



KOC200 series high performance vector inverter **User Manual**



OPERATION MANUAL

KOC200 INVERTER

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Chapter 1 Product specifications

1.1 Product specification

Functional description		Specifications
Input	Rated Voltage - frequency	380V or 220V; 50Hz / 60Hz
	Allowable voltage working range	Fluctuation range: $\leq \pm 20\%$, Voltage unbalance rate: $\leq 3\%$, Frequency: $\leq 5\%$
Output	Rated voltage	0 ~ 380V or 0~ 220V
	Rated frequency	0 ~ 999.9Hz
	Overload capacity	100% rated current 1 minute
Control performance	Control method	V/f Control
	Modulation	Space voltage PWM modulation
	Speed range	1:100
	Starting torque	3.0Hz when 150% rated torque
	Stable accuracy	$\leq \pm 0.2\%$ rated synchronous speed
	Speed fluctuation	$\leq \pm 0.5\%$ rated synchronous speed
	Torque response	$\leq 50\text{ms}$
	Torque control	Support none PG torque control under vector control mode, torque control accuracy $\pm 5\%$
	Frequency accuracy	Digital setting: Maximum frequency $\pm 0.1\%$; analog setting: Maximum frequency $\pm 0.2\%$
	Frequency resolution	Digital setting: 0.01 Hz; analog setting: Maximum frequency $\pm 0.05\%$
	Torque boost	Automatic torque boost; manual torque boost 0.1% ~30.0%
	V/f curve	Three ways: Linear curve, square curve, multi-point VF curve
	Acceleration and deceleration curve	Linear acceleration and deceleration, time unit (minutes/seconds) ,longest 999.9 second
	DC braking	Start frequency of DC braking at stop: 0.00~50.00 Hz Braking time: 0.0~30.0 s ; Braking current: 0.0%~50.0% of rated current
	Automatic voltage adjustment AVR	When the grid voltage changes, it can automatically keep the output voltage constant
	Automatic current limiting	Operation to prevent frequent over current faults
	Voltage stall	Deceleration to prevent frequency over voltage faults
	Automatic carrier adjustment	According to the load and temperature characteristics, the carrier frequency is automatically adjusted, and multiple carrier modes are optional
Personalization	Frequency combination function	Running command channel and frequency given channel can be combined arbitrarily
	Jog	Jog frequency range: 0.00 Hz ~50.00 Hz
	Multi - speed	Built-in simple PLC or control terminal to realize multi-stage speed operation
	Built-in closed-	It is convenient to form a closed-loop control .

	loop control	
	Water supply storage inspection	Burst detection delay time , high pressure detection threshold, low pressure detection threshold
Running function	Run command channel	Operation panel, control terminal, serial mouth, can be switched in various ways
	Frequency given channel	2 numerical setting, analog voltage setting, analog current setting, pulse setting, digital setting, multi-stage speed setting, etc.
	Auxiliary frequency given	Realize flexible auxiliary frequency fine-tuning and frequency synthesis
	Pulse output terminal	0 ~ 50Hz the pulse square wave signal output can realize the output of setting frequency and output physical quantity
	Analog output terminal	2 analog output, output direction 0 ~ 20mA or 0~ 10V flexible settings between now set the output of physical quantities such as frequency and output frequency
Operate panel	Led show	Display setting frequency, output frequency, output voltage, output current, etc. 26 parameters
Button	Key function selection	Define the scope of action of some keys to prevent misuse
Protect	Protection function	Phase loss protection , over current protection, over voltage protection, under voltage protection, overheat protection, overload protection, load loss protection, etc.
Environment	Place of use	The indoor is not exposed to direct sunlight , no dust, corrosive gas, flammable gas, oil mist, water steam, dripping water or salt, etc.
	Altitude	1000 derating use above meters, per liter 1000 meter derating 10%
	Ambient temperature	-10℃ ~ +40 ℃ (ambient temperature at 40℃ ~ 50 ℃ , please derate)
	The temperature	5% ~95% RH , no condensation
	Shake	Less than 5.9/s2(0.6g)
	Storage temperature	-40℃ ~ +70 ℃
Structure	Degree of protection	IP20
	Cooling method	Air-cooled, with fan control
	Efficiency	7.5KW and below $\geq 93\%$

Product design execution standards

EN 61800 - 3:2017 Adjustable speed electric drive, no. 3 part: Electromagnetic compatibility EMC requirements and specific experimental methods.

EN 61800 - 2:2015 Speed adjustable electric drive system. Part 2: General requirements. Rating specification for low-voltage frequency-adjustable alternating current drives.

EN 61800 - 5-1:20074/A 1:2017 Adjustable speed electric drive system - No. 5-1 section: Safety requirements - electricity, heat and energy.

1.2 Product model Type

Inverter model and technical data

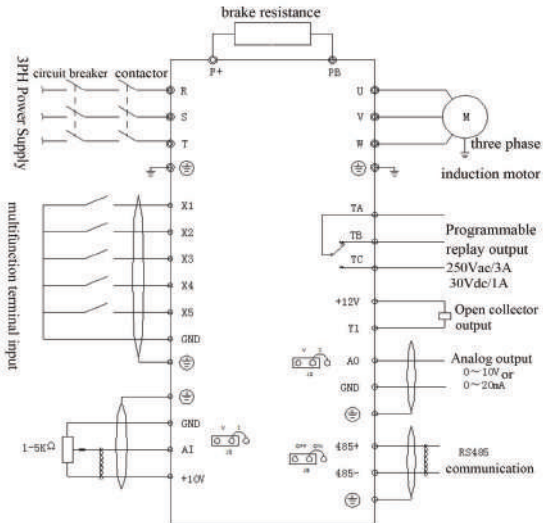
Model		Power capacity KVA	Input current A	Output current A	Adapted motor KW
1PH 220V	KOC200-R75S2	1.4	4.0	3.7	0.75
	KOC200-1R5S2	2.6	7.0	7.0	1.5
	KOC200-2R2S2	3.8	10.0	9.6	2.2
	KOC200-004S2	8.8	16.0	16.5	3.7
	KOC200-5R5S2	11	28.0	25.0	5.5
3PH 380V	KOC200-R75T4	1.5	2.3	2.1	0.75
	KOC200-1R5T4	3.7	3.7	3.7	1.5
	KOC200-2R2T4	4.7	5.0	5.0	2.2
	KOC200-004T4	5.9	10.5	9.0	3.7
	KOC200-5R5T4	8.9	14.6	13.0	5.5
	KOC200-7R5T4	11	20	17.0	7.5

1.3 Frequency Inverter Dimension

Model	Frequency Inverter Dimension (mm)		
	H	W	D
Input: 1 phase 220VAC – Output: 3 phase 220VAC			
KOC200-0R4S2-B	151	100	138
KOC200-R75S2-B	151	100	138
KOC200-1R5S2-B	151	100	138
KOC200-2R2S2-B	151	100	138
Input: 3 phase 380VAC – Output: 3 phase 380VAC			
KOC200-0R4T4-B	151	100	138
KOC200-R75T4-B	151	100	138
KOC200-1R5T4-B	151	100	138
KOC200-2R2T4-B	151	100	138
KOC200-004T4-B	215	120	162
KOC200-5R5T4-B	215	120	162
KOC200-7R5T4-B	215	120	162

Chapter 2 Basic Wiring Diagram

2.1 Inverter Wiring Diagram

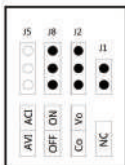


2.2 Control circuit terminals and jumpers:

2.2.1 Control circuit terminal diagram:

+10V		AO	485-	X2	X4	GND	Y1	TC	
AI	GND	485+	X1	X3	X5	+12V	TA	TB	

2.2.2 Control terminal jumper diagram:

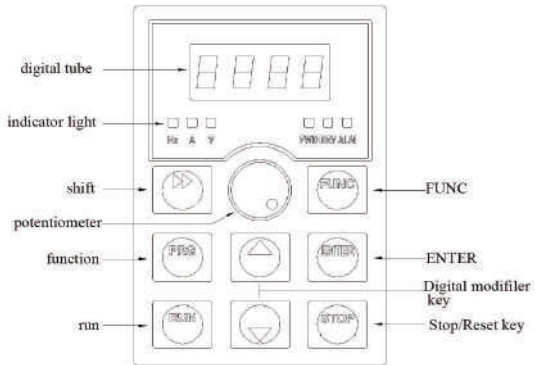


J 2	
Vo	Indicates A0 output voltage signal
Co	Indicates A0 output current signal
J 8	
OFF	Indicates that the matching resistor on the 485 communication is not connected
ON	Express 485 communication matching resistance access
J 5	
AVI	Indicates AI input voltage signal
ACI	Indicates AI input current signal

Chapter 3 Control Circuit Terminal Description

Control Circuit Terminal Function Description			
Category	Terminal label	Function description	Specification
Multi-function digital input terminal	X1	Short between X (X1, X2, X3, X4, X5) ~ GND it is valid when connected, and its functions are respectively set by parameters b2.13 ~ b2.17. (common: GND)	Input , 0~10V level signal, low level valid , 5mA.
	X2		
	X3		
	X4		
	X5		
Digital output terminal	Y1	Multifunctional programmable open collector output, programmable defined as a switch output terminal with multiple functions. (Common : GND)	Output , most big burden load electricity flow not big at 50mA.
Analog I/O terminal	AI	ACI receives current input, AVI only receives voltage input enter. For the range setting, see the description of function code b2.00 ~ b2.09 (Reference ground: GND)	Input , input voltage range: 0 ~ 10V (input impedance: 100kW), input current range: 0~ 20mA (input impedance: 500W).
	AO	AO provides analog voltage/current output, which can be expressed display 6 kinds of physical quantities, the output voltage and current are determined by the jumper block J2 (AO jumper terminal) selection, factory default output voltage, if you want to output current, just jumper the cap shorts the middle and the other end. For details, see the description of function code b2.10 (Reference ground: GND)	Output, 0 ~ 10V DC voltage. The output voltage of the AO terminal is the PWM waveform from the CPU. The magnitude of the output voltage is proportional to the width of the PWM waveform .
Relay output terminal	TA	Programmable relay terminals TA and TC output up to 17 types. See b2.20 outlet terminal function introduction for details .	TA - TB: Normally closed; TA-TC: Normally open. Contact capacity power: 2 5 0VAC/2A(cosφ=1); 250VAC /1A (cos φ = 0.4), 30VDC/ 1A.
	TB		
	TC		
Power interface	10V	10V is the circuit common power supply of the analog input terminals	The maximum output current is 20mA.
	12V	12V is the circuit common power supply of the digital signal input terminal	Maximum output current 100 mA .
	GND	Analog signal and 10V, digital signal and 12V power reference test place.	Common ground for analog signals and digital signals.
Communication interface	485+	RS485 signal + terminal	Standard RS485 communication interface, not separated from GND please use twisted pair or shielded wires.
	485-	RS485 signal - terminal	

Chapter 4 Operation Panel Introduction



Serial no.	Name	Description	
1	Status Indication lamp	FWD	Forward running indicator light The light is on, it means the inverter is in forward running state
		REV	Reverse running indicator light The light on indicates that the inverter is in reverse running state
		ALM	Fault light When the inverter is in fault state, the light is on; in normal state, it is off
2	Unit Instruction lamp	Hz	Frequency unit
		A	Current unit
		V	Voltage unit
3	Digital tube display	5 bit LED display, display the set frequency, output frequency and other monitoring data and alarm codes	
4	Analog potential device	Panel potentiometer to adjust frequency	
5	Keypad	Programming key	Enter or exit the first-level menu, delete shortcut parameters
		ENTER key	Enter the menu screen step by step , set the parameters to confirm

		Increment key	Increment of data and function codes
		Down key	Decrement of data and function code
		Shift key	In the stop display interface and running display interface, you can move to the right to cycle through the selection of display parameters; when changing parameters, you can choose the modification bit of the parameter
		Run key	In the keyboard operation mode, it is used to run the operation
		Stop/reset Key	The running state, this key can be used to stop the running operation: In the fault alarm state, all control mode can use this key to reset the operation
		FUNC multifunction key	The function of this key is determined by the function code b8.04 set up

Chapter 5: Monitoring Parameter Group Function Code

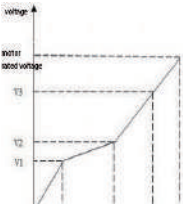
Group d: Monitoring parameter group					
Function code	Name	Range	Smallest unit	Factory setting	Change
d - 00	Output frequency (Hz)	0.0 ~ 999.9Hz	0.1Hz	0.0Hz	◆
d - 01	Set frequency (Hz)	0.0 ~ 999.9Hz	0.1Hz	0.0Hz	◆
d - 02	Output voltage (v)	0 ~ 999V	1V	0V	◆
d - 03	Bus voltage (v)	0 ~ 999V	1V	0V	◆
d - 04	Output current (a)	0.0 ~ 999.9A	0.1A	0.0A	◆
d - 05	Motor speed (Krpm)	0~60000 Krpm	1Krpm	Model settings	◆
d - 06	Analog input AVI (V)	0.00 ~ 10.00V	0.0 1V	0.0 0V	◆
d - 07	Analog input ACI (mA)	0.00 ~ 20.00mA	0. 01mA	0. 00mA	◆
d - 08	Analog input A0 (V/ mA)	0.00 ~ 10.00V /0.00~20.00mA	0.01V / 0.01mA	0.00V/mA	◆
d - 09	Reserve	-	-	0	◆
d - 10	Pulse input frequency (kHz)	0.00 ~ 99.99kHz	0.0 1 kHz	0.00kHz	◆
d - 11	PID pressure feedback value	0.00 ~10.0V/0.00~99.99 (MPa,kg)	0.01V/ (MPa,kg)	0.00V / (MPA, kg)	◆
d - 12	Current count value	0~9999s	1 s	0 s	◆
d - 13	Current timing value (s)	0~9999s	1 s	0 s	◆
d - 14	Input terminal state (X1-X5)	0~ 1 FH	1 H	0 H	◆
d - 15	Output status (Y/R)	0 ~ 3H	1 H	0 H	◆
d - 16	Module temperature (°c)	0.0 ~132.3°C	0.1°C	0.0	◆
d - 17	Software update date (year)	2010~2026	1	2017	◆
d - 18	Software update date (moon, day)	0~1231	1	0914	◆
d - 19	Second fault code	0~19	1	0	◆
d - 20	Last fault code	0~19	1	0	◆
d - 21	At last failure output frequency (Hz)	0.0 ~ 999.9Hz	0.1Hz	0.0Hz	◆

d - 22	At last failure output current (A)	0.0 ~ 999.9A	0.1A	0.0V	◆
d - 23	At last failure bus voltage (V)	0 ~ 999V	1V	0V	◆
d - 24	At last failure module temperature (°c)	0.0 ~132.3°C	0.1°C	0.0°C	◆
d - 25	Inverter running cumulative time (h)	0~9999h	1 h	0 h	◆
d - 26	Inverter status	0 ~ FFFFH Bit 0: Run/stop Bit 1: Reverse/forward Bit 2: Jog Bit 3: DC braking Bit 4: Reserved Bit 5: Over voltage limit Bit 6: Frequency down at constant speed Bit 7: Over current limit Bit 8~ 9: 00-zero speed/01-acceleration/10-deceleration/11-uniform speed Bit 10: Overload prealarm Bit 11: Reserved Bit 12 ~13 running command channel: 00-panel/01-terminal/10-reserved Bit 14 ~15 bus voltage status: 00-normal/01-low voltage protection /10-overvoltage protection	1 H	0 H	◆


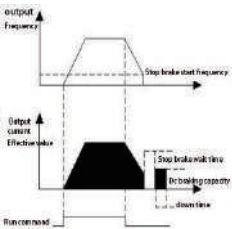
Chapter 6 Parameter Description

○—parameters that can be modified in any state; ×—parameters that cannot be modified in running state; ◆—actual detection parameters, which cannot be modified; ◇—factory parameters, only limited to the modification by the manufacturer, and the user is prohibited from modifying it.					
b0 Group - basic operating parameters					
Function code	Name	Range	Smallest unit	Factory setting	Change
b0.00	Inverter power specification	Show current power	0.10 ~99.99 KW	Model settings	◆
b0.01	Main controller software version	Display the current software version number	1.00~99.99	1.00	◆
b0.02	Run command channel to choose	0: Panel running command channel 1: Terminal run command channel 2: Communication running command channel	0 ~2	0	○
b0.03	Frequency source selection	0: Panel potentiometer 1: Digital setting 1, adjusted by the ▲ and ▼ keys on the operation panel 2: Digital reference 2, terminal up/down adjustment 3: Ai analog setting (0~10V/0~20mA) 4: Combination given 6: Communication setting Note : When combined reference is selected, the combined reference mode is selected in b1.15.	0 ~7	0	○
b0.04	Max frequency	The maximum output frequency is the highest frequency that the frequency converter allows to output, it is the addition and subtraction benchmark for speed setting.	50.0Hz ~ 999.9Hz	50.0Hz	X
b0.05	Upper limit frequency	The operating frequency cannot exceed this frequency	Lower limit frequency (b0-06) ~ Max frequency (b0-04)	50.0Hz	X
b0.06	Lower limit	The operating frequency cannot be lower	0.0~upper limit	0.0Hz	X

	frequency	than this frequency	frequency		
b0.07	Lower limit frequency arrival processing	0: Run at zero speed 1: Run at the lower limit frequency 2: Shutdown	0 ~2	0	X
b0.08	Running frequency number set up	The set value is the initial value given by frequency digital	0.0~upper limit frequency	10.0Hz	○
b0.09	Digital frequency control	Led units: Power-off storage 0: Store 1: Do not store Led ten digits: Shutdown hold 0: Hold 1: Do not hold Led hundreds: Up / down negative frequency adjustment 0: Invalid 1: Valid Led thousand digit: PID, plc frequency superposition selection 0: Invalid 1: F0.03+ PID 2: F0.03+ PLC	0000~2111	0000	○
b0.10	Acceleration time	The inverter to accelerate from zero frequency to the maximum output frequency	0.1~999.9 s 0.4~4.0 KW 7.5s 5.5 ~ 7.5KW 15.0s	Model settings	○
b0.11	Deceleration time	The inverter to decelerate from the maximum output frequency to zero frequency			
b0.12	Running direction setting	0: Forward rotation 1: Reverse 2: Reversal prohibited	0 ~2	0	○
b0.13	V / F curve setting	0: Linear curve 1: Square curve 2: Multi-point VF curve	0 ~2	0	X
b0.14	Torque boost	Manual torque boost, the setting is relative to the percentage of the rated	0.0 ~30.0%	Model settings	○

		voltage of the motor score			
b0.15	Torque boost cut - off frequency	This setting is the boost cut-off frequency point during manual torque boost	0.0 ~ 50.0Hz	15.0Hz	X
b0.16	Carrier frequency setting	For occasions that require silent operation, the carrier frequency can be appropriately increased to achieve requirements, but increasing the carrier frequency will increase the calorific value of the inverter.	2.0 ~ 16.0kHz 0.4~3.0kW 4.0kHz 4.0 ~ 7.5kW 3.0kHz	Model settings	X
b0.17	V / f frequency value f1		0.1 ~frequency value f2	12.5 Hz	X
b0.18	V / f voltage value V1		0.0 ~Voltage value V2	25.0%	X
b0.19	V / f frequency value f2		Frequency value f1 ~frequency value f3	25.0Hz	X
b0.20	V / f voltage value V2		Voltage value V1 ~voltage value V3	50.0%	X
b0.21	V / f frequency value f3		Frequency value f2 ~motor rating fixed frequency 【b4.03】	37.5Hz	X
b0.22	V / f voltage value V3		Voltage value V2 ~ 100.0 % *Uout (electricity Machine rated voltage 【 b4.00】)	7 5.0%	X
b0.23	User password	To set any non-zero number, you need to wait for 3 minutes or power off to take effect.	0~ 9999	0	○

b0.24	Frequency display resolution rate selection	0: 0.1hz 1: 1hz Note : When setting this parameter, be sure to check the maximum output frequency (b0 .04), frequency upper limit (b0.05), motor rated frequency (b4.03) and other parameters related to frequency.	0 ~1	0	○
b0.25	Motor control method	0: VF control 1: Advanced VF control 2: Simple vector control 3: Advanced vector control 4: Torque control	0 ~4	0	X
b0.26	Function macro definition (temporarily reserved)	0: Common mode 1: Single pump constant pressure water supply mode 2: One drag two constant pressure water supply mode 3: Backpack smart small water pump mode 4: Engraving machine mode 5: Safe scene application mode 6: High torque starting scene application mode 7: Quick start and stop scene application mode 8: Automatic energy-saving scene application mode 9: Custom mode (please refer to the custom macro parameter group, the maximum supported 1 6 parameter application combinations) 10: Reserved	0~10	0	X

b1 Group - Auxiliary Operating Parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b1.00	Starting method	Led units: Start mode 0: Start from the starting frequency 1: Dc brake first and then start from the starting frequency 2: Reserved Led ten digit: Power failure or abnormal restart mode 0: Invalid 1: Start from the starting frequency Led hundreds: Reserved Led thousand digit: Reserved	0000~0012	00	X
b1.01	Starting frequency		0.0 ~ 50.0Hz	1.0Hz	○
b1.02	Start dc braking voltage		0.0 ~ 50.0% × electricity machine rated voltage	0.0%	○
b1.03	Start dc braking the time		0.0 ~ 30.0s	0.0s	○
b1.04	Shutdown mode	0: Decelerate to stop 1: Free stop	0 ~ 1	0	X
b1.05	Stop dc braking starting frequency		0.0~upper limit frequency	0.0hz	○
b1.06	Stop DC braking voltage		0.0~50.0% × electricity machine rated voltage	0.0 %	○

b1.07	Stop DC braking time		0.0 ~ 30.0s	0.0s	X
b1.08	Stop DC braking waiting time		0.00~99.99 s	0.00s	X
b1.09	Forward jogging frequency set up	Set Jog forward and reverse frequency	0.0 ~ 50.0Hz	10.0Hz	○
b1.10	Reverse jog frequency set up				
b1.11	Jog acceleration time	Set jog acceleration and deceleration time	0.1~999.9 s ~ 4.0kW 10.0s 5.5 ~ 7.5kW 15 0s	Model settings	○
b1.12	Jog deceleration time				
b1.13	Jump frequency	By setting the jump frequency and range, the inverter can avoid the mechanical resonance point.	0.0~upper limit frequency	0.0Hz	○
b1.14	Jump range		0.0 ~ 10.0Hz	0.0Hz	○
b1.15	Frequency combination given way	0: Potentiometer + digital frequency 1 1: Potentiometer + digital frequency 2 2: Potentiometer + AI 3: Digital frequency 1+AI 4: Digital frequency 2+AI 5: Digital frequency 1+ multi- speed 6: Digital frequency 2+ multi-speed 7: Potentiometer + multi-speed 8: AI + plc (same direction stacking) 9: Reserved	0~9	0	X
b1.16	Programmable operation control system (simple PLC operation)	Led units: PLC enable control 0: Invalid 1: Active Led ten digits: Selection of operation mode 0: Single cycle 1: Continuous loop	0000~1221	0000	X

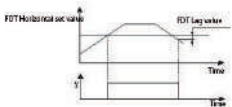
		2: Keep the final value after a single loop Led hundreds: Start mode Restart from the first segment 1: Start from the stage at the moment of stop (fault) 2: Start from the stage and frequency at the moment of stop (fault) Led thousand digit: Power-down storage option 0: Do not store 1 : Storage			
b1.17	Multi- speed frequency 1	Set segment speed 1 frequency	~ superior limit frequency rate ~ superior limit frequency	5.0Hz	○
b1.18	Multi- speed frequency 2	Set segment speed 2 frequency	~ superior limit frequency rate ~ superior limit frequency	10.0Hz	○
b1.19	Multi- speed frequency 3	Set segment speed 3 frequency	~ superior limit frequency rate ~ superior limit frequency	15.0Hz	○
b1.20	Multi- speed frequency 4	Set the frequency of segment speed 4	~ superior limit frequency rate ~ superior limit frequency	20.0Hz	○
b1.21	Multi- speed frequency 5	Set segment speed 5 frequency	~ superior limit frequency rate ~ superior limit frequency	25.0Hz	○
b1.22	Multi- speed frequency 6	Set segment speed 6 frequency	~ superior limit frequency rate ~ superior limit frequency	37.5Hz	○
b1.23	Multi- speed frequency 7	Set segment speed 7 frequency	~ superior limit frequency rate ~ superior limit frequency	50.0Hz	○
b1.24	Phase 1 run time	Set the running time of segment speed 1 (the unit is selected by [b1.35], default in seconds)	0.0 ~ 999.9s	10.0s	○
b1.25	Phase 2 runtime	Set the running time of segment speed 2 (the unit is selected by [b1.35], the default in seconds)	0.0 ~ 999.9s	10.0s	○
b1.26	Phase 3 run time	Set the running time of segment speed 3 (the unit is selected by [b1.35], the default in seconds)	0.0 ~ 999.9s	10.0s	○

b1.27	Phase 4 runtime	Set the running time of segment speed 4 (the unit is selected by [b1.35], the default in seconds)	0.0 ~ 999.9s	10.0s	○
b1.28	Phase 5 runtime	Set the running time of segment speed 5 (the unit is selected by [b1.35], default in seconds)	0.0 ~ 999.9s	10.0s	○
b1.29	Phase 6 runtime	Set the running time of segment speed 6 (the unit is selected by [b1.35], default in seconds)	0.0 ~ 999.9s	10.0s	○
b1.30	Phase 7 runtime	Set the running time of segment speed 7 (the unit is selected by [b1.35], the default in seconds)	0.0 ~ 999.9s	10.0s	○
b1.31	Stage acceleration and deceleration time selection 1	Led units: Stage 1 acceleration and deceleration time 0 ~1 Led ten digit: Stage 2 acceleration and deceleration time 0 ~1 Led hundreds digit: Stage 3 acceleration and deceleration time 0 ~1 Led thousand digit: Stage 4 acceleration and deceleration time 0 ~1	0000~1111	0000	○
b1.32	Stage acceleration and deceleration time selection 2	Led units: Stage 5 acceleration and deceleration time 0 ~1 Led ten digit: Stage 6 acceleration and deceleration time 0 ~1 Led hundreds: Stage 7 acceleration and deceleration time 0 ~1 Led thousand digit: Reserved	000~111	000	○
b1.33	Acceleration time 2	Set acceleration and deceleration	0.1~999.9 s ~ 4. 0kW	10.0s	○
b1.34	Deceleration time 2		10.0s 5.5 ~ 7.5kW 15.0s		
b1.35	Time unit selection	Led units: Process PID time unit Led tens: Simple plc time unit Led hundreds: Conventional acceleration and deceleration time unit Led thousand digit: Reserved	000~211	000	X

		0: The unit is 1 second 1: The unit is 1 point 2: The unit is 0.1 second			
b1.36	Forward and reverse dead time	The inverter transitions from forward running to reverse running, or from reverse running transition waiting at output zero frequency during transition to forward operation time .	0.0 ~ 999.9s	0.0	○
b2 Group - Analog and Digital Input and Output Parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b2.00	AI input lower limit voltage	Set AI upper and lower limit voltage	0.00 ~ 【 b2.01 】	0.0 V	○
b2.01	AI input upper limit voltage		【 b2.01 】 ~ 10.00V	10.00V	○
b2.02	AI lower limit corresponding setting	Set the corresponding setting of the upper and lower limits of AI, which corresponds to the percentage of the upper limit frequency [b 0.05] .	-100%~100%	0.0%	○
b2.03	AI upper limit corresponding setting			100.0%	○
b2.04 ~ b2.07	Reserve	-	-	0	◆
b2.08	Analog input signal filtering wave time constant	This parameter is used to filter the input signal of AI and panel potentiometer to eliminate the influence of interference .	0.1~5.0 s	0.1 s	○
b2.09	Analog input anti-shake offset poor limit	When the analog input signal fluctuates frequently near the given value , the frequency fluctuation caused by this fluctuation can be suppressed by setting b 2.09 .	0.00 ~ 0.10V	0.00V	○
b2.10	A0 analog output terminal function selection	0: Output frequency 1: Output current 2: Motor speed 3: Output voltage 4: AI 5: Reserved	0 ~ 5	0	○
b2.11	A0 output lower limit	Set the upper and lower limits of A0 output	0.00 ~ 10.00 V / 0.00 ~ 20.00mA	0.0 0V	○
b2.12	A0 output upper limit			10.00V	○

b2.13	Input terminal X1 function	0: The console is idle 1: Forward jog control 2: Reverse jog control 3: Forward rotation control (FWD) 4: Reverse control (REV)	0~30	3	X
b2.14	Input terminal X2 function	5: Three- wire operation control 6: Free stop control 7: External stop signal input (stop) 8: External reset signal input (RST)	0~30	4	X
b2.15	Input terminal X3 function	9: External fault normally open input 10: Frequency increase command (up) 11: Frequency decrement command (down)	0~30	0	X
b2.16	Input terminal X4 function	13: Multi-stage speed selection s1 14: Multi-stage speed selection s2 15: Multi-stage speed selection s3 16: The running command channel is forced to be a terminal 17: The running command channel is forced to communicate 18: Shutdown dc braking command 19: Frequency switch to AI 20: Frequency switching to digital frequency 1	0~30	0	X
b2.17	Input terminal X5 function	21: Frequency switching to digital frequency 2 22: Reserved 23: Counter clear signal 24: Counter trigger signal 25: Timer clear signal 26: Timer trigger signal 27: Acceleration and deceleration time selection 28: Wobble frequency pause (stop at current frequency) 29: Wobble frequency reset (back to center frequency) 30: External stop/reset signal input (stop/RST)	0~30	0	X
b2.18	FWD/ REV terminal control mode	0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2 4: Three-wire control mode 3 5: Reserved	0 ~5	0	X
b2.19	Superior electricity hour end son achievement	0: Terminal run command is invalid when power on Command is valid when the power is turned on	0 ~1	0	X

	able detection options				
b2.20	R output setting	0: Idle 1: Inverter ready for operation 2: The inverter is running 3: The inverter is running at zero speed 4: External fault shutdown 5: Inverter failure 6: Frequency/speed arrival signal (FAR) 7: Frequency/speed level detection signal (FDT) 8: The output frequency reaches the upper limit 9: The output frequency reaches the lower limit 10: Inverter overload pre -alarm 11: Timer overflow signal 12: Counter detection signal 13: Counter reset signal 14: Auxiliary motor 15: Forward rotation 16: Reverse 17: Output indication signal when the output frequency drops to the speed detection level	0~17	5	○
b2.21	Y open collector output		0~17	0	○
b2.22	R close delay	From the change of the state of the relay R to the change of the output	0.0~255.0 s	0.0s	X
b2.23	R off delay				
b2.24	Frequency arrival far detection amplitude	The output frequency is within the positive and negative detection width of the set frequency, the terminal outputs a valid signal (low level).	0.0Hz ~ 15.0Hz	5.0Hz	○

b2.25	FDT level set point		0.0 Hz ~ upper limit frequency	10.0Hz	○
b2.26	FDT hysteresis value		0.0 ~ 30.0Hz	1.0Hz	○
b2.27	Up / down terminal repair change rate	This function code is the frequency when setting the up / down terminal to set the frequency modify the rate, that is, the up / down terminal and the com terminal are shorted for one second, and the frequency changes .	0.1 Hz ~ 99.9 Hz / s	1.0 Hz /s	○
b2.28	Input terminal pulse touch send mode setting (X1~ X 6)	0: Indicates level trigger mode 1: Indicates the pulse trigger mode Note: X1~ X6 correspond to 1h, 2h, 4h, 8h, 10h.	0 ~3 FH	0	○
b2.29	Input terminal effective logic edit settings (X1~ X6)	0: Indicates positive logic, that is, the xi terminal is valid when it is connected to the common terminal, and it is valid when it is disconnected. Invalid 1: Indicates inverse logic, that is, the connection between the xi terminal and the common terminal is invalid, and it is disconnected efficient Note: X1~ X6 correspond to 1h, 2h , 4h , 8h , 10h.	0 ~3 FH	0	○
b2.30	X1 filter coefficient	Used to set the sensitivity of the input terminal. If the digital input terminal is susceptible to interference and cause malfunction, this parameter can be increased to enhance the anti-interference ability, but if the setting is too large, the sensitivity of the input terminal will decrease. 1: Represents 2ms scan time unit	0~ 9999	5	○
b2.31	X2 filter coefficient		0~ 9999	5	○
b2.32	X3 filter coefficient		0~ 9999	5	○
b2.33	X4 filter coefficient		0~ 9999	5	○
b2.34	X5 filter coefficient		0~ 9999	5	○
b2.35	X1 access delay time	Used to set the input terminal access delay time	0.00~655.00 s	0.00	○
b2.36	X2 access delay time		0.00~655.00 s	0.00	○

b2.37	X3 access delay time		0.00~655.00 s	0.00	○
b2.38	X4 access delay time		0.00~655.00 s	0.00	○
b2.39	X5 access delay time		0.00~655.00 s	0.00	○
b2.40	X1 off delay time	Used to set the input terminal disconnection delay time	0.00~655.00 s	0.00	○
b2.41	X2 off delay time		0.00~655.00 s	0.00	○
b2.42	X3 disconnection delay time		0.00~655.00 s	0.00	○
b2.43	X4 disconnection delay time		0.00~655.00 s	0.00	○
b2.44	X5 disconnection delay time		0.00~655.00 s	0.00	○
b2.45	X6/A0 enable selection	0: A0 is valid 1 : X6 is valid	0 ~1	0	X
b2.46	Input terminal x 6 function	Same as b2.13~ b2.17 function	0~30	0	X
b2.47	X6 filter coefficient	See b2.30~ b2.34 for details	0~ 9999	5	○
b2.48	X6 access delay time	Used to set the X6 terminal access delay time	0.00~655.00 s	0.00	○
b2.49	X6 disconnection delay time	Used to set the X6 terminal disconnection delay time	0.00~655.00 s	0.00	○

b3 Groups - PID parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b3.00	PID function setting	<p>Led units: PID adjustment characteristics</p> <p>0: Invalid</p> <p>1: Positive effect</p> <p>When the feedback signal is greater than the given value of PID, the inverter is required to output the frequency is reduced (IE, the feedback signal is reduced).</p> <p>2: Negative effect</p> <p>When the feedback signal is greater than the given value of PID, the inverter is required to output the frequency increases (IE decreases the feedback signal).</p> <p>Led ten digit: PID given quantity input channel</p> <p>0: Keyboard potentiometer</p> <p>PID is given by the potentiometer on the operation panel.</p> <p>1: Digital given</p> <p>PID is given by numbers and set by function code b3.01.</p> <p>2: Pressure given (Mpa, kg)</p> <p>Set the pressure by setting b 3.01, b 3.18</p> <p>Led hundreds: PID feedback input channel</p> <p>0: AI</p> <p>1: Reserved</p> <p>Led thousand bit: PID sleep selection</p> <p>0: Invalid</p> <p>1: Normal sleep</p> <p>This method needs to set specific parameters such as b 3.10~ b 3.13.</p> <p>2: Disturb sleep</p> <p>When the sleep mode is selected as 0.</p> <p>If the PID feedback value is within the range of the set value of b3.14, the sleep delay will be maintained. Enter disturbed sleep after a later time. When the feedback value is less than the wake-up threshold (PID polarity is positive), it will wake up immediately.</p>	0000~2122	1010	X

b3.01	Given quantity digital setting	Use the keyboard to set the given amount of PID control, only when the PID given channel selects digital given (the tens place of b 3.00 is 1 or 2), this the function works. If the tens place of b3.00 is 2, it is used as pressure setting, this parameter agrees with the units of b 3.18.	0.0~100.0%	0.0%	○
b3.02	Feedback channel gain	When the level of the feedback channel is inconsistent with the set channel level , this function can be used to adjust the gain of the feedback channel signal.	0.01 ~10.00	1.00	○
b3.03	Proportional gain p	PID adjustment speed is determined by proportional gain and integral time. When these two parameters are set, if the adjustment speed is fast, the proportional gain must be increased and the integral time decreased; if the adjustment speed is slow, the proportional gain must be decreased and the integral time increased. Generally, the differential time is not set.	0.01 ~5.00	2.00	○
b3.04	Integration time Ti		0.1 ~ 50.0s	1.0s	○
b3.05	Derivative time Td		0.1 ~ 10.0s	0.0s	○
b3.06	Sampling period t	The larger the sampling period , the slower the response, but the better the suppression effect on the interference signal, generally it is not necessary to set it .	0.1 ~ 10.0s	0.0s	○
b3.07	Deviation limit	The deviation limit is the ratio of the absolute value of the deviation between the system feedback amount and the given amount to the given amount. When the feedback amount is within the range of the deviation limit, PID regulation will not act.	0.0 ~20.0%	0.0 %	○
b3.08	Closed loop preset frequency	Before the PID is put into operation	0.0~upper limit frequency	0.0Hz	○
b3.09	When the preset frequency is held		0.0 ~ 999.9s	0.0s	X
b3.10	Sleep threshold coefficient	If the actual feedback value is greater than the set value and the output frequency of the inverter reaches the lower limit frequency, the inverter will pass b 3.12 After the defined delay wait time, enter the sleep state (IE zero speed running); this value is the percentage of PID set value.	0.0 ~150.0%	100.0%	○
b3.11	Awakening threshold	If the actual feedback value is less than the set value, the inverter will leave the sleep state after the delay time defined by	0.0 ~150.0%	90.0 %	○

	coefficient	b3. 13, and turn on start working; the value is the percentage of PID set value .			
b3.12	Sleep delay time	Set sleep delay time	0.0 ~ 999.9s	100.0s	○
b3.13	Wake up delay time	Set wake up delay time	0.0 ~ 999.9s	1.0s	○
b3.14	Enter sleep hour of opposite feedback and set pressure deviation	This function parameter is only valid for disturbance sleep mode	0.0 ~10.0%	0.5%	○
b3.15	Burst detection delay time	Set squib detection delay time	0.0 ~ 130.0s	0.0s	○
b3.16	High pressure detection threshold	When the feedback pressure is greater than or equal to this set value, it will be delayed by b3.15 burst tube subsequent report squib failure "EPA 0", when the feedback pressure is less than this set value when the squib fault " EPA 0" Is automatically reset; the threshold is a percentage of the given pressure .	0.0 ~200.0%	150.0%	○
b3.17	Low pressure detection threshold	When the feedback pressure is lower than the set value, it will be reported after b3.15 pipe burst delay squib fault "Epa0", when the feedback pressure is greater than or equal to this set value when the squib fault " EPA 0" Is automatically reset; the threshold is a percentage of the given pressure .	0.0 ~200.0%	50.0%	○
b3.18	Sensor range	Set the maximum range of the sensor	0.00~ 99.99 (Mpa , kg)	10.00 Mpa	○
b4 Group - Advanced function parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b4.00	Motor rated voltage	Motor parameter setting	0 ~ 500V; 380V 0 ~ 250V; 220V	Model settings	X
b4.01	Motor rated current		0.1 ~ 999.9A	Model settings	X
b4.02	Motor rated speed		0~9999 rpm	Model settings	X
b4.03	Motor rated frequency		1.0~ 999.9Hz	50.0Hz	X
b4.04	Motor stator	Set motor stator resistance	0.001~20.000W	Model	○

	resistance			settings	
b4.05	Motor no-load current	Set motor no-load current	0.1 ~ 【 b 4.01 】	Model settings	X
b4.06	AVR function	0: Invalid 1: Valid throughout 2: Invalid only when decelerating	0 ~ 2	0	X
b4.07	Cooling fan control	0: Automatic control mode 1: The power-on process has been running	0 ~ 1	0	○
b4.08	Fault automatic reset times	When the fault reset times is set to 0, there is no automatic reset function, only manual automatic reset, 10 means unlimited times , that is, countless times.	0~10	0	X
b4.09	Fault automatic reset interval time	Set the fault automatic reset interval time	0.5 ~ 25.0s	3.0s	X
b4.10	Dynamic braking start voltage	If the internal dc side voltage of the inverter is higher than the initial voltage of dynamic braking, the built-in braking unit will act. If a braking resistor is connected at this time, the rising voltage energy inside the inverter will be released through the braking resistor , causing the dc voltage to fall back.	330~380/ 660 ~ 800V	350/ 780V	○
b4.11	Energy consumption braking action ratio		10~100 %	100 %	○
b4.12	Over modulation function selection	0: Invalid 1: Valid	0 ~ 1	0	X
b4.13	PWM model	0: Seven bands of full frequency 1: Full frequency five bands 2: Seven-stage to five-stage	0 ~ 2	0	X
b4.14	Slip compensation coefficient	After the asynchronous motor is loaded, the speed will drop, and the use of slip compensation can make the motor speed close to its synchronous speed, so that the motor speed control accuracy is higher. This coefficient is only for ordinary v/f, simple vector effective .	0~200 %	100%	X
b4.15	Slip compensation mode	0: Invalid 1: Low frequency compensation Note : This parameter is only valid for advanced v/f	0 ~ 1	0	X
b4.16	Motor parameter self-learning	0: Invalid 1: Static self-learning (star will be displayed immediately when starting, and end will be displayed after finishing turns off after 1 s ,)	0 ~ 1	0	X

b4.17	Motor rated power	Changing the motor rated power b4.17, b4.01, b4.02, b4.04, b4.05, b4.18~ b4.20 are automatically updated to the corresponding power the motor default parameters of the rate.	0.0 ~ 2000.0kW	Model settings	○
b4.18	Motor rotor resistance		0.00 ~200.00W	Model settings	○
b4.19	Motor stator and rotor inductance		0.00 ~200.00 mH	Model settings	○
b4.20	Motor stator and rotor mutual inductance		0.00 ~200.00 mH	Model settings	○
b4.21	Speed loop (ASR1) proportion al gain	Function codes b 4.21~b4.26 are valid in vector control mode. By setting proportional gain p and integral time i, the vector speed response characteristics of volume control .	1 ~100	30	X
b4.22	Speed loop (ASR 1) integration time		0.01~10.00 s	0.50	○
b4.23	Toggle low frequency		0.0 ~ 10.0Hz	5.0	X
b4.24	Speed loop (ASR 2) proportion al gain		1 ~100	20	○
b4.25	Speed loop (ASR 2) integration time		0.01~10.00 s	1.00	○
b4.26	Switch high frequency		【 b4.23 】 ~ 320.0Hz	10.0	X
b4.27	Vector slip compensation	In the vector control mode, this parameter is used to adjust the steady speed accuracy of the motor. When the motor is heavily loaded and the speed is low, increase this parameter. Otherwise, reduce this parameter .	50%~200%	100	○
b4.28	When speed loop filter interval constant	Set the speed loop filter time constant	0.000~1.000 s	0.010	○
b4.29	Reserve	-	-	0	◆
b4.30	Speed loop torque limit	The setting value is the percentage of the rated current of the motor	0.0 %~200.0%	150.0	○

b4.31	Torque command selection	0: Keyboard number given 1: AI 2 : Reserved	0~2	0	X
b4.32	Torque digital given	The setting value is the percentage of the rated current of the motor	0.0%~200.0%* motor rated current	150.0	○
b4.33	Torque control forward most high frequency	It is used to set the forward or reverse maximum operating frequency of the inverter in the torque control mode.	0.0 ~ 3200.0Hz	50.0	○
b4.34	Torque control reverse most high frequency		0.0 ~ 3200.0Hz	50.0	○
b4.35	Torque rise time	The torque rise/fall time defines the time when the torque rises from 0 to the maximum value or falls from the maximum value to 0.	0.00~1.00 s	0.00	○
b4.36	Torque drop time		0.00~1.00 s	0.00	○
b5 Group - Protection function parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b5.00	Protection settings	Led units: Motor overload protection selection 0: Invalid 1: Active Led ten digit: PID feedback disconnection protection 0: Invalid 1: Protection action and free stop Led hundreds place: 485 communication failure processing 0: Protection action and coast to stop 1: Alarm but maintain status quo operation Shutdown according to the set method Led thousand bit: Shock suppression selection 0: Invalid 1 : Active	0000~1211	0001	X
b5.01	Motor overload protection factor	The motor overload protection factor is the ratio of the rated current value of the motor to the rated current value of the inverter. Set the percentage of output current value.	30%~110 %	100%	X

b5.02	Under voltage protection level	This function code specifies the allowable lower limit voltage of the dc bus when the inverter is working normally .	50~280/ 50~ 480V	180/ 360V	X
b5.03	Deceleration voltage limit factor	This parameter is used to adjust the ability of the inverter to suppress over voltage during deceleration.	0 : Off, 1~255	1	X
b5.04	Over voltage limit level	The over voltage limit level defines the operating voltage for over voltage stall protection	350~400/660 ~ 850V	375/ 700V	X
b5.05	Acceleration current limit factor	This parameter is used to adjust the ability of the inverter to suppress over current during acceleration.	0 : Off, 1 ~ 99	10	X
b5.06	Constant speed current limiting factor	This parameter is used to adjust the ability of the inverter to suppress over current during constant speed.	0 : Off, 1 ~ 10	0	X
b5.07	Current limit level	The current limit level defines the current threshold of the automatic current limit action, its setting value is the percentage relative to the rated current of the inverter.	50%~200 %	160%	X
b5.08	Feedback disconnection detection value	This value is the percentage of the PID given value. When the PID feedback value is continuously smaller than the feedback disconnection detection value, the inverter will set, take corresponding protection action, when b5.08=0.0%, it is invalid.	0.0~100.0%	0.0 %	X
b5.09	Feedback disconnection detection time	After the feedback disconnection occurs, the delay time before the protection action.	0.1~999.9 s	10.0s	X
b5.10	Inverter overload prediction police level	The inverter overload pre-alarm action, its setting value is the percentage relative to the rated current of the inverter.	0 ~150%	120%	○
b5.11	Inverter overload prediction alarm delay	The inverter output current being continuously greater than the overload pre-alarm level (b 5.10) and the output of the overload pre- alarm signal.	0.0 ~ 15.0s	5.0s	X
b5.12	Jog priority enable	0: Invalid 1: When the inverter is running , the jog priority is the highest	0 ~1	0	X
b5.13	Oscillation suppression	When motor vibration occurs, it is	0 ~200	30	○

	coefficient	necessary to set b5. Oscillation suppression function, and then adjusted by setting the oscillation suppression coefficient, in general , if the oscillation amplitude is large, increase the oscillation suppression coefficient b 5.13 , and b5.14~b5.16 do not need to be set; in special occasions , b 5.13~ b 5.16 should be used together.			
b5.14	Amplitude suppression coefficient		0~12	5	○
b5.15	Oscillation suppression lower limit frequency		0.0 ~ 【b5.16】	5.0Hz	○
b5.16	Oscillation suppression upper limit frequency		【b5.15】 ~ 【b0.05】	45.0Hz	○
b5.17	Wave-by-wave current limit selection	Led units: Select during acceleration 0: Invalid 1: Valid Led ten digit: Select during deceleration 0: Invalid 1: Active Led hundreds digit: Select from constant speed 0: Invalid 1: Active Led thousand digit: Dead zone compensation 0: Invalid 1 : Valid	000~111	1011	X
b5.18	Output phase loss protection detection measured coefficient	When the ratio of the maximum value to the minimum value of the three-phase output current is greater than this coefficient and lasts for more than 6 seconds, the inverter will report output current imbalance fault EPLI; when b5.18=0.00, the output phase loss protection is invalid.	0.00 ~20.00	2.00	○
b6 Group - Communication parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b6.00	Local address	Set the local address, 0 is the broadcast address.	0 ~247	1	X

b6.01	Modbus communication configuration	<p>Led units: Baud rate selection 0: 9600 bps 1: 19200 bps 2: 38400 bps Led tens: Data format 0: No parity 1: Even parity 2: Odd parity Led hundreds place: Communication response method 0: Normal response 1: Only respond to the slave address 2: No response 3: Free stop command from slave to master in broadcast mode not responding Led thousand digit: Reserved</p>	0000~0322	0000	X
b6.02	Communication timeout detection time	If the machine exceeds the time interval defined by this function code, no if the correct data signal is received, then the machine considers that the communication has occurred fault, the inverter will decide according to the setting of communication failure action mode determine whether to protect or maintain the status quo; when this value is set to 0.0, do not perform RS485 communication timeout detection.	0.1~100.0 s	10.0s	X
b6.03	Local answer delay	This function code defines the end of the inverter data frame reception, and the middle time interval for the computer to send the response data frame, if the response time if the time is less than the system processing time, the system processing time shall prevail.	0~ 200ms	5ms	X
b6.04	Proportional linkage coefficient	This function code is used to set the inverter as a slave through rs485 the weight coefficient of the frequency command received by the interface, the actual operation of the machine the line frequency is equal to the value of this function code multiplied by the RS485 interface received frequency setting command value. In linkage control, this function the code can set the ratio of the operating frequency of multiple inverters.	0.01~10.00	1.00	○
b6.05	Multi-vendor protocol selection (reserve)	<p>0: M series 1: 380 series 2: Z c series 3: CHF series Compatible with multi-manufacturer</p>	0~3	0	X

		communication protocols as much as possible depending on the memory capacity			
b7 Group - Supplementary function parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b7.00	Counting and timing mode	Led units: Counting arrival processing 0: One-week counting, stop output 1: Single week counting, continue to output 2: Cycle counting, stop output 3: Loop counting, continue to output Led tens: Reserved Led hundreds digit: Timing arrival processing 0: One-week timing, stop output 1: Weekly timing, continue to output 2: Loop timing, stop output 3: Loop timing, continue to output Led thousands digit: Reserved	000~303	103	X
b7.01	Counter reset value setting	Set counter reset value	【 b7.02 】 ~9999	1	○
b7.02	Counter detection value setting	Set the counter detection value	0 ~ 【 b 7.01 】	1	○
b7.03	Timing time setting	Set timer	0~999 9 s	0 s	○
b7.04 ~ b7.07	Reserve	-	-	0	○
b7.08	Swing frequency control	0: Disabled 1: Active	0 ~1	0	X
b7.09	Swing control	0: Fixed swing The swing reference value is the maximum output frequency (b0.04). 1: Variable amplitude The swing reference value is a given channel frequency.	0 ~1	0	X
b7.10	Wobble frequency stop and start mode to choose	0: Start according to the state memorized before stopping 1: Restart start	0 ~1	0	X

b7.11	Swing frequency amplitude	The swing frequency amplitude is relative to the maximum output frequency (b 0.04) score .	0.0 ~100.0%	0.0%	○
b7.12	Kick frequency	This function code means that in the process of swing frequency, when the frequency reaches the swing frequency the range of the rapid decline after the frequency limit, of course, also refers to the frequency after reaching the lower limit frequency of the wobble frequency , the amplitude of the rapid rise. The value is the phase for the percentage of swing frequency amplitude (b 7.11) , set to 0.0% then there is no jump frequency.	0.0 ~50.0%	0.0%	○
b7.13	Wobble frequency rise time	The running time from the lower limit frequency of the wobble frequency to the upper limit frequency of the wobble frequency.	0.1~3600.0 s	5.0	○
b7.14	Wobble down time	The running time from the upper limit frequency of the wobble frequency to the lower limit frequency of the wobble frequency.	0.1~3600.0 s	5.0	○
b7.15	Wobble frequency upper limit frequency delay	Set the upper and lower limit frequency delay of the wobble frequency .	0.1~3600.0 s	5.0	○
b7.16	Wobble frequency lower limit frequency delay		0.1~3600.0 s	5.0	○
b8 Group - Management and display parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b8.00	Run monitoring main parameter item selection	For example: b8.00=2, namely select the output voltage (d-02), then the default display item on the main monitoring interface is the current output voltage value .	0~30	0	○
b8.01	Shutdown monitoring main parameter item selection	For example: b8.01=3, namely select the bus voltage (d-03), then the default display item of the main monitoring interface is the current bus voltage value .	0~30	1	○

b8.02	Motor speed display coefficient	It is used to correct the display error of the speed scale and has no effect on the actual speed ring .	0.01 ~99.99	1.00	○
b8.03	Parameter initialization	0: No operation	0 ~2	0	X
		<p>The inverter is in normal parameter reading and writing state. Function code setting value.</p> <p>Whether it can be changed depends on the setting state of the user password and the current related to the working status.</p> <p>1: Restore factory settings All user parameters are restored to factory defaults by model.</p> <p>2: Clear fault records Clear the contents of fault records (d - 19~ d -24) do. After the operation is completed, this function code is automatically cleared to 0.</p>			
b8.04	Jog key setting	<p>0: Jog</p> <p>1: Forward and reverse switching</p> <p>2: Clear the ▲/▼ key frequency setting</p> <p>3: Reverse run (at this time, the run key defaults to forward run)</p>	0 ~3	0	X
b8.05	Reserve	-	-	0	◆
b8.06	Run auxiliary display (only valid for dual display)	For example: b8.02=4, namely select the output current (d-02), then the default display item on the main monitoring interface is the current output voltage value .	0~30	4	○
b8.07	Shutdown auxiliary display (only valid for dual display)	For example: b8.03=3, namely select the bus voltage (d-03), then the default display item of the main monitoring interface is the current bus voltage value .	0~30	3	○
b9 Group - Manufacturer parameters					
Function code	Name	Predetermined area	Smallest unit	Factory setting	To change
b9.00	Factory password	1 ~9999	1	****	◇
d Group - Monitoring parameter group					
Function code	Name	Range	Smallest unit	Factory setting	To change
d - 00	Output frequency (Hz)	0.0 ~ 999.9Hz	0.1Hz	0.0Hz	◆

d - 01	Set frequency (Hz)	0.0 ~ 999.9Hz	0.1Hz	0.0Hz	◆
d - 02	Output voltage (V)	0 ~ 999V	1V	0V	◆
d - 03	Bus voltage (V)	0 ~ 999v	1V	0V	◆
d - 04	Output current (A)	0.0 ~ 999.9A	0.1A	0.0A	◆
d - 05	Motor speed(rpm)	0~6000 0 rpm	1 rpm	Model settings	◆
d - 06	Analog input AI (V / mA)	0.00 ~ 10.00V /0.00~20.00mA	0.01V / 0.01mA	0.00 V/mA	◆
d - 07	Reserve	-	0	0	◆
d - 08	Analog input AO (V/ mA)	0.00 ~ 10.00V /0.00~20.00mA	0.01V/ 0.01mA	0.00V/ mA	◆
d - 09	Reserve	-	-	0	◆
d - 10	PID pressure set point	0.00 ~10.00 V/0.00~99.99 (Mpa , kg)	0.01V/ (Mpa , kg)	0.00V / (Mpa , kg)	◆
d - 11	PID pressure feedback value	0.00 ~10.00 V /0.00~99.99 (Mpa , kg)	0.01V/ (Mpa , kg)	0.00v/ (Mpa, kg)	◆
d - 12	Current count value	0~999 9 s	1 s	0 s	◆
d - 13	Current timing value (s)	0~999 9 s	1 s	0 s	◆
d - 14	Input terminal state (X1~X5)	0~ 1 FH	1 h	0 h	◆
d - 15	Output status (y / r)	0 ~ 3h	1 h	0 h	◆
d - 16	Module temperature (°c)	0.0 ~132.3°C	0.1°C	0.0	◆
d - 17	Software upgrade date (year)	2 010~2026	1	2021	◆
d - 18	Software upgrade date (month, day)	0~1231	1	0615	◆
d - 19	Second fault code	0~19	1	0	◆
d - 20	Last fault code	0~19	1	0	◆
d - 21	Frequency at the latest fault (Hz)	0.0 ~ 999.9Hz	0.1Hz	0.0Hz	◆

d - 22	Current at the latest fault (A)	0.0 ~ 999.9A	0.1A	0.0V	◆
d - 23	Voltage at the latest fault (V)	0 ~ 999V	1V	0V	◆
d - 24	Temperature at the latest fault (°c)	0.0 ~132.3°C	0.1°C	0.0 °C	◆
d - 25	Inverter running cumulative time (h)	0~999 9 h	1 hour	0 hours	◆
d - 26	Inverter status	0 ~ FFFFH Bit 0: Run/stop Bit 1: Reverse/forward Bit 2: Jog Bit 3: Dc braking Bit 4: Reserved Bit 5: Over voltage limit Bit 6: Frequency down at constant speed Bit 7: Over current limit Bit 8~ 9: 00-zero speed/01-acceleration/10-deceleration/11-uniform speed bit 10: Overload pre-alarm Bit 11: Reserved Bit 12~13 running command channel: 00-panel/01-terminal/10- reserved Bit 14 ~15 bus voltage status: 00-normal/01-low voltage protection /10-overvoltage protection	1 h	0 h	◆
d - 27	Software version	1.00~99.99	0.01	1.00	◆
d - 28	Power model	0.10 ~99.9 kW	0.01 kW	Model settings	◆
d - 29	Motor estimated frequency	0.0~ maximum output frequency 【f0.0】 note: The speed is estimated by the motor operating frequency converted from degrees	0.1Hz	0.0Hz	◆
d - 30	Output torque	- 200~+200%	1 %	0 %	◆

Chapter 7 Fault diagnosis and countermeasures

Group E - Fault codes				
Fault code	Name	Possible cause of failure	Troubleshooting	Code name
E0C1	Over current during acceleration	Acceleration time is too short	Extend acceleration time	1
		Inverter power is too small	Choose a frequency converter with a large power rating	
		V/ F curve or torque boost	To adjust v/ f curve or torque boost	
E0C2	Over current during deceleration	Deceleration time is too short	Extend deceleration time	2
		Inverter power is too small	Choose a frequency converter with a large power rating	
E0C3	Over current during constant speed operation	Grid voltage is low	Check input power	3
		Load mutation or abnormality	Check load or reduce sudden change in load	
		Inverter power is too small	Choose a frequency converter with a large power rating	
EHU1	Over voltage during acceleration	Abnormal input voltage	Check input power	4
		Restarting a rotating motor	Set to start after dc braking	
EHU2	Over pressure during deceleration	Deceleration time is too short	Extend deceleration time	5
		Abnormal input voltage	Check input power	
EHU3	Over pressure during constant speed operation	Abnormal input voltage	Check input power	6
EHU4	Over pressure at shutdown	Abnormal input voltage	Check supply voltage	7
ELU0	Under voltage during operation	Abnormal input voltage or relay failure	Check the power voltage or seek service from the manufacturer	8
ESC1	Power module failure	Inverter output short circuit or ground	Check motor wiring	9
		Inverter instantaneous over current	See over current countermeasures	
		The control board is abnormal or seriously interfered	Seek service from the manufacturer	
		Damaged power devices	Seek service from the manufacturer	
E-0H	Radiator overheating	Ambient temperature is too high	Reduce ambient temperature	10
		Fan damage	Replace the fan	
		Duct blockage	Dredging channel	

E0L1	Inverter overload	V/ f curve or torque boost	To adjust v/ f curve and torque boost	11
		Grid voltage is too low	Check grid voltage	
		Acceleration time is too short	Extend acceleration time	
		Motor load is too heavy	Choose a higher power inverter	
E0L2	Motor overload	V/ f curve or torque boost	To adjust v/ f curve and torque boost	12
		Grid voltage is too low	Check grid voltage	
		Motor stall or load sudden change is too large	Check load	
		Motor overload protection factor setting is incorrect	Correctly set the motor overload protection coefficient	
E - EF	External device failure	External device fault input terminal closed	Disconnect the fault input terminal of the external device and clear the fault (pay attention to check the reason)	13
EPOF	Dual CPU communication failure	CPU communication fail	Seek service from the manufacturer	14
E PID	PID feedback disconnection	PID feedback circuit is loose	Check feedback wiring	15
		The feedback value is less than the disconnection detection value	Adjust detection input threshold	
E485	RS 485 communication failure	Of the host computer	Adjust baud rate	16
		RS 485 channel interference	Check whether the communication connection is shielded, whether the wiring is reasonable, if necessary, consider connecting the filter capacitor in parallel	
		Communication timeout	Retry	
ETUN	Motor tuning failure	Motor parameter setting error	Reset the motor parameters	17
ECCF	Current sense failure	Current sampling circuit failure	Seek service from the manufacturer	18
		Auxiliary power failure		
EEEP	EEPROM read and write errors	EEPROM fault	Seek service from the manufacturer	19
EPLI	Output phase loss protection	Output u, v, w has phase loss	Check output wiring	20
EPA0	Squib failure	The feedback pressure is less than the low pressure detection threshold or greater than or equal to the high pressure detection threshold	Check the feedback connection or adjust the detection high and low voltage threshold	22

Chapter 8 Protocol

1, RTU mode and format

Controller with RTU mode in modbus when communicating on the bus, each 8-bit byte in the information is divided into two 4-bit hexadecimal characters, the main advantage of this mode is that the density of characters it transmits is higher than that of ASCII at the same baud rate mode, each message must be transmitted consecutively.

(1) RTU the format of each byte in the pattern

Coding system: 8-bit binary, hexadecimal 0-9, a - f.

Data bits: 1 start bit, 8 data bits (lower bit first), 1 stop bit, parity bit can be selected. (refer to RTU data frame

For sequence diagram)

Error check area: Cyclic redundancy check (CRC).

(2) RTU data frame bitmap

With parity

Start	1.	2.	3.	4.	5.	6.	7.	8.	Par	Stop
-------	----	----	----	----	----	----	----	----	-----	------

No parity

Start	9.	10.	11.	12.	13.	14.	15.	16.	Stop
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2, Read and write function code description:

Function code	Function description
03	Read register
06	Write register

3, The parameter address description of the communication protocol:

Function description	Address definition	Data meaning description	R / w
Communication control command	2000H	0001H : Stop	W
		0012 H : Forward running	
		0013 H : Forward jogging operation	
		0022 H : Reverse run	
		0023 H : Reverse jog operation	
Communication setting frequency address	2001H	Communication setting frequency range is - 10000 ~ 10000. Note : The communication setting frequency is relative to the maximum the percentage of frequency , which ranges from - 100.00% ~ 100.00%).	W
Communication control command	2002H	0001 H: External fault input	W
		0002 H : Fault reset	

Read run / stop parameter description	2102H	Set frequency (two decimal places)	R
	2103H	Output frequency (two decimal places)	R
	2104H	Output current (one decimal place)	R
	2105H	Bus voltage (one decimal place)	R
	2106H	Output voltage (one decimal place)	R
	210DH	Inverter temperature (one decimal place)	R
	210EH	PIDS feedback value (two decimal places)	R
	210FH	PIDS set value (two decimal places)	R
	2101H	Bit 0: Running Bit 1: Shutdown Bit 2: Jog Bit 3: Forward rotation Bit 4: Reverse Bit 5 ~ bit 7: Reserved Bit 8: Communication setting Bit 9: Analog signal input Bit 10: Communication running command channel Bit 11: Parameter lock Bit 12: Running Bit 13: Inching command Bit 14 ~ bit 15 : Reserved	R
Read fault code description	2100H	00: No exception 01: Module failure 02: Over voltage 03: Temperature fault 04: Inverter overload 05: Motor overload 06: External fault 07 ~ 09: Reserved 10: Over current during acceleration 11: Over current during deceleration 12: Over current during constant speed 13: Reserved 14: Under voltage	R

4, 03 read function mode:

Inquiry information frame format (send frame):

Address	01H
Function	03H
Starting data address	21H
	02H
Data(2 Byte)	00H
	02H
CRC CHK LOW	6FH
CRC CHK HIGH	F7H

Analysis of this section of data:

01H is the inverter address
03H for reading function code
2102H as the starting address
0002H it is the number of read addresses, and 2102H and 2103H
F76FH 16 - bit CRC verification code

Response information frame format (back frame):

Address	01H
Function	03H
Data Num*2	04H
Data1 (2 Byte)	17H
	70H
Data (2 Byte)	00H
	00H
CRC CHK LOW	FEH
CRC CHK HIGH	5CH

Analysis of this section of data:

01H is the inverter address
03H for reading function code
04H is the product of read items*2
1770H to read the data of 2102H (setting frequency)
0000H to read the data of 2103H (output frequency)
5CFEH It is 16-bit CRC check code

5, 06 H write function mode

Inquiry information frame format (send frame):

Address	01H
Function	06H
Starting data address	20H
	00H
Data(2 Byte)	00H
	01H
CRC CHK LOW	43H
CRC CHK HIGH	CAH

Analysis of this section of data:

- 01H is the inverter address
- 06H write function code
- 2000H For the control command address
- 0001H for shutdown command
- 43CAH 16-bit CRC check code

Response information frame format (back frame):

Address	01H
Function	06H
Starting data address	20H
	00H
Data(2 Byte)	00H
	01H
CRC CHK LOW	43H
CRC CHK HIGH	CAH

Data analysis of this section: If the settings are correct, return the same input data.

Warranty agreement

1. From the day the user purchases the product from the manufacturer, under normal use conditions (no water vapor dust) implementation period 24month warranty (exit foreign/non-standard machine products are excluded).
2. This product enjoys paid lifetime service from the date of purchase from the manufacturer.
3. During the warranty period, if the damage is caused by the following reasons, a certain maintenance fee will be charged:
 - A. Damage to the machine caused by mistakes in use and unauthorized maintenance and modification;
 - B. Do not follow the procedures listed in the "Product manual" Provided by our company to operate correctly;
 - C. Product damage caused by force majeure such as earthquake, fire, wind and water disaster, lightning strike, abnormal voltage or other natural disasters bad;
 - D. During the transportation process after the user purchases the product, due to improper selection of the transportation method, the product is damaged due to drop or other external force intrusion;
 - E. Due to obstacles other than the machine (such as external device factors) resulting in failure and damage;
4. The manufacturer has the right not to provide warranty service under the following circumstances:
 - A. When the user fails to pay off the payment in accordance with the "Purchase and sales contract" Signed by both parties;
 - . The user intentionally conceals the defects of the product in the installation, wiring, operation, maintenance or other processes from the manufacturer's after-sales service provider. Usage.
5. If you have any questions during use, please contact our agent or our company in time.

