APPLICABLE MODELS: HS100-N SERIES

AC SERVO DRIVE

USER MANUAL

Product Check:

Check Items

Whether the arrival product matches the model of the product you ordered, whether the product is damaged or not, and whether the rotary shaft of the servo motor runs smoothly.

Note

The box contains the machine you ordered, HS100-N series servo drive user manual, servo drive accessories.

Please check the appearance of the whole machine, whether the product is damaged during transportation. If any damage is found or the accessories are missing, please contact the company or contact your supplier.

It is possible to gently turn the servo motor that is normal, except "with brake" servo motor

Common Parameters

1. Enable the setting mode immediately after the servo drive is powered on:

The default value of H3E07 is d·1·0; if it needs to be enabled immediately after power-on, it is set to d·0·0, and the power-off restart takes effect.

2. Servo motor running direction setting mode:

The default value of H3A03 is d·1·1; if you need to change the direction, set it to d·0·1, and the power-off restart takes effect.

3. Electronic gear ratio setting method:

H3d40 first electronic gear molecule, the default value is 0;

H3d41 first electronic gear denominator, the default value is 10000;

By default, 10,000 pulse motors are rotated one revolution. If 5000 pulses are required to take one revolution, H3d41 is set to 5000, and the parameters take effect immediately.

4. Setting command pulse form :

Parameter		Command pulse form
H3d00	H□□□0	Sign + pulse
	H□□□1	CW pulse + CCW pulse
	H□□□2	Two-phase pulse train with 90 °phase differential (A phase, B phase)

5. Inertia ratio self-tuning setting mode:

Be sure to install the servo motor and then perform the self-tuning of the inertia.

First set H3A08 to 1, set the offline inertia recognition function;

Then enter the H2-21 parameter (default value 200), long press the up direction key, the motor will reciprocate, after the value is stable, let go, press the M key to return to the H2-21 interface and the parameters will be saved successfully.

6. Determine the servo stiffness level according to the type of transmission:

The default value of H3A12 rigidity is 6, and the machine with less rigidity is less than 6, and adjust according to the actual situation.

Safety Precautions

This section describes important items that users must follow for product identification, storage, handling, installation, wiring, operation, inspection, and disposal.

WARNING

The servo system can be inspected after 5 minutes of power failure.

After the power is turned OFF for more than 5 minutes, the power indicator is turned off and then the drive is removed. Otherwise, electric shock may occur due to residual voltage. It is recommended to start the servo system check operation after confirming that the CHARGE indicator is off.

Do not plug or unplug the connector on the drive after the power is turned on.

The internal circuit and motor encoder of the drive can be damaged by plugging and unplugging. Please plug in and unplug the plug after power off.

Do not change the maximum value of the system

Do not change the maximum speed value except for special purposes. Failure to do so may damage the machine or cause injury.

Anti-interference treatment and grounding

Interference on the signal line is extremely likely to cause mechanical vibration and abnormal operation. The following rules must be strictly observed:

1. Separate the power cable and the weak cable to minimize the length of the cable.

2. Servo motor and servo drive should be installed with single point grounding and grounding impedance below 100Ω

3. It is strictly forbidden to use the power input interference filter between the servo motor and the servo driver.

Installation of emergency stop device

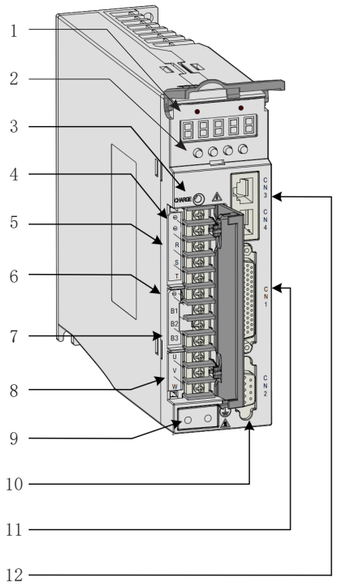
When starting to install on the supporting machine, please put the servo motor in an emergency stop state at any time, otherwise it may be injured. Please install an emergency stop on the machine side to ensure safety.

Make sure that the motor cable is properly connected to the corresponding shaft motor connection terminal on the drive. Connection errors can cause irreversible consequences.

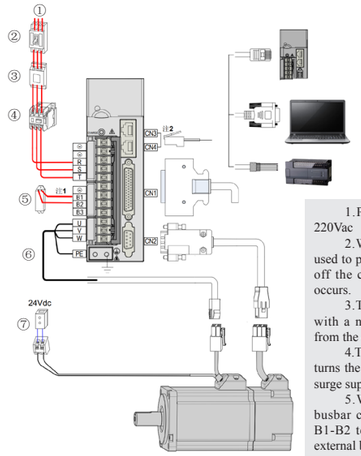
1. The brake of the servo motor with the brake is not used to ensure a safe stop. Failure to install a stop device may result in injury.

2. Be sure to connect the electromagnetic contactor and the no-fuse breaker between the power supply and the main circuit power supply of the servo drive. Otherwise, the large current cannot be cut off when the servo drive fails.

Chapter I Servo System Selection



1. LED Display
2. Operating buttons
3.CHARGE bus voltage indicator
4.NC floating terminal
5.R、S、T main circuit terminal
6.NC floating terminal
7.B1、B2、B3 Braking resistor terminal
8.U、V、W Servo motor output
9. ⏚ PE Ground terminal
10.CN2 Encoder connector terminal
11.CN1 I/O signal control terminal
12.CN3、CN4 Communication terminal



1.Power supply three-phase 220Vac

2.Wiring circuit breakers are used to protect the power cord and cut off the circuit when an overcurrent occurs.

3.The noise filter is equipped with a noise filter to prevent noise from the outside of the power line.

4.The electromagnetic contactor turns the servo power on/off. Install a surge suppressor when using it.

5.When the braking resistor busbar capacitor is insufficient, the B1-B2 terminal is connected to the external braking resistor.

6.Brake power supply 24Vdc voltage source, used when the servo motor has a brake.

7.The electromagnetic contactor brake control signal turns the brake power on/off. Install a surge suppressor when using it.

System Wiring Precautions

1. When two-phase 220V wiring, arbitrarily select two terminals of R, S and T to connect.

2. When the external braking resistor is connected, remove the servo driver B2 and connect the B1 and B2 after short wiring between the B3 terminals.

3. CN3 and CN4 define the same communication interface for the two pins, which can be selected and used between the two.

4. Do not wire the reserved terminals.

Servo Motor Naming Rule

Mark	Design Code
HSM	HSM Series

Mark	Feature
H 1	Low inertia Small capacity
H 2	Low inertia Medium capacity
H 3	Medium inertia, Medium capacity
H 4	Medium inertia, Small capacity

Mark	Encoder Type
1 letter + 1 digit	
E 1	2500-PPR incremental
E 2	20-bit bus type
A 1	17-bit absolute
A 2	20-bit absolute
A 3	23-bit absolute

Mark	Product Batch
N	001
W	002
Z	003

HSM H1 – 75B 30C B – E1 3 1 N

Mark	Rated Power（W）
1 letter + 2 digit	
A	×1
B	×10
C	×100
D	×1000
E	×10000

Example
75B：750rpm
15C：1500rpm

Mark	Rated Speed（RPM）
1 letter + 1 digit	
A	×1
B	×10
C	×100
D	×1000
E	×10000

Example
15B：150 RPM
30C：3000 RPM

Mark	Brake,Gear,Oil Seal
0	None
1	With oil seal
2	With brake
4	With oil seal+brake

Mark	Shaft Connection
1	Optical shaft
2	Solid with key
3	Solid with key and threaded hole
4	Solid with threaded hole

Mark	Voltage Class
S	220V
T	380V

Servo Drive Naming Rule

HS100 P S 5R5 I

Mark	Product Type
A	Full Function
P	Universal
N	Streamlined
Z	Mini type

Mark	Mounting Method
I	Substrate mounting

Mark	Voltage Class
S	220V
T	380V

Mark	1R6	2R8	3R5	5R4	5R5
Rated output current	1.6A	2.8A	3.5A	5.4A	5.5A
	7R6	8R4	012	017	021	026
	7.6A	8.4A	12A	17A	21A	26A

Mark	Design Code
HS100	HS100 Series

Servo System Configuration

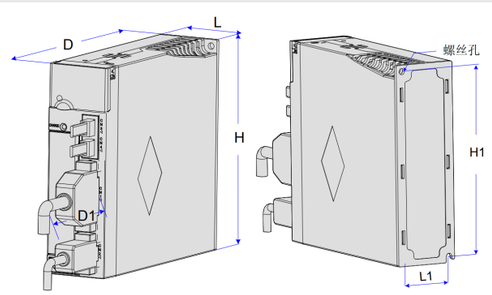
Rated Speed（RPM）	Rated Power（W）	Servo Motor Model (HSMH□-□□□□□□□-*****)		Motor Frame Size	Servo Drive Model (HS100N□□□□I) Single-phase 220VAC	Three-phase 220VAC	Drive Size
3000	100	H1 (Low inertia,Small capacity)	10B30CB	40	S1R6		M1
	200		20B30CB	60	S1R6		M1
	400		40B30CB	60	S2R6		M1
	750		75B30CB	80	S5R5		M1
	1000	H2 (Low inertia,Medium capacity)	10C30CB	100		S7R6	M2
	1500		15C30CB	100		S012	M2
1500	850	H3 (Medium inertia,Medium capacity)	85B15CB	130		S7R6	M2
	1300		13C15CB	130		S012	M2
3000	400	H4 (Medium inertia, Small capacity)	40B30CB	60	S2R8		M1
	750		75B30CB	80	S5R5		M1

Regen Resistor Specifications

Servo Drive Model		Braking Regen Specs Resistance(Ω)	Capacity（W）	Min. Allowed Resistance（Ω）	Max. Braking Energy absorbed by Capacitor（J）
Single-phase 220V	HS100NS1R6I	-	-	50	9
	HS100NS2R8I	-	-	45	18
Single/Three-phase 220V	HS100NS5R5I	50	50	40	20
Three-phase 220V	HS100NS7R6I	25	80	20	26
	HS100NS012I			15	47

S1R6 and S2R8 models without built-in braking resistor, please for the use of user-configurable external braking resistor, the external braking resistor power options, please contact our technical support.

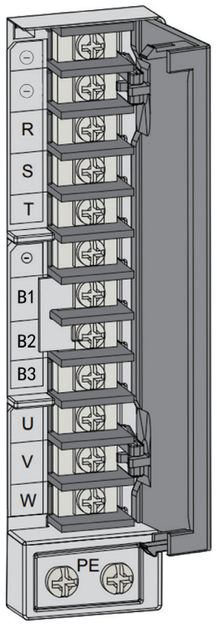
Overall Dimensions of the Servo Drive



Drive Size	L (mm)	H (mm)	D (mm)	L1 (mm)	H1 (mm)	D1 (mm)	Screw Hole	Weight (kg)
SIZE M1	50	160	173	40	150	75	2-M4	1.1
SIZE M2	90	160	183	80	150	75	4-M4	2.0

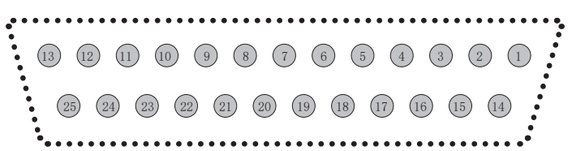
Chapter II Wiring of Servo System

Servo Drive Main Circuit Wiring



Terminal Symbol	Terminal Name	Terminal Function
R、S、T	Main circuit power input terminals	Main circuit three-phase 220V input or two-phase 220V input (any two terminals are connected).
B1、B2、B3	External regen resistor terminals	By default, short wires are connected between B2-B3. When the braking capacity is insufficient, open the B2-B3 (remove the short wiring) and connect the external braking resistor between B1-B2.External braking resistors should be purchased separately.
U、V、W	Servo motor connection terminals	Connect to U,V and W phases of the servo motor.
PE	Grounding terminal	Two grounding terminals are connected to the power grounding terminal and the motor grounding terminal. Be sure to ground the entire system.
⊖	Hanging terminals	Do not connect.

Connecting Control Signal Terminals



13	12	11	10	9	8	7	6	5	4	3	2	1
GND	PZO−	PBO−	PAO−	PULS 5+	COM	SIGN−	SIGN 24+	PULS−	PULS 24+	DI5	DI3	DI1
	25	24	23	22	21	20	19	18	17	16	15	14
	CZ	PZO+	PBO+	PAO+	SIGN 5+	DO4	DO3	DO2	DO1	GP	DI4	DI2

I/O Signal Names and Functions

（1）Input signals

Pin No.	Signal name	Function
CN1-4	PULS 24+	Pulse command input (24V)
CN1-9	PULS 5+	Pulse command input (5V)
CN1-5	PULS-	Pulse command input negative
CN1-6	SIGN 24+	Pulse direction input(24V)
CN1-21	SIGN 5+	Pulse direction input(5V)
CN1-7	SIGN-	Pulse direction input negative
CN1-16	GP	Common terminal for DI terminals（24V）
CN1-1	DI1	Digital input 1, default servo enable
CN1-14	DI2	Digital input 2
CN1-2	DI3	Digital input 3
CN1-15	DI4	Digital input 4
CN1-3	DI5	Digital input 5, default alarm reset

（2）Output signal

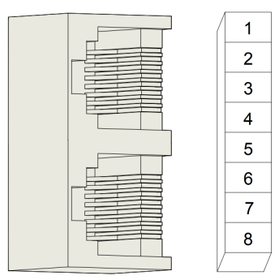
Pin No.	Signal name	Function
CN1-8	COM	Common terminal for DO terminals（0V）
CN1-17	DO1	Digital output 1
CN1-18	DO2	Digital output 2
CN1-19	DO3	Digital output 3
CN1-20	DO4	Digital output 4
CN1-22	PAO+	Encoder Aphase pulse frequency-division output
CN1-10	PAO-	
CN1-23	PBO+	Encoder B phase pulse frequency-division output
CN1-11	PBO-	
CN1-24	PZO+	Encoder Z phase pulse frequency-division output
CN1-12	PZO-	
CN1-25	CZ	Encoder C-phase pulse outputs open collector signal

（3）Other signal

Pin No.	Signal name	Function
CN1-13	GND	Power ground

Communication Signal Wiring

The communication interface of RS485/232 is located at CN3 and CN4 of the controller. The figure below shows the terminal arrangement diagram and terminal definition of the connector (from the side of the solder tab to the side of the driver).

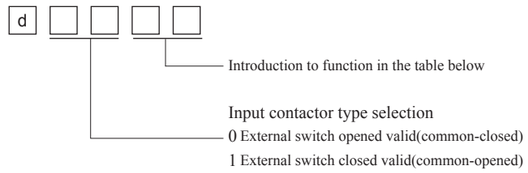


Pin No.	Signal name	Function
CN3-1	RS485-	RS485 communication port
CN3-2	RS485+	
CN3-3	RS232-RXD	RS232 receiving end
CN3-4	RS232-TXD	RS232 sending end
CN3-5	GND	Ground
CN3-6	+ VCC	5V Power supply

Function Setting of Programmable Input Signal Terminal

Programmable terminals include DI1 to DI5.The related parameters are from H3E07 to H3E11。

Input contactor type is used to select common-open or common-close interface type. For example, when some malfunction occurs, servo drive must stop safely, which needs the common-close switch.

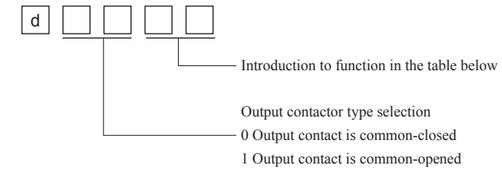


Setting value	Name	Function	Instructions	Signal type
0	S-ON	Servo on	Switch to servo ready	Level trigger
1	ALM-RST	Alarm reset	Clear alarms that are allowed to clear	Edge trigger
2	TCCW	Forward torque limit	Limit the output torque of the servo motor during forward rotation	Level trigger
3	TCW	Reverse torque limit	Limit the output torque when the servo motor is reversed	Level trigger
4	SD1	Internal speed selection 1	The combination of internal speed selection 1 and internal speed selection 2 gets three kinds of internal speed.	Level trigger
5	SD2	Internal speed selection 2		
6	SD-DIR	Internal speed direction control	Motor run direction is controlled by SD-DIR at the mode of internal register speed.	Level trigger
7	ZCLAMP	Zero speed CLAMP	When the speed is lower than the value of zero speed CLAMP, the motor speed is 0 and position is locked.	Level trigger
8	GAIN	Gain switching	Active-enable gain switching Invalid - no effect	Level trigger
9	Reserved	—	—	—
10	ClrPosERR	Pulse clear	Position deviation register returns to 0 at the position mode.	Edge trigger
11	Inhibit-P	Command pulse prohibited	External pulse command is invalid at the position mode.	Level trigger
12	EMG	Emergency stop	Motor stops urgently.	Level trigger
13	P-INH	Reverse run prohibited	Motor is forbidden reverse run.	Level trigger
14	N-INH	Forward run prohibited	Motor is forbidden forward run.	Level trigger
21	SHOM	Home searching triggered	Home searching triggered mode	Edge trigger
22	ORGP	External reference origin	ORGP is external reference origin.	Edge trigger

Function Setting of Programmable Output Signal Terminal

Programmable output terminals include terminals from DO1 to DO4 (The related parameters are from H3E21 to H3E24。

After changing these parameters, turn OFF the main circuit and control power supplies and then turn them ON again to enable the new settings



Setting value	Name	Function	Instructions
0	S-RDY	Servo ready	S-RDY is activated when the servo drive is ready to run.
1	SON-O	Servo on	SON-O is activated when the servo motor is ON.
2	TGON	Rotation Detection	When the absolute value of speed is higher than the value of at rotation detection, TGON is activated.
3	V- Arr	At speed reached	V-CMP is activated when the servo motor has reached the target rotation speed.
4	P- Arr	At position reached	Position completed
5	T-LT	At torque limit	Output signal when the torque of the servo motor is higher than the torque threshold H3C02
6	ALM	Servo alarm activated	ALM is activated when the drive has detected a fault condition.
7	BRAKE	Electromagnetic brake control	BRAKE is activated actuation of motor brake.
8	OL-W	Overload pre-alarm	Overload pre-alarm signal
9	S-LT	At speed limit	S-LT is activated when speed is limited.
11	PER-W	Position deviation too large	PER-W is activated when position deviation is too large.
12	HomeAttain	Homing completed	HOME is activated when the servo drive has detected that the HOME sensor has been detected.

Warranty Agreement

Thank you for choosing our products. In order to ensure that you get the best after-sales service of our company, please read the following terms carefully and do related matters.

1.Product warranty range

Any malfunction that occurs under normal use conditions as required by use.

2.Product warranty period

The warranty period of our products is within 12 months from the date of delivery. Long-term technical service is implemented after the warranty period.

3.Non-warranty scope

Any damage caused by accidents, natural disasters, etc., as well as unauthorized removal, modification and repair of the servo drive without authorization will be deemed to be automatically waived.

4.Purchase products from middlemen

For those who purchase products from the distribution agent, please contact the dealer or agent when the product fails.

Chapter III Drive Parameter Profile

Control mode P：Position Mode；S：Speed mode；ALL：All Modes

Setting method ★：Read-only register, parameters cannot be changed

○：The Parameters are not saved after restart

●：The parameters take effect after restarting

■：The parameters take effect immediately

Monitor Function Group

Function code	Display content	Unit	Control mode
H1-00	Servo motor speed	0.1r/min	ALL
H1-01	Servo drive bus voltage	V	ALL
H1-02	Servo drive output current	0.1A	ALL
H1-03	Current gain group display	G	ALL
H1-05	Leak time	10ms	ALL
H1-06	Drive current temperature display	℃	ALL
H1-07	Given speed	0.1r/min	S
H1-09	Current output torque display	%	ALL
H1-12	Given command pulse numbers display high 5 digits	Command unit	P
H1-13	Given command pulse numbers display low 5 digits	Command unit	P
H1-14	Servo motor feedback pulse displays high 5 digits.	Command unit	ALL
H1-15	Servo motor feedback pulse displays low 5 digits	Command unit	ALL
H1-16	Servo motor feedback rotation displays high 5 digits	Command unit	ALL
H1-17	Servo motor feedback rotation displays low 5 digits	Command unit	ALL
H1-22	Command pulse error numbers	Command unit	P
H1-25	DI1~DI4 Status display	None	ALL
H1-26	DI5 Status display	None	ALL
H1-28	DO4~DO1 Status display	None	ALL

Utility Function Group

function code	Name	Setting unit	Setting range	Mfr's value	Control mode	Setting mode
H2-05	Encoder disconnection protection	G	0~1	1	ALL	■
	0: Shield encoder disconnection protection; 1: Enable encoder line disconnection protection;					
H2-09	Motor stall protection	NA	0~1	1	ALL	■
	0: Shield motor stall protection; 1: Turn motor stall protection					
H2-13	Servo OFF stop mode	G	0~2	0	ALL	■
	0: Free parking 1: Reserved 2: Fast enable					
H2-14	Servo drive status display	G	0~18	0	ALL	■
H2-16	Forward prohibition setting	G	0~1	1	ALL	■
	0: Do not prohibit forward rotation 1: prohibit forward rotation					
H2-17	Reverse prohibition setting	G	0~1	1	ALL	■
	0: Do not prohibit reverse 1: Disable reverse					
H2-21	JOG run	G	Can't be set	—	ALL	■
H2-22	JOG speed	0.1r/min	0~30000	1000	ALL	■
H2-24	Delay time for servo OFF	10ms	0~50	0	ALL	■
H2-25	Delay time for electro-magnetic braking OFF	10ms	10~100	50	ALL	■
H2-27	Venting duty cycle	%	0~100	50	ALL	■
H2-28	Speed threshold of electromagnetic braking	0.1r/min	0~30000	1000	ALL	■
H2-30	Overload warning signal output current	%	0~800	120	ALL	■
H2-31	Overload warning filtering time	10ms	0~1000	10	ALL	■
H2-32	Motor overload factor setting	%	1~500	100	ALL	■
H2-34	Stall protection decision time	10ms	10~1000	50	ALL	■
H2-44	The fault code of the last fault of the drive	G	0~31	0	ALL	★
H2-45	The fault code of the second last fault of the drive	G	0~31	0	ALL	★
H2-46	The fault code of the third time the drive counts down	G	0~31	0	ALL	★
H2-47	Alarm reset					■○
H2-48	User password	G	0~9999	0	ALL	●
H2-49	Motor parameter modification	G	—	0	ALL	■
H2-50	Restore Factory	G	0~10	0	ALL	●

Main Function Group

Function code	Name and description	Setting unit	Setting range	Mfr's value
H3A03	Control mode and direction of rotation	G	Two functions	d 1 1
	Function parameter H3A03.0 function: 0: Speed mode; 1: Pulse mode (for example, modified to d·1·0 is counterclockwise speed mode); H3A03.2 function: 0: The motor rotates clockwise; 1: The motor rotates counterclockwise (for example, modified to d·0·1 for clockwise pulse mode);			
H3A04	Internal enable setting	G	0~1	0
H3A05	Servo enable mode selection	G	0 ~ 1	0
	0: External terminal enable; 1: Internal parameter enable			
H3A06	Max rotation speed	r/min	0 ~ 10000	—
H3A08	Inertia recognition mode selection	G	0~2	0
H3A09	Movement of inertia recognition gap time	ms	10~2000	100
H3A12	Rigid level setting	G	1~30	6
H3A13	Moment of inertia ratio	0.01	1~30000	200
H3A14	Moment of inertia learning acceleration and deceleration time	ms	200~5000	1000
H3A15	Offline inertia identification range	G	200~30000	10000
H3b01	Speed loop proportional gain 1	0.1Hz	0~30000	600
H3b02	Speed loop integral time1	0.1ms	0~10000	500
H3b03	Speed loop proportional gain 2	0.1Hz	0~30000	240
H3b04	Speed loop integral time2	0.1ms	0~30000	1250
H3b06	1st Speed loop filter time constant	0.01ms	1~20000	1
H3b07	2nd Speed loop filter time constant	0.01ms	1~20000	1
H3b09	Speed mode acceleration time	1ms	1~30000	200
H3b10	Speed mode deceleration time	1ms	1~30000	200
H3b11	S curve acceleration/deceleration time	1ms	1~12000	100
H3b12	S curve starting indication	G	0~1	0
H3b13	Internal speed given 1	0.1r/min	0~±32000	1000
H3b14	Internal speed given 2	0.1r/min	0~±32000	2000
H3b15	Internal speed given 3	0.1r/min	0~±32000	3000
H3b17	Range of target speed	0.1r/min	0~30000	300
H3b26	Zero speed clamp velocity value	0.1r/min	0~30000	50
H3b27	Zero speed clamp enable	G	0~1	0
H3b30	Gain switching method	G	0~6	0
H3b31	Gain switching speed	0.1r/min	1~32000	100
H3b32	Gain switching pulse	G	1~32000	100
H3b33	Position loop gain switching time	0.1ms	1~32000	20
H3b34	Speed loop gain switching time	0.1ms	0~20000	100
H3b35	Gain 2 switches to gain 1 delay time	0.1ms	0~32000	1000
H3C00	Current loop first bandwidth	Hz	10~3000	—
H3C01	Current loop second bandwidth	Hz	10~3000	—
H3C02	Internally given maximum torque limit	1% rated torque	0~800	200
H3C08	Forward maximum torque limit	1% rated torque	0~800	100
H3C09	Reverse maximum torque limit	1% rated torque	0~800	100
H3C14	First torque filter time constant	0.01ms	0~30000	0
H3C15	Second torque filtering time	0.01ms	0~30000	0
H3d00	External pulse command	G	Four functions	0020
	Function parameter: H3d00.0 function: Pulse mode selection. 0: Sign + pulse; 1: CW pulse + CCW pulse; 2: Two-phase pulse train with 90 °phase differential (A phase, B phase) H3d00.1 function: pulse filter frequency. 0: 4MHZ; 1: 2MHZ; 2:1MHZ; 3:500KHZ; 4:200KHZ; 5:100KHZ;			
H3d01	First position loop gain	G	1~30000	—
H3d02	Second position loop gain	G	1~30000	—
H3d03	Position loop feed forward gain	G	0~1000	0
H3d06	Position loop filter time constant	ms	1~10000	1
H3d07	Position arrival pulse number range	G	1~32000	—
H3d08	Position given pulse clear setting	G	Four functions	1111
H3d09	Position error alarm pulse number	G	1~32000	500
H3d40	Electronic gear ratio molecule	G	1~65535	0
H3d41	Electronic gear ratio denominator	G	1~65535	10000
H3d47	Acceleration/deceleration time in position mode	G	1~30000	0
H3E07	DI1 Function selection	G	Two functions	—
H3E08	DI2 Function selection	G	Two functions	—
H3E09	DI3 Function selection	G	Two functions	—
H3E10	DI4 Function selection	G	Two functions	—
H3E11	DI5 Function selection	G	Two functions	—
H3E21	DO1 Function selection	G	Two functions	—
H3E22	DO2 Function selection	G	Two functions	—
H3E23	DO3 Function selection	G	Two functions	—
H3E24	DO4 Function selection	G	Two functions	—
H3F00	Mailing address	G	1~254	1
H3F01	Communication mode	G	0~1	0
	0：RTU 1：ASCI1			
H3F03	Parity	G	0~2	0
	0: No parity; 1: Odd parity; 2: Even parity			
H3F04	Communication baud rate	bit/s	0~5	2
	0:2400；1:4800；2:9600；3:19200；4:38400；5:57600			
H3F05	Communication allows read and write	G	0~1	1
	0: Permit communication data to be written into the data storage inside the servo; 1: The communication data command is not allowed to be written into the internal data memory of the servo. Generally, the communication data will be lost after the servo is powered off and needs to be rewritten.			

Chapter IV Troubleshooting

Alarm Display	Alarm Name	Cause	Corrective Actions
Err01	Hardware malfunction	Drive internal hardware failure	Please contact us
Err03	Moment of inertia identification error	Alarm when the moment of inertia is recognized incorrectly	Manually increase the H3A13 manually
Err04	Electrical angle recognition error	Motor wire sequence error	Need to adjust the line sequence, exchange two of them arbitrarily
Err05	Position control error is too large	Wiring of the power line or encoder wire of the servo motor is incorrect or poorly contacted	Adjust or improve wiring
		Drive gain is low	Increase gain, participate in speed and position gain adjustment
		The frequency of the position pulse command is too high	Reduce the pulse frequency of the position pulse command or adjust the electronic gear
Err11	Overcurrent	Main circuit wiring error	Modify wiring
		Output side short circuit	Cable may be shorted, repaired or replaced
		Servo drive internal short circuit or short to ground	Repair or replace the servo drive
		Malfunction due to interference	Adopt anti-interference strategy, improve wiring, etc.
		Servo drive failure	Repair or replace the servo drive
Err12	Overvoltage	Power supply voltage is too high	Check if the rated voltage is input
		Load moment of inertia is too large	Increase deceleration time
			Optional external braking resistor
			Reduce the load
			Increase drive capacity
Err13	Undervoltage	Low input voltage	Check if the power supply voltage is normal
			Check whether the main circuit power is powered on.
Err14	Overload	Poor contact of servo motor wiring and encoder wiring	Check servo motor and encoder wiring
		Mechanical factor	Check and check the mechanical transmission ratio
		The electromagnetic brake is not released and runs	Check the electromagnetic brake wiring
		Load too heavy	Reduce the load
			Increase drive capacity
Err16	Repeat input terminal settings	Input terminal repeat definition	Need to be reset to avoid duplicate definitions
Err17	Speeding	Servo motor speed exceeds maximum speed	Servo motor speed exceeds maximum speed
Err19	Encoder line disconnection	Servo encoder line break	The encoder is broken or damaged
Err20	Emergency stop	The input terminal logic setting with ESP function is inconsistent with the wiring method	Check wiring or modify terminal logic settings
		Input terminal hardware with ESP function is damaged	Set this function to other input terminals or contact us
Err24	Driver overheat	Ambient temperature is too high	Improve ventilation
		The heat sink is too dirty	Clean the air inlet and outlet and heat sink
		Fan stuck in foreign object	Remove foreign matter
		Fan damage	Replace the fan
		Unreasonable installation of the drive, such as poor ventilation, incorrect installation direction, etc.	Install as required
		Overloaded	
		Excessive energy	
Err27	Find the origin timeout error	Find the origin timeout	Find wiring or try to increase the search time and speed
Err28	Energy consumption brake error	Brake resistor parameter error	Change parameter value
		Continuous braking time is too long	Check the load, the servo can only drive non-potential loads
Err29	Motor stall protection	Stalled during motor operation	1. Check if the mechanical structure is stuck; 2. Whether the motor power line is off; 3. The motor is blocked during operation; 4. The load is too heavy and exceeds the allowable torque of the motor; 5. Motor power line wiring is incorrect