

HONWIN TECH



V20 Series

Exquisite Vector Drive User Manual

Honwin Technology Co., Ltd

Safety Precautions

Safety statement

- ◆ Please read carefully and observe the safety precautions when installing, operating and maintaining the product.
- ◆ To ensure personal and equipment safety, when installing, operating and maintaining the product, please follow all safety precautions indicated on the product and the manual.
- ◆ The "precautions" and "danger" items in the manual do not represent all safety items that should be followed, they are only the supplement of all the safety precautions.
- ◆ This product shall be used in an environment that meets the design specification requirements, otherwise it may cause faults, and functional abnormalities or component damage caused by failure to comply with relevant regulations are not within covered by the product quality guarantee.
- ◆ Our company will not bear any legal responsibility for personal safety accidents and property losses caused by violation operation of the products.

Definition of safety level

 "Danger" means death or serious personal injury if you do not follow the regulations.

 "Notice" means that if you do not follow the regulations, it may cause minor physical injury or equipment damage.

Safety precautions

■ Before installation

Danger

- Do not touch control terminals, single board components and drive components with your hands directly!
- Please do not use the drive with missing or damaged components; otherwise there is a risk of failure expansion and personal injury!

Note

- Check out if the rated value of the product nameplate is consistent with your order requirements, if not, please do not install it!
- Please do not install when the packing list is not consistent with the actual object.

■ Installation

 Danger

- Installation must be installed by qualified personnel; otherwise there will be a risk of electric shock!
- The drive shall be installed on metal or other flame-retardant objects, otherwise there will be a risk of fire!
- The installation of the drive shall be far away from flammable objects and heat sources, otherwise there will be a risk of fire!
- The drive can not be installed in an environment containing explosive gas, otherwise there will be a risk of explosion!
- Do not twist the fixing bolts of equipment components at will, especially the bolts marked with red, otherwise there will be a risk of equipment damage!

 Note

- drive shall be handled gently, and support the base plate of the product to prevent your feet from being injured or damage drive !
- Please install it in a place that can bear the weight of the drive, otherwise there is risk of equipment damage and personal injury when falling!
- Avoid dropping drilling residues, wire ends and screws into the drive during installation; otherwise it may cause failure of drive.
- When the drive is installed in the cabinet, heat dissipation shall be properly handled; otherwise it may cause product failure or damage!

■ Wiring

 Danger

- Wiring must be installed by qualified personnel; otherwise there is a risk of electric shock or equipment damage!
- Strictly follow this manual during wiring; otherwise there is a risk of electric shock or equipment damage!
- Only when the input power supply is completely disconnected can wiring be installed, otherwise there is a risk of electric shock!
- All wiring and circuits shall meet the requirements of EMC and safety standards. Please refer to the recommendations in this manual for wire diameter, otherwise accidents may occur!
- The leakage current of the whole drive may be more than 3.5mA. In order to ensure safety, the drive and the motor must be grounded; otherwise there is a risk of electric shock!
- It must be wired in strict accordance with the screen printing of drive terminals, it is forbidden to connect the three-phase power supply to the

- output terminals U, V and W, otherwise there is a risk of equipment damage!
- Please install the brake resistor at B1 and B2/+ ends correctly, and do not connect to other terminals, otherwise there is a risk of equipment damage!
 - Main circuit terminal wiring screw bolts must be tightened; otherwise there is a risk of equipment damage!
 - It is forbidden to connect AC 220V voltage grade signals to terminals other than control terminals RA, RB and RC; otherwise there is a risk of equipment damage!

 Note

- All the products have been subjected to withstand voltage test before leaving the factory. It is forbidden to conduct this test on the drive; otherwise there is a risk of equipment damage!
- Terminal signal lines of the drive shall be far away from main power line, and they be vertically crossed under the condition that the distance cannot be guaranteed, otherwise the control signals shall be interfered!
- When the length of motor cable is more than 100m, it is recommended to select output reactor, otherwise there is a risk of equipment failure!

■ Operation

 Danger

- If the storage time of the drive exceeds 2 years, the voltage regulator shall be applied to boost the voltage gradually; otherwise there is a risk of equipment damage!
- Only when the wiring is finished according to the requirements of section 1.3, can the drive be powered on; otherwise there is a risk of equipment damage or electric shock!
- After the drive wiring is confirmed to be correct, the power can only be turned on after the cover plate is covered. It is forbidden to open the cover plate after the power is turned on; otherwise there is a risk of electric shock!
- After the drive is powered on, do not touch the drive and its peripheral circuits regardless of the state of the drive, otherwise there is a risk of electric shock!
- Before running the drive, make sure there are no people around the motor who can touch it; otherwise, there is a risk of injury!
- During the operation of the drive, foreign material shall be avoided from falling into the equipment; otherwise there is a risk of equipment damage!
- Non-professional technicians are forbidden to test signals during operation, otherwise there is a risk of personal injury or equipment damage!

- Do not change drive parameters at will; otherwise there is a risk of equipment damage!

 Note

- Please confirm whether the number of phases and rated voltage of the power supply are consistent with the nameplate of the product, otherwise equipment damage may be caused!
- Check whether there is short circuit in the peripheral circuit connected to the drive and whether the wiring is tight, otherwise the equipment damage may be caused!
- Before operation, please make sure that the motor and machinery are within the permitted usage range, otherwise the equipment may be damaged!
- It is forbidden to touch the fan, radiator and brake resistor directly; otherwise there is a risk of mechanical damage and scalding!
- Do not control the start and stop of the drive frequently by switching on and off, otherwise there is a risk of equipment damage!
- Before switching on/off the drive output switch or contactor, it must make sure that the drive is in a no-output state, otherwise there is a risk of equipment damage!

■ Maintenance

 Danger

- Product maintenance, inspection or replacement of parts must be carried out by engineers with professional qualifications!
- It is forbidden to maintain, inspect or replace parts of the product with electricity; otherwise there is a risk of electric shock!
- It must wait for 5 minutes at least after power failure to ensure that the residual voltage of the electrolytic capacitor drops below 36V before maintenance, inspection or replacement of parts can be carried out!
- After replacing the drive, it must be executed again in strict accordance with the above procedures!

 Note

- When maintaining, inspecting or replacing the parts, please try not to touch the component body, otherwise there is a risk of static electricity damaging the device!
- All plug-in devices can only be plugged and unplugged when power is off!

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Chapter 1 V20 series product overview

1.1 Appearance and installation dimensions

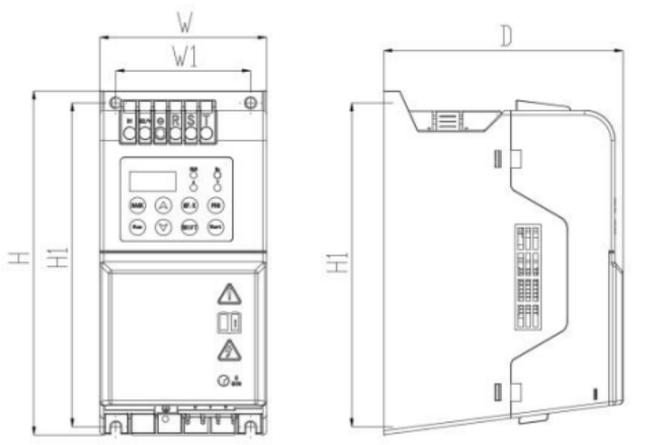


Figure1-1 Installation Dimension Diagram of V20-4T0.75G/1.5LB~V20-4T3.7G/5.5LB

Table1-1 V20 Installation Dimensions

Drive model	Appearance and installation dimensions (mm)					
	W	H	D	W1	H1	Installation Aperture
V20-4T0.75G/1.5LB	83	173	119	67	163	4.5
V20-4T1.5G/2.2LB						
V20-4T2.2G/3.7LB						
V20-4T3.7G/5.5LB						

1.2 Rated specifications

Table 1-2 rated specifications

Drive model	Power supply capacity(kVA)	input current (A)	Output current (A)	Adapted motor (kW)
V20-4T0.75G/1.5LB	2.8	2.4	2.3	0.75
V20-4T1.5G/2.2LB	5.0	4.6	3.8	1.5
V20-4T2.2G/3.7LB	6.7	6.3	5.1	2.2
V20-4T3.7G/5.5LB	12	11.4	9.0	3.7

1.3 Peripheral devices、terminal screw and wiring specifications

Table1-3 Peripheral devices、terminal screw and wiring specifications

Drive model	Circuit breaker (A)	Contactor (A)	Power terminal		
			Screw	Fastening Torque (N.m)	Cable Specification (mm ²)
V20-4T0.75G/1.5LB	10	9	M4	1.2~1.5	2.5
V20-4T1.5G/2.2LB	10	9	M4	1.2~1.5	2.5
V20-4T2.2G/3.7LB	16	12	M4	1.2~1.5	2.5
V20-4T3.7G/5.5LB	20	18	M4	1.2~1.5	4

1.4 Functional description of main circuit terminal

1) V20-4T0.75G/1.5LB~V20-4T3.7G/5.5LB



Terminal marking	Terminal name and function description
R、S、T	Three-phase AC input terminal
B1、B2/⊕	Connecting terminal of brake resistor
B2/⊕、⊖	Positive and negative terminals of DC bus; DC input terminal of external brake unit
U、V、W	drive output terminal
⊕	Grounding terminal

1.5 Standard wiring diagram

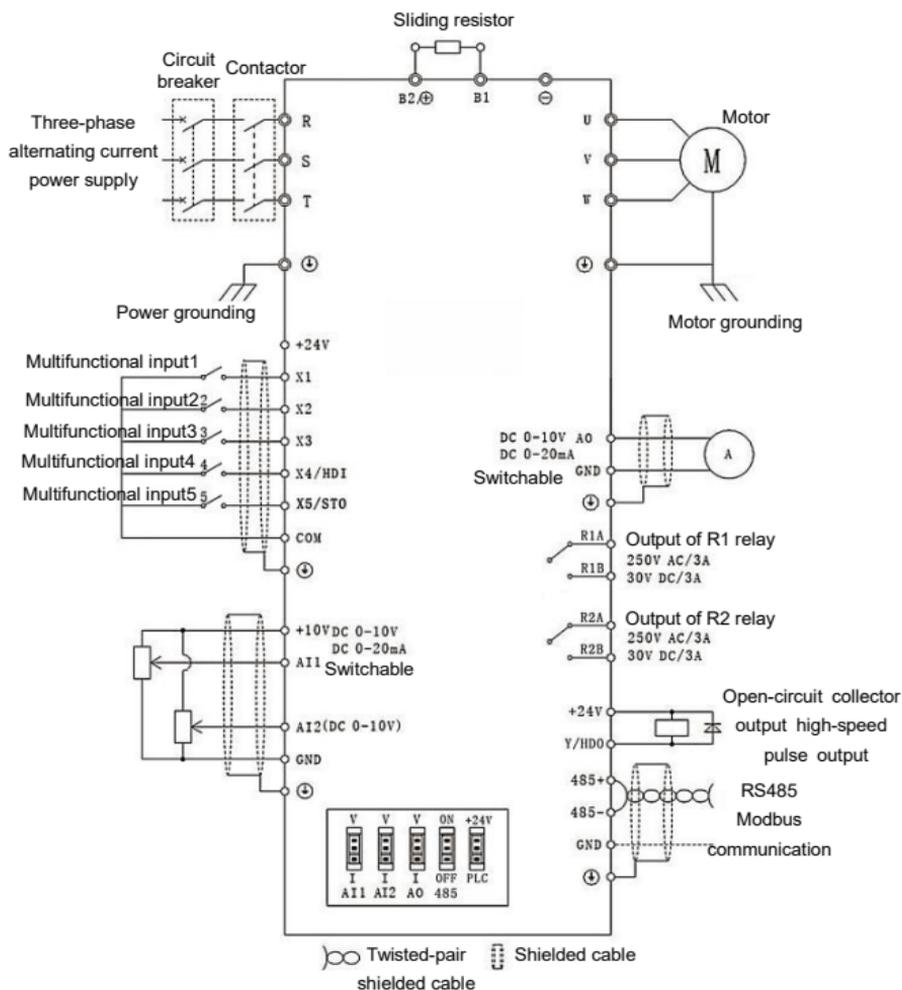


Figure 1-2 Standard Wiring Diagram

1.5.1 Wiring description for control terminals

Y/HDO	COM	+10V	AI1	AI2	GND	AO	485+	485-
-------	-----	------	-----	-----	-----	----	------	------

R1A	R1B	R2A	R2B	24V	COM	X1	X2	X3	X4/HDI	X5/STO
-----	-----	-----	-----	-----	-----	----	----	----	--------	--------

Figure 1-3 Layout of Control Terminal

Table 1-4 Function Description of Control Terminal

Power supply	+24V	24Vpower	24V \pm 20%, Internally isolated from GND
	COM	+24V power ground	The maximum output current : 200mA
Analog input	+10V	Analog input reference voltage	10V \pm 1%, internally isolated from COM The maximum output current is 20mA
	GND	Analog ground	Internal isolation from COM
	AI1	Analog input channel 1	0~10V:input impedance 22k Ω
			0~20mA:input impedance 500 Ω
			The switch between 0~10V and 0~20mA analog input is realized through dial switch J100, and the factory default voltage is input.
AI2	Analog input channel 2	0~10V:input impedance 22k Ω	
Analog output	AO	Analog output	0~10V:input impedance \geq 10k Ω
			0~20mA:impedance requirement 200 Ω ~500 Ω
			The switch between 0~10V and 0~20mA analog output is realized through dial switch J101, and the factory default voltage is output.
	GND	Analog ground	Internal isolation from COM

Digital input	X1-X5	Multifunctional input terminals 1 to 5	Input specifications: 24VDC, 5mA Frequency range: 0 - 200Hz Voltage range: 24V ± 20%
	X4/HDI	Multifunctional input	multi-functional input :same as X1 ~ X3、 X5
		High-speed pulse input	Frequency range:0.1kHz~50.0kHz Voltage:24V
	X5/STO (The functions cannot be realized simultaneously)	Multifunctional input	Multifunctional input same as X1 to X4
Safety torque disengagement		When activating the STO, the motor is in a stationary state, which can prevent the stationary motor from accidentally starting; When activating the STO, the motor is already rotating. The motor will continue to rotate by inertia until it comes to a stop. If the motor has a brake, the brake will close immediately.	
Digital output	Y	Open collector output	Open collector output: 1. Voltage range: 0 - 24V; 2. Current range: 0 - 50mA
	HDO	Pulse output	Pulse output: 0 - 50.00 kHz
	COM	Open collector output common terminal	Isolated from GND internally
Relay Output	R1A/R1B	Output of R1 relay	R1A - R1B: Normally Open
			Contact capacity: 250VAC/3A, 30VDC/3A
	R2A/R2B	Output of R2 relay	R2A - R2B: Normally Open
			Contact capacity: 250VAC/3A, 30VDC/3A
Terminal 485	485+	485 Differential Signal Positive	Rate: 4800/9600/19200/38400/57600/115200 bps. Maximum distance: 500 meters (using standard twisted-pair shielded cable)
	485-	485 Differential Signal Negative	
	GND	485 communication shielding grounding	Isolated from COM internally

1.6 Selection of brake resistor

Table 1-5 Reference Table for Selection of Brake Resistor

Drive model	Brake unit	Brake resistor		
		Standard power	Standard resistor	Minimum limit resistance
V20-4T0.75G/1.5LB	Standard built-in	110W	750Ω	125Ω
V20-4T1.5G/2.2LB		260W	400Ω	100Ω
V20-4T2.2G/3.7LB		320W	250Ω	100Ω
V20-4T3.7G/5.5LB		800W	150Ω	66.7Ω

1.7 Instructions for operating the keyboard

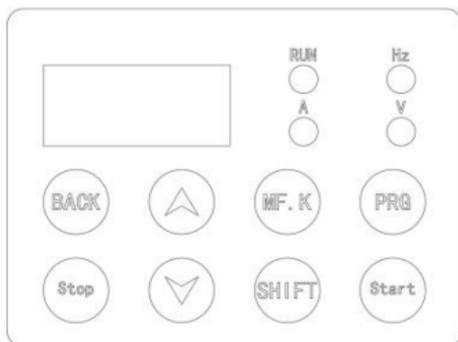


Figure 1-4 Operation keyboard diagram

1.8 Operate the keyboard key function

There are 8 keys on the drive operation keyboard, and the function definitions of each key are shown in Table 1-6

Table 1-6 Function Table of Operating Keyboard Keys

Button press	Key name	Key function
PRG	Programming key	1. Enter the sub-menu or the monitoring menu 2. Parameter saving
BACK	Back key/enter the first level menu key	Return to the upper-level menu and enter the first-level menu
▲	Increase key	1. The function code sequence number is incremented when selected 2. Select bit increment for the parameter editing value 3. The frequency of digital setting increases
▼	Reduce key	1. Select the function code sequence number and subtract it 2. Select bit subtraction for the parameter editing value 3. Reduce the frequency of digital setting
SHIFT	Right shift key	1. When the function code sequence number is selected, move it to the right 2. The parameter editing value position is selected and moved to the right 3. Switch the display

		parameters for shutdown/operation status 4. Switch the fault status to the parameter display status
Start	Run key	run
Stop	Stop key	1. Shut down 2. Fault reset
MF-K	Multifunctional key	Refer to the multi-functional MF·K Key Function Definition Table 1-7

Table 1-7 Function Definition Table of Multi-functional MF-K Keys

Definition of MF-K (P20.08)	Function	Functional meaning
0	No function	The multi-function key is invalid.
1	Run the command to switch the given mode	Keyboard control Terminal control Communication control cycle switching
2	Click to rotate forward	Tap the forward rotation
3	Click to rotate reversal	Jog reverse function
4	Forward and reverse rotation switching	The direction change key allows you to switch between forward rotation and reverse rotation.

Table 1-8 Indicator Light Instructions

Indicator light		Name	Meaning
Status indicator light	RUN	Operating status indicator	On: Running Off: Stopped
Workstation lamp	Hz	Frequency indication	On: The current display parameter is frequency
	A	Current indication	On: The current displayed parameter is current
	V	Voltage indication	On: The currently displayed parameter is voltage.
	Hz+A	Speed indication	On: The currently displayed parameter is rotational speed
	A+V	Percentage indication	On: The currently displayed parameter is in percentage form
	Hz+V	Power indication	On: The currently displayed parameter is power
	Hz+V+ A	Time indication	On: The currently displayed parameter is time
		Dimensionless indicator	Off: The current display parameter is dimensionless.

Chapter 2 Parameter List

Parameter symbol description:

- : Indicate that the parameter can be modified during running
- : Indicate that the parameters cannot be modified during running and can be modified during shutdown.
- ★: Indicate that the parameters are read-only, such as monitoring parameters

Parameter	Name	Setting range	Factory value	Register address	Properties
P00 Frequency setting parameters					
P00.00	Digital setting of main frequency	0.00Hz~upper limit frequency	50.00Hz	0x0000	○
P00.01	Main frequency source selection	0:digital given (P00.00)+Up/Down adjustment 1: analog input AI1 2: analog input AI2 3:reserve 4:Min[AI1,AI2] 5:Max[AI1,AI2] 6:Sub[AI1,AI2] 7:Add[AI1,AI2] 8: pulse given HDI 9: process PID A: simple PLC B:External keyboard potentiometer C:no given	3	0x0001	○
P00.02	Digital setting of auxiliary frequency	0.00Hz~upper limit frequency	50.00Hz	0x0002	○
P00.03	Auxiliary frequency source selection	0: digital given (P00.02) 1: analog input AI1 2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2]	B	0x0003	○

Parameter	Name	Setting range	Factory value	Register address	Properties
		7: Add[A11,A12] 8: pulse given HDI 9: reserve A: reserve B: no given			
P00.04	Main given coefficient of frequency	0.0%~200.0%	100.0%	0x0004	○
P00.05	Auxiliary given coefficient of frequency	0.0%~200.0%	100.0%	0x0005	○
P00.06	Main and auxiliary overlay selection of frequency	Ones: frequency given mode 0: frequency main given 1: main and auxiliary operation result of frequency 2: main given and auxiliary given switching of frequency 3: main given and main auxiliary operation result switching of frequency 4: auxiliary given and main auxiliary operation result switching of frequency Tens: given operation relation of frequency main and auxiliary 0: Min[main, auxiliary] 1: Max[main, auxiliary] 2: Sub[main, auxiliary] 3: Add[main, auxiliary]	00	0x0006	○
P00.07	Maximum frequency	10.00Hz~300.00Hz	50.00Hz	0x0007	●
P00.08	upper limit frequency	Lower limit frequency-maximum	50.00Hz	0x0008	●

Parameter	Name	Setting range	Factory value	Register address	Properties
		frequency			
P00.09	Lower limit frequency	0.00Hz~upper limit frequency	0.00Hz	0x0009	•
P00.10	Jumping frequency 1	0.00Hz~upper limit frequency	0.00Hz	0x000A	•
P00.11	Jumping range 1	0.00Hz~30.00Hz	0.00Hz	0x000B	•
P00.12	Jumping frequency 2	0.00Hz~upper limit frequency	0.00Hz	0x000C	•
P00.13	Jumping range 2	0.00Hz~30.00Hz	0.00Hz	0x000D	•
P00.14	Jumping frequency 3	0.00Hz~upper limit frequency	0.00Hz	0x000E	•
P00.15	Jumping range 3	0.00Hz~30.00Hz	0.00Hz	0x000F	•
P00.16	Jog frequency setting	0.00Hz~upper limit frequency	5.00Hz	0x0010	•
P01 start-stop control parameters					
P01.00	The way of giving the command for execution	0: Keyboard command mode 1: Terminal command mode 2: Communication command mode 3: Multi-segment command mode	0	0x0100	•
P01.01	Bundled frequency with command given mode rate source	Ones: selection of keyboard command binding frequency source Tens: selection of terminal command binding frequency source Hundreds: selection of communication command binding frequency source	BBB	0x0101	•

Parameter	Name	Setting range	Factory value	Register address	Properties
		0: digital given (P00.00)+Up/Down adjustment 1: analog input AI1 2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2] 7: Add[AI1,AI2] 8: pulse given HDI 9: process PID A: simple PLC B: no binding			
P01.02	Running direction selection	0: positive direction 1: reverse direction	0	0x0102	•
P01.03	Reverse control selection	0: allow reverse rotation 1: forbid reverse rotation	0	0x0103	•
P01.04	Forward/ Reverse rotation dead-zone time	0.0s~3600.0s	0.0s	0x0104	•
P01.05	Selection of starting mode	0: start from start frequency 1: speed search starting	0	0x0105	•
P01.06	Starting frequency setting	0.00Hz~upper limit frequency	0.50Hz	0x0106	•
P01.07	Frequency startup hold time	0.0s~3600.0s	0.0s	0x0107	•
P01.08	Starting DC brake current/ pre-excitation current	0.0%~100.0%	50.0%	0x0108	•
P01.09	Starting DC braking time/	0.00s~30.00s 0.00s: Indicate that starting	0.00s	0x0109	•

Parameter	Name	Setting range	Factory value	Register address	Properties
	pre-excitation time	DC brake is invalid			
P01.10	Selection of stop mode	0: slow down and stop 1: free stop	0	0x010A	●
P01.11	Starting frequency of stop DC brake	0.00Hz~upper limit frequency	0.50Hz	0x010B	●
P01.12	Stop DC brake current	0.0%~100.0%	50.0%	0x010C	●
P01.13	Stop DC braking time	0.00s~30.00s 0.00s:0.00s: indicate that the stop DC brake is invalid	0.00s	0x010D	●
P02 acceleration and deceleration parameters					
P02.00	Acceleration time 1	0.1s~6000.0s	Model determination	0x0200	○
P02.01	Deceleration time 1	0.1s~6000.0s	Model determination	0x0201	○
P02.02	Acceleration time 2	0.1s~6000.0s	Model determination	0x0202	○
P02.03	Deceleration time 2	0.1s~6000.0s	Model determination	0x0203	○
P02.04	Acceleration time 3	0.1s~6000.0s	Model determination	0x0204	○
P02.05	Deceleration time 3	0.1s~6000.0s	Model determination	0x0205	○
P02.06	Acceleration time 4	0.1s~6000.0s	Model determination	0x0206	○
P02.07	Deceleration time 4	0.1s~6000.0s	Model determination	0x0207	○
P02.08	Emergency stop deceleration time	0.1s~6000.0s	Model determination	0x0208	●
P02.09	Jog acceleration time	0.1s~6000.0s	Model determination	0x0209	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P02.10	Jog deceleration time	0.1s~6000.0s 25	Model determination	0x020A	•
P02.11	line acceleration time switching frequency	0.00Hz~upper limit frequency	0.00Hz	0x020B	•
P02.12	line deceleration time switching frequency	0.00Hz~upper limit frequency	0.00Hz	0x020C	•
P02.13	Selection of acceleration and deceleration curves	0~1	0	0x020D	•
P02.14	acceleration curve begin	0%~200%	50%	0x020E	•
P02.15	acceleration curve finish	0%~200%	50%	0x020F	•
P02.16	Accelerate the slope of the middle section	0%~200%	0%	0x0210	•
P02.17	Deceleration start curve	0%~200%	50%	0x0211	•
P02.18	Deceleration end curve	0%~200%	50%	0x0212	•
P02.19	Deceleration mid-course slope	0%~200%	0%	0x0213	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P03 vector control parameter					
P03.00	Speed/torque control selection	Ones: Vector control selection 0: speed control 1: torque control Tens: power generation limit 0: invalid 1: whole process 2: constant speed 3: slow down	00	0x0300	●
P03.01	Speed loop high speed proportional gain	0.00~30.00	2.00	0x0301	○
P03.02	Speed loop high speed integration time	0.001~5.000s	0.200s	0x0302	○
P03.03	Speed loop low speed proportional gain	0.00~30.00	2.00	0x0303	○
P03.04	Speed loop low speed integration time	0.001~5.000s	0.200s	0x0304	○
P03.05	Speed loop PI switching frequency 1	0.00Hz~P03.06	5.00Hz	0x0305	○
P03.06	Speed loop PI switching frequency 2	P03.05~upper limit frequency	10.00Hz	0x0306	○
P03.07	Speed feedback filtering time	0.0ms~1000.0ms	15.0ms	0x0307	○
P03.08	Drive torque selection channel	Ones: torque control selection channel Tens: speed control selection channel 0: digital setting P03.09	90	0x0308	●

Parameter	Name	Setting range	Factory value	Register address	Properties
		1: analog input AI1 2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2] 7: Add[AI1,AI2] 8: pulse given HDI 9: maximum value of the drive			
P03.09	Digital setting of drive torque	-200.0%~200.0%	150.0%	0x0309	○
P03.10	Generation torque selection channel	Ones: torque control selection channel Tens: speed control selection channel 0: digital setting P03.11 1: analog input AI1 2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2] 7: Add[AI1,AI2] 8: pulse given HDI 9: maximum value of the drive	99	0x030A	●
P03.11	Digital setting of generation torque	-200.0%~200.0%	150.0%	0x030B	○
P03.12	Limiting channel of torque control frequency	Ones: frequency forward limit channel Tens: frequency reverse limit channel 0: digital setting P03.13/P03.14 1: analog input AI1	00	0x030C	●

Parameter	Name	Setting range	Factory value	Register address	Properties
		2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2] 7: Add[AI1,AI2] 8: pulse given HDI			
P03.13	Positive setting of torque control frequency	0.00Hz~maximum frequency	50.00Hz	0x030D	○
P03.14	Reverse setting of torque control frequency	0.00Hz~maximum frequency	50.00Hz	0x030E	○
P03.15	Limiting bias of torque control frequency	0.00Hz~maximum frequency	0.00Hz	0x030F	○
P03.16	Adjustment proportional gain of excitation current	0~60000	2000	0x0310	○
P03.17	Adjustment integral gain of excitation current	0~60000	1000	0x0311	○
P03.18	Adjustment proportional gain of torque current	0~60000	2000	0x0312	○
P03.19	Adjustment integral gain of torque current	0~60000	1000	0x0313	○
P03.20	Ascending filtering time of drive torque	0.0s~6000.0s	0.3s	0x0314	○
P03.21	Declining filtering time of drive torque	0.0s~6000.0s	0.3s	0x0315	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P03.22	Torque limitation coefficient in the weak magnetic area	0.0%~200.0%	100.0%	0x0316	○
P03.23	Power limit coefficient in power generation area	0.0%~200.0%	100.0%	0x0317	○
P03.24	Torque control deviation frequency setting	0.00Hz~10.00Hz	0.00Hz	0x0318	○
P03.25	Current loop parameter adjustment	0x0000~0xFFFF	0x0000	0x0319	○
P04 Scalar Control Parameters					
P04.00	V/F curve setting	0: straight line V/F 1: multi-stage V/F 2: 1.2 Exponentiation 3: 1.4 Exponentiation 4: 1.6 Exponentiation 5: 1.8 Exponentiation 6: 2.0 Exponentiation 7: separation V/F	0	0x0400	●
P04.01	V/F frequency value F0	0.00Hz~P04.03	0.00Hz	0x0401	●
P04.02	V/F voltage value V0	0.0%~P04.04	0.0%	0x0402	●
P04.03	V/F frequency value F1	P04.01~P04.05	0.00Hz	0x0403	●
P04.04	V/F voltage value V1	P04.02~P04.06	0.0%	0x0404	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P04.05	V/F frequency value F2	P04.03~P04.07	0.00Hz	0x0405	●
P04.06	V/F voltage value V2	P04.04~P04.08	0.0%	0x0406	●
P04.07	V/F frequency value F3	P04.05~P63.03	50.00Hz	0x0407	●
P04.08	V/F voltage value V3	P04.06~100.0%	100.0%	0x0408	●
P04.09	Torque boost	0.0%~30.0% 0.0%: effective automatic torque promotion	0.0%	0x0409	●
P04.10	Droop control quantity	0.00Hz~10.00Hz	0.00Hz	0x040A	●
P04.11	V/F oscillation suppression gain 1	0~1024	160	0x040B	○
P04.12	V/F oscillation suppression gain 2	0~1024	160	0x040C	○
P04.13	V/F separation mode voltage given selection	0: P04.14 digital setting 1: analog input AI1 2: analog input AI2 3: reserve 4: process PID output 5: process PID output +AI1	0	0x040D	●
P04.14	V/F separation mode voltage digital given	0.0%~100.0%	0.0%	0x040E	○
P04.15	V/F separation mode voltage change time	0.00s~600.00s	0.01s	0x040F	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P10 switching value x input					
P10.00	X1 terminal function selection	00: no function 01: forward running (FWD) 02: reverse running (REV)	1	0x1000	•
P10.01	X2 terminal function selection	03: forward running inching (FJOG) 04: reverse inching (RJOG)	2	0x1001	•
P10.02	X3 terminal function selection	05: 3-wire operation 06: free stop 07: emergency stop	16	0x1002	•
P10.03	X4/HDI terminal function	08: external stop 09: operation forbidden 10: operation suspended 11: external fault input 12: fault reset (RESET) 13: terminal adjustment Up 14: terminal adjustment Down 15: Up/Down setting clearing (terminal, keyboard) 16: multi-stage frequency terminal 1 17: multi-stage frequency terminal 2 18: multi-stage frequency terminal 3 19: multi-stage frequency terminal 4 20: selection of acceleration and deceleration time 1 21: selection of acceleration and deceleration time 2 22: acceleration and deceleration forbidding	17	0x1003	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P10.04	X5/STO Terminal Function selection	23: command switch to keyboard control 24: command switch to terminal control 25: command switch to communication control 26: frequency source switching (P00.06[ones]) 27: main frequency source switch to frequency digital setting 28: auxiliary frequency source Switch to frequency digital setting 29: stop DC braking+ stop command 30: stop DC braking 31: running DC braking 32: pulse input (X4/HDI support high speed) 33: count input 34: count clearing 35: length counting 36: length clearing 37: PID action direction 38: PID parameter switching 39: PID operation suspend 40: PID integral suspending 41: PLC memory clear 42: PLC operation failure 43: PLC operation suspending 44-45: reserve 46: speed/torque switching 47: torque control forbidding	18	0X1004	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P10.11	Terminal control operation mode selection	0: 2-wire operation mode 1 1: 2-wire operation mode 2 2: 3-wire operation mode 1 3: 3-wire operation mode 2	0	0x100B	●
P10.12	Logic state setting of input terminal	Ones: Bit0~Bit3:X1~X4 Tens: Bit4: X5 Hundreds: maintain 0: positive logic 1: negative logic	000	0x100C	●
P10.13	Input terminal filtering time	0.000s~2.000s	0.010s	0x100D	○
P10.14	X1 terminal conduction delay	0.0s~3600.0s	0.0s	0x100E	○
P10.15	X1 terminal disconnection delay	0.0s~3600.0s	0.0s	0x100F	○
P10.16	X2terminal conduction delay	0.0s~3600.0s	0.0s	0x1010	○
P10.17	X2 terminal disconnection delay	0.0s~3600.0s	0.0s	0x1011	○
P10.18	Terminal detection mode	Ones: Bit0~Bit3:X1~X4 Tens: Bit4:X5 Hundreds: maintain 0: level valid 1: edge valid	000	0x1012	●
P10.19	Virtual Terminal input enablement	0x000~0x7FF	0x000	0x1013	○
P10.20	Virtual terminal input setting	0x000~0x7FF	0x000	0x1014	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P11 switching value Y/R output					
P11.00	Y terminal function selection	00: no output 01: drive in operation 02: forward running of drive	0	0x1100	•
P11.02	Function selection of R1 relay	03: reverse running of drive 04: ready to complete of drive 05: drive in zero frequency operation (stop ON) 06: drive in zero frequency operation (stop OFF) 07: frequency reaching FAR	19	0x1102	•
P11.03	R2 relay Function selection	08: frequency level detection signal FDT1 09: frequency level detection signal FDT2 10: frequency upper limit 11: frequency lower limit 12: torque limiting action (during speed control) 13: speed limiting action (during torque control) 14: X1 terminal status 15: X2 terminal status 16: zero current detection 17: DC braking of drive 18: drive under-voltage 19: drive fault output 20: drive alarm output 21: drive overload early warning 22: drive overheating alarm 23: motor overload early warning 24: motor overheating alarm	0	0x1103	•

Parameter	Name	Setting range	Factory value	Register address	Properties
		25: PLC cycle completed 26: PLC stage completed 27: reserve 28: reaching cumulative power-on time 29: reaching cumulative running time 30: reaching the setting count value 31: reaching the specified count value 32: reaching the setting length 33-35: reserve			
P11.04	Y output closing	0.0s~3600.0s	0.0s	0x1104	○
P11.05	Y output	0.0s~3600.0s	0.0s	0x1105	○
P11.08	R output closing	0.0s~3600.0s	0.0s	0x1108	○
P11.09	R output	0.0s~3600.0s	0.0s	0x1109	○
P11.12	Logic state setting of output terminal	BIT0: Y/HDO, BIT2:R 0: positive logic 1: negative logic	00	0x110C	○
P11.13	FDT1 detection mode	0: check out by operating frequency 1: check out by output frequency	0	0x110D	○
P11.14	FDT1 upper level limit	P11.15~maximum frequency	2.50Hz	0x110E	○
P11.15	FDT1 lower level limit	0.00Hz~P11.14	2.00Hz	0x110F	○
P11.16	FDT2 detection mode	0: check out by operating frequency 1: check out by output frequency	0	0x1110	○
P11.17	FDT2 upper level limit	P11.18~maximum frequency	2.50Hz	0x1111	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P11.18	FDT2 lower level limit	0.00Hz~P11.17	2.00Hz	0x1112	○
P11.19	Frequency arrival (FAR) detection width	0.00Hz~maximum frequency	2.50Hz	0x1113	○
P11.20	Zero frequency signal detection value	0.00Hz~maximum frequency	0.50Hz	0x1114	○
P11.21	Zero frequency return range	0.00Hz~maximum frequency	0.00Hz	0x1115	○
P11.22	Zero current detection level	0.0%~50.0%	5.0%	0x1116	○
P11.23	Zero current detection time	0.00s~50.00s	0.50s	0x1117	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P12 analog AI and high speed pulse HDI input					
P12.00	AI analog curve selection	Ones: AI1 characteristic curve selection Tens: AI2 characteristic curve selection 0: no correction 1: curve 1(2 points) 2: curve 2 (4 points) 3: curve 3 (4 points)	00	0x1200	●
P12.01	Maximum input of curve 1	Minimum input (P12.03)~10.00V	10.00V	0x1201	○
P12.02	Maximum input corresponding curve 1	-100.0%~100.0%	100.0%	0x1202	○
P12.03	Minimum input of curve 1	-10.00 v~maximum input (P12.01)	0.00V	0x1203	○
P12.04	Minimum input corresponding curve 1	-100.0%~100.0%	0.0%	0x1204	○
P12.05	Maximum input value of curve 2	Inflection point 2 input (p12.07)~10.00 v	10.00V	0x1205	○
P12.06	Maximum input corresponding curve 2	-100.0%~100.0%	100.0%	0x1206	○
P12.07	Curve 2, inflection point 2, input value	Inflection point 1 input (p12.09)~maximum input (P12.05)	0.00V	0x1207	○
P12.08	Curve 2, inflection point 2, input corresponding value	-100.0%~100.0%	0.0%	0x1208	○
P12.09	Curve 2, inflection point 1, input value	Minimum input (p12.11)~inflection point 2 input (P12.07)	0.00V	0x1209	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P12.10	Input corresponding value of inflection point 1 of curve 2	-100.0%~100.0%	0.0%	0x120A	○
P12.11	Minimum input value of curve 2	-10.00 V~inflection point 1 input (P12.09)	0.00V	0x120B	○
P12.12	Minimum input corresponding value of curve 2	-100.0%~100.0%	0.0%	0x120C	○
P12.13	Maximum input value of curve 3	Inflection point 2 input (P12.15)~10.00 v	10.00V	0x120D	○
P12.14	Maximum input corresponding value of curve 3	-100.0%~100.0%	100.0%	0x120E	○
P12.15	Inflection point 2 input value of curve 3	Inflection point 1 input (P12.17)~maximum input (P12.13)	0.00V	0x120F	○
P12.16	Input corresponding value of inflection point 2 of curve 3	-100.0%~100.0%	0.0%	0x1210	○
P12.17	Inflection point 1 input value of curve 3	Minimum input (p12.19)~inflection point 2 input (P12.15)	0.00V	0x1211	○
P12.18	Input corresponding value of inflection point 1 of curve 3	-100.0%~100.0%	0.0%	0x1212	○
P12.19	Minimum input value of curve 3	-10.00 V~inflection point 1 input (P12.17)	0.00V	0x1213	○
P12.20	Minimum input corresponding value of curve 3	-100.0%~100.0%	0.0%	0x1214	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P12.21	AI1 input bias	-100.0%~100.0%	0.0%	0x1215	○
P12.22	AI1 input gain	-2.000~2.000	1.000	0x1216	○
P12.23	AI1 input filtering time	0.000s~10.000s	0.050s	0x1217	○
P12.24	AI2 input bias	-100.0%~100.0%	0.0%	0x1218	○
P12.25	AI2 input gain	-2.000~2.000	1.000	0x1219	○
P12.26	AI2 input filtering time	0.000s~10.000s	0.050s	0x121A	○
P12.33	HDI maximum input frequency	HDI minimum input frequency~100.00kHz	10.00kHz	0x1221	○
P12.34	HDI maximum corresponding value	-100.0%~100.0%	100.0%	0x1222	○
P12.35	HDI minimum input frequency	0.00kHz~HDI maximum input frequency	0.00kHz	0x1223	○
P12.36	HDI minimum corresponding value	-100.0%~100.0%	0.0%	0x1224	○
P12.37	HDI input filtering time	0.000s~1.000s	0.001s	0x1225	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P13 analog AO output					
P13.00	AO terminal output function selection	00: no output 01: setting frequency 02: output frequency	2	0x1300	○
P13.02	HDO terminal output function selection	03: output current (relative drive) 04: output torque (absolute value) 05: output voltage 06: bus voltage 07: output power 08: AI1 input 09: AI2 input 10: reserve 11: pulse input (0-50kHz) 12: motor current 13: output torque (relative value) 14: torque command	0	0x1302	○
P13.03	AO output bias	-100.0%~100.0%	0.0%	0x1303	○
P13.04	AO output gain	-2.000~2.000	1.000	0x1304	○
P13.05	AO output filtering time	0.000s~10.000s	0.0s	0x1305	○
P13.09	Maximum output pulse frequency of HDO	0.01kHz~50.00kHz	10.00kHz	0x1309	○
P13.10	HDO output zero point selection	0:start from 0 1:center point is (P13.09) /2. When the frequency is greater than the center point, the corresponding functional quantity is positive	0	0x130A	○
P13.11	HDO outputs the filtering	0.000s~10.000s	0.0s	0x130B	○

Parameter	Name	Setting range	Factory value	Register address	Properties
	time				
P20 Operating Keyboard Setting Parameters					
P20.00	Password setting	00000~65535	00000	0x2000	○
P20.01	LCD brightness control	10%~100%	80%	0x2001	●
P20.02	LCD language selection	0: Chinese 1: English	0	0x2002	●
P20.03	Function code modification protection	0: all function codes can be modified 1: only P20.00 and P20.03 are allowed to be modified	0	0x2003	●
P20.04	Function code initialization	0: no operation 1: restore factory parameters (no motor parameters) 2: restore factory parameters (including motor parameters) 3: clear fault record information (reserved)	0	0x2004	●
P20.05	Copy of parameters	0: no operation 1: parameter uploading (no motor parameters) 2: parameter downloading (including motor parameters) 3: parameter downloading (including motor parameters)	0	0x2005	●
P20.06	Keyboard locking function	0: No Lock 1: Full Lock 2: Lock except for MF·K key 3: Lock except for Start and Stop keys	0	0x2006	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P20.08	MF-K key function selection	0: no function 1: switch the given mode of operation command 2: inching forward rotation 3: inching reverse rotation 4: forward and reverse switching	2	0x2008	•
P20.09	▲/▼ to Up/Dn Terminal frequency adjustment control	Unit position: Selection of shutdown action 0: Shut down and reset to zero 1: Shut down for maintenance Tens: Power-off action selection 0: Reset to zero after power failure 1: Power-off retention Hundreds: Selection of increase and decrease rate methods 0: Automatic 1: Manual 2: The Up/Dn function for adjusting the frequency is ineffective. Thousands: PID digital setpoint control 0: Prohibited 1: Allowed	1011	0x2009	○
P20.10	Up/Dn Manually adjust the increase or decrease rate	0.00Hz/s~10.00Hz/s	1.00Hz/s	0x200A	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P21 Display Setting Parameters					
P21.00	Setting of running display parameter 1	00: invalid display 01: operating frequency 02: setting frequency	1	0x2100	○
P21.01	Setting of run display parameter 2	03: output frequency 04: synchronization frequency	11	0x2101	○
P21.02	Setting of run display parameter 3	05: local frequency 06: extended frequency 07: setting speed	9	0x2102	○
P21.03	Setting of run display parameter 4	08: operating speed 09: bus voltage 10: output voltage	0	0x2103	○
P21.04	Setting of stop display parameter 1	11: output current 12: output power 13: output torque	2	0x2104	○
P21.05	Setting of stop display parameter 2	14: torque given 15: AI1 voltage 16: AI2 voltage	9	0x2105	○
P21.06	Setting of stop display parameter 3	17-18: reserve 19: AO voltage 20: reserve	0	0x2106	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P21.07	Setting of stop display parameter 4	21: HDI input frequency 22: reserve 23: input terminal 24: output terminal 25: machine status 26: radiator temperature 27: motor temperature 28: PID given 29: PID feedback 30: PID error 31: PLC phase 32: main setting channel 33: auxiliary setting channel 34: main setting frequency 35: auxiliary setting frequency 36: external counting value 37: setting length value 38: running length value 39: operating linear speed	0	0x2107	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P23 communication free mapping configuration parameters					
P23.00	source address0	0x0000~0xFFFF	0000	0x2300	•
P23.01	Mapping address0	0x0000~0xFFFF	0000	0x2301	•
P23.02	source address1	0x0000~0xFFFF	0000	0x2302	•
P23.03	Mapping address1	0x0000~0xFFFF	0000	0x2303	•
P23.04	source address2	0x0000~0xFFFF	0000	0x2304	•
P23.05	Mapping address2	0x0000~0xFFFF	0000	0x2305	•
P23.06	source address3	0x0000~0xFFFF	0000	0x2306	•
P23.07	Mapping address3	0x0000~0xFFFF	0000	0x2307	•
P23.08	source address4	0x0000~0xFFFF	0000	0x2308	•
P23.09	Mapping address4	0x0000~0xFFFF	0000	0x2309	•
P23.10	source address5	0x0000~0xFFFF	0000	0x230A	•
P23.11	Mapping address5	0x0000~0xFFFF	0000	0x230B	•
P23.12	source address6	0x0000~0xFFFF	0000	0x230C	•
P23.13	Mapping address6	0x0000~0xFFFF	0000	0x230D	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P23.14	source address7	0x0000~0xFFFF	0000	0x230E	•
P23.15	Mapping address7	0x0000~0xFFFF	0000	0x230F	•
P23.16	source address8	0x0000~0xFFFF	0000	0x2310	•
P23.17	Mapping address8	0x0000~0xFFFF	0000	0x2311	•
P23.18	source address9	0x0000~0xFFFF	0000	0x2312	•
P23.19	Mapping address9	0x0000~0xFFFF	0000	0x2313	•
P23.20	source address10	0x0000~0xFFFF	0000	0x2314	•
P23.21	Mapping address10	0x0000~0xFFFF	0000	0x2315	•
P23.22	source address11	0x0000~0xFFFF	0000	0x2316	•
P23.23	Mapping address11	0x0000~0xFFFF	0000	0x2317	•
P23.24	source address12	0x0000~0xFFFF	0000	0x2318	•
P23.25	Mapping address12	0x0000~0xFFFF	0000	0x2319	•
P23.26	source address13	0x0000~0xFFFF	0000	0x231A	•
P23.27	Mapping address13	0x0000~0xFFFF	0000	0x231B	•
P23.28	source address14	0x0000~0xFFFF	0000	0x231C	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P23.29	Mapping address14	0x0000~0xFFFF	0000	0x231D	•
P30 Fault and protection parameters					
Parameter	Name	Setting range	Factory value	Register address	Properties
P30.00	Cooling fan control	0: auto run 1: power-on direct operation 2: stop immediately after shutdown	0	0x3000	○
P30.01	Selection of motor overheating detection	Ones: motor over-temperature protection 0: forbidden 1: action Tens: sensor type 0: temperature sensor PT100 1: temperature sensor PT1000	000	0x3001	•
P30.02	Motor overheat detection level	0.0~200.0℃	85.0℃	0x3002	•
P30.03	Selection of drive overload pre-alarm detection	Ones: overload Overload Pre-alarm Detection Selection 0: always check during operation 1: detection at constant speed operation only Tens: selection of overload pre-alarm detection quantity 0: detection level is relative to rated current of motor 1: detection level is relative	000	0x3003	•

Parameter	Name	Setting range	Factory value	Register address	Properties
		to rated current of drive Hundreds: Overload pre-alarm protection selection 0: overload protection shield 1: overload protection enabled			
P30.04	Detection level of drive overload pre-alarm	20.0%~200.0%	160.0%	0x3004	•
P30.05	Detection time of drive overload pre-alarm	0.0s~60.0s	5.0s	0x3005	•
P30.06	Output load drop detection selection of drive	0: invalid detection of output load drop of drive 1: always check during operation (continue operation) 2: detection only at constant speed (continuous operation) 3: always check during operation (free shutdown) 4: detection only at constant speed (free stop)	0	0x3006	•
P30.07	Output load drop detection level of drive	0.0%~100.0%	30.0%	0x3007	•
P30.08	Output load drop detection time of drive	0.0s~3600.0s	1.0s	0x3008	•
P30.09	Selection of automatic reset	0~100 0: no automatic reset	0	0x3009	•

Parameter	Name	Setting range	Factory value	Register address	Properties
	times	function			
P30.10	Automatic reset interval time	0.1s~100.0s	1.0s	0x300A	•
P30.11	Selection of fault relay action	Ones: during automatic reset 0: action 1: no action Tens: under-voltage period 0: action 1: no action	00	0x300B	•
P30.12	Option of enhanced protection function	Ones: output phase lack detection 0: forbidden 1: action Tens: input phase lack detection 0: forbidden 1: action Hundreds: motor overload detection 0: forbidden 1: action	101	0x300C	•
P30.13	Fault record saving method	0: reset of fault record in case of power failure 1: storage of fault record in case of power failure	1	0x300D	•
P30.14	Fault protection action attribute 1	Ones: EEPROM read and write failure 0: continue to run 1: free parking Tens: system interference fault 0: continue to run 1: free parking Hundreds: contactor suction fault	1111	0x300E	•

Parameter	Name	Setting range	Factory value	Register address	Properties
		0: continue to run 1: free parking Thousands: current detection fault 0: continue to run 1: free parking			
P30.15	Fault protection action attribute 2	Ones: drive overheating 0: continue to run 1: free parking Tens: reserve 0: continue to run 1: free parking Hundreds: motor overheating 0: continue to run 1: free parking Thousands: system customization 0: continue to run 1: free parking	1111	0x300F	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P40 process PID control parameters					
P40.00	PID given mode selection	0: given by P40.01 1: analog input AI1 2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2] 7: Add[AI1,AI2] 8: pulse given HDI	0	0x4000	●
P40.01	PID digital given	0.0%~100.0%	50.0%	0x4001	○
P40.02	PID feedback mode selection	0: constant zero feedback input 1: analog input AI1 2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2] 7: Add[AI1,AI2] 8: pulse given HDI	1	0x4002	●
P40.03	Proportional gain Kp1	0.0~100.0	50.0	0x4003	○
P40.04	Integral time Ti1	0.000s~50.000s	0.500s	0x4004	○
P40.05	Differential time Td1	0.000s~50.000s	0.000s	0x4005	○
P40.06	Proportional gain Kp2	0.0~100.0	50.0	0x4006	○
P40.07	Integral time Ti2	0.000s~50.000s	0.500s	0x4007	○
P40.08	Differential time Td2	0.000s~50.000s	0.000s	0x4008	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P40.09	PID parameter switching	0: use Kp1, Ki1 and Kd1 only 1: automatically switch according to input bias 2: switch according to terminals	0	0x4009	●
P40.10	Input bias in PID automatic switching	0.0%~100.0%	20.0%	0x400A	○
P40.11	PID adjustment selection	Ones: output frequency 0: it must be consistent with the set running direction 1: it can be opposite to the set running direction Tens: integral mode 0: when the integral reaches the upper and lower limits, continue to adjust the integral. 1: when the integral reaches the upper and lower limits, stop the integral adjustment.	11	0x400B	●
P40.12	PID positive and negative effects	0: positive effect 1: negative effect	0	0x400C	●
P40.13	PID given filtering time	0.00s~10.00s	0.00s	0x400D	○
P40.14	PID feedback filtering time	0.00s~10.00s	0.00s	0x400E	○
P40.15	PID output filtering time	0.00s~10.00s	0.00s	0x400F	○
P40.16	Sampling period	0.001s~50.000s	0.002s	0x4010	○
P40.17	Deviation limit	0.0%~100.0%	0.0%	0x4011	○
P40.18	Differential limit	0.0%~100.0%	0.5%	0x4012	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P40.19	PID initial value	0.0%~100.0%	0.0%	0x4013	○
P40.20	PID initial value holding time	0.0s~3600.0s	0.0s	0x4014	○
P40.21	PID operation output maximum	0.0%~100.0%	100.0%	0x4015	○
P40.22	PID reverse output cutoff frequency	0.00Hz~upper limit frequency	0.00Hz	0x4016	○
P40.23	PID shutdown operation selection	0: no calculation during shutdown 1: operation during shutdown	0	0x4017	●
P40.24	PID given missing detection value	0.0%~100.0%	0.0%	0x4018	●
P40.25	PID given loss detection time	0.00s~30.00s 0.00s: not detect PID given loss	1.00s	0x4019	●
P40.26	PID feedback missing detection value	0.0%~100.0%	0.0%	0x401A	●
P40.27	PID feedback loss detection time	0.00s~30.00s 0.00s: not detect PID feedback loss	1.00s	0x401B	●
P40.28	PID signal loss shutdown mode	0: free shutdown 1: emergency shutdown	0	0x401C	○
P40.29	Upper critical value of zero frequency operation	P40.30~upper limit frequency	0.00Hz	0x401D	●
P40.30	Lower critical value of zero frequency operation	0.00Hz~P40.29	0.00Hz	0x401E	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P40.31	Sleep wake-up mode selection	0: Frequency sleep wake-up mode Sleep wake-up mode is determined by P40.29 and P40.30 parameter settings 1: Pressure sleep wake-up method Sleep wake-up mode is determined by P40.32 and P40.34 parameter settings	0	0x401F	•
P40.32	Sleep pressure detection value	P40.34~P40.37	1000	0x4020	•
P40.33	Sleep detection delay time	0.00s~30.00s Effective for frequency and pressure detection methods	1.00s	0x4021	•
P40.34	Wake up pressure detection value	0~P40.32	0	0x4022	•
P40.35	Wake up detection delay time	0.00s~30.00s Effective for frequency and pressure detection methods	0.50s	0x4023	•
P40.36	reserve				
P40.37	Given feedback range	0~10000	1000	0x4025	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P41 Multistage Frequency					
P41.00	Multistage frequency digital given 1	Lower limit frequency~upper limit frequency	0.00Hz	0x4100	○
P41.01	Multistage frequency digital given 2	Lower limit frequency~upper limit frequency	0.00Hz	0x4101	○
P41.02	Multistage frequency digital given 3	Lower limit frequency~upper limit frequency	0.00Hz	0x4102	○
P41.03	Multistage frequency digital given 4	Lower limit frequency~upper limit frequency	0.00Hz	0x4103	○
P41.04	Multistage frequency digital given 5	Lower limit frequency~upper limit frequency	0.00Hz	0x4104	○
P41.05	Multistage frequency digital given 6	Lower limit frequency~upper limit frequency	0.00Hz	0x4105	○
P41.06	Multistage frequency digital given 7	Lower limit frequency~upper limit frequency	0.00Hz	0x4106	○
P41.07	Multistage frequency digital given 8	Lower limit frequency~upper limit frequency	0.00Hz	0x4107	○
P41.08	Multistage frequency digital given 9	Lower limit frequency~upper limit frequency	0.00Hz	0x4108	○
P41.09	Multistage frequency digital given 10	Lower limit frequency~upper limit frequency	0.00Hz	0x4109	○
P41.10	Multistage frequency digital given 11	Lower limit frequency~upper limit frequency	0.00Hz	0x410A	○
P41.11	Multistage frequency digital	Lower limit frequency~upper limit	0.00Hz	0x410B	○

Parameter	Name	Setting range	Factory value	Register address	Properties
	given 12	frequency			
P41.12	Multistage frequency digital given 13	Lower limit frequency~upper limit frequency	0.00Hz	0x410C	○
P41.13	Multistage frequency digital given 14	Lower limit frequency~upper limit frequency	0.00Hz	0x410D	○
P41.14	Multistage frequency digital given 15	Lower limit frequency~upper limit frequency	0.00Hz	0x410E	○
P41.15	Multistage frequency 1 command source selection	0: digital given P41.00 1: analog input AI1 2: analog input AI2 3: reserve 4: Min[AI1,AI2] 5: Max[AI1,AI2] 6: Sub[AI1,AI2] 7: Add[AI1,AI2] 8: pulse given HDI 9: process PID	0	0x410F	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P42 Simple PLC					
P42.00	Selection of simple PLC operation mode	<p>Ones: simple PLC operation mode 0: shutdown after single cycle 1: maintain final value after single cycle 2: continuous cycle</p> <p>Tens: simple PLC startup mode 0: run from stage 1 1: continue to operate from the stage frequency at the interruption time</p> <p>Hundreds: simple PLC power-down memory 0: power-down reset 1: power-down storage</p> <p>Thousands: simple PLC time unit 0: second (s) 1: minute (min)</p>	0000	0x4200	•
P42.01	Setting of PLC stage 1	<p>Ones: operation direction of simple PLC stage 0: positive 1: negative</p> <p>Tens: acceleration and deceleration time of simple PLC stage 0: acceleration and deceleration time 1 1: acceleration and deceleration time 2 2: acceleration and deceleration time 3 3: acceleration and deceleration time 4</p>	00	0x4201	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P42.02	Running time in stage 1	0.0s(min)~3276.7s(min)	0.0s(min)	0x4202	○
P42.03	Setting of PLC stage 2	refers to the setting mode of stage 1	00	0x4203	●
P42.04	Running time in stage 2	0.0s(min)~3276.7s(min)	0.0s(min)	0x4204	○
P42.05	Setting of PLC stage 3	refers to the setting mode of stage 1	00	0x4205	●
P42.06	Running time in stage 3	0.0s(min)~3276.7s(min)	0.0s(min)	0x4206	○
P42.07	Setting of PLC stage 4	refers to the setting mode of stage 1	00	0x4207	●
P42.08	Running time in stage 4	0.0s(min)~3276.7s(min)	0.0s(min)	0x4208	○
P42.09	Setting of PLC stage 5	refers to the setting mode of stage 1	00	0x4209	●
P42.10	Running time in stage 5	0.0s(min)~3276.7s(min)	0.0s(min)	0x420A	○
P42.11	Setting of PLC stage 6	refers to the setting mode of stage 1	00	0x420B	●
P42.12	Running time in stage 6	0.0s(min)~3276.7s(min)	0.0s(min)	0x420C	○
P42.13	Setting of PLC stage 7	refers to the setting mode of stage 1	00	0x420D	●
P42.14	Running time in stage 7	0.0s(min)~3276.7s(min)	0.0s(min)	0x420E	○
P42.15	Setting of PLC stage 8	refers to the setting mode of stage 1	00	0x420F	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P42.16	Running time in stage 8	0.0s(min)~3276.7s(min)	0.0s(min)	0x4210	○
P42.17	Setting of PLC stage 9	refers to the setting mode of stage 1	00	0x4211	●
P42.18	Running time in stage 9	0.0s(min)~3276.7s(min)	0.0s(min)	0x4212	○
P42.19	Setting of PLC stage 10	refers to the setting mode of stage 1	00	0x4213	●
P42.20	Running time in stage 10	0.0s(min)~3276.7s(min)	0.0s(min)	0x4214	○
P42.21	Setting of PLC stage 11	refers to the setting mode of stage 1	00	0x4215	●
P42.22	Running time in stage 11	0.0s(min)~3276.7s(min)	0.0s(min)	0x4216	○
P42.23	Setting of PLC stage 12	refers to the setting mode of stage 1	00	0x4217	●
P42.24	Running time in stage 12	0.0s(min)~3276.7s(min)	0.0s(min)	0x4218	○
P42.25	Setting of PLC stage 13	refers to the setting mode of stage 1	00	0x4219	●
P42.26	Running time in stage 13	0.0s(min)~3276.7s(min)	0.0s(min)	0x421A	○
P42.27	Setting of PLC stage 14	refers to the setting mode of stage 1	00	0x421B	●
P42.28	Running time in stage 14	0.0s(min)~3276.7s(min)	0.0s(min)	0x421C	○
P42.29	Setting of PLC stage 15	refers to the setting mode of stage 1	00	0x421D	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P42.30	Running time in stage 15	0.0s(min)~3276.7s(min)	0.0s(min)	0x421E	○
P43 Fixed Length and Linear Speed					
P43.00	Set the counting value	1~65535	1000	0x4300	●
P43.01	Designated the counting value	1~p43.00 (set counting value)	1000	0x4301	●
P43.02	Selection of length reach action	Ones: length reaching 0: continue to run 1: shutdown Tens: unit of length 0: meter 1: 10 meters Hundreds: length shutdown reset 0: invalid 1: action Thousands: counting, stopping and clearing 0: invalid 1: action	0000	0x4302	●
P43.03	Setting length	0m~65535m	0m	0x4303	●
P43.04	Number of pulses per meter	0.1~6553.5	1000.0	0x4304	●
P43.05	Linear speed display coefficient	0.0%~1000.0%	0.0%	0x4305	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P44 Lifting Function Parameters (Special Lifting Model)					
P44.00	Selection of lifting mechanism	Ones: Mechanism Selection 0: Prohibited 1: Elevate Mechanism 2: Conical Motor 3: Linear Mechanism Tens: Reserve	00	0x4400	•
P44.01	Upstream release frequency	0.00Hz~10.00Hz	2.00Hz	0x4401	•
P44.02	Upstream release current	0.0%~200.0%	30.0%	0x4402	•
P44.03	Downward release frequency	0.00Hz~10.00Hz	3.00Hz	0x4403	•
P44.04	Downstream release current	0.0%~200.0%	30.0%	0x4404	•
P44.05	Relaxation frequency holding time	0.0s~10.0s	0.5s	0x4405	•
P44.06	Upward brake frequency	0.00Hz~10.00Hz	2.00Hz	0x4406	•
P44.07	Downward brake frequency	0.00Hz~10.00Hz	3.00Hz	0x4407	•
P44.08	Brake holding time	0.0s~10.0s	0.5s	0x4408	•
P44.09	Brake hold-off time	0.0s~10.0s	0.0s	0x4409	•
P44.10	Downtime delay time	0.0s~10.0s	0.5s	0x440A	•
P44.11	Start direction control selection	0: The release torque is in the same direction as the operation direction. 1: The release torque is	0	0x440B	•

Parameter	Name	Setting range	Factory value	Register address	Properties
		always in the positive direction.			
P44.12	Reverse selection of instructions	0: Direct reversal of the running process is not permitted. 1: Direct reversal of the running process is permitted.	0	0x440C	•
P50 Modbus Communication Parameters					
P50.00	Local address	0~247; 0: broadcast address	1	0x5000	○
P50.01	Communication rate selection	Ones: communication baud rate of terminal port Tens: communication baud rate of keyboard port 0:4800bps 1:9600bps 2:19200bps 3:38400bps 4:57600bps 5:115200bps	31	0x5001	○
P50.02	Data format	Ones: Terminal port data format Tens: Keyboard port data format 0:1-8-1-N format, RTU 1:1-8-1-E format, RTU 2:1-8-1-O format, RTU 3:1-7-1-N format, ASCII 4:1-7-1-E format, ASCII 5:1-7-1-O format, ASCII	00	0x5002	○
P50.03	Communication response delay	0.000s~60.000s	0.000s	0x5003	○
P50.04	Overtime detection time	0.0s~600.0s 0.0s: indicate no detection	0.0s	0x5004	○
P50.05	Selection of	Ones: selection of	00	0x5005	○

Parameter	Name	Setting range	Factory value	Register address	Properties
	communication error response shield	communication port error response shield Tens: selection of keyboard port error response shield 0: valid 1: invalid			
P50.06	Master-slave mode selection and slave function code setting	ones: Terminal Port Communication Master-Slave Selection 0: Single machine use 1: This machine acts as the host 2: This machine acts as the slave Tens: Terminal Port Communication Operation Address 0: P00.00 1: P40.01	0000	0x5006	●
P50.07	Interval time of host operation data	0.010s~1.000s	0.050s	0x5007	○
P50.08	Proportion coefficient of receiving date of slave machine	0.00~10.00	1.00	0x5008	○
P50.11	Special functions of communication	Ones: 0:Communication write parameters are not saved 1:Save communication write parameters Tens: 0:The address mapping function is invalid. 1:The address mapping function is valid.	0x0000	0x500B	○

Parameter	Name	Setting range	Factory value	Register address	Properties
P60 Motor Control Preparation					
P60.00	Carrier frequency setting	1.0kHz~16.0kHz	6.0kHz	0x6000	•
P60.01	Carrier frequency adjustment option	<p>Ones: Random carrier, only applicable when using asynchronous motor scalar. It generates high noise when used. 0:Random carrier is invalid. 1: Random carrier is valid.</p> <p>Tens: Carrier changes automatically with temperature. 0:Carrier changes with temperature. 1:Set carrier</p> <p>Hundreds: Carrier changes automatically with frequency. 0:Carrier is effectively valid with frequency variation. 1:Carrier is effectively invalid with frequency variation.</p>	000	0x6001	•
P60.02	Pulse width modulation mode	0: 3-phase modulation 1: automatic switching	0	0x6002	•
P60.03	DPWM switching frequency	5.00Hz~maximum frequency	8.00Hz	0x6003	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P60.04	Magnetic flux brake selection	0: forbidden 1: action	0	0x6004	●
P60.05	Energy consumption brake selection	0: forbidden 1: action	0	0x6005	●
P60.06	Energy consumption brake action voltage	650V~750V	720V	0x6006	●
P60.07	Over-voltage stall regulation selection	0: forbidden 1: action	1	0x6007	●
P60.08	Over-voltage stall action voltage	100.0%~150.0% (relative to rated bus voltage)	135.0%	0x6008	●
P60.09	Under-voltage stall regulation selection	0: forbidden 1: action	0	0x6009	●
P60.10	Under-voltage stall action voltage	50.0%~95.0% (relative to rated bus voltage)	85.0%	0x600A	●
P60.11	Current limiting action selection	0: forbidden 1: action	1	0x600B	●
P60.12	Current limiting level	20.0%~200.0% (Relative rated current)	160.0%	0x600C	●
P60.13	Slip compensation gain	0.0~300.0%	100.0%	0x600D	○
P60.14	Frequency resolution selection	0: 0.01Hz 1: 0.1Hz	0	0x600E	●

Parameter	Name	Setting range	Factory value	Register address	Properties
P62 Motor Characteristic Parameters					
P62.00	Asynchronous motor stator resistance	0.001Ω~65.000Ω	Model confirmed	0x6200	•
P62.01	Asynchronous motor rotor resistance	0.001Ω~65.000Ω	Model confirmed	0x6201	•
P62.02	Asynchronous motor leakage inductance	0.01mH~650.00mH	Model confirmed	0x6202	•
P62.03	Asynchronous motor mutual inductance	0.01mH~650.00mH	Model confirmed	0x6203	•
P62.04	No-load current of asynchronous motor	0.1A~P63.02	Model confirmed	0x6204	•
P62.05	High resistance of the stator of the asynchronous motor	0~65535	Model confirmed	0x6205	•
P62.06	High resistance of the rotor of the asynchronous motor	0~65535	Model confirmed	0x6206	•
P62.07	High leakage inductance value of asynchronous motor	0~65535	Model confirmed	0x6207	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P62.08	High mutual inductance of asynchronous motors	0~65535	Model confirmed	0x6208	•
P62.09	Stator resistance of synchronous motor	0.001Ω~65.000Ω	Model confirmed	0x6209	•
P62.10	Direct-axis inductance of synchronous motor	0.01mH~650.00mH	Model confirmed	0x620A	•
P62.11	Synchronous motor cross-axis inductance	0.01mH~650.00mH	Model confirmed	0x620B	•
P62.12	Synchronous motor reverse electromotive force	0.1V~2000.0V	Model confirmed	0x620C	•
P62.13	High resistance of the stator in synchronous motor	0~65535	Model confirmed	0x620D	•
P62.14	Direct-axis inductance of synchronous motor at high level	0~65535	Model confirmed	0x620E	•
P62.15	High axial inductance of synchronous motor	0~65535	Model confirmed	0x620F	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P62.16	Synchronous motor weak magnetic mode	0: No demagnetization 1: Automatic adjustment mode 2: Direct calculation mode	0	0x6210	•
P62.17	Synchronous motor weak magnetic gain	0.0%~100.0%	10.0%	0x6211	•
P62.18	Synchronous motor initial angle detection mode	0: No detection 1: Detection every time it runs 2: Detection upon power-on for the first time	1	0x6212	•
P62.19	Initial angle detection current of synchronous motor	30.0%~100.0%	100.0%	0x6213	•
P62.20	Maximum torque per ampere of synchronous motor	Ones: Maximum Torque Current Ratio Control 0: Off 1: On Tens: Reserve Hundreds: Reserve Thousands: Synchronous Motor Current Loop Adjustment 0: Current Decoupling Method 1 1: Current Decoupling Method 2	0	0x6214	•
P62.21	Synchronous motor pole adjustment gain	50.0%~500.0%	100.0%	0x6215	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P62.22	Synchronous motor inductance detection current	30.0%~120.0%	80.0%	0x6216	•
P62.23	Excitation current for synchronous motor operation	0.0%~P62.24	0.0%	0x6217	•
P62.24	Low-speed excitation current of synchronous motor	P62.23~120.0%	30.0%	0x6218	•
P62.25	Low-speed switching frequency of synchronous motor	0.0%~100.0%	20.0%	0x6219	•

Parameter	Name	Setting range	Factory value	Register address	Properties
P63 Motor Nameplate Parameters					
P63.00	Rated power of motor	0.2kW~6000.0kW	Model determination	0x6300	•
P63.01	Rated voltage of motor	1V~480V	380V	0x6301	•
P63.02	Rated current of motor	0.1A~6000.0A	Model determination	0x6302	•
P63.03	Rated frequency of motor	10.00Hz~300.00Hz	50.00Hz	0x6303	•
P63.04	Rated speed of motor	1~65535 rpm	1500rpm	0x6304	•
P63.05	Pole number	2~80	4	0x6305	•
P63.06	Motor type	0: Asynchronous motor 1: Permanent magnet synchronous motor	Model determination	0x6306	•
P63.07	Self-tuning of motor parameter	0: no request 1: motor static identification 2: motor rotation identification	0	0x6307	•
P63.08	Motor control mode	0: advanced scalar control 1: without PG vector control	0	0x6308	•

Parameter	Name	Setting range	Factory value	Register address	Properties
U00 Status Monitoring Data					
U00.00	Running frequency	0.00Hz~300.00Hz	Actual value	0x8100	★
U00.01	Setting frequency	0.00Hz~300.00Hz	Actual value	0x8101	★
U00.02	Output frequency	0.00Hz~300.00Hz	Actual value	0x8102	★
U00.03	Synchronization frequency	0.00Hz~300.00Hz	Actual value	0x8103	★
U00.04	Speed measurement frequency	0.00Hz~300.00Hz	Actual value	0x8104	★
U00.05	Reserve			0x8105	★
U00.06	Setting rotary speed	0rpm~60000rpm	Actual value	0x8106	★
U00.07	Output rotary speed	0rpm~60000rpm	Actual value	0x8107	★
U00.08	Bus voltage	0V~2000V	Actual value	0x8108	★
U00.09	Output Voltage	0V~2000V	Actual value	0x8109	★
U00.10	Output current	0.0A~6000.0A	Actual value	0x810A	★
U00.11	Output power	0.0kW~6000.0kW	Actual value	0x810B	★
U00.12	Output torque	-300.0%~300.0%	Actual value	0x810C	★
U00.13	Given torque	-300.0%~300.0%	Actual value	0x810D	★
U00.14	AI1 voltage	-10.00V~10.00V	Actual value	0x810E	★
U00.15	AI2 voltage	-10.00V~10.00V	Actual value	0x810F	★
U00.18	AO voltage	0.00V~10.00V	Actual value	0x8112	★
U00.20	HDI input frequency	0Hz~60000Hz	Actual value	0x8114	★

Parameter	Name	Setting range	Factory value	Register address	Properties
U00.21	HDO Output frequency	0Hz~60000Hz	Actual value	0x8115	★
U00.22	Input terminal status	Bit0~Bit4 corresponds to X1~x5 0: input terminal OFF 1: input terminal ON	Actual value	0x8116	★
U00.23	Output terminal status	Bit0 corresponds to Y Bit2 corresponds to R 0: output terminal OFF 1: output terminal ON	Actual value	0x8117	★
U00.24	Machine status	Ones: Bit0: run/stop Bit1: forward/reverse rotation Bit2: DC braking Bit3: parameter identification Tens: 0: constant speed 1: acceleration 2: deceleration	Actual value	0x8118	★
U00.25	Radiator temperature	0.0℃~120.0℃	Actual value	0x8119	★
U00.26	Motor temperature	0.0℃~200.0℃	Actual value	0x811A	★
U00.27	PID given	-100.00%~100.00%	Actual value	0x811B	★
U00.28	PID feedback	-100.00%~100.00%	Actual value	0x811C	★
U00.29	PID error	-100.00%~100.00%	Actual value	0x811D	★
U00.30	PLC stage	0~15	Actual value	0x811E	★
U00.31	Main setting channel	0~11	Actual value	0x811F	★
U00.32	Auxiliary setting channel	0~11	Actual value	0x8120	★

Parameter	Name	Setting range	Factory value	Register address	Properties
U00.33	Main setting frequency	0.00Hz~300.00Hz	Actual value	0x8121	★
U00.34	Auxiliary setting frequency	0.00Hz~300.00Hz	Actual value	0x8122	★
U00.35	External counting value	0~65535	Actual value	0x8123	★
U00.36	Setting length value	0m~65535m	Actual value	0x8124	★
U00.37	Running length value	0m~65535m	Actual value	0x8125	★
U00.38	Operating linear speed	0m/s~65535m/s	Actual value	0x8126	★
U00.39	AI1 sampling value	-10.00V~10.00V	Actual value	0x8127	★
U00.40	AI2 sampling value	-10.00V~10.00V	Actual value	0x8128	★
U00.43	Current fault code	0~100	Actual value	0x812B	★
U00.44	Accumulated power-on time	0h~65535h	Actual value	0x812C	★
U00.45	Accumulated running time	0h~65535h	Actual value	0x812D	★
U00.46	High accumulated energy consumption of motor	0kW.h~59999kW.h	Actual value	0x812E	★
U00.47	Low accumulated energy consumption of motor	0.0kW.h~999.9kW.h	Actual value	0x812F	★
U00.48	High operation energy consumption	0kW.h~59999kW.h	Actual value	0x8130	★

Parameter	Name	Setting range	Factory value	Register address	Properties
U00.49	Low operation energy consumption	0.0kW.h~999.9kW.h	Actual value	0x8131	★
U01 Fault Record Data					
U01.00	The most recent fault code	0~100	Actual value	0x8200	★
U01.01	The most recent Given frequency	0.00Hz~300.00Hz	Actual value	0x8201	★
U01.02	The most recent Output frequency	0.00Hz~300.00Hz	Actual value	0x8202	★
U01.03	The most recent Output Current	0.0A~6000.0A	Actual value	0x8203	★
U01.04	The most recent DC bus voltage	0V~2000V	Actual value	0x8204	★
U01.05	The most recent Output Voltage	0V~2000V	Actual value	0x8205	★
U01.06	The most recent Input terminal status	0x00~0x7F	Actual value	0x8206	★
U01.07	The most recent Output terminal status	0x00~0x7F	Actual value	0x8207	★
U01.08	The most recent Machine running status	0x00~0x2F	Actual value	0x8208	★
U01.09	The most recent Radiator temperature	0.0°C~120.0°C	Actual value	0x8209	★
U01.10	The most recent Cumulative running time	0.0h~6553.5h	Actual value	0x820A	★
U01.11	Previous fault code	0~100	Actual value	0x820B	★
U01.12	Given frequency at previous fault	0.00Hz~300.00Hz	Actual value	0x820C	★

Parameter	Name	Setting range	Factory value	Register address	Properties
U01.13	Output frequency at previous fault	0.00Hz~300.00Hz	Actual value	0x820D	★
U01.14	Given current at previous fault	0.0A~6000.0A	Actual value	0x820E	★
U01.15	DC bus voltage at previous fault	0V~2000V	Actual value	0x820F	★
U01.16	Output voltage at previous fault	0V~2000V	Actual value	0x8210	★
U01.17	Input terminal status at previous fault	0x00~0x7F	Actual value	0x8211	★
U01.18	Output terminal status at previous fault	0x00~0x7F	Actual value	0x8212	★
U01.19	Machine running status at previous fault	0x00~0x2F	Actual value	0x8213	★
U01.20	Radiator temperature at previous fault	0.0°C~120.0°C	Actual value	0x8214	★
U01.21	Cumulative running time at previous fault	0.0h~6553.5h	Actual value	0x8215	★
U01.22	The first two fault codes	0~100	Actual value	0x8216	★
U01.23	Given frequency during the first two faults	0.00Hz~300.00Hz	Actual value	0x8217	★
U01.24	Output frequency during the first two faults	0.00Hz~300.00Hz	Actual value	0x8218	★
U01.25	Output current during the first two faults	0.0A~6000.0A	Actual value	0x8219	★

Parameter	Name	Setting range	Factory value	Register address	Properties
U01.26	DC bus voltage during first two faults	0V~2000V	Actual value	0x821A	★
U01.27	Output voltage during the first two faults	0V~2000V	Actual value	0x821B	★
U01.28	Input terminal status during the first two faults	0x00~0x7F	Actual value	0x821C	★
U01.29	Output terminal status during the first two faults	0x00~0x7F	Actual value	0x821D	★
U01.30	The operating status of the machine during the first two malfunctions	0x00~0x2F	Actual value	0x821E	★
U01.31	Radiator temperature during the first two faults	0.0℃~120.0℃	Actual value	0x821F	★
U01.32	Cumulative operation time during the first two faults	0.0h~6553.5h	Actual value	0x8220	★
U01.33	The first three fault codes	0~100	Actual value	0x8221	★
U01.34	Cumulative operation time during the first three faults	0.0h~6553.5h	Actual value	0x8222	★

Parameter	Name	Setting range	Factory value	Register address	Properties
U02 Drive Information Data					
U02.00	Rated power of drive	0.0kW~6000.0kW	Model confirmed	0x8300	★
U02.01	Rated voltage of drive	0V~2000V	Model confirmed	0x8301	★
U02.02	Rated current of drive	0.0A~6000.0A	Model confirmed	0x8302	★
U02.03	Software series of drive	20: Represents the V20 series 280: Represents the V20S series	Actual value	0x8303	★
U02.04	Functional version of drive	1.00~99.99	Actual value	0x8304	★
U02.05	Performance version of drive	1.00~99.99	Actual value	0x8305	★
U02.06	Production year of drive	2000~2999	Actual value	0x8306	★
U02.07	Production month of drive	01/01~12/31	Actual value	0x8307	★
U02.08	Custom series number	00~9999	Actual value	0x8308	★
U02.09	Customer non-label	00~9999	Actual value	0x8309	★
U02.10	Keyboard software version	0.00~99.99	Actual value	0x830A	★

Chapter 3 Fault Diagnosis and Countermeasures

3.1 Fault List and Countermeasures

The drive may encounter the following fault types during use. Please refer to the list countermeasures for simple troubleshooting.

Fault code	Failure Display	Fault name	Cause	Countermeasure
1	Er.oc1	Over-current in acceleration	Torque boost value is too large at scalar control	Reduce torque boost value
			Great starting frequency	Reduce the starting frequency value
			Short acceleration time	Prolong acceleration time
			Improper setting of motor parameters	Correct setting of motor nameplate
			Weight overload	Reduce overload
			Restart the rotating motor	Reduce the current limit value or start with speed search
			Output interphase short circuit or ground fault	Check motor wiring and output impedance to ground
			V/F curve is not suitable at scalar control	Correct set of V/F curve
2	Er.oc2	Over-current during deceleration	Short deceleration time	Prolong deceleration time
			There is no additional brake unit and brake	Add braking unit and resistance
3	Er.oc3	Over current in constant speed	Small drive power level	Select the appropriate drive power
			Low grid input voltage	Check grid voltage
			Weight overload	Reduce overload
4	Er.ou1	Over-voltage during acceleration	Abnormal input voltage	Check grid voltage
			Short acceleration time	Prolong acceleration time
			Large load inertia	Use energy braking
5	Er.ou2	Over-voltage during deceleration	Short deceleration time	Prolong deceleration time
			Abnormal input voltage	Check grid voltage
			Large load inertia	Use energy braking

Fault code	Failure Display	Fault name	Cause	Countermeasure
6	Er.ou3	Over-voltage in constant speed	Abnormal input voltage	Check grid voltage
			Large load fluctuation	Check load
7	Er.Lu1	drive under-voltage	The input terminal voltage of the drive is not within the range required by the specification.	Adjust voltage to normal range
			Momentary interruption	Reset fault
			Abnormal bus voltage	Seek technical support
			Abnormal rectifier bridge and buffer resistance	Seek technical support
			Abnormal driving plate	Seek technical support
Abnormal control plate	Seek technical support			
8	Er.Cur	Current detection fault	Abnormal connection between control plate and driving plate	Check the cable and reset it
			Abnormal control plate current detection circuit	Seek technical support
			Abnormal driving plate current detection circuit	Seek technical support
			Damaged current sensor	Seek technical support
			Damaged switch power supply	Seek technical support
9	Er.CPU	Current detection fault	Serious external interference signal	Seek technical support
10	Er.FAL	Module protection fault	Output interphase short circuit or short circuit to ground	Check motor wiring and output impedance to ground
			Over-voltage or over-current	Process according to the over-voltage and over-current method
			Loose connection of control plate	Reset the control plate connector
			Direct connection of drive module	Seek technical support

Fault code	Failure Display	Fault name	Cause	Countermeasure
			Abnormal control plate	Seek technical support
			Damaged switch power supply	Seek technical support
11	Er.tun	Motor identification failure	Motor parameters are not set or set incorrectly	Setting motor parameters correctly
			Motor wiring error	Check motor wiring
12	Er.CCL	Contactor suction failure	Abnormal grid input	Check input grid voltage
			Contactor damage	Seek technical support
			Damaged buffer	Seek technical support
			Abnormal switch power supply	Seek technical support
13	Er.EtE	External terminal fault	Input signal of external fault through multi-functional terminal X	Reset
			Input signal of external fault through logic state inversion IO function	Reset
14	Er.oH1	drive overheating	High environment temperature	Reduce environment temperature
			Damaged fan	Replace fan
			Air duct blockage	Clean air duct
			Abnormal temperature detection	Seek technical support
			Damaged drive module	Seek technical support
15	Er.oH2	Motor overheating	High environment temperature	Reduce environment temperature
			Abnormal heat dissipation or heavy load of motor	Check motor heat dissipation or reduce load
			Damaged temperature detection circuit	Seek technical support
16	Er.oL1	drive overload	Low input power supply voltage	Check grid voltage

Fault code	Failure Display	Fault name	Cause	Countermeasure
			Quick start in high speed rotation of motor	Start the motor after stopping rotating
			Long-term weight overload	Shorten overload time and reduce load
			Short acceleration and deceleration time	Prolong acceleration and deceleration time
			High setting of V/F curve ratio	Adjust V/F curve setting and torque lifting amount
			Small power selection of drive	Replace the drive with suitable type
17	Er.oL2	Motor overload	Low input power supply voltage	Check grid voltage
			Motor stalling or serious load mutation	Prevent motor stalling and reduce load mutation
			Long-term, low-speed and heavy-load running of common motors	Change to variable frequency motor or increase operating frequency
			Short motor overload protection time	Increase motor overload protection time
			High setting of V/F curve ratio	Adjust V/F curve setting and torque lifting amount
			Large DC brake current setting	Reduce DC braking current
18	Er.iLF	drive input Phase loss	Abnormal three-phase input power supply	Check and eliminate problems in peripheral circuits
			Abnormal driving plate	Seek technical support
			Abnormal control plate	Seek technical support
19	Er.oLF	drive output Phase loss	Abnormal wiring at output side of drive	Eliminate peripheral faults
			Motor three-phase unbalance	Check the motor or replace the motor
			Abnormal driving plate	Seek technical support
			Abnormal module	Seek technical support

Fault code	Failure Display	Fault name	Cause	Countermeasure
20	Er.LLd	drive output Off load	The operating current of the drive is less than P30.07	Confirm whether the load is disengaged or whether the P30.07 and P30.08 parameter settings conform to the actual operating conditions.
21	Er.GdF	drive Short circuit to ground	Output wiring short circuit to ground	Check motor wiring and output impedance to ground
			Abnormal motor	Check motor
			Abnormal drive module	Seek technical support
			Large output current to floor drain	Seek technical support
22	Er.EEP	EEPROM read and write Failure	Abnormal EEPROM read-write	Seek technical support
23	Er.Sci	Communication overtime fault	Improper setting of communication baud rate	Correct setting
			Disconnected wiring at communication port	Reconnect
			The upper computer is not working	Make the upper computer work
			Communication parameter error of drive	Correct setting
			Large interference on site	Check peripheral equipment or seek services
24	Er.tPA	Reaching power-on time	Accumulative power-on time reaches the setting value.	Seek technical support
25	Er.trA	Reaching running time	Accumulative running time reaches the setting value.	Seek technical support

Fault code	Failure Display	Fault name	Cause	Countermeasure
26	Er.rEF	PID given loss during running	PID given channel exception	Check given channel
			P40.24 unreasonable parameter setting	Correct setting
27	Er.FbL	PID feedback loss during running	PID feedback channel exception	Check feedback channel
			P40.26 unreasonable parameter setting	Correct setting
28	Er.oEP	Excessive speed bias	Small bias setting between the motor speed and the setting speed	Correctly set the speed bias point
			Large load fluctuation	Stable load
29	Er.oSP	Motor over-speed	Small setting value of over-speed value	Correctly set the speed bias point
			Large load fluctuation	Stable load
37	Er.SEF	Speed estimation fault	The motor is not recognized or the parameters are incorrect.	Re-identification of motor parameters
39	Er.Cpy	Parameter copy fault	Parameter upload or download exception	Seek technical support
			Download directly without parameter on operation keyboard	Seek technical support

Appendix A

Modbus communication protocol

1、Support protocol

Support Modbus protocol, RTU format and ASCII code format; the broadcast address is 0, and the slave address setting values are 1~247, 248~255 reserved.

2、Interface mode

RS485: asynchronous half duplex, least significant bit preferred to send; the high byte precedes the low byte.

3、Frequency drive address distribution

The function code address distribution refers to the function list.

4、Bit definition of drive control command word (0x8000)

Control command word (bit)	Meaning	Control command word (bit)	Meaning
bit0	0: no operation 1: valid running command	bit5	0: invalid fault shutdown 1: valid fault shutdown
bit1	0: forward rotation 1: reverse rotation	bit6	0: invalid inching forward rotation 1: valid inching forward rotation
bit2	0: invalid deceleration shutdown 1: valid deceleration and shutdown	bit7	0: invalid inching reverse rotation 1: valid inching reverse rotation
bit3	0: invalid emergency shutdown 1: valid emergency shutdown	bit8	0: invalid fault reset command 1: valid fault reset command
bit4	0: invalid free shutdown 1: valid free shutdown	bit9~bit15	Reserve

5、Modbus communication example

Read the setting frequency of 1# drive, and the setting frequency of drive response is 50.00Hz.

	Premises	Function code	Register address	Number of register	Number of bytes in contents	Register content	Checksum
Request	0x01	0x03	0x0000	0x0001	No	No	0x840A
Response	0x01	0x03	No	No	0x02	0x1388	0xB512

Start the 1# drive to rotate forward

	Premises	Function code	Register address	Register content	Checksum
Request	0x01	0x06	0x8000	0x0001	0x61CA
Response	0x01	0x06	0x8000	0x0001	0x61CA

HONWIN TECH

Product warranty card

Customer information	Address of user:		
	User name:	Contact Person:	
	Post code:	Contact No.:	
Product information	Product model:		
	Fuselage barcode:		
	Name of agent/joint guarantee center:		
failure information	(Maintenance time and content):		
	Maintainer:	MM	DD YY
User's evaluation of service quality	<input type="checkbox"/> Good	<input type="checkbox"/> well	
	<input type="checkbox"/> general	<input type="checkbox"/> poor	
	Signature of user:	MM	DD YY

HONWIN TECH

Warranty agreement

- 1、 The warranty period is 18 months. During the warranty period, in accordance with the normal use of the user manual, our company is responsible for the free maintenance of the product in case of fault or damage.
- 2、 The warranty period starts from the factory date of the product, and the machine code is the only basis for judging the warranty period.
- 3、 During the warranty period, certain maintenance fees will be charged for damages caused by the following reasons:
 - A. Product damage caused by misuse, unauthorized repair or modification.
 - B. Product damage due to fire, flood, earthquake, lightning, abnormal voltage, other natural disasters and secondary disasters, etc.
 - C. Product damage caused by man-made falling and transportation after purchase.
 - D. Product fault and damage caused by obstacles other than products (such as external equipment factors).
 - E. Product fault and damage due to gas corrosion, salt corrosion, metal dust
- 4、 When the product malfunctions or gets damaged, please fill in all the items on the "Product Warranty Card" correctly.
- 5、 The service fee is calculated according to the actual cost. If there is another contract, the contract shall prevail.
- 6、 Please be sure to keep this card and show it to the maintenance unit during warranty.
- 7、 Honwin Electric Technology Co., Ltd. reserves the right to interpret this Agreement.

Honwin Technology Co., Ltd.

Company address: Floor 3-5, Building A, Xiwan National Major Instrument Science
Park, No.34, Xiangshan Avenue, Cuiheng New District,
Zhongshan, Guangdong, China.

Post code: 528400

Service number: 400 9929 159

Company fax: 0760-8576 8458

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HONWIN TECH

Honwin Technology Co.Ltd.

Company address: Floor 3-5, Building A, Xiwan National Major Instrument Science

Park, No.34, Xiangshan Avenue, Cuiheng New District,

Zhongshan, Guangdong, China.

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