

## PREFACE

Thank you for using VSI9000 Series Inverters! It is our company independent researched and developed product, a comprehensive functions, excellent performance and new generation drive, it inosculates specialized and personalized demands from many kinds of industry, and we try our best to meet you needs in various sites.

Our product complies with the national standards of GB/T12668-2002, and it passed the state electronic and power distribution equipment quality supervision and inspection center's type test, and it also passed the international quality system authentication ISO9001:2000.

This manual expounds the related issues: installing the wiring, setting parameters, operating, diagnosing and excluding errors and daily maintenance. Please read this manual and take good care of it to make sure you can operate the converters correctly, then play their superior performance.

If you have any query or special demands, please contact our various regions' agency or franchiser, you also can contact after- sale services center, we will service for you with all our heart.

Welcome to use the following series:

- ◆ VSI13000 Series
- ◆ VSI9000-G General
- ◆ VSI9000-P Special For Draught Fan And Water Pump
- ◆ VSI9000-ZS Special For Injection Molding Machine
- ◆ VSI9000-ZG Special For All-In-One Injection Machine
- ◆ VSI9000-L Special For Drawbench

### **Please check it when you open the package:**

1. The products are whether damaged, the components are whether come off;
2. The rating in the nameplate is whether as the same as you ordered;
3. Please contact our various regions' agency or franchiser, if the packing specification is fall short of your ordered or any other problems. And at the same time, please explain the product's item, standard, number, the purchased date and the damaged degree, so we can solve those problems as soon as possible.

## CONTENTS

<b>CHAPTER 1: PRECAUTIONS</b> .....	<b>3</b>
1.1 Caution.....	3
1.2 Installation.....	3
1.3 Operation.....	4
<b>CHAPTER 2: TECHNIQUE AND INDEX</b> .....	<b>6</b>
2.1 Model.....	6
2.2 Nameplate.....	6
2.3 Standard.....	7
<b>CHAPTER 3: INSTALLATION AND WIRING</b> .....	<b>9</b>
3.1 Demands .....	9
3.2 Install Size.....	9
3.3 Operation Panel Size.....	11
3.4 Direction And Space.....	12
3.5 Wiring.....	13
3.6 Major Loop Terminal.....	16
3.7 Controlling Loop Terminal Wiring.....	19
3.8 Additional Remarks.....	22
3.9 Communication Terminal Wiring.....	24
<b>CHAPTER 4: OPERATION</b> .....	<b>26</b>
4.1 Operation Panel.....	26
4.2 Panel Operation.....	29
4.3 Electrify.....	32
<b>CHAPTER 5: PARAMENT LIST</b> .....	<b>33</b>
5.1 Basic.....	33
5.2 Frequency.....	36
5.3 Drive.....	36
5.4 Auxiliary Operation.....	39
5.5 Teminal Function.....	42
5.6 Protection.....	45
5.7 Failure.....	46
5.8 Closed-Loop.....	46
5.9 PLC .....	48
5.10 Suspend Frequency.....	48
5.11 Factory Parameter.....	50

5.12 Monitor Parameter .....	51
<b>CHAPTER 6: TROUBLESHOOTING</b> .....	<b>51</b>
6.1 Fault Display And Method .....	51
6.2 Fault Record Inquiry .....	55
6.3 Reset .....	55
<b>CHAPTER 7: MAINTENANCE</b> .....	<b>55</b>

## CHAPTER 1: PRECAUTIONS

Read this chapter carefully before, transporting, installing, wiring, operating, servicing or inspecting the drive.

### 1.1 CAUTION



Do not operate the inverter against to the manual.  
Do not operate the inverter against to the manual.  
Operate the inverter according to the prompting.

### 1.2 INSTALLING



#### 1.2.1 Danger

1.2.1.1 Only professional staff wiring, otherwise electric shock could occur.

1.2.1.2 The inverter is strictly enforced to open and change privately.

1.2.1.3 Please install the inverter at a metal or other non-combustible material, otherwise it will be a fire.

1.2.1.4 Do not install in the inflammable and explosive place.

1.2.1.5 Do not open the cover board when the inverter is electrifying, otherwise electric shock could occur or explode.

1.2.1.6 The lead or the metals is strictly enforced leave in the inverter, otherwise electric shock could occur or explode.

1.2.1.7 Do not touch the terminal with wet hands, otherwise electric shock could occur.

1.2.1.8 Wiring should be at least 10 minutes after stop the power and the panel lights out, otherwise, you may get an electric shock.

1.2.1.9 Do not install the inverter in a wet place, otherwise the articles will be damaged.

1.2.1.10 Do not connect P+/PB/P, otherwise it will fire.

1.2.1.11 Escalate the voltage if the inverter long time no used, otherwise electric shock could occur or explode.

**Connect AC With R、S、T, Do Not Connect U、V、W With AC!**

#### 1.2.2 ATTENTION

1.2.2.1 Do not press the cover board when moving, otherwise the inverter will be damaged.

1.2.2.2 The inverter should be installed in a load-bearing place.

1.2.2.3 Do not install the inverter in a direct sunshine place.

1.2.2.4 The earth terminal should earthing well.

1.2.2.5 Do not touch the heat sink when electrify or after stop the power within 10 minutes.

1.2.2.6 Do not operate if the inverter is damaged or parts not match.

1.2.2.7 Major loop terminal must connect with lead, otherwise the inverter will be damaged.

1.2.2.8 When start and stop the inverter frequently, should operating by outside terminal or panel. Do not operating directly.



## 1.3 OPERATION

1.3.1 Only used in the manual approved situation, otherwise it could be a fire or explode.

1.3.2 Stop for a while when the inverter working for a long time in a low speed.

1.3.3 Rated frequency exceeds 50 Hz, it will be more vibration and noise.

Make sure the axletree's speed.

1.3.4 To avoid tripping operation If increase load, you should use braking resistor.

1.3.5 Advancing examine and service when the inverter working for a long time in a low speed.

1.3.6 To avoid load and inverter resonating with a certain frequency, you can set other frequency.

1.3.7 When the lead longer than 30m, it will be a high dv/dt, you can fix an exchanged output reactor.

1.3.8 Make sure the insulating resistance is big than  $5M\Omega$ , when the first time used or long time no used.

1.3.9 Because the output U、V、W's wave pattern is PWM, the inverter may damage if fix other capacitance or resistance.

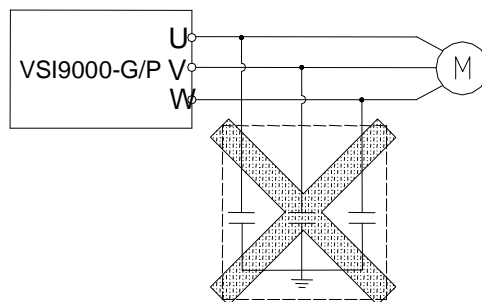


Chart 1-2 capacitor is forbidden to connect with inverter output terminal

1.3.10 Please make sure the inverter is not working when you need fix additional equipment.

1.3.11 You need change the voltage if make the inverter working out of routine voltage.

1.3.12 Please take protective measures when the electric motor is not match with the inverter rated capacity.

1.3.13 When the elevation exceed 1000m,the inverter frequency should be reduced. You can see the relationship between rated output and elevation in chart1-3

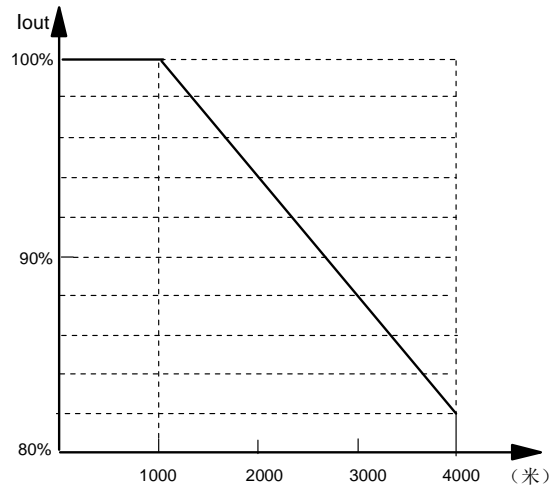
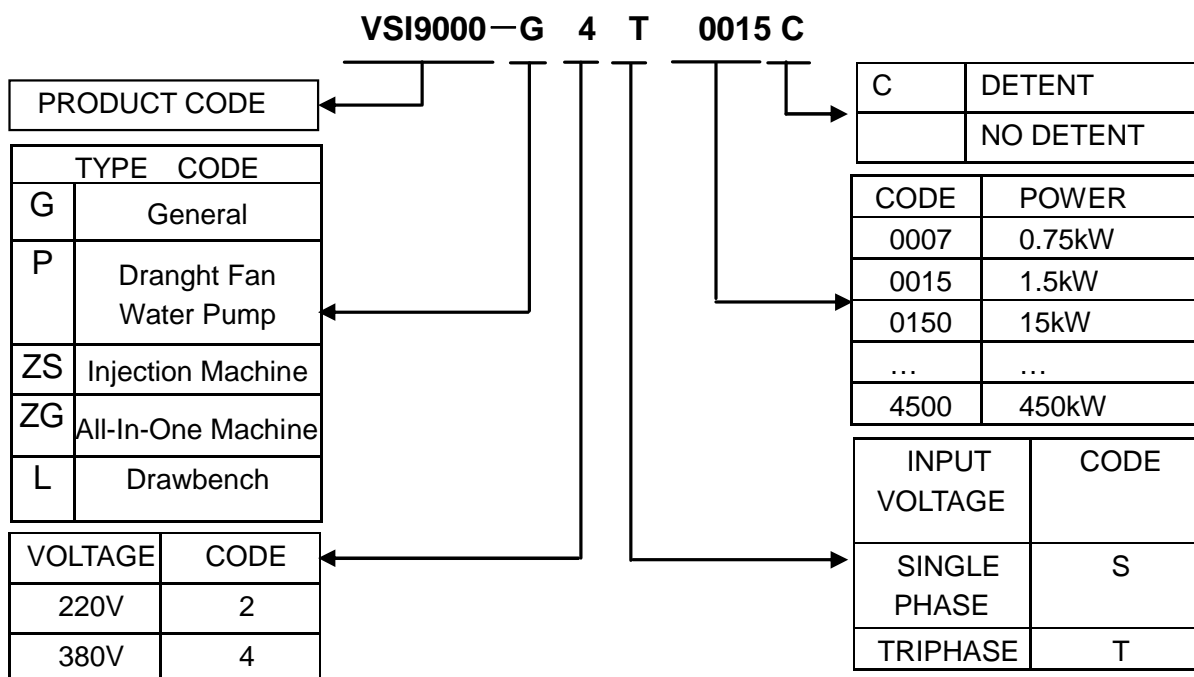


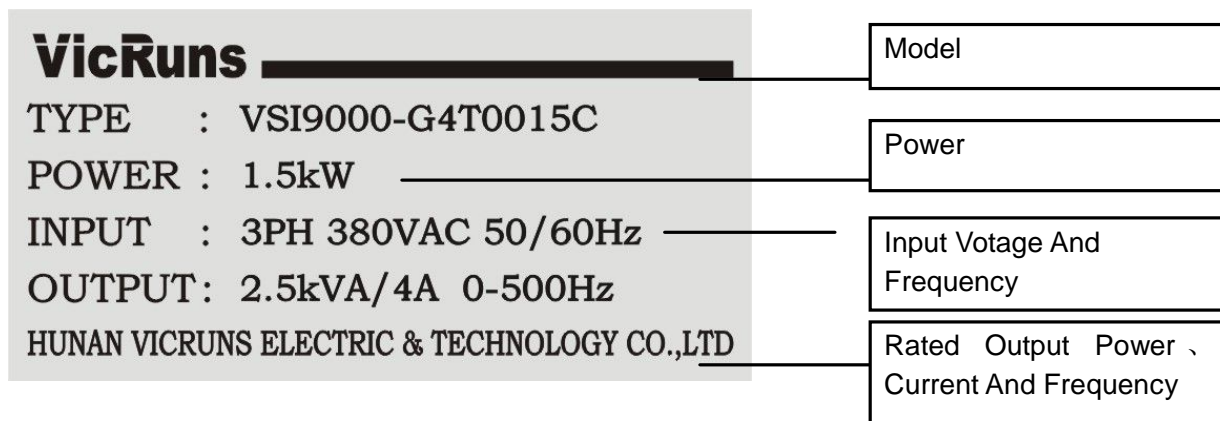
Chart 1-3 rated output and elevation

## CHAPTER 2: TECHNIQUE AND INDEX

### 2.1 MODEL



### 2.2 NAMEPLATE



## 2.3 STANDARD

### 2.3.1 SINGLE PHASE 220V 50/60Hz

<b>Model</b>	<b>Rated Capacity (KVA)</b>	<b>Rated Output Current (A)</b>	<b>Power (KW)</b>
VS19000-G2S0004	1.1	3.0	0.4
VS19000-G2S0007	1.5	5.0	0.75
VS19000-G2S0015	2.8	8.0	1.5
VS19000-G2S0022	3.8	11	2.2

### 2.3.2 TRI PHASE 380V 50/60Hz



## VSI9000 Series Inverter Manual

---

Inverter Model		Rated Capacity (KVA)	Rated Output Current	Power (kW)
G Series (General)	P Series (Dranght Fan、Water Pump)			
VSI9000-G4T0007		1.5	2.5	0.75
VSI9000-G4T0015	VSI9000-P4T0015	2.5	4.0	1.5
VSI9000-G4T0022	VSI9000-P4T0022	3.3	5.8	2.2
VSI9000-G4T0040	VSI9000-P4T0040	6.4	9.7	4.0
VSI9000-G4T0055M VSI9000-G4T0055	VSI9000-P4T0055	6.4	9.7	4.0
VSI9000-G4T0075	VSI9000-P4T0075M VSI9000-P4T0075	11	18	7.5
VSI9000-G4T0110	VSI9000-P4T0110	16.5	25	11
VSI9000-G4T0150	VSI9000-P4T0150	21.7	33	15
VSI9000-G4T0185	VSI9000-P4T0185	25.7	39	18.5
VSI9000-G4T0220	VSI9000-P4T0220	29.6	46	22
VSI9000-G4T0300	VSI9000-P4T0300	39.5	60	30
VSI9000-G4T0370	VSI9000-P4T0370	49.4	75	37
VSI9000-G4T0450	VSI9000-P4T0450	60	91	45

## VSI9000 Series Inverter Manual

---

Inverter Model		Rated Capacity (KVA)	Rated Output Current (A)	Power (kW)
G Series (General)	G Series (General)			
VSI9000-G4T0150	VSI9000-P4T0150	21.7	33	15
VSI9000-G4T0185	VSI9000-P4T0185	25.7	39	18.5
VSI9000-G4T0220	VSI9000-P4T0220	29.6	46	22
VSI9000-G4T0300	VSI9000-P4T0300	39.5	60	30
VSI9000-G4T0370	VSI9000-P4T0370	49.4	75	37
VSI9000-G4T0450	VSI9000-P4T0450	60	91	45
VSI9000-G4T0550	VSI9000-P4T0550	73.7	112	55
VSI9000-G4T0750	VSI9000-P4T0750	98.7	150	75
VSI9000-G4T09000	VSI9000-P4T0900	116	180	90
VSI9000-G4T1100	VSI9000-P4T1100	138	210	110
VSI9000-G4T1320	VSI9000-P4T1320	167	253	132
VSI9000-G4T1600	VSI9000-P4T1600	200	304	160
VSI9000-G4T20000	VSI9000-P4T2000	248	380	200
VSI9000-G4T2200	VSI9000-P4T2200	273	426	220
VSI9000-G4T2500	VSI9000-P4T2500	309	470	250
VSI9000-G4T2800	VSI9000-P4T2800	336	540	280
VSI9000-G4T3150	VSI9000-P4T3150	390	600	315
VSI9000-G4T3500	VSI9000-P4T3500	435	660	350
VSI9000-G4T4000	VSI9000-P4T4000	493	750	400
VSI9000-G4T4500	VSI9000-P4T4500	560	850	450
---	VSI9000-P4T5000	625	950	500

## CHAPTER 3: INSTALLATION AND WIRING

### 3.1 DEMAND FOR ENVIRONMENT

3.3.1 Fix the inverter in draughty indoors. Temperature:  $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$ . You can open the cover board to heat yield when the temperature is above  $40^{\circ}\text{C}$ , below  $50^{\circ}\text{C}$ .

3.3.2 Do not install the inverter in incensive,exploding or caustic air and liquid place.

3.3.3 To avoid fixing in dusty place.

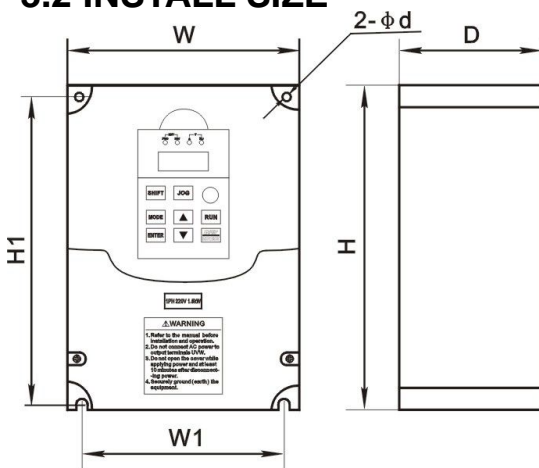
3.3.4 To avoid fixing in high temperature and moist place,the humidity below 90% and no frost or steam.

3.3.5 TO avoid fixing in direct sunlight place.

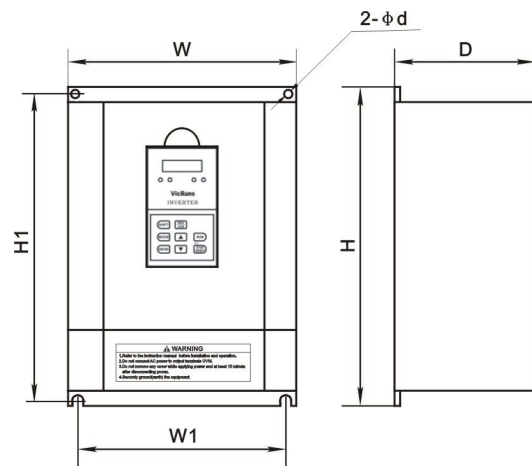
3.3.6 Table-board must be firm and no vibration ,or vibration below  $5.9\text{m/s}^2(0.6\text{g})$ .

3.3.7 Keeping off electromagnetic interference.

### 3.2 INSTALL SIZE



For: Below G4T0055M/P4T0075M



For: G4T0055 /P4T0075~G4T0150/P4T0185

For:G4T0185/P4T0220~G4T1320/P4T1600

For:Over G4T1600/P4T1850

chart 3-1 outside and size

**WALL HANGING:**

## VSI9000 Series Inverter Manual

Model		H (mm)	H1 (mm)	W (mm)	W1 (mm)	D (mm)	Aperture φd(mm)
G	P						
VSI9000-G2S0004	--	170	157	125	112	150	Φ5
VSI9000-G2S0007	--						
VSI9000-G2S0015	--						
VSI9000-G2S0022	--						
VSI9000-G4T0007	VSI9000-P4T0015						
VSI9000-G4T0015	VSI9000-P4T0022						
VSI9000-G4T0022	--						
--	VSI9000-P4T0040	220	204	150	132	178	Φ7
VSI9000-G4T0040	VSI9000-P4T0055						
VSI9000-G4T0055M	VSI9000-P4T0075 M						
VSI9000-G4T0055	VSI9000-P4T0075	328	312	198	160	160	Φ7
VSI9000-G4T0075	VSI9000-P4T0110						
VSI9000-G4T0110	VSI9000-P4T0150	395	380	240	162	165	Φ8
VSI9000-G4T0150	VSI9000-P4T0185						
VSI9000-G4T0185	VSI9000-P4T0220	469	452	302	200	235	Φ9
VSI9000-G4T0220	VSI9000-P4T0300						
VSI9000-G4T0300	VSI9000-P4T0370	645	622	358	200	280	Φ11
VSI9000-G4T0370	VSI9000-P4T0450						
VSI9000-G4T0450	VSI9000-P4T0550						
VSI9000-G4T0550	VSI9000-P4T0750	690	665	425	300	310	Φ11
VSI9000-G4T0750	VSI9000-P4T0900						
VSI9000-G4T0900	VSI9000-P4T1100						
VSI9000-G4T1100	VSI9000-P4T1320	792	770	490	315	345	Φ11
VSI9000-G4T1320	VSI9000-P4T1600						

**CABINET:**

Model		H (mm)	W (mm)	D (mm)
G	P			
VSI9000-G4T1600	VSI9000-P4T1850	1420	575	430
VSI9000-G4T1850	VSI9000-P4T2000			
VSI9000-G4T2000	VSI9000-P4T2200			
VSI9000-G4T2200	VSI9000-P4T2500	1800	850	498
VSI9000-G4T2500	VSI9000-P4T2800			
VSI9000-G4T2800	VSI9000-P4T3150			
VSI9000-G4T3150	VSI9000-P4T3500			
VSI9000-G4T3500	VSI9000-P4T4000			
VSI9000-G4T4000	VSI9000-P4T4500			
VSI9000-G4T4500	VSI9000-P4T5000			

**3.3 OPERATION PANEL SIZE**

3.3.1 Operation Panel I

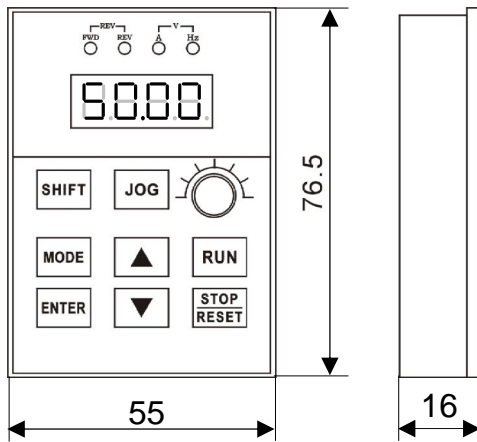


Chart3-2 Panel Size I

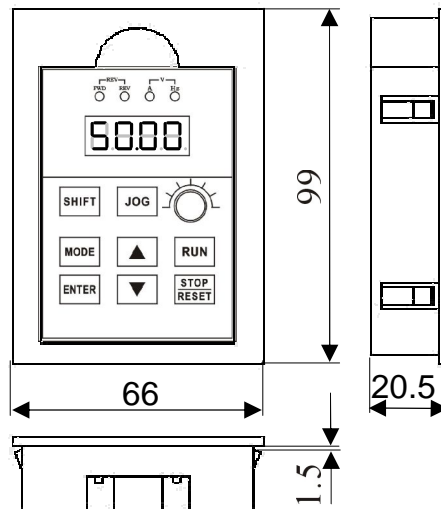


Chart3-3 Outside I

Chart3-2、3-3、3-4 Using For:

VSI9000-G2S0004~G2S0022
VSI9000-G4T0007~G4T0055M
VSI9000-P4T0015~P4T0075M

3.3.2 Operation Panel II

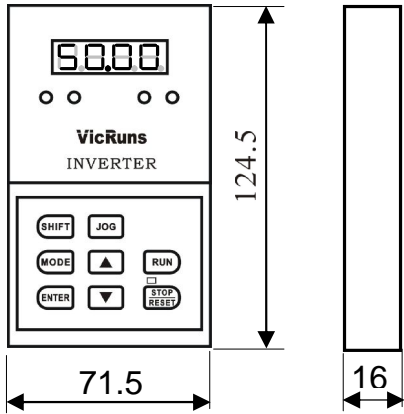


Chart3-5 Panel Size II

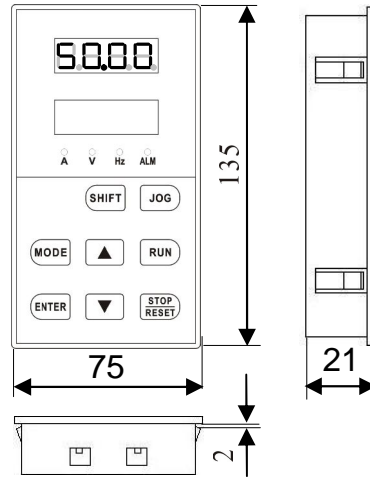


Chart3-6 Outside II

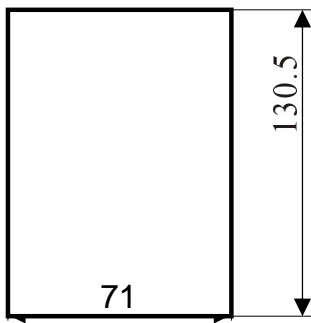


Chart3-7 Outside Hole Size II

Chart3-5、3-6、3-7 Using For:

VSI9000-G4T0055
VSI9000-P4T0075

3.4 DIRECTION AND SPACE

Regularly install the inverter perpendicularly, and should leave enough area to ventilate.

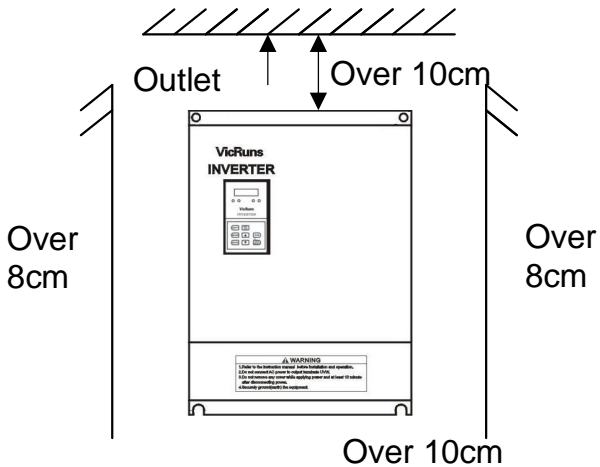


Chart3-8 Interval Size

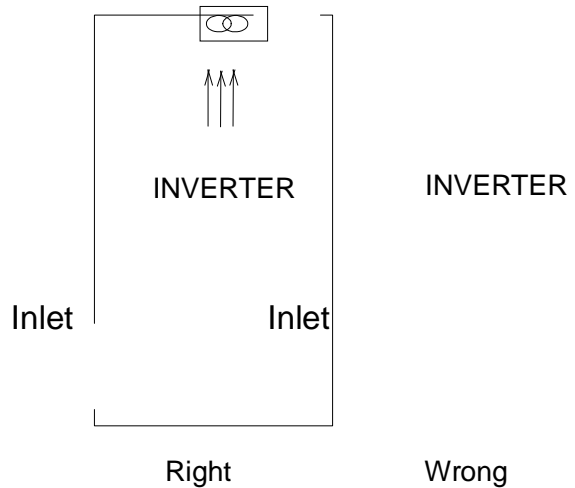


Chart3-9 Position Of The Draft Fan

### 3.5 WIRING

- ① Only professional can wire.
- ② Please make the inverter voltage matching the supply power before electrify.
- ③ Wiring should be at least 10 minutes after stop the power and the panel lights out, otherwise, you may get an electric shock.
- ④ Before Inner wiring make sure the voltage between P+ and P- is lower than DC 36V.
- ⑤ Do not connect power lead with output terminal U、V、W.
- ⑥ There must be have a breaker between inverter and power.
- ⑦ User dose not have to make inverter pressure-tight test again.
- ⑧ tightening enough all the leads with terminal, major loop lead should be used cable or copper bar.

3.5.1 Inverter may leak away, inverter and electric motor must earthing safely, inverter earthing lead must be separate with other motors earthing lead, the shorter the better, following is the standard.

MOTOR	EARTH LEAD
0.4-4kW	2 mm <sup>2</sup>
5.5-7.5kW	3.5 mm <sup>2</sup>
11-15kW	8 mm <sup>2</sup>
18.5-37kW	14 mm <sup>2</sup>
45-55kW	22 mm <sup>2</sup>
Above 55kW	30 mm <sup>2</sup>

Earth resistance should below 10Ω.  
It should be used separate terminal.  
It will not be earth return when several inverters erathing together.



Correct

Wrong

Chart 3-10 earthing between inverter and inverter



## VSI9000 Series Inverter Manual

---

### 3.5.2 Capacity of lead-in switch and connected lead section surface:

Model VSI9000	Lead-In Switch	Main Circuit (mm <sup>2</sup> )		Steering Circuit(mm <sup>2</sup> )
	Breaker QF(A)	Input Lead	Output Lead	Terminal Lead
G2S0004	10	2.5	2.5	0.75
G2S0007	10	2.5	2.5	0.75
G2S0015	10	2.5	2.5	0.75
G2S0022	16	4	4	0.75
G/P4T0040	16	4	4	0.75
G/P4T0055	20	4	4	0.75
G/P4T0075	25	6	6	1
G/P4T0110	40	10	10	1
G/P4T0150	50	10	10	1
G/P4T0185	63	16	16	1
G/P4T0220	63	16	16	1
G/P4T0300	100	25	25	1
G/P4T0370	125	25	25	1
G/P4T0450	160	35	35	1
G/P4T0550	160	35	35	1
G/P4T0750	250	50	50	1
G/P4T0900	250	70	70	1
G/P4T1100	315	70	70	1
G/P4T1320	400	95	95	1
G/P4T1600	630	120	120	1
G/P4T2000	630	120	120	1
G/P4T2200	630	150	150	1
G/P4T2500	800	150	150	1
G/P4T2800	800	185	185	1
G/P4T3150	1000	185	185	1
G/P4T3500	1000	240	240	1
G/P4T4000	1250	240	240	1
G/P4T4500	1250	300	300	1

## 3.5.3 Major Loop Wiring Diagram

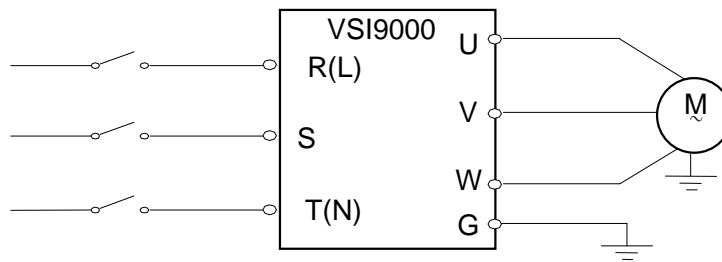


Chart3-11

## 3.5.4 Major Loop Running

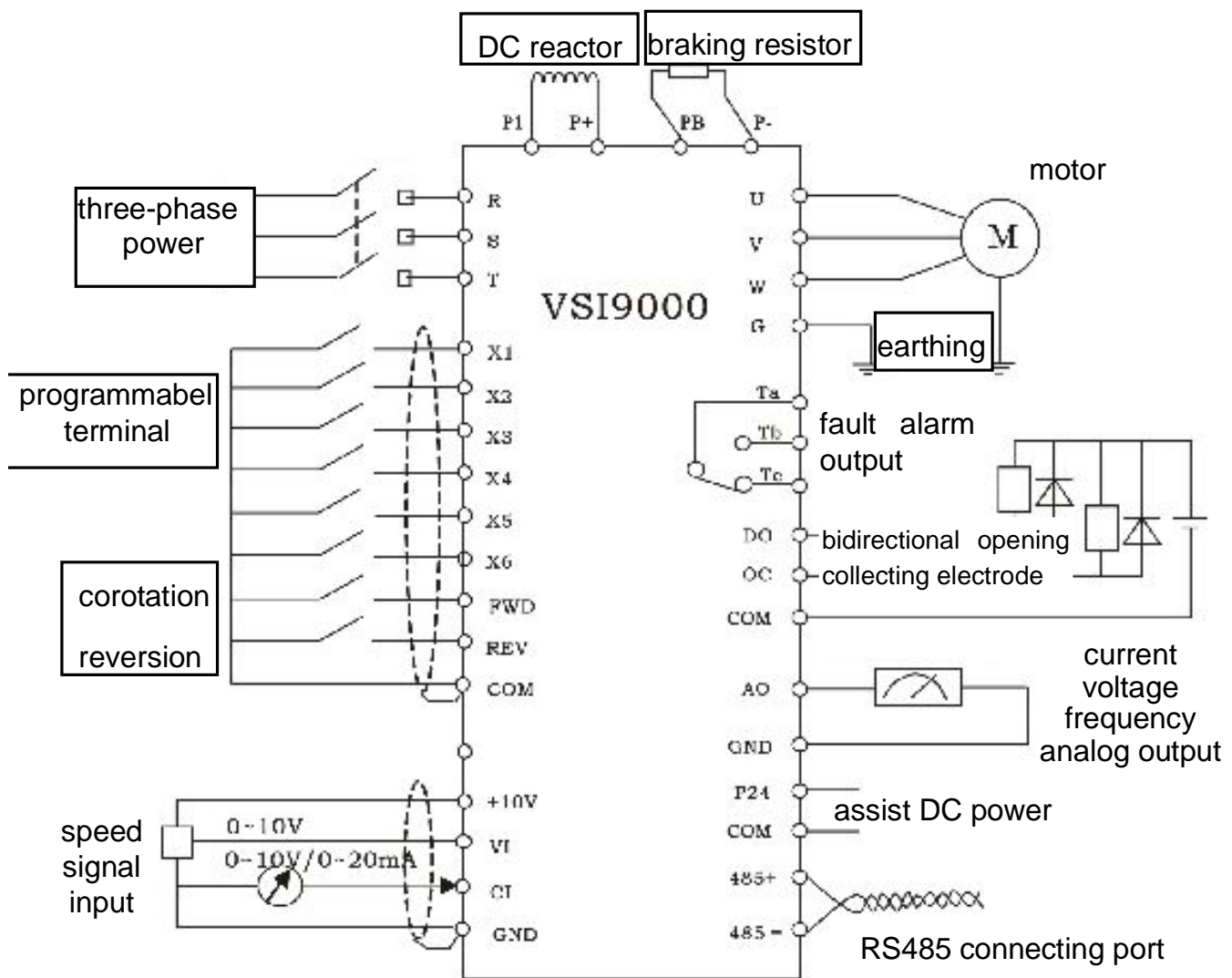


Chart 3-12 Running

3.5.5 Wiring Diagram

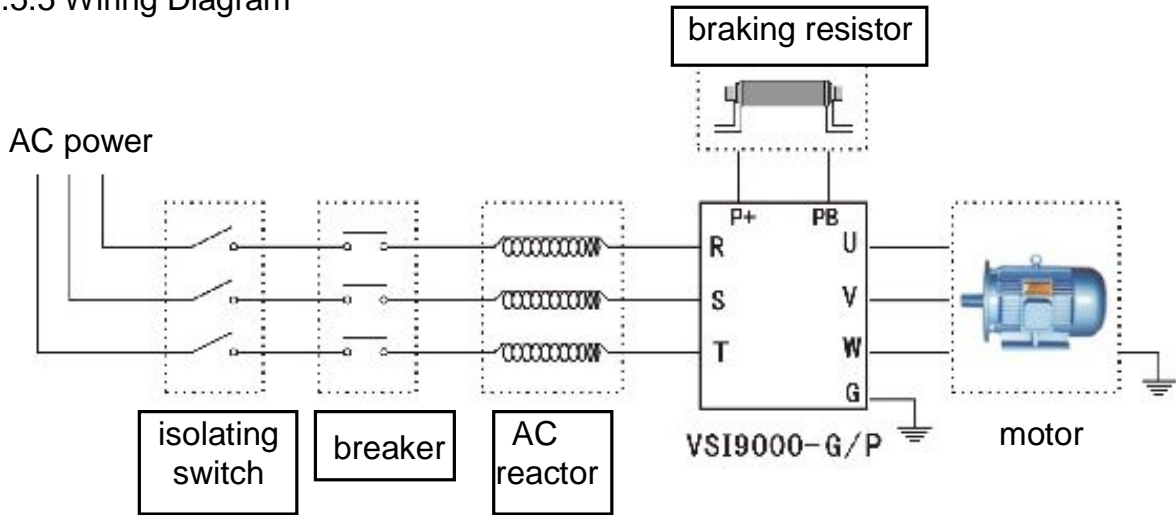


Chart3-13 System Wiring

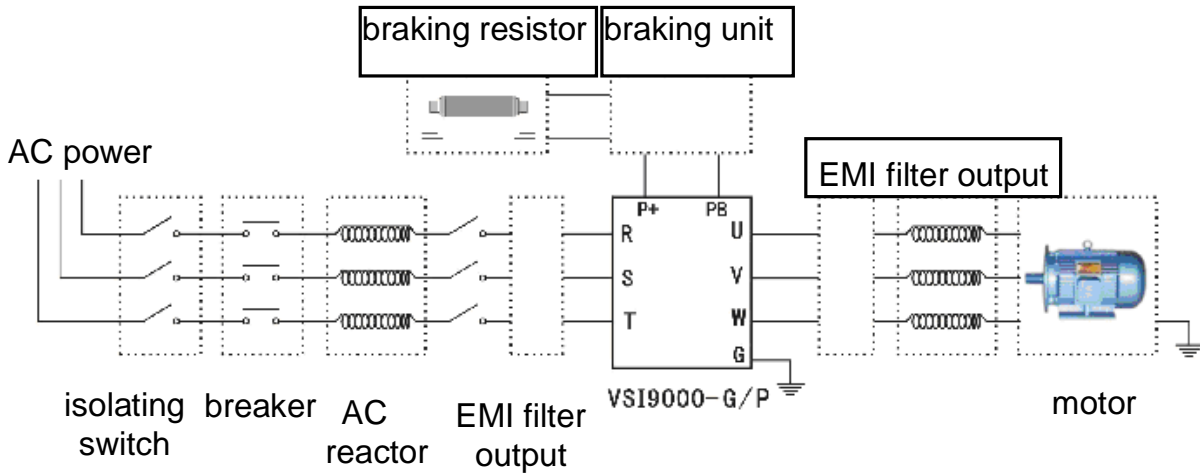
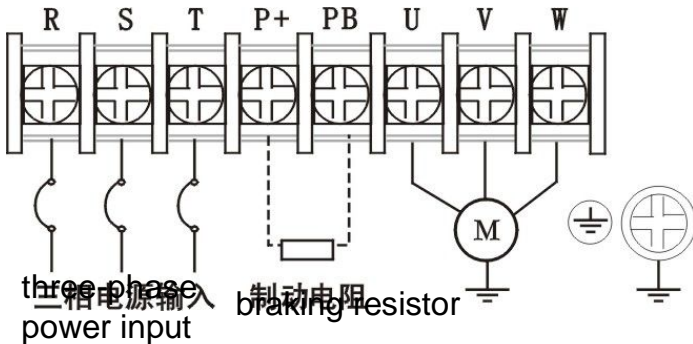


Chart3-14 Standard System Wiring


3.6 MAJOR LOOP TERMINAL WIRING

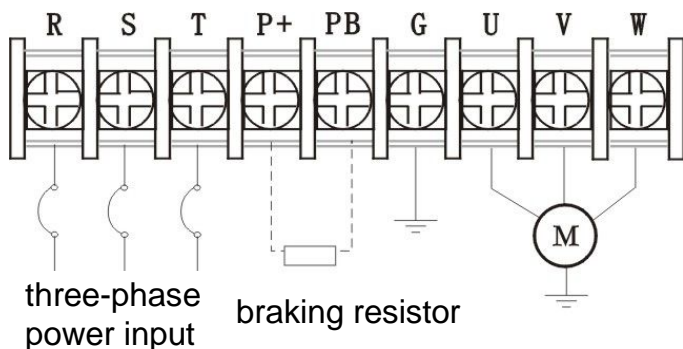
3.6.1



Apply To
VSI9000-G2S0004~G2S0022
VSI9000-G4T0007~G4T0022
VSI9000-P4T0015~P4T0022

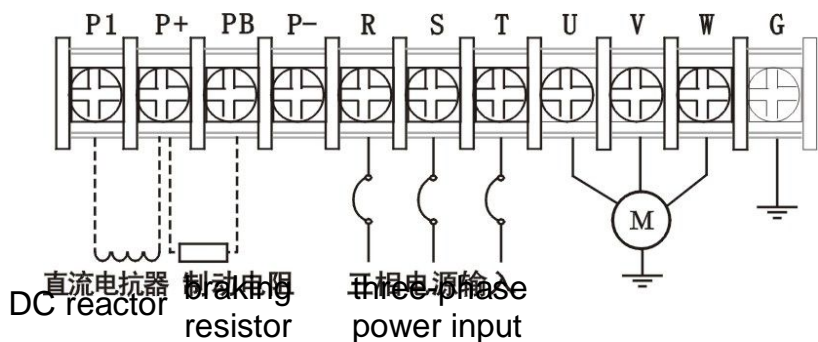
Chart3-15 Major Loop Terminal Wiring

Terminal Sign	Description
P+	DC voltage positive terminal
PB	P+、PB can be connected with DC braking resistor
R、S、T	Connected with power grid triphase AC( triphase 220V/380V) R,T connected with single phase AC( single phase 220V)
U、V、W	Connected with triphase AC
 、G	Earthing terminal



Apply To
VSI9000-G4T0040~G4T0055M
VSI9000-P4T0040~P4T0075M

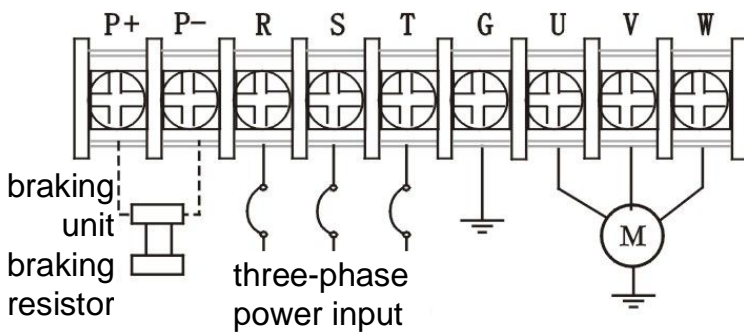
Chart 3-16 Major Loop Terminal Wiring Diagram 2



Apply To
VSI9000-G4T0055~G4T0150
VSI9000-P4T0075~P4T0185

Chart 3-17 Major Loop Terminal Wiring Diagram 3

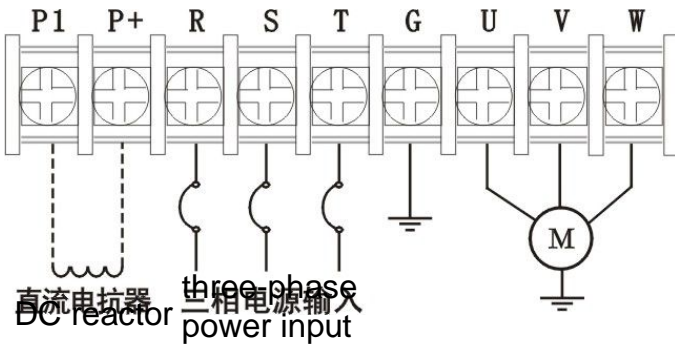
Terminal Sign	Description
P+	DC voltage positive terminal
P-	DC voltage negative terminal
P1	P1、P+ can be connected with DC reactor
PB	P+、PB can be connected with DC braking resistor
R、S、T	Connected with power grid triphase AC
U、V、W	Connected with triphase AC motor
G	Earthing terminal



Apply To
VSI9000-G4T0185~G4T0900
VSI9000-P4T0220~P4T1100

Chart 3-18 Major Loop Terminal Wiring Diagram 4

Terminal Sign	Description
P+	DC voltage positive terminal
P-	DC voltage negative terminal
R、S、T	Connected with power grid triphase AC
U、V、W	Connected with triphase AC motor
G	Earthing terminal

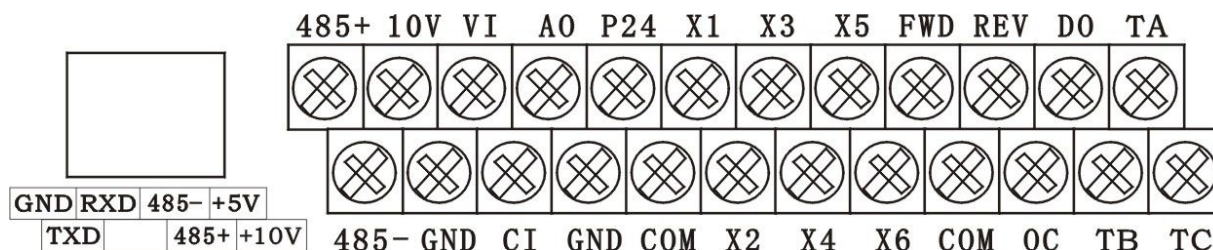


Apply To
VSI9000-G4T1100~G4T2000
VSI9000-P4T1320~P4T3150

Chart 3-19 Major Loop Terminal Wiring Diagram 5

Terminal Sign	Description
P+	DC voltage positive terminal
P1	P1、P+ can be connected with DC reactor
R、S、T	Connected with power grid triphase AC
U、V、W	Connected with triphase AC motor
G	Earthing terminal

### 3.7 CONTROLLING LOOP TERMINAL WIRING



Apply To
VSI9000-G2S0004~G2S0022、VSI9000-G4T0007~G4T0055M
VSI9000-P4T0015~P4T0075M

Chart 3-20 Controlling Loop Terminal Wiring 1

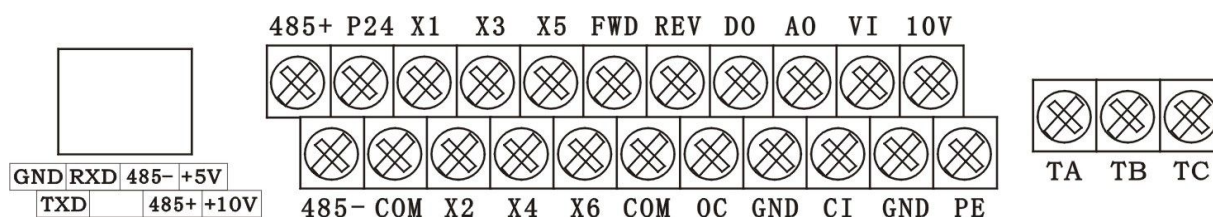


Chart 3-21 controlling loop terminal wiring 2

(apply to VSI9000-G4T0055/P4T0075)

Type	Terminal	Function	Remarks
Analog Input	10V	Supply +10V/50mA	
	VI	Frequency setting voltage signal input terminal 1, setted by parameter[P0.01]、	0~10V
	CI	Frequency setting voltage signal input terminal 2/current signal input terminal(current input terminal), setted by parameter	0~10V/4~20mA Selected by JP3, default:0~10V
	GND	Frequency setting voltage signal public terminal, frequency setting current signal input negative terminal(current output)	
Impulse Input	X6	Out impulse signal input terminal, public terminal is COM, parameter [P4.05] setted as 35	
Analog Output	AO	Imitation voltage、 imitation current output terminal, disjunctive output meter, public terminal is GND, setted by parameter[P4.17]、 [P4.18]	0~10V/4~20mA, selected by JP2, default:0~10V
Impulse Output	DO	Impulse signal output terminal, public terminal is COM, setted by parameter[P4.19]、 [P4.20]	Highest output frequency is 20kHz、 10V
OC Output	OC	Programmable opening collecting electrode output, public terminal is COM, setted by parameter[P4.10]	Voltage range:9~30V, Highest output current:50mA

<b>Relay Output</b>	TA、TB、TC	Programmable relay output, set by parameter [P4.11]. default is error output: working: TA-TB disconnected, TA-TC closed; error: TA-TB closed, TA-TC disconnected	Capacity of electric shock: AC250V/1A DC30V/1A resistive load
<b>Multi-function Terminal</b>	X1	Multifunction terminal 1	Set by parameter [P4.00 ~ P4.05], public terminal is COM.
	X2	Multifunction terminal 2	
	X3	Multifunction terminal 3	
	X4	Multifunction terminal 4	
	X5	Multifunction terminal 5	
	X6	Multifunction terminal 6, it also can be out impulse signal input terminal.	
	FWD	Positive rotation	Public is COM, running direction is set by parameter [P0.03], [P0.04].
	REV	Reversion	
<b>Power Output</b>	P24	Power is 24V/50mA, COM is negative terminal	Selected by JP1, default is 0V.
	10V	Power is +10V/50mA, GND is negative terminal	
<b>RS485 Communication Interface</b>	485+ 485-	RS485 communication terminal	Set by parameter [P3.09~P3.13].
	RS485	RJ45 standard communication terminal	



**JP JUMPERCE**

Sign	Function	Setting	Remark
JP1	+24V power output selection	4V power output, internal power supply to DO terminal; DO-OV:+24V no output	Default:DO-24V
JP2	Analog output terminal AO Output voltage/current	AO-V:0~10V voltage sign; AO-I:4~20mA current sign;	Default:AO-V
JP3	Analog input terminal CI Input voltage/current	CI-V:0~10V voltage sign; CI-I:4~20mA current sign;	Default:CI-V

**3.8 ADDITIONAL REMARKS**

3.8.1 Analog Input/Output Terminal Wiring

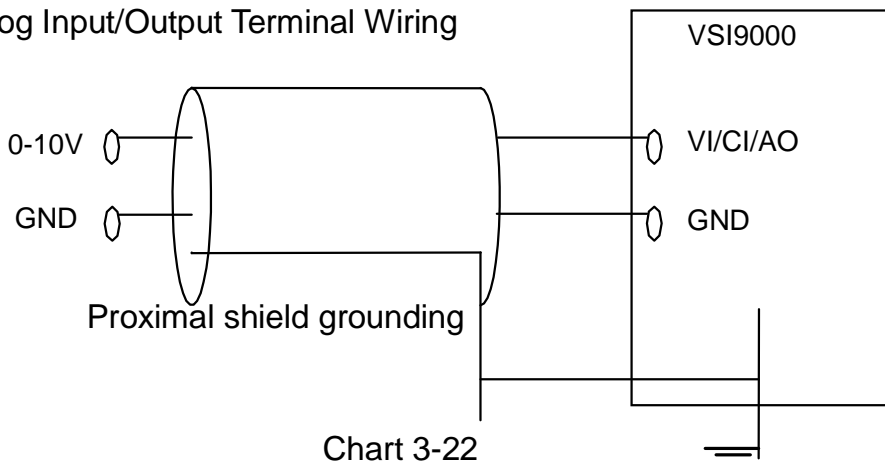


Chart 3-22

3.8.2 X1~X6、FWD、REV Input Dry Contact Wiring

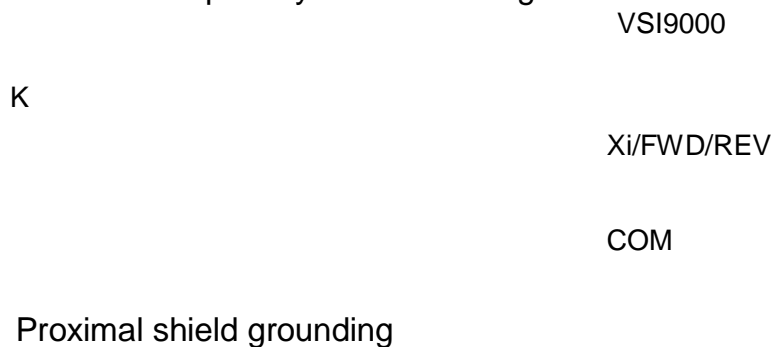


Chart 3-23

3.8.3 Multifunction Output Terminal OC Wiring

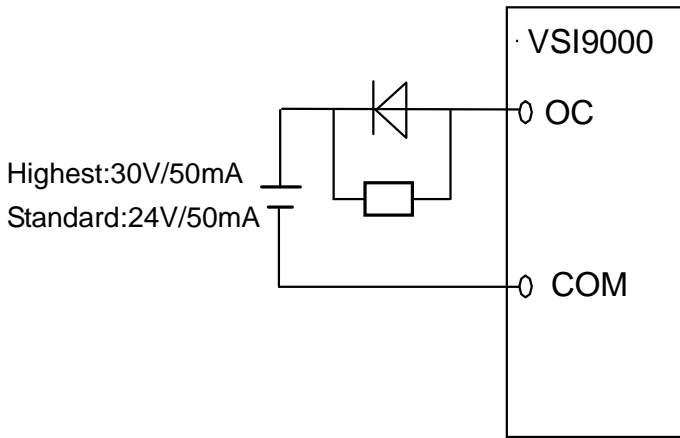


Chart 3-24 external power supply wiring

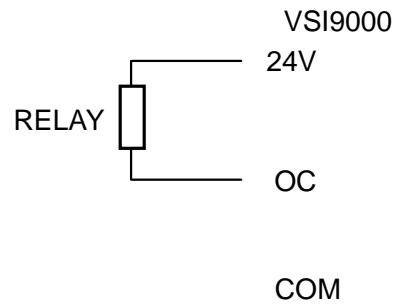
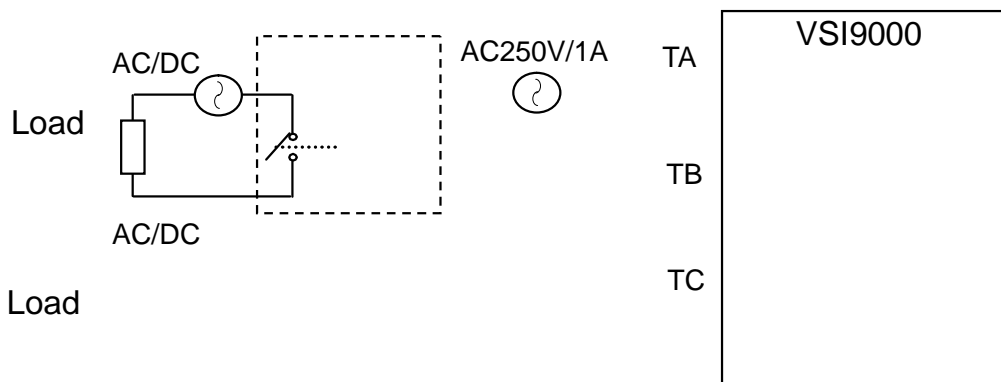


Chart 3-25 internal power supply wiring



**It should be fixed a parallel continuous current diode when connected inductance load(relay、contactor etc.).**

3.8.3 Multifunction Terminal TA、TB、TC Wiring:



Add surge absorption

Chart 3-26

**3.9 COMMUNICATION TERMINAL WIRING:**

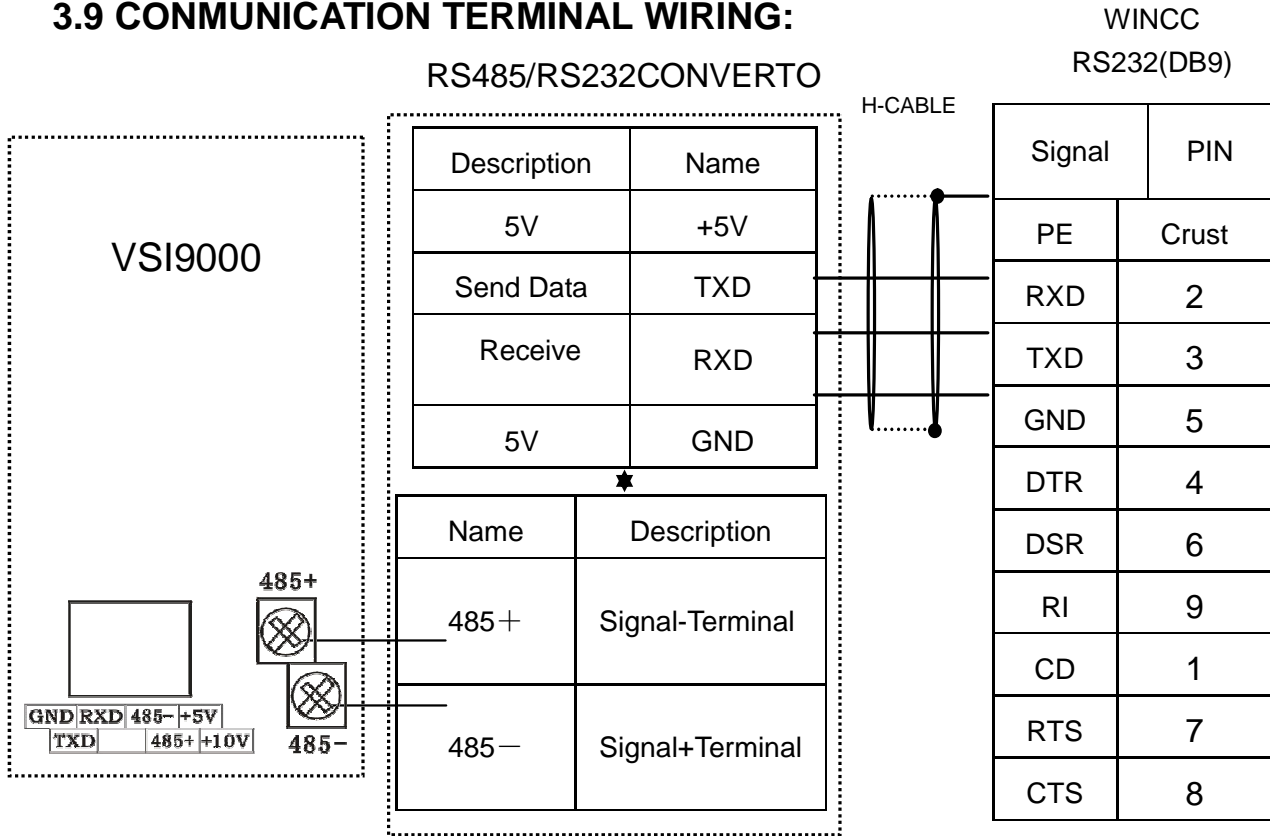


Chart 3-27 Inverter RS485 Connected With WINCC

Several inverters connected together by RS485, controlled by PLC (or WINCC), as shown in chart 3-28.

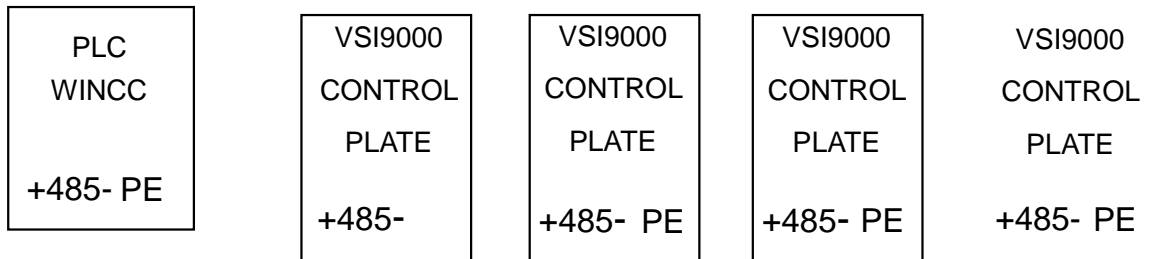


Chart 3-28 (inverter, motor must be earthed)

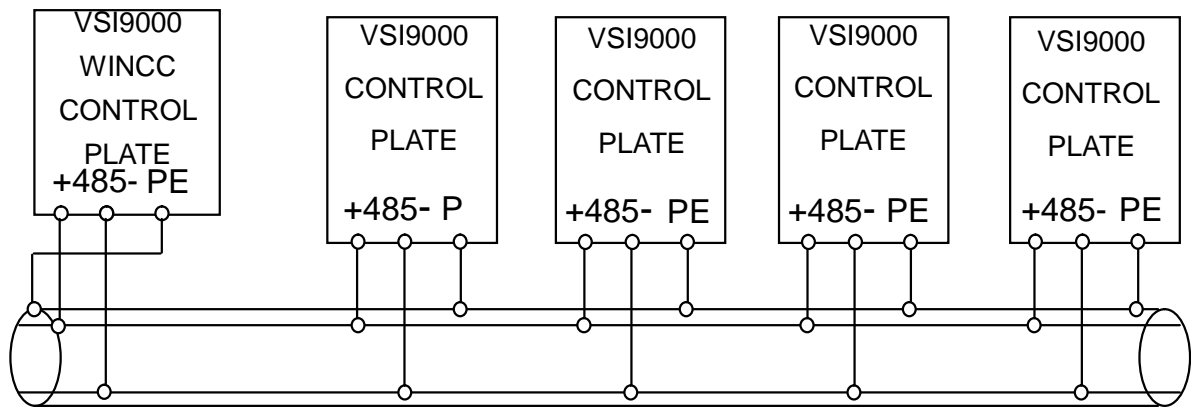


Chart 3-29 Sevral Inverters Connected Wiring(inverter、 motor must earthing)

# CHAPTER 4 OPERATION AND RUNNING

## 4.1 OPERATOR PANEL

Operator pane is chart 4-1、4-2.

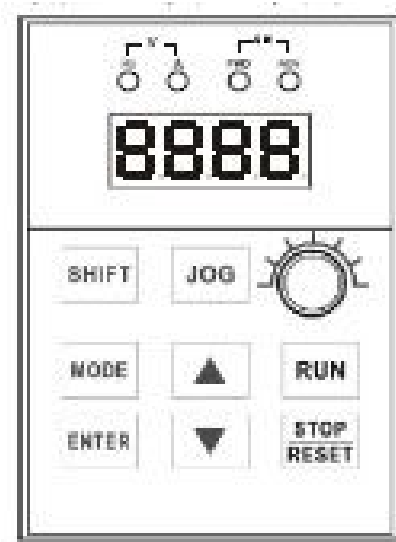


Chart 4-1

Apply To:

G	P
VSI9000-G2S0004~G2S0022 VSI9000-G4T0007~G4T0055M	VSI9000-P4T0015~P4T0075M

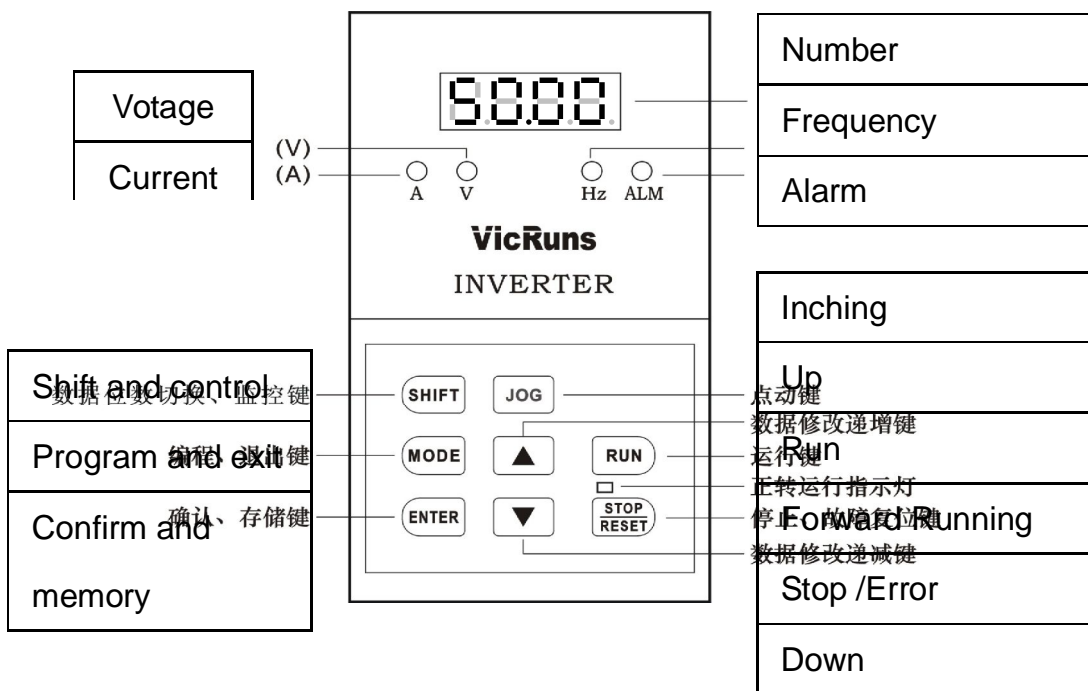







Chart 4-2

Apply To:

<b>G</b>	<b>P</b>
VSI9000-G4T0055~G4T4500	VSI9000-P4T0075~P4T5000

## 4.1.2 Direction

	<b>Item</b>	<b>Description</b>	
<b>Display</b>	DISPLAY	Display the details of the inverter	
	LAMP	A, Hz, V	Current, Frequency, Voltage
		FWD	Forward running
		REV	Reverse running
		ALM	Alarm when over current/voltage
<b>Key</b>		Parameter [P0.03] =0, lit when at constant speed and blinks when accelerating or decelerating. [P0.04] =10 or 00 is forward, [P0.04] =01 is reverse	
		Inching Key, set with parameter [P3.06], [P3.07], [P3.08]	
		Press to stop inverter during operation <hr style="width: 50%; margin: 0 auto;"/> Press to reset when a fault has occurred	
		Program or Exit key. Press twice to shift to control parameters	
		Confirm the data Programming or warning, press the key once to save data, one more time to next level	
		Press to move through codes or to increase parameter values Press to move through codes or to decrease parameter values	
		Switch, monitor key. Programming, press the key to alter data figure; in other mode can switch display, the monitor parameter [b-00]~[b-07]	

4.1.3 Panel Display

The inverter panel display status includes:stopping,running,error,function status.

4.1.3.1 Display Status In Stopping

When the inverter stop running, the lamp is as chart 4-3 B.



A Initializing

B Stopping

C Running

Chart 4—3

4.1.3.2 Display Status In Running

When the inverter running, the lamp is as chart 4-3 C.

4.1.3.3 Display In Fault Alarming

When there is error,you can see the lamp as chart 4-4.



**It will damage the inverter only if the serious error has been excluded.**

4.1.3.4 Edit Status

Press **MODE** to set status when the inverter is stopping, running or error alarming.

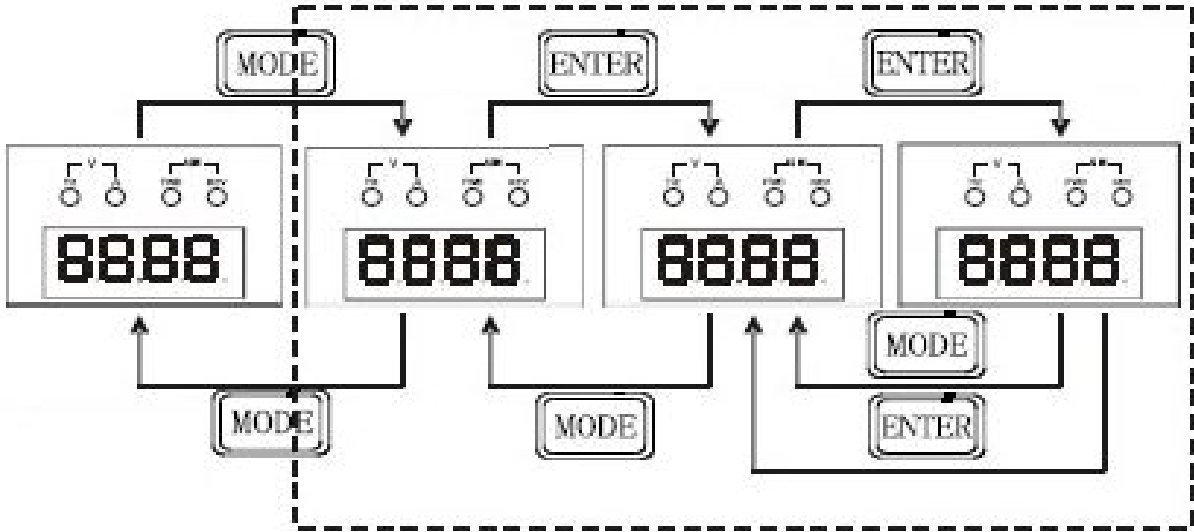


Chart 4-5 editing panel status

4.2 Panel Operation

4.2.1 Shift Parameter:

Press **SHIFT**, you will see the parameter group b.

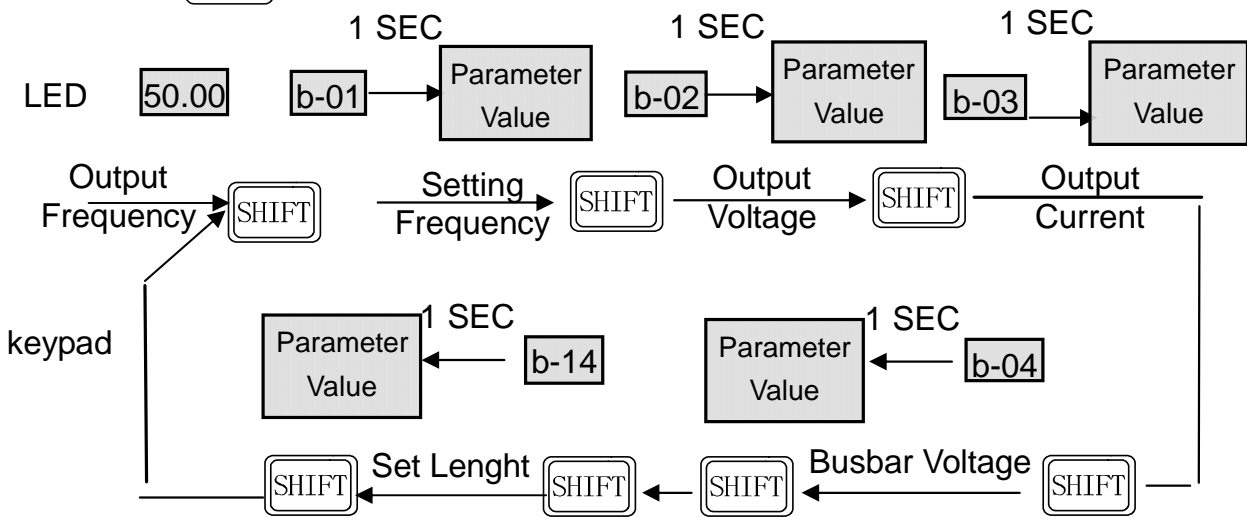


Chart 4-6 parameter display in running

(1)The initial parameter is b-00~b-06,you can set other parameters with code [P3.41]、[P3.42].

(2)inquiry mode to monitor dat,press key to shift default monitoring.the default monitoring data in stopping is setted frequency,the data in running is output frequency.



4.2.2 Setting Function Code

For example: To set the code [P3.06] as 5.00Hz to 8.50Hz.

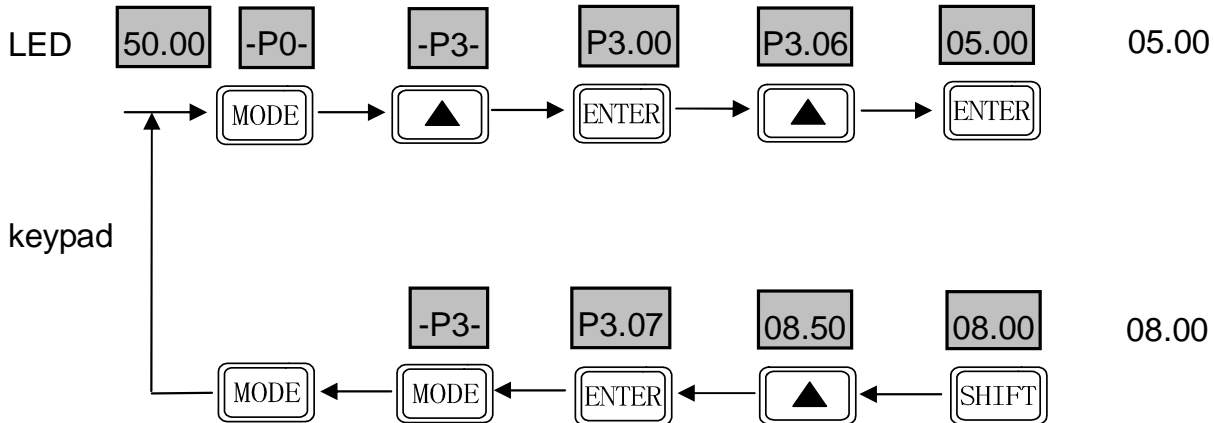


Chart 4-7 setting function code



**Note:** if the data does not changed in the III mode, it mean the parameter could not be changed for following reasons:

- (1) is an unchanged param, for example: the actual detection of the state parameters、running record of the parameters;
- (2) the parameter could not be changed in running, you can stop the inverter then to change it;
- (3) the parameter is protected. All of the parameters are not be changed when the unit digit is 1 or 2 of code P3.01. But to set the unit digit as 0 of the code P3.01 then you can change the data.

4.2.3 Inching Operation

EX: the inverter is not running, the inching frequency is 5Hz:

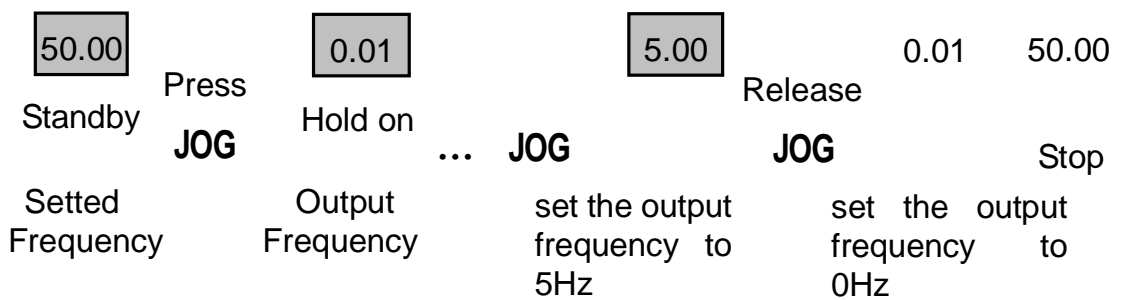


Chart 4-8

4.2.4 Setting Password

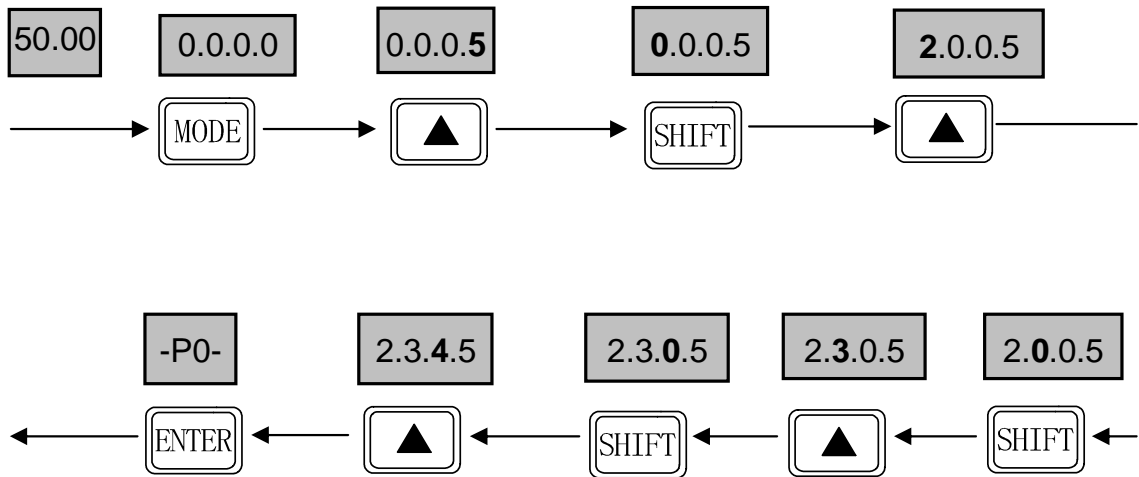


Chart 4-9

4.2.5 Querying Error Parameter:

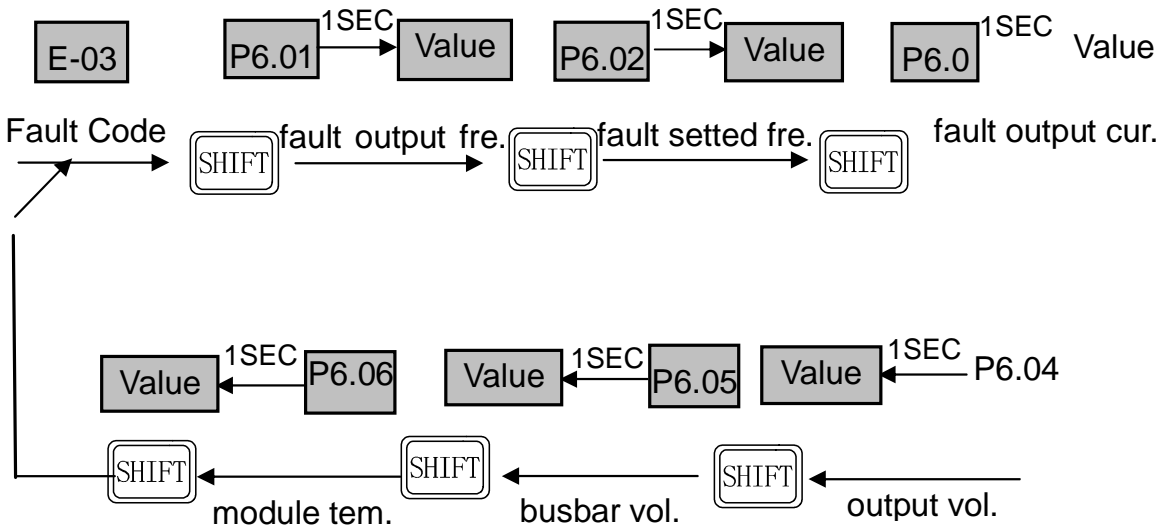


Chart 4-10 fault inquiry

4.2.7 Locking Keyboard:

Press **ENTER** for 5 seconds to lock the keyboard.

4.2.8 Unlock:

Press key **ENTER** for 5 seconds to unlock.

4.3 Electrify

4.3.1 Check Inverter Before Power On

Please vide part 3.5 to wiring.

4.3.2 Operation

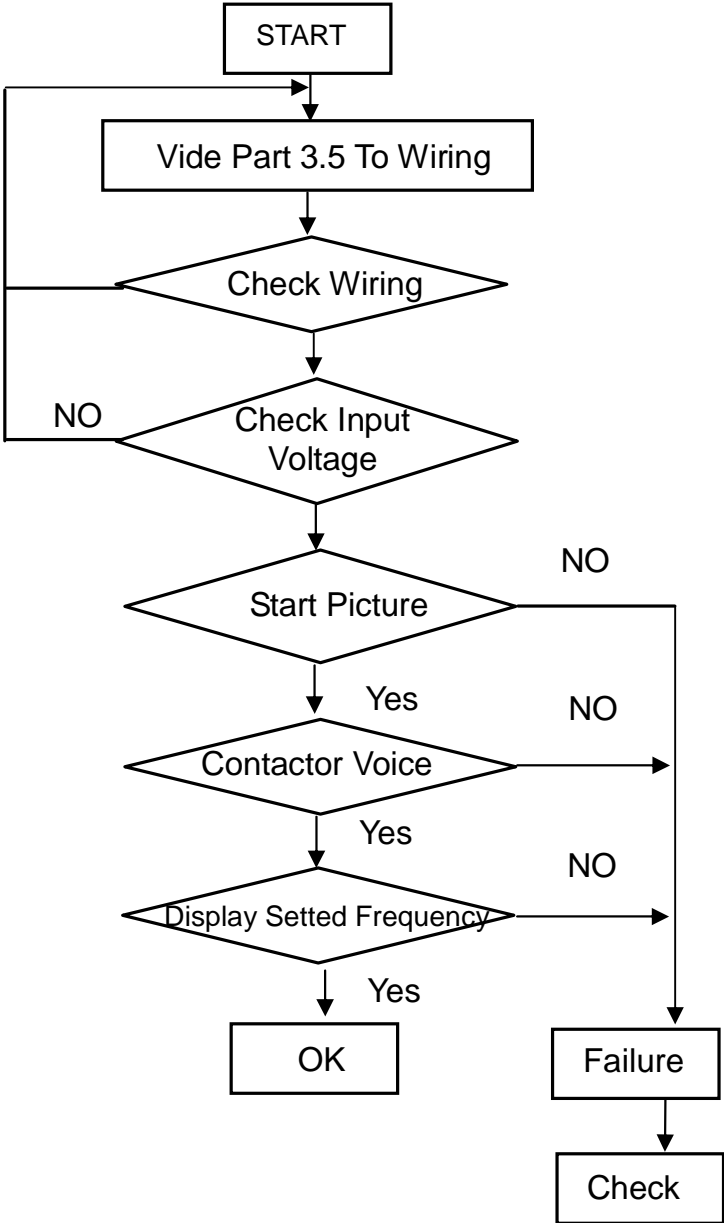




Chart 4-11 primary electrify operation

## CHAPTER 5 PARAMETER LIST

### NOTE:

- — can be altered;
- × — unchangeable;
- \* — the parameter is relevant to inverter model;
- — the parameter is monitoring or retention parameter.

### 5.1 Basic Group(P0)

Code	Caption	Description	Min	Factory Default	Alter	Program
P0.00	Password	0000:no protection 0001—9999:protect	1	0000	○	0000H
P0.01	Frequency setting	0:RP 1:key   2:[P0.02] 3:UP/DOWN 4:RS485 5:(VI-GND) 6:(CI-GND) 7:reserved 8:[P3.00]	1	0	○	0001H
P0.02	Frequency	[P0.19]LRL~[P0.20]UFL	0.01	50.00HZ	○	0002H
P0.03	Running	0:panel 1:terminal 2:RS485	1	0	○	0003H
P0.04	Direction	LED unit: 0:corotation 1:reverse LED tens: 0:allow to reverse 1:forbid reverse	1	10	○	0004H
P0.05	Corotation/ Reversal dead time	0.0s~120.0s	0.1	0.1	○	0005H

## VSI9000 Series Inverter Manual

P0.06	Max-output frequency	50.00Hz ~ 500.00Hz	0.01	50.00Hz	×	0006H
P0.07	Rated frequency of load motor	1.00Hz ~ 500.00Hz	0.01	50.00Hz	×	0007H
P0.08	Rated voltage of load motor	1V ~ 480V	1	*	×	0008H
P0.09	Torque promotion	0.0% ~ 30.0%	0.1%	*	×	0009H
P0.10	Limiting frequency torque promotion	0.00Hz ~ [P0.07]	0.00	25.00Hz	○	000AH
P0.11	Method of Torque promotion	0:hand movement 1:automatic	1	0	○	000BH
P0.12	Carrier frequency	1.0kHz ~ 15.0kHz	0.1	*	×	000CH
P0.13	Speed up/down	0:SL 1:S-curve	1	0	×	000DH
P0.14	S-curve start section	10.0% ~ 50.0% (P0.14+P0.15) ≤90%	0.1%	20.0%	○	000EH
P0.15	S-curve up section	10.0% ~ 80.0% (P0.14+P0.15) ≤90%	0.1%	60.0%	○	000FH
P0.16	Time unit	0:second 1:minute	1	0	×	0010H
P0.17	AccT 1	0.1 ~ 6000	0.1	*	○	0011H
P0.18	DecT 1	0.1 ~ 6000	0.1	*	○	0012H
P0.19	UFL	[P0.20] ~ [P0.06]	0.01	50.00Hz	×	0013H
P0.20	LRL	0.00Hz ~ [P0.19]	0.01	0.00	×	0014H

## VSI9000 Series Inverter Manual

P0.21	Minor control to set frequency	<p>LED unit: 0:save frequency data when power off 1:no save</p> <p>LED tens: 0:Lower limit frequency zero frequency output 1:running with LRL</p> <p>LED hundred: 0:no saving data power off with terminal UP/DOWN 1:save data with terminal UP/DOWN</p> <p>LED thousand: 0:no saving data power off with key 1:save data with terminal UP/DOWN</p>	1111	0010	×	0015H
P0.22	V/F-curve	<p>0:constant torque-curve</p> <p>1:falls the torque characteristics curve 1(1.2 powers)</p> <p>2:falls the torque characteristics curve 2(1.7 powers)</p> <p>3:falls the torque characteristics curve 3(2.0 powers)</p> <p>4:multisection V/F</p>	1	0	×	0016H
P0.23	V/F frequency F1	0.00Hz ~ [P0.25]	0.01	0.00	×	0017H
P0.24	V/F voltage V1	0.0 ~ [P0.26]	0.1%	0.0%	×	0018H
P0.25	V/F frequency F2	[P0.23] ~ [P0.27]	0.01	0.00	×	0019H
P0.26	V/F voltage V2	[P0.24] ~ [P0.28]	0.1%	0.0%	×	001AH
P0.27	V/F frequency F3	[P0.25] ~ [P0.07]	0.01	0.00	×	001BH
P0.28	V/F voltage V3	[P0.26] ~ 100.0%	0.1%	0.0%	×	001CH

## 5.2 Frequency Group(P1)

Code	Caption	Description	Min	Factory default	Alter	Program
P1.00	Analog filter time-constant	0.01s~ 30.00s	0.01	0.20	○	0100H
P1.01	VI plus	0.01 ~ 9.99	0.01	1.00	○	0101H
P1.02	VI min given value	0.00~ [P1.04]	0.01	0.00	○	0102H
P1.03	Frequency of [P1.02]	0.00~ [P0.19]	0.01	0.00	○	0103H
P1.04	VI max given value	[P1.02]~10.00V	0.01	10.00V	○	0104H
P1.05	Frequency of [P1.04]	0.00~ [P0.19]	0.01	50.00Hz	○	0105H
P1.06	CI plus	0.01~9.99	0.01	1.00	○	0106H
P1.07	CI min given value	0.00 ~ [P1.09]	0.01	0.00	○	0107H
P1.08	Frequency of [P1.07]	0.00 ~ [P0.19]	0.01	0.00	○	0108H
P1.09	CI max given value	[P1.07]~10.00V	0.01	10.00V	○	0109H
P1.10	Frequency of [P1.09]	0.00 ~[P0.19]	0.01	50.00Hz	○	010AH
P1.11	Reserved	---	---	---		
P1.12	Reserved	---	---	---		
P1.13	Reserved	---	---	---		
P1.14	Reserved	---	---	---		
P1.15	Reserved	---	---	---		

## 5.3 Drive Group(P2)



















Code	Caption	Description	Min	Factory default	Alter	Program
P2.00	Running way	0:start by start frequency 1:brake first then start by the starting frequency 2:detecting speed then start	1	0	×	0200H
P2.01	Frequency	0.40Hz~20.00Hz	0.01	0.50	○	0201H
P2.02	Frequency duration	0.0s~30.0s	0.1	0.0	○	0202H

## VSI9000 Series Inverter Manual

P2.03	Brake current DC starting	0.0~80.0%	0.1 %	0.0%	○	0203H
P2.04	Brake time DC starting	0.0s~60.0s	0.1	0.0	○	0204H
P2.05	Stopping way	0:speed-down 1:stop freely 2:speed-down + brake DC	1	0	×	0205H
P2.06	Brake frequency DC stoping	0.00Hz~15.00Hz	0.01	3.00	○	0206H
P2.07	Brake time DC stopping	0.0s~60.0s	0.1	0.0	○	0207H
P2.08	Brake current DC stopping	0.0~80.0%	0.1 %	0.0%	○	0208H



5.4 Auxiliary Operation(P3)

Code	Caption	Description	Min	Factory default	Alter	Program
P3.00	Enter frequency	0:VI+CI 1:VI-CI 2: Key   3: VI 4: CI+key   5: CI-key   6:RS485+VI +key   7:RS485-VI -key   8:RS485+CI +key   9:RS485-CI -key   10:RS485+CI 11:RS485-C 12:RS485+VI 13:RS485-VI 14:VI+CI+key   +parameter [P0.02] 15:VI+CI-key   +parameter [P0.02] 16:MAX(VI,CI) 17:MIN(VI,CI) 18:MAX(VI,CI,PULSE) 19:MIN(VI,CI,PULSE) 20:VI、CI any un-zero value is effective,VI is preferred 21:given CI,VI amended $VI \geq 5V$ ,frequency up, $VI \leq 5V$ frequency down 22:reserved 23:reserved	1	00	○	0300H

## VSI9000 Series Inverter Manual

P3.01	Parameter initialization	<p>LED unit:                      0:all parameters can be altered                      1:other parameters can not be altered except this parameter                      2:other parameters can not be altered except [P0.02] and this parameter</p> <p>LED tens:                      0:inaction                      1:recover factory default                      2:clear fault records</p>	1	00	×	0301H
P3.02	Parameter copy	<p>0:inaction                      1:parameter uploading                      2:parameter downloading</p> <p>note:only for remot operation panel</p>	1	0	×	0302H
P3.03	Automatic energy conservation	<p>0:no move                      1:move</p>	1	0	×	0303H
P3.04	AVR	<p>0:no move                      1:moving                      2:no move speed-down only</p>	1	0	×	0304H
P3.05	Slip frequency compensation	0~150%	1%	0%	×	0305H
P3.06	Inching frequency	0.10Hz~50.00Hz	0.01	5.00	○	0306H
P3.07	Inching speed-up time	0.1s~60.0s	0.1	20.0	○	0307H
P3.08	Inching speed-down time	0.1s~60.0s	0.1s	20.0	○	0308H

## VSI9000 Series Inverter Manual

P3.09	Communi- cation	LED unit:baudrate 0:1200BPS 1:2400BPS 2:4800BPS 3:9600BPS 4:19200BPS 5:38400BPS LED tens:data format 0:1-7-2,no check CHK 1:1-7-1,odd 2:1-7-1,even 3:1-8-2,no check CHK 4:1-8-1,odd 5:1-8-1,even LED hundred:communication modes 0:MODBUS,ASCII 1:MODBUS,RTU	1	003	×	0309H
P3.10	Address	0~248 0:broadcast address 248:host address	1	001	×	030AH
P3.11	Over time	0.0s~1000.0s 0.0:invalid	0.1	0.0	×	030BH
P3.12	Time delay	0ms~1000ms	1	5	×	030CH
P3.13	Multimachine linkage	0.01~1.00	0.01	1.00	×	030DH
P3.14	Speed-up time 2	0.1~6000.0	0.1	20.0	○	030EH
P3.15	Speed-down time 2	0.1~6000.0	0.1	20.0	○	030FH
P3.16	Speed-up time 3	0.1~6000.0	0.1	20.0	○	0310H
P3.17	Speed-down time 3	0.1~6000.0	0.1	20.0	○	0311H
P3.18	Speed-up time 4	0.1~6000.0	0.1	20.0	○	0312H
P3.19	Speed-down time 4	0.1~6000.0	0.1	20.0	○	0313H
P3.20	Speed-up time 5	0.1~6000.0	0.1	20.0	○	0314H

## VSI9000 Series Inverter Manual

P3.21	Speed-down time 5	0.1~6000.0	0.1	20.0	○	0315H
P3.22	Speed-up time 6	0.1~6000.0	0.1	20.0	○	0316H
P3.23	Speed-down time 6	0.1~6000.0	0.1	20.0	○	0317H
P3.24	Speed-up time 7	0.1~6000.0	0.1	20.0	○	0318H
P3.25	Speed-down time 7	0.1~6000.0	0.1	20.0	○	0319H
P3.26	Multistage	[P0.20]~[P0.19]	0.01	5.00	○	031AH
P3.27	Multistage	[P0.20]~[P0.19]	0.01	10.0	○	031BH
P3.28	Multistage	[P0.20]~[P0.19]	0.01	20.0	○	031CH
P3.29	Multistage	[P0.20]~[P0.19]	0.01	30.0	○	031DH
P3.30	Multistage	[P0.20]~[P0.19]	0.01	40.0	○	031EH
P3.31	Multistage	[P0.20]~[P0.19]	0.01	45.0	○	031FH
P3.32	Multistage	[P0.20]~[P0.19]	0.01	50.0	○	0320H
P3.33	Caper frequency 1	0.00~500.00Hz	0.01	0.00	×	0321H
P3.34	Caper frequency 1	0.00~30.00Hz	0.01	0.00	×	0322H
P3.35	Caper frequency 2	0.00~500.00Hz	0.01	0.00	×	0323H
P3.36	Caper frequency 2	0.00~30.00Hz	0.01	0.00	×	0324H
P3.37	Caper frequency 3	0.00~500.00Hz	0.01	0.00	×	0325H
P3.38	Caper frequency 3	0.00~30.00Hz	0.01	0.00	×	0326H
P3.39	Set runtime	0~65.53k hours	0.001K	0.00	○	0327H
P3.40	Accumulated runtime	0~65.53k hours	0.001	0.00 0	--	0328H
P3.41	Display parameter	0000~1111 LED unit:runtime 0:no display 1:display LED tens:enter output terminal data 0:no display 1:display LED hundred:analog input VI 0:no display 1:display LED kilobit:analog input CI 0:no display 1:display	1	1111	○	0329H

## VSI9000 Series Inverter Manual

P3.42	Display parameter 2	0000~1111 LED unit:external pulse input 0:no display 1:display LED tens:external attribute 0:no display 1:display LED hundred:actual length 0:no display 1:display	1	1111	○	032AH
P3.43	Display parameter 3	b-00~b-13(definable monitoring parameter)	1	00	○	032BH
P3.44	Rotate speed	0.1~72.0	0.1	29.0	○	032CH
P3.45	Crawl /Reaction	crawl 1:reaction Speed-up/down time is P3.07,P3.08	1	0	○	032DH

### 5.5 Terminal Function(P4)

Code	Caption	Description	Min	Factory default	Alter	Program
P4.00	X1	0:unused 1:multiple speed terminal 1 2:multiple speed terminal 2 3:multiple speed terminal 3 4:input of external clockwise				0400H
P4.01	X2	spot move controlling 5:input of external inverse move controlling 6:speed-up/down time terminal 1				0401H
P4.02	X3	7;speed-up/down time terminal 2 8:speed-up/down time terminal 3	1	00	×	0402H
P4.03	X4	9:three line control 10:FRS 11:external stop instruction 12:engine off DC-brake input instruction 13:stop running 14:frequency up instruction 15:frequency-down				0403H

## VSI9000 Series Inverter Manual

		instruction 16:speed-up/down inhibit command 17:exterior replacement input (clear faults) 18:external instruction fault input (normally open) 19:given frequency 1 20:given frequency 2 21:given frequency 3 22:instruction shift to terminal				
P4.04	X5	23:running instruction 1 24:running instruction 2 25:frequency swing 26:frequency swing replace				0404H
P4.05	X6	27:closed-loop invalid instruction 28:simple PLC suspend 29:PLC invalid				0405H
P4.06	FWD	30:stop mode PLC replacement 31: frequency shift to CI 32:counter trigger pip input 33:counter reset input				0406H
P4.07	REV	34:exterenal interrupt input 35:pulse frequency input (only for X6) 36:actual length reset input				0407H
P4.08	FWD/REV	0:two line control 1 1:two line control 2 2:three line control 1 3:three line control 2	1	0	○	0408H

## VSI9000 Series Inverter Manual

Code	Caption	Description	Min	Factory default	Alter	Progam
P4.09	UP/DOWN	0.01—99.99Hz/s	0.01	1.00	○	0409H
P4.10	OC output	0: running 1: frequency signal 2: FDT1 3: FDT2 4: overload alarming 5: undervoltage locking 6: external error 7: output frequency upper limit 8: output frequency lower limit				040AH
P4.11	Output multifrequency relay	9:zero speed running 10:PLC 11:PLC end cycles 12:attribute setting 13:attribute appointed 14:ready 15:error 16:frequency running time 17:DC braking time 18:braking time stop running 19:wobbler bound limit 20:appointed running time	0.1	15	○	040BH
P4.12	FAR	0.00 Hz~50.00Hz	0.01	5.00	○	040CH
P4.13	FDT1	0.00 Hz~[F0.19]UFL	0.01	10.00	○	040DH
P4.14	FDT1 lagging	0.00 Hz~50.00Hz	0.01	1.00	○	040EH
P4.15	FDT2	0.00 Hz~[F0.19]UFL	0.01	10.00	○	040FH
P4.16	FDT2 lagging	0.00 Hz~50.00Hz	0.01	1.00	○	0410H

## VSI9000 Series Inverter Manual

P4.17	Analog output	0:output frequency(0~UFL) 1:output current(0~2 times of motor rated current) 2:output voltage(0~1.2 times of inverter rated voltage) 3:busbar voltage(0~800V) 4:given PID 5:PID feedback 6:VI(0~10V) 7:CI(0~10V/4~20mA)	1	0	○	0411H
P4.18	Analog output	0.50~2.00	0.01	1.00	○	0412H

P4.19	DO output	0:output frequency(0~UFL) 1:output current(0~2 times of motor rated current) 2:output voltage(0~1.2 times of inverter rated voltage) 3: busbar voltage (0~800V) 4:given PID 5:PID feedback 6:VI(0~10V) 7:CI(0~10V/4~20mA)	1	0	○	0413H
P4.20	DO pulse highest output frequency	0.1kHz~20.0kHz	0.1	10.0	○	0414H
P4.21	Attribute setting	[P4.20]~9999	1	000	○	0415H
P4.22	Attribute	0~[P4.19]	1	000	○	0416H
P4.23	Overload	20%~200%	1	130	○	0417H
P4.24	Overload alarming time	0.0s~20.0s	0.1	5.0	○	0418H

### 5.6 Protection Group(P5)

Code	Caption	Description	Min	Factory default	Alter	Progam
P5.00	Motor overload protection	0:no output 1:stop running	1	0	×	0500H
P5.01	factor	20%~120%	1	100%	×	0501H
P5.02	stallout	0:forbidden 1:allow	1	1	×	0502H



## VSI9000 Series Inverter Manual

P5.03	Stallout over voltage	380V:120%~150%	1%	140%	○	0503H
		220V:110%~130%		120%		
P5.04	Current limit	110%~200%	1%	150%	×	0504H
P5.05	frequency rate of decline when current	0.00~99.99Hz/s	0.01	10.00Hz/s	○	0505H
P5.06	Automatic current limiting	0:constant rate in vain 1:constant rate valid	1	1	×	0506H
P5.07	Restart setting	0:no setting 1:setting	1	0	×	0507H
P5.08	Restart waiting time	0.0s~10.0s	0.1	0.5	×	0508H
P5.09	self-recovery times	0~10 0:no self-recovery	1	0	×	0509H
P5.10	Self-recovery time interval	0.5s~20.0s	0.1	5.0	×	050AH

### 5.7 Fault Records Group (P6)

Code	Description	Min	Factory default	Alter	Progam
P6.00	Latest error	1	00	---	0600H
P6.01	Output frequency LE	0.01	0.00	---	0601H
P6.02	Setting frequency LE	0.01	0.00	---	0602H
P6.03	Output current LE	0.1	0.0	---	0603H
P6.04	Output voltage LE	1	000	---	0604H
P6.05	Direct-current generatrix voltage	1	000	---	0605H
P6.06	Module temperature	1	000	---	0606H
P6.07	The second error record	1	00	---	0607H
P6.08	The third error record	1	00	---	0608H
P6.09	The fourth error record	1	00	---	0609H
P6.10	The fifth error record	1	00	---	060AH
P6.11	The sixth error record	1	00	---	060BH

### 5.8 Closed-loop Control Group (P7)

Code	Caption	Description	Min	Factory default	Alter	Progam
P7.00	Closed-loop control	0:invalid 1:valid	1	0	×	0700H

## VSI9000 Series Inverter Manual

P7.01	Closed-loop given	0:digit 1:VI(0~10V) 2:CI(0~10V)	1	1	○	0701H
P7.02	Closed-loop feedback	0:VI analog input voltage 0~10V 1:CI analog input 2:VI+CI 3:VI-CI 4:Min {VI,CI} 5:Max {VI,CI}	1	1	○	0702H
P7.03	Given filtering	0.01s~50.00s	0.01	0.50	○	0703H
P7.04	Feedback filtering	0.01s~50.00s	0.01	0.50	○	0704H
P7.05	Givin data setting	0.00V~10.00V	0.01	0.00	○	0705H
P7.06	Min given data	0.0~[P7.08]	0.1	0.0%	○	0706H
P7.07	Feedback to [P7.06]	0.0~100.0%	0.1 %	0.0%	○	0707H
P7.08	Max given data	[P7.06]~100.0%	0.1	100%	○	0708H
P7.09	Feedback to [P7.08]	0.0~100.0%	0.1 %	100%	○	0709H
P7.10	Proportion gain	0.000~9.999	0.00	0.050	○	070AH
P7.11	Integral gain	0.001~9.999	0.00	0.050	○	070BH
P7.12	Sampling period	0.01~10.00S	0.01	1.00	○	070CH
P7.13	Deviation limit	0.0~20.0%	1%	2.0%	○	070DH
P7.14	Closed-loop adjustment	0:affecting 1:reaction	1	0	×	070EH
P7.15	Automatic reset choice	0:stop adjusting at upper frequency 1:keep adjusting at upper frequency	1	0	×	070FH
P7.16	Closed-loop pre-placed frequency	0~upper frequency	0.01	0.00	○	0710H
P7.17	Closed-loop initialization frequency maintenance time	0.0~250.0s	0.1	0.1	×	0711H
P7.18	PID the zero frequency sleep regains consciousness	0.00~500.00Hz	0.01	0.01	×	0712H

## VSI9000 Series Inverter Manual

P7.19	The zero frequency returns to the difference	0.00~500.00Hz	0.01	0.01	×	0713H
-------	--	---------------	------	------	---	-------

### 5.9 Simple PLC Running Group (P8)

Code	Caption	Description	Min	Factory default	Alter	Progam
P8.00	Simple PLC running	0000~1113 LED unit:mode selection 0:no action 1:After single cycle engine off 2:After the single cycle maintains the end value 3:continuous loop LED tens: The PLC interrupt movement starts the way choice again 0:restart from the first section 1:continue moving at interrupt frequency LED hundreds:PLC memory choice power off 0:no memory 1:stage frequency power off LED thousand: unit of time 0:SEC 1:MIN	1	0000	×	0800H

## VSI9000 Series Inverter Manual

P8.01	Section 1	000~621 LED unit:frequency setting 0:multistage frequency 1 (i=1~7) 1:frequency decided on [P0.01] LED tens:running direction 0:FWD 1:REV 2:decided on instruction LED hundreds:speed up/down choice 0:speed up/down time 1 1:speed up/down time 2 2:speed up/down time 3 3:speed up/down time 4 4:speed up/down time 5 5: speed up/down time 6 6: speed up/down time 7	1	000	○	0801H
P8.02	Running time of section 1	0.1~6000.0	0.1	10.0	○	0802H
P8.03	Section 2	000~621(P8.01)	1	000	○	0803H
P8.04	Running time of section 2	0.1~6000.0	0.1	10.0	○	0804H
P8.05	Section 3	000~621(P8.01)	1	000	○	0805H
P8.06	Running time of section 3	0.1~6000.0	0.1	10.0	○	0806H
P8.07	Section 4	000~621(P8.01)	1	000	○	0807H
P8.08	Running time of section 4	0.1~6000.0	0.1	10.0	○	0808H
P8.09	Section 5	000~621(P8.01)	1	000	○	0809H
P8.10	Running time of section 5	0.1~6000.0	0.1	10.0	○	080AH
P8.11	Section 6	000~621(P8.01)	1	000	○	080BH
P8.12	Running time of section 6	0.1~6000.0	0.1	10.0	○	080CH
P8.13	Section 7	000~621(P8.01)	1	000	○	080DH
P8.14	Running time of section 7	0.1~6000.0	0.1	10.0	○	080EH

### 5.10 Suspend Frequency Group (P9)

Code	Caption	Description	Min	Factory default	Alter	Progam
P9.00	Suspend frequency	0:no suspend frequency	1	0	×	0900H
P9.01	mode	00~11 LED unit:investment mode 0:automatic 1>manual LED tens:amplitude of vibration control 0:alter 1:fixed	1	00	×	0901H
P9.02	Preplace frequency	0.00~500.00Hz	0.01	0.00	○	0902H
P9.03	Waiting time	0.0~3600.0s	0.1	0.0	○	0903H
P9.04	amplitude	0.0~50.0%	0.1%	0.0%	○	0904H
P9.05	Kici frequency	0.0~50.0 % (relative to P9.04)	0.1%	0.0%	○	0905H
P9.06	Cycle	0.1~999.9s	0.1	10.0	○	0906H
P9.07	Triangular wave rising time	0.0~98.0%	0.1%	50.0	○	0907H
P9.08	Length setting	0.000 ~ 65.535(km)	0.001k	0.000	○	0908H
P9.09	Actual length	0.0~65.535km	0.001k	0.000	○	0909H
P9.10	Length percentage	0.001~30.000	0.001	1.000	○	090AH
P9.11	Length correction factor	0.001~1.000	0.001	1.000	○	090BH
P9.12	survey axis perimeter	0.01~100.00cm	0.01	10.00	○	090CH
P9.13	Axis each revolution of pulse	1~9999	1	0001	○	090DH

### 5.11 Factory Parameter Group (PF)

Code	Caption	Description	Min	Factory default	Alter	Progam
PF.00	Reserved	---	---	---	---	---

### 5.12 Monitor Parameter group (b)

## VSI9000 Series Inverter Manual

Code	Caption	Description	Min	Factory default
b-00	Output frequency	present output frequency	0.01H	---
b-01	Setting frequency	present setting frequency	0.01H	---
b-02	Output voltage	present output voltage	1V	---
b-03	Output current	present output current	0.1A	---
b-04	Busbar voltage	present busbar voltage	1V	---
b-05	Module temperature	IGBT radiator temperature	1°C	---
b-06	Rotate speed	present rotate speed		---
b-07	Running time	power-on hours	1h	---
b-08	input/output terminal data	switch quantity input/output terminal condition	---	---
b-09	Analog input VI	analog input VI value	0.01V	---
b-10	Analog input CI	analog input CI value	0.01V	---
b-11	External pulse input	external pulse input value	1ms	---
b-12	External attribute	external attribute value	1	---
b-13	Actual length	actual length value	0.001	---

## CHAPTER 6 Troubleshooting

### 6.1 Fault Display And Method

Code	Description	Cause	Remedy
E-01	Over current when expediting	overload, acceleration time too short	increase Accel time
		V/F improper	select correct V/F pattern
		restart when power on	set a starting by check speed mode
		torque promotion setted too large	change manual torque lifting to automatic torque promotion
E-02	Over current when decelerating	power too small	select a larger power inverter
		deceleration time too short	extend deceleration time
		energy back coupling load or big inertial load	fix or change braking element

## VSI9000 Series Inverter Manual





		power less than normal	select a larger power inverter
E-03	Over current when constant rate running	load altered	check or reduce the load sudden changing
		time setted too short	increase Accel/Decel time
		load unnormal	check load
		network voltage too low	check input voltage
		power less than normal	select a larger power inverter
E-04	Over voltage when expediting	input voltage unnormal	check input voltage
		acceleration time setted too short	increase Accel time
		restart when power on	set a starting by check speed mode
E-05	Over voltage when decelerating	deceleration time too short	increase deceleration time
		energy back coupling load or the big inertial load	fix or change braking element
E-06	Constant rate running over voltage	input voltage incorrect	check input voltage
		Accel/Decel time setted too short	increase Accel/Decel time
		input voltage incorrect	fix input reactor
		energy back coupling load or the big inertial load	fix or change braking element
E-07	Power over voltage	input voltage incorrect	check input voltage or ask for service
E-08	Inverter overheat	air duct blocked	clear or improve ventilation
		ambient temperature too high.	improve ventilation, reduces the carrier frequency

## VSI9000 Series Inverter Manual

		fan damaged	change fan
		inverter unnormal	ask for service
E-09	Inverter over load	accel time too short	increase Accel time
		DC brake too large	reduce DC brake current, increase brake time
		user set incorrect V/F pattern	select correct V/F pattern, increase torque
		restart when power on	set a starting by check speed mode
		network voltage too low	check voltage
		over load	select a larger power inverter
E-10	Motor over load	user set incorrect V/F pattern	select correct V/F pattern, increase torque
		network voltage too low	check voltage
		motor operating in long-term low speed and high load	select correct motor
		over-load protection coefficient incorrect	set the correct coefficient
		motor over load too much	check load
E-11	Low-voltage	network voltage too low	check voltage
E-12	Contravariant module protection	inverter over current	vide over current
		output three-phase fault or earth short circuit	wiring again
		air duct blocked or fan damaged	clear ventilation or change fan
		temperature too high	reduce temperature
		wiring or inserts not hard-up	check and wiring again



## VSI9000 Series Inverter Manual


		output phase fault make current waveform unusual	check wiring
		accessory power damage,slaving voltage lower	ask for service
		contal panel unusual	ask for service
E-13	External	scram terminal closed	open scram terminal
E-14	Current examing circuit fault	wiring or inserts not hard-up	check and wiring again
		accessory power damage	ask for service
		hall device damaged	ask for service
		enlarge electric circuit unusual	ask for service
E-15	RS232/485 Communication fault	baud rate incorrect	select correct baud rate
		serial port communicate fault	press  ,ask for service
		fault warning data incorrect	alter P3.09~P3.12 data
		host computer unworking	check host computer and
E-16	System interference	interference serious	press  or fix a power
		DSP fault	press  or ask for service
E-17	E2PROM fault	control parameter fault	press  or ask for service
E-18	Reserved	---	----
E-19	Input phase	input power unusual	check input power

### 6.2 Fault Records Inquiry

The inverters record latest 6 fault codes and the last inverter fault data. The fault data saved in P6 group, users can see these data from P6.

## 6.3 Fault Reset

There are 3 ways to reset the inverter:

- (1) press key 
- (2) set any one of X1~X6 terminal as exterior replace input mode (P4.00~P4.05=17), then open with terminal COM.
- (3) turn off the inverter.

# CHAPTER 7 Maintenance

## Precautions

- Be sure to remove the drive power input while performing maintenance.
- Be sure to perform maintenance only after checking that the DC bus has discharged. The bus capacitors in the electronic circuit can still be charged even after the power is turned off.
- The correct output voltage can only be measured by using a rectifier voltage meter. Other voltage meters including digital voltage meters are likely to display incorrect values caused by the high frequency PWM output voltage of the drive.

## Routine Inspection

Be sure to check the following before operation.

- The conditions of the installation location.
- The conditions of the drive cooling.
- Abnormal vibration.
- Abnormal heating.

## Periodical Inspection

- Any loose bolt, nut or rust caused by surrounding conditions? If so, tighten up or replace.
- Any deposits inside of the drive or cooling fan? If so, remove the deposits using air.
- Any deposit on the drive's PCB (Printed Circuit Boards)? If so, remove the deposits using air.
- Any abnormal contacts in the various connectors of the drive's PCB? If so, check the condition of the connector in question.
- Check the rotating condition of the cooling fan, the size and condition of the capacitors and the connections with the magnetic contactor. Replace it if there is any abnormality.