| NZ200 series |

universal vector inverter

user's manual

Thank you for choosing NZ200 series general-purpose vector inverter.

Before installing, operating, maintaining or checking the driver, please read this instruction manual carefully to give full play to the function of the driver and ensure the safety of users.

In this instruction manual, safety is divided into two categories: danger and attention. Please pay special attention to the " Warning", " Caution" symbols and related contents.

" WARNING" Incorrect or incorrect operation can cause hazards that may result in death or serious injury.

" Beware" of the harm caused by incorrect or wrong operation, which may lead to personal injury or failure of the drive and mechanical system. Depending on the situation, the precautions may also cause serious consequences.

The diagrams in this instruction manual are for the convenience of explanation, and may be slightly different from the production crystals. Due to product upgrades, there may be slight differences. Please refer to the actual product.

Please pay attention to hand this instruction manual to the end user and keep it properly for use in future inspection and maintenance.

If you have any questions, please contact the company or our agent in time, and we will serve you wholeheartedly.

1 Safety Precautions

Read this manual carefully before installation, operation, maintenance or inspection.

Precautions for safe operation in the manual are classified as "WARNING" or "CAUTION".

Indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.

Indicates a potentially critical situation that, if not identified, could result in minor or moderate personal injury and equipment damage. This can also be used to alert on unsafe operations.

In some cases, even what is stated in the caution can lead to major accidents. So in any case observe these important precautions.

★ Note

The steps taken to ensure proper operation.

Warning markings appear on the front cover of the drive.

Follow these guidelines when using the drive.

warning sign

DANGER
·Risk of Injury and electric shock. ·Read the manual and follow the safety instruction before use. ·Isolate from supply and wait 10minutes before removing his cover. ·Ensure proper earth connection. Mount the inverter on a non-combustible surface.

2 Open box to check


·Do not install or operate any drive that is damaged or has outdated parts, otherwise there is a risk of injury.

When removing the drive after unpacking, check the following items.

1. Confirm that there is no damage (damage or chip on the body) of the drive during transportation.

2. Confirm that there are instructions and warranty cards in the box.

3. Check the drive nameplate and confirm that it is the product you ordered.

4. If you ordered optional accessories for the drive, please confirm that the optional accessories you received are what you need.

If you find a damaged drive or optional accessories, please call your local dealer immediately.

3 Removal and Installation Warnings

WARNING

·The design, installation, commissioning and operation of the equipment must be carried out by trained and qualified professionals; during the work, all the regulations in "Warning" must be followed, otherwise serious personal injury or heavy property damage may be caused.

· The input power cord is only allowed to be permanently connected, and the equipment must be grounded reliably.

Even if the drive is not in operation, the following terminals may still carry dangerous voltages:

- Power terminals R, S, T
- Connect the terminals U, V, W of the motor

·After the power switch is turned off, you must wait for more than 10 minutes and the drive has been discharged before starting the installation work.

·The minimum cross-sectional area of the grounding conductor is at least 10mm², or corresponding to the data in the table below, the maximum value of the two is required to be selected as the area of the grounding conductor:

Power line conductor cross-sectional area S mm ²	Ground conductor cross-sectional area
S≤6	S
16 < S≤35	16
35 < S	S/2

CAUTION

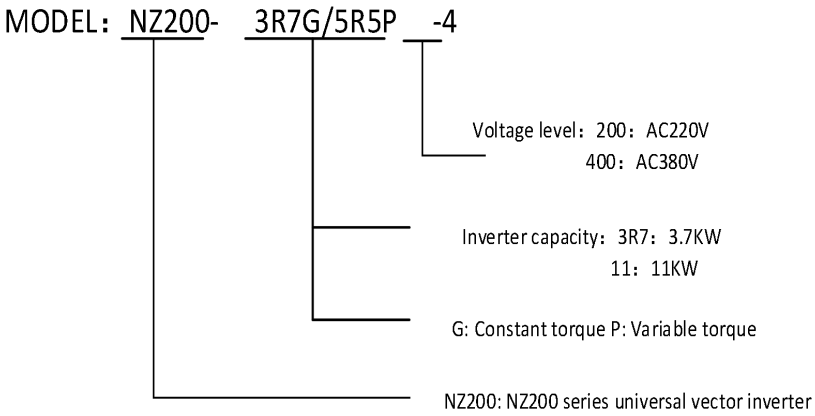
·Lift the cabinet by the base, do not hold the panel to lift when moving the drive, otherwise the main unit may fall, which may cause personal injury.

·The driver should be installed on flame-retardant materials such as metal, away from heat sources and flammable objects to avoid fire.

·When more than two drives are installed in a cabinet, a cooling fan should be installed and the air temperature should be controlled below 40℃, otherwise overheating will cause fire or damage to the device.

Chapter 1 Overview

1-1 Inverter nameplate description



1-2 Inverter comprehensive technical characteristics

Item		Specification
Basic control functions	control method	Open loop vector control (without PG), V/F control
	highest frequency	0.00 to 600.00 Hz
	Carrier frequency setting	0.5kHz ~ 8kHz The carrier frequency can be automatically adjusted according to the load characteristics.
	Input frequency resolution	Digital setting: 0.01Hz Analog setting: maximum frequency × 0.025%
	starting torque	Model G: 0.5 Hz/150% (without PG) P-type machine: 0.5 Hz/100%
	Speed range	1:100 (without PG)

	Steady speed accuracy	± 0.5 % (without PG)
	overload capacity	G type machine: 150% rated current 60s; 180% rated current 3s. P-type machine: 120% rated current 60s; 150% rated current 3s.
	Torque boost	Automatic torque boost; manual torque boost 0.1%~30.0%
	V/F curve	Three ways: linear type; multi-point type; N-th power V/F curve (1.2 power, 1.4 power, 1.6 power, 1.8 power, 2 power)
	V/F separation	2 ways: full separation, half separation
	Acceleration and deceleration curve	Linear or S-curve acceleration and deceleration methods. Four kinds of acceleration and deceleration time, the acceleration and deceleration time range is 0.0~6500.0s
	DC braking	DC braking frequency: 0.00Hz~maximum frequency Braking time: 0.0s~36.0s Braking current value: 0.0%~100.0%
	Jog control	Jog frequency range: 0.00Hz~50.00Hz. The jog acceleration and deceleration time is 0.0s~6500.0s.
	PLC, multi-speed operation	Realize up to 16-speed operation through built-in PLC or control terminals
	Built-in PID	Process control closed-loop control system can be easily realized
	Automatic Voltage Adjustment (AVR)	When the grid voltage changes, it can automatically keep the output voltage constant
	Overvoltage and overcurrent stall control	Automatically limit current and voltage during operation to prevent frequent overcurrent and overvoltage tripping
	Fast current limiting function	Minimize overcurrent faults and protect the normal operation of the inverter
	Torque Limiting and Control	" Excavator " feature, which automatically limits the torque during operation to prevent frequent overcurrent tripping
Personalization	great performance	Asynchronous or synchronous motor control with high performance current vector control technology
	Instantaneous power failure	In the event of an instantaneous power failure, the voltage reduction is compensated by the load feedback energy, and the inverter continues to run for a short time.
	Fast current limiting	Avoid frequent overcurrent faults of the inverter
	Timing function	Timing control function: set the time range from 0.0 minutes to 6500.0 minutes
	communication method	RS-485
Running	run command channel	Operation panel given, control terminal given, serial communication port given. Switchable in a variety of ways
	frequency source	Multiple frequency sources: digital given, analog voltage given, analog current given, serial port given. Switchable in a variety of ways
	Auxiliary frequency source	10 auxiliary frequency sources. Auxiliary frequency fine-tuning and frequency synthesis can be flexibly realized
	input terminal	37KW and below: 4 digital input terminals;

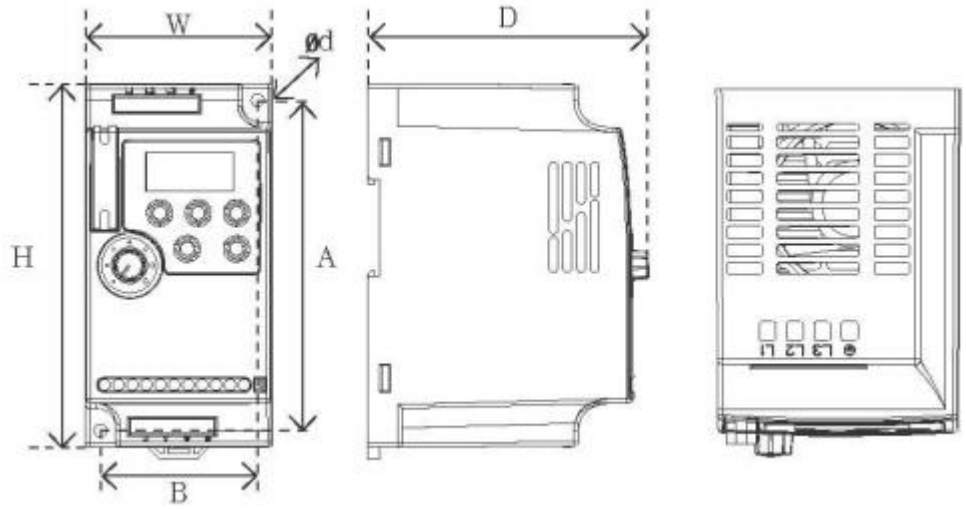
		1 analog input terminal, support 0~10V voltage input or 4~20mA current input (AVI) 45KW and above: 6 digital input terminals, one of which supports high-speed pulse input up to 100kHz (S3 optional); 2 analog input terminals, 1 only supports 0~10V voltage input (FIV), 1 supports 0~10V voltage input or 4~20mA current input (FIC)
	output terminal	37KW and below: 1 relay output terminal (RA, RC); 45KW and above: 1 digital output terminal (MO1) 1 relay output terminal (RA, RB, RC) 1 analog output terminal, support 0~20mA current output or 0~10V voltage output (FOV)
keyboard display	LED display	Display parameters
	Key lock and function selection	Part or all of the keys can be locked, and the scope of action of some keys can be defined. to prevent misuse
	Protective function	Power-on motor short circuit detection, output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, etc.
environment	place of use	Indoor, no direct sunlight, no dust, corrosive gas, flammable gas, oil Fog, water vapor, dripping water or salt, etc.
	Altitude	Below 1000m (Above 1000m need to downshift)
	ambient temperature	- 10 ℃ ~ + 40 ℃ (Ambient temperature is 40 ℃ ~ 50 ℃, please downshift to use)
	humidity	Less than 95%RH , no condensation
	vibration	Less than 5.9m/s ^{2} (0.6g)
	storage temperature	- 20 ℃ ~ + 60 ℃
	Protection class	IP20

1-3 Inverter series models

Inverter model	input voltage	Rated output power (KW)	Rated input current (A)	Rated output current (A)	Applicable motor (KW)
NZ200-0R4G -2	1PH AC 220V ±15%	0.4	5.4	2.5	0.4
NZ200-0R75G -2		0.75	7.2	5.0	0.75
NZ200-1R5G -2		1.5	10.0	7.0	1.5
NZ200-2R2G -2		2.2	16	11	2.2
NZ200-3R7G -2		3.7	24	16.5	3.7
NZ200-0R4G -4	3PH AC 380V ±15%	0.4	3.4	1.2	0.4
NZ200-0R75G -4		0.75	3.8	2.5	0.75

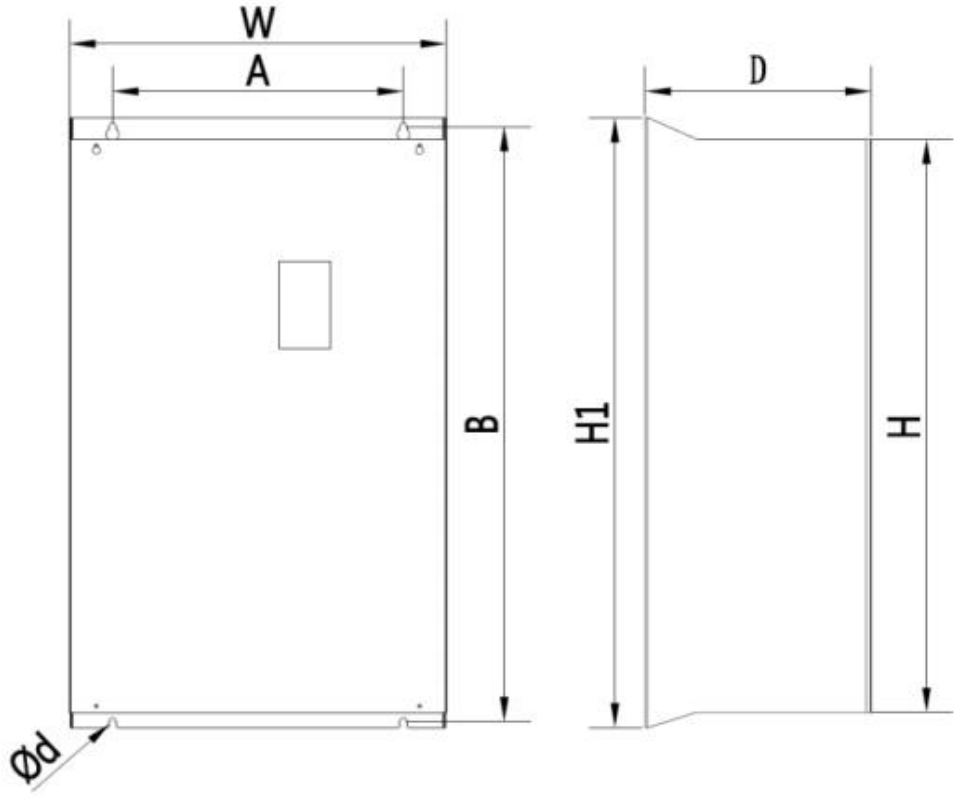
NZ200-1R5G -4		1.5	5.0	3.7	1.5
NZ200-2R2G -4		2.2	5.8	5.0	2.2
NZ200-3R7G /5R5P-4		3.7 /5.5	10/15	9/13	3.7 /5.5
NZ200-5R5G /7R5P-4		5.5 /7.5	1 5/20	1 3/27	5.5 /7.5
NZ200-7R5G /11P-4		7.5/ 11	20/26	17/25	7.5/ 11
NZ200-11G /15P-4		11/15	26/35	25/32	11/15
NZ200 -15G/18.5P-4		15/ 18.5	3 5/38	32/37	15/ 18.5
NZ200 -18.5G/22P-4		18.5/ 22	3 8/46	37/45	18.5/ 22
NZ200-22G/30P-4		22/30	46/62	45/60	22/30
NZ200-30G/37P-4		30/37	62/76	60/75	30/37
NZ200-37G/45P-4		37/45	76/90	75/90	37/45
NZ200-45G/55P-4		45/55	90/105	90/110	45/55
NZ200-55G-4		55	105	110	55
NZ200-75P-4		75	140	150	75
NZ200-75G/90P-4		75/90	140/160	150/176	75/90
NZ200-90G/110P-4		90/110	160/210	176/210	90/110
NZ200-110G/132P-4		110/132	210/240	210/253	110/132
NZ200-132G/160P-4		132/160	240/290	253/300	132/160
NZ200-160G/185P-4		160/185	290/330	300/340	160/185
NZ200-185G/200P-4		185/200	330/370	340/380	185/200
NZ200-200G/220P-4		200/220	370/410	380/420	200/220
NZ200-220G/250P-4		220/250	410/460	420/470	220/250
NZ200-250G/280P-4		250/280	460/500	470/520	250/280
NZ200-280G/315P-4		280/315	500/580	520/600	280/315
NZ200-315G/350P-4		315/350	580/620	600/640	315/350
NZ200-350G/400P-4		350/400	620/670	640/690	350/400
NZ200-400G/450P-4		400/450	670/790	690/790	400/450
NZ200-450G/500P-4		450/500	790/835	790/860	450/500
NZ200-500G/560P-4		500/560	865/960	860/950	500/560
NZ200-560G/630P-4		560/630	960/1112	950/1100	560/630
NZ200-630G/710P-4		630/710	1112/1290	1100/1280	630/710

1-4 The appearance and installation dimensions of the inverter



Note: Standard 35mm rail installation is supported below 5.5KW. Unit: mm

model	Dimensions			Installation size		
	W	H	D	A	B	Φd
NZ200-0R4G-2 -------- NZ200-1R5G-2 NZ200-0R4G-4 -------- NZ200-2R2G-4	72	142	112.2	130	61	4.5
NZ200-2R2G-2 -------- NZ200-3R7G-2 NZ200-3R7G/5R5P-4 -------- NZ200-5R5G/7R5P-4	85	180	116	167	72	5.5
NZ200-7R5G/11P-4 -------- NZ200-11G/15P-4	106	240	153	230	96	4.5
NZ200-15G/18.5P-4 -------- NZ200-22G/30P-4	151	332	165.5	318	137	7
NZ200-30G/37P-4 -------- NZ200-37G/45P-4	217	400	201	385	202	7



Unit: mm

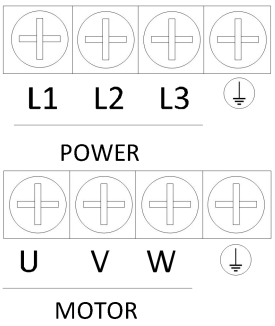
model	Dimensions				Installation size		
	W	H	H1	D	A	B	Φd
NZ200-45G/55P-4 -------- NZ200-55G/75P-4	300	440	470	240	200	455	9
NZ200-75G/90P-4 -------- NZ200-110G/132P-4	275	590	630	310	200	612	9
NZ200-132G/160P-4 -------- NZ200-160G/185P-4	400	675	715	310	320	695	11
NZ200-185G/200P-4 -------- NZ200-220G/250P-4	400	790	830	320	160+160	810	11
NZ200-250G/280P-4 -------- NZ200-315G/350P-4	530	920	970	350	215+215	950	11
NZ200-350G/400P-4 -------- NZ200-500G/560P-4	550	1120	1180	400	230+230	1150	13
NZ200-560G/630P-4 NZ200-630G/710P-4	760	1330	1400	450	325+325	1370	13

Chapter 2 Wiring

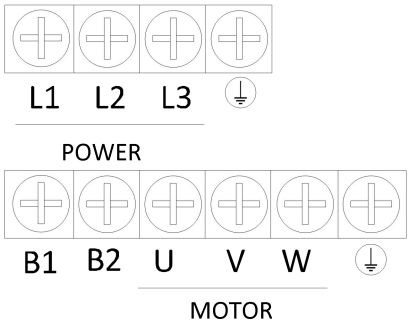
2-1 Schematic Description of Main Circuit Terminals

The user opens the cover plate of the frequency converter to access the main circuit terminals.

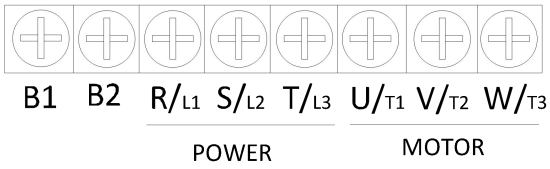
Type a ： 1PH 220V 0.4KW-1.5KW&&3PH 380V 0.4KW-2.2KW



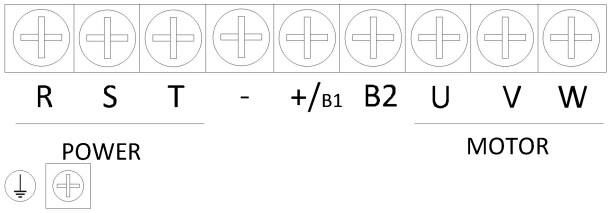
Type b ： 1PH 220V 2.2KW-3.7KW&&3PH 380V 3.7KW-11KW



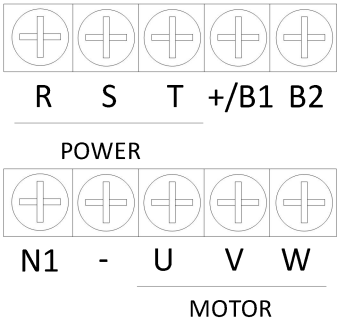
Type c ： 3PH 380V 15KW-37KW



Type d ： 3PH 380V 45KW-55KW

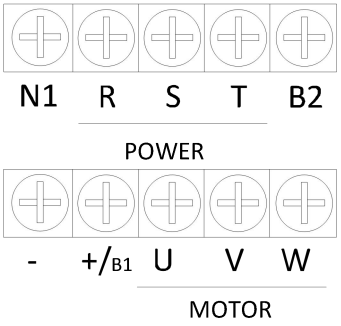


Type e ： 3PH 380V 75KW-110KW



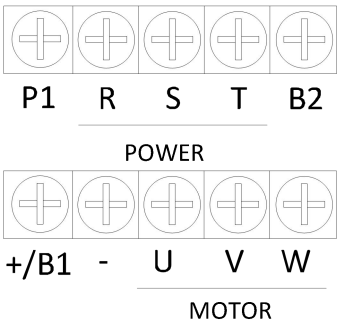
**Note: B2 terminal is only included in products with brake units included.
N1 terminal is optional.

Type f ： 3PH 380V 132KW-160KW



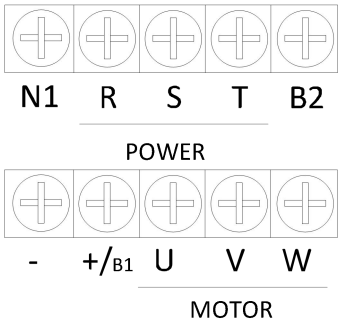
**Note: B2 terminal is only included in products with brake units included.
N1 terminal is optional.

Type g ： 3PH 380V 185KW-315KW&&3PH 380V 560KW-630KW



**Note: B2 terminal is only included in products with brake units included.

Type h ： 3PH 380V 350KW-500KW



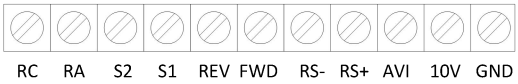
**Note: Standard products only have R/S/T/U/V/W terminals, and other terminals are optional.

2-2 Main circuit terminal description

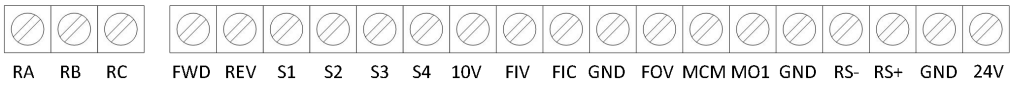
Terminal name	Description
⏚	Earth(ground)
R/L1 S/L2 T/L3	Power input
U/T1、V/T2、W/T3	Connect a three-phase AC motor.
+/B1、B2	Connect brake resistor
+/B1、-	DC bus terminal, can be connect to brake unit
P1、+/B1 or N1、-	Connected to DC reactor

2-3 Definition of Control Board Terminals

1. 37KW and below



2. 45KW and above



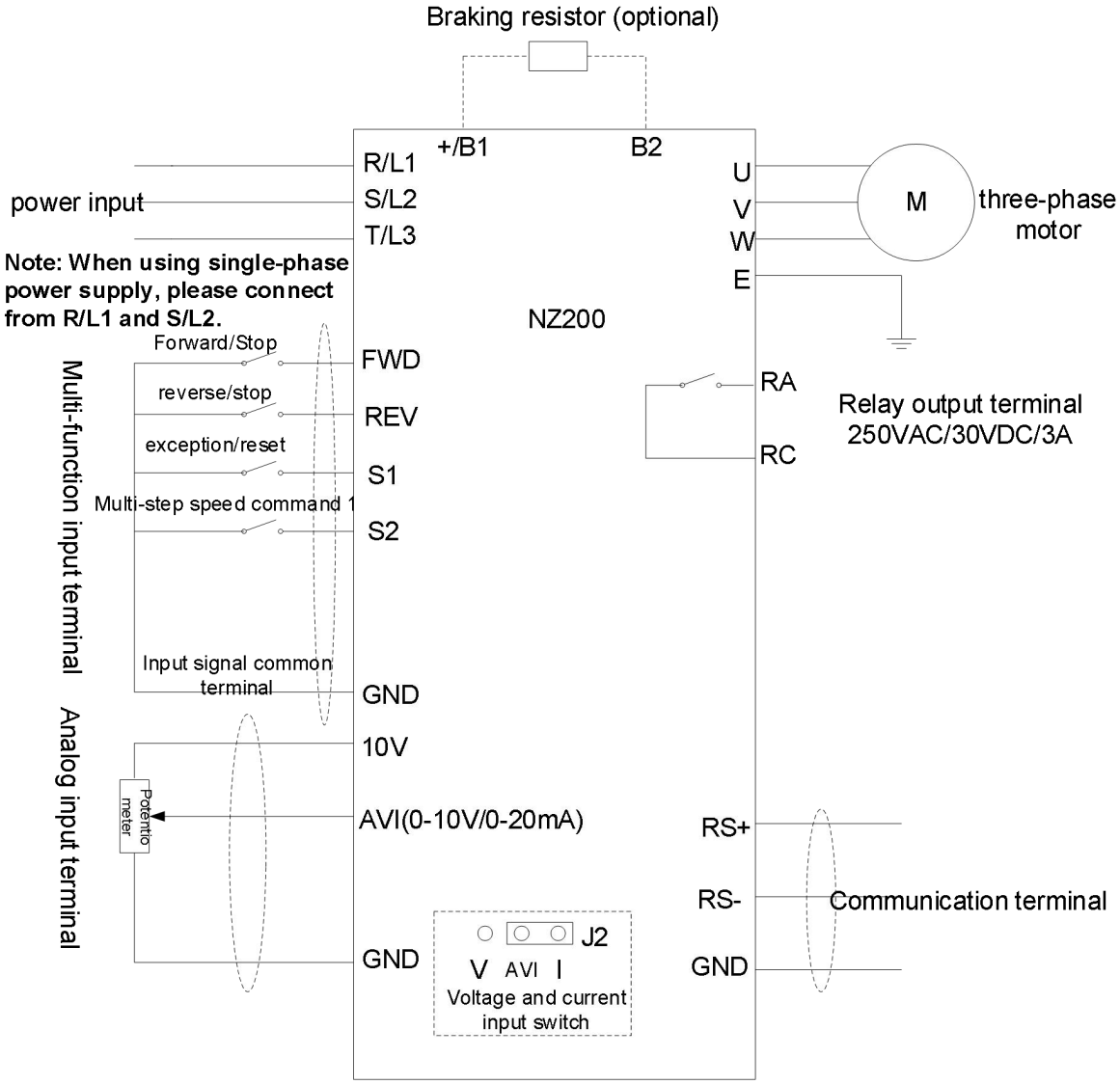
3、Control terminal description

Terminal name	Function Definition Description	Remark
FWD	Forward command input terminal (multi-function input terminal)	Multi-function input terminal S1～S4, FWD, REV terminal can be Number P4.00～P4.05 specific set, set the terminal and valid when GND
REV	Reverse command input terminal (multi-function input terminal)	
S1	fault reset	
S2	Multi-step speed command 1	

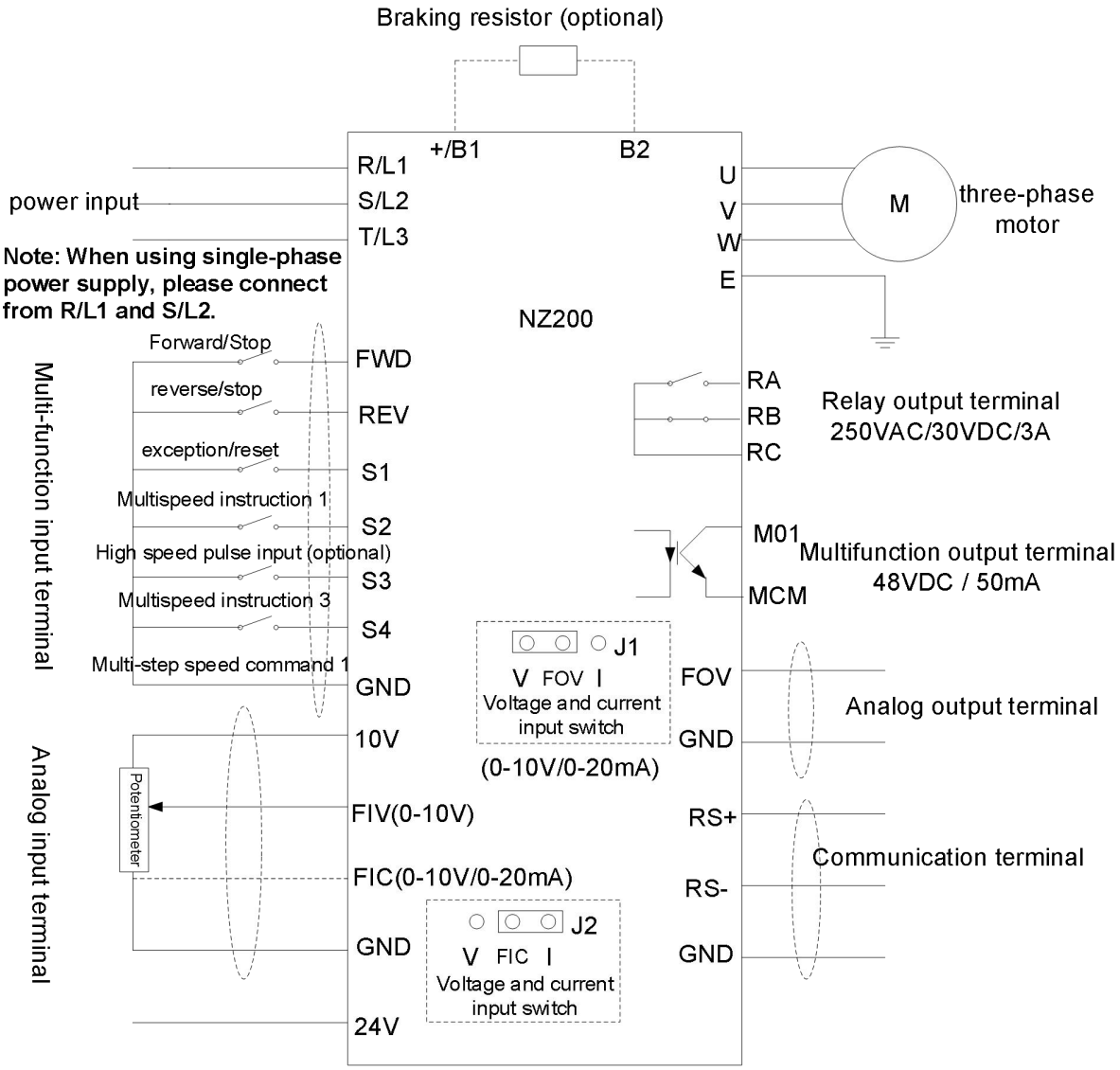
S3	Multi-step speed command 2 (Optional high-speed pulse input)	is closed
S4	Multi-step speed command 3	
FOV	Analog voltage output terminal	0～10V/0～20mA
10V	Power supply for frequency setting	
24V	Auxiliary power	
FIV	Analog voltage command input terminal	0～10V
FIC	Analog current command input terminal	0～10V/0～20mA
GND	Input signal common terminal	
MCM	Optical coupling output common terminal	
MO1	Multifunctional optocoupler output contact	
RA	Relay output contact (normal open)	
RB	Relay output contact (normal closed)	
RC	Common terminals of relay output contacts RA and RB	

2-4 Basic Wiring Diagram

1）,(0.75KW~37KW)


Braking resistor (optional)
+/B1
B2
R/L1
S/L2
T/L3
power input
Note: When using single-phase power supply, please connect from R/L1 and S/L2.
U
V
W
E
M
three-phase motor
NZ200
Forward/Stop
FWD
reverse/stop
REV
exception/reset
S1
Multi-step speed command 1
S2
RA
RC
Relay output terminal 250VAC/30VDC/3A
Multi-function input terminal
Input signal common terminal
GND
10V
Analog input terminal
Potentiometer
AVI(0-10V/0-20mA)
RS+
RS-
Communication terminal
GND
J2
V AVI I
Voltage and current input switch

2）, (45KW~450KW)



**Note 1: 45-500kW is an optional built-in brake unit.

Chapter 3 Function parameters

If PP-00 is set to a non-zero number, parameter protection is enabled. You must enter the correct user password to enter the menu. To cancel the password protection function, enter with password and set PP-00 to 0.

Parameters menu the user customizes are not protected by password. Group P is the basic function parameters, Group D is to monitor the function parameters. The symbols in the function code table are described as follows:

"☆": The parameter can be modified when the AC drive is in either stop or running state.

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

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

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

3-1 Standard Function Parameters

Function code	Parameter Name	Setting range	Default	Property
Group P0 Standard Function Parameters				
P0.00	G/P type display	1：G type（Constant torque load） 2：P type（variable torque load e.g. fan and pump）	Model dependent	●
P0.01	Control mode selection	0：No PG (speed sensor) vector control 1：With PG (speed sensor) vector control 2：V/F control	2	★
P0.02	Command source selection	0：Operation panel control (LED off) 1：Terminal control (LED on) 2：Communication control (LED linking)	0	☆
P0.03	Main frequency source X selection	0：Digital setting（P0.08 preset frequency, can modify the UP/DOWN, power lost don't memory） 1：Digital setting（P0.08, preset frequency, can modify the UP/DOWN, power lost memory） 2：FIV/Keyboard Potentiometer 3：FIC/AVI	0	★

		4：Reserved 5：PULSE （S3） 6：Multistage instruction 7：Simple PLC 8：PID 9：Communication setting		
P0.04	Auxiliary frequency source Y selection	The same as P0.03 (frequency source X selection)	0	★
P0.05	Auxiliary frequency source superposition Y range selection	0：Relative to the maximum frequency 1：Relative to the main frequency source X	0	☆
P0.06	Auxiliary frequency source superposition Y range	0% ~ 150%	100%	☆
P0.07	Frequency source superposition selection	Unit's digit (Frequency source) 0：Main frequency source X 1：X and Y operation(operation relationship determined by ten's digit) 2：Switchover between X and Y 3：Switchover between X and "X and Y operation" 4：Switchover between Y and "X and Y operation" Ten's digit (X and Y operation) 0：X+Y 1：X-Y 2：Both the maximum 3：Both the minimum	00	☆
P0.08	Frequency preset	0.00Hz ~ maximum frequency （P0.10）	50.00Hz	☆
P0.09	Rotation direction	0：Same direction 1：Reverse direction	0	☆
P0.10	Maximum frequency	50.00Hz ~ 600.00Hz	50.00Hz	★
P0.11	Upper limit frequency source	0：P0.12 setting 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 4：PULSE（S3） 5：Communication setting	0	★
P0.12	Upper limit frequency	Frequency lower limit P0.14 ~	50.00Hz	☆

		Maximum frequency P0.10		
P0.13	Upper limit frequency offset	0.00Hz ~ Maximum frequency P0.10	0.00Hz	☆
P0.14	Frequency lower limit	0.00Hz ~ Upper limit frequency P0.12	0.00Hz	☆
P0.15	Carrier frequency	0.5kHz ~ 16.0kHz	Model dependent	☆
P0.16	Carrier frequency adjustment with temperature	0：No 1：Yes	1	☆
P0.17	Acceleration time 1	0.00s ~ 65000s	Model dependent	☆
P0.18	Deceleration time 1	0.00s ~ 65000s	Model dependent	☆
P0.19	Acceleration/Deceleration time unit	0：1s 1：0.1s 2：0.01s	1	★
P0.21	Frequency offset of auxiliary frequency source for X and Y operation	0.00Hz ~ Maximum frequency P0.10	0.00Hz	☆
P0.22	Frequency instruction resolution	2：0.01Hz	2	★
P0.23	Retentive of digital setting frequency upon power	0：Not retentive 1：Retentive	0	☆
P0.25	Acceleration/Deceleration time base frequency	0：Maximum frequency（P0.10） 1：Set frequency 2：100Hz	0	★
P0.26	Base frequency for UP/DOWN modification during running	0：Running frequency 1：Set frequency	0	★
P0.27	Binding command source to frequency source	Unit's digit: Binding operation panel command to frequency source 0:No binding 1:Frequency source by digital setting 2：FIV/Keyboard Potentiometer 3：FIC/AVI 4：Reserved 5：PULSE（S3） 6:Multi-Reference	0000	☆

		7:Simple PLC 8:PID 9:Communication setting Ten's digit: Binding terminal command to frequency source Hundred's digit: Binding communication command to frequency source		
Group P1 Motor parameter				
P1.00	Motor type selection	0：Common asynchronous motor 1：Variable frequency asynchronous motor	0	★
P1.01	Rated motor power	0.1kW ~ 1000.0kW	Motor dependent	★
P1.02	Rated motor voltage	1V ~ 2000V	Motor dependent	★
P1.03	Rated motor current	0.01A ~ 655.35A（AC drive power <=55kW） 0.1A ~ 6553.5A（AC drive power >55kW）	Motor dependent	★
P1.04	Rated motor frequency	0.01Hz ~ maximum frequency	Motor dependent	★
P1.05	Rated motor rotational speed	1rpm ~ 65535rpm	Motor dependent	★
P1.06	Stator resistance (asynchronous motor)	0.001Ω ~ 65.535Ω（AC drive power <=55kW） 0.0001Ω ~ 6.5535Ω（AC drive power >55kW）	Tuned parameter	★
P1.07	Rotor resistance (asynchronous motor)	0.001Ω ~ 65.535Ω（AC drive power <=55kW） 0.0001Ω ~ 6.5535Ω（AC drive power >55kW）	Tuned parameter	★
P1.08	Leakage inductive reactance (asynchronous motor)	0.01mH ~ 655.35mH（AC drive power <=55kW） 0.001mH ~ 65.535mH（AC drive power >55kW）	Tuned parameter	★
P1.09	Mutual inductive reactance (asynchronous motor)	0.1mH ~ 6553.5mH（AC drive power <=55kW） 0.01mH ~ 655.35mH（AC drive power >55kW）	Tuned parameter	★
P1.10	No-load current (synchronous motor)	0.01A ~ P1.03（AC drive power <=55kW） 0.1A ~ P1.03（AC drive	Tuned parameter	★

		power >55kW）		
P1.27	Encoder pulses per revolution	1 ~ 65535	1024	★
P1.28	Encoder type	0：ABZ incremental encoder 2：Resolver	0	★
P1.30	AB phase sequence of ABZ incremental encoder AB phase sequence	0：Forward 1：Reverse	0	★
P1.31	Encoder install angle	0.0 ~ 359.9°	0.0°	★
P1.34	Rotation pole logarithm	1 ~ 65535	1	★
P1.36	Speed feedback PG card break line detection time	0.0：No action 0.1s ~ 10.0s	0.0	★
P1.37	Auto tuning selection	0：No operation 1：static auto-tuning 2：dynamic auto-tuning 3：complete static auto-tuning	0	★
Group P2 Motor vector control parameter				
P2.00	Speed loop proportional gain 1	1 ~ 100	30	☆
P2.01	Speed loop integral time 1	0.01s ~ 10.00s	0.50s	☆
P2.02	Switchover frequency 1	0.00 ~ P2.05	5.00Hz	☆
P2.03	Speed loop proportional gain 2	1 ~ 100	20	☆
P2.04	Speed loop integral time 2	0.01s ~ 10.00s	1.00s	☆
P2.05	Switchover frequency 2	P2.02 ~ Maximum frequency	10.00Hz	☆
P2.06	Vector control slip gain	50% ~ 200%	100%	☆
P2.07	Time constant of speed loop filter	0.000s ~ 0.100s	0.015s	☆
P2.08	Vector control over-excitation gain	0 ~ 200	64	☆
P2.09	Torque upper limit sourcein speed control mode	0：P2.10 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 4：PULSE（S3） 5：Communication setting 6：MIN（FIV/Keyboard Potentiometer,FIC/AVI） 7：MAX（FIV/Keyboard Potentiometer,FIC/AVI） The full range of 1-7 is	0	☆

		correspond to P2.10		
P2.10	Torque upper limit setting in speed control mode (electrical)	0.0% ~ 200.0%	150.0%	☆
P2.11	Torque upper limit instruction selection in speed control mode (generation)	0： P2.10 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 4：PULSE（S3） 5：Communication setting 6：MIN（FIV/Keyboard Potentiometer,FIC/AVI） 7：MAX（FIV/Keyboard Potentiometer,FIC/AVI） 8： P2.12 setting Full range of 1-7 corresponding to P2.12	0	☆
P2.12	Torque upper limit digital setting in speed control mode (generation)	0.0% ~ 200.0%	150.0%	☆
P2.13	Excitation adjustment proportional gain	0 ~ 60000	2000	☆
P2.14	Excitation adjustment integral gain	0 ~ 60000	1300	☆
P2.15	Torque adjustment proportional gain	0 ~ 60000	2000	☆
P2.16	Torque adjustment integral gain	0 ~ 60000	1300	☆
P2.17	Speed loop integral property	Unit's digit：integral separation 0：Disabled 1：Enabled	0	☆
P2.21	Maximum torque coefficient of field weakening	50% ~ 200%	100%	☆
P2.22	Generation power limit enabled	0：Disabled 1：Enabled always 2：Enabled when constant speed 3：Enabled when deceleration	0	☆
P2.23	Generation power upper limit	0.0%~200.0%	Model dependent	☆
Group P3 V/F control parameters				
P3.00	VF curve setting	0：Linear V/F	0	★

		1：Multi-point V/F 2：Square V/F 3：1.2-power V/F 4：1.4-power V/F 6：1.6-power V/F 8：1.8-power V/F 9：Reserved 10：VF complete separation 11：VF half separation		
P3.01	Torque boost	0.0%：（fixed torque boost） 0.1% ~ 30.0%	Model dependent	☆
P3.02	Cut-off frequency of torque boost	0.00Hz ~ Maximum frequency	50.00Hz	★
P3.03	Multi-point VF frequency 1	0.00Hz ~ P3.05	0.00Hz	★
P3.04	Multi-point voltage 1	0.0% ~ 100.0%	0.0%	★
P3.05	Multi-point VF frequency 2	P3.03 ~ P3.07	0.00Hz	★
P3.06	Multi-point voltage 2	0.0% ~ 100.0%	0.0%	★
P3.07	Multi-point VF frequency 3	P3.05 ~ rated motor frequency（P1.04）	0.00Hz	★
P3.08	Multi-point voltage 3	0.0% ~ 100.0%	0.0%	★
P3.09	V/F slip compensation gain	0.0% ~ 200.0%	0.0%	☆
P3.10	V/F over-excitation gain	0 ~ 200	64	☆
P3.11	V/F oscillation suppression gain	0 ~ 100	Model dependent	☆
P3.13	Voltage source for V/F separation	0：Digital setting（P3.14） 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 4：PULSE（S3） 5：Multi-reference 6：Simple PLC 7：PID 8：Communication setting Note：100.0% corresponding to the rated motor voltage	0	☆
P3.14	Voltage digital setting for V/F separation	0V ~ rated motor voltage	0V	☆
P3.15	Voltage acceleration time for V/F separation	0.0s ~ 1000.0s Note：it indicated the time for the voltage change from 0V	0.0s	☆

		to rated motor voltage		
P3.16	Voltage deceleration time for V/F separation	0.0s ~ 1000.0s Note: it indicated the time for the voltage change from the rated motor voltage to 0V	0.0s	☆
P3.17	Stop mode selection for V/F separation	0: Frequency/voltage independent decline to 0 1: After voltage decline to 0 then decline the frequency	0	☆
P3.18	Action current of the over current lost speed	50%~200%	150%	★
P3.19	Over current lost speed enabled	0: Disabled 1: Enabled	1	★
P3.20	Over current lost speed suppression gain	0~100	20	☆
P3.21	Triple-speed suppression of action current compensation coefficient	50%~200%	50%	★
P3.22	Action voltage of the over voltage lost speed	650.0V~800.0V	770.0V	★
P3.23	Over voltage lost speed enabled	0: Disabled 1: Enabled	1	★
P3.24	Suppression frequency gain of over voltage lost speed	0~100	30	☆
P3.25	Suppression voltage gain of over voltage lost speed	0~100	30	☆
P3.26	Maximum rising frequency limit of over voltage lost speed	0~50Hz	5Hz	★
Group P4 Input terminal				
P4.00	FWD terminal function selection	0: No function 1: Forward RUN (FWD) 2: Reverse RUN (REV) 3: Three-line control 4: Forward JOG (JOGF) 5: Reverse JOG (JOGR) 6: Terminal UP 7: Terminal DOWN 8: Coast to stop 9: Fault reset (RESET) 10: Run pause 11: Normally open(NO) input of external fault	1	★
P4.01	REV terminal function selection		4	★
P4.02	S1 terminal function selection		9	★
P4.03	S2 terminal function selection		12	★
P4.04	S3 terminal function selection		13	★
P4.05	S4 terminal function selection		0	★
P4.06	Reserved		0	★

P4.07	Reserved	12：Multi-reference terminal 1 13：Multi-reference terminal 2 14：Multi-reference terminal 3 15：Multi-reference terminal 4 16：Terminal 1 for acceleration/deceleration time selection 17：Terminal 2 for acceleration/deceleration time selection 18：Frequency source switchover 19：UP/DOWN setting clear（terminal、operation panel） 20：Command source switchover terminal 21：Acceleration/Deceleration prohibited 22：PID pause 23：PLC status reset 24：Swing pause 25：Counter input 26：Counter reset 27：Length count input 28：Length reset 29：Torque control prohibited 30：PULSE frequency input（Enabled only for S3，above 3.7KW） 31：Reserved 32：Immediate DC braking 33：Normally closed (NC) input of external fault 34：Frequency modification enabled 35：Reverse PID action direction 36：External stop terminal 1 37：Command source switchover terminal 2 38：PID integral pause 39：Switchover between main frequency source X and preset frequency	0	★

		40：Switchover between auxiliary frequency source Y and preset frequency 41~42：Reserved 43：PID parameter switchover 44~45：Reserved 46：Speed control /Torque control switchover 47：Emergency stop 48：External stop terminal 2 49：Deceleration DC braking 50：Clear the current running time 51-59:Reserved		
P4.10	X filter time	0.000s ~ 1.000s	0.010s	☆
P4.11	Terminal command mode	0：Two-line mode 1 1：Two-line mode 2 2：Three-line mode 1 3：Three-line mode 2	0	★
P4.12	Terminal UP/DOWN rate	0.001Hz/s ~ 65.535Hz/s	1.00Hz/s	☆
P4.13	FI curve 1 minimum input	0.00V ~ P4.15	0.00V	☆
P4.14	Corresponding setting of FI curve 1 minimum input	-100.0% ~ +100.0%	0.0%	☆
P4.15	FI curve 1 maximum input	P4.13 ~ +10.00V	10.00V	☆
P4.16	Corresponding setting of FI curve 1 maximum input	-100.0% ~ +100.0%	100.0%	☆
P4.17	FI curve 1 filter time	0.00s ~ 10.00s	0.10s	☆
P4.18	FI curve 2 minimum input	0.00V ~ P4.20	0.00V	☆
P4.19	Corresponding setting of FI curve 2 minimum input	-100.0% ~ +100.0%	0.0%	☆
P4.20	FI curve 2 maximum input	P4.18 ~ +10.00V	10.00V	☆
P4.21	Corresponding setting of FI curve 2 maximum input	-100.0% ~ +100.0%	100.0%	☆
P4.22	FI curve 2 filter time	0.00s ~ 10.00s	0.10s	☆
P4.23	FI curve 3 minimum input	-10.00V ~ P4.25	-10.00V	☆
P4.24	Corresponding setting of FI curve 3 minimum input	-100.0% ~ +100.0%	-100.0%	☆
P4.25	FI curve 3 maximum input	P4.23 ~ +10.00V	10.00V	☆
P4.26	Corresponding setting of FI curve 3 maximum input	-100.0% ~ +100.0%	100.0%	☆
P4.27	FI curve 3 filter time	0.00s ~ 10.00s	0.10s	☆
P4.28	PULSE minimum input	0.00kHz ~ P4.30	0.00kHz	☆
P4.29	Corresponding setting of PULSE minimum input	-100.0% ~ 100.0%	0.0%	☆

P4.30	PULSE maximum input	P4.28 ~ 100.00kHz	50.00kHz	☆
P4.31	Corresponding setting of PULSE maximum input	-100.0% ~ 100.0%	100.0%	☆
P4.32	PULSE filter time	0.00s ~ 10.00s	0.10s	☆
P4.33	FI curve selection	Unit's digit: FIV/Keyboard Potentiometer curve selection 1: Curve 1 (2 points, See P4.13 ~ P4.16) 2: Curve 2 (2 points, See P4.18 ~ P4.21) 3: Curve 3 (2 points, See P4.23 ~ P4.26) 4: Curve 4 (4 points, See C6.00 ~ C6.07) 5: Curve 5 (4 points, See C6.08 ~ C6.15) Ten's digit: FIC/AVI curve selection, Sam as FIV/Keyboard Potentiometer Hundred's digit: Reserved	321	☆
P4.34	Setting selection for FI less than minimum input	Unit's digit: Setting for FIV/Keyboard Potentiometer less than minimum input 0: Corresponds to the minimum input settings 1:0.0% Ten's digit: Setting selection for FIC/AVI less than minimum input (same as FIV/Keyboard Potentiometer)	000	☆
P4.35	FWD delay time	0.0s ~ 3600.0s	0.0s	★
P4.36	REV delay time	0.0s ~ 3600.0s	0.0s	★
P4.37	S1 delay time	0.0s ~ 3600.0s	0.0s	★
P4.38	S terminal valid mode selection 1	0: High level valid 1: Low level valid Unit's digit: FWD Ten's digit: REV Hundred's digit: S1 Thousand's digit: S2 Ten thousand's digit: S3	00000	★
P4.39	S terminal valid mode selection 2	0: High level valid 1: Low level valid Unit's digit: S4 Ten's digit: Reserved Hundred's digit: Reserved	00000	★

		Thousand's digit: Reserved Ten thousand's digit: Reserved		
Group P5 Output terminals				
P5.00	MO1 terminal output mode selection	0: Pulse output (YOP) 1: Switch signal output (YOR)	0	☆
P5.01	YOR output function selection	0: No output 1: AC drive running 2: Fault output (fault stop) 3: Frequency-level detection FDT1 output 4: Frequency reached 5: Zero-speed running(no output at stop) 6: Motor overload pre-warning 7: AC drive overload pre-warning 8: Setting count value Reached 9: Designated count value reached 10: Length reached 11: PLC cycle complete 12: Accumulative running time reached 13: Frequency limited 14: Torque limited 15: Ready for RUN 16: FIV/Keyboard Potentiometer>FIC/AVI 17: Frequency upper limit reached 18: Frequency lower limit reached (Relate to running) 19: Under voltage state output 20: Communication setting 21: (Reserved) 22: (Reserved) 23: Zero-speed running 2 (having output at stop) 24: Accumulative power-on time reached 25: Frequency level detection FDT2 output 26: Frequency 1 reached	0	☆
P5.02	Relay function selection on control board (RA-RB-RC/RB-RC)		2	☆
P5.03	Relay function selection (TA-TC)		0	☆
P5.04	Reserved		1	☆
P5.05	Reserved		4	☆

		output 27：Frequency 2 reached output 28：Current 1 reached output 29：Current 2 reached output 30：Timing reached output 31：FIV/Keyboard Potentiometer input limit exceeded 32：Load becoming 0 33：Reverse running 34：Zero current state 35：Module temperature reached 36：Output current limit exceeded 37：Frequency lower limit reached (having output at stop) 38：Alarm output(Keep running) 40：Current running time reached 41：Fault		
P5.06	YOP output function selection	0：Running frequency 1：Setting frequency 2：Output current 3：Output torque 4：Output power 5：Output voltage 6：PULSE input（100.% corresponding to 100.0kHz） 7：FIV/Keyboard Potentiometer 8：FIC/AVI 9：Reserved 10：Length 11：Count value 12：Communication setting 13：Motor rotational speed 14：Output current（100.0% corresponding to 1000.0A） 15：Output voltage（100.0%	0	☆
P5.07	FOV output function selection（above 3.7KW）		0	☆
P5.08	FOC output function selection（above 7.5KW）		1	☆

		corresponding to 1000.0V) 16: Motor output torque (Actual value, corresponding to the motor percentage)		
P5.09	YOP output maximum frequency	0.01kHz ~ 100.00kHz	50.00kHz	☆
P5.10	FOV bias coefficient	-100.0% ~ +100.0%	0.0%	☆
P5.11	FOV gain	-10.00 ~ +10.00	1.00	☆
P5.12	FOC bias coefficient	-100.0% ~ +100.0%	0.0%	☆
P5.13	FOC gain	-10.00 ~ +10.00	1.00	☆
P5.17	YOR output delay time	0.0s ~ 3600.0s	0.0s	☆
P5.18	RA-RB-RC/RB-RC output delay time	0.0s ~ 3600.0s	0.0s	☆
P5.19	TA-TC output delay time	0.0s ~ 3600.0s	0.0s	☆
P5.20	Reserved	0.0s ~ 3600.0s	0.0s	☆
P5.21	Reserved	0.0s ~ 3600.0s	0.0s	☆
P5.22	Output terminal valid mode selection	0: Positive logic 1: Negative logic Unit's digit: YOR Ten's digit: RA-RB-RC/RB-RC Hundred's digit: TA-TC	00000	☆
Group P6 Start/Stop parameter				
P6.00	Start mode	0: Direct start 1: Rotational speed tracking restart 2: Pre-excited start (AC asynchronous motor) 3: SVC quick start	0	☆
P6.01	Rotational speed tracking mode	0: Start from the stop frequency 1: Start from 0 2: Start from maximum frequency	0	★
P6.02	Rotational speed tracking	1 ~ 100	20	☆
P6.03	Startup frequency	0.00Hz ~ 10.00Hz	0.00Hz	☆
P6.04	Startup frequency holding time	0.0s ~ 100.0s	0.0s	★
P6.05	Startup DC braking current/Pre-excited current	0% ~ 100%	0%	★
P6.06	Startup DC braking time/Pre-excited time	0.0s ~ 100.0s	0.0s	★
P6.07	Acceleration/Deceleration	0: Straight-line	0	★

	mode	acceleration/deceleration 1：S curve acceleration/deceleration A 2：Dynamic S curve acceleration/deceleration		
P6.08	S curve of beginning segment time proportional	0.0% ~ （100.0%-P6.09）	30.0%	★
P6.09	S curve of end segment time proportional	0.0% ~ （100.0%-P6.08）	30.0%	★
P6.10	Stop mode	0：Deceleration to stop 1：Coast to stop	0	☆
P6.11	Initial frequency of stop DC braking	0.00Hz ~ maximum frequency	0.00Hz	☆
P6.12	Waiting time of stop DC braking	0.0s ~ 100.0s	0.0s	☆
P6.13	Stop DC braking current	0% ~ 100%	0%	☆
P6.14	Stop DC braking time	0.0s ~ 100.0s	0.0s	☆
P6.15	Brake use rate	0% ~ 100%	100%	☆
P6.18	Rotational speed tracking current	30%~200%	Model dependent	★
P6.21	Demagnetization time（Valid for SVC）	0.00~5.00s	Model dependent	☆
P6.23	Over-excitation selection	0：Not effective 1：Effective only when deceleration 2：Effective always	0	☆
P6.24	Over-excitation suppression current value	0~150%	100%	☆
P6.25	Over-excitation gain	1.00~2.50	1.25	☆
Group P7 Operation display and Display				
P7.01	JOG function parameter	0：No function 1：Switchover between operation panel command and remote operation command. It indicates the switchover between the current command source and operation panel control （local operation）. If the current command source is operation panel control, the key is invalid. 2：Switchover between forward and reverse through JOG, it	0	★

		only valid when command source is operation panel channel. 3：Forward Jog （JOG-FWD） 4：Reverse Jog（JOG-REV）		
P7.02	STOP/RESET key function	0：STOP/RESET key enabled only in operation panel control 1：STOP/RESET key enabled in any operation mode	1	☆
P7.03	LED display running parameter 1	0000～FFFF Bit00: Running frequency 1（Hz） Bit01: Setting frequency（Hz） Bit02: Bus voltage（V） Bit03: Output voltage（V） Bit04: Output current（A） Bit05: Output power（kW） Bit06: Output torque（%） Bit07: S input status Bit08: MO1 output status Bit09: FIV/Keyboard Potentiometer voltage（V） Bit10: FIC/AVI Voltage（V） Bit11: Reserved Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID setting	1F	☆
P7.04	LED display running parameter 2	0000～FFFF Bit00: PID feedback Bit01: PLC stage Bit02: Pulse input frequency(kHz) Bit03: Running frequency 2 (Hz) Bit04: Remaining running time Bit05：FIV/Keyboard Potentiometer voltage before correction（V） Bit06: FIC/AVI voltage before correction (V) Bit07: Reserved Bit08：Motor rotational speed	0	☆

		Bit09：Current power-on time(Hour) Bit10: Current running time (Min) Bit11: Pulse input frequency(Hz) Bit12: Communication setting value Bit13：Speed feedback of Encoder(Hz) Bit14: Main frequency X display(Hz) Bit15:Auxiliary frequency Y display (Hz)		
P7.05	LED display stop parameter	0000 ~ FFFF Bit00: Set frequency (Hz) Bit01: Bus voltage (V) Bit02: S input status Bit03: MO1 output status Bit04: FIV/Keyboard Potentiometer voltage(V) Bit05: FIC/AVI voltage（V） Bit07: Count value Bit08: Length value Bit09: PLC stage Bit10: Load speed Bit11: PID setting Bit12: Pulse input frequency(kHz)	33	☆
P7.06	Load speed display coeffcient	0.0001 ~ 6.5000	1.0000	☆
P7.07	Heatsink temperature of inverter IGBT	0.0℃ ~ 120.0℃	-	●
Group P8 Auxiliary Functions				
P8.00	JOG running frequency	0.00Hz ~ maximum frequency	2.00Hz	☆
P8.01	JOG acceleration time	0.0s ~ 6500.0s	20.0s	☆
P8.02	JOG deceleration time	0.0s ~ 6500.0s	20.0s	☆
P8.03	Acceleration time 2	0.00s ~ 65000s	Model dependent	☆
P8.04	deceleration time 2	0.0s ~ 65000s	Model dependent	☆
P8.05	Acceleration time 3	0.0s ~ 65000s	Model dependent	☆
P8.06	deceleration time 3	0.0s ~ 65000s	Model	☆

			dependent	
P8.07	Acceleration time 4	0.0s ~ 65000s	Model dependent	☆
P8.08	deceleration time 4	0.0s ~ 65000s	Model dependent	☆
P8.09	Jump frequency 1	0.00Hz ~ maximum frequency	1.00Hz	☆
P8.10	Jump frequency 2	0.00Hz ~ maximum frequency	0.00Hz	☆
P8.11	Frequency jump amplitude	0.00Hz ~ maximum frequency	0.01Hz	☆
P8.12	Forward/Reverse rotation dead-zone time	0.0s ~ 3000.0s	0.0s	☆
P8.13	Reverse control	0：Enabled 1：Disabled	0	☆
P8.14	Running mode when set frequency lower than frequency lower limit	0：Run at frequency lower limit 1：Stop 2：Run at zero speed	0	☆
P8.15	Droop control	0.00Hz ~ 10.00Hz	0.00Hz	☆
P8.16	Accumulative power-on time threshold setting	0h ~ 65000h	0h	☆
P8.17	Accumulative running time threshold setting	0h ~ 65000h	0h	☆
P8.18	Startup protection	0：No protect 1：Protect	0	☆
P8.19	Frequency detection value（FDT1）	0.00Hz ~ maximum frequency	50.00Hz	☆
P8.20	Frequency detection hysteresis（FDT1）	0.0% ~ 100.0%（FDT1 level）	5.0%	☆
P8.21	Detection range of frequency reached	0.0% ~ 100.0%（maximum frequency）	0.0%	☆
P8.22	Jump frequency during the process of acceleration/deceleration	0：Disabled 1：Enabled	0	☆
P8.25	Frequency switchover point between acceleration time 1 and acceleration time 2	0.00Hz ~ maximum frequency	0.00Hz	☆
P8.26	Frequency switchover point between deceleration time 1 and deceleration time 2	0.00Hz ~ maximum frequency	0.00Hz	☆
P8.27	Terminal JOG preferred	0：Disabled 1：Enabled	0	☆
P8.28	Frequency detection value（FDT2）	0.00Hz ~ maximum frequency	50.00Hz	☆
P8.29	Frequency detection hysteresis（FDT2）	0.0% ~ 100.0%（FDT2 level）	5.0%	☆

P8.30	Any frequency reaching detection value 1	0.00Hz ~ maximum frequency	50.00Hz	☆
P8.31	Any frequency reaching detection amplitude 1	0.0% ~ 100.0%（maximum frequency）	0.0%	☆
P8.32	Any frequency reaching detection value 2	0.00Hz ~ maximum frequency	50.00Hz	☆
P8.33	Any frequency reaching detection amplitude 2	0.0% ~ 100.0%（maximum frequency）	0.0%	☆
P8.34	Zero current detection level	0.0% ~ 300.0% 100.0% corresponding to rated motor current	5.0%	☆
P8.35	Zero current detection delay time	0.01s ~ 600.00s	0.10s	☆
P8.36	Output over-current threshold	0.0%（no detection） 0.1% ~ 300.0%（rated motor current）	200.0%	☆
P8.37	Output over-current detection delay time	0.00s ~ 600.00s	0.00s	☆
P8.38	Any current reaching 1	0.0% ~ 300.0%（rated motor current）	100.0%	☆
P8.39	Any current reaching 1 amplitude	0.0% ~ 300.0%（rated motor current）	0.0%	☆
P8.40	Any current reaching 2	0.0% ~ 300.0%（rated motor current）	100.0%	☆
P8.41	Any current reaching 2 amplitude	0.0% ~ 300.0%（rated motor current）	0.0%	☆
P8.42	Timing function selection	0:Disabled 1:Enabled	0	☆
P8.43	Timing duration source	0：P8.44 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 100% of analog input corresponds to the value of P8.44	0	☆
P8.44	Timing duration	0.0Min ~ 6500.0Min	0.0Min	☆
P8.45	FIV/Keyboard Potentiometer input voltage lower limit protection value	0.00V ~ P8.46	3.10V	☆
P8.46	FIV/Keyboard Potentiometer input voltage upper limit protection value	P8.45 ~ 10.00V	6.80V	☆

P8.47	Module temperature threshold	0℃ ~ 100℃	75℃	☆
P8.48	Cooling fan control	0：Fan working during running 1：Fan working continuously	0	☆
P8.49	Wakeup frequency	Dormant frequency（P8.51）~ maximum frequency（P0.10）	0.00Hz	☆
P8.50	Wakeup delay time	0.0s ~ 6500.0s	0.0s	☆
P8.51	Dormant frequency	0.00Hz ~ wakeup frequency（P8.49）	0.00Hz	☆
P8.52	Dormant delay time	0.0s ~ 6500.0s	0.0s	☆
P8.53	Current running time reached	0.0Min ~ 6500.0Min	0.0Min	☆
P8.54	Output power correction coefficient	0~200%	100%	☆
P8.55	Emergency deceleration time	0~6553.5s	Model dependent	☆
Group P9: Fault and Protection				
P9.00	Motor overload protection selection	0：Disabled 1：Enabled	1	☆
P9.01	Motor overload protection gain	0.20 ~ 10.00	1.00	☆
P9.02	Motor overload warning coefficient	50% ~ 100%	80%	☆
P9.03	Over voltage stall gain	0 ~ 100	30	☆
P9.04	Protection voltage of over voltage stall	120% ~ 150%	130%	☆
P9.07	Short-circuit to ground upon power on	0：Disabled 1：Enabled	1	☆
P9.09	Fault auto reset times	0 ~ 20	0	☆
P9.10	MO1 action selection during fault auto reset	0：No act 1：Act	0	☆
P9.11	Time interval of fault auto reset	0.1s ~ 100.0s	1.0s	☆
P9.12	Input phase lost/contactor suction protection selection	Unit’s digit: Input phase lost protection Ten’s digit: contactor suction protection 0: disabled 1: enabled	00	☆
P9.13	Output phase loss protection selection	0：Disabled 1：Enabled Unit’s digit: output phase loss protection	1	☆

		Ten’s digit: output phase loss protection before running		
P9.14	1st fault type	0: No fault 1: Reserved 2: Over-current during acceleration 3: Over-current during deceleration 4: Over-current at constant speed 5: Over-voltage during acceleration 6: Over-voltage during deceleration 7: Over-voltage at constant speed 8: Over-load of butter resistance 9: Under voltage 10:AC drive overload 11: Motor overload 12: Input Phase lost	–	●
P9.15	2nd fault type	13: Power output phase loss 14: Module overheat 15: External equipment fault 16: Communication fault 17: Contactor fault 18: Current detection fault 19: Motor auto-tuning fault 20: Encoder/PG card fault 21: Parameters read-write fault 22: AC drive hardware fault 23: Short circuit to ground 24: Reserved 25: Reserved	–	●
P9.16	3rd (latest) fault type	26:Running time reached 27: User-defined fault 1 28: User-defined fault 2 29: Power-on time reached 30: Load becoming 0 31: PID feedback lost during running 40: Fast limit overtime	–	●

		41: Switchover motor when running 42: Speed deviation too large 43：Motor over speed 45：Motor over temperature 51：Initial position fault		
Group PA PID function				
PA.00	PID setting source	0：PA.01 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 4：PULSE（S3） 5：Communication setting 6：Multi-reference	0	☆
PA.01	PID digit setting	0.0% ~ 100.0%	50.0%	☆
PA.02	PID feedback source	0：FIV/Keyboard Potentiometer 1：FIC/AVI 2：Reserved 3：FIV/Keyboard Potentiometer-FIC/AVI 4：PULSE（S3） 5：Communication setting 6：FIV/Keyboard Potentiometer+FIC/AVI 7：MAX（|FIV/Keyboard Potentiometer|, |FIC/AVI|） 8：MIN（|FIV/Keyboard Potentiometer|, |FIC/AVI|）	0	☆
PA.03	PID action direction	0：Forward action 1：Reverse action	0	☆
PA.04	PID setting feedback range	0 ~ 65535	1000	☆
PA.05	Proportional gain Kp1	0.0 ~ 100.0	20.0	☆
PA.06	Integral time Ti1	0.01s ~ 10.00s	2.00s	☆
PA.07	Differential time Td1	0.000s ~ 10.000s	0.000s	☆
PA.08	Cut-off frequency of PID reverse rotation	0.00 ~ maximum frequency	2.00Hz	☆
PA.09	PID deviation limit	0.0% ~ 100.0%	0.0%	☆
PA.10	PID differential limit	0.00% ~ 100.00%	0.10%	☆
PA.11	PID setting change time	0.00 ~ 650.00s	0.00s	☆
PA.12	PID feedback filter time	0.00 ~ 60.00s	0.00s	☆
PA.13	PID output filter time	0.00 ~ 60.00s	0.00s	☆

PA.14	Reserved	-	-	☆
PA.15	Proportional gain KP1	0.0 ~ 100.0	20.0	☆
PA.16	Integral time Ti2	0.01s ~ 10.00s	2.00s	☆
PA.17	Differential time Td2	0.000s ~ 10.000s	0.000s	☆
PA.18	PID parameter switchover condition	0: No switchover 1: Switchover via S terminal 2: Automatic switchover based on deviation 3: Automatic switchover based on running frequency	0	☆
PA.19	PID parameter switchover deviation 1	0.0% ~ PA.20	20.0%	☆
PA.20	PID parameter switchover deviation 2	PA.19 ~ 100.0%	80.0%	☆
PA.21	PID initial value	0.0% ~ 100.0%	0.0%	☆
PA.22	PID initial value holding time	0.00 ~ 650.00s	0.00s	☆
PA.25	PID integral property	Unit's digit: Integral separated 0: Invalid 1: Valid Ten's digit: Whether to stop integral operation when the output reaches 0: Continue integral operation 1: Stop integral operation	00	☆
PA.26	Detection value of PID feedback loss	0.0%: Not judging feedback loss 0.1% ~ 100.0%	0.0%	☆
PA.27	Detection time of PID feedback loss	0.0s ~ 20.0s	0.0s	☆
PA.28	PID operation at stop	0: No PID operation at stop 1: PID operation at stop	0	☆
Group PC Multi-Reference and Simple PLC Function				
PC.00	Multi-Reference 0	-100.0% ~ 100.0%	0.0%	☆
PC.01	Multi-Reference 1	-100.0% ~ 100.0%	0.0%	☆
PC.02	Multi-Reference 2	-100.0% ~ 100.0%	0.0%	☆
PC.03	Multi-Reference 3	-100.0% ~ 100.0%	0.0%	☆
PC.04	Multi-Reference 4	-100.0% ~ 100.0%	0.0%	☆
PC.05	Multi-Reference 5	-100.0% ~ 100.0%	0.0%	☆
PC.06	Multi-Reference 6	-100.0% ~ 100.0%	0.0%	☆
PC.07	Multi-Reference 7	-100.0% ~ 100.0%	0.0%	☆
PC.08	Multi-Reference 8	-100.0% ~ 100.0%	0.0%	☆
PC.09	Multi-Reference 9	-100.0% ~ 100.0%	0.0%	☆

PC.10	Multi-Reference 10	-100.0% ~ 100.0%	0.0%	☆
PC.11	Multi-Reference 11	-100.0% ~ 100.0%	0.0%	☆
PC.12	Multi-Reference 12	-100.0% ~ 100.0%	0.0%	☆
PC.13	Multi-Reference 13	-100.0% ~ 100.0%	0.0%	☆
PC.14	Multi-Reference 14	-100.0% ~ 100.0%	0.0%	☆
PC.15	Multi-Reference 15	-100.0% ~ 100.0%	0.0%	☆
PC.16	Simple PLC running mode	0：Stop after the AC drive runs one cycle 1：Keep final values after the AC drive runs one cycle 2：Repeat after the AC drive runs one cycle	0	☆
PC.17	Simple PLC retentive selection	Unit's digit: Retentive upon power failure 0：No 1：Yes Ten's digit: Retentive upon stop 0：No 1：Yes	00	☆
PC.18	Running time of simple PLC reference 0	0.0s（h） ~ 6500.0s（h）	0.0s（h）	☆
PC.19	Acceleration/deceleration time of simple PLC reference 0	0 ~ 3	0	☆
PC.20	Running time of simple PLC reference 1	0.0s（h） ~ 6500.0s（h）	0.0s（h）	☆
PC.21	Acceleration/deceleration time of simple PLC reference 1	0 ~ 3	0	☆
PC.22	Running time of simple PLC reference 2	0.0s（h） ~ 6500.0s（h）	0.0s（h）	☆
PC.23	Acceleration/deceleration time of simple PLC reference 2	0 ~ 3	0	☆
PC.24	Running time of simple PLC reference 3	0.0s（h） ~ 6500.0s（h）	0.0s（h）	☆
PC.25	Acceleration/deceleration time of simple PLC reference 3	0 ~ 3	0	☆
PC.26	Running time of simple PLC reference 4	0.0s（h） ~ 6500.0s（h）	0.0s（h）	☆
PC.27	Acceleration/deceleration time of simple PLC	0 ~ 3	0	☆

	reference 4			
PC.28	Running time of simple PLC reference 5	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.29	Acceleration/deceleration time of simple PLC reference 5	0 ~ 3	0	☆
PC.30	Running time of simple PLC reference 6	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.31	Acceleration/deceleration time of simple PLC reference 6	0 ~ 3	0	☆
PC.32	Running time of simple PLC reference 7	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.33	Acceleration/deceleration time of simple PLC reference 7	0 ~ 3	0	☆
PC.34	Running time of simple PLC reference 8	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.35	Acceleration/deceleration time of simple PLC reference 8	0 ~ 3	0	☆
PC.36	Running time of simple PLC reference 9	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.37	Acceleration/deceleration time of simple PLC reference 9	0 ~ 3	0	☆
PC.38	Running time of simple PLC reference 10	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.39	Acceleration/deceleration time of simple PLC reference 10	0 ~ 3	0	☆
PC.40	Running time of simple PLC reference 11	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.41	Acceleration/deceleration time of simple PLC reference 11	0 ~ 3	0	☆
PC.42	Running time of simple PLC reference 12	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.43	Acceleration/deceleration time of simple PLC reference 12	0 ~ 3	0	☆
PC.44	Running time of simple PLC reference 13	0.0s（h）~6500.0s（h）	0.0s（h）	☆
PC.45	Acceleration/deceleration	0 ~ 3	0	☆

	time of simple PLC reference 13			
PC.46	Running time of simple PLC reference 14	0.0s（h） ~ 6500.0s（h）	0.0s（h）	☆
PC.47	Acceleration/deceleration time of simple PLC reference 14	0 ~ 3	0	☆
PC.48	Running time of simple PLC reference 15	0.0s（h） ~ 6500.0s（h）	0.0s（h）	☆
PC.49	Acceleration/deceleration time of simple PLC reference 15	0 ~ 3	0	☆
PC.50	Time unit of simple PLC running	0：s（second） 1：h（hour）	0	☆
PC.51	Reference 0 source	0：Set by PC.00 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 4：PULSE 5：PID 6：Set by preset frequency（P0.08），UP/DOWN can be modified	0	☆
Group PD: Communication Parameters				
PD.00	Baud rate	Unit's digit：MODBUS 0：300BPS 1：600BPS 2：1200BPS 3：2400BPS 4：4800BPS 5：9600BPS 6：19200BPS 7：38400BPS 8：57600BPS 9：115200BPS Ten's digit: Reserved Hundred's digit: Reserved Thousand's digit: Reserved	0005	☆
PD.01	Data format	0：No check, <8-N-2> 1：Even parity check, <8-E-1> 2：Odd Parity check, <8-O-1> 3：8-N-1	3	☆
PD.02	Local address	1 ~ 247	1	☆

PD.03	Response delay	0ms ~ 20ms	2	☆
PD.04	Communication timeout	0.0（Invalid），0.1s ~ 60.0s	0.0	☆
PD.05	Data transfer format selection	Unit's digit：MODBUS 0：Non-standard MODBUS protocol 1： Standard MODBUS protocol Ten's digit： Reserved	1	☆
PD.06	Communication reading current resolution	0：0.01A 1：0.1A	0	☆
Group PP: User-Defined Function Codes				
PP.00	User password	0 ~ 65535	0	☆
PP.01	Parameter Initialization	0：No operation 01：Restore factory settings except motor parameters	0	★
Group C0 Torque control parameter				
C0.00	Speed/Torque control mode selection	0：Speed control 1：Torque control	0	★
C0.01	Torque setting source selection in torque control mode	0：Digital setting 1（C0.03） 1：FIV/Keyboard Potentiometer 2：FIC/AVI 3：Reserved 4：PULSE 5：Communication setting 6：MIN（FIV/Keyboard Potentiometer,FIC/AVI） 7：MAX（FIV/Keyboard Potentiometer,FIC/AVI） （The full range of 1-7 corresponding to the digit setting of C0.03）	0	★
C0.03	Torque digit setting in torque control	-200.0% ~ 200.0%	150.0%	☆
C0.05	Forward maximum frequency in torque control	0.00Hz ~ maximum frequency	50.00Hz	☆
C0.06	Reverse maximum frequency in torque control	0.00Hz ~ maximum frequency	50.00Hz	☆
C0.07	Acceleration time in torque control	0.00s ~ 65000s	0.00s	☆
C0.08	Deceleration time in torque control	0.00s ~ 65000s	0.00s	☆

Group C5 Control optimization parameters				
C5.00	DPWM switchover frequency upper limit	0.00Hz ~ maximum frequency	8.00Hz	☆
C5.01	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	☆
C5.02	Dead zone compensation mode selection	0: No compensation 1: Compensation mode 1	1	☆
C5.03	Random PWM depth	0: Random PWM invalid 1 ~ 10: PWM carrier frequency random depth	0	☆
C5.04	Rapid current limit	0: Disabled 1: Enabled	1	☆
C5.05	Voltage over modulation coefficient	100 ~ 110	105	☆
C5.06	Under voltage threshold setting	210.0V ~ 420.0V	Model dependent	☆
C5.08	Dead zone time adjustment	100% ~ 200%	150%	☆
C5.09	Over voltage threshold setting	200.0V ~ 2500.0V	Model dependent	

3-2 Monitoring parameters

Function Code	Parameter Name	Unit
Group D0 Basic monitoring parameters		
D0.00	Running frequency（Hz）	0.01Hz
D0.01	Set frequency（Hz）	0.01Hz
D0.02	Bus voltage（V）	0.1V
D0.03	Output voltage（V）	1V
D0.04	Output current（A）	0.01A
D0.05	Output power（kW）	0.1kW
D0.06	Output torque（%）	0.1%
D0.07	S input status	1
D0.08	MO1 output status	1
D0.09	FIV/Keyboard Potentiometer Voltage（V）	0.01V
D0.10	FIC/AVI Voltage（V）	0.01V
D0.11	Reserved	
D0.12	Count value	1
D0.13	Length value	1

D0.14	Load speed display	1
D0.15	PID setting	1
D0.16	PID feedback	1
D0.17	PLC stage	1
D0.18	PULSE input pulse frequency（kHz）	0.01kHz
D0.19	Reserved	
D0.20	Remaining running time	0.1Min
D0.21	FIV/Keyboard Potentiometer voltage before correction	0.001V
D0.22	FIC/AVI voltage before correction	0.001V
D0.23	Reserved	
D0.24	Linear speed	1m/Min
D0.25	On the current power-on time	1Min
D0.26	The current running time	0.1Min
D0.27	Input pulse frequency	1Hz
D0.28	Communication setting value	0.01%
D0.29	Reserved	
D0.30	Reserved	
D0.31	Auxiliary frequency Y display	0.01Hz
D0.32	View any memory address values	1
D0.33	Reserved	
D0.34	Motor temperature value	1℃
D0.35	Target torque （%）	0.1%
D0.36	Reserved	1
D0.37	Power factor angle	0.1°
D0.38	Reserved	1
D0.39	Target voltage upon V/F separation	1V
D0.40	Output voltage upon V/F separation	1V
D0.45	Fault info	0
D0.58	Z signal counter	1
D0.59	Set frequency （%）	0.01%
D0.60	Running frequency （%）	0.01%
D0.61	AC drive status	1
D0.74	AC drive output torque	0.1
D0.76	Accumulative power consumption low level	0.1 ℃
D0.77	Accumulative power consumption	1℃

	high level	
D0.78	Linear speed	1m/min

3-3 Fault code list

Fault code	Name	Fault code	Name
OC1	Over current during acceleration	CE	Communication fault
OC2	Over current during deceleration	rAY	Contactor fault
OC3	Over current during constant speed	IE	Current detection fault
OU1	Over voltage during acceleration	TE	Motor auto-tuning fault
OU2	Over voltage during deceleration	PG	Encoder fault
OU3	Over voltage during constant speed	EEP	EEPROM read-write fault
POF	Control power fault	GND	Short circuit to ground fault
LU	Under voltage fault	END1	Accumulative running time reached fault
OL2	AC drive over load	END2	Accumulative power on time reached fault
OL1	Motor over load	LOAD	Load becoming 0 fault
LI	Input phase loss	PIDE	PID feedback lost during running fault
LO	Output phase loss	CBC	Rapid current limit fault
OH	Module over heat	ESP	Speed deviation too large fault
EF	External equipment fault	OSP	Motor over speed fault

Appendix 2 Communication protocol

NZ200 series inverter provides RS232 /RS485 communication interface, and support the Modbus communication protocol. Users can be achieved by computing machine or PLC central control through the communication protocol set inverter running commands，modify or read function code parameters, read the inverter working condition and fault information, etc.

1：The agreement content

The serial communication protocol defines the serial communication transmission of information content and format. Including: host polling or wide planting format; Host encoding method, the content includes: the function of the required action code, data transmission and error checking, etc. From the ring of machine should be used is the same structure, content including: action confirmation, return the data and error checking, etc. If there was an error in receiving information from a machine, or cannot achieve the requirements of the host, it will organize a fault feedback information in response to the host.

2：Application methods

Application mode inverter with RS232 /RS485 bus access to the "from" single main PC/PLC control network.

3：Bus structure

(1) The interface way RS232/RS485 interface hardware

(2) Asynchronous serial transmission mode, half-duplex transmission mode. At the same time the host and the only one to send data from the machine and the other can only receive data. Data in the process of serial asynchronous communication, the form of a message, a frame of a frame to send

(3) Topological structure from single host machine system. From the machine address set in the range of 1~ 247, 0 for broad cast communication address. In the network from the machine address must be unique.

4：Protocol description

NZ200 series inverter is a kind of asynchronous serial port communication protocol of master-slave Modbus communication protocol, the network has only one equipment (host) to establish agreement (called "query/command"). Other equipment (machine)can only by providing data response of the main machine "query/command" ,or "query/command" according to the host to make the corresponding action. Host in this refers to the personal computer (PC), industrial control equipment or programmable logic controller (PLC), etc., from machine refers to NZ200 inverter. The host can communicate to a separate from the machine, also can to all under a broadcast information from machine release. For access to the host alone "query/command", from the machine to return to a information (called response), for radio host information, from the machine without feedback response to the host.

5：Communications data structure

Communication data structure NZ200 series inverter of the Modbus protocol communication data

format is as follows: using the RTU mode, messages are sent at least begin with 3.5 characters pause time interval.

In network wave rate under varied characters of the time, this is the most easy to implement (below T1, T2, T3, T4). Transmission equipment is the first domain address.

The transmission character of you can use is the hex 0...9.A...F. Continuously detect network bus network facilities, including pause interval of time. When the first domain (domain) to receive, every equipment decoding to determine whether to own. After the last transmission character, a pause at least 3.5 characters time calibration for the end of the message. A new message can be started after the pause.

The entire message frame must be as a continuous flow of transmission. If the time frame to complete more than 1.5 characters before pause time, receiving equipment will refresh incomplete message and assume that the next byte is a new message the address of the domain. Likewise, if a new message in less than 3.5 characters of time and then a message before, receiving equipment will think it is a continuation of the previous message. This will result in an error, because in the final CRC field value can't be right. RTU frame format:

The frame header START	3.5 characters
Slave address ADR	Communication address：1-247
Command code CMD	03：Read the machine parameters 06：Write the machine parameters
Data content DATA(N-1)	Information content: Function code parameter address, function code number of parameters function code parameter values, etc
Data content DATA(N-2)	
……	
Data content DATA0	
High-order position of CRC CHK	Estimated value：CRC value
Low-order position of CRC CHK	
END	3.5 characters' time

CMD (Command instruction) and DATA (the description of data word) command code:03H, read N word (Word) (Can read the most words of 12)

For example, from the machine address of 01 inverter startup F105 continuous read for two consecutive values.

The host command information

ADR	01H
CMD	03H
High-order position of the starting address	F1H
Low-order position of the starting address	05H
High-order position of register	00H
Low-order position of register	02H
Low-order position of CRC CHK	Wait to calculate the CRC CHK values
High-order position of CRC CHK	

In response to information from the slave machine

Set PD.05 to 0:

ADR	01H

CMD	03H
High-order position of bytes	00H
Low-order position of bytes	04H
Data high-order position of F002H	00H
Data low-order position of F002H	00H
Data high-order position of F003H	00H
Data low-order position of F003H	01H
Low-order position of CRC CHK	Wait to calculate the CRC CHK values
High-order position of CRC CHK	

Set PD.05 to 1：

ADR	01H
CMD	03H
The number of bytes	04H
Data high-order position of F002H	00H
Data low-order position of F002H	00H
Data high-order position of F003H	00H
Data low-order position of F003H	01H
Low-order position of CRC CHK	Wait to calculate the CRC CHK values
High-order position of CRC CHK	

The command code: 06H write a word (Word)

For example, write000 (BB8H) to slave machine. Address 05Hinverter's F00AH address.

The host command information

ADR	05H
CMD	06H
High-order position of data address	F0H
Low-order position of data address	0AH
High-order position of information content	0BH
Low-order position of information content	B8H
Low-order position of CRC CHK	Wait to calculate the CRC CHK values
High-order position of CRC CHK	

In response to information from the slave machine

ADR	02H
CMD	06H
High-order position of data address	F0H
Low-order position of data address	0AH
High-order position of information content	13H
Low-order position of information content	88H
Low-order position of CRC CHK	Wait to calculate the CRC CHK values
High-order position of CRC CHK	

CRC Check way: CRC (Cyclical Redundancy Check) Check way-use RTU frame format, the message includes error detection field based on the method of CRC. CRC domain test the whole content of a message. CRC domain is two bytes, contains a 16-bit binaryvalues.it is calculated by the transmission equipment, added to the message. receive messages the device recalculate. And

compared with receives the CRC in the domain of value, if the two CRC value is not equal, then there is an error in transmission.

CRC is saved in 0xFFFF, then call a process to continuous 8-bit bytes of the message and the values in the current register for processing. Only 8 bit data in each character of CRC is effective, Starting bit and stopping bit and parity bits are invalid.

In the process of CRC, each of the eight characters are separate and dissimilar or register contents (XOR), The results move to the least significant bit direction, set the most significant bit to 0. LSB is extracted to test, if set LSB to 1, Register and preset value dissimilarity or alone, if set LSB to 0, is not to. The whole process will repeat 8 times. when the last time (the eighth time) is completed, next 8-bitbytes and separate and register under the current value of the alien or. The values in the final register, Is all bytes in the message is executed after the CRC value.

When CRC added to the messages. The low byte to join first and then high byte. CRC Simple function is as follows:

```
unsigned int crc_cal_value(unsigned char *data_value, unsigned char data_length)
{
Int i;
Unsigned int crc_value=0xffff;
While(data_length--)
{
Crc_value^=*data_value++;
For(i=0; i<8; i++)
{
If (crc_value&0x0001)
Crc_value=(crc_value>>1)^0xa001;
   Else
Crc_value=crc_value>>1;
}
}
Return(crc_value);
}
```

Address definition of communication parameters

This part is the content of the communication, used to control the operation of the inverter, inverter status and related parameters setting. Read and write functional code parameter (some function code which cannot be changed, only for the use of manufacturers or monitoring): function code parameter address label rules: By function block number and the label for the parameter address representation rules. High byte:F0~FF(P group),A0~AF(C group),70~7F(D group)low byte:00-FF

Such as: P3.12, The address is expressed as F30C; attention: PF group: Neither read the parameters, and do not change parameters; Group D group: only can read, do not change the parameters.

When some parameters in inverter is in operation, do not change, Some parameters of the inverter in any state, cannot be changed; Change function code parameters, but also pay attention to the range of parameters, units, and related instructions.

In addition, because the EEPROM is stored frequently, the service life of the block can reduce the life of the block EPROM, so some function code under the mode of communication, do not need to be stored, just change the value of RAM. If it is P group of parameters, in order to realize the function, as long as putting this function code address high F into 0 can be achieved. If it is C group of parameters, in order to realize the function, as long as putting the function code the address of high A into 4 can be achieved Corresponding function codes are shown as the following address: the high byte:00~0F (P group),40~4F (group B) low byte: 00 to FF.

Such as:

Function code P3.12 is not stored in the EEPROM, the address is expressed as 030C; Function code C0-05 is not stored in the EEPROM, the address is expressed as 4005; The address representation can only do writing RAM, can't do reading action, when reading, it is invalid address. For all the parameters, can also use the command code 7H to implement this function.

Stopping /starting parameters:

Stopping/starting parameters：

Parameter address	Parameter description
1000	Communication Setting value (-10000~10000) (decimal System)
1001	Operating frequency
1002	Bus voltage
1003	Output voltage
1004	Current output
1005	Output power
1006	Output torque
1007	Running velocity
1008	S input flag
1009	M01 output flag
100A	FIV/Keyboard Potentiometer voltage
100B	FIC/AVI voltage
100C	Reserved
100D	Count value input
100E	The length of the input
100F	The load speed
1010	PID setting
1011	PID feedback
1012	PLC steps
1013	PULSE the input pulse frequency, unit 0.01kHz
1014	Reserved
1015	The remaining running time
1016	FIV/Keyboard Potentiometer before correction voltage
1017	FIC/AVI before correction voltage
1018	Reserved
1019	Linear velocity
101A	The current access to electricity time

101B	The current running time
101C	PULSE input pulse frequency，unit 1Hz
101D	Communication setting value
101E	Reserved
101F	The main frequency X show
1020	The main frequency Y show

Attention：

Communication setting value is relative percentage, 10000 corresponds to 100.00% and -10000-100.00%. The frequency of dimensional data, the percentage is relative to the percentage of maximum frequency (P0.12); Counter rotating torque dimensional data, the percentage is P2.10.

Control command input to the inverter:(write-only)

The command word address	Command function
2000	0001：Running forward
	0002：Reserve running
	0003：Normal inching turning
	0004：Reversal point move
	0005：Free downtime
	0006：Slowing down
	0007：Failure reset

Read the inverter state: (read-only)

Status word address	Status word function
3000	0001：Running forward
	0002：Reserve running
	0003：Closing down

Parameters lock password check: (if return for 8888H, it indicates that the password check through)

Password address	The content of the input password
1F00	*****

Command address	Command content
2001	BIT0：（reserved） BIT1：（reserved） BIT2：RA-RB-RC output control BIT3：TA-TC output control BIT4：MO1 output control

Analog output FOV control: (write-only)

Command address	Command content
2002	0~7FFF represent 0%-100%

Analog output FOC control：（Reserved）

Command address	Command content

2003	0~7FFF represent 0%-100%

PULSE(PULSE) output control: (write -only)

Command address	Command content
2004	0~7FFF represent 0%-100%

Inverter fault description:

Inverter fault address	Inverter fault information
8000	0000: failure-free 0001: reserve 0002: Accelerate over current 0003: Slow down over current 0004: Constant speed over current 0005: Accelerate over the voltage 0006: Slow down over voltage 0007: Constant speed over voltage 0008: Buffer resistance overload fault 0009: Under-voltage fault 000A: The inverter over load 000B: Motor overload 000C: Reserved 000D: The output phase 000E: Module is overheating 000F: External fault 0010: Abnormal communication 0011: Abnormal contactor 0012: Current detection fault 0013: Motor tuning fault 0014: Reserved 0015: Abnormal parameters, reading and writing 0016: Inverter hardware failure 0017: Motor for short circuit fault 0018: Reserved 0019: Reserved 001A: Running time reached 001B: Reserved 001C: Reserved 001D: Accumulative power-on time reached 001E: Load becoming 0 001F: PID feedback lost during running 0028: With-wave current limit fault 0029: Motor switchover fault during running 002A: Too large speed deviation 002B: Motor over-speed 002D: Motor over heat

	005A: Encoder line number setting error 005B: Don't connect the encoder 005C: Initial position fault 005E: Speed feedback error

Communication failures address	Fault feature description
8001	0000: Failure-free 0001: Password mistake 0002: The command code error 0003: CRC Checking error 0004: Invalid address 0005: Invalid parameter 0006: Correcting parameter is invalid 0007: System is locked 0008: Block is EEPROM operation

PD group Communication parameters show

PD.00	Baud rate	The factory value	0005
	Setting range	units' digit: MODUBS Baud rate 0:300BPS 1:600BPS 2:1200BPS 3:2400BPS 4:4800BPS 5:9600BPS 6:19200BPS 7:38400BPS 8:57600BPS 9:115200BPS	

This parameter is used to set data transfer rate between the PC and inverter. Notice that setting the baud rate of upper machine and inverter must agree, otherwise, the communication can't carry on. The faster the baud rate, the greater the communication.

PD.01	The data format	The factory value	3
	Setting range	0: No check: The data format<8,N,2> 1: Even-parity: The data format<8,E,1> 2: Odd parity check: The data format<8,O,1> 3: No check: The data format<8-N-1>	

PC and data format set by the inverter must agree, otherwise, the communication can't carry on.

PD.02	The machine address	The factory value	1
	Setting range	1~247，0 is the broadcast address	

When the machine address set to 0, namely for the broadcast address, realize PC broadcasting functions. The machine address has uniqueness (except the broadcast address), which is to achieve the basis of upper machine and inverter peer-to-peer communications.

PD.03	Response latency	The factory value	2ms
	Setting range	0-20ms	

Response latency: refers to the inverter data to accept the end up to a upper machine to send data in the middle of the interval of time. If the response time delay is less than the system processing time, the response time delay will be subject to system processing time, processing time, such as response time delay is longer than system after processing the data, the system will delay waiting, until the response delay time to up to a upper machine to send data.

PD.04	Communication timeout	The factory value	0
	Setting range	0.0s(invalid) 0.1-60.0S	

When the function code is set to 0.0s, communication timeout parameter is invalid. When the function code set to valid values, if a communication and the interval time of the next communication beyond the communication timeout, system will be submitted to the communication failure error (CE). Usually, it is set into is invalid. If, in the continuous communication system parameter set the time, you can monitor the communication status.

PD.05	Communication	The factory value	1
	Setting range	0：No standard modbus protocol 1：The standard modbus protocol	

PD.05=1: choose the standard Modbus protocol

PD.05=0: when reading command, returns number of bytes from the machine is a byte more than the standard Modbus protocol detailed in this agreement

5 Communication data structures.

PD.06	Read the current resolution	The factory value	1
	Setting range	0：0.01A 1：0.1A	

Used to determine the communication while reading the output current, current value of the output units.