.01Hz
		Analog setting panel	Maximum frequency 0.4%
	External pulse rate		Maximum frequency 0.1%
	Frequency accuracy	Analog Input	The maximum output frequency 0.2% Within
		Digital input	Setting the output frequency 0.01% Within
		External pulse	The maximum output frequency 0.1% Within
	V / F curve (frequency characteristic voltage)		In reference frequency 5 ~ 500Hz Arbitrarily set, selectable constant torque, the torque down 1 , Decreasing torque 2 A total of three types of curve
	Torque boost		Manual setting: the rated output 0 to 20% Automatic lifting: lifting torque is automatically determined according to the output current
	Automatic energy-saving operation		Adjust the output current and output voltage in accordance with slip compensation, allows the motor to operate at maximum efficiency
	Addition, subtraction Speed time setting		0.1 ~ 6000 Second continuously disposed, S Type linear mode selectable
	Brake DC braking	Dynamic braking	75% the above (When external braking resistor)
			Start, stop, respectively Alternatively, the operating frequency 0 ~ 15Hz , Operating voltage 0 to 15% Action time 0 to 20.0 Seconds, or continuous action
	Automatic current limiting function		Fast current automatic suppression capabilities, to ensure no flow occurred during acceleration under impact load and
	Voltage stall prevention		Ensure overvoltage during deceleration does not occur
	Low noise operation		Carrier frequency 1.5KHz ~ 15.0KHz Continuously adjustable, to minimize motor noise
	Speed checking Start function		It can achieve smooth operation of the motor restart and instantaneous-stop restart function
	Frequency setting signal	Analog Input	DC voltage 0 ~ 10V - 10V ~ 10V ,DC 0 ~ 20mA (Upper and lower optional)
		Digital setting	Using the control panel
		Pulse input	0 ~ 10KHz (Upper and lower optional)
	Start signal		Forward, reverse, self-holding the start signal (three-wire control) optional
	Timers, counters		Built-in timers, counters, one each for System Integration

	Multi-speed control / operation wobble		most 7 Running direction programmable multi-speed control section, each speed, operating time can be set separately. When the external terminal control, up to 15 Speed, it has included traverse run, including 6 Modes of operation
	Built-in PID control	Ordinary PID	It can easily constitute a simple control system without additional PID Controller.
		Water-specific (required accessory)	By attachment can constitute up to 4 Water Supply System pump switch comprising upper and lower alarm pressure, the pressure lower limit, the sleep / wake, the timing of water supply and other specialized functions
	Running function		Upper and lower frequency setting, frequency hopping operation, reverse operation to limit the slip frequency compensation, automatic voltage regulator operation, RS485 Communication, frequency increasing, decreasing control, fault recovery operation, multi-machine operation linked
	output signal	Operating state (OC output)	Operation of the inverter frequency reaches a frequency level detection, overload alarm, external failure, reaches the upper limit frequency, the frequency reaches the lower limit, voltage is stopped, a zero-speed operation, the programmable multi-speed state, the internal counter reaches the internal timer expires, the pressure, the lower limit alarm
		Indicating instrument	Output frequency, output current, output voltage, motor speed, PID Setting and feedback, external voltmeter and frequency meter
Show	The operation panel	Operating status	Output frequency, output current, output voltage, motor speed, set frequency, PID set up, PID Feedback, module temperature, total running time, analog input and output, the input terminal status
Show	Alarm display content		Recently six fault records, the output frequency of last fault trip set frequency, output current, output voltage, DC voltage, module temperature, terminal status, total running time 8 Operating parameters item record
protection / Alarm function			Overcurrent, overvoltage, undervoltage, electronic thermal overload protection, overheating, short circuit
surroundings	Ambient temperature		–10 º C To + 50 º C (Not frozen)
	Ambient humidity		90% The following (no frost)
	surroundings		Indoor (no direct sunlight, corrosive, flammable gas, oil mist, dust, etc.)
	altitude		Lower than 1000m
Knot	Protection class		IP20
Cooling Structure			Forced air cooling
Mounting			Wall-mounted

3. Installation of the inverter

3.1 Installation Environment Requirements

(1) indoor spaces vents or ventilating device.

(2) temperature -10 ℃ ~ 40 ℃. If the ambient temperature is greater than but less than 40 ℃ 50 ℃, removable frequency

The upper portion of the warning labels, to facilitate cooling.

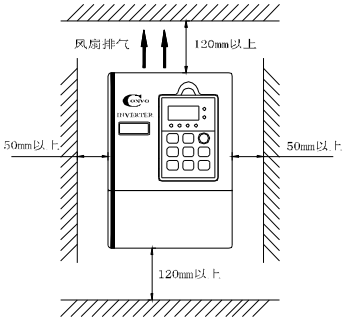
(3) place to avoid high temperature and humidity, a humidity of less than 90%, and no frost accumulation. (4) direct sunlight.

(5) away flammable, explosive, and corrosive gases, liquids. (6) no dust, floating fiber and metal particles. (7) installed in a firm, no vibration. (8) away from sources of electromagnetic interference.

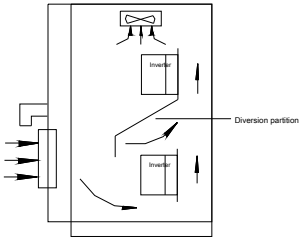
3.2 Installation The

The series inverter is a wall-mounted drive, it should be mounted vertically, to facilitate cooling air flow. Around the inverter shown in FIG. 3-1 should leave enough space.

Respect to the two wall-mounted in the same vertical plane up and down the drive, apply leading divider, shown in Figure 3-2.



Map 3-1 Installation clearance



Map 3-2 Multiple wall-mounted inverter installation

3.3 Removal and installation operation panel

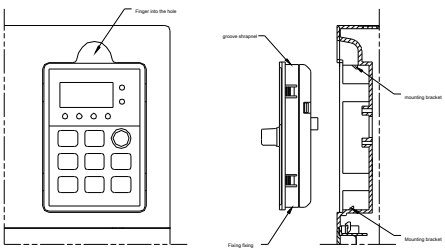
(a) Removal:

After the index or middle finger into the finger over the operation surface of the insertion hole pull gently pressing the top operating panel fixing tabs, and then pull out, to remove the operation panel.

(B) installation:

The operation panel with the panel mounting groove, parallel Press, until you hear a "click" sound, which represents an operation panel is installed in place.

Shown in Figure 3-3:



Map 3-3 Removal and installation operation panel

3.4 Removal and installation of the

cover (one) Removal:

The fingers into the handle holes in the bottom plate, lift it in force until the locking between the housing and the cover is disengaged, then pull down the cover, the housing can be detached.

(two) installation:

15 degrees inclined first plate, which is then inserted into the housing top fixing piece fixing groove, firmly pressing down on the cover, to hear the "click" is heard, it means that the cover in place.

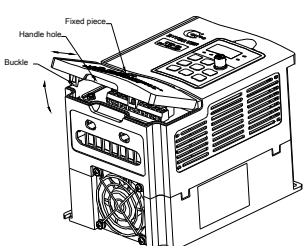
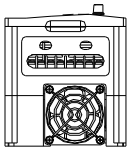
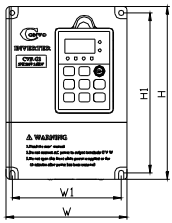


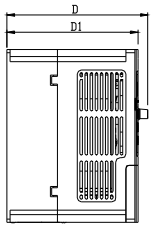
Figure 3-4:

FIG removal and installation of the cover plate 3-4

3.5 Installation of the inverter size

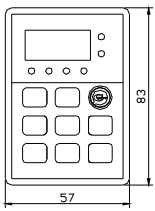


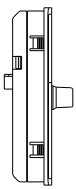


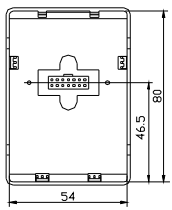


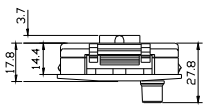
Inverter model		W1	W	H1	H	D1	D	Mounting Hole	Net
G2 Series	P2 Series	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	Weight (Kg)
CVF-G2-4T0007 CVF-P2-4T0015 CVF-G2-4T0015 CVF-P2-4T0022		108,120,158,170,130					140	5	1.75
CVF-G2-4T0022 CVF-P2-4T0037 CVF-G2-4T0037		128,140,188,200,150					160	5	2.60
	CVF-P2-4T0055								
CVF-G2-4T0055 CVF-P2-4T0075 CVF-G2-4T0075 CVF-P2-4T0110		173.5	183.5	165	180	240	255	6	5.50

3.6 Operating panel size









4. Wiring of Inverter

4.1 Wiring Precautions

(1) wiring must be carried out by qualified professional and technical personnel.

(2) pre-wiring, make sure the power supply has been completely cut off for more than 10 minutes, otherwise there is danger of electric shock.

(3) the absolute prohibition of the power supply to the inverter output terminals U, V, W. (4) the inverter and

the motor must be securely grounded.

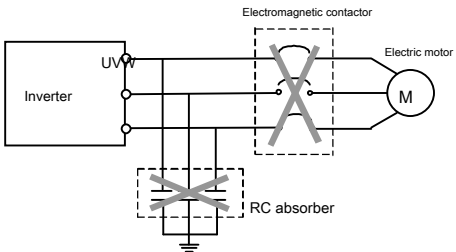
(5) ensure that a middle breaker connected between the inverter and the power supply, so the drive failure events

It is expanded.

(6) can not be installed between the electromagnetic contactor and the drive motor.

(7) the inverter U, V, W output of the installation is not absorbed or other absorbing capacitor means, such as

4-1 shown in FIG.



4-1 connected to an output terminal RC FIG prohibited absorbing device or electromagnetic contactor

(8) To reduce electromagnetic interference, the electromagnetic contactor around the inverter circuit and the relay means

Opposing coil connected to a surge absorber.

(9) Frequency setting terminal (VI1, VI2, II), the meter circuit (AM, FM) analog signal, and then

Use of more than 0.3mm² wire shielded cable, the shield layer is connected to a ground terminal of the inverter AM, the

wiring length is less than 30m.

(10) and the relay input terminal of the output circuit (X1 ~ X7, OC1, OC2, FWD, REV, RST),

It should be used more than 0.75mm² twisted or shielded cable, the shield layer and the ground terminal CM is

connected to the inverter, the wiring length of less than 50m.

(11) the control line should be separated from the main circuit power line, wired in parallel should be separated by more than 10cm, cross cloth

It should be perpendicular to the line.

(12) the connection between the inverter and the motor should be less than 30m, when the wiring length is greater than 30m, should be appropriate

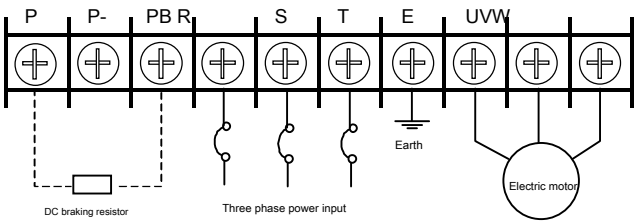
Reduce the carrier frequency of the inverter.

(13) must be sufficiently secured all the lead and the terminal, to ensure good contact. Should the main circuit wire

Cable or copper. Tab cold welding or the use of cables, must use the appropriate section of the wiring after good.

(14) all lead pressurization must match the voltage rating of the inverter.

4.2 Wiring main circuit terminal block of FIG.

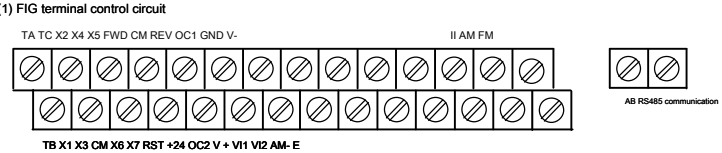


series	Applicable models
G2 series	CVF-G2-4T0007 ~ CVF-G2-4T0075
P2 series	CVF-P2-4T0015 ~ CVF-P2-4T0110

Terminal symbol	Function Description
P	The positive terminal of the DC voltage
P-	A negative DC voltage terminal
PB	**P , PB Braking resistor can be connected between the DC**
R , S , T	Phase AC power supply connected to the grid
U , V , W	Connected three-phase AC motor
E	Ground terminal

4.3 The control circuit terminals

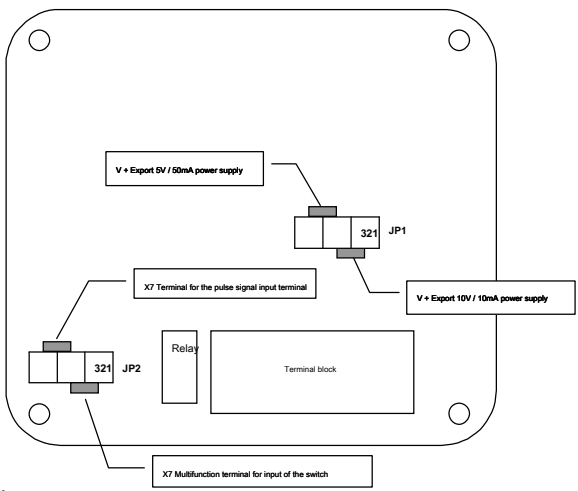
(1) FIG terminal control circuit



(2) a control circuit terminals function

Terminal No.		Terminal Function	Remark
mold	V +	Providing + 5V / 50mA Power outwardly Or + 10V / 10mA Power	JP1 selected by the control panel (see below)
	V-	Providing -10V / 10mA Power outwardly	
Intend	VI1	Frequency setting voltage signal input terminal 1	0 ~ 10V
	VI2	Frequency setting voltage signal input 2	- 10 ~ 10V
lose	II	Frequency setting positive current signal input terminal (current input terminal)	0 ~ 20mA
Enter	GND	Frequency setting voltage signal common terminal (V +, V- power ground), current frequency setting signal input negative terminal (current outflow end)	
control	X1	Multifunction input terminal 1	Multifunctional input terminal is closed by the specific function parameters L-63 L-69 setting, with CM terminal end to the effective
	X2	Multifunction input terminal 2	
	X3	Multifunction input terminal 3	
	X4	Multifunction input terminal 4	
	X5	Multifunction input terminal 5	
system	X6	Multifunction input terminal 6	
end	X7	Multifunction input terminal 7, the input terminal may be (see below) of the external pulse signal	
	FWD	Forward control command terminal	With CM effectively closed, FWD-CM determines the operation direction control panel.
child	REV	Reversal control commands end	
	RST	Fault reset input	
	CM	A control terminal of the common terminal	
	+ 24	Provided outwardly + 24V / 50mA power supply (CM terminal for the power ground)	
simulation	AM	Programmable voltage signal output terminal, an external voltmeter (set by the parameter b-10).	Maximum allowable current 1mA 0 ~ 10V output voltage
	FM	Programmable frequency signal output terminal, an external frequency meter (set by the parameter b-11).	Maximum output signal frequency 50KHz, 10V amplitude
	AM-	AM, FM terminal of the common terminal	GND terminal is connected to the interior of

Terminal No.		Terminal Function	Remark
OC Export	OC1 OC2	Programmable open collector output is set by the parameter b-15 and b-16	The maximum load current of 50mA, the maximum withstand voltage of 24V
Therefore barrier lose Out	TA TB TC	Inverter normal: TA-TB is closed TA-TC off Inverter fault: TA-TB disconnect TA-TC closed	Contact capacity: AC250V 1A Resistive load
RS485 communication	A B	RS485 communication terminals	
E		Ground terminal	



JP1 Jumper Description:

1-2 Short: V + Export 5V / 50mA power supply;

2-3 Short: V + Export 10V / 10mA power supply.

JP2 Jumper Description:

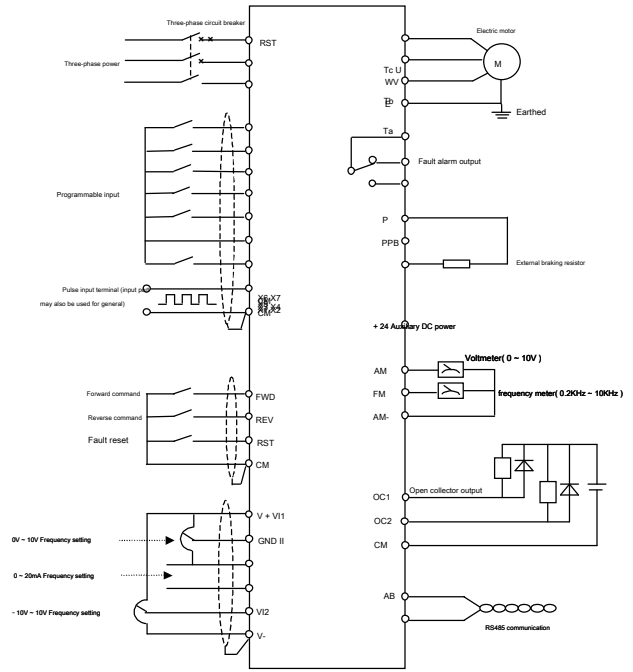
1-2 Short: X7 May receive a frequency of less than 10KHz , Ranging from 5 ~ 24V Pulse signal;

2-3 Short: X7 Multifunction digital input terminal for receiving or OC Pulse signal.

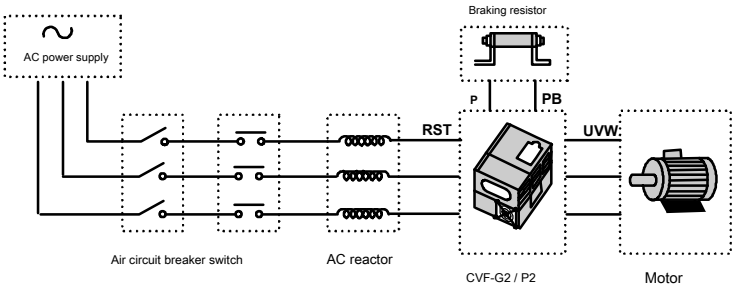
4.4 Electrical specifications recommended

Inverter model		Applicable Motor (KW)	Wire Gauge (main circuit) (mm_2)	Air circuit breaker (A)	Electromagnetic contactor (A)
G2 Series	P2 Series				
CVF-G2-4T0007		0.75	2	10	10
CVF-G2-4T0015	CVF-P2-4T0015	1.5	2	10	10
CVF-G2-4T0022	CVF-P2-4T0022	2.2	2	10	10
CVF-G2-4T0037	CVF-P2-4T0037	3.7	4	15	20
CVF-G2-4T0055	CVF-P2-4T0055	5.5	4	30	20
CVF-G2-4T0075	CVF-P2-4T0075	7.5	6	30	30
	CVF-P2-4T0110	11	8	50	30

The basic wiring diagram of the frequency converter 4.5



4.6 System wiring diagram



yuan Item	Say Bright
power supply	Please input power supply specifications specified in accordance with the manual;
air switch	1 When the inverter or a long time without maintenance, the inverter air switch Isolated from the mains; 2 When the input side of the inverter power supply voltage is too low or short circuit fault, the air Switch can be protected.
Contactor	Easily control power on and off the drive.
AC reactor	1 , Improve the power factor; 2 , To reduce the harmonic wave injection grid; 3 Effect weaken unbalanced three-phase power voltage.
Braking resistor	When the motor is in a regenerative braking state, to avoid excessive pumping voltage in the DC circuit

5. Panel Operation

5.1 Terminology Description

For you to correctly understand the contents of this manual, and better use of the series inverter, please read this section carefully.

Select the operating parameters of the frequency converter 5.1.1

In order to simplify the operation of converters in different application levels, this series inverter will all function parameters are divided into three groups, which are: the basic operating parameters, intermediate and advanced operating parameters operating parameters. Depending on the application level, a user can be shielded, the advanced parameters, so that the parameter setting becomes simple and clear.

By selecting operating parameters of the parameter b-0. ①

basic parameters operating mode

The value of the parameter b-0 is set to "0", then the drive is only controlled by the basic operating parameters (ie parameters b), mid-level operating parameters (L parameters), senior operating parameters (H parameters) do not show, nor from effect.

Only when the drive speed control for performing simple functions, select the basic parameters of the operating mode. When the basic parameters of the mode of operation, most of the advanced features of the drive is turned off.

Tip

When restored, the advanced parameters when operating mode, the original, the advanced parameters can be set from after the drive is powered down

② Intermediate parameters operating mode

B-0 the numerical parameters set to "1", this time the frequency is controlled by the basic operating parameters (i.e., parameter b) and the intermediate operating parameter (L parameter), Advanced operating parameter (H parameter) is not displayed, does not wor

Intermediate parameters operating modes to meet the needs of most applications.

Tip

(1) When the resume mode of operation advanced parameters, the original advanced parameter settings only after the drive is powered down before Automatic recovery.

The factory (2) inverter parameter value intermediate mode of operation.

③ advanced parameters operating mode

B-0 parameter value is set to "2", then all of the functions controlled by the drive parameters. When you need some special features, such as: check speed and restart, programmable multi-speed operation, built-in PID control, several drives by linking run, RS485 communications and other advanced parameters must be selected operating mode.

Mode of operation panel 5.1.2

And a display of the operation panel accepts various commands, divided into four operating modes, except when the mode of the digital set frequency, switching between modes of operation completion key. ① Status monitor mode

Status monitor mode is an operation mode of the panel in most cases, in any case, as long as one minute without a continuous key input, the operation panel will automatically return to the status monitor mode.

When the status monitor mode, the operation panel display operating parameters of the inverter, -MOD status indicator light is off.

prompt

(1) drive a total of 34 kinds of operating state parameters (d-0 ~ d-33), the status monitor mode specific display which Kinds of operating state parameters, is decided by the value of the parameter L-71. (2) in the state monitoring mode, press SHIFT Button to display the value of the output frequency of the inverter output current, Switching between the output voltage, to quickly check the status of these three parameters.

② parameter setting mode

In the parameter setting mode, you can query and modify the functional parameters of the inverter. Parameter setting mode can be divided into the basic operating parameters setting mode, intermediate and advanced operating parameters setting mode operating parameters setting mode. Show the corresponding parameters or parameter value entry. ③ monitoring parameter query mode

In monitor mode parameter query, the query may inverter operation parameters and fault records, the parameter value of the panel display or the corresponding d- □□. (□□ represents Parameter) ④ digital set frequency modification mode

In the state monitor mode, press, or may modify the mode into the digital set frequency, for rapid modification of the digital set frequency.

prompt

Digital set frequency changes only in parameter [b-1] = 1 When the can, i.e. when the frequency of the digital input channel

Effective setting.

5.1.3 Parameter Description method

When referring to this manual setting parameters and their functions, a total of the following three methods expression (b-0 to the parameter as an example):

b-0 : 0 of the basic operating parameters of the parameter, referred to herein as the parameter item which is set instead of value.

[B-0] [b-0] : B-0 refers to the values of the parameter item, i.e., the set value of the parameter b-0. :

= 0 The set value of the parameter b-0 "0."

5.2 Panel Layout

The inverter may be operated, parameter setting function, status monitoring and other operations with an operation panel, panel layout shown in Figure 5-1.

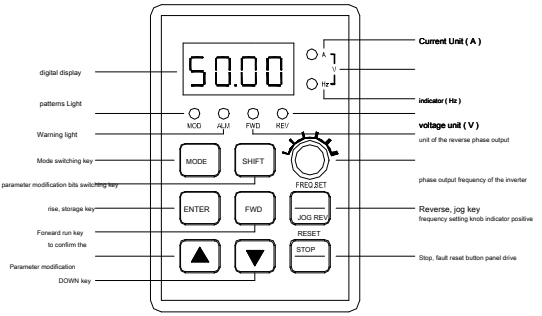


Figure 5-1 operation panel layout view

Special Note on digital display:

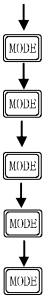
When the actual value displayed ≥10000, the lowest decimal digital lighting, a represents 0, as represented by 1234. 12340, a digital display as the right:

5 .3 Panel says Bright

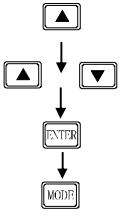
project			Function Description
Display Status Indicator	Digital display status		The inverter is currently running and setting parameter
	A, Hz, V		The current digital display parameter corresponding unit
	MOD		In the non-monitoring state, the indicator light. If the one-minute no key input, the light is off, it returns to the monitoring state. ALM
			Warning light, that the inverter current in an overcurrent or overvoltage suppressing state.
	FWD		Forward indicator, inverter outputs positive phase sequence, the access motor, the motor is transferred.
	REV		Reversing lights, reverse phase sequence inverter outputs, when access to the motor, motor reversal. If the FWD, REV indicator lights at the same time, that the inverter DC braking work.
key plate Gong can			**Forward run key** . **([B-3] = 0) when the run command inverter control channel to the panel, pressing this key will send forward** rotation command. Inverter specified acceleration, deceleration curve to the set operating frequency.
			**Reverse, jog key** . **The specific function keys by the parameter [b-17] Alternatively, when [b-17] = 0, the reverse rotation start for use; when [b-17] = 1, for controlling jog** .
			**Stop, fault reset button.** When the inverter normal operation, **if the inverter operating panel stop** command channel is set to active mode ([b-3] = 0,2,4), this key is pressed, the drive will set the way down . Inverter fault state, press the key to reset to return to normal stop state.
			**Mode switching key** , **To change the working mode of the operation panel.**
			**Enter** , **Confirm the current state or parameters (stored in internal memory). When monitoring the drive state, press this** key directly to modify the frequency of the command interface (while MOD indicator light), this time can be  Keys to change the command frequency.
	 		**Data modifier keys** , **To modify parameters or function code. Press the**  key Modify the speed will accelerate parameters: press  Key and then press  Key will speed up the Modifying data on speed, release  After maintaining the current key rate unchanged. Press  key Then press  Key will speed up the modification of data down, release  After the key dimensions Holding the current rate unchanged. In the state monitor mode, if a digital frequency command channel is a panel arrangement ([b-1] = 1), pressing this key will modify the frequency command value, while MOD indicator light.
			**Data bits switch key** . With any  Keys to change the state of the data, pressing this key You can choose to modify the digit is blinking modified bit.

5.4 Keyboard Operation

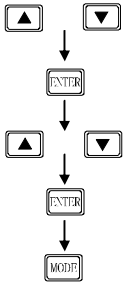
(1) mode switch

operating	Explanation	display
Changing the operating mode of the panel The initial state  	Current state of the operation panel: Status monitor mode	The drive's current operating parameters, such as: 50.00
	Access control parameter query mode	Display monitor code such as: d-0
	The basic operating entering of parameter setting mode Code: b-0	
	Run into the intermediate parameter setting mode Display Code: L-0	
	Go to Advanced Settings mode display operating parameters Code: H-0	
	Into the state monitor mode	

(2) monitoring parameter query

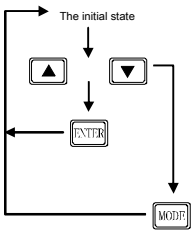
operating	Explanation	display
Example: View set frequency Current state of the operation panel:	Monitoring parameter query mode	d-0 (example)
 	Monitor code plus 1	d-1
	Parameter change monitor code to be queried d-4	d-4
	Verification monitoring item to be queried	display d-4 Parameter values corresponding to: Set frequency
	The need to switch the operation mode of the operation panel	

(3) parameter settings

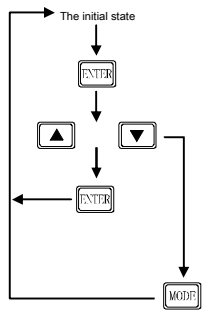
operating	Explanation	display
The acceleration time 1 by 5.0 S is set to change 10.0 Sec (Example)	Current state of the operation panel: Parameter setting mode (parameter substantially Example)	b-0
	**Changing the parameter code to the desired value: b-7 Such as: b-7 (acceleration time 1)**	
	Confirm the modified parameter entry	**display b-7 Values: 5.0**
	Change parameter value to the desired value: 10.0	10.0
	Check the parameter value, which is stored in the internal memory of the frequency converter	b-7
	The need to switch the operation mode of the operation panel	

(4) digital set frequency

modifications 1:

operating	Explanation	display
Change the current digital set frequency	**Current state of the operation panel:** Status monitor mode	Operating parameters **(by the L-71 determine)**
	Changing the digital set frequency to a desired value	Digital set frequency
	Digital set frequency stored in the internal memory, the return status monitoring mode	Operating parameters **(by the L-71 determine)**
	Digital set frequency after modification is not stored in the internal memory after power is lost, the return status monitoring mode	

Option 2:

operating	Explanation	display
Change the current digital set frequency 	Current state of the operation panel: Status monitor mode	Operating parameters (by the L-71 determine)
	Into the digital frequency modification pattern	Digital set frequency
	Changing the digital set frequency to a desired value	Digital set frequency
	Digital set frequency stored in the internal memory, the return status monitoring mode Operating parameters (by the L-71 determine)	
	Digital set frequency after modification is not stored in the internal memory after power is lost, the return status monitoring mode	

Note:

1. In one embodiment the frequency setting mode, 3 seconds no key input, returns the status monitor mode.

2. Embodiment 2 In the frequency setting mode, no key input for 10 seconds, will return to the status monitor mode.

5 .5 status List of monitoring parameters

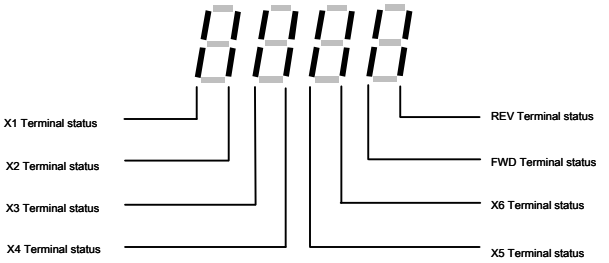
Monitor code	content	unit	Coded address
d-0	Current output frequency	Hz	DBH
d-1	Current output current	A	DCH
d-2	Current output voltage	V	DDH
d-3	Current motor speed	Rpm	DEH
d-4	The current set frequency inverter	Hz	DFH
d-5	DC bus voltage	V	E0H
d-6	PID setpoint	% / MPa	E1H
d-7	PID feedback value	% / MPa	E2H
d-8	Running line speed		E3H
d-9	Setting the linear velocity		E4H

Monitor code	content	unit	Coded address
d-10	AC input voltage	V	E5H
d-11	Temperature of the module	℃	E6H
d-12	Total running time	H	E7H
d-13	Input terminal status		E8H
d-14	Analog Input VI1	V	E9H
d-15	Analog input VI2	V	EAH
d-16	Analog input II	mA	EBH
d-17	External pulse input	KHz	ECH
d-18	Analog output AM	V	EDH
d-19	FM frequency output	KHz	EEH
d-20	The first fault record		EFH
d-21	The second fault record		F0H
d-22	Third fault record		F1H
d-23	Fourth fault record		F2H
d-24	Fifth fault record		F3H
d-25	Sixth fault record		F4H
d-26	Last output frequency at fault	Hz	F5H
d-27	The last set frequency at fault	Hz	F6H
d-28	Last output current at fault	A	F7H
d-29	Last output voltage at fault	V	F8H
d-30	Last DC voltage at fault	V	F9H
d-31	Last module temperature at fault	℃	FAH
d-32	The last input terminal of the fault state		FBH
d-33	Last cumulative run time at fault	H	FCH

prompt

Address is encoded by RS485 When accessing these interfaces to monitor the required parameters specified address.

parameter d- 13 , d- 32 Displaying symbols with the external input terminal state correspondence is as follows:



: Indicates invalid input terminal

: Indicates a valid terminal input

6. Drive operation

6.1 Initialization of inverter

Initialization of inverter factory settings (see function parameter list), particularly the initial setting described here the following parameters: (1) selected operating parameter (b-0)

Initialization of inverter for mid-level parameter operating mode ([b-0] = 1),therefore H Parameters are not displayed, if the need to use H Function parameters, set parameters for advanced operating mode ([b-0] = 2). (2) frequency input channel selection (b-1)

The initial setting for the drive mode panel potentiometer ([b-1] = 0), And therefore frequency control performed by the panel potentiometer.

When the operation panel is not needed or potentiometer to set frequency (e.g., external voltage) from other channels, **modify the parameters b-1 , Change the frequency setting (see par. b-1 The detailed description). (3) Operation channel (b- 3)**

The initial setting for the drive mode panel ([b-3] = 0), So running the drive, stop by the command on the operation panel 

,, Pressing the 

keys.

If desired external control terminal to control the operation of the inverter, modify the parameters b-3 Settings (see par. b-3 The detailed description).

6.2 Simple drive operation

Danger

Absolute prohibition of the power cable to the inverter output terminals U, V, W on.

prompt

The carrier frequency is 10KHz factory, if the machine is fully unloaded, sometimes running at a high carrier frequency of light

Micro-oscillation phenomenon, this time setting the carrier frequency set value is reduced (parameter L-57).

(1) Setting the frequency with the operation panel potentiometer

Perform the following operations: ①

From In Figure 6-1 wiring;

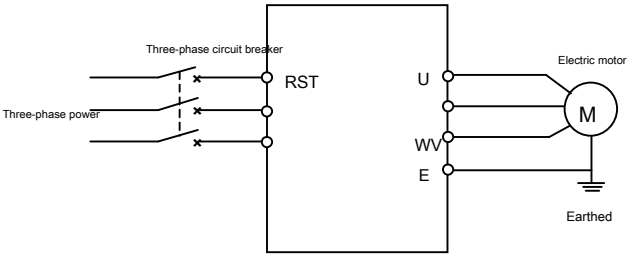


Figure 6-1 simple run wiring diagram

② Closing the power switch to confirm correct wiring, power, the inverter will display " P.oFF "

Later shows " 0 "; ③ According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Parameters

Set; ④ The counter-clockwise rotation in the end panel potentiometer knob, frequency is

set to 0 ; ⑤ Press

FWD Key to start the inverter, the inverter output 0 Frequency display " 0.0 ";

⑥ Slowly clockwise potentiometer knob rotation panel, the inverter output frequency 0.0Hz Began to increase

Plus, the motor starts running; ⑦ Observe whether the motor is running properly, stop running immediately if unusual,

power, find out the original

Because after the operation; ⑧ The clockwise rotation in the end panel potentiometer, the output frequency of the

inverter is 50.00Hz ,Electricity

Press machine 50.00Hz Operation;

⑨ Press STOP RESET To stop running;

⑩ Off the power switch.

(2) **Direct Frequency setting operation panel**

① In Figure 6-1 Wiring; ② Closing the power switch to confirm correct wiring, power, the inverter will display " P.oFF "

Later shows " 0 "; ③ Confirmed the panel frequency setting mode digital set ([b-1] = 1); ④ According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Parameters

Set; ⑤

Press FWD Key to start the inverter, the inverter output 0 Frequency display " 0.0 ";

⑥ Press  Keys to increase the set frequency, the output frequency of the inverter is increased to accelerate the motor speed; ⑦ Observe whether the motor is running properly, stop running immediately if unusual, power, find out the original

Because after the

operation; ⑧ Press  Key to decrease the set frequency;

⑨ Press 

To stop running;

⑩ Off the power switch.

7. Function parameter list

Description of Symbols in the table: × - It indicates that the parameter can not be changed during operation;

* - - Indicates that the parameter related to the inverter model;

---- - - It indicates that the parameter for the retention parameters, displays "----."

7.1 The basic operating parameters (b parameter)

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
b- 0	Select the operating parameters	0 : Basic operating parameters 1 : Intermediate operating parameters 2 : Advanced operating parameters	1	1	× 00H	
b- 1	Frequency input channel selection	0 : Panel Potentiometer 1 : Digital setting panel 2 : External voltage signal 13 : External voltage signal twenty four : External current signal 5 : UP / DW Terminal Dec control 6 : External pulse signal 7 : RS485 interface 8 : Combination setting 9 : External terminals	1	0		01H
b- 2	Frequency setting	0.0 ~ The upper limit frequency	0.01	0.0		02H
b- 3	Run command channel selection	0 : Keyboard Control 1 : External terminal (keyboard STOP invalid) 2 : External terminal (keyboard STOP effective) 3 : RS485 Ports (keyboard STOP invalid) 4 : RS485 Ports (keyboard STOP effective)	1	0		03H
b- 4	Steering Control	0 : Consistent with the direction set 1 : Setting direction opposite to 2 : Reverse prevention	1	0		04H
b- 5	Load motor rated voltage	100 ~ 250V 200 ~ 500V	1	220 380 × 05H		
b- 6	Load motor rated frequency	5.00 ~ 500.0Hz	0.01 50.00 × 06H			
b- 7	acceleration time 1	0.1 ~ 6000 second	0.1	*		07H
b- 8	Deceleration time 1	0.1 ~ 6000 second	0.1	*		08H
b- 9	Acceleration, deceleration mode	0 :straight line 1 : S curve	1	0		09H
b- 10	Analog Output (AM)set up	0 :Output frequency 1 :Output current 2 :The output voltage 3 :Motor speed 4 : PID set up 5 : PID Feedback	1	0		0AH
b- 11	Frequency output (FM)set up		1	0		0BH
b- 12	Analog Output (AM) Gain 0.50 to 2.00		0.01	1.00		0CH
b- 13	Frequency output (FM) Gain 0.10 ~ 5.00		0.01	1.00		0DH
b-14	Analog Output (AM) Bias -1.00 to 1.00		0.01	0.0		0EH

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
b-15 OC1	Output settings	0 : Inverter running 1 : Frequency arrival 2 : Frequency level detection signal (FDT) 3 : Overload alarm 4 : External stopping 5 : Output frequency reaches the upper limit 6 : Output frequency reaches the lower limit 7 : Undervoltage shutdown 8 : Inverter zero speed running	1	0		0FH
b-16 OC2	Output settings	9 : PLC Run process 10 : PLC Finish one cycle run 11 : PLC Run a phase ends 12 : PLC End of run 13 : Internal timer expires 14 : Internal counter reaches the final value 15 : Internal counter reaches the specified value 16 : Pressure limit alarms 17 : Pressure limit alarm	1	1		10H
b-17 REV / JOG Key function selection		0 : Inversion of Control 1 : Jog	1	0		11H

7.2 Intermediate operating parameters (L parameter)

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
L- 0 V / F	Curve type selection	0 : Constant torque curve 1 : Decreasing torque curve 12 : Decreasing torque curve 2	1	0	× 12H	
L- 1	Torque boost	0 to 20%	1	*		13H
L- 2	Torque boost	0 : Manual 1 :automatic	1	0	× 14H	
L- 3	The upper limit frequency	Lower frequency ~ 500.0Hz	0.01 50.00			15H
L- 4	Lower frequency	0.0 ~ The upper limit frequency	0.01	0.50		16H
L- 5	Lower frequency operation mode	0 :stop 1 : Run as the lower limit frequency	1	0	× 17H	
L- 6	Starting method	0 : Start from the starting frequency 1 : Brake first and then start 2 : Speed checking restart	1	0		18H
L-7	Starting frequency	0.0 ~ 10.00Hz	0.01	0.50		19H
L- 8	Starting frequency duration	0.0 to 20.0 second	0.1	0.0 × 1AH		
L-9	DC braking start voltage	0 to 15 (%)	1	0	× 1BH	
L-10	DC braking time at start	0.0 to 20.0 second	0.1	0.0 × 1CH		
L-11	Stop mode	0 :slow down 1 : Free stop	1	0		1DH
L-12	DC braking start frequency stop 0.0 ~ 15.00Hz		0.01	3.00		1EH
L-13	DC braking operation shutdown time 0.0 to 20.0 second		0.1	0.0 × 1FH		
L-14	DC braking voltage shutdown	0 to 15 (%)	1	5	× 20H	

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
L-15	Jog frequency	0.0 ~ The upper limit frequency	0.01	10.00		21H
L-16	Jog acceleration time	0.1 ~ 6000 second	0.1	10.0		22H
L-17	Jog deceleration time	0.1 ~ 6000 second	0.1	10.0		23H
L-18	Multi-speed frequency 1	0.0 ~ The upper limit frequency	0.01	35.00		24H
L-19	Multi-speed frequency 2	0.0 ~ The upper limit frequency	0.01	15.00		25H
L-20	Multi-speed frequency 3	0.0 ~ The upper limit frequency	0.01	3.00		26H
L-21	Multi-speed frequency 4	0.0 ~ The upper limit frequency	0.01	20.00		27H
L-22	Multi-speed frequency 5	0.0 ~ The upper limit frequency	0.01	25.00		28H
L-23	Multi-speed frequency 6	0.0 ~ The upper limit frequency	0.01	30.00		29H
L-24	Multi-speed frequency 7	0.0 ~ The upper limit frequency	0.01	35.00		2AH
L-25	Multi-speed frequency 8	0.0 ~ The upper limit frequency	0.01	40.00		2BH
L-26	Multi-speed frequency 9	0.0 ~ The upper limit frequency	0.01	45.00		2CH
L-27	Multi-speed frequency 10	0.0 ~ The upper limit frequency	0.01	50.00		2DH
L-28	Multi-speed frequency 11	0.0 ~ The upper limit frequency	0.01	40.00		2EH
L-29	Multi-speed frequency 12	0.0 ~ The upper limit frequency	0.01	30.00		2FH
L-30	Multi-speed frequency 13	0.0 ~ The upper limit frequency	0.01	20.00		30H
L-31	Multi-speed frequency 14	0.0 ~ The upper limit frequency	0.01	10.00		31H
L-32	Multi-speed frequency 15	0.0 ~ The upper limit frequency	0.01	5.00		32H
L-33	External operation command mode selection	0 : Two-wire control mode 11 : Two-wire control mode twenty two : Three-wire control mode	1	0	× 33H	
L-34	VI 1 Input voltage lower limit	0.0V ~ [L-35]	0.1	0.0		34H
L-35	VI 1 Input voltage limit	[L-34] ~ 10.0V	0.1	10.0		35H
L-36	VI 1 Enter an adjustment factor	0.01 to 5.00	0.01	1.00		36H
L-37	VI 2 Input voltage lower limit	- 10.0V ~ [L-38]	0.1	0.0		37H
L-38	VI 2 Input voltage limit	[L-37] ~ 10.0V	0.1	10.0		38H
L-39	VI 2 Enter an adjustment factor	0.01 to 5.00	0.01	1.00		39H
L-40	VI 2 Zero input offset	- 1.00 ~ 1.00V	0.01	0.0		3AH
L-41	VI 2 Bipolar input control	0 :invalid 1 :effective	1	0		3BH
L-42	VI 2 Bipolar control input 0:00 Hysteresis width	0.00 ~ 1.00V	0.01	0.20		3CH
L-43	The lower limit of the input current II	0.0mA ~ [L-44]	0.1	4.0		3DH
L-44	Input current limit II	[L-43] ~ 20.0mA	0.1	20.0		3EH
L-45	Adjustment coefficient input II	0.01 to 5.00	0.01	1.00		3FH
L-46	Lower frequency input pulse	0.0KHz ~ [L-47]	0.1	0.0		40H
L-47	Input high frequency pulse	[L-46] ~ 10.0KHz	0.1	10.0		41H
L-48	Pulse input adjustment coefficient	0.01 to 5.00	0.01	1.00		42H
L-49	The lower limit of the frequency corresponding to the set input	0.0 ~ The upper limit frequency	0.01	0.0		43H
L-50	Corresponding to the upper limit frequency setting input	0.0 ~ The upper limit frequency	0.01	50.00		44H
L-51	Retention	----	--	--		45H

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
L-52	Retention	----	--	--		46H
L-53	Retention	----	--	--		47H
L-54	Retention	----	--	--		48H
L-55	Analog input filter time constant 0.01 to 5.00 second		0.01	0.20 × 49H		
L-56	Frequency input channel combination	See feature details (first 54 page)	1	0	× 4AH	
L-57	Carrier frequency	1.5KHz ~ 15KHz	0.1	*		4BH
L-58	Amplitude detection frequency reaches	0.0 ~ 20.00Hz	0.01	5.00		4CH
L-59	FDT (Horizontal frequency) setting	0.0 ~ The upper limit frequency	0.01 10.00			4DH
L-60	FDT Output delay time	0.0 to 20.0 second	0.1	2.0		4EH
L-61	Overload warning level	50 to 200 (%)	1	110		4FH
L-62	Overload alarm delay time	0.0 to 20.0 second	0.1	2.0		50H
L-63	Input terminal 1 Function Select (0-21)	0 : Console idle 1 : Multi-speed control terminal 12 : Multi-speed control terminal twenty three : Multi-speed control terminal 34 : Multi-speed control terminal 45 : Forward jog control 6 : Reverse inching control 7 : Free stop control 8 : External fault input device 9 : Deceleration time selection terminal 110 : Deceleration time selection terminal 211 : Increasing frequency control (UP) 12 : Frequency-down control (DW) 13 : Channel selection frequency setting terminal 114 : Channel selection frequency setting terminal 215 : Channel selection frequency setting terminal 316 :simple PLC time out 17 : Three-line running control 18 : DC braking control 19 : Internal timer trigger terminal 20 : The internal timer is reset terminal twenty one : Interior counter clearing end twenty two : Internal counter clock terminal twenty three : External pulse input	1	1	× 51H	
L-64	Input terminal 2 Function Select (0-21)		1	2	× 52H	
L-65	Input terminal 3 Function Select (0 to 21)		1	3	× 53H	
L-66	Input terminal 4 Function Select (0-21)		1	4	× 54H	
L-67	Input terminal 5 Function Select (0-21)		1	6	× 55H	
L-68	Input terminal 6 Function Select (0 ~ 22)		1	7	× 56H	
L-69	Input terminal 7 Function Select (0 to 23)		1	twenty three × 57H		
L-70	Line speed coefficient setting	0.01 100.0	0.01 1.00			58H
L-71	Monitor item selection	0-10	1	0		59H
L-72	Parameter write protection	0 : All parameters are allowed modifying 1 : In addition to prohibiting rewrite b-2 Outside the parameters 2 : Do not rewrite all parameters	1	0		5AH
L-73	Initialization parameters	0 : No action 1 : Initializing operation 2 : Clear fault records	1	0	× 5BH	

7.3 Advanced operating parameters (H parameters number)

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
H-0	Slip frequency compensation	0 to 150 (%)	1	0	× 5CH	
H-1	Overload, overheating protection operation mode	0 : The inverter blocks output 1 : Limiting operation (alarm)	1	0		5DH
H-2	Motor overload protection factor	50 to 110 (%)	1	110	× 5EH	
H-3	Automatic energy-saving operation	0 : No action, 1 :action	1	0	× 5FH	
H-4	Power cut restart settings	0 : No action, 1 :action	1	0	× 60H	
H-5	Power cut restart waiting time	0.0 to 10.0 second	0.1	0.5	× 61H	
H-6	Fault recovery times	0,1,2	1	0	× 62H	
H-7	Fault recovery interval	2 ~ 20 second	1	5	× 63H	
H-8	Automatic voltage regulator	0 : No action, 1 :action	1	0		64H
H-9	Current limit level	110% 200%	1	150		65H
H-10	Reversible dead time	0.0 to 5.0 second	0.1	0.1	× 66H	
H-11	Internal timer settings	0.1 ~ 6000 second	0.1	0.0	× 67H	
H-12	Set the internal counter final value	1 to 60000	1	1	× 68H	
H-13	Set the internal counter specified value	1 to 60000	1	1	× 69H	
H-14	Programmable multi-speed operation is provided	0 : No action 1 : Single cycle 2 : Continuous cycle 3 : Keep the final value 4 : Wobble operation 5 : Single-cycle shutdown mode 6 : Continuous cycle stop mode 7 : Keep final value of the shutdown mode	1	0	× 6AH	
H-15	stage 1 operation hours	0.1 ~ 6000 second	0.1	10.0	× 6BH	
H-16	stage 1 Running direction	0 :Forward, 1 : Reverse	1	0		6CH
H-17	stage 1 Acceleration and deceleration time	0.1 ~ 6000 second	0.1	10.0		6DH
H-18	stage 2 operation hours	0.0 ~ 6000 second	0.1	10.0	× 6EH	
H-19	stage 2 Running direction	0 :Forward, 1 : Reverse	1	0		6FH
H-20	stage 2 Acceleration and deceleration time	0.1 ~ 6000 second	0.1	10.0		70H
H-21	stage 3 operation hours	0.0 ~ 6000 second	0.1	10.0	× 71H	
H-22	stage 3 Running direction	0 :Forward, 1 : Reverse	1	0		72H
H-23	stage 3 Acceleration and deceleration time	0.1 ~ 6000 second	0.1	10.0		73H
H-24	stage 4 operation hours	0.0 ~ 6000 second	0.1	10.0	× 74H	
H-25	stage 4 Running direction	0 :Forward, 1 : Reverse	1	0		75H
H-26	stage 4 Acceleration and deceleration time	0.1 ~ 6000 second	0.1	10.0		76H
H-27	stage 5 operation hours	0.0 ~ 6000 second	0.1	10.0	× 77H	
H-28	stage 5 Running direction	0 :Forward, 1 : Reverse	1	0		78H
H-29	stage 5 Acceleration and deceleration time	0.1 ~ 6000 second	0.1	10.0		79H
H-30	stage 6 operation hours	0.0 ~ 6000 second	0.1	10.0	× 7AH	
H-31	stage 6 Running direction	0 :Forward 1 : Reverse	1	0		7BH

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
H-32	stage 6 Acceleration and deceleration time	0.1 ~ 6000 second	0.1	10.0		7CH
H-33	stage 7 operation hours	0.0 ~ 6000 second	0.1	10.0 × 7DH		
H-34	stage 7 Running direction	0 :Forward 1 : Reverse	1	0		7EH
H-35	stage 7 Acceleration and deceleration time	0.0 ~ 6000 second	0.1	10.0		7FH
H-36	Frequency hopping 1	0.0 ~ The upper limit frequency	0.01	0.0		80H
H-37	Frequency hopping 1 Margin	0.0 ~ 5.00Hz	0.01	0.0		81H
H-38	Frequency hopping 2	0.0 ~ The upper limit frequency	0.01	0.0		82H
H-39	Frequency hopping 2 Margin	0.0 ~ 5.00Hz	0.01	0.0		83H
H-40	Frequency hopping 3	0.0 ~ The upper limit frequency	0.01	0.0		84H
H-41	Frequency hopping 3 Margin	0.0 ~ 5.00Hz	0.01	0.0		85H
H-42	acceleration time 2	0.1 ~ 6000 second	0.1	*		86H
H-43	Deceleration time 2	0.1 ~ 6000 second	0.1	*		87H
H-44	acceleration time 3	0.1 ~ 6000 second	0.1	*		88H
H-45	Deceleration time 3	0.1 ~ 6000 second	0.1	*		89H
H-46	acceleration time 4	0.1 ~ 6000 second	0.1	*		8AH
H-47	Deceleration time 4	0.1 ~ 6000 second	0.1	*		8BH
H-48	Internal PID control	0 :no PID control 1 :ordinary PID control 2 : Water Supply PID 3 : Dual Pump Water Supply PID (Accessory required) 4 : Three-pump constant pressure water supply PID (Accessory required) 5 : Four Pump Water Supply PID (Accessory required)	1	0	× 8CH	
H-49	PID Setting channel selection	0 : Panel Potentiometer 1 : Digital setting panel 2 : External voltage signal 1 (0 ~ 10V) 3 : External voltage signal 2 (- 10V ~ 10V) 4 : External current signal 5 : External pulse signal 6 : RS485 Interface settings	1	0	× 8DH	
H-50	PID Feedback channel selection	0 : Voltage input 1 (0 ~ 10 V) 1 : Current input 2 : Pulse input 3 : 2 voltage input (- 10V ~ 10 V)	1 3 × 8EH			
H-51	Feedback signal characteristics	0 : Positive characteristic 1 : Negative character	1	0	× 8FH	
H-52	Feedback channel gain	0.01 to 10.00	0.01	1.00		90H
H-53	PID Setting a feedback coefficient display	0.001 to 10.000	0.001	1.000		91H
H-54	PID The controller structure selection	0: Proportional 1: Points 2: proportional-integral-3: proportional integral derivative 1		2	× 92H	
H-55	Proportional gain	0.0 ~ 5.00	0.01	0.5		93H
H-56	The integration time constant	1.0 ~ 100.0 second	0.1	10.0		94H

Code	name	Explanation	Least unit	Factory set up	change limit	coding address
H-57	Differential gain	0.0 to 5.0	0.1	0.1 × 95H		
H-58	The sampling period	0.01 to 1.00 second	0.01	0.1		96H
H-59	Tolerance limits	0 to 20 (%)	1	0		97H
H-60	PID Feedback disconnection detection threshold	0.0 to 20.0 (%)	0.1	0.0		98H
H-61	PID Action selection feedback disconnection	0 : Stop 1 : Press the number set frequency operation 2 : Run by frequency upper limit 3 : Half run as the upper limit frequency	1	0		99H
H-62	Remote pressure gauge range	0.001 ~ 20.000Mpa	0.001	1.000		9AH
H-63	Alarm low pressure	0.001 ~ [H-64]	0.001	0.0		9BH
H-64	Alarm high pressure	[H-63] ~ [H-62]	0.001	1.000		9CH
H-65	Defining a lower limit pressure value	0.001 ~ [H-66]	0.001	0.0		9DH
H-66	Defining the upper limit pressure value	[H-65] ~ [H-62]	0.001	1.000		9EH
H-67	Wake threshold	0.001 ~ [H-68]	0.001	0.0		9FH
H-68	Sleep Threshold	[H-67] ~ [H-62]	0.001	1.000		A0H
H-69	Pump switching determination time	0.1 to 1000.0 second	0.1	300.0		A1H
H-70	Electromagnetic switch delay time	0.1 to 10.0 second	0.1	0.5 × A2H		
H-71	Multi-pump operating mode	0 : Switching fixed order 1 : Regular rotation	1	0		A3H
H-72	Regular rotation interval	0.5 ~ 100.0 hour	0.1	5.0		A4H
H-73	Regular water supply time	0.5 to 24.0 hour	0.1	24.0		A5H
H-74	Retention	----	----	----		A6H
H-75	Retention	----	----	----		A7H
H-76	Retention	----	----	----		A8H
H-77	Retention	----	----	----		A9H
H-78	Native address	0 ~ 30	1	0	× AAH	
H-79	Data Format	0 : No parity 1 : Even parity 2 : Odd	1	0	× ABH	
H-80	Baud Rate	0 : 1200bps 1 : 2400bps 2 : 4800bps 3 : 9600 bps 4 : 19200bps	1	3	× ACH	
H-81	Master Set	0 : This drive from the station 1 : This drive-based station	1	0	× ADH	
H-82	Linking a set ratio	0.10 to 10.00	0.01	1.00		AEH
H-83	RS485 Communication disconnection action mode	0 : Stop, 1 : Maintaining the Status Quo	1	0		AFH
H-84	Retention	----	----	----		B0H

8. Function details

8.1 The basic operating parameters (b parameter)

b - 0 Select the operating parameters	*Predetermined area: 0 , 1 , 2*

Selecting parameters for the controlled current inverter operation, the user can be set according to the actual needs, in order to simplify the operation. (See 5.1 - Description terminology) 0: Basic parameters of the operating mode. Run the drive only by the basic parameters (b-0 ~ b-17)control,

Other parameters are not displayed, it does not affect the operation of the inverter. 1: Intermediate parameters operating mode. Operation of the equipment by the basic parameters, intermediate parameters (L- 0 ~ L-73)

Control other parameters are not displayed, it does not affect the operation of the inverter. 2: advanced parameters operating mode. Operation of the equipment by the basic parameters, intermediate and advanced parameters

(H- 0 ~ H-84)control.

prompt

When a lower setting to change the advanced settings, the original parameter settings must be higher in order after the drive is powered down Automatic recovery.

b - 1 Frequency input channel selection	*Predetermined area: 0-9*

Select frequency command input channel.

0: panel potentiometer. The potentiometer by the operator on the control panel to set the operating frequency. 1: digital setting panel. By the key on the operation panel to set the operating frequency. 2: 1 external voltage signal. External analog input voltage terminal VI1 (0 ~ 10V) To set the run

frequency.

3: 2 external voltage signal. External analog input voltage terminal VI2 (- 10V ~ 10V) To set the operation

Line frequency.

4: External current signal. External analog current input II (0 ~ 20mA) To set the operating frequency. 5: UP / DW terminal Dec control. Operating frequency from an external control terminal UP / DW set up(UP ,

DW By the parameter control terminal L-63 ~ L-69 select.),when UP-CM When closed, the operating frequency is increased, DW-CM When closed, the operating frequency decreases. UP , DW And at the same time CM When the end of the closing or opening,

the operating frequency unchanged. Increase in frequency, according to the set decreased for deceleration time.

6: external pulse signal. Operating frequency set by the external pulse signal, the pulse input terminal by the parameter L-69

Select (X7). 7: RS485 interface. by RS485 Frequency command interface to receive the host computer when the host computer is provided using

Linkage in a given frequency or set the unit to control the slave, this mode should be selected. 8: combination given. Operating frequency channel set by the linear combination is determined, the parameter combination L-56 determine.

9: External terminals. External terminals to select the channel frequency setting (parameter selected by the terminal L-63 ~ L-69 Determination), the terminal status is set corresponding relationship between the frequency channels in the table below:

Frequency setting selection terminal 3	Frequency setting selection terminal selection frequency setting terminal 1	Frequency setting	
0	0	0	Panel potentiometer
0	0	1	Digital setting panel
0	1	0	External voltage signal VI1
0	1	1	External voltage signal VI2
1	0	0	External current signal II
1	0	1	UP / DW Terminals
1	1	0	External pulse
1	1	1	RS485 interface

<Note: The figures in the table, "0" indicates that the corresponding terminal is disconnected with CM "1" indicates a closed>

b - 2 Frequency setting ***Predetermined area: 0.0 ~ The upper limit frequency***

When the frequency of the input channel digital setting panel ([b-1] = 1), The output frequency of the inverter is determined from the value.

In the state where the operation panel monitor mode, press ▲ Key or ▼ This parameter can be modified directly bond Number (see 5.4 - The method of operation of the keyboard (4) Modify the frequency of the digital set).

b - 3 Run command channel selection ***Predetermined area: 0-4***

Select the drive for accepting run, stop channel command. 0: Keyboard control. Start and stop the inverter on the operation panel 

Button control.

The direction of the external terminals FWD-CM The state determination, FWD-CM Opened, the drive forward; FWD-CM Closed, the drive reversal. FWD-CM State also determines the direction of the operation panel jog.

1: an external terminal (keypad STOP invalid). By starting and stopping the drive control terminals FWD, REV and CM-off terminal to control, when the table is set as shown in the factory the drive side

Type:

command	Shutdown command		Forward command	Reverse command
Terminals				
status				

In the present embodiment, the keyboard  Button does not work.

2: external terminal (STOP active keyboard). The basic functions of the same way 1 In this mode, the keyboard

STOP Used to enter the stop command to resume operation, you must enter a power command from an external stop command again.

3: RS485 port (keyboard STOP invalid). Run command from RS485 Interface receives, from the general

Host PC or even when the drive control of the movable issued. Under this embodiment, the keys on the keyboard  would not work.

4: RS485 port (keyboard STOP valid). The basic functions of the same way 3 , The present embodiment can be used

On the panel  **Key to achieve shutdown To restart the drive, it must be made RS485** Interface to enter the stop command and then enter the command to run.

b - 4 Steering Control ***Predetermined area: 0 , 1 , 2***

This parameter is used to change the phase sequence of the inverter output current, thereby changing the direction of rotation.

0: the same setting direction.

1: opposite to the setting direction. Selecting this embodiment, opposite the actual output phases of the inverter with the set sequer

For example, the external control mode, if the FWD-CM Shorted, motor will reverse instead of forward. Forward button on the control panel It has become the  **reverse command function keys. 2: reverse prevention. The drive** will ignore steering commands, press only run forward.

This parameter controls the direction of the external terminals concurrently.

prompt

b - 5 Load motor rated voltage Predetermined area: 100V / 200V ~ 250V / 500V b - 6 Load motor rated frequency Predetermined area: 5.00Hz ~ 500.00Hz

Please actual configuration of the motor nameplate data set.

Predetermined area: 0.1 ~ 6000 second

b - 8 Deceleration time 1 Predetermined area: 0.1 ~ 6000 second

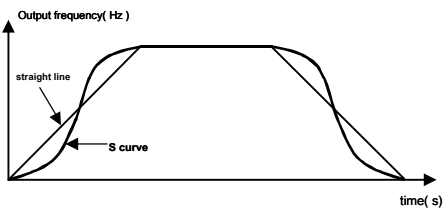
acceleration time 1 It refers to the output frequency from the 0.0Hz To accelerate 50.00Hz Time required.

Deceleration time from the output frequency to 1 50.00Hz To slow down 0.0Hz Time required.

b - 9 Acceleration, deceleration mode Predetermined area: 0 , 1

0: straight line. Linear acceleration, deceleration is employed most of the load. 1: S curve. S Curve acceleration, deceleration mainly added as required noise and vibration mitigation during deceleration,

output (FM)set up Predetermined area: 0 ~ 5 b - 7 acceleration time 1



Map 8-1 Of the inverter. Deceleration curve

b - 10 Analog Output (AM)set up Predetermined area: 0 ~ 5 b - 11 Frequency

Defined analog output (AM) And a frequency output (FM) The output signal represents. 0: The output frequency of the inverter

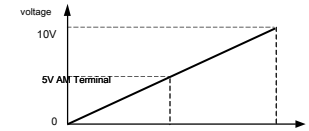
1: The inverter output current

2: the inverter output voltage

3: the mechanical speed of the motor

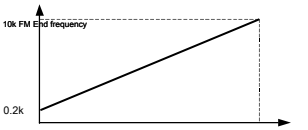
4: PID setting

5: PID feedback



Setting: 0 : The upper limit frequency
1 : Current Rating
2 : Motor rated voltage
3 : Rated motor speed
4 : PID Borderless setting
5 : PID Borderless feedback

Map 8-2 Analog output terminals AM The output content



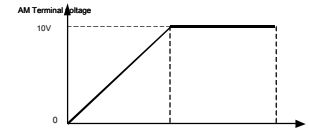
Setting: 0 :
1 : Current Rating
2 : Motor rated voltage
3 : Rated motor speed
4 : PID Borderless setting
5 : PID Borderless feedback

Map 8-3 Frequency output terminal FM The output content

b - 12 Analog Output (AM) Gain	***Predetermined area: 0.50 to 2.00***
b - 13 Frequency output (FM) Gain	***Predetermined area: 0.10 ~ 5.00***

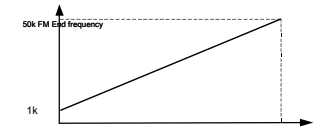
To adjust AM Terminal output voltage or FM Terminal output frequency values, i.e., FIG. 8-2 Fig.

8-3 Hatched slope. As shown below.



Setting: 0 : The upper limit frequency
1 : Current Rating
2 : Motor rated voltage
3 : Rated motor speed
4 : PID Borderless setting
5 : PID Borderless feedback

Map 8-4 [b-12] = 2.00



Setting: 0 :
1 : Current Rating
2 : Motor rated voltage
3 : Rated motor speed
4 : PID Borderless setting
5 : PID Borderless feedback

Map 8-5 [b-13] = 5.00

b - 14 Analog Output AM Bias	***Predetermined area:- 1.00 to 1.00***

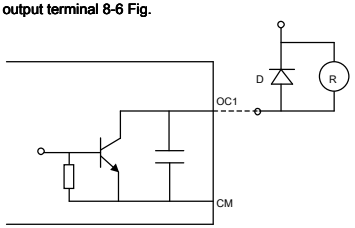
Influenced by environmental parameters and dispersion device, analog output AM Zero offset output voltage terminal have a certain value, this parameter is used to compensate for these effects offset.

For example: If the measured AM The output is zero bias 0.32V This parameter is set to - 0.32V To about offset, specific data can be adjusted according to actual necessary correction.

b - 15 OC1 Output settings	***Predetermined area: 0 ~ 17***
b - 16 OC2 Output settings	***Predetermined area: 0 ~ 17***

Open collector output terminal is defined OC1 , OC2 Content represented by:

OC Internal diagram in FIG output terminal 8-6 Fig.



Map 8-6 OC Internal line output terminal

note

When the external inductive element (e.g., a relay coil) must be parallel freewheeling diode D .

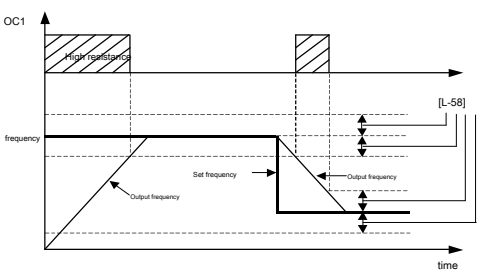
0: running inverter. When the inverter is running, the output signal is active (low), stop

Invalid state machine output signal (Hi-Z).

1: Frequency reach. When the output frequency close to the set frequency range (the range from the

parameter L-58 determine,[b- 0] = 0 When, fixed 5.00Hz), The output valid signal (low level), or invalid signal output (high

impedance).

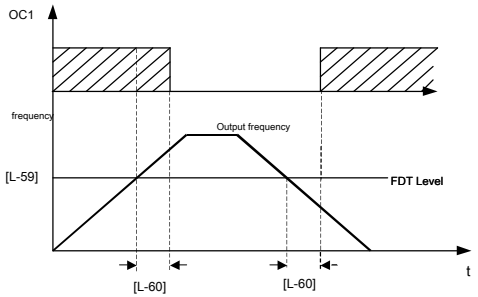


Map 8-7 Frequency arriving signal

2: Frequency level detection signal (FDT). When the output frequency exceeds FDT When frequency level,

After the set delay time, the output valid signal (low level), when the output frequency is lower than FDT When the frequency

level, after the same delay time, the output invalid signal (high-impedance).



Map 8-8 Frequency level detection (FDT)

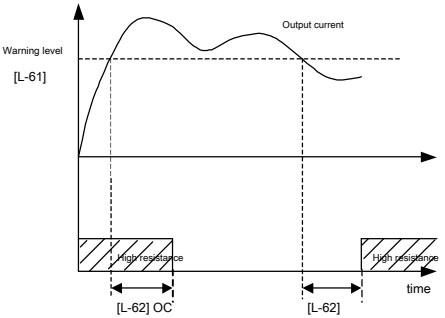
prompt

(1) FDT level set by the parameter L-59, [b-0] = 0, the fixed 10.0Hz. (2) delay time set by the parameter L-60, [b-0] = 0, the fixed 2 seconds.

3: overload alarm. When the output current of the inverter exceeds the overload alarm level, the packets after setting

After the alarm delay time, the output signal is active (low). When the output current is lower than the overload alarm

level, after the same delay time, the output invalid signal (high-impedance).



Map 8-9 Overload alarm

prompt

(1) overload alarm level is set by the parameter L-61, [b-0] = 0, the fixed 110%. (2) alarm delay time is set by the parameter L-62, [b-0] = 0, the fixed 2 seconds.

4: External stopping. When an external fault input signal of the inverter active, lead to stop

When the valid signal output port (Low level), otherwise, the output invalid signal (high-impedance).

5: output frequency reaches the upper limit. When the output frequency of the inverter frequency reaches the upper limit, the output port

A valid signal (low level), or invalid signal output (high impedance). 6: output frequency reaches the lower limit. When the output frequency of the inverter frequency reaches the lower limit, the output port

A valid signal (low level), or invalid signal output (high impedance). 7: undervoltage shutdown. When the inverter DC voltage lower than the predetermined value, the drive is stopped,

Meanwhile, the port output valid signal (low level). 8: Inverter zero speed running. When the inverter output frequency is 0 But when the output voltage (e.g.

DC braking, during the positive and negative dead zone) the valid signal output port (low level). 9: PLC is running. Programmable multi-speed operation, the valid signal output port (Low

Level)

10: PLC finish one cycle run. when PLC At the end of a run cycle, the output port

A width 0.5 Second pulse signal active (low).

11: PLC running end stage. Programmable multi-speed running, the drive runs out of each

Speed section, the width of the output port 0.5 Second pulse signal active (low level), with reference to FIG. 8-27 , 8-28 . 12: PLC running over. When the cycle of the programmable multi-speed operation, the output port width

About 0.5 Second pulse signal active (low).

13: Internal timer expires. When the timer time reaches inside the inverter, the output port

Effective pulse signal having a width of 0.5 seconds (low level). 14: the internal counter reaches the final value. See parameter H-12's instructions. 15: the internal counter reaches the specified value. See parameter H-13 related instructions. 16: alarm pressure limit. When the feedback pressure is greater than the upper pressure limit alarm set value ([H-64]), and

Output frequency of the inverter has reached the lower limit frequency is applied (multi-pump system, other pumps have been shut down), the port output valid signal (low level), this function can be used to indicate the water supply pipe blockage. 17: alarm pressure limit. When the pressure is less than the feedback pressure limit alarm set value ([H-63]), and

Output frequency of the inverter has reached the upper limit frequency is applied (multi-pump systems, the other pump is operating in frequency), the corresponding port output signal active (low), this function can be used to indicate water pipeline leak.

b - 17 JOG / REV Key function selection	***Predetermined area: 0 , 1***

0: Inversion of Control. Operation keys on the front panel 

Used as a reverse rotation command is input, the keyboard

control method([b-3] = 0), Pressing this key, the reverse-phase inverter output frequency. 1: jog control.

Operation keys on the front panel 

Jog command as an input. Press, becomes

Inverter will set jog frequency (L-15)run.

8.2 Intermediate operating parameters (L parameter)

L - 0 V / F Curve type selection	***Predetermined area: 0 , 1 , 2***

0: Constant torque curve. The output voltage proportional to the output frequency of the inverter, for most of the load,

This way.

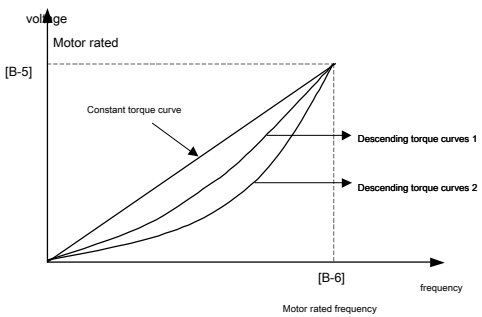
1: 1 variable torque curve. Output voltage and output frequency of the inverter is conic, applicable

In fan and pump loads.

2: 2 variable torque curve. Output voltage and output frequency of the inverter is conic, applicable

Fans, pumps and other category constant power load. If there is instability when light load operation, switch to variable

torque curve 1 run.



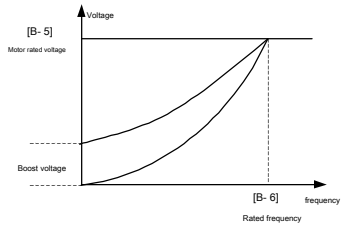
Map 8-10 V / F curve

L - 1 Torque boost	***Predetermined area: 0 ~ 20***

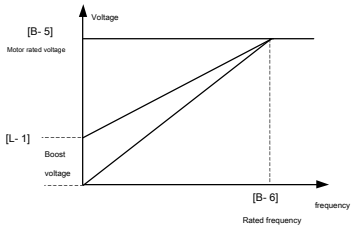
Improved torque characteristics for low frequency inverter. In low-frequency operation, the output voltage of the inverter as

a boost compensation as 8-11 Fig.

$$\text{Boost voltage} = \frac{[L\text{-}1]}{200} \text{ Motor rated voltage} \times$$



(A) Decreasing schematic lift torque curve



b) Constant torque curve lifting schematic

Map 8-11 Torque boost schematic

note

Torque boost setting value is too high, there may be over-current protection, or can not properly start.

L - 2 Torque boost *Predetermined area: 0 , 1*

0: manual lifting. Entirely by the torque boost parameter L- 1 Setting, which is characterized by a fixed boost voltage,

At light loads the motor magnetic saturation easily.

1: automatic torque boost. Torque boost voltage changes with changes in the motor stator current, stator current

The greater the greater the boost voltage.

$$\text{Boost voltage} = \frac{[L\text{-}1]}{200} \text{Motor rated voltage} \times \times \frac{\text{Inverter output current}}{2 \times \text{inverter rated current}}$$

Automatic torque boost is possible to prevent the motor at light loads, since the magnetic saturation caused by excessive boosted voltage, thereby preventing overheating of the motor running at low frequency.

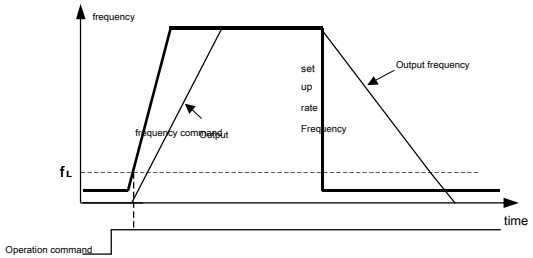
L - 3 Upper frequency (fu) *Range: Lower frequency ~ 500.0Hz*

Upper limit value of the inverter output frequency, in the subsequent description, with fu Representation.

L - 4 Lower frequency (f_L)	***Predetermined area: 0.0Hz ~ The upper limit frequency***
L - 5 Lower frequency stop mode	***Predetermined area: 0 , 1***

In later description, with f_L It represents the lower limit frequency.

When the actual frequency is lower than the set lower limit frequency, the output frequency of the inverter will be reduced, reaches the lower limit frequency, and then determining the steady-state output frequency of the inverter according to the lower **limit of the operating mode: If the operating mode is selected as the lower limit frequency 0 (Stop mode), the output frequency of the inverter will continue to reduce until the stop limit frequency if the operating mode selection 1 (Mode of operation), the inverter will limit frequency o**



Map 8-12 Stop mode ([L-5] = 0 Mode of action at the lower limit frequency)

L - 6 Starting method	***Predetermined area: 0 , 1 , 2***

0: Start from the starting frequency. After running commands, press the set starting frequency inverter (L-7)

Run, after starting frequency duration (L-8 After), then acceleration, deceleration time to run to the set frequency.

1: Brake first and then start. Applying a certain DC braking energy (i.e. the electrical load of the drive motor give

Magnetic brake, the parameters L-9 , L-10 Defined), and then start, stop state suitable for small inertia load forward or

reverse phenomenon.

2: speed checking restart. First rotational speed of the drive motor is detected, then the detected speed

Starting, by the acceleration and deceleration time to run to the set frequency.

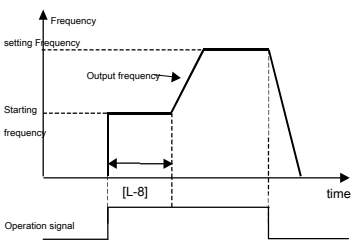
L - 7 Starting frequency	***Predetermined area: 0.0 ~ 10.0Hz***
L - 8 Starting frequency duration	***Predetermined area: 0.0 to 20.0 second***

Starting frequency with torque boost can best starting torque characteristic be adjusted, but if the set value is too large, sometimes an overcurrent fault.

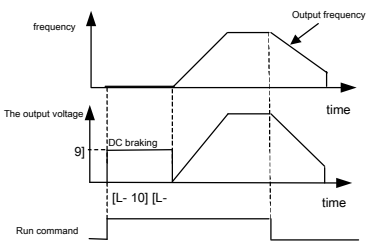
Starting frequency duration refers to the duration of the start frequency operation, if the set frequency is lower than the start frequency, then press the start frequency operation, after starting frequency duration of reach, then set the deceleration time to run down to the set frequency . (Fig. 8-13 As shown)

L - 9 DC braking start voltage	***Predetermined area: 0 ~ 15 (%)***
L - 10 DC braking time at start	***Predetermined area: 0.0 to 20.0 second***

When the startup mode is set to the first brake, then start mode, DC brake function effectively. This parameter set corresponding to the DC voltage and the duration of braking, FIG. 8-14 Shown, when the DC braking, the inverter output DC voltage.



Map 8-13 A boot start frequency



Map 8-14 Starting DC braking mode

L - 11 Stop mode	***Predetermined area: 0 , 1***

0: deceleration mode. The deceleration time is set when the deceleration stop shutdown. 1: Coast to stop. Block output shutdown, motor uncontrolled stop.

When freewheel stop before the motor is completely stopped, if the inverter starts from zero frequency may occur over this time set the parameters current or over-voltage protection, L-6 Set as 2 The inverter will detect speed and restart mode start.

L - 12 DC injection braking start frequency	***Predetermined area: 0.0 ~ 15.00 Hz***
L - 13 DC braking action time	***Predetermined area: 0.0 to 20.0 second***
L - 14 DC injection braking voltage	***Predetermined area: 0 to 15 (%)***

This 3 Parameters are used to define the DC braking function when the drive shutdown. The drive during shutdown, when the output frequency is lower than the DC braking start frequency, the inverter will start DC braking function.

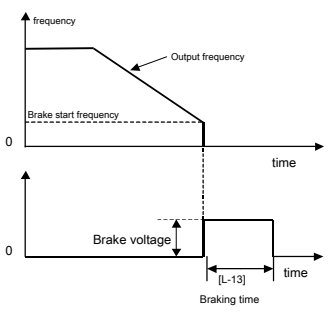
DC braking operation time is the duration of the DC braking. When this parameter is set to 0 When the DC braking function stop closed. DC braking, the inverter output DC voltage, is calculated by the following formula:

$$\text{Output voltage} = \frac{[\text{L-14}]}{100} \text{ Motor rated voltage} \times$$

DC braking function may provide a zero speed torque, commonly used to improve the accuracy of down, but not for normal operation of the braking deceleration.

prompt

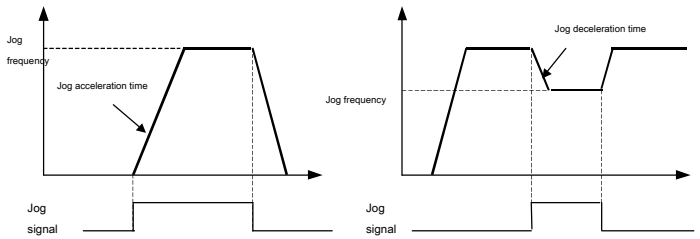
DC braking voltage setting is too large, prone to overcurrent fault drive is stopped.



Map 8-15 DC braking function shutdown

L - 15 Jog frequency	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 16 Jog acceleration time	***Predetermined area: 0.1 to 6000.0 second***
L- 17 Jog deceleration time	***Predetermined area: 0.1 to 6000.0 second***

Jog frequency has the highest priority. Under any condition as long as the jog command is input, the press set jog acceleration and deceleration time to transition jog frequency.



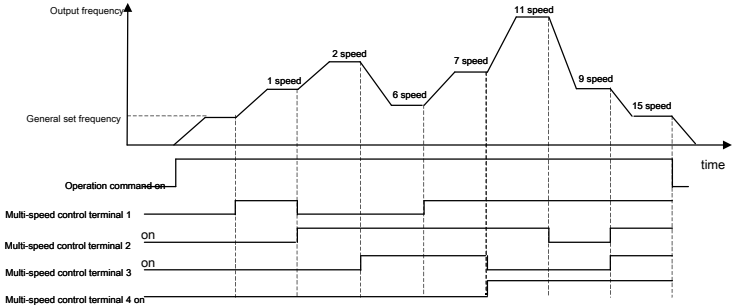
Map 8-16 Jog operation

L - 18 Multi-speed frequency 1	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 19 Multi-speed frequency 2	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 20 Multi-speed frequency 3	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 21 Multi-speed frequency 4	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 22 Multi-speed frequency 5	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 23 Multi-speed frequency 6	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 24 Multi-speed frequency 7	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 25 Multi-speed frequency 8	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 26 Multi-speed frequency 9	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 27 Multi-speed frequency 10	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 28 Multi-speed frequency 11	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 29 Multi-speed frequency 12	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 30 Multi-speed frequency 13	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 31 Multi-speed frequency 14	***Predetermined area: 0.0 ~ The upper limit frequency***
L - 32 Multi-speed frequency 15	***Predetermined area: 0.0 ~ The upper limit frequency***

These parameters are used to set the output terminal to control multi-speed operation, or a programmable multi-speed operation

frequency.

Multi-speed priority lower than the frequency jog, but higher than other frequency setting.



Map 8-17 A schematic view of multi-speed operation

Multi-speed by the parameter control terminal L-63 ~ L-69 Selected. Factory default setting: X1 , X2 , X3

As a multi-speed control terminal.

Each speed deceleration time control of external terminals may also be provided separately, respectively to:

Multi-speed	Acceleration and deceleration time	Multi-speed	Acceleration and deceleration time
Multi-speed 1 stage 1 Acceleration and deceleration time (H-17) Multi-speed 2 stage 2 Acceleration and deceleration time (H-20) Multi-speed 3 stage			
3 Acceleration and deceleration time (H-23) Multi-speed 4 stage 4 Acceleration and deceleration time (H-26) Multi-speed 5 stage 5 Acceleration			
and deceleration time (H-29) Multi-speed 6 stage 6 Acceleration and deceleration time (H-32)			
Multi-speed 7 stage 7 Acceleration and deceleration time (H-35) Multi-speed 8 Acceleration and deceleration time 1 (b-7 , b-8) Multi-speed 9 Acceleration			
and deceleration time 2 (H-42 , H-43) Multi-speed 10 Acceleration and deceleration time 3 (H-44 , H-45)			
Multi-speed 11 Acceleration and deceleration time 4 (H-46 , H-47) Multi-speed 12 Acceleration and deceleration time 1 (b-7 , b-8) Multi-speed 13 Acceleration			
and deceleration time 1 (b-7 , b-8) Multi-speed 14 Acceleration and deceleration time 1 (b-7 , b-8) Multi-speed 15 Acceleration and deceleration			
time 1 (b-7 , b-8)			

Programmable multi-speed running mode when running, running direction, by the run-time parameter H-14 ~ H-35 set up.

L - 33 External operation command mode selection ***Predetermined area: 0 , 1 , 2***

This parameter is used to set the external control commands.

prompt

Only when selecting external control ([b-3] = 1,2), this parameter to function.

0: 1 two-wire control mode. Inverter factory settings centered approach

instruction	Shutdown command		Forward command	Reverse command
Terminal status				

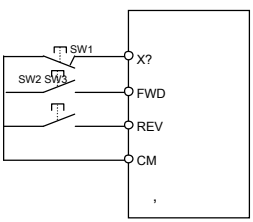
1: Two-wire control mode 2.

instruction	Shutdown	run	Forward	Reverse
Terminal status				

2: three-wire control mode. Three-wire control mode, select a three-wire control terminal (see parameter

L-63 ~ L-69 Instructions). Wiring

diagram:



Map 8-18 Three-wire control mode wiring diagram

X ? A three-line mode terminals, by the parameter L-63 ~ L-69

Select input terminal X1 ~ X7 Any one of the. Switch function

is as follows:

1. SW2 - Forward trigger switch
2. SW3 - Reverse trigger switch
3. SW1 - Inverter stop trigger switch

L - 34 VI1 Input voltage lower limit	***Predetermined area: 0.0 ~ [L-35]***
L - 35 VI1 Input voltage limit	***Predetermined area:[L-34] ~ 10.0***
L - 36 VI1 Enter an adjustment factor	***Predetermined area: 0.01 to 5.00***

Defines analog input voltage channels VI1 Range shall be set according to the actual signal.

Input correction coefficient for correcting the input voltage may be varied in the combined mode setting

This right channel coefficients.

L - 37 VI2 Input voltage lower limit	***Predetermined area:- 10.0 ~ [L-38]***
L - 38 VI2 Input voltage limit	***Predetermined area:[L-37] ~ 10.0***
L - 39 VI2 Enter an adjustment factor	***Predetermined area: 0.01 to 5.00***

Defines analog input voltage channels VI2 Range shall be set according to the actual signal.

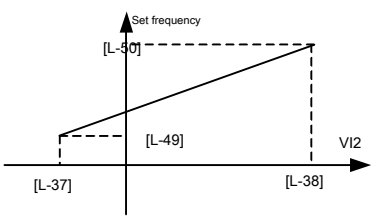
Input correction coefficient for correcting the input voltage, the weighting coefficient may be changed in the combination of the present channel setting mode.

L - 40 VI2 Zero input offset	***Predetermined area:- 1.00 to 1.00***
L - 41 VI2 Bipolar input control	***Predetermined area: 0 , 1***
L - 42 VI2 Bipolar control zero hysteresis width	***Predetermined area: 0.00 to 1.00***

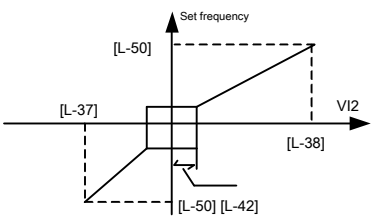
These parameters are used to set the voltage input channels VI2 The bipolar control function. Bipolar control means of the inverter output phase sequence (or steering motor) by the input voltage VI2 The polarity is determined, this time the frequency ignore other steering settings command. When the voltage VI2> 0 , The output of the positive phase sequence, the motor is transferred, when the voltage VI2 <0 When the output of the inverse phase sequence, mo

Bipolar control function only when the frequency input channel VI2 Time[b-1] = 3) Is valid, then the input voltage from the frequency setpoint VI2 The absolute value is determined.

VI2 In various settings set corresponding relationship between the frequency as shown below:



Map 8-19 Unipolar ([L-41] = 0)



Map 8-20 Bipolar control ([L-41] = 1)

Unipolar control, VI2 The lower limit of the input voltage L-37 It can be greater than 0 It may be less than 0 A linear correspondence relationship between the output frequency of the same, FIG. 8-19 As shown in [L-37] <0 The inverter

The phase sequence is determined by the external output terminal or keypad command.

When bipolar control parameters L-49 Invalid (default 0),when VI2> 0 When the input voltage VI2 in 0 ~ [L-38] Between the frequency and 0.0Hz ~ [L-50] To a linear relationship between the inverter output positive phase sequence. when VI2 <0 When the input voltage VI2 in 0 ~ [L-37] Between the frequency and 0.0Hz ~ [L-50] To a linear relationship between the inverter output reverse phase sequence. parameter L-42 Controlling the predetermined zero-phase-sequence voltage hysteresis width too.

Even if control is set to bipolar mode, when VI2 (I.e., input channel parameters, set the lower limit of the same polarity L-37 , L-38 At the same time greater than 0 Or less than 0), Bipolar control is invalid.

parameter L-40 Used to adjust the input voltage VI2 The zero position has no real meaning in the unipolar control.

L - 43 Minimum analog input current (II)	***Predetermined area: 0.0 ~ [L-44]***
L - 44 Maximum analog input current (II)	***Predetermined area:[L-43] ~ 20.0mA***
L - 45 II Input correction coefficient	***Predetermined area: 0.01 to 5.00***

Analog input current channel is defined II Range. It should be set according to the actual signal. Input correction coefficients for correcting input current, weights may be changed in the compositions of the present channel setting mode.

L - 46 Minimum input pulse frequency (X5)	***Predetermined area: 0.0 ~ [L-47]***
L - 47 The maximum input pulse frequency (X5)	***Predetermined area:[L-46] ~ 10.0KHz***
L - 48 Pulse input correction coefficient	***Predetermined area: 0.01 to 5.00***

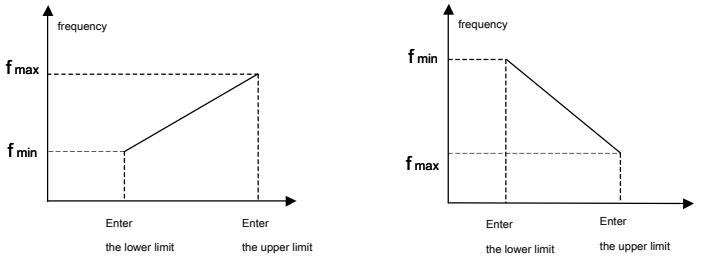
Pulse frequency range defined pulse input channels, should be set according to the actual signal. Input correction factor for correcting pulse input frequency, set in the combined weights of the present embodiment may be changed channel.

L - 49 Minimum input frequency is set corresponding to Predetermined area: 0.0 ~ The upper limit frequency

L - 50 Set frequency corresponding to the maximum input Predetermined area: 0.0 ~ The upper limit frequency

These parameters are used to specify the correspondence relationship between the external input and the set frequency.

External inputs comprising: an input voltage VI1 ,Input voltage VI2 ,Input Current II And external pulses, the lower limit on their input parameters L-34 ~ L-47 Specified, the analog input corresponds to the minimum frequency setting means setting a frequency lower limits corresponding to the input, as shown in the FIG. f_{min} , Corresponding to the maximum analog input frequency setting means to set an upper limit frequency of the corresponding input quantity, shown in FIG. f_{max} .



Map 8-21 Corresponding relationship between the frequency and the set input

L - 51 ~ L - 54 Retention parameters

L - 55 Analog input filter time constant Predetermined area: 0.01 ~ 5.00 Sec

When the external panel potentiometer analog channel or frequency setting, the inverter of the sampled value of the time constant of the filter. When the interference is serious or long wiring, resulting in unstable set frequency, it can be improved by increasing the time constant of the filter.

L - 56 Frequency input channel combination Predetermined area: 0 to 29

Setting frequency of the inverter input channels determined by a linear combination of a plurality of frequencies. When this parameter only when the frequency of input channel "combination set" effective (i.e., [b-1] = 8).

	Combinations	Setpoint	Combinations
0	External voltage 1 + The external current	1	External voltage 1 - The external current
2	External voltage + 2 The external current	3	External voltage 2 - The external current
4	External voltage 1 + External voltage 2	5	External voltage 1 - External voltage 2
6	External pulse + External voltage 1 + Panel potentiometer	7	External pulse - External voltage 1 - Panel potentiometer
8	External pulse + The external current	9	External pulse - The external current
10	External pulse + External voltage 2	11	External pulse - External voltage 2
12	RS485 set up + External voltage 1 + Panel potentiometer	13	RS485 set up - External voltage 1 - Panel potentiometer
14	RS485 set up + The external current + External pulse setting	15	RS485 set up - The external current - External pulse setting
16	RS485 set up + External voltage + 2 External pulse setting	17	RS485 set up - External voltage 2 - External pulse setting
18	External voltage 1 + The external current + Panel Potentiometer + Digital setting [b-2]	19	External voltage 1 + The external current - panel Potentiometer Digital setting + [b-2]
20	External voltage + 2 The external current + Panel Potentiometer + Digital setting [b-2]	twenty one	External voltage + 2 The external current - panel Potentiometer Digital setting + [b-2]
twenty two	External voltage 1 + External voltage + 2 panel Potentiometer + Digital setting [b-2]	twenty three	External voltage 1 + External voltage 2 - panel Potentiometer Digital setting + [b-2]
twenty four	External voltage 1 External voltage 2 Whichever is greater	25	External voltage 1 , Whichever is greater external current
26	External voltage 2 External voltage 1 External clock Chong whichever is greater	27	External voltage 1 , The external current, an external clock Chong whichever is greater
28	External voltage 1 External voltage 2 Arbitrarily Nonzero value is valid, the external voltage 1 priority	29	External voltage 1 , Any external current nonzero Value is valid, the external voltage 1 priority

the thermal characteristics of the inverter. Setpoint

Combination setting, weights for each input channel of the input channel by the adjustment coefficient setting alone.

L - 57 Carrier frequency ***Predetermined area: 1.5 ~ 15.0KHz***

Carrier frequency and audio noise mainly affects the operation of the thermal effects.

When the ambient temperature is high, the motor load is heavy, the carrier frequency should be reduced to improve

L - 58 Amplitude detection frequency reaches ***Predetermined area: 0.0 ~ 20.00Hz***

This parameter is a function of additional definitions frequency signal arrives, when the output frequency in the frequency setting positive and negative amplitude detection, the selected output terminals (OC1 or OC2 Terminal) of the output valid signal (see FIG. 8-7 And parameters b-15 , b-16 The instructions).

L - 59 FDT (Horizontal frequency) setting Predetermined area: 0.0 ~ The upper limit frequency

L - 60 FDT Output delay time ***Predetermined area: 0.0 to 20.0 second***

This parameter is used to set the frequency detection level, when the output frequency is higher than FDT When the set value, after the parameter L-60 After the delay time, the open collector output signal (OC1 or OC2 Terminal, Referring to FIG. 8-8 And parameters b-15 , b-16 The instructions).

L - 61 Overload warning level ***Predetermined area: 50 to 200%***

L - 62 Overload alarm delay time ***Predetermined area: 0.0 to 20.0 second***

If the output current exceeds the continuous parameter L-61 Set level, through L-62 After setting the delay time, open collector output valid signal (OC1 or OC2 Terminal, referring to FIG. 8-9 And parameters b-15 , b-16 The instructions)

L - 63 Input terminal 1 Function Select (X1) Predetermined area: 0 ~ 21 L - 64 Input terminal 2 Function Select (X2) Predetermined area: 0 ~ 21 L - 65 Input terminal 3 Function Select (X3) Predetermined area: 0 ~ 21 L - 66 Input terminal 4 Function Select (X4) Predetermined area: 0 ~ 21 L - 67 Input terminal 5 Function Select (X5) Predetermined area: 0 ~ 21 L - 68 Input terminal 6 Function Select (X6) Predetermined area: 0 ~ 22 L - 69 Input terminal 7 Function Select (X7) Predetermined area: 0 to 23

These parameters are used to select the input terminal of the programmable X1 ~ X7 Functions in the following table:

Setpoint	Terminal function corresponding to	Setpoint	Terminal function corresponding to
0	Idle control terminal	12	Frequency-down control (DW)
1	Multi-speed control terminal 1	13	Frequency setting channel selection end 1
2	Multi-speed control terminal 2	14	Frequency setting channel selection end 2
3	Multi-speed control terminal 3	15	Frequency setting channel selection end 3
4	Multi-speed control terminal 4	16	simple PLC Pause control
5	Jog Forward	17	Three-wire control
6	Reverse jog control	18	DC braking control
7	Free stop control	19	Internal timer trigger terminal
8	External fault input device	20	The internal counter reset terminal
9	Acceleration, deceleration time selection terminal	twenty one	Inner counter clear end
10	Acceleration, deceleration time selection terminal 2	twenty two	Internal counter clock terminal
11	Frequency ramp control (UP)	twenty three	External pulse input

prompt

When using (terminal function 7) to achieve a free external terminal stop control after the stop signal revoked outer free, speed checking restart the drive will resume operation mode.

L - 70 Line speed coefficient setting ***Predetermined area: 0.01 100.0***

This parameter determines the displayed value and the set operation line speed line speed for displaying other physical quantities proportional to the output frequency.

Run Line Speed (d-8) = [L-70] × output frequency (d-0) set linear velocity (d-9) = [L-70] × set frequency (d-4)

When the actual display value ≥ 10000 When the minimum decimal is lit, a 0 ,Such as 1234. Refers to 12340 .

L - 71 Monitor item selection ***Predetermined area: 0-10***

This parameter determines the display contents in the state of the operation panel of the monitor mode and selecting the display content when the beginning of the power inverter. See Status Monitor parameter list.

L - 72 Parameter write protection ***Predetermined area: 0 to 9999***

This function is used to prevent accidental modification

of data. 0: All parameters are allowed to be rewritten.

1: In addition to the digital frequency set (b-2), and this parameter, other parameters by prohibiting overwriting.

2: All parameters except this parameter rewrite prohibited.

When not modify parameters, if you try to modify the data, then display "- -. "

note

It is set to 0 in a state, although all the data can be modified, but at run time parameters can not be rewritten.

If you try to modify the parameters at this time, it will show "- -." To modify the parameters, the inverter should be stopped.

L - 73 Initialization parameters ***Predetermined area: 0 , 1 , 2***

Modify the parameters of the inverter to factory default.

0: No action

1: According to the model parameters are restored to

factory default 2: Clear fault records

prompt

Parameter b-0, b-1, b-3, b-14 value will not be initialized.

8.3 Advanced operating parameters (H parameter)

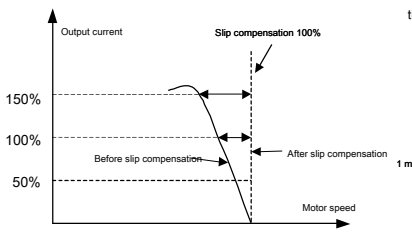
H - 0 Slip frequency compensation ***Predetermined area: 0 to 150 (%)***

This feature allows the inverter output frequency variation of the load and make appropriate adjustments to compensate the slip frequency of the dynamic asynchronous motor, thereby to control the speed setpoint. If automatic torque and lifting function with the use of better low-speed torque characteristic can be obtained. Figure 8-22 Fig.

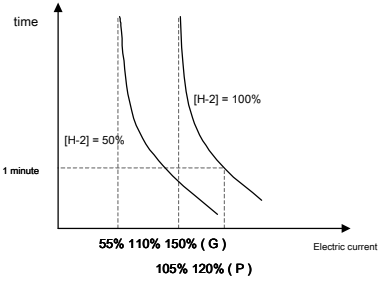
When this parameter setting is 100 (%), Inverter output rated current:

= Actual output frequency setting frequency + 2. 50Hz

But shows the same output frequency. The factory is 0 , So that no slip compensation.



Map 8-22 Compensation schematic slip frequency



Map 8-23 Electronic thermal relay protection

H - 1 Overload, overheating protection operation mode Predetermined area: 0 , 1

This parameter defines the drive in the event of an overload, the protection mode when overheated. 0: The inverter blocks the output immediately. Overloaded, overheating, inverter locks the output from the motor

By the shutdown.

1: limiting (alarm). Overloaded, overheating, inverter operates as limiting way, this

When the inverter output frequency may be reduced to reduce the load current, while outputting the alarm signal.

prompt

(1) This parameter specifies the current limiting operation of the protective means after the operation mode of the inverter thermal overload fault, the current limiting level can no set up.

(2) Even limiting protection mode, when the module temperature exceeds a certain value in the drive, the drive will also stop protection.

H - 2 Motor overload protection factor ***Predetermined area: 50 to 110 (%)***

This parameter is used to set the sensitivity of the drive motor thermal load of the relay, when the load on the motor's rated current value and the drive does not match, correct heat protection can be achieved by setting the value of the motor, **such as map 8-23 Fig.**

Overload The drive factory setting:

G type: 150% × rated current for 1 minute P type: 120% × rated current for 1 minute

Setting of this parameter is determined by the following formula:

$$[H\text{-}2] = \frac{\text{Motor rated current}}{\text{Inverter rated output current}} \times 100$$

When a drive motor with a plurality of parallel operation, the inverter thermal relay protection would be removed,

In order to effectively protect the motor, install the thermal relay in each motor into the line side.

H - 3 Automatic energy-saving operation ***Predetermined area: 0 , 1***

0: No action 1: Action

When selecting the automatic saving operation, the drive state of the motor excitation can be adjusted according to the size of the load, the motor has a high efficiency in the working state. Energy-saving operation automatically in the case of frequent load changes, significant energy saving effect.

H - 4 Power cut restart settings ***Predetermined area: 0 , 1***

H - 5 Power cut restart waiting time ***Predetermined area: 0.0 to 10.0 second***

This parameter sets the drive power failure restart function. If the parameter H- 4 Set as 1 , The instantaneous stop restart function effectively. If before the power off, the inverter is running, after power is restored, after a set waiting time (by **a H- 5 Setting), the drive will start automatically detect speed and restart mode. Within the waiting time to start again, even if** the input operation command, the inverter is not started, if the stop command is input, the inverter is released speed detection start state.

Due to power failure restart function enables the drive to automatically start running after power is restored, it has a great chance

Sex, to the safety of persons and equipment, please use caution.

Warning

H - 6 Fault recovery times	***Predetermined area: 0 , 1 , 2***
H - 7 Fault recovery interval	***Predetermined area: 2 ~ 20 second***

The drive during operation, due to load fluctuations, occasionally malfunction and stop output device in order to run without stopping, you can use the drive fault recovery function. Since the recovery process detect speed and restart the drive mode to resume operation within a set number of times, if inverter can not resume running, fault protection, stop output. When the number is set to zero fault recovery, self-recovery function is turned off.

Self-recovery function overload, overheating caused by fault protection ineffective.

note

When using fault self-recovery function, the device must be enabled and the inverter has no substantive failure as a precondition.

H - 8 Automatic voltage regulator (AVR)	***Predetermined area: 0 , 1***

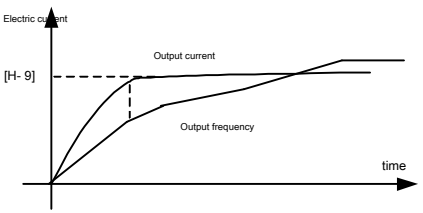
0: No action 1: Action

Automatic voltage regulator function role is to ensure the inverter output voltage does not vary with fluctuations in the input voltage fluctuates, a greater range of variation in the line voltage, and wish to have the motor at a relatively stable voltage and current of the stator, this feature should be opened .

H - 9 Current limit level	***Predetermined area: 110% 200%***

This parameter is used to set the maximum current of the inverter during acceleration, i.e., a stall level in the usual sense. During acceleration, when the output current of the inverter exceeds the setting of this parameter, the drive will automatically adjust the linear acceleration time, is maintained at the current level.

This parameter is expressed as a percentage of inverter rated current.



Map 8-24 A current limiting function during acceleration

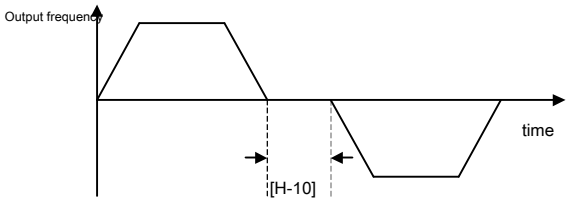
prompt

Drive during starting, if the frequency is not accelerated to the set frequency as desired, in a relatively fixed stop

When a given frequency band fluctuation show current limiting operation, please reduce the load time or adjust the parameters.

H - 10 Reversible dead time ***Predetermined area: 0.0 to 5.0 second***

Change the direction of the inverter, the output time is maintained at zero frequency, as shown in FIG. Reversible dead time mainly for high inertia loads and mechanical equipment have changed the steering dead zone is set.



Map 8-25 Dead space between the positive and negative

H - 11 Internal timer settings ***Predetermined area: 0.1 to 6000.0 second***

This parameter is used to set the timing of the drive time of the internal timer, the timer is started by an external trigger terminal timer is completed (trigger terminal by the parameter L-63 ~ L-69 Select) from the received signal from external trigger start timing, a timing after the time to, in the corresponding OC A width of the output end 0.5 Effective pulse signals seconds.

H - 12 Set the internal counter final value ***Predetermined area: 1 to 60000***

H - 13 Set the internal counter specified value Predetermined area: 1 to 60000

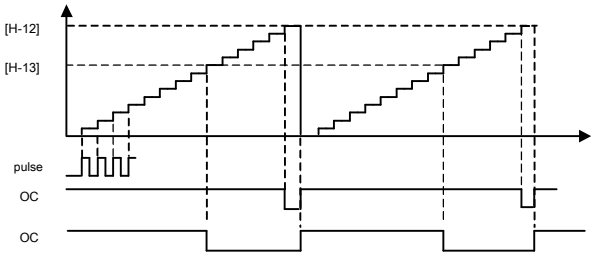
This parameter defines the counting operation of the internal counter, the clock terminal of the counter by the parameter L-68 , L-69 select.

Parameters counter reaches the count value of the external clock H-12 When the predetermined value, the corresponding OC An output terminal a signal equal to the effective width of the external clock cycle.

When the count value of the counter reaches the external clock parameter H-13 When the value specified. In the corresponding

OC End of the output valid signal, counting to parameters H-12 Predetermined value, resulting in the counter is cleared, and the output valid signal will be withdrawn.

Greater than the clock cycle of counter 5ms , Minimum pulse width 2ms .



Map 8-26 Internal counter function

H - 14 Programmable multi-speed operation is provided	***Predetermined area: 0 to 7***
H - 15 stage 1 operation hours	***Predetermined area: 0.0 to 6000.0 second***
H - 16 stage 1 Running direction	***Predetermined area: 0 , 1***
H - 17 stage 1 Acceleration, deceleration time	***Predetermined area: 0.1 to 6000.0 second***
H - 18 stage 2 operation hours	***Predetermined area: 0.0 to 6000.0 second***
H - 19 stage 2 Running direction	***Predetermined area: 0 , 1***
H - 20 stage 2 Acceleration, deceleration time	***Predetermined area: 0.1 to 6000.0 second***
H - 21 stage 3 operation hours	***Predetermined area: 0.0 to 6000.0 second***
H - 22 stage 3 Running direction	***Predetermined area: 0 , 1***
H - 23 stage 3 Acceleration, deceleration time	***Predetermined area: 0.1 to 6000.0 second***
H - 24 stage 4 operation hours	***Predetermined area: 0.0 to 6000.0 second***
H - 25 stage 4 Running direction	***Predetermined area: 0 , 1***
H - 26 stage 4 Acceleration, deceleration time	***Predetermined area: 0.1 to 6000.0 second***
H - 27 stage 5 operation hours	***Predetermined area: 0.0 to 6000.0 second***
H - 28 stage 5 Running direction	***Predetermined area: 0 , 1***
H - 29 stage 5 Acceleration, deceleration time	***Predetermined area: 0.1 to 6000.0 second***
H - 30 stage 6 operation hours	***Predetermined area: 0.0 to 6000.0 second***
H - 31 stage 6 Running direction	***Predetermined area: 0 , 1***
H - 32 stage 6 Acceleration, deceleration time	***Predetermined area: 0.1 to 6000.0 second***
H - 33 stage 7 operation hours	***Predetermined area: 0.0 to 6000.0 second***
H - 34 stage 7 Running direction	***Predetermined area: 0 , 1***
H - 35 stage 7 Acceleration, deceleration time	***Predetermined area: 0.1 to 6000.0 second***

These parameters are used to set the programmable multi-speed operation (simple PLC Running), the priority of programmable multi-speed running is higher than a multi-speed control function of the external terminals.

parameter H-15 ~ H-35 , The running direction, the definition of running time for each speed programmable multi-speed operation when the deceleration time. These parameters are only valid when the speed of the programmable multi-functional open ([H-14] ≠ 0).

parameter H-14 Define programmable multi-speed mode of operation: 0: programmable multi-speed function off.

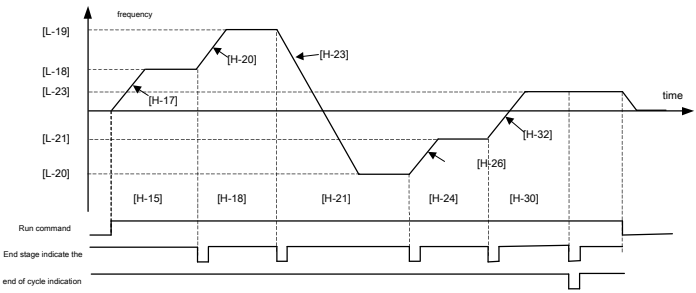
1: single cycle. After receiving run command from multi-speed drive 1 (by L- 22 Set) starts to run OK, run-time by the parameter H-15 Set, the procedure proceeds to the next running time period speeds, each speed running time can be set separately. After the first run 7 After-speed inverter output 0 frequency. If a certain phase of the running time is zero, then skip this stage operation. 2: continuous cycle. After the first inverter operation 7 After-speed, return to the first 1 Segment speed running, Cycle goes.

3: Keep the final value. Single loop inverter will run non-stop to final 1 A running time not Stage zero speed running.

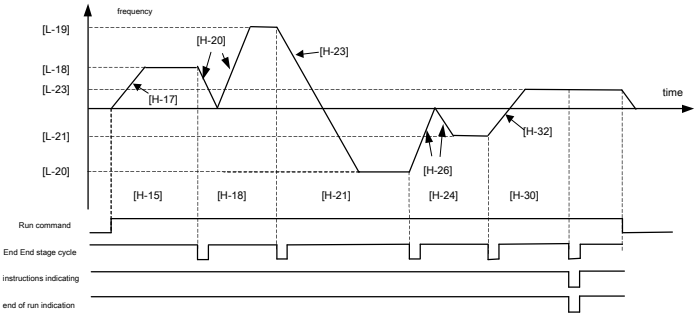
4: Traverse run. Drive at a preset deceleration time is set so that the frequency varies periodically. This feature is especially useful in the textile industry and the like depending on the bobbin diameter before and after the speed change to the system. 8-29 shown in FIG.

5: single-cycle shutdown mode. After each segment of the inverter running speed, decelerates to zero the first frequency, and then from Zero-frequency boost to the next run of frequencies, the same manner as other actions 1 .

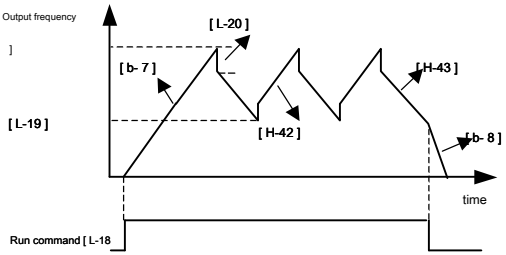
6: continuous cycle stop mode. After each segment of the inverter running speed, decelerates to zero frequency first, then Acceleration from zero frequency to the operating frequency of the next segment, with the other operation mode 2 . 7: Keep final value of the shutdown mode. After each segment of the inverter running speed, decelerates to zero the first frequency, Re-acceleration from zero frequency to the operating frequency of the next segment, with the other operation mode 3 .



Map 8-27 Holding the final value of the mode (mode 3)



Map 8-28 Robin shutdown mode (mode 5)



Map 8-29 Traverse run (way 4)

Map 8-27 Fig. 8-28 Parameter curve is run:

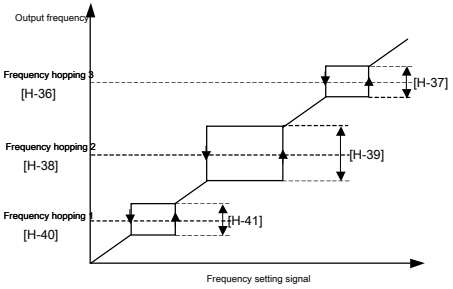
[H-14] = 3 , Keeping the final value mode

[H-27] = 0 , [H-33] = 0 ,stage 5 And stage 7 The running time is 0 , So skip these two velocity curves.

H - 36 Frequency hopping 1	***Predetermined area: 0.0Hz ~ The upper limit frequency***
H - 37 Frequency hopping 1 Margin	***Predetermined area: 0.0 ~ 5.00 Hz***
H - 38 Frequency hopping 2	***Predetermined area: 0.0Hz ~ The upper limit frequency***
H - 39 Frequency hopping 2 Margin	***Predetermined area: 0.0 ~ 5.00 Hz***
H - 40 Frequency hopping 3	***Predetermined area: 0.0Hz ~ The upper limit frequency***
H - 41 Frequency hopping 3 Margin	***Predetermined area: 0.0 ~ 5.00 Hz***

When mechanical resonance occurs in the load carried by the drive point at a certain frequency, frequency hopping can be used to avoid the resonance point.

A total of 3 Hop frequencies Alternatively, if the frequency range is set to skip 0 , The jump frequency is invalid.



Map 8-30 Hop frequency and amplitude schematic

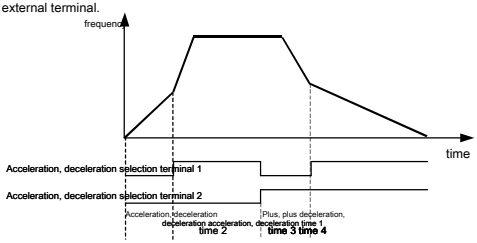
prompt

Significance of frequency hopping refers to a stable operation of the system is not in the frequency band, but in addition the system, during deceleration,

Do not avoid these frequencies.

H - 42 acceleration time 2	***Predetermined area: 0.1 ~ 6000 second***
H - 43 Deceleration time 2	***Predetermined area: 0.1 ~ 6000 second***
H - 44 acceleration time 3	***Predetermined area: 0.1 ~ 6000 second***
H - 45 Deceleration time 3	***Predetermined area: 0.1 ~ 6000 second***
H - 46 acceleration time 4	***Predetermined area: 0.1 ~ 6000 second***
H - 47 Deceleration time 4	***Predetermined area: 0.1 ~ 6000 second***

The first 2 , 3 , 4 Acceleration, deceleration time setting. The actual operation of the inverter acceleration and deceleration time is selected by an external terminal.



Map 8-31 Acceleration, deceleration time selection

Plus multi-speed running, and jogging operation, the deceleration time is controlled from an external terminal, selected by setting the respective parameters, refer to the related parameter description.

H -48 Internal PID control	***Predetermined area: 0-5***

0: PID control is off. 1: ordinary PID control.

2: Water Supply PID single pump. 3:

double-pump constant pressure water

supply PID. 4: Three pumps constant

pressure water supply PID. 5: Four Pump

Water Supply PID.

Work in the 3,4,5 mode, the optional multi-pump constant pressure water supply system with special accessories. parameter **H-62 ~ H-73 effective.**

Special Note: Multi-pump constant pressure water supply, inverter without RS485 Communication.

H - 49 PID Setting channel selection ***Predetermined area: 0-6***

This parameter is used to select the PID instruction input channel. 0: panel potentiometer. It is set by the operator on the control panel potentiometer. 1: digital setting panel. Set by the keys on the control panel. 2: 1 external voltage signal. By an external analog voltage VI1 set (0V ~ + 10V). 3: 2 external voltage signal. By an external analog voltage VI2 is set (-10V ~ + 10V). 4: External current signal. By an external analog current signal II is set (0 ~ 20mA).

5: external pulse signal. PID Set is determined by an external pulse signal, a pulse input terminal by the parameter

L- 69 Select.

6: RS485 interface setting. Setpoint via RS485 communication interface setting PID.

when PID Or with a digital panel RS485 When the interface setting in general PID Under the control mode, the setting value 100.0 Corresponding to the set maximum value (corresponding to the maximum amount of feedback). In the Water Supply PID The mode, the set value directly represents the pressure value, such as [b-2] = 0.500 , It indicates the set pressure is 0.5Mpa .

H - 50 Feedback channel selection ***Predetermined area: 0 , 1 , 2 , 3***

When you select PID control valid only when.

0: VI1 external voltage input as a feedback input terminal (0 ~ 10V). 1: External current input as a feedback input terminal II (0 ~ 20mA). 2: external pulse input as a feedback input. 3: External input voltage VI2 As a feedback input terminal (-10V ~ + 10V).

Should be provided on the input channels, the actual lower limit of the amplitude of the feedback signal. (See par. L-34 ~ L-47 Instructions)

H - 51 Feedback signal characteristics ***Predetermined area: 0 , 1***

This parameter defines the correspondence relationship between the feedback signal and the set signal. 0: positive characteristics. It represents the maximum feedback signal corresponding to the maximum set amount.

1: Negative character. It represents a minimum feedback signal corresponding to the maximum set amount.

H - 52 Feedback channel gain	***Predetermined area: 0.01 to 10.00***

When the signal level is inconsistent with the feedback channel set path, this parameter can be used for signal gain adjustment feedback channel.

H - 53 PID Setting a feedback coefficient display Predetermined area: 0.001 to 10.000

ordinary PID When the control mode, PID The set value is displayed (d-6) And the feedback value is displayed (d-7) Of full-scale value 100.0 , Display data and the actual physical values may not correspond, the display ratio can be modified by this parameter.

In the Water Supply PID Under mode, remote pressure gauge according to a set value range (H-62), PID Set value is displayed (d-6) And the feedback value is displayed (d-7) Pressure setting is displayed directly or feedback. When the display data and the actual deviation data, may also be present correcting parameters.

H - 54 PID The controller structure selection	***Predetermined area: 0 , 1 , 2 , 3***

This parameter is used to select the built PID Structure of the controller.

0: proportional control 1: integral control

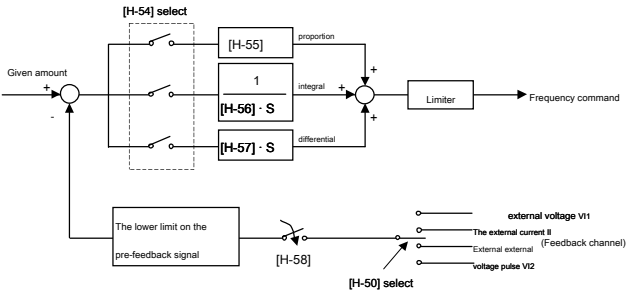
2: proportional, integral control 3: proportional, integral, derivative control

H - 55 Proportional gain	***Predetermined area: 0.0 ~ 5.00***
H - 56 The integration time constant	***Predetermined area: 1.0 ~ 100.0 second***
H - 57 Differential gain	***Predetermined area: 0.0 to 5.0***

Internal PID Parameter control should be adjusted according to actual requirements and system characteristics.

H - 58 The sampling period ***Predetermined area: 0.01 to 1.00 second***

Feedback sampling period value.

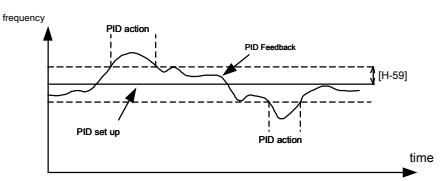


Map 8-32 PID Structure of the controller

H - 59 Tolerance limits ***Predetermined area: 0 to 20 (%)***

The parameter is set with respect to the maximum allowable deviation value. When the difference between feedback and the set value is lower than this set value, PID Controller will stop.

This function is mainly used for system control precision and to avoid adjusting frequently, such as the Water Supply System.



Map 8-33 PID Control tolerance limits

H - 60 PID Feedback disconnection detection threshold Predetermined area: 0.0 ~ 20 (%) H - 61 PID Feedback disconnection action selection Predetermined area: 0-3

when PID The feedback value is lower than H-60 When setting the detection threshold, it is determined that the feedback disconnection. Feedback operation after disconnection by the parameter H-61 select.

0: Stop. 1: Parametric b-2 set frequency.

2: run as the upper limit frequency. 3: run as half of the upper limit frequency. Feedback Feedback disconnection detection threshold as a percentage of full scale is represented. When the drive detects PID Feedback disconnection fault, while continuing to operate in accordance with the above mode, alternates Er.19 And operating condition parameters.

H - 62 Remote pressure gauge range Predetermined area: 0.001 ~ 20.000MPa

It is set according to the actual use of the gauge.

H - 63 Alarm low pressure Predetermined area: 0.001 ~ [H-64]

H - 64 Alarm high pressure Predetermined area:[H-63] ~ [H-62]

When the pipeline pressure is lower than the lower limit pressure, and the operating frequency of the inverter frequency reaches the upper limit or all pump frequency operation, indicating that the pipeline voltage, the inverter can output alarm signal (when the paramet b-15 or b-16 set as 17 Time). This function can be used to assist in determining pipeline leakage.

When the pipeline pressure is greater than the upper limit pressure, and the operating frequency of the inverter frequency reaches the lower limit setting, indicating that the pipe overpressure, the inverter can output alarm signal (when the parameter b-15 or b-16 set as 1 Time). This function can be used to assist in determining duct obstruction.

H - 65 Defining a lower limit pressure value Predetermined area: 0.001 ~ [H-66]

H - 66 Defining the upper limit pressure value Predetermined area:[H-65] ~ [H-62]

This parameter defines the upper limit set pressure.

H - 67 Wake threshold Predetermined area: 0.001 ~ [H-68]

This parameter defines the system into operation from sleep state pressure limit. When the pipeline pressure is less than the set value, indicating that water supply pressure is decreased or increased water consumption, frequency of water supply system is automatically transferred to the working state from the sleep state.

H - 68 Sleep Threshold	***Predetermined area:[H-67] ~ [H-62]***

This parameter defines the system enters the sleep state pressure limit.

When the pipeline pressure is greater than the set value, and the frequency of water supply system has been adjusted to the lowest limit frequency operation, the water supply described drastically reduced or normal pressure actual water consumption, frequency of water supply at this time the system automatically goes to sleep, wake-up wait stop.

When the water supply system reaches the condition of sleep and wake, wake-up and sleep state into the wait time by the **parameter H-69 determine.**

switching determination time	***Predetermined area: 0.1 ~ 1000.0 S***

This parameter is used to set the output frequency to increase after reaching the upper limit of the output frequency of the pump and the drive reaches the lower limit of the determination to reduce the settling time required for the pump, easily lead to too short oscillation system pressure, but the pressure response would be more fast.

H - 70 Electromagnetic switching delay time Predetermined area: 0.1 ~ 10.0 SH - 69 Pump

This parameter is used to define the conversion from frequency to frequency or the delay time from when the frequency switching operation of the electromagnetic switch, in order to prevent the output of the delay operation of the electromagnetic switch of the inverter to the power supply short-circuited.

H - 71 Multi-pump operating mode	***Predetermined area: 0 , 1***
H - 72 Regular rotation interval	***Predetermined area: 0.5 ~ 100.0 hour***

These two parameters for setting the pump rotation manner.

Multi-mode operation of the pump (the same applies to the embodiment of the present system each pump capacity). 0: fixed sequence switching. According to the change of the detected pressure at a fixed switching sequence plus or minus pumps pump, a Like starting from zero pump number.

1: regular rotation. This way is actually to redefine each pump after a certain timing running time

The numbers to ensure each pump can receive equal opportunity and time to avoid the pump rusted because of long-term need. Timing by the run-time parameter H-72 determine.

H - 73 Regular water supply time	***Predetermined area: 0.5 to 24.0 hour***

When the inverter is used for Water Supply System, this parameter is used to set the running time of the inverter. Timed from the start operation time, the timing when the water reaches the set time, the drive will automatically shut down until the next re-enter the run command.

When this parameter is set 24.0 When, regular water supply is turned off.

H - 74 ~ H -77 Retention parameters

H - 78 Native address	***Predetermined area: 0 ~ 30***

This parameter is used to set the inverter RS485 When the communication station site, the inverter only receive data that matches the host computer station sites. parameter H-78 ~ H-82 For setting RS485 Communication functions. See Appendix II: RS485 Protocol.

H -79 Data Format	***Predetermined area: 0 , 1 , 2***

Provision for RS485 Data format of communication, communication parties must use the same data format.

0: 1 start bit, 8 data bits, 1 stop bit, no parity. 1: 1 start bit, 8 data bits,
1 stop bit, even parity. 2: 1 start bit, 8 data bits, 1 stop bit, odd parity.

H - 80 Baud Rate	***Predetermined area: 0-5***

Provision for RS485 Baud rate of communication, communication parties must set the same baud rate. 0: 1200 bps

1: 2400 bps

2: 4800 bps 3: 9600 bps

4: 19200 bps

H - 81 Master Set ***Predetermined area: 0, 1***

When this parameter is used when the main control linkage, the machine is provided, no linkage control, should be set to the slave mode.

0: The inverter is slave 1: The inverter is the host

When the drive is set to host, by RS485 Interface continue to send operating state (command and frequency setpoint) outwardly of the machine in accordance with established protocols, if set from the other by way of the drive unit RS485 Interface, and from the machine running command channel, the channel selection frequency setting RS485 Interface mode. All machine instructions from the operation of the inverter, the frequency setting, and the like are subject to jog operation inverter control host, and the host can be consistent with the drive.

-82 Communication set proportion ***Predetermined area: 0.10 to 10.00***

This inverter for setting a weight coefficient by the received frequency command RS485 interface. The actual operating frequency of the inverter is equal to the present value multiplied by the RS485 interface parameter setting command received frequency.

The interlocking operation mode, the proportion of this parameter can be used to run multiple frequency inverter.

H - 83 RS485 Communication disconnection action mode Predetermined area: 0 , 1 H

0: Stop mode. If the drive command set path (b-3) Selection RS485 Interface mode, when

Determined to RS485 When communications break (more than 1 The host did not receive instruction in seconds), the inverter will automatically shut down. If the drive frequency input channel (b-1)or PID Setting channel selection RS485 Interface mode, when it is determined that the RS485 When communications break automatically set value is determined as 0 . 1: maintain the existing status. If it is determined RS485 When communication is disconnected, the inverter maintains the current operating status And set the value until the next frame is received instruction.

H - 84 Retention

9. Troubleshooting and Countermeasures

9.1 Protection and countermeasures

error code	Description of the problem	Possible Causes	Countermeasure
Er. 01	Acceleration overcurrent	1. Acceleration time is too short 2. Torque boost is too high or V / F curve Improper	1. Increase the acceleration time 2. Reducing the torque boost adjustment V / F curve
Er. 02	Deceleration Overcurrent	Deceleration time is too short	Increase the deceleration time
Er. 03	Running overcurrent	Load mutation	Reduce the load fluctuation
Er. 04	Overvoltage acceleration	1. Input voltage is too high 2. Frequent power on and off	1. Check supply voltage 2. Inverter control by the inverter control terminals Starting and stopping
Er. 05	Overvoltage deceleration	1. Deceleration time is too short 2. Input voltage is abnormal	1. Increase the deceleration time 2. Check supply voltage 3. Installation or select braking resistor
Er. 06	Operation overpressure	1. Abnormal power supply voltage 2. In regenerative loads	1. Check supply voltage 2. Installation or select braking resistor
Er. 07	Overvoltage shutdown	Abnormal power supply voltage	Check supply voltage
Er. 08	Brown-operation	1. Abnormal power supply voltage 2. A large grid load start	1. Check supply voltage 2. Separate power supply
Er. 09	Inverter overload	1. Overload 2. Acceleration time is too short 3. Torque boost is too high or V / F curve Improper 4. The grid voltage is too low	1. Reduced load or replace higher capacity inverter 2. Increase the acceleration time 3. Reducing the torque boost adjustment V / F curve 4. Check the grid voltage
Er. 10	Motor overload	1. Overload 2. Acceleration time is too short 3. Protection factor set too low 4. Torque boost is too high or V / F curve Improper	1. Reduce the load 2. Increase the acceleration time 3. Increased motor overload protection factor (H- 2) 4. Reducing the torque boost adjustment V / F curve
Er. 11	Inverter overheat	1. Duct obstruction 2. Ambient temperature is too high 3. The fan is broken	1. Clean-air duct or improve the ventilation 2. Improved ventilation, lower the carrier frequency 3. Replacing the Fan
Er. 12	Output ground	1. The inverter output is grounded 2. Connect the inverter and the motor is too long And the carrier frequency is too high	1. Check cable 2. Minimizes wiring, to reduce the carrier frequency

error code Description of the problem	Possible Causes	Countermeasure
Er. 13 interference	Due to ambient electromagnetic interference and malfunction due to	Around the drive source to the interference with an absorbing circuit
Er. 14 Output Phase	Bad or disconnected wiring between the inverter and motor	Check wiring
Er. 15 IPM malfunction	1. Output short circuit or ground 2. Overloaded	1. Check wiring 2. For service to manufacturers
Er. 16 External equipment failure External equipment failure the inverter input	Signal input terminal	Check signal source and related equipment
Er. 17 Current detection error	1. Current sensing device or circuit damage 2. Auxiliary power problems	For service to manufacturers
Er. 18 RS485 communication fail Transmitting and receiving data in serial communications	An error occurred	1. Check wiring 2. For service to manufacturers
Er. 19 PID Feedback fault	1. PID Feedback signal line is disconnected 2. A feedback signal for detecting a transmission Sensor failure 3. The feedback signal and the set does not match	1. Check the feedback channel 2. Check the sensor without fault 3. The feedback signal to verify compliance with the requirements set
Er. 20 Private water supply system Attachment of connection failure	1. Do not use special attachments, but selection A multi-pump constant pressure water supply PID the way 2. Connected accessory problems	1. Use common PID Or single pump constant pressure water supply 2. Optional special accessories 3. Checking the wiring of the control board and the attachment is firmly

9.2 Fault records search

This recent series inverter records 6 Fault code and last time occurred 1 Inverter output parameters of faults, search information helps find the cause of the malfunction.

Fault information and status monitoring parameters are stored uniformly, so please refer to the search operation information.

Monitoring Project	content
d-20	The first fault record
d-21	The second fault record
d-22	Third fault record
d-23	Fourth fault record
d-24	Fifth fault record
d-25	Sixth fault record

Monitor code	content
d-26	Last output frequency at fault
d-27	The last set frequency at fault
d-28	Last output current at fault
d-29	Last output voltage at fault
d-30	Last DC voltage at fault
d-31	Last module temperature at fault
d-32	The last input terminal of the fault state
d-33	Last cumulative run time at fault

9.3 Fault reset

caveat

(1) Be sure to check before resetting the fault cause and exclude it, as this may cause permanent damage to the inverter.

(2) not renewed after reset or reset the fault, you should check the reason, continuously reset inverter may be damaged.

(3) overload, overheating protective action should delay 5 minutes to reset.

When the inverter fails to restore normal operation, select one of the following operations: ① external reset input terminal RST versus CM After disconnecting the closed end.

1 . When the fault code is displayed, press 

key.

2 . Cut off the power.

10. maintenance

10.1 Daily inspection and maintenance

Affected by the ambient temperature, humidity, dust, vibration and aging of internal components of the drive, the drive may **be some potential problems during operation, the inverter is long-term, stable operation, each must 3-6 Months to conduct a** periodic inspection.

caveat

Checks must be carried out by qualified personnel, as necessary, to cut off power to the drive.

Inspection and maintenance points:

Check the frequency of daily regular Check		item	check contents	Criteria
√		Operating Environment	1. temperature humidity 2. Dust, gas	1. temperature > 40 ℃ should remove the panel Humidity < 90% No frost 2. No odor, non-flammable, explosive gas
	√ cooling system		1. Installation Environment 2. Fan drive body	1. Installation environment well-ventilated, non-blocking air duct 2. Body fan is operating normally without abnormal noise
√		Converter body	1. Vibration, temperature 2. noise 3. Wires, terminals	1. Stable vibration, the outlet air temperature is normal 2. No abnormal noise, odor-free 3. No loose fastening screws
√		Motor	1. Vibration, temperature 2. noise	1. Smooth operation, temperature normal 2. No abnormal uneven noise
√		Input and output parameters	1. Input voltage 2. Output current	1. Input voltage is within a predetermined range 2. Output current rated value

We recommend using meter:

Input voltage: moving coil voltmeter input, output

current: clamp ammeter

Output voltage: rectifying voltmeter

caveat

(1) inverter electrical insulation at the factory have done the experiment, users no longer pressure test.

(2) insulation test if necessary on the drive, all the necessary input and output terminals (R, S, T, U, V, W, P, P-, PB) all reliably short. It is prohibited for the single terminal for insulation test, the test Please use a 500V megger.

(3) Control circuit can not megger.

(4) When the motor insulation test, the connection between the motor and the inverter should be disassembled.

10.2 Inspection and replacement of consumable part

Some components wear down or performance will occur in the course of the frequency converter Drop prevention in order to ensure stable and reliable operation of the drive, the drive to respond Maintenance, replacement of components as necessary.

10.2.1 Filter capacitor

The degree of ripple current in the main circuit can affect the performance of aluminum electrolytic filter capacitors, the influence of the ambient temperature and use conditions, and inverter under normal conditions should be changed every 4-5 Year replacement electrolytic capacitors.

When the electrolytic capacitor leaks, the safety valve body out or swell when the capacitance, should be replaced immediately.

10.2.2 cooling fan

All the life of the cooling fan inside the inverter is about 15,000 H (i.e., the inverter continuously about two years), if the fan abnormal sound or vibration, it should be replaced immediately.

10.3 Storage and warranty

10.3.1 Deposit

The inverter do not used for long-term storage, should note the following: (1) Stored in the inverter to avoid high temperature, humidity or vibration, where metal powder, to ensure ventilation good.

(2) If the inverter unused for long periods, once every two years should pass in order to restore electrical characteristics of the filter capacitor, while

Check the inverter function. When energized by a voltage autotransformer increased stepwise, and the energization time is **not less than 5 hour.**

note

If you do not drive long-term, internal filter capacitor characteristics will decline.

10.3.2 Warranty

Warranty period of this drive is 18 Months (from date of purchase), during the warranty period, if a failure occurs or damaged in normal use, the company provides free repair or replacement.

prompt

Warranty refers only to the inverter itself.

During the warranty period, the fault caused by the following reasons, we should charge a maintenance fee: ① Does not exceed the operating manual or standard specification using the fault caused.

② Without permission to repair, modification caused by the failure. ③ Failure caused due to improper storage.

④ Induced failure when the inverter is used for normal function. ⑤ Since the fire, salt corrosion, corrosive gas, earthquake, storm, flood, lightning, abnormal voltage

Or other damage to the machine caused by force majeure.

Even if the warranty period, the Company also provides life-long maintenance service.

11. Examples of use

11.1 from the control panel, to stop, Panel potentiometer setting frequency

11.1.1 parameter settings

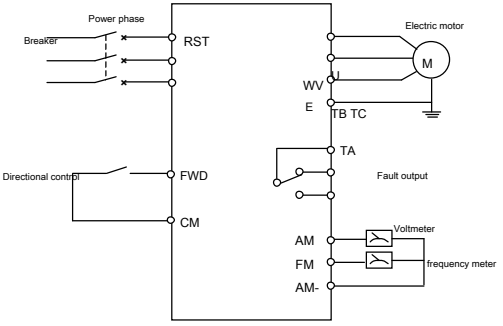
According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Set parameters. It must be set as follows:

[B- 1] = 0 :parameter b- 1 Set as 0 , Frequency selection panel potentiometer settings.

[B- 3] = 0 :parameter b- 3 Set as 0 , Selection panel starting and stopping control.

11.1.2 Basic Wiring

Wiring 11-1 shown in FIG.



Map 11-1

11.1.3 Instructions

press FWD Key to start the drive, the movable panel clockwise potentiometer knob, by setting frequency Step increases. Counterclockwise rotation of panel potentiometer setting frequency will gradually decrease.

press STOP RESET Key to stop the inverter.

prompt

External control terminal determines the direction of rotation of the FWD, FWD-CM disconnect the motor forward, FWD-CM closed motor reversal.

11.2 external control mode, an external frequency setting voltage

11.2.1 parameter settings

According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Set parameters. It must be set as

follows:

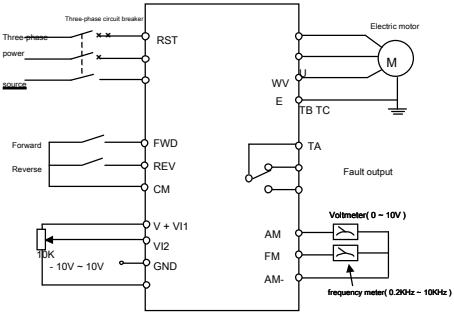
[B-1] = 2 **:parameter b-1 Set as 2 Select external voltage 1 (VI1 ,) Acceptable 0 ~ 10V**

Within frequency setting signal. :parameter b-3 Set as 1 Select

[B-3] = 1 external control.

11.2.2 Basic Wiring

Wiring 11-2 shown in FIG.



Map 11-2

11.2.3 Instructions

FWD-CM Off, the motor rotation (forward rotation command). REV-CM Closed, motor reverse (reverse rotation command). FWD-CM , REV-CM While closing or opening, stops the inverter.

Frequency setting external voltage signal 1 determine(VI1).

prompt

The b-1 (1) parameter settings, select an external input VI1, VI2 in any way as a frequency setting signal.

(2) terminal FWD, REV control mode selected by the parameter L-33 (see Description of parameter L-33).

11.3 Multi-speed operation, the external control mode

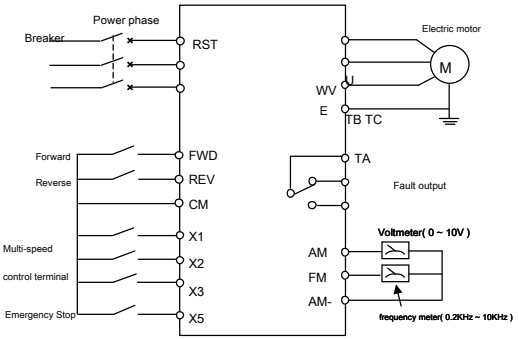
11.3.1 parameter settings

According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Set parameters.

[B-3] = 1 [L-18] ~ [L-32] :parameter b-3 Set as 1 Selecting the external control mode. : Multi-speed setting value (co 15 segment).

11.3.2 Basic Wiring

Wiring 11-3 shown in FIG.



Map 11-3

11.3.3 Instructions

FWD-CM Off, the motor rotation (forward rotation command). REV-CM Closed, motor reverse (reverse rotation command). FWD-CM , REV-CM While closing or opening, stops the inverter.

X1 , X2 , X3 All the CM Terminals are disconnected, invalid multi-speed operation, the inverter operation frequency command set (by the frequency setting parameter b- 1 select).

X1 , X2 , X3 There are any 1 And one or more terminals CM End closure (total 7 Combinations), the inverter by the X1 , X2 , X3 (Multi-spee setting value selected by the multi-frequency operation speed parameter L-18 ~ L-32 determine).

prompt

Multi-speed control terminal by the parameter L-63 ~ L-69 to select, when selecting more than four-speed control terminal 15 may be a multi-speed speed control

11.4 Programmable multi-speed control

11.4.1 parameter settings

According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Set parameters. It must be set as follows:

[B- 0] = 2 [L-18] ~ :parameter b- 0 Set as 2 Select Advanced Parameters mode of operation. : Multi-speed setting

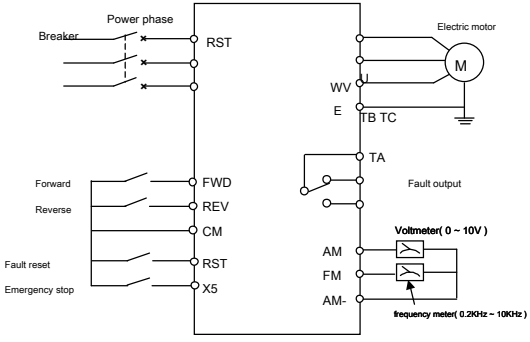
[L-24] [H-14] = 1 ~ 7 value (co 7 segment). :parameter H-14 Need to select 1-7 The arbitrary value. : According to the

[H-15] ~ [H-35] need to set up a simple run PLC Multi-speed running time, transport

Each of the row direction and speed of the acceleration and deceleration time.

11.4.2 Basic Wiring

Wiring 11-4 shown in FIG.



Map 11-4

11.4.3 Instructions

After startup instruction input, multi-speed frequency converter according to 1 After the operation, the set operating time is reached (this time by the parameter H-15 Determination), and then switch to a multi-speed frequency 2 Operation, and so on, until the multi-speed frequency 7 End. Then follow parameters H-14 Selected mode decision to drive after running operation (see par. H-14 ~ H-35 Description of function).

Process multi-speed operation, the operation may be terminated by a stop command, or by a simple PLC A control terminal to pause pause programmable multi-speed operation.

Gearing control over 11.5 inverters (control group)

11.5.1 parameter settings

According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Set parameters. It must be set as follows:

[B- 0] = 2 [b- 1] parameter b- 0 Set as 2 Select Advanced Parameters mode of operation. : Frequency setting

[b- 3] [H-79] from the machine set RS485 Mode (= 7). : Run command from the machine is set to channel RS485

[H-80] [H-81] Mode (= 3 , 4): Data format, all inverter data should be formatted in the same. : Baud rate, the baud rate should be set for all drive the same. : Master set, the master drive (master) to 1 Other drive set

Set to 0 (Slaves).

[H-82] : Set main needed, from the ratio of the operating frequency of the machine, only the slave parameter effective.

11.5.2 Basic Wiring

Figure 11-5 Wiring shown.

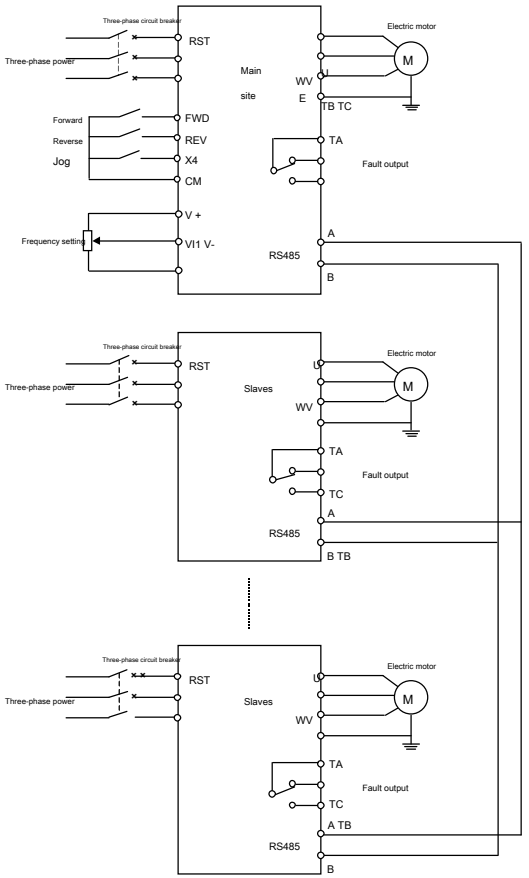
11.5.3 Instructions

Only on the master drive (master station) for opening and closing, and to move the control frequency Ratio is set to run all the other drive (slave) and the master converter will be Yan Grid consistent set frequency is exactly the same.

This series inverter can have up to 31 Inverters linked operation.

prompt

Jog operation, a respective set of each inverter will jog frequency. To maintain more than one frequency at this time Device synchronization, simply jog frequency can be set the same for all drives.


Three-phase circuit breaker
RST
Three-phase power
Main
site
Electric motor
M
WV
E
TB TC
Forward
Reverse
Jog
FWD
REV
X4
CM
TA
Fault output
V +
Frequency setting
VI1 V-
RS485
A
B
Three-phase circuit breaker
RST
Three-phase power
Slaves
Electric motor
M
WV
TA
Fault output
TC
A
RS485
B TB
Three-phase circuit breaker
RST
Three-phase power
Slaves
Electric motor
M
WV
TA
Fault output
TC
A TB
RS485
B

11.6 a closed loop control system with frequency converter

11.6.1 parameter settings

According to the rating plate data inverter drives the motor, the parameters b-5 , b-6 Set parameters. It must be set as

follows:

[B- 0] = 2 **:parameter b- 0 Set as 2 Select Advanced Parameters mode of operation. :parameter H-48 Set as**

[H-48] = 1 **1 Select built PID control. : Setting channel selection, selected here as a panel potentiometer PID Settings**

[H-49] = 0

aisle.

[H-50] = 3 **: Feedback channel selection, here select voltage 2 (VI2) As a feedback**

Channel, the feedback signal 0 ~ 10V . : Controller structure

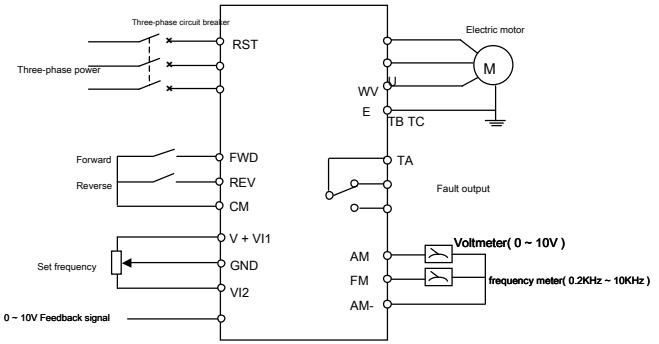
[H-54] = 2 [H-55] **selection, select here PI Controller. : Proportional gain, as required. :**

= 0.5 [H-56] = Integral time constant set according to need. : Differential gain, does

10.0 [H-57] = 0.1 not work here. : Sampling period, generally without change.

[H-58] = 0.10

11.6.2 Wiring Diagram



Map 11-6

12. Options

12.1 Operation Panel

(1) FIG shape structure

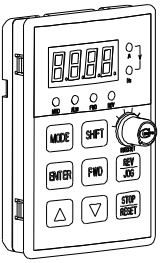


FIG. 12-1 CVF-KP9, CVF-KP10 outline in FIG.

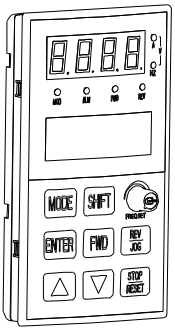


FIG. 12-2 CVF-KP11, KP12 outline in FIG.

(2) Scope of application Enclose

The operation panel	Feature	Applicable models	
		G2 Series	P2 Series
CVF-KP9	8 Bit standard keys; 4 Digital display; band frequency setting potentiometer	CVF-G2-4T0007 ~ CVF-G2-4T0075	CVF-P2-4T0015 ~ CVF-P2-4T0110
CVF-KP10	8 Bit standard keys; 4 Digital display; no frequency setting potentiometer		
CVF-KP11	8 Bit standard keys; 4 Digital display; band frequency setting potentiometer;		
CVF-KP12	8 Bit standard keys; 4 Digital display; no frequency setting potentiometer;		

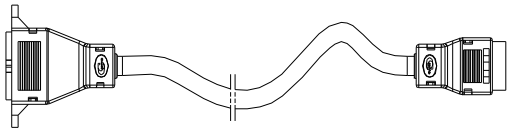
12.2 remote control and cable remote control adapter

This inverter can control panel furthest 15m The remote control cable connected to the inverter unit. If connected via remote control adapter can be connected to an operation panel as far 1000m .

1) Cable remote control Specifications:

1.5m , 2m , 3m , 5m , 8m , 10m , 15m . among them 1.5m , 2m , 3m inverter standard configuration for my company, if the user needs 5m

More remote control cable, special instructions when ordering in advance. Remote control cable shape as shown below:



12-2 remote control cable

2) Remote control adapter

model: CVF-RMC05 -- Be applicable CVF-KP9 , CVF-KP10 The operation panel.

CVF-RMC06 -- Be applicable CVF-KP11 , CVF-KP12 The operation panel.

12.3 Water Supply Accessories

A detailed description of the water supply accessories See Appendix 2: Apply water supply attachment.

12.4 brake assembly

This series of models (7.5KW Or less) are built-in brake unit and the brake resistor, but the limited internal braking resistor braking torque, the braking torque increase For, external braking resistor is required. Please choose the right according to external braking resistor drive models. Model as follows:

Braking resistor - CVDB - 4R □□□□ (380V series)

CVDB - 2R □□□□ (220V series)

□ □ □ □ A brake resistor power level. Common

specifications braking resistor specifications are as follows:

Inverter model		Applicable Motor (KW)	Braking electric power (KW)	Braking resistor (Ω)	Braking torque (%)	Braking resistor type
G2 Series	P2 Series					
CVF-G2-4T0007		0.75	0.3	400	100	CVDB-4R0002
CVF-G2-4T0015	CVF-P2-4T0015	1.5	0.3	400	100	CVDB-4R0002
CVF-G2-4T0022	CVF-P2-4T0022	2.2	0.5	250	100	CVDB-4R0003
CVF-G2-4T0037	CVF-P2-4T0037	3.7	0.8	150	100	CVDB-4R0004
CVF-G2-4T0055	CVF-P2-4T0055	5.5	1.2	100	100	CVDB-4R0005
CVF-G2 -4T0075	CVF-P2-4T0075	7.5	1.6 75		100	CVDB-4R0008
	CVF-P2-4T0110	11	2.0 60		100	CVDB-4R0011

Appendix 1: RS485 communication protocol

1. Outline

in CVF-G2 / P2 Series inverter offers RS485 Communication interface, a user can achieve centralized monitoring through PC / PLC (setting the operating parameters of the inverter and the inverter status read operation), to suit specific requirements. Agreement in this appendix is to achieve the above function and design.

1.1 agreement

The serial communication protocol defines the information content of the serial communication and the transmission format to use. Which comprises: polling (or broadcast) format; master coding method, including: the function code of action, and error checking of data transmission and the like. Response from the slave is the same structure, including: operation confirmation, return data and error checking. If an error occurs in the operation when receiving the information, the host can not be completed or required, one fault it as a response to the host.

1.2 Scope

1.2.1 Applicable Products

CVF-G2 / P2 Series inverter

1.2.2 application mode

(1) Inverter has access RS485 "Single master multi-slave" PC / PLC control network bus. (2) have access drive RS485 / RS232 (Conversion interface) of "Point to Point" PC / PLC

Monitor background.

2. Bus structure and protocol description

2.1 bus architecture

(1) Interface

RS485 (RS232 Optional, but need the level translation accessories)

(2) transmission

Serial asynchronous, half-duplex transmission mode. At the same time master and slave can only transmit data, receive data and the other only. An asynchronous serial data communication process, is in the form of packets, a a transmission.

(3) **topologically**

A single master system, the most 32 Stations, wherein 1 A host station, 31 The slave stations. Range of slave address is 0 ~ 30 , 31 (1FH) Is broadcast communication address. Network slave address must be unique. Point to point mode is single master and multi topology from a special application mode, i.e., the case where only one slave.

2.2 Protocol Description

Kangwo CVF-G2 / P2 Series inverter communication protocol is a master-slave serial communication protocol, network, only one device (the host) can establish protocol (referred to as "query / command). Other devices (slaves) can only respond to data **provided by the host query / command, or according to the command of the host / query make the appropriate action. Here, master personal computer (PC) . industrial computer and programmable logic controller (PLC) and the slave is inverter.** Master not only visits some slave, but also sends a broadcast message to all slaves. For Host Query / Command access, it must return a message (called a response) from the machine; for broadcast messages sent by the host, in response to feedback from the machine without the host.

prompt

with RS485 Communication-related parameters: b-1 , b-3 , H-49, H-76 ~ H-83, Please note that these parameters related settings.

2.2.1 Data Format

3 kinds of data transmission format Optional: (1) 1 Start bit, 8 Data bits, 1 Stop bit, no parity. (2) 1 Start bit, 8 Data bits, 1 Stop bit, odd parity. (3) 1 Start bit, 8 Data bits, 1 Stop bit, even parity. Slave Default: 1 Start bit, 8 Data bits, 1 Stop bit, no parity.

2.2.2 Baud Rate

Five kinds of baud rate: 1200bps , 2400bps , 4800bps , 9600bps , 19200bps

Slave Default: 9600bps

2.2.3 Communication

(1) master "Polling" and slave "response" point to point communication.

(2) keyboard using the frequency converter is provided a serial interface communication parameters, including local address, baud rate,

Data Format.

prompt

The host must set the same baud rate and data format converter.

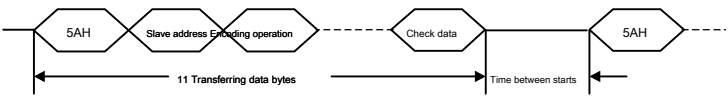
2.2.4 Communication Rules

(1) After the three-way handshake during a call, communication failure or communication failure host is designed to host up

The current packet retransmission 3 Times. (2) Between data frames to ensure that there 4 Or more bytes of time between

starts, with the stated start

Moving time interval when the effective packet is identified.

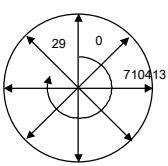


(3) waiting time of master inverter and the maximum response time is 8 byte transfer time expires, the sentence

As communication failure.

(4) polling master slave (frequency converter) may be based on a user-defined polling table which wheel

The user can query the order defined according to practical needs. If you need to make certain slave polling frequency higher than from the other machine, so that the address number can appear multiple times in the polling table. If the polling list from only one machine can achieve point to point connection.



Host polling table:

0	7	1	0	4	1	3	29

Each (5) must be polled slave, the master station in the polling list, the polling period is less than

1000ms Including no answer, they should call three times, both to ensure timely detection of communication failure from the station, but also "plug and play" function. (6) After the drive in a certain time interval (1000ms) If you do not receive any

message, it is considered hair

Health disconnection fault, then entered the safe operation of the state. (Safe operating mode by parameter H-83 set up).

2.3 Packet Structure

Each packet of 11 bytes, comprises three parts: header, user data, frame end. Data frame format schematically table:

Transmission sequence number of bytes set Righteousness	Start byte Single-byte	Operation coded address Single-byte	value of the operating parameter Single-byte	setting values of the check word Double-byte	from the slave address code Double-byte	Single-byte	
	Header		Parameter data		Process data		End of frame
			User data				

Description:

(1) header: includes a start byte, an address from the machine frame

end (2): a checking data (i.e., checksum)

(3) User data: including parameter data and process data. And wherein the parameter data comprises: encoding operation Command / response, the address coding, coding set / actual value. Process data and comprising: a host control command / slave response, the host running the set / actual value from the machine is running.

2.3.1 Host Command Frame

The master sends packets called host command frame format schematically as follows:

Transmission sequence number According to the given number of bytes transmitted Righteousness	Start byte 5AH	Command word 0 ~ 30 1	coded address 1	value of the operating 1	parameter setting 1	value check 2	data 2	slave address 2	1
	Header		Parameter data			Process data			End of frame
			User data						

2.3.2 slave response frame

Modem (inverter) transmitted from the slave response packets called frames, which form a schematic as follows: data packets sent by the host is called a host command frame format schematically as follows:

Send order number According to the given number of bytes transmitted Righteousness	Start byte 5AH	Slave address 0 ~ 30 1	Slave response 1	Coded address 1	Parameter Value / error code 2	The actual values of the check 2	status word 2	data 1
	Header		Parameter data			Process data		End of frame
			User data					

2.4 encoded message data

2.4.1 (1) start

byte header

This protocol provides that: each packet start byte are 5AH. But for recognition start byte packet itself it is not sufficient to start, because the message itself may be 5AH other data except starting byte. Therefore, this agreement before start bytes define at least a starting interval of 4-byte transmission time, part of the working time between starts of packets. Do not With baud packet start Fixed interval schedule:

Baud Rate (bps)	Start interval (ms)	Baud Rate (bps)	Start interval
1200	36.8	2400	18.4
4800	9.2	9600	4.6
19200	2.3	38400	1.15

(2) **slave address**

Inverter local address, hexadecimal 16, takes 1 byte, range: 0 ~ 30 .

2.4.2 User Data

parameter data (1)

◎ host command code / response code Slave

Command code sent by the host or slave response to the command code, whose data type is: 16 hex,

Single byte.

Parameter data	Code value	description
Host Command code	0	No task: not to read or change parameters of data movement. 1
		Reading the parameter data: the read parameter data from the specified address coding machine.
	2	Change the parameter data: Change the parameter data from the specified address coding machine, this data is not stored in the machine from the power failure.
	3	Change parameter data and stored in the EEPROM: Change parameter data specified by the address from the machine coded and stored in the EEPROM. 0
Slave response code		No response task: no task command information from the host machine response. 1
		The task is completed: from machine to complete the mandate of the host command code.
	2	Failed to complete the task, the parameter value returns an error code: the machine failed to complete host command codes mandate due to unfinished form return an error code.
	31	Bytes checksum error, or is not received from a predetermined machine: communication error occurred.

◎ coded address

Data type: 16 hex, single byte. From the machine address coding parameters refer to the manual:

5.5 - List of parameters and status monitoring Chapter 7 - function parameter list.

◎ parameters / Error Code

Data type: hex, double-byte.

For the host, the parameter value is the data of the designated address provided by the encoded command code host.

When (i.e. no task or the reading parameter data) Command code is 0 or 1, the value may be any value within the parameter value.

For the slave, the parameter value is the data with a particular host command codes returned when the command is executed successfully. When the command fails, the parameter value is an error code is returned. Detailed error codes are as follows: 0: parameter changes to the locked (write is not allowed)

Intermediate drive by parameter [L-72] can be set to allow or disallow the modified parameters. This will return an error message when trying to modify the parameters prohibited rewritten. 1: Operating parameters can not be changed (write is not allowed)

Some parameters can not be modified during drive operation, attempting to return this error message when you modify these parameters.

2: parameter is hidden (read, write, do not allow)

Inverter intermediate and advanced parameters and internal parameters can be hidden, only to open these parameters can be read and write operations. Otherwise, it returns this error. 3: Reserved parameters (read, write, do not allow)

Some drive parameters are reserved parameters is not currently defined, trying to return this error message when you modify these parameters.

4: Parameter Value overrun, writing failure

Attempts to modify the parameter value exceeds the range set by the drive parameters, then will return this error.

5: trying to write process parameters (status monitoring parameter)

Inverter status monitoring parameter [d-0] ~ [d-33] It can not be rewritten outside, trying to return this error message when you modify these parameters. 6: Illegal function code

Packet encoding specified address is invalid (i.e., the specified address is not encoded parameter table and the state monitoring function of the parameter list), this error will be returned.

(2) **process data**

◎ Operation / Status Words

Data Meaning: slave host control operation returns the current operating status or slave. Data type: hex, double-byte.

Operating the word :(PC → inverter)

Place	meaning	Functional Description
0	Retention	
1	Forward running	1 : To the slave (inverter) issued a forward run command 0 :invalid
2	Reverse operation	1 : Reverse running command issued to the slave (inverter) 0 :invalid
3	Fault reset	1 : Fault reset 0 :invalid
4	Master control active	1 : The current control word and the set value of the data frame update the old data. 0 : The current data frame is an invalid control word with a set value, a control word holding the front and the inverter The set value.
5	Retention	
6	Retention	
7	Retention	
8	Freewheel stop	1 : When the valid bit master control Bit4 = 1 When the current inverter coast to stop When the master control valid bit Bit4 = 0 When the current drive to maintain the original state 0 : Freewheel stop command is invalid
9	Retention	
10 Retention		
11	Retention	
12 Retention		
13 Retention		
14 Jog forward		1 : When the valid bit master control Bit4 = 1 When the current drive forward jog When the master control valid bit Bit4 = 0 The current drive to maintain the original state 0 : Forward jog command is invalid
15 Reverse jog		1 : When the valid bit master control Bit4 = 1 The inverter reverse jog When the master control valid bit Bit4 = 0 The drive remains original state 0 : Jog reverse invalid command

prompt

Control priority order: forward jog, reverse jog, forward running, reverse running, free stop.

:(inverter status word → PC)

Place	meaning	Functional Description
0	DC voltage state	1 : Normal DC voltage 0 : DC voltage abnormality
1	Motor rotation	1 : Motor reverse 0 : The motor is transferred
2	Output phase sequence	1 : Inverted sequence 0 : Positive phase sequence
3	system error	1 :Inverter fault 0 : Inverter normal
4	Working condition	1 : Drive running process 0 : Inverter stop
5	Waiting for test failure recovery	1 : Drive fault recovery test waiting 0 : The drive is not in fault recovery test waiting
6	Retention	
7	DC braking	1 : Inverter DC braking in progress 0 : DC braking frequency converter is not
8	Freewheel stop	1 : Stop the drive in a free state 0 : Frequency converter is not free stop state
9	Speed checking restart	1 : Ongoing drive speed checking restart 0 : The drive is not in progress speed checking restart
10 Accelerate the process		1 : Drive is accelerating the process of 0 : Drive is not speed up the process
11 Deceleration		1 : Drive is decelerating 0 : Drive is not decelerating
12 The current limiting operation		1 : Inverter current limit function is activated 0 : Inverter current limit function does not work
13 Voltage limit operation		1 : Drive voltage limit function is activated 0 : Function does not operate to limit the voltage converter
14 Jog operation		1 : Drive in status of jogging operation 0 : The drive does not jog running state
15 Instantaneous stop and then start waiting		1 : Inverter restart the wait state at the instant shutdown 0 : Frequency converter is not instantaneous stop and then start waiting state

◎ setpoint / actual value

Data Meaning: the specific command with the response code, providing a host or a slave in response to the data set. Data type: hex, double-byte.

Value: The host command code sets the inverter operating frequency.

Found: according to the host command code, it returns the actual operating frequency of the inverter. If the frequency converter Fault, the actual value will return the corresponding error code.

Therefore The fault code The following table:

error code	description	error code	description
0	Trouble-free	1	Acceleration overcurrent
2	Deceleration Overcurrent	3	Steady-state operation of the overcurrent
4	Overvoltage acceleration	5	Overvoltage deceleration
6	Steady-state operation overpressure	7	Overvoltage shutdown state
8	Inverter running Undervoltage	9	Inverter overload
10	Applicable Motor overload	11	Inverter overheat
12	Ground Fault	13	Interference fault
14	Output Phase	15	**IPM malfunction**
16	External equipment failure	17	Current detection circuit fault
18	communication fail		

2.4.3 frame end (checksum)

Data Meaning: the data frame checksum calculation. Data

type: 16 hex, single byte.

Calculation: From the continuous accumulation "start byte" to "user data" whole bytes. Check and take cumulative and is divided by 256. Checksum error will result in a communication error occurs.

3 . Examples of use

Example 1: A digital frequency converter 6 (parameter b-2) It is set to 27.00Hz. The host sends a frame: 5A 06 03 02 (8C 0A) (00 00) (00 00) FB slave response frame: 5A 06 01 02 (8C 0A) (01 00) (00 00) FA

(Note: for proper slave task)

Example 2: The load Motor rated frequency 0 inverter (parameter b-6)set as 60.00Hz . Host transmit frame: 5A 00 03 06 (70 17) (12 00) (00 00) FC slave response frame: 5A 00 01 06 (70 17) (01 00) (00 00) E9

(Note: for proper slave task)

5A 00 02 06 (01 00) (11 00) (00 00) 74

(Note: the machine is running, the parameter can not be modified)

Example 3: 1 drive controls the frequency of 10.30Hz forward.

Host transmit frame: 5A 01 00 00 00 00 (12 00) (06 04) 77 from the response frame: 5A 01 00 00 00 00 (11 00) (06 04) 76

(Note: for proper slave task)

5A 01 00 00 00 00 (09 00) (01 00) 65

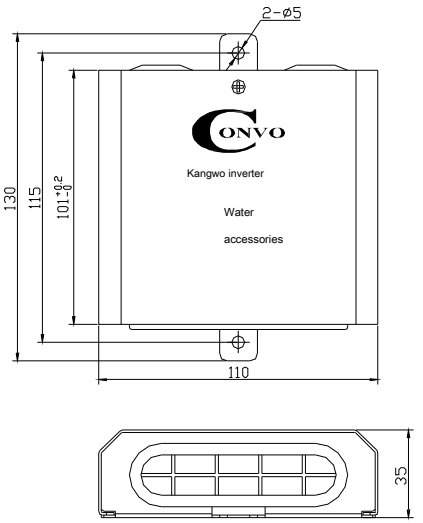
(Explanation: slave takes over current accelerator operation)

appendix 2 : The water supply accessories

1 . Scope

This accessory is a multi-pump water supply system-specific accessories, and need CVF-P2 Series inverter used in conjunction to achieve effective control of multiple pumps water supply system.

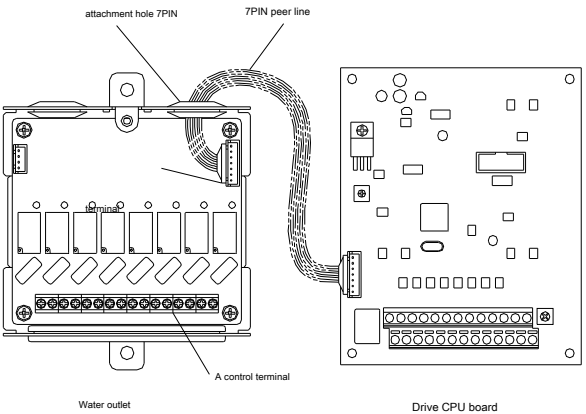
2 . Dimensions



3 . Connected accessory water supply and inverter

1> External

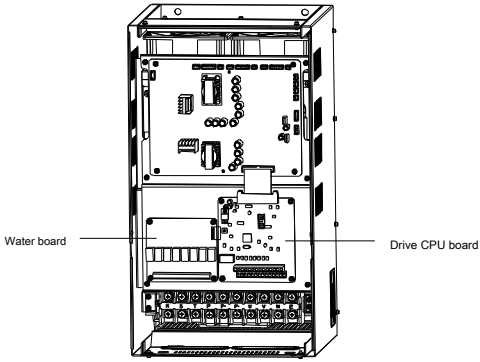
for 15KW Inverters below the water supply accessories connected thereto, using an external mode. Accessories by 7PIN On the other cable and the inverter is connected; a control terminal connected by the contactor achieved, as 1 Below:



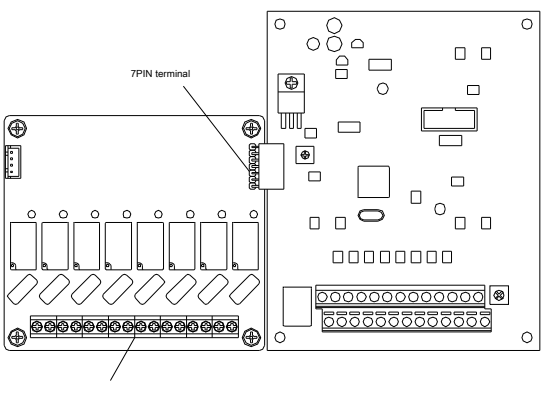
Map 1 Water supply and accessory drive connection (external)

2> Internal

for 15KW or 15KW Above inverter, the water supply accessories connected thereto, using the built-in way. The water extraction plate attachment, as shown in 2 Placed in the position shown, around and fixed with the supplied screws and studs. Water connection inverter board using 7PIN Direct docking terminal, the control terminal of the contactor supply cable wiring board may be through the outlet hole of the inverter, as shown in 3 Below:

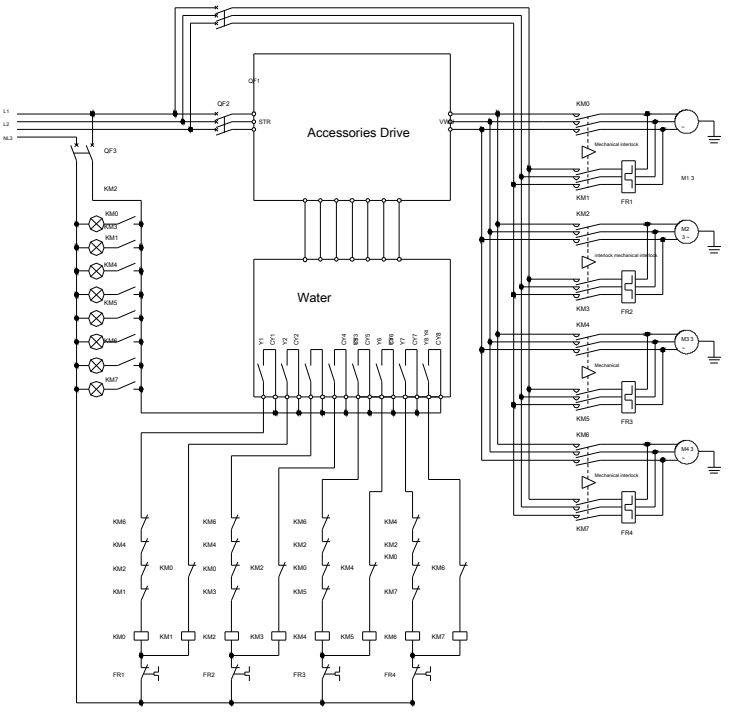


Map 2 Water accessories in the placement of the drive (built-in)



Map 3 Built-water connection plate enlarged view

4 . System wiring diagram (4 Pump mode)



Say Bright:

1, (Y1, CY1), (Y2, CY2), (Y3, CY3), (Y4, CY4), (Y5, CY5)

(Y6, CY6) (Y7, CY7), (Y8, CY8) represent the water supply control terminal board "One frequency", "the 1st frequency", "the 2nd frequency", "the 2nd frequency", " frequency III ", III" frequency "" fourth frequency "," fourth frequency "corresponding to the two terminals.

Precautions:

1, Should be used between the motor side and the inverter output frequency bypass associated with mechanical

AC contactor locking device, and the control loop logic in electrical interlock to prevent causing a short circuit between the inverter output and the power supply from damaging the inverter frequency and related equipment; 2, L1 frequency power source connected motor, phase sequence L2, L3 should be connected to the inverter

Output U, phase sequence V, W consistent, make sure before running phase sequence table is used, to prevent the inverter / frequency switching motor reverse cause accidents. 3, Frequency bypass branch overcurrent protective devices should be a corresponding motor.

5 . And water supply control mode 1> Frequency / frequency switching operation and

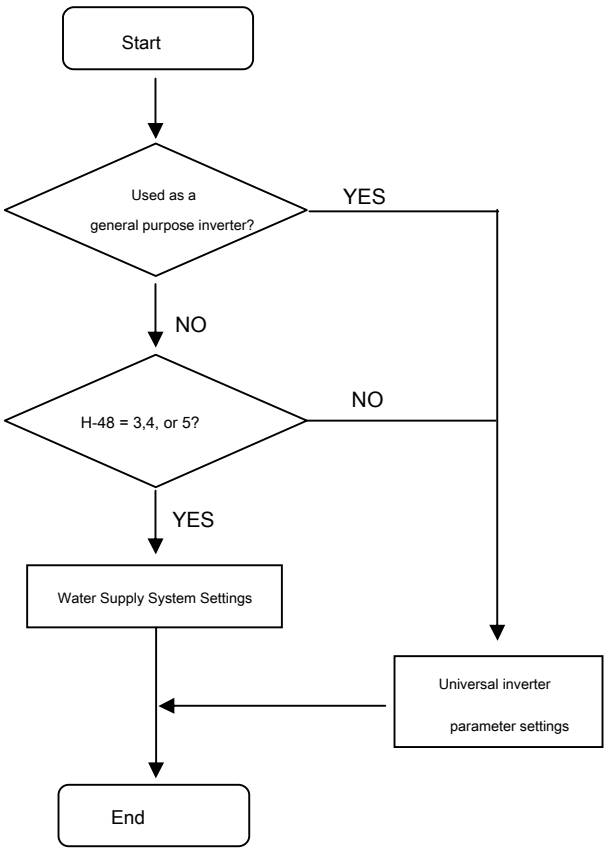
Frequency conversion means runs the motor (pump) is controlled by the inverter output frequency. Frequency operation means that the motor (pump) directly by a commercial frequency power supply operation. Frequency / frequency switching the motor (pump) into the grid from the inverter driven by the driving frequency, a variable frequency drive or inverter is converted

2> work

Drive a certain order in turn drives the pump frequency operation. The pressure converter can automatically determine the required number of closed-loop control of the pump operation units (within a set range), the same time only one pump is driven by an inverter. When the variable frequency drive pump to the setup required to increase the upper limit frequency of the pump, the pump is switched to the inverter frequency operation, while the other pump drive fr

6 . parameter settings

Water supply specific parameters H-62 ~ H-73 See a detailed description of the inverter corresponding model specification.



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